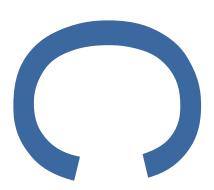
ST. PAUL'S CHURCHYARD, CITY OF LONDON, EC2

AN ARCHAEOLOGICAL WATCHING BRIEF DURING GAS MAIN REPLACEMENT WORKS

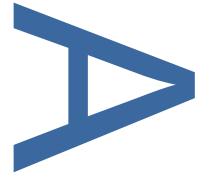




PCA REPORT NO: 12044

SITE CODE: PLD15

APRIL 2015



PRE-CONSTRUCT ARCHAEOLOGY

ST. PAUL'S CHURCHYARD, CITY OF LONDON, EC2

AN ARCHAEOLOGICAL WATCHING BRIEF DURING GAS MAIN REPLACEMENT WORKS

Quality Control

Pre-Construct Archaeology Ltd			
Project Number	K3747		
Report Number	R12045		

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Revision No.	Date	Checked	Approved

Pre-Construct Archaeology Limited Unit 54 Brockley Cross Business Centre 96 Endwell Road London SE4 2PD

St. Paul's Churchyard, City of London, EC2

An Archaeological Watching Brief during Gas Main Replacement

Works

Site Code: PLD15

Central National Grid Reference: TQ 32065 81203

Written and researched by: Maria Buczak

Pre-Construct Archaeology Limited, March 2015

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Commissioning Client: tRIIO

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March 2015

PCA Report No: R12044

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CONTENTS 1 2 3 Geology and Topography......6 5 Archaeological and Historical Background.......7 6 7 8 9 10 **PLATES** Plate 4: Trench 2B facing north, scale 1m14 **ILLUSTRATIONS APPENDICES** Appendix 1: OASIS Data Entry Form......21

1 NON-TECHNICAL SUMMARY

- 1.1 This report presents the results of an archaeological watching brief commissioned by tRIIO, and conducted by Pre-Construct Archaeology Limited at St. Paul's Churchyard, City of London, EC2. The watching brief monitored the excavation of three trenches in St Paul's Churchyard which were opened to locate and expose part of the existing gas main to facilitate replacement works.
- 1.2 This location has archaeological potential, situated as it is in the heart of the City and in extremely close proximity to St Paul's Cathedral, which was designed by Wren and built between 1675 and 1710. On balance, however, the survival of archaeological remains was considered unlikely during these works as modern excavation for utilities is known to have had a considerable impact along St Paul's Churchyard. However, there is the potential for the survival of historic strata notably Wren-period Churchyard surfaces below and around recent disturbance from the gas main.
- 1.3 Trenches 2A and 2B were located within the Cathedral Precinct but were predicted to be of no archaeological interest as an underground car park is recorded to have been built in this area during the 1970s. Excavation 1 lay outside the area affected by this car park and its archaeological potential was thus considered greater. The purpose of monitoring these trenches was thus to establish whether any such archaeological strata did survive in these locations, below and around recent disturbance from the gas main and any other modern development works.
- 1.4 If archaeological remains did survive, the watching brief objectives were also to record the nature, extent, date, character, quality, significance and state of preservation of archaeological remains affected by the investigation and to assess, where appropriate, the ecofactual and palaeoenvironmental potential of archaeological deposits and features from within the site.
- 1.5 Given the site's proximity to St Paul's Cathedral and its associated graveyard, the archaeological objectives also included establishing the presence or absence of burials.
- 1.6 Trench 1 was located in the east of St Paul's Churchyard, next to the south-east corner of Paternoster House, and was excavated to a maximum depth of 1.40m. Trenches 2A and 2B were located at the south-east corner of the next building to the west, across Canon Alley, and were excavated to a maximum depth of 0.97m.
- 1.7 No archaeological or natural deposits were revealed during these excavation works; all deposits encountered were modern, relating to the laying of the existing gas main and other current services and the construction of nearby modern buildings and the 1970s underground car park.

