



OASIS ID: mdaaw1-7441

SO: SLO80115

EV: E206351

\*SO: SLO77683

Man: MLO 78414 (Fine debris)

MLO 78416

040166

21 LIME STREET  
London  
EC3

City of London

An archaeological post-excavation assessment report

MLO99074

March 2005

MLO 99051

MLO 99077

MLO 99078

PLANNING & TRANSPORTATION		
PSDD	CPO	PPD
TPD	23 JUN 2005	ITP
OM		SSE
No		PP
FILE		DD



MUSEUM OF LONDON

Archaeology Service

Qe

21 LIME STREET  
London  
EC3

City of London

An archaeological post-excavation assessment report

Site Code: LME01  
National Grid Reference: 533060 180980

Project Manager

Sophie Jackson  
Richard Malt  
Peter Rowsome  
and David Bowsher  
Lesley Dunwoodie  
Jane Dunn

Author  
Graphics

Museum of London Archaeology Service  
© Museum of London 2005  
Mortimer Wheeler House, 46 Eagle Wharf Road, London N1 7ED  
tel 020 7410 2200 fax 020 7410 2201  
email [molas@molas.org.uk](mailto:molas@molas.org.uk)  
web [www.molas.org.uk](http://www.molas.org.uk)

## Executive summary

This report presents the assessed results of excavations at 21 Lime Street between 1999-2003, incorporating findings from the 1990 trial work. The excavations uncovered important new evidence for the origins and development of London, and particularly of the Roman forum. The report summarises what was found, the post-excavation assessment work that has been done, and its significance. Proposals for analytical work and publication are set out along with identification of the resources required. This report is written and structured to conform to the standards required of post-excavation assessment and analysis work as set out in *Management of Archaeological Projects* (English Heritage, 1991).

The first part of this report (Sections 1-5) deals with the site assessment. The planning background and excavation history of the site (Section 1) is followed by a summary of the historical and archaeological background (Section 2). Original research aims, first set out in the Project Design, are described in Section 3. The archaeological sequence, as excavated, is described in Section 4. Section 5 quantifies the archive – stratigraphic, finds and environmental – and its assessment.

The most readily recognisable and significant excavation findings from the site are early Roman buildings and the subsequent foundations and floors of Roman London's second forum. Although the excavation and mitigation programme meant that much of the work took place within small excavation areas, the overall results provide valuable information into the layout of the east wing of the forum. The post-Roman sequence from the site was severely truncated and requires only very selected analytical work.

Sections 4 and 5 form the basis for summarising the potential of the data collected (Section 6) and its significance (Section 7). These are then discussed in reference to a series of revised research aims and publication of the results (Section 8). The revised research aims place particular emphasis on the opportunity to improve our understanding of the layout and construction of the second forum, one of Roman Britain's largest and most important public buildings. Collaborative work between MoLAS and a civil engineering consultant has the potential to develop significant new ideas and conclusions about the design and structure of the entire forum-basilica complex.

The publication proposed is a major paper in LAMAS. This paper will include a full chronological narrative but will place the textual emphasis on the Roman sequence and on the evidence for the second forum and new approaches to its interpretation. Finds and environmental evidence will be included in the narrative as appropriate. The published LAMAS paper will be supported by the research archive, which will be deposited with the LAARC and available to researchers upon request.

The detailed tasks and work required to complete the analysis and publication are set out in Section 9. The financial requirements for this work have been identified and agreed with the client and will form the basis for the discharge of planning conditions. A breakdown of the resources needed is shown in Section 10. A detailed financial breakdown and programme are not included here but will be available upon request. Acknowledgements, a completed OASIS form and a bibliography complete this report (Sections 11-13).

## Contents

<b>1</b>	<b>Introduction</b>	<b>7</b>
1.1	Site location	7
1.2	The scope of the project	9
1.3	Circumstances and dates of fieldwork	9
1.4	Organisation of the report	12
<b>2</b>	<b>Historical and archaeological background</b>	<b>13</b>
2.1	Topography	13
2.2	Prehistoric	13
2.3	Roman	13
2.4	Saxon	14
2.5	Medieval	14
2.6	Post-medieval	14
<b>3</b>	<b>Original research aims</b>	<b>15</b>
<b>4</b>	<b>Site sequence: interim statement on field work</b>	<b>17</b>
4.1	Introduction	17
4.2	Natural and topography	17
4.3	Pre-Boudican occupation (AD50-60)	17
4.4	Flavian (late 1st century)	18
4.5	The second forum (AD100-300)	19
4.6	Late Roman activity	20
4.7	Medieval and post-medieval activity	20
<b>5</b>	<b>Quantification and assessment</b>	<b>28</b>
5.1	Post-excavation review	28
5.1.1	<i>Tasks accomplished</i>	28
5.2	The stratigraphic archive	29

<b>5.3</b>	<b>The finds and environmental archive</b>	<b>29</b>
5.3.1	<i>Building material</i>	29
5.3.2	<i>Roman pottery</i>	32
5.3.3	<i>Post-Roman pottery</i>	37
5.3.4	<i>Accessioned finds</i>	46
5.3.5	<i>Coins</i>	51
5.3.6	<i>Iron slag</i>	52
5.3.7	<i>Plant remains</i>	54
5.3.8	<i>Animal bone</i>	55
5.3.9	<i>Conservation</i>	59
<b>6</b>	<b>Potential of the data</b>	<b>61</b>
6.1	Realisation of the original research aims	61
6.2	General discussion of potential	63
<b>7</b>	<b>Significance of the data</b>	<b>66</b>
<b>8</b>	<b>Publication project: aims and objectives</b>	<b>68</b>
8.1	Revised research aims	68
8.2	Preliminary publication synopsis	69
8.2.1	<i>Proposed structure</i>	69
<b>9</b>	<b>Publication project: task sequence</b>	<b>71</b>
9.1	Stratigraphic analysis	71
9.2	Roman pottery	72
9.3	Post-Roman pottery	72
9.4	Accessioned finds	73
9.5	Building material	73
9.6	Coins	74
9.7	Iron slag	74
9.8	Botany	74

9.9	Animal bone	74
9.10	Conservation	75
9.10.1	<i>Finds analysis</i>	75
9.10.2	<i>Preparation for illustration</i>	75
9.10.3	<i>Preparation for deposition in the archive</i>	75
9.11	Finds review and updated publication synopsis	76
9.12	Graphics	76
9.13	Photography	76
9.14	Documentary research	76
9.15	Write publication text	77
9.16	Editing and production (including printing)	77
9.17	Project management, programming and meetings	77
9.18	Archive deposition	77
10	Publication project: resources and programme	78
11	Acknowledgements	80
12	OASIS DATA COLLECTION FORM	81
13	Bibliography	84

## Figures

*Front cover: Excavation work progressing around the north-south wall of the central range of the second forum*

Fig 1 Site location	8
Fig 2 Site plan showing areas of evaluation and excavation between 1999-2003 (evaluation cores have been omitted for clarity)	11
Fig 3 Pre-Boudican buildings recorded in Areas 1 and 3 in the south-west part of the site	21
Fig 4 A pre-Boudican building recorded in the south-west part of the site	22
Fig 5 Late 1st-century structural remains recorded on the western half of the site	23
Fig 6 Remains of the east wing of the second forum (c AD100-300) and a road to its east	24
Fig 7 A pre-Boudican flint and tile wall footing associated with a building in Area 3W	25
Fig 8 A late 1st-century tile-lined oven built against the mudbrick wall of a building in Area 2	25
Fig 9 A fragment of the partly-robbed second forum outer wall, recorded in a ground beam trench in Area 5; the outer portico floor can be seen in the background	26
Fig 10 Part of an opus signinum floor, in the outer portico of the second forum, recorded in Area 3E	26
Fig 11 A partly-robbed north-south wall in the central range of the second forum, recorded in Area 3E	27
Fig 12 A late Roman masonry wall with rendered face, recorded in Area 5	27

## Tables

Table 1 Summary of the stratigraphic archive	29
Table 2 Summary of finds and environmental archive	29
Table 3 Date range of Roman pottery assemblage	33
Table 4 Roman pottery: breakdown by origin	33
Table 5 Roman pottery: breakdown by fabric type	35
Table 6 Roman pottery: breakdown by form	36
Table 7 Sources of supply for the medieval pottery found from LME01 by sherd count, ENV and weight	38
Table 8 Functional categories of medieval pottery found from LME01 by sherd count, ENV and weight	40
Table 9 Date range of the medieval pottery assemblage by TPQ and TAQ by sherd count	41
Table 10 Land use entities with sherd count for the medieval period	41
Table 11 Sources of supply for the post-medieval pottery found from LME01 by sherd count, ENV and weight	43
Table 12 Functional categories of post-medieval pottery found from LME01 by sherd count, ENV and weight	45
Table 13 Summary of accessioned finds by material and period	46
Table 14 Summary of the Roman vessel glass by colour	47
Table 15 Summary of the Roman vessel glass by date	47
Table 16: summary list of coins assessed	51
Table 17 Summary of conservation work	59
Table 18 Concordance of tasks, personnel and resources required	79

# 1 Introduction

## 1.1 Site location

The site is located in the City of London and is bounded by Lime Street to the east, Lime Street passage to the north, 80 Gracechurch Street to the west and the former 22 Lime Street to the south. The centre of the site is at OS National grid Reference 533060 180980.





## 1.2 The scope of the project

The project is based on work undertaken at 21 Lime Street in the City of London, in advance of redevelopment. The site was previously occupied by 20, 21 Lime Street and 8, 10, 10b, 11 and 11b Ship Tavern Passage. In 2000, all previous buildings on the site were demolished and the area reduced to basement level; the single basement was of varying depth, with a shallower area in the eastern part of the site and along the southern perimeter.

The site lies on the southern fringes of the Leadenhall Market Conservation Area (Col 1998, 24). The site contains no Scheduled Ancient Monuments (COL 1998, 46) or listed structures; it is, however, located over the south-eastern corner of the second Roman forum which is considered to be of national importance.

This post-excavation assessment describes the results of a series of archaeological investigations carried out on the site between 1990 and 2003 in advance of proposed redevelopment.

The analysis and interpretation of the archaeological data will address research aims of local, regional and national significance. The proposed publication project will address these issues and introduce updated aims and objectives.

The chronological scope consists of a significant corpus of Roman data and a very limited amount of data from the 10th – 11th centuries to the present day.

## 1.3 Circumstances and dates of fieldwork

An archaeological evaluation was previously carried out on the site during geotechnical investigations within the standing buildings in 1990 (recorded under the site code LIE 90), in relation to an earlier proposed development.

A further planning application was made in 1994 that was granted planning permission with conditions, leading to a project design for an archaeological excavation (Norton, 1994). In summary, this was to involve the recording of cores from boreholes at each proposed pile location, with an option to relocate the piles in order to avoid any archaeological deposits deemed worthy of preservation *in situ*. Excavation of archaeological deposits within the area of the pile caps down to soffit level would then commence; again, relocation of the pile cap pits would be considered, should significant archaeological remains be encountered. This planning application was renewed in March 1999.

A new planning application was made in February 2001 (application no 01-3354 AK) for a similar development and granted, with conditions, in June 2001. A desk-top *Archaeological Impact Assessment* was prepared by MoLAS in relation to this scheme, (Bowsher, 2001), recommending the need for further field evaluation. It was also proposed in the archaeological assessment that as far as possible the initial coring evaluation would be carried out in advance of the main phase of works – to allow sufficient time for any redesign that may be necessary.

An archaeological field evaluation was subsequently carried out during September 2001, including an additional six evaluation pits and a series of cores. Six geotechnical pits were also monitored in November 2001. As a result of detailed design work on the new foundations and basement of the new development, the impact of the proposed scheme on potential archaeological deposits was assessed and

a revised mitigation strategy was proposed (Dunwoodie, 2001). This took account of the key research questions relating to this part of the forum complex, and the need to preserve a representative sample of deposits, whilst at the same time obtaining a meaningful record from those parts of the site which would be disturbed as a result of redevelopment. Additional information was set out in the *Addendum to the revised mitigation strategy* (MoLAS, November 2001) and further developments in the design were addressed in the *Revised impact assessment and mitigation strategy* (MoLAS, December 2001).

This was followed by a programme of archaeological excavation carried out between 7th August 2002 and 17th April 2003, that included the recording and removal of archaeological deposits in the locations of pile caps, lift pits and ground beams, the coring of new pile locations, and general ground reduction to the new formation level for the proposed development. Throughout the project, staffing levels were reviewed and adjusted in response to the areas of the site available for archaeological fieldwork, but generally involved one senior archaeologist and between two and six archaeologists.

The location and configuration of the site presented a number of logistical difficulties relating to access and spoil storage/removal; it was therefore proposed that excavation of the areas at the western end of the site would be completed and backfilled prior to work commencing at the eastern end of the site. A subsequent decision to break out some exceptionally deep concrete underpinning along the southern perimeter of the site whilst the archaeological excavation was in progress resulted in additional areas of excavation and further complicated issues of access. This meant that the programme spanned a longer period of time than was originally envisaged.

In summary, the two phases of archaeological evaluation comprised:

- 1) Six geotechnical pits and two boreholes (TP1-6, B1-2) and three archaeological test pits (TP7-9) recorded in 1990 under the site code LIE90. Test pits 1-4, which were shallow party wall probes, had no archaeological impact and are not shown on the figures in this report.
- 2) Six evaluation trenches (Trenches 10-15) and 28 cores (Cores 1-28) recorded in 2001 under the site code LME01. A watching brief was also undertaken on the excavation of six geotechnical pits in 2001.

The archaeological excavation carried out in 2002-3 (under the site code LME01) comprised:

- Area 1: Excavation of pile cap down to natural deposits
- Area 2: Excavation of ground beam and coring of pile locations
- Area 3: Excavation of two lift pits (partly down to natural deposits); reduction of remaining upper basement areas to new formation level; coring of pile locations; selected excavation of pile locations.
- Area 4: Excavation of ground beam; coring of pile locations; selected excavation of pile locations.
- Area 5: Excavation of the east end of the site to new formation level, excavation of a ground beam, pile caps and drain inspection pits; coring of pile locations; selected excavation of pile locations.

In addition, a watching brief was undertaken on the excavation of underpinning pits in Areas 1 and 5, and a propping trench associated with the northern perimeter wall in Area 5.

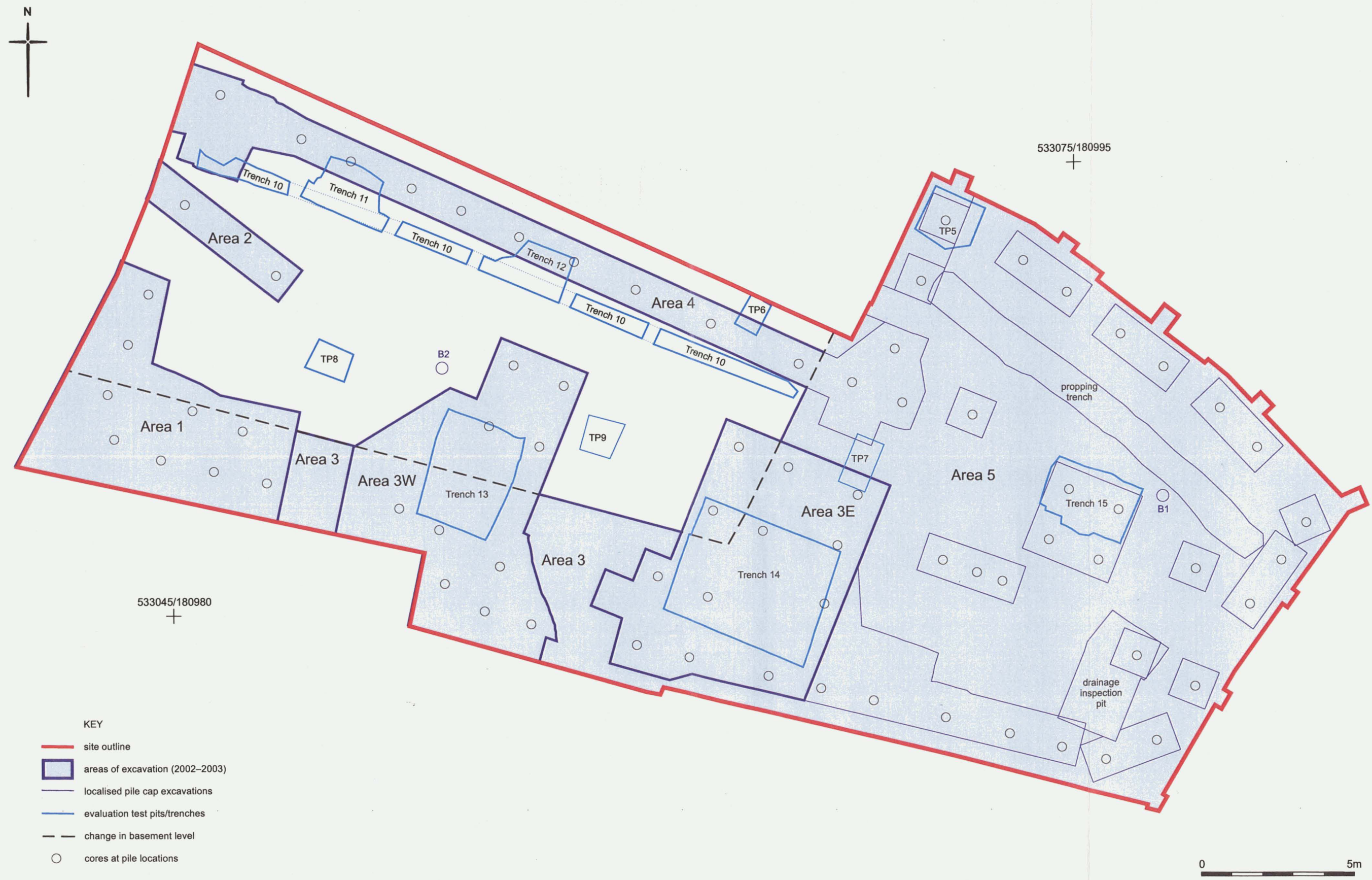


Fig 2 Site plan showing areas of evaluation and excavation 1990-2003 (evaluation cores have been omitted for clarity)

#### 1.4 Organisation of the report

The *Post-excavation assessment and updated project design report* is defined in the relevant GLAAS guidance paper (Paper VI) as intended to 'sum up what is already known and what further work will be required to reach the goal of a well-argued presentation of the results of recording and analysis' (VI/1).

The principle underlying the concept of post-excavation assessment and updated project design were established by English Heritage in the *Management of Archaeological Projects 2* (MAP2), (1991). More recent GLAAS guidance has emphasised the need for this stage to be seen as 'brief and transitional', the document acting as a 'gateway' to further analysis and eventual publication (EH, GLAAS, 1999 VI/1)

This document summarises the archaeological and historical background to the site (section 2) and lists the original research aims proposed in the Revised Mitigation Strategy (Dunwoodie, 2001) and Addendum to the revised mitigation strategy (MoLAS, 2001) (section 3). It describes, in interim terms, the discoveries made on the site during archaeological investigations (section 4), and details the work undertaken for the assessment of the site archive (section 5). It correlates initial observations with the original and revised research aims (section 6) and discusses the wider significance and potential of the site (section 7). Updated research aims have been framed in light of the assessment, and the proposed arrangements for publication are outlined (section 8). This is supported by a detailed method statement for the work to be undertaken during the analysis and interpretation of the archive (section 9). This phase of work corresponds to 'Phase 4, analysis and report preparation' in the terms of Management of Archaeological Projects (English Heritage 1991). A breakdown of resource requirements is also provided.

## 2 Historical and archaeological background

### 2.1 Topography

The site lies on the south-eastern slope of a low hill centred on the junction of Cornhill and Gracechurch Street. In this area of the City, natural deposits consist of brickearth overlying river terracé gravels.

Borehole information from the 1990 evaluation work on the site recorded natural brickearth at a maximum height of 10.85m OD, with a band of clay-bound sand and gravel below at 10.45-10.70m OD. To the south at 168 Fenchurch Street, recent excavations revealed brickearth generally in the region of 11.00m OD to 11.30m OD at the eastern end of the site; gravel was recorded at a maximum height of 10.73m OD.

### 2.2 Prehistoric

There is little direct evidence for prehistoric activity on adjacent sites, although small quantities of residual worked flints have been found in later Roman contexts, for example at 168 Fenchurch Street to the south. The 23 pieces of residual worked flint recovered here are thought to represent domestic activity of mid to late Neolithic date in the vicinity of the site.

### 2.3 Roman

The site lies approximately 100m to the north-east of the important junction of the road from the river crossing and the main east-west road of Roman London. The earliest Roman occupation was centred around this junction, and is represented on adjacent sites by an open metalled area at the road junction, fringed by clay-and-timber or mudbrick buildings, which were destroyed during the Boudican revolt of AD 60-61.

In the AD 70's the first forum-basilica (the town hall and market place) was constructed approximately 25m to the west of the site, coinciding with a further expansion of the settlement. Earlier excavations in this area also revealed a range of substantial tile-floored ovens, interpreted as a bakehouse immediately to the east of and contemporary with the first forum. The town as a whole was characterised in the late 1st and early 2nd centuries by densely packed clay-and-timber or mudbrick 'strip' buildings, with relatively few private masonry structures.

The first forum-basilica was subsequently replaced by a much larger structure, the second forum-basilica complex built c AD 100-130, which occupied an area approximately five times larger than that of its predecessor. The eastern wing of the second forum straddles the site and is currently thought to have consisted of two internal ranges of rooms between an inner and outer portico. Walls of the second forum have previously been recorded both at 22 Lime Street and more recently at 168 Fenchurch Street immediately to the south.

The second forum survived until the late 3<sup>rd</sup> or early 4<sup>th</sup> centuries, when it was dismantled down to the internal ground level and levelled over. There is a small body

of evidence for possible post-forum activity of late Roman date, including a wall foundation at 168 Fenchurch Street and a demolished forum wall sealed by occupation horizons at 22 Lime Street.

#### 2.4 Saxon

There is no evidence for continuity of occupation in the City following the Roman withdrawal in the early fifth century. The main focus of the early- and mid- Saxon settlement was further west around the Strand/Covent Garden area. The Viking raids of the later 9<sup>th</sup> century eventually led to its abandonment and the reoccupation of the walled Roman town. This was limited in its extent until the later 10<sup>th</sup> and early 11<sup>th</sup> centuries when the new Saxon street pattern began to emerge.

