

**LAND AT ROYAL NATIONAL  
ORTHOPAEDIC HOSPITAL  
BROCKLEY HILL, STANMORE  
GREATER LONDON**

**ARCHAEOLOGICAL EVALUATION**

*For*

**ROYAL NATIONAL  
ORTHOPAEDIC HOSPITAL**

CA REPORT: 05114

AUGUST 2004



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CA PROJECT: 2003  
CA REPORT: 05114

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## SUMMARY

<b>Site Name:</b>	Land at Royal National Orthopaedic Hospital, Brockley Hill
<b>Location:</b>	Stanmore, Harrow, Greater London
<b>NGR:</b>	TQ 1700 9400
<b>Type:</b>	Evaluation
<b>Date:</b>	27 – 30 June and 7 July 2005
<b>Location of Archive:</b>	To be deposited with the London Archive
<b>Accession No./ Site Code:</b>	RYN 05

An archaeological evaluation was undertaken by Cotswold Archaeology during June and July 2005 at the request of CPM Environmental Planning and Design Ltd at, and on behalf of, the Royal National Orthopaedic Hospital, Brockley Hill, Stanmore, Harrow, Greater London. In compliance with an approved written scheme of investigation 20 trenches were excavated across the proposed development area.

Roman pits and ditches were recorded within four trenches in the south-eastern corner of the site, identifying a zone of principally late 1st to 2nd-century activity including evidence for metalworking, perhaps on the periphery of pottery production sites of similar date noted during earlier archaeological excavations to the north and east of the site. In addition, a pit dated to the 3rd century AD may suggest activity on the site after the main period of pottery production had ceased. Archaeological deposits in these trenches lie at a minimum of 0.25m below present ground level, and generally at depths of 0.5m or more below modern ground level.

Evaluation trenches across the remaining areas of the site contained evidence for modern landscaping, including dumping of material and truncation of former soil horizons, but no archaeological features pre-dating the post-medieval/modern period.

## 1. INTRODUCTION

- 1.1 During June and July 2005 Cotswold Archaeology (CA) carried out an archaeological evaluation at the request of CPM Environmental Planning and Design Ltd (CPM) at, and on behalf of, the Royal National Orthopaedic Hospital, Stanmore, Brockley Hill, Harrow, Greater London (centred on NGR: TQ 1700 9400; Fig. 1). A planning application has been submitted for redevelopment of the hospital site, prior to determination of which an archaeological evaluation was required by the Local Planning Authority's archaeological advisor.
- 1.2 The evaluation was carried out in accordance with a *specification* issued by CPM (2005) and approved by Kim Stabler of Greater London Archaeological Advisory Service (GLAAS), the archaeological advisor to the London Borough of Harrow, and with a subsequent detailed written scheme of investigation (WSI) produced by CA (2005) and approved by GLAAS. The fieldwork also followed the *Standard and Guidance for Archaeological Field Evaluation* issued by the Institute of Field Archaeologists (1999), the Greater London Archaeology Advisory Service Archaeology Guidance document covering archaeological evaluation (GLAAS 1999) and *Management of Archaeological Projects II* (EH 1991). It was monitored by Kim Stabler, including a site visit on 4 July 2005

### ***The site***

- 1.3 The proposed redevelopment area comprises the buildings, access roads and grounds of the Royal National Orthopaedic Hospital at Brockley Hill, Stanmore, which lies to the north of central London and immediately south of the M25 (Figs 1 and 2). The site lies on a gravel ridge rising to approximately 150m AOD, with the land around Brockley Hill falling away on all sides. The topography of the site is undulating but generally slopes down from Wood Lane, which borders the southern edge of the site, into a valley at the centre of the hospital grounds. The site also slopes down westward along a break of slope parallel with the A5 (MoLAS 2004).
- 1.4 The underlying geology of the area is mapped as London Clay and Claygate Member of the Palaeogene era. Quaternary deposits of Pleistocene Stanmore

Gravel, which are sandy and clayey in part, are mapped across the south-eastern part of the site (British Geological Survey 1994).

### ***Archaeological background***

- 1.5 An archaeological assessment of the site has been undertaken (MoLAS 2004), the results of which were summarised within an evaluation specification prepared by CPM (2005). The archaeological assessment noted that investigations between 1937 and 1977 north of the site have revealed extensive evidence of a Roman pottery industry, including at least 15 kilns, together with numerous clay extraction pits backfilled with pottery wasters and kiln debris. These kilns supplied London with coarsewares during the 1st and 2nd centuries AD, with production concentrated between AD 70 and 120. Some evidence of 3rd and 4th-century AD occupation, after an apparent decline in industrial activity, was also noted. One area of known Roman activity lies immediately to the north of the site and receives statutory protection as a Scheduled Ancient Monument (SAM; National Monument Number 29396). At least eight kilns have been identified within this area, alongside Watling Street, and evidence for clay extraction pits, surfaces and building remains was also found (MoLAS 2004).
- 1.6 These remains have historically been thought to represent part of the Roman small town of *Sulloniacae*, but the location of this settlement is uncertain and the main evidence at Stanmore appears to relate to 1st to 2nd-century AD pottery production rather than settlement. Parts of Watling Street are thought to cross into the scheduled area west of the current course of the A5. The Roman remains so far identified appear to be concentrated within a strip of ground either side of the A5. The character of this area during the 3rd and 4th centuries, after the decline of the pottery industry, is uncertain (MoLAS 2004). An improved understanding of the relationship between *Londinium* and its surrounding areas has been described as an essential component of the investigation of production, distribution and consumption of Roman pottery. It has been identified by the Museum of London and English Heritage as a nationally significant theme with more work needed to understand how crafts and industries, including pottery production, were organised and functioned (Museum of London/English Heritage 2002).
- 1.7 The archaeological potential of the wider site was considered as low in the archaeological assessment, with a rolling topography differing from that within the

eastern part of the site close to the course of the Roman road (MoLAS 2004). Examination of the available cartographic and documentary sources suggested that the site was wooded for long periods of time, although occasional activity may have occurred within it, as Mesolithic, Neolithic and Bronze Age worked flints/axes have been recovered from the wider locality. During the Anglo-Saxon period the manor of Little Stanmore is thought to have been heavily wooded, although Watling Street is likely to have still been in use. No Saxon findspots are known from the site vicinity. Brockley Hill Farm is thought to be of medieval origin but the site is likely to still have been woodland during this period, with much of the site indeed still shown as heavily wooded on Rocque's map of 1754 (MoLAS 2004).

- 1.8 The assessment report concluded that the site was likely to have suffered extensive disturbance as a result of the late 19th-century construction of a Convalescent Home and the subsequent building, and gradual expansion, of the Royal National Orthopaedic Hospital (MoLAS 2004).

### ***Archaeological objectives***

- 1.9 The objectives of the evaluation were to establish the character, quality, date, significance and extent of any archaeological remains or deposits surviving within the site. This information will assist the Local Planning Authority in making an informed judgement on the likely impact upon the archaeological resource by the proposed development.

### ***Methodology***

- 1.10 The fieldwork comprised the excavation of 20 trenches in the positions shown on Fig. 2. Trenches 7, 10-13 and 17 were all approximately 1.6m in width and 10m in length, and Trenches 1, 2, 5, 6, 8 and 9 were all approximately 1.6m in width and 20m in length.
- 1.11 Due to the presence of buried services, as well as machine access and spoil storage requirements, minor variations were made to the position and size of several trenches agreed in the WSI with the approval of CPM and GLAAS. Trenches 3 and 4, each 1.6m in width, were both repositioned. Trench 3 was 15m in length and Trench 4 was excavated in two parts, with Trench 4A being 4m in length and 4B being 23m in length. Trench 14 was slightly reduced in size to 3.8m by 3.4m. Two



attempts were made to excavate Trench 15 but both were halted due to the presence of live services. Trench 15A was 1m by 1.3m in size and 15B was 1m by 2m in size. Trench 16 was slightly reduced in size to 4m by 2.5m, and Trench 18 was excavated as a 1m by 6m trench due to live services. Trench 20, 1m in width and 8.5m in length, was an additional evaluation trench requested by Ms Stabler following an on-site monitoring meeting. Its position and size was determined by machine access and spoil storage requirements and also by the presence of live services.

- 1.12 All trenches were excavated by mechanical excavator equipped with a toothless grading bucket. All machine excavation was undertaken under constant archaeological supervision to the top of the first significant archaeological horizon or the natural substrate, whichever was encountered first. Where archaeological deposits were encountered they were excavated by hand in accordance with the CA Technical Manual 1: *Fieldwork Recording Manual* (2005).
- 1.13 Deposits were assessed for their palaeoenvironmental potential and, where appropriate, sampled and processed in accordance with the CA Technical Manual 2: *The Taking and Processing of Environmental and Other Samples from Archaeological Sites* (2003). All artefacts recovered were processed in accordance with the CA Technical Manual 3: *Treatment of Finds Immediately After Excavation* (1995).
- 1.14 The archive and artefacts from the evaluation are currently held by CA at their offices in Kemble. Subject to the agreement of the legal landowner the site archive (including artefacts) will be deposited with the Museum of London under accession number RYN 05.

## 2. RESULTS

- 2.1 This section provides an overview of the evaluation results; detailed summaries of the recorded contexts, finds and palaeo-economic samples are to be found in Appendices 1, 2 and 3 respectively.