PCA Report No: R12044 Page 3 of 22

2 INTRODUCTION

- 2.1 An archaeological watching brief was undertaken by Pre-Construct Archaeology Ltd at St. Mary's Churchyard, City of London, EC2 (Figure 1). The work was carried out between 17th and 21st March 2015 on behalf of tRIIO, a joint venture partnership between Morrison Utility Services and Skanska Construction UK.
- 2.2 St Paul's Churchyard is a wide, paved pedestrian pathway which bounds the railed boundary of the grounds of St Paul's Cathedral to the south and is lined by modern office and commercial buildings to the north.
- 2.3 Three trenches were excavated; Trench 1 was located in the east of St Paul's Churchyard next to the south-east corner of Paternoster House, and Trenches 2A and 2B were located at the south-east corner of the next building to the west, across Canon Alley (Figure 2). The purpose of monitoring the excavations was to establish whether any archaeological remains including potential burials survived below and around recent disturbance from the modern gas main.
- 2.4 No archaeological or natural deposits were encountered within any of the trenches. Modern deposits only were observed.
- 2.5 The works were monitored for the Corporation 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 (2014).
- 2.6 The central National Grid Reference for the area monitored is TQ 32065 81203.
- 2.7 The site was given the unique Museum of London site code PLD15.
- 2.8 The watching brief was managed for Pre-Construct Archaeology Limited by Chris Mayo and conducted by the author.

PCA Report No: R12044 Page 4 of 22

3 PLANNING BACKGROUND

3.1 As stated within the Archaeological Assessment (Schofield 2014: 8):

As far as the Corporation of the City of London is concerned, the proposed works comprise permitted development under The Town and Country Planning (General Permitted Development) Order 1995, as amended. The works do require a permit from the Corporation (through its Department of the Built Environment) in relation to the Highways Act, and this has been appplied for.

The site of Excavation 2 (though not that of Excavation 1) falls inside the area subject to the jurisdiction of the Cathedrals Fabric Commission for England (CFCE). The boundary of the designated area follows the Wren railings along the south side of the pathway, but steps out in two steps immediately west of the gate at the north transept (and at the south end of Canon Alley). This is because the subterranean garage of the cathedral's Works Department lies below.

- 3.2 Trench 1 is thus located within the jurisdiction covered by the City of London Department of the Built Environment, while Trenches 2A and 2B are situated within the precinct of St Paul's Cathedral and are therefore subject to their planning controls. 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 (Mayo 2015) was prepared prior to the start of the project and submitted to Kathryn Stubbs and John Schofield for approval.

PCA Report No: R12044 Page 5 of 22

4 GEOLOGY AND TOPOGRAPHY

4.1 Geology

4.1.1 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 ¹.

4.2 Topography

- 4.2.1 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 Thogmorton 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.
- 4.2.2 The trenches themselves lie within St Paul's Churchyard 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 Trench 1 is approximately 17.3m OD, while at Trenches 2A and 2B it is approximately 17.1m OD.

¹ British Geological Survey, 2015, online.

5 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

5.1 Introduction

- 5.1.1 Although the general vicinity of the area to be monitored has a long and rich record of archaeological activity, only that relating to the medieval period and later is discussed. This is because excavation was not expected to and did not reach a sufficient depth to encounter remains of earlier periods. An excavation undertaken in 1997 about 20m to the east of Trench 1 found 2 metres of utilities below the surface, with Wren (15th-16th century) surfaces at a height of 15.9m OD. As excavation of the trenches to be monitored was not expected to exceed even 1.50m (i.e. reaching a ground level of no lower than 15.6m OD), it can be considered unlikely that deposits preceding even the modern period would be encountered, let alone periods before the medieval era.
- 5.1.2 The information here has been reproduced from the desk-based archaeological assessment written by John Schofield, the Cathedral Archaeologist (2014).

