MONASTERY OF ST SAVIOUR

BERMONDSEY SE1

London Borough of Southwark

ENGLISH HERITAGE PROJECT 29

An Archaeological Assessment of Excavations 1956 - 1995 and Updated Project Design

Final Draft: Including appendix with comments by Academic Advisor

Site Code: BA84
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Museum of London Archaeology Service
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SUMMARY

The archaeology of the Cluniac priory and abbey of St Saviour, Bermondsey, was first explored in any detail in an article published by A Martin in 1926. Since then, William Grimes has explored part of the church (1956-62) and the greater portion of the infirmary ranges were excavated between 1984 and 1988 by Dave Beard of the Museum of London's DGLA. Smaller sites have been investigated nearby, the most recent having been the Trocette site by MoLAS in 1995.

The core of the monastery was scheduled officially as an Ancient Monument and the greater part of the 1984-88 excavations were funded by English Heritage as a consequence of its status.

The monastery itself was founded some time in the 1080s with the first monks arriving from La Charité-sur-Loire in 1089. It survived, elevated to the status of an abbey, until 1538. Following its surrender during the Dissolution of the monasteries, it passed through the hands of Thomas Pope and into those of the Earls of Sussex. Large portions of the medieval fabric survived incorporated into the mansion called Bermondsey House and were drawn by John Chesel Buckler in the early 19th century.

In 1994 an application for funding was accepted by English Heritage to allow an appraisal of the state of the various archaeological archives and to assess their potential for full analysis and subsequent dissemination. This document is the result of that assessment.

The archaeology of this part of Bermondsey is clearly very rich. The chronological periods represented in the archives range from mesolithic through to the 19th century. The mesolithic and neolithic periods are represented by flint artefacts including some very fine blades and arrowheads. The Iron Age is represented by a very significant quantity of pottery and occasional other traces of occupation such as loom weights and a single decorated bone object. Almost all these artefacts were residual in later features. The Roman period, likewise, comprised a wide range of artefacts suggesting the proximity of a substantial settlement nearby.

While very occasional Middle Saxon finds (Ipswich ware, sceattas) were recovered, the majority of the structural remains from the sites relates to the Saxo-Norman and medieval periods. The investigated remains suggest that, during the Late Saxon period, the study area was on or near the core of a high status settlement, possibly of a religious nature. Previous commentators have associated this with a possible Minster which might have developed from a Middle Saxon monastery in the vicinity. Another alternative is that this was the site of the royal manor of Bermondsey, in existence by Domesday. Probably associated with this phase is the series of foundations found by Grimes, cut through by the first Romanesque church on the site, and a large drain or channel. A number of large ceramic floor tiles seem also to date to the late 11th century and as such are of national significance.

The first apsidioled Romanesque church on the site is the subject of much debate. Professor Christopher Brooke has described it as the principal lost Romanesque building in London. Dr Richard Gem has attempted to reconstruct its plan in the late 11th century, identifying it with the '*nova et pulchra ecclesia*' of Domesday. This assessment's latest contribution to this debate is to advance the proposition that the Romanesque church may not have been started until after 1120, the Cluniac monks of La Charité having inhabited a much simpler Saxo-Norman building for 30 years before embarking on its successor. The apparently 'primitive' layout of Gem's reconstructed eastern arm mitigates against

this however, so the detailed examination of the architectural fragments, plan and stratigraphy are of great importance to studies of London's monumental architectural development.

The treatment of the area to the south of the church in the Saxo-Norman period is comparable to that at the priory of St Mary in Merton, a similarly wet and flood-prone environment, with large ditches draining the landscape and possibly functioning as the first monastic sewers. By 1150, the monastery was equipped with a reredorter, an infirmary, an apsidal infirmary chapel, and other, as yet little-understood buildings. This assessment has been able to show that preliminary phasing of the buildings (Beard 1986) should be the subject of significant reappraisal. The main cloister elements may also have been laid out at this time, but due to a combination of later medieval alterations and limited excavation due to a policy of preservation *in situ* of much of their extent, this will only become clear through careful stratigraphic analysis of the existing records.

The infirmary buildings underwent at least three phases of alteration, being provided with a great masonry drain and a latrine block. The second phase of the infirmary appears to point to internal segregation, possibly gender-related, with parallels at certain medieval hospitals. The final phase incorporated an infirmary cloister. Between the church and infirmary chapel a cemetery was laid out: nearly 200 inhumations were recovered during excavations. It is thought that the analysis of these burials will suggest that the cemetery was used principally by male religious (of 70 sexed and aged burials, 88% appear to be adult males).

As a whole, the monastic plan of St Saviour can be considered in the light of excavations at the slightly earlier Cluniac foundation of St Pancras, Lewes, at the mother house of La Charité-sur-Loire, and of course the original Cluniac monastery, Cluny itself.

A good number of contexts produced medium or large dated pottery groups with significant differences in make-up to contemporaneous assemblages from north of the Thames. Particular specialist forms are present indicating collection of urine, metal-working and high-status display vessels. The site has also produced the largest range of non-ceramic finds from any London monastery, including a large group of medieval glass vessels thought to be one of the better national assemblages of this type. Seal matrices, a gilded crucifix probably made in Limoges, and a group of three lead hands thought to be associated with the making of precious-metal religious figurines are among a number of items particularly associated with religious houses. Decorated medieval floor tiles, while not found *in situ*, were clearly used in abundance, and this assessment has demonstrated the largest number of unpublished designs from any of London's excavated religious houses to date, including a few from Dieppe and others of presently unknown source. A large number of architectural fragments will shed important light on the buildings from *c* 1120 through to the Dissolution.

Environmental evidence is somewhat more limited. No plant remains survived in the samples taken from medieval levels, perhaps because of acidity in the sandy subsoil. Important faunal groups include a single reredorter fill containing perhaps 10,000 fish bones, the majority of which appear to be herring.

The documentary evidence for the constructional, economic and social history of the monastery appears to hold more potential than was thought to exist for others of London's religious houses presently under study (St Mary Spital, St John and St Mary Clerkenwell) despite the absence of a cartulary and the rather idiosyncratic nature of the surviving Annals of Bermondsey, and the success of the researches into those other religious houses indicates that this line of enquiry should be followed.

The post-medieval history of the site is not so well represented in the archaeological record, although there are a number of very large finds groups from

dumped deposits over the great drain and reredorter that almost certainly relate to the process of disposal of 'low-value' or broken items in the monastery immediately after the Dissolution in 1538, an activity that has not been recognised in the archaeological record on this scale from any of the other London monasteries under current study. Structural alterations to the main cloister during its conversion to a mansion in the 1540s are also well represented. From the 17th century to the 19th century, there exists evidence for tanning, glass-making and the Bermondsey clay tobacco pipe industry as well as a number of very large ?domestic pot groups.

The recommendations of this document are, briefly:

- The prehistoric artefactual evidence should be analysed as part of the proposed Prehistoric Southwark and Lambeth project, particularly to enhance understanding of the pattern of occupation through time in the complex of eyots and channels south of the Thames.

- The Roman artefactual and stratigraphic evidence should be combined with the proposed study of landuse and occupational distribution in Roman Southwark

- The medieval and early post-medieval evidence should be analysed and integrated into a monograph report forming a further member of the series on London's religious houses.

- The later post-medieval evidence should be considered at a later stage for a project on the early modern development of Bermondsey along with results from excavations such as Jacob's Island (Bermondsey Wall West) and other sites in Southwark.

Fig 1

1 INTRODUCTION

1.1 The Scope of the Project

The project covers the former site of the Cluniac Priory and later Benedictine Abbey of St Saviour, Bermondsey, London Borough of Southwark (TQ 3340 7935), The core of the former precinct lies in the vicinity of Tower Bridge Rd, Long Walk, Grange Walk and Abbey Street, although the precinct itself was larger. The excavated areas of the site currently lie under residential development south of Abbey Street and east of Tower Bridge Road (Fig 1), and all lie within Greater London Scheduled Ancient Monument 165.

The main thrust of the project is to analyse the results of archaeological fieldwork undertaken between 1956 and 1995. These can be summarised thus:

- Bermondsey Abbey, Long Walk, SE1 (BA84)
- The Trocette site, Tower Bridge Road, SE1 (TRE91/TOB95)
- A programme of archaeological watching briefs carried out during the laying of new services adjacent to the White Bear Public House, Tower Bridge Road, SE1 (TWB94)
- Long Walk, SE1 (LWK92)
- A programme of archaeological watching briefs carried out during building works to the east of LWK92 under Scheduled Monument consent
- Excavations carried out by D Corbett for the Ministry of Works on the north side of the chancel of the conventual church

An excavation to the west of the Corbett site carried out by W F Grimes for the Ministry of Works

- An excavation by W F Grimes carried out in 1972
- Notes and records held by English Heritage at 23 Savile Row, W1X 2HE

It is proposed that, as well as the analysis and interpretation of the archaeological data, a documentary survey will be undertaken on the precincts of the medieval priory and abbey and their recorded layout. This accords with analyses undertaken at several other London monastic sites.

Summarised, the archaeological study area comprises the limits of GLSAM165, while the documentary study area can be considered to be the precinct of the medieval monastery.

The chronological scope runs from the prehistoric period (Neolithic) to the mid 17th century. The levels of data for the pre-Saxon periods are low, those for the Saxon period are higher (and include some documentary evidence). The greatest amount of data belongs to the medieval monastery and its immediate post-Dissolution use.

1.2 Circumstances and Dates of Fieldwork

The earliest archaeological fieldwork in the study area was in 1902 when John Todd, surveyor to the LCC, made observations of burials during the construction of buildings south of Abbey Street. A large body of material, including photographs and sketches of this and other, later observations, is held in the English Heritage London Division file HB92 at Fortress House (Beard 1990).

Observations were made first in 1922 by G Topham Forrest, during the construction of the new Tower Bridge Road, and then by F H Healey in 1955 on the western side of Tower Bridge Road (Jones 1992, 1.2)

Further excavation took place in advance of redevelopment on the north side of Abbey Street in 1956 and 1962-3, supervised by D Corbett and then W F Grimes, and funded by the Ministry of Public Building and Works, and the Corporation of Bermondsey. The Corbett and Grimes sites were briefly published (Grimes 1968, 210-17). Most of the finds and much of the original records from these excavations have now been lost, but a quantity of material survives including a large-scale trench plan, numbers of photographs and some medieval worked stone. A set of cards relating to contexts from an excavation carried out by Grimes at Bermondsey are held by the Museum of London.

A further series of excavations was undertaken by W F Grimes in 1972. This material was not recognised as being separate until the Grimes Archive project was completed by John Shepherd of the Museum of London. This work is of significance to the BA84 material (see below) as it occurred in the same area as the later controlled excavation.

Between 1984 and 1988 the Department of Greater London Archaeology (DGLA) carried out a large-scale excavation to the south and east of the White Bear Public House on land bordered by Abbey Street, Tower Bridge Road and Grange Walk (BA84). The excavation was supervised by D J Beard. The records and assemblages of this excavation form by far the greatest portion of the proposed project.

In 1988, observations during demolition of 39-45 Bermondsey Street recorded the location of a chalk and ragstone wall running parallel with the street, set back some 3m from the frontage (BER88). This was probably the precinct wall of the medieval priory.

In 1991, an evaluation was undertaken on land bordered by Bermondsey Street and Tower Bridge Road (TRE91) by DGLA supervised by A Steele. This was followed by a limited excavation in 1995 (TOB95), under the same supervisor, but for MoLAS.

In 1992, MoLAS undertook an excavation adjacent to the western edge of BA84, bordered by Long Walk and Tower Bridge Road (LWK92), supervised by H Jones. This was limited to removal of post-medieval features and plan/section recording of earlier deposits.

The central areas of excavation in the study area are shown on Figure 2.

Fig 2

1.3 Summary of Post-excavation Work

The Corbett excavation was the subject of a report (unpublished) written by Grimes and filed at the time with the Ministry of Public Works. This is now held in the Grimes Archive at the Museum of London. Two brief summaries of various archaeological aspects of the priory have already been published. These were: a short description/discussion of the findings of Corbett's and Grimes' work in the 50s and 60s (Grimes 1968, 207-10); and an interim on the infirmary and its drainage system (Beard 1986, 186-9). The findings of Corbett and Grimes were reconsidered briefly in 1984 (Gem 1990).

Recent work has not been carried out on the material produced by the Corbett and Grimes excavations, beyond the organisation and curation of the archive (J Shepherd pers comm).

For the BER88, TRE91, TWB94 and TOB95 sites, site archives exist and have been checked; an evaluation report was written for TRE91 (Steele 1991 unpub). At LWK92, the site records have been checked and an assessment report written (Jones 1993 unpub). The large archive of BA84 has undergone two phases of post-excavation work. Initial phasing preceded the publication of the infirmary interim, although excavation work continued after this date; in 1994, a preliminary project design was accepted by English Heritage and funding was secured to complete the site archive and produce an assessment of the material. This assessment programme takes account of the archaeological work at both TRE91 and LWK92, and additionally of the sites BER88, TWB94 and TOB95. The latter three sites did not appear in the original evaluation (Beard and Malt 1994 unpub). This document represents the results of that assessment.

The work already carried out therefore corresponds with 'Phase 2: fieldwork', and 'Phase 3: Assessment of potential for analysis' in the terms of *Management of Archaeological Projects* (MAP 2, English Heritage 1991). The funding for the post-excavation element of this project has been provided from two sources.

The post-excavation work on the archive relating to the BA84 site and the Grimes Archive material is to be funded by English Heritage. That carried out on the other five sites attracted developer funding.

The Trocette sites (TRE91-TOB95) have developer funding for analysis and publication work and an interim report will be published in *London Archaeologist*, the rest of the funding will support this main publication.

BER88: consists of 5 contexts and an observation of the precinct wall? which is already located and digitised. There is no cost to integrate these data into the Bermondsey project.

TWB94: has one plan of a north-south foundation which may be a continuation of the east dorter wall which is already located and digitised. There is no cost to integrate these data into the Bermondsey project.

LWK92: The excavations were subject to a preservation in situ order under the terms of the Scheduled Ancient Monument Consent, therefore only plans were recorded of

features associated with the Monastic precinct. These were integrated into the BA84 archive, using developer funds, at an earlier stage of the Project. Wall foundations and other features have been digitised and sub-grouped into the main BA84 sequence and will be phased along with the fully excavated material from BA84; therefore, there is no further cost to integrate this data into the Bermondsey project

1.4 Organisation of the report

This document details the work undertaken for the assessment of the archive (section 5). It correlates initial observations with the original and revised research aims and discusses the wider significance and potential of the site (section 6). A publication synopsis is outlined supported by a detailed method statement for the work to be undertaken during the analysis of the archive (section 7). 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 resources requirements is detailed towards the back of the document (section 8).

2 HISTORICAL SUMMARY

Documentary evidence from the *Liber Niger* of Peterborough and earlier archaeological work (summarised in Grimes 1968) strongly suggest that a Minster church stood on the site during the Middle Saxon period (Blair 1991, 102). In the Late Saxon period the site was a royal manor (*Domesday Book*). It is possible that there was a Minster church on the site at this time (John Blair pers comm) which may have acted as a precursor to the Cluniac priory, as was the case with some other Cluniac houses (Richard Gem pers comm).

The Cluniac Priory of St Saviour at Bermondsey was the 'first monastic house founded near enough to impinge on London after the Norman Conquest' (Brooke 1975, 312). It was founded by monks from La Charité-sur-Loire in 1089, and was the third Cluniac priory to be founded in England, its predecessors being St Pancras in Lewes, Sussex (1077) and St Milburh in Much Wenlock, Shropshire (early 1080s). The Cluniacs were a reformed order of the Benedictines who lay great stress on an elaborate sung litany. The order encouraged the arts of architecture, painting and sculpture in its buildings to such an extent that Cluny became the principal target of Bernard of Clairvaux in his writings on the principles of the Cistercians. Although the idea of *L'École Clunisienne* is no longer accepted (Conant 1978, 186), the tight administrative control exercised within the order meant that a number of unified regional architectural groups were produced among Cluniac houses (Evans 1938).

St Saviour's, Bermondsey grew to become one of the main centres of Cluniac influence in the country (Brooke 1975, 313). The conventual church, which is mentioned in Domesday (*ibi noua et pulchra æcclesia*), is considered by Richard Gem to be the "major lost London monument of the latter years of William I's reign" (Gem 1990, 48), and the precursor of this church (Grimes 1968) and its associated structures can be said to be of even greater significance (Richard Gem pers comm).

In 1117 an ancient crucifix was found near the Thames and placed in an honourable position in the conventual church at Bermondsey. This crucifix became an object of pilgrimage, and in the later 13th century forty days of indulgence were granted to those who contributed to the fabric of the church, or who visited it for the purpose of adoring the holy cross (VCH **2**, 74). The financial position of Bermondsey worsened during the 13th century, and the earliest reference to Bermondsey in the extant records of Cluny concerns an appeal made at the Chapter General held in Cluny in 1237-8, when a delegate from Bermondsey stated that the house was bordering on bankruptcy. The taxation roll of 1291 valued the temporalities of Bermondsey at £228 19s 8½d and included lands or rents in the dioceses of Bath and Wells, Chichester, Lincoln, London, Rochester, Salisbury, Winchester and York. The spiritualities were valued at £50 3s 4d and were in the dioceses of Bath and Wells, Ely, Lincoln, London, Norwich, Salisbury, Winchester and Worcester (VCH **2**, 66).

Bermondsey was sequestered as an alien priory in 1337, and the prior appointed custodian. The priory became denizen in 1381 and was elevated to the status of an abbey by Pope Boniface IX in 1399. Relations between Bermondsey and La Charité finally became severed during the Papal Schism of 1378 - 1409 (Graham 1926) when France recognised the pope at Avignon and England the pope at Rome. The mother house seems to have accepted this independence unwillingly and as late as 1432 there was a visitation from the prior of La Charité-sur-Loire to Bermondsey. It may be this event that led to the compilation of the annals of Bermondsey, compiled c 1433 (Luard 1866).

In 1213 prior Richard built an almonry or hospital for lay brethren and boys against the walls of the Cellarer's building in honour of St Thomas the Martyr (Luard

1866). In its later years Bermondsey ran a house for poor boys and penurious converts from the Jewish faith (Butler and Given-Wilson 1979, 80).

The king exercised his prerogative to present boarders to the prior. In 1313 William de Topclyve, who had long served the king, was sent by Edward II to spend the rest of his life at Bermondsey. Katherine, widow of Henry V passed the remainder of her life at the abbey, and Elizabeth Woodville, widow of Edward IV, was condemned by an order in council in 1486 to forfeit all her lands and goods and to be confined in Bermondsey abbey until her death (VCH **2**, 75). The Earls of Gloucester also claimed rights to receive maintenance with the prior when they were at Bermondsey.

The size and importance of the monastery, together with its proximity to London, made it suitable for large assemblies and councils of state. The council held by Henry II in Bermondsey at Christmas 1154 to discuss the affairs of the kingdom was almost certainly held at the priory. On St Calixtus day 1249, a chapter of the Benedictine order was held at Bermondsey to discuss several measures for the reformation of the order. In 1258 Robert de Chance, Queen's Clerk, was consecrated bishop of Carlisle at the priory by the bishops of Bath and Salisbury (VCH **2**, 75).

Priors of Bermondsey were appointed by Henry II as abbots of the great Benedictine houses of St Ouen at Rouen (1157), Evesham (1160), Abingdon (1176), Faversham (1178) and Glastonbury (1189) (Graham 1926, 165). In 1522, when preparations were being made to pay honour to the Emperor Charles V on his visit to England, The abbot of Bermondsey was one of six English abbots nominated to attend upon "my Lord Legate at Dover" (VCH **2**, 74).

The Valor of 1535 returned the clear annual value of Bermondsey Abbey at £474 14 s 4d; the house was dissolved in 1538, and the site granted to Sir Thomas Pope, Treasurer of the Court of Augmentations, who reused some of the monastic buildings as the basis for his mansion, Bermondsey House. The house became the residence of the family of Radcliffe, the Earls of Sussex from 1556 to *c* 1610. Thereafter the mansion seems to have slowly decayed, although it survived substantially until the early 19th century. Two of the monastic gate-houses also survived on the western side. The principal buildings, therefore, remained long enough to be depicted by *inter alia* Henry de Cort, John Chessel Buckler and John Carter (Martin 1926, figs 3-11).

3 ORIGINAL RESEARCH AIMS

The research aims arising out of the fieldwork and preliminary post-excavation were presented at the appraisal stage (Beard & Malt 1994 unpub, 10). They are repeated here to ease comparison with the Updated Research Design (section 8.1)

3.1 *Is it possible to draw together the information from all the periods represented the sites BA84, TRE91 and LWK92; the excavations that will take place prior to the construction of the proposed buildings on the BA84 site, together with any watching briefs that may prove necessary during construction; and the information from the excavations carried out by Grimes and Corbett in order to produce a current reference plan of all investigated material?*

3.2 *Can a common chronology be completed for all the excavations in the project and an attempt made to assign chronological positions for features for which no direct dating evidence exists?*

3.3 *Can we test and refine current models for the natural topography of the area: its layout, geology, hydrology and the behaviour of the River Neckinger? In particular, is it possible to examine the Neckinger with relation to the feed for the great drain of the monastery?*

3.4 *Is it possible to use the archaeological evidence and such documentary evidence as exists to attempt to determine the nature and status of Middle Saxon activity on the site, and in particular to attempt to ascertain if this site is the location of the 8th-century house at Vermundesei referred to in the Liber Niger?*

3.5 *Can we use the archaeological and documentary evidence to attempt to determine the nature and status of Late Saxon activity on the site, and in particular to attempt to ascertain if the site was secular or monastic at this time?*

3.6 *Is it possible to produce a plan of the buildings, yards and other open areas of the Cluniac Priory and the later Benedictine Abbey, which will form the basis for any future excavations and research programmes?*

3.7 *Can we refine the model for the function and status of the excavated structures of the Priory and the later Abbey?*

3.8 *Is it possible, by considering the available evidence, to outline the construction, design and development of the monastery, and in particular to examine the extent to which the phase of rebuilding comprising the third phase of the infirmary hall and chapel and the creation of the infirmary cloister may be seen as part of a clearly defined overall restructuring of a major area of the monastery?*

3.9 *Can we reconstruct the above-ground appearance of the Priory from the archaeological, documentary and pictorial sources?*

3.10 *Is it possible to examine the evidence for diet and cooking practice to attempt to establish if changes in these practices can be observed through time?*

3.11 *Is it possible to examine the evidence for industrial activity within the monastery, to attempt to determine the range of products being produced?*

3.12 *Can we place the monastery in its wider social and religious contexts: within the pattern of monastic development around London; as one of the most important members of the Cluniac order in England, and later as a Benedictine Abbey with important royal associations; and as a property owner in England?*

3.13 *Can we use the documentary and archaeological evidence to assess the economic condition of the monastery, and to attempt to examine its economic strategy through time?*

3.14 *Is it possible to examine the significant similarities and differences in the layout of the priory at Bermondsey, and other principal Cluniac foundations in England in order to establish to what extent there is a "Cluniac Style" to be found in the English houses of this order?*

3.15 *Can we examine the palaeopathological and osteological evidence from the skeletal material from the monastic cemetery and make valid comparisons with the data from other medieval monastic and lay populations?*

3.16 *Is it possible to examine the history of the precinct subsequent to the Dissolution in order to add to the corpus of information about the effects of the dispersal of monastic sites on the topography of London and its suburbs. In particular to reconstruct the above-ground appearance of Bermondsey House (the mansion built for Sir Thomas Pope) from the archaeological, documentary and pictorial sources?*

3.17 Is it possible to determine the nature, extent and date of post-medieval activity on the site with particular reference to the establishment of the important Bermondsey tanning industry?

4. INTERIM STATEMENT ON THE RESULTS OF FIELD WORK

4.1 Introduction

The areas of the Cluniac priory (and later Benedictine abbey) of St Saviour at Bermondsey which underwent full excavation were the infirmary block and its cloister, the infirmary or Lady Chapel, the monks' cemetery and, at the extreme southern limit of the site, the reredorter and drain. The western part of the site, which included the dorter and the south side of the main cloister, was not fully excavated but the major constituent walls and contexts were recorded before the covering and backfilling of the site. It was in this area that Grimes opened his trenches in 1972 and this work has been integrated into the following assessment.

There are five other sites of varying status and significance that fall within the scope of the project (Fig 1). TOB95 was the complete excavation following evaluation (TRE91) of an area within the monastic precinct on the west side of Tower Bridge Road. A large trench (LWK92) was evaluated within the physical limits of the BA84 excavations, but in an as yet unexplored location along the Tower Bridge Road frontage. The archaeological remains were recorded and left *in situ*.

BER88 and TWB94 were both watching briefs. BER88 was a site at the north end of Bermondsey Street on the east side where a brief record was made of a chalk foundation likely to be the western precinct wall. TWB94 was the observation and recording of the results of a prolonged campaign of groundworks both in and around the Scheduled Ancient Monument. This assessment quantifies the information to be carried forward from these smaller sites and their potential contribution to the project as a whole.

The seven modern sites that have been included in the project have been given codes to allow for abbreviation in this assessment (Table 1). These 'site prefixes' will be retained into the proposed publication. An identical format has already been used for St Mary Spital (Thomas *et al* forthcoming), St Mary Clerkenwell (Sloane in prep) and St John Clerkenwell (Sloane & Malcolm in prep).

Table 1: List of sites included in the proposed project

Site Code	Site Prefix	Site Address
BA84	A	Abbey Street/Tower Bridge Road
BER88	B	39-45 Bermondsey Street
TRE91	C	Bermondsey Street/Tower Bridge Road
LWK92	D	Long Walk/Tower Bridge Road
TWB94	E	Long Walk and Tower Bridge Road roadworks
TOB95	F	Long Walk/Tower Bridge Road (phase II)
(VIN88)	(Z see below)	(Vine Lane, Southwark)

(A prefix has been given to the site at Vine Lane on the Southwark waterfront, as a small number of medieval worked stones deriving from that excavation have been proven to derive from St Saviour Bermondsey and, it is suggested, should be analysed as part of this project.)

4.2 Prehistoric Activity

The natural subsoil consists of a mixture of sands and gravels which has a maximum potential height of 2.10m OD but which has undergone wholesale truncation by both human and natural agents. It's average height has therefore been found to be more in the region of 1.90m, with, in places, a capping of a mixed, weathered sand and gravel deposit 0.30m thick.

Evidence for prehistoric activity is variable in its quality, and thinly spread over a wide area. It would appear to survive best beneath the 'cemetery soil' of the monastic burial ground, which certainly suffered from less truncation and intrusion, at least until 1500 and even beyond, when it seems to have remained an open area. Here a burnt layer, containing bone, daub and pottery may be associated with six post-holes and a linear cut full of daub. Across the site, a small number of ditches or gullies that contain no Roman pottery may be assigned to the prehistoric period. A number of post- and stake-holes may be considered in the same way, in the absence of any evidence to the contrary. Struck and fire-cracked flints were found as residual finds in Roman and later features and in deposits immediately overlying the weathered natural.

4.3 Roman Activity

In the Roman period, the area of site A appears to have been part of the agricultural hinterland of the nearby city. The natural and weathered natural deposits were cut by thirteen ditches or gullies, five surviving pits and four potential post-pits. In addition, a large, curvilinear ditch in the centre of the site extends in excess of 30m north-south-west and may indicate a boundary or enclosure. Truncation by mediaeval quarrying and construction has eliminated much of the evidence for the Roman land-use, which must have been fairly dense. Another factor that mitigated against the survival of early features on the site was the intense working and re-working of the soils overlying natural.

The same conditions and processes had wrought similar results on TOB95, where the truncated bases of two gullies bore dates of 160-300. Two other ditches and five pits contained pottery almost entirely from the late Roman period. A north-south aligned burial was succeeded by an east-west inhumation with associated pottery dated to 120-160. These burials were located at the bottom of the stratigraphic sequence cutting the natural gravels and sealed by a graded ploughsoil. The site LWK92 recorded one Roman pit in section.

4.4 Middle Saxon Activity

Ceramic loom weights, two sceattas, and occasional residual pieces of pottery indicate that some form of settlement probably existed near to the study area. However, apart from one possible gully, no contexts can confidently be attributed to the Middle Saxon period.

4.5 The Saxo-Norman Period

Evidence for the late Saxon period is sparse. On BA84 it is represented by a single feature, a large, east-west aligned ditch located at the very northern limit of excavation. This ditch or drain was timber lined and had been recut at least once in its lifetime. Initial

backfilling occurred in about 1050, but final infilling appears to have taken place in the early-mid 12th century, as three daub samples from the final fill produced a mean thermoluminescence date of AD 1160±40. A single quarry pit with pottery dated 900-1050 was excavated on TOB95.

The major activity being pursued on the site in the 11th century seems to have been quarrying for gravel, which was to provide the necessary construction materials of the early abbey foundations. The open area that was later to become enclosed by the walls of the infirmary cloister became one source within a quarrying programme that was to endure until at least 1400. Similarly, on TOB95, three huge rectilinear quarry pits must fit into this building campaign. Further evidence for the period to 1150 on TOB95 is to be found in deposits associated with the construction and use of the monastic drain, notably, its silt fill. On BA84, a group of pits containing significant amounts of animal bone will provide evidence of the diet of the building workers and lay brothers then at work on the construction of the new claustral buildings. A few metres to the east of these pits, a group of six burials was excavated. It seemed that the bodies in these cuts had, at some later period, been removed, as the articulated remains were few. Elsewhere on the site, other pits have produced evidence of human cess.

4.6 The Later Medieval Monastery

Interim Phase 1 (?1100-1250) (Fig 3)

The very first attempts at claustral organisation consist of large-scale water-management schemes. Cutting north-south across the open land were two large parallel ditches, which appear to have turned sharply east-west at the southern end of the site. It is probable that one of these succeeds and replaces the other, as the burials occupying the eastern range of the cemetery respect the eastern ditch but are truncated by the western. (The construction of buildings at the south end of the site, causing heavy truncation of these features, has made this relationship difficult to confirm in this area.)

