Carruthers Street, Liverpool, Merseyside

Archaeological Watching Brief

February 2020

Client: Network Space Developments Ltd

Issue No: V. 2
OA Reference No: 2019-20/2059
NGR: SJ 34150 91410
Accession No: MOL.2019.81

oxfordarchaeology
northnorthnorth

Client Name:	Network Space Developments Ltd
Document Title:	Carruthers Street, Liverpool, Merseyside
Document Type:	Archaeological Watching Brief
Report No.:	2019-20/2059
Grid Reference:	SJ 34150 91410
Planning Reference:	18F/2024
Site Code:	CSL19
Invoice Code:	L11264
Receiving Body:	National Museums, Liverpool
Accession No.:	MOL.2019.81
OA Document File Location:	X:\Paul\Projects\L11264_Carruthers_Street_Liverpool\Report
OA Graphics File Location:	X:\Paul\Projects\L11264_Carruthers_Street_Liverpool\CAD\Figs
Issue No:	V. 2
Date:	February 2020
Prepared by:	Andrew McGuire (Supervisor)
Checked by:	Paul Dunn (Senior Project Manager)
Edited by:	Paul Dunn (Senior Project Manager)
Approved for Issue by:	Alan Lupton (Operations Manager)
Signature:	

OA South
Janus House
Osney Mead
Oxford
OX2 0ES

t. +44 (0)1865 263 800

OA East
15 Trafalgar Way
Bar Hill
Cambridge
CB23 8SG

t. +44 (0)1223 850 500

OA North
Mill 3
Moor Lane Mills
Moor Lane
Lancaster
LA1 1QD
t. +44 (0)1524 880 250

e. info@oxfordarch.co.uk
w. oxfordarchaeology.com
Oxford Archaeology is a registered Charity: No. 285627

Carruthers Street, Liverpool, Merseyside

Watching Brief Report

Written by Andrew McGuire

With illustrations by Mark Tidmarsh

Contents

List of Figures

List of Plates

Summary

Oxford Archaeology (OA) North was commissioned by Network Space Developments Ltd to undertake an archaeological watching brief of a light industrial development on the site of Carruthers Street, Liverpool, Merseyside. The work was undertaken as a condition of a Planning Application, with a brief being set by the Merseyside Environment Advisory Service (MEAS) and a subsequent Written Scheme of Investigation being produced by WYG Environment. OA North was subsequently commissioned to undertake an archaeological watching brief during cut and fill works, as well as during the excavation of drainage and service trenches. These works took place between the 19th of October 2019 and 25th of November 2019.

Archaeological features were encountered across much of the site, dating primarily to the late nineteenth- and twentieth centuries. These features comprised concrete and brick footings, alongside granite sett and brick floor surfaces. A high degree of truncation was noted within the northern part of the Proposed Development Area, however, the excavations in this part of the site were relatively limited.

Despite not being significant enough to warrant further mitigation, these fragmentary remains related to cartographic and documentary evidence which highlighted coal yards, warehouses and facilities associated with the processing of food and animal by-products. The southern extent of the proposed development area also contained the likely remnants of an ancillary building associated with a twentieth century gas power plant.

Acknowledgements

Oxford Archaeology North would like to thank Network Space Developments Ltd for commissioning this project. Thanks is also extended to Ben Croxford of Merseyside Environment Advisory Service who monitored the work on behalf of Liverpool City Council for his advice and guidance.

The project was managed for Oxford Archaeology by Paul Dunn. The fieldwork was directed by Andrew McGuire, who was supported by Steve Clarke. Survey and digitizing was carried out by Mark Tidmarsh.

1 INTRODUCTION

1.1 Scope of work

1.1.1 Oxford Archaeology (OA) North was commissioned by Network Space Developments Ltd to undertake an archaeological watching brief of a light industrial development on the site of Carruthers Street, Liverpool, Merseyside (Fig 1; NGR SJ 34150 91410).

1.1.2 The work was undertaken as a condition of a Planning Application (planning ref. 18F/2024), with a brief being set by the Merseyside Environment Advisory Service (MEAS) and a subsequent Written Scheme of Investigation (WSI; *Appendix A*) being produced by WYG Environment. The WSI detailed the Local Authority's requirements for an archaeological watching brief in order to discharge the planning condition. OA North was subsequently commissioned to undertake an archaeological watching brief during cut and fill works, as well as during the excavation of drainage and service trenches. These works took place between the 19th of October 2019 and 25th of November 2019. This document outlines how OA implemented the specified requirements.

1.2 Location, topography and geology

1.2.1 The development area is centred at NGR SJ 34150 91410, and measures approximately 0.75ha. The site is bounded to the south by Pumpfields Road; to the east by the A5083; to the west by a still functioning car park; and to the north by the Kingsway tunnel and Chisenhale Street.

1.2.2 The area of proposed development is currently un-used and consists of hard standing with overgrown vegetation. The site boundaries comprise metal palisade fencing, with the existing point of access from Carruthers Street.

1.2.3 The solid geology of the immediate area is characterised as sandstone of the Wilmslow Sandstone Formation, deposited in the Triassic Period (BGS 2019). The superficial drift geology is identified as clay, sandy, gravelly, cobbly Devensian Till, deposited in the Quaternary Period (*ibid*), which form soils that are classified as slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils (Cranfield University 2019).

1.3 Archaeological and historical background

1.3.1 The archaeological and historical background of the site is discussed in the Archaeology and Heritage Statement produced by WYG (2019) and will not be repeated here.

2 WATCHING BRIEF AIMS AND METHODOLOGY

2.1 Aims

2.1.1 The project aims and objectives were:

i. to adhere to and fulfil the agreed programme of works associated with the archaeological potential of the site;
ii. to determine or confirm the general nature of any remains present;
iii. to determine or confirm the approximate date or date range of any remains, by means of artefactual or other evidence;
iv. to undertake post-excavation analysis at a level commensurate with the findings to confidently interpret any archaeological features and phasing identified;
v. to compile a professional archival record of any archaeological remains within the site.

2.2 Methodology

2.2.1 The project methodology, set out in the WSI (*Appendix A*), was adhered to in full, and was fully compliant with current guidelines and industry best practice (CIfA 2014a: 2014b: 2014c: Historic England 2015). The areas to be monitored were surveyed by the Principal Contractor and all service checks were undertaken by the Principal Contractor prior to the commencement of excavation. The overburden was removed by a 13-ton mechanical excavator, fitted with a toothless ditching bucket. The work was supervised by a suitably experienced archaeologist at all times, and cleaning and investigation of any potential archaeological deposits was undertaken manually.

2.2.2 All information identified during the site works was recorded stratigraphically, using a system adapted from that used by the former English Heritage Centre for Archaeology, with an accompanying pictorial record (plans, sections, and digital photographs). Primary records were available for inspection at all times.

2.2.3 Results of all field investigations were recorded on *pro forma* context sheets. The site archive includes a photographic record, and accurate large-scale plans and sections at appropriate scales (1:50, 1:20, 1:10).

2.2.4 A full professional archive was compiled in accordance with the WSI, and with current professional guidelines (CIfA 2014c; Historic England 2015). The archive will be deposited with National Museums Liverpool under the accession number MOL.2019.81 and under their guidelines (NML 2015).

3 RESULTS

3.1 Introduction and presentation of results

3.1.1 The results of the watching brief are presented below and include a stratigraphic description of the areas that contained archaeological remains. The full details of all contexts, with dimensions and depths of all deposits can be found in *Appendix B*.

3.1.2 Due to the sporadic nature of excavations across the site, context numbers were issued as and when features were identified.

3.2 General soils and ground conditions

3.2.1 The soil sequence between all areas was uniform with layers of demolition overburden, overlying any below ground remains. Natural clay deposits were observed at approximately 1.5m below ground level (bgl).

3.2.2 Ground conditions throughout the watching brief were generally good. However, groundwater was encountered between 0.6m and 1m bgl, which permeated into open excavation areas such as that created for the western attenuation tank (*Section 3.5*). Archaeological features, where present, were difficult to identify due to this flooding. Features observed at heights above this level were easy to identify against the surrounding deposits.

3.3 General distribution of archaeological deposits

3.3.1 Archaeological features were observed across much of the site and generally comprised concrete and brick footings. Only partial archaeological remains were encountered in the northern half of the development area, due to the watching brief only being required to be maintained during the excavation of drainage and service trenches. However, archaeological remains were exposed to a greater extent in the southern half of the site, due to a larger area being opened (*Section 3.4*).

3.4 Cut and Fill Area (south)

3.4.1 The initial works undertaken as part of the watching brief were located to the south of the proposed development area (PDA) and observed the removal of banked material in advance of the construction of a retaining wall and foundation piles. The material removed from this portion of the site was used to fill and level areas to the north to the proposed new ground level (Fig 2). Within this area of the site three archaeological features were identified, structures ***101***, ***102*** and ***103***, all three structures likely relating to buildings depicted on mid-twentieth century historic mapping.

3.4.2 Towards the eastern end of the excavated area an L-shaped structure, ***101***, constructed from brick and concrete was identified (Fig 2; Plate 1). Structure ***101*** extended north from the southern limit of excavation on a north/south alignment approximately 5m, before turning 90° to the west, where it continued on an east/west alignment for approximately 9.5m. The structure consisted of concrete foundations along the structures north/south alignment, and a brick foundation along the structures east/west alignment, constructed from a mixture of hand-made and machine-made frogged bricks, bonded with Portland cement, both measuring 0.54m wide. The brick

component was heavily truncated, although surviving to four courses, of a probable English Garden Wall (EGW) bond.

Plate 1: Structure ***101*** looking south, scale 1m

3.4.3 Two iron column bases were identified on the north/south aligned section of the structure, 2.75m apart (Plate 1). Four 1.2m x 1.2m concrete bases on the east/west aligned section of the structure, 2.65m apart, were also identified. There was evidence of iron pins surviving in the upper surface of the concrete bases, suggesting that columns would have been supported on them.

3.4.4 Within Structure ***101*** a north/south aligned rectangular structure, ***102***, was identified, measuring 4.8m x 1.55m, with an open internal area 0.95m wide (Fig 2; Plate 2). The walls of Structure ***102*** were constructed from machine-made bricks and bonded with a dark grey Portland cement. An additional course of frogged refractory brick butted up to the internal facings. Further excavations revealed that the internal recess continued down for approximately 1m where the foundations had gradually stepped outwards; permeating groundwater prevented further investigation beyond this level.

Plate 2: Structure ***102*** looking south, scale 2m

3.4.5 Feature ***103*** was identified to the west of Structures ***101*** and ***102*** as a heavily truncated external wall, east/west-aligned, and 18.3m long (Fig 2; Plate 3). The wall was up to two and a half bricks wide, where intact, and was constructed using frogged brick with a modern cement mortar (Plate 3). Bitumen damp-proofing was observed between the second and third course south of the northern face. Two additional features were noted to the north of wall ***103***. These comprised the partial remnants of hand-made brick structures that were clearly nineteenth century in origin; it was not apparent whether these features had been truncated by wall ***103*** or not. There was also evidence of dark grey floor tiles butting up against the walls (Plate 3).

Plate 3: Wall **103** looking east

3.5 Attenuation Tank (west)

3.5.1 This phase of works was associated with the excavation of a 21m x 12m x 0.90m attenuation tank. Two manholes and connected drainage were also excavated to its immediate west and east (Fig 2). The initial excavation of the attenuation tank was conducted without archaeological supervision and during the subsequent site visit it was observed that the area had been partially filled with ground water. This meant any features which may have been present were completely obscured. The four sections were assessed in order to establish the presence of walls which may have extended into the excavation area, but no features were observed and stratigraphic sequences seemed uninterrupted. The partial remains of a single external wall, probably aligned west/east, were noted within a sump to the south-west corner of the tank but as this lay outside the excavation area no further remains were revealed (Plate 4).