5.2 Medieval and Post-Medieval

- 5.2.1 The three trenches lie just outside the present railings on the north side of the cathedral and its churchyard. Building and reconstruction has been intense in this area since the Great Fire of 1666, and the line of the railings and the pathway has changed several times. In general, however, we can locate the area of the proposed excavations as being at the foot of Canon Alley and to its east, which are shown in an engraving of the north side of the cathedral around 1800 by Thomas Malton.
- 5.2.2 A medieval predecessor to the Wren cathedral existed on site before the Great Fire; the cause of this earlier cathedral's destruction. This cathedral lay along a slightly different orientation and its precinct was also different; the proposed excavation sites fall inside the medieval precinct, being just outside the north transept of the cathedral building.
- 5.2.3 Many archaeological observations and excavations have been recorded in and around the cathedral from 1675 to 2011, with other sites of historic significance known from documentary references. An example of just a few such sites and discoveries include Wren-period surfaces and burials excavated in 1997 20m to the west of Trench 1, St Paul's Medieval Chapter House recorded to the west of Trench 2 in 1714, and St Faith's parish pump, erected in 1819. The archaeology of the area around the proposed excavations is thus known in outline, though many of the observations are crude as they predate the present century.

PCA Report No: R12044 Page 7 of 22

- 5.2.4 Briefly, it can be shown that Trenches 2A and 2B will be totally through recent (indeed post-1970) deposits and are of no archaeological interest. Trench 1, however, while probably also through recent backfill deposits, merits more consideration. It is located next to the site of a Medieval Charnel House of the cathedral. This probably 12th century structure is now destroyed and its tens of thousands of human bones were removed in the 16th century. But there are certainly disturbed burials nearby, as the excavation site is well inside the medieval precinct, and dislocated (loose) human bones may be present in modern strata.
- 5.2.5 The precise history of the railings of the churchyard along this north side has not yet been compiled, but it is probable that the present line, coming from the north-east corner with Cheapside, has been rebuilt a little to the south from its original line, to widen the public highway. This means that the brick arches of the base of the Wren railing will be just below the surface, immediately north of the present railings.

5.3 Modern

- 5.3.1 During World War II, the cathedral was damaged by direct hits of two bombs, and there was widespread destruction of buildings in the streets around, especially around Paternoster Row just to the north St Paul's Churchyard. Most of the buildings lining the north side of St Paul's Churchyard were destroyed by the bombs, and even those north of Paternoster Row are recorded as damaged.
- 5.3.2 A Post-War reconstruction proposal by William Holford gives the street numbers in the Churchyard and shows how the 19th century buildings probably followed older, even medieval property boundaries in their outline. Thus Canon Alley was narrow up to the post-War rebuilding, and the fronts of 17th- to 19th- century buildings may survive in the now widened pathways.
- 5.3.3 With the 1970s reorganisation of the Wren Railings around the north transept, the Works Department also built underground between the nave and the Chapter House in 1969-70. This included an underground garage or car park which lies in front of nos. 69 and 70 St Paul's Churchyard. Plans of the underground car park suggest the roof of the garage is at about 16.1m OD, comparing with a general level hereabouts of the pathway at 17.1m OD. Thus the roof of the garage is about 1m below the surface. But this can only be ascertained by excavation, and is not certain.
- 5.3.4 New buildings were also built along the north of St Paul's Churchyard in the 1960s. These were in turn demolished in the late 1990s with the currently standing buildings (e.g. Paternoster House) constructed later still.

PCA Report No: R12044 Page 8 of 22

5.3.5 The present gas main runs along the pathway of St Paul's Churchyard. Its date of construction is not known, but it must be recent. The archaeological interest is concerned with how much, if any, historic strata survive to be disturbed by the digging of Trench 1. Below and around any recent disturbance from the gas main, there may be strata of the Wren churchyard, though this is on balance unlikely. An excavation of 1997 about 20m to the east of Trench 1 found 2 meters of utilities below the surface, with Wren surfaces at a height of 15.9m OD.

