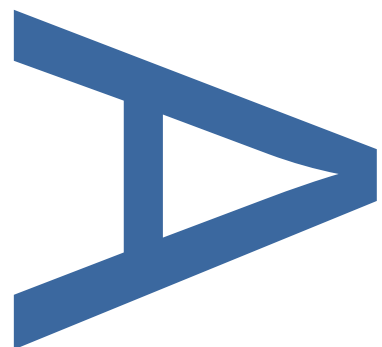
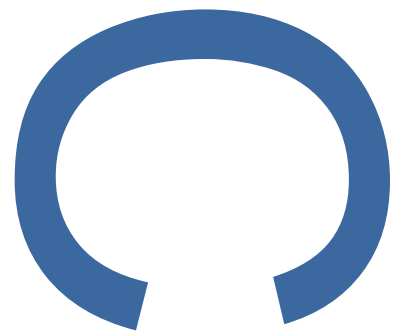


**ST. PAUL'S CATHEDRAL EQUAL
ACCESS SCHEME (TEST PITS), ST
PAUL'S CATHEDRAL, CITY OF
LONDON, EC4: AN
ARCHAEOLOGICAL EVALUATION**

**LOCAL PLANNING AUTHORITY: CITY OF
LONDON**

AUGUST 2017



PRE-CONSTRUCT ARCHAEOLOGY

St. Paul's Cathedral Equal Access Scheme (Test Pits), St Paul's Cathedral, City of London, EC4: An Archaeological Evaluation

Site Code: PCA17

Central National Grid Reference: TQ 32017 81187

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CONTENTS

1	Non-Technical Summary.....	3
2	Introduction.....	4
3	Planning Background.....	5
4	Geology and Topography.....	8
5	Archaeological and Historical Background.....	9
6	Archaeological Methodology.....	12
7	Excavation Results.....	13
8	Acknowledgements.....	25
9	Bibliography.....	26

APPENDICES

Appendix 1: Oasis Data Entry Form.....	35
Appendix 2: Building Material.....	38
Appendix 3: MATRICES.....	40

FIGURES

Figure 1: Site Location.....	27
Figure 2: Detailed Site and Test Pits Location.....	28
Figure 3: Plan and Sections of Test Pit 1.....	29
Figure 4: Plan of Test Pit 3.....	30
Figure 5: Plan and Sections of Test Pit 5.....	31
Figure 6: Test Pit Locations overlain over Wren's Drain Plan.....	32
Figure 7: Location of the Cathedral's foundation overlain over the plan for the future ramp.....	33
Figure 8: Location of the Cathedral's foundations overlain on current layout.....	34


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1 NON-TECHNICAL SUMMARY

- 1.1 This report presents the results of an archaeological evaluation commissioned by Caroe Architecture, and conducted by Pre-Construct Archaeology Limited at St. Paul's Cathedral North Transept, City of London, EC4. The evaluation monitored the excavation of four test pits and the opening and recording of a medieval well external to the North Transept. The purpose of the test pits was to investigate the soil conditions as well as the foundations and various underground features in order to inform the design of a new ramp for inclusive access at the north transept of St. Paul's Cathedral.
- 1.2 The site is situated in the heart of the City and at the edge of and impinging upon the masonry of St Paul's Cathedral, which was designed by Sir Christopher Wren and built between 1675 and 1710. On balance, however, the survival of archaeological remains was considered to be fragmentary during these works as modern excavation for utilities and an underground car park in the 1970s was believed to have had a considerable impact adjacent to the outside of St Paul's north transept. However, there was some potential for the survival of historic strata – notably Wren-period deposits and the drainage system from the same period.
- 1.3 All test pits were located within the Cathedral Precinct. Test Pit 1 was predicted to be of no archaeological interest as an underground car park was built in this area during the 1970s. Test pit 5 was located outside the area affected by the car park and its archaeological potential was thus considered greater. The purpose of monitoring these test pits was thus to establish whether any such archaeological strata did survive in these locations, below and around recent disturbance from modern development works.
- 1.4 No natural deposits were revealed during these excavation works.
- 1.5 The foundations of the cathedral were observed in Test Pits 1, 3 and 5. Within Test Pit 5, one of the steps of the foundation of the cathedral's north transept was recorded, as well as two brick culverts of Wren date and deposits associated with them.

2 INTRODUCTION

- 2.1 An archaeological evaluation was undertaken by Pre-Construct Archaeology Ltd adjacent to the North Transept of St. Paul's Cathedral, City of London, EC4 (Figure 1). The work was carried out between 18th and 31st July 2017 on behalf of Caroe Architecture.
- 2.2 The site, located in the area close to the steps leading to St Paul's North Transept comprised a wide, paved pedestrian pathway which bounded the railed boundary of the grounds of St Paul's Cathedral to the west and north.
- 2.3 Four test pits were excavated (Figure 2); Test Pit 1 was located to the west of the North Transept, next to the steps leading to the cathedral's entrance. Test Pit 2 was located on the steps of said entrance, while Test Pit 3 was excavated at the west corner of the steps, where it met the main building. Test Pit 5 was located to the north of the latter, to the west of the entrance's steps. The purpose of monitoring the excavations was to establish whether any archaeological remains survived below and the location of the foundations of the cathedral and drainage system.
- 2.4 Investigation 4 consisted of the recording of a medieval/early post-medieval well which was first excavated during the construction of the 1970s underground car park. The purpose of this investigation was to establish the state of the well and to record its features.
- 2.5 The works were commissioned by Caroe Architecture, monitored on behalf of the City of London by Kathryn Stubbs (Assistant Director at the City of London's Department of the Built Environment) and were advised upon for St Paul's Cathedral by John Schofield (the Cathedral Archaeologist for the Dean and Chapter of St Paul's Cathedral). Mr Schofield prepared an Archaeological Assessment of the proposed works in advance of the project's implementation (2017).
- 2.6 The central National Grid Reference for the area monitored is TQ 32017 81187.
- 2.7 The site was given the unique Museum of London site code PCA17.
- 2.8 The evaluation was managed for Pre-Construct Archaeology Limited by Helen Hawkins and conducted by the author, in accordance with a Written Scheme of Investigation (Hawkins June 2017).

3 PLANNING BACKGROUND

3.1 National Planning Policy Framework (NPPF)

3.1.1 The National Planning Policy Framework (NPPF) was adopted on 27 March 2012, and now supersedes the Planning Policy Statements (PPSs). The NPPF constitutes guidance for local planning authorities and decision-takers both in drawing up plans and as a material consideration in determining applications.

3.1.2 Chapter 12 of the NPPF concerns the conservation and enhancement of the historic environment, with the following statements being particularly relevant to the proposed development:

128. *In determining applications, local planning authorities should require an applicant to describe the significance of any heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance. As a minimum the relevant historic environment record should have been consulted and the heritage assets assessed using appropriate expertise where necessary. Where a site on which development is proposed includes or has the potential to include heritage assets with archaeological interest, local planning authorities should require developers to submit an appropriate desk-based assessment and, where necessary, a field evaluation.*

129. *Local planning authorities should identify and assess the particular significance of any heritage asset that may be affected by a proposal (including by development affecting the setting of a heritage asset) taking account of the available evidence and any necessary expertise. They should take this assessment into account when considering the impact of a proposal on a heritage asset, to avoid or minimise conflict between the heritage asset's conservation and any aspect of the proposal.*

3.1.3 Additionally:

141. *Local planning authorities should make information about the significance of the historic environment gathered as part of plan-making or development management publicly accessible. They should also require developers to record and advance understanding of the significance of any heritage assets to be lost (wholly or in part) in a manner proportionate to their importance and the impact, and to make this evidence (and any archive generated) publicly accessible.*

However, the ability to record evidence of our past should not be a factor in deciding whether such loss should be permitted.

3.1.4 In considering any planning application for development the local planning authority will now be guided by the policy framework set by the NPPF.

3.1.5 The NPPF also states that:

214. For 12 months from the day of publication, decision-takers may continue to give full weight to relevant policies adopted since 2004 even if there is a limited degree of conflict with this Framework.

215. In other cases and following this 12-month period, due weight should be given to relevant policies in existing plans according to their degree of consistency with this framework (the closer the policies in the plan to the policies in the Framework, the greater the weight that may be given).

3.1.6 As such the local planning authority will continue to also be guided by the existing London Plan and the City of London's Local Plan, and by other material considerations.

3.1.7 The relevant Local Plan framework is provided by the City of London Local Plan adopted in January 2015. Local Plan policy CS12 Historic Environment aims to:

To conserve or enhance the significance of the City's heritage assets and their settings, and provide an attractive environment for the City's communities and visitors, by:

1. Safeguarding the City's listed buildings and their settings, while allowing appropriate adaptation and new uses.

2. Preserving and enhancing the distinctive character and appearance of the City's conservation areas, while allowing sympathetic development within them.

3. Protecting and promoting the evaluation and assessment of the City's ancient monuments and archaeological remains and their settings, including the interpretation and publication of results of archaeological investigations.

4. Safeguarding the character and setting of the City's gardens of special historic interest.

5. Preserving and, where appropriate, seeking to enhance the Outstanding Universal Value, architectural and historic significance, authenticity and integrity of the Tower of London World Heritage Site and its local setting.

3.1.8 Policy DM 12.4 Ancient Monuments and archaeology seeks:

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

- 3.1.9 The fieldwork was also guided by the stipulations set out in the City of London's *Archaeology and Development Guidance SPD, Adopted 4th July 2017* (City of London 2017).
- 3.2 Both Kathryn Stubbs (Assistant Director at the City of London's Department of the Built Environment) and John Schofield (the Cathedral Archaeologist for the Dean and Chapter of St Paul's Cathedral) were consulted prior to this work being carried out.
- 3.3 An archaeological Written Scheme of Investigation (Hawkins 2017) was prepared prior to the start of the project and submitted to Kathryn Stubbs and John Schofield for approval.

4 GEOLOGY AND TOPOGRAPHY

4.1 The following backgrounds are taken from the Archaeological Assessment (Schofield 2017).

4.2 Geology

4.2.1 The underlying natural geology is the Langley Silt Member, commonly referred to as brickearth, and consists of clay and silt laid down during the Devensian Age. This clay and silt seals the London Clay Formation (British Geological Survey, 2015, online).

4.3 Topography

4.3.1 The site lies about 400m north of the Thames, although it would have lain much closer to this river in earlier periods. The site also lies to the west of the Walbrook stream which once ran on a roughly north-south alignment from the area of Cannon Street station through modern Bank station and further north near to Moorgate and Throgmorton Avenue. The stream separated two low gravel hills which became the focus of the Roman city. St Paul's Cathedral now dominates the western hill summit of which lay at about 13 m OD. To the west the hill was defined by the River Fleet, a now subterranean river which would have lain to the west of the site.