Evidence for occupation during this period on adjacent sites has so far been limited. A group of pits associated with structural remains at Leadenhall Court to the north-west were suggested to date to AD 950-1000, possibly representing the earliest reoccupation of the area.

#### 2.5 Medieval

Evidence from neighbouring sites suggests that the occupation of the area was continuous from the 11<sup>th</sup> or 12<sup>th</sup> century and it was during this period that much of the remaining masonry of the forum foundations was removed, as was seen at 168 Fenchurch Street.

Lime Street itself is documented from the 12th century. The church of St Dionis Backchurch, immediately to the south of the site also dates from this time. The deep foundations of the church tower were among the few medieval structural remains recorded during recent excavations at 168 Fenchurch Street; the others were a chalk-lined well and a cesspit.

#### 2.6 Post-medieval

Following the Great Fire of 1666 the western part of the site was acquired for the Herb Market; to the north were three further markets dealing in leather, fish and meat. The present-day Leadenhall Market was built on the site of the meat market in the 1880s. The previous buildings on the site (demolished recently) were constructed in 1886-7 and had single basements of varying depths. Post-medieval remains recorded on adjacent sites are largely in the form of deep cut wall foundations, cesspits and cellars.

### 3 Original research aims

All research is undertaken within the priorities established in the Museum of London's *A research framework for London Archaeology*, 2002. The following research objectives were established with consideration of the results of previous archaeological investigations both on the site itself and on other sites in the immediate vicinity. They were listed as a series of questions in the Addendum to the revised mitigation strategy (MoLAS 2001).

1. Since the site was clearly near the earliest Roman settlement nucleus, are there any structural or other remains relating to this earliest phase of occupation? How do they relate to those found on other sites in the vicinity, e.g. 168 Fenchurch Street? What can they tell us about the nature of the early settlement?
2. In particular, is there any evidence that the area was initially laid out to an ordered street pattern? Was the street under Lime Street part of the original street layout, as suggested by excavations further north at Whittington Avenue?
3. Can any specialised functions be identified on the site before the construction of the first forum? If so, how do these relate to the pre-Boudican building at 168 Fenchurch Street where extensive grain deposits were recorded?
4. Is there any further evidence of the (possibly early) tile and mortar structure recorded in section during recent underpinning work at 168 Fenchurch Street to the south? How does it relate to the second forum remains and can it be dated?
5. Do structures constructed after the Boudican fire and contemporary with the first forum reflect continuity from the early period, or a change in the nature and status of the area? (Due to modern truncation, there was very little post-Boudican material at 168 Fenchurch Street, resulting in a considerable gap in the archaeological sequence for this particular area).
6. Do the ceramic and environmental assemblages point to any change in the function of the site following the construction of the first forum? (The early pottery assemblage at 168 Fenchurch Street was of a military character, but due to the lack of deposits contemporary with the first forum, the status of the area between this time and the construction of the second forum was unclear).
7. Can the construction of the second forum east wing be dated? Evidence from 83-87 Gracechurch Street and recent work at Whittington Avenue suggests that the east wing was added to the Basilica as a later phase of construction, although it was clearly part of the original plan.
8. Can excavation add to the existing plan of the second forum? A re-evaluation of the records from 83-87 Gracechurch Street by Brigham in 1992 led to the suggestion that the east wing comprised two sets of inner rooms, flanked by an outer portico and a wide inner portico. Can this site provide further evidence (e.g. floor surfaces or other features at the west end of the site) to confirm the existence



of this wide inner portico? If so, did it belong to the final stage of construction of the forum, as suggested?

9. Given the potential survival of fragments of wall superstructure, can anything further be added to our knowledge about the construction and layout of the forum? Can the evidence of moulded stones or building materials be used to determine architectural details?
10. Given the potential on this site for the survival of floor surfaces across the entire width of the second forum, can specific functions be determined for individual areas, either from the form of the structures or from finds and environmental analysis?
11. How does the street to the east of the forum relate to the structure? How was drainage managed? (Observations of a possible timber-lined drainage ditch were made at 168 Fenchurch Street in both 1976 and 1997). Is there any evidence to suggest that the road had entered a period of neglect by the late third century, as with the road to the north of the basilica?
12. Is there any clear evidence for the demolition of the second forum and can it be dated? The eastern wing (and in particular the site at 22 Lime Street immediately to the south) has provided some of the little evidence there is for the demolition of the forum. The west wall of the outer portico was demolished to 14.1m OD and sealed by a thick burnt deposit. In the west central range, the final chalk floor at 13.9m OD was overlaid by ragstone and tile rubble reaching 14.50m OD, interpreted as local demolition work.
13. Is there any evidence for late Roman structures post-dating the second forum? Is there any further evidence to help explain the unusual buttressed foundation at 168 Fenchurch Street to the south, i.e. is it a pre-or post-second forum building, or an alteration to the forum itself? It was on a similar alignment to the forum walls but was apparently not associated. Similar walls have been recorded elsewhere (All Hallows Lombard Street and 50-52 Cornhill). In addition, possible floor surfaces sealing a demolished forum wall were recorded at 22 Lime Street.

## 4 Site sequence: interim statement on field work

### 4.1 Introduction

As explained above (Section 1.3), the main archaeological excavation was divided into five key areas (Fig 2) determined by the proposed groundworks.

In order to convey a general idea of the location of the principal archaeological features summarised below, these will be presented in relation to the areas.

The provisional plans illustrating this section have been drafted prior to full analysis of data, and are derived from preliminary spot date and stratigraphic information. They attempt only to give an impression of activity during the defined periods or of individual structures and do not include all excavated features.

### 4.2 Natural and topography

Natural deposits were recorded both in plan and in section in Area 1, parts of Area 3, and during the excavation of pile positions at various locations on the site. Across the remainder of the site they were recorded during coring of the proposed pile locations.

Despite the location of the site on the south-eastern slope of a low hill, there was no discernible slope in the recorded levels of natural brickearth to reflect this. On the southern limit of the site, the level of clean natural brickearth was generally in the region of 11.01m OD (west) to 11.26m OD (east), surviving to a maximum thickness of 0.52–0.63m; there were some localised variations, notably up to 11.40m OD in the south-west corner of Area 1.

On the north-east perimeter of the site in Area 4, brickearth was recorded between 11.06m OD (west) and 11.25m OD (east). In the north-western part of the site (Area 5), brickearth was observed in core samples at levels between 10.90m OD and 11.34m OD; here, the deposit generally appeared to be shallower, and in many cases the overlying deposits were suggestive of cut features. This perhaps indicates a greater degree of localised truncation in this area caused by both pitting and roadside ditches.

The underlying gravel was recorded generally between 10.46m OD and 10.68m OD across the whole site, again with only localised variations, e.g. up to 10.94m OD in the central part of Area 5. These observations did not appear to indicate any overall variation in level from either north to south or east to west.

### 4.3 Pre-Boudican occupation (AD50-60)

The earliest activity on the site was represented by structures recorded in Areas 1 and 3. These included postholes, a north-south timber-lined drain and at least one building represented by slots, wall sills, a floor slab and associated hearth activity (Fig 3). The presence of thin metallised surfaces and pits in the south-eastern part of Area 3 suggests that this area remained open. The north-west part of the site also seems to have been an open area during this period, though this is assumed from external dumps and pits recorded over a very limited area.

These early structures appear to have been relatively short-lived. The area was subsequently levelled over with dumps of occupation debris, prior to the construction of a more substantial building, represented by an east-west mortared flint foundation with traces of tile superstructure (Fig 4). This feature was recorded in Areas 1 and 3 and was at least 11.0m long; it bears many similarities to the foundations of a pre-Boudican building previously recorded at the 168 Fenchurch Street site just to the south. An extensive sequence of occupation deposits (apparently external) lay immediately to the south of the wall; a layer at the base of this sequence, containing large amounts of flint chippings was almost certainly associated with the construction of the footing, suggesting that it may have been built partly free-standing. Further east, gravel surfaces to the south of the wall may have been contemporary with the use of the building and /or its demolition. Spreads of degraded mudbrick surrounding the foundation may represent demolition of the superstructure.

#### 4.4 Flavian (late 1st century)

The 1st-century flint foundation was sealed by a horizon of dumping, which included a large amount of clean mudbrick debris, as well as an extensive deposit of unburnt roof tile in a matrix of burnt material. The presence of both burnt and unburnt material here seems to suggest that the building itself was not necessarily destroyed by fire; however, its demolition may well have been part of a general re-landscaping of the area in the wake of the Boudican fire and around the time of the construction of the first forum. It is possible that some of the levelling material was imported from other buildings nearby which had been more comprehensively destroyed in the revolt. It is interesting to note that at 168 Fenchurch Street, the redeposited fire debris thinned out to the north and was not present at all along the northern site boundary adjoining 21 Lime Street. A brickearth demolition layer at the top of this dumping sequence (which may also have served as a floor slab) produced a hoard of ten coins - silver denarii and silver plated copies, including rare Republican forgeries, dated to AD70 or later.

Subsequent buildings in Areas 1 and 3 were represented by a complex sequence of robbed structural features, fragments of floor surfaces, and demolition deposits; the contents of the latter, in addition to some in situ remains, indicate that many of the internal walls of these buildings were rendered with plaster (Fig 5). There was also evidence of associated drainage features and a possible water-pipe. In some places there was evidence of two phases of building; in Area 1 the earliest appeared to have been destroyed by fire, with extensive dumps of fire debris spread between the robbing of the various structural elements. The later robbed structures in Area 1 were sealed by ragstone/greensand rubble consolidation deposits, which may be linked to the construction of the second forum.

Further structures of probable late 1st century date were recorded to the north; in Area 2, a substantial mudbrick wall appeared to represent the western limit of a building (Fig 5). The internal face of the wall was rendered and a small tile-lined oven had been built up against it; the size of this feature suggests that it was for domestic use. To the east, a metalled surface with a camber may have been a narrow north-south alley, with a possible second mudbrick building on its eastern side. In Area 4, an internal wall of a clay and timber building of similar date was recorded in section. This structure had also apparently been destroyed by fire and the upper faces of the wall, rendered with plaster had collapsed over mortar floor surfaces on either side, to be sealed by further fire debris.

In the south-east corner of the site (Area 5), part of a tile and mortar structure was revealed; this appeared to be in the form of a slightly curved channel and may represent a hypocaust or flue belonging to a building pre-dating the second forum.

#### 4.5 The second forum (AD100-300)

Masonry remains and surfaces associated with the east wing of the second forum were recorded across the entire site (Fig 6). These included four major north-south walls (Areas 1, 3, 4, 5, Evaluation Trench 11), three internal dividing walls within the central ranges (Areas 3 and 4) and the remains of a masonry pier (Area 4). In some cases the alignments of the walls were also indicated by robber cuts.

There is further evidence from the site to support Brigham's suggestion that the east and west wings comprised two sets of inner rooms flanked by an inner and outer portico. There was no sign of a western wall belonging to an inner portico, but this should not be surprising, since current projections place this wall several metres west of the site boundary. However, the position of the crosswalls recorded on site clearly indicates that there were two ranges of rooms.

In addition, a pier base recorded towards the north-west corner of the site in Area 4 (within the presumed inner portico) bears many similarities to those found in similar locations elsewhere; these include a number of piers within the inner portico of the south wing, and, most notably, a masonry structure adjacent to the same north-south wall at 83-87 Gracechurch Street to the north. The base at Lime Street consisted of a foundation of ragstone bonded with a distinctive pink-coloured mortar, with remnants of a tile superstructure or stringcourse directly above. Observations at foundation level suggested that it was partly keyed into the north-south foundation to the east, but was clearly of a different (probably later) build.

The forum walls were generally represented by foundations of ragstone and yellow mortar, though in limited areas, fragments of superstructure had survived, giving some indication of the contemporary ground level. The centre wall of the central ranges was substantially wider, presumably for structural reasons. It had been heavily robbed, but towards the northern limit of the site in Area 4, where *in situ* material survived, two very different builds were evident within the foundation. It is hoped that detailed analysis of both the stratigraphic records and mortar samples may provide some clue to the reasoning for the construction techniques employed.

There was relatively good survival of floor surfaces associated with the second forum. The floors of the various internal rooms were generally of brickearth and mortar, and were replaced on numerous occasions; in some areas there was evidence for refurbishment following fire damage. In Area 1, an extensive mortar surface recorded in the area of the inner portico may have been associated with the construction of the east wing, or was perhaps a transitional courtyard surface. Unfortunately its relationship with the forum walls had been destroyed, but since it appeared to be lower than the superstructure of the adjacent wall, it is perhaps unlikely to have been contemporary. Alternatively, the surface may belong to a pre-forum building, however no other structural associations were observed. Subsequent surfaces in this area (which can be more confidently assigned to the inner portico) were either metalled or a mixture of mortar and *opus signinum*. The best preserved floor sequences were recorded towards the eastern end of the site in the area of the outer portico: the initial surface here was a substantial *opus signinum* floor laid onto a thick layer of building rubble; this was apparently repaired on several occasions and then replaced altogether with further gravel and mortar floors. Between the uppermost

mortar surfaces there was evidence of metalworking, possibly indicating a change of use in the complex.

In Area 5, the north-south road to the east of the forum and its associated drainage features were recorded in a series of shallower excavations for pile caps. The road seems to have been relaid regularly and in one area at least twelve separate surfaces were recorded.

#### 4.6 Late Roman activity

Survival of late Roman deposits was generally limited to those areas of the site with a shallower basement (the eastern half and the southern perimeter) and owing to the degree of truncation by services, was rather fragmentary.

Towards the southern limit of the site, a large fragment of tile masonry had apparently collapsed over one of the later drainage cuts on the west side of the road; the area was subsequently consolidated, and a further compacted gravel surface laid immediately above. It is possible that these features represent either the decay or deliberate demolition of the forum and there is a suggestion that maintenance of the roadside drainage was no longer a priority.

Metalworking debris from the uppermost surfaces in the outer portico area may suggest a change of use associated with the decline of the forum-basilica complex in the later roman period. A partly robbed east-west foundation, which was relatively shallow and originally rested on a series of deep timber piles, was also recorded in the area of the outer portico; this included some chalk in its construction and may have been a later addition or modification to the forum building, or an entirely separate structure.

On the opposite side of the road to the east of the forum, an unusual masonry feature was recorded. This may have been late Roman in date and consisted of a tile and flint superstructure above a substantial chalk foundation, with evidence of timber lacing; the north face of the superstructure was rendered with mortar. A number of severely slumped mortar surfaces immediately to the north may have been associated with this masonry, the precise form of which is not entirely clear.

#### 4.7 Medieval and post-medieval activity

Post-Roman survival was in the form of cut features, comprising medieval robber cuts and rubbish pits, and post-medieval brick-lined cesspits and wells. Much of the robbing of the forum walls seems to have taken place in the late 11th/early 12th century, with many of the cuts having a secondary function as rubbish pits. The robbing of the central wall of the east wing in particular was undertaken on a large scale, represented by a series of massive backfilled trenches and pits along the length of the foundation.

A number of later medieval pits were also recorded. Post-medieval features included two brick-lined cesspits, one of which produced a large pottery assemblage, indicating that it was backfilled in the 19th century.

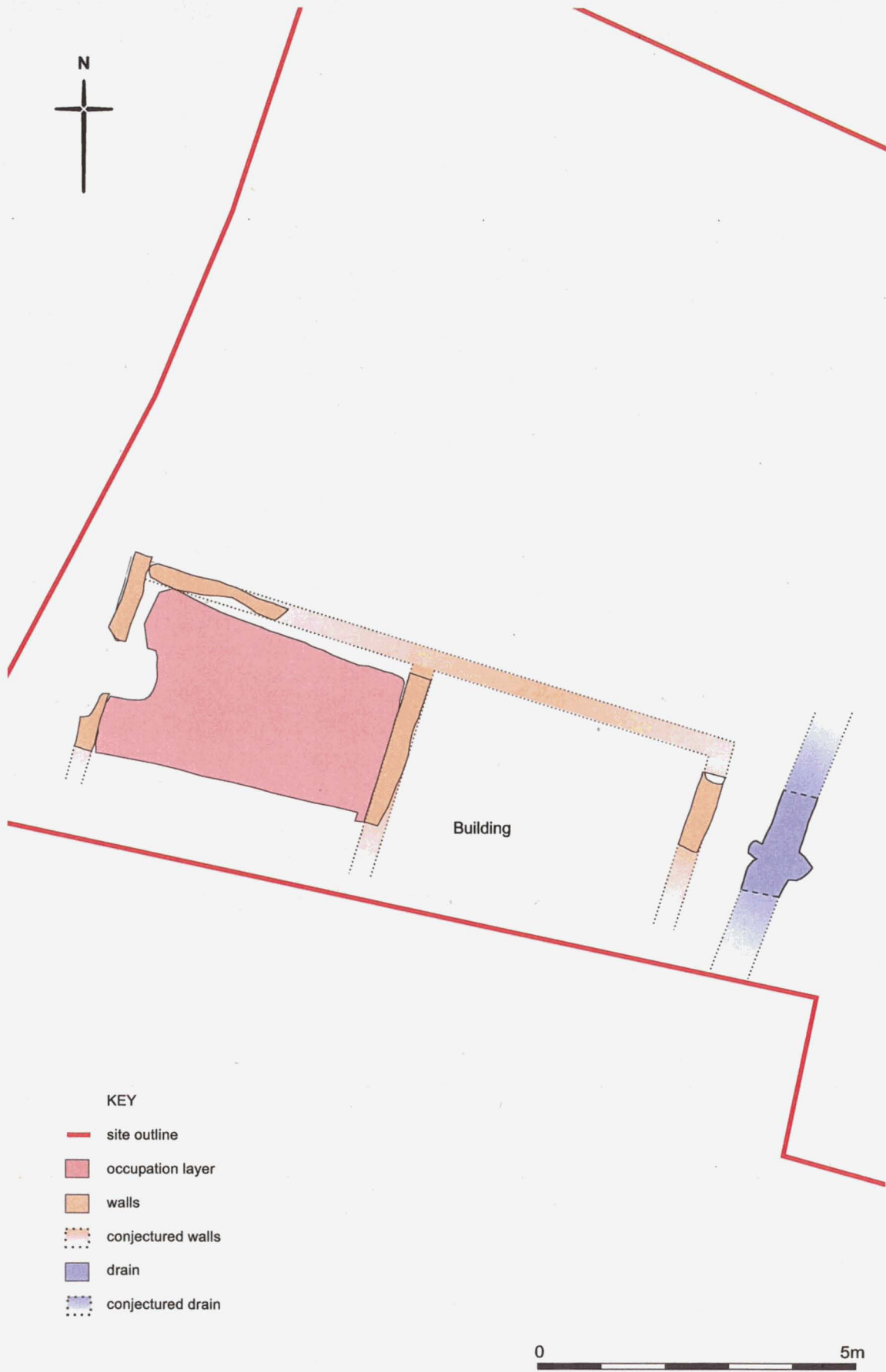


Fig 3 Pre-Boudican buildings recorded in Areas 1 and 3 in the south-west part of the site

