



Savile House Music Practice Room, New College, Oxford

Excavation Report

June 2021

Client: Austin Newport Ltd

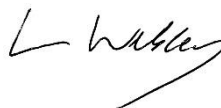
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Savile House Music Practice Room, New College, Oxford

Excavation Report

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Summary

Part of an extant bank at Savile House, Mansfield Road, Oxford, was investigated prior to an extension to the building. The earthwork, likely to have originated as part of the inner Civil War defences of Oxford, was found to seal possible postholes of medieval date that probably formed part of a field boundary that the earthwork later followed. It was carefully constructed with two main dumps comprising reddish loam over which was compacted gravel, likely to have derived from a ditch dug on its north side. From the late 17th until the mid 19th centuries, pitting suggests that area of the bank was used for the dumping of rubbish.

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1 INTRODUCTION

1.1 Project background

1.1.1 Proposals for the extension of the music practice rooms at New College, Mansfield Road, Oxford led to a programme of archaeological work. In 2014 Oxford Archaeology (OA) were commissioned by Austin Newport Ltd to undertake a test-pit evaluation and topographical survey (OA 2014a; 2014b; 2015a). These led to a second phase of archaeological work in mitigation of the development. This comprised two stages:

- Stage 1 - Enabling works involving a detailed watching brief including the creation of new service routes to the south of Savile House;
- Stage 2 - Main works requiring full archaeological excavation of the footprint of the new cellared extension and a watching brief on any related ground works.

1.1.2 The scope of this second phase of archaeological work was set out in a brief by David Radford, Oxford City Archaeologist, Oxford City Council (OCC, 10 September 2015) in order to fulfil the planning application (Ref: 15/00849/FUL). A written scheme of investigation (WSI) for each stage of the archaeological work was then compiled that detailed how OA were to fulfil the planning requirement (OA 2015b; 2015c).

1.1.3 The enabling works were undertaken between September 2015 and April 2016. The archaeological excavations for the main works were undertaken between June and July 2016 followed by a watching brief during September 2016.

1.1.4 Subsequent to this work and to an earlier version of this report (V1.0) MOLA undertook archaeological excavations at New College School, located c 18m to the west of the present site, in advance of new development (New Accommodation Block on Fig. 4). The results of that work, currently at assessment stage (MOLA April 2021), have been referenced in the discussion of this report.

1.2 Geology and topography

1.2.1 The site is situated immediately to the north of Savile House, New College, on the west side of Mansfield Road, Oxford (NGR SP 5172 0671). It straddles an existing earthwork that forms part of the Civil War defences of Oxford.

1.2.2 It lies at approximately 62m aOD, between the Cherwell and the Thames, near the edge of the second gravel terrace (Summertown-Radley) and a short distance west of the first (flood plain type) terrace, overlying Oxford clay and Kellaway beds (BGS map sheet 236).

1.3 Archaeological background

1.3.1 The site is located c 180m from features of middle Neolithic to early Bronze Age date associated with the extensive ritual/funerary activity known to spread across the second (Summertown-Radley) gravel terrace between the Thames and Cherwell Rivers (Boston *et al.* 2003; Lambrick 2013). Iron Age and Roman remains associated with rural settlement and related field systems are also recorded from within the precinct of Mansfield College and further to the north in the University Science and Parks area (Booth and Hayden 2001; Bradley *et al.* 2005; Simmonds *et al.* 2020).

- 1.3.2 The site is thought to lie north of the late Saxon and medieval suburb of Oxford, the defences of which lay c 240m to the south. Agas's (1578) and Loggan's (1675) maps both depict the site area as undeveloped and within open fields, located some 150m and 100m north and west respectively of the nearest built-up area.
- 1.3.3 This site is of particular interest because it preserves extant remains of a rampart constructed by Royalist forces during the Civil War. An initial line of defences on the northern side of the city, constructed in Summer 1642, was slighted after only a few weeks when Oxford briefly fell into Parliamentary hands. The Royalist garrison was restored in October 1642, and again built a line of defences around the northern side of the city, though the extent to which the earlier fortifications were reused is unclear. This 'inner' line of defences was constructed between Gloucester Hall (Worcester College) and Holywell Mill and appears to have been finished by August 1643 (Kemp 1977, 242). The bank at Savile House formed part of this line. A further, outer circuit was then constructed in 1644–5. The full extent of the rampart defences around Oxford are not known from physical remains but can be projected from a 1645 map of Bernard de Gomme and are depicted in some detail on Loggan's map of 1675. Much of the circuit was slighted by Parliamentary forces after the Royalist defeat, but a substantial area of earthworks survived as property boundaries and landscaped features in the northern part of the town between South Parks Road and Holywell Mill into the late 19th century. The bulk of these earthworks are no longer visible in the landscape. The rampart at the Savile House site is part of the last remaining upstanding section which runs along the northern edge of the Balliol College Sports Field, through the grounds of the University Club (where a former bastion/emplacement has been re-landscaped as a flower bed), along the Mansfield/New College boundary where it turns northward through the grounds of Wadham College Fellows Garden and Rhodes House.
- 1.3.4 The inner Civil War defences to the north-east of Oxford have been previously subjected to a number of archaeological investigations. An evaluation by OA at Mansfield College in 1992 immediately adjacent to the north-west of the site (Figs 1 and 4) targeted the extant bank and also revealed a large ditch running along its north side, at least 7m wide and 2m deep. The only finds retrieved from the lower levels of the ditch were sherds of pottery of Iron Age and Roman date, all presumably residual. A clay pipe bowl of late 17th century date was recovered from a slippage layer from the bank (OA 1992). The same ditch was apparently revealed c 30m further west during excavations at New College School when work was carried out on construction of the hall and classroom block in 1959 (Bradley *et al.* 2005, 199). Two test pits by MOLA (2017) adjacent to New College School revealed a reddish loamy bank that contained prehistoric flint and Roman pottery. In one pit it sealed a dump that produced a sherd of pottery dated to the 12th–14th century. Other sections of the ditch of the inner line of the defences have been investigated to the west and north-west of the site at Mansfield College, the Rothermere Institute Memorial Garden and the Institute for American Studies (Bradley *et al.* 2005, 199; Booth and Hayden 2000; OA 2006; Simmonds *et al.* 2020), and the ditch and part of the bank have been sectioned to the east of the site at the University Clubhouse (OA 2003).

- 1.3.5 Savile House was built in 1897 by Dr Gilbert Bourne, the well-known oarsman and professor of physiology, on land leased to him by New College in 1896. Extensions to its north including a new wing and a bike shed were added in 1935.

Previous work at the site

- 1.3.6 In September 2014, OA undertook an archaeological evaluation and topographical survey of the site. This was followed in November 2014 by an additional topographical and auger survey of the Civil War bank. The evaluation revealed the sand and gravel of the second (Summertown-Radley) gravel terrace, which appeared to slope gradually from south to north and had been truncated by a single undated posthole. The fill of the posthole and the natural gravel were directly overlain by a series of deposits associated with the Civil War bank. The composition of the deposits which created the bank was predominantly a re-deposition of the loessic subsoil which overlies the gravel terrace, overlain by a very compacted layer of re-deposited sand and gravel. The topographical and stratigraphical evidence from the evaluation suggested that an earlier feature in the landscape – represented by the re-deposited loess – may have influenced the location of the inner defences, and possibly been incorporated into them when a ditch was excavated to the north of the feature and the resulting spoil used to raise the top of the bank, as represented by the compacted sand and gravel. The results of an OSL sample from the re-deposited loess suggested a date of 880–1045 for the deposition of the original bank material.

2 AIMS AND METHODOLOGY

2.1 Aims

2.1.1 The general aims of the work were to:

- i. Determine the character of any remains present;
- ii. Ensure that deposits are removed (where appropriate and practicable) by proper controlled archaeological methods;
- iii. Determine or estimate the date range of any remains from artefacts or otherwise;
- iv. Determine the potential of the deposits for significant paleo-ecological information

2.1.2 The specific aims and objectives of the excavation were:

- v. To establish the character and extent of any significant prehistoric features and interpret them in relation to the recorded prehistoric ritual/funerary and settlement landscapes of north Oxford (summarised by Lambrick (2013)).
- vi. To establish the character and extent of any Roman features bearing in mind the presence of an expansive ‘village like’ settlement and associated field systems of unknown extent recorded in the South Parks Road area.
- vii. To establish the character, date and function of the earthwork. Can we understand its formation (ploughed or re-deposited by hand)? Is it possible to clarify whether the ground surface was stripped prior to construction?
- viii. Can we further clarify the construction methodology of the Civil War earthwork?
- ix. Was any natural feature utilised by the original earthwork?
- x. What is the date and character of the material that has built up against the southern face of the rampart?
- xi. A modest programme of outreach with legacy information:

2.2 Methodology

Stage 1: Enabling works

2.2.1 These were carried out and recorded under watching brief prior to the main excavations and included the creation of new service routes to the south of Savile House. The work is summarised in the table below:

WB Intervention	Records	Summary
Seven engineering test pits against the walls of Savile House and along the southern edge retaining wall of bank.	2 WB record sheets with sketches	No archaeology recorded
Service trenching to the west and south of Savile House	Contexts 1-7; Sections 1-2 and Plan 1	Undated pit overlaid by landscaping deposits

WB Intervention	Records	Summary
Pumping station trench to the SW of basement box	Context 8-12; Section 3 and plans 2, 3 and 5	Bank recorded in section. No finds
Trench for new manholes to west of basement block	1 WB record sheet with sketches; Plan 5	No archaeology recorded
Stage 1 underpinning (NE of Savile House); service diversion adjacent to pumping station trench (above); reduced dig to pile mat; trenches for guide walls	5 WB record sheets with sketches; Plans 4 and 5	No archaeology recorded
Pumping station to the east of basement box	Plan 7; context 13	A number of postholes cutting natural given a single context. Not investigated

Stage 2: Main works

- 2.2.2 Following the installation of the contiguous concrete pile wall, the area of the new basement was subject to controlled archaeological excavation. It was agreed with the relevant parties this would comprise four north-south trenches (Slots 1–4) on the line of the proposed capping beams, excavated down to the natural gravel. The trenches extended up to 1m beyond the northern and southern sides of the basement, though here excavation ceased to formation level of about a depth of 600mm below the top of the pile. The position of Slot 3 was adjusted to dog-leg around a modern foundation. Services prevented the southward extensions of Slots 1–3.
- 2.2.3 In all four slots modern levels were mechanically removed down to the latest archaeological horizons, after which all archaeological deposits were hand-excavated.
- 2.2.4 The unexcavated areas between the four slots was subject to further excavation which involved the mechanical removal of the bank under archaeological supervision, to the natural gravel. All archaeological features were subsequently hand-excavated.
- 2.2.5 Archaeological excavation recording was undertaken in accordance with Chartered Institute for Archaeologists' (2014a) Standard and guidance for archaeological excavation, local and national planning policies, and the WSIs.

3 RESULTS

3.1 General

3.1.1 The site has been phased according to the stratigraphic position of the contexts:

Phase 1	Early features (medieval?)
Phase 2	Pre-bank buried soil
Phase 3	Late pre-bank features
Phase 4	Bank
Phase 5	Post-bank levelling and pits (late 17th century and later)

3.2 Phase 1: Early features (medieval?)

3.2.1 The earliest activity comprised up 130 postholes or possible postholes that were distributed mainly to the east of Slot 1. They formed several dense clusters, particularly within the central areas of Slot 2 (Group 2061) and Slot 4 (Group 4006). Only four postholes were found west of Slot 2 and none within Slot 1 though a single posthole occurred within Test Pit 1. Further postholes were observed within the pumping trench, immediately to the west of Test Pit 1, but were not investigated. Although no coherent arrangement could be determined, their distribution suggests a broadly east-west arrangement, terminating immediately to the west of Slot 2. The postholes within Slots 2 and 3 were sealed by a buried soil (see Phase 2) that underlay the Phase 4 bank. This soil did not survive in Slot 4, though the distribution of the postholes here suggests that they were contemporary.

3.2.2 The postholes were circular and typically measured between 0.20–0.30m in diameter and between 0.10–0.15m in depth, largely with steep sides and concave bases. A small number were significantly deeper, up to 0.34m (e.g. Fig. 7, Section 2004, postholes 2021 and 2023). None of the postholes contained evidence for post-pipes, suggesting that the posts had been deliberately removed. Each was filled with sterile reddish brown to grey clay silt with occasional gravel. No finds were recovered from any of the postholes. Eight of the postholes were sampled for plant remains; no charred material was present apart from a single wheat grain from posthole 5038. This was submitted for radiocarbon dating and yielded a date of cal AD 1270–1390 (SUERC-75884; Table 2). Two nearby postholes (5034 and 5072) contained small quantities of identifiable charcoal, including oak, beech, ash, field maple and blackthorn or cherry.

3.2.3 In addition to the postholes there were several shallow irregular pits, likely to represent bioturbation. However, circular pit 3053, which cut across one of the more substantial postholes (3056, Fig. 8, Section 3012), may have been purposely dug as a gravel quarry. Weathering on its sides (3055, Fig. 8, Section 3012) suggests that it remained open and was levelled with sterile yellowish clayey silt (3054).

3.3 Phase 2: Pre-bank buried soil

3.3.1 The postholes and other features within Slots 2 and 3 were sealed by a layer of brownish orange gravel mixed with mid to dark grey silt (Fig. 8: Section 2017, context

2016 and Section 3012, context 3036) that directly underlay the Phase 4 bank. Within Slot 2 it was heavily disturbed by bioturbation and resembled trampled ploughsoil or topsoil. It survived up to 0.23m thick within Slot 3 but thinned to less than 0.10m in Slot 2 and was apparently absent in Slots 1 and 4. Similar soils below the bank were recorded within both test pits where they were interpreted as the pre-bank land surface that been trampled during the construction of the bank. The soil contained no finds, though a sample taken from Slot 2 did contain a small quantity of charcoal, largely beech, with small quantities of ash and hazel (Sample 210).