Plate 4: Attenuation Tank (west) after excavation looking north-west

3.6 Attenuation Tank (east)

3.6.1 The second attenuation tank was located within the north-eastern corner of the PDA and comprised an area measuring 12m x 10m x 2.35m (Fig 2). This excavation was part of the final phase of works and post-dated some of the drainage discussed in *Section 3.7*. Two walls, ***104*** and ***105***, were observed in the south-eastern corner of the attenuation tank, both walls likely relating to coal and flag wharfs fronting the Leeds and Liverpool canal, as depicted on historic mapping (Figs 3-7)

3.6.2 Wall ***104*** was partially contained within the eastern limit of excavation, extending from the southern limit of excavation on a north/south alignment for approximately 6m, at which point it had been completely truncated (Fig 2; Plate 5). The wall was constructed from hand-made bricks, bonded with a light brown sandy lime mortar, surviving to a height of eights course, approximately one and a half bricks wide and laid as headers.

Plate 5: Wall **104** looking east

3.6.3 Wall ***105*** was aligned east/west, but partially obscured within the southern section, immediately to the west of Wall ***104***. Wall ***105*** was constructed using machine-made red brick and a pale grey cement. Clearly modern in fabric, wall ***105*** was observed for 3m before disappearing through the baulk.

3.7 Connecting Drainage

3.7.1 This phase of works saw the excavation of two additional manholes and the drainage runs in between (Fig 2). The drainage runs were located to the west and north of the PDA, connecting both attenuation tanks and tying them to external drainage beyond the site. Initial excavations of the pipe runs were approximately 2-3m wide at the surface and stepped to a 1m width at their base. These narrow trenches made observations difficult and this was compounded by permeating groundwater at a depth of around 0.8m. Excavations of the two manholes and connecting drainage runs revealed very little in terms of archaeological features.

3.7.2 **North/south-aligned drainage trench**: this phase of work monitored the excavation of a 45m long trench, located along the western edge of the main PDA. Space within the southern extent of the trench was severely limited due to the steel building frame having already been erected. Two archaeological features, walls ***106*** and ***107*** and road surface ***108***, were observed at a depth of 0.5-0.6m bgl, the walls potentially related to late nineteenth century structures and the road surface relating to Carruthers Street, as depicted on historic mapping (Figs 5-7).

3.7.3 Wall ***106*** was identified at the southern end of this drainage run, was aligned north/south and extended for approximately 13m before it turned 90° west and continued through the limit of excavation (Fig 2; Plate 6). Wall ***106*** was constructed from handmade bricks, was two bricks wide and surviving to a height of two courses.

Plate 6: Walls **106** to left of frame and partial remnants of **107** to upper centre, looking north-west

3.7.4 Wall ***107*** was only partially uncovered during the extended excavations for the southern manhole, and comprised a single skin of refractory brick aligned north/south, situated approximately 0.50m west of wall ***106*** (Plate 6). Wall ***107*** was partially truncated to the southern extent, survived to four courses in height, and continued through the northern limit of excavation.

3.7.5 Surface ***108*** was located approximately 11m from the northern extent of the drainage run, extended south for 15m and continued to the west and east, beyond both limits of excavation. Roughly located over the former route of Carruthers Street, surface ***108*** comprised granite sets laid in a soot and clinker bedding material (Plate 7), the initial 12m was sealed beneath a 0.1m thick concrete skim. The southern part of this surface was severely truncated, possibly due to earlier enabling works, and in places tarmacadam replaced the concrete skim.

Plate 7: South-facing section of Road Surface **108**

3.7.6 **East/west-aligned drainage trench**: this phase of works monitored the excavation of a 52m long trench connecting the two attenuation tanks. The drainage run was located along the northern extent of the PDA. Five archaeological features, Walls ***109***, ***111***, ***112***, ***113*** and surface ***110***, were observed at a depth of 0.10-0.60m bgl. Wall ***109*** and surface ***110*** appear to be the earliest features within this trench, likely relating to the coal and flag wharfs fronting the Leeds and Liverpool canal. Walls ***111***, ***112*** and ***113*** appear to the later in date, based upon their fabric and, given that their locations do not correspond well with earlier historic mapping, are likely to be mid-twentieth century in date.

3.7.7 Wall ***109*** was identified towards the western end of the east/west-aligned drainage trench, was aligned north/south and extended across the trench (Fig 2; Plate 8). The wall was of similar construction to wall ***104***, constructed from hand-made bricks, one and a half bricks wide, laid in an English Garden Wall bond using a light brown sandy lime mortar.

Plate 8: Wall **109** looking south-west

3.7.8 Immediately to the east of wall ***109*** was a heavily truncated brick floor surface, ***110***, constructed from hand-made bricks laid on a north/south-alignment (Fig 2). Floor surface ***110*** extended for approximately 15m to the east and was likely related to wall ***109***, although the relationship had been lost through truncation.

3.7.9 Further to the east from floor surface ***110***, a brick-built rectangular structure, ***111***, was identified extending into the drainage trench 2.5m from the southern limit of excavation (Fig 2; Plate 9). Structure ***111*** was constructed on a concrete foundation from machine-made frogged bricks and bonded with a white cement mortar.

Plate 9: Wall **112** with concrete slab foundation, looking south-west

3.7.10 Approximately 5m to the east of structure ***111***, a L-shaped wall, ***112***, was identified, entering the drainage trench from the northern limit of excavation, turning 90° to the east and then extending 10m to the eastern limit of excavation of the drainage trench (Fig 2; Plate 9). Wall ***112*** was constructed from machine-made frogged bricks and bonded by a white cement mortar.

3.7.11 A short length of drainage was excavated up against the northern boundary of the site. Within this section of drainage trench a single wall was observed, ***113***, running the length of the trench, approximately 7.5m (Fig 2). Wall ***113*** was constructed from machine-made frogged bricks, one brick wide and bonded with a dark grey Portland cement mortar.

3.8 Environmental and Finds summary

3.8.1 No environmental samples were taken as no suitable deposits were identified. No artefacts were recovered from the site.

4 DISCUSSION

4.1 Reliability of field investigation

4.1.1 Except in the western attenuation tank, all areas were excavated under supervision and without much difficulty. Issues with permeating groundwater across the western half of the PDA, although problematic, did not have any impact on the recording of those features observed.

4.2 Evaluation objectives and results

4.2.1 The main aim of the watching brief was to determine the character, extent, date, integrity, state of preservation and quality of any archaeological remains present and therefore ensure their preservation by record. Most archaeological remains identified across the various trenches coincided with the locations of structures observed on historic mapping, indicating that they derive from the post-medieval and modern development of the site. These remains offered limited but tangible evidence for phased activity synonymous with the changes in land use between the early nineteenth- and late twentieth centuries.

4.3 Interpretation

4.3.1 Several structural archaeological features were identified within below ground excavations across the site. These broadly date from the nineteenth century to the mid-twentieth century, this dating has been based upon the structures form and fabric, as well as their approximate location to structures depicted on historic mapping (Figs 3-7). No finds were recovered during the watching brief to aid in the dating of these structures.

4.3.2 **Nineteenth Century**: Potential early nineteenth century features were observed in the form of walls ***104*** and ***109***. These structures likely formed two of the north/south-aligned boundary walls that would have divided a series of coal wharfs fronting the Leeds and Liverpool Canal along the northern extent of the site. Wall ***108*** and surface ***110*** suggest that some of the wharfs contained working surfaces constructed from hand-made bricks, which, in the case of wall ***108***, were in use until the late twentieth century (Figs 3-5).

4.3.3 **Late-Nineteenth-/Early-Twentieth Century**: This phase of activity is attributed to walls ***106*** and ***107*** which formed part of the external structure, depicted as a Tar Works, present within the PDA from the late-nineteenth century through to the early-twentieth century (Figs 5-7). Although highly fragmentary, wall ***107*** may relate to the refractory structure that would have surrounded a series of ammonia boilers located along the western extent of the Tar Works Mill (Goads 1890).

4.3.4 **Mid-Twentieth Century**: Structures ***101***, ***102*** and ***111*** and walls ***103*** and ***112*** all belong to this phase. During excavation it was noted that these walls and footings were all constructed using twentieth century building materials. When supplemented with the cartographic evidence it is clear that all of these features lie within the footprint of buildings erected between 1938 and 1951 (OS 1938-51). One of these buildings,

containing structures ***101*** and ***102***, was located within the complex of a Gas Power Station along the southern extent of the PDA (*ibid*).

4.4 Significance

4.4.1 Archaeological features were encountered across much of the site, dating primarily to the late nineteenth- and twentieth centuries. Despite not being significant enough to warrant further mitigation, these fragmentary remains can be related to the cartographic and documentary evidence from the PDA. This evidence records the location of structures associated with the delivery and storage of coal, and the processing of food and animal by-products.

