



MDC – Work Package 3
Archaeology Detailed Desk Based
Assessment
Liverpool Street Station

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1 Executive Summary

The Crossrail worksites for Liverpool Street Station comprise four sub-sites; the Blomfield Box (a shaft between Blomfield Street and Broad Street Avenue); the Broadgate Ticket Hall (a ticket hall below Liverpool Street); a temporary access shaft and construction compound at Finsbury Circus; and the Moorgate Ticket Hall, comprising a shaft and ticket hall at Moorgate which extends below Moorfields. These sites each have the potential to affect archaeological deposits. The Crossrail worksites at Liverpool Street Station will also include grout shafts; however, the number, location and construction methodology of these has not yet been determined.

The Crossrail worksites for Liverpool Street Station demonstrate the potential for archaeological deposits ranging in date from the prehistoric to the post-medieval periods. There is limited potential for prehistoric activity, likely to be limited to stray finds and sporadic truncated features. A high potential for Roman remains, including burials, can be expected in areas where these have been sealed by surviving Moorfields Marsh deposits. The presence of Moorfields Marsh in the area during the Saxon and Medieval periods implies a limited potential for encountering archaeology from these periods. Moorfields Marsh was gradually reclaimed from the late Medieval onwards and remains of the Post-medieval urbanisation of the area can be expected to occur. In addition the proposed Broadgate Ticket Hall lies within a known burial ground – the Medieval Bethlehem Hospital precinct and cemetery. There is also potential for Post-medieval remains relating to former layouts of the park at Finsbury Circus.

The construction of the cut and cover Metropolitan Line in the mid-late 19th century has removed all archaeological deposits along its route. This includes sections of the Moorgate Ticket Hall; Finsbury Circus; and the Blomfield Box. A number of buildings with basements and piled foundations have also been identified across the site, which will also have truncated archaeological deposits. Basements and piled foundations also occur at the ABN AMRO Bank (101 to 109 Moorgate and 14 to 24 Moorfields) and 21 Moorfields, in addition basements also exist beneath 11-12 Blomfield Street. A disused ticket hall, now utilised as a sub-station exists below the carriageway of Liverpool Street to the front of 100 Liverpool Street and will have truncated archaeological deposits. Furthermore the Queen Victoria Tunnel, which passes to the immediate east of the sub-station on a northeast-southwest orientation will also have removed archaeological deposits at that location.

Non-listed built heritage structures and buildings (11-12 Blomfield Street and Finsbury Circus Gardens) will require archaeological building recording. Other non-listed heritage features at Liverpool Street, such as the Queen Victoria Tunnel; and the disused ticket hall will require internal inspections to determine the level of recording required.

It is recommended that a programme of archaeological field evaluation is carried out at the Broadgate Ticket Hall; Blomfield Box; Moorgate Ticket Hall; and Finsbury Circus to establish the survival of archaeological remains at these locations and inform a mitigation design, which will take the form of *preservation-by-record* (e.g. archaeological excavation and/or watching brief). Targeted watching briefs are required in relation to utilities diversions at the Broadgate Ticket Hall on Liverpool Street; Eldon Street; the northern end of Blomfield Street; on London Wall; and at the demolition of existing sub-station and excavation of roof slab at Broadgate Ticket Hall. General Watching brief is required at the Moorgate Ticket Hall (Moorgate, Moorfields and Fore Street Avenue); Finsbury Circus and Circus Place; and at worksite establishment at Finsbury Circus.

2 Introduction

2.1 Scheme Background

Crossrail is a major new cross-London rail link designed to serve London and the south-east. The scheme will include the construction of a twin bore tunnel on an east-west alignment under central London and the upgrade of existing rail lines to the east and west of central London. It also includes the construction of new central London stations, providing interchange with London Underground, National Rail and London bus services, and the upgrading or renewal of existing stations outside central London.

The Crossrail route is divided into four sections: a central section in central London; and outside central London, western, north-eastern and south-eastern sections. Each section is further sub-divided into route windows, within which are located a number of sub-sites. The subject of this Detailed Desk Based Assessment (DDBA) is Liverpool Street Station, site number 208; located within the Central Section, route window C7.

2.2 Nature and Extent of Work

The Crossrail works at Liverpool Street Station can be sub-divided into the following key elements:

- Moorgate Ticket Hall, which serves the new Crossrail station and provides interchange with the existing LU Metropolitan & Circle and Northern Lines. The shaft also provides for ventilation, intervention and emergency escape routes;
- Finsbury Circus construction shaft and worksite;
- Blomfield Box, which provides access, ventilation, intervention and emergency escape routes;
- Broadgate Ticket Hall and Link Tunnel, which serves the new Crossrail station and provides interchange with the existing London Underground Metropolitan & Circle and Central Lines and suburban and mainline services from Liverpool Street Station;
- Platform tunnels running between Moorgate Ticket Hall and the Blomfield Box; and
- A large number of surface utilities are also being directly affected by the Crossrail construction works, some of which will require diversion.

The Crossrail works are divided into Enabling Works and Main Works. Enabling Works are defined as those works that are required to facilitate the main construction works, and as such are required prior to the start of the Main Works programme.

The Construction and Construction Process Report, Section 12 of the Civil, Structural & Tunnel Engineering Report Liverpool Street Station Volume 3 of 8, Document Number CR-SD-LIV-CE-RT-00002, provides a detailed sequence of Enabling and Main Works taking place at Liverpool Street Station. Section 12 is reproduced in Appendix 9.5.

2.3 Limitations

The DDBA was limited by the following omissions:

- Information regarding basement depths is incomplete.
- Information regarding existing foundations is currently incomplete in the Running Tunnels & Shafts Obstructions Report (Crossrail 2007a).
- No consultation with users, custodians, and interested bodies has yet been carried out.

The following sources have not been examined in detail for this DDBA and are not considered relevant to the further assessment of the sub-sites:

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- Trade directories; wills, rate books; census returns; business accounts; historic photographs; lithographs; prospects and paintings; sale particulars; inland revenue maps; fire insurance plans.
- Land registry for property registers, title deeds and title plans, registered leases, conveyances, transfers, deeds, property agreements.

The following sources were unavailable at the time of report preparation:

- The results of ongoing monitoring of utilities test trenches.

2.4 Surface Geology and Topography

The Liverpool Street Station Geotechnical Desk Study (Crossrail 2006a) collates information gathered from Crossrail (pre-2000) ground investigations, third party boreholes from the vicinity, historical borehole data from the British Geological Survey (BGS), the BGS LOCUS database for the London area and also reviews of previous desk studies undertaken by Arup (1992a & b). The interpretation of this data provides useful stratigraphic information for each sub-site and a general overview of the geology of the Liverpool Street Station area.

The stratigraphy encountered generally consists of Made Ground, Alluvium, and River Terrace Deposits. The River Terrace Gravels (Taplow Terrace) are predominantly granular materials of medium dense to very dense consistency and high permeability. The base of these deposits across the site is generally at a level of c.106m ATD. The River Terrace Deposits are generally overlaid by a layer of alluvium probably associated with the River Walbrook and the formation of Moorfields Marsh. Alluvial deposits generally contain sand, silt and clay deposited from rivers during the Holocene period, with varying proportions of gravel, organic material and peat. At the Crossrail worksites for Liverpool Street Station there is a known alluvial deposit – the Moorfield Marsh deposits, which consist of a dark organic layer. Alluvial deposits also seal stream channels of tributaries of the River Walbrook. Sporadic deposits of brickearth have been known to occur in areas of the site, as recorded at site LNA99, overlying the river terrace gravels and sealed by the alluvium. The assumed stratigraphy across the sites is shown in Table 1 below.

Structure	Moorgate Ticket Hall	Finsbury Circus Access Shaft	Blomfield Box
Approximate top of base slab level (mATD)	74.2	73.5 (base of excavation)	73.7
Approximate pile toe level (mATD)	53	N/A	53
Stratigraphy (mATD)			
Ground level – Made Ground	113 ± 1		
Top Alluvium	109 ± 1	N/A	
Top River Terrace Deposits	108 ± 1		109 ± 1
Top London Clay	103 ± 3	105 ± 1	106 ± 1
Top Lambeth Group	77 ± 1	76 ± 1	
MLGH	67 ± 1	66 ± 1	
Top Thanet Sand	59 ± 2	58 ± 2	
Top Chalk	47 ± 3		

Table 1. Liverpool Street assumed stratigraphy (to nearest 0.5m) (Crossrail 2007)

Underlying the river terrace gravels is London Clay. The Woolwich and Reading Beds lie below the London Clay.

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Refer to Drawing Numbers P30103-C1M12-G00-D-50021 & 50022 (Appendix 9.1) for geological cross-sections and the locations of the boreholes mentioned in the text.

3 Aims and Objectives of the Assessment

3.1 Aims & Objectives

The objective of the DDBA is to understand the site-specific issues of survival or past removal of potential archaeological remains, localised truncation from individual basements etc., and to identify any pertinent historical records relating to each site. The results of this analysis will be used to formulate site-specific Written Schemes of Investigation (WSIs).

In summary, the purpose of the DDBA is to:

- Identify more fully the actual ground conditions at each of the sub-sites;
- Review the construction impacts; and
- Identify further archaeological evaluation required at each of the sub-sites, which will in turn inform subsequent phases of mitigation planning.

4 Methodology

4.1 Approach

The Detailed Desk Based Assessment (DDBA) is a targeted research exercise using existing written, graphic, photographic and electronic information to identify the likely character, extent, quality and value of the known or potential archaeological resource at a specific site.

DDBA is not required for every worksite and is carried out only in cases where additional information is required to inform decisions regarding an appropriate mitigation strategy. The decision as to whether DDBA is required at a particular site is based on:

- The importance of the known or potential archaeological resource;
- The nature of the proposed construction works; and
- Any gaps in the existing archaeology information gathered to date for the Crossrail ES and the Crossrail Archaeology Programming Assessment (1E0318-G0E00-00006 Rev. B).

A higher level Archaeological Desk Based Assessment (DBA) was carried out in 2003/4 for the Crossrail ES, comprising generic or area based research that fed into the archaeological baseline for the Crossrail scheme. This DDBA updates that baseline and takes into consideration the following data as they have the potential to contribute to the site-specific WSIs:

- Design development since the ES and all associated information collected by Crossrail;
- Changes to the Statutory and Local Authority designations;
- Targeted archaeological and documentary data;
- Targeted historical research, such as map regression;
- Visual site appraisal;
- Geotechnical and/or geological data, and aerial and ground survey data;
- Any additional data, such as chance finds, relevant fieldwork results etc; and
- Non-Listed Built Heritage Assessment.

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4.2 Standards and Guidance

This DDBA has been carried out in accordance with Crossrail standards and guidance:

- Crossrail 2008e. Archaeology, Procedure for Detailed Desk Based Assessment, Document Number 23042008-96BA-OAKW.
- Crossrail, 2008c. Archaeology Generic Written Scheme of Investigation, Document Number 14022008-44ES-P2Z1.

