



Hollis Croft, Sheffield South Yorkshire

Strip, Map and Record, Evaluation and Watching Brief



Planning Ref: 16/02910/FUL/
Ref: 116361.09
June 2019



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Document Information

Document title Hollis Croft, Sheffield, South Yorkshire
Document sub title Strip, Map and Record and Watching Brief
Document reference 116361.09
Other project-related codes 116360,116362 and 209620
Client name Johnson Associated (UK) Ltd
Address 85 St. Leonards Road
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On behalf of PBSE RE2 Holdings Sarl
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Site location Land at Hollis Croft and Garden Street, Sheffield
County South Yorkshire
National grid reference (NGR) 434990 387580

Planning authority Sheffield County Council
Planning reference 16/02910/FUL/
Museum name Museums Sheffield
Museum accession code TBC
Dates of fieldwork 30 March to 10 December 2017
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Quality Assurance

Issue & issue date	Status	Author	Approved by
1	Internal draft	SAB, EC, MR	
2	External draft	AWT	
3 3/06/2019	Final	AWT	



Contents

Summary	vii
Acknowledgements.....	ix
1 INTRODUCTION	10
1.1 Project background.....	10
1.2 Scope of the report	10
1.3 Location, topography and geology	11
2 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND.....	11
2.1 Introduction.....	11
2.2 Prior to 18th century	11
2.3 Early 18th century.....	11
2.4 Late 18th century overview	13
2.5 John Kenyon and Co.	14
2.6 John Harrison and Son plot	22
2.7 Other names on Fairbank plan of 1787–9.....	26
2.8 Diamond Works	29
2.9 Mid-19th century.....	30
2.10 Late 19th century.....	34
2.11 20th century.....	34
2.12 Listed buildings.....	35
2.13 Geotechnical works	35
2.14 Previous archaeological works in the vicinity	35
2.15 Previous works related to the development.....	35
3 AIMS AND OBJECTIVES.....	36
3.1 Aims	36
3.2 Objectives.....	36
4 METHODS.....	37
4.1 Introduction.....	37
4.2 Fieldwork methods.....	37
4.3 Artefactual and environmental strategies	38
4.4 Monitoring.....	38
5 RESULTS.....	39
5.1 Introduction.....	39
5.2 Area A	39
5.3 Area B	41
5.4 Area C	43
5.5 Area D.....	45
5.6 Area E/F	49
5.7 Area G	62
5.8 Area H	63
5.9 Area I.....	64
5.10 Area J.....	67
5.11 Area K	67
5.12 Watching brief Test Pits	70
6 ARTEFACTUAL EVIDENCE	73
6.1 Introduction.....	73
6.2 Pottery.....	73
6.3 Ceramic building material (CBM)	78
6.4 Clay tobacco pipes	78



6.5	Glass	88
6.6	Metallurgical process residues, crucibles and metal items	89
6.7	Other metal objects.....	94
6.8	Leather	94
6.9	Animal bone.....	95
6.10	Marine shell	96
7	ENVIRONMENTAL EVIDENCE.....	98
7.1	Introduction.....	98
7.2	Aims and methods.....	98
7.3	Results	99
7.4	Environmental evidence discussion	99
8	DISCUSSION	99
8.1	Cementation furnaces.....	99
8.2	Crucible furnaces.....	102
8.3	Flue system	103
8.4	Summary of other structures including domestic housing and public houses	104
8.5	Relationship of domestic and industrial areas	105
8.6	Fulfilment of aims.....	105
8.7	Research frameworks.....	106
8.8	Recommendations (updated project design).....	106
8.9	Conclusion.....	107
9	STORAGE AND CURATION.....	108
9.1	Museum.....	108
9.2	Preparation of the archive.....	108
9.3	Selection policy.....	108
9.4	Security copy	109
9.5	OASIS	110
10	COPYRIGHT	110
10.1	Archive and report copyright	110
10.2	Third party data copyright	110
	REFERENCES	111
	APPENDICES	120
	Appendix 1: Context descriptions.....	120
	Appendix 2: Pottery by context	144
	Appendix 3: Clay tobacco pipes by context.....	158
	Appendix 4: Glass/bottle stoppers by context.....	161
	Appendix 5: Metallurgical process residues, crucibles and metal items by context	165
	Appendix 6: Petrographic and SEM-EDS analysis of furnace chest residue and crozzle ...	170
	Appendix 7: Catalogue of Leather	174
	Appendix 8: Environmental Data.....	176
	Appendix 9: OASIS form	177
	Appendix 10: Catalogue of early 1850s activity at Hollis Croft.....	180

Figures

- Fig. 1 Site location and evaluation trial trench, strip, map and record area and watching brief
Test Pit locations
- Fig. 2 Plan of Area A showing materials
- Fig. 3 Plan of Area A showing phasing



- Fig. 4 Plan of Area A overlaid on Fairbank plan of 1787–9
Fig. 5 Plan of Area A overlaid on Ordnance Survey map of 1853
Fig. 6 Plan of Area A overlaid on Ordnance Survey map of 1890
Fig. 7 Sections of Area A:
7.1 Pit 904
7.2 Layers cut by drain 929 including layer 924
Fig. 8 Plan of Area B showing materials
Fig. 9 Plan of Area B showing phasing
Fig. 10 Plan of Area B overlaid on Fairbank plan of 1787–9
Fig. 11 Plan of Area B overlaid on Ordnance Survey map of 1853
Fig. 12 Plan of Area B overlaid on Ordnance Survey map of 1890
Fig. 13 Plan of Area C showing materials
Fig. 14 Plan of Area C showing phasing
Fig. 15 Plan of Area C overlaid on Fairbank plan of 1787–9
Fig. 16 Plan of Area C overlaid on Ordnance Survey map of 1853
Fig. 17 Plan of Area C overlaid on Ordnance Survey map of 1890
Fig. 18 Plan of Area D showing materials
Fig. 19 Plan of Area D showing phasing
Fig. 20 Plan of Area D overlaid on Fairbank plan of 1781
Fig. 21 Plan of Area D overlaid on Ordnance Survey map of 1853
Fig. 22 Plan of Area D overlaid on Ordnance Survey map of 1890
Fig. 23–25 Plan of Area E/F showing materials
Fig. 26–28 Plan of Area E/F showing phasing
Fig. 29 Plan of Area E/F overlaid on Fairbank plan of 1781/1787–9
Fig. 30 Plan of Area E/F overlaid on Ordnance Survey map of 1853
Fig. 31 Plan of Area E/F overlaid on Ordnance Survey map of 1890
Fig. 32 Sections of Area E/F:
1 Profile showing curving wall 2070, flue 2071–2073, cellars 2074 and 2077, structures 2093 and 2096, and wall 2097
2 East stoke hole of northern cementation furnace
3 Gap between inner (2040) and outer (2039) structures of cementation furnace
4 Section through north chest of south cementation furnace showing early crozzle 1545
Fig. 33 Sections of Area E/F:
5 Access cellar 2123 and associated contexts
6 Early walls 2103 and 2098 below wall 2097 and machine bases 2100
7 Flue 2149 with iron ‘guillotine’-style door fitting 2184
8 Cellar 2112 with chimney wall 2014 and later wall 2105
Fig. 34 Plan of Trench G:
A Late 19th Century/Early 20th Century phase showing materials
B 20th Century phase showing materials
Fig. 35 Plan of Area G overlaid on Ordnance Survey map of 1890
Fig. 36 Plan of Area H showing materials
Fig. 37 Plan of Area H showing phasing
Fig. 38 Plan of Area H overlaid on Fairbank plan of 1787–9
Fig. 39 Plan of Area H overlaid on Ordnance Survey map of 1853
Fig. 40 Plan of Area H overlaid on Ordnance Survey map of 1890
Fig. 41 Plan of Area I showing materials
Fig. 42 Plan of Area I showing phasing
Fig. 43 Plan of Area I overlaid on Fairbank plan of 1787–9
Fig. 44 Plan of Area I overlaid on Ordnance Survey map of 1853
Fig. 45 Plan of Area I overlaid on Ordnance Survey map of 1890
Fig. 46 Sections of Area I:

- 1 Deposits 1136 and 1131 and construction cuts 1133 and 1134 beneath floor 1109
 - 2 Section showing structures 1107, 1108 and 1111
- Fig. 47–48 Plan of Area K showing materials
- Fig. 49–50 Plan of Area K showing phasing
- Fig. 51 Plan of Area K overlaid on Fairbank plan of 1787–9
- Fig. 52 Plan of Area K overlaid on Ordnance Survey map of 1853
- Fig. 53 Plan of Area K overlaid on Ordnance Survey map of 1890
- Fig. 54 Section of Area K: Construction cut 1238 for wall 1233
- Fig. 55 Plan of watching brief Test Pit 18
- Fig. 56 Plan of watching brief Test Pits 3A and 18 overlaid on Ordnance Survey map of 1853
- Fig. 57 Plan of watching brief Test Pits 3A and 18 overlaid on Ordnance Survey map of 1890
- Fig. 58 Clay Pipe Figures 1–10
- Fig. 59 Clay Pipe Figures 11–22
- Fig. 60 Cementation furnace fire bar
- Fig. 61 Photographs of the chest furnace samples 2139 and 1515 from Hollis Croft analysed in this report. Analysed areas indicated by yellow box.
- Fig. 62 Thin section and SEM photomicrographs of chest furnace sample 2139 from Hollis Croft analysed in this report. sample. PPL = plane polarised light, XP = crossed polars. D-F taken in backscattered electron imaging mode. Scale bars A = 2 mm, B, C = 0.2 mm.
- Fig. 63 Thin section and SEM photomicrographs of chest furnace sample 1515 from Hollis Croft analysed in this report. sample. PPL = plane polarised light. D-F taken in backscattered electron imaging mode. Scale bars A-C = 2 mm.
- Fig. 64 Thin section and SEM photomicrographs of 'crozzle' sample from Hollis Croft analysed in this report. sample. PPL = plane polarised light, XP = crossed polars. D-F taken in backscattered electron imaging mode. Scale bars A = 2 mm, B, C = 0.2 mm.
- Fig. 65 Ternary diagram showing the chemical composition of chest furnace samples 2139 and 1515 analysed from Hollis Croft analysed in this report, compared with those of a Sheffield Huntsman crucible and other earlier metalworking crucibles (Freestone and Tite 1986), plus 18th century steel making crucibles from Sheffield (Quinn 2013b) and Derwentcote (Andrews et al. 2017). Modified from (Andrews et al. 2017, fig. 9, p. 61).

Plates

- Cover Working shot of Area E/F from the south-west
- Plate 1 Cementation furnaces (not the same as those excavated) at Hollis Croft from Footprint Sheffield archive. View probably from the east
- Plate 2 Cementation furnaces (not the same as those excavated) at Hollis Croft from Footprint Sheffield archive. View probably from the north-east
- Plate 3 Cementation furnaces at Hollis Croft from Footprint Sheffield archive. These are not the same furnaces as those excavated. View from the west
- Plate 4 Rubbish pit 904 from the west
- Plate 5 Walls 913, 914 from the south-west
- Plate 6 Wooden beam or plank shoring 912 within foundation cut 910 from the north
- Plate 7 Overview of eastern end of Area A from the south-west
- Plate 8 Wall 3006 with sockets for wooden floor joists from the east
- Plate 9 Western end of Area A with possible pit 908 at bottom right. From the north
- Plate 10 Wall 1017 from the east
- Plate 11 Structures 1004, 1008 and 1013 (foreground) with 1032 and 1035-1037 (background) from the north
- Plate 12 Pit 1033 machined to full depth from the east
- Plate 13 Wall 1006 from the south



- Plate 14 Area C showing relative elevations from the east
Plate 15 Area C showing overview from the south-east
Plate 16 Area C showing chimney 1618, 1625–1628, 1630 and 1631 from the north-west
Plate 17 Structure 1631 from the north-east
Plate 18 Walls 1705, 1707, 1712-1715, 1718 and 1722 from north-east prior to removal of red brick structure 1711 and setts 1709
Plate 19 Wall 1723 and associated contexts from the east
Plate 20 Cellar vaults 1734 and 1735 and associated contexts the south-east
Plate 21 Bull nosed bricks ends on wall 1736 and vault 1735 and modern wall 1753 from the south-east
Plate 22 Crucible furnace 1757–1764 from the east
Plate 23 Potential additional crucible hole associated with furnace 1757–1764 from the south
Plate 24 Crucible furnace 1746–1750 from the north
Plate 25 Wall 1745 and associated structures with crucible furnace 1747–1750 in background from the north-west
Plate 26 Stakehole 2166 and foundation 2165 from the west
Plate 27 Early structures 2024 etc. (bottom left of shot) with stoke hole entrance (1529) at rear from the north-west
Plate 28 Overview of cementation furnaces from the south
Plate 29 South-east corner of outer conical chimney of south cementation furnace (2002/2003) from the south
Plate 30 Wall 2070 (lime mortared and curving towards scale) with flue (2071–2073) to left from the north-west
Plate 31 Arrangement of stoke hole entrances showing stoke hole entrance wall (2037) iron door 2047 and firebrick lintel 2051 from the west
Plate 32 Iron door 2047 detail from the west
Plate 33 Fire pit of north cementation furnace (3007) revealed during watching brief from the north
Plate 34 Relationship between fire bars and stoke hole entrance door 2047 revealed during watching brief from the east
Plate 35 Longitudinal bars seen on edge of fire pit and decommissioning stone 3010 (at rear) from the east
Plate 36 North-east part of northern furnace separated from rest of furnace by truncation showing foundation 2036 from the east
Plate 37 West part of north furnace (furnace continues beyond truncation at left of photograph) from the north
Plate 38 West part of south furnace (furnace continues beyond truncation at left of photograph) from the north
Plate 39 Truncated section across north furnace from east showing impression of ferrous bars in surface of the crozzle
Plate 40 Section through north chest of south cementation furnace showing early crozzle layer 1545 from the north (see also Fig. 30)
Plate 41 Overview of cellars accessing cementation furnaces on west side of furnaces from the south
Plate 42 Structures 2103 and 2098 overlain by wall 2097 and thresholds 2100 from the south
Plate 43 Far north-east of Area E/F including wall 2060 etc, from the east
Plate 44 Far north-west of Area E/F including drain 2052 etc. from the west
Plate 45 Cellar 3017 recorded during watching brief from the south-east
Plate 46 Surfaces 2089 and 2090 and associated contexts with boundary wall 2091 and truncating wall 2020 in bottom left and southern limit of south furnace in bottom right from the north
Plate 47 Wall 2163 from the west
Plate 48 Northern cellars and flues from the west



- Plate 49 South end of cellar 2041 built in to earlier cellar 2046 from the south
Plate 50 Opening in west side of cellar 2041 (removed) seen during watching brief from the east
Vaulting 2074 is visible at right of shot
Plate 51 Small communication between cellars 2074 and 2077 seen during watching brief from
north. Vaulting 2041 is visible at left of shot
Plate 52 Firebrick surface 2095 from the east
Plate 53 Flue 2080–2083 and associated structures from the north
Plate 54 Concrete base 2172 and associated flue structures from the south
Plate 55 Flues 2149 and 2145 from the south
Plate 56 Decommissioning structure 2048 (foreground), vaulting 2046 (centre) and walls 2067,
2069, 2068 (left to right). From the east
Plate 57 Floors 1509, 1510 and 1512 cut through deposit 1513 in east of Area E/F from west
Plate 58 Overview of Area G from the south-east
Plate 59 Bay at west of Area G from the west
Plate 60 Overview of Area H from the west
Plate 61 Flue 1405 from the north-east
Plate 62 Exposed interiors of flues 1304/1305 and 1306 from the south-west
Plate 63 Structures in the north of Area I
Plate 64 Drain 1110/1125 from the east
Plate 65 Structures 1108, 1107 and 1106 in west section of Area I from the east
Plate 66 Overview of Area K from the north
Plate 67 Overview of Area K from the south
Plate 68 Cellar 1218–1221, 1239 and 1240 from the south-west
Plate 69 Watching brief 'Test Pit' 3A from the north-east
Plate 70 Watching brief 'Test Pit' 18 from the east
Plate 71 Watching brief 'Test Pit' 23 from the east
Plate 72 Crucible (base) used for copper alloy
Plate 73 Pottery and clay tobacco pipe from 905
Plate 74 Worked bone from 905 (1/2)
Plate 75 Worked bone from 905 (2/2)
Plate 76 Clay tobacco pipe from 1034
Plate 77 Pottery from 1034

List of Tables

Table 1: Pottery totals by Area (ENV = Estimated Number of Vessels)

Table 2: Bowl fragments from context 1704, by mould type

Table 3: Selected elemental analysis of chest furnace and crozzle samples from Hollis Croft,
obtained by SEM-EDS in this study. Expressed as percentage weight oxides and
normalised to 100%. Accuracy given for two certified reference materials (CRMs)

Table 4: Assessment of the charred plant remains and charcoal



Summary

Wessex Archaeology was commissioned by Johnson Associated (UK) Ltd ('the Client'), on behalf of GL Europe RE2 Holdings Sarl and Newmark Developments (Watkin Jones Group) to undertake a staged programme of archaeological mitigation works at Hollis Croft, Sheffield ('the Site'). The programme comprised watching brief, evaluation trial trenching and six strip, map and record excavations. The Site was centred on NGR 434990 387580, was located at Hollis Croft, Sheffield, South Yorkshire, S1 4BJ.

The archaeological strip, map and record excavation and subsequent watching brief successfully addressed the aims of the investigation as laid out in the Written Scheme of Investigation (Wessex Archaeology 2017a–d).

Documentary research has shown that development of the Site began in the 18th century, with workshops and steel furnaces present on the Site at least by the mid-18th century. Remains from the 18th century were fragmentary, and primarily comprised dwellings and pits in the west part of the Site and the Orange Branch public house in the north-east. Small fragments of wall probably survived from John Kenyon's 18th-century works. The impact of 18th-century activity at Hollis Croft was perhaps best preserved in the layout of the various plots.

The most significant result was the remains of two well-preserved mid-19th century cementation furnaces. The cementation furnaces were built in a uniform style indicating that they followed a well-developed design at a time when cementation furnaces were well understood. The refractory chambers ('chests') of the furnaces had been replaced; regular maintenance of the refractory chambers was a feature of the operation of cementation furnaces. Details of the furnaces were recorded, including the stoke hole entrance doors and the arrangement of 'fire bars' upon which fires were set in the underlying ash pits of the furnaces. It is likely that the cementation furnaces were constructed by Burgin and Wells when they took over the John Kenyon plot (later occupied by Footprint Tools) in the early 1850s or slightly before.

Metallurgical analysis supported the view that the refractory lining of the chests (the 'crozzle') was derived from 'wheelswarf' produced by edge tool grinding. For the first time in Sheffield, it was confirmed that this crozzle extended up the interior sides of the refractory chamber. Another apparently new observation is that of the impression of the ferrous bars in the surface of the crozzle layer.

Two crucible furnaces were identified, although one was badly preserved and the other was only identified under watching brief conditions at a late stage in the works. The crucible furnaces could not be closely dated. The crucible furnaces were part of separate works (W. Fearnough Ltd.) and there is no evidence to relate them to the cementation furnaces. Nonetheless, the presence of both types of furnace in close proximity underlines the interconnectedness of industrial trades in the great workshop of Sheffield.

To the north of the cementation furnaces was an area of slightly later development characterised by the use of black ash mortar rather than lime mortar. This area included extensive cellars supporting a network of flues. Speculatively, the flues may be related to a gas regenerator, to Bessemer process steelmaking or to some other activity.

Further industrial activity was recorded in the south and the south-east part of the Site in an area of expansion of the Thomas R. Ellin/Footprint Tools works. The south-east area contained the remains of flues and a machine base. Structures in an area to the north of Hollis Croft were enigmatic but may be industrial in nature.



Other areas relating to worker's housing and public houses were investigated. Remains in these areas were generally limited to walls, surfaces and drains although there was sometimes good correlation with historic maps allowing for the identification of some structures as outbuildings and others as more substantial developments. Residential properties were recorded in close association with the various works, attesting lives closely intertwined with the work of the steel industry.

The pottery assemblage was unusually broadly dated for Sheffield and represents a significant result. The clay tobacco pipe assemblage was of interest and examples of pipes were illustrated. A medieval penny was also recovered from a 19th century context.

The archive resulting from the work is currently held at the offices of Wessex Archaeology in Sheffield under the project codes 116360 and 116361 (watching brief, evaluation and strip map and record), 116362 (historic building recording) and 209620 (publication) and will be deposited with Museums Sheffield under an accession code. The museum has agreed in principal to accept the material.

The finding of the excavation will be published as an academic article to disseminate the results to an academic audience and as a comic book (using fictional narrative with factual characters set in a factual and reconstructed historical and archaeological context and local landscape) to distribute the results to the wider public. Digital site archive will be deposited with Archaeology Data Service (ADS). The academic article and the comic book will be published with Internet Archaeology. The academic article, the comic book and the digital archive will be linked, preserved and curated long term. They will have uniform resource locator (URL) and/or digital object identifier (DOI) and will be fully citable, free to access and download.

An OASIS record, wessexar1-309354, has been completed for the entire work.



Acknowledgements

Wessex Archaeology is grateful to Johnson Associates (UK) Ltd who commissioned the work on behalf of GL Europe RE2 Holdings SARL and Newmark Developments (Watkin Jones Group). Gavin Johnson (Johnson Associates Ltd), David Elias (Johnson Associates Ltd), Stephen Rugby (BSRE Group) and Michael Edgar (DLP Consultants) are thanked for their assistance throughout the project so are Peter Garratt, Mike Flynn and Mike Roberts from Watkins Jones Group who provided on-site support. The assistance of Dinah Saich, principal archaeologist for South Yorkshire Archaeology Service, is gratefully acknowledged. The cooperation during the watching brief of the client's sub-contractors Gill Demolition and 4-D Construction was appreciated. Thanks are extended to the Jewitt family (Footprint Sheffield Limited), for their invaluable knowledge of the 20th century Hollis Croft, steel production and for making the Footprint Tools archive available and particularly to Penny Jewitt, for her work on the family archive. Our thanks are also due to Internet Archaeology's editor Judith Winters and to Tim Evans from ADS.

Ashley Tuck, Sam Bromage, Emma Carter and Milica Rajic wrote the text of the report. Illustrations were by Ian Atkins incorporating work by Chris Breeden, Joanna Debska and Jack Fox Laverick. Specialist reports were provided by C G Cumberpatch (pottery), Dr S D White & Dr D A Higgins (clay tobacco pipe), Dr R Mackenzie (metallurgical residues, crucibles and metal items), Dr P S Quinn (petrographic and SEM-EDS analysis of furnace chest residue and crozzle), L Higbee (animal bone), L Mepham (all other finds), I López-Dóriga (environmental samples) and Ashley Tuck (archive research).

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Hollis Croft, Sheffield, South Yorkshire

Strip, Map and Record and Watching Brief

1 INTRODUCTION

1.1 Project background

1.1.1 Wessex Archaeology was commissioned by Johnson Associated (UK) Ltd ('the Client'), on behalf of GL Europe RE2 Holdings Sarl, and Newmark Developments (Watkin Jones Group) to undertake a staged programme of archaeological mitigation works at Hollis Croft, Sheffield ('the Site'). This programme comprised a watching brief, evaluation trial trenching and six strip, map and record excavations. The Site was centred on NGR 434990 387580 at Hollis Croft, Sheffield, South Yorkshire, S1 4BJ (**Fig. 1**).

1.1.2 The work was carried out as a condition of planning permission for a mixed-use development incorporating student accommodation and commercial premises, granted by the local planning authority (Planning Application No. 16/02910/FUL).

1.1.3 Four Written Schemes of Investigation (WSIs; Wessex Archaeology 2017a–d) were prepared detailing the methodology to be used during the work. The first WSI (Wessex Archaeology 2017a) covered an initial watching brief and evaluation trenching. The remaining three WSIs (Wessex Archaeology 2017b–d) covered different areas of the strip, map and record excavation and subsequent watching brief. In form and content, each WSI conformed to current industry standards and guidance issued by the Chartered Institute for Archaeologists (CIFA 2014a–c). All work was undertaken in line with this guidance. Each WSI was submitted to the South Yorkshire Archaeology Service (SYAS) for approval. SYAS were consulted at all stages of work and were kept aware of the progress of the project. Progress was also tracked by Site visits made by SYAS, who approved any necessary alterations to the original project design.

1.1.4 The initial watching brief and trial trenching was undertaken between March and June 2017; the evaluation has previously been reported on in a series of interim reports (Wessex Archaeology 2017e–g). The strip, map and record excavation was undertaken in June and July 2017, and the subsequent watching brief occurred between August and December 2017. The watching brief included monitoring of a series of areas recorded as 'Test Pits' (**Fig. 1**) although some of these areas were much larger than typical, 2m by 2m test pits.

1.2 Scope of the report

1.2.1 This report will present the results of the watching brief of the entire site and the results of the excavation of six strip, map and record (SMR) areas (Areas A, B, D, E/F, I and K; **Fig. 1**). The report will also review the results of the preceding evaluation (Wessex Archaeology 2017e–g), and will assess the potential of the results to address the research aims outlined in the WSIs. The completion of the recommendations in this report will facilitate the dissemination of the archaeological results via publication and the curation of the archive.



1.3 Location, topography and geology

- 1.3.1 The Site, covering an area of approximately 0.7 ha (**Fig. 1**), was bisected by the road Hollis Croft. The Site was bounded to the north by White Croft; to the west by a car park around St. Vincent's church, the site of the former Toledo Works (nos. 79–81) and a former chapel known as Croft House; to the south by Garden Street; and to the east by a car showroom and car park.
- 1.3.2 Standing buildings on the Site had been subject to building recording (Wessex Archaeology 2018a). The buildings were demolished before below ground investigations began.
- 1.3.3 The ground is between 68 m and 85 m above ordnance Datum (aOD) and declines steeply from west to east in the direction of the River Don.
- 1.3.4 The underlying geology comprises members of the Pennine Lower Coal Measures mudstone and siltstone, with superficial geology mapped as gravel, silt and sand alluvium (British Geological Survey online viewer).

2 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

2.1 Introduction

- 2.1.1 A desk-based assessment (DBA) was completed prior to the commencement of the archaeological work (APS 2016). Extensive research conducted by Wessex Archaeology at Sheffield Archives, Sheffield Local Studies Library and online has greatly supplemented this information. Footprint Sheffield Limited kindly provided access to their private archive.
- 2.1.2 This section summarises the archaeological and historical background of the Site as derived from archive research, supplemented with information given in the DBA (APS 2016) and also in the Historic Buildings Recording report prepared for the Site (Wessex Archaeology 2018a).

2.2 Prior to 18th century

Prehistoric to medieval

- 2.2.1 Evidence for prehistoric and Roman activity in Sheffield city centre is rare. It has been suggested that a Roman Road may follow the course of nearby Broad Lane, although another interpretation of the origins of Broad Lane is as a medieval driveway. There is no direct archaeological evidence to support either interpretation (APS 2016).
- 2.2.2 The Site is located to the west of the medieval town in a large open field known as Town Field. The site of a former medieval cross is located approximately 250 m to the south-east (APS 2016).

Post-medieval

- 2.2.3 Town Field had been enclosed into smaller closes and crofts by 1637 (APS 2016).

2.3 Early 18th century

Johnathan Moore

- 2.3.1 An early deed is held privately by Footprint Tools. The document is an impressive large sheet written in a beautiful and studied hand and appended with 14 wax seals. It forms an indenture comprising the lease of land in 'Chiswick Close' (a field) which appears to have occupied the area of Hollis Croft. The trustees of 'Hollis's Hospital' leased the land to a



Johnathan Moore, who was covenanted to develop the land with roads and buildings. The list of trustees is rich with names familiar from the area and comprised [line breaks added]:

THOMAS HOLLIS Senr of the parish of Saint Mary Whitechapel in the County of Middlesex and Citizen and draper of London

WILLIAM BIRCH of Sheffield in the County of York cutler

JOHNATHAN SMITH of Sheffield aforesaid cutler

JOHN BROWNE of Sheffield aforesaid Gent

THOMAS HOLLIS Junr of Trinity Minories in the County of Middlesex and Citizen and Draper of London

RICHARD SOLLY of Trinity Minories aforesaid cutler

JOHN WADSWORTH of Sheffield aforesaid Gent

SAMUEL SHORE of Sheffield aforesaid Gent

JOHN SMITH of Sheffield aforesaid cutler

ISAAC HOLLIS of London Merchant

WILLIAM STEAD of Sheffield aforesaid Mercer [sic]

DANIEL BRIDGES of Sheffield aforesaid Hatter and

JOHN CROOKE of Sheffield aforesaid Grocer

(Trustees of and for a Hospital called Hollis's Hospital in Sheffield in the County of York made begun and endowed by Thomas Hollis late of Minories in London Cutler deceased and since further endowed by his Sons the said Thomas Hollis Senr and John Hollis of the said parish of St. Mary Whitechapel in the said County of Middlesex and Citizen and Draper of London for supporting and maintaining Poor People).

- 2.3.2 The rent for the plot was £5 17s 6d per annum. The plot 'Creswick Close' abutted 'a Street called the West barr'. In the south the plot bordered the houses and premises of John Skinner and Widow Dewsberry. A Joseph Courtнал to the north had a street running through the west side of Creswick Close which he had access rights to. In the east, Edmund Lambert held a demised plot. The size of the plot covered by the deed was 96 yards 2 feet 9 inches from north to south and 29 yards 1 foot east to west.
- 2.3.3 The date of the deed is early, 26 December 1726. Even if it took Johnathan Moore more than a decade to fulfil his covenant to erect buildings, this is still a date of a half-century earlier than the next eldest documentary evidence for development at Hollis Croft.
- 2.3.4 Two records of apprentices to a John Moore exist in Sheffield Archives. In 1765, William Smith and Christian Hall, both poor children of Ecclesfield, were apprenticed to John Moore (Sheffield Archives PR54/22/3/10/2; PR54/22/3/10/3). A genealogical search for an early-18th-century Johnathan Moore returned 65 possibilities (Find My Past website).



- 2.3.5 Johnathan Moore appears to have split his large holding and assigned the lease to various parties (see below) as early as 1727. Leases were still being assigned in his name as late as 1771 (Footprint Tools Archive).
- 2.3.6 The earliest consulted map of the Site is Gosling's map of 1736 which shows three long narrow developed blocks divided by streets known as Hollis Charity Street (now Hollis Croft) and White Field (now White Croft). Garden Street had not been laid out at this time (APS 2016).
- 2.3.7 As Sheffield expanded in the early 18th century, new streets were laid out within Town Field and these reflected the patterns of the former open field strips. The area became known as The Crofts and was characterised by back-to-back housing arranged around central courtyards with industrial activity associated with metal trades such as cutlery manufacture (APS 2016).

2.4 Late 18th century overview

- 2.4.1 The Footprint Tools archive contains a 1773 assignment between Mr Stephen Green, cutler, and Mr John Scathley, cutler for a tenement on a plot that later came to be known as 60–62 Hollis Croft. The tenement included barns, smithies, workshops, buildings, fold yards, orchards and gardens and was worth 10 shillings a year. This demonstrates that Hollis Croft was developed by this date and gives an impression of the character of the area at that time.
- 2.4.2 Cutlery production at Hollis Croft was recorded in Sketchley's directory of 1774 which included entries for a table-knife cutler, a scissor-maker and penknife manufacturers.
- 2.4.3 Fairbank undertook mapping of the area in the late 18th century. A plan was produced of Hollis Croft between 1787 and 1789 and an adjacent plan of Garden Street was completed earlier in 1781. The two plans taken together provide coverage of the entire Site. A series of courts with houses are depicted, incorporating probable small-scale industrial and/or commercial enterprises on the northern frontage of Hollis Croft. A similar pattern is shown on the south side of Hollis croft, but here some of the industrial enterprises appear to be on a larger scale with a large plot consisting of buildings around a central courtyard owned by John Kenyon (the site of a saw and steel works; see below). The premises directly to the west of this fronting Garden Street were a tool and steelworks owned by John Harrison (see below) (Wessex Archaeology 2018a).
- 2.4.4 The typical working-class house in this part of Sheffield at this time had a single room on each of three floors and the same scenario can be postulated for the houses in the courts shown on the Fairbank maps. The main centre of household activity was the ground floor living room which contained the largest fireplace and which was used as a kitchen, scullery, dining room, living room, washroom and bathroom. A cellar below was used to store coal and meat and the floors above provided sleeping accommodation. The enclosed courtyards were in effect a semi-private space in which activities such as the use of privies and laundry were undertaken (Belford 2001, p111; Wessex Archaeology 2018a).
- 2.4.5 Industrial activities at this time ranged from a single journeyman undertaking piecework in a rented room to relatively large steelworks and toolmaking firms such as those owned by Kenyon and Harrison. The best-known trade in Sheffield was the cutlery industry which was in effect a collection of crafts ranging from forging, through various types of grinding, to buffing and finishing. Related to this were non-metalworking industries such as the manufacture of bone handles. Heavier trades that were attracted to the area included

steelmaking and ferrous and non-ferrous founding. The basic layout of most of the larger industrial sites was broadly similar; the buildings being grouped around a yard with an entrance archway wide enough to accommodate wheeled traffic (*ibid.*). This arrangement can be seen in the plan of Kenyon's saw and steelworks on the 1787–9 map (Wessex Archaeology 2018a).

- 2.4.6 Garden Street had been constructed by the time of a map of 1808. A large building shown on the northern frontage of this street is likely to be the still extant former chapel known as Croft House (Wessex Archaeology 2018a).

2.5 John Kenyon and Co.

Summary

- 2.5.1 The John Kenyon company occupied the largest plot located between Hollis Croft and Garden Street. The history of this plot will be considered from the 18th century to the early 20th century, before the histories of other plots are outlined.

- 2.5.2 The origins of John Kenyon and Co. lie in the 18th century although the details are debateable. John Kenyon and Co. occupied plots on Hollis Croft and Garden Street from at least 1774 until 1835. John Kenyon led the early activity at Hollis Croft, with the company passing into the Skelton family around the time of his death around the first decade of the 19th century. Thomas Wilde and Joseph Dixon Skelton led the company until their deaths in 1827 and 1835. After this, Elizabeth Skelton, Henry Thorp Skelton and John Kenyon Skelton moved the company's activities away from Hollis Croft. The John Kenyon company were primarily merchants, with a secondary interest in the manufacturing of steel and tools. Documentary evidence suggests the presence of converting furnaces (ie cementation furnaces) at Hollis Croft throughout the period of occupation by John Kenyon. Other processes may also have been undertaken.

Primarily merchants, secondarily manufacturers

- 2.5.3 The main focus of the mature John Kenyon and Company in both the 18th and 19th centuries was as a mercantile enterprise, with the manufacture of steel and saws a secondary activity (Grace's Guide; Sheffield Archives SY244; Bell 2014). The John Kenyon operation at Hollis Croft formed a manufacturing and mercantile branch of a larger mercantile enterprise. Trade was primarily with northern Europe (the Baltic, Russia, Germany, Scandinavia), but also with Spain, North America and Genoa (Bell 2014, 43; Grace's Guide; Sheffield Archives SY244). At first, trade was probably exclusively with Russia through the firm ARCOS then the Engineering and Mercantile Co. (Sheffield Archives SY244), although Bell (2014) contradicts this claiming American trade in the 18th century. Trade in tools and steel was not limited to the goods manufactured in-house and was accompanied by general goods of various types. Imports included steel from Sweden and later Germany, and wheat from Russia. Externally-manufactured iron buttons, shears and scissors accompanied saws and steel produced by John Kenyon and Co. and were exported alongside goods such as silk and worsted stockings (Bell 2014, 43).

Joseph and James Kenyon

- 2.5.4 An advertisement in White's Directory of 1879 asserts that John Kenyon and Co. was founded in 1710. This early date should be treated with caution and may be an example of creative marketing.
- 2.5.5 A catalogue compiled by Footprint Tools appears to list two copies of a lease of 26 December 1726 from Thomas Hollis to Joseph Kenyon (or Kenion) for 800 years. No details are given in the catalogue and the originals were not consulted. This document



appears to accompany the lease of Hollis Croft to Johnathan Moore made on the same date. In 1727 further land at Hollis Croft was assigned from John Sparker to J Kenion (sic), and again in 1749 T Burks transferred more land at Hollis Croft to a T (sic) Kenyon (Footprint Tools Archive). The John Kenyon and Co. plot therefore represents a consolidation of smaller plots.

- 2.5.6 Joseph and James Kenyon were probably apprenticed in Sheffield in the early 18th century (Bell 2014, 43). Joseph may have been the founder of John Kenyon and Co. and was the Master Cutler of the Company of Cutlers in Hallamshire in 1738. A Joseph Kenyon (either the same or different) was again Master Cutler 36 years later in 1774 (The Company of Cutlers in Hallamshire 2018). Genealogical searches (Find My Past) have revealed a marriage of Joseph Kenyon, filesmith, to Elizabeth Lord at Sheffield Cathedral in 1719. Genealogical records also show that a Joseph Kenyon took an apprentice, John Stones, in 1746.
- 2.5.7 Bell (2014, 43) claims that Joseph and James Kenyon were the sons of Peter Kenyon of Chapel-en-le-Frith and that they were apprenticed to a John Kenyon, although such an early John Kenyon (if any) cannot be the man from the Hollis Croft works. It is likely that Bell's claim is erroneous. Ashton (1924, 210) also references this origin story, stating '...John Kenyon and Co., of Sheffield, was started by two sons of a Chapel-en-le-Frith watchmaker.' However, Ashton's source for this is the Sheffield Telegraph of the 10 December 1919 and this, along with the 1879 advert, may represent legend rather than fact.
- 2.5.8 In 1760 the firm acquired Middlewood Forge (Bell 2014). Details of quantities of steel received from a Mr. Kenyon at Middlewood Forge at some date between 1787 and 1815 are recorded in a notebook belonging to Jonathan Hopkinson (Sheffield Archives BM/54). An 1812 plan of the John Kenyon and Co. holdings in Middlewood is in Sheffield Archives (FC/P/Ecc/165L). Bell (2014) indicates that the focus of the company was at Middlewood (the focus of Bell's work), with other branches at Hollis Croft and the Wicker. On the basis of trade directories (Gell 1825; White 1833; see below) the Middlewood operation may have been disposed of between 1825 and 1833.
- 2.5.9 Joseph Kenyon is listed ahead of John Kenyon as file maker at Hollis Croft in Sketchley's 1774 directory. This provides the earliest date to link the John Kenyon Co. to Hollis Croft. It is possible that John Kenyon was Joseph Kenyon's son. Did Joseph proudly name the company after his boy?
- 2.5.10 There are several options for the death of Joseph Kenyon: the estate of two Joseph Kenyons went to probate in 1753 (too early) and 1779, and burial records exist for three Joseph Kenyons in 1779, 1792 and 1798. It is perhaps the 1779 date that is most attractive, appearing as it does in both the burial and probate records, with the burial recorded at Sheffield Cathedral. Any of the burial dates are possible.

John Kenyon

- 2.5.11 The 1782 will of John Wait listed John Kenyon as a beneficiary (Sheffield Archives TT/10/43/18). The repercussions of the will were still being dealt with in 1795 (Sheffield Archives TT/10/43/24–26).
- 2.5.12 In 1785 a John Kenyon married Sarah Staniland at what is now Sheffield Cathedral. A year later, they had a son, also called John Kenyon (Find My Past website). Further marriages of John Kenyons that could possibly refer to the man of Hollis Croft occurred in

1799 (to Elizabeth Rowley at Sheffield Cathedral) and in 1802 (to Elizabeth Barlow in Ecclesfield).

- 2.5.13 On 2 January 1783 a Garden Street plot was leased to John Kenyon at £4 4s annually (Sheffield Archives ACM/15/145). The plot is depicted as No. 6 on a Fairbank plan of Garden Street in 1781. The lease was from Sir Philip Musgrave of Eden Hall, Cumberland Baronet, Sir Robert Throckmorton of Buckland in the County of Berks Baronet and Thomas Eyre of Hassop in the County of Derby Esquire, who were trustees of the Duke of Norfolk. The trusteeship had been set up on 11 June 1767, perhaps indicating a date when the development of Garden Street was set in motion. The lease was a printed form with details filled in by hand, suggesting that many similar leases were issued simultaneously. The holders of adjacent plots are named: John Harrison to the west (see below), and Thomas Betts in the east. To the north, (ie on the south side of Hollis Croft), the landlord was the Hollis Hospital and the land was administered separately. (The south side of the plot fronted Garden Street.)
- 2.5.14 Another Fairbank plan, this time of Hollis Croft in 1787–9, depicts the adjacent plot on Hollis Croft as also belonging to John Kenyon, showing a large saw and steel works arranged around a central courtyard. John Kenyon, then, held two adjacent plots leased from two separate landowners and operated as a single works. These two plots would remain united throughout most of the 19th century, with the Ordnance Survey map of 1890 providing the first evidence for their division. This may be related to the 99-year term of the Garden Street lease, which would have expired in 1882. The exact year of the lease should perhaps not be trusted too strongly – an identical lease for the adjacent John Harrison plot (Sheffield Archives ACM/15/140) was made on the same day (2 January) but gives the year as 1782. This could be explained by a clerk forgetting that the year had changed, although the rear cover of Harrison’s lease further confuses the issue, pushing the date back another year to 1781. Each lease references the other as a neighbour, suggesting that they were made simultaneously. The lease includes ‘all those messuages or dwelling houses, warehouses, workshops and all other erections’ suggesting that the plot was already developed when John Kenyon took it on. This development may have been at the hands of Johnathan Moore as outlined above.
- 2.5.15 Also in 1787, a Sheffield Directory listed the John Kenyon works at ‘Holles Croft’ as a steel converter (Gales and Martin 1787). Therefore the presence of a converting furnace (cementation furnace) is likely.
- 2.5.16 Part of the area of John Kenyon’s holdings on both Hollis Croft and Garden Street were excavated as Area E/F. A few small survivals of structures, features and deposits may be contemporary with John Kenyon’s activities, however the area was substantially re-developed in the mid-19th century, removing most of any evidence of 18th century activity (see below).
- 2.5.17 As well as his activities in John Kenyon and Co., John Kenyon lent his name to an apparently separate concern at Ponds Forge. In 1796, a partnership at Ponds Forge of John Kenyon, Joseph Frith, George Woolhouse and Jonathan Bamford was dissolved (Sheffield Archives CA778/14716/34 and CA778/14716/36). A directory of 1822 lists Kenyon, Frith and Woolhouse as ‘iron masters, rolling, slitting mill and grinding wheel’ at Ponds Forge (Baines 1822). Later directories continue this pattern (see below).
- 2.5.18 A 1790 meeting of gentlemen and industrialists for the purpose of suppressing the unionisation of scissor grinders was attended by John Kenyon (Sheffield Archives JC/23/15). In 1796, John Kenyon was a recipient in the will of John Turner, merchant

(Sheffield Archives TT/10/42/26). In 1798 a consortium of Sheffield industrialists including John Kenyon let out a farm in Little Ashop, Hope, Derbyshire (Sheffield Archives FC/D/28). In the same year, a small property of 16 square yards was rented by John Kenyon at Trippet Lane, Sheffield (Sheffield Archives TT/10/67/1–2). John Kenyon's activities, then, were varied and not limited to the company that bore his name.

- 2.5.19 A dispute between George Grayson, miller, and John Kenyon over a weir on the River Dunwater at Oughtibridge was recorded in 1803 (Sheffield Archives LD315/2/6). The 'Messrs Kenyon' had built the weir and George Grayson was granted the right to disturb and interrupt John Kenyon's enjoyment of it. The height of boards in the weir was set and Kenyon had to pay Grayson £100. Although this does not relate directly to Hollis Croft, it may be that the unfavourable outcome led John Kenyon to rationalise his business and may have influenced the sale of the Hollis Croft/Garden Street operation.
- 2.5.20 In 1805, the 1783 lease of the Garden Street site was sold (Sheffield Archives ACM/15/145). It is possible that this may have been to the Skelton family (see below). Presumably the Hollis Croft holding was transferred alongside the Garden Street land.
- 2.5.21 Following the disposal of John Kenyon's interest in the Garden Street plot, he appears to have turned his attention in 1806 to the lease of garden plots at the end of Pond Street (between the modern Showroom Cinema and main railway station; Sheffield Archives ACM/15/271) and fields at Wadsley Bridge (near the modern Sheffield Wednesday football ground; Sheffield Archives CM/15/270).
- 2.5.22 Burial records show that John Kenyon, merchant, was buried on the 2nd February 1809 at Sheffield Cathedral (Find My Past website).

Skelton family

- 2.5.23 At some point in the first decade of the 19th century, the firm of John Kenyon and Co. passed to the Skelton family. This may have been in 1805 (Sheffield Archives ADM/15/145), in 1809 (Bell 2014, 40; also the year of John Kenyon's death) or at some other similar time.
- 2.5.24 The Skeltons lived at Middlewood Hall, a large house constructed in 1810 in the rural hinterland of Sheffield, housing the family and around half a dozen servants (Bell 2014). The Kenyon and Skelton families were related, with Bell asserting (this reads as oral history) that '[o]ne of the Kenyon women married into the Skeltons and when the Kenyons had no direct heirs the firm was inherited in 1809 by Joseph Dixon Skelton... and Thomas Wilde' (Bell 2014, 40).
- 2.5.25 An 1822 directory lists John Kenyon and Co. at Hollis Croft as 'merchants, saw, file, bar and sheet iron and steel manufacturers'. The company was also present at Willey Street and John Kenyon's name was still in use at Ponds Forge as noted above (Baines 1822).
- 2.5.26 In 1825 a directory records John Kenyon and Co. at Hollis Croft in a list of 'Iron and Brass Founders, Iron Masters & Merchants', and as merchants and saw, file, bar and sheet iron and steel manufacturers, and as steel converters and refiners (therefore suggesting the presence of both cementation and crucible furnaces). The company is also recorded at Willey St. on the Wicker, and at Middlewood and the Kenyon name is still associated with Pond's Forge (Gell 1825).

- 2.5.27 White's 1833 directory lists Kenyon, Frith and Woolhouse at Ponds Forge, and John Kenyon and Co. as merchants, file manufacturers and steel refiners at 3, Hollis Croft and saw and edge tool manufacturers at Willey Street.

Joseph Dixon Skelton

- 2.5.28 Joseph Dixon Skelton lived at Middlewood Hall (Bell 2014) and was the Master Cutler of the Company of Cutlers in Hallamshire in 1820 (The Company of Cutlers in Hallamshire 2018). A fragment of his accounts as Master Cutler are held by Sheffield Archives but do not relate to John Kenyon and Co. (LC/6/1). Joseph Dixon Skelton was involved in property (Sheffield Archives Wil D/8/2/2/3a–c and MD6716/5/12) and was on the committee of a reading room close to the 'Old Church Yard' in Sheffield (Sheffield Archives JC/29/53). In 1829, Joseph Dixon Skelton leased land on Garden Street (No. 6, 'Benn's Ground') to William Beardshaw (Footprint Tools Archive). Before 1831 Joseph Skelton held a lease alongside relatives Richard Thorp, Ark Skelton and also Henry Wilson to get coal at Briery Royds (Sheffield Archives Wil D/8/1/53). In 1831 he was administering his absent brother Mark Skelton's affairs (Sheffield Archives Wil D/8/2/2/13). Joseph was therefore involved in a wide range of projects and was prominent in the public life of Sheffield.
- 2.5.29 On the 19 May 1830, 'Joseph Skelton of Middlewood' alongside three other trustees of the estate of Samuel Thorp agreed to accept arbitration of a coal debt owed to the late Samuel Thorp by Joseph Beckett (Sheffield Archives Wil D/8/1/44). However, the death of Joseph Skelton necessitated a formal legal opinion on 30 Dec 1835 (Sheffield Archives Wil D/8/1/54). A letter to Joseph Skelton's executors is also held at Sheffield Archives (Wil D/8/2/2/16). Joseph Dixon Skelton therefore died around 1835. A burial record at St. Nicholas', Bradfield, Sheffield exists for 23 August 1834 and a will went to probate in the same year (Find My Past website).

Thomas Wilde

- 2.5.30 Bell (2014) asserts that Thomas Wilde was a relative of the Skeltons of Middlewood Hall and that he inherited John Kenyon and Co. alongside Joseph Dixon Skelton.
- 2.5.31 In 1792 a Fairbank map naming Thomas Wilde alongside John Harrison, John Kenyon and others relates to the endowment of a school on the south side of Garden Street rather than to industrial activity, but does further associate his name with that of John Kenyon (Sheffield Archives ACM/MAPS/2/102).
- 2.5.32 Thomas Wilde was one of a large number of people holding a lease on the Ballifield Coal Bed in Dore in 1801 (Sheffield Archives SSC1/7/2/1). He held land on The Wicker and intended to erect a steel furnace there (Sheffield Archives FC/P/SheS/1364S). It is possible that this is the Willey Street works listed in later directories although it is hard to geo-reference the small plan.
- 2.5.33 Bell (2014) gives Thomas Wilde's date of death as 1827. An extract from the will of Thomas Wilde leaving £500 to each of Joseph Dixon Skelton's sons (Henry Thorp Skelton and John Kenyon Skelton) was posted on the Sheffield History forum by his descendant Matthew Wilde (<https://www.sheffieldhistory.co.uk/forums/topic/13622-skelton-family-170039s-in-handsworth/?tab=comments#comment-122309> Accessed 1 May 2019. Note: the context of this forum post appears to be erroneous, confusing two John Skeltons of different standing from different areas of Sheffield).

Elizabeth Skelton, Henry Thorp Skelton and John Kenyon Skelton

- 2.5.34 When Joseph Dixon Skelton and Thomas Wilde died, the firm passed to Joseph's widow Elizabeth. Elizabeth lived at Middlewood Hall and was the head of the family as listed in the 1841 and 1851 censuses (Bell 2014, 41). Bell thought that Elizabeth's maiden name was Thorp (2014, 43). A letter to Elizabeth Skelton expressing Quaker sentiments is held by Sheffield Archives (Wil D/8/2/2/24). Elizabeth likely died sometime between the censuses of 1851 and 1861 (Bell 2014, 41). Several candidates exist to support this in the genealogical record.
- 2.5.35 Elizabeth's sons Henry Thorp Skelton and John Kenyon Skelton lived with their mother and operated John Kenyon and Co. Both boys appear to have the surnames of maiden branches of the family as middle names (Thorpe and Kenyon).
- 2.5.36 Graffiti including a drawing of a shoe was left in the lead roof of Middlewood Hall by Henry Thorp Skelton in January 1842 (Henry was aged 33) and is reproduced by Bell (2014, 41). Henry was a joint executor of the will of his relative Martha Wilson (nee Thorp) of Birthwaite Hall (Sheffield Archives Wil D/8/2/1/5).
- 2.5.37 In 1835 a deed of partnership relating to the John Kenyon company was made between Samuel Gardner, Charles and Francis Appleby and Henry Thorp Skelton (Bell 2014). The saw and file departments are said to have been moved to Sheldon Row and Willey Street (Bell 2014) and it is likely that this is the date at which John Kenyon and Co. left Hollis Croft. The Footprint Tools Archive catalogue records a conveyance of land at Hollis Croft between J D Skelton, Sam Gardner 'and others'; the details are not known. Pigot's 1841 directory lists John Kenyon and Co. at Willey Street only. The 1866 survey by the Children's Employment Commission refers to John Kenyon and Co. at Sheldon Row only (Sheffield Archives CA-VAC/199 Folio 5).
- 2.5.38 Henry Thorp Skelton was further linked to John Kenyon and Co. by the subscription of workmen from the Wicker towards a silver tea and coffee service to express gratitude as Henry was taken ill. The illness led to his death in 1858 (Bell 2014, 41). The subscribing workmen were not at Hollis Croft by this point.

Later John Kenyon and Co. activity

- 2.5.39 In 1849 a 370 square yard plot at the corner of Tenter Street and School Croft was leased by John Kenyon Skelton and two other gentlemen (Thomas Rawson Barker and Thomas Jeffcock). This plot is located extremely close to the Hollis Croft site and may represent a return to activity in the area. School Croft is now lost but ran south from Tenter Street from a point close to the intersection of Tenter Street and White Croft. This plot was surrendered in 1884 (Sheffield Archives TT/10/39).
- 2.5.40 In 1867/8 the Waterfall family bought out John Kenyon and Co. and moved the business to Millsands (Grace's Guide, Bell 2014). Although long dissociated from Hollis Croft, John Kenyon and Co. was wound up by Cookson Produce and Chemical Co. in 1930 although the name continued to be used by Sanderson Kayser Ltd. until the 1980s (Sheffield Archives SY244, see also SY244/B5/2).

Other John Kenyon and Co. remarks

- 2.5.41 It is notable that a Kenyon Street forms an approximate continuation of Hollis Croft to the west of Solly Street. Kenyon Street was in place by the time of the 1853 Ordnance Survey map; it has not been determined if it appears on earlier plans such as a Fairbank plan.



- 2.5.42 A Shane Skelton today manufactures high-end specialist saws (Skelton Saws website). Among his range is a reproduction of an 18th-century Kenyon saw which originally cost six shillings in 1797 (Skelton Saws). These saws were of the highest quality designed to rival the best saws made in London. The webpage contains a photograph of an original Kenyon saw. Examples of Kenyon saws may be held at Benjamin Seaton's Tool Chest at the Guildhall Museum, Rochester, Kent.

Burgin and Wells

- 2.5.43 During fieldwork, it had been unknown who occupied the large former John Kenyon and Co. site at Hollis Croft between 1835 and 1875. The Ordnance Survey map of 1853 labels the 'Hollis Croft Steel Works' on the former John Kenyon plot. It is likely that this description was intended to be generic rather than an indication of the name of a firm. Archaeological evidence suggests that the two cementation furnaces excavated in Area E/F were constructed around the early 1850s shortly before their depiction as dashed circles on an Ordnance Survey map of 1853. This suggests that the former John Kenyon plot was operated at this time by a concern with sufficient resources for major redevelopment.
- 2.5.44 An attempt was made to relate the street numbers given in White's directory of 1852 with the Ordnance Survey map of 1853. The Royal Oak and Cock public houses depicted on the map are listed in the directory as numbers 9 and 59 respectively. Counting properties along the road on the map, this suggests that the former John Kenyon plot occupied all odd-numbers between 17 and approximately 47 or 49. This count assumes that the court associated with the Royal Oak was either all considered to be number 9 Hollis Croft or was considered under a court number only; an assumption that is supported by the presence of three businesses at number 9 Hollis Croft in the directory (White 1852). Only one business is listed between 17 and 49 Hollis Croft in the directory, that of Burgin and Wells, coach and railway spring manufacturers at number 23.
- 2.5.45 The manufacture of such springs is consistent with the need to convert large quantities of iron to steel in a pair of cementation furnaces. Burgin and Wells are also recorded in White's directory of 1852 as steel rollers, indicating that steel rolling equipment would have been present on site contemporary with the excavated cementation furnaces. It seems unlikely that a works with a cementation furnace and a rolling mill would be missing the middle step in the process and the presence of a crucible furnace can be read in later descriptions that they were steel refiners as well as converters. Burgin and Wells appear to have been set up as a self-contained steelworks taking in raw iron and sending out finished articles.
- 2.5.46 Historic references to Burgin and Wells are thin on the ground. There is no mention of Burgin and Wells in Pigot's 1841 directory or White's 1849 directory, suggesting that the firm had not been established at that point.
- 2.5.47 The Footprint Tools Archive holds two conveyances of freehold, a bond of indemnity and a mortgage from Messrs Gardner, Appleby and Skelton (ie John Kenyon and Co.) to Charles Burgin in 1845.
- 2.5.48 It is probable that the establishment of Burgin and Wells coincided with the construction of the cementation furnaces excavated in Area E/F (dated to the 1840s or early 1850s; see below).
- 2.5.49 Footprint Tools hold bankruptcy documents relating to Charles Burgin. These are listed as dating to 'around March 1850'. The freehold was transferred from Charles Burgin and



Edward James Wells to a Robert Graham under the trusteeship of Edward James Wells in 1852; it seems Charles' bankruptcy did not sink the company. A memorandum from 1889 repeats these details and adds that the 1852 document formalised a state of affairs that had come into being in 1851 (Footprint Tools Archive).

- 2.5.50 White's 1856 directory lists Burgin and Wells at 23 Hollis Croft as steel converters, refiners, and rollers, and file and spring manufacturers, and also as fender manufacturers. In 1862 the description at 23 Hollis Croft is similar (file and spring manufacturers, steel converters, refiners and rollers), and Burgin and Wells had added the Perseverance Rolling Mills at 12 Furnival Street to their operation.
- 2.5.51 A minute-book of the council Health Committee from 1860 records a letter complaining about a 'water and manure' nuisance (ie pollution) caused by Burgin and Wells. By the time the health inspectors got there, the problem had been resolved (Sheffield Archives CA-HEA/1/3).
- 2.5.52 In 1861, Elizabeth, the wife of Edward Wells, assigned her interest in Burgin and Wells to Charles Burgin (Footprint Tools Archive).
- 2.5.53 There is no mention of Burgin and Wells in White's 1879 directory.

Cadman and Ibbotson Bros

- 2.5.54 The Footprint Tools Archive contains various genealogical documents which seem to be an attempt to link Robert Graham of Burgin and Wells with a Robert Cadman. Robert Cadman may have leased the former John Kenyon plot to Alfred B Ibbotson in 1869, however Robert Graham himself conveyed to Henry Cadman in 1870 (Footprint Tools Archive).
- 2.5.55 An 1898 advertisement lists 'Lot 2' probably forming part of the former John Kenyon plot for sale. The advertisement lists 'brick erections thereon formerly used and known as the Top Rolling Mill Offices, caretaker's houses, melting furnace of ten holes and four converting furnaces. There is a deep well on this lot with a never failing supply of water' (Footprint Tools Archive).
- 2.5.56 A series of documents from 1889 indicate the intention of Ibbotson Bros & Co. to purchase the plot. However, completion was delayed for a decade and only took place in 1899.

Thomas R. Ellin and Footprint Tools

- 2.5.57 Thomas R. Ellin may have been operating in Birmingham in 1849 as a steel and cutlery manufacturer, and was based in Sheffield from 1875 (Grace's Guide; Sheffield Archives MD7761/1 and X450). In 1925, Thomas R. Ellin was Master Cutler of the Company of Cutlers of Hallamshire (The Company of Cutlers of Hallamshire 2018). Two different Thomas Ellins had been Master Cutlers in 1833 and 1841 (ibid).
- 2.5.58 Thomas R. Ellin occupied the former John Kenyon and Co. works at Hollis Croft (Sheffield Archives MD7761/1). Thomas R. Ellin may also have held Vulcan Works at Hereford Street, Sheffield (Grace's Guide) and/or a works at Eyre Lane (Sheffield Archives MD7761/1). A separate Thomas Ellin Co. (no 'R.') manufactured cutlery at Sylvester Street (eg Sheffield Archives BUS12).

- 2.5.59 Thomas R. Ellin produced the world-famous Footprint Wrench that is still a leading tool today. At the beginning of the 20th century, on the strength of the success of the Footprint Wrench, Thomas R. Ellin began to trade under the name Footprint Tools.
- 2.5.60 In 1899 there was an agreement between T R Ellin and the neighbouring Walter Fearnough (see below) concerning light (Footprint Tools Archive).
- 2.5.61 In 1948 Footprint Tools was taken over by the Jewitt family, and in 2008 Footprint Tools moved to Admiral Works, Owlerton (Sheffield Archives MD7761/1 and X450; Jewitt family pers. comm.).

2.6 John Harrison and Son plot

Summary

- 2.6.1 In the late 18th century, John Harrison and Son operated a second steel works adjacent to John Kenyon's. John Harrison's works stretched from Hollis Croft over Garden Street to Broad Lane. John Harrison also appears to have held the Orange Branch public house on Hollis Croft, or at least an earlier building on the same plot. There is documentary evidence for both cementation and crucible furnaces on the site (see below). Tilting works belonging to Harrison as evidenced in Ashton 1939 were likely situated elsewhere, probably close to one of Sheffield's rivers. In addition to manufacturing, Harrison operated as a merchant. In his correspondence (as reproduced in Ashton 1939) Harrison comes across as a secure and confident man of business, sometimes given to boastfulness, but also as a genuine friend to Peter Stubs, occasionally helping Stubs apparently against Harrison's own interests. Like many, John Harrison's business was involved in price-fixing and operated on the exploitative truck system.

John Harrison and Son

- 2.6.2 The earliest record of John Harrison is in Sketchley's 1774 directory, when John Harrison of Hollis Croft was listed with a profession of 'fram'd and framp'd penknife'.
- 2.6.3 A Fairbank plan of Hollis Croft between 1787 and 1789 shows the plot to the west of John Kenyon's as occupied by John Harrison (excavated as Area C; some earlier structures could relate to John Harrison's works but are likely later in date, see below). John Harrison's holdings continued into an adjacent plot fronting onto Garden Street depicted on an earlier Fairbank plan of 1781 (excavated as Area D; likely nothing of this date excavated, see below). The Fairbank plan of the Garden Street plot shows an oval structure between two parallel walls which may represent a cementation furnace. Later maps (eg Ordnance Survey 1853) show the two plots combined into a single property.
- 2.6.4 The lease for the Garden Street plot was made on the 2 January and gives the year both as 1781 and 1782 (Sheffield Archives ACM/15/140). An identical lease for the John Kenyon plot (Sheffield Archives ACM/15/145) gives the same day but in 1783. The two leases must in fact be contemporary as they each list the other as a neighbour. Harrison's other neighbour on Garden Street, occupying the plot that became the Garden Street Chapel, was Benjamin Jepson. The lease also covered land to the south of Garden Street extending to Broad Lane, meaning that John Harrison controlled three plots forming a strip running perpendicular to the local alignment of the roads. The form of the lease was identical to that of John Kenyon's lease (see above) and lasted for 99 years (expiring in the 1880s) for £4 4s per annum. Perhaps the most crucial piece of information on the lease is that the land came 'together with... several workshops and steel furnaces'. There were, therefore, steel furnaces on the John Harrison plot prior to the 1780s. This may include the possible furnace depicted on the 1781 Fairbank plan and may have been

developed by Johnathan Moore (see above). The Sheffield Archives catalogue suggests that the lease was sold on in 1799, however examination of the document did not substantiate this, and sale of the lease at this date seems unlikely (see below).

- 2.6.5 Harrison built an impressive three-storey, four-bayed mansion at the Hollis Croft end of his works in the 1780s (Belford 2001, 110). The Fairbank plan of 1787–9 also shows a John Harrison in the property that would later become the Orange Branch public house on the north side of Hollis Croft (excavated as Area K). Presumably, this was the same person.
- 2.6.6 In 1787, a directory of steel converters and refiners records John Harrison and Son at Hollis Croft (Gales and Martin 1787). This implies the presence of cementation and crucible furnaces; probably including the cementation furnace identified from the Fairbank plan.
- 2.6.7 Ashton's *'An Eighteenth-Century Industrialist'* (1939) is focussed on a Peter Stubs of Warrington, chiefly a file maker, who bought steel from, and sold files to, John Harrison and Sons. Stubs appears to have valued the freedom of dealing with a diversity of suppliers and clients, spreading his orders around (Ashton 1939, 39 etc). However, 'in the early days [when?] a large part of his requirements was met by two concerns, Harrison & Son and Love & Spear' (ibid.). In 1789 Harrison wrote to complain that Stubs used multiple suppliers whereas Harrison ordered all his files from Stubs (ibid.) However, the value of steel supplied by Harrison to Stubs was roughly four times the value of the files sent by Stubs to Harrison so this argument 'had an obvious retort' (ibid.).
- 2.6.8 Between 1792 and 1796, Harrison hired a Joshua Tingle, a 'sober and good workman' (Harrison quoted in Ashton 1939, 39) who had previously been the sole superintendent in the works of no less than Benjamin Huntsman, the inventor of the crucible process (ibid.). Harrison boasted of this workman in a letter to Stubs (ibid.). This demonstrates the presence of a crucible furnace under John Harrison in the late 18th century. Tingle wrote to Peter Stubs in October 1796, informing Stubs that he had set up on his own and that he had previously done Harrison's entire work in cast steel (ibid.). Stubs declined to trade with Tingle, perhaps out of loyalty to Harrison or because Stubs preferred to buy steel from those who would in exchange purchase his files (Ashton 1939, 40).
- 2.6.9 Ashton describes the competitive business of haulage of steel from Harrison's works to Manchester, Macclesfield and beyond with examples given for 1792 (1939, 89–90). Ashton also describes the practice of using one company's bill as payment to another company with examples given for Harrison's firm in 1796 (Ashton 1939, 108).
- 2.6.10 On 5 April 1793, John Harrison wrote to Peter Stubs to request that Stubs not offer favourable terms to a customer of Harrison's (Charles Homer of Nottingham) who had previously bought Stubs's files from Harrison (Ashton 1939, 54). Harrison, then, was acting as a merchant as well as a manufacturer, and was not above a spot of industrial collusion.
- 2.6.11 On 13 December of the same year, John Harrison wrote to Stubs recommending types of steel to be used in the manufacture of file swages (moulds) (Ashton 1939, 3). In doing so, Harrison expressed or assumed a superior knowledge of steel and file manufacturer than the expert Stubs.
- 2.6.12 A letter of 29 April 1794 from Peter Stubs's daughter Sarah to her parents stated that she had only seen young Mr. Harrison [John Harrison's son?] and 'the old woman' who was wearing an 'old bonnet you would hardly pick up in the street' (Ashton 1939, 142). By May, a separate letter from Sarah revealed she had dined at the Harrisons' and

elsewhere, showing that various companies were 'rivals, not only in trade, but also in hospitality' (Ashton, 1939, 43). In the same year Harrison wrote to Stubs about a period of 'bad times' and declared that his firm was 'not quite so near ruin as some Manufacturers'. The purpose of the comments were to reassure Stubs about a bill (Ashton, 1939, 44). The bad times may have been driven by the French Revolutionary and Napoleonic wars, with prices particularly spiking in 1801 (Ashton 1939, 44). In February 1796, however, there appears to have been a boom in work, suggesting a volatile market, and with Harrison boasting of trade with America (Ashton 1939, 120). The family and firm may have been making shows of prosperity when the reality may have been more uncertain.

- 2.6.13 In February 1797, to explain an increase in prices (caused by an increase in the price of Swedish iron), Harrison stated that 'the present price was fix'd at a general meeting of the whole trade' indicating participation in price collusion between companies (Ashton 1939, 43). Furthermore, in 1800 Harrison informed Stubs of increases in the fixed price of files in Sheffield, and advised Stubs to match the Sheffield prices (Ashton 1939, 67).
- 2.6.14 In the same year Harrison also informed Peter Stubs of the widespread practice of factors stamping 'PS' on files that were not Stubs' and reassured Stubs that Harrison himself had never engaged in this practice (Ashton 1939, 68). (This practice led to threats of legal action by Stubs in Sheffield papers.)
- 2.6.15 Harrison worked on the exploitative truck system, whereby workers were paid in goods above the market rate in lieu of cash. He boasted of this and of the benefits of a buyer's market for labour in an 1801 letter to Peter Stubs: 'We never pay any money for files in Sheffield. The makers taking steel etc. and would do more if we wanted' (Ashton 1939, 38). Harrison's ownership of the Orange Branch Pub as depicted on the Fairbank plan of 1787–9 may have been part of his truck operation.
- 2.6.16 In the first decade of the 19th century, Peter Stubs struggled to source steel from Sheffield (presumably including from Harrison), due to the Sheffield works increasingly using the steel they produced for in-house tool manufacture (Ashton 1939, 46). The lack of good quality steel led to scraps being re-used (producing an inferior metal), a situation Harrison complained about as early as 1799. Walkers of Rotherham were undercutting the Sheffield steel trade, and quality was generally so low that Harrison's had to keep their own steel in-house as the 'only way of having a certain article.' Harrison thought the Walker's practices to be deceitful but nonetheless directed Stubs to them (Ashton 1939, 47).
- 2.6.17 Burial records indicate that John Harrison died in September 1801 (Ashton 1939, 132 suspected 'late 1801 or 1802'). No trace of a John Harrison company at Hollis Croft or Garden Street could be found in directories from 1822 (Baines) and 1825 (Gell), suggesting that operations had ceased by then. It is possible that the company was wound up at the time of Harrison's death.

Ann and Elizabeth Harrison

- 2.6.18 In 1832 a plan was drawn up to show the encroachment of buildings erected by John Townsend on the property of Ann and Elizabeth Harrison (Sheffield Archives FC/P/SheS/452S). White's directory of 1833 lists 'Misses Ann and Eliza' Harrison at Western [sic; read Weston] hall and John Townsend as a table knife manufacturer at Garden Street. The plan is consistent with the Hollis Croft/Garden Street holdings although this identification is not certain. It would seem likely that Ann and Elizabeth Harrison were the daughters of John Harrison and that they had inherited the works. An attempt to check this genealogically (Find My Past website) was foiled by the commonality

of the names; candidates exist in the genealogical record that could support this presumption. That John Townsend had succeeded in fully constructing his buildings before the Misses Harrison had noticed suggests that the day-to-day operation of the works had ceased. This state of affairs may have continued until around 1839 when the plot is thought to have been taken over by William Fearnough.

- 2.6.19 The 'Misses Harrison of Weston Hall' later built Trinity Church, Nursery Street in 1847–8 at their sole expense (White 1852, 17). The Misses Harrison may have been sufficiently monied (presumably off the back of the John Harrison and Son company) that the steelworks were no longer of interest to the family.

W. Fearnough Ltd.

- 2.6.20 A 'Fearnough' is said to have occupied the Harrison plot from 1839 until 1971 (Wessex Archaeology 2018a).
- 2.6.21 Prior to this in 1825, two of only three Fearnoughs in Sheffield are listed on Garden Street. Joseph Fearnough was a saw and scythe manufacturer at 9 Garden Street. If the numbering from the earlier Fairbank plans was still in use, this suggests he was two plots west of John Harrison at this time. Also on Garden Street (number not given) was a William Fearnough, saw manufacturer (Gell 1825; in 1825 the Harrison plot was probably owned by Ann and Elizabeth Harrison). William Fearnough is not recorded in White's 1833 directory, however Joseph Fearnough and Sons (saw and scythe manufacturers) had moved to Wicker Lane where they remained in 1841 (Pigot and Co). William Fearnough's operation was evidently ongoing as by 1841 he was again listed at Garden Street (*ibid.*). This was probably at the former John Harrison plot where the company was located in later times.
- 2.6.22 In 1849 Wm. Fearnough was a saw, scythe, machine knife, spiral cutter etc. manufacturer at court 21 Garden Street (White 1849). We see here the first reference to W. Fearnough Ltd's association with machine knives. In 1852, 1856 and again in 1862 Wm. Fearnough were listed at number 20 Garden Street, with William's house at 43 Broad Lane (White 1852; 1856; 1862).
- 2.6.23 By 1879 (White) it was a Walter rather than a William Fearnough at the head of the Garden Street firm at number 18 next to the Congregational Chapel (ie on the old Harrison plot). The change from number 20 to 18 probably reflects a re-numbering rather than the firm moving next door.
- 2.6.24 W. Fearnough was listed in a review of Industries of Sheffield in 1888 (Sheffield Archives SYCRO 1398).
- 2.6.25 The Ordnance Survey map of 1890 depicts a 'Machine Knife Works' on the Fearnough plot, running across from Garden Street to Hollis Croft. It is likely that this label was a description of the machine knife activities undertaken by W. Fearnough Ltd. instead of the name of the works. A chimney and associated structures depicted on this map were excavated in Area C (see below).
- 2.6.26 A Walter Fearnough of W. Fearnough of Garden Street died in 1908 aged 59 and attracted an official Iron and Steel Industry Obituary (Grace's Guide). He was '...head of one of the largest machine-knife manufacturing businesses in Sheffield...'

- 2.6.27 The Fearnough works at Garden Street were extensively modified on nine occasions between 1911 and 1940 (Sheffield Archives CA206/23125a) and on three occasions between 1941 and 1945 (Sheffield Archives CA206/23125b).
- 2.6.28 Picture Sheffield hold a 1960s photograph of the interior of Fearnough works at Garden Street. The photograph depicts a mid-20th century building with workers and equipment including racks of bar iron or steel stock (Picture Sheffield y04211). Further pictures are held by Sheffield Archives under restricted access.
- 2.6.29 A Fearnough Street formerly existed in Darnall, Sheffield. Fearnough is a moderately unusual name and the street may be linked to the family associated with Garden Street.

2.7 Other names on Fairbank plan of 1787–9

- 2.7.1 An attempt was made to trace each name that appears on the Fairbank plan of 1787–9 within the area of the site. Trade directories (particularly Sketchley 1774, Gales and Martin 1787 and Gell 1825), the Sheffield Archives Catalogue and Grace's Guide were searched for each name as a minimum.
- 2.7.2 The names fall into three categories: industrialists and other trades, property dealers and untraceable names.

Industrialists and other trades

Summary

- 2.7.3 Alongside Kenyon and Harrison's major works (see above), Samuel Marples and John Wilde were each likely manufacturing pen and pocket knives at Hollis Croft in 1787–9, and Benjamin Leathley was cutting ivory. It is likely that Leathley was primarily producing animal bone knife handles, perhaps alongside some production of genuine ivory items. Leathley's operation is likely to have fed directly into the operations of cutlers and steelmakers in the area. Also present were Thomas Lindley and William Gill, operating a hairdresser's and library.

Samuel Marples

- 2.7.4 Samuel Marples occupied a plot on Hollis Croft immediately to the west of John Harrison's plot. Samuel Marples was listed as a spotted penknife cutter at Hollis Croft in 1774 (Sketchley) and as cutler in 1787 (Gales and Martin).
- 2.7.5 Directories in 1822 (Baines) and 1825 (Gell) list S and B Marples as pen and pocket knife manufacturers close to Hollis Croft at 40 Solly Street.
- 2.7.6 In 1831 Samuel and his brother Benjamin Marples, both cutlers, leased a large property on Devonshire Street of 2330 square yards at £1000 per annum (Sheffield Archives LD1792/2); they were clearly prosperous.
- 2.7.7 Multiple documents relating to Samuel Marples' will and probate are held by Sheffield Archives (LD1792/7; CA778/1401/3; MD6862-6870 No. 5; and CA778/2608/1). The will was dated 1841 and probate was granted in 1843. Complex arrangements were made for an Eliza Marples to secure a £420 mortgage following Samuel's death; this does not seem to relate to Hollis Croft. Samuel's brother Benjamin appears to have died at about the same time as Samuel, perhaps indicative of an accident or communicable illness.
- 2.7.8 There may be a family connection between Samuel and Benjamin Marples and the later major toolmaking firm William Marples and Sons.



Benjamin Leathley

- 2.7.9 Benjamin Leathley occupied two plots on Hollis Croft as depicted on the Fairbank plan of 1787–9. One plot was medium-large and the other small. Notes accompanying the Footprint Tools Archive identify these plots with the modern 44–62 Hollis Croft.
- 2.7.10 One or more of Benjamin Leathley's plots may have been assigned to Stephen Green (then at no. 16) in 1726, the same year than Johnathan Moore received the lease.
- 2.7.11 An 1789 property assignment outlines a series of family relationships. Benjamin Leithley (sic) was the only son of John and Elizabeth. His father, John, died, and his mother Elizabeth remarried Richard Kent (Footprint Tools Archive).
- 2.7.12 Sketchley's 1774 directory lists Benjamin Leathley of Hollis Croft as a cutler and ivory cutter. Gales and Martin's 1787 directory lists Benjamin Leathley of 'Holles [sic] Croft' as an ivory cutter. In 1775 John and Elizabeth Leithley (sic) held a mortgage relating to Benjamin Leathley's property from Samuel Staniforth. In 1789 Benjamin's step-father assigned property on Hollis Croft to Benjamin (Footprint Tools Archive). Gell's 1825 directory gives Benjamin Leathley at 47 Hollis Croft (this number does not tally with the earlier Fairbank plan) although unusually it does not list a profession. Could Leathley have retired? There is no record of Benjamin Leathley from Baines' 1822 directory onwards. Leathley's occupation as an ivory cutter would have been closely associated with the cutlery trade, producing handles for knives and other items.
- 2.7.13 In 1824 Benjamin Leathley transferred assignment of properties on Hollis Croft to John Staniforth. Benjamin Leathley was deceased and his estate was in administration in 1829 and in 1831, with John Staniforth acting as administrator. George Coe was the recipient of the plot (Footprint Tools Archive). It is perhaps possible that Benjamin Leathley had been deceased for a few years and that the disposal of his estate was proving problematic.
- 2.7.14 In 1835, George Coe passed the plot on to Frances Cooper (Footprint Tools Archive).

John Wilde

- 2.7.15 In in 1787 directory (Gales and Martin), John Wild (no 'e') was listed as a pen and pocket knife manufacturer and cutler at Hollis Croft.
- 2.7.16 On the 9 August 1791, Johnathan Wild (no 'e') and Sarah his wife were involved in the assignment of a complex mortgage (Sheffield Archives LD2006/7). Exactly one year later on the 9 August 1792 there was a second mortgage (Sheffield Archives LD2006/8). The mortgages relate to dwelling houses at Coalpit Lane. In 1793 John and George Wild (no 'e') leased ground at West Bar to build houses and took out a mortgage. There is also an assignment in trust to Robert Unwin, builder, to sell, indicating that the construction was an investment (Sheffield Archives MD6316). Could the same have been true at Hollis Croft?
- 2.7.17 A John Wild (no 'e') was a manufacturer of table knives, scissors, razors, show knives, awl blades etc. at 27 Pond Hill in 1825 (Gell).
- 2.7.18 A John Wilde 'late of New York [Rotherham? Lincolnshire? America?]'... but now residing in Manchester' registered a patent in 1835 (Grace's Guide).
- 2.7.19 The family name of Wilde may indicate a connection with the John Kenyon works (Thomas Wilde later ran John Kenyon and Co.).



Thomas Lindley and William Gill

- 2.7.20 A Thomas Lindley was colourfully recorded in a directory of 1787 (Gales and Martin) as a 'hairdresser and keeper of a circulating library'.
- 2.7.21 No William Gill of this time period could be traced, although a later Rev William Gill rented property from John Kenyon Skelton in 1838–9 (Sheffield Archives Wil D/8/2/2/17).
- 2.7.22 It is possible that these two gentlemen, with Lindley or both working as hairdresser and librarian, are candidates for historic LGBT representation. Homosexuality is hard to detect in the historic record, particularly in light of historic oppression. An outline of difficulties surrounding this topic is given in a guide produced by Sheffield Archives (2009–2017).
- 2.7.23 Thomas Lindley and William Gill's plot was excavated as Area A, revealing pits and a wall contemporary with Lindley and Gill's occupation of the plot (see below).

Property dealers

Summary

- 2.7.24 A large proportion of the individuals named in 1787–9 may have viewed the Hollis Croft plots as investment opportunities. This may be related to the (re)distribution of the plots undertaken in the late 18th century. Some or all of the individuals named below are primarily attested in the historic record as property speculators, although at least some may also have been industrialists. In particular, John Spooner is regularly listed on property deals as a cutler, and John Jepson may have been a minor industrialist whose activities happen to have been best attested in the records of property exchange. A bias towards identifying these individuals as property speculators may be due to the survival of property deeds over other types of record.

John Wingfield

- 2.7.25 Part of John Wingfield's plot was excavated as Area B, which recorded structures contemporary with John Wingfield's occupation (see below). A prosperous gentleman by this name lived in Norton and there are many documents in Sheffield Archives relating to him. John Wingfield of Norton appears to have been interested in agricultural concerns and to have been involved with the church. John Wingfield's interest in the Hollis Croft plot was likely as an investment as he does not seem to have been much of an industrialist. In Gales and Martin's 1787 directory, John Wingfield of Hollis Croft is listed as a 'gent'.

William Stocks

- 2.7.26 In 1782 William Stocks and George Deakin held tenements 'west of the Market Place and near to the new Quaker Burial Ground' adjoining Watson's Walk (Sheffield Archives ACM/MAPS/SheS/1592L and FC/P/SheS/1271L). In 1806 a lease covering several properties included a messuage in Upper Hallam and three closes called The Croft, The Stone Delf and House Field 'now or late in the possession of William Stocks' (Sheffield Archives TT/10/11/2). William Stocks, therefore, may have been a property speculator.

John Spooner

- 2.7.27 Another person interested in property was John Spooner, who appears to have been involved in property deals throughout the 18th century, although his profession is repeatedly given as 'cutler'. In 1739 John Dickson, in 1743 William Hague, bricklayer, and in 1753, William Prior, cutler, each made purchases at Silver Street from J Spooner (Sheffield Archives FC/P/SheS/1076S; MD4056/14; MD4056/11/2). In 1747, John Grattan, carpenter, and in 1749, Richard Wright, scissor-smith both bought plots in 'the Beanfield' at Westbarr Close from John Spooner, cutler (Sheffield Archives MD4056/9/1;

MD4056/10/1). In the latter case, Spooner had installed drainage. In 1779 John Spooner owned property at Richmond, Handsworth (Sheffield Archives FC/P/Han/42S), and in 1787–1790 he had a close near Crooks [sic] (Sheffield Archives FC/FB/63; ACM/MAPS/12/13). In the latter case, John Spooner was such a prominent landowner that his holdings were colour-coded along with the Duke of Norfolk and John Parker. Less significant landowners were not colour-coded. These examples no doubt exist within a larger body of property deals that are unattested in the historical record.

John Jepson

- 2.7.28 A John Jepson held land at Neepsend in 1747 (Sheffield Archives ADM/MAPS/8/2). This may have been the John Jepson who surrendered land in Ecclesfield in 1721 (Sheffield Archives PR54/17/2/18). It seems unlikely though not impossible that the same John Jepson was operating in both 1721 and 1787–9. It may be that as a young man Jepson disposed of land in Ecclesfield before moving to Neepsend and eventually to Hollis Croft late in life.

Untraceable names

John ?Pier, Richard Heat (?Keat), Richard Oldham, Joshua Wright

- 2.7.29 No records securely relating these three individuals could be found. Searches for variant spellings and readings were attempted.
- 2.7.30 A Joshua Wright of Birmingham was declared bankrupt in 1841 (Grace's Guide). This may be a different individual.

2.8 Diamond Works

Summary

- 2.8.1 The Diamond Works was situated on the north side of Hollis Croft opposite the site of the plot occupied variously by John Kenyon and Co., Burgin and Wells, W. Fearnough and Footprint Tools. The Diamond Works was associated with the Beardshaw and Stevenson families. The Beardshaws had personal links with Kirkstall, Leeds. An attempt to excavate this plot (Area J) had a negative result (see below).

William Hyde

- 2.8.2 An assignment and a separate indenture held by Footprint Tools record that in 1727 Johnathan Moore transferred the lease for the Diamond Works plot to William Hydes. This was one year after Johnathan Moore received the lease (see above). The will of William Hides, cutler of Hollis Street (sic throughout) was made in 1748.

May King

- 2.8.3 The plot must have reverted to Johnathan Moore as in 1771 he again transferred assignment of the plot to May King, the widow of James King (Footprint Tools archive).
- 2.8.4 May probably passed away around 1791 or 1792 as the 'executors of James King' transferred the property to John Beardshaw (Footprint Tools archive).

John and Ann Salt

- 2.8.5 However, John Beardshaw almost immediately (in 1794) assigned the property to John Salt. John Salt passed away in 1809, however his widow Ann continued to run the business until 1830. In 1830 it was necessary for one of the long-standing workmen (George Cartwright) to swear an affidavit to the effect that he knew the property to belong to the late John Salt, and that he had purchased it from John Beardshaw who had it from



Joseph (sic) King. George Allot, Mrs Berry and Mr Bradley are named as occupants of three dwellings (nos. 54, 55 and 56) on the plot. The property was then assigned back to John Beardshaw (Footprint Tools archive).

Beardshaw, Stevenson and Co.

- 2.8.6 In 1787, John and William Beardshaw were listed separately at Hollis Croft as pen and pocket knife manufacturers (Gales and Martin). Gell 1825 gives T Beardshaw and Son as a cutlery dealer at Hollis Croft. In 1839 (White) Beardshaw and Son were saw and file manufacturers at 18 Garden Street, and by 1841 they were also at 4 Garden Street (Pigot and Co.)
- 2.8.7 In 1843 a partnership was dissolved between Jonathan Beardshaw (born 1780), George Beardshaw (his son, born 1802), Thomas Lowrey Stevenson and Joseph Stevenson (possibly a brother) (Grace's Guide).
- 2.8.8 The 1851 census records Thomas L Stevenson living at 32 Hollis Croft (age 43 born Kirkstall [Leeds]), employing 76 men, 12 women and 35 boys. Living with him were Hannah Stevenson (45, born Sheffield) and Frederick (14), Mary Ann (11), Emma (6) and Samuel (4), also one servant. In this year George Beardshaw and his adult son Jonathan (then a bank clerk) were living at Fullwood Road with others.
- 2.8.9 The 1852 White's directory records Beardshaw, Stevenson and Co. at numbers 30 and 32 Hollis Croft. Number 30 Hollis Croft is given as the site of a file manufacturing works and steel merchants (likely Diamond Works), and the adjacent number 32 as the residence of Thomas Lowrey Stevenson.
- 2.8.10 In 1854 there was a partnership change with George Beardshaw leaving Thomas Lowrey Stevenson and Jonathan Beardshaw (George's son) in charge of the firm (Grace's Guide). George would have been 64 and it is possible that this document records George's retirement or death.
- 2.8.11 In 1863 Thomas Lowrey Stevenson left Jonathan Beardshaw as sole director and married Sarah Jessap in Sculcoates, Hull.

Later Beardshaws

- 2.8.12 Later, the Diamond Works were occupied by the similarly named J [Joseph] and TS [Thomas Styring] Beardshaw. Joseph, described as a file manufacturer and publican and born at Kirkstall, Leeds, left the business in 1880 with Thomas Styring Beardshaw continuing. (Grace's Guide). White's 1876 directory lists J and TS Beardshaw as file manufacturers at 32 Hollis Croft but by 1884 (White) the company was just TS Beardshaw, steel file manufacturers and was at number 30. In 1890 the Diamond Works was named on an Ordnance Survey map. Directory entries continued in the 20th century.

2.9 Mid-19th century

- 2.9.1 The 1853 Ordnance Survey 1:1,056 and 1890 1:500 Town Plans show both frontages of Hollis Croft (north and south) as being characterised by courts associated with domestic, commercial and industrial activity. This plan shows two dashed large circular structures that correlate with the cementation furnaces excavated in Area E/F.
- 2.9.2 A directory of Hollis Croft has been compiled for the early 1850s using information from both the census of 1851 and from White's directory of 1852 (**Appendix 10**). This date has

been selected for this study as it is approximately the date of construction of the cementation furnaces in Area E/F.

Clerical district

- 2.9.3 White's directory of 1852 discusses the new 'Clerical District of Hollis Croft' comprising Hollis Croft, Garden Street, and all or part of nine other streets and all courts, lanes etc. associated with them. This division is also used on the 1851 census returns. The Rev. R H Deane BA received a stipend of £130 and there were hopes (unrealised?) to build a church on Solly Street. This refers to the Anglican church and ignores the Catholic establishments of St. Vincent's (Solly Street, built in the early 1850s under Father Edmund Scully) and the independent Garden Street Chapel.

Early 1850s street directory

- 2.9.4 A full search of White's 1852 directory for the string 'Hollis' was used to supplement the street directory for Hollis Croft given towards the rear of that publication. Census information was compiled from the pages listed in the microfiche catalogue held by Sheffield Archives as containing entries for Hollis Croft. The census information was obtained online from a genealogical website (Find My Past) and may contain transcription errors. Some transcription errors have been identified through examination of digital copies of the original records and fixed in **Appendix 10** below.
- 2.9.5 Many small narratives and touches of life can be teased out through examination of the data, which provides a jumping off point for further research into life in the area.

Contrast between two data categories

- 2.9.6 The combination of these two data categories underlines the 'hidden' population behind industrial activity. The smaller list of businesses (approximately 60) given in the trade directory obscures the scale of population of the road (total 680 persons). For dates prior to the first census in 1841 it may be particularly problematic to access this 'hidden' population in the historic record. It is, of course, probable that some people living and working on Hollis Croft worked and lived elsewhere, as is underlined by occasional records of business owner's home addresses in the trade directory. However, this result gives a tentative heuristic of 10–11 persons (workers, children and others) per business.
- 2.9.7 Some discrepancies in the detail between the two data sources likely represent change from 1851 to 1852. Examples include the Rhodes and Buller families perhaps leaving number 63 to make way for Enoch Beal's scissor and shear operation, and the Haywood family leaving number 76 in favour of William Whitehead, traveller. These examples do not necessarily indicate change; it is possible, for example, that the Enoch Beal company was operated by one of the Rhodes or Bullers.
- 2.9.8 Hy. Egginstone's brass turning business is attested in an advert in the directory. In the 1851 census, Henry Egginston (no final 'e') lived at number 5, however the advertisement gives number 9, the Royal Oak public house. This may mean that business enquiries were best directed to the pub.

1850s demography

- 2.9.9 Some simple demographic conclusions can be drawn. The majority of households were families comprising father, mother and children. Single parent families were present, sometimes demonstrably as a consequence of bereavement, and extended family members such as nieces/nephews, aunts/uncles, grandparents and grandchildren were sometimes living as part of the family unit. Examples of multiple families in a single

property are present. There are also examples of families with the same surname living next door to each other, for example in the case of the families of George and Robert Hides, who may have been brothers and who ran a cutlery business together. LGBT representation is non-existent in the record, as may be expected from a period of LGBT repression.

- 2.9.10 Lodgers and apprentices apparently unrelated to their host families are attested. Apprentices were 10 in number and comprised boys between 14 and 20 years of age, apprenticed as cabinet makers (2) and various types of cutler and tool manufacturer (8), and all of English origin, although with one boy from Kent and another from Middlesex, tentatively suggesting on a small sample size that apprentices may have originated from more varied locations than the general population. There were 39 lodgers, 15 of whom (38%) were female. Some lodgers formed small family groups of two or three persons and ranged in age from 0 to 65. The range of professions for lodgers was similar to the group as a whole. Six of the lodgers were born in Ireland, with the remainder English, primarily from Sheffield but not from further away than Northamptonshire.
- 2.9.11 For the group as a whole, most were English, primarily from Sheffield, but also from locations elsewhere in Yorkshire, Lancashire and the midlands. A very few were from further afield in England, comprising Kent (2), Middlesex (1), Newcastle upon Tyne (1) and Northumberland (1). As stated above, two of these were apprentices. Twenty-four persons (3.5%) are listed as having been born in Ireland, with the family members of these persons perhaps also of Irish ethnicity. The birth place of 12 people was not recorded.
- 2.9.12 The youngest married person was 18-year-old Elizabeth Glaves, with a total of 283 people listed as married and 20 as widows or widowers. The youngest widow was 22 years old. The population who were married or who had been married formed 78% of the adult population of 388 (with adults defined as 18 or older). The rate of unmarried people appeared to decline rapidly with age, particularly after the age of 23. Of course, many of the ages recorded in census records may have been creatively reported.

Occupation

- 2.9.13 No occupation was listed for 320 persons. Every man over the age of 18 had a listed occupation. There were 69 boys and 96 girls under the age of 18 without listed occupations. The remaining persons with no listed job were adult women (155), including seven individuals over the age of 60. In addition, 33 girls and 33 boys (under 18) were Scholars, or in one case, a Pupil. Three persons reported that they were receiving parish relief. For the one male receiving relief, the census specified that he was physically disabled.
- 2.9.14 Between 21 and 27 women were employed in manufacturing and related trades: Awl Blade Polisher (1), Bone Button Maker (1), Button Wrapper (1), File Cutter (2), File Dresser (1), Fork Burnisher (1), Fork Filer (3), Metal Rubber (3), Screw Turner (2), Silver Buffer (1), Spoon Buffers and Rubbers (3), Striker (1) and as a Super Burnisher (1). Women with more general job descriptions included Assistant (1), and warehouse work variously described (4). A Silver Plater's Wife (1) may also have been involved in industrial activity, particularly if the appellation was intended to be cognate with, say, 'Silver Plater's Mate' or 'Farmer's Wife'.
- 2.9.15 The second most common category of employment for women was as clothes makers, with 7 Dressmakers but also a Cap Maker (1), Shoe Binder (1) and Straw Bonnet Maker (1). There were 6 female general servants (the youngest a tender 10 years old and with a



different surname to the family she lived with and presumably served). Remaining female jobs were Char Woman (1), Grocer/Shop Keeper (2), Hair Weaver (2), Midwife (1), Upholdstress (1) and the amusingly-phrased 'Keeps a Mangle' (1). One visitor was listed as such under 'occupation' as well as 'relationship'.

