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Archaeological Evaluation

Castle Street Mills and
Tame Foundry,
Castlestree,
Stalybridge

Client:
Rowlinson Construction
Ltd

Planning Ref:
17/00019/FUL

Technical Report:
Sarah Mottershead and
Ian Miller

Report No:
2017/32



Site Location: The study area lies on Castle Street in Stalybridge, Tameside

NGR: Centred on NGR SJ 96216 98484

Project: Castle Street Mills and Tame Foundry, Stalybridge

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Summary

In April 2017, Salford Archaeology was commissioned by Rowlinson Construction Ltd to carry out an archaeological investigation of land at Castle Street in Stalybridge, within the Tameside district of Greater Manchester (centred on NGR SJ 96216 98484). The work was carried out in accordance with a Written Scheme of Investigation produced by Salford Archaeology in March 2017, and was undertaken in order to fulfil a condition attached to planning consent for the redevelopment of the study area (Planning Ref: 17/00019/FUL).

The scope of the archaeological investigation of the site was guided by a desk-based assessment that was produced by Salford Archaeology in 2016 to support the planning application. This assessment concluded that there was a possibility of archaeological remains surviving within the proposed development area relating to the early / mid-19th-century Castle Street Mills complex, and the mid-19th-century Tame Foundry.

In the first instance, the archaeological resource of the site was tested by the excavation of four evaluation trenches, which were placed across the footprint of buildings of potential archaeological interest, and specifically an engine house built in 1827 for the Castle Street Mills, and the main processing areas of the later iron foundry. The trenches also aimed to elucidate further information on the power-transmission system from an engine house added to the mill complex in the mid-19th century; this building survives as the only extant structure on the site, and is afforded statutory protection as a Grade II listed building.

The archaeological remains uncovered within a trench placed in the north-western corner of the site, across the footprint of the 1827 engine house for Castle Street Mills, were deemed to be of sufficient significance to merit further excavation. This exposed part of the original mill floor and the engine room with *in-situ* engine beds, together with part of a chimney. Later flues had re-used the chimney until it eventually went out of use and was blocked. A large drain was found to extent from the back of the engine house to the River Tame, and was perhaps intended for the discharge of condensate from the engine. However, it was evident that much of the engine house's footprint, together with the associated boiler house, extended beyond the western boundary of the development site, and was thus not available for excavation.

The other evaluation trenches uncovered remains of a late 19th- or early 20th-century basement with a passage heading towards the front of a standing engine house for Castle Street Mills, although there was no firm evidence for an underground power shaft between the engine house and the site of the adjacent spinning block. The trenches placed across the Tame Foundry exposed fragmentary remains of several walls, drains and floor surfaces, but yielded little evidence for the iron-founding processes, and thus was not subject to any further investigation.

1. Introduction

1.1 Background

In April 2017, Salford Archaeology was commissioned by Rowlinson Construction Ltd to carry out an archaeological evaluation on land at Castle Street, Stalybridge. The evaluation was carried out in accordance with a Written Scheme of Investigation produced by Salford Archaeology in March 2017 and was undertaken in order to fulfil a condition placed on the planning permission for the redevelopment of the site (Planning Ref: 17/00019/FUL).

A desk-based assessment produced by Salford Archaeology in 2016 concluded that there was the possibility of archaeological remains surviving within the study area relating to the early 19th-century Castle Street Mills complex, and the mid-19th-century Tame Foundry.

Following the excavation of the four evaluation trenches, it was concluded that the remains uncovered in a trench placed across the footprint of an early 19th-century engine house associated with the Castle Street Mills were sufficiently significant to merit further archaeological investigation. This area was stripped as an open-area excavation and the surviving remains of fully recorded to mitigate their ultimate loss during the construction works required for the proposed development.

1.2 The Setting

The study area comprises a parcel of land at the north side of Castle Street, Stalybridge, in the Tameside district of Greater Manchester (centred on NGR SJ 96216 98484). It is bounded at south by Castle Street, at the east by Back Melbourne Street and at the north by the River Tame. To the west lies the apartment complex of Pattern House (Figure 1, Plate 1).

The Site Area occupies land with a slight incline to the south, the south standing at 113 above Ordnance Datum (aOD) and the north 111m aOD. It comprises rough waste ground with some evidence of fly tipping. A mid-19th-century brick-built engine house survives extant at the north-west side of the area, and is afforded statutory protection as a Grade II listed building. A large heap of rubble and refuse has been mounded up to the south of the listed engine house. The site is surrounded by a metal fence on all sides with an entrance gate at the south off Castle Street.

The underlying solid geology of the Site Area, as mapped by the British Geological Survey at 1:50000, is comprised of Pennine Lower Coal Measures Formation comprising Mudstone, Siltstone and Sandstone. The overlying drift geology is comprised of Glaciofluvial Sheet Deposits, Devensian sand and gravel (<http://www.bgs.ac.uk>).



Plate 1: Recent aerial view of the site (marked in red)

1.3 Personnel

The on-site works were carried out by professional archaeologists from Salford Archaeology. The evaluation was directed by Simon Hinchliffe, assisted by Sarah Mottershead, Graham Mottershead and Oliver Cook. The report was written by Sarah Mottershead, who also compiled the Sarah Mottershead. The project was managed by Ian Miller.

1.4 Monitoring

Norman Redhead of Greater Manchester Archaeological Advisory Service (GMAAS) monitored the archaeological works on behalf of Tameside Metropolitan Borough Council.

2. *Historical Background*

2.1 *Introduction*

A desk-based assessment carried by Salford Archaeology to support the planning application for redevelopment highlighted the archaeological interest in the site (Salford Archaeology 2016). The following historical background is summarised briefly from that document.

2.2 *Historical Background*

The origins of Castle Street Mill can be traced to 1805, when local textile manufacturer George Cheetham obtained 3330 square yards of undeveloped land on Castle Street Meadow to establish a new textile mill (Haynes 1990, 19-20). The first component of the mill complex is thought to have been a relatively small building of non-fireproof construction that was placed parallel to the River Tame, in the north-western part of the Cheetham's land holding (and beyond the western boundary of the present development site). The mill was evidently a financial success, as a new mill was added to the site in 1819, placed at a right angle to the original mill (and again beyond the present development site). This new mill comprised two buildings that were of an improved 'fireproof' design, comprising a cast-iron frame with iron columns and beams that supported brick jack-arches (Williams 2001). The largest of the two new mill blocks was four-storeys high, plus an attic, and was powered by a 36hp beam engine that was placed at the north-western end of the building (Plate 2).

Further expansion of the mill site was enabled in 1821, when George Cheetham obtained a lease for land to the east of their existing mills, incorporating the present development area. Whilst the lease stipulated that this portion of Castle Mill Meadow was to remain open and unbuilt upon, it was developed in 1827 as the site of another new spinning block, which went into production during the following year (PP XX 1833, D1, p 43). The new mill was placed along the southern bank of the River Tame, and was powered by a 20hp marine engine (Matrix Archaeology 2003a). This was supplied by the leading engineering firm of Boulton & Watt, and was housed at the western end of the new spinning block, occupying the north-western corner of the present development site (Plate 2).

These three phases of initial development created a large mill complex that essentially conformed to an L-shaped plan, with the longest range extending along the river bank. This layout is captured on a *Map of the Town of Stalybridge*, produced in 1839-46 (Plate 4). This plan also shows a small L-shaped range abutting the south-facing elevation of the 1827 spinning block; this building was replaced in the later 19th century by another new spinning block.

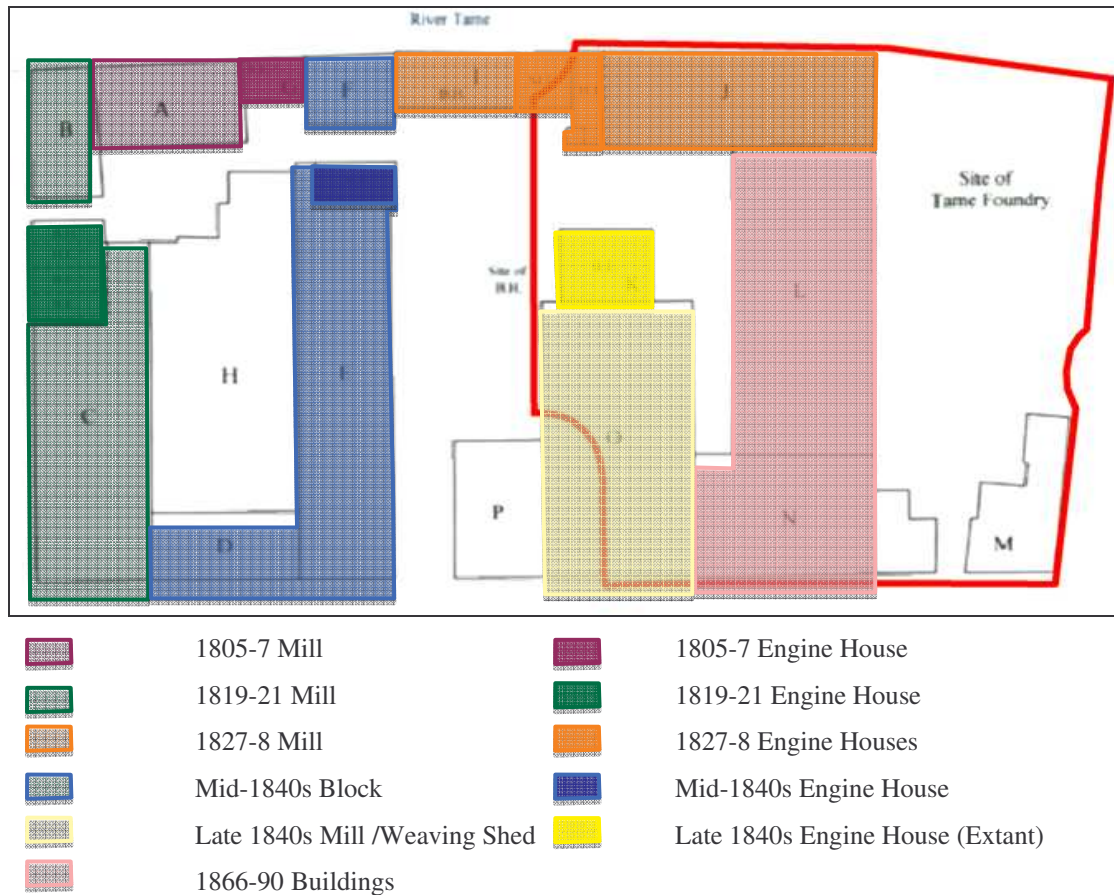


Plate 2: Site boundary superimposed on a plan of the Castle Street Mill complex, showing its chronological development (base plan taken from Williams 2001)

The eastern part of the development site was occupied in the mid-19th century by the Tame Foundry. It is not known precisely when the foundry was established, although it is likely to have been during the mid-1830s. It is shown on the Stalybridge town map of 1839-46 as a large block along the northern edge of the site, with a narrow range aligned north/south along the eastern boundary, creating an overall L-shaped plan (Matrix Archaeology 2003a).

A slightly different configuration of buildings is shown on another, broadly contemporary plan of the area (Plate 3). Whilst the plan is undated, it is likely to have been produced during the 1830s or early 1840s, but certainly before the Sheffield, Ashton-under-Lyne & Manchester Railway was opened to Stalybridge in 1845. This map shows the main blocks along the bank of the River Tame, together with the range of 1819-21 that was erected along the western boundary of the site. A block aligned parallel with the 1819-21 range is also shown, creating an enclosed courtyard at the western end of the mill complex. Curiously, the small L-shaped range that is depicted on the 1839-46 map is not shown, and nor is the Tame Foundry.



Plate 3: Castle Street Mill site shown on a plan of Stalybridge that is undated, but was probably produced during the 1830s or early 1840s (DDS/1464)

An entry in a trade directory for 1841 list William Millburn as a brass and iron founder on Castle Street (Pigot and Slater 1841, 141), which is corroborated by a reference dating to 1848 that similarly identifies Millburn as an iron and brass founder at the Tame Foundry, Castle Street (Hill 1907, 64).

The next available detailed plans of the mill are provided by Thomas Hill's survey of 1850, and the Ordnance Survey 1:10560 map that was published in the same year. These both show that the site had been developed fully. The Ordnance Survey annotates the 'Tame Foundry (Iron and Brass)', and depicts the works as a group of buildings arranged around an enclosed central courtyard. The Castle Street Mills are also shown to have expanded into the site, with a large north/south-aligned range erected across the centre of the site, and a parallel range abutting the western side of the foundry buildings (Plate 2, Buildings O, L and N). These buildings were subject to an archaeological survey in 2003 (Matrix Archaeology 2003b). The building across the centre of the site (referred to in the 2003 report as Building O) measured 37.55 x 18.28m, and took the form of a single-storey shed, with a pair of north/south pitched roofs. It appeared to have originated as a stand-alone structure. The east and west walls contained walk-in windows, all of which had been infilled, and seemed to extended northwards originally, possibly to encapsulate in plan the attached engine house at the northern end. The south wall contained segmented arched windows with sandstone lintels.

