



# **Water Street Dye Works, Water Street, Manchester**

**Archaeological  
Excavation**



**Oxford Archaeology North**

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**Renaker Build Ltd**

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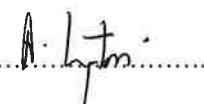
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## SUMMARY

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Renaker Build Ltd has obtained planning consent to erect a new block of apartments on land off Water Street, Manchester (centred on SJ 8267 9765). An earlier archaeological evaluation had demonstrated that the site contained locally significant archaeological remains relating to activity dating from the late eighteenth century onwards. The construction works required for the proposed new apartment block will necessitate considerable earth-moving works, which will inevitably have a negative impact on the buried archaeological remains contained at the site. Given this, the Greater Manchester Archaeological Advisory Service (GMAAS), which provides archaeological advice to Manchester City Council, recommended that an archaeological excavation should be carried out.

In March 2014, Oxford Archaeology North (OA North) was commissioned by Renaker Build Ltd to undertake the required scheme of archaeological excavation. This comprised the excavation of a single open-area trench, which targeted remains relating to the dye works and a smallwares factory that lay to its south-west.

The excavation uncovered a series of remains, which can be accurately related to the known historical development of the site as discerned from the cartographic sources, dating from the late eighteenth century onwards. The earliest of these related to the dye works, and included the external walls of a small building that is depicted on historical mapping dating to 1787-94. This building was expanded subsequently and modified during the period 1820-31; excavated remains relating to this phase of modification were present. These included various structures, which indicated that part of the modified building contained a raised dyeing vat, supported by two parallel rows of stone column bases, which was heated by a flue that led from a small furnace positioned to the south-west. Other excavated remains included the brick-built base of a boiler that post-dated 1850, which provided steam to the dye works.

The other significant nineteenth-century remains revealed by the excavation dated to 1831-49, and related to a smallwares factory that lay to the south-west of the dye works. This factory would have produced small cotton and silk goods, and the excavation indicated that it contained a steam engine, within an engine room. An adjacent chimney and flue was also present, which were originally linked to a boiler that is depicted on historic mapping. Other early/mid-nineteenth-century remains included the remains of an alleyway depicted on the 1851 OS map, which lay to the north-east of the smallwares factory.

The remaining features uncovered during the excavation held less significance and relate to later activity at the site. These include late nineteenth-century walls, rebuilds, and yard surfaces, and also the basement for a warehouse, which was constructed in the early half of the twentieth century. This latter feature covered the western portion of the trench, and its construction resulted in the destruction of the dye-works' buildings that lay in this area, adjacent to the River Irwell.

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## ACKNOWLEDGEMENTS

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Oxford Archaeology North (OA North) would like to thank Pete Mills for commissioning and supporting the project on behalf of Renaker Build Ltd. Thanks are also expressed to Norman Redhead, the Heritage Management Director with the Greater Manchester Archaeological Advisory Service (GMAAS), for his guidance and advice.

The excavation was directed by Graham Mottershead, who was assisted by Lewis Stitt Sarah Mottershead, and Phil Cooke. The high-level photography was taken by Jamie Quartermaine. The report was written by Graham Mottershead, Sarah Mottershead, and Richard Gregory. Mark Tidmarsh prepared the illustrations. The project was managed by Ian Miller, who also edited the report.

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## 1. INTRODUCTION

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### 1.1 CIRCUMSTANCE OF THE PROJECT

- 1.1.1 Renaker Build Ltd has obtained planning consent to erect a new block of apartments on land off Water Street, Manchester (centred on SJ 8267 9765). The site is currently waste ground, although it is known to contain significant archaeological remains. The archaeological potential of the site was first highlighted by an archaeological desk-based assessment, which demonstrated that the site might contain below-ground remains of local archaeological significance (Fletcher 2006). The assessment was then followed by an archaeological evaluation, which was carried out during 2008 by Oxford Archaeology North (OA North). This work comprised the excavation of five evaluation trenches, which revealed *in-situ* archaeological deposits across the site (OA North 2008). These included structural remains relating to a late eighteenth-century dye works and a nineteenth-century smallwares factory.
- 1.1.2 The construction works required for the proposed new apartment block will necessitate considerable earth-moving works, which will inevitably have a negative impact on the buried archaeological remains contained at the site. Given this, the Greater Manchester Archaeological Advisory Service (GMAAS), which provides archaeological advice to Manchester City Council, recommended that an archaeological excavation should be carried out. This was intended to preserve by record any buried archaeological remains that survive, in line with the National Planning Policy Framework, Paragraph 128.
- 1.1.3 In March 2014, Oxford Archaeology North (OA North) was commissioned by Renaker Build Ltd to undertake the required scheme of archaeological excavation. This comprised the excavation of a single open-area trench, which targeted remains relating to the dye works and a smallwares factory that lay to its south-west.

### 1.2 SITE LOCATION AND GEOLOGY

- 1.2.1 The site lies to the south-west of Manchester city centre, beside the River Irwell (centred on SJ 8267 9765). It is bounded to the north by Regent Road, to the east by Water Street, and to west by the River Irwell, whilst apartment blocks lie to the south of the site (Plate 1; Fig 1).

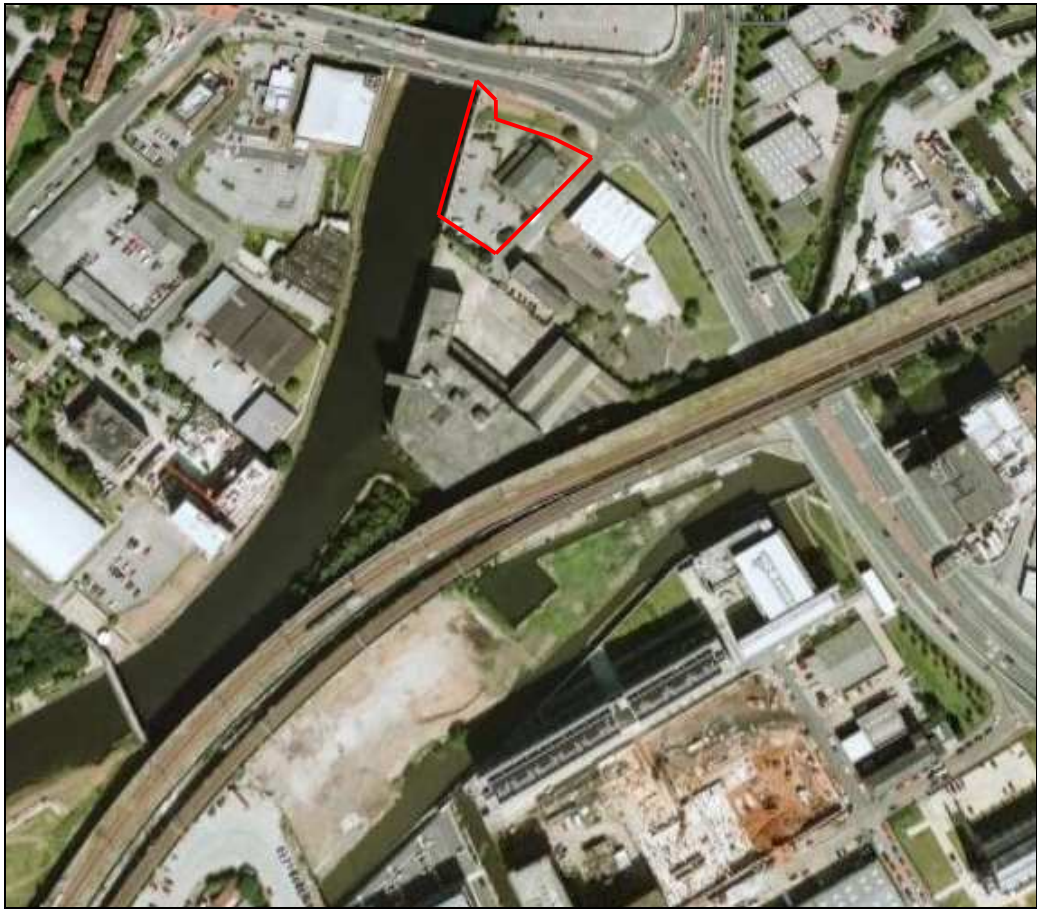


Plate 1: Aerial view of the site (outlined in red) prior to development

- 1.2.2 Geologically, the area is underlain by a series of glaciofluvial flood deposits of sand and gravel overlying the Chester Pebble Beds formation of the Sherwood Sandstone Group.
- 1.2.3 The site is of a uniform level, and lies at a height of *c* 25m above Ordnance Datum (aOD). Prior to the excavation, the ground surface comprised a tarmac car park. Tress and shrubs grew at the south and east sides of the site and much of the central area was overgrown. At the western side of the site were a series of lamp posts and a cast-iron fence bordering the edge of the river.

### 1.3 HISTORICAL BACKGROUND

- 1.3.1 The following section summarises the historical development of the study area, as derived from published and cartographic sources.
- 1.3.2 ***Pre-industrial period:*** in terms of the pre-industrial history of the site no prehistoric remains are known from the site or its immediate vicinity. Similarly, during the Roman period, although a fort and associated settlement were established in the Castlefield area of Manchester, as far as can be discerned, the main area of settlement lay on higher ground to the east. Given this, the site was probably not exploited during this period, and probably formed an area of marginal land (*cf* Gregory 2007, fig 1.1).



- 1.3.3 During the medieval and early post-medieval periods the site probably lay within marginal land, and was positioned in a small deer park, named Aldport Park. This park is documented in 1282, and seems to have been still in existence in about 1599. According to one report, it was destroyed in the Civil War. Its boundaries are believed to have been the rivers Irwell and Medlock and the approximate line of the later Quay Street and Peter Street on the north (GM HER 112.1.0). Following its destruction, its name was recalled in the name Aldport Lane or Aldport Street, which was used to describe Deansgate south of Peter Street into the early nineteenth century (Bradshaw 1985, 20-1).
- 1.3.4 **Industrial period (1780s-1900):** the historical development of the site during the late eighteenth and nineteenth centuries can be largely discerned from the sequence of available historical maps. These indicate that for much of this period the site was occupied by both industrial buildings and housing. The earliest detailed map is William Green's 1787-94 map of Manchester and Salford, which indicates that, by the time of his survey, two terraced houses had been constructed along the Water Street frontage. These lay within an area that was known as 'Hulme Field', which in the late eighteenth century was owned by Henry Atherton Esq and Miss Byrom (Plate 2). These houses formed double-depth properties, with outshuts to their rears.