- 2.9.16 Like female employment, male occupations were dominated by industrial activities (166–184). Those jobs related to cutlery, tool manufacture and related trades comprising (including apprentices): Awl Blade Manufacture (4), Blacksmith/Metal Smith (6), Blade Grinder (2), Bone Button Maker (1), Bone Scale Cutter or Presser (4), a Brant [sic?] Bit Maker (1), Brass Turner (3), Comb Makers (2), Cutlers, Blade Makers and Table Knife trades (62), Cutters (4), File trades (34), Manufacturer of Powder Horns (1), Mark Maker (1), Moulder (1), Pen and Pocket Knife trades (14), Plane Maker (1), Razor trades (7), Saw trades (7), Scissor trades (5), Silver Plater (1), Silver Smith (1), Stag Horn Cutler (1), and various Strikers (3). Further men were described in more general terms or undertook related roles: Dealer in Horn, Bone etc. (1), Table Knife Clerk (1), Engine Tender (1), Errand Boy (9, ages 9–13), Fitter (1), Labourer (4) and Warehouseman (1).
- 2.9.17 Men only were occupied in the furnaces (7), comprising Brass Caster (1), Furnace Labourer (3), Iron Moulder (1), Steel Furnace Man (1), Steel Melter (1) and Steel Refiner (1). The Steel Melter and Refiner can be said to have operated crucible furnace(s) and were named Samuel Damms and William Wing.
- 2.9.18 Additionally, some men (5) can be identified with activities probably associated with Burgin and Well's railway spring manufacture: Coach and Railway Spring Maker (4) and Fender Filer (1).
- 2.9.19 The construction industry employed 15 men: Brick Maker (4), Bricklayers and associated labourers (5), House Painter (1), Joiner (1), Mason and associated labourer (2), Slater (1), Stone Grate Fitter (1). The presence of four brick makers on Hollis Croft suggests the presence of a brick kiln somewhere in the general vicinity.
- 2.9.20 Men associated with clothing trades were 8 in number: Shoe and Boot Maker (5), Hair Setting Manufacturer (1), Tailor (2).
- 2.9.21 Other occupations for males (17) were: Book Keeper (1), Cabinet Maker (3, including 2 apprentices), Carter (1), Chelsea Pensioner (2, ie military out-pensioners), Cooper (1), Druggest (1), Gentleman (1), 'Inn Maker' (2, perhaps inn decorators or builders rather than publicans?), Licensed Victuallers (2, ie publicans), Teacher (2) and Oyster Vendor (1).
- 2.9.22 Ten men were listed as employing at least one other individual.

60–62 Hollis Croft

- 2.9.23 The Footprint Tools Archive contains three assignments relating to 60–62 Hollis Croft from the period 1850–1852. On 2 December 1850 Frances Cooper, die sinker, and James Staniforth, penknife cutler, signed an assignment. In 1852, two separate assignments transferred the Grape Tavern and other properties between James Staniforth and B R Francis, Henry Chambers, Charles Chambers and John Chambers. The executors of James Marshall are named as a neighbour. The Grape Tavern was eventually transferred in 1898 to Gertrude Steegman of Chiswick, Middlesex, William Walker of Leeds, and Chambers & Co. Ltd, registered in Sheffield. This later document reveals that the Chambers family were from Hastings, Sussex, although Harry Walker Chambers, gentleman, was based in Sheffield, as was the Chambers company. Further transfers



between the above named people consolidated the holding in the name of Chambers & Co Ltd.

2.10 Late 19th century

- 2.10.1 Several further trades are registered in White's Street Directory of 1884, including shopkeepers, a victualler, a manufacturer of electroplated goods, a coal dealer and a razor scale presser (Wessex Archaeology 2018a).
- 2.10.2 A brief search was conducted for other works labelled on the 1890 Ordnance Survey map. Searches were performed of the Sheffield Archives catalogue and Grace's Guide as well as general searches of the internet. These were unsuccessful, with no further information obtained for the Globe Forge and Rolling Mills, British (Electro Plate) Works or Exchange Works. The appearance of the name Globe Forge and Rolling Mills on the map is curious, however an undated (late 19th-century?) document in an envelope labelled 'Mr Blenkin' held by Footprint Tools states that 'all these properties were formerly called Forge and Rolling Mill and are now called Footprint.'
- 2.10.3 Other industrial enterprises located close to the Site included the Toledo, Argyle and Hollis Works (all cutlery works) as well as a smithy.

2.11 20th century

- 2.11.1 Little appears to have changed between 1890 and the Ordnance Survey map of 1905. However, the buildings within the Globe Forge and Rolling Mills, now explicitly belonging to Footprint Tools, are shown in more detail. Small-scale metallurgical business is well-attested in the area, including two crucible steel manufacturers which appear in the 1932 Kelly's directory (APS 2016).
- 2.11.2 By 1935, the western courts on both sides of Hollis Croft had been demolished and replaced by larger industrial sheds associated with the use of the Site by Footprint Works (APS 2016).
- 2.11.3 By 1954, all of the courts appear to have been demolished although a terrace of four buildings, possibly houses, remained on the southern frontage of Hollis Croft. A Rubber & Tyre Depot is identified to the south of the terrace. The Machine Knife Works (Fearnough works) is identified on the southern frontage of Hollis Croft extending onto Garden Street. The sites of two Tool Works and a Furniture Works are also marked on the Garden Street frontage (APS 2016).
- 2.11.4 Late 19th/early 20th century photographs showing the exterior conical chimneys of cementation furnaces at Hollis Croft were kindly made available by Footprint Sheffield Ltd (**Plates 1, 2 and 3**). The cementation furnaces in the pictures are located east of the former entranceway and are not the same furnaces that were excavated during this project.
- 2.11.5 The factory buildings present on the Site until their recent demolition, had largely been built by the time of the 1964 Ordnance Survey map. In 1968 the Footprint Works (bought by John Jewitt Snr in 1948) was merged together with other companies owned by Jewitt family under the trading name of Footprint Tools Limited which in 2009 relocated to Admiral Works, Owlerton where it still operates as Footprint Sheffield Limited (Jewitt family pers. comm.).



2.12 Listed buildings

- 2.12.1 Close to the Site, numbers 48–50, 52, 54 and 56 Garden Street are all listed buildings, examples of the small type of purpose-built 19th century urban works with associated domestic accommodation.
- 2.12.2 The former Toledo Works was located immediately uphill of the site on the south side of Hollis Croft. Toledo Works was a small tool works, developing into a cutlery works by 1888, switching to bread platter production after 1922.

2.13 Geotechnical works

- 2.13.1 A borehole survey (Delta-Simons 2016) was archaeologically inconclusive. Made ground deposits between 0.6 m and 2.5 m in depth were recorded and shallow natural deposits were noted, particularly to the south and east of the Site.

2.14 Previous archaeological works in the vicinity

- 2.14.1 Archaeological investigations between White Croft and Solly Street, directly to the north of the Development Site, established the presence of early 18th century pits and postholes representing a few buildings with yards and gardens (ArcHeritage 2014). In the mid- to late 18th century new houses were built along the street frontages with yards to the rear. By the later 18th century the presence of workshops was indicated by the presence of features such as an anvil base and a crucible furnace related to cutlery manufacture. These suggest the production of a single range of cutlery items by independent craftsmen. Some of the mid to late 18th century structures were retained throughout the existence of the courts while others were rebuilt or added to in the early to mid-19th century. A major phase of rebuilding between the 1830's and the 1850's saw a decrease in the number of small workshops in a domestic setting and an increase in factory-based cutlery production. The excavations also revealed the remains of an early 19th century steelworks with cementation and crucible furnaces which may have remained in use into the 20th century.
- 2.14.2 An archaeological appraisal has been made of the standing buildings at 79–81 Hollis Croft, directly to the west of the Site (ARCUS 2008a). The appraisal stated that 18th-century buildings once stood on the present Site, later occupied by the Toledo Works in 1890 and still standing.
- 2.14.3 Archaeological mitigation works at 29–65 Garden Street, to the south of the Development Site (ARCUS 2008b), identified the remains of 19th and 20th century domestic and industrial buildings arranged around several courtyards. The former St. Luke's National School was also recorded prior to conversion works.

2.15 Previous works related to the development

Initial watching brief

- 2.15.1 Prior to the commencement of the trial trenching element of the archaeological evaluation, a watching brief was maintained to monitor the removal of the existing concrete slab hard standing. No archaeological structures or deposits were recorded.

Trial trench evaluation

- 2.15.2 Prior to the strip, map and record excavation, eleven evaluation trenches (Trenches A–K) were excavated across three distinct parts of the Site (**Fig. 1**). An individual summary evaluation report has been prepared for each of these three distinct sites (Wessex

Archaeology 2017e–g). The results of the evaluation are presented in this report alongside the results of the Strip, Map and Record.

3 AIMS AND OBJECTIVES

3.1 Aims

3.1.1 The general aims of the excavation, as stated in the WSIs (Wessex Archaeology 2017a–d) and in compliance with the ClfA' *Standard and guidance for archaeological excavation* (ClfA 2014a), were:

- *to mitigate the impact of the proposed development and to preserve through record the archaeological resource, in line with current industry best practice and guidance;*
- *to seek a better understanding of the resource;*
- *to compile a lasting record of the resource; and,*
- *to analyse and interpret the results of the excavation, and disseminate them.*

3.2 Objectives

3.2.1 Following consideration of the archaeological potential of the site and after consultation with SYAS, the objectives of the excavation were defined in the WSIs (Wessex Archaeology 2017a–d). The fulfilment of these objectives and their relevance to the recorded archaeology is outlined under Discussion below. The project objectives were:

- *to expand Trench A (which revealed a possibly 18th century structure) into Area A, to investigate potential earlier phase of the area known as a court off Hollis Croft (No. 11 on the 1890s Ordnance Survey Town Plan). Also to further establish the nature and extent of the features and structures already exposed;*
- *to expand Trench B (which was specifically targeted the former site of the Cock Public House and its courtyard and which revealed its remains) into Area B, further investigating the foundations and structures relating to the 18th century pub, including the evidence for multiple phases of development;*
- *to expand Trench D, (targeted on Harrison's Steel Works, first shown on the 1853 Ordnance Survey map and identified as No. 11 on the 1890 Ordnance Survey map) into Area D, thus further clarifying multiple phases of construction identified in Trench D possibly relating to the later Machine Knife Works or an earlier circular structure, indicated on the Fairbank plan;*
- *to expand and join trenches E and F to become Area E/F. These trenches were initially targeting respectively, the Kenyon Steel Works, and two adjacent circular structures first evident on the 1853 Ordnance Survey map as part of the later Hollis Croft Steel Works. These will be expanded, primarily in order to find the boundaries and limits of the two cementation furnaces identified during trial trench evaluation. Further objectives will be to define the limit and extent of the walls relating to the Fairbank 1787- 9 plan of the Kenyon Works (Plot no.40) and to confirm the possible presence of a third cementation chest;*
- *to expand Trench I, which was specifically targeted at a court off Hollis Croft (Nos. 6 & 8 on the 1890 Ordnance Survey map), first shown on the 1789 Fairbank town plan but which remained largely unchanged until at least 1890. Trench I will be expanded to become Area I;*



- *to expand Trench K (which was specifically targeted at the Orange Branch Public House first evident on the 1853 Ordnance Survey map into Area K to investigate further the external floors already exposed, look to determine the extent of the cobbled yard floor and see if it correlates with the courtyard of the Orange Branch. It will also further investigate the potential for multiple phases of development made evident by the series of abutting brick walls to the west of the cobbled yard;*
- *to enquire, considering the identification of features and structures during the trial trench evaluation not evident in the available cartographic record, into the potential for archaeological evidence of earlier phases of occupation;*
- *to allow the preservation by record of archaeological deposits, the presence and nature of which could not be established (or established with sufficient accuracy) during the limited trial trench evaluation;*
- *to determine the location, extent, date, character, condition, complexity, significance and quality of any yet unidentified archaeological remains within the Development Site;*
- *to ensure their preservation by record to the highest possible standard;*
- *to assess the artefactual and environmental potential of the archaeological deposits encountered;*
- *to prepare a report on the results of the work;*
- *to disseminate the results of the work in a manner in keeping with their significance, eg through publication in a suitable journal; and,*
- *to deposit the resulting Site archive with Museums Sheffield.*

4 METHODS

4.1 Introduction

4.1.1 All works were undertaken in accordance with the detailed methods set out within the WSIs (Wessex Archaeology 2017a–d) and in general compliance with the standards outlined in ClfA guidance (ClfA 2014a–c). The site was divided into six distinct strip, map and record areas, each targeting features identified during the trial trench evaluation; the methods employed in their excavation are summarised below.

4.2 Fieldwork methods

General

4.2.1 The six excavation areas were set out in the same position as that proposed in the WSIs using Leica GNSS ('GPS') equipment.

4.2.2 Overburden, including made ground, was removed using a suitable 180° or 360° excavator under the direct supervision of an experienced archaeologist. Where possible, a toothless ditching bucket was used. Excavation proceeded to a depth sufficient to address the objectives of the mitigation. Health and Safety concerns were paramount, with no excavation being allowed to exceed a maximum safe working depth (generally 1.2 m dependent on ground conditions). Mechanical excavation ceased at the first archaeological horizon.



- 4.2.3 Following hand cleaning of the areas, any exposed archaeological features were planned using the GNSS, recorded, and hand excavated (mattock and shovel). All excavation and recording was undertaken by qualified archaeologists employed by Wessex Archaeology, to the extent stipulated in the WSIs (Wessex Archaeology 2017a–d). The Client and their groundwork contractor were compliant and allowed reasonable access to Wessex Archaeology staff, facilitating the excavation and recording of the present archaeology.
- 4.2.4 Spoil derived from both machine stripping and hand-excavated archaeological features was visually scanned for the purposes of finds retrieval. Where found, artefacts were collected and bagged by context. All artefacts from excavated contexts were retained, except those of obviously modern date (20th century or later).
- 4.2.5 Following the completion of all hand excavation and the approval of SYAS, the areas were handed back to the Client.

Recording

- 4.2.6 All archaeological features and deposits were recorded using Wessex Archaeology's *pro forma* recording system. A complete drawn record of excavated features and deposits was made including both plans and sections drawn to appropriate scales (generally 1:20 or 1:50 for plans and 1:10 for sections), and tied to the Ordnance Survey National Grid. The Ordnance Datum (OD; Newlyn) heights of all principal features were calculated, and levels added to plans and section drawings.
- 4.2.7 A Leica GNSS connected to Leica's SmartNet service surveyed the location of archaeological features. All survey data is recorded in Ordnance Survey National Grid coordinates and heights above OD (Newlyn), as defined by OSGM15 and OSTN15, with a three-dimensional accuracy of at least 50 mm.
- 4.2.8 A full photographic record was made using digital cameras equipped with an image sensor of not less than 10 megapixels. In addition, black and white 35mm films were used. Digital images have been subject to managed quality control and curation processes.

4.3 Artefactual and environmental strategies

General

- 4.3.1 Appropriate strategies for the recovery, processing and assessment of artefacts and environmental samples were in line with those detailed in the WSIs (Wessex Archaeology 2017a–d). The treatment of artefacts and environmental remains was in general accordance with *Guidance for the collection, documentation, conservation and research of archaeological materials* (ClfA 2014b) and *Environmental Archaeology: A Guide to the Theory and Practice of Methods, from Sampling and Recovery to Post-excavation* (English Heritage 2011).

4.4 Monitoring

- 4.4.1 Dinah Saich, principal archaeologist for South Yorkshire Archaeology Service (SYAS), monitored all fieldwork on behalf of Sheffield City Council. Any variations to the methodology laid out in the WSI were agreed in advance with both the Client and SYAS.



5 RESULTS

5.1 Introduction

5.1.1 The following section provides a summary of the information held in the Site archive, with a full list of context numbers and context descriptions within each trench contained in **Appendix 1**.

5.1.2 This report presents the results of the strip, map and record excavation, evaluation and subsequent watching brief. Interim reports on the evaluation have previously been produced (Wessex Archaeology 2017e–g).

5.2 Area A

Introduction

5.2.1 Evaluation Trench A (Wessex Archaeology 2017e) was expanded into strip, map and record Area A and was further expanded during the subsequent watching brief (**Fig. 2–7**). Area A targeted a court off Hollis Croft with potential early activity.

General stratigraphy

5.2.2 The undisturbed natural geological substrate (903, 3002) was seen at a depth of 0.5 m below ground level and comprised light orange yellow sand.

5.2.3 Overburden comprised a rubble deposit (902 = 3001); the pottery recovered from this layer indicated that the material was imported, likely from one of the depots established in the city to accommodate domestic waste and to facilitate its re-use (see Artefactual Evidence below). Layers of made ground (915, 916, 919, 920, 921, 922, 924 and 931) had been built up around the structures described below and generally comprised dark sooty and ashy deposits.

5.2.4 Various concrete footings from recently demolished buildings were assigned context number 3000.

Residual finds

5.2.5 Two residual sherds of medieval Coal Measures Fineware were recovered from overburden 902. Residual finds of 17th century date were also recovered from later contexts as detailed under Artefactual Evidence below. These finds included pottery sherds from overburden 902 and 916. This material was likely imported to Site as described under general stratigraphy above.

18th century

5.2.6 The Fairbank plan of 1787–9 shows a plot belonging to Thomas Lindley and William Gill partially occupied by buildings forming a courtyard in the north of the plot (**Fig. 4**). Thomas Lindley was a hairdresser and librarian and Thomas Lindley and William Gill are candidates for historic LGBT representation (see above). Strip, Map and Record Area A covered the area of the rear range of this courtyard along with part of the undeveloped ground to the south.

5.2.7 A small rubbish pit (904; **Plate 4**) was 1.4 m by 1.3 m in plan and 0.39 m deep. This pit contained a group of sherds of 18th-century slipware and clay pipe fragments with a range of dates from the 17th century to early 19th century. This pit was situated within the rear range of buildings depicted on the Fairbank plan (**Fig. 4**) and therefore likely pre-dates development, perhaps representing activity immediately prior to development.

- 5.2.8 A second small possible pit (908; **Plate 9**) may have been associated with pit 904. Pit 908 was 0.5 m in diameter and 0.57 m deep with a dark fill. Possible feature 908 did not contain any artefacts and it was not certain that pit 908 was a genuine anthropogenic feature.
- 5.2.9 During the evaluation, an unmortared wall comprising a sandstone foundation (913) overlaid with handmade red bricks in a rowlock bond (side-on headers; 914) ran predominantly north to south with a return to the west at both ends (**Plate 5**). The structure correlates with the east end of the rear range of buildings depicted on the Fairbank Plan (**Fig. 4**). By 1853 this building had been removed (**Fig. 5**).

19th century

- 5.2.10 The 1853 Ordnance Survey map (**Fig. 5**) shows three small properties, likely dwellings, fronting Hollis Croft, with a range of buildings extending down the west side of the plot and two small buildings against the east side of the plot (likely toilets, one of these was excavated, see below). Counting properties along from the Cock public house suggests that the houses fronting the street may have been numbers 71, 73 and 75. According to the 1851 census these were inhabited as follows. The head of the number 71 household was William Johnson, razor smith (59 years old) living with his wife Ann (61). Also living with them were six members of the Knight family, led by Francis Knight, national school master (36) who was William Johnson's nephew. Lizzy Knight (39) was Francis' wife and they had four children aged 2–11. The two families at least occupied a larger-than-average property with a rear offshoot. Number 73 was led by Betty Henderson, a married shopkeeper aged 69 years. There was no sign of Betty's husband and no indication that she was a widow. Living with Betty were her married daughter Jane Turton, Jane's husband Henry, a table knife hafter, and their son Henry (15). Number 75 housed William and Mary Thompson and their four children. William was a warehouseman and two of his sons were an errand boy and scissor smith's apprentice.
- 5.2.11 An approximately 1 m wide foundation cut was recorded during the evaluation running east to west (906) before returning to the north at the west end (910). The foundation cut was filled with tightly packed rubble and industrial waste (907 and 911), forming a hardcore base, presumably to support a removed wall. Deposit 911 contained pottery dating to the mid- to late-19th century. Cut 910 was supported along its western edge by shoring comprising a narrow wooden beam or plank (912; **Plate 6**). Pottery and clay tobacco pipe indicate a mid- to late-19th century date for made ground 916 through which these features were cut. These foundation trenches do not correlate with anything shown on any consulted historic map, although they are parallel with the boundaries of the plot which persisted from the 18th century throughout the 19th (**Fig. 4–6**). Foundation trenches 906 and 910 are contained within the area of the rear range of buildings shown on the 1787–9 Fairbank Plan (**Fig. 4**), however they do not correlate exactly with the walls of that building, and, on the strength of the artefacts recovered from associated made ground 916, are likely later in date.
- 5.2.12 The strip, map and record excavation revealed a group of structures (923–928; **Plate 7**) to the east of wall 913/914. The structures occupied an area 2.6 m by 2 m, and continued beyond the limit of excavation to the east. Structures 926, 927 and 928 comprised sandstone and black ash mortar foundations each around 0.36 m wide. In one place, an overlying handmade red brick and black ash mortar wall of headers (923) survived. A possible grindstone had been re-used as masonry in wall 926. A waste sewage pipe (929) 0.25–0.29 m in diameter ran to the north-west and was built into sandstone foundation 927, although the pipe did not appear on the south-east side of foundation 927, perhaps suggesting an undetected phase of repair decommissioning the pipe. Made ground layer

924 (**Fig. 7.2**) was stratigraphically earlier than sewer pipe 929 and contained a clay tobacco pipe dating between 1820 and 1860. Inside the area enclosed by foundations 927 and 926, a handmade brick and black ash mortar surface (925) was uncovered. The bricks were rough and may have been re-used. The surface sloped unevenly down to the north.

- 5.2.13 Structures 923–928 closely correlate with a building first depicted on the 1853 Ordnance Survey map (**Fig. 5**). The building was still present although reduced in size on the 1890 Ordnance Survey map (**Fig. 6**). The form of the building is consistent with a toilet block, an interpretation which is supported by the location of the building in a court at the rear of properties and by waste pipe 929. However, no sanitary wares or other features were identified to conclusively demonstrate that this was a toilet and the building may represent a shed or other structure. The mid-19th century date suggested by the historic map is consistent with the materials used in construction (black ash mortar and handmade bricks).
- 5.2.14 During the watching brief, a wall was recorded running roughly north to south in the west of Area A (3006; **Fig. 2B**). Wall 3006 comprised sandstone and handmade brick bonded with lime mortar in a haphazard scheme of coursing. Sockets for four floor joists were present in the wall, indicating the level of a former floor (**Plate 8**). Wall 3006 was 1.91 m long and 0.19 m wide. The wall may be associated with the extant building on the adjacent plot (the former Toledo Works) but was of very rough construction. The wall (3006) was built in a construction cut (3005) excavated through the natural (3002).

5.3 Area B

Introduction

- 5.3.1 Evaluation Trench B (Wessex Archaeology 2017e) was expanded into strip, map and record Area B (**Fig. 8–12**). Area B targeted foundations and structures relating to the former Cock Public House. The plot containing Area B remained remarkably consistent on maps from the late 18th century until the early 20th century (**Fig. 10–12**; early 20th-century maps not reproduced). By 1935 maps show the plot redeveloped (not reproduced). Although some of the structures excavated (in the north-east of Area B, eg 1017) had been incorporated into the expanded Cock public house by 1890 (**Fig. 12**), when they were built they comprised separate buildings in the same range and may have been related to the Cock only by a shared leaseholder of the land. In 1787–9 this was John Wingfield, an agricultural gentleman from Norton, Sheffield. In 1851 the proprietor of the Cock public house was John Mucklow (a name perhaps derived from Irish McClain or similar), who along with three of his sons was also a file grinder. The household was six persons in total.

General stratigraphy

- 5.3.2 The undisturbed natural geological substrate (1003) was seen at a depth of 0.5 m below ground level and comprised light orange yellow sand and mudstone.
- 5.3.3 Overburden comprised a rubble deposit (1002), which was likely imported in the same manner as in Area A (902). Layers of made ground (1007, 1022, 1024, 1028, 1030, and 1038) had been built up around the structures described below and generally comprised grey or red silty deposits. One layer of made ground (1023) may represent a re-deposited soil however the stratigraphic position of this above a layer of rubble made ground (1024) suggests that 1023 does not represent an in-situ buried soil and may represent dumped material.

Residual finds

- 5.3.4 During the evaluation, a medieval penny was recovered from 19th/20th-century made ground 1007. The recovery of this object from this context is remarkable. It is possible that the coin was lost from the Cock Public House where it had been kept in the 19th/20th-century as a curio or collectable. It may be that the coin was a genuinely residual find initially deposited on the Site during, say, medieval agricultural activity and then redeposited as part of made ground 1007. It is also possible that the coin was imported to the Site within material intended for use as a levelling deposit.

18th century

- 5.3.5 In the north-east of Area B, three courses of a 0.37 m wide 'L'-shaped sandstone and lime mortar wall (1017, **Plate 10**), correlated with an exterior courtyard division at the rear of the Cock Public House as depicted on the 1890 Ordnance Survey map (**Fig. 12**). However, this building was initially distinct from the public house and was depicted as a separate dwelling or similar on the Fairbank plan (**Fig. 10**) and on the Ordnance Survey map of 1853 (**Fig. 11**). An adjacent deposit of small sandstone blocks formed a rough curvilinear shape and was likely rubble (1018). The north end of wall 1017 terminated at a large sandstone block returning to the west (1016; 0.75 m by 0.29 m in plan and 0.2 m deep). West of sandstone block 1016 was a further handmade red brick and lime mortar structure (1015) probably forming some interior detail to the property. In 1853 this property was part of the large number 61 Hollis Croft, and the 1851 census records 14 individuals with three surnames living here, including William Smith (46) and his sons George (23) and Joseph (17), all file makers, and Charles Smith (19), brant [sic?] bit maker. Two sons-in-law, Matthew and Edmund Sellars (23 and 34) were 'inn makers' and Luke Hanson (41) was a stone grate fitter. In addition, Enoch Shipman (39), table knife cutter, and his wife Mary, and 'assistant', lived in the court to the rear of number 61. This may have been in a small square building to the south of Area B.
- 5.3.6 In the south-west of Area B, the evaluation recorded a series of handmade brick and lime mortar walls (1004, 1008, 1012, 1013; **Plate 11**) enclosing small areas (eg 0.76 m square) floored with sandstone flags (1005, 1010). The strip, map and record excavation expanded this area of archaeology to the south (**Plate 12**). Walls 1032, 1035, 1036, and 1037 formed a similar enclosed area to those to the north, again floored with sandstone flags (1031). These structures were located within a larger building depicted consistently from the late 18th century until the late 19th century (**Fig. 10–12**). Speculatively, the structures might represent toilets or sheds associated with buildings, possibly dwellings, on the same plot as the Cock public house. An unstratified group of leather shoes (1014) was recovered from the general area of these structures and dated to the late 19th to early 20th centuries. The shoes may relate to the use of the building rather than its construction. The shoes may represent domestic activity and there is nothing to suggest shoe manufacture (although this remains a possibility).

19th century

- 5.3.7 In the south of Area B, sandstone and black ash mortar foundation 1019 ran north to south topped by two courses of red brick (1020) bonded with black ash mortar. This wall corresponds with an exterior courtyard division first seen on the Fairbank Plan of 1787–9 (**Fig. 10**) and depicted until at least 1890 (**Fig. 12**).
- 5.3.8 Adjacent to wall 1019 was a sub-oval pit (1033) which, following hand excavation to a maximum safe depth, was machined to its base at 1.7 m below ground level (**Plate 12**). This pit was filled by a single deposit of very dark waterlogged silt clay (1034) containing occasional rubble inclusions as well as pottery and clay pipe fragments. The latest dated

pottery recovered from fill 1034 dated from 1840 or later, a date which is consistent with recovered clay tobacco pipe. A sample taken from this deposit contained no significant environmental material. It has been suggested that this feature represents a well, however the relatively shallow depth of the feature suggest that it is more likely a soakaway or waste pit.

- 5.3.9 Overlying pit 1033 was a short (0.52 m long) single-skin red brick and ash mortar wall (1021). Wall 1021 ran east from wall 1020. South of 1021 and overlying pit 1033 was a single sandstone slab, possibly the remnant of a floor surface (1025). These structures (1021 and 1025) stratigraphically post-date pit 1033 and therefore must be mid-19th century or later in date.
- 5.3.10 Wall 1006 (recorded during the evaluation) comprised frogged machine brick, unfrogged machine bricks and handmade bricks and was bonded with black ash mortar (**Plate 13**). Wall 1006 did not correlate with any consulted 19th- or 20th-century map and may represent a minor development within a yard area.

20th century

- 5.3.11 A machine brick and modern cement inspection chamber (1011) and concrete slab (1009) overlay structures (eg 1004) in the west of Area B. The manhole and concrete relate to later development.
- 5.3.12 Concrete footings associated with later development truncated the area. One of these (1027) was built on a bedding deposit (1029) and carried a small survival of a recent brick wall (1026).

5.4 Area C

Introduction

- 5.4.1 Area C was investigated by evaluation trench only (Wessex Archaeology 2017g) and did not proceed to strip, map and record excavation. Trench C (**Fig. 13–17, Plate 14**), measured 10 m by 4 m.

General stratigraphy

- 5.4.2 Deposits of demolition rubble (1602, 1637, 1639) and concrete (1601) overlay archaeological structures in Trench C. The undisturbed natural geological substrate (1632) comprised mid-yellow brown silt clay.

18th/19th century

- 5.4.3 The earliest activity recorded in Trench C comprised two stone walls (1607 and 1608) surrounding a brick surface (1605/1606) located towards the western end of the trench (**Plate 15**). A fragment of a second possible sandstone wall (1609) may have run parallel with wall 1608, although it is possible that apparent wall 1609 may have comprised stones displaced from wall 1608. These structures were constructed on a layer of compressed natural clay (1641), possibly representing either a former working surface or a rammed foundation. The walls comprised two courses of rough unmortared sandstone blocks 0.40 m wide and 0.05 m high forming an 'L'-shape. Brick floor 1605/1606 comprised two courses of re-used handmade red brick bonded with lime mortar, 1.10 m by 0.80 m in plan. Context 1605 refers to the upper course of brick; context 1606 to the lower course.
- 5.4.4 Handmade red brick and lime mortar wall 1613 continued the alignment of wall 1607 to the east and was three skins wide (0.34 m) and 1.4 m long. Wall 1613 was built directly on natural 1632. Wall 1613 was bonded to earlier wall 1611 which was parallel and located



immediately to the north. Wall 1611 comprised two skins of pinkish handmade bricks and white lime mortar. Only a small fragment of structure 1611 survived (0.27 m long by 0.12 m wide).

- 5.4.5 South of wall 1607, handmade red brick and grey lime mortar structure 1612 was poorly preserved but included an element that were east to west aligned and three skins thick, and a north to south part that was one skin thick.
- 5.4.6 These structures do not appear on any consulted historic map, and no artefacts were recovered to securely date them. It is thought that these features pre-date later development in Trench C; the materials used in their construction are consistent with an 18th/19th century date. The structures may have formed part of the works of John Harrison and Son or, more likely, W. Fearnough.

Late 19th/early 20th century

West end of trench

- 5.4.7 Machine brick and black ash mortar wall 1604 overlay floor 1605 and was accompanied by a second parallel wall (1603). Walls 1603 and 1604 comprised two skins of headers in the west, but (where 1604 overlay surface 1605) wall 1604 instead comprised a single skin of stretchers in the east. Wall 1603 was built on an ash levelling layer (1634). Walls 1603 and 1604 ran approximately east to west, forming a narrow corridor or channel around 0.3–0.4 m wide. Part of the floor of this channel was laid with concrete (1610); demolition rubble overburden was removed from the remainder of the area to reveal natural (1632).
- 5.4.8 The east end of wall 1603 was truncated by structure 1615. Structure 1615 formed a hollow sub-rectangle 2.8 m long and 1.1 m wide, three skins thick on the north and south sides and four to five skins thick on the west and east ends. Structure 1615 comprised machine bricks and black ash mortar. The centre of 1615 was filled with dirty redeposited natural clay (1640).
- 5.4.9 Made ground rubble deposit 1637 butted the south-east corner of structure 1615. Overlying deposit 1637 were minor walls 1616 and 1617. Wall 1616 ran north to south, comprising three machine bricks bonded with black ash mortar and laid as headers. The total size of wall 1616 was 0.35 m long, 0.24 m wide and 0.08 m deep. Wall 1617 ran east to west and comprised four bricks and partial machine bricks bonded with black ash mortar and a total of 0.73 m long, 0.13 m wide and 0.08 m deep.

Chimney at east end of trench

- 5.4.10 The eastern end of the trench (**Plate 16**) contained a complex of brick structures representing the base of a chimney and associated structures. A machine brick and black ash mortar surface (1618) was 2.30 m long by 1.60 m wide and over three courses deep.
- 5.4.11 Structures overlying surface 1618 were on a slightly different alignment and together with surface 1618 represent the base of a chimney. Four frogged machine brick and black ash mortar walls 1625, 1626, 1627 and 1628 overlay surface 1618 and were four skins thick and three courses high. Wall 1626 was 1.76 m long, 0.46 m wide and 0.26 m high. The four walls (1625, 1626, 1627 and 1628) surrounded a square heat-effected firebrick structure (1630), 1 skin thick, 5 courses high measuring 0.8 m by 0.8 m in plan with a maximum height of 0.39 m.
- 5.4.12 A soot-stained firebrick structure (1631) ran approximately east from the south-east corner of structure 1630 (**Plate 17**). Structure 1631 was one skin wide and four courses high and

was degraded due to exposure to heat. It is likely that structure 1631 represented the truncated remains of a flue carrying exhaust gases to a chimney formed by structures 1618, 1625–1638 and 1630. Machine brick and black ash mortar structures (1619, 1624) running roughly to the east likely formed a foundation for the truncated continuation of flue 1631. Wall 1624 was 0.45 m long and two courses (0.16 m) high and contained a mixture of re-used machine brick types. Structures 1619 and 1624 were built on a foundation of a single course of firebricks (1621, not illustrated)

- 5.4.13 Wall 1620 butted structures 1619 and 1624 and ran roughly north to south. Wall 1620 survived for three courses and was 1.60m long, 0.32m wide and 0.24m high.
- 5.4.14 The chimney (1630 etc.) is first depicted on the 1890 Ordnance Survey map (**Fig. 17**). The materials used in the construction of the chimney are consistent with a late-19th century date. At this time, W. Fearnough Ltd operated the works on this plot.

Modern

- 5.4.15 A later structure (1623) at the east end of the trench post-dated the partial demolition of structures 1624 and 1620 was constructed from bricks randomly positioned in all three dimensions in a matrix of modern cement.
- 5.4.16 Remnants of a machine brick and modern cement structure (1614) were present in the south of the trench. Structure 1614 was bonded to earlier structure 1613. Most of structure 1614 had been truncated, however the surviving elements were arranged in a hollow square or rectangle around 1 m square.
- 5.4.17 These alterations were probably undertaken by W. Fearnough in the 20th century and may relate to modifications recorded in documents held by Sheffield Archives (see above).

5.5 Area D

Introduction

- 5.5.1 Evaluation Trench D (Wessex Archaeology 2017g) was expanded into strip, map and record Area D (**Fig. 18–22**). Area D targeted the former Harrison's steel works (later occupied by W. Fearnough Ltd.) and in particular a circular structure (perhaps a cementation furnace), indicated on the Fairbank plan of 1781 (**Fig. 20**). No archaeological evidence relating to this circular structure was identified. After the conclusion of the strip, map and record excavation, a watching brief was maintained in Area D monitoring the deep excavation of footings associated with the new development on Site.

General stratigraphy

- 5.5.2 The undisturbed natural geological substrate (1719) was seen beneath the surviving archaeological structures at a depth of 1.8 m below ground level and comprised yellow sandy clay.
- 5.5.3 The overburden varied across Area D and is discussed alongside the archaeological results below.

Evaluation Trench D

18th century

- 5.5.4 The evaluation recorded a series of handmade red brick and lime mortar structures that partially correlate with an outbuilding or extension to the easternmost block of buildings within the John Harrison and Son holding on Garden Street (**Fig. 20**) suggesting that they

were in place by the late 18th century. By the time of the 1853 Ordnance Survey map (**Fig. 21**) the buildings had been replaced. Further structures south of those depicted on the Fairbank plan presumably represent either structures demolished prior to the Fairbank plan or a development or series of developments that was in place between the dates of the two maps.

- 5.5.5 Two-skin handmade red brick and lime mortar walls 1705, 1707, 1712–1715, 1718 and 1722 (**Plate 18**) survived to a depth of around 0.8 m and enclosed four small areas (for example the north-west area was 0.96 m by 0.6 m in area). Access to the eastern two areas, if present, could have been located outside the area of excavation; these eastern two enclosed areas were surfaced with sandstone slabs (1716, 1717). Sandstone floor 1716 was bedded on 1721, a thin (0.12 m thick) layer of dark grey brown silt clay with green veins. Bedding layer 1721 directly overlay natural 1719. No sandstone slabs were recorded in the two western small areas, perhaps indicating that these areas were not intended for access. A two-skin wall of slightly different handmade bricks and lime mortar (1710) had been built along the south side of the south-eastern small area (**Plate 18**).
- 5.5.6 South of wall 1718 and east of wall 1722 and at a deeper level, was a single course of an east to west aligned wall (1723) of identical construction to the surrounding walls (**Plate 19**). Wall 1723 appeared to cut a small north to south aligned gully (1728) although safe excavation of this gully was not possible. Gully 1728 was cut directly into the natural (1719) and was 0.2 m wide and filled with mid grey black sand with lime mortar inclusions. It is possible that the gully represents a small levelling deposit laid down prior to the construction of the structures, or it may be that gully 1728 was an early feature relating to land use (such as agriculture) prior to development on Site.
- 5.5.7 An interpretation of these structures as toilets is consistent with their small form, although there was no evidence of sanitary provision. The western two small areas appear not to have been designed for human access and may have primarily been intended to carry removed higher-level structures.

Mid-19th century

- 5.5.8 Structures 1705 etc. were overlain by a layer of black silty sand (1704), overlain by dirty redeposited natural (1703) and rubble (1702). A cross-context join was found between pottery sherds from layers 1703 and 1704; this implies that these layers may have been laid down contemporaneously. Layer 1704 produced 31 pottery sherds and 121 clay pipe fragments mostly dating to the mid-19th century (although with a small quantity of residual 18th century material). The clay pipe fragments provide a 30-year window for deposition between 1830 and 1860, suggesting that the structures in this area went out of use in the mid-19th century.
- 5.5.9 Wall 1723 was overlain by a series of made ground deposits (1724–1726) comprising dark silts and sands. Deposit 1724 contained a clay tobacco pipe bowl with masonic decoration that was likely deposited between 1830 and 1860, alongside mid–late 19th century pottery. This consistent with the date of overburden 1704, supporting a mid-19th-century decommissioning of these structures. The absence of these structures from the Ordnance Survey map of 1853 (**Fig. 21**) further supports this.
- 5.5.10 Overlaying walls 1718, 1722 and decommissioning made ground 1724 was a surface of sandstone setts (1709; **Plate 18**). These setts appear to represent a mid-19th century (or later) repurposing of the area, perhaps as an external surface extending across a wider area. Sandstone wall 1727 provided a southern limit to setts 1709 and does not correlate with any consulted historic map.

20th century

- 5.5.11 An 'L'-shaped frogged brick and modern cement wall (1711, not illustrated) overlay sandstone setts 1709. A ceramic drain encased in concrete (1706) and an associated minor machine brick and black ash mortar structure (1708) overlay wall 1705. These structures relate to later 20th century development (all **Plate 18**).

Cellar vaults in centre-west of Area D

- 5.5.12 A series of structures were recorded in the centre-west of Area D (**Plates 20 and 21**). A small part of a substantial north to south aligned wall (1732) was recorded. Wall 1732 comprised four skins of handmade brick and white lime mortar and was pierced by an opening formed with brick surrounds. Wall 1732 correlates with the exterior wall of W. Fearnough's Machine Knife Works as depicted on the Ordnance Survey map of 1890 (**Fig. 22**). The wall was not depicted in 1853 (**Fig 21**).
- 5.5.13 Running west from wall 1732 was a brick vault (1734) unusually comprised of headers so that in the centre of the vault the bricks would have been vertical. The materials used in vault 1734 were handmade bricks with a light grey lime mortar of different character to wall 1732, suggesting that vault 1734 may have been built during a different phase of activity. Vaulting 1734 intersected vault 1735 which ran perpendicularly to it (north to south). Vault 1735 was built in the same materials as vault 1734 although the bricks were arranged conventionally as stretchers. The vaults likely represent the ceilings of cellars or similar accessible underground spaces. The vaults were unlikely to have enclosed flues due to their large diameter and soot-free interiors.
- 5.5.14 Vault 1735 survived over only a length of 1 m; its south end marked with bull-nosed bricks (**Plate 21**). South of this vault, the line of the wall from which 1735 would have sprung continued as 1736. Wall 1736 was one skin thick and turned to the east after 0.5 m, again with the corner finished with bull-nosed bricks (**Plate 21**). Excavation to a deeper depth revealed that this wall had been reinforced by the construction from within the vaulted cellars of two-skin grey machine brick and modern cement walls (1753 and 1754; **Plate 21**). This repair demonstrates the continued importance and use of the cellars well into the 20th century.
- 5.5.15 A further structure (1733) was constructed in handmade brick and an atypical mid-dark grey ash mortar rich in lime inclusions (10% unreacted lime). The difference between this mortar and the other structures suggests that 1733 belongs to a different (probably later) phase of construction. Structure 1733 comprises a four-skin wall running adjacent to the west side of major wall 1732, with springers leading to the west to support a missing brick vault. It is hard to reconcile the arrangement of brick vault of 1733 and brick vault 1735 which appears as though it was a smaller interior vault within 1733. Perhaps 1733 represented a larger, later construction intended to carry the vaulting further south than had been originally built.
- 5.5.16 No reliable dating evidence for these structures is available; no finds were recovered that can be stratigraphically related to the cellars and the cellars themselves do not correlate with any consulted historic map. Given their subterranean nature these features may have escaped the attention of map makers. Wall 1732 associated with the cellars appear to have been of late-19th century date. An 18th or 19th century date is consistent with the materials used in the earliest phase of their construction. The cellars formed part of W. Fearnough's works.
- 5.5.17 Further work was not possible in this area due to concerns relating to the safe working distance from the boundary wall.

Crucible furnace 1757–1764

- 5.5.18 Elements of a crucible furnace were recorded during the watching brief in the west of Area D (**Plate 22**). A limited view was afforded by the constraints of the watching brief and only two charging holes were exposed. It could be seen that there were at least two more charging holes to the south (**Plate 23**), however these could not be investigated within the scope of the watching brief. Further crucible holes may or may not have existed to the north. The furnace would have been positioned at the west end of the former steelworks with its back towards the Chapel on Garden Street.
- 5.5.19 Wall 1760 situated between the charging holes and the chimney flues of the crucible furnace comprised firebricks and lime mortar and was built on sandstone and lime mortar foundation 1761. The charging holes themselves (1757 and 1758) were formed from firebrick and lime mortar and were extremely heat affected and slaggy on the interior surface. The holes were circular, around 0.75 m in diameter. Two iron bars ran across each hole to support the crucibles, and an iron fitting in front of the crucible holes formed a step or ledge (1763) which appeared to sit on top of a handmade brick and lime mortar wall forming the original front of the furnace. A machine brick and black ash mortar wall two skins thick (1764) had later been added in front of the handmade brick wall. The later wall (1764) possibly constitutes a repair or enhancement to the existing furnace and may indicate the continued importance of the structure over time.
- 5.5.20 Evidence for the decommissioning of the furnace included construction of a rough masonry blockage within the fire pit which was observed by suspending a camera in the charging hole. A plate of metal in front of later wall 1764 may also be related to the decommissioning of the furnace.
- 5.5.21 The fill of both crucible pits comprised pink orange sand and clay possibly derived from heat affected firebricks (1764).
- 5.5.22 Crucible furnace 1757–1764 did not correlate with any structure depicted on historic maps, but was situated within buildings associated with John Harrison and Son and W. Fearnough's works depicted on maps in the late 18th to 20th centuries (**Fig. 20 and 22**; 20th century maps not reproduced).
- 5.5.23 Demolition or made ground material comprising dark brown sand (1762) overlay the remains of the crucible furnace.

Crucible furnace 1746–1750 and associated structures

Crucible furnace 1746–1750

- 5.5.24 A single ash pit or fire pit belonging to a second crucible furnace cellar (contexts 1746–1750; **Plate 24**) was recorded in the south of Area D. The crucible furnace backed on to Garden Street and probably extended to the west but was truncated by a concrete footing. Although early examples of single-hole crucible furnaces are known (eg at Riverside Exchange; Andrews 2015) it is likely that this crucible furnace is later in date and that the hole is an end hole on the left side (east) of a larger furnace. The structure was built of handmade brick and lime mortar with three skins on each side of the fire hole (1747 and 1750). The back wall of the crucible furnace (1746) and ash pit (1748) were constructed in the same materials. The bricks surrounding the ash pit (1752) were somewhat heat effected, exhibiting reddening and some degradation. The stoking hole survived to a height of three courses with a large firebrick used as a lintel (1749; 0.39 m long, 0.13 m wide and 0.07 m deep). The furnace had been demolished above the level of this lintel. However, no evidence for metal grates or other fittings survived. The stoking hole of the

ash pit was accessed by a long thin raking hole situated between two piers at the same level as the cellar floor. The ends of the pier were decorated with bull-nosed bricks on both sides. The ash pit closely resembled other known examples (eg Powell 2014; Wessex Archaeology 2012).

- 5.5.25 In the area of crucible furnace 1746–1750, the overburden comprised two layers of rubble (1743 and 1744) and was of a different character to the rest of Area D. A very small pottery assemblage from layer 1743 was of mid–late 19th century date and together with the materials used for construction provided a tentative date for the decommissioning of crucible furnace 1746–1750. Dating of this crucible furnace is not conclusive; an 18th or 19th century date is consistent with the materials used and with historic maps, which depict the area of the furnace inside a building or buildings (**Fig. 20–22**).

Structures associated with crucible furnace 1746–1750

- 5.5.26 To the east of crucible furnace 1746–1750 was a north to south aligned substantial four-skin (0.52 m wide) wall (1745) built in the same materials as the furnace: handmade red brick and lime mortar (**Plates 24 and 25**).
- 5.5.27 Further north, wall 1745 had been pierced and 20th-century structures had been constructed in the opening (1740, 1742; **Plate 25**). Structures 1740 and 1742 did not appear to have been constructed in an original opening in wall 1745 due to the rough truncation of wall 1745 and the continuation of wall 1745 to the east of structures 1740 and 1742. Beneath structures 1740 and 1742, the surviving foundation courses of wall 1745 were recorded as 1751. A series of sandstone and lime mortar foundations (1737, 1738 and 1739) enclosed an area of 1.3 m by 0.6 m to the east of wall 1745/1751. Sandstone walls 1734, 1737 and 1738 were of uniform construction between 0.28 m and 0.36 m wide. Wall 1737 contained an iron fitting or tie protruding to the west into the enclosed space. Later rubble overburden was removed between 1737, 1738, 1739 and 1745/1751 to reveal undisturbed natural (1719). These sandstone foundations correlate with a staircase depicted on the 1890 Ordnance Survey map (**Fig. 22**). This perhaps provides an indication of the date of the associated crucible furnace. The staircase would likely have accessed the first floor as no opening appears to have pierced the full width of wall 1745.
- 5.5.28 The modern structures within the opening in wall 1745 comprised a 0.7 m square grey machine brick and modern cement pier with seven courses extant (1742). On either side of pier 1742, the line of wall 1745 had been reinstated as a two-skin red machine brick and modern cement wall (1740) with weeping joints to the east, suggesting that the space enclosed by sandstone walls 1734, 1737 and 1738 was not accessible at this time.
- 5.5.29 The presence of these 20th century structures suggests that the crucible cellar may have been in use well into the 20th century, presumably long after the furnace had ceased to operate. The arrangement of structures surrounding modern pier 1742 is hard to interpret, but may represent a crucial point in the structure of the building that was largely replaced at a late date.

5.6 Area E/F

Introduction

- 5.6.1 Evaluation Trenches E and F (Wessex Archaeology 2017g) was expanded into strip, map and record Area E/F (**Fig. 23–33**) which targeted the site of the John Kenyon and Co. steel works, later occupied by Burgin and Wells and Footprint Tools. Two adjacent circular structures first evident on the 1853 Ordnance Survey map (**Fig. 30**) were targeted. The

expanded strip, map and record area sought to find the boundaries and limits of the two cementation furnaces as well as defining the limit and extent of the walls relating to the Fairbank 1787–9 plan of the Kenyon Works (Plot no.40; **Fig. 29**) and to confirm the possible presence of a third cementation chest. After the conclusion of the strip, map and record excavation, a watching brief was maintained in Area E/F monitoring the deep excavation of footings associated with the installation of a crane to facilitate development on Site.

General stratigraphy

- 5.6.2 The undisturbed natural geological substrate (2006 = 2016) was seen in some undisturbed locations, for example to the south-east of the southern cementation furnace, and also during the watching brief. The natural comprised yellow brown silt clay with sandstone.
- 5.6.3 The upper layer of overburden comprised a demolition rubble deposit (1501) derived from recent demolition of buildings on Site. Other made ground and overburden deposits generally comprised dirty silts, ash or rubble (1507, 1511, 1523, 1543, 2030, 2050, 2064-2066, 2075, 2078, 2101, 2108, 2113, 2115, 2119-2121, 2128 and 2147).
- 5.6.4 Dateable finds were recovered from layers of overburden; these deposits may represent demolition or imported material and cannot be relied upon to date any structures. Overburden deposits 1503 and 2115 contained pottery and clay pipe dating to the mid- to late-19th century, as did deposit 2030 which overlay the outer wall (2019) of a cementation furnace chest described below. Overburden 2115 contained a significant assemblage of clay tobacco pipe discussed under Artefactual Evidence below.

Phase 1: undated deposit 2164 and stakehole 2166

- 5.6.5 A layer of light brown yellow silt sand (2164; **Plate 26**) may be the oldest context encountered in Area E/F. No artefacts or dating evidence were described from this layer. Excavation in this location halted on safety grounds.
- 5.6.6 A small rectangular stakehole void (2166; **Plate 26**) cut layer 2164 and was 0.1 m by 0.08 m in plan and 0.76 m deep. The stakehole contained no fill (context 2167 was assigned to allow entry of the cut into an Access database).

Phase 2: early structures 2024, 2026, 2027 and 2162

Structure 2162 and associated contexts

- 5.6.7 Structure 2162 overlaid stakehole 2166 and was part of a series of structures (2024, 2026, 2037 and 2162; **Fig. 24; Plate 27**). These structures were preserved at a low level in the space between the outer structures of the cementation furnace chest (1533), the outer conical chimney of the cementation furnace (1537) and the furnace stoke hole entrance (1539; all described below). Structures 2024 and 2162 comprised sandstone and lime mortar, and structures 2026 and 2027 were built of handmade brick and lime mortar. Sandstone structure 2162 formed a foundation for brick structure 2026. Only fragments of these structures were preserved, having been truncated by construction of the cementation furnace. These structures appear to correlate with the north wall of the rear range of properties depicted on the John Kenyon and Co. plot in 1787–9 (**Fig. 29**).

Wall 2163

- 5.6.8 At the eastern limit of excavation, a single skin handmade brick and lime mortar wall ran north to south (2163; **Plate 47**). Wall 2163 contained CBM constituents which are rather thicker than normal tile but thinner than most bricks (around 0.03/0.04 m thick). Parliament

fixed brick sizes at 2.5 inches (0.63 m) thick in 1776 (Brunskill 1997, 38; Cunnington 2002, 147; Iredale and Barrett 2002, 22). These constituents may therefore have been manufactured prior to 1776. It is possible that the material was re-used and that wall 2163 is later in date. At the south end, 2163 was tied in to the north-east corner of the outer conical chimney of the cementation furnaces (2037). At the north end, wall 2163 was truncated by later brick flue 2154 described below. This wall may have been an unmapped exterior division in a yard associated with the John Kenyon works (**Fig. 29**).

Phases 3 and 4: mid-19th century cementation furnaces

- 5.6.9 The remains of two adjacent cementation furnaces were excavated (**Fig. 24, 25; Plate 28**). These furnaces were located in an area mapped as belonging to the 'Hollis Croft Steel Works' (in 1853; **Fig. 30**) and later the 'Globe Forge and Rolling Mills' (in 1890; **Fig. 31**). In the mid-19th century the works were operated by Burgin and Wells, and in the late 19th century by Thomas R. Ellin (Footprint Tools).

Cementation furnace outer chimneys

- 5.6.10 The outer conical chimneys of the cementation furnaces were represented by a series of three-skin handmade red brick and lime mortar structures (**Plate 29**). In the west and east of each furnace, the foundations were curving structures following the conical shape of the upper parts of the outer chimneys. The west curve of the south cementation furnace was formed by walls 2002 and 2014=2114. Wall 2014=2114 was seen to have been built in a construction cut (2110; **Fig. 33.8**) dug through the natural (2006); the backfill of this cut (2111) did not contain any dating evidence. The east curve of the south furnace comprised contexts 1537 and 2025. The west wall of the north furnace was represented by wall 2008, although the north end was truncated. The east wall of the north furnace comprised walls 1538 and 2037. Sandstone rather than brick had been used to construct wall 2037. The interior diameters of the outer conical chimneys were both about 7.7 m (roughly 8 yards, 1 foot and 2 inches) at the approximate level of the refractory chambers.
- 5.6.11 In the north and south, and between the two furnaces, the walls of the outer chimney were straight and ran approximately east to west. The surviving cementation furnace at Doncaster Street exhibits this same form, with the full circuit of the conical shape developing only at a higher level (this form can also be seen in other scars of cementation furnaces across the city eg at Nursery Street and at Bower Spring). The wall dividing the two furnaces was recorded as 1519, 1529 and 2007. Wall 1529 was built on a sandstone and lime mortar foundation (2165). Part of the south wall of the furnaces survived as wall 2003 although the wall had been truncated by the construction of a later wall on the same alignment (2020), and by later concrete footings. The north wall comprised contexts 2035 and 2040. The lower courses of 2040 were recorded as 2070; these courses curved out to the north towards the west (**Plate 30**).

Cementation furnace stoke hole entrances

- 5.6.12 The stoke hole entrances (**Plates 31 and 32**) were the below-ground access points for introducing fuel to the fire pits below the furnaces. Two entrances were present for each furnace, one in the west and one in the east. The entrances were formed by curving walls forming concave chambers within the convex shape of the outer conical chimneys. All four entrances were truncated to different degrees by later concrete footings. The west entrance to the south furnace could be identified by fragments of wall 2001 (not visible in plan) and 2015. The east entrance to the south furnace comprised structures 1539 and 2023. The west entrance of the north furnace was delineated by 2009 and 2038. The east entrance of the north furnace was formed by wall 2122. The west entrance to the northern furnace was particularly well preserved (**Fig. 32**); the original steel door to the fire pit was

still *in situ* (2047; **Plates 31 and 32**; also **Plate 50**). Door 2047 was only 0.52 m high and 0.42 m wide; access to the fire pit would have been limited. There was a lintel or arch (2051; **Fig. 32**; **Plate 31**) comprising end-on (soldier bond) firebricks above the steel door.

Cementation furnace ash pits

- 5.6.13 The ash pits of each cementation furnace were recorded during the watching brief (not drawn; **Plates 33–35**).
- 5.6.14 The walls of both ash pits (north ash pit 3007; south ash pit 3011) were lime mortared and comprised, from the base up, three courses of header bonded handmade brick, two courses of stretcher bonded handmade brick and two courses of sandstone blocks. Overlying the sandstone blocks were at least five courses of firebricks, the upper course of these were very slaggy and heat transformed; the fire may have been set at this level (**Plate 33**). Toothed ‘fire bars’ (**Fig. 60**) were seen to run across the fire pits and are discussed at length under Artefactual Evidence below. The fire bars shown to be slightly below the level of the stoke hole entrance (**Plate 34**). Different iron bars also ran longitudinally along small recessed shelves cut in to the sandstone (**Plate 35**). The width of the ash pits was 0.56 m.
- 5.6.15 The fills of the two ash pits each comprised two layers, a lower layer (3009 and 3013) of black charcoal and clay; deposit 3009 in the north furnace contained a glass bottle fragment which was not closely dateable. The charcoal layers were likely related to the last use of the furnaces. The upper layers (3008 and 3012) were 0.4 m and 0.46 m deep respectively and comprised heat affected red brown mixed clay. Layers 3008 and 3012 may represent deliberate backfill or may represent material degraded from firebrick and other structures above. Upper fill 3008 produced four sherds of pottery of 19th or early 20th century date, including two sherds from a child’s alphabet mug, an unusual object for this context which might suggest meaningful deposition. A single small sandstone block (3010; 0.66 m by 0.5 m by 0.1 m) appeared to have been placed in the northern ash pit to decommission the furnace (rear of **Plate 35**).
- 5.6.16 The east stoke hole entrance of the southern cementation furnace was re-recorded during the watching brief as 3014 (during the evaluation and strip, map and record excavations this was recorded as 1539 and 2023). The stoke hole entrance door (3015; **Plate 34**) was recorded and was 0.76 m high and 0.83 m wide, larger than the door to the western stoke hole of the north furnace recorded during the strip, map and record excavation (2047).

Gap between inner and outer structures of cementation furnaces

- 5.6.17 Within the outer red brick structures, the inner chests of the furnaces were contained within rectangular brick structures 5.7 m (roughly 6 yards, 8 inches) by 4 m (roughly 4 yards, 1 foot and 1.5 inches) in plan. Except for at the stoke hole entrances and low-level foundations, there was no masonry bridge between the inner and outer brick structures. This arrangement was likely for insulation, both to promote the efficiency of the furnace and to protect the surrounding works from the heat. The gap between the firebrick structures and the red brick structures (**Fig. 32**) was filled with sand or clay (1513, 1518, 1520, 1528, 1530, 2004, 2011, 2012, 2016, 2017, 2018, 2022, 2028, 2029, 2042, 2043, 2044, 2124 and 2135). Close to the furnaces, these deposits strongly exhibited heat transformation in the form of colour change and a fired or baked appearance (eg 2124). Further away from the furnaces the same deposits were not heat transformed (eg 2125). The heat transformation indicates that these fills were contemporary with the furnaces rather than later demolition or imported material.

- 5.6.18 Deposit 2011 was laid down against the outer wall of the northern cementation furnace chest (2010) and contained pottery dating from the mid- to late-19th century alongside other sherds dating back to the 17th century. A clay tobacco pipe bowl found in deposit 2011 was probably deposited between 1870 and 1920, and a pipe from 2016 against the outer chimney wall (2014) in the west of the southern furnace was probably deposited between 1830 and 1860. Deposit 2017 was laid down between chimney wall 2014 and chest wall 2013 and contained a sherd of 19th century or early 20th century pottery, consistent with a mid- to late-19th century date for the furnaces.
- 5.6.19 A slot was excavated to the north-east of the cementation furnace chests between the outer conical chimney (2037 and 2035) and the outer structures of the chest (2031). The north wall of the outer chimney (2035) was built on a wider foundation (2036; **Plate 36**) which also supported the chest (2031). Foundation 2036 extended 0.42 m south of wall 2031 and was built of handmade red brick and lime mortar.

Cementation furnace outer chest structures

- 5.6.20 The chests of each furnace (**Plates 36–40**) were enclosed within two outer skins of handmade red brick and lime mortar and two inner skins of firebricks and lime mortar. In the case of the south furnace, these structures were generally poorly preserved. The west end of the outer red brick walls of the southern furnace were contexts 2000 and 2013. A fragment of the south side of this wall was preserved (2019). The north and east sides of the red brick wall were not preserved; here excavation proceeded to a lower level beneath the base of the chests and comprised a single firebrick structure four skins wide but with some red brick haphazardly mixed in (1517, 1527 and 1533). A small part of the inner firebrick wall was seen in the north-west of the southern furnace (2168; not illustrated). The outer walls of the north furnace chest were better preserved: the outer red brick structures comprised (clockwise from north-west) 2039, 2031, 1534, 1531, 1521 and 2010; and the inner firebrick walls were (clockwise from north-west) 2057, 2069, 2170, 1535, 1532 and 1522. In one location (below 2031), the outer brick structures of the chests were seen to be built on a sandstone foundation (2032 and 2034).
- 5.6.21 Pottery and clay tobacco pipe were recovered from within the outer red brick structure of the north furnace chest (2031). The four sherds of pottery indicate a mid- to late-19th century date for the construction of the cementation furnaces, supported by a slightly earlier date of 1800–1850 for the clay pipe.

Cementation furnace chests

- 5.6.22 Each furnace (**Plates 37 and 38**) followed the typical arrangement of two parallel chests, each containing a 'coffin' or refractory chamber. The structures were aligned approximately east to west. The south furnace chest comprised context 1514 and, on the far side of truncation by concrete footing 1508, context 1525. The north furnace chest comprised contexts 1524, 1536 and 2033. The chests were built of ganister, a refractory grade of sandstone obtainable in the Sheffield area. The ganister was somewhat purple, indicating that it had been intensely heated. The joints between the blocks of ganister were sealed with material which appeared to be identical to the overlying crozzle (described below). It is unclear if this sealing was obtained by intentionally applying a matrix material between the ganister blocks or if melted material had penetrated the gaps from above. In either case, the bonding of the blocks was probably desirable and would have helped restrict the flow of hot gases through the flues and prevent contamination of the steel.
- 5.6.23 Each furnace had a central line of vertical flues running between the two chests. These were observed as a series of square openings around 0.22 m in width (roughly 8.5

inches). A maximum of five of these openings were preserved; before truncation there would have been nine. These vertical flues were mirrored by a vertical space at the north and south of the chests of both furnaces; in these areas gas could freely travel through an open space between the chests and the enclosing firebrick walls. Here the firebrick was heavily heat transformed and was obscured by a surface layer of slag-like deposit, presumably derived from material deposited out of the hot gases from the underlying fire, mixed with the degraded firebricks. A similar arrangement appears to have been in place at the east and west ends of the structures, although preservation was poorer. The firebricks at the west end of the southern furnace (2168) and north side of the northern furnace (2169) appear to have been more heavily heat transformed with more substantial slag-like deposits than other comparable structures, possibly indicating minor differences in gas flow.

- 5.6.24 The eastern parts of the north furnace were truncated, providing a view of the flues underlying the refractory chambers (1524, 1536). These flues ran perpendicular to the refractory chambers (north to south) and matched the arrangement of the central flues: prior to truncation there would have been nine flues beneath each side of the chest. The flues were once again around 0.22 m (8.5 inches) square.
- 5.6.25 Slaggy deposits had started to form within the flues; in the northern side of the southern furnace (1514) this slag (1541; **Fig. 32**) was recorded as white, dark grey and purple ashly grit and was sampled (see Artefactual Evidence below).
- 5.6.26 Overlying the ganister flues were layers of crozzle (1515 and 2139) forming the base of each of four chests or refractory chambers. This slag-like material formed a gas-tight refractory lining for the chests and is discussed at length under Artefactual Evidence and in **Appendix 6** below. The impression of ferrous bars from the firing of the furnace was preserved in the upper surface of the crozzle (**Plate 38**; discussed in detail under Artefactual Evidence below).
- 5.6.27 The furnaces were truncated above the level of the crozzle, however it could be seen that the crozzle originally continued up the inside walls of the refractory chamber, suggesting that the chambers were completely lined in this way.

Phased development

- 5.6.28 A section was obtained through the north refractory chamber of the south furnace (**Fig. 32**; **Plate 40**). At the base of the section, a structure (1547) had been constructed to support the overlying furnace. Structure 1547 was comprised of a mixture of firebrick and handmade red brick and was probably originally bonded with lime mortar, although the matrix had been heavily heat transformed. Above this, a second similar structure was three courses high (1516). Gaps in structure 1516 were filled with degraded masonry; it is unclear if structure 1516 was originally intended to contain flues or gaps for the passage of hot gas. Structure 1516 was overlain by a layer of ganister blocks 0.1 m (roughly 4 inches) thick (1544). These ganister blocks supported a layer of crozzle (1545) which is interpreted as being the base of a refractory chamber belonging to an earlier phase of furnace activity (R Mackenzie pers. comm.). It is possible that this earlier version of the cementation furnace was rebuilt due to the unsatisfactory provision of flues through the chest; heat would have had to conduct directly from the fire pit to the refractory chamber through the structures. The periodic replacement of cementation furnace chests may have been standard practice, a view shared by Belford (1998). It is likely that this earlier layer of crozzle was left *in situ* because it was tenacious and difficult to remove. The chest flues associated with the main phase of activity (1514) were built directly on top of crozzle

1545, and the sequence was finished with the main layer of crozzle (1515) above the chests.

- 5.6.29 No further evidence of phased activity at the cementation furnaces was detected. The other three chests were not investigated to determine if evidence of the earlier phase of activity was preserved below them. It is likely that the majority of structures associated with the cementation furnaces belong to the earlier phase and that the chests themselves were the focus of redevelopment during the later phase.

Cellars accessing the cementation furnace stoke holes

- 5.6.30 The immediate access to the cementation furnace fire pits was by the stoke hole entrances described above. These entranceways were accessed by handmade brick and lime mortar vaulted cellars described in this section (**Plate 41**).
- 5.6.31 The west entrance to the south furnace was accessed through a vaulted cellar 2127 which extended for 0.6 m beyond the outer conical chimney of the cementation furnace (2014). This feature (2127) then intersected with a north to south aligned cellar (2112). Redeposited clay 2109 had been laid over the top of vaulting 2112, probably as part of the original construction. To the west of cellar 2112, a handmade brick and lime mortar two-skin wall (2104) ran north to south at the edge of the area of excavation. These structures were truncated to the south and west by concrete footings. To the north, later wall 2105 (described below) had been built over deposit 2109 and excavation did not continue beyond this point. Where vaulting 2112 had been breached, the cellar below had been backfilled with demolition material or made ground 2113.
- 5.6.32 The cellar accessing the east stoke hole entrance of the south furnace had been removed by truncation by later concrete footings. The cellar accessing the east entrance of the north furnace was represented by a small surviving fragment of vaulting (2123; **Fig. 33**). The cellar had been backfilled with later demolition/made ground deposits 2120 and 2121.
- 5.6.33 The west entrance to the north furnace was the best preserved (with metal stoke hole door 2047 described above). The stoke hole entrance had been decommissioned by inserting a pile of unmortared sandstone slabs and blocks to prevent access (2048). Behind these, brick vaulted cellar 2046 extended west for 1.8 m before passing out of the area of excavation. Later black ash mortar structures (described below) were built directly on top of the vaulting at the edge of the excavation area.

Phases 2–4: other lime-mortared structures

Walls 2103 and 2098

- 5.6.34 Further north, two structures (**Plate 42; Fig. 23 and 33**) were seen in section below machine bases 2100 (described below). Heat-affected firebrick structure 2103 was seen in section only and was bonded with lime mortar. This structure was situated far to the north of the two cementation furnaces described above and it indicates the presence of some hot process. It is possible that heat affected structure 2103 represents part of another cementation furnace, a boiler (perhaps associated with a power supply or similar), some other type of furnace or any other hot process associated with a steel works. No further evidence was recorded to support these possibilities.
- 5.6.35 On top of the truncated remains of 2103, a red brick and grey sandy lime mortar wall had been roughly built (2098). It is possible that 2098 represents a repair to 2103; however it is more likely that 2098 was constructed after the decommissioning of 2103 and opportunistically used the remains of 2103 as a foundation.



- 5.6.36 Structures 2103 and 2098 were overlain by later structures (2097 and 2100) described below. Structures 2103 and 2098 represent survivals of 18th or 19th century structures in a part of Area E/F containing mostly later structures.

Far north of Area E/F

- 5.6.37 In the far north of Area E/F close to the Hollis Croft frontage, a patch of structural remains was investigated that were stratigraphically detached from remains in the rest of the area. Lime mortar and handmade brick walls 2130 (**Plate 43**) were generally four skins thick and partially enclosed two rooms. Three skins (of four) of part of wall 2130 were at a slightly different level but in identical materials and may represent an earlier event within the same phase of construction (2131). The southern of the two rooms was floored with sandstone flags (2129) and was roughly 4 metres square although later drains had truncated the floor in the centre and south. A further fragment of handmade brick and lime mortar wall (2138) formed the north-west corner of this room.
- 5.6.38 A series of fragmentary structures were intermittently preserved in the far north-west of Area E/F (**Plate 44**). Walls 2062 and 2063 represent lime mortared sandstone foundations and were associated with single skin handmade brick and lime mortar wall 2061. The fragmentary preservation of the features hampers further interpretation. Historic maps from the 18th century show this area within the Hollis Croft street frontage range. By the 19th century this area was situated within a large built-up expanse without any interior detail depicted in the area of these features (**Fig. 30, 31**).

Cellar 3017

- 5.6.39 During the watching brief, a handmade brick and lime mortar cellar was recorded to the north of Area E/F. The north-west corner contained evidence of a quarter-turn staircase including remnants of brick risers and sandstone treads (3017; **Plate 45**). The floor of the cellar had not survived demolition.

Garden Street plot

- 5.6.40 Wall 2091 (**Fig. 25; Plate 46**) was two skins wide and ran east to west. Wall 2091 butted against the south wall of the southern cementation furnace (2003). Wall 2091 comprised handmade red bricks with a matrix of brown sandy clayey material which may describe lime mortar or a deposit derived from lime mortar. This wall divided the Hollis Croft and Garden Street plots that made up the works. There would have been little more than 30 years left on the term of at least the Garden Street plot and it is likely that this was kept in mind during construction of the cementation furnaces. Later, the Garden Street plot would be held separately to the Hollis Croft plot; for example in 1890 (**Fig. 31**) the Garden Street plot was operated by the British Works (Electro Plate).
- 5.6.41 South of wall 2091 within the Garden Street plot was a large (4.5 m by 3.5 m) surface comprising two courses of brick (**Plate 46**). The centre of the surface had been truncated by a later concrete footing, and most of the upper course of brick was missing, probably lost during insertion of the footing. The lower course (2089) comprised handmade red brick and opportunistically used firebrick in a matrix of dirty silt. The upper course (2090) may have been an attempt to repair the floor and comprised clearly re-used handmade brick with traces of mortar and paint. At least one frogged machine brick was present in floor 2090, possibly as the result of a later repair. A concrete surface had been poured over floor 2090 which partially survived.



Phase 5: late 19th century/early 20th century machine brick and black ash mortar structures

Northern cellars

- 5.6.42 A complex of machine brick and black ash mortar vaulted cellars extended across the area north of the cementation furnaces (**Plate 48**). In 1853 the Ordnance Survey map (**Fig. 30**) showed the area occupied by these cellars was partly inside buildings associated with the Hollis Croft Steel Works, and partly in an undeveloped yard area. By 1890 (**Fig. 31**) these cellars were entirely within the built-up area of the works. The cellars therefore likely post-date 1853.
- 5.6.43 Cellar 2041 ran north from close to the west stoke hole entrance to the northern furnace. During the subsequent watching brief the south end of cellar 2041 (**Fig. 25**) was seen to be connected to earlier cellar 2046 via an opening inserted in the side of 2046 (**Plate 39**). During the watching brief, the cellars were seen to have been floored with sandstone flagstones laid directly on natural clay. A continuous length of 6.2 m of vaulting 2041 was preserved; the north end (**Fig. 23**) was truncated by a concrete footing. Dark brown mixed clay had been deposited over 2041 as part of the original construction of the cellars (2045). West and above cellar 2041, the area above the curve of the vaulting was filled with masonry infill 2087 in the same materials as the vaulting.
- 5.6.44 A partly blank or blocked opening leading to an east to west aligned cellar at a lower level than the other cellars was photographed during the subsequent watching brief (**Plate 50**; not drawn). This led west from cellar 2041 out of Area E/F.
- 5.6.45 Two east to west aligned cellars (2074, 2077; **Plate 48**; **Fig. 32**) ran east from vaulting 2041; the vaulting at the junctions of these features was shaped to allow access between them. The space between the vaulting had been filled with machine brick and black ash mortar masonry (2076). Similar infill masonry was present north and south of the cellars (2093 and 2171; **Fig. 32**). Where vaulting 2074 had been breached, the underlying cellar had been backfilled with demolition rubble or made ground 2075. Similarly, the cellar below vaulting 2077 was backfilled with 2078. During the subsequent watching brief, an opening was photographed (**Plate 51**) showing a small communication between these two cellars under a low arch.
- 5.6.46 North of structure 2093 there was a space where another east to west aligned vaulted cellar might have been expected. In this area there was instead a partially preserved unmortared firebrick surface (2095; **Plate 52**). The firebricks were dirty but did not appear to have been reused and showed no signs of having been heated. They had been laid on a deposit of mid- to dark grey brown sand loam with brick fragments, stone, ash, clinker etc. (2094=2140) which contained a button dating to the 18th century or later. Levelling layer 2094=2140 overlay another levelling layer, 2144. Beneath these deposits, a north to south aligned wall (2142; not illustrated) formed the foundation for wall 2141, the west west wall of a further cellar below vaulting 2088 (described below). Two truncated machine brick and firebrick piers were also present (2143). Made ground deposit 2145 continued below the base of excavation. It did not appear that surface 2095 had replaced earlier removed vaulting; no evidence of springers or of repair to removed springers was identified. To the north of firebrick floor 2095 a structure (2096; **Fig. 32**) resembled the infill masonry associated with the cellars to the south. Structure 2096 comprised black ash mortar and machine bricks, reused handmade bricks and firebricks, suggesting opportunistic use of materials. Structure 2096 overlay a major east to west wall defining the northern limit of these structures.

- 5.6.47 Cellars 2074 and 2077 were truncated in the east by concrete footing 1508. This footing had destroyed the intersection of cellars 2074 and 2077 with a further north to south aligned cellar roofed by vaulting 2088. Cellar vaulting 2088 was mainly preserved only north of concrete footing 1508. The west wall from which vaulting 2088 may have sprung (2141 and 2142) comprised two skins of machine brick and black ash mortar and was seen at low level below unmortared firebrick surface 2095. The north end of 2088 disappeared into infill masonry 2096 and was not pursued; cellar 2088 may have terminated at wall 2097.

Major east to west aligned wall 2097

- 5.6.48 A substantial wall (2097; **Plate 42; Fig. 32 and 33**) defined the northern limit of the cellars. Wall 2097 divided two plots or areas within the Hollis Croft Steelworks/Globe Forge and Rolling Mills. Wall 2097 was three to nine skins thick (0.36–1.08 m) and comprised machine bricks and black ash mortar. Context 2102 likely represented part of wall 2097 in an area disturbed by later footings. Four sandstone machine bases (2100) were inserted through the west end of wall 2097. Earlier structures 2103 and 2098 (described above) were located below machine bases 2100.
- 5.6.49 A small fragment of a black ash mortar and machine brick structure (2099) was situated near the west end of 2097 and was 0.69 m by 0.47 m in plan although it was somewhat displaced. Structure 2099 might represent a fragment of wall or possibly a base for a machine or some other activity. Context 2099 might also represent nothing more than a large piece of rubble.

Ground level flues above cellars north of cementation furnaces

- 5.6.50 West of cellar 2041, wall 2086 (**Plate 53**) was built directly on top of infill masonry 2087. Wall 2086 was aligned north to south and comprised a mixture of machine brick, re-used handmade brick and opportunistically used firebrick, bonded with black ash mortar. Wall 2086 was three skins thick.
- 5.6.51 A large curving flue (2080–2083; **Plate 53**) mainly ran north to south to the west of wall 2086, but curved to the east at both ends, where it was built through wall 2086. The turn to the east had a smaller radius at the north end than at the south end. The floor of the flue comprised 2081, a machine brick and black ash mortar structure with some machine bricks exhibiting a very small frog. The side walls (2080 and 2082/2083) were built on top of the floor of the flue. The interior wall (2082/2083) comprised firebricks (some possibly heat affected; the heat transformation may have occurred prior to re-use) and black ash mortar. Some of the firebricks in 2082/2083 were curved radial bricks. The exterior wall (2080) was similar but contained some red machine brick and did not use radial bricks. This structure most likely represents a flue for the movement of gas. No soot was present on the interior of the flue, suggesting that it was not intended to carry exhaust gases. There were generally few signs of heat transformation, and it is possible that the few bricks that did exhibit heat transformation had been transformed prior to re-use. The flue likely did not carry very hot gases. Interpretation of the flues is an open matter and is covered under Discussion below. The north end of the flue appeared to run towards the area above unmortared firebrick surface 2095. The relationship between these structures is unknown as a result of later disturbance, but it is possible that some process related to the flues occurred above unmortared firebrick floor 2095.
- 5.6.52 Between flue 2080–2083 and wall 2086 was an area of disturbance which afforded a view of the underlying deposits. A dark brown silt clay made ground (2092) was present under flue floor 2081. A single ganister 'sleeper' (2084; **Plate 53**) 0.2 m wide was seen within made ground 2092. This ganister block was identical to those used to form the flues under

the cementation furnace chests (eg 1514). In this context the ganister 'sleeper' likely represents rubble rather than a structural element, but its presence does indicate that a further cementation furnace was likely formerly present somewhere in the immediate area. This hypothetical demolished cementation furnace must have been decommissioned prior to the construction of the machine brick and black ash mortar structures.

- 5.6.53 Also in this area, a small fragment of a former brick surface comprising machine bricks and black ash mortar was seen at a lower level (2085; **Plate 53**). Surface 2085 was on a different alignment (north-east to south-west) compared to the rest of the structures in Area E/F and must represent a phase of development prior to the construction of the cellars and flues in the area to the north of the cementation furnace remains. A late 19th century date is possible for feature 2085 on the basis of materials and stratigraphy.
- 5.6.54 To the west of flue 2080–2083, the end of a two-skin black ash mortar and firebrick wall (2079) was seen to extend to the west out of the area of excavation. The top course of 2079 comprised red machine brick instead of firebrick. It is unclear if wall 2079 was truncated by flue 2080–2083 and is therefore earlier than the flue, or if the structures are contemporary.
- 5.6.55 The south end of flue 2080–2083 curved to the east but was not preserved in the area above vaulted cellar 2041. On the east side of cellar 2041, the flue continued. The floor of the flue (2072) was built directly on masonry infill (2171) and again comprised machine bricks, some with small frogs, and black ash mortar. The two side walls of the flue (2071 and 2073) comprised firebricks and black ash mortar but were not this time built on the floor (2072) but next to it.
- 5.6.56 The east end of flue 2071–2073 was at a concrete base lined with machine bricks (2172; **Plate 54; Fig. 24**). Here, the base of flue wall 2071 was recorded as 2116 and was three skins thick. The lower stepped courses of masonry infill 2171 were recorded as 2117. Beyond this, concrete footing 1508 further truncated the flue.
- 5.6.57 On the east side of concrete footing 1508 the flue continued (2154; **Plate 55**) and began to curve to the north although it was narrower (0.5 m wide externally compared to 0.6 m externally elsewhere). In the east as the flue left the area of excavation the entire vaulted structure of it was preserved (**Plate 55**). Flue 2154 comprised firebricks with some red brick and sandstone and was bonded with a heat transformed sandy pink mortar. Flue 2154 therefore likely transported hot gases, but not exhaust gases as the interior was not sooty. The vault was 0.7 m high externally, demonstrating that these structures were flues rather than cellars and were not intended for human access. Immediately east of the truncation by concrete footing 1508, flue 2154 contained 'guillotine'-style metal gates or sluices (2175; visible at bottom of **Plate 55**) that could be used to cut off the flow of the flue. Up to three layers of metal were present forming the blockage. This metalwork appeared to be part of the original structure of flue 2154 rather than shoring associated with concrete footing 1508.
- 5.6.58 A second flue (2149; **Plate 55; Fig. 33**) was present north and west of 2154. Unlike the others, flue 2149 had a sooty interior indicating that it carried exhaust gases. Flue 2149 was built of firebricks and ash mortar. A steel 'guillotine'-style steel door (2148; **Plate 55**) was present at the easternmost point of flue 2149. The presence of this door may be the reason the flue curved so far to the east. North of the gate, the floor of flue 2149 was formed of bricks (2151); south of the gate the floor was largely absent save for three bricks (2152, also 2150 north of the gate) designed to secure the door in place. Underneath flue 2149 was a layer of heat affected natural clay (2146) indicating that the

contents of the flue were hot, consistent with an interpretation as an exhaust flue. Flue 2149 was filled with dark ashy material (2147) which was probably a post-demolition made ground deposit rather than having been derived from activity associated with the flue.

- 5.6.59 At the south end, flue 2149 was situated within the interior arc of flue 2154 and shared a wall with it. However, the curve of flue 2149 was sharper than the interior curve of 2154 and the structure came around 180° to pass back to the west, where it was again truncated by concrete footing 1508. The interior wall opposite wall 2149 had also been removed by this truncation. On the far side of the footing, the flue continued, with the walls formed as part of larger structures 2076 and 2171. This part of the flue occupied the space that would otherwise have contained cellar 2074; the cellar terminated at the west end of the flue. The flue therefore returned to the opposite side (north) of concrete footing (2172) which may have supported some machinery or structure critical to the operation of the flues.

Surface 2156 and associated contexts

- 5.6.60 North of flue 2149 on the east side of concrete footing 1508 was a machine brick and black ash mortar surface (2156). This surface likely represents the ground floor level above the cellars on the same level as the flue complex. Surface 2156 was built on levelling layers 2157–2161, which did not contain dateable artefacts. In the east, towards flue 2154, surface 2149 was missing and a deposit of heat affected natural (2155) was observed beneath the extant structures. The observed heat transformation may have been due to proximity to flue 2154. The heat transformation of natural 2155 may indicate the former presence of some otherwise unrecorded hot process, such as a furnace or a boiler.

Walls built over earlier cementation furnace access cellars

- 5.6.61 A series of walls (2067, 2069 and 2105; **Fig. 25; Plate 56**) likely represented later ground floor division or redevelopment of buildings situated above the cementation furnace access cellars to the west of the cementation furnaces.
- 5.6.62 Wall 2105 was located to the west of the cementation furnaces and was built in a construction cut (2107) through deposit 2109 which in turn overlay vaulted cellar 2112 (**Fig. 33**). Wall 2105 was built of unfrogged machine brick and black ash mortar two skins thick. Wall 2067 was a continuation of wall 2105 and formed the east and north sides of a space enclosed by wall 2105 in the south. Wall 2067 was built directly on to cellar vaulting 2046 and on stoke hole entranceway wall 2009. It appears that at ground level structure 2067/2105 would have directly abutted the outer conical chimney of the north cementation furnace. The space between walls 2067 and 2105 was mainly filled with a later concrete footing, but also partly with backfill material 2106 associated with wall 2105. North-east of wall 2067 were 2068 and 2069, similar two skin machine brick and black ash mortar walls forming an 'L' shape at the edge of the area of excavation, with a small buttress directly above the apex of earlier vaulting 2046. Wall 2068 was on approximately the same alignment as earlier wall 2104 to the south, which indicates that these black ash mortar walls likely represent division or renovation of earlier structures. It is likely that these structures may have been associated with the later use of the cementation furnaces due to their location adjacent to, and respecting, the furnaces. Speculatively, these may have been store rooms for iron, steel or coke. Alternatively some other process may have occurred here, perhaps associated with the output of the furnaces.

Sandstone surfaces east of the cementation furnaces

- 5.6.63 A deposit (1513) had been used to backfill the area around the east entrance to the north cementation furnace. Deposit 1513 comprised clean dark yellow clay with sandstone and must have been anthropogenically deposited as it abutted structures 1538 and 2122 (**Plate 57**). This deposit was cut by a construction cut (1540) for the insertion of sandstone floors 1512 (blocks), 1509 (setts) and 1510 (setts) (all **Plate 57**). Sandstone blocks 1512 were truncated by later wall 1504 so these structures have been assigned to Phase 5, being later than the cementation furnaces but earlier than the truncating frogged machine brick walls of Phase 6.

Phase 6: frogged machine brick and black ash mortar structures

Area of cementation furnaces

- 5.6.64 Concrete footing 1508 ran north to south across most of Area E/F truncating both cementation furnaces as well as the cellars and flue system in the north. Footing 1508 originally carried a four-skin frogged machine brick and black ash mortar wall which was preserved in some locations (1502, 1503 and 2020). Occasionally these walls (eg 1502) widened to four skins; these areas may have acted as stanchions or piers. Wall 1504 was keyed in to wall 1502 and ran on a machine brick foundation to the east, truncating the east entrance to the northern cementation furnace.

Far north of Areas E/F

- 5.6.65 Concrete footings (2174) to the west of walls 2130 and east of structures 2061–2063 in the extreme north of Area E/F carried a series of frogged machine brick and black ash mortar walls (2060), which were generally three skins wide although preservation was variable.
- 5.6.66 East of walls 2130, a short length of a two-skin north to south aligned frogged machine brick and black ash mortar wall (2134) was uncovered.

Other

- 5.6.67 Further concrete footings were present across Area E/F but were not assigned context numbers.
- 5.6.68 A three-skin brick inspection chamber (3018, not illustrated) was recorded to the east of cellar 3017 in the far north of Area E/F. Inspection chamber 3018 was constructed from machine brick and black ash mortar and was roofed with iron bars and concrete.

Phase 7: structures bonded with modern cement

Modern

- 5.6.69 A drain inspection chamber south of sandstone floor 2129 in the extreme north of Area E/F comprised machine bricks and modern cement, although traces of black ash mortar were prominent on the bricks indicating re-use. It appears that some units of masonry bonded with ash mortar had been included within the cement bonded structure. The outer walls of the inspection chamber comprised two-skin walls (2053, 2133). The interior surface was made of smooth concrete shaped to contain drainage channels (2052). A fragment of leather shoe was recovered from these drainage channels. A large piece of sandstone (2132), likely an element of former machine base, had been positioned to help support the inspection chamber. Running north from the inspection chamber was a cut (2135) truncating surface 2129 and walls 2130, and containing a concrete drain (2137).
- 5.6.70 North of sandstone wall 2062, a machine brick, sandstone and modern cement structure (2126) might represent a drain.

5.7 Area G

Introduction

- 5.7.1 Area G was investigated by evaluation trench only (Wessex Archaeology 2017g) and did not proceed to strip, map and record excavation. Trench G (**Fig. 34, 35, Plates 58–59**), was parallel to Garden Street and measured 10 m by 4 m. Archaeological preservation was confined to a single, well defined, rectangular area 6 m long by 2.6 m wide and was located in the west of the trench. This correlates with a structure forming part of the Exchange Works (cutlery) as depicted on the 1890 Ordnance Survey map (**Fig. 35**).

General stratigraphy

- 5.7.2 Demolition rubble (1401) overlay the preserved archaeological structures. The undisturbed natural geological substrate comprised light grey yellow sand clay (1402) and was seen across most of Trench G.

Late 19th/early 20th century

- 5.7.3 A building or structure over 6 m long and 1.7 m wide was enclosed by un-frogged machine brick and black ash mortar walls with somewhat irregular bonding: walls 1406/1407 (north side), 1408 (south side), and the partially preserved 1417 (east side). The west side of the building or structure lay outside of the excavation area. Wall 1406 was four skins wide (0.5 m), but doubled in thickness to eight skins (1 m) in the west, with the additional thickness located inside the building and recorded as 1407. Wall (1408) mirrored this arrangement, generally two skins thick (0.24 m) but widening to four or five skins (0.54 m) in the west. A maximum of four or five courses of these walls were preserved.
- 5.7.4 The constriction of the building or structure in the west formed a narrow bay approximately 0.6 m wide (**Plate 59**). Bull-nosed bricks built into walls 1406 and 1408 marked the corners of the bay. The bay was floored with machine bricks (1410) with a slight gradient angled down to the east.
- 5.7.5 The shape of the bay is reminiscent of an ash pit of a crucible furnace such as those identified at Hoyle Street (Powell 2014) and elsewhere at Hollis Croft (Area D). However, it would be extremely unusual to see an isolated crucible hole of late 19th-century date (as the machine brick constituents of the structure suggest). The narrow bay showed no signs that it was associated with a hot process. Identification of the bay with a crucible furnace cannot be supported by the results of the evaluation. The function of the bay is unknown.
- 5.7.6 The remainder of the interior of the building or structure was 3.1 m long and 1.4 m wide and was floored with sandstone flags (1405). The south-west corner of the floor exhibited signs of intense wear. A frogged machine brick drain (1414) was built into the south-west corner of floor 1405 and drained south under wall 1408. Drain 1414 comprised a single skin forming a sub-square approximately 0.5 m square.
- 5.7.7 In the opposite corner to drain 1414 (the north-east corner), was a similar machine brick structure (1404) although structure 1404 did not appear to be a drain. The interior of structure 1404 was floored with sandstone flags. Structure 1414 was one skin thick, three courses high, 0.62 m long and 0.59 m wide.
- 5.7.8 A two-skin 'zig-zag' shaped frogged machine brick and black ash mortar wall (1412) ran across the area floored by 1405 (**Fig. 34**). The function of structure 1412 is unknown.

20th century

- 5.7.9 The end of the bay enclosed by walls 1406/1407 and 1408 was bricked up using black ash mortar and a variety of re-used bricks including frogged machine brick (1411). Structure 1411 was 0.60 m long, 0.40 m wide and 0.30 m high and consisted of three courses; the bottom course comprised side-on headers, and the upper courses were stretcher bond.
- 5.7.10 The surviving uppermost course of zig-zag wall 1412 and drain 1404 were capped with cement.
- 5.7.11 Concrete floor 1403 was then poured over sandstone floor 1405 and structures 1404, 1412 and 1414, and was 0.35 m thick. The concrete surface sloped from east to west. Long, thin rods of iron and a large wooden beam were found on top of concrete floor 1403. The iron rods and wooden beam had adhered to the surface, probably as a result of a post-demolition process such as pressure and/or wetting. These items may indicate the late use of the structure as a storeroom.
- 5.7.12 The materials used suggest a late-19th-century or 20th-century date consistent with their appearance on the 1890 Ordnance Survey map (**Fig. 35**). The function of the archaeological structures in Trench G is unknown. A staircase is depicted in this location on the 1890 map (**Fig. 35**); the excavated structures do not appear to have formed part of a staircase. It is possible that the staircase was at a higher level, with the excavated structures perhaps at cellar height.

5.8 Area H

Introduction

Area H was investigated with an evaluation trench only (Wessex Archaeology 2017g) and did not proceed to strip, map and record excavation. Trench H (**Fig. 36–40, Plate 60–62**), was located towards the north-east of the site. Trench H targeted a cutlers' works belonging to John ?Pier evident on the 1787-9 Fairbank town plan (**Fig. 38**). In 1853 (**Fig. 39**), Area H occupied an area of back-to-back housing, perhaps in the area of number 11 Hollis Croft, although no census records of a house of that number were made in 1851. The houses may perhaps have instead been referred to by a court number. It is unknown what court number that may have been. Court 1 was located to the east in 1890 (**Fig. 40**), although by that time the area had changed significantly since the 1850s. In 1890, the 'Globe Forge and Rolling Mill' (likely to be Thomas R. Ellin/Footprint Tools) had expanded to encompass Area H. It is likely that the archaeological remains recorded in Area H relate to this late-19th century expansion. The materials used (including black ash mortar) are consistent with this date.

General stratigraphy

- 5.8.1 Layers of rubble made ground (1301 and 1302) and dirty redeposited natural (1303) overlay the preserved archaeological structures.

Late 19th century first phase

- 5.8.2 Parts of two brick vaulted flues (1304/1305 and 1306) were preserved in the centre of the trench. Two flues were evident in the centre of the trench. The most easterly flue ran approximately north-east to south-west and comprised two elements on slightly different alignments: 1304 ran more towards north to south and 1305 ran more east to west. Flue 1304 was 1.40 m long and 0.70 m wide. Flue 1305 was 1.07 m long and 0.62 m wide. The northern end of flue 1304 was heavily damaged and consisted of a firebrick-lined convex aperture ten courses wide. Flue 1305 was constructed from a mixture of handmade red

brick and firebrick. The roof vault, seven courses wide and two skins thick, was removed to investigate the flue's depth (**Plate 61**) which proved to be 0.6 m. Blackish red soot lined the inner facing of the flues. The flues contained a lower fill of slag and ash (1319) and an upper fill of demolition rubble rich in degraded firebrick (1318)

- 5.8.3 A second flue (1306) ran parallel to flue 1304 and was 1.11 m long and 0.75 m wide. The firebrick vaulting of the flue was twelve courses wide and one skin thick and was sooty on its inner surface. The floor of the flue comprised handmade red bricks. Ash again lined the inner skin of the flue. The flue was filled with rubble (30%) in a matrix of dark reddish brown sooty sand (1317).
- 5.8.4 A structure comprising firebricks and sandstone (1307) was present at the south limit of excavation and may have been related to the flues.
- 5.8.5 The soot on the interior of the flues indicates that they carried dirty exhaust gases, most likely towards some chimney.

Late 19th/early 20th century second phase

- 5.8.6 A series of walls truncated the earlier flues.
- 5.8.7 Wall 1311 truncated the north end of flue 1306 and formed an 'L'-shape in plan. One part of wall 1311 ran roughly east to west immediately north of the surviving part of flue 1306 and was 1.52 m long and three skins (0.36 m wide), with poorly applied ash mortar. The east end of wall 1311 turned to the north, continuing beyond the area of excavation. At the limit of excavation, wall 1312 was bonded to wall 1311 and ran roughly west to east for 2.6 m before returning to the south. Three courses (0.34 m) of wall 1312 survived
- 5.8.8 Wall 1309 (**Plate 62**) was parallel to the east to west aligned portion of wall 1313 and was bonded to the south side of 1313. Wall 1309 comprised two courses of firebricks 0.55 m long and 0.23 m wide and partially overlay truncated flue 1306. The former continuation of wall 1309 to the east could be seen due to the survival of the bedding mortar for the wall (recorded as 1308). Mortar 1308 partly overlay flue 1304.
- 5.8.9 To the west of the flues, machine brick and black ash mortar wall 1310 ran north to south and was 3 m long and 0.73 m wide.
- 5.8.10 At the most westerly end of the trench was a large sandstone block (1314) with grooves and two iron pins indicating that it was a machine base. Machine base 1314 measured 1.06 m long by 0.8 m in plan and 0.66 m high. It sat on a machine brick and black ash mortar foundation (1315) with bricks aligned east to west and opportunistically including occasional firebricks. Surface 1316 was keyed into foundation 1315 and extended over an area 1.10 m by 1.0 m in plan with a square stone slab (possibly a minor base) in the centre.