A rate book of c 1859 indicates that the foundry was still occupied by William Millburn, and identifies the various component buildings of the foundry, including rooms above the entrance from Castle Street that were used as offices. Of particular interest is a plan that was drawn up to accompany the written record (Plate 4). This identifies the large block parallel and adjacent to the River Tame as a single-storey foundry, together with two adjacent structures. The main foundry building was abutted on its southern side by a single-storey boiler house, with a two-storey smithy situated adjacent to one of the other foundry buildings along the eastern side of the works (Plate 4). Other components of the foundry comprises a two-storey stable block, a single-storey filing room and two-storey offices and pattern rooms.

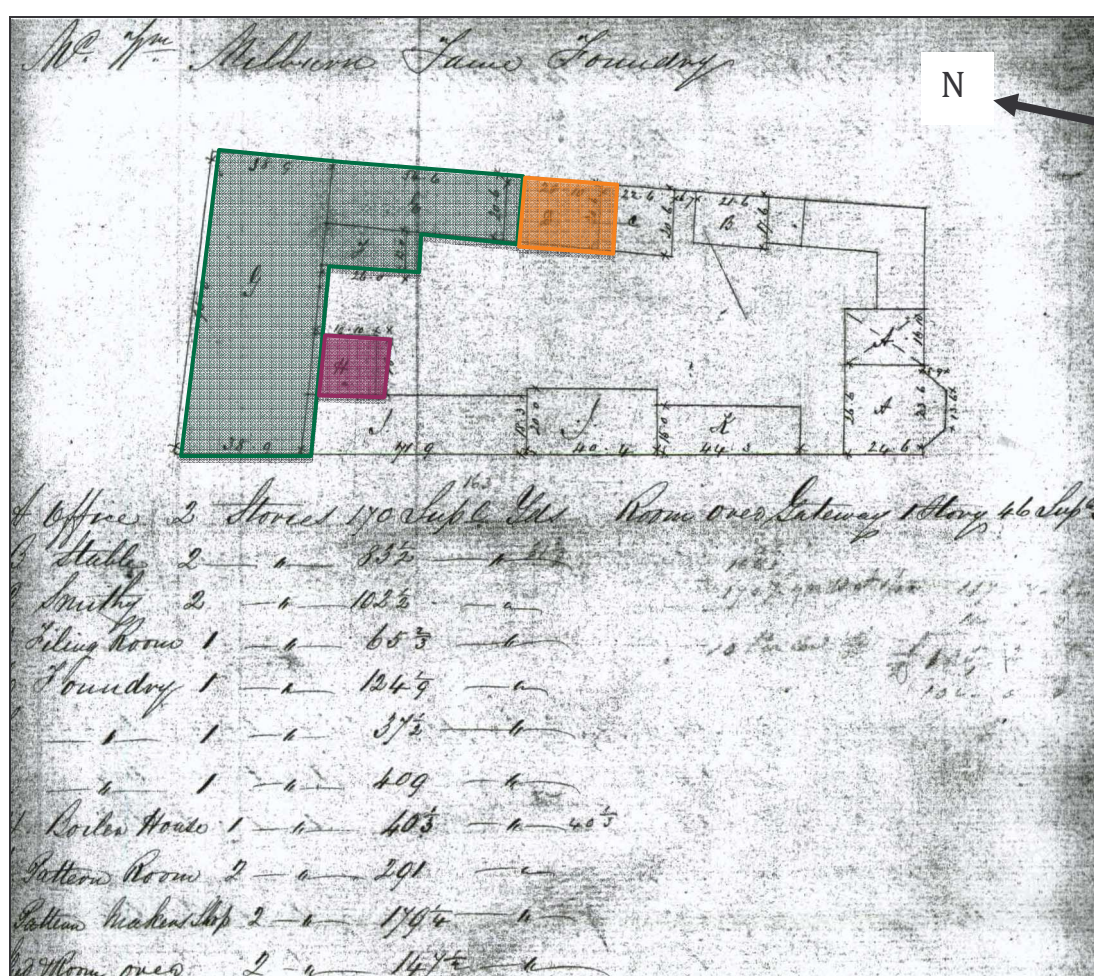





Plate 4: Plan of Tame Foundry c.1859 (reproduced from Matrix Archaeology 2003)

-  Foundry Buildings
-  Smithy
-  Boiler House

After the death of William Millburn in 1866, the Tame Foundry was acquired by John Cheetham, the owner of Castle Street Mills. It appears that the foundry became an integral part of the mill complex thereafter, and may have provided structural cast-iron and steel components used in rebuilding works at Castle Street Mills after that date. The foundry retained its enclosed courtyard arrangement, which is shown on the 1875 edition of Ordnance Survey mapping, although the building is not named.

The 1890 Ordnance Survey map shows that the northern half of the foundry yard had been infilled. The same arrangement is shown on the 1932 map. The range fronting Castle Street and the large block in the northern half of the site are still shown on the 1966 Ordnance Survey map.

The layout of the buildings within the Site Area during the late 1980s is captured on an aerial photograph that was taken as part of the Greater Manchester Textile Mills Survey (Plate 5). This shows that most of the component buildings of the Castle Street Mill complex survived extant, together with the former Tame Foundry buildings along the bank of the River Tame.



Plate 5: Aerial photograph of Castle Street Mills taken in 1988 (reproduced courtesy of GMAAS)

3. Methodology

3.1 Excavation Methodology

Prior to the commencement of the evaluation trenching, the Client provided Salford Archaeology with service plans for the area, and the areas of trenching were scanned with a Cable Avoidance Tool. Four evaluation trenches were excavated, as outlined in the approved Written Scheme of Investigation (*Appendix 2*). The trenches were excavated using a tracked excavator fitted with a 1.8m wide toothless ditching bucket. Spoil was placed next to the excavated trenches, and was then backfilled on completion of the evaluation.

Following the excavation of the evaluation trenches it was decided in consultation with the Greater Manchester Archaeological Advisory Service (GMAAS) that the remains uncovered within Trench 1 in the north-western part of the site were of enough significance to merit further excavation and recording. This area was then mechanically stripped using a tracked excavator, hand cleaned and recorded. The positions of the excavation trench and evaluation Trenches 2, 3 and 4, are shown in Figure 2.

3.2 Recording Methodology

Separate contexts were recorded individually on Salford Archaeology *pro-forma* trench sheets. The trench was located and planned by total station theodolite using EDM tacheometry. Levels were established using an Ordnance Datum height taken from a spot height on Store Street.

Photography of all relevant phases and features were undertaken in digital format using a digital SLR camera. General working photographs were taken during the archaeological works, to provide illustrative material covering the wider aspects of the archaeological work undertaken.

All fieldwork and recording of archaeological features, deposits and artefacts were carried out to acceptable archaeological standards. All archaeological works carried out by the CfAA are carried out to the standards set out in the Code of Conduct of the Chartered Institute for Archaeologists.

4. Evaluation Results

4.1 Introduction

The evaluation consisted of the excavation of four trenches, placed across the footprint of former buildings of potential archaeological interest. Trenches 1 and 2 were targeted over an engine house added to the Castle Street Mills complex in 1827, and the between the extant engine house of c 1844 and the footprint of the spinning block that it served in order to establish any evidence for power transmission between the two buildings. Trenches 3 and 4 were placed across the main processing areas of the Tame Foundry.

4.2 Trench 1

Trench 1 was excavated initially as an evaluation trench to investigate the 1827 engine house, and expanded subsequently (Figure 3). The trench was irregularly shaped and aligned north-east/south-west. It measured roughly 18.75 x 10.35m, and was excavated to a maximum depth of 2.5m (Plate 6).

Natural light brown sandy clay (*126*) was observed at a depth of 1.3m, in a slot at the south-east side of the excavated area. The trench was overlain 0.08m of grass and poor soil (*100*) with varying depths of rubble overburden (*101*) below. The engine house and the adjacent spinning block that it had served had been infilled with loose stones (*102*). At the north-east side of the trench, below the overburden, was an area of flagstones (*104*), revealed at a depth of 0.23m below the current ground surface and bedded onto rubble and cinders (*114*). Three 0.23m diameter cast-iron column bases were observed set into this surface, and the bases of two window were exposed on its south-east side. These features clearly represented the floor of the spinning block.



Plate 6: The flagstone floor (*104*) and column scars in the 1827-8 spinning block, looking south-west

The floor was bounded to the south by a 0.65m wide brick wall (**103**) of hand-made bricks set in a sandy mortar, representing the south wall of the 1827-8 spinning block. This wall ran south-west for 9m, and was built onto a foundation of stone blocks (**112**), which was 1.5m deep (Plate 7).



*Plate 7: The south wall (**103**) and stone foundation (**112**) of the spinning block, looking north-east*

At its south-western side, flagstone floor **104** was bounded by a 0.34m wide hand-made brick wall (**105**), which ran from the south-west end of wall **103** north-west into the trench edge. These two walls and the brick floor formed the south-west corner of the main mill spinning floor, with the three column bases presumably representing the centre line of mill. A small section of machine-made brick flooring (**106**) laid in a herring-bone pattern had survived on top of the flagstones suggesting that, at least in part, later flooring had been laid (Plate 8). The stone foundations (**112**) for wall **103** continued south-west beyond that wall for a further 3.5m, and at this point had been widened. Beyond this, wall **103** continued for 2.3m before being truncated by later flue **115**.

Running parallel to wall **105**, 2.7m to the south-west, was hand-made brick wall **111** that had been built onto stone-block foundations **125**, forming the eastern wall of the 1827 engine house. Part of this wall had been rebuilt above the stone foundations with a steel joist laid on top of the stone, a course of refractory brick above this and machine-made brick on top. This ran north-west from the south-west end of stone wall **112**, into the trench edge and had been truncated in places by later activity (Plate 9).



Plate 8: Herringbone brick floor 106, looking south



Plate 9: Brick and stone wall 111/125, looking north-east. Joist and re-build at top left

Between these walls, the space was divided by a narrow partition (**109**) of hand-made bricks, which was a single course wide and aligned north-east/south-west. To the south-east of this was a further single-course hand-made brick wall (**110**), which ran south-east for 2.8m then turned south-west for 0.7m and again south-east. This created two narrow passages within this south-east room, with flagstones **108** surviving within the north-east passage. It may be that the north-east passage was the bottom of a flight of stairs with the south-west passage affording access to the stairs, and also possibly into the mill. The area to the north-west was too small to be excavated, and was filled with a compact mix of stone rubble, brick rubble and cinders **107** (Plate 10). This area was later excavated mechanically to a depth 2.5m to establish whether this area housed a footstep bearing for a vertical shaft into the spinning block, but no evidence of any structures survived.



*Plate 10: Central area with walls **109** and **110**, and flagstones **108**, looking south-east*

To the south-west of this area was a 4.86m wide room, representing the engine house built in 1827. The eastern wall of this room was formed by wall **111/125**. The southern wall had been largely removed by later flue **115** and drain **120**. Within this room was a large 2.54 x 2.17m base of rough stone block (**124**), 1.5m in height. Extending from the north-west corner of this block was a 0.7m high and 0.8m wide wall of more stone blocks (**123**; Plate 11).



Plate 11: Stone base 124 and stone wall 123 within the engine room, looking south-west

The area between walls **123** and **111/125**, and base **124**, was filled with stone chippings and natural clay was observed below them at a depth of 2.5m below the current ground surface. Situated to the west side of wall **123** was an engine bed (**122**) that comprised three stone blocks. One lower block was aligned north-west/south-east and was set against wall **123**. The other two blocks flanked this, one at either end, and were set 0.3m higher, running south-west from the lower block. These all sat on a base of several blocks all held together with iron holding-down bolts. The south-east block had a bolt at either end with two square recesses between them, one at either end, and a small rectangular recess in the centre of the block. The north-west block was slightly wider and had two iron bolts at either end, slightly offset from centre, with two square recesses at either end. Between the bolts, flanking the centre line, were two further square recesses at the north-west side and a small rectangular recess in the centre (Plate 12).

Situated to the immediate south-east of the engine bed and south-west of the stone base were the remains of a 2.3m square hand-made brick chimney (**118**). This had a number of repairs in both hand- and machine-made brick, and appeared to have been re-used by flue **115**, entering at its south-east side which had later been blocked with machine-made brick (Plate 13).



Plate 12: Engine bed 122, looking north-west



Plate 13: Brick chimney 118 to north of the stone base, looking west. Modern brick blocking at left

After the engine had gone out of use, the room had been narrowed with a 0.5m wide machine-made brick wall built on top of the north-east edge of the engine beds and the area to the south-west of the brick wall, between it and drain **120**, filled in with rubble and cinder. This reduced the width of the former engine room to 3.1m (Plate 14).



Plate 14: Later brick wall built above the engine bed, looking south-west

To the south-east of the exterior of the mill, at the south-west end, was a machine-made brick flue **115** with dark ash-based cement bonding. This ran north-west towards chimney **118**, the south-east side of which had been modified to allow entry by the later flue. This had truncated the exterior south-east wall of the mill at this point (Plate 15).