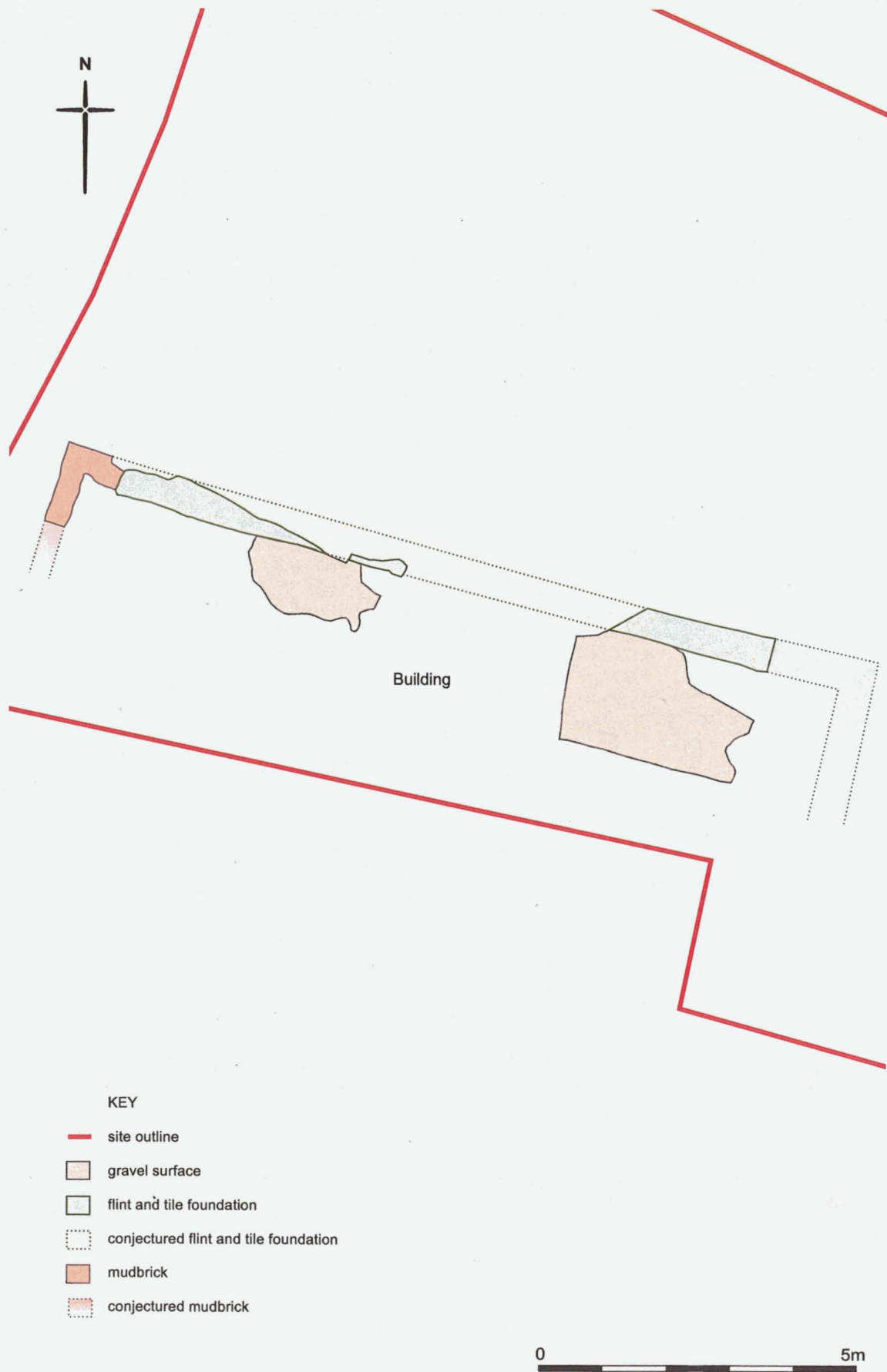


Fig 4 A pre-Boudican building recorded in the south-west part of the site

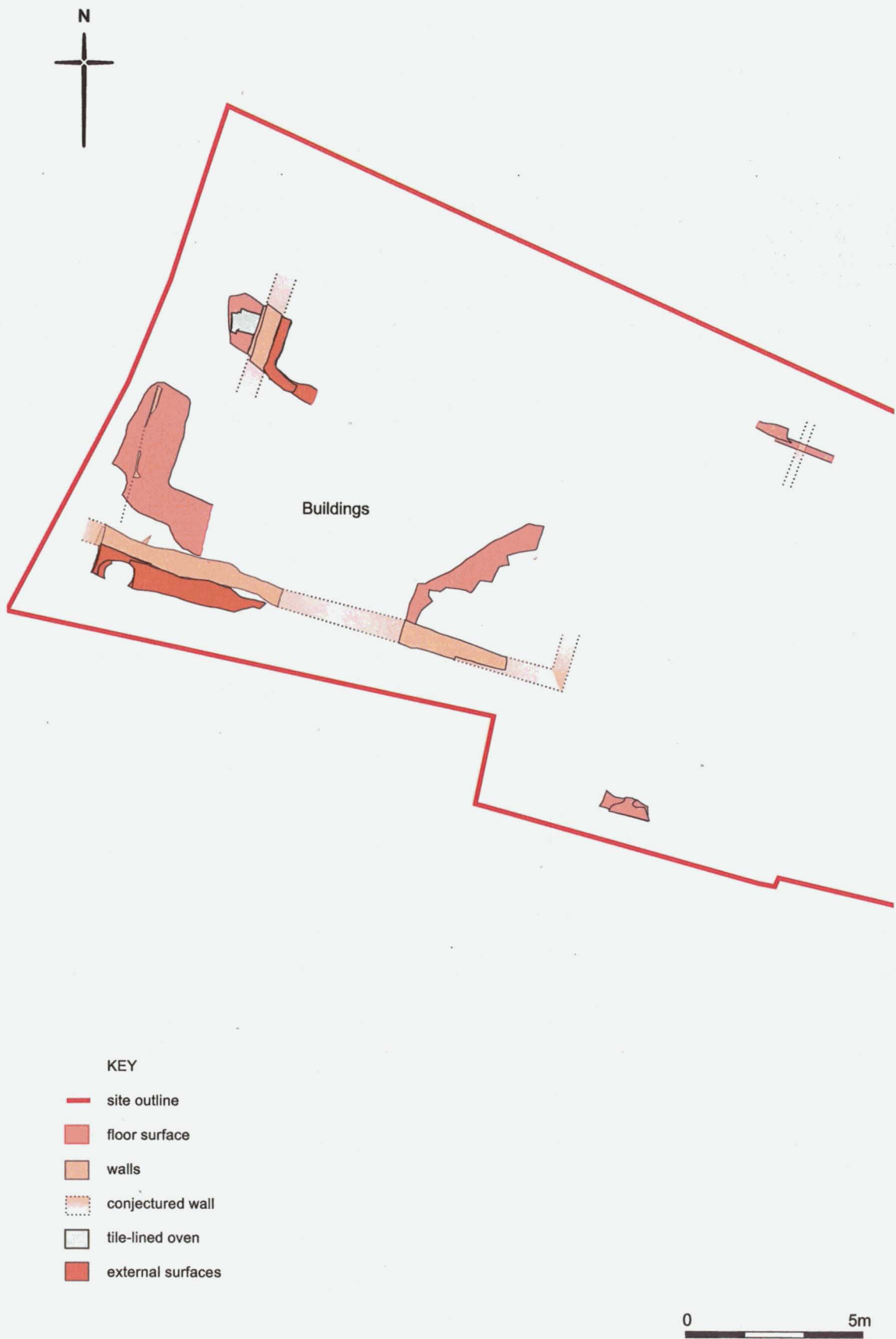


Fig 5 Late 1st-century structural remains recorded on the western half of the site





Fig 6 Remains of the east wing of the second forum (c AD100-300) and a road to its east



Fig 7 A pre-Boudican flint and tile wall footing associated with a building in Area 3W



Fig 8 A late 1st-century tile-lined oven built against the mudbrick wall of a building in Area 2



Fig 9 A fragment of the partly-robbed second forum outer wall, recorded in a ground beam trench in Area 5; the outer portico floor can be seen in the background



Fig 10 Part of an opus signinum floor, in the outer portico of the second forum, recorded in Area 3E



Fig 11 A partly-robbed north-south wall in the central range of the second forum, recorded in Area 3E



Fig 12 A late Roman masonry wall with rendered face, recorded in Area 5

## 5 Quantification and assessment

This section lists and describes the stages in the post-excavation assessment process which have been completed and quantifies and assesses the resulting archive. This includes the stratigraphic records from the site as well as all the relevant classes of finds and environmental material.

### 5.1 Post-excavation review

The post-excavation assessment was targeted on archaeological material from priority areas, defined as those areas of the site where the archaeological sequence was recorded down to natural geology. The particular archaeological importance of these areas was highlighted in the mitigation strategy for the site (Dunwoodie, 2001), since much of the excavation was to be restricted to small, shallow areas such as pile caps and ground reduction in areas of extensive truncation.

The fully excavated archaeological sequences are considered to be the most representative of the chronological development of the site and to have the best potential for establishing a framework to which the more fragmented records from the rest of the site can be referenced. The key areas for assessment were identified as Areas 1, 2, 3 and 4.

#### 5.1.1 Tasks accomplished

Unless stated otherwise, the following tasks have been completed for the selected key areas of the site (Areas 1, 2, 3 and 4).

1. Site matrix checked
2. Location of sections and identification of contexts represented
3. Compilation of plan matrices
4. Compilation of context matrix using Bonn Harris Matrix software
5. Compilation of subgroup matrix using Bonn Harris Matrix software
6. Entry of stratigraphic information into MoLAS Oracle IND3D database
7. Addition of spot date data to subgroup matrix
8. Mapping of context data in MoLAS IND3D database to MoLAS subgroup database
9. Digitisation of plans from key areas, plus selected key features
10. Production of site summary and NMR OASIS form
11. Preliminary phasing of subgroups using finds data

## 5.2 The stratigraphic archive

Lesley Dunwoodie

Stratigraphic archive			
Type	Description	Quantity/ Range	Notes
Contexts	Evaluation (LIE90) Evaluation (LME01) Excavation (LME01)	1-121 1-59 60-1731	total 1,731 from LME01; 1,852 including LIE90
Plans	1:20 (no. of sheets)	c. 1,500	--
Sections	Evaluation (LIE90) Evaluation (LME01) Excavation (LME01)	c. 6 1 2- 44	total c. 50 incl LIE90
Auger logs	Evaluation (LME01) Excavation (LME01)	28 62	total 90
Matrices	n/a	Yes	Digital and paper copies
Photographs	n/a	Colour & B/W	Total number of slides: c. 1000 (including duplicates) 71 contact cards

Table 1 Summary of the stratigraphic archive

## 5.3 The finds and environmental archive

Building material	c. 50 selected key contexts assessed from overall total
Roman pottery	4880 sherds. Total 79.931kg representing c half the total assemblage
Late Saxon and medieval pottery	689 sherds. Total 13.6 kg
Post-medieval pottery	156 sherds. Total 12.4 kg
Accessioned finds	462
Coins	57
Iron slag	22.48kg recovered by hand and from soil samples
Bulk Soil Samples	Flots, and flora from residues, of 24 samples; soil from 12 samples retained unprocessed.
Animal Bone	50 boxes of hand-collected animal bones and 2 boxes of wet-sieved animal bone residue from bulk samples.

Table 2 Summary of finds and environmental archive

### 5.3.1 Building material

Terence Paul Smith

### 5.3.1.1 Introduction/methodology

Building material from selected contexts was recorded, using standard Museum of London recording forms and fabric codes, as requested and in line with an overall targeting of key contexts and priorities. Fabric identification has been undertaken using a binocular microscope (x10). Data from the recording forms have been added to the Oracle database. Most of the material has been discarded after recording, with the remainder ready for archiving. The recorded material forms an assessed sample of the total assemblage and will be taken forward to analysis.

### 5.3.1.2 Roman building material

#### 5.3.1.2.1 CERAMIC BUILDING MATERIAL: FABRICS

The overwhelming bulk of the Roman ceramic building materials belongs to fabric group 2815, the commonest from all London sites. Materials in these fabrics were made at Brockley Hill and neighbouring sites either side of Watling Street north of London in the period c50–160. Other fabrics present are 2454 (from the Eccles villa estate in Kent and dating from c50–80), 3023 (from the Radlett area of Hertfordshire and dating from c50–120), and 2459B (a late member of the 2815 group, made at the same sites, and dating from c120–250).

#### 5.3.1.2.2 CERAMIC BUILDING MATERIAL: FORMS

Roofing tiles (*tegulae* and *imbrices*) and bricks are the most abundant; also present are *tegulae mammatae*, box-flue tiles, and *tesserae* cut from ceramic building materials. A number of *tesserae* have been cut from ceramic building materials. One of the box-flue tiles has its sanded side outermost and is probably of early (1st-century) date. Most of the material is fragmentary, although a few dimensions are preserved. One brick is a complete *Lydion*, measuring 395 x 280mm (45mm thick). One other brick length, of 425mm, is preserved; breadths range from 255–307mm (median 286mm). *Tegulae mammatae* range in length from 424–446mm (median 430mm) and in breadth from 280–290mm (median 287.5mm).

#### 5.3.1.2.3 OTHER BUILDING MATERIALS

Also-present are mud brick, daub, mortar, and stone of various types, some of the latter used for *tesserae*; one *tessera* is cut from pot. Three mud bricks preserve their thicknesses of 60mm, 66mm, and 70mm. Flat pieces of medium grained laminated sandstone preserve thicknesses of 21mm and 29mm, the former probably roofing, the latter probably paving.

#### 5.3.1.2.4 DISCUSSION OF POTENTIAL AND SIGNIFICANCE

The primary potential of the Roman ceramic building material from 21 Lime Street is as dating evidence, providing a *termini post quem* for selected contexts in which it occurs. The overall sequence includes pottery and other datable artefacts and the building material will usually only provide a secondary, and less precise, level of dating evidence for the site sequence. The building materials are of common forms and fabrics and have little significance.

### 5.3.1.3 Roman painted wall plaster

#### 5.3.1.3.1 INTRODUCTION

Roman painted wall plaster from selected contexts was recorded, as requested and in line with an overall targeting of key contexts and priorities. The key contexts containing painted wall plaster are [65,] [101], [102], [173], [178], [182], [280], [294], [334], [336], [555], and [876]. Of these, seven are second forum contexts: [65], [101], [102], [173], [178], [182], and [876]. Much of the plaster is fragmentary and

extremely fragile, making it impossible to give an exact count of the larger contexts, and this has not been attempted. Context sizes range from a single fragment to assemblages of approximately 50 pieces. Because of the friable nature of the material, much of it crumbling on touch, it has been handled as little as possible and none of it has been weighed.

#### 5.3.1.3.2 FABRIC

All the plaster is coarse and very sandy. The bulk of it is greyish in colour. Most pieces from demolition make-up [876], however, are reddish, due to the inclusion of broken tile, and one of the pieces from demolition dump [182] is brown and only moderately sandy though with a surface layer up to 16mm thick of the more common greyish sandy type. Some pieces from floor surface 280 show a few grass/straw impressions. This organic material would have acted as a binder. The plaster from demolition [334] has a thin surface skim of fine white plaster.

#### 5.3.1.3.3 COLOURS AND DECORATIVE FORMS

A very few pieces have lost their paint. Of the others, most show plain paint, although it should be remembered that many of the pieces are small so that the plain paint may in fact be part of a larger decorative scheme. A minority of pieces show traces of such decorative schemes.

The majority of the plain pieces are white or off-white or, in the case of some from demolition [334] a pinkish-white; several are red (usually pinkish-red), and a few are black, green, grey, or maroon.

These same colours occur in the decorative pieces, which are limited to contexts [102], [173], [280], [334], [336], [555], and [876]. Mostly the decoration is limited to single or combined straight stripes, in various colour arrangements. The stripes vary in width between 2 and 20mm wide. Where thicker stripes are combined they clearly formed a decorative frame of a familiar type, notably on a piece from demolition make-up [876], which has a white ground with part of a straight run comprising a 10mm-wide red stripe and a 6mm-wide black stripe set 24mm apart with what appears to be maroon paint between the stripes, although this is badly decayed.

Small fragments of obviously different designs, involving curves rather than straight runs, are present on a few pieces. In no case is it possible to discern a specific design, although one piece from demolition debris [173] shows looping green stripes on a white ground not unlike the clumps of reeds on a late 1st-century wall of the fortress at Chester. A cluster of stripes of varying colours on a pinkish-red ground on a piece from the same context may possibly be part of a similar design, but this piece is in particularly poor condition. Also from this context is a piece with a red patch with curvilinear outline on a white ground, and there is a similar piece from demolition debris [102]: in neither case does sufficient survive to permit identification.

Limited to demolition [334], internal wall [336], and demolition make-up [876] are pieces with a stippled design, consisting of speckles of paint applied to a plain background. The pieces from [336] are of particular interest and significance, being from a specifically identified wall, although not a wall of the Second Forum. The pieces are pinkish-white with red speckles, buff speckles, or both. Those from [334] are white or pinkish-white with either red or both red and buff speckles. A single piece from Second Forum context [876] is grey with red speckles.

Such stippled designs – constituting a somewhat basic, and aesthetically crude, attempt to simulate the appearance of marble – commonly occur within panels in the lower (*dado*) register of the common triple-zoned wall surface although they may also



occur within panels in the middle register. They appear to occur at all periods. The various striped designs from the same contexts, mentioned above, doubtless come from the painted frames of such triple-zoned decorative schemes.

#### 5.3.1.3.4 DISCUSSION OF POTENTIAL AND SIGNIFICANCE

Although the painted wall plaster is very fragmentary and much of it is in a poor condition, it does provide at least limited evidence for the decoration of the second forum. Although not part of the forum, wall [336] appears to have shown the common triple-zoned decorative scheme with painted frames and with some at least of the panels, in the *dado* or possible in the middle register, crudely simulating marble by the use of stippling. Demolition make-up [876] within the second forum also shows evidence for such a scheme. Pieces from other contexts show evidence of painted frames, whilst there is some evidence, from demolition debris [173] of the second forum, of a design including reeds.

Although the material is not especially noteworthy *per se*, some of it – viz that from the second forum contexts – gains significance from its place within what must be regarded as one of the most important buildings in Roman London.

### 5.3.2 Roman pottery

Rupert Featherby

#### 5.3.2.1 Roman pottery archive

A total of 4880 sherds were examined (total 79.931kg) representing *c* half of the total assemblage.

#### 5.3.2.2 Introduction

The Roman pottery assemblage so far examined consists of 4880 sherds of Roman pottery from 294 contexts (approximately one half of the total). Two hundred and sixty one contexts are small (less than 30 sherds), twenty-seven medium (30-100 sherds), four large (100+ sherds) and two very large (500+ sherds). The sherds ranged in size from small to large with a number being burnt or sooted.

#### 5.3.2.3 Methodology

The pottery was spot-dated using standard MoLAS/MoLSS methods. It was quantified by rows, sherds, estimated number of vessels (ENV) and weight and the data entered into the MoLAS/MoLSS Oracle database.

#### 5.3.2.4 Discussion

Table 3 (below) shows the date ranges for LME01. Just over half the contexts (50.3%) date to *c* AD 100, a further 29.6% date to *c* AD 250, leaving approximately one fifth of the contexts (20.1%) dating to the late Roman period, that is *c* AD 250–400.

Contexts	Late Date															
Early Date	60	70	75	80	85	100	120	140	150	160	200	250	275	300	400	Total
40						3										3
50	1	17	1	10		78	7	6	1	16	1	1		1	21	161
55		2		1		3										6
60		1				5	1									7
70				2	1	21	3			3						30
90						2	1									3
100							6	2								8
120								2	4	8	1	6			2	23
140										1		1				2
150										1	4	7		1	2	15
160											1	1				2
200												2	4			6
250														1	11	12
270													1	1	3	5
300															1	1
350															8	8
240															1	1
340															1	1
Total	1	20	1	13	1	112	18	10	5	29	7	18	5	4	50	294

Table 3 Date range of Roman pottery assemblage

### 5.3.2.5 Fabrics

Imported wares account for 36.1% of the assemblage by sherd count (see Table 4), which is higher than the inland City average of 25.8% with more than half this figure (21%) being imported fabrics other than amphorae and samian. However, Cologne colour-coated ware, a 2nd century AD fabric, provides the majority of this figure, some 17% by sherd count. Amphorae and samian are relatively low at 6.1% and 9% respectively by sherd count. Both of these are lower than their respective expected City averages with amphorae at 14.3% and samian at 11.5%. The range of amphorae mainly represents vessel types from Italy, Gaul and Spain with a very small proportion (0.7%) from other sources being represented on the site.

Origin	No of Sherds	% of Sherds	Weight of Sherds	% of Weight
Romano-British	3104	63.6%	42985	53.8%
Miscellaneous	12	0.2%	162	0.2%
Imported	1764	36.1%	36784	46.0%
Total	4880	100%	79931	100%

Table 4 Roman pottery: breakdown by origin

Reduced wares are the most common type at 27.7% by sherd count (see Table 5) with imported fine wares being the next at 19.8%. Alice Holt/Surrey (AHSU), which is

dated *c* AD 50–160, was the most common fabric amongst the reduced wares at 23.4% by sherd count. Whereas Highgate Wood ware 'C' (HWC), dating *c* AD 70–160, is found at 10.9% suggesting an earlier nature to the site. This inverse relationship between the quantities of HWC and AHSU present matches that examined in the Leadenhall Report, which also deals Forum related sties (Groves, 1993). Interestingly black-burnished ware types represent only 4.6% of the assemblage, which is approximately half of the City average of 9%. Within this group BB1 is more common, suggesting a late 1st/early 2nd century nature to the site.

Imported fine wares account for nearly one fifth of the assemblage by sherd count, which is over ten times the City average of 1.5% (Symonds, 2001). In comparison to this Romano-British fine wares are in quantities lower than the City average, 1.6% and 3.5% respectively, but reduced fine wares, for example North Kent grey wares (NKGW) or fine micaceous grey/black wares (FMIC) are higher, 4.6% by sherd count as apposed to 3.9% (Symonds 2001). A reason suggested for this has been put forward again in the Leadenhall Report (Groves, 1993). It is postulated that this relationship marks a social distinction, the wealthier the family, the greater the quantity of imported fine wares, the more Romanised. However, the percentages of Romano-British wares from LME01 would appear suggest less wealthy but not poor inhabitants of this area. This appear to conflict with the relatively high quantities of imported fine wares and may indicate a change in the social strata within this area.

Fabrics from the Verulamium region (VRW, VCWS, VRR, and VRMI), including Brockley Hill White Slip (BHWS), dating *c* AD 50–160 are the most common oxidised ware group at 9% by sherd count. Other common 1st to 2nd century AD oxidised fabrics have been identified, for example Local Oxidised ware (LOXI), *c* AD 90–160, and North French/Southeast England oxidised ware (NFSE), *c* AD 50–160. The relatively high percentages of a number of early 1st century fabrics such as Sugar Loaf Court ware (SLOW), *c* AD 50–80, black eggshell ware, *c* AD 45–75, Eccles ware (ECCW), *c* AD 50–100, Hoo ware, *c* 50–100 and the identification of a sherd of terra rubra, *c* AD 40–60, all points towards a pre-Flavian dating to the site.

Late Roman fabrics account for only 2.6% of the pottery assemblage sherd count and only 2.9% by weight. The most common sourced late fabric, Alice Holt/Farnham ware (AHFA), (*c* AD 250–400), still only represents 0.9% of the total assemblage by sherd count. Common late Roman fine wares such as Nene Valley colour-coated wares (NVCC, NVWW), *c* AD 140–400, and Oxfordshire colour-coated wares (OXPA, OXRC, OXWC, OXWS and OXWW), *c* AD 240–400 were identified. One sherd of Thameside-Kent ware (TSK), dating *c* AD 180–300 has been identified. This fabric at present appears to be more commonly associated with burial sites and on this site it only accounts for 0.02% by sherd count of the total assemblage. A small number of other imported wares were also identified, ten sherds of Moselkeramik (MOSL), *c* AD 200–275, and one sherd of Speicher ware (SPEC), *c* AD 200–400.

Categories	No. of Sherds	% of Sherds	Weight of Sherds	% of Weight
Amphora fabrics	297	6.1%	24422	30.6%
Samian fabrics	438	9.0%	4681	5.9%
Imported fine wares	965	19.8%	4936	6.2%
Romano-British fine wares	79	1.6%	1273	1.6%
Black-burnished fine wares	226	4.6%	2430	3.0%
Fine reduced wares	373	7.6%	2458	3.1%
Reduced wares	1354	27.7%	16932	21.2%
Tempered wares	197	4.0%	4170	5.2%
Oxidised wares	939	19.2%	18467	23.1%
Miscellaneous fabrics	12	0.2%	162	0.2%
Total	4880	100%	79931	100%

Table 5 Roman pottery: breakdown by fabric type

#### 5.3.2.6 Forms

A relatively wide range of vessel types for this size assemblage were identified with beakers being the most common vessel form at 22.3%, jars were the next most common (12.9%) with amphorae being almost as common at 8.8% (see Table 6). Also identified were a number of vessels that are often associated with some form of ritual activity, i.e. tazza at 0.4% and unguentaria at 0.4%. A small number of crucibles were also identified, 0.06% by sherd count, which would suggest that on a section of the site industrial processes were being carried out. It is also interesting to note that bowls, generally a very common form, represents only 4.9% of the assemblage by sherd count, possibly indicating a less domestic nature to the site. The presence of pre-Flavian samian forms, such as Ritterling cup form 1 and dish forms 8 and 9, alongside the relatively high incident of beakers further emphasises the early nature to this assemblage.

