



Tinbergen Building, South Parks Road, Oxford

Archaeological Strip Map
and Sample Report



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Tinbergen Building, South Parks Road, Oxford

Archaeological Strip, Map and Sample Report

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Summary

In April 2016, Oxford Archaeology (OA) undertook an archaeological strip, map and sample within the footprint of an extension to the Tinbergen Building, South Parks Road, Oxford. The works were followed by a watching brief on associated groundworks undertaken between May and August 2016. An evaluation of the site had previously been undertaken by OA in 2015.

The works revealed a roughly north-west/south-east aligned ditch in the western half of the site, and a configuration of pits to the east on the same alignment. Although the fills of the ditch did not produce any datable artefactual material, it is almost certain that it is associated with the Civil War defensive circuit, as contemporary cartographic sources indicate a bastion in the vicinity of the Tinbergen Building.

The fills of the pits did produce 17th century finds, including a Charles I Rose farthing minted between 1636 and 1644, and a horse burial complete with shoes, the form of which suggest a late 17th or even 18th century date. Consequently, the pits are likely to represent pitfalls providing an additional line of defence outside the main circuit. The fact that the ditch was relatively shallow in comparison to other excavated segments of the defences may indicate a degree of truncation has occurred, possibly during the construction of the Tinbergen Building in the 1960s.

1 INTRODUCTION

1.1 Scope of work

- 1.1.1 Oxford Archaeology (OA) was instructed by CPC Project Services on behalf of Oxford University Estates to carry out archaeological mitigation in regard to development adjacent to and within the curtilage of the Tinbergen Building, South Parks Road, Oxford.
- 1.1.2 The development programme comprised demolition and grubbing up of single storey structures and hard-standings at the southern boundary of the site property followed by the erection of a two-storey building over a basement floor.
- 1.1.3 A planning application for the development (Ref. No: 15/03105/FUL) was approved following the production of a desk-based assessment (OA 2015a) and a subsequent pre-application archaeological evaluation carried out by OA in 2015 (OA 2015). As a consequence of the potential for archaeological remains to be present on the site, a condition was attached to the planning approval to mitigate the impact of the development on any such remains (Condition 18).
- 1.1.4 This stipulated the production of a written scheme of investigation (WSI) detailing how OA would fulfil the requirements of the condition (OA 2015). The impact of the development involved the total removal of any remains present, and therefore mitigation was by preservation of archaeological remains by record; namely the excavation and recording of any remains within the development boundary. The initial WSI set out the methodology for a targeted strip, map and sample (SMS) to further clarify the results of the evaluation, with a contingency for further works dependent upon the results from the first phase. Following consultation with the archaeological planning advisor, the remainder of the basement footprint was also subject to SMS in



accordance with the remit of the planning condition. A separate WSI was produced by OA detailing the methodology for this phase of works (OA 2016).

- 1.1.5 Additional engineering impacts were subject to an archaeological watching brief, including the diversion of the existing foul and storm water connections; removal of hard-standing and ground reduction by the site entrance from St Cross Road; the underpinning of the southern elevation of the Tinbergen Building; and the excavation of trial holes associated with the removal of obstruction(s) on the line of the contiguous pile wall around the basement box.
- 1.1.6 All work was undertaken in accordance with the Institute for Archaeologists' 'Standard and Guidance for archaeological field evaluation' (revised 2008) and the National Planning Policy Framework (NPPF).

1.2 Location, geology and topography

- 1.2.1 The site (see Fig. 1) is bordered to the north by South Parks Road and to the east by St Cross Road, and is mostly covered by the Tinbergen Building. Light ancillary buildings immediately to the south of the main building were used as aviaries. These had been demolished and the area had been levelled at the time of investigation.
- 1.2.2 The site lies within the administrative area of Oxford City Council and covers an area of around 0.7ha. It is located outside the medieval city and immediately outside the Central Oxford Conservation Area.
- 1.2.3 The site is located on the second river gravel terrace and the underlying geology is Oxford Clay. The site is mostly level, and lies at c 60m OD.
- 1.2.4 The site can be broken into two distinct parts, roughly a northern and southern section. The northern portion represents the majority of the site and is within the footprint of the concrete Tinbergen Building, which was completed in 1970, and ranges in height from two storeys at the periphery to five storeys at the centre. The southern portion of the site was previously covered by lightweight structures with concrete foundations and is the proposed area of redevelopment.

1.3 Archaeological and historical background

- 1.3.1 The site has been the subject of a desk-based assessment (DBA: OA 2015a). The results of the DBA are not reproduced in detail here and the DBA should be read in conjunction with this document.
- 1.3.2 The DBA noted the following archaeological potential:
- 1.3.3 There was a high potential for prehistoric remains to be present within the site as it is located c 50m from a known prehistoric field system. There have also been significant prehistoric remains identified from elsewhere in the DBA Study Area (a 250m radius around the site) including Neolithic and Bronze Age ritual landscapes and funerary monuments. A number of findspots of prehistoric flint artefacts recorded from within the DBA Study Area suggests further isolated artefacts may be present within the gravels that underlie the site.
- 1.3.4 There was a high potential for Roman remains to be present within the site. Previous work c 50m away identified that a prehistoric field system continued in use into the early Roman period. There have been a number of Roman artefacts found within the Study Area. The presence of Roman features that date from the 1st–4th centuries has been shown through previous investigations in the Study Area, and there is the potential for the site to have remains relating to Roman agriculture and settlement.



- 1.3.5 There was a low potential for early medieval remains to be identified within the site. Only one feature dating to this period has been identified within the Study Area and this is c 180m south-west of the site. The site lies outside both the Saxon defences of Oxford and the area of Saxon town settlement. The site was located within the open fields of Holywell Manor throughout the medieval period.
- 1.3.6 There was low potential for later medieval remains to be present within the site. No archaeological remains have been identified within the Study Area that date to this period. The presence of artefacts that date to this period within the soil is likely to represent manuring.
- 1.3.7 There is high potential for remains relating to the Civil War defences being identified within the site. The location of a bastion or ravelin is shown on Loggan's map of 1675 as lying within the south-western corner of the site (although De Gomme's 1644 plan of the proposed defences places it slightly further to the east and north).
- 1.3.8 Where portions of the Civil War defences have been excavated previously the ditch has been found to be very substantial, c 6-7m wide and over 2m deep.

1.4 Previous archaeological works

Tinbergen Building, South Parks Road, Oxford. Archaeological evaluation

General

- 1.4.1 In November 2015 Oxford Archaeology carried out an archaeological evaluation (OA 2015b). Two trenches totalling a linear length of c 24m were excavated across the southern area. These were located in regard to the mapped modern impacts and the potential line(s) of the Civil War earthworks.
- 1.4.2 One trench revealed apparently redeposited natural strata, which was cut into by a pit containing a 17th century clay pipe. The feature and deposits recorded on the site were interpreted as possibly being associated with the Civil War earthworks known to be in this general area from historic map sources, however the exact nature of the remains was not clarified within the confines of the trenches.
- 1.4.3 A deposit encountered at the same elevation in the base of both trenches was very sterile and was initially thought to represent a geological variation in the composition of the second gravel terrace, possibly reflecting the location of the site on the periphery of the promontory between the Thames and the Cherwell. The relative consistency in the composition of the deposit within the easternmost trench, and the fact that it was overlain by possible *in situ* brickearth, appeared to be consistent with this interpretation. However, the banding and compositional variation noted within the sondage in the westernmost trench suggested that the material was redeposited, particularly as the interfaces between a number of these variations were not horizontal.
- 1.4.4 Given the projected line of the Civil War defences, it was thought possible that this apparent redeposited material formed part of the earthworks, particularly as the bank would have been formed by the use of sterile natural material generated from the excavation of the ditch. However, if the deposit in the easternmost trench did represent *in situ* natural geology, then the fact that the deposit in westernmost trench was at the same elevation would suggest that if redeposited, then it must be filling a negative feature. Given the potential for the site, it was possible that this strata represented infilling of the Civil War defensive ditch.
- 1.4.5 The dating evidence recovered from the pit which truncated this deposit suggested an early-mid 17th century date for the feature. This also appeared to be inconsistent with



the interpretation of the sterile deposit in the westernmost trench backfilling the Civil War ditch. The function of the pit was unclear, although the lack of other features and the anticipated proximity of the Civil War defences suggested a relationship between the two.

