

Hampton Court Palace Richmond London Clore Learning Centre Project



Archaeological Watching Brief and Building Recording Report



Oxford Archaeology

August 2008



HISTORIC ROYAL PALACES

Client: Historic Royal Palaces

Issue N^o: 1

OA Job N^o: 2653

NGR: TQ 1550 6855

Client Name: Historic Royal Palaces

Client Ref No:

Document Title: Hampton Court Palace, Richmond, London. Clore Learning Centre Project

Document Type: Archaeological Investigation Report

Issue Number: 1

National Grid Reference: TQ 1550 6855

Planning Reference: n/a

OA Job Number: JN 2653

Site Code: HCP44 05

Invoice Code: HCP44 WB

Receiving Museum: Historic Royal Palaces

Museum Accession No: HCP44 05

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Date: 30th July 2008

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Date: 6th August 2008

Approved by: David Wilkinson

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Position: Term Contract Manager

Date: 6th August 2008

Document File Location M:\HRH\Historic Royal Palaces\Hampton Court Palace\HCP44 - Barrack Block Education Centre\HCP44WB and Bldg Survey Revised May June 2008.doc

Graphics File Location ServerGo\oau pubs\AthruH\HCP44WB*Hampton Court*EG/MD* 2006-2008

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The Clore Learning Centre Project
 NGR: TQ 1550 6860

***ARCHAEOLOGICAL WATCHING BRIEF AND
 BUILDING RECORDING REPORT***

CONTENTS

Summary	1
1 Introduction	3
1.1 Project Background	3
1.2 Geology and topography	3
1.3 Historical Background	4
1.4 Archaeological background to the watching brief	5
2 Project Aims, Methodology and Personnel	6
2.1 Aims of the Watching Brief	6
2.2 Aims of the Building Recording	6
2.3 Watching Brief Methodology	7
2.4 Building Recording Methodology	7
2.5 Personnel	8
2.6 Acknowledgements	8
3 The Watching Brief: Site Description	9
3.1 General	9
3.2 Area north of the Clore Learning Centre	9
3.3 Area east of the Clore Learning Centre	10
3.4 Site of new building - the Clore Learning Centre	12
3.5 The lift pit in the 1689 Barrack Block	13
3.6 Area west of the Barrack Block: the "Dung Yard"	14
3.7 Area south of Clore Learning Centre	21
3.8 Other investigation areas	22
3.9 The Ambulance Shed and Yard - late 19th to early 20th century	22
4 The Barrack Block: Building Recording	23
4.1 General	23
4.2 Exterior	23
4.3 Interior: Ground Floor	24
4.4 Interior: First Floor	25
5 The Finds	34
6 Discussion: The Watching Brief	42
6.1 Pre-Tudor Period	42
6.2 Pre-1689	43
6.3 1689 and later	43
6.4 The 18th and 19th century structures west of the 1689 Barrack Block	45
6.5 The late 19th century/20th century yard west and north of the Barrack Block	46
6.6 The Finds	46
7 Discussion: The Building Recording	47
8 Conclusions	50
Appendix 1 Table of Watching Brief Context Information	52
Appendix 2 Historic Plans and Illustrations consulted	56
Appendix 3 Bibliography and references	56
Appendix 4 Summary phasing of the Barrack Block	57

LIST OF FIGURES

- Fig. 1 Site location
 Fig. 2 Trench locations 2005
 Fig. 3 Plan of Archaeological Actions (AAs)
 Fig. 3b Plan of additional AAs
 Fig. 4 AAs 3 and 5, Sections 8 and 5, AA4 - plan
 Fig. 5 AA13 Sections 1 and 4
 Fig. 6 AA6 Plan and Section 3
 Fig. 7 AA12 plan showing sandstone wall (4) at base of trench, Plan and Section 2
 Fig. 8 Part of late 19th century cobbled surface
 Fig. 9 AA18 - Lift Pit in the Barracks
 Fig. 10 Main excavation area of latrine blocks: AA1 and AA11
 Fig. 11 Digital photo showing phasing of latrine block, looking South
 Fig. 12 Detailed plan of Tudor walls 72/73
 Fig. 13 Plan of rectangular brick structure 1070 (soil pit in AA 22)
 Fig. 14 Soil pit 1070, digital photograph, looking south
 Fig. 15 AA 11, detail South of wall 42, possible surface 40 and boundary wall 42
 Fig. 16 Plan of possible well 1007 in AA16
 Fig. 17 First Floor Plan
 Fig. 18 Survey of first floor Joists
 Fig. 19 Truss 3, East Elevation
 Fig. 20 Truss 3, West Elevation
 Fig. 21 Extract from Wyngaerd's View of the Palace: 1558 (top) and view from north-west commissioned by Cosimo de Medici in 1669. Range of buildings in area of AA1
 Fig. 22 Hawksmoor's c 1700 Estate plan (top) and Estate plan dated 1710-14 (bottom), showing the development of the walls/buildings west of the Barracks
 Fig. 23 Ground floor plan pre-1731: NA/WORKS/24/44
 Fig. 24 Plan of the Barrack Block 1887/89 Ordnance Survey: NA/LRRO 1/4438 with interpretation of principal structures located during the watching brief
 Fig. 25 Plan of Barracks 1908: Ordnance Survey - HRP Plan archive
 Fig. 26 Ford, D 1996 Barrack Block Hampton Court Palace - Historic Analysis - Ground Floor Plan - Sterling Surveys. BAR/GRO/001-4 and FIR/001-004: location of stable floor recording and direction/view of plates 14 and 15

LIST OF PLATES

- Plate 1 AA1 Tudor walls 72 and 73
 Plate 2 AA1 Stone post base and rotted post (Ctx 51 and 52)
 Plate 3 AA1 looking south
 Plate 4 Wall 56 looking north
 Plate 5 Stone/concrete step on wall 55
 Plate 6 Cobbled surface 1023 in area of Ambulance Shed. Looking north, drains to west
 Plate 7 Cobbled surface 1023 looking west, remains of the Ambulance Shed in foreground
 Plate 8 General view of east barrack room looking west
 Plate 9 First floor joists on south side of east barrack room
 Plate 10 East elevation of closed truss 2 with primary stairwell ceiling joists behind
 Plate 11 Exposed brickwork of chimney breast and inner face of exterior north wall (right)
 Plate 12 Typical open roof truss (west face of truss 11)
 Plate 13 Statuary hand, context 1063
 Plate 14 Stable floor view NE: see Fig. 26
 Plate 15 Stable floor view S: see also Fig. 26
Cover Plate: the Barrack Block in the late 19th century

SUMMARY

From August 2005 to August 2006, Oxford Archaeology (OA) carried out an extended watching brief on the site of the new Clare Learning Centre at Hampton Court Palace, London (NGR: TQ 1550 6860), on behalf of Historic Royal Palaces. The Clare Learning Centre is located to the north of the 17th century Barrack Block near the Trophy Gate at the west side of the Palace. The watching brief comprised the monitoring of a number of trenches excavated by the principal site contractors, including ancillary services such as electricity cabling. A new lift shaft pit was also excavated in the Barrack Block. The trenches were individually recorded as Archaeological Actions (AA). A building recording exercise was also undertaken during refurbishment of the Barrack Block from late 2005 through to the summer of 2006. This report combines the results from these two investigations.

The surface of natural terrace gravel was observed some 3 m below current ground level, but no evidence of activity was found from the prehistoric, Roman or pre-Tudor periods.

A single wall fragment pre-dated the construction of the 1689 barracks, and is most likely to belong to the foundations of the short-lived cavalry barracks constructed in 1662. A small patch of brick floor may have belonged to the same structure. These are glimpses of a building which may be depicted in Cosimo De Medici's view of 1169 (Fig. 21) but of which we otherwise know very little, other than that it was timber-framed.

Garden soils belonging to the Kitchen Gardens were found, but there was no evidence from the Tiltyard which occupied this area prior to the late 17th century

Part of the south foundation wall of the 1689 barrack block was seen in the watching brief, together with the base of one of the cast iron columns. These columns, which were also observed during the building survey, were introduced into the building in the late 18th or 19th century. They formed the end of the stall divisions in the cavalry barracks and supported the second floor. If, as is suggested in the Statement of Significance (HRP 2005), the columns were put in soon after 1794, they are a very early example of their kind.

At the west end of the Barrack Block, the watching brief was successful in showing the detailed development of a yard area from the early 18th century onwards. The yard housed latrines and soil pits, and it was presumably constructed because the original pits were between the cavalry and infantry barracks, and were covered over when the Sutlery was built, also in the early 18th century.

Much of the focus of the building recording works was on the first floor of the cavalry barracks. This showed in more detail (it was recorded by Ford in 1996) how the main barrack rooms were divided into two in the 18th century - but it was not possible to date the wall to a particular phase of renovation. The recording also elucidated the sub-division and re-

ordering of other parts of the barracks in the 18th and particularly the 19th centuries, and the construction detail of the roof and floor structures.

The finds were limited in quantity across the site as a whole. The pottery and glass assemblages contained 18th and 19th century flower pots and glass cloches typical of horticultural sites of some status. Tudor brick samples were recovered from the walls west of the barrack block though the finds assemblage comprised mostly later post-medieval material. Of note were a number of comparatively rare 'bottle bricks', first introduced into France by the architect Eustache St. Far in 1785 and used for a period in the late 18th and early 19th century by prominent architects including Henry Holland and Sir John Soane. The bricks were used for lightweight roof vaulting and can be found in the construction of Soane's Bank of England. No obvious context for these bricks was observed on this development site or within the barracks; it may be that the bricks were stored here at one time for use elsewhere in the Palace grounds and were used to backfill later intrusive features.

1 INTRODUCTION

1.1 Project Background

- 1.1.1 At Hampton Court Palace, Richmond, London (NGR: TQ 1550 6860), Historic Royal Palaces (HRP) are constructing a new education centre (the Clare Learning Centre) to the north of the 17th century Barrack Block and to the immediate west of a building used in the 19th century as the Guard House, which is now known as the Choir Hut (Fig. 1). The new learning centre will replace inferior facilities formerly housed within the Choir Hut. The demolition of outbuildings and the erection of new structures necessitated a programme of below-ground archaeological excavation and monitoring.
- 1.1.2 The Barrack Block at Hampton Court is a brick-built structure originally dating from the second half of the 17th century. Since ceasing to be military accommodation in the 1930s it has been used as a ticket office and shop on the ground floor. By the 1980s the first floor of the building contained office accommodation and meeting rooms.
- 1.1.3 A Written Scheme of Investigation for a watching brief was prepared by Oxford Archaeology (OA) to monitor these works (WSI, OA 2005c). This followed on from an earlier archaeological evaluation and report (Oxford Archaeology, 2005b), which proposed that intrusive ground works during the construction work should be archaeologically monitored.
- 1.1.4 At the same time, OA was commissioned by Historic Royal Palaces to undertake a programme of historic building investigation and recording at the Barrack Block, based on the original desk-based assessment (OA 2005a). The recording and investigation work was undertaken in advance of and during a programme of conversion and repair. These works primarily concerned the removal of 20th century features, although in places they did impact on features of more historic significance. The work was mostly confined to the first floor of the building, although the insertion of a new stair and a lift shaft (as well as more minor works) did affect the ground floor.

1.2 Geology and topography

- 1.2.1 The site lies about 100 m north of the present line of the River Thames, at around 9 m OD, and is on the first river gravel terrace of the Thames floodplain. The river gravels overlie London Clay. At the time of the archaeological works the site was being used as car park with a tarmac surface, split into two levels.
- 1.2.2 The lower car park is on the same level as the existing late 19th century Pump House and Guard House (now known as the Choir Hut), and extends to the north of these as far as the east-west retaining wall of the same date. The upper level is located to the north of the retaining wall dividing the two areas.

1.3 Historical Background

The archaeological and historical background to the site has been the subject of a separate Desk-Based Assessment (DBA Oxford Archaeology, 2005a), the results of which are summarised below. The desk-based assessment drew on a report prepared by Historic Royal Palaces (HRP, February 2005: The Barrack Block, Hampton Court Palace - Statement of Significance) and Daphne Ford's 1996 Historic Analysis (Ford 1996).

- 1.3.1 At the time of the DBA, there was no known evidence of pre-Tudor archaeological remains within the development area, but their presence could not be entirely discounted. In particular, the extent of the medieval grange belonging to the Knights Hospitallers and of alterations made by subsequent lease holders, are unknown.
- 1.3.2 The west front of Hampton Court Palace was developed during the tenure of Cardinal Wolsey, between 1514 and 1528, and Henry VIII, between 1528 and c 1540. During these works, the area of the Barracks became part of an Outer Green Court. This court may potentially have contained subsidiary buildings to the Palace, such as Estate offices. The north side of the Outer Green Court was certainly bounded by the Tiltyard. Henry's Tiltyard was a large open area bounded by walls and with a number of decorative brick towers at its centre and along its eastern wall (one of which survives). This Tiltyard was intended as an arena for jousting and other martial sports but seemingly was only used for such events infrequently. The nature, location and form of any buildings within and bounding the Outer Green Court was unknown at the time of this investigation, although a range of buildings is shown here in an illustration of the Palace by Wyngaerd dating to 1558 (Fig. 21). An investigation at the Barrack Blocks during redevelopment of the barracks in 1983 identified a small amount of 16th-century brick rubble and moulded stone.
- 1.3.3 Charles II, on his accession, ordered the building of a Cavalry Barracks at Hampton Court. This was a timber framed building, built in 1662 and probably located on the site of the present barracks. Little is known of this block and nothing identifiable is now visible above ground (suggestions that the brick chimney stacks survived in some form are entirely speculative). During the later 17th century, the Tiltyard to the north of the barracks was probably used for grazing horses.
- 1.3.4 The construction of the present range of barracks was ordered in 1689 and rapidly completed. Originally the new barracks consisted of two ranges, to the east an Infantry Barracks and to the west a Cavalry Barracks. The possibility exists that the 1689 barracks utilised the brick chimneys of the original 1662 build, or even of earlier structures on the site. This could only be further investigated by intensive investigation. The cavalry barracks housed horses on the ground floor and had accommodation for the troopers above. The foot guards appeared to have human accommodation on both floors. During this period the Tiltyard to the north remained in military use and was used to drill the troops. Stands were provided here to rest the pikes and muskets of the infantry element.

- 1.3.5 The Cavalry and Infantry stables were conjoined in 1700 by the addition of a Sutlery in the area formerly occupied by a well or hay pit. The area to the north of the Barrack Block may have been converted into a gravelled parade ground at this point. Renovations and re-fittings of the Barrack Block were probably undertaken in 1717, 1731 and c 1794. Minor alterations to the fabric of the Barrack Block were also undertaken throughout the 19th century.
- 1.3.6 A major remodelling of the barracks was undertaken at the close of the 19th century. The barracks orientation was altered by blocking off the entrances on the southern side and replacing them with entrances on the north side. A new guardhouse (now the Choir Hut) was constructed to the north of the barracks along with a latrine block and a number of other ancillary structures. These were built around a newly created courtyard, formed from part of the Tiltyard gardens and contained by a fence. The ancillary buildings are clearly depicted on an Ordnance Survey plan of the site dated to 1908 (Fig. 25). A small building, marked as an ambulance shed, can be seen on this plan and lies within the footprint of the proposed Clore Centre. The courtyard formed to the north of the barrack blocks was again developed in the 1930s as a car park. The latrine block was probably demolished at this point.
- 1.3.7 The barrack block lies on the northern edge of what is now Hampton Court's main entranceway, through the western or Trophy Gate. It is an integral part of the first view of the Palace seen by the majority of visitors and since the demolition of the range of service buildings to the south of this open area in 19th century, it is the only building in front of the palace's main facade.

1.4 Archaeological background to the watching brief

- 1.4.1 Previous archaeological finds and investigations on the site of the barracks are detailed in the desk-based assessment for the project (OA 2005a). In advance of the construction programme, OA undertook an evaluation of the site in the summer of 2005 - the location of the test pits and trenches is shown on Fig. 2. This work has been reported (OA 2005b). A summary of the findings from this work is repeated below, together with other investigations.
- 1.4.2 The evaluation comprised four test pits and two evaluation trenches. No deposits or structures were found which could be dated to the Tudor period, or to any pre-Tudor period. However, a 19th-century or later deposit of building rubble in Trench 1 (adjacent to the Pump House) contained one complete brick and one small brick fragment, both of which may well be Tudor and which should not be later than the 17th century. This material may have derived from the buildings shown just to the south by Wyngaerd in his view of 1558. In Trench 5 (Upper Car Park) a remnant was found of the topsoil or subsoil of the kitchen garden which is known to have been laid out here in the late 17th century. There was no evidence of any garden features, nor any trace of remains relating to the Tiltyard that preceded the kitchen garden.
- 1.4.3 The evidence generally suggests that in the late 19th century, when the Guardhouse (Choir Hut) was constructed together with the Pump House and other buildings, the

ground was terraced, and all earlier deposits in this area south of the line of the new retaining wall were removed, leaving only the truncated surface of the natural sandy gravel. Gravel was encountered to the north of the retaining wall at a level 0.56 m above the terraced level, and it is likely that the original surface topography of the natural was a gentle slope upward from south to north, moving away from the River Thames.

- 1.4.4 There was no evidence of any earlier alignment on the line of the late 19th century retaining wall. This is consistent with the layout shown on Talman's estate plan of 1698 and with that shown on all later mapping through to the late 19th century Ordnance Survey plans. Foundation and construction details were recorded for the late 19th century Guard House (now known as the Choir Hut), Pump House, demolished structures north of the Pump House and the retaining wall. Traces of regular granite cobbling were found which dated to the same period, indicating that the areas around the building were formalised.
- 1.4.5 The building shown on the 1908 OS Map as the Ambulance Shed was demolished, presumably during the re-landscaping of the area in the 1930s. Its robbed foundation trenches were found in Trench 6, together with brick demolition rubble. Tarmac surfacing from the 1930s landscaping was also found in a number of trenches.
- 1.4.6 Earlier test pit works were undertaken by OA in 2000 in the car park north of the Barracks Block and east of the Choir Hut. These works were reported (OA 2000). The truncated foundation and footings of a substantial wall were interpreted as the remains of the central wall to the Kitchen Gardens, dating possibly *c* 1690-91, around the date of the main Barrack Block construction.
- 1.4.7 The wall was demolished, probably in just before 1908, to allow construction of a concrete and brick structure - the new latrine. Other structural remains were located including a guiding slot with an end-post for a form of superstructure housing a sliding gate. Cartographic evidence suggests that by the time of the construction of the Lower Car Park in 1935 these structures had all been demolished.

2 PROJECT AIMS, METHODOLOGY AND PERSONNEL

2.1 Aims of the Watching Brief

- 2.1.1 In light of the results from the evaluation, the aims of the watching brief were to gain further knowledge of the archaeology of this area of Hampton Court Palace while minimising the impact of the works on any surviving archaeological remains.
- 2.1.2 In addition, the aim was to correlate the results of the building recording action by OA with the below ground archaeological watching brief wherever possible and to make available the results of the investigation in the form of a combined below and above ground archaeology report.

2.2 Aims of the Building Recording

- 2.2.1 The purpose of the investigation was to assess the structure, development and phasing of the former Horse Guards Barrack Block during refurbishment works.
- 2.2.2 The recording was restricted to those parts of the building on which the main restoration works were being undertaken (interior ground and first floors) and the work was not intended as a comprehensive investigation of the building. Investigations were concentrated on areas that were undergoing alteration during the construction work.
- 2.2.3 These investigations consisted of:
- Observing the removal of 1980s partitions on the first floor and observing the removal of interior ceiling boarding and the exposure of the roof structure
 - Carrying out of a rectified photographic survey of the first floor and recording work on the exposed brickwork of a dividing wall on the first floor
 - Investigating the floor joists in the two first floor barrack rooms and examining areas where historic fabric had been removed to accommodate new structures (lift shaft, stair heating and ventilation ducts etc)
 - Investigating the stable bays on the ground floor.

2.3 **Watching Brief Methodology**

- 2.3.1 The groundwork contractors were Chorus, of London. OA's attending archaeologists worked closely with Chorus in order to ensure proper recording of the archaeology throughout the course of the excavations.
- 2.3.2 The Curator of Historic Buildings, Kent Rawlinson, was consulted regarding various discoveries on the site and any additional detailed recording was agreed with the Curator and with the English Heritage Inspector, Dr Michael Turner.
- 2.3.3 Where excavation was carried out by mechanical excavator, a toothless ditching bucket was used. A full contextual record was made supplemented by relevant scale plans and sections (1:50 and/or 1:20).
- 2.3.4 All recording was undertaken to standard OA practises detailed in the OAU *Field Manual* (ed. D. Wilkinson, 1992) and in accordance with IFA's Standards and Guidelines for Archaeological Watching Briefs (IFA 1999). A comprehensive photographic record of all the groundwork was maintained.

2.4 **Building Recording Methodology**

- 2.4.1 The work comprised three principal elements: a rectified photographic survey (of selected areas), a traditional photographic survey and a drawn survey.

- 2.4.2 The ***Rectified Survey*** consisted of computer rectified digital images of the historic interior walls of the two main first floor soldiers rooms.
- 2.4.3 The ***photographic survey*** consisted of general shots and specific details (external and internal) and was undertaken using 35 mm black and white print film and colour slide film.
- 2.4.4 The ***drawn survey*** was largely based on an existing architect's survey that was annotated with descriptive detail but further detail drawings were made of features of interest such as the ground-floor paving, exposed first-floor joists and elevations of a typical roof truss.
- 2.4.5 The ***descriptive survey*** complemented the other two surveys and added further analytical and descriptive detail. This took the form of additional notes to site plans and drawings, which were then used as the basis for the descriptive and interpretative text of this report. The site work was undertaken between December 2005 and March 2006.
- 2.4.6 In addition, a basic photographic record was made of the part of the Pump House structure that was demolished. Photographs were taken before, during and after demolition.
- 2.4.7 The interpretative phasing plans by Daphne Ford (1996) were consulted extensively during the survey both as a guide to the phasing of the fabric and to check their findings in the light of any new information. The Hampton Court brick typology was also consulted to assist identification and dating of any brick fabric exposed and to ascertain if any hitherto unrecorded brick types were present.

2.5 Personnel

- 2.5.1 The watching brief element of the project was managed by David Wilkinson (MIFA), Senior Project Manager and was carried out under the overall direction of Nick Shepherd, OA Head of Fieldwork.
- 2.5.2 Daniel Bashford was the principal attending archaeologist throughout the watching brief.
- 2.5.3 The building survey was undertaken by Edmund Simons, Jane Phimester and Jonathan Gill of OA's Buildings Department under the direction of Julian Munby, OA's Head of Buildings. Anna Komar of OA's Geomatics department undertook additional digital recording on site. Edmund Simons and Simon Underdown co-authored the building survey report.

2.6 Acknowledgements

- 2.6.1 OA extends its thanks to the principal site contractors, Chorus, who were accommodating to the archaeological needs of the project at all times. The Curator for Historic Buildings, Kent Rawlinson, provided valuable advice during the discovery of

new structures, as did Dr Michael Turner of English Heritage. OA are also grateful to Nichola Adams, former Head of Building Conservation Department/ Surveyor of the Fabric Section for her input and also to William Page, Surveyor of the Fabric. Plans for the development were supplied by Alan Baxter & Associates, Consulting Engineers of London.

3 THE WATCHING BRIEF: SITE DESCRIPTION

by site area/Archaeological Action (AA)

3.1 General

- 3.1.1 Each excavation area (e.g. service trench, lift pit, wall footing trench) undertaken by the contractors was allocated an individual Archaeological Action Code (e.g. AA11) and context numbers were assigned from a continuous checklist. The AAs are detailed on Figs 3 and 3b, which show each area investigated. The plans are based on engineering base maps of the development site.
- 3.1.2 The locations of the drawn sections of trenches are shown on Figure 3 and 3b and the figure numbers in this report added to the base plan. Detailed plans and sections of individual AAs are illustrated as appropriate at the end of this report, as are plates.
- 3.1.3 The AAs are not described in ascending numerical order, but in groups. These are either where the excavations were close together/linked by service trenches, or where areas showed a correlation between deposits. Broadly, the site description follows from north to south across the site as a whole. The ground level was *c* 9 m OD at the time of the excavations. Overburden comprised tarmac or concrete over make-up layers of rubble.

3.2 Area north of the Clare Learning Centre

Archaeological Actions AA3, AA4 and AA5 - Figs 3 and 4

- 3.2.1 The groundworks within this area comprised the excavation of three soakaway pits, each to an approximate depth of 3 m. The stratigraphy in each pit was broadly the same: the sequence within AA3 (Fig. 4, section 8) was the same as in AA5 (Fig. 4, section 5), with minimal differences in depth of deposit. AA4 contained an archaeological feature.
- 3.2.2 In AA5 at the base of the excavation was a layer of clean silty gravel (25), with its upper surface at a level of *c* 6.2 m OD, some 2.8 m below the present ground level. This layer is probably 1st River Terrace gravel (natural) and was at least 0.2 m thick here, descending below the level of the excavated pit. Above layer 25 was a 0.11 m thick layer of alluvial silt (24), derived from flooding episodes from the nearby river Thames. The silt was sealed beneath a 1 m thick layer of yellow-brown silty clay (23), also alluvial in origin. Above lay a further 0.8 m thick deposit of grey-brown alluvial clay (22), representing the last flooding episode noted within the trench. Layer 22 was overlain by a 0.28 m thick layer of clay soil with brick and charcoal fragments (21), representing a cultivated garden soil or possible ploughsoil of

uncertain date. Above lay 20, a dark grey/brown silty clay soil with brick and charcoal fragments, again suggestive of a cultivated soil, but also containing no dating evidence. The layer above (19) had a distinctly blackish hue and was overlain by make-up rubble for the present tarmac surface. The layer is recent topsoil, but contaminated by oil/petrol from cars on the site.

- 3.2.3 Within AA4 (Fig. 4, plan), the same soil sequence was identified. Of note was a sub-circular feature (28) with a concave profile, measuring 0.5 m in depth and 1 m in diameter and cut into alluvial layer 22. The feature - a pit - contained pottery of 19th century date, glass fragments and clay pipe pieces dated to the 18th and 19th centuries within its fill (27). The feature is interpreted as a rubbish pit, and the pit fill was overlain by layer 21, a garden soil of 19th century date.

Archaeological Action AA15 - Fig. 3b

- 3.2.4 The groundwork within this area was for postholes that were excavated to a depth of c 0.3 m for a hoarding to surround the north part of the site. The deposits encountered were the same as the upper layers in soakaway pit AA4, comprising the upper and lower garden soils.

Archaeological Action AA14 - Fig. 3

- 3.2.5 The groundwork within this area was for drainage channels for new storm drains linking the soakaways (AAs 3-5) in the car park. The deposits encountered were the same as the upper layers in soakaway AA4, comprising the upper and lower garden soils.

Archaeological Action AA13 - Figs 3b and 5 - sections 1 and 4

- 3.2.6 The groundwork within this area was for a BT duct and a manhole at the north-east corner angle of the trench, which was located to the north of AAs 3, 4 and 5. Along the length of the shallow BT duct trench that was 0.7 m deep was a layer of brown silt (2) with brick fragments and charcoal - a garden or cultivated soil. This was sealed by a former topsoil layer (3) of 19th/20th century date (Fig. 5, section 1). This layer is probably the same as layer 19 in AA5 and was overlain by make-up for the tarmac car park surface.
- 3.2.7 At the base of the manhole trench (Fig. 5, section 4) was an undated layer of grey-brown sandy silt with charcoal (17, the equivalent soil horizon to layer 2 seen elsewhere), overlain by a former topsoil layer (16) that contained pottery of late 18th to 20th century date. Layer 16 was below 15, the same deposit as context 3 (and 19 in AA5), a recent topsoil layer. Tarmac and make-up overlay this.

3.3 Area east of the Clore Learning Centre

Archaeological Action AA6 - Figs 3b and 6 - plan and section 3

- 3.3.1 The groundwork within this area consisted of the excavation of a manhole to a depth of c 0.9 m for a BT cable. At the base of the excavation were two layers of natural

silty clay, possibly alluvial in origin (layer 14 beneath layer 13). Neither deposit was dated and 13 was overlain by a former garden soil layer (12), also undated.

- 3.3.2 These layers had been cut in the southern half of the excavation area by an east-west aligned modern service trench (11), which was notable as it contained a quantity of late 18th-early 19th century 'bottle bricks' (see Finds reports below). These finds were clearly re-deposited in this 20th century context. Above 11 was a thin layer of tarmac over a rubble levelling layer (collectively context 10).

Archaeological Action AA12 - Fig. 7 - plan and section 2

- 3.3.3 The groundwork within this area was for a BT manhole connected by a trench to AA6/AA7. At the base of the excavation was an undated layer of brown sandy silt (9) at least 0.3 m thick. The layer may represent a former garden soil and it was overlain by a 0.3 m thick deposit of sandy gravel (8), presumably re-deposited natural laid to aid drainage, but which may also have acted as a surface. The gravel was below a loam layer (7), a further undated garden soil.
- 3.3.4 Layer 7 was cut by the construction trench (6) for a wall (4) on an ESE/WNW alignment. The construction trench was 0.8 m deep and 0.5 m wide and filled by a wall of brick pieces and chalk blocks with a dressed sandstone quoin at its base, possibly re-used from a previous building. A severely damaged wall of brick construction returned to the south, though interpretation of the precise alignment was hindered by later services.
- 3.3.5 The likelihood is that the structure represents part of a garden wall, presumably part of the gardens on the site in the post-Tudor period. The 'standard' brick type used in the structure is typical of late 17th/early 18th century materials (see Poole, this report, Section 5), although these, like the stone, may well have been re-used.
- 3.3.6 The southern half of the excavation area was severely truncated by previous services and the remains of the wall within the trench showed significant damage from these earlier services. Elsewhere in the trench, layer 7 was overlain by a layer of clay and gravel (5), possibly a former ground level but effectively acting as bedding material for the present car park surface.

Archaeological Action AA7 - Fig. 3, plan

- 3.3.7 The groundwork within this area consisted of the excavation of a ducting trench connecting to a BT manhole (in AA 12). At the base of the excavation was an undated layer of brick and stone rubble and re-deposited soil that was overlain by a surface of granite cobbles (18) aligned approximately north-east/south-west. A maximum width of 1.45 m was exposed within the confines of the trench.
- 3.3.8 The cobbles showed signs of wear, and given the width of the surface, it is likely that it represents part of a path. Also in this area at the base of the excavation was a concrete holding tank (not illustrated) lined with pitch (26) and infilled with brick and stone rubble. It was 1.2 m wide, but was otherwise not investigated. This structure is

possibly a cess pit or septic tank associated with the Barrack Block. Both structures were undated and both were overlain by brick and stone rubble acting as make-up for the present tarmac surface.