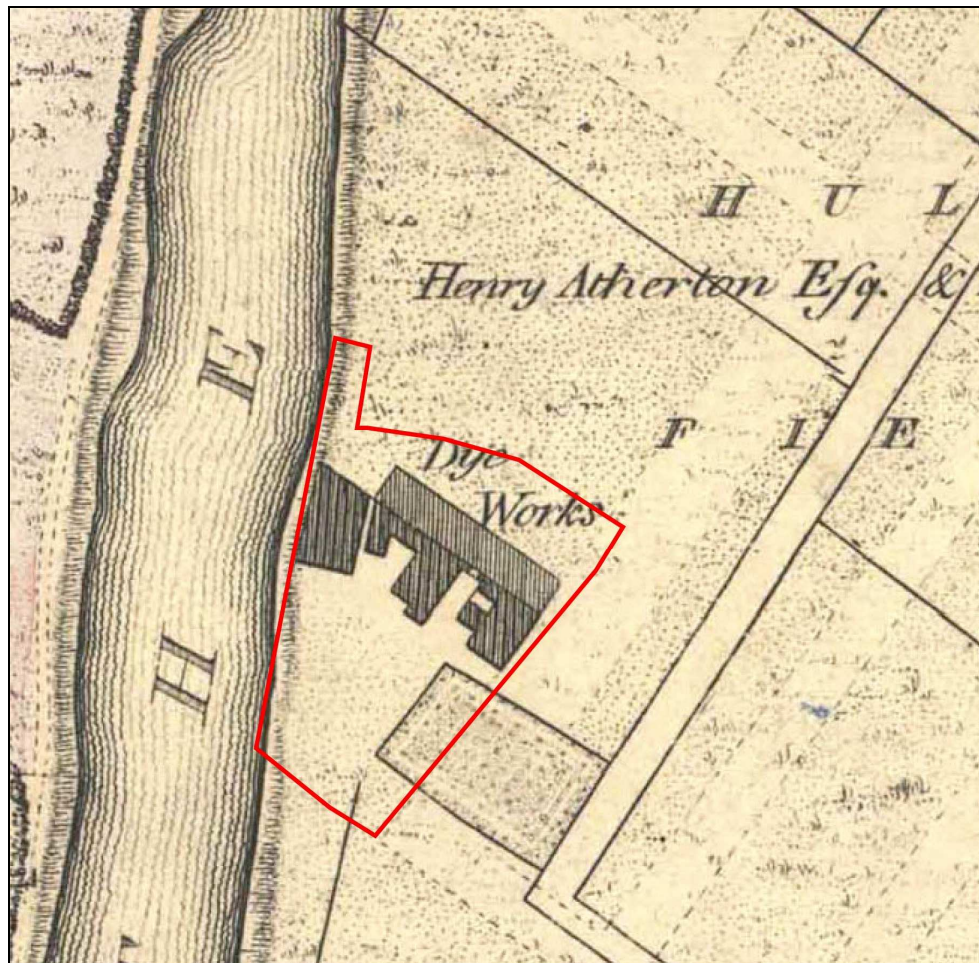


Plate 2: The site boundary superimposed on William Green's map of 1787-94

- 1.3.5 Green's map also plots several buildings that formed part of a dye works to the rear, and northern side of the houses. One of these buildings formed a small, broadly rectangular range running parallel with, and adjacent to, the River Irwell. A second building, lay immediately to the south-east, and is depicted as an irregular-shaped range, with its long axis angled towards the river. These two buildings, along with the more northerly of the adjacent domestic houses appear to have been constructed along a property boundary. Immediately to the north of this boundary lay a linear building, which presumably formed an additional element of the late eighteenth-century dye works. This building partly adjoined the north-eastern side of the irregular-shaped dye-works' building and also the north-eastern side of the more northerly of the domestic dwellings.
- 1.3.6 By 1831, Bancks and Co's plan of Manchester and Salford indicates that the dye works had been substantially modified (Plate 3). In the area immediately the south of late eighteenth-century property boundary, this appears to have involved the extension, or replacement, of the late eighteenth-century dye-works' building that ran parallel with the River Irwell. This expanded building formed a long range with irregular protrusions on its eastern side. Consideration of an early, less-accurate, map of Manchester, produced by Johnson in 1820, suggest that this building had been expanded by this date (Plate 4).



Plate 3: The site boundary superimposed on Bancks & Co's map, 1831



*Plate 4: The dye works and smallwares factory as depicted on Johnson's map, 1820*

- 1.3.7 The irregular-shaped late eighteenth-century dye-works' building, on the southern side of the property boundary, also appears to have been extended to the south-west during the early nineteenth century. For instance, Bancks and Co's plan plots a larger linear building with small protrusion at its north-western corner, in this part of the site. This extension is not depicted on Johnson's map, suggesting that the building was extended between 1820 and 1831. In addition, to the south of the property boundary, a further double-depth domestic property had been constructed fronting Water Street by 1831, which had been built against the south-western side of the late eighteenth-century terraced properties. Immediately to the south-west of this property was an enclosed garden area.
- 1.3.8 Bancks and Co's plan also depicts modification to the area that lay to the north of the late eighteenth-century property boundary. In this area it is clear that by 1831 the late eighteenth-century linear building, which respected the position of the property boundary, had been demolished. Instead, a wall appears to have been present by 1831, which followed the line of the earlier property boundary. Three other buildings and a circular feature had, however, been constructed to the north of the property boundary. The buildings functioned as industrial premises, and included a linear range running parallel and close to the River Irwell, which abutted the northern end of the dye works building that also ran parallel with the river. The southern portions of this building lay within the site boundaries, and based on the map evidence this building appears to have been constructed by 1820.

- 1.3.9 The other building lay to the east and also formed a linear range, which fronted Water Street. In between these two buildings was a courtyard, within which was the circular structure depicted on Bancks and Co's plan of 1831. The third building lay immediately north of the site boundary, and also formed a narrow linear range. This building fronted Water Street and also the road leading to Regent Bridge, which is depicted on Johnson's 1820 map (Plate 4). An enclosed garden area is also depicted fronting this latter road.
- 1.3.10 The form of the site and its immediate environs can be further discerned through examination of the 5ft:1 mile Ordnance Survey (OS) map, surveyed in 1849, and published in 1851 (Plate 5), and Adshead's map, which was surveyed in 1850, and published in 1851 (Plate 6). These maps indicate that the dye-works buildings located to the south of the property boundary, depicted on Bancks and Co's plan, formed part of 'J Goadsby's Dye Works', which was also known as the 'Water Street Dye Works'. The mapping also indicates that the protrusions located on the eastern side of the dye works building running parallel with the Irwell represented the positions of three boilers and cisterns. Adshead's map also plots the position of an additional building that abutted the south-western corner of the dye-works building that was extended between 1820 and 1831. Significantly, this building is not depicted on the OS map, surveyed in 1849, and thus its construction can be accurately dated to 1849-50.

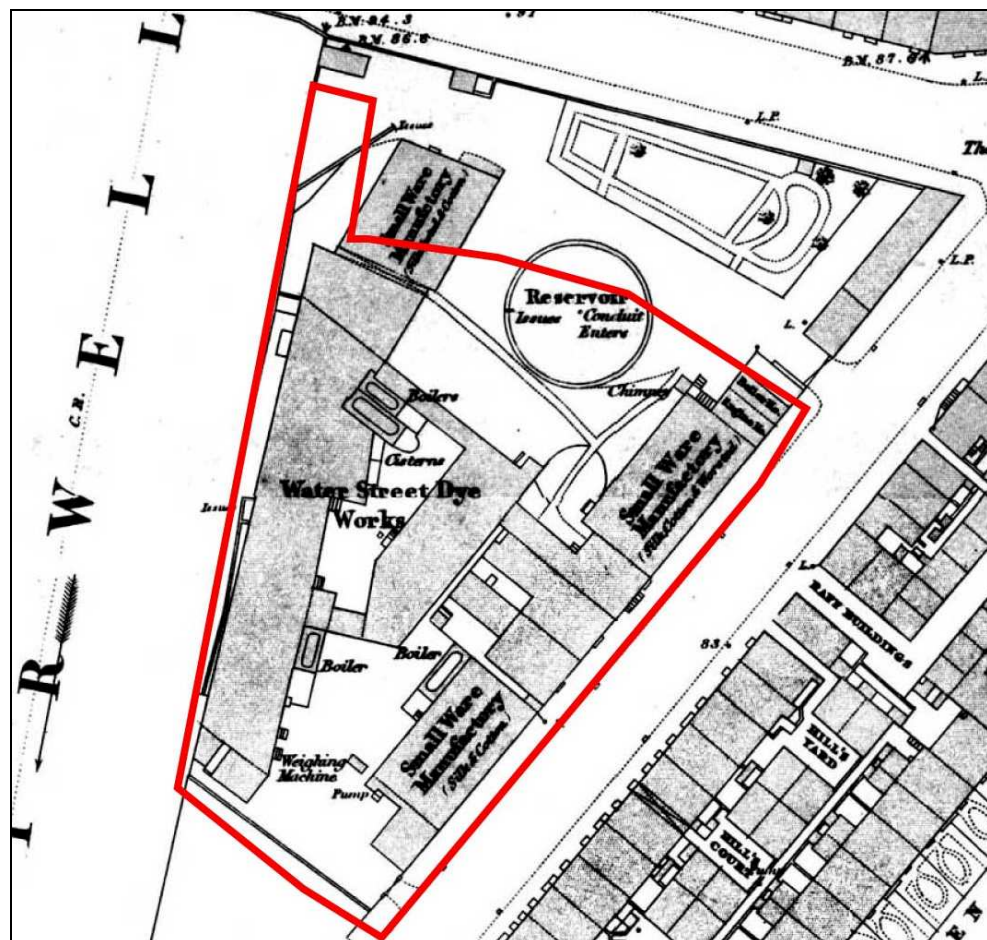


Plate 5: The site boundary superimposed on the OS 5ft: 1 mile map (Sheet 32), surveyed in 1849, and published in 1851