Other deposits

- 1.4.6 The fact that the possible *in situ* brickearth deposit recorded in the easternmost trench was not present in the trench to the west implied that a greater degree of truncation had occurred in the western part of the site. It was thought possible, although highly conjectural, that the more mixed deposit to the west may have reflected the creation of an "artificially enhanced field of fire" beyond the glacia, with the excavated pit representing a pitfall.
- 1.4.7 It was also cautiously noted that large-scale redeposition of natural deposits may have taken place during the construction of the Tinbergen Building. During a pre-investigation site visit it was noted to the OA project manager that traversing crane bases were present on site (although the evidence for this was unclear). The construction and subsequent burying or removing of such structures could easily have resulted in large-scale redeposition of materials. However, this suggested that the pit containing a 17th century clay pipe bowl and stem must have been modern with residual artefacts.

2 PROJECT AIMS AND METHODOLOGY

2.1 Aims

General

The general aims and objectives of the strip, map and sample were to:

- establish the extent of archaeological remains within the development area;
- determine and confirm the character of any remains present;
- establish the date range of any remains from recovered artefacts etc.;
- establish the palaeo-environmental potential of archaeological deposits by sampling relevant deposits;
- make available the results of the investigation.

Specific aims and objectives

The specific aims and objectives of the strip, map and sample were to:

- reveal, in plan, the anomalous deposits identified in the evaluation trenches;
- characterise the deposits as being archaeologically significant or non-significant;
- identify any evidence for the features or deposits associated with the Civil War defences which are known to have been present in the immediate vicinity of the site.

2.2 Project-specific methodology

Strip, map and sample

- 2.2.1 An initial phase of ground reduction strip, map and sample (Phase 1) was undertaken between 25th-29th April 2016. This extent of work was constrained by the presence of live services in the southern and western areas of the site. However, this phase of work



was sufficient to confirm the presence/absence and character of any archaeological remains on site.

- 2.2.2 Within the available site limits the best available area of the proposed new basement (i.e. that not constrained by the presence of live services) was stripped in spits no greater than 0.15m thick to the first significant archaeological horizon or natural geology (whichever was encountered first) under the supervision of an experienced archaeologist.
- 2.2.3 Machining was undertaken using a 12-ton 360-degree mechanical excavator, fitted with a toothless ditching bucket, under close archaeological supervision. An eight-ton dumper accompanied the machine for the movement of spoil.
- 2.2.4 Revealed features were hand cleaned and sample excavated and recorded in line with OA procedures as set out in Appendix A of the WSI (OA 2016).
- 2.2.5 The Phase 1 SMS confirmed the presence of significant archaeological remains and a site meeting and review was conducted. Subject to discussion and approval with the City Archaeologist and client's agent, further excavation areas were identified (Phase 2 SMS: Fig. 1). These works required an addendum to the WSI outlining an agreed appropriate mitigation strategy, although the methodology outlined above was also employed for the ground reduction in the additional SMS area. The second phase of ground reduction was undertaken between 6th-8th June 2016.

Watching brief

- 2.2.6 The watching brief was undertaken in line with OA procedures as set out in Appendix A of the WSI (OA 2016).

3 RESULTS

3.1 Strip, map and sample

Natural

- 3.1.1 The redeposited geological soils seen in the evaluation were investigated by trenches in two locations (Sondages 3A and 3B: Fig. 2). The top of these deposits (and consequently the first archaeological horizon) was encountered at between 57.52m and 57.59m OD, and the two sondages were approximately 1.2m deep. The strata were revealed to be Pleistocene/periglacial fluvial deposits, characterised by the high-energy redeposition of soils within a likely channel (Plate 1). Such features can be significant when they act as traps for archaeological or environmental remains (i.e. faunal remains or rolled artefacts can accumulate at the bends of a river channel). However, in this case the strata in both investigated locations contained no faunal, artefactual or visible environmental remains.

Pit group

- 3.1.2 Pit 101 recorded in the evaluation phase of works was revealed to be part of a group of five substantial pits in a linear configuration across the site, arranged in two parallel rows c 1m apart and aligned roughly N-S (Fig. 2; Plate 2). The pits were fairly uniform in size, being approximately 2m in diameter and 1m deep (Figs 3 and 4).
- 3.1.3 In the easternmost row, cut 101 was re-excavated as cut 328 that contained nine deliberately backfilled deposits (340 to 348) that were largely inclusion free. Fills 342 and 347 contained fragments of 13th- to 16th-century ceramic building material, and the upper fill (340) contained animal bone. The lower fill of cut 101 (102) produced clay



pipe dated to the 17th century and a small quantity of animal bone. Pit 328 had sides at c 70 degrees to the horizontal and a flat base.

- 3.1.4 To the north of 101/328 was pit 323, which also had nine undated fills (331-339) that appeared to have been deliberately backfilled, possibly in two stages. The initial infilling consisted of fills 334 to 338 with a possible secondary infill event comprising deposits 331 to 333. Pit 328 had sides at c 70 degrees to the horizontal and a slightly rounded base.
- 3.1.5 The western row had three pits, the most southerly (302) of which had fifteen sterile fills (303-317) that also appeared to be deliberately backfilled, possibly from the eastern side. The fragmentary remnant of an upright stake (318) that post-dated the disuse of the feature had been driven into fill 304.
- 3.1.6 The middle pit cut in this row (319) contained four fills, the lowest three of which were undated. The upper fill (322) contained a 'Rose' farthing of Charles I, minted between 1636 and 1644 (Scott below). Again the feature appears to have been deliberately backfilled when it went out of use. The cut had sides at c 70 degrees to the horizontal with a slight step to the east and a slightly rounded base.
- 3.1.7 Pit 324 was the most northerly in this row and contained the partial remains of an articulated horse burial (326), partially truncated by the Tinbergen Building foundations (Plate 3). In total three legs (with horse shoes SFs 300, 301 and 302) and part of the lower torso were present. All the bones were fused, indicating that the horse was over four years old when it died. It was not possible to determine sex, but withers' height calculations suggest that it was 147.0-154.5cm (14.5-15.2 hands) tall. No pathologies were visible on the bones and the cause of death is unknown. We can only surmise that the horse's owner regarded the pit as a conveniently pre-dug grave. The rest of the three pit fills were inclusion free and the pit itself had the same rounded profile as the other pits in this row.

Ditch

- 3.1.8 Located approximately 9m to the west of the pit alignment was a roughly N-S aligned ditch (351) that was almost certainly associated with the Civil War defences. The ditch was over 4m wide and observed over 8m. The full profile of the ditch was not exposed having being truncated by modern services mainly to the west, but where it survived it was up to 1m deep. The top of the ditch was located at 57.49m OD to the north, and slightly higher at 57.62m OD to the south.
- 3.1.9 From what survived it was evident that the ditch had gently curving sides on its eastern edge at least and a rounded base (Fig. 4; Plates 4 and 5). It contained three undated fills; the two primary fills (352, 355) and the main fill of the ditch (353). The primary fills appear to have accumulated through natural silting, presumably when the ditch was open. It was unclear whether the main fill had naturally silted or been deliberately backfilled.
- 3.1.10 At the base of the ditch was possible stakehole group 354, consisting of stakeholes 356, 357 and 358. These stakeholes were fairly ephemeral and their function was unclear.

Overlying stratigraphy

- 3.1.11 Where not truncated during the construction of the Tinbergen Building, there was some evidence for a sequence of buried soils overlying the top of the fluvial deposits described above. This sequence was also identified within the easternmost trench of the earlier evaluation, and comprised a mid reddish brown clay silt overlain by a deposit

very similar in composition but greyer in colour. This was in turn overlain by a humic clayey silt. This sequence of deposits was best preserved in the trenches excavated for the diversion of the foul water services to the south of the main site, and is described in greater detail below. Within the curtilage of the Tinbergen Building, the sequence had been heavily truncated during the construction of the Tinbergen Building, which may also have accounted for the apparent truncation of the ditch, and possibly the pit alignment. This is also discussed in greater detail below (Section 4).