Archaeological Action AA 21 - Fig. 3b

- 3.3.9 The groundworks here comprised the erection of a hoarding surrounding the area of construction for the new Clore Learning Centre. New fence postholes that cut through make-up for the tarmac car-park surface were monitored. The posthole nearest to the concrete holding tank (26) was relocated to avoid this structure. No archaeological deposits were observed.

3.4 Site of new building - the Clore Learning Centre

Archaeological Action AA2 - Figs 3 and 3b

- 3.4.1 The groundworks within this area comprised electric cable duct trenches, ground level reductions to form a ramp for a new access road to the car park and levelling of the area of the former bicycle sheds north of the pump house. Drainage and high voltage cabling had largely disturbed the southern end of the area (level with the south end of the pump house).
- 3.4.2 The north-eastern area (north of the Pump House and east of a line running from its west wall northwards) had been disturbed by the footings of the former bicycle sheds. Beneath a large concrete slab (1) that occupied most of the area, the following deposits were observed.
- 3.4.3 A layer of alluvial silt (24) seen elsewhere across the site (in AAs 4 and 5) was the earliest deposit exposed. Adjacent to the Pumphouse, this layer was cut by a shallow and irregularly shaped pit feature (30) filled mostly with glass fragments (29) of probable 18th century date, including vessel pieces from domed cloches used in horticulture. The feature (not illustrated, but similar to the garden pit in AA4) may have formed from an uprooted tree, with the whole infilled with the glass debris. The fill (29) was sealed by the garden soil horizon (17), also seen to the north in AA13.

Archaeological Action AA9, immediately east of the Pumphouse - Fig. 3

- 3.4.4 The groundwork within this area comprised the exposure of known services for connection to new services and the whole area was very much disturbed by previous service runs. Possible Tudor bricks found in the previous evaluation trench nearby (Test Pit 1, OA 2005b; Fig 2, this report) appeared to be part of a general rubble landfill in this part of the site, but must be re-deposited, as the rubble overlay further rubble deposits of very recent date.
- 3.4.5 Although redeposited, the presence of these bricks hints at Tudor structures in the vicinity (see AA1). A small area of granite cobbles (31) was exposed in section beneath the modern rubble layers supporting the tarmac surface. The cobbling was noted again to the north in AA17 (see below, context 1023).

3.5 The lift pit in the 1689 Barrack Block

Archaeological Action AA18 - Fig. 9 - plan and section 16

- 3.5.1 The groundwork within this area was to reduce the level to approximately 0.5 m below current floor level for the insertion of a new lift shaft. The contractors' excavations were undertaken in stages and two areas within the lift pit were excavated to a greater depth to establish the depth of the standing wall footings of the barracks building. This made interpretation and extent of layers hard to follow but the following broad sequence was established.
- 3.5.2 At the base of the lift shaft pit, a layer of alluvial silty clay (1043) overlay a thin exposure of natural sand. The clay was overlain by a thin layer of charcoal and ash (1046), above which lay a bedding layer of sand (1045) upon which rested a single layer of Tudor bricks (1044 - HCP Type A). The bricks were set on edge lengthways with traces of a white lime mortar between. The structure was presumably the remains of a floor surface. It had certainly been truncated or deliberately robbed, such that only a narrow strip of the brickwork remained *in situ*, though it could be traced extending to the east baulk of the lift pit. The floor surface may relate to an earlier building than either of the 17th century Barrack buildings, though it is possible that the bricks were re-used within the first barracks built in 1662. The confines of the lift shaft pit make detailed analysis of this structure impossible. The top surface of these bricks was at 8.32 m OD.
- 3.5.3 At the north side of the lift shaft pit, layer 1046 over natural 1043 was cut by the construction trench 1049 = 1040 for a brick-built wall (1051 = 1039) that acted as a base for a row of iron columns running east-west along the length of the building. One of these column bases was partly revealed in section at the north edge of the lift shaft pit, but had been cut, so that only a small portion remained *in situ* (Fig. 9, plan). It is unclear how the column related to deposits above owing to later disturbance.
- 3.5.4 Wall 1051 = 1039 was constructed of bricks measuring 230 mm x 110 mm x 70 mm bonded with grey creamy mortar. None of the bricks were removed for further analysis. Wall 1051 = 1039 had a rough irregular upper surface, indicating that it had been robbed (ctx 1047 and rubble backfill 1050), probably to level the area prior to the construction of the present floor surface of concrete. Only a limited stretch of the wall was exposed due to previous robbing, overlain by backfill rubble 1050.
- 3.5.5 The south side of the lift shaft pit revealed the brick wall (1053) of the barracks dating to 1689 (Fig. 9, section 16). It was trench-built within construction cut 1052. The construction trench was infilled with soil (1036) and mortar (1037) and the whole capped with rubble make-up (1038) that lay below the present concrete floor (1041) of the building. From the limited exposure, the wall was constructed of alternate rows of headers and stretchers, though one course appeared to contain both headers and stretchers. The bricks were bonded with white-grey mortar. The east side of the lift shaft pit revealed a north-south dividing wall (1054). It had a doorway to this room within the barracks had been built upon the remains of the Tudor brick floor (1044).

As wall 1054 is thought not to be primary (see Ford's Survey of the west end of the Barracks - not shown in this report - for 18th/19th century works in the area of the lift pit), it would seem that the builders excavated down inside the building to create a footing for the wall, which might also account for the disturbed nature of brickwork 1044 and the surrounding deposits.

3.6 Area west of the Barrack Block: the "Dung Yard"

Archaeological Action AA1 - Figs 10 plan and 11; phased photo of structures

- 3.6.1 Historic plans suggest that the area west of the Barrack Block was used for waste soils, both for the soldiers garrisoned here and from horses housed in the stable block (Ordnance Survey plans dated 1887/89 in HRP 2005; Fig. 24).
- 3.6.2 The groundworks within this area included a north-south drainage run c 0.7 m in width x c 2 m in depth, and a proposed high voltage cable running north-west/south-east through the area. A new car-park access route and a new enclosing wall for the electricity sub-station were proposed. An area of approximately 6.5 m by 3.5 m was opened in the course of investigation, the excavations undertaken in stages by the contractors with the attending archaeologist recording as works were in progress.
- 3.6.3 The earliest deposit revealed was a layer of silty clay, recorded as the same natural alluvial deposit (24) seen elsewhere on site. The clay was overlain by a layer of reddish-brown silty clay with charcoal, brick flecks and gravel - layer 70 (= 79 = 54) - also noted elsewhere where excavations were deepest in this area. The layer probably represents a construction deposit, or trampled material of early soils above the alluvium.

Pre-1689 walls - Figs 10, 11, 12; Plate 1

- 3.6.4 Layer 70 was cut by a shallow construction trench (69) that was aligned west-north-west/east-south-east. The trench was filled by the truncated remains of a red-brick wall (73), presumably a footing, which was 0.5 m wide and extended for a length of 1.92 m within the confines of the trench. The bricks were bonded with mortar and the average brick dimensions were 240 mm x 120 mm x 50 mm. The wall survived to a height of 0.8 m, comprising thirteen courses laid in stretcher pattern. Three shallow depressions were noted in the top of wall 73.
- 3.6.5 Wall 73 was abutted on its south side by a thin deposit of silty clay (98) and then a further brick structure (72) utilising the same type of bricks and mortar, suggesting that the original wall had been widened. A length of 1.9 m was visible within the trench and the additional wall was 0.4 m wide. Assuming the two walls were in use at the same time, the overall foundation width was 0.9 m. Both walls terminated in a straight edge some 0.25 m from the west edge of the trench. A group of five ceramic tiles (71) lay on top of truncated wall foundation 72 - these tiles appear to have been part of the wall construction technique rather than a floor surface. The level on the exposed top of wall 73 was 8.25 m OD.

- 3.6.6 Deep excavation at the south-west corner of wall 72 revealed a return of the structure to the south-west. Wall 1017 (Fig. 12) was constructed in bricks measuring 240 mm x 100 mm x 0.05 mm and bonded with mortar. The wall extended to the south for a maximum length of 0.5 m before being truncated by later structures (walls 55 and 56 - see below) that also removed the east face of wall 1017. A thin deposit of sand with mortar flecks (1019) overlay the upper surviving surface of wall 1017, possibly part of the construction process: the deposit was undated. Dating of the bricks in these structures as Tudor is corroborated by post-excavation analysis of the bricks (see Finds, section 5, below). The bricks are HCP Types A and one Type ?E of Tudor date, though they could have been re-used in the construction of these walls. Cartographic evidence and historic prints do not support evidence for a Tudor building in this area of the Palace grounds, so it is possible that walls 72/73 represent the foundations for the 1662 timber framed barrack block. This is addressed further in the discussion section below.

Early 18th century: yard wall west of Barrack Block

- 3.6.7 The southern return of the wall (1017) was cut by the construction trench (1021 = 1026) for a west-north-west/east-south-east aligned wall (1020 = 56; Fig. 10, section 14; Plate 4) that was built upon a lower foundation structure (1022). The lower foundation was constructed in bricks measuring 220 mm x 110 mm x 80 mm bonded with mortar in a stretcher pattern. The bricks forming wall 56 = 1020 are standard sizes (HCP Types I, J, K, N), so the wall is of a later period than walls 72/73 and 1017 (see Poole, section 5). On the basis of the brick typology, wall 56 = 1020 dates to the late 17th or early 18th century (Poole, section 5, this report). The lower foundation extended up to the west face of the truncated remains of Tudor wall 1017, then utilised the remains of the earlier wall (1017) for the foundation. The wall face of 56 = 1020 exhibited a change in build after three visible courses of bricks laid in stretcher pattern. A line of headers and apparently mixed rubble comprised the base of 56, over which were laid varying courses of stretchers and headers, stretchers and in one course, headers only. The base of the wall had been disturbed by a modern pipe trench (1034/1035).
- 3.6.8 Wall 56 = 1020 is on approximately the same alignment and parallel to walls 72/73 that used the Tudor bricks. A wall in this position and on this alignment only appears on plans dated 1710-1714 (see Discussion below and Fig. 22) and not earlier drawings, so it is likely to be a wall associated with the second Barrack Block phase, but subsequent to its original construction in 1689.

Undated structures associated with the Barrack Block: Fig. 10

- 3.6.9 In the north-west corner of the excavation area, layer 70 = 79 was overlain by a compacted layer of cream-coloured mortar with a line of half bricks set into it (61). It extended for a length of 3.5 m and was 0.45 m wide. The half bricks were aligned north-south and turned to the north-east to the edge of the excavation area. The structure may represent the remains of a brick-lined path. A thin deposit of grey-brown sand (50) on top of 61 could represent occupation debris on the? pathway.

Adjacent to structure 61 against the west side of the excavated area lay a worked limestone block with chamfered upper surface (52) that was at least 0.1 m thick (Plate 2). The stone extended under the west baulk but the exposed portion suggested that it was square. The rotted remains of a wooden post (51) affixed into a square socket in the top of the stone were observed in section. The post survived to a height of 0.1 m and the post was originally 0.12 m wide. The post with its base and the possible path appear contemporary, and could go with structures associated with the early barracks, though the alignments appear inconsistent and so equally they could be later.

- 3.6.10 On the west side of AA1 and abutting wall 73 was a line of bricks extending away to the north-west set into layer 79. The structure (80) comprised one course of alternately laid red and yellow bricks that each measured 240 mm x 100 mm x 0.05 mm, suggesting the structure to be of contemporary date with wall 73. A rough lower course was just visible. The function of the structure was unclear, but might have been the base of a drain.

Undated deposits, west baulk AA1 (?mid-late 17th century - not illustrated)

- 3.6.11 Wall construction trench 1021 was infilled with a mixed soil and mortar deposit (1018 = 1016), above which lay a sequence of mixed soil layers that were all undated, but which accumulated after wall 1020 = 56 was in position.
- 3.6.12 The first layer in the sequence (1032) was a red-brown silty sand with stone inclusions to a depth of 0.52 m. This was sealed by 1031, a silty clay with brick inclusions that was 0.26 m thick, in turn overlain by 1030, a layer predominately comprising mortar to a depth of 0.08 m - probably construction debris for later structures on the site.

Wall 63 - late 17th century - abutted by first latrine pit

- 3.6.13 Wall 63 formed the north boundary of AA1. The lower part of the wall exposed the brick foundation that probably dates to the 1689 barracks construction phase and formed the northern boundary between the Barrack Block and the Tiltyard to the north (see also Fig. 24). More recent masonry now sits on top of this foundation. The portion of wall exposed comprised eleven courses of red bricks (not sampled) that measured 210 mm by 110 mm by 70 mm, laid in alternating courses of headers and stretchers.

Construction of buildings associated with the 1689 barracks

- 3.6.14 Earlier walls 72/73 and 1017 were demolished to the upper level of the foundations. Two shallow cut holes in the brickwork suggest the insertion of postholes, possibly for a scaffold to erect further structures on the site (cuts 83, 1014, Fig. 12).
- 3.6.15 Posthole 83 was sub-circular in plan, 0.4 m in diameter and 0.25 m deep and was cut into the upper surfaces of walls 72 and 73. The fill was a silty clay with brick flecks (88). Posthole 1014 was cut through sand deposit 1019 over wall 1017. The posthole was 0.38 m wide and of similar depth to 83. The fill of 1014 was dark grey silty clay

with mortar and brick flecks (1015). A possible third posthole (1026) was less clearly defined, but was recorded as cutting the edge of wall 1017 immediately west of posthole 1014. The edge of the cut was visible through at the side of the brickwork, though the fill of the feature and remainder of the profile had been removed.

- 3.6.16 It is unclear what structure the postholes could relate to, though a latrine block was constructed to the north of these - any number of structures may have existed above ground on the site after the walls went out of use to which these postholes could relate.

Latrine blocks: c 1700 to 19th century - Figs 10, 11; Plate 3

1st Latrine block - Figs 10, 11

- 3.6.17 The boundary wall (63) to the gardens to the north was abutted with a straight joint by a north-south aligned foundation wall (97), which formed a right angle with a robbed east-west wall 1055 to the south. Wall 97 was overlain by wall 60, that was offset by one course of brick but probably part of the same build. Wall 97 was abutted by a brick and tile drain (67) on the west, that also extended through the base of the boundary wall (63). The structure formed by walls 97 and 1055 had no surviving east side - presumably this was completely removed by later building works when wall 1055 was robbed. The internal dimensions of the structure thus formed were a width of at least 1 m and a length (N-S) of 1.75 m.
- 3.6.18 A sequence of fills (not illustrated) can be attributed to this first latrine block, as they clearly abutted wall 97 and 60 above. It should be noted that these deposits were machined, so the finds data may be affected by re-deposition at this stage. Walls 97 and 1055 were abutted by a mixed layer of stone and brick rubble with mortar and silt (95) that was not bottomed. Glass of 19th century date, together with a clay pipe piece dated 1610-1640 were recovered from this deposit, thus confirming its mixed nature. Layer 95 was overlain by a 0.5 m thick deposit of grey humic silt (96), presumably human cess material that adhered to wall 97 = 60. Above 96 was a layer of dark grey silty clay (94) with a green/blue hue to a depth of 0.3 m - this is likely to be human cess material. Pottery sherds dated to the late 17th and 18th centuries and clay pipe pieces of 18th century date were recovered from this layer. Layer 94 was covered with a 0.15 m thick mixed layer of brown-grey chalk, ash and lime (93), a deposit apparently deliberately laid in order to cover the cess material below.

2nd Latrine block

- 3.6.19 Wall 1055 was partially demolished and robbed (1056) to leave a stub of wall *in situ* abutting wall 97 (Fig. 11, annotated photograph). A second latrine block was constructed in its stead, comprising wall 58 (the south side of the structure) and wall 86, replacing the presumably demolished east side of the original structure. A wall (62) extending parallel to a further brick wall (55) were possibly added at this stage, forming an extended building. Wall 55 was constructed over the demolished earlier walls (72/73). The structure thus created was longer than the original build, though

maybe of comparable width. The south wall of the structure may well have been wall 56 = 1020, though this is not certain.

2nd latrine block; modifications and addition of urinal in concrete

- 3.6.20 A distinct change in build at the top of the existing foundations indicates that the structure was modified, or totally re-built above ground. The mortar type changed from soft lime-based mortar to firm grey/white cement, presumably dating to the Victorian period (Fig. 11). Walls 58 and 86 had a new superstructure added with a concrete urinal (59) built on the east side of the latrine. A concrete step (87) was added on top of wall 55 (Plate 5), probably in this phase, possibly suggesting an entrance on the west side of the overall structure at this time.
- 3.6.21 Within the latrine pit, layer 93 from the earlier phase of use was overlain by brown/grey silty clay layer 78, in turn sealed by another distinct layer of light grey chalk, ash and lime (77), another deliberately laid deposit that was 0.2 m deep. Above was a layer of grey clay with brick and stone rubble (76) containing pottery of types current in the 17th and 18th centuries, clay pipe dated to the 18th century and part of a wine bottle dated to the 18th-19th centuries. This layer represented the last visible infilling of the earth closet as it was overlain by the general site overburden (91) seen across the site below the present concrete surface.
- 3.6.22 The sequence of dating gives an approximate period for infilling of the earth closet(s) though it should be borne in mind that regular cleaning out of the closet was likely throughout its period of use and the excavation methodology may have removed finds from their original position in the stratified fill sequence.

Archaeological Action AA16 - Fig. 16

- 3.6.23 The groundwork within this area was for a high voltage cable to connect to an electricity sub-station. The earliest deposit at the base of the east end of the trench was a layer of clean red-brown sandy silt (1008), possibly a naturally formed deposit or alluvial in origin. The layer had an arc of bricks (1007 = 1009) set within it. The bricks measured 240 mm by 110 mm by 80 mm. The function of this structure was unclear as excavations stopped at the level of the top surface of the bricks. It may represent part of a demolished earth closet structure similar to those identified in AA1, or (more likely) possibly part of a well, given the tight circular arc of the bricks. Detailed investigation was not carried out to depth to ascertain this, however. Structure 1007 = 1009 was overlain by a line of half bricks (1006) whose function was unclear.
- 3.6.24 To the west end of the trench, the earliest deposit identified over silt 1008 was a layer of silty clay (1000 = 1005) with charcoal flecks, suggesting that the soil had been worked. The layer was overlain by two large dressed stones (1003), possibly structural, though not enough of their extent was seen within the confines of the trench to allow detailed interpretation. Stones 1003 (and layer 1000 = 1005) were overlain by a 0.04 m thick spread of yellow mortar (1001) that acted as a base for a

line of thin red brick tiles (1002). Three tiles remained in situ, and it seems likely that others had been removed by robbing. The tiles may well have been associated with the stone slabs (1003), giving a tentative glimpse of a structure in this part of the site.

- 3.6.25 A layer of probable garden soil (1004) accumulated over stones 1003 while the tiles (1002) were abutted by and just overlain by 0.11 m thick spread of mortar and rubble (1013), suggestive of demolition debris. Glass from this deposit was dated to the late 17th and early 18th centuries, giving a date for the possible demolition activity. This could therefore relate to activity on this part of the site at the time of the 1662 building phase of the Barracks. Both layers 1013 and 1004 were sealed beneath a 0.13 m thick layer of sandy garden soil (1010), in turn overlain by another garden soil layer (1010), over which lay a layer of concrete (1012).

Archaeological Action AA22 - Figs 13, 14 and 24

Early 18th century boundary wall/19th century soil pit and the dry earth shed

- 3.6.26 The groundwork within AA 22 was for the construction of a new wall extending between the pump house and the current gate to the west of the barracks. The earliest deposit exposed by the trenching was a brown silty clay with brick fragments, (1068) a yard soil of uncertain date. This layer was overlain by a structure (group context 1070), comprising brick walls 1057, 1058, 1060, and 1062. The floor of the structure was also constructed in brick (1059). All the bricks measured 240 mm x 80 mm x 110 mm and were bonded with hard white mortar.
- 3.6.27 Wall 1057 to the south maintained the angled alignment of wall 56 = 1020 to the west, so is probably a continuation of the southern boundary wall of the yard dated c 1710-14 to which structure 1070 was added. Structure 1070 is the demolished remains of a soil pit west of the barracks that is depicted on the survey of 1887/1889 (Fig. 24).
- 3.6.28 A small section of possible wall (1071) extended to the west of structure 1070, but its function was unclear. To the north of the soil pit, the trench for the new wall exposed two further walls associated with the dung yard. Wall 1064 comprised three surviving courses of red bricks measuring 240 mm by 110 mm by 80 mm bonded with mortar. It represents the south wall of the dry earth shed depicted on the same 1887/98 survey. A wall further north (1065) consisted of identical bricks/bonding material and was the north boundary wall of the dung yard as well as being the north wall of the dry earth shed. A soakaway (1066) consisting of a York-stone slab and central drain hole some 0.32 m in diameter to the north of the soil pit was set on a hard concrete base (1067). The structure is probably contemporary with the soil pit and the dry earth shed walls. All of the structures were overlain by successive layers of earth and rubble (1063 beneath 1061). Layer 1061 also abutted the extant entrance wall to the barracks yard (wall 1069). Finds from layer 1063 included a padlock, part of a statue and a wood handle from a brush (see Finds, section 5), together with a few flower pot sherds.

19th century and later drains and deposits

- 3.6.29 In the south-west corner of AA1, the remains of wall 56 were cut by an east-west aligned pipe trench (74) containing a large ceramic pipe (57) and filled with rubble (75). A deep pipe trench (1034) filled with rubble (1035) also cut wall 56. Against the west baulk, the later layers probably relate to 19th century or later levelling - above layer 1030 were three deposits (layers 1029, then 1028 and 1027) comprising mixed brick, sand, stone rubble and clay soil. In the north-west corner of the site, an undated layer of brick and mortar rubble (49) sealed the earlier structures and was cut by 48, a north-east/south-west aligned service trench with a mixed sand and broken brick fill. The fill was overlain by successive rubble layers (46, 45, 44) containing brick and mortar, which were similar in composition to the layers seen in the south-west part of the site.
- 3.6.30 Structure 80 to the west part of the site was overlain by a thick deposit (81) of brick and mortar rubble, probably the collective equivalent of layers in the west baulk section.
- 3.6.31 Layer 81 contained pottery securely dated between 1830 and 1860. The layer was sealed by the general site overburden beneath the present concrete ground level (91). This layer covered the whole site when exposed by the machining, relating to the major demolition phase in the late 19th century.

Remodelling of west end of the Barrack Block yard, late 19th century

- 3.6.32 The demolition of the site dates to the late 19th century up to c 1900 and the new layout was mapped in 1908 (Fig. 25). By this time a new angled wall (42) was constructed in brick on a concrete raft, extending from the south-west corner of the barracks, along with a new entrance/gateway. This replaced the similarly aligned wall to the north dating from the late 17th/early 18th century (wall 56 = 1020; Plate 4), which was demolished to foundation level along with the latrine block and other associated walls (see AA11 below).
- 3.6.33 Access was channelled from this new entrance past the west end of the barracks and along a road north of the barracks. On the north side of this road a new Guardhouse was built (until recently known as the Choir Hut) and further to the east a new latrine was erected. This layout is shown on a photograph of the site taken viewing west and dated to the 1930s. Remains of this demolished structure were found during OA's evaluation here in 2000 (OA 2000).

Archaeological Action AA11 - Fig. 15 - section 9

- 3.6.34 The groundwork within this area was for a manhole and drain run. The area was located due south of AA1, south of a standing wall forming one side of the enclosed entrance west of the barrack block.

- 3.6.35 The drain run extended into the road off the main west entrance to the Palace site where it joined the manhole. At the base of the excavation for the new manhole was a layer of light grey-brown mortar mixed with stones (40) of varying sizes, between 0.05-0.25 m deep.
- 3.6.36 The layer may have formed the base of a structure, or represent demolition debris. The small size of the investigation precluded detailed analysis and the deposit was not dated. Stony layer 40 was overlain by 0.3 m thick layer of brown sandy silt with pebble inclusions (39) that extended the full length of the new trench.
- 3.6.37 Layer 39 was undated and was cut by an east-west aligned construction trench (43) for the foundations of the standing brick wall (42 = 1069) and backfill (41). The wall trench was 0.3 m deep and the wall foundation comprised a concrete raft at its base that was 0.05 m thick, surmounted by seven courses of bricks bonded with a hard sandy mortar.
- 3.6.38 The above ground portion of wall 42 divided this area from the main investigation area AA1 to the north. The foundation trench infill (41) was sealed by a 0.3 m thick undated layer of gravel and sand with brick fragments (36). This was cut by a 20th century service trench (38) for a drain and its infill (37) that lay below the tarmac surface (35).

3.7 Area south of Clore Learning Centre

Archaeological Action AA8 - Fig. 3

- 3.7.1 The groundwork within this area was for the excavation of a drain trench extending south-west away from the Choir Hut. Underneath a thin layer of tarmac and a rubble levelling layer was the brown sandy silt alluvial soil (probably layer 24 or equivalent). Other than a curb stone visible on the surface, no archaeology was present within the trench.

Archaeological Action AA19 - Fig. 3

- 3.7.2 The groundwork within this area was for the excavation of a service trench (electricity) to connect with other services in this area. The trench was cut through modern rubble to a depth of c 0.3m. No archaeological deposits were observed along the length of the trench.

Archaeological Action AA20 - Fig 3

- 3.7.3 The groundwork within this area was for the connection of two service trenches east of the Pumphouse and to the south of the new building/AA17. The excavated trench contained the continuation of the cobbled surface and drain runs seen in AA17. Underlying the cobbled surface was a sand levelling layer over sandy silt natural as observed in AA17. A thin layer of re-deposited topsoil lay beneath the sand levelling

layer in a patch measuring c 0.3 m x c 0.4 m, to a depth of approximately 0.02 m. No further archaeology was observed.

3.8 Other investigation areas

Archaeological Action AA10 - Fig. 3

- 3.8.1 The groundwork within this area was for a high voltage cable trench running through the entrance west of the barrack block. The trench was dug to an average depth of c 0.35 m and was found to be full of services running through the gateway. No significant archaeological deposits were identified. The cable trench (it is believed) was subsequently abandoned.

Archaeological Action AA24 - Fig. 3

- 3.8.2 The groundwork within this area was levelling for a new paved area and the re-alignment of services. The excavations exposed a near circular brick structure some 1.4 m in diameter (1073), interpreted as a brick-lined soakaway of likely Victorian date. The bricks measured 230 mm by 110 mm by 70 mm bonded with grey/white mortar and were laid in 18 courses of stretchers.

Archaeological Action AA25 - Fig. 3

- 3.8.3 The groundwork within this area was for the construction of a new wall between the choir hut and the barrack block to the south of the new Clore Learning Centre. The excavations exposed sandy clay natural (1077) and a layer of compacted brick rubble (1076) beneath the tarmac, presumably acting as a base for the modern surface.

3.9 The Ambulance Shed and Yard - late 19th to early 20th century

Archaeological Action AA17 - The Clore Learning Centre - New Building footprint; Fig. 8 area plan and photograph; plates 6 and 7

- 3.9.1 The aim of the groundwork within this area was to reduce the level to natural deposits and then dig foundation trenches for the new Clore building. The area was found to contain a good quality granite cobble surface and the rubble remains of the former Ambulance Shed. The two structures appear to be contemporary.
- 3.9.2 The earliest deposit over the whole area was a layer of alluvial clay silt (24), probably the same deposit noted to the north in AAs 4 and 5 and under AA2. The layer was overlain by a 0.05 m layer of yellow sand acting as a bedding deposit for the setting of an extensive surface of granite cobbles (1023) - see Fig. 8 and Plates 6 and 7. The cobbles were rounded on their upper surfaces and had a distinctly polished appearance.
- 3.9.3 This cobbling is probably contemporary with the cobbles exposed in AA 9. Through the centre of the cobbling were a series of ceramic drains (1025), presumably laid at the same time as the surface. The cobbling dates to the late 19th century re-ordering of the area when the Guardhouse was constructed. To the east of the cobbled area and

services was an extensive spread of brick rubble (1024) occupying an area of c 4 m by 4 m (Plate 7). No evidence of *in situ* walls or other standing structures was noted. The rubble lay on the site of the former Ambulance Shed, which would appear to have been erected on shallow foundations and demolished with the remains left *in situ* prior to being sealed by the present tarmac surface.

Archaeological Action AA23 - Fig. 3

- 3.9.4 The groundwork within this area was levelling for a new paved area and the re-alignment of services. The excavations exposed part of a cobbled surface (1072), corresponding to that identified within AA9 and AA17 (context 1023).

4 THE BARRACK BLOCK: BUILDING RECORDING

4.1 General

- 4.1.1 The following section contains detailed descriptions of the cavalry barracks combining previous knowledge as summarised in 'The Barrack Block Statement of Significance' (Historic Royal Palaces 2005) with discoveries made during the refurbishment works. A discussion of the findings is given in section 7 below.

4.2 Exterior

- 4.2.1 No works to the exterior were included in the watching brief and thus no new discoveries made here. The following description is largely taken from 'The Barrack Block Statement of Significance' (Historic Royal Palaces 2005).
- 4.2.2 The Barrack Block is composed of a pair of distinct two-storey structures, initially constructed as separate buildings in 1689. The western block (the subject of the present survey), built as a cavalry barracks, measures approximately 54 m x 10 m (in plan) and is divided externally into 17 irregular bays. The eastern block, built as a Foot Guards barracks, measures approximately 76 m x 8 m in plan and is divided externally into 27 irregular bays. These two buildings were joined by the construction of a Sutlery (a military provisions store and shop) in 1700, this addition being of three bays. The construction break between the foot guard barracks and the later Sutlery can be clearly distinguished.
- 4.2.3 Both blocks of the barracks are primarily constructed of dark-red stock bricks and have dressings of lighter red brick (some rubbed and gauged). Many of the stock bricks have a pronounced gold patina. Both barracks stand on a brick plinth (of varying height according to ground level) and have a brick string course of 3 courses dividing their ground and first storeys. The roofs of both blocks are hipped and pantiled; the roof of the Foot Guard barracks runs directly into that of the slightly higher and wider Cavalry Barracks. A large eaves-cornice provides a transition

between roof and walls. Internally the roof structures are of a simple queen-strut construction.

