

ARCHAEOLOGICAL WATCHING BRIEF

Ducie Street, Manchester

ARS Report N°: 2022/131
OASIS ID: archaeo15-508693



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Ducie Street, Manchester

ARS LTD REPORT 2022/131



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Planning Reference: 120149/FO/2018
Local Authority: Manchester City Council
Site central NGR: SJ 85018 98254
OASIS ID: archaeol5-508693

EXECUTIVE SUMMARY

Project Name:	Ducie Street, Manchester City Centre, Greater Manchester
Site Code:	DSM22
Planning Authority:	Manchester City Council
Planning Reference:	120149/FO/2018
Location:	59 Ducie Street, Manchester, M1 2JQ
Parish:	Unparished
Hard Geology:	Sandstone
Superficial Geology:	Devensian Till – Diamicton (BGS 2021)
Soil Type:	Slowly permeable seasonally wet acid loamy and clayey soils
NGR:	SJ 85018 98254
Date of Fieldwork:	18 th July- 22 nd September 2022
Date of Report:	November 2022

An archaeological watching brief was undertaken at Ducie Street, Manchester by Archaeological Research Services Ltd (ARS Ltd) on behalf Big Red Construction from July through to September 2022. The purpose of the watching brief was to record any archaeological remains that survived on the site according to the Written Scheme of Investigation prepared for this work.

Archaeological works were undertaken at the site in accordance with condition 18 of the planning consent outlined by Manchester City Council (120149/FO/2018) with a view to uncovering the remains of a block of workers' housing and associated courtyard, dating to the early 19th Century, as well as some buildings associated with a brewery and a machine manufactory (later brush-works) that encroached upon the site.

During the watching brief, remains of the aforementioned housing were uncovered, but had been largely truncated by the later addition of a large 'Works' development, particularly over the northern sections of the PDA. A large concrete slab associated with this development was also lifted, revealing the north-eastern extent of a 19th-century industrial building, largely situated south-west of the PDA.

CONTENTS

1	Introduction	1
1.1	Background and Scope of Work	1
1.2	Site Location and Description.....	2
1.3	Geology and Soils	2
1.4	Archaeological and Historical Background	2
2	Aims And Objectives	7
2.1	Research Aims and Objectives	7
2.2	Watching Brief Aims and Objectives	7
3	Method Statement.....	8
3.1	Professional Standards.....	8
3.2	Health and Safety	8
4	Results.....	8
4.2	Site Taphonomy and Condition of Preservation	8
4.3	Results	9
5	Discussion.....	32
6	Publicity, Confidentiality and Copyright	33
7	Statement of Indemnity	33
8	Archive	33
9	Acknowledgements.....	34
10	References.....	34
10.1	Primary Sources.....	34
10.2	Secondary Sources	34
	APPENDIX I Context Description Table	36
	APPENDIX II OASIS Form	46
	APPENDIX III Written Scheme of Investigation.....	49

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LIST OF FIGURES

Figure 1. Site location.	5
Figure 2. Site Plan of exposed archaeology.	6
Figure 3. Plan of early 19th century workers housing with later 19th century alterations.	10
Figure 4. Relationship between wall {020} and {010}, looking east, 1m scale.	11
Figure 5. Wall {022} flanked to the left by buttress {016} and to the right by buttress {033}, looking northwest, 1m scale.	12
Figure 6. House A fireplace, comprising walls {010} and {015} (left), wall {016} (right), later filled with slate surface (108) and ceramic piping {017}, looking northeast, scale 1m.	13
Figure 7. Southwestern walls of House B, with doorway between walls {025} and {027} later filled by wall {026}, looking east, scale 2m.	14
Figure 8. Party wall {029} with remains of internal wall {031}, which was removed to create a through house from Houses C and D, looking east, scale 2m.	15
Figure 9. Remains of House C fireplace backing onto that of House A. Comprises wall {033}, lintel {034}, and wall {010} (left to right), looking southwest, scale 1m.	15
Figure 10. Doorway of House C leading towards Lomax Street, comprising wall {008}, doorstep (019), and parallel walls {014} (back) and {007} (front), looking northwest, scale 2m.	16
Figure 11. Remains of House E fireplace and floor, comprising buttress {028} backing onto wall {029} and abutting floor (032), looking south, scale 1m.	17
Figure 12. The northeastern boundary wall for Houses E and F, {005} (top) abutted by later 19 th century wall {004} (bottom), looking southwest, scale 2m.	18
Figure 13. Collapsed fireplace uncovered in House F, comprising buttresses {041} and {040} (left to right), looking southwest, scale 1m.	19
Figure 14. Extent of drainage culvert {030}, which ran northwest to southeast throughout Houses A and B connecting to culvert {037}, looking northwest., scale 2m.	20
Figure 15. Interface between culverts {038} and {036} in the base of House C, looking southwest, scale 1m.	20
Figure 16. Site plan showing brush-works remains.	21
Figure 17. Wall {228} leading to composite stone and brick pillar {229}, looking west, scale 1m. .	22
Figure 18. Wall Foundation {230}, looking west, scale 1m.	23
Figure 19. Pillar {229}, abutting walls {228}, {230}, and {231}, looking west, scale 1m.	23
Figure 20. Wall {231}, running northeast to southwest into the section of the PDA, looking southeast, scale 1m.	24
Figure 21. Walls {023} and {024}, two 20th century walls separated by concrete pillars alike to stanchions {213} {214} and {223}, looking southwest, scale 2m.	26
Figure 22. Wall {005}, the northeastern boundary of Houses E and F, abutting later wall {006}, looking northeast, scale 1m.	27
Figure 23. Wall {013}, a trapezoidal structure forming the northwestern corner of the mid-20 th Century structure, looking northwest, scale 1m.	27
Figure 24. Floor surface (205) abutting wall {203} (front centre) and buttress {212} in room bounded by walls {203} (left) and {045} (right), looking southwest, scale 1m.	28
Figure 25. Remains of upper limit of room comprising wall {206} (top) {219} (left) and the single flagstone representing surface (201), looking south, scale 1m.	29
Figure 26. Room bounded by walls {204} (left) and {209} (right), heavily truncated, looking northeast, scale 1m.	30
Figure 27. Wall {221} abutting concrete slab (222), looking southwest (north arrow misaligned), scale 1m.	31

Figure 28. Wall {215} a heavily truncated wall possibly acting as a party wall for the southeastern section of mid-20 th -century warehouse, scale 1m.	32
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I INTRODUCTION

1.1 Background and Scope of Work

- 1.1.1 A planning application 120149/FO/2018 was submitted to Manchester City Council for the erection of a 7 to 8 storey residential building (Class C3) to provide 41 apartments (7 x 1-bedroom 1-person apartments, 6x 1-bedroom 2-person apartments, 6x 2-bedroom 3-person apartments, 22x 2-bedroom 4-person apartments) with associated landscaping and other works. Planning permission was granted by Manchester City Council subject to condition. Condition 18 of the planning consent required that:

'No development shall commence until the applicant or their agents or successors in title has secured the implementation of a programme of archaeological works. The works are to be undertaken in accordance with a Written Scheme of Investigation (WSI) submitted to and approved in writing by Manchester Planning Authority. The WSI shall cover the following:

1. *A phased programme and methodology of investigation and recording to include:*
 - ✦ *Archaeological evaluation trenching*
 - ✦ *Targeted open area excavation*
2. *A programme for post-investigation assessment to include:*
 - ✦ *Production of a final report on the results of the investigations and their significance.*
3. *Deposition of the final report with the Greater Manchester Historic Environment Record.*
4. *Dissemination of the results of the archaeological investigations commensurate with their significance.*
5. *Provision for archive deposition of the report and records of the site investigation.*
6. *Nomination of a competent person or persons/organisations to undertake the works set out within the approved WSI and have the findings of the investigation have been signed off by GMAAS.'*

- 1.1.2 Archaeological Research Services Ltd (ARS Ltd) was commissioned by Big Red Construction to undertake a watching brief on Ducie Street, Manchester City Centre, Greater Manchester (Figure 1), centred at NGR SJ 85018 98254. The site is 552 square metres in area.

- 1.1.3 A desk-based assessment (DBA) (Kathryn Sather & Associates 2018a) and heritage statement (Kathryn Sather & Associates 2018b) were produced in support of the planning application, outlining historical developments within the site from the late 18th century onwards.

- 1.1.4 The WSI originally outlined watching brief to be undertaken during excavation of drainage trenches in advance of the development. However due to a change in the design of the foundations, the entirety of the footprint of the site was to be reduced in advance of the development and as such the watching brief scope was increased to observe all ground reduction work across the site. This evaluation through watching brief was conducted in place of trial trench evaluation originally planned as the second potential phase of work outlined in the Written Scheme of Investigation (WSI) and was designed in consultation with Ian Miller, Heritage Management Director at the Greater Manchester Archaeological Advisory Service (GMAAS). The watching brief comprised the continuous archaeological monitoring of the groundworks and recording of any archaeological remains revealed during that process.
- 1.1.5 Works were undertaken in accordance with the WSI (See Appendix III) and took place intermittently between 18/7/2022 and 20/9/2022.

1.2 Site Location and Description

- 1.2.1 The development area boundary is indicated in red on Figure 1. The site is located between Ancoats and Manchester City Centre. The PDA is bounded to the north by Lomax Street, the east by Pigeon Street, to the south by Ducie Street and to the west by a public car park. The site is roughly centred on NGR SJ 85018 98254.
- 1.2.2 The site comprises a relatively flat car park area with a slight southeasterly decline towards Ducie Street. The area for development extends over an area of 552m² and comprises hard-standing ground forming a car park area, with an asphalt overburden.
- 1.2.3 The southwestern-most extent of the site is bounded by a partially demolished building situated beyond the site boundary but structurally supported by concrete slightly encroaching on the PDA.

1.3 Geology and Soils

- 1.3.1 The underlying solid geology of the PDA consists of Sandstone from the Chester Formation, a sedimentary bedrock formed during the river-dominated landscape of the Triassic Period. The superficial geology comprises Devensian Till – Diamicton (BGS 2022). The soils of the PDA are defined as slowly permeable seasonally wet acid loamy and clayey soils (Cranfield University 2022).

1.4 Archaeological and Historical Background

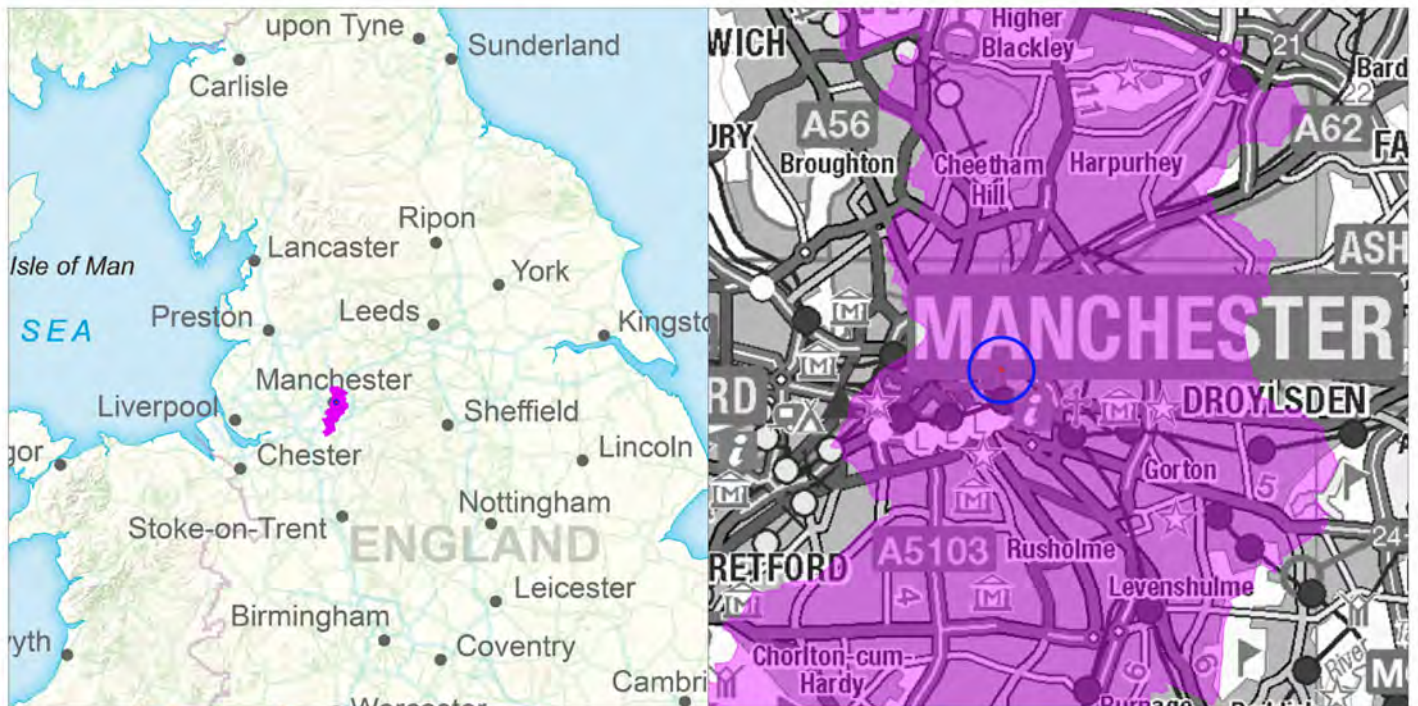
- 1.4.1 The archaeological and historical background for the site is set out in the desk based assessment/heritage statement (Kathryn Sather & Associates 2018a and b) and is summarised in section 2.1 of the WSI contained in appendix III. What is presented below is a short discussion of the development of the site itself, designed to provide context for the remains encountered during the fieldwork.
- 1.4.2 The site is located on south-western edge of Ancoats, an historically important part of Manchester. Until the 18th century Ancoats was largely rural and the location of Ancoats Hall (located c. 600m to the south-east of the PDA). Manchester began to develop rapidly in the 18th century and the comparatively cheap rural land on the outskirts of the growing town was attractive to industrialists. By the early 19th century, the former rural landscape of Ancoats had been filled with rows of workers' housing with increasingly cramped

conditions as the population grew. Two canals were built through Ancoats in the late 18th century, the Manchester to Ashton-Under-Lyne canal was opened in 1797, and the Rochdale Canal in 1804, both feeding into Piccadilly Basin (c. 200m to the west of the site), with the Rochdale Canal then linking to the Castlefield Basin and the Bridgewater Canal. Prior to the introduction of the railways, and much later the Manchester Ship Canal, the canals were the most important means of transporting goods in and out of Manchester.