In the western part of the site, three beamslots and four associated post-pits appear to form a timber building which was subsequently overlain by the stone-built reredorter drain. It is quite probable that this building may represent an early reredorter or latrine spanning one of the ditches described above. Further east, a group of at least fourteen substantial post-holes cutting through the backfill of one of the ditches, may well form an east-west aligned timber hall.

The first masonry buildings to have been erected were probably constructed before 1200. These included the first-phase chapel with the infirmary range to the south and the reredorter. The foundations of the first two were constructed out of alternating layers of rough hewn chalk blocks and rammed gravel. Of similar

Fig 3

construction, and presumed to be among the earliest phases of building, was the precinct wall, recorded on TOB95 and BER88.

The chapel consisted of an aisleless nave terminating in an apsidal chancel, with an additional, projecting buttress at the north-east corner of the nave (see Fig 3). A single burial was located just beyond, and east of, the chancel arch. To the south-east, a north-south aligned building, probably the latrine, was flanked on its east side by the first stone-built drain. This drain continued its course for the full north-south extent of site A, turning at the south end of the site to flow east-west through the reredorter. The dating of both pottery and roof tile from the monastic drain recorded as part of TRE91 evaluation and subsequently excavated in the TOB95 phase of work confirms it as the western continuation of the first phase stone drain. On TRE91 was a small building, with internal dimensions of only some two metres square, which was carried over the drain by means of well constructed arches or vaults. This may have been some sort of latrine associated with lay buildings to the west of the monastic complex.

The reuse within the reredorter of floor tiles of an unusually early form and which were also found in the backfills of the preceding north-south ditches points not only to an early construction date for the reredorter itself (i.e. pre-1200), but also to the presence of a pre-existing, possibly late Saxon structure which had been demolished to make way for the new monastic complex.

Interim Phase 2 (?1250-1400) (Fig 4)

Around 1250, a large north-south hall was constructed to the west of the small infirmary building or latrine, to which it was afterwards linked by means of a narrow ante-room or small through -chamber. The new hall was most probably the reason for the removal of the six early burials described above.

The internal division of the latrine by an east-west line of stakes was accompanied by the construction of two east-west walls to form passageways north and south into the divided building. The hall was also divided internally into two large bays, north and south, and a hearth created at the south end of the building, perhaps forming a calefactory or warming room. In 1250, the drain was deliberately backfilled and blocked and the 'latrine' building extended to the east. The original, now internal, walls were robbed out. This division of the latrine and hall may well have its roots in sexual segregation as suggested for the similarly dated 'T'-shaped infirmary hall at St Mary Spital, London (Thomas *et al*, forthcoming). The 'T'-shaped monastic infirmary is relatively rare, although one existed at Fountains Abbey, also dated 1220-1250.

In the open space to the west of these buildings, further measures had been adopted to ensure the supply of fresh, silt and sand free water in the form of a settling tank with associated gullies. This was backfilled some time after 1270.

The developments described above in association with the infirmary buildings found their counterpart in the extension and rebuilding of the chapel and in the introduction of a new range of buildings on the same axis further east (see Fig 4). Buttresses had been added to the apse of the first phase building, after which the intervening spaces had been filled in with chalk and clay foundations. The final addition was a mortared chalk foundation forming the base for a rectangular chancel, which doubled the length of the original chapel. One burial was partially removed by the northern extension to the chancel. To the east, the remains of an L-shaped foundation probably represent the north-west corner of an as yet unidentified building.

Fig 4

This building was later replaced by an east-west construction of unknown function, which appears to have abutted the rectangular chancel of the second phase. There were two phases to the east-west construction. An east-west passage allowed access from the dorter and other structures to the west to the more easterly buildings.

West of the west end of the chapel was the buttressed east wall of what is thought to be the chapter house. The location of this wall at the very limit of excavation has meant that the amount of additional information is minimal. However, the observations and records made on site E plot a north-south wall which may be the continuation of the east dorter wall. The implications for the supposed chapter house are not yet clear.

The apsidal structure excavated on the north side of the cemetery proved to be of singular construction, being the only foundation on site A to consist of alternate layers of chalk and ragstones. The buttresses against the foundation were of the same construction.

The cemetery (Interim Phases 1 and 2)

It is to be presumed that burial commenced in the monks' cemetery from the time of the earliest chapel structure, as the south side of the burial area is defined by this building. The eastern limit of the area appears to be the large north-south ditch, which carries a disuse and backfill date of 1150-1250. It is therefore likely that the earliest interments may be placed in the second half of the 12th century. Apart from individual burials placed within the successive chancels, and two that are truncated by subsequent building phases, little can currently be said of the mass of burials. It would appear that the area of most dense interment is to the north and east of the first-phase apsidal chancel. Here, the longest 'string' of intercutting burials is five. Burials generally become more sparse towards the west.

Interim Phase 3 (?1400-1500) (Fig 5)

Only one burial was disturbed by the major rebuilding works which mark the final expansion of the monastic plan. The reason is simple. The chapel, in its final form, extended to the south, thereby obliterating the passage between it and the infirmary block. By that time, the large north-south hall of the infirmary range had been demolished, with only its eastern wall retained for incorporation into the grand, new infirmary building. The new buildings were ranged around a new cloister, probably constructed *c* 1400, which also included a new block along its south side.

The chapel, on the north side of the cloister, had an entirely reconstructed nave terminating to the east, in an immense, ragstone foundation, heavily buttressed to north and south. A single burial was located just in front of the chancel arch, close to the south wall of the nave. The cloister's east side was dominated by a prodigious infirmary hall, aligned east-west, and incorporating a new drain. It is possible that later divisions to the east of this building were large cess pits, although truncation to deposits was severe in this area. The east-west aligned buildings on the south side of the cloister were the subject of several alterations and additions, and the precise function of separate areas is not yet known. It seems likely that this building was vaulted. It contained an extensive hearth constructed out of tiles, with associated floor surfaces. At the west end of the building, a large cess pit was later inserted between

Fig 5

the south wall and a central pier base, probably during one of the phases of alteration to the reredorter.

The reredorter, although apparently little altered in the character of its external structure, underwent at least three internal alterations, culminating in its use, after 1500, as a glorified cess pit. These alterations raise the consequent issue of the direction of water flow, which could have been in either direction, given the tidal nature of the River Neckinger.

To the west of the infirmary cloister lay the dorter and main cloister of the priory. The sequence here cannot achieve the same detail as the fully excavated parts of the monastic complex, but it is possible to derive some idea of phasing from plan evidence from sites A, D and the Grimes' 1972 work.

The western area of site A includes the southern half of the dorter, the west end of the reredorter and a stretch of infirmary drain, which continues beyond the western limit of excavation. The unexcavated dorter was a large north-south aligned hall, aisled and vaulted at first-floor level. It appears to have had at least two phases. A single, central row of chalk and gravel pier bases is later replaced by a double row of ragstone bases, thus creating a central space with two flanking aisles. This is no doubt evidence for a significant enlargement of the whole structure. Subsequently, east-west walls erected between the sets of double piers divided the ground floor of the building into four bays, and the addition of north-south walls, although not uniform, created yet smaller enclosed spaces. A post-medieval cellar which overlies this sequence may belong to the period of Sir Thomas Pope's tenure.

Walls identified as belonging to the frater were recorded to the west of the dorter. A mortared chalk foundation with substantial buttresses along the south side formed the south-east corner of a large east-west aligned building. This did not appear to abut the dorter, but left an area about 5m across between the two buildings. The spaces between the buttresses were filled in at some later point by chalk and gravel foundations, perhaps to add strength, or because of an alteration to window openings. The end wall of the structure was then demolished and a new east-west wall linking the building to its neighbour, the frater, was erected 2m to the north. Foundations on site D indicate the presence of at least one more structure to the south.

The cemetery fell into disuse before 1500, when pits were dug just to the north of the chapel nave. At about that time, a north-south wall was erected dividing the cemetery area into a western and an eastern part. Although there is no direct dating as yet for the robbing of the final phase chapel (the pottery would appear to be residual), it is evident that the nave at least had been demolished by this stage. What followed was the cutting of a number of north-south aligned slots, many of which directly overlay the robbed walls of the nave. There were more than twenty such features, all of which seemed to have lain open for a while, and then been backfilled, perhaps in a single campaign, with demolition rubble from the abbey buildings. The rubble backfill was dated to between 1380 and 1500. East of the dividing wall, the slots changed their alignment to east-west and stopped short of another north-south wall located further east. It is possible that these enigmatic features bear a later date, as it is otherwise remarkable that the final phase chapel should have fallen so swiftly out of use.

4.7 The Post-Dissolution Mansion

The extent of Sir Thomas Pope's alterations to the dorter and the lack of evidence for any similar activities to the east of that building indicate that Bermondsey House was sited on the dorter with an outlook over the main cloister. Evidence such as the carefully constructed, brick-lined pit sunk against the inside of the frater wall indicate that the mansion occupied more than one wing, and may have been L- or T-shaped. Large-scale changes were wrought upon the standing structure by the new tenant. Two doorways in the east wall of the dorter were blocked and two windows stripped of their decorative masonry prior to being walled up. Internally, dressed stonework and plaster was removed and replaced by brickwork. The south end of the former hall had no openings at ground floor level and was probably employed as a cellar to the great house.

The development of, and encroachment onto, the monastic precinct took the form of pits and structures built against the precinct wall on site F. A brick-built cellar dated 1550-1600 by the recovery of a silver coin, was located on the abbey side of the wall. On the other side, four pits may have contained the timber uprights of a pentise roof.

Later post-mediaeval contexts on site F were almost entirely associated with the tanning industry.

Site A produced evidence for brick built pits and drains, domestic cess pits and tanning pits. One large brick bee-hive structure proved enigmatic, but appeared to have had an industrial function. Another subterranean chamber, again made out of brick, incorporated a staircase, and was probably an ice-house. Deposits of ash suggest a secondary reuse, perhaps as an ashpit.

5 FACTUAL DATA

5.1 Stratigraphic

Contents of the stratigraphic archive

The quantification of site records within the archive is given below in Table 2:

Table 2: Quantification of site records from sites contained within this project

Site Code	Contexts	Plans	Sections	Transp	Monochr
BA84	4621	3669	77	5868	3420
BER88	5	2	1	4	-
TRE91	62	54	12	50	57
LWK92	100	6 (multi-ctx)	10	36	36
TWB94	70	1	7	6	4
TOB95	158	150	7	60	48
Grimes 62	c 80	1 (multi-ctx)	10	-	4
Grimes 72	48	5 (multi-ctx)	4	-	-

Assessment of the stratigraphic integrity of Grimes 62 and Grimes 72 archives

The Grimes 62 archive, incorporating the Corbett excavation, has been organised into a report which may be compared to a cross between context description and group or phase description. The scaled site plan is clear and the section locations are readily identified. There are 20 principal features that have been numbered, mostly medieval walls, and an estimated 60 further features.

The Grimes 72 archive consists of 5 multi-context plans divided by period and subject matter. Grimes was able to date the sequence into four periods (pre 1425; 1425-C17th; C17th; C19th). The context numbers (of which an index exists) have been ordered in this way. A series of finds cards record dating evidence from stratigraphy.

The results from both sites can be integrated following the successful completion of two vital tasks. The first is to locate the sites accurately. There is a detailed site plan for the Grimes 62 site which relates it to the modern street plan, probably reducing error to perhaps 0.5m. In addition, there are precise measurements to described buildings (eg a cafe) formerly existing on Tower Bridge Road. This should bring the site survey into acceptable margins of error. Plan data is recorded at a scale that will permit digitisation to form group/subgroup plans.

The HB92 records held by the Historic Buildings and Monuments Commission was examined as part of this assessment. It contains written records of work and finds dating from 1903 to 1962, a period when the monument was in the care of the London County Council and applications affecting it were the responsibility of the superintending architect. The file contains many points of interest, although there were very few plots or plans to help locate finds and or walls mentioned in the 80 or so letters and reports.

The majority of the information concerned worked and sculpted stones which had been found in a variety of locations around the Abbey Street and Bermondsey Square areas. Most of these had been re-used in later contexts. References for some of the stones included the names of organisations with whom they were later deposited. These bodies were the then London Museum, the Horniman Museum, the Geffrye Museum and the

local museum then housed at Rotherhithe. Other, more portable finds seem often to have been sold in the early years of the century. A great deal of the correspondence concerned a single slab bearing an incised cross surrounded by a circle. This was found in 1922, re-used in a length of foundation considered to be post-Dissolution. The 'consecration cross' was to be handed over to the Anglo-American Oil Company to be put on display outside their petrol station on Tower Bridge Road. Other letters mainly referred to plans for the construction of housing along Abbey Street and to other developments thought likely to encroach upon the abbey precinct, such as the proposed widening of Grange Walk. The file contained one photograph of the Grimes' 1962 trench, showing an apsidal chalk rubble foundation adjacent to the north side of Abbey Street.

Only four principal features merit further work: two chalk-lined burials and two walls. The work will involve an attempt to plot their whereabouts on the integrated CAD plan by using the written descriptions and the relevant OS maps.

Work completed for the assessment

The stratigraphic archive is now in good order for all the sites included above, although the photographic archive requires rationalisation and some renumbering for BA84.

- Plan matrices exist, and subgroups have been defined (except for the Grimes material)
- The stratigraphic matrix has been entered into a Bonn Harris Matrix program and is thus accessible and checked (except for the Grimes material)
- The matrix has also been produced in hard copy and annotated with subgroups (except for the Grimes material)
- A subgroup matrix exists, also in the Bonn Harris Matrix (except for the Grimes material)
- Relevant subgroup plans have been digitised using AutoCAD release 12 (except for the Grimes material)

During the stratigraphic assessment later post-medieval and modern contexts were identified and these, along with the finds etc associated, can now be discarded from the principal proposed monastic project. These contexts could form the basis for a separate publication, but are not considered to form part of this project. Consequently, no costings are considered for such a post-medieval project at this time.

5.2 Finds

Contents of the finds archive

6 boxes prehistoric pottery
80 boxes Roman pottery
185 boxes post-Roman pottery
2292 clay tobacco pipe fragments
738 boxes of bulk ceramic building material (presently in 246 large boxes)
32 boxes of accessioned ceramic building material
3006 accessioned finds
856 medieval worked stones

Pottery

The pottery from the study area includes material from the Iron Age through to the 19th century. This assessment has limited itself to a summary of the Roman and earlier material, and a more detailed consideration of the Saxon, medieval and early post-medieval pottery. The later material (after 1650) has been examined and entered onto the MoLAS ORACLE database. It has not been assessed as part of this project, although its use as a dating medium has played a crucial role in determining 18th-20th century stratigraphic subgroups.

Medieval and later pottery from a total of 707 contexts was spot-dated, principally during 1995, and have been placed on the MoLAS Oracle database. However, because of the sheer volume of pottery recovered, it was not possible to examine all of it in the time available, and 58 boxes have yet to be spot-dated (this includes all sherds found during the wet-sieving of environmental samples). Of those contexts not examined in 1995, several regarded as having priority, in terms of the interpretation and chronology of the site, were later spot-dated in January 1997 and added to the database.

The majority of contexts given a medieval date are small in size (i.e. fewer than 30 sherds): a total of 390, or 93% of all MPOT. There are 22 medieval contexts of medium size (i.e. 30-100 sherds); and six classed as large (more than 100 sherds). Post-medieval pottery ranging in date from the 16th to 19th centuries was found in 289 contexts, of which 237 are small; 35 are medium-sized; 15 are large and 2 are very large (multiple boxes). A high proportion of the post-medieval groups date to the late 17th/19th century (153 contexts in all), and have therefore been excluded from the current detailed assessment as defined by the research aims for the project.

A high level of chronological mixing is exhibited in a sizeable proportion of the contexts spot-dated, with abraded, residual material and later intrusions common. This is not unexpected, given the demolition and rebuilding which took place in the are of the excavation.

The nature of the assemblage is summarised below, divided into chronological periods.

Prehistoric

Prehistoric pottery derived from 101 contexts of site A (BA84). Several contexts contained medium to large groups of prehistoric material, such as A[3456], A[4200], and A[4315]. The sherds range from small to large, and are in good condition with surfaces frequently surviving intact. Several rim and base sherds have been identified; a number of sherds are decorated. Joining sherds have been recorded within an assessed sample of 2 boxes.

The assemblage ranges in date from the early to the late Iron Age and may also include some transitional early Romano-British wares of native type. Fabrics recorded were flint-, shell-, and sand-tempered wares. Examples of the following forms were identified: tripartite bowls, slack-shouldered jars, necked jars, storage jars, and jars with corrugated shoulders. Various types of decoration are present including finger-tip, finger-nail and incised. One sherd had a red iron oxide coating. Some of the pottery appears to derive from contexts that are probably Iron Age in date (Table 3)

Table 3: Iron-Age pottery from contexts thought to be of Iron Age date from site A (BA84)

Ctxt	Period	Siz	Date Range	Context description
A[1427]	Iron Age	S	?	Light brown sand deposit over natural
A[1723]	Iron Age	S	?	Dark brown silt over sand deposit
A[4037]	Iron Age	S	?	Weathered natural
A[4063]	Iron Age	S	?	Occupation debris (ash, daub, bone)
A[4072]	Iron Age	S	?	Pit ?associated with occ debris

Roman

Roman pottery was recovered from 355 contexts on site A (BA84) and a further 30 contexts on sites C/F (TRE91/TOB95).The pottery is in comparatively poor condition. The sherds are small to large in size and heavily abraded. With the exception of later colour-coated wares, few fabric types could be confidently identified during the scanning process and only the more distinctive forms could be recorded.

The Roman assemblage is very mixed and includes material from the mid 1st through to the 4th century. The 3rd- and 4th-century colour-coated wares are distinctive in appearance and therefore more easily identifiable during scanning. First and second century fabrics such as, Verulamium white ware (VRW), Alice Holt, Surrey (AHSU), Early Roman micacaeous ware (ERMS) and Highgate Wood fabric C (HWC), can also be identified without the use of a microscope.

Although mid 1st- and 2nd-century material is present, it does appear to be relatively scarce in comparison to the 3rd- and 4th-century material. The range of later material is interesting. Colour-coated wares from Oxfordshire and Nene valley are relatively common amongst the assemblage in a range of forms, including jars, bowl, mortaria and dishes. Fourth-century activity is indicated by Calcite-gritted ware (CALC) and Porchester D ware (PORD). Table 4 shows Roman pottery groups from Roman contexts on site A.

Table 4: Roman pottery from Roman features in the study area (medium and large groups only)

Ctxt	Period	Siz	Date Range	Context description
A[848]	Roman	M	270-400	Curvilinear ditch fill
A[1179]	Roman	M	180-400	Curvilinear ditch fill
A[3456]	Roman	L	270-400	'Plough' soil (with intrusive med pot)

Saxon

The Saxon pottery breaks down into two ceramic phases, the Middle Saxon material and the Late Saxon material. Only one sherd of Middle Saxon pottery was found.

The Late Saxon material from site A (BA84) dates to the 10th/11th centuries, and consists largely of Late Saxon shelly ware (LSS) and early medieval, local, handmade wares which are generally residual in later contexts. The one medium-sized context dated to the late 11th/early 12th century, A[1046], is somewhat deceptive in that it consists mostly of 34 small sherds from a single spouted pitcher in Thetford-type ware (THET), together with local, handmade pottery such as early medieval sandy/shelly ware (EMSS) and early medieval shelly ware (EMSH). In all, 97 contexts can be dated to *c* 900-1080, all of which are small and include fabrics and forms in common use throughout the London area at this time. Table 5 shows Late Saxon groups of pottery from contexts thought to be of this date. From the beginning of the 11th century, local wares dominate and cooking pots and other kitchen wares, such as bowls, are the main forms. Non-local wares are few, limited mainly to East Anglian imports (THET).

A similar profile is suggested for the very much smaller group of pottery from sites C/F (TRE91, TOB95), with eight contexts dated to 970-1150, and comprising LSS, EMS and EMSS. The pottery suggests a hiatus on the site then until the 13th century, perhaps indicating an absence of occupation in this part of the precinct.

Table 5: Saxon pottery from Saxon features in the study area (medium and large groups only)

Ctxt	Period	Siz	Range	Context description
A[1776]	Spot	M		Weathered natural - poss Late Saxon?
A[1982]	Spot	M		Weathered natural
A[200]	Spot	M	1000-1150	Possible construction of 1st infirmary
A[209]	Spot	M	1050-1150	Early med soil horizon pre 1st infirmary
A[1046]	Spot	M	1000-1050	Late Saxon ditch fill

Medieval - 12th century

A total of 87 contexts are dated to the 12th century, the majority to *c* 1140-1200 (61 contexts). Of these, 78 are small, four are medium-sized and five are large (see Table 6). They are dominated by wheelthrown and glazed London-type ware (LOND, LCOAR and LCALC) in a wider range of forms than in the previous century, including a high proportion of early rounded jugs, many of them decorated with white slip. This is a pattern common throughout the London area at a time when the handmade industries were in decline and pottery was increasingly used in a more varied range of cooking processes, and for serving at table, where its potential for decoration could be fully exploited. Cooking pots are still by far the most common form on the site at this date; a very high proportion are made in shelly-sandy ware (SSW), the shell-tempered,

wheelthrown, local coarseware industry, related in fabric to London-type ware and dated mainly to the second half of the 12th century. By comparison, cooking vessels in other wares are few, limited to those local handmade coarsewares which were largely obsolete by the end of the century. There is surprisingly little South Herts greyware (SHER), which was the main coarseware for cooking vessels used in the City from *c* 1150-1300 (no more than six sherds in the larger contexts dated to *c* 1140-1200). This prompts the interesting speculation that, at least during the 12th century, the distribution of SHER was concentrated principally north of the river, to which it was carried from various production centres in south Hertfordshire, but that its main market did not extend much further south before *c* 1200 since this area was well provided with local coarsewares (SSW, LOND/LCOAR). It may even be suggested that there were centres producing these local wares south of the river and easily accessible to the priory (no kilns have yet been discovered anywhere in the London area). These hypotheses will need to be examined in the light of sizeable assemblages from other contemporaneous sites in Southwark and the City, and must be seen as tentative at this stage.

Apart from local wares, there were very few imports, limited mainly to Rhenish pottery - Blue-grey or Paffrath ware (BLGR) and Red-painted or Pingsdorf-type ware (REDP) - both of which are among the most common imported pottery found in the City at this date. The number of BLGR ladles in the larger contexts is noteworthy, many of them substantially complete (examples occur in A[121], A[548], A[1125] and x3 in A[1122]). Most are sooted externally from use. Ladles are not large vessels, and were undoubtedly made for specialised use, generally in the kitchen, for heating components of meals. They are, therefore, too small to hold a substantial meal, such as a stew for several people, and their integral handle implies a usage akin to a modern saucepan which can be taken on and off the heat as required, rather than left to cook for some time. No obvious industrial or other recognisable residues have been found on the Bermondsey ladles to suggest a usage other than in the kitchens, although involvement with medicinal preparations for use in the infirmary cannot be ruled out.

There are no other ceramics at this date which can readily be associated with the specific functions of the infirmary , or any industrial processes, without embarking on a programme of residue analysis. In the main, the forms recovered are those in widespread use for cooking and serving, and these are the functions they most likely served in the early priory. The larger late 12th-century contexts tend to be concentrated in and around the fill of the first drain near the south range of the infirmary cloister, and probably formed part of a general dumping of waste from the priory following the disuse of the drain and levelling for the late 12th-century rebuilding of the infirmary. There are numerous vessels represented by several sherds each in the larger contexts, obviously discarded intact or freshly broken. These include 16 complete or near-complete vessels (ESUR, BLGR, LOND, LCOAR and SSW) in A[1122]; and five complete vessels (LCOAR, SSW, BLGR and LOND) in A[1125].

As noted, sites C/F (TRE91 and TOB95) produced no 12th-century pottery.

Medieval - 13th and 14th centuries

There are fewer medium or large contexts dated to the 13th/early 14th century (four out of 153 contexts on site A). One of these, A[2890], is residual in a 17th/18th-century cut. The main fabrics in use, as elsewhere in London are LOND and Kingston-type ware (KING). Jugs are the most common form in both fabrics, although there are far fewer complete profiles or vessels represented by several sherds. There are also few of the more decorative types of jug in common use during the 13th century. Other forms found are

mainly cooking pots and bowls. Part of an *albarello* in Andalusian lustreware (ANDA) from A[2890] is of interest and may have been used in the infirmary. Other imports at this date come mainly from France: small sherds from a maximum of 17 different jugs in North French monochrome (NFM), Saintonge polychrome and green-glazed wares (SAIP, SAIM, SAIG) were found in contexts spot-dated to the late 13th/early 14th century (and five examples residual in later contexts). Until the pottery is quantified, it is uncertain how many of these sherds come from the same vessels distributed across more than one context. Nevertheless, these are good quality tablewares generally associated with high status sites, particularly when they appear to occur in such quantity.

Sites C/F produced a small number of sherds, mainly jugs, in Mill Green ware (MG), Kingston ware (KING) and Cheam white ware (CBW). Forms include a small rounded jug, and a baluster jug in the North French style.

Medieval - 14th and 15th centuries

There are 63 contexts on site A dated to the mid 14th/15th century, of which six are medium-sized, two are large and the rest are small. Coarse Border ware (CBW), from the potteries of the Surrey-Hampshire borders in the area around Farnham, is among the more common fabrics recovered, but not in the high proportions that might be expected given the dominant role played by this industry in the supply of London's pottery from *c* 1350-1500. KING was still in production up to the end of the 14th century and there are numerous vessels in this fabric in late 14th-century contexts. Jugs are still the main form represented in KING, although CBW is found in a wider range of vessels - cooking pots, cisterns, jugs, bowls, cauldrons, and a side-handled urinal from A[4154]. This context, which consists of cess deposit from the reredorter, is of some interest since it includes several substantially complete but fragmentary vessels: KING metal copy and rilled baluster jugs, a bowl in Late Medieval Hertfordshire glazed ware (LMHG), a LOND pipkin and two rounded jugs. The occurrence of a urinal in the reredorter is of interest but hardly surprising, although this form was used for the deliberate collection of urine for industrial purposes (eg tanning), as well as its disposal. There is only one other urinal recorded from the site (in KING, from A[972]).

Other common fabrics in late 14th/15th-century contexts are LOND, which had gone out of production *c* 1350, which, when it occurs in large quantities may be seen as largely residual (eg in A[1262], part of a robbing fill in the infirmary cloister); and Cheam whiteware (CHEA), found mainly as jugs and cooking pots, and a measure. In all fabrics, vessels for cooking and serving are the most numerous and, although there is greater variety than in earlier groups, the forms found are those in common domestic use throughout the London area at this date. Imports are still few in number and include part of an unidentified vessel in Andalusian Lustreware (ANDA) from A[2230] and part of an *albarello* in Paterna blue ware (PATB) from A[2406] - both these may have been used in the infirmary; in the same context, sherds from a SAIG jug; and a Dutch red earthenware cauldron (DUTR) in A[1262], together with a Siegburg stoneware (SIEG) drinking jug. The large context A[1764], dated to *c* 1380-1450, is very mixed chronologically and includes much 12th/13th-century pottery forming part of a demolition spread, possibly related to the Dissolution.

Sites C/F produced almost no 14th-15th century pottery, nor any imported late medieval wares.

Table 6: Medieval pottery groups from the study area (medium and large groups only)

Context	Size	Date	Context description
A[1367]	M	1080-1150	Robbing fill to ?earliest infirmary
A[1121]	M	1100-1200	Backfill over buttress to S range infirm
A[1122]	L	1150-1200	Backfill over buttress to S range infirm
A[1945]	M	1150-1250	Soil next 1st drain nr S range inf cloister
A[4134]	L	1140-1200	Soil next 1st drain nr S range inf cloister
A[1125]	L	1150-1200	Silt primary 1st drain fill nr infirmary
A[517]	M	1140-1200	Const backfill to 1st drain nr infirmary
A[548]	L	1140-1200	Robbing fill in 1st drain nr infirmary
A[693]	L	1150-1200	Gully fill over robbed 1st drain
A[4393]	M	1150-1200	Pit fill nr south range infirmary cloister
A[270]	M	1180-1230	Robbing fill (why early date unclear)
A[1124]	M	1230-1350	Bldg debris against S range inf cloister
A[2890]	M	1250-1350	Resid - Cut fill C17th/C18th
A[1281]	M	1270-1350	Robbing fill ?2nd phase infirmary
A[597]	M	1280-1350	Robbing fill 2nd phase drain
A[2937]	M	1350-1450	Pit fill in cemetery, N of infirmary chapel
A[216]	M	1350-1450	Robbing fill of ?2nd phase drain
A[4154]	L	1350-1450	Cess deposit in reredorter
A[1262]	M	1380-1500	Robbing fill of wall in infirmary cloister
A[1764]	L	1380-1450	?Resid - ?1540s demolition spread
A[2230]	M	1380-1500	Pit in infirmary cloister garth
A[2863]	M	1400-1500	? yet to be checked
A[2414]	M	1450-1500	?Resid - Pit fill C16th/17th
A[2406]	M	1450-1500	Extensive occupation in infirm cloister
A[4159]	M	1450-1500	?Demolition dumps in reredorter

Form	Numb
Albarello	3
Bottle	3
Bowl	53
Bowl, socketted	2
Bowl/dish	2
Cauldron	9
Cauldron pipkin	1
Chafing dish	1
Cistern	9
Condiment	1
Costerel	2
Cooking pot	319
Cooking pot, bifid rim	6
Cooking pot, everted rim	2
Cooking pot, flat-top rim	1
Cooking pot, small	1
Crucible	7
Cup	10
Dish	18
Drinking jug	34
Drinking jug, baluster	1
Drinking jug, barrel-shape	2
Drinking jug, biconical	3
Drinking jug, round	1
Dripping dish	4
Frying pan	1
Jar	2
Jar, storage	1
Jug	395
Jug, baluster	23
Jug, barrel-shaped	5
Jug, biconical	5
Jug, conical	8
Jug, early rounded	5
Jug, flared baluster	1
Jug, large round	1
Jug, metal-copy	1
Jug, rilled baluster	1
Jug, round	15
Jug, small round	2
Jug, squat	1
Jug, tulip-shaped baluster	3
Jug, cistern	6
Ladle	5
Lobed cup	3
Lid	8
Money-box	1
Measure	8
Pipkin	17
Pitcher	10
Pitcher, spouted	2
Roof finial	2
Skillet	2
Urinal	2

Table 7: Breakdown of medieval pottery forms from site A

TOTAL	1504

The distribution of the medieval pottery from the study area can be approached from a different angle, that of function. The results of a swift ORACLE analysis of material so far entered onto ORACLE are shown in Table 7. These can be further classified into general function classes which may relate to zones within the abbey. These classes and the number times they occur are shown in Table 8.