5.9 Area I

Introduction

- 5.9.1 Evaluation Trench I (Wessex Archaeology 2017f) was expanded into strip, map and record Area I (**Fig. 41–46**). Area I targeted a court to the north of Hollis Croft (Nos. 6 and 8 on the 1890 Ordnance Survey map), first shown on the 1787–9 Fairbank town plan as belonging to John Wilde (**Fig. 43**).

General stratigraphy

- 5.9.2 The undisturbed natural geological substrate (1115) was seen below archaeological structures and comprised orange yellow silt sand with mudstone and siltstone inclusions.
- 5.9.3 Overburden comprised layers of dirty redeposited natural (1103 and 1132) and rubble (1102). Pottery recovered from 1102 dated to the mid- to late-19th century and clay tobacco pipe was probably deposited between 1800 and 1860; neither can be relied on to date activity on Site as the deposit may represent demolition material or imported made ground.
- 5.9.4 Two early layers of made ground (1131 and 1136; **Fig. 46.1**) comprised dirty silt clays. These layers did not contain dateable artefacts but likely represent ground preparation prior to development of the site in the 18th or 19th centuries.
- 5.9.5 The archaeological remains preserved in Area I closely generally correlate with structures mapped in 1890 (**Fig. 45**). These structures were arranged around Court No 1 accessed from White Croft rather than from Hollis Croft. This court was situated between Hollis Croft Courts 12 and 14. Some of the boundaries, particularly a north to south aligned division (1121), had been inherited from previous arrangements of the plot (**Fig. 43–44**). Although this boundary probably had origins in the 18th century, the earliest preserved structure on this alignment (1112/1113) appears to date from the early 19th century.

Early 19th century

- 5.9.6 In the south of Area I, a wall (1112/1113) ran approximately north to south and was exposed for a length of 2.8 m. The foundation of this wall (1113) comprised unmortared sandstone and the upper part of the wall was handmade brick and lime mortar two skins thick (0.4 m) and with two courses extant (1112). Wall 1112/1113 correlates with the exterior wall of a range or ranges of buildings facing a courtyard to the east on historic maps from the 18th and 19th centuries (**Fig. 43–45**). Finds recovered from within foundation 1113 include two sherds of early 19th century pottery (alongside six sherds from the 18th century) and two clay tobacco pipe fragments of late-18th-century date. On the basis of these finds it seems likely that the excavated wall had been rebuilt in the early 19th century or later.

Late 19th century

- 5.9.7 In the north of Area I, some of the walls of a group of buildings were investigated (1111, 1120 and 1121; **Fig. 42 and 45**). The buildings were about the same size as other mapped dwellings, however they were atypical in layout. Structure 1117/1118 was not consistent with a standard dwelling layout and may suggest that the buildings were industrial in nature.
- 5.9.8 Wall 1111 (**Plate 63**) formed three sides of an enclosed space. Wall 1111 had been constructed in a construction cut (1133; **Fig. 46.1**) truncating earlier layers 1131 and 1136 (described above). Construction cut 1133 was filled with dirty ashy deposit 1114 which also filled the interior of the area enclosed by Wall 1111. Enclosed by wall 1111 was a further handmade red brick and black ash mortar structure (1117 and 1118; **Plate 63**). Structure 1117/1118 enclosed an area of 1.12 m by over 1.2 m, which was floored with flagstones that had become cracked and damaged (1119). These structures (1117/1118 and 1119) likely represent a feature such as a base for industrial equipment and are not consistent with a typical dwelling.

- 5.9.9 Bonded to the north side of structure 1111 and most likely contemporary with it, east to west aligned sandstone wall 1120 (**Plate 63**), survived for three courses. Wall 1120 represents part of the same general division as the north side of structure 1111.
- 5.9.10 Less than 2 m to the east of wall 1111, and therefore perhaps enclosing a corridor or passage, was a north to south aligned handmade brick and black ash mortar wall (1121) Wall 1121 continued the alignment of earlier wall 1112/1113 and was built on a sandstone and black ash mortar foundation (1128) in a construction cut (1134; **Fig. 46.1**) truncating earlier layers 1131 and 1136. Wall 1121 was likely of late-19th century date but was built on the alignment of earlier walls dating back to the 18th century (**Fig. 43 and 44**).
- 5.9.11 A 3.4 m by 2.15 m surface (1109) was present on both sides of wall 1121 and continued through a gap in the wall. Surface 1109 comprised mainly handmade bricks with some sandstone flags and was bonded with black ash mortar (1109) and was bedded on clinker and ash 1116 which contained pottery dating from the late 19th to early 20th century (alongside earlier pieces) and a clay tobacco pipe bowl likely to have been deposited between 1870 and 1920. The floor likely formed the interior surface of two adjacent rooms. Floor 1109 was removed to reveal a drain culvert (1128). Drain 1128 comprised two parallel runs of handmade red brick bonded with black ash mortar with a sandstone cap.
- 5.9.12 Returning to the south of Area I, an east to west aligned drain (1110/1125; **Plate 64**) passed through wall 1112/1113. The drain comprised two parallel rows of handmade brick bonded with black ash mortar (1125) overlaid with sandstone slabs (1110). Late-19th-century drain 1110/1125 was likely inserted underneath early-19th-century wall 1113 without disturbing the upper parts of the wall. Pottery recovered from the drain was of 18th century date, however only three sherds were recovered and may have been residual.

Undated

- 5.9.13 Two structures were visible in the east facing section of the trench (**Plate 65; Fig. 46**). Three courses of a sandstone wall (1108) survived; finds assigned to this context include 23 sherds of pottery, the latest of which date from the mid-19th-century or early-20th-century. A clay tobacco pipe bowl suggests a date of deposition from 1830–1860. Structure 1108 was somewhat disturbed and it is likely that these artefacts originate from the surrounding overburden (1101) rather than from within the structure itself. A second structure (1107) consisted of three courses of handmade brick and lime mortar. The two structures (1107 and 1108) were parallel and butted up against each other but the stratigraphic relationship could not be determined. A further three course wall (1111) was seen in the trench edge to the south of walls 1107 and 1108 and consisted of handmade red brick and black ash mortar. Nearby, a further three bricks bonded together were part of the rubble deposit 1103. None of these three structures (1106–1108) correlate closely with any consulted historic map and on the basis of the available evidence it is difficult to assign a date or phase to them.
- 5.9.14 South of walls 1107 and 1108 was a single surviving course of a small (0.72 m wide) three-sided handmade red brick and lime mortar structure (1104; **Fig. 41**). Structure 1104 represents some kind of brick lined pit, possibly associated with drains. The ashy fill (1105) was removed revealing clean natural.
- 5.9.15 Nearby, pit 1127 was 1.9 m by 1.2 m in plan and 1.2 m deep. The pit (1127) was cut from the upper horizon of redeposited natural 1132 and was filled with typical rubble material (1126).

5.10 Area J

Summary

- 5.10.1 An evaluation trench was opened in Area J towards the north of the Site (**Fig. 1**). Area J investigated the former area of the Diamond Works operated by the Beardshaw family. There was no archaeological preservation in this area and no further work was undertaken. Demolition rubble overlay undisturbed natural geology comprising mid-yellow orange clay. No context numbers were assigned. Former structures in this area had likely been removed by demolition.

5.11 Area K

Introduction

- 5.11.1 In Area K (**Fig. 47–54**), work proceeded directly to strip, map and record excavation without the completion of the planned evaluation trench. Area K targeted the location of the former Orange Branch public house. In 1787–9 the Orange Branch was operated by John Harrison, perhaps as part of the truck system used to exploit workers at his steel works on the other side of the road. By 1853 the Orange Branch was at number 28 and was operated by Joseph Allen, joiner and victualler, and inhabited by his wife Sarah, three children and 20-year-old servant Alice Wardley.

General stratigraphy

- 5.11.2 The undisturbed natural geological substrate (1226) seen below the archaeological structures comprised yellow brown silt clay.
- 5.11.3 Overburden comprised a widespread rubble deposit (1229), hardcore (1202) and tarmac (1201).
- 5.11.4 A layer of compact greenish brown silt clay (1203) may have been associated with construction of the 18th century structures in the south of the area.

18th century

- 5.11.5 A series of structures were seen relating to the interiors of the Orange Branch public house and to back-to-back sized houses to the rear of the public house. These structures can be most clearly identified on the Ordnance Survey map of 1853 (**Fig. 52**) but are likely the same structures depicted on the Fairbank plan of 1787–9 (**Fig. 51**).

Wall 1212

- 5.11.6 Sandstone and lime mortar wall 1212 ran east to west across the centre of Area K (**Plates 66 and 67**). Wall 1212 was 0.45 m wide with three surviving courses (0.32 m high) and correlates with an exterior wall of the building belonging to John Harrison as indicated on Fairbank's 1787-9 plan (**Fig. 51**). Wall 1212 persisted on historic maps throughout the 19th century (**Fig. 52 and 53**).

Cellars and associated structures

- 5.11.7 A cellar (1218–1221, 1239, 1240, 1244; **Plate 68**) was recorded in the south of Area K. The stairs were accessed from the south-east, with the steps (1221) running first north and then making a quarter-turn to the west. The treads were shaped sandstone flags exhibiting use wear and were supported on handmade brick and lime mortar risers, each two courses high. The main cellar led south from the bottom of the cellar steps and was enclosed by handmade brick and lime mortar walls two skins thick (1218 and 1219). At the north end, wall 1220 was instead built from sandstone. The base of the cellar was sandstone flags (1244) and the interior had been finished with plaster and white

distemper. The west wall of the cellar (1220) was angled to the west at the north end, originally to allow access to another cellar located to the north. However, access to this cellar had been bricked up with machine bricks bonded with black ash mortar (1239). The rest of the north wall of the cellar, although distinct from the blockage, had also been rebuilt with machine bricks and black ash mortar (1218). From ground level, the east wall enclosing the cellar steps had been rebuilt in frogged machine brick and black ash mortar (1240). The cellar appears to be associated with the southernmost building of the John Harrison property, as indicated on the 1787-9 Fairbank plan.

- 5.11.8 A sandstone and lime mortar wall (1224) running north from 1218 likely formed the east wall of the former north cellar. Wall 1224 was 1.75 m long, 0.3 m wide and was observed only in plan. The continuation of the line of wall 1224 correlated with the east wall of the houses at the rear of the public house. As well as forming the east wall of a cellar, wall 1224 likely served as foundation for an interior division of the Orange Branch public house.
- 5.11.9 The north end of angled cellar wall 1220 was observed in plan to form the west wall of the former north cellar before returning to the west as 1223. Wall 1223 comprised unmortared sandstone 0.5 m wide; six courses were revealed. Handmade red brick and lime mortar springers (1217) rising from wall 1223 indicated the former location of a brick vault likely enclosing another cellar running east to west to the north of 1223. The springers were unusually arranged as headers which at this point in the arch of the vault were almost end-on (soldier bond). If this pattern continued, the center of the vaulting would have had bricks running north to south, perpendicular to the alignment of the cellar. Wall 1223 was constructed in a cut (1238, not illustrated) excavated through the natural (1126).
- 5.11.10 To the west of wall 1223, in the west section of the area of excavation another wall may indicate the west end of this brick vaulted east to west aligned cellar (1236). A further wall (1237) unusually comprised a base of handmade red brick and lime mortar overlain by a sandstone wall bonded with black ash mortar, possibly indicating a later repair or rebuild.
- 5.11.11 Sandstone wall 1230 formed the north side of the cellar and ran east to west. Wall 1230 comprised unmortared sandstone 0.3 m wide and ran from yard surface 1214 in the east, to the edge of excavation in the west, forming a major division correlating with the back wall of the Orange Branch public house, with small dwellings continuing to the north. A small part of the handmade brick and lime mortar wall overlying sandstone wall 1230 was preserved (1231).

19th century

- 5.11.12 Immediately to the north of wall 1230 was an interior sandstone flag surface covering 1.6 m by 1.12 m (1215). Surface 1215 was laid on top of a series of levelling layers (1228, 1235, 1234, 1233 and 1232). Layer 1234 included three sherds from the same 19th century vessel, indicating a 19th century or later date for surface 1215. The surface fills the ground floor area of the first dwelling behind the public house as shown on the 1853 Ordnance Survey Map (**Fig. 52**). It is likely that the dwelling was first constructed in the 18th century as the area is depicted as built-up on the Fairbank plan (**Fig. 51**). Nineteenth-century surface 1215 is therefore likely a replacement floor in an earlier building. Deposits 1228, 1235, 1234, 1233 and 1232 might represent the backfill of an earlier cellar belonging to the earlier building.

Late 19th/early 20th century

- 5.11.13 The north of Area K (**Plate 66**) contained two stamped, patterned concrete floor surfaces (1204 and 1205). A drain built in to concrete surfaces 1204 and 1205 may indicate that the two surfaces were once joined.
- 5.11.14 The southern edges of the concrete surfaces were delineated by two-skin frogged machine brick and black ash mortar wall 1206. Wall 1206 correlates with a wall shown on the 1890 Ordnance Survey map (**Fig. 53**). A boundary on the same alignment was present in part in 1853 (**Fig. 52**); wall 1206 likely represents a consolidation of an earlier boundary. Three courses of wall 1206 survived; the lower two courses stepped out with the bottom course comprising edge-on stretchers (rowlock bond). A sandstone threshold (1210) provided access through wall 1206. A further two skin frogged brick and black ash mortar wall extended from 1206 to the north; the relationship between this and concrete surfaces 1204 and 1205 was unclear. Away from threshold 1210, the footprint of a small room was enclosed to the south of wall 1206 by walls 1207 and 1209, which were built of identical materials to 1206 (frogged machine brick and black ash mortar). Walls 1207 and 1209 correlate with a building first depicted on the map of 1890 (**Fig. 53**). An unstamped concrete floor (1208) had been poured as the surface of this small room. A second room existed west of the room floored with 1208, and was partially enclosed by wall 1209. No finds were recovered from any of these structures or their associated contexts.
- 5.11.15 Elsewhere, an isolated survival of a frogged machine brick and black ash mortar structure was 0.85 m by around 0.5 m in plan and cannot be interpreted further (1213). Structure 1213 may be late 19th/early 20th century on the basis of the constituent materials.

20th century

- 5.11.16 A large sandstone sett courtyard surface (1214; **Plate 67**) was 12 m long and 4 m wide and ran north to south along the east side of Area K. Surface 1214 was bedded on sand and clinker (1227). The sett surface occupies the area of buildings depicted on the Ordnance Survey map of 1890 (**Fig. 53**) and correlates with a yard area depicted in 1954 (not illustrated), although the surface is likely older than this, probably early 20th century.
- 5.11.17 It is likely that the 18th-century building which had been the Orange Branch public house was reduced in width to install surface 1214. When the building was reduced in width the cellar with steps 1221 became the eastern limit of the building. This is consistent with the rebuilding of the east wall of the cellar in frogged brick (1240). North of wall 1240, a sandstone wall (1241) formed the new east side of the building. Sandstone wall 1241 was seen only in plan and appeared to be unmortared. A later low concrete curb (1216) had been added to the edge of the surface 1214 adjacent to wall 1241.

Undated

- 5.11.18 In the west of the centre of the area, a further sandstone flag surface (1211) was 1.45 m by 1.58 m in plan. The edge of surface 1211 was delineated by a sandstone kerb (1222) at the same level as the main floor. Floor 1211/1222 was built directly on to natural and all surrounding structures had been removed by demolition or other truncation; it is not possible to stratigraphically relate this surface to any other feature or deposit other than the natural. The surface occupies an area inside buildings which had been present since the 18th century (**Fig. 51–53**). However, with the exception of the southern limit of the surface, the kerbed edges of surface 1222 do not correlate with mapped internal divisions. The surface may therefore be of any date.

5.12 Watching brief Test Pits

5.12.1 After the conclusion of the strip, map and record excavation, a watching brief was maintained on the excavation of footings associated with the new development on Site. This work included the monitoring of 31 interventions recorded as 'Test Pits' (Test Pits 1–30 and 3A). The Test Pits containing archaeology are shown on **Fig. 1** and are described below.

General stratigraphy

5.12.2 The undisturbed natural geological substrate was recorded in most of the Test Pits, with multiple layers of natural recorded in many locations. The layers of natural generally comprised compact yellow grey clay or similar (eg 10102) overlying sandstone bedrock (eg 10103) although in some locations only one of either clay or bedrock was observed.

5.12.3 Rubble overburden (eg 10101) may have been related to demolition of buildings on Site or may have comprised imported material. The overburden in Test Pits 6, 7 and 9 was a compact mixture of soils and redeposited natural (10601, 10701 and 10901). A layer of imported hardcore sealed Test Pit 8 (10801). A recent concrete footing was recorded in Test Pit 15 (11502). Tarmac sealed Test Pit 20 (12001). A deposit of imported orange clay was recorded in Test Pit 21 (12102). Test Pits 23–26 were sealed with concrete (4008, 12401, 12501 and 12601).

5.12.4 A modern wall representing the recently demolished exterior wall fronting on to Hollis Croft was recorded in several locations (eg Test Pits 10, 11 and 12; 10403, 11401, 12002).

Test Pit 3A

5.12.5 Test Pit 3A (**Plate 69**) contained structures relating to former cellars in its south and west sections. The southern limit of the test pit was also the southern limit of the Site and corresponds to the former southern boundary between the Globe Forge and Rolling Mills and back-to-back housing (Ordnance Survey map of 1890; **Fig. 57**). Wall 4110 ran along this boundary, comprising 30 uninterrupted courses of machine brick and black ash mortar. A modern wall had been built on top of wall 4110 using 4110 as a foundation. The north face of 4110 had been painted with white distemper but was now sooty, possibly as a result of contamination from the overburden backfill. The west side of the cellar enclosed by wall 4110 was supported by an iron pier (4104) which was built on a low brick wall base (4105). The iron pier presumably supported an iron frame although this was not observed. Machine brick and black ash mortar springers (4103) formed the west end of former brick vaulting which would have roofed the large cellar. There was no scar from the brick vaulting on wall 4110; it appears that they may have been a gap of roughly half a metre between the vault and the end wall. The north end of this cellar was defined by east to west aligned machine brick (with some firebrick) and black ash mortar wall 4106, which was largely truncated.

5.12.6 North of wall 4106 a firebrick arch extended above an entranceway allowing access from east to west. This arch was built into single-skin brick wall 4108 and also into wall 4109 immediately behind (to the west of) wall 4108. It is possible that wall 4108 formed one skin of wall 4109 although it appears that the two structures were separate with a small air gap between them. The base of wall 4108 curved into the entrance spanned by arch 4107. Wall 4109 was comprised of both machine brick and handmade brick and bonded with black ash mortar.

- 5.12.7 The Ordnance Survey map of 1890 (**Fig. 57**) shows a chimney and a room within the wider Globe Forge and Rolling Mills close to the location of Test Pit 3A. It is uncertain how these mapped structures relate to the recorded cellars.

Test Pit 14

- 5.12.8 Test Pit 14 (not illustrated) contained an east to west aligned sandstone and lime mortar wall (11403) which was too unsafe to record fully. A north to south aligned handmade red brick and lime mortar wall (11404) was keyed into sandstone wall 11403; the two walls together may have formed two sides of a former cellar.

Test Pit 18

- 5.12.9 Test Pit 18 (**Fig. 55**) contained a series of wall foundations and thresholds indicating the layout of a complex boundary (**Plate 70**). At the eastern end of the excavation area, 11804 comprised an east to west aligned unmortared sandstone wall 0.45 m wide. At the west end of 1804, handmade red brick and black ash mortar structures (11805 and 11807) enclosed three sides of an area projecting north from the main line of the structures; this area was 1 m from east to west and 0.8 m from north to south. Walls 1805 (comprising the east and north side of the enclosed area) were one skin thick and contained some bricks painted white on one face indicating re-use of the bricks. Wall 11807 (the west side of the enclosed area) was two skins thick. A large sandstone block comprised the south end of wall 11807, and projected south of the main line of the structures. The area enclosed by walls 11805 and 11807 was surfaced with crazy paving sandstone fragments (11806). There was a gap in the main line of the structures to the west of 11807, however scattered surviving sandstone flags (11808) indicated the former presence of a floor surface to the north. After a gap of 0.92 m, the main line of the structures resumed as lime mortared sandstone wall 1809, which was similar to wall 11804 except that it was mortared. Wall 1809 was 0.54 m wide and 3.4 m long. A very wide (0.82 m) sandstone and lime mortar wall (11813) ran south from 11804 out of the area of excavation. A lime mortar dump 0.6 m north of wall 11809 might be associated with the removed floor attested by scattered flags 11808. At the west end of wall 11809 was a gap of 0.95 m, after which the wall resumed as 11810 for another 1.5 m before leaving the area of excavation. A single brick built into wall 11810 might indicate the position of a keyed in single-skin brick wall extending to the south but this was not pursued. The gap between walls 11809 and 11810 was filled with silty material 11816 and was 1 m north to south, extending to the north of the main line of the structures. Wall 11812 formed the west wall of this area north of the main line of the structures and comprised lime mortared sandstone and handmade brick 0.44 m wide. Wall 11812 returned back to the east as 11811, which was mostly constructed of handmade brick but with some sandstone and was 0.44 m wide and 1.2 m long.
- 5.12.10 These structures correlate with the back wall of a range of back-to-back housing as depicted on historic maps (Ordnance Survey 1853 and 1890; **Fig. 56, and 57**). Two points of access incorporate porches or other complications possibly designed to cope with a change in level between the houses and the land to the rear. In 1890, the space to the rear of the back-to-backs is annotated as Garden Street 'Court No. 2'. The housing may have been associated with the British Works (Electro Plate) which existed between the housing and the cementation furnaces in Area E/F, which were part of the Globe Forge and Rolling Mills. The surface of Court No. 2 was smartly paved with flagstones (11808), whereas at least one part of the housing had been floored with *ad hoc* crazy paving (11806).

- 5.12.11 A sandstone and lime mortar wall (11802) likely comprising the former wall of a cellar was also seen a short distance to the south of the main sequence of structures. This may have been the foundation of the central dividing wall of the back-to-backs.

Test Pit 19

- 5.12.12 Two 0.4 m wide unmortared sandstone foundations were present, although the surviving portions of the two walls did not intersect. Wall 11905 ran east to west and wall 11906 ran north to south. Two unrelated modern brick walls were also present in the Test Pit (11907 and 11908). It is possible that these structures related to the former Exchange Cutlery Works as depicted on the Ordnance Survey map of 1890 or its predecessors.

Test Pit 23

- 5.12.13 A cellar was recorded in Test Pit 23 (**Plate 71**). Initially the cellar was recorded as 12303 but was then re-cleaned and recorded with context numbers in the 4000s. Walls 4005, 4008 and 4002 formed three sides of a cellar and comprised handmade red brick and lime mortar. The east part of wall 4005 had been contaminated with soot post-demolition (4004) but was of identical construction to the other walls. In the north-east corner was a structure in the same materials (4001) which appeared to be part of the support for a set of stairs. Some fragments of possible sandstone treads were observed in the upper parts of 4001. The north and south walls of the cellar (4002 and 4005) contained springers to support a brick vault, and a small portion of the vault was preserved above 4005. Rough sandstone probably constituting a wall appeared to run parallel to and adjacent to the north side of wall 4002, forming the boundary of the next building or room to the north. The cellar was painted white on the inside. The floor of the cellar comprised sandstone flags (12304) which largely did not survive; the materials of the floor were probably robbed during demolition.

- 5.12.14 This cellar was located in an area mapped as containing back-to-back-sized housing and outbuildings associated with the eastern limit of works depicted as the Toledo works. Due to the size of the cellar it is more likely that it belonged to an outbuilding associated with the works.

Test Pit 27

- 5.12.15 A series of walls were built directly onto natural bedrock. Wall 12701 ran north to south and comprised machine brick and black ash mortar. Two keyed in walls would have extended north from 12701 but had been removed. A large block of iron-shuttered concrete (12702) was present south of the west end of 12701. A small handmade brick and lime mortar structure survived in section (12703). A substantial machine brick and black ash mortar wall ran east to west (12705) and contained the scars of walls and drains that formerly extended to the south. The southern face of wall 12705 stepped back above the former ground level and had been plastered and painted at this level.

- 5.12.16 Historic mapping suggests that these walls were related to the 'Globe Forge and Rolling Mill' (Thomas R. Ellin/Footprint Works), although no detail is depicted.

Test Pit 29

- 5.12.17 Two parallel two-skin machine brick and black ash mortar walls were seen in section (1290), possibly enclosing a rubbish pit or ash pit or constituting a drainage inspection chamber. The basal deposit between walls 12901 comprised dark ash with rubble inclusions (12903). Again, these structures were likely related to 'Globe Forge and Rolling Mill' (Thomas R. Ellin/Footprint Works).



6 ARTEFACTUAL EVIDENCE

6.1 Introduction

6.1.1 This section considers the combined finds assemblage from evaluation and excavation on the Site. The assemblage is of moderate size, and includes both industrial residues (metallurgical residues, crucibles and metal objects, bone and antler waste from handle manufacture) as well as domestic refuse (pottery, vessel glass, clay tobacco pipes, shoe leather, animal bone, oyster shell). There is also a small amount of structural material (ceramic building material, window glass). The assemblage is discussed by material type below.

6.2 Pottery

Introduction

6.2.1 The pottery assemblage consisted of a total of 425 sherds of pottery weighing 8620 grams and represented a maximum of 350 vessels. The pottery is listed in **Appendix 2**. The totals from the various areas of excavation are summarised in **Table 1**.

Table 1 Table 1: Pottery totals by Area (ENV = Estimated Number of Vessels)

	Number	Weight	ENV
Trench A and Area A	189	3397	165
Area B	14	423	12
Trench C	8	124	7
Trench D and Area D	62	1036	49
Area E / F	67	1787	55
Trench F	15	368	12
Trench H	1	12	1
Trench K	3	48	2
Trench I	57	1151	40
Unstratified & Other	9	274	7
Total	425	8620	350

The pottery

6.2.2 The chronological range of the pottery constituting the assemblage was unusually wide for a site in Sheffield where extensive industrial and domestic development in the later 18th and 19th centuries have effectively removed much of the archaeological evidence for the medieval and post-medieval town.

6.2.3 The earliest pottery was of medieval (later 13th to 14th century) date and consisted of two sherds of Coal Measures Fineware (context 902), originating in the lower Don Valley (Cumberpatch 2004). Although rare, such sherds are not without parallel in Sheffield (Cumberpatch, in prep. 1, 2) and it is probable that the area supplied a significant quantity of the pottery used in the medieval town.

6.2.4 Post-medieval material consisted of three and possibly four sherds of Blackware (sewer pipe trench 930, layer 2011 and made ground 1116) with a sherd of Yellow ware from context 1113. These sherds date to the 17th century. A group of Redwares from demolition deposits 902 and 1102, sewer pipe trench 930 and wall 1113 date variously to the 17th or early 18th century with some which appear to be of 18th-century date, as summarised in the data tables. Slipware type 1, essentially Redware with trailed white slip

decoration internally, was represented by two sherds from sewer pipe trench 930. The lack of chronological resolution reflects the limited research undertaken into this class of pottery.

- 6.2.5 Early modern pottery was considerably commoner than earlier types and included a wide range of the typical types in use during this period (c. 1720–c. 1840). As discussed in detail elsewhere (Cumberpatch 2014), early modern pottery assemblages typically have a tri-partite structure consisting of utilitarian wares, vernacular tablewares and formal tablewares which reflect contemporary social structures and their representation in the field of material culture. Multiple examples of all three classes were identified in the assemblage. Formal tablewares were represented by the sherds of White Salt Glazed Stoneware (sewer pipe trench 930, pit/well 1033, wall 1113 and demolition deposit 2115), Creamware (ditch 910, sewer pipe trench 930, pit/well 1033, wall 1108, layers 1704 and 2011, demolition deposits 2030 and 2115), Edged ware (pit/well 1033, wall 1108, layer 1704 and demolition deposit 2115) and Pearlware (ditch 910, sewer pipe trench 930 and pit/well 1033) which together span the whole of the Early Modern period. Pearlware, both plain and transfer printed was comparatively rare although the reason for this is unclear as it is common elsewhere in the city.
- 6.2.6 Vernacular tableware, defined and discussed in detail elsewhere (Cumberpatch 2014) was manufactured in potteries that continued to be run along the lines established in the post-medieval period although in many cases with additional investment from local entrepreneurs. Vernacular tablewares were represented by Late Blackware (contexts 902, 916 and 1113), Mottled ware (demolition deposits 902 and 2115, ditch 910, sewer pipe trench 930, layer 924, made ground 1637), Slip Coated ware (demolition deposits 902 and 2115, sewer pipe trench 930) and Slipware (demolition deposits 902 and 2115, pit 904, sewer pipe trench 930, drain 1110, Trench C unstrat), the four commonest types of such wares.
- 6.2.7 The Brown Salt Glazed Stoneware category included a number of examples of 18th-century vessels (demolition deposit 902, sewer pipe trench 930, layers 924 and 1704), including mugs and bowls, amongst a larger quantity of 19th-century vessels, as summarised in the data tables.
- 6.2.8 Utilitarian wares, in the form of Brown Glazed Coarseware and Brown Glazed Fineware pose problems in the field of dating as a lack of detailed study means that it is difficult to distinguish 18th-century from 19th-century types with any degree of accuracy. In general, the smaller vessels in the Brown Glazed Fineware category (jugs and small jars) seem to be of 18th-century date while the manufacture of the larger wares, and notably pancheons and large bowls, continued into the 19th and early 20th centuries. The date ranges attributed to individual examples in the data tables are based upon the characteristics of the specific vessels but more work is required on this economically significant aspect of the local and regional economy before it will be possible to produce an adequate account of the products of the industry. Layer 1704 contained the base of an unglazed flowerpot of mid- to late-19th century date which may also be classed as a utilitarian vessel.
- 6.2.9 Recent wares (c. 1840–c. 1950) included a wide range of types common on sites of this date, as detailed in the various data tables. From the early 19th century onwards the production of vernacular tablewares declined rapidly and it seems that they were replaced with a variety of cheap and colourful refined earthenwares including Banded wares, Cane Coloured wares, including Mocha ware and Slip Banded Cane Coloured (CC) ware, Sponged ware, Sponge Printed ware and Whiteware, all of which were present in the Hollis Croft assemblage, as summarised in the data tables. Tablewares consisted

primarily of Whitewares and Bone China, both plain and transfer printed, with smaller quantities of Porcelain, including parts of several ornaments (sewer pipe trench 930) and a small decorative vessel with white sprigged decoration (demolition deposit 2030). It is possible that the sherds of Lustre ware (layers 1704 and 2011, structure 1108) should be included in this category.

- 6.2.10 The range of transfer printed designs included some of the commoner patterns including Willow and Asiatic Pheasants with possible examples of Wild Rose and Abbey. The small size of many of the sherds precluded the identification of many of the designs. Layer 3008 (fill of north furnace) contained part of the base of a child's mug with an educational pattern consisting of two of the letters of the alphabet, B and C (B for Buffalo, C for Cat).
- 6.2.11 The tableware category also included sherds of Colour Glazed ware, notably parts of several teapots from sewer pipe trench 930, all with the typical dark brown 'Rockingham-style' glaze. Other sherds of this type may have belonged to vessels from compatible tea services.
- 6.2.12 The 19th-century Stonewares (both salt glazed and lead glazed) included retail vessels (bottles, flagons and jam jars) and kitchen wares (notably bowls). Amongst the bottles one example stood out. This was small buff-coloured bottle with an unusual recessed shoulder and a composite metal and cork stopper from demolition deposit 1523. The non-ferrous metal section of the stopper bore the words THE NEO CYCLOSTYLE GESTETNER'S / PATENT and the bottle contained a thick black ink-like substance with a distinct odour of linseed oil. The cyclostyle copying process was invented by David Gestetner in the late 19th century and was the subject of various patents between 1881 and 1905. It used a toothed wheel to perforate stencils which were then used to produce multiple copies of the document. The technique, with modifications, was widely used until the advent of electrostatic copying machines and remained in use, to the author's certain knowledge, until at least the late 1970s. The bottle is leaking and could potentially contain a harmful substance. It is not possible to remove the bottle safely from the bags in which it has been placed.

Pottery by area

Trench A and Area A

- 6.2.13 The pottery assemblage from Trench A (evaluation) and Area A (mitigation) consisted of 189 sherds weighing 3397 grams representing a maximum of 165 vessels.
- 6.2.14 Layer 902 was identified in both the evaluation trench and during the excavation and was described as 'demolition rubble'. Despite this it contained a diverse assemblage of pottery which included both of the sherds of medieval pottery as well as a substantial group of late post-medieval, notably Redware and a smaller and more diverse group of early modern wares (Late Blackware, Mottled ware, Slipware, Slip Coated ware). Recent wares were limited to two sherds of Whiteware. Overall, the profile of the assemblage does not accord well with that which would be expected from a demolition context and more closely resembles a dumped deposit as described elsewhere (Cumberpatch 2005; see also layer 911 below).
- 6.2.15 Layer 905 (fill of pit 904) contained a small group composed exclusively of 18th-century Slipwares (**Plate 73**), suggesting that the context may have some link with layer 902.
- 6.2.16 Layer 911, identified as a deliberate dump of material (in ditch 910), contained a small quantity of early modern pottery (Creamware, transfer-printed Pearlware, Mottled ware) with a larger quantity of mid- to late-19th-century transfer printed Whiteware. This



combination of wares is not uncommon in assemblages from Sheffield and has been used to argue for a pattern of site formation that is both distinctive and representative of a significant pattern of economic behaviour in the city (Cumberpatch 2005).

- 6.2.17 Layer 916 (fill of sewer pipe trench 930) contained a very substantial and diverse assemblage of pottery which spanned the post-medieval, early modern and recent periods with the earliest pottery being two sherds of 17th-century Blackware. Redware and Slipware type 1 may span the later post-medieval period and the early part of the early modern period. Early modern wares included White Salt Glazed Stoneware, Creamware, Pearlware, Late Blackware, Mottled ware and Slip Coated ware. Recent wares formed the greater part of the assemblage and the overall profile, like that of layer 911, resembled the dumped deposits identified elsewhere in the city. The same may be true of layer 924 which contained a small but mixed assemblage of early modern and recent wares.

Area B

- 6.2.18 Area B produced a small assemblage consisting of 14 sherds weighing 423 grams representing a maximum of 12 vessels. All of the pottery was from a single context (1034, **Plate 77**, fill of pit/well 1033). The assemblage was predominantly of early modern date and included both utilitarian wares (Brown Glazed Coarseware) and tablewares (White Salt Glazed Stoneware, Creamware, Edged ware, transfer-printed Pearlware) with just one small sherd (2 grams) of transfer printed Whiteware.

Trench C

- 6.2.19 The assemblage from Trench 3 consisted of just eight sherds weighing 124 grams representing a maximum of seven vessels. Unstratified material and just one context were involved: layers 1637 (interpreted as made ground). Both groups were of mixed character with equally small quantities of early modern and recent pottery

Trench D and Area D

- 6.2.20 Trench D (Evaluation) and Area D (excavation) produced an assemblage consisting of 62 sherds weighing 1036 grams representing a maximum of 49 vessels. Layers 1702, 1703 and 1704 produced the largest assemblages of pottery, while layers 1724 and 1743 contained just five sherds of pottery.

- 6.2.21 In contrast to the assemblages discussed above, post-medieval and early modern wares were notable by their virtual absence from the Trench/Area D with just one sherd of possible Creamware from layer 1704. One cross-context join was identified, linking all of the sherds from layer 1703 with a number from layer 1704. This was the only cross-context join identified in the assemblage.

- 6.2.22 Tablewares and kitchenwares were well represented by a variety of refined earthenwares and salt glazed stonewares but utilitarian wares, in the form of Brown Glazed Coarseware were notable by their scarcity. There were no discernible differences between the assemblages from Trench D and Area D.

Trench F and Area E/F

- 6.2.23 The assemblage from Trench F and Area E/F consisted of 82 sherds of pottery weighing 2155 grams representing a maximum of 67 vessels. Although two contexts (2011 and 2115) included quantities of post-medieval and early modern pottery, the material from other contexts was of recent date and included wide range of types typical of the mid-19th to early 20th century.



- 6.2.24 The earliest sherd was a fragment of 17th-century Blackware (layer 2011) which occurred alongside sherds of Creamware, Lustre ware and transfer printed Whiteware. Demolition deposit 2115 contained a mixed assemblage (the largest from the area) with early modern wares (White Salt Glazed Stoneware, Creamware, Edged ware, Mottled ware, Slipware, Slip Coated ware and some probably early Brown Glazed Coarseware) alongside Banded wares, Bone China and Whiteware. On this basis, the assemblage looks much more like a dumped one derived from elsewhere than it does a demolition deposit.
- 6.2.25 Amongst demolition deposit 1523, the most notable single item was the Gestetner ink bottle described above. Other items included two black printed sherds, one with a small section of lettering externally and the base of a mug or jug decorated with a broad salmon pink band externally. Elsewhere in Sheffield such vessels have been found associated with public houses and are often marked as having a capacity of one pint.
- 6.2.26 Demolition deposits 2030 and 2065, structure 2031 (part of cementation furnace), layers 2017 (chimney fill) and 2050 and drain fill 2136 all contained small mixed groups of recent pottery. Deposit 2030 was notable for the presence of two stoneware bottles with two further bottles from contexts layers 2050 and 2065.

Trench H

- 6.2.27 Only one sherd of pottery was recovered from Trench H. This was a small piece of transfer printed Whiteware of mid- to late-19th-century date.

Area K

- 6.2.28 Area K contained three sherds of pottery (all from levelling layer 1234), two of them joining and most probably all from the same vessel, a blue banded mug or jug.

Trench I

- 6.2.29 The assemblage from Trench I consisted of 57 sherds of pottery weighing 1151 grams representing a maximum of 40 vessels. As elsewhere, post-medieval, early modern and recent wares occurred together in the same contexts with sherds of 17th-century Blackware and Yellow ware in wall 1113 and made ground 1116 alongside varying quantities of other types. Wall 1113 was notable for the small quantity of recent pottery (the base of a plate) and larger quantities of early modern types, including White Salt Glazed Stoneware, Late Blackware and Redware in addition to the Yellow ware mentioned above. Small quantities of wares of similar date were noted in demolition deposit 1102, wall 1108 and made ground 1116; while the proportions varied considerably, this should be expected in such small assemblages where chance factors can play a disproportionate part in affecting the make-up of the assemblages.
- 6.2.30 Drain 1110 was unusual in containing only 18th-century wares but the entire assemblage totalled just three sherds, again raising the question of the degree to which such small assemblages can be relied upon as indications of the date of a feature or deposit.

Other contexts

- 6.2.31 One context, (layer 3008, fill of northern furnace) contained two joining sherds from a stoneware flagon and the base of a child's 'alphabet' mug, as described above. Such mugs are a rare but regular feature of sites in Sheffield with other examples including Franklin's maxims, nursery rhymes and religious themes in addition to the alphabet.

Conclusion

- 6.2.32 The pottery assemblage from Hollis Croft is an unusually diverse one for Sheffield but its overall character is not atypical for the city, at least as far as the profile of individual

context groups suggests. How much of the pottery originated on the site and how much was imported as hard-core from one or other of the depots established in the city to accommodate domestic waste and to facilitate its reuse is unclear.

6.3 Ceramic building material (CBM)

6.3.1 The CBM recovered amounts to just 19 pieces (17,538 g) (see **Table 2**).

Table 2 Bowl fragments from context 1704, by mould type

Tr/area	Context	CBM type	No	Wt	Date range	Notes
A	916	Brick	1	8	Undated	
A	916	Chimney liner?	1	320	Undated	
A	916	Sewer pipe	2	182	1850+	Salt glazed int & ext
D	1702	Sewer pipe	2	288	1850+	Salt glazed int & ext
D	1743	Tile	2	99	Undated	
D	1743	Wall tile	1	58	Recent	Transfer-printed decoration
E/F	2030	Chimney liner?	1	99	Undated	
E/F	2030	Sewer pipe	1	12	1850+	Salt glazed
E/F	2115	Roof tile	3	576	Undated	
C	U/S	Brick	1	3250	1849+	Complete, standard frogged; stamped ROBINSON SHEFFIELD
C	U/S	Voussoir brick	2	8898	C19/C20	2 near complete voussoir bricks, stamped THISTLE
H	U/S	Brick	1	5390	C19/C20	Near complete large brick (?refractory), heavily burnt and covered in slaggy concretion (>260 x 120 x 80)
-	U/S	Sewer pipe	1	82	1850+	Salt glazed int & ext

6.3.2 Four complete, or near complete, bricks were recovered. All were found unstratified, three in Trench C and one in Trench H. The three from Trench C comprise a standard frogged brick and two voussoir bricks. The frogged brick is stamped (in the frog) ROBINSON SHEFFIELD. There are several brick makers named Robinson listed in the Sheffield trade directories between 1849 and 1919. Both voussoir bricks are in a yellow stock fabric, and are stamped THISTLE, products of Scottish brickworks. In addition, a small brick fragment was found in sewer pipe trench 930. The brick from Trench H is a large, possible refractory brick which has been heavily burnt.

6.3.3 Six fragments (from sewer pipe trench 930, layer 1702, demolition deposit 2030 and unstratified) are from salt-glazed sewer pipes (c. 1850+) and five from flat roof tiles (layer 1743, demolition deposit 2115), broadly dated as post-medieval/modern. Two fragments (sewer pipe trench 930 and demolition deposit 2030) are possibly chimney liner. Finally, a wall tile from context layer 1743, with a transfer-printed design, is of 19th/20th-century date.

6.4 Clay tobacco pipes

6.4.1 Please note that Clay Pipe Figures 1–22 have been reproduced as **Fig. 58** (Clay Pipe Figures 1–10) and **Fig. 59** (Clay Pipe Figures 11–22).

Background and methodology

- 6.4.2 The clay pipe assemblage totals 300 fragments. The pipe fragments have been individually examined in accordance with the current guidelines for dealing with pipes from archaeological projects (Higgins 2017) and details of each context group logged on an Excel worksheet (**Appendix 3**). The layout of the worksheet is based on the clay tobacco pipe recording system that has been developed at the University of Liverpool (Higgins and Davey 2004). The context summary lists the number of bowl (B), stem (S) and mouthpiece fragments (M) from each context to provide an easily accessible way to see the range and nature of the pipe evidence that the following dating is based on. Two date ranges are then given; the 'Range' and the 'Deposit' dates. The first gives the overall range of all the pipe fragments examined. This often includes a broad date for plain stems, which cannot be dated as accurately as bowls or marked/decorated pieces, as well as residual material. The purpose of this is to show the widest range of possible dates that are represented by the pipes fragments themselves. Where there is a wide range from a large group, this can reflect disturbed deposits, such as garden soils, or long-lived accumulations, such as on yard surfaces. The 'Deposit' date is the best estimate of final date at which the group was deposited or last disturbed in the ground. This excludes potentially residual or intrusive material and gives weight to the overall appearance of the assemblage and any more closely datable pieces that it contains. The dates given for the pipes do not take into account any other site evidence or dating provided by other classes of finds.

Introduction

- 6.4.3 Clay tobacco pipe are probably the best dating tool for archaeological deposits of post-medieval date. They are found almost everywhere, were short-lived and were subject to a rapid change in both size and shape. They can usually be tied to a specific place or, at the very least, to a regional production centre. Subtle differences in style and quality enable them to be used as indicators of social status as well as a means by which trade patterns can be studied.
- 6.4.4 The Hollis Croft excavations produced a total of 300 fragments of pipe, comprising 53 bowl, 239 stem and 8 mouthpiece fragments from 26 different contexts. Although the pipes from Hollis Croft represent three centuries of clay tobacco pipe consumption, the majority date to the first half of the 19th century. The bowl forms and the decorative motifs that are represented in this group are typical of pipes being produced and/or consumed in Sheffield. A number of the bowl forms exhibit traits that have been identified as being peculiar to Sheffield, such as specific types of post-moulding flaws, which appear to indicate particular working practises within the workshops, as well as distinctive internal bowl cross that appears to be a form unique to the Sheffield area. These features are discussed below.

The pipes in relation to the site

- 6.4.5 Unfortunately, the majority of the pipe-bearing contexts from the excavation produced plain stems or small fragments that do not provide sufficient evidence for detailed analysis of the individual excavated contexts themselves. Only five of the context groups produced ten or more pipe fragments, the most significant of which is layer 1704, which is discussed in more detail below. Although the material from the remaining deposits is interesting in itself, it does not shed much light on a broader interpretation of the site. As a result, the context groups have been dated (see **Appendix 3**) but will not be discussed further in this section of the report.
- 6.4.6 *Layer 1704:* This context was described as a possible occupational fill and produced 121 fragments of pipe (21 bowl, 95 stem and 5 mouthpieces). This is by far the largest group of pipes recovered from the excavations and represents a very coherent looking group of

material. There is just one small stem fragment that is clearly residual (being of 17th- or earlier 18th-century date), with all the other fragments representing a contemporary looking group of pipes. This group unfortunately suffered damage in transit for reporting and so a lot of fresh breaks were present when it was examined. These have been reassembled using HMG glue with slivers of wood placed in the stem bore to strengthen the join. The reassembled pieces have been counted/treated as single fragments for the purposes of this report.

- 6.4.7 Some long stem fragments survive (up to 145 mm) and one of the bowls still has 107 mm of stem attached, suggesting that this group was little disturbed following deposition. Despite this, checks of the most obvious potential joins (mouthpiece to stem or bowl junction to bowl) failed to find any matches, suggesting that this is only part of a much larger original assemblage. There are no marks to help with dating, but one of the bowls has a panel style of decoration, which did not come into use until after c 1810 and was most common during the 1820s and 1830s, with the latest examples probably dating from around 1860. The majority of the bowl forms are plain and comparable with those from a deposit of c. 1845-60 from Swinegate in York (Higgins forthcoming). In broad terms, this group is likely to date from somewhere between 1820 and 1860. Taken together, they provide a useful reference point for an assemblage of pipes of this date from Sheffield.
- 6.4.8 The group is clearly domestic in nature, rather than being production waste, since most of the bowls show signs of having been smoked and a wide range of different mould types is represented. A minimum number of 21 pipes is represented in the group and 16 of these could be identified to individual moulds (10 different types), which have been allocated the reference numbers 1–10 (the mould type and the Clay Pipe Figure number in this report happen to be the same for these 10 types). Each of the 21 bowl fragments has been allocated an alphabetic suffix (A–U) to act as a unique identifier for that particular piece. The context number and these identification letters have been pencilled onto the fragments themselves. These are as follows:

Table 3 Bowl fragments from context 1704, by mould type

Mould No	Fragments	Mould No	Fragments	Mould No	Fragments
1	A–B (2 examples)	5	K	9	O
2	C–F (4 examples)	6	L	10	P
3	G–H (2 examples)	7	M	Unallocated	Q–U (5 examples)
4	I–J (2 examples)	8	N		

- 6.4.9 The majority of the pipes in use had plain bowls (mould types 1–7), which included 13 of 16 identifiable bowls (**Table 3**). Most of these plain mould types are represented by multiple examples (Figs 1–7). In contrast, the three decorated bowls (mould types 8–10) are just represented by a single example each (Figs 8–10). This suggests that the majority of the pipes in use were plain, and perhaps purchased as multiple examples or in bulk, whereas the decorated pipes appear to have been more ‘one-off’ in their purchase/use.
- 6.4.10 The other striking point about the bowls is how similar all the plain bowl forms are, despite their having been produced by seven different mould types. This indicates that there was not any great variety in design and the only real difference being in that one of the types (mould 7) is slightly smaller and shorter than the others, perhaps suggesting a style with a shorter stem as well. Overall, the types of pipe in use appear to have been very similar, suggesting fairly uniform products from the local manufacturers, and of an ‘everyday’ quality. The mould surfaces tend to be rather streaky from poorly finished moulds and there are often clear trimming marks on the pipes. Many of the bowls also show accidental knock marks, created by some sort of a serrated edge that most often occur towards the front of the bowl. These

are a particular characteristic of Sheffield pipes (White 2004a) and must represent a particular production technique or method used in this area.

- 6.4.11 The decorated bowls are quite different in character from one another. One of them (Clay Pipe Figure 8) just has simple leaf decorated seams, which was a common motif used across most of England throughout the 19th century. The second (Clay Pipe Figure 9) also has leaf seams but accompanying a distinctive 'panel' style of decoration whereby the larger part of each side of the bowl contains a decorative panel, in this instance containing a bunch of grapes surrounded by vine leaves. This motif is particularly common in Sheffield, where it is known to have been produced by several different manufacturers, including Joseph Dee, who is recorded working in Little Pond Street, Sheffield, from at least 1833–1852. The final piece (Clay Pipe Figure 10) has a particularly interesting and unusual bowl design that does not appear to have been recorded previously, even though examples of the associated stem decoration have been noted. Both bowl seams are decorated with large and ornately worked leaves, with relief moulded tendril scrolls extending along both sides of the stem. There is also a stem fragment with a continuation of the stem decoration that either comes from further down the stem of this example or from another made in the same mould (but shown here restored in a composite drawing, which includes the missing section from an identical stem found during the Sheffield Inner Relief Ring Road excavations). On the left hand side of the bowl is a running stag that is being pursued by two hounds on the right. There is a band of fine milled lines above a beaded line around the rim. The mould for this distinctive design has been quite finely engraved and represents one of the first attempts to introduce a greater variety of one-off decorative designs by the Sheffield area makers.
- 6.4.12 Apart from the tendril decorated stem mentioned above, all of the other stems are plain. They all appear to come from long-stemmed pipes, with fragments of up to 146 mm in length surviving. The stems would most likely have been around 15 inches (381 mm) in length originally, this being a fairly standard length for common pipes of the period (Higgins, forthcoming). Some of these stems were clearly curved while other long fragments appear to have come from straight stemmed pipes. Only five mouthpieces were recovered, but all of these have a relatively narrow tip with simple cut ends and are consistent with long stemmed pipes (rather than short 'cutties'). All five mouthpieces have a coating of green glaze, the colour ranging from a dark green glossy glaze to a thin patchy pale green. In all cases the glaze is quite crudely applied with irregular splashes extending along the stem. One only has 23 mm properly coated from the tip but typically 30-40 mm of the stem is uniformly coated, with splashes extending up to about 50 mm. There are a further three stems with the tip itself missing but splashes of green glaze showing that they were glazed originally and two stems with splashes of a yellowish brown glaze on them (ie, ten fragments in total have traces of glaze on them; eight green and two yellow).
- 6.4.13 One of the stems from near a tip has a smoothed facet on one side where the stem has been scraped against an abrasive surface. The fact that this ground surface only occurs on one side most likely suggests that they stem has been briefly used as a makeshift stick of chalk to write on or mark a hard surface. Similarly, one of the mould type 3 bowls (fragment H) has scrape marks underneath it where the spur itself has been rubbed smooth. Rub marks are also evident on the broken stem end, flush with the bowl, showing that this was not to reuse the pipe but also some sort of doodling or reuse of the fragment to mark a hard surface.
- 6.4.14 Taken together, the pipes from layer 1704 provide a snapshot of the everyday pipes being consumed domestically in Sheffield around 1820–60. The pipes are mainly of mediocre quality with surface flaws on the moulds and finishing marks on the bowls. The pipes were mainly fairly uniform in size and shape, despite a number of different moulds being represented (seven different plain types and three decorated). Decoration included a locally

popular vine motif as well as a more unusual stag and hounds scene. All were long-stemmed varieties of pipe with glazed tips in green or yellow. Some of the stems were curved and others straight. None of the pipes was marked, although all are likely to have been produced locally.

The pipes themselves

- 6.4.15 Having considered the principal context group, the following sections go on to look at the clay tobacco pipes themselves. The evolution of bowl forms, manufacturing techniques and fabric types in Sheffield has been described in detail elsewhere (White 2004a; 2004b; 2005a; 2005b; 2007a; 2007b; 2009 and 2015) and so just a general overview will be provided here, together with representative illustrations of the forms recovered (Clay Pipe Figures 1–22).

Plain Stems

- 6.4.16 The majority of the pipe assemblage (297 of the 300 fragments; or 79%) comprises plain stems, which are difficult to date accurately. The use of stem bore dating techniques is unsuitable for small mixed context groups of the type recovered here and, in any case, the method is not reliable for 19th-century pipes, which comprise the majority of the finds. This method also requires a sample of several hundred fragments in order to produce a reliable date. The dates for the plain stems are therefore given simply as broad date ranges within which the fragments are likely to have been produced based on an assessment of their form and characteristics (see **Appendix 3**). Stem dates should be used with caution since they are much more general and less reliable than the dates that can be determined from bowls or marked fragments.

Bowl Forms

- 6.4.17 The excavations produced a total of 53 bowls, or bowl fragments, 40 of which (75%) were plain. The earliest bowl form was recovered from context 1637 and dates from c. 1740–1770 (Clay Pipe Figure 11). This neatly finished bowl, with its trimmed spur and well burnished surface is typical of the bowl forms that would have been produced in the area in the mid to late 18th century. This type of bowl has been associated with stem marks that have been attributed to pipemakers in Rotherham such as the Wild family, whose products turn up in large numbers in Sheffield (see discussion of the Thomas Wild stem below).
- 6.4.18 The largest single group of plain bowl forms was recovered from layer 1704 (discussed above), a selection of which have been illustrated as Clay Pipe Figures 1–7. These forms are typical of pipes being produced and consumed in and around Sheffield in the middle of the 19th century. They are all spur forms with simply cut rims and some (Clay Pipe Figures 3–5 and 17) have distinctive internal bowl crosses.
- 6.4.19 Internal bowl crosses or marks are formed by a design cut on the end of the stopper that was used to form the bowl cavity during the manufacturing process. The internal bowl crosses identified in the pipes from a number of sites in Sheffield are quite distinctive as they have two cross bars ‘‡’. This very distinctive feature suggests that either the bowls produced by a number of different manufacturers were all made using stoppers supplied by the same mould maker, or that these bowls were produced in a single workshop where this particular motif was added to the stoppers.
- 6.4.20 Some of the bowl forms recovered from the excavations also have distinctive post-moulding flaws. One result of producing clay tobacco pipes in a metal mould is that the clay took up any small nicks, scratches or surface defects on the mould’s surface, thereby producing a unique ‘fingerprint’ for that particular mould. These post-moulding flaws, however, represent a different class of manufacturing flaw, since they were introduced to the pipe as a result of it being pressed or knocked against something after it was removed

from the mould itself, but while the clay was still soft. These flaws, which usually take the form of small triangular marks or lines or serrated indentations on the side of the bowl (for example, Clay Pipe Figure 17), have been recorded by the authors on a number of pipe bowls from sites across Sheffield. Although the position of the flaw varies slightly from bowl to bowl they are most frequently on the smoker's left. What appears to have been happening was that the person finishing the pipe was knocking or catching the pipe on something that was leaving a distinctive mark prior to firing. This feature not only links the pipes to the same manufacturing tradition but, potentially, to an individual workshop or finisher.

- 6.4.21 The remaining 25% of the bowl fragments recovered from the site are mould-decorated and these too are spur forms with cut rims. The decorative motifs represented by these bowls are discussed in more detail below. It is interesting to note that although the decorated bowls are contemporary with the plain ones, none of the former appear to have the distinctive internal double bowl cross.

Marked Pipes

- 6.4.22 The excavations produced a total of six marked fragments comprising one stem with a roll-stamped mark, two bowls with moulded lettering around the rim, two moulded spur marks and two moulded stem marks.
- 6.4.23 The earliest of these marks is the stem with the roll-stamped mark from the fill (916) of sewer pipe trench 930 (Fig 12). This mark reads THO WILD and depicts a stag flanked by flowers above the lettering with a border of hearts below. This mark has previously been recorded for the National Clay Tobacco Pipe Stamp Catalogue, a copy of which is held in the National Pipe Archive (Higgins Die No. 2089). This stamp was almost certainly produced by Thomas Wild of Rotherham around 1750–80. There were three pipe makers named Thomas Wild who are known to have been working in Rotherham during the 18th century. This particular stamp has been attributed Thomas Wild (3) who appears in the Quarter Session at Sheffield in 1777. Examples of this mark are known from other sites in Sheffield including Riverside Exchange (White 2015).
- 6.4.24 The other marks are all moulded, ie, the design was cut into the pipe mould itself so that it was automatically added as part of the moulding process, rather than having to be applied as a separate task during the finishing process.
- 6.4.25 The first of the two marked bowl fragments was recovered from layer 1724 and dates from c. 1810–1860. This bowl has the lettering WARRINGTON ROTHERHAM in relief around the rim (Clay Pipe Figure 15). The design comprises enclosed flutes on the lower part of the bowl with panels above. The panel on the smoker's right has a heart-in-hand motif and is surrounded by laurel wreaths. The panel on the smoker's left has Masonic motifs comprising two pillars flanking an interlocked square and compasses. Bowls of this type normally have the maker's name on the smoker's left with the place of manufacture on the smoker's right. This would, therefore, appear to be the product of a maker by the name of Warrington who was living and working in Rotherham. Three other examples of this bowl are known; a near complete bowl from Sheaf Square, Sheffield (White 2005a, Fig. 33); a fragment from excavations at the Union Grinding Wheel site in Alma Street, Sheffield (White 2007b); and near complete bowl in Lincoln museum recovered from the Waterside, Lincoln in 1952 (P. Hammond pers. comm.). This maker has not yet been identified from documentary sources, which should provide a more accurate dating for this piece.
- 6.4.26 The second marked bowl was recovered from layer 1702 and dates from c. 1840–1870. This bowl has the lettering ERATT BRIGG in relief moulded around the rim above a vine,

grapes and barrel motif (Clay Pipe Figure 14). The vine and grapes motif appears to have been particularly popular in Sheffield, where several similar versions, some with different makers' names, have been found. There are three generations of the Eratt family who are known to have been working as pipemakers in Sheffield during the mid- to late-19th century. William Eratt (b. c. 1817) and his brother James (b. c. 1819) started life in Whitby. William was bound apprentice to Edward Sayers at Hull in 1831 and worked there until c. 1839 when he moved to Sheffield, where he is recorded until his death in 1874. James was also working in Hull between 1846 and 1848 but by 1851 had moved to Sheffield where he continued to work until his death in 1866. Although none of William's children appear to have gone on to become pipemakers, the children and grandchildren of his brother James all went into the pipe making profession and were working as pipemakers in Sheffield until 1920. At least two other fragments from identical ERATT BRIGG bowls are known from excavations in Sheffield (White in prep.) with a third near complete bowl in a private collection from near Beverley (White 2004b, 226). The Eratt family are thought to have had family connections with Brigg in Lincolnshire (P. Hammond pers. comm.), and it appears that one member of the family must have worked there for a while.

- 6.4.27 The two relief-moulded spur marks are both of 19th century or later date and comprise one initial mark and one symbol mark. The initial mark was recovered from demolition deposit 2115 but is a little hard to date since so little of the bowl survives that it is not even possible to tell whether it was decorated or not (Clay Pipe Figure 20). The base of the spur is not trimmed (suggesting it dates from after c. 1800) and the script is sans-serif, which normally indicates a date after about 1850, and so a date of c. 1850–1910 is suggested for this piece. The spur is marked with the initials EM but it is interesting to note that these are placed upright on the spur at 90° to the stem, rather than being parallel with it, which is the usual orientation. There are no currently documented pipemakers in the Sheffield area with the initials EM at this time and so the maker of this piece remains unknown.
- 6.4.28 The second spur mark dates from c. 1850–1920 and comprises a symbol mark formed of a quartered square with a central incuse dot on each side (made ground 1116; Clay Pipe Figure 18). Not enough of the bowl survives to see whether it was decorated. This style of symbol mark was not specific to any one manufacturer and was used more as part of the design of the pipe. It occurs widely across the country.
- 6.4.29 The final two marked pieces are stem fragments with incuse moulded numbers on their left hand sides (only). These were recovered from demolition deposit 2115 and layer 2011 and read '21' and 'N° 2' respectively (Clay Pipe Figures 21 and 22). Both fragments are likely to have come from short-stemmed 'cutty' pipes dating from around 1870–1920. A number of the larger pipe making firms from this period produced pipes with pattern numbers that would have corresponded with a trade catalogue. Without the bowls, it has not been possible to identify which firms were responsible for these two examples.

Decorated Pipes

- 6.4.30 The excavations produced a total of 13 clay pipe fragments with moulded decoration. The decorative motifs range from simple leaf-decorated seams (Clay Pipe Figure 8) to panels with elaborate vine decoration (Clay Pipe Figure 14) and bowls with masonic motifs (Clay Pipe Figures 13 and 15). All of these designs were popular in Yorkshire during the 19th century and almost identical versions would have been produced by a number of makers. This is particularly true of the vine leaves and grapes design (Clay Pipe Figure 9), which was particularly popular in the Sheffield area. Very often there were no marks to differentiate one maker's product from another, although in some cases the maker has included his name and place of manufacture as part of the design (for example, Clay Pipe Figures 14 and 15).

- 6.4.31 The excavations produced one decorated pipe that was a commemorative piece (Clay Pipe Figure 16). This particular pipe bowl was recovered from context 924 and can be dated to c. 1840–1860. On the smoker's left there is the bust of a naval officer above the lettering NAPIER and on the smoker's right there is a ship in full sail. This Napier bowl is identical to two examples recovered from the Inner Relief Ring Road excavations (White in prep) and to a large group of pipes that were recovered during excavations in Sheaf Square, Sheffield, in 2004. The Sheaf Square examples were associated with kiln waste of Henry Tunstall of Leeds dating from c. 1855 that appeared to have been transported to Sheffield specifically for use as backfill material prior to the construction of the new railway buildings (White 2005a). It is most likely that this pipe depicts Admiral Sir Charles Napier KCB GOTE RN (1786–1860). In contemporary portraits of Admiral Napier, he is typically depicted with epaulets and naval decorations, as shown on the pipe.
- 6.4.32 The final mould-decorated bowl from the excavations at Hollis Croft is one that has not previously been recorded, although a matching fragment of decorated stem that can now be identified as having been made in the same mould was recovered from the Inner Relief Ring Road excavations (White in prep), and used here to produce a composite drawing of the whole design). The Hollis Croft pipe bowl was recovered from layer 1704 and dates from c. 1820–1860. There are a pair of hunting hounds on the smoker's right that are chasing a running stag, which appears on the smoker's left (Clay Pipe Figure 10). The stem is elaborately decorated with a tendril design on both sides.
- 6.4.33 The use of hunting dogs is not a common decorative motif, although the authors are aware of two other contemporary examples from Yorkshire. The first is a pipe recovered from excavations at Dry Sands Foundry in Leeds (White 2009, figs. 8 and 9). That example has Masonic motifs on the bowl, but along the stem is relief moulded decoration, including running dogs. The Dry Sands example is marked TH and has been attributed to Thomas Hunter, who is recorded as a pipemaker in Leeds between 1817 and 1829. In this instance, the hunting dogs may be a play on his name.
- 6.4.34 The second example is a bowl recovered from the Inner Relief Ring Road excavations in Sheffield, which has panels on either side of the pipe with the name SPURR on the smoker's right and a running animal, thought to be a dog, on the smoker's left (White in prep). This particular example has been attributed to Charles Spur who is known to have been working in Sheffield from c. 1835–1865. The 'stag and hounds' design from Hollis Croft is certainly a distinctive design and one that adds to the evidence that designs incorporating running dogs were locally popular during the early to mid-19th century.

Ground or Modified Pipes

- 6.4.35 The post-firing modification of pipe fragments, most frequently stems, can take a number of forms, but usually seem to occur for one of two main reasons. The first is the grinding or scraping of the stem for reuse after the original mouthpiece has broken off. This type of modification is characterised by even grinding round the broken end of the stem and, occasionally, by the appearance of tooth wear as well. The second type of modification is when the stem has been used as a medium with which to draw or write graffiti, resulting in the formation of distinct facets at one, or both, ends of the stem. Sites from Sheffield, such as Riverside Exchange, have also identified a third and more specialised form of modification that indicates some form of industrial 'doodling'. This third type of modification appears to have resulted from the pipe having been pressed against a mechanical grinding wheel, producing perfectly smooth and sharply defined cut facets (White 2015, 23).

- 6.4.36 The excavations at Hollis Croft have produced three fragments that have been ground or modified (Clay Pipe Figures 17–19), but none of these fit with the ‘normal’ types of modification described above. The first example (Clay Pipe Figure 17) is a plain bowl identified as an example of mould type 3 from layer 1704 (Clay Pipe Figure 3). This bowl has been ground smooth right across the broken ends where both the spur and the stem would have been. The second fragment (Clay Pipe Figure 18) is a short length of stem that has not only been ground smooth at each broken end, but also in bands along the length of the stem. The modification of these two fragments is clearly not for reuse and nor do the ground sections show sign of faceting that would be expected if the fragments had been used for writing graffiti. It is therefore assumed that both fragments are further evidence of doodling or idling away time.
- 6.4.37 The third fragment has clearly been modified for re-use with the broken stem end having been whittled. The presence of a vertical scratch running around the stem suggests that a metal ferrule has been used to connect this pipe to a separate mouthpiece. This is a more sophisticated modification for reuse that would have taken time and care to prepare since it would require a separate mouthpiece, possibly of Bakelite or vulcanised rubber, to be attached. This modification is in contrast to a simple smoothing of a broken stem end that would have made a damaged pipe instantly reusable.

Conclusions and summary

- 6.4.38 This small, but interesting, group of pipes from Sheffield adds to the growing picture of pipe production and consumption in the city during the 19th century. With each new excavation material is recovered that builds on and refines our understanding of trading patterns between a thriving industrial city and its neighbouring towns and villages. For most of the 18th century Sheffield relied on pipemakers from outside the city, mostly from Rotherham, to supply its population with pipes. By the early 19th century, however, the city had started to develop its own pipemaking tradition. This latest excavation at Hollis Croft has provide new products as well as further evidence for workshop practises in Sheffield’s emerging pipe manufacturing industry.

Illustrations

- 6.4.39 Please note that Clay Pipe Figures 1–22 have been reproduced as **Fig. 56** (Clay Pipe Figures 1–10) and **Fig. 57** (Clay Pipe Figures 11–22).
- 6.4.40 The illustrated fragments are shown at 1:1 with the die details of the roll-stamped stem mark shown at twice life size (Clay Pipe Figure 12). Relief marks are shown in outline and incuse marks in solid black. Burnished surfaces are indicated with light broken lines. Internal bowl crosses (Clay Pipe Figures 3–5 and 17) are shown as a separate detail in plan view, which has been placed in front of the relevant pipe. The National Die Number given for the stamped mark relates to the as yet unpublished national catalogue that is being compiled by the one of the authors (Higgins).
1. One of two plain spur bowls dating from c. 1820–1860, identified as Mould Type 1. Not burnished; cut rim; distinctive double-bar internal bowl cross; stem bore 5/64". Post moulding flaw near the back seam, on the smoker’s right. (Layer 1704; Bowl A).
 2. One of four plain spur bowls dating from c. 1820–1860, identified as Mould Type 2. Not burnished; cut rim; no internal bowl cross; stem bore 5/64". (Layer 1704; Bowl D).
 3. One of two plain spur bowls dating from c. 1820–1860, identified as Mould Type 3. Not burnished; cut rim; distinctive double-bar internal bowl cross; stem bore 4/64". Post production flaw near the back seam, on the smoker’s left. The illustrated bowl is damaged on

the smokers right and so it is possible that there could have been a post-moulding flaw on this side too (c.f. Figure 17). (Layer 1704; Bowl G).

4. One of two plain spur bowls dating from c. 1820–1860, identified as Mould Type 4. Not burnished; cut rim; distinctive double-bar internal bowl cross; stem bore 5/64" (Layer 1704; Bowl I).
5. One of four plain spur bowls dating from c. 1820–1860, identified as Mould Type 5. Not burnished; cut rim; distinctive double-bar internal bowl cross; stem bore 5/64" (Layer 1704; Bowl K).
6. Plain spur bowl dating from c. 1820–1860, identified as Mould Type 6. Not burnished; cut rim; no internal bowl cross; stem bore 5/64" (Layer 1704; Bowl L).
7. Plain spur bowl dating from c. 1820–1860, identified as Mould Type 7. Not burnished; cut rim; no internal bowl cross; stem bore 5/64" (Layer 1704; Bowl M).
8. Spur bowl dating from c. 1820–1860, with leaf decorated seams, identified as Mould Type 8. Not burnished; cut rim; no internal bowl cross; stem bore 5/64" (Layer 1704; Bowl M).
9. Spur bowl dating from c. 1820–1860, identified as Mould Type 9. Not burnished; cut rim; no internal bowl cross; stem bore 5/64". The bowl is decorated with a panel containing vine leaves and bunches of grapes. Similar examples of this design have been recorded from other sites in Sheffield, including examples marked J DEE / SHEFFIELD. These examples have been attributed to Joseph Dee who is known to have been working in Sheffield c. 1833–1841. (Layer 1704; Bowl M).
10. Composite drawing of a spur bowl dating from c. 1820–1860 and identified as Mould Type 10. Not burnished; cut rim with moulded milling; no internal bowl cross; stem bore 5/64" (Layer 1704; Bowl P). The bowl is decorated with a pair of hunting dogs in relief on the smoker's right and a stag on the smoker's left. This pipe also has a relief moulded foliage design running along both sides of the stem. The composite drawing is made up from a complete bowl and separate stem fragment (which does not join the bowl), from the Hollis Croft excavations, and a stem fragment from an identical pipe recovered from the Sheffield Inner Relief Ring Road excavations (White in prep).
11. Plain spur bowl dating from c. 1740–1770. Good burnish; rim cut and internally trimmed; no internal bowl cross; spur has been trimmed; stem bore 5/64" (Made Ground 1637).
12. Stem fragment of c. 1750–1780 with an incuse roll-stamped mark reading THO WILD with a border comprising hearts, flowers and a running deer (Higgins Die 2089). Stem bore 5/64" (sewer pipe trench 930, fill 916).
13. Mould-decorated bowl fragment dating from c. 1780–1830. Not burnished; no rim surviving; stem bore 4/64". Traces of Masonic motifs survive on one side of the fragment only. An almost identical complete bowl was recovered from the excavations in Blonk Street, Sheffield (White 2007a; Fig 7).
14. Mould-decorated spur bowl dating from c. 1840–1870. Not burnished; no internal bowl cross; rim cut but not milled; stem bore 4/64" (Layer 1702). The design comprises bunches of grapes and vines on the smokers left and vines around a barrel on the smokers right. There is relief moulded lettering around the rim reading ERATT / BRIGG. A fragment from a similar bowl was recovered from the Inner Relief Ring Road excavations (White in prep).
15. Mould-decorated spur bowl dating from c. 1810–1860. Not burnished; no internal bowl cross; rim cut with moulded milling; stem bore 5/64" (Layer 1724). The design comprises enclosed flutes on the lower part of the bowl with panels above. On the smoker's right there is a heart-

in-hand motif surrounded by laurel wreaths; on the smoker's left Masonic motifs comprising two pillars and crossed compasses. Around the ring is the relief moulded lettering reading WARRINGTON / ROTHERHAM.

16. Mould-decorated spur bowl dating from c. 1840–1860. Not burnished; rim cut with no milling; no internal bowl cross; stem bore 4/64" (Context 924). The design comprises the bust of a naval officer above the lettering NAPIER on the smoker's left with a ship in full sail on the smoker's right.
17. One of two plain spur bowls dating from c. 1820–1860, identified as Mould Type 3. Not burnished; cut rim; distinctive double-bar internal bowl cross; stem bore 4/64". Post moulding flaw near the front seam on the smoker's left and right (Layer 1704; Bowl H). This bowl has been deliberately ground around the broken stem area and where the spur and stem would have been. There is no logical reason why this would have been carried out and therefore may simply be an example of 'doodling' or idling away time.
18. Spur fragment dating from c. 1870–1920. Not burnished; stem bore 4/64" (Made Ground 1116). This spur fragment has a relief moulded symbol motif on the sides of the spur. The broken end of the stem has been whittled for reuse, most likely to fit into metal ferrule connecting it to a separate mouthpiece.
19. Stem fragment dating from c. 1750–1850; stem bore 6/64" (demolition deposit 902). This fragment has been ground at both broken ends and along the length of the stem creating facets.
20. Spur fragment dating from c. 1850-1910. Not burnished; stem bore 5/64" (demolition deposit 2115). Relief moulded initials EM on either side of the spur.
21. Stem fragment dating from c. 1870–1920. Not burnished; stem bore 4/64" (demolition deposit 2115). Incuse moulded pattern number reading 21 on the side of the stem on the smoker's left. There are also traces of moulded decoration on the underside of the stem near the bowl end.
22. Stem fragment dating form c. 1870–1920. Heavily burnt; stem bore 45/64" (Layer 2011). Incuse moulded pattern number reading N° 2 on the side of the stem on the smoker's left.

6.5 Glass

- 6.5.1 The glass assemblage amounts to 122 fragments (7772 g). The glass includes both vessel and window; nearly all appears to be of 19th or 20th century date. In addition to the 122 fragments of glass recovered, there are 19 rubber bottle stoppers for internal screw closures (two of them still *in situ*), which are considered alongside the bottles here. **Appendix 4** lists the glass by context.

Containers

- 6.5.2 Two fragments of free-blown or mould-blown green wine bottles are the only fragments which could be earlier than 19th century, but their potential date range does extend into that century (Area B, layer 1028; Trench D, layer 1702). Both are likely to be residual finds here.
- 6.5.3 The majority of the vessel glass consists of beverage bottles, in aqua, green, blue and clear glass, and includes some complete or near complete examples. There are Codd, internal screw, crown and cork closures, but the absence of Hamilton (torpedo) bottles suggests a date range no earlier than perhaps the 1870s.



- 6.5.4 Beer and carbonated drinks are represented, and embossed marks belong to several Sheffield manufacturers: B Chapman & Co of Effingham Street (2 examples), Gleadhall & Bayley of Attercliffe (2 examples), John Walker (1 example), S H Ward & Co (3 examples), as well as Ind Coope of Romford (1 example). The screw stoppers mostly belong to Ind Coope (15 examples), and add to the list Robson Brothers at the Park Brewery, Wilson Bothers of the Parkside Brewery and Tennant, all Sheffield manufacturers. The bottles used by B Chapman & Co were both made by Kilner Brothers of Conisborough.
- 6.5.5 Other bottle types are scarce. There are a few fragments from milk bottles, one Bovril bottle (4 oz) and one possible condiment bottle. Apart from one phial neck (sewer pipe trench 930, Area A), no pharmaceutical containers were definitively identified, although a small number of miscellaneous small bottles (some rectangular) are of uncertain function and could include pharmaceutical as well as foodstuff containers.

Other glass

- 6.5.6 A hollow ware fragment from sewer pipe trench 930 in opaque white glass with hand painted decoration could be part of a candlestick.
- 6.5.7 There are 22 fragments of window glass, mainly thick-walled and including frosted and reinforced glass. In addition, there are two waste droplets, and a glass marble from a Codd closure.

6.6 Metallurgical process residues, crucibles and metal items

- 6.6.1 Individual items have been examined to assess their archaeological potential, and as part of the assessment, the specific and wider archaeological context of the items have been considered. Bulk soil samples have been examined visually. A brief description and interpretation of the material in the assemblage, by context, is provided in **Appendix 5**.
- 6.6.2 An overview of the assemblage is given below, and more unusual or significant finds are discussed in detail in the later interpretation and discussion section.
- 6.6.3 Samples of slag-like residues from the two cementation furnaces excavated have also been analysed scientifically. The report on this analysis, and interpretation of the results is included below (**Appendix 5**).

Summary of assemblage

- 6.6.4 The assemblage contains four main types of material; metal objects, spent fuel slag/slag-like residues, and refractory items. Many of the objects within the assemblage can be attributed to either cementation steelmaking or crucible steelmaking; however, a significant proportion of the assemblage was recovered from secondary fill and/or 'made ground' type contexts, and much of this material cannot be attributed to a specific manufacturing process, structure or activity.
- 6.6.5 The metals assemblage is largely composed of what appear to be machinery or architectural fittings/parts that are of limited research potential. However, there are two fragments of metal that are of potential research interest, and these are discussed in more detail in the following section.
- 6.6.6 The diagnostic slag residues predominantly relate to cementation steelmaking, and these include examples of the slag-like deposits from the inside base of the cementation chests, as well as coal derived fuel ash slags that had reacted with refractory materials

surrounding the fire-grate and the outer surface of the furnace chests during firing. The examples of the slag-like residue from the inside of the furnace chests in Trench F/Area E/F (1515 and 2139) are bonded to the large fragments of the refractory stone that the chests were made from. The slag-like residue from the inside of the chests is of research interest and although exploratory analyses have been previously been carried out by the author (on material from the Sheffield Inner Relief Road, Wessex Archaeology in prep; and from Green Lane Works, Elmet Archaeological Services 2014, 3–4), a definitive characterisation has, to date, not been possible.

- 6.6.7 The spent fuel in the assemblage largely consists of fragments of coke, and a small amount of this is embedded within pieces of fuel ash slag. There are also a few fragments of burnt coal.
- 6.6.8 The crucible assemblage is relatively small and, with the exception of one piece, it all appears to relate to crucible steelmaking. One fragment of almost complete crucible base has traces of oxidised residues that suggest that it had been used to melt copper based alloys (**Plate 72**).

Interpretation and discussion of the assemblage

- 6.6.9 As mentioned above, the assemblage contains four main types of material and the potentially more interesting finds are described and discussed in more detail in this section.

Metal objects

- 6.6.10 The sub-assemblage of metals includes a short length of corroded ferrous metal bar that measures approximately 82 mm x 15 mm x 23 mm. This piece was recovered from demolition rubble 2115 overlying the north of Area E/F. The wider archaeological context together with its dimensions suggests that this piece of metal may be an offcut of blister steel bar, and it is possible that this piece of steel was produced by one of the cementation furnaces on the site. Bars of blister steel produced by the cementation furnaces would have been broken up into short pieces so that they could be used as feedstock for the crucible furnaces.
- 6.6.11 The second item of interest in the metals sub-assemblage was recovered from an unstratified context, and was provisionally identified as a cast iron fire-bar support from a furnace (**Fig. 60**). Subsequent work on site found an example of almost identical fire-bar supports *in-situ* within the fire-pit of one of the cementation furnaces. The fire-bar supports were built into the walls of the fire/ash pit of the cementation furnaces, and they spanned the gap between the two chests within the furnace. Fire-bars were laid on top of the supports and ran length ways down the fire/ash pit to form a grate. Fieldwork and site visits by the author have found that the fire-bars could be well over two metres in length, and they do not appear to have been fixed in place. Presumably, the fire-bars were not fixed so they could be moved to help clean fuel ash slag out of the grate during and after firing. What is unusual about the fire-bar supports found on site are the teeth-like projections from one of the edges of the supports.
- 6.6.12 The exact purpose of the projections is not known, but the author initially thought that their purpose may have been to keep the fire-bars evenly spaced to allow an even flow of air through the fire. However, this initial idea had to be reconsidered when the *in situ* fire-bar support was found, as this has the projections facing downwards (**Plate 35**). Further investigation revealed photographs of a similar toothed fire-bar support that had been found in cementation furnace previously excavated in Sheffield (Elmet Archaeological

Services 2014, 27, plate 4), and in this furnace, the projections on the fire-bar support faced sideways.

- 6.6.13 One explanation for the above may be that the supports were originally fitted with the projections facing upwards, but in use it was found that the long fire-bars expanded and warped in the heat, making it impossible to remove them. Rather than removing and discarding the supports, the furnace men may have carried out some minor alterations to the brickwork to enable the supports to be rotated so that the toothed edges face down or to one side; this might also explain why the projections face down in one furnace and sideways in the other.
- 6.6.14 An exploratory (unpublished) analysis of a discarded fire-bar from a cementation furnace was carried out by the author, and this revealed that the fire-bar was made from relatively low grade wrought iron. As 18th and 19th century wrought iron was not a uniform metal with a homogenous microstructure, the long fire-bars would have been susceptible to uneven heat expansion and deformation. It is interesting that the fire-bar support that was initially found has one of the 'teeth' broken off, and the fracture surface is not fresh, so it appears unlikely to have been broken during recent excavation work. The tooth could have broken off during the original demolition of the furnace, but it is also possible that the tooth may have been broken off intentionally to remove a jammed fire bar.

Spent fuel slag

- 6.6.15 Most of the fuel ash slag within the slag sub-assembly appears to be the by-product of coal or coke fuelled fires. As the cementation and crucible furnaces found on Site would have both consumed significant quantities of coal and coke, it seems likely that the fuel ash slag found probably originated from the furnaces on-site. The spent fuel in the assemblage consists almost entirely of fragments of coke fuel that probably relate to the crucible furnaces.
- 6.6.16 Alongside the evidence of cementation and crucible steelmaking, there is tentative evidence that non-ferrous metals might have also been produced at, or very close to the part of the Site excavated. The evidence consists of the base of a crucible that had been used to melt copper based metal, possibly bronze or brass. The proximity of little mesters' workshops (ARCUS 2008a and 2008b; AOC in prep) would have meant that there was probably a local demand for non-ferrous metals for fixing and decorating handles on tools and cutlery. Depending on demand, it is possible that there was a dedicated furnace somewhere in the works for re-melting brass and bronze or, as copper based alloys typically melt at a much lower temperature than crucible steel, one of the crucible holes in the steelmaking furnace may have been used.
- 6.6.17 The coal derived fuel ash slag found appears to relate to the cementation furnaces, and the morphology and odour of some of the fragments of fuel ash slag suggest that 'dirty' bituminous coal was being used to fire the furnaces. Presumably, as there was a clear separation between iron/steel and fuel in the cementation furnace, contamination from sulphurous coal fumes was not an issue, and it would have been possible to use the cheapest coal that would do the job. As the fuel ash slag in the assemblage demonstrates, one of the disadvantages of using low grade coal can be the amount of fuel ash slag (or 'clinker') produced. If allowed to build up, the clinker could severely restrict the amount of air that could pass through the grate and fire, and this may be the main reason why the furnace men would have wanted fire-bars that could be easily moved around, so that they could clear any clinker and ash build up from the fire-grate whilst the furnace was being fired.

Slag-like residues

- 6.6.18 The sub-assemblage of slag also contains samples of a slag-like residue that was found inside the remains of the stone chests in the two cementation furnaces. Very similar looking residues have been seen in the remains of cementation chests from at least three other excavated furnaces in Sheffield, and samples of residues from two of these have previously been analysed by the author (Elmet Archaeological Services 2014, 30–4; Wessex Archaeology in prep). The analysis to date has revealed that the slag-like residue found lining the inside of the cementation chests is not a slag by-product of the process, but a deliberate addition of a clay-like material. The purpose of this deliberate addition is thought to have been to seal any cracks and joints in the stone blocks that the chests were made from. The operation of cementation furnaces and importance of keeping the chests air tight during firing was described by the author in detail in Elmet Archaeological Services 2014, 31:

...it was very important that air did not enter the sealed chests during the firing of the furnace, as this would inhibit the carburisation process and, in the worst case, the charcoal packing would burn out and the bars of iron within the chests would start to fuse together.

The material used to construct the chests had to be refractory to resist the sustained high temperature and erosion from the flames and corrosive fuel ash slag of the coal fire within the furnace.

Historical accounts of cementation steelmaking in Sheffield mention that a type of refractory stone called 'ganister' was used to construct cementation furnace chests (Barraclough 1984, appendices etc), and the archaeological evidence from several furnaces in Sheffield confirms that this type of stone was used.

Ganister is a type of dense carbonaceous sandstone, and it is one of the most refractory natural stones available; substantial deposits of ganister were found under the coal measures in the Sheffield area. The melting point of ganister exceeds 1600°C (Havard, 1912, p33), so it was entirely capable of resisting the 1100°C operating temperature of cementation furnaces.

From a cementation steelmakers perspective, the main problem with ganister was its tendency to expand and contract considerably when heated and cooled, and Havard (1912, p33) mentions how it would split and crack unless heated very carefully and gradually. The particular way that cementation furnaces were built (with transverse stone 'sleepers' and flue voids underneath the base and to the sides of the chests) meant that it would be difficult to prevent localised heating of the stone slabs of the chests.

- 6.6.19 What makes the Hollis Croft furnace unusual is that it is the first time archaeologists have excavated a furnace in Sheffield where parts of the side walls of the cementation chest are still standing. The presumption that the clay/slag-like substance was used to line the sides of the chests as well as the base has been confirmed. The excavation at Hollis Croft is also the first time that a longitudinal section of the base of furnace chests has been seen. The latter has revealed that the base of the chests are made up from several rectangular slabs generally 0.22 m across, rather than two or three larger slabs. The use of smaller slabs would have created more joints, which would have the potential to allow air into the chests during firing.

- 6.6.20 Another unusual feature of the furnace chests at Hollis Croft are the faint longitudinal grooves and ridges on the surface of the slag-like layer in the base of the furnace chests. The grooves between the ridges are the same width as the type of iron bars that were normally converted in cementation furnaces, so it seems likely that the contents of the chest had sunk into the slag-like layer, either during loading or possibly whilst the furnace was being fired. To the author's knowledge, the ridges are not something that has previously been seen in furnaces excavated in Sheffield.
- 6.6.21 The author's previous qualitative analyses of samples of the slag-like layer from other cementation furnaces in Sheffield suggest that the raw material used to create the layer was a specific by-product of the cutlery and edge tool grinding trade in Sheffield. The by-product was known as wheelswarf, and it consisted of particles of finely ground stone and metal filings that accumulated as a sludge in and around the troughs that partially enclosed the water-cooled grinding wheels. The wheelswarf would have to be periodically cleaned out of the grinding troughs to allow new grindstones to be fitted, and this is presumably when it was sold or given away to cementation steelmakers.
- 6.6.22 Wheelswarf was used by Sheffield's cementation steelmakers to seal the tops of the chests in the cementation furnaces (Barraclough 1984, 42). A layer of around 100–125 mm thick would have been applied to the top of the fully loaded furnace chests immediately before firing. During firing the layer would fuse together to form an impervious crust on the top of the chests (Barraclough *op. cit.*). After the firing the fused crust (known in Sheffield as 'crozzle') would be broken up and taken out of the furnace, so that the converted bars of steel could be removed from the chests. Crozzle has a distinctive texture and an unusual jagged and abrasive fracture surface, and larger pieces were used in the Sheffield and South Yorkshire area as an intruder deterrent for the tops of walls. It would seem reasonable to assume that wheelswarf was also used to seal the base of the inside of cementation chests, however, the slag-like residue found in the base of furnace chests has a very different morphology and fracture surface to crozzle. Scientific analysis has been carried out to confirm whether the crozzle and chest residues are made from the same raw materials.

The analysis of cementation furnace residues

- 6.6.23 As mentioned above, the author's previous analyses of the residues from the chests of other cementation furnace excavated in Sheffield revealed that the slag-like residues found in the chests was not a slag by-product of the process. The results of the exploratory chemical analyses of chest residues and crozzle suggested that although very different macroscopically, the two residues could be related. The author has suggested that the steelmakers were deliberately adding the material to help keep the chest airtight during firing (Elmet Archaeological Services 2014).
- 6.6.24 The approach taken to the analysis of the furnace residues from Hollis Croft has been to have an independent analysis performed using techniques that complement one another; the latter will allow some comparison to be made with the results of previous qualitative analyses. The independent analysis has been carried out by Dr Patrick Quinn at University College London, and the full report on the analysis is shown below in **Appendix 6**.
- 6.6.25 Samples of the residue from the bases of the chests from each furnace at Hollis Croft, as well as a sample of crozzle donated by a collector were selected for analysis.

Discussion of cementation residue analysis

- 6.6.26 The material characterisation carried out by Dr Quinn has revealed that the slag-like residue found in the bases of the furnace chests could perhaps be more accurately described as a form of vitrified clay, rather than a slag-like material. The analysis has also confirmed that the vitrified clay layer in the chests is highly likely to be made from wheelswarf.
- 6.6.27 Some of the differences between the chest residue and crozzle samples mentioned in the analysis report could, in part, be attributed to the way that the wheelswarf was applied, and conditions that it was exposed to during firing. However, the inherently variable nature of wheelswarf itself, together with the potentially numerous sources of it, mean that some compositional variation between samples from the chests of different furnaces and crozzle are perhaps to be expected.
- 6.6.28 One of the most interesting findings of the latest analysis has been the variations in composition of different layers through the depth of one of the samples of chest residue (sample 1515). This finding corresponds with what the author has observed in some samples of chest residues from other furnaces, which has led him to postulate whether the relatively thick layer of residues found in the base of some furnace chests had built up through the successive application of fresh layers of wheelswarf when the first signs of cracks appeared in the surface of the previous layer of residue. The findings of Dr Quinn's report appear to suggest that this may have been a practice that was being carried out in one of the furnace chests at Hollis Croft.

6.7 Other metal objects

- 6.7.1 Apart from the metalwork discussed above which relates to metalworking or other industrial processes, there are three other metal objects: two coins (one silver, one copper alloy) and a copper alloy button.
- 6.7.2 The silver coin is a long cross penny, identifiable on its high silver content as an issue of Edward I (1272–1307), under the new coinage issued from 1279. It was found in 19th/20th century made ground 1007 associated with the Cock Public House. (Trench B) The second coin, from a levelling layer (1234) associated with the 19th-century Orange Branch Public House (Area K), is a penny, illegible but probably no earlier than 19th century. The button came from a demolition layer (2140, Area E/F); it is a disc type with rear loop attachment, dating to the 18th century or later.

6.8 Leather

Methodology

- 6.8.1 This report is based on examination of the leather on 23/05/2019. The leather was wet and washed when examined and stored in water in plastic bags within airtight plastic containers. The leather was recorded and a catalogue of the material for archive purposes is given in **Appendix 7**. All relevant measurements and leather species identification are included. All measurements are in millimetres (mm). No shoe sizing has been calculated as no complete insoles have survived.
- 6.8.2 Leather species were identified by hair follicle pattern using low powered magnification. Where the grain surface of the leather was heavily worn or obscured identification was not always possible. The grain pattern of sheep and goat skins are difficult to distinguish and have been grouped together when the distinction could not be made. The term 'kidskin' has been used for particularly thin, fine-grained examples. Similarly, the term 'bovine' has been used when any uncertainty arose between mature cattle hide and immature calfskin.

Shoe bottom components and repairs are assumed to be of cattle hide unless stated otherwise. The term 'shoe' has been used as a generic term to describe any item of footwear and may include boots.

- 6.8.3 As the shoes are in poor condition and were found in modern contexts or unstratified, none are recommended for conservation.

Summary

- 6.8.4 At least seven individual items of footwear are represented by the leather examined from Hollis Croft, Sheffield. All are of metal riveted shoe construction; none are complete or near complete and so are difficult to date with accuracy, but front lacing boots and shoes can be recognised. On the remaining evidence they are likely to date to the end of the 19th and the beginning of the 20th century. Adult and child sizes are present, and they appear to be the result of domestic rubbish disposal.

Area B

- 6.8.5 The remains of five shoes (**1-9**), all of brass riveted construction, were found unstratified (1014) during evaluation of Area B. The shoes were recovered from the south-west corner in an area of small brick-built rooms. The shoes, two (**3, 5**) of a size to fit a young child, are in poor condition. Only one (**2**), a shoe of Oxford style of adult size, front lacing through five pairs of lace holes with metal eyelets, is sufficiently well preserved for the shoe style to be known. The five lace holes present suggest this Oxford shoe dates from the 1870s onward (Swann 1982, 49); the Oxford style remains popular today. Another shoe (**1**) from the same context has a relatively long pointed toe and more modern tread shape suggesting it dates to the 20th century.

Area E/F

- 6.8.6 The highly fragmentary remains of a shoe of riveted construction of adult size (**11**) were found in a modern drain (2052) in Area E/F. The construction of the shoe suggests the shoe dates no earlier than the second half of the 19th century (Swann 39). This construction continued to be used for lower-priced footwear throughout the first half of the 20th century (Salaman 1986, 156).

Area H

- 6.8.7 The left front opening broken from a front-lacing ankle boot (**10**) was found in modern rubble made ground, overlying archaeological deposits in Area H. The Balmoral boot, of suede calfskin, fastened up the leg through a series of nine lace holes and hooks. The boot style was popular throughout the second half of the 19th century and the first quarter of the 20th.

6.9 Animal bone

- 6.9.1 The assemblage comprises 181 fragments (1,835 g) of animal bone, which includes 61 fragments of worked bone (industrial waste from handle manufacture). The assemblage includes material of late post-medieval to early modern date.

Methods of assessment

- 6.9.2 The assemblage was rapidly scanned and the following information quantified where applicable: species, skeletal element, preservation condition, fusion and tooth ageing data, butchery marks, metrical data, gnawing, burning, surface condition, pathology and non-metric traits. This information was directly recorded into a relational database (in Microsoft Access) and cross-referenced with relevant contextual information.

Results

- 6.9.3 Bone preservation varies from good to extremely poor. The poorly preserved bones are highly fragmented and have flaky cortical surfaces making it difficult to distinguish surface details and identify elements to species. A few contexts include bones in different states of preservation and this is a general indication that material has been reworked and redeposited from earlier contexts. Gnaw marks were apparent on only four bones. This is a very low occurrence and suggests that the assemblage has not been significantly biased by the bone chewing habit of scavenging dogs.

The assemblage

- 6.9.4 Bone was recovered from Trenches/Areas A to D, F, and H to I, and includes material of domestic and industrial origin, the latter relates to bone- and antler-working associated with handle manufacture for the local cutlery industry (APS 2016).
- 6.9.5 Identified species in the domestic waste include butchered bones from cattle, sheep/goat and pig. Cuts of mutton appear to have been the most commonly consumed source of meat, followed by beef and then pork. A few rabbit bones were also identified and these undoubtedly provided a welcome cheap addition to the diet of those working in the area.

