



Northamptonshire Archaeology

Archaeological Watching Brief at Birmingham City University, Phase II, Birmingham June to August 2013



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**Northamptonshire
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Report 13/249

BCU 13

December 2013



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OASIS REPORT FORM

PROJECT DETAILS		Oasis No: 166199	
Project title	An archaeological watching brief at Birmingham City University, phase II		
Short description	An archaeological watching brief was carried out by Northamptonshire Archaeology during groundworks at Birmingham City University, located in the city centre. A residual Neolithic flint blade was recovered and a buried post-medieval agricultural soil survived beneath Penn Road towards the south. Throughout the site, there were heavily truncated 19th-20th century domestic and industrial remains.		
Project type	Watching Brief		
Previous work	Building recording (ULAS,2008), Desk-based assessment (WYG Environment 2012)		
Current land use	Car park/ waste land		
Future work	Phase III		
Monument type and period	None		
Significant finds	None		
PROJECT LOCATION			
County	West Midlands		
Site address	Penn Street, Birmingham city centre		
Easting Northing	SP 08075 87270		
Area (sq m/ha)	1.5 ha		
Height aOD	115m		
PROJECT CREATORS			
Organisation	Northamptonshire Archaeology (NA)		
Project brief originator	WYG Environment		
Project Design originator			
Director/Supervisor	Jonathan Elston		
Project Manager	Anthony Maull supported by David J Leigh		
Sponsor or funding body	Birmingham City University, Wilmott Dixon Construction		
PROJECT DATE			
Start date	17/06/13		
End date	03/08/13		
ARCHIVES	Location	Contents	
Physical			
Paper			
Digital		Client report PDF	
BIBLIOGRAPHY	Journal/monograph, published or forthcoming, or unpublished client report (NA report)		
Title	An archaeological watching brief at Birmingham City University, phase II		
Serial title & volume	13/249		
Author(s)	Jonathan Elston		
Page numbers	32 pages of text and illustrations		
Date	12/12/13		

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**ARCHAEOLOGICAL WATCHING BRIEF AT
BIRMINGHAM CITY UNIVERSITY, PHASE II, BIRMINGHAM
JUNE – AUGUST 2013**

Abstract

An archaeological watching brief was carried out by Northamptonshire Archaeology during groundworks at Birmingham City University, located in the city centre. A residual Neolithic flint blade was recovered and a buried post-medieval agricultural soil survived beneath Penn Road towards the south. Throughout the site, there were heavily truncated 19th-20th century domestic and industrial remains.

1 INTRODUCTION

Northamptonshire Archaeology (NA) was commissioned by Willmott Dixon Construction to undertake an archaeological watching brief during Phase II groundworks at Birmingham City University in the city centre (NGR SP 08075 87270, Fig 1).

The new development will be part of the University providing new library, lecture theatre, restaurant and social areas with an entrance from Cardigan Street. The building will incorporate the Eagle and Ball Public House, currently called the Moby Dick and is being constructed on piled foundations. To accommodate the natural slope of the ground there was a requirement for cut to the northern area of the development building footprint and fill, to the south.

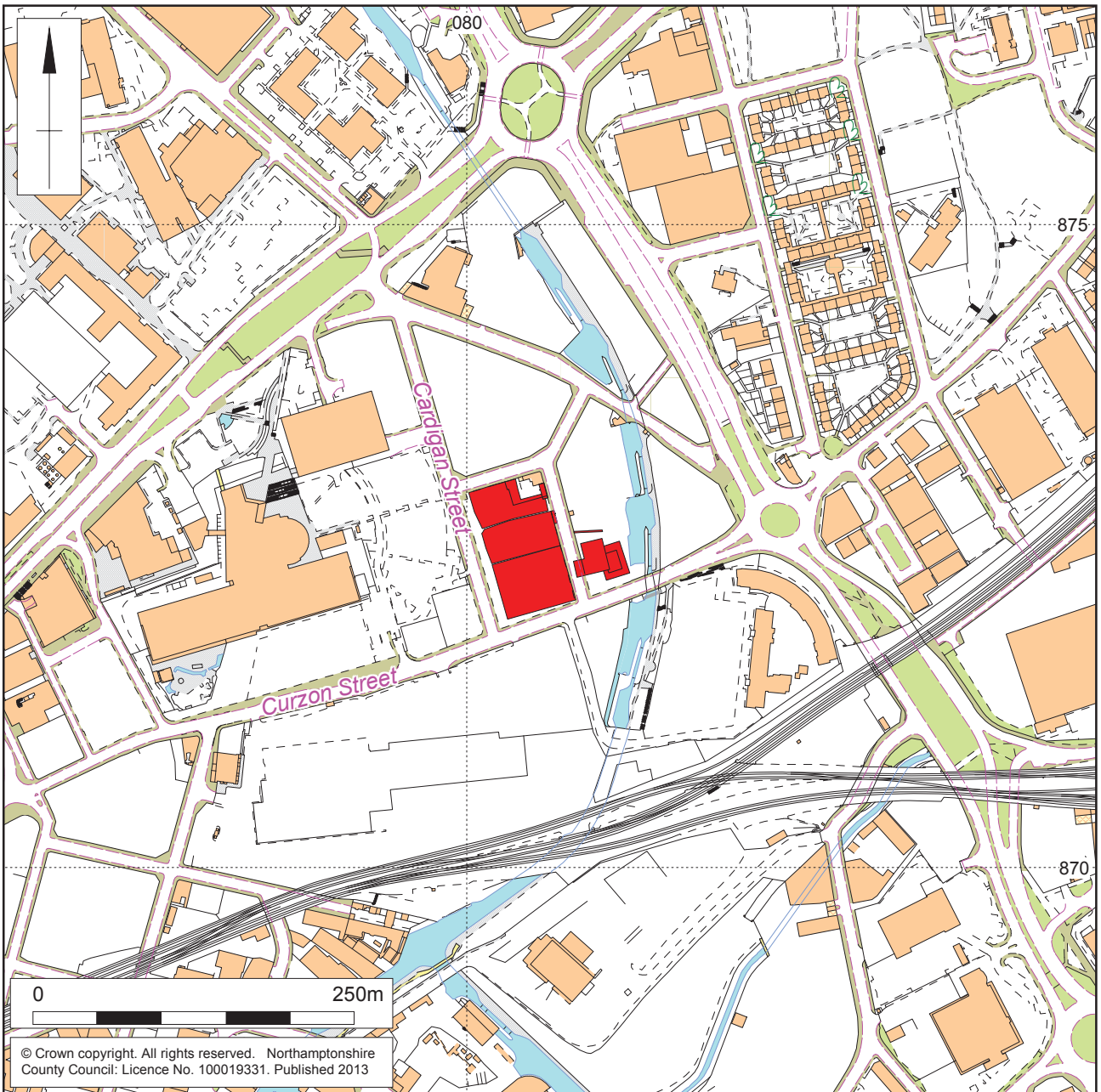
The requirements of the watching brief were outlined in the Written Scheme of Investigation prepared by WYG (2013), who acted as consultants on the scheme, to mitigate against the impact the development would have on any archaeological remains within the site boundary.

2 BACKGROUND

2.1 Location and geology

The site is located towards the east of Birmingham city centre and comprised two pieces of land either side of Penn Street covering an area of 1.5 hectares. The north of the site lies approximately 115m above Ordnance Datum sloping down to the south to approximately 108m. The site is bounded by the Digbeth Branch Canal to the east, Curzon Street to the south, Cardigan Street to the west and Gopsal Street to the north.

The underlying geology consists of the Bromsgrove sandstone formation deposited through river and desert conditions in the Triassic period (approximately 237-251 million years ago) overlain by glaciofluvial deposits of sand and gravel formed up to 2 million years ago under Ice Age conditions.



1:5000

Site Location Fig 1

2.2 Historical and archaeological background

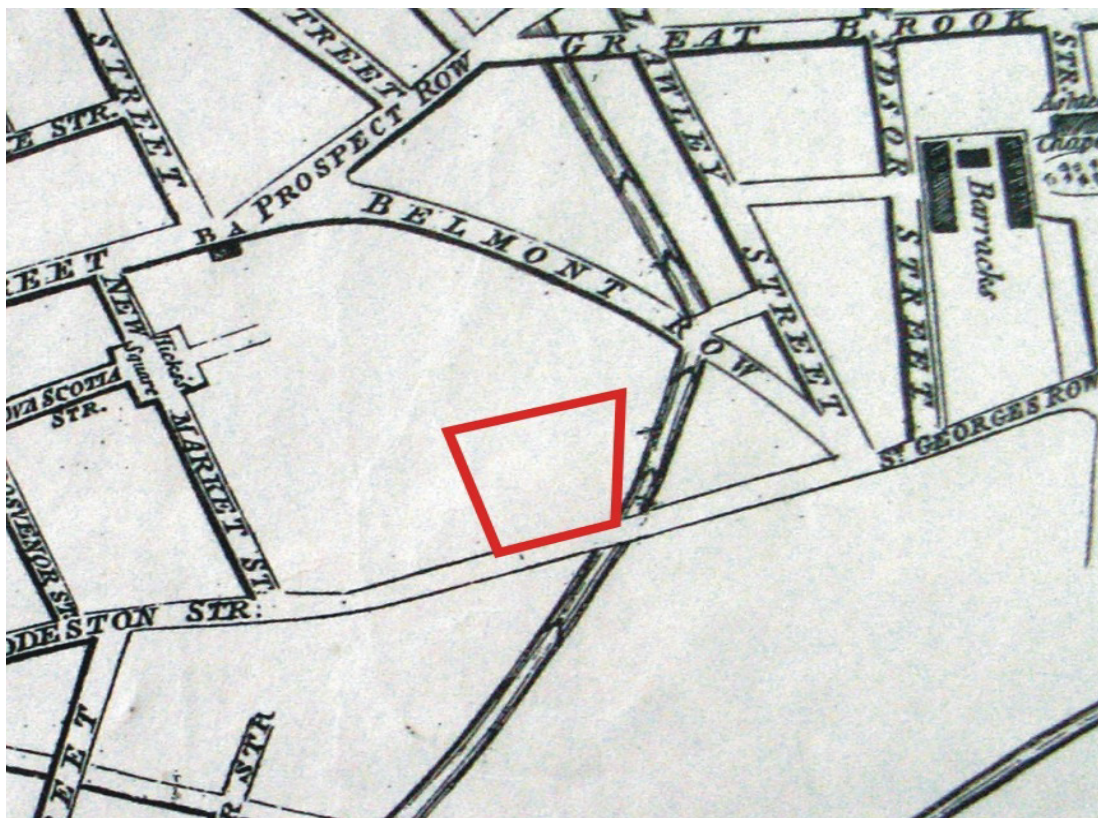
A desk-based assessment (WYG 2012) covered an area with a radius of 1km centred on the development site. It identified a variety of heritage sites from the Historic Environment Records and a number of listed buildings within the study area. However, within the site boundary there are no recorded archaeological remains and on the northern end of Penn Street is the only building, The Eagle and Ball Public House (currently Moby Dick), that is Grade II Listed.

