

ARCHAEOLOGICAL
EXCAVATION
AT
25-31 CARRS LANE,
BIRMINGHAM

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With contributions by Alan Clapham, Nick Daffern and Dennis Williams

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Project 3488
Report 1740

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Archaeological Excavation at 25-31 Carrs Lane, Birmingham

Jonathan Webster

With contributions by Alan Clapham, Nick Daffern and Dennis Williams

Part 1 Project Summary

An archaeological excavation was undertaken at 25-31 Carrs Lane, Birmingham (NGR SP 0731 8688). It was undertaken on behalf of CgMs Consulting Ltd for their clients, Drivers Jonas LLP and Realis Estates Limited, who intend to construct a new hotel and retail unit for which a planning application is being submitted. The project aimed to investigate the presence and extent of potential medieval and post-medieval deposits noted in a previous evaluation undertaken by AOC Archaeology Group (AOC 2009b). It hoped to gain a better understanding of the noted deposits as well as investigating any structural elements that may have survived to help further expand our knowledge regarding the development of Birmingham.

Two sherds of medieval pottery were recovered. The archaeological excavation demonstrated the presence of continual activity from the early post-medieval period to the present day, with evidence of small-scale 17th to 18th century industry being noted in the form of possible cloth dyeing and bone working. Environmental evidence indicated that this industrial activity was conducted within an area of waste ground. Substantial post-medieval landscaping was revealed with large quantities of imported material and industrial waste being used to remove the natural gradient of the site. Subsequently a number of brick buildings were built on the site in the 19th century. These were in use well into the 20th century. They were demolished after the Second World War during the redevelopment of the area, the last building being demolished as late as 1988.

Part 2 Detailed Report

1. Background

1.1 Reasons for the project

An archaeological excavation was undertaken at 25-31 Carrs Lane, Birmingham (NGR SP 0731 8688) (Fig 1), on behalf of CgMs Consulting Ltd for their clients, Drivers Jonas LLP and Realis Estates Limited, who intend to construct a new hotel and retail unit. This work was undertaken before the submission of a planning application to Birmingham City Council.

A desk-based assessment for the site was carried out by AOC Archaeology Group (2009a). The assessment highlighted the potential for the survival of archaeological remains and based on this evidence an archaeological evaluation was carried out (AOC 2009b). The field evaluation undertaken by AOC Archaeology Group comprised two evaluation trenches (Fig 2), and demonstrated heavy truncation to the south of the site where brick demolition material extended below a depth of 2.50m. However the northern part of the site (Trench 1) revealed a significantly deep, homogenous soil horizon that contained post-medieval tile and horn cores. It was concluded that there was a significant potential for the survival of well-preserved archaeological deposits in this half of the site.

1.2 Project parameters

The project conforms to the *Standard and guidance for archaeological excavation* (IfA 2008). All recording methods during fieldwork conformed to the standard Service Practice (CAS 1995).

The project also conforms to a Written Scheme of Investigation prepared by AOC Archaeology Group (AOC 2009b) and to the brief prepared by Birmingham City Council Development Directorate (2009). A project proposal (including detailed specification) was produced (HEAS 2009).

1.3 Aims

The aims of the excavation were to locate archaeological deposits and determine, if present, their extent, state of preservation, date, type, vulnerability and documentation. The purpose of this was to establish their significance, since this would make it possible to recommend an appropriate treatment which may then be integrated with the proposed development programme. Specifically the excavation aimed to:

- establish the extent and date of any structural elements on the site.
- assess the evidence for Medieval and post-medieval domestic and industrial activity and to analyse the industrial and palaeoecological data.
- investigate the relationship of the archaeological evidence to that from nearby sites, including the Bull Ring and City Park Gate.
- understand the site results within the context of the Medieval and post-medieval development of Birmingham.

2. **Methods**

2.1 **Documentary search**

Prior to fieldwork commencing a desk-based assessment and evaluation report for the site carried out by AOC Archaeology Group (AOC 2009a and b) was consulted. This included relevant information from the Birmingham Sites and Monuments Record (BSMR). In addition the following were also consulted:

Cartographic sources

- Westley's Map, 1731 Scale approximate
- Hanson's Map, c1778 Scale approximate
- Kempson's Map, c1808 Scale approximate
- Pigott's Map, c1828 Scale approximate
- Map of Birmingham c1840 Scale approximate
- Ackerman's Panoramic View of Birmingham, 1847
- 1st Edition Ordnance Survey 1890, Scale 1:2,500
- Ordnance Survey 1905, Scale 1:2,500
- Ordnance Survey 1937, Scale 1:2,500
- Ordnance Survey 1952-55, Scale 1:2,500
- Ordnance Survey 1960-69, Scale 1:2,500
- Ordnance Survey 1970-71, Scale 1:2,500
- Ordnance Survey 1983, Scale 1:2,500
- Ordnance Survey 1992, Scale 1:2,500.

2.2 **Fieldwork methodology**

2.2.1 **Fieldwork strategy**

Fieldwork was undertaken between 8th December and 20th December 2009. The site reference number and site code is P3488.

A single area of excavation, amounting to just over 235m² was excavated in the northern part of the site, as a previous evaluation (AOC 2009a) had noted severe truncation occurring across the centre and southern parts of the proposed area of investigation. The site measured roughly 750m², the exposed archaeology representing a sample of *c* 35%. The location of the excavation is indicated in Figure 2.

The current tarmacadam surface and underlying modern bedding layer were removed under archaeological supervision using a 360° tracked excavator using a toothless ditching bucket. Once the first significant archaeological horizon was revealed the area was cleaned by hand and investigated. Once this was complete further mechanical excavation was undertaken to remove structural elements

and large quantities of dumped deposits to the top of the next archaeological horizon. Following this, further hand excavation was undertaken removing a minimum of 25% of the deposit by hand to facilitate a full understanding of the date, stratigraphic relationships and function. This process continued until the natural substrate was revealed across the entire excavation area. Any features noted whilst mechanical excavation was undertaken were investigated by hand with the removal of a minimum of 50% or until the interpretation and understanding of the feature was complete before mechanical excavation was allowed to continue. Due to the depth of the excavation the excavation area was stepped to prevent possible collapse and limited access and egress routes were provided. All mechanical interventions were closely monitored by a competent archaeologist. On completion of excavation, the area was reinstated by replacing the excavated material.

All recording methods during fieldwork conformed to the standard Service Practice (CAS 1995). All deposits and features were provided an individual identifying context number and a pro-forma sheet was completed for each. Sections were recorded on permagraph at a scale that best displayed the information present, whilst the site plan was recorded using a Leica 705 electronic distance measuring total station. Any deposits or features that displayed potential for environmental or industrial residues were sampled using a minimum of a 40ltr bulk sample and noted banding within deposits were recorded by the taking of column sample as advised by the WHEAS Environmental Archaeologist.

2.2.2 **Structural analysis**

All fieldwork records were checked and cross-referenced. Analysis was effected through a combination of structural, artefactual and ecofactual evidence, allied to the information derived from other sources.

2.3 **Artefact methodology, by Dennis Williams**

2.3.1 **Artefact recovery policy**

The artefact recovery policy conformed to standard Service practice (CAS 1995; appendix 4). This in principal determines that all finds, of whatever date, must be collected. All artefacts were recovered from stratified deposits.

2.3.2 **Method of analysis**

All hand-retrieved finds were examined and a primary record made on a Microsoft Access 2000 database. They were identified, quantified and dated to period, and a *terminus post quem* date produced for each stratified context. These dates were used as a means of determining the broad chronology of the site.

The pottery and ceramic building materials were examined under ×20 magnification and recorded by fabric type according to the reference series maintained by the service (Hurst and Rees 1992; WHEAS 2009).

2.4 **Environmental archaeology methodology, by Alan Clapham and Nick Daffern**

2.4.1 **Sampling policy**

The environmental sampling strategy conformed to standard Service practice (CAS 1995, appendix 4). Large animal bone was hand-collected during excavation. For palynological analysis, eight samples were selected for assessment (Table 1) with three being selected from the top, middle and bottom of monolith <12> which sampled (1022), an organic silty clay which filled clay lined east-west aligned gully [1023]. Through artefact analysis, this feature was assigned a post-medieval date of AD1600-1800.

The remaining pollen samples were retrieved from bulk samples of organic-rich deposits and layers that were regarded as night soil or cess due to the "platy" and highly organic nature of the sediments. In addition to this, several of the deposits were located within or in close proximity to cut and/or wood-lined features suggesting a conscious effort regarding discard or storage of this material.

2.4.2 **Method of analysis**

Macrofossil analysis

The samples were processed using standard Siraf flotation methods. The residues were scanned by eye and the abundance of each category of environmental remains estimated. The flots were scanned using a low power MEIJI stereo light microscope and plant remains identified using modern reference collections maintained by the Service, and seed identification manual (Cappers *et al* 2006). Nomenclature for the plant remains follows Stace (1997). A magnet was also used to test for the presence of hammer scale.

Pollen analysis

The samples were submitted to the laboratories of the Department of Geography & Environment at the University of Aberdeen for chemical preparation following standard procedures as described by Barber (1976) and Moore *et al* (1991). The full methodology is described in the archive.

Where preservation allowed, pollen grains were counted to a total of 150 land pollen grains (TLP) for assessment purposes using a GS binocular polarising microscope at x400 magnification, and identification was aided by the pollen reference slide collection maintained by the Service, and the pollen reference manual by Moore *et al* (1991) and Grant-Smith (2000). Nomenclature for pollen follows Stace (1991, 1997) and Bennett (1994).

Fungal spores and parasite ova were noted with rapid identifications being undertaken to genus level. Identifications were aided by the reference slide collection maintained by the Service and reference manuals Kirk *et al* (2008) and Grant-Smith (2000).

2.5 **The methods in retrospect**

Having undertaken the project the following comments may be made with regard to the methods adopted. Whilst the quantity and complexity of the archaeology recovered was far beyond that expected based on the results of the evaluation, the methods employed worked well with a full understanding of the site gained and a coherent archive compiled. Artefact recovery was good and solid date ranges were able to be provided. The sample strategy was thorough and the samples taken have produced a range of material that has enhanced our knowledge of the site.

3. **Topographical and archaeological context**

The City of Birmingham lies on level ground of the Birmingham Plateau, with the highest ground lying to the southwest, west and northwest. The local high points are separated by broad, gently sloping valleys (Hodder 2004). The site lies on the east slope of one of these valleys at *c* 125m AOD with the ground dipping to the southeast. The underlying geology comprises Bromsgrove sandstones dated to the Triassic period overlain with glaciofluvial deposits (AOC 2009a).

The site lies within the centre of Birmingham. The known historic and archaeology of the area has been researched in full and discussed in the desk-based assessment (AOC 2009a); whilst it is not intended to reproduce that information in full, a brief summary has been compiled below.

The earliest evidence noted in proximity to the area of investigation was a layer of peat exposed during archaeological investigations approximately 450m to the east. This deposit was radiocarbon dated to 10520-10230 CalBP and overlay a deposit containing two worked flints (Hodder pers.comm.). Further prehistoric material has been recorded *c* 200m to the south where a single flint

flake was recovered from the Moor Street excavations, whilst a Neolithic polished stone axe head was recovered during the widening of Deritend High Street in 1953 to the east of the site.

Little direct Romano-British activity has been noted within Birmingham City Centre itself with the nearest known substantial structure being the Roman Fort at Metchley 4km to the southwest. However, a number of finds have been noted in close proximity including the recovery of two Roman coins during the construction of a sewer on Dudley Street 400m to the south in 1890. Several sherds of Roman pottery were recovered during the recent Moor Street and Park Street excavations approximately 200m to the south.

Evidence for Anglo-Saxon activity in the area is extremely sparse, with much of what is written about the period being speculative. Such speculation includes the possible presence of an Anglo-Saxon settlement in the vicinity of the City Centre, and that the Parsonage Moat, 500m to the southwest, may once have been the site of an Anglo-Saxon manor house (Hodder 2004). Place name evidence does imply the establishment of a settlement during this period as Birmingham is believed to mean 'settlement of the followers of a man called Beorma' (Patrick and Ratkai 2009b, Hodder 2004, & Pugh 1964). Physical evidence to support these suppositions is limited to two sherds of Anglo-Saxon pottery being collected during the course of the Bull Ring excavations (Hodder 2004).

By the 12th century it is thought the medieval town has been fully established, containing key features such as a moated manor house, parish church, deer park and market place. Analysis of the Borough rentals for the town indicate that by 1296 many of the roads which run through the City Centre had been established, including the High Street, Dale End and Moor Street, all of which run adjacent to the site (Demidowicz 2008). The documents also demonstrate that the town may have contained up to 250 burgage plots and four forges, suggesting the settlement was of a substantial size.