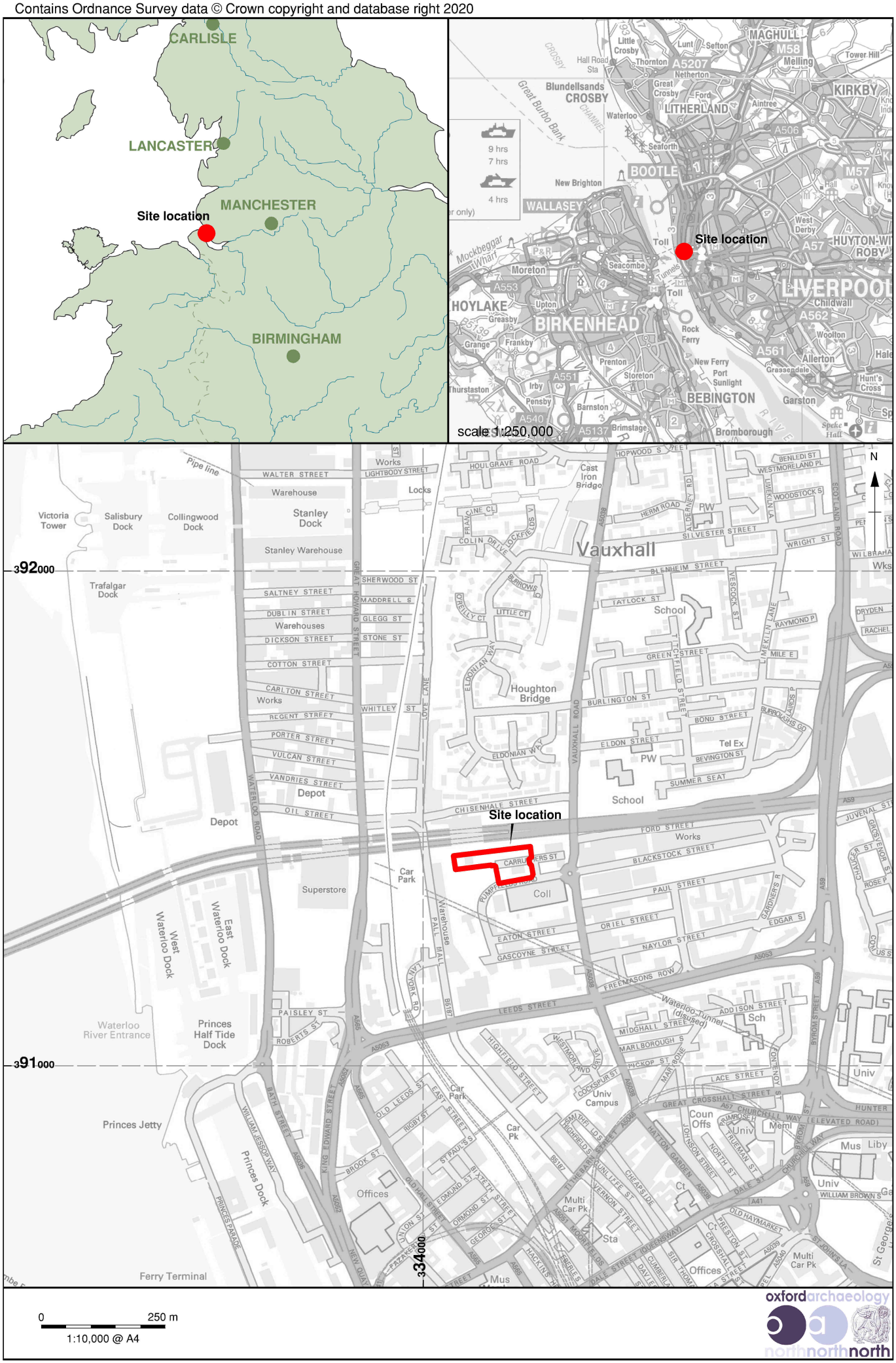


Figure 1: Site location

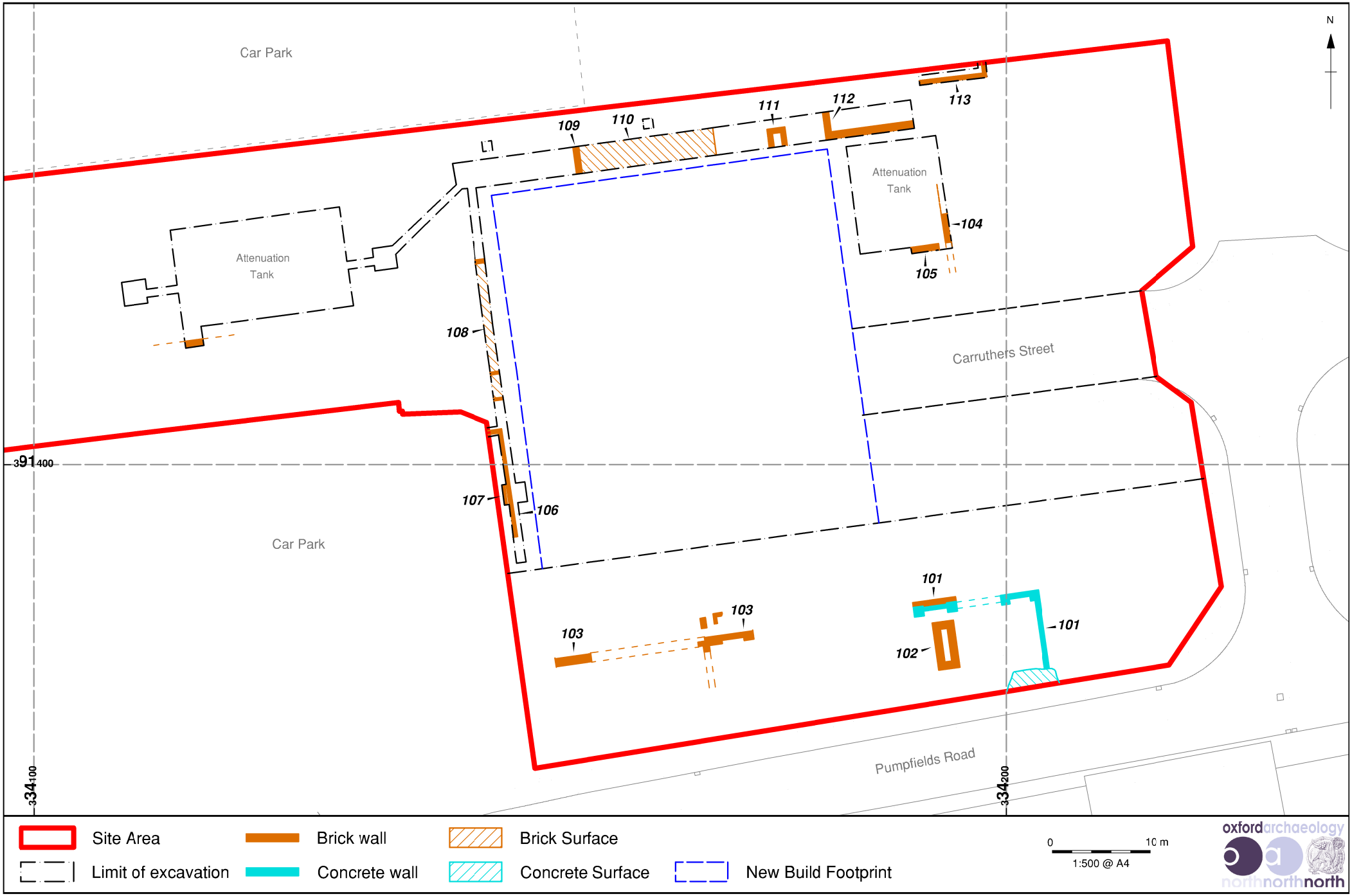


Figure 2: Site Plan

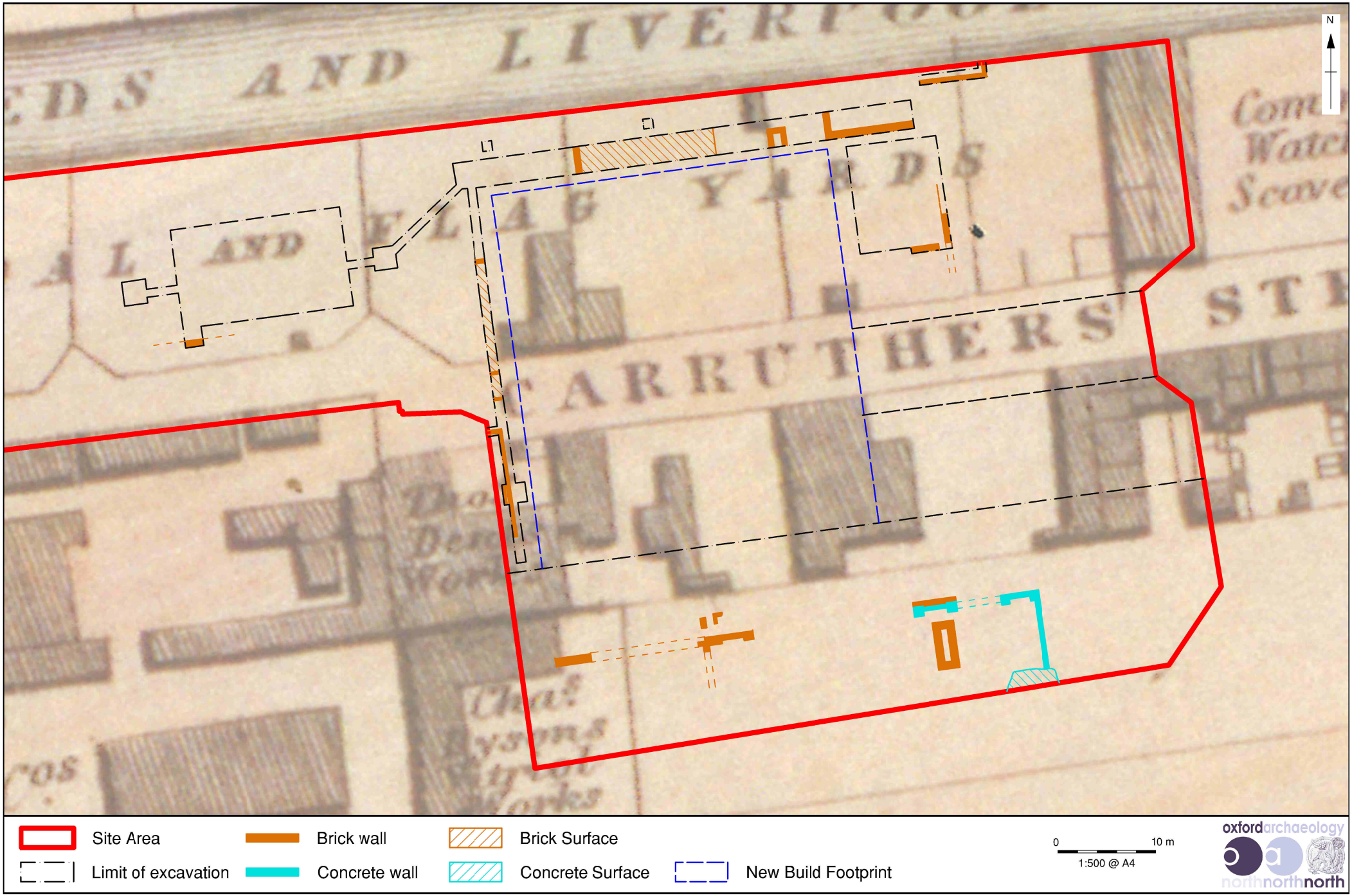


Figure 3: Site plan superimposed on Gage's plan of Liverpool, 1836

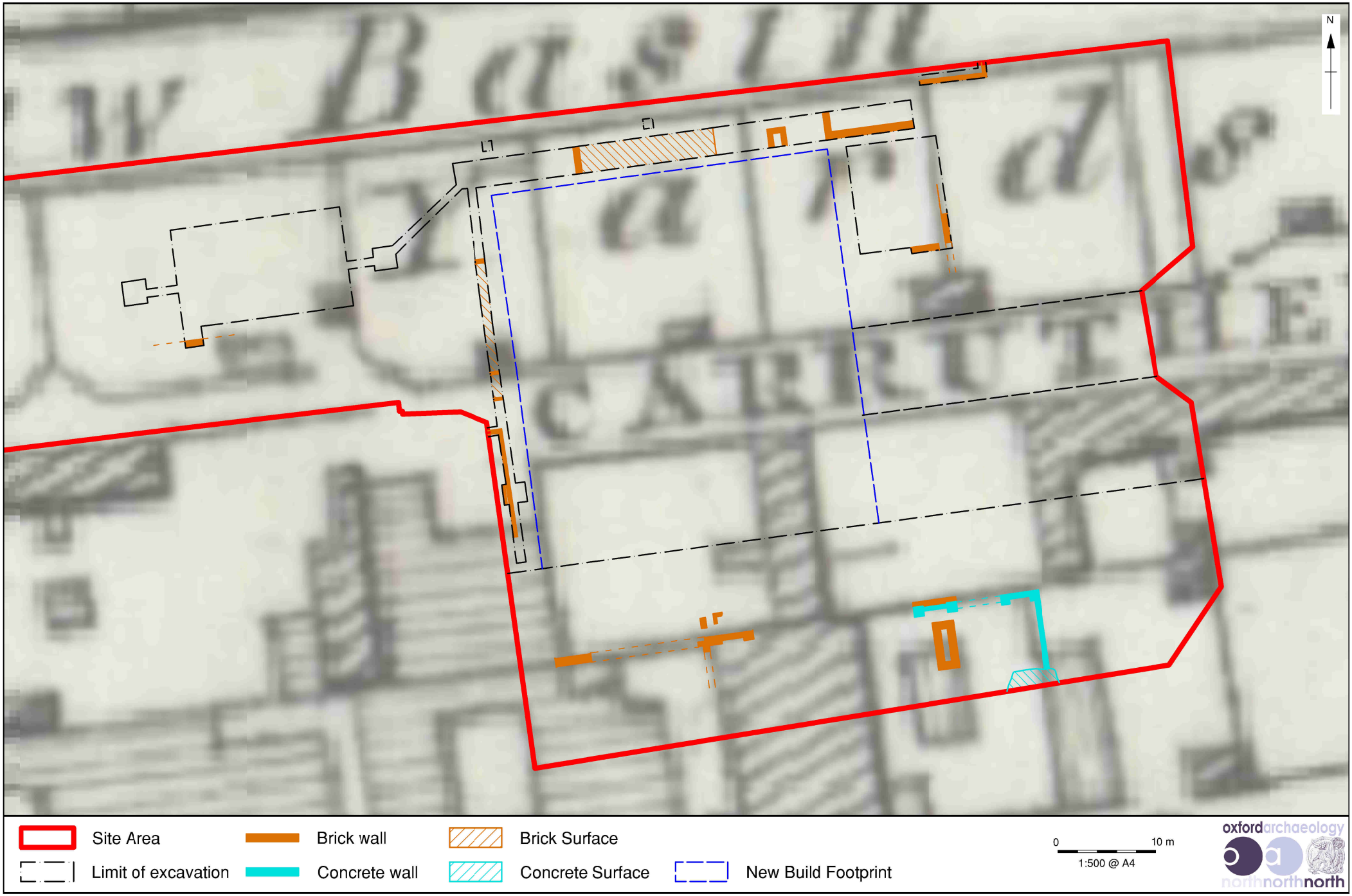


Figure 4: Site plan superimposed on the Ordnance Survey 6":1 mile map of 1851

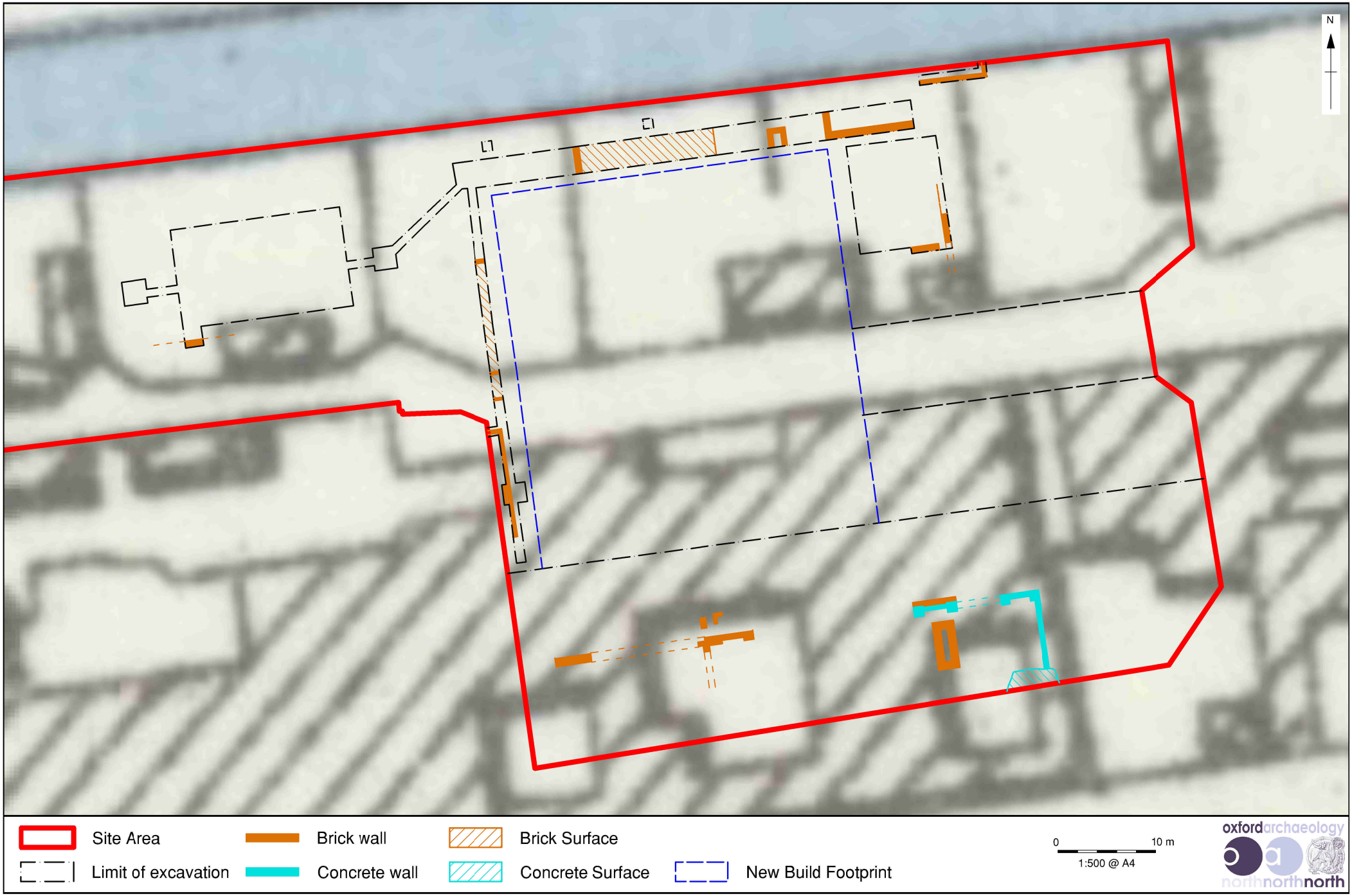


Figure 5: Site plan superimposed on the Ordnance Survey 6":1 mile map of 1894

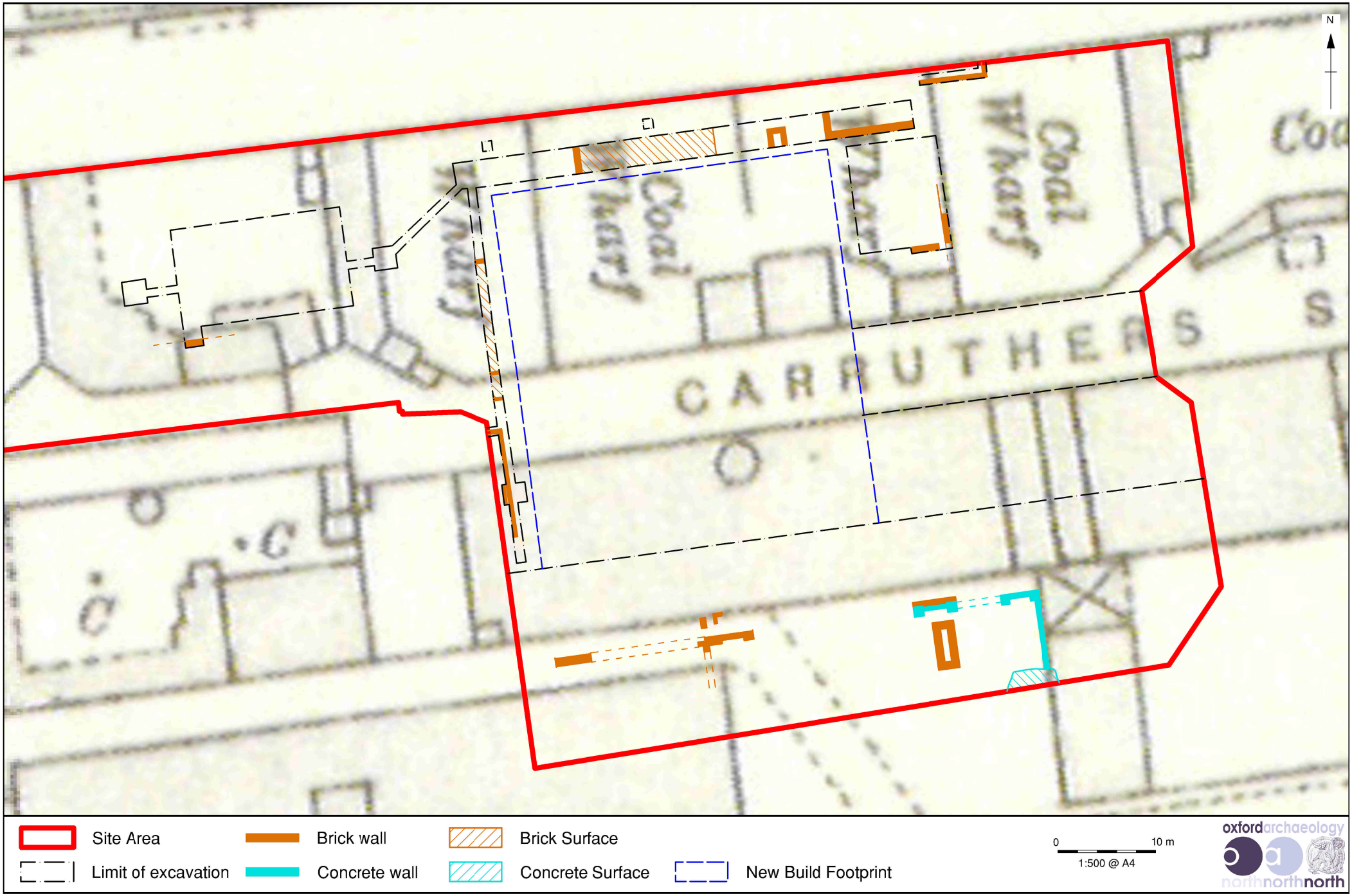


Figure 6: Site plan superimposed on the Ordnance Survey 25":1 mile map of 1908

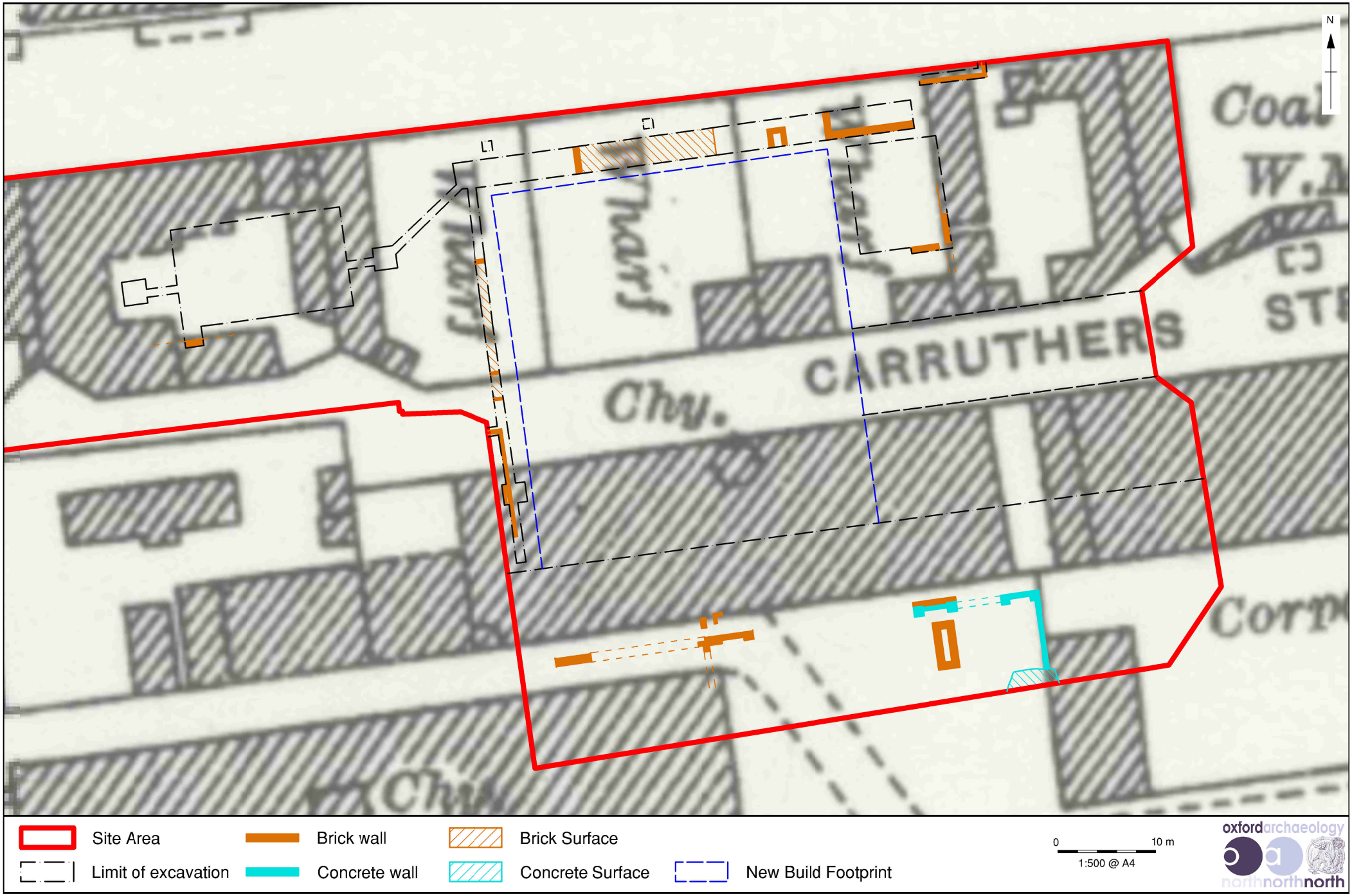


Figure 7: Site plan superimposed on the Ordnance Survey 25":1 mile map of 1927

Network Space Developments Ltd.

Carruthers Street, Liverpool

Written Scheme of Investigation for Archaeological Watching Brief

July 2019

The Pavilion, 1st Floor, Botleigh Grange Office Campus, Hedge End, Southampton, Hampshire, SO30 2AF
Tel: +44 238 202 2886
Email: samantha.hilton@wyg.com

Document Control

Document:	Written Scheme of Investigation for Archaeological Watching Brief
Project:	Carruthers Street, Liverpool
Client:	Network Space Developments Ltd
Job Number:	A103443
File Origin:	A103443 Carruthers Street, Liverpool Watching Brief WSI 4Feb20 sh.docx

Revision:	V0	
Date:	July 2019	
Prepared by: Samantha Hilton (PCIfA), Archaeological Consultant S. Hilton	Checked by: Iain Bennett (ACIfA), Archaeological Consultant	Approved by: Danielle Farrar (PCIfA), Archaeological Consultant
Description of revision: Issue		
Revision: V1		
Date:	July 2019/Feb 2020	
Prepared by: Samantha Hilton (PCIfA), Archaeological Consultant S. Hilton		
Description of revision: Comments from MEAS/ Alteration of development description		

Contents

1.0 Introduction

An archaeological watching brief is required to identify and record potential remains of archaeological and historical significance during a programme of works at Carruthers Street, Liverpool, L3 6BY, during the proposed light industrial development. The expected depths of the groundworks are as follows; the maximum depths of the cut exercise are to be 1.0m to level the site, with the maximum fill being 1.6m. Once this exercise has taken place, the utility trenches depths are expected to be 1.2m in depth, with the drainage trenches between 1.5m and 3.5m. The attenuation tank is expected to be 2.5m in depth. The depths of the reinforced concrete (RC) pad and mass fill foundations are 1.5m from below the altered ground level.