To the south-west of the site Late Palaeolithic or early Mesolithic deposits were identified during excavations at Banbury Street (ULAS 2009) where two worked flints were recovered from tree holes.

The site and the immediate vicinity during the medieval period was park land or agricultural land on the edge of the medieval town of Birmingham. It was not until 1790 when the Digbeth Branch Canal, constructed along the eastern boundary of the site allowed potential industries to develop.

Pye's map of Birmingham, 1795 (Fig 2) shows the canal with the area of the site undeveloped and it is not until the 1850s that housing appears on the Piggot Smith Board of Health map, 1855 (Fig 3). Industrial properties appear some thirty years later on the 1889 Ordnance Survey Map (Fig 4) infilling some of the area to the east. The 1889 map identifies the industrial buildings as a crucible and fire brick works and sawmills occupying the canal side with a large wharf and yard area.

The buildings within the site boundary remained relatively unchanged and were still present on the 1918 Ordnance Survey maps (Fig 5). By 1957 however, the Ordnance Survey map shows the western area of the site has been largely cleared of domestic dwellings leaving only the Eagle and Ball public house and surrounding buildings. A new building to the south of the public house has appeared fronting onto Penn Street and is recorded as wire works.



Pye's Map of Birmingham, 1795

Fig 2



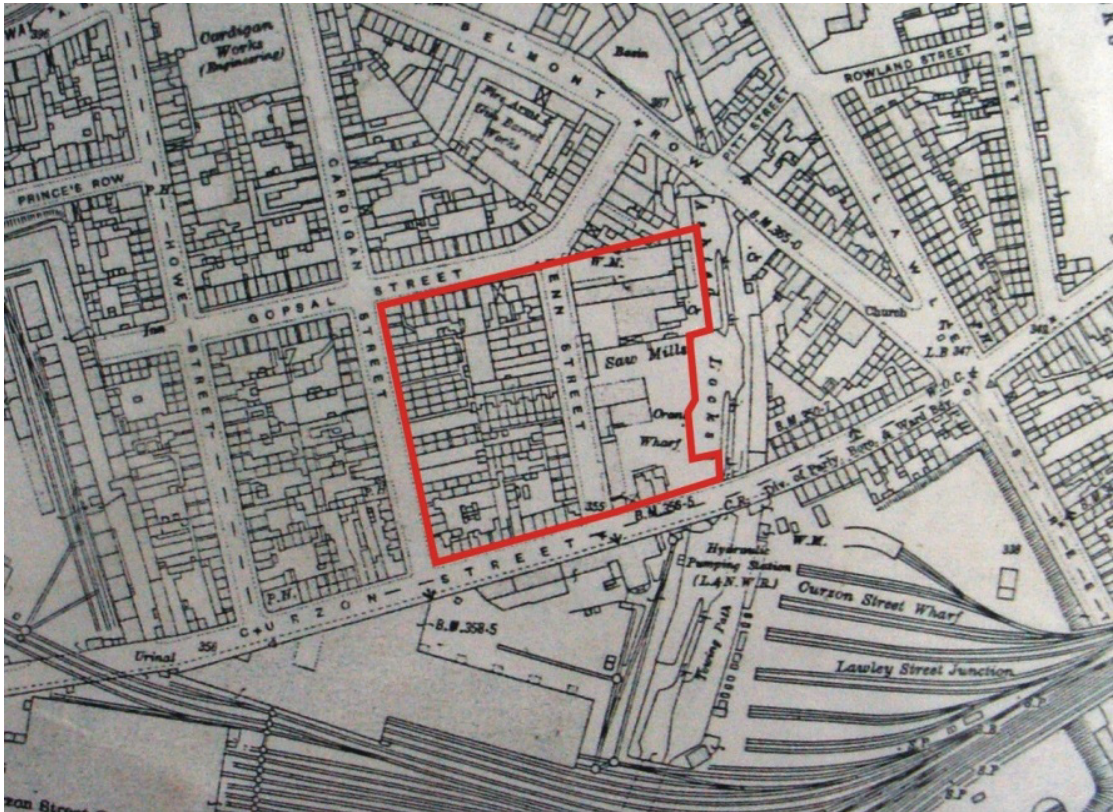
Piggot Smith Board of Health map of Birmingham, 1855

Fig 3



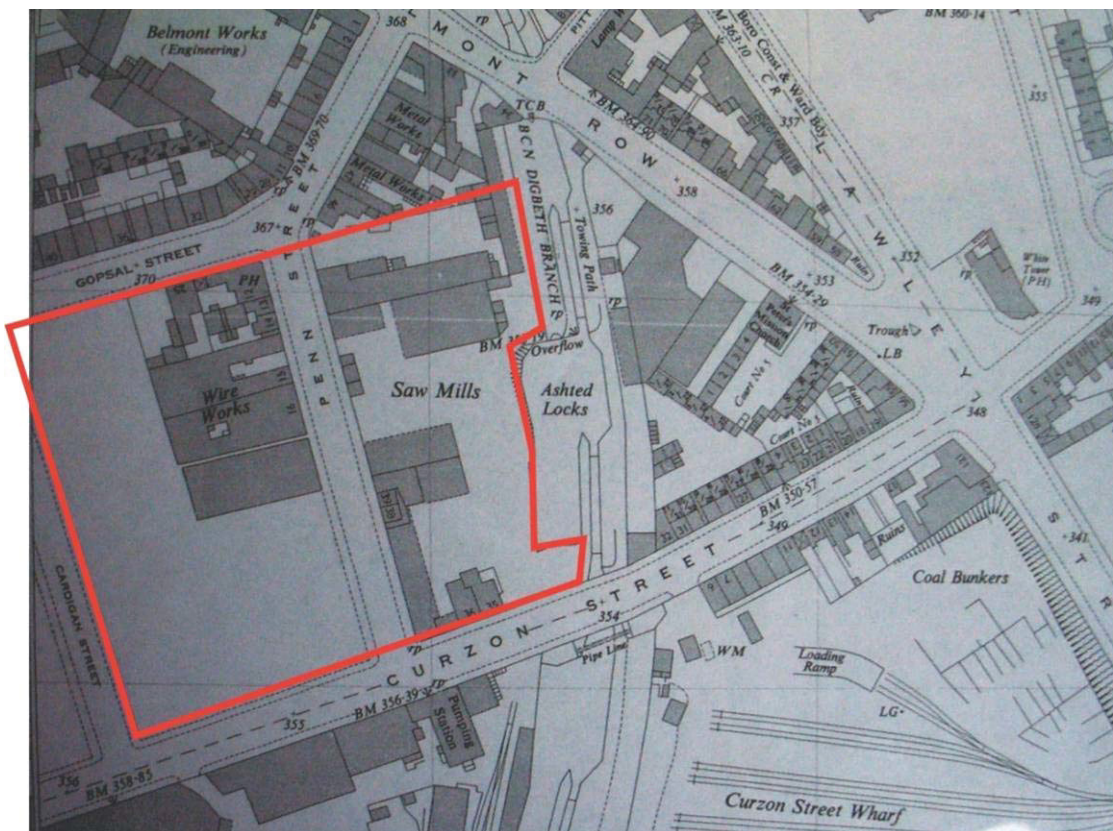
Ordnance Survey map, 1:500, 1889

Fig 4



Ordnance Survey map, 25" to 1 mile, 1918

Fig 5



Ordnance Survey map, 1957

Fig 6

3 OBJECTIVES AND METHODOLOGY

The objective of the archaeological watching brief was to identify and record the presence, location, extent and pattern of any surviving archaeological remains found during the initial groundworks as part of the phase II stage of work at Birmingham City University.

The work was carried out in accordance with the Institute for Archaeologists *Code of Conduct* (IfA 2010), the *Standard and Guidance for an Archaeological Watching Brief* (IfA 2008) and the *Management of Research Projects in the Historic Environment* (EH 2006).