Situated to the south-west of the flue, and also seeming to utilise the chimney, was a second machine-made brick flue (**117**) with heat-blackened tiles at its base. This approached the flue from the south-west, and had been truncated by a modern trial pit (Plate 16).



Plate 15: Brick flue 115, looking north-west. Blocking of chimney entry at top



Plate 16: Tiled flue 112, looking east

Two truncated stubs of machine-made brick walling, *119* and *121*, ran south from this flue and between them was the remains of a concrete base (*127*) with two holding-down bolts. A cast-iron pipe (*116*) had cut through the top of flue *115*. The entry point for both flues into the chimney had been blocked with machine-made brick (Plate 17).



Plate 17: Cast-iron pipe 116, looking east

Running from south-east to north-west at the far south-west side of the trench was a large brick and stone drain (*120*). It was 2m wide and had machine-made brick walls capped with substantial stone blocks 0.15m thick. The drain was not excavated fully, but silt was observed at a depth of 0.9m and a 1m ranging rod pushed into the silt did not hit a solid base. Part of the drain had been truncated by a modern trial pit. To the south-east it appeared that the drain would run along the rear of the currently standing listed engine house. It headed north-west, dropping lower to the north-west of the excavation trench and exiting into the River Tame (Plate 18).



Plate 18: Stone-capped brick drain 120, looking north-west

A machine slot was excavated alongside the exterior mill wall **103/112**. This revealed the depth of the stone foundations and showed natural clay at 1.5m. Also observed within this slot was a short stretch of hand-made brick walling **113** running south-west. The interior side of this wall was soot blackened and it may represent an original external below ground flue heading towards the chimney (Plate 15).



Plate 19: Truncated brick flue 113, looking south

4.3 Trench 2

Trench 2 was aligned north/south to the north-east of the standing engine house, and aimed to investigate whether the power transmission from this engine was above or below ground (Figure 4). The trench measured 13.6 x 1.9m, and was excavated to a maximum depth of 1.6m (Plate 20).



Plate 20: General shot of Trench 2, looking north

The trench was overlain with concrete **200**. Below this, at the south end of the trench was mixed demolition rubble **201** and, across the north, mixed brick rubble **202**. Below this, at the south end of the trench, was a 1.44m wide spread of sandstone cobbles (**212**), laid onto a bedding layer of orange sand and brick rubble (**214**); Plate 17). At the southern edge of the cobbles was a 0.61m wide concrete beam.



Plate 21: Cobbled surface 212, looking east

The central 5.17m of the trench comprised a brick-walled basement. This had been filled with rubble, sand and ash **208** and was 1.6m deep. It was surrounded by machine-made brick walls bonded with hard dark cement. The walls were 0.48m wide with **211** at the south side, **210** at the west and **206** at the north. The east external wall (**208**) was not visible in plan as it was below the concrete capping. All the walls were founded on crushed brick. No floor was observed within the basement, with natural sand and gravel **205** visible at the base (Plate 22).



Plate 22: Basement room, looking south

At the eastern side of the centre of the basement was a 0.61 x 0.9m block (207) of machine-made brick, 0.5m in height, which abutted wall 208. Running parallel immediately next to east wall 208 was a short stretch of hand-made brick walling (209), which was truncated by block 207 at its south end and by wall 206 at the north (Plate 23). In the centre of west wall 210 was a 0.78m wide rubble-filled passage running west, exactly in line with the entrance into the standing engine house (Plate 24). However, there was insufficient evidence to demonstrate conclusively that this represented part of a conduit for a transmission shaft between the engine house and the former spinning block.



Plate 23: Block 208 and truncated wall 209, looking east



Plate 24: Passage in wall 210, looking south-west

Running east/west across the trench, 1.68m to the north of the basement, was a concrete beam (204). This was 0.55m below the current ground surface. To either side of this, and below it, was grey brown natural gravel 205 (Plate 25).



Plate 25: Concrete beam 204 and gravel 205, looking south

4.4 Trench 3

Trench 3 was excavated towards the east side of the study area, aligned north/south across part of the former Tame Foundry (Figure 5). It measured 21.5m long, and was 1.8m wide at the south end. In the centre of the trench it widened to 3.3m and at the north end was 5m wide. It was excavated to a maximum depth of 0.8m (Plate 26).



Plate 26: General view of Trench 3 during excavation, looking south

The south end of the trench was overlain with poor-quality turf (**300**) whilst the centre of the trench was covered with tarmac (**301**) and the north end with concrete (**302**). Below these upper layers was a uniform deposit of brick rubble (**303**), presumably post-demolition levelling. In the northern 7.7m of the trench, this covered an expanse of flagstone flooring (**305**), with patches of concrete repair (**306**) and a 0.7m wide block of sandstone cobbles (**307**). This represented part of the working floor of the riverside building of the Castle Street Mills complex, which had originated as part of the Tame Foundry (Plate 27).



Plate 27: Flagstone floor 305, looking north

At the south side of the flagstone floor was a 0.44m wide east/west wall (**308**) of hand-made bricks with lime-based mortar. This ran west for 2.3m, where it abutted a second brick wall (**309**). Wall **309** was also of hand-made bricks, 0.44m wide, with lime mortar and ran south for 4.65m, then turning east for a further 0.54m where it was then truncated. Within these walls, at a depth of 0.8m below the current ground level, natural yellowish-brown sandy-clay **304** was observed (Plate 28).

In the centre of the trench, at the east side, was the western edge of a stone-capped drain (**311**), aligned north/south for 5.14m. Above this, at its northern end, were flagstones **310**, possibly representing the truncated remains of a floor below which the drain ran. Running out 1.27m west from the drain was a 140mm diameter cast-iron pipe (**312**; Plate 29).



Plate 28: Walls 308 and 309, looking south



Plate 29: Flagstones 310, drain 311 and pipe 312, looking east

At 0.84m to the south of wall **309** was another hand-made brick wall (**315**), which was 0.43m wide and ran south-east for 7.47m, running into the south end of the trench. This had two 0.45m square stone blocks (**316**) set into its upper surface, 0.46m apart. This had the remains of flagstone flooring, **317** and **318**, at either side, also running into the trench edges (Plate 30).



*Plate 30: Wall **315**, flagstone floors **317** and **318**, looking north. Stone blocks **316** visible in the centre*

At the south-west corner of the trench, floor **317** had a section of concrete repair (**319**). At the north end of flagstone floor **318**, the natural clay had been cut into with a feature (**314**) that was filled with mixed rubble and cinders and ran below the flagstone floor (Plate 31). The rationale for this feature was not determined.



*Plate 31: Cut feature **314**, visible at left of photograph, looking south-west*

4.5 Trench 4

Trench 4 was excavated at the east side of the study area, across part of the former Tame Foundry (Figure 6). It measured 22.7m in length, aligned north/south, and was 2.2m wide at the south end. The northern 5.7m of the trench were 2.5m wide. It was excavated to a maximum depth of 0.7m (Plate 32).

The southern 17m of the trench was overlain with a mixture of soil and rubble (**400**) with a layer of demolition rubble (**407**) below. The northern part was covered with concrete **401**. The northern 5.7m of the trench, below the concrete, had an even floor surface of flagstones (**404**). This, like that in Trench 3, had repairs in concrete (**405**) and was part of the same mill floor of the Castle Street Mills complex. As both of these were covered with concrete, it is likely that the floor of this building was re-laid (Plate 33).



Plate 32: General view of Trench 4, looking north

At the southern edge of the flagstone floor was the exterior wall (406) of the building, composed of hand-made brick. This was aligned east/west, was 0.42m wide, and bonded with lime-based sandy mortar (Plate 34).



Plate 33: Flagstone floor 404, looking south



Plate 34: Wall 406, looking west

Running south from this wall, along the east side of the trench, was a substantial brick drain (413) with a stone capping (412) at 0.35m below the current ground level. This had hand-made brick sides and a flagstone capping, and continued south for 9.95m. At its widest point, it measured 1.2m and was not bottomed at a depth of 0.9m (Plate 35).



Plate 35: Stone-capped drain 412/413, looking north

The area at the west of this drain was excavated down to natural orange-brown sandy clay (403) at a depth of 0.7m. Two features had been cut into the natural at the north end of the slot. The first was a 0.73m wide rectangular cut (409), which was filled with crushed brick and sandstone fragments (Plate 36).



Plate 36: Cut feature 409, looking north

At 1.12m to the south of this was a second cut feature. This was a 1.97m wide rectangular cut (**411**) filled with a black silty sand with brick fragments and oil. It contained 20th-century pottery, pieces of black plastic bag, a soft drink can and crisp packets (Plate 37). This may be the result of geotechnical trial pitting in this area.



*Plate 37: Cut feature **411**, looking south*

At the south end of the trench was a flagstone floor, **416**, exposed at a depth of 0.56m. Cutting north-east/south-west across this was a service trench, **414**, filled with sand and brick rubble, **415** (Plate 38).



Plate 38: Flagstone floor 416, looking north. Service cut 414 visible at top of photograph

4.6 Finds

The only finds recovered from the excavated trenches comprised modern materials and a few fragments of 20th-century pottery. None of these artefacts were of any archaeological interest, and were not retained.

5. Discussion

5.1 Research Initiatives

Stalybridge has a rich heritage of textile manufacturing and, from the 19th century, iron founding. However, there are very few accounts of these industries, and their importance on a local and regional platform is not well represented in published histories of the town. The programme of archaeological investigation on Castle Street has provided a valuable opportunity to investigate the physical remains of an important textile-mill complex, and a small iron foundry, cumulatively representing the key characteristic of a new industrialised urban landscape that emerged during the early decades of the 19th century.

The programme of archaeological investigation at the site of Castle Street Mills had potential to inform several of the initiatives for archaeological research of the industrial and modern periods stated in the current *Archaeological Research Framework for North West England* (Newman and McNeil 2007; McNeil and Newman 2007). In particular:

- *Initiative 7.21*: Inform ‘an overview of the impact on the historic landscapes of the new towns of the Industrial Revolution and the new monument types developed within them’ (Newman and McNeil 2007, 146);
- *Initiative 7.35*: ‘Industry specific studies are needed for those industries that have received little archaeological attention’ (McNeil and Newman 2007, 154).

More specific initiatives for archaeological research have been formulated recently by the *Historical Metallurgy Society* (Bayley *et al* 2008). Those initiatives that have been identified as high priority, and relevant to the present study area, include:

- ‘the study of nineteenth-century ironworks, especially the foundry and forge sectors’ (*op cit*, 69);
- ‘recording of eighteenth- and nineteenth-century brass production sites outside Bristol’ (*ibid*);
- ‘to record adequately and fully publish all metallurgical-important sites whose preservation cannot be guaranteed’ (*ibid*).

5.2 Castle Street Mills

The investigation of Castle Street Mills was focused on the engine house that served a mill block erected in 1827. Documentary evidence has shown that this building housed a 20ihp marine-type steam engine that was supplied by the leading engineering firm of Boulton & Watt. This engine is thought to have been a side lever model, as shown on the original design drawings that survive in the Boulton & Watt Archive in the Library of Birmingham (Portfolio 1058). These drawings indicate that the engine delivering rotary power to two vertical shafts, each set against the outside of engine house walls.

The drawings suggest that the engine house may have also contained a second engine, which was similarly a marine type, together with an associated wagon boiler rated for 50hp. The boiler house is shown to have been placed to the west of the engine house.

One of the objectives of the archaeological investigation was to confirm the detail shown on the original design drawings, and establish whether two engines had indeed been installed in this part of the mill complex. However, excavation revealed that only a small part of the engine house lay within the proposed development area, with most of the former building being situated in the adjacent site to the west, together with the boiler house. Whilst the excavation revealed some substantial stone blocks, which almost certainly represented the foundation beds for one of the steam engines, it was not possible to examine the whole interior of the former engine house and corroborate the suggestion that the building had housed two engines.

It is possible, however, to offer some tentative interpretations regarding the internal layout of the 1827 engine house. Large stone blocks **122** clearly represent the foundation beds for a steam engine, and their configuration is consistent with a marine-type engine as opposed to a standard beam engine. Marine engines still required a working beam, and it is possible that this was supported by wall **123**, representing the ‘bob wall’. The flywheel may have been situated on the western side of wall **123**, with stone foundation **124** housing the transmission gearing.

The steam for the engine was raised in a boiler situated to the west of the excavated area. The foundations of the associated brick-built chimney, however, were revealed during the excavation. The position of this chimney, together with other excavated remains of the 1827-8 structures, do not correspond very closely to the footprint of building shown on Hill’s map of 1850. However, this is probably a reflection of the accuracy of Hill’s map, as the excavated remains can be attributed to the 1827-8 extension to Castle Street Mills.

Trench 2 aimed to investigate any physical evidence for a transmission shaft passing underground between the 1844 engine house and a spinning block to the east. Excavation revealed that this part of the site had been subject to remodelling in the late 19th or early 20th century, and whilst there was evidence for a subterranean passage heading towards the engine house, the fabric of the component walls indicated a construction late date.