- 4.2.4 The windows are predominately casements of four unequal lights (cross windows) divided by timber mullions and transoms. Internally some retain unpainted wooden lintels, sills and jambs. The first-floor windows are all square-headed, whilst most of the ground floor have segmental heads. All the windows of the northern elevation, and in addition a number on the southern, *appear* originally to have been blind, however most have subsequently been opened. The intention appears to have been to restrict views from the barracks over the kitchen gardens and towards the palace. The existing external doorways are of a wide variety of dates and have, like the windows, either segmental or square heads.
- 4.2.5 The ground-floor windows of the Cavalry Barracks are half-blind, their lower portions being bricked-up with 17th century stock bricks. This arrangement *appears* to be original and a means of preserving the proportions of external façade, whilst providing horse stall internally.
- 4.2.6 Although both principal elevations fundamentally retain their original form and proportions, both have been substantially modified since the late 17th century. These modifications have principally taken the form of the in-filling of existing doors or windows, or the breaking-through of additional openings.
- 4.2.7 Internally, on both floors, the barracks were divided into a series of large rooms, each the width of the block, with smaller rooms partitioned off at either end. Although these spaces have subsequently been subdivided, most of the walls defining these original divisions still exist within current fabric. The ground floor of the Cavalry Barracks retains two long rows of cast-iron columns that supported the divisions between stalls. These columns are probably late 18th or 19th century replacements for earlier wooden stall divisions, as cast-iron was not used in this way until the late 18th century.
- 4.2.8 Substantial sections of brickwork and tiling were restored or replaced in both the 19th and 20th centuries. Much of the interior of the Cavalry Barracks retains a scheme (or more accurately schemes) of painted decoration and signage; the date of the principal scheme is uncertain (although it is probably early 20th century). A quantity of iron door furniture, probably of a similar date, also survives in-situ. At present a great proportion of these painted schemes are hidden, and thereby partially protected, behind the false walls and ceilings of the 1983 refurbishment.
- 4.2.9 The three-bay, two-storey Sutlery that connects the Foot Guard Barracks with the Cavalry Barracks has not been substantially renovated since c1900 and retains a decorative scheme of that date. Evidence of at least three previous decorative schemes can also be identified. (The Sutlery is not included within the current renovations.)

4.3 Interior: Ground Floor

- 4.3.1 The ground floor is dominated by the two large central stable rooms. These each have rows of iron columns (standing according to Ford on 1689 footings). The stall divisions are clearly visible in the grey setts on the floors, as are the drains that served each stall; no partitions, mangers etc survive. These rooms are currently used as a ticket office and shop and are now accessed through the 1689 door in the south wall and a (late 19th century) door in the north wall.
- 4.3.2 The two present main rooms appear to have originally been one long run of stables with a central south door and were subdivided at a later date (late 18th to late 19th centuries). There were 1689 stairwells at either end of the main stable room each with a door in the south wall. Beyond the stairwell bay at each end there was a further smaller stable room and the historic plans show the number of stall divisions in these seems to have been increased from 4 to 6 and then to 8 in the east room during the 18th century (see Fig. 23)
- 4.3.3 Areas of the floor surfaces that were accessible at the east end of the ground floor were recorded during the works and the survey drawings and notes will form part of the site archives. The eastern three bays were recorded plus a couple of strips further west and the east part of the central area between the large doors (see Fig. 26).
- 4.3.4 Most of the floor seen east of the entrance bays consisted of an axial 2 m wide central walkway of granite setts between the iron columns with a 0.2 m wide band of setts either side recessed 0.01 m for drainage. The horse stalls to either side were paved with dark ceramic pavior bricks laid at 45° to the walls; each brick was divided with v-section incisions into eight small squares thus creating a diamond pattern grid to aid grip and drainage. There was also a line of sets recessed by 0.01m for drainage down the centre of each stall (see Plates 14, 15). The east half of the entrance bay surveyed was paved entirely with the grid-cut black paviers. These floor surfaces appear to be 19th century in date and may relate to the major late-19th century refurbishment, but could be from earlier in the century.

4.4 Interior: First Floor

First floor detail plan (Fig. 17)

- 4.4.1 When first inspected by OA the greater part of the first floor was subdivided into small offices and storage areas. This subdivision was achieved by the insertion of numerous dividing walls in the 1980s. These walls were largely insubstantial and made of plasterboard panels on a steel frame. A low suspended ceiling made of tile boarding covered the entire area.
- 4.4.2 After removal of the modern partitions the floor was returned to nearer to its original intended layout which was basically three main rooms as on the ground floor; a large central barrack room with three fireplaces on the north wall and stairwell bays at either end and two smaller end rooms each with a single fireplace on the north wall.

- 4.4.3 An earlier scheme of subdivisions (late 18th to late 19th century) was however retained and is described below. The main barrack room was divided into two large rooms with smaller rooms at the west end and the east end was further divided into small rooms and corridors. These are described below.

Rooms at the east end

- 4.4.4 The primary east end room was divided into two small rooms linked by a panelled corridor. The bay opposite the primary stairwell location at the east end had been divided off as a small storeroom with a corridor between this and the primary stairwell bay which had been used to give access to a later external stair but was reconverted to a stairwell as part of the works.
- 4.4.5 The two easternmost rooms (former offices) retain many historic features including some panelling and their 19th century cast iron grates and wooden fire surrounds. These rooms are of two bays and are divided from one another by a narrow central lobby and partition made up of thin wooden panels which is shown on a 1908 plan (HRP 2005, plan 19) and probably dates to the 19th century.
- 4.4.6 The lobby has simple panel doors to the rooms, each of which retains its original ironwork (latches, hinges etc). The lobby walls are painted in a beige colour and above the doors are earlier hand painted signs detailing the function of each room.
- 4.4.7 The north room has a plain east wall which was originally the end wall of the block and this has had a door inserted into it leading to the later Sutlery. The north external wall has a central chimney breast with a small cast-iron grate. West of this is a recessed cross window with two pane upper lights, one of which has an opening top hung casement, and two lower lights with side hung opening casements with swan-neck latches, one is of four panes and one of six. The opposite wall consists of later fielded wooden panels which divide off the second room and entrance lobby. The entrance door to the room in the centre of this wall is a plain four panel door with a small bottom hung three pane glazing bar overhead. In the south-east corner is a square panelled fitted cupboard matching the adjacent wall panelling. The sign over the door to this room in the lobby reads 'N.C.O.I.'.
- 4.4.8 The panel door to the south room has a sign reading 'BOOKING SECTN.' above it and has a similar three pane overhead to that over the north room door. The interior of this room has been re-plastered or clad in plasterboard and the overhead covered over. There is a chimney breast in the east wall which was probably added in the 19th century when this room was divided off. This contains a historic 19th century iron grate by Yates Heywood & Co. of London, which is larger and more elaborate than that in the previous room, and has a recessed round arch with radiating petal-shaped decorative detail and a wooden surround. The south wall contains two similar cross windows to that in the previous room and these have been fitted with modern inner sliding glass panels.

- 4.4.9 The third bay from the east contains a small room on the south side a central corridor and a small room on the north leading to an external stair which was the primary stairwell.
- 4.4.10 The small room on the south retained less historical features although as it was largely untouched by the current development. There is a painted sign reading 'STORE' above the door in white/cream letters on dark green paint. The room has similar cross windows with modern inner glass panels and modern paint work to the south-east room.
- 4.4.11 The primary stairwell, formerly used as a corridor to the external stair, also retained few historical features and has been converted back to a stairwell with dog-leg stairs with half landings. Formerly this room was floored and led to a door to an external iron stair. Before the external stair was fitted (prior to 1908) this room formerly contained internal stairs and is in the location of the stairs as shown on the historic ground plans
- 4.4.12 The east walls of these rooms are the primary transverse wall that divided off the east end room. The west walls of these rooms are plastered and the fabric was not exposed during the development. Ford (1996) considers that the west wall of the north room is primary from 1689 (this divided off the stairwell from the main barrack room) and that the west wall of the south room is of uncertain date but may be primary.
- 4.4.13 The door at west end of the central corridor, opening into the main barrack room, was of interest with historic iron fittings of probable 19th century date. The east face of the door consists of four vertical boards supported by horizontal chamfered rails. The door furniture includes a slide bolt a latch, and an attached lock and long tapering strap hinges with small circular ends for a fixing nail. The sign over the door reads 'CLERKS'. The west side of the door has moulded side and top and bottom members fixed to the boards with a sign in dark green paint reading 'N.C.O.1 & 2.' over the door and a sign that was too faded to read on the door itself.
- 4.4.14 All the eastern rooms had plastered ceilings at window height so no details of roof structure were visible here except for the base of a tie beam in the west wall of the stairwell.

Central barrack rooms

- 4.4.15 In the centre of the block are two large barrack rooms divided from each other by a later brick wall which was exposed during the works. After the removal of the 1980s partitions the two large barrack rooms were found to be largely intact and (apart from the steel floor reinforcement columns coming up from the floor below) the 20th century work appeared to have had little impact on the historic fabric (Plate 8).
- 4.4.16 The barrack rooms extend across the full width of the block. Most of the plasterwork in the rooms is relatively modern and was not removed during the current works so the historic fabric of the walls, excepting the central dividing wall, was not exposed.

- 4.4.17 The walls of both rooms were recorded by digital photography with survey targets affixed to the walls. The position of the targets was accurately surveyed to allow computer rectification of the images which will be included as part of the site archive.
- 4.4.18 The east room is smaller than the west, being of four bays while the west room is of five. The east room has four windows in the south wall and two in the north wall and there is also a central chimney breast projecting from the north wall.
- 4.4.19 The south windows are cross windows of the same pattern as those in the east end rooms. These are in the original openings but are probably late 19th or early 20th-century replacements. The north windows are square with a central mullion and two opening side hung casements, these have been inserted into the original blind windows probably in the late 19th century.
- 4.4.20 The chimney breast was plastered and none of the historic fabric was visible. Ford (1996) considers that this is a primary feature which had a larger fireplace that was reduced in size sometime from the late 18th to late 19th-century. The current fireplace is small with a 20th century fire-back and glazed brick surround.
- 4.4.21 The west room is similar to the east room but is one bay longer and has five windows in the south wall and three in the north wall, one to the east and two to the west of a projecting chimney breast. The partition wall at the west end of the room is a historic stud wall covered with lath and plaster, there is no reason to suppose this does not fall within Ford's (1996) range of late 18th to late 19th-century and no features that would narrow down the dating. The Baxter Associates drawing notes that this partition and others to the west were first recorded in plans dated 1942 but this is erroneous as they are shown on the 1908 Ordnance Survey map.

Central partition wall

- 4.4.22 The brick dividing wall between the two barrack rooms is probably a later insertion but has some features that make it difficult to interpret clearly. This wall extends to the apex of the roof and has been inserted just west of truss nine and is out of synchronisation with the bay rhythm of the building. This wall is above a brick wall on the ground floor which Ford has dated as late 18th to late 19th century and which has a later (post 1908) segmental arched opening inserted into it.
- 4.4.23 Ford notes footings that she dates as 1689 parallel to, and immediately west of, the ground floor wall arch but the significance of these is unclear. They may relate to one of the early stall divisions but none of the early plans shows a wall across the block in this position.
- 4.4.24 The old plaster coating was removed from the lower part of the wall during the renovation exposing the underlying brick fabric. The wall is of hand made red brick laid in a random bond of headers and stretchers and bonded with lime mortar. The bricks are probably 18th-century in date and appear to be poor quality place bricks as they do not have any obvious skintlings and are therefore not represented in the HCP Brick typology.

- 4.4.25 Each side of the wall appears to be of a single phase and both sides are similar in brick and mortar type and randomness of bond, however on the west side the floorboards extend into the brickwork of the wall, this might mean that this side of the wall is an additional skin built over floorboards which abutted the east half of the wall or that a line of bricks or perhaps a former plate in the wall was removed to accommodate the boards.
- 4.4.26 The wall has a single central primary door opening with a wooden lintel with a course of headers on edge over it. In the east elevation of the wall to either side of the door five courses below the lintel a timber of roughly similar height and width to the lintel was let into the wall. These were probably for fixing items to, possibly coat hooks or shelves or some other type of fixture or fitting.
- 4.4.27 During the renovations a new door opening was made in the south section of the wall. This was taller than the existing opening and was fitted with a concrete lintel.
- 4.4.28 Prior to the insertion of this wall and the partitions at the west end this may have been one long barrack room of eleven open bays. There was a further bay at each end containing the stairs which seem to have been at least partly closed off from the main room at the east end but there is no definite evidence for the western stairs being closed off.

Floor Carpentry - floor detail - Fig. 18

- 4.4.29 The floorboards were lifted and the floor joists exposed in both central barrack rooms during the work. The joists on the south side of both rooms were examined in detail and drawn and the joists on the north side of the western room were also examined.
- 4.4.30 The timber common joists exposed on the south side of the east room were of softwood and appeared to be mostly early (probably primary) timbers and later replacements (Plate 9). There were 30 transverse timber joists in situ and three transverse steel girders inserted in the 1980s which had replaced three of the earlier timber joists.
- 4.4.31 The joists were spaced from 0.3 m to 0.33 m apart and measured on average 0.08 m wide by 0.17 m deep although some were considerably wider. The south ends of the joists were set into the brickwork of the south wall and the joists were supported by an axial joist 2.6 m from the south wall, this had been reinforced with modern steel plates. The three joists at the east end of the room each have a slot the full width of the joist, 0.12 m long by 0.06 m deep and 0.27 m from the south wall, the reason for these is unknown but they presumably housed one axial timber and related to a former fixture in the corner of the room.
- 4.4.32 The southern half of the floor was fully exposed at one time and no joints were seen in any of the joists, the central section was seen later and no joints were visible here either. Of the northern half only a narrow strip of exposed joists was visible and no joints or breaks in the joists were seen. It would therefore seem that the joists either

consisted of one single timber or were overlapped over the northern axial beam which was not viewed in this room.

- 4.4.33 In the west room the joists were of similar dimension and type but here there were several examples of later timbers inserted alongside earlier joists rather than replacing them although several were later replacements. On the south side there were 37 timber joists and two later steel girders replacing earlier joists. One joist was lapped over the south axial beam.
- 4.4.34 The north quarter of the floor was not seen exposed but on parts of the south half of the north side most of the joists continued to the north axial beam (and presumably beyond to the north wall) without a break. However in the centre there were eight joists that ended at the beam and were lapped by modern joists. The eight shorter joists were in two groups of four separated by two joists that continued beyond the axial beam to towards the north wall.
- 4.4.35 The eight shorter joists are lapped by short modern joists which span the gap from the axial beam to the north wall. The two roughly square areas spanned by the modern joists may represent former voids for stairwells or for other purposes. The western of these at least is thought to have been a stairwell up to c 1985 (A. B. & A. drawing 0886/500/08). The four eastern truncated joists are in line with the projecting chimney breast in the north wall and were possibly shortened for insertion of this after primary construction or were shortened later for work on the chimney breast. If they had been shortened for insertion of the chimney breast at an early date then it would be expected to find earlier joists spanning from the axial beam to the inserted chimney but as the existing joists are modern insertions it may imply a late phase of work.
- 4.4.36 There were no axial trimmers across the ends of the shorter joists or mortises for tenons for former trimmers in the adjacent joists as one might have expected if these were primary openings, secondary openings may have had trimmers nailed in. However these would not be necessary for support as the joists rested on the axial beam.
- 4.4.37 The floorboards were of softwood and it is difficult to date these, apart from distinguishing that the more worn examples are earlier and some are hardly worn at all and clearly modern replacements, probably dating from the 1980s refurbishment.
- 4.4.38 The boards on the south side of the east room, with the exception of a small area at the east end, were mostly very worn and possibly quite early and measured on average 0.2 m wide and 0.02 m thick. The later boards are much less worn and only about 0.14 m wide. Many of the floorboards on the north side of the room seem to have been taken up and re-laid or reused from elsewhere as many had double nail holes.
- 4.4.39 In the west room, the boards are of softwood but are mostly less worn. As discussed above these extend under or into the brickwork of the west side of the central wall.

This could mean that they predate or replace boards that predate an added skin of the wall or that a line of bricks was removed to accommodate the boards.

Rooms at west end

- 4.4.40 At the west end of the building are a number of smaller rooms and the stairs, which lead to the floor below.
- 4.4.41 The later stud and plaster partition at the west end of the west barrack room (just west of truss four) has a central door leading to what was a series of inserted rooms and corridors and the primary west end room. This main partition wall has been broadly dated to the late 18th to late 19th centuries (Ford 1996) and there was no evidence revealed in the current works to further narrow down the date range.
- 4.4.42 The main partition itself is clad in historic lath and plaster above tie level but the lower part is covered in modern plasterboard. Immediately west of the partition wall was a transverse corridor created by the addition of a second partition, just east of truss 3. The north half of this partition was removed during the refurbishment.
- 4.4.43 There was a door to an external staircase inserted through a primary blind window at the south end of this corridor. This door is thought to have been inserted in the late 19th century (Ford 1996) and it is therefore probable that the corridor partition which Ford includes in her broad late 18th to late 19th century phase was added at the same time. A central axial corridor of similar date extended westwards to the central door through the primary brick dividing wall to the two bay end room.
- 4.4.44 On either side of the latter corridor there was from around the late 19th century a two bay room, each later subdivided by a post 1908 partition into single bays. On the south side the western bay (the bay west of truss two) contains the existing dog leg stairs but the primary stairs were on the north side of this bay.
- 4.4.45 Historic ceiling joists have been revealed in the bay over the site of the former 1689 stairs between truss two and the brick dividing wall. The joists, which had laths nailed to them originally, are aligned across the building and those on the north side span from the north wall to an axial beam, the east end of which is jointed into the truss 2 tie and the west end is supported in the brick dividing wall. Further joists extend from the south side of the beam but are covered by a plasterboard ceiling. The joists predate at least some of the inserted partitions as a plate with mortises for partition studs was fixed to the underside of the joists.
- 4.4.46 The truss on the east side of the stairwell bay (truss two) is closed above the tie beam with additional studs and historic lath and plaster (Plate 10). This bay is not divided off with a wall below the tie as at the east end and there are no mortises in the soffit of the tie for wall studs, so it possibly never was. The closed truss marks the transition from the end 3 bays which are ceiled at tie beam level to the former barrack room and which probably originally had no ceiling at all and was later ceiled at collar level.

- 4.4.47 The bay on the north side between trusses two and three contains a brick fireplace and chimney breast. The plaster was removed from the east side of this during the development and it could be seen that the brickwork of the fireplace abutted the north wall and was not bonded into it (Plate 11). This is therefore a separate build added after the initial construction of the wall in around 1689 (as Ford (1996) indicates and she includes it in the early phase of c 1689-1700). The exact date of the fireplace is unknown but it was probably added soon after construction of the wall as it is of similar brick in a random bond as the inner face of the wall, which is not the same as the outer face (HCP type I).
- 4.4.48 The bricks in the chimney breast are handmade bricks of low quality with no skintlings and are therefore probably place bricks and do not figure at all in the brick typology. They are quite weathered and cracked in places which suggests they may either be reused from an earlier building or may have been left over or rejected from the original construction of the barrack block and then used a few years later when an additional fireplace was required. The bricks were primarily bonded with a soft creamy yellow coloured lime mortar. The upper three courses of bricks below the tie beam of truss three have been re-pointed later with a harder grey white lime mortar.
- 4.4.49 At the far west end is an original two-bay room which extends the whole width of the block. The historic fabric here has been completely concealed behind modern plaster walls and ceilings. There is a chimney breast in the centre of the north wall which has a small 20th century fireplace with a glazed brick surround.

Roof detail - Figs 19 and 20

- 4.4.50 Current work has allowed a detailed examination of a large part of the roof structure, which (since the early 1980s) has remained largely hidden behind false ceilings. The clearance of the 1980s office partitions and ceilings exposed large parts of the roof particularly in the main barrack rooms and in the western end of the building.
- 4.4.51 The roof is pitched with hipped ends. There are large timber roof trusses between all bays, spaced just over 3.0 m apart excepting between the second and third bays from either end, where the need for a truss is obviated by primary brick dividing walls which rise up to and support the roof. There are therefore 14 trusses in total in the horse guards barracks and for descriptive purposes these have been numbered consecutively from the west end of the block (see Fig. 17)
- 4.4.52 Most of the trusses were exposed during the work but truss 13 is closed as part of a partition clad with lath and plaster and truss 14 is concealed by the ceiling at the east end. Truss one at the west end was partially visible through a hatch in the ceiling.
- 4.4.53 The trusses are all similar in type (Figs 19 and 20, Plate 12) consisting of tie beams, principal rafters, queen struts, and collars. The collars pass across the struts but they are not joined to them. The struts are tenoned and double pegged at top and bottom into the principal rafters and the tie beams and the collars are mortised and double pegged into the principal rafters.

- 4.4.54 The timber used is softwood and was probably imported from the Baltic or Norway as large quantities were during the late 17th century. Native timber stocks had been depleted due to rebuilding after the Great Fire of London, shipbuilding to replace losses in the war with Holland and fuelling of iron and brick industries in the Sussex weald (Ayres 1998).
- 4.4.55 The tie beams have to span the 8.5 m wide gap between the north and south walls. There was obviously some difficulty in obtaining enough long timbers of sufficient scantling and some of the ties have been scarfed which has weakened them. Of the visible ties four were scarfed: truss three and trusses seven to nine. These ties were all scarfed near the north end, some only a short distance from the wall. Having scarfs in the same position in three consecutive ties seems to be a questionable decision and has indeed necessitated remedial measures.
- 4.4.56 The scarf joints (where visible) are splayed with under-squinted abutments, those in trusses three, seven and nine have been strengthened with the addition of heavy modern steel channel sections bolted through the beams.
- 4.4.57 The scarf in truss three (see Figs 19 & 20) has been largely concealed by the modern steel repair. The north principal is also scarfed near its northern end thus weakening the truss even further at this end. The historic repairs are still in situ. There is a timber board fixed to the soffit of the tie under the scarf with a vertical iron bolt inserted through it. An additional vertical strut has been inserted between the tie and principal just south of the tie scarf with a raking strut to the north end of the tie.
- 4.4.58 The scarf in truss eight has opened up slightly through shrinkage. The joint is held together by three vertical iron bolts and no wooden pegs are visible. A supporting wooden post has been inserted below the tie later, the post is positioned one metre or so south of the scarf and is designed to take some of the weight of the tie to relieve the strain on the joint. The post is not of large section and is quite decorative having chamfered corners with stops and a square base and top.
- 4.4.59 There are two orders of butt-purlins (purlins that abut and are tenoned into the sides of the principal rafters) to each slope of the roof and these are substantial timbers of large scantling. The purlins are mostly staggered where visible in the barrack rooms excepting in the three western bays of the east room (the bays east of trusses nine to eleven respectively) and there does not seem to be any particular reason for this change.
- 4.4.60 The common rafters are mostly concealed behind plaster. The hip rafters at the west end were seen through a hatch and some appeared to be primary or early and some to be later replacements. The older rafters were supported on the backs of the purlins but did not appear to be joined to them in any way.
- 4.4.61 The roof at the east end was not seen as the east rooms are ceiled at tie level but the roof plan drawing (Alan Baxter & Associates drg. No. 0886/500/08) shows that the roof in the east end section has only one main purlin per slope and an extra purlin on

the north side which is an extension of the central purlin of the Sutlery extension. This purlin may have been added when the roofs were converted to hipped from gabled after c 1712.

- 4.4.62 As mentioned above, there were ceiling joists at tie beam level between truss two and the brick partition to the west. The upper portion of truss two above the tie was closed with extra studs and lath and plaster which was in a partly decayed condition with patches of plaster missing revealing broken laths and studs beneath. On the east side of truss two there was a ceiling at collar level, most of the lath and plaster had been removed here revealing the collar rafters. The tie beam of truss three had mortises as though for ceiling joists along both faces (see Figs 19 & 20) but there were no corresponding mortises in the east side of the truss two tie and the truss three mortises facing truss two contained the same paint as covered that side of the tie beam. The mortises on the east side of truss three were within the faint ghosts of former joists and faced later inserted partitions which were plastered. Thus if former joists had spanned to this partition which is only a late 19th century insertion the evidence was concealed. The former joists had not spanned to truss four prior to the partition being inserted as there were no mortises in the west face of the truss four tie beam. This rather suggests that the truss three tie beam was reused from elsewhere.
- 4.4.63 The barrack rooms and part of the western rooms had ceilings at collar level prior to the work. These upper ceilings consisted of lath and plaster fixed to inserted collar joists. Lath and plaster was also applied over the common rafters, below collar level, to form a canted ceiling. The collar joists where seen were fitted to the common rafters in a variety of fairly haphazard methods suggesting they were a later addition. Some were attached with small nailed strips of timber. Some were overlapped slightly and nailed to the rafters while some were cut at an angle and butted to the soffit of a rafter.
- 4.4.64 Above collar level there was no evidence of laths having been fixed to the rafters and prior to the insertion of the ceiling the rooms must have been open to the rafters. This would possibly have made the rooms very cold in winter, despite the three fireplaces in the north wall and a stable of horses below, and insertion of the ceiling was probably intended to improve the comfort as well as appearance of the guards accommodation. These ceilings were removed in the eastern barrack room and the roof bays were then clad in plasterboard fixed to the underside of the common rafters which left most of the historic trusses and purlins exposed.

5 THE FINDS

Animal Bone by Lena Strid (OA)

- 5.1.1 The animal bone assemblage from the watching brief comprised one sheep/goat calcaneus (aged 3+ years) and one cattle maxilla/premaxilla fragment (sub-adult/adult). The bones were in a good condition but are not otherwise noteworthy. No further work is required on this material.

The Glass by Hugh Wilmot

- 5.1.2 A total of sixteen fragments of glass from a minimum of six vessels were recovered. All the fragments are post-medieval in date and most of the glass is in good condition. All the fragments are made in a green glass and most of these are from bottles.
- 5.1.3 There are at least two onion style wine bottles from 1013, a small fragment of wine bottle of 18th-19th century date from 76 and a later 19th century moulded base from 95. All these are very common forms.
- 5.1.4 However, there are also fragments of two unusual vessels from (29), being large domed cloches for horticultural use. The cloche fragments are rare finds normally only associated with high status sites.
- 5.1.5 Recommendations: The glass assemblage is very small and largely fragmentary, whilst most the forms, being wine bottles, are common types. Therefore further study of the bottles would provide no further beneficial information, and is not recommended. This assessment should provide sufficient dating information to refine the stratigraphic sequence if needed, and it is suggested that be deposited in the general site archive. The cloche fragments are more unusual and are rare finds normally only associated with high status sties. Whilst further study will provide only limited additional information, they should be written up to full publication standard (especially if associated material culture such as flowerpots has been recovered). The cloche fragments should also be illustrated in the final report.

Table 1: Summary of the Glass by context

Ctx	No. Frags	Description	Date
29	1	Upper dome from a cloche with rough knob	C18th?
	3	tubular edge and dome from a cloche. Dia. 60cm	C18th?
76	1	Wine bottle body	C18th-19th
95	1	Base from a moulded bottle	C19th
1013	5	Base and body from an onion wine bottle	L C17th-e
	5	Base and body from an onion wine bottle	C18th

The Pottery by John Cotter (OA)

- 5.1.6 All the pottery was examined and spot-dated. For each context the total pottery sherd count and weight were recorded on an Excel spreadsheet, followed by the context spot-date which is the date-bracket during which the latest pottery types in the context are estimated to have been produced or were in general circulation.
- 5.1.7 Comments on the presence of datable types were also recorded, usually with mention of vessel form (jugs, bowls etc) and any other notable attributes (e.g. decoration).
- 5.1.8 A total of 32 sherds of pottery weighing 1849g was recovered from five contexts. All of this material was of post-medieval date, mostly 19th century. This included parts of two Staffordshire white-ware jugs probably dating to c 1830-60, a complete English stoneware beer or ink bottle and parts of four or five red terracotta flowerpots, one virtually complete.

- 5.1.9 Parts of two or three coarseware vessels in local glazed red earthenware probably date to the later 17th or 18th century and a single sherd of tin-glazed earthenware probably dates to the later 18th or early 19th century.
- 5.1.10 The complete neck and rim of a mid 17th-century German stoneware 'Bellarmine' bottle with an applied face mask (a common import of the period) was the earliest vessel recovered although this was residual in a 19th century context.
- 5.1.11 The material would appear to represent domestic refuse, some of it, however, with a horticultural purpose. The large size and fresh condition of the later material is noteworthy. The pottery is tabulated in Table 2 below.

Table 2: Pottery by context and form

Ctx	Spot-date	No	Wt (g)	Comments
16	L18-E20C	7	633	Prob 19C. Mostly 1x profile near-complete handmade red terracotta flowerpot, v fresh, poss unused? 1x bs (bodysherd) from a 2nd flowerpot in denser terracotta fabric (later 19C?). 1x residual complete top of mid-17C German Frechen stoneware bellarmine bottle with crude applied facemask (beard missing) & broken handle
27	L18-E20C	5	47	Prob 19C. 3x red terracotta flowerpot sherds incl base. 1x 18-E19C bs tin-glazed earthenware ?jar with pale blue-tinted glaze
76	17-18C	1	22	Or poss to E19C? Jug or jar pad base in ?local orange-pink post-med glazed earthenware (poss related to Surrey/Hants red Borderware types & Wealden PM2.7 type in Kent)
81	c1830-60?	17	1131	4 vess incl complete cream-coloured modern stoneware ginger beer or ink bottle with clear 'Bristol' glaze. Frags of 2x jug bases (1 with moulded decoration with bitumen-like material adhering underside, 1 with machined barrel-like banding) in late Creamware & Pearlware-related fabrics. 1x large rim frag from jar/crock in post-med glazed red earthenware prob 18-19C
94	17-18C	2	16	Or possibly to e19C? Joining base sherds from jug or jar in glazed post-med red earthenware - or redder variant of Wealden PM2.7 type
Tot		32	1849	

Clay Pipes by John Cotter (OA)

- 5.1.12 The pipes were recorded in a similar way to the pottery and are summarised in Table 3. A total of six pieces of clay pipe weighing 32g was recovered. This comprised one complete pipe bowl dating to c 1610-40 and five pieces of stem dating, probably, to the 17th, 18th and 18th to early 19th centuries.