Table 8: Breakdown of medieval pottery forms from site A by apparent function

Type	Number
Unknown	473
Industrial	7
Kitchen	443
Multiple	8
Other	1
Roof	2
Sanitary	2
Serving	540
Storage/Serving	13
Storage	15
Total	1504

Post-medieval - 16th and 17th centuries

There are numerous contexts on site A (BA84) dating to the first half of the 16th century (a total of 69, of which four are medium-sized, four large, and one very large). Most of the larger groups are associated with Dissolution demolition deposits and the robbing of earlier features (Table 9). Many of these include a very high proportion of residual medieval pottery and especially 13th/15th-century fabrics. The very large context A[972] comprised a very rich dump of artefacts and rubbish into the (dis-used) reredorter chamber, possibly resulting from the clearance of the monastic buildings after 1538. The group consists largely of CBW, LOND and CHEA, together with various forms - pitchers, pipkins, dripping dishes, cauldrons - in Late London-type ware (LLON) and Late London slipped ware (LLSL), both dated to the 15th century. The relative proportions of these wares are comparable with those recovered from the major City waterfront revetment groups at Trig Lane (TL74), dated *c* 1360-1440. This and other similar contexts (eg A[515], A[518], both from the Dissolution robbing/fill of the infirmary drain) are probably far more representative of the range of fabrics and forms in use in the abbey during the 15th century than those contexts spot-dated to this period (see above). It is notable that there is a higher proportion of SHER residual in these large 16th-century contexts that in late 12th-century groups, together with large quantities of 13th-century pottery (LOND, KING), which may suggest that this fabric was more readily available and in wider use south of the river after *c* 1200 rather than before. Other residual MPOT worthy of note here includes sherds from a number of crucibles (eg from A[972] and A[515] in LOND, KING and CBW, indicating metalworking in the 13th/14th centuries; a KING urinal with thick internal deposit, and two roof finials in CBW from A[972].

The early 16th-century pottery throughout the London area is dominated by local redwares - Tudor brown ware (TUDB), Guys Hospital ware (GUYS) and Bichrome

redware (BICR). These fabrics are known from kiln groups at Kingston, Cheam and Woolwich from *c* 1480 and are represented on the site in a wide range of common domestic forms, mostly for kitchen use and serving: pipkins, cauldrons, dripping dishes, bowls of various types, pitchers and jugs, chafing dishes, costrels and bucket pots. More unusual are a possible alembic from A[972] - a deep, straight-sided bowl with external lid-seating and an incised, seven-pointed star on the body; and a bird pot in A[569]. There are also sherds from several TUDB sprinkler-type watering pots, which might have been used for watering plants or for settling the dust on floors. Sherds from twelve sprinkler pots and one complete vessel were found in 16th-century contexts on the site. An extremely rare form is represented by part of a crudely modelled face, which acted as the handle of a large, decorative basin in GUYS, probably intended for handwashing at table. It comes from the post-Dissolution garden soils, A[3460], and can be paralleled by examples in the MoL Reserve Collection (Gaimster & Verhaeghe 1992).

By comparison with the quantities of the early 16th-century coarsewares recovered, there are relatively few finewares - the most common are drinking jugs in Early Border ware (EBORD), which tend to be restricted in their distribution mainly to large institutions such as the Inns of Court (Pearce 1992, 24-7), where they were bought in bulk. There are, however, very few drinking vessels in Cistercian ware (CSTN), the other main fineware in use for such forms at this period.

Imports are more numerous than in earlier periods and come from a wider range of sources, including the Low Countries, the Rhineland, northern and south-west France and Spain. German stonewares are the most common, including late medieval Siegburg (SIEG) and Langerwehe (LANG) stonewares, and Raeren stoneware (RAER) current from *c* 1480-1550. In all fabrics, drinking vessels are the main forms and there is one item of particular interest in the light of the religious function of site: part of a SIEG drinking jug with an applied Madonna and Child in relief, probably dating to the 15th century (context A[972]). Another notable find is part of a small 16th-century Raeren oil pot with pierced lugs at the neck (cf. Hurst *et al.* 1986, fig 94.308) from A[518]. Vessels of this kind are thought to have held oil used for spinning (*ibid.* 198), but use in religious ritual or in the infirmary cannot be ruled out. There are also other imported items which may have a specific association with the Abbey as a religious institution, notably sherds from five different vases in South Netherlands tin-glazed ware (SNTG), datable to *c* 1480-1575 (from contexts A[518], A[2309] and A[539]). Although they are all too fragmentary for the decoration to be reconstructed, this form of vessel is of a kind formerly known as an 'altar vase', an interpretation which is open to question, except perhaps in cases where it bears an 'IHS' monogram; otherwise the form is largely ornamental and used for display.

Other Low Countries imports consist mainly of cooking wares in DUTR and Dutch slip-coated redware (DUTSC). Finally, there is part of a jar in Mature Valencian lustreware (VALM) from A[972], dating to the late 15th century, and a bowl in PATB from A[3068], both rather exotic, decorative items.

A total of 81 contexts have been spot-dated to the late 16th/early 17th century, of which one is large and five are medium-sized. Most are fills from pits or slots in the area of the former infirmary and cemetery. All have been given a post-Dissolution date by the presence of fabrics and forms introduced after *c* 1550. The larger contexts mostly include residual MPOT, but not in such large quantities as in the early 16th century. Context A[2349] is an exception, a slot-fill south-east of the infirmary, with similar amounts of MPOT and PPOT.

The range of fabrics is essentially the same as in earlier 16th-century contexts; mainly local redwares for use in the kitchen and for serving. However, there are also

sherds of Border ware (BORD) and Frechen stoneware (FREC), both introduced *c* 1550; Red Border ware (RBOR), first used at the end of the 16th century; Biscuit delftware (BISC) and Tin-glazed ware (TGW) of early 17th-century date, and Post-medieval redware (PMR), dated *c* 1580+. Imports are mainly Rhenish stonewares, but there is also part of a VALM dish in A[2314], a dish in North Italian sgraffito ware (NISG), and a Spanish mercury jar (MERC), from A[2349]. The last is of interest, since mercury may have been used in a medicinal context. There is one other mercury jar recorded from the site (context A[3069]), probably dating to the 16th century.

There are 153 contexts which have been spot-dated later than *c* 1630, of which three are very large, nine large and 33 medium-sized. These have not been assessed here, since they fall outside the main chronological purview of the project, although the full data have been recorded in the ORACLE database and can be consulted and analysed at a later date should this prove desirable. Several good groups of 18th and early 19th-century pottery were identified during spot-dating and it is suggested that they be incorporated in a separate project (see chapter 8).

Sites C/F produced a number of contexts dated to the 16th and early 17th centuries. Wares included TUDB, GUYS, BORD and FREC.

Table 9: Early post-medieval pottery from the study area (medium and large groups only)

Context	Size	Date	Context description
A[2309]	M	1480-1550	Large pit fill
A[3068]	M	1480-1550	EW slot fill, poss robber cut?
A[3460]	L	1480-1550	Post-Diss garden soils ?Thomas Pope
A[3974]	L	1480-1550	Robbing fill of infirm chapel buttress
A[972]	VL	1480-1600	Reredorter fill/robbing c 1540?
A[518]	L	1500-1550	Infirmary drain fill c 1540?
A[515]	L	1500-1600	Infirmary drain robbing c 1540?
A[539]	M	1500-1550	Pit, probably related to Dissolution
A[569]	M	1500-1600	?Post-1540 Pit/Cut fill
A[2349]	L	1550-1600	Slot fill SE of infirmary complex
A[2381]	M	1550-1600	Rectangular Post Diss pit fill
A[2113]	M	1600-1650	Chalk cesspit backfill
A[21]	M	1600-1650	Pit fill SE of former infirmary complex
A[3043]	M	1600-1700	Fill of slot in former cemetery

Clay tobacco pipes

A total of 2292 fragments of tobacco pipe were recovered from the excavations on BA84. They comprised 807 bowls, 1428 stems and 57 mouthpieces. There are 226 marked pipes and 164 decorated pipes. The pipes are mostly of local manufacture, and a high percentage of the marked examples can be attributed to known pipemakers. There are five fragments of imported pipes, all thought to be Dutch. There are no complete pipes and the excavation has produced no evidence for pipe manufacture.

The pipes have been classified mostly according to the London Typology of Atkinson and Oswald (1969) although the Simplified General Typology (Oswald 1975) has been used to obtain closer dating for some of the 18th-century material. Atkinson's Dutch Typology (Atkinson 1972) has been used where appropriate. In general no attempt has been made to date stem fragments, unless they are marked or decorated.

None of the datable pipe fragments are demonstrably earlier than *c* 1640, so for the purposes of the proposed project on the priory and abbey of St Saviour, it is intended to do no further work on this assemblage.

Ceramic and non-moulded stone building material

Out of a total of 246 large (butter) boxes of bulk ceramic building material, 195 were scanned as part of the assessment. In addition, 32 medium (shoe) boxes of accessioned floor tiles were scanned.

Scanning involved recording the types of tile and stone present. More detailed information such as individual fabric type, nail holes, corners, weight and markings have not yet been recorded at this stage, expect for a very small number of more important items. All accessioned items, which are mainly decorated floor tiles, have been partly recorded. However, most still require examination of their fabric type. Again, other items such as weight and corner still need to be recorded for most accessioned tiles.

The results of the assessment are presented by chronological period and then by type.

Roman ceramic building material

Tile/Brick forms

Roman tile forms were recorded in 81 contexts, the majority being residual. The following types of tile were present:

Roofing tile (tegula and imbrex)
Brick
Box-Flue Tile (combed and roller stamped keying)
Wall Tile?
Voussour?
Tessera

Most tile seems to be in local fabric group 2815, although fabric type has not yet been studied in any detail. A small number of white and yellow coloured Eccles tile from Kent are presence, as is at least one imported later Roman roofing tile (fabric 2453). The Eccles area tiles, which are of 1st century date, comprise both brick and roofing tile (tegula and imbrex).

Tiles in fabric group 2815 (individual types 2452, 2459A 3004, 3006) are believed to derive from kilns north of London, mainly from the kilns straddling Watling Street between London and St Albans. Some tile may also have come from kilns to the south-west of London. These tiles date from the 1st to the mid 2nd century, although at least one tile (individual type 2459B) can be dated from 120/160 AD to the early 3rd century.

The majority of box-flue tiles have combed keying, although one example (A[3334], A<2422>) also has scored lines. Three roller stamped tiles are present, all keyed with die type 58. A number of roofing tiles have marks on their upper surface, such as shoe prints, paw prints and graffiti. Another tile (from context A[2752]) of note is a complete *pila* brick measuring 206mm square by 42-47mm in thickness. This brick probably came from a floor of a heated room with a hypocaust. Another tile (context A[3795]) from a heated building is a fragment of combed tile with a circular vent cut into the same surface. This is probably part of a voussoir tile from a hollow vaulted roof structure.

Daub

The daub derived from three contexts, A[2752], A[2875], A[2969]. All the daub is probably of Roman date, both the material from A[2875] and A[2752] were found with Roman ceramic tile, the latter having a circular wattle impression. The daub probably came from a clay and timber building.

Painted Wall Plaster

A small quantity of what may well be wall plaster of Roman date was recovered from two contexts (A[150], A[558]). If Roman, the material is residual.

Medieval ceramic building material

Shouldered peg tile, flanged tile and curved tile (mid 12th to late 12th/early 13th century)

This relatively early form of roof tile was found in thirteen contexts, many of which were much later. The fabric, while unchecked appears to be 2273, suggesting local manufacture as similar shouldered peg tile 'wasters' were found together with the very truncated remains of a kiln at Niblett Hall near Fleet Street. These tiles were relatively rare in the priory, but their presence does suggest that at least certain early buildings had tiled roofs.

Peg tile and curved ridge tile (late 12th century to 17th century)

Vast quantities of later medieval peg tile were found at Bermondsey Abbey, indicating that at least certain buildings must have had tiled roofs. Very little of this has been studied in any detail, but a few tiles with surviving size measurements are listed below (Table 10). The example with square nail holes (fabric 2276) being of late medieval or post-medieval date.

Table 10: Characteristics of medieval rooftile from site A (subsampled); size in mm

Context	Fabric	Length	Breadth	Thickness	Nail Hole Type
A[2630]	2271	-	153	14	-
A[1262]	2276	-	148	12	Square
A[1]	2276	266	152	15	Round
A[267]	?	271	150-151	16	Round
A[549]	?	-	153-154	15	Round
A[719]	?	-	186	12	-
A[2049]	?	-	150	13	Round
A[2510]	?	269	149-150	12	Round

? Not yet examined
* All have two nail holes per tile

Although only a small sample, the sizes of the peg tiles were similar. The only major difference is the tile from context A[719] which has a significantly larger breadth. One peg tile from A[46] has paw prints on its upper surface. A thick oddly glazed peg tile was recovered from A[1]; this has a light green and yellow glaze with darker green glaze spots.

Brick

Red Brick

Large quantities of red brick in fabrics 3032 and 3046 were recovered from the priory site, most of which is probably of late medieval/ early post-medieval date. A number of bricks have indented borders, a characteristic feature of many bricks of this date. Only a small number of bricks have so far been examined in any detail. The latter included a number of bricks which are 'glazed' and vitrified and examples with surviving length or breadth measurements. A random sample was measured (see Table 11). The length measurements show at least two sizes of brick were used at Bermondsey. The larger length bricks are probably of earlier date.

Table 11: Red brick sizes present from the study area (subsampled)

Context	Fabric	Length	Breadth	Thickness
A[16]	?	239	116	42-43
A[217]	?	217	106	49-50
A[1266]	3046	-	105	48
A[3022]	3046	-	106	-
A[3282]	3065	-	120	-
A[3315]	?	244	117	56-57(indented border)
A[3890]	?	-	111	56
A[4172]	3046	-	98-101	-

?Not yet examined

Yellow brick

One example was found in A[520], a post-medieval pit or scoop. It was in fabric 3031, and probably dated to the mid 14th-15th century, and is therefore residual. These smaller sized yellow bricks, which are found in a number of sites in Essex (Ryan 1996, 31-3) are believed to be Flemish imports. They were used for both walling and paving.

Floor tile

Early unglazed floor tile (11th? century)

These are without doubt the most important ceramic building material found at Bermondsey Abbey. Roofing tiles made from the same distinct sandy local clay (fabric type 2273) were first introduced into London around the mid 12th century and fell out of use by the early 13th century. Although it was initially thought that the floor tiles would be of similar date, what is of particular interest is that certain examples have been found in what may be a late Saxon drain/ditch, suggesting a mid 11th century date. If confirmed then these floor tiles would represent some of the earliest examples used in Britain, and would fill an important gap in the ceramic history of the 11th century (Betts in prep). These floor tiles are completely different in both clay type and appearance to the 11th-century Norman wall tiles from London recently discussed (Betts in prep). What is believed to be a reused floor of these tiles was found *in situ* at the Abbey reredorter. Many of these were complete, their size being 284mm to 291mm square, by 30-32mm thick. Certain examples have a covering of cream material, possibly some sort of slip, on their upper surface, but this material will have to be analysed scientifically to determine its exact composition. No tiles have any sign of glaze, nor do any examples have bevelled edges, the distinguishing feature of later floor tiles. Table 12 shows the contexts which produced these tiles.

Table 12: Derivation of ?late 11th-century floor tiles from site A

Context	Date	Description
1900	11th century	Fill of ?Late Saxon ditch/drain
1938	11th century	Fill of ?Late Saxon ditch/drain
1942	1000-1150	Dump over Late Saxon quarry pits
1950	11th century	Fill of ?Late Saxon ditch/drain
1969	11th century	Fill of ?Late Saxon quarry pit
1984	11th century	Dump over ?Late Saxon quarry pit
1987	11th century	Dump over ?Late Saxon quarry pit
2012	1050-1150	Fill of ?Late Saxon quarry pit
4187	?12th century	Floor of reredorter cess chamber (40+ tiles)
4284	?12th century	Demolition dump from alteration to reredorter
4309	?13th century	Repair to reredorter floor
1867	?13th century	Wall fabric of secondary drain south of infirmary
4334	16th century	Demolition dump in reredorter
4395	16th century	Dump in reredorter
4386	17th century	Pit fill
1881	?18th century	Pit fill

'Westminster' tiles (*c* 1225-1250+)

Tiles of 'Westminster' type are so-called because they were first recognised in the Muniment Room at Westminster Abbey. Their origin is uncertain, but they may have been made at the decorated floor tile kiln found at Farringdon last century. Certainly their distribution strongly suggests production somewhere in the London area. Tiles of 'Westminster' type are still *in situ* at Lambeth Palace chapel where they are dated 1225-1250 (Degnan & Seeley 1988, 18). Other tiles in this series may, however, be slightly later in date.

Vast numbers of both decorated and plain glazed 'Westminster' tiles were recovered from the priory. There is no doubt that parts of the priory were paved with these tiles during the 13th century.

In the material so far examined there are a total of 299 decorated 'Westminster' floor tiles from BA84. Further decorated 'Westminster' tiles may well be identified when fabric analysis is undertaken and when the building material from the 51 remaining large boxes not examined for this assessment is finally studied.

Of the 299 tiles from the Abbey, 136 are of published designs (listed below) and 74 are unpublished designs. The latter need to be examined in more detail to determine the exact number of new design types present. The remaining 89 tiles are either too worn or fragmentary to be identified or require further work to determine the design present. The published designs in Table 13 are those illustrated by Eames (1980), or in the case of the Lambeth Palace designs (LP), by Degnan and Seeley (1988). Different tile designs were used on tiles of slightly differing size (Table 14). A similar feature was noted on decorated 14th-century Penn tiles (see below).

Table 13: Recognised published designs of decorated 'Westminster' tiles from BA84

Design	Number of tiles	Design	Number of tiles
E1366 (or E1367)	6	**E2209**	5
E1111(?)	1	**E2287**	1
E1941	5	**E2324**	11
E2033	3	**E2364**	1
E3033 (or E3034?)	1	**E2471**	17
E3034	10	**E2478**	13
E2051	25	**E2775**	2
E2068	20	**E2776(?)**	1
E2109	4	**E2798**	3
E2143	1	**LP no. 16(?)**	1
E2185	4	**LP no. 17**	1
TOTAL			**136**

Table 14: Apparent division of designs by size group of 'Westminster' tiles from BA84

Group 1 (101-109mm square)	Group 2 (110-113 mm square)	Group 3 (114-123 mm square)
E1111(?)	E2033	E1366/67
E2209	E2185	E2034
E2478	E2471	E2051
LP16(?)	E2775	E2068
		E2109
		E2324
		E2364

The plain glazed examples of 'Westminster' tiles are yellow, green, black or brown in colour. Yellow tiles were made in the usual way, by placing a glaze above a white slip (contexts A[1], A[549], A[2840], A[3043]). A few tiles are far more unusual in having a light green glaze above a white slip. This light green colour is normally a feature of tiles of Flemish manufacture.

A number of tiles, in all colours, were scored and broken into triangular shapes after firing, although in one case the tile (context 3019) was never actually broken. One yellow triangular tile (context 518) has itself been scored across its centre, indicating that it was intended to split the tile into even smaller triangular shapes.

The size of plain glazed 'Westminster' examples is, not surprisingly, the same as their decorated counterparts; both were presumably used together on the same floors. Their size is 101-122mm square, by 21-30mm thick. It is possible that the overall size given above could represent tiles belonging to three different size groups (based on length/breadth measurements), although these divisions are by no means always clear cut. There does not seem to be any obvious difference in thickness between individual tiles in these three groups.

One plain glazed 'Westminster' tile is very unusual in having its corner cut off prior to firing. Presumably a specially shaped floor tile was needed for a specific area of floor. The fact that this was done prior to firing suggests that the tile was purpose made for the abbey floor. The tile measures 110mm x 109mm x 25mm and has a brownish-green glaze.

Penn tiles (*c* 1350-*c* 1390)

Penn in Buckinghamshire was the location of one of the most successful commercial medieval floor tileries known in Britain. The main period of Penn floor tile production occurred after the Black Death when large quantities of predominantly decorated tiles arrived in London from the 1350s until *c* 1390. Of particular interest at Bermondsey is a very rare example of a pre-Black Death tile of the 1330s-1340s, Eames (1980) type E1407 and Hohler (1942) type P2, from context A[1] (A<237>).

There are 69 decorated examples from the Abbey, although only 23 tiles have had their design type identified. This figure includes 11 tiles with unpublished designs, whilst another tile (P157) shows more of the design than that shown in the published illustration. The published examples are listed in Table 15, with the Eames (lettered E) and Hohler (lettered P) numbers.

Only a few tiles have surviving length/breadth measurements, ranging from 105-120mm square by 17-24mm in thickness. The only exceptions are two unusually thick decorated tiles which measure 26-7mm (design E2264 / P99) and 25-6mm (design P157) respectively.

At least one plain glazed is of Penn manufacture, although others may be identified when the fabric of other plain floor tiles are examined in more detail. This tile, which has a green and yellow glaze, measures 102-5mm square by 22mm in thickness. The rarity of plain Penn examples suggests that the demand for plain tiles was met by importation of Flemish examples by the mid 14th century.

Table 15: Recognised published designs of decorated Penn tiles from BA84

Design	Number of Tiles
E1407 / P2	1
E1952	2
E2231 / /P54	2
E2232 / P44	3
E2234?	1
E2264 / P99	5
E2340 / P67	2
E2392	2
E2409/P66?	2
E2835	1
E2837	1
P157	1
TOTAL	23

Flemish tiles (14th to mid 16th +? century)

Plain glazed Flemish floor tiles can normally be identified by nail holes in their top surface and their distinctive fabric types. The date when Flemish floor tiles were imported into London is uncertain, but it is unlikely to be much earlier that *c* 1300 when English plain glazed 'Westminster' tiles seem to have been readily available. Plain glazed Flemish tiles continued to be imported at least until the early-mid 16th century. Later imported tiles can normally be distinguished by their larger size.

The majority of plain glazed floor tiles used at Bermondsey, at least from the 14th century, seem to have been of plain glazed Flemish type. Certainly, large numbers were found during excavation. These tiles are normally coloured yellow, brown or are various shades of green. Most have between two and five round nail holes, which are between 1-2 mm in diameter (most have a diameter of 1.5 mm). Those with four holes, but with one missing from the corner (type 5) were probably made with a damaged five nail cutting board. As with tiles of 'Westminster' type, their are a number of plain triangular examples, although they are not as common.

A variety of different size tiles are present. Most are of the smaller size, but this may be because the large tiles are more easily broken. There are certainly considerable number of thick floor tile fragments which are almost certainly fragments of larger size, late medieval/ early post-medieval Flemish floor tiles.

Table 16 shows seven apparent groupings based on length/breadth measurements. It is apparent that despite differences in nail hole type between individual members of the second group their size is extremely similar. It would, therefore seem possible that they may all be of similar date. The dating of the various groups has yet to be undertaken. One Flemish tile from context A[1136] is unusual in having part of the top surface cut away. The purpose of this is not clear.

Table 16: Flemish floor tile types by nail hole type and size

Length/Breadth	Thickness	Nail Hole Type(*)
102-106	20-23	2 (one hole 2.5mm square the other oval?)
111-119	23-26	2
114-117	25-26	3
114-119	20-25	4
121-130	24-30	3
176-181	23-24	1 (hole 2.5mm square)
244-249	28-33	5

(* round unless stated otherwise)

Eltham Palace Group tiles (early 14th century)

Tiles were found *in situ* in the hall of Eltham Palace built for Bishop Anthony Bek; the tiled pavement is believed to have been laid down around 1305. The Eltham group of tiles are very similar in appearance to those made at Lesnes Abbey and may well have been made by the same tilemakers (Eames 1982, 244). Tiles of Eltham/Lesnes type are occasionally found in London, although they seem to have only been used in relatively small numbers. The kiln making the Eltham/Lesnes tiles has not been found, although it was presumably somewhere in west Kent.

The Eltham Palace tile design used at Bermondsey is Eames (1982) type 7. Fabric analysis may well reveal further tiles from the same source.

Dieppe Group tiles (late 14th century)

Late 14th-century decorated floor tiles from northern France are only known from seven sites in London. These tiles were probably manufactured in the Dieppe area in the last quarter of the 14th century, although production may have extended into the early years of the 15th century. Three examples were recovered from Bermondsey. One is Norton

type 25 or 26 (context A[2406]), another is type 26 (context A[3008]) whilst the third tile (context A[1], accession A<97>) has an unpublished design.

Wessex? (13th/14th century)

One tile from Bermondsey Abbey appears to be decorated with Eames design E1779. According to Eames this tile design may come from Wessex, although it may also belong to the Eltham Palace/Lesnes Abbey group discussed above.

Netherlandish (16th century)

There are three examples of late Netherlands tiles at the Abbey. Two have an unpublished design whilst the third is too small to identify, all come from context 4213.

Unknown sources (?date)

In this category are all decorated and plain tiles whose source has yet to be determined. With analysis of fabric it is hoped than many will fall into the groups determined above. A total of 73 decorated tiles, of unknown source, require further examination together with vast number of plain glazed tiles (most of which have not yet been quantified). Of the 73 decorated tiles at least seven have definite unpublished designs, some of which have certain similarities to the 13th-century good quality Westminster/Chertsey series. This figure will no doubt rise when more detailed study of the designs is carried out.

One tile (context A[2321]) is unusual in having scored lines cut in to the plain brown glaze as decoration. A similar tile was found in context A[3795]. This has a plain yellow glaze and is decorated with semi-circular scored lines put on with a compass, the compass point is clearly visible in one corner of the tile.

Tin-Glazed Glazed Floor Tile (late 16th-mid 17th century)

Tin-glazed floor tiles were manufactured in Holland as early as *c* 1500; the first English examples were manufactured in Norwich in the 1560s. The earliest London tin-glazed floor tiles were made at Aldgate from 1571 (Britton 1987). There was a change in fashion during the second half of the 17th century away from the use of floor tiles to the use of tin-glazed wall tiles. Some of the last London floor tiles may have been those made at Platform Wharf, Rotherhithe between *c* 1638-1661.

Early tin-glazed floor tiles are generally thicker than later examples. They are also characterised by polychrome designs, whereas later tiles are either just blue on white, or blue with just a limited area of colour. There are four polychrome examples (contexts A[242], A[1126], A[1138]) from the Abbey along with three blue on white examples (contexts A[1], A[242]). The tiles from context A[242] are of particular interest. One A<773> has a horned animal with barred ox-head corners and measures ? x 130 x 11 mm. Blue and white tiles with similar borders were made at both the Pickleherring and Platform Wharf delftware factories in Southwark during the early-mid 17th century. The second tile A<2117> shows part of a landscape with spiders-head style corner motifs and measures ? x 133mm x 11mm. Part of the glaze is missing from the top surface, so it could be a 'second'. Spiders-head style motifs are supposedly a feature of Dutch imports, but they were used to decorate tiles made at Platform Wharf.

It would seem highly likely that the two blue-on-white tin-glazed tiles discussed above are the products from either Pickleherring, or more probably, Platform Wharf, both in operation between around 1638 and 1663. What is less certain is their function; they could have been used for flooring, although their thickness would have allowed their use as walling.

More work is needed to determine the origin of the other five tin-glazed floor tiles recovered.

Tin-Glazed Wall tile (probably 18th century)

The earliest tin-glazed wall tiles used in England were of Dutch origin. Production of such tiles began in Holland as early as 1580, although some of the earliest London tin-glazed wall tiles seem to have been those used at a building in Billingsgate just before the Great Fire of 1666. The earliest documentary reference to English wall tiles dates to 1676 when a potter from Delft began production at Copthall, Lambeth (Horne 1989, 17). However, very few English tiles can be dated to the period 1676-1700; it was only during the 18th century the English made tin-glazed tiles became common. It is to this period than the Bermondsey tiles probably belong.

The 25 Bermondsey decorated tin-glazed tiles are painted in either a blue on white or purple (manganese) on white. They derived from 15 contexts. More work is required to identify and date the individual designs present.

Victorian Floor Tile

One fragment of Victorian machine-made mosaic flooring was recovered from context A[2715].

Moulding

Fragments of Reigate stone moulding were recovered from contexts A[296], A[500], A[520], A[1108], A[3549], A[3626] and A[4151]. There is also a fragment of what appears to be a moulding in Hassock sandstone from context A[2752].

Marble Wall Veneer

A white marble wall veneer was recovered with both Roman and medieval ceramic building material from context A[517], the construction cut backfill to the earliest medieval infirmary drain. It is almost certainly Roman in date.

Paving

Elements of possible stone paving were recovered from three contexts. Two were of a fine grey limestone (A[3498], A[3894]). One has a worn top and bevelled edge. A fine, partly laminated, sandstone paving stone was recovered from context A[3368].

A fragment of what may be white marble flooring was recovered from context A[339]. There is a small lip extending along one bottom edge. This stone was found with medieval roofing and floor tile, and thus would seem to be of medieval date. The exact function of this stone, which has a breadth of 101 mm and a thickness of 18 to 25 mm, needs further examination.

Slate Roofing

With the exception of a few fragment found in sub-Roman 'Dark Earth' layers, which are thought to be of late Roman date, all the roofing slate found in London is medieval or later. The earliest, from Watling Court is dated *c* 1150-1180.