PCA Report No: R12044 Page 9 of 22

6 ARCHAEOLOGICAL METHODOLOGY

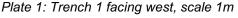
- 6.1 The watching brief consisted of the monitoring of three trenches and aimed to ascertain whether any archaeological deposits most likely Wren period Churchyard surfaces but possibly also burials and other strata survived below and around recent disturbance from the gas main. Once the gas main had been located within each trench and sufficiently exposed for the purposes of replacement, excavation ceased.
- 6.2 Trench 1 was a fairly irregular shape due to initial problems associated with locating the gas pipe. It measured a maximum of 2.27m north-south by east-west, and was excavated to a maximum depth of 1.40m. Trench 2A was almost rectangular and measured a maximum of 1.52m north-south by 0.92m east-west. Trench 2B was rectangular and measured a maximum of 2.14m north-south by 0.59m east-west. Both trenches 2A and 2B were excavated to a maximum depth of 0.97m.
- 6.3 The fieldwork was carried out according to the relevant methodologies, as follows:
 - Archaeology in the City of London: Archaeology Guidance: Planning Advice Note 3 (City of London 2004);
 - GLAAS Archaeological Guidance Papers: Standards for Archaeological Work (GLAAS 2014);
 - The Institute for Archaeologists Standard and Guidance for Archaeological Watching Brief (2012);
- 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 proforma 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.
- The complete site archive including site records and photographs will be deposited at the London Archaeological Archive Research Centre (LAARC) under the site code PLD15.

PCA Report No: R12044 Page 10 of 22

7 EXCAVATION RESULTS

7.1 Trench 1

- 7.1.1 The largest intervention undertaken consisted of the excavation of Trench 1 which measured a maximum of 2.27m north-south by east-west, and was excavated to a maximum depth of 1.40m (Figure 3, Plates 1-2). This trench was located in St Paul's Churchyard, next to the south-east corner of Paternoster House. The trench was irregular in shape and excavated to varying depths across its extent due to initial problems locating the gas main and decisions involving the precise length of gas pipe that required exposure for replacement works.
- 7.1.2 A layer of modern paving slabs (approximately 0.07m thick) was found to lie above a thick layer of modern sand (approximately 0.12m thick). This sand overlay modern deposits of mixed sand, rubble and stones within which the gas pipe and other modern services were found. These mixed deposits extended down to the excavation depth and thus had a maximum observed thickness of 1.21m. In the very north of the trench, these deposits appeared to be truncated by an even more modern cut, perhaps relating to the construction of Paternoster House to the north.
- 7.1.3 No archaeological or natural deposits were observed within the trench. All deposits were modern and related to the laying of the existing gas main and other modern services (of which there were many) and, to a lesser extent, possibly also the recent construction of Paternoster House.





PCA Report No: R12044 Page 11 of 22

Plate 2: North-facing section, Trench 1, scale 1m



7.2 Trench 2A

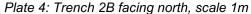
- 7.2.1 Trench 2A measured a maximum of 1.52m north-south by 0.92m east-west and was excavated to a maximum depth of 0.97m. It was located in St Paul's Churchyard next to the south-east corner of the building immediately west of Paternoster House (Plate 3).
- 7.2.2 Modern paving slabs were again discovered to overlay a deposit of sand, below which was a layer of concrete which became thicker to the south, where it reached a maximum thickness of 0.22m. Below this concrete were mixed deposits of sand, stone and rubble in which the gas pipe was found. These deposits varied somewhat across the extent of the trench but all were definitely modern and relating to the laying of the gas pipe. These deposits extended down to the excavation depth.
- 7.2.3 No archaeological or natural deposits were observed within the trench. All deposits were modern and related to the laying of the existing gas main.