- 1.4.3 By the time of Green's map of Manchester in 1794, Lomax Street and Mather Street (later Ducie Street) had been laid out. The first developments within the site itself occurred between then and the Dean map of 1804 which showed a block of buildings across the site. The first detailed map is Bancks's map from 1831, which shows the north-western corner of the site to be occupied by a block of eight back-to-back houses arranged in two rows of four, with two of a further block of back-to-backs just encroaching onto the site. To the south-east of these blocks of buildings a row of small houses, probably blind-back houses, were present in the central part of the site, and finally a large building fronted Mather Street and partly occupied the south-eastern part of the site. The same layout is shown on the later Ordnance Survey map of 1850, on which the large building is labelled as a brewery, with the addition of a machine brush-works fronting Mather Street (Ducie Street) with part of its yard and ancillary buildings encroaching on the south-western part of the site.
- 1.4.4 The blocks of workers' housing on the site are typical of contemporary housing across Ancoats and the rest of Manchester. Back-to-back workers' housing was both common and notorious across Manchester. With the increasing number of textile mills and other factories in Manchester during the Industrial Revolution, there was a growing workforce and consequently increased demand for housing within the city, in proximity to the factories. Space for new buildings soon became limited which meant that overcrowding within existing homes was widespread. It was not unusual for an entire family to occupy a single room within a house, which acted as part-kitchen, part-bedroom. New purpose-built workers' housing was small and poorly constructed, often with single skin walls and severe damp problems. Back-to-backs and blind-backs (like those on the PDA, which were a single room deep, typically c. 4.5m x 4.5m in size and with windows only in the front walls) became the most common type of housing in working class areas. These tended to be arranged around a single communal courtyard where a water tap or privy might be located.
- 1.4.5 Contemporary accounts (e.g. Engels 1846) attest to the awful living conditions within these courts of workers' housing, describing at length the damp, dark and unsanitary conditions in Manchester's slums. By 1835, 12 per cent of the working class population of Manchester was living in cellars of such back-to-back and blind-back houses. The cellars were particularly notorious, having little or no natural light and being naturally damp with groundwater seeping through walls. Privies were often built abutting the outer walls of houses, which meant that it was common for effluence from the associated cesspits to leech through the walls (Miller & Wild 2015, 35).
- 1.4.6 As awareness of the conditions in the slums increased throughout the 19th century, public concern about the conditions also intensified, leading to a number of investigations and reports intended to raise awareness of the living conditions of the working class. Attempts were made to improve living conditions in the Ancoats area from the 1840s onwards, with the introduction of local acts requiring new homes to have privies (1844), banning the construction of new back-to-backs (1844), banning cellar dwellings (1853) and finally requiring the renovation and enlargement of existing back-to-backs (1867) (Nevell 2014,

51). Historic mapping and a growing corpus of excavated workers' housing provide evidence for the enforcement of some of these laws. For example, it is common, both on maps and during excavation, to find that two back-to-back houses were knocked through into single larger houses by the end of the 19th century, usually by the insertion of a doorway or the complete removal of the party wall between two houses. Census returns also show these changes, with far fewer people inhabiting a single house and cellars no longer listed as occupied. By the end of the 19th century, census returns indicate that it was more common for families to occupy a whole house rather than a single room. There is also cartographic and archaeological evidence for the building of new blocks of privies, some of which would be water closets connected to the sewerage system, although midden or pail closets also continued in use; the former having a 'midden' or cess pit beneath the privy, the latter having a bucket.

- 1.4.7 When first built, the houses on the PDA do not appear to have had associated privies, but by the time of the Ordnance Survey map of 1891 there were three privies marked in the north-eastern part of the site, indicating some provision for sanitation by the end of the 19th century. By the time of the 1928 *Goad Fire Insurance Plan* there are a further three privies, one behind each house in the former shared courtyard, which was now divided into three individual yards. Cellar lights are also shown on the detailed maps as well, indicating that there was access into the cellars from the street, probably suggesting that they were initially used as dwelling spaces. The 1891 map also shows the removal of the row of blind backs in the eastern part of the site, now partly replaced by an extension to the brewery building. By the time of the 1908 Ordnance Survey map, the back-to-back houses in the north-eastern part of the site had been knocked through into larger through houses, probably in response, albeit it delayed, to the 1867 act requiring renovation of back-to-backs.
- 1.4.8 The brewery building fronting Mather Street, first labelled on the 1850 OS map, was probably associated with the Lord Nelson public house to its immediate east. It appears to have been used for different activities over time, with later 19th-century trade directories referring to use by a hay and straw dealer and later a corn dealer. By the time of the 1922 Ordnance Survey map it seems to have been joined to a building to the north-west, over the footprint of four former back-to-backs around a court. This new building in the north-western part of the site was shown on the 1928 Goad plan to be 2 storeys high, with a basement and concrete floors, connected to the former brewery building and now labelled as a corn warehouse.
- 1.4.9 The ancillary buildings associated with the machine works located in the south-western corner of the site fronting Mather Street appear to have remained largely unchanged in terms of their layout, although by the time of the 1928 Goad plan the larger building is labelled as a Garage and Scale Warehouse and the former machine works building just outside the site boundary is now labelled as a brush factory. The same building layout is shown on the Ordnance Survey plan of 1935.
- 1.4.10 The site seems to have remained largely unchanged into the 1940s and early-1950s. By the time of the Ordnance Survey map of 1955 the former block of back-to-backs in the north-western corner of the site, which had since been knocked into through houses, had been demolished, although the buildings on the remainder of the site were still the same. By 1989 the entire site was shown as part of a single "works" building. The site was cleared between 2005 and 2009 and has since been in use as a car park.



Site name: Ducie Street, Manchester
 Date: December 2021
 Drawn by: MB
 Scale: Varies

**Figure 1:
Site location**

- Site Boundary
- Manchester City Council



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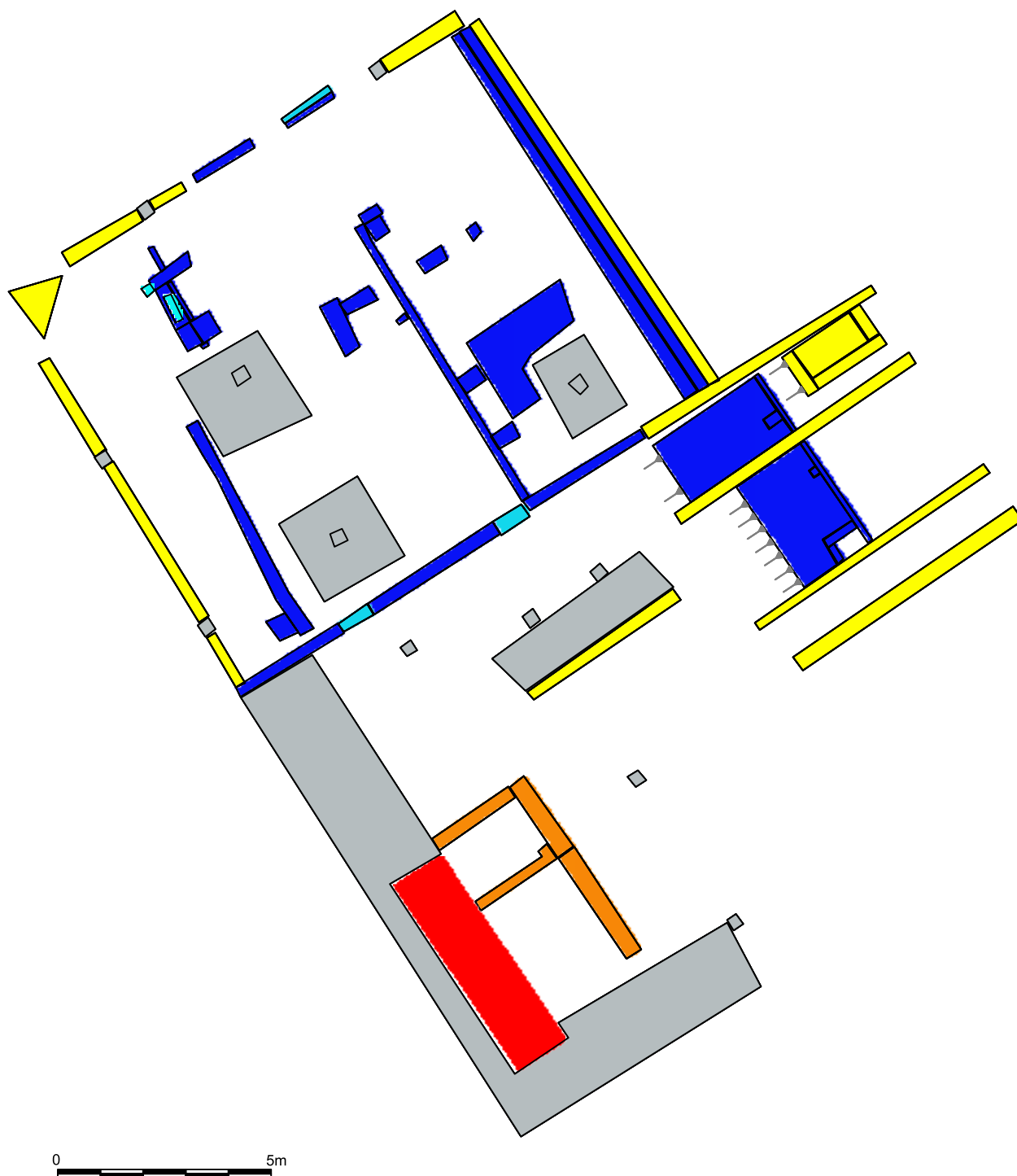
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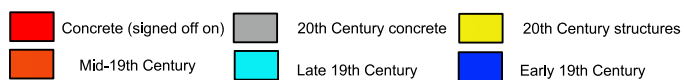
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Site name: Ducie Street, Manchester
 Date: 21/09/2022
 Drawn by: JR

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Figure 2: Site Plan displaying phasing of archaeological features in the PDA.



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2 AIMS AND OBJECTIVES

2.1 Research Aims and Objectives

- 2.1.1 The aims and objectives of the archaeological watching brief are outlined in detail in the WSI (see Appendix III) and are summarised below.
- 2.1.2 Relevant research topics identified in the *Updated North West England Regional Research Framework* (Historic England 2022) include:
- ♦ Ind22: How can we take forward our understanding of the impact of industrialisation on the working class and their living conditions?
 - ♦ Ind30: How have buildings changed in response to planning regulations?
 - ♦ Ind32: To what extent did houses and shops incorporate workshops and warehousing?
 - ♦ Ind33: How well studied and understood are the backyards of workers housing and what is their significance?
 - ♦ Ind60: How can we make sense of the relative significance of historic industrial processes and building types perceived as poorly understood and recorded?

2.2 Watching Brief Aims and Objectives

- 2.2.1 The aim of the archaeological works was to:
- ♦ Identify the presence/absence of archaeological features and deposits within the site.
 - ♦ Record any archaeological features and deposits encountered.
 - ♦ Sample sufficient of the archaeological features and deposits to establish relative sequence, likely dating, quality of preservation and significance.
 - ♦ Gather sufficient information to establish the character, extent, form, function and likely status of any surviving archaeological deposits with a view to evaluating their significance and potential to inform the aims and objectives outlined in section 3.1 of this WSI.

3 METHOD STATEMENT

3.1 Professional Standards

- 3.1.1 The methodology for the fieldwork is set out in detail in the Written Scheme of Investigation (Appendix III).
- 3.1.2 The archaeological fieldwork was undertaken in accordance with the Chartered Institute for Archaeologists' *Code of Conduct and Standard and Guidance for an Archaeological Watching Brief* (CIfA 2019; CIfA 2020).

3.2 Health and Safety

- 3.2.1 All works were undertaken in full compliance with the Health and Safety at Work Act 1974 and with the Management of Health and Safety Regulations 1992.
- 3.2.1 A risk assessment (RA No. 050/22/S) was produced before commencement of the work and was adhered to throughout the course of the fieldwork.