At Bermondsey roofing slate has been found in 38 contexts, almost all associated with peg roofing tile. This would suggest that at least one, if not more of the priory buildings was covered in slate. No slates have any surviving dimensions but a few (contexts A[375], A[569], A[1778], A[3050]) preserve their nail holes.

Sandstone Roofing

Stone roofing made from fine grained laminated sandstone was found in up to 20 contexts (17 definite). The example from context A[3226], which has a complete top half, measures 157-62mm in breadth by 11-14mm in thickness. There is a central round 10mm diameter nail hole cut into the stone near the top edge. An almost complete sandstone roofing tile was recovered from context A[4151], measuring 358mm in length, 160-176mm in breadth and 13mm in thickness. Again there is a single, central, round nail hole near the top edge, this time measuring 9mm in diameter.

Accessioned finds

A total of 3006 accessioned finds were retained from the sites. The large number of registered finds from the site comprise all periods from prehistoric (Iron Age) to post-medieval, the majority being medieval (the period of the abbey) and later. The small amount of prehistoric material is all residual in later deposits, but a limited Roman assemblage includes items from primary deposits. The small assemblage attributable to the Saxon period, also largely or entirely residual as found, includes the second-largest recorded group of sceatta coins from the London area - the undoubted significance of this is obscured by the lack of primary contexts. The monastic period medieval finds are, by a considerable margin, the most extensive and varied group excavated from any of the sites of religious houses in the metropolitan area so far, and they include a range of items that seem to be emerging as widely characteristic of activities at these institutions, as well as an important (?) 'clearance-assemblage' dump A[972] apparently from the time of the Dissolution, which includes one of the largest groups of late medieval glass in the country, and much more besides.

The usual materials, too, are all represented, apart from items purely of wood (there are a number of wooden handles and other parts in composite objects) and the absence of leather is remarkable (there were several waterlogged deposits, reflected in the good state of preservation of some of the metal and organic items).

The finds are considered as far as possible chronologically, by major period of origin. Only identified items are considered below (full listings exist on the MoLAS database).

Mesolithic - Bronze Age

Flint objects

A: 6 non-retouched blades, 5 serrates, 5 scrapers, 4 cores, 3 knives/utilised blades, 1 late mesolithic microlith, 1 mesolithic adze-sharpening flake, 1 late neolithic transverse arrowhead, late neolithic/1 early Bronze-Age barb-and-tang arrowhead

Iron Age

Four Iron Age items were recovered, all residual from features dated to the Roman or Saxon periods. They include one bone pointed object decorated with circle/dot motifs; and parts of three triangular ceramic loomweights.

Roman

There were 139 Roman registered finds from BA84. A further 8 were recovered from TRE91/TOB95. The vast majority were residual. They are listed by their site prefixes (see Table 1). The implications of the Roman coin assemblage have been discussed (Hammerson in Bird, Hassall & Sheldon 1996, 163-4).

Bone objects:

A: 2 bone pins

Copper objects:

A: 79 coins, 9 fragments of waste, 5 brooches, 4 bracelets, 1 pin, 1 finger ring, 1 ligula, 1 spoon and 1 mount.

C/F: 4 coins

Glass objects:
A: 10 vessels, 3 bottles, 3 fragments of window glass, 2 counters, 1 bead, 1 bowl, 1 tessera

Iron objects:
A: 2 keys

Silver objects
A: 3 coins

Stone objects
A: 2 querns, 2 parts of inlay, 1 bracelet, 1 finger ring, 1 inscribed plaque, 1 spindle whorl
C/F: 3 querns

Saxon

Three residual antler combs, one piece of antler waste and two silver coins were recovered from later contexts on site A. They have been published (Stott in Vince (ed) 1991, 279-326).

Medieval

These can be divided into subsections based upon the materials of construction.

Bone items:
A: 8 parchment-prickers, 2 pinbeaters, 2 handles, 2 knife handles (see copper), 1 bead, 1 bodkin, 1 toothpick, 1 tuning peg, 1 pin, 1 ring (and 6 bone waste/offcuts). The parchment prickers and tuning peg have many parallels from sites of religious houses

Ceramic items:
A: 3 loomweights, 3 crucibles with ?copper alloy residue, 1 mould for four rings

Cu Alloy items:
A: 28 lacechapes (some are likely to be post-1540), 24 mounts, 18 ?curtain rings, 17 coins, 9 pins (many more as yet not dated by stratigraphy), 7 studs, 6 fragments of copper vessels, 6 strapends, 4 patchings, 3 Lombardic letters from inscriptions (G, L, L), 3 earpicks, 2 dress hooks, 2 needles, 2 brooches, 2 book clasps, 2 finger rings, 2 knifes (see bone), 2 fragments of slag, 1 spoon, 1 bowl, 1 bracelet, 1 brush, 1 candlestick, 1 chain, 1 clasp, 1 set dividers, 1 escutcheon plate, 1 handle, 1 key, 1 gilded bell, 1 gilded and enamelled crucifix from Limoges, 1 padlock, 1 pendant, 1 purseframe, 1 scissor, 1 seal matrix, 1 knife butt, 1 thimble, 1 tweezers, (also 27 fragments of waste and 37 lengths of wire, many of which may be post-1540)

Textile items:
A: 2 fragments of fibre

Glass items:
A: 42 vessel fragments, 17 bottles, 8 urinals, 7 lamps, 6 cups, 4 beakers, 1 mount

Window glass:
A: The glass is presently divided into two groups, 142 accessioned fragments from a variety of medieval and later contexts, and four accessioned boxes, containing 10s or 100s of fragments each: each accession represents a glass group from a single context. The most prolific were A[2883], the fill of a disused/robbed cesspit dated to 1500-50; and a robber cut A[3303] dated 1500-1600. Many of these fragments are decorated and/or painted. Individual fragments from elsewhere include highly unusual gilded pieces.

Gold items:
A: 1 ring possibly from a chain

Iron items:
A: 34 knives, 23 keys (including a single group of 8 from A[4151], a robber fill), 8 buckles, 7 mounts, 6 horseshoes, 5 hinges, 5 pintles, 4 staples, 4 tools, 3 locks, 3 hooks, 3 rings, 2 rivets, 2 hasps, 2 pattens, 1 rove, 2 splints, 1 chain, 1 dagger, 1 hammer, 1 handle, 1 padlock, 1 set shears, part of 1 shoe, (and 37 pieces of iron slag)

Ivory items:
A: 1 comb apparently lost discarded at the Dissolution, thus early for London examples.

Lead items:
A: 59 accessioned pieces window came, 3 human hand elements of figurines, 3 lead ingots, 3 lead plugs, 3 weights (one a facetted cone, one a disc wt 2.8g), 2 stylii, 1 seal matrix, 1 setting, 1 bird-feeder with armorial design (cross and lion passant), 1 hook, 1 ventilator panel, (also 30 pieces of lead waste).

Silver items:
A: 7 coins (London penny Ed I 1282-9; London penny 1279-1327 poss counterfeit; Long Cross penny Hen III 1247-72 plated copper counterfeit; London penny class X Ed I or II; derivative of 'Flanders pollard' 1280-1305; London penny class IX Ed I 1300-02).

Stone items:
A: 9 honestones, 8 quern fragments, 3 parts of stone inlay, 1 lamp, 1 mould, 1 ? vessel fragment

Wood items:
A: 1 wooden handle, 1 wooden tool

Post-Medieval

The post-medieval assemblage consisted of odd items covering a range of dates from the 17th-19th centuries, including a copper-alloy handle, a plaque, an escutcheon with anthemium design, iron slag, sheet copper offcuts, glass vessels, and a piece of coral. Only a prioritised selection of those dated to before the mid-17th century will be included in the publication.

Medieval Worked Stone

The medieval worked stone assemblage comprised 838 stones from site A (BA84), 9 stones from site C (TRE91), and 9 stones from VIN88 (see below), a total of 856 stones. Of the BA84 stones, 210 have been discarded without record, being non-diagnostic fragments. The remainder have been appraised, but not fully assessed - this 'fast-track' method was agreed with English Heritage at the project appraisal stage (Beard & Malt 1994).

Of the 646 retained stones, 191 have been spot-dated during appraisal. Further stones are considered likely to be datable though the total number is not clear. It is thought likely that the assemblages will give rise to approximately 260 *typestones* (a typestone being the best example of a form that might or might not be repeated within the assemblage). The typestones will form the basis of a number of *groups*, estimated at 200 from ratios derived from other assemblages. A group may be formed of one stone (eg a fragment of a tombslab) or many (eg fourteen pieces of a single traceried window).

These groups will produce a number of *builds*. A build normally represents a phase of construction, and can thus stylistically encompass a number of groups deriving perhaps from a number of different buildings. The likely number of builds present is not predictable at this stage of work.

Derivation of the assemblage

At BA84, 87 contexts produced worked stone, but only twenty-six of these contexts contained more than one (recognised) typestone. The most prolific reuse context was A[1572], subsequently equated with A[1421]; this, the east wall of the dorter seems to have been demolished by Sir Thomas Pope, only to then be rebuilt as part of his mansion. The wall produced 62 worked stones of all periods, many of which may prove to relate to one another. Contexts A[2060], A[2092] and A[2226] probably formed part of Pope's mansion as well; these produced twelve fragments. A stone-built post-medieval cellar wall A[2500] incorporated ten related window fragments. Stone robbing backfills such as A[515] and A[518] also produced significant assemblages which may directly relate to a demolished structure in the vicinity. Cuts across the southern infirmary wall A[569] also produced several worked stones. Deposits that probably stem from demolition such as A[1764] also produced worked stone.

From VIN88, exact stylistic matching indicates that at least 9 typestones *must* have derived from Bermondsey. It is these that will be included in the proposed project. 90% of the stones derived from a single wall Z[26], Z[30] or destruction deposits associated with it Z[27]. It is obvious that a substantial fraction of these stones derives from a single round pier. Comparisons with Rocque's 1746 London map suggest that it fronted on the (now lost) *Pickleherring Street*.

Condition of the assemblage

The stones from BA84 were reused in poor, soft mortars which have subsequently fallen away without trace. Very little trimming and shaping of the stone was carried out prior to reuse; the lack of weathering and abrasion suggests that the stone was re-used directly from the monastic structures as they were being demolished. This and the absence of hard mortar meant that the stones were exceptionally well-preserved when found. Tooling marks on the large blocks are generally fresh and clear and enough should survive on the boxed stones to allow study of the stone dressing techniques. The VIN88 assemblage is badly abraded and many stones are obscured with a tenacious concretion from the mortar; ironically, this has sometimes acted as a preserving shield under which paintwork survives.

Nature of the assemblage

Only 33 typestones have been defined to date, but these give a good indication of the range of more important forms that are present. They are presented in Table 17. The range of dated material encompasses the whole of the medieval period from the Norman Conquest through to the Dissolution (1066-1538); graphing of the 191 dated examples suggests strongly that a number of peaks of construction activity are present. These can be summarised as being *c* 1100-1180 with a particular peak at around 1180, around 1280, and around 1350-1400. Background activity appears to be fairly continuous on each side of these peaks, with a significant drop-off after *c* 1400.

The stone types used range through Greensand (93%), Caen (2.5%), chalk, ragstone, oolitic ?Marquise limestone from France (seventeen fragments), Purbeck marble (ten fragments), unidentified, probably imported, marble. The remainder of the assemblages from BA84 and VIN88 can only be summarised at present.

Saxo-Norman (11th-century)

A single piece of worn oolitic limestone sculpture has been dated to the 11th century (G Zarnecki pers comm in Beard 1986, 191). The scene may represent the raising of Lazarus (Dr R Morris pers comm in Beard 1986, 191). The piece came from within a feature dated to the 12th century, and may therefore have derived from the same ecclesiatical building which originally housed the ?Late Saxon floor tiles (see Table 12).

Norman-Early English (*c* 1090-1275)

The Norman/Early English material from site A contains a high frequency of arch voussoirs and pier elements. These formed part of an structure assembled from small components. For the most part, the architecture was austere and the arches seem to have consisted of simple chamfered orders, relieved only by occasional chevron ornament. These piers and arches may derive from the nave of the church. Rare vault rib voussoirs from this period probably derive from the vaults covering the aisles and central vessels of the church; they are very probably 12th-century. A double-radiused chevron element may derive from one of the apsidal chapels revealed by Grimes (see above).

An important scheme of interlaced blind arcading can be reconstructed from one group of typestones deriving from both sites A and Z, because at least nine surviving elements survive incorporating all parts of the design. Certain stylistic characteristics

indicate that the blind arcade is unlikely to be of early 12th-century date; the mouldings of the arches as well as the arches themselves intersect (Clapham 1934, 133); the arches were two-centred rather than round; the semi-circular stops at the springing also point to a later rather than an earlier date (Jeffrey West, pers comm). Both Greensand and Caen stone were used in the same structure. The fresh condition and the presence of paintwork show that the blind arcading was internal; one possible context could be the chapter house (as at the Cluniac house at Much Wenlock, Shropshire) or as wall arcading within the aisles of the church. Extensive polychrome paintwork survived on the stones.

The elements of Norman round piers are represented by Caen stone scalloped capitals (4), simple bases (2) and pier elements (23). A 'Giant Order' was employed with piers perhaps 1.5-2 m wide. The surviving curvature of the facing stones will allow the pier section to be determined. One of the scalloped capital elements incorporates a rectilinear abacus, but the capitals and bases seem otherwise to have been round. It is not yet known how many types of pier are represented. Very few ornamented voussoirs that may derive from the putative associated arcade arch has yet been recognised from the VIN88 assemblage. One small voussoir element incorporates an angle roll that is separated from another shallowly cut roll on the wall face by a square fillet. This stylistically resembles a segment from the arcade orders of the nave in old St Paul's (Dugdale 1658, p 1025). The very large pier(s) must have resembled those in the chancel of St Bartholomew, Smithfield (f 1123) or St Margaret's at Cliffe, Kent (Howard 1936, pl 34) but there is presently no evidence for the presence of separate abacus/impost dressings at Bermondsey. All this is in accordance with the late date of the interlaced arcading and there is every reason to suppose that the two groups represent part of the same structure.

Much Caen stone ashlar was also found which derived from the same building and it is possible that cleaning of these stones may reveal masons' marks. Simple plinth blocks are also present. The VIN88 assemblage contains several other stones from the 12th century that were (when found in 1988) covered in polychrome paintwork; the round capital elements Z<32>, Z<66>, Z<113> and the round pier\rectilinear abacus capital Z<213> all bore traces of paint. This was not of any great expense or elaboration, being for the most part red ochre and carbon black; detailed examination may however reveal other more interesting pigments.

The early English period is represented by a number of foliage-carved capitals, traceried window fragments and arch voussoirs.

Decorated (*c* 1275-1350)

A large vault rib moulding type can be fairly closely dated to *c* 1300 on art-historical grounds and is indicative of an extensive building campaign at about that time (**5**). This evidently involved demolition of parts of the Norman church because there are five instances of Norman mouldings re-used and recut with later mouldings. The later fragments contain a high percentage of window fragments. The rarity of Norman window elements suggests that these were systematically replaced in the 14th century by more up-to-date windows. Large scale tracery fragments are unfortunately rare and it will not be possible to carry out the reconstruction of entire windows. Some of the surviving tracery indicates the existence of square headed windows, a form more typical of domestic architecture, apparently employed here on a grandiose scale. Further assessment is required to determine the full significance of the apparent peak of construction *c* 1290.

A variety of window jamb elements derive from glazed multiple-light windows, probably with tracery. They range in date from the Decorated to the Early Perpendicular

period (*c* 1272-1400) and may prove to relate to the large body of window elements from BA84. A well-preserved vault rib Z<72> is typical of the isolated 13th-15th century fragments; stylistically it dates to after 1220 as it has an axial *roll-and-fillet* flanked by *beaked half rolls* (Morris 1992, 8). The size of the rib indicates that it must have derived from a major vault in the priory church. Similar ribs have been excavated from BA84 including variants that are reduced in size but otherwise identical.

Perpendicular 1350-1540

Material that is of late medieval or Tudor date is relatively rare. An element from a polygonal window, possibly a bay window or oriel may perhaps relate to buildings such as the prior's lodgings, or high status tenements built to house the several noble and royal guests and corrodians within the courts of the priory. Other window elements exist, but the overall distribution of stones suggests that building works were more limited in the 15th and 16th centuries.

Table 17: Preliminary identification of selected typestones from sites A and Z (BA84 and VIN88)

Context	Acc No	Date	Description of stone
?	?	Norman	Capital carved with scallop decoration
A[225]	A<47>	Norman	Chevron reworked as string course moulding
A[1762]	A<315>	Norman	?Marquise stone double chevron voussoir
A[4197]	A<633>	Norman	Chevron/dog tooth ornament
A[3282]	A<500>	1060-1180	Decorative element
A[518]	A<314>	1070-1180	?Marquise stone junction of chevron arches.
A[1572]	A<222>	1090-1180	Polychrome blind arcade decoration.
A[1572]	A<243>	1090-1180	Polychrome blind arcade
Z[30]	Z<173>	1090-1180	Polychrome blind arcade
Z[30]	Z<75>	1090-1180	Polychrome blind arcade
A[2773]	A<463>	1070-1180	Chevron voussoir from a semi-circular apse.
A[1]	A<5>	1100-1180	Decorative element, role uncertain.
A[1562]	A<199>	1100-1180	Arch voussoir with two orders of chevron decoration, stone source unknown.
A[1572]	A<306>	1080-1180	Chevron-decorated string course painted red.
A[4261]	A<649>	1080/1180-1275	Norman moulding re-used and recut with an Early English moulding.
A[1]	A<486>	1180-1275	Fragment of capital carved with foliage.
A[225]	A<41>	1180-1275	Base of engaged pilaster.
A[518]	A<100>	1180-1275	Fragment of capital carved with foliage.
A[518]	A<91>	1180-1275	Voussoir with openwork ornament.
A[1572]	A<300>	1180-1275	Well preserved tracery fragment.
A[1572]	A<216>	1180-1275	Vault rib voussoir.
A[1572]	A<277>	1180-1275	Pilaster capital from corner.
A[1572]	A<237>	1180-1275	Near-complete capital.
A[2883]	A<464>	1180-1275	Polished Purbeck marble pilaster shaft probably from a monument within the church.
A[3498]	A<546>	1180-1275	Capital with sculpted acanthus decoration
A[3301]	A<501>	1180-1350	Sculpted foliage probably from a capital.
A[1]	A<490>	1275-1350	Vault rib.
A[4486]	A<737>	1275-1350	Window jamb with decorated tracery.
A[157]	A<259>	1300-1400	Well-preserved tracery element.
A[1572]	A<270>	1350-1375	Glazed window sill with mullion stooling
A[1]	A<747>	1350-1500	Complex mullion from polygonal window
A[760]	A<81>	check	Stiff leaf relief sculpture ?from a capital.
A[909]	A<107>	check	Fragment of foliage sculpture.
A[2226]	A<392>	check	Graffito.
A[3438]	A<544>	check	Green-white marble inlay ?from a tomb

Conservation

Conservation support at the time of the excavation was provided by conservators working for the MoL Department of Greater London Archaeology. Conservation of artefacts was carried out in the laboratory and on site. Conservators were also involved on site to give advice on the processing of artefacts, as well as carrying out lifting procedures for fragile or complex finds. Unfortunately some records of specific treatments carried out on site cannot be located although general methods used are known. All other conservation records are held at the Museum of London.

A total of 2979 finds were recorded, quantified by material in Table 18. Treatment of objects at the fieldwork stage included the stabilisation of vulnerable materials and composites, cleaning of coins for dating purposes and investigative cleaning and conservation according to archaeological priorities. Treatments were carried out under the guiding principles of minimum intervention and reversibility. All conserved objects are packed in archive quality materials and stored in suitable environmental conditions.

Table 18: Accessioned objects conserved and those requiring conservation measures

Material	No. Accessioned	No. Conserved (approx. numbers)	No. to be treated (see below)
Wood	16	16	
Fibre	4	4	
Bone	93	50	4
Copper alloy	617	200	86
Silver	16		
Lead	141		73
Iron	513		40 + x-rays
Glass	502		31
Ceramics	822		
Flint	166		
Stone	137	4	4

5.3 Environmental Material

The range of environmental material was surprisingly limited, with only two major classes of data retained: a reasonable sample of medieval human skeletal material and an assemblage of animal bone. Two waterlogged samples from post-medieval cesspits on site C (TRE91) produced plant and invertebrate remains, but these dated to after 1700 and are thus not incorporated into the main thrust of this project.

Contents of the environmental archive

Human Bone - 204 skeletons
Animal Bone - 352.23kg
Plant Remains - Two samples
Parasite Remains - Six samples

Human Bone

A total of 204 burials were recovered in situ from site A and site F (BA84 and TOB95). A collection of disarticulated material was retained from charnel features. A subsample of 167 skeletons was used to assess the potential of the group. No attempt was made to assess the charnel assemblage which runs to hundreds of separate bones.

Spatial and chronological distribution of human inhumations (BA84, TOB95)

The great majority of the burials from BA84 are of 12th-15th century date, but a number of small clusters exist that date to earlier periods. The distribution is summarised in Table 19. The monastic cemetery lies directly north of the building interpreted as the infirmary chapel, and south-east of the main conventual church. The cemetery post-dates the 12th-century infilling of the large north-south ditches (and probably the construction of the infirmary chapel), and goes out of use by perhaps the mid 15th century, so these burials all date to a period of 300 years. Some intercutting was evident, particularly immediately north of the chapel chancel, but the maximum stratigraphic 'string' was five such burials.

Preservation

The great majority of the skeletons examined (72%) are well preserved despite a degree of *post mortem* damage. In approximately 40% of cases, at least half the skeleton is present and in a further 35% of cases, at least one quarter is present. There is a tendency for the lower part of the skeleton to be preserved rather than the upper and in many cases, some of the small bones of the hands and feet are missing. Standard anthropological measurements will be obtainable from the majority of the assemblage. The bone surface condition is sufficiently good to permit a study of pathological periosteal lesions, and the teeth have survived well enough to allow a proper study of dental health.

Table 19: Spatial and chronological distribution of human burials from the study area

Area	Date	Number	Comments
TOB95	Roman	2	
Central part BA84	?Roman	6	Late Saxon/Saxo-Norman
North part BA84	pre-12th century	2	probably Late Saxon
1st phase infirmary chapel	12th century	1	inside chapel chancel
3rd phase infirmary chapel	?14th century	1	inside west of extended chancel
Monastic cemetery	c 1150-1450	191	dispersed north of infirmary chapel nave; dense north of infirmary chapel chancel, 15 in stone cists
TOTAL		**204**	

Composition

No attempt has yet been made to divide skeletal composition among the various burial groups shown in Table 19, above.

In 55.5% (94) of the assessed skeletons no sex was determinable during the scan as the skull or pelvis was either missing or damaged. Detailed study will reduce the unsexed proportion where damaged bones can be 'reconstructed', or where assessments can be made on the basis of femoral head measurements or humeral head diameter. Of those skeletons to which a sex could be given, 88% (66) were male, and nine female. Only one skeleton was classed as immature. This assemblage would therefore appear to be a 'classic' monastic group principally formed of adult males (Table 20).

Of the adults, about 8% could be described as young adult, while 20% could be described as mature adult. The remainder could not be sub-grouped in this scan although further analysis will certainly increase the number of individuals subgrouped by age.

Pathology was noted as being present in about 40% of the skeletons, but no attempt was made to classify it in any detail. The majority appears to be dental disease or joint disease - typical of all archaeological human bone assemblages. The remaining 60% of the skeletons may well also reveal pathologies during analysis, but at present should be considered 'unproven' in this regard.

Table 20: Broad age and sex compositions of the inhumations

Composition of sample	Number	% of burials assessed
Females	9	5.3%
Adult males	66	39.0%
Adults of indeterminate sex	93	55.2%
Immature individuals	1	0.5%
TOTAL	**169**	**100.0%**

Representativeness of the sample

The samples of Roman and ?Late Saxon burials are small and statistically nonviable. They are, however, the only excavated human remains of these dates from the study area.

The original extent and population of the medieval cemetery at St Saviour Bermondsey is unknown. The excavated population does not therefore form any measurable portion of the total population. This has some knock-on effects for the usefulness of the sample in considering statistical comparisons. Nevertheless, the total number excavated is probably representative of this particular part of the cemetery and the number of individuals is great enough to generate potential for trend studies (see section 6.3, below).

Integrity of the sample

The majority of the inhumations were discrete. Only a few grave cuts were recognisable, but in the area where denser population existed, plan overlays identify the relative stratigraphic position of each burial. In addition, the majority cut through material sealing 12th-century features and were cut by or sealed by a sequence of pits and associated dumps which appear to date to the mid 15th century. It seems unlikely therefore that more specific dates will be obtainable from most of the burials. The integrity of the sample within these parameters is high.

Animal bone

A total quantity of 353.23kg of animal bone (or 16,200 fragments) were hand recovered from 703 contexts from site A (BA84). Negligible amounts were recovered from the other sites, and these have not been assessed.

Bones were found in all areas of site A, often represented by extremely small assemblages (see Table 21). In addition, from a total number of 315 bulk samples, 201 produced animal bones. The latter total represents 188 contexts, of which 81 contexts (91 samples) have been assessed as a subsample.

The sampling strategy from BA84 can be described as extensive, with most feature types as well as the various areas of the site represented. A failing of this strategy was the general small size of the samples taken, often less than 1 litre and the majority no greater than 5 litres. Most of the samples were washed through a 1mm mesh, with the exception of a small number of visibly and potentially rich samples, were a 0.25mm mesh was used. With the hand collected assemblages there appears to have been some confusion regarding the recovery (or possibly the storage) of bones from certain post-medieval pitfills. The site produced several horncore-lined pits dating to the post-medieval period, recorded in the field records. However, no concentrated groups of horncores were found amongst the BA84 archived animal bone assemblage.

With the exception of a small number of contexts (see selected contexts, below), the quantity of bones produced by these samples is very small. To a certain extent these poor results must relate to the small size of the samples. However a number of larger samples also produced relatively few bones e.g. 5 litres of soil from fill A[2350], situated within the first great drain, produced less than ten bone fragments. Conversely just 3 litres from A[1315], representing the 13th/14th century fill of a robber cut, provided close to 100 fragments.

Fragmentation is generally moderate throughout, with a large proportion of contexts comprising approximately 35 to 50 bones per kilogram (bpk). Larger values of

bpk are shown by some of the selected contexts, mainly due to a greater proportion of the bones belonging to smaller species rather than to higher levels of fragmentation. While most of the context assemblages are well preserved, a large proportion are clearly in a poorer overall condition. It is noticeable that the majority of the less well preserved assemblages contained human bone fragments. These were found over a large part of the site, and not just within gravefills. It can be assumed that such fragments were redeposited from the cemetery area situated on the northern part of the excavated area and possibly from a few graves situated to the west of the Infirmary Hall. The presence of scattered human remains is a clear sign of redeposition, which in turn suggests the likelihood of bone damage or loss.

Table 21: Distribution of animal bones from BA84 by size of assemblage

Weight	No of contexts	Total weight	% total contexts	% total weight
< 0.20kg	395	26.15kg	56.2%	7.4%
> 0.99kg	71	210.60kg	10.1%	59.6%

Selected contexts

As shown, just 71 context assemblages were greater or equal to 1kg in size (see Appendix 1). These produced 210.2kg of bone (or 9,465 fragments). A rough breakdown of these contexts into the major occupation periods of the site are shown in Table 22.

Table 22: Distribution of selected assemblages by preliminary phase

Preliminary Phase	No of contexts	Bone weight (kg)	No of bones	Total % Weight
Roman	2	2.90	140	1.37
Late Saxon	8	25.20	865	11.97
Late Saxon/ early monastic	8	21.65	790	10.28
Early monastic	12	30.50	1095	14.48
Later monastic	11	21.05	695	9.99
Early post-medieval	12	45.30	3315	21.50
Later post-medieval	9	28.25	1215	13.63
Poorly dated	9	35.35	1350	16.78
TOTAL	**71**	**210.20**	**9465**	**100.00**

The nature of these assemblages is described by phase below.

Roman

The Roman contexts include a gully fill A[851] and a pit fill A[1215]. Each of these two assemblages is dominated by cattle, sheep/goat and pig. Both produced a small proportion of domestic birds (chicken), while a few fish bones were found in the gully fill. The domestic mammals are each represented by a wide distribution of skeletal parts and several bones belonging to all three species, though especially cattle, showed butchery marks. This pattern of species representation and bone modification is typical of the assemblages found in the majority of site deposits, from the Roman through to the post-medieval periods. A sample was taken from the gully (see Appendix 2), which produced an assemblage dominated by chicken bones, these accompanied by a few large mammal (sheep and larger), fish and yet more rabbit bones.

A possible Roman ditch fill A[3940] is worth mentioning. As well as the usual mix of domesticate bones, this deposit also produced a single whale vertebra. This bone belongs to one of the smaller whale species such as a pilot whale.

Saxo-Norman

A number of Late Saxon deposits were recognised, these being: two north-south ditches situated beneath the later infirmary hall and chapel (SG3/126 and 4/127, with 4.30kg/90 fragments), the fill of a watercourse (SG188, with 7.05kg/220 fragments) in the north-west corner of the site, a dump and two fills within a drain (5.55kg/200 fragments), and a pitfill (1.05kg/40 fragments). Five out of eight of these context assemblages were well preserved. Those in a poorer condition included the bones found in the watercourse fill A[2969]. Coincidentally this context also produced a small number of human bones, which undoubtedly indicates redeposition and a possible causative agent for the noticed damage to the context assemblage. Overall the Saxon hand collected assemblages conformed to the typical site assemblage, as described above, though no fish were found. A slight difference to the Roman levels was the frequent occurrence of horse bones (6 out of 8 contexts), and possibly a decline in the abundance of bird bones. Horse is represented exclusively by relatively large fragments, in three cases by skull/mandible fragments i.e. in two out of three drain deposits A[3205] and A[2310],and in ditchfill A[3362] (SG127).