3.4 Phase 3: Late pre-bank features

- 3.4.1 Cutting the buried soil within Slots 2 and 3 were several small shallow postholes, two of which were located adjacent to each other along east edge of Slot 2 (Fig. 8 Section 2017, 2005 and 2007). One posthole (2005) contained a sherd from a cooking pot in medieval Oxford ware (c 1075–1300), a worn sherd of Roman date and fragments from a sheep/goat phalanx.
- 3.4.2 In addition, there were several shallow pits that may have formed as a result of bioturbation or ground preparation for the construction of the bank. Pits 2009 and 3043 (Fig. 8, Section 3012) were both irregular and resembled tree-throw holes. Both were filled with redeposited yellowish red sand and contained no finds. Oval pit 3045, 0.18m in depth, may have been deliberately dug to remove an underlying posthole and contained a fill of dark grey silt with tiny flecks of charcoal.

3.5 Phase 4: The bank

- 3.5.1 Sealing the Phase 1–3 features was a substantial bank that forms part of the extant east-west aligned earthwork that survives on the site. Where not removed by modern disturbance, it extended throughout the areas of Slots 1-4 and the two test pits for a total length of at least 16.3m and a width in excess of 8.4m. The bank was also observed immediately to the south of Test Pit 2 during the enabling works within the pumping station trench. It survived to a total height of 0.98m at its most northerly exposed extent within Test Pit 1, and within Slot 1 its height was 1.02m. To the north modern truncation had reduced its height progressively from 0.72m in Slot 2 to a maximum of 0.42m in Slot 4. The bank appears to comprise two main phases of construction, with material presumably derived from the upcast from the excavation of a ditch located to the north of the site.

First phase of bank construction

- 3.5.2 The earliest phase (Test Pit 1 104, Test Pit 2 206, 1005, 2003, 3034 and 4064), which was consistent throughout the site, comprised an apparently homogeneous dump of firm mid to dark reddish brown sandy loam likely to be re-deposited subsoil (see Soil Micromorphology report). It formed the main body of the bank and its full height of c 0.63m at north end of Slot 2 was revealed, where the interface with the second phase construction of the bank survived. Within both test pits and Slots 1–3, parts of its southern face survived where it was overlain by the later phase of bank construction. Within Slots 1 and 4 some stratification at its base was evident comprising a similar soil but mixed with yellowish brown silty clay and gravel (1006 and 4063). This appears

a represent two localised dumps deposited immediately prior to the construction of the main bank.

- 3.5.3 The bank material was largely devoid of anthropic material, though a total of 12 pottery sherds were recovered from both test pits and from Slots 1 and 2. The pottery comprised small worn sherds, largely of Roman date but including two sherds of medieval Oxford ware (c 1075–1300) and a sherd of Kennet Valley A ware (c 1050–1250). The latest sherd was recovered from Test Pit 1, Brill-Boarstall ware, datable to c 1300–1625. Also recovered from the bank in Test Pit 1 were two small fragments of Bath Stone, one with one with slight architectural moulding. Such stone is not commonly used in Oxford prior to the 17th century (Ruth Shaffrey pers. comm.).

Second phase of bank construction

- 3.5.4 The second phase of bank construction had been significantly reduced by modern truncation though remnants survived in all areas apart from Slot 4. Where it survived, its composition was similar, consisting of compacted yellowish brown clayey sand and gravel likely to have redeposited natural gravel, presumably from the ditch (Test pit 1 105, 1002=1004, 2002=2004 and 3068). The interface with the earlier phase of bank was sharp suggesting that it was deposited soon after its construction. Within Slot 2 this resulted in raising the front of the bank by at least 0.10m and presumably widened the bank to the south, though the tail end of the bank lay beyond the excavated area. No finds were recovered from these deposits. The bank was subject to a programme of radiocarbon and OSL dating, the results of which are provided in Tables 1 and 2 below.

3.6 Phase 5: Post-bank levelling and pits (late 17th century and later)

- 3.6.1 At some point during the post-medieval period, prior to construction of Savile House, the bank appears to have been slighted and the area was subsequently set aside for the digging of pits. Overlying the bank in Test Pit 1 and the northern end of Slot 1 was an accumulation of mid to dark grey-brown clay silt (Test Pit 1 106, 1003=1008) perhaps representing a developed topsoil that accumulated over the slighted bank. Within Test Pit 1 it contained sherds from a whiteware dish of 19th century date together with earlier pottery of 15th–17th century date. Within Slot 1 part of a wine bottle of late 18th to early 19th century date was recovered (1008).
- 3.6.2 Cutting the surviving levels of the bank were a number of rubbish pits that were fairly evenly distributed across Slots 1–4. Most of the pits were fairly large and sub-rectangular or oval in shape, measuring c 1.5–2.5m across. The earliest pits (Fig. 10, 3008, 5000 and 5002) tended to be shallower, measuring 0.20–0.40m in depth. Pits 5000 and 5002 both contained sherds from Staffordshire-type glazed ware (1680–1800) and clay pipes dated to 1640–1710 and 1660–1700 respectively. Pit 502 contained a sherd from a glass flask or bottle of 18th century or possibly earlier date. The third pit (3008) contained a number of clay pipe fragments dated to 1790–1815 together with fragments of window glass and lead window came, the latter suggestive of an 18th century date. The latter pits (e.g. 3000, 3005=4004 and 3010) were greater in depth at between 0.50–0.90m, and contained early 19th century or later pottery, flowerpot and wine bottle fragments. An iron table knife and bone handle were also retrieved from pit 3000.

3.7 Scientific dating

Reference	Lab Code	Context	Date	Notes
OSL 1	X7121	1003	(2315–935 BC)	See Fig. 7, Section 1001
OSL 2	X7122	1003	AD 465–645	See Fig. 7, Section 1001
OSL 3	X7123	1003/1004	AD 940–1050	See Fig. 7, Section 1001
OSL 4	X7124	1004	3430–2320 BC	See Fig. 7, Section 1001
SH014-02	X6664	206	AD 880–1045	Test Pit 2. Primary bank

Table 1: Optical stimulated luminescence (OSL) dating. Dates provided by Jean-Luc Schwenninger

Lab Code	Context	Feature	Material	$\delta^{13}C$ (‰)	Radiocarbon age (BP)	Calibrated date range (95.4% confidence)
SUERC-75878	3034	Primary bank	Charcoal (cf. Pomoideae)	-24.6	1608 ± 27	cal AD 390–540
SUERC-75879	2003	Primary bank	Charred <i>Avena/Bromus</i> (grass seed)	-26.0	6012 ± 21	4990–4810 cal BC
SUERC-75880	2016	Phase 2 buried soil	Charred seed	-23.6	Failed	-
SUERC-75884	5039	Posthole 5038	Charred grain (<i>Triticum</i> cf. <i>aestivum</i>)	-23.6	678 ± 29	cal AD 1270–1320 (59.2%) cal AD 1350–1390 (36.2%)

Table 2: Radiocarbon dating. Calibrated dates have been rounded out to the nearest 10 years

4 FINDS REPORTS

4.1 Pottery by John Cotter

Introduction and methodology

4.1.1 A total of 63 sherds of post-Roman pottery weighing 3566g were recovered from 17 contexts. Most of this is late post-medieval in date. An intermediate level catalogue of pottery types was constructed (in Excel), following standard procedure, for the whole assemblage and spot-dates produced for each context. The catalogue includes, per context and per pottery fabric, quantification by sherd count and weight only. Additional details, including vessel form, part, decoration, condition etc., were recorded in a comments field. Full details remain in archive. As better parallels exist elsewhere, no material was illustrated. What follows is a simply a quantified table of the various fabrics present and a summary report focusing on the more significant or interesting aspects of the assemblage. Fabric codes referred to for the medieval wares are those of the Oxfordshire type series (Mellor 1994) whereas post-medieval codes are those of the Museum of London (MoLA 2014). The range of pottery is described in some detail in the spreadsheet and therefore only summarised below.

Fabric	Common Name	Date	No.	Weight (g)
ROM	Roman pottery	AD 43-410	10	64
OXBF	Kennet Valley A ware (SW Oxon ware)	1050-1250	1	4
OXY	Medieval Oxford ware	1075-1300	2	14
BORDG	Border ware, green glazed (Surrey/Hants)	1550-1700	3	14
PMR	Post-medieval red earthenwares	1550-1900	19	2060
PMBL	Post-medieval black-glazed redware	1580-1750	1	12
ENGS	English stonewares (misc)	1670-1900	5	966
STMO	Staffs-type mottled brown-glazed ware	1680-1800	2	13
DERBS	Derbyshire stoneware	1700-1900	1	8
ENPO	English porcelain	1745-1900	1	7
CREA DEV	Developed Creamware	1760-1830	10	121
PEAR TR	Pearlware with transfer-printed decoration	1780-1840	2	4
TPW	Transfer-printed wares (Staffs etc)	1780-1900	4	80
ENGS BRST	English stoneware with Bristol-type glaze	1835-1900	2	199
TOTAL			63	3566

Table 3. Breakdown of pottery types in roughly chronological order

Date and nature of the assemblage

4.1.2 The earlier pottery (Roman and medieval) comprises small abraded sherds while the post-medieval pottery comprises large fresh sherds including vessel profiles. Ordinary domestic (and horticultural) pottery types are represented, all typical of the wares commonly found in central Oxford.

- 4.1.3 Unusually, for Oxford, the site produced ten sherds of Roman pottery. However, several other sites in this area of the city (around New College/Mansfield Road) have also yielded sherds of Roman pottery and ceramic building material (mostly redeposited), including previous New College excavations. The ten Roman sherds here are all fairly small and abraded; most have lost their original surfaces and are all covered with the same grimy brown deposit. There can be little doubt that they are redeposited and probably dumped here in soil brought from Roman occupation further afield in north-east Oxford. Context 1005, in the first phase of the bank, produced seven Roman sherds (including a sherd of Oxford colour-coated ware dated *c* AD 240–400), although the same context also produced a small sherd of Kennet Valley A ware (Fabric OXBF) which dates this context to *c* 1050–1250. The sherd is covered with the same grimy brown deposit (or staining) as the Roman sherds, almost certainly acquired post-deposition from surrounding soil deposits. Apart from the single sherd of OXBF, the only other medieval pottery recovered from the site comprises two small sherds of medieval Oxford ware (OXY, *c* 1075–1300). One of these also came from a layer in the bank (2003), and the other from a posthole (2005) together with a Roman sherd.
- 4.1.4 Most of the post-medieval material is from contexts datable to the first half of the 19th century. None of this is particularly remarkable. A handful of 17th- and 18th-century sherds (eg BORDG, STMO, PMBL) probably represent residual/redeposited material. Post-medieval red earthenwares (PMR) comprise the bulk of the pottery (19 sherds, 2060g) from the latest contexts. This includes large parts of several red terracotta flowerpots and a few glazed kitchenware/crockery forms such as wide bowls and jars. These occur alongside sherds of refined Staffordshire-type tablewares, mainly dishes and bowls in Developed Creamware (CREA DEV, *c* 1760–1830). Three early 19th-century ink bottles in English stoneware (ENGS) are present in one context (4001), two of them almost complete. The latest items comprise a few sherds of 19th-century transfer-printed wares (TPW) and parts of a large spirits flagon in English stoneware with a glassy Bristol-type glaze (ENGS BRST), dating after *c* 1835 (1001). There is nothing in the assemblage much later than *c* 1850.

4.2 Glass by Ian Scott

Catalogue by Type

- 1 **Wine bottle.** Body of a dip-moulded wine bottle with distinct surface finish and bulge below the shoulder where the dip mould ended. Conical push up and slightly bulged heel. Dark green glass. Extant Ht; 166mm; Shoulder D: 87mm; Heel D: 82mm. Slot 3, fill 3001, pit 3000.
Late 18th or early 19th century.
- 2 **Wine bottle.** Long slender neck with sloped shoulder, Neck free blown, with slightly everted finish and flattened string rim formed from added glass and hand tooled.

- The upper body is thin-walled. Dark green glass. Ht extant: 140mm.
Late 18th or early 19th century. Possibly French make. Slot 3, fill 3001, pit 3000.
- 3 **Wine bottle.** Sherd from the free-blown bulged neck and shoulder of wine bottle.
Olive green glass. Ht extant: 67mm. Slot 4, fill 4002, pit 4000.
Probably late 18th or early 19th century.
- 4 **Bottle.** Sherd from neck shoulder junction of bottle. Pale green glass. Not measured. Slot 3, fill 3004, pit 3000.
Post-medieval or later.
- 5 **Bottle.** Body sherd probably from a bottle or flask, precise form undiagnostic. Olive green glass, with iridescent weathering. Not measured. WB, fill 5003, pit 5002.
Probably 18th or early 19th century, but could be earlier.
- 6 **Window glass.** Sherd with flat regular surfaces and regular thickness. Pale blue-green glass. Th: 1.2mm. Slot 3, fill 3009, pit 3008.
Not closely datable.
- 7 **Window glass.** Sherd of regular thickness, with iridescent weathering. Colourless glass. Th: 1.5mm. Slot 3, fill 3009, pit 3008.
Post-medieval?
- 8 **Window glass.** Sherd of regular thickness, with iridescent weathering. Pale blue-green glass. WB, fill 5001, pit 5000
Post-medieval.

4.3 Ceramic building material *by Cynthia Poole*

Introduction and Methodology

- 4.3.1 A small assemblage of ceramic building material (CBM) amounting to 36 fragments (5918g) was recovered. The material consisted predominantly of brick and roof tile, all of post-medieval date. The CBM has been subjected to only low levels of abrasion and has a high mean fragment weight of 164g.
- 4.3.2 The assemblage has been fully recorded on an Excel spreadsheet in accordance with guidelines set out by the Archaeological Ceramic Building Materials Group (ACBMG 2007). The record includes quantification, and details of fabric, form, surface finish and dimensions. Fabrics were characterised on macroscopic characteristics supplemented by x20 hand lens for finer inclusions.