4.3.2 The test pits themselves lie within St Paul's Churchyard which surrounds the cathedral; this is also the name of the walkway to the north which is an almost flat, paved walkway running roughly north-east south-west immediately to the north of the railed grounds of St Paul's Cathedral. The modern surface level at Test Pit 1 is approximately 18.24m OD, while at Test Pits 3 and 5 it was 16.69m OD and 16.68m OD, respectively.

5 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

- 5.1 A full background is given in the archaeological assessment (Schofield 2017) and summarised below.
- 5.2 The prehistory of the site can be simply stated. Though occasional prehistoric finds are made in the City, there is no clear evidence of habitation on the western of the two hills of the City until the arrival of the Romans in AD 43 and the foundation of the City of London around AD 50. There is no prehistoric material to report from excavations or observations in the St Paul's precinct.
- 5.3 In the 1st century the centre of Londinium lay on the eastern hill now called Cornhill, but roads and some buildings had been laid out on the western hill in the area of St Paul's within twenty years. Though checked by destruction in the Boudican rebellion (AD 60–1), the town grew during the 1st and 2nd centuries. A major Roman road beneath the present Newgate Street, north of the precinct, seems to be one of the original features of the Roman settlement.
- 5.4 A second Roman road of pre-Flavian date (i.e. before about AD 70) crossed the site of the cathedral from Ludgate, a Roman gate, in the west, to connect with a Roman street beneath the present Watling Street on the east. The evidence for the street or road is slight, being based on undated cambered gravel surfaces seen on the site of the church of St Augustine Watling Street in 1969; and similar surfaces further east are dated to the post-Hadrianic period (mid 2nd century). No excavation has lain along its projected line, which runs along the axis of the medieval cathedral (though not in strict alignment).
- 5.5 In the 1st and 2nd century the churchyard area was used in part as a cremation cemetery, and during the 2nd century had one, perhaps two, complexes of pottery kilns in it. Kilns observed by John Conyers in 1677 (Schofield 2011, Site 29) were almost certainly beneath the north-east corner of the north transept, and a second kiln may have been seen by Wren's workmen as they dug foundations for the west end of the nave. Around AD 200 the city was surrounded by a wall for the first time, and this enclosed the western suburban area. It had gates at Aldersgate, Newgate and Ludgate, and thus incorporated the site of the cathedral into the town proper. This seems to have had the effect of pushing suburban uses such as industry and cemeteries out beyond the new boundary. The Paternoster area became residential, and large masonry buildings became the norm. Evidence for the 3rd and 4th centuries is slight, and comprises several large buildings, some with figured mosaics, and a coin hoard of the late 3rd century. All these buildings lay on the north side of the churchyard or further north, and there is no clear evidence of any form of occupation in these centuries for the majority of the churchyard site.
-

5.6 In 604 the first cathedral was established, somewhere on the present site, when St Augustine instituted Mellitus as bishop of London. But Mellitus was expelled in 618. Christianity was not restored until 653, when Sigebert king of the East Saxons was converted. Little is known about the form of the Anglo-Saxon cathedral, or even its precise location in relation to the medieval and Wren successors. The cathedral was burnt in 962 and refounded in the same year. It is however fair to assume that by 1000 the cathedral had a defined precinct, though not in its final form; and that it was important enough to be the burial place of two Anglo-Saxon kings, Aethelred in 1016 and Edward Aetheling in 1057. No certain evidence has been found of the Anglo-Saxon cathedral, but a foundation of 10th- or 11th-century character was recorded in a test pit of 1932 by the north-west door of the Wren building (Schofield 2011, Site 43) and human burials, of both men and women, were recorded in a drain trench in a corridor on the north side of the cathedral in 1996–7 (ibid, Site D); they have been dated by Carbon 14 to the 8th–10th centuries.

5.7 The north transept of the medieval cathedral lay beneath the Wren north transept, on a different alignment. The foundation of the north-west corner of the transept was seen in 1879, crossed by the Wren drain of about 1690, and may survive but outside the area to be investigated by the Test works (plans reproduced in Schofield 2017). A medieval well was found in 1969 and allowed to survive; its concrete cap of 1970 is to be removed during the evaluation works and the top made level with the paving.

The Wren cathedral, 1675–1711, and later works.

5.8 The present cathedral was built from 1675 to 1711. The railings were constructed in 1712, and originally their line crossed between the chapter house and the nave in a diagonal line (i.e. not parallel to either building) (full description in Schofield 2016).

5.9 The north portico steps are probably based on a large mound of mortared brick and rubble. The top of the comparable foundation beneath the steps of the south transept was seen in 2007 when the steps there were replaced (Schofield 2016, figs 234–5, Site R). A similar construction may be expected.

5.10 The whole cathedral site was originally served by a network of brick drains, mostly dug in the 1680s, which took rain water from the roof and brought it to the drain which went down Ludgate Hill. This network was surveyed by William Dickinson in 1710 and it has been seen and recorded several times in post-War years. The northern arm crossed in an arc outside the north transept; though there are significant differences in the plan of drains between this plan and that of 1973. This main part of the drain was filled in with concrete and blocked in 1969–70. The foot passage along the east side of the sunken Works Department crosses it at a level corresponding to just below the crown of the drain vault, which was removed. It is not known if the crown of the Wren culvert survives in this area, but it seems unlikely.

- 5.11 The Surveyor Francis Penrose made a number of significant changes to the fabric of the cathedral during his long surveyorship (1852–97). One of these was the replacement of the black steps of both porticoes in 1875. It is likely that the steps of the north transept are all the work of Penrose.
- 5.12 In 1969–70 the cathedral constructed the present underground Works Department mainly in the space west of the transept, in front of the Wren Chapter House; but it also extended into the area north of the transept, and the railings were reconfigured on their present alignment. Unfortunately there was virtually no archaeological recording of this major excavation, though Robert Crayford made efforts. Despite the excavation of 1969–70, medieval levels may survive very near the present surface, in isolated pockets and slivers.

6 ARCHAEOLOGICAL METHODOLOGY

- 6.1 The evaluation consisted of the monitoring of the excavation of four test pits and the removal of the cap of a well and aimed to locate the foundations of the North Transept as well as to ascertain whether any archaeological deposits – most likely Wren period but possibly also other strata – survived below and around disturbance from the underground car park and service runs. Once the foundations were exposed, excavation ceased.
- 6.2 Test Pit 1 measured a maximum of 2.70m north-south by 1.60m east-west, and was excavated to a depth of 1.77m. Test Pit 2 consisted of the removal of a stone slab from the entrance's steps and measured 1.65m east-west by 0.36m north-south. Test Pit 3 measured 1.36m north-south by approximately 1.78m east-west, having been excavated to a depth of 0.20m. Lastly, Test Pit 5 measured 2.42m north-south by 0.92m east-west to a maximum depth of 1.40m. The recording of the well, Investigation 4, involved the removing of a concrete cap set during the works of the 1970s.
- 6.3 The fieldwork was carried out according to the relevant methodologies, as follows:
- City of London's *Archaeology and Development Guidance SPD, Adopted 4th July 2017*
 - The Institute for Archaeologists *Standard and Guidance for Archaeological Evaluation* (2012);
- 6.4 All recording systems adopted during the investigations were fully compatible with those most widely used elsewhere in London; that is those developed out of the Department of Urban Archaeology Site Manual, now published by Museum of London Archaeology (MoLAS 1994). Individual descriptions of all archaeological strata excavated and exposed were entered onto pro-forma recording sheets. All plans of archaeological deposits were recorded on polyester based drawing film, the plans being at scale of 1:20, the sections at a scale 1:10.
- 6.5 A photographic record of the investigations was made using digital format only.
- 6.6 The complete site archive including site records and photographs will be deposited at the Museum of London Archaeological Archive under the site code PCA17.
- 6.7 Backfilling of the test pits will be done by the building contractor with sand.

7 EXCAVATION RESULTS

7.1 Test Pit 1

7.1.1 Test Pit 1 measured a maximum of 2.70m north-south by 1.60m east-west, and was excavated to a maximum depth of 1.77m (15.28m OD, Figure 3, Plates 1-2). This test pit was located at the front of the steps leading to the north transept of the cathedral. The pit was irregular in shape and excavated to varying depths across its extent due to the presence of modern features such as live services.

7.1.2 No natural deposits were observed within the trench.

7.1.3 The earliest layer observed in the test pit was a soft, dark grey sandy clay layer (15) which was placed directly on top of the cathedral's foundation step (16). The latter was seen in section only, therefore its full dimensions could not be recorded. Two courses of stones of varying sizes could be seen, ranging from 300mm to 510mm wide and 310mm high. The foundation step was bonded with a hard grey mortar with frequent small fragments of chalk and stone. Above this was a thin layer (0.03m) of crushed bricks (14). This was sealed by layer (13) which consisted of a mix of hard mortar with small to medium fragments of stone and bricks. The purpose of these layers was that of made ground, placed in order to fill the cut created for the placement of the foundation steps. A layer of concrete c. 0.12m thick sealed the made ground and was sealed by a layer of modern sand (approximately 0.10m thick). This in turn was sealed by a layer of modern paving slabs and cobble stones (approximately 0.13m thick).

7.1.4 This test pit therefore disclosed the edge of the foundation of the North Transept steps, which formed a vertical edge at least 0.36 m high. Unfortunately, because of the small section revealed by the test pit, it was not possible to ascertain whether the foundation was straight or curved, following the curvature of the steps leading into the entrance (Figure 8).

7.1.5 The construction of the underground car park during the 1970s had caused the removal of all archaeological features within this test pit. The only surviving deposits were those found on the southern section of the test pit, above one of the foundation steps of the cathedral (Plate 1).



Plate 1: Section 2 in Test Pit 1 showing the foundation of the North Transept and the layers of made ground above it. Facing south, scale 1m.



Plate 2: Test Pit 1 showing the concrete associated with the underground car park and services, facing south-west.

7.2 Test Pit 2

7.2.1 The purpose of Test Pit 2 was to investigate the bedding material below the steps. A slab of stone was removed by the Cathedral Works team revealing, as expected, a deposit of mortared brick and rubble. The material was very similar to the mortar observed in Test Pit 1 (13) and Test Pit 4 (5). The test pit measured approximately 1.65m EW by 0.36m NS at a depth of 0.20m.