Form	No Of Sherds	% of Sherds	Weight	% of Weight
Amphora	297	6.09%	24422	30.55%
Amphora Seal	1	0.02%	23	0.03%
Beaker	1087	22.27%	5828	7.29%
Bowl	241	4.94%	5647	7.06%
Bowl/Dish	24	0.49%	417	0.52%
Castor box lid	1	0.02%	7	0.01%
Crucible	3	0.06%	73	0.09%
Cup	79	1.62%	715	0.89%
Dish	236	4.84%	2817	3.52%
Flagon	200	4.10%	4152	5.19%
Flagon/Jar	107	2.19%	3175	3.97%
Inkwell	3	0.06%	11	0.01%
Jar	628	12.87%	10242	12.81%
Jar/Beaker	20	0.41%	252	0.32%
Lamp	13	0.27%	77	0.10%
Lid	68	1.39%	1198	1.50%
Mortaria	65	1.33%	4721	5.91%
Seria/Dolia	1	0.02%	281	0.35%
Tazza	2	0.04%	85	0.11%
Unguentarium	2	0.04%	11	0.01%
Miscellaneous	7	0.14%	498	0.62%
Unidentified	1795	36.78%	15279	19.12%
Total	4880	100%	79931	100%

Table 6 Roman pottery: breakdown by form

## 5.3.2.7 Discussion.

This assemblage poses a number of questions, although it must be remembered that only half of the pottery has been examined and any assumptions based upon this sample are still tenuous. However, with this proviso born in mind, the assemblage still adds much to our understanding of this area of Roman London. Like a number of adjacent sites, this site has a relatively high quantity of early Roman imported fine wares, in fact the site contains one of the highest assemblages of Lyon ware, dated AD 50–70, and Sugar Loaf Court ware, dated AD 50–80. While this would seem to suggest that this site is close to the epicentre of pre-Flavian activity, other indicators are perhaps lacking, amphora, for example, represents a relatively small part of the assemblage. This is possibly explained by LME01 being part of the Forum, which may also explain the relatively high proportion of beakers identified on this site. Its position appears to have an influence on this site throughout its history as will be discussed later.

The early 1st century AD has produced the majority of the assemblage indicating that activity was high during this period and although the 2nd century AD assemblage appears to indicate some intensity of activity, common Flavian or later forms are virtually absent from the site. On the other hand, the mid 2nd century AD is better-

represented, black-burnished wares, central and east Gaulish samian are present, although Verulamium region coarse white slipped ware, a fabric common post-AD 120 is not.

As mentioned in Section 5.3.2.6, beakers were the most common form identified within this assemblage. While this is a common phenomenon for pre-Flavian assemblages, this total has been artificially increased by a large group of Cologne colour-coated ware beakers from context [879], which contains at least 34 vessels comprised of 790 sherds. This actually comprises over half the total of sherds associated to beakers from this site. What this context actually represents needs to be further examined, especially in association to sites directly adjoining this one. It would also be sensible to fully quantify this context to determine a more exact number of vessels. During the spot-dating it was only possible to give an estimation of the number of vessels due to time constraints.

#### 5.3.2.8 Assessment work outstanding

Due to external constraints in the initial stages of this project it was only possible to spot-date approximately half the number of contexts excavated but to give a more accurate representation of the site it is important that the remaining half be spot-dated.

### 5.3.3 Post-Roman pottery

Nigel Jeffries

#### 5.3.3.1 The medieval pottery

##### 5.3.3.1.1 INTRODUCTION

The medieval pottery consists of 689 sherds from a minimum number of 543 vessels (Estimated number of vessels: ENV), and weighed a total of 13,653 grammes (giving a mean weight per sherd of 19.8 grammes). The assemblage mainly consists of small groups (66 contexts yielded fewer than 29 sherds, usually less than 10), with five medium groups (contexts yielding between 30 and 99 sherds, from contexts [68], [104], [716], [723], [1141], and [1153]) also found. These medium groups represent the statistically viable assemblages (see Orton, Tyers and Vince 1993, 166-181) and will be further discussed. Many groups also contained Roman pottery and building material, with the presence of any Roman dated finds being interpreted as residual until further work is undertaken on the land use groupings. One feature (context [1141] subgroup 433, pit) yielded a crucibles fragment, thereby suggesting nearby industrial activity.

##### 5.3.3.1.2 METHODOLOGY

The assemblage from the site has been identified using the MoLSS medieval and later type-series. The pottery was examined macroscopically, using a binocular microscope (x 20) when appropriate, and recorded on paper and computer, using standard Museum of London medieval and later codes for fabrics, forms and decoration. The numerical data comprises sherd count, estimated number of vessels and weight. This assessment aims to evaluate the character and the date range of the assemblage, determine the research questions the pottery has the potential to address and identify any areas of further work.

##### 5.3.3.1.3 FABRICS

This section considers the medieval fabrics found. The medieval pottery can be broken down into the following categories by broad chronology and sources of supply: early medieval hand-built coarsewares, imported wares, local glazed wheel-

thrown wares, late Saxon wares, Surrey whitewares and wheel-thrown coarsewares. This provides information about the composition of the assemblage and its chronology. All the percentages listed in the text relate to the fabric occurrence % against total sherd count.

Type	No of rows	No of sherds	No of sherds as %	ENV total	ENV total as %	Weight in grammes	Weight in grammes as %
Early medieval hand-built coarsewares	185	491	71.3	399	73.5	9223	67.6
Imported wares	15	16	2.3	16	2.9	180	1.3
Local glazed wheel-thrown wares	58	108	15.7	87	16.0	2216	16.2
Late Saxon wares	4	7	1.0	7	1.3	134	1.0
Surrey whitewares	9	14	2.0	9	1.7	235	1.7
Wheel-thrown coarsewares	9	53	7.7	25	4.6	1665	12.2
Total of sherds	280	689	100%	543	100%	13653	100%

Table 7 Sources of supply for the medieval pottery found from LME01 by sherd count, ENV and weight

#### Early medieval hand-built coarsewares

Early medieval fabrics (71.3% of the total medieval assemblage sherd count) are the most common group of pottery found and define a range of coarse, hand-built pottery, made at various (as yet unidentified) sites around London between c 970 and 1150. This dominance provides a good indication about the chronology of much of the medieval land use.

The 491 early medieval sherds found mainly relate to four fabrics: early Surrey wares (ESUR; 16.8%), early medieval sandy and shelly wares (EMSS; 13.8%), early medieval shelly wares (EMSH; 22.4%), and local London area greywares (LOGR; 12.0%). EMSS and EMSH are similar in that they are hand-built, and composed of the same basic fabric, but can be differentiated by the inclusion of different shell temper. The petrological evidence suggests that these two fabrics may be derived from up to two separate sources around the Woolwich beds area, specifically from Charlton eastwards (Vince and Jenner 1991, 44). Local London area greywares (LOGR) define a reduced sandy fabric that is characterised by the inclusion of freshwater shell as its dominant temper, however, the production centres or kilns making this ware have yet to be found. Another fabric commonly found in London is early Surrey ware (ESUR), an iron-coated quartz tempered fabric thought to be made around the western Surrey/north-east Hampshire area (*ibid*, 44).

The remaining fabrics from this group include smaller quantities of early medieval sandy wares (EMS), early medieval flinty ware (EMFL), and early medieval grog-tempered ware (EMGR) but all consist less than 2% of the sherd count. Whilst these fabrics could indicate slightly earlier occupation (most are dated from the 10th

century) they are usually found in groups that date from mid 11th century, with only context [148] (subgroup 211, pit) firmly dated to the later Saxon period.

#### *Imported wares*

Imported wares are infrequent (2.3% of the total assemblage by sherd count) but include one uncommon fabric (Rouen ware: ROUE). The earliest imported pottery is five sherds Andenne ware (ANDE; 0.7%), produced around the Moselle region, and red-painted ware (REDP; 1.2%) manufactured in the middle Rhine valley (*ibid*, 103-104 and 109-110 respectively). These wares are the most common type of imported wares found in London (*ibid*, 45) and other southern English ports (such as Southampton, see Brown 1997) between the 10th and 12th centuries. The only other imported ware was the one sherd of Rouen ware found in context [1206] (subgroup 584; pit refuse) and this buff coloured wheel-thrown fine sandy ware is decorated with red slipped panels defined by rouletted applied strips.

#### *Local glazed wheel-thrown wares*

This type of pottery consists of 108 sherds (15.7%) from two fabrics, London-type ware (LOND) and its slightly earlier derivative, coarse London-type ware (LCOAR). The London-type ware industry provides one of the major sources of glazed jugs used in London between c 1080 and 1350.

LCOAR (4.8%) is dated between c 1080 and 1200 and can be differentiated from later 12th and 13th LOND by its coarser temper and the application of either a clear or copper splashed glaze, often over a white slip (Vince 1985, 44). London-type ware is more common in LME01 (9.4%) but the different and distinctive decorative styles identified, such as the Rouen (LOND ROU; 0.4%), and North French (LOND NFR: 0.3%) styles, did enable the refinement of the chronology applied to contexts [91] (subgroup 141, pit), [154] (subgroup 123, pit refuse), [1141] (subgroup 433, pit), and [1153] (subgroup 427; pit refuse) to the latter quarter part of the 12th century. Pearce, Vince and Jenner (1985) offer more detailed descriptions of these types of decoration and form.

#### *Late Saxon ware*

Five sherds of late Saxon shelly ware (LSS), dating between c 900 and 1050, were found in contexts [105] (subgroup 283; external dump) and [256] (subgroup 273; cesspit). The four sherds of LSS from [105] were found alongside later Saxo-Norman pottery and so cannot be used to identify earlier late Saxon land use, however, the one sherd of LSS found from context [256] is enough to date this context from c 900.

#### *Surrey whitewares*

The products of the medieval Surrey whiteware industry (2.0% of the total medieval sherd count) are infrequent from LME01. Most of these sherds belong to the earlier 13th century products of the whiteware industry, Kingston-type ware (KING; 1.6%), and the majority are found in context [154] (subgroup 123, pit refuse). Only two small-sized sherds of coarse border ware (CBW; 0.4%) are found. CBW eventually eclipses KING as the main product of the Surrey industries between the mid 14th to early 15th centuries (Vince 1985, 57). The lack of any significant groups of Surrey whitewares provides further evidence for the dominant Saxo-Norman dated land use.

#### *Wheel-thrown coarsewares*

The most significant quantities of 'regional coarsewares' are the 49 sherds of South Hertfordshire greywares (SHER: 7.1%) found. SHER is one of the major suppliers of coarse, unglazed jars and jugs into London between c 1170 and 1350 and is the generic term applied to a range of wheel-thrown greyware fabrics (Blackmore and Pearce, in prep). The presence of SHER in most contexts reflects the 1170 *TPQ* date applied to many of the contexts, and is most frequently found in context [1141] (subgroup 433, pit). Shelly-sandy ware (SWW: 0.6%) is another shell-tempered ware



used in medieval London, however, it is the only one to have been wheel-thrown and is the last local ware to use shell as a predominant tempering material. The evidence from City waterfront sites suggests it was made and used between c 1140 and 1220.

#### 5.3.3.1.4 FORMS

Nearly 96% of the medieval assemblage (by sherd count) was of an identifiable form. Although mostly found in a good condition, the undiagnostic nature of these unidentifiable sherds and their small size meant that form was often difficult to assess. Most of the sherds have external sooting present and so have been identified as cooking pots (kitchen functions; nearly 47% of the total sherd count), although this may merely reflect that the vessel had been heated on a fire. Open forms without the presence of sooting have been attributed as jars (kitchen/storage functions; 30.6%). When identified, the forms are in common with the date range they represent and the fabrics found.

Whilst some vessels have broken into large sherds and the rim and upper profiles from some cooking pots are present, only one reconstructable profile was identified, belonging to an early Surrey ware (ESUR) cooking pot found in context [723] (subgroup 403; well). The overall character of the medieval assemblage is poor, the pottery is highly fragmented, and the mean weight per sherd low when compared with other recently excavated medieval assemblages from the City (for example FER97 and GHT00).

Function	No of rows	No of sherds	No of sherds (as %)	ENV total	ENV total (as %)	Weight total (in grammes)	Weight total (as %)
Unidentified	21	31	4.5	30	5.5	272	2.0%
Drinking serving	65	113	16.4	84	15.5	2358	17.3%
Industrial	2	2	.3	2	.4	30	0.2%
Kitchen/serving	5	5	.7	5	.9	275	2.0%
Kitchen/storage	79	211	30.6	166	30.6	4088	29.9%

Table 8 Functional categories of medieval pottery found from LME01 by sherd count, ENV and weight

#### 5.3.3.1.5 DISCUSSION

The chronology provided by the medieval pottery suggests that land use broadly occurred between 1050 and 1450. There is, however, a clear chronological pattern of medieval fabrics and forms represented within this assemblage. The statistical information is presented in Table 9 and displays both the numbers of sherds present from the *terminus post quem* and *ante quem* dates applied to particular contexts. It should be noted that the discrepancy with the medieval sherd count (639 sherds in Table 9 as opposed to the total of 689 sherds) is because the data used is derived from those contexts that have been subgrouped only.

The table indicates three distinct medieval periods: the Saxo-Norman (dating between from 1050 to 1150), early mediæval (dating between 1170 to 1200), and the later medieval period (between from 1270 to 1500). The Saxo-Norman assemblage (1050 to 1150) represents the largest group of pottery (as measured by sherd count) found on the site, followed by pottery dating between from the early medieval period.

One group of sherd links has also been identified between the pottery in contexts [1141] (subgroup 433, pit) and [1153] (subgroup 427, pit), therefore the late 12th century chronology applied to both groups is similar. The occurrence of sherd links suggests these groups have been subject to some disturbance or have been deposited together thereby refuting any previous notion of chronological/stratigraphic differences between these contexts.

At this stage of analysis it is not clear how well these groups relate to the stratigraphy in terms of spatial distribution but the initial phasing would suggest that these are well-stratified groups and that the level of residuality within the medieval assemblage is low. The question of residuality will need to be examined further at the analysis stage when final phasing of the site is complete as most groups were small-sized and most contained some residual Roman material.

TPQ/TAQ	1050	1100	1150	1200	1250	1270	1350	1500	Grand Total
900	1				1				2
970		2							2
1000			2						2
1050		128	119						247
1080			226						226
1170				93			9		102
1180				33		1			34
1240						12	7		19
1270								5	5
Grand Total	1	130	347	126	1	13	16	5	639

Table 9 Date range of the medieval pottery assemblage by TPQ and TAQ by sherd count

The medieval pottery from these contexts can also be linked to broad land use interpretations. Table 10 demonstrates that 67.1% of all the medieval pottery (by sherd count) is found either from pit refuse deposits, with the 11.4% found from the external dumps representing the second most common land use entity from where the pottery was found.

Basic interpretation	Total	% of Total
Ditch	1	0.2%
Destruction debris	2	0.3%
External dump	73	11.4%
Occupation	3	0.5%
Pit	140	21.9%
Cesspit	9	1.4%
Pit refuse	289	45.2%
Structural cut	6	0.9%
Non-structural cut	35	5.5%
Well	81	12.7%
Grand Total	639	100.0%

Table 10 Land use entities with sherd count for the medieval period

The next section considers the pottery within the two main noted medieval periods identified, by focusing and briefly discussing the statistically viable groups found as examples of the composition of the remaining pottery from these periods.

#### *Saxo-Norman groups (1050 to 1150)*

Mostly recovered from pit or pit cess fills, the Saxo-Norman pottery can be further divided into distinct chronological ceramic phases. Pottery dating between 1050 to 1150 represents the first distinct group and is found in 22 subgroups (sg 113, 114; 120, 156, 179, 211, 272, 273, 276, 277, 278, 279, 280, 374, 391, 398, 400, 403, 408, 426, 534, and 572). These subgroups yielded highly fragmented, small-sized groups of pottery (with the exception of subgroup 408), often making an accurate estimate of number of vessels difficult. In addition, most of these groups contain quantities of Roman pottery.

The 87 sherds of pottery from subgroup 408 (context [716]) is typical of the pottery from the Saxo-Norman period: it consists of early Surrey wares (ESUR) cooking pots with equal quantities of shell and sand-tempered wares (EMSS and EMSH) in jar and cooking pot forms. Some examples have the rim and upper profiles. The remaining vessels are often highly fragmented making an accurate estimate of number of vessels difficult.

#### *Early medieval groups (1170/1180 to 1200)*

The dating for this period is based on the introduction South Hertfordshire greywares (SHER, from c 1170) and London-type ware baluster jugs with either Rouen or North French style decoration applied (from c 1180). The contexts dating from the later part of the 12th century are [1141], [1145], [1153] and [1206]. In total, 136 sherds are dated to this period, with most of the pottery found in context [1141] (subgroup 1142, pit), which contains large-sized sherds from SHER cooking pots with the more fragmented sherds of London-type ware (LOND) early rounded and baluster jugs.

### *5.3.3.2 Post-medieval pottery*

#### *5.3.3.2.1 INTRODUCTION*

The post-medieval assemblage found from LME01 consists of 156 sherds from a minimum number of 61 vessels. (Estimated number of vessels: ENV), and weighed a total of 12,481 grammes (giving a mean weight per sherd of 80 grammes). The assemblage consists of one small-sized group (contexts yielding fewer than 29 sherds) from context [953], with one large-sized group (contexts yielding between 100 and 499 sherds) from context [752] also found.

#### *5.3.3.2.2 METHODOLOGY*

The assemblage has been identified using the MoLSS medieval and later type-series and followed the same conventions applied to the recording of the medieval assemblage.

#### *5.3.3.2.3 FABRICS AND FORMS*

This section considers the fabrics found. In common with the medieval pottery, all the percentages listed in the text relate to the fabric occurrence % against total sherd count. The pottery can be broken up into eight categories by broad sources of supply - Surrey/Hampshire Border wares, local coarsewares, Delftware, fine redwares, imported wares; industrial finewares, non-local coarsewares and stonewares.

Type	No of rows	No of sherds	No of sherds as %	ENV total	ENV total as %	Weight in grammes	Weight in grammes as %
Surrey/Hants Border ware	1	1	.6	1	1.6	37	.3
Local coarsewares	6	20	12.8	6	9.8	6430	51.5
Delftware	5	17	10.9	5	8.2	609	4.9
Fine redwares	1	1	.6	1	1.6	124	1.0
Imported wares	3	11	7.1	3	4.9	715	5.7
Industrial finewares	30	92	59.1	42	67.2	3328	35.4
Non-local coarsewares	1	2	1.3	1	1.6	36	.3
Stonewares (not imported)	3	12	7.7	3	4.9	1202	9.6
Grand total	52	156	100%	61	100%	12481	100%

*Table 11 Sources of supply for the post-medieval pottery found from LME01 by sherd count, ENV and weight*

#### *Surrey/Hampshire Border wares*

Just one sherd of Surrey/Hampshire Border wares (BORDG) was found in context [1555]. This industry, essentially a later continuation of the medieval Surrey whiteware industry, supplied London in a range of utilitarian wares between the mid 16th to late 18th century, and represents a common find in London assemblages from this period (see Pearce 1992).

#### *Local coarsewares*

Twenty sherds of London area redware products (PMR: 12.8%) were found. PMR was made between c 1580 and 1900 either at Woolwich, where a kiln was uncovered in 1974, or at Lambeth and Deptford, where production is strongly suggested by the large quantities of PMR manufacturing waste recovered (Nenk 1999, 237). All this pottery was found in context [752] (subgroup 525, cesspit) found either as handled bowls or unglazed flowerpot forms.

#### *Delftware*

Seventeen sherds of tin-glazed ware (TGW; 10.9%) were found within the post-medieval assemblage in context [953] (subgroup 518, well). These can be additionally divided into the following decorative styles that are dated to the second quarter of the 17th century (TGW B, TGW C, and TGW D; see Orton 1988 for descriptions of these styles). This includes the complete profile of a TGW B caudle cup and the substantial rim profiles from a charger and dish.

#### *Fine Redwares*

This category defines the one sherd found in context [953] of a fine red fabric with a glossy, black iron-rich glaze (PMBL) manufactured at kilns in Essex, probably Harlow, between c 1580 to 1700 (Orton and Pearce 1984, 36).

### *Imported wares*

The substantial fragments of two Dutch slipped red earthenware (DUTSL) one handled bowls were found in context [752] (subgroup 525, cesspit). These vessels were usually imported into London during the 16th and 17th centuries yet are found deposited within a much larger group of 19th century pottery. They could represent vessels that had been well looked after and curated over a number of decades, but the form is replicated by the London redware industries, and so one possible explanation is that these vessels survived the successive cleaning of this cesspit until it was final disuse and it was sealed.

### *Industrial finewares*

By the mid 18th century industrial finewares predominate at the site, as throughout the London area, and indeed the whole country. The rapid growth during the mid 18th century of the Midlands industries which mass-produced durable, refined earthenwares (such as the creamware found), and later the various kinds of ironstone chinaware, granites and so on, as well the overwhelming success of transfer-printing as a major force in the field of decoration, all combined to transform the production, marketing and use of pottery in Britain. All of the industrial finewares were found from the backfill (context [752]) of one cesspit and from context [1555] (not subgrouped or yet defined).

Most of the industrial finewares found from the site are the plain creamwares (CREA; 8.3%) found in context [1555] or the refined white earthenwares (REFW; 36.2%) found in context [752]. The REFW includes two near complete chamber pots decorated with the royal cipher medallions of 'WR' (William IV) and 'VR' (Queen Victoria), and a sprig moulded cup imitating Josiah Wedgwood's 'jasper' design. Transfer-printed wares are infrequent (TPW2; 3.8%) and are limited to a plate decorated with the ubiquitous willow pattern print or teacups decorated with various 'Romantic' prints.

### *Non-local coarsewares*

The non-local, utilitarian, coarsewares consist of two sherds of 17th and 18th century black-glazed wares (BLACK) from either Staffordshire or Midland sources.