4.3 Sources Consulted

In producing this DDBA, data relevant to the individual sub-sites was collected from the following sources:

- NMR/SMR records, held by English Heritage and local authorities, provided by MoLAS in the following formats:
 - Shapefiles (.shp) of the full GLSMR dataset; burial grounds (polygons and points), Registered parks and gardens, Scheduled Monuments, and site codes;
 - PDFs (.pdf) maps showing the locations of the GLSMR dataset and Site Codes;
 - SMR Central Route Section Full Description: Ref No. Liverpool Street Station.doc; and
 - Links to the Greater London Sites and Monuments Record - Search Report listing full GLSMR descriptions for MDC 2, 3 and 4.
- Records of archaeological priority zones or equivalent areas designated by local authorities, provided by MoLAS as shapefiles (.shp);
- LAARC (London Archaeological Archive and Resource Centre) fieldwork database and summaries, provided by MoLAS in the following formats:
- Liverpool Street Station site LAARC summaries.doc;
- Liverpool Street Station site summary table.doc;
- Historic mapping, provided by MoLAS, comprising the following maps:
 - 1988, 1971, 1963, 1959, 1951, 1938, 1913, 1894 and 1873 OS Mapping
 - 1862 – Stanford map
 - 1824 – Greenwood's map of London
 - 1799 – Richard Horwood's map of London, Westminster and Southwark
 - 1746 – John Rocque's map of London
 - 1676 – Ogilby & Morgan's large scale map of the City as rebuilt by 1676
 - 1658 – Fairthorne & Newcourt's City of London map
 - 1553 - 1559 – Copperplate map of London
- Historic place name records;
- Unpublished archaeological reports, including data not yet available on the LAARC database, provided by MoLAS:
 - Crossrail MDC2 3 & 4 Archaeological Sites Not Available on the LAARC Website.doc
- Published secondary sources dealing with the geology, archaeology and built environment;

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- Historic Building records and conservation area appraisals and management plans;
- Crossrail Geotechnical Desk Study for Liverpool Street Station, Document Number 1D0101-G0G00-00515, including reviews of the following datasets by the Crossrail geotechnical team:
 - Geological mapping (held by the British Geological Survey);
 - Previous geotechnical assessment of the site by Arup (Crossrail Geotechnical Interpretative Report Sectional Interpretative Report – Nov 1992)
- Data from preliminary works, such as boreholes or test pits, conducted in advance of construction;

Additional documentary materials used to inform the DDBA included:

- Further technical reports held by Crossrail:
 - Crossrail, 2005a, Assessment of Archaeological Impacts, Technical Report, Part 1 of 6, Introduction and Summary. Document Number 1E0318-C1E00-00001.
 - Crossrail, 2005b, Assessment of Archaeological Impacts, Technical Report, Part 2 of 6, Central Section. Document Number 1E0318-C1E00-00001.
 - Crossrail, 2006b, Archaeological Programming Assessment. Document Number 1E0318-G0E00-00006 (Rev B).
 - Crossrail, 2006c, Central Tunnels Obstructions Report Addendum. Document Number 1D0300-C1N00-00014-/C1-Addendum 1.
 - Crossrail, 2007a, MDC – Work Package 3 Running Tunnels and Shafts Obstructions Report. Document Number CR-SD-CT1-CE-RT-00015.
 - Crossrail, 2008b, MDC3 Archaeology, Updated Baseline Assessment. Document Number 20032008-84MB-YYK5.
 - Crossrail 2008a. Scheme Design Submission. Civil, Structural & Tunnel Engineering Report. LIVERPOOL STREET STATION. Volume 3 of 8. Document Number CR-SD-LIV-CE-RT-00002.

5 Results

5.1 Archaeological and Historical Background

The general archaeological potential in the Liverpool Street Station area is described in the Crossrail Archaeological Impact Assessment (Crossrail 2005) and subsequent Updated Baseline Assessment (Crossrail 2008b). This DDBA updates the baseline with data regarding archaeological interventions and GLSMR data from within and adjacent to the sub-sites. Site summaries and GLSMR data for each of the sites mentioned in this section are provided in Appendices 9.3 and 9.4. The locations of the archaeological sites mentioned in this section are presented in Drawing Number P30103-C1M12-E00-D-50001 (Appendix 9.1).

The area falls within the following Archaeological Priority Areas:

- The City of London (considered to be the equivalent of an Archaeological Priority Area);
- St Lukes Archaeological Priority Area (LB of Islington); and
- LB Hackney Area of Archaeological Priority.

Scheduled Monuments in the vicinity comprise:

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- The Roman and Medieval City Wall (LO26A; LO26J; LO26M; LO26N; LO26P) – passes less than 50m south of the Crossrail site; and
- The Armourers' and Brasiers' Livery Hall, built in 1840 (SAM LO32) and Grade II* Listed Building – situated within 1mm settlement contours.

The garden of Finsbury Circus is a Grade II Listed Registered Park and Garden (GD2274) and of special historic interest. It was laid out in 1815-17 as one of London's first public parks and re-planned in 1909 after the park was bisected by the cut and cover construction of the Metropolitan Line in 1875.

The following burial grounds are located within 100m of the site:

- Medieval Bethlehem Hospital precinct and cemetery (BG208) is bisected by Liverpool Street;
- An extra-parochial burial ground founded by the City of London in 1569 c.50m north of the Crossrail works. Excavations in 1985 at Broad Street Station (LSS85) removed some 400 burials. The cemetery was in use until 1720 and is shown on Rocque's Map of 1746.
- St Botolph's without Bishopsgate (church and churchyard BG209) are located c.50m south of the Crossrail site;
- All Hallows church and churchyard (BG226) is located c.75m south of the Crossrail works;
- St Mary Moorfields Catholic Church and former churchyard (BG210) are located on the north side of Eldon Street, c.100m from the Crossrail works.

Prehistoric

The site exhibits little evidence for Palaeolithic activity. Increased activity during the Mesolithic period is hinted at by scattered isolated finds, with one significant concentration known within the City. The former river valleys of the Fleet and Walbrook would have made the area more favourable in terms of resources at this time and alluvial deposits associated with both these valleys may seal Mesolithic deposits.

The limited evidence for Neolithic activity within the City may be due to extensive later truncation caused by occupation from the Roman period onwards. The few possible Neolithic features within the area indicate that a monumental landscape on the gravels of the type identified in west London did not exist in this area. The relatively large number of polished stone axes found in the area may indicate some settlement activity during the Neolithic.

There is little evidence of an Early Bronze Age presence within the City. By the Middle Bronze Age the City is tentatively demonstrating occupation and funerary activity and the presence of a relatively high number of metal artefacts from the Thames supports the theory of an increase in ceremonial or ritual practice at that time. It is the higher ground that provides the best evidence for Prehistoric settlement, which dates to the Late Bronze Age. This contrasts with the relative scarcity of Iron Age material, although three sites in the Moorgate-Finsbury area and an Iron Age ditch from Clerkenwell may indicate settlement to the north of the City in the vicinity of the Crossrail route.

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). See Drawing Number P30103-C1M12-E00-D-50001 (Appendix 9.1) for the locations of the above sites.

Roman

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The Roman town of *Londinium* was established by AD55. The Crossrail route passes close to the northern edge of what later became the walled city (the existing carriageway of London Wall broadly follows the boundary of the walled city). In this area there was a degree of extra-mural settlement and associated activity decreasing in density as it extended away from the city walls. Extensive burial grounds were also located to the north of the city walls, these were traditionally established outside Roman towns along principal approach roads. A large Roman cemetery is known to be present in the vicinity of Liverpool Street Station, traces of which may have been encountered at MRL98; ENS03; and XRD92.

In the first quarter of the 2nd century AD the earlier development of the Cripplegate area made way for a fort. The northern and western walls of the fort were subsequently incorporated into the main defensive circuit of the city walls in the decades around AD200. Archaeological excavations (RIV87, FIB88 and VLT86) indicate that around the same time, a road conjectured to run east-west along the northern edge of Finsbury Circus through Liverpool Street was constructed. The road is thought to be located just north of the Crossrail worksite at Finsbury Circus. Inhumations and cremations were recorded during the same excavations. Evidence for Roman cemeteries was also noted in excavations at 6 Broad Street Place (BDC03), Moor House (MRL98), 14 Eldon Street (BSP91) and 18-21 Eldon Street (ENS03). See Drawing Number P30103-C1M12-E00-D-50001 (Appendix 9.1) for the locations of the above sites. A Roman cemetery is known to exist in the area to the north of Finsbury Circus. The investigations at Moor House also revealed quarry pits, ditches, structural features and gravel surfaces.

The construction of the city wall seems to have adversely affected drainage patterns, resulting in the creation of the marshland in the Moorgate and Finsbury areas known as Moorfields Marsh. This was fed by the River Walbrook and its tributaries and these conditions remained until the area was drained at the end of the Medieval period. Stream channels running east-west into the main Walbrook channel were identified during excavations at New Broad Street House (NEB87). The excavation also revealed a small cemetery and large extra-mural settlement site. It is possible that Roman deposits may be sealed by deposits associated with Moorfields Marsh as observed at a number of previous archaeological interventions (RIV87, BDC03, FIB88, ENS03 and LVB06). See Drawing Number P30103-C1M12-E00-D-50001 (Appendix 9.1) for the locations of the above sites.

Archaeological excavations at Draper's Gardens in 2007 (DPG03, 07), located within the City of London, 100m south of the City Wall to the south of Finsbury Circus, encountered an unbroken occupation sequence from the 1st to the 3rd centuries AD. The excavation took place in the upper Walbrook valley and the waterlain and anaerobic nature of the deposits resulted in excellent preservation of organic material and other artefacts. Preliminary analysis indicates that the Romans were using the upper Walbrook valley earlier than previously thought. Material evidence recovered included evidence of waterway management; coins; a possible children's cemetery; an extremely rare domestic door; a phase of road and building construction; a variety of floor surfaces; tanning and bone working processes; and a hoard of metal vessels of international importance recovered from a well (Hawkins, Brown & Butler 2008).

The fort at Cripplegate was disused by the middle of the 3rd century and many other public buildings were subsequently demolished. *Londinium* was finally abandoned following the end of the centralised Roman control of Britain in the early 5th century.

Medieval

The focus of settlement shifted during the early/mid Saxon period to a trading port, *Lundenwic*, situated around Aldwych, the Strand and Covent Garden. The earlier Roman city appears to have remained largely abandoned and little contemporary evidence has been recovered. Documentary records indicate the development of a royal or religious centre, which continued to develop until by AD597 London was the capital of the East Saxon kingdom. St Paul's Cathedral was consecrated in AD604 and the establishment of a fortified burgh, *Lundenburh*, by King Alfred around AD886 indicates re-occupation within the Roman walls by this time.

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By the 11th century suburbs had emerged along the main roads into the city. A settlement at Holborn is mentioned in the Domesday Book, located west of the Fleet around the bridge where the Roman High Holborn road, still in use at this time, leaves the city. The settlement was centred on St Andrew's Church and is unlikely to have extended to the eastern bank. Following the Norman Conquest the City defences were renewed and subsequently maintained throughout the Medieval period. The City expanded and limited space within the walls led to the foundation of monastic houses outside the walls. These included the hospital of St Mary of Bethlehem, founded in 1247 and located east of Moor Fields between the Great Ditch (probably the course of the Walbrook) and the road north out of the Bishop's Gate. By the 13th century the City of London boundaries extended almost to their present limits.

Reclamation of Moorfields Marsh in the area of the Crossrail sites for Liverpool Street Station commenced during the late Medieval period in response to the increased demand for land. Evidence for reclamation activity was demonstrated during archaeological excavations at New Broad Street House (NEB87) and Moor House (MRL98) by drainage ditches and large dumps of Medieval material (RIV87 and FIB88). A section of the Medieval City Ditch was also revealed at Moor House (MRL98). See Drawing Number P30103-C1M12-E00-D-50001 (Appendix 9.1) for the locations of the above sites.

Post-medieval

The layout of the city did not change significantly during the Tudor period. In the vicinity of the Crossrail route, Braun and Hogenberg's map of 1572 shows the eastern side of the Fleet built up, north to Clerkenwell and east to Moorgate. This was low density development, with extensive gardens and open areas within the ecclesiastical precincts. Moor Fields, east of Moorgate and extending north into Finsbury Field constituted the largest open area, bounded to the east by the course of the Walbrook River. The river is still indicated on the Agas map of 1562 feeding into the City ditch in the vicinity of Old Broad Street. Moor Fields remains undeveloped on Fairthorne & Newcourt's map of 1658, although the eastern part, west of the Walbrook was enclosed by that time.

Leake's Survey of 1667, conducted after the Great Fire of London, shows the devastation caused by this event within the City walls. The survey also indicates the accelerating pace of urbanisation in the extra-mural suburbs; with street frontages tightly packed and garden areas in-filled. The enclosed eastern area of Moor Fields has been developed and a new Bethlehem Hospital constructed on the southern part facing London Wall. Rocque's map of 1746 shows the area to be fully urban, with Moor Fields, now laid out as parkland, to the north of the New Bethlehem Hospital.

The 19th century saw significant improvements in transport infrastructure. The locations of main line stations on the outskirts led to a requirement for transport links into the City. The in-filled Fleet valley provided the route for the first underground railway, the cut and cover Metropolitan Line from Paddington to Farringdon Street Station, which opened in 1863. It was linked eastwards via Aldersgate Street (Barbican) as far as Moorgate Street Station (Moorgate) in 1865, and southwards to the London Chatham and Dover Railway via its Ludgate Hill Station in 1866. This was extended in 1875 east of Moorgate through the gardens of Finsbury Circus to the new Liverpool Street Station, built on the east side of Broad Street for the Great Eastern Railway.