3.2 Watching brief

Foul water diversion

3.2.1 The fluvial deposits described above were encountered at c 58.05m OD (approximately 0.7m below existing ground level), and were overlain by a mid reddish brown silty clay an average of 0.2m thick. This was in turn overlain by a c 0.3m-thick mixed deposit of redeposited fluvial material and humic silty loam which may have represented landscaping, either during the construction of the Tinbergen Building or levelling associated with the creation of the playing fields to the south of the site. This was in turn overlain by c 0.2m of existing topsoil and turf.

3.2.2 The geological deposits were cut by the possible continuation of the ditch seen in SMS Phase 2 (359), and one possible pit (361) which may have formed part of the pit alignment revealed to the north (Fig. 2). There was also significant truncation at the western end of the site and possible concrete runners for a traversing crane base associated with the construction of the Tinbergen Building towards the eastern end of the trench.

Storm water diversion

3.2.3 The storm water diversion followed the same line as that for the foul water, but slightly further south and shallower. It was not deep enough to be certain of the continuation of the ditch or pit alignment.

Ground reduction at eastern entrance to St Cross Road

3.2.4 The removal of the concrete hard standing and subsequent reduction of the underlying construction debris revealed heavy truncation from what appeared to be concrete piles. It is possible that these related to the construction of the Tinbergen Building, potentially associated with a fixed crane base, or perhaps test piles in advance of the main piling programme.

Trial pits to remove obstruction to piling rig

3.2.5 A trench was excavated on the line of the western extent of the basement box, as the piling rig consistently encountered obstructions at approximately 5m below ground level. The trench was very waterlogged, but appeared to be excavated through clean sandy gravel over Oxford clay. Consequently, it would appear that the obstruction was geological in nature, possibly very compacted Oxford clay, perhaps effected by the heating ducts that previously occupied this part of the site (albeit at a higher elevation).

Underpinning

3.2.6 The trenches excavated to facilitate the underpinning of the southern wall of the Tinbergen Building largely truncated natural geology. The watching brief focussed on the trenching in the location of the pit alignment, in particular that of the pit containing the horse burial. It would appear that truncation from the existing building foundations had removed any further equine remains.

4 DISCUSSION AND INTERPRETATION

Natural geology

- 4.1.1 The removal of the modern overburden, and the sequence of buried soils described above, revealed the top of the anomalous deposits identified in the evaluation trenches. The sequence of deposits exposed within the two sondages (3A and 3B: Fig. 2; Plate 1) almost certainly represent Pleistocene/periglacial fluvial deposits, characterised by the high energy redeposition of soils within a likely channel. The extent and alignment of this probable channel could not be established within the confines of the site. The top of the natural geology was encountered at c 57.55m OD within the SMS areas, and at 58.07m OD within the service trenches to the south of the site boundary. This may suggest that a degree of truncation has occurred within the site boundary, as would the relatively shallow profile of the putative Civil War defensive ditch (see below).
- 4.1.2 However, the reddish brown material overlying the geological deposits, and interpreted as a possible ploughsoil, was present within the SMS areas (albeit heavily truncated) and within the service trenches to the south of the site proper. This may suggest that the discrepancy in the elevation of the top of the natural geology represents a topographical fall in the geological deposits towards the river to the north and east. This would be consistent with the sharp fall in the elevation of the top of the natural geology recently recorded during an archaeological evaluation of Balliol College Master's Field, c 300m to the south (OA 2016), where the top of the terrace gravel fell c 0.6m from south to north within two trenches approximately 50m apart.
- 4.1.3 Alternatively, the top of the fluvial deposits may have been truncated prior to the deposition of the possible ploughsoil.

Civil War features

- 4.1.4 There are several cartographic representations of the system of defences built at Oxford, none of which are entirely reliable (Kemp 1977; Lattey *et al.* 1936). Most representations of the defences suggest the likelihood of a bastion being somewhere in the vicinity of Tinbergen Building.
- 4.1.5 The ditch revealed within the phase 2 SMS (351) and possibly continuing southward into the watching brief area (359) was undated, but is likely to form part of the 17th-century defensive circuit, particularly given the fact that it ran parallel to the pit alignment to the east, which did contain 17th-century artefactual evidence. However, the dimensions of the ditch (4m+ wide and up to 1m deep) were significantly different to those of a section of the defensive ditch revealed in advance of the construction of the Chemistry Research Laboratory to the west, the latter ditch measuring 11m wide and 2.4m deep (Bradley *et al.* 2005). This may suggest that there has been a degree of truncation of the upper part of the feature, possibly during the construction of the Tinbergen Building.
- 4.1.6 The pits are likely to represent 'pitfalls' - mantraps dug as additional defences outside the main line. This would also suggest that the area to the east of ditch 351/359 is external to the main defensive line, and consequently that the section of ditch uncovered to the west of the site represents that running southward from the bastion indicated by de Gomme (Fig. 5).
- 4.1.7 There is a contemporary reference to pits forming part of the northern defensive line from May 1646, following a survey of the defences by Fairfax's Council of War (Varley 1932, 115), which recorded that "*Upon the outside of the Ditch round the Line it was strongly palisadoed, and without that again, were digged several pits in the ground, so*



that a single footman could not without difficulty approach the brink of the ditch". At Newark, the pitfalls were described as "two rows of holes ye height of a man in depth, and so near it might hinder their sudden assaulting the works." (Harrington 2003). Both of these descriptions appear to correspond with the configuration of the features revealed within the phase 1 SMS. If the interpretation of the relatively insubstantial dimensions of the ditch as truncation is correct, then it would suggest that these pits could have been around 2 m deep

- 4.1.8 The horse burial within the northernmost pit is likely to be an opportunistic use of an open feature rather than a pit dug specifically for the burial.



APPENDIX A. ARCHAEOLOGICAL CONTEXT INVENTORY

Context no.	Type	Width (m)	Depth (m)	Comment	Finds
300	Deposit	-	-	Overburden buried soil	-
301	Deposit	-	-	Natural mid orange brown sandy silt with occasional clay and 5% gravel	-
302	Cut	1.94	1.00	Pit cut filled by 303 to 317	No
303	Fill	1.24	0.07	Upper fill of pit cut 302 a firm pink brown clay silt with 5% rounded gravel	No
304	Fill	1.72	0.15	Fill of pit cut 302 a friable mid brown clay silt with occasional gravel and patches of sand	No
305	Fill	0.75	0.02	Fill of pit cut 302 a friable mid yellow sand with very occasional gravel	No
306	Fill	1.43	0.18	Fill of pit cut 302 a friable mid grey brown sandy clay with 2% rounded gravel	No
307	Fill	1.70	0.11	Fill of pit cut 302 a friable mid brown clay silt with 1% rounded gravel and charcoal flecks	No
308	Fill	1.20	0.04	Fill of pit cut 302 a friable mid orange brown clayey silt with 5% rounded gravel	No
309	Fill	1.34	0.09	Fill of pit cut 302 a soft mid grey silty clay with occasional charcoal flecks	No
310	Fill	0.75	0.13	Fill of pit cut 302 a friable mid orange brown clayey silt with occasional sand	No
311	Fill	0.24	0.10	Fill of pit cut 302 a soft mid orange sand	No
312	Fill	1.16	0.05	Fill of pit cut 302 a friable mid grey yellow silt with 2% gravel	No
313	Fill	0.85	0.12	Fill of pit cut 302 a friable mid grey silty clay	No
314	Fill	0.80	0.13	Fill of pit cut 302 a friable mid yellow brown sand	No
315	Fill	1.19	0.24	Fill of pit cut 302 a friable to soft yellow brown coarse sandy silt with 1% rounded gravel	No
316	Fill	0.68	0.04	Fill of pit cut 302 a soft mid grey brown silt	No
317	Fill	1.2	0.23	Basal fill of pit cut 302 a friable light brown gravelly sand	No
318	Timber	0.04	0.25	Wooden stake with sharpened point	No
319	Cut	2.00	1.00	Pit cut filled by 320 to 322 and 329	No
320	Fill	0.80	0.16	Basal fill of pit cut 319 friable mid yellowish brown sandy gravel with occasional patches of mid reddish brown sand	No
321	Fill	1.30	0.30	Fill of pit cut 319 friable mid grey brown gravelly (20%) sandy clay	
322	Fill	2.00	0.7	Upper fill of pit cut 319 a friable mid brownish grey gravelly (10%) sandy clay	