Worked bone

- 6.9.6 Sixty-one fragments of worked bone were recovered, all falling within the category of industrial waste, comprising waste and finished objects from handle manufacture (**Table 4**). The main concentration of this industrial waste came from Trench A, specifically pit 904, and layers 902 and 915. These deposits include the typical waste from successive stages of handle manufacture: sawn ends from cattle metapodials, and the rectangular blanks and off-cuts from the shafts of these bones, as well as finished parts of scale handles, some of which are decorated (scored lines and cross-hatching; **Plates 74, 75**). Sawn fragments of fallow deer antler also came from pit 904 and at least two of the handles from layer 916 appear to have been fashioned from antler rather than bone. An off-cut from bone-working was also recovered from layer 1637 in Trench C. Deer antler handles were also recovered from layer 1122 in structure 1118, Trench I, and unstratified layer 1635 in Trench C.

6.10 Marine shell

- 6.10.1 The unworked marine shell (79 fragments) includes oyster, mussel and cockle (**Table 5**). For the oyster, both right and left valves are represented in roughly equal proportions, ie both preparation and consumption waste. Just over half (57%) preserve original measurable dimensions.
- 6.10.2 There is also one piece of worked shell in the form of a mother-of-pearl button, with an incised rosette motif around the central perforation. This came from demolition layer 902 in Trench A.



Table 4 Catalogue of worked bone

Tr / area	Context	Object type	Species	Element	No.	Description
A	902	Off-cut	Cattle	Metapodial	3	Small sawn off-cuts (from long bone shafts) from handle manufacture, two copper stained
A	902	Handle	Cattle	?	1	Pistol-grip scale knife handle broken at one end (surviving length 59mm); one rivet hole at end; slight copper staining
A	905	Off-cut	Cattle	Metapodial	3	Sawn proximal and distal ends from cattle metapodials
A	905	Off-cut	Cattle	Metapodial	16	Sawn off-cuts (from long bone shafts) from handle manufacture (some may be blanks), two with copper staining
A	905	Handle	Cattle	Metapodial	5	Scale knife handles, all probably from metapodial shafts (one preserves the foramen); two nearly complete (squared butts), the others partial; three decorated with incised cross-hatching (1 with 3 rivet holes along length), one with incised chevron bands, one with simple longitudinal lines
A	905	Off-cut	Fallow deer	Antler	8	Sawn antler off-cuts, 3 possibly from crown, one other tine end could come from another tine; all could belong to single antler set
A	916	Off-cut	Cattle	Metapodial	17	Sawn off-cuts (some may be blanks) from long bone shafts
A	916	Off-cut	Cattle	Metapodial	1	Sawn across just below distal end
I	1122	Handle	Deer	Antler	1	Pistol-grip scale knife handle (probably from pocket knife), complete (length 73mm); 3 large and 2 small rivet holes
C	1635 (unstratified)	Handle	Deer	Antler	1	Scale knife handle fragment, broken across 2 rivet holes; decorated with diagonal hatching with oblique incisions across the diagonal bands
C	1637	Off-cut	?	?	5	Thin sheet fragments, all probably conjoining (largest 31 x 15mm, thickness 2mm); uncertain function; species unidentified

Table 5 Marine shell by context

Tr / area	Context	Count	species	Additional Comments
A	902	2	oyster	oyster (1 R, 1 L valve)
A	902	1	oyster	Obj No 1: mother-of-pearl button with incised rosette motif
A	916	2	oyster	fragments
A	916	2	mussel	fragments
I	1113	1	mussel	mussel
D	1704	66	oyster	32 R valve (23 meas), 35 left valve (17 meas) + frags
E	1816	1	mussel	Mussel
E/F	2011	1	cockle	cockle
E/F	2115	4	oyster	1 R valve, plus frags

7 ENVIRONMENTAL EVIDENCE

7.1 Introduction

7.1.1 A total of seventeen samples were taken during the two phases of fieldwork. Four samples from the watching brief and thirteen samples from the excavation were taken from a range of deposits associated with modern industrial activities and were processed for the recovery and assessment of environmental evidence, primarily charred plant remains and charcoal.

7.2 Aims and methods

7.2.1 The purpose of this assessment is the evaluation of the quality of plant remains preserved at the site and the potential for further analysis to address specific site archaeological issues and to provide archaeobotanical data valuable for wider research frameworks.

7.2.2 The size of the samples varied between 10 and 40 litres. The bulk samples were processed by standard flotation methods; the flot retained on a 0.25 mm mesh, residues fractionated into 5.6 mm and 1 mm fractions and dried. The coarse fractions (>5.6 mm) were sorted, weighed and discarded. Large flots were split into fractions and the large (>4mm) fractions were subsampled for the assessment of environmental evidence. After recording the volume and the assessment of the subsamples, made of industrial debris, the remainder of the subsampled fractions were discarded. The smaller fractions (<4 mm) of the flots were scanned using a stereo incident light microscopy at magnifications of up to x40 using a Leica MS5 microscope for the identification of environmental remains. Different bioturbation indicators were considered, including the percentage of roots, the abundance of modern seeds and the presence of mycorrhizal fungi sclerotia (eg *Cenococcum geophilum*) and animal remains, such as earthworm eggs and insects, which would not be preserved unless anoxic conditions prevailed on site. The preservation and nature of the charred plant and wood charcoal remains, as well as the presence of other environmental remains, is recorded in **Appendix 8**.

7.2.3 Preliminary identifications of dominant or important taxa are noted below, following the nomenclature of Stace (1997) for wild plants, and traditional nomenclature, as provided by Zohary and Hopf (2000, Tables 3, page 28 and 5, page 65), for cereals. Abundance of

remains is qualitatively quantified (A*** = exceptional, A** = 100+, A* = 30-99, A = >10, B = 9-5, C = <5) as an estimation of the minimum number of individuals and not the number of remains per taxa.

7.3 Results

- 7.3.1 The flots were generally large but made of lightweight industrial debris type slag or clinker or very small. There were low numbers of roots and modern seeds that may be indicative of stratigraphic movement and the possibility of contamination by later intrusive elements. Little environmental evidence was preserved, comprising a few charred plant remains and wood charcoal fragments. No evidence of remains preserved by waterlogging was observed.
- 7.3.2 The charred plant material was poorly preserved and comprised the remains of cereal grains and a few wild plants.

7.4 Environmental evidence discussion

- 7.4.1 The analysis of the environmental evidence has no further potential. The few remains of cereals and wild plants recovered might indicate the existence of some crop-processing by-products (cereal grains) in the environment.

8 DISCUSSION

8.1 Cementation furnaces

Significance and preservation

- 8.1.1 The records of the two excavated cementation furnaces add valuable detail to a corpus of excavated Sheffield cementation furnaces. These include those excavated during the Inner Relief Road project (Wessex Archaeology in prep), at Green Lane (Elmet Archaeology 2014) and adjacent to the preserved Doncaster Street example (Wessex Archaeology 2018b).
- 8.1.2 The two furnaces were generally preserved below a level just above the base of the refractory chambers. Below this level, preservation had been impacted by a series of later concrete footings and associated walls, however the furnaces were easily readable and enough detail was preserved across the two furnaces for a complete suite of below-ground features and structures to be observed. Preservation was better than at comparable sites.
- 8.1.3 As R Mackenzie states in the metallurgical report above, the cementation furnaces at Hollis Croft are the first time a furnace has been excavated in Sheffield with parts of the sides of the chests preserved. This has confirmed the presumption that the crozzle lining of the refractory chambers continued up the interior sides of the chests.
- 8.1.4 The excavation at Hollis Croft was also the first time that a longitudinal section of the base of furnace chests has been seen. It has been revealed that the base of the chests were made up from several rectangular slabs generally 0.22 m across, rather than two or three larger slabs. The use of smaller slabs created more joints, which would have had the unwanted potential to allow air into the chests during firing. These joints may have been sealed with a similar clay/slag-like crozzle as the main refractory chamber.
- 8.1.5 The same longitudinal section revealed that the Hollis Croft cementation furnace chests had been rebuilt on top of earlier chests. The earlier chests may have been replaced due

to inadequate provision of flues. The refractory chambers had a limited lifespan and required periodic replacement (Belford 1998).

- 8.1.6 Another unusual feature of the furnace chests at Hollis Croft were the faint longitudinal grooves and ridges on the surface of the crozzle layer in the base of the refractory chambers. The grooves between the ridges were the same width as the type of iron bars that were normally converted in cementation furnaces, so it seems likely that the contents of the chest had sunk into the crozzle layer, either during loading or possibly when the furnace was being fired. To the authors' knowledge, the ridges are not something that has previously been seen in furnaces excavated in Sheffield.
- 8.1.7 Analysis of the slag-like layer at the base of the furnace chests has supported previous analyses from other cementation furnaces in Sheffield in suggesting that the raw material used to create the layer was a specific by-product (known as 'wheelswarf') of the cutlery and edge tool grinding trade in Sheffield, rather than a slag by-product of the steelmaking process, and was used by steelmakers to help keep the chest airtight during firing.

Dating

- 8.1.8 Cementation furnaces are recorded in documentary sources at Hollis Croft in the 18th century (Belford 1998). A structure which is likely a cementation furnace is visible on early mapping (Fairbank plan of 1781; **Fig. 20**), however no archaeological remains of this furnace were identified. Photographs of cementation furnaces at Hollis Croft also exist (**Plates 1–3**); these furnaces are thought to have been in the east of the development area and must be later than the 1853 map. The excavated remains in Area E/F relate to none of the above furnaces.
- 8.1.9 The excavated furnaces correlate with two dashed circles depicted on the first Ordnance Survey map of 1853 (**Fig. 30**). The identification of the circles on the maps with the furnaces would suggest a date for construction prior to 1853.
- 8.1.10 Dating of the cementation furnaces is fairly reliably available from the recovered pottery and clay tobacco pipe assemblage. Both clay pipes and pottery were present within the red brick outer structure of the chest of the north cementation furnace (2031). Two sherds of Sponge-Printed Ware were secondarily burnt and date from later than c.1840. Two sherds of TP Whiteware (a spout and a handle terminal) date from the mid- to late-19th century. The clay pipe from this context (2031) comprised two plain stems which have been given as probably deposited between 1800 and 1850. Dating of plain stem is unreliable on a small sample size (here the sample size is two), and is particularly problematic for 19th century pipes. The early- to mid-19th century date of these stems should be treated with caution but does at least support the general picture given by the pottery, which on a sample size of four suggests a mid- to late-19th century date.
- 8.1.11 The gaps between the outer chimneys and outer structures of the chests were filled with a variety of sand and clay deposits. These deposits exhibit heat transformation due to the operation of the furnaces and had therefore likely been deposited during the construction of the furnaces. Deposit 2011 contained pottery dating from the mid- to late-19th century alongside other sherds dating back to the 17th century. A clay tobacco pipe bowl found in deposit 2011 was probably deposited between 1870 and 1920, and a pipe from deposit 2016 was probably deposited between 1830 and 1860. Deposit 2017 contained a sherd of 19th century or early 20th century pottery. Ignoring the clay pipe bowl from 2011 (deposited 1870–1920), the rest of the evidence is consistent and suggests a mid-19th century date for the construction of the cementation furnaces, probably between 1840 (on

the basis of a single pottery sherd) and 1853 (on the basis of identification of the furnaces with dashed circles on the Ordnance Survey map).

- 8.1.12 The materials used in the construction of the furnaces (including handmade red brick and lime mortar) are consistent with this mid-19th century date.
- 8.1.13 It is likely that the furnaces were constructed when Burgin and Wells took over the plot in the early 1850s or shortly before.

Comparison of the two furnaces

- 8.1.14 The two furnaces were almost identical as might be expected of two contemporary adjacent structures. The contemporaneity of the furnaces is most definitively demonstrated by the central wall which was keyed into, and formed part of, the outer conical chimneys of both furnaces. Identical materials and designs were used for both furnaces. Some differences in the level of heat transformation of firebrick structures was noted; these differences are likely due to minor operational differences in the flow of hot gases through the furnace flues. Two stoke hole doors were recorded and were noted to be of different sizes; it is possible that one or other of the doors was replaced during the operational life of the furnace. Other than these minor differences the furnaces were remarkably uniform, suggesting that they were built at a time when the design of cementation furnaces had been standardised and was well understood.

Phased development and repair

- 8.1.15 The cementation furnaces generally appeared to have been largely constructed in a single phase of activity. However, at least one of the refractory chambers had been rebuilt. The earliest phase of the chests consisted of a refractory chamber with no underlying ganister flues, although it is possible that the underlying firebrick structure may have been intended to be penetrated by hot gases. This lack of flues is curious in an otherwise well-designed furnace and may have been the reason for the reconstruction of the chests. The refractory chambers of cementation furnaces had a limited lifespan and it is possible that they were rebuilt more frequently than the furnace superstructures. The later phase chests were constructed directly on top of the crozzle base of the earlier phase and incorporated a more typical ganister flue system resembling examples recorded elsewhere (see Preservation and Significance above). Evidence for the rebuilding of the chests was only observed in the most southerly of the four chest structures, however it is assumed that the other chests were all identical and that each contained relicts of the earlier phase.
- 8.1.16 It is likely that the majority of structures associated with the furnaces were constructed during the earlier phase of activity, and that only the inner, upper chest structures were rebuilt. The dating evidence outlined above therefore relates to the earlier phase, with the later rebuild of the refractory chambers post-dating this mid- to late-19th century date. No dating evidence directly relating to the rebuilt chests was identified.
- 8.1.17 A remnant of a firebrick wall (2103) to the north of the cementation furnaces likely represents a fragment of some former furnace, boiler or a structure related to some other hot process, and may be contemporary with the cementation furnaces. It is possible that it is an element of a further lost cementation furnace, although the presence of early straight wall 2163 tied in to the north-east corner of the cementation furnace structures suggests that there was never an additional contemporary furnace immediately north of the excavated pair. Similarly, the presence of undisturbed natural close to the south-west corner of the furnaces precludes the presence of a further furnace immediately to the south. A ganister 'sleeper' seen as rubble (2084) was likely derived from a demolished cementation furnace. This may have derived from an old chest removed from the two

recorded furnaces or may have originated in some furnace at a distance from the recorded pair. Although photographic evidence (**Plates 1–3**) demonstrates that there were additional (probably later) cementation furnaces at Hollis Croft, the excavated pair of furnaces in Area E/F stood together without immediate neighbours.

Decommissioning

- 8.1.18 Access to the north-west stoke hole of the cementation furnaces from the cellar network was blocked by the construction of an unmortared sandstone wall (2048). The cementation furnace cellars had been linked in to the later cellars immediately to the north and it is likely that the cellars continued to be used after the end of the furnaces' lives. The ash pits had also been intentionally decommissioned with the introduction of a sandstone block (3010) blocking the south-east stoke hole. Two sherds from a child's alphabet mug were also present in upper fill 3008 of the ash pit. The deposition of these sherds may have been meaningful.

8.2 Crucible furnaces

Furnace 1746–1750

- 8.2.1 A limited view was obtained of two crucible furnaces. The better studied of these (contexts 1746–1750) was poorly preserved, with only a single ash pit surviving from what was presumably a fully-developed row. The ash pit was identical in form to other recorded examples such as at Hoyle Street (Powell 2014) and Blonk Street (Wessex Archaeology 2012), and can therefore be considered to be an example of the well-developed form of furnace most typically associated with the crucible steel process.

Furnace 1757–1764

- 8.2.2 The second crucible furnace (contexts 1757–1764) was better preserved but was identified only during the late stage watching brief and could not be investigated thoroughly. It is possible that elements of this furnace will survive construction on Site and may be preserved *in situ*. Two charging holes were recorded, but it is certain that there were more, and likely that the lower structures of the furnace were also well preserved. The two charging holes exhibited strong heat transformation indicating that the furnace had undergone sustained and intensive use. Perhaps most interesting were details relating to the decommissioning of the furnace. These included the blocking up of the ash pits (observed by suspending a camera in the charging holes) and the insertion of a metal plate (and possibly a brick wall) in front of the furnace. At Blonk Street (Wessex Archaeology 2012) a final firing with special metals may have taken place; it is possible that behaviour surrounding decommissioning of furnaces took on a ritualised aspect linked to steelmaking secrets (eg fluxes, crucible manufacture) and to the status of the furnace at the heart of the steelworks.

Dating

- 8.2.3 Close dating of the crucible furnaces is not possible. The available historic maps (not reproduced) are not detailed enough in these areas to show the furnaces, and the Goad Fire Insurance Plan, so useful in other areas of the city, does not cover the Site. The materials used in the furnaces (handmade bricks, firebricks and lime mortar) are consistent with a broadly 19th- (or 18th-) century date. The decommissioning of furnace 1746–1750 is linked to two sherds of pottery: a porcelain cup or mug of broadly 19th century date and a TP Whiteware plate rim dating to the mid- to late-19th century. The decommissioning of the crucible furnace must be later than the date of manufacture these sherds.

Workflow

- 8.2.4 The cementation furnaces were part of the Burgin and Wells works. Documentary evidence attests to the presence of rolling mills at the works contemporary with the cementation furnaces. The workflow of the 'Sheffield Method' was to convert iron to steel in a cementation furnace, to refine the steel in a crucible furnace and then work the steel, for example in a rolling mill. It is almost unthinkable that a works with a cementation furnace and rolling mill would not also have a crucible furnace. Later directory entries for Burgin and Wells are explicit that steel refining occurred at Hollis Croft. The presence of a crucible furnace on the Burgin and Wells plot contemporary with the recorded cementation furnaces is therefore almost certain. The location of the crucible furnace and of the rolling mill are unknown.
- 8.2.5 Similarly, a three-step process including conversion, refining and manufacturing of machine knives and other products can be assumed at the adjacent Fearnough works. The two identified crucible furnaces were both on this plot. The location of a cementation furnace feeding these crucible furnaces is unknown, as is the nature and arrangement of machine knife manufacture.
- 8.2.6 Although it is possible that unrefined steel was passed from one works to another, it is more likely that workflow was internal to each works and there is no reason to suspect that blister steel from the Area E/F cementation furnaces was refined in the Area D crucible furnaces.

Later use

- 8.2.7 The ash pits of both crucible furnaces would have been accessed by cellars. The walls of the crucible cellar associated with furnace 1746–1750 were recorded. It is likely that the other crucible furnace (1757–1764) was associated with nearby cellars 1734, 1735 etc. The continued importance of the cellars through time was evidenced by remodelling using very modern bricks and cement (1740, 1742, 1753 and 1754). It is tantalising to realise that these crucible cellars were accessible only a few decades ago, cold though the furnaces were by that point. The personal anecdotes and recollections of the Jewitt family (Footprint Tools) heard during the course of this work underline the recent date of the archaeology. A great loss of information sometimes occurs only shortly before archaeologists arrive on site.

8.3 Flue system

- 8.3.1 Immediately north of the cementation furnaces was a flue system covering an area of almost 12 m by around 6.5 m (similar in size to each of the cementation furnaces). This flue system belonged to a later phase of construction than the furnaces, and was generally bonded with black ash mortar compared to the furnaces' lime mortar. The flues appear to post-date the Ordnance Survey map of 1853 (**Fig. 30**) although they cannot be closely dated. The flues are probably related to a chimney depicted in 1890 (**Fig. 31**). Preservation of these ground-level flues was poor; generally only the bases of the flues survived, and those only in certain areas.
- 8.3.2 The fragmentary remains appear to comprise three separate flues converging on a concrete base (2172). From this base, the main widest flue (0.6 m internal width compared to 0.5 m for the other flues) ran west, before turning north and then east before it was lost. The surviving end of the flue points at an unmortared firebrick surface (2095) which was present in the location where the pattern of cellar vaults might have continued. This firebrick surface must have been of some importance for the designer of the building to have sacrificed a whole cellar for it. Returning to concrete base 2172, two flues ran

away to the east. The northerly of these flues contained soot and overlay heat affected natural and is therefore interpreted as having carried hot exhaust gases. This flue turned back around and returned to the concrete base (2172). The remaining flue also overlaid heat-transformed natural, but had a clean interior, suggesting that the hot gases it contained were clean. This flue curved away from the concrete base to the north-east, passing out of the area of excavation. Both of these subsequent flues contained 'guillotine'-style ferrous doors that could be lowered to cut off flow. It is likely that the exaggerated arrangement of the flues was designed to place these two doors in the same location so that they could be controlled from a single position.

Evidence relating to these flues is slight and interpretation cannot be conclusive. Complexes of flues were required for a variety of purposes. These flues may have formed part of a gas regenerator, designed to take exhaust gases and process them for re-use as fuel. The cycling of exhaust gases around concrete pad 2172 may support identification of the structures as part of a gas regenerator. Alternatively, a somewhat similar arrangement of flue was interpreted as the base of a brick kiln at Kelham Riverside (Dransfield 2016). It is possible that the Hollis Street flues relate to a later form of steel furnace such as a Bessemer converter (Dinah Saich pers comm).

8.4 Summary of other structures including domestic housing and public houses

- 8.4.1 Domestic courts were targeted for excavation. In Area A, an excavated probable toilet complex was depicted on the first 1853 Ordnance Survey map (**Fig. 5**). A series of probable Area I represented several phases of development which can be related to a fair degree with different phases of development depicted on historic maps (**Fig. 43–45**).
- 8.4.2 Worker's housing was directly excavated at the rear of the Orange Branch public house in Area K and in watching brief Test Pit 18. In Test Pit 18, the rear wall of a range of back-to-backs were had somewhat elaborate entrances suggesting there may have been a change in level between the interior and exterior of the houses. The archaeological remains of these small worker's houses comprised walls, thresholds and surfaces. No staircases or cellars associated with dwellings were encountered.
- 8.4.3 Two public houses were investigated. An outbuilding and exterior courtyard divisions associated with The Cock public house were recorded, along with a soakaway or rubbish pit (1033). In Area K, excavated cellars and exterior surfaces related to the former Orange Branch public house. The cellars were well-preserved and a sequence of repair, redevelopment and blockage attested to alterations and use of the cellars over time. Later structures were recorded to the north of the Orange Branch remains.
- 8.4.4 In Area D, a complex of brick walls dividing small areas (below 1 m²) defies secure interpretation, but may represent another range of toilets. These structures can be shown by artefacts in sealed demolition layers to have gone out of use by the mid-19th century. The area was later surfaced with sandstone setts.
- 8.4.5 During the final watching brief, cellars and other structures were recorded in several locations across the Site, indicating the potential for preservation of further structures which may (or may not) survive development. The majority of these structures were associated with the Thomas R. Ellin/Footprint Works. A wall containing sockets for floor joists in Area A and a cellar recorded in Test Pit 23 were probably associated with the former Toledo Works to the west.

8.5 Relationship of domestic and industrial areas

- 8.5.1 These houses, yard and public houses comprise the domestic structural remains of the communities that supplied workers to the various works that occupied the Site. The inhabitants of the back-to-back housing seen in Test Pit 18 would probably have worked at the associated British Works (Electro Plating) and some of the drinkers that frequented the Cock and Orange Branch would have spent the wages they had earned working in the works, including at the recorded furnaces. Although the technical details of the furnaces are intrinsically interesting, a fuller picture of life and community at Hollis Croft can be built by supplementing the industrial results with the domestic. The close proximity of residential buildings to works and furnaces speaks of lives defined by work and lived in close association with steelmaking.
- 8.5.2 A catalogue of the census records from 1851 supplemented with almost contemporary directory entries has been made.
- 8.5.3 It is known elsewhere that 'cottage industry' (industrial processes undertaken in a domestic setting) formed part of the workflow of the great workshop of Sheffield. One example is bone knife handle manufacture which was sometimes undertaken in cellars, sheds or elsewhere at home as an additional supplementary or full income. Such activity underlines the interconnectedness of the industrial and domestic life of post-medieval Sheffield. There is no direct archaeological evidence to support such 'cottage industry' at Hollis Croft, although it is probable that such activity took place. Some evidence of the cottage industry can be seen in the activities of female dressmakers recorded in the 1851 census. This activity was likely undertaken at home and appears to generally have formed a supplementary income earned by a wife or daughter.

8.6 Fulfilment of aims

- 8.6.1 The general aims of the work were fulfilled within the scope of the work. Some of the hopes for the archaeology expressed in the specific objectives were not borne out in the results. However, the design and intent of the work has been fulfilled and the work can be considered to have successfully addressed its objectives.
- 8.6.2 The remains encountered in Area A included 18th-century structures and pits.
- 8.6.3 Area B successfully investigated remains relating to The Cock public house with some limited evidence of phased development.
- 8.6.4 Area C recorded a late-19th century chimney and associated structures.
- 8.6.5 Work in Area D was unsuccessful in identifying remains related to a circular structure shown on the Fairbank plan relating to Harrison's steel works. However, two crucible furnaces were recorded relating to the later W. Fearnough Ltd.
- 8.6.6 Area E/F demonstrated that two circular structures first evident on the 1853 Ordnance Survey map represented cementation furnaces and extensively recorded these furnaces and defined their boundaries. Contemporary ancillary structures and areas of undisturbed natural strongly suggest that a third cementation chest had not existed in close association with the excavated cementation furnaces. No evidence directly related to the 18th-century Kenyon Works were identified.
- 8.6.7 Area G recorded industrial structures of unknown function.



- 8.6.8 Two truncated flues and a later machine base were investigated in Area H.
- 8.6.9 Area I was successfully expanded to further investigate White Croft Court 1. The nature of the activity here is uncertain, but may have industrial on the basis of structures 1117/1118 which do not appear to be consistent with standard domestic forms.
- 8.6.10 Area K successfully investigated the Orange Branch public house. Walls west of the cobbled yard were shown to be the upper parts of a series of cellars which had been maintained and rebuilt over time. In the 20th century a cart-way or entrance was installed in the east of the area, reducing the size of the former buildings, although the fabric of the earlier buildings was partially retained.
- 8.6.11 Remains dating to the 18th century include the walls of domestic properties and pits in Areas A and B, a possible toilet or outbuilding in Area D, fragments of walls in Area E/F, and the remains of the Orange Branch public house in Area K. Documentary research has pushed back the date of initial development at Hollis Croft, suggesting that buildings including workshops and most significantly steel furnaces were present by at least the mid-18th century.
- 8.6.12 The archaeology has been preserved by record and the location, extent, date, character, condition, complexity, significance and quality of the archaeology was identified. Artefacts and environmental evidence was assessed and this report was compiled. Recommendation of the publication of the results has been made, and the archive will be deposited with Museums Sheffield in due course.

8.7 Research frameworks

- 8.7.1 A national research agenda for the study of industrial archaeology has been produced by English Heritage (2010). The results of this investigation fall within the theme of 'The Impact of Industrialisation' identified in that research framework. Also relevant is the regional Yorkshire research framework (Roskams *et al.* 2007). The relevant section from this research framework is 'The Early Modern period'.
- 8.7.2 An ongoing trend of redevelopment in Sheffield and elsewhere is directly impacting the historic environment and the archaeological resource, underlining the importance of the work. The mainly 19th century remains identified help illustrate the urban landscape of industrial Sheffield. In this respect, the description of the furnaces that became the focus of this work are enhanced by the records of worker's housing and other facilities. Our understanding of cementation furnaces in particular has been enhanced, and a contribution to the corpus of recorded crucible furnaces has also been made. The public understanding of the remains was enhanced by a series of open days, and the proposed publication will help disseminate the results. An evidence base has been provided for future synthesis and analysis.

8.8 Recommendations (updated project design)

Significance

- 8.8.1 The highly significant result of the well-preserved cementation furnaces is appropriate for publication, especially in the context of the wider Site incorporating the crucible furnaces, worker's housing, public houses etc.

Publication

- 8.8.2 The results of the investigations at Hollis Croft merit publication and will be disseminated by publication in Internet Archaeology. The site archive will be deposited with the

Archaeology Data Service. A comic book intended to help disseminate the results to the general public is also in production. Each strand of the publication will be linked to the other strands; for example the digital version of the comic book will contain links to the archive.

- 8.8.3 The results of other nearby investigations (AOC in prep.; ARCUS 2008a and 2008b) should be considered when preparing publication to produce a picture of industry and domestic life in this corner of the great workshop of Sheffield.

8.9 Conclusion

- 8.9.1 The archaeological strip, map and record excavation and subsequent watching brief successfully addressed the aims of the investigation as laid out in the Written Scheme of Investigation (Wessex Archaeology 2017a–d).
- 8.9.2 Documentary research has shown that development of the Site began earlier than expected, with workshops and steel furnaces present on the Site at least by the mid-18th century. Remains from the 18th century were fragmentary, and primarily comprised dwellings and pits in Areas A and B and the Orange Branch public house in Area K. Small fragments of wall probably survived from John Kenyon's 18th-century works. The impact of 18th-century activity at Hollis Croft was perhaps best preserved in the layout of the various plots.
- 8.9.3 The most significant result was the remains of two well-preserved mid-19th century cementation furnaces. The cementation furnaces were built in a uniform style indicating that they followed a well-developed design at a time when cementation furnaces were well understood. The refractory chambers ('chests') of the furnaces had been replaced; regular maintenance of the refractory chambers was a feature of the operation of cementation furnaces. Details of the furnaces were recorded, including the stoke hole entrance doors and the arrangement of 'fire bars' upon which fires were set in the underlying ash pits of the furnaces. It is likely that the cementation furnaces were constructed by Burgin and Wells when they took over the John Kenyon plot (later occupied by Footprint Tools) in the early 1850s or slightly before.
- 8.9.4 Metallurgical analysis supported the view that the refractory lining of the chests (the 'crozzle') was derived from 'wheelswarf' produced by edge tool grinding. For the first time, it was confirmed that this crozzle extended up the interior sides of the refractory chamber. Another apparently new observation is that of the impression of the ferrous bars in the surface of the crozzle layer.
- 8.9.5 Two crucible furnaces were identified, although one was badly preserved and the other was only identified under watching brief conditions at a late stage in the works. The crucible furnaces could not be closely dated. The crucible furnaces were part of separate works (W. Fearnough Ltd.) and there is no evidence to relate them to the cementation furnaces. Nonetheless, the presence of both types of furnace in close proximity underlines the interconnectedness of industrial trades in the great workshop of Sheffield.
- 8.9.6 To the north of the cementation furnaces was an area of slightly later development characterised by the use of black ash mortar rather than lime mortar. This area included extensive cellars supporting a network of flues. Speculatively, the flues may be related to a gas regenerator, to Bessemer process steelmaking or to some other activity.
- 8.9.7 Further industrial activity was recorded in Areas G and H in an area of expansion of the Thomas R. Ellin/Footprint Tools works. Area H contained the remains of flues and a

machine base. Structures in Area I to the north of Hollis Croft were enigmatic but may be industrial in nature.

- 8.9.8 Other areas relating to worker's housing and public houses were investigated. Remains in these areas were generally limited to walls, surfaces and drains although there was sometimes good correlation with historic maps allowing for the identification of some structures as outbuildings and others as more substantial developments. Residential properties were recorded in close association with the various works, attesting lives closely intertwined with the work of the steel industry.
- 8.9.9 The pottery assemblage was unusually broadly dated for Sheffield and represents a significant result. The clay tobacco pipe assemblage was of interest and examples of pipes were illustrated. A medieval penny was also recovered from a 19th century context.

9 STORAGE AND CURATION

9.1 Museum

- 9.1.1 The archive resulting from the excavation is currently held at the offices of Wessex Archaeology in Sheffield. Museums Sheffield has agreed in principle to accept the archive on completion of the project, under an accession code yet to be issued. Deposition of any finds with the museum will only be carried out with the full written agreement of the landowner to transfer title of all finds to the museum.

9.2 Preparation of the archive

Physical Archive

- 9.2.1 The physical archive, which includes paper records, graphics, artefacts and ecofacts, will be prepared following the standard conditions for the acceptance of excavated archaeological material by Museums Sheffield, and in general following nationally recommended guidelines (SMA 1995; ClfA 2014c; Brown 2011).
- 9.2.2 All archive elements will be marked with the accession code, and a full index will be prepared.

Digital Archive

- 9.2.3 The digital archive generated by the project, which will include born-digital data (survey data, databases and spreadsheets, photographs and reports) as well as a scanned security copy of the physical records, will be deposited with the Archaeology Data Service (ADS) to ensure its long-term curation. Digital data will be prepared following ADS guidelines (ADS 2013 and online guidance), and accompanied by full metadata.

9.3 Selection policy

- 9.3.1 Wessex Archaeology follows national guidelines on selection and retention (SMA 1993; Brown 2011, section 4). In accordance with these, and in full consultation with specialists and the museum, a process of selection and retention will be followed so that only those artefacts or ecofacts that are considered to have potential for future study will be retained. The selection policy will be agreed with the museum, and will be fully documented in the project archive.
- 9.3.2 In this instance, the following recommendations are proposed for selection and retention:

- *Pottery*: the specialist recommendation is that the pottery assemblage should be retained *in toto*. It should not be sampled, dispersed, discarded or used as a teaching collection. The assemblage, which is unusually diverse for Sheffield, is a useful addition to the dataset of medieval and post-medieval pottery in Sheffield; preserving its integrity for future research is paramount.
- *Ceramic Building Material*: very small assemblage, absence of objects of intrinsic interest; limited research potential. None to be retained.
- *Clay Tobacco Pipes*: the majority of the pipe-bearing contexts produced plain stems or small fragments that do not provide sufficient evidence for detailed analysis of the individual contexts. Only five of the context groups produced ten or more pipe fragments (contexts 902, 916, 1702, 1704, 2115); these are recommended for retention, with the addition of selected pieces of intrinsic interest from other contexts (two decorated bowls, one reworked stem).
- *Glass*: small assemblage, but good selection of named manufacturers' products. More complete examples may be suitable for use by the Museum for display/teaching purposes, as an adjunct to any research potential. Selected items to be retained, on specialist advice (4 complete/near complete bottles, 1 bottle fragment, 5 bottle stoppers, 1 object).
- *Metallurgical residues, crucibles and metal items*: significant proportion of the assemblage had been redeposited in secondary contexts, and much of it cannot be attributed to a specific manufacturing process, structure or activity. This part of the assemblage has correspondingly limited research potential. Selected items only to be retained, on specialist advice.
- *Leather*: shoes are in poor condition and were found in modern contexts or unstratified, none are recommended for conservation or retention.
- *Animal Bone*: very small assemblage, too small for valid statistical analysis; poor condition; very limited further research potential. All worked bone (handles and handle-making waste) should be retained, but unworked bone is not recommended for retention.
- *Marine Shell*: very small assemblage; no groups sufficiently large for statistical analysis; no further research potential. None to be retained
- *Environmental material*: very small assemblage; no further research potential.

9.3.3 It should be noted that all finds have been, or will be, documented to an appropriate archive level prior to any selection process.

9.4 Security copy

9.4.1 In line with current best practice (eg, Brown 2011), on completion of the project a security copy of the written records will be prepared, in the form of a digital PDF/A file. PDF/A is an ISO-standardised version of the Portable Document Format (PDF) designed for the digital preservation of electronic documents through omission of features ill-suited to long-term archiving.



9.5 OASIS

- 9.5.1 An OASIS online record (<http://oasis.ac.uk/pages/wiki/Main>) has been initiated, with key fields and a .pdf version of the final report submitted. Subject to any contractual requirements on confidentiality, copies of the OASIS record will be integrated into the relevant local and national records and published through the Archaeology Data Service ArchSearch catalogue.

10 COPYRIGHT

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- 10.1.1 The full copyright of the written/illustrative/digital archive relating to the project will be retained by Wessex Archaeology under the *Copyright, Designs and Patents Act 1988* with all rights reserved. The client will be licenced to use each report for the purposes that it was produced in relation to the project as described in the specification. The museum, however, will be granted an exclusive licence for the use of the archive for educational purposes, including academic research, providing that such use conforms to the *Copyright and Related Rights Regulations 2003*. In some instances, certain regional museums may require absolute transfer of copyright, rather than a licence; this should be dealt with on a case-by-case basis.
- 10.1.2 Information relating to the project will be deposited with the Historic Environment Record (HER) where it can be freely copied without reference to Wessex Archaeology for the purposes of archaeological research or development control within the planning process.

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- 10.2.1 This document and the project archive may contain material that is non-Wessex Archaeology copyright (eg, Ordnance Survey, British Geological Survey, Crown Copyright), or the intellectual property of third parties, which Wessex Archaeology are able to provide for limited reproduction under the terms of our own copyright licences, but for which copyright itself is non-transferable by Wessex Archaeology. Users remain bound by the conditions of *the Copyright, Designs and Patents Act 1988* with regard to multiple copying and electronic dissemination of such material



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APPENDICES

Appendix 1: Context descriptions

Area A			
Context	Type	Fill of	Description
901	Layer		Concrete - Modern concrete. 0 - 0.10m depth below ground surface
902	Layer		Demolition rubble - 0.10 - 0.5m depth below ground surface.
903	Layer		Natural Light orangey yellow sand. 0.5m+ below ground surface.
904	Cut		Large rubbish pit for cast offs from cutlers works. Flat based, oval in plan, with stepped sides and moderate slope. 0.5 - 0.89m depth below surface. 1.4 m by 1.3 m in plan, 0.39 m deep
905	Fill	904	Dark blackish grey, sooty sandy silt. Abundant worked bone handles, clay pipe and pottery. 0.5 - 0.89m depth below ground surface.
906	Cut		Ditch with a flat base, straight sides and slope. Foundation ditch. 0.5 - .8m depth below surface. 7 m long, 0.96 m wide, 0.3 m deep
907	Fill	906	Dark greyish black, silty sand. Deliberate backfill of ditch to create a hard surface. 0.5 - 0.8m.
908	Cut		Shallow pit. Circular in plan with a concave base and sides. Moderate slope. 0.5 - 0.57m depth below surface. 0.5 m diameter, 0.07 m deep
909	Fill	908	Dark greyish black brown silty sand. 0.5 - 0.57m depth below surface.
910	Cut		Foundation ditch. Linear in plan with a flat base. Straight sides and steep slope. 0.5 - 0.95m depth below surface. 4 m long, 1.2 m wide, 0.45 m deep
911	Fill	910	Dark greyish black silty sand. Deliberate backfill to create hard standing. Clay pipe and pottery found. 0.5 - 0.95m depth below surface.
912	Structure	910	Wooden support beam inside foundation ditch [910]. 1 m long, 0.04 m wide, 0.14 m deep
913	Structure		Stone unmortared foundation wall for red brick structure 914. L shaped in plan with flat sides and base.
914	Structure		Unmortared handmade red brick wall built on top of 913. One course high. Rowlock bond.
915	Layer		Mid grey brown silty sand, likely relating to construction of linear wall 914.
916	Layer	930	Black clinker and sooty sand. Occupational spread of clinker, soot and slag. 0.4 m deep
917	Structure		Degraded brick floor in north east corner of site.
918	Structure		North south running unfrogged machine brick and modern cement wall. Linear in plan with straight sides. 0.8 m height exposed
919	Layer		Occupational spread. Dark greyish brown clay sand.
920	Layer		Rubble infill, light greyish brown silty sand. Sits beneath modern drain/manhole.
921	Layer		Industrial occupational layer. Thin (0.04 m thick) layer of dark black grey clinker sooty sand. Similar to 916.
922	Layer		Occupational layer, light yellowish brown clay sand, with lots of large inclusions including large stones, red brick and charcoal. 0.8 m thick
923	Structure		Handmade red brick and black ash mortar wall, two courses and one skin thick. Linear in plan with straight sides and flat base. Bonded to 928 with black ash mortar.
924	Layer		Occupational layer. Dark greyish brown silty sand. 0.16 m thick
925	Structure		Brick floor. Handmade red brick floor bonded with black ash mortar and surrounded by sandstone wall 926 and 927. Possible toilet. Rectangular in plan with straight sides and flat base. 1.8 m by 0.94 m in plan
926	Structure		T shaped sandstone and black ash mortar wall. North to south running wall is ten courses high and 2 skins thick. East to west running wall is four courses high. 2.14 m long, 0.48 m wide, 0.81 m deep
927	Structure		Sandstone and black ash mortar wall. Linear in plan with straight sides, two skins and eleven courses. 0.62 m long, 0.41 m wide
928	Structure		Sandstone and black ash mortar wall, L shaped in plan with straight sides and flat base. Two courses high.
929	Structure	930	Sewage pipe. 0.58m in length. 0.25–0.29 m in diameter. Runs into wall 927.
930	Cut		Cut for sewage pipe 929. Also filled with black clinker deposit 916. 1.6 m long, 0.5 m wide, 0.54 m deep
931	Layer		Occupational layer. Thin black sooty sand layer, square in shape.



Area B			
Context	Type	Fill of	Description
1001	Layer		Concrete. 0 - 0.2m depth below surface.
1002	Layer		Demolition rubble. 0.2 - 0.5m depth below surface.
1003	Layer		Natural. Light orange yellow sand and mudstone.
1004	Structure		Handmade red brick and black ash mortar wall. Six courses high. Rectangular in plan with flat sides and base. Part of a possible chimney. 1.2 m long, 0.85 m wide, 0.6 m high
1005	Structure		Flagstone floor. Square in plan. 0.8 m by 0.7 m in plan. Built directly on natural
1006	Structure		Handmade and machine made (including a frogged brick) red brick and black ash mortar wall. Linear in plan with flat sides and base. One course high and two skins thick. 0.8 m by 0.4 m and 0.2 m deep.
1007	Layer		Made ground. Mid greyish brown clay sand. A medieval coin was found within this context.
1008	Structure		Handmade red brick lintel. Bonded with black ash mortar, two courses and two skins. 0.7 m long, 0.28 m wide, 0.15 m deep
1009	Structure		Concrete pad. Square in plan with flat sides and base. 0.8m in length and 0.76m wide.
1010	Structure		Sandstone flag floor
1011	Structure		Unfrogged machine brick and modern cement drain manhole. Overlies archaeology; removed. 0.8 m square, 0.42 m deep
1012	Structure		Unmortared sandstone wall. 0.8 m long, 0.18 m wide, 0.16 m deep.
1013	Structure		East to west running brick wall associated with 1012
1014	Artefact Group		Context number assigned to describe unstratified Leather Shoes
1015	Structure		Handmade red brick wall and lime mortar, generally degraded into sand. Correlates with OS mapping of the Cock house pub. Two courses high and two skins thick. L shaped in plan with straight sides and flat base. 0.62 m long, 0.48 m wide, 0.18 m deep.
1016	Structure		Sandstone step. Lime mortared. Rectangular in plan with straight sides and flat base. 0.75 m long, 0.29 m wide, 0.2 m deep
1017	Structure		Sandstone wall. Forms exterior wall of a square room. L shaped in plan with straight sides and bonded with lime mortar. 3.3. m long, 0.37 m wide, 0.27 m deep
1018	Structure		Rough arrangement of sandstone, one course with no discernible use or purpose. Curvilinear in plan. No mortar. May be chance deposit/rubble
1019	Structure		Sandstone and black ash mortar wall. Forms foundation wall for red brick wall 1020. 2.6 m long, 0.32 m wide, 0.23 m deep
1020	Structure		Red brick and black ash mortar wall on foundation 1019. Linear in plan with straight sides and a flat base. Two courses high and two skins thick. 1.35 m long, 0.23 m wide, 0.18 m deep
1021	Structure		Handmade red brick and black ash mortar wall. Linear in plan with straight sides and flat base. One course and one skin. Made up of two bricks forming remnants of a wall which butts 1020. 0.52 m long, 0.11 m wide, 0.09 m deep.
1022	Layer		Occupational layer/buried soil. Mid reddish brown clay sand. Found within confines of features 1016, 1017 and 1018, which make up the inside of the Cock public house.
1023	Layer		Layer of buried soil. Dark blackish brown sand. Visible in section only. Possibly cellar fill
1024	Layer		Made ground. Mid greyish brown clay sand.
1025	Structure		Single sandstone flagstone, sitting atop pit [1033]. Black ash mortar. 0.52 m by 0.42 m in plan, 0.1 m deep
1026	Structure		Red brick wall; possibly machine brick and modern cement. 3 courses. 0.5 m square, 0.27 m deep
1027	Structure		Concrete base to structure 1026. Sub rectangular in plan, 0.75 m long, 0.12 m deep
1028	Layer		Occupational layer. Dark greyish brown sandy clay. 0.35m in length and 0.87m wide.
1029	Layer		Foundation layer to support 1026. Yellowish brown clay. Iron objects and tools found within.
1030	Layer		Dark grey/ black loose sandy clay. Charred in appearance; part of burning during occupation.
1031	Structure		Sandstone flagstone floor. Square in plan with straight sides and flat base. 1.44m in length and 1.16 wide.
1032	Structure		Red brick wall with black ash mortar. Header bond; 2 courses, forming T shape on North End. Likely to be connected to structure 1036, but has been truncated. 1.23 m long, 0.23 m wide, 0.22 m deep
1033	Cut		Sub oval shape in plan. Concave/ straight side shape with steep side slope. In box slot to show extent of coursing in relation to N-S wall (1019, 1020, 1021 and 1025). A very steep back filled pit was unearthed. Feature dug down an extra 0.5m beyond 1.2m li
1034	Fill	1033	Very deep wet pit fill - possibly a well. Black silty clay, waterlogged. Refuse pit or well
1035	Structure		Red brick and black ash mortar N-S orientated wall; 1 course, 1 skin thick, irregular bonding. Located on Eastern side of 1031. 0.74 m by 0.12 m in plan and 0.06 m deep.
1036	Structure		Red brick E-W orientated wall with black ash mortar; 2 course, 2 skins. Heavily worn, unfrogged. Natural core/foundation; some bricks laid on top of 1031.
1037	Structure		Red brick E-W facing wall with black ash mortar; 3 courses (only 1 course towards E of the wall remaining), 1 skin. Heavily worn, natural core/foundation.
1038	Layer		Occupational layer next to wall 1017 on northern side of Trench B. Mid greyish brown soil with silty sand inclusions.



Area C			
Context	Type	Fill of	Description
1601	Layer		Demolition rubble
1602	Concrete		Modern concrete layer
1603	Structure		E-W running red brick wall cut by 1615
1604	Structure		E-W running red brick wall, same as 1603
1605	Structure		Hand clamped red brick floor surrounded by 1606
1606	Structure		Hand clamped red brick wall surrounding 1605
1607	Structure		E-W running sandstone wall
1608	Structure		N-S running sandstone wall
1609	Structure		N-S running sandstone wall
1610	Concrete slab		Single concrete slab between 1603, 1604
1611	Structure		E-W running heavily degraded red brick wall
1612	Structure		E-W running red brick wall
1613	Structure		E-W running red brick wall bonded to 1611 and 1604
1614	Structure		E-W running machine made red brick using 1613 as a foundation
1615	Structure		E-W running red brick wall, abutting 1603, 1616
1616	Structure		N-S running red brick wall, bonded to 1617, butted by 1615
1617	Structure		E-W running frogged red brick wall, bonded to 1616
1618	Structure		E-W running red brick wall abutted by 1619
1619	Structure		E-W running red brick wall bonded to 1618, 1621, 1620
1620	Structure		N-S running red brick wall bonded to 1619 and 1621
1621	Structure		E-W running firebrick surface
1622	Structure		E-W running tumbled red brick wall using 1621 as foundation
1623	Structure		E-W running firebrick wall using 1622 as foundation
1624	Structure		E-W running frogged red brick foundation wall
1625	Structure		N-S running frogged red brick wall above 1618 and bonded to 1626 and 1628
1626	Structure		E-W running brick wall bonded to 1625 and 1627, using 1618 as foundation
1627	Structure		N-S running red brick, mixture of frogged and un-frogged
1628	Structure		E-W running red brick wall, soot stains on interior face
1629	-		VOID
1630	Structure		Fire brick surface enclosed by 1625, 1626, 1627 and 1628
1631	Structure		E-W running fire brick wall, heavily heat affected and degraded, keyed into 1630
1632	-		VOID
1633			VOID
1634	Layer		Mid brownish black sandy coal and charcoal layer forming foundation for 1603
1637	Layer		Dark brown silty clay with 10% poorly sorted sub angular sandstone inclusions <3cm
1638	-		VOID
1639	Layer		Dark reddish brown silty clay with 5% sparse poorly sorted red brick fragments
1640	Layer		Mid orangey- brown silty clay with 5% sparse <20mm sub angular concrete fragments and degraded stone
1641	Layer		Mid greyish- brown clay with 15% abundant charcoal flecks forming foundation layer for 1605, 1606 and 1607.

Area D			
Context	Type	Fill of	Description
1700	Layer		Mid whitish grey demolition rubble layer containing concrete, bricks and stones. Demolition rubble - mixture of concrete bricks, stones and sandstone. Built for the machine base foundation or for the flooring of last buildings on the site.
1701	Layer		N-S orientated concrete layer, white/light grey with very common stone inclusions. Covered majority of Trench D. Concrete slab/foundation, flooring of the previous building that was at the site.
1702	Layer		Black silty sand with stone and brick inclusions. Secondary deposit of 19th-20th century occupational and industrial waste.
1703	Layer		Yellow sandy clay with grey inclusions and small fragments of brick and sandstone. Redeposited natural.
1704	Layer		Black silty sand fill. Black silty sand fill that covered structures 1716, 1715 and 1714. Likely to be an occupational fill from the early 19th century.
1705	Structure		E-W orientated handmade red brick and lime mortar wall. 11 courses deep, 2 courses wide. Flat base on natural (1719). Red brick wall running E-W.
1706	Structure		Ceramic pipe, encased in concrete. Modern clay pipe drain fixed with cement, glazed on the inside. Built on top of previous wall.
1707	Structure		N-S orientated handmade red brick and lime mortar wall. 10 courses deep, 1 course wide. Natural foundation. Older red brick wall structure, similar to structure 1705. Butts 1705, butted by 1708 and 1712 and bonded to all three.



Area D			
Context	Type	Fill of	Description
1708	Structure		N-S orientated machine brick and black ash mortar structure associated with drain. 3 courses deep, 2 wide. Built on concrete foundation. Small red brick wall on top of drain 1706. Full structure not discernible, modern addition. May have capped drain 1706?
1709	Structure		W-E orientated sandstone orthogon structure with grey ash mortar. 7 orthogons visible, not including 1 very small/degraded piece and a corner visible underneath structure 1711. Rounded corners. Sits on top of structure 1718. Sandstone floor or base for industrial uses.
1710	Structure		W-E orientated handmade red brick and lime mortar structure. 3 lighter coloured bricks on top of structure in the W. 10 courses deep, approx. 4 courses wide. Fairly damaged/degraded. Red brick wall - no obvious use except as a possible outer wall. Unexcavated any further past stone slab floor 1717.
1711	Structure		W-E and S-N orientated L shaped machine made red brick (one frogged, others may be) structure with cement bonding. See plan for coursing pattern. Unknown structure/flooring topers. No obvious use except as a possible floor top or collectively with structure 1709, as a base for industrial uses. Bonded to structure 1709 (stone slab flooring).
1712	Structure		W-E orientated handmade red brick structure with lime mortar. 10 course deep. No obvious bonding pattern except for more frequent headers near bottom - rowlock bonding. Badly degraded. Early 19th century red brick wall. Appears to have been cut and filled with concrete (1720) which also sits upon it partially. Butts 1714 and 1715, butted by 1707. Bonded to 1720.
1713	Structure		W-E orientated hand-clamped red brick structure with lime mortar (slight grey hue). 3 courses deep, 2 courses wide. Fairly good condition, not much wear. Hand-clamped red brick possible inner or small dividing wall. Sat on top of stone slab flooring 1716 and 1717. Stops approximately 10cm from E edge.
1714	Structure		S-N orientated red brick structure with lime mortar. 11 (visible) courses deep, 5 courses wide, no obvious course pattern. Top 5 courses badly degraded and only a few bricks of each course survive. Mixture of stretcher and header bonds. Red brick wall. W side not fully excavated but is currently deeper than E side which has been excavated down to a stone slab floor 1717.
1715	Structure		N-S orientated red brick structure with lime mortar. 4 courses deep, 2 courses wide, no obvious coursing pattern. All bricks on bottom course are headers. Red brick wall. W side of wall excavated to natural, E side excavated to stone slab floor 1716.
1716	Structure		N-S orientated sandstone slabs (x2) with dark brown/grey black matrix Stone slab floor, possibly early/mid-19th century. Same as structure 1717. Foundation for this structure is 1721 then 1719.
1717	Structure		N-S orientated sandstone slab (x1) with black ash matrix. Fairly degraded with possible metalwork stains in the SE corner. Sandstone slab floor. 1 slab visible - likely to continue underneath limit of excavation and past structure 1713 - therefore same as structure 1716. Foundation for this structure is 1721 then 1719.
1718	Structure		W-E orientated handmade red brick structure with lime mortar. 11 courses (visible) deep by 4 wide. No obvious coursing pattern. Badly degraded and misshaped. Overlain by 1709 Red brick wall. No foundation found (unable to dig deeper than 97cm due to space restrictions). One of the deepest features in Trench D. Structure 1709 (granite stone slabs) sits on top of this wall.
1719	Layer		Seen in 10m x 5.6m sondage. Yellow sandy clay natural with sandstone. Natural.
1720	Layer		Irregular shaped light grey concrete layer with a high quantity of large inclusions including red brick, clay and stone. Concrete layer which truncates structure 1712.
1721	Layer		Dark greyish brown layer with green veins. Friable silty clay texture. Layer of waste found underneath sandstone slabs 1716. Likely to be a base/padding for 1716 or various sediments, water etc. that have collected over the years.
1722	Structure		N-S orientated hand clamped brick structure with white-yellow friable lime mortar. 11 courses high, 2 skins thick, English Garden bond. Feature not bottomed due to reaching dig depth maximum. Red brick wall. Harrison works? N-S running beneath granite setts 1709. Stained from layer 1725.
1723	Structure		E-W orientated hand clamped red brick structure with white-yellow lime mortar. 1 course by 1 skin, header bond. Red brick wall with unknown purpose. Hand clamped bricks and mortar suggest an earlier date - Harrison Works? On natural 1719, however to the E there is a gully (1728).
1724	Layer		Mid greyish/blue/black fine silt with 50% clinker coarse components. Potentially made ground with abundant small crucible pots with slag.
1725	Layer		Dark purple black fine sandy silt - very friable. 10% veins of clinker. Fill - made ground layer beneath (1724) which is a very soft friable fill, possibly due to being heat affected and then dumped in slot to heighten the ground. This layer (1725) has also left a purple staining across N-S running red brick wall 1722.
1726	Layer		Dark blue black friable silty sand and clinker (50/50 mix). Clinker well sorted throughout. Bottom fill layer of made ground.
1727	Structure		E-W orientated sandstone structure with no bonding/bedding agent. 1 course, 2 skins, no bonding pattern. Sandstone top of external wall. Located on top of structure 1709. See Harrison Works.
1728	Cut		Possible gully - see Cut Interpretation for more information. Potentially gully cut by E-W brick wall 1723, however this feature has not been excavated as it was 1.2m below ground level.



Area D			
Context	Type	Fill of	Description
			This feature is in the very edge of slot and likely continues into trench edge and beyond.
1729	Fill	1728	E-W orientated fill of mid grey black friable sand with a brown hue. Coarse components of white lime mortar and 10% clinker. Feature not excavated as started 1.2m down. Potential footprint of old wall or another deposit layer - due to ground level change.
1730	Layer		VOID
1731	Structure		VOID
1732	Structure		N-S orientated handmade red brick and greyish lime mortar structure with occasional firebricks (possibly reused). 7+ courses deep, 3-4 courses wide, varied bonding. All bricks degraded. Probable foundation wall butted by truncated vaulted arch 1734. Wall believed to continue to the S. NW corner of Area D, large sandstone block: 0.4x0.1 over inserted opening in centre of wall.
1733	Structure		N-S orientated handmade red brick structure with mid-dark grey mortar intermediate between lime mortar and ash mortar (10% unreacted lime). 6+ courses deep, 3 courses wide, mixed bonding - mainly stretcher. Bricks degraded. Base of vault with remains of foundation of vault. Filled with packing below angled bricks springing arch.
1734	Structure		E-W orientated handmade red brick with occasional firebrick structure. Light grey lime mortar. 17+ courses deep, 1 course wide, header bond. Re-use of degraded bricks in repaired sections. Foundation not visible. Vaulted wall contemporary with vaulted wall 1735.
1735	Structure		N-S orientated handmade red brick structure with occasional firebricks. Light grey lime mortar. 8+ courses deep, 2 courses wide, stretcher bond. Degraded bricks. Vaulted wall contemporary with vaulted wall 1734. Partially hidden by modern wall 1753 and rubble.
1736	Structure		N-S and W-E orientated L shaped handmade red brick structure with occasional firebricks. Bullnose bricks on corner. Light grey lime mortar. 6+ courses deep, 1-2 courses wide, mixed bonding. Degraded - top 4 courses repaired re-using brick Wall around enclosed area, surrounded on 3 sides by vaulted arches. 1960s wall built directly around the outside - presumably to support it - purpose unknown. Wall comes up from brick floor.
1737	Structure		N-S orientated sandstone structure with lime mortar. Sandstone slabs stacked on top of each other in an irregular bonding pattern. Built onto natural 1719. 0.6m from base there is a protruding rectangular flat piece of metal with a circular hole in. Wall forming N-S running E part of U shaped wall structure, along with structures 1738 and 1739. Damaged at S end by modern brick wall. Boundary wall?
1738	Structure		E-W orientated sandstone structure with lime mortar. Sandstone slabs stacked on top of each other in an irregular pattern. Wall is an earlier structure and is truncated/butts (?) later wall 1745 at W end. Forms N part of U shaped wall structure in south area of Trench D (keyed into N-S wall 1737). Built directly on natural and bed rock (1719).
1739	Structure		E-W orientated sandstone structure with lime mortar. Sandstone slabs stacked on top of each other in an irregular bonding pattern. Early sandstone wall contemporary with structures 1737, 1738, truncated/butted by later red brick wall 1745. E-W return of and keyed into structure 1737. Forms S part of U shaped wall structure. Outer wall late 18th century. Built on natural and bed rock.
1740	Structure		N-S orientated red brick structure with cement bonding agent. 7 courses remain - alternate stretcher and header bond. Machine made frogged bricks. Located in between structures 1745 and 1742 and to the N of 1742. Small red brick wall, possibly used to fill the gap between the pillar 1742 and earlier wall 1745. Modern structure - contemporary with 1742? Sat on top of structure 1745.
1741	Structure		VOID
1742	Structure		Machine made grey brick structure with cement bonding agent. 7 courses remain in a 3 stretcher, 1 header, 3 stretcher pattern. Jointing is flush. Modern concrete brick pillar - probably contemporary with structure 1740 and built for a later structure. Truncates and laid on top of earlier wall 1745.
1743	Layer		Small pieces of rubble (stones, bricks, metal, concrete) mixed with mid brown silty clay soil. Layer covering all of area D. Similar to (1700), however has different compaction and components. (1700) has larger pieces of rubble whereas (1743) has smaller pieces mixed with silty clay, making it more fill/layer like.
1744	Fill		Medium brown silty clay fill with a purple hue. Small stone, brick, debris/rubble coarse components. Silty purple fill on top of brick floor/wall structure 1748. The structure as a whole is possibly a flue or flue related.
1745	Structure		S-N orientated red brick structure with lime mortar (containing black charcoal inclusions). Bricks are unfrogged and a mixture of reused handmade and machine made. Mixture of header and stretcher bonds. Base is top of foundation wall 1751. Red brick inner wall, running parallel to outer wall 1737. Cuts structures 1738 and 1739. Cut by structure 1742.
1746	Structure		W-E orientated handmade red brick wall with lime mortar. Header bond. Foundation unsure - possibly sits on top of structure 1748. Red brick wall - possibly flue or flue related.
1747	Structure		S-N orientated handmade red brick wall with lime mortar. Stretcher bond on inner face. Top course consists of stretcher bond on inner face and header bond on outer. Red brick wall - possibly flue or flue related. Channel wall.
1748	Structure		N-S orientated T shaped handmade red brick structure with lime mortar. Mixture of header and stretcher bonds. Red brick floor or wall - possibly flue or flue related. Stretches halfway across



Area D			
Context	Type	Fill of	Description
			the slot then has a 65cm drop, leaving a gap between structures 1750 and 1747. This gap was filled with 1743.
1749	Structure		W-E orientated firebrick with lime mortar. Brick is machine made with very small inclusions and is snapped in the middle; mortar has an outer pink hue. Lintel going over structure 1748 and held in place by structure 1752. No evidence for further capping along the channel. Possibly a flue or flue related.
1750	Structure		S-N orientated handmade red brick structure with lime mortar. Stretcher bond with header on inner side. Red brick channel wall - possibly flue or flue related.
1751	Structure		N-S orientated lime mortar structure with small charcoal inclusions. Contains some brick within - unsure if whole or broken as only the head is visible. Sits on top of natural 1719. Foundation wall of structure 1745, made up almost entirely of lime mortar. Cuts structures 1738 and 1739. The inner wall that runs parallel to the outer wall 1737.
1752	Structure		N-S orientated machine made red brick structure with lime mortar (containing small charcoal inclusions). 3 courses long, 1 course wide and 4 courses deep (visible). 2 bricks badly heat affected. Sits on top of structure 1748. Red brick wall - possibly used to hold structure 1749 in place or to make the channel more narrow. Flue or flue related (possibly).
1753	Structure		N-S and W-E orientated L shaped grey brick structure with cement mortar. Machine made bricks. 6+ courses deep, 1 course wide, stretcher bond - not fully excavated. Cement capped with support hooks (for piping) and remains of pipe. 1960s wall to support earlier brick vaulted structure (surrounds wall 1736).
1754	Structure		N-S orientated machine made grey brick structure with cement mortar. 9+ courses deep (unknown width), stretcher bond - not fully excavated. Wall partially demolished (not neatly). Support wall. Perpendicular to structure 1753 - probably contemporary - possibly supporting continuation of structures 1733 or 1732.
1755	Cut		Cut seen in section only. North facing section below structure 1739. Construction cut for wall 1745.
1756	Fill	1755	Mid-light brown silty fill of cut 1755. Very few small inclusions. U shaped base with steep curve to side slope. Construction fill of cut for structure 1745.
1757	Structure		W-E orientated circular firebrick structure with lime mortar. Bricks are very large and heat affected, mortar is thick with very small common inclusions. Slag-like crust at the bottom of the wall, underneath which is a brick frame, bonded to 2 iron bars. North crucible pit in the NW corner of Area D.
1758	Structure		W-E orientated circular firebrick structure with lime mortar. Bricks are large and heat affected, mortar is thick with very small common inclusions. 2 iron bars run N-S across, approx. 37cm apart. Slag crust layer below first 3 courses. South crucible pit in the NW corner of Area D.
1759	Fill		Pink/red/orange sand - likely to be heat affected and degraded clay. Small pieces of slag/crust and brick coarse components. Fill of crucible pits 1757 and 1758. Identical fill in both pits.
1760	Structure		S-N orientated machine made firebrick structure with lime mortar. Mixture of stretcher and header bonds; 5 courses high (visible), approx. 8 courses wide (visible). Fairly badly degraded and damaged. Firebrick wall - visible in E facing section. Runs N-S on the W side of crucible pits 1757 and 1758.
1761	Structure		W-E orientated circular sandstone structure with lime mortar. Irregularly shaped slabs; 2 courses high, approx. 3 courses wide. Difficult to decipher between courses due to irregularity of slabs. Sandstone wall. Flat base bonded to structures 1757 and 1758 using lime mortar.
1762	Layer		Dark brown sand layer with fine inclusions (ranging from small to medium). Sandy layer sat above crucible furnace. Possibly a by-product of industry or silt from demolition.
1763	Structure		6 iron bars running N-S; 3 bonded to structure 1757 and 3 to 1758. Iron bars - possibly created a platform between crucible pits 1757 and 1758.
1764	Structure		N-S orientated red brick structure. Fairly degraded making it too difficult to determine any courses. Row of red bricks running parallel (approx. 32-34cm away) to the crucible on its E side. No obvious relationship to crucible furnace, however it could have been an outer wall/boundary - due to the iron platform between structure 1764 and the crucible.



Area E/F			
Context	Type	Fill of	Description
1501	Layer		Demolition rubble overburden. Mixed grey and red loose sand silt soil, with ash, brick and sandstone coarse components. Overburden - demolition rubble. Deposit includes some extruded brick; late 20th or later.
1502	Structure		NE-SW orientated machined red brick structure with black ash mortar. Skin wall survives 4 courses. Mostly stretcher courses on SE face; mostly headers on interior. Late red brick wall inserted through cementation furnace. 1508 is concrete foundation for this. Originally ran across trench - continues as 1503 in SW. Keyed in to return 1504.
1503	Structure		NE-SW orientated 3 skin red brick wall with black ash mortar. Machine made bricks - 8 courses high laid on bed. White paint on interior surfaces - reuse. Later red brick wall. Extended NE to join wall 1502, appears to truncate 1514 and 1525 which may have formed one chest.
1504	Structure	1505	W-E orientated machined red brick structure with black ash mortar. 2 skin wall; 5 courses visible. Late red brick wall inserted through earlier structures. In construction cut [1505]. Keyed in to 1502.
1505	Cut		NW-SE orientated linear cut. 2 x 0.4m. Construction cut for wall 1504. Truncates structure 1512 and wall 1538.
1506	Fill	1505	NW-SE orientated, mid grey silt soil with slag, charcoal, brick, clinker, ash and clay coarse components. Primary backfill of construction cut 1505.
1507	Layer		Redeposited clay in NE corner of trench. Yellowish brown silty clay soil with small angular red brick fragments, stone, charcoal and clay coarse components. 2.3m x 0.35m. Redeposited clay. Either represents upper fill of construction cut [1505] or made ground post-dating [1505] and 1504. Runs SW-NE alongside trench edge and wall 1504.
1508	Structure	1542	NE-SW orientated concrete foundations for red brick wall 1502. Impressions of red brick of 1502 visible on upper surface. Foundations for 1502 and 1503 and inserted through earlier cementation furnace.
1509	Structure		NW-SE orientated sandstone setts (bricks) laid on edge. Dimensions of setts 29 x 14 x 19 cm Possible flooring of yard. Possibly same as 1510, but relationship truncated by concrete base.
1510	Structure		NE-SW orientated sandstone setts - 2 visible but not fully excavated as 1537 visible in section. No bonding agent/mortar used. 1 skin wide, 1 course. Setts laid on bed of black clinker ash 0.25 cm deep. Floor. Probably same as 1509, however relationship is truncated by concrete base. Former floor adjacent to cementation furnace.
1511	Fill	1540	NW-SE orientation, dark grey silt soil with brick, ash and slag coarse components. Primary backfill of construction cut 1540. Material both filling structure 1512 and the associated construction cut 1540.
1512	Structure	1540	U shaped sandstone block structure, laid on 1 course of red brick, bonded with black ash mortar. Sandstone blocks use no bonding agent/mortar. Structure of unknown purpose, visibly forming box shape within cut [1540]. Construction cut [1505] truncates structure, possibly the physical stone in SW-NE direction. Structure filled with (1511).
1513	Layer		Dark yellow clay soil with sandstone coarse components. Clay is clean and stratigraphically early. Some dirt at upper interface - contamination from overlying layers. 2.1m x 0.66m. Remnant of natural, may be redeposited.
1514	Structure		NW-SE orientated sandstone chest with layer of slag 1515 above. 6 openings visible within chest - dimensions of which are: 0.23m x 0.28m. Openings contained deposit (1541). Chest dimensions 2.9m x 0.45m. Sandstone chest of cementation furnace. Hot gases pumped through to heat metal above, possibly part of chest 1525 but truncated by later structures 1502, 1503 and 1508. Structure 1525 is a continuation of this beyond 1542.
1515	Layer		NW-SE orientated slag bonded on top of sandstone chest 1514. Heated/formed in situ. Slag related to processes occurring within sandstone chest below.
1516	Structure		NW-SE orientated firebrick structure under early chest 1544. Bricks degraded from heat exposure and arranged in lattice formation, although degradation obscures this. No mortar, some red brick in bottom of 3 courses. Part of cementation furnace: foundation for chest, or possibly part of the chest of earlier cementation furnace. Originally contained air gaps to function as hot gas conduit for furnace?
1517	Structure		NE-SW orientated red brick structure with remnants of lime mortar (yellow due to heat transformation). Early red brick wall, possibly forming part of wall 1527 running eastwards. Associated with cementation furnace.
1518	Layer		Redeposited clay natural, heat transformed into loose sand-sized fragments of fired clay. Red clay sand soil with sparse coarse components. Made ground between structures of cementation furnace
1519	Structure		NW-SE orientated hand pressed red brick structure with light yellowish lime mortar (5% unreacted lime). 7 courses, 3 skins stretcher bond on bed. 4th course, 2 skins: 1 skin header the other skin stretcher. Laid on bed which continues into trench edge. Red brick wall, runs parallel to 1522 and truncated by concrete 1508. Probably continues eastward as 1529. Divides 2 cementation furnace chests.
1520	Layer		NW-SE redeposited natural clay heat transformed into loose sand size fragments of fired clay. Red clay sand soil with some handmade red brick coarse components. Made ground between structures of cementation furnace.
1521	Structure		NW-SE orientated red brick structure with lime mortar; 8 courses, 1 skin visible, though may extend further under chest 1524. All distinguishable courses header bond. Some degradation.



Area E/F			
Context	Type	Fill of	Description
			Red brick foundation wall to 1522 (firebricks). Forms outer wall of cementation furnace (chest 1524).
1522	Structure		SW-NE orientated firebrick structure with silty sand between each brick - no mortar used. 1 skin thick, 1 course, laid on edge. Lies on foundation bricks 1521. 50% of bricks highly degraded/transformed from furnace heat exposure. Full extent not visible. Firebrick wall, truncated by concrete foundation 1508. Wall probably continues NE as structure 1532. Bricks made to withstand heat from cementation furnace 1524.
1523	Layer		Demolition rubble-like material surrounding chest 1524 and wall 1522. Mixed dark grey, yellow and orange coloured silt sand soil with ash, heat affected sandstone and brick dust inclusions. Overburden demolition material derived from chest 1524.
1524	Structure		NW-SE orientated sandstone chest for cementation furnace. 3 openings extant on NW with fragmented remains. Sandstone chest for cementation furnace, similar to 1514. Truncated by later wall 1502 to SE.
1525	Structure		NW-SE orientated sandstone structure. Remains of 4 firebricks visible below in header bond. Slag 1546 visible below firebricks. Remains of sandstone chest, possibly part/continuation of chest 1514, but cut by concrete 1508, [1542]. Abuts 1533 to SE.
1526	Structure		SW-NE orientated red brick structure with firebrick on top course. Heat transformed lime mortar (very yellow with unreacted lime present). 4 courses; bricks degraded by heat - not all original bricks present in wall. Red brick/firebrick wall. Lower chest, similar to 1516 on SE side of truncation 1542. Overlain by lower slag 1546.
1527	Structure		NW-SE orientated red brick structure with lime mortar (creamy and partly transformed). Stretcher bond on bed; 4 skins visible, however slightly degraded. Early red brick wall (lime mortar), possibly continues NW as 1517; returns to SW as 1533. Outer wall of cementation furnace structure. Truncated by (cut 1542) concrete foundations 1508 NW-SE. NE-SW, wall goes into trench edge.
1528	Layer		Mid yellowish brown silty clay with 8% inclusions, charcoal flecks, red brick fragments, small rounded stones. Located in SE corner of trench with red brick wall structures surrounding it. Heat transformed near furnaces; becomes redder and coarser (sand). Redeposited natural. Clay deposit postdating associated structures 1527, 1529, 1537 and 1539.
1529	Structure		E-W orientated red brick wall with lime mortar (unreacted lime present). Bonding not clear due to thick layer of lime mortar on surface of bricks. 2 courses visible. Top course only a few bricks survived. Red brick wall, keyed into N-S return 1537 and NE-SW return 1538. This context divides 2 areas of furnace. Truncated by (cut 1542) structure 1508. Deposits (1530), (1528) on either side of wall. Possible continuation of 1519.
1530	Layer		NW-SE orientated layer of red sand and dark yellow clay with brick, charcoal and lime coarse components. Made ground. Deposit of red sand (to NW) and dark yellow clay (to SE). Red areas heat affected - potentially by structure 1532. Denser clay in dark yellow areas. Possibly extends N-W to join 1520.
1531	Structure		NW-SE orientated wall with lime mortar. 2 skins visible - bond is 1 stretcher, 2 headers, 1 stretcher - one course high. Outer wall of cementation structure 1532. May continue N-W but cut by concrete 1508 (cut 1542).
1532	Structure		SW-NE orientated firebrick structure, no mortar used (sandy fill between each brick). 1 course, 1 skin, bricks laid on edge; header bond. Heat transformation has degraded the bricks. Firebrick wall associated with cementation furnace 1536. Probably disrupted by later walls 1502 and 1504. Continuation of structure 1522? Truncated by structure 1508 (cut 1542). NE-SW return of wall at E end, structure 1535.
1533	Structure		NE-SW orientated red brick structure with lime mortar. 4 skin, 1-3 courses high. Courses 1 and 2 are stretcher bond, course 3 is header. Early lime mortar red brick wall, return of/keyed into structure 1527. Exterior wall of cementation furnace structure. One sandstone block built into this context forms SE limit of chest 1525.
1534	Structure		NE-SW orientated red brick structure with grey brown lime mortar. 5 courses visible, stretcher bond. 2 skins thick. Unfrogged hand pressed bricks. Red brick wall - keyed into/NE-SW return of structure 1531. Forms an L shape around fire brick structures 1532 and 1535.
1535	Structure		NE-SW orientated firebrick structure without mortar (sandy fill between bricks). 2 course (visible), 1 skin, header bond. Top course bricks laid on bed, lower course bricks laid on edge. Firebrick wall designed to withstand heat of cementation furnace. NE-SW return of structure 1532. Remains of cementation furnace including structure 1536 present.
1536	Structure		NE-SW orientated sandstone structure. 2 sandstone blocks. Heavy wear and use - cracks within blocks and crumbling of surface. Base of cementation furnace chest - same as structure 1524 however not fully survived. Continues as structure 1521 beyond cut 1542.
1537	Structure		NW-SE orientated red brick structure with lime mortar (including traces of unreacted lime) running 8 courses at its fullest extent. Courses 1, 2, 4, 6, 7, 8 are stretcher bond, courses 3 and 5 are header bond. 4 skins. Southern cementation furnace chimney (E side). Curved and domed profile, keyed into structures 1538 and 1539.
1538	Structure		Red brick wall with lime mortar. 3 skins, 5 courses tall at its highest. Lower 2 courses of varying alignments - possibly reused or displaced/partially collapsed. Upper 3 courses header bond. Red brick slightly curved wall keyed into structure 1537. May be part of conical shape of furnace. Possibly continued further N-E, but may have been cut by 1505.



Area E/F			
Context	Type	Fill of	Description
1539	Structure		E-W orientated red brick curved wall with grey lime mortar, in S corner of trench. Header bond, 1 skin, 10 courses visible, however not fully excavated (as goes into trench edge) so may continue deeper. Handmade unfrogged bricks. Curved wall - south furnace stoking hole entry-way. Some damage to centre of structure, possibly from machine? Sandstone blocks appear in section within structure.
1540	Cut		NE-SW orientated linear cut. 0.87m length. Construction cut for structure 1512, filled with (1511). NE end cut by W-E running cut [1505].
1541	Fill		Mixed white, dark grey and purple soil with ashy grit texture and sandstone coarse components. Chemical ash deposit within chest 1514 of cementation furnace.
1542	Cut		NE-SW orientated rectangular cut. 3.6m length. Construction cut for concrete foundations 1508 for walls 1502 and 1503. Cut only visible in SW section of trench edge.
1543	Layer		Dark grey/black coarse ash/clinker with charcoal, brick, lime and clinker coarse components, situated below two sandstone setts. Made ground as base for sandstone setts structure 1510. May extend further down but not fully excavated. May also have extended further S-E but truncated by later concrete.
1544	Structure		NW-SE orientated sandstone layer carrying slag 1545 above. Sandstone heat transformed - purple/red streaky colour. Earlier sandstone furnace chest - overlies series of now blocked openings. Implies hot gases were pumped through to heat iron above. Openings are in structure 1516 (firebrick).
1545	Layer		NW-SE orientated layer of slag. 2.8m length, 0.10m max height. Slag left from last firing of lower cementation furnace (structure 1544). Directly overlaid by upper cementation furnace 1514. Cut by concrete (cut 1542, structure 1508).
1546	Layer		E-W orientated layer of slag. Dark purple grey with a brittle porous texture and very few inclusions. Thin layer of slag sandwiched between original earliest cementation furnace 1526 (below) and second cementation furnace structure 1525 (above). Cut by [1542], construction cut for structure 1508.
1547	Structure		NE-SW orientated handmade red brick structure. Somewhat heat affected. Bricks aligned to NE-SW; on bed. No mortar? Possibly pinkish heat affected lime mortar, though this may be intrusive. Foundation for firebrick structure 1516.
2000	Structure		N-S orientated red brick structure with lime mortar. 15 courses - starting from top, 3 stretcher, 1 header, 4 stretcher, 5 header, 2 stretcher and header combined. Unfrogged bricks with some soot stains and unreacted lime on surface. Red brick wall - N return of wall around furnace chest associated with W entrance to cementation furnace. Located in SW corner of Area EF and built on sandstone foundation blocks.
2001	Structure		NE-SW orientated curved red brick structure with lime mortar. Bricks are handmade and a mixture of colours (some brighter red, some darker on surface only) and mortar is grey with unreacted lime inclusions. 11 courses excavated (reached 1.2m), header bond Red brick entrance wall to W side of cementation furnace. Located between chimney and wall of furnace chest - full width not visible. Concrete has destroyed part of top 6 courses. Wall not visible in plan due to concrete overhang.
2002	Structure		N-SE orientated curved red brick structure with lime mortar. Handmade bricks of irregular sizes (to create curve?), mortar is grey with unreacted lime inclusions. Some soot stained bricks. 3 course red brick foundation (visible), 8 courses on top. N return of chimney at western entrance to cementation furnace. Curved structure in plan and convex in profile, angling inwards as coursing builds up.
2003	Structure		E-W orientated hand clamped red brick structure with lime mortar (containing unreacted lime and charcoal inclusions). 13 courses - top 6 only visible in area edge section. Mix of bonds. Black soot staining at E end of structure to some bricks. Chimney wall - E return of chimney 2002 at W entrance to cementation furnace. South edge wall of chimney. Continues into trench edge. Layer of modern concrete on top of structure.
2004	Fill		Red orange silty sand fill with red brick and small angular sandstone fragments. Fill of chimney (between chimney 2002 and furnace chest wall 2000). Deposit is in E side of slot - closest to wall 2000 running alongside it. Similar fill pattern at E side of furnace and chimney wall and also on the N side of the W entrance.
2005	Fill		Mid brown silty clay fill with 5% charcoal, sandstone and CBM inclusions. Fill of chimney 2002 at W entrance to cementation furnace. Fill is on the outside of deposit 2004 and runs alongside wall 2002.
2006	Layer		Natural. Natural.
2007	Structure		E-W orientated hand-clamped red brick structure with light brown grey lime mortar. 3 skins, 12 courses high, header bond. Top course affected by heat. Built on a bed of natural. Central wall of cementation furnaces with curved wall of chimney coming off W end for both furnaces. Built at the same time as wall 2008 and most probably structures 2009 and 2010.
2008	Structure		NW-SE orientated hand clamped red brick and sandstone slab structure with lime mortar. 11 courses - top 3 of red brick. Heat affected, built on a bed of natural. Curving wall of chimney of northern furnace with stone slabs actively interacting with structures 2007 and 2009. Built at the same time as surrounding walls 2007, 2009 and 2010.
2009	Structure		W-N orientated hand clamped red brick wall with lime mortar. 15 courses - header bonded. Heat affected. Curving wall of entrance to N furnace, with stone slabs of structure 2008



Area E/F			
Context	Type	Fill of	Description
			interacting on W side in courses 3 to 5. Built at the same time as walls 2008 and 2007 but built briefly before wall 2010.
2010	Fill		N-S orientated hand-clamped red brick wall with lime mortar. English cross bond, 13 courses. Bricks heat affected and heavily eroded due to furnace process. Built on bed of natural W outer facing outer wall of cementation furnace chest. Built around the same time as walls 2007, 2008 and 2009.
2011	Fill		Red mid orangey brown sandy clay soil - contains fragments of CBM. Fill found on E side of slot - up against structure 2010 (wall of furnace chest).
2012	Fill		Mid yellowy brown silty clay fill with coarse components of raw sandstone, brick fragments and sandstone slabs. Fill found on W side of slot, closest to structure 2008 (chimney wall). Similar to deposits found in (2005) and (2015).
2013	Structure		N-S orientated hand-clamped red brick wall with lime mortar. 12 course, 2 skin. The bonding pattern at the N end is quite irregular as it shapes a corner with wall 1519. Most bricks are heat affected and many are very degraded. Chest of furnace? N-S running brick wall which is in the chest of furnace and is placed directly adjacent to the entrance wall 2015.
2014	Structure		NE-SW orientated hand-clamped red brick structure with lime mortar. 13 courses, 3 skins. Slopes upwards and inwards (conical). Bricks vary in size - possibly chopped to create the curve - not reused. Curved chimney wall in SW edge of Area EF. Chimney for furnace - possibly mid-18th century.
2015	Structure		W-S orientated curved red brick structure with lime mortar. Bricks are hand clamped. 10 courses, mostly header bond. Curved entrance wall placed between the chimney wall and the chest of furnace. Only part of it is visible as it is covered by modern concrete on the surface..
2016	Fill		Mid reddish orange sandy clay fill with common mudstone slab coarse components. Upper fill of chimney 2014 - between the chimney wall and the chest of furnace.
2017	Fill		Mid yellowish brown silty clay with sparse mudstone slab coarse components. Lower fill of chimney structure 2014. Located between chimney wall 2014 and the chest of furnace 2013.
2018	Fill		Dark black silver fill with fine grained clinker and metallic components. Heat affected clinker material and slag deposit within chimney wall at W entrance of cementation furnace. Probably by-product of cementation furnace process. Fill is between exterior N-S wall of furnace chest 2000 and E-W running chimney wall.
2019	Structure		W-E orientated firebrick and red brick structure with reddish-pink sandy lime mortar. 5 courses high (visible), mostly stretcher bond with occasional header. Very heat affected, bricks in centre are crumbling and sand like. Furnace chest truncated by structure 2021 (a modern wall/path), continues on the W side of structure 2022.
2020	Structure		W-E orientated L shaped red brick wall with black ash mortar. Bricks are machine made, mortar is dark grey/black in colour. 2 courses deep, header bond outline with stretcher bond centre. Reused firebricks in lowest course. Modern wall - later addition to another wall located beneath (structure 2021). Runs W-E with a short segment running N-S on W side. Cuts most southerly chest to W (structure 2019).
2021	Structure		W-E orientated L shaped red brick (plus occasional reused firebrick) structure with dark grey/black black ash mortar. Machine made bricks. 7 courses deep (visible), alternating header-stretcher pattern. Modern wall with later addition built on top of it (structure 2020). Cuts most southerly chest to W (structure 2019) with a cut gap of approximately 20cm.
2022	Layer		Black spread with a silver tint and slag/chromite. Industrial deposit situated 60cm approx. from the top of 2023 (furnace chimney). Unknown material, however suggestions have included slag, molten metal and chromite sand.
2023	Structure		Circular red brick structure with lime mortar in the top 2 courses and light grey lime mortar (with many small inclusions) in remaining courses. Header bond. Possible evidence of re-mortaring. Furnace chimney. A concrete block sits on top obscuring most of the chimney and its shape in the plan, however it comes out on the N side structure 1539.
2024	Structure		Irregular stone structure with lime mortar, built using dry wall stack method. Degraded and falling apart upon excavation - few stones remain. Earlier unknown structure next to small brick face 2026 and small brick wall 2027.
2025	Structure		NE-SW orientated red brick structure with lime mortar (light grey with lots of small inclusions). 3 courses sit on top of sandstone slab and 2 courses (visible) continue underneath. All header bond. Furnace chimney wall.
2026	Structure		Hand clamped bricks with yellow/white lime mortar. 5 courses, stretcher bond. Small brick face of unknown purpose. Associated with contexts: 2024 and 2027.
2027	Structure		Old hand clamped bricks with yellow/white lime mortar. 5 courses, stretcher bond. Few bricks remain. Small brick wall structure running S-N within chimney. Associated with contexts: 2024 and 2026.
2028	Layer		Redeposited natural of a yellow colour with a brown hue and grey vein mottle. Silty clay texture with very common gravel inclusions. Redeposited natural fill. Sits on top of a spread of unknown metal material (structure 2022).
2029	Layer		Redeposited natural. Orange/brown with grey and yellow mottle and a silty clay texture. Redeposited natural in E area of slot.
2030	Layer		Black/dark brown silty clay layer with clinker, rubble and stone inclusions. Black clinker/demolition rubble layer sitting above furnace structures 2019, 2023 and 2025.



Area E/F			
Context	Type	Fill of	Description
2031	Structure		S-N orientated red brick structure with sandy lime mix mortar. 8 courses. S part of wall has fallen and is partially collapsed. NE part of chest of cementation furnace.
2032	Structure		S-N orientated sandstone structure with cream sandy lime mix mortar. Uneven coursing, 3 courses. In the N part of the wall there are 3 red bricks. S part of wall has fallen and partially collapsed. NE part of chest of cementation furnace.
2033	Structure		S-N orientated ganister stone structure with cream sandy lime mix mortar. NE part of chest of cementation furnace.
2034	Structure		S-N orientated sandstone and sandstone brick wall with grey ash and cream sandy mix mortar. 2 courses - upper course sandstones, lower course sandstone bricks. Entrance to chest.
2035	Structure		W-E and SE-NW orientated red brick structure with cream and grey lime mortar. Upper part of wall has fallen and partially collapsed. NE part of chimney. Bonded to structures 2036 and 2037.
2036	Structure		W-E orientated sandstone brick structure with cream and grey ash mortar and cream sand mortar. 5 courses, stretcher bond. NE part of chimney of cementation furnace. Bonded to structures 2031, 2035 and 2037.
2037	Structure		W-E and SE-NW orientated sandstone (with occasional red brick) structure, bonded with dark cream sandy lime mortar. Majority of bricks in header bond. Upper part of wall is partially broken and destroyed. NE part of chimney. Associated with contexts 2035 and 2036.
2038	Structure		W-SE orientated curved red brick structure with lime mortar. Bricks are hand clamped. 13 courses, header bond. Heat affected - possible foundation of natural but goes beyond 1.2m safety depth. Curving wall of entrance way to northern furnace. Built at the same time as walls 2039 and 2040 as part of furnace structure.
2039	Structure		N-S orientated red brick structure with lime mortar. Hand clamped bricks. 10 courses - top 4 stretcher bond, remaining 6 header bond. Heat affected. Central chest of northern furnace. Built at the same time as walls 2038 and 2040 as part of furnace structure. To the E of wall 2038. Bonded to structures 2047 and 2038.
2040	Structure		Handmade brick and lime mortar wall. 0.36 m wide, 0.65 m high exposed.
2041	Structure		N-S orientated red brick structure with black ash mortar. 16 courses (visible), stretcher bond, machine made bricks. Side shape is convex. Structure with unknown purpose - potentially a flue. Possibly connected to structure 2046 and other similar structures across N side of Trench E-F.
2042	Fill		Red/orange brown sandy clay with medium to large sandstone slabs occasionally. Deliberate back fill of northern furnace structure - deposited to act as insulation for furnace. Interacts with walls 2038, 2039 and 2040.
2043	Fill		Mid yellowy brown silty clay with a great many small angular stones, plus medium/large angular lumps of sandstone. Deliberate back fill of northern furnace structure - insulation for furnace. Interacts with walls 2038, 2039 and 2040. Found primarily on W side.
2044	Fill		Black silty clay. Industrial waste (from firing process) fill between walls 2039 and 2040 of central chest of northern furnace.
2045	Fill		Dark brown sandy clay silt. Deliberate back fill of structure 2041, found around the outside of flue/tunnel brick work. Possibly a flue or packing fill around the flue/tunnel to act as a buffer.
2046	Structure		E-W orientated red brick structure with grey lime mortar (with unreacted lime inclusions). Hand clamped bricks, header bond with some random bricks stretcher on bed. Shallow arch shape in profile. Flue for cementation furnace. Blocked off at E end by large sandstone blocks 2048 and continues into trench edge at W end. Modern red brick wall structure sat on top of flue at trench edge. Depth not fully excavated due to sandstone blocks on N side.
2047	Structure		Steel box shaped entrance structure to chest, with hinged door. Has a flat metal piece on top and has the base with frame within this. Heat affected on interior of metal frame box structure. Built on top of red brick platforms/wall 2038 with a void below. Central chest access hatch for steel works as part of the heating phase of the cementation furnace process.
2048	Structure		N-S orientated large sandstone block structure forming a short wall. No mortar. Consists of 5 single blocks stacked on top of each other with some red bricks and smaller stone slabs in between. Sandstone blocks. Possibly used to block up flue/furnace entrance after use. Associated with contexts 2009, 2038 and 2046.
2049	Layer		Dark brown silty layer with 70% rubble (bricks, stones) coarse components. Rubble/hardcore layer deposited before concrete layer on top, at W entrance to cementation furnace.
2050	Fill		Dark brown loose silt with 8% coarse components: charcoal, CBM, unreacted lime and stone. Deposit fill of earlier structures 2009, 2038, 2047 and 2048.
2051	Structure		N-S orientated firebrick structure with sand bonding/bedding agent. 4 bricks visible - stood on end. Bricks are irregular in shape - having a slightly narrow end and angled lengths. Firebrick supporting arch above metal access hatch. Later than structure 2047 and surrounding walls 2009 and 2038. Truncated by modern concrete layer.
2052	Fill		Dark brown/grey silty clay with gravel and CBM inclusions. Fill of an industrial 7 channel drain. Largely rubble/demolition debris with some small sized finds.
2053	Structure		N-S orientated red brick structure with stone base (for drains). There are 7 channels made of pot with stone blocks on top. Lime mortar. 12 courses (remaining) high, 2 courses wide, predominantly stretcher bonds. Some reuse of firebricks in surround. Drain - likely to be of industrial use. A brick juts out of N wall, possibly once connected to another wall to the N.



Area E/F			
Context	Type	Fill of	Description
			Butted by sandstone block 2032 in NW corner of structure. Small metal bars (30cm long) attached at an angle regularly up the wall.
2054			VOID
2055			VOID
2056			VOID
2057			VOID
2058			VOID
2059			VOID
2060	Structure		E-W orientated machined red brick structure with black ash mortar. 5 courses - top 4 stretcher bond, bottom 1 header. Immediate foundation of sandstone blocks - full depth not reached due to safety depth restrictions. Machined red brick wall sitting to the S of walls 2061, 2062 and 2063.
2061	Structure		N-S orientated hand clamped red brick and stone slab structure with lime mortar. 2 courses - top course red brick stretcher bond, bottom course stone slabs also in stretcher bond. Structure sitting to the S of structure 2062 and to the N of structure 2060. Runs parallel to structure 2063.
2062	Structure		Sandstone block structure, 5 courses with unknown foundation (beyond safety depth). Large sandstone spread in NW corner of Trench E-F - N of structures 2060, 2061 and 2063.
2063	Structure		N-S orientated sandstone slab structure. 4 courses. Foundation is fill 2064. Sandstone wall structure running parallel to wall 2061 and sitting in between walls 2060 and 2062.
2064	Fill		Yellowy mid brown sandy clay fill with many small angular stone inclusions. Possibly deposit to act as foundation for walls and associated with structures 2061 and 2063. Top fill of slot.
2065	Fill		Light grey sandy silt fill with many small angular stones and some sandstone inclusions. Additionally a few hand clamped red bricks. Deliberate back fill - part of destruction of earlier wall of hand clamped red bricks and foundation for later structures. Possibly associated with structure 2061 and 2063. Second fill of slot.
2066	Fill		Mixture of sediment and bricks. Dark brown silt soil. Bottom fill of slot (though potentially not bottom fill of feature 2062) which contains either the tumble of a hand clamped red brick wall in situ or bricks deposited in this location deliberately.
2067	Structure		N-S and E-W L shaped red brick structure with black ash mortar. Bricks are machine made with manufacturing machine stamps. 6 courses, top and bottom courses header, middle courses stretcher. Modern red brick wall - later structure with modern concrete on top. Structure sits on top of flue 2046.
2068	Structure		N-S orientated red brick structure with black ash mortar. Hand clamped bricks, 5 courses, 3 skins. Irregular bonding - mostly stretcher bond with some random header bonds. Red brick wall - later than structures 2046 and 2069. Sits on top of flue 2046. Purpose unclear. Continues into trench edge.
2069	Structure		E-W orientated sandstone and firebrick structure with black ash mortar. 3 courses, irregular bonding pattern. Poorly built wall using 2 materials (sandstone and firebrick) with possible reuse of materials. Earlier than structure 2067 and truncated by structure 2068. Sits on top of and later than flue 2046.
2070	Structure		E-W orientated curved structure built using a mixture of handmade and machine made bricks and firebricks. Dirty grey/buff gritty lime mortar. Stretcher bond. Some bricks appear reused. Wall is straight most of its length but curves at its W end. Brick wall - possibly one side of a curved flue.
2071	Structure		E-W orientated buff firebrick wall with mid/dark grey bonding agent. Stretcher bond. Heat resistant wall. Parallel with similar wall 2073 - may be connected.
2072	Structure		E-W orientated structure built using a mixture of firebricks, machine made bricks (some with frogging), and handmade bricks. Dark mortar - probably lime based. Stretcher bond. Later laid brick surface. Infill between structure 2071 and 2073. Likely to have been built with some reused materials.
2073	Structure		E-W orientated pale buff firebrick structure with grey (probably) lime based mortar. Stretcher bond. Brick wall - similar to wall 2071.
2074	Structure		E-W orientated red brick structure with dark grey mortar (not lime based). Bricks are brownish red and mould made. Vaulted capping - outer lapping stretchers. Vaulted gas flue. Has a relationship with a number of similar flues - some on an E-W alignment, others N-S. Dome of flue recently broken in several places.
2075	Fill		E-W orientated. Dirty mid to dark greyish brown sandy clay fill with very high quantities of coarse components including: fragmented brick, stone, cement, concrete, and mortar together with larger pieces of the same. Recent fill of flue. Flue 19th century, fill 20th? Fill not fully excavated but appears uniform and must be a combination of material existing in the flue and material introduced recently when the capping was breached.
2076	Structure		E-W orientated structure built using a mixture of buff firebricks, machine made bricks and handmade bricks. Mid/dark grey mortar (not lime based). Stretcher bond. Part of a flat brick floor surface. Consistent with flues or possibly later. Some materials appear reused.
2077	Structure		E-W orientated machine/mould made brown/red brick structure with mid to dark grey mortar (not lime based). Stretcher bond. Bricks are of one type and not reused. Brick flue for gas process - yet to be fully determined.