Roof tile (27 fragments, 4516g)

- 4.3.3 The roof tile was all of standard rectangular type and included a high proportion identifiable as peg tile with a peg hole punched in both of the upper corners, suggesting all were of this form. The majority was of earlier post-medieval date, broadly 16th–18th century, with a few of 18th–19th century date. All were handmade, except for one 20th century machine-made fragment. They had fairly regular finish, with even upper surface, often finely striated, and rough finely sanded base and edge surfaces. They were made mainly in orange-red sandy fabrics, which appear to represent a continuation of the medieval sandy fabrics IIIB and VIIBB. A large group from pit fill 4003 was all made in the same fabric containing sparse quartz sand and

moderate small limestone or shell grit, often leached out and leaving small voids. They measured 11–15mm and the group from fill 4003 produced four half tiles with complete widths of 168–72mm. Peg holes were all circular measuring 14–16mm in diameter and often tapering to the base where they were frequently encircled by a thickened halo of clay 23–9mm diameter. In one case the halo occurred around the top. The peg holes were centred 17–30mm from the top edge and 22–52mm from the adjacent side. Both peg holes survived on three tiles and were set 52, 76 and 82mm apart. Several tiles had an indented border or wiped margin measuring 7–24mm wide down one side.

Bricks (7 fragments, 1109g)

- 4.3.4 The brick was made in red-orange sandy fabrics, some of which contained maroon sandy ferruginous inclusions or cream marl clay pellets. All were broken, and the only dimension was thickness. One more crudely finished brick measuring 53mm thick is of Tudor type, essentially of late 15th to early 17th century date. The remaining brick is of late 18th–20th century date, and several were machine extruded or machine pressed indicating a mid to late 19th century date or later. These include three with a complete thickness of 64, 71 and 72mm.

Miscellaneous

- 4.3.5 Two miscellaneous items of late 19th to early 20th century date were recovered. A single fragment (275g) of plain unglazed floor tile (ctx 30040) in a hard dense pinkish red fabric measured 23mm thick and was keyed on the base with shallow rectangular channels 20mm wide. A small fragment (18g) of ceramic sewer pipe (ctx 1010) was glazed brown inside and out, and measured 15mm thick and c 120mm in diameter.

Conclusions

- 4.3.6 The assemblage is a typical group of post-medieval building material. The roof tile is somewhat earlier than most of the brick but may be contemporary with the single Tudor brick fragment. These exhibit the time lag between production and construction in the earlier post-medieval period and demolition and discard during the later post-medieval period in contexts dated to the mid 18th to mid 19th century. The majority of the brick, the floor tile and pipe fragment may be construction waste or represent debris from short-lived structures as they are broadly contemporary with deposits in which they were found.

4.4 Metalwork and worked bone by Leigh Allen

- 4.4.1 All the metal and worked bone objects come from Phase 5 pits and date to the late post-medieval period. The general condition of the assemblage is poor, and x-radiography has been carried out to aid identification. The objects comprise an iron table knife with a bone handle (ctx 3001), fragments from an iron vessel (ctx 4002 and 4003), a length of lead window came (ctx 3009) and a piece of lead tubing (ctx 4002).
- 4.4.2 The table knife has a very damaged blade. The handle is complete and has a sub-rectangular section which tapers slightly towards the shoulder and is plain but highly polished. There appears to be a slight thickening (bolster) at the junction of the handle and the blade but the form is unclear. The iron vessel fragments, possibly from a

bucket, comprise pieces from the base, rim and curved rod handle. The fragment of lead window came has a straight-sided H-shaped section (18th/19th century).

4.5 Worked stone by Ruth Shaffrey

4.5.1 A single piece of slate roofing was found in Phase 5 pit fill 4005 (421g). A chunk of coarse limestone (390g) was found in Phase 1 posthole fill 5015 – it is presumably structural as it retains one flat face, but it has no evidence for tooling or shaping.

4.6 Clay tobacco pipes by David Higgins

Introduction

4.6.1 A total of 27 fragments (6 bowl, 18 stem and 3 mouthpiece fragments) were recovered from eight different contexts, all of which were Phase 5 pits cutting into the Civil War bank. A summary of the pipe evidence is provided in Table 4. Five of the pits only produced single fragments of stem or mouthpiece, which do not provide very reliable dating evidence in themselves. The three slightly larger groups all produced marked bowls, which are discussed in more detail below.

Context	B	S	M	Tot	Marks	Decoration	Range	Deposit	Fig	Comments
1001	1	4		5	IH	leaf seams x 1	1610- 1900	1810- 1850	4	One residual burnished C17th stem and three plain stems of late C18th or C19th date, all of which appear to be from long-stemmed pipes. A complete London Type 28 spur bowl of c1810-50 with leaf seams has 90mm of surviving stem. This fresh and little disturbed piece is likely to have been contemporary with the filling of the pit, which also includes ceramics of c1835-50.
2001		1		1			1660- 1700	1660- 1700		A thick burnished stem made of a local fabric with fine sandy inclusions.
3004			1	1			1680- 1780	1680- 1780		A cut mouthpiece from a pipe of late C17th or C18th date. Residual in a pit containing ceramics of c1830-60.

3009	2	10	1	13	WT x2	Internal bowl cross x 2	1760- 1900	1790- 1815	1- 2	A very 'fresh' and consistent looking group with long thin stem fragments many of which join, suggesting a discreet 'one off' deposit. The two bowls are identical, both have an internal bowl cross, and both are marked WT for William Tuckwell of Wallingford, who was born about 1769, married in 1792 and died in 1813. These pipes were probably around 15" in length originally with gently curved stems. One has a slight kink in the stem where it was repaired during manufacture.
4002		1		1			1660- 1760	1660- 1760		A fairly thick stem fragment, completely encased with dark brown slaggy concretion having been badly burnt. Residual in a deposit containing late C18th to early C19th glass and ceramics.
4003	3		1	4	BH / B HUGGINS OXFORD x 1		1610- 1900	1850- 1880	3	One residual mouthpiece from a C17th pipe and three bowl fragments of late C18th to early C19th types. Two of these join to make a substantially complete large plain bowl with the moulded initials BH on the spur and a shield-shaped bowl stamp reading B HUGGINS / OXFORD. Typologically the bowl appears late C18th to early C19th in date but the maker, Benjamin Stockford Huggins, was born in 1799 and died in 1879. He appears to have worked with his father until at least 1844 and so probably only used his own mark after this. The initials in the mould have been changed to replace earlier ones and so this was

									probably an old mould that Benjamin had acquired from another maker. It is likely to have been a traditional long-stemmed 'churchwarden' type of pipe. Associated ceramics from the same context date from c1760-1830.
5001		1		1			1640-1710	1640-1710	A burnished stem fragment with a large stem bore.
5003		1		1			1660-1700	1660-1700	A thick stem fragment made of a local fabric with fine sandy inclusions and a poor burnish. Residual in a context containing C18th to early C19th ceramics and glass.
Total	6	18	3	27					

Table 4: Context summary showing the numbers of bowl (B), stem (S) and mouthpiece (M) from each context. Two date brackets are given, the 'range' representing the earliest and latest possible dates for all the pipe fragments present, while the 'deposit' represents the most likely date for the deposition of the group, based on the more diagnostic pieces present.

Context 3009

4.6.2 The largest group (2 bowl, 10 stem and a mouthpiece fragment) came from 3009. This was a very consistent-looking group containing large fresh fragments, many of which join, suggesting a discreet 'one off' deposit containing two or three recently broken pipes. It was possible to reassemble two substantially complete fragments that together show the overall form of the pipes represented (Fig. 11.1–11.2). The two bowls were both made in the same mould and marked with the relief moulded initials WT on the sides of the heel. One of these (Fig. 11.2) has 196mm of surviving stem, which shows that these pipes had long, thin and slightly curved stems. The illustrated example is rather poorly made in that the stem has clearly broken during manufacture and been repaired, leaving a slight kink 22mm from the bowl junction. It is otherwise an average-quality pipe of the period made in a hard-fired fabric with a large and fairly thin-walled bowl in a style typical of London and the south-east. Although from a different pipe, a mouthpiece and stem section of 186mm (Fig. 11.1) show that the gentle stem curve would have continued to the mouthpiece and that the pipes would

have probably been around 38cm (15") in length originally, which was the standard length for 'common' pipes of the period. Both bowls have an internal bowl cross and the initials WT relief moulded on the sides of the heel, which can be attributed to William Tuckwell of Wallingford. Oswald (1984, 262) just gives a single date of 1796 for this maker and so some basic research has been done to provide a basic biography for this individual and thus better dating for the pipes marked WT.

- 4.6.3 **WT (William Tuckwell, Wallingford)** William Tuckwell was recorded as a pipemaker of Wallingford in his marriage bond of 27 October 1792 (Sarum Marriage Licence Bonds). His bride was Elizabeth Leach, spinster, daughter of Robert, and the Bondsman was Richard Roe, Yeoman of Wallingford. The couple married at St Mary's, Reading, on 1 November 1792. Not long after the marriage, Tuckwell had an argument with the Mayor of Wallingford, for which he had to publish a public apology (*Reading Mercury and Oxford Gazette, etc.*, Issue 1617, Monday, 14 January, 1793, p1):
- 4.6.4 "Whereas I, Wm. Tuckwell, of Wallingford, in the county of Berks, Pipe-Maker, did lately assault and abuse Richard Hunter, esq., Mayor of that borough, for which he hath commenced a prosecution against me; but, at the earnest solicitation of me and my friends, hath consented to drop the same, on my making this public acknowledgement. – I do therefore hereby acknowledge my fault, and promise not to be guilty of the like in future; and return Mr Hunter my sincere thanks for the lenity he hath shown me. William Tuckwell. Witness, Henry Manly."
- 4.6.5 There are unsourced references in Ancestry.com family trees to suggest that William and Elizabeth had a son John, who was born in Wallingford in about 1793 and died in Southwark in 1857, and a daughter Harriet, who was born in 1799 and buried in September of the same year. There was certainly a pipemaker named John Tuckwell who was born in Wallingford, who probably married at Remenham, Berkshire, in 1812 but moved to London between about 1816 and 1827 (birth place of children), where he worked until his death in 1857 (and had a large family, several of whom went on to become pipemakers themselves). It seems very likely that John was William's son and that he would have helped in the family workshop at Wallingford while his father was still alive. A William Tuckwell, aged 44 (i.e., born c 1769), of Fish Street, was buried at St Mary the More, Wallingford, in December 1813. His date of birth fits with an individual married in 1792 and so this entry probably relates to the pipemaker of this name. If so, then his working life can be narrowed to c 1790–1813, which is a good match with the date of the pipes marked WT. The examples from this site show that he was producing everyday pipes of average quality.
- 4.6.6 Tuckwell appears to have regularly supplied pipes to Oxford, two different examples marked WT having been recovered from the St Ebbes excavations (Oswald 1984, figs 29a and 29b) and another from the Rewley Abbey excavations (Higgins 2007, fig. 38). There is also an example where the initials WT appear to have been changed to AT in the mould (Oswald 1984, fig. 36). In contrast, no WT pipes were recovered from the extensive Reading Oracle assemblage (Higgins 2013), despite the fact that Reading is the same distance from Wallingford as Oxford. If this pattern is confirmed from future finds, then it would suggest that there were particular factors influencing where Tuckwell was marketing his pipes, with a particular emphasis on trade to Oxford.

Context 4003

- 4.6.7 This context produced one residual mouthpiece from a 17th-century pipe and three bowl fragments of late 18th- or early 19th-century types. Two of these join to make a substantially complete large plain bowl with the moulded initials BH on the sides of the spur and a shield-shaped bowl stamp reading B HUGGINS / OXFORD (Fig. 11.3). The date of this piece is slightly problematic in that the bowl forms fit with the associated ceramics of c 1760–1830, but Oswald (1984, 262) gives dates of 1841–76 for this maker, which seems too late. Further details have therefore been sought to try and clarify the working period for this maker.
- 4.6.8 **BH (Benjamin Stockford Huggins, Oxford)** Although Benjamin Huggins had previously been recorded as an Oxford pipemaker, there was very little published detail about his life and thus the overall period when he was likely to have been producing pipes. The situation was complicated by the fact that several members of his extended family in both Oxford and Banbury were also called Benjamin, and that they too shared the unusual middle name Stockford, which was passed down through the family from a common ancestor, Frances Stockford. Furthermore, the census records give inaccurate and variable ages for members of this family so that care has to be taken in attributing references to the correct individual. The following references relating to the Oxford pipemaker Benjamin Stockford Huggins have been identified and extracted from the Ancestry and Findmypast websites (accessed 21 January 2019).
- 4.6.9 **1841 Census for Observatory Street, St Giles, Oxford** This census includes Thomas Huggins as head of one household with whom the Tunstall family of pipemakers were living, while Benjamin Huggins heads the next property listed, which includes his nephew Samuel Huggins and an apprentice pipe maker, William Fowler:

Thomas Huggins	65 (1776)	Pipe M	Oxfordshire
Frances Huggins	60 (1781)		Oxfordshire
Roper? Tunstall	65 (1776)	Pipe M	Not in county
Catherine Tunstall	65 (1776)		Not in county
Benjamin Huggins	30 (1811)	Pipe M	Oxfordshire
Samuel Huggins	13 (1828)	Pipe M	Oxfordshire
William Fowler	15 (1826)	Pipe M Ap	Oxfordshire

4.6.10 **1849** – The marriage of Benjamin Stockford Huggins and Sarah Hewlett was registered at Headington (Q2).

1851 Census for Observatory Street, St Giles, Oxford

Benjamin Huggins	Head	Mar	44 (1807)	Pipe Maker employing 2 men	Oxford
Sarah Huggins	Wife	Mar	30 (1821)		Marston, Oxon
Clara Huggins	Dau	Um	10 (1841)	Scholar	Marston, Oxon
John Hewlett	Errand Boy	Um	15 (1836)	Errand Boy	Beckley, Oxon

1861 Census for 76 Observatory Street, St Giles, Oxford

Benjamin S Huggins	Head	Mar	56 (1805)	Tobacco Pipe Maker employing 1 man	Oxford
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Sarah Huggins Wife Mar 40 (1821) Marston, Oxon

1871 Census for 70 Observatory Street, St Giles, Oxford

Benjamin S Huggins	Head	Mar	68 (1803)	Tobacco Pipe Maker employing 1 man	Oxford
Sarah Huggins	Wife	Mar	48 (1823)		Oxford
Percy S Huggins	Son		6 (1865)	Scholar	Oxford

1876 – Benjamin Huggins, Coal Merchant and pipe manufacturer, 76 Observatory St, Oxford (Harrod’s Directory, p780).

1879 – Death of Benjamin Stockford Huggins, 79 (1800), registered Q1 at Headington.