Assessing the construction methodology of the cut and cover Metropolitan Line is difficult as it varied considerably along its route depending on a number of factors. Furthermore much of the documentary evidence was destroyed by bombing during WWII. However, anecdotal evidence suggests that factors affecting the construction methodology included whether it was in open space or an urban area; the geology; the time of year; the weather conditions at the time; the ground water levels; and the fact that different engineers and contractors were used for different segments of the route.

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The garden in the centre of Finsbury Circus lies within the Crossrail site and is a Grade II registered Park and Garden. It was laid out in 1815–17 as one of London's first public parks, but was bisected by the cut and cover Metropolitan Railway tunnel extension in 1875. The garden was re-planned in 1909, when the layout of entrances was changed and the central bowling green was added in 1925.

Evidence for Post-medieval activity in the Crossrail worksites for Liverpool Street has been identified in several archaeological excavations in the area. The use of the area for the dumping of waste continued during the Post-medieval period with dumped deposits recorded at New Broad Street House (NEB87), Riverplate House (RIV87) and Moor House (MRL98). A series of barrel and brick-lined wells, brick-lined and timber-lined cess pits and rubbish pits were also revealed at Moor House. These represent the remains of some of the first buildings constructed on the former Moorfields Marsh in the second half of the 17th century. A large quantity of early 17th century pottery wasters also encountered at the site infers the presence of pottery kilns nearby.

An Artesian Well was also encountered at pile numbers 10 and 11 during the construction of County House, at 46 New Broad Street (Crossrail 2007a).

The Broadgate Ticket Hall is situated over a known Post-medieval burial ground (BG208). Excavations at Broadgate (LSS85) to the north of this site revealed a Post-medieval burial ground. Some 400 burials were excavated; these were of high density, in some cases eight per cubic metre. See Drawing Number P30103-C1M12-E00-D-50001 (Appendix 9.1) for the locations of the above sites.



Figure 1. Photograph of the cut and cover construction of the Metropolitan Line at Praed St, Paddington c.1866 (Collection of the London Transport Museum)



Figure 2. Photograph of the cut and cover construction of the Metropolitan Line extension to Kensington c. 1867 (Collection of the London Transport Museum)

5.2 Site Specific Historic Map Regression

Historic development at the sub-sites has been assessed through the analysis of historic mapping and Ordnance Survey mapping. While early historic maps are a useful tool in the identification of archaeological potential, their inaccuracy means that they cannot be relied on for specific impact locations. Historic mapping becomes more accurate as time progresses, with the Ordnance Survey first edition providing the first reliable mapping resource for the identification of impacts.

The historic maps consulted are listed in section 4.3, and can be viewed in Appendix 9.1, Drawing Numbers P30103-C1M12-E00-D-50101 to 50120.

Broadgate Ticket Hall

16th century – In the mid to late 16th century the site is located immediately east of Moor Field to the north of the City Wall. The site may have comprised a large building labelled Bedlaine with enclosed gardens to the west and north.

17th century – The site remained occupied by a large building on the eastern side of Moore Fields during the mid-17th century. This was the grounds of Priory and Hospital of St. Mary of Bethlehem, later to become Bedlam. By the close of the 17th century New Bethlehem Hospital is shown at the southern edge of Moore Fields, immediately north of the City wall; the Broadgate Ticket Hall area itself has been developed in the eastern extent, but the majority of the site falls within the Bethlehem Church Yard.

18th century – The site remained in use as the 'Bethlem Burying Ground' into the 18th century with New Broad Street and Old Bethlem (to become Liverpool Street) labelled for the first time. The eastern end of the Broadgate Ticket hall site was occupied by a row of houses fronting onto New Broad Street.

19th century – The 1824 Greenwood map shows that the site continued in use as a burial ground but that some building had occurred in its southern extent, roughly in the same location as 100 Liverpool Street today. Old Bethlem had been renamed Liverpool Street and widened by

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this time, probably incorporating an area of former burial ground. The 1873 OS map demonstrates the significant change the area underwent as the 19th century drew to a close with the construction of Broad Street Station. While Liverpool Street remained, the area of the former burial ground was developed into Booking Offices. The Metropolitan Line had been extended from Moorgate by the 1894 map and the Queen Victoria Tunnel is shown to branch off from the Metropolitan Line just north of the Blomfield Box before passing beneath Liverpool Street and through the eastern end of the Broadgate Ticket Hall area.

20th century – The layout of the site remained very similar throughout the 20th century until the Broad Street Station was demolished in the 1980s, to be replaced by the building that stands today (100 Liverpool Street) and the complex that sits behind it. A ticket hall relating to the old Broad Street Station remains below Liverpool Street and is used as a sub-station.

Blomfield Box

16th century – The Copperplate of 1553 shows that the site was located immediately to the east of Moor Field, a large open space. The Blomfield Box area was occupied by a complex of buildings front 'Byshoppes gate Strete' that comprised large buildings with gardens to the rear, one of which, 'Giardin di Piero' may have been with the eastern extent of the Blomfield Box worksite.

17th century – The layout of buildings has changed by the 1658 Fairthorne and Newcourt map, which shows the site located within an enclosed open space abutting Moore Field. The Ogilby and Morgen map (1676), after the Great Fire of London, shows the area has been considerably developed and is almost completely infilled with the exception of narrow alleys.

18th century – Rocque's 1746 map demonstrates that the area is gradually taking on the layout extant today. The Blomfield Box site is largely occupied by a block of buildings with 'Mewle Broad Str.' The forerunner to Broad Street Avenue shown at the eastern part of the site. Blomfield Street was at this time called 'Lit. Moor Gate'. At the close of the 1700s, Horwood's map provides more detail about the buildings located on the site of the Blomfield Box. A row of terraced buildings front onto 'Little Moorfields' (formerly 'Lit. Moor Gate') in the western part of the site while much of the site comprises open spaces to the rear of these terrace buildings. The site of the present day 11-12 Blomfield Street was also occupied by a narrow alley leading to an the enclosed 'Bell Square'.

19th century – The 1800s saw very little change until the latter half of the century. The 1873 OS Map shows the layout of the buildings accurately for the first time with much of the Blomfield Box site largely developed except for the open space of Bell Square and Broad Street Mews, However, the 1894 OS map shows the site after the extension of the Metropolitan Line from Moorgate. The cut and cover cutting of the railway line has completely truncated the northern section of the Blomfield Box site with open rails visible then as today at this location. 11-12 Blomfield Street have been constructed and Bell Square has been infilled to their rear.

20th century – By 1913 further infilling to the rear of 11-12 Blomfield Street had taken place. Broad Street Avenue was labelled as such by 1938 mapping and 12 Blomfield Street was labelled as a bank. Post war mapping (1951) shows that the collection of buildings to the rear of 11-12 Blomfield Street have been replaced by the single block extant today. The Blomfield Box site has remained the same to the modern day.

Moorgate Ticket Hall

16th century – In the 16th century the site is shown to comprise undeveloped fields sited outside of the London Wall.

17th century – The site lay within Little Moor Fields during the second half of the 17th century and was undeveloped at this time. Mapping from the 17th century shows the London Wall and the Moor Gate both surviving.

18th century – The mapping for the end of the 18th century provides more detail on the row of terraced buildings fronting 'Little Moor Fields' and the open space of Moor Fields itself. At this

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time Finsbury Square and the buildings fronting the western side of Moorgate had not been built and the block of buildings in the site footprint overlooked the large open area of Moor Fields.

By the close of the 18th century the southern area of Moorfields was occupied by the block of buildings that were in place until the 1960s, however, prior to this Rocque's Map of 1746 shows that the layout of the area was different with the site occupied by stables and a small alley named Moor Court. Moor Gate itself is shown on Rocque's Map, but it is unclear whether map is illustrating the former site of the Moor Gate or if ruins or Moor Gate itself were extant at that time.

19th century – The 19th century saw dramatic changes in the area precipitated by the construction of the cut and cover Metropolitan Line. Prior to this the area maintained the same basic layout with a block of buildings situated between Moorfields and Moorgate (known then as Little Moorfields) and Finsbury Pavement. However, to the west, in the area now occupied by the railway cutting and Moorgate station the layout comprised a number of buildings, streets and open areas. The first stage of the construction of the railway, as shown on the 1873 OS map, removed all buildings in the block to the west of Moorfields, with the new station building fronting onto the street. This phase also saw the removal of buildings at southern end of the terrace that is now occupied by Keats Place and the ABN AMRO building (101 to 109 Moorgate and 14 to 24 Moorfields). This open space was used at the time by a cab stand. By the close of the 19th century the extension to the Metropolitan Line has been completed, with the continuation of the cut and cover tunnel passing east through the block of buildings opposite Moorgate Station. After the construction of the tunnel, the block of buildings between Moorfields and Finsbury Pavement were rebuilt.

The site of the escalator access from Moorfields was occupied by a block of buildings throughout the 19th century.

20th century – The site was occupied by a block of buildings sandwiched between Moorfields and Moorgate (formerly known as Finsbury Pavement); Moorgate Station; and by Moorfields and Fore Street Avenue. In the early 20th century the building block was a row of terraces, including 14-16 Moorfields/107-135 Moorgate, which were used as Moorgate Station Buildings. All buildings to the west of Moor Fields were damaged beyond repair by bombing during World War II. Similarly the buildings that formerly existed where 91-95 Moorgate/12 Moorfields now stand were also damaged beyond repair. 87 Moorgate and 4 to 8 Moorfields were also seriously damaged. In the latter part of the 20th century ABN AMRO building (101 to 109 Moorgate and 14 to 24 Moorfields) was constructed on the site.

The southern area of Moorfields is currently occupied by a pedestrianised area and a small area of green space. OS mapping demonstrates that this area was occupied by a block of buildings throughout the 20th century until on the 1971 OS map the area had been cleared.

Finsbury Circus Construction Shaft and compound

16th century – The site was situated within Moor Fields, an open area crossed with pathways.

17th century – During the 17th century the site remained undeveloped, however, the layout of Moore Fields is more formal with its boundary ringed by lines of trees and north-south, east-west tree avenues. This is probably related to the construction of New Bethlehem church to the south, with Moor Fields providing an open space to its front. Indeed the north-south avenue leads to the hospital entrance.

18th century – The site remained unchanged for the majority of the 18th century, however, by the 1799 Horwood map the Moor fields area is cleared of trees and the layout evident on previous mapping is not shown.

19th century – By Greenwoods 1824 map the recognisable oval shape of Finsbury Circus is present with buildings around a central green space. The layout of the gardens can be seen more clearly on the Stanford map of 1862 and involve symmetrical planting and pathways. The changes in the layout of the green space in Finsbury Circus that are evident between the 1873

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and 1894 OS Mapping were due to the extension of the cut and cover Metropolitan Line in 1875. The new railway line passed from Moorgate Station, through Finsbury Square and on eastwards to the New Liverpool Street Station. All archaeological deposits within the route of the Metropolitan Line were removed at this time. The layout of the gardens after the construction of the Metropolitan Line involves fewer trees and fewer symmetrical pathways.

20th century – The layout of the gardens in the early 20th century comprised a less formal approach with more open space and more random pathways and tree planting than previously. The site has been occupied by a pavilion associated with the bowling green within Finsbury Circus during the second half of the 20th century. This structure appears to have been established at some point after 1959 as 20th century mapping indicates no structure on the site at this time. The bandstand, located in the western half of Finsbury Circus was also added between 1951 and 1959. The bowling green to the north was established at some point after 1913.

5.3 Visual Site Appraisal

A Visual Site Appraisal (VSA) was carried out on the site. The aims of the VSA, where practicable, are to:

- Analyse the topography of the area and identify buildings, services or archaeological structures (above and below ground) which will have compromised the integrity of the resource or may act as a constraint on future evaluation or mitigation;
- Examine the immediate surroundings of the site for evidence of truncation that may continue in to the site;
- Note any topographical features, which might be a focus for human activity, and identify and describe any geomorphic or manmade activity that could mask archaeological sites;
- Determine the current state of preservation of monuments and surrounding land-use, noting current and potential activities that threaten their long term preservation.