Numerous archaeological investigations have taken place within Birmingham City Centre, with the largest excavations taking place within the area of the Bull Ring 500m to the south of the site (Patrick and Ratkai 2009b). These excavations, incorporated archaeological investigations at Moor Street, Park Street, Edgbaston Road and St. Martin's Church, and have produced a wealth of medieval material. The Moor Street excavations identified the course of a large ditch, up to 4.4m wide and 1.65m deep, believed to be the 13th century boundary ditch between the town and deer park. Associated with the ditch were later 14th century pits. The Park Street excavations also identified the same large boundary ditch in addition to 12th and 13th century occupation activity and indications of industrial activity, including pottery, textile production, leather and metal working. Archaeological investigations at the Edgbaston Street site revealed a range of tanning pits dating from the late 13th century and continuing right through the medieval period.

Smaller excavations, predominately located to the south and east of the current site, have revealed features primarily comprising pits, ditches and wells that relate to domestic occupation. In total these excavations suggest a significant density of medieval activity occurring within the City Centre area. Reconstructions of the town in the 12th and 13th centuries place the site in close proximity with the town's northern boundary and with the deer park. Extrapolations of the course of the boundary ditch, based on observations of its alignment in both the Moor Street and Park Street excavations, indicate that it could be present running northeast-southwest through the site, or in close proximity to it.

The transition between the medieval and post-medieval period saw a high level of continuity of activity in the town leading to a great expansion in size, population and importance. Industrial activity within the town appears to expand at pace, with most of the major excavations at the Bull Ring producing evidence supporting this. At the Edgbaston Street site the evidence indicates that tanning continued to take place well into the 18th century, while at Park Street activities include bone, horn and metal working, and the production of linen by the 17th and 18th centuries. Wasters discovered at Old Crown, High Street Bordesley strongly suggest the presence of pottery kilns in the area.

Evidence related to post-medieval activities has been identified within a 400m radius of the current area of investigation. This includes tanning on Digbeth High Street, a possible windmill, a glassworks on Edgbaston Street, a hide yard, a brass works and a Steelhouse adjacent to Steelhouse Lane to the north. Documents also revealed that the town was well known for the production of toys,

arms and clay tobacco pipes. The evidence for the expansion of domestic activity is also extensive, with numerous archaeological investigations revealing features associated with domestic structures and disposal of waste. The most extensive domestic activity was identified at the Park Street excavation where large concentrations of pits with evidence of burning were recorded, and at Manzoni Gardens elements of cellars, wells and pits were noted. Both excavations were part of the Bull Ring development to the immediate south of the site.

Previous work within Birmingham City Centre has also begun to reveal a possible shift in activity during the 17th and 18th centuries. Analysis of the excavations have started to indicate that during this time there was greater segregation of industrial and domestic activities. Many grand houses were being built in the 18th century which purposely placed workshops to the rear of the property, while at the same time open yard spaces were being converted into use as gardens and market garden plots. It has also been noted during this time that the population and wealth of the city exploded. Estimates put the population of the city in 1700 at up to 7,000; by 1837 this had increased to 170,000 and by the beginning of the 20th century it was measured at 500,000. This increase was due primarily to the city's leading role during the industrial revolution. Evidence of this expansion is apparent across the city centre as numerous 18th and 19th century buildings have been designated as either Grade II or Grade II* listed. Concentrations of such buildings occur on Bennett's Hill, Corporation Street, New Street, Colmore Row and Temple Row.

Two Grade II listed buildings lie in close proximity to the site. The first is the former Powell's Gun Shop along the western boundary of the area of investigation, designed by Charles Edge in Italian Gothic, with work on the four storey building commencing in 1860. The second is St Michael's Church, originally designed as a dissenting chapel in the early 19th century with a classical gable end and central bay that had coupled Ionic pilasters and moulded pediment. This building is located to the immediate north east of the site.

The earliest noted cartographic evidence for activity on the site itself was noted on Westley's 1731 map, this shows the northern half of the site being used for gardens associated with two properties on New Meeting Street and its junction with Broad Street. A possible commercial building is seen fronting Carrs Lane at the south of the investigation area with an associate rear courtyard. By Hanson's map of 1778 the properties to the north have extended into these former garden areas leaving only a small courtyard area, whilst the commercial property appears to have been split into two separate buildings set either side of the entranceway to the rear courtyard area. Pigott's map of 1828 shows more development of the area with the north of the site being opened up once again with gardens, the commercial buildings fronting Carrs Lane are again turned into a single building with the courtyard area continuing to the rear. This building is clearly illustrated on Ackerman's 1847 Panoramic View of Birmingham which shows a large three storey building in this location with an ornate frontage onto Carrs Lane with a pediment.

Around 1850 Carrs Lane was widened to allow both the construction of the Great Western railway link between London Paddington and Livery Street Station (renamed Snowhill Station in 1858) and to allow access for trams. The railway link constructed a tunnel through the southern part of the site using a cut and cover method, with the line opening for business in 1852. The access of trams required the construction of an 'S' bend located roughly halfway down the street and partially entering the site, the former commercial building was demolished to allow this but the courtyard area remains. The north of the site by this time has been closed up yet again with a series of small properties separated by an 'L' shaped alleyway. By the time of the 1890 Ordnance Survey map the north of the site has been segregated further into five separate properties. The removal of the alleyway closes up the area, although the 'L' shape remains visible in the boundary divisions between the properties. Little activity appears to have occurred along Carrs Lane, the courtyard area continues to provide a large open space. By 1905 however the southern part of the site had again been built upon with three structures (later adapted to two). Documents indicate that these two three storey buildings were constructed in a similar style to the former Powell's Gun Shop (noted above) before their demolition in 1988.

Previous work on the site comprised an archaeological evaluation undertaken by AOC Archaeology Group in October 2009 (AOC 2009a) that consisted of two trenches (Fig 2). Trench 1 located at the north of the site identified natural clays at a height of 125.40m AOD. However this is now known

due to an onsite miscalculation to be wrong, the actual average height being 124m AOD. The natural clays were overlain by a significant layer of homogenous dark sandy clay which contained fragments of charcoal, tile and horn cores. No immediate dating evidence was recovered, but it was believed these finds were likely to have been associated with post-medieval industrial activity in the area. Later activity was evident in the form of brick built foundations and basements associated with various 18th and 19th Century buildings already known to have been present. The substantial depth of the basement recorded in the southern area indicated that extensive disturbance has occurred. If any earlier archaeological deposits were previously present, it is considered probable that they have been severely truncated or destroyed. The basement uncovered in the northern part of the trench was much shallower in depth, with less impact occurring on underlying archaeological stratigraphy. Trench 2 was excavated to a depth of 2.5m before it was abandoned due to modern demolition being present throughout and clearly truncating any earlier deposits.

4. Results

4.1 Structural analysis

The trench and features recorded are shown in Figs 2-4. The results of the structural analysis are presented in Appendix 1.

4.1.1 Phase 1: Natural

The natural substrate 1019 was revealed at a height of 124.10m AOD and dipped to the east and northeast to a maximum height of 123.88m AOD. It comprised a silty clay with frequent rounded cobble sized inclusions indicative of glacial derived fluvial deposition associated with a former glacial moraine landscape.

4.1.2 Phase 2: Post-medieval deposits (17th to 18th century)

A sub-rounded pit [1051], 1.18m in diameter, survived to a depth of 0.59m. It was filled by three organic rich silty deposits 1050 that were sealed and separated by two thin bands of silt and sands, whilst a large single piece of oak had been roughly cut and dumped into the top of this deposit. A ceramic roof tile, with the date range 1600-1850 was recovered from the top of this deposit but due to its position, was not considered to be securely attributable to the fill of the pit. The depression caused by pit [1051] was sealed by a 0.19m thick deposit 1037 originally thought to contain late medieval artefacts. However the post-excavation assessment revealed this was not the case and an early post-medieval date was provided. The deposit was present in the south of the site only. It was cut by two organic rich pits [1049] and [1054], both clay-lined and filled with humic silty deposits 1047 and 1041 respectively. Pit [1049] measured 0.80m in width and at least 2m in length. Unfortunately it only survived to a depth of 0.25m due to later truncation. Pit [1054] was noted as 0.26m in width, at least 1.50m in length and 0.09m in depth. These pits appeared to have had industrial uses and contained very little domestic refuse (see Section 5: Table 3). Context 1042 a dark greyish brown organic silt which lay within clay lined pit 1054, contained pottery dated to the 17th-18th centuries.

The pits were covered by a wedge-shaped silt and clay deposit up to 0.45m thick that was noted in the south end of the site only. This was truncated by a small gully [1023], 0.51m wide and 0.16m deep, aligned east-west and turning to the south. Pottery recovered from the fill of this gully, 1022 dated from the 17th or 18th centuries and provides a *terminus ante quem* date for underlying deposits. Overlying 1052 was a pit with clay lining 1032 that was on average 0.13m in thickness and measured 1.40m in width by 1.96m in length. This was then covered with four parallel wooden planks 0.02m in thickness, 0.31m in width and averaging 1.85m in length (1031). They were additionally held in place by a underlying cross beam with the use of wooden dowels, the wooden floor was sealed by a organic rich 'cess' like material 1030 0.13m in thickness. This pit was interpreted as a cess pit, but in general environmental analysis indicated an absence of cess deposits on the site (see below).

Deposit 1053 covered all of the above and comprised a silty clay that was wedged in the opposite direction to the natural slope and varied from 0.38m in thickness along the west of the site to 0.64m

in the east of the site. It was sealed by a humic rich 'dark earth' deposit 1055 that averaged 0.35m in thickness and comprised a deliberately dumped waste material, including fire ash and domestic debris, in what would appear to be further deliberate landscaping of the naturally sloping site.

4.1.3 **Phase 3: Mid- to late 19th century buildings**

Deposit 1055 was cut by a well construction [1058] 3.14m in diameter. The well itself, 1056, measured 0.85m in diameter and was constructed with machine-made bricks dated to the early-mid 19th century. This in turn was truncated by [1060] a later 19th century foul drain that was sealed by brick surface 1011 and 1014; both of which comprised a machine made red brick external yard surface later truncated by a concrete soak-away 1013. Surface 1011 was additionally noted to have been set in a bedding sand 1069 on the western side of the excavation. This surface was butted on the northern side by bedding wall 1015 constructed from a single course thick red brick with a hard orange sand rich mortar bonding. Wall 1015 was noted to raise at least two courses higher than surface 1014 and may have represented a thin property dividing wall. To the south of surface 1011 and 1014 the surface butted a larger more substantial wall 1012, constructed with a two course wide red brick overlain by header bonded engineering bricks. This wall was orientated east/west across the area of investigation and appeared to be the external wall for an 'out-building' with evidence for at least three rooms portioned by single course wide brick walls 1061-1063, 1065 and 1067 that together made two corridors 1m in width and 3m in length. Two of these rooms contained surviving floor surfaces 1007 and 1064 whilst the third potential room had been truncated by later modern intrusions. Both surfaces were constructed using a single course of machine made red brick with no visible bonding. Floor surface 1007 however also contained a number of large brick tiles that averaged roughly 0.25m (10") square. These rooms butted a large wall 1005 that was constructed in a similar fashion to wall 1012 although it additionally had a single course of white slipped bricks 1007 butting its southern face. This wall represented a load bearing wall for the known large building and cellarge was recorded to the south beyond this limit. The wall was noted as containing at least 15 courses but the base of the structure was not revealed.

To the north of wall 1081 was brick surface 1080 constructed in an identical fashion to floors 1011 and 1014. It was partially sealed by a later overlying concrete surface 1079. Surface 1081 butted wall 1016 to the north. This wall was orientated east/west and was constructed in an identical fashion to wall 1012 and appears to have been its mirror image on the next property being the external wall for a covered 'out-building' area in the east of the site. Unfortunately no floor surfaces were noted to have survived. At the west of the area of investigation wall 1016 and the only point of note was a later addition 1068 that truncated the wall on the west of the site. Addition 1068 was constructed using a single course of machine made red brick bonded with a hard dark grey mortar. Although no evidence was noted of in-situ burning on the bricks themselves the partition this wall produced was filled with an ash rich deposit 1082 that also contained fragments of willow pattern pottery and animal bone fragments.

Much of the north of the site was taken up with two large cellars. The northwest of the site was taken up with cellarge for Building B. Wall 1016 (see above) was the southern extent of the cellar while a brick arch 1026 demarcated the northern extent. The Lancet arch was constructed directly off deposit 1053, having truncated 1055. The arch may have been the start of a vaulted cellar although due to the visible shallow depth to the underlying undisturbed natural geology would suggest it was more likely to have been the route of drainage or support foundation for the overlying building.

5. **Artefact analysis, by Dennis Williams**

The assemblage recovered during the excavation is summarised in Table 1. Significant amounts of pottery were present in the assemblage, with clay pipes, roof tiles and glass making up most of the remainder. A complete clay floor tile was also recovered; this was recorded in the main finds database, but is not included in Table 1.

The state of preservation of the finds was generally very good, with the pottery, clay pipe and glass sherds exhibiting few signs of abrasion or weathering on either original or fractured surfaces.