Context no.	Type	Width (m)	Depth (m)	Comment	Finds
323	Cut	1.70	0.96	Pit cut filled by 331 to 339	
324	Cut	1.41	1.00	Pit cut filled by 325 to 327 and 349 to 350	
325	Fill	1.41	0.30	Fill of pit cut 324 a friable mid brownish grey gravelly clay silt	
326	Skeleton	n/a	n/a	Articulated horse skeleton (partial) in pit cut 324	Three horseshoes
327	Fill	0.40	0.15	Fill of pit cut 324 a mid to dark grey clay silt	
328	Cut	2.15	0.91	Pit cut filled by 340 to 348	Yes
329	Fill	1.00	0.18	Fill of pit cut 319 a friable mid reddish brownish silty sand	
330	Group	n/a	n/a	Group consists of pit cuts 302, 319, 323, 324 and 328	
331	Fill	1.70	0.21	Fill of pit cut 323 a firm mid brown clay silt	No
332	Fill	1.42	0.32	Fill of pit cut 323 a friable mid yellowish brown sandy silt with occasional patches of clay, yellow sand, brown silt and 5% gravel	No
333	Fill	1.05	0.16	Fill of pit cut 323 a friable mid yellow brown silty sand	No
334	Fill	0.72	0.06	Fill of pit cut 323 friable mid yellow silty sand	No
335	Fill	0.78	0.09	Fill of pit cut 323 a friable mid pinkish grey sandy silt and 1% gravel	No
336	Fill	0.70	0.07	Fill of pit cut 323 a friable mid brownish yellow sandy silt	No
337	Fill	0.41	0.06	Fill of pit cut 323 a soft mid grey brown sandy silt	No
338	Fill	0.68	0.22	Fill of pit cut 323 a soft mid pinkish brown silty sand	No
339	Fill	0.48	0.08	Fill of pit cut 323 a soft mid pinkish brown gravelly sand	No
340	Fill	2.03	0.34	Fill of pit cut 328 firm mid brown clay silt with 5% light grey clay patches and 1% gravel	Bone
341	Fill	1.88	0.26	Fill of pit cut 328 a firm mid pinkish brown sandy silt with 10% light grey clay patches and 5% gravel	No
342	Fill	1.37	0.19	Fill of pit cut 328 a friable mid brown sandy silt	CBM
343	Fill	0.91	0.06	Fill of pit cut 328 a firm mid orange brown/yellow clay silt	No
344	Fill	0.88	0.05	Fill of pit cut 328 a soft mid pinkish brown silty sand	No
345	Fill	1.00	0.04	Fill of pit cut 328 a friable yellowy orange clay silt	No
346	Fill	1.03	0.46	Fill of pit cut 328 a friable mid brown orange silty sand	No



Context no.	Type	Width (m)	Depth (m)	Comment	Finds
347	Fill	0.97	0.25	Fill of pit cut 328 a friable light to mid orange brown sandy silt	No
348	Fill	0.55	0.12	Fill of pit cut 328 a soft mid grey silty sand	No
349	Fill	1.35	0.35	Fill of pit cut 324 a friable mid brownish grey gravelly clay silt	No
350	Fill	0.8	0.15	Basal fill of pit cut 324 a friable reddish brownish sandy silt	No
351	Cut	4.00+	1.00	Ditch cut filled by 352, 353 and 355	No
352	Fill	1.8	0.14	Fill of ditch cut 324 light to mid grey gravelly (40%) silty sand	No
353	Fill	4.00+	0.8	Fill of ditch cut 324 mid brown clay silt with occasional pockets of sand	
354	Group	n/a	n/a	Possible stakeholes 356, 357 and 358 at base of ditch 351	
355	Fill	1.8	0.34	Fill of ditch cut 351 mottled mid grey silty clay with pockets of mid bluish grey clay	
356	Cut	0.15	0.06	Possible stakehole	
357	Cut	0.14	0.06	Possible stakehole	
358	Cut	0.12	0.10	Possible stakehole	



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APPENDIX C. FINDS REPORTS

FINDS REPORTS

C.1 Pottery by John Cotter

Introduction

C.1.1 A total of 15 sherds of pottery weighing 75g were recovered from four contexts. This is a mixture of medieval and post-medieval pottery. The condition of the material is fairly poor and very fragmentary. Given the small size of the assemblage a separate catalogue has not been constructed and instead the pottery is simply described and spot-dated below. Fabric codes referred to for the medieval wares are those of the Oxfordshire type series (Mellor 1994). Post-medieval pottery fabric codes used are those of the Museum of London (MoLA 2014). No further work is recommended.

Context (304) Spot-date: c 1550-1700

C.1.2 Description: one sherd (4g). Body sherd (bo) yellow-glazed Border ware (BORDY). Jug/pipkin?

Context (322) Spot-date: c 1620-1750

C.1.3 Description: four sherds (22g). Rim from deep hemispherical charger-type bowl in tin-glazed earthenware (TGW) with blue horizontal line decoration int (probably mid-late 17th century?). Small bo in post-medieval red earthenware (PMR, 17th-18th century?). 2x sherds Brill/Boarstall ware jugs (OXAM, c 1225-1450?).

Context (349) Spot-date: c 1225-1450?

C.1.4 Description: one sherd (10g). Body sherd lower wall Brill/Boarstall ware ?baluster jug.

Context (353) Spot-date: c 1650-1800

C.1.5 Description: nine sherds (39g). Body sherds (two joining) Brill-type PMR. 1x late Brill/Boarstall ware (OXBX, probably 16th-early 17th century bowl?). 6x fairly worn Brill/Boarstall ware jugs (c 1225-1450?) including late medieval jug rim with int and ext green glaze and 13th-14th century jug with red slip lattice dec.

C.2 Clay tobacco pipe by John Cotter

Introduction

C.2.1 A total of seven pieces of clay pipe weighing 34g were recovered from three contexts. The condition of the material (all stem fragments) is poor. Given the small size of the assemblage a separate catalogue has not been constructed and instead the pipes are simply described and spot-dated below.

Context (325) Spot-date: 17th century

C.2.2 Description: one piece (6g): Stem fragment. Stem bore diameter of c 3mm.

Context (327) Spot-date: 17th century

C.2.3 Description: two pieces (9g): Stem fragments. Stem bore diameter of c 3mm.

Context (353) Spot-date: Late 18th to 19th century

C.2.4 Description: four pieces (19g): Stem fragments. One with Stem bore diameter of c 1.5mm. Three others 17th century.



C.3 Ceramic building material (CBM) by John Cotter

Introduction

C.3.1 A total of nine pieces of CBM weighing 569g were recovered from five contexts. This is a mixture of medieval and post-medieval material. The condition of the material is very poor and scrappy. This has not been separately catalogued but is described below. No further work is recommended.

Context (325) Spot-date: Late 15th-16th century?

C.3.2 Description: one piece (323g). Worn edge fragment early handmade brick in sandy red fabric. Thickness 50mm.

Context (342) Spot-date: Late 15th-16th century?

C.3.3 Description: one piece (105g). Very worn surface fragment of soft early handmade brick in sandy red fabric with patch of grey ash glaze.

Context (347) Spot-date: 13th-14th century?

C.3.4 Description: one piece (42g). Worn edge fragment medieval peg tile. Early orange-red sandy with grey core.

Context (349) Spot-date: 13th-14th century?

C.3.5 Description: one piece (12g). Very worn scrap medieval peg tile. Early orange-red sandy with grey core.

Context (353) Spot-date: 15th-17th century?

C.3.6 Description: five pieces (87g). Two joining scraps late medieval-type orange peg tile fabric. Three very worn 13th-14th century peg tile.

C.4 Animal bone by Rebecca Nicholson

Methodology

C.4.1 The bones were identified at Oxford Archaeology South using comparative skeletal reference collections, in addition to osteological identification manuals. All animal remains were counted and weighed, and where possible identified to species, element, side and zone (Serjeantson 1996; Strid 2012). An attempt was made to identify sheep and goat to species where possible, using Boessneck *et al.* (1964) and Prummel and Frisch (1986). They were otherwise classified as 'sheep/goat'. Ribs and vertebrae, with the exception of atlas and axis, were classified by size: 'large mammal' representing cattle, horse and deer; and 'medium mammal' representing sheep/goat, pig and large dog.