The late Saxon/early Monastic assemblage was recovered from four silty/sandy layers (probably widespread dumps) roughly situated within the southern half of the site (8.90kg/340 fragments), the fills of three intercutting pits located beneath the dorter (16.00kg/615 fragments) and a ditch fill situated approximately beneath the Infirmary Hall (2.25kg/80 fragments). Again a large proportion of the phase assemblages displayed a poorer than average level of preservation, including two of the larger collections, being pitfills A[4229] and A[4246]. In addition a mixture of preservation states was noticed in ditchfill A[1330]. Human bone fragments were found in two of the dump contexts, only one of which is less well preserved i.e. A[4433]. As well as the typical array of domesticates (each of those described above, and including cat and duck), three contexts produced the bones of wild species. Red deer was recovered from dump A[209] and ditchfill A[1330], and roe deer from pitfill A[4222]. Just one of these contexts was sampled, A[1330], providing a small quantity of fish bones

Medieval

A large proportion of the early monastic bones were recovered from the fills of a series of quarry pits (9.55kg/230 fragments) situated beneath the Infirmary Cloister and Hall.

These pits (both their excavation and backfills) probably date to the construction period of the monastery. Two buttress construction backfills with 5.05kg/360 fragments also date to this period, while an early use period can be conjectured for the deposit within the first great drain (SG98 with 3.15kg/105 fragments), and the two pitfills (3.50kg/155 fragments) and associated ditchfill and layer/dump (5.10/145 fragments), situated to the south of the infirmary cloister and hall. Seven out of the ten context assemblages are well preserved, two of the less well preserved collections arising from quarry pit fills. A noticeable feature of the bones found in the latter features is their relatively small levels of fragmentation, with bpk values as low as 21 and 23.5 in contexts A[775] and A[1655]. It was noticed that each of these contexts produced a number of large cattle limb bone fragments, at least 50% complete. Amongst the usual array of species there was a single occurrence of human (in quarry pit fill A[1655]), and the partial skeleton of a horse in dump layer A[1722]. The latter bones were clearly in articulation when found and consist of several vertebrae and ribs.

Four samples were taken from these contexts, three of which produced bones: A[775] and two samples from the drain fill A[2257]. These produced very small quantities of large mammal fragments, none of which were identifiable to species.

The later monastic levels are represented by a series of external dumps/layers (9.85kg/295 fragments) and pitfills (7.10kg/250 fragments), situated adjacent to each of the major buildings and features. In addition a dump and the fill of a drain, both within the reredorter, produced 2.85kg/110 fragments. A final context included in this phase is a robber fill dated to the 14th century with 1.25kg/40 fragments. It is conceivable, despite the spot dating evidence, that this feature may be contemporary with other robber features deriving from the Dissolution.

There is a small proportion of less well preserved assemblages, plus one collection, from fill A[2228], where a mixture of preservation states was noticed. A few assemblages show low levels of fragmentation, in particular layer/dump A[4162] with 14.3bpk. Human bone fragments were limited to one of the dumps A[625]. There is the usual overriding presence of the common domesticates, largely confined to the large mammals. Wild/managed species are represented by rabbit and fish. A difference to the normal pattern is shown by the assemblage found within the fill of a robber cut A[1302], which was mainly composed of chicken bones. Though large mammals were present these were confined to sheep/goat and pig only. As with the previously described robber fill, this context could date to a later period.

Two samples were taken, from pitfill A[1848] and, from the reredorter drain, fill A[4154]. Both produced small assemblages, mainly composed of large mammals, with the exception of a few fish bones from the drain. This latter context was described on-site as containing cess, though no such material was found in either the hand collected or sieved assemblages. However this fill did contain the partial skeleton of a cat, a common occurrence in medieval cess deposits.

One sample within this phase did produce a reasonable quantity of bones i.e. robber fill A[1315]. Included in this assemblage were a large number of large mammal and fish fragments. The majority of the fish bones are potentially identifiable to species. The size range of the individual fish represented is large, possibly suggesting a mixture of marine and freshwater/estuarine species. It should be noted that the corresponding hand collected assemblage was very small (0.05kg/15 fragments).

Post-Dissolution

A large proportion of the bones within this phase were found in deposits which date to, or are likely to date to, the early dissolution period and the use of Bermondsey House

(Table 22, early post-medieval). Bone assemblages derived from a series of robbing fills and pit fills (including a cesspit) distributed across the site (6.45kg/230 fragments and 9.05kg/310 fragments respectively), the fill of a linear cut (2.10kg/75 fragments) and a large concentrated dump/midden within the reredorter (27.7kg/2700 fragments). Within these deposits the level of preservation is good with the exception of the two fills within the cesspit (A[4306] and A[4308]). In addition one of the pit fill assemblages A[3965] is composed largely of human bones (20 out of 25 fragments). Several context assemblages show low levels of fragmentation, in particular the aforementioned pitfill and the cesspit fills.

The major contributor to this phase is the reredorter dump A[972], which produced a hand collected assemblage comprising a wide range of domesticates (dominated by the large mammals) and wild species (mainly fish with a small number of rabbit bones). A total of five samples were taken, and one of these was washed through a 0.25mm mesh (sample 502). This produced in excess of 10,000 fish bones, all from small individuals, the majority of which appear to be herring. The other samples provided a great range of species, which by weight favoured the large mammals, but in terms of fragment count were heavily biased towards small mammal (especially rabbit), bird and fish species. Though small fish are represented there is a greater size range compared to the large assemblage described above. The majority of the bird bones belong to the usual domesticates. However they also include teal, pigeon, one or more species from the thrush family and small crow. The pigeons are exclusively represented by juvenile birds, which may suggest they were domestic.

The other contexts in this phase produced relatively typical assemblages, with wild species including rabbit and fallow deer (this from robber fill A[1281]). Samples were taken from just one of these contexts, the bottom fill of the cesspit A[4308], and this produced a small number of large mammal fragments and the tooth of a small rodent.

Later post-medieval

Bones dating to the latest phase were recovered from dumps situated over the former reredorter (3.45kg/205 fragments), pit fills (9.95kg/300) and the fills of a large tank, probably used in water management (SG452, with 15.29kg/605 fragments). The state of the bones in these contexts is less than good in the upper two fills of the 'tank' (A[295] and A[313]), in one of the pitfills A[493] (this also contained human bones) and within the later of the two reredorter dumps A[286]. In addition another pitfill A[375] shows a wide range of preservation states. The species range is again fairly typical, with the exception of A[295] which is clearly dominated by the smaller of the three major mammalian domesticates, particularly sheep/goat, and chicken. A number of contexts produced bones belonging to relatively large cattle, including the horncore from tankfill A[339] which is clearly from a longhorn type/breed. Horse is represented by a partial articulation (a hind leg) in pitfill A[433]. The wild species recovered include rabbit and various fish species, as well as swan, represented by a single bone from tankfill A[313]. No samples were taken from these contexts. There are a few instances of boneworking waste including sawn cattle metapodial fragments from A[286] and A[339].

Poorly dated

The major part of this assemblage was provided by the so-called upper 'cemetery' soils and ploughsoils covering much of the site, which produced 31.15kg/1,210 fragments. Two other contexts can be included here, these being pitfill A[3303] and gravefill A[3131] with 2.45kg/110 fragments and 1.75kg/30 fragments respectively. A low

potential value has been suggested for each of these contexts based on the likelihood of extreme mixing/redeposition. This is shown principally by the presence of a wide date range, or, if undated, by the presence of extremes of preservation and/or numerous human bone fragments.

The recommended exclusion of these contexts from any further analysis precludes any species or skeletal part description. A sample was taken from one of the ploughsoil deposits A[3456].

Plant remains

Environmental soil samples were collected from three of the six sites making up the project; no samples were recovered from sites B (BER88), D (LWK92) or E (TWB94). A total of 230 samples were collected from the three other sites, the vast majority (221) coming from site A (BA84). The other nine samples were from sites B (TRE91 (two samples) and TOB95 (seven samples). An assessment report has already been prepared on the environmental samples from TOB95 (Giorgi 1995).

The size of the samples varied between sites. From the Bermondsey Abbey excavations, the sample size was generally very small; thus, while the range extended from 0.01 litres to 30 litres, the average size was only 2.2 litres, 105 samples containing less than one litre of soil and only eight samples containing ten litres or more. Ten litre samples were collected from TRE91, while the samples at TOB95 were also mainly ten litres with the exception of two very large samples of 50 and 70 litres. All the bulk samples from BA84 and TOB95 were processed by flotation using a 0.25mm and 1mm mesh for the recovery of the flot and residue respectively; the two samples from TRE91 were mainly floated (nine litres), but also partly wet-sieved (250g) through a 0.25mm mesh in order to recover organic waterlogged plant remains. Unprocessed soil remains from the two TRE91 samples. The residues were sorted for both environmental and artefactual evidence and the flots scanned using a binocular microscope.

Bermondsey Abbey, Long Walk (BA84)

The 221 samples from this site came from a wide range of features and periods. However, no flots were produced from any of the samples, and the only botanical material in the residues was a small number of charred grains in three samples and low to moderate quantities of charcoal flecks in just over 50% of the samples. The three samples containing grain were from a ?Late Saxon silt deposit A[3211] in a drain, and two deposits, the fill A[2436] of a ?Roman ditch cutting natural, and a pitfill A[4437]. The ?Late Saxon drain fill A[3211] contained three grains, one of hulled barley (*Hordeum sativum*), and one possibly of wheat (cf. *Triticum* sp.) and oat (cf. *Avena* sp.). The samples from A[3211] and A[2436] yielded two grains of free-threshing wheat (*Triticum aestivum*) and one wheat/barley (*Triticum/Hordeum* sp.) grain respectively.

The virtual absence of botanical remains is surprising, although it could be attributed partly to the very small size of most of the samples, and partly to the acidic soil conditions at the site.

The Trocette, Tower Bridge Road/Bermondsey Street (TRE91)

The two samples from this site were both recovered from the fills, C[3] and C[18], of post-medieval cesspits. The dry and wet flots contained a range of waterlogged and

mineralised plant remains, consisting mainly of fruit seeds, eg. grape (*Vitis vinifera*), fig (*Ficus carica*), plum (*Prunus domestica*), apple/pear (*Malus/Pyrus* sp.), elder (*Sambucus nigra*), blackberry/raspberry (*Rubus* sp.), although wild plants were also represented, eg. goosefoots (*Chenopodium* sp.). Wood and charcoal fragments were also present. The samples contained faunal remains - puparia (mineralised), beetle, mollusc, animal bone fragments, - and the residues of domestic and possibly industrial activities, eg. brick/tile, pot, glass, metal, slag, cloth, pipe stem fragments, suggesting that the pit was being used both for the disposal of faecal remains and general rubbish.

The Trocette, Tower Bridge Road (corner with) (TOB95)

Seven samples were collected from this site; from a Roman ditch F[98] and pit fill F[44]; from the fills F[117] and F[141] of two possible Saxon pits; and from two 12th-century drain fills, F[39] and F[70]. However, no botanical remains were recovered from either the residues or flots, although other biological material, eg. animal bone, was present.

Human Parasite Eggs

Six samples from site A were assessed in 1985 (de Rouffignac 1985). The results are tabulated in Table 23. They indicate that at least two of the quarry pits probably dug in the mid-late 11th century were subsequently reused as cesspits, perhaps relating to the 1082 monastery? de Rouffignac notes that it is unusual to have just Ascaris nematode ova present, and raises the interesting speculation that this may be related to the settlement of the monastery by French monks in 1089 - they could be expected to have differing patterns of infestation.

In addition to these six samples others were subsequently analysed by de Rouffignac and appear to indicate drain flow in the 12th and 13th centuries in and out of the infirmary reredorter (Beard 1986, 190). The report for these was not apparently lodged in the archive, and is currently being sought from its author.

Table 23: Presence of human parasite ova in features from Site A dug in 1985

Context	Description	Sample	*Ascaris* sp.	*Trichuris* sp.
A[794]	11th- 12th-century pit	A{45}	present	present
A[794]	11th- 12th-century pit	A{46}	present	-
A[795]	11th- 12th-century pit	A{47}	present	-
A[795]	11th- 12th-century pit	A(48}	present	-
A[693]	late 12th-century drain	A{44}	-	-
A[684]	13th-century slot	A{43}	-	-

5.4 Other Assessments.

Documentary evidence

Some of the existing documentary evidence for the priory, and later abbey, was collated by Rose Graham and A Martin in 1926-37. This included brief examinations of the historical links between the mother house of La Charité-sur-Loire and St Saviour; the history of St Saviour itself, and an examination of the topography of the precinct.

Other limited surveys have revealed references to the abbey mill, to the monks' upkeep of the Rotherhithe river wall (Saxby in prep), and to properties elsewhere in Southwark, Rotherhithe and Bermondsey (eg Carlin 1996; Dyson in Blatherwick in prep).

This level of historical consideration was also present for the house of St John Clerkenwell (Sloane & Malcolm in prep), but was very greatly enhanced by additional, precinct-based research which St Saviour Bermondsey will also require.

A brief trawl of the available sources which pertain to Bermondsey has been undertaken, and the results form part of the general bibliography toward the rear of this volume.

Computing and AutoCAD

The following data classes have been imported onto the MoLAS (ORACLE 7) archaeological database from non-relational predecessors:

Animal bone
Pottery
Registered finds

The medieval worked stone awaits creation of appropriate forms before insertion.
All subgroups up to *c* 1600 from BA84 have been digitised, as have the site and trench boundaries for sites A, C, D, E and F. No record exists for the exact trench boundary for site B, although the location of the features found is known.

6 STATEMENT OF POTENTIAL

6.1 The Potential of the Stratigraphic Archive

The potential of the stratigraphic archive in its basic form is considerable: a subgroup matrix has been compiled showing the **interrelationship of over 4600 archaeological contexts**. From this matrix a series of distinct phases are becoming clear. Buildings and open areas with separate and definable functions occur in the different sites and across the medieval period, all of which can be linked to the monastery of St Saviour. In short, a sound structural framework exists with which to integrate the great majority of the finds and environmental assemblages recovered from the sites.

A key issue that emerges is the **date and form of the Romanesque church**. Richard Gem (1990) has argued for a church built in the last quarter of the 11th century, but the stratigraphic archive from the fully excavated areas of the monastic complex, indicates that none of the buildings investigated were constructed before *c* 1150. The reredorter is a possible exception, with its reused early floor tiles, hinting perhaps at the presence of a pre-1100 structure and thereby at Gem's church? It may be that the stratigraphic sample area contains an inherent bias, in that the fully investigated buildings perhaps form a secondary block in the monastic design and would not have been embarked upon until after the completion of the principle structures surrounding the main cloister.

A number of clear phases of **complex rebuilds/alterations** to buildings have been identified. This pattern is dissimilar to other London sites under study, where demolition and complete rebuilding does not seem to have taken place on such a scale (except perhaps St John).

Another potential is that **improvement on the preliminary phasing** outlined by Beard (1986) can be achieved, with marked differences in the dating of the various phases. The latest phases may have shifted by as much as 200 years.

The similarity in the areas of excavation of the monastery with those of St Mary Merton (Miller & Saxby in prep) creates the potential for detailed inter-site comparison of form and development, and of provision of infirmary zones in relation to numbers of known inhabitants. Provision of infirmary cloisters appears to occur at a similar date to the appearance of quadrant hospitals, for example.

Stratigraphic analysis of the topography and the nature of the drains' constructions allows us to consider the **hydrology** of the area, and the **alterations** (if any) made to the flow of the Neckinger. Conclusions formed by A R Martin (1926) are likely to be reassessed or even overturned.

The stratigraphic archive, when integrated with the documentary and medieval worked stone archives, may allow us to identify elements of the earlier **Cluniac plan** common to those of similar date from Cluny, La Charité, Lewes and others. That such a link exists between Cluny and Lewes is clearly demonstrated by Platt (1984, 8-11; fig 5). In particular, there exists the possibility that the building presently known as the infirmary chapel may be something altogether different, such as a Lady Chapel (Cluny II), or the monks' cemetery chapel (Cluny III). Later redevelopment, such as the changes to the infirmary block, may have parallels in the other major Benedictine Abbey in the London area, Westminster.

One area of the excavation of site A (to the west) has somewhat limited potential on account of **partial excavation** owing to measures to preserve the remains *in situ*. However, there does exist some dating evidence for the structures, and they can be dated

in comparison to one another; furthermore, some of the structures represent continuations of more completely excavated walls to the east.

The site photographic records are voluminous and will most certainly generate plentiful, **publishable images**.

6.2 Potential of the Finds Archive

The Pottery

The pottery assemblages form the principal **dating** medium for the stratigraphic sequence. It also forms the most widespread and well-preserved category of artefact illustrating the lifestyle and activities of the inhabitants of the monastery.

A number of specific chronological, spatial and artefactual potentials have been identified from the pottery assemblage.

The prehistoric pot

Although the prehistoric assemblage was on the whole not recovered from features assigned a prehistoric date, the assemblage is important. The **chronological range** and the size of the assemblage is unusual for Southwark, and indeed for the London region as a whole. The assemblage has the potential to greatly contribute to our understanding of the **ceramics** in use in the Iron Age and early-Roman period in this area. Study of the assemblage should provide a good deal of information about **occupation patterns** amongst the eyots and channels of north Southwark, and place the (presumed) settlement within its **local and regional context.**

The Roman pot

There is **limited potential** for the Roman ceramic assemblage. The assemblage is clear evidence of activity on, or in the vicinity of, the site but is not normally associated with discrete Roman features and the vast majority is residual with later post-Roman material. The mixed nature of the deposits and poor condition of the pottery has resulted in no recommendations for vessels to be illustrated or for groups to be studied in detail. The Roman pottery from this site can contribute to the overall pattern of **Roman occupation** in Southwark only in a very broad way, linked to the suede of distribution of accessioned finds and Roman ceramic building material.

The Late Saxon pot

The study of the relatively small assemblage of 11th-century pottery from site A has limited potential. It will allow some comparison with the work carried out on **frequency and sources** of local and **imported** pottery inside the City, for example sherds of the rare Thetford ware (THET) (Vince & Jenner in Vince 1991 **2**, 89-90). Its principal value is in **dating** the pre-monastic landuse on the site.

The Medieval pot

The very high proportion of Shelly Sandy ware (SSW) pottery in the 12th-century assemblage will enhance the study of this material undertaken as part of the St Mary Clerkenwell publication programme and contribute towards a **developing typology** from London sites and those across the North Sea (Blackmore in Sloane in prep; Blackmore in prep).

In contrast, the wares most common in the City at this date, South Herts Greywares, are nearly absent before 1200. The potential exists that Bermondsey demonstrates the existence of two **regional trade networks**, one south of the river and one north. Conceivably, the completion of London Bridge in 1209 helped precipitate a combination of these markets.

The pottery has demonstrable potential to help our understanding of the **function** of the excavated buildings and open areas. In particular, 12th-century rubbish dumps appear in the south-western part of site A. As the sherds are principally from cooking vessels and serving/storage vessels, and are mainly large, the probability increases that the dumps were associated with a kitchen. Further north, where an extended sequences of quarries were dug, such pottery is absent.

The construction of the south range of the later infirmary cloister appears to have involved the destruction of the timber ?kitchen. A large quantity of 12th-century pottery was dumped into construction cut backfills, including some 17 complete or nearly complete vessels. A similar single-act dump took place following the demolition of a 12th-century kitchen to make way for later stone ranges at St Mary Clerkenwell. Such an activity may have been part and parcel of building replacement, with new pots and pans provided for the replacement.

The pottery from the smaller, peripheral sites is virtually non-existent, and suggests **patterns of occupation** and/or lack of them can be suggested for the precinct.

Specialist forms may be associated with the infirmary: one alembic, five Rhenish ladles, two *albarellos*, possibly two ceramic urinals (one heavily caked with an internal residue). Other forms of note include metalworking cisterns (13th/14th century), roof finials, and a very rare 15th/16th century handwashing basin. When the contexts from which these derive can be plotted by phase, the potential exists to draw conclusions about the likely sites of **specialist activities** associated with them.

The Post-medieval pot

The particularly rich Dissolution contexts have a high potential to consider the **process of clearance** of buildings prior to demolition or reuse. From site A, A[515] and A[972], dumps into/over the reredorter and infirmary drain, contain remarkable quantities of 13th-15th-century pottery. Given the nature of these deposits, while some of the material is accidentally residual, the clear impression is that much of the material must have still been in use in the monastery in 1537/8, and was only then disposed of along with more contemporary forms.

The later post-Dissolution groups appear mainly to come from rubbish pits and curious slots dug into the later mansion's gardens; they have potential to form **comparable groups** for study to those from the other London monasteries - some statement of the relative status of the monasteries' occupants may be possible.

The clay tobacco pipes

The potential of the clay tobacco pipes lies in the contribution that the assemblage can make to the understanding of the Bermondsey tobacco-pipe industry, as many of the marked and decorated pipes originated from the vicinity in the 17th-19th centuries. The study of these pipes should be conducted separately from this proposed project, and no further discussion of the assemblage is submitted in this proposal.

The ceramic and non-moulded stone building material

The potential of the Roman building material lies within its contribution to our understanding of **Roman landuse** in Bermondsey. When considered along with the significant quantities of Roman pottery and accessioned finds, the material suggests that there was a substantial building nearby.

There is a very great potential to explore the aspects of ceramic building traditions of the little-understood **transitional Saxo-Norman period**. The large, unbevelled floor tiles which appear to date to the mid-late 11th century have no direct parallels in London, and a report on their fabric and form, and methods of construction/firing will most certainly advance tile studies in general. It is not known at present whether similar tiles apparently deriving from the Confessor church at Westminster Abbey survive for study (they were approximately 250mm square).

The later medieval floor tiles have a potential for refining the **dating** for the site, as the periods of production of the different tile types are reasonably well understood (eg 'Westminster' - mid/late 13th century, Penn - mid 14th century).

The decorated floor tiles have the potential to advance our understanding of the **range of designs** employed at each production centre: Bermondsey has produced the largest number of previously unpublished 'Westminster' designs from any excavated monastic site in the London area, for example.

The potential of the vast quantities of medieval rooftile is unclear. Some fabrics (2273, 2276) appear to be **datable** (12th century, 15th century respectively), but the majority of the late medieval fabrics cannot be easily dated. By definition, all the tiles are residual, but several categories of feature from which they derive should be more closely examined. Rich tile dumps in some demolition deposits have the potential to aid understanding of the **superstructure** of vanished buildings, through the presence of differing tile forms (eg gutters, hip-tiles, louvres, roof finials etc), and in turn may comment upon the relative **status** of such buildings. Such potentials can only be judged through a screening process performed jointly by the stratigraphy team and the ceramic specialist.

Study of the large tile assemblage has the general potential to increase our understanding of the **forms and processes** of manufacture, through comparison of tile dimensions, tile fabric and individual markings (eg nail-hole type, batch-marks etc).

Accessioned finds and flint objects

The accessioned finds of all periods have a potential to refine the **dating** sequence on the sites.

Of 274 struck flints, only 26 are diagnostic and/or retouched. Their potential lies in the study of **settlement patterns and/or human activity** from the mesolithic period through to the Bronze Age in the north Southwark area. As none were found in stratified contexts, this potential can only exist in a broad landscape study of the whole area of Bermondsey and Southwark.

The potential of the Iron Age and Roman accessioned finds lies, in combination with evidence from pottery and ceramic building material, in their contribution towards building up a picture of the **pattern of occupation** of Bermondsey and Southwark, and the **functions** and relative **status** of those areas. This work has been initiated on a broad scale in proposed projects such as *The Topography of Prehistoric Southwark and Lambeth* and *Roman Southwark*. Such conclusions can be drawn from the Bermondsey material despite its residuality.

The potential of the Saxon material lies in its strong suggestion of the **proximity of settlement**, perhaps equating with the 8th-century *Veremundesei*. Little more than the precise findspots are required; the sceattas have already been published (Stott in Vince (ed) 1991, 279-326).

A significant quantity of iron slag has been retained from reworked soil horizons dating at the latest to the 11th century. The slag includes 'hearth-bottom' elements, suggesting a processing centre nearby, or even on the site, which has since been ploughed or otherwise reworked out of existence. Study of the slag has the potential to inform on the nature of this **industry**.

The potential of the medieval accessioned finds is much greater. Many of these are associated with medieval monastic features, and a large number are from finds categories commonly associated with **monastic communities**, such as the parchment prickers, tunning pegs, inscription letters, statuette elements, crucifix and window glass . Thus, the basic potential is that these finds demonstrate the presence of a monastery.

The **economic and social context** of the monastery as a whole may be examined through the presence of such items as very high status gilded glass, the Limoges crucifix, a larger number of coins (especially silver) than has been found on other London monastic sites, and a nationally important collection of medieval glass vessels.

Some finds have clear potential to inform on **industrial or craft** activities taking place within the monastery: the most potentially exciting of these is a group of lead figurine hands, at present thought to be 'patrons' for moulds to produce precious metal equivalents of religious figurines (the remainder of which might have been made of ivory). In a similar vein is a ceramic mould for human face, possibly for ceramic figurines. More functional are fragments of a glass distilling vessel, ceramic crucibles, and a stone lead/tin mould.

The **appearance of the buildings** can be addressed through the large quantity of window glass, some with very fine decoration.

The **process of Dissolution** can be considered in the light of the extraordinarily rich context A[972], dumped into the reredorter, probably in *c* 1538. The finds from this one context range enormously and appear to imply that the reredorter was used as a dump during the clearance of the former monastery of its non-valuable fixtures and fittings. Thus, they represent workaday items (hinges, knives, buckles *et al*), items relating to monastic activities (rosary bead, parchment-prickers, inscription letters, book clasp), high-status items (perhaps 20 glass vessels including beakers, lamps, urinal, and

bottles), and items deriving from the break-up of the building(s) fabric itself (lead waste, window glass, stone fragments).

The finds have somewhat reduced potential to explore the **post-Dissolution landuse**, although they appear to suggest lower class workshops engaged in pin-making in the vicinity during the 16th century.

Medieval worked stone

The overall potential of the large assemblage of the medieval worked stones lies in the reconstructions that can be made from the various identified stone groups, thus presenting a partial view of elements of the vanished **buildings** of the monastery. In common with St Mary Merton, the size of some of the pier elements effectively ties them to the church as the only known building of sufficient scale. Other elements clearly formed parts of high-**status** structures, such as the polychrome blind arcade.

The chronological distribution of the stone groups indicates a number of peaks. From this it will be possible to suggest dates for **phases of construction** independently of the stratigraphy and documentary evidence.

When considered along with the plan evidence of the earliest buildings, the medieval worked stone appears to have a very high potential for addressing the argument of the **date and form of the Romanesque church** on the site of the monastery. Richard Gem (1990) proposes that the form of the apsidal church found by Corbett and Grimes is likely to date to the late 11th century; he offers a reconstruction of the eastern arm of the church and suggests that such a work, begun in the 1080s, would have continued into the early part of the 12th century. If the medieval worked stone assemblage can be taken as a representative sample of the chronological range of work undertaken at Bermondsey, then, of the stones that can be accurately dated, none appear to be any earlier than *c* 1120. For a building of the scale implied by Gem's reconstruction, this is of great interest. It could imply that the church was extremely advanced and innovative, or that the Romanesque structure revealed by Grimes was, in fact, built in the 12th century.

6.3 The Potential of the Environmental Archive

The potential of the environmental and non-artefactual remains recovered from the site is contained within the varied bone assemblages recovered (human, mammal and bird, fish). There is no real potential for the study of the environment through faunal or invertebrate remains, perhaps as a result of the sandy (and therefore acidic) subsoils.

Human Bone

In order to discuss the potential of the human bone from Bermondsey, it is wise to consider the similar, if greater, sample from Merton, and the potential that arises from a detailed assessment of that material (Conheeney in Bruce & Sloane 1996). The potential is thus divided into a number of key themes.

Time span

The main cemetery assemblage is fairly closely dated to between *c* 1150 and 1450. At present therefore, it is more broadly dated than the second cemetery at St Mary Spital (*c* 1235-1280), but more tightly dated than that of St Mary Merton (*c* 1114-1540). As at Merton, a number of burials from Bermondsey will be more closely datable, with the effect of producing perhaps two phases within the Bermondsey group. The date range allows **inter-site comparison**. It may also permit the calculation of **prevalence rates** of various pathologies (assuming that they are present), a particularly useful tool for the broad study of health and hygiene trends with a population, and one that may aid in the study of the less well understood **medical conditions of the present day**, such as DISH (Diffuse Idiopathic Skeletal Hyperostosis).

Sample size

The sample size of 193 burials from the medieval cemetery compares favourably with St Mary Spital (150 burials from the second cemetery), and with the skeletons from every burial area except the main northern cemetery. It is over twice the sample size present in the comparable location at Merton (ie between the church and the infirmary). Whilst some statistical analyses cannot be undertaken as the total population size remains unknown, 193 skeletons will provide amply sufficient evidence of trends within the following research areas.

As at Merton it will be possible to comment on the **efficiency of recovery** by comparison of the level of preservation to the frequency of various skeletal elements present in the sample. Information of this type is of great value in improving the efficiency of future excavations of this type. Information on the types of bone regularly overlooked can also affect the reliability of pathological observations, as for example hand and feet bones are often lost and these would be required for a satisfactory diagnosis of rheumatoid arthritis or leprosy.

The influence of different burial practice on the **preservation** of bone cannot easily be monitored at this site, with only two methods of burial clearly identified (shroud or coffin/stone cist). The results from Merton will be comparable to those of Bermondsey for the cist burials.

Cultural and social factors

A more detailed understanding of the **age and sex composition** of the Bermondsey assemblage can be established, although it will lack the accuracy of Merton where more skeletons were more intact. This will provide more firm ground upon which to assess what part of the **monastic population** was buried in this area, often (as at Merton) described as the 'canon's/monks cemetery' south and east of the church.

Identification of the types of pathology present may identify **treatment given** within the priory, such as the reduction of fractures or the minimisation of infection after injury. The presence of certain pathologies (as yet undetected), such as true *spina bifida* or gross deformities in older individuals may indicate that people with severe disabilities were cared for by society as without care they would not have survived.

Environmental factors and the health of the population

Levels of **personal hygiene** may be apparent from a survey of the dentition. Poor oral hygiene results in a build-up of calculus, and may result in caries, both of which are apparent on the skeletons.