Results

Moorgate Ticket Hall

The area of the Moorgate Hall, focussed around Moorgate, Moorfields and Fore Street Avenue (Figure 3) is currently largely occupied by the ABN AMRO Bank (101 to 109 Moorgate and 14 to 24 Moorfields), a five storey late 20th century office building with a variety of businesses, retail shops and a public house occupying the ground floor level (Figure 4).



Figure 3. View of Fore Street Avenue facing west from Moorfields

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Figure 4, View of the Moorgate Box facing north-east from Moorfields, including ABN AMRO building and section of Moorfields within Crossrail Worksite

Visual inspection of the below ground levels of the Bishop of Norfolk Public House identified extensive basements to at least 2.5m below ground level across the extent of the building. Furthermore, a single level basement is present below 89 to 135 Moorgate. Archaeological deposits at these locations will have been truncated to at least the depth of the basements, pile caps, and locally where the piles are situated. The Moorgate Ticket Hall site continues beneath Moorfields and part of Fore Street Avenue.

Just south of the Western Ticket Hall at the southern end of Moorfields is the site of the proposed escalator to the ticket hall. This area is currently pedestrianised (Figure 5).



Figure 5. View of pedestrians area at southern end of Moorfields, in area of the proposed escalator access from Moorfields

Finsbury Circus

The Finsbury Circus Worksite comprises the whole of the central and eastern area of the interior of the park. The area is currently occupied by a Bowling Green, pavilion and associated

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structures (Figure 6). The pavilion has a basement approximately 3 metres in depth. To the west is a bandstand and the worksite is enclosed by the Finsbury Circus road.



Figure 6. View facing south-east of Finsbury Circus Bowling Green and associated buildings

Blomfield Box

The area of the Blomfield Box is located between Blomfield Street and Old Broad Street, immediately north of the site is the existing underground line and the site is enclosed to the north and south by office buildings. The western extent of the site is currently occupied by 11-12 Blomfield Street, which are to be demolished. Visual inspection of the below ground levels of the Balls Brothers Public House (Figure 7) identified extensive basements across the extent of the building and a further sub-basement in the rear of the building (Drawing Number P30103-C1M12-E00-D-50143 – Appendix 9.1). Archaeological deposits at this location will have been truncated to at least the depths of the basements.

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Figure 7. View of 11 Blomfield Street facing east - to be demolished as part of the Blomfield Box

A single basement was visible from New Broad Street at 42 New Broad Street - Swedbank House, furthermore double and possibly triple basements were visible to the rear of New Broad Street House and Swedbank House from a vantage point along Broad Street Avenue (Figure 8). Although these basements do not extend into the Blomfield Box site, it is possible that archaeological deposits within the sub-site have been disturbed during their construction.

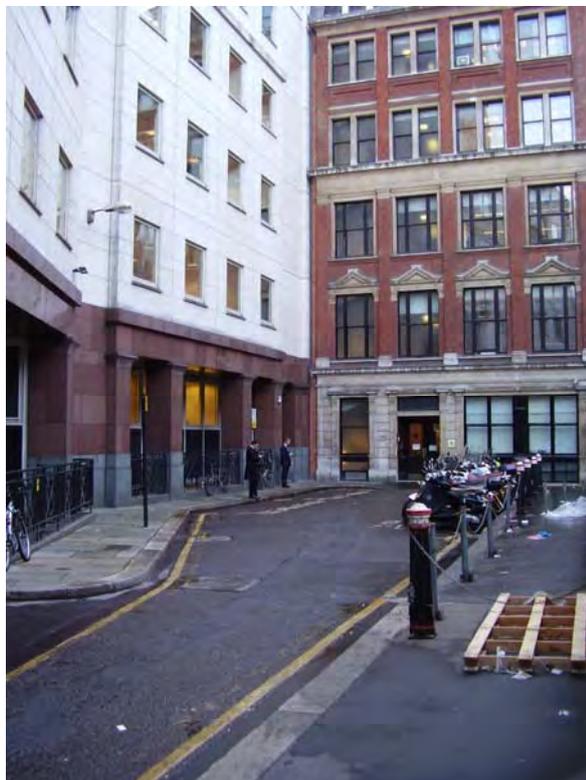


Figure 8. View of Blomfield Box facing west along Broad Street Avenue

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Broadgate Ticket Hall

The location of the new Broadgate Ticket Hall is currently in use as Liverpool Street and the forecourt of 100 Liverpool Street (Figure 9), beneath which is located the disused ticket hall. It is bounded to the east and west by Old Broad Street and Blomfield Street respectively.



Figure 9. View facing east along Liverpool Street at the location of the Broadgate Ticket Hall

5.4 Previous Archaeological Interventions on the Site

The only previous archaeological interventions conducted at the three sub-sites have been the monitoring of selected boreholes by MoLAS (Boreholes L1; L5; L6; L8; L9; L11).

5.5 Known Disturbance to Archaeological Horizons

The known disturbance to archaeological horizons at the sub-sites is set out below, based on available data on basements and buildings; utilities mapping; the Running Tunnels & Shafts Obstructions Report; geotechnical information, historic mapping; and the results of the Visual Site Appraisal.

Blomfield Box

Part of the Blomfield Box is situated over the site of 11-12 Blomfield Street, a building that is known to have basements thought to be c. 3.5m deep (Drawing Numbers P30103-C1M12-E00-D-50140 to 50147 – Appendix 9.1). The basement at 11-12 Blomfield Street extends beneath the pavement of Blomfield Street and covers the footprint of the existing buildings. Archive drawings (Appendix 9.1) show a further sub-basement in the rear section of the building (backing onto Broad Street Avenue), however, the depth of this is uncertain.

Buildings located around the Blomfield Box, comprising 8-10 Blomfield Street/1-14 Liverpool St; County House; Swedbank House and New Broad Street House all have basements and piled foundations. These do not extend into the site footprint, however, archaeological deposits within the Blomfield Box may have been disturbed during their construction.

Construction of the cut and cover Metropolitan Line will have completely removed archaeological deposits beneath 8-10 Blomfield Street, located immediately north-west of the Blomfield Box, and may also have removed archaeological remains in the northern extent of the site adjacent to the existing line (Figure 10).



Figure 10. View of Broad Street Avenue and the rear of 11-12 Blomfield Street

Broadgate Ticket Hall

The Broadgate Ticket Hall is to be constructed below the carriageway of Liverpool Street. Beneath part of Liverpool Street and the forecourt of 100 Liverpool Street is the disused Broad Street Ticket Hall, converted into an electrical substation and immediately east of the disused ticket hall passes the Queen Victoria Tunnel, which branches off the Metropolitan Line to the south and cuts across Liverpool Street on a northeast-southwest orientation (Figure 11 and Drawing Numbers P30103-C1M12-E00-D50148 to 50149 – Appendix 9.1). The disused ticket hall is thought to be at least 6m in depth and therefore it is unlikely that archaeological deposits survive within its footprint or that of the Queen Victoria Tunnel. The disused ticket hall and Queen Victoria Tunnel comprise the eastern third of the Broadgate Ticket Hall sub-site.

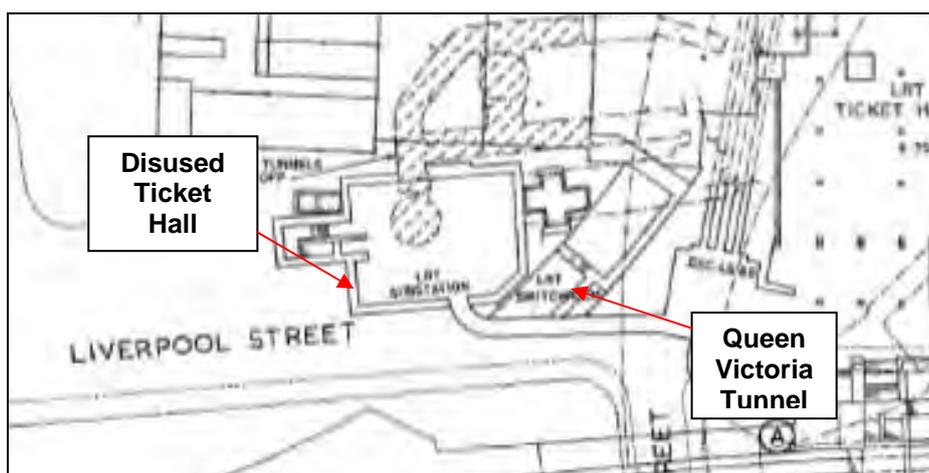


Figure 11. Archive drawing showing locations of disused ticket hall and Queen Victoria Tunnel at the Broadgate Ticket Hall sub-site

Existing utilities within the carriageway of Liverpool Street will have truncated the Made Ground to depths of c.1-2m. Recent utilities works, unrelated to Crossrail, excavated a box approximately 2m x 2m x 2m in the carriageway in Liverpool Street directly to the front entrance

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of 100 Liverpool Street. This work will have removed all archaeological remains to this depth. Human remains were encountered during these excavations. The exact location of this excavation is uncertain.

Moorgate Ticket Hall

The 1865 construction of the Metropolitan Line and Moorgate Station completely removed all archaeological deposits at that location. The 1875 extension of the cut and cover Metropolitan Line passed east from Moorgate Station, through the block of buildings opposite the station and on through Finsbury Circus. It will have completely removed all archaeological remains along its route. As discussed above, the extent of the construction of the Metropolitan Line cut and cover tunnel at that time is unknown, therefore an assumption has been made that the extent of truncation is 1m either side of the existing tunnel retaining walls.

The shaft for the Moorgate Ticket Hall is to be partially constructed within the footprint of the ABN AMRO Bank (101 to 109 Moorgate and 14 to 24 Moorfields). A single level basement is present below 89 to 135 Moorgate (including the aforementioned AMRO building) and is approximately 2.3m in depth beneath which is a 500mm base slab atop 900mm and 1050mm bored piles. The layout of the piles is shown in Figure 12 below. Archaeological deposits will be completely removed to the depths of the underside of the basement base slab and further disturbed at the locations of piles. Deeply stratified archaeological deposits may survive beneath the basements in pockets between piles.

Piling and basements below 21 Moorfields (MFL 97) are known to have truncated archaeological deposits. The piling layout (1D0300-C1N11-C00-P-00043) suggests that pockets of deeply stratified deposits will have survived beneath the basements and between some piles.

The existence of basements or foundations at 3-6 Fore Street Avenue is currently unknown.

Finsbury Circus Construction Shaft and compound

The Metropolitan Line cut and cover tunnel that runs through the centre of Finsbury Circus will have removed all archaeological deposits along its length, however, the extent of land-take for the cut and cover construction is unknown, therefore an assumption has been made that the extent of truncation is 1m either side of the existing tunnel retaining walls.

A single storey basement exists beneath the pavilion building to approximately 3m in depth. Archaeological deposits will be completely removed to the depth of the basement, however, archaeological remains may survive beneath the basement.