Area E/F			
Context	Type	Fill of	Description
2078	Fill		E-W orientated fill of mixed dirty yellow clay - mid brown/red/black. Clay/ashy sandy soil containing a high percentage of brick rubble, slate, stone ash, clinker, bricks and larger stones. Fill of gas flue 2077. Upper layer fill may have been introduced following the breaching of the flue capping. Lower, ashy, darker fill may be post structure, later 19th, early 20th century.
2079	Structure		Firebrick structure with red brick top course and black ash mortar. 2 skins, 6 courses visible in trench edge section, stretcher bond on bed. Firebricks heat affected. Earlier wall truncated by structure 2080. Continues into W trench edge.
2080	Structure		D shaped firebrick and red brick structure with black ash mortar. 2 skins thick - outer is red brick - 5 courses survive in trench edge at S end. Inner skin is firebrick, 7 courses survive at S end. Wall truncating earlier wall 2079, forming a D shaped curve on outer edge of gas converter structure. Contemporary with gas converter structures 2081, 2082 and 2083.
2081	Structure		N-S orientated D shaped structure built using machine made red bricks and hand clamped red bricks - frogged and unfrogged, as well as firebricks. Black ash mortar. Laid on bed in stretcher bond largely, though some irregular half bricks within bonding. D shaped mixed brick floor surface - contemporary with and bonded to walls 2080, 2082 and 2083. Sits directly on top of layer 2092. Mixture of materials used suggests reuse.
2082	Structure		SE-NW orientated curved firebrick structure with black ash mortar. Heat affected. Built on top of floor surface 2087 and layer 2092. Firebrick curved wall coursing for gas converter floor surface 2081, on the inner side of the floor. Built contemporary with structures 2080, 2081 and 2083 and cuts earlier wall 2086. Continues at N end as structure 2083.
2083	Structure		S-E orientated curved firebrick structure with black ash mortar. 1 skin, 2 courses survived. Stretcher bond on bed. Curved inner wall of gas converter (only partially remains) - same as structure 2082 and contemporary with structures 2080, 2081 and 2082. Truncated by concrete deposit. Laid on top of layer 2092.
2084	Structure		E-W orientated single ganister sleeper. Partial single ganister sleeper beneath floor of possible open hearth furnace. Would have been located inside a cementation furnace but may have been used/reused as ground levelling/backfill.
2085	Structure		Irregular shaped hand clamped red brick structure with black ash mortar. Stretcher bond. Early red brick floor surface, truncated by structure 2086 at E end. Backfilled with layer 2092, then later floor surface 2081 built. Floor continues into the slot section - not fully excavated.
2086	Structure		N-S orientated structure built using largely firebricks with some randomly placed hand clamped red bricks. Black ash mortar, 3 skins, 9 courses (visible) - stretcher and header bond. Wall between flue 2041 and gas converter. Red bricks used to provide structural support, with firebricks used as associated with heat processes. Truncated at both ends (by structures 2083 and 2082) and runs alongside floor surface 2087.
2087	Structure		N-S orientated red brick and firebrick structure with black ash mortar. Red bricks are hand clamped. 2 courses visible - lower course stretcher bond, upper course header bond. 2nd course only partially remains. Floor surface butting (and later than) flue 2041, hiding flue aperture on the W side. Contemporary with structure 2086.
2088	Structure		N-S orientated red brick structure with black ash mortar. Stretcher bond, 2 courses. N-S running red brick flue with entrance at S end. Part of flue network for cementation furnace.
2089	Structure		W-E orientated red brick and firebrick structure with black ash mortar. Stretcher bond, 1 course. Firebrick reused. Early/mid-19th century brick floor which is collapsed in the centre on the S side with evidence of repairs (concrete slabs). Next to furnace chest and modern wall on the S side of Area EF.
2090	Structure		W-E orientated frogged red brick structure with a 7cm deep (approx.) concrete overlay. Dark brown black ash mortar. Stretcher bond. Later 19th century brick floor built over structure 2089, possibly built to counteract the collapse in its centre. Contemporary concrete overlay on top.
2091	Structure		W-E orientated red brick structure with light brown (yellow/orange hue) sandy clay bonding/bedding agent. 4 courses high (visible), stretcher bond. Mid-19th century wall running W-E on the N side of structures 2089 and 2090. Likely to be contemporary with 2089.
2092	Layer		Dark brown silty clay. Layer under floor structure 2081.
2093	Structure		E-W orientated mixed brick structure. Bricks used are buff firebricks, machine made red bricks and handmade brown/red bricks. Mid to dark grey mortar (not lime based). Flat laid, all directions - many half bricks. Infill - brick floor surface. Part of brick floor surface between brick flues. Variety of bricks used suggests they must have been reused.
2094	Layer		Mid to dark grey/brown ashy sandy loam with a high percentage of brick fragment, stone, ash, clinker and some charcoal inclusions. Levelling layer below laid firebrick surface 2095.
2095	Structure		E-W orientated pale buff firebrick structure with no apparent bonding agent. Dry laid? Flat stretchers - outer lapping. Firebrick laid floor surface.
2096	Structure		E-W orientated mixed brick structure. Materials used are buff firebricks, plain machine bricks and handmade bricks. Soft mid grey sandy mortar with charcoal and grit. 6 courses, upper one truncated. Randomly laid. Built-up floor surface(s). Large block of masonry adjacent to wall 2097. Lower level more extensive. Is it all one phase? Some bricks clearly reused.
2097	Structure		E-W orientated machine made brownish red brick wall with mid to dark grey sandy mortar. Stretcher bond, 6 courses minimum. Boundary wall - 20th century?
2098	Structure		E-W orientated red brick wall with lime mortar. 3 courses visible - stretcher on bed. Damaged. Red brick wall - possibly part of earlier furnace/repair of structure 2103.



Area E/F			
Context	Type	Fill of	Description
2099	Structure		E-W orientated red brick structure with modern mortar. 5 courses, bottom course stretcher on side, remaining courses stretcher on bed. Damaged. Red brick column. Bonded with modern mortar. Potentially late addition to Kenyon steel works. Possibly built on top of 2103. Firebricks underneath badly damaged.
2100	Structure		W-E orientated sandstone structure with black ash mortar. 1 course - consists of 4 blocks of hand stamped sandstone. Possible reuse of furnace materials. Sandstone wall - possible foundation for Kenyon steel works wall. Built on top of fill 2101.
2101	Fill		Greyish brown sand fill with rubble coarse components. Tertiary fill. Possible demolition rubble from furnace. Overlays red brick wall 2098.
2102	Structure		N-S orientated red brick structure with black ash mortar. 9 courses, 2 skins. Damaged. Red brick wall associated with furnace. Possibly repaired - top course seems to have modern mortar similar to structure 2099.
2103	Structure		W-E orientated firebrick structure with lime mortar. 8 courses and 2 skins visible. Very degraded/damaged - mortar and wall affected by heat. Firebrick wall - possible remains of cementation furnace chest. Bonded to structure 2098.
2104	Structure		N-S orientated brick wall. Handmade bricks and squared sandstone blocks. Dirty cream lime mortar and (in later pointing) mid grey ash mortar. Possibly English Garden Wall bond - stone random outer capping. Oblique tooling on stone. Possibly some reuse. Late 18th/Early 19th century boundary wall on the W side of the site.
2105	Structure		E-W orientated brick wall with charcoal flecked grey ash mortar. Machine made bricks, stretcher bond, 6 courses. Late 19th/Early 20th century wall - may form a boundary to part of the site. Built directly over redeposited clay 2109 which seals brick flue 2112.
2106	Fill	2107	Dark dirty grey sandy loam fill with broken brick, ash mortar, lime mortar and coal fragment coarse components. Fill of 20th century wall construction trench 2107 for wall 2105 and for return wall turning to the N. Appears to cut layer of broken concrete 2108 to the E, but that may have fallen into an existing void.
2107	Cut		Near vertical cut for wall construction - filled with 2106. For wall 2105. Probably 20th century cut.
2108	Layer		Mid grey sand layer with a very high percentage of brick, concrete and other CBM inclusions. Very late deposit. May represent demolition material falling into an existing void. Clearly quite late - 2nd half 20th century. May be a continuation of 2049.
2109	Layer		Dirty yellow brown sandy clay with rough small pieces of sandstone and occasional flecks of charcoal. Layer that seals construction of domed brick flue 2112. No insertion/construction cut visible below, so probably built hard against a cut. Appears to be cut by 2110. Note - it is unlikely that the flue pre-dates structure 2114.
2110	Cut		N-S orientation. Steep near vertical cut with a curved shape in plan. Cuts or cut by layer 2109. Filled with 2111. Construction cut for curved wall 2114 - probably 18th century.
2111	Fill	2110	Dirty buff brown sandy clay fill with shale-like clay stone (redeposited natural). Fill of foundation trench for curved wall 2114.
2112	Structure		N-S orientated red brick structure with dirty mid grey lime mortar. Bricks are machine made with pieces of blue grey ash. Stretcher bond. Dome broken allowing internal measurement, but not excavated to base. Probably late 19th century domed brick flue - associated with exchange of gases etc. Filled with 2113.
2113	Fill		Mid buff brown sandy loam fill with brick and brick rubble (from broken dome 2112), sandstone, mortar and other brick fragment coarse components. Fill of late 19th century brick flue 2112. Likely to be much later than construction - approx. 2nd half 20th century.
2114	Structure		VOID? N-S orientated curved sloping brick wall. Handmade poorly fired brownish red brick with hard blue inclusions. Dirty pale brownish grey lime mortar with charcoal flecks. 13 courses approx., all slope upwards and inwards (conical). Random bond. Section of sloping conical walling - probably mid-18th century. Duplicate of 2014? VOID?
2115	Layer		Demolition rubble, mixed colour. Large angular and sub-angular broken brick, concrete and other demolition rubble coarse components. Demolition rubble layer overlying the north area of E-F.
2116	Structure		W-E orientated firebrick and red brick wall (mostly firebrick) with black ash mortar (dark brown/grey). Stretcher bond on inside and header bond on outside. Brick floor - very likely the same as structures 2071, 2072 and 2073 (and therefore 2080 and 2095), however there is not enough evidence to conclusively say. 2072, 2080 and 2095 go around site in a U shape.
2117	Structure		N-S orientated red brick stepped structure with black ash mortar (dark brown). All central/inward facing on header bonds. Possible drain or similar.
2119	Fill		Grey silty/rubble fill. Coarse components: large stones, brick, small SA stones, red brick fragments, sandstone. Fill has many large stone and brick inclusions (>80%). Various sizes - larger stones and bricks at the top and smaller inclusions lower down. Large deposit between the E exterior furnace chest wall 1534 and truncated by later modern red brick wall running E-W 1504.
2120	Fill		Grey white silty clinker fill with 60% coarse inclusions, medium angular sandstone, small brick fragments. Fill of furnace entrance arch at E entrance - 2123. Sat on earlier deposit 2121 and truncated by late modern red brick wall (E-W running) 1504.
2121	Fill		Mid brown silty sand fill with many small rounded stone inclusions, some large brick and stone



Area E/F			
Context	Type	Fill of	Description
			coarse components, and many chunks of mid to very large charcoal. Deposit earlier than fill 2120 and later than structure 2122, which it fills. Truncated by modern wall 1504.
2122	Structure		E-NW red brick curved structure with lime mortar. Bricks are hand clamped. Header bond, 1 skin, 10 courses (visible) but not fully excavated. Top 5 courses are poorly preserved. Curved entrance wall to furnace at E side. Truncated by modern wall 1504 at NW end. Butts chimney 1538.
2123	Structure		N-S orientated red brick structure with black ash mortar. Hand clamped bricks. 1 skin (visible), 6 courses remain, stretcher bond on bed. Entrance archway to central furnace on the E side - truncated by fill 2120 and springs off from entrance wall 2122.
2124	Fill		Yellowy brown fine clay fill with <5% coarse inclusions. Fill within earlier chimney wall at E entrance. Found elsewhere on site against the interior wall of chimney.
2125	Fill		Red orange very fine sandy fill with <3% inclusions. Inside fill of chimney furnace, deposit against central chest wall 1534.
2126	Structure		S-N orientated red brick and sandstone structure with cement. Red bricks are machined. 7 courses, red brick courses are header bond, stone courses are stretcher. Wall sitting to the W of wall 2062 in furthest NW corner of Trench EF. Probably related to spread of sandstone in NW corner.
2127	Structure		E-W orientated red/brown brick structure with dirty pale grey lime mortar. Bricks are poor quality hand made. Laid in regular courses, but not neat, random bond though many are header. Some broken bricks could have been reused. Part of the brick entrance wall. Appears to cut (or is butted by) chimney 2114 and is cut by later brick flue 2112. Wall curves in section to the S (from the vertical).
2128	Layer		Rubble layer. Rubble layer.
2129	Structure		Sandstone flag structure. Dry stone laid flags. Foundation is on rubble/made ground. Flagstone floor in NE of Area E-F. Flags make up internal floor of potential Kenyon Works, providing foundation level for structures 2132 and 2130.
2130	Structure		N-S by E-W L shaped red brick structure with white lime mortar. 8 courses high (max), 4 skins (max). N-S length of wall is 1 skin thick. Internal face of wall forming small room possibly related to Kenyon works. On E facing elevation N-S part of wall still retains internal plaster. Butts against 2131 which looks like outer foundation wall of feature.
2131	Structure		N-S orientated red brick structure with white lime mortar (very thick and obscuring coursing). Outer foundation wall providing structural support. Associated with structure 2130 - likely outer foundation wall making up the limit of the room related to structure 2129 and 2130.
2132	Structure		Sandstone block bonded to 2053
2133			VOID
2134	Structure		North to south aligned machine brick wall
2135	Cut		N-S oriented cut. Cut for installation of modern drain. Cuts earlier contexts. Unable to determine max depth due to presence of concrete covered drain. Associated with contexts 2128 to 2134, 2136 to 2138 and 2053.
2136	Fill	2135	Dark brown sandy loam with 10% angular brick, 5% sub-angular coarse gravel inclusions. Deliberate backfill of modern drain cut. Cuts through earlier demolition layer 2115 and redeposits some of this material as 2136. Associated with contexts 2128 to 2135 and with 2137, 2138 and 2053.
2137	Structure		Drain related to 2053
2138	Structure		Fragment of handmade brick and lime mortar wall
2139	Layer		Dark grey black layer of crozzle. Crozzle - hard crust above ganister chest used to cap chests with blister steel rods, layered up and finally topped with a layer of crozzle.
2140	Layer		Mid orange brown silty clay layer with frequent brick, stone and charcoal inclusions, and some occasional mortar. Fairly compact and homogenous. Covered by brick surface. Demolition rubble or hardstanding for firebrick surface above.
2141	Structure		N-S orientated red brick/firebrick structure with dark black ash mortar. Firebricks reused - some wear. Wall related to and likely supporting flue 2088. Built on brick foundation 2142. Bonded to structures 2093, 2096, 2088, 2142, 2143, 2145.
2142	Structure		N-S orientated red brick structure with dark black ash mortar. Stepped side shape. 2 courses (visible), stretcher bond. Foundation wall to structure 2141.
2143	Structure		E-W orientated stepped red brick/firebrick structure with black ash mortar. 7+ courses, 2+ courses wide, irregular bond. Firebrick is reused - some wear. Foundation wall to structure 2093. Bonded to structures 2093, 2141 and 2142.
2144	Layer		Mottled dark orange to black silty clay with ash. Frequent brick and stone and rarer mortar and charcoal inclusions. Demolition rubble.
2145	Layer		Mid yellow brown silty clay layer. Frequent brick and stone, rarer mortar and charcoal inclusions. Demolition rubble.
2146	Layer		Dark orange silty clay. Frequent large subangular gravel and cobble inclusions. Burnt/baked natural from processes above.
2147	Fill		Loose dark grey/black silt with high levels of ash. Common CBM and occasional stone inclusions. Ashy debris.
2148	Structure		E-W orientated FE structure showing some signs of wear and corrosion. Iron horse shoe with central groove/slot/socket to fit gate. Bonded to structures 2149 and 2150 and butted by



Area E/F			
Context	Type	Fill of	Description
			structures 2151 and 2152. Directly on top of heat affected natural 2146.
2149	Structure		Semi-circular structure built using some halved firebricks and some red bricks. Black ash and lime mortars. Mostly header bond or halved bricks - 4-7 courses high. Some wear mostly on lower bricks. Wall designed to withstand high temperatures. Lies directly on top of heat affected natural 2146. Associated with structure 2148.
2150	Structure		N-S orientated firebrick/red brick structure with lime mortar. 5 courses high, bond unclear. Wall forming one side of a passageway with structure 2149. Built on burnt natural layer 2146.
2151	Structure		Quarter circle red brick structure with dark brown silty clay bonding/bedding agent. Irregular coursing/bonding. Very worn bricks, possibly reused, 4 missing. Flat brick surface similar to structure 2152. Built on burnt natural 2146.
2152	Structure		Flat worn red brick structure. Remains of brick surface, similar to structure 2151. Built on burnt natural 2146.
2154	Structure		N-S orientated structure. Firebricks in upper courses, red bricks in lower, some basalt stones and sandstones in between. Cream light pink to dirty greyish pink sandy mortar with small black stones. Some charcoal and ash in mortar. 8 courses visible. Curved flue wall (part of flue). Many bricks are in very bad condition, and wall is fallen and partially collapsed in some areas.
2155	Layer		Mid orange silty clay soil (5% sparse flecks of grey clay) with 15% moderated sandstones angular and subangular in lower part of fill. Heat affected orange located under firebrick flue wall 2154.
2156	Structure		S-N orientated firebrick and (rarely) red brick wall with sandy mortar. Mortar has some common inclusions of small stones (greyish yellow), sometimes ash (grey). 8 courses visible - probably 9 originally. Many bricks degraded at top of wall. Brick wall located opposite flue curved wall (W of flue).
2157	Layer		Mid orange yellow silty clay with very small angular stone inclusions (1% - rare). Layer located next to wall 2156.
2158	Layer		Dark yellow silty sand with 5% sparse small angular stone inclusions and 15% moderate charcoal. Layer located next to wall 2156.
2159	Layer		Dark grey and black silty sand with 80% abundant charcoal. Layer located next to wall 2156.
2160	Layer		Dark brownish yellow silty sand. Layer located next to wall 2156.
2161	Layer		Light orangey yellow silty sand with 1% rare charcoal. Layer located under and next to wall 2156.
2162	Structure		E-W orientated sandstone structure with white lime mortar. 3 courses visible, sandstone slabs stacked on top of one another. Foundations for red brick wall 2026?
2163	Structure		NE-SW orientated red brick and sandstone wall with light grey/cream sandy lime mortar with small black stone inclusions. 19 courses (17 in very good condition), stretcher bond on top layers, 2 courses header. Part of the wall destroyed by a modern cement Red brick (with sandstones in lower layers to NE) wall connected with flue. Probably originally more courses.
2164	Layer		Light brown yellow silty sand with 3% coarse inclusions (very small rounded stone fragments). Occupational deposit with later post hole cut 2166 between earlier walls 2026, 1529 and chimney wall 1537. Not bottomed due to overbearing chimney wall 1537.
2165	Structure		E-W orientated irregular shaped sandstone structure. 1 course visible, 1 red brick in foundation coursing. Foundations to earlier wall 1529.
2166	Cut		No fill? Posthole - rectangular cut for post below sandstone slabs 2162. Cuts into 2164.
2167	Fill	2166	Not applicable. Fill number required to enter cut number 2166 into database.
2168	Structure		Firebrick and lime mortar wall. Inner part of outer wall of cementation chest associated with 1514. Heavily heat affected with slag like deposits
2169	Structure		Originally a firebrick wall but heavily transformed into slag-like structure. Purple grey slag. Inner part of outer wall of cementation furnace chest associated with 1524
2170	Structure		Firebrick and lime mortar wall. Heavily heat affected by not slaggy. Red colour. Inner part of outer wall of cementation furnace chest associated with 2033
2171	Structure		Machine brick and black ash mortar masonry infill above S side of cellar 2074. Supports flue 2071-2073 and concrete base 2172, both associated with gas regenerator
2172	Structure		Poured yellowish concrete base surrounded by machine bricks bonded with black ash mortar. Base for machine or process associated with gas regenerator. Accessed by flues from all directions.
2173	Structure		Firebrick and lime mortar S wall of S cementation furnace chest
2174	Structure		Concrete footing below frogged brick wall 2060
2175	Structure		'Guillotine' style metal gate in flue 2154



Trench G			
Context	Type	Fill of	Description
1401	Layer		Demolition rubble and crush
1402	Natural		Light greyish yellow sandy clay with <3% sub angular stones, poorly sorted
1403	Structure		E-W running capping slab of modern concrete
1404	Structure		Square bricks in NE corner of 1403
1405	Structure		Sandstone flags running E-W, capped by 1403
1406	Structure		E-W running foundation wall keyed into 1407 and 1408
1407	Structure		E-W running foundation wall for cellar, same as 1406
1408	Structure		W-E by S-N running red brick foundation wall
1409	Structure		E-W inner red brick skin of walled crucible bay
1410	Structure		E-W running worn red brick floor of crucible walled bay
1411	Structure		N-S red brick wall blocking walled bay
1412	Structure		N-S running red brick 'zig zag' using 1405 as foundation
1413	Layer		Black silty sand with 15% clinker and coal ash deposits used as made ground for 1405
1414	Structure		Red brick drain in SW corner
1415	Cut		Construction cut for drain 1414
1416	Fill	1415	Mid blueish black friable sand with iron panning
1417	Structure		N-S running bricks bonded to 1408 but likely tumbled out of alignment

Trench H			
Context	Type	Fill of	Description
1301	Layer		Demolition Rubble
1302	Layer		19 th -20 th Century waste, mid brown silty sand with degraded brick, metal and charcoal
1303	Layer		Secondary layer of yellowish grey mottled silty clay with 10% common charcoal
1304	Structure		N-S running fire brick flue keyed into 1305
1305	Structure		NE-SW running fire brick flue keyed into 1304
1306	Structure		N-S running fire brick flue on west side
1307	Structure		Firebrick corner stones
1308	Structure		E-W running red brick wall bonded to 1304 and 1305
1309	Structure		W-E running firebrick wall associated with 1306
1310	Structure		N-S running red brick wall bonded 1309
1311	Structure		N-S by W-E red brick wall abutted by 1309
1312	Structure		E-W by N-S running red brick wall bonded to 1311
1313	Structure		N-S running fire brick wall abutted by 1309 and 1311
1314	Structure		N-S running sandstone heavy machine base block
1315	Structure		W-E running red brick with occasional firebrick foundation wall
1316	Structure		W-E running red brick floor associated with 1314, 1315
1317	Fill	1306	Dark reddish brown sooty sand with 30% demolition rubble contaminates
1318	Fill	1305	Upper fill of flue, mid blackish red sooty sand with 10% demolition rubble and degraded fire brick
1319	Fill	1305	Lower fill of flue, mid orangey brown sooty sand with abundant slag formations



Area I			
Context	Type	Fill of	Description
1101	Layer		Concrete and hardcore demolition rubble
1102	Layer		Demolition rubble: greyish-black silty sand with SA stones, brick, soot. Pot.
1103	Layer		Mid-orangey brown clay with 15% moderate charcoal flecks
1104	Structure		Square red brick feature - possible culvert. FW (1105). Rectangular in plan, flat sides, flat base. Very degraded only partially remaining. Lime mortar - no bedding agent straight to Nat. Remains of 1 course left. Apart from other structure
1105	Fill		Dark purple-black friable coal. FO 1104. N-S. Rectangular, irregular base, straight sides, vertical slope. Intervention: L0.35, W0.6, T/D0.07. Feature: L0.7, W0.6, T/D:0.07. Dark grey-ish black, silty sand, small SA stone. Fill of drain.
1106	Structure		Red brick wall E-W? In bulk of E facing section. Strat below 1102, stratigraphically above 1103. Linear in plan, straight sides. L0.63, H0.30/0.36. N-S. Face Material: L0.23/0.22, H0.12/0.10. Black ash mortar. 3 courses. Unfrogged. On 1103.
1107	Structure		N-S brick wall butting 1108. Strat below 1102, stratigraphically above 1115. Linear. L not ex, W0.7, H 0.3/H0.35. E-W. Face Material: L0.27/0.24, W0.12/0.11, H 0.08. Red brick, stretcher bond, black ash mortar. 3 courses. Irregular sandstone foundation. W edge Trench I
1108	Structure		Sandstone foundation or facing wall butted by 1107. 2 bags pot. Possible linear, irregular sides, flat base. L not ex, W0.4, H0.5. Possibly E-W. Face Material: L0.3/0.13m, W0.3/0.1. mud-lime base. W edge Trench I
1109	Structure		hand clamped brick and flagstone floor in NE corner. Strat below 1102, stratigraphically above 1116. Rectangular, flat sides, flat base. L2.20, W2.26, H0.2/0.3. Face Material: L0.21/0.11, W0.11/0.06, H0.1/0.08. Black ash mortar. 9 courses, 1 skin. Courtyard.
1110	Structure		E-W running culverted drain. Strat below 1102. Butted by/bounded to 1125, Strat above 1124, 1125. Linear, straight sides. L4, W0.32, H0.1/0.11. E-W. Face Material: L0.4/0.15, W0.5/0.10, H0.11/0.1. Sandstone. 2 courses. No mortar, capping drain 1125. Pot
1111	Structure	1133	Hand-clamped rectangular red brick wall. FW (1114). On 1115, nat. Butted by 1117. Flat sides, flat base. L1.4, W1.6, H0.24/0.6. E-W. Face Material: L0.24m, W0.13, H0.08. Black ash mortar. Coursing 8/3. 2 skins. Stretcher bond. Courtyard. Built in construction cut 1133
1112	Structure		N-S linear red brick wall in S part Tr. Butted by 1113. Strat below 1102, above 1113. Irregular sides, flat base. L2.8, W0.4, H0.05/0.2. Face Material: L0.24/0.23, W0.11/0.09, H0.08/0.07. Lime mortar. Header bond, 2 courses, 2 skins. Irregular flagstone base
1113	Structure		N-S linear foundation stone wall. Butts 1112. stratigraphically below 1112, above 1115. irregular sides, flat base. L2, W0.4, H0.2. Face Mat: L0.4/0.11, W0.4/0.15, H0.04. irregular bonding, 4 courses. Northerly row 1112. Pot, clay pipe, nail
1114	Fill	1133	Strat above 1115. L1.4, W1, T/D0.27. Mid-purplish-black, clinker. Coal, ask, brick. Finds under 1113. hard rubble. Within 1111, 1117, adjacent courtyard floor 1109. Foundation for 1117.
1115	Natural		Mid-orangey-yellow silty sand with mudstone and siltstone
1116	Fill		Made ground underneath 1109. FO 1109. Flat base, vert sides. Dark greyish black, clicker-coal ash. 3% sparse SA poorly sorted stones. Clay pipe, pot.
1117	Structure		E-W linear red brick wall butting 1111. NW corner Tr. Strat above 1114 (foundation core), 1111. Stepped, flat base. L1.33, W0.4, H0.4/0.45. Face mat: L0.27/0.24, W 0.12/0.1, H0.09/0.07. Black ask mortar. Stretcher bond. Degraded E side. 4 courses 3 skins
1118	Structure		E-W rectangular red brick wall within 1111. FW 1122, 1123. Flat sides, base. L1.3, W1.6, H0.4/0.42. Face mat: L0.23, W0.1, H0.08. Degraded. Black ash mortar. 2 courses stretcher, top bone header. 3 courses 2 skins. 1119 within. Entry?
1119	Structure		Broken flagstone floor in 1118. Rectangular, irregular sides and base. L1.1, W1, H0.13. Face mat: L0.16, W0.13, H0.05. no bonding, irregular coursing, made ground foundation. Uneven, broken, irregular
1120	Structure		E-W linear running stone wall,. Butts 1111. irregular sides, flat base. L3, W0.84, H0.2/0.22. Face mat: L0.43/0.17, W0.27/0.25, H0.5/0.3. Sand/lime mortar, 3 courses 1 skin, irregular stone. Bed of clay 1115. Possible outer wall, possible outer face croft style house
1121	Structure	1134	N-S running red brick. Butting/bonded to 1120. L0.6, W0.25, H0.07/0.09. Face Mat: L0.17/0.12, W0.13, 0.12, H0.09/0.07. Black ash mortar. 2 skins 1 course, possible stretcher bond. Bricks broken in half (half-length bricks)
1122	Fill		FO 1118. Strat below 1123. Intervention: L1, W0.47, T/D1.08. Feat: L1, W1, T/D0.27. Dark brown-black, old mortar, silt, sand. Brick, sandstone flag, rubble. Clay pipe, glass, pot. Lower fill. Well defined layer. Possible from levelling of site. Loose.
1123	Fill		FO 1118. Strat above 1122. Mid-greyish-brown. Silty clay. Sig demo waste (brick, mortar, bitumen, tar, etc.). Upper fill. Compact. DBF from levelling site.
1124	Fill		Dark brownish black silty sand. FO 1125, drain. T/D0.22. Dark brownish-black. Sandy clay. 3% sparse poorly sorted R stones <10mm.
1125	Structure		E-W running linear handmade red brick drain. FW 1124. Straight sides, flat base. L4, W0.36, H0.2. Face mat: L0.24/0.1, W0.12, H0.1/0.08. Black ash mortar. 3 courses, header bond. 1 skin. On 1115. Capped by sandstone slabs 1110, cuts 1113.
1126	Fill	1127	Dark blackish brown silty sand. FO[1127]. Large broken red bricks, large angular stone. Iron. Fill of industrial dump
1127	Cut		Industrial dump cut FW(1126). Round, straight sides, 30 degree slope. Intervention: L1.9, W1.2, T/D1.2. Feat: L1, W0.8, T/D 1.1. Cuts redeposited natural (1132), natural (1115).
1128	Structure	1134	E-W sandstone foundation beneath 1121. Strat below 1121, 1109, above 1129, 1115.



Area I			
Context	Type	Fill of	Description
			irregular, flat base. L0.85, W0.9, H0.08/0.2. Face mat: L0.45/0.15, W0.3/0.1, H0.1/0.05. Black ash mortar. 6 courses, mixed irregular bonding as foundation lyr. Foundation for 1109, 1121
1129	Structure		E-W square lime/flagstone drain like 1110. Strat below 1109, 21, 28, above 1115. Straight sides. L0.42, W0.38, H0.18/0.2. Face mat: L0.42/0.4, W0.38/0.35, H0.08/0.06. black ash mortar, 1 course 1 skin, supported by bricks. Flag topped drain running E-W.
1130			VOID
1131	Layer		Strat below 1108, 09. Greyish-brown silty clay, small SA stones, some red brick inclusions. T/D0.6. Cut by 1133 and 1134
1132	Layer		Redeposited natural with black smears. Cut by 1127. Strat above 1115. irregular plan, flat. Intervention: L1.9, W1.2, T/D1.2. Feat: L1.3, W0.9, T/D0.8. Greyish yellow clay sand. Mixed medium A stones. Inclusions possible from industrial dump fill (1126)
1133	Cut		Construction cut for wall 1111. Filled with 1114
1134	Cut		Construction cut for walls 1121/1128. Filled with 1135
1135	Fill	1134	Yellow brown silt clay with 3% stone, brick and ash.
1136	Layer		Layer below 1131. Brown grey silt clay with 30% stone, brick and ash

Area K			
Context	Type	Fill of	Description
1201	Deposit		Tarmac
1202	Deposit		Hardcore Foundation for tarmac
1203	Layer		Greenish brown silty clay. Very compact. 0.45+. Strat below 1201, 02, 04. Mixed with demo waste. Old levelling surface post-demo waste spread and flattened.
1204	Structure		Moulded/stamped concrete floor. Strat below 1202, above 1203. Butts/bonded to 1206. E-W sub rect. Flat base. L3.85, W2.3. No bonding/courses. Red brick wall surround. W of similar 1205, N of unmoulded floor 1208
1205	Structure		Moulded/stamped concrete floor. Strat below 1206, above 1203. Butts/bonded to 1210. Square, straight sides, moulded base. L1.9, W1.65, H0.1. Bonded to nat. No jointing. SE corner highly degraded, broken. Similar to 1204. Possible same as, but central part gone
1206	Structure		Unfrogged, frogged red brick wall surrounding (1205). Butted by 1207, bonded to 1204, 05, 07. Linear, vert sides, flat base. L4.4, W0.35, H0.1. Face mat: L0.23, W0.11, H0.1. EW to NS. Black ash mortar. 1 skin head (s+ N spur), 1 skin stretch (n). 1 course
1207	Structure		Unfrogged, frogged red brick wall butts 1206, 09, surround 1208. L4.95, W0.3, H0.1/0.25. Face mat: L0.23, W0.11, H0.1. Black ash mortar. 1 course stretch 2 skins, except W (2 courses). Bricks centred on each other. SW building.
1208	Structure		Degraded concrete floor unmoulded. Strat below 1207, above 1203. Rectangular, irregular base. L2.5, W9.5, E-W. Likely damaged during demo
1209	Structure		Unfrogged red brick wall, use unknown. Butts 1206. Butted by 1207. Bonded to 06/07. Square, vert sides. L2.35, W0.11, H0.1. Face Mat: L0.23, W0.11, H0.1. Black ash mortar. 1 course (stretch) 1 skin. Slight wear. Mortar bed. Wall of room. Thin. No floor.
1210	Structure		Big sandstone step attached to 1205. Bonded to 1205/06. Rect. Vertical sides. L0.7, W0.26, H0.12. E-W. Lime mortar. Slight wear. Mortar bed on top of 1206. S side 1205.
1211	Structure		Sandstone flag floor. Strat below 1222, above 1226. Bonded to 1222. Square, straight sides, flat base. L1.45, W1.58, H0.1. E-W. face Mat: L0.6/0.5, W0.5/0.2, H0.1/0.08. Lime mortar. 1 course. Bed of nat. butts W trench edge w black stains
1212	Structure		Sandstone flag wall. Strat above 1226. Linear E-W. Straight sides. L4.2, W0.45, H0.18/0.31. Face Mat: L0.35/0.1, W0.28/0.08, H0.16/0.05. Lime mortar. 3 courses. Nat bed. Possible boundary wall. 2 skins
1213	Structure		Remnants of red brick wall. Strat above 1226. Linear. L0.85, H0.30/0.08. Face Mat: L0.28/0.18, W0.08/0.15, H0.08/0.1. black ash mortar, 3 courses, 2 skins, some bricks loose/removed/damaged. Stand-alone structure. No determinate use.
1214	Structure		Cobbled trackway. Strat below 1202, above 1227. Linear, straight edges, flat base. N-S. L12, W4, H0.18. Face mat: L0.35/0.15, W0.2/0.12, H0.18. Sand bonding. Basalt setts. 1 course, 14 skins. Depressed pointing. Black stains, clinker foundation.
1215	Structure		Sandstone flag floor. Strat below 1203, 1223. Bonded to 1223. Square, flat base. L3.5, W2.5, H0.12/0.2. Facing Mat: 0.87/0.35, W0.52/0.35, H0.2/0.12. Black ash mortar, 1 course. Sat on brown bed (1228).
1216	Structure		Concrete curb alongside 1214. Strat below 1203, above 1227. Linear, arched base. L0.75, H0.1, H0.1/0.15. N-S. Black ash mortar (1227) as base. Raised profile-crescent inset for drain.
1217	Structure		Red brick wall. Vaulted arch. Associated with 1223. Linear E-W. Concave. L1.5, W0.14, H0.1/0.2. Face mat: 0.25/0.18, W0.12/0.11, H0.07/0.06. Black ash mortar. 2 skins. Soldier bonded N-facing 1 course, S-facing 2 courses. Some damage. Mortar base only excavated 2 courses.
1218	Structure		L-shape red bricks N-S by E-W Cellar. Strat below 1203/19/21. Butted by 1219. Bonded to 1221. L2.8, L0.25. Face Mat: L0.22/0.18, W0.12/0.08. H0.1/0.08. black ash mortar. N-S side frogged. 1 skin (NS) 2 skins (EW). Jointing flush. Enclosing steps 1221.



Area K			
Context	Type	Fill of	Description
1219	Structure		Smaller red L-shape brick wall. Strat above/bonded to 1221. Butts 1218. L1, !0.25. Face Mat: L0.25/0.15, W0.1, H0.8/0.08. Lime mortar. 2 skins. Jointing flush. Bed of mortar. Cellar
1220	Structure		Curved red brick wall N-S. Butted by 1218. Strat above/bonded to 1221. L2.5, W0.25. Face mat: L0.4/0.2, W0.2/0.1. Lime mortar. 2 skins, Dutch bond. Cellar
1221	Structure		Sandstone cellar steps. Strat below/bonded to 1218/19/20, above 1226. Irregular plan, L2, W1.5. Lime mortar. No tool marks, worn from use. Spiral steps. Leads down to old cellar. Flagstone
1222	Structure		Sandstone coursing butting/bonded to 1211. Strat above 1211, 1226. Rect. L3.4, W2, H0.08/0.12. E-W. Sand bonding. 1 course. Bed of natural. Sandstone coursing surround sandstone flag flooring.
1223	Structure	1238	Sandstone wall butting 1217, E-W. Strat above 1226. Linear. L2.5, W0.5, H0.05/0.15. No bonding material still present. 6 courses. Foundation natural silty clay. May have been mortared, none now.
1224	Structure		N-S sandstone wall butting/bonded to cellar wall 1218. Strat below 1229. Linear, irregular sides. Not ex. Lime stone mortar. 1 course remaining. Could be same structure as 1218. Possible old yard wall for pub.
1226	Layer		Natural: Yellow brown silty clay with lighter yellow patches mid-large SA sandstone.
1227	Layer		Clinker mortar bed beneath 1214, 1216. Intervention: L1.3, W0.5, D0.6. Feat: L>1.3, W>1.5, T0.1-0.15. Black, soot/furnace waste. Small SA stone. Hard, compact. Deliberate. Foundation for cobbled track and curb
1228	Layer		Mid greyish-brown clinker mix (coarse sand, small SA, SR stones) beneath 1215. Strat above 1235. Intervention: L1.7, W1, D1.05. Feat: L>1.7, W>1, T0.15. Friable, upper fill. Provides drainage, level surface
1229	Layer		Rubble layer all over site
1230	Structure		Sandstone wall butting/bonded to 1215. E-W. Strat below 1229/15, above 1231. Linear, irregular sides, base. L3.75, W0.5, H0.15/0.17. Face Mat: L0.4/0.15, W0.4/0.14, H0.08/0.1. No bonding. 3 courses/ Overlying 1 side brick vault 1231 (possible joins 1217)
1231	Structure		Hand clamped red brick vaulting. FO1215. Associated with 1217. Strat below 1230. Not ex - loose edges. Demolition. Linear, concave. L1, W0.13, H0.2. Face Mat: L0.2, W0.1. E-W. Soldier bonded, 1 course, 1 skin. Likely formed cellar btw 1231/1217. More interpretation on sheet
1232	Layer		FO1215. Mid-greyish brown silty clay. Lots of demo waste. Strat below 1233. Intervention: L1.7, W1, T/D1.05. Feat: L3.5, W2.5. Contaminated w construction waste (bricks, etc.). Layer. Friable. DBF. Waste from previous demo, possible to ground level for later construction
1233	Layer		Clinker floor layer. FO1215. Strat below 1234, stratigraphically above 1232. Intervention: L1.7, W1, T/D1.05. Feat: L3.5, W2.5. Dark grey/black. Sooty, Slag and stone chippings. Very compact. Possible old floor layer. No smell of bitumen. Looks similar to tarmac.
1234	Layer		Grey-ish brown silty clay with yellow streaks. FO1215. Strat below 1235, above 1233. Intervention: L1.7, W1, T/D1.05. Feat: T:0.25. Demo waste. Bottle tops, glass, tin cans, mugs, slag. Compact. Previous to construct of pub. DBF
1235	Layer		Clinker layer - black sooty. FO1215. Strat below 1228, above 1234. Intervention: L1.7, W1, T/D1.05. Feat: L>1.7, W>1. Small SA stone. Thin band of fill, friable. DBF of industrial waste.
1236	Structure		N-S varied sandstone foundation wall in the Trench edge. Strat above/bonded to 1237, below 1201. Linear. Straight sides. Black ash mortar. Bedded on nat. non-uniform coursing/bonding. Lots of wear. Likely repurposed
1237	Structure		E-W Hand clamped red brick beneath/bonded to 1236. Strat above 1226. L1, H0.2. Face mat: L0.26, W0.12, H0.05. Lime mortar. 3 courses. Haphazard. Bonded. Only vis in trench edge.
1238	Cut		Construction cut of 1223, E-W stone wall. Strat below (1223), above 1226. Cuts 1226. E-W, linear, flat base. Steep concave. Intervention: L1, W1, T/D1.2. Feat: L2.5, W0.3, T/D0.6. FW(1223). Well-defined, visible. Trench excavated for wall.
1239			Machine bricks and black ash mortar painted with white distemper and discoloured with soot. Wall blocking entrance to north cellar
1240	Structure		Frogged machine brick and black ash mortar wall repair of upper part of 1218 above ground level
1241	Structure		Sandstone wall, appears unmortared by only seen in plan. Original wall of building N of cellar 1221 adjacent to surface 1214
1242	Structure		Frogged machine brick and black ash mortar wall. Two skins. N-S. Relationship with concrete surfaces unclear. Similar to 1206
1243	Structure		Sandstone flags in base of cellar with steps 1221

Watching Brief			
Context	Type	Fill of	Description
3000	Layer		Concrete foundations - 0.04m depth from ground surface. Test pit. Concrete foundations.
3001	Layer		Black gravel layer with 30% coarse inclusions of stone, iron and brick (fragments). Test pit. Demolition rubble spread across most of W area of site, in Area A.



Watching Brief			
Context	Type	Fill of	Description
3002	Layer		Natural - 0.38m depth from ground surface. Test pit. Natural.
3003	Fill	3005	Mid brown sandy clay fill with 5% coarse, small angular stone and brick fragments. On either side of beam slots 3006, visible only in E facing section. Cut by concrete foundations for later building therefore full extent not measurable. Test pit. Fill of construction cut [3005] for furnace 3006.
3004	Layer		Light orangey brown silty clay layer with 4% coarse inclusions - small rounded stone 2-5mm diameter. Visible in N, S, E, W face sections of test pit. Various depths. Later occupational layer after (3003), [3005] and structure 3006.
3005	Cut		Cut visible in E facing section only. Cut into natural 3002 and filled with structure 3006 and fill 3003. Test Pit. Construction cut for structure 3006, filled with (3003).
3006	Structure		E-W (?) orientated sandstone and hand clamped red brick structure with lime mortar. Wall - associated with Toledo Works - probably continues underneath later building. Only visible in section of test pit (E facing). Sat on top of natural 3002.
3007	Structure		W-E orientated sandstone block and machine made red brick structure with lime mortar. Built on natural. Northern access channel wall - same as structure 3011 (southern access channel).
3008	Fill		Light brown with bright red/pink hue silty/sandy clay fill. Upper fill of the northern furnace access channel. Possibly heat affected sandy clay.
3009	Fill		Black charcoal filled clay fill. Lower fill of northern furnace access channel.
3010	Structure		N-S orientated sandstone block (x1). Sandstone block - wall. Sat on top of the upper fill of structure 3007 (fill 3008). Not bonded to structure 3007 or any other structure. Possible end to access channel.
3011	Structure		W-E orientated sandstone block and machine made red brick structure with lime mortar. Built on natural. Southern access channel walls - same as structure 3007 (northern access channel walls).
3012	Fill		Light brown (with a bright red/pink hue) silty/sandy clay fill. Upper fill of the southern access channel.
3013	Fill		Black charcoal rich clay fill. Lower fill of southern access channel.
3014	Structure		Circular red brick (with occasional firebrick) structure with lime mortar (dark brown/grey). Bricks are very degraded. Chimney entrance.
3015	Structure		W-E orientated iron structure - rectangular main frame with two bars underneath. Bars are not attached to the main frame but to structure 3014. Chimney entrance. Bonded to structure 3014 (using lime mortar) on its W side. Behind structure 3015 there is the chamber of structure 3014.
3016	Natural		Natural
3017	Structure		Built with 5 skins of handmade orange/red brick, bonded with thick and coarse whitish lime mortar with frequent charcoal flecks. Internal face of cellar rendered. Cellar. NW corner contained remnants of a quarter-turn staircase with winders built with brick raiser and sandstone treads. No floor was identified as it contained a flattish natural bed rock.
3018	Structure		Capped with concrete, supported with RSJ thin girders, 3 skins of machine made orangey bricks bonded with black mortar up to 19 courses. Pinkish crushed bricks and hard mortar coarse foundation rough platform. Brick-lined pit/underground chamber. Possibly associated with services, partially backfilled with demolition debris.
4000	Structure		S-N orientated red brick structure painted white with lime mortar. Bricks are machine made, majority stretcher with occasional header bonds. Built on yellow bedrock. Wall. Due to the depth of the test pit, it is unsafe to properly gain access. The wall within the pit is 10 courses wide and 15 courses deep. Test Pit D.
4001	Structure		S-N orientated red brick (handmade) structure with lime mortar. Courses alternate between stretcher and header - 11 course high (visible), 5 courses wide (visible). Built on yellow bedrock. Possibly the foundation/support to stairs leading down to cellar. Due to access issues, no measurements other than courses wide/high were able to be taken. Test Pit D.
4002	Structure		W-E orientated sandstone blocks, approx. 4 courses high. Sandstone floor/steps (possibly a floor that then covers structure 4001 and becomes steps). Sits above structure 4003 and likely continues N-S above structure 4001. Due to access issues, no proper measurements could be taken. Test Pit D.
4003	Structure		W-E orientated machine made red brick (painted white) structure with lime mortar. 13 courses high, 11 courses wide (visible), stretcher bond. Built on yellow bedrock. Red brick (painted white) outer wall of cellar (N side). Due to access issues, no proper measurements could be taken. Test Pit D.
4004	Structure		W-E orientated machine made red brick (painted white) structure with lime mortar but contaminated with soot post-demolition. 13 courses high, stretch bond. Built on yellow bedrock. Red brick (painted white) outer wall of cellar (S side). Due to access issues, no proper measurements could be taken. Test Pit D.
4005	Structure		S-N orientated machine made red brick structure with lime mortar. 6 courses high, 11 courses wide (remaining), header bond. Bonded to structure 4004. Vaulted cellar ceiling. Due to access issues, no proper measurements could be taken. Test Pit D.
4006	Structure		W-E orientated machine made red brick structure with lime mortar. 10 courses long (visible), 6 courses deep (visible/min), header bond. Red brick wall of unknown use/relationship to the S of Test Pit D. Due to access issues, no proper measurements could be taken. Appears to sit



Watching Brief			
Context	Type	Fill of	Description
			on top of structure 4005.
4007	Layer		Dark brown (with grey hue) gritty rubble layer with broken brick, sandstone and stone coarse components. Demolition rubble layer that covers all structures in area. Due to access issues, no proper measurements could be taken for the depth. Test Pit D.
4008	Layer		Light grey concrete layer with large broken brick inclusions. Thin layer of modern concrete - possibly providing foundations for a modern building directly W of/adjacent to the test pit (D).
4100	Layer		Rubble overburden and fill of cellars with frogged brick etc.
4101	Layer		Crushed red brick fill of void
4102	Structure		Late concrete base overlying springers 4103
4103	Structure		Machine brick and black ash mortar springers supported by pier 4104. N-S
4104	Structure		Iron pier. Circular with square foot and capital. Some basic ornamentation at top. Presumably part of iron frame but this is removed/obscured
4105	Structure		Low wall beneath pier 4104 and running N to wall 4106. Cannot make out brick or mortar types as obscured by grime.
4106	Structure		Transverse E-W wall dividing cellars. Machine brick with some firebrick. Black ash mortar. 2 skins below level of arch 4107 widening to 3 skins above the arch.
4107	Structure		Firebrick arch over entrance. Unmortared. Black ash mortar on upper surface belongs to context 4108. Two bricks wedge-shaped (S springer and keystone).
4108	Structure		Brick wall containing and overlying arch 4107. Machine brick. Mortar obscured by grime. Curves in nicely to entrance under arch 4107
4109	Structure		Machine brick, handmade brick and black ash mortar wall behind 4108. Pierced by arch 4107.
4110	Structure		Machine brick and black ash mortar wall forming S side of test pit. Supports modern wall at boundary of site. Covered with once white distemper now very sooty
10101	Layer		Made ground - demolition layer, rubble
10102	Layer		Light yellowish brown sandy clay, moderate compaction
10103	Layer		Natural bedrock, compact yellowish grey clay
10201	Layer		Demolition layer. Rubble
10202	Layer		Light yellowish brown clay. Subangular stones present
10203	Layer		Dark yellowish brown sand clay
10204	Layer		Mid yellowish brown sandy clay. With blueish grey mottling
10205	Layer		Dark greyish brown sandy clay. Large subangular stones present
10206	Layer		Bedrock
10301	Layer		Demolition layer. Rubble.
10302	Layer		Light yellowish brown sandy clay
10303	Layer		Dark greyish brown compact sandy clay
10304	Layer		Mid yellowish brown sandy clay. Blue grey mottling present
10305	Layer		Dark yellowish brown sandy clay. Subangular stones present
10401	Layer		Demolition layer. Rubble.
10402	Layer		Dark greyish brown silty clay. Rubble throughout
10403	Structure		Brick wall in cross-section
10404	Layer		Mid brownish yellow sandy clay. Natural
10501	Layer		Dark black demolition rubble
10502	Layer		Mid greyish orange sandy clay. With 3% sparse poorly sorted stone.
10503	Layer		Natural. Mid orange grey sandy clay. 2% poorly sorted stone
10504	Layer		Bedrock
10601	Layer		Heavily compacted mixed soils, redeposited natural
10602	Layer		Natural: Mid brownish grey clay
10603	Layer		Bedrock
10701	Layer		Heavily compacted mixed soils and redeposited natural, Demolition fill
10702	Layer		Natural: Mid Brownish grey sandy clay
10703	Layer		Bedrock
10801	Layer		Hardcore
10802	Layer		Demolition: Dark black ashy sand. Rubble
10803	Layer		Natural: Mid reddish orange sandy clay
10901	Layer		Heavily compacted mixed soils, includes natural
10902	Layer		Bedrock
11001	Layer		Compacted Rubble
11002	Layer		Bedrock
11101	Layer		Natural: Mid greyish orange sandy clay
11102	Layer		Bedrock
11201	Layer		Natural: Mid greyish orange sandy clay
11202	Layer		Bedrock
11301	Layer		Demolition
11302	Layer		Made ground: concrete rubble
11303	Layer		Natural Bedrock
11304	Layer		Natural: Mid greyish orange clay sand



Watching Brief			
Context	Type	Fill of	Description
11401	Structure		Modern East - West red brick wall
11402	Layer		Demolition rubble and mid brownish red sand
11403	Structure		Sandstone wall 1.5 - 0.5, east - west orientation, lime mortar, stretcher bonded
11404	Structure		Red brick wall: North - South orientation, lime mortar with unreacted lime, eleven courses high
11405	Layer		Bedrock
11501	Layer		Rubble/ Demolition with layers of backfilled clean clay
11502	Structure		Concrete footing
11503	Structure		Modern brick wall 3 - 3.4
11504	Layer		Bedrock
11601	Layer		Dark silty black mixed demolition
11602	Layer		Natural bedrock
11801	Layer		Demolition
11802	Structure		Sandstone wall: runs Sandstone cellar wall: east - west, lime mortar, 13 courses on a stretcher bond
11803	Layer		Bedrock
11804	Structure		Sandstone Wall: unworked sandstone, 0.95 - 0.45, lime mortar, nine courses
11805	Structure		Red brick wall: L shaped North - South and East - West, black ash mortar, seven courses high, stretcher bond, 0.90 - 0.11
11806	Structure		Sandstone Surface: sandstone rubble, possible capping layer of a pit, 6.95 - 0.78
11807	Structure		Red brick wall: North - South orientation, 1.35 - 0.22, ash mortar, header bond, wall of possible pit
11808	Structure		Sandstone Step: singular piece of stone, 0.73 - 0.28, not bonded
11809	Structure		Sandstone Wall: nine courses, lime mortar, 3.40 - 0.54m
11810	Structure		Sandstone Wall: Lime mortar, 9 courses, 148m - 0.47m
11811	Structure		Flagstone step: blackish mortar
11812	Structure		Brick and Sandstone wall, North - South running
11813	Structure		Red brick and Sandstone wall: Sandstone with hand clamped brick face, lime mortar, stretcher bond, next to possible barrel vaulted cellar
11814	Structure		East - West red brick wall with sandstone
11815	Layer		Demolition layer
11816	Layer		Black sooty deposit
11817	Layer		Dark brownish orange clay, building layer
11901	Layer		Demolition
11902	Layer		Black soot / Charcoal
11903	Layer		Red powdery brick waste
11904	Layer		Natural: Yellow clay with grey mottling
11905	Structure		Sandstone wall: no bonding agent, four courses, random jointing, running east - west, 1 - 0.4m
11906	Structure		Sandstone wall: no bonding agent, five courses, 1 - 0.4m, random jointing
11907	Structure		Red Brick wall: 10 courses, modern
11908	Structure		Red Brick wall: 5 courses, modern
12001	Structure		Tarmac
12002	Structure		Red brick wall, running north - south
12003	Layer		Demolition Rubble
12004	Layer		Natural: Mid orangey grey clay
12005	Layer		Bedrock
12101	Layer		Demolition Rubble
12102	Layer		Orange - Red clay
12103	Layer		Natural: Mid orange grey clay
12104	Layer		Bedrock
12201	Layer		Demolition
12202	Layer		Clay and Demolition
12301	Layer		Mid brown sandy loam with stone and brick inclusions. Redeposited
12302	Fill		Fill of brick vaulted cellar. Building rubble
12303	Structure		Red Brick cellar wall, white washed, mid grey mortar, structure bond
12304	Structure		Sandstone flagged floor to cellar
12401	Structure		Concrete foundation for brick wall mid-20th century
12402	Layer		Natural bedrock
12501	Structure		Concrete Slab
12502	Layer		Demolition Rubble
12503	Layer		Natural Bedrock
12601	Structure		Concrete support
12602	Layer		Compacted brick stone rubble
12603	Layer		Natural Sandstone Bedrock
12701	Structure		Brick wall, 16 to 25 courses, unfrogged brick, white washed, likely cellar wall
12702	Structure		Corrugated iron shutter and brick, sitting on natural rock structure
12703	Structure		Brick wall, 10 courses, round shaped firebrick



Watching Brief			
Context	Type	Fill of	Description
12704	Structure		Brick wall, evidence of Red brick wall, stone foundation, white washed possible cellar wall
12705	Structure		Brick wall, poorly fired dull red brick, lime mortar bonding, two courses of headers, no evidence of reuse, possible cellar wall
12801	Layer		Mid brown sandy loam, includes fragments of sandstone, recently redeposited material
12802	Layer		Natural Bedrock light/mid brown sandstone
12901	Structure		Brick lined pit, black ash mortar, header & structure two skin, not reused, 1.80- 0.50m late nineteenth century, natural sandstone foundation
12902	Fill		Ashy sandy soil, black to mid-brown/grey, possible pit fill of pit shaft, truncated by later ceramic drain
12903	Layer		Natural sandstone bedrock
13001	Layer		Redeposited, material above natural, grey brown sandy loam, includes rubble brick and stone
13002	Layer		Natural sandstone bedrock



Appendix 2: Pottery by context

Tr	Area	Context	Type	No	Wt	ENV	Part	Form	Decoration	Date range	Notes
A	A	902	Brown Glazed Fineware	5	25	5	BS	Hollow ware	Brown glaze int & ext	C18 th – EC19 th	Orange fabrics
A	A	902	Brown Glazed Fineware	1	2	1	Rim	Hollow ware	Mottled brown glaze int & ext	C18 th	Plain rounded rim; fine bright orange fabric
A	A	902	Brown Salt Glazed Stoneware	1	7	1	BS & handle	Mug/tankard	Dark brown mottled glaze ext	C18 th	Small rod handle
A	A	902	Brown Salt Glazed Stoneware	1	1	1	Rim	Mug	Brown salt glaze int & ext	C18 th	
A	A	902	Brown Salt Glazed Stoneware	1	2	1	BS	Hollow ware	U/Dec	C18 th	
A	A	902	Coal Measures Fineware type	1	8	1	BS	Hollow ware	Patchy clear glaze ext	LC13 th – C14 th	Pale grey core w/ buff margins; abundant quartz & red grit up to 0.5mm, occ quartz up to 1mm
A	A	902	Coal Measures Fineware type	1	35	1	Base	Hollow ware	Knife-trimmed ext	LC13 th – C14 th	Pale grey core w/ thin buff margins; moderate, well-sorted quartz & red grit up to 1.5mm, mainly <1mm
A	A	902	Late Blackware	1	12	1	Handle	Mug/jug	Black glaze	C18 th	Buff fabric w/ fine quartz
A	A	902	Mottled ware	2	8	1	Handle	Mug/tankard	Mottled glaze	C18 th	Fine buff fabric
A	A	902	Mottled ware	1	2	1	Rim	Hollow ware	Mottled glaze int & ext	C18 th	Curved everted rim
A	A	902	Redware	1	46	1	Rim	Dish/bowl	Red slip ext; clear glaze int only	C17 th – EC18 th	Clubbed rounded rim w/ shallow groove int; fine pale orange fabric
A	A	902	Redware	3	115	1	Rim & body	Dish/bowl	Red slip ext; clear glaze int w/ fine mottling	C17 th – EC18 th	Clubbed rounded rim w/ shallow groove int; fine pale orange fabric
A	A	902	Redware	1	94	1	Rim	Dish/bowl	Red slip ext; clear glaze int w/ fine mottling	C17 th – EC18 th	Clubbed rounded rim w/ shallow groove int; fine pale orange fabric
A	A	902	Redware	10	360	9	BS	Dish/bowl	Red slip ext; clear glaze int w/ fine mottling	C17 th – EC18 th	Fine pale orange fabric
A	A	902	Redware	2	132	2	BS & lower wall	Dish/bowl	Red slip ext; clear glaze int w/ fine mottling; knife-trimmed ext	C17 th – EC18 th	Fine pale orange fabric; facets from knife-trimming ext



A	A	902	Redware	1	24	1	BS	Dish/bowl	Clear glaze int	C17 th – EC18 th	Fine pale orange fabric; facets from knife-trimming ext
A	A	902	Redware	1	18	1	Rim	Dish/bowl	Clear glaze int	C17 th – EC18 th	Fine pale orange fabric
A	A	902	Redware	1	62	1	Base	Bowl	Dull orange-brown glaze int	C18 th	Dark orange fabric w/ fine white streaks & fine red grit
A	A	902	Redware	1	6	1	BS	Dish/bowl	Clear glaze int only w/ fine mottling	C18 th	Fine buff-orange fabric
A	A	902	Redware	2	27	1	BS	Dish/bowl	Dark red slip ext; clear glaze int only	LC17 th – C18 th	Bright orange fabric; vesicular w/ sparse red grit
A	A	902	Redware	1	6	1	BS	Dish/bowl	Knife-trimming ext; clear glaze int	LC17 th – C18 th	Orange fabric w/ sparse quartz up to 1mm
A	A	902	Slip Coated ware	1	2	1	BS	Hollow ware	Thin red slip ext giving a dark brown finish, clear glaze int	C18 th	Fine buff fabric w/ fine quartz grains
A	A	902	Slipware	1	17	1	BS	Dish/bowl	Moulded pattern w/ dark red slip bands & red-brown dots	C18 th	Press-moulded dish
A	A	902	Slipware	1	8	1	BS	Dish/bowl	Brown, red-brown & white linear & wavy line design int	C18 th	Press-moulded dish
A	A	902	Whiteware	1	2	1	Rim	Plate	Geometric moulded design around rim	M – LC19 th	
A	A	902	Whiteware	1	2	1	BS	Flatware	U/Dec	M – LC19 th	
A		905	Slipware	1	10	1	Rim	Dish/bowl	Pie-crust rim; moulded int w/ red slip band	C18 th	Buff press-moulded body w/ fine red & white rock frags
A		905	Slipware	1	12	1	BS	Bowl	Curved white slip line int	C18 th	Press-moulded dish; fine red fabric
A		905	Slipware	1	4	1	BS	Bowl	Curvilinear & linear white slip lines int	C18 th	Press-moulded dish; fine red fabric
A		911	Colour Glazed ware	1	4	1	BS	Hollow ware	Green glaze int & ext, prominent rilling ext	C19 th	
A		911	Creamware	1	7	1	Flat base	Flatware	U/Dec	c.1740 – c.1820	Flat base, use-wear on underside
A		911	Mottled ware	1	3	1	Rim	Mug/tankard	Brown mottled glaze int & ext	C18 th	Everted rim w/ ridge at base of rim
A		911	Porcelain	1	2	1	Rim	Saucer	Overglaze painted border & floral design int	C19 th	
A		911	TP Pearlware	6	8	1	Rim	Bowl	Floral design ext; geometric border int; gold line on rim	c.1780 – c.1840	
A		911	TP Whiteware	1	7	1	Ring foot base	Cup/bowl	Curvilinear & dotted design int	M – LC19 th	
A		911	TP Whiteware	1	3	1	BS	Cup/bowl	Curvilinear & dotted design int	M – LC19 th	



A		911	TP Whiteware	1	1	1	Rim	Flatware	Willow border	M – LC19 th	
A		911	TP Whiteware	1	2	1	Rim & handle	Cup	Stylised floral design on a diamond grit int & ext	M – LC19 th	
A		911	TP Whiteware	1	1	1	BS	Flatware	Willow	M – LC19 th	
C		1637	Brown Glazed Fineware	1	4	1	BS	Hollow ware	Brown flaky glaze int & ext	C18 th – EC19 th	Bright orange fabric w/ fine quartz & rock frags
C		1637	Mottled ware	1	2	1	BS	Hollow ware	Dark brown glaze w/ odd patchy mottling int & ext	C18 th	Fine white fabric
C		1637	Mottled ware type	1	17	1	BS/foot	Bowl	Clear glaze w/ slight mottling int	C18 th	Fine buff fabric
C		1637	TP Whiteware	1	10	1	Footed base	Mug/jug	Part of a black TP design around foot	M – LC19 th	
C?		Trench C Unstrat	Brown Glazed Coarseware	2	67	1	Rim	Pancheon/bowl	Shiny brown glaze int only	C18 th – EC19 th	Small everted overhanging rim
C?		Trench C Unstrat	Slipware	1	20	1	Rim	Dish/bowl	Pie-crust rim w/ diffuse slip lines int	C18 th	Fine orange sandy fabric w/ lighter streaks
C?		Trench C Unstrat	TP Whiteware	1	4	1	BS	Flatware	Wild Rose?	M – LC19 th	
D		1702	Banded ware	1	7	1	Rim	Bowl	Grey-green line below rim above blue band ext	C19 th	
D		1702	Blue Banded ware	1	4	1	BS	Hollow ware	Diffuse blue bands & lines ext	C19 th	
D		1702	Brown Glazed Coarseware	1	57	1	BS	Pancheon	Brown glaze int only	LC18 th – C19 th	
D		1702	Brown Salt Glazed Stoneware	1	121	1	Base	Bottle	Brown salt glaze ext, green glaze int only	C19 th	
D		1702	Brown Salt Glazed Stoneware	1	2	1	BS	Hollow ware	U/Dec	LC18 th – C19 th	
D		1702	Mocha ware	1	3	1	BS	Hollow ware	Blue Mocha tree on white slip ext	C19 th	
D		1702	Sponged ware	3	17	1	Rim & handle	Mug/jug	Dark blue coarse mottling ext; moulded handle terminal	c.1830+	
D		1702	Sponged ware	1	18	1	Rim	Plate	Blue sponging on inside of rim	c.1830+	Heavily discoloured & crazed
D		1702	TP Whiteware	4	72	1	Profile	Dish	U/ID TP design int; stylised oriental-style trees	M – LC19 th	
D		1702	TP Whiteware	1	5	1	BS	Hollow ware	U/ID TP design ext	M – LC19 th	
D		1702	TP Whiteware	1	9	1	Rim	Bowl?	U/ID TP design int	M – LC19 th	Heavily crazed & discoloured
D		1702	Whiteware	1	7	1	Footed base	Mug	U/Dec	M – LC19 th	



D	1702	Whiteware	1	4	1	BS	Flatware	U/Dec	M – LC19 th	Heavily crazed & discoloured
D	1702	Whiteware	1	9	1	BS	Flatware?	Relief moulded int	M – LC19 th	Heavily crazed & discoloured
D	1704	Blue Banded ware	2	11	2	BS	Bowl	Blue bands & lines ext	C19 th	
D	1704	Blue Banded ware	1	2	1	Rim	Bowl	Blue slip lines ext	C19 th	Plain rim
D	1704	Brown Glazed Coarseware	1	31	1	BS	Pancheon	Brown glaze int only	LC18 th – C19 th	
D	1704	Brown Salt Glazed Stoneware	1	59	1	Rim	Jar	Wavy everted rim on an ovoid body	C18 th	
D	1704	Brown Salt Glazed Stoneware	1	83	1	Footed base	Bowl	U/Dec	C18 th – EC19 th	
D	1704	Brown Salt Glazed Stoneware	1	26	1	BS	Hollow ware	Wavy rouletted lines & moulded line ext	C18 th – EC19 th	
D	1704	Brown Salt Glazed Stoneware	1	74	1	BS	Hollow ware	Brown ext, green int	C19 th	Thick-walled sherds
D	1704	Brown Salt Glazed Stoneware	1	26	1	BS	Hollow ware	Dark brown glaze int & ext	C19 th	
D	1704	Cane Coloured ware	1	7	1	Ring foot base	Bowl	U/Dec	C19 th	Round ring foot
D	1704	Cane Coloured ware	1	9	1	Rim	Hollow ware	Dark slip brown line below everted rim	C19 th	
D	1704	Colour Glazed ware	1	9	1	Ring foot base	Bowl	Dark brown glaze int & ext; Rockingham type glaze	C19 th	
D	1704	Colour Glazed ware	1	2	1	BS	Flatware	Relief moulded design int only	C19 th	
D	1704	Creamware?	1	10	1	BS	Hollow ware	U/Dec	EC19 th	Pale Creamware
D	1704	Edged ware	1	13	1	Rim	Plate	Wavy edged plate w/ low relief moulded edge & blue paint	EC19 th	
D	1704	Lustre ware	1	4	1	BS	Hollow ware	Gold on brown lustre int & ext w/ hand-painted floral design ext	LC18 th – C19 th	
D	1704	Porcelain	1	10	1	Footring base	Plate	Very faint overglaze painted design int	C19 th	
D	1704	Slip Banded CC ware	1	23	1	Spout	Jug	Part of a blue line & a white slip band ext	C19 th	
D	1704	Slip Banded CC ware	1	7	1	BS	Hollow ware	Two white slip lines ext	C19 th	
D	1704	TP Whiteware	1	109	1	Base & handle stump	Mug/jug	Abbey pattern ext; triple raised line above footed base	M – LC19 th	Printed maker's mark on underside; ABBEY G H



D	1704	TP Whiteware	2	12	1	Profile	Saucer	Chinese landscape border	M – LC19 th	
D	1704	TP Whiteware	2	8	1	Rim & BS	Plate	Crude dark blue TP floral design int	M – LC19 th	
D	1704	TP Whiteware	1	5	1	Rim	Plate	Willow border	M – LC19 th	
D	1704	TP Whiteware	1	6	1	Rim	Mug	Abbey?	M – LC19 th	Probably part of the 'Abbey' pattern mug
D	1704	TP Whiteware	1	8	1	Rim & handle	Cup	Pale blue floral designs int & ext	M – LC19 th	Small everted rim
D	1704	TP Whiteware	1	2	1	BS	Hollow ware	U/ID curvilinear design ext	M – LC19 th	
D	1704	Unglazed Red Earthenware	1	28	1	Perforated base	Flowerpot	U/Dec	MC19 th – EC20 th	
D	1704	Whiteware	1	11	1	Ring foot base	Bowl	U/Dec	M – LC19 th	
D	1704	Whiteware	1	24	1	BS	Carver/server	U/Dec	M – LC19 th	
D	1703&1704	Sponged ware	6	63	1	Profile	Saucer	Blue sponging int only	1830+	
F	1523	Sponged ware	4	31	4	BS	Hollow ware	Coarse blue sponging ext	c.1830+	
F	1523	Stoneware	2	263	1	Complete	Bottle	Buff stoneware	MC19 th – EC20 th	Unusual bottle w/ recessed shoulder & non-ferrous top; odour of linseed oil
F	1523	TP Whiteware	5	39	4	BS	Mug/jug	Black printed rural scene (w/ a pig?)	M – LC19 th	
F	1523	TP Whiteware	1	3	1	BS	Mug/jug	Part of a black printed text	M – LC19 th	
F	1523	Whiteware	1	24	1	Recessed base	Mug/jug	Salmon pink band ext	LC19 th – C20 th	Probably part of a one pint mug/jug as found elsewhere in Sheffield; crazed & discoloured
F	1523	Whiteware	2	8	2	BS	Hollow ware	U/Dec	M – LC19 th	
H	1302	Whiteware	1	12	1	BS	Hollow ware	U/ID TP design int & ext	M – LC19 th	
I	1102	Brown Glazed Coarseware type	1	72	1	BS	Jar	Shiny purple-brown glaze int & ext	C18 th	Fine dull buff-grey sandy fabric; not typical BGCW type
I	1102	Mottled Coarseware	1	8	1	BS	Hollow ware	Mottled brown glaze int & ext	C18 th	Bright orange sandy fabric
I	1102	Redware type	1	11	1	BS	Hollow ware	Clear glaze int only	LC18 th – C19 th	Fine red fabric w/ moderate fine red grit up to 0.4mm, mainly finer
I	1102	TP Whiteware	7	106	1	Profile	Plate	Asiatic Pheasants	M – LC19 th	Crazed & slightly discoloured



I		1102	TP Whiteware	1	2	1	BS	Hollow ware	Willow int & ext	M – LC19 th	
I		1108	Brown Salt Glazed Stoneware	7	306	5	BS, BS & Handle	Hollow ware	Rouletted & stamped design ext	C19 th – EC20 th	Brown ext & green int
I		1108	Creamware	1	13	1	Rim	Plate	U/Dec	c.1740 – c.1820	Light Creamware
I		1108	Edged ware	3	46	2	Rim	Plate	Low relief 'Grass' pattern w/ blue paint around rim	EC19 th	
I		1108	Lustre ware	6	53	1	Profile	Saucer	Floral design in purple-silver lustre int	C19 th	Crazed & discoloured ext
I		1108	Mocha ware	1	10	1	Rim	Bowl	Three brown lines around rim; black Mocha tree on olive band	C19 th	
I		1108	Stoneware	3	152	1	Base	Flagon	Green lead glaze int & ext	MC19 th – EC20 th	
I		1108	Stoneware	1	40	1	BS	Hollow ware	Green lead glaze int & ext	MC19 th – EC20 th	
I		1108	TP Whiteware	1	25	1	Rim	Bowl	Red printed design w/oriental figures ext	M – LC19 th	Red printed floral/geometric design int; crazed & discoloured
I		1110	Brown Glazed Coarseware	1	45	1	Handle	Jar/cistern	Shiny brown glaze on top of handle, patchy on underside	C18 th	Fine orange fabric w/ fine lighter streaks
I		1110	Brown Glazed Fineware	1	7	1	BS	Hollow ware	Shiny brown glaze int & ext	C18 th	Dull fine buff fabric
I		1110	Slipware	1	3	1	BS	Dish/bowl	White on brown feathered slip int	C18 th	Press-moulded dish; fine buff fabric
I		1113	Brown Glazed Fineware	1	16	1	BS	Hollow ware	Brown shiny slightly mottled glaze int & ext	C18 th – EC19 th	Bright orange fabric w/ sparse red grit
I		1113	Late Blackware	1	8	1	BS & handle	Hollow ware	Shiny brown glaze int & ext	C18 th	Fine white fabric w/ sparse red fabric
I		1113	Late Blackware	1	3	1	Handle	Mug/jug	Fine white fabric w/ sparse fine red grit	C18 th	
I		1113	Redware	1	77	1	Rim	Dish/bowl	Clear glaze int & partially ext	LC17 th – C18 th	Round clubbed rim; contact scar int
I		1113	TP Whiteware	2	12	1	Footring base	Flatware	Flow-blue floral spray pattern int	1840+	Part of maker's mark on underside but no indication of date
I		1113	White Salt Glazed Stoneware	1	2	1	BS	Flatware	U/Dec	c.1720 – c.1780	
I		1113	Yellow ware	1	7	1	Rim	Bowl	Clear glaze int & ext; clubbed rim w/ ridge below rim	C17 th	Fine white fabric
I		1116	Blackware type	1	11	1	BS	Bowl	Hard black glaze int	C17 th	Hard, fine dense red fabric



I		1116	Cane Coloured ware	1	2	1	Rim	Hollow ware	U/Dec	C19th	
I		1116	Colour Glazed ware	1	11	1	Base	Hollow ware	Dull green glaze ext	M – LC19 th	Recessed base
I		1116	Sponged ware	1	2	1	BS	Hollow ware	Blue sponging ext	c.1830+	
I		1116	Stoneware	1	34	1	Rim	Jam jar	Wide fluting ext	MC19 th – EC20 th	Grey stoneware
I		1116	TP Whiteware	3	44	3	Footring base	Plate	Asiatic Pheasants	MC19 th – EC20 th	
I		1116	TP Whiteware	1	12	1	BS	Hollow ware	U/ID TP Chinese landscape style design ext	M – LC19 th	
I		1116	TP Whiteware	1	1	1	Rim	Flatware	Blurred floral design int	M – LC19 th	
I		1116	Whiteware	1	3	1	Handle	Jug?	Red line on handle	LC19 th – EC20 th	
I		1122	TP Whiteware	1	7	1	BS	Flatware	Willow	M – LC19 th	
K		1234	Blue Banded ware	2	31	1	BS & handle	Mug/jug	Thin blue slip line above lower handle terminal	C19 th	
K		1234	Blue Banded ware	1	17	1	Rim	Mug/jug	Blue mottled band below rim & thin blue slip line ext	C19 th	
	A	916	Banded ware	1	3	1	BS	Hollow ware	Blue band & brown slip lines ext	C19 th	
	A	916	Blackware	1	30	1	Footed base	Hollow ware	Black glaze int only	C17 th	Fine red fabric
	A	916	Blackware	1	9	1	BS	Hollow ware	Black glaze int & ext	C17 th	Fine red fabric
	A	916	Blue Banded ware	2	20	2	BS	Bowl	Blue slip lines & bands ext	C19 th	
	A	916	Blue Banded ware	1	8	1	Rim	Bowl	Broad blue band below plain rim	C19 th	
	A	916	Blue Banded ware	1	2	1	BS	Bowl	Blue band ext	C19 th	
	A	916	Blue Banded ware	1	3	1	BS	Bowl	Dark blue band above rilled body; sprigged white design ext	M – LC19 th	Jasper ware style design
	A	916	Bone China	2	15	1	Rim	Plate	Red band & thin red line around edge of rim	MC19 th – EC20 th	
	A	916	Bone China	2	48	1	Footring base	Plate	U/Dec	LC19 th – EC20 th	
	A	916	Brown Glazed Coarseware	1	67	1	Rim	Jar	Black glaze int & ext; top of rim unglazed	C18 th – EC19 th	Elaborate flat-topped rim w/ ext bulge
	A	916	Brown Glazed Coarseware	1	37	1	Rim	Pancheon	Black glaze int only	C18 th – C19 th	Clubbed rounded rim
	A	916	Brown Glazed Coarseware	1	59	1	Rim	Bowl	Dark brown mottled glaze int & ext	C18 th	Rounded everted rim; flaked glaze



	A	916	Brown Glazed Coarseware	4	60	4	BS	Hollow ware	Dark brown glaze int & ext	C18 th	Orange fabric
	A	916	Brown Glazed Coarseware	5	94	5	BS	Bowl/pancheon	Brown glaze int only	LC18 th – C19 th	Hard, fine red fabrics
	A	916	Brown Glazed Coarseware	1	28	1	Rim	Jar	Black glaze int & ext	C18 th	Flaky glaze int & ext; uneven rim, fine red fabric
	A	916	Brown Glazed Coarseware	1	37	1	Base	Jar	Brown glaze int only	C18 th – C19 th	Sandy red fabric w/ faint lighter streaks
	A	916	Brown Glazed Coarseware	1	82	1	Base	Pancheon	Black glaze int only	C19 th	Use-wear on underside of base; hard fine red fabric w/ rare white rock frags
	A	916	Brown Glazed Coarseware	1	41	1	BS	Hollow ware	Dark mottled brown glaze int & ext	C18 th – EC19 th	
	A	916	Brown Glazed Fineware	1	11	1	Handle	Mug/tankard	Thin brown glaze on top of handle	LC17 th – C18 th	Hard, fine red fabric
	A	916	Brown Salt Glazed Stoneware	1	65	1	Base	Bottle	Brown salt glaze ext	LC18 th – C19 th	
	A	916	Brown Salt Glazed Stoneware	2	106	2	BS	Hollow ware	Rouletted wavy lines between horizontal lines	C19 th	Brown ext, grey int
	A	916	Brown Salt Glazed Stoneware	1	11	1	BS	Hollow ware	Stamped/rouletted bands ext	C19 th	Brown int & ext
	A	916	Brown Salt Glazed Stoneware	2	12	2	BS	Hollow ware	Brown salt glaze int & ext	C18 th – EC19 th	Thin-walled vessels
	A	916	Brown Salt Glazed Stoneware	1	9	1	Rim	Bowl	Two incised lines below small everted rim	C18 th	Brown salt glaze int & ext; thin walled bowl
	A	916	Brown Salt Glazed Stoneware	1	10	1	BS	Hollow ware	U/Dec	C19 th	Brown ext, grey int
	A	916	Brown Salt Glazed Stoneware	1	6	1	Rim	Bowl	U/Dec	C19 th	Sharply everted flat-rim
	A	916	Brown Salt Glazed Stoneware	1	75	1	Rim	Bowl	Stamped/rouletted lines ext	C19 th	Round clubbed rim; brown ext, grey int
	A	916	Brown Salt Glazed Stoneware	1	14	1	Rim	Bowl	U/Dec	C19 th	Round clubbed rim; light brown ext, buff int
	A	916	Cane Coloured ware	3	15	3	BS	Hollow ware	U/Dec	C19 th	
	A	916	Colour Glazed ware	1	41	1	Lid-seated rim	Teapot	Brown Rockingham style glaze	C19 th	Small teapot
	A	916	Colour Glazed ware	1	24	1	Spout & filter	Teapot	Brown Rockingham style glaze	C19 th	Small teapot
	A	916	Colour Glazed ware	1	81	1	Spout & filter	Teapot	Brown Rockingham style glaze	C19 th	
	A	916	Colour Glazed ware	3	45	3	Lid-seated rim	Teapot	Brown Rockingham style glaze	C19 th	



	A	916	Colour Glazed ware	1	17	1	Recessed base	Teapot	Brown Rockingham style glaze	C19 th	Base & part of the handle attachment
	A	916	Colour Glazed ware	2	10	2	BS	Teapot	Brown Rockingham style glaze	C19 th	
	A	916	Creamware	1	5	1	Rim	Plate	Beaded rim	c.1740 – c.1820	Crazed & discoloured
	A	916	Creamware	4	12	4	BS	Hollow ware	U/Dec	c.1740 – c.1820	Light coloured Creamware
	A	916	Late Blackware	2	25	2	BS	Hollow ware	Black glaze int & ext	C18 th	Fine red fabric
	A	916	Late Blackware	2	8	2	BS	Hollow ware	Black glaze int & ext	C18 th	Light buff fabric
	A	916	Mottled ware	1	20	1	BS	Mug/tankard	Mottled glaze int & ext; rilled band above base	C18 th	Fine buff fabric
	A	916	Mottled ware	1	1	1	Rim	Mug/tankard	Mottled glaze int & ext	C18 th	Everted rim
	A	916	Pearlware	1	2	1	BS	Bowl	Turned ribbing int w/ hand-painted blue tendril design	c.1780 – c.1840	
	A	916	Porcelain	6	105	1	Splayed base	Ornament	Moulded foot w/ overglaze gold detailing	MC19 th – EC20 th	
	A	916	Porcelain	1	4	1	BS	Ornament	Pinkish fluted ext surface	LC19 th – C20 th	
	A	916	Redware	1	111	1	Rim	Bowl	Clear (red) slip int only	C18 th	Round clubbed rim; hard, red fabric, unlike typical C17 th Redware
	A	916	Redware	1	22	1	BS	Bowl	Clear (red) slip int only	C18 th	Round clubbed rim; hard, red fabric, unlike typical C17 th Redware
	A	916	Slip Banded CC ware	2	5	2	BS	Hollow ware	Brown & white slip bands & lines	C19 th	
	A	916	Slip Coated ware	3	79	3	Footed base	Hollow ware	Dark red slip ext under partial glaze; mottled glaze int	C18 th	Fine buff fabric
	A	916	Slipware	1	13	1	BS	Dish	Brown, red-brown & white slip int; curvilinear designs	C18 th	Press-moulded dish; light buff fabric w/ angular white rock frags up to 1.5mm
	A	916	Slipware	1	19	1	Rim	Dish	Pie-crust rim; embossed design w/white & red-brown slip	C18 th	Press-moulded dish; sub-rectangular?
	A	916	Slipware type 1	5	143	1	Profile	Dish	Trailed curvilinear white slip patterns int; red slip ext	C17 th – EC18 th	Rim defined by a shallow groove; knife-trimmed base
	A	916	Slipware type 1	3	26	3	BS	Dish	Trailed curvilinear white slip patterns int; red slip ext	C17 th – EC18 th	
	A	916	Sponge-printed ware	3	39	3	Footring base	Plate	Sponge-printed or stencilled blue floral design int	c.1840+	Stylised floral design



	A	916	Sponge-printed ware	1	10	1	Rim	Mug/jug	Stylised sponge-printed blue floral curvilinear design	c.1840+	Thick-walled utilitarian mug
	A	916	Sponge-printed ware	1	4	1	BS	Hollow ware	Stylised blue geometric design ext	c.1840+	
	A	916	Sponge-printed ware	1	3	1	BS	Hollow ware	Green sponge-printed circular 'cog' design ext	c.1840+	
	A	916	Sponged ware	1	2	1	BS	Flatware	Blue sponging int	c.1830+	
	A	916	Sponged ware	1	1	1	BS	Hollow ware	Blue sponging int & ext	c.1830+	
	A	916	Stoneware	1	30	1	BS/Shoulder	Flagon	Brown ext, grey int	C19 th	
	A	916	TP Bone China	1	21	1	Rim	Plate	Finely printed green curvilinear & floral design int; wavy edge	MC19 th – EC20 th	
	A	916	TP Whiteware	6	130	5	Rim & footring base	Plate	Asiatic Pheasants	M – LC19 th	Pale blue prints
	A	916	TP Whiteware	1	12	1	Rim	Plate	Willow border	M – LC19 th	
	A	916	TP Whiteware	2	5	2	BS	Flatware	Willow int	M – LC19 th	
	A	916	TP Whiteware	1	1	1	Rim	Cup/bowl	U/ID Chinese landscape int & ext	M – LC19 th	
	A	916	TP Whiteware	1	23	1	Rim	Saucer	Brown printed text int	1889+	USE ON THE W ... / BURGE[SS] & LEIGH / MIDDLEPORT POTTE[RY]
	A	916	TP Whiteware	1	26	1	Rim	Plate	Brown printed border w/ interlaced design; leaf design int	M – LC19 th	
	A	916	TP Whiteware	1	6	1	BS	Hollow ware	Dark blue element; Flow Blue	1840+	
	A	916	TP Whiteware	2	17	1	Ring foot base	Cup/bowl	Trace of an unidentified TP design ext	M – LC19 th	
	A	916	TP Whiteware	1	3	1	BS	Hollow ware	U/ID TP design ext	M – LC19 th	Contact or handle scar ext
	A	916	White Salt Glazed Stoneware	1	23	1	Footed base	Flatware	U/Dec	c.1720 – c.1780	
	A	916	Whiteware	1	7	1	Recessed base	Cup/bowl	U/Dec	M – LC19 th	
	A	916	Whiteware	1	15	1	Footring base	Plate	U/Dec	M – LC19 th	
	A	916	Whiteware	1	9	1	Handle	Mug/jug	U/Dec	M – LC19 th	
	A	916	Whiteware	1	4	1	Rim	Plate	Beaded rim	M – LC19 th	



	A	916	Whiteware	3	11	3	BS	Hollow ware	U/Dec	M – LC19 th	
	A	916	Whiteware	1	3	1	BS	Bowl	Ribbed ext surface	M – LC19 th	
	A	916	Whiteware	1	2	1	BS	Hollow ware	Rilled band	M – LC19 th	
	A	924	Brown Salt Glazed Stoneware	1	39	1	BS	Bowl	Prominent rouletted band ext	C18 th	Everted rim
	A	924	Mottled ware	1	6	1	BS	Hollow ware	Mottled glaze int & ext; raised ridge ext	C18 th	Fine buff body
	A	924	TP Whiteware	1	65	1	Ring foot base	Cup/bowl	Poor quality purple print; Gothic Ruins	M – LC19 th	Crazed & discoloured
	B	1034	Brown Glazed Coarseware	1	76	1	Rim	Bowl	Brown glaze int only	LC18 th – C19 th	Sharply everted rim w/ a beaded ext lip
	B	1034	Brown Glazed Coarseware	1	54	1	Rim	Jar	Brown glaze int only; deep collared rim	LC18 th – C19 th	Bright orange sandy fabric
	B	1034	Brown Glazed Coarseware	2	34	2	BS	Bowl/pancheon	Brown glaze int only	LC18 th – C19 th	
	B	1034	Brown Salt Glazed Stoneware	1	100	1	Footed base	Hollow ware	Brown salt glaze ext	C18 th – EC19 th	Large uneven base?
	B	1034	Brown Salt Glazed Stoneware	1	14	1	Rim	Bowl	U/Dec	LC18 th – C19 th	Sharply everted rim
	B	1034	Creamware	1	16	1	Ring foot base	Bowl	Bowl	c.1740 – c.1820	Flaked & discoloured
	B	1034	Creamware	2	77	1	Rim & handle	Chamber pot	U/Dec	c.1740 – c.1820	
	B	1034	Edged ware	1	31	1	Rim	Plate	Wavy rim w/ low relief moulding & blue feather-edge paint	EC19 th	
	B	1034	TP Pearlware	1	4	1	Base	Flatware	U/ID TP design int	c.1780 – c.1840	
	B	1034	TP Whiteware	1	2	1	BS	Flatware	Stylised tendril design int, Flow Blue	1840+	
	B	1034	White Salt Glazed Stoneware	2	16	1	BS	Plate	Basket-weave pattern moulded border	c.1720 – c.1780	
	D	1724	TP Whiteware	2	7	1	BS	Flatware	Willow int	M – LC19 th	Fresh break
	D	1724	TP Whiteware	1	3	1	BS	Flatware	U/ID TP design int only	M – LC19 th	
	D	1724	Whiteware	1	6	1	BS	Hollow ware	U/Dec	C19 th	Very heavily burnt & discoloured
	D	1743	Porcelain	1	4	1	Rim	Cup/mug	U/Dec	C19 th	
	D	1743	TP Whiteware	1	4	1	Rim	Plate/saucer	Green printed geometric design int	M – LC19 th	



	E/F	2011	Blackware	1	24	1	BS	Hollow ware	Black glaze int & ext	C17 th	Hard, fine dark red fabric
	E/F	2011	Creamware	2	54	1	Ring foot base	Bowl	U/Dec	c.1740 – c.1820	Light coloured Creamware
	E/F	2011	Lustre ware	1	16	1	Recessed base	Hollow ware	Sunderland-style splash-lustre int, ext & underside of base	C19 th	
	E/F	2011	TP Whiteware	1	1	1	BS	Hollow ware	U/ID TP designs int & ext	M – LC19 th	
	E/F	2030	Cane Coloured ware	2	35	1	Rim	Bowl?	Cane coloured ext, white slip int only	C19 th	Odd form; cylindrical body w/ sharp angle towards base
	E/F	2030	Colour Glazed ware	1	8	1	BS	Hollow ware	Relief moulded ext w/ coloured detailing	C19 th	Part of an elaborately decorated item
	E/F	2030	Creamware?	1	15	1	Rim	Carver/server	U/Dec	EC19 th ?	Very light coloured Creamware
	E/F	2030	Mocha ware	1	45	1	BS & spout	Jug	Blue lines above & below wide white band w/ blue Mocha tree	C19 th	
	E/F	2030	Porcelain	1	5	1	BS	Bowl/jar	White sprigged decoration ext; tree	C19 th	Jasper-type ware
	E/F	2030	Slip Banded CC ware	1	5	1	BS	Hollow ware	White slip line & part of a brown band ext	C19 th	
	E/F	2030	Stoneware	1	20	1	Rim	Bowl	Brown salt glaze ext, grey lead glaze int	C19 th	Clubbed rim, folded
	E/F	2030	Stoneware	2	42	2	BS/Shoulder	Bottle	U/Dec	C19 th	Buff stoneware; thick walled sherds
	E/F	2030	Stoneware	1	52	1	BS	Bottle	U/Dec	C19 th	Thick walled sherd
	E/F	2030	TP Whiteware	3	10	1	BS	Hollow ware	Blue floral design ext on blue-white surface	M – LC19 th	
	E/F	2030	Whiteware	1	6	1	BS	Hollow ware	U/Dec	M – LC19 th	
	E/F	2030	Whiteware	1	4	1	Rim	Flatware	Low relief moulded band around rim	M – LC19 th	
	E/F	2031	Sponge-printed ware	2	9	1	Rim	Mug/jug	Printed floral pattern around rim, blue line int	c.1840+	Secondarily burnt
	E/F	2031	TP Whiteware	1	6	1	Spout	Jug	Black printed geometric frieze around rim & spout	M – LC19 th	
	E/F	2031	TP Whiteware	1	8	1	BS & handle terminal	Jug	Part of a black printed design, cf spout from this context	M – LC19 th	Moulded handle terminal
	E/F	2050	Brown Salt Glazed Stoneware	1	10	1	Base	Bottle	Brown ext, green int	LC18 th – C19 th	
	E/F	2065	Brown Salt Glazed Stoneware	1	12	1	BS/Shoulder	Bottle	Brown ext, green int	LC18 th – C19 th	



	E/F	2065	TP Whiteware	1	3	1	BS	Carinated bowl	U/ID TP design int & ext	M – LC19 th	
	E/F	2115	Banded ware	1	4	1	BS	Bowl	Thin brown lines & blue band ext	C19 th	
	E/F	2115	Blue Banded ware	3	9	1	BS	Hollow ware	Dark blue lines ext	c1840+	Flow Blue bleeding of colour into glaze
	E/F	2115	Brown Glazed Coarseware	1	45	1	Base	Hollow ware	Hard dark brown glaze int	LC18 th – C19 th	Hard dense dark red fabric
	E/F	2115	Brown Glazed Coarseware	1	20	1	BS	Bowl	Brown glaze int only	LC18 th – C19 th	
	E/F	2115	Brown Glazed Coarseware	9	299	7	BS	Hollow ware	Dark brown/purple mottled glaze int & ext	C18 th	Hard red fabric w/ fine pale streaks & occ red grit
	E/F	2115	Brown Glazed Coarseware	1	502	1	Base	Jar	Dark brown/purple mottled glaze int & ext	C18 th	Hard red fabric w/ fine pale streaks & occ red grit
	E/F	2115	Brown Salt Glazed Stoneware	1	3	1	BS	Hollow ware	U/Dec	LC18 th – C19 th	
	E/F	2115	Brown Salt Glazed Stoneware	1	5	1	BS	Hollow ware	Double incised lines ext	LC18 th – C19 th	
	E/F	2115	Creamware	1	3	1	Flat base	Small beaker	U/Dec	c.1740 – c.1820	Small ovoid jar
	E/F	2115	Edged ware	1	16	1	Rim	Pie dish	Wavy edge w/ moulded 'Grass' pattern & dark blue paint	EC19 th	
	E/F	2115	Mottled ware	1	3	1	BS	Hollow ware	Mottled glaze int & ext	C18 th	Fine buff fabric
	E/F	2115	Mottled ware	1	1	1	Rim	Mug/tankard	Mottled glaze int & ext	C18 th	
	E/F	2115	Slip Coated ware	1	33	1	Footed base	Bowl	Red slip ext w/ brown glaze on upper body	C18 th	Fine buff fabric w/ fine red grit
	E/F	2115	Slipware	1	28	1	BS	Bowl/jar	White on red slip ext; lines & discs ext	C18 th	Fine white fabric
	E/F	2115	Stoneware	3	32	1	BS	Hollow ware	U/Dec	MC19 th – EC20 th	Buff stoneware
	E/F	2115	TP Bone China	1	8	1	Rim	Mug/jug	Finely printed green floral design ext	MC19 th – EC20 th	See also cxt 2136 for a very similar sherd
	E/F	2115	TP Whiteware	1	6	1	BS	Hollow ware	Red transfer-printed floral design w/ thistles int & ext	M – LC19 th	
	E/F	2115	White Salt Glazed Stoneware	1	3	1	Ring foot base	Cup/bowl	U/Dec	c.1720 – c.1740	Angular ring foot
	E/F	2115	Whiteware	1	2	1	BS	Hollow ware	U/Dec	M – LC19 th	
	E/F	2115	Whiteware	1	4	1	Recessed base	Hollow ware	U/Dec	M – LC19 th	
	E/F	2136	Blue Banded ware	1	1	1	BS	Hollow ware	Blue slip lines ext	C19 th	



	E/F	2136	Brown Glazed Coarseware	1	69	1	BS	Hollow ware	Dark brown glaze w/ brown mottling int & ext	C18 th – EC19 th	Fine orange fabric w/ lighter streaks
	E/F	2136	Brown Glazed Coarseware	1	30	1	BS	Hollow ware	Hard, dark brown glaze int & ext	C18 th – EC19 th	Hard fine dull orange fabric
	E/F	2136	Porcelain	2	6	1	Base	Small bottle	U/Dec	C19 th	Small bottle w/ recessed base
	E/F	2136	TP Bone China	1	16	1	Rim	Mug/jug	Finely printed green floral design ext	MC19 th – EC20 th	See also cxt 2115 for a sherd from the same or a similar vessel
	E/F?	2017	Stoneware	1	249	1	Base	Bottle	Brown salt glaze ext; green lead glaze int	C19 th – EC20 th	
		3008	Stoneware	2	168	1	BS	Bottle/flagon	Pale green lead glaze ext	MC19 th -EC20 th	Note: site code 116360
		3008	TP Whiteware	2	35	1	Base	Child's mug	Blue transfer printed alphabet design	MC19 th -EC20 th	Blue panels with alphabet design; 'B is for Buffalo, C is for Cat' (Note: site code 116360)
		U/S	Bone China	1	24	1	Footring base	Flatware	U/Dec	MC19 th – EC20 th	Crazed & discoloured
		U/S	Bone China	1	7	1	Semi-recessed base	Cup/bowl	U/Dec	MC19 th – EC20 th	Crazed & discoloured
		U/S	Bone China	1	14	1	Semi-recessed base	Cup	U/Dec	MC19 th – EC20 th	Crazed & discoloured
		U/S	Whiteware	1	21	1	Semi-recessed base	Cup	U/Dec	MC19 th – EC20 th	Crazed & discoloured
		U/S	Whiteware	1	5	1	Handle	Cup/mug	Green line on side of handle	MC19 th – EC20 th	Crazed & discoloured

Key: BS = body sherd; ENV = Estimated Number of Vessels



Appendix 3: Clay tobacco pipes by context

Tr/area	Context	B	S	M	Tot	Range	Deposit	Mark(s)	Dec, etc	Fig	Comments
A	902		9	1	10	1700-1850	1820-1850			19	Small fragments of plain stem and a single C17th mouthpiece. The group includes a fragment from close to the mouth piece end of the stem, which has been ground on both broken ends, and also ground along the length of the fragment producing a faceted surface.
A	905	1	2		3	1660-1800	1750-1800				Small group with fragments from the C17th to early C19th. The spur of the bowl fragment has been trimmed. The earliest fragment in this group is a plain stem c1660-1700 made from a creamy coloured local fabric.
A	911		6		6	1820-1860	1820-1860				Plain C19th stems. One fragment has been heavily burnt and has slaggy material adhering. One fragment has speckles of green flash-glazing.
A	916	1	18		19	1750-1850+	1850+	THO WILD stem x1		12	Earliest fragment is a stem with a Thomas Wild roll-stamp. All other stems are plain and appear to be C19th. The single bowl fragment is a heavy Irish style bowl from a short-stemmed "cutty" pipe dating from the 1850s or later.
A	924	1			1	1820-1860	1820-1860		Napier/ship x1	16	Single bowl with leaf decorated seams; Napier on smokers left and a ship in full sail on the smoker's right.
B	1034	1	6		7	1800-1860	1820-1860				Single plain C19th spur bowl. All six stem fragments are plain and are C19th. Group includes a small bone fragment.
I	1102		3		3	1800-1860	1800-1860				Plain C19th stems.
I	1108	2	4		6	1800-1860	1830-1860				Two small spur bowl fragments most likely c1830-1860. The stems are all plain and C19th.
I	1113	1	1		2	1750-1800	1750-1800				Bowl fragment with a bottered rim that is likely to be mid to late C18th century. The stem fragment is plain but could be contemporary.
I	1116	1	3		4	1800-1920	1850-1920	moulded symbol mark x1		18	The three stems are plain and C19th. The broken stem of the spur fragment has been whittled away to give it a taper and there is a vertical scratch around it. These marks almost certainly indicate that the broken stem was reworked to fit into a metal ferrule (which has left the vertical scratches), connecting the bowl to a separate mouthpiece. It has a moulded symbol mark on either side of the spur and dates from c1850-1920 (Fig. 18).
I	1122	1			1	1830-1860	1830-1860				Plain spur bowl with a post-production flaw. The bowl had been heavily smoked.
F	1523		1		1	1800-1900	1800-1850				Plain C19th stem.
C	unstrat		4		4	1800-1900	1800-1850				Plain C19th stems.
C	1637	2	1		3	1740-1850	1830-1850		Masonic bowl x1	13	Mixed group. Earliest fragment is a burnished bowl with a trimmed spur c1740-1770. The single decorated fragment is a bowl with traces of Masonic motifs from the early C19th.