4 RESULTS

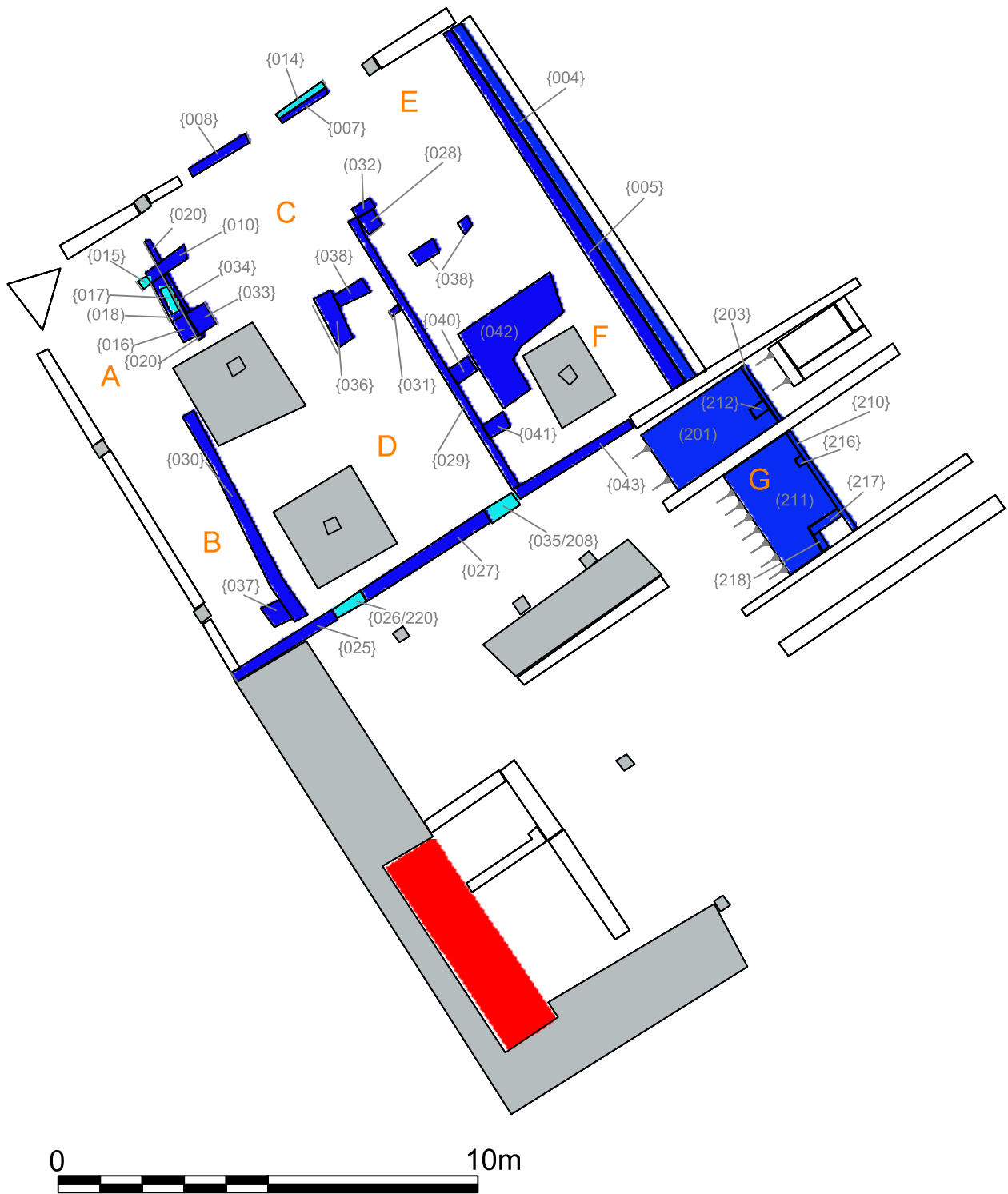
- 4.1.1 An overall plan of the watching brief area is presented in Figure 2. A context description table is contained in Appendix I and summary text descriptions of key features are presented below in chronological order. Plans, section drawings and photographs of the watching brief results are included in this section. Additional digital photographs are contained in the project archive.
- 4.1.2 The overburden across the area subject to watching brief was machine excavated down to the start of the archaeological horizon or depth of development, whichever was the shallower, under continuous archaeological supervision. The depth of the excavations reached 1.9m below current ground level, reaching either surviving floors or cinder-filled compact demolition material.

4.2 Site Taphonomy and Condition of Preservation

- 4.2.1 At the start of the works, the site comprised hard-standing ground with an asphalt overburden forming a car park spanning the whole PDA.
- 4.2.2 The 19th-century workers' housing was heavily disturbed and thus poorly preserved, due to the later development of the site during the 20th century, with multiple concrete stanchions truncating various archaeological remains within the site. Moreover, the insertion of further concrete features including a 20th-century concrete load-bearing slab disturbed remains of the 19th-century brush-works buildings situated beneath.

4.3 Results

- 4.3.1 The overburden (001) consisted of hard-standing ground consisting of an asphalt car park surface.
- 4.3.2 Demolition deposit (002) comprised very frequent red bricks, firebricks, modern ceramics and metal suspended in a mid-blackish brown silty grey fill.
- 4.3.3 The earliest 19th-century phase of back-to-back workers' housing was uncovered in the northern area of the site, with truncated party and boundary walls forming the remains of a block of six houses in two rows fronting onto Lomax Street and No. 4 Court, a small communal courtyard in centre of the site shown on contemporary maps. Internal remains such as drainage culverts, fireplaces and sandstone flooring dating from this phase of development also survived. Historical mapping dates the houses early to mid-19th century, with the surviving walls comprising handmade red bricks mostly laid in stretcher and English garden wall bonds with lime mortar. The houses were each ascribed letters from A- (see Figure 3).
- 4.3.4 Mid-19th-century remains of the brush-works predominantly located towards the southwest of the PDA were uncovered after the lifting of a 20th-century concrete surface. These machine-made red brick and sandstone structures were labelled as "machine brush-works" on 19th-century mapping.
- 4.3.5 Late 19th-century additions and alterations to the original back-to-back housing were uncovered, with the removal of internal party walls resulting in the six houses becoming three larger houses: typical two up, two-down terraced houses. Houses A-B, C-D and E-F were knocked through with main entrances from Lomax Street to the north and access at the back into the communal court. By 1928 this court had been split into three private yards, each with a privy. Structural alterations were made to a fireplace in the northeastern-most house, and machine-made red brick walls were added both to reinforce existing walls in the northeast of the site and to block up doorways in the southern house boundaries.
- 4.3.6 Extensive remains of 20th-century developments were noted during the watching brief, comprising concrete stanchions such as {213} and slabs such as (222) which truncated various earlier walls and structures. Three definitive rooms were recorded, with internal walls, buttresses, and flooring intact within two.
- 4.3.7 The natural substrate underlying the archaeological layers comprised a sterile compact light yellowish brown clay. This deposit was reached in various area of the site, particularly the southeastern extent.



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Figure 3: Plan of early 19th Century workers' housing complex with late 19th Century alterations.

	Concrete (signed off on)		20th Century concrete		20th Century structures
	Mid-19th Century		Late 19th Century		Early 19th Century

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- 4.3.8 House A had very few surviving walls, either internal or external, and comprised walls {020}, {034}, {033} and {022}—all representing sections of the north-eastern party wall between this house and that adjacent to it, House C.



Figure 4. Relationship between wall {020} and {010}, looking east, 1m scale.

- 4.3.9 Party wall {020}, {022}, {033} and {034} of Houses A and C, was destroyed due to the installation of concrete stanchions associated with the 20th-century warehousing complex which covered most of the development area. The surviving stretch of the wall was flanked on both sides by the respective fireplaces of the buildings it separated (Figure 4).



Figure 5. Wall {022} flanked to the left by buttress {016} and to the right by buttress {033}, looking northwest, 1m scale.

- 4.3.10 The fireplace of House A comprised early 19th-century walls {010}, {034}, and {016}, each at least nineteen courses high. This structure was later altered during the mid to late 19th-century alterations to the back-to-back housing complex, with a second wall {015} added to the northern edge of the fireplace, reducing the size of the opening and laid directly on top of the slate base of the fireplace (108). There was a stack of ceramic pipes in the base of the fireplace, which appeared to be land drain segments serving an unknown purpose.



Figure 6. House A fireplace, comprising walls {010} and {015} (left), wall {016} (right), later filled with slate surface (108) and ceramic piping {017}, looking northeast, scale 1m

- 4.3.11 Houses B and D were almost completely truncated by the aforementioned pair of concrete stanchion bases, with the exception of the partially-preserved south-eastern outer wall of both houses ({025} and {027}), and the party wall {030} between the two. The walls {025} and {027} were laid to English garden wall bond with lime mortar and ran southwest to northeast, surviving to a height of 18 courses. There was a doorway {220} and {208}, marked by a sandstone step, in each of the two outer walls, leading onto the narrow courtyard labelled as “No. 4 Court” on the 19th-century OS maps, . These doorways were filled during late 19th-century by machine-made red brick walls {026} and {035} respectively, with the former being keyed in with a singular brick to the original boundary wall {025}.



Figure 7. Southwestern walls of House B, with doorway between walls {025} and {027} later filled by wall {026}, looking east, scale 2m.

- 4.3.12 The diminutive remains of wall {031} was the only surviving evidence of the original early 19th-century division between the northern and southern rows of back-to-back housing in this block. It may be the case that this wall, {031}, was partly removed to create three “through houses” during the late 19th century. The wall was single skin, with a stretcher bond laid with lime mortar and keyed into the internal dividing wall of the eastern houses (E and F) and the central pair (C and D). This type of alteration is also reminiscent of late 19th-century alterations to back-to-back housing uncovered on other sites, such as at Hatter Street and Sharp Street in Ancoats (Dyson & Trow 2018; Trow 2019) and James Street in Miles Platting (Trow 2018).



Figure 8. Party wall {029} with remains of internal wall {031}, which was removed to create a through house from Houses C and D, looking east, scale 2m.

- 4.3.13 Two skin wall {029}, running northwest to southeast, was the party wall between Houses C and E and Houses D and F. The other remains of House C included the fireplace, bounded by walls {033} and {010} supporting a largely intact handmade red brick lintel {039} (Figure 9).



Figure 9. Remains of House C fireplace backing onto that of House A. Comprises wall {033}, lintel {034}, and wall {010} (left to right), looking southwest, scale 1m.

- 4.3.14 The front wall of House C was also intact, with 17 course high walls {007} and {008} laid to two skin English garden wall bond flanking a doorway leading to Lomax Street. The doorway had a sandstone flagstone forming the threshold (019). The eastern wall in the doorway {007} was also reinforced by a later machine-made red brick wall, {014}, bonded

with black ash mortar, which was added as a second skin on the outer face of wall {007} but not keyed into it. This wall was likely a late 19th-century addition to the housing complex in order to support wall {007} and possibly a stairway leading to Lomax Street.



Figure 10. Doorway of House C leading towards Lomax Street, comprising wall {008}, doorstep (019), and parallel walls {014} (back) and {007} (front), looking northwest, scale 2m.

- 4.3.15 House E, the northernmost of the early 19th-century back-to-backs, was heavily truncated by later developments, with only a single buttress {028} remaining of the fireplace, and a single flagstone (032) representing the flooring of the dwelling. Only a small portion of the northwestern boundary wall facing Lomax Street was present, represented by the northeastern extent of wall {007}. Buttress {028} was itself abutting wall {029} which was representative of the division between the northeastern (Houses E and F) and central (Houses C and D) pairs of back-to-back houses.



Figure 11. Remains of House E fireplace and floor, comprising buttness {028} backing onto wall {029} and abutting floor {032}, looking south, scale 1m.

- 4.3.16 Wall {005} comprised the full extent of the northeastern wall of the block of back-to-backs, and consisted of 15 visible courses and two skins of handmade red bricks, bonded with lime mortar. The wall was abutted on the northeastern side by the later addition of machine-made brick wall {004} in the early 20th century, which itself survived for 15 visible courses with four skins bonded with cement mortar. This is probably associated with a building added by the time of the 1922 Ordnance Survey map—probably an extension to the brewery building located in the eastern corner of the site.



Figure 12. The northeastern boundary wall for Houses E and F, {005} (top) abutted by later 19th century wall {004} (bottom), looking southwest, scale 2m.

- 4.3.17 The final house excavated in the northeastern area of the site, House F, was comparatively intact, with three handmade red brick walls remaining: {005} in the northeast, {029} in the southwest, and wall {043} comprising stretchers bonded with lime mortar to the southeast. Moreover, the house contained a sandstone surface laid with flagstones of various sizes {042} abutting a collapsed fireplace. The latter comprised two handmade red brick buttresses bonded with lime mortar and displayed evidence of charring; the southeastern-most buttress {041} stood at 13 courses, the northwestern {040} at 16 courses.



Figure 13. Collapsed fireplace uncovered in House F, comprising buttresses {041} and {040} (left to right), looking southwest, scale 1m.

- 4.3.18 Four handmade red brick culverts were uncovered during the watching brief forming a drainage system under the houses, likely dated to the early 19th century and contemporary with the initial construction of the houses. The first of these comprised a single skin culvert {037}, three courses deep and running from the northeast into the south-westernmost section of the excavation. A large extent of culvert {030}, of the same type of construction, was uncovered at the base of the excavations running northwest to southeast.

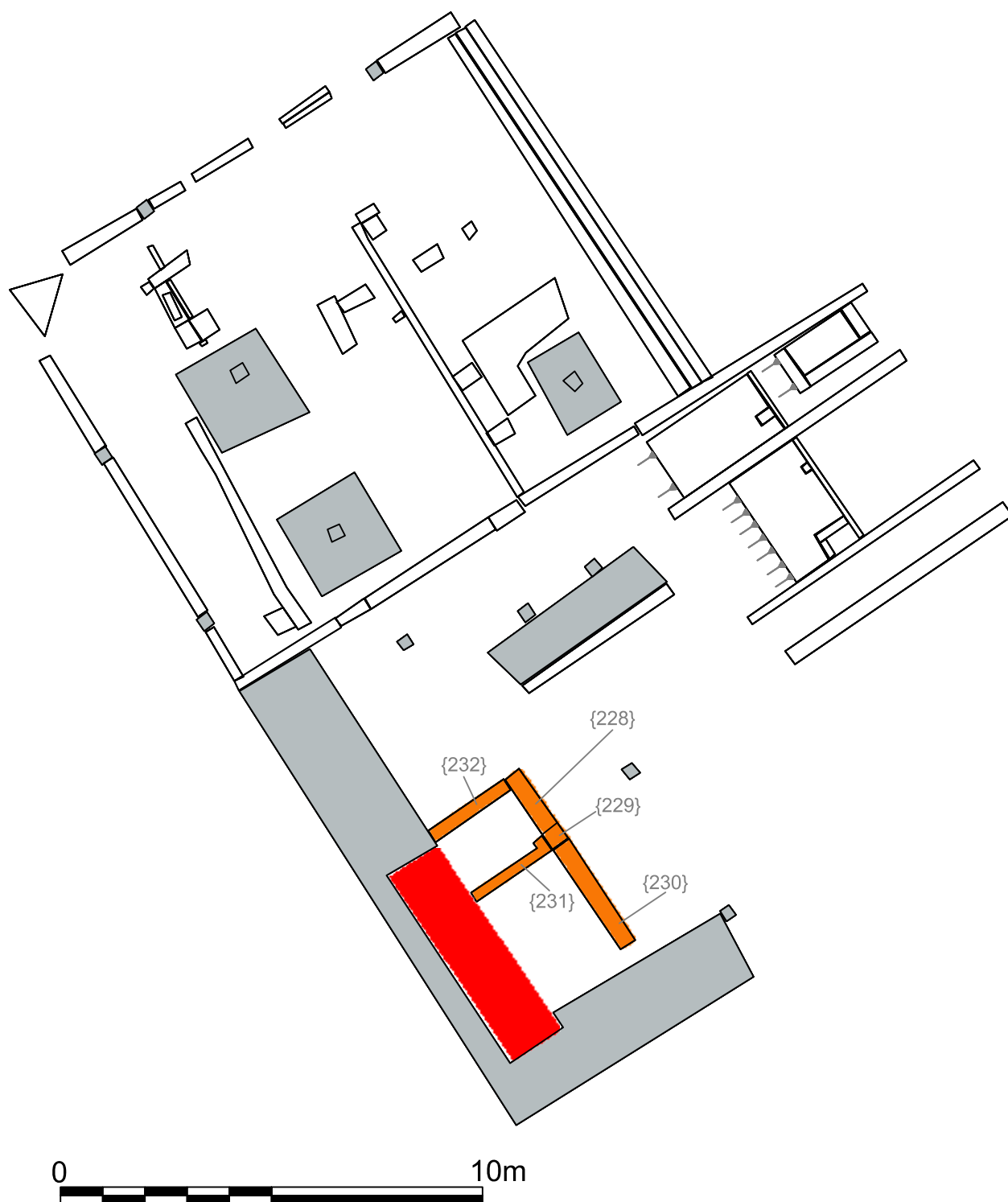


Figure 14. Extent of drainage culvert {030}, which ran northwest to southeast throughout Houses A and B connecting to culvert {037}, looking northwest., scale 2m.