Plate 3: Trench 2A facing east, scale 1m

7.3 Trench 2B

- 7.3.1 Trench 2B measured a maximum of 2.14m north-south by 0.59m east-west and was excavated to a maximum depth of 0.97m. It was located in St Paul's Churchyard just to the east of Trench 2A. The excavation of this trench was not originally planned, however it became necessary when the branch of the gas main found in Trench 2A was found to have been capped off and exposure of a further, live, branch of this main was thus required (Plate 4).
- 7.3.2 The general sequence revealed in Trench 2B was the same as that observed in Trench 2A; paving slabs overlying sand, overlying concrete, which sat above modern sand rubble and stone deposits containing the gas main and other services. The end of a concrete wall was also revealed in the north of this trench truncating all deposits below the sand layer; it may relate to the construction of the underground garage in this area. Modern deposits extended down to the excavation depth.
- 7.3.3 No archaeological or natural deposits were observed within the trench. All deposits were modern and related to the laying of the existing gas main and other services, and possibly also to the construction of the 1970s underground garage in the area.





8 CONCLUSIONS

- 8.1 The results of the watching brief demonstrated that, as predicted, no archaeological remains of any period have survived within the areas excavated and, as previously attested to by the nearby 1997 excavations, that the impact of modern development in the immediate vicinity is large. This modern development has taken the form of the laying of the gas main and other services, as well the construction of a 1970s underground garage and more recent construction of properties along the northern edge of St Paul's Churchyard.
- 8.2 No burials were encountered and no natural deposits were exposed in any of the monitored areas.
- 8.3 Although no archaeological remains were encountered during this watching brief, there is still the potential for the survival of archaeological remains along the southern part of St Paul's Churchyard. Situated further from the modern buildings, gas main and other service runs encountered along the pathway's northern extent, and closer still to St Paul's Cathedral, this area certainly has potential for the survival of important Wren- (and other period) remains.

PCA Report No: R12044 Page 15 of 22

9 ACKNOWLEDGEMENTS

- 9.1 Pre-Construct Archaeology Limited would like to thank Jacques Deneys of tRIIO for commissioning the work and Richard Sapsford of tRIIO for his help on site. We also thank Kathryn Stubbs, Department of the Built Environment, City of London, and John Schofield for his advice and for compiling the desk-based archaeological assessment prior to the commencement of the monitoring work.
- 9.2 The author would also like to thank Chris Mayo for project managing the watching brief and editing this report, and Adela Murray-Brown for the CAD illustrations.