D	1702	7	39	2	48	1800-1850	1830-1850		leaf seams x1; vine leaves x3	9	Three plain bowls, one with a post-production flaw; one bowl with leaf decorated seams and three bowls with vine leaf decoration, all from the same mould. All the bowl fragments are C19th. The vine scroll design is similar to those produced by Joseph Dee of Sheffield (fl 1833-1852). The stems are all plain and would appear to have come from long-stemmed pipes of the early C19th. There are two mouthpiece fragments with green glazed tips.
D	1703	1			1	1830-1860	1830-1860				Fragment of a plain spur bowl.
D	1704	21	95	5	121	1700-1920	1820-1860		leaf seams x 1; panel dec (vine) x 1; stag & hounds x 1	1 to 10 & 17	There is one residual stem fragment of 17th or earlier 18th century date but all the other pieces are of 19th century or later types and all would be consistent with a range of c1820-60 provided by the bowls. This is a domestic assemblage of long-stemmed pipes that would probably have been around 15" long originally with their tips glazed in green or yellow. The pipes are mainly of mediocre quality with surface flaws on the moulds and finishing marks on the bowls. The pipes are mainly fairly uniform in size and shape, despite a number of different moulds being represented (seven different plain types and three decorated). Decoration included a locally popular vine motif as well as a more unusual stag and hounds scene. Some of the stems were curved and others straight. None of the pipes is marked, although all are likely to have been produced locally.
D	1724	4	4		8	1830-1860	1830-1860	WARRINGTON/ROTHE RHAM x1	Masonic x2	15	Two (joining) plain bowl fragments; two (joining) decorated bowl fragments. One Masonic bowl is largely complete and has moulded lettering around the rim reading WARRINGTON / ROTHERHAM.
E/F	2011	1	7		8	1800-1900	1870-1920	Pattern number 2 x1		22	A fragment from a bowl stem junction of c1870-1920, which has been very heavily burnt but bears the moulded pattern number 'No. 2'. It may originally have had a spur but this is now missing. The other fragments in this group are plain C19th stems, none of which are burnt.
E/F	2016	1	2		3	1830-1860	1830-1860				Plain mid C19th bowl and two plain contemporary looking stems.
E/F	2030		3		3	1800-1900	1850+				Three plain stems one of which appears to be from a short-stemmed "cutty" pipe and therefore dating from c1850 or later.
E/F	2031		2		2	1800-1900	1800-1850				Two plain C19th stems.
E/F	2052		1		1	1800-1900	1800-1850				Single plain C19th stem.
E/F	2065		1		1	1800-1900	1800-1850				Single plain C19th stem.
E/F	2115	7	23		30	1650-1920	1870-1920	Pattern number 21 x1; moulded spur mark EM x1	leaf seams x2	20, 21	The earliest fragment is a plain mid to late C17th stem. Apart from one stem fragment of c1870-1920 with an incuse pattern number, reading 21, all the stems are plain. Two of the plain stem fragments join; the spur fragment has moulded initials EM and dates from c1850-1910. The letters are placed upright on the spur (i.e. at 90 degrees to more usual orientation).



-	unstrat		4		4	1750-1850	1820-1850				Plain stems including two C18th and one with a finely burnished surface.
	TOTAL	53	239	8	300						

B = bowl; S = stem; M = mouthpiece



Appendix 4: Glass/bottle stoppers by context

Tr / area	Context	Type	Colour	No	Mark	Function	Description
A	911	vessel	clear	1		uncertain	thin-walled; possibly phial?
A	916	window	clear	13		window	thick-walled; 7 reinforced
A	916	window	clear	1		window	thinner-walled
A	916	object	aqua	1		beverage	marble closure from Codd bottle
A	916	bottle	greenish	1		uncertain	candy-striped neck (marvered white trails)
A	916	object	opaque white	1		household	possible candlestick; hand painted decoration
A	916	bottle	green	3	...ATTERCLIFFE / (rear) [B]Ros / [MA]KERS / [BAR]NSLEY	beverage	conjoining frags from base; probably the mark of Gleadhall & Bayley (see context 1523)
A	916	bottle	green	6		beverage	rim, body & base frags
A	916	phial	pale blue	1		pharmaceutical	rim/neck
A	916	bottle	clear	1		beverage	neck with internal screw closure
A	916	bottle	pale green	2		beverage	wine bottles, Continental-style necks
A	916	bottle	clear	2		uncertain	cork closure
A	916	bottle, Codd	aqua	1	JOHN WALKER / TRADE MARK / SHEFFIELD; (on rear) SYCB Co SWINDON	beverage	near complete (rim/neck missing)
A	916	bottle, Codd	aqua	4		beverage	body and rim/neck frags
A	916	waste	opaque	1		waste	droplet
A	916	bottle/jar	greenish	1		uncertain	wide base, slight kick
A	916	bottle	pale blue	4		uncertain	rectangular bottle(s), including neck (cork closure)



Tr / area	Context	Type	Colour	No	Mark	Function	Description
A	916	bottle	clear	2	PLEASE RINSE AND RETURN	milk	bases
B	1028	bottle	green	1		beverage	neck from free-/mould-blown bottle, early C19
I	1122	bottle	aqua	1	SHEFFIELD	beverage	base
I	1122	bottle, Codd	aqua	4		beverage	body and rim frags
I	1127	bottle, Codd	aqua	1	B CHAPMAN & Co/TRADE MARK / EFFINGHAM STREET / SHEFFIELD / KILNER BROTHERS MAKERS CONISBORO	beverage	near complete (rim/neck missing)
K	1234	bottle	green	4		beverage	beer bottles with internal screw closure; 2 with Ind Coope rubber stoppers in situ
K	1234	bottle	green	1		beverage	neck from beer bottle
K	1234	bottle	green	2	IND CO[OOPE] ...OR T...	beverage	bases (recessed) from beer bottles
K	1234	bottle	aqua	1	(trade mark) [...]HAM STREET / [SH]EFFIELD / KILNER BROTHERS MAKERS CONISBORO	beverage	lower part of bottle; probably the mark of B Chapman & Co (see context 1127)
H	1302	bottle	green	1		beverage	wine bottle (kicked base); rim/neck missing
F	1523	bottle	brown	2		beverage	body frags
F	1523	bottle	brown	1	BOVRIL 4oz	foodstuff	complete Bovril bottle, 4oz; mould seam does not cover lip
F	1523	bottle, Codd	aqua	1	GLEADHALL & BAYLEY / (trade mark) / ATTERCLIFFE / SHEFFIELD	beverage	Codd bottle with neck missing; some lettering on rear illegible
F	1523	bottle	green	2		beverage	wine bottle, 1 with Continental style neck
F	1523	bottle/jar	aqua	1		uncertain	body frag
F	1528	bottle, Codd	aqua	1	THIS BOTTLE IS THE / PROPERTY OF / SH WARD & Co / LIMITED / SHEFFIELD; (on rear) TRADE MARK (corn sheaf)	beverage	almost complete (rim/neck missing)



Tr / area	Context	Type	Colour	No	Mark	Function	Description
C	1637	bottle/jar	clear	1		uncertain	body frag, rectangular bottle/jar
D	1702	bottle	green	1		beverage	wine/beer
D	1702	bottle	aqua	1		foodstuff	rectangular bottle, neck
D	1702	bottle/jar	clear	1		uncertain	body frag
D	1743	bottle	clear	3		milk	body & rim frags
D	1743	window	clear	1		window	frosted
D	1743	window	clear	3		window	reinforced
D	1743	bottle	pale blue	1		uncertain	rectangular bottle
D	1743	bottle/jar	aqua	1		uncertain	lettering (illegible)
E/F	2030	bottle	aqua	1	[SH]EFFIE[LD]	beverage	lettering above base
E/F	2030	bottle	aqua	1	SM...	beverage	lettering on underside of base
E/F	2030	bottle	aqua	1	[?SHEFFIEL]D	beverage	base
E/F	2030	bottle	aqua	1	[...]ER ST	beverage	base
E/F	2030	bottle, Codd	aqua	3		beverage	body frags
E/F	2030	bottle, Codd	aqua	1	[TRADE] MARK / [S]ILVE[R]	beverage	body frag
E/F	2030	bottle, Codd	aqua	1	[...]RD & [Co] / LIMITED / [SHE]FFIE[LD]	beverage	body frag; probably the mark of S H Ward & Co (see context 1528)
E/F	2030	bottle, Codd	aqua	1	1899 / [...]DERS	beverage	body frag
E/F	2030	bottle, Codd	aqua	2		beverage	rim/neck frags
E/F	2030	bottle	clear	1		beverage	rim/neck, crown closure
E/F	2030	bottle	aqua	5		beverage	body frags, prob from Codd bottles
E/F	2030	window	clear	2		window	
E/F	2031	bottle	clear	1		uncertain	rectangular
E/F	2031	bottle	aqua	3	[P]ROPERTY OF / [...] WARD & Co / [SHEFF]IELD	beverage	conjoining; probably the mark of SH Ward & Co



Tr / area	Context	Type	Colour	No	Mark	Function	Description
E/F	2052	bottle	green	7		beverage	wine bottle: body and kicked base
E/F	2115	window	clear	2		window	
E/F	2115	waste	opaque	1		waste	droplet
E/F	2115	bottle	greenish	1		beverage	body frag
WB	3004	bottle	blue	2		beverage	recessed base
WB	3008	bottle	green	2		beverage	wine bottle: body and kicked base
I	1127	bottle stopper		1	PARK BREWERY / ROBSON BROS / SHEFFIELD	beverage	internal screw stopper
I	1127	bottle stopper		6	IND COOPE & Co Ltd	beverage	internal screw stopper
K	1234	bottle stopper		8	IND COOPE & Co Ltd	beverage	internal screw stopper (2 in situ)
K	1234	bottle stopper		1	IND COOPE & Co Ltd ROMFORD	beverage	internal screw stopper
A	916	bottle stopper		1	TENNANT / W / SHEFFIELD	beverage	internal screw stopper
A	916	bottle stopper		1	WILSON BROS / PARKSIDE BREWERY Ltd / SHEFFIELD	beverage	internal screw stopper



Appendix 5: Metallurgical process residues, crucibles and metal items by context

Tr/Area	Context	Metals	Undiag Slag	FAS	Crucible	Other	Material Type	Initial interpretation
A	902		1/140				Possible metallurgical slag	Undiagnostic metallurgical slag
A	902			4/108			Probable fuel ash slag that has interacted with refractory material	Residue from cementation or crucible furnace?
A	919					140/40	Fragments of spent coke fuel	Residue from crucible steelmaking furnace or smiths hearth
B	1024			2/5			Fragments of spent coke fuel	Residue from crucible steelmaking furnace or smiths hearth
B	1024					150/45	Fragments of spent coke fuel	Residue from crucible steelmaking furnace or smiths hearth
B	1034		1/10				Possible metallurgical slag	Undiagnostic of specific industrial process
B	1034					10/5	Fragments of spent coke fuel	Residue from crucible steelmaking furnace or smiths hearth
B	1038					200/65	Fragments of spent coke fuel	Residue from crucible steelmaking furnace or smiths hearth
I	1116			17/180			Probable fuel ash slag	Possible fuel ash residue from cementation furnaces
I	1116			1/85			Probable fuel ash slag that has interacted with refractory material	Residue from cementation or crucible furnace?
I	1116					800/260	Fragments of spent coke fuel	Residue from crucible steelmaking furnace or smiths hearth
I	1126			34/635			Coal derived fuel ash slag	Possible fuel ash residue from cementation furnaces
I	1126					200/35	Fragments of spent coke fuel	Residue from crucible steelmaking furnace or smiths hearth
I	1127			3/175			Coal derived fuel ash slag	Residue from cementation furnace?
I	1127					2/75	Fragments of spent coke fuel	Residue from crucible steelmaking furnace or smiths hearth
K	1234			1/80			Coal derived fuel ash slag	Residue from cementation furnace?
H	1317					bulk sample c15L	Environmental type sample, approximately 15 litre volume. Predominantly mixed earth with broken brick and fuel ash fragments.	General backfill material from demolition/remodelling phase
H	1317					bulk sample c15L	Environmental type sample, approximately 15 litre volume. Predominantly mixed earth with broken brick and fuel ash fragments.	General backfill material from demolition/remodelling phase



Tr/Area	Context	Metals	Undiag Slag	FAS	Crucible	Other	Material Type	Initial interpretation
H	1318					bulk sample c15L	Environmental type sample, approximately 15 litre volume. Predominantly mixed earth with broken brick and fuel ash fragments.	General backfill material from demolition/remodelling phase
H	1319					bulk sample c14L	Environmental type sample, approximately 14 litre volume. Predominantly mixed earth with broken brick and fuel ash fragments.	General backfill material from demolition/remodelling phase
G	1413					bulk sample c15L	Environmental type sample, approximately 15 litre volume. Predominantly mixed earth with broken brick and small fragments of coal.	General backfill material from demolition/remodelling phase, appear to include includes detritus from coal storage area
F	1515					bulk sample c10000	Large fragments of refractory stone with vitrified clay-like chest lining bonded to inside surface	Samples from inside of the base of cementation furnace chest with in situ deposits
F	1520					bulk sample c10000	Large fragments of refractory stone	Fragments of demolished cementation furnace chests
F	1523			1/25			Probable fuel ash slag that has interacted with refractory material	Residue from cementation or crucible furnace?
F	1524					bulk sample c10L	Fragments of fire cracked ganister stone	Fragmented ganister from remains of stone chests in cementation furnaces
F	1528					1/30	Fragment of vitrified surface of refractory material	From furnace structure?
F	1541					bulk sample c12L	Environmental type sample, approximately 12 litre volume. Predominantly mixed earth with broken brick and fuel ash fragments.	General backfill material from demolition/remodelling phase
F	1545					bulk sample c10L	Fragments of ganister stone, some with coal derived fuel ash slag attached	Fragments of demolished cementation furnace chests
C	unstrat		1/25				Possible metallurgical slag	Undiagnostic metallurgical slag
D	1702		1/125				Possible conglomerate of metallurgical or fuel ash slag	Undiagnostic of specific industrial process
D	1702					1/20	Dark green-black glassy slag	Possibly metallurgical
D	1702			1/10			Coal/coke derived fuel ash slag	Residue from metallurgical furnace/hearth?
D	1721					45/3670	Fragments of refractory material	Refractory material from demolished furnace structures?



Tr/Area	Context	Metals	Undiag Slag	FAS	Crucible	Other	Material Type	Initial interpretation
D	1721					40/10	Fragments of spent coke fuel	Residue from crucible steelmaking furnace or smiths hearth
D	1724	1/180					Corroded ferrous metal plate	Possibly from architectural fitting (door, cupboard, cabinet) or machine casing
D	1724				3/16000		Bases of used Huntsman type crucibles	Waste by-product of on-site crucible furnaces
D	1724				8/3880		Fragments of walls from Huntsman type crucibles	Waste by-product of on-site crucible furnaces
D	1724				1/4950		Lids from Huntsman type crucible pots, with impression of top of pot on underside (suggests pots had 5 to 6 inch mouth)	Waste by-product of on-site crucible furnaces
D	1724					6/1890	Probable slagged refractory material	Possible residue from crucible steelmaking furnace
D	1743					1/120	Fragment of refractory brick	Part of furnace/hearth structure
D	1743					4/25	Fragments of spent coke fuel	Residue from crucible steelmaking furnace or smiths hearth
D	1743			5/780			Coal derived fuel ash slag	Residue from cementation furnace?
D	1743					8/250	Concrete bonded conglomerate	Rough bonding mortar/levelling from construction/remodelling phase
D	1744			21/630			Coal derived fuel ash slag	Residue from cementation furnace?
E/F	2005			6/855			Probable fuel ash slag that has interacted with refractory material	Residue from cementation or crucible furnace?
E/F	2011			1/230			Probable coal derived fuel ash slag	Residue from cementation furnace?
E/F	2018			20/230			Probable fuel ash slag	Possible fuel ash residue from cementation furnaces
E/F	2018					120/65	Fragments of spent coke fuel	Residue from crucible steelmaking furnace or smiths hearth
E/F	2018			3/1020			Coal/coke derived fuel ash slag	Residue from metallurgical furnace/hearth?
E/F	2022			4/125			Probable fuel ash slag	Possible fuel ash residue from cementation furnaces
E/F	2022					600/175	Fragments of spent coke fuel	Residue from crucible steelmaking furnace or smiths hearth
E/F	2030					100/20	Fragments of spent coke fuel	Residue from crucible steelmaking furnace or smiths hearth
E/F	2030					4/50	Fragments of spent coke fuel	Residue from crucible steelmaking furnace or smiths hearth



Tr/Area	Context	Metals	Undiag Slag	FAS	Crucible	Other	Material Type	Initial interpretation
E/F	2030	1/1000					Corroded ferrous metal plate	Possibly from architectural fitting (door, cupboard, cabinet) or machine casing
E/F	2030	1/2000					Toothed gear cog with stub axle	Architectural (i.e. roller door mechanism), structural or machinery component
E/F	2044			56/3800			Coal derived fuel ash slag (with bituminous coal odour)	Possible fuel ash residue from cementation furnaces
E/F	2044			10/1540			Coal derived fuel ash slag with refractory stone/brick inclusions	Possible fuel ash residue from cementation furnaces
E/F	2044				1/40		Fragment of Huntsman type crucible	Waste by-product of on-site crucible furnaces
E/F	2044					300/100	Fragments of spent coke fuel	Residue from crucible steelmaking furnace or smiths hearth
E/F	2050			8/740			Probable fuel ash slag that has interacted with refractory material	Residue from cementation or crucible furnace?
E/F	2052	1/3410					Steel spring embedded with rough concrete	May relate to a phase of demolition and remodelling of the site
E/F	2052	29/11520					Various ferrous metal fittings, including bolts, rod and bar	Components of machinery and/or structural fittings
E/F	2066			1/100			Coal/coke derived fuel ash slag	Residue from metallurgical furnace/hearth?
E/F	2115			14/770			Coal derived fuel ash slag	Residue from cementation furnace?
E/F	2115					9/160	Undiagnostic conglomerate	Trodden & compacted floor debris
E/F	2115	15/565					Heavily oxidised fragments of ferrous metal	Mainly corroded small architectural/structural fittings (nails, bolts)
E/F	2115	1/175					Offcut of ferrous metal bar, approximately 82mm wide by 15mm thick and 23mm long	Possible product of cementation furnace and feedstock for crucible furnace
E/F	2115			5/80			Probable coal derived fuel ash slag, but with unusual morphology	Possible fuel ash residue from cementation furnaces
E/F	2139					2/c14000	Large fragments of refractory stone with vitrified clay-like chest lining bonded to inside surface	Samples from inside of the base of cementation furnace chest with in situ deposits
E/F	2147					5/35	Ferruginous concretion	Undiagnostic
E/F	2155		4/10				Possible metallurgical slag	Undiagnostic of specific industrial process
E/F	2155					30/5	Fragments of spent coke fuel	Residue from crucible steelmaking furnace or smiths hearth



Tr/Area	Context	Metals	Undiag Slag	FAS	Crucible	Other	Material Type	Initial interpretation
WB	3008			30/530			Coal derived fuel ash slag with refractory stone/brick inclusions	Possible fuel ash residue from cementation furnaces
WB	3008					1/30	Refractory cement	Refractory material from demolished furnace structures?
WB	3009			90/4250			Coal derived fuel ash slag (with bituminous coal odour)	Possible fuel ash residue from cementation furnaces
WB	3012			6/495			Coal derived fuel ash slag	Possible fuel ash residue from cementation furnaces
WB	3012					2/115	Fragments of ganister stone	Refractory material from demolished furnace structures?
-	unstrat		2/7190				Possible metallurgical slag	Undiagnostic metallurgical slag
-	unstrat			1/190			Probable fuel ash slag that has interacted with refractory material	Residue from cementation or crucible furnace?
-	unstrat				1/1020		Base of crucible with oxidised copper rich residues inside	Part of a crucible used to melt copper alloys

Appendix 6: Petrographic and SEM-EDS analysis of furnace chest residue and crozzle

Dr Patrick Sean Quinn

Background, Sample Materials and Aims of Analysis

Thin section petrographic analysis and SEM-EDS analysis has been undertaken on two fragments of chest furnace residue and one fragment of 'crozzle' recovered from the remains the 19th century steel-making site of Hollis Croft in central Sheffield, South Yorkshire. The aim of the analysis was to identify mineral phases in the samples and determine the relationship between the chest furnace residues and the crozzle. In particular, the client was interested in whether the chest furnace residue started off as 'wheelswarf sludge'. This material, which has been interpreted as the starting material for crozzle, is composed of finely ground particles of grindstones mixed with fine particles of ferrous metal that was being abraded on the stones. Photos of the two chest furnace samples with the sampled areas can be seen in **Fig. 61**. Sample 2139 was taken from the northern cementation furnace in Area E/F; sample 1515 from the southern furnace.

Methodology

Samples were removed from specific regions of the chest furnace residue samples as shown in **Fig. 61**. These were then impregnated with epoxy resin and cut in half. One half was prepared as a standard 30 µm petrographic thin section at the Institute of Archaeology, University College London. The other half was polished with silicon carbide paper and diamond paste down to a grade of 1 µm. The more friable crozzle sample was first embedded in an epoxy resin block, then cut in half and made into both a thin section and a polished block as per the chest furnace samples. The thin sections were characterised petrographically under the polarising light microscope and interpreted in terms of their mineral composition and microstructure. The polished blocks were coated with a thin film of carbon and studied with a Philips XL30 SEM with an Oxford Instruments INCA Wave EDS system at the Institute of Archaeology, University College London. Samples were examined in secondary electron and backscattered electron modes and selected features were analysed chemically via SEM-EDS. SEM analysis was conducted with an operating voltage of 20 kV and a working distance of 10 mm. Calibration of the EDS system was made using a cobalt standard. Elements were calculated as weight percentage oxides using stoichiometry and normalised to 100% (**Table 3**). The accuracy of the analyses was assessed by measuring two international rock standards BCR-2 (Columbia River Basalt) and BIR-1 (Icelandic Basalt) (**Table 3**).

Results

Sample 2139

The prepared portion of chest furnace residue sample 2139 is composed of sand and silt-sized quartz grains in some sort of vitrified, bloated clay-based matrix that is rich in opaque iron inclusions and corrosion (**Fig. 62**). The quartz grains are mostly equant and rounded, but can be more elongate and angular. They reach up to 0.75 mm diameter, but are mostly fine sand and silt sized and moderately well-sorted. They are heavily fractured in places and ironstained, but not melted at all (**Fig. 62A-C**). Analysis of selected grains with the SEM, reveals that they are 95% or more silica with a minor amount of iron (**Table 3**). Possible cleavage in some rare grains might suggest that feldspar also occurs, though twinning was not seen. SEM-EDS analysis of one grain indicates that it contains some Na₂O, Al₂O₃, K₂O and TiO₂, perhaps supporting this suggestion, though Al₂O₃ is too low for most feldspars. Rare chert and zircon grains are also present in thin section. The grains are surrounded by a dark matrix that is opaque in places and therefore difficult to make out (**Fig. 62A**). The iron-rich material occurs in patches and bodies and can have a dark red-colour.

Analysis with the SEM confirms that it is dominantly iron, but contains a small amount of CuO as well as SiO₂ and SO₃ in places. It is concentrated around the inner surface of rounded bloating pores, where it has a somewhat needle-like structure. One side of the prepared sample shows a gradient from an iron-rich somewhat opaque matrix (**Fig. 62A**), through a vitrified, isotropic matrix (**Fig. 62B**) to matrix containing abundant fine colourless needle-like crystals, perhaps of mullite (**Fig. 62C**). Several needle-like crystals were analysed in the SEM, but are rich in iron, suggesting that they are some sort of metallic phase. The vitrified area of the sample contains accumulations of tiny opaque particles (**Fig. 62B-C**).

Analysis of the matrix of sample 2139 reveals that it has a rather homogeneous composition of approximately 70% SiO₂, 12% Al₂O₃, 10% FeO, and 5% K₂O. This suggests that the starting material, which has melted in places, was most likely clay. By plotting the composition of the matrix alongside various refractories including several 18th-century steelmaking crucibles from Sheffield, it is possible to see that the clay material was of low refractory quality. However, the possible presence of mullite may indicate that the clay source could have contained kaolinite. The high proportion of fluxes such as K₂O, FeO, CaO and MgO would have promoted the melting of the clay minerals. The different appearance of the matrix across the sample (**Fig. 62A-C**) is likely to be due to a heat gradient and variable melting. The presence of rare feldspar in an un-melted state seems to indicate that at least some of sample was not subjected to temperatures in excess of 1100°C. Other parts were clearly subjected to much higher temperatures due to the presence of mullite and metallic phases.

Sample 1515

In thin section, the prepared area of chest furnace residue sample 1515 is heterogeneous and contains several layers of different composition and texture. All layers contain silt- or sand-sized grains in different proportions. The topmost layer has a very similar composition to sample 2139 in that it is composed of abundant rounded sand- and silt-sized grains of quartz in a dark matrix with opaque areas and corrosion in bloating pores (**Fig. 63A**). This is underlain by a thin layer with a less opaque, finely divided grey to isotropic matrix and silt and less sand and silt-sized

grains than the layer above. It contains some very small highly birefringent grains that look like epidote and appear to have formed during heating as well as patches/agglomerations of fine opaque iron material. This gives way to various layers that are increasingly bloated and have a matrix with dendritic or needle-like phases (**Fig. 63B–C**).

The needles have a light colour or can be highly birefringent and are surrounded by dark brown to black material. These neo-formed needle like phases and the bloating pores become larger towards the bottom of the sample. The sand- and silt-sized quartz grains also become less common. Analysis of selected grains with the SEM, reveals that they are 95% or more silica with a minor amount of iron (**Table 3**), the latter which may be related to the staining seen in thin section. The opaque inclusions are almost entirely or predominantly FeO based on SEM-EDS analysis. The matrix in sample 1515 is rich in SiO₂ with 13–20% Al₂O₃, 4–10% FeO and 5–7% K₂O. It is compositionally similar to sample 2139 in terms of its major and minor oxides. As in the other chest furnace sample, the relatively translucent needle-like phases (**Fig. 63B**), which have a bright appearance in the SEM under backscattered imaging, have a high proportion of iron (**Table 3**).

Crozzle Sample

In thin section the crozzle sample is composed of black opaque highly vesicular material with sub-angular to sub-rounded sand and silt-sized quartz grains (**Fig. 63A**). The latter range in size up to 0.88 mm and are more abundant in some part of the prepared sample than others. There are several clumps of such grains (**Fig. 63A**). The quartz grains are more angular than those in the other samples, particularly sample 2139 and have a less fractured and less iron-stained appearance in thin section. Despite this SEM-EDS suggests that they contain a minor amount (<1%) of iron, though analysis of standard BIR-1 indicates that FeO was not measured with high accuracy. The black opaque matrix material surrounding the grains is made up of needle like/dendritic opaque iron-rich material with translucent glassy beige and brown material between it (**Fig. 63B**). This glassy material is rich in SiO₂ (60–70%) with approximately 13% Al₂O₃, 15–20% FeO and 4% K₂O, suggesting that it could have originally been clay that melted. The sample is very porous with rounded vesicles reaching several centimetres. Certain vesicles upon closer inspection contain transparent glassy material with small rounded pores. This appears to be the remains of some sort of melted mineral, perhaps feldspar (**Fig. 63C**). Analysis of one such grain in the SEM reveals that it contains significant alumina content, which is in keeping with feldspar.

Interpretation

All three prepared samples are compositionally related to one another in that they are composed of sand and silt-sized quartz grains and iron inclusions in a glassy clay derived matrix with vesicles. Despite this, certain differences exist, such as the less rounded nature of the grains in the crozzle, the more iron-stained nature of these in the chest furnace samples and the more iron-rich opaque matrix of the crozzle. The two chest furnace samples are perhaps closer in composition than the crozzle, although sample 1515 has a variable composition with different layers. It is highly conceivable that the crozzle and the chest furnace samples derived from 'wheelswarf sludge'. The silicate mineral clasts resemble clastic sedimentary sand and silt particles that could have come from the disaggregation of an arenaceous or argillaceous sedimentary rock such as sandstone or siltstone, which was used as a raw material for the grinding. These commonly have quartz class with a rarer, but variable proportion of feldspar and accessory minerals such as zircon. The presence of chert is also in keeping with such rock, which can contain rock fragments of various types. It is not possible to tell in thin section or SEM where the iron-rich material originated from, though it is not inconceivable, given its high abundance, that it was concentrated in the starting material via some sort of anthropogenic process. It occurs as fine particles in some areas of sample 2139 (**Fig. 62B and D**), which may support the suggestion that it represents iron dust from grinding. The matrix of the samples is interpreted as having been made of clay, which is now mostly vitrified. This seems to have been of a common type rather than highly refractory material. It would have occurred in the 'sludge' and perhaps derived from the clay matrix component of the sandstone grinding wheels and/or clay particles in the water used during grinding.



Table 3: Selected elemental analysis of chest furnace and crozzle samples from Hollis Croft, obtained by SEM-EDS in this study. Expressed as percentage weight oxides and normalised to 100%. Accuracy given for two certified reference materials (CRMs)

Sample	Fig	Details	Na ₂ O	MgO	Al ₂ O ₃	SO ₃	SiO ₂	K ₂ O	CaO	TiO ₂	Cr ₂ O ₃	MnO	FeO	CuO	K ₂ O + FeO + CaO + MgO
2139	2D	Sand grain					99.55						0.16		
	2D	Sand grain					99.72						0.28		
	2D	Sand grain	0.23		1.79		95.43	0.34		0.21			2.01		
	2D	Iron inclusion											93.6	6.4	
	2D	Iron corrosion				2.5	2.93						92.88	0.89	
	2D	Matrix	1.32	0.47	12.8		69.63	5		0.55			10.22		15.69
	2D	Matrix	1.05	0.32	12.47		70.3	4.53		0.62			10.71		15.56
	2E	Glassy matrix	1.08	0.54	11.4		72.11	5.4		0.5			8.97		14.91
	2E	Glassy matrix	0.87	0.41	11.55		71.76	5.46		0.65			9.32		15.19
	2F	Needle-like phase		2.81	8.65		55.01	1.74		0.81	0.22	0.7	30.07		
2F	Needle-like phase	0.49	2.8	9.22		57	2.3		0.75		0.51	26.92			
2F	Matrix around needles	1.14		13.17		72.99	5.83		0.6			6.27		12.1	
2F	Matrix around needles	1.05		12.89		73.39	5.78		0.67			6.22		12	
1515	3D	Sand grain					100								
	3D	Sand grain					99.72					0.28			
	3d	Sand grain					99.65					0.35			
	3D	Matrix	1.24		19.17		68.52	7.11				0.41	3.55		10.66
	3D	Matrix	1.03	0.26	19.6		66.85	6.56				0.36	5.33		12.15
	3D	Iron inclusion		1.15			6.29	0.63					91.94		
	3E	Needle-like phase		2.83	0.59		36.64						59.94		
	3E	Needle-like phase		2.39			32.3					0.77	64.55		
	3E	Matrix around needles	1.03		13.18		69.97	5.2		0.99			9.94		15.14



Sample	Fig	Details	Na ₂ O	MgO	Al ₂ O ₃	SO ₃	SiO ₂	K ₂ O	CaO	TiO ₂	Cr ₂ O ₃	MnO	FeO	CuO	K ₂ O + FeO + CaO + MgO
	3E	Iron inclusion											100		
	3F	Sand grain					99.76						0.24		
	3F	Glassy matrix	0.82		12.91		71.03	5.8		0.6			8.85		14.65
	3F	Iron inclusion											100		
Crozzle	4D	Sand grain					99.58						0.42		
	4D	Sand grain			0.48		98.89						0.63		
	4D	Glassy material	0.33	0.5	13.03		63.89	4.92		0.29			17.03		22.45
	4D	Glassy material		0.8	13.33		71.19	4.46	0.43				9.8		15.49
	4E	Melted grain?		0.55	12.15		71.46			0.39			15.45		
	4E	Glass with needles	0.53	0.53	13.91		71.65	4.71	0.84	0.46			7.35		13.43
CRMs															
BIR-1		Certified values	1.82	9.7	15.5		47.96	0.03	13.3	0.96		0.18	8.34		
		Recorded values	1.87	9.42	15.24		48.35		14.12	1.46			9.54		
		Accuracy	2.75	2.89	1.68		0.81		6.17	52.08			14.39		
BCR-2		Certified values	3.16	3.59	13.5		54.1	1.79	7.12	2.26					
		Recorded values	3.01	3.58	13.81		56.34	2.06	7.64	2.49					
		Accuracy	4.98	0.28	2.24		3.98	13.11	6.81	9.24					

Appendix 7: Catalogue of Leather

Area B, context 1014

1. **Leather shoe bottom, brass riveted construction, right foot, adult size, incomplete.** Shoe bottom with long, pointed toe, petal-shaped tread, narrow/medium waist and part of a medium seat, much of the seat is broken and now missing. The bottom comprises a half sole with brass riveting, a separate sole waist and seat area, the straight front edge extending to lie just under the half sole, a midsole, edge packing and an insole. The sole has a groove running down each side in imitation of a stitching channel. Rivet holes run along the edge of the surviving seat area from the attachment of a separate heel, now missing. Remains of a midsole broken away across the waist lie below the tread area of the insole. A large broken hole is present in the insole and midsole, a smaller hole has been worn through at the great toe area of the sole. A fragment of the vamp lining, grain inward to the foot, survives on the left side with a small area of a double machine stitching side seam. Lining possibly sheepskin 1.58 mm thick. Incomplete. Surviving bottom length 209+ mm, tread width 78 mm, waist width 36 mm, seat width 42+mm. Surviving insole length 142+ mm, insole tread width 70 mm.
2. **Leather Oxford style shoe, brass riveted construction, right foot, adult size, incomplete.** Forepart of shoe bottom and upper, torn away obliquely across the waist so that the waist, seat and heel are now missing. Shoe bottom with blunt square toe and natural tread tapering to a medium waist. The shoe bottom components are adhering and comprise a half sole, sole, leather shank running down the centre of lower tread and waist, ?midsole, edge/packing and insole. The half sole is brass riveted, rivet holes also present at the sides of the surviving sole. The insole has a row of running stitching visible on the upper face. A large hole has been worn through the half sole, sole and midsole. Surviving sole length around 160+ mm, half sole tread width 67 mm. The upper comprises the vamp and the front openings of the quarters. The vamp has a low throat and curving sides with a double row of machine stitching to join to the front edge of the front opening. The front openings have five lace holes with black coloured metal eyelets and are lined. The vamp has a straight toe cap with simple brogue detailing comprising a row of small circular punched holes between two rows of stitching. The upper is of brown calfskin around 1.16 mm thick, lined with brown kidskin 1.32 mm thick. A coarsely woven textile adheres to the right front opening.
3. **Leather shoe bottom, brass riveted construction, right foot, child size, incomplete.** Forepart of shoe bottom with square toe and natural tread, broken away across the waist. The shoe bottom components are adhering and comprise a half sole (worn, but not heavily), sole, ?midsole and insole. The half sole and sole both have rows of brass rivets indicating that the half sole is a repair. Surviving sole length 106+ mm, half sole tread width 58 mm. Insole surviving length 97+ mm, tread width 50 mm.
4. **Leather shoe toe area, brass riveted construction, adult size, incomplete.** The edge of the blunt oval toe area of a shoe bottom, probably the sole, with a row of brass rivets and a row of iron shanks from hobnailing. The toe area of the upper adheres, in poor condition with a row of machine stitching (from a toe cap) and some pest damage visible. Leather grained ?kidskin 1.45 mm thick. Upper surviving length 44+ mm, width 75 mm.
5. **Leather shoe bottom, brass riveted construction, child size, incomplete.** Blunt oval/square toe area and a lower tread and medium waist area of shoe bottom, large hole worn through the centre of the tread so that bottom has fallen into two pieces. The bottom comprises a half sole, sole, midsole and insole. The half sole is brass riveted, the insole has stitch holes present along each side in the waist area. Small pieces of kidskin upper are present at each side of the waist area. Lower tread and waist area surviving length around 80+ mm, insole waist area 32 mm; total surviving length toe and tread/waist around 120+ mm, tread width around 50 mm.
6. **Leather shoe upper fragment, incomplete.** Rectangular fragment with a double row of machine stitched seam along one edge and single rows along two others. The grain side of the leather is delaminating and pest damage is present. Brown calfskin around 2.62 mm thick. 74+ mm by 50+ mm.
7. **Leather shoe lining fragment, incomplete.** Fragment with a machine stitched top edge with a rounded corner from a front opening. Grain side of leather delaminating, black/brown sheep/goatskin around 1 mm thick. 59+ mm by 35+mm.
8. **Leather shoe upper fragment, incomplete.** Curving fragment with a cut edge, other edges torn, probably a lining. Black/brown ?sheep/goatskin 1.25 mm thick. 67+ mm by 30+ mm.
9. **Leather shoe upper facing and matching lining.** Small rectangular facing and lining with a hemmed top edge with curving corner from a front opening with lapped seam below and a vertical closed seam. Leather brown grained sheep/goatskin (kidskin) 66 mm by 30 mm.

Area H, context 1302

10. **Leather front-lacing boot upper fragment, adult size, incomplete.** Left front opening with nine lace holes; lowest four with brass eyelets present, 3 further lace holes without eyelets, the upper two with metal hooks, one complete the other broken. The lace holes are surrounded by a single row of machine stitching but no separate facing or lining is present. Part of the convex curving, triple machine stitched lower seam survives. Leather calfskin, flesh side outward (suede) around 1.85 mm thick, now black/brown in colour. Surviving height 132+ mm, width 61+ mm.

Area E/F, context 2052

11. **Leather shoe parts, riveted construction, adult size, incomplete.** Fragment broken from the toe area of an insole with a shallow raised rib seam and small round rivet holes. Surviving length 28+ mm, width 41+ mm. Length of lasting margin of



shoe upper and matching lining from right side seat and waist area, with riveted seam, adult size. Leather worn bovine, black in colour upper around 2.35 mm thick; lining around 2.58 mm thick. Surviving length around 110+ mm, height 16+ mm.



Appendix 8: Environmental Data

Table 4: Assessment of the charred plant remains and charcoal

Context	Sample	Vol (L)	Flot (ml)	Subsample	Bioturbation proxies	Grain	Chaff	Cereal Notes	Charred Other	Notes for Table	Charcoal	Charcoal	Other
3008	3000	10	1		1%, I	-	-	-	-	-	Trace	Mature	Slag/clinker
3009	3001	10	20		A, I	-	-	-	-	-	3ml	Mature	Slag/clinker
3012	3002	10	5		<1%	-	-	-	-	-	1ml	Mature	Slag/clinker
1116	1	36	3000	25% >4m m	<1%, C, I	-	-	-	-	-	Trace	Mature	Slag/clinker
1126	2	10	100		<1%, C, I						<1ml	Mature	Slag/clinker (round hammerscale)
1024	3	40	500	25% >4m m	<1%, A*, I, F	C	-	Triticeae	A	Chenopodiaceae, Asteraceae, <i>Veronica</i> sp., Poaceae	3ml	Mature	Slag/clinker
1038	4	35	200		<1%, C, F	C	-	<i>Triticum</i> sp.	C	Viciae	25ml	Mature	Slag/clinker
1034	5	33	30		60%, A, I	-	-	-	-	-	Trace	Mature	Slag/clinker
919	6	28	150		<1%, A, I	-	-	-	B	Poaceae	1ml	Mature	Slag/clinker
1721	7	38	50		<1%, B, I	C	-	Triticeae	C	Poaceae	2ml	Mature	Slag/clinker
2018	15	10	700	25% >4m m	<1%	-	-	-	-	-	Trace	Mature	Slag/clinker
2022	16	10	2000	25% >4m m	<1%, C	-	-	-	-	-	-	-	Slag/clinker
2044	17	10	1000	25% >4m m	<1%, I	-	-	-	-	-	Trace	Mature	Slag/clinker
2052	18	20	100		60%, B, E, I	-	-	-	-	-	Trace	Mature	Slag/clinker
2147	22	36	25		<1%, I	-	-	-	-	-	Trace	Mature	Slag/clinker
2155	23	16	20		<1%	-	-	-	-	-	Trace	Mature	Slag/clinker

Key: A*** = exceptional, A** = 100+, A* = 30-99, A = >10, B = 9-5, C = <5; Bioturbation proxies: Roots (%), Uncharred seeds (scale of abundance), F = mycorrhizal fungi sclerotia, E = earthworm eggs, I = insects



Appendix 9: OASIS form

OASIS ID: wessexar1-309354

Project details

Project name	Hollis Croft, Sheffield, South Yorkshire: Strip Map and Record and Watching Brief
Short description of the project	The remains of two well-preserved mid- to late-19th century cementation furnaces were recorded. The refractory chambers ('chests') of the furnaces had been replaced, probably due to an inadequate provision of flues in the original design. Details of the furnaces were recorded, including the stoke hole entrance doors and the arrangement of 'fire bars' upon which fires were set in the underlying ash pits of the furnaces. Metallurgical analysis supported the view that the refractory lining of the chests (the 'crozzle') was derived from 'wheelswarf' produced by edge tool grinding. For the first time, it was confirmed that this crozzle extended up the interior sides of the refractory chamber. Another apparently new observation is that of the impression of the ferrous bars in the surface of the crozzle layer. Two crucible furnaces were identified. The crucible furnaces could not be closely dated. The cementation furnaces and crucible furnaces were part of separate works and there is no evidence to relate them. To the north of the cementation furnaces was an area of slightly later development characterised by the use of black ash mortar rather than lime mortar. This area included extensive cellars supporting a network of flues. Domestic housing and public houses were also investigated. The pottery assemblage was unusually broadly dated for Sheffield and represents a significant result. The clay tobacco pipe assemblage was of interest and examples of pipes were illustrated. A medieval penny was also recovered from a 19th century context.
Project dates	Start: 30-03-2017 End: 10-12-2017
Previous/future work	Yes / No
Any associated project reference codes	116361 - Contracting Unit No.
Any associated project reference codes	116360 - Contracting Unit No.
Type of project	Recording project
Site status	None
Current Land use	Vacant Land 3 - Despoiled land (contaminated derelict and ?brownfield? sites)
Monument type	CEMENTATION FURNACE Post Medieval
Monument type	CRUCIBLE FURNACE Post Medieval
Monument type	WORKER'S HOUSING Post Medieval
Monument type	PUBLIC HOUSE Post Medieval
Monument type	STEELWORKS Post Medieval
Significant Finds	COIN Medieval
Significant Finds	POTTERY Medieval
Significant Finds	POTTERY Post Medieval
Significant Finds	CLAY PIPE Post Medieval
Significant Finds	INDUSTRIAL RESIDUES Post Medieval
Investigation type	"Part Excavation", "Watching Brief"
Prompt	Direction from Local Planning Authority - PPG16

Project location

Country	England
Site location	SOUTH YORKSHIRE SHEFFIELD Hollis Croft
Postcode	S1 4BJ



Study area	0.7 Hectares
Site coordinates	SK 34990 87580 53.383642507694 -1.473892399447 53 23 01 N 001 28 26 W Point
Height OD / Depth	Min: 68m Max: 85m

Project creators

Name of Organisation	Wessex Archaeology
Project brief originator	Wessex Archaeology
Project design originator	Wessex archaeology
Project director/manager	Milica Rajic
Project supervisor	Emma Carter
Type of sponsor/funding body	Developer
Name of sponsor/funding body	Johnson Associated (UK) Ltd

Project archives

Physical Archive recipient	Museums Sheffield
Physical Contents	"Animal Bones", "Ceramics", "Glass", "Industrial", "Worked bone"
Digital Archive recipient	Museums Sheffield
Digital Contents	"none"
Digital Media available	"Images raster / digital photography", "Text"
Paper Archive recipient	Museums Sheffield
Paper Contents	"none"
Paper Media available	"Context sheet", "Diary", "Drawing", "Photograph", "Plan", "Report", "Section"

Project bibliography 1

Publication type	Grey literature (unpublished document/manuscript)
Title	Hollis Croft, Sheffield, South Yorkshire
Author(s)/Editor(s)	Tuck, A.
Author(s)/Editor(s)	Bromage, S.
Author(s)/Editor(s)	Carter, E.
Author(s)/Editor(s)	Rajic, M.
Other bibliographic details	116361.09
Date	2019
Issuer or publisher	Wessex Archaeology



Place of issue or publication	Sheffield
Description	A4 laser printed report
Entered by	Ashley Tuck (a.tuck@wessexarch.co.uk)
Entered on	15 February 2018



Appendix 10: Catalogue of early 1850s activity at Hollis Croft

The table below contains the 1851 census information for Hollis Croft supplemented with information from White's directory of 1852.

No.	Location text	Source	Forenames	Surname	Relationship	Marital status	Sex	Age	Birth year	Birth place	Company Name	Occupation	Home Address
2		1851 Census	Ann	Morris	Mother	Widow	Female	71	1780	Sheffield, Yorkshire, England		-	
2		1851 Census	John	Morris	Head	Married	Male	39	1812	Sheffield, Yorkshire, England		Cabinet Maker (Employing 1 Man)	
2		1851 Census	Martha	Morris	Wife	Married	Female	34	1817	Haxey, Lincolnshire, England		-	
2		1851 Census	Thomas	Spotswood	Apprentice	Unmarried	Male	20	1831	Sheffield, Yorkshire, England		Cabinet Maker (Apprentice)	
2		1851 Census	Thomas	Priestly	Apprentice	Unmarried	Male	15	1836	Haxey, Lincolnshire, England		Cabinet Maker (Apprentice)	
2		1852 Directory	John	Morris								Cabinet Maker	69 New Queens Street
3		1851 Census	Harriett	Rodgers	-	Unmarried	Female	45	1806	Sheffield, Yorkshire, England		-	
3		1851 Census	George	Rodgers	Head	Unmarried	Male	39	1812	Sheffield, Yorkshire, England		File Cutter	
3		1851 Census	Elizabeth	Frith	Visitor	Married	Female	29	1822	Sheffield, Yorkshire, England		-	
3		1851 Census	Henry	Rodgers	-	-	Male	22	1829	Sheffield, Yorkshire, England		File Cutter	
4		1851 Census	William	Hague	Head	Married	Male	25	1826	Hyde, Lancashire, England		Cutter	
4		1851 Census	W	Hague	Wife	Married	Female	22	1829	Ireland		-	
4		1852 Directory	Joseph	Elliot								Cutlery - razor manufacture	
5		1851 Census	Elizabeth	Crampton	Wife	Married	Female	46	1805	Sheffield, Yorkshire,		-	



No.	Location text	Source	Forenames	Surname	Relationship	Marital status	Sex	Age	Birth year	Birth place	Company Name	Occupation	Home Address
										England			
5		1851 Census	John	Crampton	Head	Married	Male	45	1806	Nottinghamshire, England		File Maker	
5		1851 Census	Fanny	Eggington	Wife	Married	Female	30	1821	Sheffield, Yorkshire, England		-	
5		1851 Census	Henry	Eggington	Head	Married	Male	30	1821	Sheffield, Yorkshire, England		Brass Turner	
5		1851 Census	George	Wilson	-	Married	Male	28	1823	Sheffield, Yorkshire, England		N K	
5		1851 Census	Rebecca	Wilson	-	Married	Female	22	1829	Sheffield, Yorkshire, England		-	
5		1851 Census	Thomas	Crampton	Son	Unmarried	Male	21	1830	Sheffield, Yorkshire, England		File Maker	
5		1851 Census	Mary	Crampton	Daughter	Unmarried	Female	18	1833	Sheffield, Yorkshire, England		-	
5		1851 Census	Catherine	Moor	Servant	-	Female	14	1837	Sheffield, Yorkshire, England		-	
5		1851 Census	Samuel	Branson	-	-	Male	13	1838	Sheffield, Yorkshire, England		Brass Turner	
5		1851 Census	John	Crampton	Son	-	Male	11	1840	-		File Cutter	
5		1851 Census	Henry	Crampton	Son	-	Male	8	1843	-		Scholar	
5		1851 Census	Willowby	Crampton	Son	-	Male	4	1847	-		-	
5		1851 Census	George	Crampton	Son	-	Male	0	1851	Sheffield, Yorkshire, England		-	
6		1851 Census	Mary	Fearne	Head	Widow	Female	69	1782	Derbyshire, England		Receiving Parish Relief	
6		1851 Census	Elizabeth	Wallace	Grand Daughter	-	Female	7	1844	Sheffield, Yorkshire, England		-	
8		1851	Joseph	Coldwell	Visitor	Married	Male	77	1774	Sheffield,		Packet Blade	



No.	Location text	Source	Forenames	Surname	Relationship	Marital status	Sex	Age	Birth year	Birth place	Company Name	Occupation	Home Address
		Census								Yorkshire, England		Gorger	
8		1851 Census	Sarah	Coldwell	Visitor	Married	Female	75	1776	Sheffield, Yorkshire, England		-	
8		1851 Census	Alexander	Watson	Head	Married	Male	35	1816	Sheffield, Yorkshire, England		Table Blade Forger	
8		1851 Census	Emma	Watson	Wife	Married	Female	34	1817	Sheffield, Yorkshire, England		File Dresser	
8		1851 Census	William	Coldwell	Visitor	Unmarried	Male	32	1819	Sheffield, Yorkshire, England		Optical Brass Turner	
8		1851 Census	Sarah	Watson	Daughter	-	Female	10	1841	Sheffield, Yorkshire, England		Scholar	
8		1851 Census	Mary	Watson	Daughter	-	Female	8	1843	Sheffield, Yorkshire, England		Scholar	
8		1851 Census	Henry	Watson	Son	-	Male	4	1847	Sheffield, Yorkshire, England		-	
8		1851 Census	Hannah	Watson	Daughter	-	Female	1	1850	Sheffield, Yorkshire, England		-	
8		1852 Directory	Charlotte	Addy								Furniture broker	
9	Court	1852 Directory	Isaac	Hall								Cutlery - table knife manufacturer	
9	Royal Oak pub	1852 Directory	Hy.	Egginstone								Advert says 'Brass turner, and manufacturer of all kinds of fishing-rod hoops, swivels, ferrules, caps etc.	
9	Yard	1852 Directory	Wm.	Sampson								Manufacturer of forks and steels	
10	Gate pub	1852	James	Bearder								Blade forger and	



No.	Location text	Source	Forenames	Surname	Relationship	Marital status	Sex	Age	Birth year	Birth place	Company Name	Occupation	Home Address
		Directory										victualler	
10		1851 Census	James	Bearder	Head	Married	Male	46	1805	Mansfield, Nottinghamshire, England		Pen Blade Forger	
10		1851 Census	Lydia	Bearder	Wife	Married	Female	45	1806	Sheffield, Yorkshire, England		-	
10		1851 Census	James W	Bearder	Son	Unmarried	Male	18	1833	Sheffield, Yorkshire, England		Pen Blade Forger	
10		1851 Census	William	Bearder	Son	Unmarried	Male	16	1835	Sheffield, Yorkshire, England		Pen Blade Forger	
10		1851 Census	Elizabeth	Bearder	Daughter	-	Female	13	1838	Sheffield, Yorkshire, England		-	
10		1851 Census	Wilfred	Bearder	Son	-	Male	11	1840	Sheffield, Yorkshire, England		Scholar	
10		1851 Census	Emma	Bearder	Daughter	-	Female	9	1842	Sheffield, Yorkshire, England		Scholar	
10		1851 Census	Sarah Ann	Bearder	Daughter	-	Female	3	1848	Sheffield, Yorkshire, England		-	
12	Court	1852 Directory	Wm.	Bosworth								Whitesmiths and bell hangers; gas fitter	
12		1851 Census	Eliza	Hides	Wife	Married	Female	35	1816	Sheffield, Yorkshire, England		-	
12		1851 Census	George	Hides	Head	Married	Male	35	1816	Sheffield, Yorkshire, England		Table Knife Manufacturer	
12		1851 Census	Annis	Hides	Daughter	Unmarried	Female	14	1837	Sheffield, Yorkshire, England		Scholar	
12		1851 Census	Henry	Hides	Son	-	Male	12	1839	Sheffield, Yorkshire, England		Table Knife Manufacturer Clerk To His Father	
12		1851	Emma	Hides	Daughter	-	Female	6	1845	Sheffield,		Scholar	



No.	Location text	Source	Forenames	Surname	Relationship	Marital status	Sex	Age	Birth year	Birth place	Company Name	Occupation	Home Address
		Census								Yorkshire, England			
12		1851 Census	George	Hides	Son	-	Male	4	1847	Sheffield, Yorkshire, England		Scholar	
12		1852 Directory	Geo. And Robert	Hides								Cutlery - table knife manufacture, pearl and ivory	
15		1851 Census	Isaac	Newton	Head	Married	Male	71	1780	Ecclesall, Yorkshire, England		Scale Presser	
15		1851 Census	Elizabeth	Newton	Wife	Married	Female	67	1784	Sheffield, Yorkshire, England		-	
15		1851 Census	James	Newton	Son	Unmarried	Male	25	1826	Ecclesall, Yorkshire, England		Saw Smith	
15		1852 Directory	Isaac	Newton								Scale presser	
16		1851 Census	Phoeby	Edwards	Wife	Married	Female	36	1815	Wednesbury, Staffordshire, England		-	
16		1851 Census	Edward	Edwards	Head	Married	Male	34	1817	Staffordshire, England		Coach Spring Maker	
16		1851 Census	Robert	Hides	Head	Married	Male	31	1820	Sheffield, Yorkshire, England		Table Knife Manufacturer	
16		1851 Census	Edith	Hides	Wife	Married	Female	30	1821	Sheffield, Yorkshire, England		-	
16		1851 Census	John	Bowler	Head	Married	Male	23	1828	Derbyshire, England		Engine Tender	
16		1851 Census	Ann	Bowler	Wife	Married	Female	22	1829	Derbyshire, England		-	
16		1851 Census	Jesse	Edwards	Daughter	-	Female	12	1839	West Bromwich, Staffordshire, England		Scholar	
16		1851 Census	Mary Ann	Edwards	Daughter	-	Female	10	1841	West Bromwich, Staffordshire, England		Scholar	



No.	Location text	Source	Forenames	Surname	Relationship	Marital status	Sex	Age	Birth year	Birth place	Company Name	Occupation	Home Address
16		1851 Census	Joseph	Edwards	Son	-	Male	7	1844	Sheffield, Yorkshire, England		Scholar	
16		1851 Census	Fanny	Hides	Daughter	-	Female	4	1847	Sheffield, Yorkshire, England		-	
16		1851 Census	Mary Ann	Bowler	Daughter	-	Female	0	1851	Sheffield, Yorkshire, England		-	
16		1851 Census	William H	Hides	Son	-	Male	0	1851	Sheffield, Yorkshire, England		-	
17		1851 Census	Ellen	Shepherd	Wife	Married	Female	42	1809	Sheffield, Yorkshire, England		-	
17		1851 Census	William	Shepherd	Head	Married	Male	40	1811	Sheffield, Yorkshire, England		Labourer	
18		1851 Census	Elizabeth	Boulding	Head	Widow	Female	61	1790	Norton, Derbyshire, England		-	
18		1851 Census	John	Bingham	Lodger	-	Male	25	1826	Sheffield, Yorkshire, England		File Cutter	
22		1851 Census	William	Hawksley	Head	Married	Male	67	1784	Owlerton, Yorkshire, England		Dealer In Horn Bone & C	
22		1851 Census	Mary	Hawksley	Wife	Married	Female	63	1788	Bradfield, Yorkshire, England		-	
22		1851 Census	John Wm	Hawksley	Son	Unmarried	Male	37	1814	Sheffield, Yorkshire, England		Manufacturer Of Powder Horns & Employing 60 Men Women & C	
22		1851 Census	Annie	Hawksley	Daughter	Unmarried	Female	29	1822	Sheffield, Yorkshire, England		-	
22		1851 Census	Hannah	Hawksley	Niece	Unmarried	Female	16	1835	Owlerton, Yorkshire, England		-	
22		1852 Directory	John	Hawkesley								Horn merchant, pearl and ivory	



No.	Location text	Source	Forenames	Surname	Relationship	Marital status	Sex	Age	Birth year	Birth place	Company Name	Occupation	Home Address
22		1852 Directory	George	Hawkesley							Long and Co.	Merchant	22 Hollis Croft
22		1852 Directory	John Wm.	Hawkesley									22 Hollis Croft
23		1852 Directory									Burgin and Wells	Coach and railway spring manufacturers, steel rollers	
26		1851 Census	John	Elvidge	Head	Married	Male	55	1796	Sheffield, Yorkshire, England		File Striker	
26		1851 Census	Mary	Elvidge	Wife	Married	Female	54	1797	Sheffield, Yorkshire, England		-	
26		1851 Census	Mary	Darby	Grand Daughter	-	Female	13	1838	Sheffield, Yorkshire, England		-	
26		1852 Directory	John	Elvidge								Shopkeeper	
28	Orange Branch pub	1852 Directory	Joseph	Allen								Joiner and victualler	
28		1851 Census	Joe	Allan	Head	Married	Male	42	1809	Sheffield, Yorkshire, England		Licensed Victualler	
28		1851 Census	Sarah	Allan	Wife	Married	Female	31	1820	Sheffield, Yorkshire, England		-	
28		1851 Census	Alice	Wardley	Servant	Unmarried	Female	20	1831	Sheffield, Yorkshire, England		General Servant	
28		1851 Census	Ann	Allan	Daughter	-	Female	4	1847	Sheffield, Yorkshire, England		Scholar	
28		1851 Census	Jane	Allan	Daughter	-	Female	3	1848	Sheffield, Yorkshire, England		Scholar	
28		1851 Census	Edwin	Allan	Son	-	Male	1	1850	Sheffield, Yorkshire, England		-	
30		1852 Directory									Beardshaw Stevenson and Co.	File Manufacturers and Steel	



No.	Location text	Source	Forenames	Surname	Relationship	Marital status	Sex	Age	Birth year	Birth place	Company Name	Occupation	Home Address
												Merchants	
32		1852 Directory	Ts. Lowry	Stephenson							Beardshaw Stevenson and Co.		32 Hollis Croft
36	Court	1852 Directory	John	Spooner								Table knife manufacturer and bone cutter	
36		1851 Census	Hannah	Lockwood	Head	Widow	Female	69	1782	Sheffield, Yorkshire, England		-	
36		1851 Census	Isaac	Hudson	Son-In-Law	Married	Male	44	1807	Sheffield, Yorkshire, England		Cutler	
36		1851 Census	Sarah	Hudson	Daughter	Married	Female	42	1809	Sheffield, Yorkshire, England		-	
36		1851 Census	Henry	Lomas	Grand Son	Unmarried	Male	21	1830	Sheffield, Yorkshire, England		Pin Blade Forger	
36		1851 Census	James	Hudson	Grand Son	-	Male	14	1837	Sheffield, Yorkshire, England		Cutler	
36		1851 Census	Maurice	Hudson	Grand Son	-	Male	7	1844	Sheffield, Yorkshire, England		Scholar	
36		1851 Census	Ann	Hudson	Grand Daughter	-	Female	3	1848	Sheffield, Yorkshire, England		-	
36		1851 Census	Lewis	Hudson	Grand Son	-	Male	1	1850	Sheffield, Yorkshire, England		-	
38		1851 Census	Ann	Winton	Wife	Married	Female	65	1786	Haxey, Lincolnshire, England		-	
38		1851 Census	Peter	Winton	Head	Married	Male	61	1790	Haxey, Lincolnshire, England		Shoe Maker	
38		1851 Census	Henry	Warburton	Lodger	Unmarried	Male	49	1802	Sheffield, Yorkshire, England		Metal Smith	
38		1851 Census	Elizabeth	Webster	Niece	Unmarried	Female	23	1828	Sheffield, Yorkshire,		Warehouseman	



No.	Location text	Source	Forenames	Surname	Relationship	Marital status	Sex	Age	Birth year	Birth place	Company Name	Occupation	Home Address
										England			
38		1851 Census	Mary	Winton	Daughter	Unmarried	Female	19	1832	Sheffield, Yorkshire, England		-	
38		1852 Directory	Peter	Winter								Shoemaker	
40		1851 Census	William	Wing	Head	Married	Male	60	1791	Sheffield, Yorkshire, England		Steel Refiner	
40		1851 Census	Harriet	Wing	Wife	Married	Female	53	1798	Sheffield, Yorkshire, England		-	
40		1851 Census	Thomas	Wing	Son	Unmarried	Male	16	1835	Sheffield, Yorkshire, England		Pupil To A Teacher	
40		1851 Census	William	Wing	Son	-	Male	12	1839	Sheffield, Yorkshire, England		Scholar	
40		1852 Directory	Mr. Wm.	Wing									
42		1851 Census	Mary	Slack	Wife	Married	Female	31	1820	Sheffield, Yorkshire, England		-	
42		1851 Census	William	Slack	Head	Married	Male	29	1822	Sheffield, Yorkshire, England		File Smith Hardener	
42		1851 Census	Mary Ann	Slack	Daughter	-	Female	7	1844	Sheffield, Yorkshire, England		-	
42		1851 Census	Harriet	Slack	Daughter	-	Female	0	1851	Sheffield, Yorkshire, England		-	
44		1851 Census	Elizabeth	Moles	Wife	Married	Female	32	1819	Shields, Northumberland, England		-	
44		1851 Census	George	Moles	Head	Married	Male	29	1822	Northumberland, England		Shoemaker	
44		1851 Census	Henry	Denton	Lodger	Unmarried	Male	19	1832	Rushden, Northamptonshire, England		Shoemaker	
46		1851 Census	George	Parramore	Head	Married	Male	48	1803	Sheffield, Yorkshire,		Spring Knife Cutler	



No.	Location text	Source	Forenames	Surname	Relationship	Marital status	Sex	Age	Birth year	Birth place	Company Name	Occupation	Home Address
										England			
46		1851 Census	Grace	Parramore	Wife	Married	Female	47	1804	Dronfield, Derbyshire, England		-	
46		1851 Census	Mary	Townrow	Daughter	Married	Female	24	1827	Sheffield, Yorkshire, England		Silver Platers Wife	
46		1851 Census	Sarah	Parramore	Daughter	Unmarried	Female	15	1836	Sheffield, Yorkshire, England		Hair Weaver	
46		1851 Census	George	Parramore	Son	-	Male	13	1838	Sheffield, Yorkshire, England		Spring Knife Cutler	
46		1851 Census	William	Parramore	Son	-	Male	10	1841	Derbyshire, England		Errand Boy	
46		1851 Census	Henry	Parramore	Son	-	Male	6	1845	Sheffield, Yorkshire, England		-	
48		1851 Census	Isaac	Hall	Head	Married	Male	46	1805	Eyam, Derbyshire, England		Spring Knife Cutler	
48		1851 Census	Emma	Hall	Wife	Married	Female	34	1817	Sheffield, Yorkshire, England		-	
48		1851 Census	Albert	Hall	Son	-	Male	9	1842	Sheffield, Yorkshire, England		-	
48		1851 Census	Martha	Hall	Daughter	-	Female	5	1846	Sheffield, Yorkshire, England		-	
48		1851 Census	William	Hall	Son	-	Male	2	1849	Sheffield, Yorkshire, England		-	
48		1852 Directory	Isaac	Hall								Spring knife manufacturer	
50		1851 Census	James	Stevenson	Son	Unmarried	Male	17	1834	Sheffield, Yorkshire, England		File Cutter	
50		1851 Census	Joseph	Stevenson	Son	Unmarried	Male	15	1836	Sheffield, Yorkshire, England		File Cutter	
50		1852									Joseph	File and steel	Glossop Road



No.	Location text	Source	Forenames	Surname	Relationship	Marital status	Sex	Age	Birth year	Birth place	Company Name	Occupation	Home Address
		Directory									Stevenson and Co.	manufacturers	
51		1851 Census	Thomas	Wells	Head	-	Male	51	1800	Heath, Derbyshire, England		Bricklayer	
51		1851 Census	Sarah	Wells	Wife	-	Female	42	1809	Sheffield, Yorkshire, England		-	
51		1851 Census	William	Shirtcliff	Lodger	Unmarried	Male	23	1828	Sheffield, Yorkshire, England		Table Knife Hafter	
51		1852 Directory	George	Rhodes								Hair seating, curled hair and sieve manufacturer and beerhouse	
52		1851 Census	Hannah	Coope	Wife	Married	Female	52	1799	Sheffield, Yorkshire, England		Midwife	
52		1851 Census	William	Coope	Head	Married	Male	47	1804	Nottinghamshire, England		Tailor	
52		1851 Census	Robert	Robinson	Lodger	Married	Male	41	1810	Lancashire, England		Coach Mks Niceman [as transcribed]	
52		1851 Census	Lucy	Warren	Lodger	Unmarried	Female	25	1826	Derbyshire, England		Striker	
52		1851 Census	Thomas	Warren	Lodger	Unmarried	Male	20	1831	Derbyshire, England		Blacksmith Striker	
52		1851 Census	Francis J	Coope	Son	-	Male	12	1839	Sheffield, Yorkshire, England		Errand Boy	
52		1852 Directory									Joseph Stevenson and Co.		
53		1851 Census	Edwin	Roper	Head	Married	Male	26	1825	Greasbrough, Yorkshire, England		Brick Maker	
53		1851 Census	Ann	Roper	Wife	Married	Female	21	1830	Wadsley, Yorkshire, England		-	
53		1851 Census	John H	Roper	Son	-	Male	3	1848	Sheffield, Yorkshire, England		-	



No.	Location text	Source	Forenames	Surname	Relationship	Marital status	Sex	Age	Birth year	Birth place	Company Name	Occupation	Home Address
53		1851 Census	Mary E	Roper	Daughter	-	Female	1	1850	Sheffield, Yorkshire, England		-	
53		1852 Directory	John	Travis								Shopkeeper	
53		1852 Directory	Wm.	Coope								Tailors and drapers	
55		1851 Census	Harriet	Staniforth	Wife	Married	Female	32	1819	Sheffield, Yorkshire, England		Fork Filer	
55		1851 Census	Charles	Staniforth	Head	Married	Male	32	1819	Yorkshire, England		Pen Knife Cutler	
55		1851 Census	Mary	Staniforth	Daughter	-	Female	12	1839	Sheffield, Yorkshire, England		Warehouse Girl	
55		1851 Census	Sanson	Staniforth	Daughter	-	Female	10	1841	Sheffield, Yorkshire, England		-	
55		1851 Census	Hannah	Staniforth	Daughter	-	Female	7	1844	Sheffield, Yorkshire, England		Scholar	
55		1851 Census	Emma	Staniforth	Daughter	-	Female	5	1846	Sheffield, Yorkshire, England		-	
55		1851 Census	Eliza	Staniforth	Daughter	-	Female	3	1848	Sheffield, Yorkshire, England		-	
55		1852 Directory	Charles	Staniforth									
56		1851 Census	Andrew	McNamara	Head	Married	Male	47	1804	Ireland		Mason	
56		1851 Census	Mary	McNamara	Wife	Married	Female	39	1812	Nottingham, Nottinghamshire, England		-	
56		1851 Census	Thomas	McNamara	Son	Unmarried	Male	15	1836	Sheffield, Yorkshire, England		Cutler	
56		1851 Census	William	McNamara	Son	-	Male	14	1837	Sheffield, Yorkshire, England		Cutler	
56		1851 Census	Mary J	McNamara	Daughter	-	Female	9	1842	Sheffield, Yorkshire, England		-	



No.	Location text	Source	Forenames	Surname	Relationship	Marital status	Sex	Age	Birth year	Birth place	Company Name	Occupation	Home Address
56		1852 Directory	James	Staniforth								Spring knife Manufacturer and Beerhouse	
57	Cock Yard	1851 Census	Joseph	Turner	Head	Widower	Male	67	1784	Sheffield, Yorkshire, England		Cutler	
57	Cock Yard	1851 Census	John	Caldmen	Nephew	Married	Male	37	1814	Sheffield, Yorkshire, England		Cutler	
57	Cock Yard	1851 Census	Lydia	Caldmen	Niece	Married	Female	35	1816	Sheffield, Yorkshire, England		-	
57	Cock Yard	1851 Census	John	Traves	Head	Married	Male	29	1822	Doncaster, Yorkshire, England		Bricklayer	
57	Cock Yard	1851 Census	Ann	Traves	Wife	Married	Female	28	1823	Selby, Yorkshire, England		-	
57	Cock Yard	1851 Census	Thomas	Caldmen	Nephew	-	Male	11	1840	Sheffield, Yorkshire, England		Cutler	
57	Cock Yard	1851 Census	Rosa Am	Traves	Daughter	-	Female	2	1849	Doncaster, Yorkshire, England		-	
57		1851 Census	William	Unwin	Head	Married	Male	45	1806	Sheffield, Yorkshire, England		File Maker	
57		1851 Census	Elizabeth	Unwin	Wife	Married	Female	43	1808	Derbyshire, England		-	
57		1851 Census	Margaret	Unwin	Daughter	-	Female	16	1835	Sheffield, Yorkshire, England		-	
57		1851 Census	Joseph	Parker	Visitor	-	Male	11	1840	Sheffield, Yorkshire, England		N K	
57		1851 Census	Elizabeth	Unwin	Daughter	-	Female	8	1843	Sheffield, Yorkshire, England		-	
58		1851 Census	Charles	Mappin	Head	Married	Male	58	1793	Sheffield, Yorkshire, England		File Cutter	
58		1851 Census	Hannah	Mappin	Wife	Married	Female	56	1795	Sheffield, Yorkshire,		-	



No.	Location text	Source	Forenames	Surname	Relationship	Marital status	Sex	Age	Birth year	Birth place	Company Name	Occupation	Home Address
										England			
58		1851 Census	Selina	Mappin	Daughter	Unmarried	Female	20	1831	Sheffield, Yorkshire, England		Dress Maker	
58		1851 Census	Walter	Mappin	Son	Unmarried	Male	18	1833	Sheffield, Yorkshire, England		File Forger	
58		1851 Census	Frederick	Mappin	Son	-	Male	13	1838	Sheffield, Yorkshire, England		File Cutter	
58		1852 Directory	Mrs.	Mappin								Dressmaker	
58		1852 Directory	Charles (j.)	Mappin									
59	Cock pub	1852 Directory	John	Mucklow								File grinder and victualler	
59		1851 Census	John	Mucklow	Head	Married	Male	40	1811	Warwickshire, England		File Grinder	
59		1851 Census	Belinda	Mucklow	Wife	Married	Female	39	1812	Bridgnorth, Yorkshire, England		-	
59		1851 Census	Thomas	Mucklow	Son	-	Male	20	1831	Sheffield, Yorkshire, England		File Grinder	
59		1851 Census	Joseph	Mucklow	Son	-	Male	17	1834	Sheffield, Yorkshire, England		File Grinder	
59		1851 Census	Mary	Mucklow	Daughter	-	Female	15	1836	Sheffield, Yorkshire, England		-	
59		1851 Census	William	Mucklow	Son	-	Male	10	1841	Sheffield, Yorkshire, England		-	
60		1851 Census	Ann	Whitlaw	Wife	Married	Female	60	1791	Doncaster, Yorkshire, England		-	
60		1851 Census	Christopher	Whitlaw	Head	Married	Male	50	1801	Newcastle on Tyne, Northumberland, England		Tailor	
61	Court	1851 Census	Enoch	Shipman	Head	Married	Male	39	1812	-		Table Knife Cutler	



No.	Location text	Source	Forenames	Surname	Relationship	Marital status	Sex	Age	Birth year	Birth place	Company Name	Occupation	Home Address
61	Court	1851 Census	Mary	Shipman	Wife	Married	Female	31	1820	-		Assistant	
61		1851 Census	Elizabeth	Smith	Wife	Married	Female	58	1793	Masbrough, Yorkshire, England		-	
61		1851 Census	William	Smith	Head	Married	Male	46	1805	Yorkshire, England		File Maker	
61		1851 Census	Luke	Hanson	Head	Married	Male	41	1810	Richmond, Yorkshire, England		Stone Grate Fitter	
61		1851 Census	Ann	Hanson	Wife	Married	Female	35	1816	Elsicar, Yorkshire, England		-	
61		1851 Census	Matthew	Sellars	Son-In-Law	Unmarried	Male	34	1817	Derbyshire, England		Inn Maker	
61		1851 Census	George	Smith	Son	Unmarried	Male	23	1828	Masbrough, Yorkshire, England		File Maker	
61		1851 Census	Edmund	Sellars	Son-In-Law	Unmarried	Male	23	1828	Derbyshire, England		Inn Maker	
61		1851 Census	Charles	Smith	Son	Unmarried	Male	19	1832	Masbrough, Yorkshire, England		Brant Bit Maker	
61		1851 Census	Jane	Smith	Niece	Unmarried	Female	17	1834	Masbrough, Yorkshire, England		-	
61		1851 Census	Joseph	Smith	Son	Unmarried	Male	17	1834	Yorkshire, England		File Maker	
61		1851 Census	Elizabeth	Hanson	Daughter	-	Female	7	1844	Sheffield, Yorkshire, England		-	
61		1851 Census	Samuel	Hanson	Son	-	Male	6	1845	Sheffield, Yorkshire, England		-	
61		1851 Census	Mary	Hanson	Daughter	-	Female	4	1847	Sheffield, Yorkshire, England		-	
61		1851 Census	John	Hanson	Son	-	Male	3	1848	Sheffield, Yorkshire, England		-	
62		1851 Census	Elizabeth	Stanforth	Wife	Married	Female	41	1810	Sheffield, Yorkshire, England		-	



No.	Location text	Source	Forenames	Surname	Relationship	Marital status	Sex	Age	Birth year	Birth place	Company Name	Occupation	Home Address
62		1851 Census	James	Stanforth	Head	Married	Male	41	1810	Brightside, Yorkshire, England		Cutler (Employing 2 Men)	
62		1851 Census	James	Stanforth	Son	Unmarried	Male	19	1832	Sheffield, Yorkshire, England		Saw Maker	
62		1851 Census	Maria	Stanforth	Daughter	Unmarried	Female	18	1833	Sheffield, Yorkshire, England		-	
62		1851 Census	Selina	Stanforth	Daughter	-	Female	9	1842	Sheffield, Yorkshire, England		-	
63		1851 Census	George	Rhodes	Head	Married	Male	45	1806	Barnsley, Yorkshire, England		Hair Setting Manufacturer	
63		1851 Census	Elizabeth	Rhodes	Wife	Married	Female	42	1809	Barnsley, Yorkshire, England		-	
63		1851 Census	Joseph	Buller	Son-In-Law	Married	Male	23	1828	Sheffield, Yorkshire, England		Brick Maker	
63		1851 Census	Caroline	Buller	Daughter-In-Law	Married	Female	22	1829	Barnsley, Yorkshire, England		-	
63		1851 Census	George W	Rhodes	Son	-	Male	9	1842	Sheffield, Yorkshire, England		Scholar	
63		1851 Census	Emily	Buller	-	-	Female	0	1851	Sheffield, Yorkshire, England		-	
63		1852 Directory	Enoch	Beal								Fine scissor and shear manufacturer	
63		1852 Directory									Lyall Joshua and Son	Horn presser	97 Peacroft
64		1851 Census	Lydia	Kattrick	Wife	Married	Female	29	1822	Sheffield, Yorkshire, England		-	
64		1851 Census	William	Kattrick	Head	Married	Male	27	1824	Ireland		Cutler	
64		1851 Census	Henry	Kattrick	Son	-	Male	1	1850	Sheffield, Yorkshire, England		-	



No.	Location text	Source	Forenames	Surname	Relationship	Marital status	Sex	Age	Birth year	Birth place	Company Name	Occupation	Home Address
64		1852 Directory	Wm.	Katrick (also given as Catrick)								Shopkeeper	
66		1851 Census	Sarah	Denton	Wife	Married	Female	64	1787	Yorkshire, England		-	
66		1851 Census	James	Denton	Lodger	Married	Male	62	1789	Yorkshire, England		Silver Plater	
66		1851 Census	Charles	Webster	Head	Married	Male	43	1808	Sheffield, Yorkshire, England		Bone Scale Cutter	
66		1851 Census	Elizabeth	Webster	Wife	Married	Female	36	1815	Worksop, Nottinghamshire, England		-	
66		1851 Census	Joseph	Oates	Son-In-Law	Unmarried	Male	12	1839	Sheffield, Yorkshire, England		Cutler	
66		1851 Census	William	Smith	Son-In-Law	-	Male	7	1844	Sheffield, Yorkshire, England		Scholar	
66		1851 Census	Sarah	Webster	Daughter	-	Female	2	1849	Sheffield, Yorkshire, England		-	
67		1851 Census	Joseph	Fell	Head	Married	Male	41	1810	Sheffield, Yorkshire, England		Table Blade Grindr	
67		1851 Census	Amelia	Fell	Wife	Married	Female	38	1813	Sheffield, Yorkshire, England		-	
67		1851 Census	Mary	Fell	Daughter	-	Female	6	1845	Sheffield, Yorkshire, England		Scholar	
67		1851 Census	Richard H	Fell	Son	-	Male	3	1848	Sheffield, Yorkshire, England		-	
68		1851 Census	Francis	Constantine	Head	Married	Male	57	1794	Sheffield, Yorkshire, England		Saw Maker (Employing 10 Men)	
68		1851 Census	Ann	Constantine	Wife	Married	Female	50	1801	Sheffield, Yorkshire, England		-	
68		1851 Census	Charles	Constantine	Son	Unmarried	Male	20	1831	Sheffield, Yorkshire, England		Saw Maker	



No.	Location text	Source	Forenames	Surname	Relationship	Marital status	Sex	Age	Birth year	Birth place	Company Name	Occupation	Home Address
68		1851 Census	Ann	Wright	Servant	Unmarried	Female	16	1835	Sheffield, Yorkshire, England		General Servant	
68		1851 Census	Ann	Constantine	Daughter	-	Female	7	1844	Sheffield, Yorkshire, England		-	
68		1852 Directory	Henry and Charles	Constantine								Calico web saw manufacturers	
69		1851 Census	Elizabeth	Wilson	Wife	Married	Female	68	1783	Thorne, Yorkshire, England		-	
69		1851 Census	James	Wilson	Head	Married	Male	66	1785	Sheffield, Yorkshire, England		Gentleman	
69		1851 Census	Sarah	Senior	-	-	Female	17	1834	Sheffield, Yorkshire, England		-	
69		1852 Directory	Mr. James	Wilson									
70		1851 Census	William	Constantine	Uncle	Widower	Male	65	1786	Settle, Yorkshire, England		Fender Filer	
70		1851 Census	Hannah	Constantine	Wife	Married	Female	37	1814	Sheffield, Yorkshire, England		-	
70		1851 Census	Henry	Constantine	Head	Married	Male	34	1817	Leek, Staffordshire, England		Saw Maker	
70		1851 Census	Fanny	Parkes	Niece	-	Female	8	1843	Leek, Staffordshire, England		-	
70		1851 Census	Isabella	Constantine	Daughter	-	Female	4	1847	Sheffield, Yorkshire, England		-	
70		1851 Census	Joseph	Constantine	Son	-	Male	2	1849	Sheffield, Yorkshire, England		-	
70		1851 Census	Henry W	Constantine	Son	-	Male	0	1851	Sheffield, Yorkshire, England		-	
71		1851 Census	Ann	Johnson	Wife	Married	Female	61	1790	Yorkshire, England		-	



No.	Location text	Source	Forenames	Surname	Relationship	Marital status	Sex	Age	Birth year	Birth place	Company Name	Occupation	Home Address
71		1851 Census	William	Johnson	Head	Married	Male	59	1792	Sheffield, Yorkshire, England		Razor Smith	
71		1851 Census	Lizzy	Knight	-	Married	Female	39	1812	Yorkshire, England		-	
71		1851 Census	Francis	Knight	Nephew	Married	Male	36	1815	-		National School Master	
71		1851 Census	Francis	Knight	-	-	Male	11	1840	Sheffield, Yorkshire, England		Scholar	
71		1851 Census	George	Knight	-	-	Male	9	1842	Lincolnshire, England		Scholar	
71		1851 Census	William	Knight	-	-	Male	5	1846	Oldham, Lancashire, England		Scholar	
71		1851 Census	Henry	Knight	-	-	Male	2	1849	Royton, Lancashire, England		-	
72		1851 Census	Jane	Fagan	Wife	Married	Female	43	1808	Sheffield, Yorkshire, England		-	
72		1851 Census	John	Fagan	Head	Married	Male	38	1813	Ireland		Shoe Maker	
72		1851 Census	Mary	Fagan	Daughter	-	Female	11	1840	Sheffield, Yorkshire, England		Scholar	
72		1851 Census	Jane	Fagan	Daughter	-	Female	8	1843	Sheffield, Yorkshire, England		Scholar	
73		1851 Census	Betty	Henderson	Head	Married	Female	69	1782	Sheffield, Yorkshire, England		Shop Keeper	
73		1851 Census	Henry	Turton	Son-In-Law	Married	Male	31	1820	Sheffield, Yorkshire, England		Table Knife Hafter	
73		1851 Census	Jane	Turton	Daughter	Married	Female	28	1823	Sheffield, Yorkshire, England		-	
73		1851 Census	Henry	Turton	Grand Son	-	Male	15	1836	Sheffield, Yorkshire, England		Scholar	
74	Black Bull pub	1852 Directory	John	Waddington								Victualler	



No.	Location text	Source	Forenames	Surname	Relationship	Marital status	Sex	Age	Birth year	Birth place	Company Name	Occupation	Home Address
74		1851 Census	John	Waddington	Head	Married	Male	56	1795	Newark, Nottinghamshire, England		Licensed Victualler	
74		1851 Census	Betty	Waddington	Wife	Married	Female	43	1808	Sheffield, Yorkshire, England		-	
75		1851 Census	William	Thompson	Head	Married	Male	47	1804	Sheffield, Yorkshire, England		Warehouseman	
75		1851 Census	Mary	Thompson	Wife	Married	Female	43	1808	Sheffield, Yorkshire, England		-	
75		1851 Census	Ellen	Thompson	Daughter	Unmarried	Female	20	1831	Sheffield, Yorkshire, England		-	
75		1851 Census	William	Thompson	Son	Unmarried	Male	17	1834	Sheffield, Yorkshire, England		Scissor Smith Apprentice	
75		1851 Census	Hannah	Thompson	Daughter	-	Female	15	1836	Sheffield, Yorkshire, England		-	
75		1851 Census	Thomas	Thompson	Son	-	Male	12	1839	Sheffield, Yorkshire, England		Errand Boy	
76		1851 Census	John	Haywood	Head	Married	Male	33	1818	Sheffield, Yorkshire, England		File Forger	
76		1851 Census	Maria	Haywood	Wife	Married	Female	26	1825	Oughtibridge, Yorkshire, England		-	
76		1851 Census	Ann	Wittam	Servant	-	Female	10	1841	Oughtibridge, Yorkshire, England		General Servant	
76		1851 Census	Walter	Haywood	Son	-	Male	6	1845	Sheffield, Yorkshire, England		-	
76		1851 Census	Timothy	Haywood	Son	-	Male	5	1846	Sheffield, Yorkshire, England		-	
76		1851 Census	Elizabeth	Haywood	Daughter	-	Female	4	1847	Sheffield, Yorkshire, England		-	



No.	Location text	Source	Forenames	Surname	Relationship	Marital status	Sex	Age	Birth year	Birth place	Company Name	Occupation	Home Address
76		1851 Census	Maria	Haywood	Daughter	-	Female	2	1849	Sheffield, Yorkshire, England		-	
76		1851 Census	Mary Ann	Haywood	Daughter	-	Female	0	1851	Sheffield, Yorkshire, England		-	
76		1852 Directory	Wm.	Whitehead								Traveller	
77		1851 Census	David	Gill	Lodger	Married	Male	64	1787	Sheffield, Yorkshire, England		Chelsea Pensioner	
77		1851 Census	Elizabeth	Gill	Lodger	Married	Female	56	1795	Sheffield, Yorkshire, England		-	
77		1851 Census	Samuel	Gill	Head	Married	Male	26	1825	Sheffield, Yorkshire, England		Cutter (Master) Employ 7 Men	
77		1851 Census	Ellen	Gill	Wife	Married	Female	23	1828	Sheffield, Yorkshire, England		-	
77		1851 Census	Virden	Gill	Lodger	Unmarried	Male	15	1836	Sheffield, Yorkshire, England		-	
77		1851 Census	Mark	Threadgold	Apprentice	-	Male	14	1837	Yorkshire, England		-	
77		1851 Census	Mary Ann	Gill	Daughter	-	Female	5	1846	Sheffield, Yorkshire, England		Scholar	
77		1851 Census	Malinda	Gill	Daughter	-	Female	3	1848	Sheffield, Yorkshire, England		-	
77		1851 Census	Samuel	Gill	Son	T O	Male	1	1850	Sheffield, Yorkshire, England		-	
77		1852 Directory	Geo. and James	Oxley								Butcher's steel manufacturers	
77		1852 Directory	Samuel	Gill								Pen and pocketknife manufacturers	
80		1851 Census	Sarah	Goodlad	Wife	Married	Female	47	1804	Sheffield, Yorkshire, England		-	



No.	Location text	Source	Forenames	Surname	Relationship	Marital status	Sex	Age	Birth year	Birth place	Company Name	Occupation	Home Address
80		1851 Census	George	Goodlad	Head	Married	Male	43	1808	Sheffield, Yorkshire, England		Blade Striker	
80		1851 Census	George	Goodlad	Son	Unmarried	Male	21	1830	Sheffield, Yorkshire, England		Blade Grinder	
81		1851 Census	Elizabeth	Marsh	Head	Married	Female	48	1803	Sheffield, Yorkshire, England		-	
81		1851 Census	Joseph	Marsh	Son	Unmarried	Male	24	1827	Sheffield, Yorkshire, England		Table Knife Hafter	
81		1851 Census	James	McGowan	Apprentice	Unmarried	Male	17	1834	Glossop, Derbyshire, England		Table Knife Hafter	
83		1852 Directory	Wm.	Howe								Table knife manufacturer	
84		1852 Directory	Matthew	Barnes								Spring knife cutler	
85		1851 Census	Joseph	Gaunt	Head	Married	Male	58	1793	Sheffield, Yorkshire, England		Stag Horn Cutler Employ 2 Men	
85		1851 Census	Ann	Gaunt	Wife	Married	Female	42	1809	Sheffield, Yorkshire, England		-	
85		1851 Census	Ann	Gaunt	Daughter	-	Female	20	1831	Sheffield, Yorkshire, England		-	
85		1851 Census	John	Gaunt	Son	-	Male	14	1837	Sheffield, Yorkshire, England		File Cutter	
85		1851 Census	Thomas	Gaunt	Son	-	Male	11	1840	Sheffield, Yorkshire, England		Scholar	
85		1851 Census	Ellen	Gaunt	Daughter	-	Female	10	1841	Sheffield, Yorkshire, England		Scholar	
85		1851 Census	Robert	Gaunt	Son	-	Male	6	1845	Sheffield, Yorkshire, England		Scholar	
85		1852 Directory	Samuel	Lamb								Shoemaker	8 Kenyon Street



