

**C257 – ARCHAEOLOGY CENTRAL**  
**Fieldwork Report**  
**Archaeological General Watching Brief**  
**Broadgate Ticket Hall Pile Line 2014 (XSM10)**

**CRL Document Number: C257-MLA-T1-RGN-CRG03-50072**

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## Non-technical summary

*This report covers the results of archaeological fieldwork carried out by Museum of London Archaeology (MOLA) between 19/06/14 and 07/11/14 on the site of the future Crossrail Broadgate Ticket Hall, Liverpool Street, London EC2M, within the City of London, National Grid Reference (NGR) 533050 181610. The report was commissioned from MOLA by Crossrail Ltd.*

*The fieldwork covered in this report was a MOLA archaeological watching brief on exhumation by C502 exhumation contractor Thomas Cribb and Son (TCS) in advance of a phase of piling at the site. Due to the restricted depth of these works, with excavation generally ceasing at the base of the burial ground horizon of the New Churchyard (aka Bethlem or Bedlam Burial Ground) (1569 to c 1730s), limited pre-1569 remains were encountered. However, excavation of a small sondage within one future pile location in Trench Box (TB) 2.8 revealed a metallised gravel surface at 108.95m ATD. This was part of a Roman road found previously during excavations to the west. The road was sealed by late Roman to early 16th-century marsh deposits. A clay deposit in TB 2.6 was also identified as part of the marsh.*

*Burial ground deposits from the New Churchyard, including in situ articulated burials and disarticulated human remains, were encountered in all of the trench locations. The burial ground horizon was 0.51m to 1.85m thick. Burials were encountered between 111.20 and 111.50m ATD, with the base levels between 109.42m ATD and 110.77m ATD. All burial remains were exhumed by TCS under a MOLA general watching brief and not recorded individually. However, one coffin was particularly notable. The lid of this coffin included a pattern of decorative studs, possibly depicting letters and numbers. Unfortunately, this information was largely illegible, but is likely to have been the occupant's initials and/or year of death. This is the first example of this type of coffin decoration to have been encountered during Crossrail investigations on this site, although examples were noted in the 1985 excavations. Other finds recovered from the burial ground soils included coffin furniture and pottery, medieval tile, and a trading token, as well as industrial waste associated with glass production and animal bone or ivory working.*

*A number of wall foundations truncated the burial ground horizon. At least two of these appear to be associated with Broad Street Buildings and No. 1 Broker Row. These properties were built around and/or within the burial ground soon after it went out of use in the early to mid-18th century. As in previous investigations, two of these foundations were found to incorporate reused grave stones. A near-complete headstone with the inscription 'MARY (G)ODFREE, (DY)ED THE 2<sup>TH</sup> (D)AY OF SEPT, 1665' may have belonged to Mary Godfrey, who parish records show died of the plague in St Giles Cripplegate on the 2<sup>nd</sup> September 1665.*

*Other wall foundations recorded during the watching brief are likely to relate to the widening of Liverpool Street in c 1824–25 and to the construction of Broad Street Station in 1864–65.*

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# 1 Introduction

Crossrail is a new London rail link project that will provide transport routes in the south-east and across London. The proposed development will include the construction of seven stations within central London which will interchange with other public transport modes, including the London Underground, National Rail and the London Bus service; the development will also include the renewal and/or upgrade of existing stations outside central London. The route itself will link Reading and Heathrow in the west with Shenfield in the north-east and Abbey Wood in the south-east.

As part of these works a new station is required running from Moorgate to Liverpool Street. The Broadgate Ticket Hall worksite (the site of a new ticket hall and utilities corridor to the south) consists of an area in the road and pavement of Liverpool Street, London, EC2, to the east of Blomfield Street and to the south and west of the disused ticket hall/sub-station. The grid reference for the centre of the worksite is NGR 533050 181610.

The Crossrail mitigation response to archaeology is described in the Crossrail Generic WSI (Crossrail 2009a) and the detailed desk based assessment (DDBA; Crossrail 2008), and can be summarised as follows:

- In the event that intact and important archaeological remains are identified at Crossrail worksites through this process, it may be preferable, where practicable, to preserve these where they are found (ie preservation in situ).
- However, because of the nature of major works projects such as Crossrail, experience of other similar projects suggests that preservation by record is usually the most appropriate method of dealing with archaeological finds.
- Following an extensive Environmental Impact Assessment (EIA) supporting the Crossrail Bill, and the production of site-specific DDBAs, appropriate mitigation measures were scoped and specified in detail in individual project designs (site-specific WSIs – Written Schemes of Investigation) which were prepared in accordance with the principles set out in the Generic WSI, and developed in consultation with the relevant statutory authorities.
- Archaeological information that is gained from fieldwork will be followed by analysis and publication of the results and will be transferred to an approved public receiving body.



This report covers one archaeological investigation carried out at the location of the future Broadgate Ticket Hall, Liverpool Street, by C257 Museum of London Archaeology (MOLA), between 19/06/14 and 07/11/14. This work was supervised by MOLA Senior Archaeologists Jeremy Taylor, Robert Hartle and Robert Tutt, and constituted the following:

Task	Principal Contractor	Date
<ul style="list-style-type: none"> <li>General Watching Brief pile line: (preliminary ground reduction and clearance of human remains by exhumation contractor)</li> </ul>	C502 Laing O'Rourke	19/06/14 to 07/11/14

*Table 1 Fieldwork conducted between 19/06/14 and 07/11/14*

**All grid coordinates in this report are cited as both the National Ordinance Survey and London Survey Grid, and all levels cited as Above Tunnel Datum (m ATD)(ATD = OD +100m).**

The event code (sitecode) is **XSM10**.

## 2 Planning background

The overall framework within which archaeological work is undertaken is set out in the Environmental Minimum Requirements (EMR) for Crossrail (Crossrail 2008). The requirements being progressed follow the principles of Planning Policy Guidance Note 16 (PPG16) (DoE, 1990), and its replacements Planning Policy Statement 5 (PPS5)(DCLG, 2010) and the National Policy Planning Framework (NPPF)(DCLG, 2012), on archaeology and planning. Accordingly the nominated undertaker or any contractors will be required to implement certain control measures in relation to archaeology before construction work begins.

Schedules 9, 10 and 15 of the Crossrail Bill (2005) concern matters relating to archaeology and the built heritage and allows the dis-application by Crossrail of various planning and legislative provisions including those related to listed building status, conservation areas and scheduled ancient monuments (Schedule 9). Schedule 10 allows certain rights of entry to English Heritage given that Schedule 9 effectively dis-applied their existing rights to the Crossrail project, and Schedule 15 allows Crossrail to bypass any ecclesiastical or other existing legislation relating to burial grounds.

Notwithstanding these dis-applications, it is intended that agreements setting out the detail of the works and requiring relevant consultations, and approvals of detail and of mitigation arrangements, will be entered into by the nominated undertaker with the relevant local planning authorities and English Heritage in relation to listed buildings, and with the Department of Culture, Media and Sport (DCMS) and English Heritage in relation to Scheduled Ancient Monuments (SAMs).

## 3 Origin and scope of the report

This report has been commissioned from MOLA by Crossrail Ltd. It has been prepared within the terms of the relevant standard specified by the Institute for Archaeologists (IFA, 2008 for fieldwork, and 2014 for reporting). It considers the significance of the fieldwork results (in local, regional or national terms) and makes appropriate recommendations for any further action, commensurate with the results.

This report will be made available from the London Archaeological Archive and Research Centre (LAARC) in due course.

## 4 Previous work relevant to archaeology of site

The principal previous Crossrail studies are as follows:

- Crossrail, Assessment of Archaeological Impacts, Technical Report, Part 2 of 6, Central Section, Report Number 1E0318-C1E00-00001, 2005
- Crossrail, Archaeological Programming Assessment, Report Number 1E0318-G0E00-00006 (Rev B), 2006
- Crossrail, Archaeology Generic Written Scheme of Investigation, Document Number CRPN-LWS-EN-SY-00001, 2009
- Crossrail, Archaeological Detailed Desk Based Assessment Liverpool Street Station, Report No CR-SD-LIV-EN-SR-00001, 2008



- Crossrail, MDC3 Archaeology Updated Baseline Assessment, Document Number 20032008-87MB-YYK5, 2008
- Crossrail, Archaeological Monitoring of Ground Investigations, Borehole Package 13, September 2009
- Crossrail, Central Section Project Archaeology Framework C257 Central Package, Summary of LSS85 Archive – Broadgate Excavations, Doc No: C257-MLA-T1-XTC-C101\_WS102-00001, Revision 2.0, Feb 2012
- Crossrail, Central Section Project Fieldwork Report Archaeological Evaluation and Watching Brief Broadgate Ticket Hall (XSM10), Document Number C257-XRL-X-XCS-CRG02-50010, v2, 07.03.12
- Crossrail, C257 Archaeology Central Fieldwork Report, Archaeological Excavated Evaluations and Watching Briefs, Pit 4, Pit 11, Trench 14 and 15, Pile Line Pits and SSET/UKPN Utility Diversions, Broadgate Ticket Hall (XSM10), Doc No: C257-MLA-X-XCS-CRG02-50015, v2, 20.06.12
- Crossrail, C257 Archaeology Central Fieldwork Report, Archaeological Excavation and Watching Briefs, Broadgate Ticket Hall Utilities Combined Report 2013 (XSM10), Doc No: C257-MLA-T1-RGN-CRG03-50014, v2 24-07-14

The fieldwork was carried out in accordance with:

- A Crossrail Site-specific Written Scheme of Investigation (SS-WSI): *Liverpool Street Station, Site-specific Written Scheme of Investigation, Doc. No. C138-MMD-T1-RST-C101-00001 Version 2*, 29.04.10
- A **draft** WSI Addendum- C502 Liverpool Street Station SS-WSI Addendum for Archaeological Excavation and Watching Brief at Broadgate Ticket Hall (XMS10), Version 1 03.02.14 section 4.2. This was finalised on 17.07.14 as:
- SS-WSI Addendum for Archaeological Excavation and Watching Brief at Liverpool Street Station, Broadgate Ticket Hall, Doc No: C502-XRL-T1-RST-CR101-50002- Revision 2.0
- The method statement produced on 16.06.14: C257 Archaeology Central, Method Statement, Archaeological Watching Briefs, Broadgate Ticket Hall Pile Line (XSM10), Doc No: C257-MLA-T1-GMS-C101-50001. The MOLA method statement was prepared in line with the Principal Contractor's method statement.
- The Written Scheme of Investigation (WSI) and Method Statements will be available from the LAARC.

## 5 Geology and topography of site

The geological and topographical setting was covered in detail in the Liverpool Street DDBA (Crossrail 2008), and is summarised below.

The drift geology on this site consists of Taplow terrace sands and gravels of the Thames valley, laid down approximately 128,000 to 280,000 BP (Before Present), within the valley of the River Walbrook, just south of its spring line. The archaeological potential of the terrace gravel deposits is considered to be very low.

The River Walbrook is a tributary of the Thames and formed a broad, shallow valley at its headwaters, with stream channels criss-crossing the area to the north. These channels converged to the west of the site to form a deeper, steeper channel now known as the Blomfield Street stream, running approximately north to south in a position now mirrored by the present-day Blomfield Street. The Walbrook is now entirely covered by development, much of it by the time John Stow published his *Survey of London* in 1598, and has been diverted into underground culverts.

Streams of the Walbrook have been identified to the north and west of the Broadgate Ticket Hall site (FIN81, LSS85 and BDC03). The western edge of the Blomfield Street stream was also tentatively identified in excavations during developments on the western side of Blomfield Street (FIN81).

During the 2011 evaluation (Crossrail 2012a), terrace gravels were overlain by possible alluvial weathered natural deposits of clay, interspersed with occasional bands of gravel. These deposits appeared to be archaeologically sterile and devoid of any anthropogenic disturbance. While these deposits may have been deposited by the Walbrook, perhaps through seasonal flooding, no clear stream channels belonging to the historic River Walbrook were found.

Recent fieldwork (Crossrail 2014c), mainly in southern and western areas of the site, identified natural gravels overlain by alluvial clay interspersed with occasional bands of gravel. These are thought to represent episodes of flooding from the Walbrook stream. The eastern edge of the stream itself was provisionally identified at the western side of the site, running approximately north–south.

Sporadic deposits of brickearth have been known to occur in the local area, as recorded at MoLAS site LNA99, overlying the river terrace gravels and sealed by the alluvium. It is likely that any capping brickearth within the site may have been eroded within the flood plain of the Walbrook due to the activity of the river or truncated by later Roman activity.

## 6 Archaeological and Historical Background

The historic background and archaeological potential of the Liverpool Street Broadgate Ticket Hall site was covered in detail in the Liverpool Street DDBA (Crossrail 2008). However, the DDBA has since been updated by the results of the initial Crossrail evaluations and subsequent fieldwork (Crossrail 2012a, 2012b and 2014c). These updates are incorporated below.

There has been little evidence for Palaeolithic activity in the local area. Prehistoric activity recorded in archaeological interventions in the area of the Crossrail worksites for Liverpool Street consists of residual material found in later deposits; for example, Neolithic and Bronze Age flints at Moor House (MRL98) and late Iron Age pottery at Riverplate House (RIB87).

The site of the Broadgate Ticket Hall lies c 120m north of the Roman and medieval city walls, within the upper Walbrook valley, immediately east of the Blomfield Street tributary of the River Walbrook. Excavations in the nearby area, off Old Broad Street, New Broad Street, Eldon Street and Blomfield Street, have shown evidence for significant Roman extra-mural activity, including the control and management of the Walbrook channel with revetment and banking, land-reclamation activity including dumping and digging of drainage ditches, as well as domestic and industrial occupation (site codes AD M81, BDC03, BRO90, CAP86, BLM87, NEB87, COLS3, GM122, LSS85, and FIN81).

Provisional dating places Roman activity within the Broadgate Ticket Hall site from the 1st century to the 3rd century AD. A channel, possibly belonging to the Walbrook or a tributary, was seen in 2013 during a Targeted Watching Brief of sewer shaft MHS1 (Crossrail 2014c) in the south-west corner of the site. Alongside this were two re-used Roman timber gates forming a platform on the edge of the channel.

Evidence of the northern cemetery of the Roman City has been found extensively within the vicinity of the site, including to the south of Eldon Street (ENS03, ELD88 and BDC03), to the immediate west, as well as near London Wall, Old Broad Street, New Broad Street (BLM87, CAP86, BRO90 and NEB87). At the Broadgate Ticket Hall site, human remains of the Roman period have so far been largely restricted to disarticulated bone (Crossrail 2012a, 2012b and 2014c). It is likely that this bone is material from disturbed burials nearby, made residual by flooding. However, limited evidence of possible *in situ* Roman burials at the site was found during the excavation of a sewer diversion heading (MHS2-100, Crossrail 2014c, 60), including a cremation urn and possible grave cut. This suggests that at least part of the site may have been used as a burial ground in the Roman period.

The most significant and largest Roman feature discovered during Crossrail investigations was a well-constructed road. This road is estimated to be approximately 9m wide, at its greatest extent, and is aligned NWW to SEE. This road had been previously discovered to the west of the site during excavations south of Eldon Street (RIV87, FIB88, ENS03, ELD88 and BDC03). Recent Crossrail excavations at the Broadgate Ticket Hall site (Crossrail 2012a, 2012b and 2014c) have confirmed that the road crossed the Walbrook stream and extended across the north half of the site on the same alignment, continuing toward Bishopsgate. In these recent investigations, wheel ruts were seen crossing the surface of the road which was constructed of compacted sand, flint and gravel on a twig and brushwood base (Crossrail 2014c). Both the Eldon Street and recent Crossrail excavations have shown at least two phases of road and dated its use to between the early 2nd century and the mid- 3rd century AD. The latest interpretations of the road see it not

as an intrinsic part of the major road network, but more likely a local track leading across extra-mural land and northern cemetery between what is now Moorgate and Bishopsgate (Harwood et al, in prep).

In 1985 excavations took place on the north edge of the Broadgate Ticket Hall site as part of the Broadgate development (LSS85). The main excavation trench (Trench 7) was located under what had been the taxicab ramp/station approach, immediately in front of the station building. The road was recorded in the north-facing section of Trench 7 but was not recognised as a road but interpreted as evidence bank construction/reclamation along the east edge of the Walbrook (Dyson, Malt and Wellman 1987).

