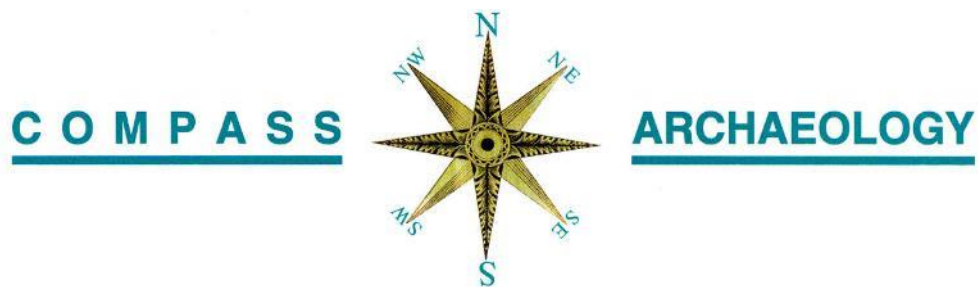


IMPROVEMENT WORKS BY ST PAUL'S CATHEDRAL, LUDGATE HILL, CITY OF LONDON EC4M 8AD

AN ARCHAEOLOGICAL WATCHING BRIEF REPORT



March 2019

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Abstract

Between the 18th January and 19th February 2019 Compass Archaeology undertook an archaeological watching brief at the western end of Paternoster Row, City of London EC4M 8AD. The work was commissioned by the City of London Department of the Built Environment due to the site's location within an Archaeological Priority Area and close proximity to the Grade I Listed Cathedral Church of St Paul. The watching brief monitored the completion of a single L-shaped trench, excavated to accommodate the installation of a series of new security bollards.

The works exposed several phases of activity dating from the 11th to 17th century. The earliest recorded feature comprised a well-compacted chalk, mortar and gravel surface, interpreted as part of an open 'yard' area to the west of St Paul's, believed to have been in existence by the 11th-12th century.

This surface was later truncated on two separate occasions. The first occasion consisted of a single inhumation, aligned approximately east-west. There was no evidence of a coffin or coffin furniture and no associated finds were recovered. Osteological analysis indicates the remains are consistent with that of a juvenile aged 12 ± 2.5 years, however due to the limited nature to which the burial was observed and lack of evidence, no further context can be given. A provisional terminus post quem of c12th-13th century is given.

The 'yard' surface was cut on a second occasion by a large red brick structure, the corner of which was observed running north-south / east-west. The structure comprised a brick basement with a whitish rendered interior and single internal buttress. Analysis of brick samples dates the structure to 1450-1700, although the small quantities of charcoal in the mortar would indicate a construction date of pre-1666. A Parliamentary Survey completed in the 1650s suggests the building may be a tenement, which stood to the immediate west of Inigo Jones's 1630s cathedral portico.

A significant quantity of charnel material, and a further single articulated burial were recovered from the watching brief. This material is taken to be clearance from St Paul's Churchyard, some of which was identified as charnel from MoLA investigations in 2000 (PWT00).

The significant archaeological features were encountered between depths of 1.06m and 1.70m (14.70 – 14.06mOD). Natural geology was not reached.

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Fig.7 adapted from Schofield (2016) fig.2.

Fig.10 adapted from drawing STP-TOP-100-2D supplied by Sophia Daniel, City of London Department of the Built Environment.

Fig.24 Adapted from Schofield (2011) fig.5.38.

1 INTRODUCTION

- 1.1 This document forms a summary of results for an archaeological watching brief undertaken at the western end of St Paul's Cathedral, City of London EC4M 8AD (fig.1). The work took place between the 18th January and 19th February 2019.

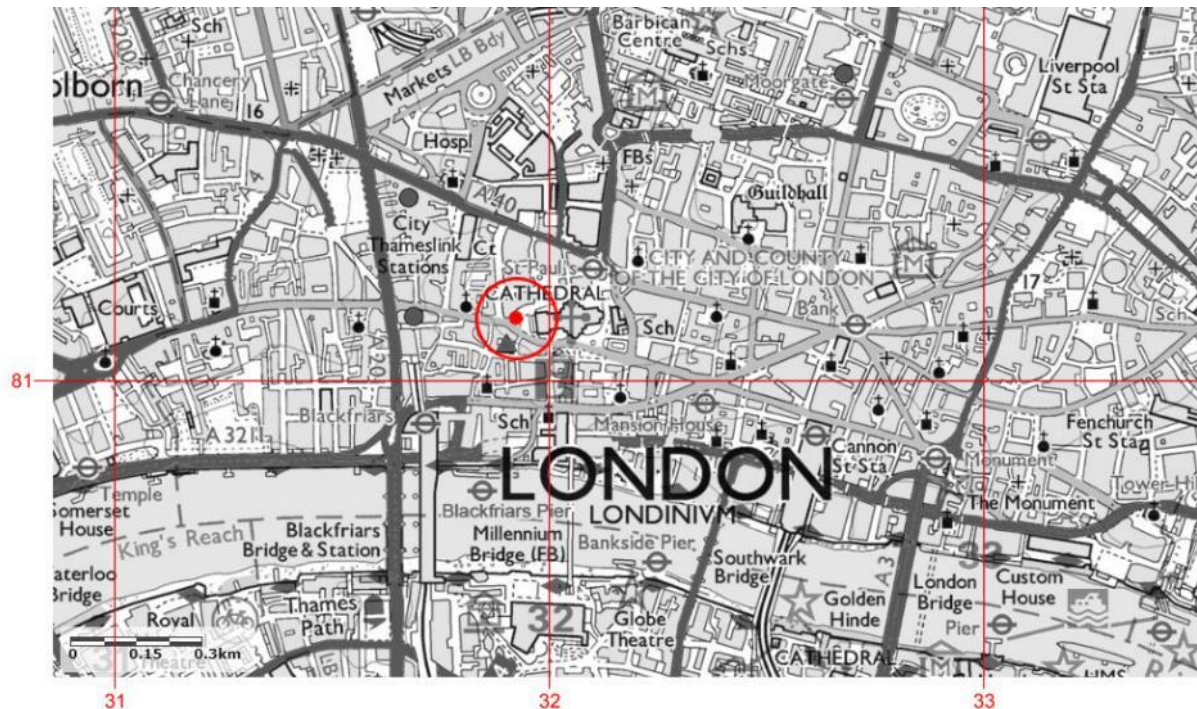


Figure 1: Site location, marked in red.

- 1.2 The watching brief was commissioned by Sophia Daniel, City of London Department of the Built Environment due to the site's location within a historically significant landscape.
- 1.3 The site is located within the *City of London* Tier 1 Archaeological Priority and lies immediately adjacent to the Listed Buildings of *40 stone posts to forecourt of Cathedral Church of St Paul* (Grade II: UID 1358872), *Statue of Queen Anne in forecourt of St Paul's Cathedral* (Grade II: UID 1079158), *Four Lamp Posts outside the western entrance to St Paul's Cathedral* (Grade II: UID 1433513) and *Cathedral Church of St Paul* (Grade I: UID 1079157) (figs.2-3).
- 1.4 The programme of archaeological works comprised a watching brief to monitor the completion of groundworks associated with the installation of new rising security bollards on Paternoster Row. This comprised a single L-shaped trench dug to accommodate the mechanism for the bollards and associated electrical duct work and drainage.

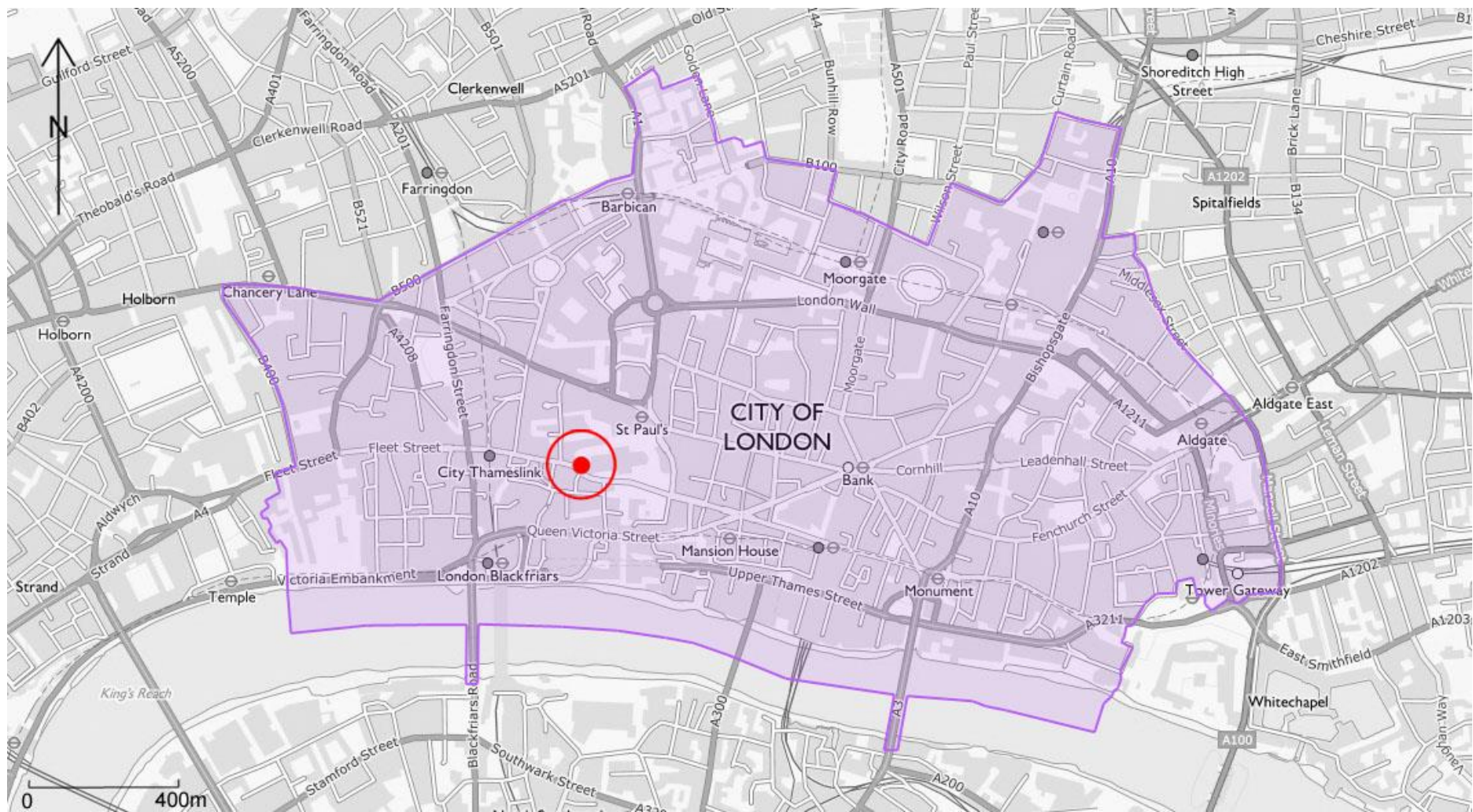


Figure 2: Site location (red) in relation to the City of London Archaeological Priority Area (purple).