Repetitive activity may result in bony outcrops or entheses at the site of attachment of ligaments and muscles to the bone. Recording the distribution of these entheses throughout the skeleton and observing the general pattern across the whole sample may indicate that parts of the body were used more relative to others as would be the case in many industrialised activities, and it may be possible to suggest the type of movement involved.

The presence of certain pathologies in the cemetery sample may allow conjecture on conditions of **overcrowding and poverty** in the community outside the priory as some diseases, for example tuberculosis, thrive in a population size of sufficient size and density. This too would affect the way in which the population using the cemetery is defined.

The higher prevalence of DISH in the chapter house at Merton may be related to a rich, high vitamin A diet - one which may indicate a better material **standard of living** for the 'sufferers'. It is as yet unknown whether there are any DISH sufferers at Bermondsey, but there is a clear potential for the sample to address this debate.

In addition to the specific uses suggested above where the **pathological data** could have an application, detailed recording of all skeletal and dental pathology present will reveal the conditions afflicting a group of people in **medieval London** and the type of problems they may have had to overcome in their daily lives.

Physique

Metrical recording of the sample will allow comment on the **physique** of a medieval London population. The sample is sufficiently large to make this analysis worthwhile, particularly to compare trends with the larger and more diverse group from Merton, and the small but more tightly dated group from St Mary Spital.

The level and **type of physical activity** in which the individuals were involved may be apparent from the recording of the occurrence of entheses.

Status

The ability of osteological analysis to comment on the **social status** of the individuals studied is a controversial area. However, in the study of the human remains from St

Mary Spital, there appeared to be clear differences between those buried inside the church and those buried outside in terms of the range of stature attained, the types of skeletal pathology present in the two groups, and the level of severity of dental pathology present. Unfortunately the sample size was too small to verify these findings statistically. The sample size at Bermondsey is also perhaps too small for statistical analysis, but if the larger Merton sample provides differing 'templates' for the various burial areas there, it may be possible to suggest which the Bermondsey group most resembles.

In a wider context, St Saviour Bermondsey is one of the more important houses of the Cluniac order in England. The characteristics of the burials (at present believed to be of male religious) could be compared with those from other priories, such as the Blackfriars at Ipswich (Mays 1991) to test if the Bermondsey inhabitants appeared to be in a privileged position. Similar comparison to, for example, the nearly contemporary lay sample from St Nicholas Shambles (White 1988), a London parish church cemetery, would act as a control.

Genetic and cultural relationships

Close genetic relationships, such as **family relationships**, can be examined. The presence or absence of non-metric traits on the skeleton can be observed. These traits are non-pathological variation between individuals which are genetically and/or culturally controlled to a greater or lesser degree. Groupings of these traits amongst burials can be used to identify possible family or cultural groups. Any such cultural groups will tell us a great deal about the basic make-up of the cemetery population, particularly in association with the other indicators (see above)

If groupings are demonstrated amongst any of the burials, this will also allow inferences about **burial rite**, such as whether plots are maintained for specific groups rather than burials simply filling the cemetery in the order of death.

Context of the site

Comparison of the sample with others from **other religious houses** within London and similar sites outside London might reveal whether being part of a monastic house in the capital had any different effects on the people than being in the provinces. The lay burials could be compared to contemporary lay samples and to samples preceding and succeeding those at Bermondsey in date both from within London and outside to set the people into context and to investigate any similarities or dissimilarities which may be revealed. Examples of suitable human bone reports to support these comparisons are listed in Appendix 2.

Animal Bone

Limitations of the sample

The main aim is to see whether the assemblage, or parts of the assemblage, is worthy of further study. The information used is essentially that compiled by the analysis of the selected contexts. Any estimate of the potential value of the animal bone must firstly discuss the extent of residuality.

A large proportion of the bone bearing contexts contains redeposited material. This is shown by the wide spread of human bone fragments (referring both to the spatial

and temporal dimensions of the site), indicating reworking of deposits. In addition an equally large proportion of these contexts produced bones where the overall level of preservation is relatively poor. These may represent bone collections which were left on the surface and then incorporated at some later date within the excavated features in which they were found. A clear instance of this deposition pattern is shown by the presence of partial horse skeletons, which were allowed to rot on the surface where they were possibly dismembered by dogs, and a portion of the divided carcass was then buried (either by accident or design).

The degree of redeposition throughout the site can best be seen by a review of the dating evidence. Most of the spot dated contexts, at least within the selected deposits described above are well dated. However there are clear instances, mainly within the post-medieval contexts, of wide date ranges, suggesting severe mixing. It should be stated that residual material was found in several contexts in each phase, although in these cases the great majority of the sherds are contained within a relatively tight date range (one to two centuries).

It can perhaps be concluded that the evidence for redeposition does point to a large proportion of contexts which have or are likely to have undergone a serious level of post-depositional damage. Within these contexts can be included a large number of, in particular, the post-medieval deposits (especially the so-called 'cemetery soils'), the gravefills, and a relatively large proportion of the deposits within the Late Saxon and monastic occupation phases.

Another factor affecting the potential of the assemblage is the recovery technique. Hand recovery will introduce a general bias into the assemblages, mainly regarding the under-representation or exclusion of the smaller bones. This can be tested for, to an extent, by adequate sampling. The sampling strategy was less than adequate and in consequence the information from the majority of the samples taken will be of somewhat limited value. In effect they can be used to provide information on those species not recovered by hand, and suggest the concentration or otherwise of bones found in individual deposits. They will be less able to suggest, from an objective level, the true extent of species and skeletal parts in these deposits. There are obvious exceptions, in particular the post-Dissolution reredorter dump, where a representative sample was achieved by gathering a large volume of soil and by using a finer mesh size on a subsample of the total volume taken.

The major problem with hand recovery is that it may not be undertaken to the same extent in different parts of the site. Poorer recovery will tend to be shown by a bias towards the larger fragments, which generally means a good representation of cattle at the expense of sheep/goat and pig. Within the selected contexts there was some evidence for poorer recovery. However the majority of contexts show no clear signs of differential recovery.

In general, it can be seen that the majority of context assemblages are worthy of further study. However the analysis from a large part of the site must necessarily be limited due to the poor sampling strategy employed.

Existing potential

The major potential of the assemblage is that it allows consideration of the **meat diet** of the community through time. It is interesting to note that significant numbers of wild species were present in the Late Saxon, later monastic and early post-medieval phases, the last two also producing rabbit. As hunting can be viewed during the medieval period as a pastime of the affluent members of society, the animals caught in this way being exported to the towns to satisfy a relatively small luxury market (Hammond 1993, 17

and 41), analysis of the distribution of wild species has the potential to comment on the **economic and social status** and **living standards** of the community. The lack of such animals in the early monastic period may reflect either a dietary preference, or perhaps the downturn in the priory's **financial status** prior to its elevation to an abbey in the 14th century. That these species are present in the other phases possibly indicates, for the Late Saxon period, the likelihood of a noble's house (or possibly an ecclesiastical establishment) in the vicinity, and for the monastic and early post-medieval periods, confirmation of the known status of the Benedictine Abbey and Bermondsey House respectively.

In each phase, with the exception of the later monastic period, the quantities of bones are sufficient to produce relatively detailed accounts of species representation, plus the age and size ranges of the major mammalian domesticates. The necessary division of the later monastic assemblage into approximately two parts (each corresponding to a two century period) will severely reduce the information available for study within a phase which is the least well represented (see Table 22). However, the assemblage still has potential to consider the **means of supply**, and in particular if there is evidence for any **on-site breeding** of meat animals. Noticeably, the post-dissolution reredorter dump samples produced both juvenile chicken and dove bones, possibly suggesting they were bred in the general area. The age distributions can also be used to suggest if **imported animals** were specifically bred for their meat or whether they were initially bred for some other purpose such as wool or milk.

The assemblage has the potential to inform on **butchery practice**: the presence of a mix of skeletal elements suggests carcasses arriving whole, or animals on the hoof. These animals were therefore possibly slaughtered and certainly butchered in the vicinity of this site. Wild animals, it would appear, formed a relatively small fraction of the diet, with the possible exception of the latest phase, which produced an excessive quantity of fish bones. A large number of fish bones were also found in the later monastic period, and in both these periods, there would appear to be a **wide range of fish species** and of fish sizes, probably suggesting the use of river, estuary and off-shore fisheries, although the monastery had its own fishponds as well. The huge quantity of fish from the later period is likely to consist primarily of herring. Very large catches of this species were made in the Thames estuary up to about the mid 19th century (Wheeler 1979, 76).

The potential to explore **functional variations in buildings and open areas** in the bone assemblage is not yet clear, although a much smaller collection from St Mary Clerkenwell demonstrated apparent trends in rubbish disposal and cleanliness in the kitchen (Pipe in Sloane in prep). ORACLE and GIS can easily be used to plot occurrences of species density and pre/post-consumption groups to examine such broad trends.

Comparisons will be achievable between Bermondsey and other London sites to examine **broader patterns of animal use and diet**. Relatively few Late Saxon assemblages have been excavated in the general area, the most notable being that revealed by the Saxo-Norman pits found at Winchester Palace (Rielly 1995). The study of the Saxon material from the Bermondsey Abbey site will therefore greatly increase our understanding of the use of animals in this area of London. On a wider scale the assemblages can be compared with the extensive deposits found at Bull Wharf (Rielly 1996a) and Westminster Abbey (Pipe 1995).

Particularly useful will be the work completed on the other religious houses excavated in London in recent years. All have produced quantities of animal bone, a few of which are available for comparison - St John and St Mary Clerkenwell (Sidell and Fitzgerald 1996 and Pipe 1996 respectively). The combined evidence from these houses

has the potential to provide a **thorough review of monastic diet**. Finally the latest period can be compared to the bones from Winchester Palace (Rielly 1995) in Southwark, a house of relatively similar status, and further afield by large assemblages from a wealth of 16th-century deposits at Finsbury Pavement (Rielly 1996b).

6.4 The Potential of the Documentary Research

Assessing the potential of primary sources of documentary evidence for the study area, is difficult without actually reading it. The principal manuscript sources compiled by the monastery have serious problems. The Cartulary of St Saviour has been lost in antiquity. Another principal source, the annals of Bermondsey (MS Harleian 231), compiled *c* 1442 has been described by Graham (1926, 160) as 'a stumbling block'. She came to the conclusion that 'no statement [in them] can be accepted without reserve, unless it can be proved from another source'. This grim view is somewhat lightened by a more recent comparative study by Brett (1992) who notes that 'their distinctive contribution is a mass of details on the **acquisition of estates** by the house under dates the compiler thought appropriate', and that 'the succession of priors up to 1221 presents few problems' (1992, 286). His conclusion is even more interesting, as he suggests that 'there was once a set of **London annals** [as opposed to particular Bermondsey or Merton annals], possibly based on materials collected at Bermondsey, which ended *c* 1225...'. Even Graham's difficulties with the annals appear to be with the variance of dates by a year or two, rather than wholesale inaccuracies or errors. The contents of these annals in many respects contain much greater potential for the medieval **structural works** in the monastery than the almost complete silence found at St John Clerkenwell and St Mary Clerkenwell (Dyson in Sloane & Malcolm in prep; Dyson in Sloane in prep), mentioning rebuilding campaigns, dedications of altars, and additions of new building ranges. Graham herself has found a single memorandum (MS Harleian A. 20) describing money disbursed for the years 1391/2, which includes **food purchases**, **alms** to the poor etc.

City properties for 1291 were situated in 62 known parishes (*taxatio*), with further mentions in 1418 (PRO SC6/1107/11), and after the Dissolution, rentals of 1539-46 (SC6/Hen VII/3464-8), and also in 1546 (SC12/37/7, LR2/262). The latter will also be likely to give us a much better understanding of the selling-off of the **precinct and its buildings** after 1538.

There are also a great many other sources from which fewer references will be retrievable (Calendars, Rolls etc), but which in total will certainly increase our present knowledge about the **history, development and workings of the priory**.

Overall, the potential of the documentary evidence should be considered to be low for the earliest years, medium for the later monastery, and good for the Dissolution and the period immediately afterwards.

6.5 Realisation of Original Research Aims

This section outlines the extent to which the potentials summarised in section jointly answer the questions proposed as the original research aims (section 3). The original research aims have been prefixed with 'OR' and are presented in their original order.

OR1: Is it possible to draw together the information from all the periods represented on the sites BA84, TRE91 and LWK92; the excavations that will take place prior to the construction of the proposed buildings on the BA84 site, together with any watching briefs that may prove necessary during construction, and the information from the excavations carried out by Grimes and Corbett, in order to produce a current reference plan of all investigated material?

The assessed data from the modern sites BA84, TRE91, LWK92, TWB94 and TOB95 has been sub-grouped and digitised onto AutoCAD. There was no drawn record for BER88 and so the fragment of precinct wall observed on the site has not been digitised. It has been possible to integrate the 1972 Grimes material with the BA84 work, as the plan record of walls identified as the frater is capable of being matched exactly.

OR2 Can a common chronology be completed for all the excavations in the project and an attempt made to assign chronological positions for features for which no direct dating evidence exists?

For those sites that were fully excavated, a framework chronology now exists. In broad terms, this is not a complex one, and it has therefore been a straightforward task to equate the strata and features from sites A, C, E and F. The area of greatest complexity lies in the development of building sequences, and this is confined to the BA84 data. Many of the contexts, in particular the robbing fills, did not contain pottery. Further analysis of other categories of datable artefacts can help in some cases, but other contexts will be defined solely by their known relationships and thus pegged between key points in the chronological framework.

Other areas of site A and site D, where the complete sequence was not excavated but a plan record was made, pose a different chronological problem. Little pottery was recovered and relationships of structures are often difficult to determine. The problem is emphasised by the fact that the site seems to fall so readily into two halves, east and west, each with a cloister as a focal point, such that there is no real linkage between the two. Given these factors, it ought nevertheless to be possible to make justified statements about monastic lay-out and change within the unexcavated areas.

OR3 Can we test and refine current models for the natural topography of the area, its layout, geology, hydrology and the behaviour of the River Neckinger? In particular, is it possible to examine the Neckinger with relation to the feed for the great drain of the monastery?

The results of the assessment confirm current views about the nature of the natural deposits on the Bermondsey eyot. New evidence from site A indicates that the truncation of the natural sands and gravels, the working of the soils and the creation of the leached 'weathered natural' horizon began in prehistoric times.

Much additional evidence for the management of water sources has emerged. At least five versions of the monastic 'great drain' have been identified and the stretch of drain excavated on site F has been provisionally incorporated into the first stone-built phase. There is still some doubt as to the directional flow of the Neckinger and it is even possible that it flowed in both directions, as it is said to have been tidal. Certainly, a

series of alterations to the reredorter adds weight to this view. A so-far unidentified source presumably fed the 'settling tank' in the centre of site A.

OR4 *Is it possible to use the archaeological evidence and such documentary evidence as exists to attempt to determine the nature and status of Middle Saxon activity on the site and in particular to attempt to ascertain if this site is the location of the 8th century house at Vermundesei referred to in the Liber Niger (Stenton, 1933)?*

The conclusion to be drawn from the stratigraphical evidence is that there was little Middle Saxon activity on site A, and none on any of the other sites within the project. One of the two silver sceattas found on site A was in the cemetery or worked soil context A[2752]. The other was in A[3456], an early soil horizon which otherwise contained only Iron Age pottery. Of the three Saxon loomweights found, two were residual in much later contexts. The only potential Saxon feature with any integrity is a north-south ditch which contained a loomweight and a fragment of whale bone. The evidence for the period is therefore ephemeral and leads to the conclusion that the 8th century monastery was not on or immediately adjacent to site A.

OR5 *Can we use the archaeological and documentary evidence to attempt to determine the nature and status of Late Saxon activity on the site and in particular to attempt to ascertain if the site was secular or monastic at this time?*

The sole feature certainly of earlier 11th-century date on site A was the large east-west timber revetted ditch which was backfilled by 1050. The lack of other evidence for the period suggests that any focus of Late Saxon activity may have been to the north of the ditch and therefore outside the area of investigation. The floor tiles in the reredorter (Table 12) may originally have lain in a Late Saxon or Saxo-Norman building, perhaps close to the site of their reuse.

OR6 *Is it possible to produce a plan of the buildings, yards and other open areas of the Cluniac priory and the later Benedictine abbey, which will form the basis for any future excavations and research programmes?*

Research and analysis will result in the production of phase plans using integrated data from all the sites within the project.

OR7 *Can we refine the model for the function and status of the excavated structures of the priory and the later abbey?*

Assessment of the site A archive has raised several questions about the function and status of some of the structures. To begin with, there are at least four major buildings to which no function has been ascribed. The massive nature of the ragstone foundations to the final phase chapel chancel suggests a structure with more than one storey and possibly even a tower. The model for the development of the infirmary block as outlined by Beard, (1986), has been radically refined by the recent work (see Section 6.1 above). Alterations to the buildings possibly to accommodate both men and women confirm the documented high status of the priory.

Analysis of spatial distribution of particular classes of finds and environmental data may allow functions of some buildings to be ascribed; specifically, the presence of large quantities of 12th-century cooking pots in the vicinity of the later south range of the infirmary cloister is probably significant.

OR8. Is it possible, by considering the available evidence, to outline the construction, design and development of the monastery and in particular to examine the extent to which the phase of rebuilding comprising the third phase of the infirmary hall and the infirmary chapel and the creation of the infirmary cloister may be seen as part of a clearly defined overall re-structuring of a major area of the monastery?

The exercise of assessment has led to the adoption of broad interim phases which identify the major developments of the excavated buildings on site A. It seems likely that the final phase structures and plan can be seen as a grand monastic flourish, governed by a clear design and intent. Research and analysis, however, may modify this view. In particular, the ?14th-century infirmary cloister arrangement at Merton (and other studied examples) may shed light on this aspect of the monastic development.

OR9 Can we reconstruct the above-ground appearance of the priory from the archaeological, documentary and pictorial sources?

The answer to this is a qualified affirmative. Certain buildings not represented in the archaeological record were recorded by antiquarians (see front cover for example). Sketches of Bermondsey from as far back as 1551 exist adding to this knowledge. The architectural fragments have potential to illuminate the character of the vanished 12th-century structures in particular. Stratigraphic evidence indicates the presence of more than one storey, and/or vaulting: in the case of the dorter wall, standing remains were recorded. Painted window glass, some with very high levels of decoration, documentary descriptions (describing slate roofs for the cloister, lead on the church, new windows), and finds of building materials further augment the picture. So the general nature of a number of the buildings can be determined at particular times. The architectural context of the grander structures can be compared with other studied monastic sites.

OR10 Is it possible to examine the evidence for diet and cooking practice, to attempt to establish if changes in these practices can be observed through time?

The survival of a decent animal bone assemblage from most of the principal periods of occupation should permit a broad picture of the diet of the monastic inhabitants. This cannot be augmented by plant remains (none survived), but snapshots held in monastic accounts (only surviving for occasional years) of food purchase can be added to the picture. Food preparation will principally be covered through examination of the pottery assemblage. The latter also suggests cultivation of food (sprinkler pots) and husbandry of birds (birdpots).

OR11 Is it possible to examine the evidence for industrial activity within the monastery, to attempt to determine the range of products being produced?

No industrial structures were found per se, but enough specialised accessioned finds and pottery and glass vessels exist to formulate a range of activities, some very highly-skilled, that were undertaken. The documentary evidence for the construction of the priory's own mill near St Saviour's Dock (and possibly evidence of another at Jacob's Island) implies grinding in the vicinity; Bermondsey was also well-known for tanneries in the medieval period, and documentation of the monks' involvement in this industry may well exist.

OR12 Can we place the monastery in its wider social and religious contexts: within the pattern of monastic development around London; as one of the most important members of the Cluniac

order in England and later as a Benedictine abbey with important royal associations, and as a property owner in England?

St Saviour can be compared with at least four London monasteries studied in detail now. A good range of evidence for the religious affairs of the priory and abbey exists, in particular the role of the abbey in Cluniac affairs both in England and abroad. There is sufficient evidence for property holdings both in the City and beyond to gain a broad picture of 13th- and 16th-century land holdings. Such a picture is comparable to other monastic houses of London (eg Merton, St Mary Clerkenwell).

OR13 *Can we use the documentary and archaeological evidence to assess the economic condition of the monastery and to attempt to examine its economic strategy through time?*

The patterns of financial security and poverty revealed in the documentary record can be matched to the recognised phases of construction (and presumably expenditure) as revealed in the archaeological record to see if individual circumstance, or the general fortunes of the City of London, were the prime causes. The information available on the development of the infirmary complex will no doubt make a valuable contribution in this area. The final building campaign must have required significant financial resources. It appears that the patronage of Henry I and others in the early 12th century may have been pivotal in the development of the full monastic plan. Furthermore, the Rood of Grace, the timber crucifix hauled from the Thames in 1117 appears to have brought in cash in a way similar to that generated by a pilgrims' shrine.

OR14 *Is it possible to examine the significant similarities and differences in the layout of the priory at Bermondsey and at other principal Cluniac foundations in England, in order to establish to what extent there is a Cluniac style to be found in the English houses of this order?*

It will be possible to undertake this research. The principal author(s) and architectural specialist are already in contact with the Lewes Priory Research Group, and intend to discuss a number of reassessments of the phasing and chronology there in relation to plan and development at Bermondsey. Similarly, contact has been made with Dr Richard Gem and Dr Jeffrey West, both Romanesque specialists. The Romanesque church plan at Bermondsey appears to significantly copy elements of La Charité in its first incarnation. Simultaneously the 12th-century architectural treatment of the buildings is suggestive of elements of Castle Acre or Much Wenlock, particularly the blind arcade, and suggestions of west towers on the nave. When the phasing of Bermondsey is finalised, this research will be a key element of the proposed report.

OR15 Can we examine the paleopathological and osteological evidence from the skeletal material from the monastic cemetery and make valid comparisons with the data from other medieval monastic and lay populations?

The skeletal assemblage has already shown signs of being of a particular make-up, probably monastic rather than lay, with only one identified juvenile and very few women. This contrasts with Merton (although one part of the cemetery there labelled the Canons' Cemetery may prove to be of a similar makeup to the Bermondsey group), and with St Mary Spital, where the cemeteries are thought to relate to the hospital's inmates. A list of further cemetery groups from religious houses of the medieval period appears in Table 25 at the rear of this volume.

OR16 Is it possible to examine the history of the precinct subsequent to the Dissolution, in order to add to the corpus of information about the effects of the dispersal of monastic sites on the topography of London and its suburbs? In particular, to reconstruct the above ground appearance of Bermondsey House (the mansion built for Sir Thomas Pope) from the archaeological, documentary and pictorial sources?

Sites A and F have contributions to make in this area. Site F, where a length of precinct wall was recorded, demonstrates the continued use of the still standing wall as an element in later buildings. Thus the outline of the precinct and thereby the surrounding roads became a focus for urbanisation, and the 'footprint' of the monastic enclosure has been maintained, to an extent, to this day.

The archaeological evidence for Bermondsey House is confined to the largely unexcavated parts of site A. The retention of the former dorter and subsequent radical alterations to it form the core of the evidence for Pope's tenure.

The illustrations of various parts of Bermondsey House contained within Buckler's folios and others' works, along with a number of early plans of the estate, will allow a great number of general conclusions to be drawn about the form of the house. This can be compared to the treatment of the claustral ranges and other buildings at a number of other London monasteries.

OR17 Is it possible to determine the nature, extent and date of post-mediaeval activity on the site with particular reference to the establishment of the important Bermondsey tanning industry?

Post-medieval activity on Site A was largely confined to the peripheries until the early 19th century, since the land was still under the aegis of a great house, albeit a secular one. On site F, the evidence shows a variety of tanning pits spanning a period between 1600 and 1900. The contrast between the two sites is interesting, given that in both cases the land was within the precinct wall. Certain areas within the former precinct were subsumed into industrial functions when other areas were left as gardens or orchards.

The development of small pockets of industrial activity may help clarify the exact extent of land owned by Bermondsey House and whether this contracted at all. It will be of interest to establish the interrelationship between the nascent tanning industry and the topography and resources of its chosen site.

6.6 Additional research potential recognised during assessment

Further potential for research into the post-Roman material has come to light during the process of assessment. Those additional aims which warrant attention are listed here. They are prefixed with 'AR' to distinguish them.

AR1 *What place do the large ?Late Saxon ceramic tiles occupy in the development of ceramics in Britain? Do published parallels exist either here or in northern France?*

AR2 *Why do the diagnostic architectural fragments from the sites appear to post-date 1120-1150, given the foundation date of the monastery in the 1080s?*

AR3 *What other evidence supports the suggestion from the Bermondsey assemblage that until c 1200, two regional trade networks in pottery existed, separated by the Thames?*

AR4 *What is the range of medieval glass vessels from the monastery, and how does it compare with other monastic assemblages from Britain?*

AR5 *What can dumps A[515] and A[972] tell us about the process of monastic building clearance at the Dissolution?*

7 SIGNIFICANCE OF THE DATA

The significance of the data (as opposed to the potential of the individual assemblages) can be split into four categories: international, national, regional and local.

7.1 International significance

The medieval priory and abbey is of some significance internationally. It was founded by a French mother house for an order that appears to display some consistency of plan in their houses on both sides of the Channel, in a way similar to that of the Cistercians. In particular, the debate about the form and origins of the church plan at Bermondsey has some international significance: its east end may conceivably be an unparalleled form of Cluniac church detailed with Anglo-Norman enrichment. If so, the process of transfer of monastic ideas and architectural innovations becomes a little clearer.

The study of Bermondsey within the context of London's monasteries also has significance. In all likelihood, London will have become North Europe's best studied group of urban and suburban monasteries, the seven houses presently under consideration forming a formidable database with which to compare the effects of other major European cities on the monastic movement and *vice versa*.

7.2 National significance

The areas of specifically national significance hinge principally on the contribution that Bermondsey can make towards the study of urban monasticism. It is true that Bermondsey was founded in a low-lying area of marsh prone to flooding, on the south side of the river Thames. However, its very proximity to the City of London and its foundation by a citizen of London argue for a distinctly urban character. William Rufus' support in 1089 through the donation of the royal manor makes it one of a few extra-mural royal 'foundations', and the earliest in London (apart from Westminster of course). It is therefore in the vanguard of what was to become the most numerous group of religious houses of any English city by a considerable margin. The Victoria County Histories for Surrey notes the exceptional part that the community played in English political life throughout its history (VCHS **2**, 75), and Bermondsey may well have been the only monastery 'founded' by William Rufus during his reign.

Detailed archaeological study of ancillary buildings in monastic communities, a relatively new consideration in monastic archaeology, can be extended at Bermondsey and compared with evidence from the similarly dated infirmary complex at Merton, a similarly dated Augustinian house. Without doubt, the two treatments will prove very different. Elements of medieval hospital plan forms within the monastic infirmary may allow consideration of the effect of the development of one on the other, and thus allow aspects of design and function to be explored further.

One particular element is the 11th/12th century floor tile assemblage reused in the mid-12th century reredorter, and conceivably deriving from the square foundations cut by the Romanesque church. If a late 11th-century date can be confirmed for these tiles, they would be among the earliest in Britain, and would suggest a treatment of the building they graced similar to that of Edward the Confessor's Westminster Abbey.

The collection of medieval glass vessels is significant in that it would appear to be amongst the largest from a British monastery; if the forms demonstrate particular functions (which some obviously do), the range of vessels known to be in use in a

monastic environment may be extended, as it was after analysis of the wooden bowls from St Mary Spital (Egan in Thomas *et al* forthcoming).

7.3 Regional Significance

The significance of the prehistoric and Roman material is most evident at a regional level. Excavations at Bermondsey and Clerkenwell have both shown high concentrations of Iron Age occupation near to the site of the later City; the material at Bermondsey may indicate a transitional period of occupation after the Roman conquest which then appears to die off until the 3rd century. The settlement pattern around London in the Iron Age is distinctly unclear, and the Bermondsey evidence adds markedly to the picture.

The concentration of possible Minster churches and monasteries around London in the 7th-9th century (Vince 1990, fig 31) is significant, particularly in view of their relation to Lundenwic. Vince suggests that the proximity of the monastery at Bermondsey to the Thames probably led to its downfall in the 10th century (Vince 1990, 65-6), but this should be considered in the light of the ?11th-century floor tiles and references to Alwyn Child's foundation of 1082, and the confirmation of the 'new and beautiful church' by William Rufus in 1089. Was there a hiatus, or does this, as at St Andrew Holborn, St Mary Overie and St Mary-at-Lambeth, indicate a continuity of the religious settlement pattern around London from the mid-Saxon period.

Evidence for the development of London's hinterland in the medieval period is good from Bermondsey, both through the archaeological record of the built monastic environment and from documentary sources suggesting planned development of buildings in the vicinity of the priory.

The priory exhibits a high status level from its architecture, history and the artefacts associated with them. In terms of London's monasteries, it is the earliest, the largest and one of the richest (both in terms of financial value and in terms of archaeological wealth).

The possible split between regional trading zones on either side of the Thames as suggested by the 12th-century pottery is of obvious regional significance, although it must be said that several more sites at least in the North Surrey area should be examined before solid conclusions can be reached.

7.4 Local Significance

The significance of this project in terms of Southwark's archaeology is obviously very high. Site A (BA84) is the largest excavation so far undertaken in Bermondsey itself, and as such has implications for the study of topography, prehistory, Roman settlement and development of the medieval settlements of Bermondsey and Southwark. The study of the material will form a strong basis upon which to pin the results of future archaeological investigations, and indeed act as a predictive tool for further management of the buried heritage of the locale.

8 THE PROPOSED PROJECTS

It is proposed that the results of analysis of the archaeological material from the Bermondsey study area should be targeted into three proposed projects.

The prehistoric material should be placed within the context of the proposed Topography and Prehistory of Southwark and Lambeth, currently the subject of a parallel assessment by MoLAS.

The Roman material should be placed within the context of the proposed reports on Roman Southwark, currently the subject of a parallel assessment by MoLAS.