No.	Location text	Source	Forenames	Surname	Relationship	Marital status	Sex	Age	Birth year	Birth place	Company Name	Occupation	Home Address
86		1851 Census	John	Brook	Head	Married	Male	22	1829	Sheffield, Yorkshire, England		Plane Maker	
86		1851 Census	Mary Ann	Brook	Wife	Married	Female	21	1830	Dore, Derbyshire, England		-	
87		1852 Directory	Joseph	Gaunt								Cutters - bone hafts and scales	
88		1851 Census	Mathew	Barnes	Head	Married	Male	29	1822	Sheffield, Yorkshire, England		Cutler	
88		1851 Census	Amelia	Barnes	Wife	Married	Female	27	1824	Sheffield, Yorkshire, England		-	
88		1851 Census	William	Ogilsby	Apprentice	Unmarried	Male	16	1835	Woolwich, Kent, England		Cutler (Apprentice)	
88		1851 Census	Elizabeth	Barnes	Daughter	-	Female	9	1842	Sheffield, Yorkshire, England		-	
88		1851 Census	Emma	Barnes	Daughter	-	Female	6	1845	Sheffield, Yorkshire, England		-	
88		1851 Census	Josiah	Barnes	Son	-	Male	3	1848	Sheffield, Yorkshire, England		-	
88		1851 Census	William H	Barnes	Son	-	Male	0	1851	Sheffield, Yorkshire, England		-	
90		1851 Census	Mary Ann	Peet	Wife	Married	Female	27	1824	Birmingham, Warwickshire, England		-	
90		1851 Census	Henry	Peet	Head	Married	Male	25	1826	Mansfield, Nottinghamshire, England		Brass Caster	
90		1851 Census	Henry	Peet	Son	-	Male	1	1850	Sheffield, Yorkshire, England		-	
91	Yard	1852 Directory	John	Stones								Cutters and pressers of horn hafts, scales etc.	
91	Yard	1852 Directory	Samuel	Cottrell								Horn Presser	Brocco Street



No.	Location text	Source	Forenames	Surname	Relationship	Marital status	Sex	Age	Birth year	Birth place	Company Name	Occupation	Home Address
91	Yard	1852 Directory	Thomas	Hutchinson								Horn Presser	Westbank
91	Yard	1852 Directory	Wm.	Ratcliffe								Scale Presser	43 Pitt Street
91		1851 Census	Mary	Rodgers	Wife	Married	Female	51	1800	Sheffield, Yorkshire, England		-	
91		1851 Census	Charles	Rodgers	Head	Married	Male	51	1800	Sheffield, Yorkshire, England		Mark Maker	
91		1851 Census	Ann	Rodgers	Daughter	Unmarried	Female	23	1828	Sheffield, Yorkshire, England		-	
91		1851 Census	Elizabeth	Rodgers	Daughter	Unmarried	Female	20	1831	Sheffield, Yorkshire, England		Straw Bonnet Maker	
91		1851 Census	William	Rodgers	Son	-	Male	13	1838	Sheffield, Yorkshire, England		Scholar	
91		1852 Directory	Charles	Rodgers								Mark, figure and letter maker	
92		1851 Census	John	Read	Head	Married	Male	58	1793	Lincolnshire, England		Blacksmith	
92		1851 Census	Elizabeth	Read	Wife	Married	Female	44	1807	Bempton, Yorkshire, England		-	
92		1851 Census	Mary Ann	Read	Daughter	Unmarried	Female	19	1832	Yorkshire, England		Dressmaker	
92		1851 Census	Ann	Webster	Servant	Unmarried	Female	13	1838	Sheffield, Yorkshire, England		General Servant	
92		1851 Census	Jane	Partridge	Visitor	-	Female	10	1841	Sheffield, Yorkshire, England		Scholar	
92		1852 Directory	Stephen	Partridge								Awl blade, brad awl, sack needle, show knife etc. manufacturer	
93	(?43)	1851 Census	Elizabeth	Wells	Sister	Unmarried	Female	41	1810	Sheffield, Yorkshire, England		-	



No.	Location text	Source	Forenames	Surname	Relationship	Marital status	Sex	Age	Birth year	Birth place	Company Name	Occupation	Home Address
93	(?43)	1851 Census	Harriett	Cooper	Wife	Married	Female	39	1812	Sheffield, Yorkshire, England		-	
93	(?43)	1851 Census	Henry	Cooper	Head	Married	Male	37	1814	Yorkshire, England		Druggest	
93	(?43)	1851 Census	Eliza	Cooper	Daughter	-	Female	14	1837	Sheffield, Yorkshire, England		Scholar	
94	also given as 92 Court	1852 Directory	Jph. And John	Dyson								Cutlery - scissor and shear manufacturer	
94		1851 Census	Jane	Partridge	Wife	Married	Female	42	1809	Walsall, Staffordshire, England		-	
94		1851 Census	Stephen	Partridge	Head	Married	Male	42	1809	Bloxwich, Staffordshire, England		Awl Blade Manufacturer (Employing 10 Men & 2 Women)	
94		1851 Census	Samuel	Keyworth	Apprentice	Unmarried	Male	20	1831	London, Middlesex, England		Awl Blade Maker (Apprentice)	
94		1851 Census	James	Wand	Apprentice	Unmarried	Male	20	1831	Sheffield, Yorkshire, England		Awl Blade Maker (Apprentice)	
94		1851 Census	Catherine	Partridge	Daughter	Unmarried	Female	17	1834	Walsall, Staffordshire, England		-	
94		1851 Census	Henry	Lee	Apprentice	Unmarried	Male	17	1834	-		Awl Blade Maker (Apprentice)	
94		1851 Census	Sarah Ann	Partridge	Daughter	Unmarried	Female	16	1835	Walsall, Staffordshire, England		-	
94		1851 Census	Thomas	Partridge	Son	-	Male	9	1842	Sheffield, Yorkshire, England		Scholar	
94		1851 Census	Eliza	Partridge	Daughter	-	Female	5	1846	Sheffield, Yorkshire, England		Scholar	
95		1851 Census	Elizabeth	Watkins	Head	Married	Female	45	1806	Mitton, Lincolnshire, England		-	



No.	Location text	Source	Forenames	Surname	Relationship	Marital status	Sex	Age	Birth year	Birth place	Company Name	Occupation	Home Address
95		1851 Census	Samuel	Watkins	Son	Unmarried	Male	23	1828	Sheffield, Yorkshire, England		Pen Blade Grinder	
95		1851 Census	Eliza	Watkins	Daughter	Unmarried	Female	18	1833	Sheffield, Yorkshire, England		Dress Maker	
95		1851 Census	Elizabeth	Watkins	Daughter	-	Female	15	1836	Sheffield, Yorkshire, England		Screw Turner	
95		1851 Census	Emily	Watkins	Daughter	-	Female	8	1843	Sheffield, Yorkshire, England		-	
95		1852 Directory	Eliza.	Watkins								Dressmaker	
97		1851 Census	Dinah	Damms	Wife	Married	Female	41	1810	Everton, Nottinghamshire, England		-	
97		1851 Census	Samuel	Damms	Head	Married	Male	34	1817	Derbyshire, England		Steel Melter	
97		1851 Census	Ann W	Fox	Daughter	-	Female	19	1832	Everton, Nottinghamshire, England		Screw Turner	
97		1851 Census	George W	Fox	Son	-	Male	15	1836	Sheffield, Yorkshire, England		Cutter	
97		1851 Census	Godfrey W	Fox	Son	-	Male	13	1838	Sheffield, Yorkshire, England		Errand Boy	
97		1851 Census	John	Fox	Son	-	Male	10	1841	Sheffield, Yorkshire, England		Errand Boy	
97		1851 Census	Emily	Fox	Daughter	-	Female	8	1843	Sheffield, Yorkshire, England		-	
97		1851 Census	Lucy	Fox	Grand Daughter	-	Female	0	1851	Sheffield, Yorkshire, England		-	
98		1851 Census	Ralph	Hague	Head	Married	Male	36	1815	Dore, Derbyshire, England		Table Blade Forger	
98		1851 Census	Hannah	Hague	Wife	Married	Female	35	1816	Derbyshire, England		-	



No.	Location text	Source	Forenames	Surname	Relationship	Marital status	Sex	Age	Birth year	Birth place	Company Name	Occupation	Home Address
98		1851 Census	Edwin	Hague	Son	Unmarried	Male	12	1839	Sheffield, Yorkshire, England		Errand Boy	
98		1851 Census	George	Hague	Son	-	Male	9	1842	Sheffield, Yorkshire, England		-	
98		1851 Census	Mary	Hague	Daughter	-	Female	7	1844	Sheffield, Yorkshire, England		-	
98		1851 Census	Elizabeth	Hague	Daughter	-	Female	4	1847	Sheffield, Yorkshire, England		-	
98		1851 Census	Henry	Hague	Son	-	Male	2	1849	Sheffield, Yorkshire, England		-	
98		1851 Census	Emma	Hague	Daughter	-	Female	0	1851	Sheffield, Yorkshire, England		-	
100		1851 Census	Charles	Mainwarring	Head	Married	Male	37	1814	Liverpool, Lancashire, England		Teacher Of Mathematics	
100		1851 Census	William	Brann	Cousin	Married	Male	36	1815	Yorkshire, England		File Grinder	
100		1851 Census	Sarah	Brann	Wife	Married	Female	34	1817	St Luke's, Middlesex, England		-	
100		1851 Census	Ann	Brann	Cousin	Married	Female	34	1817	Yorkshire, England		-	
100		1851 Census	Charles	Brann	Head	Married	Male	34	1817	Sheffield, Yorkshire, England		File Grinder	
100		1851 Census	Ann	Mainwarring	Wife	Married	Female	32	1819	Brandon, Warwickshire, England		-	
100		1851 Census	John	Brann	Cousin	-	Male	10	1841	Sheffield, Yorkshire, England		-	
100		1851 Census	Samuel	Brann	Cousin	-	Male	3	1848	Sheffield, Yorkshire, England		-	
100		1851 Census	Frederick	Brann	Cousin	-	Male	1	1850	Sheffield, Yorkshire, England		-	



No.	Location text	Source	Forenames	Surname	Relationship	Marital status	Sex	Age	Birth year	Birth place	Company Name	Occupation	Home Address
101		1851 Census	John	Chapman	Head	Married	Male	51	1800	Stoney Middleton, Derbyshire, England		Saw Handle Maker	
101		1851 Census	Ann	Chapman	Wife	Married	Female	40	1811	Sheffield, Yorkshire, England		-	
101		1851 Census	Edwin	Chapman	Son	-	Male	12	1839	Sheffield, Yorkshire, England		Scholar	
101		1851 Census	Lydia	Chapman	Daughter	-	Female	7	1844	Sheffield, Yorkshire, England		-	
102		1851 Census	George	Ainley	Head	Married	Male	48	1803	Yorkshire, England		Cutler (Employing 2 Men)	
102		1851 Census	Sarah	Ainley	Wife	Married	Female	42	1809	Sheffield, Yorkshire, England		-	
102		1851 Census	Thomas	Masden	Lodger	Unmarried	Male	21	1830	Sheffield, Yorkshire, England		Cutler	
102		1851 Census	Sarah	Ainley	Daughter	Unmarried	Female	14	1837	Sheffield, Yorkshire, England		-	
102		1851 Census	Elizabeth	Cockhill	Wife Daughter	-	Female	12	1839	Sheffield, Yorkshire, England		-	
102		1851 Census	George	Ainley	Son	-	Male	1	1850	Sheffield, Yorkshire, England		-	
102		1852 Directory	Geo.	Ainley								Spring knife manufacturer	
103		1851 Census	William	Hall	Head	Married	Male	44	1807	Sheffield, Yorkshire, England		Cooper	
103		1851 Census	Mary	Hall	Wife	Married	Female	42	1809	Sheffield, Yorkshire, England		-	
103		1851 Census	Ann S	Rhodes	Daughter	Widow	Female	22	1829	Sheffield, Yorkshire, England		-	



No.	Location text	Source	Forenames	Surname	Relationship	Marital status	Sex	Age	Birth year	Birth place	Company Name	Occupation	Home Address
103		1851 Census	Sarah A	Hall	Daughter	-	Female	11	1840	Sheffield, Yorkshire, England		Scholar	
103		1851 Census	Emma S	Hall	Daughter	-	Female	6	1845	Sheffield, Yorkshire, England		Scholar	
103		1851 Census	John W	Rhodes	Son	-	Male	4	1847	Sheffield, Yorkshire, England		Scholar	
104		1851 Census	Sarah	Batty	Head	Unmarried	Female	57	1794	Sheffield, Yorkshire, England		Grocer	
106		1851 Census	Betsy	Howard	Mother	Widow	Female	47	1804	Sheffield, Yorkshire, England		-	
106		1851 Census	John	Howard	Head	Unmarried	Male	26	1825	Sheffield, Yorkshire, England		Blade Grinder	
106		1851 Census	Sarah	Howard	Sister	Unmarried	Female	19	1832	Sheffield, Yorkshire, England		Spoon Rubber	
106		1851 Census	Ann	Howard	Sister	Unmarried	Female	18	1833	Sheffield, Yorkshire, England		Spoon Rubber	
108		1851 Census	John F	Hirst	Head	Married	Male	28	1823	Dalton, Yorkshire, England		Book Keeper	
108		1851 Census	Eliza W	Hirst	Wife	Married	Female	25	1826	Sheffield, Yorkshire, England		-	
108		1851 Census	James W	Barker	Lodger	Unmarried	Male	23	1828	Sheffield, Yorkshire, England		Boot Maker	
108		1851 Census	Frederick W	Hirst	Son	-	Male	0	1851	Sheffield, Yorkshire, England		-	
110		1851 Census	Mary	Rowland	Wife	Married	Female	59	1792	Sheffield, Yorkshire, England		-	
110		1851 Census	Jonathan	Rowland	Head	Married	Male	59	1792	Sheffield, Yorkshire, England		Cutler	



No.	Location text	Source	Forenames	Surname	Relationship	Marital status	Sex	Age	Birth year	Birth place	Company Name	Occupation	Home Address
110		1851 Census	Martha	Rowland	Daughter	Unmarried	Female	19	1832	Sheffield, Yorkshire, England		Dress Maker	
110		1852 Directory	Martha	Rowland								Dressmaker	
110		1852 Directory	Jonathan	Rowland								Hafter	
4+6		1851 Census	Sarah	Ryals	Head	Widow	Female	78	1773	Bawtry, Yorkshire, England		-	
4+6		1851 Census	William	Ryals	Son	Unmarried	Male	53	1798	Sheffield, Yorkshire, England		A Cripple Receiving Parish Relief	
4+6		1851 Census	Mary Ann	Ryals	Daughter	Unmarried	Female	49	1802	Sheffield, Yorkshire, England		Dressmaker	
61?	?Court	1851 Census	William	Hawe	Head	Widower	Male	59	1792	Sheffield, Yorkshire, England		Table Knife Manufacturer Employing 15 Men	
61?	?Court	1851 Census	William	Hawe	Son	Unmarried	Male	28	1823	Sheffield, Yorkshire, England		Assistant Table Knife Manufacturer	
61?	?Court	1851 Census	Mary	Hawe	Daughter	Unmarried	Female	26	1825	Sheffield, Yorkshire, England		-	
61?	?Court	1851 Census	Elizabeth	Hawe	Daughter	Unmarried	Female	18	1833	Sheffield, Yorkshire, England		-	
61?	?Court	1851 Census	Sarah	Hawe	Daughter	-	Female	16	1835	Sheffield, Yorkshire, England		-	
61?	?Court	1851 Census	Henry	Hawe	Son	-	Male	14	1837	Sheffield, Yorkshire, England		Scholar	
73?		1851 Census	Joseph	Tew	Head	Married	Male	35	1816	Sheffield, Yorkshire, England		Cutler	
73?		1851 Census	Mary	Tew	Wife	Married	Female	32	1819	Sheffield, Yorkshire, England		-	
73?		1851 Census	Ann	Tew	Daughter	-	Female	9	1842	Sheffield, Yorkshire,		-	



No.	Location text	Source	Forenames	Surname	Relationship	Marital status	Sex	Age	Birth year	Birth place	Company Name	Occupation	Home Address
										England			
73?		1851 Census	Henry	Tew	Son	-	Male	4	1847	Sheffield, Yorkshire, England		Scholar	
73?		1851 Census	Ellen	Tew	Daughter	-	Female	2	1849	Sheffield, Yorkshire, England		Scholar	
73?		1851 Census	Joseph	Tew	Son	-	Male	0	1851	Sheffield, Yorkshire, England		-	
	13	1851 Census	Mary	Bingham	Head	Widow	Female	45	1806	Matlock, Derbyshire, England		-	
	13	1851 Census	Ann	Oates	Lodger	Married	Female	28	1823	Matlock, Derbyshire, England		-	
	13	1851 Census	Luke	Oates	Lodger	Married	Male	28	1823	Matlock, Derbyshire, England		Cutler	
	13	1851 Census	Mary A	Frith	Lodger	Married	Female	24	1827	Sheffield, Yorkshire, England		-	
	13	1851 Census	William	Frith	Lodger	Married	Male	23	1828	Sheffield, Yorkshire, England		Scissor Smith	
	13	1851 Census	Margaret	Bingham	Daughter	Unmarried	Female	22	1829	Sheffield, Yorkshire, England		-	
	13	1851 Census	James	Bingham	Son	Unmarried	Male	16	1835	Sheffield, Yorkshire, England		Carter	
	13	1851 Census	Jane	Oates	Lodger	-	Female	1	1850	Matlock, Derbyshire, England		-	
	32	1851 Census	Hannah	Stevenson	Wife	Married	Female	45	1806	Sheffield, Yorkshire, England		-	
	32	1851 Census	Thomas L	Stevenson	Head	Married	Male	43	1808	Kirkstall, Yorkshire, England		File Manufacturer 12 Women & 35 Boys Employing 76 Men	



No.	Location text	Source	Forenames	Surname	Relationship	Marital status	Sex	Age	Birth year	Birth place	Company Name	Occupation	Home Address
	32	1851 Census	Mary	Elliott	Servant	Unmarried	Female	26	1825	Wadsley, Yorkshire, England		General Servant	
	32	1851 Census	Frederick	Stevenson	Son	Unmarried	Male	14	1837	Sheffield, Yorkshire, England		Scholar	
	32	1851 Census	Mary Ann	Stevenson	Daughter	-	Female	11	1840	Sheffield, Yorkshire, England		Scholar	
	32	1851 Census	Emma	Stevenson	Daughter	-	Female	6	1845	Sheffield, Yorkshire, England		Scholar	
	32	1851 Census	Samuel	Stevenson	Son	-	Male	4	1847	Sheffield, Yorkshire, England		Scholar	
	1 Court 11	1851 Census	John	Glaves	Head	Married	Male	23	1828	Sheffield, Yorkshire, England		Table Blade Forger	
	1 Court 11	1851 Census	Elizabeth	Glaves	Wife	Married	Female	18	1833	Sheffield, Yorkshire, England		-	
	1 Court 12	1851 Census	Mary	Betts	Cousin	Married	Female	49	1802	Sheffield, Yorkshire, England		-	
	1 Court 12	1851 Census	Edward	Betts	Cousin	Married	Male	47	1804	Sheffield, Yorkshire, England		Metal Smith	
	1 Court 12	1851 Census	John	Walker	Head	Married	Male	36	1815	Sheffield, Yorkshire, England		Spring Knife Cutler	
	1 Court 12	1851 Census	Edna	Walker	Wife	Married	Female	28	1823	Hanley, Staffordshire, England		-	
	1 Court 12	1851 Census	Sarah	Driver	Visitor	Married	Female	27	1824	Sheffield, Yorkshire, England		-	
	1 Court 12	1851 Census	Charles	Lenton	Visitor	Married	Male	27	1824	York, Yorkshire, England		File Cutter	
	1 Court 12	1851 Census	Brine	Betts	Cousin	-	Male	9	1842	Sheffield, Yorkshire, England		-	



No.	Location text	Source	Forenames	Surname	Relationship	Marital status	Sex	Age	Birth year	Birth place	Company Name	Occupation	Home Address
	1 Court 12	1851 Census	Elizabeth	Driver	Visitor	-	Female	5	1846	Sheffield, Yorkshire, England		-	
	1 Court 12	1851 Census	Elizabeth	Walker	Daughter	-	Female	1	1850	Liverpool, Lancashire, England		-	
	1 Court 14	1851 Census	Ann	Fieldsend	Wife	Married	Female	52	1799	Yorkshire, England		-	
	1 Court 14	1851 Census	John	Fieldsend	Head	Married	Male	52	1799	Yorkshire, England		Blacksmith	
	1 Court 14	1851 Census	Thomas	Fieldsend	Son	Unmarried	Male	15	1836	Yorkshire, England		-	
	1 Court 14	1851 Census	Benjamin	Fieldsend	Son	-	Male	13	1838	Yorkshire, England		-	
	1 Court 14	1851 Census	William	Fieldsend	Son	-	Male	9	1842	Yorkshire, England		-	
	1 Court 14	1851 Census	Elizabeth	Fieldsend	Daughter	-	Female	6	1845	Yorkshire, England		-	
	1 Court 15	1851 Census	James	Nutt	Head	Married	Male	72	1779	Sheffield, Yorkshire, England		Cutler	
	1 Court 15	1851 Census	Nancy	Nutt	Wife	Married	Female	67	1784	Sheffield, Yorkshire, England		-	
	1 Court 15	1851 Census	William	Lockwood	Lodger	Unmarried	Male	33	1818	Sheffield, Yorkshire, England		Cutler	
	1 Court 15	1851 Census	Henry	Berry	Lodger	-	Male	9	1842	Sheffield, Yorkshire, England		Scholar	
	1 Court 9	1851 Census	James	Gott	Head	Married	Male	30	1821	Sheffield, Yorkshire, England		Scissors Grinder	
	1 Court 9	1851 Census	Ann	Gott	Wife	Married	Female	22	1829	Sheffield, Yorkshire, England		-	
	1 Court 9	1851 Census	William	Monson	Lodger	Unmarried	Male	21	1830	Sheffield, Yorkshire, England		Iron Moulder	
	1 Court 9	1851 Census	John	Gott	Son	-	Male	3	1848	Sheffield, Yorkshire, England		-	



No.	Location text	Source	Forenames	Surname	Relationship	Marital status	Sex	Age	Birth year	Birth place	Company Name	Occupation	Home Address
	1 Court 9	1851 Census	Mary Ann	Gott	Daughter	-	Female	0	1851	Sheffield, Yorkshire, England		-	
	1 New Yard	1851 Census	Edward	Peace	Head	Married	Male	29	1822	Crookes, Yorkshire, England		File Cutter	
	1 New Yard	1851 Census	Charlotte	Peace	Wife	Married	Female	26	1825	Sheffield, Yorkshire, England		-	
	1 New Yard	1851 Census	Edward	Sheldon	Brother	Unmarried	Male	21	1830	Sheffield, Yorkshire, England		Saw Maker	
	1 New Yard	1851 Census	George	Peace	Son	-	Male	3	1848	Sheffield, Yorkshire, England		-	
	2 Court 10	1851 Census	Mary	Peech	Wife	Married	Female	47	1804	Sheffield, Yorkshire, England		-	
	2 Court 10	1851 Census	John	Peech	Head	Married	Male	45	1806	Sheffield, Yorkshire, England		Pen & Pocket Blade Maker	
	2 Court 11	1851 Census	Sarah	Chandler	Wife	Married	Female	29	1822	Sheffield, Yorkshire, England		-	
	2 Court 11	1851 Census	Thomas	Chandler	Head	Married	Male	29	1822	Sheffield, Yorkshire, England		File Grinder	
	2 Court 11	1851 Census	Charles	Chandler	Son	-	Male	5	1846	Sheffield, Yorkshire, England		-	
	2 Court 12	1851 Census	Amelia	Jephton	Wife	Married	Female	24	1827	Sheffield, Yorkshire, England		-	
	2 Court 12	1851 Census	James	Jephton	Head	Married	Male	24	1827	Sheffield, Yorkshire, England		Table Knife Cutler	
	2 Court 12	1851 Census	Joseph	Jephton	Son	-	Male	2	1849	Sheffield, Yorkshire, England		-	
	2 Court 13	1851 Census	William	Platts	Head	Married	Male	35	1816	Greenhead, Yorkshire, England		File Smith	



No.	Location text	Source	Forenames	Surname	Relationship	Marital status	Sex	Age	Birth year	Birth place	Company Name	Occupation	Home Address
	2 Court 13	1851 Census	Sarah	Platts	Wife	Married	Female	30	1821	Sheffield, Yorkshire, England		-	
	2 Court 13	1851 Census	Sarah	Platts	Daughter	-	Female	1	1850	Newton Heath, Lancashire, England		-	
	2 Court 14	1851 Census	Laurence	Makin	Father	Widower	Male	60	1791	Ireland		Mason Labourer	
	2 Court 14	1851 Census	William	Morna	Lodger	Married	Male	40	1811	Ireland		Bricklayers Labourer	
	2 Court 14	1851 Census	Thomas	Tommy	Lodger	Widower	Male	39	1812	Ireland		Bricklayers Labourer	
	2 Court 14	1851 Census	Mary	Morna	Lodger	Married	Female	38	1813	Ireland		-	
	2 Court 14	1851 Census	James	Makin	Head	Married	Male	25	1826	Ireland		Oyster Vendor	
	2 Court 14	1851 Census	Bridget	Makin	Wife	Married	Female	23	1828	Ireland		-	
	2 Court 14	1851 Census	John	Morna	Lodger	Unmarried	Male	15	1836	Sheffield, Yorkshire, England		Cutler	
	2 Court 14	1851 Census	Ann	Makin	Daughter	-	Female	1	1850	Sheffield, Yorkshire, England		-	
	2 Court 15	1851 Census	Ann	Morris	Wife	Married	Female	36	1815	Sheffield, Yorkshire, England		Spoon Buffer	
	2 Court 15	1851 Census	James	Morris	Head	Married	Male	36	1815	Ireland		Slater	
	2 Court 9	1851 Census	Charles	Brazewell	Head	Married	Male	27	1824	St Martins, Middlesex, England		Cutler	
	2 Court 9	1851 Census	Hannah	Brazewell	Wife	Married	Female	22	1829	Sheffield, Yorkshire, England		-	
	2 Court 9	1851 Census	Peter	Brazewell	Son	-	Male	1	1850	Sheffield, Yorkshire, England		-	
	2 New Yard	1851 Census	Harriet	Basford	Wife	Married	Female	24	1827	Sheffield, Yorkshire, England		-	
	2 New Yard	1851 Census	George	Basford	Head	Married	Male	24	1827	Sheffield, Yorkshire,		House Painter	



No.	Location text	Source	Forenames	Surname	Relationship	Marital status	Sex	Age	Birth year	Birth place	Company Name	Occupation	Home Address
										England			
	2 New Yard	1851 Census	Henry	Basford	Son	-	Male	2	1849	Sheffield, Yorkshire, England		-	
	3 Court 10	1851 Census	John	Ryles	Head	Married	Male	32	1819	Woodhouse, Yorkshire, England		Spring Maker	
	3 Court 10	1851 Census	Ann	Ryles	Wife	Married	Female	27	1824	Sheffield, Yorkshire, England		-	
	3 Court 10	1851 Census	William	Ryles	Son	-	Male	7	1844	Sheffield, Yorkshire, England		-	
	3 Court 11	1851 Census	Mary	Ruthforth	Wife	Married	Female	40	1811	York, Yorkshire, England		-	
	3 Court 11	1851 Census	Edward	Ruthforth	Head	Married	Male	36	1815	Barnsley, Yorkshire, England		Striker For A Blacksmith	
	3 Court 11	1851 Census	Jane	Elliot	Visitor	Unmarried	Female	22	1829	Sheffield, Yorkshire, England		General Visitor	
	3 Court 11	1851 Census	Hannah	Ruthforth	Daughter	-	Female	12	1839	Barnsley, Yorkshire, England		-	
	3 Court 11	1851 Census	Samuel	Ruthforth	Son	-	Male	5	1846	Sheffield, Yorkshire, England		-	
	3 Court 11	1851 Census	Richard	Ruthforth	Son	-	Male	2	1849	Sheffield, Yorkshire, England		-	
	3 Court 12	1851 Census	Harriet	Smith	Wife	Married	Female	29	1822	Sheffield, Yorkshire, England		-	
	3 Court 12	1851 Census	James	Smith	Head	Married	Male	28	1823	Sheffield, Yorkshire, England		Razor Smith	
	3 Court 12	1851 Census	Elizabeth	Smith	Daughter	-	Female	4	1847	Sheffield, Yorkshire, England		-	
	3 Court 12	1851 Census	William	Smith	Son	-	Male	2	1849	Sheffield, Yorkshire,		-	



No.	Location text	Source	Forenames	Surname	Relationship	Marital status	Sex	Age	Birth year	Birth place	Company Name	Occupation	Home Address
										England			
	3 Court 13	1851 Census	Sarah Ann	Stanley	Head	Unmarried	Female	29	1822	Sheffield, Yorkshire, England		Upholdsterress	
	3 Court 13	1851 Census	John Henry	Stanley	Son	-	Male	7	1844	Sheffield, Yorkshire, England		Scholar	
	3 Court 13	1851 Census	Frederick	Stanley	Son	-	Male	1	1850	Sheffield, Yorkshire, England		-	
	3 Court 14	1851 Census	John	Spooner	Head	Married	Male	43	1808	Sheffield, Yorkshire, England		Cutler	
	3 Court 14	1851 Census	James	Spooner	Wife	Married	Female	38	1813	Sheffield, Yorkshire, England		-	
	3 Court 14	1851 Census	George	Spooner	Son	Unmarried	Male	17	1834	Sheffield, Yorkshire, England		Table Blade Forger	
	3 Court 14	1851 Census	Ann	Spooner	Daughter	-	Female	15	1836	Sheffield, Yorkshire, England		-	
	3 Court 14	1851 Census	James	Spooner	Son	-	Male	13	1838	Sheffield, Yorkshire, England		-	
	3 Court 14	1851 Census	Jane	Spooner	Daughter	-	Female	9	1842	Sheffield, Yorkshire, England		-	
	3 Court 14	1851 Census	Emma	Spooner	Daughter	-	Female	7	1844	Sheffield, Yorkshire, England		-	
	3 Court 14	1851 Census	Joseph	Spooner	Son	-	Male	1	1850	Sheffield, Yorkshire, England		-	
	3 Court 15	1851 Census	Henry	Darby	Head	Married	Male	35	1816	Heeley, Yorkshire, England		File Cutter	
	3 Court 15	1851 Census	Eliza	Darby	Wife	Married	Female	32	1819	Sheffield, Yorkshire, England		-	
	3 Court 15	1851 Census	William	Darby	Son	-	Male	14	1837	Heeley, Yorkshire,		File Cutter (Apprentice)	



No.	Location text	Source	Forenames	Surname	Relationship	Marital status	Sex	Age	Birth year	Birth place	Company Name	Occupation	Home Address
										England			
	3 Court 9	1851 Census	Joseph	Mann	Lodger	Unmarried	Male	65	1786	Ecclesfield, Yorkshire, England		Pocket Blade Maker	
	3 Court 9	1851 Census	Hannah	Marsden	Head	Unmarried	Female	53	1798	Bradfield, Yorkshire, England		Receiving Parish Relief	
	3 Court 9	1851 Census	Ann	Barber	Niece	Married	Female	32	1819	Bradfield, Yorkshire, England		-	
	3 New Yard	1851 Census	Jonathan	Walker	Head	Married	Male	65	1786	Sheffield, Yorkshire, England		Cutler	
	3 New Yard	1851 Census	Grace	Walker	Wife	Married	Female	62	1789	Sheffield, Yorkshire, England		-	
	3 New Yard	1851 Census	Joseph	Walker	Son	Married	Male	35	1816	Yorkshire, England		Cutler	
	3 New Yard	1851 Census	Jonathan	Walker	Son	Married	Male	33	1818	Yorkshire, England		Cutler	
	3 New Yard	1851 Census	John	Walker	Son	Married	Male	30	1821	Yorkshire, England		Cutler	
	3 New Yard	1851 Census	Edward	Walker	Son	Unmarried	Male	27	1824	Yorkshire, England		Cutler	
	3 New Yard	1851 Census	Thomas	Walker	Son	Unmarried	Male	22	1829	Sheffield, Yorkshire, England		Cutler	
	4 Court 10	1851 Census	Sarah	Bennett	Wife	Married	Female	31	1820	Sheffield, Yorkshire, England		Dress Maker	
	4 Court 10	1851 Census	Samuel	Bennett	Head	Married	Male	30	1821	Sheffield, Yorkshire, England		Spring Knife Cutler	
	4 Court 10	1851 Census	Joseph	Bennett	Son	-	Male	8	1843	Sheffield, Yorkshire, England		Scholar	
	4 Court 10	1851 Census	Mary Ann	Bennett	Daughter	-	Female	5	1846	Sheffield, Yorkshire, England		Scholar	
	4 Court 10	1851 Census	Sarah Jane	Bennett	Daughter	-	Female	0	1851	Sheffield, Yorkshire, England		-	



No.	Location text	Source	Forenames	Surname	Relationship	Marital status	Sex	Age	Birth year	Birth place	Company Name	Occupation	Home Address
	4 Court 11	1851 Census	Dorothy	Heathcoate	Wife	Married	Female	30	1821	Sheffield, Yorkshire, England		-	
	4 Court 11	1851 Census	Alexander	Heathcoate	Head	Married	Male	22	1829	Sheffield, Yorkshire, England		Razor Smith	
	4 Court 11	1851 Census	John	Cole	Apprentice	Unmarried	Male	16	1835	Sheffield, Yorkshire, England		Razor Smith (Apprentice)	
	4 Court 11	1851 Census	Sarah Ann	Heathcoate	Daughter	-	Female	0	1851	Sheffield, Yorkshire, England		-	
	4 Court 12	1851 Census	John	Charlesworth	Head	Married	Male	65	1786	Yorkshire, England		Furnace Labourer	
	4 Court 12	1851 Census	Sarah	Charlesworth	Wife	Married	Female	53	1798	Derbyshire, England		-	
	4 Court 12	1851 Census	George	Charlesworth	Son	Unmarried	Male	16	1835	Wadsley, Yorkshire, England		Furnace Labourer	
	4 Court 12	1851 Census	Reuben	Charlesworth	Son	-	Male	6	1845	Wadsley, Yorkshire, England		-	
	4 Court 13	1851 Census	Harriet	Lawton	Wife	Married	Female	50	1801	Sheffield, Yorkshire, England		-	
	4 Court 13	1851 Census	Edward	Lawton	Head	Married	Male	47	1804	Sheffield, Yorkshire, England		Labourer In A Steel Furnace	
	4 Court 13	1851 Census	Elizabeth	Lawton	Daughter	Unmarried	Female	18	1833	Sheffield, Yorkshire, England		Button Wrapper	
	4 Court 13	1851 Census	Mary	Lawton	Daughter	Unmarried	Female	16	1835	Sheffield, Yorkshire, England		Fork Burnisher	
	4 Court 13	1851 Census	Edward	Lawton	Son	Unmarried	Male	14	1837	Sheffield, Yorkshire, England		-	
	4 Court 14	1851 Census	Elizabeth	Tripet	Head	Widow	Female	72	1779	St Luke's, Middlesex, England		-	
	4 Court 14	1851 Census	Elizabeth	Tripet	Niece	Unmarried	Female	18	1833	Sheffield, Yorkshire, England		General Servant	



No.	Location text	Source	Forenames	Surname	Relationship	Marital status	Sex	Age	Birth year	Birth place	Company Name	Occupation	Home Address
	4 Court 15	1851 Census	Ann	Elliott	Head	Widow	Female	49	1802	Sheffield, Yorkshire, England		File Cutter	
	4 Court 15	1851 Census	Norman	Hall	Son-In-Law	Married	Male	21	1830	Sheffield, Yorkshire, England		Blade Maker	
	4 Court 15	1851 Census	Ann	Hall	Daughter	Married	Female	19	1832	Sheffield, Yorkshire, England		Awl Blade Polisher	
	4 Court 15	1851 Census	Mary	Elliott	Daughter	Unmarried	Female	17	1834	Sheffield, Yorkshire, England		Silver Buffer	
	4 Court 15	1851 Census	Harriet	Elliott	Daughter	-	Female	13	1838	Sheffield, Yorkshire, England		-	
	4 Court 15	1851 Census	Murray	Frith	Grand Daughter	-	Female	6	1845	Sheffield, Yorkshire, England		-	
	4 Court 15	1851 Census	James	Frith	Grand Son	-	Male	5	1846	Sheffield, Yorkshire, England		-	
	4 New Yard	1851 Census	Elizabeth	Mills	Wife	Married	Female	35	1816	Eccleshall, Yorkshire, England		-	
	4 New Yard	1851 Census	John	Mills	Head	Married	Male	33	1818	Sheffield, Yorkshire, England		Table Blade Grinder	
	4 New Yard	1851 Census	Mary Ann	Mills	Daughter	-	Female	13	1838	Dronfield, Derbyshire, England		-	
	4 New Yard	1851 Census	Rhoda	Mills	Daughter	-	Female	6	1845	Eccleshall, Yorkshire, England		-	
	4 New Yard	1851 Census	Eliza	Mills	Daughter	-	Female	3	1848	Eccleshall, Yorkshire, England		-	
	5 Court 10	1851 Census	Sarah	Stacey	Wife	Married	Female	27	1824	Sheffield, Yorkshire, England		-	
	5 Court 10	1851 Census	George	Stacey	Head	Married	Male	25	1826	Sheffield, Yorkshire, England		Scissor Smith	



No.	Location text	Source	Forenames	Surname	Relationship	Marital status	Sex	Age	Birth year	Birth place	Company Name	Occupation	Home Address
	5 Court 11	1851 Census	Michael	Baynes	Visitor	Married	Male	53	1798	Ireland		Bricklayers Labourer	
	5 Court 11	1851 Census	Martin	Doyle	Head	Married	Male	32	1819	Ireland		General Labourer	
	5 Court 11	1851 Census	Catherine	Doyle	Wife	Married	Female	28	1823	Ireland		-	
	5 Court 11	1851 Census	Bridget	Burke	Visitor	Unmarried	Female	15	1836	Ireland		Cap Maker	
	5 Court 11	1851 Census	Julia	Baynes	Visitor	Unmarried	Female	14	1837	Ireland		-	
	5 Court 11	1851 Census	Martin	Doyle	Son	-	Male	6	1845	Ireland		-	
	5 Court 13	1851 Census	Lucy	Sheet	Wife	Married	Female	54	1797	Boston, Lincolnshire, England		-	
	5 Court 13	1851 Census	Benjamin	Sheet	Head	Married	Male	54	1797	Newark, Nottinghamshire, England		Brick Maker	
	5 Court 13	1851 Census	George	Sheet	Son	Unmarried	Male	14	1837	Collingham, Lincolnshire, England		Brick Maker	
	5 Court 13	1851 Census	Catherine	Sheet	Daughter	Unmarried	Female	12	1839	Harby, Nottinghamshire, England		Scholar	
	5 Court 15	1851 Census	Mary	Turton	Wife	Married	Female	46	1805	Dover, Kent, England		-	
	5 Court 15	1851 Census	John	Turton	Head	Married	Male	45	1806	Yorkshire, England		Razor Grinder	
	5 Court 15	1851 Census	Ann	Wilde	Lodger	Married	Female	26	1825	Sheffield, Yorkshire, England		Dressmaker	
	5 Court 15	1851 Census	Sarah	Wilde	Lodger	-	Female	2	1849	Sheffield, Yorkshire, England		-	
	5 New Yard	1851 Census	Elizabeth	Stacey	Wife	Married	Female	40	1811	Sheffield, Yorkshire, England		-	
	5 New Yard	1851 Census	Henry	Stacey	Head	Married	Male	40	1811	Sheffield, Yorkshire, England		Table Knife Cutler	
	5 New Yard	1851 Census	Henry	Stacey	Son	-	Male	11	1840	Sheffield, Yorkshire, England		Cutler	



No.	Location text	Source	Forenames	Surname	Relationship	Marital status	Sex	Age	Birth year	Birth place	Company Name	Occupation	Home Address
	5 New Yard	1851 Census	Elizabeth	Stacey	Daughter	-	Female	9	1842	Sheffield, Yorkshire, England		Scholar	
	5 New Yard	1851 Census	John	Stacey	Son	-	Male	6	1845	Sheffield, Yorkshire, England		Scholar	
	5 New Yard	1851 Census	Ellen	Stacey	Daughter	-	Female	2	1849	Sheffield, Yorkshire, England		Scholar	
	6 Court 13	1851 Census	Ann	Holmes	Head	Married	Female	31	1820	Sheffield, Yorkshire, England		Metal Rubber	
	6 Court 13	1851 Census	Martha	Holmes	Daughter	-	Female	13	1838	Yorkshire, England		Metal Rubber	
	6 Court 13	1851 Census	Elizabeth	Holmes	Daughter	-	Female	12	1839	Sheffield, Yorkshire, England		Metal Rubber	
	6 Court 13	1851 Census	Grace	Holmes	Daughter	-	Female	7	1844	Yorkshire, England		-	
	6 Court 13	1851 Census	William	Holmes	Son	-	Male	5	1846	Yorkshire, England		-	
	6 Court 13	1851 Census	George	Holmes	Son	-	Male	3	1848	Yorkshire, England		-	
	6? New Yard	1851 Census	William	Cousins	Head	Married	Male	26	1825	Sheffield, Yorkshire, England		Table Blade Forger	
	6? New Yard	1851 Census	Betsy	Cousins	Wife	Married	Female	21	1830	Leeds, Yorkshire, England		-	
	6? New Yard	1851 Census	George	Marshall	Apprentice	Unmarried	Male	18	1833	Bradford, Yorkshire, England		T Blade Forger (Apprentice)	
	6? New Yard	1851 Census	George	Cousins	Son	-	Male	0	1851	Sheffield, Yorkshire, England		-	
	7 Court 11	1851 Census	Patrick	Ormond	Head	Married	Male	33	1818	Ireland		Comb Maker	
	7 Court 11	1851 Census	Esther	Ormond	Wife	Married	Female	30	1821	Ireland		-	
	7 Court 11	1851 Census	William	Dunnow	Lodger	Married	Male	26	1825	Ireland		Comb Maker	
	7 Court 11	1851 Census	Ann	Dunnow	Lodger	Married	Female	24	1827	Ireland		-	



No.	Location text	Source	Forenames	Surname	Relationship	Marital status	Sex	Age	Birth year	Birth place	Company Name	Occupation	Home Address
	7 Court 11	1851 Census	Ann	Dunnow	Lodger	-	Female	0	1851	Ireland		-	
	7 Court 15	1851 Census	Eliza	Fee	Wife	Married	Female	28	1823	Ireland		-	
	7 Court 15	1851 Census	George	Fee	Head	Married	Male	27	1824	Ireland		Silver Smith	
	7 Court 15	1851 Census	John	Fee	Son	-	Male	2	1849	Sheffield, Yorkshire, England		-	
	7 Court 15	1851 Census	Sarah	Fee	Daughter	-	Female	0	1851	Sheffield, Yorkshire, England		-	
	7 New Yard	1851 Census	Elizabeth	Crosland	Mother	Widow	Female	62	1789	Ecclesfield, Yorkshire, England		-	
	7 New Yard	1851 Census	Benjamin	Foster	Head	Married	Male	23	1828	Ecclesfield, Yorkshire, England		Fitter	
	7 New Yard	1851 Census	Sarah	Foster	Wife	Married	Female	20	1831	Ecclesfield, Yorkshire, England		-	
	8 Court 15	1851 Census	Charles	Storkes	Head	Married	Male	28	1823	Northwich, Cheshire, England		Bone Scale Cutter	
	8 Court 15	1851 Census	Harriet	Storkes	Wife	Married	Female	27	1824	Sheffield, Yorkshire, England		-	
	8 Court 15	1851 Census	Ann	Berry	Lodger	Unmarried	Female	21	1830	Sheffield, Yorkshire, England		Bone Button Maker	
	8 Court 15	1851 Census	Sam	Berry	Lodger	Unmarried	Male	18	1833	Sheffield, Yorkshire, England		Bone Button Maker	
	8 Court 15	1851 Census	Elizabeth	Storkes	Daughter	-	Female	4	1847	Sheffield, Yorkshire, England		-	
	8 Court 15	1851 Census	Sam	Storkes	Son	-	Male	2	1849	Sheffield, Yorkshire, England		-	
	Baker's Yard	1852 Directory	Mary	Harvey								Ragged schoolmistress	
	Court 1	1851 Census	Selina	Robinson	Wife	Married	Female	37	1814	Sheffield, Yorkshire,		-	



No.	Location text	Source	Forenames	Surname	Relationship	Marital status	Sex	Age	Birth year	Birth place	Company Name	Occupation	Home Address
										England			
	Court 1	1851 Census	John	Robinson	Head	Married	Male	36	1815	Sheffield, Yorkshire, England		Table Knife Cutler	
	Court 1	1851 Census	John	Robinson	Son	-	Male	14	1837	Sheffield, Yorkshire, England		Table Knife Cutler	
	Court 1	1851 Census	Sarah A	Robinson	Daughter	-	Female	11	1840	Sheffield, Yorkshire, England		-	
	Court 1	1851 Census	Mary	Robinson	Daughter	-	Female	9	1842	Sheffield, Yorkshire, England		-	
	Court 1	1851 Census	Joseph	Robinson	Son	-	Male	7	1844	Sheffield, Yorkshire, England		-	
	Court 1	1851 Census	James	Robinson	Son	-	Male	3	1848	Sheffield, Yorkshire, England		-	
	Court 2	1851 Census	Joseph	Smith	Head	Married	Male	72	1779	Sheffield, Yorkshire, England		Table Knife Hafter	
	Court 2	1851 Census	Mary	Smith	Wife	Married	Female	71	1780	Doncaster, Yorkshire, England		-	
	Court 2	1851 Census	Elizabeth	Weldon	Wife	Married	Female	51	1800	Sheffield, Yorkshire, England		In A Warehouse	
	Court 2	1851 Census	William	Weldon	Head	Married	Male	49	1802	Sheffield, Yorkshire, England		Labourer	
	Court 2	1851 Census	Mary	Littlewood	Head	-	Female	40	1811	Sheffield, Yorkshire, England		Keeps A Mangle	
	Court 2	1851 Census	Ann	Beeley	Daughter	Married	Female	38	1813	Sheffield, Yorkshire, England		-	
	Court 2	1851 Census	James	Beeley	Son	Married	Male	36	1815	Sheffield, Yorkshire, England		Scale Cutter	
	Court 2	1851 Census	Stephen	Woodhead	Lodger	Married	Male	23	1828	Not Known		Railway Spring Maker	



No.	Location text	Source	Forenames	Surname	Relationship	Marital status	Sex	Age	Birth year	Birth place	Company Name	Occupation	Home Address
	Court 2	1851 Census	Priscilla	Woodhead	Lodger	Married	Female	20	1831	Sheffield, Yorkshire, England		-	
	Court 2	1851 Census	Hannah	Weldon	Daughter	-	Female	17	1834	Sheffield, Yorkshire, England		-	
	Court 2	1851 Census	Sarah	Littlewood	Daughter	-	Female	15	1836	Sheffield, Yorkshire, England		In A Warehouse	
	Court 2	1851 Census	Mary Ann	Weldon	Daughter	-	Female	11	1840	Sheffield, Yorkshire, England		-	
	Court 2	1851 Census	William	Littlewood	Son	-	Male	7	1844	Sheffield, Yorkshire, England		-	
	Court 2	1851 Census	Maria	Littlewood	Daughter	-	Female	5	1846	Sheffield, Yorkshire, England		-	
	Court 3	1851 Census	Mary	Sleigh	Head	Widow	Female	70	1781	Sheffield, Yorkshire, England		-	
	Court 3	1851 Census	Mary	Sleigh	Daughter	Unmarried	Female	36	1815	Sheffield, Yorkshire, England		Fork Filer	
	Court 3	1851 Census	Verdun	Sleigh	Son	Unmarried	Male	30	1821	Sheffield, Yorkshire, England		Table Knife Hafter	
	Court 3	1851 Census	Abraham	Norton	Head	Married	Male	28	1823	Sheffield, Yorkshire, England		Cutter	
	Court 3	1851 Census	Mary Ann	Norton	Wife	Married	Female	26	1825	Sheffield, Yorkshire, England		-	
	Court 3	1851 Census	Samuel	Lawton	Head	Married	Male	25	1826	Sheffield, Yorkshire, England		Steel Furnace Man	
	Court 3	1851 Census	Elizabeth	Lawton	Wife	Married	Female	23	1828	Todwick, Yorkshire, England		Fork Filer	
	Court 3	1851 Census	Samuel	Sleigh	Grand Son	T O	Male	13	1838	Sheffield, Yorkshire, England		Table Knife Hafter	



No.	Location text	Source	Forenames	Surname	Relationship	Marital status	Sex	Age	Birth year	Birth place	Company Name	Occupation	Home Address
	Court 3	1851 Census	John	Norton	Son	-	Male	6	1845	Sheffield, Yorkshire, England		Scholar	
	Court 3	1851 Census	Mary	Lawton	Daughter	-	Female	2	1849	Sheffield, Yorkshire, England		-	
	Court 3	1851 Census	Sarah A	Lawton	Daughter	-	Female	0	1851	Sheffield, Yorkshire, England		-	
	Court 4	1851 Census	George	Nell	Head	Married	Male	34	1817	Sheffield, Yorkshire, England		Cutler	
	Court 4	1851 Census	Samuel	Laycock	Head	Married	Male	34	1817	Masbrough, Yorkshire, England		Pen Knife Carter	
	Court 4	1851 Census	(illegible)	Chasesworth	Head	Married	Male	34	1817	Sheffield, Yorkshire, England		Table Knife Grinder	
	Court 4	1851 Census	Ann	Nell	Wife	Married	Female	33	1818	Bromley, Yorkshire, England		-	
	Court 4	1851 Census	Ann	Laycock	Wife	Married	Female	33	1818	Sheffield, Yorkshire, England		-	
	Court 4	1851 Census	Eliza	Wilson	Wife	-	Female	33	1818	Sheffield, Yorkshire, England		File Cutter	
	Court 4	1851 Census	Eliza	Chasesworth	Wife	Married	Female	33	1818	Nottinghamshire, England		Shoe Binder	
	Court 4	1851 Census	William	Wilson	Head	-	Male	32	1819	Sheffield, Yorkshire, England		File Hardener	
	Court 4	1851 Census	Sarah	Laycock	Daughter	-	Female	16	1835	Sheffield, Yorkshire, England		Hair Weaver	
	Court 4	1851 Census	Emily	Wilson	-	-	Female	13	1838	Sheffield, Yorkshire, England		-	
	Court 4	1851 Census	James	Wilson	-	-	Male	9	1842	Sheffield, Yorkshire, England		Scholar	
	Court 4	1851 Census	William	Nell	Son	-	Male	9	1842	Sheffield, Yorkshire, England		Scholar	



No.	Location text	Source	Forenames	Surname	Relationship	Marital status	Sex	Age	Birth year	Birth place	Company Name	Occupation	Home Address
										England			
	Court 4	1851 Census	George	Nell	Son	-	Male	7	1844	Sheffield, Yorkshire, England		Scholar	
	Court 4	1851 Census	Loisa	Chasesworth	Daughter	-	Female	5	1846	Lincolnshire, England		-	
	Court 4	1851 Census	Elizabeth	Nell	Daughter	-	Female	5	1846	Sheffield, Yorkshire, England		Scholar	
	Court 4	1851 Census	Samuel	Nell	Son	-	Male	3	1848	Sheffield, Yorkshire, England		-	
	Court 4	1851 Census	Sarah Am	Taylor	-	-	Female	0	1851	Sheffield, Yorkshire, England		-	
	Court 4	1851 Census	Martha	Nell	Daughter	-	Female	0	1851	Sheffield, Yorkshire, England		-	
	Court 5	1851 Census	Mary	Harrison	Wife	-	Female	45	1806	Sheffield, Yorkshire, England		-	
	Court 5	1851 Census	Luke	Harrison	Head	-	Male	45	1806	Sheffield, Yorkshire, England		Razor Smith	
	Court 5	1851 Census	Charles	Fowler	Head	Married	Male	43	1808	Sheffield, Yorkshire, England		Metal Smith	
	Court 5	1851 Census	John	Holmes	Head	Married	Male	41	1810	Sheffield, Yorkshire, England		Pen Knife Cutler	
	Court 5	1851 Census	Martha	Holmes	Wife	Married	Female	40	1811	Sheffield, Yorkshire, England		-	
	Court 5	1851 Census	Sarah	Hedcock	Lodger	-	Female	39	1812	Sheffield, Yorkshire, England		-	
	Court 5	1851 Census	Michael	Crugan	Head	Married	Male	37	1814	-		Labourer	
	Court 5	1851 Census	Margaret	Fowler	Wife	Married	Female	35	1816	Sheffield, Yorkshire, England		-	
	Court 5	1851	Ann	Crugan	Wife	Married	Female	30	1821	-		-	



No.	Location text	Source	Forenames	Surname	Relationship	Marital status	Sex	Age	Birth year	Birth place	Company Name	Occupation	Home Address
		Census											
	Court 5	1851 Census	George	Ragg	Head	Unmarried	Male	28	1823	Sheffield, Yorkshire, England		File Cutter	
	Court 5	1851 Census	Martha	Fowler	-	Unmarried	Female	18	1833	Sheffield, Yorkshire, England		-	
	Court 5	1851 Census	Alfred	Harrison	Son	-	Male	18	1833	Sheffield, Yorkshire, England		Razor Smith	
	Court 5	1851 Census	Frederick	Holmes	-	-	Male	17	1834	Sheffield, Yorkshire, England		Pen Knife Cutler	
	Court 5	1851 Census	Mary A	Hedcock	Lodger	-	Female	16	1835	Sheffield, Yorkshire, England		-	
	Court 5	1851 Census	Ellen	Hitchcock	Servant	-	Female	15	1836	Sheffield, Yorkshire, England		-	
	Court 5	1851 Census	William	Fowler	-	Unmarried	Male	15	1836	Sheffield, Yorkshire, England		Metal Smith	
	Court 5	1851 Census	James	Holmes	-	-	Male	15	1836	Sheffield, Yorkshire, England		Pen Knife Cutler	
	Court 5	1851 Census	Ellen	Hedcock	Lodger	-	Female	14	1837	Sheffield, Yorkshire, England		-	
	Court 5	1851 Census	William	Hedcock	Lodger	-	Male	12	1839	Sheffield, Yorkshire, England		File Cutter	
	Court 5	1851 Census	Frederick	Harrison	Son	-	Male	11	1840	Sheffield, Yorkshire, England		Errand Boy	
	Court 5	1851 Census	Charles	Fowler	-	-	Male	10	1841	Sheffield, Yorkshire, England		Scholar	
	Court 5	1851 Census	Catherine	Crugan	Daughter	-	Female	6	1845	-		Scholar	
	Court 5	1851 Census	Harriett	Fowler	-	-	Female	6	1845	Sheffield, Yorkshire, England		Scholar	



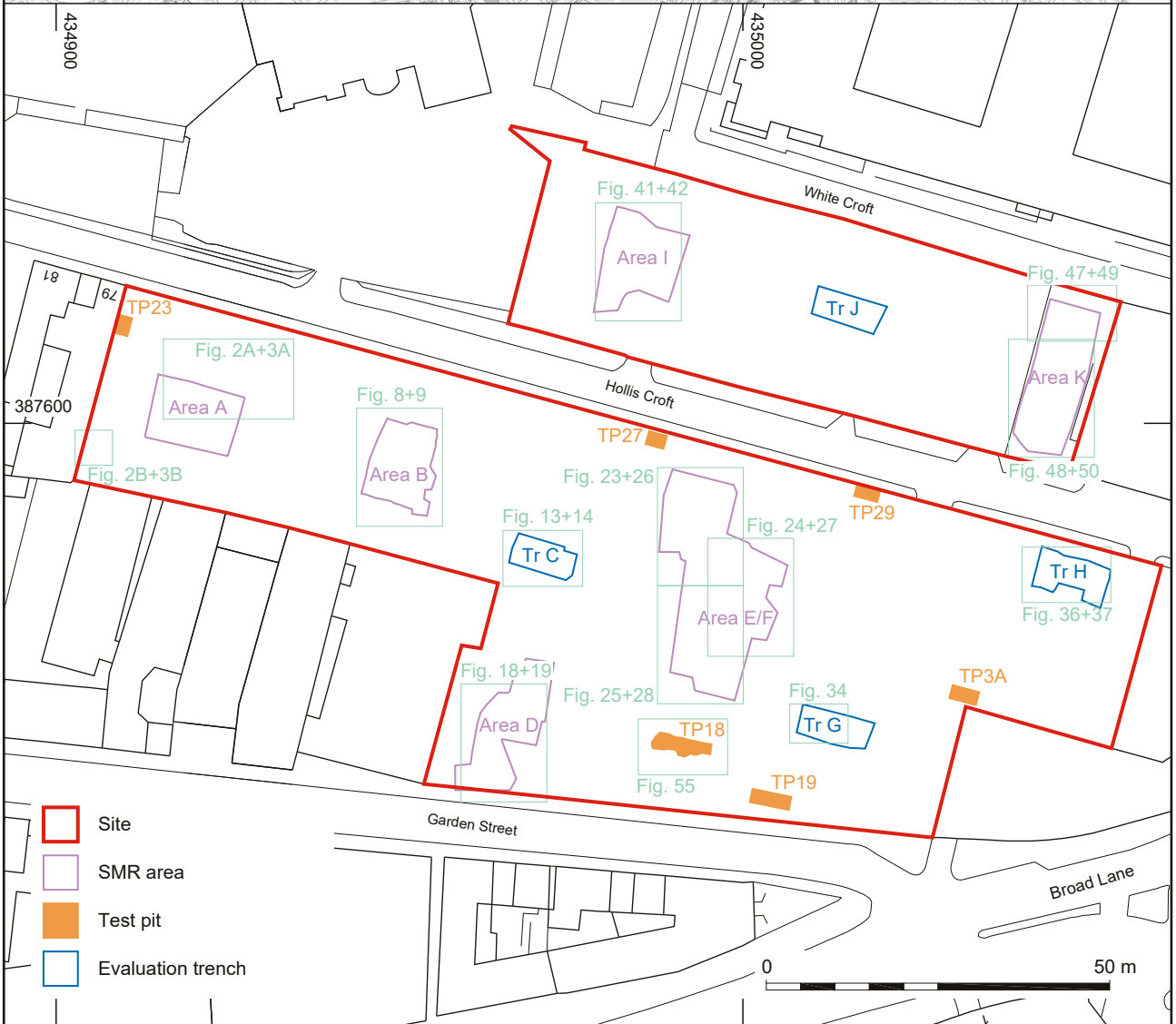
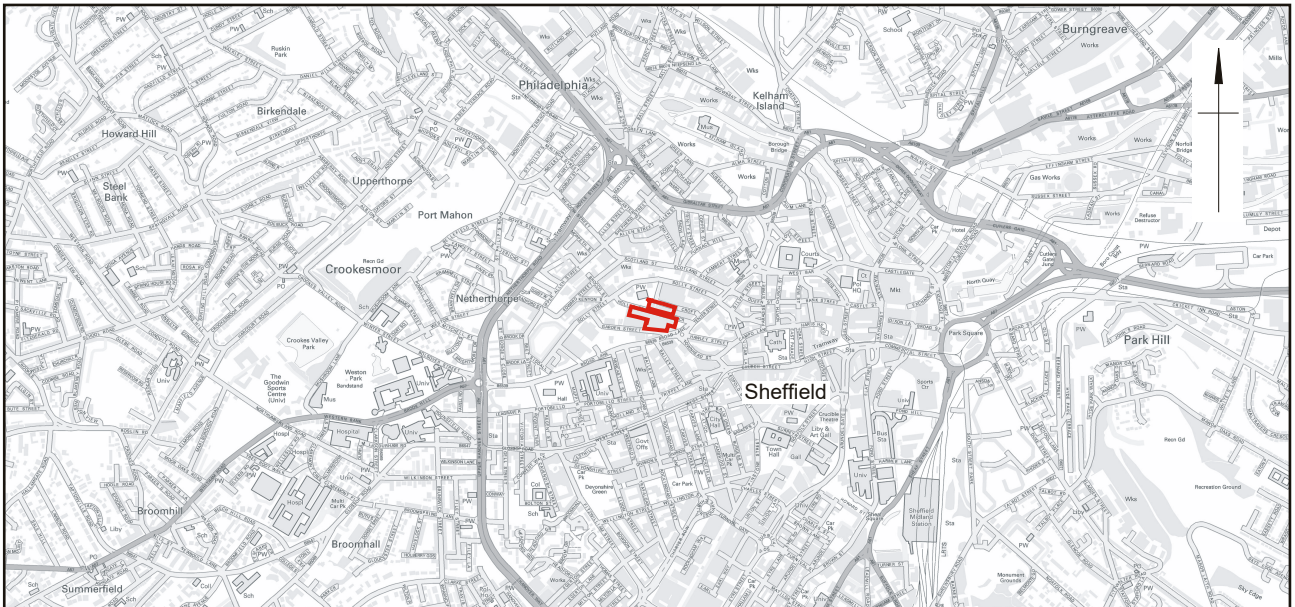
No.	Location text	Source	Forenames	Surname	Relationship	Marital status	Sex	Age	Birth year	Birth place	Company Name	Occupation	Home Address
	Court 5	1851 Census	Mary Ann	Crugan	Daughter	-	Female	5	1846	Sheffield, Yorkshire, England		-	
	Court 5	1851 Census	Ann	Fowler	-	-	Female	5	1846	Sheffield, Yorkshire, England		Scholar	
	Court 5	1851 Census	Martha	Holmes	-	-	Female	5	1846	Sheffield, Yorkshire, England		Scholar	
	Court 5	1851 Census	Mary Jane	Fowler	-	-	Female	3	1848	Sheffield, Yorkshire, England		-	
	Court 5	1851 Census	Peter	Crugan	Son	-	Male	3	1848	Sheffield, Yorkshire, England		-	
	Court 5	1851 Census	Thomas	Holmes	-	-	Male	2	1849	Sheffield, Yorkshire, England		-	
	Court 5	1851 Census	Margaret	Crugan	Daughter	-	Female	1	1850	Sheffield, Yorkshire, England		-	
	Court 5	1851 Census	John	Fowler	-	T O	Male	1	1850	Sheffield, Yorkshire, England		-	
	Court 7	1851 Census	Joseph	Cokey	-	Widower	Male	72	1779	Sheffield, Yorkshire, England		Chelsea Pensioner	
	Court 7	1851 Census	Ann	Whitworth	Head	Widow	Female	40	1811	Sheffield, Yorkshire, England		Super Burnisher	
	Court 7	1851 Census	Edwin	Cokey	-	Widower	Male	34	1817	Sheffield, Yorkshire, England		Scissor Smith	
	Court 7	1851 Census	Henry	Whitworth	Son	-	Male	14	1837	Sheffield, Yorkshire, England		Cutler	
	Not given - Jackson family	1851 Census	Mary Ann	Jackson	Head	Married	Female	51	1800	Alfreton, Derbyshire, England		-	
	Not given - Jackson family	1851 Census	Cornelius	Longton	Son-In-Law	Married	Male	31	1820	Sheffield, Yorkshire, England		Pen Knife Cutler	



No.	Location text	Source	Forenames	Surname	Relationship	Marital status	Sex	Age	Birth year	Birth place	Company Name	Occupation	Home Address
	Not given - Jackson family	1851 Census	Sarah	Longton	Daughter	Married	Female	26	1825	Sheffield, Yorkshire, England		Char Woman	
	Not given - Jackson family	1851 Census	Mary Ann	Hallam	Visitor	Married	Female	24	1827	-		-	
	Not given - Jackson family	1851 Census	William	Jackson	Son	-	Male	14	1837	Attercliffe, Yorkshire, England		Moulder	
	Not given - Jackson family	1851 Census	Joe	Jackson	Son	-	Male	12	1839	Attercliffe, Yorkshire, England		Errand Boy	
	Not given - Jackson family	1851 Census	Elizabeth	Longton	Daughter	-	Female	4	1847	Sheffield, Yorkshire, England		-	
	Not given - Jackson family	1851 Census	John	Hallam	Visitor	-	Male	4	1847	-		-	
	Not given - Middlewood family	1851 Census	William	Middlewood	Head	Married	Male	45	1806	Thorne, Yorkshire, England		Joiner	
	Not given - Middlewood family	1851 Census	Mary	Middlewood	Wife	Married	Female	39	1812	Sheffield, Yorkshire, England		-	
	Not given - Middlewood family	1851 Census	Richard	Middlewood	Son	-	Male	12	1839	Sheffield, Yorkshire, England		-	
	Not given - Middlewood family	1851 Census	William	Middlewood	Son	-	Male	9	1842	Sheffield, Yorkshire, England		Errand Boy	
	Not given - Middlewood family	1851 Census	Harriett	Middlewood	Daughter	-	Female	6	1845	Sheffield, Yorkshire, England		Scholar	
	Not given - Middlewood family	1851 Census	Thomas	Middlewood	Son	-	Male	3	1848	Sheffield, Yorkshire, England		Scholar	
	Not given - Middlewood family	1851 Census	Mary	Middlewood	Daughter	-	Female	1	1850	Sheffield, Yorkshire, England		-	
	Social Tavern	1852 Directory	James	King								Table knife manufacturer and victualler	



No.	Location text	Source	Forenames	Surname	Relationship	Marital status	Sex	Age	Birth year	Birth place	Company Name	Occupation	Home Address
		1852 Directory	Wm.	Pearce								Fluter	



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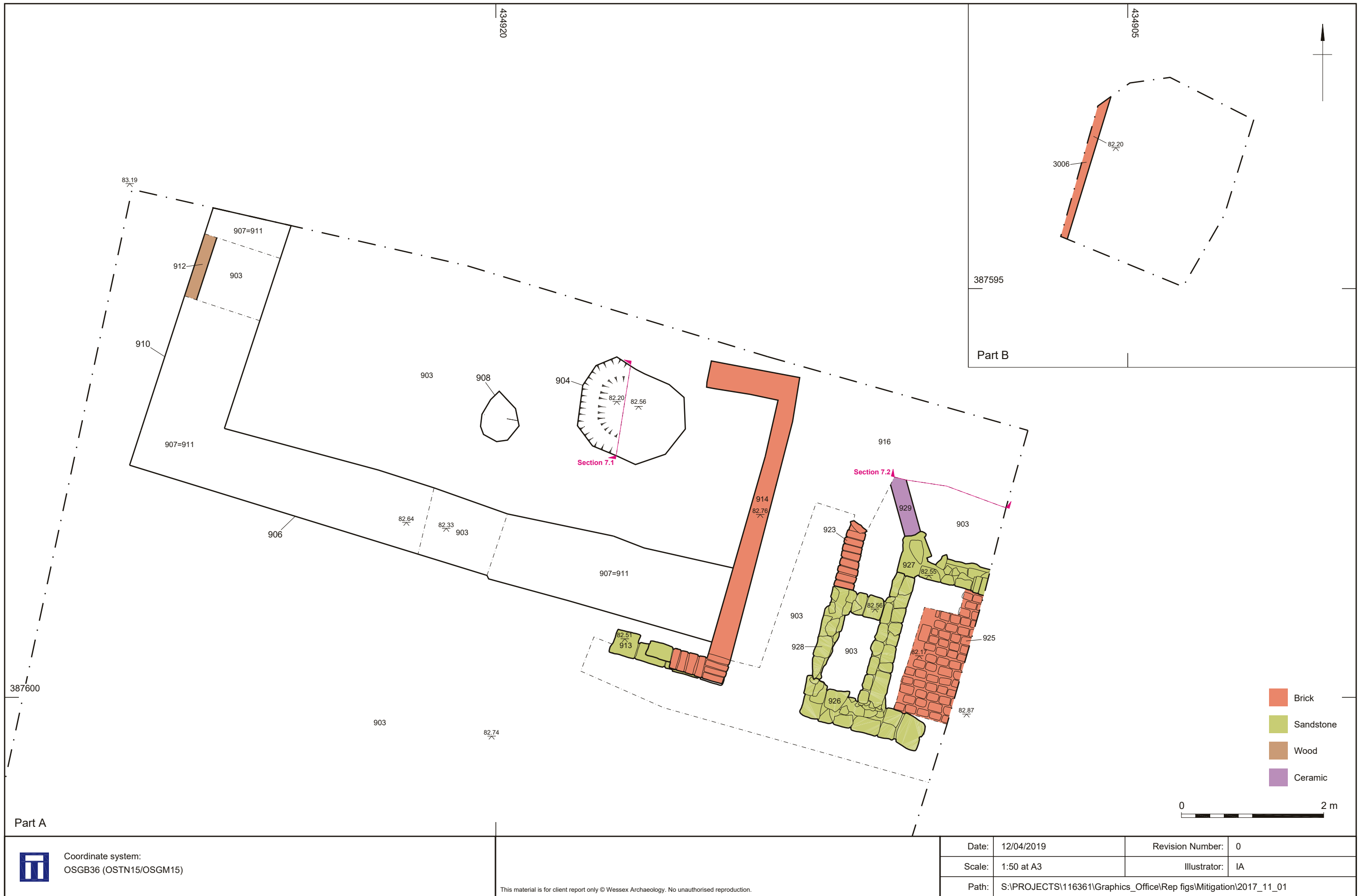


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Site location and evaluation trial trench, strip, map and record area and watching brief test pit locations

Figure 1



Part A

Part B



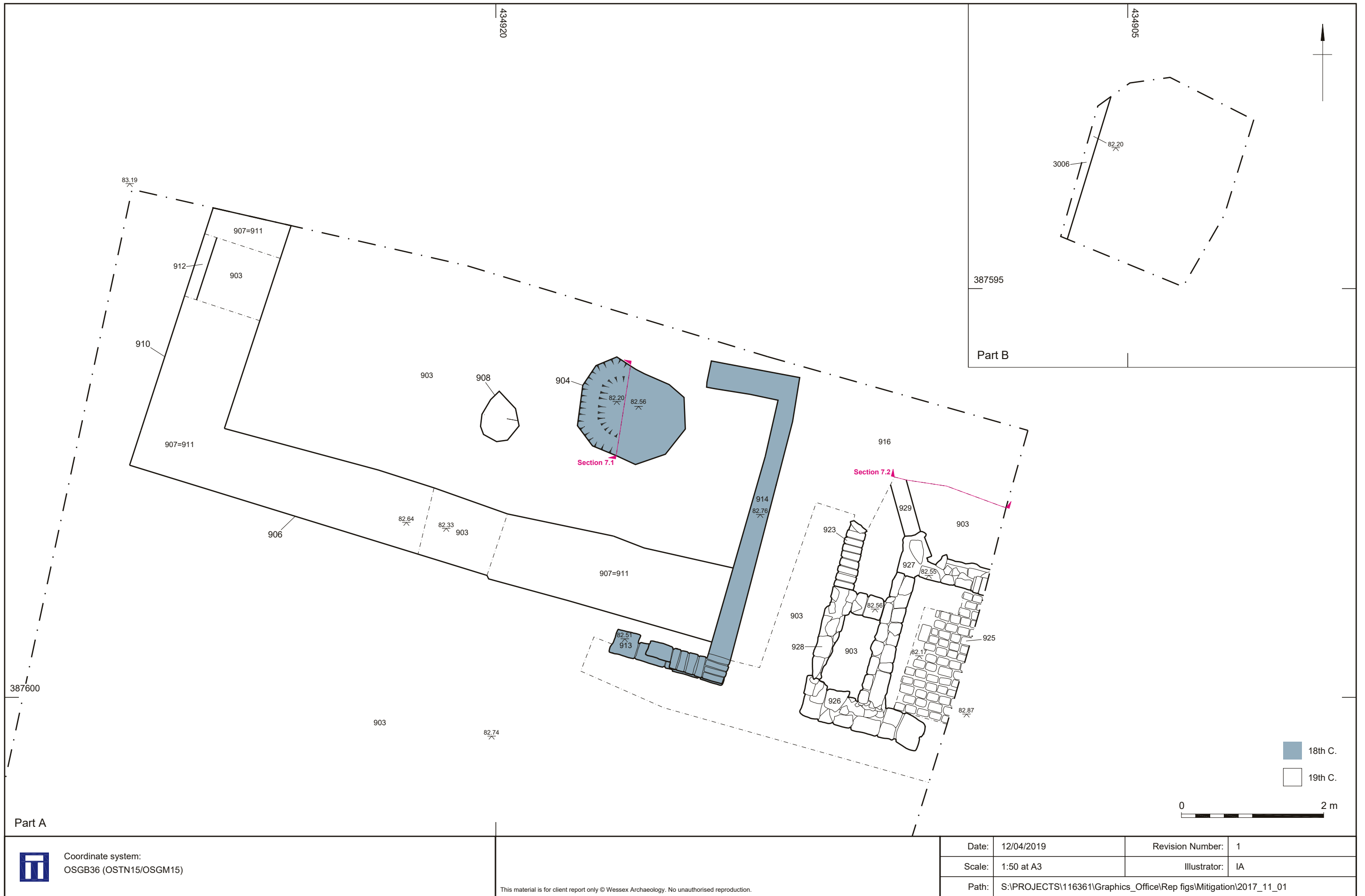
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Plan of Area A showing materials

Figure 2



Part A

Part B



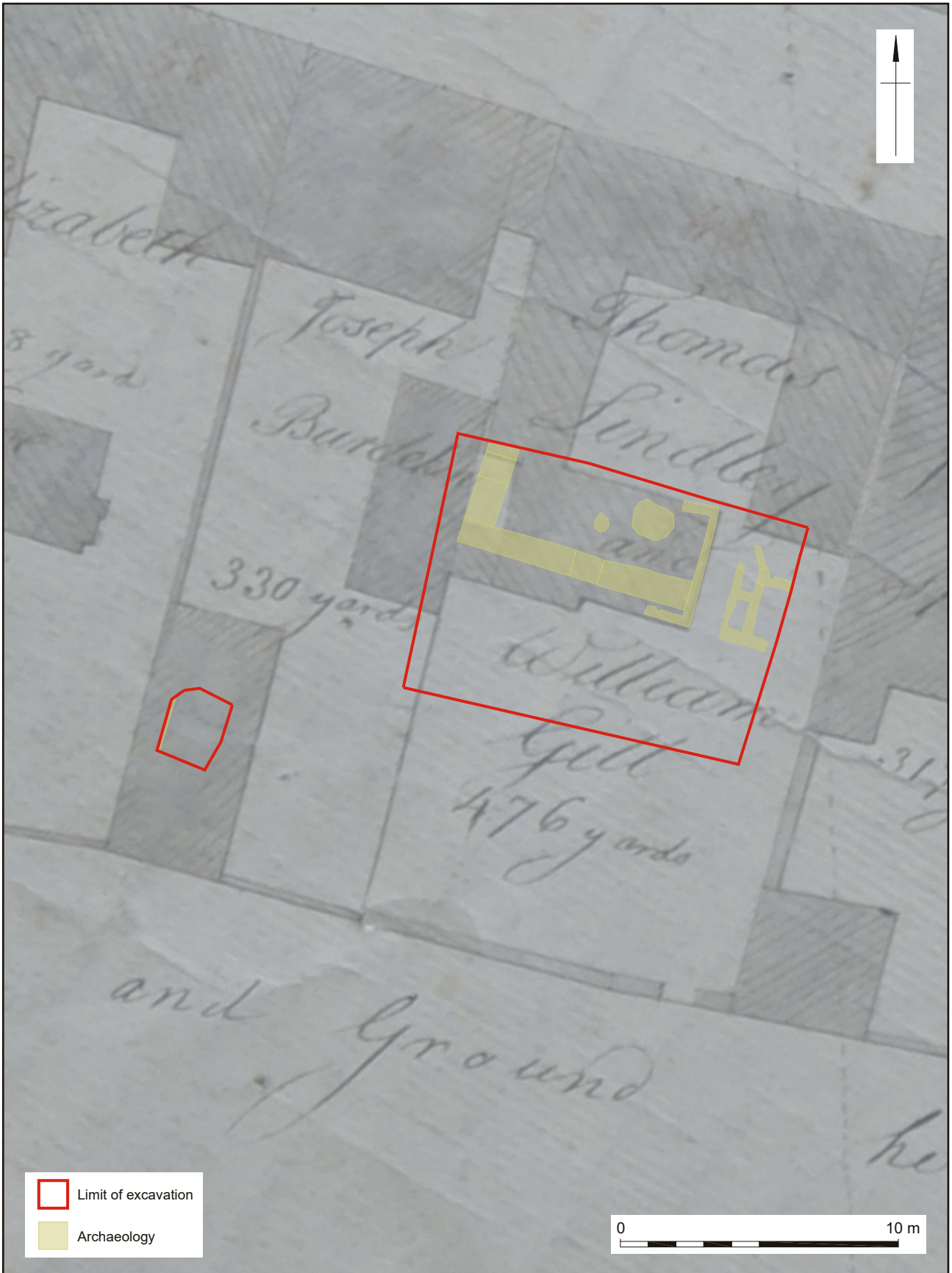
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Plan of Area A showing phasing

Figure 3



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Plan of Area A overlaid on Fairbank plan of 1787-9


Figure 4



Limit of excavation
 Archaeology

0 10 m

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Plan of Area A overlaid on Ordnance Survey map of 1853

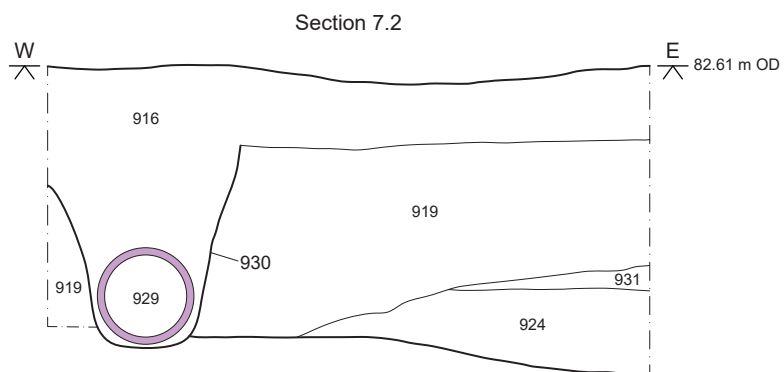
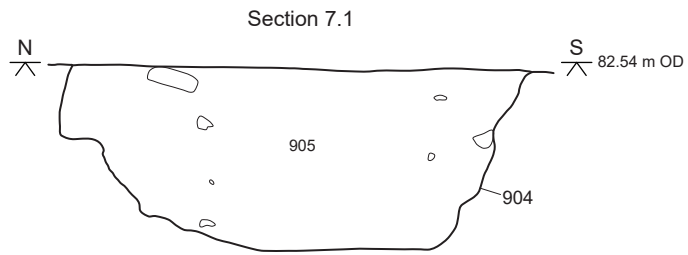
Figure 5



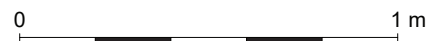
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Plan of Area A overlaid on Ordnance Survey map of 1890

Figure 6



 Ceramic



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Sections of Area A

Figure 7



- Brick
- Sandstone
- Concrete
- Modern

Coordinate system:
OSGB36 (OSTN15/OSGM15)

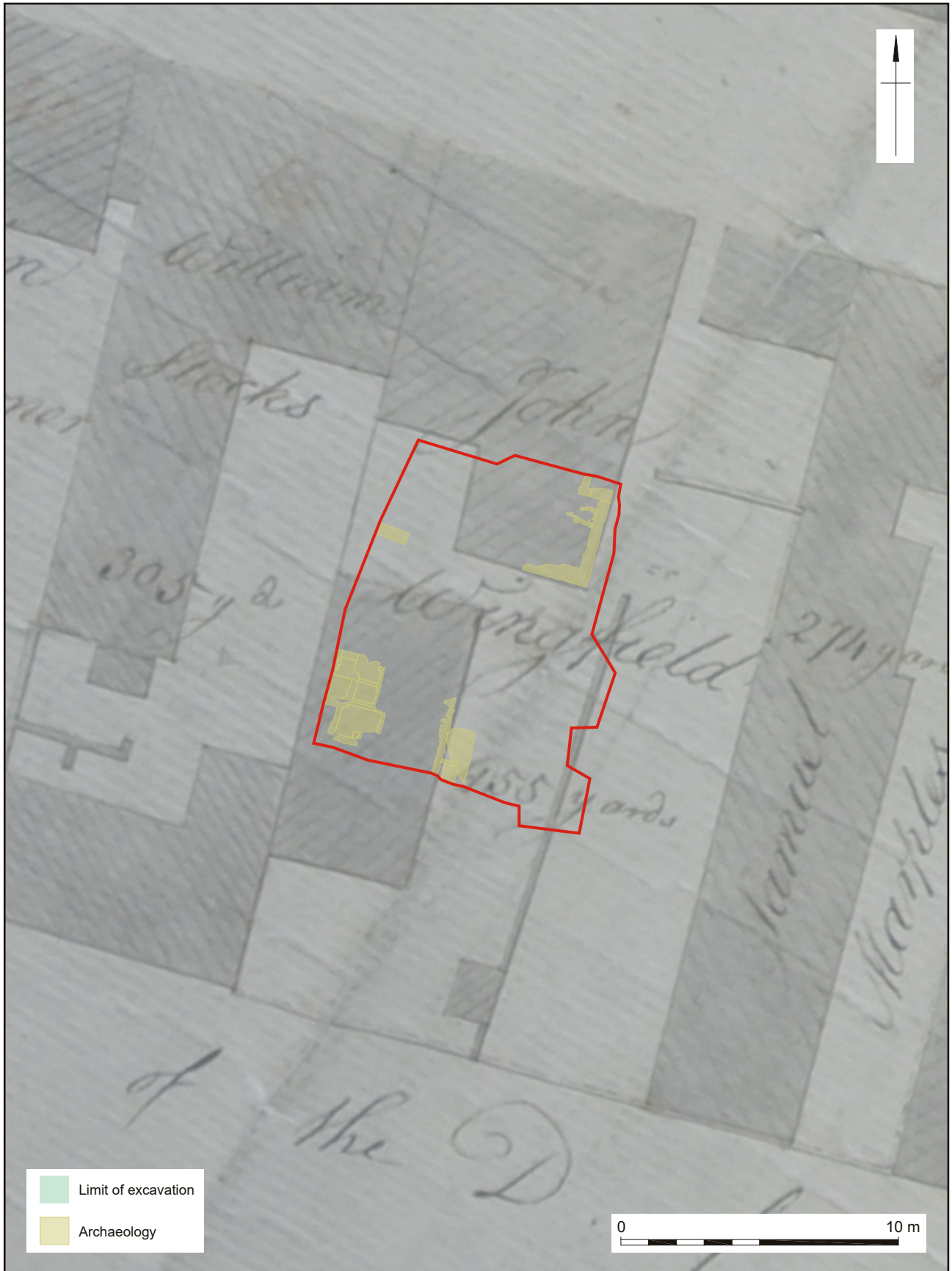



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Plan of Area B showing materials

Figure 8



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Plan of Area B overlaid on Fairbank plan of 1787-9

Figure 10



Limit of excavation
 Archaeology



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Plan of Area B overlaid on Ordnance Survey map of 1853

Figure 11



Limit of excavation
 Archaeology



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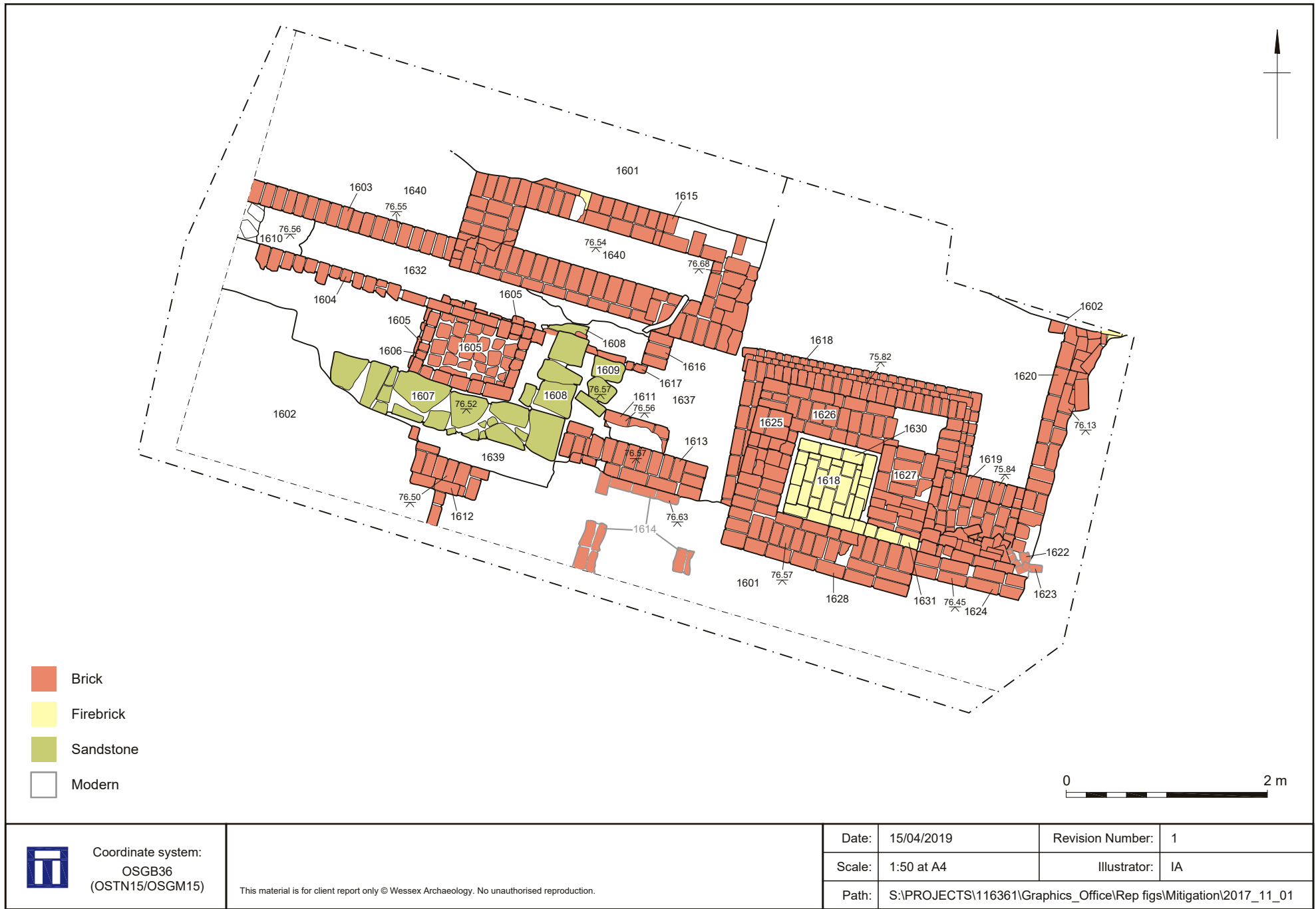


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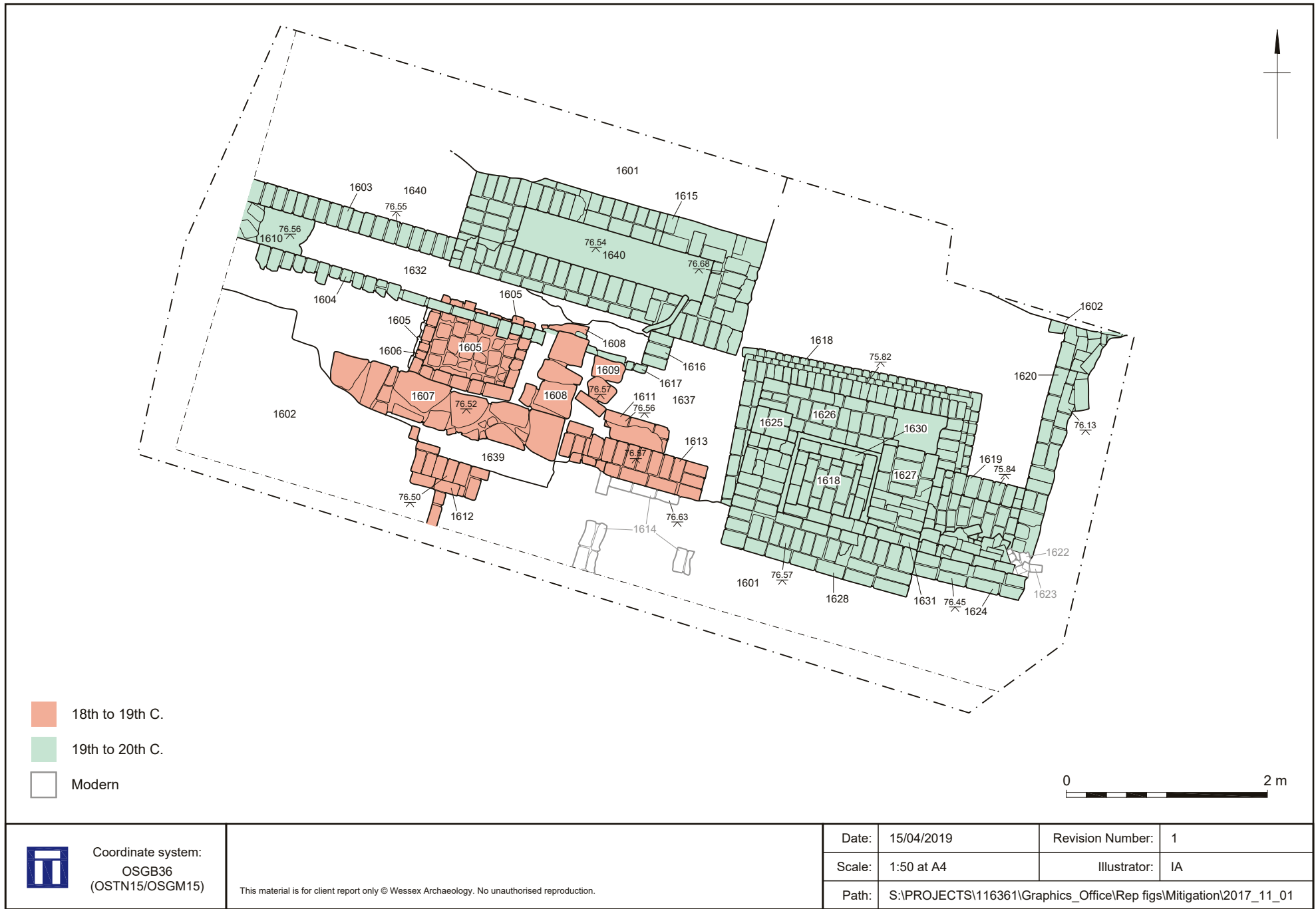
Plan of Area B overlaid on Ordnance Survey map of 1890

Figure 12



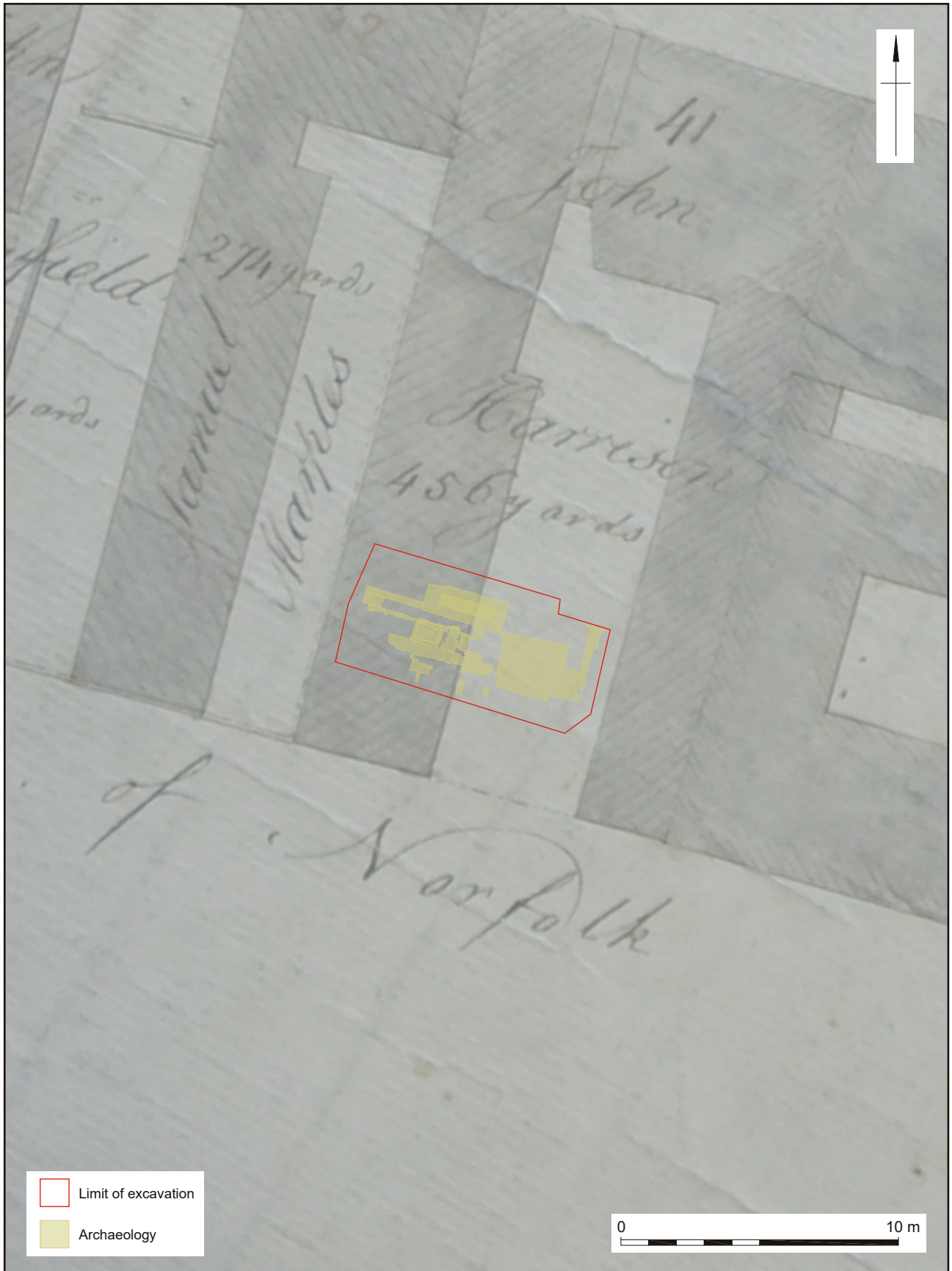
Plan of Area C showing materials


Figure 13



Plan of Area C showing phasing

Figure 14



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Plan of Area C overlaid on Fairbank plan of 1787-9