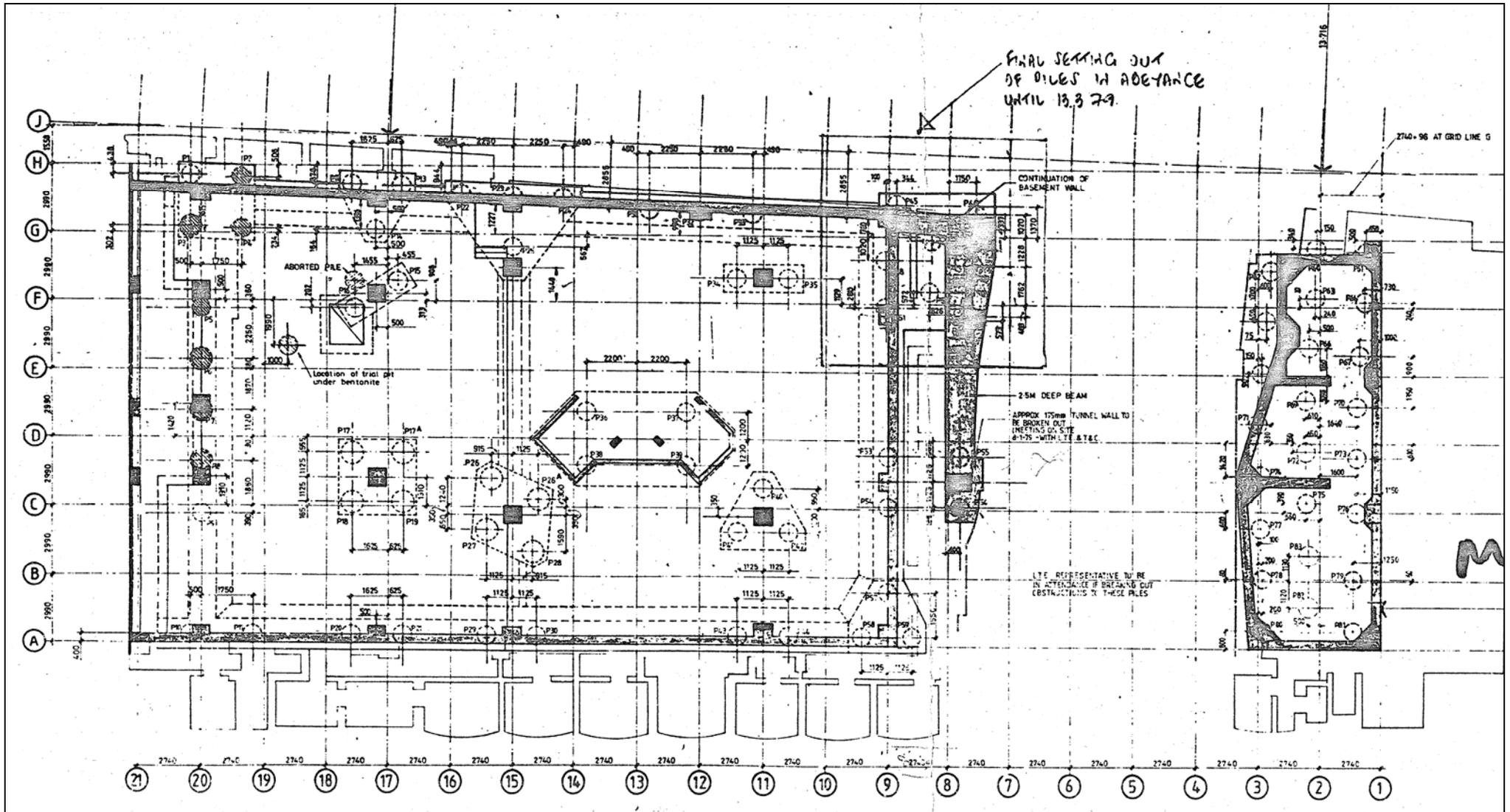


Figure 12. Pile layout at 89-135 Moorgate

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5.6 Deposit Model

The tables below set out the depths of known deposits at each of the sub-sites, based on information from geotechnical boreholes and archaeological interventions in the vicinity of each area. The dispersed spread of the geotechnical investigations across the Crossrail worksites for Liverpool Street Station has limited the ability to develop a detailed deposit model at individual sub-sites. An interpretation of the survival and spread of deposits across individual sub-sites has therefore been made based on the available borehole data.

Please refer to the following drawings in Appendix 9.1 for the locations of boreholes, archaeological sites and for deposit summary sketches;

Geotechnical boreholes: P30103-C1M12-G00-D-50021 & 50022

Archaeological sites: P30103-C1M12-E00-D-50001

Deposit Summary Drawings: P30103-C1M12-E00-D-50130 to 50133 – Appendix 9.2)

BH/Site No.	BH L19A	BH L9	NEB87
Superficial Deposits (inc. Made Ground, Alluvium and River Terrace Deposits where encountered)	<p>Tarmac and concrete to a level of 112.97m ATD.</p> <p>Gravel of brick, ash, cinder and flint from 112.97m to 111.47m ATD (demolition/levelling layer).</p> <p>Soft black sandy clay with gravel of brick and flint from 111.47m to 110.77m ATD (probable post-medieval layer relating to Moorfields).</p> <p>Dark brown sandy clay with little gravel of flint, limestone and cinder from 110.77m to 108.97m ATD (possible Moorfields Marsh deposits).</p> <p>Terrace gravels from 108.97m to 105.77m ATD.</p>	<p>Ground level at 112.95m ATD.</p> <p>Tarmac and concrete to 112.53m ATD.</p> <p>Moorfield Marsh deposits to 109.95m ATD. (Comprising firm dark brown black sandy clay with gravel; ceramic; brick; flint and concrete inclusions).</p> <p>Gravels at 109.95m ATD to 106.55m ATD.</p>	<p>Ground level at 113.0m ATD.</p> <p>Surface of natural gravels slopes down from 109.5m ATD in the east to 107.5m ATD in the west.</p> <p>Archaeology, mainly Roman and Medieval quarrying, Roman land reclamation and burials, Post-medieval burial ground.</p>
London Clay	105.77m to 76.47m ATD.	106.55m to 75.55m ATD.	
Woolwich and Reading Beds	76.47m to 63.28m ATD.	75.55m to 63.70m ATD.	-

Table 2. Blomfield Box

BH/ Site No.	BH L11	BH L10	BSP91	BDC03	LSS85	VLT86	LVB06	BH 22	BH409	BH410	BH411
Superficial Deposits (inc. Made Ground, Alluvium and River Terrace Deposits where encountered)	<p>Tarmac to 112.36m ATD.</p> <p>Gravel of brick and flint with occasional brick cobbles from 112.36m ATD (demolition/ levelling layer).</p> <p>Black sandy clay with fragments of brick, flint, bone, slate, concrete, black slag, shells, ceramic tiles and chalk, some rare concrete cobbles from 111.76m to 109.33m ATD. MoLAS identified human remains at 111.4m ATD and waterlain deposits at c. 110.2m ATD (possible disturbed Moorfields Marsh deposits).</p> <p>Dark brown sandy clay with some fragments of flint and brick with shells and wood from 109.33m to 107.53m ATD (Moorfields Marsh deposits).</p> <p>Grey silty sandy clay with occasional remnant rootlets from 107.53m to 107.03m ATD (Moorfields Marsh/ alluvium/ cut feature).</p> <p>Terrace gravels from 107.03m to 106.13m ATD.</p>	<p>Tarmac to 112.62m ATD.</p> <p>Black sandy clay with fragments of brick, clinker, flint, bone, clay pipe, shells, glass and wood from 112.62m to 110.22m ATD (possible Post-medieval dumping).</p> <p>Dark brown slightly sandy clay with some fragments of brick, wood and flint from 110.22m to 108.92m ATD (probable relating to Moorfields Marsh).</p> <p>Dense grey brown fine to coarse mainly flint occasionally angular brick and sandstone gravel from 108.92m to 107.12m ATD (possible Walbrook stream channel deposits).</p> <p>Terrace gravels from 107.12m to 106.12m ATD.</p>	<p>Ground level at 112.7m ATD.</p> <p>Taplow Gravels at 109.00m ATD.</p> <p>Archaeology included Roman burials beneath a basement slab.</p>	<p>Ground level at 112.7m ATD.</p> <p>Natural gravel sloping down from 109.2m ATD eastwards to 107.3m ATD.</p> <p>Archaeological deposits c.1m to 2.5m deep.</p> <p>Archaeology included gravel quarrying, channel deposits, a Roman road, and marsh.</p>	<p>Ground level at 112.8m ATD.</p> <p>Archaeology survives to c.112.0m ATD.</p> <p>Marsh/peat deposits up to 1.3m in thickness.</p> <p>Natural eroded by channel to London Clay at 107.1m to 106.3m ATD.</p> <p>Archaeology included Roman dumping, wooden revetments and 400 Post-Medieval bodies.</p>	<p>Ground level at 114.0m ATD.</p> <p>Chalk brick and walls.</p> <p>Thick Medieval deposit (Moorgate Marsh?).</p> <p>Roman level including occupation/road.</p> <p>Disturbed/ redeposited brick earth.</p> <p>Taplow Terrace Gravels at 108.80m ATD.</p>	<p>Ground level at 112.80m ATD.</p> <p>16th to 18th century Bethlem burial ground 111.5m to 111.3m ATD.</p> <p>Walbrook alluvium/Marsh deposits to 109.60m ATD.</p> <p>Natural not reached.</p>	<p>Ground level at 112.55m ATD.</p> <p>Tarmac to 112.00m ATD.</p> <p>Blackish brown sandy clay including some brick fragments from 112.00m to 109.55m ATD (probably Moorfield Marsh related).</p> <p>Soft blackish brown peaty clay from 109.55m to 106.85m ATD (possibly Moorfield marsh deposits).</p>	<p>0.45m tarmac over concrete to 113.45m ATD.</p> <p>Dark brown silty sand with brick rubble and gravel from 113.45m to 112.15m ATD (demolition/ levelling layer).</p> <p>Dark grey clayey sand, ash, clinker and gravel from 112.15m to 110.9m ATD (probable post-medieval layer relating to Moorfields Marsh).</p> <p>Dark grey clayey sand, ash, clinker and gravel with lumps of soft dark grey sandy clay from 110.9m to 109.9m ATD (possible Moorfields Marsh deposits).</p> <p>Soft dark grey organic sandy clay with fine rubble and some gravel from 109.9m to 109.25m ATD (Moorfields Marsh deposits)</p> <p>Terrace gravels from 109.25m to 106.2m ATD</p>	<p>Floor slab overlying concrete, damp proof course over brick and concrete to 107.44m ATD. (Modern floor with possible earlier post-medieval brick floor underlying it).</p> <p>Terrace gravels between 107.44m to 6.14m ATD.</p>	<p>Flagstones to 109.28m ATD</p> <p>Brown silty sandy clay from 109.28m to 109.05m ATD (Bedding for flagstones).</p> <p>Brown silty sand and gravel from 109.05m to 108.85m ATD (Probable post-medieval deposit).</p> <p>Brown silty sandy clay with occasional gravel and traces of black specks from 108.85m to 107.15m ATD (Possible Moorfields Marsh deposit).</p> <p>Terrace gravels between 107.15m to 106.15m ATD.</p>
London Clay	106.13m to 77.37m ATD.	106.12m to 76.42m ATD.	-	-	107.1 to 106.3m ATD	-	-	106.75m ATD	106.2m to 93.45m ATD.	106.14m to 104.84m ATD.	106.15m to 94.35m ATD
Woolwich and Reading Beds	77.37m to 67.23m ATD.	-	-	-	-	-	-	-	-	-	-

Table 3. Broadgate Ticket Hall

Archaeology Detailed Desk Based Assessment – Liverpool Street Station

BH/Site No.	RIV87	FIB88	ENS03	BH L6	BH L7	BH L8
Superficial Deposits (inc. Made Ground, Alluvium and River Terrace Deposits where encountered)	Ground level at 113.90m ATD. Post-medieval and Medieval dumps. Marsh deposits with Roman material. Natural sand and gravel from 109.14m to 108.8m ATD.	Ground level at 113.00m ATD. Medieval dumps at c.1.4m deep. Top of Roman deposits at c. 109.80m ATD. Roman ?road between 109.8m and 109.5m ATD. Roman inhumations at 109.50m ATD and 109.35m ATD. Walbrook tributary survived from 109.20m ATD to 108.80m ATD. Gravels encountered at 109.20m ATD.	Ground level at 113.00m ATD. Post-Roman Moorfields Marsh seals deposits below. Natural slopes from 110.0m ATD in the north to 108.30m ATD in the south. Walbrook stream channels recorded to 107.77m ATD.	Ground level at 113.32m ATD. Tarmac and concrete to 112.92m ATD. Post-medieval dumped deposits. Moorfield Marsh deposit 0.5m in thickness. Taplow terrace gravels at 108.90m ATD.	Ground level at 113.47m ATD. Tarmac and concrete to 112.99m ATD. Post-medieval Made Ground from 112.99m to 109.77m ATD. Moorfield Marsh deposits from 109.77m to 108.97m ATD. Alluvium from 108.97m to 108.47m ATD. Terrace gravels at 108.47m to 105.27m ATD.	Ground level at 113.32m ATD. Tarmac, concrete and base to 112.71m ATD. Post-medieval Made Ground from 112.71m to 110.32m ATD. Black Brown organic clay containing brick; flint; concrete; charcoal/burnt wood and shell fragments (possibly Moorfield Marsh Deposits) from 110.32m to 108.92m ATD. Gravels from 108.92m to 105.02m ATD.
London Clay	-	-	-	106.32m to 75.62m ATD	105.27m to 76.27m ATD.	105.02m ATD to 75.15m ATD.
Blackneath Beds	-	-	-	-	76.27m to 75.77m ATD.	-
Woolwich and Reading Beds	-	-	-	75.62m to 57.82m ATD	75.77m to 63.47m ATD (end of borehole)	75.15m ATD to 63.02m ATD (end of borehole).
Thanet Sands	-	-	-	57.82m to 48.42m ATD (end of borehole)	-	