PCA Report No: R12044 Page 16 of 22

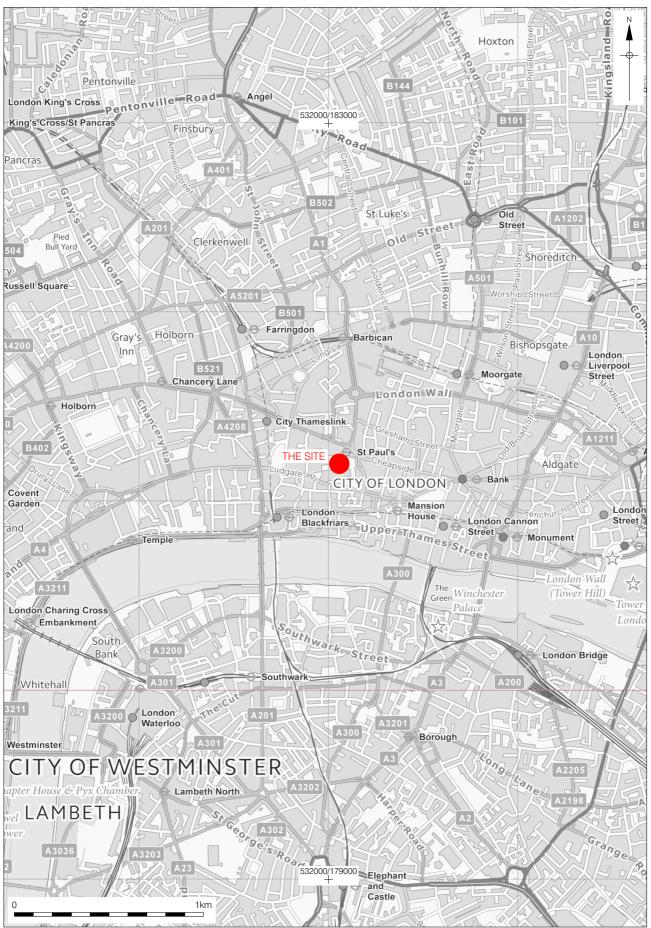
10 BIBLIOGRAPHY

British Geological Survey, 2015, Geology of Britain viewer. Online source.

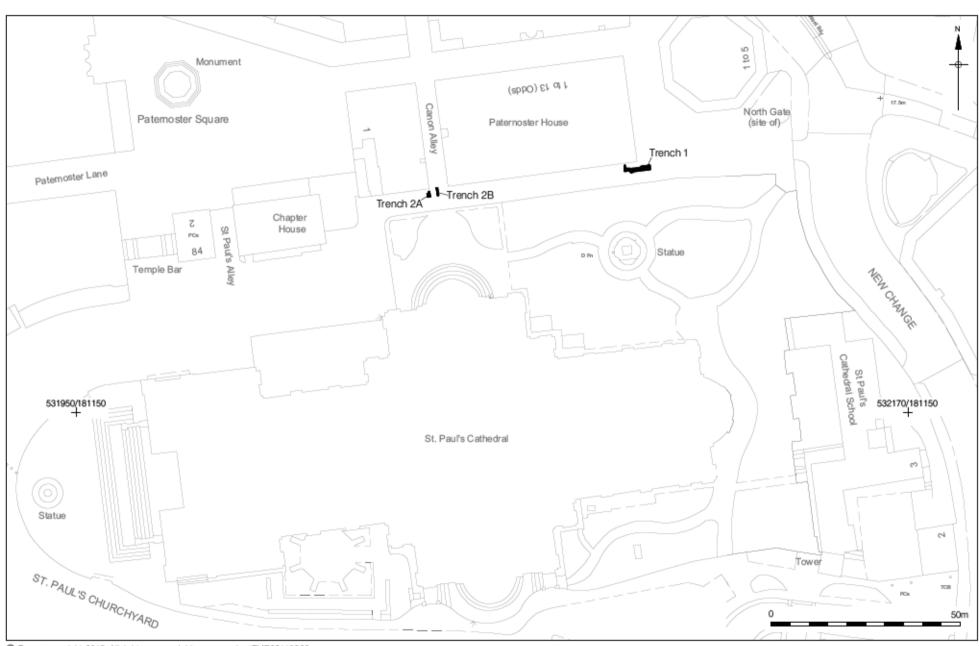
Mayo, C. 2015 'St Paul's Churchyard, City of London EC2: Written Scheme of Investigation for Archaeological Watching Brief During Gas Main Replacement Works'. PCA, unpublished document.

Schofield, J. 2014, 'St Paul's Churchyard, London EC2: Proposed Gas Main Replacement Works. Archaeological Assessment'. Unpublished document.