5.3 *Tame Foundry*

Notwithstanding the perceived archaeological potential of the site, the surviving physical remains of the Tame Foundry that were exposed during the archaeological investigation has not furnished any significant new evidence for the iron-founding processes. This reflects to some degree the remodelling of the foundry complex that was undertaken in the later 19th century, when the buildings were absorbed into Castle Street Mills. The absence of any surviving remains pertaining to iron working may also suggest that the hearths and mechanical plant in the foundry were on or raised above floor level, and were thus removed when the buildings were repurposed.

6. *Archive*

The archive comprises of digital drawings, survey data and digital photographs. This archive is currently held by the Centre for Applied Archaeology.

A copy of this report will be deposited with the Greater Manchester Historic Environment Record, held by the Greater Manchester Archaeological Advisory Service (GMAAS), and a copy will also be deposited with the Tameside Local Studies and Archive Centre.

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7. Acknowledgements

Salford Archaeology would like to thank Rowlinson Construction Ltd, and particularly Mark Frain, Alvin Barker and Mo Edmondson for commissioning the archaeological works and providing support and assistance throughout the project. Salford Archaeology would also like to thank Norman Redhead for providing monitoring support and advice through GMAAS on behalf of Tameside Metropolitan Borough Council.

The on-site excavations were conducted by Simon Hinchliffe, assisted by Sarah Mottershead, Graham Mottershead and Oliver Cook. This report was written by Sarah Mottershead, who also compiled the illustrations. The report was edited by Ian Miller, who was also responsible for project management.

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Appendix 1: Figures

- Figure 1: Site location map
- Figure 2: Trench location plan
- Figure 3: Plan of Trench 1
- Figure 4: Plan of Trench 2
- Figure 5: Plan of Trench 3
- Figure 6: Plan of Trench 4
- Figure 7: Trenches overlaid onto Williams' plan of 2001
- Figure 8: Trenches overlaid onto Thomas Hill's Map of 1850
- Figure 9: Trenches overlaid onto 1850 OS 1:1056 Town Plan
- Figure 10: Trenches overlaid onto 1875 OS 1:2500 County Series
- Figure 11: Trenches overlaid onto 1898 OS 1:2500 County Series