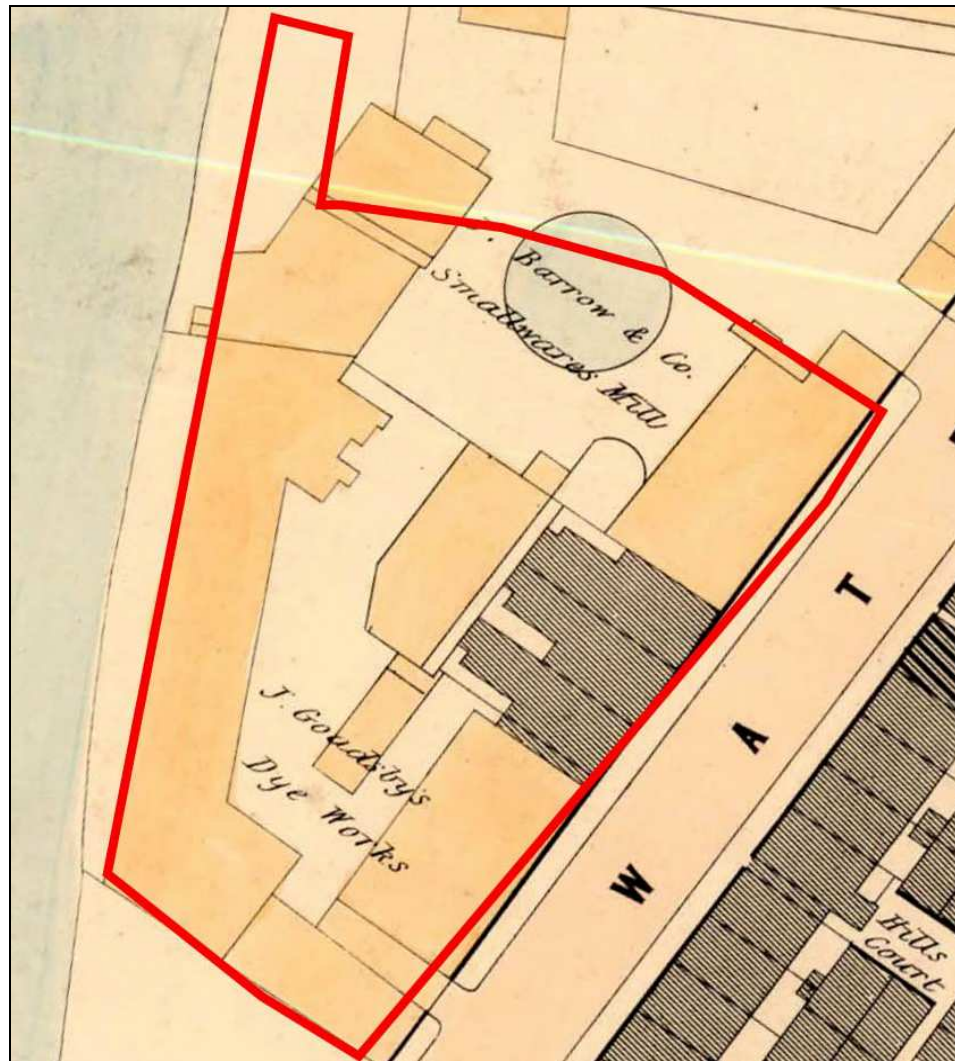


Plate 6: The site boundary superimposed on Adshead's map, 1851

- 1.3.11 These maps also indicate that another industrial building had been constructed, by 1849, in the southern part of the site. This was built against the south-western end of the terraced properties fronting Water Street and also across the former enclosed garden. It functioned as a smallwares factory, and is denoted as 'Small Ware Manufactory (Silk & Cotton)' on the 1851 OS map. This map also indicates that it was provisioned with a boiler that lay to its rear. Other features to its rear included a pump and weighing machine, the latter situated in a courtyard that separated the dye works and the smallwares factory; this area probably formed part of the dye works.
- 1.3.12 The 1851 OS map and Adshead's map also provide additional details of the industrial buildings and circular structure that are plotted on Banks and Co's plan to the north of the property boundary. By 1851, all of these structures formed elements of 'J Barrow & Co smallwares mill'. Within this works, that building which lay close to the Irwell contained a covered passage and is denoted on the 1851 OS map as 'Small Ware Manufactory (Silk, Worsted & Cotton)'. Similarly, the larger of the linear buildings fronting Water Street, which lay within the site boundary, is denoted as 'Small Ware Manufactory (Silk, Cotton & Worsted)'.

- 1.3.13 The 1851 OS map also shows that the northern end of the building contained engine and boiler houses, with an associated chimney. The 1851 OS map indicates that the circular structure to the west was used as a reservoir, perhaps retaining the water required by the steam engines for condensing purposes.
- 1.3.14 Further details of the site can be gleaned from late nineteenth-century trade directories. These indicate that the smallwares factory in the northern part of the site was no longer in operation by 1877 (Slater 1877-8). However, that to the south was still in use and was owned by George Heath at this date. Similarly, the dye works was still functioning and was in the ownership of Teasdale & Walker (*ibid*). Both George Heath and Teasdale & Walker were still running their Water Street businesses in 1883 (Slater 1883). However, by 1895, both business appear to have closed, as neither is listed in the trade directory for that year (Slater 1895).
- 1.3.15 The OS 1:2500 map published in 1896 indicates that the majority of the late eighteenth- and early nineteenth-century buildings had been demolished (Plate 7). This included all of the buildings forming elements of the dye works, the housing, and those buildings and structures associated with the smallwares factory in the northern half of the site. Indeed, the only building depicted on the 1896 map which is present on earlier mapping is the mid-nineteenth-century smallwares factory located in the southern half of the site. By this date the north-western corner of this building had been extended. Other features on this map include a wall respecting the line of the late eighteenth-century property boundary, with two adjoining structures at its eastern end.

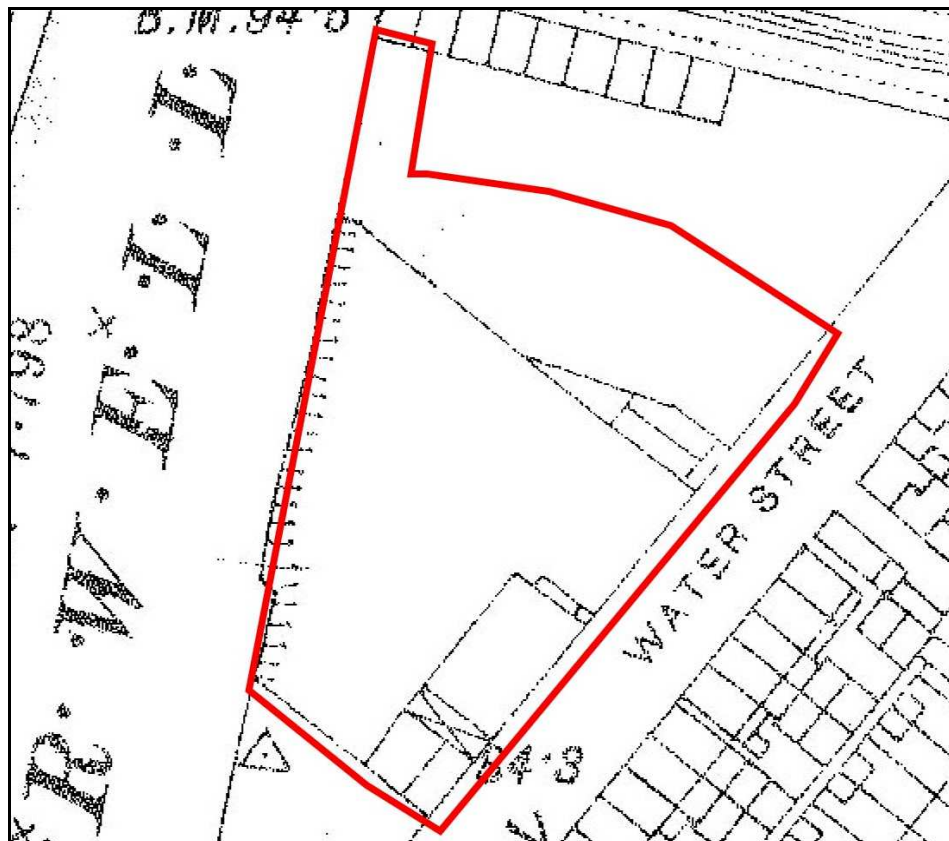


Plate 7: The site boundary superimposed on the OS 1:2500 map (Manchester and Salford sheet CIV.10), surveyed 1888-9, published 1896

1.3.16 **Twentieth century:** OS mapping also allows the form and function of the site to be discerned across the course of the twentieth century. The earliest of the twentieth-century OS maps was published in 1908 at a scale of 1:2500, and this indicates that the northern half of the site lay within a hide and skin market (Plate 8). A further adjoining linear range had been constructed along Regent Road by this date, whilst two buildings had been built fronting Water Street, which formed further elements of the hide and skin market; the more southerly of these buildings lay within the site boundary. This market was probably established at this location due to the presence a large abattoirs that lay immediately to the north-east. The cartographic evidence indicate that this was founded in the late nineteenth century, along with another hide and skin yard that lay to its north.



Plate 8: The site boundary superimposed on the OS 1:2500 map (Manchester and Salford sheet CIV.10), revised 1905, published 1908

1.3.17 The 1:2500 OS map of 1932 indicates that a large warehouse had been constructed in the southern half of the site, across the area formerly occupied by the dye works. This warehouse ran parallel with the River Irwell, and its south-western corner projected into the river. OS mapping dating to the 1949 and 1965 plots the position of this warehouse and indicates that the mid-nineteenth-century smallwares factory also functioned as a warehouse during the mid-twentieth century (Plate 9). The northern half of the site continued to function as a hide and skin market during this period.

- 1.3.18 All of the nineteenth- and twentieth-century buildings and structures were demolished in the latter half of the twentieth century. Following demolition, a restaurant was built in the north-east corner of the site, though this was also demolished in the early part of the twenty-first century.

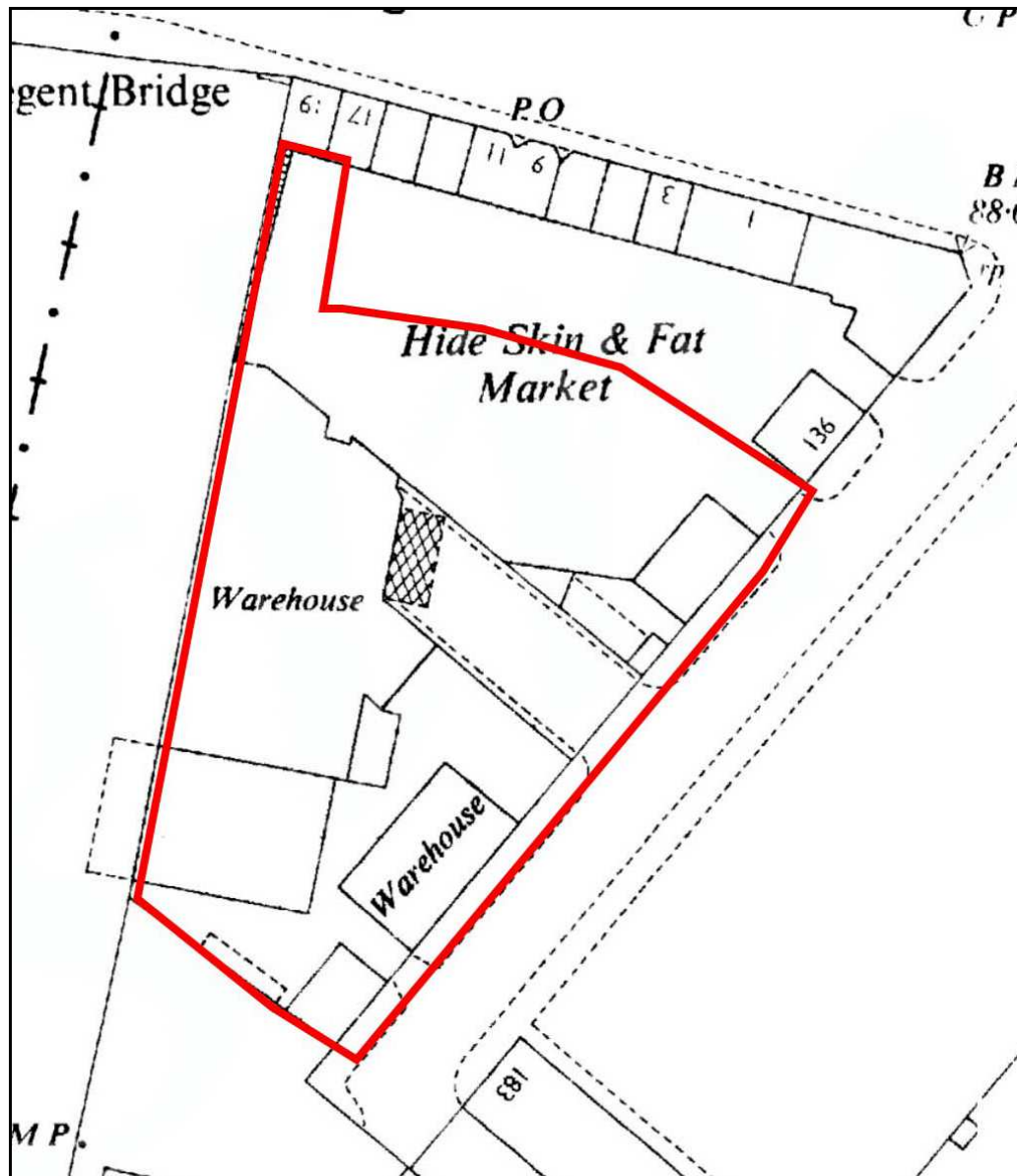


Plate 9: The site boundary superimposed on the OS 1:2500 map (Manchester and Salford sheet CIV.10), revised 1949, published 1949