The construction of the City wall between c AD 180 and 225 was one of many factors that influenced the development of the upper Walbrook valley. Although the stream was conducted through the wall in a conduit, the wall is thought to have significantly impeded the natural drainage of the upper Walbrook, and an area of distinctly marshy land formed in the valley to the north of the City wall. As a result, the site appears to have remained a marginal area of open land until the early modern period. John Stow's *Survey of London* observes that Moorfield, '*This Fen or More field*', '*continued a vast and unprofitable ground a long time*' (Kingsford 1908, 69–91). Recent work associated with the Crossrail development at Finsbury Circus (XRZ10) has located Moorfields marsh deposits overlying earlier Roman pits (Crossrail 2011b). Within the Broadgate Ticket Hall site, both the 1985 Broadgate excavation (LSS85) and the recent Crossrail fieldwork (XSM10, Crossrail 2012a, 2012b and 2014c) have shown little activity between the post-Roman period and the opening of the New Churchyard in 1569, and confirmed that an extensive marsh horizon formed during this time.

The most significant and largest medieval feature within the site is a large c NNE–SSW ditch. When originally dug it was steeply cut with a generally flat base and measured approximately 10m wide by 1.7m deep at its greatest extent. Historical sources refer to this feature as the 'Deep Ditch'; a tributary of the Moor Ditch, a section of City Ditch which ran immediately north of the City wall between Moorgate and Bishopsgate. The continuation of the Deep Ditch was recorded during excavations at 46–47 New Broad Street (GM122), on its course to meet the Moor Ditch to the south. The Deep Ditch was essentially a canalisation of the Walbrook stream which was designed to facilitate the drain of the Moorfields area. The original date of this ditch is unclear but it is possible that the Deep Ditch is contemporary with the original medieval City Ditch. The broad flat-bottomed cut of the Deep Ditch at the Broadgate Ticket Hall site, together with its primary fills of black grey waterlain silt and clay, is very similar to that observed in the first City Ditch cuts at Aldersgate (Butler 2001), St. Giles Cripplegate Churchyard and St Alphage (Grimes 1968), 119 London Wall (MRL98, Butler 2006) to the west and at Houndsditch (Maloney and Harding 1979) to the east. John Stow records that the City Ditch was constructed between 1211 and 1212 and mentions the 'Deep Ditch' as one of several ditches, including the City Ditch, which was '*new cast and cleansed*' in the year 1415 (Kingsford 1908, 69–91). This network of drainage ditches can be seen on the Copperplate map of 1553 (not illustrated). As Stow records, the Deep Ditch can be seen running approximately N–S, dividing Moorfields in the west and the lands of Bethlehem Priory to the east.

Whilst the City walls and ditches were maintained throughout the medieval period, by the 16th century there were increasing encroachments onto both the City Ditch and the Deep Ditch. The whole area immediately north of the City walls gradually became a new suburb, with initial development characterised by ribbon development along Bishopsgate to the east of the site. Stow records how the residents of new dwelling houses in Petty France, to the south of the site, commonly cast sewage and filth into

the Deep Ditch, filling it up with '*unsavoury things*' and restricting the ditch to a '*narrow channell*' which was in danger of '*impoysoning the whole Cittie*' (Kingsford 1908, 163–175). Evidence of this disuse activity has been found at the site during recent Crossrail excavations. Here, the final fill of the ditch contained a range of 15th to 16th-century refuse material and lost items, including: pottery, tile, animal bone, waste leather, a candleholder, a spoon, knives, buckles, trading tokens, lead cloth seals, a possible section of chainmail, a horse shoe, copper alloy wire, pins and a gold coin (Crossrail 2014c).

In 1568/69, Stow records that the City established the 'New Churchyard' on the site (Kingsford 1908, 163–175). The burial ground was the first of the early modern non-parochial churchyards and would later become known as the 'Bethlehem Church Yard', 'Bethlem Burying Ground', or, more colloquially, as the 'Bedlam Burial Ground' due to its original association with the medieval Bethlehem Hospital (Fig 5 and Fig 6). The priory and hospital of St Mary (of) Bethlehem had been founded on the western side of Bishopsgate in 1247, on a site now beneath the present Great Eastern Hotel, and the burial ground was established on one acre of land belonging to the hospital. The site had not initially been intended for the exclusive use of the hospital, however, but as an 'overflow' area, relieving pressure on the increasingly crowded burial grounds within the City. There had been a severe outbreak of plague in 1563 and, consequently, the City had sought to increase burial capacity in case of further epidemics. The extent of the 'New Churchyard' is shown on several historic maps (Fig 5 and Fig 6).

The Broadgate Ticket Hall site is located within the southern half of the burial ground, in what is now the western half of Liverpool Street. During the 1985 Broadgate excavations (LSS85, Malt and White 1987) over 400 partial or complete burials were recorded at a density of up to 8 per m<sup>3</sup> of ground within the main excavation trench. A further 200 more came from other nearby test-pits. In addition, the remains of two brick built burial vaults containing lead coffins were found and excavated. Within the last ten years, utility related excavations have continued to confirm the presence of human remains within the Broadgate Ticket Hall site (LVB06 and XRF09). The first two phases of Crossrail evaluation found a total of 327 *in situ* burials within the burial ground at a density of up to approximately 5.54 bodies per m<sup>3</sup> of ground (Crossrail 2012a and 2012b). The total number of archaeologically excavated *in situ* burials increased to 373 following the most recent phase of Crossrail fieldwork (Crossrail 2014c).

Currently, the latest burial within the burial ground to be archaeologically dated was found within a burial vault during the Broadgate excavation (LSS85) and was dated by a coffin plate to 1714 (Malt and White 1987). Burial registered and historic sources suggest that the burial ground was in use until approximately the late 1730s. It is known that by the mid-18th century the former burial ground had become partially developed. The terraced properties located on the north and east boundary of the burial ground, seen on Rocque's map of 1746 (Fig 6), were called Broad Street Buildings and were built in 1737 (Cunningham and Wheatley 1891) as part of an extension of Broad Street (now Old Broad Street). No.1 Broker Row can be seen in the south-west corner of what was formerly the burial ground. Between 1737 and the construction of the Broad Street railway station in 1864–5, the former burial ground was converted to use as the gardens and yards of these properties and further encroachments took place, as buildings were extended to the rear and out buildings were constructed (as shown on Rocque's map of 1746 (Fig 6), Horwood's map of 1813 (Fig 7) and later ward plans (not illustrated)).

Following the relocation of Bethlehem Hospital to Moorfields in 1675–76, the road to the south of the burial ground, running E–W between Broker Row and Bishopsgate, became known as Bethlem or Old Bethlem (Cunningham and Wheatley 1891, 407).



Sometime during the 18th-century the western half of this street became known as Spinning Wheel Alley (as shown on 18th-century ward plans (not illustrated)). Spinning Wheel Alley was widened in c 1824 with the demolition of No.1 Broker Row and No. 36 Broad Street Buildings (Fig 8). The street now covered the southern part of the former burial ground and was renamed Liverpool Street by 1829 (Cunningham and Wheatley 1891, 407).

In 1863, the site was sold to the North London Railway and Broad Street Station was constructed 1864–65 (Fig 9). Other 19th-century developments of the site include two tunnelled sewers and the construction of a subterranean toilet block at the west end of the site in 1903 (MacDonell 1906).



## 7 Research aims and objectives

The general watching brief on removal of human remains from the pile lines by the C502 exhumation contractor TCS had limited potential to contribute to research objectives related to the New Churchyard:

### 7.1 Research Aims

The original aims and objectives were listed in the WSI (Crossrail 2010b) and stated that 'Archaeological investigation and mitigation within the Crossrail worksites for Liverpool Street Station have the potential to contribute to the research themes set out below. *Very limited information contributing to the following may be recovered:*

*Evidence relating to the Medieval Bethlehem Hospital precinct and burial ground (BG208), bisected by Liverpool Street, may provide data relevant to the following themes:*

- Understanding the differences, if any, between burial practices in the city and outlying cemeteries;
- Understanding life expectancy, origins and belief, seen through studying health, diet and disease, and preparing models for future research;
- Considering the relationship between cemeteries and major or minor roads, in terms of symbolism, status, privacy and convenience; and
- Synthesising data on known religious sites and buildings, their chronology, use and influence locally, regionally and nationally.

### 7.2 Fieldwork Objectives

The overall objectives of the watching briefs are to mitigate the impact of the relevant parts of the Crossrail works within their footprint, contributing to the wider mitigation for the Broadgate Ticket Hall.

The task-specific aims and objectives from the former Addendum to the WSI (Draft Version 1, section 2.3) are:

- Mitigation in the form of archaeological watching brief to record archaeological deposits for analysis and dissemination in accordance with the Crossrail Generic WSI (document number CRPN- LWS-EN-SY-00001) and the standards listed therein.

#### 7.2.1 New Churchyard:

- Can gravestones, marker/ledger slabs, or coffin plates provide evidence which will identify individuals, and can these be correlated with documentary sources?

*Very limited information contributing towards the following objectives may also be recovered (eg structures dating to or encroaching on the burial ground, coffin furniture, artefacts):*

- What is the character, sequence, and dating of burials, in particular the date at which the burial ground went out of use?

- What is the character of the burial practice, and how does it change spatially and chronologically?
- What is the evidence for organisation/management and zoning of the burial ground?
- Are multiple or pit burials confined to the northern part of the site around Trenches 13 and 14, and the 1985 excavations?

#### 7.2.2 **Other post-medieval:**

- What is the date and taphonomy of deposition of the important worked bone assemblage? For example, are these finds residual in the post-burial ground deposits, or does it represent continued deposition during and after the use of the burial ground? Also, what is the spatial and chronological division of the different types of bone artefact across the site?
- What activities and industries in the surrounding area are represented by waste materials within dumps and the burial ground sequence?
- What is the character and date of any activity and occupation outside the burial ground?
- What is the character and date of structural remains relating to 18th and 19th-century urbanisation and development?

## **8 Methodology of site-based and off-site work**

### **8.1 General**

All archaeological excavation and recording during the fieldwork was carried out in accordance with the Crossrail Generic and Site Specific WSIs (Crossrail 2009a, 2010b), Addenda (Crossrail 2014a and b), the MOLA Method Statement (MOLA 2014) and the Archaeological Site Manual (MoL 1994).

The site finds and records can be found under the site code XSM10 in the MOLA archive. They will be stored there pending a future decision over the longer-term archive deposition and public access process for the wider Crossrail scheme. For the location of archaeological investigations see (Fig 2).

### **8.2 General Watching Brief (GWB) Methodology**

#### **8.2.1 Site-specific methodology**

The works monitored involved the excavation of a linear series of trenches along pile line locations (for trench locations see Fig 2). Excavation began in each trench area with an initial ground reduction of modern made ground down to the top of the burial ground deposits. This was undertaken by C502 principal contractor Laing O'Rourke (LOR) with a mechanical excavator and monitored by a MOLA Senior Archaeologist. C502 exhumation contractor TCS were also in attendance to manage the retrieval of any disarticulated human bone. In most cases a steel trench box (TB) measuring 3.5 by 2.2m was then placed in the excavation to provide shoring (Trench Boxes 1–8, 2.1–2.12 and 2.14) (see sections 9.1 to 9.9, 9.11 to 9.20, and 9.22)). However, in two areas, Trench Sheet Area 1 and 2, an alternative method was used: steel trench sheets (see sections 9.10 and 9.23). Once shoring was in place, excavation was undertaken by C502 exhumation contractor TCS with hand tools. The excavation of TB 2.13 was conducted with a mechanical excavator only, as the majority was modern backfill of evaluation Trench 7 (see section 9.21). All excavation was monitored by a MOLA Senior Archaeologist, responding to call-outs from LOR/TCS and supplemented by intermittent visits as required, and all archaeological deposits encountered were recorded using the methods outlined below.

#### **8.2.2 Generic methodology**

A general watching brief consists of a basic monitoring presence to observe the works carried out either by the Principal Contractor or their sub-contractor without constraint on their working methods (Crossrail 2009 Archaeology Specification for Evaluation and Mitigation (including Watching Brief) CR-PN-LWS-EN-SP-0001, version 3). This includes making a basic record of notes, measurements, drawings and photographs consistent with an observation role: eg depth, character, date and survival/truncation of deposit sequence, height of natural geology. Monitoring and recording during a general watching brief will generally be made by observation from ground level. During a general watching brief MOLA staff only enter the trench or area of excavation by agreement with the Principal Contractor or their sub-contractor (providing that there is proper access and that it is safe to do).

Work was conducted with hand tools, such as a trowel and shovel.

### **8.3 Recording Methods**

The archaeological remains, as far as could be identified during the monitoring of the exhumation contractor's non-archaeological methodology, were recorded to best practice standards, in order to achieve archaeological objectives. The site recording included as a minimum:

- The written record of individual context descriptions on appropriate pro-forma sheets.
- A drawn record was produced including plans of appropriate features, structures and individual contexts at 1:20. Levels for these features were calculated by MOLA where possible or alternately levels were taken by the C502 Principal Contractor surveyors and passed on to MOLA.
- Photographs were taken with a digital camera of resolution of 12 megapixel or greater, providing similar resolution to a conventional 35mm SLR. The photographic record includes photographs of archaeological features, structures, and quaternary deposits. Each photograph was recorded on site using a proforma photographic record sheet, showing image number, area/test pit, context number(s), subject/description, direction of view, and date. In addition, appropriate record photographs were undertaken to illustrate work in progress.
- Levels on plans, sections and other fieldwork records were related to OS datum.

### **8.4 Survey and setting out method**

All trench boxes were surveyed by LOR engineers. This information was shared with MOLA, which enabled hand drawn plans to be accurately located within each trench box.

## 9 Results and observations

For trench locations see Fig 2. For finds reports see section 18 below.

### 9.1 Trench Box 1



Photo 1 C502 Exhumation Contractor TCS excavate TB 1, looking east

Trench Box 1	
Location	West pile line of Area 5
Dimensions	3.5m (north-east to south-west) x 2.2m (north-west to south-east) x 2.4m deep
London Survey grid coordinates	83388 / 36302
OS National grid coordinates	533039 181617
Modern Ground Level	112.67m ATD
Modern subsurface deposits	Rubble/modern made ground over services and backfill up to approximately 1.37m thick



Level of base of archaeological deposits observed and/or base of trench	110.27m ATD
Natural geology observed	Not reached
Extent of modern truncation/overburden	Approximately 1.37m in depth
Archaeological remains	Dating Evidence and Finds
Burial ground soil [1500], dark brown to black gritty clayey silt with frequent inclusions of CBM, charcoal, shell and mortar flecks. At approximately 111.30m ATD.	All finds c 16th to 18th-century. Including: a larger mount of flat Tudor rose type; a gilded chain, possibly part of a necklace; a curtain ring; a rectangular plate of sheet lead; worked animal bone, including a fan rib; and a low denomination post-medieval coin of, probably, the late 17th or early 18th century
Interpretation and summary	
Layer [1500] represented the burial ground was c 1.03m thick, and included <i>in situ</i> graves and disarticulated human bone.	