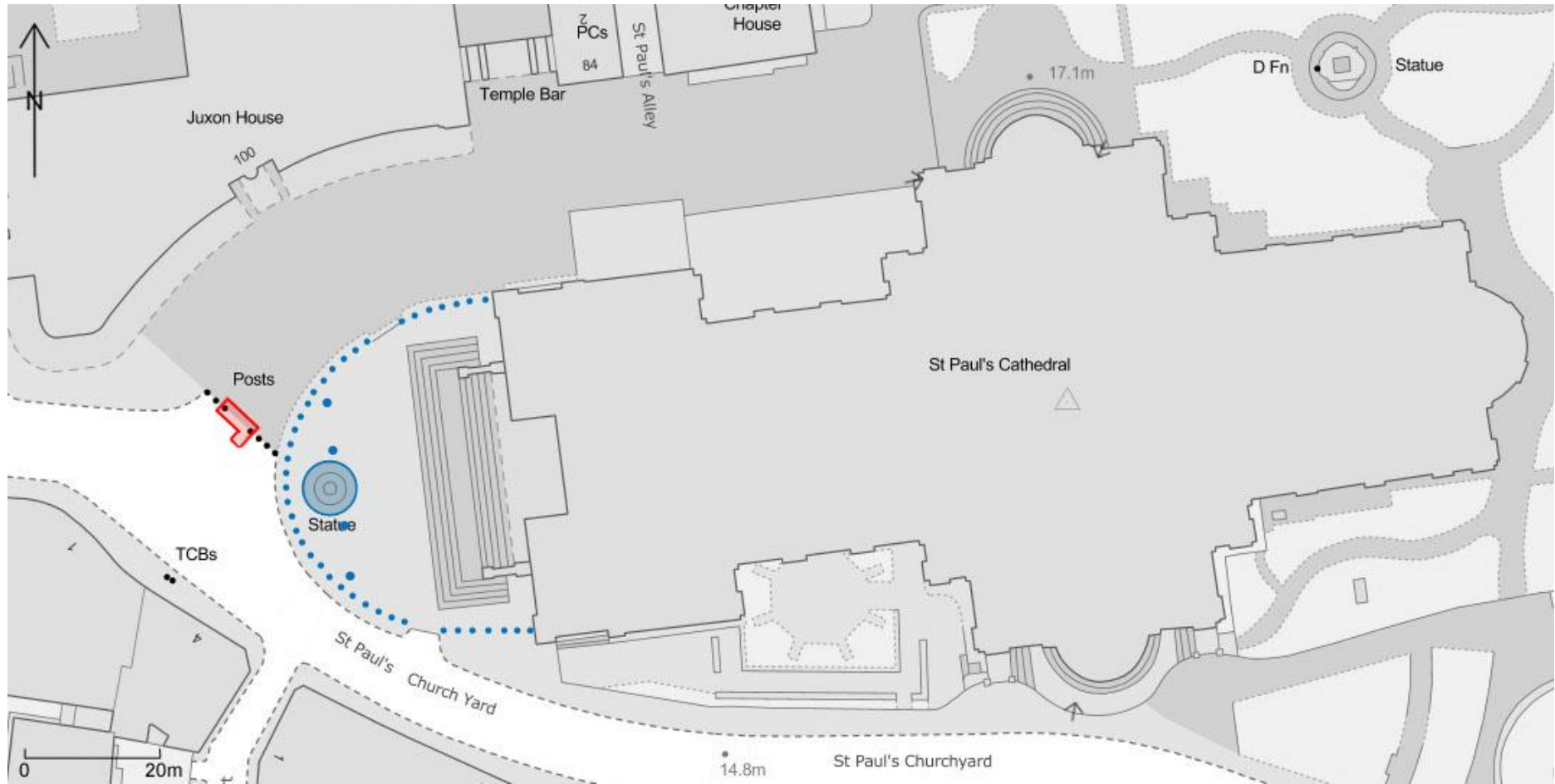


Figure 3: Trench location (red) in relation to the nearest Listed Buildings (blue): 40 stone posts to forecourt of Cathedral Church of St Pauls; Statue of Queen Anne in forecourt of St Paul's Cathedral; and Four Lamp Posts outside the western entrance to St Paul's Cathedral.

2 ACKNOWLEDGEMENTS

2.1 Compass Archaeology would like to thank the City of London Department of the Built Environment for commissioning Compass to undertake the archaeological watching brief and also to Jess Frith, Sophia Daniel, Ben Manku and Kathryn Stubbs, and Riney's for ensuring support and accessibility on site. Additional thanks to John Schofield for providing plans and information.

3 SITE LOCATION, GEOLOGY AND TOPOGRAPHY

3.1 The groundworks were located at the western end of Paternoster Row, at the west end of St Paul's Cathedral. The works area was bounded to the north by Juxon House, west and south by Ludgate Hill and St Paul's Cathedral to the east.

3.2 According to the British Geological Survey (Sheet 256: *North London*) the site lies towards the centre of a small outcropping of Langley Silt, overlying Taplow Gravel and a narrow band of Alluvium, demarcating the extents of the River Thames (fig.4). Patches of London Clay bound the area to the southwest and northwest.

3.3 The site sits relatively level at 15.8mOD, slightly higher than Ludgate Hill which sits at c15.3mOD. In general, the area sits on a north-south slope, heading downwards towards the River Thames, with Carter Lane to the south sitting between 13.6 and 14.6mOD.

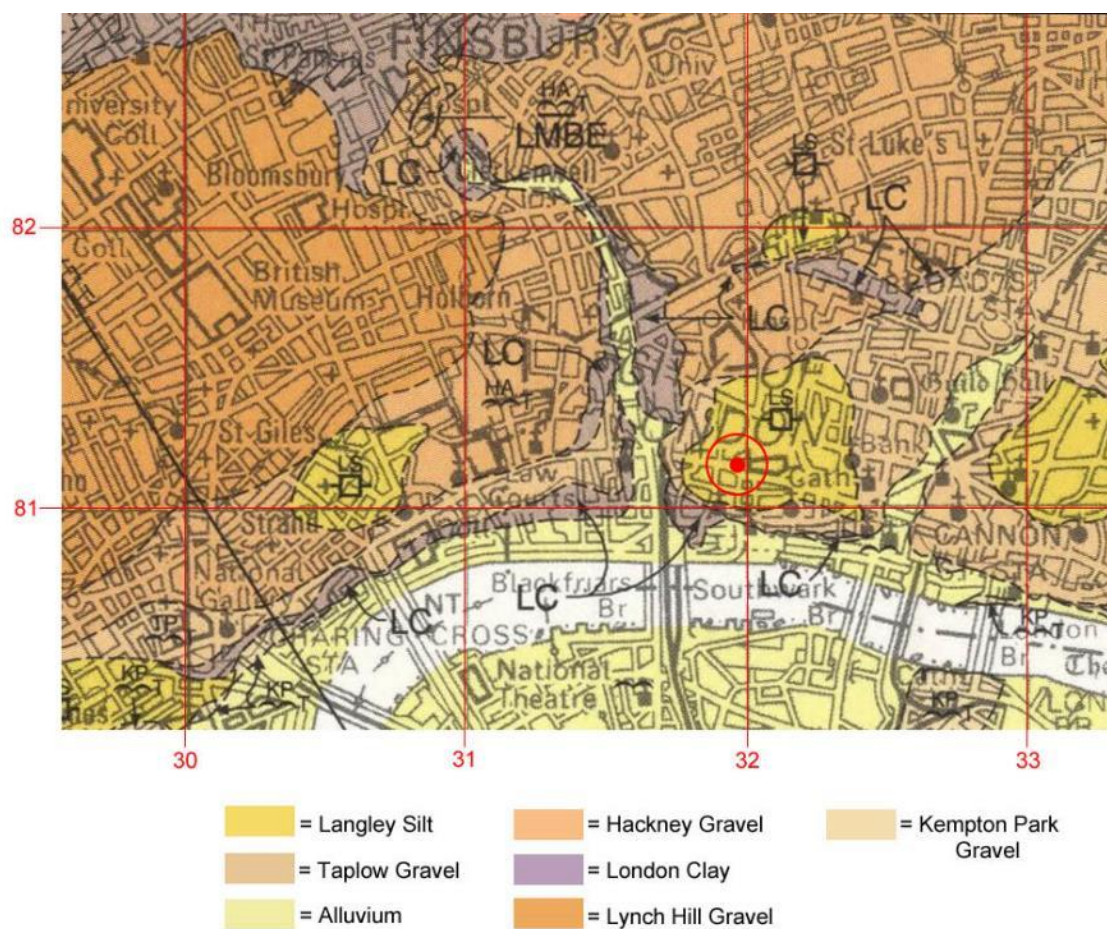


Figure 4: Extract from the BGS (1993) with site location marked in red.

4 ARCHAEOLOGICAL AND HISTORIC BACKGROUND

Due to the site's location within the City of London the archaeological and historical background of the site is well documented, and discussed at length in the preceding Written Scheme of Investigation (MoLA 2018) so shall not be reproduced at length here. Instead a short summary of the major historical periods is given.

4.1 *Prehistoric*

During the prehistoric period much of the archaeological evidence for activity / occupation is concentrated close to the River Thames, often on gravel islands, or eyots, which afforded higher and dryer ground, space and a regular subsistence supply favoured by a hunter-gatherer lifestyle.

Much of the evidence for prehistoric activity in the area was recovered from Newgate Street. Excavations from sites along this street have recovered sherds of Middle to Late Bronze Age pottery, and possible evidence of an agricultural system including ditches, pits and a potential fence line.

Elsewhere, 29 prehistoric pottery sherds were recovered during work at 1 London Wall between 2001 and 2002 (MoLA), in addition to seven sherds of Deverel-Rimbury ware urn, tentatively dated to the Middle or Late Bronze Age. A single fragment of a small vessel used to hold milk based products was recovered from St Martins le Grand, dated to c800-500BC.

In general, the archaeological evidence of the prehistoric period is limited, occurring predominantly as isolated findspots. There is no indication that there was any large scale occupation or activity taking place in the vicinity of what is now Paternoster Row during the prehistoric period.

4.2 *Roman*

Following the successful Claudian invasion in AD43 a fortified settlement was established. *Londinium* comprised a playing card shaped fortress centred on the present day London Wall / Wood Street, with a civilian settlement extending from Ludgate Hill in the west to Aldgate / Tower Hill in the east. Fleet Street, to the west, was established as a thoroughfare leading from Ludgate, however the surrounding area was predominantly marshy and as such was not exploited much beyond the limits of the road.

Archaeological assessments conducted on the surrounding area have recorded several ditches and pits, however, towards Blackfriars Bridge a section of tessellated floor was exposed in a crypt, suggesting the presence of a substantial building such as a villa.

Londinium served as a major port and commercial centre for Roman Britain until its abandonment during the 5th century. The fort and surrounding vicus began to decline in the early to mid-4th century as troops were relocated further north to defend the border near Hadrian's Wall. Eventually, in the early 5th century trade and communication links with Britain had broken down due to territorial disputes in mainland Europe, leading to the complete withdrawal of a Roman presence.

4.3 *Saxon*

In the post-Roman period the commercial centre moved further west, with the Saxon settlement of *Lundenwic* being established in the area of Covent Garden. Archaeological evidence of activity and occupation is more pronounced in the vicinity of the site during this period, as a result of its proximity to this new centre, and significantly, the founding of St Paul's Cathedral in the early 7th century.

Documentary evidence indicates the cathedral was founded in 604-606, however due to extensive phases of later rebuilding this has not been corroborated archaeologically. Based on the presence of Middle Saxon finds recovered from residual contexts there appears to have been some form of predominantly ecclesiastical settlement to the south of St Paul's, and concentrated areas of activity to the south and west of the present Cathedral complex. Investigations at Juxon House, immediately adjacent to the works area recorded a Saxon ditch which was backfilled in the early 12th century.