1881 Census for 76 Observatory Street, St Giles, Oxford

Sarah Huggins	Head	Wid	56 (1823)	Coal Merchant	Marston, Oxon
Percy Huggins	Son	Um	16 (1865)		Oxford
Mary Whitehead	Boarder	Wid	74 (1807)	Pensioner	Oxford

1891 Census for 78 Observatory Street, St Giles, Oxford

Sarah Huggins	Head	Wid	68 (1823)	Living on her own means	Marston, Oxon
Clara Huggins	Dau	S	50 (1841)	Living on her own means	Oxford

4.6.11 A memorial inscription in St Sepulchres cemetery, Oxford, includes the further detail that Benjamin was born on 25 April 1799 and died on 28 March 1879, age 79 (<https://www.findagrave.com/memorial/149708845/benjamin-stockford-huggins>).

The same website gives the dates for his wife Sarah (née Hewlett) as 13 February 1825 to 8 June 1905 (age 80) and for their son Percy Stockford Huggins as 7 September 1864 to 22 May 1913 (age 48).

4.6.12 From these references it is possible to build up a much better picture of Benjamin’s life. Thomas Huggins and Frances Stockford, presumably his parents, married at Oxford St Giles on 3 April 1796 (witnesses were Esther Tyror and Richard Finch; all four signed, no occupations given) and Benjamin was born three years later in 1799. His father, Thomas, is recorded as a pipemaker in Observatory Street in the 1841 census (above). Benjamin was living in the next property listed and it seems likely that they were all working together in a single workshop at that date. The 13-year-old pipemaker Samuel Huggins who was living with Benjamin at the time was probably his nephew, being the son of Henry Huggins, a coach builder, who had been born in about 1798 (by 1851, this Samuel was running his own pipe workshop in Banbury with three of his siblings, and employing six people, but he soon gave up the pipemaking business there and had become a baker by 1861).

4.6.13 Benjamin continued to live in Observatory Street for the rest of his life and married in 1849 to Sarah Hewlett, who was nearly 26 years his junior. Benjamin is listed as a master pipemaker in the 1851 census, when he was employing two men, suggesting that he was already running the business by this date (when his father would already have been in his 70s). His father has not been found in the 1851 census but was still

listed as being of Observatory Street at the time of his death in 1855. A directory entry of 1876 shows that Benjamin had also become a coal merchant by that date and it is as a coal merchant that his widow Sarah appears to have continued after his death in 1879, when Benjamin would have been 79.

- 4.6.14 While Benjamin was probably a pipemaker all of his life (from the 1810s until 1879), he appears to have worked in partnership with his father once he was old enough, perhaps from around 1820, when he would have been 21, since pipes marked 'HUGGINS & SON / OXFORD' are known (Oswald 1984, fig. 35). The Post Office directories for 1842 and 1844 list 'Huggins, Thomas and Benjamin Stockford' in Observatory Street, suggesting that they were still working together rather than as individual traders. Thomas would have been 70 in about 1846 and Benjamin certainly seems to have been running the business by 1851. So, while pipes marked BT or B Huggins could in theory date from any time after about 1820, it is perhaps more likely that they date from after the late 1840s, when Thomas may have retired. Benjamin's widow seems to have wound up the pipemaking side of the business following his death in 1879, thus giving a broad date range of c 1850–80 for any pipes bearing just Benjamin's name. This still seems a rather late for the bowl forms from context 4003, although it is worth noting that the initials in the mould have been changed to replace earlier ones and so this was probably an old mould that Benjamin had acquired from another maker. It is likely to have been a traditional long-stemmed 'churchwarden' type of pipe and was perhaps being produced by Benjamin to meet the dwindling demand for this 'old-fashioned' style alongside his newer products. At least this research has shown that Benjamin's adult working life can now be placed at 1820–79 and that he appears to have worked in partnership with his father until at least 1844, and so may have only used his own mark from around 1850 onwards.

Context 1001

- 4.6.15 This pit produced one residual burnished 17th-century stem and three plain stems of late 18th- or 19th-century date, all of which appear to be from long-stemmed pipes. These are likely to be contemporary with a complete London Type 28 spur bowl (Atkinson and Oswald 1969) of c 1810–50 with leaf seams and 90mm of surviving stem (Fig. 11.4). This fresh and little disturbed piece is likely to have been contemporary with the filling of the pit, which also includes ceramics of c 1835–50. The maker's initials IH are relief moulded on sides of the spur. This mark does not appear to have been recorded previously from Oxford, although not a great deal of 19th-century material has been recorded to date. The maker cannot be identified from Oswald's Oxfordshire list (1984, 261–2) and so it remains uncertain whether this is a local product or an import to the town.

List of illustrations (Fig. 11)

- 1 – Three joining fragments (two stems and a mouthpiece) from a pit group of c 1790–1815. The stem has a light curve in it and a bore of just over 4/64". These pieces are not from the same pipe as either of the associated WT bowls (*cf* Fig. 11.2) but come from a pipe of similar style and date. Ctx 3009.

2 – Two joining fragments (a bowl and stem) from a pit group of c 1790–1815 (one of two identical bowls from this pit). The relatively thin stem has been repaired during manufacture about 22mm from the bowl, resulting in a slightly uneven section with a kink in it. The stem is curved and has a bore of just over 4/64"; associated fragments from the same pit (Fig. 11.1) suggest that it would have been about 15" (38cm) long originally. There is an internal bowl cross and the maker's initials WT can be attributed to William Tuckwell of Wallingford, who worked from around 1790 until his death in 1813. Ctx 3009.

3 – Two joining bowl fragments from a large and relatively thin-walled plain bowl with the moulded initials BH on the sides of the spur and a shield-shaped incuse bowl stamp reading B HUGGINS / OXFORD for Benjamin Stockford Huggins, who was born in 1799 and died in 1879. He appears to have worked with his father until at least 1844 and so probably only used his own mark after this date. The initials in the mould (the spur mark) have been changed to replace earlier ones and so this was probably an old mould that Benjamin had acquired from another maker. It is likely to have been a traditional long-stemmed 'churchwarden' type of pipe. Stem bore just over 5/64". Ctx 4003.

4 – A complete spur bowl of c 1810–50 with leaf seams and 90mm of surviving stem with a stem bore of just over 4/64". Average-quality product but with poorly fitting mould halves so that there is about a 1mm step in the bowl seams. The relief-moulded maker's initials IH on the sides of the spur have not been previously recorded from Oxford. The maker has not yet been identified. Ctx 1001.

4.7 Flint by Mike Donnelly

The assemblage

- 4.7.1 Two flints were recovered. One quite finely worked leaf-shaped arrowhead was recovered from Phase 4 bank layer 3034 (sf 3000; Fig. 12) while a regular flake was found in a sample taken from the same deposit. Both flints are in very good condition and probably indicate that the bank incorporated a pit or a buried soil horizon containing prehistoric flintwork. The arrowhead is an elongated 'kite' form (type 1C, Green 1980) of early Neolithic design while the flake is undiagnostic but would also easily be accommodated by that date.
- 4.7.2 Early Neolithic activity is well known from Oxford's hinterland with important sites at Abingdon, Didcot, Thame and elsewhere (Hayden *et al.* forthcoming), but such activity is absent from the immediate vicinity. Later Neolithic activity is known from close to the site with pits containing flint and pottery from the Chemistry Research Laboratory (Bradley *et al.* 2005) and a similar pit dated only to the Neolithic period from Mansfield College that also yielded an unfinished leaf-shaped arrowhead as residual find in a later context (Booth and Hayden 2000). The presence of several Neolithic features in an area of land that also contains at least one henge and a quite extensive barrow cemetery does suggest that the high ground in Oxford may have been of some significance during the Neolithic period (Lambrick 2013).

Methodology

4.7.3 The artefacts were catalogued according to OA South's standard system of broad artefact/debitage type (Anderson-Whymark 2013; Bradley 1999), general condition noted, and dating was attempted where possible. The assemblage was catalogued directly onto an Open Office spreadsheet. During the assessment additional information on condition (rolled, abraded, fresh and degree of cortication), and state of the artefact (burnt, broken, or visibly utilised) was also recorded. Retouched pieces were classified according to standard morphological descriptions (e.g. Bamford 1985, 72–7; Healy 1988, 48–9; Bradley 1999). Technological attribute analysis was initially undertaken and included the recording of butt and termination type (Inizan *et al.* 1999), flake type (Harding 1990), hammer mode (Onhuma and Bergman 1982), and the presence of platform edge abrasion.

5 ENVIRONMENTAL AND OSTEOLOGICAL REPORTS

5.1 Animal bone by Lee G. Broderick

- 5.1.1 In all, just 36 animal bone specimens were recovered, all collected by hand. The assemblage was recorded in full, using a diagnostic zone system (Cohen and Serjeantson 1996; Serjeantson 1996) and the reference collection kept by OA.
- 5.1.2 Just one identified specimen was recovered from a Phase 3 context: part of a caprine (sheep [*Ovis aries*] or goat [*Capra hircus*]) phalanx from posthole 2001 (Table). Other finds came from the post-medieval Phases 4 and 5, and included further caprine specimens as well as domestic cattle (*Bos taurus taurus*), pig (*Sus scrofa domesticus*) and a European hare (*Lepus europaeus*) tibia. With the exception of the hare tibia, all of the material was in moderate to poor condition (Behrensmeyer 1978, stages 3–5) and no butchery marks or pathologies were observed. The pig specimen (a tibia shaft from layer 2002) had been gnawed by a dog, and the hare tibia (from Phase 5 pit fill 3004) was unfused at the proximal end, suggesting that it was a young individual although its size was a close match for that held in the OA reference collection.
- 5.1.3 Little can be read into such a small assemblage beyond the presence of the principal domesticated mammals (or parts of them) on the site, as well as hare. Hare prefers to live in open grassland and so it is most probable that the specimen identified here represents table waste. All the species identified have precedent in late medieval and post-medieval Oxford, in larger assemblages. The Phase 4 finds primarily come from a Civil War fortification that has been studied previously with larger assemblages than this (Evans 2005; Simmonds *et al.* 2020).

Table 5: NISP (Number of Identified SPecimens) and NSP (Number of SPecimens) figures for the hand collected and sieved components of the assemblage.

	Phase 3	Phase 4	Phase 5
domestic cattle		1	
caprine	1		1
caprine?		1	
pig		1	
European hare			1
medium mammal		2	6
large mammal		2	7
Total NISP	1	7	15
Total NSP	5	13	18

5.2 Charred plant remains, charcoal and molluscs by Julia Meen

- 5.2.1 Sixteen bulk sediment samples were taken for the recovery of charred plant remains and charcoal, and a total of 48 incremental samples were taken from four vertical sequences for the recovery of snails. Seven bulk samples were taken from the fills of postholes pre-dating the bank, one sample from a pit pre-dating the bank and one from a buried soil of similar date. The remaining seven samples, and all of the snail

incremental samples, were taken from the Civil War bank. Each bulk sample was processed using a modified Siraf style flotation machine. Flots were collected onto 250µm meshes and heavy residues were sieved to 500µm. After air drying, residues were sorted for ecofacts and small artefacts. Each snail sample was 1–2l in volume and was processed by hand flotation using the ‘wash-over’ technique, and flots and residues were collected separately onto 500µm meshes.

- 5.2.2 All identifiable charred plant remains were examined using a stereomicroscope at up to x40 magnification and recorded; a full table showing processed volumes, phasing and comments on the contents of each sample has been included in the site archive. Charred plant identifications were made with reference to Jacomet (2006) and nomenclature follows Stace (2010). The snail flots were examined using a stereomicroscope at up to x40 magnification, and the taxa present and their relative abundance was recorded. Snail shells were also present in the majority of the flots from the bulk samples and these were similarly recorded. Snail nomenclature follows Anderson (2005).
- 5.2.3 Charcoal, where present, was commonly of too small a size to be identifiable, but in seven samples a small number of pieces were large enough to attempt species identification. Charcoal identifications were made by fragmenting each piece along the transverse, radial and tangential planes as required and examining the exposed sections at up to x400 magnification using a Brunel Metallurgical SP-400BD microscope. Species identification was carried out on the basis of diagnostic anatomical characteristics and following the keys in Hather (2016) and Schweingruber (1990). The results of the charcoal analysis are given in Table 6.
- 5.2.4 None of the bulk samples produced substantial flots, all being in the range of 1 to 15ml in volume. Flots were often composed largely of modern roots or other modern material, indicating that the sampled deposits had been reworked. None of the samples from Phase 1 postholes contained any charred plant remains, and only two, from postholes 5034 and 5072, contained any charcoal of identifiable size. As fewer than ten pieces were examined from each, little interpretation can be made from the range of species present, but they include oak (*Quercus* sp.), beech (*Fagus sylvatica*), ash (*Fraxinus excelsior*), field maple (*Acer campestre*) and blackthorn or cherry (*Prunus* sp.).
- 5.2.5 The Phase 2 buried soil sampled in Slot 2 contained no charred plant remains but did contain a small quantity of charcoal. This was dominated by beech, with a little ash and hazel (*Corylus avellana*). The pit of similar date however contained no identifiable remains. Two samples from the post-medieval bank contained identifiable plant remains, but this was in very low quantity and was poorly preserved: these included two indeterminate cereal grains from layer 4063, and a grain of rye (*Secale cereale*) and a small vetch/tare (*Vicia/Lathyrus*) type legume from layer 4064. The presence of two glume bases of spelt wheat (*Triticum spelta*) from this latter context, a type of wheat rarely found in Britain after the Roman period, further demonstrates that material from the bank has been reworked and that any plant remains found within it may derive from much earlier. Charcoal from the bank includes oak, beech, ash and hazel as well as Maloideae type, a group of closely related taxa that includes hawthorn, whitebeam and apple.

5.2.6 The incremental snail samples all produced very small flots, rarely more than 2ml in volume. All samples contained *Cecilioides acicula*, a burrowing snail that is likely to be a modern intrusion. Only four other types of snail were present, with *Trochulus hispidus*, *Vallonia* sp. and *Pupilla muscorum* occurring in low numbers in many of the samples, and a single shell from the family Clausiliidae occurring in sample 2018. *P. muscorum* prefers dry calcareous habitats, including limestone walls (Kerney 1999, 103), while *T. hispidus* is fairly catholic. The same range of snails was identified from the bulk samples.

