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MOUNT ANVIL LIMITED

KAMPUS, AYTOUN STREET, MANCHESTER

ARCHAEOLOGICAL WATCHING BRIEF REPORT

October 2017

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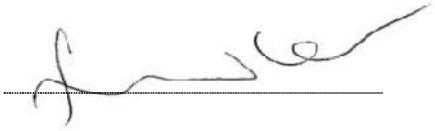
MOUNT ANVIL LIMITED

Kampus, Aytoun Street, Manchester

Archaeological Watching Brief Report

PREPARED BY:

Fiona Wooler Heritage Support



REVIEWED AND APPROVED BY:

Martin Railton Associate Director

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SUMMARY

Wardell Armstrong was commissioned by Mount Anvil Limited to undertake an archaeological watching brief on land at Aytoun Street, Manchester (centred on NGR: SJ 8451 9788). The watching brief was required as a fulfilment of a condition of planning consent for the redevelopment of the former Manchester Metropolitan University (MMU) Aytoun Street Campus for residential and commercial use (Planning Ref: 112034/FO/2016/C2). The watching brief was undertaken in accordance with a Written Scheme of Investigation (WSI) produced in response to advice provided by Norman Redhead, Heritage Management Director (Archaeology), Greater Manchester Archaeological Advisory Service (GMAAS).

The watching brief was undertaken during groundworks in two areas (Block C and Block F) of the site, following the demolition of 1960s University buildings, where a previous archaeological assessment has identified the potential for below-ground remains dating from the early 19th century onwards could survive. The watching brief was therefore undertaken in order to record any archaeological evidence for the past use of the site.

It was clear during the groundworks that both areas had been heavily disturbed by 20th century redevelopment of the site. The only features of archaeological interest recorded during the watching brief were the remains of a possible early 19th century culvert, and late 19th/early 20th century walls and floor surface, all of which had been truncated by the construction of the MMU Amenity Building (Block C) in the 1960s.

No evidence was revealed during the archaeological monitoring of the groundworks for either the Duke's Tunnel (believed to be located at *c*.14m below ground level), or the Shooters Brook culvert, although a section of the culvert was identified during recent, non-archaeological, survey work. The Duke's Tunnel, as an example of a late 18th century underground transport route for coal, and if found to be in a well-preserved condition, would be of regional significance. If the tunnel is encountered or breached during future groundworks associated with the Kampus scheme, it has been agreed with Greater Manchester Archaeological Advisory Service (GMAAS) that a remote video/photographic record should be made of the structural remains by the contractors on site.

ACKNOWLEDGEMENTS

Wardell Armstrong thanks Gareth Davies of Mount Anvil for commissioning the project, and Mike Woodruff, Project Manager for Mount Anvil, for all his assistance throughout the work. Wardell Armstrong also thank Norman Redhead, Heritage Management Director (Archaeology), Greater Manchester Archaeological Service, for his assistance.

The watching brief was undertaken by Jaime Levell and Fiona Wooler, who also wrote the report. The project was managed by Martin Railton who also edited and illustrated the report.

1 INTRODUCTION

1.1 Project Circumstances

1.1.1 Between June and August 2017, Wardell Armstrong undertook an archaeological watching brief on land at Aytoun Street, Manchester (centred on NGR: SJ 8451 9788). Planning consent has been granted for the redevelopment of the former Manchester Metropolitan University (MMU) Aytoun Street Campus for residential and commercial use (Planning Ref: 112034/FO/2016/C2), the scheme being known as 'Kampus'.

1.1.2 Until demolition work commenced on site in 2017, the Kampus site was occupied by a 1960s MMU amenity building on the north-east side of the site (Block C on Figure 2), a large 1960s central tower to the south, another 1960s amenity building to the south-west corner of the site (Block F on Figure 2) and the Aytoun Library in the southern part of the site. The central tower is be refurbished under the present scheme, but the 1960s amenity blocks and library have been demolished, with new buildings to be constructed at these locations. Two Grade II listed buildings on the north-west side of the site, the Minto and Turner Building and Minshull House, are to be retained under the present scheme.

1.1.3 The watching brief was required as a fulfilment of Condition 12 of the planning consent: *'No development shall take place 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'.* Reason: *'In accordance with NPPF Section 12, Paragraph 141 – to record and advance understanding of heritage assets impacted on by the development and to make information about the archaeological heritage interest publicly accessible'*.

1.1.4 The watching brief was undertaken during groundworks in two areas (Block C and Block F) of the site, following demolition, where a previous archaeological assessment has identified the potential for below-ground remains dating from the early 19th century onwards could survive (PCA 2017). The watching brief was therefore undertaken in order to record any archaeological evidence for the past use of the site.

1.1.5 A watching brief is defined as a programme of *'monitoring and investigation carried out during a non-archaeological activity within a specified area of land or development where construction operations may disturb or destroy archaeological remains'* (CIfA 2014a).

1.2 Written Scheme of Investigation

1.2.1 Prior to the archaeological watching brief taking place, a Written Scheme of Investigation (WSI) was prepared which set out the programme and methodology of the archaeological investigation and recording, a programme of post-investigation assessment, dissemination of the results commensurate with their significance, and provision for archive deposition (Wardell Armstrong 2017a). The WSI was prepared in accordance with the recommendations of Historic England as set out in *Management of Research Projects in the Historic Environment* (MoRPHE) and in conjunction with the relevant CIfA Standards and Guidance.

1.2.2 The WSI was submitted to, and approved by, Norman Redhead, Heritage Management Director (Archaeology) at Greater Manchester Archaeological Advisory Service, prior to any fieldwork commencing.

2 METHODOLOGY

2.1 Standards and guidance

2.1.1 The archaeological watching brief was undertaken following the Chartered Institute for Archaeologists *Standard and Guidance for an Archaeological Watching Brief* (2014a), and in accordance with the Wardell Armstrong fieldwork manual (2017b).

2.1.2 The fieldwork programme was followed by an assessment of the data as set out in the *Standard and Guidance for an Archaeological Watching Brief* (CIfA 2014a) and the *Standard and Guidance for the Collection, Documentation, Conservation and Research of Archaeological Materials* (CIfA 2014b).