A number of burials have also been recorded in the vicinity, dated to between the 8th and 10th centuries. Given their location, it is likely they have some association with St Paul's Churchyard although the nature of this relationship is unknown. By the 11th and 12th centuries much of the area had been cleared to create an open space and by 1200 the burials had been encompassed within the precinct walls.

4.4 *Medieval*

During the medieval period the site and its immediate environs remained a focal point for religious occupation and activity. The groundworks lay within the precinct of St Paul's and there is some evidence that part of the Bishop of London's palace and adjoining 'Vicar's Close' tenements were within the site area. The investigations at Juxon House recovered a pier base foundation, which may indicate the position of a gate into one of the enclosures within the precinct, along with a chalk lined cess pit containing a copper alloy candle stick. This cess pit feature is taken to relate to a nearby building, but it is unclear if this is the Cathedral or Bishop's Palace.

To the north, what is now Newgate Street became the home of the Greyfriars, who occupied the site up until the Dissolution. The fraternity of Holy Trinity, established in 1377 occupied land at 191 Aldersgate Street, whilst Noble Street was home to the church of St Anne (and/or St Agnes) throughout the 12th and 13th centuries.

Following the Dissolution much of the interior ornamentation was destroyed many of the buildings in the Churchyard were seized by the Crown and sold.

St Paul's Cathedral underwent its fourth, and most notable rebuild during this period. Generally known as Old St Paul's, the complex was begun in 1087, but was interrupted by fire in 1136, and finally consecrated in 1240. Enlargement works were commenced in 1256 and finished by 1314. Antiquarian excavations demonstrated that the new building was 178m in length x 30m in width, widening to 87m across at the transepts.

4.5 Post-medieval

Following a large conflagration in 1561 King James 1, concerned about the decaying state of the building appointed Inigo Jones to restore the cathedral (fig.5). In addition to renovating the interior and rebuilding parts of the Gothic structure Jones added a classical style portico to the west front in the 1630s. Work was halted during the Civil War, and the building again suffered episodes of damage. It is likely the area was much transformed during this period, both through parliamentarian actions and the erection of fortifications in the vicinity of the cathedral building. Old St Paul's was finally altered completely as a result of the Great Fire in 1666 (fig.6).

After the Restoration of King Charles I, Surveyor Christopher Wren was appointed to restore the complex in a style matching Inigo Jones's classical additions on 1630 (fig.7). The shell of Old St Paul's was remodelled and the spire replaced with the dome. The Cathedral and its surrounding environs has changed little since, with the exception of localised bomb damage caused during the Blitz (figs.8-9).



Figure 5: Extract from the 'Agas' Map (1561), with approximate site location marked in red.



Figure 6: Extract from Ogilby & Morgan's Large Scale Map of the City as Rebuilt by 1676, with approximate site location marked in red.

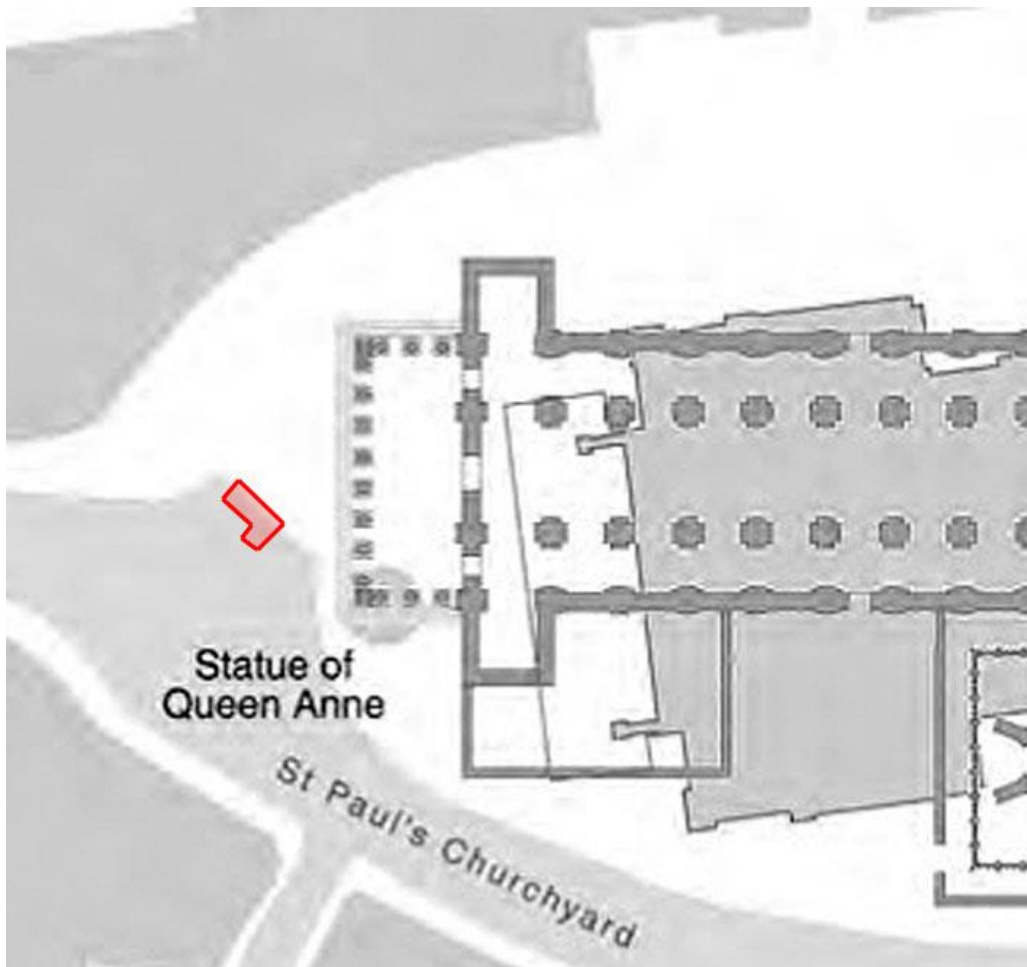


Figure 7: Trench location (red) in relation to the old and new cathedrals. Adapted from Schofield (2016) fig.2.



Figure 8: Extract from Horwood's Plan of the Cities of London and Westminster (1799) with site location marked in red.



Figure 9: Extract from the Ordnance Survey five-foot-to-the-mile map (1895) with trench location marked in red. Ruined and former elements of Old St Paul's are also marked.

5 PLANNING AND OBJECTIVES

5.1 The groundworks entailed the completion of a single trench located at the western end Paternoster Row. The main trench measured 4.2m in length (E-W) x 2.3m in width x 1.7m in depth (14.06mOD). A smaller area in the southeast corner was also opened up, measuring 1.5m x 1.5m x 1.7m in depth to accommodate a manhole connection to the existing sewer (fig.10).



Figure 10: Completed trench (red).

5.2 The excavation works were undertaken via mechanical excavator fitted with a toothless grading bucket.

5.3 The work followed the standards set out in the London Plan (2016 and currently in draft) (*Chapter Seven: London’s Living Spaces and Places*) which states that new developments are expected to align with the following procedures:

Historic Environment and Landscapes

Policy 7.8 *Heritage assets and archaeology*

Strategic

- A** *London’s heritage assets and historic environment, including listed buildings, registered historic parks and gardens and other natural and historic landscapes, conservation areas, World Heritage Sites, registered battlefields, scheduled monuments, archaeological remains and memorials should be identified, so that the desirability of sustaining and enhancing their significance and of utilising their positive role in place shaping can be taken into account.*

- B** *Development should incorporate measures that identify, record, interpret, protect and, where appropriate, present the site’s archaeology.*

Planning decisions

- C** *Development should identify, value, conserve, restore, re-use and incorporate heritage assets, where appropriate.*
- D** *Development affecting heritage assets and their settings should conserve their significance, by being sympathetic to their form, scale, materials and architectural design.*
- E** *New development should make provision for the protection of archaeological resources, landscapes, and significant memorials. The physical assets should, where possible, be made available to the public on-site. Where the archaeological asset or memorial cannot be preserved or managed on-site, provision must be made for the investigation, understanding, recording, dissemination and archiving of that asset.*

LDF Preparation

- F** *Boroughs should, in LDF policies, seek to maintain and enhance the contribution of built, landscaped and buried heritage to London's environmental quality, cultural identity and economy as part of managing London's ability to accommodate change and regeneration.*
- G** *Boroughs, in consultation with English Heritage, Natural England and other relevant statutory organisations, should include appropriate policies in their LDFs for identifying, protecting, enhancing and improving access to the historic environment and heritage assets and their settings where appropriate, and to archaeological assets, memorials and historic and natural landscape character within their area.*

5.4 In addition to the policy outlined above, the City of London has its own, additional policies concerning archaeological remains and other heritage assets, laid out within the *Local Plan* (adopted 2015), including Core Strategic Policy CS12: Historic Environment and Development Management Policies DM12.1 to 12.5. Of particular significance here is policy DM12.4, set out thus:

Policy DM12.4 Ancient monuments and archaeology

1. *To require planning applications which involve excavation or ground works on sites of archaeological potential to be accompanied by an archaeological assessment and evaluation of the site, including the impact of the proposed development.*
2. *To preserve, protect, safeguard and enhance archaeological monuments, remains and their settings in development, and to seek a public display and interpretation, where appropriate.*
3. *To require proper investigation and recording of archaeological remains as an integral part of a development programme, and publication and archiving of results to advance understanding.*

6 METHODOLOGY

6.1 Standards

6.1.1 The field and post-excavation work was carried out in accordance with Historic England guidelines (*Greater London Archaeology Advisory Service: Standards for Archaeological Work, 2015*). Works also conformed to the standards of the Chartered Institute for Archaeologists (*Standard and guidance for an archaeological watching brief 2015*). Overall management of the project was undertaken by a full member of the Chartered Institute.

6.1.2 Fieldwork was carried out in accordance with the Construction (Health, Safety & Welfare) Regulations. All members of the fieldwork team held valid CSCS (Construction Skills Certificate Scheme) cards, and wore hi-vis jackets, hard-hats, steel-toe-capped boots, etc., as required. All members of the fieldwork team also followed the contractors' health and safety guidelines.

6.1.3 The Client, City of London Department of the Built Environment and St Paul's Cathedral were kept informed of the progress of fieldwork and any finds recovered.

6.2 Fieldwork

6.2.1 The archaeological watching brief took place during the completion of groundworks associated with the installation of security bollards at the western end of Paternoster Row.

6.2.2 The work was undertaken between the 18th January and 19th February 2019, under archaeological supervision.

6.2.3 Archaeological contexts were recorded as appropriate on *pro-forma* sheets by written and measured description, and drawn in plan or section, generally at scales of 1:10 or 1:20. The investigations were recorded on a general site plan and related to the Ordnance Survey grid. Levels were taken on archaeological features or deposits, transferred from the nearest Ordnance Datum Benchmark, a spot height noted on Topographic Survey Plans *Paternoster Row*, at 15.76mOD. The fieldwork record was supplemented by digital photography, in.jpeg and RAW formats.

6.2.4 The recording system followed the procedures set out in the Museum of London recording manual. By agreement the recording and drawing sheets used are directly compatible with those developed by the Museum.

6.3 Post-excavation

The fieldwork was followed by off-site assessment and compilation of a report, and by ordering and deposition of the site archive.