PCA Report No: R12044 Page 17 of 22

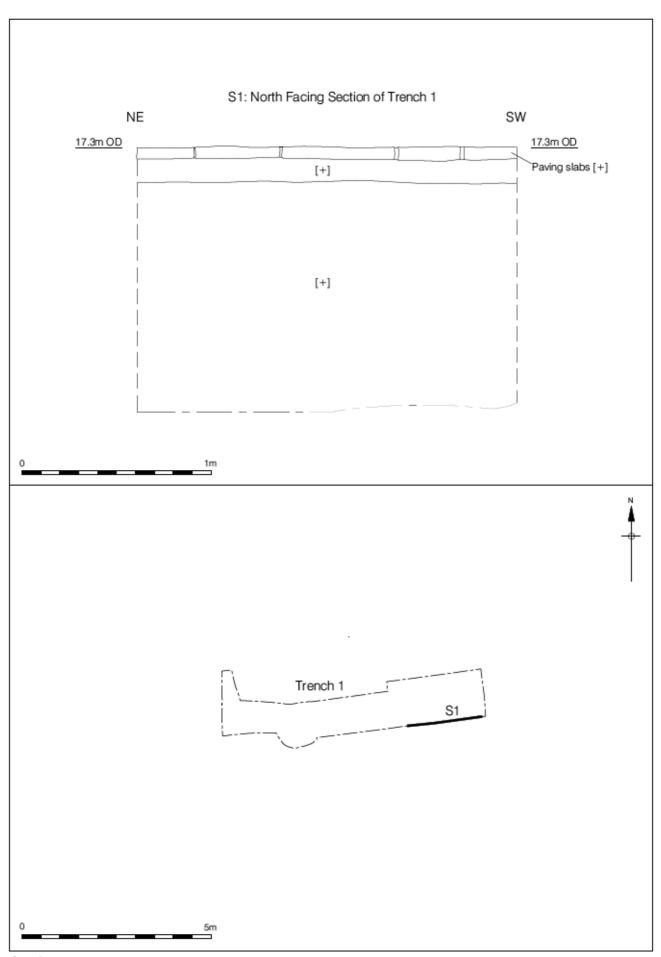


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Figure 2 Detailed Site Location 1:1,000 at A4



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APPENDIX 1: OASIS DATA ENTRY FORM

OASIS ID: preconst1-207171

Project details

Project name An Archaeological Watching Brief at St. Paul's Churchyard, City of London, EC2

project

Short description of the A watching brief monitored the excavation of three trenches in St Paul's Churchyard which were opened to locate and expose part of the existing gas main to facilitate replacement works. The purpose of the monitoring was to establish whether any archaeological strata - most likely Wren period Churchyard surfaces - did survive in these locations below and around recent disturbance from the gas main and any other modern development works. No archaeological or natural deposits were revealed during these excavation works; all deposists encountered were modern, relating to the existing gas main, other current services and nearby modern buildings.

Project dates Start: 17-03-2015 End: 21-03-2015

Previous/future work Not known / Not known

Any associated project PLD15 - Sitecode

reference codes

Type of project Recording project

Site status Local Authority Designated Archaeological Area

Current Land use Other 11 - Thoroughfare

NONE None Monument type Significant Finds NONE None Investigation type "Watching Brief"

Prompt National Planning Policy Framework - NPPF

Project location

Country England

GREATER LONDON CITY OF LONDON CITY OF LONDON St Paul's Site location

Churchyard

Postcode EC4M 8AD

Study area 5.00 Square metres

TQ 532065 181203 50.9415667449 0.180955658562 50 56 29 N 000 10 51 E Site coordinates

Point

Lat/Long Datum Unknown

Project creators

Name of Organisation Pre-Construct Archaeology Limited

Project brief originator Local Authority Archaeologist and/or Planning Authority/advisory body

Project design originator Chris Mayo Project director/manager Chris Mayo Project supervisor Maria Buczak Type of sponsor/funding Utility Company body

Name of sponsor/funding tRIIO

body

Project archives

Physical Archive Exists? No

Digital Archive recipient LAARC

Digital Archive ID PLD15

Digital Contents "Stratigraphic"

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

Paper Archive recipient LAARC
Paper Archive ID PLD15

Paper Contents "Stratigraphic"

Paper Media available "Diary", "Drawing", "Map", "Plan", "Report", "Section", "Unpublished Text"

Project bibliography 1

Publication type Grey literature (unpublished document/manuscript)

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