ArcHeritage

SYLVESTER STREET, SHEFFIELD, SOUTH YORKSHIRE

SITES B & D - EVALUATION REPORT

by B Antoni

Report Number 2010/80

ArcHeritage

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Abbreviations

AH	ArcHeritage
YAT	York Archaeological Trust
AOD	Above Ordnance Datum
BGL	Below Ground Level

Non-technical Summary

This report presents the results of trial trench evaluation at Sites B & D Sylvester Street, Sheffield, South Yorkshire.

A series of 7 trenches were excavated to investigate a former channel(s) of the Porter Brook (trench 1) and the condition and survival of the below ground remains of several 19th–early 20th century iron and steel processing works. These included an iron foundry (Trench 2), grinding workshop (Trench 3), crucible furnace (Trench 4), wire mills (Trenches 5 and 6) and a forge works (Trench 7). With the exception of Trench 6, each recorded structural elements of the buildings they had been targeted on. The investigation of a former bed of the Porter Brook showed that there is a complex history attached to its exploitation and development. In all the other trenches a complex sequence of alteration and adaptation of the works was revealed. Trench 2 recorded features that may give an insight into the use of the area before it was swallowed up by industrial buildings. Trench 7 identified deposits and features that may be related to industries in the late 18th century or earlier. Where archaeology was present it lay close to the present ground surface and was in good condition, having suffered little from the piled foundations of a retail outlet that recently occupied the site.

Key Project Information

Project Name	Sites B & D, Sylvester Street, Sheffield, South Yorkshire
ArcHeritage Project No.	5381
Report status	Final
Type of Project	Field Evaluation
Planning Application No.	06/02501/FUL and 07/02595/FUL
NGR	SK 3537 8651
Museum Accession No.	
OASIS Identifier	Archerit1-86010
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Editor	D Aspden
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1 INTRODUCTION

Between 22nd June and 8th July 2010, York Archaeological Trust undertook an archaeological evaluation within an area known as Sites B and D, Sylvester Street, Sheffield, South Yorkshire (Figure 1). Site D, centred on NGR SK 3527 8646, was located on the eastern side of the proposed development area and encompassed an area of *c*.0.43 ha. Planning consent 07/02595/FUL has been granted for mixed use development. The archaeological work was commissioned by Octavian Properties (Sheffield) Ltd, in compliance with a planning condition attached to the site. Site B was centred on NGR SK 3533 8649 and constituted an area of some 0.15 ha. Planning consent 06/02501/FUL has been granted for mixed use development of the site. The archaeological work was commissioned by Capita Symonds, Sheffield, in compliance with a planning condition attached to the site. A brief for the archaeological works provided by South Yorkshire Archaeology Service and detailed the locations of trenches. Trench 1 was located to test for the presence and morphology of a former channel(s) of the Porter Beck. The remaining trenches were placed to investigate the condition and survival of the below ground remains of several 19th – early 20th century iron and steel processing works. These included an iron foundry (trench 2), grinding workshop (trench 3), crucible furnace (trench 4), and a forge works (trench 7). In Area D demolition was carried out *c*. 1987, prior to the construction of a retail outlet in 1994. The retail outlet was demolished to clear the area prior to start of the archaeological works and future development. The wire mills at Area B were demolished between 1939 and 1955.

2 METHODOLOGY

All of the ground-works were carried out by a 360° wheeled mechanical excavator fitted with a toothed bucket, under archaeological supervision. The use of a toothed bucket was necessary due to the tenacious nature of the brick rubble and concrete that had been used to infill and level the site. When natural deposits were reached, they were cut into by the machine to ensure that they were confirm their natural origin. Archaeological deposits and features were described using pro-forma context recording sheets. All plans were drawn at a scale of 1:20, and all sections at a scale of 1:10. Archaeological recording followed the procedures detailed in the York Archaeological Trust's fieldwork manual (YAT 2009). 35mm colour slide and monochrome photographs were taken throughout. The artefacts and site records are currently stored by York Archaeological Trust under their own identifiers, YORAT: 2010.5 and Project 5381. Unstratified finds were assigned to context numbers 2000, 6000 and 7000.

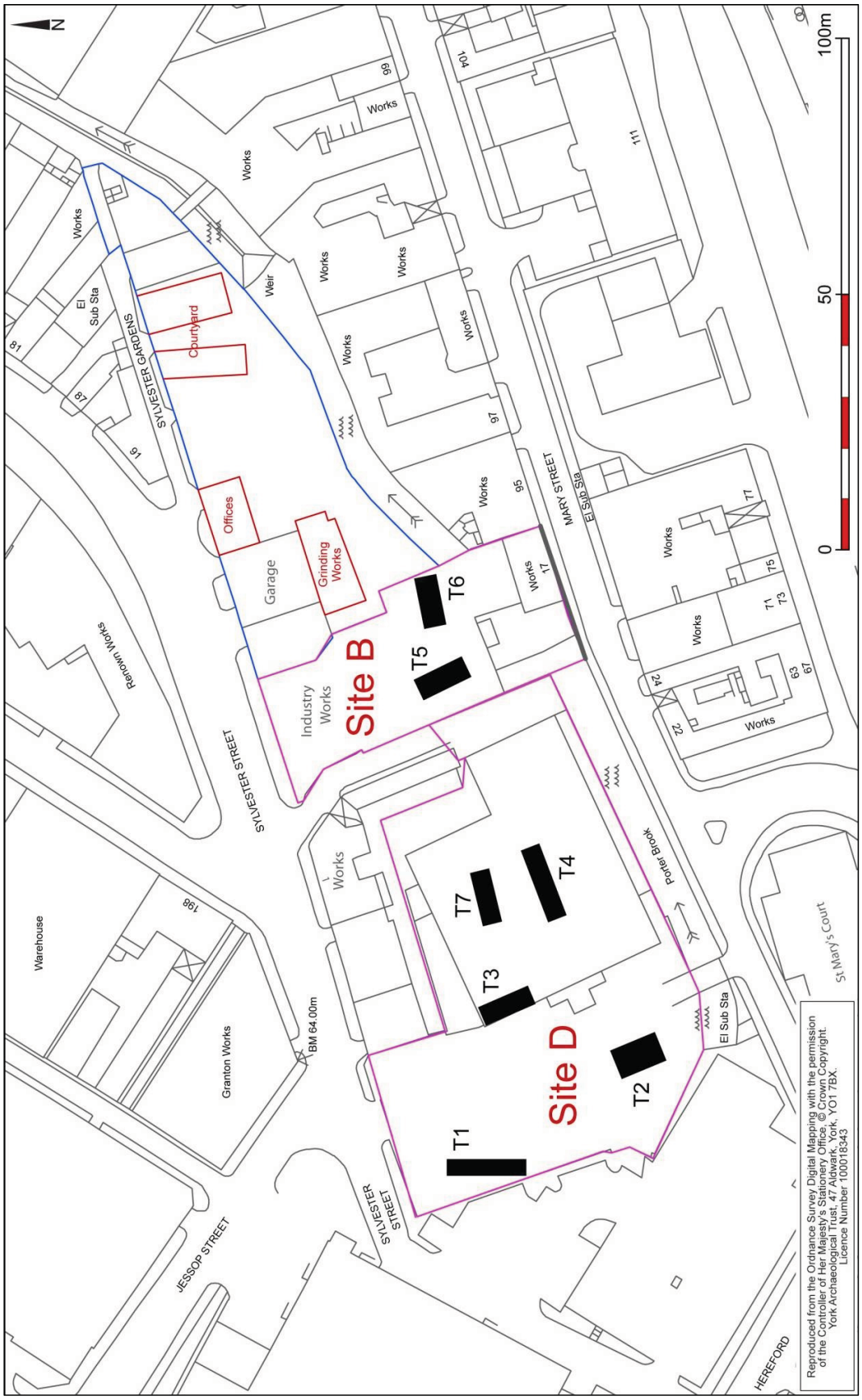


Figure 1 Site and trench locations

3 LOCATION, GEOLOGY & TOPOGRAPHY

The site lies 1km south of Sheffield city centre, between Sylvester Street and Mary Street, *c*.50m to the north-east of Hereford Street. The southern boundary of Site D is delineated by a canalised river known as Porter Brook and the northern boundary by Sylvester Gardens and residential units.

The tarmac car park of the former retail unit occupies the western edge of Site D. The ground within the carpark falls gently from north to south, from 64.00 - 63.5m AOD. Within remainder of the site the surface has been levelled at c. 63.00m AOD and is generally uneven.

The underlying geology of the area consists of Upper Carboniferous coal measures and sandstones with Pleistocene and recent alluvium in the river valley bases (Geological Survey of England and Wales, Sheet 100).

4 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

An assessment of the archaeological potential of Site D was produced by Mike Griffiths Associates in June 2007. This showed the land was open ground during the 18th century although Sylvester Wheel, which was located close by, had been using water power supplied from Porter Brook for at least two centuries by this time. Throughout the early 19th century the site were occupied by a grinding workshop (Ward's Wheel), coal yard, saw mills, surgical instrument makers and cutlery workshops.

5 RESULTS

The trenches will be discussed in numerical order.

5.1 Trench 1

Trench 1 was located in the north-west corner of Site D (figure 1), within the tarmac car-park of the recently demolished retail outlet. The car park surface sloped gently from North to south, or from 63.78 – 63.47m AOD. Trench 1 was north – south aligned, 15m long and 3m wide (Figure 2). The northern half was machine excavated to a depth of 1m BGL, or 62.13m AOD, whereas the southern half was reduced to c.1.44m BGL, to 62.13m AOD, over much of its area. The exception was located within the south-west corner of the southern half of the trench, where a 3.78m long, 2.16m wide and 1.66m deep slot (Increased depth dig) was cut into the base of the trench to investigate the course of a river channel. In this instance excavation was halted at c.3.10m BGL, or 60.47m AOD.

Plate 1 Working shot of machine excavation of palaeochannel (1011)

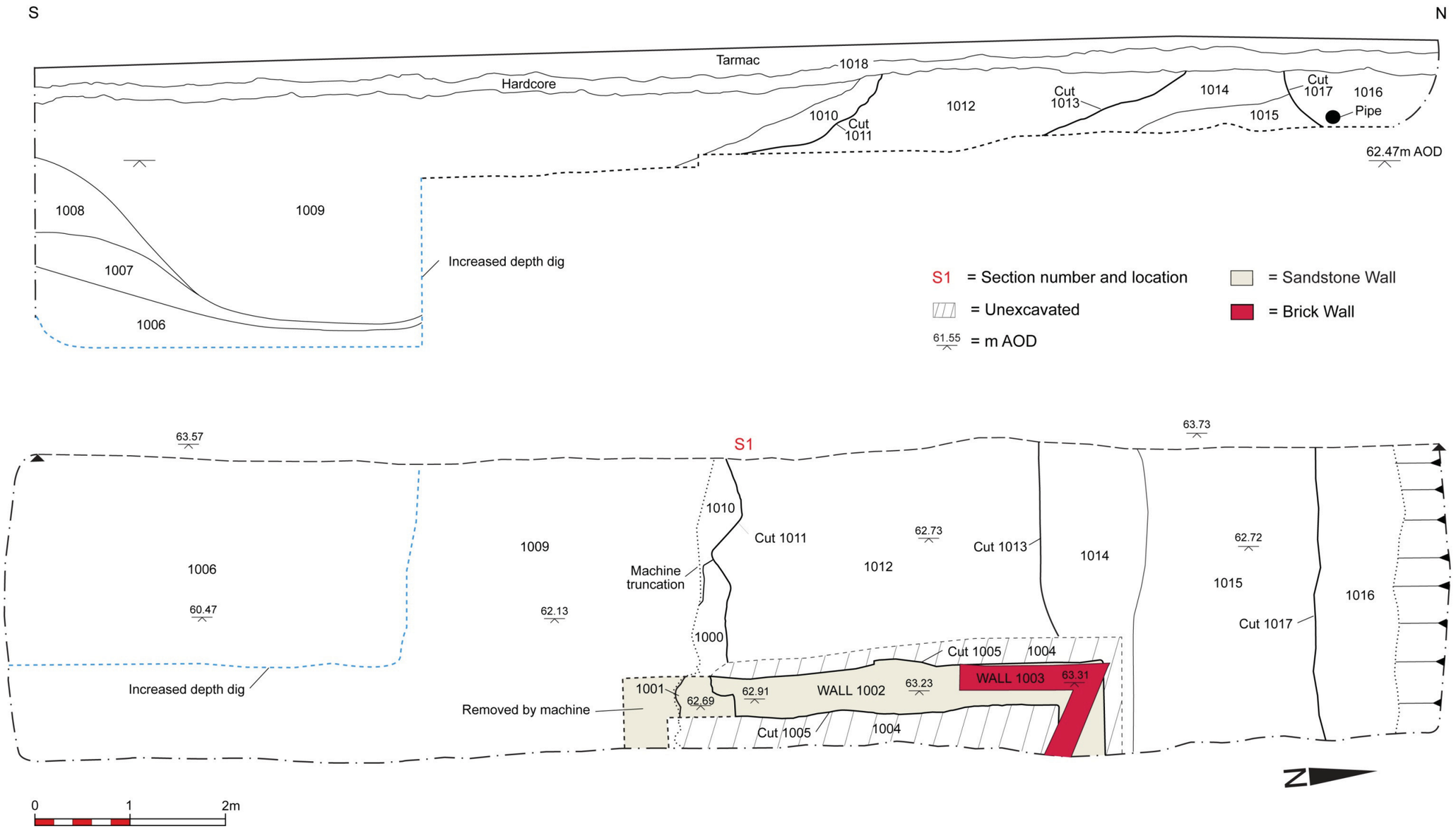


Figure 2 East facing section (No.1) and plan of Trench 1

Due to a constant in-rush of ground water, the excessive depth and un-shored, unstable nature of the sides of the trench, the slot was recorded from surface level at the side of the trench. The reasons outlined above meant that all the artefacts, as well as a sample of the river sediments (see below), were recovered from the bucket of the machine (Plate 1).

The earliest deposits in Trench 1 (Figure 2) were in the form of what are currently thought to have been a series of east – west aligned river channels which had cut down in sequence from north to south. The earliest of these was observed at 63.47m AOD and was located at the northern end of the trench. It comprised a 1.84m wide, linear, east – west aligned alluvial deposit of a firm, plastic dark grey silty clay (1015) which, at over 0.34m thick, ran beneath the base of the trench. The southern edge of (1015) sloped moderately down from north – south and was sealed beneath a further alluvial deposit comprised a stiff, mid reddish brown silt clay (1014) over 0.20m thick. Both these deposits (1014-15) are thought to represent accumulated silts within a water channel, the northern edge of which lay outside the northern limit of excavation.

The southward progression of the channels was marked by the presence of Cut (1013), which had truncated the southern edge of deposit (1015). Cut (1013) was moderately steep, fell from north-south and was thought to represent the northern edge of a later channel, the southern edge removed by later activity. Despite only being observed for a depth of 0. 60m in the east facing section it could be traced across the width of the trench, where it was linear, east – west aligned and up to 3.20m wide. Only the uppermost fill of the channel, an alluvial deposit of friable mid brown clay silt (1012), was observed.

The last in the sequence of river channels had cut down into the southern edge of deposit (1012). Although it was mostly observed in the increased depth dig, it could be extrapolated that the channel (Cut 1011; Section 1, Figure 2) was east-west aligned, in excess of 3.1m deep and had an 8.80m wide 'U' shaped profile. The full extent of the channel was not determined, as it was not bottomed out and the southern edge was located outside the limit of excavation.. The earliest deposit observed within the base was an up to 0.86m thick deposit of small – large water rounded cobbles (1006). The surface of this deposit was observed at 2.2m BGL (61.33m AOD), where it met the southern trench edge, and then fell steadily away towards the north, over a distance of 3m, to 60.65m AOD. It then started to rise gently continuing beyond the side of the slot. It (1006)produced animal boneand several crucible fragments (SF19), including one almost complete example (SF 51). Pottery recovered from the channel (1006) suggests that it was still open in the late 19th / early 20th century.

The top of (1006) was sealed beneath up to 0.40m of alluvium comprising a loose, moist pale grey silt sand (1007) with frequent thin black silt lenses and occasional brick fragments (One of the bricks was retained but proved to be undiagnostic, (see CBM report). It (1007) also produce a fragment of clay tobacco pipe (BF45) and several sherds of pottery that suggested it had been formed in the late 19th / early 20th centuries. The top of (1007) was observed at 61.73m AOD and it mirrored the contours of deposit (1006), falling to 60.74m AOD, where it was only 0.06m thick. An environmental sample (01) was retained for analysis and when assessed showed that deposit (1007) also incorporated materials related to industrial activity, such as hammerscale, inferring that at this stage of its evolution, the channel was being used for the disposal of industrial waste.

Deposit (1007) was sealed by up to 0.80m of a stiff, plastic, blue grey silty clay (1008) with occasional charcoal flecks, mortar flecks and heavy hydrocarbon contamination. Although this might have appeared to have been a build up of alluvium within the channel, the inclusions suggested otherwise, inferring that it was a dump of re-deposited natural. This was further reinforced by the fact that it was 'perched' high up on the side of the channel, at 62.53m AOD, and fell away steeply over a distance of 1.60m towards the north, to 61.07m AOD, where it

abruptly tailed off. Both this and deposit (1010), a plastic mid yellow brown silt clay with moderate cinder / slag inclusions appeared to mark the onset of the infilling and levelling of the channel. Deposit (1010) was perched high up against the northern edge of cut (1011), at 63.44m AOD, were it fell steeply towards the south before hitting the base of the trench some 1.60m distant. Its continuation could not be followed within the side of the increased depth dig.

Both deposits (1008) and (1010) were sealed beneath deposit (1009). This comprised many dumps of brick rubble, mortar, sandstone rubble and block-work (one fragment, a discarded post, was 1.5m long x 0.30m square), and a variety of re-deposit soils, including a lense of peaty natural. In total, this deposit was up to 2.8m thick and had been used to consolidate and level the channel to c. 63.21m AOD, a height comparable to the level of the naturally silted channels to the north. A small dump of mortar stone and concrete (1000) sealed the top of (1009). It produced several sherds of pottery, clay tobacco pipe (BF44) and crucible fragments. The pottery suggested the channel was finally in-filled in the 20th century.

The presence of construction cut (1005), which had truncated the top of Deposit (1000) suggested that this was undertaken to prepare the ground before building commenced. Cut (1005) was not excavated and was only partially observed. It was located against the eastern trench edge some 3.60m south of the northern edge of excavation and had a square 'C' shaped plan, its longest side aligned north–south. The east - west aligned ends protruded into the trench by 1m, whereas the north – south element was 5m long. As the cut was not fully excavated, it could only be extrapolated that it was 0.50m wide and over 1.25m deep, with vertical sides and (probably) a flat base. The base of cut (1005) was lined out with a foundation course comprising a light grey concrete (1001), some 0.50m thick and 0.50m wide, which was only observed at the southern end of the cut. Wall (1002) was founded on top (1001) and was two courses wide and up to three courses thick of dry bonded, irregular blocks of sandstone, between 200 x 170 x 50mm and 370 x 190 x 140mm in size. Only the external western face of the wall contained faced stonework. The sides of the wall were placed tight against the edge of the construction cut (1005), suggesting that it had been excavated to fit the precise layout of the walls of the building.

The upper courses of wall 1002 appeared to have been demolished and reduced to c. 63.23m AOD in preparation for a new build. This was signified by the presence of a single course of header laid brick work (1003) founded directly on top of it. The bricks were bonded with a dark grey to black mortar and ranged in size between 228 x 106 x 75mm and 238 x 114 x 79mm. A partially excavated east – west aligned service trench, cut (1017), located at the northern extremity of Trench 1 may have been associated with either of the builds (Walls 1002 / 1003). As it was located some distance from (1002 and 1003) the association could not be confirmed. The service trench (1017) was cut into the top of deposit (1014) and contained a steel conduit which suggests a comparable date to the walls (1002 and 1003). As its brick and mortar rubble backfill (1016) failed to produce any dating evidence, this date is open to question.

The next phase of activity on site appeared to have involved the demolition of the building pertaining to wall (1003). It had been demolished and the site levelled, to c. 63.32m AOD. This would probably have taken place when the site was cleared in 1987 in preparation for the construction of the retail outlet in 1994. Part of the retail outlet development involved the formation of a tarmac surface (1018) on top of a hardcore base up to 0.44m thick (combined), which was still in use at the time the excavations were undertaken.

5.2 Trench 2

This trench (Figure 1) was located towards the southern site boundary, within the tarmac car park. It was aligned north-north-west – south-south-east and was 10m long, 4m wide and up to 1.15m deep. At the northern end of the trench a 3.04m wide block of material was retained due to the presence of a sandstone wall. This extended across the full width of the trench and was up to 0.39m deep (Figure 3, Plate 2).