6.3.1 Finds and samples

6.3.1.1 Assessment of finds was undertaken by appropriately qualified staff (see Appendices III-VII). Finds and samples were treated in accordance with the appropriate guidelines,

including CIfA's '*Standard and Guidance for the collection, documentation, conservation and research of archaeological materials*' (2014).

6.3.1.2 All identified finds and artefacts have been retained and bagged with unique numbers related to the context record, although certain classes of ceramic building material were discarded after an appropriate record was made. Sensitive artefacts will be properly treated, in line with the appropriate Standards as stated above.

6.4 Report procedure

6.4.1 This report contains a description of the fieldwork plus details of any archaeological remains or finds, and an interpretation of the associated deposits. Illustrations have been included as appropriate, including a site plan located to the OS grid. A short summary of the project has been appended using the OASIS Data Collection Form.

6.4.2 Copies of this report will be supplied to the Client, St Paul's Cathedral and City of London Department of the Built Environment.

6.4.3 There is no provision for further analysis or publication of significant findings. Should these be made the requirements would need to be discussed and agreed with the Client.

6.5 The site archive

Assuming that no further work is required, an ordered indexed and internally consistent archive of the evaluation will be compiled in line with MoL Guidelines for the Preparation of Archaeological Archives, and will be deposited in the Museum of London Archaeological Archive under site code PAT19. The integrity of the site archive should be maintained, and the landowner will be urged to donate any archaeological finds to the Museum.

7 RESULTS

- 7.1** The following forms a written description of observations made during the watching brief. The works are discussed in chronological order, covering the main trench and subsequent re-cut. Deposits are shown as (x), cuts and structures as [x]. The text is supplemented with illustrative photographs. For a full context list refer to Appendix I.
- 7.2** The trench was located at the western end of Paternoster Row, between Juxon House to the north-west and a statue of Queen Anne to the south-east. The completed trench was L-shaped in plan, measuring 2.7-4.2m in length x 2.3-3.8m in width x 1.7m in depth (14.06mOD) (fig.11).



Figure 11: Working shot of partially complete trench. Facing NNW. No scale.

- 7.3** The stratigraphy in the upper part of the trench comprised 200mm thick cobbled paving bonded with a mid-grey mortar (1) overlying two layers of light grey to mid-grey bedding concrete (2), measuring 70 and 130mm in thickness. In the northwestern half of the trench the existing paved surface and bedding sealed a layer of moderately compacted orange-yellow sand containing a small quantity of angular stones (3). The layer measured approximately 3.0m in length x 50mm in thickness. At the southeastern end of the trench contexts (1) and (2) directly overlay a large deposit of moderately compacted mid to dark

brown soil, containing frequent stones, small pieces of concrete, ceramic building material (CBM) and less frequent roots (4) (fig.12).



Figure 12: Main trench, showing basement structure [10] in the foreground with contexts (1) – (4) seen in section. Facing NW. Scale 0.5m.

- 7.4** Context (4) was observed across the trench entirety measuring 0.75m in thickness, overlying structure [10] discussed below. The deposit was thicker in the northern and eastern corners of the trench, measuring 1m in thickness. It was truncated towards the northern end of the trench by a post-medieval gas main. Small quantities of pottery, CBM and oyster shell were recovered from this context (see Appendices III, IV and VII).
- 7.5** The most substantial feature encountered during the watching brief was the corner of a large brick structure aligned N-S / E-W. The red brick structure was encountered at a depth of 1.15-1.2m below ground level (14.61-14.56mOD). The structure, [10], comprised two main walls aligned east-west / north-south, forming a corner towards the centre of the southwest facing section (fig.13). An internal buttress was also observed, projecting north-south. The structure was built within construction cut [9].



Figure 13: Brick structure [10]. Facing SE. Scale 1m.

- 7.6** The bricks were unfrogged, measuring 230 x 110 x 65mm, bonded with a thick grey mortar. The walls measured at least eight courses in height (0.6m) continuing below the level of excavation at 1.7m (14.06mOD). The upper course appeared to be more thickly laid with mortar and perhaps a rubble core, however this was not observed in the lower courses (fig.14). The north-south aligned wall, forming the eastern part of the structure measured 2.6m in length x 0.5m in width. The east-west wall was substantially wider, measuring 3.2m in length x 0.75m in width (fig.15).
- 7.7** The interior of the structure was filled by a homogenous deposit of demolition rubble consisting of a powdery whitish mortar and brown soil mix abundant with fragments of CBM, including brick and tile (12).



Figure 14: Eastern end of structure [10], showing a mortared top (right of frame), internal buttress (left of frame) and whitish rendered interior. Facing NE. Scale 0.5m.



Figure 15: Western end of structure [10], showing the exterior face. Facing S. Scale 1m.

7.8 Several faces of the structure were rendered with a whitish grey plaster, indicating an interior space. This confirms that the observable section comprises the northeastern corner of a north-south / east-west aligned building. Analysis of bricks samples taken from the building, presumably a basement of some form, has provided a date of 1450-1700. Sparse charcoal flecks were noted in the mortar, suggesting the building may have been constructed pre-1666. At present a provisional date of early-17th century has been given for the building.

- 7.9** The discrepancy between the widths of the two walls is unclear and interpretation has been hindered by a post-medieval gas main running NE-SW through the trench. The cut, [5], measured 0.5m in diameter, observed at a depth of 0.5m below ground level (15.26mOD) and was circular in section. The cut truncated [10] and was then filled by the gas main and a moderately compacted dark brown soil containing frequent fragments of CBM and small stones (6).
- 7.10** Due to the size of building [10] there was little other stratigraphy in the northwestern half of the trench. In the southeastern half however, removal of [10] exposed a quantity of charnel material within the construction cut [9]. The deposit, (13), consisted of a dark brown silty soil abundant with disarticulated human remains and less frequent fragments of CBM, stone, pottery and oyster shell (fig.16).



Figure 16: Charnel material (13) observed in the eastern corner of the trench behind wall [10]. Facing E. Scale 1m.

- 7.11** The deposit was recorded at a depth of 1.0m (14.76mOD) and measured 1.7m in length x 0.3m in width x 0.6m in thickness, with the base being encountered at 14.16mOD. The material was almost exclusively human, however a few animal bones were also observed. Much of the material was tightly packed, extending beyond the limits of excavation and comprised predominantly adult remains. This is not wholly reflective of the local population or indicative of the types of burials when they were *in-situ* as many of the smaller infant and juvenile bones are easily misplaced or broken during relocation.
- 7.12** The upper part of the deposit is taken to have been partially truncated or disturbed by a modern cable duct running between ESE/WNW and SE/NW, [7] / (8).
- 7.13** The material was abutting wall [10] indicating that it was placed into the construction cut [9] after the wall's construction, rather than being truncated by it, giving it a date of post-early-17th century date.

- 7.14** Below the charnel material (13) was a thin spread of moderately compacted dark grey-black silt containing mortar fragments, oyster shell and animal bone (20). The spread sloped down was northeast to southwest, measuring at least 100mm in thickness and continuing below the level of excavation (fig. 17).



Figure 17: Eastern corner of the trench, showing the sloping silty material (20) (beneath the scale) in the gap between wall [10] and surface (14) and (18). Facing E. Scale 0.5m.

- 7.15** Removal of the charnel (13) and dark coloured silt (20) exposed a second substantial feature in the eastern corner of the trench. Two deposits of extremely-well-compacted layers of mid orange-brown gravel were observed in the NW and SW facing sections (14) at a depth of 1.06m (14.70mOD) (fig.18).



Figure 18: Stratigraphy recorded in the eastern corner of the trench, showing gravel deposits (14) overlying surface (18). Charnel material (13) and wall [10] in the foreground. Facing E. Scale 0.5m.

- 7.16** The deposit in the SW facing section measured 610mm in width x 250mm in thickness whilst the deposit in the NW facing section measured 440mm in width x 350mm in thickness. Some truncation has been caused by the modern cable ducts.
- 7.17** Context (14) directly overlay a deposit of well-compacted light brown-beige mortar or concrete, recorded at a depth of 1.41m (14.35mOD). The deposit contained a few stone inclusions and a lighter grey band was observed towards the base. The context, (18) measured 230mm in thickness.
- 7.18** The deposit overlay a band of well-compacted but fairly soft white chalk (19), observed towards the trench base at a depth of 1.63m (13.99mOD) (fig.19).



Figure 19: Eastern corner of the trench. Removal of the silty material (20) to the level of excavation at 1.7m (14.06mOD) exposed a thin band of chalk (19) below surface (18). Wall [10] in the foreground continues below the level of excavation. Facing E. Scale 0.2m.

- 7.19** Contexts (18) and (19) and probably (14) are taken to be the remains of a substantial surface, such as might be found in an open area. No dating evidence was recovered from the contexts so a firm date cannot be proposed. A relative date is discussed in Section 8 below. They were however all cut by the construction for [10], giving it a pre-17th century date.
- 7.20** Significantly, context (14) appeared to have been cut into in the easternmost corner of the trench. The observable part of the cut, [15] measured approximately 320mm in width x a minimum of 250mm in depth, with vertical sides terminating a horizontal base – (18). Presumably when digging the cut excavation was stopped when they encountered the solid surface. The cut was aligned between E-W and ENE-WSW, with its full extent being unknown. An *in-situ* articulated human skeleton was observed, aligned approximately east-west, with the head at the western end.
- 7.21** The cranium and mandible were positioned within the trench, with the cervical vertebrae lying beyond the extents of excavation. Observation of the bones revealed them to be in pristine condition, with both teeth and bone being extremely clean and undisturbed. The palatine process of the maxilla and interior surface of the mandible were pale pink in colour. This may be a result of the pH of the grave fill (16) being affected by the limestone and salt in contexts (14) and (18). See Appendix V for a full discussion.
- 7.22** There were no discernible edges to the fill but it is taken to be truncated at the top by the modern cable ducts.
- 7.23** No dating evidence was recovered from the fill (16) therefore it is only possible to indicate the burial occurred after the ‘yard surface’ went out of use.

- 7.24** Following the completion of the main 4.2m x 2.3m trench a smaller 1.5m² area was excavated to the south to accommodate a connection to an existing sewer. The stratigraphy observed was the same as recorded in the main trench, comprising the existing paving and bedding layers (1) and (2) overlying a thick deposit of made ground (4).
- 7.25** At a depth of 1.5m (14.26mOD) a second deposit of charnel was observed. The material (21) was in a poor state of preservation, with many of the bones being partially or wholly splintered, damp, affixed to concrete, or varying combinations thereof. The remains were commingled with a deposit of metal coffin furniture (figs.20-21). The deposit (21) was identified through the presence of archaeological finds labels, indicating it to be redeposited human remains from excavations on the existing sewer in 2000, monitored by MoLA (PWT00).



Figure 20: Charnel material (21) seen redeposited between wooden shuttering and concrete [22] and (23). Facing SE. Scale 0.5m.



Figure 21: Base of sewer [22] and concrete footing (23) following the removal of the charnel (21). Context (25) can be seen in the foreground at the level of excavation. Facing SE. Scale 0.5m.

- 7.26** The charnel (21) had been placed on top of concrete footing (23) then backfilled with concrete. Although some plastic separated the concrete from the human remains, many had either become adhered to the sewer base or completely covered.
- 7.27** A small sondage dug abutting (23) measuring 0.5m x 0.5m x 0.25m exposed a deposit of grey-black silt, containing infrequent animal bones, however no dating evidence was recovered.
- 7.28** The charnel material was removed to allow access to the sewer and the remains were reburied within the trench.
- 7.29** Within (4), a single inhumation was recorded in the northeast facing section (fig.22). The burial, skeleton 24, was encountered at a depth of 1m (14.76mOD) any may have been within a coffin, although the majority of this had disintegrated leaving only a small quantity of metal flakes. Significantly, although articulated the infant skeleton was upside down, indicating a degree of disturbance / slumping had occurred.