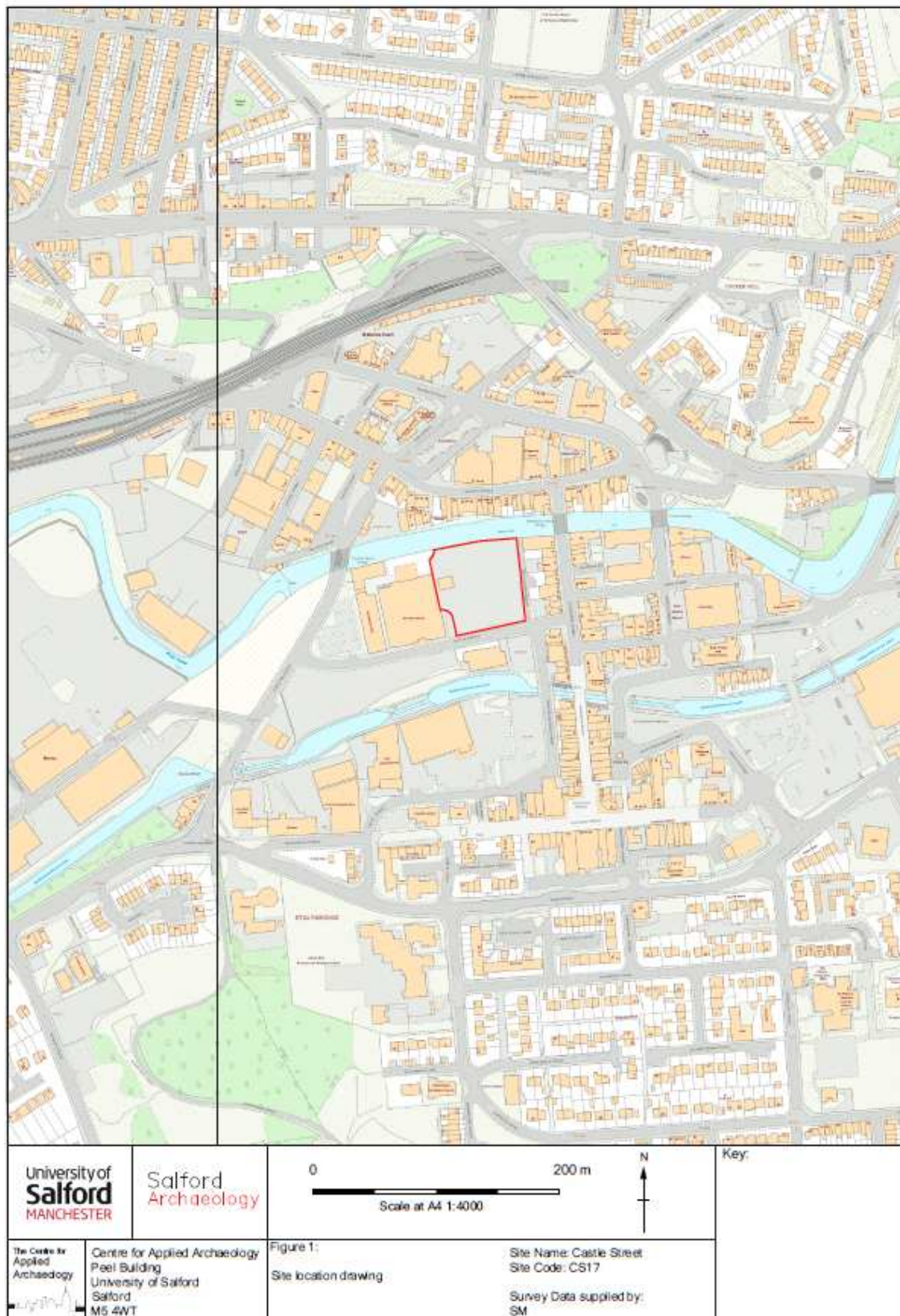


Figure 1: Site location map

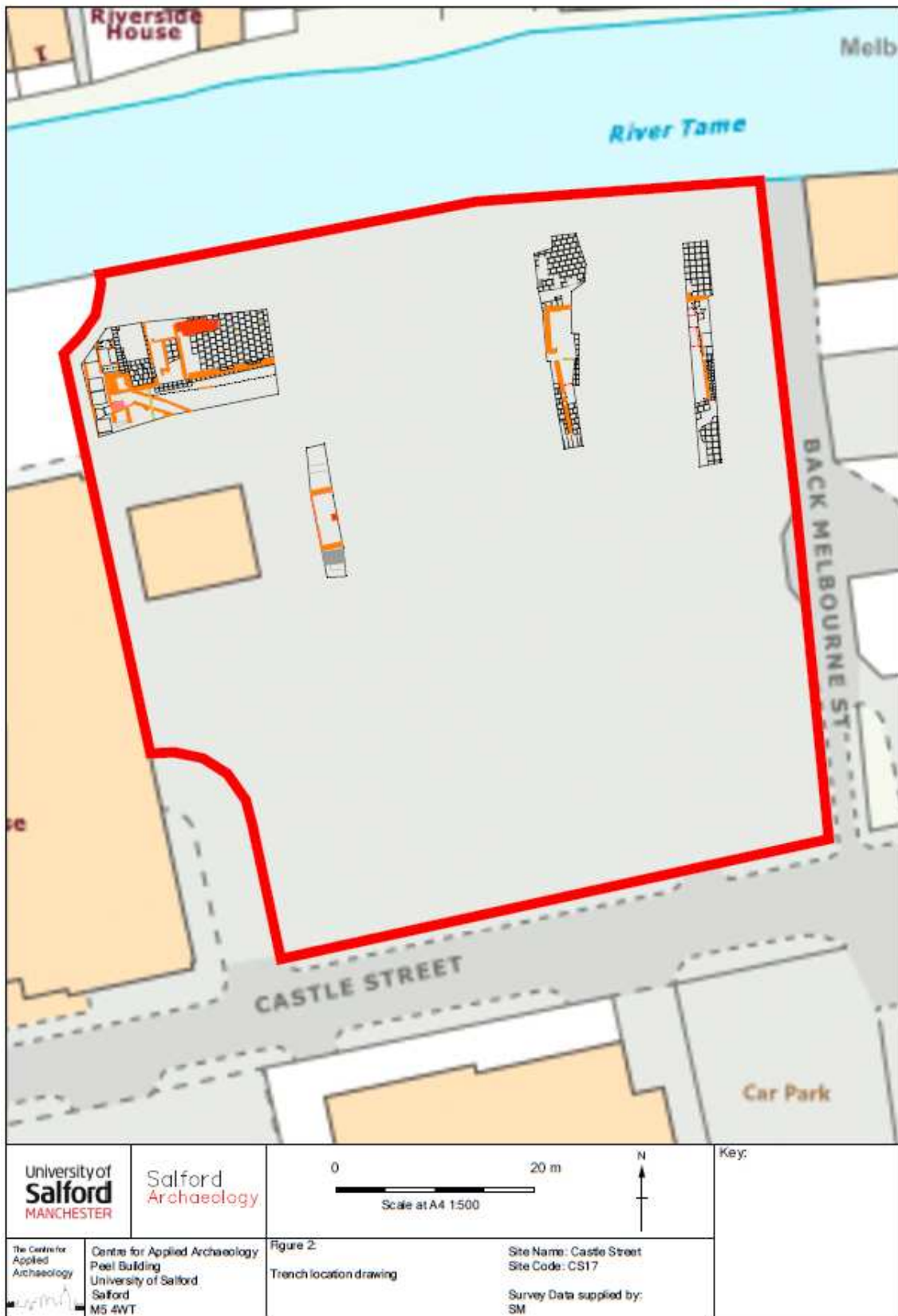


Figure 2: Trench location plan

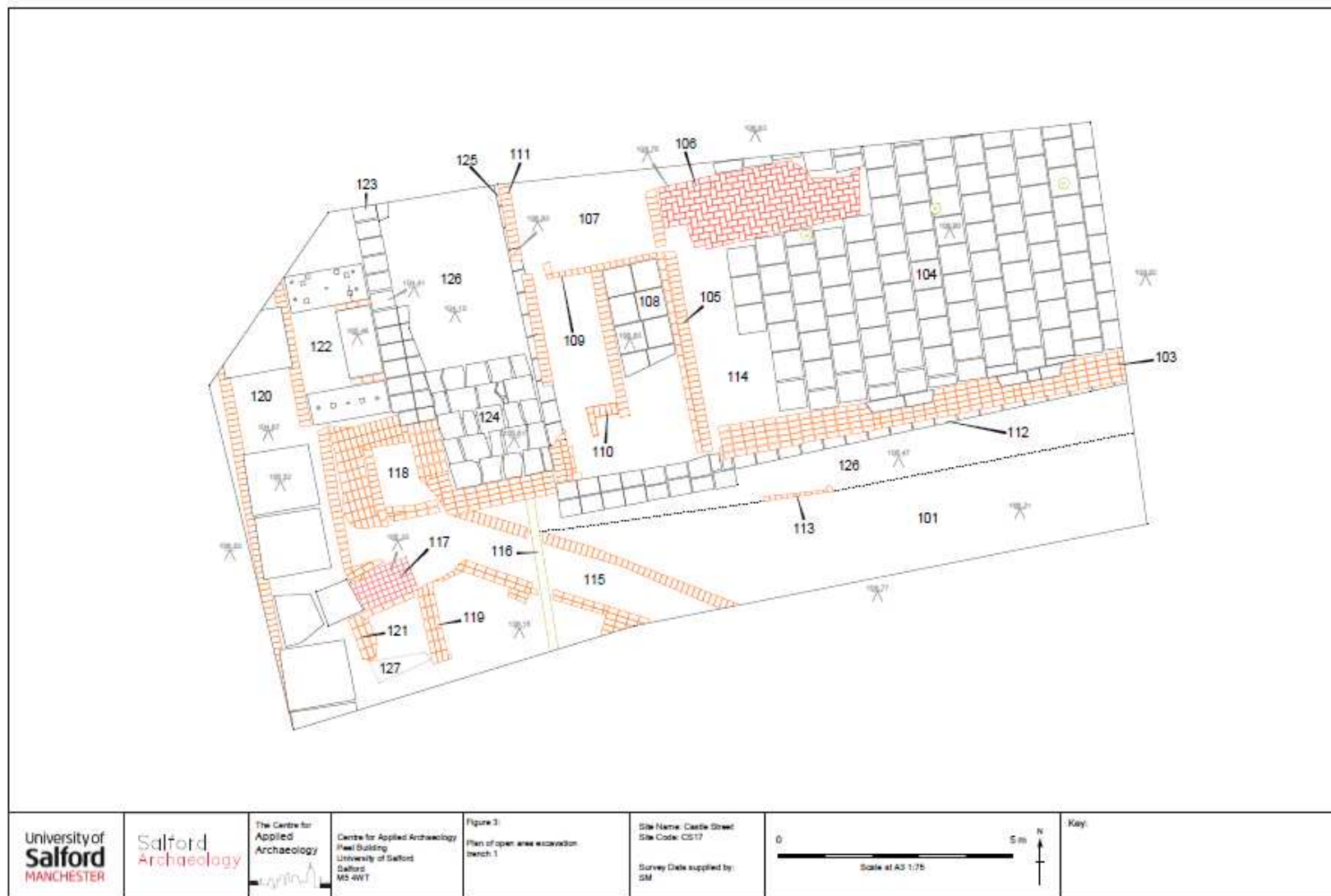


Figure 3: Plan of Trench 1

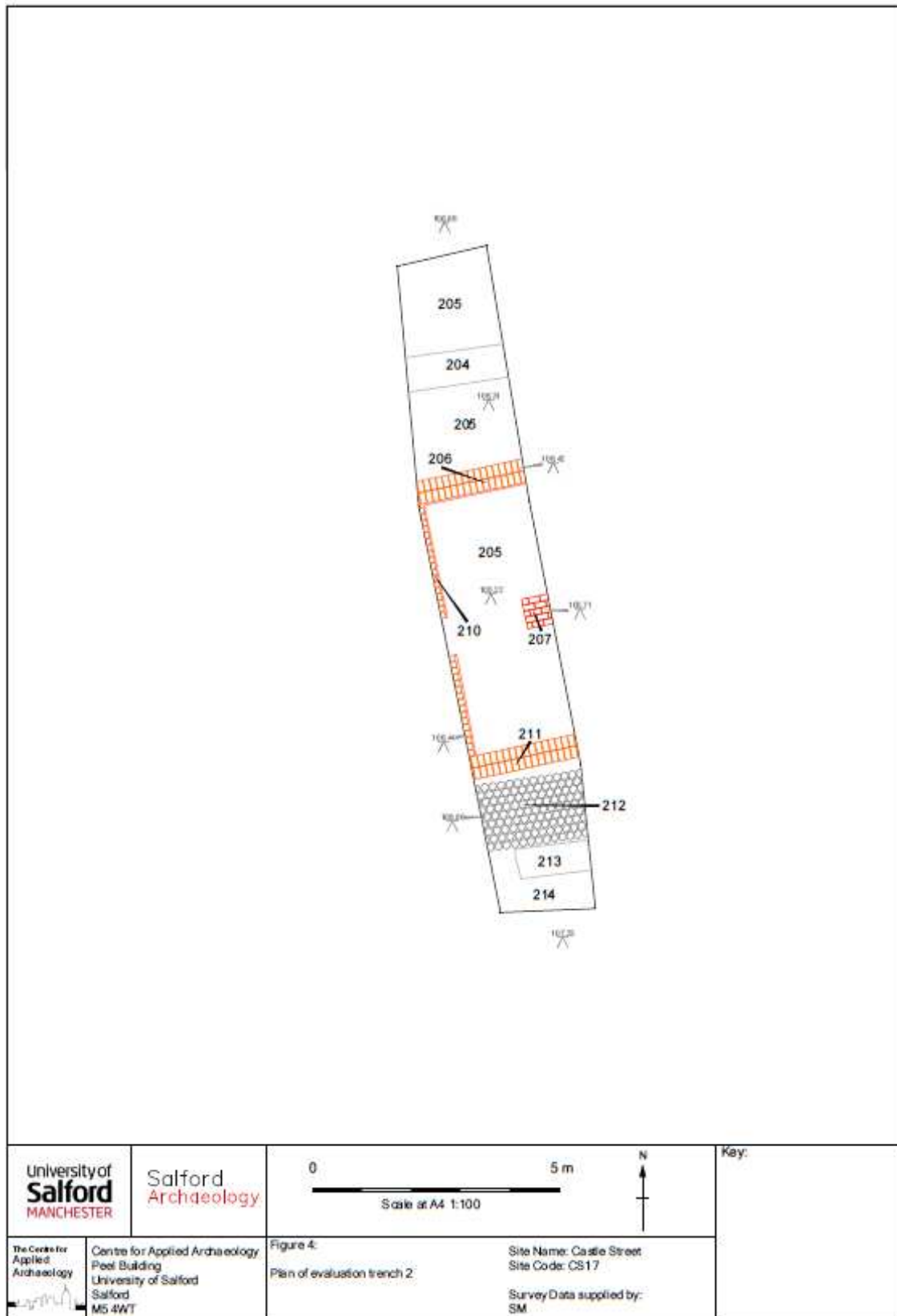


Figure 4: Plan of Trench 2

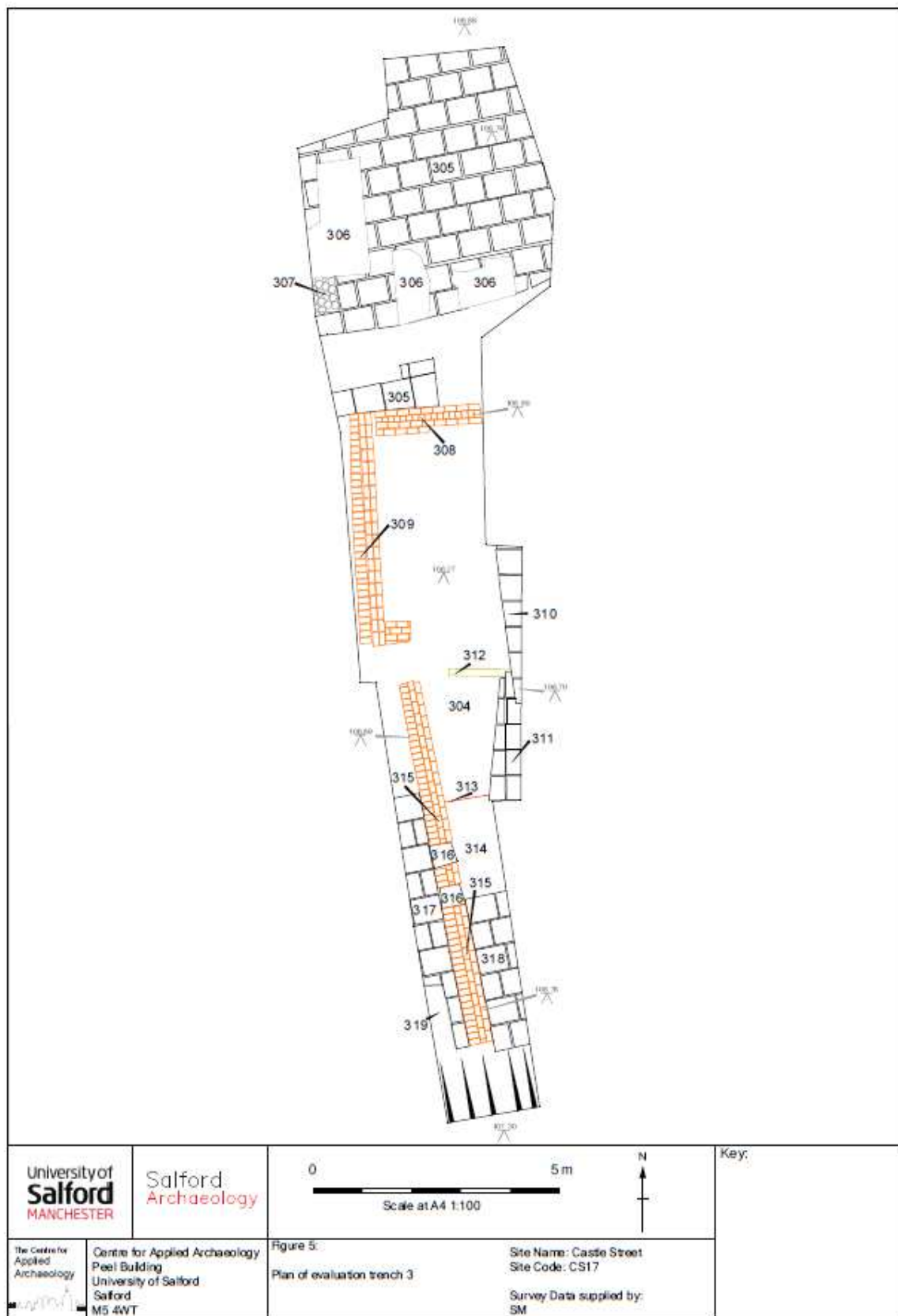


Figure 5: Plan of Trench 3

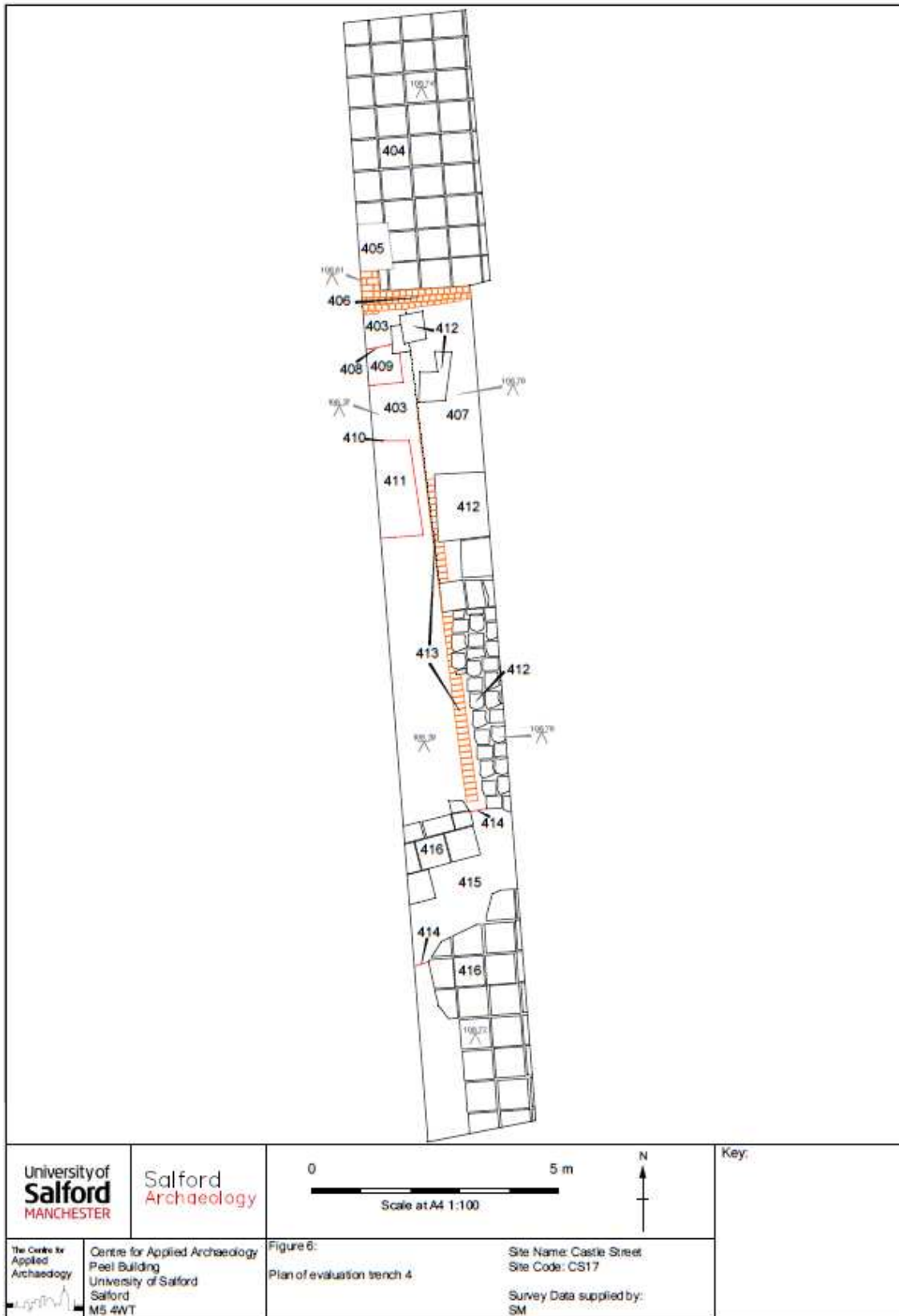


Figure 6: Plan of Trench 4

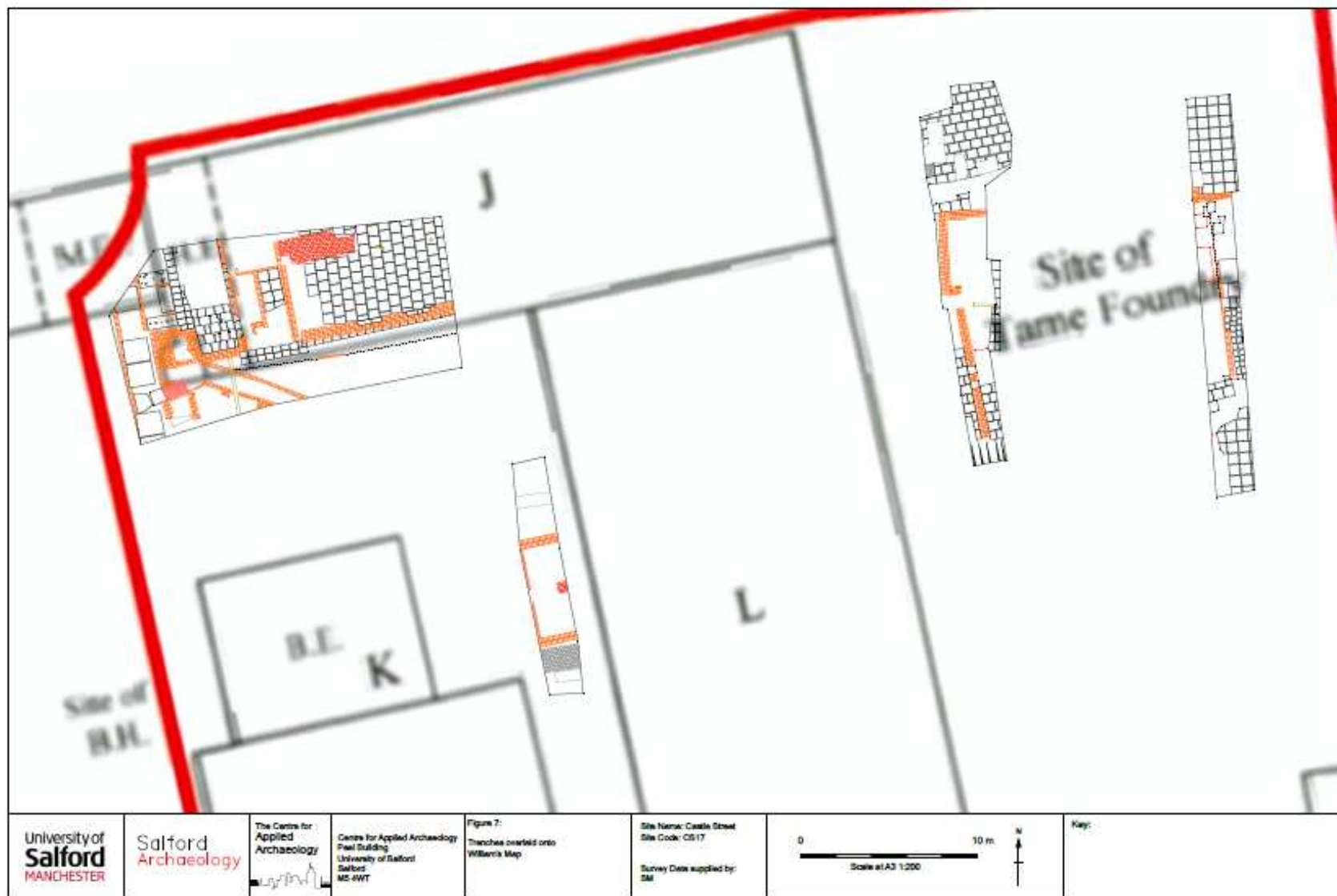


Figure 7: Trenches overlaid onto Williams' plan of 2001



Figure 8: Trenches overlaid onto Thomas Hill's Map of 1850



Figure 9: Trenches overlaid onto 1850 OS 1:1056 Town Plan

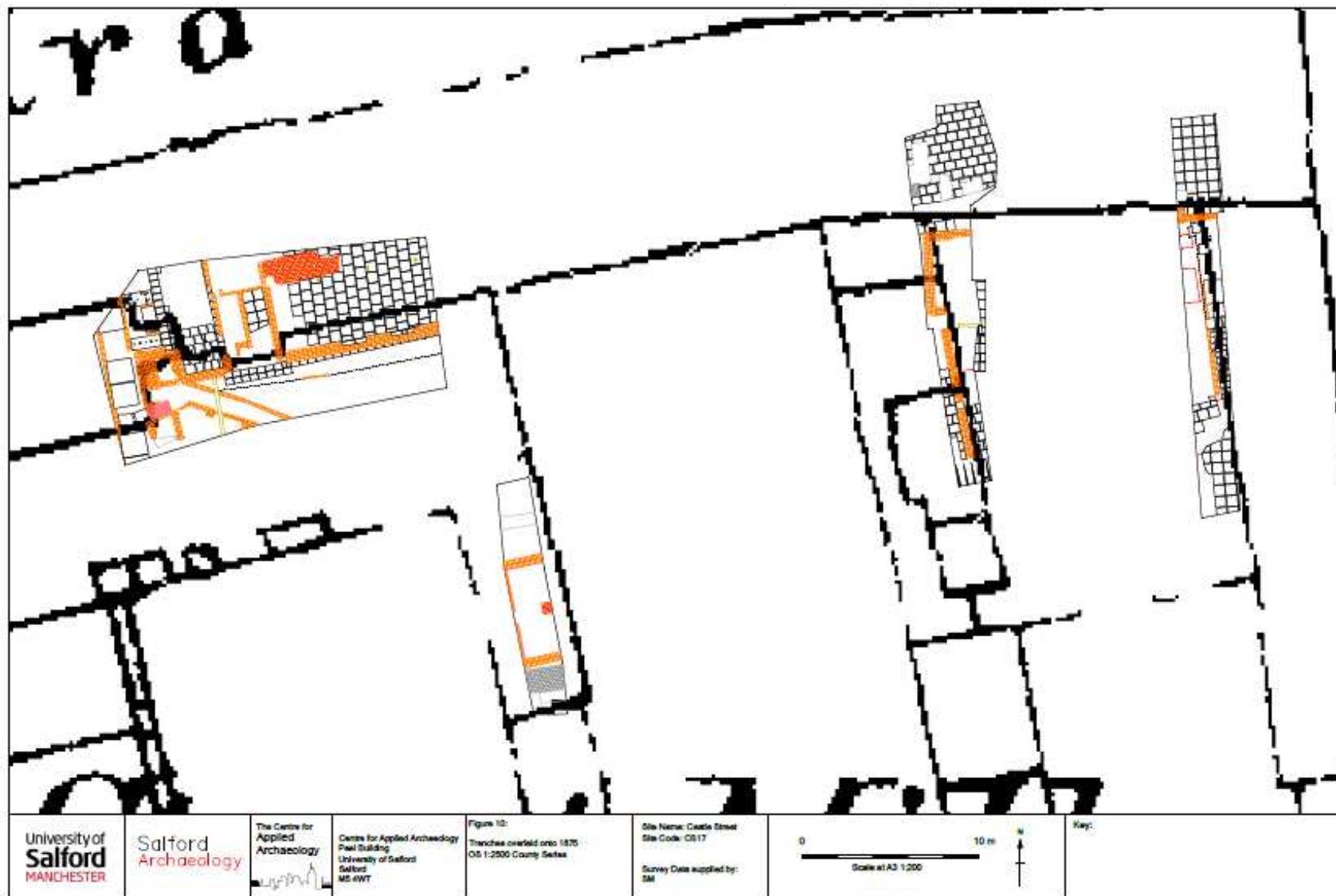


Figure 10: Trenches overlaid onto 1875 OS 1:2500 County Series

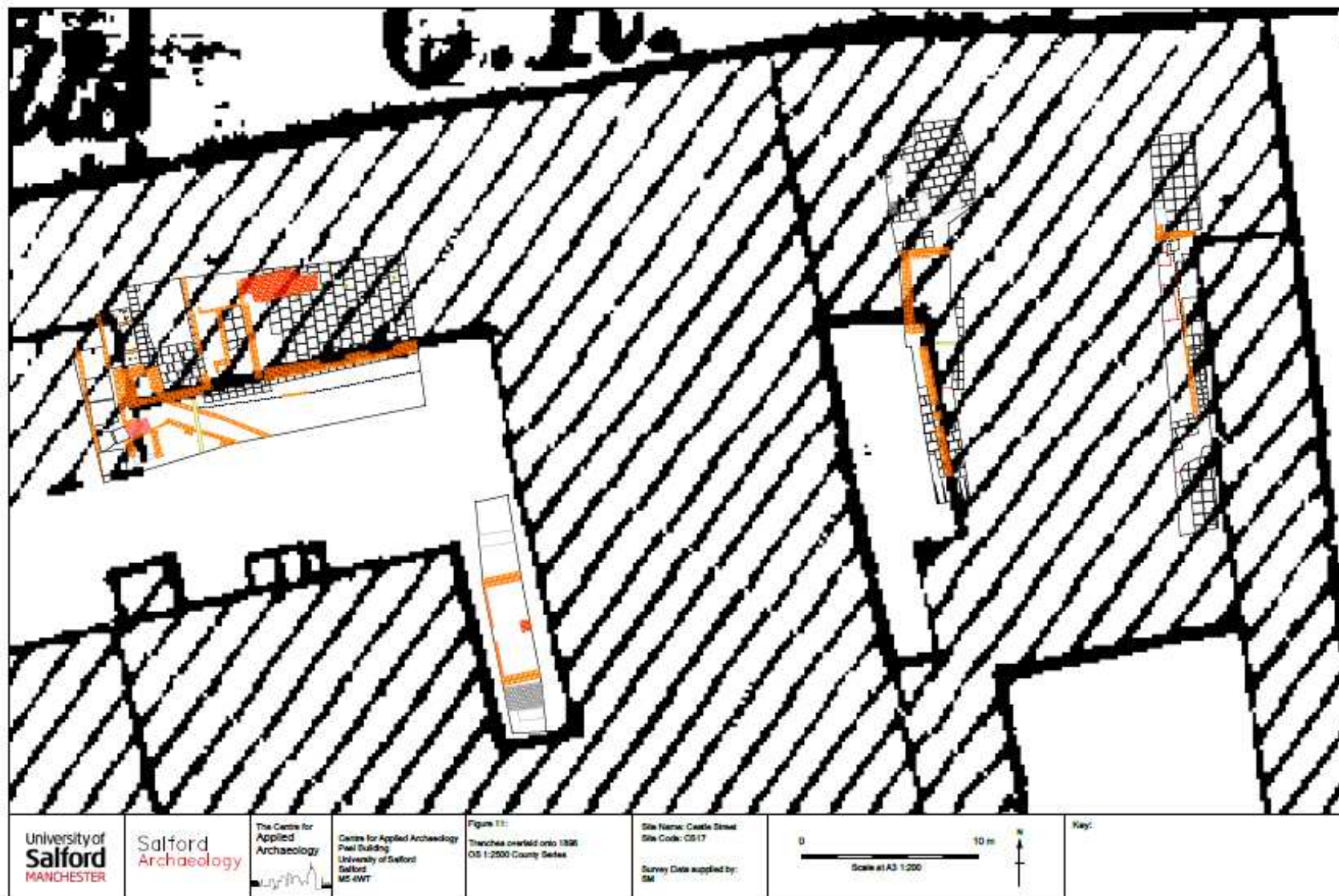


Figure 11: Trenches overlaid onto 1898 OS 1:2500 County Series

Appendix 2: Written Scheme of Investigation

Castle Street Mills and Tame Foundry, Stalybridge


Written Scheme of Investigation for an Archaeological Evaluation at Castle Street, Stalybridge

Planning Ref: 17/00019FUL



Project Name:	Castle Street Mills and Tame Foundry, Stalybridge
Project Code:	ELCA1055
Site Location:	A cleared former industrial site on the south-western edge of Stalybridge town centre, bounded to the north by the River Tame, to the east by Back Melbourne Street, to the south by Castle Street, and to the west by Pattern House
NGR:	SJ 96216 98484
Planning Ref:	17/00019/FUL
Document Title:	Written Scheme of Investigation for an Archaeological Evaluation
Document Type:	Written Scheme of Investigation
Version:	Version 1.0
Prepared for:	Rowlinson Constructions Ltd

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Date:	24 th March 2017	

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1. Introduction

1.1 Circumstances of the Project

- 1.1.1 Mosscares Housing and Rowlinson Constructions Ltd has obtained planning consent for a hybrid application for ground works and remediation of a site on Castle Street in Stalybridge (centred on NGR SJ96216 98484), followed by works to a masonry wall and terracing of land adjacent to the south bank of the River Tame, and the erection of a three-storey block comprising 38 dwellings with associated car parking and landscaping. Outline permission with all matters reserved except from access has also been approved for a residential development of up to 24 dwellings (Planning Ref: 17/00019/FUL).