Table 6: Charcoal identifications

	Sample No.	2008	2010	3009	4000	4002	5001	5003
	Context No.	2002	2016	3034	4064	4063	5035	5073
	Feature Type	Bank	Buried soil	Bank	Bank	Bank	Posthole 5034	Posthole 5072
	Phase	4	2	4	4	4	1	1
<i>Quercus</i> sp.	oak	3 (r)		3	5	3 (h)	1h	3 (h)
cf <i>Quercus</i> sp.	cf oak				1			
<i>Fagus sylvestris</i> L.	beech	4	7	1	1		2 (r)	2
cf <i>Fagus sylvestris</i> L.	cf beech				1			
<i>Prunus</i> sp.	blackthorn /cherry						1	
Maloideae	hawthorn type			4				
cf Maloideae	hawthorn type		1					
<i>Fraxinus excelsior</i> L.	ash		1	1				1
<i>Acer campestre</i> L.	field maple						1	
<i>Corylus avellana</i> L.	hazel		1	1r				
Ring porous								2
Diffuse porous		2				2	1	
Indeterminate					3		1	
TOTAL		9	10	10	11	5	7	8

r = roundwood, *h* = heartwood

6 DISCUSSION

- 6.1.1 The excavations have revealed a clear sequence on activity on the site, despite the ambiguous nature of some of the dating evidence. Broadly they revealed activity below a bank that once formed part of Oxford's inner Civil War defences. The area of the bank was subsequently utilised for the digging of rubbish pits from the late 17th to early 19th century. The current evidence does not support the initial supposition that the earthwork originated as a substantially earlier feature, perhaps of late Saxon origin.
- 6.1.2 The earliest activity comprised a large number of closely spaced possible postholes that were sealed below a buried soil. These features were concentrated within the central area of the excavation but were largely absent along the west side of the site. Though some may have been formed as the result of rooting, their sharp and regular profiles suggest a human origin. The arrangement of those found at Savile House suggests some form of structure or structures existed here that may have been replaced on a number of occasions. Alternatively, they may have simply represented fence lines, perhaps orientated on a roughly east-west alignment. However, this could not be ascertained with any certainty within the confines of the excavations. What is clear, from the sterile nature of their fills, is that they were situated some distance from any settlement. What material there was included small amounts of charcoal and a single charred grain that was radiocarbon dated to cal AD 1270–1390 (SUERC-75884). This would imply a later medieval date at the earliest for the possible fence, unless the material dated is considered intrusive, feasibly from the buried soil that lay over the postholes, but under the bank. If earlier, the postholes may have formed part of the Roman settlement located within Mansfield College, c 100m to the north-west of the site (Booth and Hayden 2000, 291–332). However, this principally comprised ditched field enclosures with little evidence for the dense concentrations of postholes found at Savile House. The recent MOLA excavations at New College School also revealed two phases of Roman occupation, including boundary ditches, several drip gullies, a kiln and a few scattered postholes, which together contained a significant quantity of Roman pottery (MOLA 2021). The dense clusters of postholes found at Savile House were absent within the MOLA excavations. What little Roman pottery was found at Savile House comprised a handful of abraded material largely retrieved from the overlying bank, itself probably originally derived from medieval or later fields to the north. If the postholes at Savile House were Roman in origin, they contained no contemporary material from the nearby settlement.
- 6.1.3 If a medieval (or later) date is assumed for the postholes, then they are likely to have been situated within the rural landscape to the north of the historic core of Oxford. Agas's map of Oxford (1578) clearly depicts the area of Savile House as open fields located 120–150m north of the rear of the nearest house plots positioned along the north side of the city ditch (Fig. 2). Although it is not possible to place Savile House precisely on Agas's birds eye view, which is possibly warped in this area, comparisons of the field boundaries with Loggan's map (1675) shows a similar field system with a sharp boundary between pasture land to the north and arable fields to the south delimited by the remains of the Civil War earthworks (Fig. 3). It is likely that this field boundary existed well before the mid 17th century and that the possible fence lines

marked the boundary between the two during the late medieval period. It is possible that the postulated fence was replaced by a hedge given the presence of several shallow irregular pits probably formed as result of bioturbation. Agas's map appears to show this boundary as a hedge or fence line.

- 6.1.4 The section of bank at Savile House formed part of the earlier, inner Royalist fortifications of Oxford, constructed in 1642–3. The inner earthworks, comprising a bank and an outer ditch, are believed to be accurately depicted on Sir Bernard de Gomme 1644 design for the addition of the second outer line of defence. Indeed, within the area of Savile House and Mansfield College the surviving earthworks are depicted in some detail on Loggan's map of 1675 and correspond closely with de Gomme's plan. The inner fortifications to the east of St Giles seem to have followed at least in part pre-existing field boundaries and land divisions. In contrast, the more sophisticated outer defences were based upon a tenaille system, used by the Dutch, comprising a zig-zag pattern complete with outer bastions (Kemp 1977, 242). This outer work took little notice of pre-existing field boundaries. The bank at Savile House probably took its alignment from a pre-existing late medieval field boundary, discussed above. It seemingly consisting of two phases of construction, an initial dump of reddish-brown sandy clay up to 0.63m in height with a secondary addition of gravel/sand raising it to at least 0.98m above the contemporary ground level. The two distinct phases suggest careful consideration in the management of construction. It is likely that the first phase incorporated subsoil excavated during the initial excavation of the ditch in front of the bank, probably after the area was de-turfed. The turf was probably incorporated in the bank to aid stability. Two thin sections taken for soil micromorphology through this deposit (see Fig. 8, Section 3012: Samples <3012–3>) confirms that it is likely to represent homogeneous pasture soils (3068), possibly capped by a redeposited turf. The main body of the bank is likely to have incorporated gravel from the excavation of the ditch, though much of this part of the bank had been reduced by later landscaping. Soil micromorphology confirmed observations made during site recording that the interface between the two dumps was sharp as there was no living turf surface on the top of the earlier dump, implying that the gravel was dumped soon afterwards. The quantity of gravel extracted would have been considerable from a ditch that was in excess of 7m wide and about 2m deep and would have been used to form a substantial rampart. From the profile revealed during the 1992 evaluation to the north-west of Savile House, the bank survived to a total height of c 2.8 m, probably close to its full height (OA 1992, fig. 4). A similar sequence was revealed during an evaluation at Manor Place, Oxford where the surviving earthworks of the northern Civil War defences were sectioned. The initial dump comprised material indistinguishable from the underlying ground surface (Wessex Archaeology 2012, 7 and fig. 3, ctx 109) and probably derived from the top of the ditch. This was overlain by dumps of gravel and fluvial-rich material derived from the deeper levels of the adjacent ditch (ibid.).
- 6.1.5 Direct dating of the bank is problematic given that it was composed of material thrown up rapidly from the ditch excavation. However, a *terminus post quem* of cal AD 1270–1390 has been established from activity below it, and this supported by three sherds of medieval pottery recovered from the earlier reddish-brown bank, including a sherd of Brill-Boarstall ware that dates to the 13th century at the earliest. Furthermore, 24

abraded sherds of late 11th to 13th century pottery, including Brill-Boarstall ware, were recovered from the same lower bank excavated during an evaluation at New College School by MOLA (2019 and 2021, ctxs 4 and 19). Additionally, a medieval harness pendant of 12th–14th century date was recovered from the bank during the MOLA excavations (MOLA 2021, 58). Any datable material incorporated in the first dump would have been derived from the subsoil that would have accumulated over a considerable period, and the secondary dump of redeposited natural gravel was sterile. This was also the case during the MOLA excavations, though here a subsequent erosion deposit produced 15 sherds of medieval–late medieval pottery (*ibid.*, 22). Therefore, a mixed assemblage comprising a well-preserved Neolithic arrowhead (Fig. 12), abraded Roman pottery and medieval pottery from the earlier dump is probably relict material. Two small fragments of Bath Stone, one with slight architectural moulding, was recovered from the earlier bank in Test Pit 1 and is likely to be no earlier than the 17th century, and a clay tobacco pipe stem was recovered from the same bank during the MOLA evaluation at New College School (*ibid.*, table 13, ctx 19). The 1992 evaluation recovered a clay tobacco pipe of mid to late 17th century type near the base of the front of the bank (OA 1992, fig. 4, context 106). Five samples from the bank taken for optically stimulated luminescence (OSL) dating produced inconsistent results that are at odds with the dating evidence outlined above. Four samples from the primary dump (Fig. 7, Section 1001: OSL1–3 and Test Pit 2) gave dates ranging from the Bronze Age through to the early to late Saxon periods. An OSL sample obtained from the centre of the same bank in the MOLA excavation returned a date of AD 835–985 (MOLA 2021, fig. 30, [X7516]). The overlying gravel bank produced an early to middle Neolithic date (Fig. 7, Section 1001 OSL4) and on the MOLA site an OSL sample returned a date of 108,026–74,136 BC (*ibid.*, fig. 30, [X7517]). These inconsistent dates could however confirm that the material had been rapidly displaced as to not to allow for minerals within the soil to be exposed to light.

- 6.1.6 Therefore, at present the best fit for the current evidence would be for both the loam and the gravel bank to have originated as part of the Civil War defensive work. Within north-east Oxford they would have utilised existing field boundaries corresponding to hedges or fences that are depicted on Agas’s map of 1578. It is also possible that the second phase of the bank corresponds with a recut of the inner defensive ditch that was seen both at the Hands Building and the University Clubhouse (Simmonds *et al.* 2020; OA 2003). At the Hands Building, this was interpreted as possibly relating to the Royalist refurbishment of the defences after the Parliamentary interlude.
- 6.1.7 After the surrender of Oxford to the Parliamentarians in 1646 the defences were slighted and much of the ditches infilled with the slighted bank material. However, the north-east inner defensive earthworks survived as prominent earthworks well into the 18th century, as testified by Loggan’s (1675) and Taylor’s (1750) maps of Oxford, the latter of which is labelled as *part of the old fortifications*. If these earthworks marked earlier boundaries, then it would not have been necessary to fully demolish them if such boundaries continued in use. The raised bank would have been unsuitable for arable use as depicted on Loggan’s and Taylor’s maps, immediately to the south. Instead the area was utilised for rubbish disposal as the bank was cut by a number of pits dating from the late 17th to early 19th century, prior to construction of Savile

House. The bank, probably following a medieval field boundary, remains to the present day as the boundary between New College and Mansfield College.

7 PUBLICATION AND ARCHIVING

7.1 Publication

- 7.1.1 The results of the excavation are described comprehensively in this excavation report, which will be submitted to Oxfordshire HER and disseminated online, being made available for download as a PDF through OA's online library (<https://library.oxfordarchaeology.com>). A shorter, synthetic article has also been produced for submission to *Oxoniensia*, the county archaeological journal.

7.2 Archiving

- 7.2.1 The finds and documentary archive will be prepared for deposition in accordance with the methodology set out in the WSI and current professional standards (UKIC 1990; Brown 2011; ClfA 2014). The site archive will be deposited with Oxfordshire County Museums Service under accession code OXCMS:2014.203.

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APPENDIX A SOIL MICROMORPHOLOGY by *Richard I Macphail*

Summary

8.1.1 A two-thin section investigation of the bank (ctx 3034) found that lower 3034 (M3013) is composed of poorly stable dumped subsoil materials presumably derived from the C, Bt and Eb horizons of the local argillic brown earth soil cover. The upper part of context 3034 (M3012) is a turf layer, made up of A1h horizon topsoil, which probably records a generally grazed landscape. Typical of buried turf soils, it is characterised by compaction, and loss of organic matter due to localised oxidation-reduction processes. There may have been further compaction of the upper turf layers in context 3034, which possibly acted as a turf capping layer to the rampart in order to improve the stability of the subsoil earth-based construction.

Introduction and methods

8.1.2 After monolith assessment (Macphail 2018), a two thin section study was carried out on monoliths 3012 and 3013 (ctx 3034 in Section 3012; Fig. 8).

8.1.3 The undisturbed monolith subsamples (Tables 7 and 8) were impregnated with a clear polyester resin-acetone mixture; samples were then topped up with resin, ahead of curing and slabbing for 75 x 50mm-size thin section manufacture by Spectrum Petrographics, Vancouver, Washington, USA (Goldberg and Macphail 2006; Murphy 1986) (e.g. Figs A1 and A8). Thin sections were further polished with 1000 grit papers and analysed using a petrological microscope under plane polarised light (PPL), crossed polarised light (XPL), oblique incident light (OIL) and using fluorescent microscopy (blue light – BL), at magnifications ranging from x1 to x200/400. Thin sections were described, ascribed soil microfabric types (MFTs) and microfacies types (MFTs) (see Tables 7 and 8) and counted according to established methods (Bullock *et al.* 1985; Courty 2001; Courty *et al.* 1989; Macphail and Cruise 2001; Macphail and Goldberg 2017; Nicosia and Stoops 2017; Stoops 2003; Stoops *et al.* 2010).

Results

8.1.4 Results are presented in Tables 7–8, illustrated in Figs A1–A12 and supported by material on the accompanying CD-Rom. Up to 14 characteristics were identified and counted from 2 main units in the 2 thin sections analysed.

8.1.5 **3034: 400-475 mm depth (M3013)** This lower part of context 3034 is heterogeneous with frequent greyish brown sandy silt loam, common reddish-brown argillic sands, and frequent weakly calcareous very dark brown sandy loam associated with broad burrows, and a lower semi-intact 20mm layer of brown fine and medium loamy sands (Figs A1–A5). There are frequent gravel (max 5mm) examples of 1mm-size earthworm granules (~1%) and single burnt eggshell fragment and thin likely land snail shell in broad burrows (Figs A1, A6–A7), and trace amounts of fine charcoal (<1mm) in sandy silt loam. Areas of original (relict) very abundant limpid to weakly dusty clay grain coatings and void infills (argillic soil; Figs A2–A5), and occasional void coatings and possibly associated matrix intercalations (formed *in situ*), strong heterogeneity and many broad burrows especially in upper part, and rare very thin and thin, and occasional broad organo-mineral excrements.