Figure 22: Articulated infant skeleton observed in the NE facing section. The skull can be seen to the left of the top section of the scale, with the ribs and vertebrae continuing upwards above the scale. Facing SW. Scale 0.5m.

- 7.30** The level of excavation was reached at a depth of 1.7m (14.06mOD). Natural geology was not encountered.
- 7.31** The charnel material (13) and (21) were reburied in the trench, protected by a layer of sand and terram. Skeletons 17¹ and 24 were left *-in-situ* and also protected with sand and terram prior to the trench sections being shuttered.

¹ The cranium and mandible of skeleton 17 was removed by the City of London Police for further analysis. The rest of the burial remains in-situ.

8 DISCUSSION

- 8.1** The earliest feature recorded during the watching brief was a well-compacted surface comprising chalk and mortar / concrete bedding layers topped with a thick layer of extremely well compacted gravels. No finds were recovered from these layers to accurately date the feature, however, pottery and CBM recovered from immediately above the surface has been dated to the 13th century. This would indicate the surface likely dates from the medieval period and perhaps was part of the open yard area at the western end of Old St Paul's, believed to have been in existence by the 11th-12th centuries.
- 8.2** This surface was then truncated on two separate occasions. The first was an inhumation, aligned approximately east-west, observed in the easternmost extent of the trench. Although only partially observed the burial was taken to be complete and fully articulated. There was no evidence the burial was placed within a coffin, shroud, or similar covering. Analysis of the maxilla and mandible shows the dentition to be consistent with that of a juvenile aged 12 ± 2.5 years. Due to the lack of evidence and limited extent to which the burial observed no secure date can be given – the burial appears to cut into the gravel layer of the 'yard' surface, giving it a *terminus post quem* of c12th – 13th century.

Several articulated burials were found during the MoLAS work in 2000 (PWT00), recovered from the cut of the Wren culvert – repositioned here from either the culvert work or from elsewhere during the rebuilding of St Paul's following the Great Fire. Some of the higher burials showed little disturbance and as such may have been interred after the culvert had been filled with the earlier burials. However, all of the burials were associated with wood staining and fitments from coffins including decayed plates, handles and studs, and often stacked, none of which was observed during the most recent groundworks. It is therefore unclear if SK17 recorded during the watching brief is related to the inhumations excavated in 2000 or an isolated burial which has fortuitously remained undisturbed.

- 8.3** The 'yard' surface was cut on a second occasion by a large brick structure, the north-east corner of which was observed across the majority of the trench. The walls were aligned north-south / east-west, constructed from unfrosted red bricks, finished on the interior surfaces with a whitish render and taken to form part of a substantial basement. A single internal buttress was also recorded. Analysis of brick samples dates the structure to 1450-1700, although the small quantities of charcoal in the mortar would indicate it is likely to have been constructed prior to the Great Fire in 1666.

Comparison with cartographic sources and plans of the Cathedral also show that this structure would have stood within 10 - 20 feet (c3-6m) of Inigo Jones's 1630s portico – if the two were contemporary (figs.23-24 below). The width of the walls recorded and the strength and quality of finish would suggest a substantial and permanent structure; one which would have not only looked incongruous next to the cathedral entrance, but would also presumably have blocked access – again assuming that the structure also existed above ground and is not the remains of a crypt / vault type feature. The latter distance, c6m, based on plans of the Cathedral grounds is more credible as it would allow space for a yard or street between the two structures.

A plan of the western end of the Cathedral surveyed in 1653 shows the outline of two spaces to the immediate west of the entrance (fig.23).

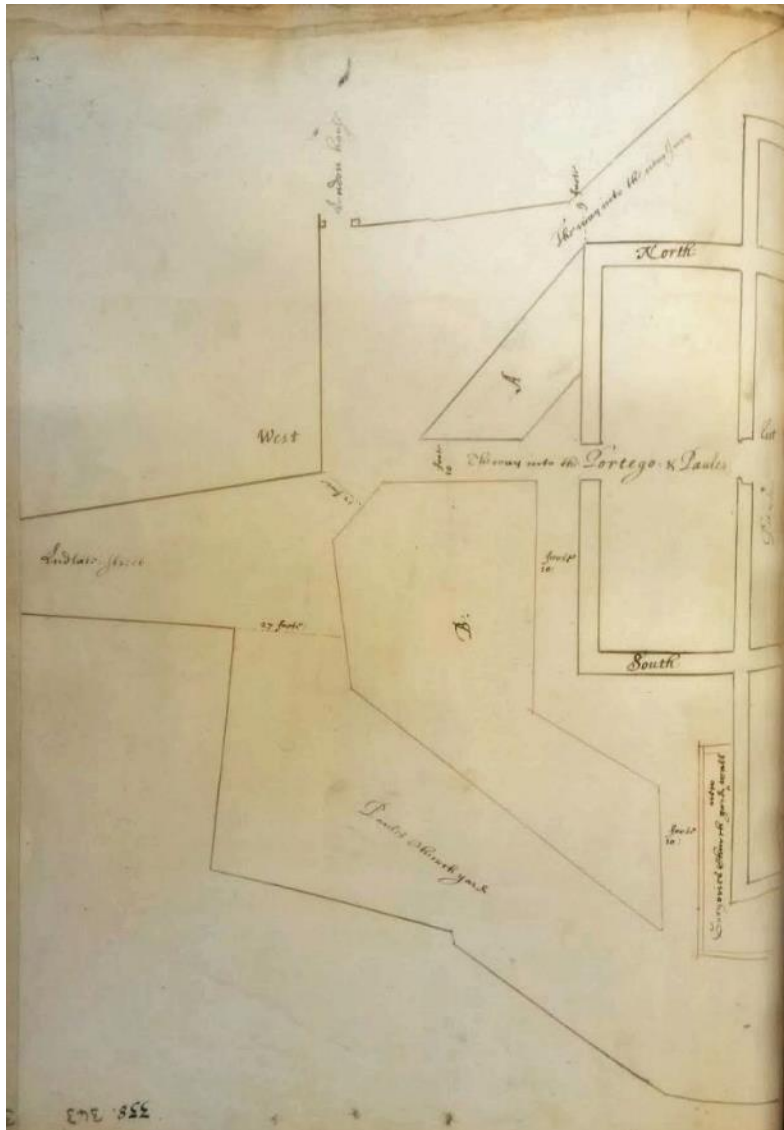


Figure 23: Plan of buildings erected near the Jones portico, surveyed in 1653. Taken from *Parliamentary Surveys of Various Estates of the Dean and Chapter* (held by the LMA 2019).

In the survey, plots ‘A’ and ‘B’ are described as ‘*parcills of wast or voyd ground*’ bordered by a series a narrow passageways between the Portego (portico) and churchyard, measuring between nine and twenty seven feet in width. This indicates at the time of the plan’s creation the two spaces were empty plots. However, a subsequent section of the survey states the following,

‘And the [purchaser] or [purchasers] of the premises is not to build upon and [...] so as to hinder or spoyle the light belonging to any (of) the tenements allready built upon some pt (part) of the wast ground lying on the south and west parts of the said Portego...’.

This reference strongly suggests that at least one of the plots, presumably ‘B’ was partially occupied by a tenement block, taking into consideration that the survey is referring to plots A and B, rather than the buildings fronting Ludgate Street and St Paul’s Churchyard.

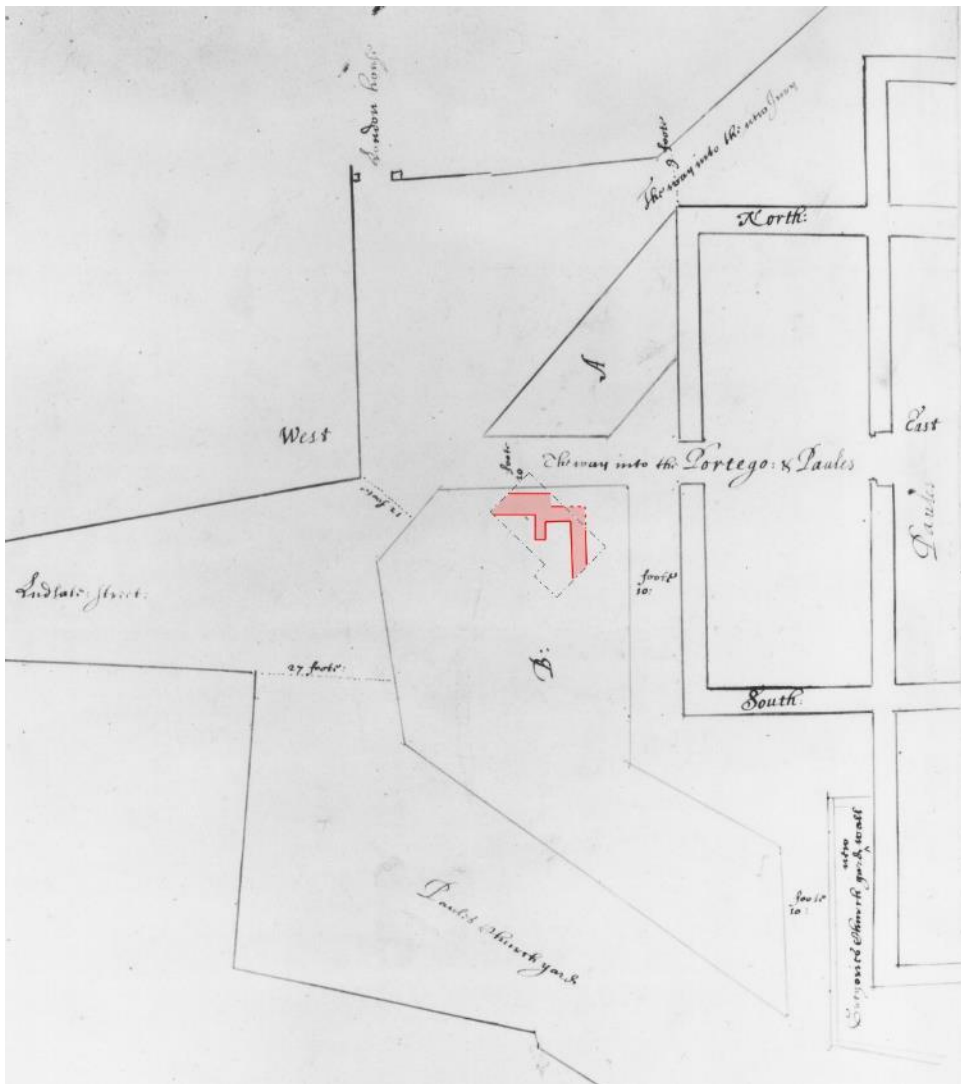


Figure 24: An extract from the 1653 survey with trench overlay, showing the position of the structure encountered during the watching brief. Adapted from Schofield (2011), fig.5.38.

Additional references to a building on this site are made in a complaint against the Dean and Chapter for appropriating an open piece of land commonly used by the Mayor and citizens, called ‘Folkmoot’, and enclosing it with a wall and building houses on it, for their own use (Harben 1918) – although this may have been located to the north-east of the cathedral rather than the south-west. Further, St Paul’s Brewery is first mentioned in 1349 and, at a later date, 18 new shops were to be erected at ‘Powlesbrewerne’, 11 feet in length by 25 feet in breadth. Its location is described as being opposite ‘le Sarazineshead’ in the parish of St George by the church of St Paul.