Plate 2 Pre-excavation shot of Trench 2 looking south-south-east. 0.50m scale units

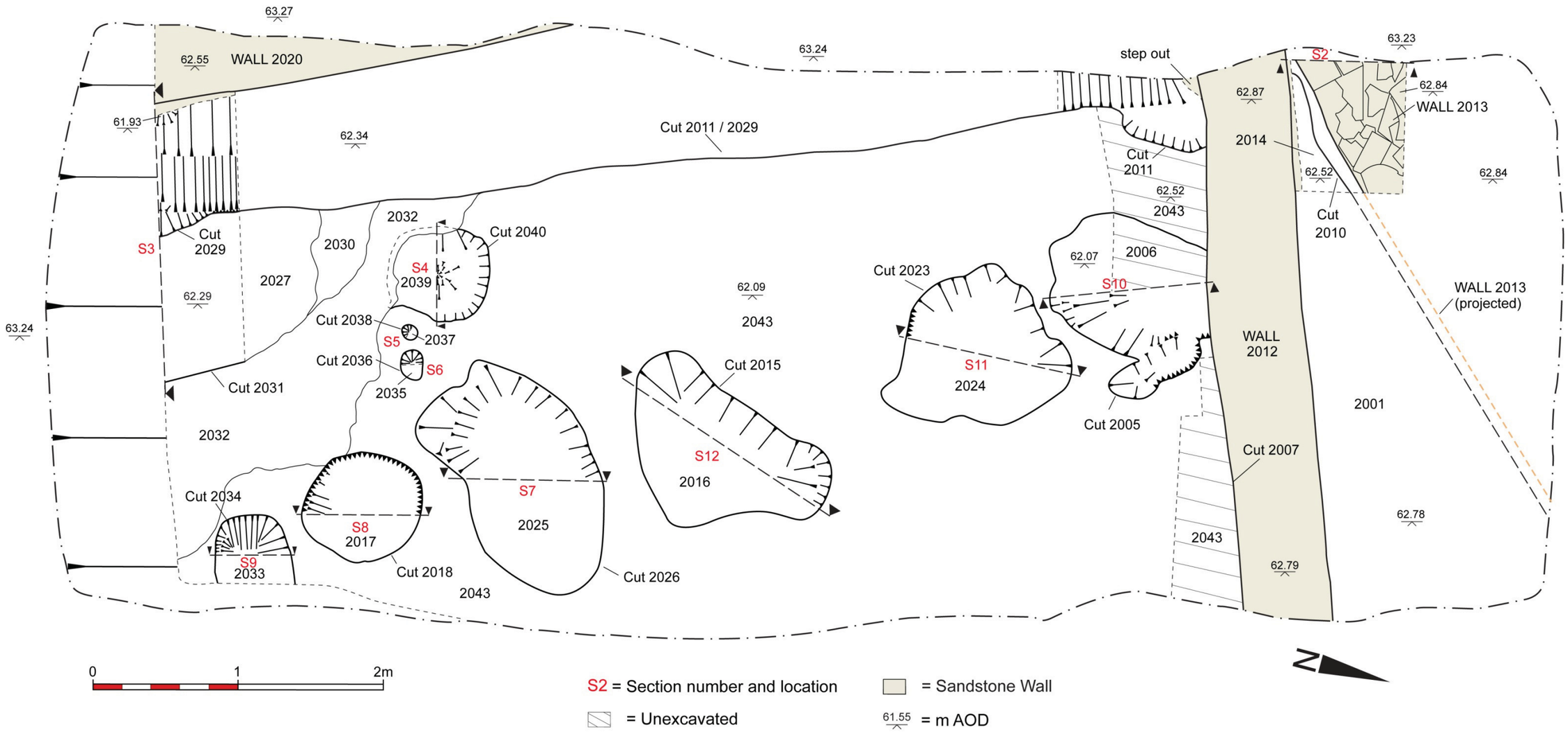


Figure 3 Plan of Trench 2

The earliest deposits in Trench 2 were observed at 62.09m AOD (1.15m BGL) and comprised a banded sequence of alluvial sand silts (2043) which were thought to have represented the fills of several natural water courses. Although these remained un-excavated a general north-west – south-east observed trend suggests they flowed down from the slightly higher ground to the north. The top of (2043) was cut into by a small pit (2040) and a pair of possible post-holes (2036 and 2038; Figure 3 and 4)

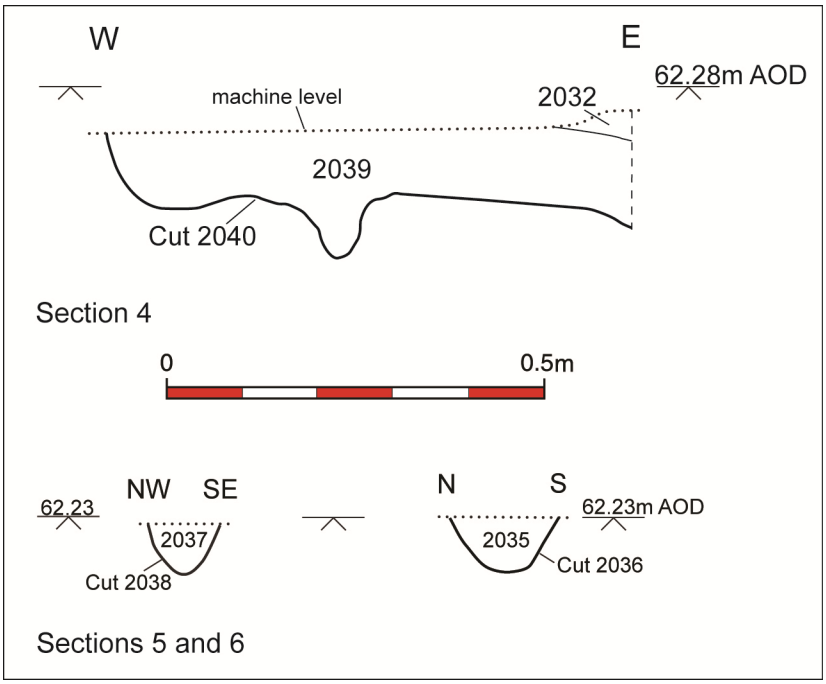


Figure 4 Section no's.4, 5 and 6

These features were not sealed by an homogenous deposit., The similarity of their fills and profiles suggests they arecontemporary. All were very shallow, no more than 0.16m deep, and contained a coarse rounded gravel in a dark grey brown silt sand. The fill (2039) of cut (2040) also contained charcoal flecks and went on to produce and fragments of plaster and late 18th – mid 19th century brick.

Fill (2039) was sealed beneath what appeared to represent a later cut down sequence of river channels. The first of these (2032) comprised a build-up of loosely compacted orange brown silt sand with patches, spots and lenses of purplish brown ashy cinder. As this was not excavated, the form, profile and depth of the channel is not known. It was observed at c. 62.26m AOD and was restricted to the south-west corner of the trench. (2032) was over 0.95m wide, aligned north- west – south-east and turned to run north – south at its southern end. The westernmost side of Deposit (2032) was truncated by the last of the river channel cut down sequence (Cut 2031) and a pit, cut (2018).

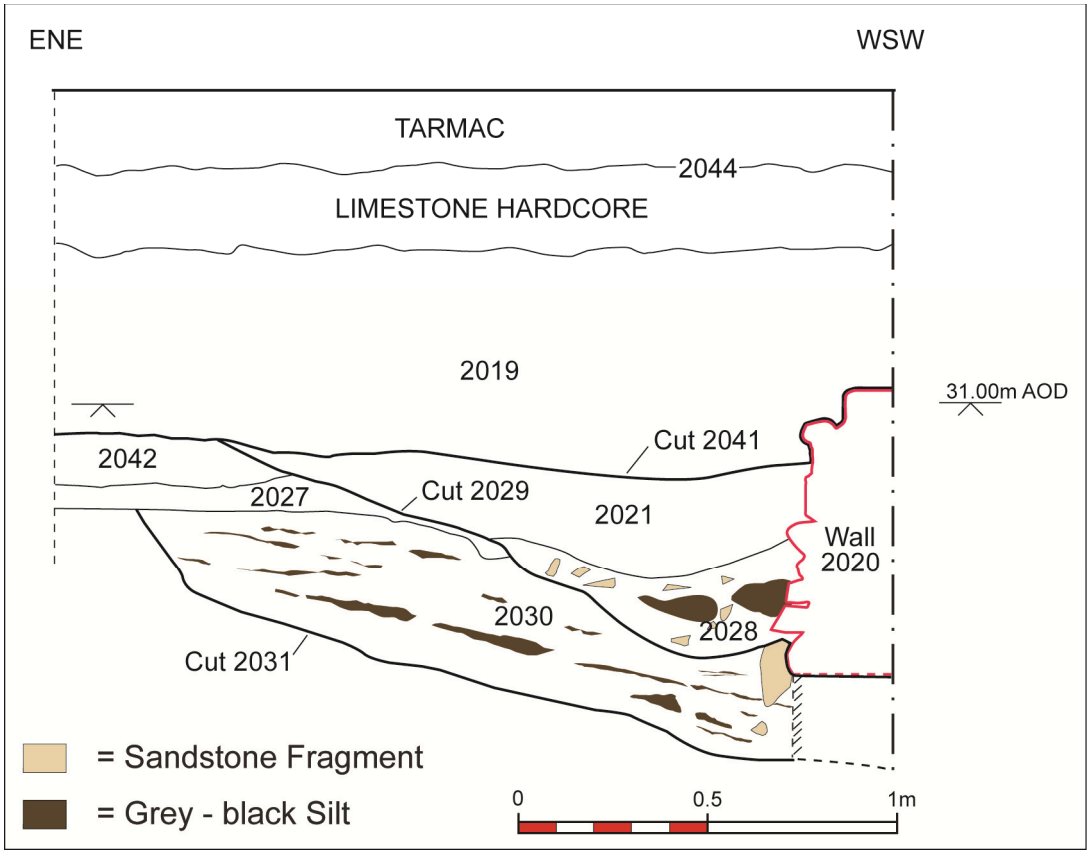


Figure 5 North-north-west facing section no.3

Channel (2031) had incised the western edge of deposit (2032) and it shared the same alignment. A narrow slot was excavated through the top to understand its morphology and obtain dating evidence. At 1.7m wide and 0.6m deep, its true dimensions could not be ascertained as it ran beneath the remains of a sandstone wall located within the western trench edge. Its fill (2030) comprised a friable mid reddish brown clay silt sand with frequent interrupted lenses of dark grey - black silt and occasional small – medium sandstone fragments. This also went on to produce a possible token (SF08), a bone off-cut (SF09), fragments of clay tobacco pipe (BF54), plaster, glass bottle fragments (BF43),18th / 19th century pottery and a fragment of late19th / early 20th century brick.

When the channel had become fully silted and dried out (or diverted) the top of deposit (2030) was levelled, sealed and consolidated. This was undertaken by dumping a 0.09m thick deposit of compacted, crushed creamy grey - white lime mortar (2027; some painted) into the top of the channel, overspilling its eastern edge. This was followed by a further, 0.15m thick dump deposit of rust stained, Fe.-slag rich, sandstone rubble (2042) which raised the ground level to c. 62.51m AOD. This deposit was only seen in the southern trench edge, where it was evident that it would have been much more extensive had it not been truncated by later activity.

Plate 3 Cut 2031(Cut 2032 top right of shot) looking south. 0.20m scale units

The base of the trench was crossed by a loose north-west - south-east alignment of heavily truncated pit bases. From north to south these are cuts (2005), (2023), (2015), (2026) and (2034) (Figures 3, 6 – 10). At the moment it is not certain what purpose they served or whether or not they were in use before, during or after Channel 2031 was levelled and consolidated (Deposits 2042 and 2027, above). With the exception of the northern half of cut (2005) (Figure 5) they had been truncated by later activity and only survived as shallow, amorphous or sub-circular scoops of no more than 0.20m deep. The northern half of cut (2005) had survived truncation purely by its proximity to a later wall (Plate 4). It showed that the pits pre-dated the wall, had originally been cut down from c.62.42m AOD and would have been at least 0.60m deep No physical relation was present between the pits. They are all thought to have been contemporary as all were cut into the top of Natural 2043 and contained similar fills, (2006), (2024), (2016), (2025) and (2023) (respectively). These fillswere an homogenous, soft mid grey brown sand silt which varied little. An environmental sample (03) of deposit (2024) contained some industrial discard The sample provided no evidence to illucidate the function of the pits.

The dating evidence included 20th century pottery, animal bone, glass, shale/slate (some burnt) and clay tobacco pipe from (2006), clay tobacco pipe from (2024), late 18th century pottery, animal bone, glass, coal/shale and cinder (SF04) from (2016), ,19th / 20th century pottery and clay tobacco pipe from (2025) and 19th / 20th century pottery, glass, clay tobacco pipe and an iron object (SF12) from (2023). The dating evidence included 20th century pottery, animal bone, glass (BF29), shale/slate (some burnt) and clay tobacco pipe (BF47) from 2006, clay tobacco pipe (BF51) from 2024, late 18th century pottery, animal bone, glass (BF30), coal/shale and cinder (SF04) from 2016, ,19th / 20th century pottery and clay tobacco pipe (BF52) from 2025. Fragments of 19th / 20th century pottery, glass (BF31), clay tobacco pipe (BF55) and an iron object (SF12) were recovered from 2033. Environmental samples were also taken from Pit fills 2016 (SA02) and 2025 (SA04). These samples were not processed.

Plate 4 North-east facing section of Pit 2005 (Construction cut (2007) and wall (2012) to right of 0.50m scale)

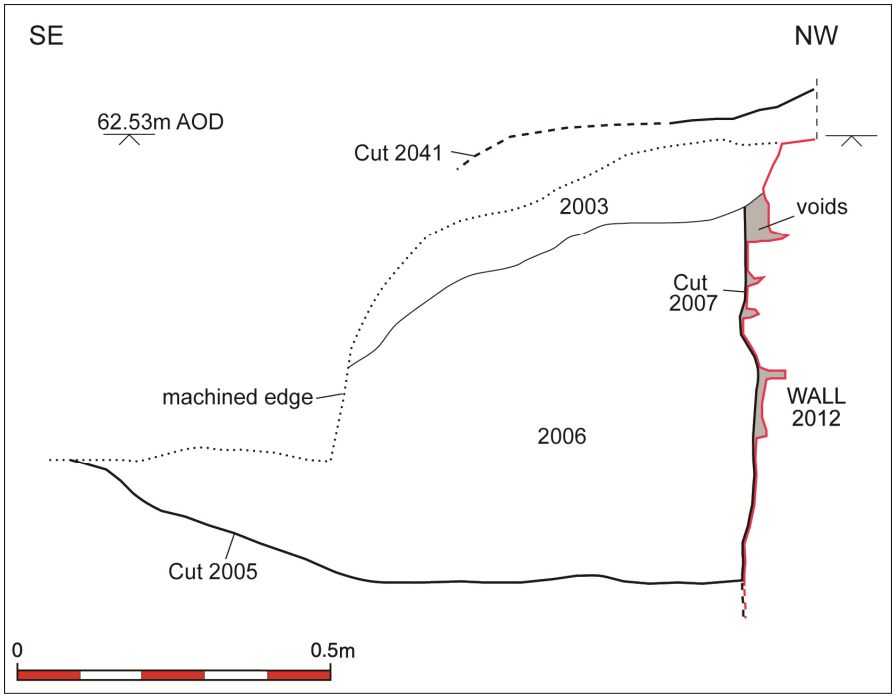


Figure 6 North-east facing section no.100

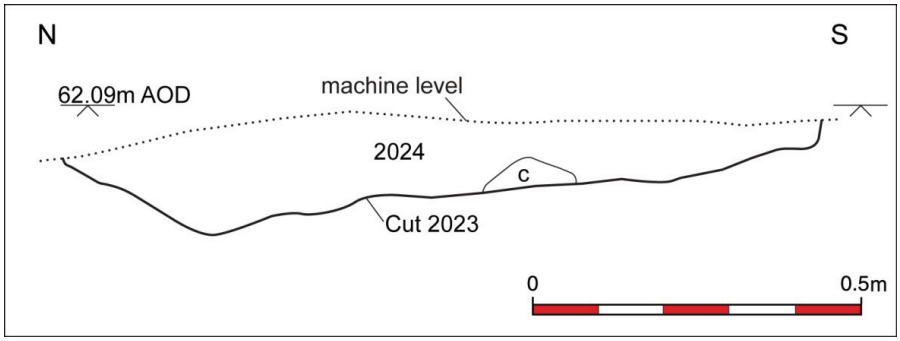


Figure 7 West facing section no.11

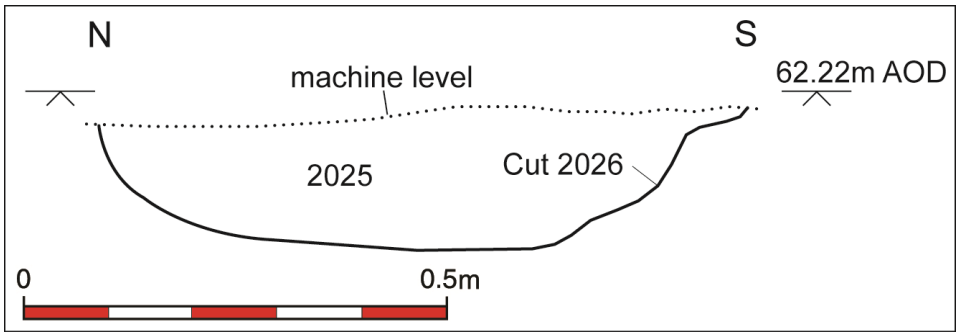


Figure 8 West facing section no.12

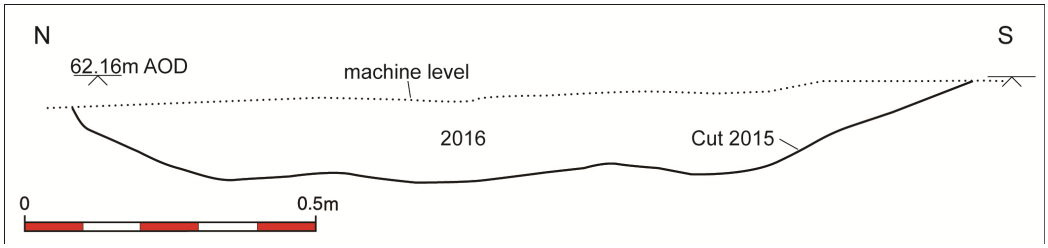


Figure 9 West facing section no.7

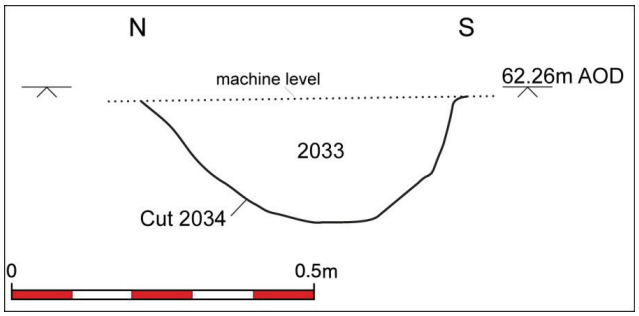


Figure 10 West facing section no.9

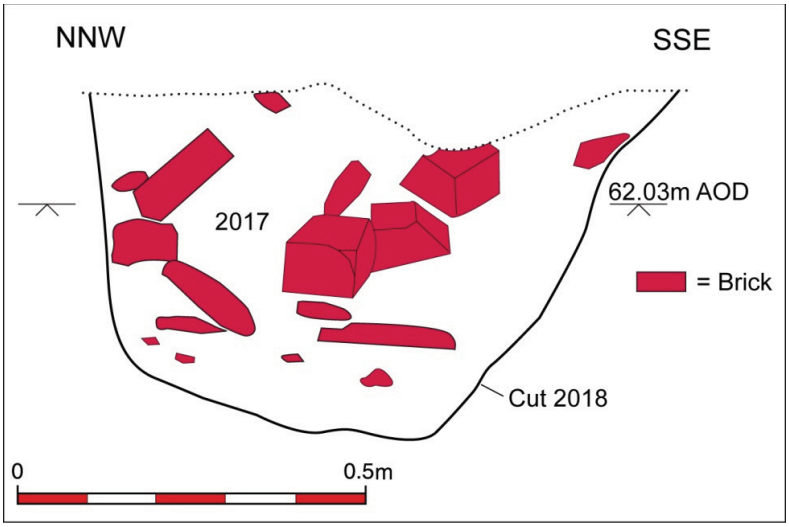


Figure 11 West-south-west facing section no.8

Pit (2018) (Figure 11) lay within the general alignment of the pits mentioned above Its circular form and fill (2017), a mass of brick rubble and mortar, suggest it may belong to a later phase.A brick retrieved from (2017) has been dated to the late 19th – 20th century.

It is thought that pits (2005), (2023), (2015), (2026) and (2034) were backfilled before walls (2020) and (2012) were built. The construction cut for wall (2020) was excavated in two segments, one against the southern edge of excavation (cut 2029), and the other, cut (2011), at its northernmost extent, where it ran into the southern face of wall (2012) (Figure 3). It had been cut into the top of deposit (042) and was linear in plan, north-north-west – south-south-east aligned, 7m long, c. 1m wide and 0.47deep. Wall (2020) was only observed in the south corner of the trench as its north-north-west – south-south-east alignment meant that it ran beyond the western edge of the trench, some 3m to the north. It survived to a height of up to 0.65m and was constructed from irregular random coursed, roughly shaped sandstone block-work and random rubble, part bonded with a soft, ashy lime mortar. Its width was not established.