C.4.2 The condition of the bone was graded on a 6-point system (0-5), grade 0 equating to very well preserved bone, and grade 5 indicating that the bone had suffered such structural and attritional damage as to make it unrecognisable (Table 1).

C.4.3 For ageing, Habermehl's (1975) data on epiphyseal fusion was used. Tooth wear was recorded using Grant's tooth wear stages (Grant 1982) Measurements were taken according to von den Driesch (1976), using digital callipers with an accuracy of 0.01 mm.

C.4.4 A full record of the assemblage will be incorporated with the site archive.



Overview of assemblage

- C.4.5 A total of 86 animal bones were collected by hand from this excavation (Table 3). The most significant find from the site was the partially articulated remains of a horse (326) discovered in pit 324, comprising bones from the lower torso and back legs, with horseshoes attached. The bone was generally in a good to fair condition (Table 2), with the articulated horse bones almost all being in good condition, with no evidence of gnawing (condition 1). A fragment of horse skull in the same pit may be from a different animal. Other remains included disarticulated fragments from sheep, caprine, pig and fish, with minimal evidence of gnawing or burning, suggesting that the bone had been deposited as rubbish fairly quickly, with little access for scavengers.
- C.4.6 Both of the cattle bones (a skull fragment and metatarsal fragment) came from juvenile animals. A sheep skull from context 325 possessed a small horncore (GL of 55mm). The other two caprine bones comprised a tibia and a scapula fragment. Pig was identified from a small mandible fragment with only two teeth present (P4 and M1, both in wear), and a humerus fragment. Two fragments of fish fin ray are undiagnostic.
- C.4.7 Several of the horse bones were complete, providing metrical data for size reconstruction following von den Driesch (1976) with withers' heights reconstructed following May (1985). The measurements are given in Table 3 and indicate an animal of between 1.47 and 1.54m at the withers, equating to 14.5–15.2 hands. This size of horse is fairly typical for a modern riding horse or coach horse such as the Hackney horse. In medieval France a large coach horse was in the region of 15 hands 3 inches (Sprytle 1983, 109 cited in Clark 1995, 23) and a Welsh cob around 14.5 hands (Clark 1995, 22). Where epiphyses were present, all those from this animal were fused, demonstrating that this animal was adult (at least four years old). Both of the first phalanges exhibited bilateral exostoses (enthesophytes) mid-bone on the posterior and sides of the element, possibly a function of age or of strain on the ligaments of the foot. Five lumbar and three caudal vertebrae were present, together with the sacrum. Two of the lumbar vertebrae (second and third) were fused on right side of body and the fifth lumbar vertebra was fused to the sixth. No evidence of butchery was observed.
- C.4.8 Although only two of the horse's legs were present, three horseshoes were discovered in the same context, the largest of which has a distal phalanx attached. Since both hind legs included all of the phalanges and had associated horse shoes, the attached distal phalanx and horseshoe must come either from one of the front legs or possibly from another animal. Interestingly this distal phalanx, which was nailed in place through its edge, was offset on the horse-shoe, which appears to be too big for the hoof suggesting considerable lack of skill on the part of the farrier. Misfit shoes such as this would cause considerable pain and lameness.

Grade 0	Excellent preservation. Entire bone surface complete.
Grade 1	Good preservation. Almost all bone surface complete.
Grade 2	Fair preservation
Grade 3	Poor preservation. Most bone surface destroyed.
Grade 4	Very poor preservation. No surface structure remaining.
Grade 5	Extremely poor preservation. Unlikely to be able to identify element.

Table 1. Bone preservation grading methodology.



Context	304	309	322	325	326	340	349	353
Grade 0								
Grade 1	2		4	8	58			2
Grade 2	6	2			2	2	8	2
Grade 3	4							

Table 2 Percentage of bone in each condition category, by context

Context	304	309	322	325	326	340	349	353	Total
Sheep				1					1
Sheep or goat						1		1	2
Pig	1	1							2
Horse				1	41				42
Large mammal	5		1	3	3		3		15
Medium mammal	1								1
Fish	2								2
Indet	5		6	4			1	3	19
Total	15	1	7	9	44	1	5	4	86

Table 3. Number of identified fragments per species

Element	Greatest length (GL)	Greatest breadth	Smallest breadth of the diaphysis (SD)	Greatest distal breadth (Bd)
Tibia (left)	389.5		49.5	86.0
Tibia (right)	390.5		50.0	85.5
Metatarsal (left)	280.0	57.5 (Bp)	39.0	58.5
Metatarsal (right)	280.5	58.5 (Bp)	39.0	57.5
Phalanx 3 (left)	80.5	76.0 (GB)		
Phalanx 3 (right)	82.0	79.6 (GB)		

Table 4. Horse biometry (measurements in mm)

C.5 Metal by Ian Scott

C.5.1 There are nine metal finds including three horseshoes (Nos 6-8; context 326) and a copper alloy farthing of Charles I (No. 4; context 322). The finds were recovered four contexts. The only closely datable find is the small Charles I 'Rose' farthing minted 1636-1644. The horseshoes found with the horse skeleton appear to be of post-medieval date but it is difficult to closely date horseshoes.



- Context 304 (1) L-staple, or bent nail. Encrusted with corrosion products and possibly incomplete. Fe. L extant: 43mm.
- Context 322 (2) Probable nail, heavily encrusted with corrosion products and incomplete. Fe. Not measured.
- (3) Thin plate or strip fragment. Fe. 17mm x 21mm
- (4) Charles I 'Rose farthing'. Obverse: Crown and crossed sceptres, inscription reads 'CAROLV D G MA BRI'; Reverse: Rose surmounted by a crown, inscription reads: 'FRA ET HI REX'. Has a 'crescent' privy mark on each sides, before CAROLUS obverse and after REX on the reverse. D: 13.5mm x 12mm. A 'Rose farthing' of Charles I minted between 1636 and 1644. Called a 'Rose farthing' because the reverse has a rose surmounted by a crown. Other Charles I farthings had a harp and crown on the reverse. The obverse and reverse legends expand to read: Carolus Dei Gratia Magnae Britanniae, Francia et Hibernia Rex (Charles by the Grace of God King of the Great Britain, France and Ireland). The crescent on each side is the commonest privy mark on this type of farthing.
- Context 325 (5) Nail, with incomplete flat head possibly circular section stem. L extant: 78mm.
- Context 326 (6) Horseshoe. Shoe with part of hoof still attached. The branches are very broad and the visible heel is angled. The second heel is heavily encrusted. There are six nails, three on each branch. The nails have rectangular section stems and appear to be simply hammered over. The hoof appears to be at an angle to the shoe, much smaller than the shoe and apparently attached by a single nail. Fe. Sf 301. L: 180mm; W: 150mm (ratio L:W = 1.2).
- (7) Horseshoe. Shoe with broad branches and one angled heel. The other heel appears to be square. There are 10 possibly 11 nails regularly spaced around the shoe. The nails have rectangular section stems and where identified the clenching looks to be simply hammered over as is the modern style. It is not possible without x-ray to determine the shape of the nail holes. Fe. Sf 300. L: 160mm; W: 140mm (ratio L:W = 1.14).
- (8) Horseshoe. Shoe with broad branches and angled heels. Heavily encrusted. Four nails can be discerned on the right branch and three or possibly four on the left branch. The horseshoe nails have rectangular section stems and are hammered over. There are no details of the nail holes discernible. Fe. SF 302. L: 145mm, W: c 130mm (ratio L:W = 1.12).

C.5.2 The three horseshoes from context 326 are all large. Two (Nos 7 and 8) are large when compared to the measurements of horseshoes from medieval and late medieval and post-medieval contexts in London (Clark 1995, fig. 76), but the third shoe with the attached hoof is substantially larger still. The fact that the hoof is much smaller than this shoe, is not square on the shoe but at an angle, and is apparently secured by a single nail raises questions regarding the shoeing of this particular animal. It is perhaps curious too that there are three horseshoes in a pit which contained just two legs of a horse. The measurements of the associated horse bones suggest a typical general-



purpose work horse. It seems likely that the two smaller shoes (Nos 7 and 8) belong with the surviving leg bones. The third large shoe with poorly attached hoof is a mystery. The form of the three shoes with very broad branches and angled heels suggest a late 17th- or even 18th-century date.