It can therefore be surmised that the structure recorded during the watching brief may be this tenement building, which flanked the passageway leading to and from the Jones portico, as described in the survey undertaken during the 1650s.

If it is to be assumed the portico and structure [10] were standing at the same time there are several theories as to their close proximity. One hypothesis is that the tenement was already standing when the portico was constructed and the ten feet and twenty-seven feet passages were considered appropriate clearance. As the tenement remained standing after the completion of the portico, this lack of space seems to have been acceptable, although

it must have at least partially impacted upon the view of an otherwise monumental entranceway.

Another theory is that the construction of the brick building observed during the watching brief has some association with the Civil War. If the building dates from the 1640s or 50s it may have been constructed as a result of opportunistic development whilst the area was in turmoil, associated with defence of the St Paul's area, or even a deliberate attempt to reclaim the land and pull focus away from the church.

The majority of the CBM recovered from the watching brief has been dated to between 1450 and 1800, however there were no other finds recovered which could support and date any of these theories.

- 8.4** Due to the lack of secure dating evidence it is unclear in what order the open 'yard' surface was truncated, and whether there is a relationship between the inhumation and the brick building. Both post-date the surface, however no further conclusions can be drawn at this time.
- 8.5** The charnel material removed from the construction cut is taken to be a secondary (at least) deposition site of burials located within St Paul's Churchyard, cleared to make way for the brick building. As the area was already listed as 'wast' or 'voyd' ground in 1653 it is unknown as to when this clearance occurred.
- 8.6** At a later date the building was demolished and the material used to infill the basement, then sealed by a relatively homogenous deposit of made ground. No charcoal-rich deposits were recorded, or material consistent with Great Fire clearance. An absence of sooting on the ceramic building material assemblage may also suggest that much of the archaeology recorded is pre-fire in date.
- 8.7** The made ground overlying the brick building was disturbed more recently on a number of occasions by modern groundworks including the installation of a gas main and cable ducts.

9 CONCLUSION

- 9.1** The watching brief undertaken at the western end of St Paul's Cathedral exposed a number of significant finds and features, consistent with the medieval to early post-medieval occupation of the area.
- 9.2** Analysis of finds indicates that this occupation and activity dates from between the 12th – 13th and 17th centuries, with the majority of said activity occurring prior to the Great Fire of London in 1666.
- 9.3** Due to the proximity to the Jones portico and western end of St Paul's Cathedral the 'yard' surface, single inhumation, possible tenement building and charnel material are taken to be associated with the St Paul's Estate.
- 9.4** The main features described above were encountered between depths of 1.06m and 1.70m (14.70 – 14.06mOD).
- 9.5** Natural geology was not encountered.

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APPENDIX I: CONTEXT LIST

Context	Description
(1)	Cobble stones – existing surface
(2)	Concrete bedding layers
(3)	Compact orange gravel below (2)
(4)	Made ground below (3)
[5]	Cut for N-S aligned gas main
(6)	Fill of [5]
[7]	Cut for E-W aligned cable ducts
(8)	Fill of [7]
[9]	Cut for brick structure
[10]	Brick structure
(11)	Fill of (9)
(12)	Interior rubble fill of [10]
(13)	Charnel to E of [10]
(14)	Compact gravel to E of (13)
[15]	Cut for burial
(16)	Fill of burial
SK17	Skeleton
(18)	Mortar / concrete layer below (14)
(19)	Chalk below (18)
(20)	Green-black silt between [10] and (18)
(21)	MoLA PWT00 charnel
[22]	Existing sewer
(23)	Concrete below [22]
SK24	Skeleton
(25)	Dark silty material below (4), adjacent to (23)

APPENDIX II: ARCHAEOLOGICAL DRAWINGS

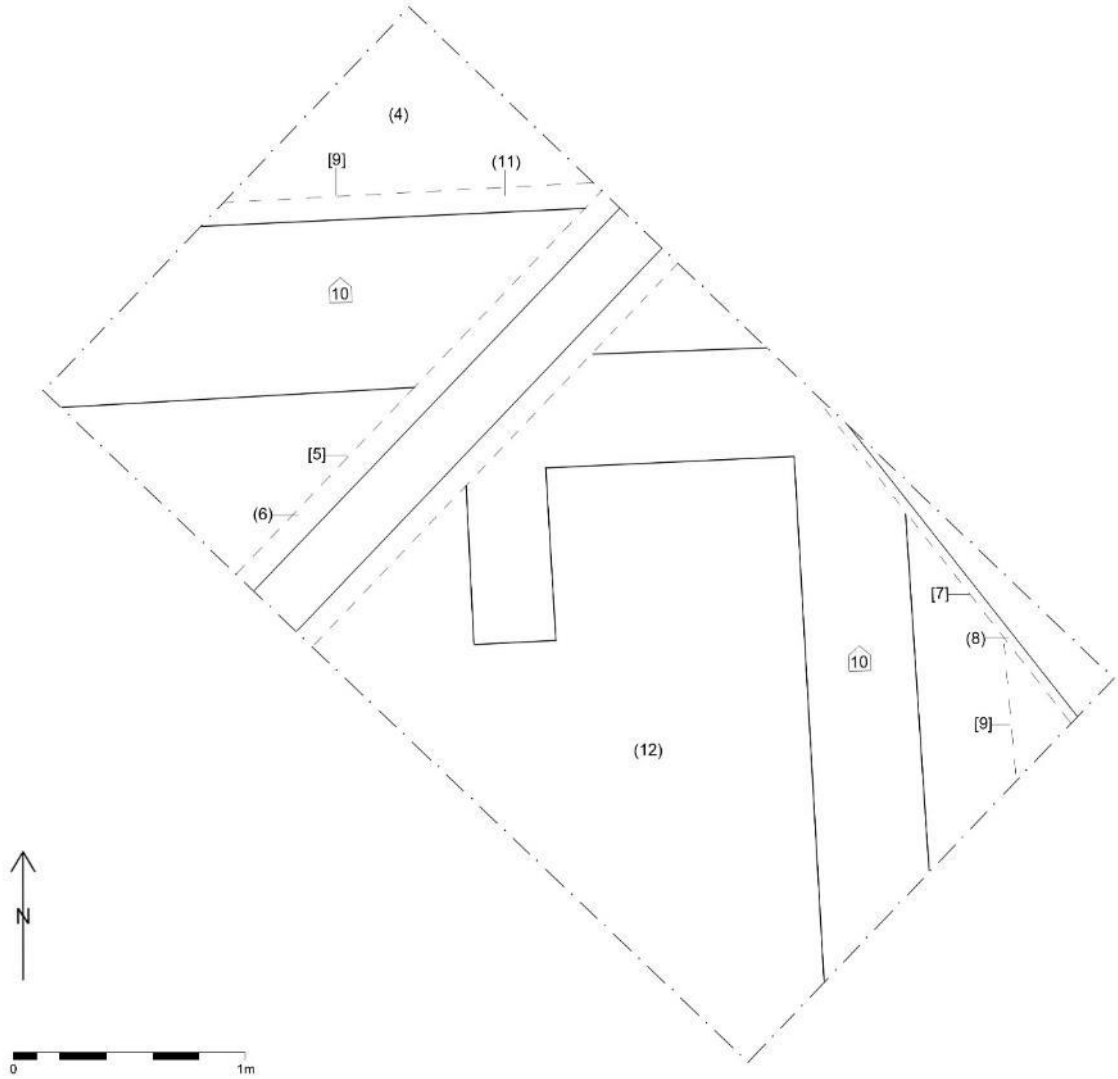


Figure 25: Plan drawing of the trench at a depth of c.1.2mbgl (14.26mOD). Plan 001, original drawn at 1:20.

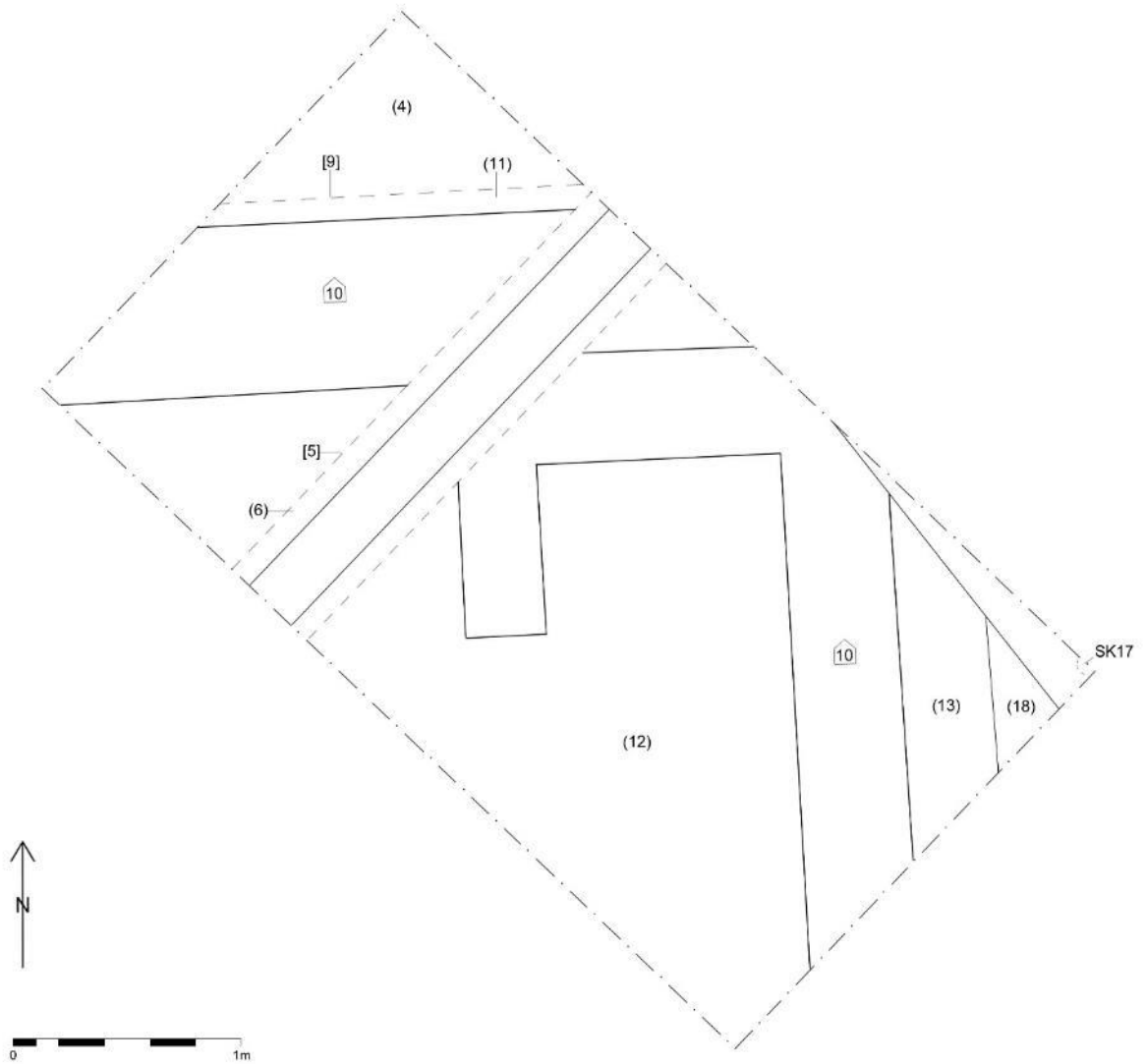


Figure 26: Plan drawing at level of excavation at 1.7m (14.06mOD). Plan 002, original drawn at 1:20.