Table 4. Finsbury Circus

BH/Site No.	BH L1	BH L2	BH L3	BH L24	BH L23	BH L21	BH L25	MRL98	MFL97	LAL 04	LNA99
Superficial Deposits (inc. Made Ground, Alluvium and River Terrace Deposits where encountered)	Ground level at 113.68m ATD. Tarmac and concrete to 113.46m ATD. Brown sand with fragments of flint; tile; ash; brick; and cobbles from 113.46 to 112.18m ATD (Modern). Dark brown sandy clay with brick; gravel; concrete; and mortar from 112.18m to 109.38m ATD (Probable modern layer) Alluvial sand and clay (possible Marsh deposit) from 109.38m to 108.48m ATD. Terrace gravels from 108.48m to 106.78m ATD.	Ground level at 112.97m ATD. Tarmac and base to 112.32m ATD. Brown sand and brick fragments from 112.32m to 111.47m ATD (Modern) Brown sand with fragments of brick and flint from 111.47m to 109.97m ATD. Dark brown sandy clay with flint and brick inclusions from 109.97m to 108.67m ATD (probable modern layer). Brown clayey sand from 108.67m to 106.87m ATD.	Tarmac overlying concrete to 113.08m ATD. Brown sand with fragments of brick and flint from 113.08m to 112.12m ATD. 3 steel pipes within borehole. (Modern). Dark brown silty clay with fragments of brick, concrete and chalk from 112.12m to 109.09m ATD (Probable modern layer). Brown sandy silty clay with gravel of brick with rare bone from 109.09m to 108.39m ATD (Possible Moorfields Marsh deposit). Terrace gravels from 108.39m to 102.29m ATD.	Tarmac over concrete to 112.66m ATD. Gravel of brick, ash and concrete with some pockets orange brown clay towards the bottom, from 112.66m to 109.76m ATD (Modern demolition/ make up layer). Black fibrous and amorphous peat with occasional shells and flint gravel from 109.76m to 108.76m ATD (Moorfields Marsh deposit). Terrace gravels from 108.76m to 105.76m ATD.	Tarmac and concrete to 113.23m ATD. Gravel with some cobbles of concrete, flint brick and tarmac from 113.23m to 110.13m ATD. Concrete slab and brick observed. (Possible in-filled cellar). Grey sandy clay with rare organic matter from 110.13m to 109.93m ATD (possible Moorfields Marsh deposit). Grey sandy clay from 108.93m to 108.33m ATD (possible Moorfields Marsh deposit). Terrace gravels from 108.33m to 105.43m ATD.	Concrete to 113.27m ATD. Brick wall from 113.27m to 110.37m ATD (probable cellar wall). Dark brown sandy clay with some gravel and bone from 110.37m to 108.47m ATD (possible Moorfields Marsh deposit). Terrace gravels from 108.47m to 106.27m ATD.	Granite kerbstone and concrete to 113.45m ATD. Brick wall from 113.45m to 110.35m ATD (probable cellar wall). Dark grey organic clay with some gravel of flint with frequent shells and rare bone from 110.35m to 108.65m ATD (Moorfields Marsh deposit). Terrace gravels from 108.65m to 107.55m ATD.	MoLAS identified natural gravels cut by stream channels at around 108.6m ATD. These were sealed by re-deposited brick earth, this was truncated at a depth of c. 109m ATD. Possible <i>in situ</i> brickearth up to 0.9m thick was recorded at the northwest of the site at 109.2m to 109.5m ATD). Roman and City Ditch deposits were identified at the site.	MoLAS have recorded that natural terrace gravels had been truncated by basements at this site.	Ground level at 113.20m ATD. Archaeological deposits between 1.2 to 2.4m in depth. Natural sands and gravel at c.108.20m ATD	Ground level at 113.00m ATD. Natural gravels at 108.20m ATD. Possible Walbrook Channel cutting London Clay down to 106.55m ATD.
London Clay	106.78m to 77.88m ATD.	106.87m ATD to end of borehole (87.97m ATD)	102.29m to 76.09m ATD.	100.53m to 76.56m ATD.	105.43 to 77.23m ATD.	106.27m to 78.07m ATD.	105.65m to 78.35m ATD.	-	-	-	106.66m ATD to unknown.
Blackneath Beds	-	-	-	76.56m to 76.31m ATD.	-	-	78.35m to 78.15m ATD.	-	-	-	-
Woolwich and Reading Beds	77.88m to 68.68m ATD	-	76.09m to 63.29m ATD	76.31m to 58.91m ATD.	77.23m to 59.73m ATD.	78.07m to 73.87m ATD.	78.15m to 60.35m ATD.	-	-	-	-
Thanet Sands	-	-	-	58.91m to 47.28m ATD	59.73m to 50.93m ATD.	-	60.35m to 48.65m ATD.	-	-	-	-
Bullhead Beds	-	-	-	47.28m to 47.10m ATD.	-	-	48.65m to 48.25m ATD.	-	-	-	-
Chalk	-	-	-	47.10m to 40.26m ATD.	-	-	48.25m to 42.85m ATD.	-	-	-	-

Table 5. Moorgate Ticket Hall

5.7 Non-listed built heritage

Non-listed built heritage (NLBH) assessment and recording forms part of the archaeological mitigation strategy for Crossrail. The definition of NLBH adopted follows Information Paper D22 Archaeology and encompasses above ground historic features and structural elements of historical interest.

Two main groups are:

- Non-listed buildings proposed for demolition in conservation areas; and
- Historic street furniture and materials falling within a worksite and being temporarily or permanently impacted upon by the works.

The detailed scope for this element of works includes:

- Important non-listed buildings of historic interest proposed for demolition in conservation areas (as set out in Information paper D18, Listed Buildings and Conservation Areas);
- Important non-listed historic street furniture and materials;
- Other important non-listed buildings and structures of historic interest outside conservation areas (e.g. the standing walls at Stepney Green), locally listed station buildings and railway structures and any industrial and defence archaeology of significance.

The Crossrail Environmental Statement and supporting Specialist Technical Reports define the baseline built heritage resources (both statutorily protected and non-listed) across the route, the potential significant impacts, mitigation and any residual impacts after that mitigation is employed (Crossrail 2009).

The results of a NLBH Assessment of the Liverpool Street Station Area are outlined in the Tables 6 and 7 below. The location of NLBH assets are shown on Drawing Number P30103-C1M12-E00-D-50004 (Appendix 9.1). It should be noted that further NLBH assets may be present on site (e.g. non-listed railway heritage at the Queen Victoria Tunnel and the disused ticket hall beneath the carriageway of Liverpool Street) and further assessment is required to determine the presence/absence of as yet unidentified NLBH at the Crossrail worksites for Liverpool Street Station.

The NLBH Assessment was supplemented by street furniture surveys carried out by EWMA, which identified all elements of street furniture at Liverpool Street Station. The results of the EWMA survey were reviewed to identify street furniture of historic significance (Table 7).

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Name [Figure Ref]	Image	Description	Significance	Impact
11 Blomfield Street [1]		<p>Single-storey structure built in 1887, providing access to 12 Blomfield Street. The façade is formed by a single arched entrance in ashlar with polished pink and grey granite dressings. Above is a classical frieze, complete with triglyphs, below a plain pediment.</p>	<p>Unlisted building which makes a positive contribution to the New Broad Street Conservation Area.</p>	<p>To be demolished</p>
12 Blomfield Street [2]		<p>Large office building, built in 1887, fronting Blomfield Street. Five storeys plus attic and basement, constructed from stone with glazed tile return and red brick rear. The Neo-classical façade has a large commercial frontage to the ground floor, with glazed panels separated by thin pilasters under a plain frieze. Architectural emphasis is placed on the first floor with rusticated piers under garland frieze. There has been limited modern intervention externally and it is likely that historic internal fittings and fixtures survive.</p>	<p>Unlisted building which makes a positive contribution to the New Broad Street Conservation Area.</p>	<p>To be demolished</p>

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Name [Figure Ref]	Image	Description	Significance	Impact
Finsbury Circus Gardens [3]		<p>Urban park laid out to the designs of Charles Dance in 1815. The gardens were partially remodelled in the early 20th century, but the structure of Dance’s design survives. The garden includes a central bowling green, surrounded by manicured lawns and established flower beds. The oval park is encompassed by iron railings with four entrance gates. Within the park is a grade II listed gazebo and undesignated pavilion (see image left) and bandstand.</p>	<p>Grade II Registered Historic Park and Garden</p>	<p>To be removed during works. The park will be reinstated upon completion.</p>

Table 6. Non-Listed Built Heritage within the Liverpool Street Station Area

Archaeology Detailed Desk Based Assessment – Liverpool Street Station

Name [Figure Ref]	Image	Description	Significance	Impact
Pair of K6 telephone boxes outside 118 London Wall [4]		Pair of red K6 telephone boxes (1930s) located outside 118 London Wall.	The K6 telephone box represents an important piece of iconic street furniture which contributes to the streetscape of this area.	Potential impact from diverted utilities.
Pillar box outside 101-109 Moorgate [5]		Red, type 'C' pillar box with the royal insignia of George V, dating it to between 1910 - 1936	An early example of the Type 'C' pillar box which makes a positive contribution to the streetscape.	Possible impact from the demolition of 101-109 Moorgate. There is also the potential that it may be removed as part of the diversion of utilities in the Liverpool Street Station area.

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Name [Figure Ref]	Image	Description	Significance	Impact
<p>Black K6 telephone box outside 141 Moorgate [6]</p>		<p>K6 telephone boxes (1930s) located outside 141 Moorgate. The structure has been painted black, associated with the privatisation of the telephone system.</p>	<p>The K6 telephone box represents an important piece of iconic street furniture. This example also has interest as a departure from the standard.</p>	<p>Potential impact from diverted utilities.</p>
<p>Pair of K6 telephone boxes outside 84 Moorgate [7]</p>		<p>Pair of red K6 telephone boxes (1930s) located outside 84 Moorgate.</p>	<p>The K6 telephone box represents an important piece of iconic street furniture which contributes to the streetscape of the Finsbury Circus Conservation Area.</p>	<p>Potential impact from diverted utilities.</p>

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Name [Figure Ref]	Image	Description	Significance	Impact
Pillar box outside 28 Finsbury Circus [8]		Red, type 'C' pillar box bearing the royal insignia of Edward VII, dating it to between 1901 and 1910.	An early example of the Type 'C' pillar box which makes a positive contribution to the Finsbury Circus Conservation Area.	Possible impact from the diversion of utilities in the Liverpool Street Station area.
Pair of K6 telephone boxes outside 100 Liverpool Street [9]		Pair of red K6 telephone boxes (1930s) located outside 100 Liverpool Street.	The K6 telephone box represents an important piece of iconic street furniture which contributes to the streetscape of this area.	Potential impact from diverted utilities.

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Name [Figure Ref]	Image	Description	Significance	Impact
K6 telephone box outside 47 New Broad Street [10]		Red K6 telephone boxes (1930s) located outside 47 New Broad Street.	The K6 telephone box represents an important piece of iconic street furniture which contributes to the streetscape of the New Broad Street Conservation Area.	Potential impact from diverted utilities.

Table 7. Non-Listed Street Furniture within the Liverpool Street Station Area

6 Discussion

6.1 Summary and Interpretation of Results

Blomfield Box and Broadgate Ticket Hall

Natural

Information from borehole records and the levels of deposit survival recorded at sites in the area (BSP91; BDC03; LSS85; VLT85; LVB05 & NEB87) indicate that brickearth and terrace gravels have been truncated by activity during the Roman and later periods. In support of this no brickearth deposits were noted in the boreholes around the sub-site. Generally the terrace gravels slope down from c. 109.25m ATD in the east to c. 107.0m ATD in the west. A borehole (L11) sunk in the area of the Broadgate Ticket Hall revealed human remains and a grey clay deposit between 107.5m and 106.0m ATD, the comparison of the depth of this deposit with the general pattern of the surrounding gravels suggests that this borehole may have encountered a feature within the gravel, possibly either archaeological in origin or a stream channel of the Walbrook.