All groundworks within the site boundary were monitored, including the topsoil stripping, ground level reductions, foundation trenches, pile positions, access and service trenches.

Groundworks comprised the removal of all overburden using a mechanical excavator fitted with a toothless grading bucket, the only exception being to remove rubble and concrete blocks where a toothed bucket was required.

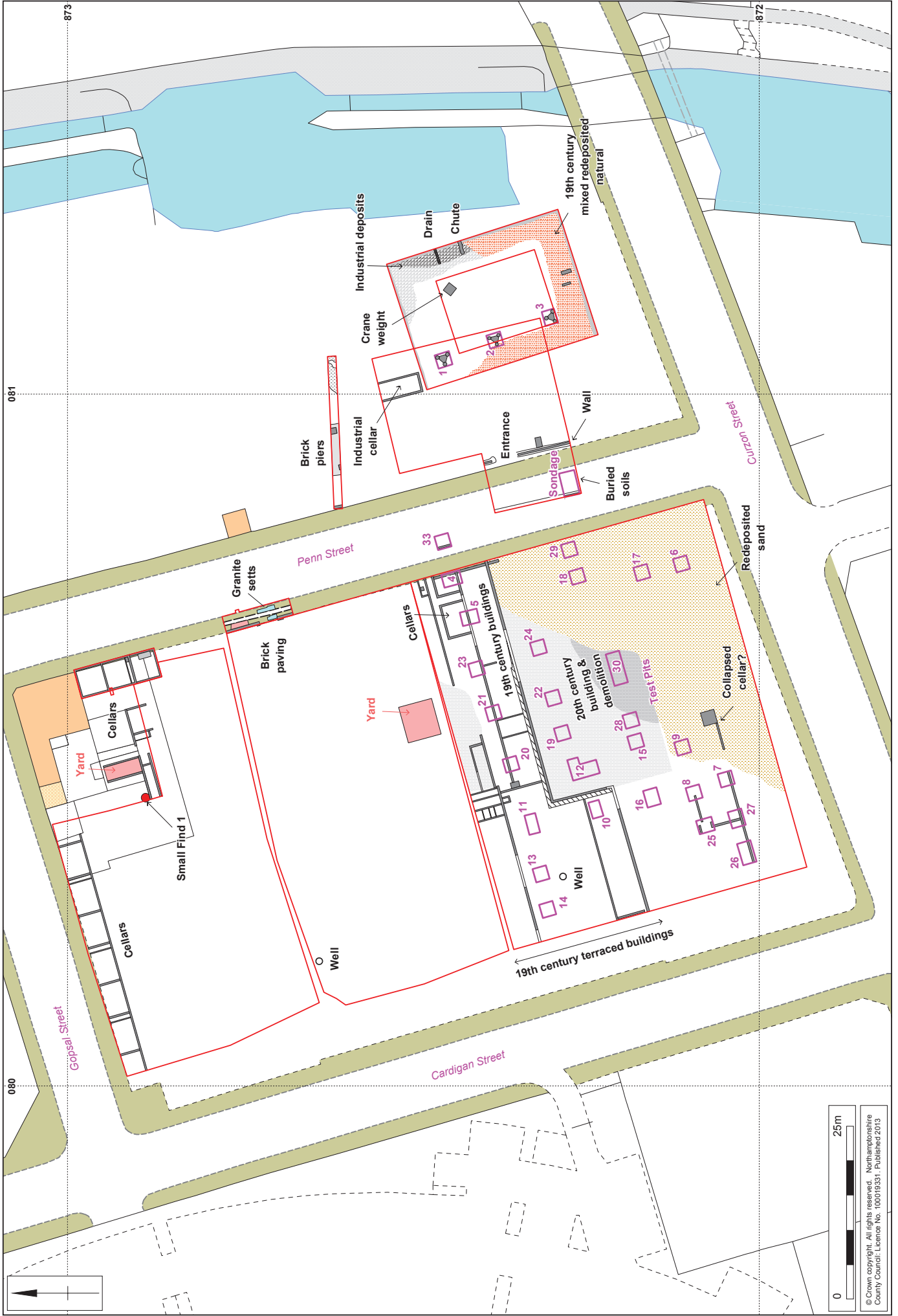
The overburden was stripped down to the archaeological horizons, to the point where foundation levels had been reached or to where it was identified that the area was archaeologically sterile and no longer required monitoring.

Where archaeological horizons were encountered, the mechanical excavators were halted and the areas were kept clear of construction plant, the archaeological remains were hand cleaned where necessary and all features were identified.

Recording followed standard Northamptonshire Archaeology procedures as described in the *Fieldwork Manual* (NA 2011). Deposits were described on *pro-forma* sheets, including measured and descriptive details of the context, its relationships and interpretation without excavation.

Where possible a scale plan using traditional survey methods was made and located on the Ordnance Survey map using a Leica System 1200 Global Positioning System (GPS) operating to a 3D tolerance of $\pm 0.05\text{m}$.

All site photographs were taken using 35mm black and white film and a colour digital camera with 10 megapixel resolution.



The area of archaeological observation Fig 7

Scale 1:500 (A3)

4 ARCHAEOLOGICAL EVIDENCE

The archaeological remains present throughout the site were wall lines, cellars and brick surfaces that have been heavily truncated and sealed beneath demolition deposits.

The pottery was consistently late 19th-century in the form of glassware, blue and white china and clay tobacco pipe stems that were present in the demolition layers.

An overall site plan (Fig 7) has been produced from several individual plans located by GPS onto the Ordnance Survey map.

4.1 Neolithic evidence

In the northern area of the site, on the south-west corner of the buildings (Fig 7) around the Moby Dick public house, an unstratified flint blade (Fig 8) was recovered during ground level reductions. It was found between the base of 19th-century disturbance and the natural geology (c.111m aOD). The flint is likely residual to the site and part of the low level prehistoric activity within the local area, the technological characteristics of the blade suggesting a broadly Neolithic date.



Neolithic Flint blade, scale 20mm Fig 8

4.2 Post-medieval buried soils

At the southern end of Penn Street, off the junction with Curzon Street, there were surviving buried soils (Fig 9). They were only present in a 6.0m long section aligned east to west that had been truncated to the west by a 20th-century brick vaulted sewer and to the east by demolition deposits. The natural geology was a mid brownish-yellow sand approximately 106m aOD that was overlain by a buried mid grey-brown silty sand subsoil, 0.4m thick. The subsoil (1033) contained no inclusions and was overlain by buried topsoil (1032) that was dark grey-brown silty clay sand, 0.45m thick. Throughout the topsoil there were frequent inclusions of small to medium (20-40mm) oyster shells and the occasional charcoal fragment. Sealing this was a mixed sandy rubble layer (1031) that had likely been spread over the area to build up the ground level and was 0.75m thick. The modern ground surface was only 0.3m above this layer.

The buried topsoil and subsoil are the last indication of land use within the site prior to the development in the mid-19th century and would suggest the area had been subject to low intensity farming as the topsoil had no turf line present and the subsoil had not been truncated by ploughing.



Buried soils, looking south

Fig 9

4.3 Bomb survey test pits

Prior to ground reduction works a bomb survey was conducted across the southern part of the site. IN SITU site investigation (Fig 10) were contracted to carry out this assessment and they used a modified magnetometer probe mounted on the base of a tracked vehicle. This was able to manoeuvre over the pile positions and the probe lowered into the ground to take magnetic readings. Where the probe was refused, usually due to compacted rubble or underlying structures, a test pit was excavated using a mechanical excavator to clear the obstacle and allow a reading. It was necessary to monitor these test pits as it was clear that the obstacles being encountered were of archaeological interest.



Site investigation bomb survey by IN SITU, looking south

Fig 10

The test pits were between 2.0-3.7m wide by 2.0-4.0m long and 2.0-5.0m deep. All test pits were photographed but due to the size and depth only a sketch section and general information were recorded.

Test pits 1-3 were located over the industrial remains in the south-east area of the site. Test pits 4-30 and 33 were located over the domestic houses in the south-west, with test pits 31, 32 and 34 located in the north-west area of site.

Each pit is given a brief description in Table 1 and located on the site plan (Fig 7).

Table 1: Test pit data

Pit	Location	Dimensions	Observations
1	South-east area Plan 5	2.0m long 2.40m wide 1.70m deep	Natural sands 0.7m thick overlain by rubble deposit, mixed broken brick, concrete 1m thick
2	South-east area Plan 5	2.0m long 2.40m wide 2.70m deep	Truncated deposits with cut going to the east, no clear function and likely demolition deposits.
3	South-east area Plan 5	2.50m long 2.50m wide 2.0m deep	Victorian pier base/ footing approximately 0.8m by 0.8m square and 0.9m height overlain by 1m of mixed made ground.
4	South-west area Plan 2	2.4m long 2.40m wide 2.30m deep	North to south aligned wall present on eastern edge with coal chute facing west (brick dimensions 240mm by 110mm by 80mm thick). Victorian cellar backfilled with rubble along Penn Street (Fig 11).
5	South-west area Plan 2	2.0m long 2.60m wide 2.00m deep	East to west aligned walls Two courses thick (brick dimensions as above), possibly part of cellar structures.
6	South-west area Plan 2	2.50m long 2.4m wide 2.0m deep	Natural sands in base overlain with brick rubble 1.5m thick. Levelling made ground layer 0.5m thick to surface.
7	South-west area Plan 2	2.4m long 2.4m wide 2.0m deep	East to west aligned wall approximately 0.4m wide and 1.4m high on concrete footings 1.0m wide and 1.0m thick overlain by made ground 0.5m thick.
8	South-west area Plan 2	2.4m long 2.4m wide 2.1m deep	Natural sands overlain by mixed brick and concrete rubble 1.8m thick.
9	South-west area Plan 2	2.4m long 2.4m wide 3.0m deep	Natural sands in base overlain by 2.0m of red- brown sands mixed with large brick rubble. Levelling layer 1.0m thick to surface.
10	South-west area Plan 2	2.4m long 2.4m wide 2.0m deep	Natural sands 0.8m thick overlain by layers of rubble and made ground 1.2m thick.
11	South-west area Plan 2	2.4m long 2.4m wide 2.4m deep	Natural sands 0.8m thick in base overlain by made ground 1.4m thick and dark ashy layer 0.2m thick.
12	South-west area Plan 2	4.0m long 3.50m wide 3.0m deep	Natural sands in base overlain by reinforced concrete slab 0.6 m thick with large north to south aligned brick wall (brick dimensions 230mm by 110mm by 90mm thick). Wall (20th century) 3 courses thick with a height of 2.2m. Either side contained concrete and brick rubble backfill sealed beneath made ground 0.2m thick.