2.2 Documentary Research

2.2.1 An Archaeological Impact Assessment was prepared by Pre-Construct Archaeology in 2017 (PCA 2017), which set out the archaeological and historical background of the site and its immediate environs. Extracts from that document have been included in the Historical and Archaeological Background below, in order to place the results of the watching brief into the historical context.

2.2.2 Additional research has been undertaken by Wardell Armstrong on the 'Duke's Tunnel', which is known to cross the southern part of the site, in order to provide further information on this feature should it be encountered during groundworks.

2.3 The Watching Brief

2.3.1 The watching brief comprised the monitoring of groundworks associated with the current development in the two areas of the site where the potential for archaeological remains to be present has been identified. The groundworks were monitored under close supervision by a suitably trained archaeologist.

2.3.2 The main objectives of the watching brief were:

- to establish the presence/absence, nature, extent and state of preservation of archaeological remains and to record them;
- to carry out further excavation and recording work, if intact archaeological remains were uncovered during the project, and if safe to do so;
- to determine levels of disturbance to any archaeological deposits from past building activities;
- to recover artefactual material, especially that useful for dating purposes;

- to disseminate the results of the fieldwork through an appropriate level of reporting.

2.3.3 An archive has been compiled in accordance with the project specification, and the Archaeological Archives Forum recommendations (Brown 2011). It is anticipated that the archive will be deposited with Manchester Museum, with copies of the report sent to the Greater Manchester Historic Environment Record (HER), where viewing will be made available upon request.

2.3.4 Wardell Armstrong supports the Online AccesS to the Index of Archaeological InvestigationS (OASIS) project. This project aims to provide an on-line index and access to the extensive and expanding body of grey literature, created as a result of developer-funded archaeological work. As a result, details of the results of this project will be made available by Wardell Armstrong as a part of this national project. The OASIS reference for the project is: wardella2-295016.

3 BACKGROUND

3.1 Location and Geological Context

3.1.1 The site is located to the east side of Manchester city centre, and consists of a block of land bounded by the Rochdale Canal to the north-west, Minshull Street to the north-east, Aytoun Street to the south-east and Chorlton Street to the south-west (Figures 1 and 2). The site was formerly occupied by buildings of the Aytoun Campus of the Manchester Metropolitan University (MMU) School of Business.

3.1.2 The solid geology of the site comprises sandstone, known as Chester Pebble Beds Formation, overlain by glacial till deposits (BGS online 2017).

3.2 Historical and Archaeological Background

3.2.1 An Archaeological Impact Assessment was prepared by Pre-Construct Archaeology (PCA 2017), which set out the development history of the site. Relevant information from that document is included below, however for a more comprehensive assessment of previous land use, please refer to the original document. Historic maps of Manchester are available to view online (Manchester Historic Maps 2017).

3.2.2 During the early post-medieval period, the site remained open land, located on the periphery of the town of Manchester. By the end of the 18th century, however, Manchester had developed from a moderately sized town to a centre for textile finishing processes. The expansion of the textile industries and consequent increases in population, was aided by the creation of a canal network. For example, the Worsley to Castlefield Canal was completed in 1765, whilst the completion of the Ashton-under-Lyne Canal in 1796 and Rochdale Canal in 1804 led to rapid urban expansion, especially to the east of the town centre and in the vicinity of the present study site.

3.2.3 Green's Plan of Manchester and Salford 1794 (Figure 3) shows the site as mainly unoccupied land, some of which was laid out as gardens, with Shooters Brook meandering across the south-west corner. An un-named street is laid out within the site, orientated north-east to south-west, but not built upon by this date.

3.2.4 It is believed that a section of the Duke's Tunnel may be present within the south side of the site. Prior to the construction of the canals, when the River Medlock was navigable by barges, the 'Duke's Tunnel' was created to transport coal on ships from the Duke of Bridgewater's mines at Worsley to Bank Top, located close to the site of Piccadilly Station. Work on the tunnel began in April 1787; the tunnel is noted to have been 650 yards in length, 8ft 62 high and 6ft wide, and, according to Nevell and Wyke,

'has strong parallels with Brindley's original coal tunnel at Castlefield' (Nevell and Wyke 2012, 10). In April 1789 the Manchester Mercury reported that three vessels carrying coal by this route from the Duke of Bridgewater's mines '*had arrived at Bank Top for the first time'.* Boats were 'legged' through the tunnel and the coal delivered to the end at Bank Top, near the junction of London Road and Ducie Street (Warrender 2007, 35-36; Hidden Manchester Map 2017).

3.2.5 By around 1800 the tunnel ceased to be used as a result of the continual silting of the River Medlock by mills and factories depositing cinders. The Duke of Bridgewater had an alternative route for the coal boats via the newly built Rochdale Canal, and Shooters Brook has since been culverted and diverted into surrounding sewers. The tunnel was then used for around 55 years to being surplus water from the Rochdale and Ashton Canals into the Bridgewater Canal (Warrender 2007, 35-36; Hidden Manchester Map 2017).

3.2.6 Historic, small-scale maps from the early 19th century show the site as still relatively undeveloped, however a branch arm of the Rochdale Canal extends into the site north-west to south-east. By this period, Shooters Brook is no longer shown, instead it has been culverted. By the time Pigot's map of 1813 had been published, some seemingly industrial development had taken place to the north-east side of the site, although the two large buildings are not labelled. The land to the south-west side of the canal arm is shown as undeveloped.

3.2.7 Pigot's map of 1824, however, shows further development to each side of the extended canal arm, all within the site boundary (Figure 4). Whilst some of these buildings appear to have been industrial, there was a row of houses located along the south side of the Rochdale Canal, on the site of the later Minto and Turner building which still stands to the north-west side of the site. Bancks and Co.'s plan of Manchester and Salford 1831 labels one of the buildings to the south-west side of the site as a foundry.

3.2.8 By the middle of the 19th century a large foundry 'St George's Foundry (Iron and Brass)' occupied the north-east part of the site along Minshull Street; the canal branch arm extended as far south as Pump Street, and a smithy occupied the south-western part of the site (Figure 5). The south-eastern part of the site remained undeveloped, labelled as 'Banktop or Bridgewater Trust Coal Wharf'.