- 2.2 Trenches 1, 3-10 and 17-20 (Fig. 2) each revealed a simple sequence of natural sands and gravels overlain by pebbly sand-silt subsoil and topsoil horizons. Trenches 5, 6 and 7 revealed the same sequence but with modern dump deposits also present (see Appendix 1). No archaeological features were encountered within these trenches with the exception of post-medieval or modern land drains, and no artefactual material pre-dating the modern period was encountered.

**Trench 2** (not illustrated)

- 2.3 Natural sands and gravels 203 were encountered at approximately 0.4m below present ground level (bpgl). Two modern, circular, post-pits 207 and 209 cut gravels 203. The loose clay-silt fill 208 of pit 207 contained the remains of a modern wooden post whilst pit 209 fill 210 yielded a fragment of modern brick, which was not retained.

**Trench 11** (Figs 2 & 3)

- 2.4 Natural sands and gravels 1103 were encountered at 0.4-0.5m bpgl. A pit or ditch terminal 1104 was partially exposed within the trench. The fill 1105 of this feature, which appeared to have been truncated by later ploughing, yielded 30 sherds of Roman pottery, dating to the 3rd century AD or later, together with seven *tegula* fragments, two brick fragments, further unidentifiable Roman brick and tile and an iron nail.
- 2.5 An adjacent pit 1110 contained modern slate, brick and metalwork. Both features were sealed by approximately 0.35m of subsoil, cut by a modern service trench 1108, and by approximately 0.25m of modern topsoil.

**Trench 12** (Figs 2 & 4)

- 2.6 Natural sands and gravels 1204 were encountered at 0.4-0.5m bpgl, overlain by 0.2m of subsoil 1203, possibly a former ground surface. A north/south aligned pit or ditch 1205 had a fill 1206 containing one sherd of late 1st to early 2nd-century AD pottery together with abundant fragmentary Roman brick and tile, which included identifiable *imbrex* and *tegula* roof tile fragments. Pit fill 1206 was sealed by approximately 0.15m of subsoil and by 0.10m of modern topsoil.

**Trench 13** (Figs 2 & 5)

- 2.7 Natural sands and gravels 1305 were encountered at 0.6-0.7m bpgl. An east/west aligned, U-shaped, ditch 1306 contained a fill 1307 from which five sherds of Roman pottery, dating to the late 1st to 2nd centuries AD, were recovered together with a single fragment of Roman brick.
- 2.8 Two truncated postholes 1310 and 1312 conceivably formed part of a north/south fenceline set perpendicular to ditch 1306. An adjacent, shallow, depression 1308 may represent the remains of another posthole. Posthole 1310 contained no finds but 1312 yielded four sherds of early 2nd-century AD pottery together with *tegula*, *imbrex* and brick fragments and an unidentifiable iron object.
- 2.9 All four features were overlain by subsoil 1304, 0.3m in thickness, 0.2m of former topsoil 1303, 0.25m of modern dump deposit 1302 and by 0.1m of modern topsoil 1301.

**Trench 14** (Figs 2, 6 & 7)

- 2.10 Natural sands and gravels 1405 at 0.8-0.9m bpgl were overlain by a possible a former soil horizon 1404, 0.15m in thickness, surviving within the northern part of the trench. This deposit yielded no artefactual material but was cut by a north-west/south-east aligned V-shaped ditch 1406, whose primary fill 1407 yielded six sherds of Roman pottery of late 1st to 2<sup>nd</sup>-century AD date together with one Roman tile fragment and four pieces of metalworking slag. Secondary ditch fill 1408 yielded 69 sherds of Roman pottery dating to the late 1st to 2nd centuries AD together with two *tegula* fragments, two brick fragments, a flint blade, 13 pieces of burnt flint, an iron nail and seven pieces of metalworking slag.
- 2.11 Immediately west of ditch 1406 the northern edge of a cut 1413, possibly a ditch terminal or pit, was partially exposed. Its fill 1414 yielded no artefactual material where examined.
- 2.12 Two further features were noted cutting fill 1408 of ditch 1406. An east/west aligned U-shaped ditch 1411 contained a fill 1412 from which three late 1st to 2nd-century

AD pottery sherds, one fragment of brick, two residual prehistoric flint flakes and one piece of metalworking slag were recovered. The south-western edge of another cut feature, 1409, also cut ditch fill 1408. This U-shaped feature, possibly a pit or ditch terminal, contained a fill 1410 with abundant charcoal flecking, which yielded 92 sherds of early 2nd-century AD pottery, five fragments of Roman brick/tile, one residual prehistoric flint flake, 15 pieces of burnt flint, four fragments of fired clay and a piece of metalworking slag.

- 2.13 These Roman features were sealed by subsoil 1403, approximately 0.3-0.4m in thickness, believed to represent a former ploughsoil. This yielded 13 sherds of Roman pottery dating to the late 1st to early 2nd centuries AD, six fragments of Roman brick, a fired clay fragment and an unidentifiable iron object. This soil horizon was in turn overlain by a modern dump deposit 1402, 0.25m in thickness, and by 0.1m of modern topsoil.

#### **Trench 16** (not illustrated)

- 2.14 Natural sands and gravels 1603 were encountered at 0.75m bpgl. A shallow, irregularly-shaped, depression 1604 within the gravels appeared to be a natural undulation or a tree-related disturbance but its fill 1605, identical to overlying subsoil 1602, contained seven sherds of Roman pottery, dating to the 3rd century AD or later, and 17 fragments of Roman brick or tile. It was overlain by 0.35m of modern topsoil.

#### **The Finds**

- 2.15 Pottery, fired clay, metalworking slag, worked and burnt flint, animal bone, metal artefacts and a large quantity of ceramic building material was recovered. The ceramic material has been quantified according to fragment count and weight and the fabric codes noted (Appendix 2). In accordance with Museum of London policy (MoLAS 1998, 39), ceramic building material has been discarded following recording.
- 2.16 Pottery, mostly of earlier Roman date, and amounting to 130 sherds and weighing 3200 grams, was recovered. Verulamium region white wares are the most

commonly occurring fabric type and include mortaria and flagon forms. Despite the known proximity of kilns producing Verulamium region wares no waster material could be identified. Hooked flange mortaria of late 1st to early 2nd-century AD date belonging to this ware type were recovered from pit or ditch fill 1105, posthole fill 1313 and pit or ditch fill 1410. A single ring-neck flagon rim was recovered from pit fill 1206 and is dateable to the late 1st to early 2nd century. Flagon handles were recovered from pit or ditch fill 1105, subsoil 1403 and pit or ditch fill 1410. Smaller quantities of coarse sandy greywares recovered probably represent Verulamium region products.

- 2.17 Early Roman material is elsewhere present as a fine greyware sherd with barbotine dot panel decoration from ditch fill 1307. Secondary ditch fill 1408 and pit or ditch fill 1410 produced quantities of grog-tempered ware of probable mid 1st-century AD (pre-Flavian) date. Forms include a small, necked, cordoned jar/bowl and the base from a large jar. Imported material includes Baetican amphora sherds and, from ditch fill 1408, a sherd from a Lower Rhineland (or possibly Central Gaulish white), rouletted beaker.
- 2.18 Much of the Verulamium region material is abraded and that, at least, from pit or ditch fill 1105 and subsoil 1605 is demonstrably residual. Later Roman pottery (after c. 250 AD) occurs in 1105 as sherds from a BB1 flanged dish and an Oxfordshire whiteware flanged mortaria of Young type M22 (Young 1977) and from 1605 as sherds from a Lower Nene Valley indented beaker and probable Hadham oxidised ware.
- 2.19 Large quantities of ceramic building material were recovered, including *tegula* and *imbrex* roof tiles and fragments of brick. The majority of this material, which includes at least one, highly warped, waster, was recovered from pit fill 1206 in association with late 1st to early 2nd-century AD pottery. The brick/tile fabrics all appear consistent with fabric group 2815 (Pringle 2000).
- 2.20 Small quantities of industrial material were hand recovered or retrieved from soil samples (below). The assemblage comprises vitrified clay, which may represent hearth or furnace lining, as well as ironworking slag and flake and spheroidal hammerscale retrieved from secondary ditch fill 1408 and pit or ditch fill 1410.

### ***The Biological and Palaeoeconomic Evidence***

- 2.21 Ten litre soil samples were taken from secondary ditch fill 1408 and from pit or ditch fill 1410, both of which contained abundant charcoal flecking and visible pieces of slag during excavation, to test for the presence of further industrial residues (samples 1 and 2 respectively). Artefactual material recovered from sample 1 included four fragments of highly fired clay, which may represent hearth or furnace lining. Sample 2 produced two pieces of miscellaneous ironworking slag. Abundant quantities of flake and spheroidal hammerscale were recovered from both samples and almost certainly signify ironworking in the immediate area. The presence of the two forms of hammerscale is indicative either of primary (bloom) smithing or high temperature secondary smithing operations such as fire welding.