Material class	Period	Count	Weight (g)
Ceramic	Medieval	2	22
Ceramic	Post-medieval	269	4735
Ceramic	Modern	21	3823
Glass	Post-medieval	10	716
Glass	Modern	16	221
Metal	Post-medieval	4	53
Metal	Post-med/modern	1	126
Metal	Modern	1	1
Mineral	Undated	2	46
Mortar	Post-medieval	1	44
Slag	Undated	1	16
Stone	Post-medieval	1	110
Totals:		326	9857

Table 1: Quantification of the assemblage

5.1 Pottery

Pottery sherds were grouped and quantified according to fabric type, as shown in Table 2. There were no diagnostic form sherds that could provide precise dating evidence, but most sherds were datable by fabric type to general production spans.

Period	Fabric code	Fabric common name	Count	Weight (g)
Medieval	64.2	Glazed sandy white ware	1	6
Medieval	99	Miscellaneous medieval wares	1	16
Post-medieval	77	Midlands yellow ware	4	12
Post-medieval	78	Post-medieval red wares	113	3232
Post-medieval	81	Stonewares	22	249
Post-medieval	81.2	Westerwald stoneware	1	6
Post-medieval	82.5	Dutch/English tin-glazed	2	30
Post-med/modern	85	China	29	195
Post-medieval	91	Post-medieval buff wares	9	88
Post-medieval	100	Miscellaneous post-medieval wares	2	32
Totals:			184	3866

Table 2: Quantification of the pottery by period and fabric-type

Medieval pottery

Medieval pottery finds were confined to two small body sherds. These were residual in contexts 1003 and 1021, which contained substantial amounts of post-medieval and modern material. The medieval sherds were both undiagnostic in terms of form.

The sherd from context 1021 had an oxidised, pale orange surface, and a pale grey reduced core, with a light green glaze on its outer surface. This material appeared to be a variant of fabric 64.2, an iron-poor, sandy white ware, possibly manufactured in Staffordshire during the 13th to early 14th centuries, and similar to fabric ww5 identified by Rátkai (2009b) amongst finds from excavations at the Bull Ring.

The other sherd, from context 1003, had a coarse, hard, grey fabric, with abundant sub-angular and sub-rounded quartz inclusions, and was oxidised on one surface. Although this fabric appeared typically medieval, no close match could be obtained within the WHEAS fabric series, so this was assigned to the miscellaneous category (fabric 99).

Post-medieval pottery

The post-medieval pottery assemblage was dated to the 17th-18th centuries (with some material possibly dating from the late 16th century and the early 19th century). Much of the post-medieval pottery was recovered from the substantial post-medieval dump deposits 1053 and other levelling layers.

Post-medieval red wares (fabric 78, dating to 17th-18th centuries) accounted for 84% of the pottery by weight. There were considerable variations in fabric colour and texture, and glaze quality, for the red ware sherds. Many were from coarse, thick-walled vessels, with rims from flared bowls or pancheons being represented among the finds from contexts 1003, 1004 and 1021 [part of 1053]. These large vessels usually had functional black glazes on the insides only, as a means of sealing their porous fabrics. The only other diagnostic red ware rim sherds were from a jar or small bowl (context 1028 [part of 1053]), and a jar or pot (context 1042). Black-glazed base sherds from jars or jugs were recovered from contexts 1003, 1004 and 1017, while base sherds from straight-sided jars or mugs were found in 1021 (part of 1053). The most notable red ware find, in context 1022, comprised parts of a tyg, glazed dark brown both internally and externally. This flared vessel had six handles and a heavy flanged base, and was probably early to mid-17th century in date.

Finds of 17th century Midlands yellow ware (fabric 77) were confined to a total of four very small body sherds, from contexts 1003, 1020 and 1027 (part of 1053). The sherds of buff ware (fabric 91), dating from the 18th century, were also unremarkable, since there was only one rim sherd, plus a total of eight body sherds from contexts 1003, 1004, 1017 and 1021 (part of 1053). The rim was from a large bowl or chamber pot, found in 1003, and was black-glazed with white trailed slip decoration. The body sherds were glazed black, brown, or yellowish over a white slip, some also being decorated with trailed slip, either brown or white, depending on the background colour.

Sherds of tin-glazed ware (fabric 82.5) were found in contexts 1003 and 1036 (part of 1053), the former yielding material with a blue-painted design, and the latter a very abraded, but undecorated, splayed base. These could have been of either Dutch or English manufacture, with peak production during the 17th and early 18th centuries.

Stoneware finds included a single body sherd from a blue and purple-painted Westerwald vessel (fabric 81.2), found in context 1028 [part of 1053], and datable to the 17th or early 18th century. Other stoneware (fabric 81) consisted of a cream-glazed lid (from a jar or teapot) and body sherds, and various sherds from a buff-coloured baking dish, all from context 1003, plus a ribbed, brown-glazed body sherd from context 1020 (part of 1053). These generic forms and fabrics were less easy to date, but were probably made in the 18th or 19th centuries. A small stoneware bottle, short and cylindrical, with a mottled brown glaze, from an unstratified deposit, was likely to have been produced within a similar date range.

Mass-produced china and glazed earthenware (fabric 85), 19th-20th century in date, were found in context 1003. A range of cups, saucers and plates were represented, some bearing blue willow patterns, others being plain or with contemporary designs.

5.2 **Other artefacts**

Clay pipes

Bowl and stem fragments of clay pipes were recovered from contexts 1003, 1004, 1017, 1018, 1020, 1028 and 1036. Six bowls from context 1004 were sufficiently intact to be datable in terms of their form, taking into account overall shape, size, spurs or heels, and milled decoration. Of these bowls, one was from the date range *c* 1660-80 (Oswald 1975), three were from *c* 1660-90 (Higgins 2009), and two from *c* 1700-40 (Higgins 2009). The *c* 1660-80 example was stamped 'TE' on its flat heel, this possibly being the mark of Thomas Evans, a Broseley pipe maker known to have still been manufacturing *c* 1700 (Oswald 1975). A single bowl recovered from context 1003 dated from *c* 1660-80 (Higgins 2009).

Glass

A small bottle, with oval cross-section, and moulded in clear glass, was found in context 1003. This bore the markings of 'LARBALESTIER, 2 CHARING CROSS, JERSEY', a jeweller and perfume manufacturer trading on the island from 1813 until at least 1895 (Larbalestier Family Home Page 2010). The base of a globular 'onion' wine bottle, very dark green in colour, was found in context 1004. This probably dated from 1720-1750 (Hume 1969, van den Bossche 2001). A small glass bead, from context 1045, was turquoise in colour and faceted, and had probably been set in a ring.

A fragment of a clear beverage or milk bottle (marked 'BIRMINGHAM', and the rim of a translucent white and blue cup, probably both modern, were found in context 1003. Other glass finds took the form of post-medieval or modern vessel glass, clear and green (contexts 1003, 1004 and 1045), or modern window glass (context 1003).

Metal

The most notable metal find was a dress button, probably post-medieval, found in context 1003. This was pressed from steel (which appeared to have been brass-plated), and had a glass front, inset over a portrait design. However, an anodised aluminium alloy label (with 'Sandgrens orthopaedic shoes' printed in gold and red) provided evidence of modern deposition in context 1003. The only other identifiable metal finds were a brass gas pipe union, with two banjo fittings attached, and a long iron nail, also from context 1003.

Stone

A flat piece of grey sandstone from context 1047 may have been used as a roof tile.

Tile

Roof tile fragments were found throughout the site (contexts 1003, 1004, 1022, 1027, 1028, 1030, 1033, 1036, 1037 1047 and 1050). All were handmade and flat (with nibs in some cases), and had sandy, hard, orange-brown fabrics, consistent with post-medieval methods of manufacture.

A complete orange floor tile, undecorated and 220 × 220 × 38mm in size, was found in context 1003. This was machine-moulded, and late post-medieval or modern in date. Other floor tile finds were confined to two thin fragments, one of which was glazed. These were post-medieval or modern, and also recovered from context 1003.

5.3 Overview of artefactual evidence

Apart from one medieval pottery sherd (plus one other possibly from this period), all of the finds from the site were post-medieval or modern in date. The deposits designated as contexts 1003 and 1004 demonstrated considerable mixing of post-medieval and modern material. However, with the exception of the single sherd of residual medieval pottery in context 1021, finds from the remainder of the contexts were generally datable to the 17th and 18th centuries. The *terminus post quem* dates determined for the contexts are shown in Table 3.

Context	Material class	Object specific type	Fabric code	Count	Weight (g)	Start date	End date	tpq range
U/S	ceramic	pot	81	3	110	1400	1950	1850-2000
	ceramic	pot	85	2	12	1800	2000	
	glass	window	-	1	16	1850	2000	
	metal	tool	-	1	16	-	-	
1003	ceramic	clay pipe	--	19	68	1600	1900	1950-2000
	ceramic	clay pipe	-	1	8	1660	1680	
	ceramic	floor tile	-	3	3738	1850	1950	
	ceramic	pot	77	3	70	1600	1700	
	ceramic	pot	78	27	788	1600	1800	
	ceramic	pot	81	18	138	1400	1950	
	ceramic	pot	82.5	1	4	1590	1730	
	ceramic	pot	85	27	183	1800	2000	
	ceramic	pot	91	1	10	1700	1800	
	ceramic	pot	99	1	16	1066	1600	
	ceramic	roof tile	-	1	4	1600	1850	1950-2000
	metal	vessel	-	1	26	1700	1800	
	glass	vessel	-	4	32	1800	1950	
	glass	vessel	-	1	50	1850	1925	
	glass	vessel	-	1	4	1850	1950	
	glass	vessel	-	1	120	1820	1895	
	glass	window	-	9	124	1850	1950	
	metal	button	-	1	1	1800	1900	
	metal	nail	-	1	10	-	-	
	metal	pipe	-	1	126	1850	1950	
1003	metal	label	-	1	1	1950	2000	1950-2000
	slag	-	-	1	16	-	-	
1004	ceramic	clay pipe	-	21	68	1600	1900	1850-1950
	ceramic	clay pipe	-	1	10	1660	1680	
	ceramic	clay pipe	-	3	18	1660	1690	
	ceramic	clay pipe	-	2	24	1700	1740	
	ceramic	pot	78	9	278	1600	1800	
	ceramic	pot	91	2	20	1700	1800	
	ceramic	pot	100	1	12	1400	1900	
	ceramic	roof tile	-	3	288	1600	1850	
	composit e	mortar	-	1	44	1600	1900	

Context	Material class	Object specific type	Fabric code	Count	Weight (g)	Start date	End date	tpq range
	glass	vessel	-	1	510	1720	1750	
	glass	vessel	-	4	40	1800	1950	
	glass	vessel	-	1	8	1850	1950	
1017	ceramic	clay pipe	-	7	30	1600	1900	1700-1800
	ceramic	pot	78	6	226	1600	1800	
	ceramic	pot	91	3	40	1700	1800	
	ceramic	roof tile	-	2	272	1600	1850	
	mineral	coal	-	1	42	-	-	
1018	ceramic	clay pipe	-	1	4	1600	1900	1600-1800
	ceramic	pot	78	3	32	1600	1800	
1020	ceramic	clay pipe	-	9	26	1600	1900	1600-1800
	ceramic	pot	77	1	1	1600	1700	
	ceramic	pot	78	24	414	1600	1800	
	ceramic	pot	81	1	1	1600	1950	
	mineral	-	-	1	4	-	-	
1021	ceramic	pot	64.2	1	6	1200	1400	1700-1800
	ceramic	pot	78	18	590	1600	1800	
	ceramic	pot	91	1	4	1700	1800	
1022	ceramic	pot	78	8	454	1600	1800	1600-1800
	ceramic	roof tile	-	2	204	1600	1850	
1027	ceramic	pot	77	1	1	1600	1700	1600-1800
	ceramic	pot	78	3	38	1600	1800	
	ceramic	roof tile	-	2	100	1600	1850	
1028	ceramic	clay pipe	-	1	2	1600	1900	1600-1800
	ceramic	pot	78	5	172	1600	1800	
	ceramic	pot	81.2	1	6	1600	1750	
	ceramic	roof tile	-	11	1154	1600	1850	
1030	ceramic	pot	78	2	80	1600	1800	1600-1800
	ceramic	roof tile	-	1	118	1600	1850	
1033	ceramic	pot	77	1	8	1600	1700	1700-1800
	ceramic	pot	78	3	52	1600	1800	
1033	ceramic	pot	91	2	14	1700	1800	1700-1800
	ceramic	roof tile	-	1	156	1600	1850	
1036	ceramic	clay pipe	-	1	4	1600	1900	1700-1800
	ceramic	pot	78	1	4	1600	1800	
	ceramic	pot	82.5	1	26	1590	1730	
	ceramic	pot	100	1	20	1800	1900	
	ceramic	roof tile	-	7	1146	1600	1850	
1037	ceramic	roof tile	-	1	74	1600	1850	1600-1850
1042	ceramic	pot	78	1	28	1600	1800	1600-1800
1045	ceramic	pot	78	1	8	1600	1800	1800-1950
	glass	jewellery	-	1	1	1800	1950	

Context	Material class	Object specific type	Fabric code	Count	Weight (g)	Start date	End date	tpq range
	glass	vessel	-	1	6	1800	1950	
1047	ceramic	roof tile	-	5	816	1600	1850	1600-1850
	stone	roof tile	-	1	110	-	-	
	ceramic	brick/tile	-	1	2	1600	1900	1600-1900
	ceramic	roof tile	-	1	50	1600	1850	

Table 3: Summary of context dating based on artefacts

6. Environmental analysis, by Alan Clapham and Nick Daffern

6.1 Macrofossil analysis, by Alan Clapham

The environmental evidence recovered is summarised in Appendix 2: Tables 1-3.