The northern segment of the construction cut (2011), was backfilled with a 0.47m thick deposit of loose grey black silt sand, with moderate brick fragments (2004), whereas the southern segment (cut 2029) contained two fills (2028) and (2021). The basal fill (2028) was 0.22 m thick and comprised a friable, coarse grained mid grey sand silt with frequent flecks to small fragments of mortar, moderate small sandstone fragments, occasional small pebbles, brick and painted plaster fragments as well as a tobacco pipe stem fragment (BF53). Deposit 2004 also went on to produce a large amount of broken glass bottles and window fragments (BF 28). Deposit (2021) sealed the top of (2028) and comprised many compacted fractured clay lumps in a matrix of a charcoal and burnt clay flecked, pale brown sand silt, 0.16m thick. It produced several fragments of fired clay tobacco pipe (BF50). The finds recovered from contexts (2004), (2028) and (2021) suggested an early 20th century date for the construction of the wall.

Only a small part of the construction cut (1007; Figure 3 and 6) for wall (2012) was observed where it had been cut through the north side of the fill (2006) of Pit 2005 (plate 4). In this location it showed that the south side of the cut was vertical, in excess of 0.60m deep (the base was not reached). The northern extent of (2006) was not established. It must have followed the same west-south-west – east-north-east alignment as wall (2012), as it had had been built hard up against it. Cut (1007) also appeared to have truncated the backfill (2004) of

the construction cut (2011) for wall (2020). As this was only observed in a small slot against the western trench edge, this relationship is still open to question.

Only the top of the c. 0.75m wide foundation course step-out was reached and therefore, the full height of wall (2012) was not available for recording. The upper build (plate 5) was exposed for a height of c. 0.72m and extended across the full 4m width of the trench. It was an average of 0.65m wide and had been constructed from irregular medium – large, random coursed 'slabby' sandstone fragments, some roughly worked. A dry bond was favoured in its construction with a soft lime mortar used to level the coursing in a few places. When the building was demolished the top of the wall was reduced to 62.87m AOD (max.)

Plate 5 South face of wall 2012. 0.3 and 0.5m scales

A small, east – west aligned, 0.9m long, 0.7m wide trial trench was placed hard up to the northern face of wall (2012), against the western trench edge. The objective was to investigate the potential for the survival of internal floors within the associated building. The top of a floor surface (2014) was exposed at 62.52m AOD. (2014) abutted the north face of wall (2012) and comprised a 0.04m thick bedding layer of crushed, burnt brick topped off with a 0.03m thick layer of trampled, compacted small fragments of slag (Figure 3, plate 6). The crushed brick was founded directly on top of the natural sub-soil and an iron object (SF11) was recovered from the surface of the compacted slag.

Plate 6 Vertical shot of trial trench, North face of Wall 2012 to right, South side of Wall 2013 centre left. Floor 2014 can be seen abutting north face of Wall 2012. 0.3m scale.

The northern edge of floor (2014) was truncated by construction cut (2010) (Figure 12). It (2014) was only seen properly in the trial trench but was further examined by rapid machine excavation immediately before thetrench was backfilled. (2014) was traced on the north side of wall (2012) (Figure 3, wall 2013 (projected)). Aligned north-east – south-west (2014) ran beyond both the east and west trench edges. It contained the stub of a demolished partially robbed out wall (2013) of roughly coursed sand stone, with fire-brick inserted to level some of the more irregular stone blocks.

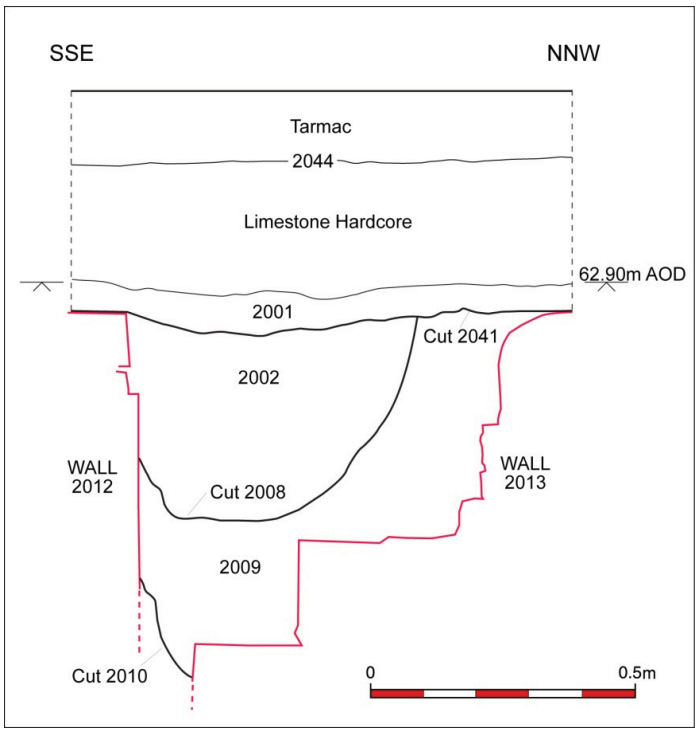


Figure 12 East-north-east facing Section No.2

After the Wall (2013) was robbed / demolished, the area between it and Wall 2012 was in-filled and levelled with a deposit of a mixed, friable ,clay silt sand (2009), which went on to produce clay tobacco pipe (BF48) and 20th century pottery. The top of (2009) was truncated by a linear cut of indeterminate use (2008). This appeared to follow the line of the north face of Wall (2012). (2008) was 0.55m wide, 0.34m deep and had a 'U' shaped profile. Its back-fill (2002) comprised compacted slag, burnt clay, ash and cinders in a dark grey brown silt sand matrix. The function of (2008) was not evident.

The top of (2002) was truncated by clearance cut (2041) (Figures 5, 6 and 12), which was backfilled and levelled with demolition rubble (2001). This may have been the result of demolishing buildings (Walls 2012, 2013 and 2020) and clearing the site in 1987. Alternatively, it may have been part of ground works in preparation for the formation of the car park (2044) and construction of the retail outlet in 1994.

5.3 Trench 3

Trench 3 (Figure 1) was aligned north-east – south-west and it was 10m long, 4m wide and up to 1.46m deep *(*Figure *13)*

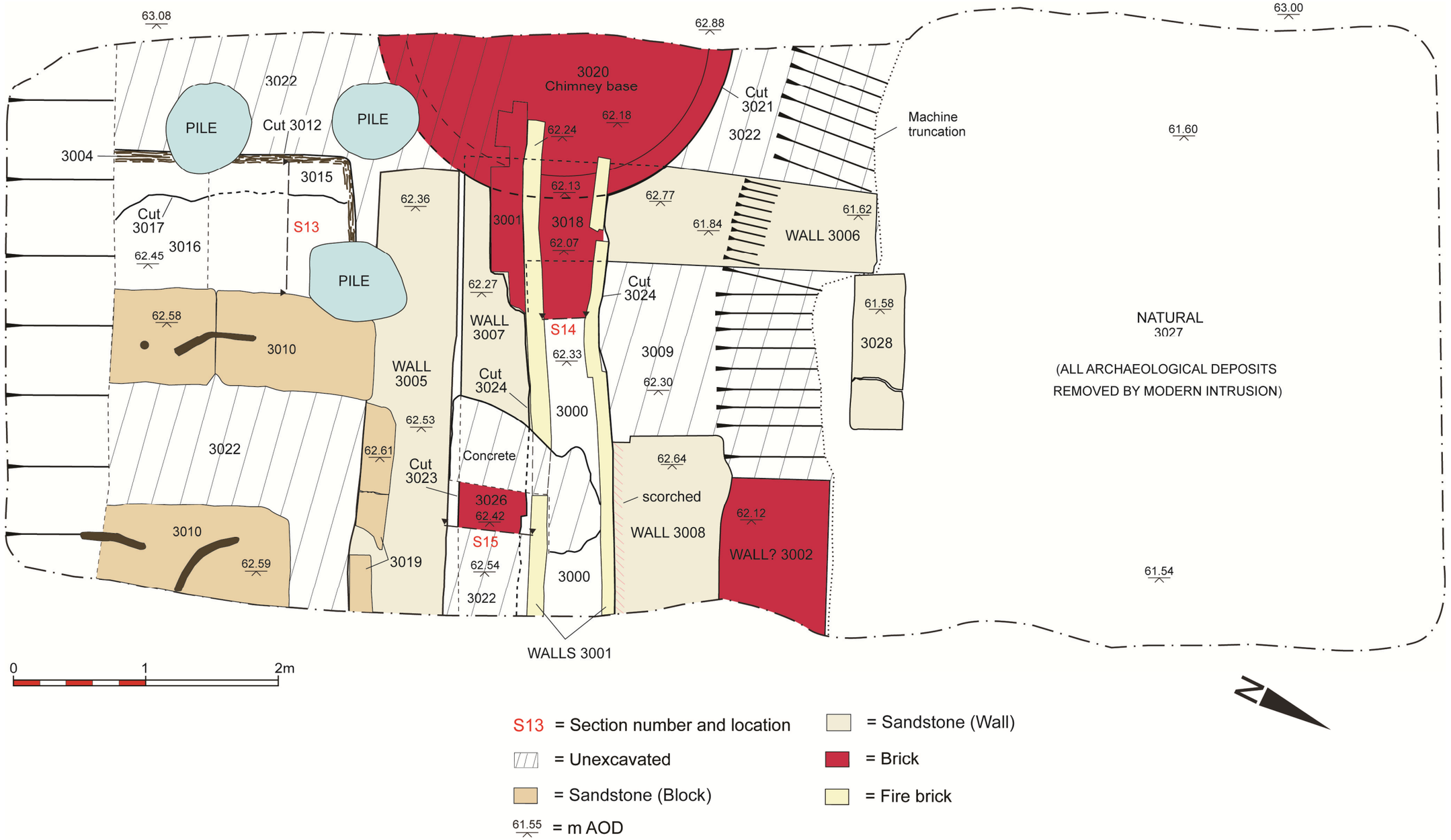


Figure 13 Plan of Trench 3

The northern-most 4m of the trench had been reduced to c.1.46m BGL (probably when the retail outlet was cleared) cutting well down into the clay natural (3027) and removing all the archaeological features and deposits. In the remainder of the trench there was a complex of building remains (plate 7).

Plate 7 Trench 3, pre-excavation shot looking south. 2m scales

The earliest of these appeared to have been sandstone walls (3006), (3007) and (3028). Walls (3006) and (3007) appeared to have been parts of a single build cut through by later activity. Both were constructed from medium to large roughly coursed sandstone blocks and fragments bonded with either a light brown in the case of (3006) or crumbly, mid grey sandy lime mortar in the case of (3007). Wall (3007) also incorporated some brickwork (3026) in its construction. It was aligned north-east – south-west, projected a distance of 3.42m from the western edge of excavation and at 0.60m wide, was of unknown depth. Wall (3006) was aligned north-west – south-east and was 2.04m long, up to 0.72 m wide, 1.19m high and formed a 90° return at its western end. A large sandstone block (3028) lying just to the east of the northern end of Wall (3006) may also have been associated with them, possibly forming the remnants of the foundations of a north-east – south-west return on the northern end of Wall (3006). Alternatively it may represent the last of a flight of steps leading down into a cellar or sub-basement, formerly located in the northern half of the trench. If so, then this would have been taken away by the demolition and clearance of the retail outlet.

Walls (3008) and (3002) were isolated from walls (3006 – 7) and (3028). As such it is not possible to determine whether wall (3008/3002) are contemporary with (3006-7)or represent a later phase of build and/or alterations. Wall (3008) was 0.8m wide (depth unknown), and projected 1.30m from the east trench edge. It ran parallel to the north side of wall (3007) with

a gap of some 0.60m between. The north side was abutted by brickwork (3002), which could have been a part of the same build (but in a different material) or a later addition. (3002) projected 0.94m from the eastern trench edge and at 0.74m wide and 0.57m deep, was founded straight on top of natural (3027). When combined, walls (3008) and (3002) would have formed a structure some 1.54m wide, suggesting it may have been a substantial footing or standing such as a machine base. Deposit (3009), a friable, reddish orange sand silt with frequent small sandstone and brick fragments had been used to infill the area between walls (3002), (3008), (3006) and (3028). The lack of a construction cut for wall (3002) suggested that it was built within this void before backfilling had taken place.

Alternatively, walls (3002) and (3008) could have been constructed when a brick chimney base (3020, Figure 13) and associated flue (3018) were inserted after walls (3006 – 8) were part demolished and reduced in height. This phase of build probably also involved the construction of wall (3005).

The chimney base was observed against the western edge of excavation, at 62.18m AOD, where its construction cut (3021) had been cut through the top of walls (3006) and (3007). It was possible to extrapolate that cut (3021) was circular in plan, some 2.65m diameter and that the chimney base had been built to fit. The flue exited the north-east quadrant of the chimney, ran across the full width of the trench and continued beyond the trench edge. It is currently thought that only the base of the flue (3018), all burnt brick, was part of the original build. Scorching to the southern face of wall (3008) indicated that it had probably been incorporated as part of the north wall of the flue. This suggested that the flue, in its original form, had not been entirely brick lined. A later build of the flue (3001, Figure 14, plate 8) was represented by the insertion of firebrick walls on top of the original base. These had been truncated and only two courses survived. The bricks were stretcher laid and there was no evidence of mortar or any other bonding material present. Red brick was used to support and possibly seal the new lining where stone work had been pulled away from the northern face of wall (3007) at its western end. Both the fire brick side walls and the repair were founded directly onto the chimney base and overlaid it by some 0.65m. A firebrick (3001) was retained for dating purposes and it suggested that the flue was relined in the late 19th – 20th century.

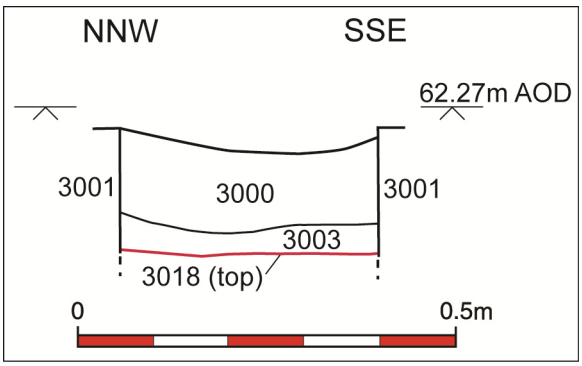


Figure 14 West-south-west facing section no.14

Plate 8 Flue 3001 looking east. 0.5m scale laid on original base (3018). Brick infill of Wall 3007 top left

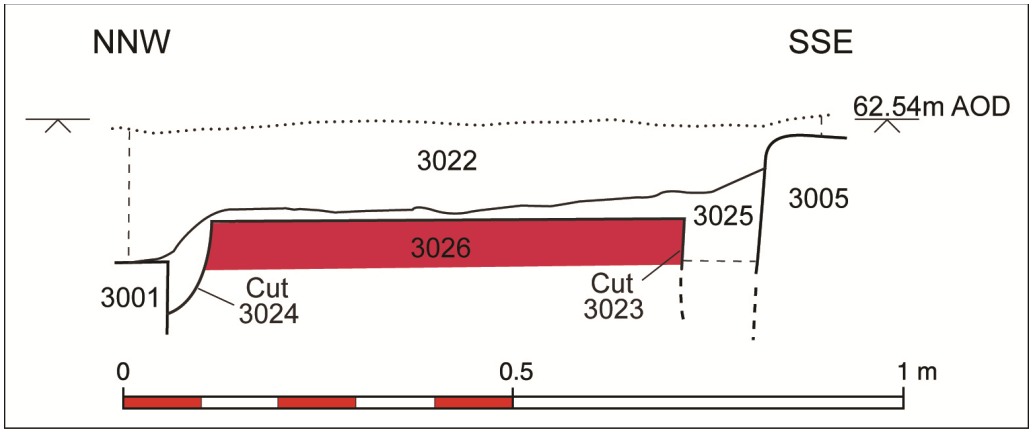


Figure 15 East-north-east – west-south-west facing section no.15

Wall (3005) appeared to have been later than chimney base (3020) (Figure 13). It was located almost immediately to the south-east of wall (3007) and at 3.30m long, shared the same alignment. The relationship between the two was only observed in a small slot cut against the northern face , across the top of wall (3007) (Figure 15). This showed that, in this location, the construction cut (3023) for wall (3005) had been cut into the top of (3026) on its south-western side. The construction cut backfill (3025), a dark greyish brown silt sand with moderate small fragments of brick and sandstone had been used to infill both it and the construction cut (3024) for the rebuilt flue (3001). This suggests that (3001) and (3005) are comtemporary.

It would appear that (3005) respected (3020) in its construction.

A metal lined tank, (3004) (Figure 16, plate 9) was observed against the southern limit of excavation. It was aligned south-south-east – north-north-west and projected into the trench by 1.80m, was up to 0.36m deep and would have been over 1.02m wide, had its eastern edge not been truncated by later activity. The relationship between the tank and the aforementioned structures was not evident.

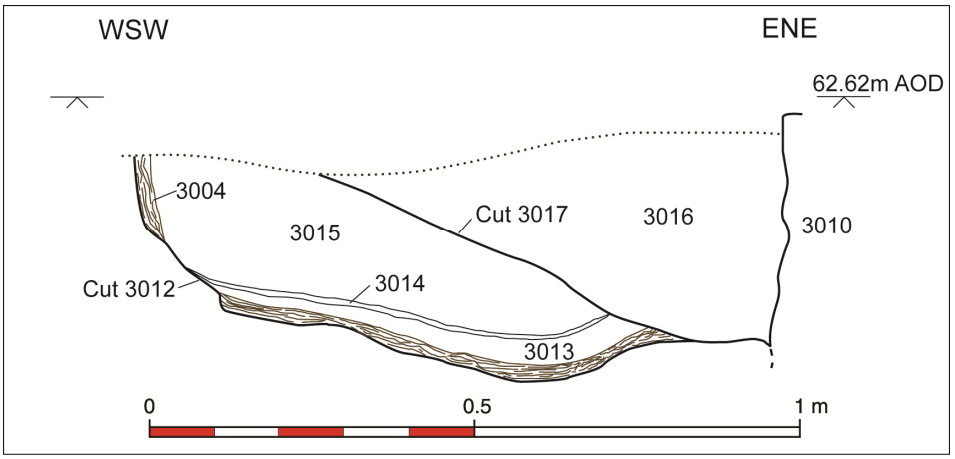


Figure 16 South-south-east facing section no.13

The cut (3012) had been excavated to the size of the tank before it was set into the ground. All that survived of the tank (3004) was a laminated corrosion scale, up to 30mm thick, which lined the sides and base of (3012). The base undulated due to ground settlement, exacerbated

by the later compaction of its fills. Deposit (3013) sealed the base of the tank and comprised a charcoal flecked dark yellow silt clay, 0.04m thick.,(3013) may therefore represent residues associated with the use of the tank. Deposits (3014) and (3015) had been used to backfill the tank. (3014) comprised a 0.01m thick layer of broken glass, (3015) was a 0.2m thick deposit of cemented cinder and slag.

Plate 9 Section No.13 looking north-north-west. Engine/machine base 3010 far right.

0.5m scale

Wall (3005) appeared to have been demolished and reduced in height, down to 62.53m AOD, for the insertion of massive sandstone block bases (3010, Figure 13), part of which (3019) overlay the south-east face of wall (3005). The clearance cut (3017) for the blocks was only observed where it had truncated the upper fill (3015, plate 9) of iron tank (3004). The back fill (3016) of cut (3017), a loose, grey brown silt sand with moderate brick and stone rubble, failed to produce any dateable artefacts. A series of large iron floor bolts, inserted into the top of the blocks suggests they had functioned as the base for an engine or large piece of machinery such as a press or hammer.

This machinery had been removed before ground levelling with to c. 63.00m AODwith demolition material (3022). It would seem safe to assume thishad been carried out prior to the construction of the retail outlet as several of the foundation piles punctured the top of (3022).

5.4 Trench 4

Trench 4 (Figure 2) was east-north-east – west-south-west aligned, 15m long, 3m wide and was machine excavated to a maximum depth of 1.26m, or to 61.62m AOD (Figure 17, Plate 10).