8.1.6 Thin section study revealed that there are dumps of soil deposits showing some layering – lower subsoil C horizon sands at the base – and with mixed lower subsoil argillic Bt horizon and upper subsoil sandy silt loam Eb horizon material upwards (cf. Avery 1990; Jarvis *et al.* 1984). Some textural pedofeature evidence of structural collapse occurring during construction seems evident (cf. Romans and Robertson 1983). The suggested Eb horizon soil also includes trace amounts of fine and very fine charcoal. Later earthworm burrowing has mixed in weakly calcareous occupation soil, which includes an example of burnt eggshell (from context 3068).

8.1.7 **3034: 0-75 mm depth (M3012)** Essentially homogeneous dark brown (possibly once-humic) sandy silt loam (Figs A8–A12), but with discontinuous broad vertical channel characterised by dominant fine gravel (max 6mm) and including earthworm granule example. Generally, few gravel (max 10mm) and a rare trace of fine charcoal, possibly becoming rare upwards and, were noted. Rare very dark clayey intercalations and void infills and occasional matrix coatings and infills in vertical burrow, and in uppermost few mm, occasional weak impregnative iron staining (of relict humus), many intrapedal thin channels, and example of broad vertical channel, and an intrapedal total excremental microfabric (Figs A10–A12) with areas of rare very thin and occasional thin and broad organo-mineral excrements, are present.

8.1.8 This is probably a turf-constructed layer. The soil has a typical total excremental microfabric of an A1h topsoil horizon, which has undergone compaction and oxidation-reduction processes associated with burial, and relict organic matter is associated with weak iron staining typical of buried turf constructions (Crowther *et al.* 1996; Lindbo *et al.* 2010). Only minor structural collapse took place, indicating that this was a well-developed Mull humus topsoil (compared to the much less structurally stable subsoil materials found in M3013). Relict organic matter staining may suggest that pasture soils were employed, and disturbance (further compaction) of the turf layers may have occurred just below context 3068 (Macphail and Goldberg 2017, chapter 4; 2018).

Discussion and conclusions

8.1.9 A two-thin section investigation of the rampart make up (context 3034) found that lower 3034 (M3013) is composed of dumped poorly stable subsoil materials logically derived from the C, Bt and Eb horizons of the local argillic brown earth soil cover, formed in fluvio-glacial sands and with a finer (more silty) upper sequum due to windblown drift (cf. Avery 1964; 1990; Jarvis *et al.* 1983; 1984). The upper part of Context 3034 (M3012) is a turf layer, made up of A1h horizon topsoil. Typical of turf-buried soils it is characterised by compaction, and loss of organic matter due to localised oxidation-reduction processes (Crowther *et al.* 1996; Lindbo *et al.* 2010). No living turf surface was recognised below later emplaced context 3068, which is only evidenced by some broad burrows within samples 3012 and 3013. There may have been further compaction of the upper turf layers in context 3034, which possibly acted as a turf capping layer to the rampart in order to improve the stability of the construction (cf. Gokstad Ship burial mound; Macphail *et al.* 2013) (Huisman and Milek 2017; Macphail and Goldberg 2017, 212–2). This seems to record a probable pastoral land use.

Table 7: Soil micromorphology samples and counts

Thin section	Relative depth	Context	MFT	SMT	Voids	Gravel	Charcoal	Burnt eggshell	Earthworm granule	Landsnail shell?	Argillic clay	Var. clay coats
3012	80-155mm	3034	B1	1b	45%(30%)	f	a*		a-1			a
3013	400-475mm	3024	A1	1a,2a,2b,3a	40%(30%)	ff	a*	a-1	a*	a-1	(aaaa)	aa
<i>Table 7, cont.</i>												
Thin section	Relative depth	Context	2ndary Fe	Thin burrows	Broad burrows	V thin O-M excr.	Thin O-M excr.	Broad O-M excr.				
3012	80-155mm	3034	aa	aaa	(aaaa)	a	aa	aa(tot)				
3013	400-475mm	3024			aaa	a	a	aa				

* - very few 0-5%, f - few 5-15%, ff - frequent 15-30%, fff - common 30-50%, ffff - dominant 50-70%, fffff - very dominant >70%
a - rare <2% (a*1%; a-1, single occurrence), aa - occasional 2-5%, aaa - many 5-10%, aaaa - abundant 10-20%, aaaaa - very abundant >20%

Table 8: Soil micromorphology descriptions and preliminary interpretations

Microfacies type (MFT)/Soil microfabric type (SMT)	Sample No.	Depth (relative depth) Soil Micromorphology (SM)	Preliminary Interpretation and Comments
			Context 3034
MFT B1/SMT 1b	M3012	0-75mm SM: Essentially homogeneous dark brown sandy silt loam (SMT 1b), but with discontinuous broad vertical channel characterised by dominant fine gravel (max 6mm), and including earthworm granule example; <i>Microstructure</i> : massive with examples of horizontal cracks (and with vertical broad channel), 30% intrapedal voids (fine channels) and 45% overall; <i>Coarse Mineral</i> : as SMT 1a, with few gravel (max 10mm), and post-depositional dominant fine gravel (max 6mm) infill; <i>Organic and Anthropogenic</i> : rare trace of fine charcoal, possibly becoming rare upwards and example of earthworm granule; <i>Fine Fabric</i> : SMT 1b: mainly dark brown, but dark reddish brown (PPL), low to very low interference colours (close porphyric, stipple speckled b-fabric, XPL), yellowish brown to pale reddish yellow brown (OIL), relict weakly humic to humic stained, with very fine relict amorphous organic matter, and trace amounts of very fine charcoal; <i>Pedofeatures</i> : <i>Textural</i> : rare very dark clayey intercalations and void infills and occasional matrix coatings and infills in vertical burrow, and in uppermost few mm; <i>Amorphous</i> : occasional weak impregnative iron staining; <i>Fabric</i> : many intrapedal thin channels, and example of broad vertical channel; <i>Excrements</i> : intrapedal total excremental microfabric with areas of rare very thin and occasional thin and broad organo-mineral excrements.	Essentially homogeneous dark brown (possibly once-humic) sandy silt loam, but with discontinuous broad vertical channel characterised by dominant fine gravel (max 6mm) and including earthworm granule example. Generally, few gravel (max 10mm) and a rare trace of fine charcoal, possibly becoming rare upwards and, were noted. Rare very dark clayey intercalations and void infills and occasional matrix coatings and infills in vertical burrow, and in uppermost few mm, occasional weak impregnative iron staining (of relict humus), many intrapedal thin channels, and example of broad vertical channel, and an intrapedal total excremental microfabric with areas of rare very thin and occasional thin and broad organo-mineral excrements, are present. <i>This is probably a turf-constructed layer. The soil has a typical total excremental microfabric of an A1h topsoil horizon. Relict organic matter is associated with weak iron staining typical of buried turf constructions (Crowther et al., 1996). Only minor structural collapse took place, indicating that this was a well-developed Mull humus topsoil (compared to the much less structurally stable subsoil materials found in M3013). Relict organic matter staining may suggest that pasture soils were employed, and disturbance of the turf layers may have occurred just below Context 3068.</i>

<p>MFT A1/SMT 1a, 2a, 2b, 3a</p>	<p>M3013</p>	<p>400-475mm SM: Heterogeneous with frequent greyish brown sandy silt loam (SMT 1a), common reddish brown argillic sands (SMT 2a), and frequent weakly calcareous very dark brown sandy loam (SMT 3a) associated with broad burrows, and a lower semi-intact 20mm layer of brown fine and medium loamysands (SMT 2b); <i>Microstructure</i>: massive, with channel and chamber, 30% intrapedal voids and 40% voids overall, fine intrapedal channels and vughs, with general cracks and broad channels and chambers affecting the whole layer; <i>Coarse Mineral</i>: C:F (Coarse: Fine limit at ~10µm), SMT 1a: 85:15, 2a: 75:25, 2b: 95:05, 3a: 80:20; SMT 1a: moderately poorly sorted coarse silts and fine and medium sands, 2a: moderately well sorted sub-angular to sub-rounded fine and medium sands, 3a: poorly sorted silts and sands with coarse inclusions (burnt eggshell and earthworm granule examples), and with frequent gravel (max 5mm) overall; quartz, feldspars, limestone, ferruginous limestone and ironstone present; <i>Organic and Anthropogenic</i>: examples of 1mm-size earthworm granules (~1%) and single burnt eggshell fragment and thin likely land snail shell in broad burrows, and trace amounts of fine charcoal (<1mm) in sandy silt loam; <i>Fine Fabric</i>: SMT 1a: dusty greyish brown (PPL), very low interference colours (porphyric, stipple speckled b-fabric, XPL), pale yellowish brown (OIL), possible trace of humic staining, with examples of very fine charcoal (Eb horizon?); SMT 2a: reddish brown (PPL), moderately high interference colours – with fine fabric being essentially argillic (Bt horizon) – see Pedofeatures – (porphyric, with stipple speckled and grano-striate, XPL), yellowish brown with pale reddish yellow brown (OIL), minerogenic; SMT 3a: dusty/cloudy very dark brown (PPL), low interference colours (porphyric, stipple speckled with crystallitic b-fabric, XPL), yellowish brown (OIL), rare very fine amorphous and charred organic matter relicts; SMT 2b: dark brown (PPL), very low interference</p>	<p>Heterogeneous with frequent greyish brown sandy silt loam, common reddish-brown argillic sands, and frequent weakly calcareous very dark brown sandy loam associated with broad burrows, and a lower semi-intact 20mm layer of brown fine and medium loamy sands. There are frequent gravel (max 5mm) examples of 1mm-size earthworm granules (~1%) and single burnt eggshell fragment and thin likely land snail shell in broad burrows, and trace amounts of fine charcoal (<1mm) in sandy silt loam. Areas of original (relict) very abundant limpid to weakly dusty clay grain coatings and void infills (argillic soil), and occasional void coatings and possibly associated matrix intercalations (formed <i>in situ</i>), strong heterogeneity and many broad burrows especially in upper part, and rare very thin and thin, and occasional broad organo-mineral excrements. <i>Dumps of soil layers showing some layering – lower subsoil C horizon sands at the base – and with mixed lower subsoil argillic Bt horizon and upper subsoil sandy silt loam Eb horizon material upwards. Some textural pedofeature evidence of structural collapse occurring during construction seems evident. The suggested Eb horizon soil also includes trace amounts of fine and very fine charcoal. Later earthworm burrowing has mixed in weakly calcareous occupation soil, which includes an example of burnt eggshell.</i></p>
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		<p>colours (coated and linked grain, stipple speckled b-fabric, XPL), yellow brown (OIL), minerogenic; <i>Pedofeatures</i>: <i>Textural</i>: areas of original (relict) very abundant limpid to weakly dusty clay grain coatings and void infills (argillic soil), and occasional void coatings and possibly associated matrix intercalations (formed <i>in situ</i>); <i>Fabric</i>: strong heterogeneity and many broad burrows especially in upper part; <i>Excrements</i>: rare very thin and thin, and occasional broad organo-mineral excrements.</p>	
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Soil Micromorphology Figures A1–A12

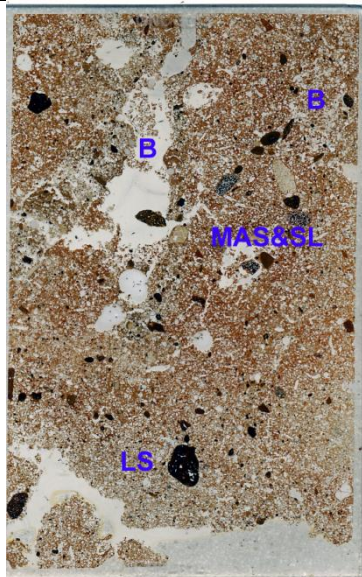


Fig. A1: Scan of M3013 (lower Context 3034); rampart soil layers composed of mainly loamy sand (LS; sandy subsoil) with a layer of coarse fragmented and mixed argillic subsoil and upper subsoil sandy silt loam (MAS&SL). Later burrows (B) mix more calcareous soil from overlying Context 3068. Frame width is ~50mm.

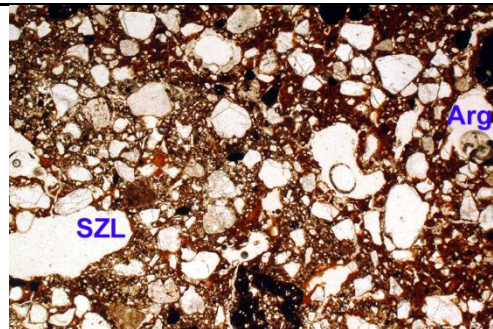


Fig. A2: Photomicrograph of M3013 (lower Context 3034), showing example of mixed sandy silt loam Eb horizon soil (SZL) and argillic clayey sands (Arg; Bt horizon soil). Plane polarised light (PPL), frame width is ~4.62mm.

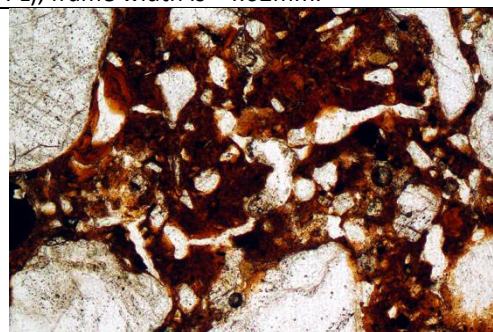


Fig. A3: Detail of Fig. A2; argillic Bt horizon subsoil, dominated by clayey textural pedofeatures – infills and coatings. PPL, frame width is ~0.90mm.

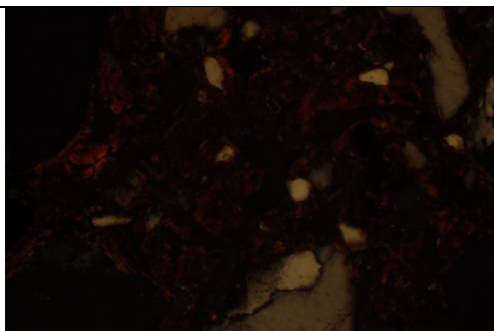


Fig. A4: As Fig. A3, under crossed polarised light (XPL), note clayey pedofeatures.