Ten litres from the eleven contexts sampled were processed. Although the samples appeared to be dry on site, processing revealed that the majority of the plant remains were waterlogged. Charred plant remains were rarely recorded apart from the presence of some amorphous material which could either be badly distorted wood, parenchyma (such as a tuber) or charred bread. Other charred plant remains included single grains of wheat (*Triticum* sp), hulled barley (*Hordeum vulgare*) and oat (*Avena* sp). Charred non-cereal remains included hazel (*Corylus avellana*) nut shell fragments and weeds such as pale persicaria (*Persicaria lapathifolium*), henbane (*Hyoscyamus niger*), bog bean (*Menyanthes trifoliata*), and cleavers (*Galium aparine*). Bog bean is usually associated with damp areas and peat bogs whilst the other taxa can be found either as arable weeds (segetals) or as plants of waste spaces (ruderals). It is most likely that these remains represent a 'background flora'.

The commonest mode of preservation on the site was by waterlogging, although there appeared to be very little evidence for it during excavation. As some of the samples were from contexts thought to be of cess, plant remains preserved by mineral replacement could be expected. No mineralised plant remains were identified from this site but mineral concretions were noted and it is probable that these are the remains of cess. A purple-coloured mineral Vivianite was identified in several of the contexts (1030 and 1050), this is usually an indication of cess.

The commonest waterlogged taxa identified from this site are usually found as arable weeds or on disturbed ground. Several species such as fig (*Ficus carica*), fennel (*Foeniculum vulgare*) and grape (*Vitis vinifera*) are most likely the remains of food. Edible wild species were also found such as bramble (*Rubus* sect *Glandulosus*) and elderberry (*Sambucus nigra*), these taxa were also the commonest finds and their large numbers may indicate that they were growing on the site. Elderberry can also be used as a dyestuff producing a blue colouring. A wetland element was also indicated by the presence of celery-leaved buttercup (*Ranunculus scleratus*), small water-pepper (*Persicaria minor*), hemlock (*Conium maculatum*), needle spike-rush (*Eleocharis acicularis*), bristle club-rush (*Isolepis setacea*) and sedges (*Carex* spp).

Apart from plant remains, other biological remains were also recovered (see Appendix 2: Table 2). No insects were recovered from the samples. Hair, possibly of horse was also present in some of the contexts (1041 and 1047).

The waterlogged tree trunk base found in the top of 1050 is of oak (*Quercus* sp). The trunk is 59 cm in length with the trunk forking at 30 cm from the top. Each fork is 29 cm. The diameter of the trunk is 31 cm. The trunk had been sawn across the top suggesting that it was either cut down in situ or dumped into the deposit after felling.

The pieces of wood were found in context 1031 consisted of four planks and an underlying crossbeam which held them together. As time was short a detailed description of the timbers was not

undertaken but identification of the different elements was carried out. Only one of the planks was sampled for identification. The measurements for the timbers are provided in the main text. The crossbeam consisted of five elements, the beam itself and four dowels or pegs evenly distributed along its length. All five elements were identified as being of oak. The plank was also of oak.

6.2 Palynological remains, by Nick Daffern

6.2.1 Pollen analysis

The contexts from which samples were taken for pollen analysis are listed in Table 4.

Context Number	Sample Number	Depth (where applicable)
(1027)	<6>	
(1030)	<8>	
(1041)	<9>	
(1047)	<10>	
(1050)	<11>	
(1022)	<12>	6cm
(1022)	<12>	18cm
(1022)	<12>	30cm

Table 4 Samples selected for assessment

The results of the analysis are tabulated in Appendix 1. The results of the analysis are as follows:

Monolith <12> (1022): 6cm

The upper sample from the sequence was dominated by herbaceous species which represented 88% TLP with Poaceae indet (grasses) acting as the main contributor (57%). Remaining herbaceous species included *Urtica dioica* (stinging nettle), *Plantago lanceolata* (ribwort plantain), *Aster*-type (daisy/aster), Caryophyllaceae (pink/mouse-ear), *Cichorium intybus*-type (chicory/dandelion) and Apiaceae (carrot family). Additionally, 2 grains of *Cerealia indet* (unidentifiable cereal) were identified.

Trees and shrubs contributed just 11% TLP. *Alnus glutinosa* (common alder) was the most commonly identified species (6% TLP) although lesser quantities of *Betula* (birch), *Corylus avellana*-type (hazel), *Quercus* (oak), *Salix* (willow) and *Ulmus* (elm) were also present.

Heaths contributed just 1% TLP solely represented by *Calluna vulgaris* (ling/true heather). Spores and aquatics were better represented with identifications of *Pteridium aquilinum* (bracken) *Polypodium* (true ferns), *Pteropsida* (mono) indet (ferns) *Potamogeton* (pondweed) and *Ophioglossum* (adder's-tongue).

Monolith <12> (1022): 18cm

The middle sample of the sequence contained higher concentrations of tree and shrub species (29%) than the previous sample with *Alnus* dominating (13% TLP) supported by *Betula*, *Carpinus betulus* (hornbeam), *Corylus avellana*-type, *Quercus*, *Tilia cordata* (small-leaved lime) and *Salix*. Despite this increase, herbaceous species still represented the majority of species (69% TLP), once again dominated by Poaceae indet with *Urtica dioica*, *Cerealia* indet, *Cichorium intybus*-type, *Sonchus oleraceus*-type (smooth sow-thistle) and *Plantago lanceolata* in lower quantities.

Calluna vulgaris was once again the sole representative of heath species (2% TLP) whilst less variation was encountered within aquatics and spores with only *Potamogeton*, *Pteridium aquilinum* and *Pteropsida* (mono) indet being identified within the sample.

Monolith <12> (1022): 30cm

The species and percentages of the species contained within this sample were very similar to those encountered within the upper sample with herbaceous pollen dominating (86% TLP) with grasses contributing the highest quantities (57% TLP). *Urtica dioica* was again prevalent (10% TLP) with grains of Caryophyllaceae, Chenopodiaceae (goosefoot family), Cyperaceae (sedges), *Ranunculus acris*-type (meadow buttercup), *Mentha*-type (mint/gypsywort/wildthyme) and Lactuceae indet (chicory/dandelion/sow-thistle) also present. Several grains of *Cerealia* indet pollen were identified from this sample as was a single grain of *Avena*-type (oat/wheat)

Trees and shrubs (11% TLP) were represented by *Alnus*, *Betula*, *Ilex aquifolium* (holly) *Quercus* and *Salix* whilst heaths (3%) were again represented by *Calluna vulgaris*. Spores were less well represented with only the spores of *Pteridium aquilinum* being identified.

Sample from context 1027 (part of context 1053)

This sample contained pollen in low concentration and in a poor state of preservation; due to this a full 150 grain count could not be achieved. The grains that were identified were predominantly herbaceous species (92% TLP) with Poaceae indet the most frequently identified representing over 50% TLP with grains of Lactuceae indet, *Aster*-type, *Artemisia* (mugwort), *Avena*-type and *Urtica dioica* also being identified. The herbaceous domination is only broken by the presence of two *Quercus* grains and a solitary grain of *Betula*.

Sample from context 1030

Preservation in this sample was near non-existent with a single Poaceae indet grain being identified, the remainder of the slide was dominated by unidentifiable fungal material and other organic detritus.

Sample from context 1041

This sample contained pollen in low concentrations and in a poor state of preservation. The pollen of tree and shrub species such as *Alnus*, *Betula*, *Corylus avellana*-type and *Tilia cordata* were minor contributors to the sample representing 13% TLP the remaining contribution was made by herbaceous species with Poaceae indet once again acting as the dominant contributor (46% TLP). The remaining herbaceous species identified included Apiaceae, Chenopodiaceae, cf *Fagopyrum esculentum* (buckwheat) and *Ranunculus acris*-type.

Sample from context 1047

The concentration and preservation of material within this sample was much greater allowing a complete assessment count to be undertaken. Tree and shrub pollen was once again in the minority within this sample representing just 5% TLP with *Alnus*, *Quercus* and *Salix* being identified. *Calluna vulgaris* was the solitary heath species identified and accounted for just 3% TLP with the remaining 92% TLP being represented by herbaceous species with Poaceae indet (72% TLP) dominating the sample. The remaining herbaceous species included Caryophyllaceae, Lactuceae indet, *Urtica dioica* and Cyperaceae which were identified at quantities of less than 5% TLP. The spores of *Pteridium aquilinum* were also identified within this sample.

Sample from context 1050

Concentrations and preservation of polliniferous in this sample were once again poor with only seven grains being identified, five of which were Poaceae indet with *Alnus* and Lactuceae undiff contributing the remaining two grains. A single grain of *Potamogeton* and two spores of *Pteridium aquilinum* were also identified. Once again, detritus and unidentifiable fungal material were ubiquitous.

6.2.2 Fungal spores and parasite ova

Due to the scope of the project, only a limited assessment of the non-pollen palynomorphs could be undertaken. The two most frequently identified fungal spores were *Alternaria* sp and *Ustilago* sp. The former is a major plant pathogen which is ubiquitous in the environment, causing blight, lesions and canker on a wide variety of species including potatoes, carrots, wheat and tomatoes. This species is also associated with decaying and decomposing material. *Ustilago* sp are smut fungi parasitic to grasses, both wild and cultivated.

Further evidence for smut fungi came in the form of *Tilletia* sp, which was identified within the middle sample (18cm) of context (1022), this species, similarly to *Ustilago* sp, is again commonly associated with grasses and cereals.

The spores of *Cladosporium* were infrequently present in contexts (1022) and (1047). This genus includes some of the most common indoor and outdoor moulds although many species of *Cladosporium* are commonly found on living and dead plant material often as a pathogen or parasite.

Parasite ova were rarely identified and those that were, were members of the genus *Trichuris* (whipworm). Unfortunately, this genus is often present within the intestinal tract and faecal material of mammals and therefore identifying the source i.e. human or animal, is not possible without further identification being undertaken.

6.2.3 Discussion

The palynological remains identified during this assessment support the results of the plant macrofossil analysis (Section 6.1) indicating open and waste ground within close proximity to the sampled features as evidenced by the dominance of herbaceous species such as grasses, stinging nettles, ribwort plantain, dandelion and sow-thistles.

The low concentrations of tree and shrub pollen indicates that woodland was peripheral to the site, probably on the lower ground to the north and west where wooded remnants of the medieval deer park probably consisting of mixed oak/lime/elm, had survived.

The evidence for species associated with aquatic or bankside conditions such as pondweed and sedges are interesting as the pollen of these species does not usually transport far from the parent plant and this therefore suggests that they are either growing *in situ* or the plant has been transported to the site from its natural habitat for some reason. There is no evidence for the wholesale deposition of plant matter for the previously mentioned species although there is for several other species. The middle sample (18cm) from context (1022) contained clumped grains of heather pollen and immature grains of alder. The presence of immature pollen or clumped grains tends to suggest that parent plant was part of the sediments which formed the deposit (Moore *et al* 1991, 90). Clumping of grass pollen was also identified within context (1047).

Grasses and heather were often used as bedding, roofing or flooring materials in the past and would have entered into waste pits once their purpose had been served. Alternatively, it may be hypothesised that they were added to the features deliberately in an attempt to reduce the smell of decomposition emanating from the features. What could be causing this smell is unclear as, due to the low quantities of parasite ova within the samples, it is unlikely to have been predominantly cess, although its presence cannot be entirely ruled out. The most likely explanation is that the features represent midden deposits containing actively decomposing plant material, as indicated by the fungal spores, and, unsurprisingly, due to the nature of the features, the surrounding plot of land was left abandoned allowing waste and disturbed ground species to occupy the area.

7. Synthesis

7.1 Medieval

Two sherds of medieval pottery were recovered from the excavation, but no other evidence for medieval occupation was recorded. Previous work carried out during the Bull Ring excavations (Patrick and Ratkai 2009b) postulated that the former 13th century deer park boundary ditch ran through the area of the excavation. This feature was not revealed during the excavation, but this hypothesis cannot be discarded at present, as the ditch may have run through the southern half of the site. Unfortunately due to truncation by later cellarage, and the route of the current railway tunnel linking the Snow Hill and Moor Street stations, it is unlikely this feature would have survived.