Table 3: Clay pipes by context

Ctx	Spot-date	Stem	Bowl	Mouth	Tot sherds	Tot Wt	Comments
27	18-19C?	1	0	0	1	2	Stem bore 2mm. V regular, fresh
76	18C	1	0	0	1	8	Stem bore 2mm. Thicker, earlier-looking stem than

							(27)
94	18C	2	0	0	2	6	Both fairly worn. 1x stem bore 2mm, 1x 17C stem bore 3.5mm
95	c1610-40	1	1	0	2	16	Complete small bowl, short stubby heel, milled around lip, stem bore 3mm. 1x separate stem, bore 3mm
Total		5	1	0	6	32	

The Building Material by Cynthia Poole (OA)

- 5.1.13 The building material, comprising 62 fragments and weighing 38,200 g, was recovered from sixteen contexts. It comprised bricks, hollow bricks, roof tiles (peg tiles and pantiles) and mortar. All the material has been recorded on an Excel file and basic quantification is summarised in Table 4 below.

Table 4: Quantification of ceramic building material forms

Type	Frgs	Wt	Nos. objects	Fabric
Roof: peg	2	712	2	Fabric: fine sandy
Roof: flat	2	502	1	Fabric: fine sandy & calcareous
Roof: pantile	2	557	1	Fabric: medium sandy
Bottle bricks	9	5353	4	Fabric: fine sandy
Bricks	23	30911	17	Fabric S1, S2, S3
Totals	38	38035		

Fabrics

- 5.1.14 The fabrics have been examined and characterised with the aid of a x10 hand lens, but have not been analysed in detail. The ceramic fabrics were divided into fine and medium sandy fabrics and a calcareous sandy fabric for the roofing, whilst the wall bricks were divided into three sandy fabrics. The fine fabric was red or orange in colour containing a low-moderate density of fine - medium quartz sand together with occasional red Fe oxide / clay pellets 0.5-4mm and rare chert pebbles and grits up to 10mm. This was used for the bottle bricks and peg tiles. The medium sandy fabric was made with slightly coarser and higher density of sand, but did not contain any of the coarse grits. The pantiles were the only pieces made in this fabric.
- 5.1.15 The calcareous fabric contained in a low density of fine-medium sand and was distinguished by small cream rounded grits up to 3 mm, possibly chalk or other calcareous material. A single fragment of roof tile was made in this. The bricks were divided into three fabrics. All were red-orange in colour and S1 and S2 also had grey mottles and core sometimes. S1 contained a low density of fine-medium sand. S2 had the same matrix as S1 with the addition of occasional coarse flint or gravel grits up to 20 mm. S1 and S2 could be the same fabric, the coarser grits not being visible in some of the unbroken bricks. This fabric was used for the 18th-19th century bricks. S3 contained frequent medium quartz sand and rare gravel grits up to 11mm. This fabric was very soft. This was used for the Tudor bricks (HCP Type A and ?E).

Bricks

- 5.1.16 Seventeen bricks (twenty-three fragments), both complete and partial were recovered from ten contexts. These fall into two categories: a small brick and a standard brick. Sizes are itemised in Table 5.
- 5.1.17 The two small bricks were both found in context 72 and were made in fabric 3. Both were incomplete measuring 50 mm thick by 117 mm wide by >175 mm long. These are Tudor bricks, both probably of early 16th century date. From the same context was a complete brick very irregular with much variation in thickness. It appeared to have been squashed on one side, possibly by other bricks stacked on top of it during the drying process.
- 5.1.18 This brick is of different dimensions to the others and may be slightly later in date (16th-early 17th century). A charter of 1571 stipulated a brick size of 9 by 4½ by 2¼ ins (230 x 115 x 57 mm). Two bricks from context 1044, though incomplete, are the same type and size as the early Tudor bricks from context 72. All the Tudor bricks were very soft and weathered.
- 5.1.19 The standard bricks are all similar and likely to be of broadly the same date. Those from walls 55 and 60 came from a latrine structure west of the Barrack Block, and probably of late 17th century or later date. Bricks from walls 58, 62, 64 and 86 were from walls of structures associated with the same building and are thought to be of late 17th century or probably later in date. All were handmade and unfrogged with the base surface noticeably rougher than the others, suggesting these were place bricks rather than stock bricks.
- 5.1.20 Abrasion was generally low, but exposed faces were sometimes heavily weathered. Seven of the bricks were complete or near complete and all three dimensions could be measured. Six of the remainder were approximately 50% complete and one 25% complete. Only thickness and breadth measurements were obtained from the latter.
- 5.1.21 The average size of the bricks was c 60-65 mm thick by 100-102 mm wide by c 222-226 mm long. These are equivalent to an imperial size of about 2¼-2½ ins by 4 ins by 8¾ ins; (imperial measurements are given for all bricks in the data record).
- 5.1.22 On the basis of measurements and the presence or absence of other characteristics the bricks have been assigned to a code or codes from the Hampton Court Brick typology established by Daphne Ford. In some cases a number of alternatives present themselves and the preferred designation has been highlighted in bold. The table below details brick sizes and HCP Typology.

Table 5: Brick sizes

Ctx	% complete	Thickness	Breadth	Length	HCP type	Brick type
72	<50%	50 mm	117 mm	>115 mm	A	Tudor
72	<50%	50 mm	c115 mm	>175 mm	A	Tudor
72	100%	60-72mm	110mm (4	233 mm	E?	Tudor

		(2 3/4")	3/8 ")	(9 3/16 ")		
1044	c.30%	53 mm	113 mm	>85 mm	A	Tudor
1044	<30%	50 mm	>70 mm	>140 mm	A	Tudor
4	50%	60-62 mm	105 mm	>140 mm	I, J, K, N	Standard
55	90%	60-68 mm	95-100 mm	224 mm	I	Standard
55	50%	63-65 mm	103-105 mm	>112 mm	I	Standard
56	100%	60-65 mm	105 mm	225 mm	I, J, K, N	Standard
56	100%	63 mm	102 mm	>227 mm	I, J, K, N	Standard
58	25%	60-62 mm	100 mm	>65 mm	I, J, K, N	Standard
58	70%	62 mm	102 mm	>190 mm	I, J, K, N	Standard
60	95%	62-64mm	102 mm	226 mm	I	Standard
62	100%	60 mm	102 mm	222-226 mm	I, J, K, N	Standard
64	100%	60-65 mm	100-102 mm	220-222 mm	I, J, K, N	Standard
64	50%	65-67 mm	100 mm	?	I, J, K, N	Standard
86	95%	58-62 mm	103 mm	220 mm	I, J, K, N	Standard

5.1.23 All the standard bricks had some mortar adhering to some surfaces and mortar was sometimes present on broken surfaces possibly indicating re-use or that the brick was broken prior to use.

5.1.24 Mortar type M2 was the most common variety present. Mortar types M1 and M3 appear to be associated only with the Tudor bricks. The mortars are described separately below.

Bottle Bricks

5.1.25 Nine hollow bricks were found, all from context 11. One was complete, two were near complete and one a base only. These are wheel thrown in the manner of a pot to produce a hollow bell shaped object but closed at both ends apart from a small perforation c 16 mm diameter in the centre of the top.

5.1.26 The lower sides have been sliced vertically to produce a square base, but the top remains circular. The original curved sides and sometimes the top had incised lines cut into the surface to aid keying and the regular spacing of the lines (5-7 mm) suggests some sort of comb or toothed implement was used.

5.1.27 In the broken brick there was evidence that two small perforations had been made with a long narrow implement at opposite corners close to the base, presumably with the purpose of aiding the firing process.

5.1.28 However these were not always present. The sizes are variable: bases range from 99-115 mm in width and top diameters from 98 to 112 mm. The heights were all slightly different but fall into two groups a shorter one of 145mm and a taller variety of 202-205 mm.

5.1.29 All the fragments had substantial areas of mortar adhering to the surfaces. A primary brown sandy mortar (M5) was overlain in places by a white sandy lime mortar (M2).

Table 6: Quantification and sizes of bottle bricks

Ctx	No	Wt (g)	Complete	Wall thickness	Width/breadth	Height
11	1	1667	100%	~	Base 108x104 mm. Top: 105 mm diam.	145 mm
11	6	1725	90%	10-18 mm; top 7mm	Base: 110x115 mm. Top: 110-112 mm diam.	202mm
11	1	1450	90%	8 mm	Base: 99x107 mm. Top: 98x102 mm diam.	c 205 mm
11	1	511	Base only	15-20 mm; sliced sections 7-15 mm	Base: 108x102 mm	40mm+

Roofing

- 5.1.30 Two types of roofing tile were found. From context 71 were two plain flat tiles, both very similar, but only one was sufficiently complete to be identified as a peg tile. This measured 270mm x 150mm x 12mm, which is of a similar size though of slightly different proportions to peg tiles previously found at Hampton Court Palace (Allen 2000). It had two peg holes 15x10mm narrowing to the base and placed unusually close to the centre of the tile. The two tiles found in context 71 both had a wide band of mortar along their lower edges. Two fragments of pantile were found in context 1013. The larger fragment from the upper corner retained the nib.

Mortar

- 5.1.31 Apart from a few individual fragments of white lime mortar from context 73, the mortar mostly occurred adhering to the ceramic building material. It has been divided into five types.

Mortar M1: The white lime mortar was mixed with a high density of well sorted clear and brownish, medium sized quartz sand plus scattered dark grains and common rounded chalk grit up to 5mm. Sub-type M1a did not contain the dark grains or chalk grit.

Mortar M2: Buff, brown, greyish brown. High density of rounded quartz sand, clear and brown plus scattered black grains (may be charcoal and/or Fe mineral). This was frequently mixed with coarser flint, chert or quartzite grits up to 15mm.

Mortar M3: Pink, buff lime mortar mixed with well sorted quartz sand and black ?Fe grains. Pink colouring may be brick dust.

Mortar M4: Greyish brown, lime mortar, fairly porous with a low density of sand.

Mortar M5: Greyish brown sandy mortar with occasional flint/chert grit up to 15mm.

- 5.1.32 The most distinctive mortar was type M1 from context 73, which retained the imprint of two objects present into the mortar, probably bricks. The same M1 mortar was found adhering to the bricks from context 1044 as the jointing between bricks. This suggests this mortar type is early, contemporary with the Tudor bricks.

- 5.1.33 The only example of M3 mortar was also associated with a Tudor brick. Mortar M2 was found on the later bricks and the bottle bricks. On the later there were additionally patches of mortar type M5.

Discussion

- 5.1.34 The bricks fall into three size categories probably reflecting different periods of construction. The small Tudor bricks are distinct and must have originated from a 16th century building. From the same context (72) came a larger brick, possibly from later in the Tudor period.
- 5.1.35 The remaining bricks were of a standard size slightly longer than that of $8\frac{1}{4}$ ins by 4 ins by $2\frac{1}{2}$ ins which Parliament legislated for in 1769. These are all of late 17th or early-mid 18th century date. The bricks are samples taken from walls and other structures within the excavations, the majority relating to structures west of the Barrack Block. The bricks suggest that these structures were broadly contemporaneous.
- 5.1.36 The form of the hollow bricks suggests weight was an important factor in their use and the presence of mortar on all surfaces indicates their use within a structure, but not exposed in any way. The hollow bricks are an unusual, but distinctive form and have been identified as a short lived type described by Davey (1961, 147). These are known as bottle bricks, which were used for a brief period during the late 18th and early 19th centuries.
- 5.1.37 These were first introduced into France by the architect Eustache St Far in 1785 and were in use in Britain in the late 18th and early 19th century by various prominent architects including Henry Holland and Sir John Soane. They formed light weight roof vaulting and were used in the construction of Soane's Bank of England. They have been found occasionally on excavations in London including Marlborough House (T. Smith *pers. comm.*). They are known from a few other sites. The HCP examples were found in the fill (11) of a modern service trench and have derived from an un-identified demolished structure. Bottle bricks were discovered during recent excavations at Buckingham Palace gardens in 2006 (OA and Time Team, 2007), where they were used in the construction of garden terraces.
- 5.1.38 The roof tile is of two types. The two peg tiles are of a similar size to ones previously found at Hampton Court. The size of peg tiles was standardised in 1477 (10.5 x 6.5 x 0.5 inches equivalent to 267 x 165 x 13mm) and this size has remained unchanged to the present day for plain flat tiles. Inevitably slight variations in size, as found in the tile from Hampton Court, were normal prior to the mid-19th century, when tiles were hand made.
- 5.1.39 The fabric of the peg tiles is similar to the bottle bricks and may indicate they were manufactured at the same brick-works or in the same locality. Pantiles are not commonly found before the late 17th century and are generally regarded as 18th-19th

century in date, though earlier imports into England from the Low Countries are first recorded in the 15th century.

- 5.1.40 It is possible a building of the status of Hampton Court might have used new introductions such as pantiles sooner than private domestic dwellings and the possibility of an earlier date for them here should be considered. However there is no indication from the character of the tile to suggest an earlier date and in view of the general phasing of the building and structures examined an 18th -19th century is the most probable.

Miscellaneous Finds

by Ian Scott (OA)

Three objects were recovered from context 1063 in AA 22, a general rubble make-up layer beneath the present site surface. These comprise a fragment of statuary, a bone brush handle and a padlock.

- 5.1.41 *Statuary*: The statuary hand has a thumb on top holding a hemispherical vessel, with a lid or top. The top or lid is slightly domed and has a low circular feature in the centre. It is possibly a lamp. It is made of a white marble. L 115mm; D of vessel 110mm. Context 1063. The statue cannot be closely dated from the surviving fragment. The location from which the find was recovered - by the barracks - suggests that it was redeposited. The barracks are utilitarian buildings without decorative features. However there are gardens nearby from which a fragment of statue could have come (see Plate 13 for detail).
- 5.1.42 *Bone brush handle*. The head is incomplete, and only one curved row of holes for the bristles survives. L 130mm. Context 1063. Handle of a small brush, most probably a toothbrush. Not closely dateable.
- 5.1.43 *Padlock*. It is bag-shaped, with semicircular hasp. Iron. It lacks a keyhole cover. L 105mm; W 72mm. Context 1063. Although padlocks of this broad type were first made in the late 18th century, this example is factory-made and therefore more recent in date. Probably dating from the late 19th or early 20th century.
- 5.1.44 No further work on these finds is recommended.

6 DISCUSSION: THE WATCHING BRIEF

6.1 Pre-Tudor Period

- 6.1.1 The deep pits excavated north of the new Clore Learning Centre revealed natural River Terrace Gravel some 2.8 m below the present ground level. The ground level at the site has therefore been raised by nearly 3 m of deposits since the prehistoric, when the ground level must have been at about 6 m OD.
- 6.1.2 Episodes of flooding were represented by thick bands of alluvial clay and the evidence from the pits (AAs 3, 4 and 5 - also the lift pit in the Barracks, AA18)

suggests that the terrace gravel drops sharply away to the south towards the Thames itself.

- 6.1.3 The alluvium deposits were undated and there was no evidence at depth of prehistoric, Roman Saxon or pre-Tudor occupation. Soil layers above the alluvial deposits and seen elsewhere across the site may date to the medieval period, but again no dating evidence was recovered.

6.2 Pre-1689

- 6.2.1 The earliest datable remains were located west of the Barrack Block (AA1) and within the lift shaft pit (AA17).
- 6.2.2 A section of wall in AA1 constructed in Tudor brick was identified, with the level of the top surface of wall 73 at 8.25 m OD. The suggestion of a return of the wall to the south could indicate the site of a possible Tudor building. Study of Wyngaerd's 1558 depiction of the range of buildings in the approximate location of AA1 compared with the view commissioned by Cosimo de Medici (1689) could give a context for these structures (Fig. 21). On balance, it seems more likely that as the de Medici view shows buildings apparently at the west end of the Tiltyard wall, then the brick walling found relates to buildings here. Wyngaerd's buildings appear further south of the road aligned on the main palace and appear to lie behind the buildings at the end of de Medici's view of buildings at the end of the Tiltyard wall. Walls 73 and 72 together with fragment of walling 1017 are therefore thought to be the foundations of the Cavalry Barracks built in 1662, with the bricks being re-used Tudor types. The alignment of walls 72/73 was maintained by later walls to the south that formed the yard. Shallow depressions in the top of wall 73 may have been where wooden posts were placed as part of the timber framing, while a small group of tiles laid on top of wall 72 may have been a post pad.
- 6.2.3 East of AA1, within the lift pit in the Barrack Block (AA18), a portion of flooring in Tudor brick type was revealed. The single course of bricks had been truncated and disturbed by later building work. However the level on the top of bricks in the lift pit was 8.32 m OD, so is comparable to the level recorded for the top of the Tudor-style bricks in AA1 (wall 73 at 8.25 m OD), so it is possible that both structures are contemporary and go with the first Barracks of 1662.

6.3 1689 and later

The Kitchen Gardens

- 6.3.1 The Tudor Tiltyard to the north of the Barracks was converted into a kitchen garden, with a central wall extending southwards towards the Barracks (as revealed by OA's investigations here in 2000 - OA 2000). Talman's plan of 1698, Bridgeman's plan of around 1710 held by HRP and the Estate plan reproduced here (Fig. 22) clearly depict a garden wall extending as far south as the centre of the Barracks from the Gardens.

- 6.3.2 The soil layers identified above the alluvial layers across the site and north of the present Barracks by implication probably date to this period of Kitchen garden use. A portion of a wall located in AA12 to the east of the Choir Hut is probably a garden wall or ornamental structure of this period. Beneath the demolished pump-house, and in a pit north of the new building evidence of garden activity in the form of pits was identified - one of the pits contained a collection of glass of 18th century date.
- 6.3.3 The contractors' pits were not large enough to interpret the detail of the garden layout, but similar soils were identified south of the Choir Hut (in AAs 8, 9 and 19) showing the extent southwards of the Gardens. North of AA1, the wall here (wall 63) appears to have delineated the southern extent of the Kitchen gardens - the wall can be projected to the east to line up with the north face of the Barracks, implying also that the gardens extended this far south. This correlates well with historic plans of the period and the excavations in AA22 west of the barracks revealed a wall (1065) on this alignment (Figs 3, 13 and 24)
- 6.3.4 A portion of a cobbled path surface was identified in AA7. This is possibly associated with the Gardens arrangement, but equally may be of much later date and contemporary with the extensive cobbled yard found adjacent to the demolished Ambulance Shed (see below). No dating evidence was recovered to aid interpretation of the path.

The 1689 Barrack Block and later additions

- 6.3.5 The south wall foundation of the 1689 Barrack Block was revealed at depth in the lift pit (AA18). The internal partition wall with its doorway at right angles to the south wall of the 1689 Barracks lay on the remains of the earlier brick floor, though may not be primary, as Ford's 1996 survey seems to suggest (Fig. 26).
- 6.3.6 Of note was the discovery of the base of an iron column at depth on the north side of the lift pit. Analysis of previous plans and Surveys (e.g. Ford, 1996) indicates that this column was placed at the end of one of the original 1689 stable bays, which also supported the first floor above. Two parallel rows of these columns extended the length of the Barracks. The columns appear to have rested upon brick 'sleeper' wall(s), or intermittent brick foundation pads - but again, only limited exposures of this structure were identified within the lift pit, so interpretation is difficult. The columns cannot have been original to the 1689 work and must have been inserted later.

Boundary wall 1700 to 1710-14

- 6.3.7 Also probably in this phase of activity, but later than the construction of the 1689 Barrack Block and located west of that building was a section of walling (wall 56 = 1020) extending parallel to and south of the brick walls associated with the 1662 barracks in AA1. The bricks used in the construction were not Tudor, but were of 'standard size' (slightly longer than those Parliament legislated for in 1769). Such bricks are thought to be of late 17th to early-mid 18th century date (see Poole, this report, Section 5).

- 6.3.8 The oblique angle of the wall heading towards the squared off west end of the Barracks building suggests that this is the remains of the angled entrance wall to the yard west of the Barrack Block depicted on early 18th century plans (Fig. 22/23 and 24).
- 6.3.9 The wall is not shown on the plan of c 1700 attributed to Hawksmoor, but does appear on the Estate Plan dated 1710-14 (Fig. 22), so it seems very likely that the yard west of the Barrack Block was created at this time. This wall alignment also formed the south wall of soil pit 1070, of Victorian date and mapped on the 1887/89 OS plan (see Fig. 24).
- 6.3.10 The alignment of this wall was replicated by the later boundary wall (42 = 1069) that stands there today (Fig. 24), which was built to the south of this wall and at slightly less oblique angle to that of its predecessor. This wall dates to the re-ordering of the west end of the site at the end of the 19th century (see Fig. 25, 1908 Survey).

6.4 The 18th and 19th century structures west of the 1689 Barrack Block

- 6.4.1 By the late 19th century the yard west of the Barracks was known as the 'Dung Yard'. An Ordnance Survey plan of 1887/89 (Fig. 24) shows structures on the site including an earth closet, dung yard, dust pit, a dry earth shed and a soil pit. Of note is a plan held in the HRP archive that depicts a corridor-like structure with an entrance within the angled boundary wall extending off the entrance boundary wall leading to a wider structure (See Fig. 23). The Plan is only dated as 'pre-1731', but nonetheless appears to show the approximate structural arrangement as recovered by the watching brief in AA1.
- 6.4.2 The latrine block had at least two phases of construction. Unfortunately the machining of deposits within the latrine block means that the finds may not be reliably stratified, nonetheless the broad range of finds does show that the structure was in use during the 18th and 19th centuries.
- 6.4.3 The first latrine block was modified, as shown by the robbing of the first south wall of the structure, while the second/replacement structure was modified, probably in the later Victorian period, with the addition of concrete elements including a urinal.
- 6.4.4 Adjacent to the latrine was a brick-built drain extending to the north - other brick structures seen at depth were of uncertain function but likely to be broadly contemporary. Across the area in general the insertion of ceramic and glazed service pipes has tended to complicate the evidence here.
- 6.4.5 The approximate layout of the Dung Yard west of the barracks in the late 19th century has been confirmed by the limited excavations. In addition to the latrine block the structure at the immediate west side of the barracks is certainly the soil pit depicted on late 19th century plans of the site.

- 6.4.6 Remnants of the walls of the dry earth shed of probable contemporary date were also revealed. Associated soakaways of Victorian date were noted in several exposures in the yard.

6.5 The late 19th century/20th century yard west and north of the Barrack Block

- 6.5.1 Plans held by HRP show that in 1887 the Palace Gardens still extended as far south as the Barracks, but the wholesale access changes detailed in the plan of 1908 (Fig. 25) show that part of the gardens north of the Barracks was converted for a road and new buildings, including a new guard house (later the Choir Hut), a latrine block, the ambulance shed (of which demolition debris was discovered) and other ancillary structures including a coal yard.
- 6.5.2 It can thus be inferred that the latrine block and all the structures associated with the 'Dung Yard' were demolished at this time and that the oblique angled wall housing the entrance to the west end of the Barracks was replaced by (probably) the wall that stands there today (wall 42 and equivalent wall 1069).

6.6 The Finds

- 6.6.1 The finds assemblage is necessarily limited owing to the methods of the investigation and the small size of the areas opened. Animal bone was scarce: this might suggest that kitchen/domestic refuse from the Barracks was disposed of elsewhere at the Palace site.
- 6.6.2 Fragments of wine bottles left by the troops were few, though pieces from glass cloches that are typically associated with horticultural sites attest to their use in the Kitchen Gardens area. Most of the pottery dates to the 19th century and the presence of flower pots in the assemblage relates to their use in the Gardens. Other vessels include those for drinking and water containers, though not in sufficient quantities to warrant detailed analysis.
- 6.6.3 The presence of Tudor structures on site generally was confirmed by analysis of the bricks - walls 72/73 in AA1 and the flooring within the lift pit both used Tudor bricks, though these are probably re-used materials for the first Barrack buildings constructed in 1662. The remainder of the bricks recovered date to the 17th and 18th centuries and are thus consistent with construction activities here after the 1689 Barracks was erected.
- 6.6.4 Of interest were a number of comparatively rare 'bottle bricks'. As noted in the finds reports (Poole, Section 5), these were used for a limited period in the late 18th and early 19th centuries by prominent architects including Henry Holland and Sir John Soane. The bricks were used for lightweight roof vaulting and an example of this can be found in the Soane's Bank of England. However, the bricks were all recovered from a modern service trench fill and there was no obvious structural context for these bricks here.

- 6.6.5 It seems unlikely that they would have been used in construction of essentially ancillary structures west of the Barracks. It is possible, therefore, that the bricks were stored at this part of the Palace at one time for use elsewhere in the Palace grounds and were then used to backfill a later intrusive feature.

7 DISCUSSION: THE BUILDING RECORDING

- 7.1.1 The summary phasing from the 2005 *Statement of Significance* is laid out in Appendix 4 at the end of this report. This gives a good broad outline to the phasing of the building. However the current investigations have revealed areas of primary and later fabric and have given us a greater understanding of the form and function of the building. The work has particularly added to our understanding of some of the internal divisions and arrangements of the first floor of the cavalry barracks.
- 7.1.2 Part of the ground floor of the cavalry barracks was recorded during the works but this was a later insertion consisting of 19th century engineering bricks and dark paving bricks or tiles with diamond pattern grooves. There were two rows of iron columns supporting the upper floor and marking the divisions between the horse stalls. The floor was of 19th century date and the columns were probably late 18th or 19th century replacing the 1689 originals.
- 7.1.3 Part of an earlier floor and a column base were found in the excavation for the new lift pit and this is discussed in the watching brief findings above, (section 6.3.6 and 6.3.7).
- 7.1.4 The main work was done on the first floor where the 1980s partitions were removed revealing much of the earlier layout.
- 7.1.5 The block was originally constructed with a two-bay section at each end divided off from the 13-bay central section by brick cross-walls on both floors. The stairs were in the north sides of the end bays of the central section. The central area comprised one large barrack room for soldiers heated by three fireplaces on the north side. The western fireplace was built against the main wall so is later than initial construction but probably only by a few years and is now in the partitioned off west area. The other two fireplaces are dated 1689-1700 by Ford, these are clad in modern plaster and no early fabric was revealed during the refurbishment.
- 7.1.6 The two-bay end rooms were possibly originally intended for the NCOs or perhaps even junior officers. Each contained one early fireplace in the north wall dated 1689-1700 by Ford but again these were clad in later plaster and not exposed during the works. These rooms were later divided up, the eastern one was made into two offices around the late 19th century and a 19th century fireplace was inserted into the southern office, these were Sergeants Rooms 1 and 2 in 1908 (see Fig. 25). The west end room had been divided by a modern partition (1991) which was removed during the present refurbishment, in 1908 this was a soldiers barrack room (see Fig. 25).

- 7.1.7 The east end-bay of the central section was divided off at some point, with the stairs in the north side and another office in the south. Ford considers the wall dividing off the stairwell is from 1689 and the south continuation of this wall could be from 1689, but the present work revealed no further evidence for the dating of these walls. The bay at the west end which contained the stairwell had later partitions dividing it off but no evidence of earlier walls.
- 7.1.8 The eastern rooms were not greatly affected by the present work and retain evidence of late 19th/early 20th century decorative schemes including hand painted signs over the doors.
- 7.1.9 The primary stairs were replaced by external iron stairs around the late 19th century and the stairwells floored over. In the present work the floor in the eastern primary stairwell was removed and new stairs inserted. At the western end stairs had been inserted later (1983) into the south side of the bay which had contained the primary stairs on the north side.
- 7.1.10 The end rooms and stairwell bays were ceiled over, at tie beam level and most of these ceilings were left intact during the present work. Early, possibly primary, ceiling timbers over the former west stairwell were exposed and recorded during the work. These consisted of a main joist spanning from the tie beam to the internal cross wall with transverse common joists spanning from this beam to the north wall and extending south from the beam where the ceiling was not further exposed. The historic joists were in poor condition but were retained within a new ceiling structure.
- 7.1.11 The two bays east of the stairwell bay at the west end had been divided off from the barrack rooms by a later (18th or 19th century) partition and then further subdivided into a transverse corridor and two rooms. The main partition was retained in the refurbishment.
- 7.1.12 The main barrack rooms were divided by an internal transverse brick wall which is a later insertion and the plaster was removed from this and the brickwork exposed during the refurbishment. The brickwork was of one phase in a random bond and obviously intended to be plastered over. It was constructed of red bricks which appear to be 18th-century in date and are probably poor quality place bricks as they appear to have no skintlings and are therefore not represented in the HCP Brick typology. The wall could therefore relate to either the requested 1731 renovation or the 1794 reuse of the barracks or to some other 18th-century phase of works.
- 7.1.13 The barrack rooms had modern suspended ceilings which were removed as part of the works revealing much of the early roof structure. The rooms were originally ceiled only at collar level with tie beams and principal rafters exposed and common rafters plastered over. Some of the ceiling plaster and joists were removed exposing whole trusses. All the trusses seen appeared to consist of primary softwood timbers and were of similar construction consisting of a queen struts mortised and pegged to the principal rafters and long collars of narrow section which passed across the queen

struts but were not fixed to them in any way. Some of the collars had warped and bowed out considerably.

- 7.1.14 Difficulty in obtaining long timbers or economy of use had resulted in some of the tie beams being made of two sections joined by splayed scarfs with under squinted abutments near their north ends. Some had been strengthened with modern steel plates and the tie beam in truss 8 was supported by a later wooden post placed near the scarf joint.
- 7.1.15 Under Phase 3 of the summary phasing from the 2005 *Statement of Significance* (see section 1.3) it is suggested that when the Sutlery was added in 1700 the ends of the roofs of both blocks were possibly altered from gabled to hipped. Only the west hip was seen during the investigation and that was a very limited view. However historic views by Knyff in 1702 and 1712-13 and Kip in 1707 appear to show the ends of the cavalry barracks with gabled ends whereas the east end of the foot guards is shown as hipped in 1702.
- 7.1.16 This suggests that the cavalry barracks retained a gabled roof until at least twelve years after the construction of the Sutlery. Close examination of the timbers would be necessary to confirm that they have been altered and to ascertain any physical clues as to the date of the alteration.
- 7.1.17 The opportunity was taken to record areas of the first floor carpentry when it was practicable to do so. In the end the areas recorded consisted of virtually the whole of the southern half of the main barrack rooms and a strip along the southern side of the northern half of the western room. There were many softwood joists that may have been primary or historic replacements dating from the 18th or 19th centuries and it was not possible to categorically phase or date the joists. In some places later joists had been placed alongside earlier timbers for extra support rather than simply replaced.
- 7.1.18 There were some later replacements that were clearly modern and these were probably from the 1980s refurbishment. The early boards are well worn and are wider being 0.2 m wide and 0.02 m thick, the later boards are much less worn and only about 0.14 m wide. Many of the floorboards on the north side of the east room seem to have been taken up and re-laid or reused from elsewhere as many had double nail holes.
- 7.1.19 As far as could be seen the floor joists appeared to span the building except for eight joists in the middle of the north side of the west room there that rested on the north axial main beam and were overlapped by modern joists. The eight shorter joists were in two groups of four separated by two joists that continued beyond the axial beam to towards the north wall.
- 7.1.20 The western of the two roughly square areas spanned by the modern joists apparently represents a former void for stairwell that was in existence up to c 1985 (A. B. & A. drawing 0886/500/08). The eastern truncated joists are in line with the projecting

chimney breast in the north wall and were possibly shortened for insertion of this after primary construction. However, if this is the case it would be expected to find historic joists not modern insertions. It is therefore not certain whether this represents a former void or some other constructional phase.