Plate 10 Pre-excavation shot of Trench 4, looking west-south-west. 2m scales

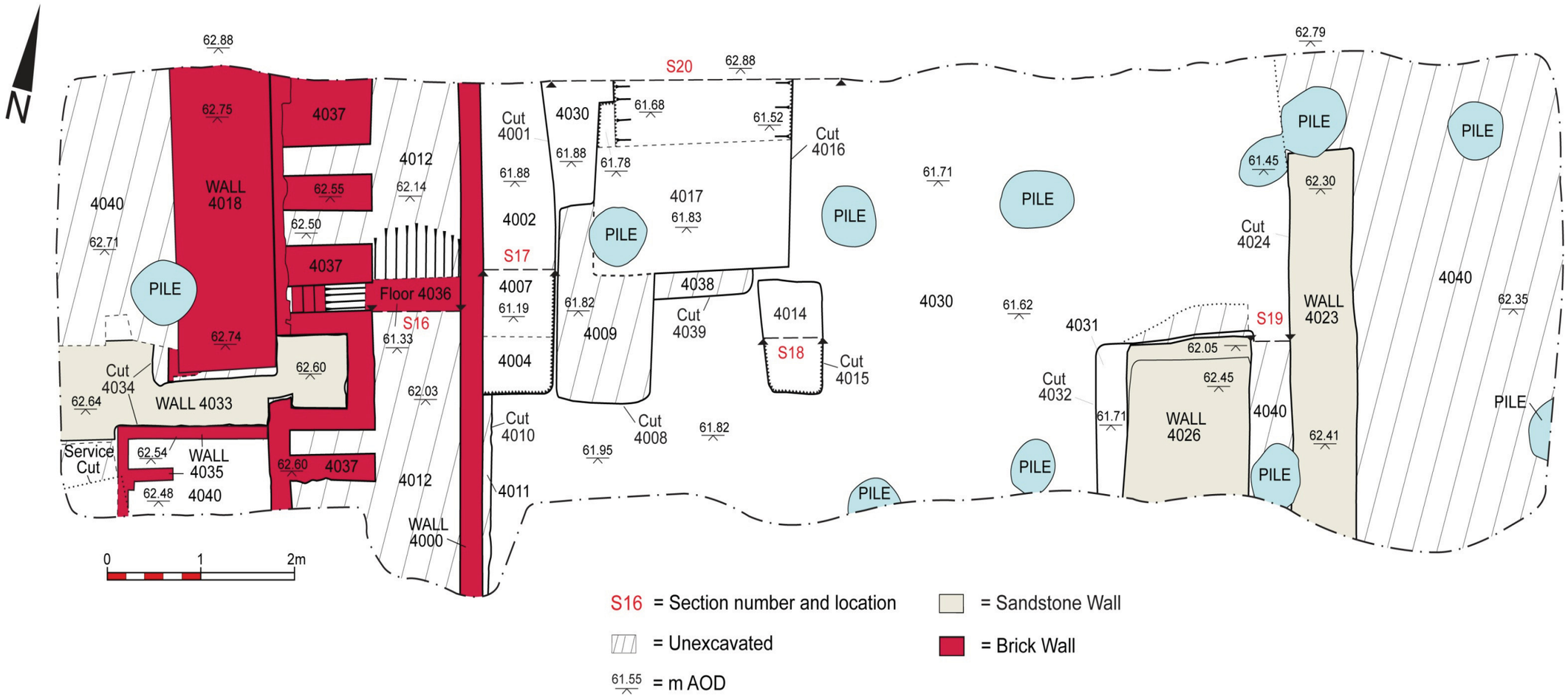


Figure 17 Plan of Trench 4

The earliest deposit encountered in this trench comprised a natural, plastic, mica flecked, reddish brown sand silt clay (4030), with pale yellow brown sand spotting First observed at c. 62.57m AOD, it was machined to a depth of 1.26m BGL, 61.62m AOD. At the eastern end of the trench (4030) was sealed beneath a 0.09m thick levelling/build up deposit comprised a compact, stiff pale orange brown silt sand clay (4029), with occasional small mortar and burnt clay fragments, charcoal flecks and small pebbles (Figure 18).

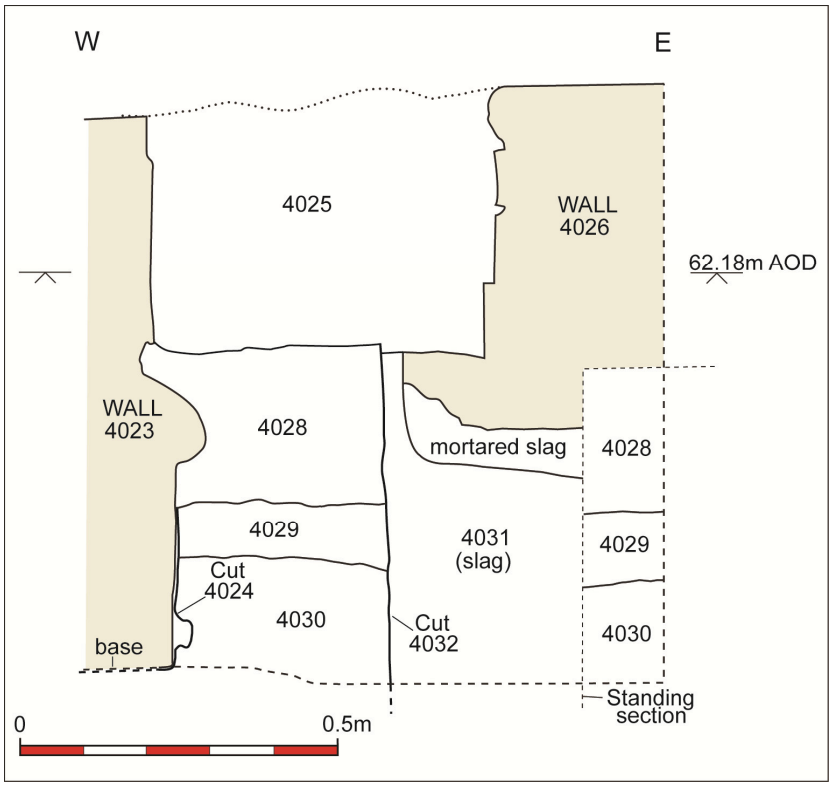


Figure 18 North facing section no.19

(4029) may have built up on an earlier floor surface or was a levelling/consolidation deposit for the construction of wall (4023). (4029) been truncated by the construction cut (4024) for wall (4023). The cut was only observed in a small section (No. 19, Figure 18), where it proved to be vertical and 0.25m deep. As the deposits to the east of the wall were not excavated its width is unknown. Wall (4023) was located some 2m west of the eastern end of the trench and emerged from the southern trench edge.It continued towards the north-north-west before terminating c. 1m south of the northern limit of excavation. The terminus was squared and appeared to have been intentional, suggesting that it formed the south side of a door way (the opposing side was outside the limit of excavation). The remnants of wall (4023) survived to a height of 0.81m, or to 62.41m AOD. It was c. 0.66m wide and was constructed from medium – large, random coursed 'slabby' sandstone blocks, some roughly faced, bonded with a crumbly grey ash/slag mortar. In some instances random bricks had been inserted to level the coursing (plate 11).

Plate 11 East face of Wall 4023. South side of door way to right of 0.30m scale, modern pile cap below.

The western face of wall (4023) was sealed by a 0.30m thick deposit of a stiff charcoal and burnt clay(?) rich sand silt clay with occasional small sand stone fragments (4028). This deposit may have been laid down to form a floor surface associated with wall (4023) or was a levelling deposit for a later phase of construction. The top of (4028) was truncated by the construction cut (4032) for a substantial wall or standing (4026). Construction cut (4032) was exposed for 1.48m from the south trench. (4032) was rectilinear in plan, north-north-west – south-south-east aligned,1.64m wide and over 0.53m deep (the base was not reached). Directly above it was a foundation course of crushed glassy slag (4031) which filled the cut almost entirely, except for the top 0.06m which had been admixed with a hard pale grey mortar. A substantial wall / standing (4026) was founded on top of the mortared slag.

(4026) was located to the west of wall (4023) (Figure 17 and 18) and was 1.30m wide, 0.52m high. As only 1.13m of it projected from the southern trench edge its true dimensions could not be established. What was exposed comprised c. 5 courses of mixed, large random sandstone rubble and large sandstone blocks, some re-used, bonded with a pale – mid grey ash mortar (Plate 12). The 0.52m gap between walls (4026) and (4023) was in-filled and levelled with a 0.40m thick deposit of compacted, crushed, mid grey- black ashy cindery slag (4025). It could not be ascertained if this was an associated floor level or part of the later demolition works as it had been truncated at the same level as the top of the walls, at c.62.45m AOD (Plate 12).

Plate 12 Wall / footing 4026 looking south. 0.30 and 0.50m scales

Wall (4033), located at the western end of the trench (Figure 17), was exposed for a distance of 3.10m, with the rest lying beyond the western trench edge. It was west-south-west – east-north-east aligned, c. 0.95m wide and of unknown depth (it was only seen in plan). A squared terminus was formed at its eastern end. (4033) was thought to have been contemporary with wall (4023) as it was of similar build and the earliest structural phase in this part of the trench. (4033) comprised large random coursed sandstone rubble bonded with a pale grey mortar.

The eastern extremity of wall (4033) was incorporated in to a later build. Parts of it were cut away (cut 4034) to facilitate the construction of a series of crucible furnaces. (4034) was not excavated. The new build appeared to have initially involved the insertion of a large platform of brickwork (4018). This emerged from the northern trench edge and ran for 3m towards the south-south-west where it joined at 90° with wall (4033). It cut into northern face of wall (4033) by 0.50m and 1.16m wide.. One of the bricks was recovered from (4033) for dating purposes indicated a date of the late 19th – 20th century for its construction.

A series of crucible furnace bases, 4 or 5 in number (4037), were located against the eastern face of wall (4018). It was not possible to determinewhether (4018) and (4037) representa single phase of construction, or if the furnace bases were added later. The openings to the furnace bases all faced east-south-east. One was part excavated, showing that it was 0.86m in length, 0.26m wide and had vertical side walls, 1.22m high. Access was gained to the base of the furnaces by a brick floored (4036, Figure 19) passageway, 0.93m wide, with the eastern side of it delineated by a 0.23m wide, 0.75m deep brick wall (4000).This wall (4000) was aligned parallel to the furnace bases and ran across the full width of the trench (Plate 13). Its construction cut (4010) had truncated the top of natural (4030), neither the cut or its backfill (4011) were excavated.

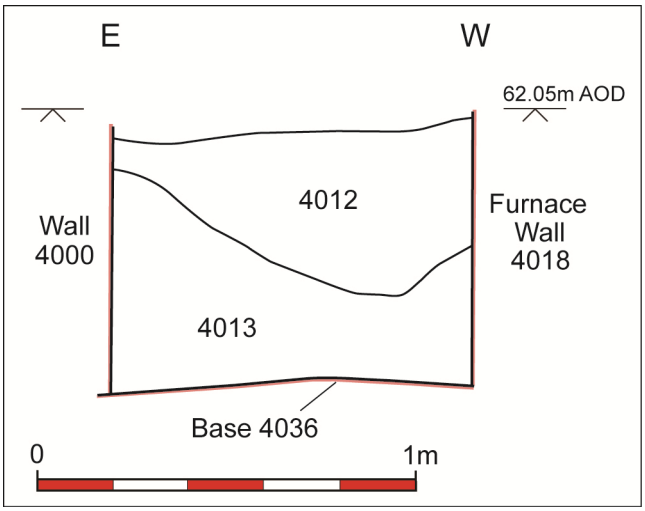


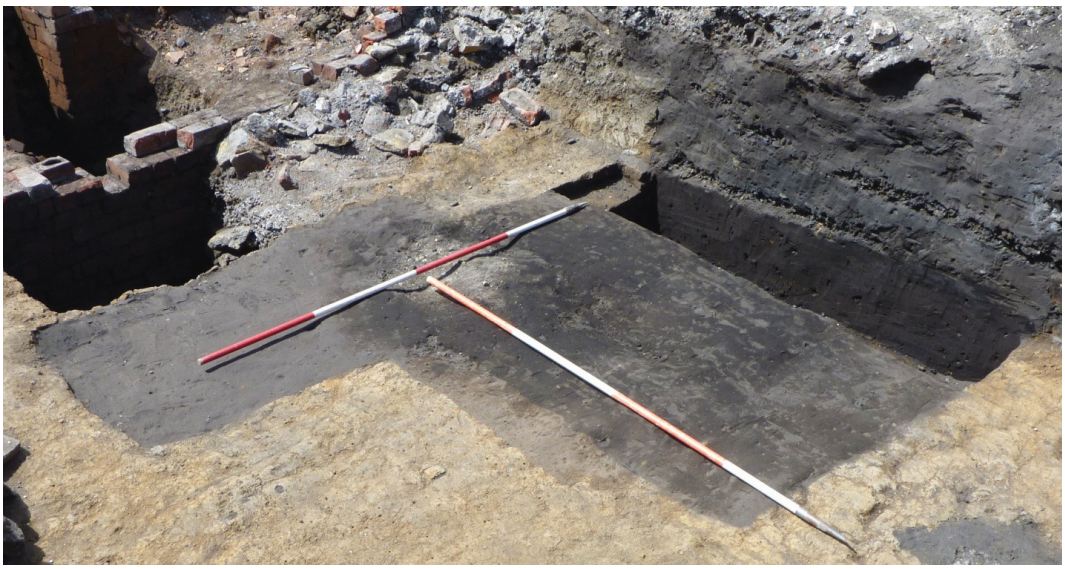
Figure 19 North facing section no.16

Plate 13 Elevation of furnace bases with Wall 4000 running across bottom of shot, Wall 4018 to top. 2m scale

Wall (4035) had been cut into the southern side of wall (4033) and may have been contemporary with either wall (4018) or the furnace bases (4037).The function of (4035) was not ascertained. The fill (4040) within wall (4035) was a mix of loose brick fragments and slag lumps, it failed to produce any dating evidence and gave no insight as to its function or that of (4035).

After the furnaces had gone out of use both they and the passageway were infilled. Initially this involved a dump(s) of a very hard concretion of slag (4013), 0.58m thick, followed by a further dump of medium to large lumps of a loose greenish brown glassy slag (4012), 0.30m thick, which also produced a fragment (residual) of a 19th – 20th century fireclay floor tile. Both these deposits were only observed in association with the infilling of the furnace bases and access passage.

A series of pits (Plate 14) were observed just to the east of the crucible bases. The earliest of these were cuts (4039) and (4015), which contained similar fills (4038 and 4014, respectively). (4039) and (4015) were cut into the top of natural (4030). Only cut (4015) was half sectioned



and recorded.

Plate 14 Pit group to east of furnace bases (top left) looking west. Section cut through Pit 4016. 2m scales

Cut (4015) (Figure 17 and 20) was up to 1.04m long, between 0.67m (northern end) and 0.54m wide, up to 0.36m deep and had vertical sides and a flat base. Its backfill (4014) comprised a friable light brown silt clay, with occasional small pebbles and sandstone fragments.This (4014) produced fragments of 20th century pottery, animal bone, a fragment of clay tobacco pipe (BF57) and an iron nail (SF06). The fill (4038) of pit (4039) was truncated by pit (4008), which was also north-north-west – south-south-east aligned (4008) was 1.84m long and 1m wide. Its fill (4009) was not excavated as it was similar to pit (4016).

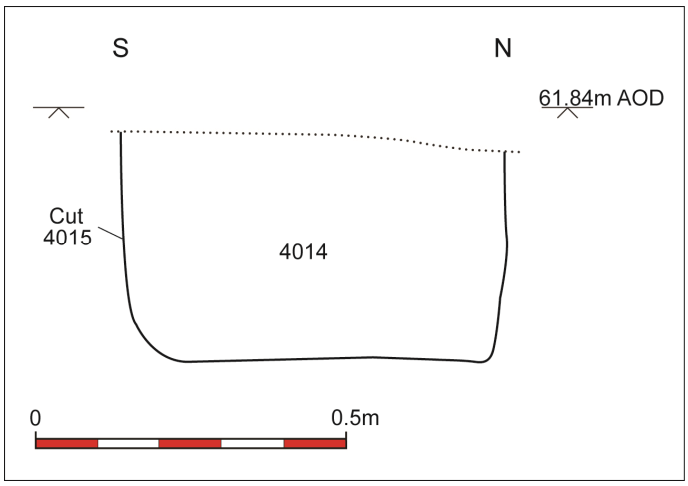


Figure 20 East facing section no.18

Pit (4016) was cut into the north-east corner of pit (4008) and shared the same alignment. it was also rectilinear in plan, 2.10m wide, 1.85m long (up to the point it ran beyond the northern trench edge) and the hand excavated portion of it was 0.30m deep.

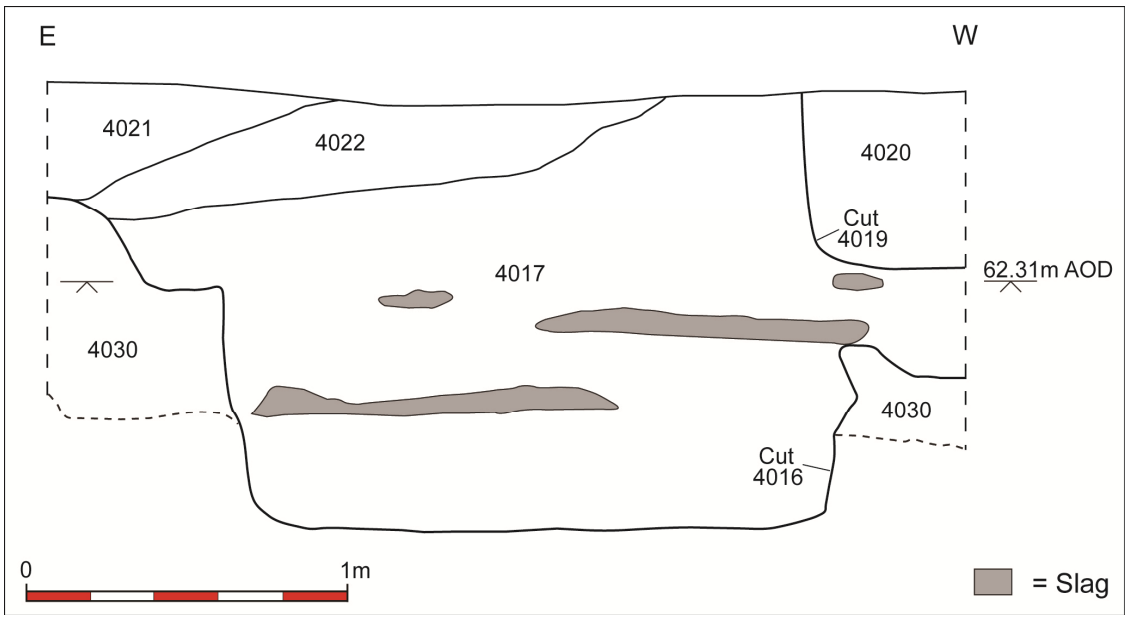


Figure 21 South facing section no.20

Its full depth, 1.08m, was recorded in the northern trench edge (Figure 21). Its backfill (4016) comprised a compacted, loose, fine grained black sand, with occasional interrupted lenses of slag, which over-spilled the west edge of the pit. This may suggest that it would have originally had a stepped profile. The form and fills of pits (4008) and (4016) (and their proximity to the furnace bases) suggests that they had functioned as sand casting pits. The western edge of (4017) was truncated by a steep sided flat based service, cut (4019), which was backfilled with a dark grey sand with several fragments of salt glazed sewer pipe. On its eastern side deposit 4017 was sealed primarily by, deposits (4022) and (4021). Deposit 4022 comprised a dump of iron stained slag fragments, whereas 4021 comprised demolition rubble in a matrix of light brown grey silt sand. Together with deposit (4040) (Figure 17), (4022) and (4021) were thought to represent post demolition levelling of the site, forming the ground level at c.62.88m AOD.

Cut (4001) (Figures 17 and 22) was later than casting pit (4016). It had been cut tight down the eastern side of wall (4000) and its northern end ran beyond the trench edge. What could be recorded was 2.92m long, 0.72m wide and 0.7m deep. (4001) was north-north-west – east south-east aligned, rectilinear in plan and had a square terminus at its southern-most end. Excavation was restricted to a 1.10 m long section at its southern terminus and the base of the cut was not reached, due to the presence of a substantial, 0.65m wide concrete foundation (4007).

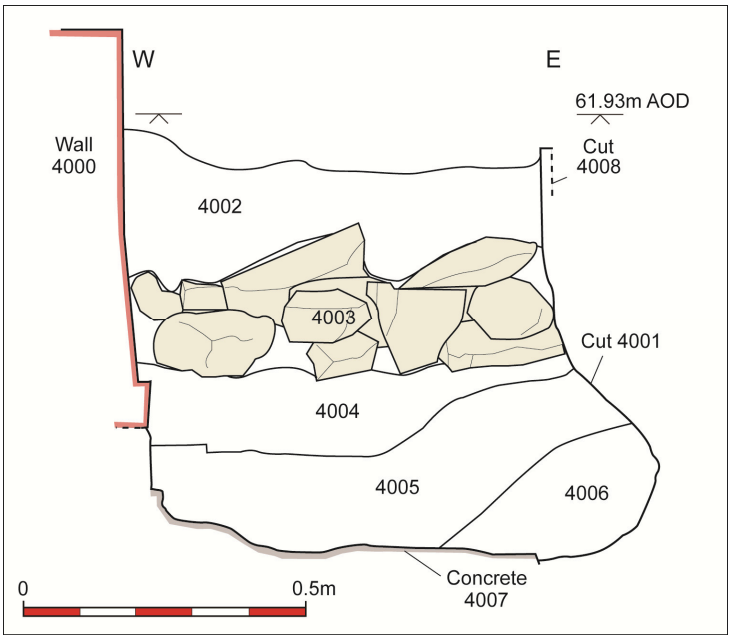


Figure 22 South facing section no.17

Above this were, from bottom to top, deposits (4006), (4005), (4004), (4003) and (4002) which all comprised sand silts of varying hue and texture. All contained, to a greater or lesser extent, sandstone, concrete and brick rubble. All were thought to represent post demolition backfill which was used to fill and level cut (4001) after a structure of some kind had been taken away from the top of foundation (4007). The presence of deposit (4002) was noted in the profile of the north trench edge. It showed that was originally 0.82m thick and its top, at c.62.45m AOD, was sealed beneath deposit (4021) (see above, Figure 21). Deposit 4004 went on to produce a residual tobacco pipe stem fragment (BF56), whereas residual glass fragments (BF32) were recovered from 4002.

All the built structures, deposits and features within this trench were reduced to between 62.75 and 62.30m AOD before levelling was undertaken.