7.2 Industrial activity: 17th to 18th century

The archaeological evidence indicates that the first evidence for occupation activity was in the early post-medieval period. The low level of domestic refuse indicates that the area was not used for disposal of general household refuse. The environmental evidence indicates that the area was open and waste ground in the post-medieval period. This area appears to have been outside the boundaries of back plots where most household activities and small-scale industries would have operated, but within a piece of open ground.

The earliest deposits included a pit [1051] which had a later roughly hewn tree trunk fragment (identified as oak) thrown into the top of it which may have acted as foundation support for an overlying structure, however due to later truncation no further evidence for this possible interpretation remains. Two further pits with organic fills [1049] and [1054] appeared to be contemporary and provided evidence for small-scale industry. These two large pits were in such close proximity to each other and are interpreted as having an industrial function. The environmental evidence from fills 1041 and 1047 were indicative of some form of dyeing process, with quantities of animal hair and elderberries being present. Palynological analysis of samples from fill 1041 suggests that this activity was taking place in open waste ground slightly away from the settled area. Evidence for this activity is already known to have occurred to the south at Edgbaston Street, where evidence of hide curing and tanning pits were recorded to have been present throughout the medieval and post-medieval periods (Patrick and Ratkai 2009a).

During the prior evaluation (AOC 2009a) a number of animal horn cores were recovered that were tentatively interpreted as some form of animal based industry. While this cannot be confirmed from the excavated evidence, it may be supportive evidence for the presence of several small industries taking place in close proximity, all based around the used carcasses of animals. This is known to have occurred commonly in medieval and post-medieval towns, with animals being butchered and then the carcass moving from building to building until all parts of the animal have been utilised. Evidence for the exploitation of animals in the midlands by tanners, tawyers and horn workers has been the subject of a recent review (Albarella 2002). Albarella concluded that only when concentrations of horncores, with or without the frontal part of the skull, and foot bones are found together can we confidently attribute the assemblage to one of the activities associated with the leather trade. However, as was seen during the Edgbaston Street excavations (Patrick and Ratkai 2009a) tanning can take place without the accumulation of foot bones. The conclusion was reached that only the skins with horns and frontals attached were delivered to the site (Baxter 2009), and it seems reasonable that a similar arrangement could have been in place here.

The deposit overlying these pits, 1052, a probable levelling layer, was cut by a small gully, 1023, of unknown usage that ran east/west before turning to the south. The feature appears unlikely to have been used purely for drainage due to its location on a naturally well-draining slope, it may have been some form of property division although at present no other evidence for this was noted. It was filled by a single silty clay fill, 1022 from which a handled jug of the 17th-18th centuries was recovered and represents the earliest dated deposit on the site. Palynological analysis of this deposit also suggests that this site was open waste ground at this time.

Overlaying 1052 was a wood and clay-lined cess pit 1032, similar in size and shape to excavated post-medieval cess pits in urban locations, such as a Penn Street, Bristol (Webster 2006) and Newport Street, Worcester (Davenport and Dalwood forthcoming). The lining and shallow depth of such pits clearly facilitated regular cleaning out of the accumulated cess deposits, and was a response to the intensive occupation of urban land.

These features were sealed by the first in what appears to have been a series of deliberate attempts at landscaping the natural slope. Whereas deposit 1052 was a relatively small scale intervention only visible in the southern part of the site, deposit 1053 is interpreted as landscaping on a larger scale; a wedge shaped deposit which was present over the entire site and possibly beyond. This deposit contained residues of fire ash and domestic waste and appears to have been imported to the site during the 18th century before construction of properties were undertaken at the beginning of the 19th century. Similar soil horizons have been previously recorded across the centre of Birmingham, including at Edgbaston Street (Patrick and Ratkai 2009a), Moor Street (Burrows *et al* 2009a) and Park Street (Burrows *et al.* 2009b), also at Wrottesley Street (Jones 2000) and Upper Dean Street (Martin and Ratkai 2005). Whilst it is not suggested that all these deposits were imported at the same time, the quantity of material needed for such an undertaking suggests a highly motivated and organised workforce with a central leading body with both the money and influence to literally change the landscape around them.

7.3 Later 18th and 19th century development

Despite the cartographic evidence noted during the desk-based assessment (AOC 2009a) no evidence was found on site to reveal the complex development of the area through the post-medieval period. The last phases of 19th and 20th century building development having truncated any earlier structural remains. The lack of evidence suggests that many of these earlier buildings had been completely demolished with no elements of them being used in the later phases. This in itself seems quite unusual but may suggest that the former buildings were of sufficient low quality that they were not capable of supporting or being incorporated with the later phases of build. It is also probable that the later phases of terracing may have also played a part in their removal and that much of the redeposited CBM and building material recovered from the upper terracing deposit was related to these earlier structures.

In the later 19th century there was extensive construction, with substantial buildings on the street frontage and smaller outbuildings and yards to the rear of the property.

8. Publication summary

The Service has a professional obligation to publish the results of archaeological projects within a reasonable period of time. The Service intends to publish a shortened version of this report in the Transactions of the Birmingham and Warwickshire Archaeological Society. The following summary will be used as a notice of the report in *West Midlands Archaeology*. The client is requested to consider the content of this section as being acceptable for such publication.

An excavation was undertaken on behalf of Drivers Jonas LLP and Realis Estates Limited at 25-31 Carrs Lane, Birmingham (NGR SP 0731 8688). Very limited evidence for medieval occupation was recovered. The excavation demonstrated the presence of continual domestic occupation from the early post-medieval period to the present day, with further evidence of small scale industry being noted in the form of cloth dyeing and possible bone working. Environmental evidence indicated that this industrial activity was conducted within an area of waste ground. Substantial post-medieval terracing was revealed with large quantities of imported material and industrial waste being used to remove the natural gradient of the site. Subsequently a number of buildings were built on the site in the 19th century. These were in use well into the 20th century. They were demolished after the Second World War during the redevelopment of the area, the last being demolished as late as 1988.

9. Acknowledgements

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10. Personnel

The fieldwork and report preparation was led by Jonathan Webster. The project manager responsible for the quality of the project was Tom Rogers. Fieldwork was undertaken by Jonathan Webster assisted by Mike Nicholson, Steven Woodhouse and Nick Daffern, finds analysis by Dennis Williams, environmental analysis by Alan Clapham and Nick Daffern and illustration by Carolyn Hunt.

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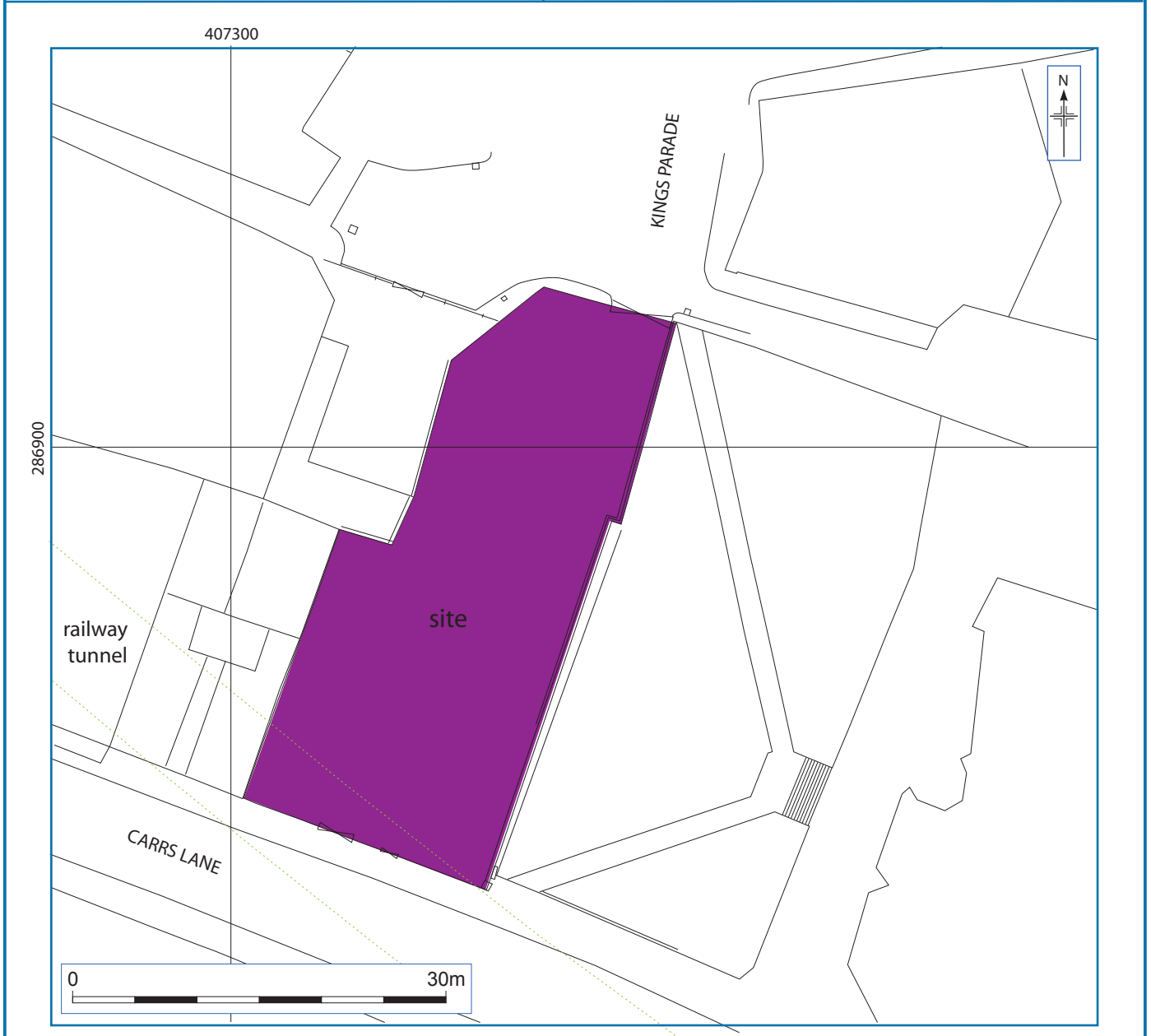
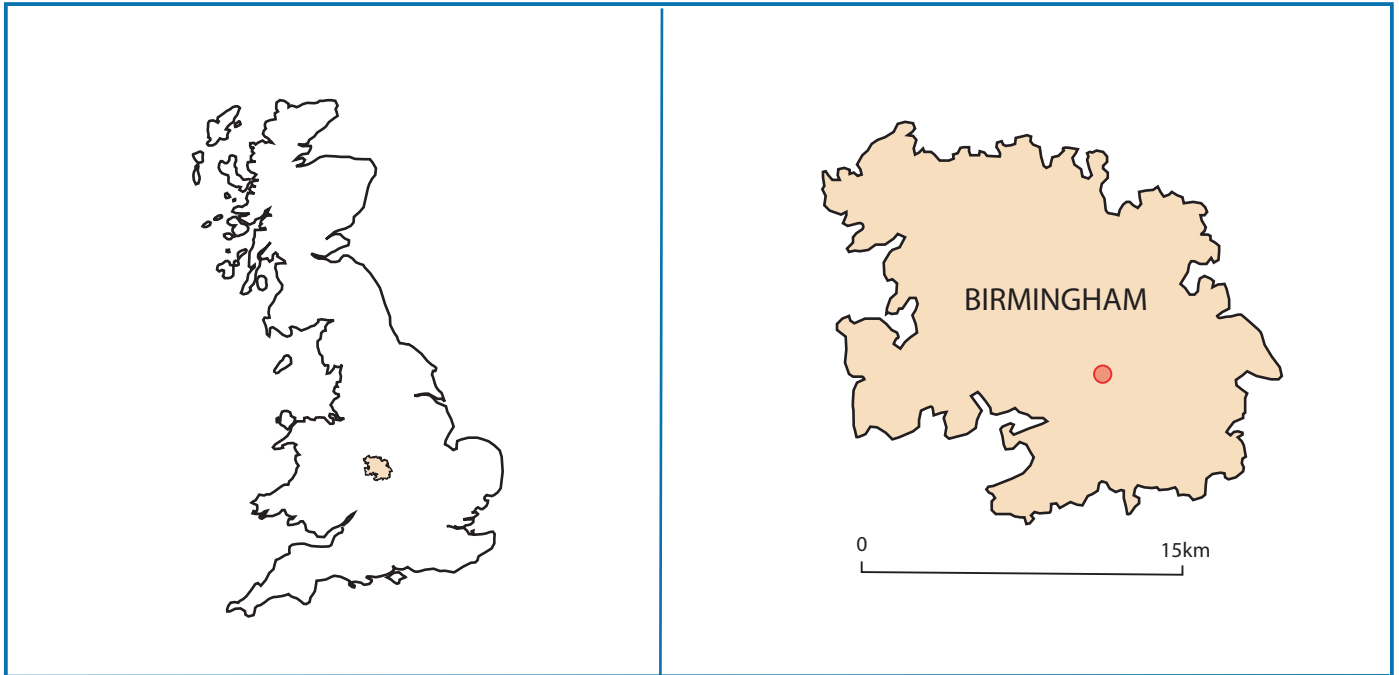
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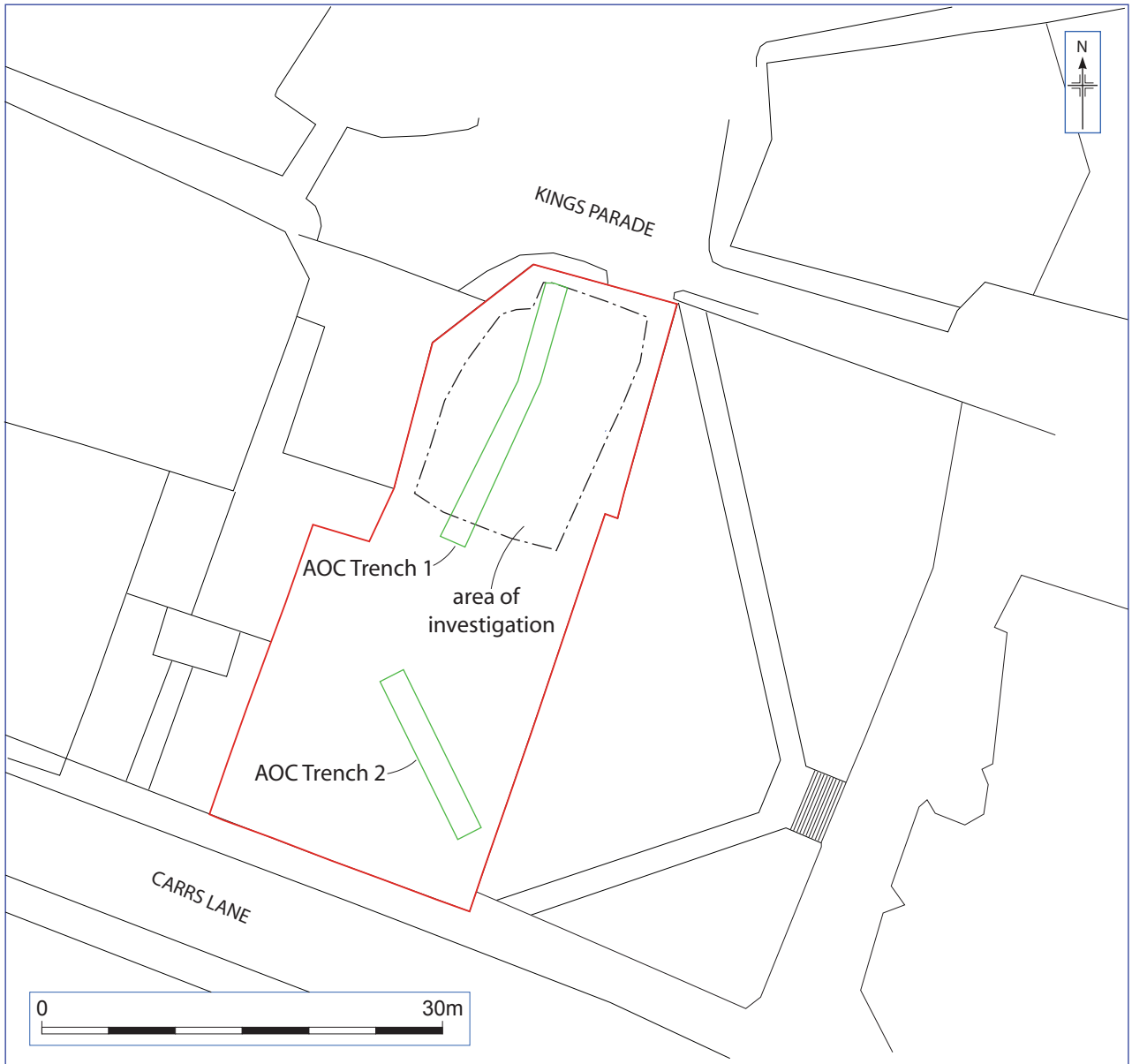
Figures