- 1.1.2 The eastern part of the development site incorporates a large component of the former Castle Street Mills complex, which was afforded statutory protection as a Grade II listed building December 1990. However, most of the mill complex was demolished in the early 2000s except for a substantial four-storey wing, outside of the current development site, which was repaired and converted to residential use in 2009, and an engine house that survives extant, albeit in a derelict condition.
- 1.1.3 The historic interest in the development site was highlighted in an archaeological desk-based assessment that was prepared to support the planning application for redevelopment (Salford Archaeology 2016). This traced the origins of Castle Street Mill to 1805, when local textile manufacturer George Cheetham obtained 3330 square yards of undeveloped land on Castle Street Meadow to establish a new textile mill (Haynes 1990, 19-20). The first component of the mill complex is thought to have been a relatively small building of non-fireproof construction that was placed parallel to the River Tame, in the north-western part of the Cheetham's land holding (and beyond the western boundary of the present development site). The mill was evidently a financial success, as a new mill was added to the site in 1819, placed at a right angle to the original mill (and again beyond the present development site). This new mill comprised two buildings that were of an improved 'fireproof' design, comprising a cast-iron frame with iron columns and beams that supported brick jack-arches (Williams 2001).
- 1.1.4 Further expansion of the mill site was enabled in 1821, when George Cheetham obtained a lease for land to the east of their existing mills, incorporating the present development area. Whilst the lease stipulated that this portion of Castle Mill Meadow was to remain open and unbuilt upon, it was developed in 1827 as the site of another new spinning block, which went into production during the following year (PP XX 1833, DI, p 43). The new mill was placed along the southern bank of the River Tame, and was powered by a 20hp marine engine.