## 9.2 Trench Box 2

Trench Box 2	
Location	Northern pile line, east end
Dimensions	3.5m (east to west) x 2.2m (north to south) x 2.62m deep
London Survey grid coordinates	83405 / 36293
OS National grid coordinates	533056 181610
Modern Ground Level	112.68m ATD
Modern subsurface deposits	Rubble/modern made ground over services and backfill up to approximately 1.41m thick
Level of base of archaeological deposits observed and/or base of trench	110.06m ATD
Natural geology observed	Not reached
Extent of modern truncation/overburden	Approximately 1.41m in depth
Archaeological remains	Dating Evidence and Finds
Burial ground soil [1501], dark brown to black gritty clayey silt with frequent inclusions of CBM, charcoal, shell and mortar flecking. This layer included <i>in situ</i> graves and residual/disarticulated human bone.  At approximately 111.27m ATD.	Dated to within the use of the burial ground (1569 to c 1730s)  coffin furniture, as well as pottery dated 1660–1700, and glass waste
Brick and timber wall [1505], running east to west, truncated deposit [1501] along the northern edge of the trench. Three large timbers were set into recesses along its southern side (Photo 2). The top of the wall was recorded at 109.90m ATD and it extended the length of the trench box (3.5m). The northern edge of the wall was located beyond the limit of excavation.	Brick c 1750–1900
Interpretation and summary	
<p>Layer [1501] represented the burial ground, was c 1.21m thick and included <i>in situ</i> graves and disarticulated human bone.</p> <p>Brick wall [1505]: the date of the brick, as well as the position and alignment of the wall, suggests that it was part of the Broad Street Station (built 1864–5 and demolished in 1984) as seen on the 1873 Ordnance Survey map (Fig 9).</p>	



*Photo 2 Wall foundation [1505] in TB 2, looking north-east*

### 9.3 Trench Box 2B

Trench Box 2B	
Location	Northern pile line, east end
Dimensions	3.5m (east to west) x 2.2m (north to south) x 2.62m deep
London Survey grid coordinates	83409 / 36293
OS National grid coordinates	533060 181609
Modern Ground Level	112.68m ATD
Modern subsurface deposits	Rubble/modern made ground over services and backfill up to approximately 1.40m thick
Level of base of archaeological deposits observed and/or base of trench	110.06m ATD
Natural geology observed	Not reached
Extent of modern truncation/overburden	Approximately 1.40m in depth
Archaeological remains	
Burial ground soil [1661], dark brown to black gritty clayey silt with frequent inclusions of CBM, charcoal, shell and mortar flecking.  At approximately 111.28m ATD.	Dated to within the use of the burial ground (1569 to c 1730s)  No finds recovered
Brick structures [1510], [1511] and [1512]. In the western part of the trench box was a rectangular brick structure (Fig 4) consisting of a wall [1510] and brick floor [1511] (Photo 3), which truncated [1661]. It measured approximately 2m north-east to south-west by 1.7m north-west to south-east and survived up to 0.66m high. The western extent of the structure extended beyond the limit of excavation. The structure appears to have replaced an earlier structure as immediately to its north a second brick wall [1512] was seen to have been truncated by [1510].	Bricks c 1666–1900
Interpretation and summary	
<p>Layer [1661] represented the burial ground, was c 1m thick and included <i>in situ</i> graves and disarticulated human bone.</p> <p>Brick structure(s) [1510], [1511] and [1512]: although it's exact function and date is uncertain, the structure resembles a cess pit and is most likely associated with the yards/gardens of Broad Street Buildings (1737–1863) (Fig 7).</p>	





*Photo 3 MOLA Senior Archaeologist Robert Tutt investigates walls [1510], [1512] and floor [1511] in TB 2B, looking north*

## 9.4 Trench Box 3

Trench Box 3	
Location	Northern pile line, east end
Dimensions	3.5m (east to west) x 2.2m (north to south) x 2.72m deep
London Survey grid coordinates	83402 / 36294
OS National grid coordinates	533053 181610
Modern Ground Level	112.65m ATD
Modern subsurface deposits	Rubble/modern made ground over services and backfill up to approximately 1.35m thick
Level of base of archaeological deposits observed and/or base of trench	109.93m ATD
Natural geology observed	Not reached
Extent of modern truncation/overburden	Approximately 1.35m in depth
Archaeological remains	Dating Evidence and Finds
<p>Burial ground soil [1502], dark brown to black gritty clayey silt with frequent inclusions of CBM, charcoal, shell and mortar flecking.</p> <p>At approximately 111.30m ATD.</p>	<p>All finds approximately dated to within the use of the burial ground (1569 to c 1730s)</p> <p>Finds included:</p> <ul style="list-style-type: none"> <li>• a near complete pair of scissors;</li> <li>• a fragment of coffin wood with five circular copper alloy studs; and</li> <li>• a mount/stud</li> </ul> <p>All dated c 17th to 18th-century</p>
Concrete footing [1506]	19th-century
Interpretation and summary	
<p>Layer [1502] represented the burial ground, was c 1.37m thick and included <i>in situ</i> graves and disarticulated human bone.</p> <p>A concrete footing [1506] truncated the burial ground soil (Photo 4). The position and alignment of this structure suggests that it was part of Broad Street Station (Fig 9).</p>	



*Photo 4 Concrete foundation [1506] in TB 3, looking north*



## 9.5 Trench Box 4

Trench Box 4	
Location	Northern pile line, east end
Dimensions	3.5m (east to west) x 2.2m (north to south) x 2.69m deep
London Survey grid coordinates	83398 / 36295
OS National grid coordinates	533049 181611
Modern Ground Level	112.68m ATD
Modern subsurface deposits	Rubble/modern made ground over services and backfill up to approximately 1.30m thick
Level of base of archaeological deposits observed and/or base of trench	109.99m ATD
Natural geology observed	Not reached
Extent of modern truncation/overburden	Approximately 1.30m in depth
Archaeological remains	Dating Evidence and Finds
Burial ground soil [1503], dark brown to black gritty clayey silt with frequent inclusions of CBM, charcoal, shell and mortar flecking.  At approximately 111.28m ATD.	All finds approximately dated to within the use of the burial ground (1569 to c 1730s)  Finds recovered included coffin furniture and worked animal bone and ivory
Brick wall [1507]. The top of the structure was recorded at 111.48m ATD and it measured 1.8m (east to west) by 0.3m (north to south), although the western and northern edges of the wall extended beyond the limit of excavation. The east end of the wall included part of an arch extending eastward (Photo 5).	Brick c 1750–1900
Interpretation and summary	
<p>Layer [1503] represented the burial ground, was c 1.39m thick and included <i>in situ</i> graves and disarticulated human bone.</p> <p>An east to west aligned brick wall [1507] truncated the burial ground soil. The date of the bricks, as well as the position and alignment of this structure, suggests that it was part of Broad Street Station (Fig 9).</p>	



*Photo 5 Arched brick foundation [1507] in TB 4, looking north*

## 9.6 Trench Box 5

Trench Box 5	
Location	Eastern end of the pile line
Dimensions	3.5m (east to west) x 2.2m (north to south) x 3.01m deep
London Survey grid coordinates	83395 / 36296
OS National grid coordinates	533046 181612
Modern Ground Level	112.65m ATD
Modern subsurface deposits	Rubble/modern made ground over services and backfill up to approximately 1.16m thick
Level of base of archaeological deposits observed and/or base of trench	109.64m ATD
Natural geology observed	Not reached
Extent of modern truncation/overburden	Approximately 1.16m in depth
Archaeological remains	Dating Evidence and Finds
Burial ground soil [1504], dark brown to black gritty clayey silt with frequent inclusions of CBM, charcoal, shell and mortar flecking.  At approximately 111.49m ATD.	All finds approximately dated to within the use of the burial ground (1569 to c 1730s), except for intrusive 19th to 20th-century material.  Finds included pottery (c 1670–1710 and 1830–1910), worked animal bone and a mid to late 19th-century eight sided glass bottle
Brick and concrete footing [1508] (1.8m east to west by 1.05m north to south). The structure extended to the base of the trench and its northern edge was beyond the limit of excavation.	Brick c 1750–1900
Interpretation and summary	
Layer [1504] represented the burial ground, was c 1.85m thick and included <i>in situ</i> graves and disarticulated human bone.  Part of a rectangular brick and concrete footing [1508] truncated the burial ground soil (Photo 6). This structure is likely to be part of Broad Street Station (Fig 9).	





*Photo 6 Brick and concrete foundation [1508] in TB 5, looking east*

## 9.7 Trench Box 6

Trench Box 6	
Location	Central stretch of the pile line
Dimensions	3.5m (east to west) x 2.2m (north to south) x 2.88m deep
London Survey grid coordinates	83392 / 36298
OS National grid coordinates	533043 181613
Modern Ground Level	112.60m ATD
Modern subsurface deposits	Rubble/modern made ground over services and backfill up to approximately 1.24m thick
Level of base of archaeological deposits observed and/or base of trench	109.72m ATD
Natural geology observed	Not reached
Extent of modern truncation/overburden	Approximately 1.24m in depth
Archaeological remains	Dating Evidence and Finds
Burial ground soil [1662], dark brown to black gritty clayey silt with frequent inclusions of CBM, charcoal, shell and mortar flecking.  At approximately 111.36m ATD.	Dated stratigraphically to within the use of the burial ground (1569 to c 1730s)
Interpretation and summary	
Layer [1662] represented the burial ground, was c 1.64m thick and included <i>in situ</i> graves and disarticulated human bone.	





Photo 7 TB 6, looking east

## 9.8 Trench Box 7

Trench Box 3	
Location	Northern pile line, centre
Dimensions	3.5m (east to west) x 2.2m (north to south) x 2.61m deep
London Survey grid coordinates	83388 / 36298
OS National grid coordinates	533039 181614
Modern Ground Level	112.60m ATD
Modern subsurface deposits	Rubble/modern made ground over services and backfill up to approximately 1.28m thick
Level of base of archaeological deposits observed and/or base of trench	109.99m ATD
Natural geology observed	Not reached
Extent of modern truncation/overburden	Approximately 1.28m in depth
Archaeological remains	Dating Evidence and Finds
Burial ground soil [1663], dark brown to black gritty clayey silt with frequent inclusions of CBM, charcoal, shell and mortar flecking.  At approximately 111.32m ATD.	Dated stratigraphically to within the use of the burial ground (1569 to c 1730s)
Interpretation and summary	
Layer [1663] represented the burial ground, was c 1.37m thick and included <i>in situ</i> graves and disarticulated human bone.	





*Photo 8 TB 7, looking east*

## 9.9 Trench Box 8

Trench Box 8	
Location	Northern pile line, west half
Dimensions	4.63m x 2.16m x 2.83m deep
London Survey grid coordinates	83385 / 36300
OS National grid coordinates	533036 181615
Modern Ground Level	112.64m ATD
Modern subsurface deposits	Rubble/modern made ground over services and backfill up to approximately 1.33m thick
Level of base of archaeological deposits observed and/or base of trench	109.81m ATD
Natural geology observed	Not reached
Extent of modern truncation/overburden	Approximately 1.33m in depth
Archaeological remains	Dating Evidence and Finds
Burial ground soil [1664], dark brown to black gritty clayey silt with frequent inclusions of CBM, charcoal, shell and mortar flecking. At approximately 111.31m ATD.	Dated stratigraphically to within the use of the burial ground (1569 to c 1730s)
Concrete footing [1509] The top of the feature was recorded at a height of 110.29m ATD. The eastern edge of this feature extended beyond the limit of excavation giving a visible extent of 1.45m north to south by 0.3m east to west.	19th-century
Interpretation and summary	
<p>Layer [1664] represented the burial ground, was c 1.5m thick and included <i>in situ</i> graves and disarticulated human bone.</p> <p>A brick and concrete footing [1509] truncated the burial ground (Photo 9). The position and form of this feature indicate that it was part of Broad Street Station (Fig 9).</p>	



*Photo 9 Foundation [1509] in TB 8, looking east*



## 9.10 Trench Sheet Area 1

Trench Sheet Area 1	
Location	Southern pile line, east end
Dimensions	3.5m (east to west) x 2.2m (north to south) x 2.72m deep
London Survey grid coordinates	83420 / 36279
OS National grid coordinates	533071 181595
Modern Ground Level	112.70m ATD
Modern subsurface deposits	Rubble/modern made ground over services and backfill up to approximately 1.25m thick
Level of base of archaeological deposits observed and/or base of trench	109.94m ATD
Natural geology observed	Not reached
Extent of modern truncation/overburden	Approximately 1.25m in depth
Archaeological remains	Dating Evidence and Finds
Burial ground soil [1626], dark brown to black gritty clayey silt with frequent inclusions of CBM, charcoal, shell and mortar flecking.  At approximately 111.45m ATD.	Dated to within the use of the burial ground (1569 to c 1730s)  Pottery (c 1665–1700)
Interpretation and summary	
Layer [1626] represented the burial ground, was c 1.51m thick and included <i>in situ</i> graves and disarticulated human bone.	

## 9.11 Trench Box 2.3

Trench Box 2.3	
Location	Northern pile line, west
Dimensions	2.2m (north to south) x 3.5m (east to west) x 2.96m deep
London Survey grid coordinates	83382 / 36300
OS National grid coordinates	533033 181616
Modern Ground Level	113.5m ATD
Modern subsurface deposits	Rubble/modern made ground over services and backfill up to approximately 2m thick
Level of base of archaeological deposits observed and/or base of trench	110.54m ATD
Natural geology observed	Not reached
Extent of modern truncation/overburden	Approximately 2m in depth
Archaeological remains	Dating Evidence and Finds
Burial ground soil [1628], dark brown to black gritty clayey silt with frequent inclusions of CBM, charcoal, shell and mortar flecking.  At approximately 111.5m ATD.	Dated to within the use of the burial ground (1569 to c 1730s)  Finds included: <ul style="list-style-type: none"> <li>• Pottery (1550–1700);</li> <li>• a copper-alloy London trade token issued by Sarah Paggan of Dowgate, dated 1652; and</li> <li>• a coffin handle</li> </ul>
Brick and concrete foundation [1627], measuring approximately 1.6m by 1m by up to 1m high. The eastern 0.2m of the structure seemed to form the base of an arch extending westward (Photo 10).	Brick c 1750–1900
Interpretation and summary	
<p>Layer [1628] represented the burial ground, was c 0.72m thick and included <i>in situ</i> graves and disarticulated human bone. The trading token was not seen to be associated with a burial and is likely to have been a residual item within a grave fill.</p> <p>Cut into this layer was a stepped brick foundation on a concrete base [1627]. This structure is probably associated with Broad Street Station (Fig 9).</p>	



*Photo 10 Arched brick wall foundation [1627] in TB 2.3, looking north*

## 9.12 Trench Box 2.4

Trench Box 2.4	
Location	Northern pile line, west
Dimensions	2.2m (north to south) x 3.5m (east to west) x 3.64m deep
London Survey grid coordinates	83379 / 36301
OS National grid coordinates	533030 181616
Modern Ground Level	113.3m ATD
Modern subsurface deposits	Rubble/modern made ground over services and backfill up to approximately 2.10m thick
Level of base of archaeological deposits observed and/or base of trench	109.66m ATD
Natural geology observed	Not reached
Extent of modern truncation/overburden	Approximately 2.10m in depth
Archaeological remains	Dating Evidence and Finds
Burial ground soil [1655], dark brown to black gritty clayey silt with frequent inclusions of CBM, charcoal, shell and mortar flecking.  At approximately 111.20m ATD.	Dated to within the use of the burial ground (1569 to c 1730s)  Pottery (1630–1680), animal bone and coffin furniture.
Brick and concrete foundation [1647].	Brick c 1750–1900
Interpretation and summary	
<p>Trench boxes 2.4 and 2.5 were excavated concurrently, therefore, where appropriate, they share the same context numbers.</p> <p>Layer [1655] represented the burial ground, was c 1.55m thick and included <i>in situ</i> graves and disarticulated human bone.</p> <p>[1655] was truncated by a brick and concrete foundation [1647]. The majority of this structure was present in TB2.5, where it will be described and interpreted.</p>	





*Photo 11 TB 2.4 and 2.5 under excavation by TCS, looking west*



## 9.13 Trench Box 2.5

Trench Box 2.5	
Location	Northern pile line, west
Dimensions	2.2m (north to south) x 3.5m (east to west) x 3.26m deep
London Survey grid coordinates	83375 / 36301
OS National grid coordinates	533026 181617
Modern Ground Level	113.1m ATD
Modern subsurface deposits	Rubble/modern made ground over services and backfill up to approximately 2.2m thick
Level of base of archaeological deposits observed and/or base of trench	109.84m ATD
Natural geology observed	Not reached
Extent of modern truncation/overburden	Approximately 2.2m in depth
Archaeological remains	Dating Evidence and Finds
Burial ground soil [1655], dark brown to black gritty clayey silt with frequent inclusions of CBM, charcoal, shell and mortar flecking.  At approximately 110.90m ATD.	See Trench Box 2.4 above
Deposit [1649] or possible pit fill of dark reddish brown sandy silt.  At approximately 110.90m ATD.	Approximately 100 items of worked animal bone and a clay tobacco pipe dated 1700–70
Brick and concrete foundation [1647]. The top of the structure was located at 112.31m ATD, and measured approximately 1.6m by 1m by up to 1m high. The eastern 0.2m of the structure included the base of an arch which extended eastward, probably the other side of the same arch seen in structure [1627] (TB 2.3).	See Trench Box 2.4 above
Interpretation and summary	
<p>Burial ground soil [1655] (see Trench Box 2.4 above). [1655] was truncated by a stepped brick foundation on a concrete base [1647] (Photo 12). This structure appears to mark the western terminus of the south wall of the Broad Street Station approach (Fig 9).</p> <p>At the eastern end of the trench box, [1655] was sealed by [1649]. This layer covered an area of approximately 1m diameter by 300mm deep, and may have been the fill of a small pit. However, due to extensive disturbance from services in this location, the full extent and nature of [1649] was uncertain. This deposit contained a very large assemblage of worked animal bone and ivory (Photo 16).</p>	