Following pre-application conversations with the Merseyside Environmental Advisory Service (MEAS), a watching brief was requested during groundworks in accordance with Condition 22 of planning application 18F/2024:

Condition 22: *No development shall take place until the applicant has submitted a written scheme of investigation for archaeological work for approval in writing by the local planning authority. The work shall be carried out strictly in accordance with the approved scheme.*

REASON: In order to ensure that below ground archaeological remains revealed by the development of the site are properly recorded.

Due to the potential for in situ archaeological remains to be identified during construction, the archaeological advisor for Merseyside Environmental Advisory Service recommended that a watching brief be undertaken during groundworks. Provision is to be made for detailed archaeological excavation and recording of any significant remains that are encountered.

This WSI has been prepared by Samantha Hilton (PCIfA), Archaeological Consultant at WYG Environment on behalf of Network Space Developments Ltd. This document sets out a programme for archaeological watching brief to identify and record any surviving archaeological remains ahead of construction. This document relates to the above condition only.

2.0 Site Location

The development site is centred at NGR SJ 34150 91410, and extends to approximately 0.75ha, with Pumpfields Road to the south and the A5083 to the east. The site is currently not in use and covered in a combination of overgrowth and hard standing. The site boundaries comprise metal palisade fencing and the existing point of access is from Carruthers Street. Raised mounds of a mixture of earthen and rubble form the southern boundary and Japanese Knotweed is present in the west.

3.0 Archaeological Background and Potential

The planning application was supported by an Archaeology & Heritage Statement produced by WYG (2019). This statement detailed that within the site and surrounding 500m study area that there are no recorded assets predating the 18th century. The site of a gaol, one of a number designed by the leading Georgian prison architect William Blackburn and constructed by 1790 at a site some 200m to the west of the proposed development. This was used to hold French Prisoners of War until 1802, although the building appears to have been demolished in 1819, with no trace of the building now surviving. To the north of the site, a glassworks was opened in 1795, although this appears to have been transferred to another site within 5 years.

The 19th century sees an increase in development within the study area, and the majority of heritage assets are related to the industrial boom that Liverpool experienced during this period. The majority of these are warehouses, including the extant Grade II Listed Bonded Tea Warehouse on Great Howard Street (LB 1298760), as well as a number of undesignated examples on Blackstock Street, Glegg Street and Oriel Street. Many of these have been demolished.

In 1849 the Waterloo Branch Railway was opened from Edge Hill to Waterloo Dock, which was subsequently closed in 1965. A further railway, the Liverpool Over Head Railway, was constructed in 1893 and was in operation until the 1950s; this was designed to service the Mersey Docks and Harbour Board. Only a few remains are left in situ, such as stanchions and a tunnel entrance located at the Dock.

A number of civic amenity sites were also built in the area, including the North Corporation Primary School in 1826 (subsequently demolished in 1986), and two hospitals: the Liverpool Northern Hospital built in 1845 and the later David Lewis Northern Hospital in 1896. Both of these have since been demolished. The Grade II Listed Roman Catholic Church of Our Lady of Reconciliation of La Salette (LB 1068267) was built in 1859 as a replacement to a temporary church set up within a warehouse in Eldon Road. A Victorian open-air swimming pool was built in 1895 at Burlington Street, but was destroyed during World War II.

During the 20th century the area saw continued development with further warehouses constructed, such as on Blackstock and Maddrell Streets. In addition to these, a number of notable buildings were constructed as dwellings to house labourers; including the Grade II Listed examples of council houses opened in 1912 at Eldon Street (LB 1252983, 1252984 and 1252997). These form part of a complex, including a recreation area to which the railings are also Grade II Listed (LB 1252998), along with a number of streetlamps (LB 1063307 and LB 1346277). In addition, the Church of St Mary was built on Edward Street between 1948 and 1951, replacing an earlier church that was burned to the ground following an air raid in 1941.

Historical mapping shows that the site was occupied with a number of buildings during the mid-19th century, including a tar distillery, and engineering works and a number of coal wharfs. These buildings appear to have remained on site in some form (they are no longer individually named from the late 19th century onwards) into the 1960s, where the site is now occupied by a number of factories, a transport depot and works. These appear to still have been present up until the 1990s but appear to have been demolished at some point after that. It is expected that an area of Victorian court housing is likely to be located in the south-east corner of the site as noted on early OS mapping.

A ground investigation report was produced by WYG in 2017. This found that made ground was encountered across the site, mainly comprising of either sandy clayey gravel, sand and gravel, silty sand or sandy gravelly clay. Gravel deposits included concrete, glass, plastic, brick, charcoal and ceramic up to 3.80m thick in the western part of site. It also noted that a brick wall was encountered on the north side of one of the test pits (TP01) at depths of 1.0m, although the age of this could not be determined. Made Ground was encountered across the entirety of the site, with depths between 0.05 and 2.30m within the north-west of the site, 0.05m and 2.60m across the footprint of the proposed building and 0.10m and 1.90m across the east of the site.

The locations of the boreholes and trail pits are shown in Appendix B.

4.0 Aim of the Archaeological Monitoring

The overall aim of the archaeological monitoring is to identify and record any potential features of archaeological interest during the groundworks associated with the cut and fill exercise, utility and drainage trenches and the RC pad foundations outlined on the plan in Appendix A. Remains may include: remnants of industrial buildings, with court housing in the south-west corner of the site.

The monitoring will be of a comprehensive nature, whereby the archaeologists shall be present during all ground disturbances during the cut and fill exercise, the utility and drainage trenches excavation and the RC pad and mass fill foundations. This programme of works will result in the preparation of a report and an ordered archive.

Specific objectives of the archaeological monitoring are to:

- Identify and record any archaeological features and deposits to a level appropriate to their extent and significance;
- Undertake post-excavation analysis at a level commensurate with the findings to confidently interpret any archaeological features and phasing identified;
- Undertake post-excavation analysis at a level commensurate with types and numbers of artefacts and samples collected to interpret their significance;

- Report on the results and place these results within their local and regional context, and
- Compile and deposit a site archive at a suitable repository.

The archaeological monitoring will be carried out in accordance with the CIfA Standard and Guidance for an archaeological watching brief (2014a).

5.0 Monitoring Locations

Areas that require archaeological monitoring are summarised below and illustrated on Figure 1 (Appendix A).

- **Cut and Fill Exercise** – all relevant groundworks associated with the levelling of the site; cutting the raised area of the site to the east and south-east and filling the remainder of the site accordingly.
- **Utility and Drainage Service Trenches** - all relevant groundworks associated with the installation of services across the site.
- **RC pad and mass fill foundations** – all relevant groundworks associated with the installation of foundations across the centre of the site.

5.1 Removal of Japanese Knotweed

Remains of dead Japanese Knotweed is located on site on the western section of the site, located on the central edge of the hardstanding ground in the western section on the small ridge now occupied by tall vegetation. The previous Ecological Appraisal carried out by WYG (2017) recommended the inclusion of a specialist contractor for its eradication. Japanese Knotweed Solution Ltd will be undertaking the excavation and removal of the Japanese Knotweed Contaminated Soils on site. The excavation will proceed at 300mm layers. Depending on the depth of these excavations, the removal of the Japanese Knotweed may require deep excavations which may require archaeological monitoring.

The location of the knotweed as it is, may mean that archaeological remains are not impacted, however this should be confirmed with MEAS prior to work.

6.0 Monitoring Strategy and Methodology

All appropriate groundworks will be carried out under the supervision of a suitably experienced archaeologist. The scope of monitoring will include archaeological monitoring during excavation of drainage works, service trenches, the cut and fill exercise and the RC pad and mass fill foundations and associated works. During the

monitoring, the archaeologist will require stoppage of relevant works and a sufficient period of time to record any features revealed, the length of which will be commensurate with their importance.

6.1 Archaeological Monitoring

Suitably qualified and experienced archaeologists will be in attendance during all groundworks associated with the services outlined on Figure 1. Once investigated sufficiently to establish the date, character and extent, and associated sampling and recording is complete, there may be a requirement for features to be backfilled in order to preserve the features in situ, using appropriate graded material.

Any hardstanding, modern levelling layers, topsoil and subsoil will be carefully removed by a tracked mechanical excavator fitted with a toothless (flat bladed) bucket, under the close supervision of an archaeologist at a ratio of one archaeologist to each excavating machine. Where necessary, a toothed bucket may be used to break modern, hardened surfaces but the toothless bucket should be employed as soon as is practicable. All machine work will cease if significant archaeological features are revealed. Mechanical excavators and other construction plant will not track or drive over an area that has been excavated until an archaeologist has confirmed that no archaeological remains are present.

Excavation will cease at the uppermost horizon of significant archaeological remains, if these are revealed. Excavation will not commence until any identified archaeological features or deposits have been recorded in line with the sampling strategy outlined in Section 6.1.1. In the event that unexpectedly significant or complex remains are identified, the scope of the WSI should be reviewed in line with Section 6.2.

If no features/finds are revealed, supervised excavation will continue until either natural geology or the base of the excavation is reached, whichever comes first. When the archaeologist is satisfied that any remains found have been adequately recorded or preserved in situ, or the groundworks are devoid of archaeological features or finds, no further monitoring will be required. There will be no requirement for archaeological supervision during subsequent backfilling, including the fill exercise and making good works.

6.1.1 Excavation and Sampling Strategy

Excavation and sampling strategies will be proportionate to the archaeological significance of the features identified and be sufficient to mitigate harm to the archaeological record and reasonably record and characterise features.

Should the archaeologist on site determine that the remains are significant, they should contact WYG to resolve the issue in line with the contingency procedure in Section 6.2.

Any artefacts will be retained for processing, other than obviously modern (late 20th century) material. Suitable samples for dating should be taken if encountered during the investigation. All retained artefacts shall be removed from site for specialist examination and analysis and, if deemed necessary, conservation. Cleaning of objects may take place on site, or upon removal as is deemed appropriate. All recording, cleaning, storage and conservation of finds will be in accordance with CIfA guidance (CIfA 2014b) and Watkinson and Neal (1997).

6.1.2 Human Remains and Treasure

If articulated human remains and in situ burials are encountered, their excavation and lifting will be undertaken under licence from the Ministry of Justice (Licence: 18-0265) and comply with the requirements of the 1857 Burial Act. If required, provision should be made for specialist reports on the remains by a recognised osteoarchaeologist. Excavation and reordering of articulated human remains will be carried out in accordance with CIfA and BABAO guidelines (2017). Should articulated human remains and in situ burials be found, all relevant groundwork will cease immediately and consultation between the client, WYG and MEAS will be carried out as outlined in Section 6.2.

The Ministry of Justice Licence applies to both inhumation and cremated remains.

Artefacts classified as Treasure under the Treasure Act (1996) will be reported in accordance with the requirements of the Act. A Treasure Receipt (obtainable from either the Finds Liaison Officer (FLO) or the DCMS website) must be completed and a report submitted to the Coroner's Office and the FLO within 14 days of understanding that the find is Treasure.

6.1.3 Environmental Sampling Strategy

Deposits which are identified as having the potential for the survival of biological remains should be sampled. Bulk samples must be taken from all securely stratified deposits using a strategy which combines systematic and judgement sampling, but which also follows the methodologies outlined in the English Heritage guidance (2011).

Samples for specialist environmental analysis and scientific data (soil profiles, archaeomagnetic data, etc.) should be taken if suitable material is encountered during the excavation and provision should be made for an appropriate specialist(s) to visit the site, take samples and discuss the sampling strategy, if necessary.