Pit	Location	Dimensions	Observations
13	South-west area Plan 2	2.0m long 2.0m wide 2.4m deep	Natural sand in base 0.5m thick overlain with mixed sandy rubble 1.6m thick sealed beneath black ashy layer 0.3m thick.
14	South-west area Plan 2	2.0m long 2.0m wide 2.0m deep	Natural sand in base overlain by mix sandy backfill/rubble layer 1.2m thick that has a concrete base 0.3m thick sealing it which in turn is overlain by brick rubble 0.5m thick.
15	South-west area Plan 2	2.0m long 2.0m wide 4.0m deep	Natural sand in base 0.4m thick overlain by brick/reinforced concrete rubble layer 3.0m thick sealed beneath orange sand levelling layer 0.6m thick.
16	South-west area Plan 2	2.4m long 2.40m wide 2.0m deep	Natural sand in base 0.4m thick with east to west aligned brick wall 0.5m high sealed beneath a concrete slab 0.5m thick which was overlain by loose sandy rubble deposit 0.6m thick.
17	South-west area Plan 2	2.0m long 2.0m wide 2.5m deep	Natural sand in base 0.3m thick with north to south aligned brick wall 0.5m high on eastern edge, abutted and overlain by loose brick rubble (demolition) deposit 1.6m thick sealed by orange sand levelling layer 0.6m thick.
18	South-west area Plan 2	2.0m long 2.8m wide 5.0m deep	Natural sand in base 0.8m thick overlain by mixed concrete and brick rubble deposit 2.2m thick which was sealed beneath orange sand levelling layer 1.5m thick. A mixed rubble/ hardcore layer 0.5m thick made ground covered area.
19	South-west area Plan 2	2.4m long 2.4m wide 2.0m deep	Natural sand in base 0.4m thick sealed beneath concrete reinforced slab 0.7m thick, this was overlain by a mixed soil and rubble layer (20th century) 0.9m thick
20	South-west area Plan 2	2.0m long 2.0m wide 2.5m deep	Natural sand in base 0.5m thick with east to west aligned wall 2-3 courses high, 2 courses wide (0.24m) overlain by mixed sandy rubble 1.6m thick sealed beneath black ashy layer 0.3m thick.
21	South-west area Plan 2	2.0m long 2.0m wide 2.0m deep	Natural sand in base, east to west aligned wall four courses high (approx 0.45m) and 2 courses wide. abutted and overlain by mixed rubble backfill 1.5m thick that was sealed beneath mixed sandy rubble 0.5m thick.
22	South-west area Plan 2	2.0m long 2.0m wide 3.0m deep	Natural sand in base 0.4m thick sealed by reinforced concrete slab 0.5m thick overlain by mixed large reinforced concrete and brick rubble 1.8m thick that was sealed by sandy rubble 0.3m thick.
23	South-west area Plan 2	2.0m long 2.0m wide 2.0m deep	Natural clay in base 0.4m thick overlain by red- orange sand layer 0.8m thick sealed beneath mixed sandy rubble levelling layer 0.8m thick.
24	South-west area Plan 2	2.4m long 2.4m wide 2.5m deep	Natural sand in base 0.5m thick with east to west aligned wall 2-3 courses high, 2 courses wide (0.24m) overlain by mixed sandy rubble 1.6m thick sealed beneath sandy layer 0.3m thick.
25	South-west area Plan 2	2.0m long 2.0m wide 2.0m deep	Natural sand in base 0.4m thick sealed beneath concrete base 0.4m thick with north to south aligned wall 5-6 courses high, 2 courses wide (0.24m) overlain and abutted by mixed sandy rubble 0.9m thick sealed beneath mixed sandy rubble layer 0.3m thick.

Pit	Location	Dimensions	Observations
26	South-west area Plan 2	2.0m long 2.0m wide 3.0m deep	Natural sand in base beneath large concrete footing 1.0m thick with a east to west aligned wall 3 courses wide by 8-9 courses high (approx 1.4m) abutted by loose rubble brick backfill and sealed beneath a mixed sandy rubble levelling layer 0.5m thick.
27	South-west area Plan 2	2.0m long 2.0m wide 3.0m deep	Natural sand in base beneath large concrete footing 1.0m thick with a east to west aligned wall 3 courses wide by 8-9 courses high (approx 1.4m) abutted by loose rubble brick backfill and sealed beneath a mixed sandy rubble levelling layer 0.6m thick.
28	South-west area Plan 2	2.4m long 2.4m wide 2.3m deep	Natural sand in base 0.5m thick overlain with mixed large reinforced concrete and brick rubble 1.4m thick sealed beneath sandy layer 0.3m thick and overlain by mixed sandy rubble levelling layer 0.1m thick.
29	South-west area Plan 2	2.0m long 2.0m wide 2.5m deep	Natural sand in base 0.5m thick overlain with mixed large reinforced concrete and brick rubble 1.6m thick sealed beneath sandy layer 0.3m thick and overlain by mixed sandy rubble levelling layer 0.1m thick.
30	South-west area Plan 2	2.0m long 2.0m wide 3.0m deep	Natural sand in base 0.5m thick overlain with mixed large reinforced concrete and brick rubble 1.8m thick sealed beneath sandy layer 0.4m thick and overlain by mixed sandy rubble levelling layer 0.3m thick.
31	North-west area	4.0m long 4.0m wide 3.0m deep	Natural sand in base 0.2m thick overlain by concrete slab 0.5m thick with a north to south aligned wall 4 courses thick by 15-20 courses high. Brick dimensions 230mm by 105mm by 75mm thick with creamy cement mortar. Loose brick rubble backfill abutted wall and partially sealed it 2.3m thick.
32	North-west area	3.8m long 3.7m wide 3.0m deep	Natural sand in base 0.2m thick overlain by concrete slab 0.5m thick with a steel H-girder embedded within it. On the slab a north to south aligned wall 4 courses thick by 15-20 courses high. Brick dimensions 230mm by 105mm by 75mm thick with creamy cement mortar. Loose brick rubble backfill abutted wall and partially sealed it 2.3m thick.
33	South-west area Plan 2	2.0m long 2.0m wide 2.0m deep	Natural sand in base 0.3m thick, on western edge of test pit a north to south aligned wall 2 courses thick, (possibly frontage onto Penn Street) loose rubble brick backfill 1.0m thick overlain by modern ground surface 0.3m thick.
34	North-west area	2.0m long 2.0m wide 2.0m deep	Natural sand in base 1.0m thick overlain by single layer of blue brick 220mm by 110mm by 80mm thick part of a external yard surface. Loose brick rubble and scrap metal/ wire deposit covering area 0.6m thick sealed beneath stoned piling mat 0.3m thick.