*Photo 12 Arched brick wall foundation [1647] in TB 2.4 and 2.5, looking north*



*Photo 13 Worked animal bone and ivory finds from deposit [1649]*

## 9.14 Trench Box 2.6

Trench Box 2.6	
Location	NW corner of main box
Dimensions	2.2m (north to south) x 3.5m (east to west) x 2.85m deep
London Survey grid coordinates	83371 / 36302
OS National grid coordinates	533022 181617
Modern Ground Level	113m ATD
Modern subsurface deposits	Rubble/modern made ground over services and backfill up to approximately 1.83m thick.
Level of base of archaeological deposits observed and/or base of trench	110.15m ATD
Natural geology observed	Not reached
Extent of modern truncation/overburden	Approximately 1.83m in depth
Archaeological remains	
Grey silty clay [1654]. At approximately 110.15m ATD.	No finds recovered
Burial ground soil [1653], greyish brown gritty clayey silt with frequent inclusions of CBM, mortar flecks, charcoal and oyster shell. At approximately 111.17m ATD.	Dated to within the use of the burial ground (1569 to c 1730s) worked animal bone
Interpretation and summary	
<p>Deposit [1654] may represent the surface of the marsh which preceded the construction of the burial ground.</p> <p>Layer [1653] represented the burial ground, was c 1m thick and included <i>in situ</i> graves and disarticulated human bone. However, the density of burials in this trench box was observed to be less than those to the east, possibly because this area was close to the western limit of the burial ground.</p>	





*Photo 14 TCS excavate TB 2.6, looking north*

## 9.15 Trench Box 2.7

Trench Box 2.7	
Location	Western pile line, north
Dimensions	3.5m (north to south) x 2.2m (east to west) x 3.18m deep
London Survey grid coordinates	83370 / 36299
OS National grid coordinates	533021 181614
Modern Ground Level	113.5m ATD
Modern subsurface deposits	Rubble/modern made ground over services and backfill up to approximately 2m thick.
Level of base of archaeological deposits observed and/or base of trench	110.32m ATD
Natural geology observed	Not reached
Extent of modern truncation/overburden	Approximately 2m in depth
Archaeological remains	Dating Evidence and Finds
Burial ground soil [1635], dark brown to black gritty clayey silt with frequent inclusions of CBM, charcoal, shell and mortar flecking. At approximately 111.5m ATD.	Dated to within the use of the burial ground (1569 to c 1730s)  Pottery (1550–1700), including a red Surrey-Hampshire border ware chicken feeder, and worked animal bone.
Brick and re-used stone wall foundation [1636]. The top of the foundation was at 111.71m ATD. Only two courses of the structure survived and were constructed of brick, tile and re-used work stone [1637].  Context [1637] consisted of two fragmentary pieces of slate (a fragment of a grave ledger slab).	Fragment of grave ledger [1637] used in the base of foundation [1636], c mid-17th to mid-18th-century  Brick c 1700/1750–1900
Interpretation and summary	
<p>Layer [1635] represented the burial ground, was c 1.2m thick and included <i>in situ</i> graves and disarticulated human bone.</p> <p>A wall foundation [1636] truncated [1635] (Photo 15).</p> <p>Wall foundation [1636] is a continuation of wall [1113] recorded immediately to the west on the same alignment (Fig 3) during excavations in MHS1 in 2013, and is most likely part of the foundations for No. 1 Broker Row, an 18th to early 19th-century property.</p>	





*Photo 15 Brick wall foundation [1636] in TB 2.7, looking south-east*

## 9.16 Trench Box 2.8

Trench Box 2.8	
Location	East N-S pile line, north
Dimensions	3.5m (north to south) x 2.2m (east to west) x 3.61m deep
London Survey grid coordinates	83409 / 36291
OS National grid coordinates	533060 181607
Modern Ground Level	113.5m ATD
Modern subsurface deposits	Rubble/modern made ground over services and backfill up to approximately 2.29m thick.
Level of base of archaeological deposits observed and/or base of trench	109.80–89m ATD
Natural geology observed	Not reached
Extent of modern truncation/overburden	Approximately 2.29m in depth
Archaeological remains	Dating Evidence and Finds
Metalled firm grey green gravel surface [1652] at c 108.95m ATD.	A large concave iron disc, c Roman in date
Humic grey silty clay [1651] at 109.30m ATD.	No dating evidence
Highly organic black brown silty clay [1650] at 109.80m ATD.	No dating evidence
Burial ground soil [1641], dark brown to black gritty clayey silt with frequent inclusions of CBM, charcoal, shell and mortar flecking. At approximately 111.21m ATD.	Dated to within the use of the burial ground (1569 to c 1730s) worked animal bone, including a knife handle c 18th-century
Brick wall foundation [1639] on an approximate east to west alignment with a southward return.  This foundation (0.36m wide by 1.7m long) continued into the adjacent TB 2.11 to the west. The top of the foundation was recorded at 111.16m ATD and the base at 110.97m ATD, and survived up to 4 brick courses high. At the base of the east end of this wall was a re-used headstone [1645], with the inscription: 'MARY (G)ODFREE, (DY)ED THE 2TH, (D)AY OF SEPT, 1665' (Photo 19). The remaining length of the wall foundation was built on a timber baseplate which survived as traces of a decayed wood.	Fragment of gravestone [1645] re-used at the base of the foundation dated 1665 by inscription  Brick c 1666–1800/1900



#### Interpretation and summary

Contexts found within a small sondage in the east half of the trench included: a metalled gravel surface [1652], interpreted as part of a minor Roman road seen in previous fieldwork.

The road was sealed by [1651], which was itself overlain by [1650]; these may be deposits from the Moorfields Marsh.

Layer [1641] represented the burial ground, was c 1.1m thick and included *in situ* graves and disarticulated human bone.

Brick wall foundation [1639] truncated the burial ground and was itself truncated by modern utility ducts (Photo 17).

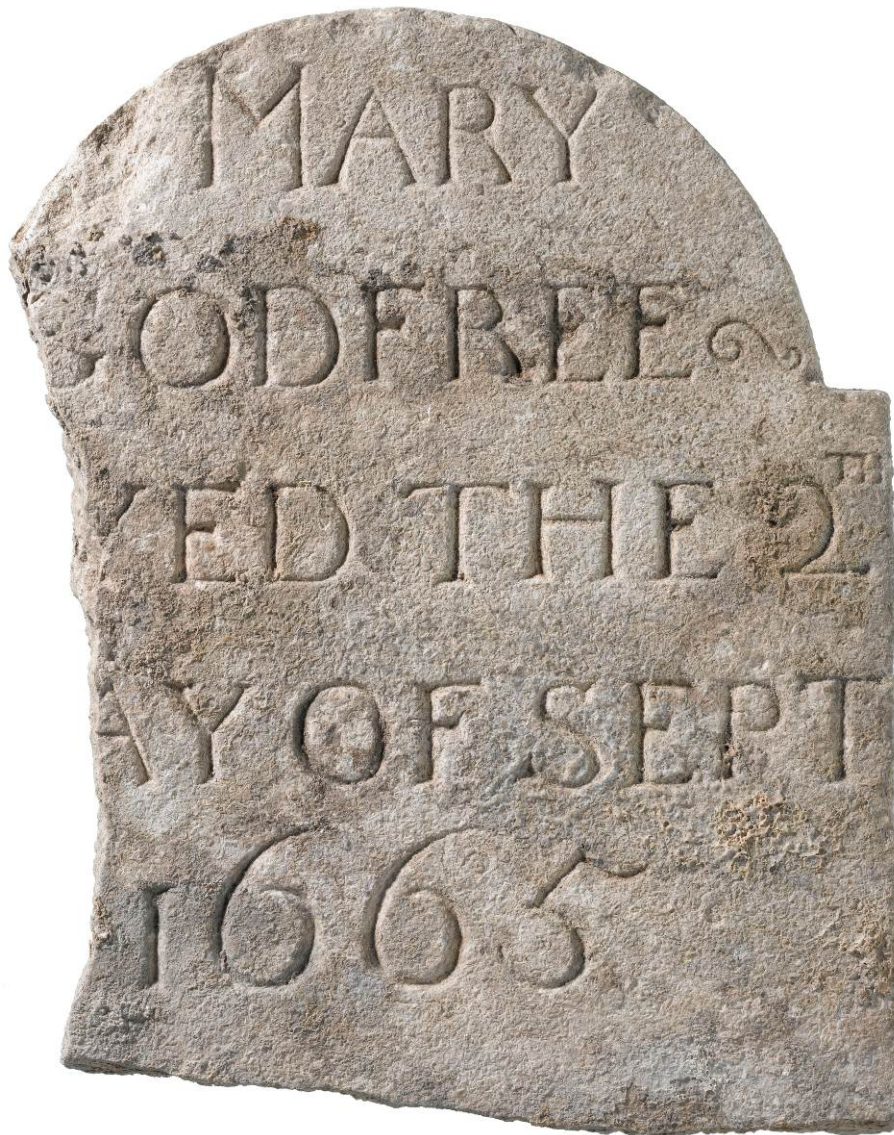


Photo 16 Headstone [1645] with inscription 'MARY (G)ODFREE, (DY)ED THE 2<sup>TH</sup> (D)AY OF SEPT, 1665'



*Photo 17 Brick wall foundation [1639], looking north*

## 9.17 Trench Box 2.9

Trench Box 2.9	
Location	East N–S pile line, south
Dimensions	3.5m (north to south) x 2.2m (east to west) x 2.85m deep
London Survey grid coordinates	83404 / 36283
OS National grid coordinates	533055 181599
Modern Ground Level	112.60m ATD
Modern subsurface deposits	Rubble/modern made ground over services and backfill up to approximately 1.37m thick.
Level of base of archaeological deposits observed and/or base of trench	109.67m ATD
Natural geology observed	Not reached
Extent of modern truncation/overburden	Approximately 1.37m in depth
Archaeological remains	Dating Evidence and Finds
Burial ground soil [1631], greyish brown gritty clayey silt with frequent inclusions of CBM, mortar flecks, charcoal and oyster shell. At approximately 111.23m ATD.	Dated to within the use of the burial ground (1569 to c 1730s)  Pottery (1550–1700) and worked animal bone
Interpretation and summary	
Layer [1631] represented the burial ground, was c 1.56m thick and included <i>in situ</i> graves and disarticulated human bone.	



## 9.18 Trench Box 2.10

Trench Box 2.10	
Location	East N–S pile line, centre
Dimensions	3.5m (north to south) x 2.2m (east to west) x 2.85m deep
London Survey grid coordinates	83405 / 36287
OS National grid coordinates	533054 181602
Modern Ground Level	112.8m ATD
Modern subsurface deposits	Rubble/modern made ground over services and backfill up to approximately 1.94m thick
Level of base of archaeological deposits observed and/or base of trench	110.33m ATD
Natural geology observed	Not reached
Extent of modern truncation/overburden	Approximately 1.94m in depth
Archaeological remains	Dating Evidence and Finds
Burial ground soil [1657], dark brown gritty clayey silt with frequent inclusions of CBM, mortar flecks and charcoal. At approximately 110.86m ATD.	Dated to within the use of the burial ground (1569 to c 1730s)
Brick wall foundation [1648] constructed from red stock bricks. [1648] extended to the north into TB 2.11 giving a total width of approximately 1m. The truncated top of the foundation was recorded at 111.68m ATD and the base at 111.06m ATD.	Brick c 1700/1750–1900
Interpretation and summary	
<p>Layer [1657] represented the burial ground, was c 0.53m thick and included <i>in situ</i> graves and disarticulated human bone.</p> <p>Deposit [1657] was truncated by a wall foundation [1648]. A very similar structure [1642] was recorded approximately 9m to the west in TB 2.13 on the same alignment. It is likely that together they formed the northern edge of Liverpool Street/the southern boundary wall of the gardens of No.1 Broker Row and Broad Street Buildings, as seen newly created on Greenwood's map of 1824 (Fig 8),.</p>	

## 9.19 Trench Box 2.11

Trench Box 2.11	
Location	East N–S pile line, north
Dimensions	3.5m (north to south) x 2.2m (east to west) x 3.26m deep
London Survey grid coordinates	83405 / 36291
OS National grid coordinates	533054 181608
Modern Ground Level	113.5m ATD
Modern subsurface deposits	Rubble/modern made ground over services and backfill up to approximately 2.24m thick
Level of base of archaeological deposits observed and/or base of trench	110.24m ATD
Natural geology observed	Not reached
Extent of modern truncation/overburden	Approximately 2.24m in depth
Archaeological remains	Dating Evidence and Finds
Burial ground soil [1658], dark brown gritty clayey silt with frequent inclusions of CBM, mortar flecks and charcoal. At approximately 111.26m ATD.	Dated to within the use of the burial ground (1569 to c 1730s)  No finds recovered
Brick wall foundation [1639].	Brick 1666–1800/1900
Brick wall foundation [1648].	Brick 1700/1750–1900
Interpretation and summary	
<p>Layer [1658] represented the burial ground, was c 1m thick and included <i>in situ</i> graves and disarticulated human bone.</p> <p>The burial ground horizon was truncated by wall foundations [1639] and [1648], see TB 2.8 and TB2.10 above for descriptions and interpretation of these features.</p>	

## 9.20 Trench Box 2.12

Trench Box 2.12	
Location	Centre N–S pile line, north
Dimensions	3.5m (north to south) x 2.2m (east to west) x 3.2m deep
London Survey grid coordinates	83396 / 36293
OS National grid coordinates	533047 181609
Modern Ground Level	113.5m ATD
Modern subsurface deposits	Rubble/modern made ground over services and backfill up to approximately 2.1m thick
Level of base of archaeological deposits observed and/or base of trench	110.32m ATD
Natural geology observed	Not reached
Extent of modern truncation/overburden	Approximately 2.1m in depth
Archaeological remains	Dating Evidence and Finds
Burial ground soil [1634], dark brown gritty clayey silt with frequent inclusions of CBM, mortar and charcoal flecks. At approximately 110.90m ATD. Including coffin [1646] at 110.80m ATD.	Dated to within the use of the burial ground (1569 to c 1730s)  Small residual glazed floor tile from the Low countries dated to 1300–1480
Brick wall foundation [1632] measuring 0.7m wide by 1.95m long (Photo 19).	Brick c 1750–1900
Interpretation and summary	
<p>Layer [1634] represented the burial ground, was c 1.1m thick and included <i>in situ</i> graves and disarticulated human bone. A medieval floor tile recovered from this layer is likely to be residual and originally from a parish church of monastic building.</p> <p>One burial included a coffin [1646] with an unusual arrangement of copper-alloy upholstery studs on its lid. Whilst the lid was badly decayed and had collapsed onto the skeleton, it was possible to recover some fragments. The lid appears to originally have had initials and possibly a date written out with studs (see Photo 18).</p> <p>Cut into the burial ground soils in the central part of the trench box was a north to south aligned red brick wall foundation [1632]. It had been truncated by a modern service to the south. This structure is probably of a new building seen fronting on to the north side of Liverpool Street on Greenwood's map of 1824 (Fig 8).</p>	



*Photo 18 Fragments of the lid of coffin [1646]*



*Photo 19 Brick wall foundation [1632] in TB 2.12, looking south*



## 9.21 Trench Box 2.13

Trench Box 2.13	
Location	Centre N-S pile line, centre
Dimensions	4.5m (north to south) x 2.2m (east to west) x approximately 3.2m deep
London Survey grid coordinates	83395 / 36289
OS National grid coordinates	533046 181605
Modern Ground Level	113.5m ATD
Modern subsurface deposits	Rubble/modern made ground over services and backfill up to approximately 2.1m thick
Level of base of archaeological deposits observed and/or base of trench	Approximately 110.32m ATD
Natural geology observed	Not reached
Extent of modern truncation/overburden	Approximately 2.1m in depth
Archaeological remains	Dating Evidence and Finds
Burial ground soil [1659], dark brown gritty clayey silt with frequent inclusions of CBM, mortar and charcoal flecks. At approximately 111.40m ATD.	Dated to within the use of the burial ground (1569 to c 1730s)  No finds recovered
Brick wall foundation [1642], aligned east to west and constructed of red stock brick. Approximately 0.8m in width and up to 0.5m high. At approximately 111.40m ATD.	Brick c 1750–1900
Interpretation and summary	
<p>The majority of this trench box had already been excavated in 2011 as evaluation Trench 7 (MOLA, 2012), and was therefore mostly modern backfill. A strip in the northern part of the trench approximately 2m wide and a strip of less than a metre in the south, were the only areas in this trench box not previously removed.</p> <p>Layer [1659] represented the burial ground, was c 1.1m thick and included <i>in situ</i> graves and disarticulated human bone.</p> <p>Truncating the burial ground soil in the north of the trench box was [1642]. The build type was the same as wall [1648], in seen boxes 2.10 and 2.11 to the east (Fig 3), and was on the same alignment. It is likely that together they formed the northern edge of Liverpool Street/the southern boundary wall of the gardens of No.1 Broker Row and Broad Street Buildings, as seen newly created on Greenwood's map of 1824 (Fig 8).</p>	