3.2.9 The Goad Fire Insurance map of 1886 shows the site in detail, and provides evidence for considerable changes to have taken place within the site boundary. By this date St

George's Foundry, located to the north-east side of the site in the location of the later 1960s amenity building (Block C), had seemingly been demolished to be replaced by 'Manchester Ship Canal Co. (Bridgewater Canal) Minshull Street Yard', and warehouses had been erected along the Minshull Street frontage in the southern part of the site. To the south-west side of the site, the earlier Smithy has seemingly been removed and replaced by a larger building, with 'The Iron Shed (Transhipment)' having been constructed partly over the canal branch arm at the south-east end of the site (Figure 9 in PCA 2017).

3.2.10 Between 1886 and 1908 further changes had taken place within the site boundary, in particular in the north-east part (the site of Block C). The buildings relating to the Manchester Ship Canal Co. had been removed and replaced by another structure on a different alignment by 1893, but which in turn had been also removed by 1908 when the whole of the north-east side of the site is shown as undeveloped. The south-west side of the site also saw removal of earlier buildings between 1886 and 1893, with new, smaller structures shown by 1908 (Figure 11 in PCA 2017). An undated plan showing the route of the Duke's Tunnel appears to have been drawn up on a map dating to this period, as it shows the lack of development to the west side of the canal arm; this plan shows the course of the Duke's Tunnel across the south side of the site (Figure 6).

3.2.11 During the first half of the 20th century, the north-eastern part of the site (the location of Block C) appears to have remained undeveloped, with various maps annotating the area as 'Corporation Cleansing Depot' in 1930 and 'Corporation Yard' in 1940-41. The south-west part of the site (the location of Block F), contained a variety of small buildings, which in 1930 were related to 'Bitumous Surfacing Ltd Road Materials' (Figures 12 and 13 in PCA 2017). Historic photographs dating to the 1930s indicate that the canal branch arm had been shortened by this time, with the southern section having been infilled.

3.2.12 In September 1959 offers were invited from development firms for a vacant site in Aytoun Street, which was at that time in use as a Corporation car park. The land remained seemingly undeveloped until it was announced in 1961 that the Manchester Education Committee was proposing to build the city's new College of Commerce on *'corporation owned land bounded by Aytoun Street'*. The new college was intended to replace the *'crowded and out of date buildings now being used in Princess Street' (*Appendix 1 in PCA 2017).

3.2.13 Construction work on the new college buildings appears to have started in 1964, during which time the remaining section of canal arm was infilled. Amenity Block 2, which was located to the north-east side of the site (Block C on Figure 2), is shown in historical photographs to be under construction in that year. The building is shown to comprise of a frame of concrete-encased steelwork (Plate 37 in PCA 2017). The construction method and components of this building were described in a 1979 thesis:

'With amenity block two most of the spans required are quite large with clear spans over the gymnastics and refectory of 14 metres. Castellated beams span over these areas on to columns at 7 metre centres, with pre-cast concrete unit spanning between the beams…the wall construction is generally brick with exposed concrete beams and columns' (PCA 2017, 39).

3.2.14 Construction started on the Aytoun Library, which recently occupied the southern part of the site [demolition took place in June 2017], in 1992, and by 1994 it had opened. The building was five storeys in height, with the library occupying the central three floors, with the ground floor used for reception and administrative offices, and the top floor used as a computer centre. The building had a steel frame and permanent shuttered concrete floors; it was constructed on piled foundations which were designed to avoid hitting the underlying Duke's Tunnel and culverted Shooters Brook (Plate 48 in PCA 2017 shows the library under construction).

3.2.15 The Archaeological Impact Assessment concluded that none of the University buildings on the site were known to have had extensive basement structures. From the available evidence, however, it was clear that there had been widespread below-ground disturbance during the 1960s development of the site. It is also known that the footprint of the 1990s library building was extensively piled following clearance of that area (PCA 2017, 60).

4 WATCHING BRIEF RESULTS

4.1 Introduction

4.1.1 The watching brief was undertaken on four days between the 1st June 2017 and the 30th August 2017. The archaeological watching brief monitored groundworks associated with assessing the character of the ground prior to redevelopment work taking place.

4.2 Results – Block C

4.2.1 The first phase of groundworks was undertaken in June 2017, at the site of the former MMU Amenity Block (Block C), located to the north-east side of the site along Minshull Street (Figure 2). The groundworks were undertaken following the demolition of the building, and involved the excavation of the resulting ground level to a depth of *c*.2m in order to assess the character of the underlying superficial geology, to inform the structural engineers. The groundworks within the location of Block C had to be undertaken over two days, due to the constraints of the site for the storage of demolition material (Plate 1).

4.2.2 The excavation was undertaken within 'cells' that had been created by the horizontal concrete and steel beams utilised in the construction of the 1960s amenity block (Plate 2). It was noted that the wooden shuttering for the concrete beams still survived in some areas.

4.2.3 The excavated material largely consisted of demolition deposits, seemingly derived from material on the site when the Amenity Block was constructed in the 1960s, as there was loose red brick and sandstone fragments within the redeposited clay. This material appears to have been utilised to infill between the concrete cells (Plates 3 and 4).

4.2.4 Some *in-situ* archaeological features were observed during this phase of groundworks, although due to the confined nature of the site, and the depth of excavation, it was not possible to thoroughly assess these features. A culvert was noted close to the Minshull Street frontage; this was constructed of brick (bricks measuring 23cm long, 11cm wide and 7.5cm high), was approximately 0.5m in width, had an arched head, with apparently only a single skin of bricks for the side walls (Plates 5-7). The culvert had seemingly already been impacted by previous groundworks, and this was the only section to be observed during the watching brief. It was orientated roughly south-west to north-east, and therefore may have related to the earliest phase of occupation of

this part of the site in the early 19th century, as a structure is shown on a similar alignment at this location on Pigot's map of 1824 (Figure 4).

4.2.5 A fragment of brick floor or yard surface was exposed towards the southern part of the area of Block C; this was situated approximately 0.50m below the present ground level. It only survived in part as a surface and horizontal face, all constructed of machine-manufactured brick (Plate 8). This area of brickwork may have related to the foundry which is shown to have existed on this part of the site in the mid-19th century; however, the fragmentary nature of survival of this feature did not allow for any more specific information to be gained regarding what phase of the site it related to.