Test pit 4 coal chute, looking east

Fig 11

4.4 Post-medieval domestic buildings

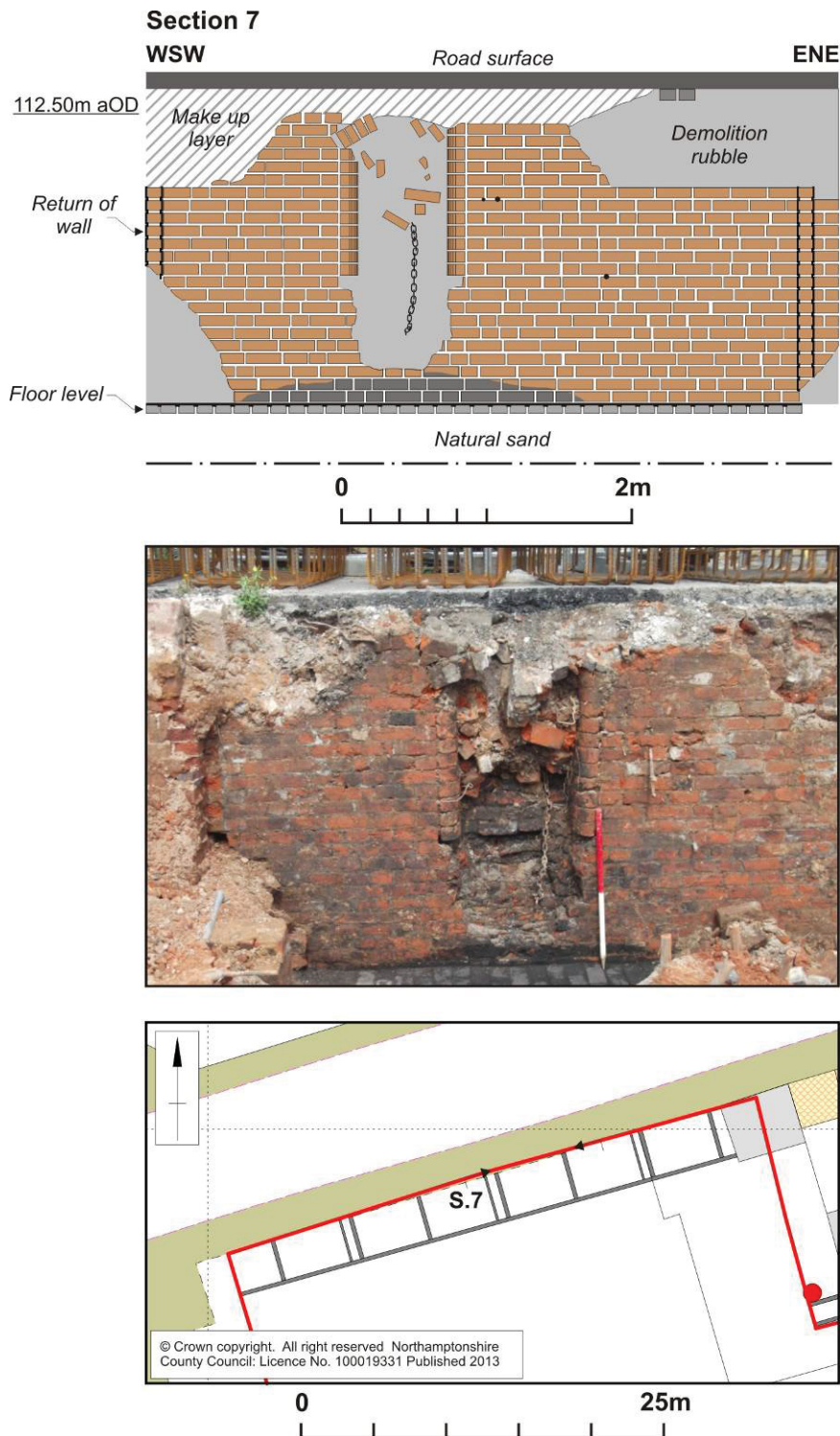
In the western area of the site, during ground reduction works, 19th-century domestic remains were encountered. The majority of these were brick-lined cellars to the north and terraced house footings to the south. The ceramic bricks used were orange-red in colour, between 220-240mm long, 110mm wide and 75mm thick with no makers marks and no frogs. The historic maps indicate that most of the development took place from 1850 to 1889 and are recorded on the Piggot Smith Board of Health Map of Birmingham, 1855 and the Ordnance Survey map 1:500, 1889.

Piggot Smith Board of Health Map of Birmingham, 1855

On the northern site boundary seven cellars aligned parallel with Gopsal Street extended up to 4m onto site. They would have been part of a row of terraced houses connected to the west side of the public house and shown on the 1855, Piggot Smith map (Fig 3). A 1.0m-wide gap between every second cellar may indicate access to the rear of the properties via a small internal passage.

Each cellar measured 4.5m long by 3.5m wide with the external north wall [1049] surviving up to 2.0m high. The internal and back walls had only partially survived with only the central cellar having an intact brick floor and well preserved coal chute [1052] (Figs 11 and 12). The brickwork appeared to be loosely based on a Flemish bond alternating between headers and stretchers within each course of brick, the difference being having double headers followed by double stretchers for the lower courses. The pattern deteriorates slightly in the upper courses where single headers appear between double stretchers and with the occasional course completely consisting of stretchers.

The floor consisted of a single course of similar red brick, stained black from coal residue, laid flat in a stretcher bond pattern bedded onto the natural sand at 110.29m aOD.



Cellar, looking north (section 7 and location plan), scales 1:50 & 1:500

Fig 12

Adjoining the south side of the public house there were three more brick cellars aligned along Penn Street. The central cellar was mechanically excavated to ascertain the depth and structural integrity of the remains as a core was to be excavated at that location.

The cellar was a 3.7m square internally and constructed from walls two courses thick that had survived to a height of 2.0m at 111.0m aOD. The brick type, dimensions and mortar were the same as the previously observed cellar with the brickwork bonded in a similar style. A coal chute was located in the centre of the east wall fronting onto Penn Street and a low brick bench 0.4m high ran along the southern wall (Fig 13). Access to the cellar was by four brick steps, each c. 0.2-0.3m high and 0.7m wide, in the north-west corner. The floor surface was heavily stained by coal residue up to 0.5m thick. This had been overlain by a 1.5m thick demolition layer that included broken brick, roof slate and rotten timber that had been used to backfill the cellars.



Cellars south of the public house, looking south-east

Fig 13

South of the public house, 10.0m to the west of the cellars, a small brick yard surface [1061], covering an area 5.0m by 3.0m on a north-north-west to south-south-east alignment, survived beneath a concrete slab 0.3m thick. The bricks were a dark orange-brown, 240mm long by 110mm wide and 75mm thick, with no frogs and laid on edge with no mortar bonding. Along the southern edge two partially surviving walls [1056] and [1058] were two courses thick and up to 13.2m long and had three short perpendicular sections of wall [1060], 3.0m long, keyed into them at 4.5m intervals. They were constructed from the same type of brick as the yard surface and bonded with a creamy white mortar 10mm thick. The yard surface at 112.1m aOD and the walls 0.4m lower probably represent an external space with outbuildings but it was unclear whether they were associated with the public house or the houses fronting Penn Street. The houses the cellars belonged to and the outbuildings all appear on the Piggot Smith board of Health Map of Birmingham, 1855 (Fig 3).

During construction of a pile mat in the south-west area of the site the ground level was reduced from 110.0m aOD down to 108.0m aOD, levelling the site to Curzon Street.

As the site sloped down to the south over 2.0m of overburden had to be removed from the northern edge gradually decreasing to 0.5m from the southern edge. Therefore the archaeological deposits encountered on the northern edge remained buried beneath demolition and levelling layers in the south.

On the northern edge back-to-back terraced house footings were encountered at 109.2m aOD. They formed two rows of houses perpendicular to Cardigan Street facing to the north, uphill and to the south, downhill that backed onto an open communal area with a brick-lined well (Fig 14).

The northern terrace front exterior wall had been truncated away leaving only the back exterior wall and some small internal walls to the east end, a ladder formation likely to support a wooden planked floor.

The back exterior brick wall footings [1069] were 22.0m long, two courses 0.24m wide and survived to a maximum of three courses high on an east-north-east to west-south-west alignment. The ladder formation [1071] consisted of a single course of brick laid flat that had been cut into a mid brownish-yellow compact sand.

The southern row of terraced houses had both the front [1070] and back [1084] exterior walls surviving but no internal structures remained. The footings were on the same alignment and had similar dimensions as [1069] but were only 17.0m long as they had been truncated to the east by a later building [1082]. The footings were 4.5m apart and had no obvious construction cut into mixed yellow-brownish sand and rubble (1023).



Communal area and well (scale) with walls [1069], [1073] looking west Fig 14

The communal area between the terraced houses covered an area 22.0m long and 11.5m wide. No surface survived but the lack of domestic waste present would suggest one had existed and that it has been removed. A brick-lined well [1073] was located 6.0m away from the back external walls [1069] and [1084], 6.0m from the western site boundary. The well was 1.0m in diameter and was lined with un-mortared curved red bricks, 260mm long by 120mm wide and 80mm thick. It had been backfilled with mixed loose brick and silty sand.

To the east of the communal yard area a larger building with a frontage onto Penn Street had two cellars and possible boundary walls that extended back to the terraced houses. The cellars and boundary walls were constructed of orange-red bricks between 220-240mm long, 110mm wide and 75mm thick with no makers' marks and no frogs. A creamy white mortar 10-15mm thick had been used to bond the brickwork.

The internal dimensions of the cellars [1079] were 4.5m long by 3.0m wide, the walls consisting of two courses of brick 0.24m thick. A 1.0m gap separated the front cellar from the back and there was no clear evidence of access to either. Test pit 4 identified a coal chute (Fig 11) in the eastern wall of the front cellar adjacent to the street front. Both had been infilled with loose sandy rubble with scraps of metal and plastic present.