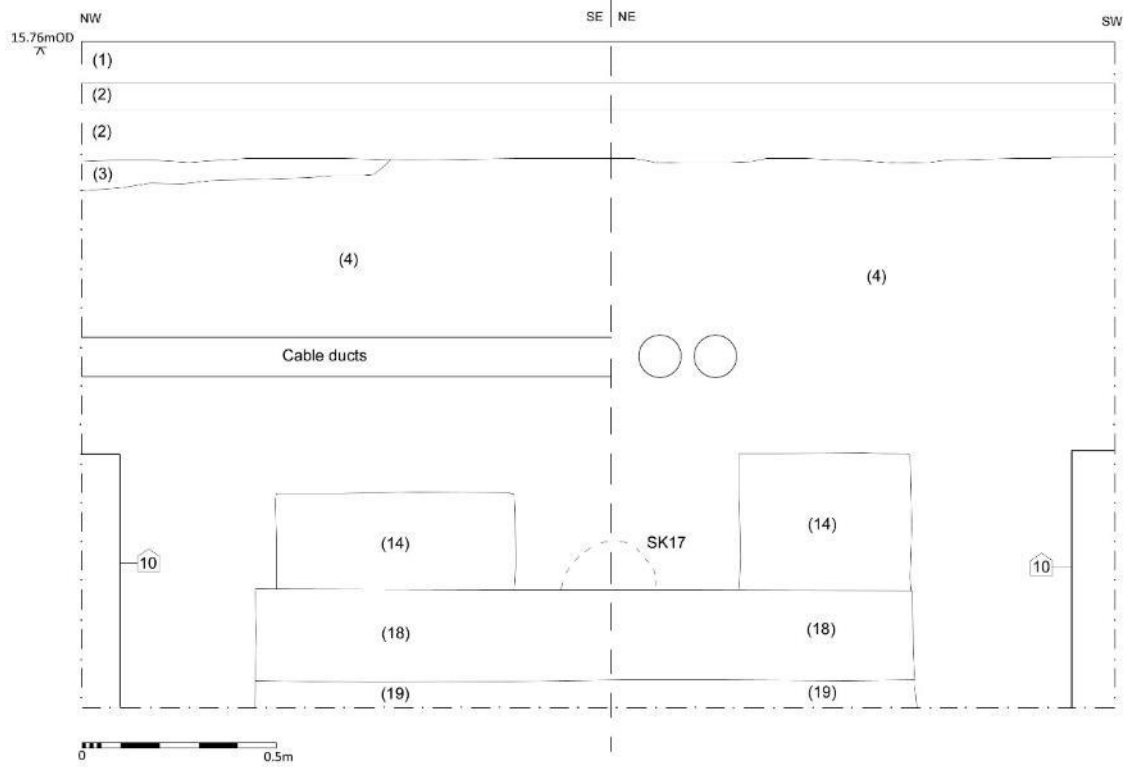


Figure 27: SW / NW facing sections of trench. Drawing 003, original drawn at 1:10.

APPENDIX III: CERAMIC BUILDING MATERIAL *by Sue Pringle*

Introduction

The following report catalogues and discusses the ceramic building material (CBM) recovered from the archaeological watching brief undertaken at Paternoster Row (PAT19). The assemblage comprises a total of 50 fragments from five contexts with a total weight of 15.935kg. The assemblage comprised medieval and post-medieval material including bricks, peg tile and floor tile, as well as six fragments of undated worked and unworked stone.

Assessment methodology

All the CBM was recorded on a standard recording form, weighed and measured and brief fabric descriptions were noted. Any further comments regarding the state or any features of the fragments were also recorded. The information was collated onto an Excel database.

Discussion

The assemblage comprised peg tile, pantile, floor tile, stone rubble and brick fragments, in addition to brick samples taken from wall [10]. The medieval period was represented by five fragments of floor tile and one possible fragment of peg tile. Post-medieval finds were predominantly bricks, with smaller quantities of peg tile and pantile fragments.

Six fragments of stone were recovered from two contexts, including pieces of unworked limestone, Kentish Ragstone and oolitic limestone. The corner of a tooled ashlar block with one smooth face and a fragment of fairly roughly worked Kentish Ragstone slab were recovered from context (13). The stone recovered is taken to be demolition material commingled with the charnel material. Due to the proximity of the groundworks to the pre-Wren Old St Paul's Cathedral it is likely that the material has its origins here. Although no specific date can be given, it is suggested that the stonework came from a structure of the medieval or early post-medieval period.

The medieval period was represented by five fragments of floor tile, four of which were finished with a visible glaze. Three of these fragments are taken to be of Westminster type, similar to those recovered from the MoLA investigations in 2000 (PWT00). The Westminster type tiles recovered by MoLA were found associated with a number of burials, some of which cut into the backfill surrounding a brick-lined culvert constructed by Wren. The tiles may have originally paved the cathedral, or have come from the parish church of St Augustine Watling Street, which lay to the south-east. The tiles are dated 1225-1275 and indicative of activity taking place either on, or within close proximity to the site during the medieval period.

Four brick samples were taken from structure [10]. The bricks measured 230 x 110 x 60-65mm in size and were all unfrogged. All were bonded with a grey lime mortar containing sparse charcoal flecks. A date of 1450-1700 is given, with a likely construction date of pre-1666. It is therefore suggested that the corner of the substantial structure encountered during the groundworks is associated with the pre-Wren cathedral, or a similar building standing during the early-17th century.

The remaining post-medieval material was typical of an urban site, with many of the individual finds being little more than fragments with few larger diagnostic examples. The material

broadly dates from between 1480 and 1900, with a possible peak between 1600 and 1800. This is again consistent with the other CBM recovered during the groundworks.



Figure 28: Fragment of triangular 'Westminster' floor tile recovered from context (8). Scale 10cm.



Figure 29: Corner of a 'Westminster' floor tile with remnants of a greenish and yellow glaze, also recovered from context (8). Scale 10cm.

The catalogue

What follows is a tabulated catalogue of the assemblage containing discussion of the recovered material by context number. Notable observations on fabric type and other condition of the material are made along with all measurable dimensions. Below is a key to abbreviations used in the table. :

A - Abraded
H -Heat-cracked
M -Mortar
Med - Medieval
PM - Post medieval
Rd - Reduced
Ru - Re-used

All measurements are given in millimetres, (L - Length; B - Breadth; T - Thickness).

Weight is given in grams.

Context	Context cbm date	Period	Form	Count	Weight	L	B	T	Condition	Comments	Fabric notes
4	1630-1900	PM	peg	5	642	0	152	13	M	1 round nail-hole	
4	1630-1900	PM	pantile	3	859	0	0	0			
4	1630-1900	?	stone	1	309	130+	110+	<21		Thin slab detrital limestone; no obvious worked edges or faces	
4	1630-1900	M	floor tile	1	46	48+	38	23	A, M, Rd	Glazed floor tile, very worn. Glaze decayed but possibly originally decorated. I knife-cut bevelled side; 1 side partly knife-cut the snapped to form triangle. 'Westminster' type?	Fabric reduced; margins red with moderate fine quartz. If 'Westminster' fabric, 1225-1275
8	1225-1275	M	floor tile	1	169	76+	63+	29	A, Rd	Corner of glazed floor tile, very worn. Knife-cut bevelled edges. Colour of glaze uncertain - looks greenish-yellow on sides. May have been 2-colour decorated 'Westminster' type.	Fabric mostly reduced; where oxidised - fine orange-red with sparse fine calcareous inclusions. Flint flecks in moulding sand.
8	1225-1275	M	floor tile	1	267	110+	85+	25	A, M	Triangular glazed tile; very worn, near complete. 2 sides have knife-cut bevel; long side partially cut then snapped. Glaze probably dark green. Mortar on most faces.	Orange-red fabric, moderate fine to medium quartz, sparse fine white specks and gold mica. 'Westminster'?
10	1450-1700	PM	brick	2	2400	230	111	65	Rd	Conjoin. Unfrogged; indented margins.	Fabric orange, near 3033 but may have slightly finer quartz; sparse poorly sorted calcium carbonate inclusions
10	1450-1700	PM	brick	1	2458	230	110	60	M	Unfrogged; indented margins; base and 1 stretcher creased, other sides lightly creased and flat. Fairly sharp arrises. Grey-brown lime mortar with charcoal flecks, thickest on upper face.	Fabric has calcium carbonate speckles in lenses

10	1450-1700	PM	brick	1	2567	227	103-106	64	M	Unfrogged. Base creased, with grass marks. Sides lightly creased. Grey lime mortar on base, with sparse charcoal flecks.	
10	1450-1700	PM	brick	1	2375	230	107-110	64-67	Rd	Unfrogged; narrow indented margins. Base creased; sides lightly creased but flat. Fire damaged. Greyish-brown mortar with charcoal inclusions.	
13	1480-1800	PM	peg	2	171	0	0	0	M x 1	1 has part round nail-hole	
13	1480-1800	M/PM	peg	1	162	0	0	0			
13	1480-1800	PM	brick	1	190	0	0	59		Corner flake - sides creased but fairly flat.	
13	1480-1800	PM	brick	1	168	0	0	35	A	Very abraded	
13	1480-1800	M	floor tile	1	110	70+	50+	32	Rd, Ru?, A	Very worn. No glaze visible. Knife-cut bevelled sides. Re-used upside down as both faces worn?	Calcareous fabric - Flemish?
13	1480-1800	M	floor tile	1	71	53+	47+	27	Rd, A, M	Very worn glazed tile, dark green or brown? Knife-cut bevelled sides. 'Westminster' type?	Orange, fine sandy fabric.
13	1480-1800	?	stone rubble	1	412	0	0	0		Kentish Ragstone rubble	
13	1480-1800	?	stone	1	165	0	0	0		Kentish Ragstone flake	
13	1480-1800	?	stone slab	1	263	97+	85+	27	M	Kentish Ragstone. Fairly roughly worked slab; mortar traces on both faces - paving?	
13	1480-1800	?	?	1	95	0	0	0		Oolitic limestone - flake	
13	1480-1800	?	?	1	322	105+	60+	60+		Corner of tooled ashlar block - 1 smooth face.	

0	1600-1800	PM?	floor tile	1	1714	247	137+	31	M, Rd	Black surface deposits including on broken edge - not clear if glazed or unglazed. Knife-cut bevelled sides. Dated as unglazed.	Orange fabric with moderate inclusions of medium to coarse pale silts and darker orange material; moderate fine to medium quartz.
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APPENDIX IV: POTTERY by Paul Blinkhorn

The pottery assemblage comprised 11 sherds with a total weight of 739g. It was all medieval or later apart from a single residual Romano-British sherd, and was recorded using the conventions of the Museum of London Type-Series (eg. Vince 1985), as follows:

BORDY:	Yellow-glazed Border Ware , 1550-1700. 1 sherd, 214g.
CBW:	Coarse Border Ware , 1270 – 1500. 1 sherd, 4g.
FREC:	Frechen Stoneware , 1550 – 1700. 1 sherd, 16g.
LMSR:	Late Medieval Sandy Transitional Redware , 1480-1600. 2 sherds, 10g.
PMR:	Post-medieval Redware , 1580 – 1900. 2 sherds, 242g.
PMSR:	Post-Medieval Slipped Redware , 1480 – 1650. 1 sherds, 125g.
RAER:	Raeren Stoneware , 1480 – 1610. 1 sherd, 61g.
SIEG:	Siegburg Stoneware , 1300-1500. 1 sherd, 21g.