7.2.2 No natural deposits were observed within the trench.



Plates 3 and 4: Test Pit 2, before and after the removal of the bedding, facing east.

7.3 Test Pit 3

- 7.3.1 Test Pit 3 measured a maximum width of 1.36m north-south by 1.78m east-west and was excavated to a maximum depth of 0.20m. It was located directly to the north of the St Paul's North Transept just to the south of Test Pit 5 and its purpose was to pinpoint the location of the cathedral's foundation (Figure 4).
- 7.3.2 After the removal of the surface cobbles, the foundation could be clearly seen to the east of the pit, measuring approximately 0.54m east-west (Plate 5). Next to it, to the west, a layer of concrete was also identified, most likely associated to the works undertaken during the 1970s. A small gap was present between the foundation and the concrete. As the main objective had been achieved, the excavation ceased.



Plate 5: Test Pit 3, the Cathedral's foundation can be seen to the left.

7.4 Investigation 4 – Medieval/Early Post-Medieval Well

- 7.4.1 During the excavations for the 1970s underground car park a well was uncovered and preserved under a concrete cap. Its diameter was 1.74m and it was approximately 9.60m deep (Figure 2).
- 7.4.2 The cap was removed by the Cathedral's Work team, and the well was found to be empty, not backfilled with concrete, which had been raised as a possibility. It is unknown whether the depth recorded was the bottom of the well or the point where excavation was stopped, since it was not safe to enter the well for any further excavations.
- 7.4.3 A photographic record was created of the interior of the well using a remote controlled camera, with pictures of the brick and stone work in 0.50m intervals. Examples of the record are shown by Plates 6 and 7.
- 7.4.4 The top 1.74m (16.64m to 14.90m OD) consisted of modern bricks; most likely a reconstruction or level raising done after its excavation during the underground car park works. The remaining structure was built with ashlar blocks of various stone materials. The measurements and exact type of these stones could not be recorded due to their location within the well at a low depth, although the stone is possibly Portland stone (pers comm Dr Kevin Hayward) which may suggest a post-Great Fire date.



Plate 6: Investigation 4, the well. Point where modern bricks were used to rebuild part of the structure, facing north-west.



Plate 7: Investigation 4, the well. Original stone, facing north-west.

7.5 Test Pit 5

- 7.5.1 Test Pit 5 was located to the west of the North Transept, and to the north of Test Pit 3. The test pit measured approximately 2.42m north-south by 0.92m east-west, and was excavated to a depth of 1.40m. This was the only test pit in which archaeological features besides the cathedral's foundation were observed.
- 7.5.2 The earliest features noted in the test pit were culverts (11) and (12) (Figure 5). These structures seemed to be contemporary, as could be observed by the similar fabric of the bricks and mortar used in both culverts. Moreover, the fact that they possibly shared a wall would corroborate this (Section 1). The exposed area of the culverts was only 0.25m in width, making access and full analysis difficult. The dimensions of whole bricks, for example, could not be determined. Nevertheless, brick and mortar samples were recovered from a borehole cut through culvert [12] and dated to a period between 1500 and 1700. The culverts had been backfilled with concrete in the 1970s and therefore their depth could not be ascertained.
- 7.5.3 The culverts can be identified as part of Wren's drainage system from the 1680s, which took rain from the roof of the cathedral to be drained down Ludgate Hill (Schofield 2017), even though these specific branches were not drawn by W. Dickinson in the final plan (Figure 6).
- 7.5.4 It is clear that the foundations of the North Transept (4) were built on top of the culverts. The materials used to construct the foundations comprised stones of varying sizes as well as a hard grey mortar, which contained frequent small fragments of chalk and stone.
- 7.5.5 At the same time that the culverts were constructed, a line of bricks (10) was added on top of the structures and against the foundations, most likely to ensure the culverts remained sealed.
- 7.5.6 A borehole was dug by the building contractor into culvert (12) to a depth of approximately 0.14m in order to investigate its contents and construction. It revealed that at least three courses of brick were used for its construction. Moreover, it was also established that the structure was filled with concrete during the works for the underground car park in the 1970s.
- 7.5.7 Deposit (7), a loose, greyish white fill consisting mainly of demolition debris, such as mortar, sand as well as frequent fragments of bricks and tiles, sealed culvert (11). The assessment of this material has revealed the presence of a medieval floor tile, as well as a post-medieval/medieval peg tile and a post-medieval brick (Appendix 2), dating the fill to a period between 1600 and 1800. The deposit covered part of culvert (11) and most likely represents a fill used to level the ground surface.
-

- 7.5.8 Deposit (7) was cut by a feature to the south, cut [3]. The actual dimensions and depth of the cut could not be recorded because of the small size of the test pit. Nevertheless, one of its edges can be seen in Section 1 (Figure 5). Fill (2) was within this cut and it was found to also contain demolition material. It consisted of a loose, sandy mortar, with frequent fragments of bricks and tiles. Assessment of this material has revealed the presence of medieval floor and peg tiles, as well as post-medieval peg tiles and bricks, dating the feature to a period between 1600 and 1800 (Appendix 2). However, the function of the pit is unknown; it is likely that it was the result of some repair works after the construction of Wren's cathedral during the 18th and 19th centuries.
- 7.5.9 Another feature of interest is that of a stone slab (6) within a mortar deposit (5). The mortar seems to have been part of cut [17] for the placement of this slab; a cut which could also be seen on the east facing section of this test pit and also cut layer [7] (Figure 5). Unfortunately, only one fragment of pottery was recovered from the fill of this cut (8), which dates it to a period between 1580 and 1750 (Appendix 2). Below the cut, three bricks (9) were reused as a leveling deposit for the stone slab. The function of the slab, however, remains unknown.
- 7.5.10 The deposit of mortar (5) contained small to medium fragments of stone and brick. The mortar observed in Test Pit 1 (13) was used as made ground on top of the foundation wall, and therefore it could be assumed that (5) had the same function. However, it is not clear why the material was not covering the whole top of the foundation wall (4) in Test Pit 5, but just its northern section. Part of the deposit must have been removed during recent works when the layer of concrete and its bedding was laid in the area.
- 7.5.11 Foundation wall (4) measured approximately 1.20m north-east south-west by 0.80m north-west south-east at 15.97m OD. Its full depth could not be determined because of the small size of the test pit and the presence of other large features built adjacent to it, such as culverts (11) and (12) and a wide brick wall (10). The materials used for the construction of this foundation consisted of stones of different sizes and irregular shapes and a hard mortar, which was also observed in Test Pit 1 (13). A thick layer of a similar material was also found on top of the foundation wall, to the north of the test pit (5). A sandy gravel layer was observed on top of the cathedral's foundation wall (4) only. The layer comprised a thin layer of loose, dark grey sandy gravel (1), containing small fragments of ceramic building material and occasional flecks of charcoal.
- 7.5.12 Above layer (1) was a layer of concrete bedded on yellow sand and gravel. This layer was sealed by the stone cobble surface.



Plate 8: Test Pit 5, facing north. Cathedral's foundation can be seen to the right and culverts the left..



Plate 9: Test Pit 5, facing south. Culverts [11] and [12] and associated brick line [10].



Plate 10: Bore hole in culvert [12] in Test pit 5, facing west.

7.6 Conclusions

7.6.1 The results of the evaluation demonstrated the survival of archaeological remains from the period of the construction of Wren's cathedral have survived within Test Pit 5. However, the northern area of the North Transept was heavily truncated by the construction of the underground car park during the 1970s, as was seen in Test Pit 1.

7.6.2 The foundations of the Northern Transept were identified in Test Pits 3 and 5 at 16.31m OD and it could be suggested that at least part of Wren's drainage system was in place before the construction of the cathedral's foundation. As can be seen in Figure 8, the foundations seen in Test Pits 3 and 5 do not align, although they are located at the same height. The foundations do not appear to curve, although it is difficult to say for sure as only a short length was exposed in each test pit.

7.6.3 There is potential for the survival of archaeological remains along the southern part of the site's area close to the cathedral itself, including important Wren- (and other periods) remains.

8 No natural deposits were exposed in any of the monitored areas.

9 ACKNOWLEDGEMENTS

- 9.1 Pre-Construct Archaeology Limited would like to thank Caroe Architecture for commissioning the work. We also thank Kathryn Stubbs, Department of the Built Environment, City of London, and John Schofield, Cathedral Archaeologist, for his advice and for compiling the archaeological assessment prior to the commencement of the monitoring work.
- 9.2 The author would also like to thank Helen Hawkins for project managing the evaluation and editing this report, Ray Murphy for the CAD illustrations and Strephon Duckering for the photographic record of the well.

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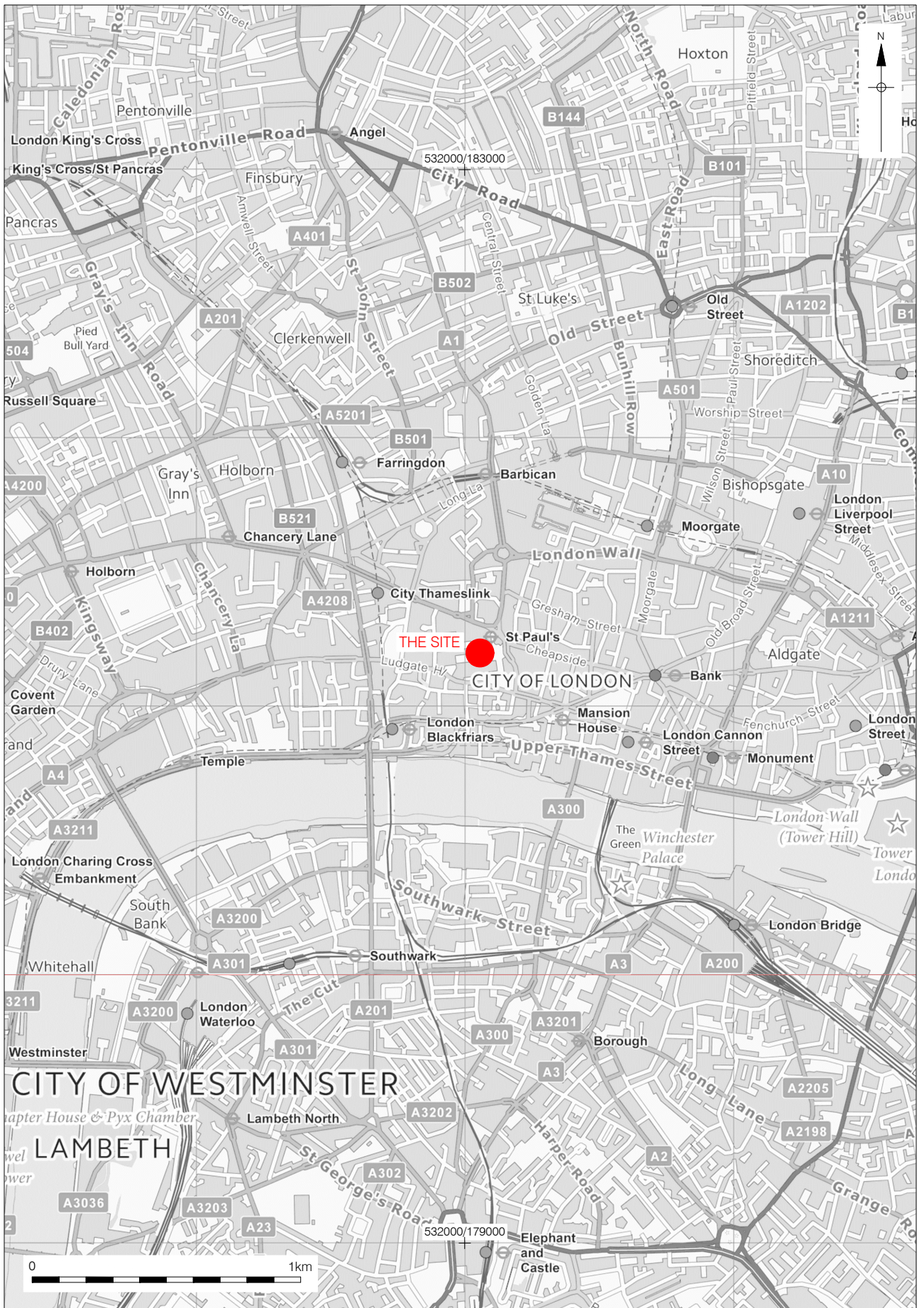
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Figure 1
 Site Location
 1:20,000 at A4