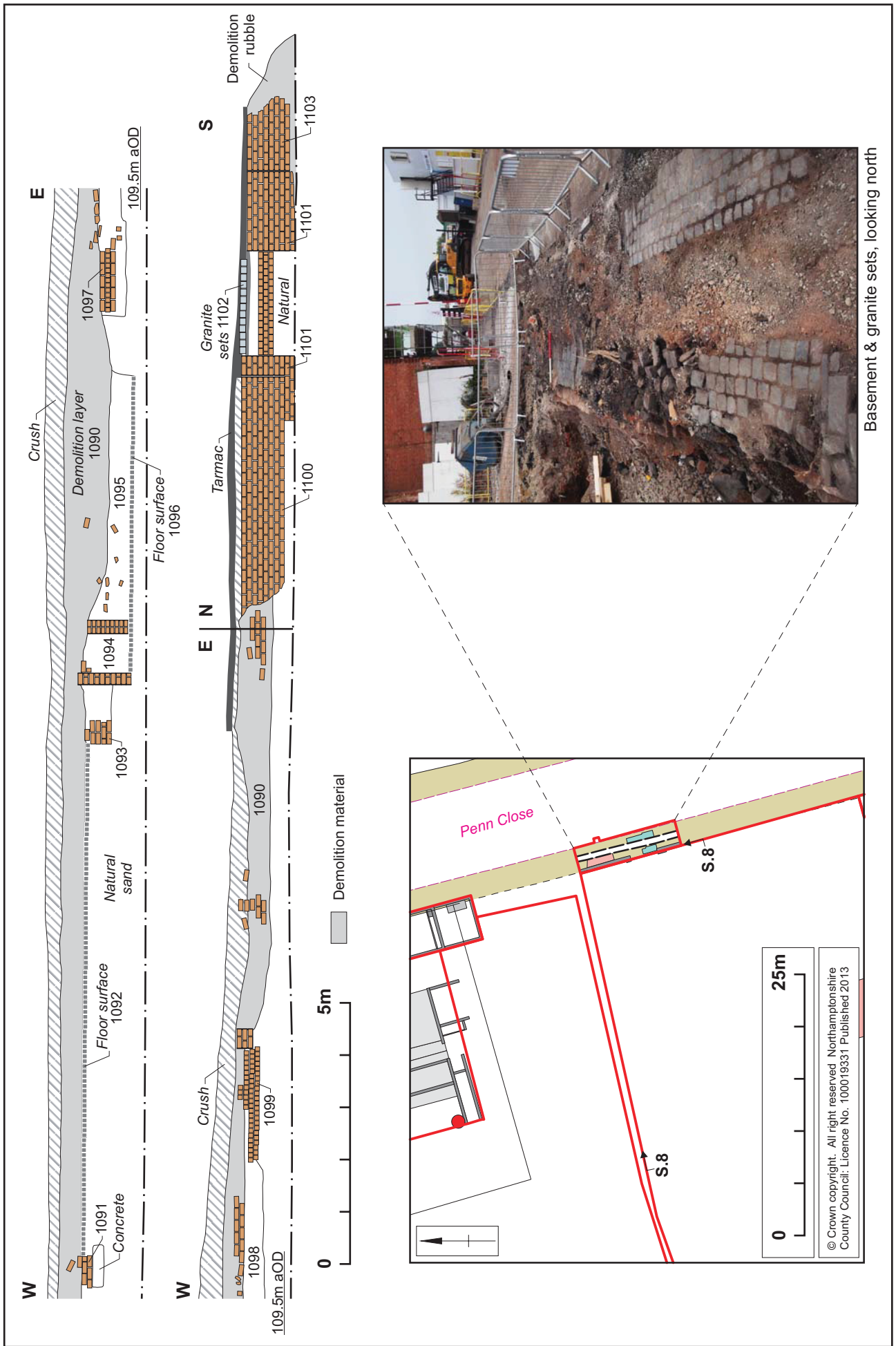
The boundary walls [1078] to the north and [1076] to the south were constructed of similar bricks and was also two courses wide. They were aligned east-north-east to west-south-west and were 30.0m long although [1078] had been partially truncated by a modern concrete base. Wall [1076] was observed in test pits 20 and 21.

Ordnance Survey Map 1:500, 1889

The central area had been reduced by 2.0m to a level of 109.5 aOD to accommodate the natural slope of the site into the development. On the north-east edge the south and west facing baulks (section 8, Fig 15) contained a cross-section of brick built buildings that were perpendicular from Penn Street. They appear on the Ordnance Survey map 1889 (Fig 4) with a small street enclosed by a second row of buildings to the south. The street represented part of a continued infilling of the site after the initial 1850's development.

In the west facing baulk the exterior wall [1100] along Penn Street was 5.0m long by 0.8m in height. It had a stretcher bond design and was aligned north-north-west to south-south-east, parallel to the street. It was constructed from eight courses of orange-red bricks, each 240mm long by 110mm wide and 80mm thick. The lower three courses were stepped forming the foundation. At the south end of the wall there was an entrance [1101] that would have provided access to the buildings behind. The entrance consisted of two brick piers 0.5m wide that were spaced 2.0m apart and connected by three courses of brick 0.45m up from the base. Between the piers 0.14m above the connecting brickwork, 100mm granite setts [1102] were bedded into coarse sand. A wall [1103] mirrored [1101] to the south of the entrance and was 2m long. The remains were overlain by a grit levelling layer 0.1m thick and a modern tarmac street surface. These surface layers, when removed, revealed a blue engineering brick pavement (Fig 15) along Penn Street that stopped at the entrance [1101] where more granite setts were present, behind [1102].

In the south facing baulk the buildings only partially survived at foundation level and it was unclear to what structures they were related. The Ordnance Survey Map identifies four buildings in the row, the largest being at the west end and was present in the baulk 34.0m west of Penn Street. The western exterior wall [1091] was built on a concrete base that was 0.8m long by 0.6m wide and 0.2m thick, with three courses of orange-red bricks, measuring 240mm long by 110mm wide and 80mm thick.



Basement & granite sets, looking north

A floor surface [1092] of blue engineering bricks was a single layer of bricks thick, laid on edge as headers that butted up to [1091] level to the second course. The brick dimensions were 240mm long by 100mm wide and 70mm thick, and the surface was 9.5 m long. The eastern corresponding wall [1093] had no concrete base but had an additional two courses of brick below the level of surface [1092].

The next building to the east had been constructed 0.5m lower than the base of [1093] at a height of 109.5 aOD. This was likely to accommodate the natural slope of the hill. The western wall [1094] was 0.25m thick with nine courses of brick alternating between stretchers and headers 1.1m in height. A blue engineering brick floor surface [1096] of similar construction to [1092] butted up to the west side of [1094] and was 5.6m long. A mixed brick rubble backfill layer (1095) overlay the floor surface and was 0.45m thick. The east end of the building was not visible in the section.

The remaining two buildings to the east were heavily truncated and only survived as isolated brickwork [1097], [1098] and [1099] with no associated floor surfaces.

The entire length of these buildings had been truncated at a height 110 aOD when the site was cleared. A layer (1090) of demolition was spread over the area to a maximum thickness of 0.5m to level the ground off. The layer contained mixed broken brick, concrete and roof slate along with modern broken glass and copper pipe. The newly laid piling mat of crushed stone covered the area to a depth of 0.3m.

4.5 Post-medieval industrial buildings

The eastern area of the site between Penn Street and the canal had been left open during the construction of the domestic properties in the 1850s. Over the next thirty years an industrial area was established and on the Ordnance Survey Map 1:500, 1889 a crucible and firebrick factory with a saw mill to the south occupied the northern area. The southern area was dominated by a canal side wharf and a series of buildings along Penn Street and Curzon Street that are unidentified on the map (Fig 4).

The development in the south-east area involved construction of a pile mat at 107.23 aOD on the eastern edge of Penn Street and the excavation of a large Biomass pit 7.0m deep with battered sides, adjacent to the canal.

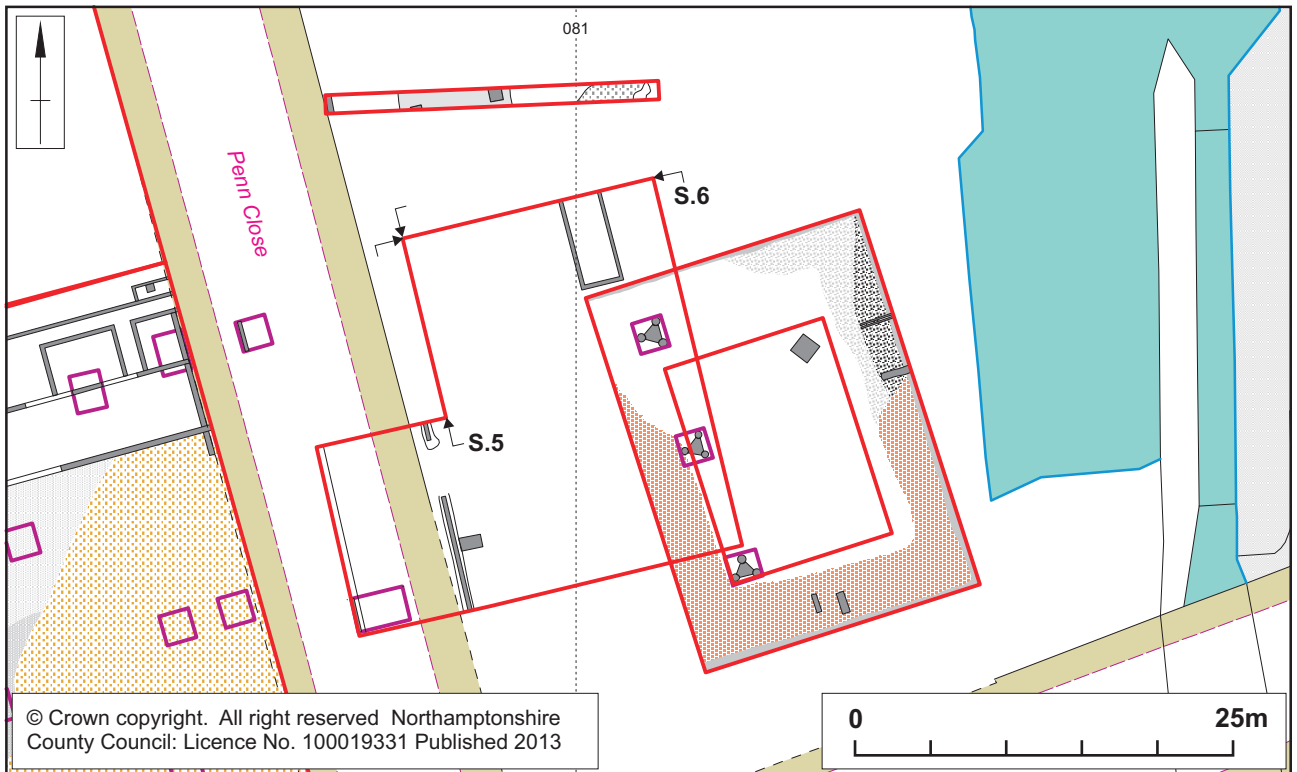
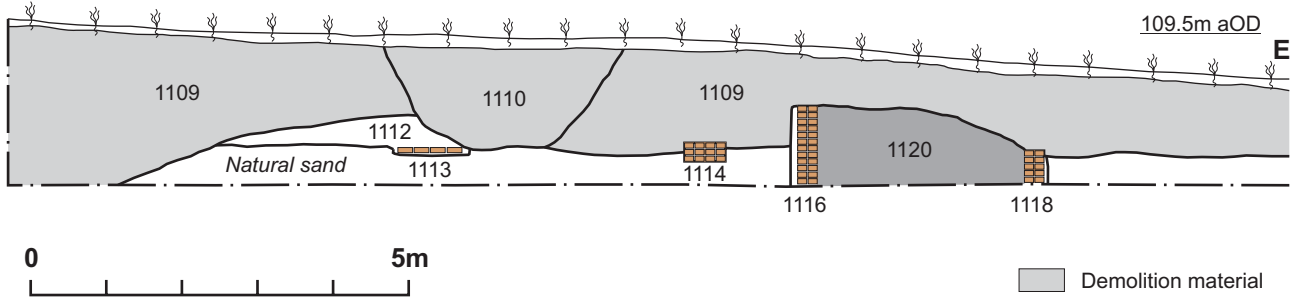
The pile mat saw a ground reduction of up to 2.0m and went through layers of sandy rubble demolition. The only structural remains surviving were a cellar on the northern edge and a large wall with an entranceway parallel to the east side of Penn Street.