- 7.1.21 There are no stairs or other openings shown on the 1908 plan in the floor so the stair opening must have been created after that date.

8 CONCLUSIONS

8.1 Results

- 8.1.1 The surface of natural terrace gravel was observed some 3 m below current ground level, but no evidence of activity was found from the prehistoric, Roman or pre-Tudor periods.
- 8.1.2 Two wall fragments pre-dated the construction of the 1689 barracks, and are most likely to belong to the foundations of the short-lived cavalry barracks constructed in 1662. A small patch of brick floor may have belonged to the same structure. These are tantalising glimpses of a building which may be depicted in Cosimo De Medici's view of 1169 (Fig. 21) but of which we otherwise know very little, other than that it was timber-framed.
- 8.1.3 Garden soils belonging to the Kitchen Gardens were found, but there was no evidence from the Tiltyard which occupied this area prior to the late 17th century. The laying out of kitchen gardens at this time has not been studied in detail, and the question remains as to whether they were in part intended to provision the soldiers living in the barracks.
- 8.1.4 Part of the south foundation wall of the 1689 Barrack Block was seen in the watching brief, together with the base of one of the cast iron columns. These columns, which were also observed during the building survey, were introduced into the building in the late 18th or 19th century. They formed the end of the stall divisions in the cavalry barracks and supported the second floor - it is likely that they replaced wooden posts, although no evidence for this was recorded. If, as is suggested in the Statement of Significance (HRP 2005), the columns were put in soon after 1794, they are an early and important example of their kind.
- 8.1.5 At the west end of the Barrack Block, the watching brief was successful in showing the detailed development of a yard area from the early 18th century onwards. The yard housed latrines and soil pits, and it was presumably constructed because the original pits were between the cavalry and infantry barracks, and were covered over when the Sutlery was built, also in the early 18th century.
- 8.1.6 Much of the focus of the building recording works was on the 1st floor of the cavalry barracks. This showed in more detail (it was previously recorded by Ford in 1996) how the main barrack rooms were divided into two in the 18th century - but it was not possible to date the wall to a particular phase of renovation. The recording also

elucidated the sub-division and re-ordering of other parts of the barracks in the 18th and particularly the 19th centuries, and the construction detail of the roof and floor structures.

- 8.1.7 The finds were limited in quantity across the site as a whole. The pottery and glass assemblages contained 18th and 19th century flower pots and glass cloches typical of horticultural sites of some status. Tudor brick samples were recovered from the walls west of the barrack block though the finds assemblage comprised mostly later post-medieval material. Of note were a number of comparatively rare 'bottle bricks', first introduced into France by the architect Eustache St. Far in 1785 and used for a period in the late 18th and early 19th century by prominent architects including Henry Holland and Sir John Soane.
- 8.1.8 The bricks were used for lightweight roof vaulting and can be found in the construction of Soane's Bank of England. No obvious context for these bricks was observed on this development site or within the barracks; it may be that the bricks were stored here at one time for use elsewhere in the Palace grounds and were used to backfill later intrusive features. Excavations by OA at Buckingham Palace in 2006 showed that bottle bricks were sometimes used in the construction of garden terraces, and this may also have been the case at Hampton Court.

8.2 Methodology

- 8.2.1 The requirement for archaeology to be dealt with by means of a watching brief meant that the investigation consisted of many small observations spread over the area, and sometimes conducted under less than ideal conditions due to access and construction requirements. This kind of approach can also lead to difficulties in piecing the archaeological data together when the work is complete.
- 8.2.2 Some consideration could be given in future to dealing with key areas by means of controlled excavations carried out in advance, as this is not only better for the archaeology, but also likely to be less disruptive to a construction programme. Admittedly, in the case of the current project, the evaluation did not produce results suggesting high archaeological potential, but some key areas were not available for trenching at that time and their potential was, to some extent, demonstrated by the documentary sources.

APPENDICES

APPENDIX 1 TABLE OF WATCHING BRIEF CONTEXT INFORMATION

Ctx	AA Area	Depth	Width	Ht	Date	Comments: structure, feature or deposit type
1	AA2	0.4 m	-	-	C20	Modern concrete base foundation form electricity transformer
2	AA13	0.2 m+	-	-	C19/C20	Garden soil with brick and charcoal
3	AA13	0.25 m	-	-	C19/C20	Garden soil with brick and charcoal
4	AA12		0.4 m	0.75 m	Undated	Brick and stone wall, probable corner, undated
5	AA12	0.2 m	-	-	C20	Clay and gravel layer, levelling for car park
6	AA12	0.08 m	0.5 m +		Undated	Foundation cut for wall 4
7	AA12	0.3 m			C19/20	Garden soil with brick and charcoal
8	AA12	0.3 m			Undated	Redeposited gravel/?surface
9	AA12	0.3 m+			Undated	Garden soil with occ. brick and charcoal
10	AA6	0.07 m			C20	Redeposited clay layer beneath modern tarmac
11	AA6	0.75 m+	0.5 m+		C20	Service trench fill
12	AA6	0.16 m			Undated	Garden soil with brick and charcoal
13	AA6	0.2 m			Undated	Levelling deposit of yellow sandy clay under 12
14	AA6	0.3 m+			Undated	Clay soil, former ground level?
15	AA13	0.12 m			Undated	Garden soil with brick and charcoal
16	AA13	0.11 m			C18-20	Garden soil with brick and charcoal
17	AA13	0.32 m			C18-20 or earlier	Garden soil with brick and charcoal
18	AA7	0.25 m	1.45 m		?C19	Granite cobbled surface
19	AA5	0.2 m			C20	Modern garden soil
20	AA5	0.14 m			C19/20	Same as Ctx 3
21	AA5	0.8 m			Undated	Garden soil with brick and charcoal
22	AA5	0.8 m			Undated	Natural alluvial clay
23	AA5	1.0 m			Undated	Natural alluvial clay
24	AA5	0.2 m+			Undated	Natural alluvial clay
25	AA5	0.2 m+			Undated	Gravel - 1st river terrace natural
26	AA7		2 m		Modern	Concrete pitch lined tank/sceptic tank for Choir Hut
27	AA4	0.5 m			C18/19	Pit fill with glass and pottery
28	AA4	0.5 m	1 m		C18/19	Pit
29	AA2	0.15 m			C18?	Pit fill with glass
30	AA2	0.15 m	1 m		C18?	Pit
31	AA9	0.2 m			?C19	Granite cobbled surface = 1023
32	Void					Void
33	Void					Void
34	Void					Void
35	AA11	0.12 m			C20	Modern tarmac
36	AA11	0.3 m			C20	Levelling layer for 35
37	AA11	0.4 m+			C20	Service trench fill
38	AA11	0.4 m+			C20	Service trench
39	AA11	0.3 m			C19/20	Garden soil with brick/charcoal/pebbles
40	AA11	0.28 m			Undated	Layer of mortar & stone; possible structural feature?
41	AA11	0.24 m			Undated	Construction cut fill in 43

42	AA11			0.7 m	Undated	Red brick wall, standing structure
43	AA11	0.3 m	0.26 m+			Construction cut for 42
44	AA1	0.1 m			C20	Concrete surface
45	AA1	0.1 m			C20	Make up for 44
46	AA1	0.17 m			C20?	Rubble make-up for 45
47	AA1	0.38 m			C20?	Service trench fill in 48
48	AA1	0.38 m	1 m+		C20?	Service trench
49	AA1	0.32 m			Undated	Levelling layer of rubble under 46
50	AA1	0.05 m			Undated	Soil/sand layer in area of stone base 52
51	AA1			0.1 m	Undated	Rotten wooden post in stone base 52
52	AA1			0.1 m+	Undated	Stone base for post 51
53	AA1		0.19 m		Undated	Brick wall; ?garden wall - abutts wall 63
54	AA1					Same as 70=79
55	AA1			0.64 m	C17?	N-S barrack wall
56	AA1		0.5 m	0.3 m	Undated	Oblique portion of wall, post - Tudor
57	AA1				?C19	Salt-glazed drain
58	AA1		0.35 m	1.2 m	C18+	South wall of earth closet, earlier than wall 62; earlier than wall 68
59	AA1				?C19	Brick urinal adjacent to earth closet
60	AA1		0.4 m	0.9 m	C17/C18	N-S barrack wall
61	AA1	0.45 m			?C17	Mortar/silt, ? Brick-lined path
62	AA1		0.34 m	0.93 m+	C17+	Wall, later than and keyed into wall 58
63	AA1				C17-C20	extant E-W wall with ?C17 footings
64	AA1		0.47 m+	0.9 m+	C17/C18 +	Wall, later than wall 60
65	AA1	0.24 m			C17+	Cut for wall 62
66	AA1	Void				Void
67	AA1		0.46 m			Drain adj. To wall 60
68	AA1		0.46 m			Drain adj. To wall 58
69	AA1				?Tudor	Possible foundation trench cutting layer 70
70	AA1	0.8 m+			Medieval ?	?Medieval soil layer, above clay 24; same as 54/79
71	AA1	0.12 m			?C17	4 tiles, possible surface remnant
72	AA1		0.4 m		Tudor	Tudor wall, addition to wall 73
73	AA1		0.5 m	0.8 m	Tudor	Tudor wall, beneath addition 72
74	AA1				C19/20	Drain trench filled by 75
75	AA1					Fill of 74
76	AA1	0.25 m			C17/C18 +	upper fill of earth closet
77	AA1	0.2 m			C17/C18 +	fill of earth closet
78	AA1	0.5 m			C17/C18 +	fill of earth closet
79	AA1					same as layer 54/70
80	AA1		0.23 m		Undated	Line of bricks set into 79
81	AA1	0.3 m+			Pot date 1830-60	Layer abutting 80, dated to e-mid Victorian period
82	AA1					Wall - part of wall 59
83	AA1	0.25 m	0.4 m		Undated	Posthole cut
84	AA1	1.1 m			Undated	Cut for S wall - 58 - of earth closet
85	AA1	1.1 m			Undated	Fill of cut for wall 84

86	AA1				C17/C18 ?	Wall, lower part = east side of earth closet/upper part adj. Wall 59
87	AA1		1.36 m		C17/C18 ?	Doorstep with grooves for doors, over wall 55
88	AA1	0.25 m	0.4 m		Undated	Fill of PH 83
89	AA1	0.7 m	0.75 m		?C17	Cut for wall 55, filled by 90
90	AA1				?C17	Fill of trench for 55
91	AA1				C20	General site overburden, mixed finds range
92	AA1	0.5 m+			C17+	Fill of cut for wall 65
93	AA1	0.15 m			C17/18+	Fill of earth closet under 78
94	AA1	0.3 m+			C17/18+	Fill of earth closet under 93
95	AA1	1.5 m			C17/18+	Fill of earth closet under 96
96	AA1	0.5 m			C17/18+	Fill of earth closet under 94
97	AA1			1 m	C17/18+	Wall of earth closet - primary structure?
98	AA1	0.02m			Tudor	Soil btw walls 72 and 73
99	Void					Void
1000	AA16	0.1 m+			Undated	Soil at base of area; ?Med/Tudor
1001	AA16	0.04 m			Pre-C18	Levelling mortar for tiles 1002
1002	AA16	0.05 m			Undated	Red brick-tiled surface
1003	AA16				Undated	Wall footing remnant - function unclear
1004	AA16					Same as 17
1005	AA16					Same as 1000
1006	AA16		0.12 m		Undated	Line of half bricks, function unclear
1007	AA16					?part of / same as wall 80
1008	AA16				Undated	Nat alluvial clay.
1009	AA16					same as 1007
1010	AA16	0.13 m			Undated	?same as layer 17
1011	AA16				Undated	layer similar to 1010, greater rubble component
1012	AA16	0.12 m			C20	Modern concrete
1013	AA16	0.6 m			C20	Demolition debris over 1001
1014	AA1	0.2 m			Undated	Shallow robbing cut through 1017
1015	AA1	0.2 m			Undated	Fill of 1014
1016	AA1	0.1 m+			Undated	Fill of 1026
1017	AA1				Tudor	Return of wall 72
1018	AA1	0.58 m			Undated	Fill of cut for wall 56 (Cut 1021)
1019	AA1	0.12 m			Undated	Sandy silt - ?natural or redeposited
1020	AA1					same as 56
1021	AA1					Cut for 56 = 1020
1022	AA1				Undated	Lower part of wall 56
1023	AA17	0.1 m+			?C19	Granite cobble surface, same as 31
1024	AA17		4.5 m		C19/20	Demolished rems. Of ambulance hut
1025	AA17				C19/20	Drains within 1024
1026	AA1				Undated	Cut for 1016, cuts Tudor wall 1017
1027	AA1	0.2 m			C20	Make-up for concrete
1028	AA1	0.18 m			C20	Make-up for 1027
1029	AA1	0.06 m			C20	Made ground
1030	AA1	0.04 m			C20	Layer under 1029
1031	AA1	0.26 m			C20	layer of made ground under 1030
1032	AA1	0.5 m			C19/C20	Rubble/made ground under 1031
1033	AA17	0.05 m			C19	Sand levelling for cobbles 1023/31
1034	AA1				C20	Concrete sewer
1035	AA1				C20	Fill around 1034

1036	AA18	0.82 m			C17	Fill of foundation cut for wall 1053
1037	AA18	0.07 m			C17+	Mortar layer over 1036
1038	AA18	0.1 m+			C19?	Rubble under concrete 1041
1039	AA18			0.6 m+	Undated	Centre barracks wall, supports iron columns
1040	AA18		0.3 m+		Undated	Cut for wall 1039
1041	AA18	0.2 m			Modern	Concrete floor slab in barracks
1042	AA18		0.54 m		Undated	Fill in cut for wall 1039
1043	AA18	0.28 m			Undated	Soil layer, ?same as 1036
1044	AA18	0.1 m+			?Tudor	Brick floor surface of probable 16th century date
1045	AA18	0.05 m+			?Tudor	sand under 1044
1046	AA18		1.5 m+		?Tudor	Mixed silt/charcoal/ash layer under 1045
1047	AA18				Undated	late truncation of wall 1051
1048	AA18				Undated	Un-excavated layer of mortar in 1049
1049	AA18				Undated	Un-excavated cut for wall 1051
1050	AA18	1 m			Undated	Brick/clay fill of 1049
1051	AA18				Undated	Wall, same as 1039
1052	AA18				Undated	Cut for S wall of barracks
1053	AA18				Undated	S wall of barracks
1054	AA18				Tudor+	N-S wall inside barracks, sits on floor 1044
1055	AA1				C18th/ 19th	Lower part of wall 64
1056	AA1				C18th/ 19th	Robbing of wall 1055, lower part of wall 64
1057	AA22		0.4		C19th	S wall of soil pit 1070
1058	AA22		0.35		C19th	W wall of soil pit 1070
1059	AA22				C19th	Brick floor of soil pit 1070
1060	AA22		0.4		C19th	E wall of soil pit 1070
1061	AA22	0.2			C19th/ 20th	Rubble overburden
1062	AA22		0.35		C19th	N wall of soil pit 1070
1063	AA22	0.6			C20th	Rubble layer
1064	AA22		0.4		C19th	Dry earth shed wall
1065	AA22		0.4		C19th	N wall of dung yard/dry earth shed
1066	AA22		0.7		C19th	Yorkstone drain cover
1067	AA22		0.85		C19th	Brick support for 1066
1068	AA22	0.2			C16th?	Garden soil
1069	AA22				C19/20	Gate wall
1070	AA22				C19th	Soil pit group context
1071	AA22		0.24		C19th	Brick structure, part of 1070
1072	AA23		0.12		C19th	Ambulance Shed cobbling
1073	AA24		1.4		C19/20	Soakaway
1074	AA24	0.06			C19/20	Mortar beneath 1073
1075	AA24				C20	In fill of 1073
1076	AA25	0.2			C20	Rubble layer
1077	AA25				-	Natural clay

APPENDIX 2 HISTORIC PLANS AND ILLUSTRATIONS CONSULTED

Wyngaerd 1558: Extract from Wyngaerd's View of the Palace

View of Hampton Court from the north-west commissioned by Cosimo de Medici: British Library Add MS 33767 (6) F. 66

Plan of Palace pre-1731?: NA/WORKS/24/44

Plan of the Barrack Block 1887/98 Ordnance Survey: NA/LRRO 1/4438

Plan of Barracks 1908: Ordnance Survey - HRP Plan archive

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APPENDIX 4 SUMMARY PHASING OF THE BARRACK BLOCK

The following phased outline is from the 2005 *Statement of Significance* prepared by HRP

Phase 1 (1662-1689)

The construction of a timber-framed cavalry barracks by Charles II, probably on this site of the present barrack block. It has been suggested that the chimney breasts from this barracks, or another pre-existing building, were incorporated into the Foot Guard Barracks of 1689. The configuration of the late 17th-century chimney breasts and hearths is slightly asymmetrical, which may be suggestive, however it is not thought possible to further assess the possibility that the Barrack Block contains pre-1689 fabric without intrusive archaeological investigation.

Phase 2 (1689)

A pair of two-storey Barrack Blocks was constructed on the present site. A well or hay pit was located between the two buildings. The Tiltyard to the north of the Barracks was remodelled as a series of Kitchen gardens.

Phase 3 (1700)

A two-storey extension - a Sutlery - of the Foot Guard Barracks was built, physically linking the two blocks. It is *possible* that at the same time the roofs of both blocks were modified from gabled to hipped ends. The parade ground to the north of the barracks was possibly gravelled over at the time.

Phase 4 (1717 / 1730s)

The creation of a new apartment in the Foot Guards Barracks was requested (1717). The renovation of the barracks was ordered (1731) and possibly undertaken.

Phase 5 (c 1794 to late-19th centuries)

The renewed use of the Cavalry Barracks for the garrisoning of a Cavalry Troop, from 1794, probably required a refitting of the block. The introduction of cast-iron posts defining the stalls probably dates to this period. Over the course of the 19th century, a series of minor alterations were undertaken. These principally involved the creation of new internal divisions,

chimney breasts and chimneys. The introduction of small vents into the roof may also date to this period.

Phase 6 (late-19th century – 1900)

A major renovation was undertaken. This involved alterations and refurbishment to create principal entrances to the barracks in its northern elevation and the blocking up of the historic entrances in the southern elevation. This work involved both the blocking and opening-up of many windows and doors as well as the repositioning of internal staircases. Probably included within this work was the blocking up of the western doorway to the barracks.

Three external doorways and iron stairs, two brick-built sculleries, a porch, a water-closet and a number of lean-to structures were added to the northern elevation. In addition a new guardhouse, a latrine block and a number of other structures were constructed within a walled and fenced courtyard created to the north of the Barrack Block. At the same time a series of 17th and 18th century walls and subsidiary structures constructed to the west of the Cavalry Barracks were demolished or modified. It should be noted that it was not until this phase that the entire northern elevation of the Barrack Block could be viewed as a single vista (from within the northern courtyard) and that by this date it had already been much modified. A wall dividing compartments of the kitchen gardens had previously interrupted this view.

Phase 7 (1930s), Phase 8 (1983) and Phase 9 (1991)

Creation of a car park in the courtyard to the north of the Barrack Block took place in the 1930s, presumably resulting in the demolition of the latrine block. Sections of the Foot Guard Barracks were refurbished as residential flats. A substantial refurbishment of the Cavalry Barracks carried out by the PSA in 1983.

Works included major structural repairs, the conversion of the first floor into offices and of the ground floor into an exhibition space. In 1991, the conversion of the ground floor of the Cavalry Barracks into a ticket office took place.

APPENDIX 5 GLSMR/RCHME NMR Archaeological Report Form**1) TYPE OF RECORDING**

Evaluation, Excavation, **Watching Brief, Building Recording**, Survey, Geo-archaeological Evaluation, Fieldwalking, Other

2) LOCATION

Borough: **Richmond-upon-Thames**

Site address: **Hampton Court Palace Barracks, London, Surrey**

Site Name: **Clore Learning Centre Project, Hampton Court**

Site Code: **HCP44 05**

Nat. grid Refs: centre of site: NGR: TQ 1550 6860

Limits of site: N 1550 6863 S 1550 6858

E 1554 6860 W 1548 6860

3) ORGANISATION

Name of archaeological unit/**company**/society: Oxford Archaeology

Address: Janus House, Osney Mead, Oxford OX2 OES

Site director/supervisor: Daniel Bashford

Project manager: David Wilkinson

Funded by: Historic Royal Palaces

4) DURATION

Date fieldwork started: 2/8/2005

Date finished: 18/8/2006

Fieldwork previously notified? YES/NO

Fieldwork will continue? YES/NO/NOT KNOWN

5) PERIODS REPRESENTED

Prehistoric, Palaeolithic, Mesolithic, Neolithic, Bronze Age, Iron Age, Roman, Saxon (pre-AD 1066), Medieval (AD 1066-1485), **post-medieval, Victorian, Unknown**

6) PERIOD SUMMARIES

Prehistoric: River terrace gravels and river alluvium

Unknown: soils located across the site. Possibly medieval - re-worked in later periods.

Tudor/post-medieval: Tudor walls and brick surface (?). Soils and pits/structures relating to 17th/18th century gardens.

Post-medieval/Victorian and later: Latrine block structures and soil pits within the 'Dung Yard. Remains of the Ambulance Shed, e. C20. Areas of cobbled yards. Internal floors and structural remains, part of 1689 Barrack Block construction and modifications.

7) NATURAL

Type: River Terrace Gravel

Height above Ordnance datum: *c* 3 m

8) LOCATION OF ARCHIVES

- a) Please provide an estimate of the quantity of material in your possession for the following categories:

NOtes 150	PLans 25	PHotos 30	Ngtives 200
SLides 200	Correspondence 30	MScripts (unpub reports, etc)	
BULk finds 2 boxes	SMall finds 3	SOil samples 0	
OTHer 0			

- b) The archive has been prepared and stored in accordance with MGC standards and will be deposited in the following location:

- c) Has a security copy of the archive been made?: **YES/NO**

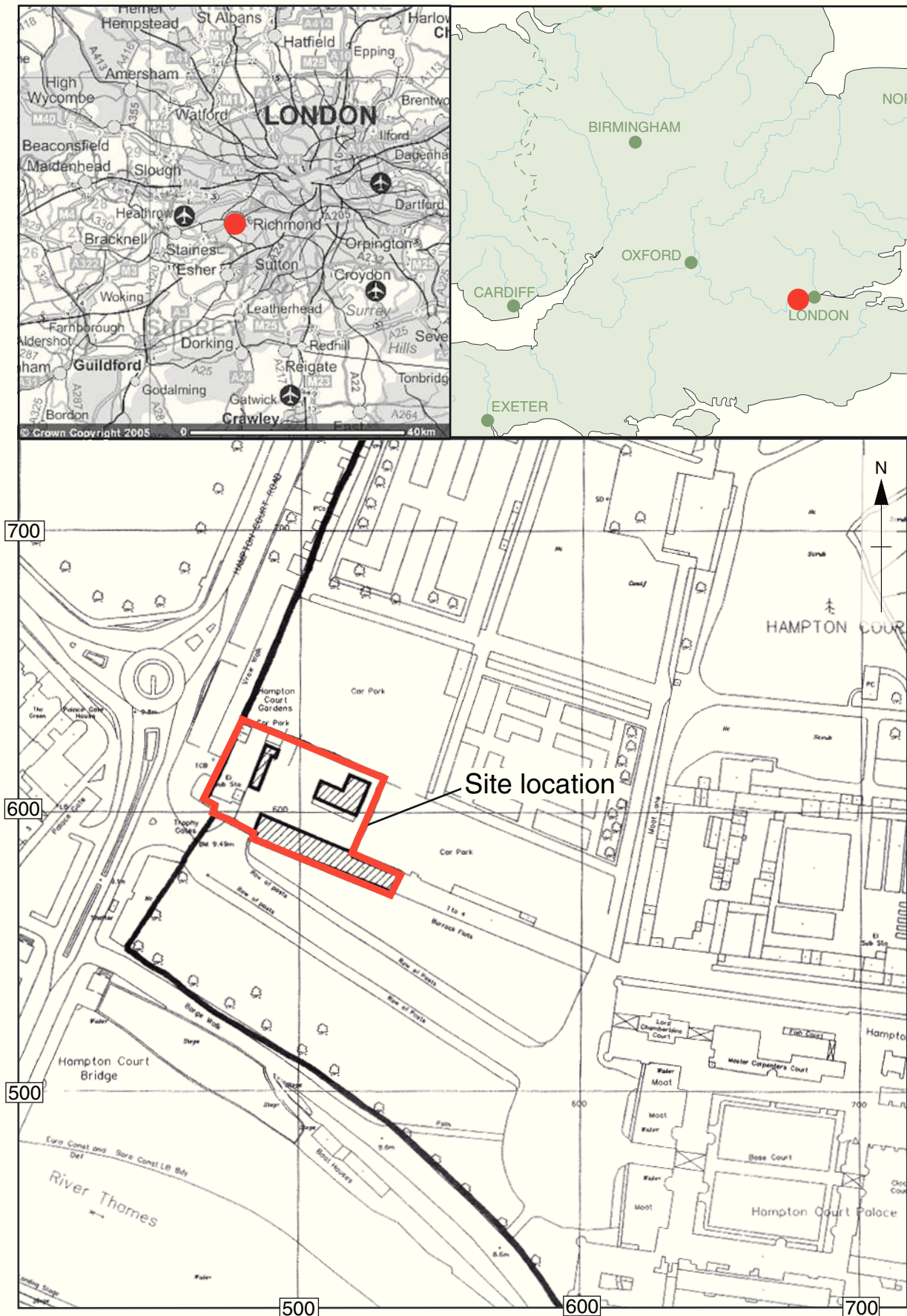
10) BIBLIOGRAPHY

see - Appendix 3 in main report

SIGNED:

DATE:

NAME :