C.6 Stone *by Ruth Shaffrey*

Description

- C.6.1 Two pieces of stone weighing 157g were retained from context 349. Neither are worked and both can be discarded.



APPENDIX D. SUMMARY OF SITE DETAILS

Site name: Tinbergen Building, South Parks Road, Oxford

Site code: OXTINB16

Grid reference: Centred at NGR SP 5182 0692

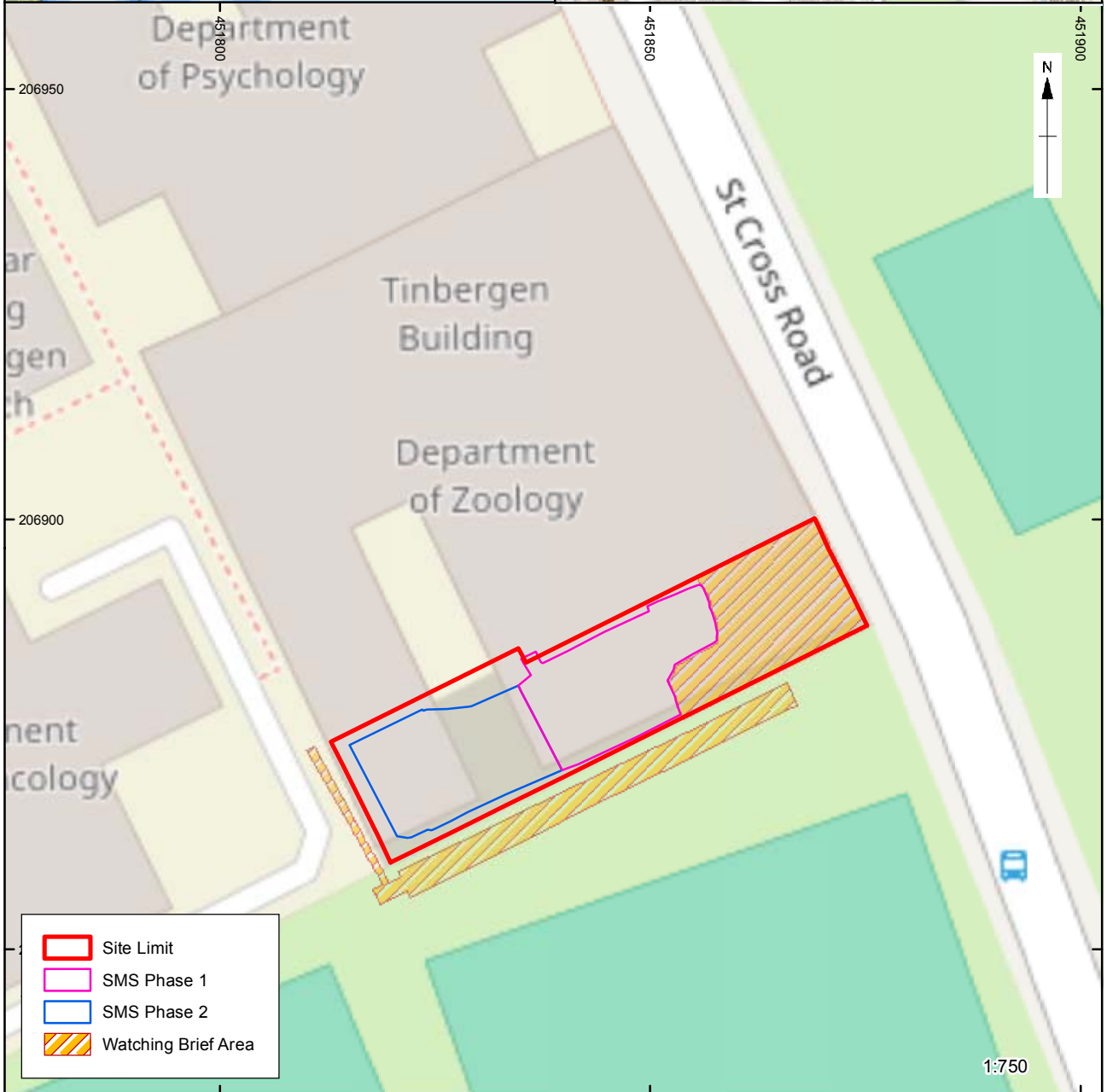
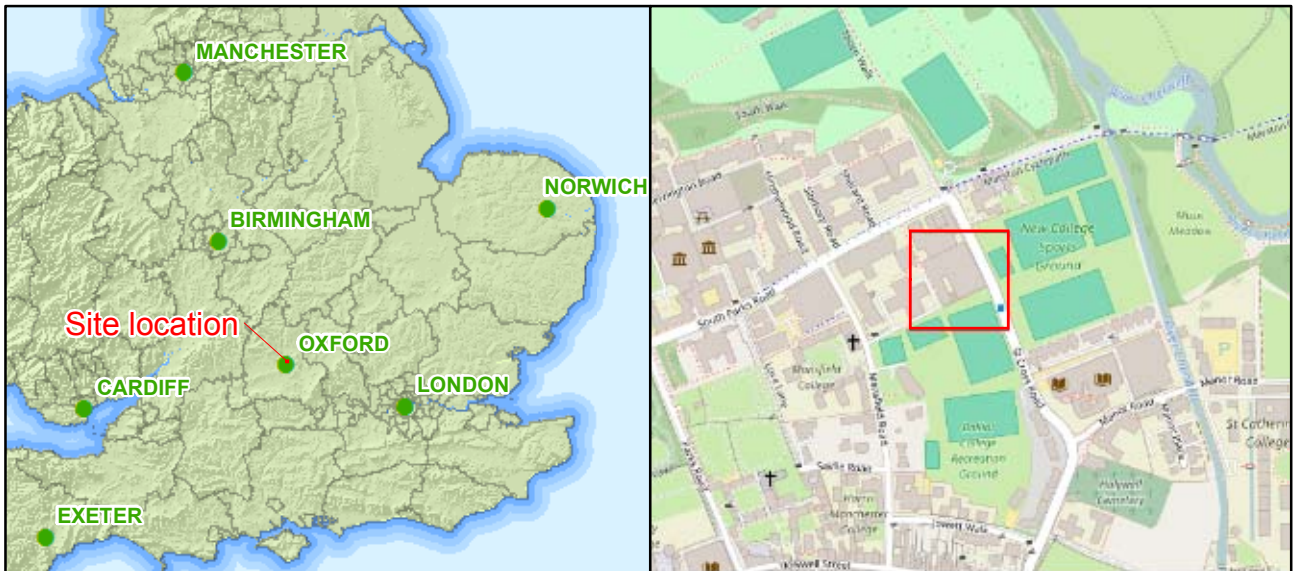
Date and duration of project: April-August 2016

Summary of results In April 2016, Oxford Archaeology (OA) undertook an archaeological strip, map and sample within the footprint of an extension to the Tinbergen Building, South Parks Road, Oxford. The works were followed by a watching brief on associated groundworks undertaken between May and August 2016. An evaluation of the site had previously been undertaken by OA in 2015.

The works revealed a roughly north-west/south-east aligned ditch in the western half of the site, and a configuration of pits to the east on the same alignment. Although the fills of the ditch did not produce any datable artefactual material, it is almost certain that it is associated with the Civil War defensive circuit, as contemporary cartographic sources indicate a bastion in the vicinity of the Tinbergen Building.

The fills of the pits did produce 17th century finds, including a Charles I Rose farthing minted between 1636 and 1644, and a horse burial complete with shoes, the form of which suggest a late 17th or even 18th century date. Consequently, the pits are likely to represent pitfalls providing an additional line of defence outside the main circuit. The fact that the ditch was relatively shallow in comparison to other excavated segments of the defences may indicate a degree of truncation has occurred, possibly during the construction of the Tinbergen Building in the 1960s.