4.2.6 Towards the north-west part of the Block C area, two brick walls were noted in the sections of the excavated areas. Both of these brick walls had also been heavily truncated and only survived in part. It was also noted that the walls were situated, at least in one case, directly below one of the horizontal concrete beams of the 1960s Amenity Building, or very close to the that level, and therefore must have been visible, and possibly utilised as a level surface, when the MMU Amenity Building was constructed (Plate 9 and 10). These walls may have also related to the 19th century foundry, as they were observed at a similar present ground level to the surface shown in Plate 8.

4.2.7 No other features or deposits of archaeological interest were observed during this phase of groundworks at Block C.

4.3 Results – Block F

4.3.1 In the location of Block F (Figure 2), groundworks in August 2017 comprised the excavation of a test pit measuring approximated 5m by 3m, to an approximate depth of 3-3.5 meters (Plates 11 and 12). Due to high potential of collapse, close inspection of the test pit was not possible, however it was noted that no significant archaeological remains were present. A homogenous material was observed from ground level to the base of the test pit which consisted of a very loose dark brown-grey backfilled deposit with concrete, rebar, ceramic building material, ash and clinker inclusions and plastic piping, which indicates late 20th century intrusion. It is likely this area was disturbed during the construction of the Ayton Library in 1992 or else in the construction of the university buildings in the 1960's.

4.3.2 Following the excavation of the test pit, it was agreed with Norman Redhead of GMAAS, that no further monitoring was required in this area.

4.4 The Dukes Tunnel

4.4.1 As noted in the Historical and Archaeological Background above (Section 3.2), it is believed that a section of the Duke's Tunnel crosses the southern part of the site. When the Aytoun Library was constructed on that part of the site in 1992, piled foundations were used in its construction in order to avoid impacting on the underlying Duke's Tunnel and culverted Shooters Brook. It is clear from a report compiled in 2015, that the course of the tunnel and the smaller culvert must have been known:

'We understand that Library building foundations were piled either side of the tunnel structure into the stiff clay / mudstone strata and bridged over with ground beams and pile caps. Les [a former Project Engineer] also stated that the link corridor between the library and the Aytoun Tower building were located directly over the line of the smaller culvert and that this lightweight structure was supported on a shallow raft footing as the presence of the culvert precluded the use of piles in that area' (PCA 2014, 44).

4.4.2 The Duke's Tunnel was not exposed in either of the areas monitored as part of the watching brief; this may either have been due to these areas not being located where the tunnel crosses the site, or that the excavated areas were not deep enough.

4.4.3 As part of the current phase of groundworks for the Kampus scheme, a report has been compiled by Mount Anvil setting out the results of investigation work in relation to establishing the exact location of the Duke's Tunnel, which is thought to run under the site at a depth of *c*.14m, and the culverted Shooters Brook (a copy of this report will be included in the site archive). As part of this report, Buro Happold (structural engineers) undertook a desk-top study and mapped the probable location of the Duke's Tunnel, and a drawing has been produced (Appendix 3). Mount Anvil have also undertaken a desk-top study and employed Fugro (Geotechincal Survey Specialists) to probe the site in line with the probable location of the tunnel (Mount Anvil 2017).

4.4.4 The probing was inconclusive with regards to locating the Duke's Tunnel as the probe was terminating on the bedrock at approximately 8-9m below standing ground. It was therefore considered reasonable to conclude that the Duke's Tunnel had been bored into the sandstone, rather than a cut-and-cover construction.

4.4.5 The probing was successful, however, at locating a section of the Shooters Brook Culvert, which will become the discharge route for the finished scheme's surface water. Access to the culvert has been found, and a CCTV survey has been conducted

to ascertain the condition of the duct. Further work is to be undertaken in order for a diver to enter the culvert to send a signal up to a surveying team at ground level to accurately plot the route (Mount Anvil 2017, 8).

4.4.6 In order to stabilise the Duke's Tunnel within the site, it is expected that grouting will be necessary, once access to the tunnel has been obtained. Following discussions with Norman Redhead at GMAAS, it has been agreed that an attempt will be made to record the condition of the tunnel prior to this operation taking place. This record will be incorporated into the site archive.

4.5 Archaeological Finds and Environmental Sampling

4.5.1 No archaeological finds were recovered, and no environmental samples were taken during the monitoring of the groundworks.

5 CONCLUSION

5.1 The watching brief was undertaken during groundworks in two areas (Block C and Block F) of the site, following the demolition of 1960s University buildings, where a previous archaeological assessment has identified the potential for below-ground remains dating from the early 19th century onwards could survive (PCA 2017).

5.2 It was clear during the groundworks that both areas had been heavily disturbed by 20th century redevelopment of the site. The only features of archaeological interest recorded during the watching brief were the remains of a possible early 19th century culvert, and late 19th/early 20th century walls and floor surface, all of which had been truncated by the construction of the MMU Amenity Building (Block C) in the 1960s.

5.3 No evidence was revealed during the archaeological monitoring of the groundworks for either the Duke's Tunnel (believed to be located at *c*.14m below ground level), or the Shooters Brook culvert, although a section of the culvert was identified during recent, non-archaeological, survey work. The Duke's Tunnel, as an example of a late 18th century underground transport route for coal, and if found to be in a well-preserved condition, would be of regional significance. If the tunnel is encountered or breached during future groundworks associated with the Kampus scheme, it has been agreed with Greater Manchester Archaeological Advisory Service (GMAAS) that a remote video/photographic record should be made of the structural remains by the contractors on site, if human access is not possible.