4.3.19 Culvert {038} was a continuation of culvert {034} running northeast to southwest under the heavily truncated wall {029}. This single skin handmade red brick drain was capped and underlain by single sandstone slabs and fed into a slightly larger channel of similar composition {036} running northwest to southeast and possibly interacting with culvert {037}.



Figure 15. Interface between culverts {038} and {036} in the base of House C, looking southwest, scale 1m.



Site name: Ducie Street, Manchester
 Date: 21/09/2022
 Drawn by: JR

Figure 16: Plan of late 19th/early 20th Century structures associated with brush-works.

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 Concrete (signed off on)	 20th Century concrete	 20th Century structures
 Brush-works	 Late 19th Century	 Early 19th Century

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- 4.3.20 Upon initial investigation, the area spanning the southwestern extent of the PDA was covered by a coarse light grey concrete slab (222), most likely a floor associated with the 20th century warehousing developments unearthed site-wide. This was removed to expose the truncated remains beneath. The mid-19th-century remains of the former industrial buildings positioned towards the southwestern boundary of the site were apparent upon the removal of the slab.



Figure 17. Wall {228} leading to composite stone and brick pillar {229}, looking west, scale 1m.

- 4.3.21 A pair of four skin handmade red brick walls – {228} and {230} respectively – aligned from the northwest to southeast and bonded with lime mortar represented the northeastern wall of a building shown already on the 1850 Ordnance Survey map and either associated with the machine brush-works to the southwest or with the brewery to the northeast. On the 1928 *Goad* map this building is labelled as a “Garage and Scale Warehouse”.



Figure 18. Wall Foundation {230}, looking west, scale 1m.

- 4.3.22 The two walls were separated by a composite pillar {229} comprising three courses of handmade red bricks overlain with a single sandstone flag and bonded with lime mortar. The separation of walls using small sandstone pillars and buttresses during the construction of 19th-century industrial structures is also seen in larger and better-preserved contemporary industrial complexes, such as those uncovered during excavations at Clippers Quay, Salford (Laverty & McWilliams, 2016).



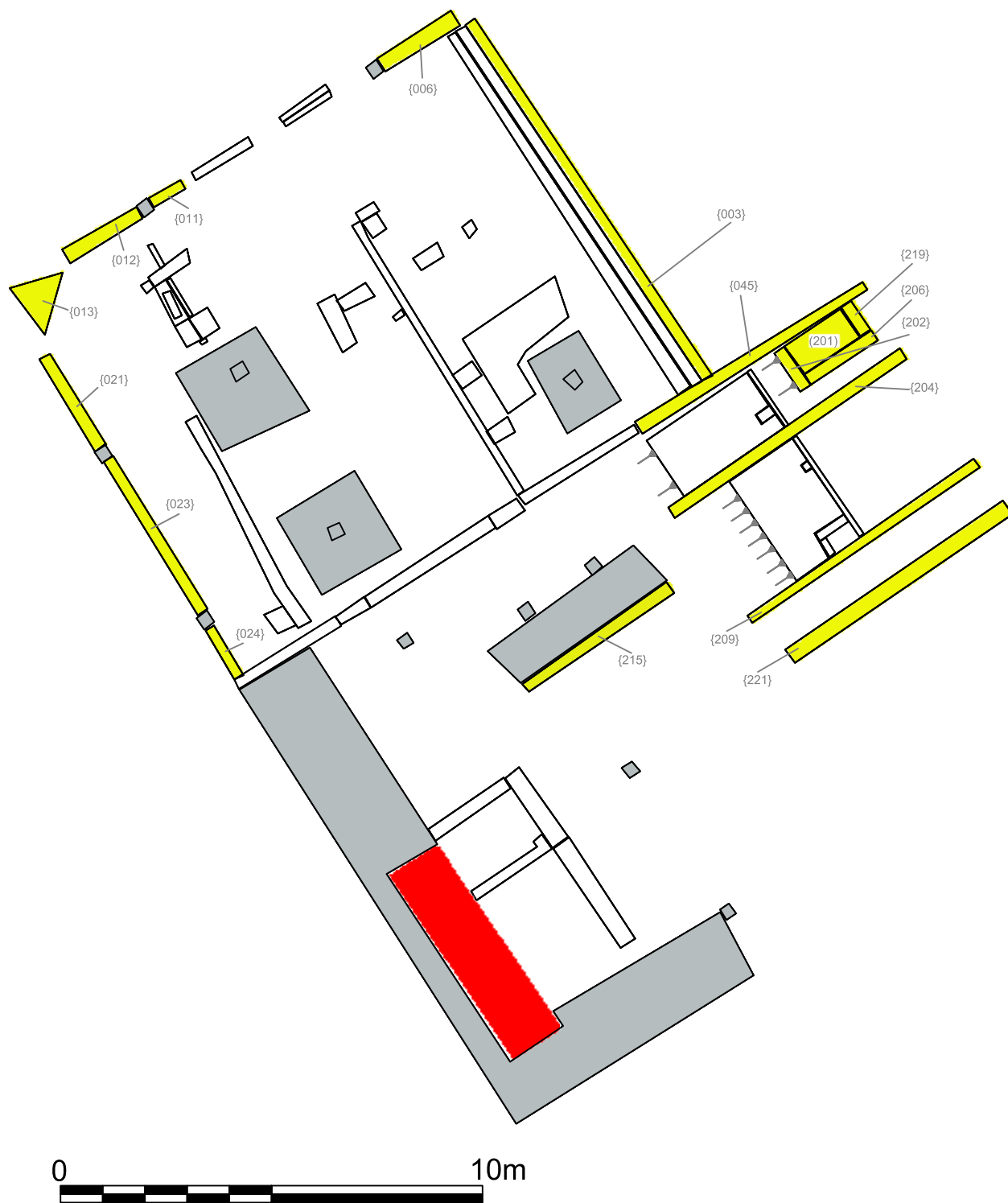
Figure 19. Pillar {229}, abutting walls {228}, {230}, and {231}, looking west, scale 1m.

- 4.3.23 The final 19th-century structure uncovered under concrete (222) was a two skin wall abutting pillar {229} and leading southwest into the section of the excavation. This wall {231} comprised handmade red bricks in an irregular bond sealed with lime mortar and

was probably associated with the small building on the southeastern side of the machine-works yard marked on the 19th-century maps.



Figure 20. Wall {231}, running northeast to southwest into the section of the PDA, looking southeast, scale 1m.



Site name: Ducie Street, Manchester
Date: 21/09/2022
Drawn by: JR

Figure 21: Plan of structures associated with 20th Century warehousing 'works'.

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 Concrete (signed off on)	 20th Century concrete	 20th Century structures
 Mid-19th Century	 Late 19th Century	 Early 19th Century

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4.3.24 The 20th-century remains of the “works” building spanning the majority of the PDA remained substantially intact, characterised by c. 17 course machine-made red brick walls, atop concrete footings in English garden wall bonds with cementitious mortar. Moreover, these walls were often separated by large concrete stanchions, like those found to have truncated earlier remains (i.e. {213}, {214}, {223}). This type of walling was commonplace site-wide, surrounding and often removing earlier archaeological features.



Figure 21. Walls {023} and {024}, two 20th century walls separated by concrete pillars alike to stanchions {213} {214} and {223}, looking southwest, scale 2m.

4.3.25 In the north-western part of the site, formerly occupied by the block of six back-to-backs, concrete foundations and adjacent machine-made red brick walls were encountered associated with the later 20th-century works building. One such wall {006} abutted the truncated end of wall {004}. It is possible that the 20th-century works building incorporated some of the earlier 19th-century wall foundations such as wall {004}.



Figure 22. Wall {005}, the northeastern boundary of Houses E and F, abutting later wall {006}, looking northeast, scale 1m.

- 4.3.26 Wall {011} was separated from neighbouring English garden wall bonded {012} by a concrete stanchion, together forming the northwestern boundary of the mid-20th-century works in the PDA. The westernmost corner of the structure was bounded by another similar wall {013} with concrete uprights in the corners, creating a trapezoidal corner that appeared to be capped on the top course by concrete.



Figure 23. Wall {013}, a trapezoidal structure forming the northwestern corner of the mid-20th Century structure, looking northwest, scale 1m.

- 4.3.27 The southwestern boundary of the mid-20th-century works comprised three more similar wall sections {021}, {023}, and {024}. Despite this, the only clear evidence for the remaining

room boundary was 19th-century wall {043} situated in the easternmost extent of the excavation and running southwest to northeast, abutting the paired walls {004} and {005}.



Figure 24. Floor surface (205) abutting wall {203} (front centre) and buttress {212} in room bounded by walls {203} (left) and {045} (right), looking southwest, scale 1m.

- 4.3.28 One additional blind-back house was uncovered, bisected by a 20th-century concrete finished wall {204}. Wall {043} formed the northern wall of House G and was heavily truncated by later wall {045} on the same alignment. The southwestern extent of the room contained a sandstone surface, laid with a single layer of flagstones, (205), truncated at its northeastern extent by a single skin machine-made red brick wall {203} and buttress {212} forming the only remains of House G and the blind-back housing formerly occupying the centre of the PDA.

4.3.29 The upper boundary of the northwestern segment of House G was formed by heavily truncated wall {203}, a handmade red brick wall comprising of a mix of headers and stretchers with a perpendicular buttress keyed to it, {212}. The remainder of the possible structure was truncated by a later structure represented by a single sandstone flag (201) bounded by machine-made red brick walls {206} and {219}, the latter of which was abutting 19th-century wall {043}. A handmade red brick wall {210} was a continuation of wall {203} to the southeast of the later truncation, with a single buttress {216} abutting a single course sandstone surface (211). Buttresses {216} and {212} probably represent the truncated remains of a chimney associated with House G.



Figure 25. Remains of upper limit of room comprising wall {206} (top) {219} (left) and the single flagstone representing surface (201), looking south, scale 1m.



Figure 26. Room bounded by walls {204} (left) and {209} (right), heavily truncated, looking northeast, scale 1m.

- 4.3.30 The northeastern section of the room was devoid of archaeological features, but the southeastern-most area presented a small machine-made red brick structure comprising late 19th-century walls {210}, {217}, and {218}. This structure likely formed the boundaries of a small structure abutting external warehouse wall {209}. Southeast of wall {209} was a four course machine-made red brick wall {221} running from the eastern section of the excavation westwards, abutting the modern concrete slab (222). This wall was an internal wall within the brewery building that fronted onto Ducie Street.



Figure 27. Wall {221} abutting concrete slab (222), looking southwest (north arrow misaligned), scale 1m.

- 4.3.31 The final structure recorded during the watching brief was a 10 course high machine-made red brick wall abutted by concrete bonded to its northwestern face. This wall {215} lacked association with any other nearby contexts due to heavy truncation in the south-central area of the PDA; however, based upon attributes and provisional dating alone it most likely formed part of an internal wall in the south of the 20th-century works building.



Figure 28. Wall {215} a heavily truncated wall possibly acting as a party wall for the southeastern section of mid-20th-century warehouse, scale 1m.

5 DISCUSSION

- 5.1.1 The archaeological remains of the 19th-century workers' housing within the PDA have the potential to enhance our understanding the impact of industrialisation upon working class living conditions in Manchester. Furthermore, the contemporary and subsequent industrial footprint of the site sheds further light on the physical relationships between houses, and workshops/warehouses at the time. Unfortunately, little evidence remained for the two workers houses in the centre of the site identified in 19th-century historical mapping, due to the later addition of the 20th-century works building.
- 5.1.2 The heavy truncation of the 19th-century workers' housing by concrete foundations associated with subsequent 20th-century industrial developments is commonplace throughout the Piccadilly and Ancoats areas, with sites such as Sharp Street presenting similar evidence for industrial alterations (Dyson & Trow, 2018). Nevertheless, the 19th-century housing and its later alterations provide a valuable insight into the reactive alterations of residential buildings in the light of changing social attitudes and legal provision for working class living conditions.
- 5.1.3 The mid-19th century saw the erection of several workers' houses in the PDA, with a total of seven uncovered during this watching brief. In many cases, these small dwellings will have provided whole families with shelter in a single room. With population density rapidly increasing during this period, in response to the growing workforce needs of the

neighbouring factories, there was an ever-increasing need for houses for the workers. It became commonplace for several families to share houses.

- 5.1.4 Of the houses on the PDA with evidence for the position of all four original walls (C, D, E and F), the average floor-space was 24.15m². According to contemporary OS mapping, the smaller block of workers' housing in the centre of the PDA (represented by House G), was demolished and incorporated into the neighbouring brewery towards the east of the site by 1891. The northern block of back-to-back houses were heavily altered around the turn of the century, a change representative of positive progress of both social attitudes and legislative reforms concerning working class living standards. What had been party walls between the two rows of back-to-backs were partly knocked through creating a doorway between what now became the front and back rooms of ingle-through houses. Houses A to F remained standing until at least 1935, but a large works complex spanning most of the site subsequently heavily truncated the earlier remains.
- 5.1.5 Overall, the archaeological significance of the site is greatly reduced by the relatively poor level of preservation of the workers' housing due to heavy truncation by later industrial developments and concrete surfaces/pillars. Nonetheless, features found within the 19th-century remains, such as the intact fireplace and drainage culvert system provide an insight into daily life for the working class of Manchester at the time. A notable example of this is the blocking up of doorways removing external access to the basement of the dwellings, alterations which were likely carried out to conform to contemporary bye-laws. Similar alterations were also noted at Hatter Street (Trow 2019) and James Street (Trow 2018).
- 5.1.6 Despite the relatively poor preservation of the buildings, the archaeological remains on the site do add to the growing corpus of 19th-century workers' housing in Manchester and in a modest way may contribute to future comparative studies of workers' housing.