### *Stonewares (non-imported)*

English stonewares comprise 7.7% of the post-medieval assemblage and chiefly consist of the products of the 19th century industries of either Derbyshire or London and include a near complete ginger beer bottle and a black-leading bottle.

#### 5.3.3.2.4 FORMS

Table 12 displays the functional categories represented in the post-medieval assemblage. The pottery was in excellent condition and includes some nearly complete vessels, with many profiles and rims and base sherds found, and this enabled the complete identification of form to be made. The most complete pottery was recovered from context [752] and includes complete profiles from flowerpots (horticultural), chamber pots (hygiene) and storage jars.

Function	No of rows	No of sherds	No of sherds (as %)	ENV total	ENV total (as %)	Weight total (in grammes)	Weight total (as %)
Display	3	8	5.1	3	4.9	340	2.7
Drinking serving	1	1	.6	1	1.6	34	.3
Drinking	8	12	7.7	8	13.1	715	5.7
Food consumption	6	11	7.1	9	14.8	153	1.2
Horticultural	2	7	4.5	2	3.3	2598	20.8
Hygiene	8	38	24.4	10	16.4	2675	21.4
Kitchen/serving	11	44	28.2	14	23.0	4294	34.4
Kitchen/storage	4	13	8.3	5	8.2	252	2.0
Storage/serving	1	4	2.6	1	1.6	623	5.0
Storage	2	8	5.1	2	3.3	579	4.6
Teawares	6	10	6.4	6	9.8	218	1.7

*Table 12 Functional categories of post-medieval pottery found from LME01 by sherd count, ENV and weight*

#### 5.3.3.2.5 DISCUSSION

Most of the pottery is 19th century in date, with much of this group recovered from the one cesspit (subgroup 525). The pottery from this feature shares the following characteristics: it includes large quantities of joining sherds from substantially complete vessels and profiles that are closely datable, with no evidence of intrusive or residual material and this suggests the pottery may have been discarded as one event or as a series of closely linked events. The 'VR' Royal cipher medallion dates the group from 1837 onwards, although the lack of any further ceramic indicators means that the final TAQ date for this group is difficult to ascertain. The apparent rapid backfilling of this cesspit would appear to indicate the overall disuse of a feature. The remaining post-medieval assemblage serves to establish a chronology for the site and to characterise the deposits it was recovered from.

#### 5.3.3.3 Assessment work outstanding (all periods)

All the post-Roman pottery was spot-dated. A total of four vessels have been chosen for illustration as they either represent unusual forms within London's medieval ceramic type-series (these can be incorporated into a chronological narrative), or help to characterise those particular groups that have been identified as having further potential. Additionally, two post-medieval vessels will need to be reconstructed for illustration (see finds method statement below).

### 5.3.4 Accessioned finds

Angela Wardle

The 21 Lime Street excavations produced 462 accessioned finds, shown by general period and category in Table 13.

Material	Roman	Medieval	Post-med	Not known	Total	Comment
Stone	7	0	0	2	9	Excludes BM
Ceramic	9	3	0	0	12	Plus 48.BM, stamps, pipes
Glass	132		1	3	136	140 on reg
Iron					49	
Copper alloy	117	1	2	42	162	Inc 60 coins
Composite	2				2	
Lead	2			1	3	
Bone	16	5	0	1	22	
<b>Total</b>	<b>137</b>	<b>5</b>	<b>0</b>	<b>2</b>	<b>395</b>	

Table 13 Summary of accessioned finds by material and period

#### 5.3.4.1 Introduction/methodology

The objects have been accessioned in accordance with standard MOLAS/ MoLSS procedures. All were examined for the assessment with the aid of x-radiographs where appropriate and were considered in the light of the limited stratigraphic and dating evidence so far available. The assessment report is accompanied by a series of notes on the artefacts in the form of a draft archive catalogue arranged by material, which is provisional at this stage but will form a basis for future analysis and publication. Details of the vessel glass were entered on the Oracle database.

#### 5.3.4.2 Categories by dating and materials

##### 5.3.4.2.1 ROMAN

###### Stone

A jet finger ring <79>[307] from a large robbing pit, sg 276, dates from the later Roman period and there are fragments of shale tray from the same feature <80>, <126>, also a fragment of lava quern. Two more querns came from other parts of the site, <91> possibly post Roman and one fragment of a substantial quern or millstone, made from millstone grit <160>, was also found, sg 224.

An unusual cylindrical object made of Kentish ragstone <89>[240] sg 91 is of unknown function, possibly a weight. A sandstone hone <346>[[1295], ungrouped could be Roman.

###### Ceramic

A semi-cylindrical spindle-whorl <256>[716] sg 408 is purpose made. Four lamp fragments all appear to be imported fabrics (Gaulish) and closed forms; there is one open lamp <208>[644] sg 18.

A 'pipeclay' figurine <348>[1011] sg 454 is the base of a statuette of Minerva a comparatively rare figure type in London, with more complete examples known from wells at KEW98 and MLK76.

Only one fragment of crucible from the site appears to be made in a Roman fabric <31>, [68] sg 138 and this has copper residues. Of more interest is a ceramic mould with an architectural design <76>, [3-7]; sg 276. This was originally thought to be for the manufacture of ceramic vessels, possibly samian copies, but does not appear to be of any obvious form or pattern. The manufacture of metal vessels, perhaps an soft alloy such as lead tin is another possibility.

### Glass

The assemblage included 129 fragments of Roman vessel glass, of which 50 can be ascribed to a specific vessel type. The tables summarise the vessel glass by colour and broad date. There are few strongly coloured fragments which date from the mid 1st century and only one <141> [447], a Hofheim cup in dark green glass, can be identified. Hofheim cups are quite closely dated, from the conquest to about AD 70 and there are two more fragments in naturally coloured glass <298>[1282], <299>[1286]. A turquoise vessel <288>[1025] may be an eastern import.

Monochrome	9
Colourless	17
blue/green vessel	81
blue/green bottle	22
Total	129

Table 14 Summary of the Roman vessel glass by colour

M1	M-L1	L1/2	C2/C3	C4	C1-C4	total
5	14	45	5	1	59	129

Table 15 Summary of the Roman vessel glass by date

The assemblage includes 7 fragments of cast pillar moulded bowl, a very common form in use from the mid to the late 1st century. Two sherds may be from the same vessel. A distinctive mould blown beaker with almond bosses <145> [499] dates from the mid to late 1st century, but apart from bottles, the other identifiable vessels are all free blown. Most forms date from the late 1st or 2nd century with a small number of quality vessels in colourless glass, beakers <416>[1677] and <304>[1378] and a bowl with oval and circular facets <432>[1699]. Other contemporary forms are in naturally coloured glass and include a small range of jugs, jars and flasks, including a bath flask. The latest vessels are four colourless cups of the late 2nd/3rd century, Isings form 85, and there are no distinctive 4th century vessels.

The remaining vessel glass consists of fragments which cannot with certainty be ascribed to a specific form; many are very small.

In addition there are three fragments of window glass, two melon beads and a blue glass counter.

### Iron

The iron is in general badly corroded but a few objects can be identified. The most unusual is a hooked binding <449> [1776] (ungrouped), the second to have been found in London, the first from Leadenhall Court, in the same general area of London (Wardle 1996). It has been suggested that such mounts were cart fittings, perhaps used for the attachment of an awning. A ?hipposandal <397> [848] sg 356, requires cleaning to confirm identification and the only other artefacts recognisable as Roman



are part of a water-pipe junction collar <400>[1486] (ungrouped), a tanged knife <242>[795], sg 385, and hobnails from a shoe <215>[690], sg 7.

#### *Copper alloy*

The copper alloy is severely corroded, preventing identification in many cases and making it difficult to distinguish between decayed objects and possible manufacturing waste. Two brooches were found, <201>[642] sg 19, a catchplate from a 1st century (probably Colchester) form and a very distorted headstud brooch of 2nd century date, <423>[1689] no sg. A copper alloy finger ring <408> [1659], no sg, bears a fine intaglio carved with the figure of a lion. A fragmentary hairpin <362>, [1251] sg 551 dates from the 1st or 2nd century. A ligula <125> [463] and a fragment of mirror <428>[1725] both come from ungrouped contexts; a badly corroded bent strip <65> [315], sg 273, may be from tweezers. The only domestic item is part of a hinged lid from a jug, <239>[814] sg 382. There is a variety of fittings, part of a hinge, studs of various forms, nails and rings. Two objects are from armour, <136>[455] sg 156 part of a cuirass hinge and <67>[315] sg 273 is a fragment of scale armour, perhaps less common and certainly less commonly recognised, in part due to its fragility. A very corroded suspension loop, <180>[659] sg 18, may have been used with a harness pendant. At least four fragments may be waste from metal working, but are undiagnostic.

#### *Composite*

A corroded object <44>[268] sg 87 appears to be a scalpel, with copper alloy handle into which is set an iron blade. A flat circular copper alloy and lead object <122> [336] sg 64 is unidentified and possibly structural.

#### *Lead*

A fragment of lead waste <86>[320], sg 272 made be galena, used in the refining of silver. The other two lead accessions are fragments of sheet, which are probably structural.

#### *Bone*

The fifteen Roman bone artefacts comprise a limited range of personal and domestic items. Seven of the eleven hairpins are sufficiently complete for identification of the type. Most are common forms of the 1st and 2nd centuries, but there are single examples of Crummy Type 3 and Type 6, which dates after AD 200 and an unusual 'flame head' form. The remaining examples are undiagnostic fragments of shank. One spoon of typical Roman form came from subgroup 550, <338>[1253] and there is also a single bone counter <340>[1386]. The most unusual item is an enigmatic plaque <15>[85] sg 42, for which further research is required.

#### 5.3.4.2.2 MEDIEVAL

##### *Stone*

A fragment of lava quern <91>,[187], sg 113 has the pecked surface usually associated with Saxo-Norman examples, but the context date is as yet uncertain.

##### *Ceramic*

Three fragments of crucible containing copper alloy residues came from sg 276, a large pit containing Roman and medieval material. One is a typical medieval form with a spout in Surrey White ware <157>, [144] and the others although very small fragments appear to be in the same fabric.

##### *Iron*

A small number of iron objects are of medieval or post-medieval date; a horseshoe <10>[104] sg 283, mount (?door strap) <263>[789] sg 316, a chain <236>[770], sg 317, and a padlock <88>[91], sg 41.

##### *Bone*

A single context [1295] produced three complete or almost complete pins made from perforated pig fibulae of early medieval (Saxo-Norman) date <341>, <342>, <343>. Two fragments of shaft could also be from similar objects.

#### 5.3.4.2.3 UNKNOWN DATE

##### *Copper alloy*

Two corroded and fragmentary buckles <202>[642] sg 19 and <258>[697] sg 3, appear to be post-Roman. Various fragments of waste are not intrinsically datable and will be examined further in context.

##### *Bone*

A fragment of ivory ?handle is of uncertain date <209>[141].

#### 5.3.4.3 *Functional analysis*

Seventy seven Roman artefacts can be assigned to functional category. Nearly 30% are fasteners and fittings, mostly studs and nails, a typical picture for Londinium. Eighteen, the next largest group are items of jewellery or dress accessories, mostly bone hairpins, but the finger ring with intaglio <408> and jet ring <79> are unusual and quality pieces. There are only two brooches, both fragmentary. There is a limited range of items used for personal grooming or medical purposes, single fragments of mirror and tweezer, but one well preserved ligula <125> and a probable scalpel <44>.

Domestic items are generally restricted to the more durable materials, with small fragments of lamps, querns, a single bone spoon <338>, a copper-alloy jug lid <239> and badly laminated fragments of shale trays. The glassware is essentially domestic, but there only a few vessels of high quality. Two bone counters of standard forms are the only items associated with recreational activities and there are no writing implements. The only tool is a fragmentary knife <242> and unusually, there are no needles and the only implement used in textile production is a spindle whorl. There are three fragments of armour (none as substantial as the group from FEH95), one a piece of scale armour, not found at FEH95, (<136>). Two items are connected with transport, a fragmentary hipposandal and a distinctive mount <449>, which is thought to be a cart fitting.

There is a small quantity of 'industrial' waste, chiefly fragments of copper alloy, and a small fragment of crucible but also a fragment of lead ore (galena). The most interesting find however, unfortunately in a group which contains post-Roman material is the fragment of ceramic mould <76>[307].

Post-Roman material is limited in function to personal adornment, the bone pins and industrial material, the crucibles containing copper alloy residue.

#### 5.3.4.4 *Provenance of objects*

The majority of artefacts (337) can be assigned to sub group, but there is little indication at present as to what these represent and no information as to where they are. Some finds are associated with occupation layers or floors, notably the hoard of silver coins and copies (see coin assessment), from subgroup 216, but it is not possible at this stage to assess whether these are from the 1st century buildings or associated with the second Forum. A large number of artefacts, including the ceramic mould, are from a large robbing pit, subgroup 276, which contains many Roman and some medieval finds, including the crucibles. Several of the finds which are of intrinsic interest, the finger ring with intaglio for example, come from contexts which have not been subgrouped.

### 5.3.4.5 Assessment work outstanding

None

#### 5.3.4.5.1 LIST OF OBJECTS FOR INVESTIGATIVE CONSERVATION

Copper alloy/iron:

<44>[268] ?scalpel; ?iron blade

Copper alloy:

<74>[307] ?brooch or pendant; very encrusted soil etc.

<168>[386] Is this really copper alloy -- ?stone, as in oculist stamp.

Iron:

<238>[801] Clean section ; investigate at wider end ?hinge strap

<387> [848] Re-xray - side view for detail of ?rear hook - ?hipposandal

#### 5.3.4.5.2 LIST OF OBJECTS FOR ILLUSTRATION

Stone:

<79>[307] jet finger ring

<89>[240] stone object

Ceramic:

<256>[716] spindle whorl

<348>[1011] figurine

<76>[307] mould

<157> [144] medieval crucible

Iron:

<387>[848] hipposandal?

<449>[1776] hooked binding

Copper alloy:

?<423>[1689] brooch

<408>[1659] finger ring with intaglio

<125>[463] ligula

<181>[569] bell shaped stud

<203>[639] finial

<180>[659] suspension loop

<67>[315] scale armour

Composite:

<44>[268] ?scalpel

Bone:

<240>[857] hairpin

<241> [856] hairpin

<425>[1667] hairpin

<414>[1677] hairpin

<15>[85] plaque ?military

<338>[1253] spoon

<341>[1295] pin (medieval)

<342>[1295] pin (medieval)

<343>[1295] pin (medieval)

### 5.3.5 Coins

Mike Hammerson

#### 5.3.5.1 Introduction/methodology

The coins from 21 Lime Street were examined and provisionally dated in February 2004. An Excel chart containing information on the coins and their context and subgroup location was supplied in support of a brief assessment.

#### 5.3.5.2 Quantification

A total of 54 Roman coins and 3 post-Roman coins were recovered during the excavations and have been provisionally identified and dated during the assessment.

period/type	sub-total	total
Iron Age		1
Republic (Mark Antony)		1
Claudius I:		
official semis	1	
irregular	4	
Germanicus	1	
		6
Vespasian		2
Domitian		2
uncertain c. AD45-130		1
uncertain Antonine, c. AD140-190		1
illegible denarii, all v worn		3
plated denarii, Republic-Flavian		7
plated denarius, Geta, c. AD200		1
plated denarius, Julia Domna, c. AD200		1
Claudius II		3
Postumus		1
uncertain regular c. AD260-275		3
irregular c. AD270-285		5
Carausius		2
irregular c. AD340-350		2
irregular c. AD355-365		2
uncertain c. AD330-370		1
uncertain c. AD270-365		5
uncertain and corroded, possibly plated denarii		4
17th-c?		1
1795		1
1825-7		1
<b>Total</b>		<b>57</b>

Table 16: summary list of coins assessed

### 5.3.5.3 *Summary for the Roman coins*

The coins from 21 Lime Street can be described as a relatively 'normal' site assemblage. The presence of coins of Plancus and Mark Antony do not suggest a pre-Roman link, as Republican coins probably constituted the bulk of the silver coinage at the time of the conquest. Mark Antony is the most common pre-conquest denarius to be found in post-Conquest Britain.

The assemblage is notable for the relative absence of the usual peaks and troughs in coin presence seen across the Roman periods for typical site assemblages. The normal variations appear to have been leveled out and are barely discernible. The flat distribution of coins suggests that either a lot of coins were missed, which is unlikely, or that the site had been deeply disturbed by intrusive features which truncated substantial parts of the stratigraphic sequence, and particularly those horizons where higher coin numbers are usually found: the Flavian period, the AD260s-280s, and the AD330s-350s.

The Roman coins as a group demand little comment, and it should be noted that 54 coins are not statistically significant. The make-up of the assemblage reflects the general range of coins that would be expected from a site occupied for much of the Roman period and the pattern of coin loss suggests nothing unusual.

A group of between 9 and 13 plated forged denarii is of interest. There is quite a gap between the Republic-Flavian group and the next dated example - of Geta. This suggests either that the forgers (if they were Severan) were deliberately trying to produce old-looking coins, mixed in with some contemporary ones to make the group look more genuine, or that the coins represent more than one phase of forgery, in the late 1st century and the Severan period. The presence of so many forgeries suggests a cache of some sort, rather than casual loss over time.

### 5.3.5.4 *Summary, post-Roman*

A total of three post-Roman coins were recovered from the site, all date to the early modern period. The coins are unremarkable but contribute to the dating evidence and the phasing of the site sequence.

## 5.3.6 *Iron slag*

Lynne Keys

### 5.3.6.1 *Introduction/methodology*

Assessment of the iron-working debris was undertaken with a view to:

1. Determining the types of iron slags and other ironworking debris present and the processes they represent;
2. On the basis of the examination, to make recommendations for future work.

For most categories of material from the excavation, selected priority contexts were to be examined at assessment; however it was felt that all the iron slag could be quantified in the time it would take to separate out and quantify the selected contexts.

Just under 22.5kg of material initially identified as slag had been recovered by hand during excavation and from soil samples. Eight standard Museum of London finds boxes were presented for assessment and all were quantified. Virtually all the bulk slag was unwashed but the wet sieved material was cleaner and easier to identify. Processed soil samples which were bagged and boxed up with the bulk slag were examined for assessment. A bulk sample taken for the assessment of evidence of

'metalworking' was subjected to a magnet test to detect hammerscale, although the bulk slag in it was not examined or identified.

The slag assemblage was visually examined and categorised on the basis of morphology alone. Each category of slag in each context was individually weighed to within 2g but in the case of the smithing hearth bottoms each was weighed and measured to obtain its dimensions. Additionally a magnet was run through the soil in bags to detect micro-slugs such as hammerscale. The identification and weight of each type of slag in each context, and the dimensions of smithing hearth bottoms are given in the slag spreadsheet for the site.

#### 5.3.6.2 *The ironworking debris and discussion of terms*

Activities involving iron can take two forms:

1) the manufacture of iron from ore and fuel in a *smelting* furnace. The resulting products are a spongy mass called an unconsolidated bloom consisting of iron with a considerable amount of slag still trapped inside, and slag (waste).

2a) *primary smithing* (hot working by a smith using a hammer) of the bloom on a stringhearth, usually near the smelting furnace, to remove excess slag. The bloom becomes a rough lump of iron ready for use and the slags from this process include smithing hearth bottoms and micro-slugs, in particular tiny smithing spheres;

2b) *secondary smithing* (hot working by a smith using a hammer) to turn a piece of iron into a utilitarian object or to repair an iron object. As well as bulk slags including the smithing hearth bottom, this will also generate micro-slugs: hammerscale flakes from ordinary hot working of a piece of iron, or tiny spheres from high temperature welding to join two pieces of iron.

Some types of iron slags are diagnostic of smelting or smithing, while others are not. Slag may be said to be undiagnostic because it could have been produced by either process - which one can only be determined in the light of any diagnostic evidence from the site. Slags may be broken up during deposition, redeposition or excavation and may have to be assigned to the undiagnostic category.

Much of the slag recovered was fragmented and led to its being categorised as undiagnostic. Some slag, however, was very similar to fragments of broken smithing hearth bottoms and where this was the case the words 'smithing slag?' are found in the comments column of the spreadsheet.

The diagnostic slag type present in the assemblage was the smithing hearth bottom. The characteristic plano-convex shape was formed as a result of high temperature reactions between the iron, iron-scale and silica from either a clay furnace lining or the silica flux used by the smith. The predominantly fayalitic (iron silicate) material produced by this reaction dripped down into the hearth during smithing to form smithing slag which, if not cleared out, developed into the smithing hearth bottom. When removed from the hearth they were usually taken outside and deposited in the nearest pit or ditch. The proximity of cut features or dumps with amounts of smithing hearth bottoms to a building is often a good indication the structure may have been a smithy. There were, unfortunately, no significant numbers of smithing hearth bottoms from the site so many could represent re-deposited material.

Contexts [815] and [833] were described on the site context sheets as 'industrial occupation' and 'industrial' pit fill; both are related (sub-groups 476 and 475 respectively). Context [833] produced three smithing hearth bottoms, [815] produced one. It may be that the [815] layer represents disturbance of the top layers of the pit which contained [833] but this is a subject for further examination.

The slags which usually remain in the immediate floor area where the smith worked are known as micro-slugs; these are usually referred to as hammerscale. This is not visible to the naked eye when in the soil but is highly diagnostic of smithing activity, often remaining in the area around the anvil and near the hearth when larger slags are cleared out of the smithy and dumped elsewhere. They are usually highly magnetic (some spheres are not) and can be detected in soil with a magnet. Generally it is recovered from soil samples, usually taken from fills for environmental information.

Virtually no hammerscale was present in the Lime Street assemblage and it is not known whether this is because floors of potential smithing areas were not sampled or whether it was just not present in soil samples taken. The latter is the case with sample <24> taken from context [1654] but its absence from other contexts implies, again, that the slag was re-deposited and not in primary deposits.

Vitrified hearth lining comes from nearest the tuyère region (the region of highest temperature) of a hearth or furnace. By itself it is not diagnostic of smithing activity but its association with other diagnostic material provides support for the process. Cinder is a very porous, highly vitrified material formed at the interface between the alkali fuel ashes and siliceous material of a hearth lining. On many excavations it represents the lighter portion of vitrified hearth lining. If in association with diagnostic material from some industrial activity it may be assigned to that activity, however here it cannot always be assigned.