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APPENDIX 1: PLATES

Plate 1: View looking north showing the area of excavation on 1st June 2017, south-east end of Block C

Plate 2: View looking north-west showing one of the 1960s horizontal concrete and steel beams being removed, Block C (June 2017)

Plate 3: View looking west showing the excavation of Block C, with one of the concrete beams visible behind the excavator bucket (June 2017)

Plate 4: Sandstone fragments within demolition material redeposited during the construction of the Amenity Block (Block C) (June 2017)

Plate 5: Section of brick culvert exposed during excavation of Block C (June 2017)

Plate 6: Detail of brick culvert exposed during excavation of Block C (June 2017)

Plate 7: Detail of one of the bricks used for the culvert construction, Block C (June 2017)

Plate 8: Area of brick floor/yard surface, and horizontal phase, exposed in the area of Block C (June 2017)

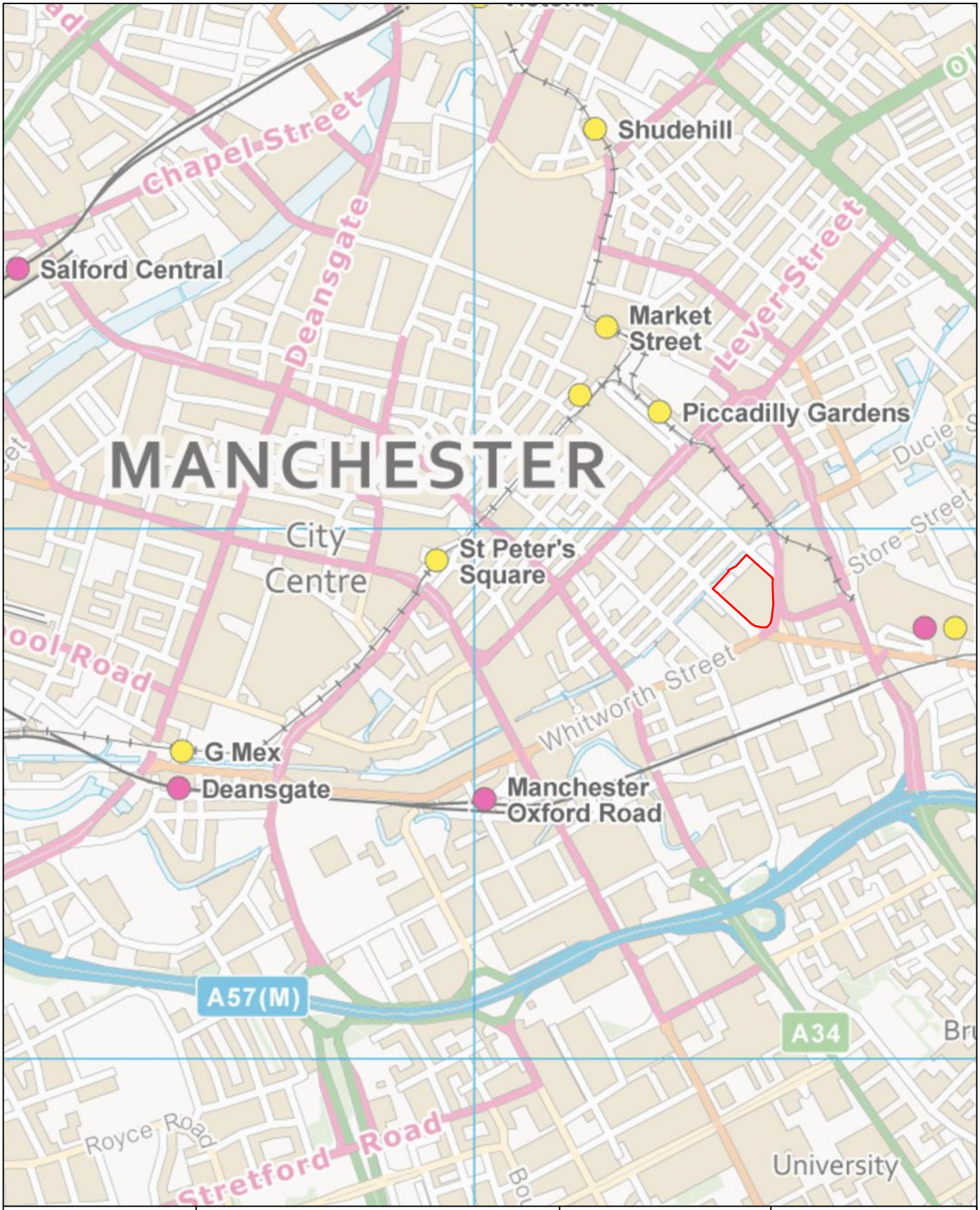
Plate 9: View looking south-east showing section of brick wall directly below one of the horizontal concrete beams, Block C (June 2017)

Plate 10: View looking west showing a section of brick wall in the south facing section (right of photograph), Block C (June 2017)

Plate 11: View looking north-east showing the groundworks at Block F (August 2017)

Plate 12: Detail of excavated test pit, Block F (August 2017)

APPENDIX 2: FIGURES



wardell armstrong Wardell Armstrong 2017	PROJECT: KAMPUS, Aytoun Street, Manchester SCALE: 1:10,000 at A4 REPORT No: MC10209 CLIENT: Mount Anvil Limited DRAWN BY: MDR DATE: September 2017 FIGURE: 1	KEY: Site boundary	

Figure 1: Site location.