## **3. DISCUSSION**

### ***Prehistoric***

- 3.1 No prehistoric features were encountered during evaluation trenching. Roman, or potentially pre-Roman, land surfaces appear to have been identified within Trenches 12 and 14 but no artefactual material was discernible within these horizons and no prehistoric features were encountered within these or other trenches. A prehistoric flint blade was recovered from ditch or pit fill 1408 together with a flint flake from ditch fill 1410 and further flint flakes from ditch fill 1412. Burnt flint recovered from Trench 14 contexts 1408 and 1410 may be of prehistoric or later date. The preceding archaeological assessment identified little evidence for prehistoric occupation on or in vicinity of the site, suggesting that the area was wooded for long periods of time, although occasional activity may have occurred since Mesolithic, Neolithic and Bronze Age worked flints/axes have been recovered in the wider area (MoLAS 2004). The small flint assemblage from Trench 14 alludes to prehistoric activity within the locality but all of the material was residual within Roman contexts and its origin is uncertain.

## **Romano-British**

### *Watling Street*

- 3.2 No foundation deposits, metalling or flanking drainage ditches were encountered within any evaluation trench, including Trenches 16 and 20 closest to the line of the present A5, to suggest that the former Roman road linking *Londinium* with *Verulamium* passed through the eastern part of the site. Although the preceding archaeological assessment notes that the Roman road may run within and along the eastern side of the site, west of the modern road, previous sightings of road metalling and its western flanking ditch appear to come from areas north and south of the site. The exact line of the road within the Brockley Hill area appears yet to be clearly established and understood (MoLAS 2004).

### *Roadside activity*

- 3.3 The evaluation has identified features principally dating to the late 1st to 2nd centuries AD within Trenches 11, 12, 13 and 14 in the south-eastern part of the site closest to Eastgate House. The broadly north/south and east/west aligned ditches, and a possible post-built fenceline, noted within Trenches 13 and 14 appear to mark plots or fields established both parallel with and perpendicular to the likely line of Watling Street on its western side. These features correlate well with an emerging view of the northern suburbs of London having been characterised by rapid ribbon development along the major roads, especially along the line of Watling Street, with street-side buildings bordered by kilns, cemeteries, quarry sites and livestock enclosures (MoLAS 2002).
- 3.4 Brockley Hill has long been thought to have been the site of the Roman settlement of *Sulloniacae* but the preceding assessment report notes that the excavated evidence to date seems to relate to 1st to 2nd-century AD pottery production, concentrated within a strip of ground either side of Watling Street, rather than to settlement. The evaluation has identified no structural remains, associated with either settlement or pottery production, within the areas examined. Despite the known existence of kiln sites to the north and east of the site no *in situ*, or plough-damaged, kiln remains have been encountered during trenching nor any large, extensive, spreads of ashy soil rich in pottery characteristic of waster dumps sited close to kilns. In addition no structural remains of associated facilities, such as

access tracks or buildings, have been encountered within the trenches. Ashy deposits containing abundant late 1st to 2nd-century AD pottery and tile were present within infilled ditch 1406, pit or ditch 1409 and pit 1104. . However, the proximity or otherwise of these features to any kiln sites is uncertain. Significant quantities of hammerscale were also recovered from palaeoeconomic samples taken in Trench 14, suggesting ironworking in the vicinity of the site (either of primary (bloom) smithing or high temperature secondary smithing operations such as fire welding) although these samples were not recovered from well-sealed deposits and the provenance of this material must therefore remain doubtful.

- 3.5 Dumping of large quantities of Roman brick and tile, in association with late 1st century to early 2nd-century pottery, in pit 1205 appears to correlate with suspected tile production within the site vicinity. A dump of Roman brick and tile within probable pit 1104, associated with 3rd-century AD or later pottery, also appears noteworthy given uncertainty as to the character of this area during the 3rd and 4th centuries AD after the demise of the pottery industry (MoLAS 2004).

### ***Post-Roman***

- 3.6 No features or artefacts were encountered during trenching to suggest Anglo-Saxon or medieval occupation within the site. Subsoil horizons sealing Roman features in Trenches 11 to 14 suggest post-Roman ploughing of the site, which was later depicted as being heavily wooded on Rocque's map of 1754 (MoLAS 2004).

### ***Conclusions***

- 3.7 Roman pits and ditches recorded within Trenches 11-14, within the south-eastern corner of the site, south of Eastgate House, identify a zone of principally late 1st to 2nd-century activity including evidence for metalworking, perhaps on the periphery of pottery production sites previously noted north and east of the site. In addition, pit 1104 within Trench 11 appears to identify 3rd-century AD activity on the site after the main period of pottery production had ceased. Archaeological deposits in these trenches lie within 0.25m of present ground level in Trench 12, 0.5m below modern ground level in Trench 11, and within Trenches 13 and 14 approximately 0.7m below modern ground level.



- 3.8 The evaluation identified no archaeological features pre-dating the post-medieval/modern period across the remaining areas of the site. Modern dump deposits, relating to landscaping during the construction and expansion of the hospital, were noted in Trenches 5, 6, 7, 13, 14, 18 and 19 whilst truncation of deposits was recorded within Trenches 8 and 9. Modern made ground, containing modern services, was revealed within Trenches 15 and 20.

#### 4. CA PROJECT TEAM

Fieldwork was undertaken by Alistair Barber, assisted by Michael Rowe, David Cudlip and Andrew Loader. The report was written by Alistair Barber. The illustrations were prepared by Liz Hargreaves and Lorna Gray. The archive has been compiled by Alistair Barber and prepared for deposition by Sam Inder. The project was managed for CA by Simon Cox.

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Scale 1: 50,000

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**APPENDIX 1: CONTEXT DESCRIPTIONS**

Trench 1 Modern ground level: 137.05m to 137.39m AOD

100	Modern turfline/topsoil. Mid to dark brown sand-silt with moderate rounded pebble inclusions. 0.14m in thickness.
101	Subsoil. Mid brown sand-silt with frequent rounded pebble inclusions. 0.24m in thickness.
102	Natural geological substrate: orange-brown sand-clay, sands and rounded gravels/pebbles. Noted at depth of 0.38m below present ground level.

Trench 2 Modern ground level: 145.33m to 145.97m AOD

200	Modern turfline/topsoil. Mid to dark brown sand silt with moderate rounded pebble inclusions. 0.12m in thickness.
201	Subsoil. Mid brown sand-silt with frequent rounded pebble inclusions. 0.3m in thickness.
202	Natural geological substrate: orange-brown sand-clay, sands and rounded gravels/pebbles. Noted at depth of 0.42m below present ground level.
203	Modern trench for field drain. 0.2m in width.
204	Fill of 203: ceramic field drain pipe within clay-silt. Unexcavated.
205	Modern trench for field drain. 0.2m in width.
206	Fill of 205: ceramic field drain pipe within clay-silt. Unexcavated.
207	Modern post pit, containing remains of wooden fence post. 0.8m in width, 0.9m+ in length and 0.14m in depth.
208	Fill of 207: loose mid grey-brown clay-silt.
209	Modern post pit, containing remains of wooden fence post. 0.8m in width, 0.9m+ in length and 0.14m in depth.
210	Fill of 209: loose mid grey-brown clay-silt.

Trench 3 Modern ground level: 142.88m AOD

300	Modern turfline/topsoil. Mid to dark brown sand silt with moderate rounded pebble inclusions. 0.11m in thickness.
301	Subsoil. Mid brown sand-silt with frequent rounded pebble inclusions. 0.26m in thickness.
302	Natural geological substrate: orange-brown sand-clay, sands and rounded gravels/pebbles. Noted at depth of 0.37m below present ground level.
303	Modern trench for field drain. 0.4m in width.
304	Fill of 303: loose mid grey-brown clay-silt and gravel.
305	Void context
306	Fill of 305: loose mid grey-brown clay-silt and gravel.
307	Modern trench for field drain. 0.4m in width.
308	Fill of 307: loose mid grey-brown clay-silt and gravel

Trench 4a and 4b Modern ground level: 142.42m to 142.57m AOD

400	Modern turfline/topsoil. Mid to dark brown sand silt with moderate rounded pebble inclusions. 0.2m in thickness.
401	Subsoil. Mid brown sand-silt with frequent rounded pebble inclusions. 0.3m in thickness.
402	Fill of 403: ceramic pipe in loose mid grey-brown clay-silt and gravel
403	Modern trench for field drain. 0.35m in width.
404	Fill of 405: plastic water pipe in loose mid grey-brown clay-silt and gravel
405	Modern trench for field drain. 0.35m in width.
406	Natural geological substrate: orange-brown sand-clay, sands and rounded gravels/pebbles. Noted at depth of 0.5m below present ground level.

## Trench 5 Modern ground level: 132.65m to 134.02m AOD

500	Modern turfline/topsoil. Mid to dark brown sand silt with moderate rounded pebble inclusions. 0.1m in thickness.
501	Modern dump deposit. Grey brown clay containing modern debris. 0.4m in thickness.
502	Modern dump deposit. Grey brown clay containing modern debris. 0.5m in thickness.
503	Fill of 504: grey-brown clay.
504	Modern trench for service. 0.35m in width.
505	Natural geological substrate: orange-brown sand-clay, sands and rounded gravels/pebbles. Noted at depth of 0.9m below present ground level.

## Trench 6 Modern ground level: 128.4m to 129.26m AOD

600	Modern turfline/topsoil. Mid to dark brown sand silt with moderate rounded pebble inclusions. 0.09m in thickness.
601	Subsoil. Mid brown sand-silt with frequent rounded pebble inclusions. 0.23m in thickness.
602	Natural geological substrate: orange-brown sand-clay, sands and rounded gravels/pebbles. Noted at depth of 0.32m below present ground level.