The presence of dark sandy clay overlying the terrace gravels (noted as Made Ground in the borehole logs) was observed in the majority of the boreholes and variously contained fragments of shell; wood; and organic matter. This suggests that deposits relating to Moorfields Marsh exist at the Blomfield Box and Broadgate Ticket Hall. These deposits were generally encountered at c. 3m below ground level and were between 0.5m and 2m in thickness. Waterlain deposits were observed within BH L11 from 110.2m ATD, roughly corresponding with the upper limit of the probable Moorfields Marsh layer. A similar deposit with a quantity of brick fragments, bone, flint, clinker and slag was recorded above this. A significant quantity of possible waste material indicates medieval and post-medieval dumping, which may have been associated with the reclamation of the marsh. Borehole data shows concrete within the upper strata of these dark sandy clay deposits, which lies immediately below the present tarmac and concrete ground surface.

Present buildings - Blomfield Box

The Blomfield Box is partially situated over 11-12 Blomfield Street, which extends to the rear, backing onto Broad Street Avenue. The presence of extensive basements at 11-12 Blomfield Street was confirmed by Visual Site Appraisal and archive drawings show a single level basement across the footprint of the buildings with a sub basement in the buildings to the rear. Archaeological deposits at this location will have been truncated to at least the depth of the basements. Deep basements have also been identified in surrounding buildings in the Running Tunnels & Shafts Obstructions report and partially confirmed by Visual site Appraisal. Although these do not extend into the site it is possible that archaeological deposits within the Blomfield Box were partially disturbed during their construction.

Present buildings – Broadgate Ticket Hall

The Broadgate Ticket Hall lies below Liverpool Street and is not currently built on. Borehole log L11 suggests that Made Ground associated with the reclamation of Moorfields Marsh is present below the road surface. The disused Broad Street Ticket Hall, which had been converted into an electrical sub-station lies in the area of the Broadgate Ticket Hall. Immediately to the east of the disused ticket hall is the Queen Victoria Tunnel. Archaeological remains are unlikely to survive within the footprints of the former ticket hall or the Queen Victoria Tunnel.

Earlier Buildings – Blomfield Box

Historic mapping indicates the site of the Blomfield Box has been development from the early 18th century. The extent and consistency of cellaring associated with any of these earlier buildings is uncertain. In addition, the Metropolitan Line passes immediately to the north and it

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is likely that construction of the railway cutting and retaining walls has truncated archaeological remains in the northern extent of the Blomfield Box, the extent of such truncation is unknown.

Earlier Buildings – Broadgate Ticket Hall

The site of the Broadgate Ticket Hall was a burial ground until the mid 19th century, at which point Liverpool Street was widened to incorporate the southern part of the burial ground. The alignment of Liverpool Street remained the same from this point despite the large scale change to the area that came with the construction of the Metropolitan Line and Broad Street Station. A ticket hall (now used as a substation) and the Queen Victoria Tunnel were both constructed at the eastern end of the Broadgate Ticket Hall site.

Potential archaeological deposits – Blomfield Box

The presence of deposits relating to Moorfields Marsh indicates that there is the potential for Roman remains to exist within the sub-site. Such remains are likely to be encountered within these deposits and the terrace gravels that they seal. Evidence for Roman activity was revealed at sites NEB87 and BDC03 and included land-reclamation activity and burials. Medieval quarrying and Post-medieval burials were also recorded at NED87 and LVB06.

The location of the Blomfield Box was developed from the Post-medieval period onwards. A single level basement is present across the footprint of 11-12 Blomfield Street and a sub-basement exists in the rearmost of these buildings. Post-medieval and modern development is likely to have truncated archaeological deposits of Medieval and Post-medieval date. The apparent survival of Moorfields Marsh deposits across the area would indicate that this truncation has generally not extended to Roman and earlier layers.

No archaeological remains will survive within the footprint of the cut and cover Metropolitan Line. It is probable that the disturbance caused by the construction of the railway will extend into the northern part of the Blomfield Box, although the extent to which this has occurred is unknown. Similarly the construction of surrounding buildings with deep basements may also have disturbed archaeological remains within the Blomfield Box site.

Potential archaeological deposits – Broadgate Ticket Hall

As at the Blomfield Box, the presence of Moorfields Marsh deposits suggest that Roman remains may survive within the sub-site. Waterlain deposits in BH L11 at around 2m below ground level hint also highlight the possibility of waterlogged remains and hence organic material to be encountered within the Moorfields Marsh layers.

However, the Broadgate Ticket Hall has a particular potential for encountering human remains relating to the burial ground that existed at this location until the widening of Liverpool Street in the mid 19th century. While disturbance caused by the construction of the disused ticket hall and Queen Victoria Tunnel beneath the carriageway of Liverpool Street are likely to have removed archaeological remains at those locations, there is still the potential that human remains survive at this sub-site. There will be up to 1-2m of further disturbance caused by utilities along Liverpool Street, however, human remains were observed in BH L11 and the depth at which these were encountered suggests they are likely to be of post-medieval date and associated with the known burial ground (BG208). Furthermore, utilities works, unrelated to Crossrail are known to have encountered human remains in the carriageway of Liverpool Street immediately in front of 100 Liverpool Street.

Impact of Proposals: Blomfield Box – Enabling Works

- Utilities diversions in Blomfield Street may partially remove archaeological remains within the Made Ground/upper layers (if present).
- Demolition of 11-12 Blomfield Street.
- Ground reduction in worksite to level of existing basement (107m ATD) will completely remove all archaeological deposits to that depth.

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Impact of Proposals: Blomfield Box – Main Works

- Temporary works for first stage excavation, including piling will completely remove archaeological remains at those locations.
- Excavation of basement to underside of slab level 106.5m ATD, then locally to underside of pile capping beams will completely remove archaeological deposits within its footprint.
- Initial stages of the further excavation of the Blomfield Box to c. 100.40m ATD from basement slab level will completely removing archaeological remains within its footprint to a depth of c.106.00±1m ATD.

Impact of Proposals: Broadgate Ticket Hall – Enabling Works

- Utilities diversions within the carriageway and pavement of Liverpool Street; Eldon Street; and the northern end of Blomfield Street will partially or completely remove archaeological remains relating to the Post-medieval period (if present). These could include Post-medieval burials.
- Utilities diversions along London Wall may partially or completely remove archaeological remains relating to the Roman and Medieval London Wall (if present).

Impact of Proposals: Broadgate Ticket Hall – Main Works

- Demolition of section of existing sub-station may partially remove archaeological deposits.
- Installation of contiguous piles for link passage and individual piles will partially or completely remove archaeological deposits at those locations.
- Excavation of roof slab for passageway may partially or completely remove archaeological deposits.
- Excavation to base slab will completely remove archaeological remains within its footprint.

Finsbury Circus Access Shaft and Compound*Natural*

Archaeological sites just to the north of the worksite (RIV87; FIB88; and ENS03) and boreholes (BHs L6; L7; and L8) identified Marsh deposits around Finsbury Circus. These deposits were generally encountered at c. 3m below ground level, and some contained Roman material (RIV87 and FIB88). This pattern of marsh deposits follows the general pattern of deposits seen at the Eastern Ticket Hall sub-site, located just east of Finsbury Circus.

Present Buildings

A pavilion and bowling-green currently occupy the sub-site. The pavilion has a basement approximately 3m in depth. All archaeological deposits will have been removed to at least the depth of the basement.

Earlier Buildings

The Metropolitan line cut and cover tunnel below was constructed through Finsbury Circus and will have removed archaeological deposits along its length. The width of the cutting at this point is unknown, however, as discussed above an assumption has been made that truncation caused by the cut and cover construction extends 1m either side of the existing tunnel.

A series of small structures appears to have stood on the site from the mid-20th century. These were probably light with shallow foundations that have had limited impact on any surviving archaeological deposits.

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Potential Archaeological Deposits

As at the Blomfield Box and the Broadgate Ticket Hall, Post-medieval deposits were observed overlying the Moorfields Marsh layers (RIV87). Drainage channels and late Medieval dumps associated with the reclamation of the marsh have also been recorded to the north (FIB88). The construction of the Metropolitan Line cut and cover tunnel will have removed all archaeological deposits along its route, passing through the centre of the worksite (bisecting the existing bowling green east-west). With the exception of the Metropolitan Line, Finsbury Circus has not experienced major development; indeed, map regression demonstrates that the site was undeveloped up to the 19th century after which it became a park. This indicates that there is a potential for archaeological remains within the site. These could comprise fragmented Prehistoric evidence, Roman and Medieval activity, and later Post-medieval remains relating to former layouts of the park. The absence of substantial buildings within the green space at Finsbury Circus means that truncation of any surviving archaeological sequence is likely to be minimal in areas not truncated by the Metropolitan Line, with the exception of the footprint of the existing pavilion which has a basement, however, given that 4-5m of deposits have been recorded in the surrounding area, it is likely that archaeological deposits may survive beneath the depth of the basement.

Impact of Proposals – Enabling Works

- Utilities diversions (tbc), may partially remove archaeological remains within the Made Ground/upper layers.
- Utilities diversions in the carriageway and pavement of Finsbury Circus and Circus Place may partially or completely remove archaeological remains within the Made ground/upper layers (if present).
- Worksite establishment. The specifics are tbc, however, will probably involve ground reduction (topsoil strip) and laying of hardcore; foundations for accommodation and batching plant may partially and completely remove archaeological remains.
- The demolition and reinstatement of the Gazebo: In accordance with the Generic WSI (Document Number: 14022008-44ES-PZ21), listed buildings are assumed to be excluded from the scope of the site-specific WSIs since they are the subject of separate agreements with the local planning authority/English Heritage. Mitigation for the impacts on the Grade II listed Gazebo is set out in a heritage agreement with the City of London and is not dealt with further in this document.
- The demolition and reinstatement of the Finsbury Circus Grade II Listed Registered Park and Garden (GD2274) including the bowling green and pavilion.

Impact of Proposals – Mains works

- Construction of the Finsbury Circus access shaft, located to the south of the existing bowling green, will completely remove all archaeological remains within its footprint.

The construction compound will disturb the upper layers of any surviving archaeology with limited deeper impacts. The lower deposits relating to Moorfields Marsh and potential archaeology which it seals are likely to be unaffected.

Moorgate Ticket Hall*Natural*

Borehole records indicate that terrace gravels exist at a level of c. 108.5m ATD with a variation of only c. 0.2m across the site. This corresponds with observations at site MRL98 where terrace gravels were recorded at 108.6m ATD cut by stream channels. The terrace gravels had been truncated at site MFL97 (21 Moorfields) by basements.

Dark sandy clay with organic matter, similar to that at the other sub-sites and probably representing Moorfields Marsh deposits was encountered at a depth of c. 3.5m below ground

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level (between c. 110.13 and 108.33m ATD) in BH L21, BH L23 and BH L25. At a similar depth in BH L24 a dark fibrous peat deposit was noted, again probably representing Moorfields Marsh. In Boreholes L21 and L25 these deposits were immediately overlain and probably truncated by a brick wall 3m deep.

In BH L3 deposits representing Moorfields Marsh were encountered at 4.2m (109.09 to 108.39m ATD) below ground level. The presence of concrete in the overlying deposit may indicate localised truncation of Moorfields Marsh in the area of BH L3. No brickearth was present at the interface between the Moorfields Marsh layer and the terrace gravels in any of the boreholes. Re-deposited and possible *in situ* brickearth was noted at site MRL98 overlying the terrace gravels, although there is no reference to Moorfields Marsh deposits at this site.

Made Ground with fragments of brick and concrete, indicating a relatively modern provenance, was recorded in BH L3, L23 and L24 immediately overlying the Moorfields Marsh layer. In BH L21 and L25 a brick wall was recorded to a similar depth.

Present Buildings

A single level basement is present below 89 to 135 Moorgate (including the aforementioned AMRO building) and is approximately 2.3m in depth (c. 110m ATD) beneath which is a 500mm base slab atop 900mm and 1050mm bored piles. The layout of the piles is shown in Figure 12. Archaeological deposits will be completely removed to the depths of the underside of the basement base slab and further disturbed at the locations of piles. Alluvial deposits (Moorfields Marsh) to c. 108.30m ATD and River Terrace Deposits to the level of the London Clay (103m ATD \pm 3m) may survive beneath basements and between piles.