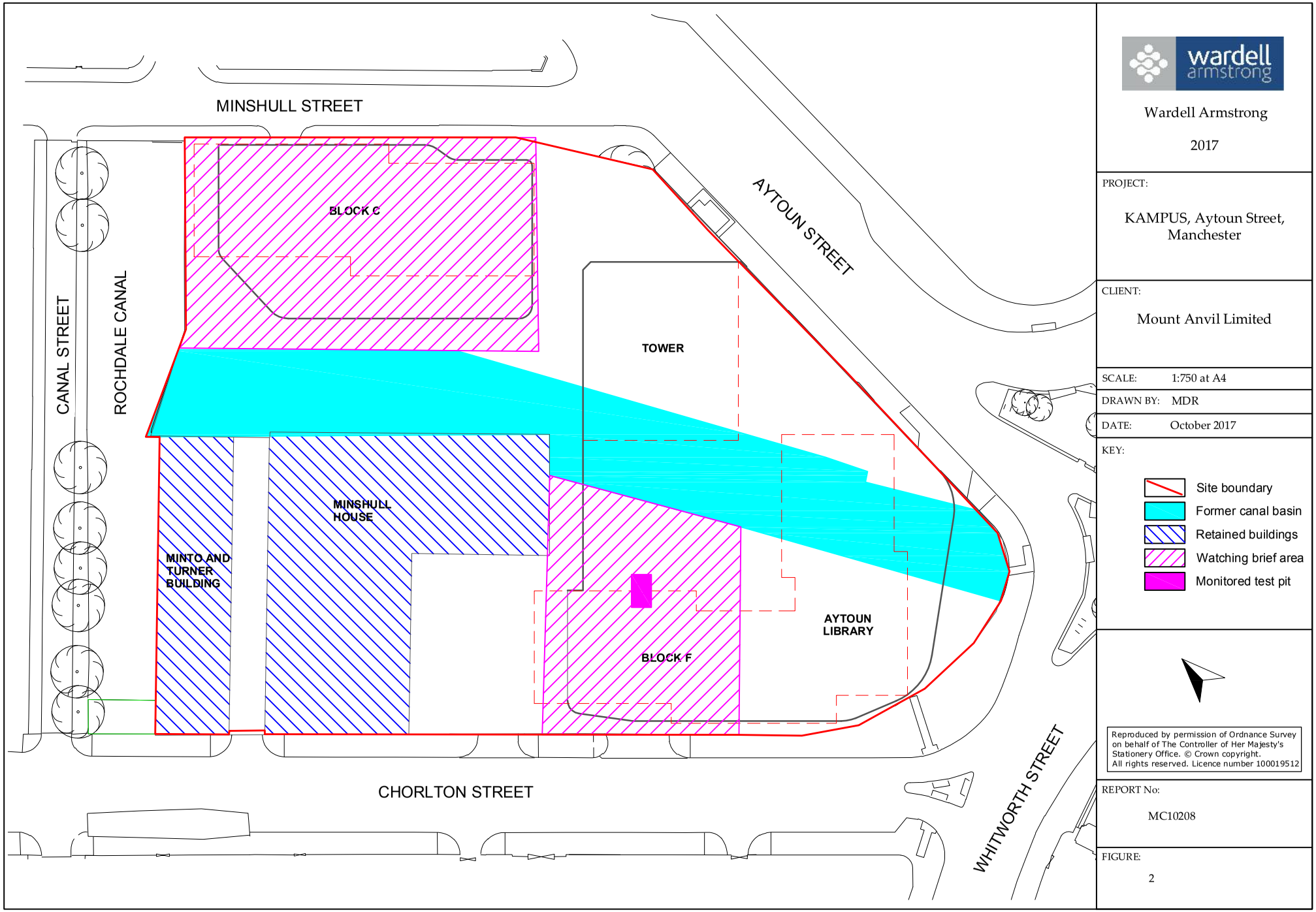
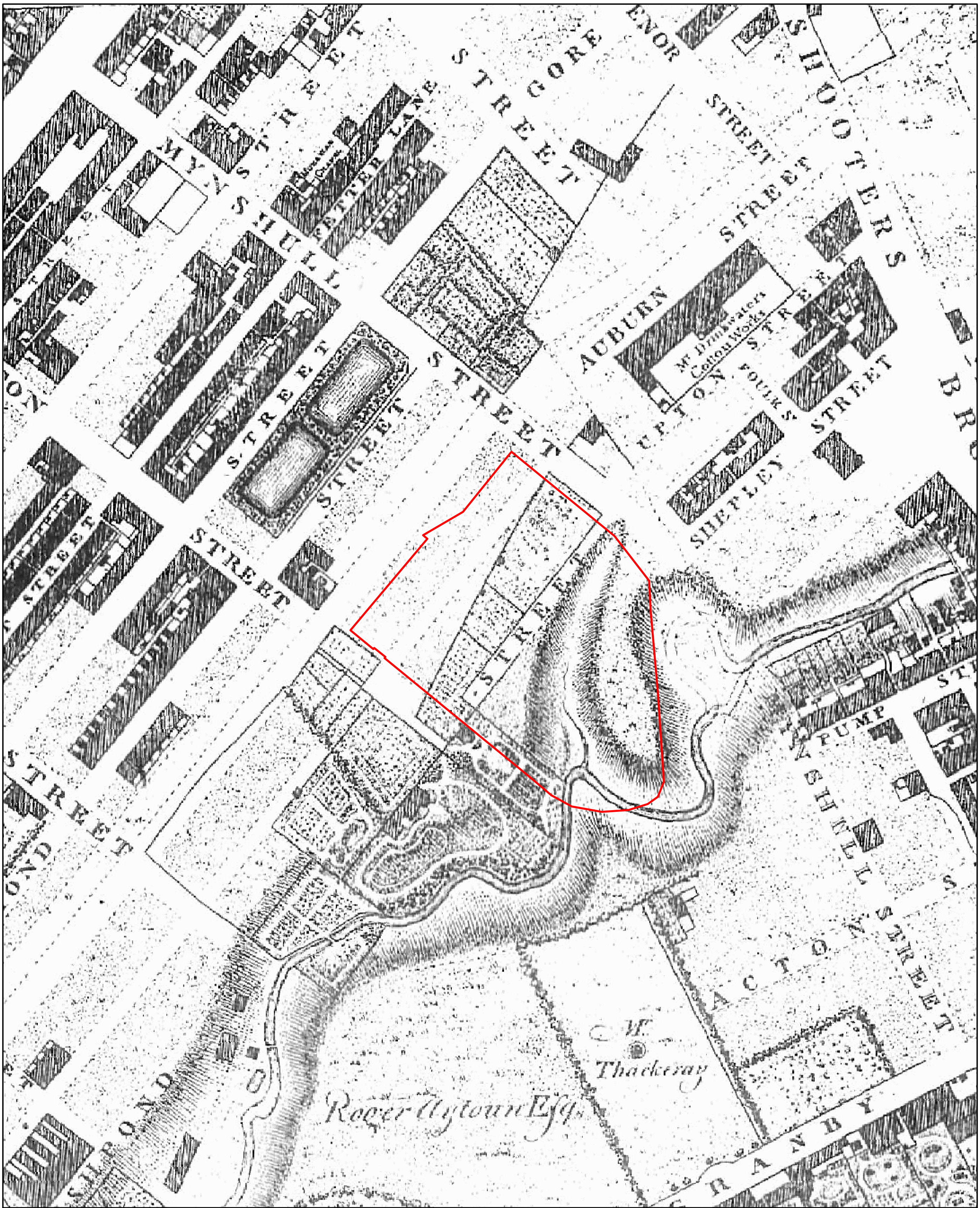


Figure 2: Location of the watching brief areas.