Ferruginous concretions are made up of a re-deposition of iron hydroxides (rather like iron panning), enhanced by surrounding archaeological deposits, particularly if there is iron-rich waste present as a result of ironworking.

#### 5.3.6.3 *General summary*

The assemblage represents smithing activity, probably low temperature smithing. This interpretation arises from the slag being generally loosely compacted, with only two or three fragments of slag possibly representing high temperature working. The latter could have been produced by non-ironworking processes (i.e. they could be fragments of litharge, the waste produced when base metals are refined to produce silver).

Virtually no hammerscale was present but this may be because much of the assemblage was re-deposited. No hammerscale was recovered from contexts which were thought on site to represent metalworking deposits but it is not known whether more samples, particularly flotation samples, are yet to be processed. The assemblage as a whole is different from the slag recovered from Roman Southwark and other sites in the City.

#### 5.3.7 *Plant remains*

Anne Davis

##### 5.3.7.1 *Introduction/methodology*

Twenty-six samples were taken for environmental assessment, from a variety of Roman and medieval features. All samples, with the exception of {11} and {24}, which could not be found, were processed by flotation, using a Siraf flotation tank, with meshes of 0.25mm and 1.00mm to catch the flot and residue respectively. All flots and residues were dried, and the latter sorted by eye for artefacts and environmental material.

Samples were prioritised for the post-excavation assessment, and eleven samples from the best archaeological sequences have been targeted. All are thought to

date from the Roman period. The flots from these samples were scanned briefly, using a low-powered binocular microscope, and the abundance, diversity and general nature (method of preservation, unusual features) of plant macrofossils and any faunal or artefactual remains were recorded on the MoLAS ORACLE database.

#### 5.3.7.2 Charred remains

Wood charcoal was present in all the samples, and particularly abundant in occupation surface [373]. Several charred cereal grains were seen in five samples, from occupation layers [268], [456], [815], external occupation layer [628] and pit fill [989]. Fewer than ten grains were seen in each case, and almost all were from barley (*Hordeum vulgare*), with a few from oats (*Avena* sp.). Single glume bases of spelt wheat (*Triticum spelta*) were seen in pit fill [833] and occupation layer [856], and a number of charred weed seeds were present in four samples. A fragment of charred hazelnut shell was recovered from [628].

#### 5.3.7.3 Mineralised remains

Occasional mineralised seeds were recovered from external occupation surface [628] and pit fill [989], together with mineralised concretions with impressions of plant stems.

#### 5.3.7.4 Waterlogged remains

Preservation of organic plant remains was poor on this site, and was limited to small numbers of seeds, mostly from fig (*Ficus carica*) and blackberry/raspberry (*Rubus* sp.), in occupation surfaces [815] and [856].

#### 5.3.7.5 Faunal remains

Large mammal bone was recovered from the residues of all samples, and was particularly abundant in pit fill [989]. Fish bone and fragments of marine mollusc shell were also quite widespread, and bones of small mammal, bird and amphibian, also eggshell, were found in one or two samples.

#### 5.3.7.6 Artefactual remains

Pottery sherds, brick and tile fragments, and iron objects were found in the residues of most samples, with iron particularly abundant in pitfall [833] (see Table 3). Slag and/or clinker, possibly signs of industrial activity, were found in samples from occupation layers [815], [856] and pitfall [833].

#### 5.3.7.7 Assessment work outstanding

Unprocessed soil from samples {9}, {13}, {15} and {22} should be processed and assessed to maximise the recovery of charred cereal grains (see Potential section, below).

### 5.3.8 Animal bone

Jane Liddle

#### 5.3.8.1 Contents of the environmental archive

The archive comprises a total of 50 boxes of hand-collected animal bones and 2 boxes of wet-sieved animal bone residue from bulk samples.



### 5.3.8.2 Introduction

Contexts from the most representative archaeological sequences were prioritised for assessment. The assessment has greater emphasis towards the Roman period, although a larger quantity of bone was recovered from medieval features. Approximately two thirds of the animal bones recovered were recorded for assessment; the remaining contexts are retained in the archaeological archive. Recommendations for further study have been divided into Roman and medieval.

### 5.3.8.3 Methodology

The bones were recovered by hand-collection on site and from wet-sieved bulk-samples. The hand-collected material was washed, air-dried, bagged and labelled as context groups. Bulk samples were washed using a modified Siraf tank fitted with 1.0mm and 0.25mm flexible nylon mesh to retain the residue and flot fractions respectively. The residue was visually sorted for faunal remains, and then labelled as individual sample groups.

The material was quantified by weight (kg) and approximate fragment count. A three-point scale was also used to indicate fragment count (1=<10; 2=11-100; 3=>100). Each context was then described in terms of bone condition, fragment size, species-composition, carcass-part representation and incidences of modification. Counts were made of mandibular tooth rows, epiphyses, measurable bones and whole long bones. All identifications were made using the MoLSS reference collection and data were entered directly onto the MoLAS/MoLSS Oracle 9 animal bone assessment database.

### 5.3.8.4 Results

In total 64kg (2100 fragments) of animal bone were assessed from hand-collected contexts, with an additional 3.6kg (330 fragments) of bone recovered from 9 bulk samples. Most of the bone from sampled contexts was recovered from a single Roman rubbish pit sample and constitutes a whole earth sample (with no hand-collected content) whereas the remaining samples were all taken in addition to the hand-collected element.

All of the bones recovered by both hand-collection and wet-sieving bulk samples were well preserved with little or no surface abrasion. Bone fragments were generally over 75mm in size with a large quantity of bones intact and measurable. The bones have potential for ageing, size and stature studies due to the large quantity of epiphyses and mandibles present and measurable long bones.

The bones were recovered from a mix of features from both the Roman and medieval periods. Although fragment counts were similar for both periods, the medieval bone represented nearly two thirds of the assemblage by weight and the Roman bones were recovered from a larger number of contexts.

The Roman bones were generally associated with make-up layers, floors, occupation layers, dumping and demolition associated with and pre-dating the Roman second forum. This bias is related to the selection of contexts for study, rather than the actual distribution of faunal remains on site.

The medieval contexts were almost exclusively from pits, including rubbish pits and cesspits, with a small quantity of remains from non-structural features and external dumps.

There was limited species diversity amongst the assemblage, due in part to limited sampling, with the majority of bones deriving from cattle (*Bos taurus*), sheep/goat

(*Ovis aries/Capra hircus*) and pig (*Sus scrofa*). Smaller quantities of horse (*Equus caballus*), dog (*Canis familiaris*) and cat (*Felis catus*) were also recovered, including a near complete cat skeleton from a Roman make-up layer. Wild species used for food included very small quantities of red deer (*Cervus elaphus*), fallow deer (*Dama dama*), roe deer (*Capreolus capreolus*), hare (*Lepus europaeus*) and rabbit (*Oryctolagus cuniculus*). A moderate quantity of chicken (*Gallus gallus*), duck (*Anas sp.*) and goose (*Anser anser*) was recovered and a small quantity of wild bird bones including woodcock (*Scolopax rusticola*) and wader/plover species. Due to the small quantity of samples taken the only fish recovered were a single smelt (*Osmerus eperlanus*) vertebra and cod (*Gadus morhua*). Frog/toad (*Rana sp./Bufo sp.*) was recovered from a couple of samples and a small quantity of mouse/vole bones.

### 5.3.8.5 Discussion

#### 5.3.8.5.1 ROMAN

A number of make-up layers contained small amounts of bone, most were associated with ground make-up preceding the construction of the second forum. Bone assemblages from the make-up layers were generally small with under 0.5kg of bones. The bone recovered derived from a mix of species with greatest emphasis on the three main domesticate species, cattle, sheep/goat and pig. It is likely that the material derived from opportune dumping of household food waste, especially as the area was being levelled and prepared for the forum construction, rather than located within a residential area.

A small number of more unusual assemblages were recovered and include context [300], a rubble layer dated 70-100 AD containing cattle, pig and horse remains. The horse bones may have derived from opportune dumping or perhaps redeposited material from an earlier disturbed horse dump or burial. A juvenile goat mandible and very small dog were recovered from make-up layer [1002] dated 120-160 AD. The goat bone indicates that the sheep/goat bones could have derived from either of these species, which are usually difficult to differentiate besides a few key bones, including juvenile teeth. The dog remains indicate that an articulated individual was dumped and the small size of the bones, despite it being mature, may help to establish the size and stature of the dog, indicating if not a breed, then certainly a 'type' of dog.

An entire cat was recovered from make-up layer [287], which although noted during excavation as possibly representing modern disturbance, was dated by pottery to 50-100 AD, and is likely to have resulted from household waste or possibly an unfortunate casualty of dumping levelling material in the area. An occupation dump [481] used for make-up contained the only evidence of hare for the site. Butchery marks on a mandible indicate it was either defleshed or skinned, or possibly both. Two butchered roe deer leg bones from an early make-up layer [526], indicating wild mammals were also caught and prepared for food during the early Roman period.

Destruction debris, which also pre-dated the forum construction, contained only very small quantities of animal bone, although a very large, but still sub-adult red deer lower foreleg was recovered from [522]. The bones were butchered and may have derived from waste from venison consumption or could potentially have resulted from bones attached to hides. Occupation debris is likely to have been used as part of the make-up layers associated with the construction of the forum. These layers again contained only small quantities of bone. Woodcock bones were recovered from one occupation layer [521], an indication that wild birds were present within the diet, probably as a smaller supplement to the normal domesticate species.

A human mandible from a metalling surface, context [319] is one of a small number of human bones from the animal bone assemblage. The bone may have been redeposited from an earlier disturbed human burial. Similarly a fragment of human lower leg from make-up dump [828] is likely to represent redeposited burial material.

Animal husbandry was evident from rubbish pit [1090]. A very young, probably foetal, cattle humerus was recovered from the fill. The bone may either indicate cattle were bred within the city in the early Roman period, or that a pregnant female was brought for slaughter. The second possibility is less likely due to the increase value of a pregnant cow and unlikelihood of it being sent to slaughter if it was in calf. A single dump of possible butchery waste was also recovered from the pit and included nearly 3.5kg of bones mainly from the skull and lower legs of cattle.

A smaller quantity of bones was recovered from layers contemporary with the forum. These include floors, make-up layers and occupation dumps. The bones were mainly associated with food waste and included a wader/plover lower leg bone from occupation layer [814].

#### 5.3.8.5.2 MEDIEVAL

The medieval bones from the site were mainly recovered from disposal pits a small number of dumps and a well. Most of the features were dated by pottery to the Saxo-Norman period, between 1050-1150. The pits, including rubbish pits and cesspits, contained moderately large assemblages, a number with over 1kg of bones. The bones were dominated by domesticate species with smaller quantities of red and fallow deer, as well as horse and domestic fowl. The domesticate species indicate that food waste was most common in the pits and dumps, suggesting general household waste was deposited. Dumps of possible butchery waste were also present and include a number of sheep/goat metapodials from well fill [723], which could have been removed and discarded during the primary stages of processing.

Moderate quantities of domestic fowl, for example from rubbish pit [729] and dump [144], show their presence within the diet. Goose and duck were present in a number of contexts, but to a lesser extent and generally included single bones, for example goose bones from pit [180] and rubbish fill [154] and duck from rubbish pits [68] and [127].

Wild species derived from food waste were recovered from a small number of features. Their presence indicates that the meat element of the diet was complimented by some variation from the three main domesticate species, for example hare was also recovered from rubbish pit fill [729], a fallow deer lower leg was recovered from rubbish pit fill [1153] and a possible curlew bone from dump [711]. Rabbit was present in rubbish pit [154] and could have derived from rabbits bred in conies and sold to the markets.

A worked red deer antler fragment was recovered from pit fill [1141] and shows that wild animals were also exploited for their raw materials. Bone working waste was also recovered from dump [104] and included the discarded distal end of a cattle metapodial, sawn off when producing a workable shaft of bone. A cat mandible with knife marks indicative of skinning was dumped with waste in well fill [723] and indicates the well was used for opportune disposal of furrier waste.

A buzzard wing bone from [144], a large dump of bones, is one of the few examples of wild species likely to have been present naturally in the area and could indicate its presence as a scavenger. The dump also contained evidence for cattle and pig husbandry with the presence of neonatal calf and piglet bones. Neonatal pig bones were also recovered from pit fill [172] and indicate that pigs may have been reared

locally, possibly within back yards to provide a free food source as well as re-cycling household waste.

The horse bones, for example those from dump [104], pit [322] and rubbish pit [142], are likely to represent redeposited earlier burials, possibly from the Roman activity on site.

### 5.3.9 Conservation

	Material	No. accessioned	No. conserved	No. to be treated (see below)
Organics	Bone	23		
	Fibre	1		
	Ivory	1		
Composite		2		1
Metals	Copper alloy	161 (58 coins)	57 (57 coins)	25
	Iron	49		3
	Lead	3		
	Silver	2 (2 coins)	2 (2 coins)	
Inorganics	Ceramics	79		4
	Glass	140		7
	Stone	18		1

Table 17 Summary of conservation work

#### 5.3.9.1 Introduction/methodology

The following assessment of conservation needs for the accessioned and bulk finds from the excavations at 21 Lime Street, encompasses the requirements for finds analysis, illustration, analytical conservation and long term curation. Work outlined in this document is needed to produce a stable archive in accordance with MAP2 (English Heritage 1992) and the Museum of London's Standards for archive preparation (Museum of London 1999).

Conservation support at the time of the excavation was provided by conservators working for the Museum of London Specialist Services. Records of conservation carried out at the fieldwork stage are held in the conservation department of the Museum of London. Conservation of artefacts was carried out in the laboratory.

Treatment of objects at the fieldwork stage includes the stabilisation of vulnerable materials and composites, cleaning of coins for dating purposes and investigative cleaning and conservation according to archaeological priorities.

Treatments are carried out under the guiding principles of minimum intervention and reversibility. Whenever possible preventative rather than interventive conservation strategies are implemented. Procedures aim to obtain and retain the maximum archaeological potential of each object: conservators will therefore work closely with finds specialist and archaeologists.

The metalwork is in poor condition. Corrosion crusts obscure what remains of the surface on both the copper alloy and the iron accessions. X-radiography has been used to aid identification. A high proportion of the copper alloy appears to be unstable when compared to other city sites, with eleven of the small finds displaying possible active corrosion.

Most conservation work on metal artefacts begins with visual examination under a binocular microscope followed by mechanical cleaning using scalpel and other hand tools. Occasionally other mechanical devices such as air abrasive and power pen or mini drill are used. Mechanical cleaning will reveal detail and a conservation surface beneath often voluminous corrosion products enabling the true shape and purpose of the artefact to be understood. After cleaning to reveal detail copper alloys were stabilised with a corrosion inhibitor (benzotriazole) and coated with a protective lacquer (Incralac). The other accessioned materials recovered on site were found to be in good condition.

All conserved objects are packed in archive quality materials and stored in suitable environmental conditions. Records of all conservation work are prepared on paper and on the Museum of London collections management system (Multi MIMSY) and stored at the Museum of London.

#### *5.3.9.2 Finds analysis/investigation*

The accessioned finds were assessed by visual examination of both the objects and the X-radiographs, closer examination where necessary was carried out using a binocular microscope at high magnification. The accessioned finds were reviewed with reference to the finds assessments by Angela Wardle.

A number of items were identified as requiring some investigative cleaning to clarify detail and aid identification, including four copper alloy accessions that maybe coins.

Two items were also identified for further X-radiography as different angles should reveal more information about the objects.

The ceramic mould needs to be investigated using XRF to reveal if there are any residues remaining which could indicate if the mould had been used and what material was cast in it.

#### *5.3.9.3 Work required for illustration/photography*

Eight items were identified as requiring conservation input to prepare them for drawing or photography.

#### *5.3.9.4 Preparation for deposition in the archive*

The small finds from this site are in the majority appropriately packed for the archive. However the copper alloy is possibly displaying active corrosion, the identified items need to be stabilised. There is no simple way of preventing this deterioration but some steps can be taken to limit it by keeping RH fluctuations to a minimum.

#### *5.3.9.5 Remedial work outstanding*

There is no remedial work outstanding.

## 6 Potential of the data

### 6.1 Realisation of the original research aims

Original research aims are listed here as ORA1 etc with the same numbering sequence used in the Addendum to the revised mitigation strategy (MoLAS 2001)

**ORA1** Since the site was clearly near the earliest Roman settlement nucleus, are there any structural or other remains relating to this earliest phase of occupation? How do they relate to those found on other sites in the vicinity, e.g. 168 Fenchurch Street? What can they tell us about the nature of the early settlement?

*The earliest features on the site were short-lived timber structures, associated pits, dumps and small areas of metalling. The subsequent building phase was represented by a mortared flint foundation very similar to those recorded in a pre-Boudican building at 168 Fenchurch Street. The early pottery assemblage has been noted as similar to other sites in the vicinity; of the remaining finds, few obviously date to the pre-Boudican period, with the exception of glass artefacts, which include some of the same vessel types as found at 168 Fenchurch Street.*

**ORA2** In particular, is there any evidence that the area was initially laid out to an ordered street pattern? Was the street under Lime Street part of the original street layout, as suggested by excavations further north at Whittington Avenue?

*The alignment of the earliest buildings appears to respect that of the main east-west street beneath modern Fenchurch Street. Excavation at the east end of the site was limited in terms of depth; however, information from the auger records may give some indication of whether the street under Lime Street was part of the original layout.*

**ORA3** Can any specialised functions be identified on the site before the construction of the first forum? If so, how do these relate to the pre-Boudican building at 168 Fenchurch Street where extensive grain deposits were recorded?

*No specialised functions can be identified at this stage. However, the pre-Boudican pottery assemblages are of a character similar to other sites in the vicinity and some similarity has also been noted between a 1st century masonry foundation here and at 168 Fenchurch Street, which may be significant.*

**ORA4** Is there any further evidence of the (possibly early) tile and mortar structure recorded in section during recent underpinning work at 168 Fenchurch Street to the south? How does it relate to the second forum remains and can it be dated?

*The tile and mortar structure recorded on the southern limit of Area 5 is probably part of the same feature. It was only observed over a limited area, but appears to have been part of a channel, possibly a hypocaust or flue; it clearly pre-dates the construction of the second forum foundations.*

**ORA5** Do structures constructed after the Boudican fire and contemporary with the first forum reflect continuity from the early period, or a change in the nature and status of the area? (Due to modern truncation, there was very little post-Boudican material at 168 Fenchurch Street, resulting in a considerable gap in the archaeological sequence for this particular area).

*The post-Boudican structural remains recorded on the site appear to represent relatively well-appointed buildings of clay and timber/mudbrick construction. Internal*

features included mortar floors, walls rendered with plaster, a domestic tile-lined oven and possible evidence for underfloor heating. These buildings can perhaps be regarded as more domestic in character and their density suggests expansion and more intensive use of the area.

**ORA6** Do the ceramic and environmental assemblages point to any change in the function of the site following the construction of the first forum? (The early pottery assemblage at 168 Fenchurch Street was of a military character, but due to the lack of deposits contemporary with the first forum, the status of the area between this time and the construction of the second forum was unclear).

*It may be possible to answer this question once the full ceramic assemblage has been viewed.*

**ORA7** Can the construction of the second forum east wing be dated? Evidence from 83-87 Gracechurch Street and recent work at Whittington Avenue suggests that the east wing was added to the Basilica as a later phase of construction, although it was clearly part of the original plan.

*Dating of the ceramic assemblages from the second forum and its associated construction make-ups may help to refine the dating of the east wing. The coins may provide further dating evidence when seen in stratigraphic context.*

**ORA8** Can excavation add to the existing plan of the second forum? A re-evaluation of the records from 83-87 Gracechurch Street by Brigham in 1992 led to the suggestion that the east wing comprised two sets of inner rooms, flanked by an outer portico and a wide inner portico. Can this site provide further evidence (e.g. floor surfaces or other features at the west end of the site) to confirm the existence of this wide inner portico? If so, did it belong to the final stage of construction of the forum, as suggested?

*Evidence from the site appears to support Brigham's suggested layout; it includes clear evidence for a double range of rooms, probable inner portico surfaces and a masonry pier similar to those found within the inner portico of the south wing.*

**ORA9** Given the potential survival of fragments of wall superstructure, can anything further be added to our knowledge about the construction and layout of the forum? Can the evidence of moulded stones or building materials be used to determine architectural details?

*Survival of the superstructure of the forum walls was fragmentary and is probably limited to indicating the contemporary ground level. The total depth of the surviving masonry may provide some information on how the construction of the second forum was achieved, particularly in relation to associated ground-raising activity.*

**ORA10** Given the potential on this site for the survival of floor surfaces across the entire width of the second forum, can specific functions be determined for individual areas, either from the form of the structures or from finds and environmental analysis? *There is little initial evidence to suggest specific functions for the various internal rooms, but once the site has been grouped, it may be possible to associate any well-defined pottery assemblages with individual rooms. The highest surviving surfaces in the area of the outer portico appear to indicate that it was a focus for industrial activity during the later Roman period.*

**ORA11** How does the street to the east of the forum relate to the structure? How was drainage managed? (Observations of a possible timber-lined drainage ditch were made at 168 Fenchurch Street in both 1976 and 1997). Is there any evidence to suggest that the road had entered a period of neglect by the late third century, as with the road to the north of the basilica?

*Limited excavation in the south-east corner of the site provided the only stratigraphic link between the outer forum wall and the road to the east. A complex and lengthy*

*sequence of road surfaces and drainage features was recorded here and it appears that the road continued to be used throughout the later Roman period.*

**ORA12** Is there any clear evidence for the demolition of the second forum and can it be dated? The eastern wing (and in particular the site at 22 Lime Street immediately to the south) has provided some of the little evidence there is for the demolition of the forum. The west wall of the outer portico was demolished to 14.1m OD and sealed by a thick burnt deposit. In the west central range, the final chalk floor at 13.9m OD was overlaid by ragstone and tile rubble reaching 14.50m OD, interpreted as local demolition work.