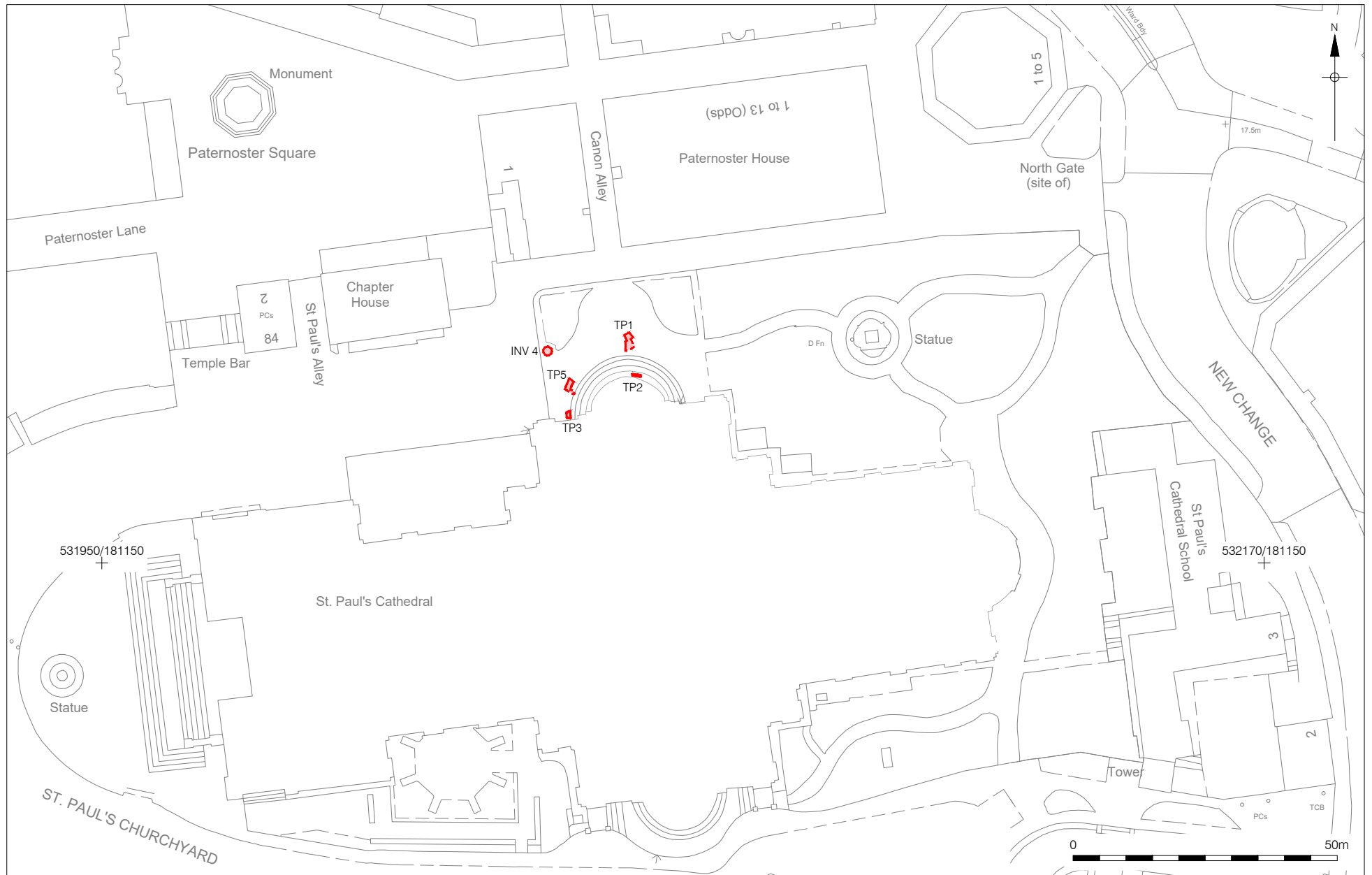


Figure 2
 Test Pit Location Plan
 1:1,000 at A4

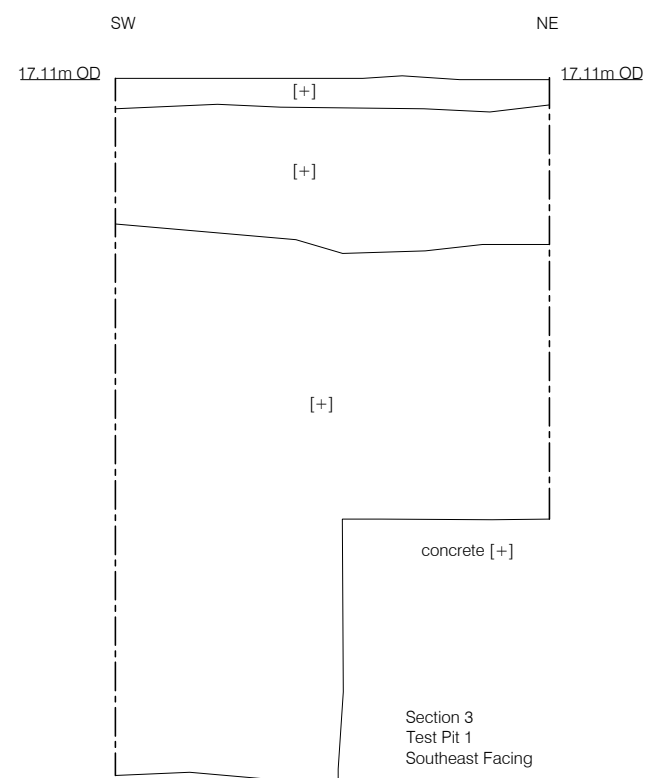
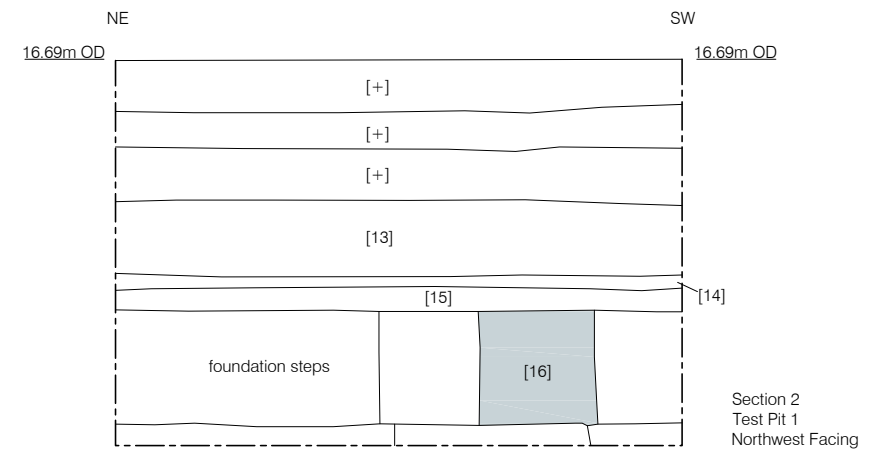
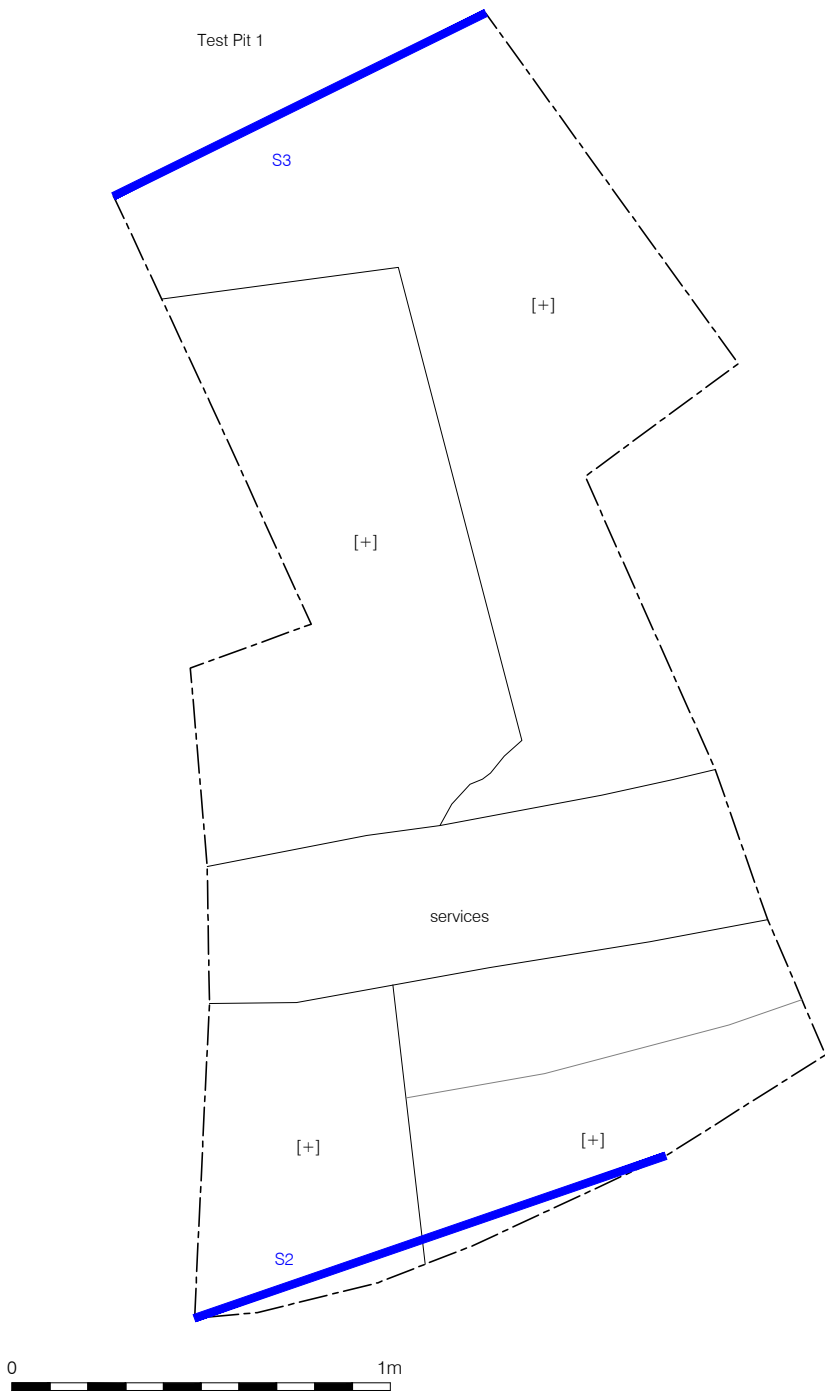
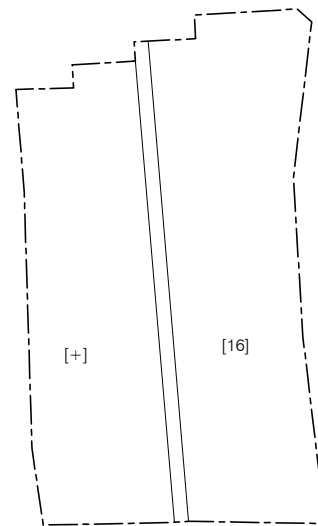