Wardell Armstrong
2017

PROJECT:	KAMPUS, Aytoun Street, Manchester
SCALE:	1:10,000 at A4
REPORT No:	MC10209
CLIENT:	Mount Anvil Limited
DRAWN BY:	MDR
DATE:	October 2017
FIGURE:	3

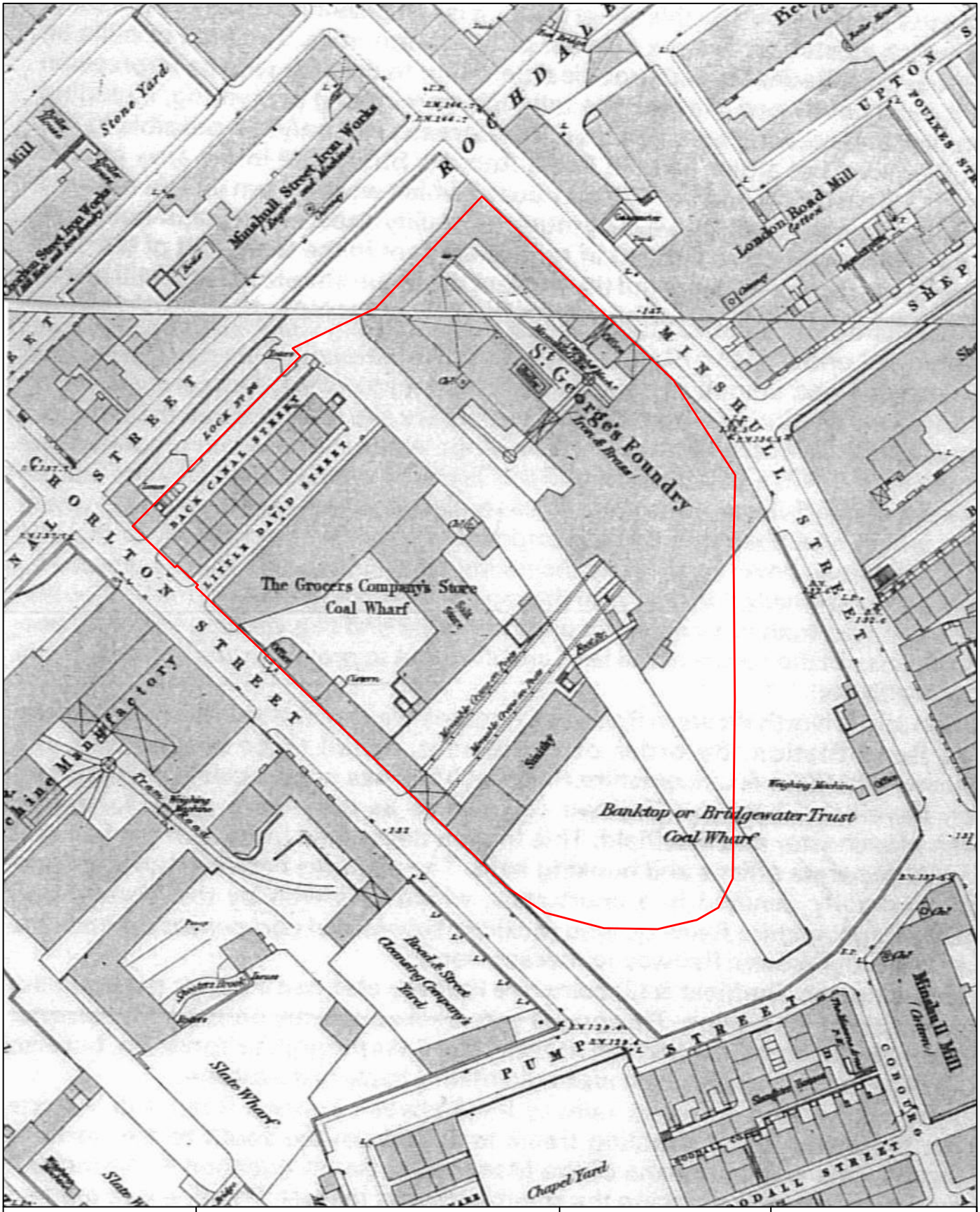
KEY:

Site boundary

Figure 3: Extract from Green's Plan of Manchester and Salford 1794.