The post-Roman through to 17th-century material should be the subject of a monograph report concerning the background, foundation, development and destruction of the Cluniac monastery. This report will form one of the forthcoming reports on the monasteries of London, to be published by MoLAS in its monograph series. At present excavations of seven religious houses in London and its environs are intended for this series:

1) The Augustinian Priory of Holy Trinity Priory, Aldgate
2) The Augustinian Priory and Hospital of St Mary Spital, Bishopsgate
3) The Cistercian Abbey of St Mary Graces, East Smithfield
4) The Knights' Hospitaller Priory of St John Clerkenwell
5) The Augustinian Nunnery of St Mary Clerkenwell
6) The Augustinian Priory of St Mary Merton
7) The Cluniac Monastery of St Saviour Bermondsey

These include the main unpublished excavated monastic houses in and around the medieval capital. The analysis and comparison of monastic sites is important as no two sites are the same, as the monastic movement was one of continuing reform and extension.

Publishing in this way enables comparisons to be made between religious houses, according to common themes including priory topography, development of the monastic complex, architectural style, specialised buildings, early buildings, the interaction of the monastic house with its surrounding secular topography and population and the post-Dissolution fortunes of the houses. The establishment of the series, and these common aims, will act as a guide to the research into St Saviour Bermondsey.

The following sections display the finalised research aims, and relate the methodology that will be employed to analyse the various data collections with a view to creating individual research archives led by the overall update project design. A methodological overview then presents the system by which these research archives will be integrated to form the publication itself. The format of the publication is described within a preliminary publication synopsis in section 8.2 below.

8.1 Updated Research Design for The Monastery of St Saviour Bermondsey

The updated research aims consist of those original research aims for which decent potential exists to answer them (6.5 above), subtracting those original aims for which there is no potential to answer them (in this case none), and adding any further key research issues raised by the potential of the data as a whole (6.6 above). They are presented as a list of questions, in a similar fashion to the original research aims (section 3), but have been given the prefix 'U' to distinguish them.

In the case of the Prehistoric and Roman finds, the relevant updated research aims are specified as part of the assessments for *Topography and Prehistory of Southwark and Lambeth*, and *Roman Southwark*, respectively. Aims U1 and U2 below are designed to allow a background summary of pre-medieval activity on the sites only.

In the case of the post-Roman material, the updated research aims have been developed primarily with the potential (section 6) and significance (section 7) of the data, but also take careful account of the general structure and aims of the other current reports on London's monasteries.

U1 What was the local environment and topography like before the 11th century?

U2 What was the nature of human activity in the study area before *c* AD 1000?

U3 What does the evidence suggest was the nature and form of the Late Saxon settlement on the study area?

3.1 Does the building that pre-dates the Romanesque church on BA84 relate to this early phase, or to the foundation of St Saviour in the 1080s?

U4 What were the circumstances of the foundation of the monastery?

4.1 To what extent did the local topography and hydrology influence the siting of the monastery?
4.2 Was this topography altered to suit the monastery, and if so, how?

U5 What was the form of the earliest monastery and its buildings?

5.1 What evidence do we have for the lay-out of the 11th-century monastery?
5.2 Was the Romanesque church built in the late 11th century, or the early-mid 12th century?
5.3 How was the open land south-east of the church altered to facilitate the development of the reredorter and infirmary complexes?

U6 How did the form of the buildings develop between the 12th and 16th centuries?

6.1 What is the refined chronology of building phases in the cloister /infirmary area of the monastery?

6.2 What separate building phases are indicated by the *ex-situ* architectural fragments and/or the documentary evidence? How do they relate to the archaeological evidence?
6.3 What can we state about the above-ground appearance and form of the monastic buildings?
6.4 What construction materials were used and where did they originate?

U7 What were the functions of the buildings and open areas in the monastery? How did they change over time?

U8 What was the extent of the monastic precinct? How was it defined? What evidence exists for buildings and open areas not investigated archaeologically?

U9 How did the monastery feed itself?

9.1 What is the evidence for the location and techniques used for food preparation?
9.2 To what extent were foodstuffs partially prepared before arriving on the site?
9.3 What was the range of diet?
9.4 Were urban or local sources of food being used?
9.5 What comparisons and contrasts exist between the diet of those at St Saviour and other religious houses in the London region and elsewhere?

U10 How was water supplied to the monastery?

10.1 In what way did the monastery utilise the Neckinger?
10.2 What other evidence of water management exists?

U11 How was waste disposed of?

11.1 What were the arrangements for the removal of human waste from the infirmary and cloister ranges?
11.2 What systems of rubbish disposal can be identified in the monastery?

U12 How did the monastery fulfil its religious functions?

12.1 What specific religious functions can be ascribed to the monastery from structural, documentary and artefactual evidence?
12.2 What was the role of the monastery in Cluniac and Benedictine affairs?
12.3 Is any significance detectable in the use of cist graves for 15 of the 193 burials?

U13 What range of people occupied or utilised the monastery

13.1 What is the demographic make-up of the skeletal assemblage
13.2 How healthy were they?
13.3 How do they compare to other assemblages in London and elsewhere?
13.4 What documentary evidence exists for the size and makeup of the community?

U14 What kind of medical care was practised in the priory?

14.1 How does the changing form of the infirmary compare in design to other monastic infirmaries and to medieval hospital design?
14.2 Do any parallels exist for the extraordinary buttressed east end of the infirmary chapel?
14.3 What specialised vessels or implements can be related to medical care?
14.4 Do any pathologies in the skeletal assemblage point to medical care?

U15 What light can be shed upon the economic and social aspects of the priory?

15.1 From where was the monastery obtaining goods such as stone, pottery tiles, and portable objects?
15.2 What support can be given to the notion that two regional pottery trade networks existed, one on either side of the Thames, until *c* 1200.
15.3 What range of industry and craft took place in the monastery?
15.4 What evidence exists for domestic/lay structures in the monastery such as royal apartments, boarders lodgings, school, and tenements?
15.5 What is the evidence for the economic role of the monastic grange, mills, fishponds and other properties held by the monastery?
15.6 What relationship existed between the monastery and the river Thames?

U16 How does the general nature and development of St Saviour Bermondsey compare to that of other monasteries in the London region?

16.1 How does the nature and development of the monastery compare with that of other British Cluniac houses?

U17 What effect did the Dissolution have upon the monastery?

17.1 What was the fate of the various buildings?
17.2 What was the fate of the various materials taken from the site?
17.3 What can we say about the systems of clearance of the monastic buildings immediately following the Dissolution?
17.4 To what uses was the site put in the period following the Dissolution?

8.2 Publication Synopsis

Abstract

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Format of the report
Acknowledgements
Graphic and textual conventions

2. Topography and pre-priory

2.1 Prehistoric

A brief summary of the character of the underlying subsoils and the evidence for occupation/activity from the mesolithic through to the Late Iron Age/Romano-British, with reference to *Topography and Prehistory of Southwark and Lambeth* project.

2.2 Roman

A brief summary of the Roman ditches, burials and 'plough' soils. A discussion of the implications of the finds concentrations in the area. Reference to Roman Southwark.

3. Medieval

3.1 The Saxo-Norman period (c 1050-1150)

A brief summary of Middle Saxon evidence (*Liber Niger*, residual finds). A discussion of the evidence for 11th-century occupation (?church, ditches, drain, quarries, ?burials. Ground preparation, infill of ditches, the new church and its likely date and plan, its architectural place and similarities to other London and French examples. The floor tiles. The architectural fragments. The animal bone groups.

3.2 The Norman/Early English period (c 1150-1250)

The first phase of infirmary buildings, great drain, reredorter, timber building, ? cloister, cemetery, quarrying activities, large pot groups, architectural fragments, coins. Documentary evidence for school and other buildings

3.3 The High Medieval period (c 1250-1390)

The second phase of infirmary buildings, great drain, pit groups, cemetery, floor tiles, architectural fragments, animal bone groups

3.4 The late medieval period (c 1390-1500)

Evidence for reconstruction of the church, the cloister, the infirmary buildings, the drain, the infirmary cloister, pit groups, cemetery, large pot groups, Flemish tiles, animal bone, documentary evidence from accounts of 1391-2.

3.5 The Tudor period (c 1500-1538)

Documentary evidence for high-status dwellings, possible demolition of infirmary chapel, large pot groups, few architectural fragments, cemetery out of use, reredorter fills.

4. Aspects of the medieval priory and abbey

4.1 The foundation of St Saviour Bermondsey

Probably the most complex foundation process of the religious houses currently under study. The (presently) uncertain status of the Late Saxon establishment; the Alwyn fitzChild and the grants of 1082; the grant of the royal manor; the arrival of monks from La Charité in 1089. The physical elements of the early structure; the landscaping. The date of the first true monastic layout. Evidence for early landholdings.

4.2 The plan and development of the monastery

The precinct; the church and cloister; the infirmary complex. Scale of the buildings. Comparison with St Mary Merton infirmary zone (apparently very different buildings). Comparison with other Cluniac houses (some striking similarities). Possible reasons for extent and date of rebuildings (eg ? sequestration /denizenship /elevation to abbey). Possible sexual segregation in infirmary: comparison with hospitals of the period. The nature and function of the infirmary drain(s); how they worked with reference to the River Neckinger/tidal Thames. The development of the precinct as a whole; walled and/or ?moated; gatehouses, St Margaret's church, rich tenants and corrodies.

4.3 The architecture of the monastery

The Romanesque church: our best interpretation of the likely date; revisions and comments of internal plan; architectural fragments (giant-order piers etc); evidence from eg Buckler's drawings; consideration of the 1551 sketch (Gem 1990, 50). Reassessment of its place in London's Norman architectural context (eg Holy Trinity Aldgate; St Bartholomew-the-Great). Other 12th-century fragments (the polychrome blind arcade; double-radiused mouldings from ?apse; monumental architecture eg ?frieze). Brief discussion of the influences of La Charité and other French houses. Late 12th-century building campaign; comparisons with Lesnes, St John Clerkenwell, St Mary Clerkenwell. The 14th-century reworking. The apparent lack of significant change in the period after 1390s.

4.4 The people, their living standards and day-to-day life

Categories of people inhabiting the monastery (monks, lay brethren, servants, boarders, itinerants eg guests, parishioners etc).
Demography of the cemetery: likely to have been monastic, poss 'monks' cemetery'. Age, pathologies, hygiene.
Diet and food: animal and fish bone evidence for food acquisition (wild vs domestics, butchery/import evidence, fishponds, birdpots) and dietary range; accounts evidence for purchases; fishponds; food preparation areas and techniques; specialised vessels. Fresh water supplies.

Hygiene: the sequence of human (and other) waste disposal systems in infirmary and reredorter; evidence for cleaning; lavabo in main cloister.
Material culture evidence for activities associated with the religious house; possibility of highly developed seat of learning (annals of London; school; parchment-prickers), suggestion of status.
Economy: Documentary evidence of wealth/poverty over time, reflections in finds evidence/building campaigns. Role of grange. Evidence for crafts/industries (metal working, distilling, collection of urine)

4.5 The monastery in its wider context

Control of mills along Thames; upkeep of river wall, bridges; effect on local urbanisation, eg ?development of rents in Druetts Marsh (now Druid Street) to fund chapel; ownership of market outside main gate (compare eg ?Reading, Faringdon); parish church from chapel inside gate similar to Westminster, Reading *et al*; affairs of the order; hospitality. Comparison of the monastery's fortunes with other London examples.

5. The Dissolution and After (1538-1650)

5.1 The archaeological sequence

The process of conversion or demolition of the buildings; 'Pope's' mansion; the process of clearance of the monastery as displayed in the very rich reredorter dumps; new buildings (eg cellars, dorter conversion); conversion of use of cloister garths. Evidence from pictorial sources. Suggestions of lower-grade cottage industries infiltration after *c* 1570.

5.2 The process of Dissolution

Bermondsey's fate compared with other London monasteries (?and other English Cluniac houses).

6. Conclusions

6.1 Attainment of the research aims of the project

A brief discussion of the success of identifying the potential of the project before analysis was undertaken

6.2 Future research questions

A brief summary of new lines of enquiry spotted during this project for which there was no provision to follow.

6.3 Overview

St Saviour Bermondsey as a London monastery; its overall contributions to the study of monasticism in general.

7. The Specialist Support Appendices

7.1 Documentary Evidence

7.2 The Pottery

9 METHOD STATEMENT

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 1996.

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.

This section details the strategy and overall approach to achieving the full potential of the research within the framework of the updated research aims (section 8.1 above). Table 24 (at the rear of this report) breaks down individual tasks by project team member, and displays resource requirements and relates these to the research aims. The tasks are also programmed on a GANTT chart. Most tasks such as analysis of Animal Bone and Post Roman Pottery are dependant on the interaction and integration of information from many sources and therefore, these are shown on the chart as having a duration throughout the project up to the report production stage. This will enable each specialism to gain optimum benefit from the analytical phase of work whilst maintaining a realistic time scale for completion of the project.

9.1 Strategy Statement

The overall strategy statement for producing an integrated publication which addresses the research aims (8.1) and presents them in the outlined form (8.2) is as follows. Entries in **bold** indicate points of report dissemination and/or review stages.

1) Completion of stratigraphic subgroup matrix by inclusion of Grimes' and Corbett's work, and entry of all remaining stratigraphic data into ORACLE. Final selection of prioritised data (eg CBM, Medieval worked stone). Completion of digitising of features; loading digital data into ArcView. Preparation of project specifications for all contributors.

2) Retrieval of all remaining dating evidence from project subgroups (ie pre- *c* 1650) and annotation of subgroup matrix to phase all project subgroups. Detailed description of stratigraphic units by phase, landuse, feature and context as appropriate. Plotting and editing of phase-led site plans detailed by land-use. Analysis of each specialist assemblage and input of all outstanding information into database.

[Amendments to Updated Research Design as appropriate]

3) Specialist integrated analysis of assemblages in relation to stratigraphic and each other through GIS and ArcView according to project specifications and Updated Research Design. Preparation of Analytical Reports as basis for publication text. Completion of research archives.

[Analytical Report dissemination to academic referee]

4) Detailed publication synopsis prepared

[Detailed Publication Synopsis disseminated]

5) Final stratigraphic interpretation of phase/landuse/feature/context (as appropriate) to include function, form etc as interpretable from Analytical Reports (stage 3).

6) Generation of thematic essays on aspects of the monastery as guided by detailed publication synopsis using information from stages 3 and 5; illustration of plans, finds etc; selection of photographic images.

7) Production of draft publication text and illustrations from stages 3, 5 and 6. Internal specialist editing to check integration. Internal edit for format and quality control.

[Draft Publication Text disseminated]

9.2 Stratigraphic Method Statement

Task 1: **Compile subgroup matrix for Grimes' and Corbett's work.** Analysis of the various sections and plans, and a critical consideration of Grimes' notes will lead to a basic subgroup structure. (Research Aims - 1, 3-7, 12, 16-17)

Task 2: **Transfer existing index onto ORACLE.** A computer index already exists for the majority of the contexts in the projects, but it is non-compatible with ORACLE, and should therefore be checked and transferred across. (Research Aims - all)

Task 3: **Sort sections for CAD.** Some of the 128 recorded sections have subgroups for which no plan data exists. For editing the site phase and landuse plans, this data must be on CAD. (Research Aims - 1-3, 5-8)

Task 4: **Prepare Grimes' multi-phase plans for CAD.** A small number of multi-phase plans must be prepared for CAD by colour-identification of separate subgroups on tracing-paper overlays. (Research Aims - 1, 3-7, 12, 16-17)

Task 5: **Enter remaining contexts onto Harris matrix program.** The Grimes work must be added to the matrix program, and a number of fills of cuts from BA84 have not yet been entered onto the context matrix. (Research Aims - all)

Task 6: **Select further subgroups for CAD.** As it is intended to make use of GIS software in connection with ArcView, at least one representative plan from each subgroup must be digitally represented. This task will therefore involve sorting plans of garden soils, ploughsoils, weathered natural and other non-structural features that have not already been digitised. The exact number is not known, but is not significant. (Research Aims - all)

Task 7: **Integrate specialist dating.** The remaining dating evidence to come from spot-dates, floor tiles, some roof tiles, accessioned finds and coins, and some medieval worked stones must be charted against the existing subgroup matrices to finalise TPQs and TAQs. Clearly this task cannot proceed until all dating has been completed. The rate of integration will be determined by the quantity of data present in the selected subgroups

retained in the project (ie pre- 1650 AD). Time required is therefore estimated. (Research Aims - all)

Task 8: **Form group sequence.** This will be done by a combination of matrix and plan analysis using GIS and ArcView; Examples of groups include a number of sections of wall and a primary floor forming a single phase of a building; a number of stratigraphically and chronologically contemporaneous pits or dumps; a number of graves; etc. It is estimated that of a total of 1480 subgroups in the project, some 300 groups will emerge, of which 10 may be defined graphically and annotated on the matrix per day. (Research Aims - all)

Task 9: **Create group matrix.** The annotated subgroup matrix will be used to create a group matrix to be entered into the Harris program. Approximately 300 entries can be made per day. (Research Aims - all)

Task 10: **Integrate groups cross-sites.** A small number of groups will be formed of subgroups that exist on two or more adjacent sites (particularly walls and ditches). This task ensures that, where appropriate, the group matrix links the sites stratigraphically. (Research Aims - all)

Task 11: **Describe groups.** The 300 groups require basic textual description. This forms the underpinning for the formation of landuse entities, and is an essential part of the analytical process. The groups can be described at an estimated four per day. Group descriptions will include physical characteristics, very brief summaries of context components, and comments on likely date, relationship with other groups and interpretation. (Research Aims - all)

Task 12: **Input group data to ORACLE.** The estimated 300 groups will be added to ORACLE by subgroup rather than individual context. 1480 subgroup records can be updated at a rate of 300 per day. (Research Aims - all)

Task 13: **Determine apparent residuality/intrusiveness of finds.** Following the definition of the groups and the determination of their stratigraphic position, certain finds assemblages may prove to be heavily residual or potentially intrusive. This task ensures that the appropriate project team members are aware of this, and can, if necessary correct the database entries for their particular finds. (Research Aims - all)

Task 14: **Create land use entities.** The groups will be further analysed in ArcView, GIS and on the stratigraphic matrix to determine a phased sequence of land-use entities (Buildings, Open Areas, Structures etc). It is estimated that perhaps 50 different land-use zones will be identified for the post-Roman period across the various phases. Construction of the evidence by group plans on ArcView and a brief textual summary of form, date and possible function will allow an estimated three land-use entities to be defined per day. (Research Aims - all)

Task 15: **Input land-use entities into ORACLE.** The inputting of land-use membership onto ORACLE will be done by group rather than subgroup at a rate of inputting of 300 entries per day. (Research Aims - all)

Task 16: **Create land-use diagram.** The relationships between the various land-use entities will be illustrated diagrammatically showing both chronological and spatial associations. (Research Aims - all)

Task 17: **Create period plans.** Again, using ArcView, GIS and the land-use diagram, the land-use entity plans will be combined to create overall period plans common to all of the project sites. These will be, very roughly, the phases already identified through this assessment (Prehistoric-Middle Saxon, 1000-1150, 1150-1250, 1250-1400, 1400-1538, 1538-1650). It is estimated that three period plans can be constructed per day in this way. (Research Aims - all)

Task 18: **Describe periods.** Using the basic text from group and land-use descriptions, the structural sequence for each period can be assembled. This will be led by land-use entity with additional interpretation, and will include a period discussion summarising the overall changes to the plan of the monastery. This text will form the basis for the narrative section of the publication; its structure will feed directly into the detailed publication synopsis. (Research Aims - all)

Task 19: **Prepare detailed publication synopsis.** The publication synopsis (8.2 above) will be fleshed out to include more specific chapter descriptions, a list of all proposed illustrations and an estimated word-count. (Research Aims - all)

Task 20: **Prepare integrated publication text**. The integrated publication text will consist of three principal parts: an illustrated chronological narrative of the site divided into periods and then into descriptions of buildings and open areas; a series of thematic sections on aspects of the monastery; and a specialist support section containing catalogues and assemblage descriptions. (Research Aims - all)

Task 21: **Correct edited text.** The comments of the internal editor (Task 95), external academic referee (Task 96), and specialist editors must be considered and the text adjusted as appropriate in order to produce a fully checked manuscript draft. (Research Aims - all)

Task 22: **Return archive to store.** The archive will consist of the site archive, the assessment archive, the research archive, and a copy of the completed publication. This will be deposited as per agreement at the Museum of London. This will need indexing and rationalisation.

Task 23: **Attend project meetings.** (Research Aims - all)

9.3 Finds Method Statement

Pottery Method Statement

Task 24: **Spot-date remainder of pottery.** A further 58 shoeboxes of pottery which were not located and therefore were not estimated in the original assessment document require spot-dating, at a rate of 3 boxes per day. This rate includes data entry of form, fabric, date-range, and sherd count onto ORACLE, and checking of records. These are standard accepted MoLAS rates for this type of work. (Research Aims - 1,3,5-7,15,17)

Task 25: **Quantify pottery.** A selection of pottery identified at spot-dating and assessment will be fully quantified to allow for detailed comparison and analysis within the site and to act as a usable body of data for cross site analysis through the publication. Sherd weights for the Late Saxon to 17th-century pottery will be recorded along with Estimated Vessel Equivalents (EVEs). Sherd counts have already been recorded on paper for 223 standard boxes of sherds. Sherds queried at the spot-dating stage will be re-examined and identified as part of this task. An estimated total of 75 boxes of sherds (11th-17th-century) will be quantified at a rate of 2 boxes per day. The data will be entered onto ORACLE and checked. These are accepted MoLAS rates for this type of work. (Research Aims - 7,9,11,14-15,17)

Task 26: **Analyse pottery.** Spatial and chronological distribution patterns will be carefully considered, using GIS and ArcView to query the ORACLE data. Categories of forms (see Tables 7 and 8 above) will be tested to see if zoning can be detected. The quantifications will be considered in the wider sphere of the City and Southwark, and other studied monasteries, to consider aspects of status and trade through time. The makeup of the assemblage as a whole will be considered in reference to existing typologies. (Research Aims - 7,9,11,14-17)

Task 27: **Prepare analytical report.** The results of the pottery analyses will be drafted into a text in accordance with project research aims (thus falling into the three broad categories: chronological narrative, monastic themes, and specialist backup data and catalogue). (Research Aims - 7,9,11,14-17)

Task 28: **Edit integrated text.** The pottery specialist must check the completed first draft of the integrated publication to ensure that clarity and accuracy of her particular contribution has been maintained. (Research Aims - 7,9,11,14-17)

Task 29: **Return archive to store.** The pottery and the pot research archive will be deposited with the Museum of London as per agreement.

Task 30: **Attend project meetings.** (Research Aims - 7,9,11,14-17)

Ceramic Building Material Method Statement

No detailed recording of building material took place at the assessment stage of work. The assessment process (scanning) has defined certain key groups of materials of differing types (roof tiles, floor tiles etc) which have been selected for full quantification using the standard MoLAS building material recording forms and the ORACLE data base. Full recording by standard MoLAS work rates will allow a body of data to be used for detailed analysis.

Task 31: **Record 32 boxes of accessioned floor tiles and stone building material.** Following assessment, 32 boxes of plain floor tile still require basic recording at a rate of 9 boxes per day. (Research Aims - 3,5-7,15-17)

Task 32: **Select priority roof tile groups.** This task must follow the completion of the subgroup matrix on Harris by the stratigraphic specialist. In consultation, key contexts based on date (eg 12th-century contexts, in undated wall foundations etc) and/or function (tile hearths, *in situ* demolition debris) will be selected for fabric/form analysis. (Research Aims - 3,5-7,15-17)

Task 33: **Select priority plain floor tiles.** This task will be similar to that of task 32, in that only a few significant plain floor tiles will be further examined to check their fabric, form and glazing. Some specialist forms (corner-cuts etc) will be selected for comment and illustration. An equivalent of nine boxes of floor tile will be selected, of which three boxes will be recorded daily. (Research Aims - 3,5-7,15-17)

Task 34: **Identify and record remaining decorated floor tiles.** A total of 158 decorated floor tiles remain to be identified by fabric and by design, or, if unpublished, their designs reconstructed and their art-historical context discussed. Twenty tiles can be so treated daily. (Research Aims - 3,5-7,15-17)

Task 35: **Prepare dated context list.** All datable floor tiles (and selected datable roof tiles, if any are identified) will be ordered by context, with their date ranges. This will then be compared to the stratigraphic subgroup matrix to enhance the ceramic phasing from the pottery if appropriate. (Research Aims - 2-3,5-7,15,17)

Task 36: **Record priority roof tile.** An estimated total of 25 boxes of roof tile and 5 boxes of non-accessioned plain floor tile will be recorded in detail to provide information on fabrics, forms, glazes, batch-marks, wasters and other salient features that warrant discussion. Three boxes can be recorded daily. (Research Aims - 3,5-7,15-17)

Task 37: **Input data to ORACLE.** The results of the recording programme will be entered onto the ORACLE database. This can be accomplished at 200 entries daily, with an estimated 600 entries. (Research Aims - 3,5-7,15-17)

Task 38: **Complete analytical report.** Consideration of spatial distribution of different types of floor tiles within the site, forms fabrics and designs present, aspects of trade and questions of dating (particularly the ?Late Saxon material) will create a full analytical report on the studied assemblage. This will form the basis of the CBM contribution to the publication text. (Research Aims - 3,5-7,15-17)

Task 39: **Edit integrated text.** (Research Aims - 3,5-7,15-17)

Task 40: **Attend project meetings.** (Research Aims - 3,5-7,15-17)

Accessioned Finds Method Statement

Task 41: **Spot-date inherently datable objects.** A number of the accessioned finds other than coins can be dated, sometimes fairly closely. This task will add to the dating media for the project in an identical fashion to the pottery and CBM (Tasks 24, 35). The time required is an estimate, as without further examination, no work-rate can be applied at this stage. (Research Aims - 3,5-7,15,17)

Task 42: **Create catalogue of selected objects.** While 3006 objects have been accessioned, many of these are Roman or earlier and many more are later than 17th-century in date. Of the remainder, yet another large group need only to be tabulated (waste metal objects, nails etc), and will not appear in the final publication. It is estimated that a maximum of 450 objects will be described in detail, of which perhaps 70 will need illustration. The catalogue of 450 objects can be compiled at a rate of 15 objects per day. (Research Aims - 2-3,7,9,11-12,14-17)

Task 43: **Summarise medieval glass.** The very large quantities of medieval window glass fragments will be rapidly scanned to retrieve the most decent elements (the latter will be considered under Task 42). The remainder will be considered to determine possible evidence of date, and will be quantified by stratigraphic context. This information will form a basic entry in the catalogue, but no further work will be done on the glass as part of this project. (Research Aims - 6,15,16)

Task 44: **Create analytical report.** In addition to the catalogue, the broader context of the finds will be discussed, including religious activities, status, industry, comparison to other religious houses, and the Dissolution. This and the catalogue will form the basis of the contribution to the publication text. (Research Aims - 2-3,6-7,9,11-12,14-17)

Conservation Method Statement

The figures presented here are provisional and dependant on final agreement between MoLAS and English Heritage Ancient Monuments Laboratory over the exact methodologies and amounts of work proposed here.

It is the aim of these methodologies to ensure the necessary analytical work is carried out to allow for the proper study and illustration of objects. Also to ensure the minimum amount of work to ensure the archive can be curated in a stable condition. Some work which ideally should have been undertaken at site archive has been identified during detailed assessment and is proposed here. This is a reflection on the large and complex size of the archive and the detailed survey that took place at assessment.