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## 2. METHODOLOGY

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### 2.1 EXCAVATION

- 2.1.1 The archaeological fieldwork followed the method statement detailed in the approved Written Scheme of Investigation (*Appendix 1*). It was consistent with the relevant standards and procedures provided by the Institute for Archaeologists (IfA) and their code of conduct, and also generally accepted best practice.
- 2.1.2 The excavation was informed by the results of an early evaluation. This initial phase of work had been undertaken in 2008, and had identified archaeologically significant remains surviving across the site (OA North 2008). These remains were associated with the former dye works, the mid-nineteenth smallwares factory located in the southern portion of the site, and also the smallwares factory in the northern part of the site, specifically that part of the factory which fronted Water Street.
- 2.1.3 On the basis of the evaluation results, and the proposed footprint of the development, an L-shaped open-area trench was excavated. This targeted those buildings associated with the late eighteenth-/early nineteenth-century dye works and the building that formed the mid-nineteenth-century smallwares factory, located in the southern part of the site. The principal aim of the archaeological excavation was to expose and record the buried remains associated with the dye works and smallwares factory, and generate a complete record of the remains to mitigate their ultimate loss as part of the proposed development.
- 2.1.4 The uppermost levels of the trench were excavated by a machine fitted with a toothless ditching bucket. The same machine was then used to define carefully the extent of any surviving walls, foundations, and other remains, after which all excavations were undertaken manually. All information was recorded stratigraphically with accompanying documentation (plans, sections, and written descriptions on *pro-forma* context sheets). Individual contexts and the overall site was also photographed from standard view points using 35mm digital cameras. Photographic records were also maintained on special photographic *pro-forma* sheets.

### 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 the Museum of Science and Industry in Manchester on completion of the project. In addition, a copy of the report will be forwarded to the Greater Manchester Historic Environment Record (HER).

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## 3. RESULTS

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### 3.1 INTRODUCTION

- 3.1.1 The excavated trench had a maximum north-east/south-east length of 39m, and a maximum north-west/south-east length of 38m. It was excavated to a maximum depth of 2.6m. Immediately prior to the excavation, the site was mostly level, having been used as a car park, and was covered with tarmac across much of the area. Below the tarmac was a bedding layer of crushed limestone, which sealed, in turn, a mixed demolition deposit that was between 1m and 1.8m thick. This deposit sealed the structural remains present within the trench (Plate 10).



*Plate 10: Aerial shot of the open-area area*

- 3.1.2 Although the aim of the excavation was to expose the remains of the former dye works and smallwares factory, it became clear during the initial stages of the excavation that a large portion of the dye works had been destroyed by a basement that formed an element of an early twentieth-century warehouse (*Section 3.5*). Given this, only a small portion of the site therefore contained structural remains associated with the dye works. These remains lay at the far north-eastern corner of the trench, and were abutted by a later wall that followed the course of the property boundary depicted on historic mapping (Fig 2). Additional lengths of walling were also present to the north of this wall. The remains associated with the smallwares factory were more intact, and these defined the near-complete ground plan of this building (Fig 3).
- 3.1.3 In general terms, the structural remains forming elements of the dye works and smallwares factory were built of hand-made bricks with average measurements of 220 x 110 x 70mm. These were bonded with a crumbly lime-based mortar, consistent with a construction date in the period spanning the late eighteenth to mid-nineteenth century. Other later structural remains were composed of machine-made brick and concrete. Where it was observed, the natural geology consisted of a light yellowish-brown sand and gravel.

## 3.2 THE DYE WORKS

- 3.2.1 The remains associated with the dye works lay in the north-eastern part of the trench, covering an area measuring 15 x 10m (Fig 2). Remains were also encountered in the south-eastern part of the trench in the form of a boiler setting, which also formed an element of the dye works (Fig 3).
- 3.2.2 Analysis of the historic maps suggest that the remains in the north-eastern part of the trench date to the late eighteenth century, and formed elements of a small building depicted on Green's 1787-94 map (Fig 4). This building was extended subsequently to the south-east, and modified during the early part of the nineteenth century, more specifically between 1820 and 1831 (Figs 5-7). A series of remains within the interior of the original building appeared to relate to this later phase of modification. Regarding the date of boiler, although this is difficult to precisely ascertain, it was certainly established following the construction of a further extension to the 1820-31 building extension, which dates to 1849-50 (*Section 1.3.9*). It therefore must post-date 1850, and most likely dates to the mid-nineteenth century.
- 3.2.3 **Late eighteenth-century remains (pre-1794):** several walls were present which defined the external walls of a rectangular building that appears to be that depicted on Green's 1787-94 map (Fig 4; Plate 11). This building had a rectangular plan and a protruding section at its south-western corner. The surviving remains included hand-made brick wall **025**, which defined its north-western and north-eastern sides, and wall **027** which bounded its south-eastern side (Fig 2). An additional stretch of hand-made brick walling (**040**) also probably linked with wall **027**, and originally formed the outer wall of the protruding section of this building, as depicted on Green's map.



*Plate 11: The remains of the dye-works' building, looking south*

- 3.2.4 Wall **025** was 0.6m wide and 0.4m deep and was laid on a foundation of thin sandstone slabs (Plate 12). A 2.5m-wide section this wall had also been removed, presumably during works to construct the basement associated with the twentieth-century warehouse. Similarly, part of its north-eastern stretch had been reduced during the construction a later wall (**023**). This reduced section had also then been covered with a mixture of plaster, crushed brick and cinders (Plate 13).
- 3.2.5 Walls **027** and **027A** were *c* 0.5m wide and defined the south-eastern and south-western corner of the building. The north-eastern stretch of wall **027** had been truncated by a later ceramic drain (**029**).



*Plate 12: Wall 025 (foreground) with stone slab foundation, looking south-east*



Plate 13: Wall 025 reduced in height and buried, looking south-east

- 3.2.6 **Early nineteenth-century remains (1820-31):** historic mapping indicates that the original late eighteenth-century building was extended between 1820 and 1831 (*Section 1.3.6*). Various structural remains were present within the building which probably relate to this phase of modification. Significantly, these remains also provide evidence for the use of the north-eastern end of this building during this period.
- 3.2.7 One feature that was clearly later than the late eighteenth-century walls was wall 026, which ran along the south-west side of the excavated room between walls 025, 027, and 027A. It was 0.49m wide and 0.7m deep and may have formed a rebuild of an earlier wall. The construction cut for wall 026 was also clearly visible, and this formed the only feature of this kind to be present in this area (Plate 14).
- 3.2.8 Several other inter-linked structures were also present that were contemporary with wall 026, as these formed part of its original build. All appeared to represent heating. One of these was structure 033. This lay at the centre of wall 026 and had a rectangular plan, measuring c 2.95 x 1.5 m (Plate 15). It was originally built from hand-made bricks, although it appeared to have been repaired at a later date, as its south-western end was composed of machine-made refractory bricks. The structure had an internal chamber measuring 2.1m long, and 0.53m wide at its north-eastern end, and 0.68m wide at its south-western end. This internal chamber was built from hand-made refractory bricks, and the walls were lined internally with machine-made refractory bricks, again indicating that it had been refurbished in the late nineteenth century. The structure was clearly associated with heating as it was filled with rubble, ash, soot and cinders, whilst it was surrounded by heat-affected sandy clay. It is likely that this structure formed a small oven/furnace, used to generate heat required by those processes occurring within this part of the dye works.



*Plate 14: Wall 026 with construction cut, looking south-east*



*Plate 15: Furnace 033, looking north-east*

- 3.2.9 Attached to the south-western end of the oven/furnace was a flue (**035**). This was constructed from refractory brick and was 1.18m wide with a 0.35m wide and 0.75m deep internal channel, with a brick floor. It had a U-shaped plan with furnace **033** at its centre. It also ran through wall **026** at two separate points and was attached to small chimney (**036**), which also lay against wall **026**. This chimney measured 1.04 x 0.73m, with an internal area of 0.47 x 0.35m. It was built from brick, and lay against walls **026** and **027** (Plate 16).



Plate 16: Chimney **036** and flue **035**, looking south-west

- 3.2.10 The north-east/south-west-aligned stretch of the flue appeared to have originally been arched, possibly as it ran through the wall and into the building (Plate 17). In contrast, the north-west/south-east curving stretch of flue was covered with a mixture of refractory tiles, stone slabs and sections of a cast-iron boiler that had presumably failed as a boiler and the materials been re-used (Plate 18). The interior of the flue was heavily burned and full of soot and ash.
- 3.2.11 The remains of another flue were also present (Plate 19). This ran parallel with the south-eastern side of furnace **033** and may represent an earlier flue, which was presumably originally linked to the furnace. It ran for a distance of 6.2m north-east from wall **026** and was 0.48m wide with a 0.23m-wide brick floored internal channel. This channel contained soot, ash and cinders. The flue was blocked at the end that met wall **026**, but may originally have run further south-west. This latter section was probably removed during the construction of flue **035**.



*Plate 17: The north-east/south-west section of flue 035, with the remains of an arched roof (bottom left), looking north*



*Plate 18: Flue 035 covered with pieces of cast-iron boiler plate, looking east*





*Plate 19: Flue 034, looking north-east*

3.2.12 To the north of the furnace, and at the centre of the excavated room, were the supports (030) for a tank or vat that was used in the dyeing process. This covered an area measuring 5.4 x 2.85m (Plate 20).



*Plate 20: Stone bases 030, looking south*

3.2.13 The supports comprised two parallel rows, 2m apart, of five stone blocks, that were set roughly 0.85m apart in each row. The blocks were each roughly 0.4m square and 0.35m high with square recesses cut into the upper surface into which a lead sheet, with a central raised circle of lead, had been set. They were sat on hand-made brick pads (Plate 21).



Plate 21: Detail of stone blocks in **030**, with lead setting on upper surface, looking north-east

3.2.14 Beneath the presumed vat, and also to its north-east, was a floor surface (**028**) composed of hand-made bricks with occasional stone flags (Plate 22). This had been removed by disturbance in a number of places, and had also been partially cut by a later ceramic drain (**029**). Flue **034** originally ran through this floor surface, below the south-east end of vat supported by structure **030**.