6 PUBLICITY, CONFIDENTIALITY AND COPYRIGHT

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- 6.1.2 ARS Ltd will retain the copyright of all documentary, photographic and video material under the Copyright, Designs and Patent Act (1988).

7 STATEMENT OF INDEMNITY

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

8 ARCHIVE

- 8.1.1 A digital archive will be prepared by ARS Ltd, consisting of all primary written documents, plans, sections, photographs and electronic data, which will be digitally archived on the ADS database.

- 8.1.2 The archive will be prepared in line with the digital deposition requirements of the ADS database system. The archive will follow the recommendations provided by ClfA's (2020) '*Standard and Guidance for the creation, compilation, transfer and deposition of archaeological archives*', and the Society of Museum Archaeologists' (1993) '*Selection, Retention and Dispersal of Archaeological Collections. Guidelines for use in England, Wales and Northern Ireland*'.
- 8.1.3 An OASIS online record <http://ads.ahds.ac.uk/project/oasis/> has been initiated and completed for this work and all parts of the OASIS online form completed for submission to the HER. This will include an uploaded pdf version of the entire report. The site has produced a paper and digital archive which will be deposited, along with this report, in digital form with Archaeological Data Service (ADS). In addition, a copy of this report will be deposited with the Greater Manchester Historic Environment Record (HER).

9 ACKNOWLEDGEMENTS

ARS Ltd would like to thank Big Red Construction and the ground-workers present on site during this archaeological watching brief.

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APPENDIX I CONTEXT DESCRIPTION TABLE

Context Number	Context Type	Context Description	Brick Size	Length	Width	Depth
001	Deposit	Asphalt car park forming overburden	/	/	/	/
002	Deposit	Dark greyish black silty clay demolition deposit	/	/	/	/
003	/	Machine-made VOID	/	/	/	/
004	Wall	Machine-made red brick Wall forming support for neighbouring walls, cement mortar, no finish, 4 skins, running northwest to southeast, 15+ courses, sandwiched between 19th and 20th Century walls.	0.23m x 0.11m x 0.07m	2.00m	0.24m	1.10m
005	Wall	Handmade red brick Wall, lime mortar, english garden wall bond, 2 skins, 15+ courses, running northwest to southeast, associated with heavily disturbed 19th Century workers housing.	0.24m x 0.11m x 0.07m	2.00m	0.26m	1.10m
006	Wall	Machine-made red brick Wall forming outer boundary of final phase of warehousing, cement mortar, 20 courses, 2 skins bounded by concrete pillars, mostly stretchers, running northeast to southwest, no finish.	0.23m x 0.11m x 0.07m	2.26m+	0.45m+	1.80m
007	Wall	Handmade red brick Wall, heavily truncated, lime mortar, no finish.	0.24m x 0.11m x 0.07m	1.27m+	0.16m	1.03m
008	Wall	Handmade red brick Wall, heavily truncated, lime mortar, no finish.	0.24m x	1.59m	0.31m	0.96m

			0.11m x 0.07m			
009	/	VOID	/	/	/	/
010	Wall	Handmade red brick Wall, lime mortar, no finish, 2 skins, only stretchers, 17 courses, acting as fireplace for two terraced houses.	0.24m x 0.11m x 0.07m	1.00m	0.23m	1.20m
011	Wall	Machine-made red brick Wall forming outer boundary of final phase of warehousing, cement mortar, 20 courses, 2 skins bounded by concrete pillars, mostly stretchers, running northeast to southwest, no finish.	0.23m x 0.11m x 0.07m	0.78m	0.33m	1.10m
012	Wall	Machine-made red brick Wall forming outer boundary of final phase of warehousing, cement mortar, 20 courses, 2 skins bounded by concrete pillars, mostly stretchers, running northeast to southwest, no finish.	0.23m x 0.11m x 0.07m	2.08m	0.42m	1.10m
013	Wall	Machine-made red brick Triangular Wall forming outer boundary of final phase of warehousing, cement mortar, 20 courses, 2 skins bounded by concrete pillars, mostly stretchers, running northeast to southwest, no finish.	0.23m x 0.11m x 0.07m	1.38m	1.59m	1.10m
014	Wall	Handmade red brick Wall, lime mortar, no finish, 19th Century.	0.24m x 0.11m x 0.07m	1.27m+	0.19m	1.00m
015	Wall	Handmade red brick and Firebrick Wall/Buttress, lime mortar, no finish, 19th Century.	0.24m x 0.11m	0.30m	0.29m	0.60m

			x 0.07m			
016	Wall	Handmade red brick Wall, lime mortar, no finish, 19th Century.	0.24m x 0.11m x 0.07m	0.56m	0.41m	0.60m
017	Structure	Piping system, ceramic with evidence of burning.	N/A	0.70m	0.25m	0.33m
018	Surface	Slate surface supporting piping {017}.	N/A	1.05m	0.35m	0.04m
019	Structure	Stone step associated with (017).	N/A			
020	Wall	Handmade red brick Wall, lime mortar, no finish, 19th Century.	0.24m x 0.11m x 0.07m	2.68m	0.17m	0.64m
021	Wall	Machine-made red brick Wall forming outer boundary of final phase of warehousing, cement mortar, 20 courses, 2 skins bounded by concrete pillars, mostly stretchers, no finish.	0.23m x 0.11m x 0.07m	2.61m	0.25m	1.10m
022	/	VOID	/	/	/	/
023	Wall	Machine-made red brick Wall forming outer boundary of final phase of warehousing, cement mortar, 20 courses, 2 skins bounded by concrete pillars, mostly stretchers, no finish.	0.23m x 0.11m x 0.07m	4.23m	0.25m	1.10m
024	Wall	Handmade red brick Wall, lime mortar, no finish, 19th Century.	0.23m x 0.11m x 0.07m	1.52m	0.25m	1.10m

025	Wall	Handmade red brick Wall, lime mortar, no finish, 19th Century.	0.24m x 0.11m x 0.07m	2.83m	0.33m	1.08m
026	Wall	Machine-made red brick Wall forming outer boundary of final phase of warehousing, black ash mortar, 20 courses, 2 skins, no finish, filling doorway of 19th Century housing.	0.23m x 0.11m x 0.07m	0.90m	0.28m	1.08m
027	Wall	Handmade red brick Wall, lime mortar, no finish, 19th Century.	0.24m x 0.11m x 0.07m	3.46m	0.26m	1.08m
028	Wall	Handmade red brick Buttress, lime mortar, no finish, 19th Century.	0.24m x 0.11m x 0.07m	0.42m	0.42m	0.76m
029	Wall	Handmade red brick Wall, lime mortar, no finish, 19th Century.	0.24m x 0.11m x 0.07m	7.42m	0.25m	0.10m+
030	Drain	Handmade red brick Drain, 2 courses, unclear mortar, 1 skin, capped at top and bottom by YPS flagstones, no finish.	0.24m x 0.11m x 0.07m	5.56m	0.40m	Unknown
031	Wall	Handmade red brick Buttress, lime mortar, no finish, 19th Century, possibly contributant to fireplace.	0.24m x	0.26m	0.10m	0.07m

			0.11m x 0.07m			
032	Surface	YPS Surface, no finish, 1 course, 1 skin, truncated, perpendicular to buttress {028} possibly as part of heavily truncated fireplace.	0.23m x 0.11m x 0.07m	0.58m	0.28m	Unknown
033	Wall	Handmade red brick Wall, lime mortar, no finish, running northwest to southeast, adjacent to wall {016}, 3 skins, 17+ courses.	0.23m x 0.11m x 0.07m	0.50m	0.64m	0.62m
034	Wall	Handmade red brick Wall, lime mortar, no finish, running northwest to southeast, forming backing of fireplace, 17+ courses.	0.23m x 0.11m x 0.07m	1.00m	0.14m	0.22m
035	Wall	Machine-made red brick Wall forming outer boundary of final phase of warehousing, black ash mortar mortar, 20 courses, 2 skins, no finish, filling doorway of 19th Century housing.	0.23m x 0.11m x 0.07m	0.80m	0.26m	1.08m
036	Drain	Handmade red brick Drain, 2 courses, unclear mortar, 1 skin, capped at top and bottom by YPS flagstones, no finish.	0.24m x 0.11m x 0.07m	1.20m+	0.55m	Unknown
037	Drain	Handmade red brick Drain, 2 courses, unclear mortar, 1 skin, capped at top and bottom by YPS flagstones, no finish, still functional.	0.24m x 0.11m	0.67m	0.48m	Unknown

			x 0.07m			
038	Drain	Handmade red brick Drain, 2 courses, unclear mortar, 1 skin, capped at top and bottom by YPS flagstones, no finish.	0.24m x 0.11m x 0.07m	3.63m	0.41m	Unknown
039	Structure	Handmade red brick Lintel	/	/	/	/
040	Wall	Handmade red brick Buttress, lime mortar, no finish, 16 courses, mixture of headers and stretches, supporting northwestern extent of fireplace.	0.24m x 0.11m x 0.07m	0.72m	0.55m	0.56m
041	Wall	Handmade red brick Buttress, lime mortar, no finish, 13 courses, mixture of headers and stretches, supporting southeastern extent of fireplace.	0.24m x 0.11m x 0.07m	0.75m	0.51m	0.46m
042	Surface	YPS Surface, no finish, 1 course, forming flooring in house in southeastern-most extent of the site.	N/A	2.67m	2.12m	Unknown
043	Wall	Handmade red brick Wall, lime mortar, no finish, 19th Century.	0.24m x 0.11m x 0.07m	3.21m	0.28m	1.00m
201	Surface	Paving Stone surface, various sizes of slab, 1 course, no finish, founded onto natural clay and abutting wall {202}.	N/A	3.10m	1.70m	0.10m
202	Wall	Machine-made red brick wall, cement mortar, 3 skins, 7 courses, no finish, running north to south and founded onto natural clay.	0.23m x 0.13m x 0.08m	1.20m	0.30m	0.60m

203	Wall	Machine-made red brick wall, cement mortar, no finish running north to south, abutting YPS surface (205) 1 skin, 1 course, founded onto natural clay.	0.23m x 0.13m x 0.08m	1.70m	0.12m	0.09m
204	Wall	Machine-made red brick Warehouse Wall, cement finish in places, heavily truncated with concrete and re-bar, founded onto natural clay with a mixture of headers and stretchers. Unknown courses and skins due to composition of concrete element.	0.23m x 0.13m x 0.08m	6.80m	0.30m	1.05m
205	Surface	Paving Stone surface, various sizes of slab, 1 course, no finish, founded onto natural clay, 3 skins running east to west.	N/A	3.00m	1.70m	0.15m
206	Wall	Machine-made red brick Wall, all stretchers, cement mortar, 3 skins, 4 courses, no finish, running east to west, abutting walls {202} and {219} with unclear keying.	0.23m x 0.13m x 0.08m	2.00m	0.25m	0.20m
207	Wall	Machine-made red brick Wall, collapsed during excavation, lime mortar, 13 courses, abutting composite wall {204}, 3 skins, running north to south208.	0.22m x 0.12m x 0.08m	Unknown	Unknown	Unknown
208	Wall	Single course sandstone doorstep	0.23m x 0.11m x 0.07m	0.55m	0.40m	0.94m
209	Wall	Machine-made red brick Warehouse Wall, cement finish in places, heavily truncated with concrete and re-bar, founded onto natural clay with a mixture of headers and stretchers. 13 courses, 3 skins, running east to west.	0.23m x 0.11m x 0.07m	6.50m	0.25m	1.05m

210	Wall	Machine-made red brick Wall, mix of headers and stretchers, no finish, 4+ courses, founded onto natural clay. 1 skin, cement mortar.	0.24m x 0.12m x 0.07m	3.00m	0.10m	0.28m+
211	Surface	Paving Stone surface comprising various sizes of slab. No finish and 2 courses running east to west, founded onto clay natural.	N/A	3.00m	1.90m	0.21m
212	Wall	Machine-made red brick Buttress, no finish, 2 skins, 1 cours, keyed into wall {203}. Cement mortar running east to west.	0.23m x 0.12m x 0.08m	0.40m	0.25m	0.10m
213	Pillar	Concrete pillar containing moderate amounts of aggregate and strengthened with corrugated re-bar. 1 course with no finish.	N/A	0.35m	0.25m	1.20m
214	Pillar	Concrete pillar containing moderate amounts of aggregate and strengthened with corrugated re-bar. 1 course with no finish.	N/A	0.35m	0.30m	1.17m
215	Wall	Handmade red brick Wall comprising alternating rows of headers and stretchers bonded with lime mortar. 10+ courses with unknown founding, 3 skins running east to west preserved due to adjacent concrete block, truncated at both ends.	0.22m x 0.10m x 0.07m	4.30m	0.30m	0.80m+
216	Wall	Machine-made red brick Buttress, keyed into wall {210}, cement mortar, 1 course, 2 skins, no finish, running east to west and founded onto concrete natural.	0.22m x 0.11m x 0.07m	0.20m	0.20m	0.08m
217	Wall	Machine-made red brick Wall, 3+ courses, 2 skins, all stretchers, cement mortar, keyed into wall {218}, running east to west, no finish and founded onto natural clay.	0.23m x 0.13m x 0.08m	0.90m	0.20m	0.35m+