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Location of the site

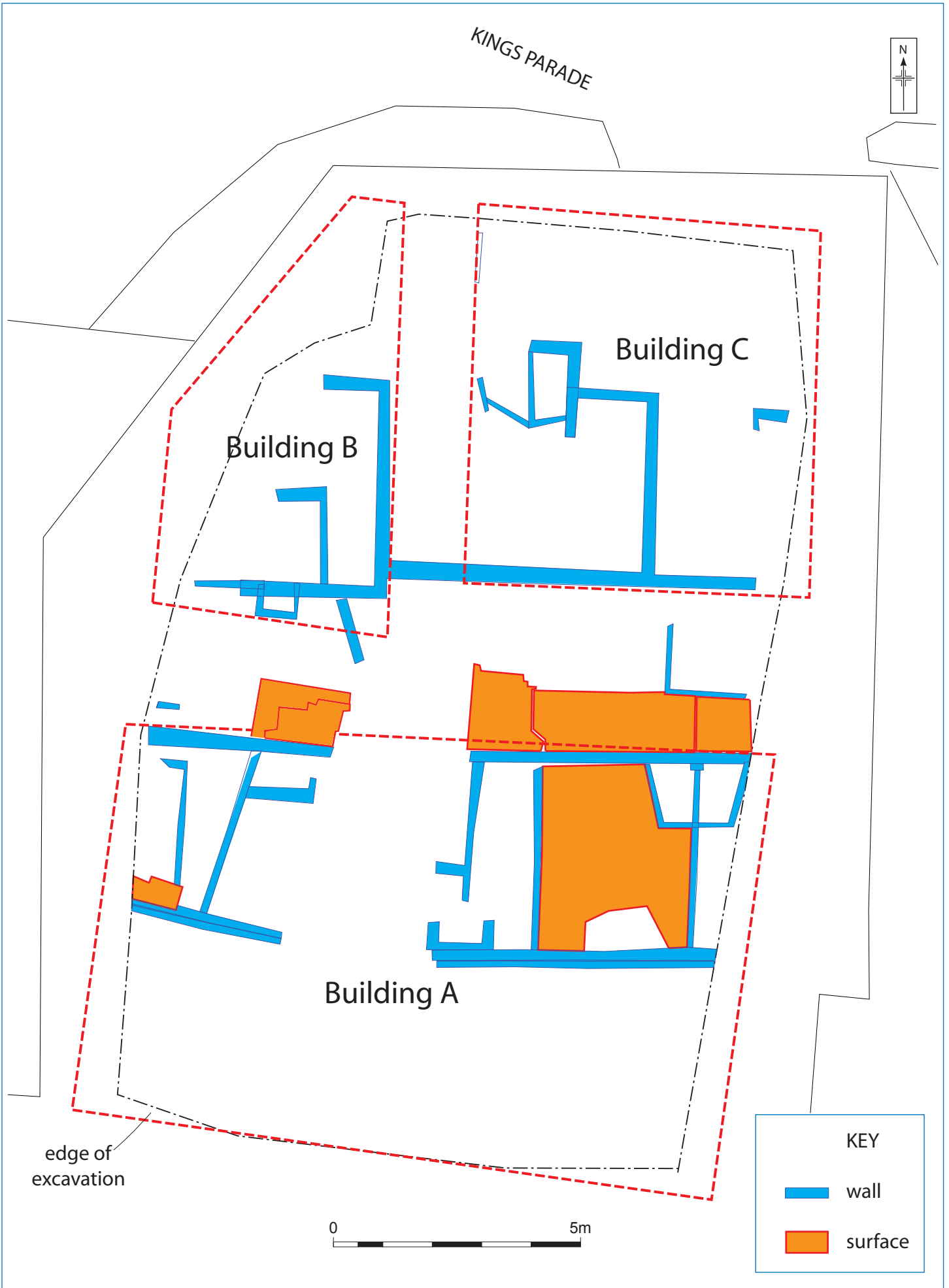
Figure 1



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Area of investigation in relation to AOC evaluation

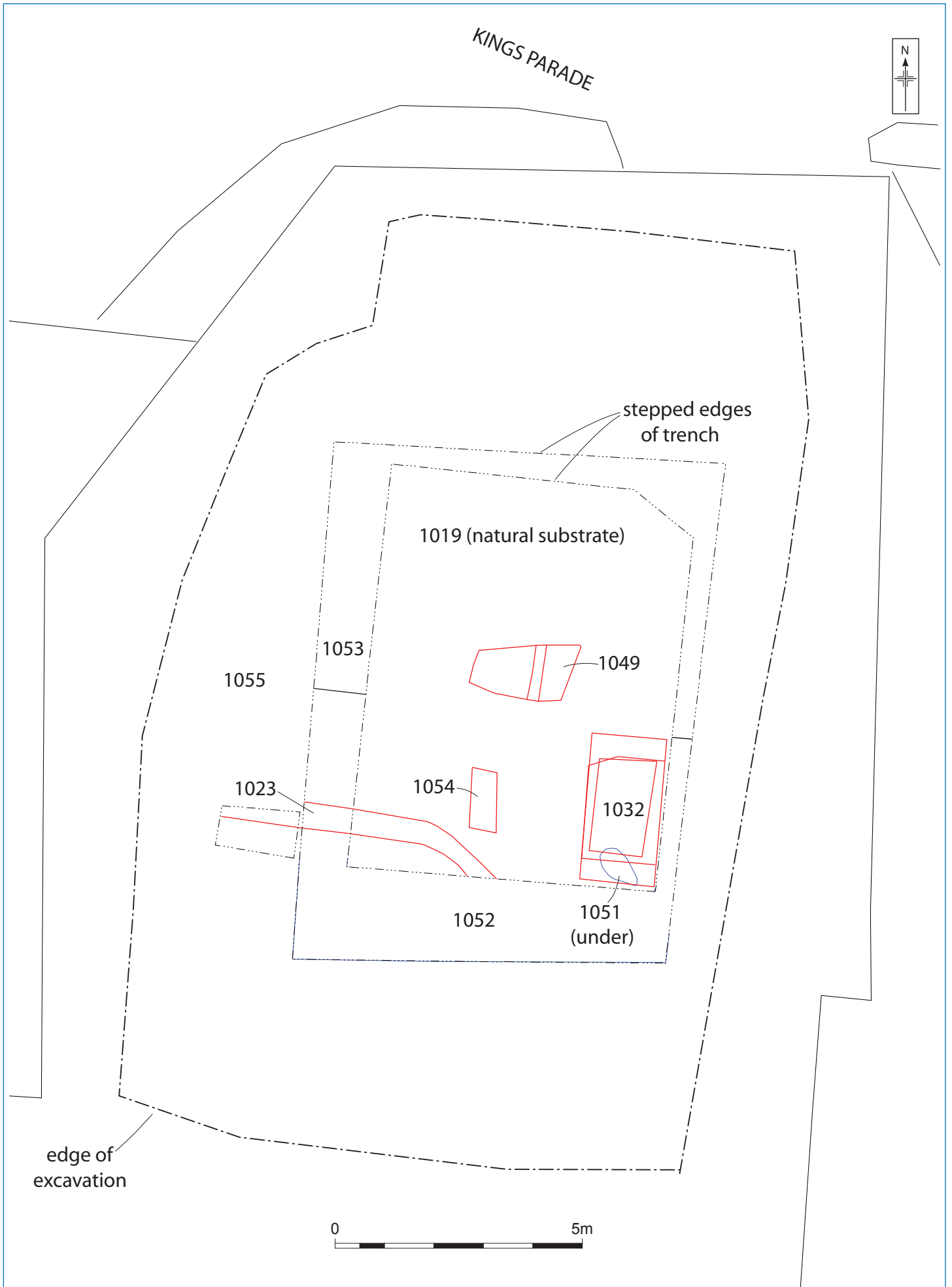
Figure 2



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Structures recorded and suggested former building footprints

Figure 3



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Location of cess pits and other features

Figure 4

Plates



Plate 1. 19th Century floor surfaces in Building A. Looking north.



Plate 2. Cess pit base showing clay lining 1032 and wooden floor 1031. Looking south.



Plate 3. View through Terracing deposits 1053 and 1055. Also shows brick arch 1026. TP2. Looking west.



Plate 4. The site showing three organic rich pits 1032, 1049 and 1054. Looking north.