5.5 Trench 5

Trench 5 was located against the western boundary of Site B (Figure 2) and was north - south aligned, 10m long, 4m wide. Machine excavation proceeded to a depth of 1.46m BGL, or to 60.96m AOD (Figure 25). A narrow spit of fill was left behind in the northern end to provide support for a very unstable section of a brick wall.

The earliest features (5012/5013, Figure 25) were observed in the south-east corner of the trench. (5012) and (5013) were partially exposed and appeared to be a flight of stepped brickwork (5012) with an integral, circular brick floor (5013). The 'steps' were arranged towards the east in a semi-circular formation, with the lowest observed at 61.29m AOD. The rise between each one varied between 0.06 and 0.12m, with 'step' noted at 61.55m AOD. The surface of brick floor (5013) was observed at 61.32m AOD, some 0.23m lower than the top 'step' The function of this structure is uncertain. It may have been the base of a chimney or series of steps leading from the bottom of a circular stair base, down into a sub-basement.

Two patches of brick flooring separated by later activity were located against the western edge of the chimney. Each floor was three courses deep. Both patches of floor were formed

from dry bonded bricks that had been laid flat, wide faces down. The southernmost of the groups was 1.84m wide (east - west), 2.10m long and comprised, from bottom to top, 2 layers of fire brick (5009 and 5008) surmounted by a layer of mixed red brick and fire brick (5007), 0.11m thick (combined). The lowest course was observed at 61.00m AOD, the highest at 61.11m AOD. The northern patch was located 1.80m distant and was 1.2m wide (east – west), 2.0m long and comprised from bottom to top, a course of red brick (5002) followed by a course of red brick and fire brick mixed (5001), sealed by a top layer of firebrick (5000), 0.17m thick. The lowest course was observed at 61.05m AOD, the upper course at 61.22m AOD.

Both patches were originally part of the same floor, where course (5009) equated with (5002), (5008) with (5011) and (5007) with (5000). As there was a noticeable lack of built-up material or trample between each layer they may have been laid down in one operation, forming a thick, load bearing surface for a heavy piece of machinery or large steam boiler; supplying power to one of the works that had formerly occupied the site.

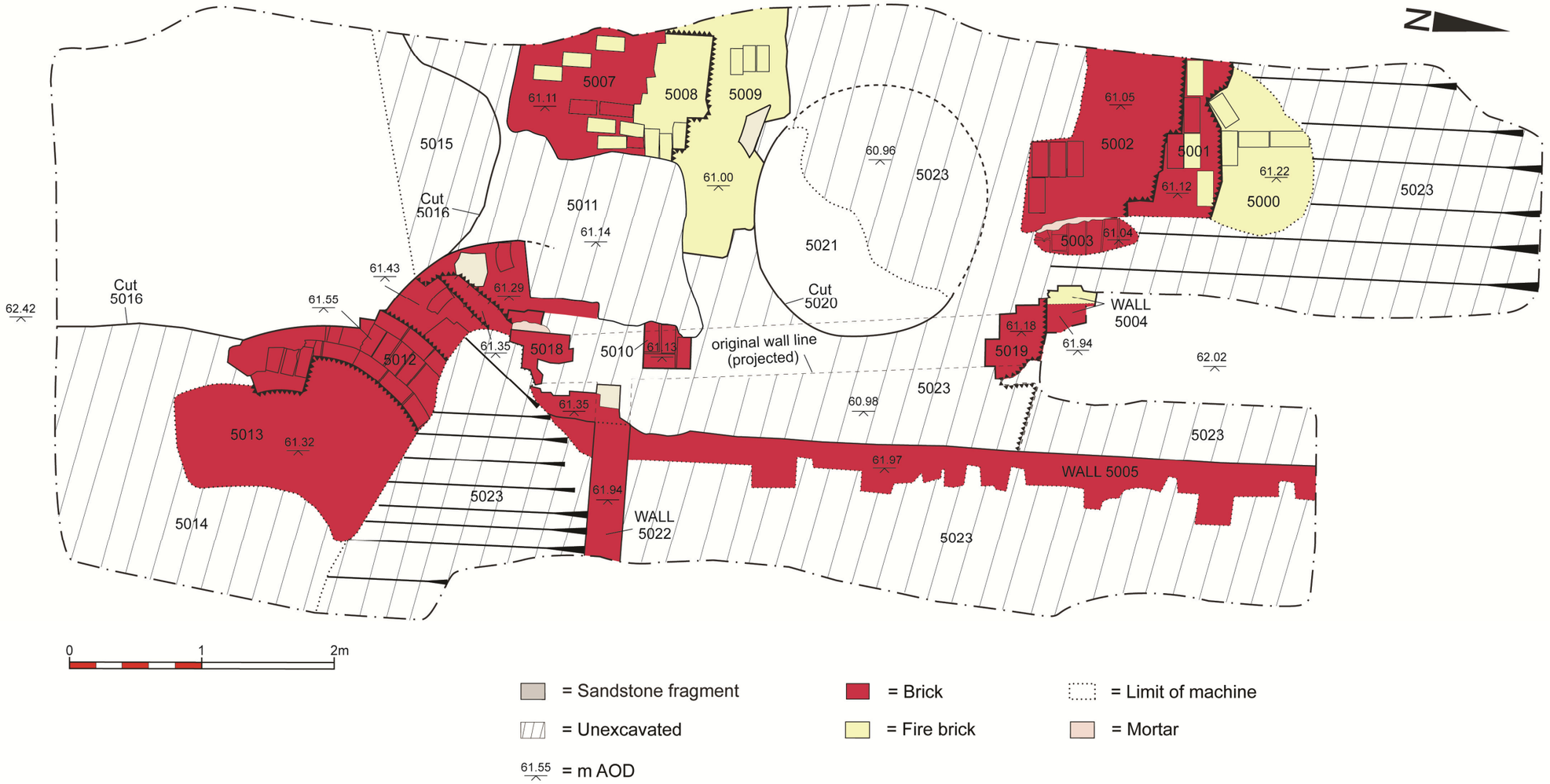


Figure 23 Plan of Trench 5

The east side of the basement/boiler room was most likely delineated by a badly damaged brick wall. Small parts of the brick foundation course of this wall were recorded (5010 and 5019, Figure 25). The foundation cut was not observed. The upper build (5004 and 5018) was constructed from brick and it would have originally been north-north-west – south-south-east aligned, over 4.30m long (it ran beyond the north trench edge) and c. 0.40m wide. A single course wide skin of fire brick was noted on its western (internal?) face. The most intact part of it (5004) was 0.76m tall and had been demolished and reduced in height, to 61.94m AOD. The southern element, (5018), had been founded on top of brickwork (5012). It had been reduced to 61.78 m AOD by later activity. One of the bricks used in the build suggested a date of the late 19th-20th century for its construction. An east west aligned brick wall (5022) may also have been integral, forming a 'T' junction with the east face of wall (5022), this could not be ascertained as the connection was severed by a later build. Wall (5022) was only seen in plan and it was 0.90m long, 0.26m wide and comprised two courses wide of brick stretchers. All that can be said is that a later build (see 5005, below) appeared to have incorporated part of the foundations of wall (5022) as its own.

Plate 15 Elevation of Walls 5018 (right), west end of wall (5022) (under scale) and wall (5005) (extreme left) after deposit (5017) removed, looking south. 0.3m scale

Wall (5004/ 5018) and the western end of (5022) appear to have been part demolished in advance of the construction of wall (5005) (Figure 25, plate 20). (5005) was located 0.22m to the west of wall (5004/5018) and had a slightly different alignment to it (north - south rather than north-north-west – south-south-east). Wall (5022) appears to have been retained as part of the new layout. (5005) was over 5.70m long (the north end ran beyond the trench edge, the south end below unexcavated deposits) and 0.48m wide and, the accessible western face stood up to 1m, after being demolished to 61.97m AOD. The full width was not observed as it was partially covered by unexcavated material. The space between walls 5018/5004 and 5005

was in-filled and levelled with loose brown black silt sand (5017; not shown) with frequent slag fragments.

Deposit (5014) (Figure 25) sealed the top of brickwork (5013) and (5012) and comprised a hard dark brown tarry substance, 0.10m thick, with frequent medium sandstone and brick fragments. Deposit (5011) comprised a hard black tar deposit which sealed the top of brick floor (5007) and the foundation (5010) of wall (5004/5018). Both these deposits, along with (5017) are thought to represent the onset of infilling the site to the west side of wall (5005).This would infer that the internal surfaces of the building it represented were to the east and that it was the external wall of a new build.

After the structures were demolished, the site was levelled with a 1.06m thick deposit of building rubble (5023) which formed the ground surface, at 62.02m AOD. The top of it was punctured by pits (5016) and (5015). Pit (5015) was the smaller of the two and it was sub-circular in plan and c. 1.8m in diameter. Its fill, (5021) was yellowish brown clay sand with frequent brick and concrete rubble, sandstone rubble and occasional slate fragments. The depth of this deposit was not established. Pit (5016), at 3.36m long (north – south) and 2.40m wide, was much larger and had an amorphous shape in plan. Its fill, (5015), was similar to pit (5016), although without the concrete and slate inclusions. These features were clearly modern and are probably dateable to the 21st century. There function is unknown.

5.6 Trench 6

Trench 6 (Figure 2) was located 8m to the east of Trench 5. It was 10m long, 4m wide and was machine excavated to a depth of 1.61m BGL, or to 60.40m AOD. The trench was excavated in a series of steps with the deepest part at its eastern end (Figure 25). Trench 6 was sited to investigate the survival of a former Wire mill. No evidence for the mill was present suggesting all trace of the mill had been removed.

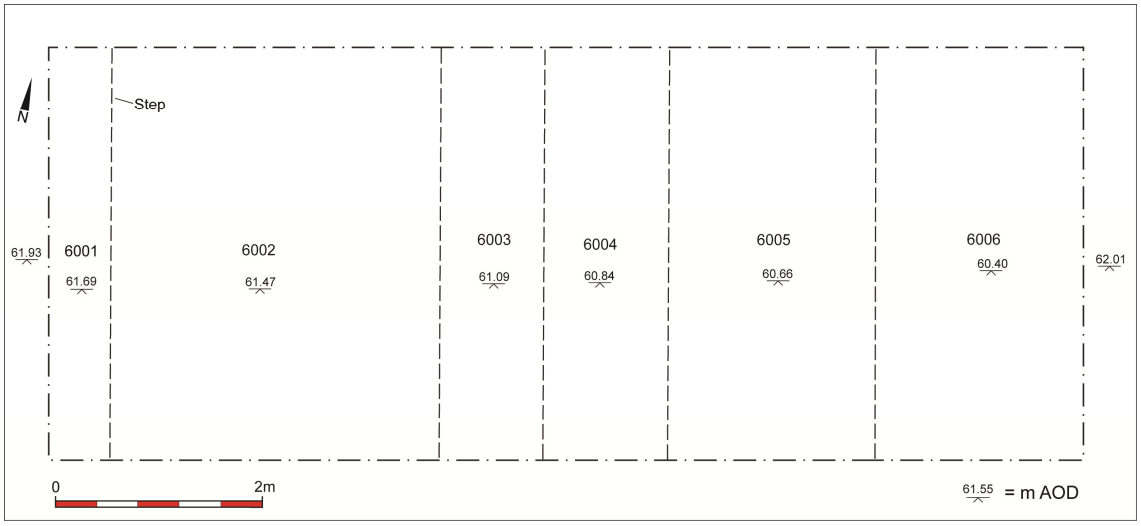


Figure 24 Plan of Trench 6

All the following deposits relate to levelling the site after demolition was carried out. The earliest of these (6006), was observed at 60.40m AOD in the eastern end of the trench. It comprised a hydrocarbon contaminated natural deposit of a plastic mid yellow brown sand clay. Directly above this, at 60.66m AOD was deposit (6005) comprising a dark grey –black hydrocarbon rich silty clay, probably also natural in origin. The top of it was sealed by a deposit

of dark brown grey silt clay (6004, top at 60.84m AOD), again with hydrocarbon contamination and occasional small demolition rubble fragments. Overlaying this was deposit (6003), which comprised light brown yellow silt clay with occasional demolition debris and small cinder patches. The top of (6003) was formed at 61.09 m AOD and sealed by deposit (6002). The top of (6002) was formed at 61.47m AOD. (6002) was similar to deposit (6003) yet the cinder patches were absent. The uppermost layer, at 61.69m AOD, was deposit (6001). (6001) was a mix of cinders and demolition rubble and was sealed beneath the demolition materials forming the ground surface, c.61.93m AOD.

5.7 Trench 7

Plate 16 Trench 7 looking west. 2m scales

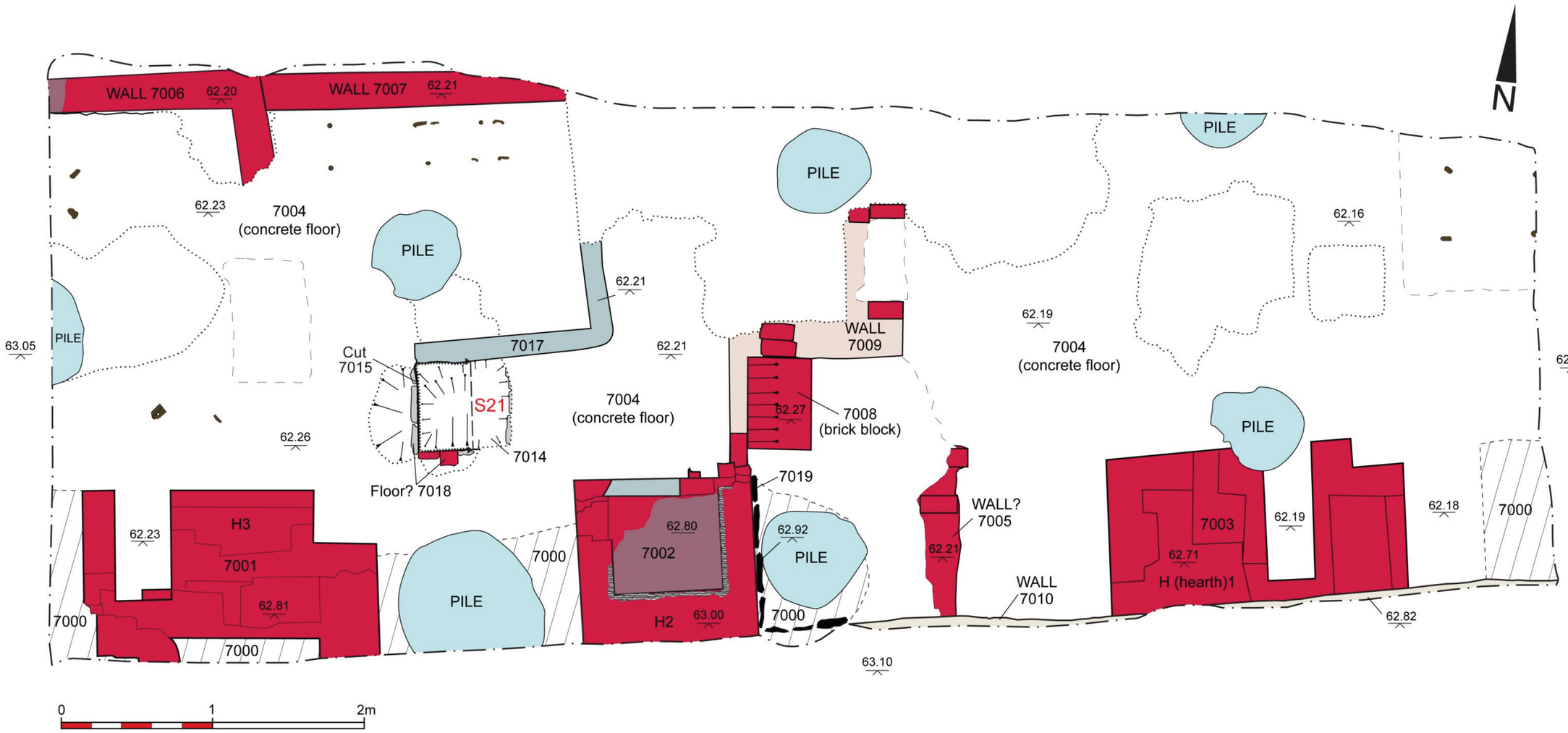


Figure 25 Plan of Trench 7`

Trench 7 (Figure 1) was east – west aligned, 10m long, 4m wide and was machine excavated down to c. 0.83m BGL, or down to 62.16m AOD (Plate 15, Figure 23). The earliest features in this trench comprised wall (7010) and deposit (7011) (Figure 23).

Wall (7010) was aligned east – west, and ran for 4.7m from the eastern trench edge, before veering towards the southern trench edge and running beyond it (its full width was not visible as the majority of it lay outside the same). It had been demolished and reduced to 62.82m AOD, leaving only 0.64m still standing. The wall was constructed from c.11 courses of random sized 'slabby' sandstone fragments bonded with a soft pale brown gritty lime mortar (Plate 16).

Plate 17 Elevation of north face of Wall 7010. 0.50m scale

Deposit (7011) was only observed in a small half section cut through a 0.6m square engineers test pit (Figure 23, Section 21). It was observed at 61.93m AOD (Figure 24) and comprised loose fine coal dust, soot and cinders 0.12m thick. (7011) ran beyond the sides and base of the test pit. A spot sample (07) was submitted for assessment and showed that there was a low to moderate abundance of hammer scale present. This suggests that it may have represented a build up of industrial residue on the floor of a workshop. It is currently open to question whether or not this deposit was contemporary with wall (7010) or had built up on the floor of an earlier building. (7011) was levelled with a 0.35m thick deposit of a plastic mid brown silty clay before a floor comprising a single thickness of sandstone fragments and bricks was laid (7018, Figures 23 and 24) at c. 62.18 m AOD.

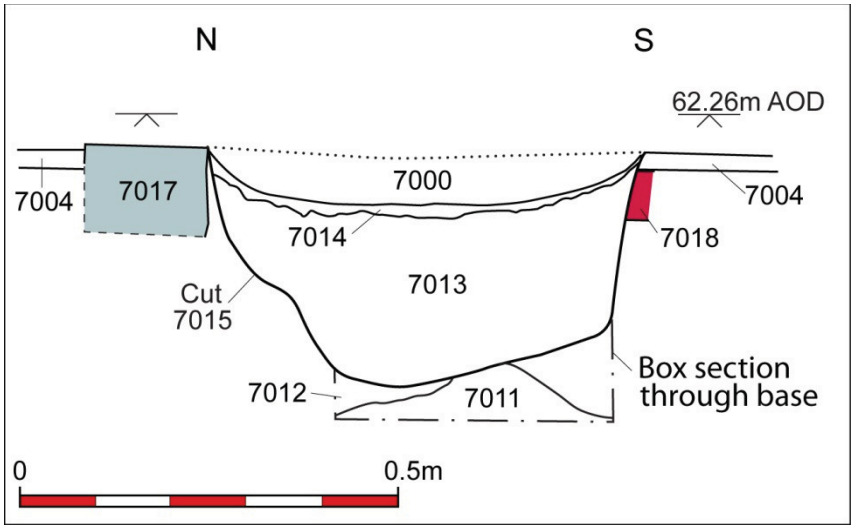


Figure 26 West facing section no.21

Walls (7005) and (7006) (Figure 23) may also have been associated with the re-ordering of the internal area of the building. Wall (7005) was north-south aligned and comprised a 1.10m long and 0.24m wide single course of brick headers. At its southern end it abutted the north face of wall (7010). Wall (7006) was located in the north-west corner of the trench and had an inverted 'L' shaped plan with the longest (1.4m) axis aligned east – west (this part of the wall was re-used in a later build, see wall (7007), below). At its eastern end (7006) turned through 90 ° and continued for 0.48m southwards, before running beneath a later floor. It was 0.22m wide and comprised a single course width of brick headers, one of which gave a build date of the late 18th – mid 19th century. (7005) and (7006) were bonded with soft, white to pale grey lime mortar.

Walls (7005) and (7006) were demolished to the same approximate level (62.20m AOD) before alterations were once more carried out. This appeared to have involved the construction of walls (7007) and (7009) as well as the casting of a concrete sill beam (7017) and the formation of a brick standing (7008, Figure 23).

Wall (7007) was 2m long and was constructed from a single course of frogged brick stretchers, 0.23m wide, bonded with a hard grey - white cement mortar. (700) was east –west aligned and abutted the east end of the longest axis of wall (7006) incorporating it into the new build. When combined they were 3.40m long, up to the point where wall (7007) ran beyond the northern trench edge. Associated with it was a 0.14m wide concrete sill beam (7017, Figure 24), also 'L' shaped in plan. The longest 0.90m axis was cast 1.54m to the south of wall (7007) and was aligned parallel to it. At its eastern end the sill beam turned through 90°degrees and ran towards the north for a further 0.68m before it was truncated by modern activity. A straight edge left behind by the modern truncation. It showed that the sill had originally continued for a further 1m towards the north, where it was abutted by the eastern end of wall (7007) before it continued beyond the northern trench edge. This suggested that it had, with wall (7007), formed a 1.50m wide and 1.18m deep subdivision of the workshop which was open to the work-floor on its western side.

Brick wall (7009) represented a further subdivision of the work place. It was located mid way along the southern edge of the trench, abutted the face of wall (7010) and had a square 'S' shaped plan. The longest surviving part was aligned at 90° to wall (7009) and was north-south aligned, 2m long and 0.12m wide, depth unknown (it had been demolished to the same level as a later floor). At its northern end (7009) turned 90° towards the east for a further 1m and was 0.24 m wide. It then turned once more towards the north for 0.70m and it was 0.40m

wide. The northern end of it had been removed by later activity. (7009) was constructed from brick stretchers bonded with a soft, white flecked pale brown sandy lime mortar. One of the bricks was retained and it suggested a date of the late 19th / /20th century for its construction.