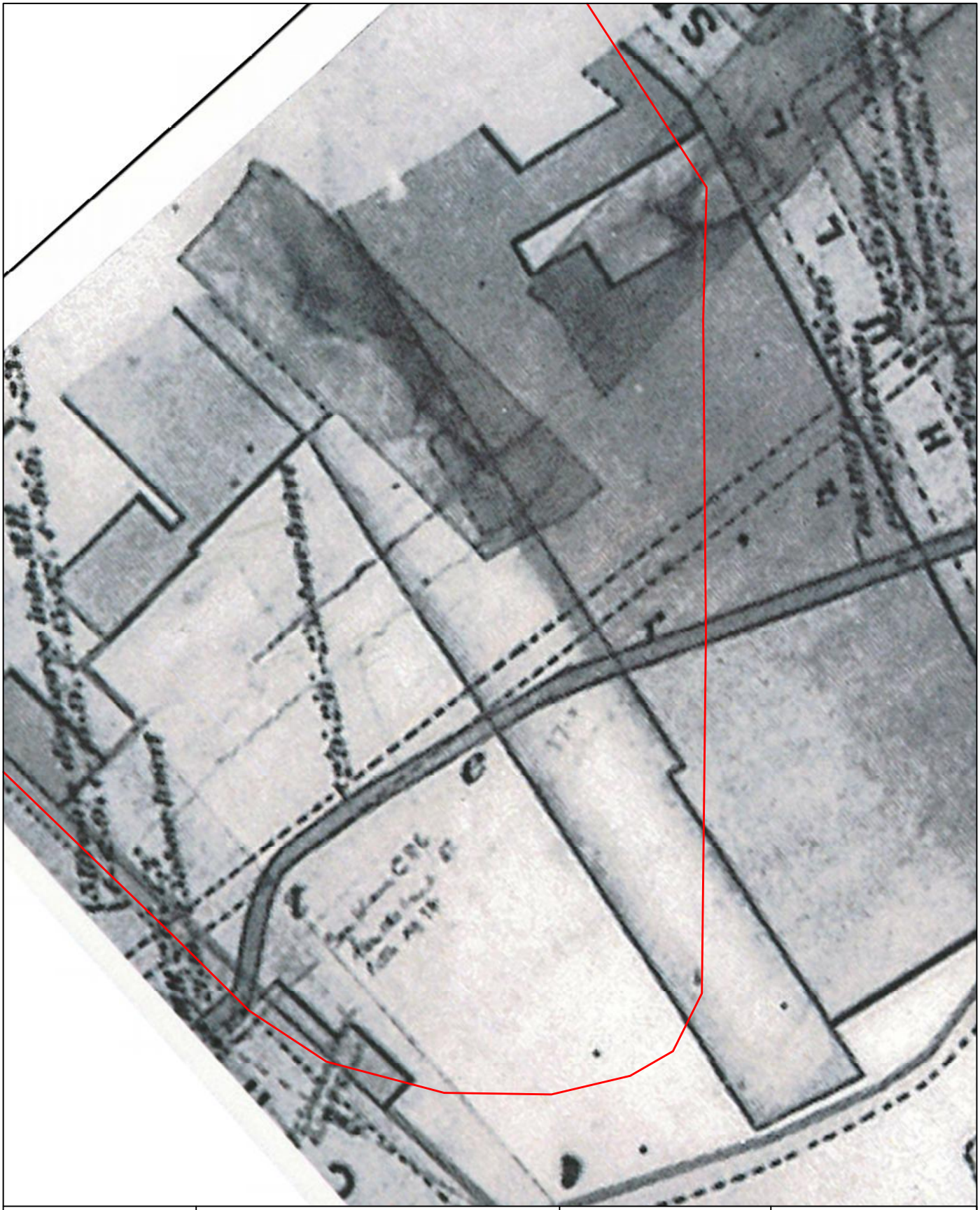
wardell armstrong Wardell Armstrong 2017	PROJECT: KAMPUS, Aytoun Street, Manchester SCALE: 1:10,000 at A4 REPORT No: MC10209 CLIENT: Mount Anvil Limited DRAWN BY: MDR DATE: October 2017 FIGURE: 4	KEY: Site boundary	

Figure 4: Extract from Pigot's Plan of Manchester and Salford 1824.



wardell armstrong Wardell Armstrong 2017	PROJECT: KAMPUS, Aytoun Street, Manchester SCALE: 1:10,000 at A4 REPORT No: MC10209 CLIENT: Mount Anvil Limited DRAWN BY: MDR DATE: October 2017 FIGURE: 5	KEY: Site boundary	

Figure 5: Extract from Ordnance Survey Map 1849.



Wardell Armstrong 2017	PROJECT: KAMPUS, Aytoun Street, Manchester SCALE: 1:10,000 at A4 REPORT No: MC10209 CLIENT: Mount Anvil Limited DRAWN BY: MDR DATE: October 2017 FIGURE: 6	KEY: Site boundary	

Figure 6: Undated Plan (possibly late 19th century) showing the route of the Duke's Tunnel.

APPENDIX 3: CONSTRAINTS PLAN

DO NOT SCALE THIS DRAWING.

HEALTH AND SAFETY INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING

CONSTRUCTION.

MAINTENANCE/CLEANING/OPERATION.

DECOMMISSIONING/DEMOLITION.

Notes

RISK :
DESTABILIZING EXISTING RETAINING WALLS

EXISTING RETAINING WALL

EXISTING RETAINING WALL

EXISTING TOWER

ASSUMED LOCATION OF EXISTING DUKES TUNNEL

DENOTES EASEMENT LINE TO EXISTING SEWER LINE

DENOTES EASEMENT LINE TO EXISTING SEWER LINE

Surface water drainage

INDICATES PROPOSED SITE BOUNDARY

INDICATES PROPOSED SITE BOUNDARY

INDICATES PROPOSED SITE BOUNDARY

INDICATES PROPOSED SITE BOUNDARY

ASSUMED LOCATION OF EXISTING DUKES TUNNEL

DENOTES EASEMENT LINE TO EXISTING SEWER LINE

INDICATES EXISTING BOUNDARY WALL

DENOTES EASEMENT LINE TO EXISTING SEWER LINE

Exact alignment of Dukes Tunnel unknown - survey required.

Exact alignment of Shooters Brook culvert unknown - survey required.

SJ89NW3433

SJ89NW3444

SJ89NW3443

SJ89NW3445

SJ89NW3446

SJ89NW3447

SJ89NW3448

SJ89NW3438

SJ89NW1175

SJ89NW1176 and 1178

SJ89NW1177

CANAL STREET

LITTLE DAVID STREET

CHORLTON STREET

AYTOUN STREET

WHITWORTH STREET

THE HUB

Loading Bay

Busstop

Layby

Residential Refuse

Notes:

- Exact alignment of underground tunnels crossing the site unknown - survey required.
- Numerous services in roads and pavements offsite and running along Little David Street.
- Services are indicative - refer to Sevices Drawing 2619/2

Key:

- Historic Canal Basin (indicative)
- Rochdale Canal
- Historic Foundry
- Historic Coal Wharf
- Shooter's Brook Culvert (post-1810s) - indicative
- Shooters Brook (pre-1810s) - indicative
- Possible Dukes Tunnel Alignment
- BGS Borehole (onsite)
- BGS Borehole (offsite)
- Existing Structures To Remain
- Proposed Red Line Boundary
- Existing Retaining Wall
- Sewer
- Electricity Cables
- BT Cables

Status of drawing

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Architect MECANOO
Project KAMPUS
Drg Title Site Constraints Plan

Scales@A1 NTS
Drawn by GM
Checked by PH
Date Dec 2015

Job No. 034592

Figure 3

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your earth our world

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