Not to Scale

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Figure 1: Site location

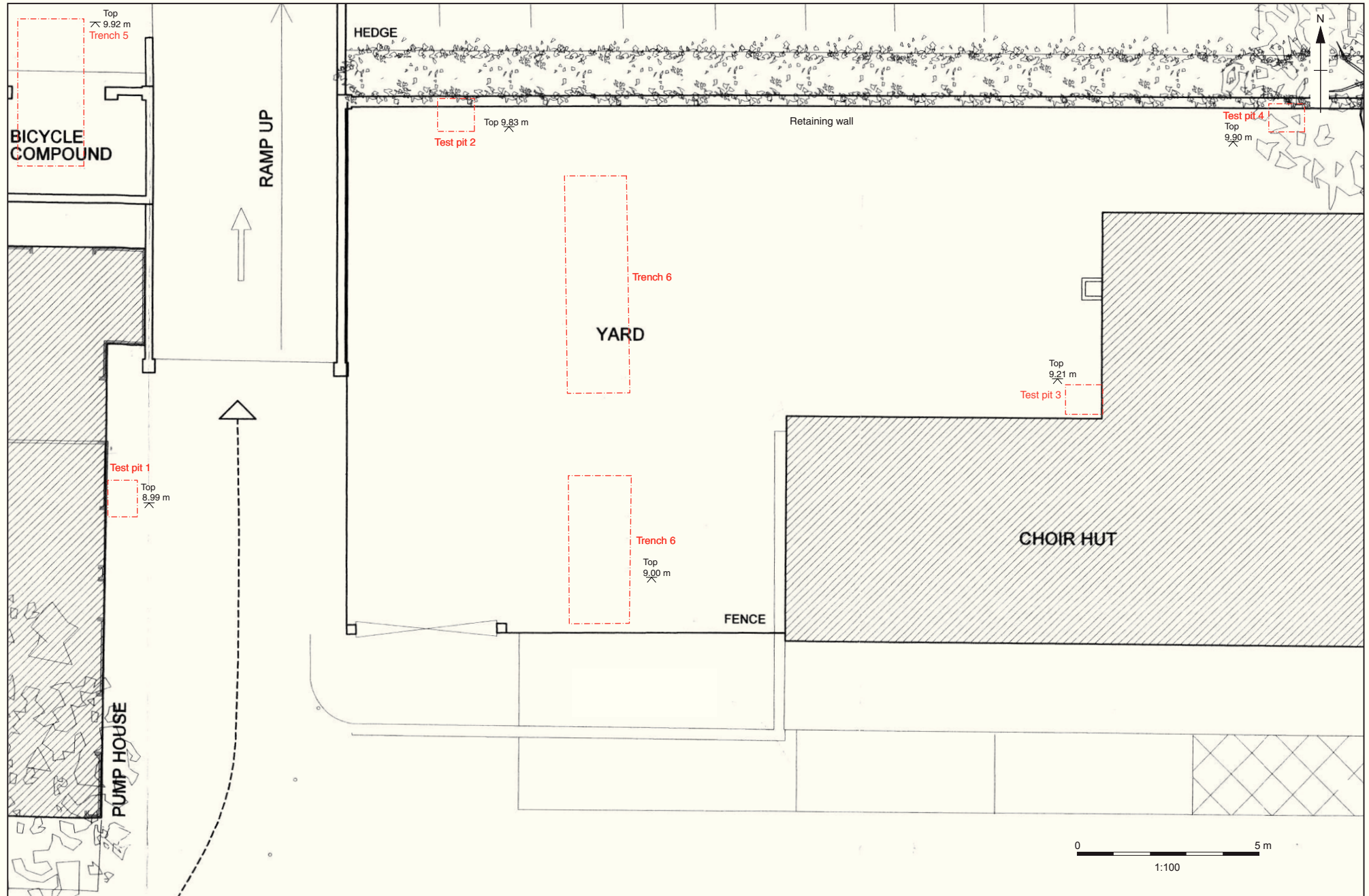


Figure 2: Trench locations 2005

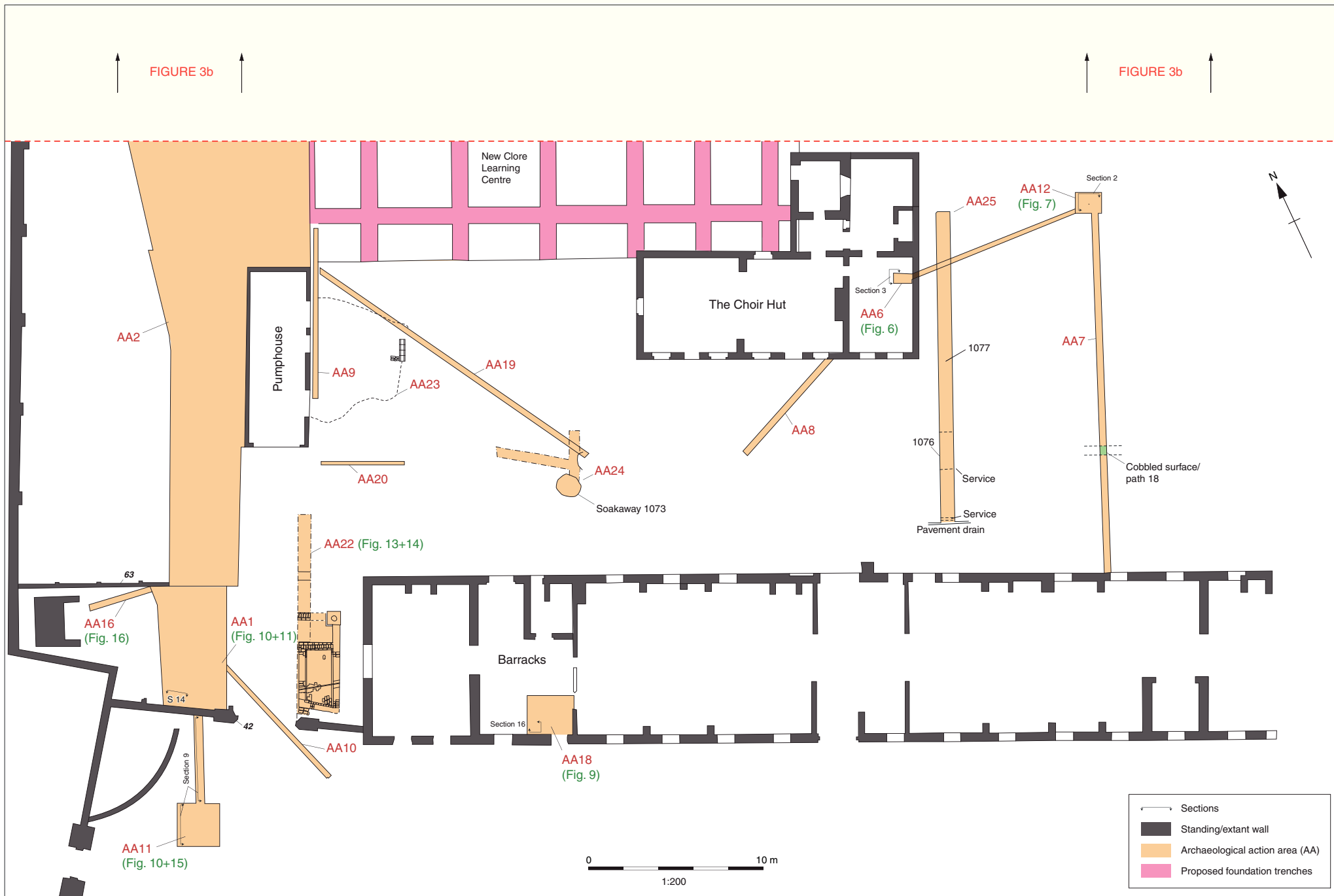


Figure 3: Plan of Archaeological Actions (AAs)

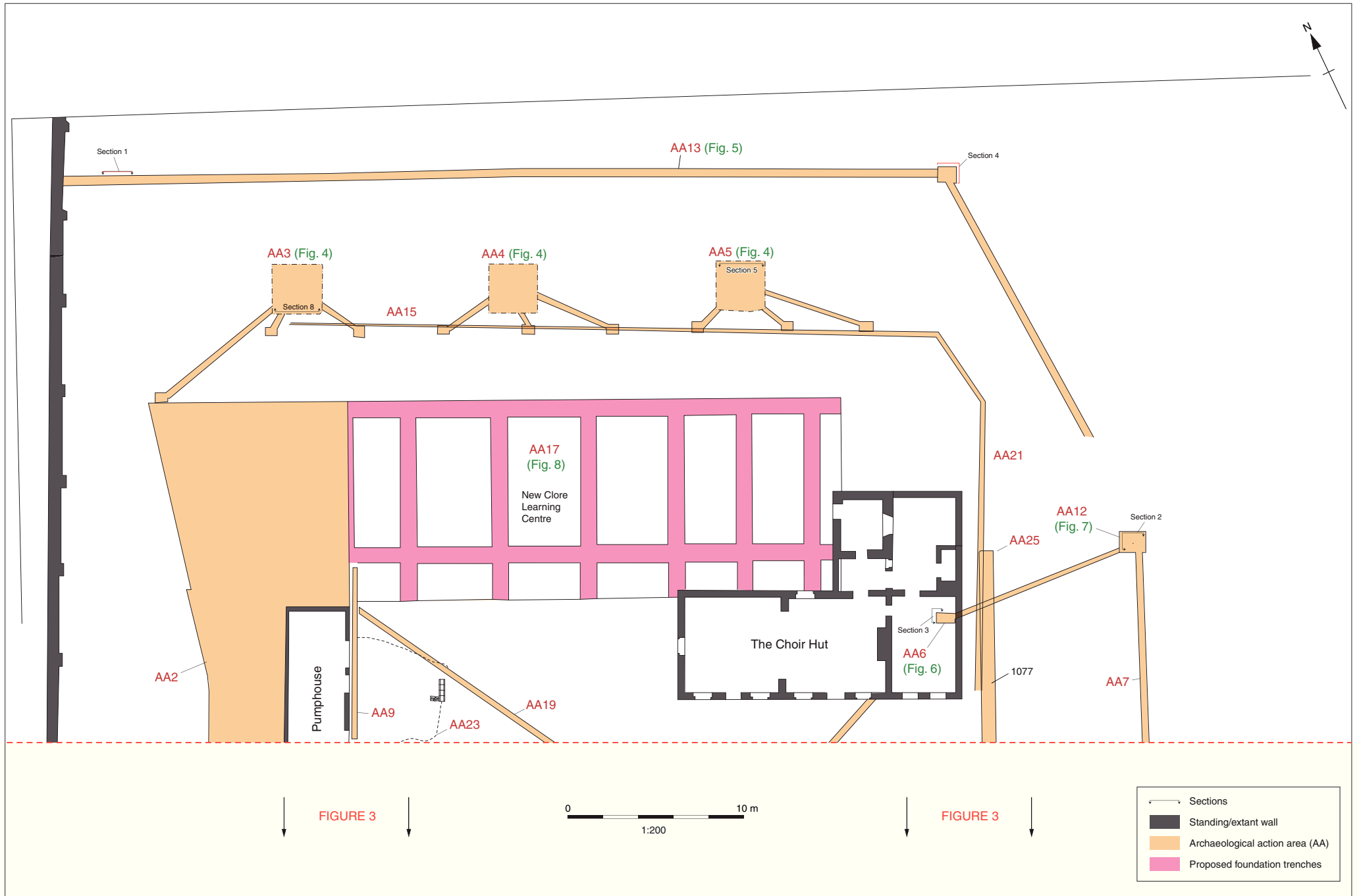
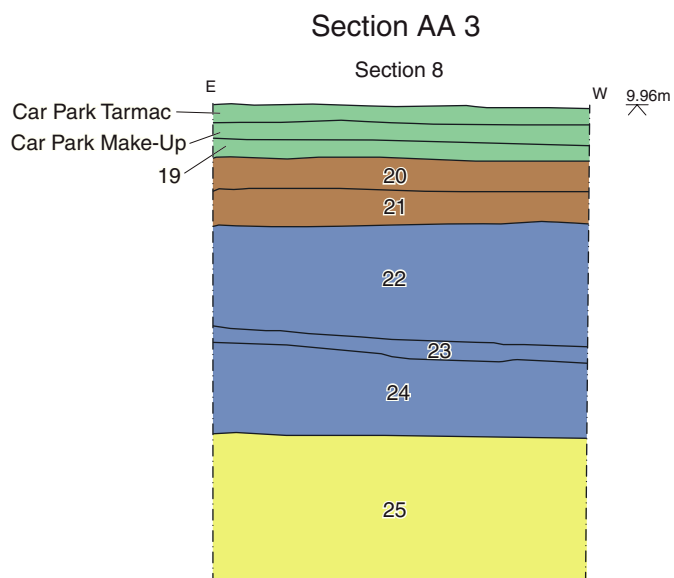
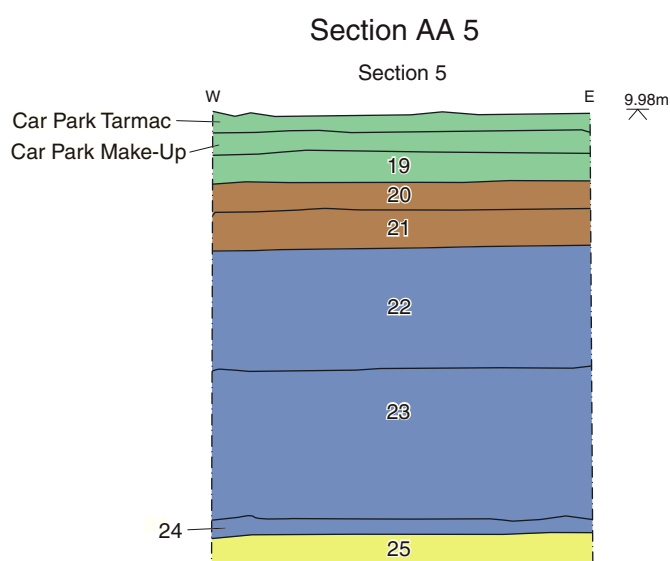
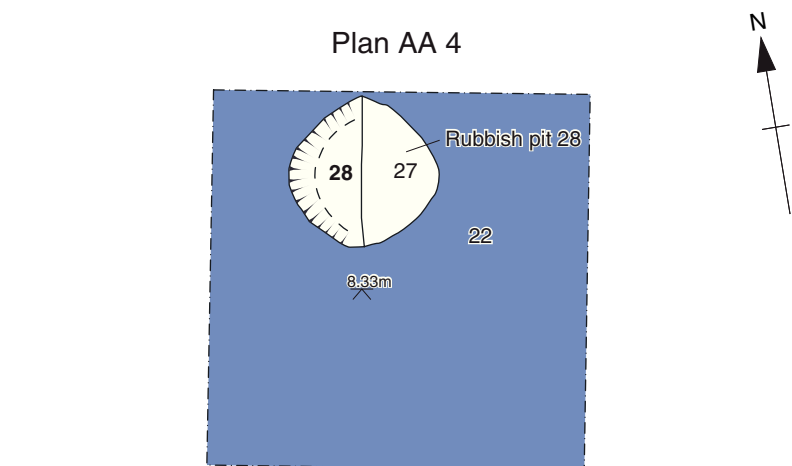


Figure 3b: Plan of additional AAs



0 2 m

1:50

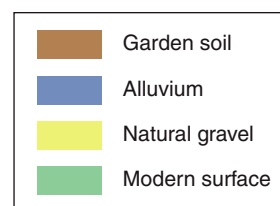


Figure 4: AAs 3 and 5, Sections 8 and 5, AA4 - plan

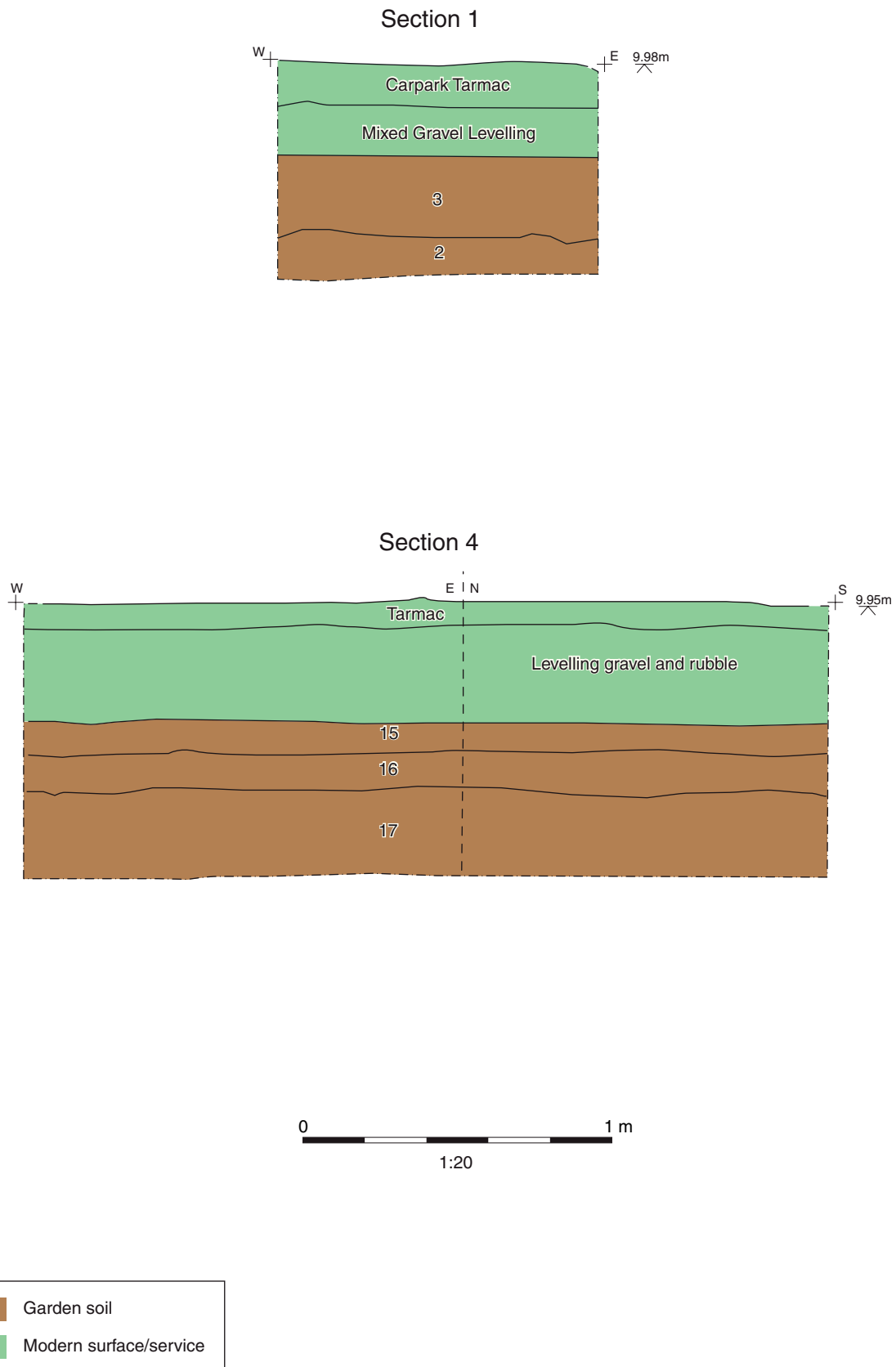
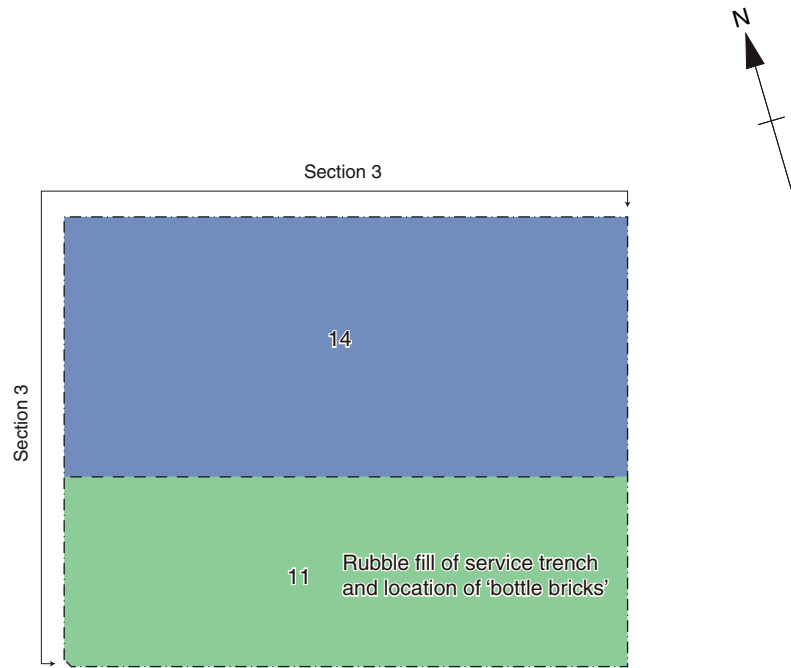


Figure 5: AA13 Sections 1 and 4



Section 3

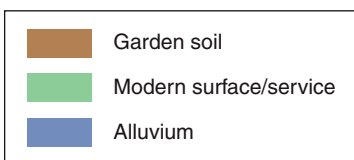
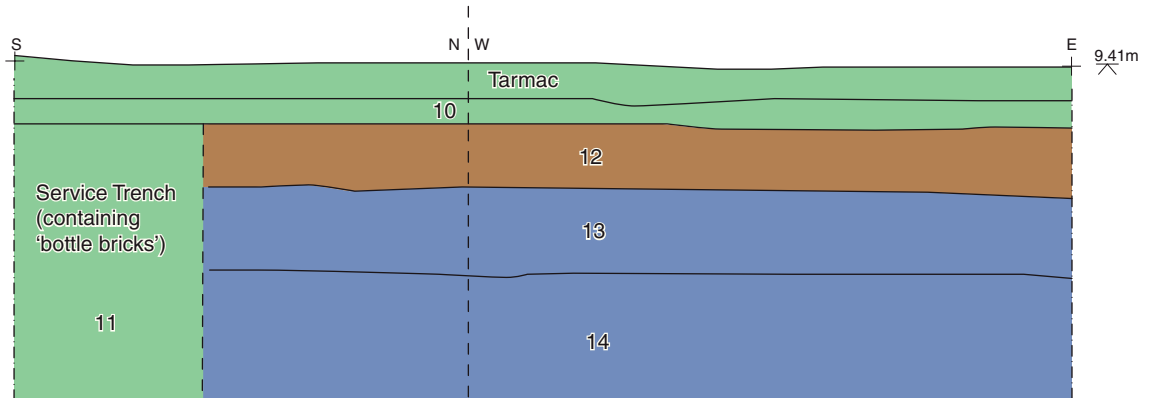
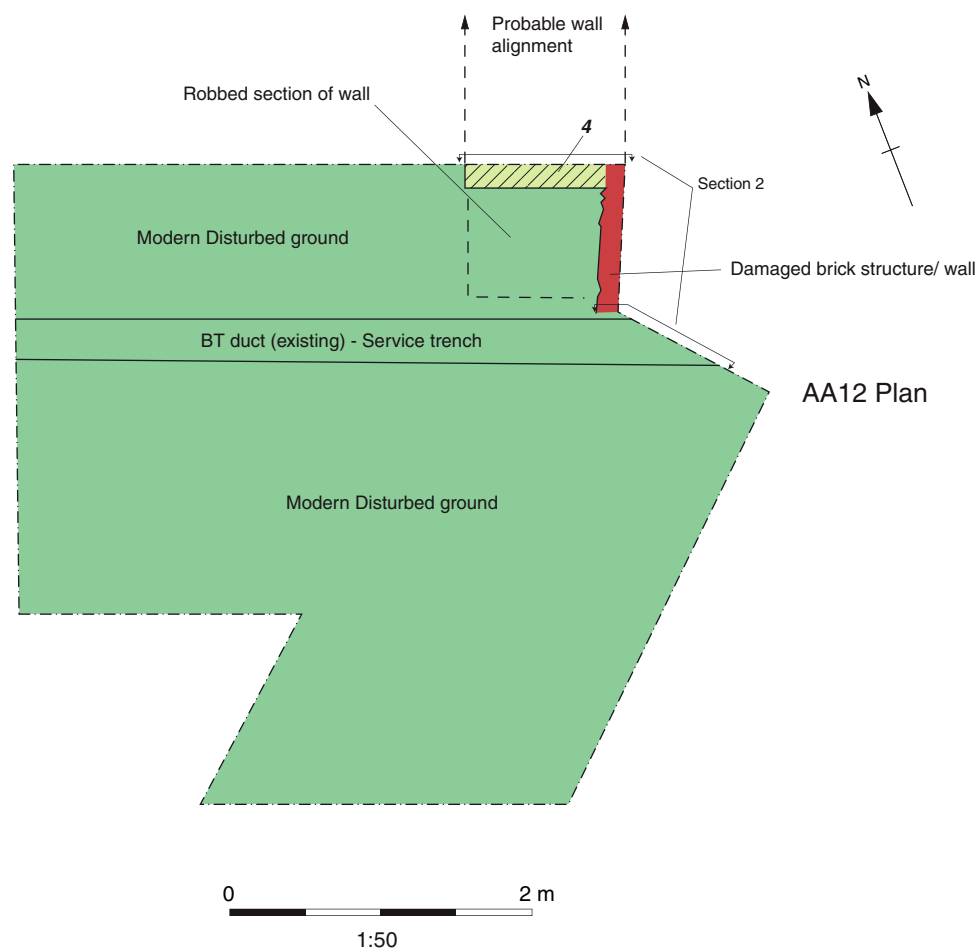


Figure 6: AA6 Plan and Section 3



Section 2 - Composite Illustration

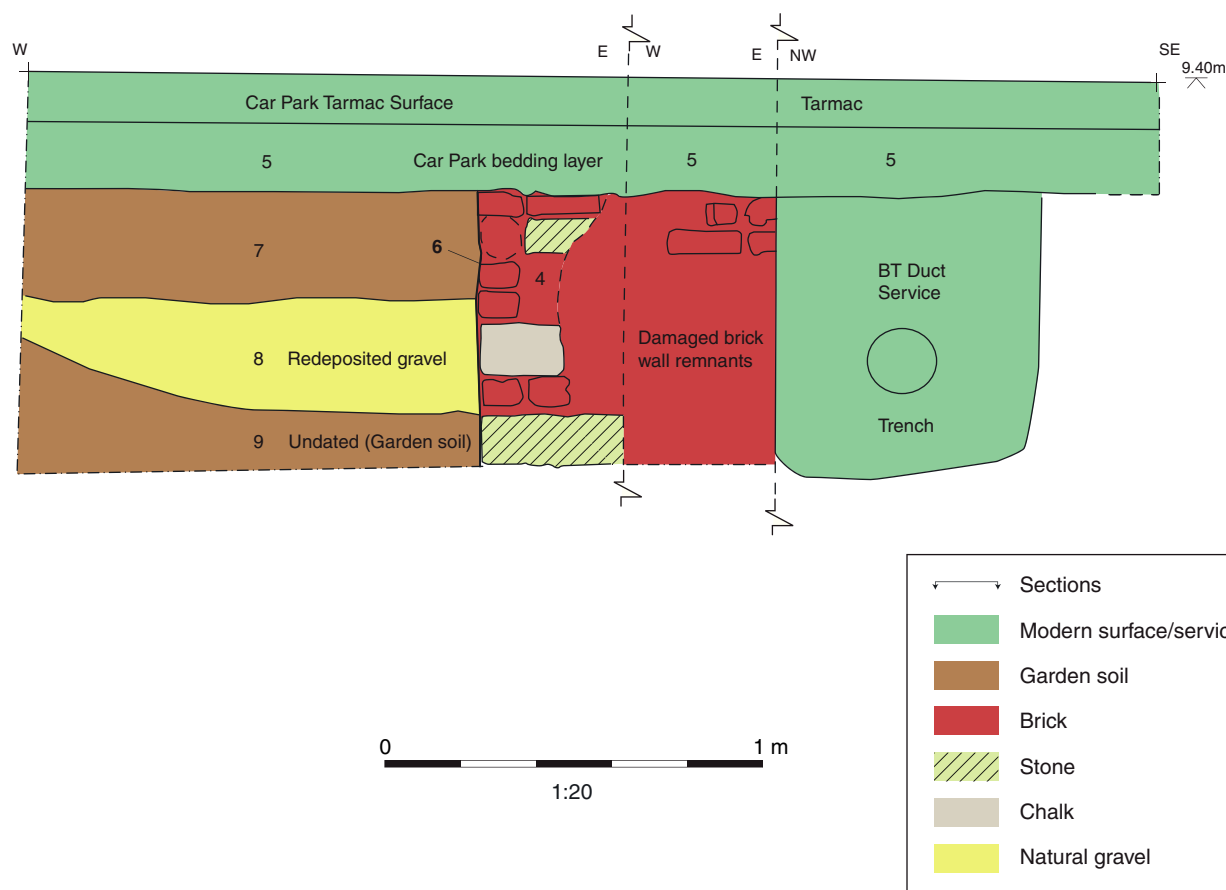


Figure 7: AA12 plan showing sandstone wall (4) at base of trench, Plan and Section 2