Plate 22: Brick- and stone- floor surface **028**, looking south-east

3.2.15 Other structures that might date to the early nineteenth century included a short stub of brick wall footing (**037**), aligned north-west/south-east, associated with a small patch of brick flooring. A rectangular brick structure (**038**; Plate 23) also lay to the east of flue **035**, between the flue and furnace **033**. This measured 1.16 x 0.52m, with an internal 0.91 x 0.28m chamber, which was 0.15m deep. It was constructed of hand-made brick. The intended function of this structure remains uncertain.



Plate 23: Brick feature **038**, looking north-east



Plate 24: Brick column base **031** (right of centre), looking south-west

- 3.2.16 Two 0.54m square brick pads (**031** and **032**) were also present, which may have acted as column bases (Plate 24). Pad **031** lay just to the north-east of structure **030** and pad **032** to the south-west of flue **035**. They were positioned along the north-east/south-west centre line of the building, and are likely to have been the bases for columns supporting its roof.
- 3.2.17 **Mid-nineteenth-century remains:** remains that might date to this period were uncovered at the south-eastern end of the trench (Fig 3), and comprised the brick base of a boiler **017**. This lay against the south-eastern wall of the dye-works building that is depicted Adshead's 1851 map (Fig 7), and thus must post-date its construction. Much of the boiler had been destroyed by later activity and the remains that survived measured 2.6m wide and 5.7m long (Plate 25). It was built from refractory brick, with a base that curved down from the sides to the centre, which was 0.97m deep. A three-course-wide spine of brick walling, 0.27m high, ran along the length of the base. The north-east end of the boiler had been removed with a refractory brick wall running across it shortening its length. A small brick chamber of unknown function had also been added in its eastern corner.
- 3.2.18 The curved profile of the boiler base is rather unusual, and inconsistent with the form of housing for either a Cornish or Lancashire-type boiler, which were the types most commonly used for nineteenth-century textile-manufacturing sites. Another type was the egg-ended boiler, which were used widely for raising steam in nineteenth-century collieries and ironworks. These were often supported on stone or brick settings to allow the hot gases from the heating source to pass along the lower half of the shell to the chimney. However, this would have rendered the brickwork black and sooted, which was not apparent in the excavated remains. An alternative was to pass the hot gases around the sides of the boiler in 'wheel flues', which may have been the system used at Water Street.



Plate 25: Truncated boiler housing, looking north-west

- 3.2.19 **Late nineteenth-century and later remains:** several structures also existed in the north-east corner of the trench, which relate to late nineteenth-century or later activity. Inside of the dye works building, these remains included the machine-made brick rebuilds to furnace **033** (Section 3.2.7). These rebuilds must have occurred when the dye works was still operating and as such pre-date the OS map of 1896, which indicates by this time the dye-works building had been demolished (Fig 8).
- 3.2.20 Other structures which may have been installed when the dye-works building was still standing were present to the west of structure **030**, and included a series of brick drains with brick and stone slab bases, and stone capping. At least four phases of drain were present, all inter-cutting and heavily disturbed. It was impossible to ascertain exactly where they led, due to the later disturbance, but its clear that they truncated the end of the flue **035**, suggesting they are later features within the building.
- 3.2.21 A final structure in this area that could be dated confidently to the late nineteenth century was wall **023** (Plate 26). This wall is probably that depicted on the 1896 map (Fig 8), and followed the earlier property boundary. It was a 0.72m wide and was constructed of machine-made bricks, bonded with a hard grey cement. It ran for 20.4m though its north-western end had been truncated by a modern manhole **040**. It had also been cut part way along its length by a modern drain. A second machine-made brick wall **024** (Plate 26) abutted this wall and again this is depicted on the 1896 map (Fig 8). It ran at an angle to the east, into the edge of the excavated trench.



Plate 26: Walls **023** and **024**, looking south-east

### 3.3 THE SMALLWARES FACTORY

3.2.22 The remains of the smallwares factory lay in the south-eastern part of the trench (Fig 3; Plate 27). The cartographic evidence indicates that this building was built between 1831 and 1849, and it is likely that the remains exposed within its interior date to this period. These remains represented the walls and flooring of the building, and also included evidence for an engine room, and an attached chimney and flue. In addition, the remains of a boiler setting were uncovered to the north-west, which probably raised the steam that was required by the engine within the factory.



Plate 27: The remains of the smallwares factory, looking south-west

3.2.23 The exposed area of the factory measured 13.5 x 9.6m, and its western external wall (**01**) extended from the southernmost edge of the excavation area for 8.18 m before being truncated by a large concrete drain **08** (Plate 28) Wall **01** measured 0.49m wide, was four-courses wide and constructed of hand-made bricks bonded with lime-based mortar. This length of wall also contained a curved brick structure (**02**) of unknown function that had been heavily damaged by drain **08**. Wall **01** continued beyond this drain as wall **010**.

3.2.24 Wall **010** was 0.53m wide and was excavated to a depth of 0.9m on north-west-facing side, and 0.43 on south-east-facing side, and was in poor condition. This wall joined with wall **012**, which formed the north-eastern external wall of the factory.

3.2.25 Within the main body of the building were five single-course-wide brick walls (**03**), which probably originally supported a wooden floor (Plate 29). These walls were built using full and half bricks, bonded with lime-based mortar.



*Plate 28: Main factory room, with wall 01/010 (right), looking south-east*



*Plate 29: Internal factory walls 03, looking north-east*

- 3.2.26 Between each of the internal walls (**03**) were brick pads (**04**, **05**, **06**, and **07**; Plate 30). These probably acted as the bases for columns within the building, which supported a roof or upper floor. Of these, column base **04** was excavated to a depth of 0.35m and was shown to be slightly stepped. It measured 0.82 square and was constructed with both full and half bricks. Column base **05** measured 0.81 x 0.77m wide; base **06** measured 0.74 x 0.66m; whilst base **07**, had been removed by drain **08**.
- 3.2.27 Wall **011** was present at the north-eastern end of the building and separated the working floor from the engine room. This wall extended from the south-eastern edge of the trench for 9.05m, measured 0.5m wide, and showed a number of builds/rebuilds, including a bricked-up archway (Plate 31).



Plate 30: Brick column base **06**, looking south-east



Plate 31: Blocked arch in wall **011**, looking north-east





Plate 32: Engine bed, looking south

- 3.2.28 The factory's engine room lay between walls **012** and **011**, and also two north-east/south-west-aligned walls (**014**), and its floor area measured 7.2 x 3.6m. Within the engine room was the base of a steam engine. This comprised two stone beds, which each contained two notches and two circular sockets, for holding-down bolts, that together would have secured the engine (Plate 32). The blocks were set *c* 0.5m apart, and the area in between comprised a surface of hand-made brick, which had sunk in places. At the north-east side of the room, next to the north-eastern stone bed, were the truncated remains of a 1.14 x 0.96m rectangular brick structure with an open centre.
- 3.2.29 To the immediate south-east of the engine room was a small room bounded by walls **011**, **012**, and **014** (Plate 33). It had been infilled with clay and had a small stub of single-course-wide brick walling running part way across it from wall **014**. The function of this room was unclear.
- 3.2.30 At the north-west end of the engine room was a small compartment that contained brick structures **015** and **016**. Structure **015** was a square structure built of refractory brick with an open interior measuring 0.86 x 0.81m. It had a brick floor and showed signs of heavy burning, and probably formed the remains of a chimney (Plate 34). Structure **016** was constructed from hand-made brick and lined with refractory brick (Plate 35). It linked with chimney **015** via an opening that had been blocked at a later date. It probably represents a flue that linked with the factory's boiler, which the OS map of 1851 indicates lay immediately to the north-west. However, physical remains of this boiler appeared to have been destroyed by later activity. Within the flue were also the remains of an iron shutter, presumably employed to vary the rate of gases exhausting into the chimney. The flue ran south-west from the chimney and then curved round to the north-west where it had the remains of an arched roof. After this point, the remains of the flue had been destroyed by later activity.



*Plate 33: The small room to the left of engine room, looking south-west*



*Plate 34: Chimney 015, looking south*



Plate 35: Flue **016**, looking west

### 3.4 ADDITIONAL NINETEENTH-CENTURY STRUCTURES

- 3.4.1 A very compact surface (**018**), which was 1.07m wide, was present to the north-east of the smallwares factory. This contained a patchy brick surface, and its position corresponded with an alleyway shown on the 1851 OS map. At the north-east side of this was brick wall **019**, running parallel to the external wall (**012**) of the factory. At the north-west end of wall **019** was also a roughly built floor surface **020** composed of hand-made bricks and stone flags (Plate 36). This is likely to have been associated with the back yard of the early nineteenth-century house that fronted Water Street.



Plate 36: Alleyway and back yard to north-east of the smallwares factory, looking south-east

- 3.4.2 To the north-west of the smallwares factory were the remains of a yard surface, which had been laid in the late nineteenth century following the demolition of the dye works (Figs 3 and 8). It comprised a c 6 x 4m area of stone setts (**021**) with a slightly sloped water run-off channel at its the centre (Plate 37). Wrapping around the area of the setts was concrete surface **022**, which presumably represented a later modification.



Plate 37: Concrete and sett yard surface **021** and **022**, looking north-east

### 3.5 THE TWENTIETH-CENTURY WAREHOUSE AND LATER REMAINS

- 3.5.1 Across much of the western part of the trench was a large basement, which formed part of a warehouse that was established between 1908 and 1932. The basement had concrete walls and a concrete floor at a depth of 2m below the current ground level (Figs 2 and 3; Plate 38).
- 3.5.2 At the eastern side of the basement was a rectangular room with brick walls on a concrete foundation, which had truncated the mid-nineteenth-century boiler associated with the dye works (*Section 3.2.17*). Within this room was the base of a brick and concrete staircase (Plate 39).
- 3.5.3 Within the area of the basement were three rows of 0.58m-diameter octagonal concrete piles with large reinforcing bars (Plate 40). These descended through the basement floor down to the sandstone bedrock and relate to the construction of a proposed apartment-block development dating to the early 1990s, which was abandoned for financial reasons shortly after the piling was undertaken.