*Photo 20 Machine excavation in TB 2.13, with wall [1642] in the north section, looking north*

## 9.22 Trench Box 2.14

Trench Box 2.14	
Location	Centre N-S pile line, south
Dimensions	3.5m (north to south) x 2.2m (east to west) x 1.83m deep
London Survey grid coordinates	83394 / 36286
OS National grid coordinates	533045 181602
Modern Ground Level	112.8m ATD
Modern subsurface deposits	Rubble/modern made ground over services and backfill up to approximately 1.32m thick
Level of base of archaeological deposits observed and/or base of trench	110.77m ATD
Natural geology observed	Not reached
Extent of modern truncation/overburden	Approximately 1.32m in depth
Archaeological remains	Dating Evidence and Finds
Burial ground soil [1660], dark brown gritty clayey silt with frequent inclusions of CBM, mortar and charcoal flecks. At approximately 111.48m ATD.	Dated to within the use of the burial ground (1569 to c 1730s)
Interpretation and summary	
<p>Layer [1660] represented the burial ground, was c 0.51m thick and included <i>in situ</i> graves and disarticulated human bone.</p> <p>The western part of the box was previously excavated as part of evaluation Trench 2 in 2011 (MOLA 2012a).</p>	

## 9.23 Trench Sheet Area 2

Trench Sheet Area 2	
Location	Northern pile line, west end
Dimensions	3.5m (north to south) x 2m (east to west) x 3.2m deep
London Survey grid coordinates	83373 / 36302
OS National grid coordinates	533024 181617
Modern Ground Level	112.8 m ATD
Modern subsurface deposits	Rubble/modern made ground over services and backfill up to approximately 1.24m thick
Level of base of archaeological deposits observed and/or base of trench	110.48m ATD
Natural geology observed	Not reached
Extent of modern truncation/overburden	Approximately 1.24m in depth
Archaeological remains	Dating Evidence and Finds
Burial ground soil [1655], greyish brown gritty clayey silt with frequent inclusions of CBM, mortar flecks, charcoal and oyster shell. At approximately 111.56m ATD.	Dated to within the use of the burial ground (1569 to c 1730s)  Pottery (1630-1680) and worked animal bone
Interpretation and summary	
<p>Trench Sheet Area 2 was located between TB 2.6 and 2.5, which formed its western and eastern edges. Steel sheets inserted into the ground formed its northern and southern edges.</p> <p>Layer [1655] represented the burial ground, was c 1.08m thick and included <i>in situ</i> graves and disarticulated human bone.</p>	



## 10 Assessment of Results against Research Aims

The following relevant research questions were laid out in the latest method statement (MOLA 2014) and previous method statements. *Due to the non-archaeological excavation/exhumation methodology being monitored, very limited information contributing to the following may be recovered:*

### 10.1 Roman

- *Does the hypothesised Roman road lie within the site and, if so, how does it relate to other Roman activity within the area?*

The gravel metalling [1652], found at c 108.95m ATD in TB 2.8, can be confidently identified as the surface a Roman road which was excavated during previous Crossrail works. This c 2nd-century to mid-3rd-century road has been seen to take an approximate NWW to SEE route across the site, and was previously excavated approximately 5m to the west in Trench 13 (context [300] at 108.85m ATD (Crossrail 2012a)), and further west in the Open Cut Sewer Trench/ MHS2-100 (contexts [1075] and [1315] at 108.60m ATD) (Crossrail 2014c).

### 10.2 Medieval

- *What are the character, extent and date of the Moorfields Marsh in this area? Do the thin marsh deposits represent a continuum of medieval to post-medieval deposition, or post-medieval with residual medieval artefacts?*

Context [1650] in TB 2.8 was not dated by finds, but is probably part of medieval marsh horizon, which was identified and located at comparable levels during the excavation of previous trenches in the immediate vicinity (Crossrail 2012a and 2012b). Deposit [1654] in TB 2.6 is also likely to represent the surface of the marsh.

### 10.3 New Churchyard (Bethlehem or Bedlam burial ground):

- *Can gravestones, marker/ledger slabs, or coffin plates provide evidence which will identify individuals, and can these be correlated with documentary sources?*

A fragment of a headstone [1645] was recovered from TB 2.8 re-used in an early to mid-18th-century brick foundation. The inscription on the headstone read 'MARY (G)ODFREE, (DY)ED THE 2<sup>TH</sup>, (D)AY OF SEPT, 1665'. The death of a 'Mary Godfrey' from plague is recorded for the 2nd September 1665 in the parish register of St Giles Cripplegate (Marit Leenstra, pers comm (Crossrail Broadgate documentary research project)).

This is the fifth gravestone to have been discovered reused in a post burial ground wall foundation, and the second to be correlated with historical documentary sources.

The other headstone [1135] to be correlated with historical documentary sources, records the death of Sarah Long in 1672 and was also identified in the burial records as an inhabitant of the parish of St Giles Cripplegate (Crossrail 2014c, section 19.17).

In TB 2.7 in the western part of the site, two fragments of grave ledger were found re-used in a probable early to mid-18th-century brick foundation. Unfortunately, no inscription was visible on these additional fragments.

- *What is the character, sequence, and dating of burials, in particular the date at which the burial ground went out of use?*

Due to the watching brief conditions of this work, with excavations not undertaken by archaeologists, no evidence was acquired during this phase of work to provide a secure date for the disuse of the burial ground. The range of dateable finds collected from the burial ground horizon concur with the general known date range for the burials (mid 16th to early 18th-century).

- *What is the character of the burial practice, and how does it change spatially and chronologically?*

It was noted that burials seemed to be less dense in TB 2.6, perhaps because of the proximity to the western burial ground boundary (Fig 2). A possible pit burial was seen in TB 2.8.

***The next two items are answered jointly to avoid repetition:***

- *What is the evidence for organisation/management and zoning of the burial ground?*
- *Are multiple or pit burials confined to the northern part of the site around Trenches 13 and 14, and the 1985 excavations?*

Observations of burial type was limited due to the watching brief conditions, however, the location of a possible pit burial in TB 2.8 (a short distance to the east of Evaluation Trench 13) is consistent with previous phases of investigation, which suggested that pit burial was restricted to the northern half of the site.

#### **10.4 Other post-medieval:**

- *What is the date and taphonomy of deposition of the important worked bone assemblage? For example, are these finds residual in the post-burial ground deposits, or does it represent continued deposition during and after the use of the burial ground? Also, what is the spatial and chronological division of the different types of bone artefact across the site?*

Worked animal bone and ivory were found within the burial ground soil and a large concentration came from a deposit sealing the burial ground soil at the western end of the site. It therefore seems likely that the working of animal bone took place close to the burial ground when it was still in use and carried on after it was closed.

- *What activities and industries in the surrounding area are represented by waste materials within dumps and the burial ground sequence?*

The working of animal bone and ivory (see previous question). Glass waste was also seen during this phase of work.

- *What is the character and date of any activity and occupation outside the burial ground?*

The presence of relatively large amounts of worked animal bone within the burial ground soil and above it, suggests the presence of one or more workshops close by.

- *What is the character and date of structural remains relating to 18th and 19th-century urbanisation and development?*

The structural remains recorded during this phase of work fall into three main phases. Initially there are the post-burial ground buildings, constructed in the early to mid-18th century as represented by wall [1636], and [1639] to the east. These have an approximate east to west alignment. The rectangular structure ([1510], [1511] and [1512]) seen in Trench Box 2B may also have been constructed during this period, although it is on a slightly different alignment. The exact function of these buildings is not known, although it is possible that they were outbuildings in the yards or gardens of adjacent properties.

Wall foundation [1642] and [1648] comprises the next phase of building. The wall foundations probably formed part of the same east to west aligned wall. This wall was probably the southern boundary wall of gardens to the rear of Broad Street Buildings, a new wall which formed the northern edge of the newly widened Liverpool Street, as seen on Greenwood's map of 1824 (Fig 8) and last recorded on Stanford's map of 1862. Wall foundation [1632] may belong to a new building seen on Greenwood's map to immediate north of the new boundary wall. This building appears to have been short lived, and is gone by the time of Stanford's map of 1862 (not illustrated).

Finally, wall footings [1647], [1627], [1509], [1508], [1507], [1506] and [1505] represent the last recorded phase of development. These were all present in the trench boxes along the northern pile line and aligned approximately east to west. They are likely to have formed part of the Broad Street Station and the southern boundary wall of its approach road, both constructed in 1864–5 (Fig 8).

## 11 Statement of potential archaeology

### 11.1 Known remains, demonstrated to be present on the site

- The Roman road is predicted to extend across the northern half of the site.
- Post-Roman to 1569 Moorfields marsh deposits.
- Post-medieval remains in the form of both disarticulated human remains and *in situ* burials from the New Churchyard.
- An important assemblage of post-medieval worked animal bone and ivory, providing evidence of nearby post-medieval industry, contemporary with the use of the burial ground and after its closure, which possibly encroached onto the area of the former burial ground.
- Post-medieval buildings/structures encroaching on the burial ground after its closure to burial in the early 18th century.

### 11.2 Potential for further remains

- Low potential for prehistoric activity, which is likely to be limited to stray finds and isolated truncated features.
- High potential for further Roman remains, including evidence for water management, land reclamation and possibly burial. Further information on the nature and exact route of the metalled road, are extremely likely, as is the presence of further pits, ditches and dumps. Any Roman funerary activity, if present, would most likely be located along the south edge of the Roman road.
- Low potential for archaeological remains of Saxon date, owing to the presence of the Moorfields Marsh
- Low potential for medieval activity, such as drainage ditches or rubbish, cess or quarry pits

### 11.3 Importance of Resources

The importance of the excavated remains has been assessed using professional judgement, informed, where applicable, by the criteria for assessing the national importance of monuments (DCMS 2010, Annex 1).

The post-Roman to early post-medieval marsh and later reclamation dumps appear, as in previous fieldwork, to demonstrate consistency across the area under investigation. The environment and human interaction in this period are of local interest, however, and these remains are considered to be of low importance.

The ground within the Crossrail Broadgate Ticket Hall worksite is likely to contain the last surviving remains from within the original footprint of the New Churchyard or Bethlehem (Bedlam) burial ground. Fieldwork has shown that large areas of the burial ground still survive intact; although bone preservation is good, coffin survival is poor. Identification of potential phases of burial within the burial ground, however, will provide the potential to highlight any important differences in society and burial between the first occupants of the burial ground and those buried nearer its end date.



In addition, the recovery of a small number of gravestones may lead to a greater understanding of those named individuals and their lives. All of the information gathered so far, including an accurate plot of the western extent of the burial ground, can be amalgamated with the results of excavation from the same burial ground in the 1980s (Malt and White 1987), and will be of use in the larger context of historical burial practices from this period across London.

The latest phase of fieldwork did contribute to the post-burial ground archaeological record. Wall footings for several 18th-century structures were identified along with those of a 19th-century date. Although map sources show structures on the burial ground post closure, the analysis of historic sources may allow a greater understanding of the form and function of these structures. This is further enhanced by the presence of large amounts of worked animal bone and ivory, which suggests the type of industry occurring in the immediate vicinity.

Overall, the remains (although these were not excavated archaeologically in this phase of work) are of **moderate** importance, in particular the presence of the post-medieval burials and evidence for local post-medieval industry in the form of the worked bone and ivory assemblage.

## **12 Conclusions**

### **12.1 Geology and Prehistoric remains**

Natural geology was not reached during this phase of work, in which no prehistoric remains were found.

### **12.2 Roman remains**

The metalled gravel [1652], found at c 108.95m ATD in TB 2.8, can be confidently identified as the surface a Roman road which was excavated during previous Crossrail works. This road, currently provisionally dated to approximately the 2nd to mid-3rd century, has been seen to take an approximate NWW to SEE route across the site, and was previously excavated approximately 5m to the west in Trench 13 (context [300] at 108.85m ATD (Crossrail 2012a)), and further west in the Open Cut Sewer Trench/ MHS2-100 (contexts [1075] and [1315] at 108.60m ATD) (Crossrail 2014c). A comparison of levels across the site begins to reveal a slight downward slope from east (toward Bishopsgate) to west (toward Blomfield Street and the former position of the Walbrook stream).

Although undated, context [1651] (sealing [1652]) is likely to be part of the initial marsh formation in the late Roman period, but adds little to our understanding of this horizon, seen across the site during previous investigations (Crossrail 2012a, 2012b and 2014c).

### **12.3 Medieval remains**

Context [1650] in TB 2.8 was not dated by finds, but is probably part of a medieval marsh horizon, which was identified and located at comparable levels during the excavation of previous trenches in the immediate vicinity (Crossrail 2012a, 2012b and 2014c). Deposit [1654] in TB 2.6 is also likely to represent the surface of the marsh.

### **12.4 Post-medieval remains**

#### **12.4.1 New Churchyard**

Burial ground soils were identified in all areas of investigation with human remains removed by the C502 exhumation contractor. The thickness of this burial ground horizon ranged between 0.51m and 1.85m, and was in places deeply truncated by modern services and post burial ground structural foundations. Burials were encountered between 111.20 and 111.50m ATD, with the base levels between 109.42m ATD and 110.77m ATD. The variation of the levels at the base of the burial ground soils did not appear to follow a spatial pattern or trend.

The density of burials appeared lower in TB 2.6 than in the other boxes. This may have been because this area of the burial ground was close to the western boundary wall of the burial ground. A possible pit burial was identified in TB 2.8. This appears to be consistent with previous results, which suggest that pit burials may be restricted to the north half of the site.

Further details regarding the burial sequence, characterisation and dating (including the identification and recording of coffin remains) were limited by the non-archaeological excavation/exhumation methodology of the exhumation contractor.

No burial vaults or charnel pits were identified during these works.

The lid of one coffin, [1646] in TB 2.12, had an unusual pattern of decorative studs, probably depicting letters and numbers. Any information was largely illegible, but it is likely to have been the occupant's initials and/or year of the death. Previous Crossrail investigations have recorded coffin plates and several examples of coffins decorated with studs (Crossrail 2012a, 2012b and 2014c). Although a few examples of stud lettering were discovered in the burial ground during the Broadgate excavations in 1985 (LSS85, Malt and White 1987), [1646] is the first example found during Crossrail investigations at the Broadgate Ticket Hall.

As in previous investigations, grave stones were found reused within post-cemetery wall foundations (see below). These are likely to have belonged originally to burials within the New Churchyard. One of these stones, [1645], was a near complete headstone with an inscription that correlates with documentary records of a victim of the plague of 1665 (see 10.3). Grave ledger [1637] provided no further information about the burial ground (see below).

#### 12.4.2 Craft-Industry waste

As in the previous phases of fieldwork, the burial ground deposits and post-burial ground horizon contained worked animal bone and ivory waste. These remains indicate at least one workshop in the vicinity that worked bone, probably in operation whilst the burial ground was in use and also after it closed. The most likely source of this material is Spinning Wheel Alley, which bounded the burial ground to the south in the 18th century. This street was known, and probably named, for its concentration of turners' shops and lathe workers during this time (Smith 1829).

#### 12.4.3 Post-burial ground structural remains

Dating evidence and the locations of walls [1639] and [1510] (including [1511] and [1512]) suggest that these foundations may belong to outbuildings or boundary walls within the yards of gardens of Broad Street Buildings or No.1 Broker Row. These structures would have been built encroaching into the former burial ground. Brick dates from these structures confirm an early 18th- to mid-19th-century date. Gravestone [1645], re-used within [1639], confirms a post-1665 date for this wall. The discovery of these wall foundations has allowed for a greater understanding of the position of these properties in relation to the site.