Appendix 1 Context descriptions

Main deposit description

Context	Classification	Description	Depth below ground surface (b.g.s) – top and bottom of deposits
1000	Tarmacadam Carpark Surface	Modern Carpark surface.	0-0.10m
1001	Concrete surface	Modern concrete surface	0.11m-0.41m
1002	Rubble Deposit	Brick, CBM, clinker and general rubble demolition deposit. Modern	0.42-0.74m
1003	Deposit	Friable yellow sand noted in patches underlying 1002. Possible bedding layer.	0.74-0.82m
1004	Interface(TP1)	Dark blue grey clay and silt rich deposit containing high quantities of ash, clinker and general finds. Interface with upper boundary of 1017.	0.82-1.15m
1005	Brick Wall	Internal single course wide white ceramic faced brick wall for large cellar in building A. At least 10 courses high although base of feature not revealed.	0.82-1.78m+
1006	Brick Wall	Load bearing external wall for cellar in Building A. Double course machine made red bricks with frogging. Two bonding types noted suggesting a possible 2 phase construction/alteration. Base of structure not revealed.	0.35-1.78m+
1007	Floor Surface	Combination red tile and brick floor surface 3.06m wide by 3.75m long. Ceramic tiles were 0.25m square (10"). Surface appears to be internal in nature possibly kitchen or food prep area.	0.35m-0.37m
1008	Bedding Layer	Mid brown orange sand rich layer. Loosely compacted bedding layer for floor surface 1007	0.37-0.47m
1009	Brick Wall	Single course wide U shaped wall made of machine made frogged red brick bonded with a course mid brown mortar. Wall for 'outhouse' two toilet block along northern property boundary of building A.	0.37-0.45m
1010	Surface	Concrete surface for 'outhouse' toilet floor, small fragments of red lino cover were also noted. East cubicle sits directly on 1055 whilst west cubicle sits on brick surface 1007. Base of two ceramic toilet bowls still present.	0.29-0.35m
1011	Floor Surface	External yard/passageway brick floor surface made of grey machine made bricks without frogging and bonded with a dark greyish black hard mortar bond. Sat directly	0.37-0.44m

Context	Classification	Description	Depth below ground surface (b.g.s) – top and bottom of deposits
1011	Floor Surface	onto deposit 1055. Same as 1014	
1012	Brick Wall	External load bearing brick wall associated with the northern boundary for building A. Built from a combination of blue engineering bricks and machine made frogged red brick constructed using English Stretchers the wall was 3 courses thick. Wall drops to the West.	0.37-1.75m
1013	Floor Surface	Concrete floor surface with metal grate in centre. Truncates through floor surfaces 1011 and 1014. Overlies foul [1060].	0.37-0.50m
1014	Floor Surface	External yard/passageway brick floor surface made of grey machine made bricks without frogging and bonded with a dark greyish black hard mortar bond. Sat directly onto deposit 1055. Same as 1011	0.37-0.44m
1015	Brick Wall	Single course thick wall constructed from machine made forged red brick bonded with a hard light grey mortar. Surviving to a height of 3 courses. Wall appears to be dividing wall along passageway.	0.23-0.44m
1016	Brick Wall	Load bearing external wall for southern extent of buildings B and C. Wall built from machine made frogged red bricks bonded with a mid grey hard mortar. Wall constructed using a stretcher bond, 3 courses wide. Base of the structure was not revealed.	0.37-1.44m+
1017	Upper Terracing Deposit (TP1)	Dark blue grey clay and silt rich deposit containing high quantities of ash, clinker and general finds. Part of 1055 (Generic Number).	1.15-1.50m
1018	Lower Terracing Deposit (TP1)	Mid greyish brown silty clay with occasional flecks of charcoal and CBM throughout. Part of 1053 (Generic Number).	1.51-1.92m
1019	Layer	Band of light yellowish orange sandy clay containing rounded gravels to pebbles. Sterile of finds. Glacial Interface with natural substrate	1.93-2.08m
1020	Upper Terracing Deposit (TP2)	Mid greyish brown silty clay with occasional flecks of charcoal and CBM throughout. Part of 1053 (Generic Number).	0.82-1.15m
1021	Lower Terracing Deposit (TP2)	Mid greyish brown silty clay with occasional flecks of charcoal and CBM throughout. Part of 1053 (Generic Number).	1.16-1.62m
1022	Fill of [1023]	Dark blueish grey with mottled mid green hues silty clay. Organic in nature, rare grit to cobble inclusions rounded to sub-rounded.	1.63-1.98m

Context	Classification	Description	Depth below ground surface (b.g.s) – top and bottom of deposits
[1023]	Cut for gully	East/west gully that turns towards the south. Sides gently sloped to a rounded base. Gully at least 5.70m in length. And 0.51m in width. Filled with 1022 and 1029.	1.63-2.05m
1024	Fill of [1025]	Dark blueish brown silty clay with frequent charcoal flecks throughout and occasional rounded to subrounded cobbles near base.	1.93-2.29m
[1025]	Cut for small pit	Sub circular pit like feature with moderately steep sides and concaved base. Filled by 1024.	1.93-2.29m
1026	Brick Structure	Lancet brick arch constructed of machine made frogged red bricks bonded with a mid grey soft mortar with frequent charcoal flecks throughout. Possible arched vault for collapsed cellar or drainage run in building B.	0.82-1.43m
1027	Upper Terracing Deposit (TP3)	Mid greyish brown silty clay with occasional flecks of charcoal and CBM throughout. Part of 1053 (Generic Number).	1.15-1.67m
1028	Lower Terracing Deposit (TP3)	Mid greyish brown silty clay with occasional flecks of charcoal and CBM throughout. Part of 1053 (Generic Number).	1.68-2.10m
1029	Fill of [1023]	Thin clay lining for gully [1023]	1.98-2.05m
1030	Deposit	Dark brownish blue organic rich loam. Night soil.	1.18-1.31m
1031	Floor Surface	Wooden floor at for "Cess" pit. Constructed from a east/west cross member using wooden dowels to hold overlying four north/south aligned planks each 1.85m in length and 0.31m in width. Boards also held in place by ends being sealed with clay. Some evidence noted for side boards but heavily truncated so no true dimensions could be noted.	1.32-1.34m
1032	Clay lining	Compact light pink clay that lined the base of "Cess"pit. Wedged in shape 0.13m thick in the west to 0.26m thick in the east. Further clay identical in fashion was used to bond 1031 against deposit.	1.34-maximum of 1.60m
1033	Deposit	Greyish dark brown silty clay with frequent gritty inclusions throughout. Only noted in the south of the excavation >3.68m in length. Part of 1052 (Generic Number)	0.68-1.18m
1034	Layer	Light pink silt and sand deposit that appears to be later intrusion in deposit 1033.	0.68-0.95m
1035	Layer	Thin band of yellow clay noted at base of 1021.	1.62-1.74m

Context	Classification	Description	Depth below ground surface (b.g.s) – top and bottom of deposits
1036	Lower Terracing Deposit (TP4)	Mid greyish brown silty clay with occasional flecks of charcoal and CBM throughout. Part of 1053 (Generic Number).	1.48-2.07m
1037	Layer	Dark greyish brown silty clay with frequent grit throughout, occasional charcoal flecks noted. Seen in the southern part of the site underlying 1033.	1.35-1.54m
1038	Fill of [1039]	Mid blue/grey silty clay with lenses of sand and silt. Occasional rounded pebbles throughout.	1.55-1.93m
[1039]	Cut for pit	Sub circular in plan (although partially truncated by modern intrusion) with gradual to steep sides that gradually conform to a concaved base. No clear orientation was noted.	1.55-1.93m
1040	Clay lining for pit [1054]	Mid pink clay clean in nature used for sealing pit in similar fashion to 1032 although no wood was noted.	1.15-1.24m
1041	Deposit	Dark greyish blue highly organic silt with occasional clay lenses. Night soil type material	1.00-1.14m
1042	Deposit	Mid greyish brown highly organic silt with occasional clay lenses. Infrequent CBM fragments noted throughout. Night soil type material	1.00-1.14m
1043	Deposit	Dark blue/grey charcoal rich silty clay lens at base of 1042.	1.14-1.16m
1044	Natural feature	Light greyish green silty clay deposit with occasional charcoal flecks on interface with overlying deposit 1038. Upon investigation feature was noted as being natural in origin.	1.94-2.04m
1045	Fill of [1046]	Mid greyish brown silty clay with frequent gritty inclusions throughout.	0.97-1.44m
[1046]	Construction cut	Construction cut for part of wall 1016 where it becomes shallower in depth. Orientated east/west with vertical sides and a flat base.	0.37-1.44m
1047	Deposit	Dark brown loam to silt organic rich 'night soil' Rare CBM noted throughout. Found sealing clay lining 1048.	1.35-1.45m
1048	Clay lining in [1049]	Mid pink clay clean in nature used for sealing pit in similar fashion to 1032 although no wood was noted. Truncated by modern intrusion.	1.45-1.70m
[1049]	Cut for Pit	Rectangular cut for 'night soil' holding pit. Possibly a "Cess" pit but more likely used for leather working or cloth dyeing. Sides vertical with a sharp interface with a flat base. Feature >2m in length and >0.80m in width.	1.45-1.70m

Context	Classification	Description	Depth below ground surface (b.g.s) – top and bottom of deposits
1050	Fill of [1051]	Dark blue grey humeric rich sandy silts banded with mid blue grey and two thin 0.07m thick light yellowish grey sand and silt. Very organic in make up. Large piece of Tree trunk recovered from top of deposit.	1.55-2.14m
[1051]	Cut of pit	Sub circular pit with even rounded edges. Top break of slope is sharp onto concaved steep sides that become a concaved base. The feature measured 0.96m in length and 0.50m in width.	1.55-2.14m
1052	Generic Number	Greyish dark brown silty clay with frequent gritty inclusions throughout. Only noted in the south of the excavation >3.68m in length.	0.68-1.18m
1053	Generic Number	Mid greyish brown silty clay with occasional flecks of charcoal and CBM throughout. Lower Terracing Deposit. Seen across the whole site becoming thicker to the east and northeast.	Varies.
1054	Cut of Pit	Pit tear drop in plan with wide sub circular pit shape being revealed on the eastern extent becoming thinner to the east. Partially truncated by later foul service [1060]	1.15-1.24m
1055	Generic Number	Mid greyish brown silty clay with occasional flecks of charcoal and CBM throughout. Upper Terracing Deposit. Seen across the whole site becoming thicker to the east and northeast.	Varies.
1056	Well	Red brick well constructed from frogged machine made bricks that have been specially constructed to create a circular wall. Bonding was a dark grey hard mortar. Well itself was 0.85m in diameter, the base of this structure was not reached.	0.51m+
1057	Fill of [1058]	Light orange blue silty clay with high percentage of brick, CBM rubble backfill for construction of well 1056	0.51m+
[1058]	Cut for well 1056	Vertical sided cut 3.14m in diameter cut through underlying deposits for construction of well 1056. Backfilled with rubble 1057.	0.51m+
1059	Fill of [1060]	Rubble backfill and large ceramic foul drain late 19 th -early 20 th Century in date.	0.51-1.45m
[1060]	Cut for Foul drain	Linear in plan orientated east/west, vertical sides coming down to a flat base. Dips to the east.	0.51-1.45m
1061	Brick Wall	Single course wide machine made frogged red brick wall. Bonded with mid grey mortar flecked with frequent flecks of charcoal. Internal divide. Orientated North/South.	0.35-0.42m

Context	Classification	Description	Depth below ground surface (b.g.s) – top and bottom of deposits
1062	Brick Wall	Single course wide machine made frogged red brick wall. Bonded with mid grey mortar flecked with frequent flecks of charcoal. Internal divide. Orientated North/South.	0.35-0.42m
1063	Brick Wall	Single course wide machine made frogged red brick wall. Bonded with mid grey mortar flecked with frequent flecks of charcoal. Internal divide. Orientated North/South.	0.35-0.43m
1064	Brick Surface	Machine made red brick internal floor surface with no mortar element visible. Constructed using a stretcher bonding.	0.82-0.85m
1065	Brick Wall	Single course wide machine made frogged red brick wall. Bonded with mid grey mortar flecked with frequent flecks of charcoal. Internal divide. Orientated North/South.	0.85-0.89m
1066	Brick Wall	Single course wide machine made frogged red brick wall. Bonded with mid grey mortar flecked with frequent flecks of charcoal. Internal divide. Orientated East/West.	0.85-0.91m
1067	Brick Wall	Single course wide machine made frogged red brick wall. Bonded with mid grey mortar flecked with frequent flecks of charcoal. Internal divide. Orientated North/South.	0.85-0.89m
1068	Brick Wall	Single course wide machine made frogged red brick wall. Bonded with dark grey mortar. Square structure with no north face.	0.83-0.87m
1069	Bedding Layer	Light orange yellow, firm fine sand bedding layer, sterile of finds and inclusions.	0.45-0.51m
1070	Brick Wall	Single course wide machine made frogged red brick wall. Bonded with mid grey mortar flecked with frequent flecks of charcoal. Orientation of wall was northwest/southeast different from any other structure noted on site. As such the use of this wall is not known, although it is clear from the construction it was not used as a load bearing wall.	0.38-0.44m
1071	Void		
1072	Brick Wall	Single course wide machine made frogged red brick wall. Bonded with mid grey mortar flecked with frequent flecks of charcoal. Constructed using a stretcher bond at least 7 courses high. Orientated North/South Internal corridor wall for Building C.	0.68-0.87m+
1073	Brick Wall	Single course wide machine made frogged red brick wall. Bonded with mid grey mortar flecked with frequent	0.63-0.87m+