*Plate 38: Concrete basement floor and walls, looking north-west*



*Plate 39: Modern basement with staircase at top right, looking south*



*Plate 40: Octagonal reinforced concrete pile*

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## 4. DISCUSSION

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- 4.1 The excavation uncovered a series of remains, which can be accurately related to the known historical development of the site, as discerned from the cartographic sources dating from the late eighteenth-century onwards.
- 4.2 The more significant of these remains were perhaps those located that represented the remains of the dye works in the north-eastern part of the trench. In this area, the earliest remains included the external walls of a small dye-works' building, which is depicted on William Green's map of Manchester and Salford dating to 1787-94. Natural dyes would have been used within the dye works during this period, and these would have required a fixative, or mordant, to fix the colour to the yarn or cloth (Morris and Travis 1992).
- 4.3 The late eighteenth-century dye-works building was expanded and modified during the period 1820-31. Natural dyes would still have been used at this date, as it was not until the 1860s that the first synthetic dyes were widely adopted (Miller 2012). Within the excavated area, remains relating to this phase of early nineteenth-century modification were also present. These included various structures, which provide an indication of the use of the north-eastern end of this building. These remains revealed that this part of the building contained a raised vat, supported by two parallel rows of stone column bases. This vat presumably held the liquid colourants required in the dyeing process. It also clear that the dye within this vat was heated by a flue, which led from a small furnace that lay to the south-west. This flue passed beneath the vat, and its position was reconfigured on at least one occasion.
- 4.4 Significantly, the nineteenth-century remains from the dye-works fit well with the processes that are known to have occurred, more generally, within early/mid-nineteenth-century dye works. For example, a useful description of a typical mid-nineteenth-century dye works is provided by Barfoot (1840), who noted:

'The Dyer's Machinery is very simple, and so are the operations; but the management of the colouring requires much skill. When the colours are to be fixed upon cloth which has gone through the printing machine, the pieces are first passed through a number of rollers, in a stone cistern filled with cow dung and hot water, to take away the printer's colouring. After this they are well washed in a Dash-wheel, tied four together and put into a Dyeing Cistern filled with water and the dye stuff required, such as Madder for red, or lilacs, Indigo for blues, &c. the pieces are rinsed in cold water and put again into the Dash-wheel. The dye is thus fixed in the pattern given by the machine, and as the rest of the cloth is slightly tinted, it is washed in hot water and bran, and put into a cistern of bleaching liquid. It is next passed between two squeezers, and dried by the drying machine'.

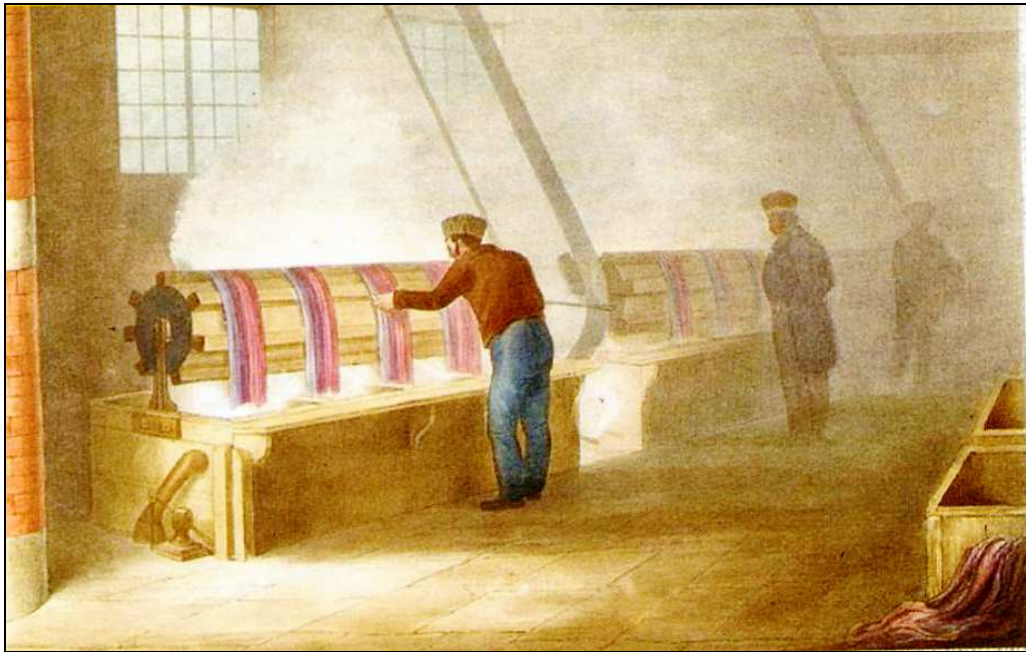


Plate 41: Nineteenth-century lithograph of the dyeing process (Barfoot 1840)

- 4.5 Based on this description, it is quite likely that the vat contained in the excavated area at Water Street represented a 'Dyeing Cistern filled with water and the dye stuff required'. With regard to heating the liquid within the vat, fortunately, early nineteenth-century descriptions also exist (eg Partridge 1823). These indicate that there were three different ways of heating vat liquors. These included: turning it over into a furnace and, when heated to boiling, returning it into the vat; by having part of the vat made of metal and passing a flue around it; or heating the vat by steam. Given this, it seems likely from the remains excavated at Water Street that the second heating method, using a flue, was employed, and that part of the vat would have been made of metal.
- 4.6 Early/mid-nineteenth-century machinery and equipment, such as the printing machines, cisterns and vats, dash-wheels, jiggers, padding machines and mangles required for the dyeing process, as well as cutting, drying, brushing, and raising apparatus, and also rooms used to dry the fabric, would have been situated in the other dye-works buildings that are plotted on the historic maps dating to 1831 and 1851. Some of this machinery would have been driven by steam power, whilst steam would also have been used to heat the drying rooms. It is thus unsurprising that the OS 1851 map plots the position of several boilers that were attached to dye-works buildings. The partial remains of one such boiler were revealed during the excavation. Map evidence indicates that this boiler post-dates 1850, though the materials used in its construction suggest that it probably dates to the third quarter of the nineteenth century. It was attached to a building depicted that, on cartographic evidence, was built in 1849-50, and lay at the end of the building containing the excavated vat and furnace. One tentative suggestion is that this boiler may have provided steam that was used to heat dyeing vats contained in the far end of this building, or that it provided steam used to dry dyed cloth.



- 4.7 The other significant nineteenth-century remains revealed by the excavation at Water Street dated to 1831-49, and related to a smallwares factory that lay to the south-west of the dye works. This factory would have produced small cotton and silk goods, such as tapes, braids, and fringe. The excavation indicated that the factory was served by steam-powered machinery, due to the discovery of the base for a steam engine, within an engine room. The steam required by this engine would have been provided by a boiler that was attached to the north-western side of the building. Although the remains of this boiler did not survive, evidence for a flue running from the boiler to a chimney was identified. The flue lay immediately next to the engine room within the main body of the factory. Although these remains are not particularly rare, they do represent a valuable addition to the growing body of evidence for early/mid-nineteenth-century power systems that have been recorded during archaeological excavations of industrial works and mills across Manchester.
- 4.8 Other early/mid-nineteenth-century remains were identified immediately north-east of the smallwares factory. They included the remains of an alleyway depicted on the 1851 OS map.
- 4.9 The remaining features uncovered during the excavation hold less significance and largely relate to later activity at the site. These include late nineteenth-century walls, rebuilds, and yard surfaces, and also the basement for a warehouse, which was constructed in the early half of the twentieth century. This latter feature covered the western portion of the trench, and its construction led to the destruction of the dye-works buildings that lay in this area, adjacent to the River Irwell.

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## 6. CURATION AND CONSERVATION

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### 6.1 RECIPIENT MUSEUM

- 6.1.1 The Museum of Science and Industry in Manchester has been nominated as the ultimate repository for the finds:

Museum of Science and Industry in Manchester,  
Liverpool Road,  
Manchester

### 6.2 CONSERVATION

- 6.2.1 There are no conservation requirements.

### 6.3 STORAGE

- 6.3.1 The complete project archive, which will include written records, plans, digital photographs, and artefacts, will be prepared for long-term storage following the guidelines set out in *Environmental standards for the permanent storage of excavated material from archaeological sites* (UKIC 1984, Conservation Guidelines 3), and *Guidelines for the preparation of excavation archives for long-term storage* (Walker 1990).

### 6.4 DISSEMINATION

- 6.4.1 The complete results obtained from the archaeological investigation are incorporated in this final excavation report. In addition to Renaker Build Ltd, copies of the report will be forwarded to the Museum of Science and Industry in Manchester, Manchester City Council Planning Department, and the Greater Manchester Historic Environment Record.
- 6.4.2 The issue of the publication of archaeological reports and public accessibility to data has been stressed in the North West Region Archaeological Research Framework (Brennand 2007). Whilst this is a problem for the entire archaeological community, the visual nature of industrial period remains, and its link to the present population, increases the significance of prompt publication of studies of this nature. A summary of the results obtained from the excavation has been forwarded to *Post-Medieval Archaeology* for inclusion in their annual published compilation of fieldwork carried out on post-medieval sites in Britain and Ireland. The nature of the results, however, do not merit the preparation of a stand-alone article suitable for publication in an appropriate academic journal.

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## APPENDIX 1: WRITTEN SCHEME OF INVESTIGATION

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### 1 INTRODUCTION

#### 1.1 BACKGROUND

- 1.1.1 Renaker is currently preparing a planning application for the redevelopment of land bounded by Water Street, Regent Road, and the River Irwell in Manchester (centred on SJ 8267 9765). The study area covers some 0.4ha, and lies on the south-western fringe of Manchester city centre, in the western part of the Castlefield Conservation Area. The proposed development concerns the erection of mixed residential and commercial units, including basement parking, which will necessitate considerable earth-moving works. The site is currently vacant, as it was cleared of former buildings in advance of a previous planning application that was submitted in 2007.



*Recent aerial view of the proposed development area*

- 1.1.2 In 2008, as part of the works carried out to support the previous planning application for the site, Oxford Archaeology North (OA North) carried out a scheme of evaluation trenching. The evaluation comprised the excavation of five trenches, which were intended to establish the presence or absence of buried remains of archaeological interest, and assess their significance. Some well-preserved structural remains spanning the late eighteenth to twentieth centuries were revealed in the excavated trenches.

- 1.1.3 In particular, elements of a former dye works and part of a nineteenth-century smallware factory were found to survive *in-situ* and were considered to be of archaeological interest. Following consultation with the Greater Manchester Archaeological Unit (now the Greater Manchester Archaeological Advisory Service), in their capacity of archaeological advisors to Manchester City Council, it was recommended that the site merited further excavation in advance of development to enable the archaeological remains to be preserved by record in advance of their ultimate destruction.
- 1.1.4 The previous planning application was not progressed, and the site has since remained undeveloped. Most recently, the site has been purchased by Renaker, who are currently formulating design proposals for a new development. In recognition that the site contains buried archaeological remains that will ultimately require a programme of detailed investigation in advance of development, Renaker has requested that OA North undertake the work required to fulfil the archaeological obligations. This Written Scheme of Investigation (WSI) has been formulated to meet the requirements of GMAAS for further archaeological excavation of the site.

## 1.2 OXFORD ARCHAEOLOGY

- 1.2.1 Oxford Archaeology (OA), which is an educational charity under the guidance of a board of trustees, has over 30 years of experience in professional archaeology, and can provide a professional and cost-effective service. We are the largest employer of archaeologists in the country (we currently have more than 200 members of staff), and can thus deploy considerable resources with extensive experience to deal with any archaeological obligations you or your clients may have. We have offices in Lancaster, Oxford and Cambridge, trading as Oxford Archaeology North (OA North), Oxford Archaeology South (OA South) and Oxford Archaeology East (OA East) respectively, enabling us to provide a truly nationwide service. OA is an Institute for Archaeologists Registered Organisation (No 17). All work on the project will be undertaken in accordance with relevant professional standards, including:
- IfA's *Code of Conduct*, (2013); *Code of Approved Practice for the Regulation of Contractual Arrangements in Field Archaeology*, (2013); *Standard and Guidance for Archaeological Evaluations*, (2013); *Standard and Guidance for Archaeological Watching Briefs*, (2013).
  - English Heritage's *Management of Archaeological Projects (MAP2)*, 1991.
  - *The European Association of Archaeologists Principles of Conduct for Archaeologists Involved in Contract Archaeological Work* (1998).