Figure 3
Plan and Sections of Test Pit 1
1:20 at A4



Test Pit 3



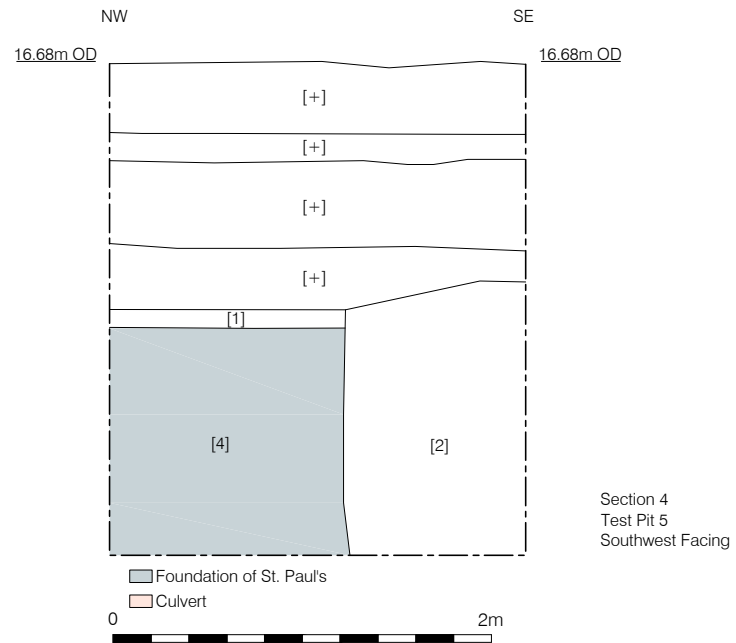
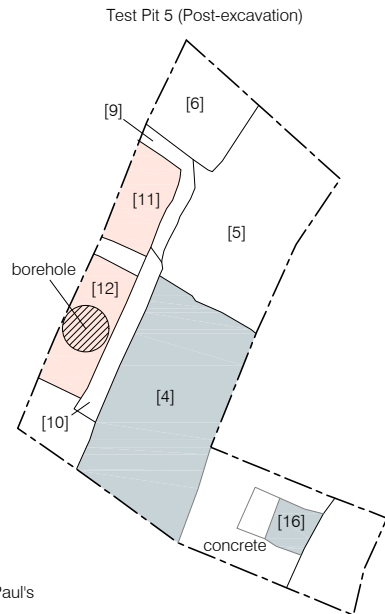
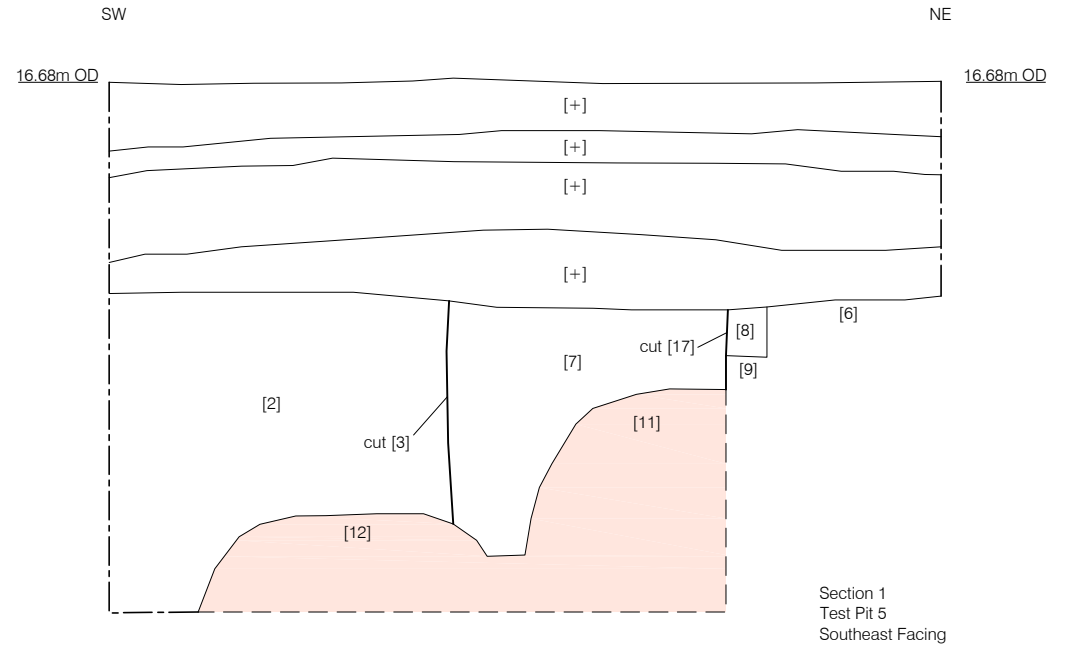
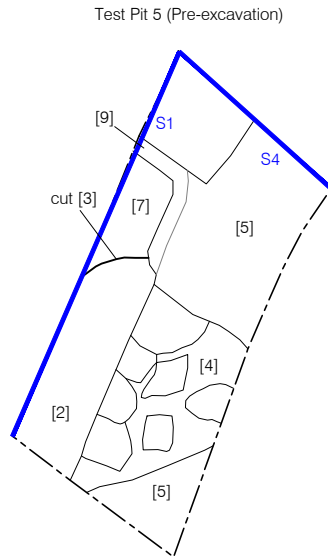
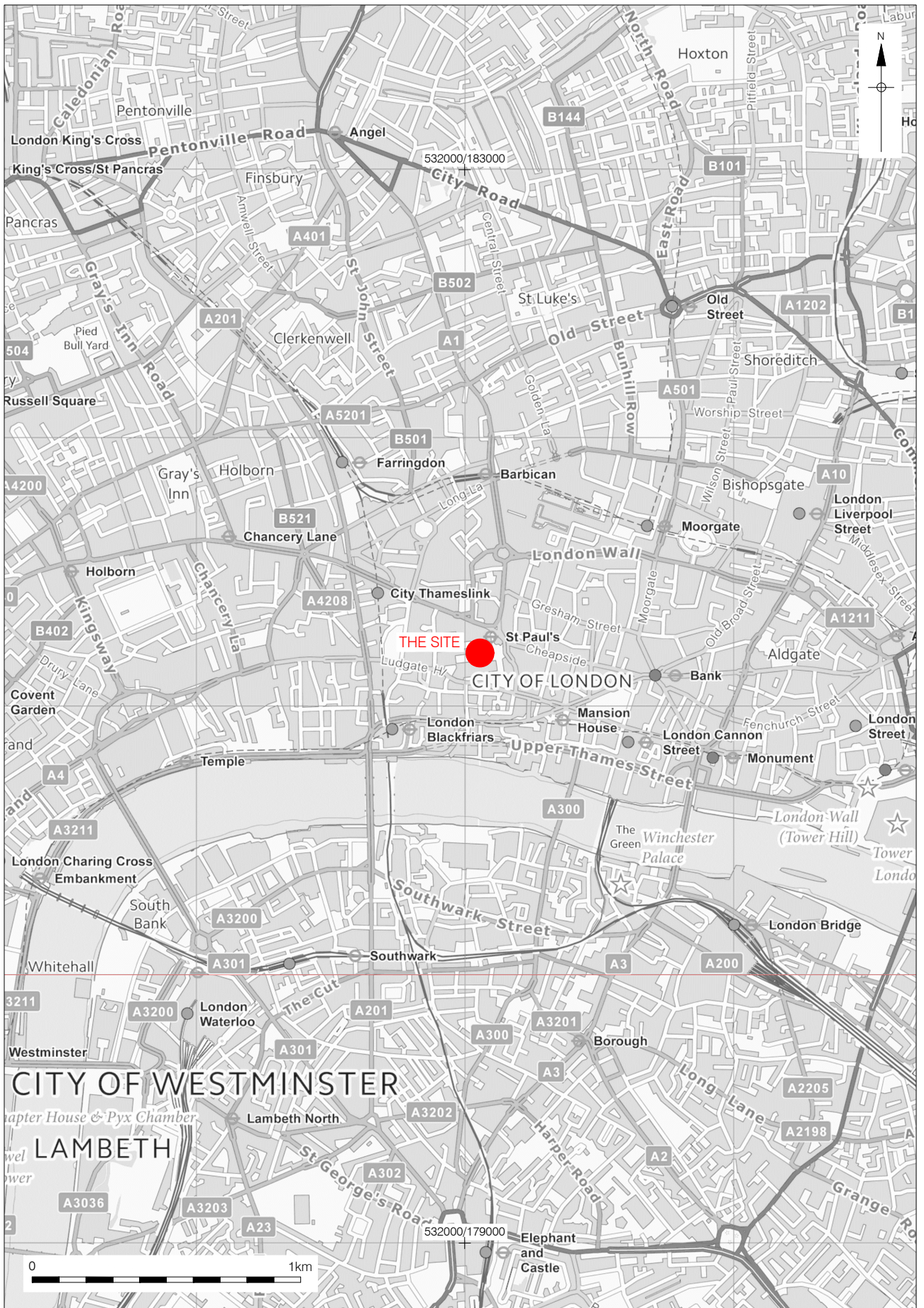