*Dumped deposits at the upper end of the archaeological sequence may relate to the demolition of the second forum, although due to subsequent truncation, these were only observed in limited areas.*

**ORA13** Is there any evidence for late Roman structures post-dating the second forum? Is there any further evidence to help explain the unusual buttressed foundation at 168 Fenchurch Street to the south, i.e. is it a pre-or post-second forum building, or an alteration to the forum itself? It was on a similar alignment to the forum walls but was apparently not associated. Similar walls have been recorded elsewhere (All Hallows Lombard Street and 50-52 Cornhill). In addition, possible floor surfaces sealing a demolished forum wall were recorded at 22 Lime Street.

*An east-west aligned masonry foundation resting on timber piles in the area of the outer portico may be a late Roman feature. It is not yet clear whether this was part of an alteration to the forum during its declining years or an entirely separate structure. An unusual masonry structure on the opposite side of the road to the east of the forum may also be of late Roman date. Both features included chalk in their construction, which is paralleled elsewhere in the City in late Roman foundations. A number of finds, all personal objects, are dated to the later Roman period.*

## 6.2 General discussion of potential

The excavation at 21 Lime Street is of considerable potential in that it has produced the most detailed record to date of the second forum east wing; in addition, owing to the exceptionally high survival of archaeological deposits, it has been possible (albeit in limited areas) to examine a continuous occupation sequence dating from the early through to the late Roman periods in this important area at the heart of the Roman city.

The site has provided further evidence of early Roman activity in the area close to the earliest settlement nucleus. Further analysis of the stratigraphic archive, together with the ceramic, finds and environmental assemblages, has the potential to answer research questions relating to the early development of the area, including the dating, as well as the nature and spatial arrangement of the earliest structures, particularly in relation to adjacent sites. There is evidence for a variety of constructional techniques, with particular reference to early mudbrick building in the city, together with evidence for the status, usage and disuse/destruction of these buildings. There is also evidence for deposits relating to the Boudican fire, though not necessarily in situ. The discovery of a 1st-century flint foundation paralleled at 168 Fenchurch Street is of particular interest, since it suggests some uniformity and a degree of pre-planning in the layout of the early town. The relatively high quantities of pre-Flavian ceramics on the site, when considered in a wider context, may also contribute to a better understanding of the origins and development of the early settlement.

The site has to some extent filled a gap in the archaeological record from the adjacent site of 168 Fenchurch Street, where (due to truncation) there was a virtual



absence of structures contemporary with the first forum. The stratigraphic archive has some potential to address questions concerning the character of the area in the post-Boudican period. Although only recorded in limited areas, internal structural features such as the tile-lined oven and possible hypocaust flue may give some clue as to the function and status of the buildings on the site at this time. There is also some potential for determining the status of the area through further analysis of the ceramic and finds assemblages, once a more complete chronological sequence has been established. The few military artefacts retrieved from the site date from the 1st century and it will be important to examine their place in the stratigraphic sequence and to consider them in relation to military objects found on other sites in the vicinity.

Of prime significance is the evidence for the east wing of the second forum, elements of which were recorded at various locations across the entire width of the site. The stratigraphic archive has potential to demonstrate how the construction of the forum was actually achieved in this area, in terms of the relationship between the foundations, associated ground-raising dumps, and the demolition of earlier structures. It also adds significant new information regarding the existence of a wide inner portico, which may be considered in the light of Brigham's recent reassessment of evidence from earlier sites. It may also be possible to refine the dating for the construction of the east wing through further study of the ceramic and coin assemblages.

There is also considerable potential to examine the structural remains of the forum from an engineering perspective through a collaboration between MoLAS and Tony Taylor, a civil engineering consultant. Analysis of variations in the dimensions and construction of the wall foundations across the width of the east wing may provide information on load-bearing capacity and the possible form of the superstructure. This data may be considered in relation to existing reconstructions of the forum-basilica complex. It may also indicate whether responses to local ground conditions were a consideration during the construction process.

The site offered a rare opportunity to examine the floor surfaces of the forum in some detail and through further analysis of the ceramic and finds assemblages it may be possible to suggest functions for specific areas or rooms within the complex. It may also be possible to assign at least some of the collapsed painted wall plaster to individual areas. The stratigraphic archive has potential to answer questions regarding the maintenance and eventual decline of the forum complex, through study of the extensive floor sequences recorded. Of particular significance is a possible change of use in the outer portico area in the later Roman period, represented by lower quality floor surfaces and the presence of metalworking debris. Further analysis of the slag may establish whether this is likely to represent *in situ* activity and confirm whether any of the slag was associated with non-ironworking processes, such as silver production.

The stratigraphic evidence seems to confirm that the south-east corner of the second forum continued to be used into the late Roman period, following the abandonment of the rest of the complex. A comparison between the latest occupation deposits at the east and west end of the site, together with their relationship to any demolition deposits, may establish whether this activity was confined to the street frontage, and thus indicate whether it was commercial in nature; the dating of these deposits will be of particular interest. The timber-piled foundation recorded in the outer portico area is highly significant; further examination of the records may reveal whether it was associated with the late Roman industrial activity, and more importantly, whether it was actually part of a separate post-forum structure, or a late alteration to the remains

of the forum itself. It may usefully be considered in relation to other post-forum features recorded elsewhere, in particular at 168 Fenchurch Street, and to late Roman piled foundations recorded at 25-26 Lime Street (LIM83) and 27-30 Lime Street (IME83), the latter two being on the opposite side of the road to the east of the forum. In a wider context, the significance of the abandonment of the forum lies in the fact that it reflects an alteration to the form of local government and the relationship between provincial government and London.

The relationship between the forum, its abandonment deposits and the road which bounded its east side can also contribute significantly to our understanding of the area in the later Roman period. A fragment of collapsed forum masonry in one of the roadside ditches may help to place the demolition/disuse of the forum more firmly within the site sequence. Part of a late Roman masonry building on the opposite side of the road is also highly significant; given its unusual technique of construction, it can be compared to other late Roman structures in the vicinity and it may be possible to relate it to the masonry remains found at 25-26 Lime Street (LIM83) and 27-30 Lime Street (IME83).

Despite the limited nature of the evidence for medieval occupation on the site, this material has potential in two areas. Firstly, dating of the ceramic assemblages from the medieval pits will help to establish when the robbing of the forum walls took place; analysis of the spatial distribution of the robbing pits will indicate to what extent this activity was undertaken systematically. Secondly, further analysis of the Saxo-Norman and early medieval ceramic groups could be enhanced by comparison to recently published assemblages, such as at 1 Poultry (Burch and Treveil in prep), and Plantation Place (MoL sitecode FER97, see Whittingham and Jeffries 2003). This offers some potential to discuss and compare this area of the City in relation to street development around the western port of Queenhithe and the eastern port of Billingsgate.

It may be possible to associate some of the post-medieval features to specific properties, through spatial analysis using GIS and a comparison with the cartographic evidence. The principal potential for the post-medieval period lies in a group of 19th century pottery recovered from a brick cesspit (subgroup 525) and this would be greatly enhanced if it can be attributed to the occupants from a nearby household. Household studies have proved to be a particularly highly developed field of North American historical archaeology (for example, Barile and Brandon 2004) through the linking of material assemblages with the diverse groups of inhabitants of such 'households'. These hold considerable potential to inform interdisciplinary studies of households in the past (for example Buchli et al 2004) and can be achieved by examining the available documentary and cartographic records. The potential of such groups has also been highlighted by Pearce (2000, 178) and Courtney (1997, 100).

Finally, some aspects of physical archaeological survival on the site may be examined from a geotechnical perspective. Detailed study of unusual slumping profiles in the strata adjacent to some of the forum foundations has some potential to demonstrate to what degree this can be attributed both to the composition of those earlier deposits and the subsequent construction of the foundation, as well as the possible timescale involved. These observations will be of potential significance for other sites with similar sequences. It is clear that large masonry foundations can affect earlier deposits under certain conditions, but also preserve their original level where they are in contact with the foundation. Of particular significance here is the distortion of earlier floor levels, in the context of the problems posed by archaeological excavation increasingly being carried out in small 'keyhole' areas.

## 7 Significance of the data

The data recovered from the excavations at 21 Lime Street is of both national and local importance.

The structural remains of the second forum may be considered to be of national as well as local importance, since they belong to a single class of monument and can be compared to other fora in Roman Britain. The possibility that there was a later building replacing the second forum should be analysed in relation to surrounding sites; the demise of the forum-basilica complex is highly significant in that it not only reflects an alteration to the form of local government, but also to the relationship between provincial government and London.

On a local scale, the significance of this project in terms of the archaeology of Roman London is obviously very high. Since it lies close to the centre of the earliest settlement area, the site adds to the body of information regarding the origins of the early town; analysis may assist in determining both the date and extent of pre-Boudican occupation in the area, and further elucidating the nature of that occupation – in particular, early Roman London's civic and military character. The ceramic assemblage contains relatively high quantities of pre-Flavian ceramics, which will further our understanding of the composition and dating of similar pottery groups in London during this period. The accessioned finds will be a useful addition to those from previous excavations in the area and should be examined with reference to earlier discoveries.

The depth of surviving deposits have presented an opportunity to record (in places) a continuous sequence of occupation spanning virtually the entire Roman period, and the results will clearly benefit the study of both the character and development of the area as a whole, complementing work on other sites in the vicinity.

The long east-west axis of the site has, in addition, provided a rare opportunity to record almost the entire width of the east wing of the second forum, and as such has provided crucial information regarding the layout of the complex, which will assist in reinterpreting discoveries from previous forum excavations in the surrounding area; examination of the floor sequences will help to answer questions about the use of the forum and the structural remains may also allow further suggestions to be made about the possible form of the superstructure. The site has also provided some of the only evidence for the relationship between the forum and the street to the east. The later Roman remains are of particular interest both in terms of representing the decline of the forum as a public complex and the status of the area in the subsequent years.

The medieval and post-medieval pottery assemblages can be used to interpret the social and economic status of the inhabitants of the area and the possible functions of the structures served by the features in which they were found. In addition, the Saxo-Norman pottery assemblage offers the opportunity to establish whether this part of the City follows a similar pattern of development, within a similar time scale, to sites at the western end; this assemblage is among a group of sites to be recently excavated from within the City and will provide a good database for the further study of this period. The animal bone assemblage has some local significance by providing evidence for diet and animal husbandry within the area during the Roman and medieval periods.

On a more general note, the site raises some interesting points in terms of physical archaeological survival. Any conclusions which can be made regarding the effect of deep masonry features on earlier horizontal strata could be significant in informing both the approach to excavation and interpretation of similar sequences elsewhere.

## 8 Publication project: aims and objectives

### 8.1 Revised research aims

The excavations at 21 Lime Street have contributed substantially to answering the original research questions. However, through analysis of the potential of the site, a number of further research aims have been identified.

#### Roman

RRA1 What can the construction details of the second forum foundations tell us about the form of the east wing superstructure; how does this relate to existing reconstructions of the forum-basilica complex? (ORA9)

RRA2 What is the evidence for other late Roman structures on the site; how do these compare to other late Roman buildings recorded in the vicinity (e.g. 25-26 Lime Street (LIM83), 27-30 Lime Street (IME83), Plantation Place (FER97)) and what do they reveal about the nature of the settlement during the later Roman period?

RRA3 A number of related research questions were developed following a meeting with Tony Taylor, a civil engineering consultant who has provided advice on the layout and composition of the second forum's foundations and the possible implications for interpretations of its superstructure:

- Do the dimensions of the second forum masonry remains suggest that the builders were working to standard measurements, such as Roman feet?
- What are the implications of the varying widths of the second forum foundations for the superstructure of the forum complex? What can be said about the appearance of the east wing?
- Does the form of the second forum structural remains reveal anything about the functionality of the building?
- How do the second forum structural remains compare to those of other *fora* of similar date in Roman Britain?

RRA4 The examination of the Roman pottery from pre-Flavian and early Flavian contexts, with consideration given to the relationship to the forum sequence (ORA1, ORA6), will contribute to a better understanding of the development of the settlement.

RRA5 The examination of Cologne colour-coated ware (KOLN) with specific reference to late Roman groups will allow revision of its current AD100-40 dating, as evidence suggests that this ware continues longer in the City and may have two peaks of appearance, the latter being in the late Roman period. The LME01 site has a relatively high proportion of KOLN, even without the large single dump in context [879], and much of this is from late Roman contexts, and this will be examined in relation to other sites which contain late dating groups with KOLN.

RRA6 The examination of Roman pottery in a subgroup 352 context, which consists mainly of KOLN beakers, and its quantification will provide a more accurate vessel count and may reveal the purpose of the assemblage and its relationship to the site and possibly the forum.

RRA7 What can the charred cereal remains tell us about Roman activity on the site?

RRA8 Can the animal bone recovered from dumps of make-up material pre-dating the second forum provide evidence of the diet of Roman Londoners?

#### **Medieval**

RRA9 What is the ceramic evidence for metal working during the later medieval period?

RRA10 How does the pottery contribute to establishing the dating of the medieval Lime Street frontage, any subsequent additions and modifications, and the functions of buildings along the frontage?

#### **Post-medieval**

RRA11 Can the post-medieval cesspit feature be related to users or households through documentary research and does this allow identification of their socio-economic status?

RRA12 What is the function of the ceramic mould?

## **8.2 Preliminary publication synopsis**

It is proposed that the results of the archaeological work carried out at 21 Lime Street are published as an article in the journal *Transactions of the London and Middlesex Archaeological Society (LAMAS)*.

The stratigraphic sequence will be presented as part of a chronological narrative with finds and environmental data included as part of an integrated text. Specialist appendices will not be included in the article but will be made available through the research archive, which will be deposited with the LAARC. The text will concentrate on the evidence relating to the second forum, which forms by far the greater part of the recorded archaeological sequence and is the most important in terms of research aims and significance.

**Principal author:** Lesley Dunwoodie

**Estimated total word count:** c. 12,000 words

**Estimated figure count:** c. 25, comprising: stratigraphic illustrations (location plans, phase plans, sections), drawn finds illustrations and photographs (selected finds and site images).

### **8.2.1 Proposed structure**

#### **Summary**

#### **Introduction**

Site location

Circumstances and dates of fieldwork

The mitigation programme

Format of the report

Graphic and textual conventions

#### **Archaeological background**

A brief summary of what is known of the second forum from surrounding sites

## *The Archaeological Sequence*

### *Natural Topography and the prehistoric environment*

Character of the underlying subsoils

Lack of evidence for prehistoric activity

### *Pre-Boudican occupation (AD50-60)*

The nature of the earliest structures, ceramic and finds assemblages, how they relate to those found on adjacent sites and what they reveal about the origins of the town

### *Flavian activity (AD60-100)*

Discussion of the character of the area in the post-Boudican period as reflected by the structural remains and how this compares to the pre-Boudican activity on the site.

### *The second forum (AD100-300)*

How construction of the second forum was achieved

Layout of the east wing, including evidence for wide inner portico

Dating of the east wing

Function of individual areas suggested by floors, wall plaster, portico surfaces

Variations in construction of foundations and implications for the superstructure

Relationship of second forum to the road to the east

### *Later Roman activity (AD300-400)*

Decline of the forum as a public complex

Possible post-forum buildings/late alterations to the forum itself

Evidence for demolition of the forum

Late roman building to the east of the forum – how it compares with other late Roman structures in the vicinity

### *Medieval occupation*

Dating of robbing of the second forum – compare to evidence from Leadenhall Court

Discussion of Saxo-Norman pottery assemblage in terms of the reoccupation and development of the area

Nature of later medieval occupation

### *Post-medieval occupation*

Identification of properties, status of occupants and purpose of buildings

## *Conclusions and updated research aims*

## *Acknowledgements*

## *Bibliography*

## 9 Publication project: task sequence

All work carried out on this project is subject to the health and safety policy statement of MoLAS as defined in *Health And Safety Policy*, MoLAS 2003. This document is available on request. *It is MoLAS policy to comply with the requirements of the Health and Safety at Work Act 1974, the Management of Health and Safety at Work Regulations 1992 and all Regulations and Codes of Practice made under the Act which affect MoLAS operations.*

### 9.1 Stratigraphic analysis

Analysis will involve the arrangement of subgroups into groups, groups into land uses and land uses into periods. Digitised plans will form a crucial component of further analysis - the creation of the group sequence and the interpretative analysis within a GIS environment. Groups, land uses and periods will be input to an ORACLE database and will form the basis for subsequent specialist analysis work. At the end of the stratigraphic analysis the author and project manager will provide specialists with a 'fact pack' summarising the analysed sequence and further guidelines on the required content and length of contributions (in terms of words, tables and illustrations) to be included in the final LAMAS text.

The analysis work will begin with the completion of some basic tasks relating to the sequence recorded in Area 5 and selected test pits, which were not priority areas for assessment. These are set out in Task 1 below.

*Task 1* Complete validation of c. 600 contexts @ rate of 300 per day (2 pdays); digitise Area 5 plans and sections at a rate of c. 70 per day (3 pdays); complete basic Oracle inputting at a rate of 300 entries per day (2 pdays); validate and subgroup Area 5 and test pit contexts at a fast-tracked rate of 40 subgroups (200 contexts) per day (3 pdays); complete subgroup matrix at a rate of 300 subgroups per day (0.5 pday); complete cataloguing of photographs (0.5 pday): total 11 pdays

*Task 2* Check that all assessment data, including final dating evidence, is present on relevant databases and that GIS ArcView project is loaded and up to date 1 pdays

*Task 3* Define group sequence by arranging c. 300 subgroups into groups at a rate of c. 3 subgroups per group and 25 groups per day (est. 100 groups). The subgroups created at assessment level will be grouped using stratigraphic, spatial and chronological analysis, the subgroup matrix and dating evidence. 4 pdays

*Task 4* Describe groups by creating a GIS ArcView plan and brief text for each, noting the formative subgroups and including reference to dating and elevation information, at a rate of 10 groups per day 10 pdays

*Task 5* Validate and integrate selected evaluation test pit data with excavation data (site-wide) at the group stage and update records 3 pdays

*Task 6* Map subgroups to groups on Oracle database at a rate of 300 per day 1 pday

*Task 7* Create group matrix on paper or electronically from subgroup matrices 1 pday



*Task 8* Define land use sequence by arranging c. 100 groups into identified buildings, open areas, structures and roads at a rate of c. 25 groups per day 4 pdays

*Task 9* Describe land uses through brief interpretative text on description and function; map to Oracle database and create selected GIS ArcView plots; overall rate of 2 land uses per day and 10 groups per land use 5 pdays

*Task 10* Define c. 7 broad periods representing chronological phases of activity across the site, identified from analysis of the group matrix and land uses; map to Oracle database. 2 pdays

*Task 11* Attend project meetings and liaise with other contributors; prepare 'fact pack' and word count advice for specialist contributors 1 pdays

**Total stratigraphic: 43 pdays**

## 9.2 Roman pottery

*Task 12* Full integration of spot-date information with stratigraphic sequence on the ORACLE database and checking of discrepancies to finalise phasing; spot-date small number of additional contexts. Interpret and produce reports 5 pdays

*Task 13* Analysis of pottery by group/land use and writing of contributing text to the chronological narrative 4 pdays

*Task 14* Full quantification of context [879] and twenty-four pre and early Flavian contexts, c 14 boxes @ 2 boxes a day 7 pdays

*Task 15* Analysis of quantified data, background reading and discussion 3 pdays

*Task 16* Research and writing on early and late Forum related groups 4 pdays

*Task 17* Check pencil illustrations @ a rate of 50pd 0.5 pdays

*Task 18* Liaison with external specialists 0.5 pday

*Task 19* The following pottery to be seen by specialists:

27 Samian stamps 3 pdays

50 Decorated Samian 2 pdays

3 Mortarium stamps 1 pday

Graffiti – by Mark Hassall at no project cost

**Total Roman pottery: 30 pdays**

## 9.3 Post-Roman pottery

*Task 20* Quantification of 8 boxes of selected medieval and post-medieval pottery groups from context [68], [104], [716], [723], [752], [1141], and [1153] by EVES and rim diameter and updating the ORACLE database @ two boxes per day 4 pdays

*Task 21* Analyse data of selected groups in light of revised research aims; @ two boxes per day 2 pdays

<i>Task 22</i> Write publication text for inclusion in article	1 pday
<b>Total post-Roman pottery:</b>	<b>7 pdays</b>

#### 9.4 Accessioned finds

The finds will be examined within their stratigraphic context using the computerised database, site plans and matrices, in accordance with data supplied by stratigraphic analysts at MoLAS. A chronological narrative will summarise the finds within each land use and feature and draw attention to the most important/significant artefacts, which should be catalogued for publication. The full list of finds, based on the preliminary catalogues prepared for this assessment, should be retained in archive. Specialist discussion of the material will address the function of the assemblage in terms of the site, with the results of research into specific objects as appropriate and the report will include discussion of the specific research aims identified at assessment. The report will be ordered in the standard MoLAS format.

<i>Task 23</i> Integration of finds and stratigraphic data, using Oracle	0.5 pday
<i>Task 24</i> Editing of archive catalogue to include stratigraphic data; selection of material for catalogue and its completion (not including glass)	3 pdays
<i>Task 25</i> Preparation of glass catalogue and discussion of the glass vessels	2 pdays
<i>Task 26</i> Preparation of chronological narrative	2 pdays
<i>Task 27</i> Research of the ceramic mould	2 pdays
<i>Task 28</i> Consultation with EH Laboratory re mould; XRF	0.5 pday
<i>Task 29</i> Report on the finds and thematic text to address research aims	2 pdays
<b>Total accessioned finds:</b>	<b>12 pdays</b>

#### 9.5 Building material

Analysis work will be restricted to Roman building material from selected contexts, providing supporting dating evidence and a summary of the building material types from the site. No analytical work was recommended for post-Roman building material. A small amount of analysis work on selected Roman painted wall plaster is also proposed.

<i>Task 30</i> Compare the Roman building material from selected contexts with the stratigraphic sequence and all available dating evidence	1 pday
<i>Task 31</i> Write text on Roman ceramic building material and other building material for use in LAMAS article	1 pdays
<i>Task 32</i> Write text on Roman painted wall plaster, including references to data from individual contexts and a brief discussion based on the assessment text with appropriate references	1 pday
<b>Total building material:</b>	<b>3 pdays</b>

## 9.6 Coins

The coins will be examined in relation to the site phasing, allowing analysis of distribution and calculation of the percentage of 'in situ' coin loss versus those that are ex situ and residual. The forged denarii merit a note and photographs, and analysis should examine the phasing and consider whether they came from related contexts.