6.2 Contingencies and Unexpectedly Significant or Complex Discoveries

Should unexpectedly extensive or complex archaeological remains be uncovered, work will cease in the immediate area and the scope should be reviewed to determine the most appropriate recording and sampling

strategy. Should this be required, the locations and extent of additional excavation will be agreed by all parties on site.

In the event of unexpectedly extensive remains (such as in situ burials) requiring a review of the WSI, the contractor will urgently contact WYG with the relevant information to enable them to resolve the matter with the client. This is likely to require an on-site meeting between the client, WYG and MEAS to review the archaeological remains on-site and identify a way forward. This may include contingency funding in order to deal with the remains. Any variations to this project design will be put in writing and agreed by the relevant stakeholders, including WYG, the contractor and MEAS.

Any variations to the WSI will be put in writing and agreed by the relevant stakeholders including the client and the contractor and MEAS.

6.3 Strategy Review

The strategy will be held under continuous review during on-site archaeological monitoring. Should the strategy be considered unsuitable by the contractor, then an alternative strategy will be proposed. This strategy will be communicated to WYG in the first instance and agreed by all parties' subject to the procedure in Section 6.2.

7.0 Recording

7.1 Written and Graphic Records

All excavated deposits will be fully recorded by detailed written context records on pro-forma sheets giving details of their location, composition, dimensions, shape, any relationships, finds and samples. The records will be cross referenced to other elements of the record and any other relevant contexts.

All features will be recorded on at least one plan, normally at 1:20 scale and at least one section drawing of a feature, normally at 1:10 scale (1:20 if necessary due to size). All drawings are to include co-ordinate data, as is necessary for the accurate location of the area planned or the section drawn, and spot-heights related to the Ordnance Survey Datum.

7.2 Photographic Record

All excavated features and deposits will be photographed using colour digital photography with a digital SLR camera with a minimum of a 10-megapixel resolution. Additional site photographs should be taken as

appropriate to place excavated features within the wider context. All photographs will contain appropriate scales, the size of which will be noted in the illustration's caption.

7.3 Finds and Samples

All finds recovered will be recorded by context if available. Significant finds should be recorded by context (if available) and include a spot height. All retained artefacts shall be removed from site for specialist examination and analysis and, if deemed necessary, conservation. Cleaning of objects may take place on site, or upon removal as is deemed appropriate. All recording, cleaning, storage and conservation of finds will be in accordance with CIfA (2014b) and Watkinson and Neal (1997). All environmental or other samples taken will be recorded by context. Details of the samples will be included in the context records and drawings as appropriate.

8.0 Archive Consolidation and Post-Excavation Work

The site archive will contain all the data collected during the watching brief, including records, finds and environmental samples. It will be quantified, ordered, indexed and internally consistent. Adequate resources will be provided during fieldwork to ensure that all records are checked and internally consistent. Archive consolidation will be undertaken immediately following the conclusion of fieldwork:

- The proposal for archive preparation will be in accordance with the guidance issued by the National Museums Liverpool;
- The contractor will contact the receiving museum in advance of fieldwork to confirm requirements and secure an accession number along with expected time limits for deposition of the archive;
- The site record will be checked, cross-referenced and indexed as necessary;
- All work should be undertaken in accordance with any specific guidance on deposition, and;
- All retained artefacts will be cleaned, conserved, marked and packaged in accordance with any requirements of the Museum of Liverpool Guidelines.

Any retained artefacts will be assessed and recorded using pro forma recording sheets, by suitably qualified and experienced staff. Initial artefact dating will be integrated with the site matrix. The potential for further analysis of artefacts will be assessed.

Any retained environmental samples will be processed by suitably experienced and qualified staff and recorded using pro forma recording sheets, to identify at this stage the presence or absence of environmental remains and the potential for further analysis.

The archive will be assembled in accordance with the specification set out by Historic England (2015), and the Guidelines for the Transfer of Archaeological Archives to the Museum of Liverpool (2015). In addition to the site records, artefacts, ecofacts and other sample residues, the archive shall contain:

- Site matrices where appropriate;
- A summary report synthesising the context record;
- A summary of the artefact record, and;
- A summary of the environment record.

The integrity of the primary field record will be preserved. Security copies will be maintained where appropriate. Once all the phases of the watching brief have been completed, all post-excavation data will be drawn together, and it may be appropriate to undertake further analysis at this time.

9.0 Monitoring and Quality Control

Monitoring does not and should not take the place of proper self-regulation. The project will be monitored as necessary and practicable by WYG and MEAS.

A programme for monitoring the fieldwork will be agreed in advance of the commencement.

The representatives of the MEAS and WYG will be afforded access to the site at any reasonable time. The representative will be provided with a site tour and an overview of the site by the senior archaeologist present and should be afforded the opportunity to view all open areas, any finds made that are still on site, and any records not in immediate use.

A draft of the archaeological report will be submitted to the client (WYG) for comments and consideration prior to the submission of a final report.

10.0 Reporting

A progress report will be provided to WYG verbally and via email for the duration of the site works. Additional reports will be provided, should unexpectedly significant archaeological remains be recorded.

A preliminary report/statement on the archaeological monitoring shall be required within one week of the completion of the fieldwork. This will comprise a written summary of any key findings of the exercise and initial interpretation of the any remains encountered and their potential significance. This report will be supported by drawings and photographs as necessary.

A full report shall be required within four weeks of the completion of the fieldwork, unless there are significantly complex remains and/or significant or unusual assemblages of human remains. The report shall be prepared in accordance with CIfA guidelines. As a minimum the report shall contain the following information:

- A title page, with the name of the project, the name of the contractor and author(s) of the report, the title of the report and date of the report and grid reference;
- A non-technical summary of the findings;
- A plan(s), at an appropriate scale, showing trench layout (as dug) and features located;
- A plan, at an appropriate scale, showing both actual and, where possible, predicted archaeological deposits;
- A description of and a background to the nature of the works, including dates of fieldwork;
- A brief description of the site location (including grid references) and any previously known archaeology in the survey area;
- Description of the methodology employed and explanation of any agreed variations to the brief and justification for any analyses not undertaken;
- A reconsideration of the methodology used;
- The results of the archaeological monitoring identified by area including post–excavation analysis of the stratigraphic and other written, drawn and photographic records;
- A catalogue and brief post–excavation analysis of each category of artefact recovered during excavation and the results of biological samples, including the potential for further analysis;
- Discussion of the archaeological monitoring results including site phasing and interpretation and discussion of the results within the local and regional context;
- A summary of the contents of the project archive and its location;

- References and bibliography of all sources used, and;
- An appendix containing a list of all contexts recorded per trench.

The report will be supported by an overall plan of any archaeological remains, indicating the location of archaeological features and individual plans of features or groups as excavated, with supporting section drawings where appropriate. The plans should include at least four 12-figure National Grid References to enable their accurate plotting on GIS. The OASIS should commence when site works commence.

The report will be supported by general site photographs to place the area and any archaeological features encountered within context. The report will also include colour photographs of any identified archaeological features and artefacts.

The report will outline the archaeological significance of any deposits identified. The report will provide an interpretation of the results in relation to other sites in the region and make reference to other known archaeological sites in the close vicinity of the site.

The contractor will submit one draft copy of the report initially for review, who will also contact MEAS during this review period. The contractor will rectify any defects and make any amendments as identified and shall subsequently submit the final report within two weeks of comments.

The report should not give an opinion on whether preservation or investigation is considered appropriate.

Copies of the report should be produced and submitted to:

- WYG (digital only, all digital records available on request);
- MEAS (digital only); when the report has been agreed by the Archaeologist (Planning) a final digital copy will be supplied to the Merseyside Historic Environment Record (HER). CAD file, GIS files of the final watching brief area plan should be provided to MEAS if required.
- The museum accepting the archive; the Museum of Liverpool, and;
- OASIS (both draft and final to be submitted for validation) (digital).

11.0 Programme

The commencement date for the monitoring has been provisionally scheduled for August or September 2019. MEAS will require one weeks' notice prior to commencement. The duration of the archaeological works will be dependent upon the remains encountered, and the progress of on-site works by the Principal Contractor

(PC). The PC will allow appropriate time and physical working space to enable the archaeological contractor to undertake archaeological recording as defined in this document. This may have a direct impact on the wider works programme, which the PC must recognise.

A preliminary report on findings will be required within one week of the completion of fieldwork. A full draft report of the watching brief will be required within four weeks of the completion of fieldwork unless significant archaeological remains are encountered. A final version of the report will be required within one week of WYG and client comments.

12.0 Contractor and Staffing

The on-site archaeological works will be undertaken by a specialist archaeological contractor. The archaeological contractor will be required to hold appropriate levels of Public Liability Insurance and Professional Indemnity Insurance for the project. The archaeological contractor will be a Registered Organisation with the CIfA or be expected to demonstrate that they have equivalent experience, capability and quality management systems in place.

The archaeological contractor's Project Director or Manager will be able to demonstrate significant experience of managing archaeological projects of a similar size and complexity. The Project Director will be expected to hold corporate membership of the CIfA at Member level or demonstrate experience equivalent to this. The archaeological contractor's Site Director or Project Officer will be able to demonstrate experience of the excavation and management of archaeological sites of a similar size and complexity. The Site Director or Project Officer will be expected to hold corporate membership of the CIfA at Associate level or demonstrate experience equivalent to this.

The archaeological contractor will provide additional on-site archaeological staff as appropriate. They will be competent to undertake the tasks assigned to them and will be adequately supervised and monitored. Archaeological specialists will be required to provide on-site advice on sampling strategies and provide post-excavation specialist analysis. The archaeological contractor's proposed specialists (internal and external) will be identified at the tender stage.

The archaeological contractor will be required to confirm that the project team proposed within the tender submission will be available during the contract programme. CVs of key site staff and the name and contact number for the responsible site archaeologist will be provided in advance of the works.

13.0 Health and Safety

Health and safety will take priority over archaeological matters. All archaeologists undertaking fieldwork must comply with all Health and Safety Legislation. All archaeologists or archaeological organisations undertaking

the fieldwork should ensure that they, or any proposed sub-contractors, are appropriately qualified and adequately insured to undertake such projects.

Measures will be taken by the PC to locate any drainage pipes, service pipes, cables etc. Necessary measures will be taken by the PC to avoid disturbing such services. Service drawings will be provided by the client.

The archaeological contractor will be required to liaise with the client with regard to health and safety matters. The archaeological contractor will prepare and abide by a project and site-specific method statement and risk assessment (RAMS). All staff must hold relevant Construction Skills Certification Scheme (CSCS) cards if requested by the PC. The PC is responsible for all inductions if required.

14.0 Archive

The archaeological contractor should liaise with relevant receiving institution to establish the detailed requirements of The Museum of Liverpool and discuss archive transfer in advance of fieldwork commencing. It is recommended that the specific requirements of The Museum of Liverpool are confirmed with the curator prior to deposition. The museum curator will be advised of the timetable of the proposed investigation prior to work commencing and the archaeological contractor will adhere to any reasonable requirements the museum may have regarding the conservation, labelling and storage of the excavated material and the resulting archive. The archive should be compiled with reference to the requirements in Section 8.

A field archive should be compiled consisting of all primary written documents, plans, sections and photographs. Catalogues of contexts, finds, soil samples, plans, sections and photographs should be produced and cross-referenced.

The archive will be prepared in accordance with the guidelines published in Brown (2007), and CIfA (2014c), and should adhere to the requirements of the Museum of Liverpool; the Guidelines for the Transfer of Archaeological Archives to the Museum of Liverpool (2015).

The archiving of any digital data arising from the project should be undertaken in a manner consistent with professional standards and guidance (Richards and Robinson 2000). The archaeological contractor should liaise with an appropriate digital archive repository to establish their detailed requirements and discuss the transfer of the digital archive.

The archaeological contractor should also liaise with Dr Ben Croxford, the Historic Environment Record Officer to make arrangements for digital information arising from the project to be submitted to the Merseyside HER for HER enhancement purposes. This should include the submission of all digital data generated, which may include but may not be limited to: GIS files, photographs, and text files. All digitised survey information should

be geo-referenced to the OS, and should also be provided to the client, as detailed in section 9.0. This should be provided in ArcView shape file format.