Brick standing (7008) may have represented the remains of a truncated machine / tool base or, more likely an anvil base. It was located hard against the eastern side of wall (7009) (Figure 23) and was rectilinear in plan, north – south aligned, 0.60m long, 0.40m wide and survived to a height 0f 0.06m,or to 62.27m AOD.

Walls (7007) and (7009), sill beam (7017) and standing (7008) all appeared to have been constructed immediately before an up to 0.05m thick concrete floor (7004) was laid. The level of the surface varied little, from 62.16 AOD at the eastern end of the trench, to 62.26m AOD at the western end. This, apart from where truncated by modern intrusions, covered the whole of the base of the trench and sealed both the top of floor (7018), wall (7005) and the north - south aligned part of wall (7006). It abutted the faces of the concrete sill beam (7017), the retained portion of wall (7006), wall (7007), brick standing (7008) and wall (7010). A series of machine bases, noted as truncated iron floor bolts and a bracket, were cast into the floor (Figure 23, iron bracket / floor bolt) at the time it was poured.

Floor (7004) appeared to have been laid in advance of the construction of a series of hearths / forges, (7003), (7002) and (7001), (Figure 23, H1 – 3, respective). These were built hard up against the north face of wall (7010) and had been founded directly on to the top of floor (7004). All were constructed of brick bonded with a hard cement mortar. Hearth 1 (7003) and Hearth 3 (7001) had been badly damaged.

Hearth 1 (plate 17) was located towards the eastern end of the trench and protruded 1m from the face of wall (7010). Hearth 1 was 1.98m wide and survived to a height of 0.52m, or to 62.71m AOD. A 0.32m wide, 0.9m long alcove was formed some 0.60m from its eastern extremity. This most likely functioned as a store for coal or coke to fuel the hearth. The working surface of this forge had been removed.

Plate 18 H1 (7003) looking south with Wall 7010 behind. 0.30 and 0.50m scales.

Plate 19 H3 (7001) looking south. 0.50m scale.

H3 (Plate 18) was located at the western end of the trench and was also built directly on top of floor (7004). At 1.92m wide it was almost the same width and plan shape as H1, with the alcove located at the opposite side, some 0.20m from its western edge. The alcove was, at 0.72m deep and 0.36m wide, smaller than that of H1, it had the remnants of a unitary brick cover remaining. Despite these differences it was also thought to have been a fuel store. It survived to a height of 0.56 m, to 62.81m AOD, also had its working surface removed.

Plate 20 H2 (7002) looking south. Wall 7009 on left side of hearth. 0.30 and 0.50m scales

H2 (Plate 19) was located roughly mid way along the southern limit of excavation and had also been founded on top of floor (7004). Of a simpler construction than H1 and H3, it was the most complete. Rectangular in plan, it protruded 1.10m from the southern trench edge, was 1.14m wide and survived to height of 0.79m or to 63.00m AOD. An earlier wall (7009) had been incorporated into its eastern side. The fire bed survived and was recognisable as badly scorched / burnt brick work surrounded by a low brick sill, c.0.20m deep, which was open towards the north. The remaining internal faces of the sill also showed signs of heat reddening and/or erosion. A wood shutter (7019) of uncertain use was also thought to be contemporary with this hearth.

Probably just before the building was demolished, a small test pit was cut through the top of floor (7004) (Figure 23). It was 0.60m square and 0.30m deep with irregular sides and a rounded base (7015, Figure 24). Its primary fill, (7013), comprised compacted slag ash and clinker fragments, 0.20m thick, which was sealed by an upper fill (7014) of friable reddish brown silt sand, with occasional concrete and plastic fragments, 0.02m thick. The slump hollow formed in the top was up to 0.07m deep and it contained remnants of a deposit of the mixed building rubble (7000). This rubble had been used to level the site after demolition had been carried out. Deposit (7000) sealed all the structural remains, was originally up to 0.83m thick and formed the ground surface at c. 63.05m AOD when the archaeological works were undertaken.

6 DISCUSSION

The archaeological assessment of Site D showed that there was moderate to good preservation of deposits and structures in Trenches 1–4 and 7. In each trench the archaeology was in a moderate – good state of preservation. A complex history was evident in the development of the exposed buildings. In some instances, earlier phases of activity survived beneath them (Trenches 2 and 7).

The archaeological assessment of Site B (Trenches 5 and 6) showed that there was general limited and poor survival of deposits and structures.

6.1 Trench 1 (Figure 2)

Trench 1 was located with a view to investigate previous channels of the Porter Brook. The earliest features observed were river channels which appeared to have been cut down sequentially from north to south. The earliest of these had filled up naturally and are undated (Figure 2, Deposits 1014, 1015, Cut 1013 and Deposit 1012) The latest of the sequence, cut 1011, appeared to have been deliberately in-filled in the late 19th – 20th century in preparation for a new build (wall 1002). Wall (1002) appears to have been the end wall of a sandstone building attached to the west side of a former steel works. Subsequent alterations to the building were indicated by the presence of a short length of brick wall (1003) which had been founded directly on top of the stub of (1002) after it had been part demolished. The date this occurred is currently unknown. Wall (1003) was reduced in height, to 63.31m AOD when the building was finally demolished and the area levelled with demolition rubble (1004) in advance of the formation of the car park surface (1018).

Trench 1 archaeological features and structures were observed at 63.31m AOD, some 0.42m below the surface of the car park.

6.2 Trench 2 (Figure 3)

This trench was located so as to investigate the site of a former iron foundry. A similar sequence to that in Trench 1 was observed, whereby the fills of earlier river channels (2043) had become silted and ceased to flow. Deposit (2043) had been truncated by cut features (2036, 2038 and 2040) when one of the channels (2032) may have still been active. The channels were all thought to be contemporary as they contained similar gravel rich fills (2035, 2037 and 2039, respective). One channel fill (2039) provided a brick fragment, suggesting that they were backfilled around the late 18th – mid 19th century. The fill (2039) of cut (2040) was sealed by deposit (2032), thought to represent a further build-up of silt within a river channel. The ashy cinder inclusions within (2032) suggests that industrial waste was either being dumped into it or washed down from elsewhere. The origins of this waste could not be verified. The end life of this channel system was marked by cut (2031), which had cut down into the top of deposit (2032). Its fill, (2031) produced artefacts which suggested that it was finally filled and levelled around the late 19th early 20th century. This appeared to have been a deliberate act as the area was then consolidated and levelled with a deposit of crushed mortar (2027) followed by a layer of compacted slag (2042). A string of pits of indeterminate use (2005, 2023, 2015, 2016 and 2034) had also been cut into the top of natural (2043). They were all thought to be contemporary as they were back-filled with similar material. This material produced dating evidence to suggest they were backfilled in the late 19th early 20th century. It was not possible to ascertain if they had been in use before, after or at the same time that channel (2031) was active. All that can be said with any degree of certainty is that they had been backfilled prior to the construction of a sandstone walled building (Walls 2020 and 2012) as the construction cut (1007) for one of the walls (2012) had truncated the backfill of pit (2005).

Walls (2020) and (2012) are both thought to have been part of an iron foundry which had formerly occupied the site. Dating evidence recovered from the fills (2004, 2021 and 2028) of the construction cut (2011 / 2029) suggested that it had been built in the early 20th century.

Intact floor deposits (2014) were observed against the northern face of wall (2012).No trace of floor deposits were seen to the south of (2012),suggesting that this had been an open area, possibly a courtyard. The next phase of build appeared to have been signified by the construction of a further wall (2013) just to the north of wall (2012). The construction cut for (2010) had been cut through the top of floor (2014). Wall (2013) was on a slightly different alignment to wall (2012), north-east – south-west rather than east-north-east – west-south-west, and it appeared that they may have converged just outside the west trench edge. The proximity of wall (2013) to the western end of wall (2012) inferred that wall (2012) would have had to be demolished to a suitable level to facilitate the new build. Dating evidence recovered from the fill (2009) of a possible demolition / robbing cut (2010), suggested a 20th century date for the end of use and demolition of wall (2013). The final phase of activity relates to the demolition and levelling of the site, in preparation for the formation of the present car park (2044) at 63.24m AOD.

Trench 2 archaeological structures and features were observed at c. 62.87m AOD, some 0.36m below the present ground surface.

6.3 Trench 3 (Figure 13)

This trench was located over the site of a former grinding workshop. The exposed features and structures were difficult to understand as the northern half of the trench had been removed by recent activity.

The earliest features identified in this trench were walls (3006) and (3007). Both these sandstone walls may have been parts of the same build separated by later activity. A further section of sandstone wall (3008), incorporating brickwork (3002), may have been contemporary with (3006) and (3007). Walls (3006/3007) were reduced in height, truncated and separated by the imposition of the construction cut (3021) for a large brick chimney base (3020) accompanied by a north-east – south-west aligned brick flue (3018). Only the base of the flue remained. An area of scorching on the southern face of wall (3008) inferred that it may have been incorporated into the flue. Whether or not it was reduced in height at the same time as walls (3006/3007) is open to question.

At a later date the flue was relined with firebrick and a fillet of brick (3001) was inserted to support the flue (and probably seal it) where stonework had been removed from the north-western face of wall 3007 at its south-west end. Part of the re-build involved extending the flue towards the centre of the chimney base, where it was founded directly on top of it. One of the firebricks returned a date of the late 19th-20th century for this work.

The other side of wall (3007) had also been truncated by the construction cut 3023 for a new Wall (3005) that may have been intended as its replacement. Wall (3005) shared the same alignment and had been built just to the south-east of it. (3005) appeared to respect the chimney base, terminating at the south-west quadrant of it. It is quite possible that the relining of the flue and the construction of this wall were contemporary and had been undertaken when the layout of the building was altered.

Metal lined tank (3004) may have been contemporary with any of the above structures. (3004) had been truncated by the construction cut (3017) for a large machine base (3010).The machine base comprised massive blocks of roughly work yellow sandstone pierced by 4 large steel floor bolts. It ran beyond the southern trench edge and its full dimensions are not known. The size of the floor bolts suggested that it may have supported a large piece of equipment such as a press, hammer or a steam engine.

Trench 3 archaeological structures and features were first observed at c.62.77m AOD, some 0.11m below the present ground surface.

6.4 Trench 4 (Figure 17)

Trench 4 was positioned to investigate a former crucible furnace.

The earliest structural remains in this trench were in the form of substantial sandstone walls (4023 and 4033).and a pair of pits (4015 and 4039).

Wall (4023) was located at the eastern end of the trench and was thought to represent a wall of the foundry. A square built terminus at its northern end suggested that it was on the southern side of a doorway into the building. Alterations to the inside of the building may have been represented by wall (4026). This was located close by the southern end of wall (4023) on its western side. (4026) had truncated the construction cut backfill of wall (4023) and was therefore later. As this feature remains undated it could have been associated with any of the features discussed below. The sandstone used in its build suggests that it was earlier than the brick built elements noted elsewhere in this trench. The relationship of wall (4033) may be wall (4023) could not be ascertained. Wall (4033) must have had some import as regards the main structure of the foundry building as It had been retained after being carefully cut away (cut 4034) to incorporate a bank of brick built crucible furnaces (4018 and 4037). These

furnaces were accompanied by an access passage (floor 4036 / wall 4000) and a brick structure of unknown purpose (4035). A brick recovered from wall (4018) provided a build date of the late 19th – 20th century for the furnaces.

Pits (4015) and (4039) were cut into the top of the natural sub soil. They had similar fills (4014 and 4038, respectively); dating evidence recovered from pit (4015) suggests that they had been backfilled in the 20th century. This suggests they are likely associated with the use of the furnaces. The top of (4039) was cut away by pit (4008), which was in turn truncated by pit (4016). These pits (4008 and 4016) were filled (4009 and 4017, respectively) with a black, fine grained sand and are thought to have been casting pits contemporary with a latter use of the crucible furnaces. Their location next to the furnaces would have prevented cooling of the molten metal before it was poured. Cut (4001) may also have contained a structure associated with the later use of the casting pits and crucible furnaces, as only its concrete foundations survived this interpretation remains speculative.

The top of all the structural remains and features were sealed by post demolition levelling deposits (4040) which had been punctured by the foundation piles of the retail outlet that previously occupied the site. .

Trench 4 archaeological structures and features were first observed at c.62.75m AOD, some 0.13m below the present ground surface.

6.5 Trench 5 (Figure 23)

Trench 5 was positioned to investigate a former wire mill.

The earliest structure observed was located in the south east corner of the trench and comprised a circular brick floor / base (5013) with integral stepped brickwork (5012) attached to its north-western quadrant. The structure had been truncated by a large modern intrusion on its western edge. It may represent the remnant of a chimney base or the base of a circular stair well leading into a basement. A patchy brick floor, (5007 – 5009 and 5000 – 5002) may have been contemporary with (5013) and (5012); this could not be proven due to in situ deposits and later truncation. The patches of brick floor (5007 – 5009 and 5000 – 5002) were substantial and comprised at least three courses thick, suggesting that they were intended to bear a substantial weight. A large cast iron boiler saddle (not retained) was recovered from the demolition backfill when machine excavation was underway suggesting that a boiler had been founded on the floor. This interpretation is supported by the presence of (5013/5012), where (5013/012) functioned either as a stairway to provide access to the boiler room, or was the base of a chimney for spent fuel gasses of the boiler. Further excavation may provide additional information to aid in the interpretation. Alternatively, the brick floors could have been associated with a later addition to the build as highlighted by wall (5018/5014/5022). This wall was added later than brick base (5013/5012), which were incorporated into the walls foundations at its southern end (5018). As (5018) did not encroach 5013/5012 by a great amount, it may be inferred that the brick base was used in conjunction with the wall (5018). Samples of brick taken from both the floor (5008) and wall stub (5018) suggested that they were inserted in the late 19th – 20th century.

The layout of the cellar was altered by the imposition of wall (5005). This was located close by the wall (5018/5014/5022), on its eastern side, and may represent a change in the use of the building. The insertion of wall (5005) must have entailed the part demolition of wall (5018/5014) as it had used a part of it for its own foundations, whilst incorporating an additional portion in the new build (wall 5022). The gap between (5022) and the standing remains of (wall 5018/5014) was then in filled and levelled (deposit 5017). This inferred that the cellar/boiler room had also been infilled at the same time. Deposits (5011) and (5014) may also be representative of this infilling. A brick recovered from wall (5005) suggests a build date

of the late 19th - 20th century, with the stratigraphy putting it towards the end of this date range.

Wall (5005) appeared to have been the final building phase to have occupied this area until demolition occurred and the ground levelled (5023) in the 20th century The top of the demolition deposits was subsequently truncated by two large pits of indeterminate use (5016 and 5020).

Trench 5 archaeological structures and features were first observed at c.61.97m AOD, a mere 0.05m below the present ground surface.

6.6 Trench 6 (figure 24)

Trench 6 was also positioned to investigate the former Wire mill.

The deposit sequence in Trench 6 showed that all elements of the wire mill, structural or otherwise, had been completely removed before the area was levelled to c.61.93m AOD. This would probably have occurred after demolition had been undertaken in 1939 – 1955.

6.7 Trench 7 (Figure 25)

Trench 7 was located over the site of a previous forge works.

The earliest features observed in this trench were rendered difficult to understand due to the imposition of a concrete floor covering most of the base of the trench. The earliest feature observed appeared to have been the south wall of the sandstone foundry building (7010), which was only observed towards the eastern end of the trench. There was however the possibility for the survival of earlier floor levels observed in a small engineers test pit (cut 7015). The base of the test pit was excavated through the top (c. 61.93m AOD) of a possible build up of industrial residue (7011) on the floor of a workshop. It is currently open to question whether this deposit was contemporary with wall (7010), or had built up on the floor of an earlier building replaced by the workshop. Further excavation would possibly elucidate.

The internal space of the foundry was first divided up by the imposition of walls (7005) and (7006). Wall (7005) abutted the internal face of wall (7010). Wall (7006) was located in the north-west corner of the trench and had no physical relationship with wall (7005).As (7006) was also sealed by the concrete floor it may be contemporary with (7005). A brick recovered from wall (7006) provided a build date of the Late 18th – mid 19th century. Part of the sub-division of the workshop at this time may have involved levelling the earlier floor (7011, Figure 24) with a deposit of clay (7012) which also acted as the sub- base for a floor comprising fragments of ‘slabby sandstone and brick (7018). Again, these were only thought to be contemporary with walls (7005/7006) because surface (7018) was also sealed beneath the concrete floor.

In the 19th or 20th century the floor-space was once again divided into separate work areas prior to a series of hearths /forges being installed against the inner face of the south wall of the workshop. This involved the construction of brick walls (7009) and (7007) (this wall incorporated a part of wall (7006)); the casting of a concrete ground beam (7017); and the addition of a brick anvil block or machine base (7008) against the eastern face of wall (7009) (Figure 23). As concrete floor (7004) lapped up against all these structures it is thought that they had been built immediately in advance of it being poured. A series of iron and or steel floor bolts and a bracket for machine bases were incorporated with (7004).

A series of hearths / forges (H1 –H3) were then constructed on top of the floor (7004), hard up against the face of wall (7010) as well as, in the case of H2 (7002), the west face of wall (7009). A section of wood shuttering (7011) was also thought to have been installed at the same time. The shuttering was badly decayed and fragmented. The only surviving section was still applied

to the angle between wall (7009) and wall (7010). But the shuttering may have been all that survived of a water, oil or chemical tank.

The floor plan appeared to have been in use up until the forge was demolished and levelled with compacted demolition rubble (7000). The top of the demolition rubble was punctured by a series of foundation piles for the retail outlet that recently occupied the site.

Trench 7 archaeological structures and features were first observed at c. 63.00m AOD, some 0.10m below the present ground surface.

7 RECOMMENDATIONS

Site B

The trial trenching has demonstrated that the survival of archaeological remains within Site B is poor. No further archaeological work is therefore recommended for the site. This has been agreed in consultation with South Yorkshire Archaeology Service.

Site D

The evaluation demonstrated there is fair to good preservation of the remains of the former steel works buildings. Depending on the impact from the development on the former buildings a program of further targeted archaeological works may be appropriate. The work could comprise watching brief or targeted strip, map and sample. It is suggested that in order to make a start on site, construction work commences outside the areas occupied by the former steel works buildings.

In order to make a start on site, it has been agreed with SYAS that works can take place within the northwest corner of the site without the requirement for any associated further archaeological work.