Figure 15



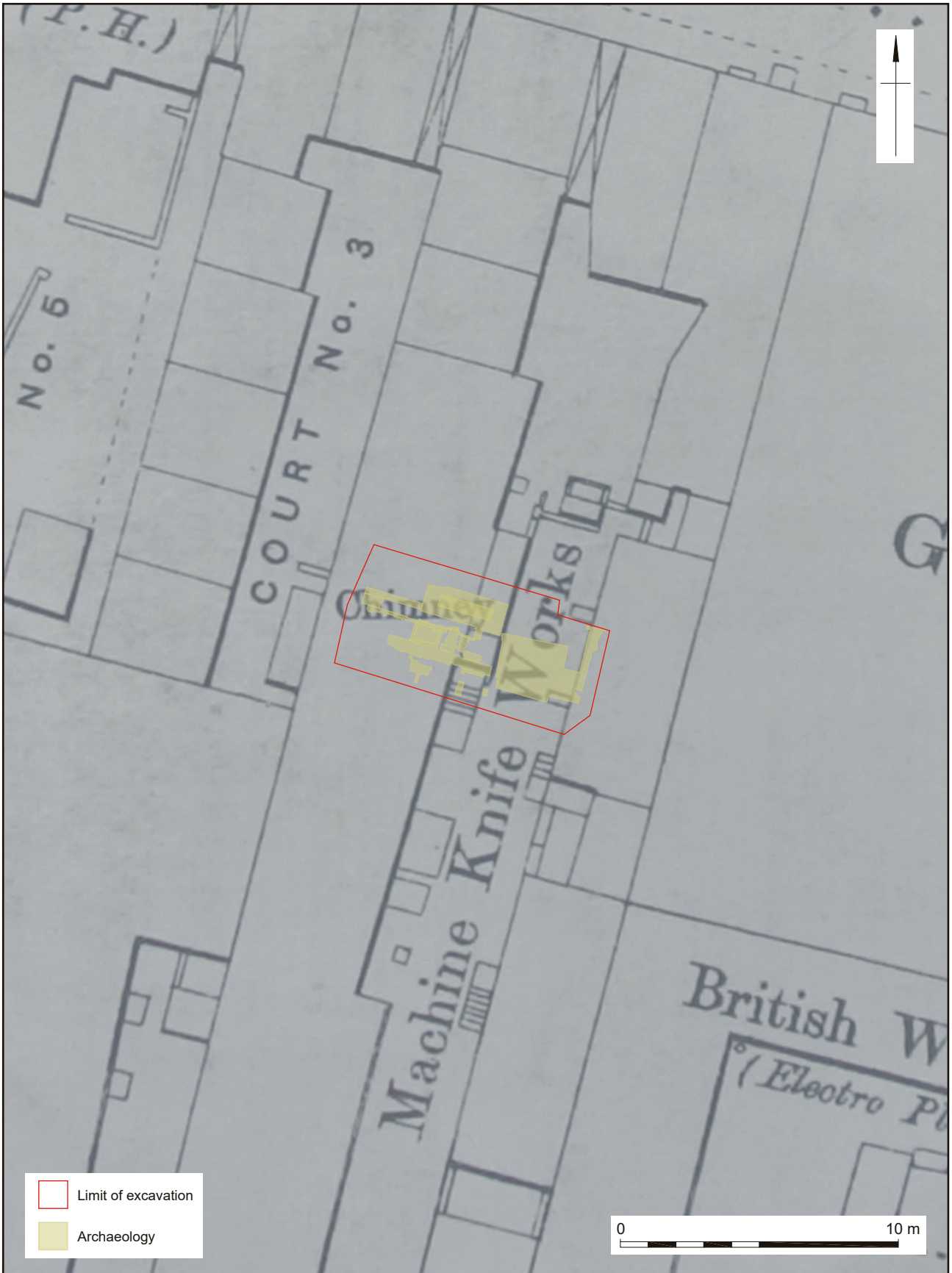
Limit of excavation
 Archaeology




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Plan of Area C overlaid on Ordnance Survey map of 1853

Figure 16



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Plan of Area C overlaid on Ordnance Survey map of 1890

Figure 17



Coordinate system:
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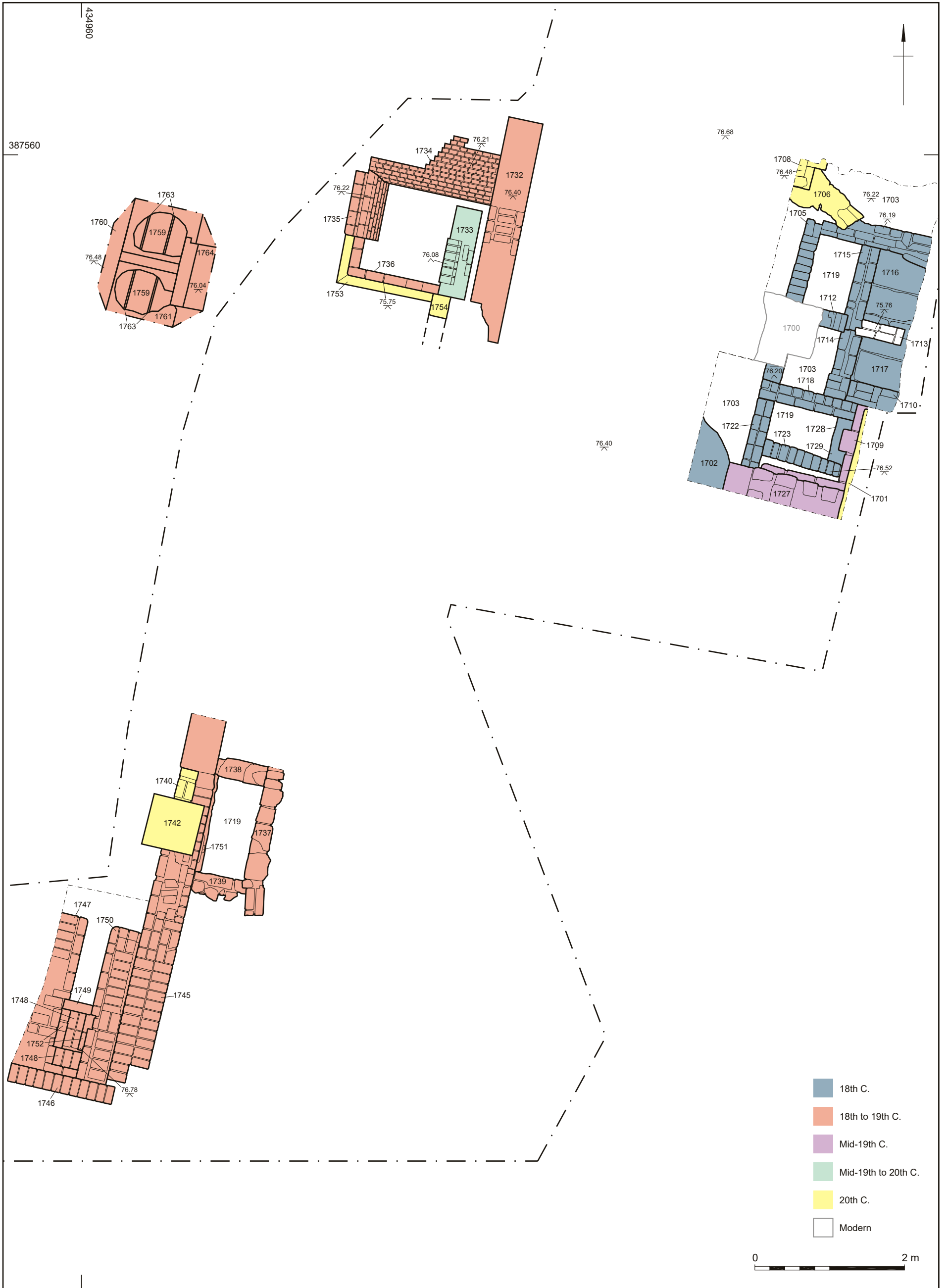


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Plan of Area D showing materials

Figure 18



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Plan of Area D showing phasing

Figure 19




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Plan of Area D overlaid on Fairbank plan of 1781

Figure 20




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Plan of Area D overlaid on Ordnance Survey map of 1853

Figure 21



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Plan of Area D overlaid on Ordnance Survey map of 1890

Figure 22



387580

- Brick
- Firebrick
- Sandstone
- Ganister
- Concrete
- Modern



Coordinate system:
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Plan of Area E/F showing materials

Figure 23



387560

0 2 m

Coordinate system:
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Plan of Area E/F showing materials

Figure 25



387580

- Phase 3: Mid-19th C.
- Phase 5: Black ash mortar structures
- Phase 6: Frogged brick and black ash mortar structures
- Modern
- Unphased

0 2 m

Coordinate system:
OSGB36 (OSTN15/OSGM15)

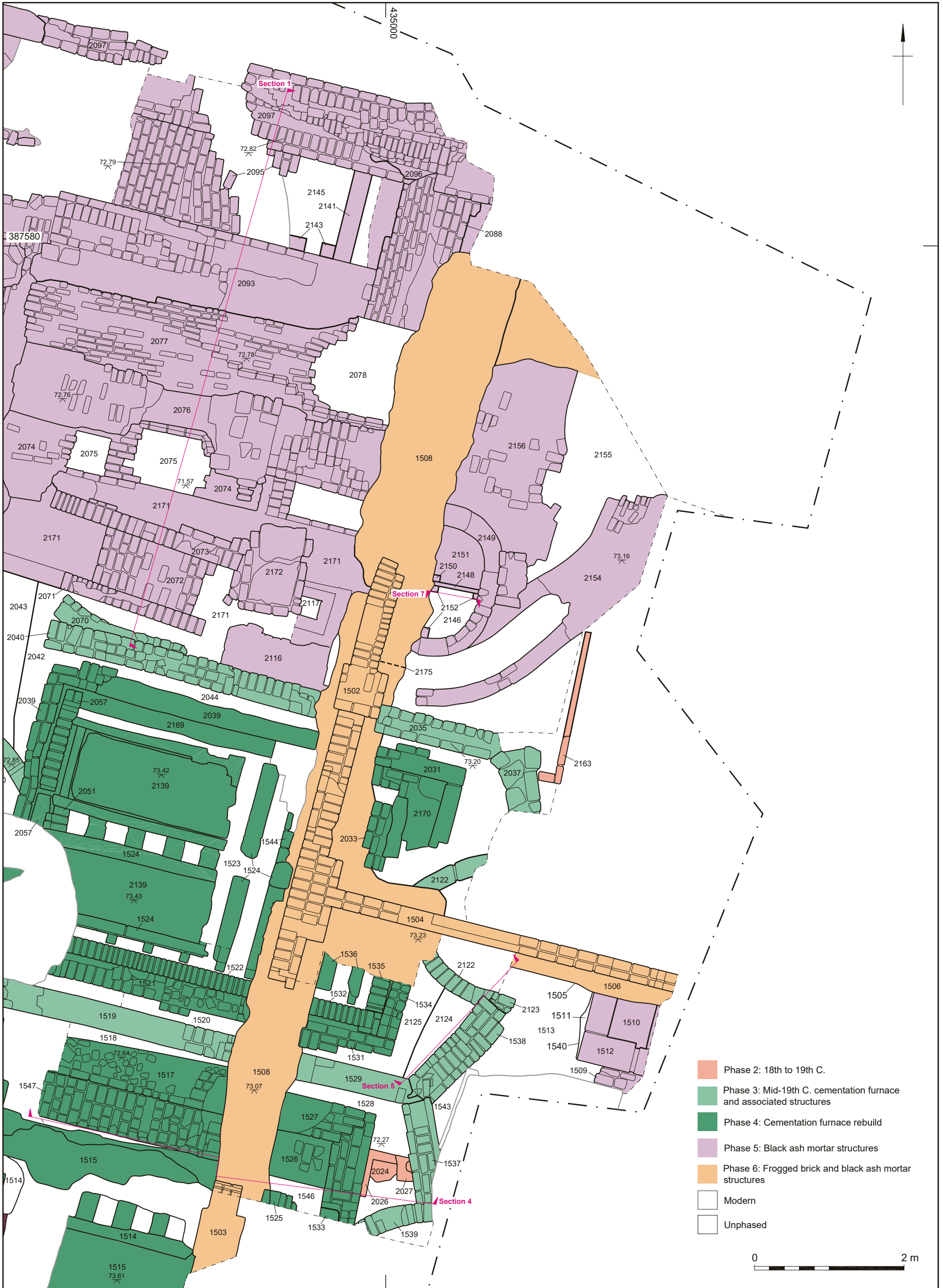


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Plan of Area E/F showing phasing

Figure 26



- Phase 2: 18th to 19th C.
- Phase 3: Mid-19th C. cementation furnace and associated structures
- Phase 4: Cementation furnace rebuild
- Phase 5: Black ash mortar structures
- Phase 6: Frogged brick and black ash mortar structures
- Modern
- Unphased

0 2 m

Coordinate system:
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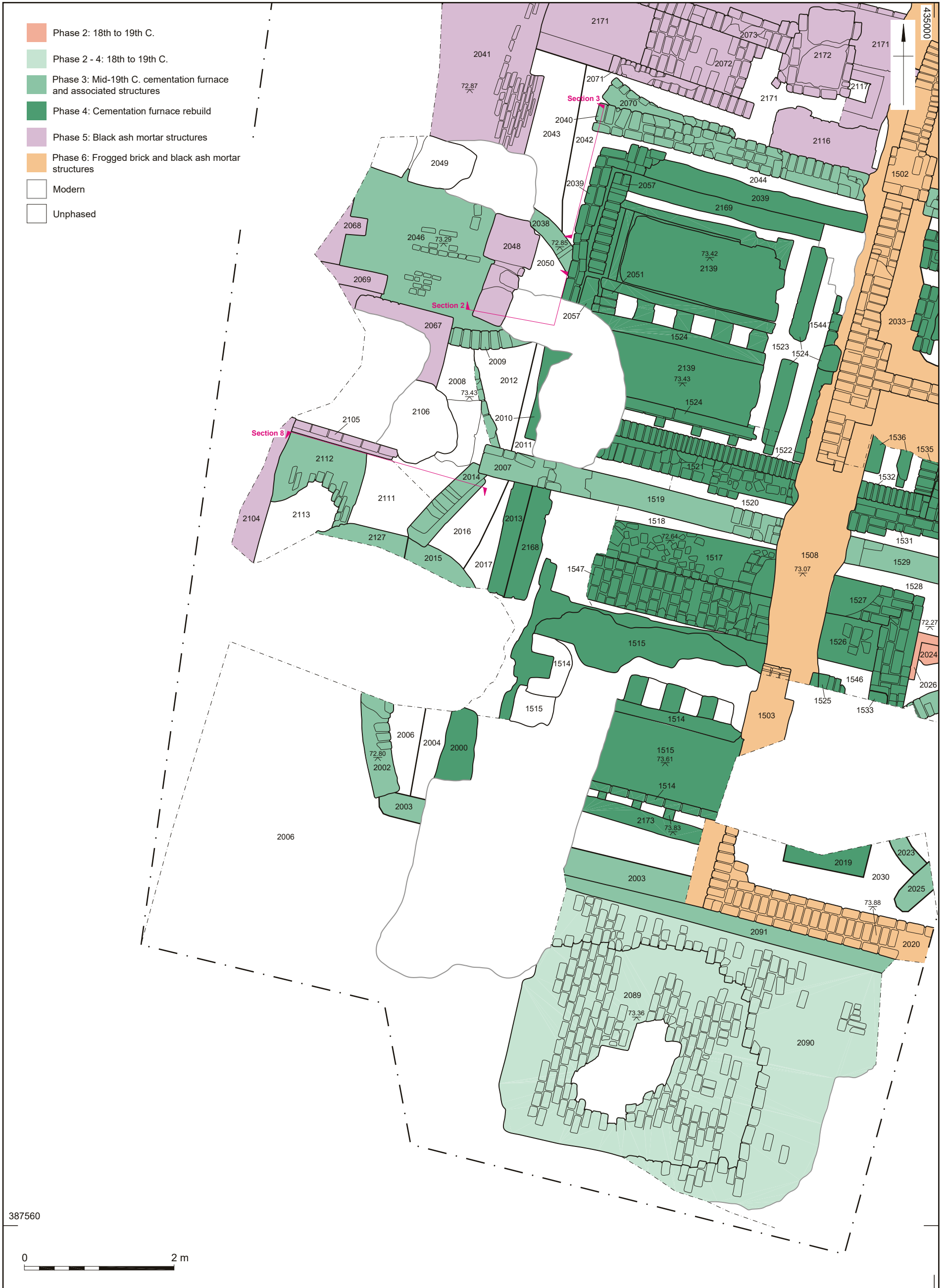


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Plan of Area E/F showing phasing

Figure 27



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Plan of Area E/F showing phasing

Figure 28



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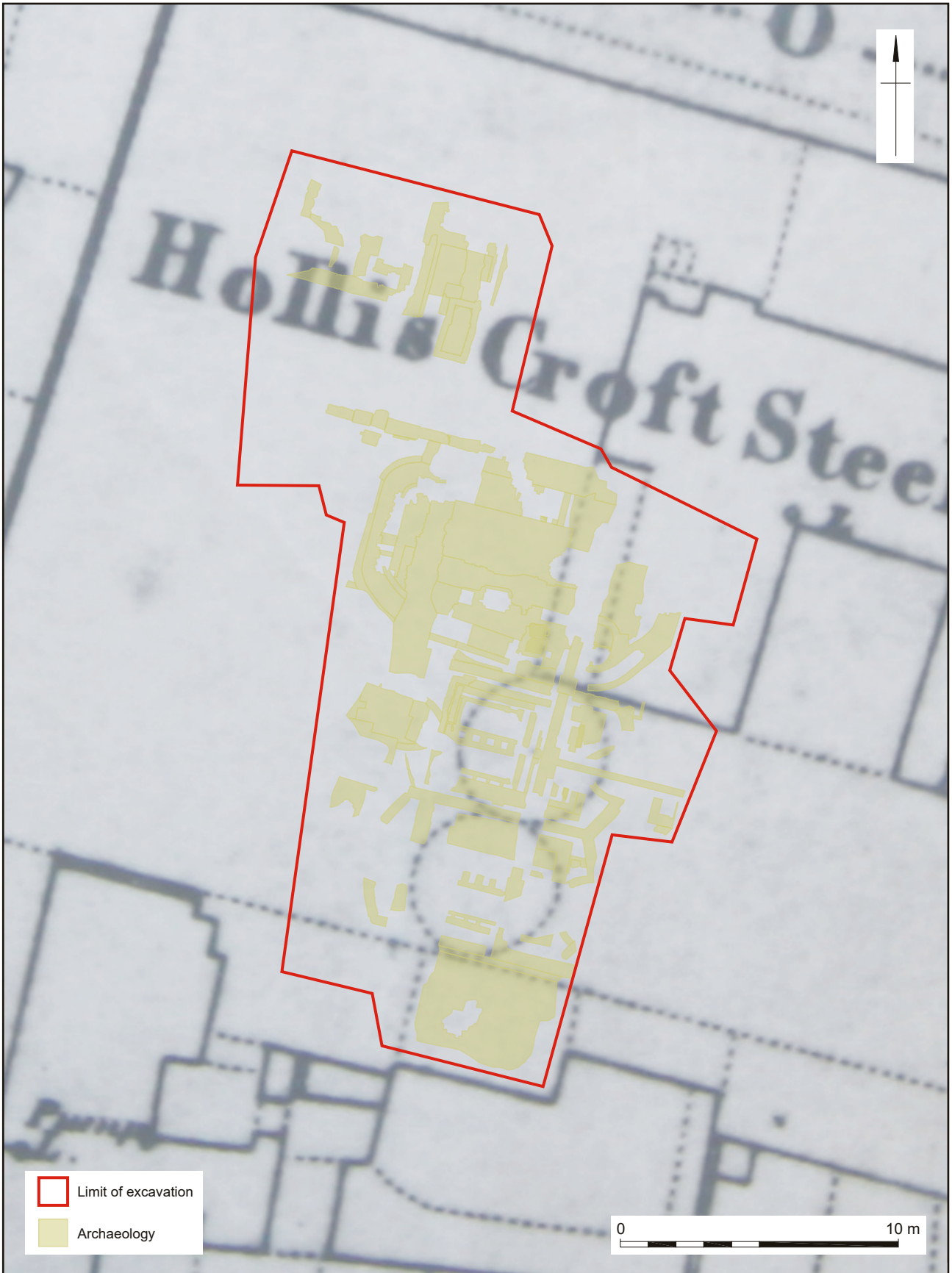
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Illustrator: IA

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Plan of Area E/F overlaid on Fairbank plan of 1781/1787-9

Figure 29



Limit of excavation
 Archaeology



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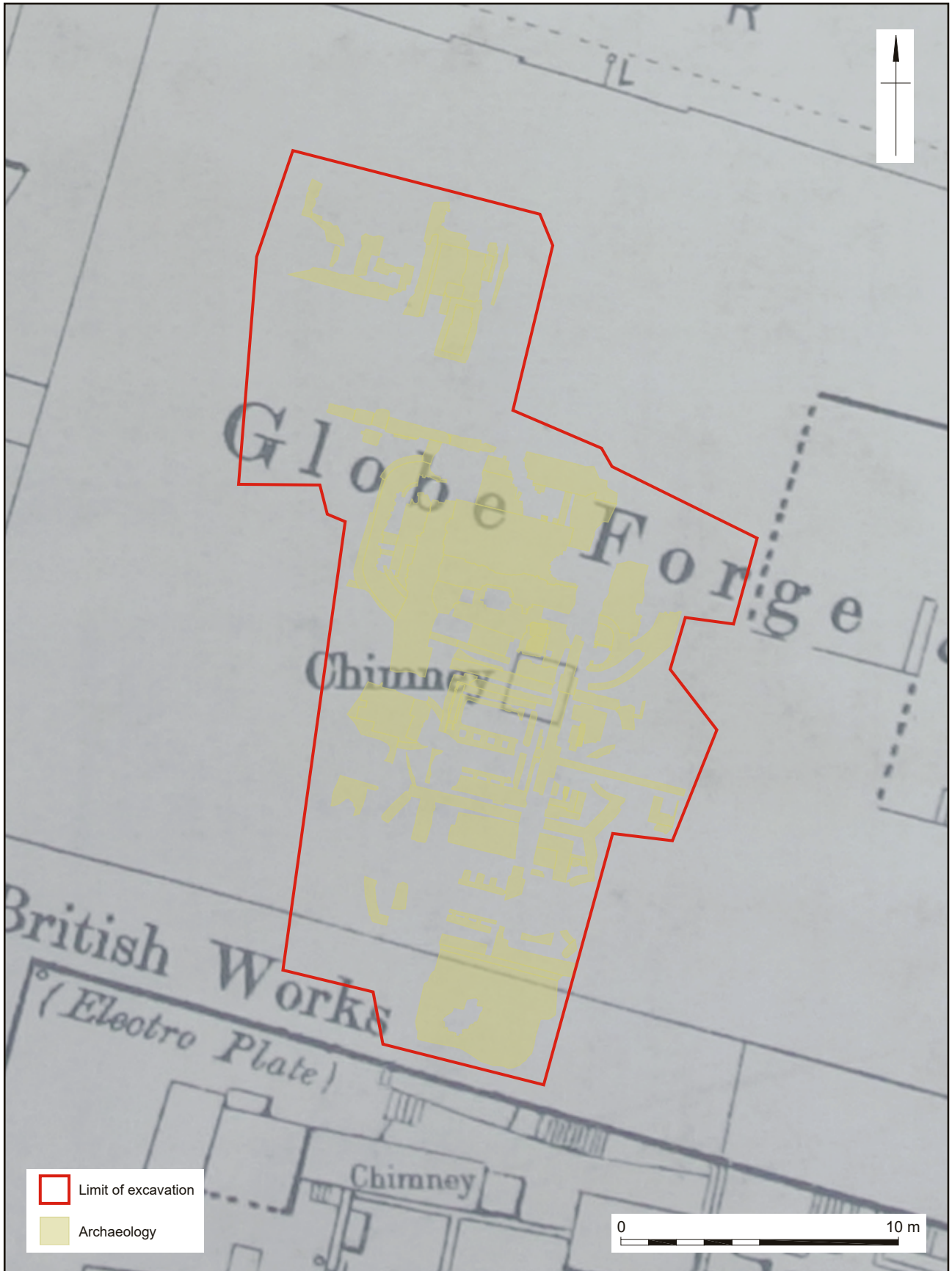


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Plan of Area E/F overlaid on Ordnance Survey map of 1853

Figure 30



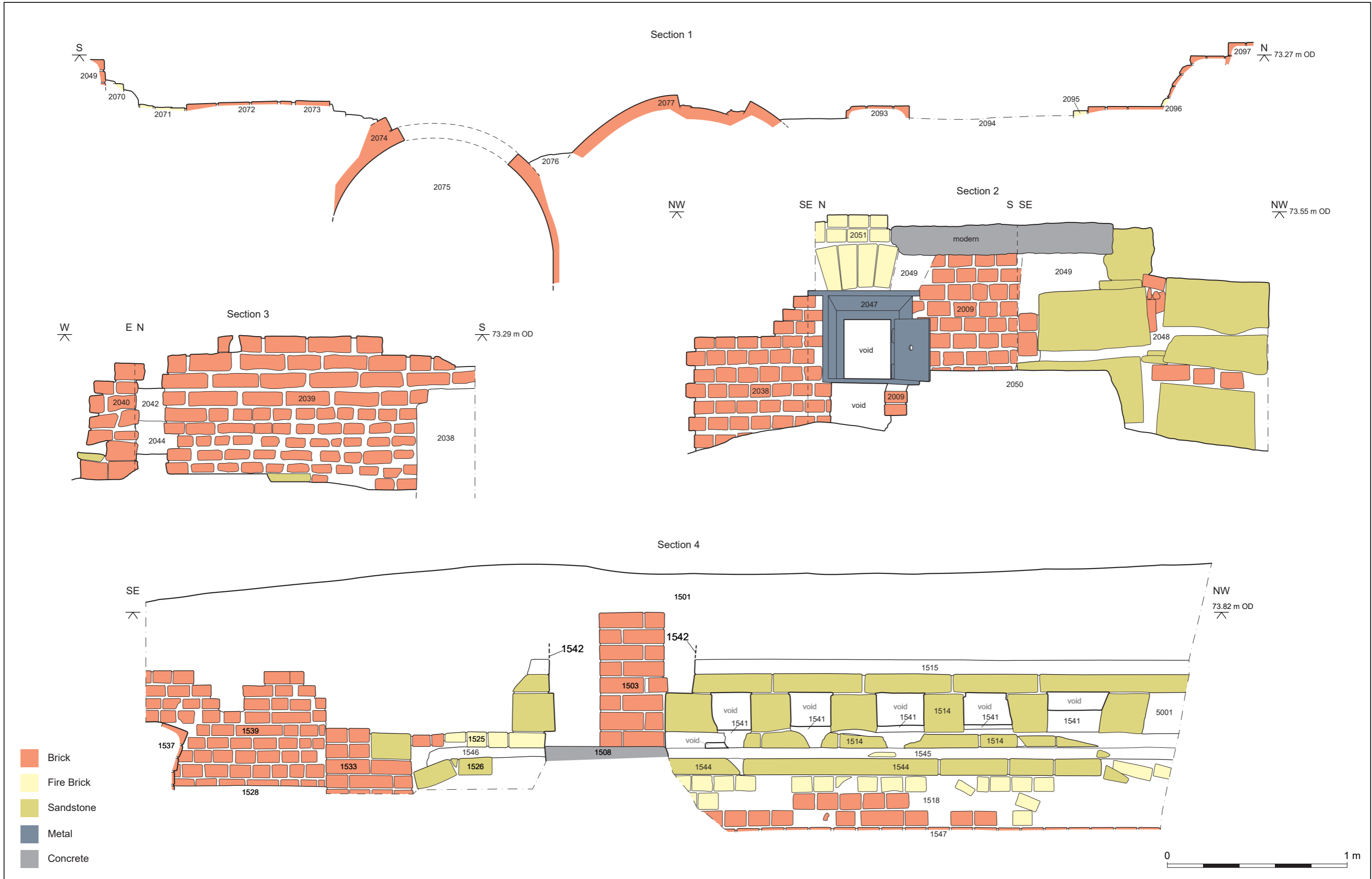
Limit of excavation
 Archaeology




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Plan of Area E/F overlaid on Ordnance Survey map of 1890

Figure 31

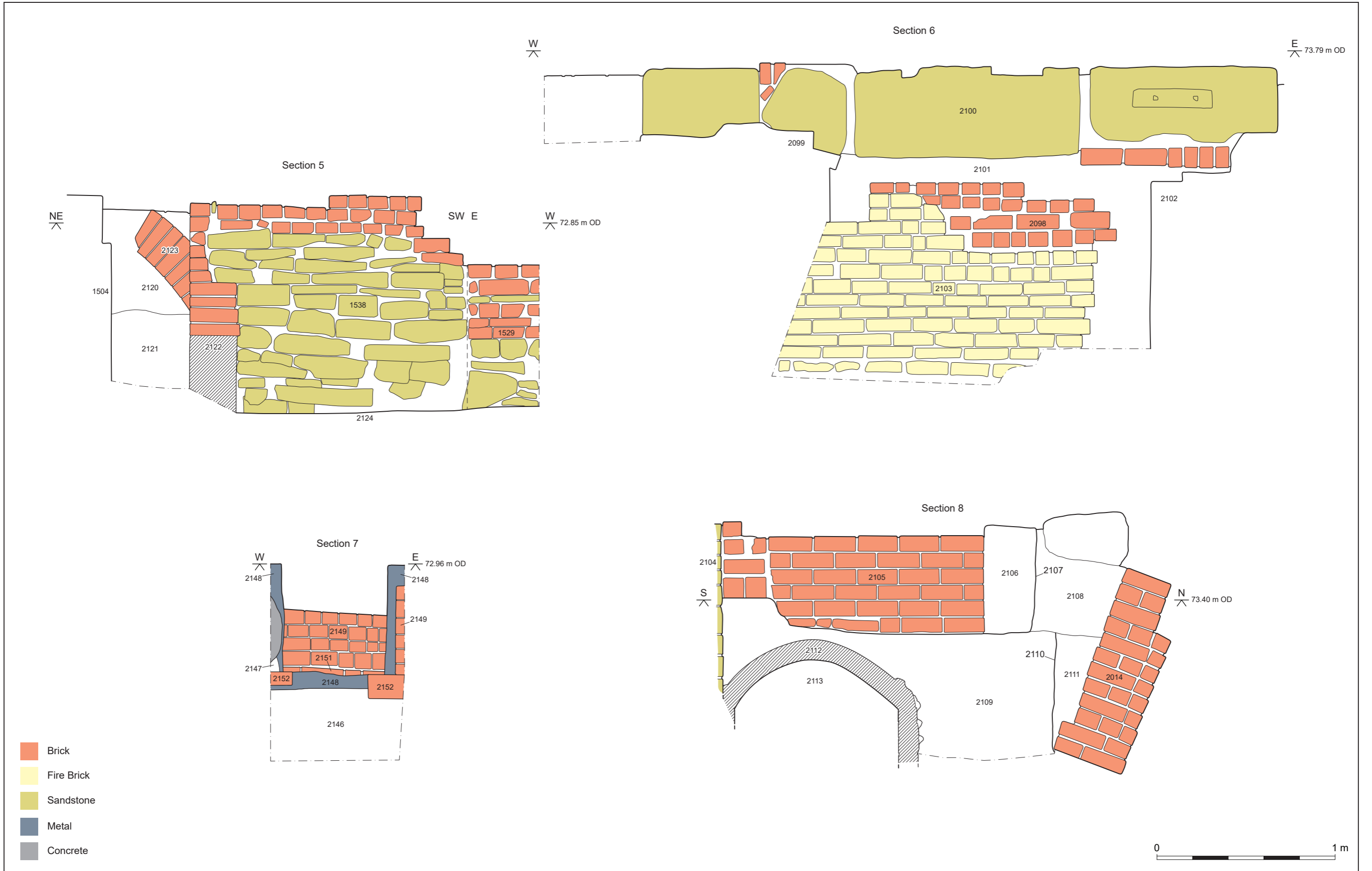


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Sections of Area E/F

Figure 32

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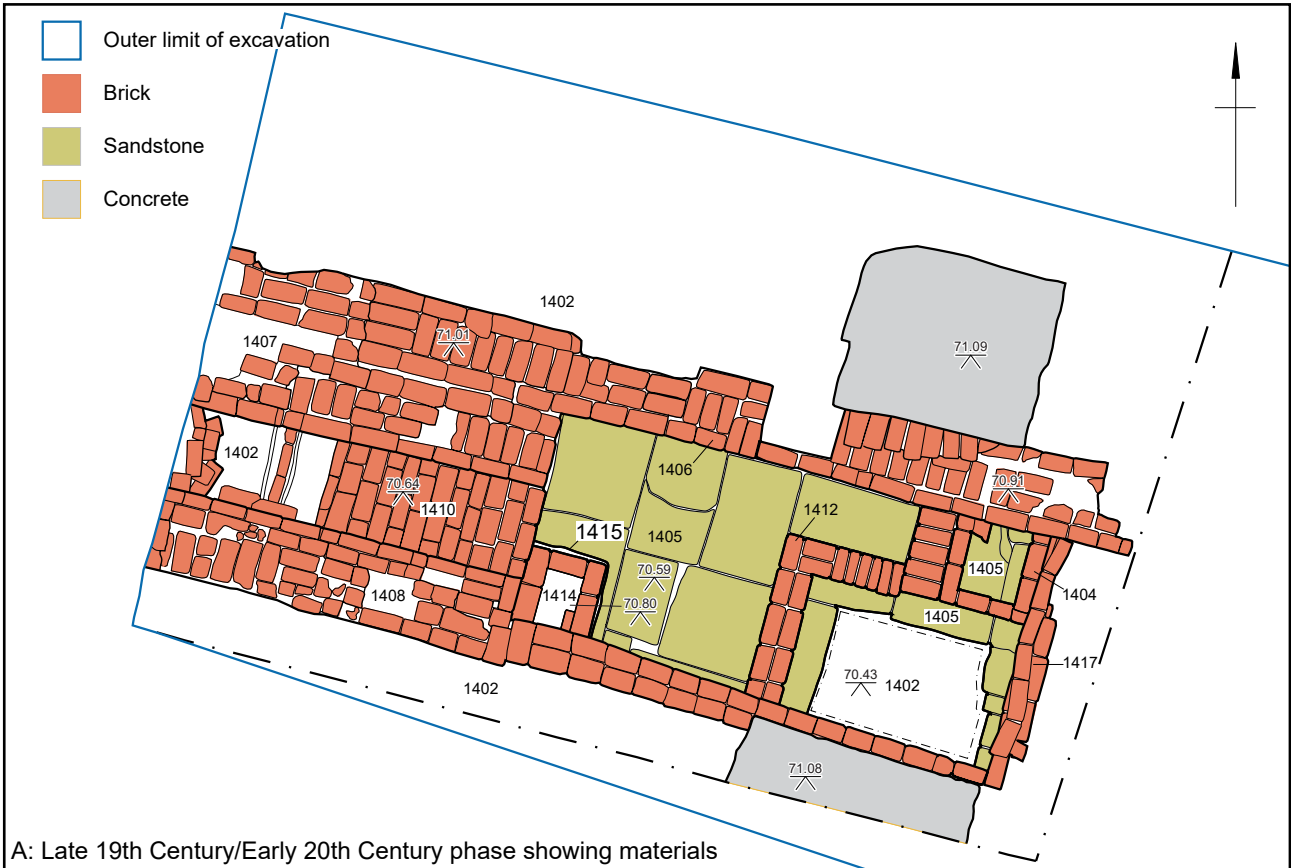


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Sections of Area E/F


Figure 33




A: Late 19th Century/Early 20th Century phase showing materials



B: 20th Century phase showing materials

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Plan of Area G overlaid on Ordnance Survey map of 1890

Figure 35



- Outer limit of excavation
- Brick
- Firebrick
- Stone



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Plan of Area H showing materials

Figure 36



- Outer limit of excavation
- Late 19th C.
- Late 19th/early 20th C.



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Plan of Area H showing phasing

Figure 37



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Plan of Area H overlaid on Fairbank plan of 1787-9

Figure 38



Limit of excavation
 Archaeology

0 5 m

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Plan of Area H overlaid on Ordnance Survey map of 1853

Figure 39



Limit of excavation
 Archaeology

0 5 m

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Plan of Area H overlaid on Ordnance Survey map of 1890

Figure 40



- Brick
- Sandstone
- Modern

0 2 m

Coordinate system:
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Plan of Area I showing materials

Figure 41



Coordinate system:
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Plan of Area I showing phasing

Figure 42



Limit of excavation
 Archaeology



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Plan of Area I overlaid on Fairbank plan of 1787-9


Figure 43



 Limit of excavation
 Archaeology



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Plan of Area I overlaid on Ordnance Survey map of 1853

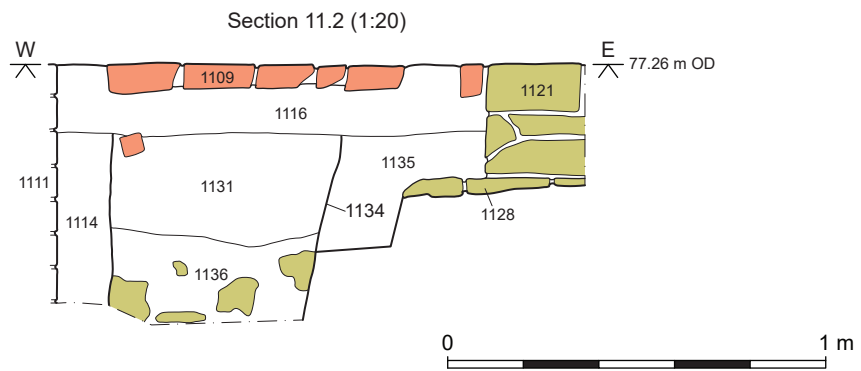
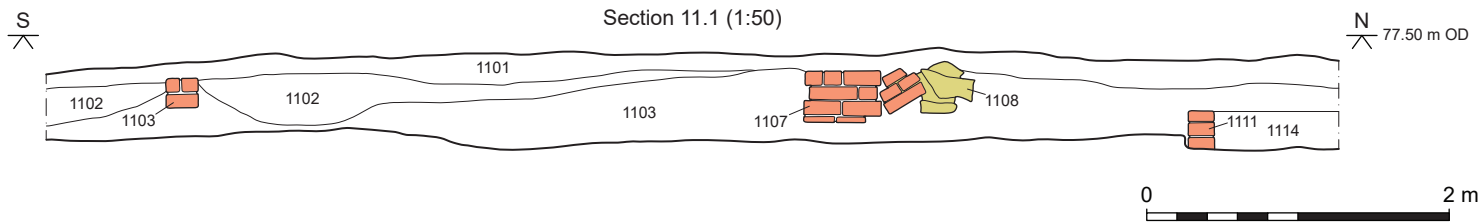
Figure 44



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Plan of Area I overlaid on Ordnance Survey map of 1890

Figure 45



- Brick
- Sandstone

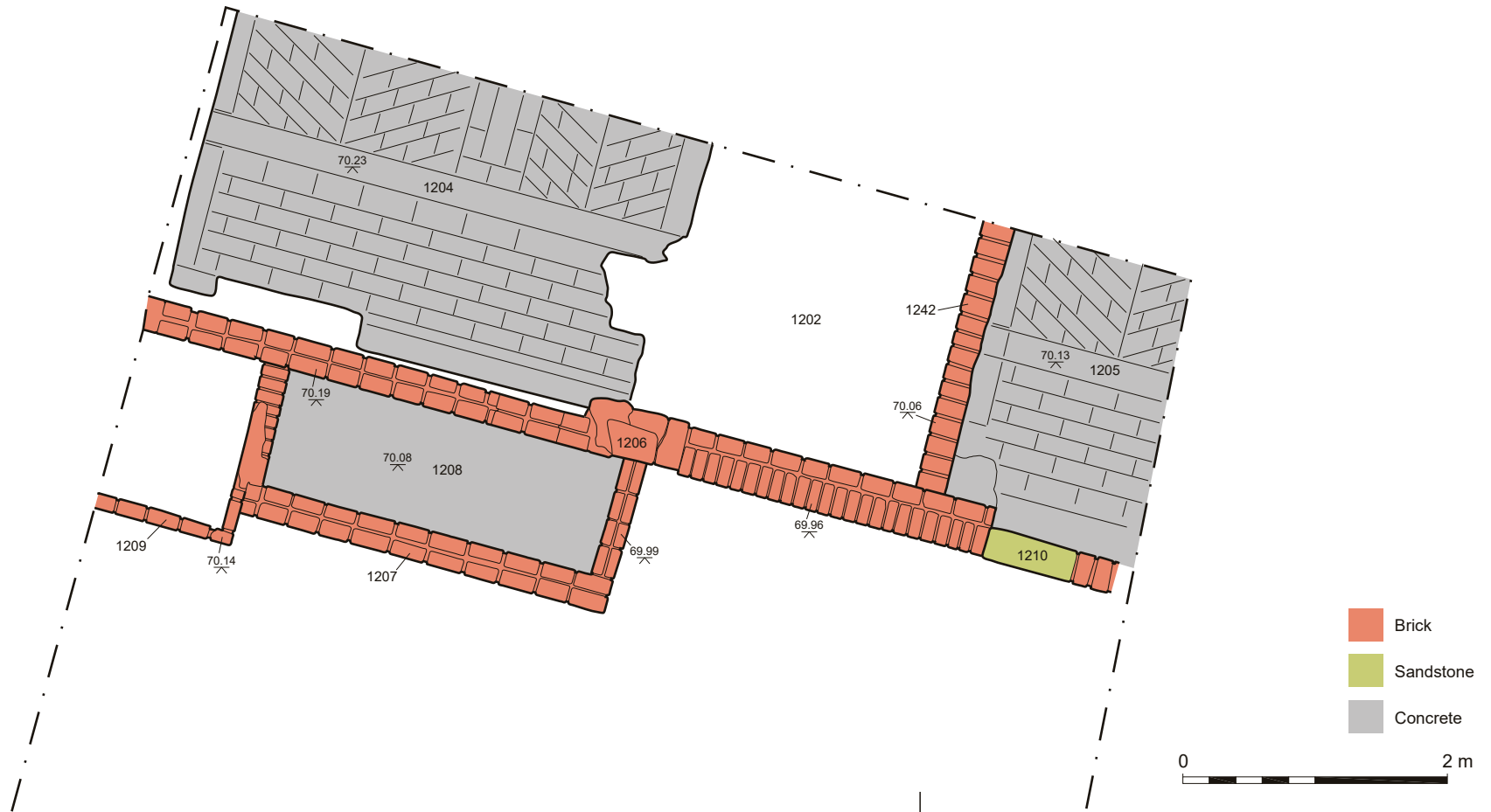


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387620

435050



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Plan of Area K showing materials

Figure 47



Brick
 Sandstone

0

 2 m

Coordinate system:
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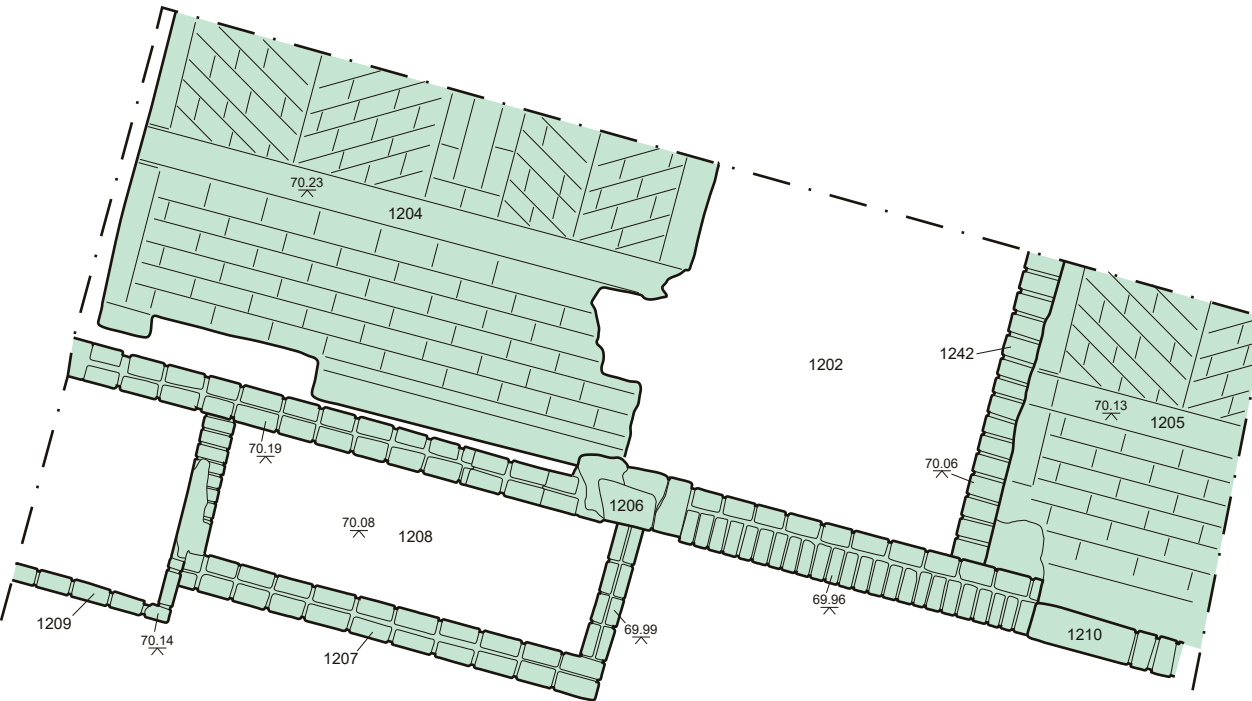
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Plan of Area K showing materials

Figure 48

387620

435050



■ Late 19th to Early 20th C.



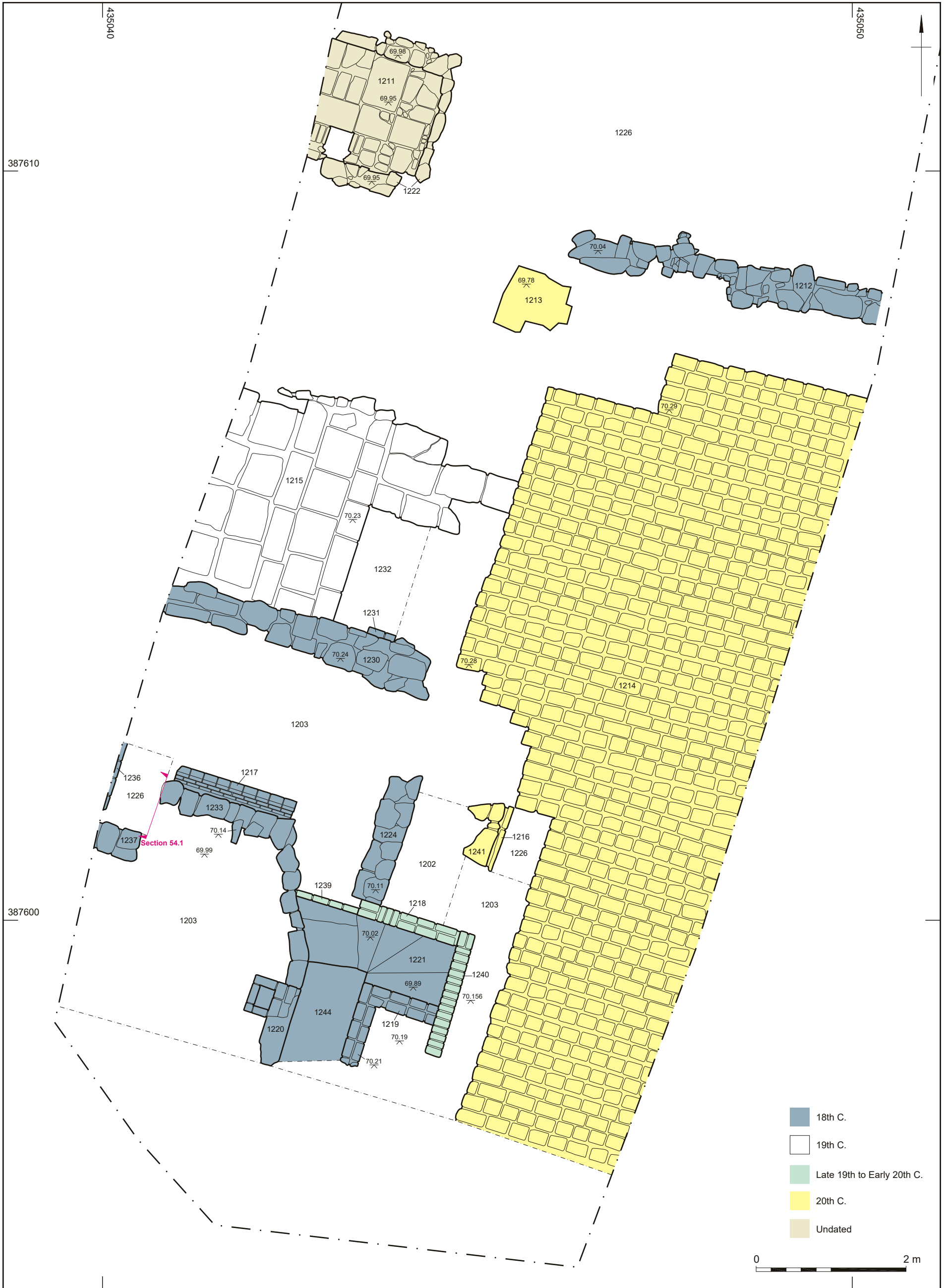
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Plan of Area K showing phasing

Figure 49



Coordinate system:
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Plan of Area K showing phasing

Figure 50



Limit of excavation
 Archaeology



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Plan of Area K overlaid on Fairbank plan of 1787-9

Figure 51



Limit of excavation
 Archaeology



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Plan of Area K overlaid on Ordnance Survey map of 1853

Figure 52



Limit of excavation
 Archaeology



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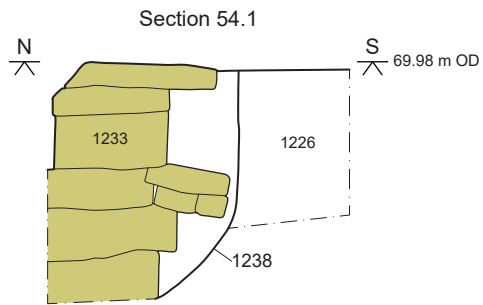


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Plan of Area K overlaid on Ordnance Survey map of 1890

Figure 53



Sandstone



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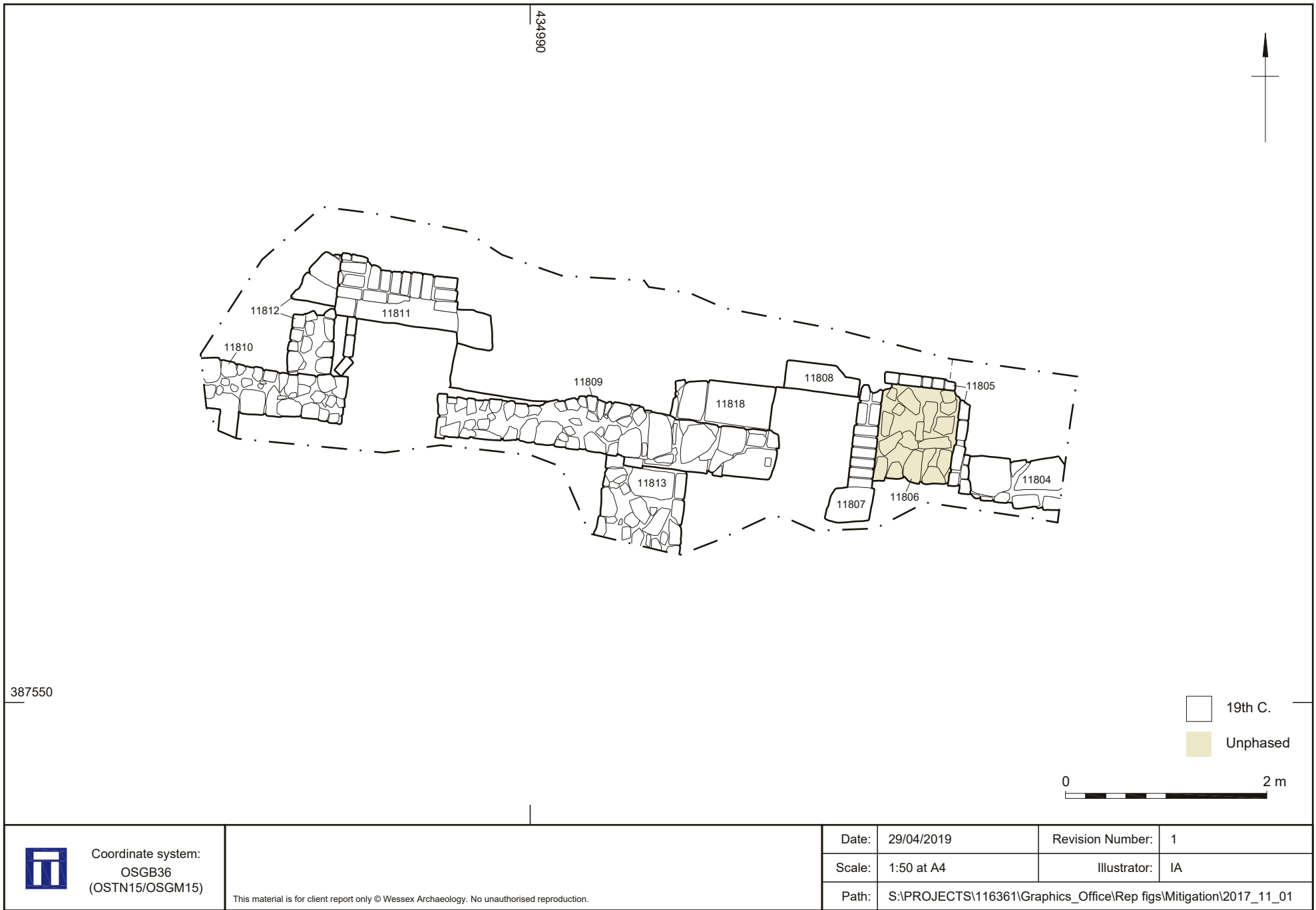
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Plan of watching brief Test Pit 18

Figure 55




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Plan of watching brief Test Pits 3A and 18 overlaid on Ordnance Survey map of 1853

Figure 56



Limit of excavation
 Archaeology

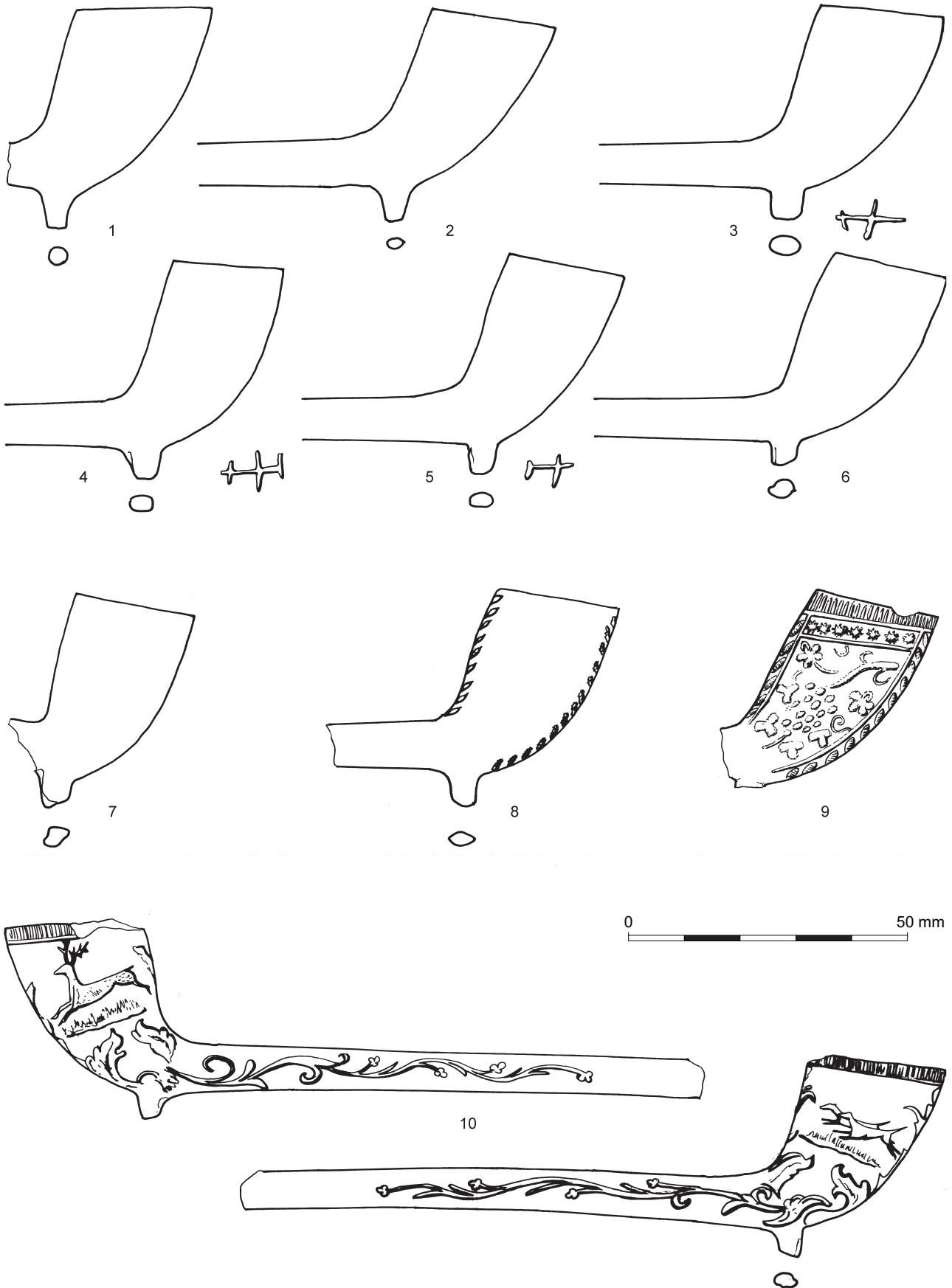

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Plan of watching brief Test Pits 3A and 18 overlaid on Ordnance Survey map of 1890

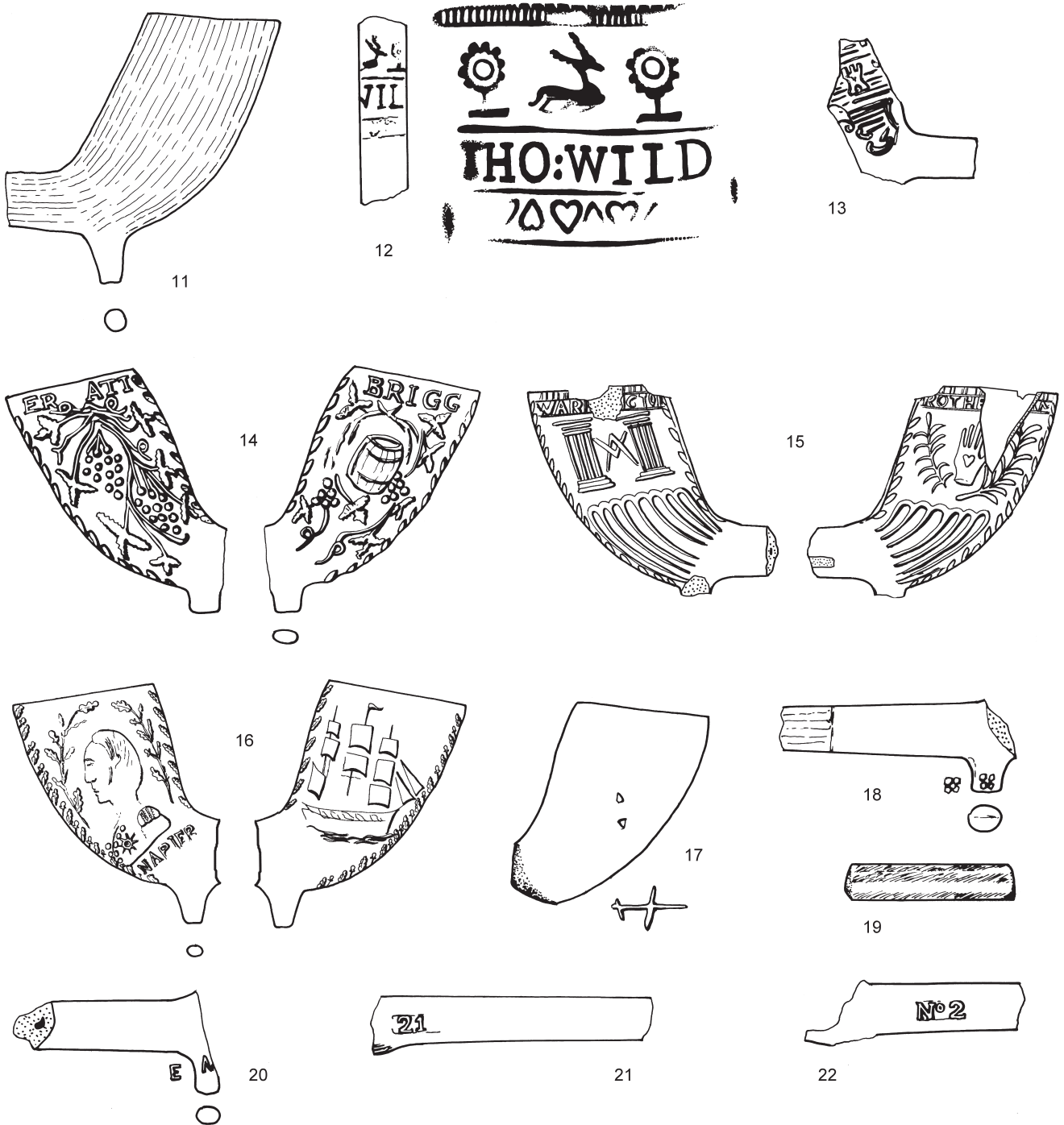
Figure 57




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Clay Pipe Figures 1–10

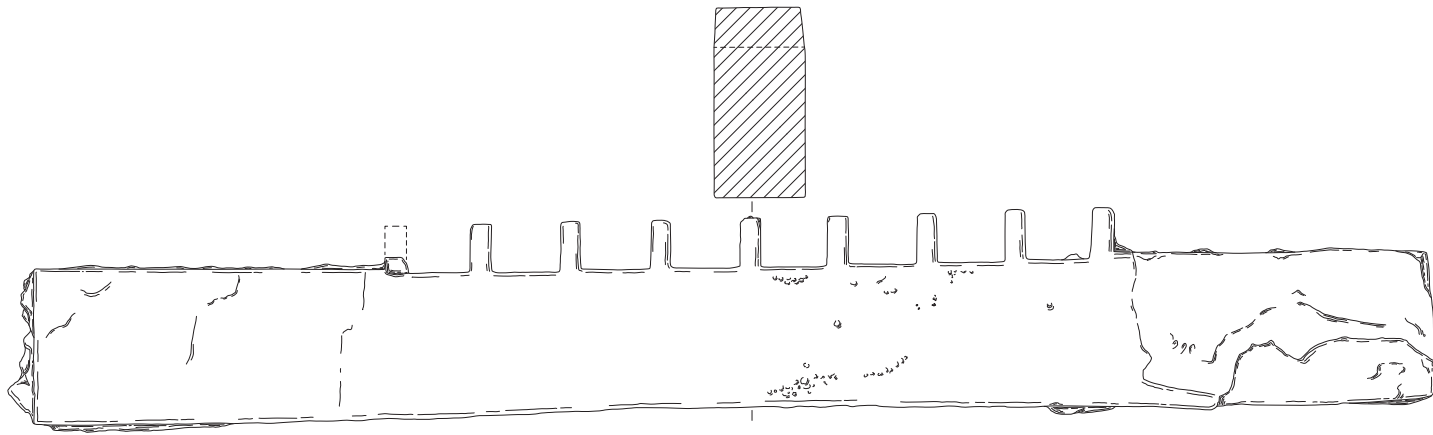
Figure 58



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Clay Pipe Figures 11–22

Figure 59



0 100 mm

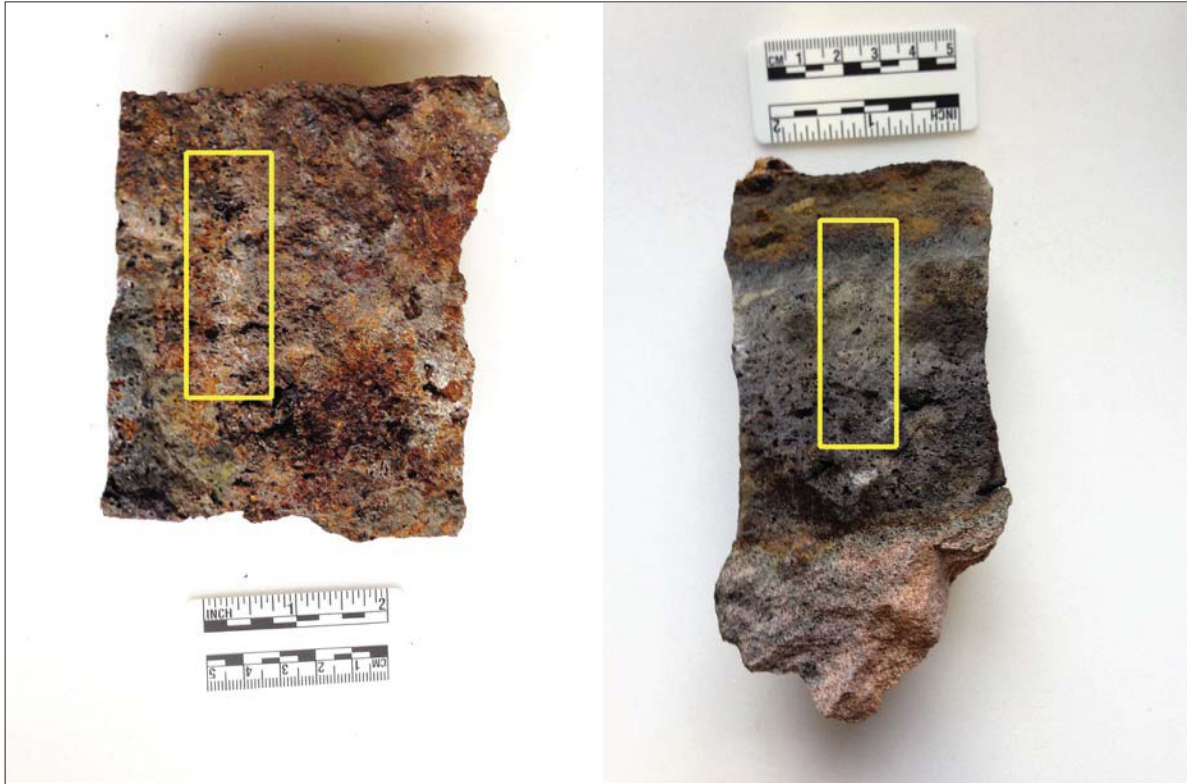


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Cementation furnace fire bar

Figure 60



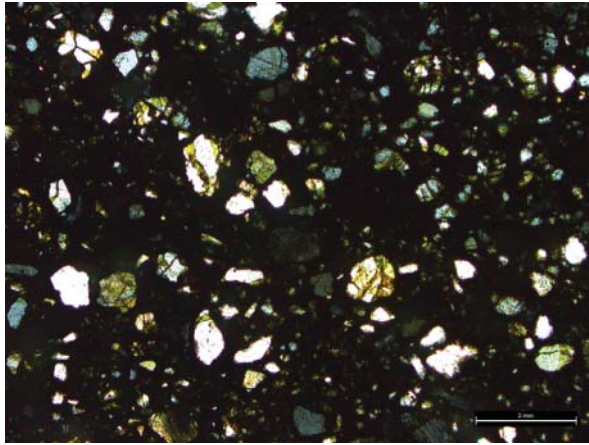
A - Sample 2139

B - Sample 1515

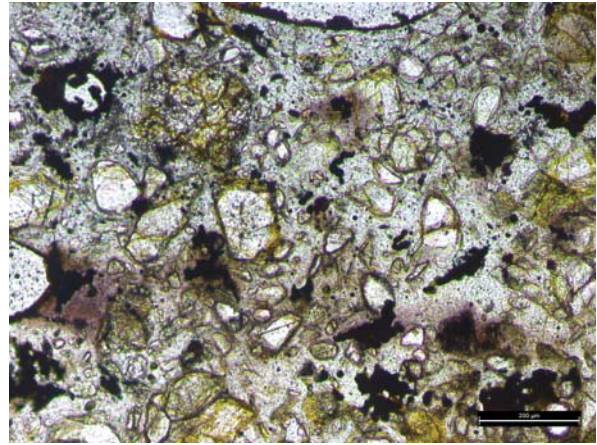
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Photographs of the chest furnace samples 2139 and 1515 from Hollis Croft analysed in this report. Analysed areas indicated by yellow box.

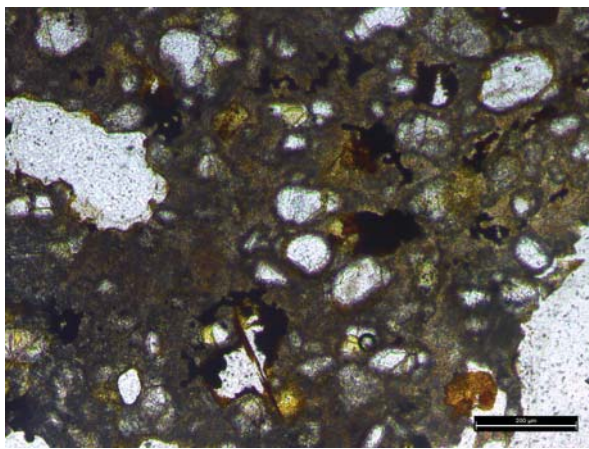
Figure 61



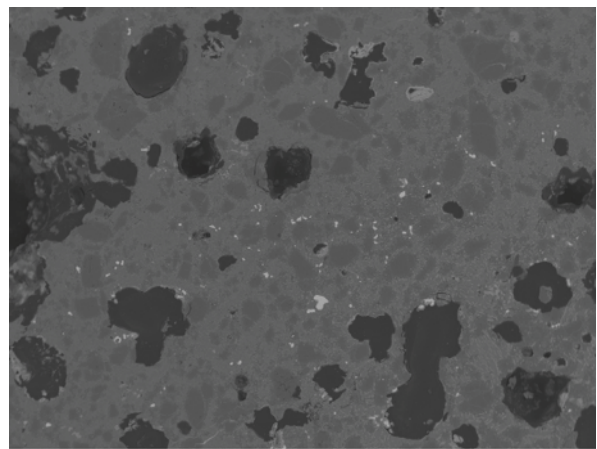
A - XP (crossed polars)



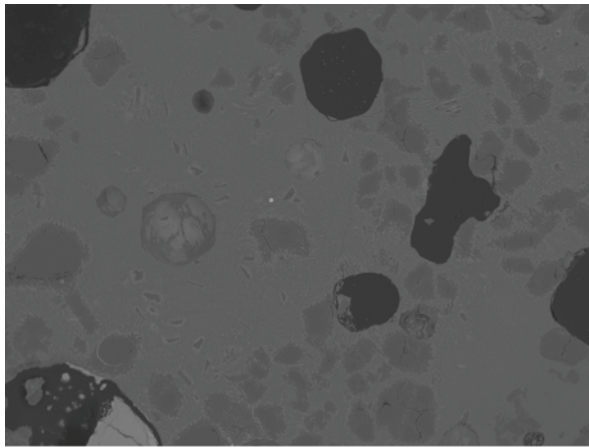
B - PPL (plane polarised light)



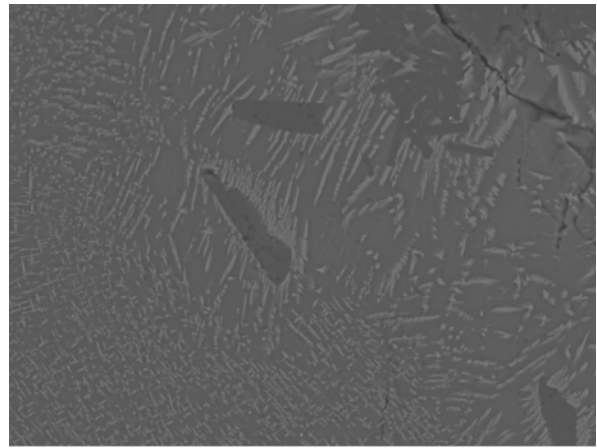
C - PPL




D



E

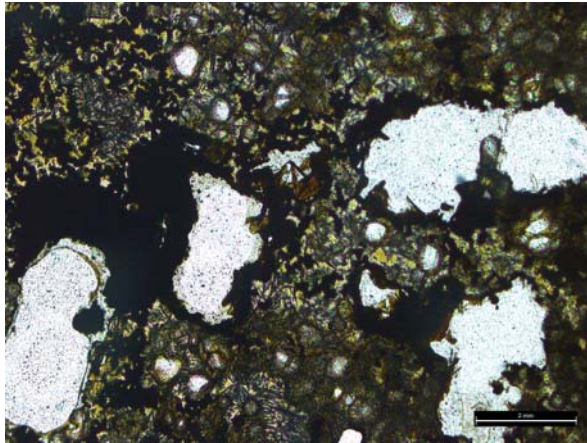


F

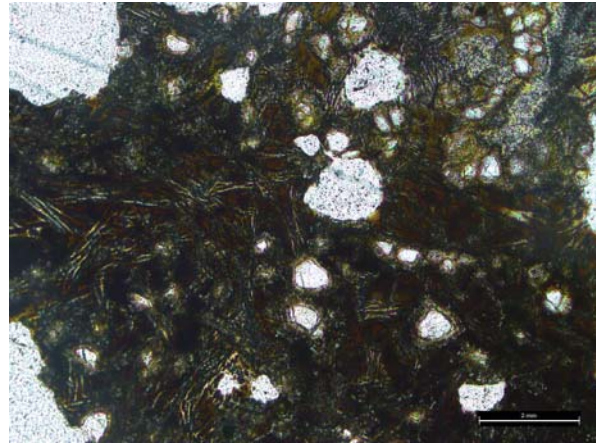
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Thin section and SEM photomicrographs of chest furnace sample 2139 from Hollis Croft analysed in this report. D-F taken in backscattered electron imaging mode.

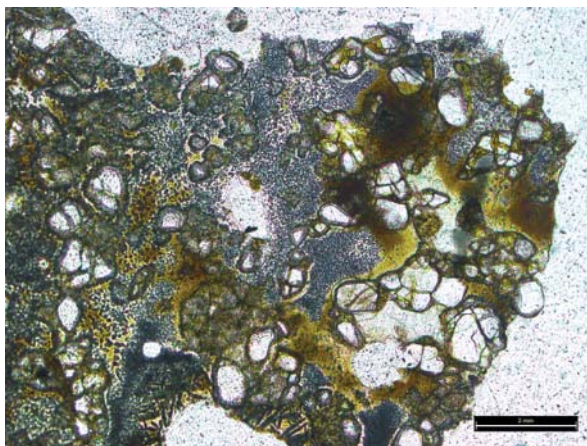
Figure 62



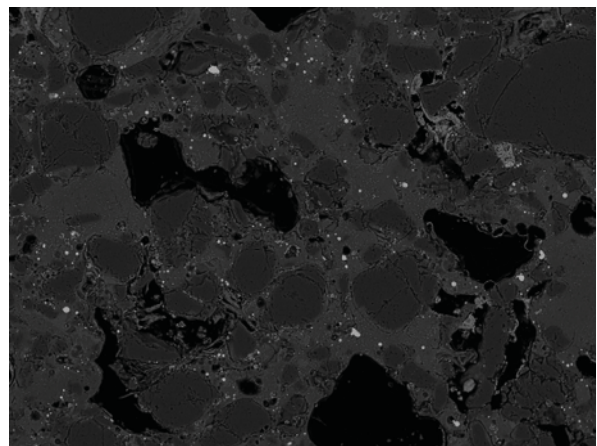
A - PPL



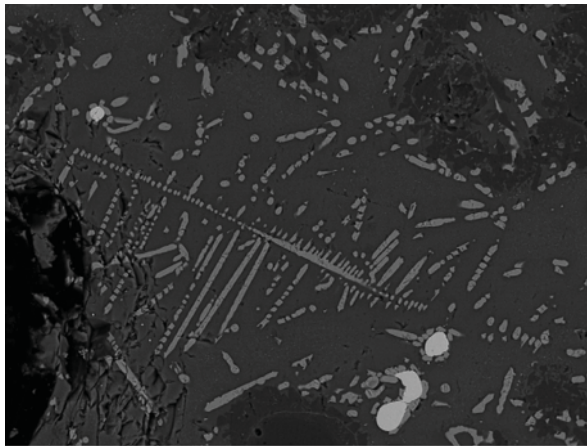
B - PPL



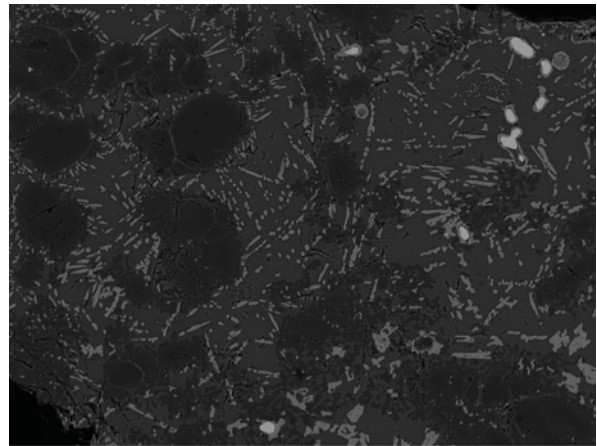
C - PPL




D



E

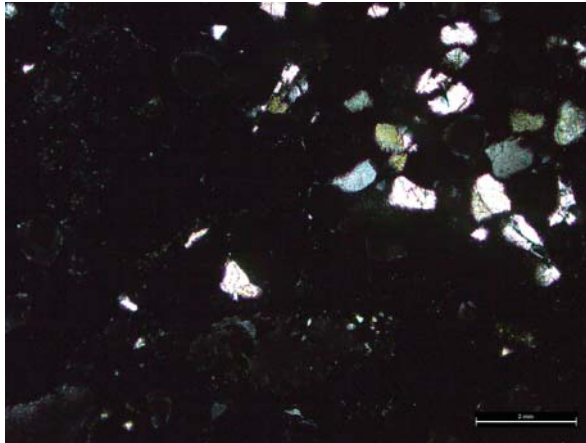


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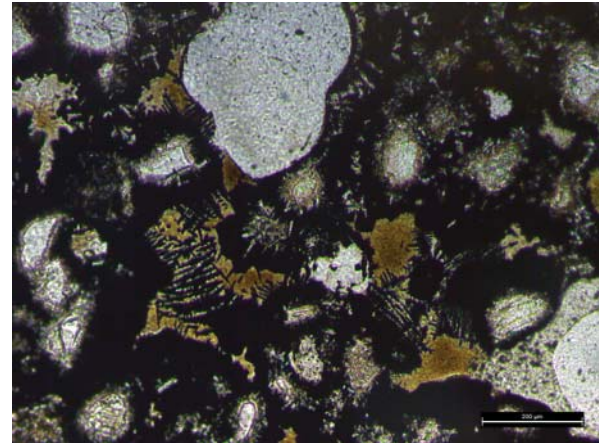
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Thin section and SEM photomicrographs of chest furnace sample 1515 from Hollis Croft analysed in this report. D-F taken in backscattered electron imaging mode.

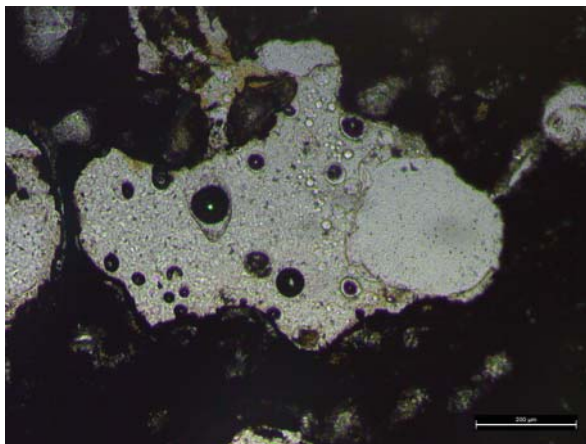
Figure 63



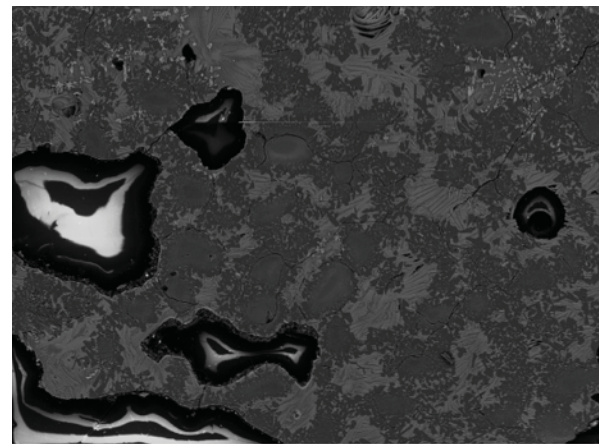
A - XP



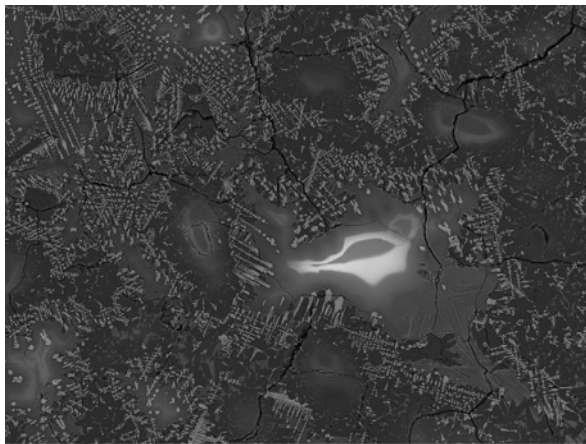
B - PPL



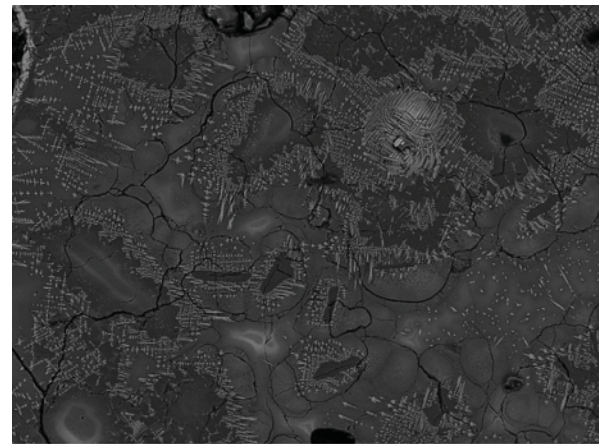
C - PPL




D



E

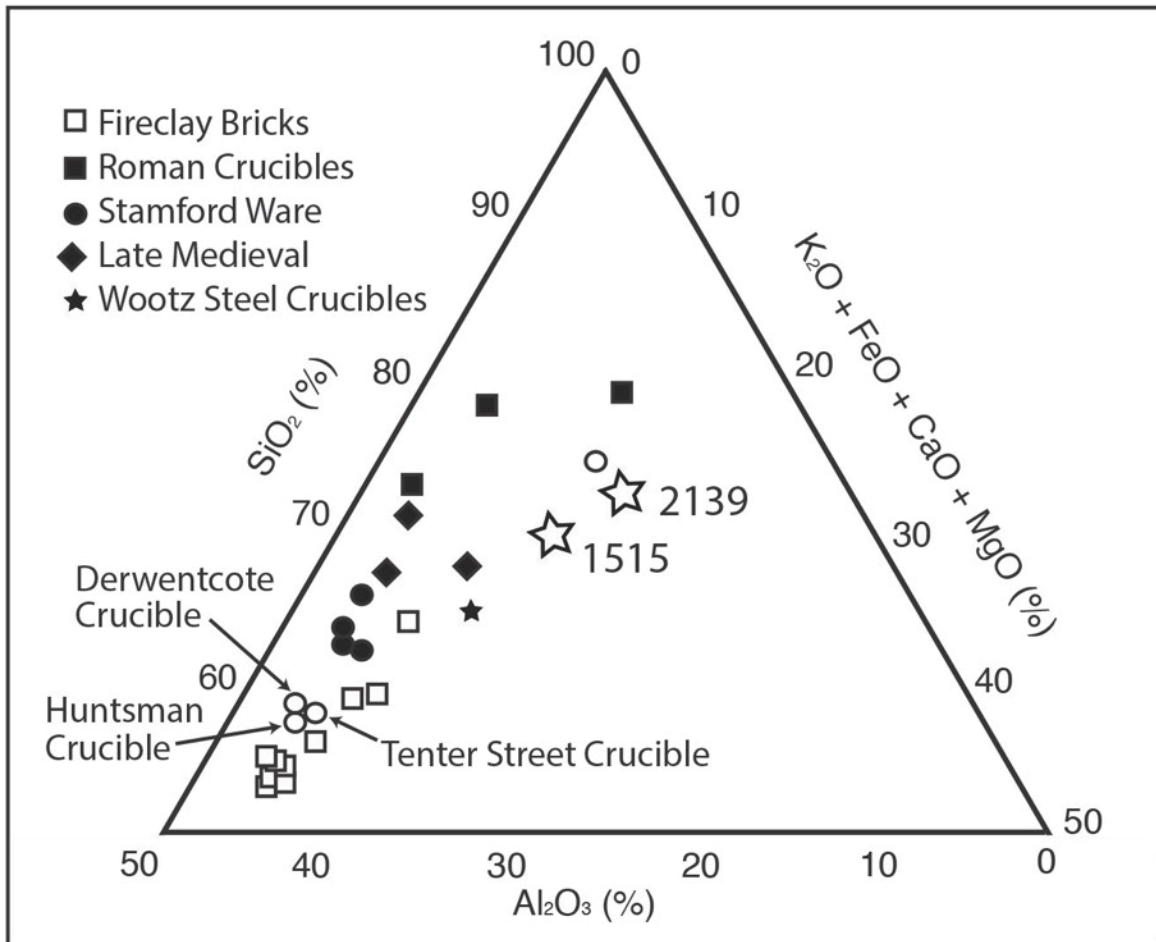


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Thin section and SEM photomicrographs of 'crozzle' sample from Hollis Croft analysed in this report. D-F taken in backscattered electron imaging mode.

Figure 64



Chest furnace samples 2139 and 1515. Analysed from Hollis Croft compared with those of a Sheffield Huntsman crucible and other earlier metalworking crucibles (Freestone and Tite 1986), plus 18th century steel making crucibles from Sheffield (Quinn 2013b) and Derwentcote (Andrews et al. 2017). Modified from (Andrews et al. 2017, fig. 9, p. 61).

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Ternary diagram showing the chemical composition of chest furnace samples 2139 and 1515.



Plate 1: Cementation furnaces (not the same as those excavated) at Hollis Croft from Footprint Sheffield archive. View probably from the east



Plate 2: Cementation furnaces (not the same as those excavated) at Hollis Croft from Footprint Sheffield archive. View probably from the north-east


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Plate 3: Cementation furnaces at Hollis Croft from Footprint Sheffield archive. These are not the same furnaces as those excavated. View from the west



Plate 4: Rubbish pit 904 from the west


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Plate 5: Walls 913, 914 from the south-west



Plate 6: Wooden beam or plank shoring 912 within foundation cut 910 from the north


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Plate 7: Overview of eastern end of Area A from the south-west



Plate 8: Wall 3006 with sockets for wooden floor joists from the east


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Plate 9: Western end of Area A with possible pit 908 at bottom right. From the north



Plate 10: Wall 1017 from the east


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Plate 11: Structures 1004, 1008 and 1013 (foreground) with 1032 and 1035-1037 (background) from the north



Plate 12: Pit 1033 machined to full depth from the east


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Plate 13: Wall 1006 from the south



Plate 14: Area C showing relative elevations from the east


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Plate 15: Area C showing overview from the south-east



Plate 16: Area C showing chimney 1618, 1625–1628, 1630 and 1631 from the north-west


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Plate 17: Structure 1631 from the north-east



Plate 18: Walls 1705, 1707, 1712-1715, 1718 and 1722 from north-east prior to removal of red brick structure 1711 and setts 1709


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Plate 19: Wall 1723 and associated contexts from the east



Plate 20: Cellar vaults 1734 and 1735 and associated contexts the south-east


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Plate 21: Bull nosed bricks ends on wall 1736 and vault 1735 and modern wall 1753 from the south-east



Plate 22: Crucible furnace 1757–1764 from the east


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Plate 23: Potential additional crucible hole associated with furnace 1757–1764 from the south



Plate 24: Crucible furnace 1746–1750 from the north


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Plate 25: Wall 1745 and associated structures with crucible furnace 1747–1750 in background from the north-west



Plate 26: Stakehole 2166 and foundation 2165 from the west


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Plate 27: Early structures 2024 etc. (bottom left of shot) with stoke hole entrance (1529) at rear from the north-west



Plate 28: Overview of cementation furnaces from the south


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Plate 29: South-east corner of outer conical chimney of south cementation furnace (2002/2003) from the south



Plate 30: Wall 2070 (lime mortared and curving towards scale) with flue (2071–2073) to left from the north-west


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Plate 31: Arrangement of stoke hole entrances showing stoke hole entrance wall (2037) iron door 2047 and firebrick lintel 2051 from the west



Plate 32: Iron door 2047 detail from the west


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Plate 33: Fire pit of north cementation furnace (3007) revealed during watching brief from the north



Plate 34: Relationship between fire bars and stoke hole entrance door 2047 revealed during watching brief from the east


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Plate 35: Longitudinal bars seen on edge of fire pit and decommissioning stone 3010 (at rear) from the east



Plate 36: North-east part of northern furnace separated from rest of furnace by truncation showing foundation 2036 from the east


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Plate 37: West part of north furnace (furnace continues beyond truncation at left of photograph) from the north



Plate 38: West part of south furnace (furnace continues beyond truncation at left of photograph) from the north


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Plate 39: Truncated section across north furnace from east showing impression of errous bars in surface of the crozle



Plate 40: Section through north chest of south cementation furnace showing early crozle layer 1545 from the north (see also Fig. 30)


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Plate 41: Overview of cellars accessing cementation furnaces on west side of furnaces from the south



Plate 42: Structures 2103 and 2098 overlain by wall 2097 and thresholds 2100 from the south


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Plate 43: Far north-east of Area E/F including wall 2060 etc, from the east



Plate 44: Far north-west of Area E/F including drain 2052 etc. from the west


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Plate 45: Cellar 3017 recorded during watching brief from the south-east



Plate 46: Surfaces 2089 and 2090 and associated contexts with boundary wall 2091 and truncating wall 2020 in bottom left and southern limit of south furnace in bottom right from the north


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Plate 47: Wall 2163 from the west



Plate 48: Northern cellars and flues from the west


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Plate 49: South end of cellar 2041 built in to earlier cellar 2046 from the south



Plate 50: Opening in west side of cellar 2041 (removed) seen during watching brief from the east Vaulting 2074 is visible at right of shot


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Plate 51: Small communication between cellars 2074 and 2077 seen during watching brief from north. Vaulting 2041 is visible at left of shot



Plate 52: Firebrick surface 2095 from the east


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Plate 53: Flue 2080–2083 and associated structures from the north



Plate 54: Concrete base 2172 and associated flue structures from the south


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Plate 55: Flues 2149 and 2145 from the south



Plate 56: Decommissioning structure 2048 (foreground), vaulting 2046 (centre) and walls 2067, 2069, 2068 (left to right). From the east


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Plate 57: Floors 1509, 1510 and 1512 cut through deposit 1513 in east of Area E/F from the west



Plate 58: Overview of Area G from the south-east


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Plate 59: Bay at west of Area G from the west



Plate 60: Overview of Area H from the west


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Plate 61: Flue 1405 from the north-east



Plate 62: Exposed interiors of flues 1304/1305 and 1306 from the south-west


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Plate 63: Structures in the north of Area I



Plate 64: Drain 1110/1125 from the east


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Plate 65: Structures 1108, 1107 and 1106 in west section of Area I from the east



Plate 66: Overview of Area K from the north


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Plate 67: Overview of Area K from the south



Plate 68: Cellar 1218–1221, 1239 and 1240 from the south-west


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Plate 69: Watching brief 'Test Pit' 3A from the north-east



Plate 70: Watching brief 'Test Pit' 18 from the east


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Plate 71: Watching brief 'Test Pit' 23 from the east



Plate 72: Crucible (base) used for copper alloy


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Plate 73: Pottery and clay tobacco pipe from 905



Plate 74: Worked bone from 905 (1/2)


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Plate 75: Worked bone from 905 (2/2)



Plate 76: Clay tobacco pipe



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Plate 77: Pottery from 1034

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