Figure 5
Pre and Post-Excavation Plans and Sections of Test Pit 5
Plans 1:40 and Sections 1:20 at A4





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Figure 1
 Site Location
 1:20,000 at A4

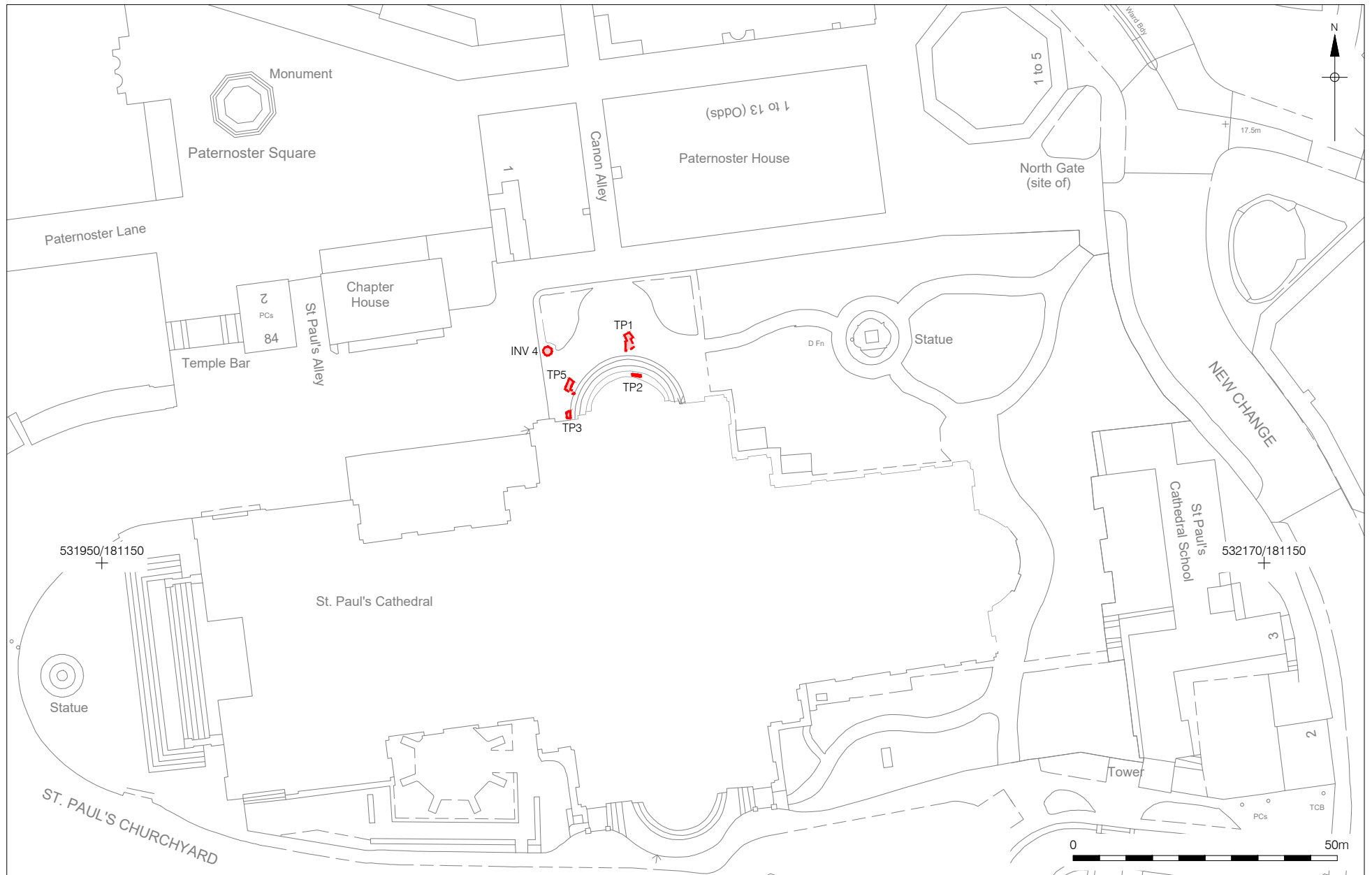


Figure 2
 Test Pit Location Plan
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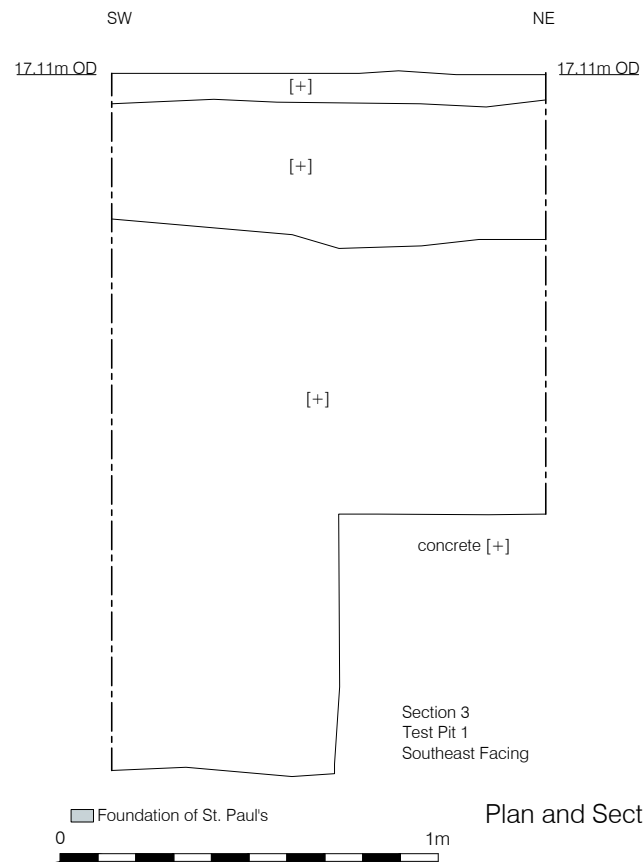
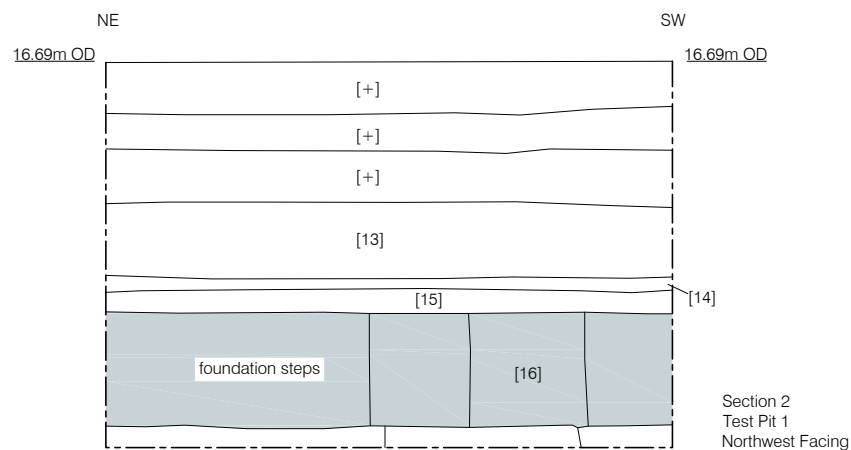
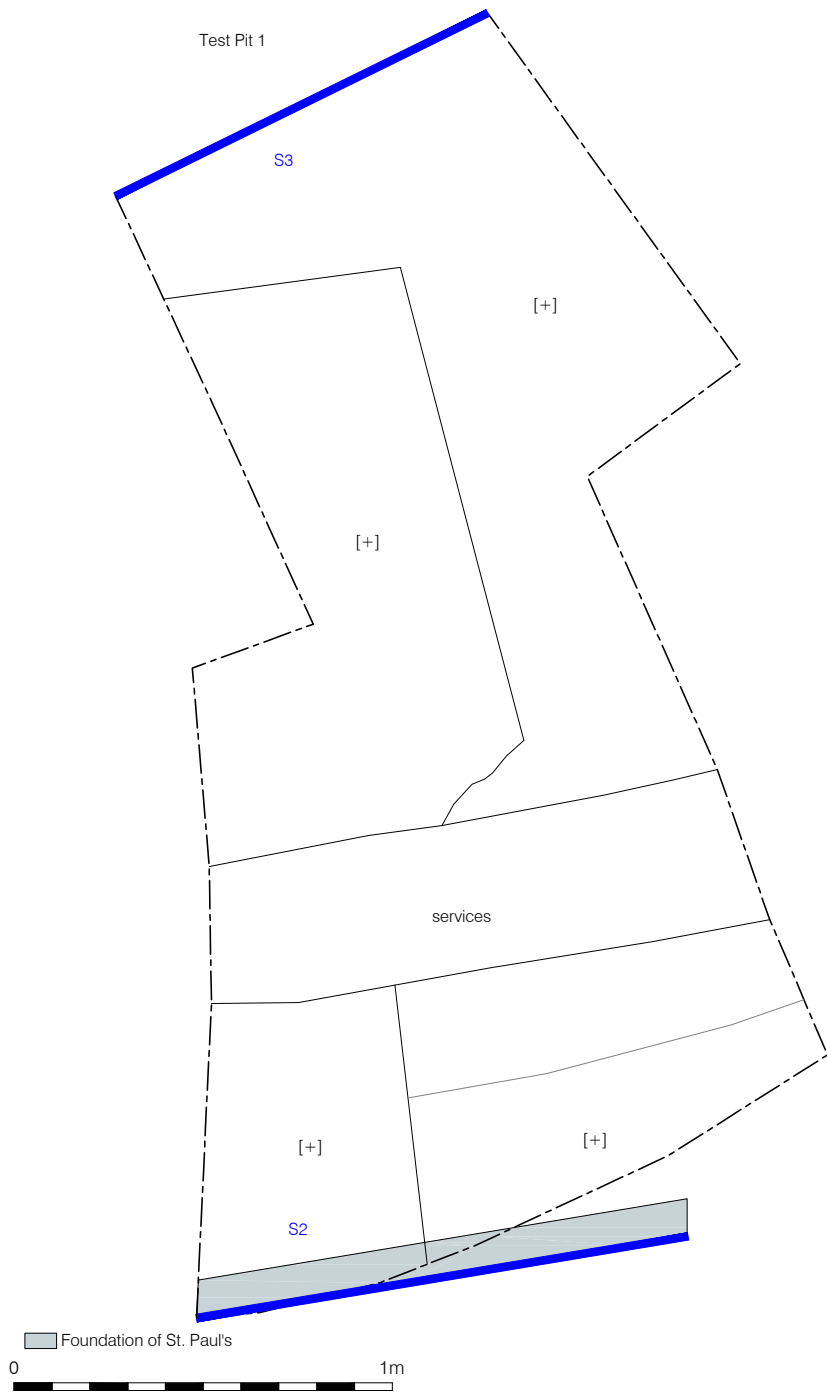
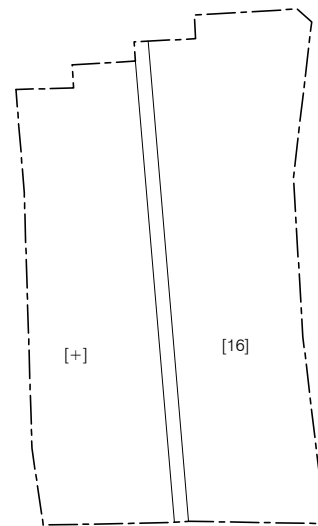