8 LIST OF SOURCES

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Appendix 1: Index to Archive Sites B and D

Item	Number of items
Context sheets	178
Levels register	19
Photographic register	8
Levels register	66
Drawing register	85
Original drawings	91
B/W photographs (films/contact sheets)	67
Colour slides (films)	0
Digital photographs	1
Written Scheme of Investigation	178
Report	19

APPENDIX 2: Context List Site D

By Anne Jenner

Trench	Context no.	Description
1	1000	Sandstone and brick rubble dump
	1001	Light grey concrete foundation
	1002	Sandstone wall
	1003	Brick wall
	1004	Dump of Sandstone and brick demolition rubble
	1005	Construction cut for Wall 1002
	1006	Deposit of water washed cobbles in base of former river channel
	1007	Build-up of alluvial silts
	1008	Clay dump
	1009	Backfill/levelling deposit in top of river channel
	1010	Clay dump
	1011	River channel cut
	1012	Clay silt palaeochannel fill
	1013	Earlier river channel cut
	1014	Silt clay fill of earliest river channel
	1015	Uppermost silt clay fill of earliest river channel
	1016	Rubble fill of service trench (includes iron pipe)
	1017	Service trench cut
	1018	Tarmac surface and limestone hardcore bedding layer
2	2000	Unstratified finds
	2001	Brick and sandstone rubble
	2002	Crushed rusty brown slag
	2003	Compacted dark grey brown and red brown silt
	2004	Rubble rich grey – black silt sand fill of construction cut 2011
	2005	Pit cut
	2006	Mid grey brown sand silt. Fill of Pit 2005
	2007	Construction cut for Wall 2012
	2008	Linear cut of unknown purpose. Contains 2002
	2009	Mid orange brown silt clay sand
	2010	Construction cut for Wall 2013
	2011	= 2029, Construction cut for Wall 2020
	2012	Sandstone Wall
	2013	Rough sandstone wall
	2014	Floor surface of compacted slag over crushed burnt brick
	2015	Pit cut
	2016	Mid grey brown sand silt, fill of Pit 2015
	2017	Bricks, brick rubble and mortar. Fill of Pit 2018
	2018	Pit cut
	2019	Brick, sandstone and concrete rubble levelling

	2020	Sandstone wall
	2021	Fractured clay lumps in a sand silt clay matrix. Upper fill of Cut 2029
	2022	Not used
	2023	Pit cut
	2024	Mid grey brown sand silt, fill of Pit 2023
	2025	Mid grey brown sand silt, fill of Pit 2026
	2026	Pit cut
	2027	Dump of crushed mortar
	2028	Mid grey sand silt. Basal fill of construction cut 2029 =2011
	2029	=2011, Construction cut for Wall 2020
	2030	Reddish brown clay silt sand. Fill of river channel? Cut 2031
	2031	River channel? cut
	2032	Cinder contaminated orange brown silt sand fill of a river channel
	2033	Mid grey brown sand silt, fill of Pit 2034
	2034	Pit cut
	2035	Coarse gravel in a silt sand matrix, Fill of Cut 2036
	2036	Post/stake hole cut?
	2037	Coarse gravel in a silt sand matrix, Fill of Cut 2038
	2038	Post/stake hole cut
	2039	Coarse gravel in a silt sand matrix, Fill of Cut 2040
	2040	Pit? cut
	2041	Clearance / demolition cut
	2042	Tarmac over limestone hardcore
3	3000	Brick rubble and pebble rich dark brown silt sand
	3001	Flue walls
	3002	Brick structure, Part? Of Wall 3008
	3003	Compact black silt. Use? of flue 3001
	3004	Heavy decayed and de-laminated iron tank
	3005	Sandstone wall
	3006	Sandstone Wall, continuation? Of Wall 3007
	3007	Sandstone wall
	3008	Sandstone wall
	3009	Small sandstone and brick rubble in a reddish orange silt sand matrix
	3010	Massive sandstone blocks
	3011	= 3022
	3012	Clearance cut for Tank 3004
	3013	Charcoal flecked dark yellow silt clay. Use? Deposit on base of Tank 3004
	3014	Glass fragments
	3015	Hard cemented cinder and slag
	3016	Grey brown silt sand with moderate brick and stone rubble
	3017	Clearance cut for massive blocks 3010
	3018	Brick base of earliest flue
	3019	Sandstone sill, part of massive blocks 3010
	3020	Large brick chimney base
	3021	Chimney construction cut
	3022	Compacted brick, sandstone and concrete rubble

	3023	Construction cut for Wall 3005
	3024	Construction cut for flue rebuild (3001)
	3025	Dark grey brown silt sand frequent small brick and sandstone rubble
	3026	Brick incorporated with Wall 3007
	3027	Heavily contaminated blue grey silt clay natural
	3028	Sandstone slab, part? of Wall 3006
4	4000	Brick wall
	4001	Robber / Demolition cut
	4002	Concrete brick and sandstone rubble in a matrix of a grey silt sand, fill of Cut 4001
	4003	Large sandstone fragments, fill of Cut 4001
	4004	Brick and sandstone rubble in a matrix of a grey silt sand, fill of Cut 4001
	4005	Concrete and sandstone in a matrix of a grey silt sand, fill of Cut 4001
	4006	Grey silt sand, occasional small brick and sandstone. Fill of Cut 4001
	4007	Concrete foundation
	4008	Casting pit cut
	4009	Dark grey – black sand, fill of 4008
	4010	Construction cut for wall 4000
	4011	Dark grey - black sand, occasional yellow clay. Fill of Cut 4010
	4012	Large glassy slag fragments
	4013	Hard, compacted, tenacious slag fragments
	4014	Light brown silt clay, occasional small pebbles and sandstone. Fill of 4015
	4015	Pit cut
	4016	Casting? Pit cut
	4017	= 4009 but with some slag lenses
	4018	Large Brick wall
	4019	Sewer pipe cut
	4020	Dark grey sand, fill of 4019
	4021	Concrete brick and sandstone demolition rubble
	4022	iron stained slag
	4023	Sandstone wall
	4024	Construction cut for Wall 4023
	4025	Mid grey – black, ashy, cindery slag
	4026	Sandstone wall
	4027	Not used
	4028	Burnt clay rich sand silt clay
	4029	Stiff orange brown silt clay, occasional mortar, charcoal, burnt sand
	4030	Mica flecked reddish brown sand silt clay natural
	4031	Slag fragment foundation for Wall 4026
	4032	Construction cut for Wall 4026
	4033	Sandstone wall
	4034	Construction cut for Wall 4018 and crucible forges 4037
	4035	Brick wall
	4036	Brick floor
	4037	Brick crucible furnaces
	4038	Light brown silt clay, occasional small pebbles and sandstone. Fill of 4039

	4039	Pit cut
	4040	Brick, sandstone and concrete rubble
7	7000	Concrete, brick and sandstone demolition rubble
	7001	Brick hearth / forge
	7002	Brick hearth / forge
	7003	Brick hearth / forge
	7004	Concrete floor
	7005	Early Brick wall
	7006	Early Brick wall
	7007	Later brick wall
	7008	Brick block
	7009	Brick wall
	7010	Sandstone wall
	7011	Build up of loose fine coal dust, soot and cinders
	7012	Plastic mid brown silt clay
	7013	Compacted slag, ash and cinder fragments
	7014	Reddish brown silt sand, some demolition rubble and plastic
	7015	Test pit cut
	7016	Not used
	7017	Concrete floor-beam
	7018	Brick and sandstone floor?
	7019	Decayed wood shutter

APPENDIX 3: Pottery Report Sites B and D

Anne Jenna, August 2010

Three hundred and fifty-three sherds of pottery, dating from the late 18th to the 20th century were found. Of these almost all were of a domestic nature, though several sherds of red earthenware bowls, often with a black glaze on their internal surfaces, may have been used for some sort of industrial process. Only one wide flanged bowl has concretions attached to both its internal and external surfaces. Analysis of these materials may give an insight into its use.

The transfer printed wares exhibit a limited range of forms including tea cups, plates and dishes, though one sherd with holes in it may have been used as a meat draining dish. Designs are mainly executed in blue but red/brown and black decoration is also present. Patterns range from Wan Li, floral and foliate scenes to cautionary tales.

Stonewares are mostly brown glazed, probably from the immediate vicinity, and forms mainly consist of bottles and bowls. One large candlestick is unusual.

Decorated wares such as sponged, mocha and cream wares may indicate moderately affluent users, though there are no white salt glazed stonewares and very little porcelain.

Recommendations

This assemblage is fairly standard for the period and therefore there are no recommendations for further study.

Context	Sherd count	Spot date	Description	Weight
1000	9	20TH CENTURY	2 transfer printed blue on white small (1 to 5cms) to medium (5 to 10cms)1 transfer printed black on white small1 china base with blue glaze medium3 pearl ware small1 blue and white striped china small 1 English stoneware bottle neck and rim small	132gms
1006	7	19TH/20TH CENTURY	1 Nottingham type stoneware candlestick base with brown salt glaze and machine tooled decoration large2 black glazed fine red earthenware bowl large1 tin glazed bowl base white glaze with light blue tinge medium2 stoneware bottle with light buff glaze large and small1 slipped bowl with mustard coloured glaze and machine tooled beading on rim medium	964gms
1007	1	19TH/20TH CENTURY	1 fine red earthenware bowl with brown glazed internal surface large	170gms
2000	4	LATE 18TH/19TH CENTURY	1 white china pedestal base with white glaze medium1 coarse red earthenware with fine walls and blackish purple ?manganese dusted glaze medium1 Nottingham type brown glazed stoneware bowl with fine walls and rolled rim small1 cream ware shallow dish with blue feathered rim small	81gms
2001	8	20TH CENTURY	1 brown stoneware small1 Nottingham type stoneware bowl with flange rim and raised rib medium4 cream ware small1 sponged ware very small1 banded slipware with blue band and decoration small1 green glazed stoneware small	66gms
2002	14	20TH CENTURY	4 banded slipware plain small1 banded slipware with feint blue stripes small1 transfer printed very small1 Nottingham type stoneware with stamped decoration medium2 transfer printed very small3 pearl ware bowl small and medium1 black glazed red earthenware very small1 fine red earthenware bowl with matt white internal surface large	197gms

2004	243	20TH CENTURY	33 black glazed fine red earthenware bowls and stool pan small t9o large3 fine walled black glazed ware small9 terracotta bowl and jug handle small to large1 black glazed white china cup rim small11 banded slipware plain small3 banded slipware with white and brown bands small4 cream ware closed form with blue feathered decoration medium and large5 cream ware shallow dish or plate with blue feathered edges small to large2 English stoneware small jar with light greenish buff glaze small10 Nottingham type English stoneware jug and bowl with brown glaze including two sherds with beaded and stamped wavy line decoration small and medium1 transfer printed sherd with decoration and holes pierced through the body large1 transfer printed ovoid base with blue decoration medium1 transfer printed bowl with butterfly and floral decoration in blue and pink medium2 white china with green glaze small1 English stoneware with brown glaze externally and light interior small67 transfer printed wares including bowls saucers and jugs with blue and white scenes mainly Wan Li small to large1 tea cup with hand painted foliate design in blue red and brown small2 transfer printed with black foliate design small1 porcelain small shallow dish with blue and white design medium12 white china closed form with bands of light blue ribs small to large1 transfer printed with design in red chip3 transfer printed plate with black stag and snake design with geometric rim edge infilled with blue green yellow and orange small and medium2 transfer printed base burnt small31 cream ware bowls small to large1 china tea cup with blue and green floral design small1 cream ware tea bowl with mocha design in blue white teracotta and brown small3 cream ware tea bowl with black and grey scene small1 cream ware burnt very small1 cream ware with blue external glaze small4 cream ware including part of number stamp \\small25 pearl ware small	2727gms

2006	3	20TH CENTURY	1 terracotta burnt medium1 transfer printed tea cup with blue Wan Li decoration small 1 porcelain small	14gms
2009	4	20TH CENTURY	1 cream ware small pot small1 white ware jug handle medium1 black glazed red earthenware small 1 white earthenware small	59gms
2016	2	LATE 18TH CENTURY	1 Staffordshire type mottled brown glazed ware mug with horizontal ribs small1 cream ware scrap	6gms
2021	8	19TH CENTURY	1 red earthenware dish with flanged rim and shiny greenish glaze small2 pearl ware small1 white china bowl with short flange small1 white china flange rim small1 black glazed red earthenware small1 terracotta small1 English stoneware scrap	62gms
2025	2	19TH/20TH CENTURY	1 brown glazed red earthenware very small1 transfer printed maroon on white very small	5gms
2028	3	19TH CENTURY	1 white earthenware dish medium1 fine red earthenware with metallic black glaze on both surfaces medium1 coarse red earthenware with black glaze small	36gms
2030	5	18TH/19TH CENTURY	4 red earthenware large bowl with black glaze small1 Cistercian or later type mug or cup base medium1 Nottingham type brown glazed stoneware small	49gms
2033	1	19TH/20TH CENTURY	1 transfer printed cup handle blue on white very small	1gm
4002	3	19TH/20TH CENTURY	2 transfer printed blue on white small1 pearl ware small	15gms
4004	9	20TH CENTURY	5 transfer printed blue on white small1 white china with blue stripe small1 English stoneware with brown glazed external surface and cream interior small1 sponged ware cup with blue sponged external surface and thin line inside small1 fine red earthenware with brown glaze on both surfaces small	42gms
4014	4	20TH CENTURY	1 fine moulded stoneware small1 black glazed red earthenware small1 porcelain small1 china cup with brown yellow and orange band and chain decoration small	16gms

5000	4	20TH CENTURY	1 transfer printed ware with black bicycle design small1 black glazed red earthenware bowl with thick walls large1 white earthenware with blue bands small1 English stoneware medium	152gms
6000	21	20TH CENTURY	1 red earthenware wide flanged bowl with concretions on internal and external walls large 6 transfer printed blue on white small to medium1 banded slip ware bowl base with plain mustard glaze large1 sponged ware blue on white medium1 transfer printed knop small2 mocha ware with mustard glaze blue band and fern/trees small and medium1 transfer printed cup or tea bowl small1 transfer printed ware with reddish brown decoration small1 burnt cream ware with moulded fern or feather pattern on upper rim surface small1 transfer printed mug with male and female below a legend .bour or of sk...bring too.small4 pear ware small to medium1 cream ware small1 cream ware with light blue sprigging large	392gms

APPENDIX 4 Small Finds Assessment

N Rogers, August 2010

A total of 57 small finds were recovered from the excavations; of these twenty six were assessed by the author.

Iron Finds

Nineteen small finds were of iron, and primarily consisted of tool fragments, structural iron objects and probable working debris. Tools identified included part of a wrench or spanner (SF57, C.4002), a possible knife blade (SF52, C.2021), three possibly unfinished handled tools such as files (SF48, C.7000), and an unidentified ?tool fragment (SF23, C.2028). Structural ironwork comprised spikes with looped eyes (SF49, C.7000), nails (SFs6, 11 C.4014) and bolts (SF31, C.4012; SF46, C.7000), while bars (SF27, C.5000; SF54, C.4002), a rod (SF45, C.7000), and wire (SF30, C.4012) appear to be debris from working.

Copper Alloy Finds

Seven finds were of copper alloy, and comprised wires (SFs3, 14 C.2004; SF29, C.4012), a disc (SF8, C.2030), a button (SF5, C.2004), and a ?rivet (SF1, c.2021).

Wooden Small Find

SF28 is an unidentifiable fragment

Conclusions and Recommendations

Apart from the button SF5, and disc SF8, all the finds appear to relate to the industrial buildings or the processes occurring in them. The tools and working debris may be of interest to industrial archaeologists, but the remaining material is unlikely to be studied further, and does not seem worthy of retention

Table of small finds

Find	Context	Description	Material
8	2030	Disc	Copper alloy
13	7000	Offcut	Antler
2	2004	Button	Bone
7	2028	Offcut	Bone
9	2030	Offcut	Bone
10	2021	Object	Bone
1	2021	Object	Copper Alloy
3	2004	Wire	Copper Alloy
5	2004	Button	Copper Alloy
14	2004	Wire	Copper Alloy
24	5000	Fork	Copper Alloy
25	5000	Spoon	Copper Alloy
26	5000	Strip	Copper Alloy
29	4012	Wire	Copper Alloy
33	6000	Strip	Copper Alloy
34	6000	Blank	Copper Alloy
35	6000	Spoon	Copper Alloy
36	6000	Fork	Copper Alloy
37	6000	Offcut	Copper Alloy
38	7000	Sheet	Copper Alloy
20	1000	Crucible Fragments	Fire

Find	Context	Description	Material
18	5000	Crucible Fragments	Fired Clay
19	1006	Crucible Fragments	Fired Clay
22	6000	Crucible Fragments	Fired Clay
51	1006	Crucible	Fired clay
6	4014	Nail	Iron
11	2014	Object	Iron
12	2033	Object	Iron
23	2028	Object	Iron
27	5000	Bar	Iron
30	4012	Wire	Iron
31	4012	Rod	Iron
32	4012	Object	Iron
43	7000	Knife	Iron
44	7000	Scissor	Iron
45	7000	Rod	Iron
46	7000	Object	Iron
47	7000	Object	Iron
48	7000	File	Iron
49	7000	Loop	Iron
50	7000	Chisel	Iron
52	2021	Knife	Iron
54	4002	Bar	Iron
55	4002	Object	Iron
56	4002	Object	Iron
57	4002	Object	Iron
39	7000	Spoon	Iron, Stainless Steel
40	7000	Fork	Iron, Stainless Steel
41	7000	Offcut	Iron, Stainless Steel
42	7000	Strip	Iron, Stainless Steel
4	2016	Cinder	Slag
15	2004	Cinder	Slag
16	2021	Slag	Slag
17	5000	Slag	Slag
21	6000	Slag	Slag
28	4012	Object	Wood
53	7000	Handle Blank	Wood

Bulk Finds Assessment Clay Tobacco Pipe and Glass

A Mainman November 2010

The recovered glass and fired clay tobacco pipe fragments were noted but are not thought to be relevant as a dating tool. The vast majority of it was residual, had been brought in from elsewhere and is thought to have such a broad date range for its use to provide any degree of accuracy as to the chronology of individual features.

BULK FINDS CLAY TOBACCO PIPE AND GLASS

BF No.	Material	Name	Quantity	Context
BF28	Glass	Fragments of at least 5, 19th century mould-blown wine bottles, 2 sherds of a small unidentified utility bottle, 8 fragments window glass and a further 2 thin walled 19th century utility bottles	23	2004

BF 29	Glass	Window glass	2	2006
BF 30	Glass	Window glass	1	2016
BF 31	Glass	Window glass	1	2033
BF 32	Glass	10 sherds thick window glass (3mm) and 4 sherds small machine made utility bottle	14	4002
BF 33	Glass	Octagonal 19th century utility bottle	1	6000
BF 43	Glass	4 sherds small vessel and 1 sherd window glass	5	2030
BF 44	Fired clay	Tobacco Pipe stem fragments	4	1000
BF 45	Fired clay	Tobacco Pipe stem fragment with green glaze tip	1	1007
BF 46	Fired clay	Tobacco Pipe, 2 fragmented undecorated bowls, 1 complete (47x22x20mm) and stem fragments (5 with green glaze tip)	39	2004
BF 47	Fired clay	Tobacco Pipe stem fragment	1	2006
BF 48	Fired clay	Tobacco Pipe stem fragments	2	2009
BF 49	Fired clay	Plain tobacco pipe bowl (55x23x20mm) in 2 fragments and 2 stem fragment	4	2016
BF 50	Fired clay	1 Plain tobacco pipe bowl fragment and 6 stem fragments	7	2021
BF 51	Fired clay	Tobacco Pipe stem fragments	5	2024
BF 52	Fired clay	1 Plain tobacco pipe bowl fragment and 3 stem fragments	4	2025
BF 53	Fired clay	Tobacco Pipe stem fragment with green glaze tip	1	2028
BF 54	Fired clay	Tobacco Pipe stem fragments	3	2030
BF 55	Fired clay	Tobacco Pipe stem fragment	1	2033
BF 56	Fired clay	Tobacco Pipe stem fragment	1	4004
BF 57	Fired clay	Plain tobacco pipe bowl fragment and 2 stem fragments	3	4014
BF 58	Fired clay	Plain tobacco pipe bowl fragment and stem fragment	2	6000

APPENDIX 5: Environmental Evidence Sites B and D

Palaeoecology Research Services **PRS 2010/36**

Evaluation of biological remains from three samples recovered during excavations undertaken at Sylvester Street, Sheffield, South Yorkshire

(site code: YORAT2010.5) by John Carrott and Alison Foster

Summary

Three bulk sediment samples recovered from deposits encountered during excavations at Sylvester Street, Sheffield, South Yorkshire, were submitted for an evaluation of their bioarchaeological potential. The excavations demonstrated that the site areas were on open land during the 18th century and during the early 19th century they were mainly occupied by industrial premises, including Ward's Wheel grinding workshop, a coal yard, saw mills, and manufacturers of surgical instruments and cutlery. The submitted samples were from a deposit of banded silts underlying late 19th/early 20th century backfilling of the channel of the River Porter, and fills of two pits of unknown use.

Probable ancient biological remains recovered from the samples were restricted to a single partly charred hazelnut shell fragment from the banded silts, occasional fragments of charred rootlet/rhizome from one of the pit fills and a little indeterminate charcoal from the other. These remains were too few to be of any interpretative value. The few other organic remains noted were almost certainly of modern origin, representing contaminants of the samples or recent intrusions into the deposits. Artefactual remains within each of the deposits suggested the inclusion of some industrial waste materials.

No further study of the biological remains from the deposits reported here is warranted and, on the evidence from this evaluation, the likelihood of further excavations at this site encountering deposits with interpretatively valuable concentrations of biological remains is very small.

Keywords: Sylvester Street; Sheffield; South Yorkshire; evaluation; early modern/modern (18th century onwards); plant remains; charred plant remains

Evaluation of biological remains from three samples recovered during excavations undertaken at Sylvester Street, Sheffield, South Yorkshire

(site code: YORAT2010.5)

Introduction

An archaeological evaluation excavation was undertaken by ArcHeritage (Yorkshire), a regional office of York Archaeological Trust, at Sylvester Street, Sheffield, South Yorkshire (approximate NGR SK 352 865), during 2010.

The excavations demonstrated that the site areas were on open land during the 18th century and during the early 19th century they were mainly occupied by industrial premises, including Ward's Wheel grinding workshop, a coal yard, saw mills, and manufacturers of surgical instruments and cutlery.

Three bulk sediment samples ('GBA'/'BS' *sensu* Dobney *et al*. 1992), were submitted to Palaeoecology Research Services Limited, Kingston upon Hull, for an evaluation of their bioarchaeological potential.

Methods

The bulk samples were inspected and their lithologies recorded, using a standard *pro forma*. Subsamples were processed for the recovery of plant and invertebrate macrofossils, broadly following the techniques of Kenward *et al*. (1980). Prior to processing, the subsamples were disaggregated in water for 24 hours and their volumes recorded in a waterlogged state.

The washovers did not appear to contain ancient biological remains preserved by waterlogging and were dried prior to examination for macrofossils using a low-power microscope (x7 to x45 magnification). Macrofossil remains were identified by comparison with modern reference material (where possible), and the use of published works (e.g. Cappers *et al*. 2006 for plant remains). Remains were identified to the lowest taxon necessary to achieve the aims of the project. Nomenclature for plant remains follows Stace (1997).

The residues were primarily mineral in nature and were dried prior to the sorting and recording of their components. Measurements and weights refer to the larger items which have been sorted from the residue; smaller fragments remain in the residues and details of these are not included. Domestic refuse (e.g. building materials, pottery, charcoal, coal and other fuel debris) were all sorted to 4 mm. Residue less than 1 mm was retained unsorted. The residue fractions (including the less than 1 mm fraction) were scanned for magnetic material.

Where present, artefactual material was noted and recorded or removed to be returned to the excavator and forwarded to appropriate specialists.

During recording, consideration was given to the suitability of the macrofossil remains for submission for radiocarbon dating by standard radiometric technique or accelerator mass spectrometry (AMS).