## Trench 7 Modern ground level: 134.68m to 135.13m AOD

700	Modern turfline/topsoil. Mid to dark brown sand silt with moderate rounded pebble inclusions. 0.1m in thickness.
701	Subsoil. Mid brown sand-silt with frequent rounded pebble inclusions. 0.6m in thickness.
702	Natural geological substrate: orange-brown sand-clay, sands and rounded gravels/pebbles. Noted at depth of 0.7m below present ground level.

## Trench 8 Modern ground level: 136.92m to 137.23m AOD

800	Modern turfline/topsoil. Mid to dark brown sand silt with moderate rounded pebble inclusions. 0.2m in thickness.
801	Natural geological substrate: orange-brown sand-clay, sands and rounded gravels/pebbles. Noted at depth of 0.2m below present ground level.

## Trench 9 Modern ground level: 137.72m to 139.11m AOD

900	Modern turfline/topsoil. Mid to dark brown sand silt with moderate rounded pebble inclusions. 0.12m in thickness.
901	Subsoil. Mid brown sand-silt with frequent rounded pebble inclusions. 0.22m in thickness.
902	Natural geological substrate: orange-brown sand-clay, sands and rounded gravels/pebbles. Noted at depth of 0.34m below present ground level.

## Trench 10 Modern ground level: 136.92m to 137.46m AOD

1000	Modern turfline/topsoil. Mid to dark brown sand silt with moderate rounded pebble inclusions. 0.1m in thickness.
1001	Subsoil. Mid brown sand-silt with frequent rounded pebble inclusions. 0.4m in thickness.
1002	Natural geological substrate: orange-brown sand-clay, sands and rounded gravels/pebbles. Noted at depth of 0.5m below present ground level.

## Trench 11 Modern ground level: 141.37m to 141.43m AOD

1101	Modern turfline/topsoil. Mid to dark brown sand silt with moderate rounded pebble inclusions. 0.12m in thickness.
1102	Subsoil. Mid brown sand-silt with frequent rounded pebble inclusions. 0.28m in thickness.
1103	Natural geological substrate: orange-brown sand-clay, sands and rounded gravels/pebbles. Noted at depth of 0.4m below present ground level.
1104	Roman pit cut, partially exposed. M in width and at least m in length and m in depth.
1105	Fill of 1104:

1106	Modern pit cut: 0.65-1.5m in width and at least 1.6m in length.
1107	Fill of 1106: grey silt-sand with abundant slate and modern brick. Unexcavated.
1108	Modern cable trench. 0.3m in width.
1109	Fill of 1108: grey-brown silt-sand. Unexcavated.

## Trench 12                      Modern ground level: 141.02m AOD

1201	Modern turfline/topsoil. Mid to dark brown sand silt with moderate rounded pebble inclusions. 0.1m in thickness.
1202	Subsoil. Mid brown sand-silt with frequent rounded pebble inclusions. 0.14m in thickness.
1203	Subsoil. Mid brown sand-silt with frequent rounded pebble inclusions. 0.2m in thickness.
1204	Natural geological substrate: orange-brown sand-clay, sands and rounded gravels/pebbles. Noted at depth of 0.44m below present ground level.
1205	Roman pit cut, partially exposed. At least 1.9m in length, 0.84m in width and *m I depth..
1206	Fill of 1205: mid brown silt-clay with frequent, fragmentary, Roman tile and occasional rounded pebbles.

## Trench 13                      Modern ground level: 140.84m to 140.97m AOD

1301	Modern turfline/topsoil. Mid to dark brown sand silt with moderate rounded pebble inclusions. 0.1m in thickness.
1302	Modern dump deposit. Mid brown sand-silt with frequent rounded pebble inclusions. 0.2m in thickness.
1303	Former topsoil. Mid to dark brown sand silt with moderate rounded pebble inclusions. 0.1m in thickness.
1304	Subsoil. Mid brown sand-silt with frequent rounded pebble inclusions. 0.28m in thickness.
1305	Natural geological substrate: orange-brown sand-clay, sands and rounded gravels/pebbles. Noted at depth of 0.68m below present ground level
1306	Roman gully. U-shaped profile, 0.16m in width, 0.16m in depth and at least 3.4m in length.
1307	Fill of 1306: dark grey-brown silt-clay with frequent pebbles and occasional charcoal flecks.
1308	Roman posthole. Circular with shallow sides and concave base. 0.35m in length, 0.15m in width and 0.08m in depth.
1309	Fill of 1308: mid brown silt-clay.
1310	Roman posthole: Circular with steep sides and concave base. 0.3m in diameter and 0.12m in depth.
1311	Fill of 1310: mid brown silt-clay with occasional pebbles.
1312	Roman pit or posthole cut. Sub-circular with steep sides and concave base. 0.6m in length, 0.54m in width and 0.19m in depth.
1313	Fill of 1312: mid brown silt-clay with occasional pebbles and abundant Roman tile fragments, possibly packing material.

## Trench 14                      Modern ground level: 140.38m AOD

1401	Modern turfline/topsoil. Mid to dark brown sand silt with moderate rounded pebble inclusions. 0.12m in thickness.
1402	Dump deposit. Mid brown sand-silt with frequent limestone fragments. 0.3m in thickness.
1403	Subsoil. Mid brown sand-silt with frequent rounded pebble inclusions. 0.4m in thickness.
1404	Roman soil horizon. Mid brown sand-silt with frequent rounded pebble inclusions. 0.18m in thickness.
1405	Natural geological substrate: orange-brown sand-clay, sands and rounded gravels/pebbles. Noted at depth of 1m below present ground level.
1406	Roman ditch. NW/SE aligned with v-shaped profile and shallow sides. 1.54m in width, 0.53m in depth and at least 4m in length.
1407	Fill of 1406: mid to dark orange brown silt-clay with frequent small rounded pebbles. 0.12m in thickness.
1408	Fill of 1406: dark brown to black silt with frequent small rounded pebbles and charcoal flecks. 0.42m in thickness.
1409	Roman ditch terminal or pit. aligned with v-shaped profile and shallow sides. 1.4m in width, 0.44m in depth and at least 0.26m in length.
1410	Fill of 1409: dark brown to black silt with frequent small rounded pebbles and charcoal flecks. 0.44m in thickness.
1411	Roman gully. NE/SW aligned with v-shaped profile and shallow sides. 0.56m in width, 0.25m in depth and at least 4m in length.
1412	Fill of 1411: mid brown silt with frequent small rounded pebbles. 0.25m in thickness.
1413	Roman ?pit cut. Steep, near vertical, edges and irregular base. At least 0.76m in width and 0.3m in depth.
1404	Fill of 1413: mid brown silt with frequent small rounded pebbles. 0.35m in thickness.

## Trench 15 Modern ground level: 140.14m AOD

1501	Modern topsoil. Mid to dark brown sand silt with moderate rounded pebble inclusions. Includes abundant modern debris. Service trenches noted. At least 0.9m in thickness.
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## Trench 16 Modern ground level: 141.44m AOD

1601	Modern turfline/topsoil. Mid to dark brown sand silt with moderate rounded pebble inclusions. 0.35m in thickness.
1602	Subsoil. Mid brown sand-silt with frequent rounded pebble inclusions. 0.35m in thickness.
1603	Natural geological substrate: orange-brown sand-clay, sands and rounded gravels/pebbles. Noted at depth of 0.7-1.1m below present ground level.
1604	Shallow ?natural undulation in natural gravels or possible tree root disturbance. At least 3m in length, 1.5m in width and 0.3m in depth.
1605	Fill of 1604. Mid brown sand-silt with frequent rounded pebble inclusions. 0.3m in thickness.

## Trench 17 Modern ground level: 140.75m to 140.89m AOD

1700	Modern turfline/topsoil. Mid to dark brown sand silt with moderate rounded pebble inclusions. 0.1m in thickness.
1701	Modern subsoil. Mid brown sand-silt with frequent rounded pebble inclusions. 0.7m in thickness.
1702	Fill of 1703: clay and gravel fill surrounding telephone cable. Unexcavated.
1703	Telephone cable trench. NE/SW aligned.
1704	Natural geological substrate: orange-brown sand-clay, sands and rounded gravels/pebbles. Noted at depth of m below present ground level.

## Trench 18 Modern ground level: 137.76m AOD

1801	Modern dump deposit. Mid to dark brown sand silt with modern building debris. 0.25m in thickness.
1802	Modern geotechnical membrane.
1803	Modern dump deposit: clay soil with building debris to at least 1.2m depth below present ground level.

## Trench 19 Modern ground level: 144.91m to 145.91m AOD

1900	Modern turfline/topsoil. Mid to dark brown sand silt with moderate rounded pebble inclusions. 0.1m in thickness.
1901	Modern dump deposit. Clay soil with modern building debris. 0.3m in thickness.
1902	Natural geological substrate: orange-brown sand-clay, sands and rounded gravels/pebbles. Noted at depth of 0.4m below present ground level.