Wall foundation [1636] is a continuation of wall [1113] recorded immediately to the west on the same alignment (Fig 3) during excavations in MHS1 in 2013 (Crossrail 2014c). Another gravestone within [1113] was dated to 1672. The position of wall foundation [1636]/[1113] in relation to the known boundaries of the burial ground (Crossrail 2013, see Fig 3) suggests that it is the northern wall of No. 1 Broker Row (now Blomfield Street). This building is clearly identified on historical maps between 1746 (Fig 6) and 1824 (Fig 8), and was located in the south-west corner of the former burial ground.

## **12.5 19th-century remains**

Two phases of 19th-century remains were identified during this phase of fieldwork. The first can be associated with widening of Spinning Wheel Alley in the early 19th century. These changes are first seen on Greenwood's map of 1824 (Fig 8). Walls [1642] and [1648] appear to part of a new boundary wall on the north edge of Liverpool Street, which enclosed the remaining garden area of Broad Street Buildings. Wall [1632] is likely to be part of a new rectangular shaped building also seen on Greenwood's map fronting onto the north of Liverpool Street (Fig 8).

The second phase of 19th-century activity is associated with the construction of Broad Street Station in 1864–5 (Fig 9). Again, this second phase formed an east to west alignment and consisted of corbelled brick foundations on concrete wall footings, some of which included the remnants of brick arches (walls and foundations [1647], [1627], [1509], [1508], [1507], [1506] and [1505]).

Whilst remains relating to Broad Street Station have been found during recent Crossrail fieldwork, the c 1824 boundary wall ([1642] and [1648]) has not been previously encountered. The discovery of these structural remains allows a more accurate location of the site in relation to buildings seen on historical maps of that period, and, by extension, earlier periods.



## **13 Publication and dissemination proposals**

Watching brief results will initially be disseminated via this report; the supporting site archive of records, including digital data and by incorporation into the wider predictive deposit modelling for the Crossrail scheme.

The results are expected to be included, along with the other past and future results from the Broadgate Ticket Hall site, in the relevant volumes of proposed Crossrail publication CRL11 Roman and Medieval Broadgate and Blomfield Street.

## **14 Archive deposition**

The site archive containing original records will be stored temporarily with MOLA pending a future decision over the longer-term archive deposition and public access process for the wider Crossrail project.

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All archaeological investigations were supervised by the authors and Jeremy Taylor. The MOLA Project Manager was Nicholas Elsdon.

## 17 NMR OASIS archaeological report form

### OASIS DATA COLLECTION FORM: England

OASIS ID: molas1-198535

#### Project details

Project name	C502 Broadgate Ticket Hall Pile Line Watching Brief
Short description of the project	A watching brief was carried out on the excavation and exhumation of burials from the Bethlehem Burial Ground deposits by an exhumation contractor. This was carried out in advance of piling.
Project dates	Start: 19-06-2014 End: 04-11-2014
Previous/future work	Yes / Yes
Any associated project reference codes	XSM10 - Sitecode
Type of project	Recording project
Site status	None
Current Land use	Transport and Utilities 1 - Highways and road transport
Monument type	WALLS Post Medieval
Monument type	BURIAL GROUND Post Medieval
Significant Finds	HEADSTONE Post Medieval
Significant Finds	WORKED ANIMAL BONE Post Medieval
Significant Finds	POTTERY Post Medieval

Investigation type "Watching Brief"

Prompt Crossrail Act

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### Project location

Country England

Site location GREATER LONDON CITY OF LONDON CITY OF LONDON C502 Broadgate Ticket Hall

Postcode EC2

Study area 2741.00 Square metres

Site coordinates TQ 533050 181610 50.9419062539 0.182373890462 50 56 30 N 000 10 56 E Point

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### Project creators

Name of Organisation MOL Archaeology

Project brief originator Crossrail

Project design originator Crossrail

Project director/manager Nicholas Elsdon

Project supervisor Rob Tutt, Jeremy Taylor, Rob Hartle

Type of sponsor/funding body Crossrail Ltd

Name of sponsor/funding Crossrail

body

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### Project archives

Physical Archive recipient	LAARC
Physical Contents	"Animal Bones","Ceramics","Glass","Metal","Worked stone/lithics"
Digital Archive recipient	LAARC
Digital Media available	"Images raster / digital photography","Survey","Text"
Paper Archive recipient	LAARC
Paper Media available	"Context sheet","Miscellaneous Material","Plan"

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Entered by Rob Tutt (rtutt@mola.org.uk)

Entered on 19 December 2014



## 18 Appendices:

### 18.1 Building materials

*Ian M Betts*

Eight post-medieval brick samples were recorded for this phase of XSM10 (contexts [1632], [1636], [1639] and [1648]). One glazed medieval floor tile is also present (context [1634]).

The building material from XSM10 has been fully recorded and the information added to the Oracle database.

Listed below is a summary of the building material in each context:

Context	Fabric	Type	Date
[1632]	3032	Brick	1750–1900
[1634]	2504	Floor tile	1300–1480
[1636]	3032	Brick	1700/1750–1900
[1639]	3032	Brick	1666–1800/1900
[1648]	3032	Brick	1700/1750–1900

#### ***Medieval floor tile***

The medieval floor tile is a worn plain glazed import from the Low Countries. Two small round nail holes, which are characteristic of Low Countries floor tiles, are present in one corner. Others may be hidden under a layer of white slip beneath the plain yellow lead glaze. The tile is unusually small measuring just 95mm square by 19–21mm in thickness. It probably came from a parish church or monastic building.

#### ***Bricks***

Context	Size (mm)
[1632]	218–219 x 98–99 x 60–64
[1636]	215–217 x 98–103 x 61–66
[1639]	218–c 228 x 99 x 62–67
[1648]	220–c 221 x c 94–103 x 64–67

All the bricks are dark red coloured examples (fabric 3032) which would have been produced at brickyards located in or close to London. The earliest bricks are probably those from context [1639]. These are also the only bricks with grey coloured mortar attached. The other bricks have white coloured mortar. These are fairly sharp edged suggesting a probable mid-18th to 19th-century date, although they could perhaps be a little earlier.

## 18.2 Pottery, Glass and Clay Tobacco Pipe

**Nigel Jeffries**

### Pottery

#### Introduction

The pottery assemblage from this particular phase of archaeological work amounts to 32 sherds (18 ENV, 2.6kg) and was found in eight contexts ([1501] to [1656]). Where appropriate the sherds were examined macroscopically and using a binocular microscope (x 20), and recorded on paper and computer using standard Museum of London codes for fabrics, forms and decoration. The numerical data comprises sherd count, estimated number of vessels and weight. The data can be accessed on the Oracle database.

#### The post-medieval pottery

With no medieval or Roman dated pottery in this assemblage, post-medieval ceramics instead provide all of this material from this excavation phase. In common with the pottery of this date found from earlier interventions on this site, some vessels survived as large-sized joining sherds and although reconstructable profiles were few, two near complete pots retrieved in [1504] and [1635]. With this material characterised by London-made tin-glazed wares with some typical imports from continental Europe, the assemblage from these latest excavated deposits are notable for the largely consistent mid to late 17th-century *terminus post-quem* they provide to the several contexts.

The earliest dated pottery (1480–1600) is in [1656] which contained coarse redwares from London area with a sherd each of plain redware (PMRE) or with its slip-coated decorated derivative (PMSR) in a pitcher and cauldron/pipkin form respectively. The pottery in the remaining seven contexts mostly comprised London tin-glazed wares in charger/dish and rounded bowls forms, and imports from Continental Europe. Among the last group are common Rhenish stonewares from Frechen (in [1628] and [1655]) and Westerwald (in [1626]), in addition to the large joining sherds of a well-used whiteware tripod pipkin (also from the Rhineland) and a tin-glazed ware bowl or vase lid in [1655] that might be Netherlands sourced. A near complete Bristol-glaze stoneware marmalade or jam pot in [1504] an earlier dated stoneware globular mug or gorge (also in [1504]) and a red Surrey-Hampshire border ware chicken feeder in [1635] provide the only variation in source of pottery supply otherwise observed.

### Glass

With the few fragments of glass waste found in [1501] and [1634] considered in the registered finds report for this phase of the site, this isolates the mid to late 19th-century eight sided bottle in [1504] as the only glass retrieved from this phase. This mould made aqua coloured glass functioned as a medicine bottle.

### Clay pipe

Only one clay tobacco pipe bowl of the AO25 type (1700–70) was recovered from this phase of works, in [1649].

## Discussion

The post-medieval pottery could be derived from a number of sources in the area, or simply rubbish brought out of the city. Despite not being related to any structural sequences the sources of supply represented are remarkably consistent, with an overwhelming emphasis locally made tin-glazed ware and stoneware and German and Low Countries imports in this sequence.

## 18.3 Accessioned finds

### *Lyn Blackmore*

#### Introduction

This is one of a series of notes on the accessioned finds from the ongoing works at the Crossrail Central Broadgate Ticket Hall site (XSM10), covering the non-ceramic accessioned finds, other than coins and a grave slab, from contexts within the range [1500] – [1504] and [1626] – [1656]. The 148 finds have been photographed for record purposes and catalogued on the registered finds form of the MOLA Oracle database; all are of post-medieval date, falling into the material categories discussed below.

#### Post Roman finds

Summary of accessions by material

##### *Glass*

The three glass accessions are an unusual thick bullet-shaped rod of dark green glass (<793>) and a drop of natural green glass (<813>), both from [1501], and a pull of natural green glass from [1634] (<814>).

##### *Composite*

The composite finds include a coffin fitting of wood with five circular copper alloy mounts or studs ([1502] <810>) and the remains of two composite knives are represented, of which [1641] <716> has an ivory handle of pistol grip form, typical of the 18th century; <687> from [1649] is incomplete and possibly unfinished.

##### *Copper alloy*

There are six copper-alloy accessions from contexts [1500]–[1504], of which the small mount/stud <803> ([1502]) is of the same size as the mounts on coffin fitting <810> from the same context; X-ray suggests that it may have a decorative surface. The other finds, all from [1500], comprise a larger mount of flat Tudor rose type with central perforation for securing it (<806>), a gilded chain (<796>), possibly part of a necklace (length 180mm), a curtain ring (<807>) and a ?foot from a larger object. Accession <795> was a complete, but worn, coin-sized disc, possibly a fake mid 18th-century halfpenny (see 18.5).

### *Iron*

Five of the nine iron objects are from contexts [1500], [1502] and [1504], the others from [1634], [1652] and [1655]. The most diagnostic are two large late 15th-/16th-century keys from [1634] (<800>, <801>) and a near complete pair of scissors from [1502] <802>. Four are structural, comprising nails and stakes of some size (1500] <798>, length 165mm; [1502] <809>, length 183mm; [1655], <804>, length 210mm). Object <805> from [1500] is cylindrical and may be a finial or part of a barrel padlock. The remaining find is a large concave disc (diameter c 74mm, height 19mm) from [1652] (<812>).

### *Lead*

A rectangular plate of sheet lead (<797>), possibly with a nail through one corner, was found in [1500].

### *Bone and Ivory*

As with earlier phases of work, waste from bone working is the dominant category, currently with 27 accessions of bone waste from eight contexts and 99 accessions of ivory waste from seven contexts. Again a range of tool marks are present help to demonstrate the range of tools (including knives, files, a lathe and saws) and the manner in which they were used in the manufacturing process.

The largest groups of bone are from [1649] (eight accessions)(Photo 13) and from [1500] (seven accessions). The distal end of a cattle metacarpal is present ([1649] <720>), but most finds comprise rings or cylinders made from cattle metatarsals, and demonstrate various stages of the production process, the most finished pieces being a cylindrical container or finial ([1655] <790>) and two fan ribs ([1500] <727>, [1634] <714>). One incomplete turned peg-shaped object similar to the ivory finds is also present ([1649] <673>).

The main concentration of ivory is in [1649] (89 accessions)(see Photo 13), the six other contexts having only one or two accessions. As already noted for other parts of the site, the ivory includes blocks, wedges, discs, rings and other offcuts, including lengths of tusk up to 38mm in diameter and 18mm long ([1503] <792>). Most of the more finished finds comprise peg-like objects, amounting to 52 accessions, some with more than one example. Some are plain, while others with turned terminals; lengths vary but most are between 50–60mm and c 5–10mm in diameter. The smaller, shorter examples may have been intended as lids or stoppers, but the larger fragments may have been for hollowing out, as near a complete needle case, large enough for only one or two needles, was found in [1649] (<691>) along with slightly larger, less finished examples <683>, <685> and <686>; <684> has not been hollowed out. All have screw threads around the top for a lid, but <690> is larger and lacks the screw thread, and so may have been intended as a knife handle. Also from [1649] are two possible lids, one complete with a decorative finial (<694>), the other incomplete with expanded, turned head; a solid cylindrical block <692> probably represents the first stage of lid manufacture.

### **Discussion**

While some of the post-medieval finds could date to the late 15th/16th century, most probably date from the mid/late 16th century and 17th century, when exotic materials began to reach London, along with immigrants who were skilled in ivory working and other crafts such as glass working and who began to settle in the Spitalfields area. The large assemblage of ivory waste from the contexts discussed



here, in particular that from [1649], adds to the picture already given by earlier finds from the site, which when taken together will probably amount to the largest group of post-medieval bone and ivory waste from central London and as such be of national importance.

### **Work remaining / further work**

All finds deserve study within the context of the overall site sequence at the analysis phase. The bone and ivory waste should be examined by a zooarchaeologist to confirm the material identifications. The bone/ivory measurements will need to be checked to ensure they are in line with those for earlier groups.

## **18.4 Worked Stone**

*James Wright*

### **Introduction/methodology**

All of the worked stone has been recorded using the standard worked stone recording forms used by MOLA. The stones were photographed and where appropriate a 1:1 or 1:2 profile drawing was made, a 1:1 rubbing or a scaled plan drawing was made. Fabric analysis was undertaken with a x10 binocular microscope and a comparison was made with the MOLA stone library.

*Table 2 Finds and environmental archive general summary*

Building material	Two worked stones were recovered from site. Both were incomplete fragments. Of these one stone was fractured into two pieces.  All stones were retained.
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### **Post-medieval gravestones**

Two fragmentary gravestones were recovered from the core of a post-medieval wall (Contexts [1637] and [1645]).

### **Context [1637]**

#### **Accession <1115>**

Two fragmentary pieces of black sandstone similar to that quarried at Caithness, Scotland which is an Old Red Sandstone of the Devonian era. The fragments interlock but do not represent a complete stone. The reverse face of the stone has a 45mm wide mitred chamfer and the entire face has been dressed roughly indicating that it was never intended to be seen. The thickness and surface wear suggests that the stone was a ledger slab which was laid horizontally and flush with the ground level around it. Very little wear was observed, despite this no inscription was visible suggesting that it comes from an unlettered stone or is an unlettered part of a much larger stone.

A similar designed ledger (accession <001>) with a chamfered reverse was recovered from Context [1115] during an earlier phase of work, however, as the petrology was that of a Welsh slate the two stones cannot be of the same origin. Despite this the two stones seem to be stylistically similar and Context [1115] was dated to the second half of the 17th or very early to mid-18th century from the style of inscription and was found with a headstone (1135) which was dated to 1672 by inscription.

### **Context [1645] (Photo 16)**

#### **Accession <664>**

A single fragmentary piece of cream coloured fossiliferous limestone similar in character to the Corallian limestone of the Jurassic Period from Marnhull, Dorset. The fragments all interlock but do not represent a complete stone. The reverse face of the stone is extremely weathered which may be indicative that it once stood upright externally, although a much corroded iron fixing may point towards the possibility that the stone was once mounted on a wall. The thickness and decorative scheme on the front face suggests that the stone was a vertical grave marker with a discoid head characteristic of the 17th century.

The inscription reads:

MARY

(G)ODFREE

(DY)ED THE 2TH

(DA)Y OF SEPTEMBER

1665

The stone is approximately 80% complete with fractures to the left and bottom. It is characteristic of the very low headstones of the late 17th and early 18th century which were laid vertically directly into the earth. Such stones often featured carved scrolls such as that located immediately to the right of the surname (G)ODFREE. No other decoration or elaboration is present.

The parish registers of St Giles Cripplegate record that a Mary Godfrey died of the plague on the 2nd September 1665 (Marit Leenstra, pers comm (Crossrail Broadgate documentary research project)).