Task 45: **Stabilise vulnerable glass.** Thirty-one glass objects are particularly vulnerable and require immediate stabilisation. Approximately ten such objects can be stabilised per day. (Research Aims - 2-3,6-7,9,11-12,14-17)

Task 46: **Stabilise vulnerable copper objects.** Eighty-five copper objects require stabilisation against further deterioration. This will involve mechanical cleaning, stabilisation with benzotriazole and lacquering with Incralac. Particular further treatments will be carried out in consultation with curators and finds specialists. Three

items (a part of a vessel, a seal matrix and a pendant) require repackaging. Approximately 20 copper objects can be treated per day. (Research Aims - 2-3,7,9,11-12,14-17)

Task 47: **Stabilise 40 iron objects.** Of 40 iron objects, the majority require repackaging and maintenance of desiccated storage conditions will halt active corrosion, but a number of items require stabilisation by alkaline sulphite or tannic acid coating. An average of 10 items can be treated per day. (Research Aims - 2-3,7,9,11-12,14-17)

Task 48: **Stabilise 73 lead objects.** The lead objects require repackaging and a very limited amount of chemical stabilisation to halt corrosion. Approximately 25 objects can be treated per day in this manner. (Research Aims - 2-3,7,9,11-12,14-17)

Task 49: **Stabilise four ivory objects.** The ivory objects were conserved in the field, but further stabilisation is required to arrest splitting and delamination. Two objects can be treated per day. (Research Aims - 2-3,7,9,11-12,14-17)

Task 50: **Analysis of medieval window glass.** Following selection in consultation with the accessioned finds specialist, a very limited proportion of the glass will be subjected to x-ray Fluorescence (XRF) to attempt to determine the original glass colour(s). Selection will occur on the basis of important, and/or particularly early contexts. While a very great amount of time could be spent on this task, it has been decided to limit this avenue of research for this project. The time required is therefore a set amount. (Research Aims - 6,15-16)

Task 51. **Analyse window glass decoration.** It is proposed that a selected sample of the window glass is subjected to a chelating agent to remove black oxides of iron and manganese following an experimental process suggested by Barry Knight of English Heritage (Knight 1996). In a solution of the correct refractive index (eg toluene) the decorative scheme may become visible. Selection of the glass will take place in close consultation with the finds specialist. (Research Aims - 6,15-16)

Task 52: **Analysis of materials.** There are at least nine copper objects where the presence of gilding is suspected, but not confirmed. The XRF technique will be used to check these and an allowance made for a total of 30 such objects throughout the project (following conservation cleaning and stabilisation). In addition a contingency of a further 20 objects is being allowed for other (as yet undetermined) materials analysis. An estimated 10 objects daily will be identified. (Research Aims - 2-3,7,9,11-12,14-17)

Task 53: **Complete analytical report.** A brief summary of specific works carried out on items from this project, including a summary of success rates in analytical techniques, will be used as the basis for a section on conservation measures in the publication. (Research Aims - 2-3,7,9,11-12,14-17)

Medieval Worked Stone Method Statement

Task 54: **Select priority typestones.** The corpus of typestones from the Bermondsey and related sites is too great to allow for their equal consideration in this project. It has been decided that the best 200 stones will be examined; these will be selected on the basis of their date, reconstruction potential, architectural role and aesthetic appeal. Particular

emphasis will be given to typestones that will reassemble graphically into composite drawings (eg windows, arcades, vaults etc). The time will be spent isolating the stones from the remainder of the assemblage and transferring them to a separate area for study. (Research Aims - 5-6,12,15-17)

Task 55: **Record priority typestones.** The stones will be dated, described, drawn, scaled, to archive standard, their general petrology identified, and the attributes of each stone noted. All data will be entered onto the ORACLE database. The stones can be recorded at a rate of 2.5 per day. (Research Aims - 5-6,12,15-17)

Task 56: **Prepare rough reconstruction drawings.** As it is particularly difficult to estimate the time required to create the rough illustrations for the medieval worked stone assemblage Task 56 will be subject to a review stage in the project to assertion the exact number of drawings required for the publication: some will be individual moulding profiles, others will require plan and elevation details, and the multi-stone groups will require sometimes very complex reconstruction (for example in the case of many units from one traceried window). It is estimated from similar sites (St Mary Clerkenwell, St John Clerkenwell) that approximately 60 drawings will result from the assemblage, of which perhaps 40 will be multi-stone group drawings and 20, either single-stone details or simple moulding profiles. Preparation of these working drawings will take approximately 0.25 days per single stone or moulding profile, and about 1 day per multi-stone group. (Research Aims - 5-6,12,15-17)

Task 57: **Prepare worked stone catalogue.** All the analysed stones will be included in a catalogue describing their attributes, and linking them stylistically with known parallels where appropriate. Evidence of painting/weathering/reuse will be noted. The stones will be broadly phased by their architectural styles, and subdivided where appropriate into 'builds' likely to be common to a particular campaign of construction. The presentation of the catalogue in the publication will be tabular and textual. (Research Aims - 5-6,12,15-17)

Task 58: **Prepare analytical report.** Based upon the catalogue itself, upon a critical appraisal of the pictorial sources (Buckler *et al*), and upon consideration of the assemblage in the light of other architectural studies from London monasteries and from other Cluniac houses, the analytical report will attempt to place St Saviour Bermondsey into its wider architectural context. This will form the basis for the contribution to the integrated publication text. (Research Aims - 5-6,12,15-17)

Task 59: **Edit publication draft.** The specialist will have a short time to check and edit the contribution made by the worked stone analysis to the publication draft. (Research Aims - 5-6,12,15-17)

Task 60: **Attend project meetings.** (Research Aims - 5-6,12,15-17)

9.4 Environmental Method Statement

Human Remains Method Statement

Task 61: **Access/return skeletons to store.** The assemblage of over 200 human skeletons in at least twice that many separate boxes must be sorted from the store and transferred to the specialists' study area. It is estimated that a full day will be required for this task. (Research Aims - 7,12-14,16)

Task 62: **Record human skeletons.** This substantial task involves the careful metrical recording of almost every portion of each surviving skeleton. The completeness and condition of each skeleton affects the speed with which this can be accomplished. It is estimated that whole, or near-whole skeletons can be recorded at 2 per day; half or near-half skeletons at 3 per day and quarter skeletons or less at 4 per day. On the basis of the assessed sample, 40% (82) are near-whole, 35% (71)are represented by between one-quarter and one-half of the skeleton and the remaining 25% (51) are one-quarter or less complete. (Research Aims - 7,12-14,16)

Task 63: **Entering data onto database.** The metrical data from each skeleton will be entered onto ORACLE at an average rate of 20 skeletons daily. (Research Aims - 7,12-14,16)

Task 64: **Radiography.** X-rays of certain elements of skeletons will be necessary for diagnosis of pathologies. It is expected that an average of 1 in 20 skeletons will require some form of X-ray work: 10 specimens can be processed daily. (Research Aims - 7,12-14,16)

Task 65: **Liaison with photography and drawing office.** Some specimens will require either photography or publication of the X-ray images. This task allows for correct illustration of the particular bone or condition for inclusion in the report. (Research Aims - 7,12-14,16)

Task 66: **Epidemiological/statistical analysis.** This stage forms the basis of conclusions for site-specific questioning. It generates the relevant tables, statistics and comparisons that state the nature of the skeletal population at St Saviour Bermondsey. It will thus form the principal system of answering a number of the site-specific research aims. (Research Aims - 7,12-14,16)

Task 67. **Comparing the assemblage.** As new human bone studies are expected over the next two years, in addition to those already published, comparisons and contrasts must be extracted. This stage will provide the basic data to answer the remaining broader research aims of the project. (Research Aims - 7,12-14,16)

Task 68: **Complete analytical report.** The report will consist of a synthesis of the conclusions drawn from the results of Tasks 66-7 ordered in such a way as to facilitate integration into the publication text. It will include a large number of tables and some figures of which approximately 30 will be incorporated into the publication text. (Research Aims - 7,12-14,16)

Task 69: **Edit integrated text.** (Research Aims - 7,12-14,16)

Task 70: **Attend project meetings.** (Research Aims - 7,12-14,16)

Animal Bone Method statement

Task 71: **Analyse mammal and bird bones.** All the chosen context assemblages will be recorded using the MoLAS ORACLE database. Various categories of information will be entered:- species, skeletal part, proportion and description of part present, various modifications as butchery, burning, gnawing, and the presence of any pathological or non-metrical traits (all of these are recorded in a text field incorporating specific codes), age data (epiphysis fusion and tooth eruption/wear) and size data. The bones included as measurable include the lengths, toothrows, articular ends and bases of the following:- all whole limb-bones, fused metapodial and tibia distal ends plus all the late fusing articular ends, horncores and antlers, mandibles and maxillae with a full molar row and any other obviously mature/adult bone fragment. In addition fragmentation will be considered (following Rackham 1986). The use and calculation of the ageing information follows Schmid (1972), Grant (1975) and Payne (1979), while the majority of measurements are taken from von den Driesch (1976). References for various pathological anomalies and non metrical traits can be found in Baker and Brothwell (1980). (Research Aims - 2,7,9,11,15-16)

Task 72: **Analyse fish bones.** These will be recorded separately by an external contractor (such as Alison Locker), who will identify each bone to species (or to a major taxonomic group) and skeletal part and take measurements where possible. No provision is being made for entry of this information onto ORACLE at this time. (Research Aims - 2,7,9,11,15-16)

Task 73: **Prepare mammal and bird bone analytical report.** The report will be structured to address the research aims for which potential has been identified. It will therefore form the basis of the contribution to the integrated publication draft. (Research Aims - 2,7,9,11,15-16)

Task 74: **Prepare fish bone analytical report.** This will take the form of a phase by phase discussion of the distribution and species range of the fish present, with an overall discussion of recognisable trends (eg rise in eel preference, sea vs fresh-water species, etc). It will be written by an external contractor, but a specification will be prepared as for the internal authors/researchers (see Task 93). (Research Aims - 2,7,9,11,15-16)

Task 75: **Edit integrated text.** (Research Aims - 2,7,9,11,15-16)

Task 76: **Attend project meetings.** (Research Aims - 2,7,9,11,15-16)

9.5 Documentary Research Method Statements

Task 77: **Trawl previously published material.** The documentary specialist will check secondary works with relation to the updated research aims to produce a basic model of the evidence. This will act as a framework to control the more time-consuming analysis of primary documents. (Research Aims - 2,4-10,12-15,17)

Task 78. **Interpret primary sources.** The unpublished manuscript sources for St Saviour Bermondsey will be sorted through the research design, Task 77 and available indexes, to maximise their relevance to the project. (Research Aims - 2,4-10,12-15,17)

Task 79. **Prepare analytical report.** The results of the documentary research will be arranged according to the research design, in chronological order of 'periods' or phases that link with the overall project dating framework. The contribution of the documents to proposed themes will be ordered in a similar thematic form. (Research Aims - 2,4-10,12-15,17)

9.6 Geographical Information Systems and IT Method Statements

GIS and St Saviour Bermondsey

In line with advances in technology, MoLAS are, with support from English Heritage, experimenting with powerful new software systems to enable faster and/or more in-depth analyses of site records and assemblages. Using Geographical Information Systems, each feature on a site can be given 'attributes'. These include spatial attributes (plans, sections, heights), or contextual attributes (finds, environmental and/or landuse data). If the plans and sections of archaeological features are digitised in a certain way (in our case, using PenMap software) and if all the material retained from a site is entered onto a compatible database (in our case ORACLE/ArcView), very complex questions about distribution of finds, environmental material, feature types etc through time and space can be quickly tested/answered, and displayed on-screen, manipulated or printed out for publication. As the software development and access at MoLAS has now achieved a satisfactory level, it is proposed that the analysis of this project is undertaken using this form of information technology.

Because much of the data was originally captured for conventional use, certain resource requirements below arise from transforming data from one form to another to standardise it. All the originally input data is already on ORACLE, but the plan/section information, presently in AutoCAD, will have to be 'cleaned' before it can work with GIS/ArcView. The costs for this alteration are, in terms of the project, very low (see Tasks 80, 82, 84).

Familiarisation with the basic functioning of the system will be necessary, although the time required is low (1 day per person); the process of training will be undertaken in-house and will not feature as a project cost of the St Saviour Bermondsey project. Support will partly be provided through non-project costs, and partly through Task 84.

Task 80: **Clean previously digitised subgroup data.** The AutoCAD digital data already in existence must be downloaded to PenMap in order for it to be compatible with the Geographical Information System that will be used to facilitate much of the research into the project assemblages. This is due to the fact that the software can only recognise precisely closed polygons; AutoCAD produces images that are visually closed, but not digitally closed (there are infinitesimal gaps between the start and finish of some lines defining, say, a pit). A total of 2100 digitised contexts require checking: perhaps 30% require some correction. It is estimated that about 150 contexts can be checked and (if appropriate) corrected per day. (Research Aims - all)

Task 81: **Digitise Grimes subgroups.** Some information is yet to be digitised. This includes Grimes' and Corbett's work of 1956-72, and (if the necessary locational data can be retrieved) the four features considered worthy of further work from the HBMC record file HB92 (see 5.1 above). Grimes' work involves the checking and finalisation of the site trench limits, as some debate exists as to the original positions of the trenches. However, documentation accompanying the plans records measurements from buildings and street frontages which were unknown before this assessment and this will be used to tie in the site with the 1950 Ordnance Survey. This digitisation will use PenMap, not AutoCAD, to ensure data compatibility with GIS/ArcView. (Research Aims - 1,3-7,12,16-17)

Task 82: **Digitise remaining non-structural subgroups.** In order to check distributions of finds and environmental groups across the project sites, a number of non-structural subgroups must be given at least one plan attribute (otherwise, a dump layer containing, for example, 20kg of animal bone, will not register on a query asking for overall weight distributions of animal bone across a site). These can be selected to an extent and will normally be floors, middens, occupation deposits, and external surfaces. It is estimated that a further 400 contexts should be digitised, using PenMap, at a rate of 70 contexts per day. (Research Aims - all)

Task 83: **Sort digital evidence of landuse.** Following the stratigraphic specialist's creation of stratigraphic groups, by manipulation of the digital plan data, the basic plan evidence of each landuse entity will be compiled. This will involve calling up the group plans relevant to the particular building or yard etc onscreen, adding appropriate conjecture (for example, between wall stubs or between elements of the great drain etc) and printing off a hard copy for annotation and inclusion in the reset archive. The rate suggested is 1 day per broad phase (with perhaps 10 different landuse entities within each of the five phases being generated and edited), plus an estimate of 3 days to complete the digital edit. When combined, these phase 'plans' will form the graphic backdrop to spatial and chronological distribution queries from all the participating project specialists. They will also form the basis of the principal publication phase plans. (Research Aims - all)

Task 84: **Coordinate GIS/ArcView queries.** This task is designed to police the ways in which various specialists access the databases. It is presently seen as a three-tiered approach. Initially, specialists will be encouraged to undertake simple searches individually, with the IT specialist acting as support for newcomers to the system. More complex queries will be framed with the IT specialist and querying specialist acting in concert; the former will have to 'translate' the latter's query into potentially complex syntax. The third tier will involve research questions formulated by the IT specialist alone. These questions will, of course, adhere to the Updated Project Design, and will be undertaken when particularly complex patterns of distribution or statistical analyses of distribution become apparent and/or viable. One potential example of this research may be to generate so-called 'trend surfaces', a 3-dimensional image of spatial distributions affected by concentrations, fragmentation, or other attributes of the data than just presence/absence. Such displays may form images for publication, if appropriate. (Research Aims - all)

9.7 Graphics Method Statement

Task 85: **Produce stratigraphic publication drawings.** To accompany the narrative and thematic sections of the proposed publication, there will be a number of graphic illustrations. There will be at least five major period plans showing the development of the core study area through time. Some parts of these will have subsidiary phases shown in greater detail, where, for example, one building changes radically within a short space of time. In addition, there will be a number of elevations of monastic walls or sections through distinct features. For the thematic aspects, graphics may include comparative plans, distribution plots taken from the ArcView plots generated by specialists etc. The exact numbers and nature of these drawings is unknown, but from previous experience through other monastic projects, it is recommended that a minimum of 90 days be attached to this task. MoLAS is currently running GIS based analysis on projects such as Merton Priory and The Royal Opera House Middle Saxon excavations. Some publication standard graphics can be generated directly from ArcView, other GIS plots will need drawing office enhancement. The methodologies involved in the production of publication standard GIS graphics is the subject of current research in these projects and the Bermondsey Project could benefit directly from this research. Any methodology which can make the production of GIS generated publication drawings more efficient will be employed at the start of Task 85 where the provisional estimations above will be subject to a review stage. (Research Aims - all)

Task 86: **Illustrate pottery.** A total of 50 sherds/pots will be illustrated at a rate of 6 per day. (Research Aims - 7,9,11,14-17)

Task 87: **Illustrate ceramic building materials.** A total of 116 items (principally unpublished tile designs) will be illustrated at 4 per day. (Research Aims - 3,5-7,15-17)

Task 88: **Illustrate worked stone groups.** A total of 45 stone illustrations will be produced at an average rate of 1 per day (1 drawing amounting to 1 A4 printed column per day). (Research Aims - 5-6,12,15-17)

Task 89: **Illustrate 70 accessioned finds.** A maximum of 70 accessioned finds will be selected for illustration at a rate of 2 per day. (Research Aims - 2-3,6-7,9,11-12,14-17)

Task 90: **Paste up, lay out and mark up drawings and photographs.** An estimated time of 10 days has been allowed for this task, although the precise quantification of time required could not be gauged at this stage. (Research Aims - all)

Task 91: **Photography.** At between 4 and 8 object photographs per day (including time for temporary removal from store, temporary gluing of sherds in the case of pottery etc, materials and access to off-site libraries and record offices) an estimated 60 photographic images will be produced for publication. Most of these will be accessioned finds, some will be pottery and glass, some will be maps and documents, and some will be colour images for the proposed publication cover. (Research Aims - all)

9.8 Project Management, Editing and Production Method Statements

Task 92: **Project management.** One member of the project team will act as overall logistical manager of the project. He will monitor expenditure and completion of tasks, prepare and ensure adherence to the project programme, facilitate communications with internal and external sections and monitors, arrange meetings and report on progress. (Research Aims - all)

Task 93: **Internal academic adviser.** A second member of the project team will be responsible for the basic academic integrity of the project. He will prepare research archive specifications for each of the contributing analysts, read completed analytical reports and collate summaries of academic progress for the project manager and the external academic referee (task 94), advise principal authors on integration methodology, comment on content and form of publication drafts, and liaise with the external academic advisor. (Research Aims - all)

The basic methodology for this internal monitoring system will be as follows.

The advisor will devise detailed specifications for the format of each specialist research archive. This format must allow for the stand-alone nature of the archive as well as the integrated publication.

The advisor will read the collated assessment update, and, if necessary, circulate a further updated project design.

The advisor will read each of the research archives upon completion to ensure that each research aim is clearly addressed.

The advisor will read sample chapters of the integrated report to aid in cohesive interpretation and presentation.

The advisor will attend project meetings, and act as a central point of contact on matters of content and format; the project manager will act as central point of contact in other matters.

Task 94: **External academic advisor.** This task involves a project member external to MoLAS. She will attend major project meetings, receive and comment upon each research archive, monitor progress of the project as a whole, advise on questions relating to the wider context of monastic archaeology, and report to the external archaeological consultant to the project. She will be consulted on any methodological changes to the method statements above. (Research Aims - all)

Task 95: **Internal edit.** The MoLAS academic editor will edit the form, and content of the first publication draft. No corrections will be made at this stage. (Research Aims - all)

Task 96: **External edit.** The external academic referee will produce a detailed academic comment after the first draft has been presented. (Research Aims - all)

Task 97: **Curation and Storage:** The whole archive (finds, environmental and stratigraphic) will be curated at the Museum of London according to an existing agreement.

Task 98: **Copy editing ***

Task 99: **Page layout ***

Task 100. **Index ***

Task 101: **Artwork/design/cover ***

Task 102: **Proof reading/corrections ***

Task 103: **Printing ***

* The costs for these items do not fall within the scope of this application, and will normally be covered by an English Heritage publication grant.

Table 24: Summary of task list, updated research aim links, resource requirements and staffing

NB: Shaded areas are those tasks which have been identified within the framework of this assessment, but for which NO resources are being requested through this particular application for funding. These tasks will be attached to the bids for Prehistoric Southwark and Lambeth (PS&L) and Roman Southwark (RS) respectively.

Task	Description	Staffing	Research Aims	Person Days
STRATIGRAPHIC AUTHOR				
1	subgroup matrix for Grimes *et al*	AS	1, 3-7, 12, 16-17	2
2	transfer existing index to ORACLE	AS	all	1
3	sort sections for CAD	AS	1-3, 5-8	5
4	prepare Grimes plans for CAD	AS	1, 3-7, 12, 16-17	1
5	check all contexts are on Harris	AS	all	2
6	select further subgroups for CAD	AS	all	3
7	integrate specialist dating	AS	all	5
8	form group sequence	AS	all	30
9	create group matrix	AS	all	5
10	integrate groups cross-site	AS	all	1
11	300 group text descriptions	AS	all	75
12	input group data to ORACLE	AS	all	5
13	consult specialists re resid/intr etc	AS	all	2
14	create land-use entities	AS	all	16
15	input land-use entities into ORACLE	AS	all	1
16	create land-use diagram	AS	all	2
17	create period plans	AS	all	2
18	period descriptions	AS	all	9
19	detailed publication synopsis	AS/BS	all	4

20	integrated publication text	AS/BS	all	60
21	correct edited text	AS	all	20
22	return archive to store	AS	-	5
23	strat attend project meetings	AS	all	2
	Stratigraphic subtotal			**258**
PREHISTORIC POTTERY				
PS&L	sort prehistoric pot	LR		2
PS&L	ID Prehistoric forms and fabrics	LR		3
PS&L	analysis and comparisons	LR		6
PS&L	catalogue of illustrated vessels	LR		0.5
PS&L	prepare analytical report	LR		3
PS&L	incorporate contribution to PS&L	LR		0.5
PS&L	**Prehistoric Pottery subtotal**			**15**
ROMAN POTTERY				
RS	scan remaining Roman pot	LR		1
RS	input Roman pottery to ORACLE	LR		1
RS	analysis of spatial distribution	LR		1
RS	**Roman Pottery subtotal**			**3**
POST-ROMAN POTTERY				
24	spot-date remainder of pottery	JP	1, 3, 5-7, 15, 17	20
25	quantify pottery	JP	7, 9, 11, 14-15, 17	35
26	pottery analysis	JP	7, 9, 11, 14-17	20
27	prepare analytical report	JP	7, 9, 11, 14-17	10
28	edit integrated text	JP	7, 9, 11, 14-17	2
29	return pot to store	JP	-	1
30	attend project meetings	JP	7, 9, 11, 14-17	2
	Post-Roman Pottery subtotal			**90**

ROMAN CERAMIC BUILDING MATERIAL				
RS	analyse specific Roman CBM	IB		1
RS	**Roman ceramic building material subtotal**			**1**
POST-ROMAN CERAMIC BUILDING MATERIAL				
31	record 30 boxes floor tiles	IB	3, 5-7, 15-17	3
32	select priority roof tile groups	IB	3, 5-7, 15-17	5
33	select priority plain floor tiles	IB	3, 5-7, 15-17	3
34	ID & record decorated floor tile	IB	3, 5-7, 15-17	8
35	prepare dated context list	IB	2-3, 5-7, 15, 17	3
36	record priority rooftile	IB	3, 5-7, 15-17	10
37	input records to ORACLE	IB	3, 5-7, 15-17	3
38	complete analytical report	IB	3, 5-7, 15-17	18
39	edit integrated text	IB	3, 5-7, 15-17	1
40	attend project meetings	IB	3, 5-7, 15-17	1
	Post-Roman CBM subtotal			**55**
PREHISTORIC ACCESSIONED FINDS & FLINTS				
PS&L	input acc finds and 274 flints	PM		1.5
PS&L	prepare analytical report	?JC		2
PS&L	**Prehistoric accessioned finds subtotal**			**3.5**
ROMAN ACCESSIONED FINDS				
RS	scan *c* 60 accessioned finds	AW		1
RS	prepare analytical report on <10	AW		1
RS	**Roman accessioned finds subtotal**			**2**

ACCESSIONED FINDS				
41	spot-date remaining datable objs	GE	3, 5-7, 15, 17	5
42	catalogue description of objects	GE	2-3, 7, 9, 11-12, 14-17	30
43	summary of medieval glass	GE	6, 15-16	5
44	create analytical report	GE	2-3, 6-7, 9, 11-12, 14-17	5
	Accessioned finds subtotal			**45**
CONSERVATION				
45	stabilise glass	KST	2-3, 6-7, 9, 11-12, 14-17	3
46	stabilise 85 copper objects	KST	2-3, 7, 9, 11-12, 14-17	4
47	stabilise 40 iron objects	KST	2-3, 7, 9, 11-12, 14-17	4
48	stabilise 73 lead objects	KST	2-3, 7, 9, 11-12, 14-17	3
49	consolidate 4 ivory objects	KST	2-3, 7, 9, 11-12, 14-17	2
50	analytical work on window glass	KST	6, 15-16	2
51	window glass decoration analysis	KST	6, 15-16	5
52	Materials analysis	KST	2-3, 7, 9, 11-12, 14-17	5
53	Completion of analytical report	KST	2-3, 7, 9, 11-12, 14-17	2
	Conservation subtotal			**30**
MEDIEVAL WORKED STONE				
54	select priority typestones	MS	5-6, 12, 15-17	5
55	record 200 priority typestones	MS	5-6, 12, 15-17	80
56	prepare rough stone drawings	MS	5-6, 12, 15-17	45
57	prepare catalogue	MS	5-6, 12, 15-17	30
58	prepare analytical report	MS	5-6, 12, 15-17	10
59	edit integrated text	MS	5-6, 12, 15-17	2
60	attend project meetings	MS	5-6, 12, 15-17	1
	Medieval worked stone subtotal			**173**

HUMAN REMAINS				
61	access/return skeletons to store	WW	7, 12-14, 16	1
62	record human skeletons	WW	7, 12-14, 16	76
63	enter data onto ORACLE	WW	7, 12-14, 16	10
64	radiography	WW	7, 12-14, 16	1
65	liaison with photography/graphics	WW	7, 12-14, 16	1
66	epidemiological/statistic analysis	WW	7, 12-14, 16	15
67	comparing assemblages	WW	7, 12-14, 16	3
68	complete analytical report	WW	7, 12-14, 16	20
69	edit integrated text	WW	7, 12-14, 16	2
70	attend project meetings	WW	7, 12-14, 16	1
	Human bone subtotal			**130**
ANIMAL BONE				
71	analysis of mammal bone	KR	2, 7, 9, 11, 15-16	32
72	analysis of fish bone	AL	2, 7, 9, 11, 15-16	10
73	prepare mammal analytical report	KR	2, 7, 9, 11, 15-16	20
74	prepare fish bone analytical report	AL	2, 7, 9, 11, 15-16	1
75	edit integrated text	KR	2, 7, 9, 11, 15-16	1
76	attend project meetings	KR	2, 7, 9, 11, 15-16	1
	Animal bone subtotal			**65**
DOCUMENTARY RESEARCH				
77	trawl published documents	TD	2, 4-10, 12-15, 17	10
78	research primary sources	TD	2, 4-10, 12-15, 17	40
79	prepare analytical report	TD	2, 4-10, 12-15, 17	25
	Documentary research subtotal			**75**

PREHISTORIC GRAPHICS				
PS&L	Illustrate 35 prehist pot sherds	Graphics		7
PS&L	Illustrate 20 prehist flint blades	Graphics		5
PS&L	Illustrate 4 flint cores	Graphics		3
PS&L	**Prehistoric graphics subtotal**			**15**
ROMAN GRAPHICS				
RS	Illustrate 1 Prehist access find	Graphics		0.5
RS	Illustrate 7 Roman access finds	Graphics		4
RS	**Roman graphics subtotal**			**4.5**
GIS ANALYSIS				
80	clean data for ArcView	JB	all	10
81	digitise Grimes subgroups	JB	1, 3-7, 12, 16-17	10
82	digitise non-structural groups	JB	all	6
83	sort digital evidence of landuse	JB/AS	all	8
84	coordinate GIS/ArcView queries	PR	all	5
	IT Subtotal			**39**
POST-ROMAN GRAPHICS, PHOTOGRAPHY				
85	produce strat publication drawings	Graphics	all	90
86	Illustrate 50 pots @ c 6/day	Graphics	7, 9, 11, 14-17	9
87	Illustrate 116 CBM items @ 4/day	Graphics	3, 5-7, 15-17	29
88	Illustrate 45 stones @ 1/day	Graphics	5-6, 12, 15-17	45
89	Illustrate 70 acc finds @ 2/day	Graphics	2-3, 6-7, 9, 11-12, 14-17	35
90	Layout, paste-up, mark-up	Graphics	all	10
91	photography	AC	all	15
	Graphics subtotal			**233**

PROJECT MANAGEMENT AND EDITING				
92	project management	DM	all	15
93	internal academic advisor	BS	all	15
94	external academic advisor	RG	all	12
95	internal edit	JS	all	10
96	external edit	E. Heritage	all	
97	curation & storage	--	--	--
	Project manage/edit subtotal			**72**
GRAND TOTAL				
98*	copy edit	TD		20
99*	page layout	TW		30
100*	index	external		10
101*	artwork/design/cover	TW		5
102*	proof-reading/final corrections	AS/BS		20
103*	printing	external		??
	Production subtotal			

Key to Staffing:

IB	Ian Betts	**RG**	Roberta Gilchrist	**PR**	Peter Rauxloh
JB	Josephine Brown	**JG**	John Giorgi	**KR**	Kevin Rielly
AC	Andy Chopping	**AL**	Alison Locker	**MS**	Mark Samuel
TD	Tony Dyson	**DM**	Dick Malt	**JS**	John Schofield
GE	Geoff Egan	**JP**	Jacqui Pearce	**BS**	Barney Sloane
AS	Alison Steele				
KST	Kirsten Suenson-Taylor				
TW	Tracy Wellman				
WW	William White				

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Tony Dyson (documentary evidence)
Geoff Egan (post-Roman accessioned finds)
John Giorgi (plant remains)
Kieron Heard (clay tobacco pipes)
Dick Malt (project management)
Jacqueline Pearce (post-Roman pottery)
Louise Rayner (Iron Age and Roman pottery)
Kevin Rielly (bird, mammal and fishbone)
Mark Samuel (medieval worked stone)
Kikar Singh and Susan Banks (graphics)
Barney Sloane (project navigator)
Kirsten Svenson-Taylor and Dana Goodburn-Brown (conservation)
Tony Waldron with Janice Conheeney (human bone)
Angela Wardle (Roman accessioned finds)

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12 APPENDICES: COSTS AND TIMETABLE

Table 25: Comparative Published Cemetery Sites

SITE	AUTHOR	DATE	TYPE
Union Terrace York	Dawes	Medieval	Hospice for ageing clergy
St Margaret High Wycombe Bucks	Farley & Manchester	Medieval	Leper hospital
SS James & Mary Magdalene Chichester	Lee & Magilton	1118-1700	Leper hospital
Holy Trinity Priory London	Downs	C12-13th	Urban Priory
Austin Friars Leicester	Stirland	Medieval	Urban Friary
Dominican Friary Guildford	Henderson	Medieval	Urban Friary
Greyfriars Oxford	Mays	Medieval	Urban Friary
Dominican Friary Chester	West	Medieval	Urban Friary
Dominican Friary Oxford	Lambrick	1236-1538	Urban Friary
Chelmsford Friary	Bayley	Medieval	Urban Friary
St Mary's Chester	Cave	C14th	Urban Nunnery
Dartford Priory Kent	Osborne	Medieval	Urban Priory
Cathedral Priory of St Mary Coventry	Brothwell	Medieval	Urban Priory
Stratford Langthorne, London		Medieval	Suburban Abbey
Bordesley Abbey Redditch	Everton	Medieval	Rural Abbey
Whitefriars Ipswich	Mays	1278-1538	Urban Friary
Blackfriars Ipswich	Mays	1263-1538	Urban Friary
All Saints Oxford	Mays	Medieval	Urban Parish Church
St Nicholas Shambles London	White	C11-12th	Urban Parish Church
St Helen-on-the-Walls York	Dawes & Magilton	Medieval	Urban Parish Church
Mitre Street London	West	Late Saxon	?Urban Parish Church
Mansell Street London	West		1730-1770
Suburban Cemetery			
Broadgate London	White	1659-C18	Urban Cemetery
Spital Square London	White	Medieval	Suburban Hospital