Microfossil 'squash' subsamples (of ~1 ml) were taken from each of the deposits. These were examined using the 'squash' technique of Dainton (1992), originally designed specifically to assess the content of eggs of intestinal parasitic nematodes; however, this method routinely reveals the presence of other microfossils, such as pollen and diatoms, which were the primary focus of the examinations here. The evaluation slides were scanned at x150 magnification and at x600 where necessary.

Results

The results are presented in context number order. Archaeological information, provided by the excavator, is given in square brackets. A brief summary of the processing method and an

estimate of the remaining volume of unprocessed sediment follows (in round brackets) after the sample numbers.

Context 1007 [banded silts – possible alluvial deposits from the channel of the River Porter underlying late 19th/early 20th century backfilling]

Sample 1/T (3 kg/2.75 litres sieved to 300 microns with washover and microfossil 'squash'; approximately 3 litres of unprocessed sediment remain)

Moist to wet, mid brown to mid grey-brown (with patches of light to mid yellow-brown, light to mid buff and mid grey), stiff and sticky to crumbly (working soft and somewhat plastic), clay sand to sandy clay (proportions vary through matrix), with stones (6 to 60 mm) present.

The small washover (dry weight 24.6 g) was mostly (over 90%) composed of fine coal (to 8 mm but predominantly less than 3 mm), with occasional small pieces of ?mortar/plaster (to 3 mm) and a single large fragment of hazel (*Corylus avellana* L.) nutshell (to 20 mm; 0.6 g) which appeared to be partly charred. There were also some uncharred remains present mostly in the form of indeterminate plant detritus but also including occasional 'seeds/fruits' (including fruitstones of blackberry/raspberry – *Rubus fruticosus* L. agg./*R. idaeus* L. and achenes of dock – *Rumex* sp.), a few fragments of 'woody' root and traces of invertebrates (a ?larval fragment and a single beetle elytron); all of these remains almost certainly derived from modern intrusions into the deposit or contaminants of the sample, however.

Remains recovered from the residue comprised coal (to 32 mm; 20.6 g), cinder (to 37 mm; 9.0 g), mortar/plaster (to 34 mm; 32.7 g), a little brick/tile (to 31 mm; 9.6 g) and ?pot (to 26 mm; 2.5 g) and a small amount of magnetic material (to 7 mm; 2.2 g). The last was mostly amorphous slag and burnt stone but also included a little flake and spheroid hammerscale. No biological remains were recovered.

The majority of the residue (dry weight 527.0 g) was composed of sand and stones (to 39 mm).

The microfossil 'squash' subsample was almost entirely inorganic, with just a trace of organic detritus. No identifiable microfossil remains were seen.

Context 2016 [fill of base of heavily truncated pit 2015 of unknown use]

Sample 2/T (3 kg/2.25 litres sieved to 300 microns with washover and microfossil 'squash'; approximately 6 litres of unprocessed sediment remain)

Dry, mid grey-brown to mid brown (with a yellow-brown cast), crumbly to unconsolidated, silty sand, with burnt coal/shale common and stones (2 to 60 mm) present.

The small washover (dry weight 24.0 g) was mostly of cinder (to 23 mm), with a little coal (to 6 mm) and indeterminate charcoal (to 8 mm); all of these components were coated with adhering sediment. Amongst the charcoal was a single charred roundwood fragment (to 8 mm; ~0.1 g) representing a twig of only a few years growth. A few uncharred 'seed' fragments, including an occasional blackberry/raspberry fruitstone, and a little uncharred plant detritus were probably modern contaminants.

Material sorted from the residue was almost entirely fuel waste and metalworking debris, comprising coal (to 38 mm; 28 g – including some very poor grade, shale-like pieces, burnt white) and cinder (to 15 mm; 5 g), with a little indeterminate calcined bone (to 8 mm; 0.2 g) and a little magnetic material (to 4 mm; 7.7 g). The last contained numerous flakes and spheroids of hammerscale.

The majority of the remainder of the residue (dry weight 600 g) was sand and crushed sandstone (to 35 mm), with abundant coal and cinder and very occasional brick/tile fragments (to 4 mm).

The microfossil 'squash' subsample was almost entirely inorganic, with perhaps just a trace of organic detritus. No identifiable microfossil remains were seen.

Context 2024 [fill of base of heavily truncated pit 2023 of unknown use]

Sample 3/T (3 kg/2.75 litres sieved to 300 microns with washover and microfossil 'squash'; approximately 6 litres of unprocessed sediment remain)

More or less dry, mid brown to mid grey-brown to mid grey, crumbly to unconsolidated, slightly clay, sandy silt to silty sand, with stones (2 to 20 mm) present.

The small washover (dry weight 47.1 g) was mostly of fine coal and cinder (both to 2 mm), with some larger pieces of each (cinder to 21 mm and coal to 12 mm) and sand. Occasional fragments of charred rootlet/rhizome were noted and there were a few uncharred blackberry/raspberry fruitstone fragments; the latter almost certainly modern contaminants.

Remains recovered from the residue comprised coal (to 26 mm; 8.2 g), cinder (to 17 mm; 6.8 g), a little brick/tile (to 22 mm; 4.3 g), a single pot sherd (to 14 mm; 0.1 g) and a small amount of magnetic material (to 6 mm; 7.8 g). The last was mostly flake hammerscale, burnt stone and amorphous slag, but there was also a little spheroid hammerscale present. Quite a large proportion (perhaps half) of the 1 to 4 mm residue fraction was composed of further small fragments of coal and cinder which were not sorted. No biological remains were recovered.

The majority of the residue (dry weight 506.1 g) was composed of sand and stones (to 31 mm).

The microfossil 'squash' subsample was wholly inorganic; no identifiable microfossil remains were seen.

Discussion and statement of potential

Probable ancient biological remains recovered from the samples were restricted to a single partly charred hazelnut shell fragment from Context 1007, a little indeterminate charcoal (including a charred roundwood twig fragment) from Context 2016 and occasional fragments of charred rootlet/rhizome from Context 2024. These remains were too few to be of any interpretative value.

The presence of artefactual remains within Context 1007 suggests that these were not wholly 'naturally' deposited silts as they incorporated material reflecting human activity (presumably industrial given the presence of fuel waste and hammerscale and the marked absence of food waste). The similar composition of the artefactual component of Contexts 2016 and 2024 suggests that the pits received some limited input of industrial waste at the time of the formation of the fills – there were only traces of what might be domestic food waste (calcined bone fragments from Context 2016) and no indications of large-scale waste disposal of any kind, however.

The few other organic remains noted were almost certainly of modern origin, representing contaminants of the samples or recent intrusions into the deposits.

The part charred hazelnut shell (Context 1007) and charred twig (Context 2016) fragments would probably provide sufficient suitable material for radiocarbon dating (via AMS), if required; although, given the likely late date of the deposits, this would perhaps be of little value.

On the evidence from this evaluation, the likelihood of further excavations at this site encountering deposits with interpretatively valuable concentrations of biological remains is very small.

Recommendations

No further study of the biological remains from the deposits reported here is warranted.

Retention and disposal

Unless required for purposes other than the study of organic remains (perhaps the recovery of artefactual material such as hammerscale, for example), the remaining sediment samples may be discarded.

Archive

All material is currently stored by Palaeoecology Research Services (Unit 4, National Industrial Estate, Bontoft Avenue, Kingston upon Hull), pending return to the excavator, along with paper and electronic records pertaining to the work described here.

Acknowledgements

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APPENDIX 6: Archaeometalurgical Assessment Sites B and D

N Rogers, September 2010

Introduction

One spot sample (07) of possible industrial process residue from context (7011) has been examined visually to assess its archaeological significance and potential to provide further information about the site. It should be noted no metallurgical or chemical analysis of the sample has been carried out.

Results And Discussion

The spot sample is approximately 500ml in volume and it appears to be largely composed of fine coal dust, soot and cinders with a low-moderate (circa 25% to 35% overall volume) abundance of fine flake hammerscale.

The type of material and nature of its archaeological context, suggests that the sample may have been originally been debris from the floor of a workshop where small ferrous metal items were being forged. The material is typical of the type of residues recovered from sites where comparatively small scale cutlery and hand tool manufacturing was being carried out.

Recommendations

Further analysis of the assemblage is unlikely to add to existing knowledge of activities at the site. No further archaeometallurgical work is recommended on the material covered by this assessment, and the material can be disposed of.

APPENDIX 7: Conservation Assessment Sites B and D

N Rogers, September 2010

Aims and Objectives

This report aims to meet the requirements of MAP2 (English Heritage, 1991) to produce a stable site archive (Phase2: Fieldwork). This has involved X-radiography and an assessment of the condition, stability and packaging of the finds. Urgent first-aid treatments have been undertaken as required, to enable safe storage for the long term.

The potential of the assemblage for further analysis and research is also discussed (MAP2 Phase 3: Assessment). The condition of the various classes of material is summarised and indicators of unusual preservation are noted. There are recommendations for investigative conservation, for additional specialist support, and topics for further research are raised.

Procedures

All metal finds were X-rayed using standard Y.A.T. procedures and equipment. Two sheets of film were used to produce a duplicate for archive purposes, and given a reference number in the YAT Conservation Laboratory series. The X-ray number was written on the packaging for each object X-rayed. Each image on the X-ray was labelled with its small find number. The plates were packaged in acid-free archival envelopes. The plate number was added to the YAT Online Photo Archive and linked to the IADB find record for each object.

All finds were examined under a binocular microscope at X20 magnification as well as viewing the X-rays were they existed. The material identifications were checked and observations made the condition and stability of the finds. Remedial conservation treatments were carried out where appropriate in order to stabilise the material for long term storage. Assessment and treatment details were recorded in the Conservation Work Record area on IADB, the information can be printed out through SQL Query.

Quantification

A total of 57 small finds were assessed and 21 X-rays produced (X7578-98). The number of objects in each material category is listed below:

Antler x1
Bone x4
Silver x1
Nickel silver alloy x14
Fired clay x4
Iron x25
Slag x5
Wood x2

The following classes of finds were not seen:

Antler, Bone, Fired clay, Slag and Wood object sf28

Assessment

Iron

The general condition of the iron objects were fair, 12 being fair, 8 good and 5 in a fair to good condition. The objects generally had an intact metal core with slight mineralisation occurring around the edges. The majority of the objects had no active corrosion, however, 2 out of 25 had some areas of active corrosion occurring, this should be kept at bay by dry storage.

Nickel Silver

There were 14 nickel silver alloy objects in total and the majority were in fair to good condition with 11 of the objects having spots of active corrosion on the surface. The metal cores were intact in 8 of the objects and the remaining 6 had an intact metal core with slight mineralisation to the edges. An object SF35 showed some intricate detail, suggesting it to be part of an apostle spoon.

Copper Alloy

One object, a copper alloy disc (SF8), was in good condition. Its metal core was found to be intact but any design or pattern on this token in no longer visible.

Wood

The wooden handles SF53 are *Juglans regia* L., walnut, species identification was taken from one sample. The condition of the wood was good and dry, the wood was brushed to remove soil on the surface and then a wet cleaning treatment was used, using 50% IMS v/v in reverse osmosis water applied with a cotton bud.

Further investigative conservation

The investigative work on the metalwork will involve selective, partial removal of corrosion crusts for the purposes of research. Total removal of the corrosion crusts should be undertaken if illustration/photography is required for publication or the object is intended for display. Investigative work on the copper alloys may involve either partial or total removal of corrosion crusts, and chemical stabilisation or physical support if necessary, before they can be researched. Further cosmetic work or physical support may be required if the finds are selected for photography, illustration or display.

Y.A.T. policy for coins tokens etc. is not to carry out any cleaning or suggest any investigative work until the objects and their X-rays have been seen by the numismatist. This avoids any unnecessary extra work on coins that are easily identifiable before cleaning or from x-ray. It can also reduce the removal of corrosion products to one side or one area of a coin. Partial cleaning does not make the coin any less stable. A good liaison between the conservator and the coin specialist is essential in order that the coins are treated in a way preferable to the numismatist. As with any intervention, the conservator is changing the object in some way and it is vital that this is in keeping with the needs of the specialist and owner.

Documentation will appear in digital form on IADB in the Conservation Work Record area. Selected finds may merit photographic or video recording as part of the documentation. Digital photos will be added to the Online Photo Archive where possible.

APPENDIX 8: .The ceramic building material Sites B and D

J McComish, August 2010

A total of 23 fragments were examined totalling 47.815kg in weight. The material ranged in date from the late 18th-mid 19th century to the 20th century. One small fragment of brick from context (1007) could not be dated as it lacked edges or a thickness.The earliest bricks were slop moulded bricks of late18th-early 19th century date, which were present in contexts (2017, 2030, 2039, 5018 and 7006).

Machine made firebricks of late 19th-20th century date were present in contexts (2001), (3001), (2017), (2030), (5008) and (5018), and two fireclay floor tiles were present in context (4012). The firebrick fragment from context (2001) was of unusual form being of curved profile. In addition to the firebricks machine made bricks of 19th-20th century date or 20th century date were present in contexts (4018), (7001-3) and (7009). Only two of these bricks were stamped; the first stamped brick was present in context (7001), this stamp was illegible. The second stamped brick read NORI, a stamp associated with the Accrington brickworks in Lancashire. A 20th century glass wall tile in a mint-green colour, with one corrugated surface, was present in context (6000).

Recommendations

The assemblage has limited potential for further research as it comprises material which is largely typical for the period in question. The only fragment worthy of retention is the unusual firebrick from Context 2001.

Context	Date	Forms
1007	Unknown	Brick
2001	L19th-20th	Other
2017	L19th-20th	Brick
2030	L19th-20th	Brick
2039	L18th – mid 19th	Brick
3001	L19th-20th	Brick
4012	L19th-20th	Floor
4018	L19th-20th	Brick
5005	L19th-20th	Brick
5008	L19th-20th	Brick
5018	L19th-20th	Brick
6000	20th	Wall Tile
7001	L19th-20th	Brick
7002	20th	Brick
7003	20th	Brick
7006	L18th-mid 19th	Brick
7009	L19th-20th	Brick

APPENDIX 9: Assessment of worked bone, wood, metal, Site D

Dr Joan Unwin, September 2010

Methodology

The material from the site had been cleaned, bagged and numbered in York and was available at the Sheffield office of the York Archaeological Trust. Because time was short, the items were photographed for further assessment at home, however, interesting features were noted at the time.

Factual data

This assemblage came from an area to the south-east of the town centre, developed for industrial and residential buildings, primarily from the late 18th century. As with almost any site in Sheffield's city centre, the likelihood of some cutlery manufacturing activity on the site, at some time, is very high. The desktop assessments identifies large premises with firms manufacutirng steel, tools and cutlery, but it is more than likely that the buildings also housed independent workmen hiring workshops. Although the site included 19th century buildings, changes in ownership and occupation have resulted in the majority of these finds being mostly from the 20th century.

Quantity of material

For the dominance of metalworking in the area, there was a surprisingly small number of cutlery related items. These included strips and sheet of metals; stamped out knife and flatware blanks, part-finished goods, plus some wood handle blanks, two pieces of bone offcuts from handle making and small fragment of ivory. The finds are listed below.

Provenance of material

The range of material is consistent with items which would have been produced on site. There is nothing to indicate their having been brought from elsewhere, other than in the normal movement of raw and finished material.

Range and variety of material

There are four main groups of items in this assemblage, which relate to Sheffield metalworking, plus one part-finished bone button. The cutlery related items are :

- Handle material. Hardwood blanks; fragments from bone handle making. These were prinicipally from the 2000 and 7000 context. There is nothing to indicate this was a specialist site for handle manufacture. The items appear to have been intended for use at that point.
- Flatware, as blanks and part-finished items. These are the most interesting items showing the stages in the machine stamping out of the forks and spoons, then the stage of clipping the fork tines and shaping the bowls of fork and spoon, prior to polishing. There is evidence of dessert. tea, fruit and coffee spoon manufacture, as well as a berry spoon and jam spoons.
- Table and trade knives. There is evidence from the scrap metal of blades being stamped out of sheets, as well as two surviving examples of all metal knives. These are from the 2nd half of the 20th century. There are two whittle tang knife blades which would require some form of handle attaching to them – probably plastic. The range of other knife blades for food preparation is interesting, but typical of such a site.

- Edgetools. These are not so common from sites in Sheffield. Although these items are heavily corroded or encased in hard soil, etc. they appear to be heavy-duty cold chisels or bolsters. One is a woodworking chisel.

Condition of material

The material had been cleaned of much associated soil etc, though more might have been safely removed, in order to see if any of the stamped-out items had decoration. The wood handle blanks appeared to be slightly damp.

There was some corrosion of the ferrous metals, and encrusting of hard material, possible mortar.

The nickel silver and stainless steel pieces were in good condition. A number of items had been severely deformed, presumably by being crushed at some point. It is not possible to tell whether damage occurred to the pieces during manufacture and so were discarded, or happened later when lying about in the buildings.

Statement of potential

The metal items found are typical of finds from Sheffield cutlery manufacturing sites. They show the later methods of manufacture i.e. stamping out blanks from sheet or strip metal and then shaping in further presses. Some of the finds show stages in spoon and fork manufacture and so would be useful to keep as a reference collection.

The few knife blades are also useful as examples of this method of manufacture. The more corroded bread knife blades and trade knife blades are not worth saving.

The chisels are interesting as being found on this site, but are in poor condition and it would seem sufficient to note them and discard them

The two small pieces of bone and the ivory piece are insignificant and not worth retaining.

The wood handle blanks are typical of hardwood handles. It is suggested that two or three are saved for reference.

Storage and Conservation

Further cleaning to remove more of the soil and grime would be useful.

The material that is retained should be dry. The wooden handles will suffer if kept at too high a temperature, but the nickel silver and steel will not suffer, but should be kept dry.

Conclusions

These finds are typical of excavated sites around Sheffield, though the number and style of the flatware and all metal knives are unusual in that they are likely to be from around the 1960s. The evidence for the sequence of flatware manufacture is interesting.

Listing of finds

site ID	finds	context	number of itemes	material	description
5381	2	2004	1	bone	bone button, unfinished, 1.5cm diameter, one central hole drilled
5381	10	2021	1	ivory	small broken thin piece of ivory 5cm x 1.5cm, intended for a pocket knife handle scale
5381	7	2028	1	bone	fragment of bone sawn off during handle making, 9cm
5381	9	2030	1	bone	fragment of bone trimmed off during handle making, 6cm
5381	24	5000	3	2 nickel silver, 1 stainless steel	three fork blanks, stamped out of sheet, one is the first stamping to shape, two have the tines stamped out but still with metal across the ends of the tines. Two are bent. 19.5cm long
5381	25	5000	1	nickel silver	dessert spoon blank, bent
5381	26	5000	4	nickel silver	Four strips of metal, 2 are 15.5 cm long, 1.5cm wide and 1cm wide. 1 broken piece, 6cm x 1.5cm; 1 piece (scrap) bent
5381	33	6000	3	nickel silver	three thin pieces of scrap - two appear to be made of two very thin sheets of metal
5381	34	6000	4	nickel silver	three teaspoon blanks; 11cm, 12cm, 13cm long. One bent piece of scrap
5381	35	6000	8	nickel silver	pieces of spoon - 2 teaspoons, Old English pattern; 1 berry spoon bowl, with wavy edges; 1 teaspoon bowl; two jam spoon blanks; 1 teaspoon/coffee spoon handle; 1 'apostle spoon' handle
5381	36	6000	8	nickel silver	eight fork blanks, 3 with no tines, 2 with tines still connected, 1 with tines clipped, 3 fish fork blanks bent
5381	37	6000	3	steel	three pieces of scrap from stamping out items
5381	13	7000	1	antler	large crown from an antler, sawn in two places to remove the antler, 11cm long x 10cm diameter
5381	38	7000	1	steel	sheet of metal, bent, 20cm x 8cm approx
5381	39	7000	34	steel	28 fruit spoon blanks 16cm; 4 teaspoons, various handle designs 14cm; 1 dessert spoon blank, bent; 1 dessert spoon bent

5381	40	7000	2	steel	two forks, one table fork with 'bark' decoration on handle, 20cm; 1 small cake ? fork with three tines 14cm
5381	41	7000	2	1 steel, 1 nickel silver	scrap from stamping out a small knife blade and a dessert spoon
5381	43	7000	15	steel	miscellaneous blades for table knives and trade knives; 1 bread knife blade 30cm and broken piece 6cm; 2 spearpoint scale tang blades 28cm; 1 spear point blade 25cm; 1 clip point blade 25cm; 1 broken piece 12cm; 1 blade 20cm; 1 palette knife scale tang blade 30cm; broken blade of large whittle tang knife 35cm; 2 slipper blades whittle tang, table blade 12cm and dessert blade 18cm; 2 table blades metal handle 18cm
5381	44	7000	2	steel	one large scissor bow and shank, 17cm; 1 pair round ended scissors 13.5cm
5381	50	7000	8	steel	collection of edgetools, mainly bolsters and cold chisels; 1 narrow chisel without a handle
5381	53	7000	12	hard wood	exotic hardwood handle blanks, thin, slightly tapered, almost all with flat ends, 4 are 11.5cm long; 3 are 11cm long; 2 with rounded ends are 11.5cm long; 2 are 10cm long; one piece is rectangular in section 8cm long

APPENDIX 10: Written Scheme of Investigation Sites B and D