15.0 Copyright

Under the Copyright, Designs and Patents Act 1988, all material and supporting data generated by this contract shall be passed to the client unless and except where such material or data is existing material or data acquired from a third-party. In the latter case, the contractor will supply details of data sources, a description of what the data shows, the terms under which the material or data was acquired and where possible a contact name and address.

Copyright in the documentation prepared by the archaeological contractor and specialist sub-contractors should be the subject of additional licences in favour of the repository accepting the archive and MEAS to use such documentation for their statutory and educational functions, and to provide copies to third parties as an incidental to such functions.

Under the Environmental Information Regulations 2005 (EIR), information submitted to the HER becomes publicly accessible, except where disclosure might lead to environmental damage, and reports cannot be embargoed as 'confidential' or 'commercially sensitive'.

Requests for sensitive information are subject to a public interest test, and if this is met, then the information has to be disclosed. The archaeological contractor should inform the client of EIR requirements and ensure that any information disclosure issues are resolved before completion of the work. Intellectual property rights are not affected by the EIR.

16.0 Resolution of Issues

In the event of issues arising regarding the implementation of this specification or the scope of the archaeological monitoring, these will be resolved in the first instance by contacting WYG who will facilitate a resolution through contact with the key stakeholders. Should the issue not be resolved remotely, a meeting will be held between key stakeholders to facilitate discussion of the issues and identification of a suitable strategy to be agreed by all parties.

17.0 Further Information

Further information on this document can be obtained from:

Samantha Hilton
The Pavilion, 1st Floor, Botleigh Grange Office Campus,
Hedge End, Southampton,
Hampshire,
SO30 2AF
Tel: +44 238 202 2886
Mob: +44 797 667 8654
Email: samantha.hilton@wyg.com

References

Brown, D.H. (2007) *Archaeological archives a guide to best practice in creation, compilation, transfer and curation.*

CIfA & BABAO (2017) *Updated guidelines to the standards for recording human remains*

CIfA (2014a) *Standard and guidance for archaeological watching brief.*

CIfA (2014b) *Standard and guidance for the collection, documentation, conservation and research of archaeological materials.*

CIfA (2014c) *Standard and guidance for the creation, compilation, transfer and deposition of archaeological archives.*

English Heritage (2011) *Environmental Archaeology: A guide to the theory and practice of methods from sampling and recovery to post-excavation, 2nd edition*.

Historic England (2015) *Management of research projects in the historic environment*. *The MoRPHE Project Managers Guide*.

National Museums Liverpool (2015) *Guidelines for the Transfer of Archaeological Archives to the Museum of Liverpool.* Liverpool: National Museums Liverpool

Richards, J. and Robinson, D. (2000) *Archives from Excavation and Fieldwork: Guide to Good Practice*. http://ads.ahds.ac.uk/project/goodguides/excavation/

Stewart, E; Speakman, J. (2015) *Guidelines for the Transfer of Archaeological Archives to the Museum of Liverpool.*

Watkinson, D. and Neal, V. (1997) *First aid for finds*: *practical guide for archaeologists.* Rescue and United Kingdom Institute for Conservation Archaeology Section, 3rd Edition.

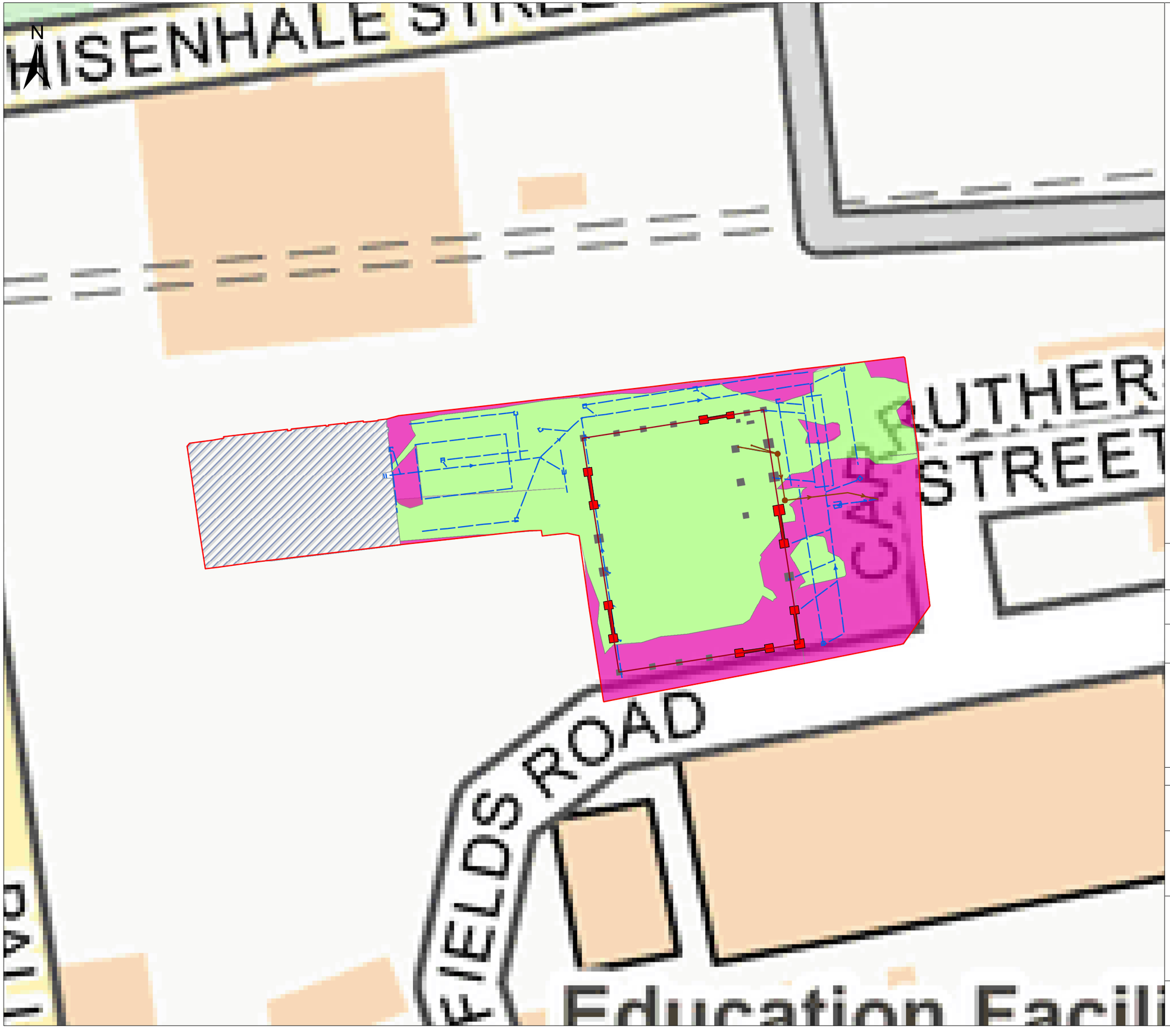
WYG (2017) *Carruthers Street, Liverpool: Ecological Appraisal*. Manchester: WYG.

WYG (2019) *Factual and Interpretative Ground Investigation Report, Land at Carruthers Street, Liverpool.*

WYG (20198) *Carruthers Street, Liverpool, Archaeology & Heritage Statement*.

Appendices

Appendix A – Archaeological Watching Brief Location Plan



Legend

- Site Boundary
- Building Boundary
- Proposed Foul Drainage
- Braced Bay Foundation
- Proposed Drainage
- Foundations
- Cut
- Fill
- Areas of Hardstanding

0 5 10 20 30 40 50

Metres

SJH	IB	July 2019	V2
Created:	Checked:	Date:	Version:

Arndale Court
Headingley
Leeds
LS6 2UJ

TEL: +44 (0)113 2787111
FAX: +44 (0)113 2750623
e-mail: enviro@wyg.com

Sheet Size: **A3** Scale of Original: **1:800**

Client: Network Space Developments Ltd.

Project: Carruthers Street, Liverpool

Title: Archaeological Watching Brief Locations

Office:	Project No:	Figure No:
4154	A103443	1

Appendix B – Previous Borehole and Trial Pit Location Plan

DO NOT SCALE: CONTRACTOR TO CHECK ALL DIMENSIONS AND REPORT ANY OMISSIONS OR ERRORS

N

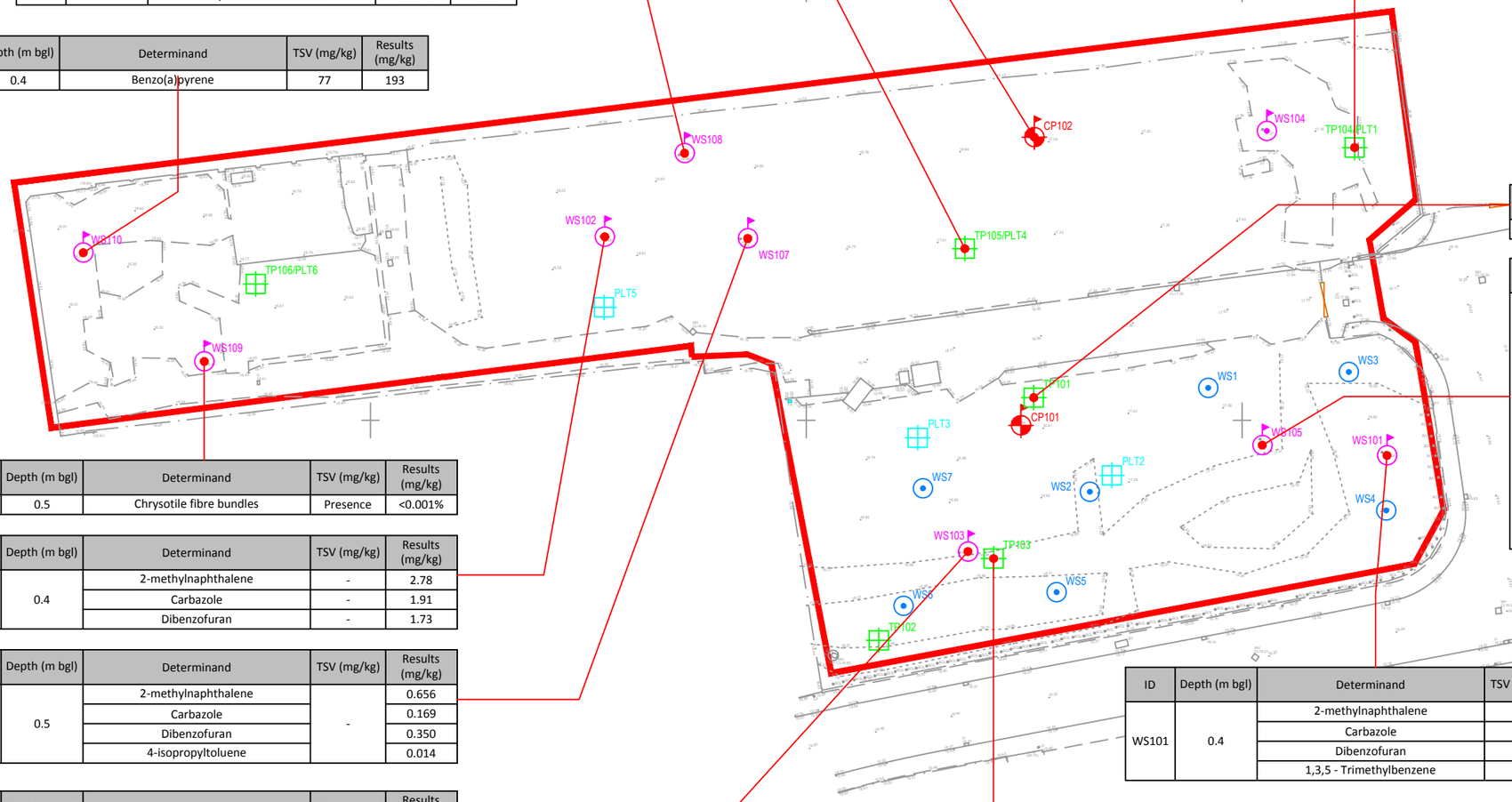
ID	Depth (m bgl)	Determinand	TSV (mg/kg)	Results (mg/kg)
CP102	0.5	2-methylnaphthalene	-	3.68
		Carbazole	-	2.02
		Dibenzofuran	-	2.04
		Chrysotile fibre bundles	Presence	<0.001%