Figure 3
Plan and Sections of Test Pit 1
1:20 at A4



Test Pit 3



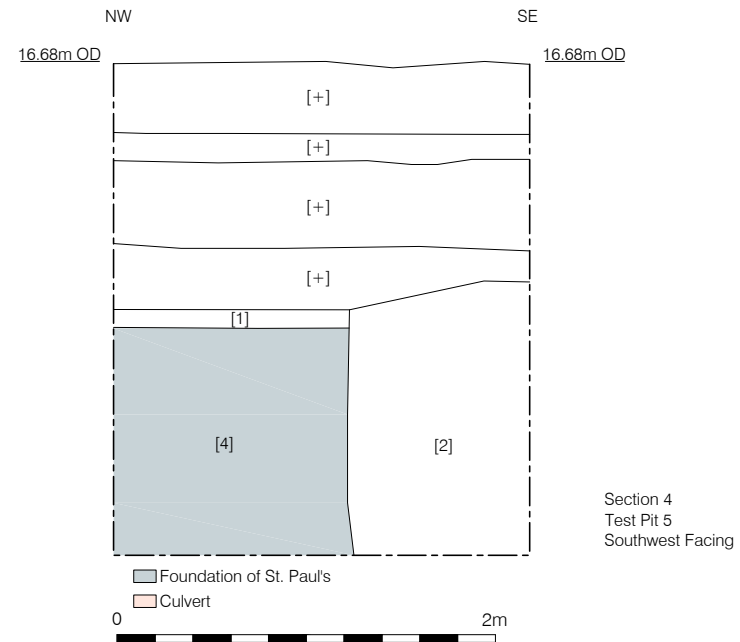
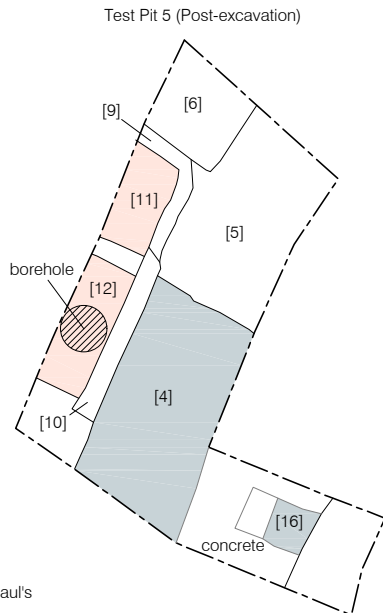
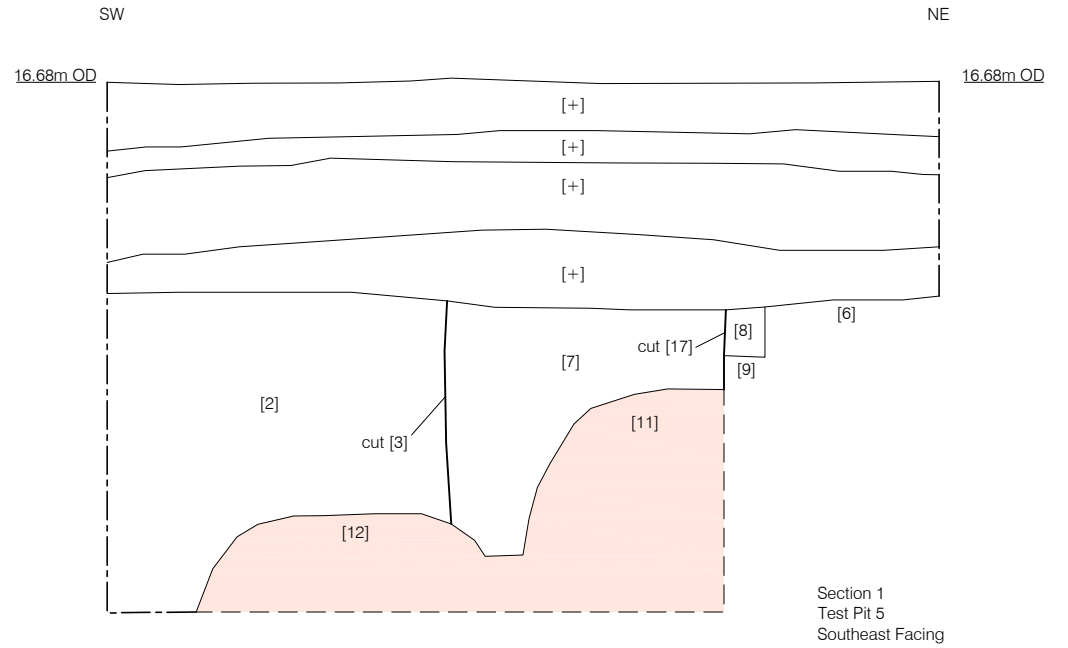
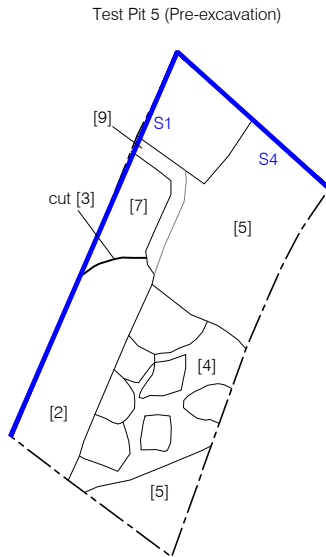


Figure 5
Pre and Post-Excavation Plans and Sections of Test Pit 5
Plans 1:40 and Sections 1:20 at A4

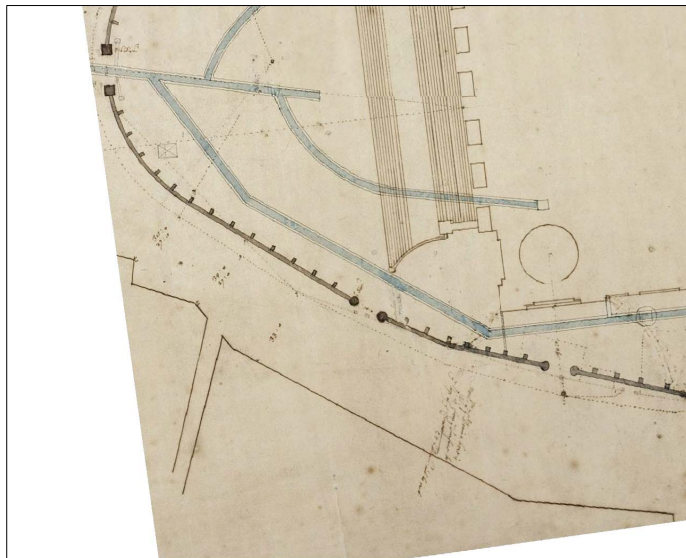
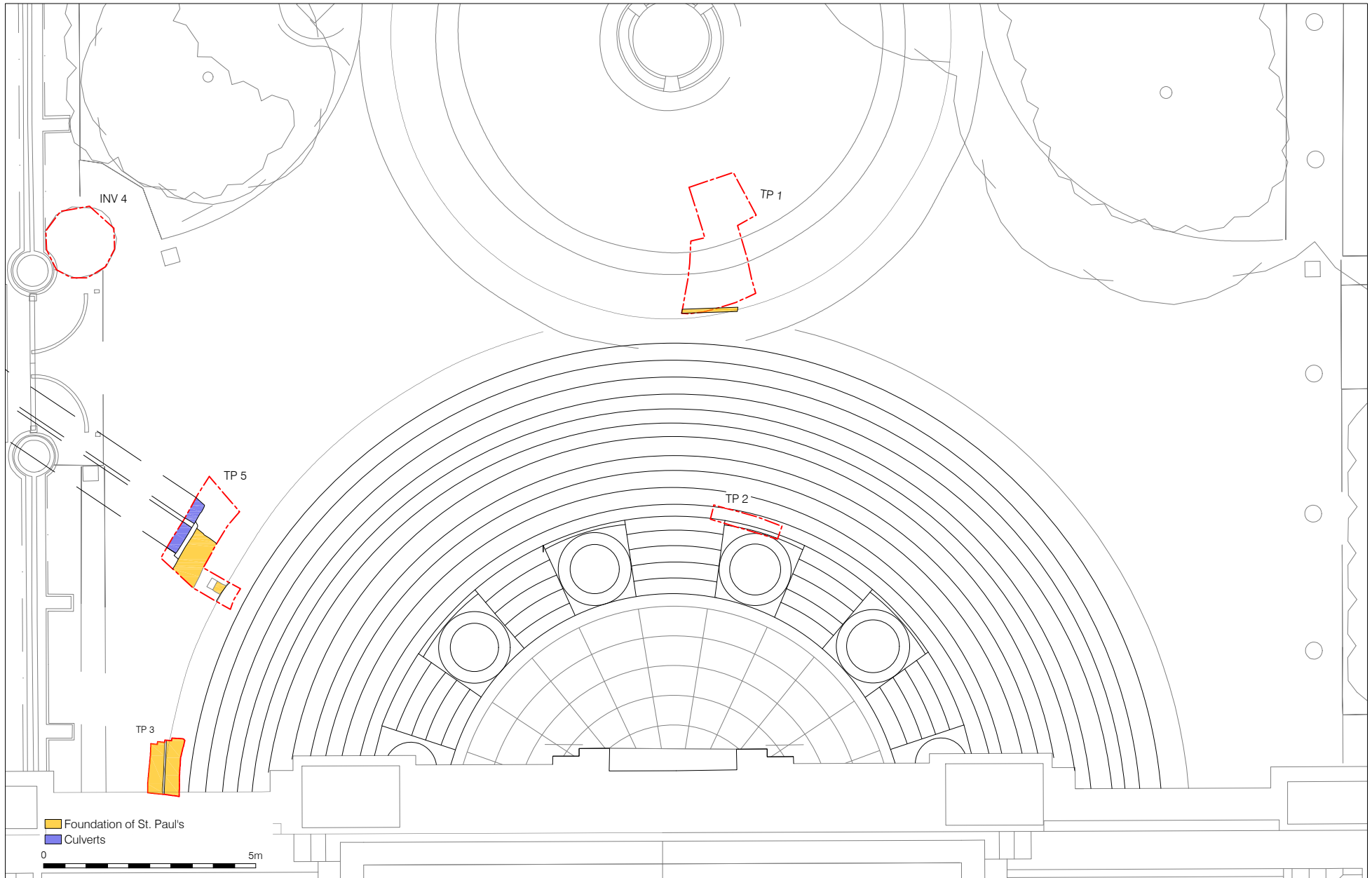