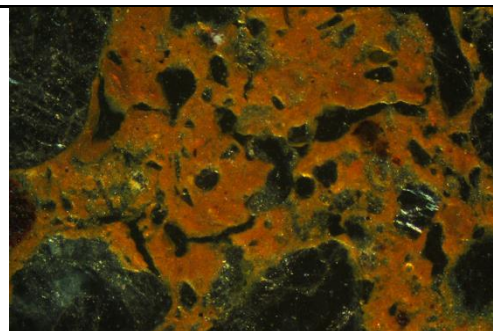


Fig. A5: As Fig. A3, under oblique incident light (OIL) showing present of clay containing iron.

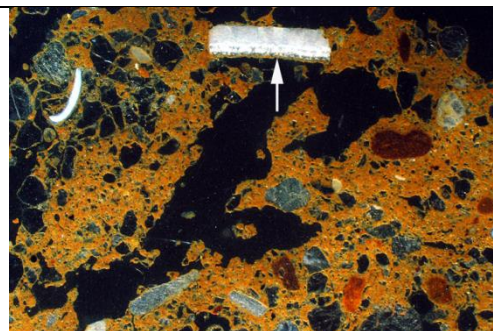
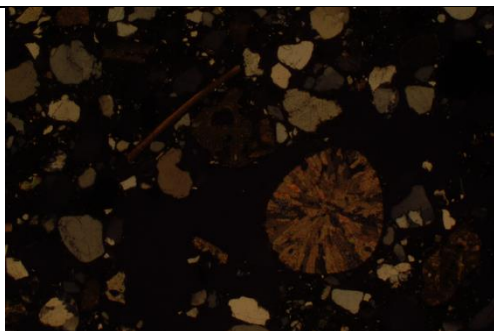


Fig. A6: Photomicrograph of M3013 (lower Context 3034); example of burrow fill (Fig. A1), with fragments of limestone, land snail shell and an earthworm granule composed of biogenic calcite. XPL, frame width is ~4.62mm.



Fig. A8: Scan of M3012 (upper Context 3034); compact turf rampart with broad vertical burrow containing gravel – earthworm aestivation activity(?). Frame width is 50mm.

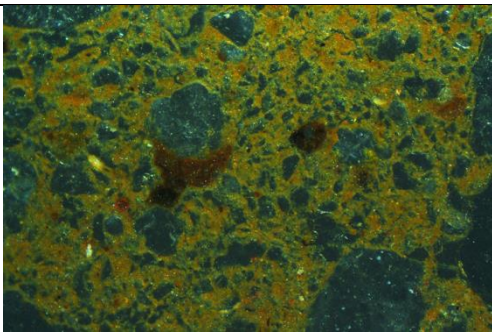


Fig. A11: As Fig. A10, under OIL, showing ferruginisation of organo-mineral material due to burial and resulting oxidation-reduction processes.

Fig. 7: Photomicrograph of M3013 (lower Context 3034); example of burrow fill (Fig. A1), with land snail shell fragment and burnt eggshell (arrow) of likely occupation material present in overlying Context 3068. OIL, frame width is ~4.62mm.

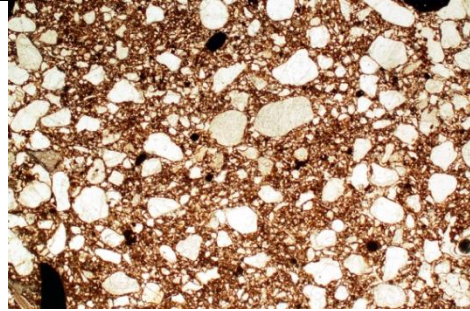


Fig. A9: Photomicrograph of M3012 (upper Context 3034); compact A1h horizon (turf) soil material. PPL, frame width is ~4.62mm.

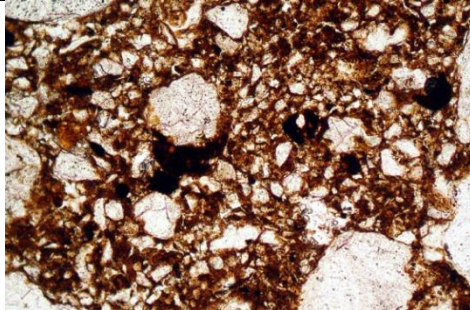


Fig. A10: Detail of Fig. A9, with compact soil containing bioworking evidence – relict excrements of mesofauna and thin burrowing. PPL, frame width is ~0.90mm.

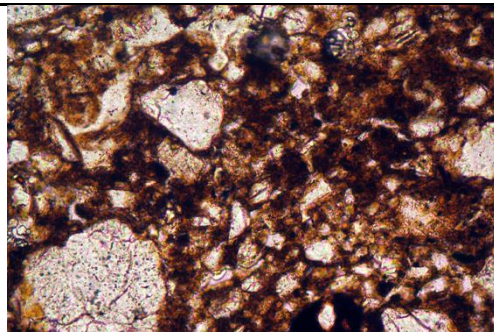


Fig. A12: Further detail of relict mesofauna organo-mineral excrements. PPL, frame width is ~0.47mm.

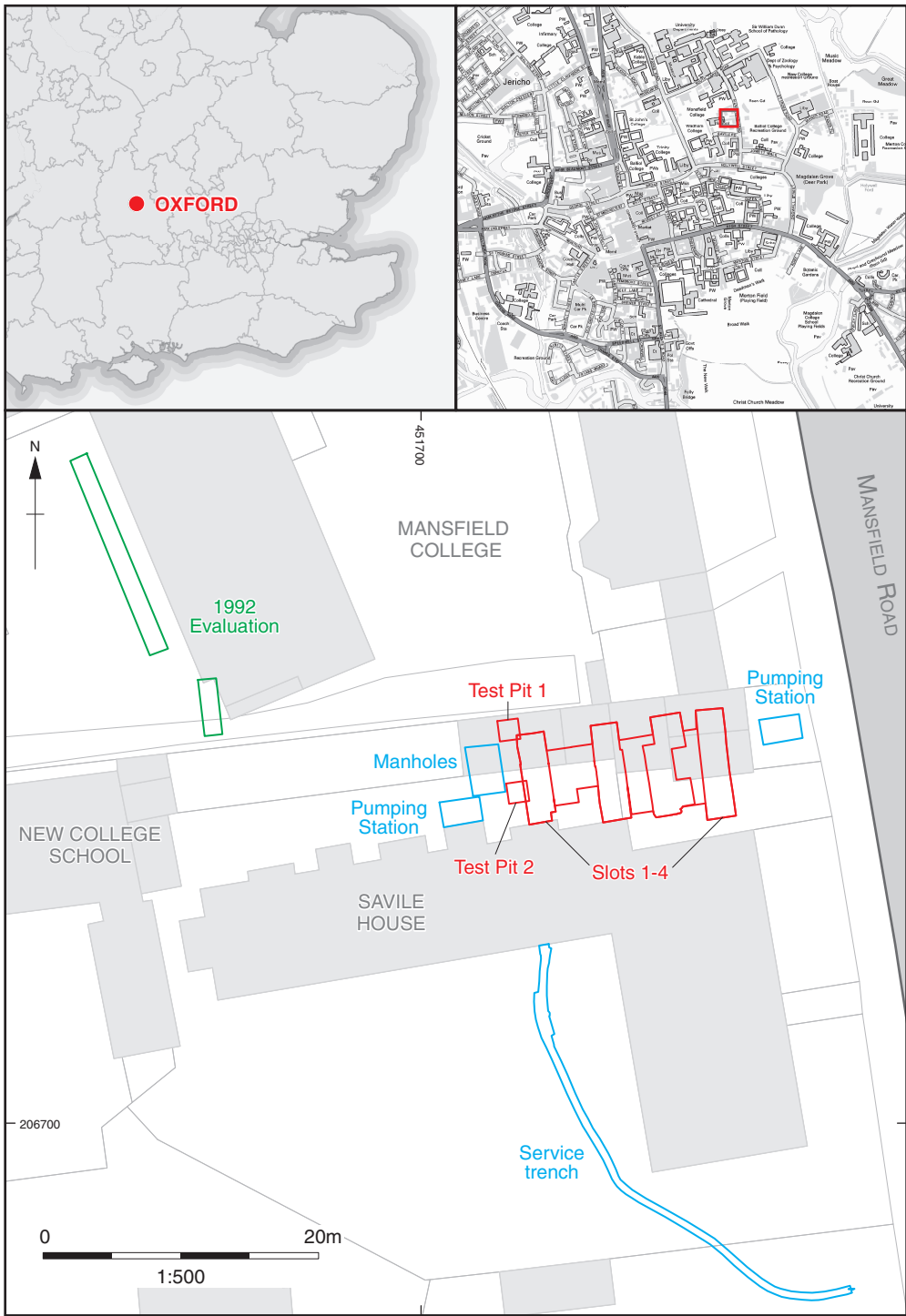


Figure 1: Site and trench location map



Figure 2: Agas's map of Oxford (1578)

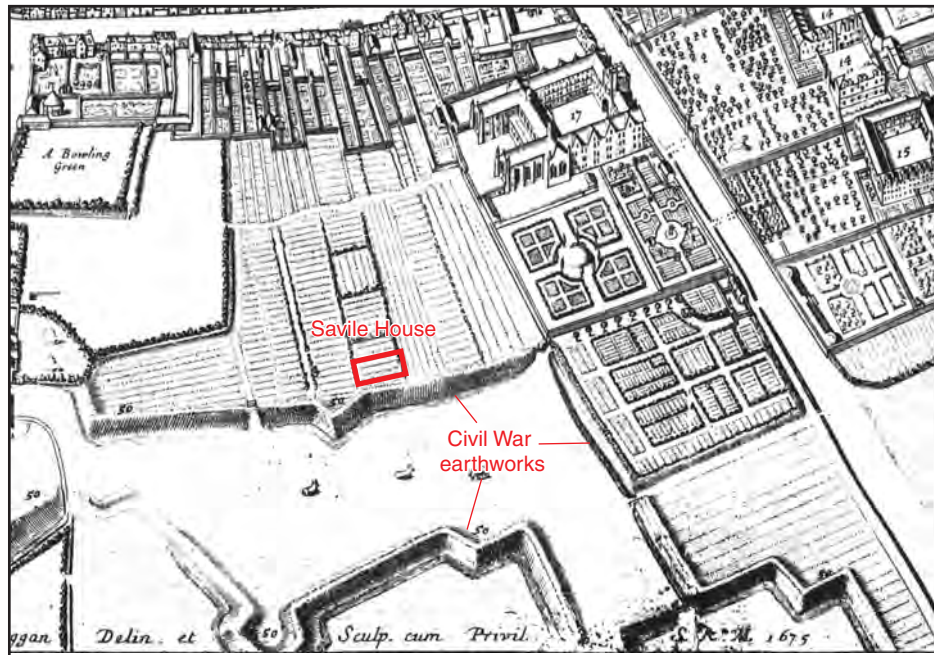
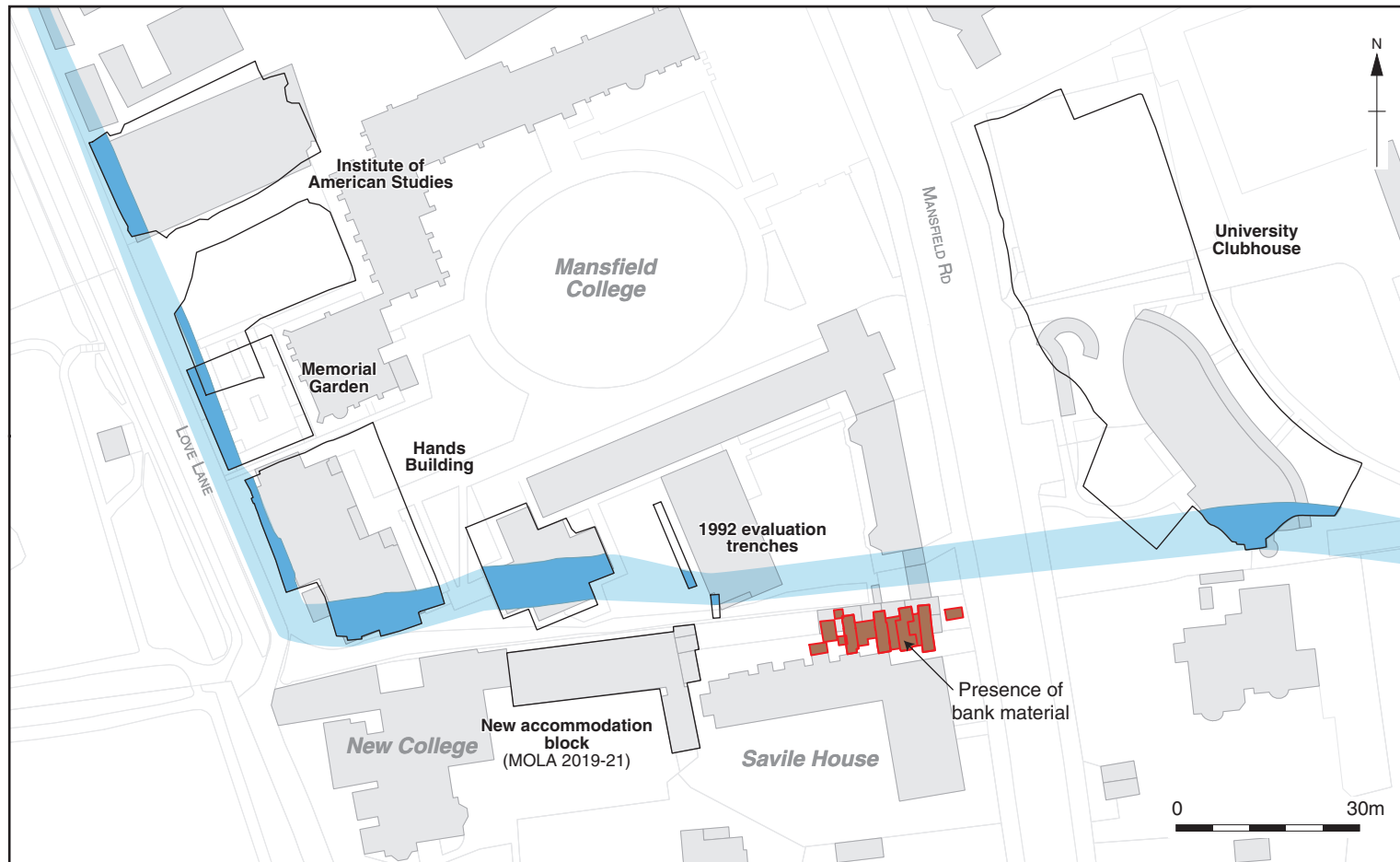