## Trench 20 Modern ground level: 141.40m AOD

2001	Modern turfline/topsoil. Mid to dark brown sand silt with moderate rounded pebble inclusions. 0.4m in thickness.
2002	Subsoil. Mid brown sand-silt with frequent rounded pebble inclusions. 0.45m in thickness.
2003	Natural geological substrate: orange-brown sand-clay, sands and rounded gravels/pebbles. Noted at depth of 0.85m below present ground level.
2004	Modern grey ash fill of service trench.
2005	Modern ceramic drain pipe.
2006	Modern ceramic drain pipe.
2007	Modern ceramic drain pipe.
2008	Modern concrete foundation, supporting 0.15m by 0.15m square concrete post.

**APPENDIX 2: THE FINDS**

\* Ceramic building material discarded

Context	Description	Count	Wt (g)	Spot-date
1105	Pottery; Verulamium region ware (VRW), Dorset Black-Burnished ware (BB1), Oxford whiteware mortaria (OXWW) *Tegula *Brick *Unidentifiable tile/brick Fe nail	30 7 2 22 1	583  4132 605 1319 9	C3+
1206	Pottery; Verulamium region ware (VRW) *Tegula *Imbrex *Brick Unidentifiable tile/brick	1 50 36 15 47	4 14.8Kg 4037 4651 3726	LC1-EC2
1307	Pottery; Dressel 20(DR20), Verulamium region ware (VRW), fine greyware *Brick; fabric group 2815	5 1	42 190	LC1-C2
1313	Pottery; Verulamium region ware (VRW) *Tegula *Imbrex *Brick *Unidentifiable tile/brick Fe object	4 1 1 2 5 1	131 654 233 327 731 58	EC2
1403	Pottery; grog tempered (GROG), Baetican amphora (BAET), misc. grey ware *Roman brick; fabric group 2815 Fired clay Fe object	13 6 1 1	398 1116 5 31	LC1-EC2
1407	Pottery; Verulamium region ware (VRW) *Tile; fabric group 2815 Metalworking slag	6 1 4	43 92 111	LC1-C2
1408	Pottery; Baetican amphora (BAET), grog tempered (GROG), Verulamium region wares (VRW, VRG), black sandy coarseware, Rhineland colour-coated ware (KOLN) *Tegula; fabric group 2815 *Brick *Unidentifiable tile/brick; fabric group 2815 Flint blade Metalworking slag Burnt flint Fe nail	69 2 2 28 1 9 13 1	569 552 325 1484 2 187 40 14	LC1-C2
1410	Pottery; Verulamium region ware(VRW, VRG), grog tempered (GROG) *Misc ceramic building material; fabric group 2815 Flint flake Metalworking slag Burnt flint Fired clay	92 5 1 1 15 4	1342 106 2 11 28 253	EC2
1412	Pottery; Dorset Black-Burnished ware (BB1), Verulamium region ware(VRW) *Brick; fabric group 2815 Flint flakes Metalworking slag	3 1 2 1	23 264 10 2	LC1-C2
1605	Pottery; Verulamium region ware(VRW), Lower Nene colour-coated (NVCC), ?Hadham oxidised Misc ceramic building material; fabric group 2815	7 17	65 599	C3+

### APPENDIX 3: THE BIOLOGICAL AND PALAEOECONOMIC EVIDENCE

Bulk soil samples were taken for the purposes of testing for industrial residues and gauging their state of preservation in order to assess the potential for analysis towards reconstructing former economies and environments. Sample 1 was taken from secondary ditch fill 1408 and sample 2 from the fill of a ditch or pit 1406 within trench 14. Both fills contained abundant charcoal flecking and pieces of metalworking slag were recovered during their excavation. Two 10-litre samples were processed in total.

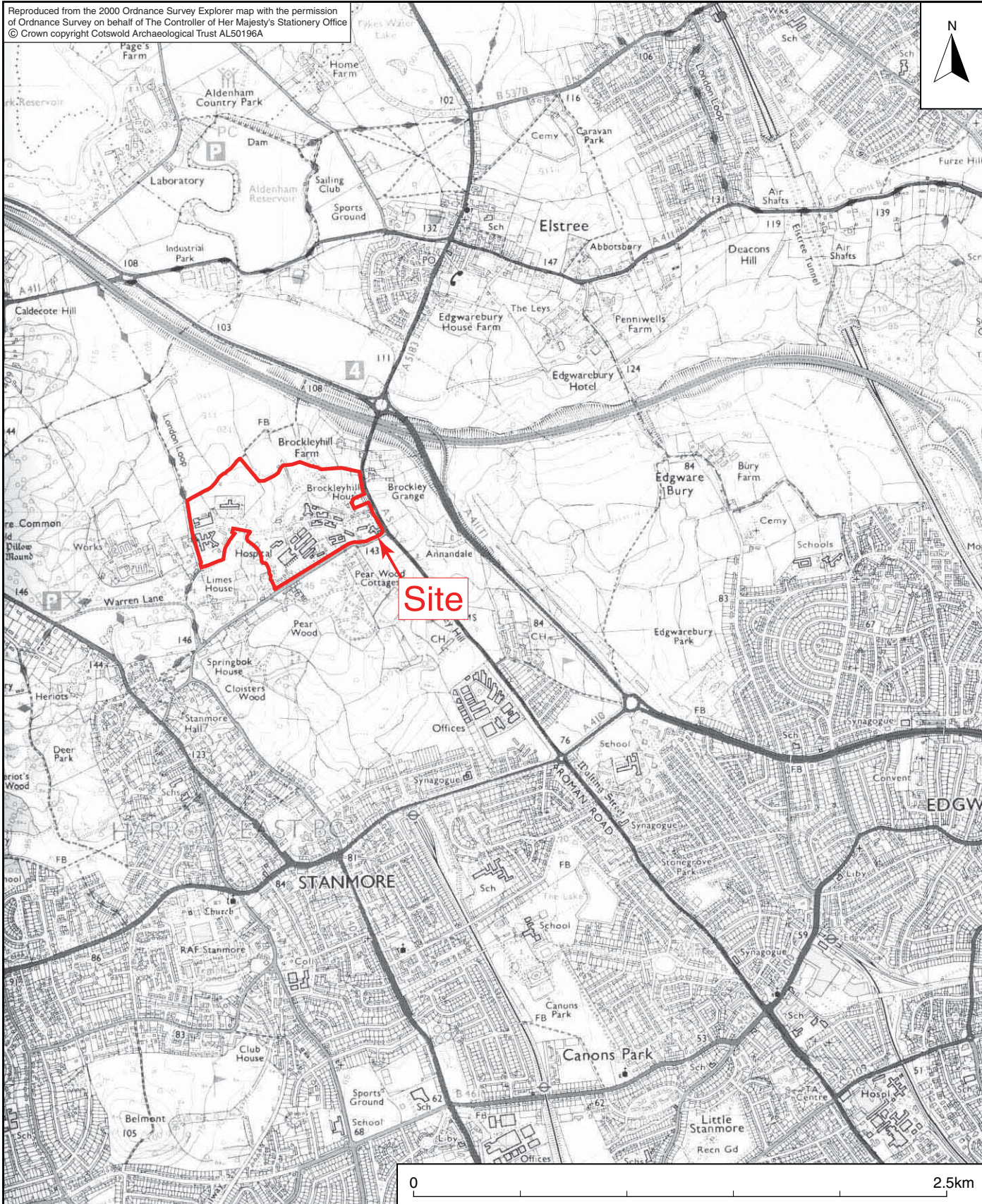
Samples were taken using sealable plastic tubs and transported to the CA offices for processing. All of the samples were processed for purposes of assessment. The samples were processed by means of flotation (wash-over) utilising meshes of 250µm and 500µm for the flit and residue respectively. Residues and flits were dried in a low temperature drying cabinet prior to sorting. The dried flits were scanned under a low power binocular microscope for charred plant, mollusc and material and artefacts. The residues were sorted down to 1mm. The 0.5-1mm fraction was scanned with a magnet to identify any magnetic material such as hammerscale.

#### Results

The two samples produced moderate quantities of charcoal, with in excess of 50 fragments from each sample. Sample 1 yielded 8g of charcoal and sample 2 produced 10g of charcoal. The fragments are quite large, approximately 7-10mm in diameter, and are presumably the remains of burnt fuel. The only other biological material identified was burnt animal bone. The bone in sample 1 totalled less than 10 fragments, weighing 1g, and could not be identified to species but appears to be from long bones from sheep-sized specimens. A larger quantity of burnt bone, weighing 2g, was recovered from sample 2 including one fragment identified as the distal end of a metapodial from a sheep. All of the bone appears to have been burnt and the majority of fragments are white in colour, indicating that they were burnt at a high temperature probably in excess of 800 degrees Celsius.

In addition to the biological material, artefactual remains were also recovered. Sample 1 produced 30 sherds of pottery (216g), two fragments of tile (19g), 15 fragments of burnt flint (28g) and four fragments of highly fired clay (253g) which probably represents hearth or furnace lining. Sample 2 produced 35 sherds of pottery (250g), 14 fragments of tile/brick (947g), 13 fragments of burnt flint (40g), two pieces of ironworking slag (64g) and a single iron nail (14g). Significant quantities of flake and spheroidal hammerscale were also recovered from both samples.