Figure 6
 Test Pits overlain on Wren's Plan of Drains
 1:1,000 and Inset 1:100 at A4



APPENDIX 1: OASIS DATA ENTRY FORM

OASIS DATA COLLECTION FORM: England

OASIS ID: preconst1-291967

Project details

Project name St. Paul's Equal Access Scheme

Short description of the project Monitoring of the excavation of four test pits in the courtyard of the north transept of the cathedral. Test Pit 5 revealed the foundations of the cathedral as well as two culverts from the Wren period. The project also undertook the recording of a medieval/early post-medieval well which was first discovered during the construction of an underground car park in the area. The well had been capped by concrete and preserved.

Project dates Start: 18-07-2017 End: 31-07-2017

Previous/future work No / Not known

Any associated project reference codes PCA17 - Sitecode

Type of project Recording project

Site status Listed Building

Site status Local Authority Archaeological Priority Area

Current Land use Community Service 1 - Community Buildings

Monument type CATHEDRAL Post Medieval

Project location

Country England

Site location GREATER LONDON CITY OF LONDON CITY OF LONDON St. Paul's Cathedral Equal Access Scheme

Postcode EC4

Study area 0 Square metres

Site coordinates TQ 32017 81187 51.513664975994 -0.097255511142 51 30 49 N 000 05 50 W Point

Project creators

Name of Organisation Pre-Construct Archaeology Ltd

Project originator brief John Schofield

Project originator design Helen Hawkins

Project director/manager Helen Hawkins

Project supervisor Deborah Koussiounelos

Project archives

Physical Archive recipient PCA

Physical Contents "Animal Bones","Ceramics","other"

Digital Archive recipient PCA

Digital Contents "Stratigraphic","Survey"

Digital Media "GIS","Images raster / digital photography","Text"

available

Paper Archive PCA
recipient

Paper Contents "Stratigraphic"

Paper available Media "Context sheet","Drawing","Photograph","Plan","Report","Section","Unpublished Text","Unspecified Archive"

**Project
bibliography 1**

Publication type Grey literature (unpublished document/manuscript)

Title St Paul's Cathedral Equal Access Scheme (test pits), City of London, EC4: An archaeological evaluation

Author(s)/Editor(s) Koussiounelos, D.

Date 2017

Issuer or publisher PCA

Place of issue or PCA
publication

Entered by Archive (archive@pre-construct.com)

Entered on 3 August 2017

APPENDIX 2: BUILDING MATERIAL

REVIEW BUILDING MATERIAL: ST. PAUL'S CATHEDRAL EQUAL ACCESS SCHEME, ST PAUL'S CATHEDRAL, CITY OF LONDON, EC2 (PCA17)

Compiled by Amparo Valcarcel, August 2017

DISTRIBUTION

Context	Fabric	Form	Size	Date range of material		Latest dated material		Spot date	Spot date with mortar
1	2276	Abraded post medieval peg tile	1	1480	1900	1480	1900	1480-1900	No mortar
2	2194;2271 ;3046; 2276;3032; 3101PM	Medieval floor tiles; medieval and post medieval peg tiles; post medieval sandy red bricks; post great fire brick	10	1180	1900	1180	1900	1666-1850	1600-1800
7	2271;2194; 3046	Medieval/post medieval peg tile; medieval floor tile; post medieval sandy red brick	3	1180	1800	1180	1800	1450-1700	1600-1800
12	3033	Post medieval sandy red brick	3	1450	1700	1450	1700	1450-1700	1500-1700

Review

The small assemblage (19 fragments, 6.84 kg.) consists mainly of pieces of fragmentary medieval and post medieval building material.

The medieval roof tile recovered was fragmentary, and most probably represents either dumped material, or residual demolition material. Furthermore, the tiles can be assigned an earlier medieval (12th to 13th century) date on the basis of fabric and form, indicating derivation from the demolition of building(s) of this date.

Bricks from culvert [12] are made of sandy red fabric 3033, manufactured in London between 1450 and 1700. The samples have no complete measures so it is not possible to assigned a correct date.

Three fragments of late medieval plain glazed floor tiles were recovered from dumped deposits. All the fragments were reused.

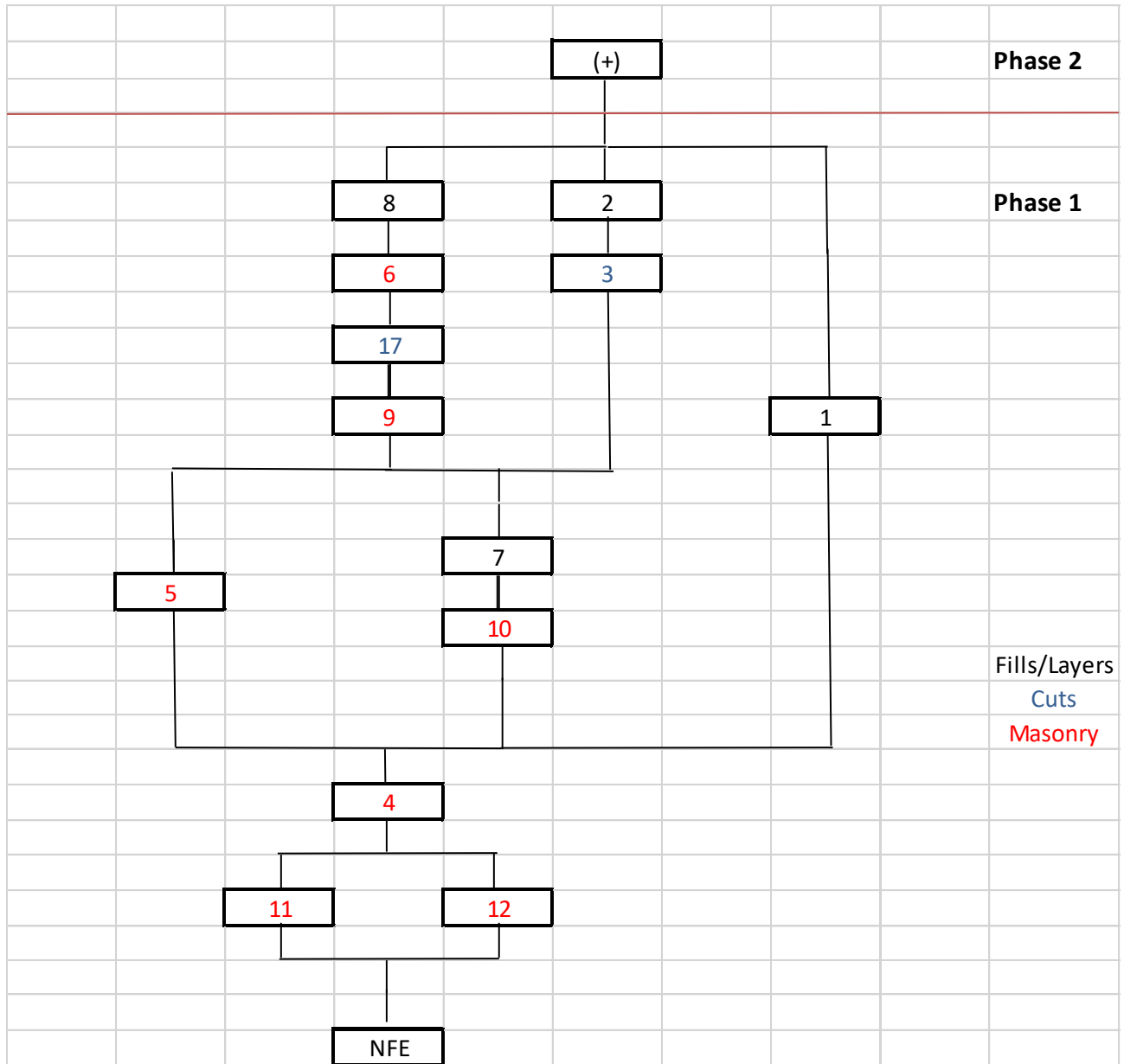
Two different sandy red brick fabrics were identified: the sandy red 3033 and the very sandy red 3046. Some of these bricks are reused and bonded with 17th and 18th century mortar. A few examples of peg tiles belonging to the very common sandy red fabric 2276 were collected.

Two examples of local post-Fire frogged brick (3032 fabric) were retained from [2], suggesting a post medieval occupation.

Recommendations

The value of this small assemblage shows a medieval activity and a post medieval use of the site between the late 15th century and mid 19th century. No further work recommended, although the core from the culvert should be retained for any museum collection of Wren reference material.

APPENDIX 3: MATRICES



Test Pit 5

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