Figure 3: Loggan's map of Oxford (1675)



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Figure 4: The alignment of the ditch of the inner Civil War defences, as confirmed by excavations showing the extent of the bank revealed at Savile House



Figure 5: Phases 1 and 3



Figure 6: Pre-bank postholes on the east side of the site

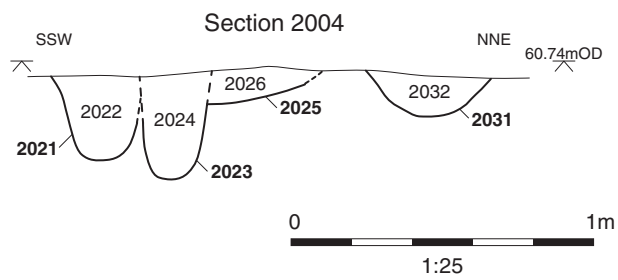
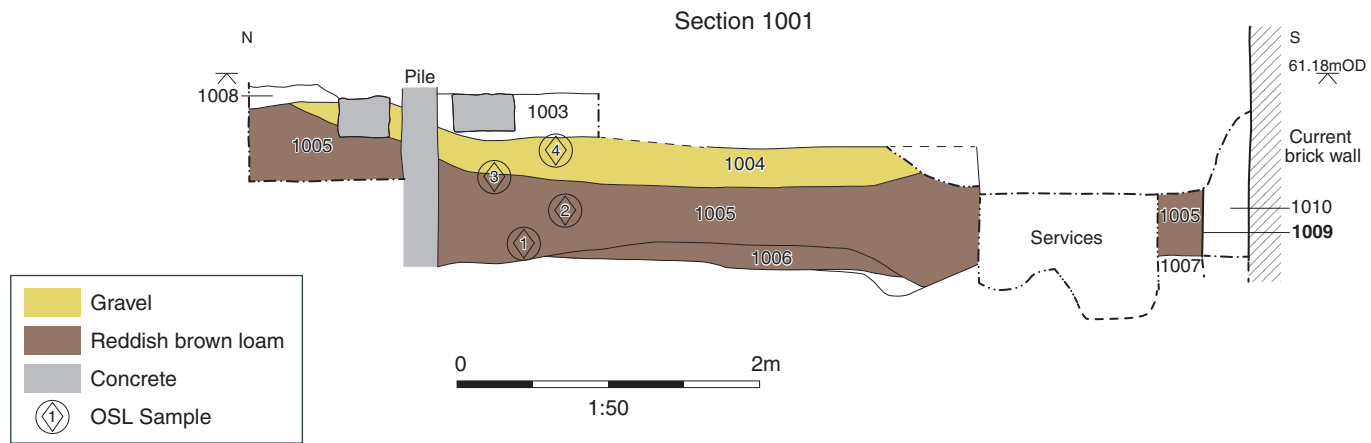


Figure 7: Sections 1001 and 2004

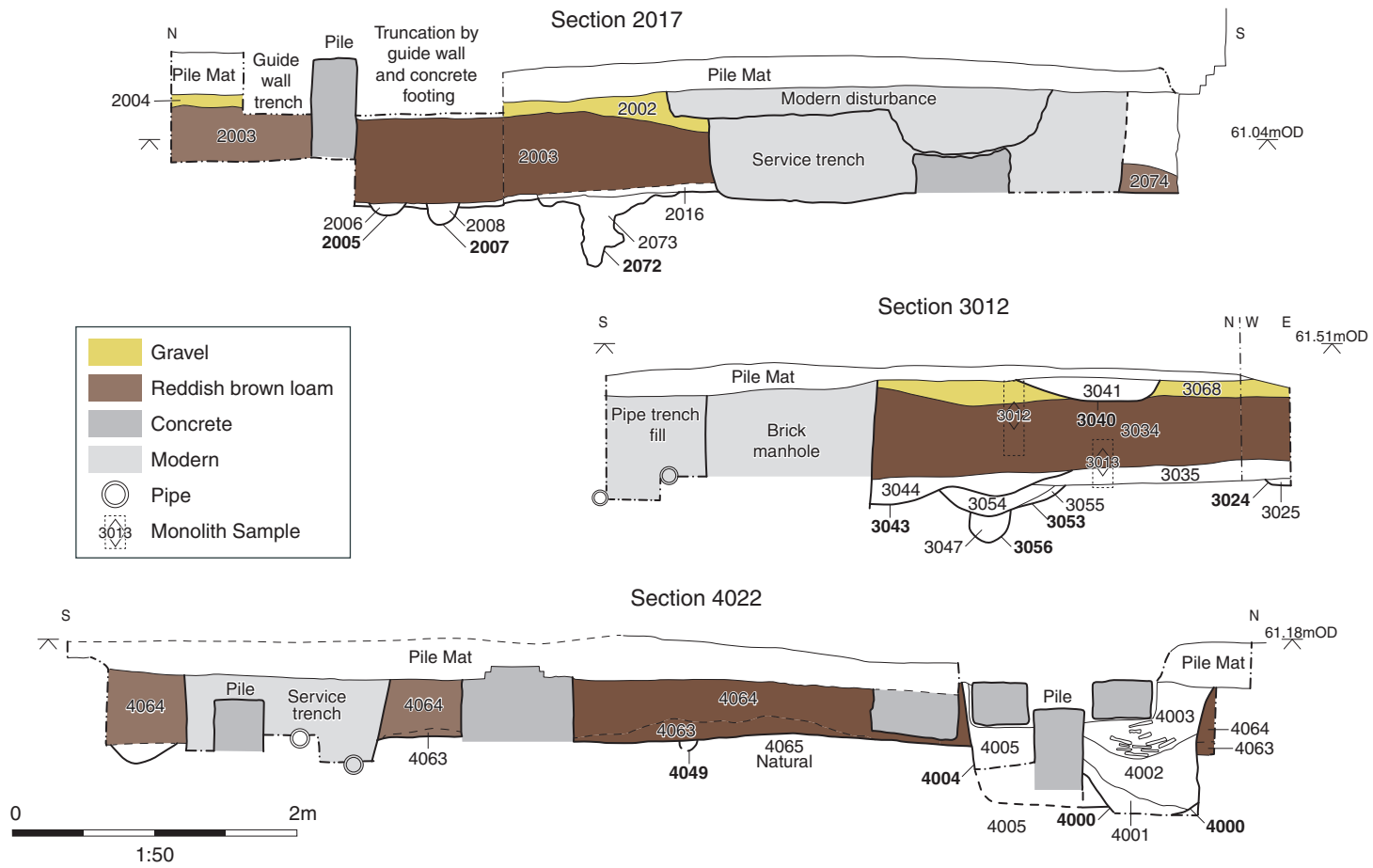


Figure 8: Sections 2017, 3012 and 4022



Figure 9: Detail of Slot 1 during excavation (north end)) showing two phases of Civil War bank construction, view west

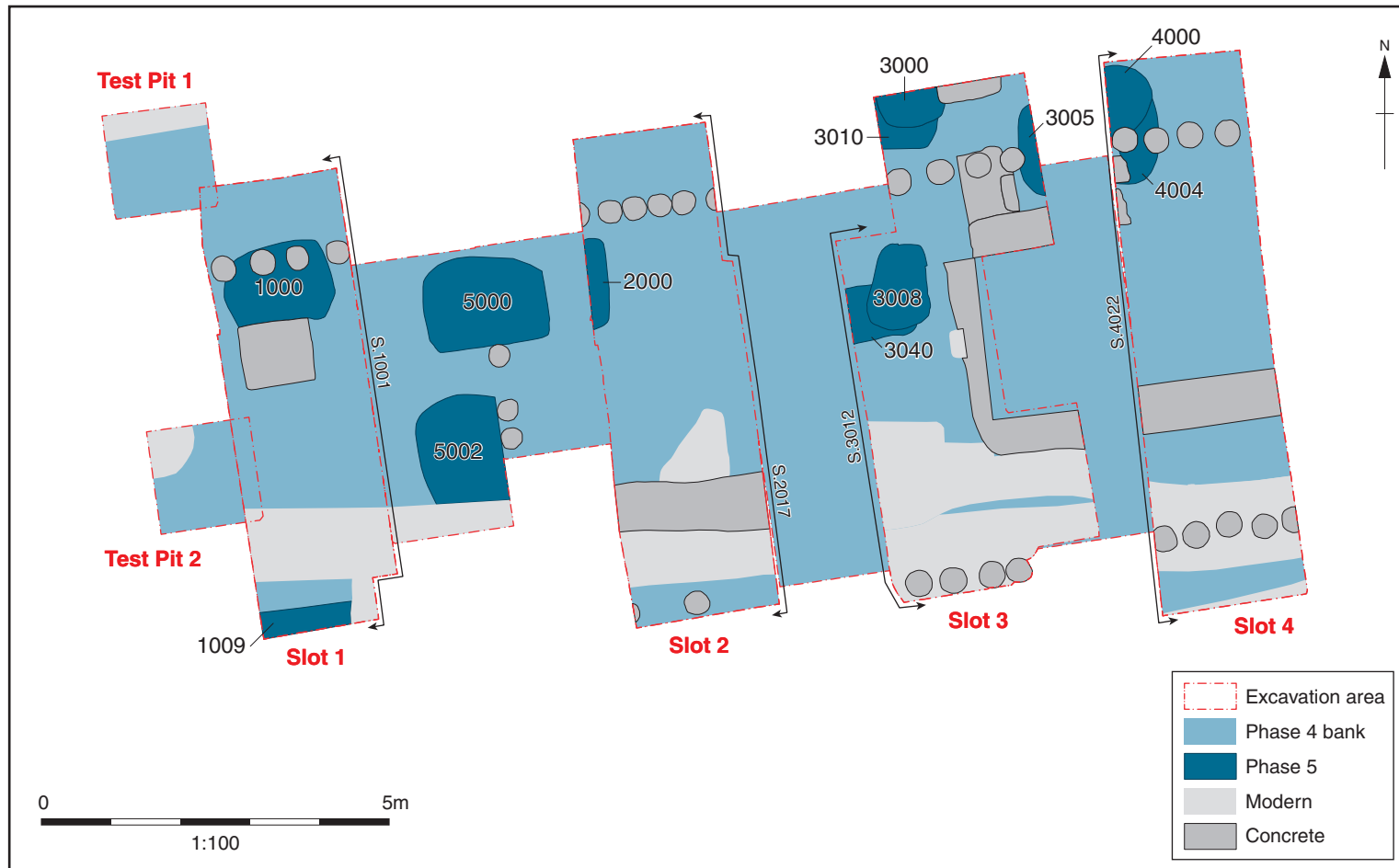


Figure 10: Phases 4 and 5

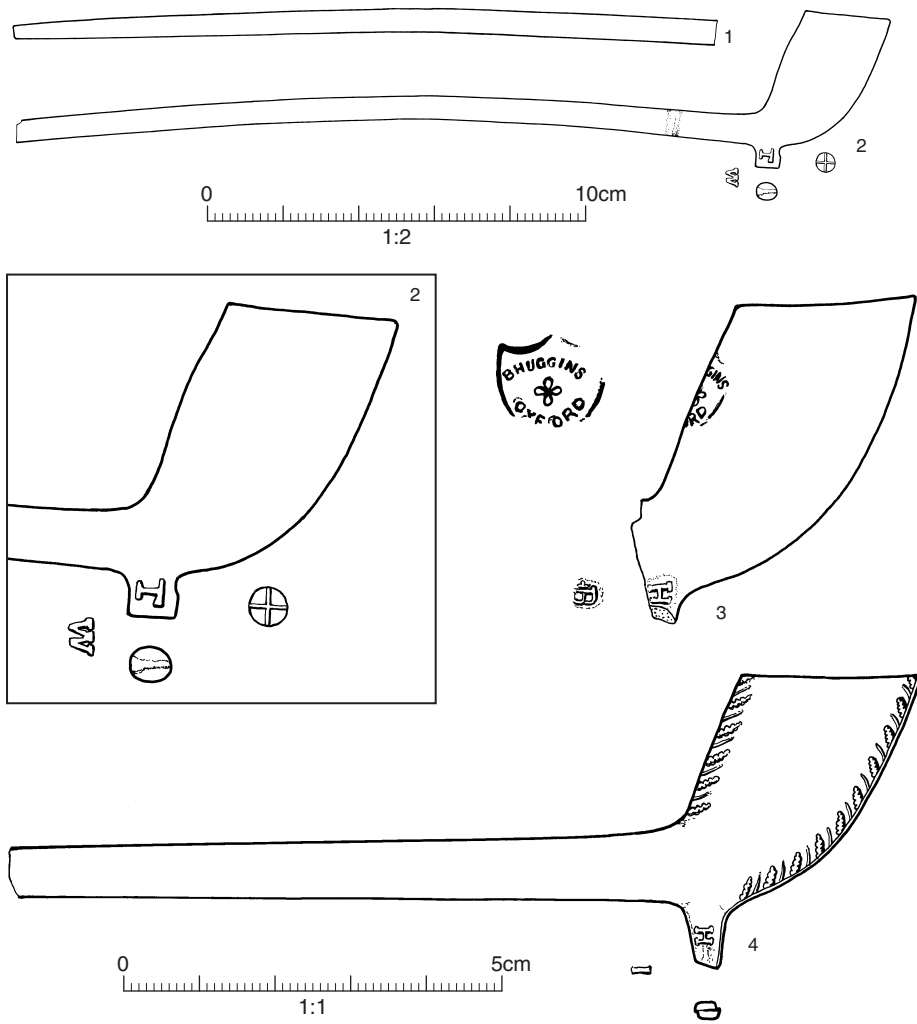


Figure 11: Clay tobacco pipes

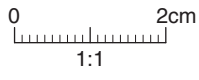
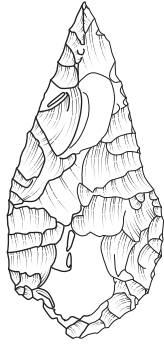


Figure 12: Flint



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