The letter-cutting is a naïve sub-Roman font, neatly incised and adequately set-out with crude serifs. There is some evidence that the mason was illiterate given that the superscript 2TH is grammatically incorrect. Equally it could be representative of a non-uniform pattern of spelling which was still evident in the late 17th-century. It was often the case that the text would be set out by a vicar or schoolmaster and executed by a mason or builder who was not necessarily an expert lettercutter during this early period, although the flourish with which the 5 of 1665 was cut does indicate a certain degree of capability.

### **Analysis of potential**

The material all comes from a post-medieval wall, which however contains stonework from earlier periods. The two gravestones which can be dated to the second half of

the 17th-century or early 18th-century, were then reused in the 18th-century. The gravestones come from the Bethlem Burial Ground as laid out in the late-16th-century.

It is interesting to note that there are two widely spaced petrologies represented – Caithness and Dorset, and this was true of the earlier assemblage of worked stone from the site which had material imported from quarries as disparate as Gloucestershire, Dorset, Wiltshire, Northumberland and Wales. This variety of material is not unusual within London which is an area poor in quality building stone yet rich in finance and infrastructure – particularly the sea routes which are made accessible by the Thames estuary. There is some potential for relating the headstone of Mary Godfree to a documentary and genealogical history for the period of the late 17th-century.

### **Significance of the data**

The post-medieval gravestones are from an early burial ground opened as a non-parochial cemetery in 1568/9 on land taken from the Bethlem Hospital, and closed in the 1730s. The reuse of the late 17th-century gravestones derives from an early encroachment into the cemetery by the built environment, and consequently they were reused less than a century after the initial interment. Therefore the significance of the blank gravestone fragment <1115> is considered to be low and the stone can be discarded or possibly used for artistic or community projects, whereas as <664> is well preserved and has supporting documentary evidence and is of medium to high significance.

## **18.5 The Coins**

### ***Julian Bowsher***

Only two coins were found in this watching brief: <794> from [1628] and <795> from [1500]. Both contexts are burial ground soils, associated therefore with the Bedlam burial ground of the 16th to 18th centuries.

The first <794> is a copper-alloy London trade token issued by Sarah Paggan of Dowgate in 1652. There is a great variety of these trade tokens issued by merchants, traders and shopkeepers from London and elsewhere, though Sarah's 'trade' remains unknown. They were commonly made between the years 1648 and 1672 with a nominal value of one farthing.

The second, <795> also copper-alloy, is corroded and possibly a fake mid 18th-century halfpenny.

Both pieces therefore, are contemporary with the use of the burial ground and may even have been specific grave deposits. Such small change is found frequently in other London burial ground sites.





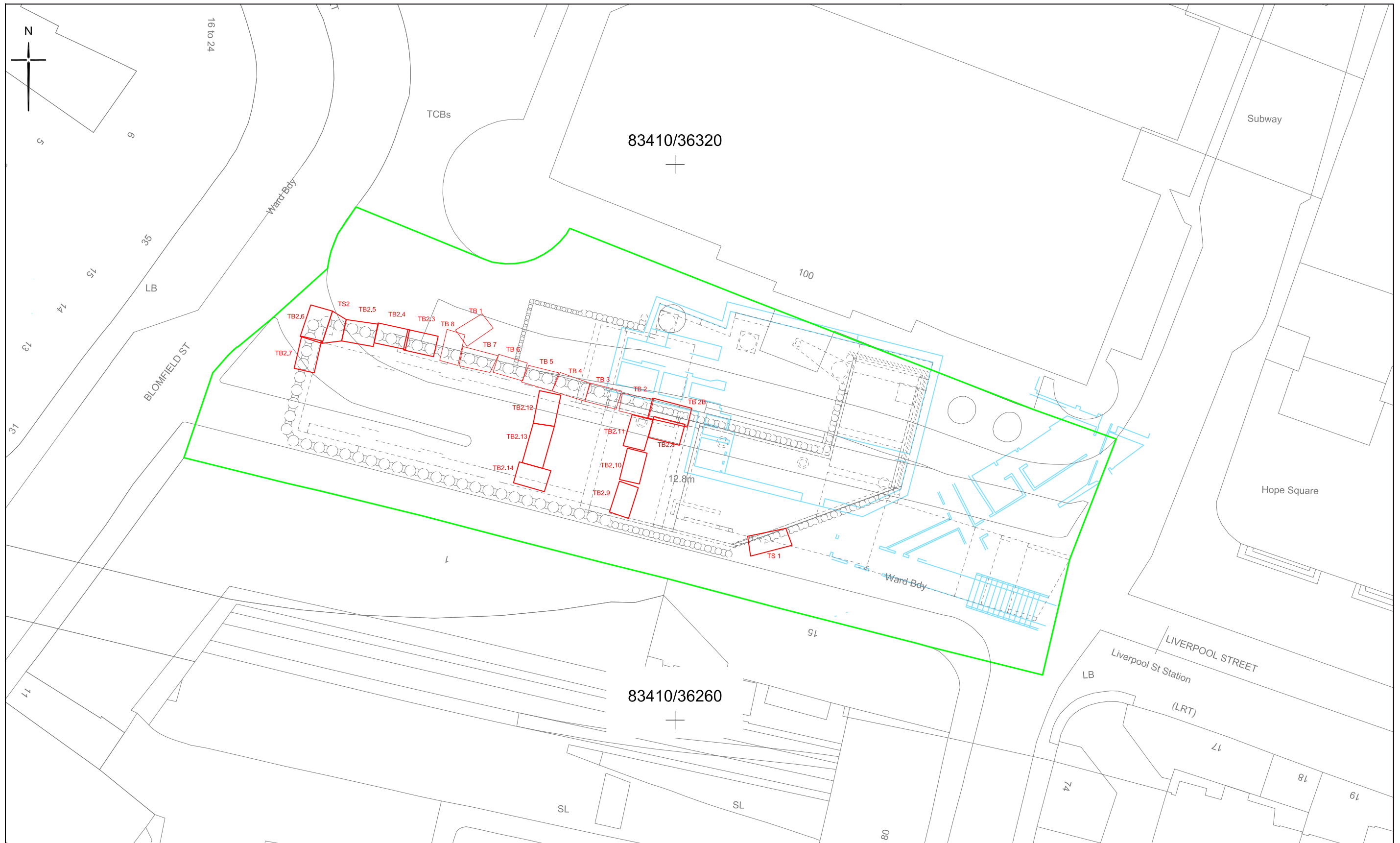


Fig 2 Location of trench boxes and trench sheet areas

- Site outline
- Evaluation and watching brief
- Secant piles
- Walls of former sub-station and Queen Victoria Tunnel

1:400 @ A3  
0 20m

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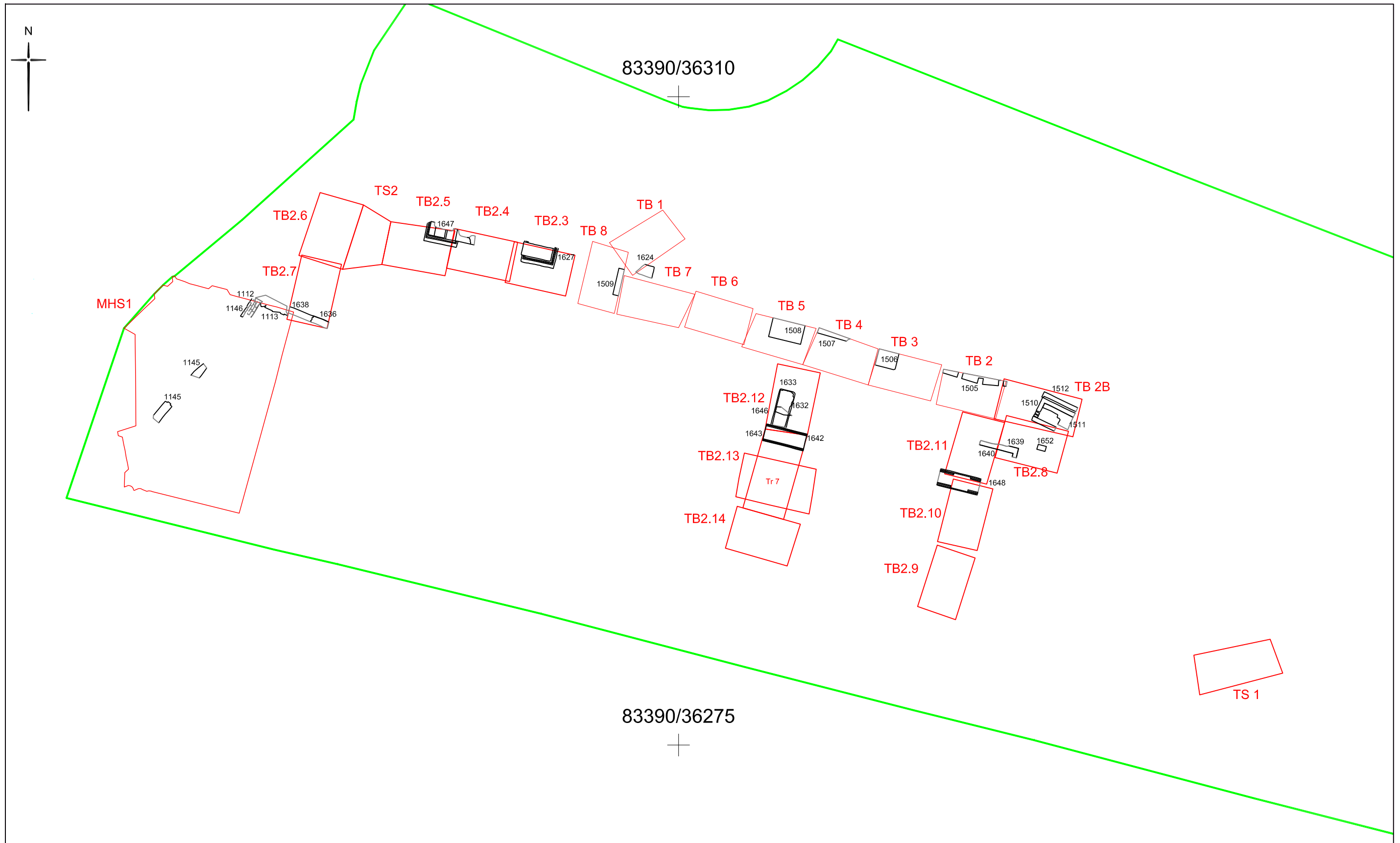


Fig 3 Location of post-medieval structures

- Site outline
- Evaluation and watching brief
- Archaeological features

1:200 @ A3  
0 10m

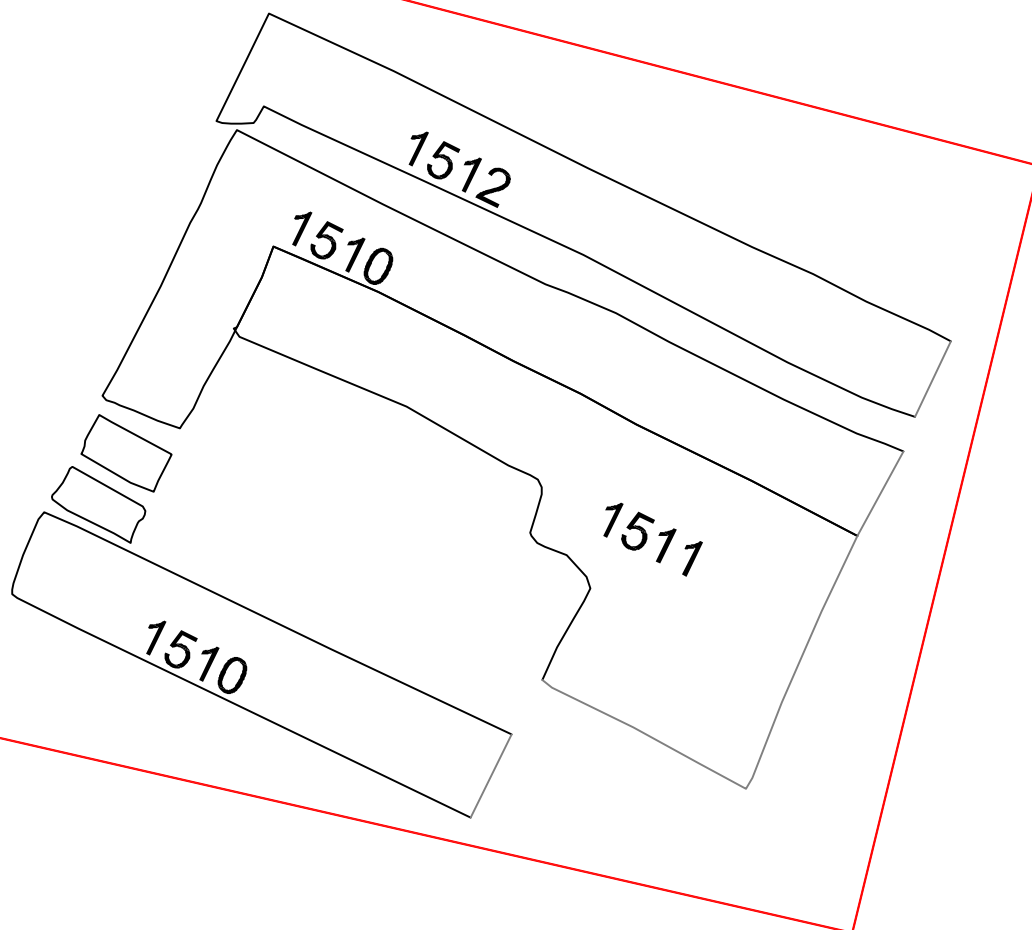
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
**TB 2B**



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Fig 4 Plan of brick walls and floor in Trench Box 2B

-  Trench Box edge
-  Archaeological features

0 1:20 @ A4 1m

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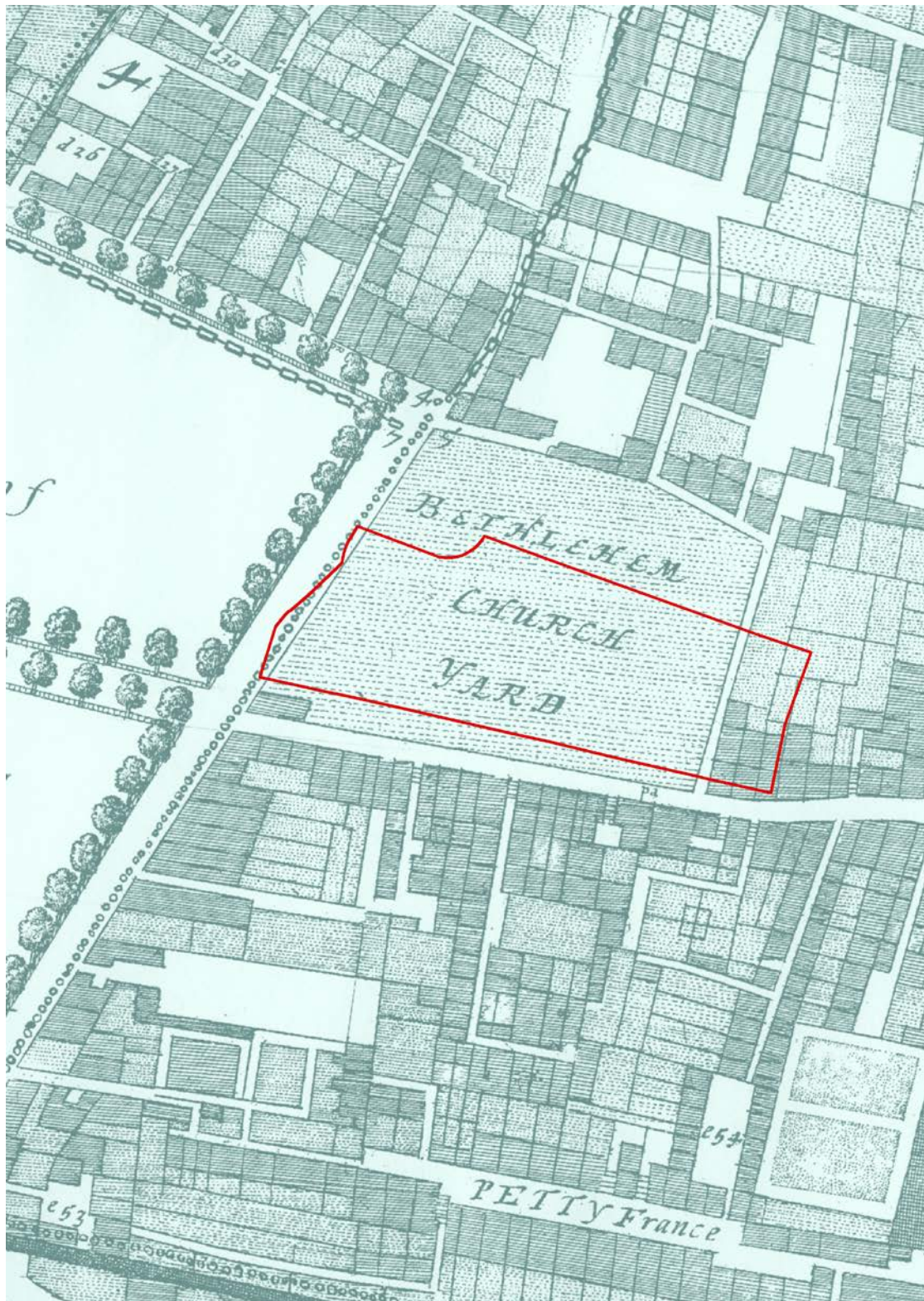