*Task 33* Refer to Roman Imperial Coinage and confirm or firm up dates for a number of coins - including the forgeries, to get termini post quae 1 pday

*Task 34* Review phasing and stratigraphic detail and reconcile with the distribution of the forged coins and produce short written report 2 pdays

**Total coins:** 3 pdays

## 9.7 Iron slag

*Task 35* No analysis is recommended; the findings from the assessment report will be summarised in the LAMAS paper by the principal author at no additional cost to the project no cost

## 9.8 Botany

As the number of cereal grains was low, those from assessed samples were recorded during the assessment. The only remaining tasks therefore are as follows:

*Task 36* Process four 10 litre samples and sort residues 1.25 pdays

*Task 37* Assess flots from these samples 0.5 pday

*Task 38* Data input to Oracle database, production and editing of table 0.25 pday

*Task 39* Write text for inclusion in publication article 0.5 pday

**Total botany:** 2.5 pdays

## 9.9 Animal bone

*Task 40* Record all Roman animal bones from make-up and dump layers with moderate quantities of bones or interesting assemblages (c.11 kg including large sample) 2 pdays

*Task 41* Analyse Roman data 1 pday

*Task 42* Record medieval animal bone from 50% sample of the pits and dump layers with moderate quantities or interesting assemblages (c. 15kg from 31.5kg) 3 pdays

*Task 43* Analyse medieval data 1 pdays

*Task 44* Write publication text for inclusion in article 2 pdays

**Total animal bone:** 9 pdays

## 9.10 Conservation

### 9.10.1 Finds analysis

The accessioned finds were reviewed with reference to the finds assessments by Angela Wardle.

#### Iron

- <238> [801] unident – investigate one end to aid identification
- <237> [848] unident – re X-ray from side
- <88> [91] lock – re X-ray from top

#### Copper alloy

- <226> [801] unident – possible coin
- <383> [1264] unident – possible coin
- <363> [1284] unident – possible coin
- <382> [1278] unident – possible coin
- <74> [307] unident – investigate to aid identification
- <168> [386] unident – investigate to aid identification

#### Composite

- <44> [268] unident – investigate end with possible blade

#### Ceramic

<76> [307] mould – investigate if any traces of metal remains using XRF, if done at English Heritage would cost c. £100 + VAT for half a day's work. Liaison time is required

*Task 45* Analysis and investigative work: 5.75 days + £100 for analysis at EH

### 9.10.2 Preparation for illustration

The following items were identified as requiring conservation input for illustration.

#### Copper alloy

- <181> [569] stud
- <67> [315] armour
- <180> [659] mount
- <423> [1689] brooch
- <408> [1659] finger ring
- <203> [639] mount
- <125> [463] ligula

#### Ceramic

- <348> [1011] figurine

*Task 46* Conservation required for illustration and photography 6.25 days

### 9.10.3 Preparation for deposition in the archive

The Museum of London's archive standards (1999) state that the accessioned finds need to be appropriately packed and stabilised before the site can be accepted into the

archive. Nearly all of the small finds from this site are appropriately packed for the archive, but some work is required to ensure that the archive is stable before transfer.

Eleven accessioned finds need to have either additional package or their packaging changed to bring these items up to the archive standards

Eleven copper alloy objects appear to exhibiting active corrosion. These objects need to be stabilised and repacked

<i>Task 47</i> Stabilisation for the archive	5.75 days
<b>Total conservation:</b>	<b>17.75 pdays + £100</b>

### 9.11 Finds review and updated publication synopsis

*Task 48* Preparation for and attendance at a finds review to select material for illustration: Roman pottery, post-Roman pottery and registered finds; total 2 pdays

*Task 49* Principal author compilation of updated publication synopsis 1 pday

**Total for finds review and synopsis:** 3 pdays

### 9.12 Graphics

The major phases of activity will be illustrated with Autocad generated plans enhanced to publication standard using CorelDraw. The final requirements will be agreed at the finds review and updated publication synopsis stage.

*Task 50* CAD preparation of c. 6 phase plans 6 pdays

*Task 51* CorelDraw completion of phase plans 3 pdays

*Task 52* Editing and labelling of Tony Taylor's draft reconstruction drawings based on structural research into the second forum 2 pdays

*Task 53* Illustration of approximately 20 Roman and 4 post-Roman vessels 4 pdays

*Task 54* Illustration of up to 6 accessioned items 2 pdays

**Total graphics:** 17 pdays

### 9.13 Photography

The final requirements for photographic illustration will be agreed at the finds review and updated publication synopsis stage.

*Task 55* Up to 10 site images 1 pday

*Task 56* Finds images: up to 5 ceramic and accessioned finds 1 pday

**Total photography:** 2 pdays

### 9.14 Documentary research

*Task 57* Selective documentary research and liaison by the author 2 pdays

**Total documentary:** 2 pdays

### 9.15 Write publication text

*Task 58* Undertake integrated analysis arising from contributions 5 pdays

*Task 59* Research into structural capabilities of the second forum's foundations and implications for interpreting and reconstructing its superstructure; geotechnical aspects; text and illustration by civil engineering consultant Tony Taylor 2 pdays

*Task 60* Write integrated publication text, including collation and inclusion of specialist text, select and arrange illustrations etc, resulting in draft (unedited) text; compiled at a rate of 1,000 words per day 15 pdays

**Total principal author time:** 22 pdays

### 9.16 Editing and production (including printing)

*Task 61* Specialist comments, editing and corrections 2 pdays

*Task 62* Author editing of final draft and incorporating specialist corrections 2 pdays

*Task 63* Technical / internal editing 1 pdays

*Task 64* Text corrections by authors 1 pday

*Task 65* Illustration corrections 1 pday

*Task 66* Check proofs from LAMAS and supply any final corrections 1 pday

*Task 67* Printing (page costs fee paid to LAMAS) £1,250

**Total editing and production:** 8 pdays + £1,250

### 9.17 Project management, programming and meetings

*Task 68* Project management at 7% of total value of project over 2 year duration of analysis and publication work 10 pdays

*Task 69* Programming and liaison reports 1 pdays

*Task 70* Project team meetings (not author) 1 pdays

**Total project management, programming and meetings:** 12 pdays

### 9.18 Archive deposition

The research archive from 21 Lime Street will be deposited with the LAARC in accordance with deposition policies in force at the time of deposition.

*Task 71* Deposit research archive 3 pdays

**Total archive:** 3 pdays

## 10 Publication project: resources and programme

Task	Person	Task Description	Time/fee (pdays/£)
<b>STRATIGRAPHIC</b>			
1	LD	complete remedial work on Area 5 and selected test pits	11
2	LD	validate databases and ArcView project	1
3	LD	define groups	4
4	LD	describe groups	10
5	LD	integrate evaluation test pit data	3
6	LD	map subgroups to groups in Oracle	1
7	LD	create group matrix	1
8	LD	define land uses	4
9	LD	describe land uses	5
10	LD	define periods	2
11	LD	attend meetings and prepare 'fact pack' for specialists	1
		<b>Subtotal</b>	<b>43</b>
<b>ROMAN POTTERY</b>			
12	RF	integration of spot-date information	5
13	RF	analysis and write text to include in article	4
14	RF	quantification of [879] and 24 pre/early Flavian contexts	7
15	RF	analysis of quantified data and discussion	3
16	RF	research and write text on early/late Forum groups	4
17	RF	check pencil illustrations	0.5
18	RF	liaison with external specialists	0.5
19	EXT	external specialist work on Samian stamps, dec, mortaria	6
		<b>Subtotal</b>	<b>30</b>
<b>POST-ROMAN POTTERY</b>			
20	NJ	quantify 8 boxes of medieval and post-medieval pottery	4
21	NJ	analysis of selected material	2
22	NJ	write text to include in article	1
		<b>Subtotal</b>	<b>7</b>
<b>ACCESSIONED FINDS</b>			
23	AW	integration of finds and stratigraphic data	0.5
24	AW	edit and complete archive catalogue (not glass)	3
25	AW	prepare glass catalogue and discussion	2
26	AW	write text for inclusion in chronological narrative	2
27	AW	research the ceramic mould	2
28	AW	consultation with EH Laboratory re mould; XRF	0.5
29	AW	report on finds and write thematic text	2
		<b>Subtotal</b>	<b>12</b>
<b>BUILDING MATERIAL</b>			
30	TPS	compare Roman CBM dating to sequence and refine	1
31	TPS	write text for inclusion in article	1
32	TPS	write text on Roman PWP	1
		<b>Subtotal</b>	<b>3</b>
<b>COINS</b>			
33	MH	refine dating of Roman coinage	1
34	MH	review distribution of forgeries and write text for article	2
		<b>Subtotal</b>	<b>3</b>
<b>IRON SLAG</b>			
35	LD	summarise findings in text of article	n/a
		<b>Subtotal</b>	<b>0</b>
<b>BOTANICAL REMAINS</b>			
36	AD	process 4x10 litre samples and sort residues	1.25
37	AD	assess flots from these samples	0.5
38	AD	data input to Oracle; produce table	0.25

39	AD	write text for inclusion in article	0.5
		<b>Subtotal</b>	<b>2.5</b>
<b>ANIMAL BONE</b>			
40	AP	record selected animal bone from Roman contexts	2
41	AP	analysis of Roman data	1
42	AP	record selected animal bone from medieval contexts	3
43	AP	analysis of medieval data	1
44	AP	write text for inclusion in article	2
		<b>Subtotal</b>	<b>9</b>
<b>CONSERVATION</b>			
45	CON	analysis and investigative work	5.75 + £100
46	CON	conservation for illustration	6.25
47	CON	stabilisation for the archive	5.75
		<b>Subtotal</b>	<b>17.75 + £100</b>
<b>FINDS REVIEW AND UPDATED SYNOPSIS</b>			
48	SPEC	preparation for and attendance at finds review	2
49	LD	compile updated publication synopsis	1
		<b>Subtotal</b>	<b>3</b>
<b>GRAPHICS</b>			
50	GEO	CAD preparation of c. 6 phase plans	6
51	DO	CorelDraw completion of phase plans	3
52	DO	edit/complete forum structural reconstruction dwgs	2
53	DO	illustration of c. 20 Roman and 4 post-Roman pots	4
54	DO	illustration of up to 6 accessioned finds	2
		<b>Subtotal</b>	<b>17</b>
<b>PHOTOGRAPHY</b>			
55	AC	provide c. 10 site images	1
56	AC	provide c. 5 studio photographs of finds	1
		<b>Subtotal</b>	<b>2</b>
<b>DOCUMENTARY RESEARCH</b>			
57	LD	carry out basic documentary survey and summarise	2
		<b>Subtotal</b>	<b>2</b>
<b>PUBLICATION TEXT</b>			
58	LD	integrated analysis of sequence and specialist contributions	5
59	TT	text contribution on research into forum structure	2
60	LD	write publication text	15
		<b>Subtotal</b>	<b>22</b>
<b>EDITING AND PRODUCTION</b>			
61	SPEC	specialist comments, editing and corrections	2
62	LD	author editing and incorporation of comments	2
63	ED	technical/internal editing	1
64	LD	text corrections by author	1
65	DO	illustration corrections	1
66	ED	check LAMAS page proofs	1
67	--	LAMAS page costs (fee)	£1,250
		<b>Subtotal</b>	<b>8 + £1,250</b>
<b>PROJECT MANAGEMENT AND MEETINGS</b>			
68	DB	project management	10
69	GM	programming and liaison reports	1
70	--	project team meetings	1
		<b>Subtotal</b>	<b>12</b>
<b>ARCHIVE</b>			
71	ARC	order and deposit research archive	3
		<b>Subtotal</b>	<b>3</b>
		<b>TOTAL</b>	<b>196.25 + £1,350</b>

Table 18 Concordance of tasks, personnel and resources required



## 11 Acknowledgements

MoLAS would like to thank Afon Properties Ltd and Nant Properties Ltd for funding the excavation and for commissioning this report. The author would like to extend particular thanks to David Rees and Paul Plume of Churchill Securities, Bill Dick, Steven Wild and Duncan Green of William G. Dick partnership, Jim Gardiner, Simon Bennett and Rob Westcott of Alan Baxter Associates, Henry Haydon and Mick McKenna of Haydon and Hagan, and Kathryn Stubbs of the Corporation of London, for their assistance throughout the project. The author would also like to thank Tony Taylor for his advice on civil engineering aspects of the forum. Thanks also go to all of the MoLAS staff who worked on the site and the subsequent assessment of the findings.

## 12 OASIS DATA COLLECTION FORM

Printable version

OASIS ID: molas1-7441

### Project details

Project name 21 Lime Street, London EC3

Short description of the project

Excavation took place in 2002–2003 in the location of pile caps and lift pits, with general ground reduction to the formation level for the proposed development. Natural brickearth lay between c 10.9–11.4m OD. The site produced evidence of several phases of 1st century Roman clay and timber buildings, including demolition material originating from more than one episode of fire. Structures from these buildings included a small tile-lined oven and part of a tile and mortar channel - possibly a hypocaust or flue. Masonry remains and floor surfaces associated with the east wing of the second forum were recorded across the site, giving some indication of the layout and appearance of this part of the complex; there was some evidence for later modifications to the forum structure. Between the uppermost floors of the outer portico, there was evidence of metalworking, possibly indicating a change of use in the complex. Many of the forum walls were robbed during the early medieval period. Gravel surfaces of the north-south road to the east of the forum, and its associated drainage features were also observed. On the opposite side of this road, an unusual tile, flint and chalk structure with timber lacing may have been part of a late Roman building. Post-Roman survival was in the form of cut features, comprising medieval robber cuts and rubbish pits, and post-medieval brick-lined cesspits and wells.

Project dates Start: 07-08-2002 End: 17-04-2003

Previous/future work Yes / No

Any associated project reference codes LME01 - Sitecode

Any associated project reference codes LIE90 - Sitecode

Type of project Recording project

Site status Local Authority Designated Archaeological Area

Current Land use Vacant Land 1 - Vacant land previously developed

Monument type TOWN Roman

Monument type FORUM Roman

Monument type RUBBISH PIT Medieval

Monument type CESS PIT Post Medieval

Significant Finds SHERD Roman

Significant Finds COIN Roman

Significant Finds TILE Roman

Significant Finds SHERD Medieval

Significant Finds SHERD Post Medieval  
 Investigation type 'Part Excavation'  
 Prompt Planning condition

**Project location**

Country England  
 Site location GREATER LONDON CITY OF LONDON CITY OF LONDON 21 Lime Street, London EC3  
 Postcode EC3  
 Study area 588 Square metres  
 National reference grid TQ 3306 8098 Point  
 Height OD Min: 10.9m Max: 11.4m

CENTROID: TQ 3306 8098  
 BOUNDING: TQ 3304 8000  
 TQ 3307 8099  
 TQ 3308 8099  
 TQ 3307 8098  
 TQ 3307 8097  
 TQ 3304 8098

**Project creators**

Name of Organisation MoLAS  
 Project originator brief MoLAS project manager  
 Project originator design MoLAS  
 Project director/manager Sophie Jackson  
 Project supervisor Lesley Dunwoodie  
 Sponsor or funding body Churchill Securities

**Project archives**

Physical recipient Archive LAARC  
 Physical Exists? Archive Yes  
 Digital recipient Archive LAARC  
 Digital Exists? Archive Yes  
 Paper recipient Archive LAARC  
 Paper Exists? Archive Yes

**Project bibliography 1**

Publication type Grey literature (unpublished document/manuscript)  
 Title 21 Lime Street, London EC3, A post-excavation assessment and updated project design  
 Author(s)/Editor(s) L Dunwoodie  
 Date 2005  
 Issuer or publisher MoLAS

Place of issue or  
publication London

Entered by Lesley Dunwoodie (molas.archive@museumoflondon.org.uk)

Entered on 23 March 2005

### 13 Bibliography

- ACAO, 1993 Model briefs and specifications for archaeological assessments and field evaluations, Association of County Archaeological Officers
- BADLG, 1986 *Code of Practice, British Archaeologists and Developers Liaison Group*
- Barile, K S, and Brandon, J.C 2004 *Household chores and household choices: theorising the domestic sphere in historical archaeology*
- Blackmore, L, and Pearce J E (in prep) Medieval coarsewares of the London area Part 5: Shelly-Sandy ware and the Greyware industries
- Bowsher, D, 2001 21 Lime-Street EC3 *An Archaeological Impact Assessment* MoLAS Report
- Brown, D H, 1997 'The Social Significance of Imported Medieval Pottery' in G C Cumberpatch and P W Blinkhorn (eds.) *Not so much a Pot, More a Way of life: Current Approaches to Artefact Analysis in Archaeology*, Oxbow Monog 83, 95-112
- Brown, D H, 1997 'Pots from houses', *Medieval Ceramics* 21, 83-94
- Buchli, V, Clarke, A and Dell, U 2004, Editorial, *Homes Cultures* 1 (1), 1-4
- Corporation of London, 1994 *Unitary Development Plan*
- Corporation of London Department of Planning, 1996 *Planning Advice Note 3, Archaeological Assessment*
- Corporation of London, 1998 Department of Planning, *A Directory of Conservation Areas, Listed Buildings & Scheduled Monuments in the City of London*
- Courtney, P, 1997 'Ceramics and the history of consumption: Pitfalls and prospects', *Medieval Ceramics* 21, 95-108
- Davies, B, Richardson, B, and Tomber, R, 1994 *A dated corpus of early Roman pottery from the City of London*, CBA Res Rep 98, London
- Department of the Environment, 1990 *Planning Policy Guidance 16, Archaeology and Planning*
- Dunwoodie, L, 2001 *21 Lime St EC3, An Archaeological Evaluation Report and Revised Mitigation Strategy*, unpub MoL rep
- Dunwoodie, L, 2005 *Pre-Boudican and later activity on the site of the forum: excavations at 168 Fenchurch Street, City of London*, MoLAS Studies Series
- English Heritage, 1991 *Exploring our Past. Strategies for the Archaeology of England*, English Heritage

- English Heritage, 1991 *Management of Archaeological Projects (MAP2)*
- English Heritage, 1997 *Sustaining the historic environment: new perspectives on the future*
- English Heritage, May 1998 *Capital Archaeology. Strategies for sustaining the historic legacy of a world city*
- English Heritage Greater London Archaeology Advisory Service, June 1998 *Archaeological Guidance Papers 1-5*
- English Heritage Greater London Archaeology Advisory Service, May 1999 *Archaeological Guidance Papers 6*
- Groves J, 1993, Analysis of the pottery assemblages, in *Early Roman development at Leadenhall Court, London and related research*, (Eds. Milne, G, and Wardle, A) LAMAS 44, 122-127
- Hurst, J G, Neal, D S, and Van Beuningen, H J E, 1986 Pottery produced and traded in north-west Europe 1350 - 1650 (Rotterdam Papers 6)
- Institute of Field Archaeologists. (IFA), 2001 *By-Laws, Standards and Policy Statements of the Institute of Field Archaeologists (rev. 2001), Standard and guidance: excavation*
- Institute of Field Archaeologists (IFA), supplement 2001, *By-Laws, Standards and Policy Statements of the Institute of Field Archaeologists: Standards and guidance – the collection, documentation conservation and research of archaeological materials*
- Marsden, P 1987 *The Roman Forum site in London*, HMSO London
- Milne, G (ed) 1992 *From Roman basilica to medieval market*, HMSO London
- MoLAS, November 2001 *21 Lime Street EC3, Addendum to the revised mitigation strategy*, unpub MoL rep
- MoLAS, December 2001 *21 Lime Street EC3, Revised impact assessment and mitigation strategy*, unpub MoL rep
- Museum of London, 1994 *Archaeological Site Manual 3rd edition*
- Museum of London, 1999 General standards for the preparation of archaeological archives to be deposited with the Museum of London
- Museum of London, 2002 *A research framework for London archaeology 2002*
- Nenk, B, with a contribution by Hughes, M, 1999 'Post Medieval Redware Pottery of London and Essex', in *Old and New Worlds, Historical/Post-medieval Archaeology Papers from the Societies joint conferences at Williamsburg and London 1997*, (eds G Egan and R L Michael), 235-245

- Norton E 1994 *Project design for an archaeological excavation of 21 Lime Street, EC3, Draft 5*, unpub MoL rep
- Orton, C R, Tyers, P and Vince, A, 1993 *Pottery in Archaeology*
- Pearce, J, 1992 *Border Wares Post-medieval pottery in London, 1500-1700, Volume 1*
- Pearce, J, Vince A G and Jenner M A, 1985 *A Dated Type-Series of London Medieval Pottery Part 2, London-Type Ware, London and Middlesex Archaeol Soc Spec Pap 6*
- Pearce, J, and Vince, A G, 1988 *A Dated Type-series of London Medieval Pottery Part 4: Surrey Whitewares, London and Middlesex Archaeol Soc Spec Pap 10*
- Pearce, J E, 2000 'A late 18th-century Inn Clearance from Uxbridge, Middlesex', *Post-Med Archaeol* 34, 144-186
- Richardson, B, *The Roman Pottery from 168 Fenchurch Street, in prep*
- Shotliff, D 1990, *Site assessment 20-21 Lime Street, 8-11b Ship Tavern Passage, EC3*, Museum of London report
- Symonds, R P, *The Roman Pottery*, 2001 in *Roman and medieval townhouses on the London waterfront* MoLAS Monograph 9
- Symonds, R P, and Tomber R S, 1991 *Late Roman London: an assessment of the ceramic evidence from the City of London*, *Trans London Middlesex Archaeol Soc* No. 42, 59-101
- Schofield, J, with Maloney, C, (eds), 1998 *Archaeology in the City of London 1907-1991: a guide to records of excavations by the Museum of London and its predecessors*, *Archaeol Gazetteer Ser Vol 1*, London
- Thompson, A, Westman A, and Dyson, T (eds), 1998 *Archaeology in Greater London 1965-90: a guide to records of excavations by the Museum of London*, *Archaeol Gazetteer Ser Vol 2*, London
- Vince, A G, and Jenner, A, 1991 'The Saxon and Early Medieval Pottery of London' in A G Vince (ed) *Aspects of Saxon and Norman London 2: Finds and Environmental Evidence*. *London and Middlesex Archaeol Soc Spec Pap* 12, 19-119.
- Whittingham and Jeffries 2003 *Assessment of the post-Roman pottery from Plantation Place*