**COTSWOLD ARCHAEOLOGY**

PROJECT TITLE

**Royal National Orthopaedic Hospital,  
Stanmore, Harrow, Greater London**

FIGURE TITLE

**Site location plan**

SCALE

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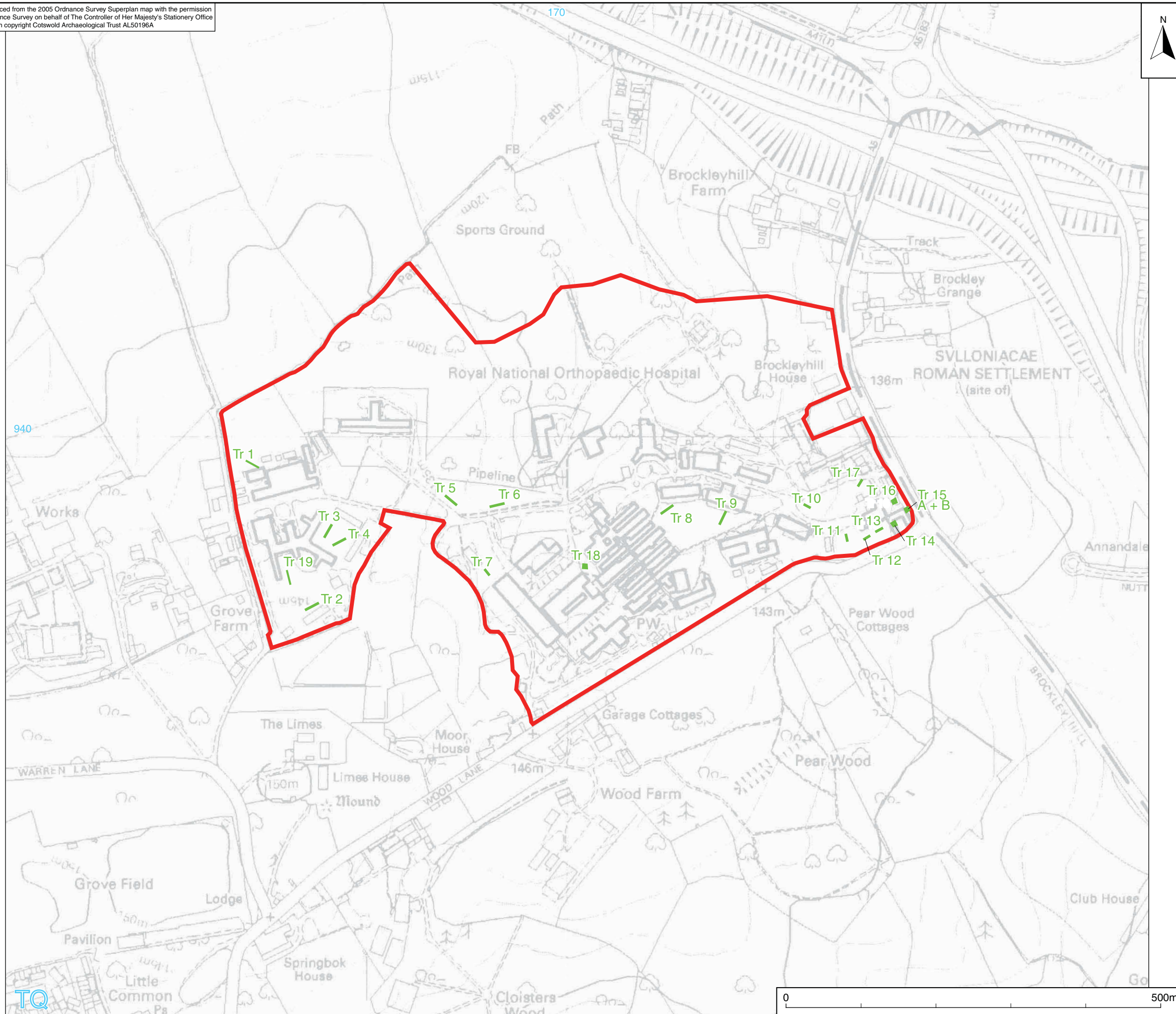
PROJECT NO.

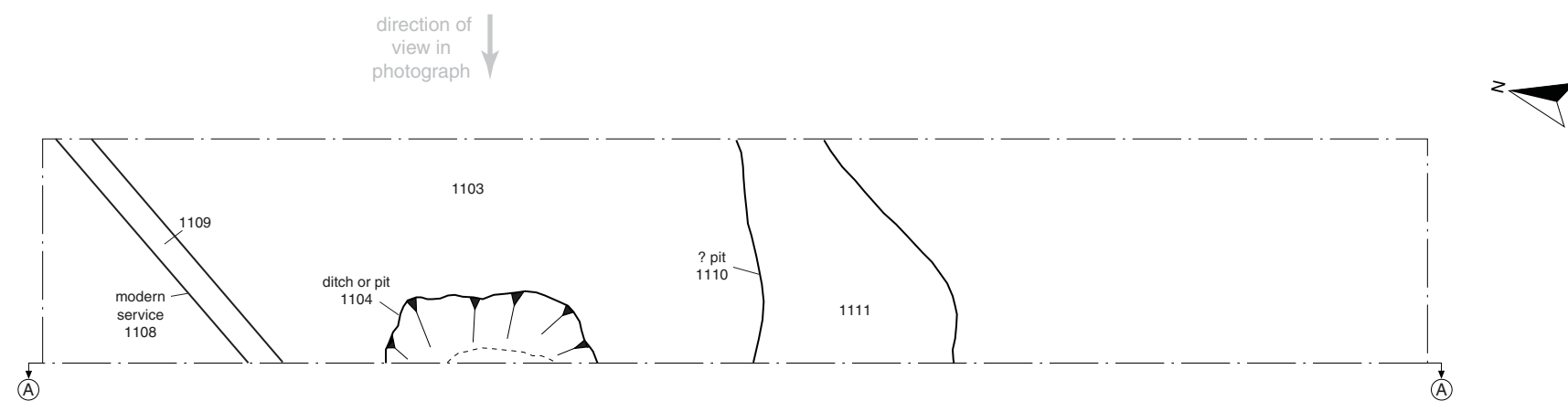
**2003**

FIGURE NO.

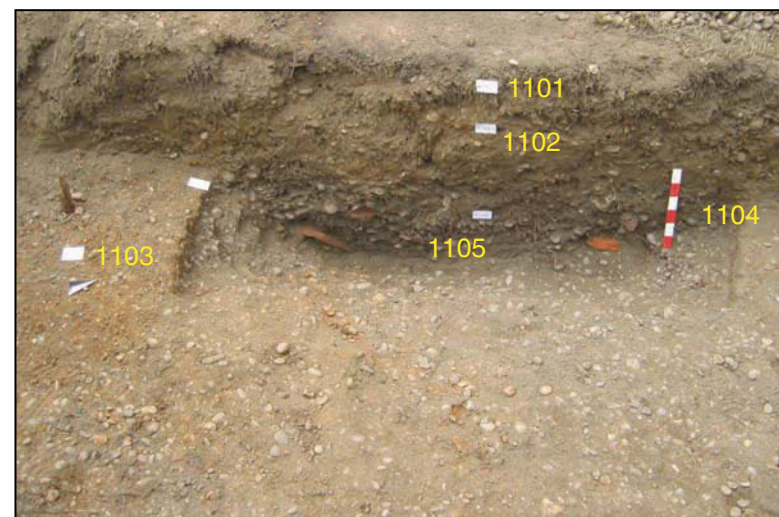
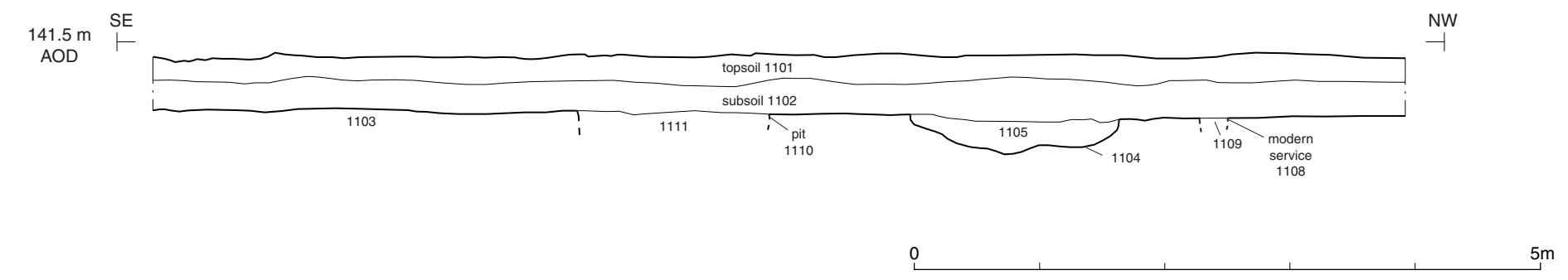
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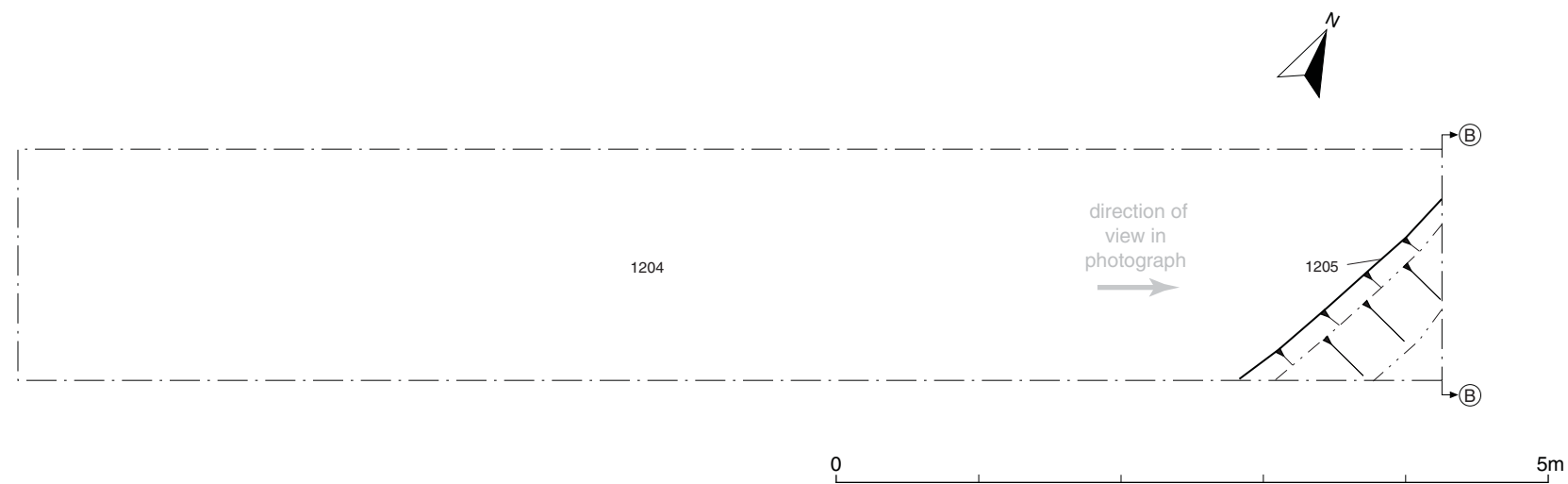