## 2 AIMS AND OBJECTIVES

### 2.1 ACADEMIC AIMS

2.1.1 The main research aim of the investigation, given the commercial nature of the proposed scheme, will be to expose and record the buried remains of archaeological interest within the specified areas, and generate a complete record of the remains to mitigate their ultimate loss as part of the proposed development.

### 2.2 OBJECTIVES

2.2.1 The following programme has been designed to preserve by record any archaeological deposits or features that may be present that will be impacted on by the proposed development. The minimum level of dissemination of information generated from the excavation will ultimately be achieved via the deposition of the archive at the Museum of Science and Industry in Manchester, and a final report at the Greater Manchester Historic Environment Record. In addition, pending the significance of the findings from the excavation, a contingency allowance should be made for the production and installation of a permanent information board to present the history and industrial heritage of the site.

2.2.2 The principal objectives of the project may be achieved via the following stages:

- **Archaeological Excavation:** the excavation of a single, L-shaped open-area, which will be targeted on the buried remains of archaeological interest that were exposed in the evaluation trenches;
- **Historical research:** a limited programme of historical research to supplement the information gathered during previous archaeological studies of the site;
- **Post-excavation and Report Production:** the site records, finds and any samples from the excavation programme outlined below will form a checked and ordered site archive as outlined in the English Heritage guideline document *Management of Archaeological Projects* (2nd edition, 1991). Following compilation of the project archive, a report will be produced;
- **Archive Deposition:** the results of the excavation will form the basis of 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;

2.2.3 In addition, the excavation may address the following research objectives:

- establish the plan form, chronology, and dating for the dye works;
- establish the character of the early nineteenth-century smallware factory.

## 3 METHOD STATEMENT

### 3.1 SITE SET-UP

3.1.1 The following work programme is submitted in line with the aims and objectives summarised above. As an initial stage in the programme of works, the area targeted for excavation will be marked out, and CAT-Scan will be carried out to locate any services present within the excavation areas. The excavation area will cover approximately 1200m<sup>2</sup>, and will investigate the core elements of the former dye works, and the early nineteenth-century smallware factory along the Water Street frontage (Figure 1).

### 3.2 FIELDWORK

3.2.1 Excavation of the uppermost levels of modern overburden/demolition material will be undertaken by a machine fitted with a toothless ditching bucket to the top of the first significant archaeological level. It is envisaged that a c 20-tonne tracked excavator will be employed for this purpose. The work will be supervised closely by a suitably experienced archaeologist. Spoil from the excavation will be stored in a stockpile, and then returned to the excavation area upon completion of the archaeological works. Machine excavation will then be used to define carefully the extent of any surviving structures and other remains. Thereafter, structural remains will be cleaned manually to define their extent, nature, form and function.

3.2.2 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 excavation will be recorded on *pro-forma* context sheets, and will be accompanied with sufficient pictorial record (plans, sections and both black and white and colour photographs) to identify and illustrate individual features. Primary records will be available for inspection at all times.

3.2.3 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, and all frames will include a visible, graduated metric scale. Photograph records will be maintained on special photographic *pro-forma* sheets.

3.2.4 The precise location of the excavation areas, and the position 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 software, which will then be subject to manual survey enhancement, as appropriate. The drawings will be generated at an accuracy appropriate for 1:20 scale, but can be output at any scale required. Sections will be manually drafted as appropriate at a scale of 1:10. All information will be tied in to Ordnance Datum.



- 3.2.5 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*.
- 3.2.6 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.
- 3.2.7 ***Finds policy:*** finds recovery and sampling programmes will be in accordance with best practice (following current Institute for Archaeologists' guidelines) and subject to expert advice in order to minimise deterioration. OA has close contact with Ancient Monuments Laboratory staff at the University of Durham and, in addition, employs in-house artefact and palaeoecology specialists, with considerable expertise in the investigation, excavation, and finds management of sites of all periods and types, who are readily available for consultation. Finds storage during fieldwork and any site archive preparation will follow professional guidelines (UKIC). Emergency access to conservation facilities is maintained by OA North with the Department of Archaeology, the University of Durham. Samples will also be collected for technological, pedological and chronological analysis as appropriate.
- 3.2.8 ***Environmental Sampling:*** the strategy for palaeo-environmental sampling will be developed on site, in consultation with appropriate specialists, as necessary. The environmental sampling strategy will therefore evolve from a discussion between those specialists and the field team and will be in accordance with current best practice.

### 3.3 POST-EXCAVATION

#### 3.3.1 Post-excavation work will comprise the following:

- checking of drawn and written records during and on completion of fieldwork;
- production of a stratigraphic matrix of the archaeological deposits and features present on the site, if appropriate;
- cataloguing of photographic material, which will be mounted appropriately;
- cleaning, bagging and labelling of finds according to the individual deposits from which they were recovered. Any finds requiring specialist treatment and conservation will be sent to an appropriate Conservation Laboratory. Finds will be identified and dated by appropriate specialists;
- assessment of any palaeo-environmental material and/or technological residues recovered will be undertaken, providing recommendations for further analysis.

### 3.4 ARCHIVE/REPORT

- 3.4.1 **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 (*Management of Archaeological Projects*, 2nd edition, 1991), and in accordance with the *Guidelines for the Preparation of Excavation Archives for Long-Term Storage* (Walker 1990). The project archive represents the collation and indexing of all the data and material gathered during the course of the project. This archive will be provided in the English Heritage Centre for Archaeology format and a synthesis will be submitted to the CSMR (the index to the archive and a copy of the report).
- 3.4.2 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.
- 3.4.3 **Report:** a draft copy of a written synthetic report will be submitted for comment to the archaeological curator (GMAAS) for comment within eight weeks of completion of the fieldwork. The report will include:
- a title page detailing site address, NGR, author/originating body, client's name and address;
  - a non-technical summary of the findings of the fieldwork;
  - a description of the archaeological background;
  - a detailed account of the historical development of the site, accompanied with map regression analysis;
  - a description of the topography and geology of the study area;
  - a description of the methodologies used during the fieldwork;
  - a description of the findings of the fieldwork;
  - detailed plans of the excavation area, showing the archaeological features exposed;
  - an overall phased plan with sections of the excavated archaeological features;
  - interpretation of the archaeological features exposed and their context within the surrounding landscape;
  - appropriate photographs of specific archaeological features;
  - a consideration of the importance of the archaeological remains present on the site in local, regional and national terms.
- 3.4.4 **Dissemination:** the minimum level of dissemination of information generated from the excavation will ultimately be achieved via the deposition of the project archive and final report at the Museum of Science and Industry in Manchester, and a copy of the final report at the Greater Manchester Historic Environment Record. In addition, pending the significance of the findings from the excavation, a contingency allowance should be made for the production and installation of a permanent information board to present the history and industrial heritage of the site.

### 3.5 OTHER MATTERS

- 3.5.1 **Health and Safety:** full regard will be given to all constraints during the course of the project. OA North provides a Health and Safety Statement for all projects and maintains a Safety Policy. All site procedures are in accordance with the guidance set out in the Health and Safety Manual compiled by the Standing Conference of Archaeological Unit Managers.
- 3.5.2 OA North 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, ensuring the safety of all equipment supplied by the Company, and providing all reasonable safeguards and precautions against accidents.
- 3.5.3 OA North will also take all reasonable steps to ensure the health and safety of all persons not in their employment, such as volunteers, students, visitors, and members of the public (this includes trespassers). OA North will ensure, as far as is reasonably practicable, that no one suffers injury because of dangers arising from the state of the premises, or things done, or omitted to be done, on the premises.
- 3.5.4 OA North is fully familiar with and will comply with all current and relevant legislation, including, but not limited to:
- The Health and Safety at Work Act (1974);
  - Management of Health and Safety at Work Regulations (1999);
  - Manual Handling Operations Regulations 1992 (as amended in 2002);
  - The Construction (Design and Management) Regulations (2007);
  - The Control of Asbestos Regulations (2006);
  - Confined Spaces Regulations (1997);
  - The Workplace (Health, Safety and Welfare) Regulations (1992);
  - Construction (Health, Safety and Welfare) Regulations (1996);
  - The Work at Height Regulations (2005);
  - 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 Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (1995);
  - The Provision and Use of Work Equipment Regulations (1998);
  - Lifting Operations and Lifting Equipment Regulations (1998).

## 4 WORK TIMETABLE

- 4.1 A four-week period has been allowed to carry out the excavation of the targeted area.
- 4.2 A draft report will be submitted for comment within eight weeks of the completion of all element of the fieldwork.
- 4.3 OA North can execute projects at very short notice once an agreement has been signed with the Client.

## 5 STAFFING PROPOSALS

- 5.1 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.
- 5.2 The excavation will be directed by **Graham Mottershead** (OA North Project Officer). Graham has developed considerable expertise of excavating historic industrial sites, particularly in Manchester.
- 5.3 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 in addition to the Site Director, the project will require the input of up to three technicians during the course of the fieldwork.
- 5.4 Assessment of any finds recovered from the excavation will be undertaken by OA North's in-house finds specialist **Christine Howard-Davis BA** (OA North Finds Manager). Christine has extensive knowledge of all finds of all periods from archaeological sites in northern England, and is a recognised expert in the analysis of post-medieval artefacts.

## 6 MONITORING

- 6.1 Monitoring meetings will be established with the Client and the archaeological curator at the outset of the project. 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 GMAAS. 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.