Fig 5 Ogilby and Morgan's map of 1676



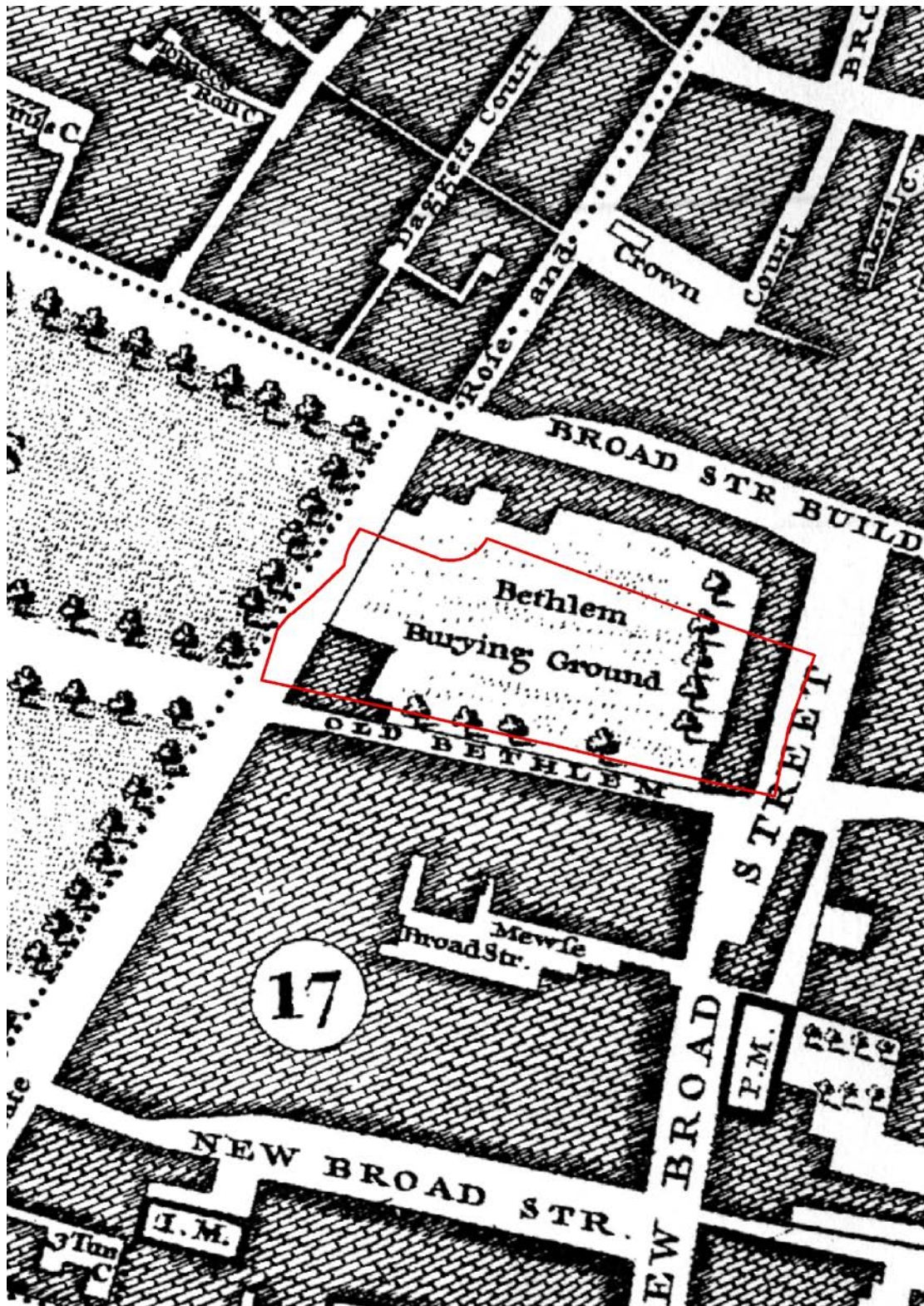


Fig 6 Rocque's map of 1746



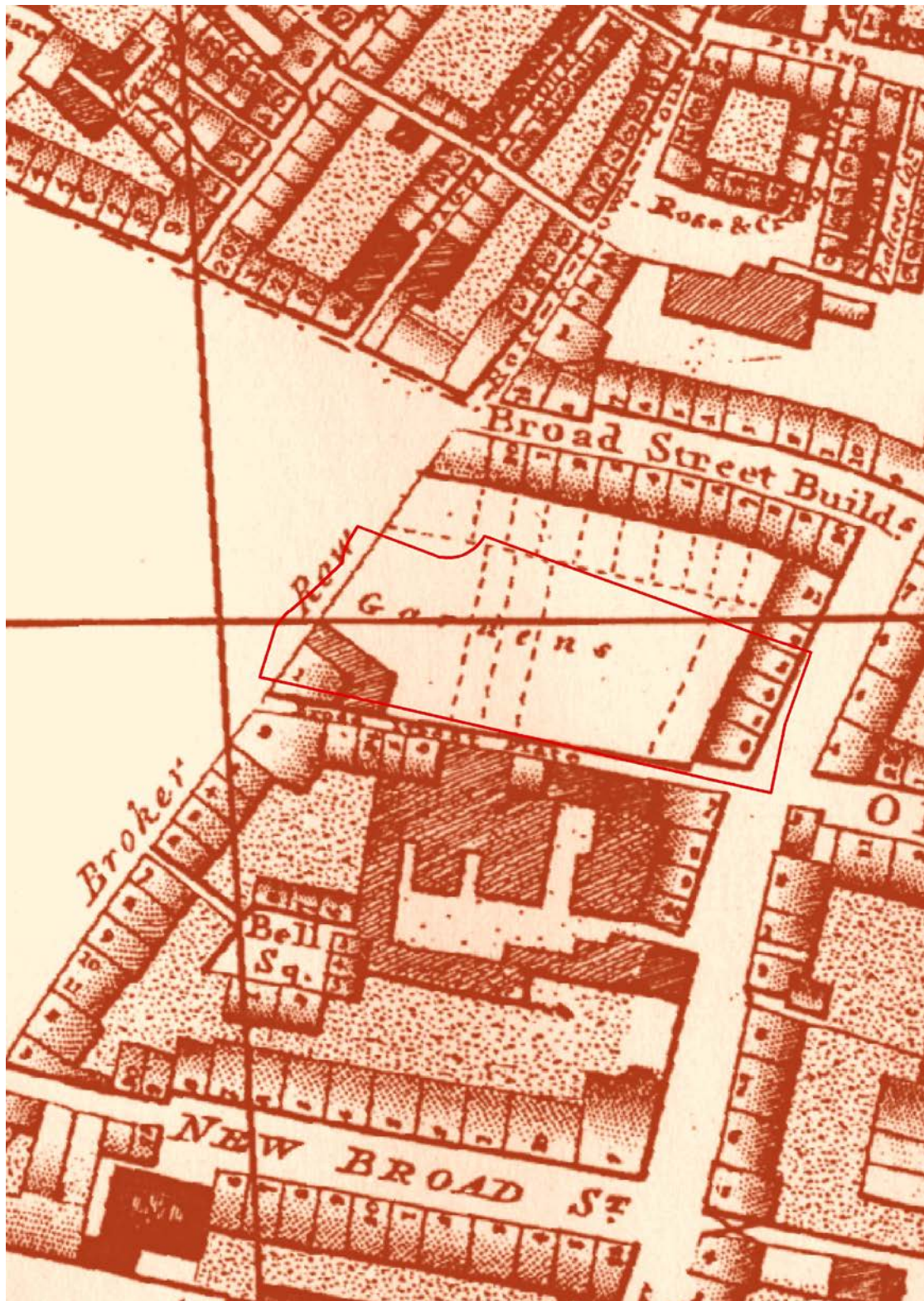


Fig 7 Horwood's map of 1813



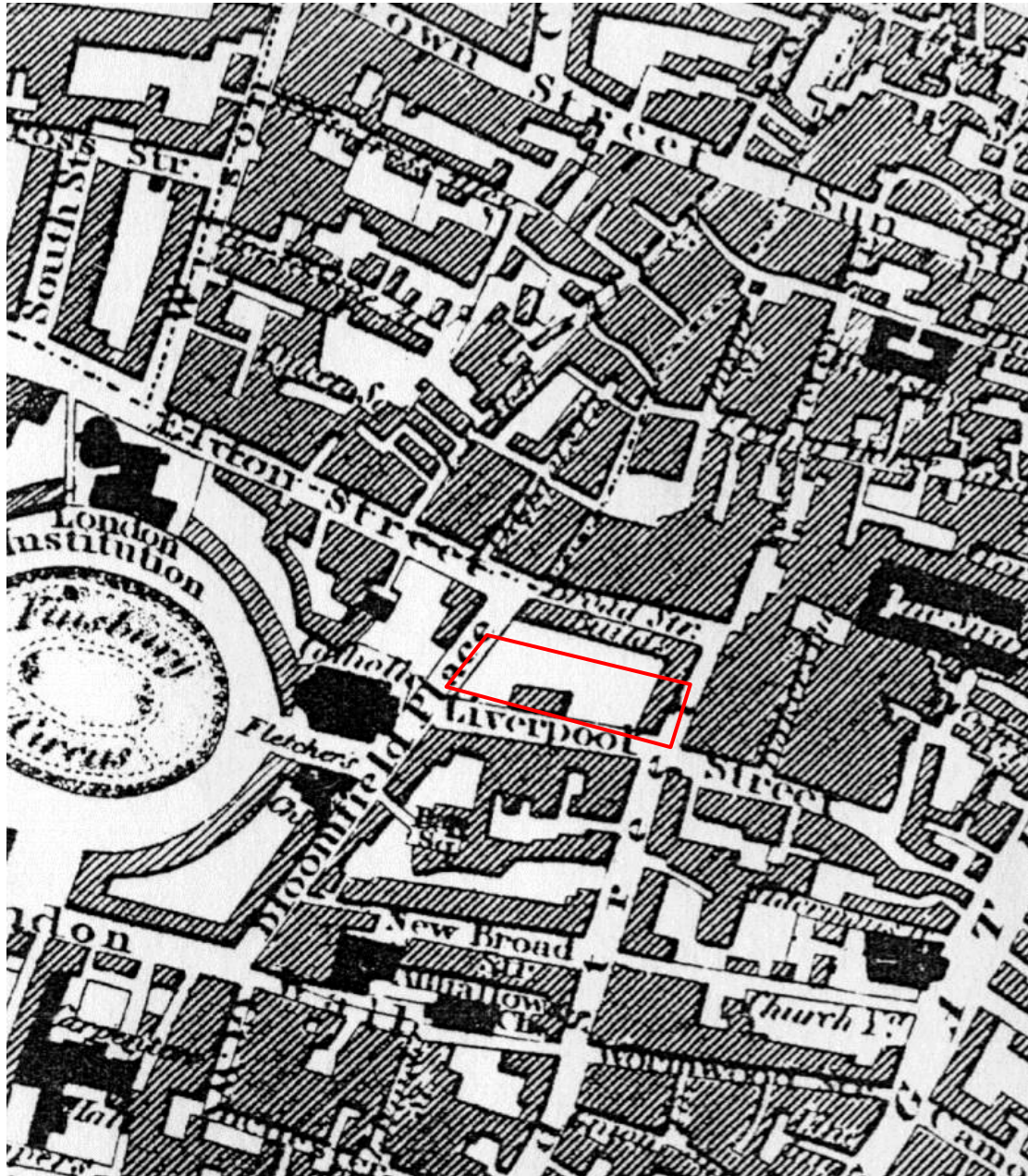


Fig 8 Greenwood's map of 1824  
(site outline approximate)



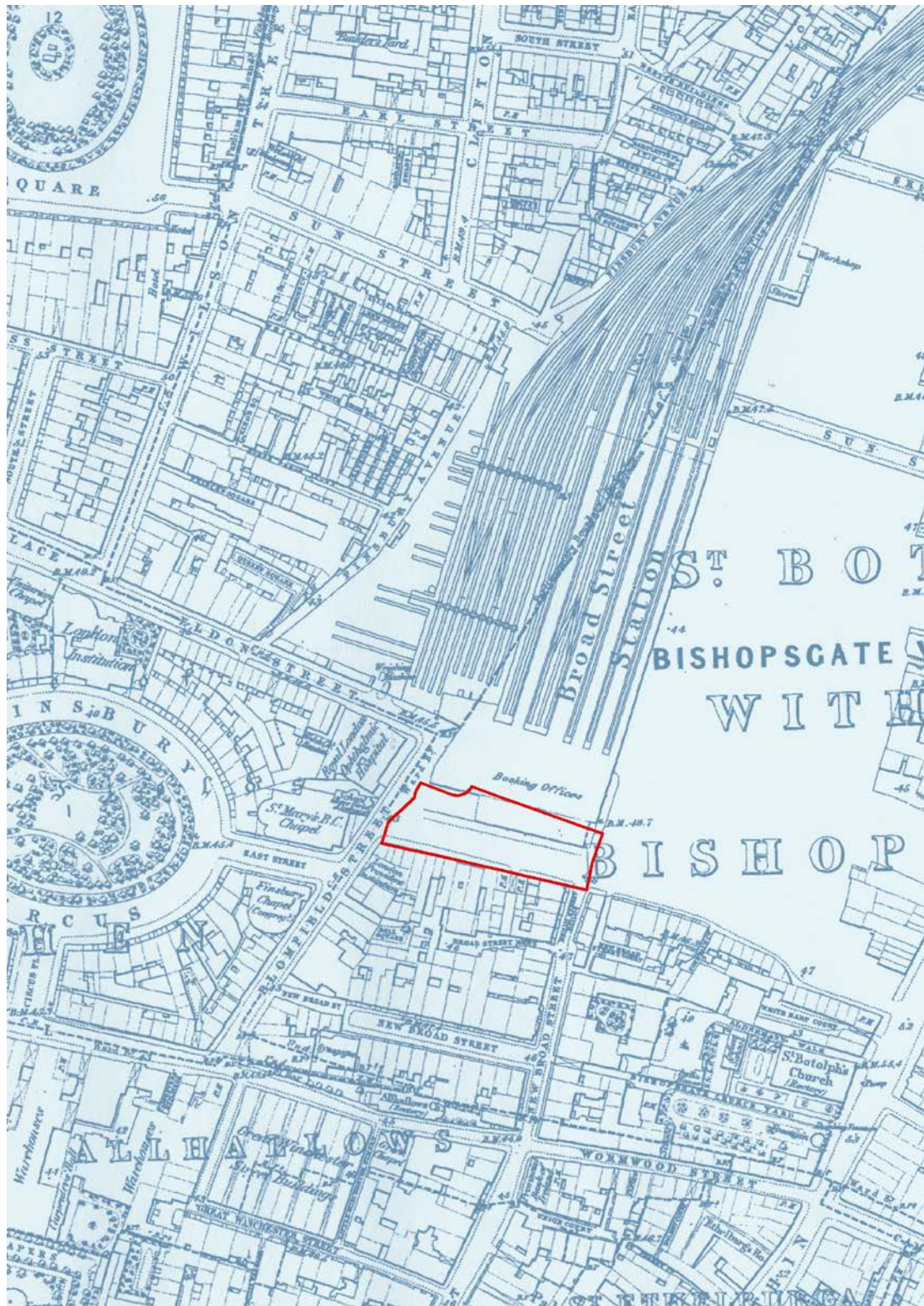


Fig 9 Ordnance Survey map of 1873