The rectangular cellar extended beneath the northern baulk and was aligned north-north-west to south-south-east. The visible remains were 6.0m long by 3.0m wide and were constructed from three brick walls [1116-1119] that were two courses thick. The bricks were orange-red, 250mm long by 100mm wide and 80mm thick, bonded with Portland cement. The cellar was filled with a coal residue (1120) seen in the section to be over 1.0m deep (Fig 16). The area had been heavily truncated and a 2.0m thick demolition layer (1109) has been levelled over the entire area.

It is likely the cellar belonged to one of the large buildings that extended out into the central area of the wharf (Fig 4).

Section 6

W



The walls [1126] and [1128] were either side of an entrance way onto Penn Street and aligned north-north-west to south-south-east (Fig 17). Wall [1128] to the south of the entrance was constructed from red bricks, 230mm long by 110mm wide and 80mm thick. It was three courses wide and 8.0m long, built on a concrete base 0.7m wide and had very little Portland cement mortar <10mm. The entrance had no structural remains but consisted of a gap 5.0m wide before wall [1126] continued for 2m along Penn Street. Wall [1126] was a different construction to [1128] and consisted of two courses of blue engineering bricks, 240mm long by 112mm wide and 80mm thick. It did not appear to be on a concrete base but that may have been at a lower depth.

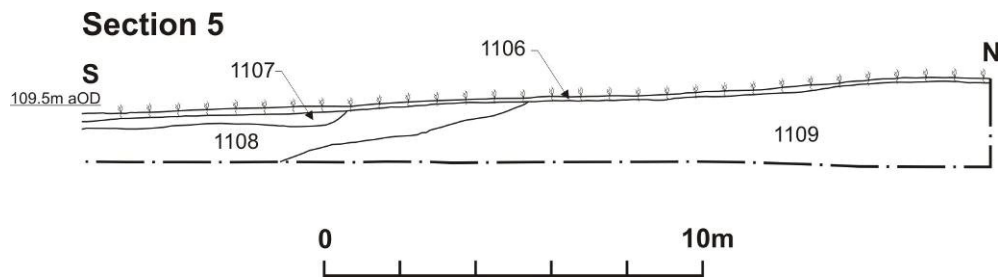


Entrance to buildings on east side of Penn Street, looking east

Fig 17

The rest of the buildings have not survived and modern truncation has occurred to depths below 107.5m aOD. The ground had been levelled with demolition layers (1107-1109) containing brick and concrete rubble ranging from 0.15m to 2.0m thick (section 5, Fig 18).

The walls and entrance relate to a large rectangular building at the south end of Penn Street on the Ordnance Survey Map, 1889.



Truncation deposits in south-east area (Section 5), scale 1:200

Fig 18

The Biomass pit to the east of the pile mat and adjacent to the canal was 30.0m long by 20.0m wide (Fig 19). Surviving structural remains were present on the southern and eastern edges with heavily truncated ground present on all sides apart from the north-west corner. With a depth of 7.0m the pit truncated the geological horizons to around 105.1m aOD.

In the north-east corner there were industrial residues (1131) present to a depth of 1.6m, covering an area approximately 10.0m squared. The deposit contained mostly coal residue mixed with 20% ashy sand. Set into the top of this deposit at the northern end, a small brick-lined drain [1130] partially survived on an east to west alignment 0.4m wide and 2.0m long. The bricks were fragmented and un-mortared, laid on a thin concrete base 50mm thick. To the south of this on the same alignment there was a concrete chute [1129] 0.5m wide by 1.6m long with a wide, shallow concaved profile 20mm deep. It is unclear for what purpose they were used but it is likely that they were associated with the later stages of the wharf.

The two walls [1132] and [1133] on the southern edge of the pit were both aligned north to south, 1.2m apart. It was not possible to make any detailed measurements as they were uncovered whilst the angle of the battering for the slope was being altered to reach a greater depth. They were likely part of the buildings along Curzon Street depicted on the 1889 map.

The entire area has suffered heavy truncation, present from the current ground surface at 108.1m aOD to a depth of 3.0m. Deposit (1134) was a mixed sandy rubble backfill that contained fragments of wall and broken concrete slabs that was likely spread over the area after the site had been demolished. Within (1134) a 1.3m concrete block that had an iron linked chain running through the centre was found. The chain was wrapped around a 1.0m crowbar set into the base with loose ends protruding from the top. It is possible that the chain enabled the concrete block to be suspended and would have been used as a crane weight to counter balance the materials being loaded and unloaded on the canal (Fig 20).



Biomass pit, looking north-west

Fig 19



Crane weight with linked iron chain

Fig 20

To the north of the Biomass pit a length of trench was dug, 1.4m wide by 22.0m long and 1.2m deep, for a sewer diversion (Fig 7). It had a wall [1124] at the east end which ran parallel with Penn Street. Constructed of two courses of blue engineering bricks, 250mm long by 120mm wide and 90mm thick, bonded by grey cement it survived to a height of 1.0m. Two brick pier bases were present in the base of the trench. Base [1123] was 5.0m east of wall [1124] and constructed from orange-red bricks, 240mm long by 110mm wide and 80mm thick. The base was a 0.8m square with three stepped courses of brick leaving a 0.6m square pad. Base [1122] 4.5 m to the east was similarly constructed and likely part of building footings associated with cellar walls [1116-1119]. These remains were sealed beneath a mixed brick and sand rubble demolition layer (1036) that was 0.6m thick.



Pier base [1122] below demolition (1036), looking north

Fig 21

4.6 Possible evidence of World War II?

During construction of a core foundation along the south-west frontage what appeared to be a collapsed cellar was present at 107.9m aOD (Fig 7 and 22). It consisted of a small brick-constructed niche [1068] 1.4m wide 0.7m high and 0.4m deep. It was unclear what function this had as it was sealed by a layer of re-deposited sand (1089) 0.15m thick with 10% medium cobble stone inclusions that served as bedding for a quarry tile floor surface [1067]. The quarry tiles were 230mm by 230mm and 45mm thick and covered by a coal residue (1065) that appeared to contain crushed domestic items.