218	Wall	Machine-made red brick Wall, heavily truncated, no finish, 3+ courses, 2 skins, keyed into wall {217}.	0.22m x 0.11m x 0.07m	0.50m	0.21m	0.18m
219	Wall	Machine-made red brick Wall, keyed into wall {206}, no finish, running north to south, cement mortar, 4+ courses, 2 skins.	0.22m x 0.11m x 0.07m	0.90m	0.30m	0.35m
220	Wall	Single course sandstone doorstep	N/A	0.50m	0.30m	Unknown
221	Wall	Machine-made red brick Wall, 3 skins, 4+ courses, no finish, abutting concrete slab (222), running east to west, cement mortar.	0.23m x 0.11m x 0.07m	6.50m	0.28m	0.42m
222	Surface	Coarse light grey concrete slab forming outer area of 20th Century warehouse, possibly as loading platform. Abutting walls {221} and {209}.	N/A	10.00m+	5.20m+	Unknown
223	Pillar	Concrete pillar containing moderate amounts of aggregate and strengthened with corrugated re-bar. 1 course with no finish.	N/A	0.30m	0.30m	0.74m
224	Deposit	Natural clay substrate, light yellowish brown compact sterile clay	N/A	/	/	/
225	/	VOID	/	/	/	/
226	/	VOID	/	/	/	/
227	/	VOID	/	/	/	/
228	Wall	Machine-made red brick Wall, 5 courses, 5 skins, cement mortar, no finish, forming outer boundary of early 20 th Century brush-works, abutting pillar {229}.	0.23m x 0.11m x 0.07m	1.52m	0.49m	0.41m

229	Pillar	Composite Machine-made red brick and sandstone pillar, cement mortar, no finish, 4+1 courses, abutting walls {228}, {230}, and {231}.	N/A	0.51m	0.48m	0.50m
230	Wall	Machine-made red brick Wall, stretcher bond leading to irregular bond, cement mortar, no finish, 5 skins, 5 courses.	0.23m x 0.11m x 0.07m	2.83m	0.51m	0.42m
231	Wall	Machine-made red brick Wall, top four courses truncated, 5+ courses, no finish, cement mortar, 2 skins.	0.23m x 0.11m x 0.07m	2.14m	0.22m	0.46m+
232	Wall	Machine-made red brick Wall, 2 skins, 4 courses, no finish, cement mortar.	0.23m x 0.11m x 0.07m	2.13m	0.36m	0.38m
233	Pillar	Concrete pillar containing moderate amounts of aggregate and strengthened with corrugated re-bar. 1 course with no finish.	N/A	/	/	/

APPENDIX II OASIS FORM

Summary for archaeol5-508693

OASIS ID (UID)	archaeol5-508693
Project Name	Watching Brief at Ducie Street, Manchester
Sitename	Ducie Street, Manchester
Activity type	Watching Brief
Project Identifier(s)	DSM22
Planning Id	120149/FO/2018
Reason For Investigation	Planning: Post determination
Organisation Responsible for work	Archaeological Research Services Ltd
Project Dates	18-Jul-2022 - 22-Sep-2022
Location	Ducie Street, Manchester NGR : SJ 85018 98254 LL : 53.4807914687886, -2.2272217424241 12 Fig : 385018,398254
Administrative Areas	Country : England County : Greater Manchester District : Manchester Parish : Manchester, unparished area
Project Methodology	A Watching brief will be carried out during all sub-ground works associated with drainage works within the site boundary. Should significant areas of archaeological interest be uncovered, this will be discussed with the Heritage Management Director with GMAAS. All groundworks will use either hand tools or a mechanical excavator fitted with a breaker, toothed and toothless ditching buckets under archaeological supervision. Any observations of archaeological remains will be reported immediately to the archaeologist on site. Any hard standing will be removed by machine under archaeological supervision. Excavated spoil will be scanned visually to recover small finds, with their location recorded. A sufficient quantity of any archaeological features uncovered will be investigated to determine their date, nature and degree of survival. A photographic record will be maintained, and any archaeological remains will be recorded and/ or retrieved. Evaluation trenching may be carried out, based on the results of the watching brief.
Project Results	Archaeological works were undertaken at the site in accordance with condition 18 of the planning consent outlined by Manchester City Council (120149/FO/2018) with a view to uncovering the remains of a block of workers' housing and associated courtyard, dating to the early 19th Century, as well as some buildings associated with a brewery and a machine manufactory (later brush-works) that encroached upon the site. During the watching brief, remains of the aforementioned housing were uncovered, but had been largely truncated by the later addition of a large 'Works' development, particularly over the northern sections of the PDA. A large concrete slab associated with this development was also lifted, revealing the north-eastern extent of a 19th-century industrial building, largely situated south-west of the PDA.

Keywords	Back To Back House - POST MEDIEVAL - FISH Thesaurus of Monument Types Blind Back House - POST MEDIEVAL - FISH Thesaurus of Monument Types Grain Warehouse - POST MEDIEVAL - FISH Thesaurus of Monument Types Brewery - POST MEDIEVAL - FISH Thesaurus of Monument Types Brush Factory - POST MEDIEVAL - FISH Thesaurus of Monument Types
Funder	
HER	Greater Manchester HER - noRev - LITE
Person Responsible for work	Joseph, Robb
HER Identifiers	
Archives	Digital Archive - to be deposited with Archaeology Data Service Archive;

APPENDIX III WRITTEN SCHEME OF INVESTIGATION

Ducie Street, Manchester

Written Scheme of Investigation for Archaeological Works

December 2021 (Updated January 2022)



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Prepared on behalf of: Urbano Property Ltd

Date of compilation: December 2021 (Updated
January 2022)

Compiled by: Michelle Burpoe ACIfA

Checked by: Rupert Lotherington MCIfA

Site code: DSM21

Local Authority: Manchester City Council

Planning Application Ref: 120149/FO/2018

Site central NGR: SJ 85018, 98254

1 INTRODUCTION

1.1 Project Background

1.1.1 This Written Scheme of Investigation (WSI) has been prepared by Archaeological Research Services Ltd (ARS Ltd) for Zerum Consult Limited acting on behalf of Urbano Property Ltd. It details a scheme of archaeological works to be carried out at Ducie Street, Manchester.

1.1.2 Planning permission has been approved by Manchester City Council (Ref. 120149/FO/2018) for the erection of 7 to 8 storey residential building (Class C3) to provide 41 apartments (7 x 1-bedroom 1-person apartments, 6x 1-bedroom 2-person apartments, 6x 2-bedroom 3-person apartments, 22x 2-bedroom 4-person apartments) with associated landscaping and other works). Condition number 18 of the approved planning permission states that:

'18. No development shall commence until the applicant or their agents or successors in title has secured the implementation of a programme of archaeological works. The works are to be undertaken in accordance with a Written Scheme of Investigation (WSI) submitted to and approved in writing by Manchester Planning Authority. The WSIs shall cover the following:

1. *A phased programme and methodology of investigation and recording to include:*
 - ♦ *Archaeological evaluation trenching*
 - ♦ *Targeted open area excavation*
2. *A programme for post-investigation assessment to include:*
 - ♦ *Production of a final report on the results of the investigations and their significance.*
3. *Deposition of the final report with the Greater Manchester Historic Environment Record.*
4. *Dissemination of the results of the archaeological investigations commensurate with their significance.*
5. *Provision for archive deposition of the report and records of the site investigation.*
6. *Nomination of a competent person or persons/organisations to undertake the works set out within the approved WSI and have the findings of the investigation have been signed off by GMAAS.'*

1.1.3 The archaeological works will be carried out in accordance with NPPF paragraph 205 (MHCLG 2021, 58), *'to record and advance understanding of the significance of any heritage assets to be lost (wholly or in part) in a manner proportionate to their importance and the impact, and to make this evidence (and any archive generated) publicly accessible.'*

1.1.4 This WSI confirms the nature of the archaeological works to be undertaken by ARS Ltd at Ducie Street, Manchester comprising an initial watching brief and a phase of archaeological evaluation trenching, in accordance with guidance provided



by the Ian Miller, Heritage Management Director with Greater Manchester Archaeological Advisory Service (GMAAS).

1.2 Site Description and Location

1.2.1 The 'red line boundary' of the proposed development area (hereafter PDA) is depicted by a red polygon on Figure 1 and is c.552m² in area. The site lies between Manchester City Centre and Ancoats, to the north side of Ducie Street and the south of Lomax Street, with both streets extending westwards from Great Ancoats Street (A655). The site itself comprises a single small car park that extends from Ducie Street to Lomax Street. It is laid with tarmac and is accessed from the south to the centre of the car park, or to the northwest corner from Lomax Street. The car park is separated from another car park to the east by a timber fence, with no defined boundaries to the north, south and west. The only structure within the site is a small ticket kiosk, present at the eastern margin of the southern access road. The site is centred at NGR SJ 85018, 98254 (Figure 1).

1.3 Geology and Soils

1.3.1 The underlying solid geology of the PDA comprises sandstone of the Chester Formation, sedimentary bedrock formed approximately 247 to 250 million years ago in the Triassic Period when the local environment was previously dominated by rivers. This is overlain by superficial deposits of Devensian Till – Diamicton (BGS 2021).

2 BACKGROUND

2.1 Archaeological and Historical Background

2.1.1 A desk-based assessment (Kathryn Sather & Associates 2018a) and heritage statement (Kathryn Sather & Associates 2018b) were produced to support the planning application, which detail the known archaeological and historical potential of the site. Whilst the Greater Manchester HER does not record any heritage assets within the site boundary, historic map regression indicates that the site has developed from the late-18th century – present day with a mixture of residential, commercial and industrial uses. The following is a summary of these results.

2.1.2 Ducie and Lomax Streets were laid out by the late 18th century, with the first development depicted within the site boundary at the beginning of the 19th century. Dean and Pigot's 1809 plan shows a large block of buildings now present within the site, though the development does not extend within the south-western corner of the site. By the time of the 1832 Ordnance Survey (OS) plan, the buildings within the site are now depicted as three distinct parallel blocks, with slender alleyways in-between, with the south-western corner of the site still undeveloped (Kathryn Sather & Associates 2018a, 13).

2.1.3 It is not until the 1850 OS plan that the site is depicted in detail. The northern two rows of buildings on the 1832 plan are now shown to be a series of back-to-back housing which fronted onto either Lomax Street to the north, Bank Street to the west, or several small courtyards within the site itself, including 'Goodall Court' in



the north-eastern corner of the site from Lomax Street, 'Bank Street Court No.4' within the western half of the site, and 'Nelson's Court' within the eastern half of the development area. Within the south-eastern corner of the site, historic mapping reveals the location of Mather Street Brewery likely associated with the Lord Nelson Public House immediately adjacent to the brewery to the east. This plan also depicts part of a Machine Manufactory, occupied by Thomas and Edwin Briggs (machinists) extending into the south-western part of the site (Kathryn Sather & Associates 2018a, 14).

2.1.4 Throughout the mid-late 19th century, the brewery building within the site varied throughout the years, with the 1883 and 1895 trade directories recording the structure as being used by a 'hay and straw dealer' and 'corn dealer' respectively. Between 1893 and 1908, all the back-to-back housing within the northern half of the site had been redeveloped into through terrace housing or perhaps workshop space. Historic mapping indicates that the site as a whole remained unchanged throughout the early-mid 20th century, with the buildings extant in some form until c.1970. Subsequent late-20th century plans show the northern half of the site was included within a wider 'Works' development, likely resulting in the demolition of the terraced structures within this part of the site. The buildings within the southern half of the site appear to have remained unchanged. Google Earth aerial imagery indicates that sometime between 2003 and 2005, all the buildings within the site boundary were demolished, and a car park was established (Kathryn Sather & Associates 2018a, 14-15).

2.1.5 The DBA (Kathryn Sather & Associates 2018a, 17-20) has identified four distinct areas of archaeological potential, derived from the results of the historic map regression, as outlined below (Figure 2):

- ♦ **Site 1. Back-to-Back Housing south of Lomax Street:** Dating to the early-19th century, site of five workers houses with alley between which provided access to 'Goodalls Court'. Demolished by 1908 OS plan.
- ♦ **Site 2. Houses to the north of Nelson's Court:** Dating to early-19th century, site of two workers houses which may have been incorporated into the Brewery or demolished to make way for Brewery expansion in early-20th century.
- ♦ **Site 3. Mather Street Brewery/Hay and Straw Dealership/Corn Miller:** Dating to 19th century, site of an industrial building that may have survived in some form from early-19th century to early-21st century.
- ♦ **Site 4. Machine Manufactory:** Mid-19th century industrial complex, with the south-western of the site utilised as a yard with outbuildings. Demolished by early-21st century.

2.1.6 These areas of potential have helped outline the aims and objectives and methodologies of the archaeological fieldwork.



3 AIMS AND OBJECTIVES

3.1 Regional Research Aims and Objectives

3.1.1 Research topics relevant to this site identified in the *Updated North West England Regional Research Framework* includes the following.

The Industrial and 20th Century Period (Nevell 2021)

- ♦ Ind22: How can we take forward our understanding of the impact of industrialisation on the working class and their living conditions?
- ♦ Ind30: How have buildings changed in response to planning regulations?
- ♦ Ind32: To what extent did houses and shops incorporate workshops and warehousing?
- ♦ Ind33: How well studied and understood are the backyards of workers housing and what is their significance?
- ♦ Ind60: How can we make sense of the relative significance of historic industrial processes and building types perceived as poorly understood and recorded?

3.1.2 This regional research framework will help inform the aims and objectives of the programme of archaeological works at Ducie Street, Manchester.

3.1.3 These aims and objectives will be visited both during and after the archaeological works in order that they may be updated as necessary.

3.2 Fieldwork Aims and Objectives

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

3.2.2 The objectives of the archaeological evaluation trenching are as follows.

- ♦ Identify the presence/absence of archaeological features and deposits within the site.
- ♦ Record any archaeological features and deposits encountered.
- ♦ Sample sufficient of the archaeological features and deposits to establish relative sequence, likely dating, quality of preservation and significance.
- ♦ Gather sufficient information to establish the character, extent, form, function and likely status of any surviving archaeological deposits with a view to evaluating their significance and potential to inform the aims and objectives outlined in section 3.1 of this WSI.



4 WATCHING BRIEF

4.1 Coverage

4.1.1 In consultation with the Heritage Management Director with GMAAS, a watching brief will be carried out during all sub-surface groundworks associated with drainage works within the site boundary (Figure 2).

4.1.2 Should significant areas of archaeological interest be uncovered during the watching brief, discussions will be undertaken with the Heritage Management Director with GMAAS on the best archaeological mitigation strategy.

4.2 Constraints

4.2.1 Work will cease if contamination is encountered during groundworks. The site manager, the client and GMAAS will be informed. An updated risk assessment will be provided.