Context	Classification	Description	Depth below ground surface (b.g.s) – top and bottom of deposits
1073	Brick Wall	flecks of charcoal. Constructed using a stretcher bond at least 8 courses high. Orientated North/South Internal corridor wall for Building C.	
1074	Brick Wall	Single course wide machine made frogged red brick wall. Bonded with mid grey mortar flecked with frequent flecks of charcoal. Constructed with a gradual curve changing orientation from North/South to the Northwest. Internal corridor wall for Building C.	0.63-0.87m+
1075	Brick Wall	Two course wide machine made frogged red brick wall. Bonded with mid grey mortar flecked with frequent flecks of charcoal. Orientated North/South.	0.63-0.75m+
1076	Brick Wall	Single course wide machine made frogged red brick wall. Bonded with mid grey mortar flecked with frequent flecks of charcoal. Constructed using a stretcher bond at least 4 courses high. Orientated East/West Internal corridor wall for Building C.	0.60-0.92m+
1078	Brick Wall	Two course wide machine made frogged red brick wall. Bonded with mid grey mortar flecked with frequent flecks of charcoal. Orientated North/South.	0.63-0.75m+
1079	Surface	Concrete floor surface	0.38-0.47m
1080	Surface	Brick Surface underlying surface 1079. External brick yard surface bonded with no mortar bonding visible.	0.47-0.54m
1081	Void		
1082	Deposit	Dark blue grey ash rich silt and sand. Frequent CBM and 19 th Century Willow pattern pottery. Deliberately dumped fire ash deposit.	0.85-0.87m+

Appendix 2 Environmental Data

Context	Sample	Sample type	Context type	Description	Sample volume (l)	Volume processed (l)	Residue assessed (l)	Flot assessed (ml)
1004	1	general	interface TP1	dark blue grey clay	40	10	1.9	100
1020	2	general and charcoal	upper terracing deposit TP2	mid greyish brown silt	40	10	1.6	35
1021	3	general	lower terracing deposit TP2	mid greyish brown silt	40	10	2.0	3
1022	4	organics clay	fill of 1023	dark blueish grey fill of gully	40	10	1.4	25
1024	5	general	fill of pit 1025	dark blueish brown silty clay	10	10	0.6	3
1027	6	general	upper terracing deposit TP3	mid greyish brown silty clay	40	10	1.1	50
1028	7	general	lower terracing deposit TP3	mid greyish brown silty clay	40	10	1.7	20
1030	8	organics	deposit	dark brownish blue organic rich loam	40	10	3.0	200
1041	9	organics	deposit	dark greyish blue highly organic silt	40	10	2.7	30
1047	10	organics	deposit	dark brown loam to silt organic rich	30	10	1.7	25
1050	11	organics	full of pit 1051	dark blue grey humic rich sandy silt. Tree present	40	10	0.9	5

Table 1 Environmental samples from Carrs Lane, Birmingham

Context	Sample	large mammal	small mammal	fish	shell	charcoal	charred plant	waterlog plant	mineral conc	hammerscale	Comment
1004	1	occ	v occ		v occ	abun	hazel			occ + slag	occ burnt bone, clay pies, Fe objects
1020	2	occ		v occ scale		mod				occ slag	occ Fe objects, tile, burnt bone, a bead, clay pipes
1021	3	v occ				v occ	hazel		abun	occ slag	v occ pot, glass, clay pipe
1022	4	v occ			v occ	mod			mod		v occ tile
1024	5	v occ				occ			occ	v occ slag	occ burnt bone, v occ pot
1027	6	occ	v occ		v occ	occ				occ + v occ slag	occ clay pipe, daub, tile, Fe object, v occ pot
1028	7	v occ			v occ	occ			abun		occ pot, v occ burnt bone
1030	8	v occ				v occ		abun		v occ slag	v occ daub
1041	9	v occ	mod					abun			occ tile, v occ neonate metatarsal
1047	10	occ				v occ		mod		v occ	v occ tile
1050	11	v occ				v occ			v occ		v occ tile

Table 2 Summary of environmental remains recovered from the residues at Carrs Lane, Birmingham

Table 3 Plant remains from Carrs Lane, Birmingham

Latin name	Common name	Habitat	1004	1020	1021	1022	1024	1027	1028	1030	1041	1047	1050
Charred													
<i>Triticum</i> sp grain	wheat	F	+	+		+	+	+					
<i>Hordeum vulgare</i> grain (hulled)	barley	F	+										
<i>Avena</i> sp grain	oat	AF		+					+				
<i>Corylus avellana</i> shell fragment	hazelnut	C	+										
<i>Persicaria lapathifolia</i>	pale persicaria	AB							+				
<i>Hyoscyamus niger</i>	henbane	AB					+						
<i>Menyanthes trifoliata</i>	bogbean	E									+		
<i>Galium aparine</i>	cleavers/goosefoot	ABC	+						+				
Unidentified amorphous material			+++	++		+		+++	+			+	
Waterlogged													
<i>Poa</i> sp grain	meadow-grass	ABCD									+		
<i>Ranunculus acris/repens/bulbosus</i>	buttercup	CD									+		
<i>Ranunculus sceleratus</i>	celery-leaved buttercup	E										+	
<i>Fumaria officinalis</i>	fumitory	AB						+					
<i>Ficus carica</i>	fig	F	++					+					
<i>Urtica dioica</i>	common nettle	ABCD	++	++	+	++		++	+	+		++	+++
<i>Urtica urens</i>	small nettle	AB	+	+									+++
<i>Betula pendula</i>	silver birch	C	+	+							+		+
<i>Chenopodium album</i>	fat hen	AB	+	++	+	++		+			+	+	++
<i>Atriplex</i> sp	orache	AB	+					+		+	++	+	++
<i>Stellaria media</i>	common chickweed	AB		+		+							+++
<i>Persicaria maculosa</i>	redshank	AB											+
<i>Persicaria minor</i>	small water-pepper	E											+
<i>Fallopia convolvulus</i>	black bindweed	AB											+
<i>Rumex acetosella</i>	sheep's sorrel	ABD				+							+
<i>Rumex cf crispus</i>	curled dock	ABE											++
<i>Rumex</i> sp	dock	ABCD				+					+	+	++
<i>Hypericum</i> sp	St johns's wort	CD								+			
<i>Viola arvensis</i>	field pansy	AB	+	+									
<i>Viola</i> sp	violet	DF									+	+	
<i>Capsella bursa-pastoris</i>	shepherd's-purse	AB											+
<i>Rubus sect Glandulosus</i>	bramble	CD	++	++	+	+		+	+	+	+		++
<i>Potentilla</i> sp	cinquefoil	BCDE											+
<i>Fragaria vesca</i>	wild strawberry	C											+
<i>Euphorbia helioscopia</i>	sun spurge	AB	+			+		+			+	+	+
<i>Euphorbia peplus</i>	petty spurge	AB		+	+								
<i>Vitis vinifera</i>	grape-vine	F		+									
<i>Aethusa cynapium</i>	fool's parsley	AB				+		+		+	+		++
<i>Foeniculum vulgare</i>	fennel	ABF											+
<i>Conium maculatum</i>	hemlock	AB	+	+		+			+			+	+
<i>Hyoscyamus niger</i>	henbane	AB				+							
<i>Solanum nigrum</i>	black nightshade	AB								+			
<i>Lamium</i> sp	dead-nettles	ABF		+		+		+		+			
<i>Galeopsis</i> sp	hemp-nettle	ABCD											+
<i>Verbascum</i> sp	mullein	B		+									
<i>Sambucus nigra</i>	elderberry	BC	++	+++	++	+++	+	+++	++	+	++	++	+++
<i>Sambucus ebulus</i>	dwarf elder	BD								+			
<i>Sonchus oleraceus</i>	smooth sow-thistle	ABD				+							
<i>Eleocharis acicularis</i>	needle spike-rush	E									+		
<i>Isolepis setacea</i>	bristle club-rush	E		+		+							
<i>Carex</i> spp (2-sided)	sedge	CDE	+										++
<i>Carex</i> spp (3-sided)	sedge	CDE	+	+		+		+			+	+	+++
<i>Cenococcum geophilum sclerotia</i>	fungus				+++	++	+						

Habitat	Quantity
A= cultivated ground	+ = 1 - 10
B= disturbed ground	++ = 11- 50
C= woodlands, hedgerows, scrub etc	+++ = 51 - 100
D = grasslands, meadows and heathland	++++ = 101+
E = aquatic/wet habitats	
F = cultivar	

Key to table 3

Appendix 3 Results of palynological analysis

Latin Name	Family	Common Name(s)	1022 (6cm)	1022 (18cm)	1022 (30cm)	1027	1030	1041	1047	1050
<i>Alnus glutinosa</i>	Betulaceae	common alder	9	20	7			1	1	1
<i>Betula</i>	Betulaceae	birch	3	6	3	1		1		
<i>Carpinus betulus</i>	Betulaceae	hornbeam		1						
<i>Corylus avellana</i> -type	Betulaceae	hazel	1	5				2		
<i>Ilex aquifolium</i>	Aquifoliaceae	holly			1					
<i>Quercus</i>	Fagaceae	oak	1	2	3	2			3	
<i>Salix</i>	Salicaceae	willow	1	9	3				3	
<i>Tilia cordata</i>	Tiliaceae	small-leaved lime		1				1		
<i>Ulmus</i>	Betulaceae	elm	1							
<i>Calluna vulgaris</i>	Ericaceae	ling/ true heather	2	3	5				4	
Poaceae undiff	Poaceae	grass	86	62	87	18	1	17	111	5
<i>Cerealia</i> indet	Poaceae	unidentifiable cereal	2	3	3					
<i>Avena</i> -type	Poaceae	oat/wheat group			1	1				
Apiaceae	Apiaceae	carrot family	2		1			1	1	
<i>Artemisia</i> -type	Asteraceae	mugwort				1				
<i>Aster</i> -type	Asteraceae	daisy/aster	4			2		1		
Caryophyllaceae	Caryophyllaceae	pinks/ mouse ears	4	2	4				7	
Chenopodiaceae	Chenopodiaceae	goosefoot family	2	1	3	1		5	2	
<i>Cichorium intybus</i> -type	Lactuceae	chicory/dandelion	3	5	1	1			1	
<i>Cirsium</i> -type	Asteraceae	thistle	1							
Cyperaceae	Cyperaceae	sedge	1	1	3			1	3	
cf <i>Fagopyrum esculentum</i>	Polygonaceae	buckwheat						1		
<i>Filipendula</i>	Rosaceae	dropwort/ meadowsweet								
Lactuceae indet	Asteraceae	chicory/dandelion/sow-thistle	3	8	3	5			6	1
<i>Mentha</i> -type	Lamiaceae	mint/gypsywort/wild thyme			1					
<i>Papaver argemone</i>	Papaveraceae	prickly poppy	1							
<i>Plantago lanceolata</i>	Plantaginaceae	ribwort plantain	5	3	3					
<i>Plantago</i> sp	Plantaginaceae	plantain	1							
<i>Potentilla</i> -type	Rosaceae	cinquefoil								
<i>Ranunculus acris</i> -type	Ranunculaceae	meadow buttercup	1	2	3	1		3	2	
Rosaceae	Rosaceae	rose family			1			1		
<i>Rumex acetosa</i>	Polygonaceae	common sorrel	1							
<i>Rumex acetosella</i>	Polygonaceae	sheeps sorrel	1	1	1					
<i>Sagina</i> sp	Caryophyllaceae	pearlwort	1							
Saxifragaceae	Saxifragaceae	saxifrage		1				1		
<i>Sonchus oleraceus</i> -type	Lactuceae	smooth sow-thistle		4					3	
<i>Succisa pratensis</i>	Dipsacaceae	devil's-bit scabious		1						
<i>Urtica dioica</i>	Urticaceae	stinging nettle	13	12	16	2		1	6	
		Total land pollen grains counted	150	153	153	35	1	37	153	7
<i>Ophioglossum</i>	Ophioglossaceae	adder's-tongue	1							
<i>Polypodium</i>	Polypodiaceae	true ferns	3							
<i>Potamogeton</i>	Potamogetonaceae	pondweed	3	1						1
<i>Pteridium aquilinum</i>	Dennstaedtiaceae	bracken	9	5	4				5	2
<i>Pteropsida</i> (mono) indet		ferns	1	3						

Appendix 4 Technical information

The archive

The archive consists of:

- 81 Context records AS1
- 10 Fieldwork progress records AS2
- 4 Photographic records AS3
- 131 Digital photographs
- 1 Drawing number catalogues AS4
- 1 Context number catalogues AS5
- 1 Matrix sheets AS7
- 1 Sample records AS17
- 1 Levels record sheets AS19
- 1 Abbreviated context records AS40
- 10 Scale drawings
- 1 Box of finds

The project archive is intended to be placed at:

Birmingham Museum and Art Gallery,
Chamberlain Square,
Birmingham.
B3 3DH
Tel: 0121 3032834