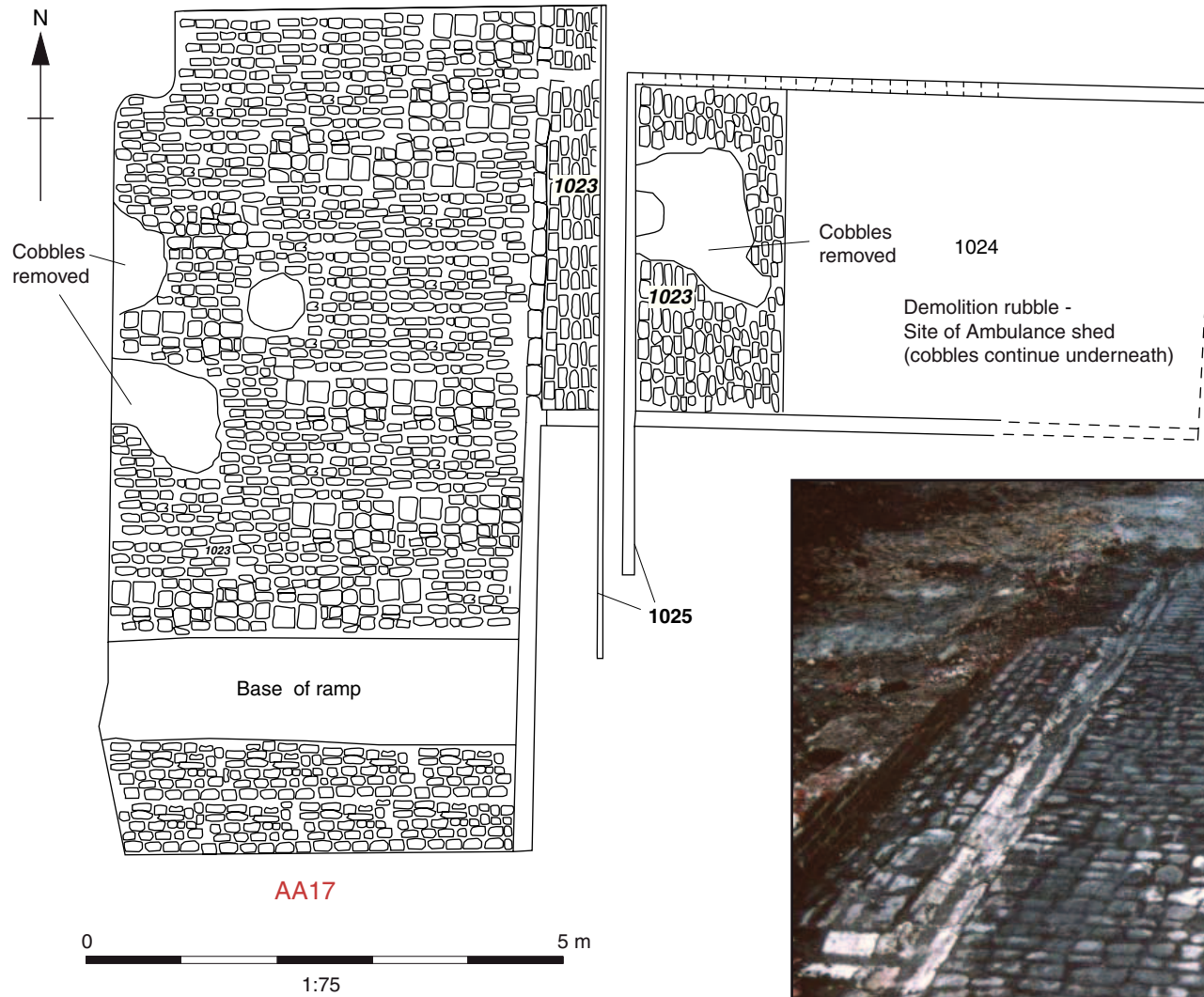


Figure 8: Part of late 19th century cobbled surface

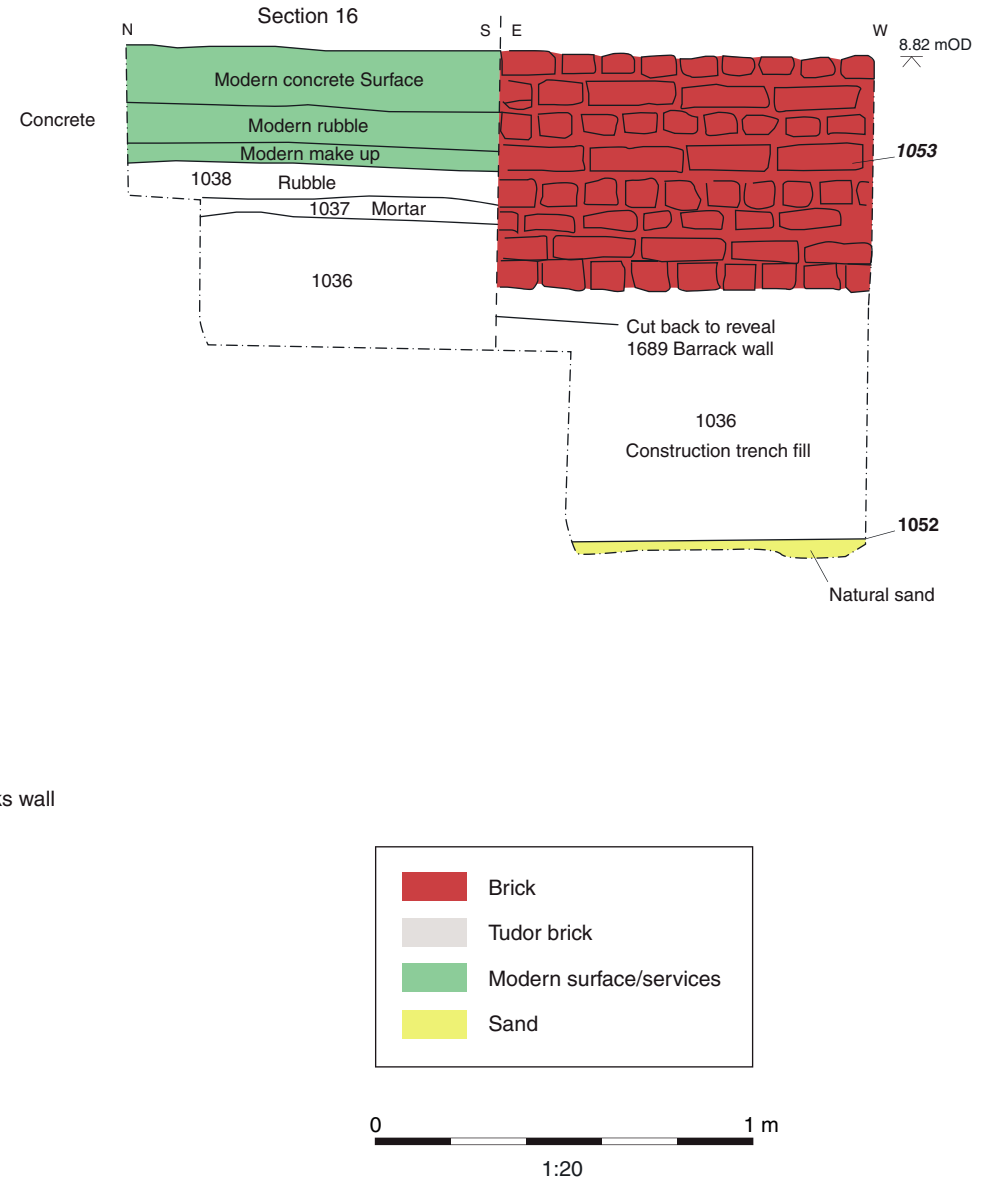
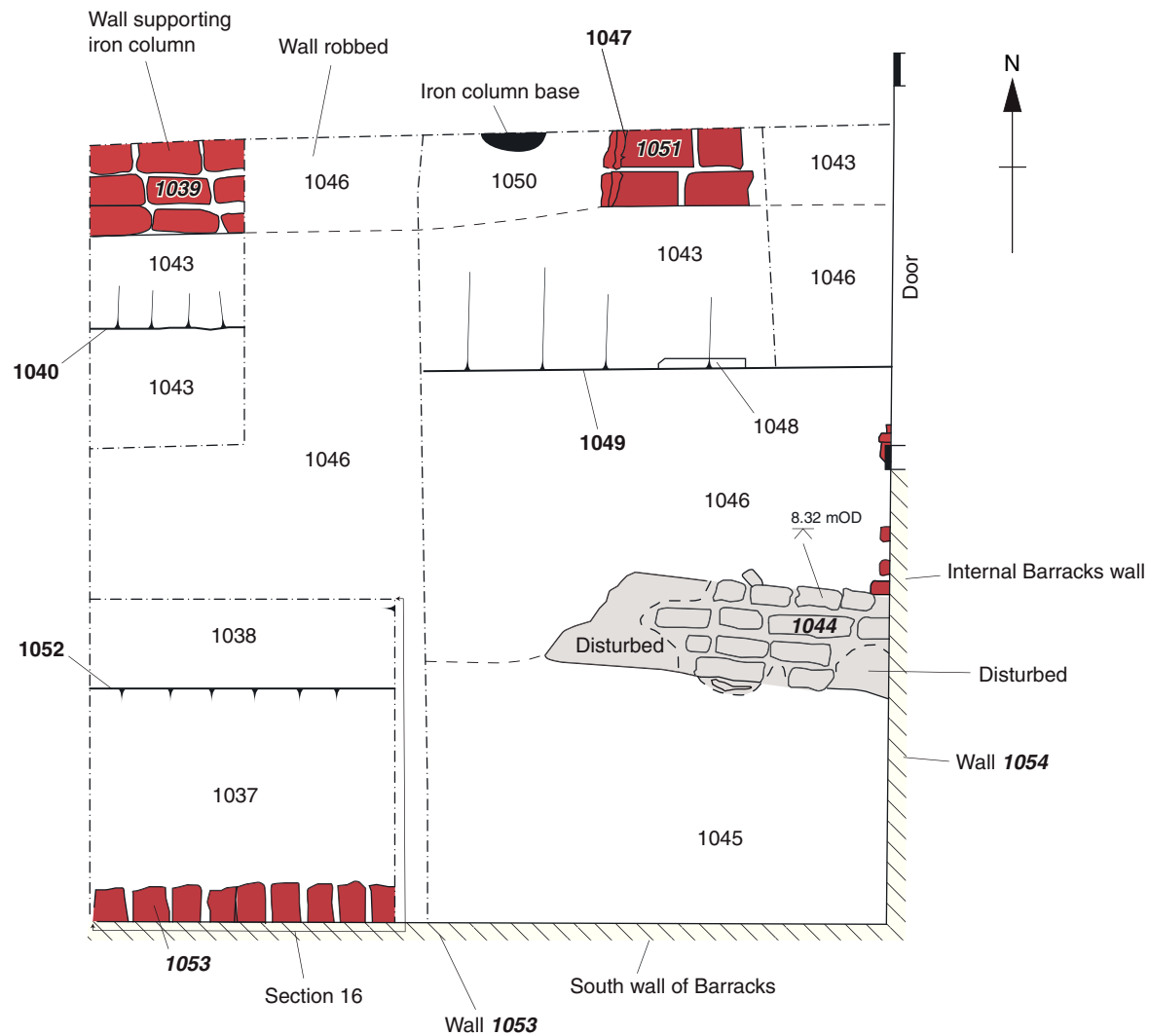


Figure 9: AA18 - Lift Pit in the Barracks

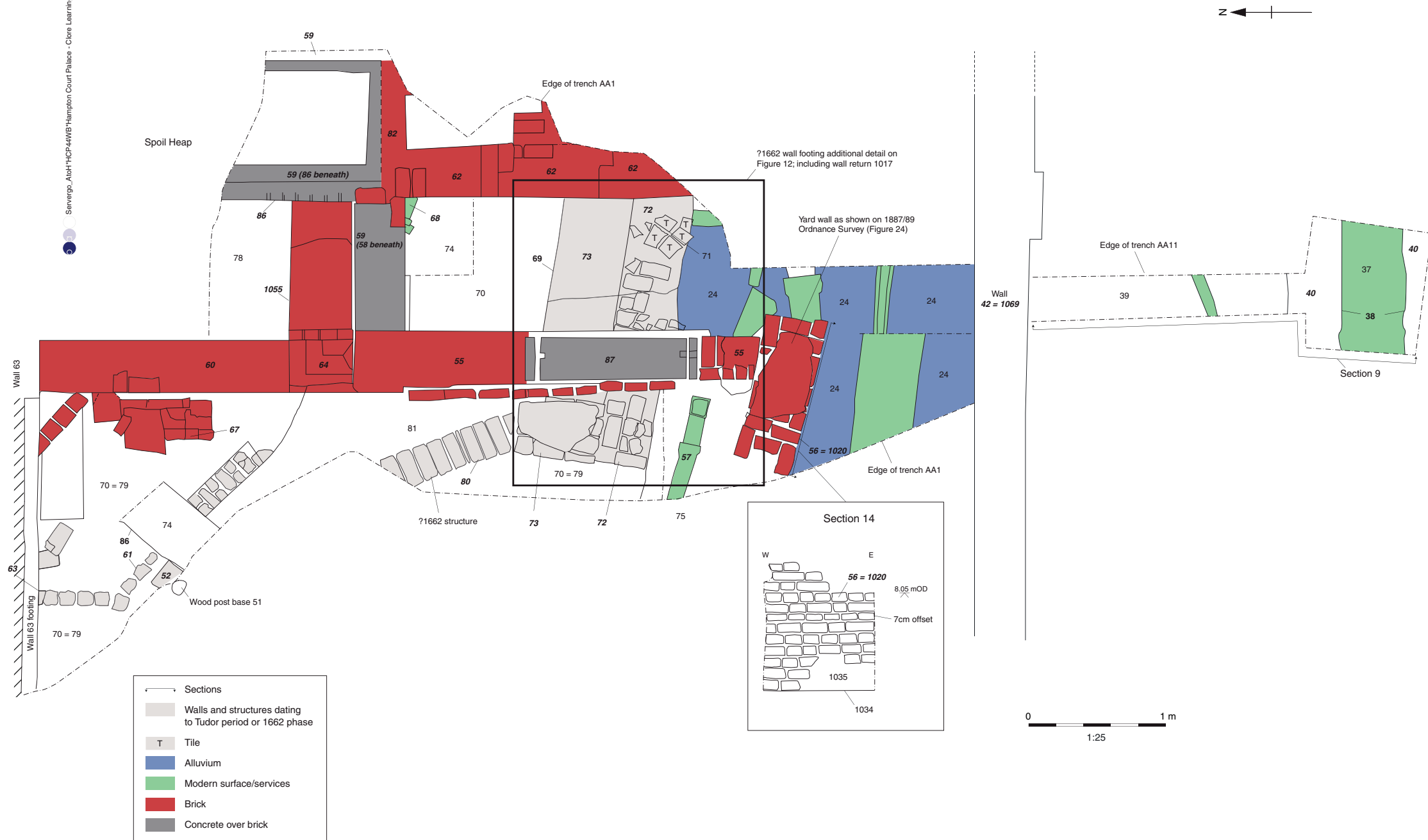


Figure 10: Main excavation area of latrine blocks: AA1 and AA11



- Change of build
- Robbing

Figure 11: Digital photo showing phasing of latrine block, looking South

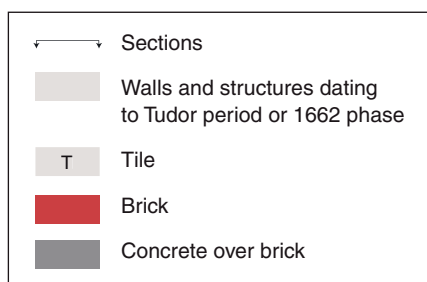
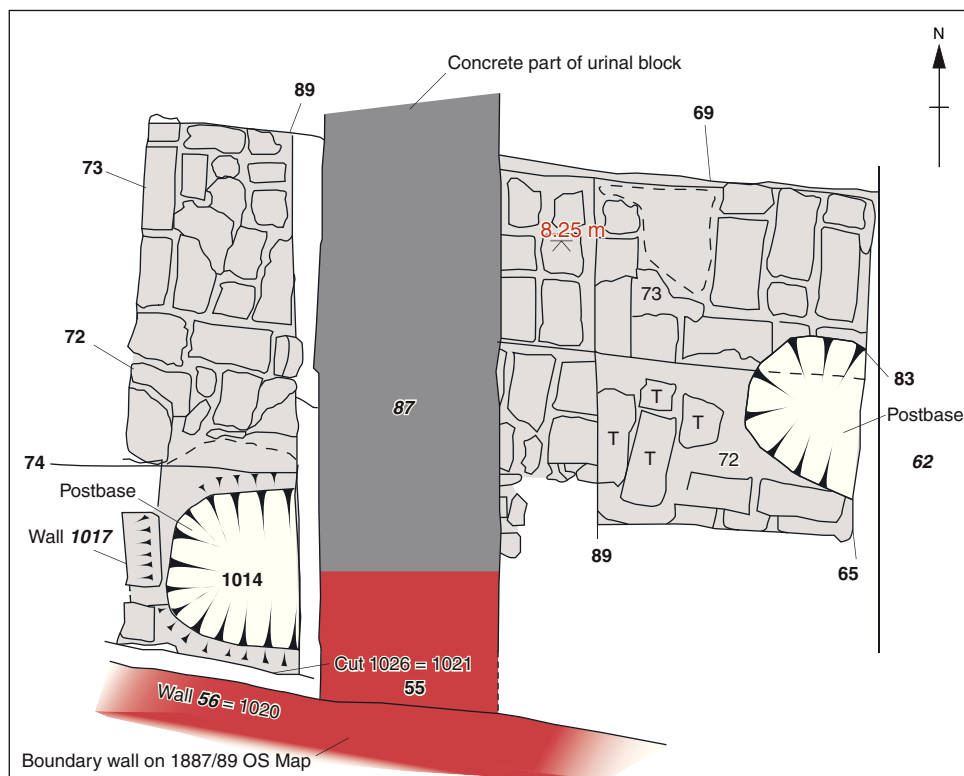


Figure 12: Detailed plan of Tudor walls 72/73

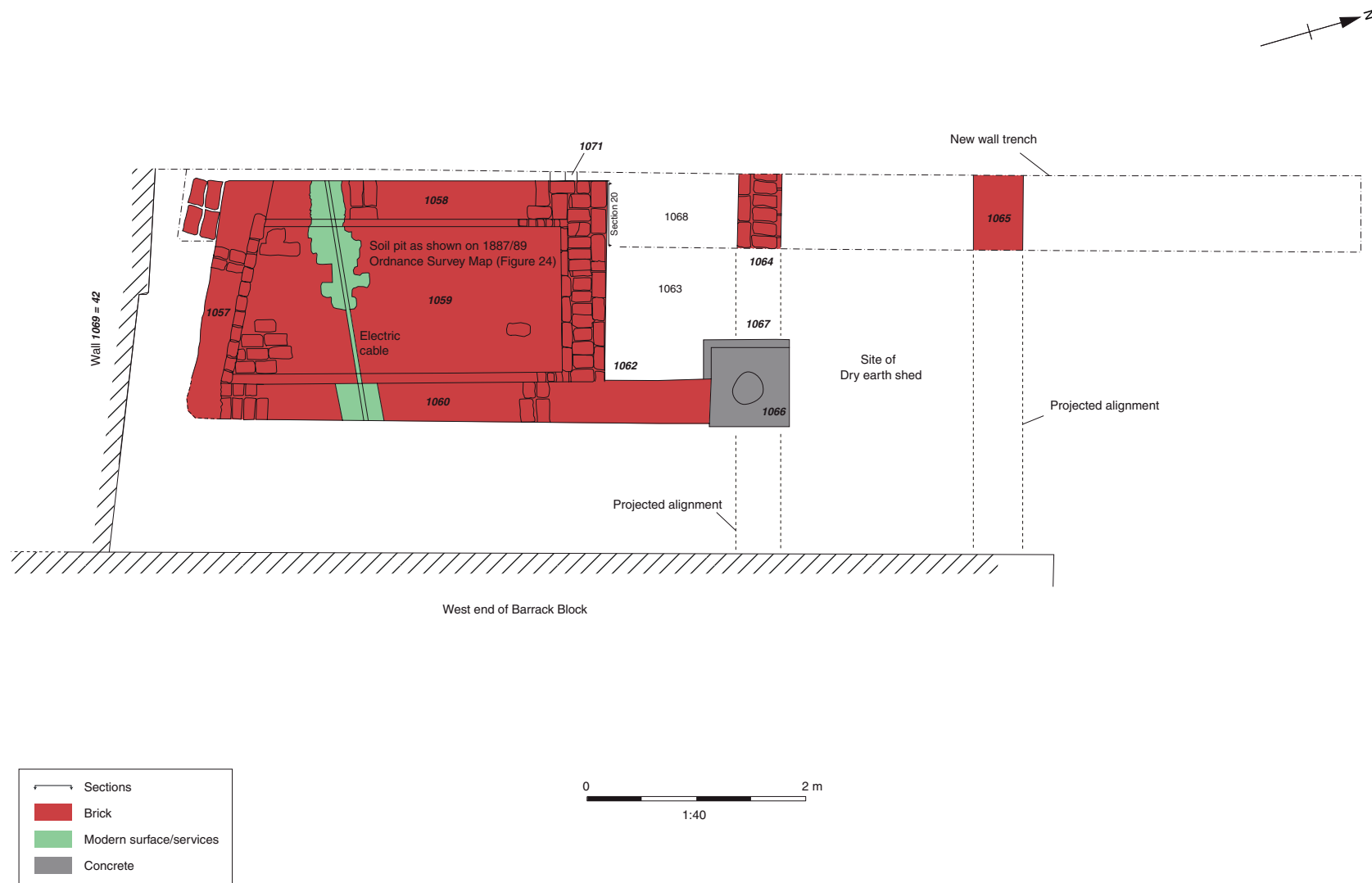


Figure 13 : Plan of rectangular brick structure (soil pit 1070 in AA22)



Figure 14: Soil pit 1070, looking South

Section 9

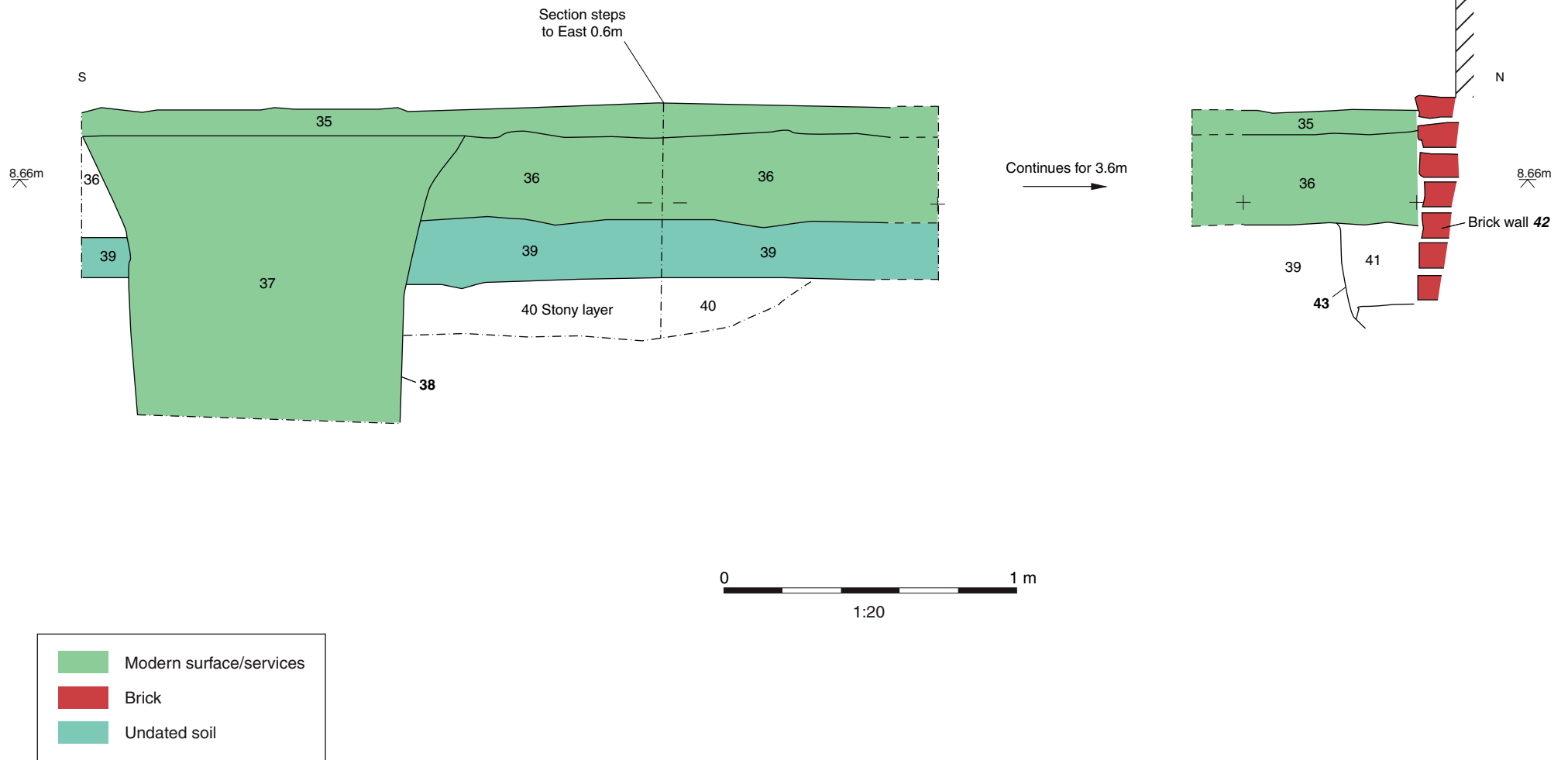


Figure 15: AA11, detail South of wall 42, possible surface 40 and boundary wall 42



Figure 16: Plan of possible well 1007 in AA16

First floor

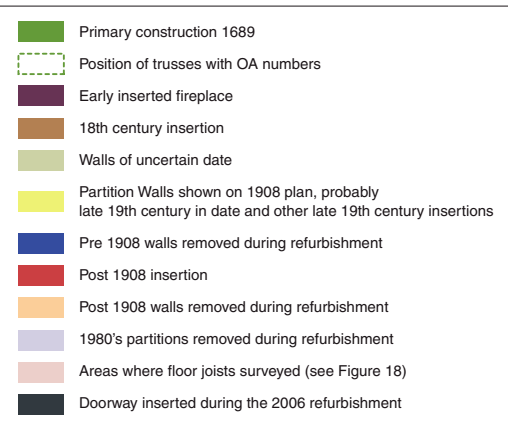
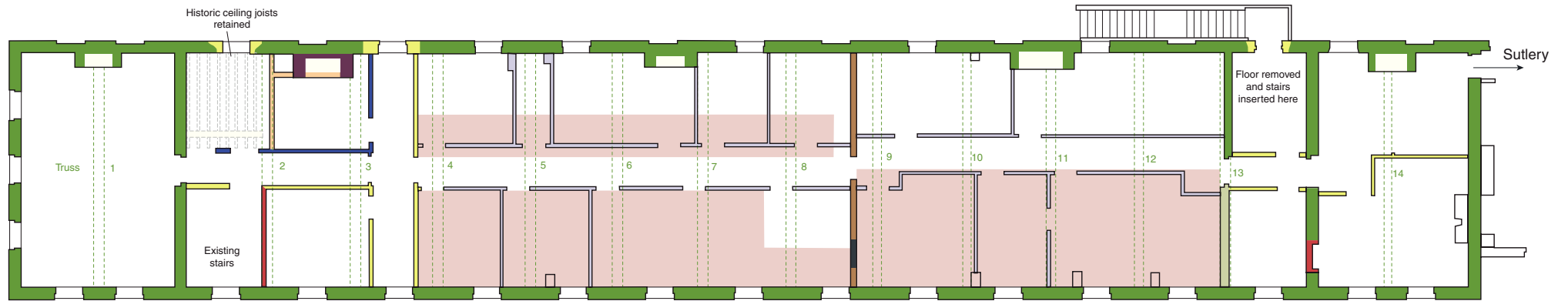


Figure 17: First Floor plan

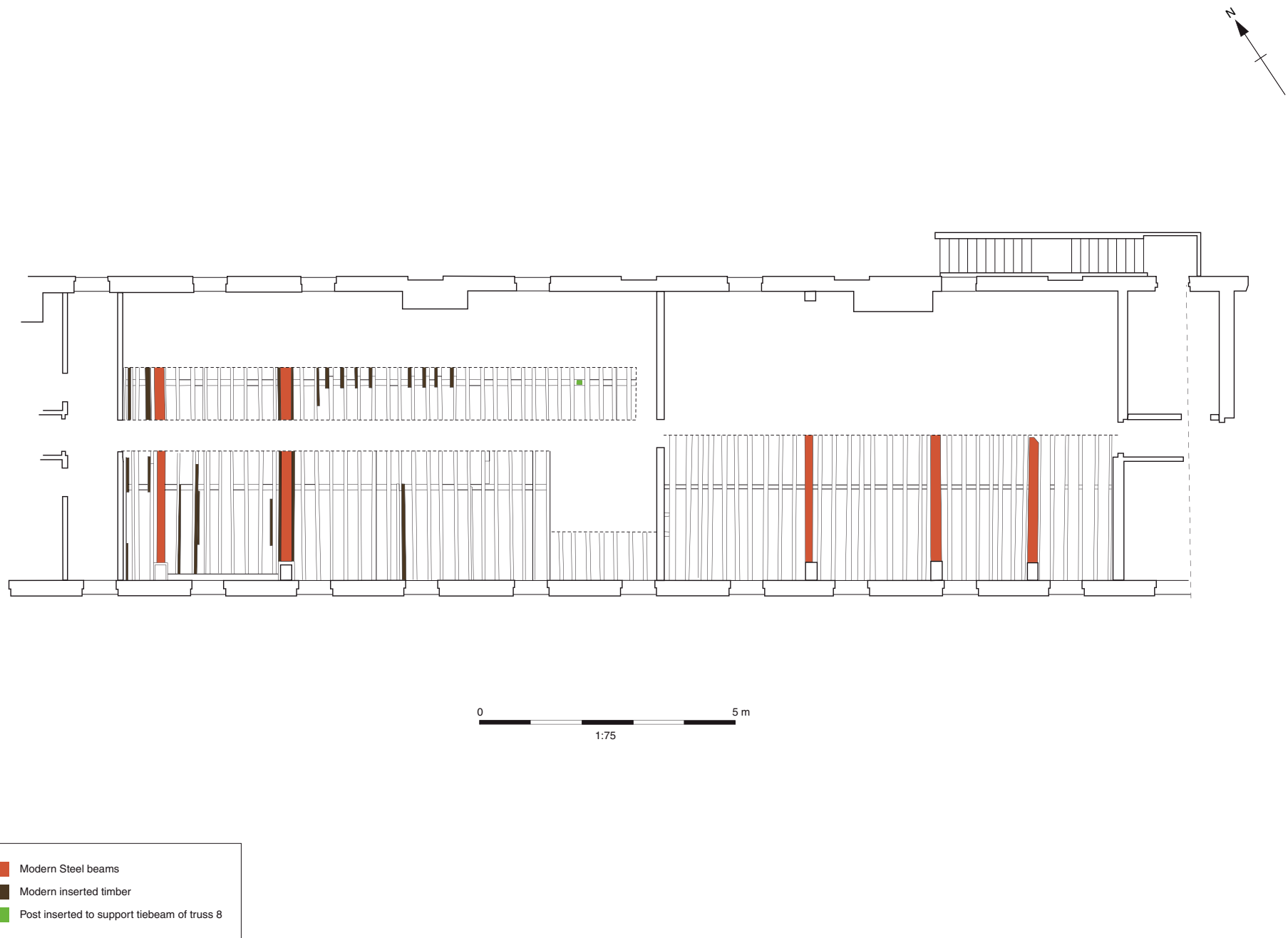
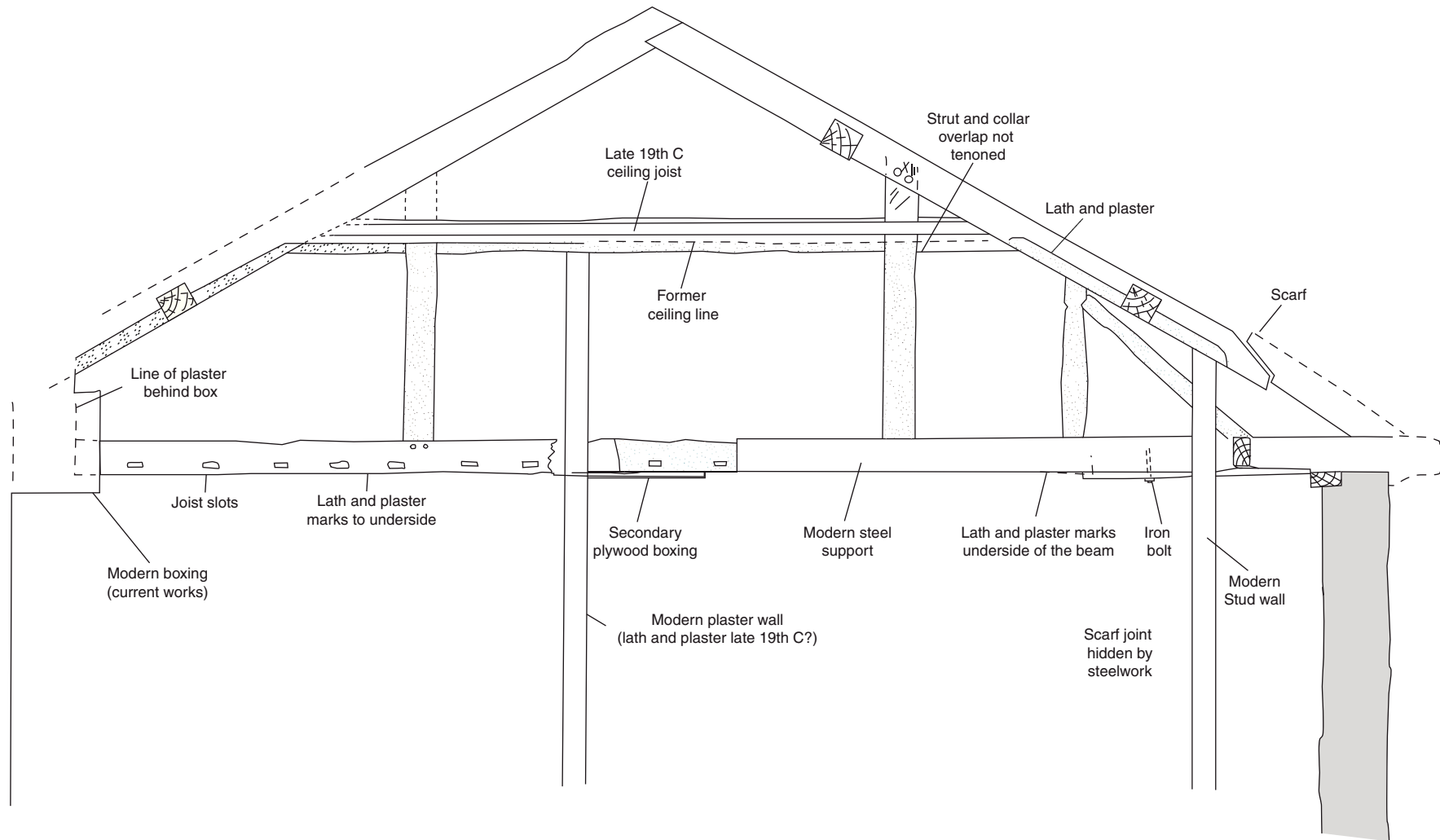