In addition, the single residual sherd of Romano-British Grey Ware weighed 44g and occurred in context 13. The pottery occurrence by number and weight of sherds per context by fabric type is shown in Table 1. Each date should be regarded as a *terminus post quem*. The range of fabric types is typical of sites in the City of London.

The fragment of SIEG from context 13 is from a cylindrical tankard (*Schnelle*) with a fragment of an applied armorial panel surviving. The panel, which depicts the arms of Spain, was made with the same mould as one of the panels on a *Schnelle* shown in Gaimster (1997, 181 no 20). The vessel has two other moulded panels, one of which has the date of 1573 as part of the decoration. This vessel is obviously of a very similar date. It is worthy of note that Siegburg pottery is given a date range of 1300-1500 in the Museum of London type-series, but this fragment is significantly later than the accepted end-date for the material in the city.

The sherd of BORDY is from a hollow-handled pipkin with a yellow internal glaze and splashes of green glaze on the exterior (Pearce 1988, fig. 28). The sherd of PMR from context 8 is from the rim of a large jar. The rest of the assemblage consisted of undecorated bodysherds.

Table 1: Pottery occurrence by number and weight (in g) of sherds per context by fabric type

Cntxt	RB		CBW		RAER		LMSR		PMSR		SIEG		BORDY		PMR		FREC		Date
	No	Wt	No	Wt	No	Wt	No	Wt	No	Wt	No	Wt	No	Wt	No	Wt	No	Wt	
4					1	63			1	125			1	214	1	104	1	16	L16thC
8			1	4											1	138			L16thC
13	1	44					2	10			1	21							L16thC
Total	1	44	1	4	1	63	2	10	1	125	1	21	1	214	2	242	1	16	

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Vince, AG, 1985 The Saxon and Medieval Pottery of London: A review *Medieval Archaeology* 29, 25-93



Figure 30: Fragments of Post-Medieval Redware (1580-1900) and Coarse Border Ware (1270-1500) recovered from context (8). Scale 10cm.



Figure 31: Fragment of a Yellow-glazed Border Ware hollow-handled pipkin (1550-1700) recovered from context (4). Scale 10cm.



Figure 32: Fragment of Siegburg Stoneware Schnelle, with applied decoration depicting the arms of Spain (1300-1500, but probably 1570s). Scale 10cm.

APPENDIX V: HUMAN BONE

Significant quantities of disarticulated human remains were encountered during the watching brief, in addition to two articulated burials. The remains are described below by context:

(13)

Redeposited charnel material of uncertain origin, possibly from burials cleared for the creation of building [10]. The assemblage predominantly comprises long bones and larger skeletal elements, such as skull fragments, pelvic bones and scapulae. Smaller bones such as phalanges, carpals and tarsals etc. are under-represented, although this is taken to a result of the clearance process and smaller elements being missed, rather than an intentional omission.

The remains were in a relatively good state of preservation, with many bones lacking post-mortem breakages or similar damage.

Adults were well represented in the assemblage, both male and female. Smaller quantities of juvenile and infant elements were observed, however this is again taken to be a result of potential absence due to their smaller size and fragility. One adult male mandible was observed to have some wear on the lower incisors and canines, suggesting when alive he held a particular object between his teeth for a prolonged period.

Skeleton 17

Recorded on an approximately east-west alignment with the head at the western end. The skeleton was resting on context (18) and cut into compact gravel (14). No coffin furniture was present indicating the burial was merely placed within the cut. Similarly, no copper staining was observed on any of the skeletal elements examined, which would suggest the body was wrapped in a shroud and pinned at the time of burial. The remains were in a supine position with the upper and lower teeth touching, suggesting the chin was resting against the chest.

The skull, mandible and cervical vertebrae were observed *in-situ*. The left and right parietal bones and frontal bone may have displayed some evidence of ante- or post-mortem deformity, giving it a flatter, squashed profile. Due to the absence of any breakages this is suggested to have occurred prior to, or not long after the time of death, when the bones still had some plasticity. However, due to the absence of a formal analysis this cannot be confirmed.

In general, the bones were in an extremely good state of preservation, and light pinkish colour on the interior surfaces. This is taken to be a result of the lime within the mortar layer below the burial (18) affecting the pH balance of the bones.

Examination of the mandible and maxilla showed the presence of both right and left incisors, canines, pre-molars and first and second molars (LM₂ - RM₂; LM² - RM²). The lower molar, LM₃ and RM₃, buds were present within the socket but not yet erupted. Partial root development of the upper right 2nd molar, RM², in conjunction with the lower dentition would indicate that at the time of death the individual was aged 12 ± 2.5 years.

(21)

A second charnel deposit was observed between an existing sewer [22] and concrete footing (23). The material was in a poor state of preservation, with many of the bones being at least partially splintered or completely fragmented. Several were adhered to concrete. The assemblage was similar in composition to context (13), with adult long bones well represented and lesser quantities of smaller skeletal elements and juvenile / infant remains. The presence of a number of finds labels indicated the material had been redeposited from MoLAS excavations on the existing sewer in 2000 (PWT00).

Skeleton 24

A second articulated burial was observed in the north-east facing section of the southern part of the trench at a depth of 1m (14.76mOD). Several flakes of corroded metal were observed in close proximity to the remains suggesting they were buried within a coffin. Thoracic vertebrae and several right ribs were observed in section, however the rest of the skeleton remained unexposed. The remains were upside-down and near vertical, indicating a significant degree of movement had occurred – although the burial remained articulated.

The remains are taken to be those of an infant of unknown age and date.

APPENDIX VI: ANIMAL BONE

A small quantity of animal bone was recovered during the watching brief, described below by context:

(11)

Partial small mammal skeleton – domestic fowl. Recovered from within the construction cut of structure [10]. In-situ and partially articulated. Some degrees of weathering and porosity observed.

Taken to be discarded domestic waste.

Cohen, A. & Serjeantson, D. (1996). *A Manual for the Identification of Bird Bones from Archaeological Sites*. Revised Edition.

(13)

A small quantity of unidentified animal bone was observed within the main human charnel deposit. Most likely domestic waste.

APPENDIX VII: MISCELLANEOUS

Clay Tobacco Pipe

Two fragments of stem were recovered from context (11). The fragments were catalogued following guidelines set out in the *DAACS Cataloguing Manual: Tobacco Pipes*, by Kate Grillo, Jennifer Aultman and Nick Bon-Harper (updated February 2012).

Key:

Abbreviations across head of table

BH = Bowl height

BW = Bowl width

SL = Stem length

SW = Stem width

BS = Borehole size

All bowls have been identified using the following guides:

Atkinson, D and Oswald, A, (1969), 'London Clay Tobacco Pipes' *Journal of the Archaeological Association. Third Series Vol.XXXII*

Measurements are given in millimetres, (mm).

Context	Form	Type	Date	Count	BH	BW	SL	SW	BS	Comments
(11)	Partial stem	-	-	1	-	-	98	6-8	2	Incision or scratch along length of stem.
(11)	Partial Stem	-	-	1	-	-	38	8	13	-

Metal

Two fragments of metal were recovered from context (20). Heavily corroded iron. Shapeless, but probably coffin furniture. Weight 42g.

Shell

Seven fragments of oyster shell were recovered during the watching brief.

Context	Count	Weight (g)	Comments
(4)	3	50	<i>Ostrea edulis</i> (European flat oyster)
(13)	7	112	<i>Ostrea edulis</i> (European flat oyster)
(20)	2	82	<i>Ostrea edulis</i> (European flat oyster)

APPENDIX VIII: OASIS RECORDING FORM

OASIS ID: [compassa1-346372](#)

Project details

Project name	Improvement works by St Paul's Cathedral, City of London EC4M 8AD
Short description of the project	Between the 18th January and 19th February 2019 Compass Archaeological undertook an archaeological watching brief at the western end of Paternoster Row, City of London EC4M 8AD. The work was commissioned by the City of London Department of the Built Environment due to the site's location within an Archaeological Priority Area and close proximity to the Grade I Listed Cathedral Church of St Paul. The watching brief monitored the completion of a single L-shaped trench, excavated to accommodate the installation of a series of new security bollards. The works exposed several phases of activity dating from the 11th to 17th century, including a medieval 'yard' surface, pre-17th century tenement building, two undated inhumations and a quantity of charnel material. The significant archaeological features were encountered between depths of 1.06m and 1.70m (14.70 - 14.06mOD). Natural geology was not reached.
Project dates	Start: 18-01-2019 End: 19-02-2019
Previous/future work	Yes / Not known
Any associated project reference codes	PAT19 - Sitecode
Any associated project reference codes	PWT00 - Sitecode
Type of project	Recording project
Site status	Local Authority Designated Archaeological Area
Current Land use	Transport and Utilities 1 - Highways and road transport
Monument type	TENEMENT Medieval
Monument type	TENEMENT Post Medieval
Monument type	URBAN SPACE Medieval
Monument type	INHUMATION Medieval
Monument type	HUMAN REMAINS Medieval
Monument type	HUMAN REMAINS Post Medieval
Significant Finds	ARCHITECTURAL FRAGMENT Medieval
Significant Finds	ARCHITECTURAL FRAGMENT Post Medieval
Significant Finds	TANKARD Post Medieval
Significant Finds	CONTAINER Medieval
Significant Finds	CONTAINER Post Medieval
Investigation type	"Watching Brief"
Prompt	National Planning Policy Framework - NPPF

Project location

Country	England
Site location	GREATER LONDON CITY OF LONDON CITY OF LONDON Ludgate Hill / Paternoster Row, St Paul's Cathedral
Postcode	EC4M 8AD
Study area	10 Square metres
Site coordinates	TQ 531936 181135 50.941509071596 0.180769303892 50 56 29 N 000 10 50 E Point

Project creators

Name of Organisation	Compass Archaeology
Project brief originator	City of London Department of the Built Environment
Project design originator	Compass Archaeology
Project director/manager	Compass Archaeology
Project supervisor	Heidi Archer
Type of sponsor/funding body	City of London Corporation
Name of sponsor/funding body	Department of the Built Environment

Project archives

Physical Archive recipient	Museum of London archaeological archive
Physical Contents	"Ceramics","other"
Digital Archive recipient	Museum of London Archaeological Archive
Digital Contents	"Ceramics","Stratigraphic"
Digital Media available	"Images raster / digital photography","Spreadsheets","Text"
Paper Archive recipient	Museum of London Archaeological Archive
Paper Contents	"Ceramics","Stratigraphic"
Paper Media available	"Context sheet","Photograph","Plan","Section","Unpublished Text"

Project bibliography 1

Publication type	Grey literature (unpublished document/manuscript)
Title	Improvement Works by St Paul's Cathedral, Ludgate Hill, City of London EC4M 8AD. An Archaeological Watching Brief Report.
Author(s)/Editor(s)	Archer, H.
Date	2019
Issuer or publisher	Compass Archaeology
Place of issue or publication	250 York Road, Battersea SW11 3SJ
Description	Comprehensive report outlining the archaeological investigation. First part contains the background to the project including commission and scope of works, site location, historical and archaeological background, relevant planning policy and site methodology. The second part details the results of the watching brief, complemented by relevant photographs, and includes a separate discussion and inclusion. Archaeological drawings and specialist reports included as appendices.