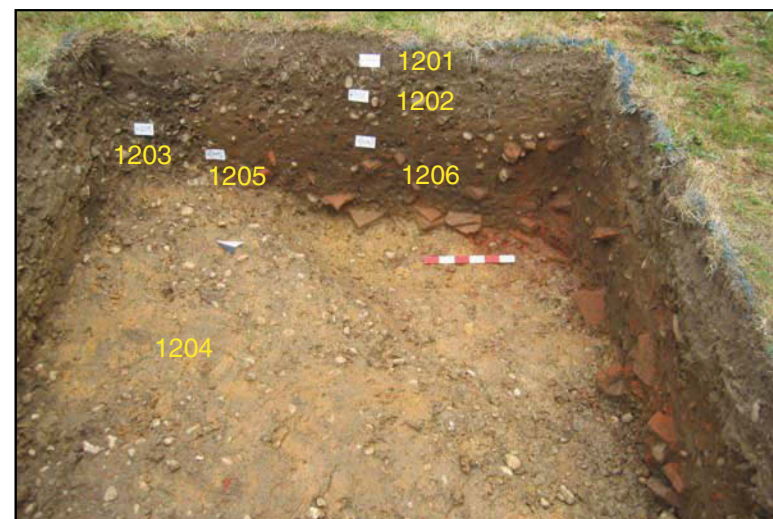
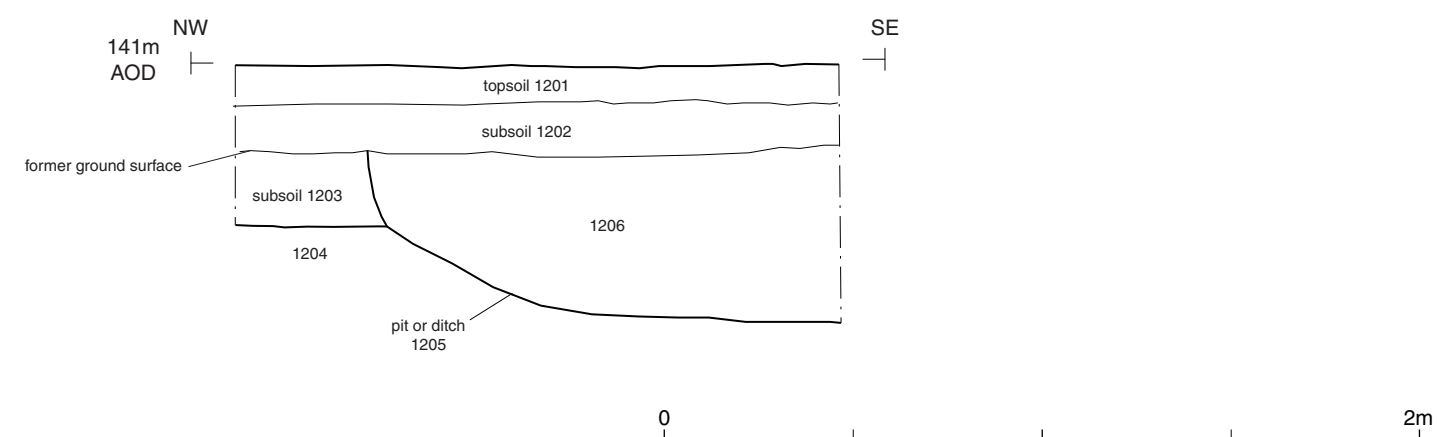
Section AA




Photograph of Trench 11 looking west at ditch or pit 1104



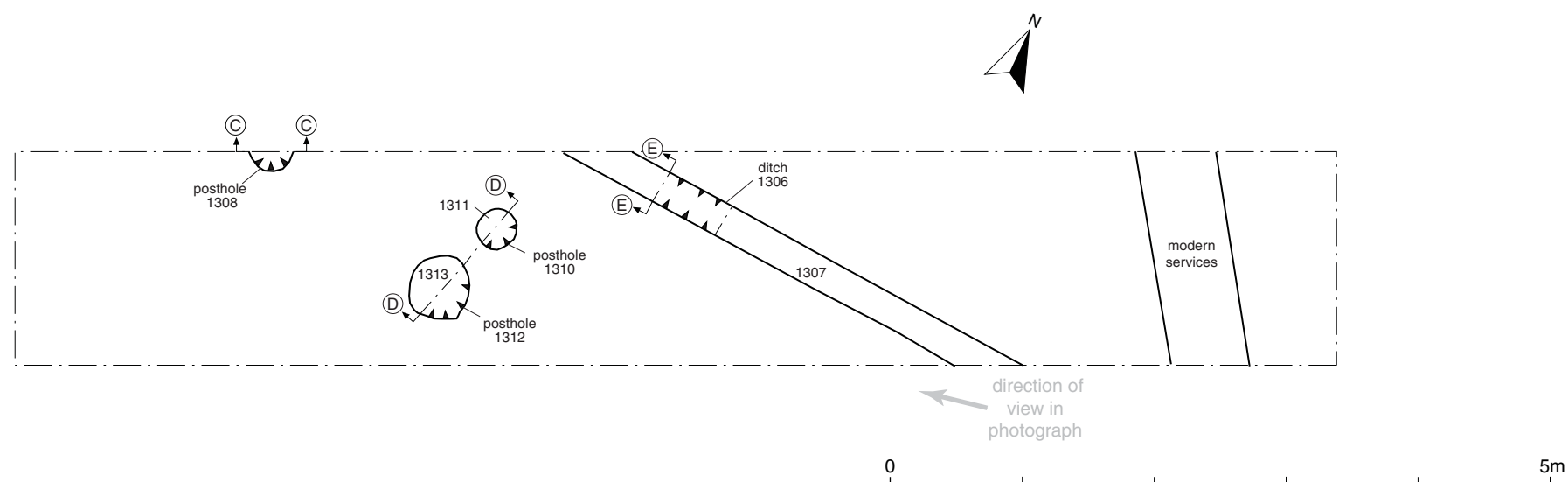
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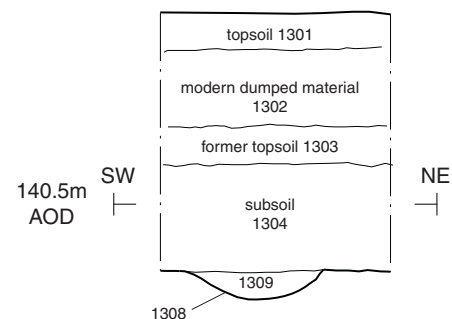
Photograph of Trench 12 looking east at pit or ditch 1205

 COTSWOLD ARCHAEOLOGY		
<b>PROJECT TITLE</b> Royal National Orthopaedic Hospital, Stanmore, Harrow, Greater London		
<b>FIGURE TITLE</b> <b>Trench 12; plan, section and photograph</b>		
<b>SCALE</b> @A3 1:50, 1:20 and not to scale	<b>PROJECT NO.</b> 2003	<b>FIGURE NO.</b> <b>4</b>