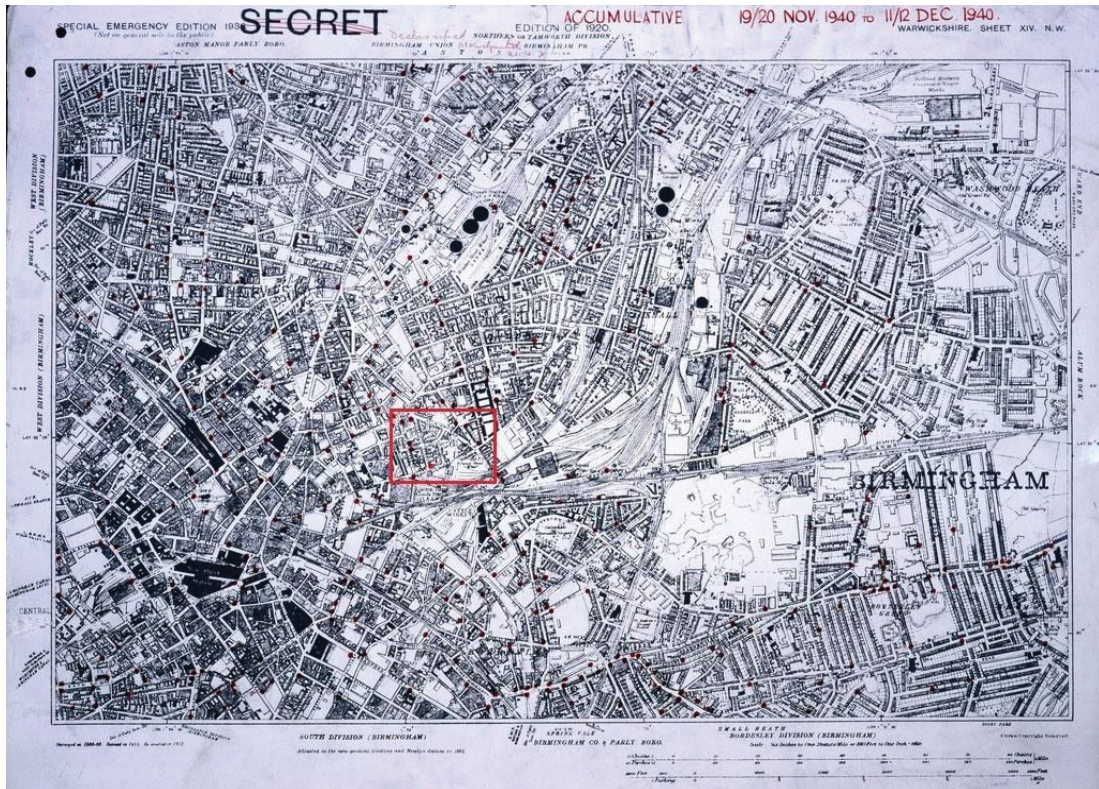
Collapsed cellar, looking north-west

Fig 22

Wall [1066], lying horizontally, appeared to have fallen to the east from the footings visible on a north-north-west to south-south-east alignment and constructed from orange-red brick alternating courses between headers and stretchers with an outer skin of single brick. The brick dimensions were 240mm long by 110mm wide with no frogs. A crushed steel bucket lay beneath it (to right of 1.0m scale in Figure 22).

A possible reason for this can be seen on a bomb census map (Figs 23 and 24) showing the extent of German air raids on Birmingham in November and December 1940, produced by the Research and Experiments Department of the Ministry of Home Security. The site is highlighted with a red rectangle and the map indicates nine bomb locations within this area. In the south-west corner of the site near to the collapsed cellar there is a bomb location. The size and extent of the damage the bomb caused is not indicated but the proximity would suggest an explanation for the collapsed cellar.

The 1957 Ordnance Survey (Fig 6) map shows the western area of the site has been cleared of domestic buildings. This may also have been the result of damage caused during World War II as the Bomb Census map (Fig 23) only shows the amount of bombs dropped in one month and the actual damage could have been much more extensive.



Bomb Census Map, 1940

Fig 23



Close up view within site boundary Fig 24

4.7 Modern building remains

In the central south-west area a large 20th-century rectangular building, covering an area approximately 30.0m long by 20.0m wide, aligned north-north-west to south-south-east and perpendicular to Penn Street, had partially survived. It truncated the earlier 19th-century structures and was seen in test pits 12, 19, 22 and 24. The building had been constructed on a reinforced concrete slab 2.0m below ground level and the wall [1082] was three bricks thick and visible for 25.0m. The bricks were orange-red, 215mm long by 100mm and 65mm thick, with an unstamped frog. The structure was overlain by a 1.8m thick demolition deposit (1088) that contained large sections of broken concrete, bricks and rebar with broken plastic and glass present throughout.

5 THE FINDS

5.1 Worked flint by Yvonne Wolframm-Murray

The distal portion of a blade was recovered as an unstratified find. The raw material was a vitreous mid grey-brown coloured flint. The edges of the blade display small nicks along the edges. The worked flint is not directly dateable but its technological characteristics suggest a broadly Neolithic date (Fig 8).

5.2 The bottles, pottery and clay tobacco pipes by Tim Upson-Smith

A selection of bottles, pottery and two clay tobacco pipe bowls were recovered from the watching brief at Birmingham City University. The bottles comprise:

- A stoneware bottle stamped Denby and(stamp not clear)...., Derbyshire, Vitreous Stone Bottles, J.Bourne, Patenter, Warranted not to absorb;
- A clear glass bottle with raised lettering Mitchells & Butlers Ltd Birmingham;
- An unmarked clear bottle; and
- A 4 oz brown glass Bovril Limited jar.

The pottery consists of elements of ceramic jam pot, (unmarked) and pancheon.

The two clay tobacco pipe bowls are both plain and unmarked, one has a spur, and both date to the late 19th century.

The finds were not stratified and they all date to between the late 19th century and early 20th century comprising elements of domestic waste (Fig 25).



Bottles and clay tobacco pipes

Fig 25

5.3 Brick by Pat Chapman

Five complete different bricks came from the demolition debris (1090) (Table 2; Fig 26). Three are firebricks, one is a building brick and one other.

One firebrick, 226x110x78mm, with a rectangular frog with a flat base has been stamped STOURBRIDGE. It is made with a white clay fabric with one stretcher white glazed. All other surfaces have cement adhering to them, and the cement underneath carries a central square prominence from the indentation in another brick. Stourbridge is an area noted for refractory bricks that can resist very high temperatures, and this brick would date from the mid 19th century onwards.

A larger firebrick, 240x116x75mm, has a rectangular frog with a V-shaped section with PYRAMID stamped on it. The base has a very shallow flat rectangular frog. The brick is made from white clay with pale orange-pink on part of the surfaces. Two bricks with a PYRAMID stamp were recorded at Kidderminster, in Worcestershire and had been added to the online brick index from a building recording report (www.penmorfa.com/bricks/england18.html). A search of the Archaeology Data Service (ads.ahds.ac.uk), the Online Archaeology Library of Worcestershire County Council (worcestershire.gov.uk/sites/archaeology) and general internet search failed to locate the origin of this stamp or the brickmakers.

One black clay brick, 245x125x46mm, has a very shallow rectangular frog with two shallow rectangular recesses set slightly in. Two recesses in a frog are not uncommon, although they are often stamped with a name or device. The dense heavy black fabric had been subject to very high temperatures as it shows signs of vitrification.

The plain brick, 228x100x80mm, is made from black clay that has started to vitrify. There is cement on all surfaces. A tiny piece of iron is fused onto one header.

A Fletton brick, at 213x100x67mm almost the standard British brick size of 215x102.5x65mm, has a deep rectangular frog with a MARSTON stamp. It is made of reddish clay with a buff/yellow skin in places. Marston Vale is an area of Bedfordshire with Oxford Clay and the first local Fletton brickworks opened in 1897. In the early 1930s the Marston Vale Brick Company arrived. By the 1970s the London Brick Company owned all the brickworks. The last brickworks closed in 2008 (www.centralbedfordshire.gov.uk).



Bricks from the demolition (1090)

Fig 26

The Stourbridge and Pyramid bricks could be late 19th century in date, together with the plain brick. The white glaze indicates a use in an area required to be kept clean, such as a kitchen, toilets or specialised working area of some sort. The Fletton building brick is post World War Two in date and perhaps was never used as there is no cement or signs of wear. The black brick was probably used as a facing brick.

Table 2: Brick dimensions

Brick	Dimensions mm (inches)	Description
Marston	213 x 100 x 67 (8 ³ / ₈ x 4 x 2 ⁵ / ₈)	Fletton building brick
Stourbridge	226 x 110 x 78 (8 ⁷ / ₈ x 4 ³ / ₈ x 3 ¹ / ₈)	White firebrick
Plain	228 x 100 x 80 (9 x 4 x 3 ¹ / ₈)	Black structural brick
Pyramid	240 x 116 x 75 (9 ¹ / ₂ x 4 ⁵ / ₈ x 3)	White firebrick
Indented brick	245 x 125 x 46 (9 ⁵ / ₈ x 5 x 1 ³ / ₄)	Black, very hard wearing



Inscription fragment, scale 100mm

Fig 27

A fragment of concrete with part of a metal inscription still embedded in it was also retained. There is an S in the concrete and a metal bar with B ' H A M (apostrophe included) attached (Fig 27).

6 THE SITE ARCHIVE

The project has generated a small archive comprising:

RECORD	NUMBER
Watching brief forms	51
Black and white negatives	546
Digital photographs	620

The archive will be consolidated and prepared for deposition. This will be held with Northamptonshire Archaeology until such time as a suitable depository has been appointed.

7 DISCUSSION

The watching brief evaluation has confirmed the historic map evidence covering the site and local area and although the archaeological remains surviving had been heavily truncated by later activity it was possible to determine the site layout and development. No industrial waste products were identified although coal storage deposits were present

The earliest evidence of activity was a residual worked Neolithic flint that has likely been moved around the site during development in the 1850s onwards and has no real significance to the site.

The site had remained as open fields, parkland and gardens until the mid-19th century, being used for a low impact agricultural practice outside the medieval town of Birmingham. The buried soils found within the site boundary were localised to a small area in the south of the site and are unlikely to survive to any extent within the local vicinity as later development has truncated the natural stratum by two metres or more.

In the 1850's the area was developed with the construction of domestic housing and a public house in the west with a quick infilling and additional industrial buildings to the east over the next thirty years. The remaining walls and floor surfaces were typical of the period and are seen throughout the midlands.

The pottery was consistently late 19th century with glassware, printed blue and white china and clay tobacco pipe stems.

The site remained relatively unchanged until the 1940s where sufficient bomb damage during World War II may have required the site to be cleared leaving only the industrial buildings to the east. These were then demolished in the later half of the 20th century

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