Location of archive: The archive is currently held at OA, Janus House, Osney Mead, Oxford, OX2 0ES, and will be deposited with the Oxfordshire County Museum Service in due course, under the following accession number: OXCMS: 2015.191

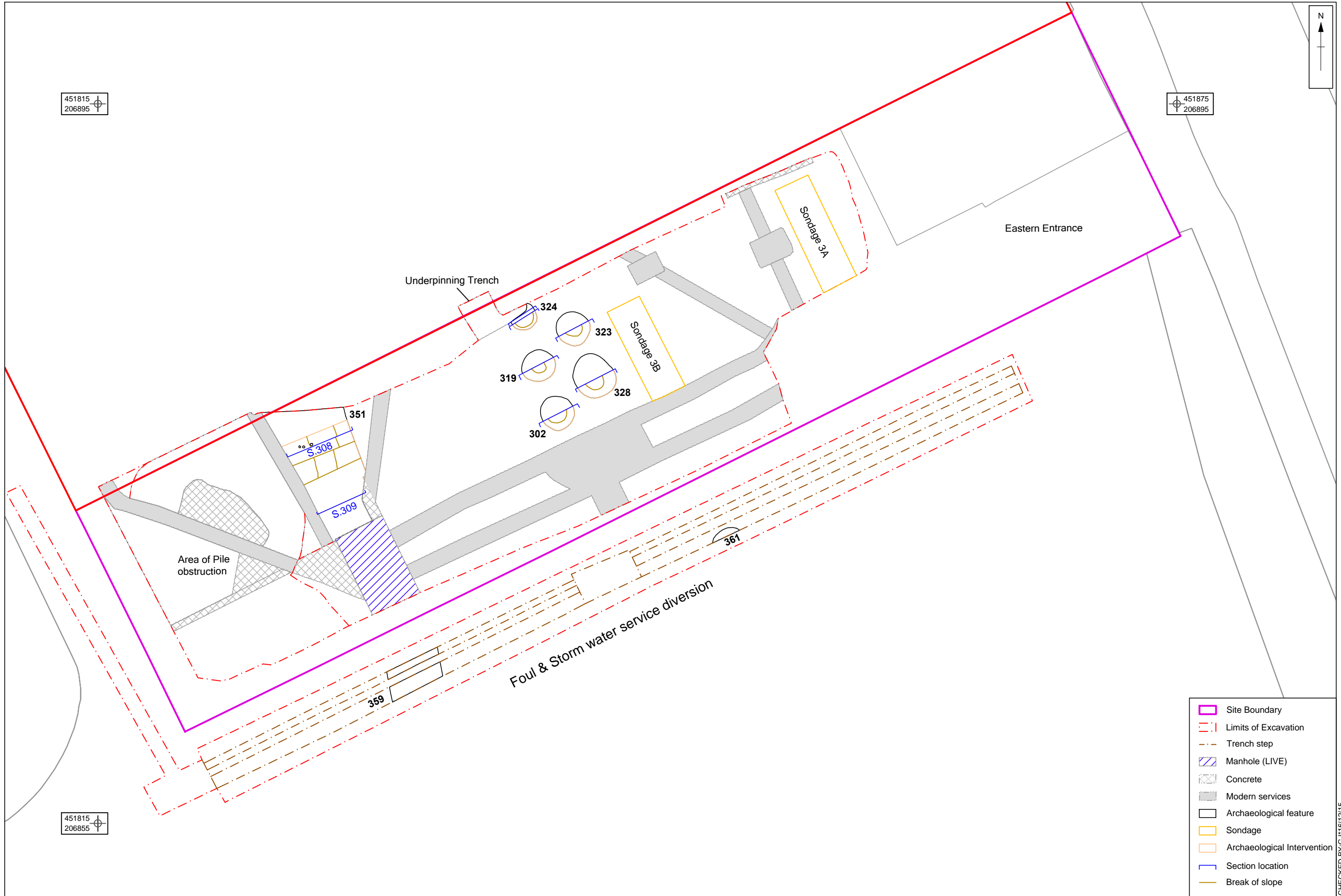


X:\OXTINB15EV_Tinbergen_Building\010\Geomatics\03 GIS Projects\OXTINBEV_Fig1.mxd\conan.parsons*14/11/2016

Contains Ordnance Survey data © Crown copyright and database right 2014
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Figure 1: Site location

C:\Users\gary.jones\ARCHI\appdata\local\temp\AcPublish_4276\OXTINBEX\Tinbergen Building 2016-11-11.dwg(A3 landscape)*OXTINB16*OXTINBEX*Oxford, Tinbergen Building*Conan Parsons* 19 Dec 2016



- Site Boundary
- Limits of Excavation
- Trench step
- Manhole (LIVE)
- Concrete
- Modern services
- Archaeological feature
- Sondage
- Archaeological Intervention
- Section location
- Break of slope