ID	Depth (m bgl)	Determinand	TSV (mg/kg)	Results (mg/kg)
TP105	0.6	2-methylnaphthalene	-	0.250
		Dibenzofuran	-	0.124

ID	Depth (m bgl)	Determinand	TSV (mg/kg)	Results (mg/kg)
TP104	0.4	2-methylnaphthalene	-	0.058
		Carbazole	-	0.066
		Dibenzofuran	-	0.047

ID	Depth (m bgl)	Determinand	TSV (mg/kg)	Results (mg/kg)
WS108	0.4	2-methylnaphthalene	-	0.661
		Carbazole	-	0.893
		Dibenzofuran	-	1.04
		Chrysotile fibre bundles	Presence	<0.1%

ID	Depth (m bgl)	Determinand	TSV (mg/kg)	Results (mg/kg)
WS110	0.4	Benzo(a)pyrene	77	193



ID	Depth (m bgl)	Determinand	TSV (mg/kg)	Results (mg/kg)
TP101	0.5	Chrysotile fibre bundles	Presence	<0.001%

ID	Depth (m bgl)	Determinand	TSV (mg/kg)	Results (mg/kg)
WS105	0.5	2-methylnaphthalene	-	0.342
		Carbazole	-	0.289
		Dibenzofuran	-	0.278
	1.5	Benzo(a)pyrene	77	128
		Naphthalene	1100	2546
		TPH Aromatic >C10-EC12	2150	5039
		2-methylnaphthalene	-	756
		Carbazole	-	92
		Dibenzofuran	-	245
		1,3,5 - Trimethylbenzene	-	95
		1,2,4 - Trimethylbenzene	220	353
		4-isopropyltoluene	-	2.18
		n-butylbenzene	-	2.19

ID	Depth (m bgl)	Determinand	TSV (mg/kg)	Results (mg/kg)
WS109	0.5	Chrysotile fibre bundles	Presence	<0.001%

ID	Depth (m bgl)	Determinand	TSV (mg/kg)	Results (mg/kg)
WS102	0.4	2-methylnaphthalene	-	2.78
		Carbazole	-	1.91
		Dibenzofuran	-	1.73

ID	Depth (m bgl)	Determinand	TSV (mg/kg)	Results (mg/kg)
WS107	0.5	2-methylnaphthalene	-	0.656
		Carbazole		0.169
		Dibenzofuran		0.350
		4-isopropyltoluene		0.014

ID	Depth (m bgl)	Determinand	TSV (mg/kg)	Results (mg/kg)
WS103	0.4	2-methylnaphthalene	-	1.07
		Carbazole		0.996
		Dibenzofuran		0.698
		1,3,5 - Trimethylbenzene		0.023
	1.6	2-methylnaphthalene		97.76
		Carbazole		2.39
		Dibenzofuran		37.90
		1,3,5 - Trimethylbenzene		1.34
		4-isopropyltoluene		1.11

ID	Depth (m bgl)	Determinand	TSV (mg/kg)	Results (mg/kg)
WS101	0.4	2-methylnaphthalene	-	1.55
		Carbazole	-	1.80
		Dibenzofuran	-	1.44
		1,3,5 - Trimethylbenzene	-	0.011

ID	Depth (m bgl)	Determinand	TSV (mg/kg)	Results (mg/kg)
TP103	0.5	2-methylnaphthalene	-	6.10
		Carbazole	-	3.84
		Dibenzofuran	-	3.87
		Chrysotile & Amthophyllite fibre bundles	Presence	<0.001%

KEY

STUDY AREA BOUNDARY

WYG SITE INVESTIGATION

DYNAMIC SAMPLE

BOREHOLE

TRIAL PIT

PLATE LOAD TEST

INSTALLATION

HISTORICAL SUTCLIFFE INVESTIGATION - 2008

DYNAMIC SAMPLE

NOTE:
SOIL EXCEEDANCES BASED ON HUMAN HEALTH RISK ASSESSMENT FOR COMMERCIAL END USE

REV	DESCRIPTION	BY	CHK	APP	DATE

Client:
NETWORK SPACE LTD

QUAY WEST at MediaCity UK
TRAFFORD WHARF ROAD
TRAFFORD PARK
MANCHESTER
M17 1HH
TEL: +44 (0)161 872 3223
FAX: +44 (0)161 872 3193
e-mail: manchester@wyg.com

Project: A103443

CARRUTHERS STREET
LIVERPOOL

Drawing Title:
SOIL EXCEEDANCES

Scale @ A3	Drawn	Date	Checked	Date	Approved	Date
1:625	GR	04.02.19	CEM	04.02.19	CEM	04.02.19

Project No.	Office	Type	Drawing No.	Revision
A103443	MAN	N	103	A

Appendix C – Location of Japanese Knotweed Excavations

Disclaimer :
Survey based on visual inspection of surface growth. JKSL hold no liability for areas not identified in initial investigation works. Continued monitoring of site is recommended

Area of Japanese Knotweed

Possible or Likely extent of rhizome

Stockpile of soils, potentially containing Knotweed rhizome

Site boundary

N

SURVEY ORIENTATED TO MAGNETIC NORTH

Rev	Description	Date	By	Chk

Client
WCP Associates

Contract
Carruthers Street, Liverpool, L3 6BY

Drawing
Japanese Knotweed Survey Location Plan

Japanese Knotweed Solutions

Drawing No.	JK17-3119-01	Revision	/A
Scales	NTS	Date	01.05.19
Drawn	KH	Checked	AD

Appendix D – Report Conditions

Written Scheme of Investigation for Archaeological Monitoring, Carruthers Street, Liverpool

This report is produced solely for the benefit of **Network Space Developments Ltd** and no liability is accepted for any reliance placed on it by any other party unless specifically agreed by us in writing.

This report is prepared for the proposed uses stated in the report and should not be relied upon for other purposes unless specifically agreed by us in writing. In time, technological advances, improved practices, fresh information or amended legislation may necessitate a re-assessment. The opinions and information provided in this report are on the basis of WYG using reasonable skill and care in the preparation of the report.

This report refers, within the limitations stated, to the environment of the site in the context of the surrounding area at the time of the inspection. Environmental conditions can vary, and no warranty is given as to the possibility of changes in the environment of the site and surrounding area at differing times.

This report is limited to those aspects reported on, within the scope and limits agreed with the client under our appointment. It is necessarily restricted, and no liability is accepted for any other aspect. It is based on the information sources indicated in the report. Some of the opinions are based on unconfirmed data and information and are presented accordingly within the scope for this report.

Reliance has been placed on the documents and information supplied to WYG by others, no independent verification of these has been made by WYG and no warranty is given on them. No liability is accepted, or warranty given in relation to the performance, reliability, standing etc. of any products, services, organisations or companies referred to in this report.

Whilst reasonable skill and care have been used, no investigative method can eliminate the possibility of obtaining partially imprecise, incomplete or not fully representative information. Any monitoring or survey work undertaken as part of the commission will have been subject to limitations, including for example timescale, seasonal, budget and weather-related conditions.

Although care is taken to select monitoring and survey periods that are typical of the environmental conditions being measured, within the overall reporting programme constraints, measured conditions may not be fully representative of the actual conditions. Any predictive or modelling work, undertaken as part of the commission will be subject to limitations including the representativeness of data used by the model and the assumptions inherent within the approach used. Actual environmental conditions are typically more complex and variable than the investigative, predictive and modelling approaches indicate in practice, and the output of such approaches cannot be relied upon as a comprehensive or accurate indicator of future conditions.

The potential influence of our assessment and report on other aspects of any development or future planning requires evaluation by other involved parties.

The performance of environmental protection measures and of buildings and other structures in relation to acoustics, vibration, noise mitigation and other environmental issues is influenced to a large extent by the degree to which the relevant environmental considerations are incorporated into the final design and specifications and the quality of workmanship and compliance with the specifications on site during construction. WYG accept no liability for issues with performance arising from such factors.

July 2019

WYG Environment Planning Transport Ltd.

APPENDIX A WRITTEN SCHEME OF INVESTIGATION

APPENDIX B DESCRIPTIONS AND CONTEXT INVENTORY

Context No.	Type	Length (m)	Width (m)	Description	Date
101	Structure	9	5	Rectangular red-brick structure	20th century
102	Structure	4.8	1.55	Rectangular red-brick structure	20th century
103	Structure	18.3	-	Brick wall	20th century
104	Structure	-	-	Brick wall	19th century
105	Structure	-	-	Brick wall	20th century
106	Structure	13	-	Brick wall	19th-20th century
107	Structure	-	-	Brick wall	19th-20th century
108	Structure	-	-	Road surface	19th century
109	Structure	-	-	Brick wall	19th century
110	Structure	-	-	Brick floor surface	19th century
111	Structure	2.5	2	Rectangular brick structure	20th century
112	Structure	-	-	Brick wall	20th century
113	Structure	7.5	-	Brick wall	20th century

APPENDIX C BIBLIOGRAPHY

British Geological Survey (BGS), 2019 *Geology of Britain viewer* [Online] Available at: http://mapapps.bgs.ac.uk/geologyofbritain/home.html (accessed 4 November 2019)

Chartered Institute for Archaeologists (CIfA), 2014a *Code of conduct*, Reading

CIfA, 2014b *Standard and guidance for archaeological watching brief*, Reading

CIfA, 2014c *Standard and guidance for the creation, preparation, transfer and deposition of archaeological archives*, Reading

Cranfield Soil and Agrifood Institute, 2019 *National Soil Resources Institute, Soilscapes of Britain map* [Online] Available at: http://www.landis.org.uk/soilscapes/, Cranfield University (accessed 4 November 2019)

Historic England, 2015 *Management of research projects in the historic environment* (re-issue), London

National Museums Liverpool, 2015 *Guidelines for the Transfer of Archaeological Archives to the Museum of Liverpool*

WYG, 2019, *Carruthers Street, Liverpool: Archaeology and Heritage Statement*, unpubl rep

Cartographic Sources

Goads 1890; Insurance Plan of the City of Liverpool Vol. III: sheet 48 http://www.bl.uk/onlinegallery/onlineex/firemaps/england/northwest/zoomify149425.html (accessed 27 January 2020)

APPENDIX D SITE SUMMARY DETAILS

Site name:	Carruthers Street, Liverpool
Site code:	CSL19
Grid Reference	SJ 34150 91410
Type:	Watching Brief
Date and duration:	19th of October 2019 and 25th of November 2019.
Area of Site	6600m^2
Location of archive:	The archive is currently held at OA, Mill 3, Moor Lane Mills, Moor Lane, Lancaster, LA1 1QD, and will be deposited with National Museums Liverpool in due course, under the following accession number: MOL.2019.81.
Summary of Results:	Oxford Archaeology (OA) North was commissioned by Network Space Developments Ltd to undertake an archaeological watching brief at the site of Carruthers Street, Liverpool Merseyside. These works took place between the 19th of October 2019 and 25th of November 2019. Archaeological features were encountered across much of the site, dating primarily to the late nineteenth- and twentieth centuries. These features comprised concrete and brick footings alongside granite set and brick floor surfaces. Due to the limited scope of excavations within the northern half of the proposed development area (PDA), a high degree of truncation was noted on structures observed therein. However, excavations within the southern portion of the site were less restricted and a greater degree of preservation was encountered. Despite not being significant enough to warrant further mitigation, these fragmentary remains related to cartographic and documentary evidence which highlighted coal yards, warehouses and facilities associated with the processing of food and animal by-products. The southern extent of the proposed development area also contained the remnants of an ancillary building associated with a twentieth century gas power plant.

oxfordarchaeology

Head Office/Registered Office/ OA South

Janus House
Osney Mead
Oxford OX2 0ES

t: +44 (0) 1865 263 800
f: +44 (0) 1865 793 496
e: info@oxfordarchaeology.com
w: http://oxfordarchaeology.com

OA North

Mill 3
Moor Lane
Lancaster LA1 1QD

t: +44 (0) 1524 541 000
f: +44 (0) 1524 848 606
e: oanorth@oxfordarchaeology.com
w: http://oxfordarchaeology.com

OA East

15 Trafalgar Way
Bar Hill
Cambridgeshire
CB23 8SQ

t: +44 (0) 1223 850500
e: oaeast@oxfordarchaeology.com
w: http://oxfordarchaeology.com