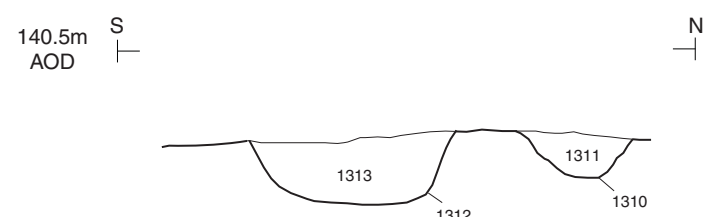




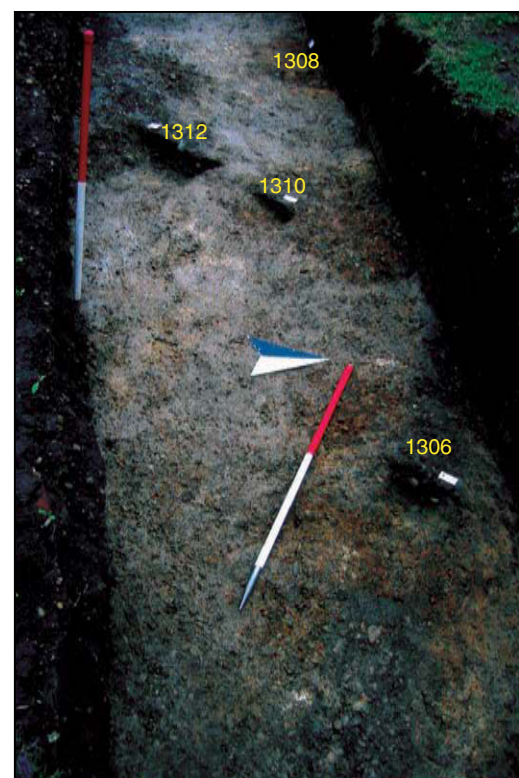
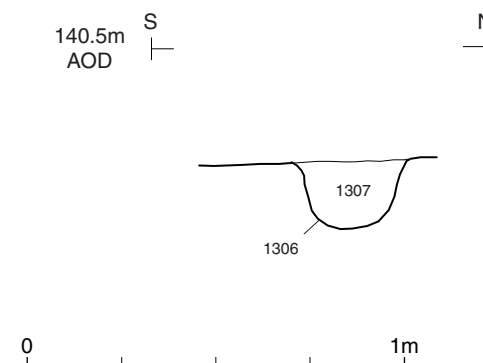
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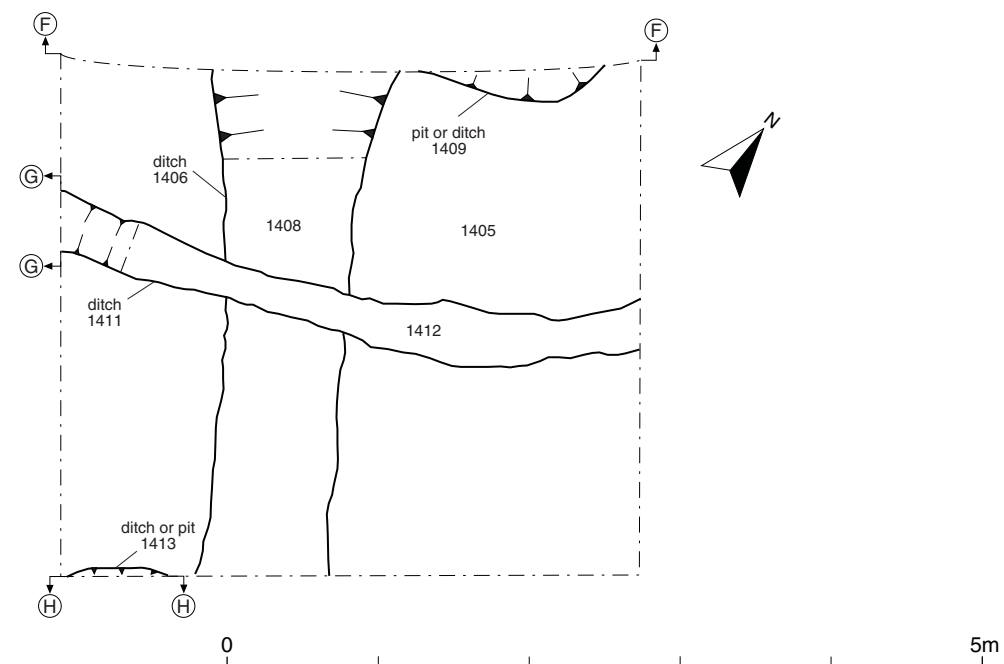
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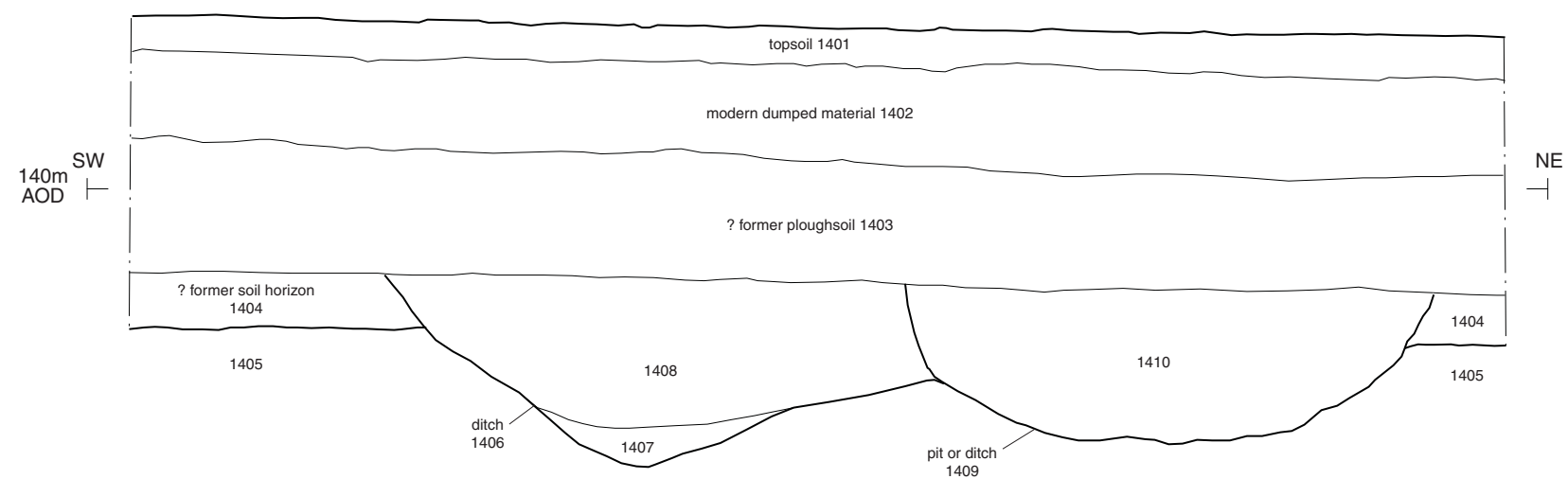
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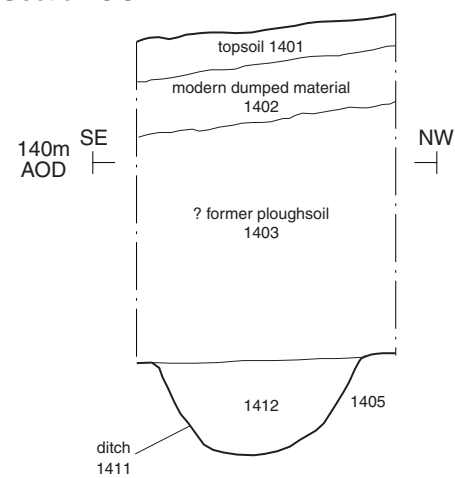
Photograph of Trench 13 looking west towards ditch 1306 and postholes 1308, 1310 and 1312



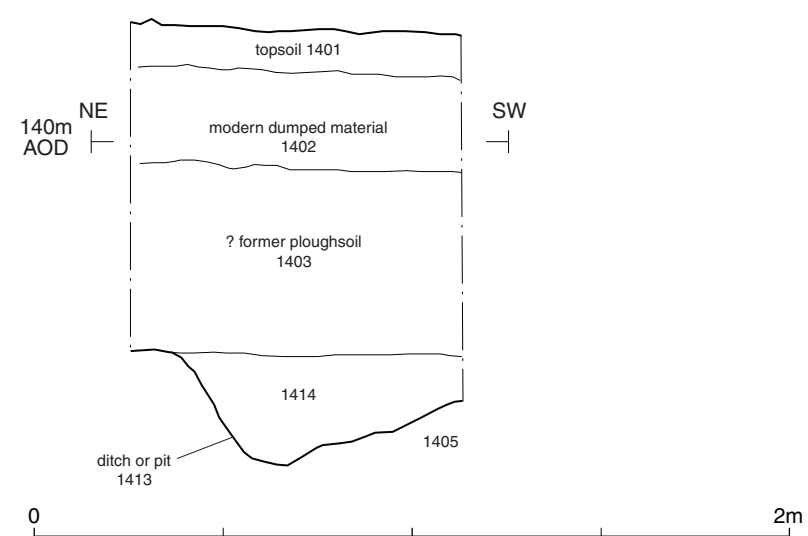
Section FF



Section GG



Section HH





7

7 Photograph of trench 14 looking north-west



COTSWOLD ARCHAEOLOGY

PROJECT TITLE

Royal National Orthopaedic Hospital,  
Stanmore, Harrow, Greater London

FIGURE TITLE

**Photograph**

SCALE

not to scale

PROJECT NO.

2003

FIGURE NO.

**7**