1.1.5 The eastern part of the development site was occupied in the mid-19th century by the Tame Foundry. It is not known precisely when the foundry was established, although it is likely to have been during the mid-1830s. It is shown on the Stalybridge town map of 1839-46 as a large block along the northern edge of the site, with a narrow range aligned north/south along the eastern boundary, creating an overall L-shaped plan.

1.1.6 In order to secure archaeological interests, and in line with the advice provided by the Greater Manchester Archaeological Advisory Service (GMAAS), in their capacity of archaeological advisors to the Greater Manchester Planning Authorities, Tameside Council attached a condition to planning consent that states:

'No development shall take place, other than site clearance and site compound set up, until the implementation of a programme of archaeological works in accordance with a Written Scheme of Investigation (WSI) submitted to and approved in writing by the Local Planning Authority. The WSI shall cover the following:

1. A phased programme and methodology of investigation and recording to include:
 - archaeological evaluation through trial trenching
 - dependent on the above, a further scheme of targeted archaeological excavation
2. A programme for post investigation assessment to include:
 - analysis of the site investigation records and finds
 - a detailed analysis and publication of the significant clay pipe assemblage recovered from previous excavations
 - production of a final report on the significance of the archaeological and historical interest represented.
3. A scheme of commemorate the site's industrial heritage;
4. Dissemination of the results commensurate with their significance;
5. Provision for archive deposition of the report and records of the site investigation.
5. Nomination of a competent person or persons/organisation to undertake the works set out within the approved WSI.

The development shall be carried out in accordance with the approved details'

1.1.7 This Written Scheme of Investigation (WSI) for the recommended programme of intrusive investigation has been prepared by Ian Miller of Salford Archaeology on behalf of Rowlinson Constructions Ltd. The document has been prepared in consultation with Norman Redhead, Heritage Management Director (Archaeology) for the Greater Manchester Archaeological Advisory Service (GMAAS), in his capacity of archaeological advisor to Tameside Council. Any change to the proposed WSI will be agreed between the Client, the GMAAS and Salford Archaeology.

1.2 Purpose of the Document

1.2.1 An Archaeological Written Scheme of Investigation (WSI) is a comprehensive document detailing the requirements and methodological approaches of a programme of archaeological works. It is defined by Historic England as:

‘Where development will lead to the loss of a material part of the significance of a heritage asset, policy HE12.3 [of PPS5, now paragraph 141 of the NPPF] requires local planning authorities to ensure that developers take advantage of the opportunity to advance our understanding of the past before the asset or the relevant part is irretrievably lost. As this is the only opportunity to do this it is important that:

- 1: Any investigation is carried out to professional standards and to an appropriate level of detail proportionate to the assets likely significance, by an organisation or individual with appropriate expertise;
2. The resultant records, artefacts and samples are analysed and, where necessary, conserved;
- 3: The understanding gained is made publically available;
- 4: An archive is created, and deposited for future research.’

1.3 National and Local Planning Policies

1.3.1 The National Planning Policy Framework (NPPF; Department for Communities and Local Government, March 2012) sets out the Government’s planning policies and outlines the presumption in favour of sustainable development, which is defined by three dimensions: economic, social and environmental. Of the 12 core planning principles underpinning plan and decision making, conserving ‘heritage assets in a manner appropriate to their significance, so that they can be enjoyed for their contribution to the quality of life of this and future generations’ is one.

1.3.2 Section 12 specifically deals with the historic environment (paragraphs 126-41) and paragraph 128 states that local planning authorities, when determining applications, should require the applicant to describe the significance of any affected heritage assets. This should be sufficient so as to understand the potential impact on their significance and this should be done using the appropriate expertise where necessary. Paragraph 135 indicates that the effect of the proposal on non-designated assets (designated assets are covered in paragraphs 132-34) should be taken into account. Paragraph 141 requires developers to record and advance understanding of heritage assets to be lost, in a manner proportionate to their importance and impact.

- 1.3.3 Paragraph 137 specifically deals with Conservation Areas and states that local planning authorities should look for opportunities for new development to enhance or better reveal heritage assets' significance. Paragraph 138 states that not all elements of conservation areas contribute to its significance, therefore loss of buildings which make a positive contribution to the significance of the area should be treated as substantial, or less than substantial harm. This also has to be assessed alongside the relative significance of the asset affected as well as the significance of the conservation area as a whole.
- 1.3.4 The NPPF outlines the need for local planning policies to create local plans and frameworks to implement the NPPF at a local level. Tameside Council adopted a Core Strategy in 2015, which is scheduled until 2030. The heritage strategy is outlined in *Topic Paper 6: Historic Environment*, which summarises the approach the local authority will take in determining planning applications that may affect the historic environment. Policy EM 1 (C) Historic Environment states:

'Plans, strategies, proposals and schemes should protect, conserve and enhance the historic environment, supporting conservation-led regeneration in areas rich in historic interest. In particular, the regeneration potential of Pennine textile mill-town heritage that exists in east Lancashire and Greater Manchester, the textile mill-town heritage of East Cheshire and the traditional architecture or rural villages of Cumbria, Cheshire and Lancashire should be recognised.'

2. Aims and Objectives

2.1 Academic Aims

- 2.1.1 In the first instance, the main aim of the investigation will be to establish the presence or absence of any buried remains of archaeological interest within the proposed development area and, if present, characterise the level of preservation and significance, and provide a good understanding of their potential. This will be achieved via the excavation of four targeted trial trenches, which will enable a decision to be reached as to whether any further archaeological investigation is merited in advance of development.
- 2.1.2 The location of the trenches has been informed by the conclusions drawn from the desk-based assessment, and have been targeted on the footprint of the 1829 Boulton & Watt marine-type steam engine that powered part of the mill complex, together with below-ground structural elements of the 19th-century iron foundry and its associated smithy. The investigation of power-transmission systems in early 19th-century textile mills, and the investigation of 19th-century iron foundries, are both legitimate avenues of archaeological research in the North West.
- 2.1.3 This approach to devising proposals to mitigate the impact of development on the archaeological resource of the development area is in accordance with national guidelines set out in the National Planning Policy Framework: Section 12 – *Conserving and enhancing the historic environment*.

2.2 Objectives

- 2.2.1 The principal objectives of the archaeological investigation are:
- to record, as far as is reasonably possible, the location, extent, condition, significance and quality of any surviving archaeological remains observed;
 - to establish whether any physical remains of the foundation beds for the Boulton & Watt marine-type steam engine survive *in-situ*;
 - to establish whether the mid-19th-century spinning mill in the centre of the site was powered by the extant engine house via a sub-surface transmission shaft;
 - to establish if any physical evidence survives that can inform an understanding of the industrial processes undertaken in the 19th-century iron-foundry;
 - to record a sufficient sample of the features to adequately characterise the nature of the surviving archaeology and date significant features;

- to provide sufficient information to enable an informed decision to be made about the need for any additional archaeological mitigation; and
- to make available the results of the work.

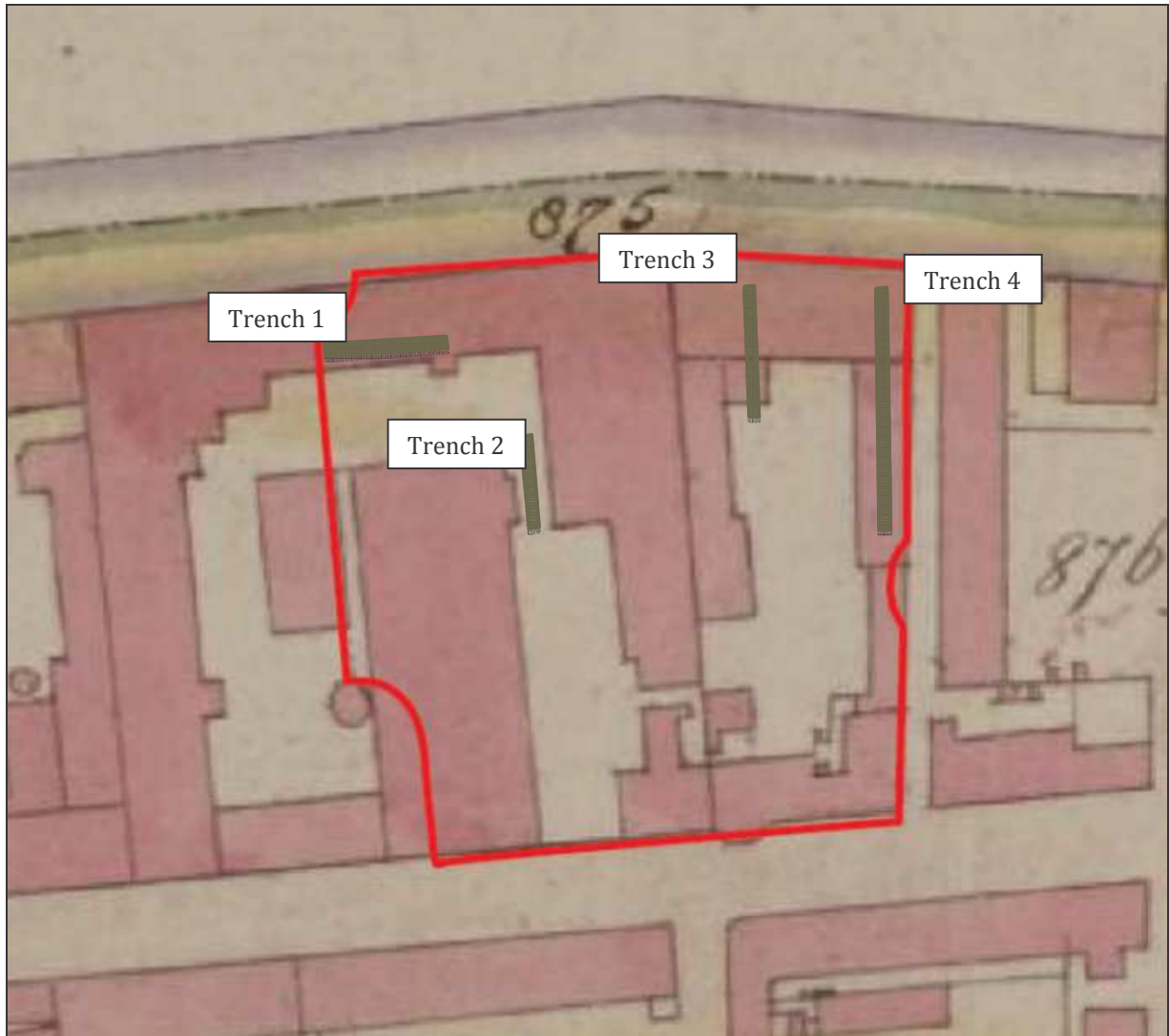


Plate 1: Proposed location of the evaluation trenches superimposed on a survey of 1850

3. Method Statement

3.1 Evaluation Trenches

3.1.1 The development site will be investigated initially via the excavation of four targeted evaluation trenches (Figures 1 and 2), together with an additional 10m of trenching that will be placed at the discretion of the site director to maximise the results obtained from the evaluation, providing a combined total of 90m of trenching. In the event of significant archaeological remains being discovered in the trenches, it is likely that further archaeological investigation will be required.

- *Trench 1:* this trench will measure 15 x 2m, and will be aligned approximately east/west across the footprint of the 1827 engine house in the north-western part of the site. The trench will aim to establish whether any buried remains of the foundations beds for the Boulton & Watt marine-type engine survive *in situ*;
- *Trench 2:* this trench will measure 15 x 2m, and will be placed to the east of the extant engine house in the central part of the site. The trench will aim to establish whether the former spinning block aligned north/south across the centre of the site was powered by the extant engine house via a sub-surface transmission shaft;
- *Trench 3:* this trench will measure 20 x 2m, and will be placed north/south across part of the iron foundry and its associated boiler shown on a plan of c 1859;
- *Trench 4:* this trench will measure 30 x 2m, and will be placed along the footprint of the eastern part of the foundry and its associated smithy in the eastern part of the site.

3.1.2 **General Methodology:** all archaeological work shall be conducted following the ClfA Standards and Guidance for archaeological field evaluation (Published October 1994, Revised September 2001 and October 2008). Prior to the commencement of any excavation works, the location of the area targeted for archaeological investigation will be laid out accurately with respect to the Ordnance Survey national grid. The position of the areas will then be scanned for any live services using a cable avoidance tool. The excavations will be regularly scanned as work progresses.