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## ILLUSTRATIONS

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### FIGURES

- Figure 1: Site location
- Figure 2: Detail of the northern section of the excavated area
- Figure 3: Detail of the southern section of the excavated area
- Figure 4: The open-area trench superimposed on Green's map of Manchester and Salford, 1787-94
- Figure 5: The open-area trench superimposed on Bancks and Co's map of Manchester and Salford, 1831
- Figure 6: The open-area trench superimposed on the OS 5': 1 mile map, surveyed 1849, published 1851
- Figure 7: The open-area trench superimposed on Adshead's map of Manchester, surveyed 1850, published 1851
- Figure 8: The open-area trench superimposed on the OS 25":1 mile map, surveyed 1888-9, published 1896

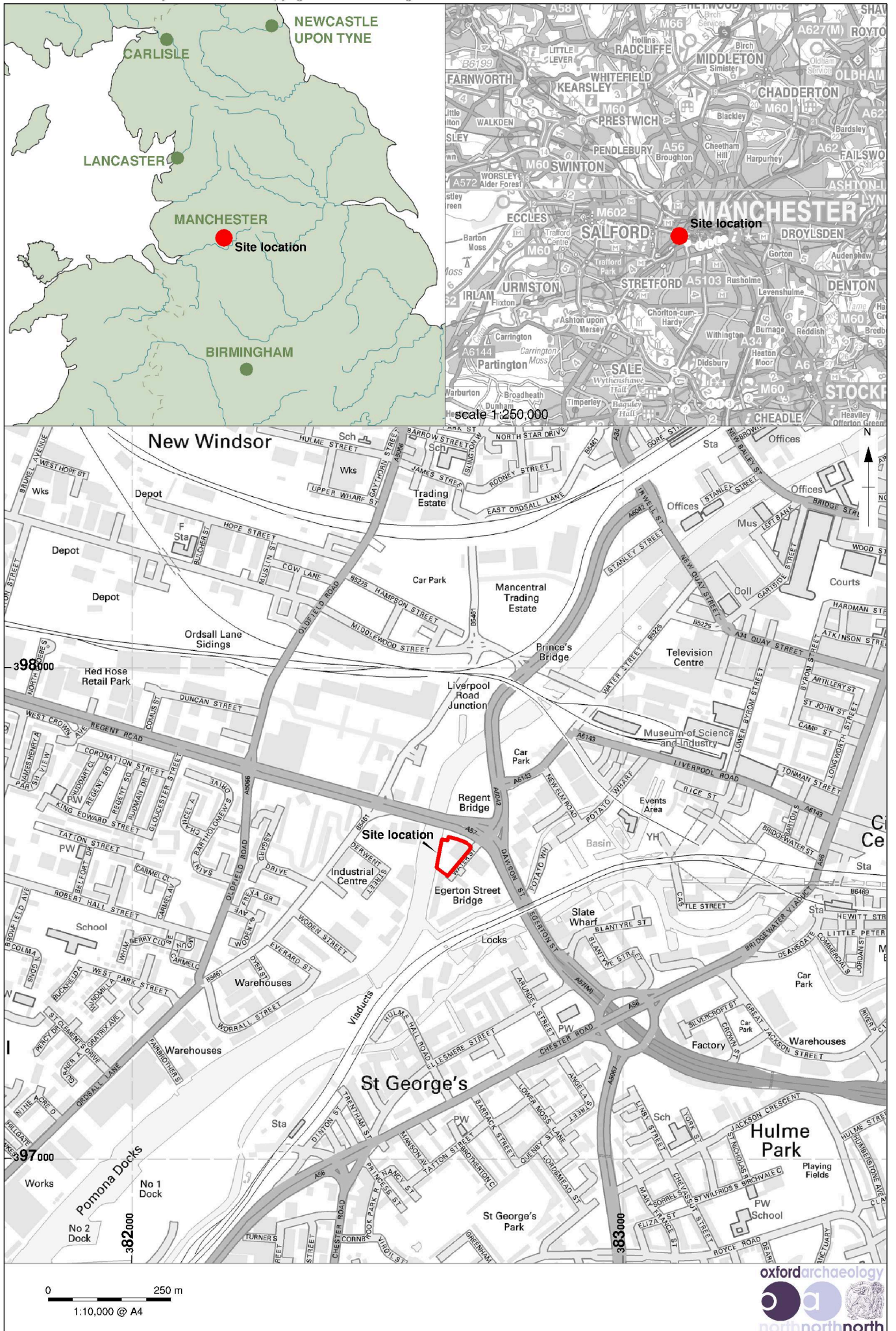


Figure 1: Site location

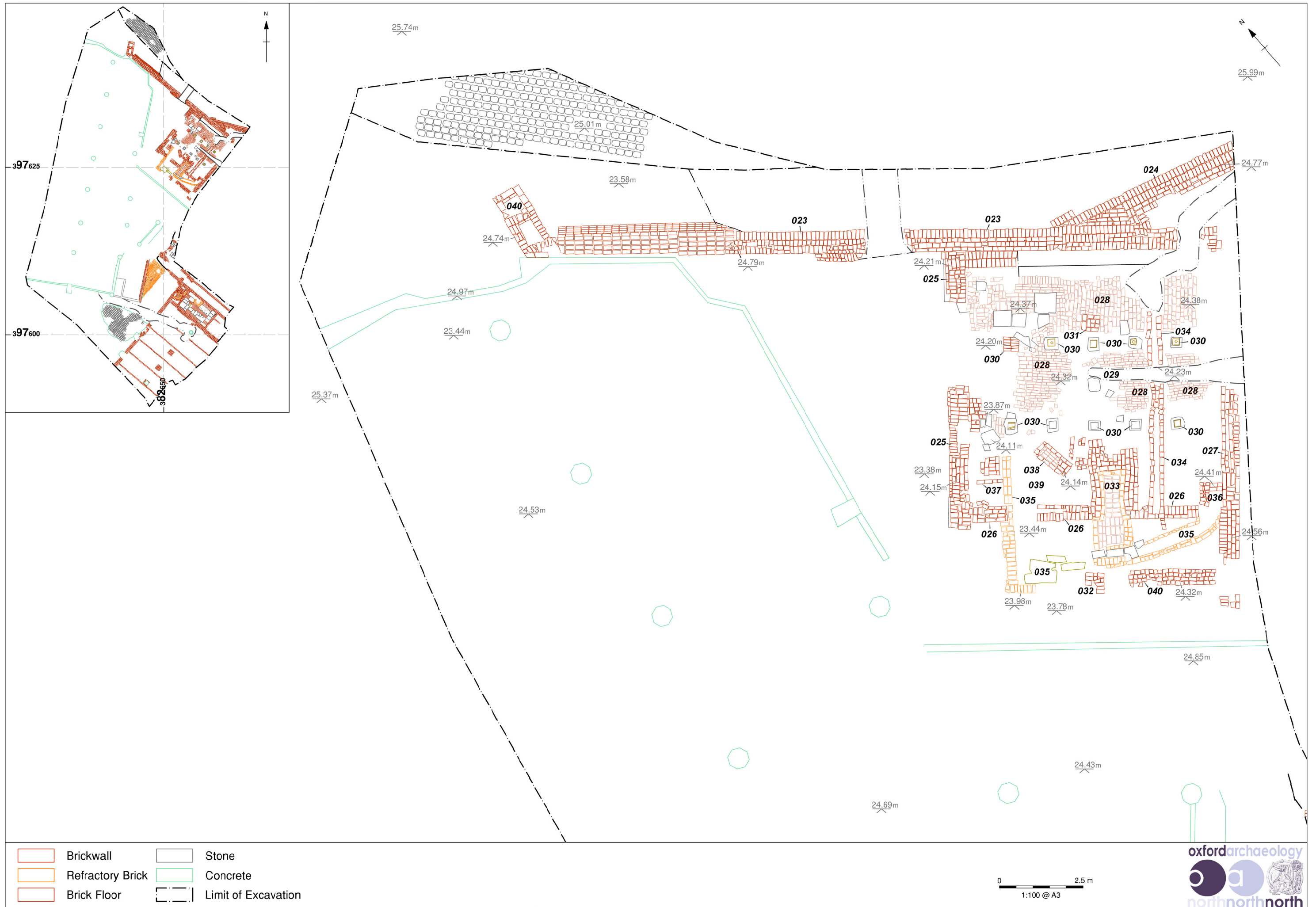


Figure 2: Detail of the northern section of the excavated area

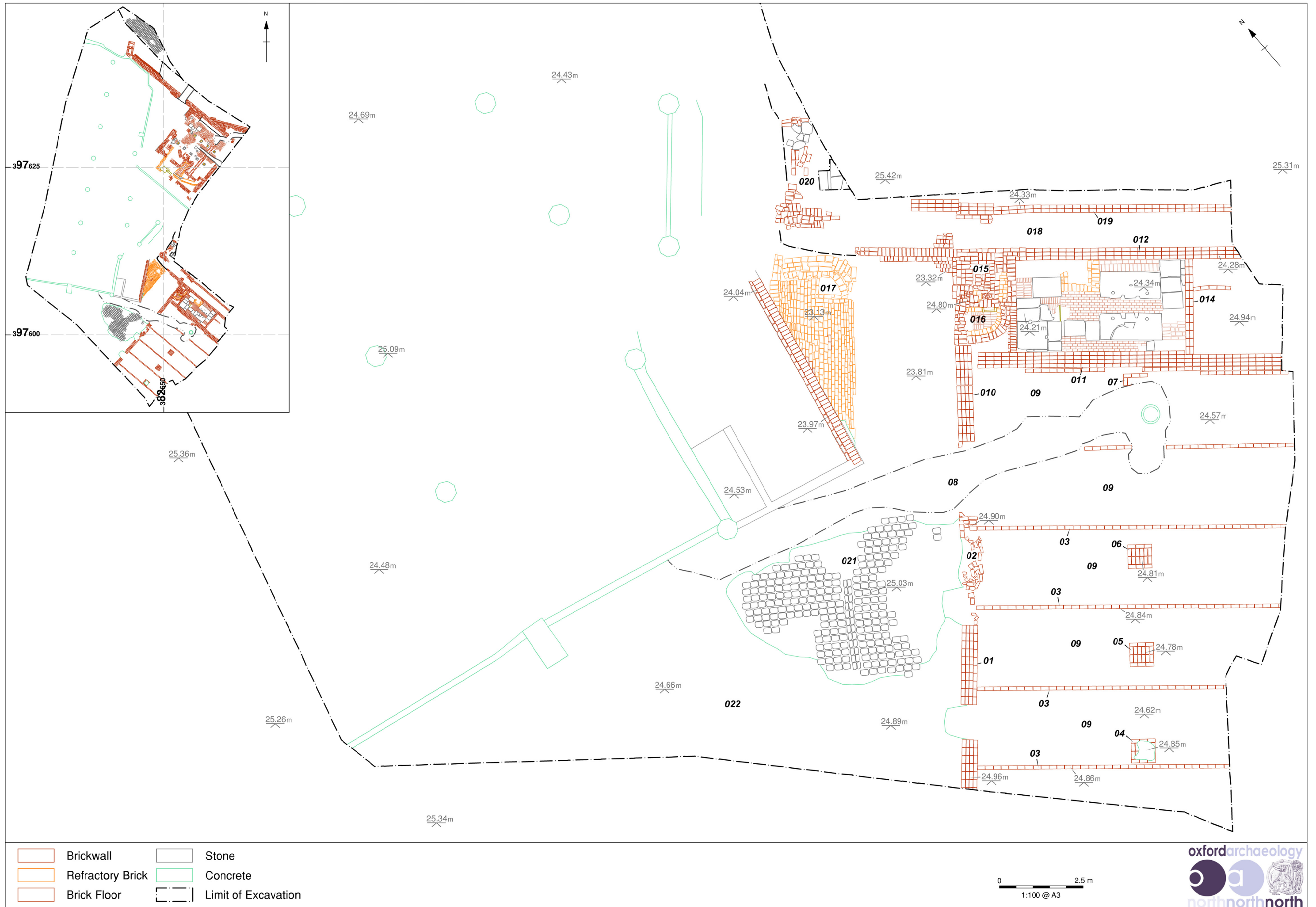


Figure 3: Detail of the southern section of the excavated area





Figure 4: Site area superimposed on Green's plan of Manchester and Salford, 1794



Figure 5: Site area superimposed on Bancks and Co's plan of Manchester and Salford, 1831



Figure 6: Site area superimposed on Adshead's map of the Township of Manchester, 1850



Figure 7: Site area superimposed on the Ordnance Survey 5':1 mile map of 1850



Figure 8: Site area superimposed on the Ordnance Survey 25":1 mile map of 1892