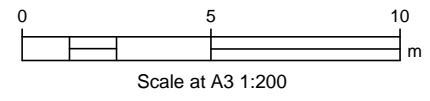


Figure 2: Site plan

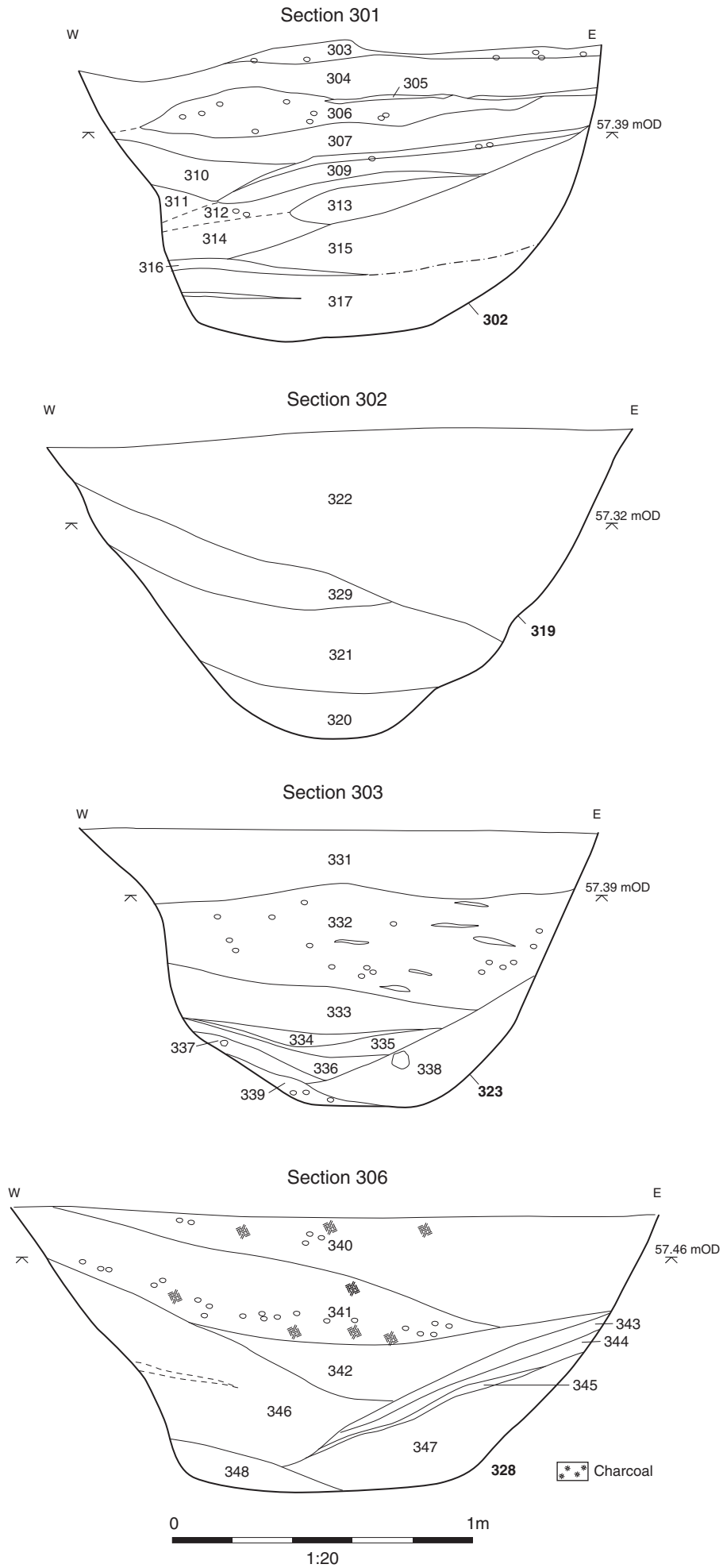


Figure 3: Sections of pits 302, 319, 323 and 328

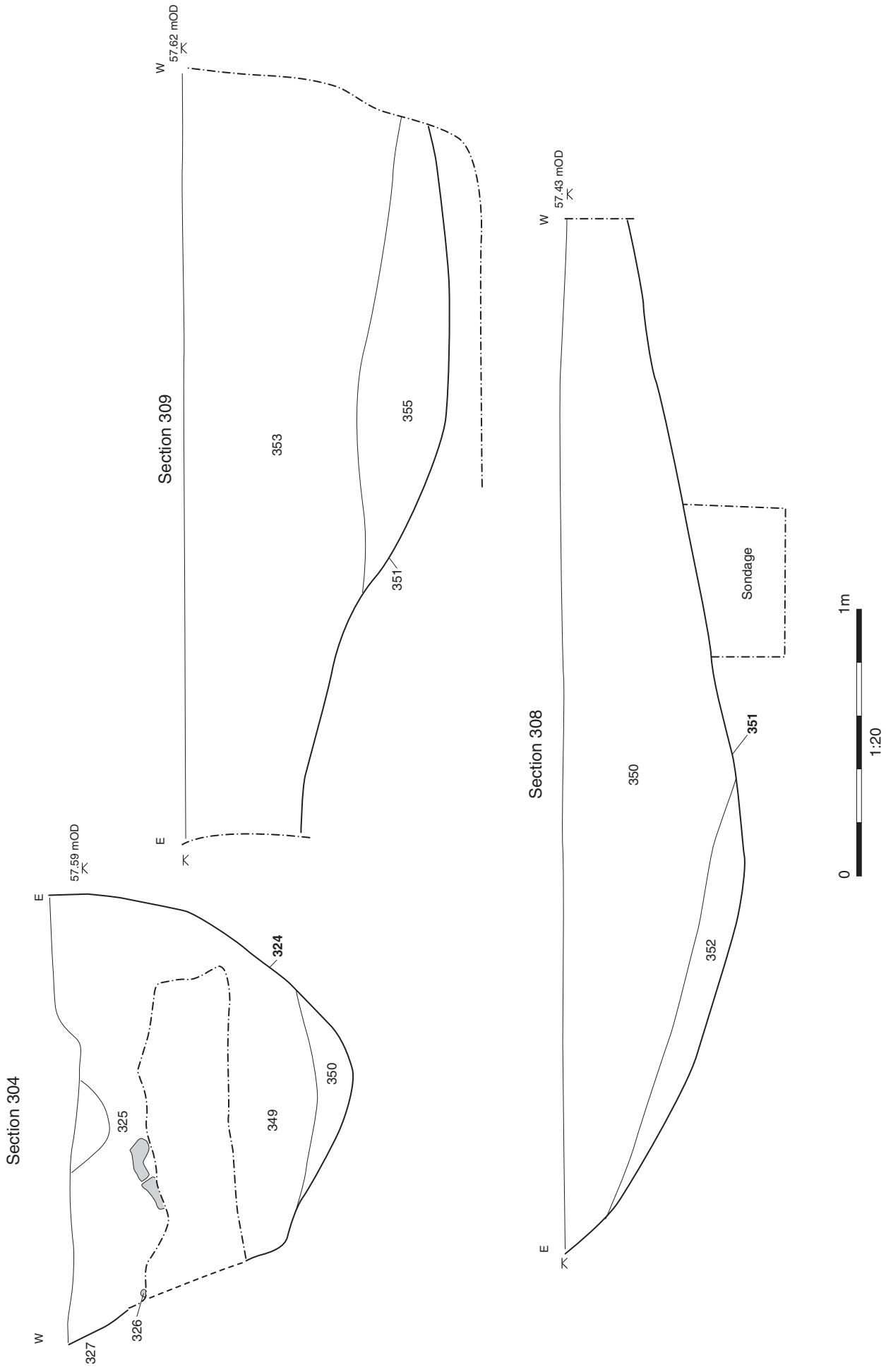


Figure 4: Sections of pit 324, and Civil War ditch 351

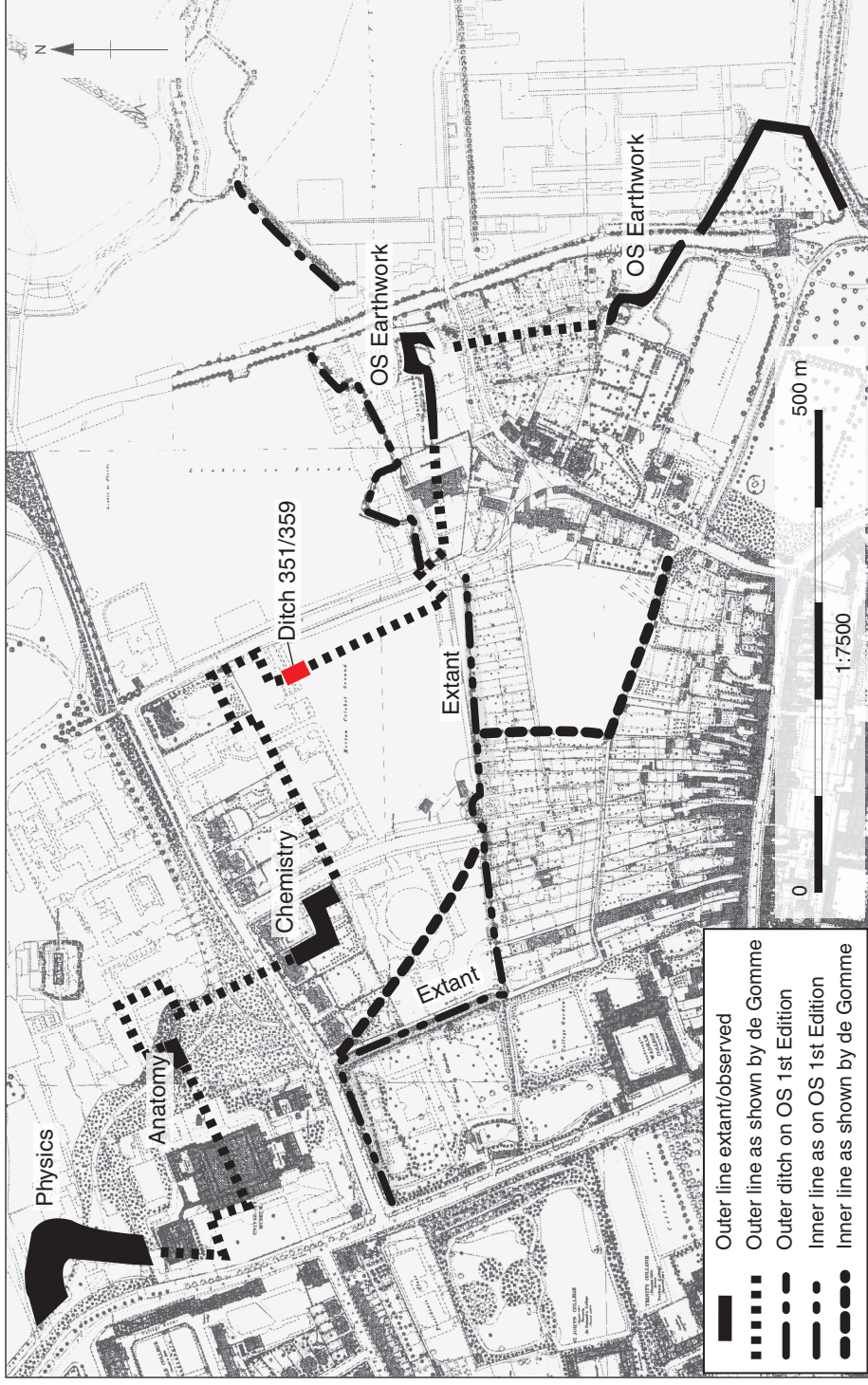


Figure 5: Field and map evidence for north-east trace of Civil War defences plotted on OS 1st Edition map (after Bradley *et al.* 2005)



Plate 5: Civil War ditch 351. Section 309 looking south



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