Figure 18: Survey of first floor joists



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KEY

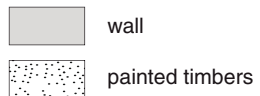


Figure 19: Truss 3, East Elevation

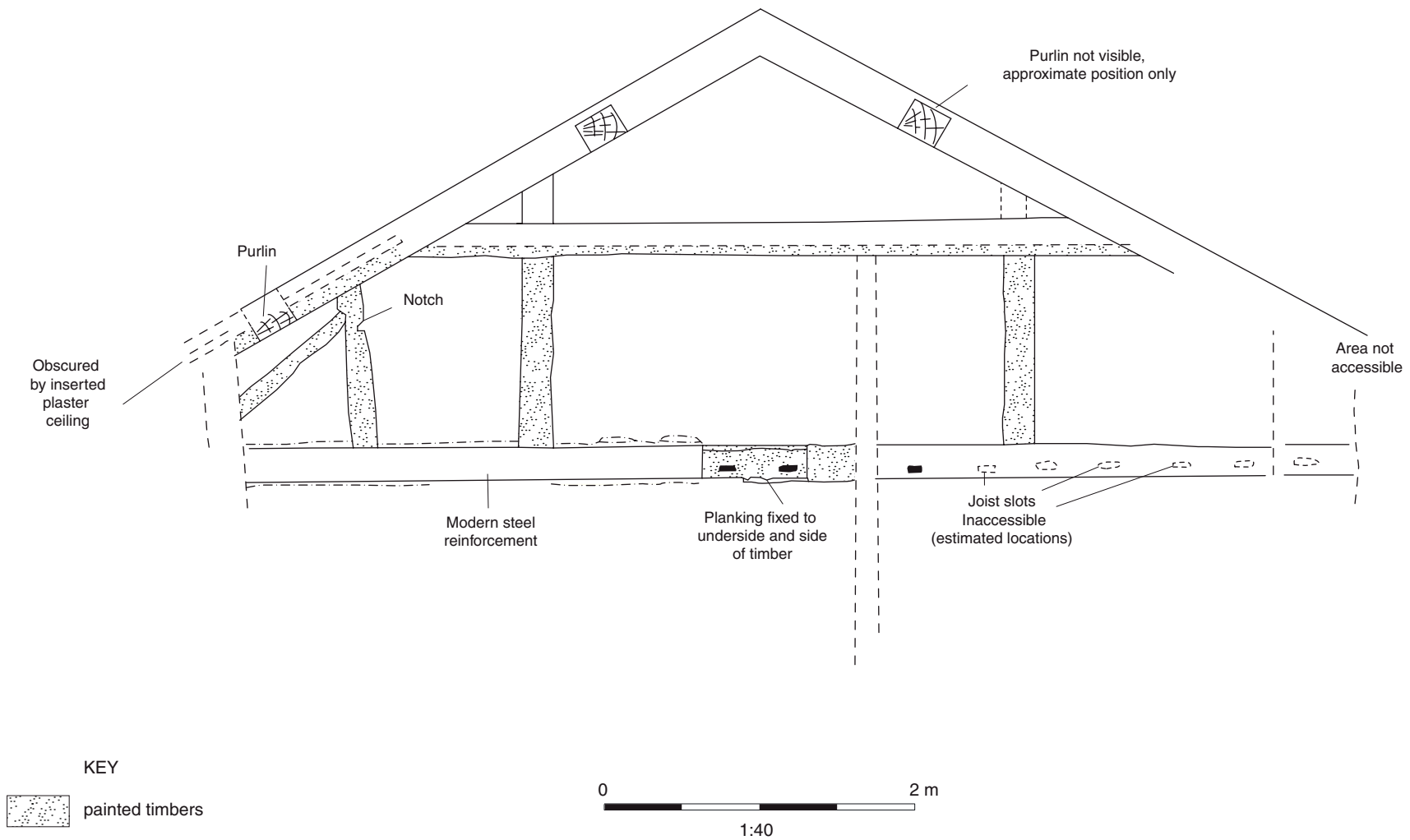


Figure 20: Truss 3, West Elevation

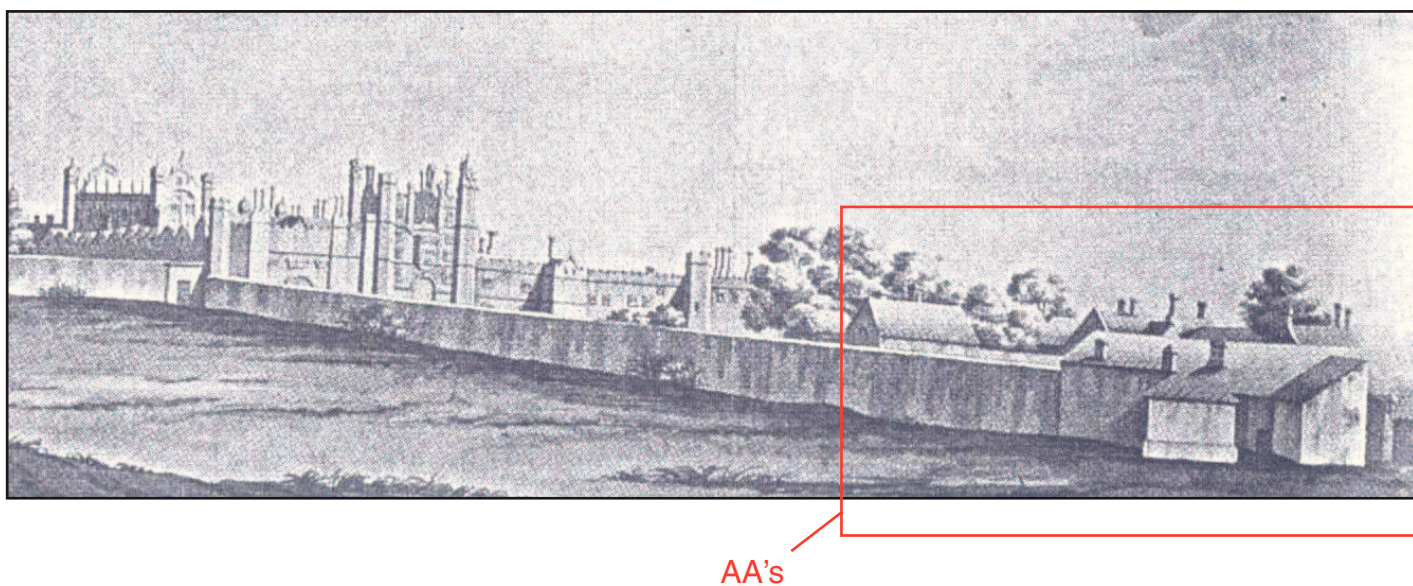
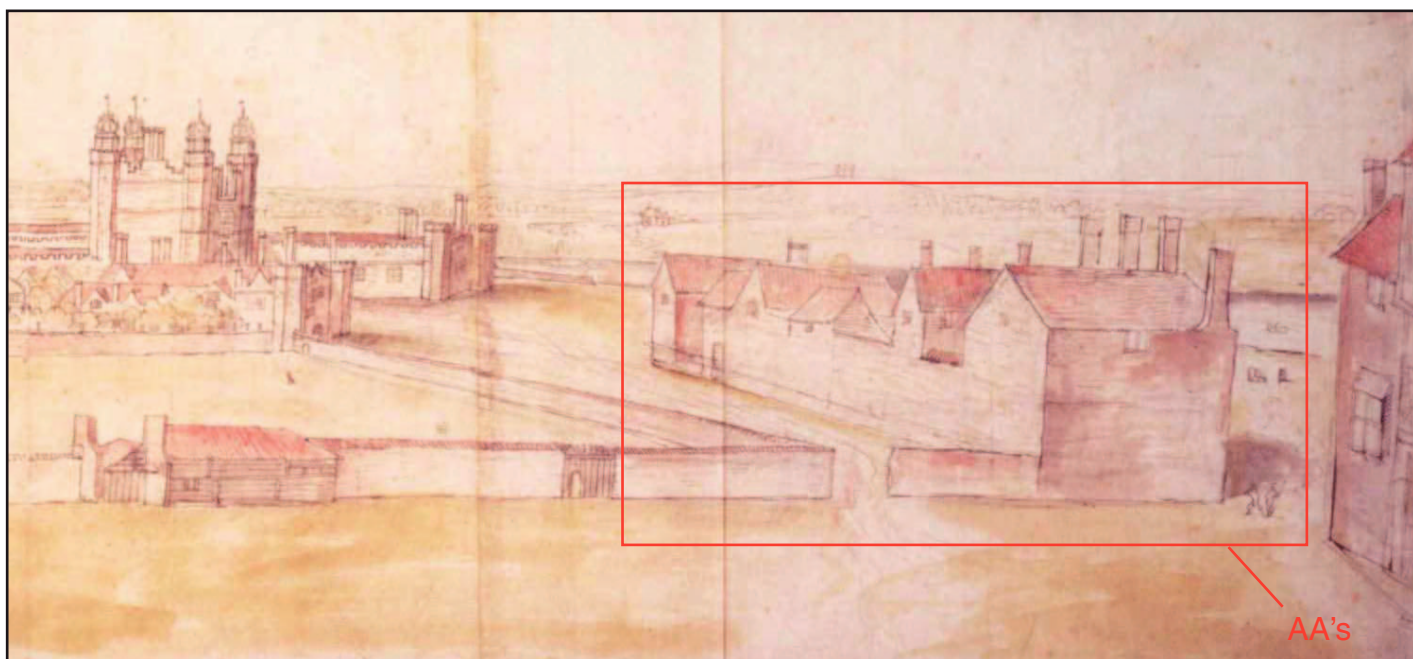


Figure 21: Extract from Wyngaerd's view of the Palace:1558 (top) and view from north-west commissioned by Cosimo III de Medici in 1669. Range of buildings in approximate area of AA1

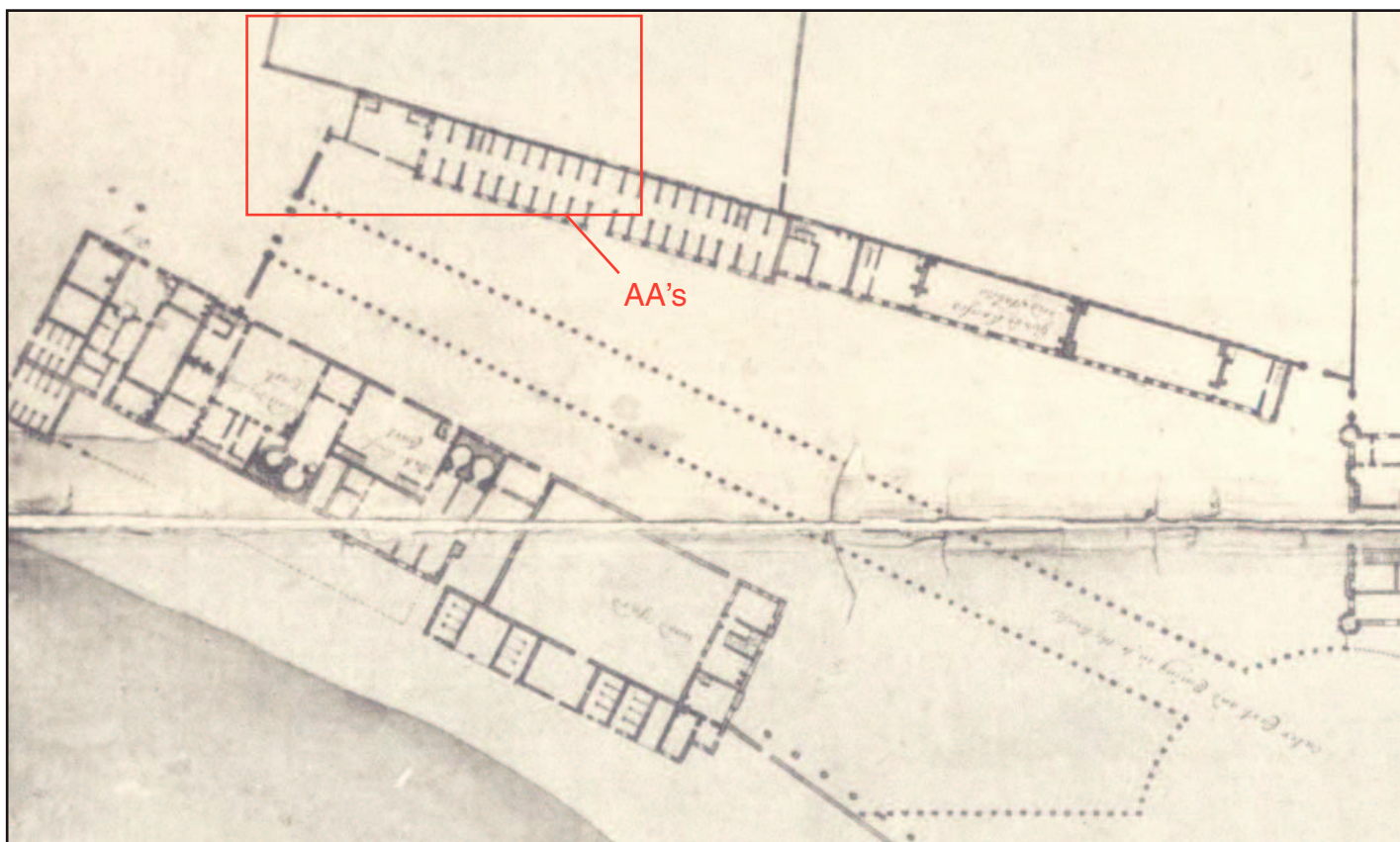


Figure 22: Hawkmoor's c.1700 Estate plan (top) and Estate plan dated 1710-14 (bottom), showing the development of the walls/buildings west of the barracks

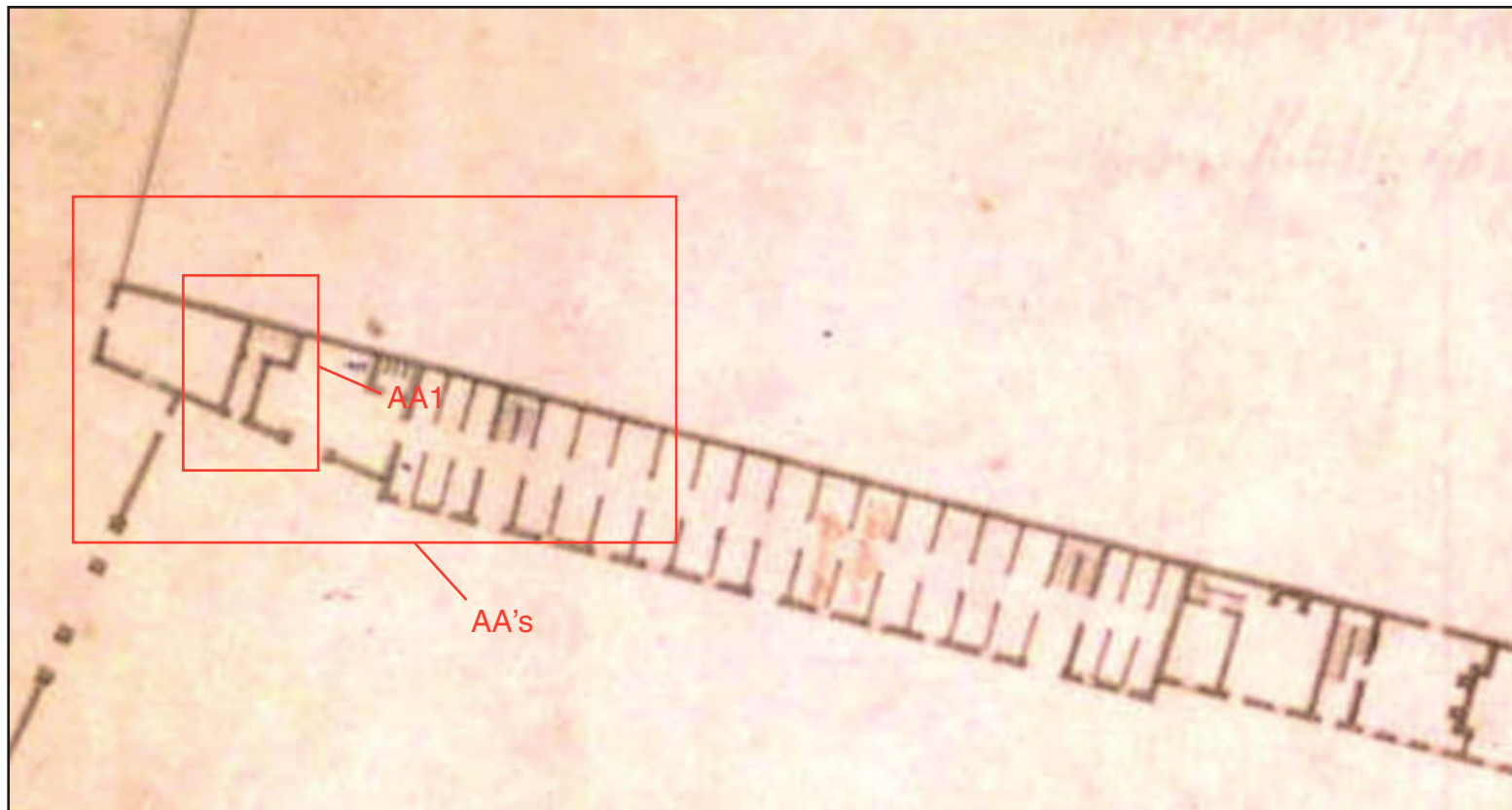


Figure 23: Ground Floor plan pre-1731

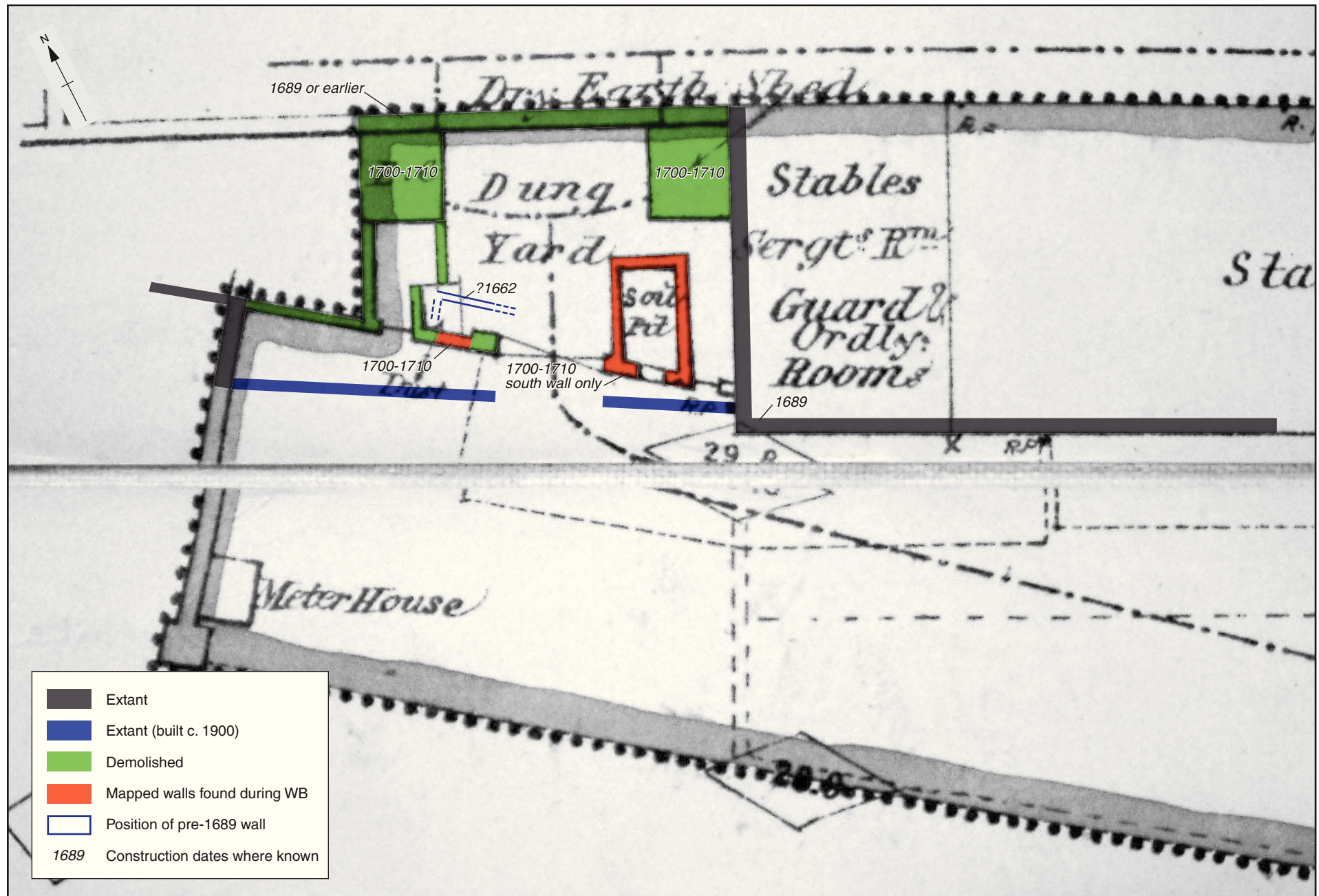
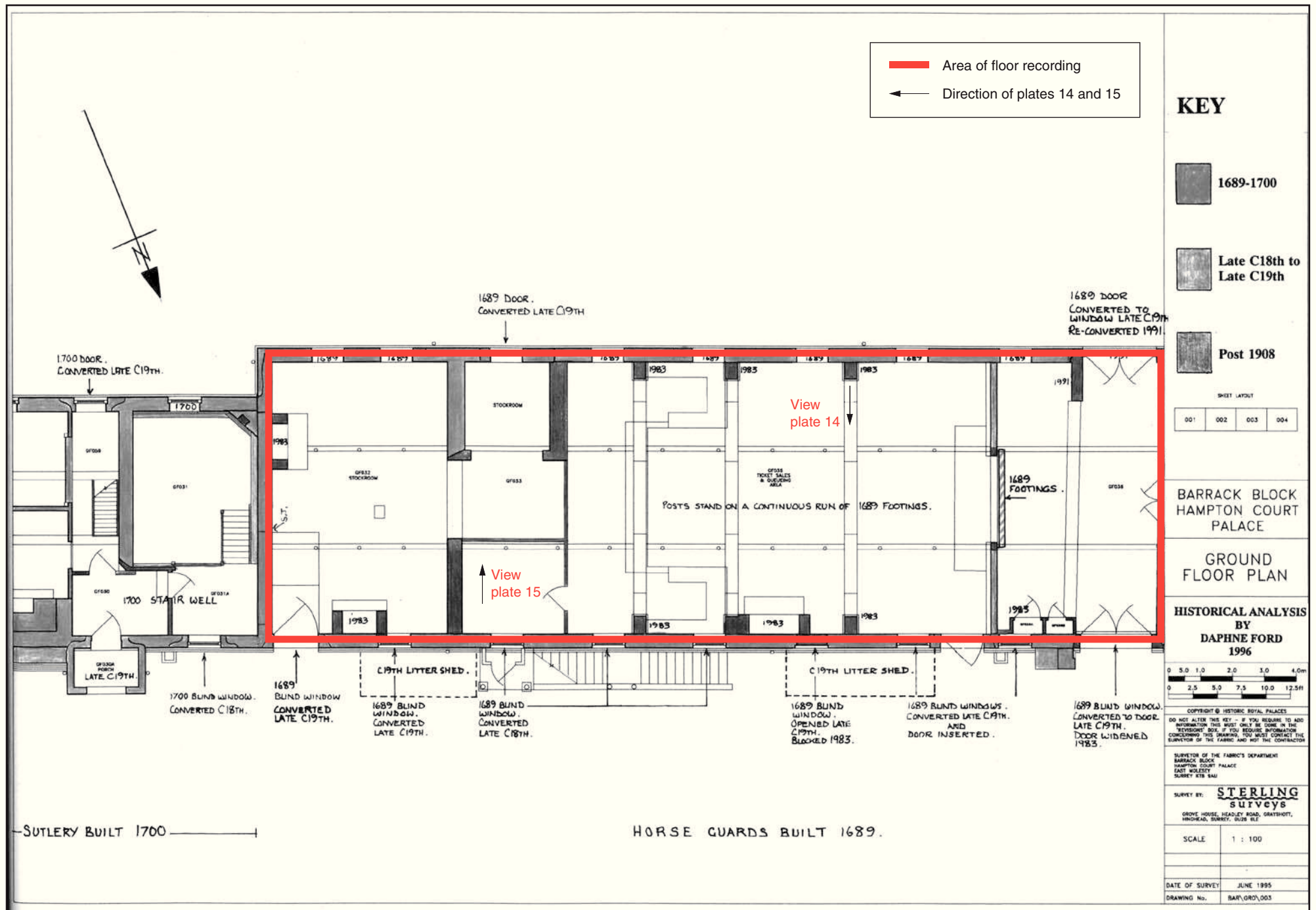


Figure 24: Plan of barrack block 1887/89 Ordnance survey: NA/LRRO 1/4438 with interpretation of principal structures located during the watching brief

Figure 25: Plan of Barracks 1908: Ordnance Survey - HRP Plan Archive



Not to scale

Figure 26: Ford, D 1996, Barrack Block Hampton Court Palace - Historic Analysis - Ground Floor Plan - Sterling Surveys. BAR/GRO/001-4 and FIR/001-004; location of stable floor recording and direction/view of plates



Plate 1: AA1 Tudor walls 72 and 73



Plate 2: AA1 Stone post base and rotted post, ctx 51, 52



Plate 3: AA1 looking south



Plate 4: Wall 56 looking north



Plate 5: Stone/concrete step on wall 55



Plate 6: Cobbled surface 1023 in area of ambulance shed. Looking north with drains to the west of the shot

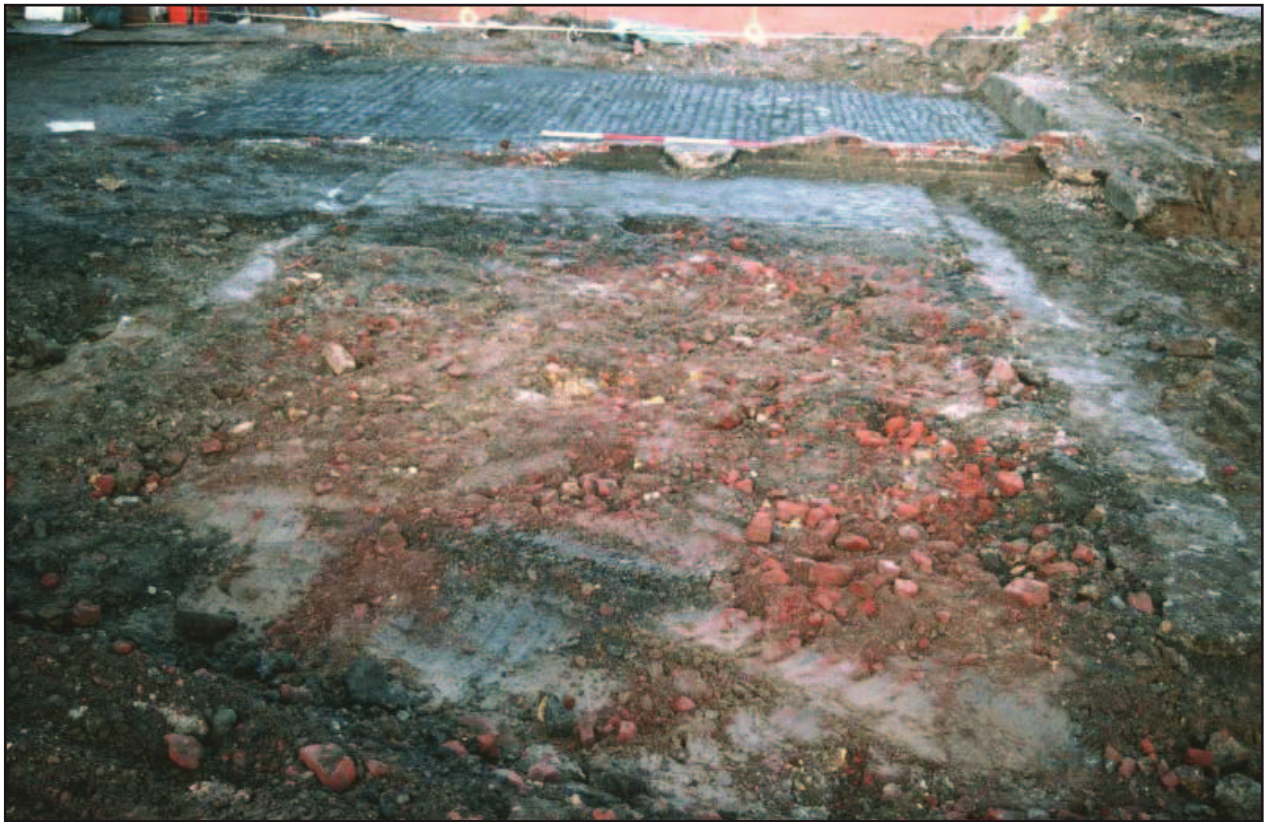


Plate 7: Cobbled surface 1023 looking west, remains of Ambulance Shed in the foreground.



Plate 8: General view of east barrack room looking west



Plate 9: First floor joists on south side of east barrack room



Plate 10: East elevation of closed truss (truss 2) with primary stairwell ceiling joists behind



Plate 11: Exposed brickwork of chimney breast (centre right) and inner face of exterior north wall (extreme right)



Plate 12: Typical open roof truss (west face of truss 11)



Plate 13: Statuary hand, context 1063



Plate 14: Stable floor view NE, see figure 26



Plate 15: Stable floor view S, see figure 26



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Director: David Jennings, BA MIFA FSA

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