3.1.3 Excavation of the modern ground surface will be undertaken by a machine of appropriate power using a toothed bucket and, where necessary, a breaker. The uppermost levels of overburden/demolition material will then be removed using the same machine, but fitted with a toothless ditching bucket, to the top of the first significant archaeological level.

- 3.1.4 Machine excavation will then be used to define carefully the extent of any surviving foundations, floors, and other remains. All machine work will be supervised closely by a suitably experienced archaeologist. 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 trenches will be widened to allow the sides to be stepped in.
- 3.1.5 All information identified in the course of the site works will be recorded stratigraphically. Results of the evaluation will be recorded on *pro-forma* context sheets, and will be accompanied with sufficient pictorial record (plans, sections and high-resolution digital photographs) to identify and illustrate individual features. Primary records will be available for inspection at all times.
- 3.1.6 *Context Recording:* all contexts will be recorded using *pro-forma* sheets, and details will be incorporated into a Harris matrix. All written recording of survey data, contexts, photographs, artefacts and ecofacts will be cross-referenced from record sheets using sequential numbering.
- 3.1.7 *Photography:* 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 excavation will be generated. Photography will be undertaken using high-resolution digital cameras. All frames will include a visible, graduated metric scale. Photographs records will be maintained on photographic *pro-forma* sheets.
- 3.1.8 *Planning:* the precise location of all archaeological structures encountered will be surveyed by EDM tacheometry using a total station linked to a pen computer data logger. This process will generate scaled plans within AutoCAD, which will then be subject to manual survey enhancement. The drawings will be generated at an accuracy appropriate for 1:20 scale, but can be output at any scale required. All information will be tied in to Ordnance Datum.
- 3.1.9 *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. The removal of human remains will only take place in compliance with environmental health regulations and following discussions with, and with the approval of, the Ministry of Justice. If human remains are identified, the Ministry of Justice and curator will be informed immediately.
- 3.1.10 *Finds policy:* finds recovery and sampling programmes will be in accordance with best practice (following current Chartered Institute for Archaeologists' guidelines) and subject to expert advice in order to minimise deterioration. Finds storage during fieldwork and any site archive preparation will follow professional guidelines (UKIC).

4. Health and Safety

4.1 Health and Safety

4.1.1 Full regard will be given to all constraints during the course of the project, and all relevant Health and Safety legislation, CDM, COSHH regulations and codes of practice will be respected. The University of Salford provides a Health and Safety Statement for all projects and maintains a Safety Policy. Salford Archaeology is advised on its Health and Safety matters by the University of Salford, who provide ongoing advice on health and safety matters to all departments in the organisation. All site procedures are in accordance with the guidance set out in the Health and Safety Manual compiled by the Federation of Archaeological Employers and Managers (FAME), and in accordance with current legislation, including:

- The Health and Safety at Work Act (1974);
- Management of Health and Safety at Work Regulations (1999);
- The Construction (Design and Management) Regulations (2015);
- The Control of Asbestos Regulations (2006);
- Construction (Health, Safety and Welfare) Regulations (1996);
- The Health and Safety (Miscellaneous Amendments) Regulations (2002);
- The Control of Substances Hazardous to Health Regulations (2002);
- The Health and Safety (First-Aid) Regulations (1981);
- The Regulatory Reform (Fire Safety) Order (2005);
- The Provision and Use of Work Equipment Regulations (1998);
- Lifting Operations and Lifting Equipment Regulations (1998).

4.1.2 A risk assessment and will be produced by the archaeological contractor and submitted to the Client prior to the commencement of any onsite archaeological works. Once approved by GMAAS this WSI will be used for the purposes of a method statement. All Salford Archaeology staff associated with the excavation will be given a copy of the method statement and the risk assessment prior to the beginning of the works and will be required to read both documents.

4.1.3 Salford Archaeology undertakes to safeguard, so far as is reasonably practicable, the health, safety and welfare of its staff and of others who may be affected by our work. This applies in particular to providing and maintaining suitable premises, and providing all reasonable safeguards and precautions against accidents. The University of Salford will also take all reasonable steps to ensure the health and safety of all persons not in their employment, such as volunteers, students, and members of the public.

- 4.1.4 At present the profession of Archaeologist is largely covered by the CSCS, Construction Related Organisation CRO White Card for Archaeological Technician (Code 5363); other cards are available for site visitors etc. For this all Salford Archaeology staff likely to undertake fieldwork must pass a CITB Health and Safety Test at least to operative level. Where a member of staff has not yet received their card they will produce a certificate to prove that they have passed the test.
- 4.1.5 **Personal Protective Equipment (PPE):** all staff will wear PPE at appropriate times dictated as by the Senior Archaeologist on site. All Salford Archaeology staff are supplied with the following PPE:
- Safety Helmets (EN397);
 - Ear Defenders (EN 352-3);
 - Safety spectacles (EN166);
 - Goggles (Chemical BSEN 166 Type 3);
 - Dust masks plain and valved (EN149 2001);
 - Disposable overalls (Type 5/6 disposable EN340);
 - Hi-visibility vests (EN471);
 - Gloves Nitrile and latex disposable, PVC, EN374;
 - Heavy-duty nitron rubber gloves (EN420, 388);
 - Safety footwear - steel toecap and mid-sole boots and Wellingtons EN345-47.
- 4.1.6 Any other PPE required by the client and/or Principal Contractor must be provided or funded by them.
- 4.1.7 **Services (Gas, Electricity, Water, Sewers, Telecoms):** it is the duty of the Client to provide all information reasonably obtainable relating to any contamination or live services present on site prior to the commencement of the programme of archaeological works.
- 4.1.8 Service plans have been provided by the client and will be inspected closely prior to the commencement of any works. The excavation area will be scanned using a cable avoidance tool before any excavation commences, and will be scanned regularly throughout the mechanical excavation process.
- 4.1.9 No member of Salford Archaeology staff will touch or otherwise interfere with a live service even if declared 'safe'. In the event of the accidental disruption of a live service by archaeologists, the Salford Archaeology Senior Archaeologist will inform both their project manager and the Principal Contractor and, when appropriate, call the relevant emergency number. Any underground service not previously identified which is encountered during excavation will be assumed to be live and will need to be made safe by the Client before further excavation.

- 4.1.10 Any visible overhead cables, pipes, ducts, etc will be assumed to be live if there is no written substantiation that they are dead, and will immediately need to be made safe and/or isolated from further excavation. Where for whatever reason making safe of under- or over-ground services does not happen, Salford Archaeology may need to remove its staff from the site or an area.
- 4.1.11 **Access:** reasonable access to the site will be granted to representatives of the relevant archaeological curatorial body (GMAAS), who may wish to be satisfied, through regular site inspections, that the scope and practice of the archaeological works are being conducted according to professional standards and in accordance with any agreements made.

5. Other Matters

- 5.1 **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 Heritage Management Director (Archaeology) for GMAAS, in the capacity of archaeological advisor to the Greater Manchester Planning Authorities.
- 5.2 As a minimum requirement, GMAAS will be given a minimum of one week's notice of work commencing on site, and will be afforded the opportunity to visit the site during and prior to completion of the on-site works so that the general phasing of the site and results of the fieldwork can be assessed and to discuss the requirement of reporting or any further phases of archaeological work.
- 5.3 Salford Archaeology will notify GMAAS of any discoveries of archaeological significance so that site visits can be made, as necessary. Any changes to this agreed WSI will only be made in consultation with GMAAS.
- 5.4 **Working Hours:** normal working hours are variable between 7.30 am and 6.00 pm, Monday to Friday. It is not normal practice for the University of Salford staff to be asked to work weekends or bank holidays, and should the Client require such time to be worked during the course of a project a contract variation to cover additional costs will be necessary.
- 5.5 **Insurance:** the University of Salford has professional indemnity to a value of £50,000,000, employer's liability cover to a value of £50,000,000 and public liability to a value of £50,000,000. Written details of insurance cover can be provided if required.

6. Post-Excavation Report

6.1 **Report:** a draft copy of an initial assessment report will be submitted for comment to GMAAS within eight working weeks of the completion of the fieldwork. This will present the results obtained from the evaluation trenching, and will include:

- a title page detailing site address, NGR, author/originating body, client's name and address;
- full content's listing;
- a non-technical summary of the findings of the fieldwork;
- a description of the archaeological background;
- an account of the historical development of the site;
- a description of the methodologies used during the fieldwork;
- a description of the findings of the fieldwork;
- detailed plans of the excavated trenches, showing the archaeological features exposed;
- appropriate photographs of specific archaeological features;
- interpretation of the archaeological features exposed and their context within the surrounding landscape;
- a consideration of the importance of the archaeological remains present on the site in local, regional and national terms.

6.2 **Archive:** the results of the archaeological investigation will form the basis of a full archive to professional standards, in accordance with current Historic England guidelines, and current ClfA standards and guidance for the creation, compilation, transportation and deposition of archaeological archive (published October 2009). The project archive represents the collation and indexing of all the data and material gathered during the course of the project. 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 ClfA in that organisation's code of conduct. As part of the archiving process, the on-line OASIS (On-line Access to Index of Archaeological Investigations) form will be completed.

6.3 The site archive will be so organised as to be compatible with the other archaeological archives produced in the Greater Manchester area. All drawn records will be transferred to and stored in digital format, in systems which are easily accessible. The integrity of the site archive will be maintained upon completion of the archaeological works with the archive ultimately being deposited with the Tameside Local Studies & Archives Centre in Ashton-under-Lyne (subject to their approval).

6.4 The archaeological archive will consist of the following:

- All original records created throughout the course of the project;
- All original drawings, whether created during fieldwork or post-investigation;
- Indexes to the drawings;
- Indexes to the photographic archive;
- All born digital material;
- Digital material created from written, drawn or photographed original records;
- The final project report;
- A list of contents of the archive.

6.5 It is likely that a large element of the project archive will be in digital format. It would thus be appropriate to deposit a copy of the archive generated from the archaeological investigation with the Archaeological Data Service (ADS), through ADS-Easy. Any records that are created in hard copy during the course of the project will be scanned and added to this digital archive.

6.6 **Dissemination:** as a minimum, the information will be finally disseminated through the deposition of the archive at Tameside Local Studies & Archives Centre, and a final report at the Greater Manchester Historic Environment Record. In the event of significant remains being encountered, however, a higher level of dissemination may be required, such as publication as a dedicated volume in the *Greater Manchester's Past Revealed* series, or the preparation and installation of permanent information panels on site that will explain the important industrial interest of the Castle Street Mill.

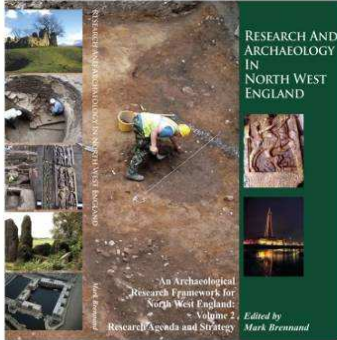


Figure 1: Trench locations superimposed on the Ordnance Survey map of 1890

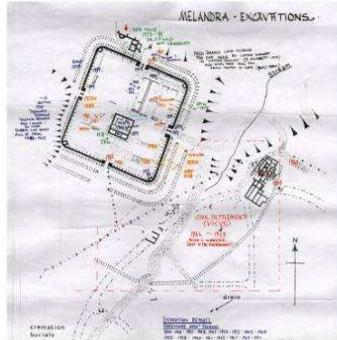


Figure 2: Trench locations superimposed on modern mapping

CONSULTANCY



DESK BASED ASSESMENTS



WATCHING BRIEF & EVALUATION



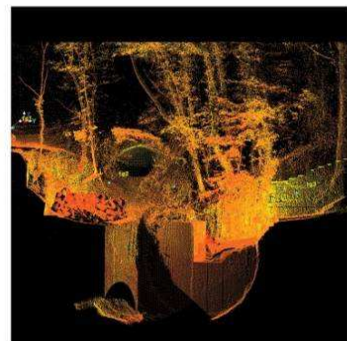
EXCAVATION



BUILDING SURVEY



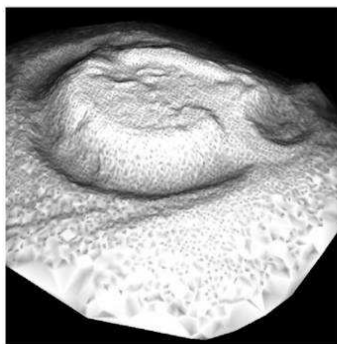
3D LASER SCANNING



COMMUNITY INVOLVEMENT



LANDSCAPE SURVEYS



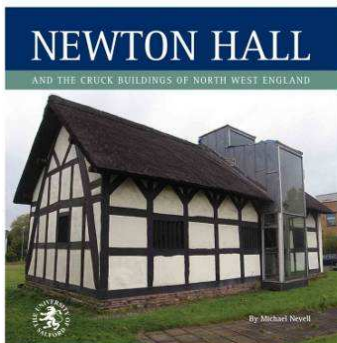
GEOPHYSICAL SURVEYS



WORKSHOPS & VOCATIONAL TRAINING



RESEARCH PUBLICATIONS



SEMINARS, DAYSCHOOLS CPD EVENTS