4.2.2 The site is currently utilised as a car park. All proposed groundworks areas will be scanned with a CAT and Genny before excavation is to take place.

4.3 General Statement of Practice

4.3.1 All elements of the archaeological watching brief will be carried out in accordance with ClfA's *Code of Conduct* (2021) and *Standard and Guidance for an Archaeological Watching Brief* (2020a).

4.3.2 All staff employed on the project will be suitably qualified for their respective project roles and have substantial experience of archaeological excavation and recording.

4.3.3 All staff will be made aware of the archaeological importance of the area surrounding the site and will be fully briefed on the work required by this specification. Each member of staff will be fully conversant with the aims and methodologies of the watching brief and will be given a copy of this WSI to read.

4.3.4 All ground works covered under this specification will be undertaken either by hand or by a suitable mechanical excavator fitted with a breaker, toothed and toothless ditching buckets operating under archaeological supervision.

4.3.5 ARS Ltd will ensure that plant or machinery will not be operated in the immediate vicinity of any archaeological remains until they have been recorded.

4.3.6 Contractors and plant operators must notify any observations of archaeological remains immediately to the archaeologist on site. The developer will make provision for the necessary archaeological investigation (fieldwork, post-excavation analysis, reporting and archive deposition).

4.3.7 Regular contact will be ensured between ARS Ltd and the site project manager to ensure that ARS Ltd is kept up to date with site works and given the change to respond appropriately and in line with the requirements of the Heritage Management Director with GMAAS.



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

4.3.9 The on-site archaeologist will be given, at their request, the opportunity to stop site work to investigate potential archaeological features. Adequate time will be negotiated and allowed for recording any such features.

4.4 Methodology

4.4.1 Any hard standing will be pecked and/or lifted by machine under archaeological supervision. Excavation will be undertaken by a suitable mechanical excavator fitted with a toothed or toothless ditching bucket or by hand. No machinery will track over areas that have previously been stripped until the area has been signed off by ARS Ltd.

4.4.2 Excavated spoil will be scanned visually to recover small finds. Finds so recovered will be recorded with their location of origin ascribed. Finds will be retained and recorded.

4.4.3 Where archaeological features and/or deposits are identified during the watching brief, then a sufficient quantity of the said features will be investigated by hand to allow their date, nature and degree of survival to be ascribed.

4.4.4 A written, drawn and photographic record will be maintained during the watching brief. All significant archaeological remains will be recorded and/or retrieved.

4.4.5 If significant archaeological features are identified during these works, the Heritage Management Director with GMAAS will be notified, and a decision made as how to proceed.

5 EVALUATION TRENCHING

5.1 Coverage

5.1.1 Based on the results of the watching brief, and in consultation with GMAAS, a phase of archaeological evaluation trenching may be required.

5.1.2 The results of the watching brief works, in particular the description of the character of the below-ground conditions across the site, and the areas of archaeological potential as identified within the DBA (see section 2.1.5 above) will inform the size, number, and location of the trenches, details of which will be appended to the WSI upon completion and review by GMAAS of the watching brief summary report.

5.1.3 Should significant archaeological remains be identified during the archaeological trenching, then a further phase of archaeological works, comprising targeted open area excavation, may be required. These works would be undertaken before any development ground works commence in the area of archaeological interest and would be subject to either an addendum to this WSI or a separate WSI.



5.2 Constraints

5.2.1 Work will cease if contamination is encountered during groundworks. The site manager, the client and GMAAS will be informed. An updated risk assessment will be provided.

5.2.2 The site is currently utilised as a car park. All trenches will be scanned with a CAT and Genny before any excavation is to take place. GMAAS will be fully consulted if any alteration to the trenches is needed.

5.3 General Statement of Practice

5.3.1 All elements of the archaeological trenching and excavation will be carried out in accordance with ClfA's *Code of Conduct* (2021) and *Standards and Guidance for Archaeological Field Evaluation* (2020b).

5.3.2 All staff employed on the project will be suitably qualified for their respective project roles and have substantial experience of archaeological excavation and recording. All staff will be made aware of the circumstances and potential archaeological importance of the work and will be fully briefed on the requirements of this specification.

5.3.3 All ground works covered under this specification will be undertaken by a suitable mechanical excavator fitted with a breaker, toothed and toothless ditching bucket or by hand. Where trenches are to be excavated through tarmac, a breaker will be used.

5.3.4 Should archaeological deposits or structures be revealed that are more numerous, better preserved, or of higher status than expected or than which could reasonably be expected, consultation will take place with GMAAS to identify and agree further excavation/recording strategy.

5.3.5 ARS Ltd will ensure that plant or machinery will not be operated in the immediate vicinity of any archaeological remains until they have been recorded.

5.3.6 Contractors and plant operators will be notified that any observations of archaeological remains must be reported immediately to the archaeologist on site. Regular contact will be ensured between ARS Ltd and the site project manager to ensure that ARS Ltd is kept up to date with site works and given the chance to respond appropriately and in line with GMAAS requirements.

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

5.4 Methodology

5.4.1 Any hard standing will be pecked and/or lifted by machine under archaeological supervision. Modern overburden and topsoil will be removed by a mechanical excavator using a 2m wide toothless ditching bucket to the first significant archaeological horizon in successive level spits. No machinery will track



over areas that have previously been stripped until the area has been signed off by ARS Ltd.

5.4.2 All trenches will be appropriately cleaned using hand tools in order to expose the full nature and extent of archaeological features and deposits.

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

5.4.4 All archaeological features will be planned and sectioned. Dispensation may be sought in relation to sectioning of features from GMAAS, where said features are so large in instances where excavation may be better effected during subsequent mitigation.

5.4.5 Isolated, discrete features such as pit or postholes not belonging to structures or industrial activities will be 50% sampled, if they produce artefacts then provision is made for full excavation.

5.4.6 Linear features, such as ditches and gullies relating to agricultural activity, will be sampled a minimum of 20% along their length, with each sample section to be not less than 1m, or a minimum of a 1m sample section, if the feature is less than 5m in length.

5.4.7 The depositions at junctions or interruptions in linear features will be sufficiently excavated for the relationship between components to be established. All termini will be investigated.

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

5.4.9 Area deposits, such as buried soils, or middens, will be hand excavated at a minimum 10%. Subsequent excavation by machine will be considered.

5.4.10 Cut features of an archaeological nature which comprise structural units will be completely excavated to and respect the original interface of construction.

5.4.11 Upstanding or positive features of an archaeological nature, following recording, will be either partially or wholly excavated by hand where such excavation facilitates access to lower lying archaeological stratification. Where said features do not represent elements of a physically superimposed sequence and are observed to be truncating natural strata partial excavation, as a representative sample (to demonstrate construction technique, depth of foundation trench, construction materials etc.) will be undertaken.

6 SAMPLING, FAUNAL REMAINS AND TREASURE

6.1 This section outlines sampling methodologies to be utilised during all excavation types.



6.2 A minimum soil sample of 40 litres will be taken from sealed and stratigraphically secure deposits, that are adjudged to have the potential to provide environmental evidence relating to diet and economy, dating evidence or land use regime. A 100% soil sample of the deposit will be taken if the deposit is less than 40 litres in volume.

6.3 In the case of waterlogged or anaerobic deposits a minimum sample size of 20 litres will be taken.

6.4 Should a sequence of superimposed deposits of note be present, column sampling may be considered.

6.5 Samples will be assessed by a suitable specialist and provision will be made for scientific dating, where justified against the project aims.

6.6 Where there is evidence for industrial activity, macroscopic technological residues (or samples of them) will be collected by hand. Separate samples (c.10ml) will be collected from micro-slugs (hammer scale and spherical droplets) in accordance with *Archaeometallurgy: Guidelines for Best Practice* (Historic England 2015a) and *Archaeological Evidence for Glassworking* (Historic England 2018a).

6.7 Samples will be taken for scientific dating (such as radiocarbon dating) in specific circumstances that will apply where dating by artefacts is insecure or absent.

6.8 Appropriate consideration will be given to the need for any geoarchaeological assessment of buried soils and sediment sequences exposed. Where this is necessary, these will be inspected and recorded on site by a recognised geoarchaeologist as field inspection may provide sufficient data for understanding site formation processes. The procedures and techniques presented in *Geoarchaeology: Using earth sciences to understand the archaeological record* (Historic England 2015b) will be applied. Samples for laboratory assessment will be collected where appropriate, following discussion with GMAAS.

6.9 Sampling strategies for wooden structures should follow the methodologies presented in Historic England's (2010) *Waterlogged Wood: Guidelines on the recording, sampling, conservation and curation of waterlogged wood*. For other waterlogged organic finds, guidance provided by Historic England's (2018b) *Waterlogged Organic Artefacts. Guidance on their Recovery, Analysis and Conservation* will be followed.

6.10 Should other types of environmental deposits be encountered, appropriate specialist advice will be sought and an appropriate sampling strategy devised. Samples will be assessed by a suitable specialist with provision for further analysis as required. Advice from the Historic England Science Advisor will be taken as appropriate.

6.11 In all instances sampling strategies will be in accordance with guidelines issued by Historic England's *Environmental Archaeology: A Guide to the Theory and Practice Methods, from sampling and recovery to post excavation* (Campbell *et al.* 2011) and will be targeted in order to explore the levels and types of preservation present.



6.12 Any human remains will initially be left *in-situ*, covered and protected. Removal will be undertaken, if deemed necessary, once a Coroners licence has been obtained in accordance with the relevant Ministry of Justice regulations, in line with current guidelines (Brickley and McKinley 2004; English Heritage 2004; English Heritage/Church of England 2005; APABE/English Heritage 2013; APABE/Historic England 2017; Mitchell and Brickley 2017) and in discussion with GMAAS.

6.13 All finds that may constitute 'treasure' under the Treasure Act, 1996, will be removed to a safe place and reported to the local Coroner in accordance with the Treasure Act (DCMS 2008). The Portable Antiquities Liaison Officer will also be notified.

HM Coroner	Finds Liaison Officer
Mr Graham Jackson	Heather Beeton
Coroner's Office	National Museums Liverpool
Crown Square	Department of Archaeology
Manchester	Pier Head, Liverpool Waterfront
Greater Manchester	Liverpool
M60 1PR	L3 1DG
Tel: 0161 830 4222	Tel: 0151 4784259
	Email: Heather.Beeton@liverpoolmuseums.org.uk

6.14 GMAAS will also be notified and, if necessary, a site meeting arranged to determine if further investigation in the vicinity of the find spot is required. Where removal cannot take place on the same working day as discovery, suitable security measures will be taken to protect the finds from theft.

7 RECORDING

7.1 The site will be recorded in accordance with the ARS Ltd's field recording manual and single context recording system, and will include as a minimum context record sheets, an accurate site plan and record photography where no archaeological features are present.

7.2 The site will be tied into the National Grid and located on a 1:2500 or 1:1250 map of the area.

7.3 A full and proper record (written, graphic and photographic as appropriate) will be made for all work, using pro-forma record sheets and text descriptions appropriate to the work. Accurate scale plans and sections/elevations will be drawn where required at the appropriate scale and in accordance with best practice. In addition to relevant illustrations, provision for rectified photographic recording shall be made, if deemed necessary.

7.4 For brick structures, the record will include details of brick dimensions and type (handmade/machine-made, plain/frogged), mortar (colour, composition, hardness) and the extent of structures (number of courses, thickness in skins).

7.5 Sample representative levels will be taken to record the maximum depth of excavation and /or natural should no archaeological features be uncovered.



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

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

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

7.9 Site photography will comprise high resolution (minimum of 16.4 megapixels) colour photography. The photographic record will encompass all encountered archaeological entities as well as recording the general environs of the site and working practices. In addition, key relationships between entities, where these help demonstrate sequence or form, will also be photographed. A clearly visible, graduated metric scale will be included in all record shots. A supplementary record of working images will be taken to demonstrate how the site was investigated and what the prevailing conditions were like during excavation. The photographs will be archived in accordance with Historic England guidance (2015c) and a register of all photographs will be kept.

8 FINDS PROCESSING AND STORAGE

8.1 All finds will be exposed, lifted, cleaned, conserved, marked, bagged and boxed in accordance with the United Kingdom Institute for Conservation (UKIC) *Excavated Artefacts and Conservation* (UKIC 2001). All finds processing, conservation work and storage of finds will be carried out in accordance with the ClfA (2020c) *Standard and Guidance for the collection, documentation, conservation and research of archaeological materials* and the UKIC (1990) *Guidelines for the Preparation of Archives for Long-Term Storage*.

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

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

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

8.5 Metal finds will be sampled, processed and analysed in line with *Archaeometallurgy: Guidelines for best practice* (Historic England 2015a), and *Guidelines on the X-radiography of archaeological metalwork* (English Heritage 2006a). Any waterlogged artefacts or ecofacts will be sampled, processed and analysed using *Waterlogged Wood: Guidelines on the Recording, Sampling, Conservation and Curation of Waterlogged Wood* (English Heritage 2010) and *Waterlogged Organic Artefacts. Guidelines on their Recovery, Analysis and Conservation* (Historic England 2018b).



8.6 Artefacts, ecofacts and deposits suitable for dating purposes will be identified and obtained in line with *Dendrochronology: Guidelines on producing and interpreting dendrochronological dates* (English Heritage 1998), *Archaeomagnetic Dating: Guidelines on producing and interpreting archaeomagnetic dates* (English Heritage 2006b), and *Luminescence Dating: Guidelines on using luminescence dating in archaeology* (English Heritage 2008b).

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

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

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

9 POST-EXCAVATION

9.1 The archaeological fieldwork will be followed by post-excavation analysis and reporting. This will include the cataloguing and analysis of any finds, samples and the preparation of the archive for the site report and its subsequent deposition. Where artefacts are recovered from identified features they will be quantified by date class and type; in other circumstances, they will be quantified by period and class and type (e.g. 5 sherds, late Roman grey ware pottery); in other circumstances, as a minimum, they should be quantified by period and class (e.g. 5 sherds, Roman pottery).

9.2 Artefacts, biological samples and soils will be assessed for evidence of site and deposit formation processes and for evidence of recent changes that may have been caused by alterations in the site environment. Assessment will, where necessary, include x-radiography of all iron objects, (after initial screening to exclude obvious recent debris), and a selection of non-ferrous artefacts (including all coins).

9.3 Where necessary, active stabilisation or consolidation will be carried out, to ensure long-term survival of the material with due consideration to possible future investigation.

9.4 Once assessed, all material will be packed and stored in optimum conditions, as described in *First Aid for Finds* (Watkinson and Neal 2001).

9.5 Assessment of any technological residues will be undertaken.

9.6 Any samples for dating will be promptly submitted and prior agreement will be made with the laboratory on turn-around time and report production.

9.7 Processing of all soil samples collected for biological assessment, or subsample of them, will be completed. The preservation state, density and significance of material retrieved will be assessed by recognised specialists. Special



consideration will be given to any evidence for recent changes in preservation conditions that may have been caused by alterations in the site environment. Unprocessed sub-samples will be stored in conditions specified by the appropriate specialists.

9.8 Samples collected for geoarchaeological assessment will be processed as necessary by a recognised specialist and appropriate assessment be undertaken. Where preservation *in-situ* is a viable option consideration should be given to the possible effects of compression on the physical integrity of the site and to any hydrological impacts of development.

9.9 Animal bone assemblages, or sub-samples of them, will be assessed by a recognised specialist.

9.10 Where human remains have been lifted assessment will be undertaken by a recognised specialist.

10 REPORTING

10.1 Following completion of the watching brief works, a summary report will be submitted to the Heritage Management Director with GMAAS within 2 weeks of the completion of fieldwork. This summary report will detail the initial results of that phase of work and highlight any issues that may need to be addressed going forwards.

10.2 Following completion of all phases of archaeological fieldwork, ARS Ltd will produce a comprehensive report to be submitted to the Heritage Management Director with GMAAS within two months of the completion of the fieldwork. This will include the following as a minimum.

- ♦ A non-technical summary
- ♦ Introductory statement
- ♦ Aims and purposes of the project
- ♦ Methodology of the fieldwork
- ♦ An objective summary statement of results
- ♦ A phased stratigraphic discussion of the archaeological features
- ♦ An interpretive discussion of the results, placing them in a local and regional framework and an assessment of the significance of any remains
- ♦ Appropriate supporting illustrations, including a site plan, a site location plan on an OS base map of a suitable scale, trench and section plans, feature sections and plans, a phased site plan as appropriate, photographs of work in progress on the site, and appropriate finds illustrations
- ♦ The results of an assessment of artefacts, ecofacts and industrial residues carried out by suitable specialists, who will be furnished with relevant contextual and stratigraphic information
- ♦ If sufficiently significant remains are recovered, than an analysis of the above



based upon the specialist assessment recommendations

- ♦ In the event that significant remains are encountered, then a timetable for wider dissemination will be included in the report
- ♦ Conclusions
- ♦ Supporting data including a detailed context index, tabulated or in appendices
- ♦ Index to archive and details of archive location
- ♦ The proposed date of the deposition of the archive
- ♦ References
- ♦ Statement of intent regarding publication
- ♦ Confirmation of archive transfer arrangements
- ♦ A copy of the WSI and OASIS form.

10.3 Within the report:

- ♦ all plans will be clearly related to the national grid, and
- ♦ all levels will be quoted relative to ordnance datum.

10.4 One digital PDF/A copy of the final report will be deposited with the Greater Manchester Historic Environment Record (HER). A copy of the report will be updated as part of the OASIS record for online access via the Archaeological Data Service.

11 TIMETABLE, STAFFING AND RESOURCES

11.1 The projected timetable for the archaeological works is as follows. GMAAS will be updated by email as work progresses.

Task No	Task	Proposed Commencement Date
1	Drainage watching brief work	TBC
2	Summary report preparation and completion	Immediately following Task 1
3	Archaeological evaluation trenching site set up and mobilisation	TBC
4	Evaluation trenching and site sign off	Immediately follows Task 3
5	Post excavation assessment including any specialist reporting required	Immediately follows Task 4
6	Comprehensive report preparation and completion	Immediately follows Task 5
7	Archive preparation, completion and deposition	Immediately follows Task 6 and to be completed within 6 months of Task 5

11.2 All archaeological fieldwork projects are overseen by Reuben Thorpe MCIfA, Head of Field Archaeology at ARS Ltd. The fieldwork Project Manager and Project Officer will be drawn from ARS Ltd's pool of experienced staff and will have



demonstrable experience in their respective roles. Additional ARS Ltd Archaeological Officers may be allotted to the project as necessary and required.

11.3 Finds analysis will be carried out by appropriately qualified specialists as detailed subject to availability.

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

12 MONITORING ARRANGEMENTS

12.1 The Heritage Management Director for GMAAS will be responsible for monitoring the archaeological works. A minimum of two weeks' notice of the commencement of each phase of fieldwork will be given by ARS Ltd to the Heritage Management Director for GMAAS in order that arrangements for monitoring the fieldwork may be made.

Ian Miller
Heritage Management Director
Greater Manchester Archaeological Advisory Service
School of Environment & Life Sciences
Room LG20, Peel Building
University of Salford
Salford
M5 4WX
Email: i.f.miller@salford.ac.uk

12.2 ARS Ltd will liaise with GMAAS at regular intervals throughout the course of the work.

12.3 The client will afford reasonable access to GMAAS, or their representatives, for the purposes of monitoring the archaeological works.



13 ARCHIVE

13.1 Archive Selection Strategy

13.1.1 Selection of the working project archive will be guided by: the aims and objectives as set out in this WSI (section 3 above), the *Toolkit for Selecting Archaeological Archives* (ClfA 2019), the *Updated North West England Regional Research Framework* and the Science and Industry Museum in Manchester's deposition policy.

13.2 Documentary Archive

13.2.1 All original documentary material created and collected during the archaeological works will be selected for inclusion in the final archive. Any duplicates (including photocopies) of original documents will not be included in the final archive, in line with the recipient museum's deposition policy.

13.2.2 The deselected documents will be recycled, subject to final checks by ARS Ltd's Post-Excavation and Archives Officer.

13.3 Digital Archive

13.3.1 All digital data created over the course of this project will be collected, stored, and selected for final deposition in line with the project's Data Management Plan. This is likely to see final online deposition with the Archaeology Data Service (ADS) based at York University (ADS 2011). The key types of digital data produced will include the following:

Type	Data
Text	Digital copies of the Written Scheme of Investigation and final report
Images	Site photography, scans of site drawings, graphics for reports, digitised drawings
Finds Data	Finds reports and tables, conservation records, images

13.3.2 Only final copies of any digital data will be selected and deposited in the final project archive.

13.3.3 Digital data to be included in the final archive will be reviewed during the post-excavation and archiving phase of works.

13.3.4 The project manager and digital archive repository will be consulted on the fate of any deselected material. Deselected material is expected to include duplicates and any non-final versions of data. Digital photographs will be assessed during post-excavation works and selected in line with Historic England's *Digital Image Capture and File Storage* (2015c). The deselected material will be stored on the ARS Ltd server for a period before being reviewed and deleted.

13.4 Material Archive

13.4.1 The selection of material finds for final deposition in the archaeological archive will be decided in collaboration with the finds specialist during the post-excavation phase, based on addressing the aims and objectives of the project set out

in this WSI, the *Updated North West England Regional Research Framework* and the recipient museum's deposition policy.

13.4.2 No material will be discarded without processing and recording. Deselected material can be retained as part of a handling or teaching collection, returned to the landowner, or discarded as agreed by the landowner, specialists, collecting museum and planning archaeologist.

13.5 Deposition

13.5.1 Should the project produce archaeologically significant finds, the repository museum will allocate an archive accession number at the beginning of the post-excavation stage and a project archive prepared for deposition by ARS Ltd with the recipient museum. This digital, paper and artefactual archive will comprise all the primary written documents, plans, sections, photographs and electronic data and an accompanying metadata statement.

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

13.5.3 A digital PDF/A copy of the final reports will be deposited with the Greater Manchester HER. A copy of the archaeological evaluation report will be updated as part of the OASIS record for online access via the Archaeological Data Service.

13.5.4 The archive will be deposited in line with *Archaeological Archives: A guide to best practice in creation, compilation, transfer and curation* (Brown 2011), ClfA's (2020c) *Standard and Guidance for the creation, compilation, transfer and deposition of archaeological archives*, and Society of Museum Archaeologists (SMA 1993) *Selection, Retention and Dispersal of Archaeological Collections. Guidelines for use in England, Wales and Northern Ireland*. In addition, the archive will be prepared in accordance with the recipient museum's deposition policy. The archive will be deposited within six months of the completion of the archaeological evaluation report.

13.5.5 GMAAS and the Museum Curator will be notified at the earliest opportunity should the site produce archaeologically significant, unusual, or unexpected finds.

13.5.6 GMAAS will be notified in writing on completion of the fieldwork with projected dates for the completion of the report and deposition of the archive. The date for deposition of the archive and its contents will be outlined in the report and GMAAS informed in writing on final deposition of the archive.

13.5.7 All retained artefacts and associated material will be cleaned, recorded, properly stored and deposited in the archive.

13.5.8 A full set of annotated, illustrative pictures of the site, excavation, features, layers and selected artefacts deposited with the archive as digital images on disc.

13.5.9 At the start of work (immediately before fieldwork commences) an OASIS

online record <http://ads.ahds.ac.uk/project/oasis/> will be initiated and key fields completed on Details, Location and Creators forms. All parts of the OASIS online form will be completed for submission to the HER. This will include an uploaded pdf.

14 GENERAL ITEMS

14.1 Health and Safety

14.1.1 All work will be carried out in accordance with The Health and Safety at Work Act 1973. Specific health and safety policies existing for all our workplaces and all staff employed will be made aware of the policy and any relevant issues. The particular risks involved with this project will be assessed, recorded and relevant mitigation measures put in place as part of a full risk assessment, which will be compiled in advance of fieldwork and will be read and signed by all on-site operatives. ARS Ltd retains Citation as its health and safety consultants. The Health and Safety Officer for ARS Ltd is Mark Potter.

14.2 Insurance Cover

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

14.3 Community Engagement and Outreach

14.3.1 Any opportunities will be sought for engaging the local community in any archaeological findings, for example a guided site tour and/or dissemination of information via ARS Ltd's website, social media and local media.

14.4 Changes to the Written Scheme of Investigation

14.4.1 Changes to the approved methodology or programme of works will only be made with prior written approval of GMAAS.

14.5 Publication

14.5.1 As a minimum, a short (c.300) word summary of the project results will be sent through to the editor of *Post-Medieval Archaeology* for inclusion in their annual round-up, with a copy forwarded to GMAAS.

14.5.2 In the event of significant remains being encountered, there may be the need for a more formal publication than in the summary form. The requirement for, and the final form of, any publication arising from the project will be agreed with GMAAS and the client dependent on the results of the fieldwork. Provision will be made for publicising the results of the work locally, e.g. via ARS Ltd's website, social media and local media (at the client's discretion) and talking to local societies.



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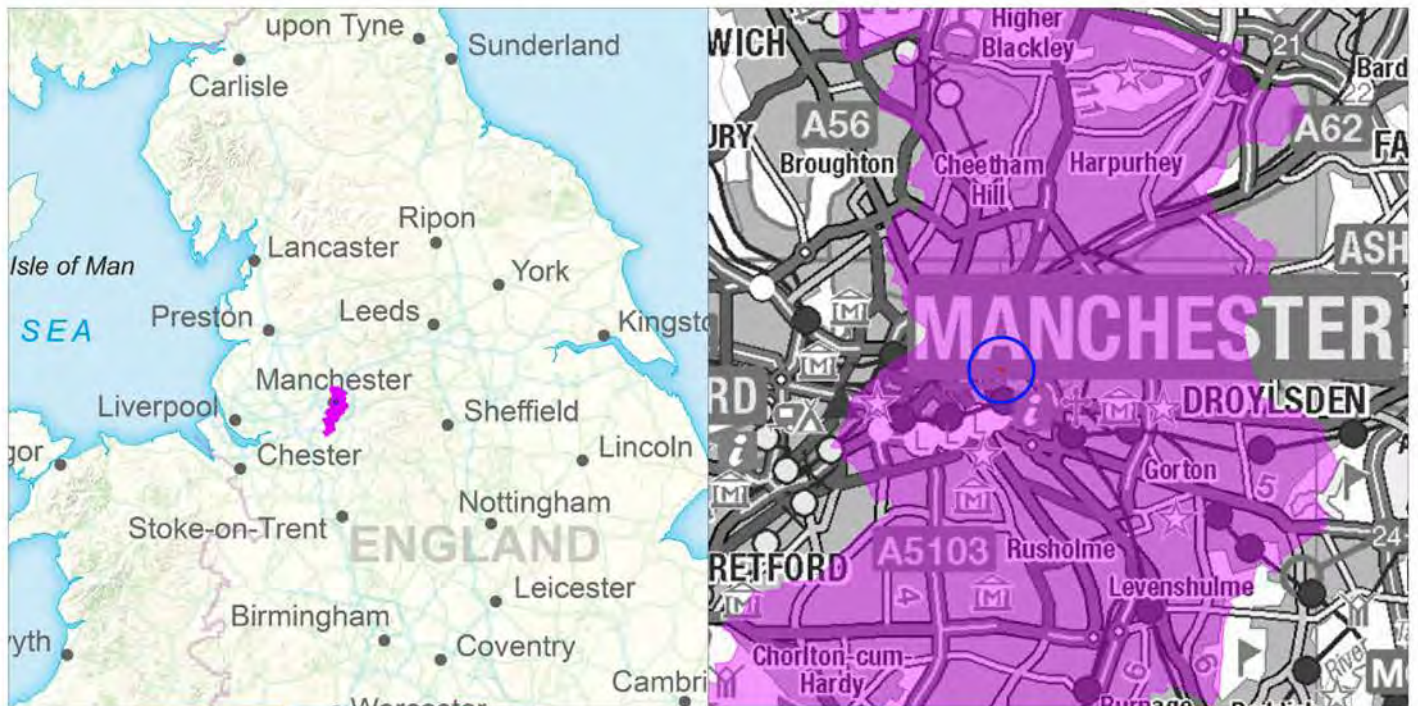
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FIGURES





Site name: Ducie Street, Manchester
 Date: December 2021
 Drawn by: MB
 Scale: Varies

**Figure 1:
 Site location**



- Site Boundary
- Manchester City Council

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