At 21 Moorfields, basements are believed to be to a depth of c.109.2m ATD (Crossrail 2007), beneath which could survive partially truncated alluvial deposits (Moorfields Marsh) and River Terrace Deposits. Furthermore, 21 Moorfields has piled foundations, which will have removed archaeological remains at those locations. Archaeological deposits of deep cut archaeological features may survive in pockets between piles.

Earlier Buildings

The 1865 construction of the cut and cover Metropolitan Line to Moorgate Station and the 1875 extension of the Metropolitan Line eastwards across Moorfields through the block of buildings opposite the station will have completely removed all archaeological remains along its route including the northern section of 20-24 Moorfields and 103-109 Moorgate.

Due to uncertainty regarding the extent of the cut and cover Metropolitan Line during construction, the assumption is made that truncation extended only 1m either side of the width of the existing tunnel retaining walls.

Prior to the construction of the Metropolitan Line the sub-site was occupied by a terrace row from the mid 18th century onwards. The nature of these buildings and the extent to which they have disturbed archaeological deposits is unknown.

Potential Archaeological Deposits

In all boreholes potential Moorfields Marsh deposits were encountered at c. 3.5m below ground level (between c. 110.13 and 108.33m ATD). Roman and City Ditch deposits have been recorded to the southwest of the sub-site at Moor House (MRL 98). These factors indicate the potential for Roman remains to survive across the site. The presence of Made Ground containing concrete fragments immediately above the Moorfields Marsh deposits to the south and basements to the north of the sub-site indicates that there is little potential for Medieval and Post-medieval deposits. In addition no Medieval and Post-medieval deposits, aside from the City Ditch, have been recorded in neighbouring interventions (MRL 98). This may be due to later truncation or the fact that the site remained marsh followed by undeveloped reclaimed land through to the mid-18th century.

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Observations at 21 Moorfields indicate that modern disturbance may have truncated terrace gravels and therefore removed Moorfields Marsh deposits. However, the existing basement is believed to be at a depth of c.109.2m ATD and therefore there is a potential for the truncated remains of deep cut archaeological features to survive in alluvial deposits and RTDs.

Impact of Proposals – Enabling Works

- Demolition of 91 to 109 Moorgate and 14 to 24 Moorfields to basement level (nb. 91 Moorgate/12 Moorfields are adjoined to a Grade II Listed Building – 8 Moorfields/87 Moorgate).
- Demolition of 17 Moorfields.
- Utilities diversions in Moorgate; Moorfields; and Fore Street Avenue will partially or completely remove archaeological remains within the Made Ground (if present).
- Utilities diversions along London Wall may partially or completely remove archaeological remains relating to the Roman and Medieval London Wall (if present).

Impact of Proposals – Main Works

Within the Moorgate box:

- Construction of contiguous bored piled walls to the escalator box and local excavation and breakdown of piles.
- Ground reduction to the general site level of 110.00m ATD (existing AMRO Bank basement) will completely remove all archaeological remains within the Made Ground and possibly upper layers of Moorfields Marsh Deposits.
- Installation of 1200mmØ contiguous piles and 900mmØ soft piles; and 1500mmØ tension piles and combined tension piles/plunge columns will completely or partially remove archaeological remains at those locations.
- Excavation of basement to underside of slab level (106.75m ATD) will completely or remove archaeological remains.
- Excavation of Moorgate shaft to approximately 101.8m ATD will completely remove archaeological remains.

At 21 Moorfields:

- Reduction of floor level to underside of pile cap level (c. 108.2m ATD); the construction of temporary piles; and excavation of existing piles to new cut off level will completely remove archaeological remains at this location (if present).

Waterlain deposits are known to exist at the Crossrail worksites for Liverpool Street Station. The impact of dewatering on potential waterlain deposits by piling cannot yet be determined. These impacts and their mitigation will be addressed at detailed design stage.

6.2 Predicted Impacts to the Archaeological Resource

The table below summarises the predicted impacts to the archaeological resource discussed above.

Archaeology Detailed Desk Based Assessment – Liverpool Street Station

Sub-Site	Scheme Impact	Maximum Depth of Impact	Impact to Archaeology		Predicted Depth of Archaeological Remains
			Enabling Works	Main Works	
Broadgate Ticket Hall	Utilities diversions within the carriageway and pavement of Liverpool Street; Eldon Street; and the northern end of Blomfield Street. Utilities diversions along London Wall.	Up to c.2m BGL	Partially or completely remove archaeological remains relating to the Post-medieval period. These could in principle include Post-medieval burials and remains relating to London Wall (if present).		Up to c.5-6m BGL
	Demolition of the disused ticket hall and Queen Victoria Tunnel.		Removal of non-listed built heritage features		
	Construction of the link passage within carriageway of Liverpool Street.	Pile toe depth c. 97m ATD	-	Completely remove archaeological remains, likely to include burials.	Up to c.5-6m BGL
	Phase 1 - Construct Ticket Hall (East)	Pile toe depth c. 97m ATD	-	Partially remove surviving archaeological deposits, although this is largely in the footprint of the existing sub-station.	Up to c.5-6m BGL
	Phase 2 – Construct Ticket Hall (West)	Pile toe depth c. 97m ATD	-	Partially remove surviving archaeological deposits, although this is largely in the footprint of the existing sub-station.	Up to c.5-6m BGL
Blomfield Box	Demolition of 11-12 Blomfield Street.	-	Remove non-listed built heritage features	-	-

Archaeology Detailed Desk Based Assessment – Liverpool Street Station

Sub-Site	Scheme Impact	Maximum Depth of Impact	Impact to Archaeology		Predicted Depth of Archaeological Remains
			Enabling Works	Main Works	
	Utilities diversions in Blomfield Street	Up to c.2m BGL	Partially or completely remove archaeological remains relating to the Post-medieval period.	-	Made Ground from c.113±1m ATD to c.112±1m ATD. Alluvial (Moorfield marsh) deposits from approx. 111.5m ATD to 109m ATD
	Ground reduction in worksite to level of existing basement	107m ATD	Completely remove all archaeological deposits to that depth.	-	From basement level to c.106.00±1m ATD at 11-12 Blomfield Street.
	Temporary works for first stage excavation, including piling.	87m ATD and 53m ATD	-	Completely remove archaeological remains at those locations	Made Ground from c.113±1m ATD to c.112±1m ATD. Alluvial (Moorfield marsh) deposits from approx. 111.5m ATD to 109m ATD RTDs from approx. 109m ATD to 106±1m ATD.
	Excavation of basement to underside of slab level, then locally to underside of pile capping beams.	106.5m ATD	-	completely remove archaeological deposits within its footprint	
	Initial stages of the further excavation of the Blomfield Box to c. 100.40m ATD from basement slab level.	c.100.40m ATD	-	completely removing archaeological remains within its footprint to a depth of c.106.00±1m ATD	
Finsbury Circus access shaft and worksite	Worksite establishment: ground reduction (topsoil strip) and laying of hardcore; foundations for accommodation and batching plant.	Tbc	Partially or completely remove archaeological remains.	-	Extent of truncation caused by pavilion is tbc, however, up to 4m of archaeological deposits may be present (Crossrail 2006)
	Utilities diversions with Finsbury Circus Park (tbc). Utilities diversions in the carriageway and pavement of Finsbury Circus and Circus Place.	c. 1-2m BGL?	Partially remove archaeological remains.	-	Up to 4m of archaeological deposits may be present (Crossrail 2006)
	Demolition of the Grade II registered park & garden	-	Completely remove RPG	-	-

Archaeology Detailed Desk Based Assessment – Liverpool Street Station

Sub-Site	Scheme Impact	Maximum Depth of Impact	Impact to Archaeology		Predicted Depth of Archaeological Remains
			Enabling Works	Main Works	
	Demolition of the Gazebo	-			
	Construction of the Finsbury Circus access shaft, located to the south of the existing bowling green.	-	-	Will completely remove all archaeological remains within its footprint.	Extent of truncation caused by pavilion is tbc, however, up to 4m of archaeological deposits may be present (Crossrail 2006)
Moorgate Ticket Hall	Utilities diversions in Moorgate; Moorfields; and Fore Street Avenue . Utilities diversions along London Wall.	c.1-2m BGL?	Utilities diversions will partially or completely remove archaeological remains within the Made Ground (if present).		Deposits in roadways estimated to be truncated up to between 1-1.5m deep (Crossrail 2006).
	Demolition of 91 to 109 Moorgate and 14 to 24 Moorfields to basement level	-			
	Demolition of 17 Moorfields.	-			
	Construction activities including piling, ground reduction, excavation of the shaft.	Excavation of Moorgate shaft to c.101.80m ATD initially		Completely remove archaeological deposits.	In AMRO basement: from c. 110m ATD to c. 103.30m ATD±3m; In Moorfields Street and Fore Street: from between 1-1.5m BGL (Crossrail 2006) to c. 103.30m ATD±3m.

Table 8. Summary of construction impacts

7 Recommendations

7.1 Proposed Evaluation Strategy

Archaeological field evaluation will establish the degree of archaeological survival and thereby refine the time required for further archaeological excavations (if needed). Typical field evaluation methods include non-intrusive surveys, such as geo-archaeological investigation; small-scale intrusive surveys (e.g. observation and recording works integrated with geotechnical site investigations, drilling of geo-archaeological boreholes and excavation of archaeological trial pits and trenches). Further descriptions of archaeological evaluation can be found in the Crossrail Archaeology Generic Written Scheme of Investigation (Document Number 14022008-44ES-P2Z1).

The Archaeological evaluation required at the Crossrail worksites for Liverpool Street Station is set out below per sub-site. Full details of the evaluation methodology are described in the Liverpool Street Station Site-Specific WSI, Document Number CR-SD-LIV-EN-SY-00001.

Blomfield Box

There are two options at the Blomfield Box, which will be tested at the detailed design stage. They are:

1. Archaeological field evaluation (trial trenches/test pits) after demolition has taken place; and
2. Targeted Watching Brief.

Broadgate Ticket Hall

At Enabling Works stage:

- Archaeological field evaluation comprising trial trenches to establish the level of survival within the carriageway of Liverpool Street at the site of the link passage.
- Early evaluation must be programmed in the carriageway as soon as logistically possible after the utilities diversions have been carried out and prior to the roof slab works.

Moorgate Ticket Hall

At Enabling Works stage:

- Archaeological field evaluation comprising trial trenches to establish the level of survival within the footprint of the Moorgate Box.
- Within the street this must be programmed as soon as the area is available, i.e. when worksite has been created.

Finsbury Circus Access Shaft and Worksite

The construction of the cut and cover Metropolitan Line has removed archaeological deposits within an east-west corridor that passes through the middle of Finsbury Circus, effectively subdividing the site into two halves – north and south, both of which have the potential for surviving archaeological deposits.

At Enabling Works stage:

- Both the northern and southern parts of the site will require archaeological field evaluation, comprising trial trenches to establish the level of survival of archaeological remains.

At Finsbury Circus North evaluation should occur as soon as site is available and at Finsbury Circus South evaluation should be programmed after demolition of the buildings relating to the bowling green.

Archaeology Detailed Desk Based Assessment – Liverpool Street Station

7.2 Proposed Mitigation Strategy

The results of the archaeological field evaluation will inform the mitigation design and will comprise *preservation-by-record* (e.g. archaeological excavation and/or watching brief). These mitigation measures are described in the Crossrail Archaeology Generic Written Scheme of Investigation, Document Number 14022008-44ES-P2Z1.

The following mitigation measures will be required at the Crossrail worksites for Liverpool Street Station:

Blomfield Box

Enabling Works:

- Archaeological general watching brief on utility diversions in Blomfield Street.
- Non-Listed Built heritage recording of 11-12 Blomfield Street.

Results of the archaeological evaluation will inform the mitigation design, and will constitute *preservation-by-record* (e.g. archaeological excavation and/or watching brief). Archaeological mitigation (if required) would be undertaken commensurate with the Enabling Works. These mitigation measures are defined in the Crossrail Archaeology Generic Written Scheme of Investigation (2007).

Broadgate Ticket Hall

Enabling Works (Critical Phase):

- Archaeological targeted watching brief on utility diversions on Liverpool Street, Eldon Street and the northern extent of Blomfield Street.
- Archaeological targeted watching brief on utility diversions on London Wall.
- Non-listed built heritage recording of the disused ticket hall and Queen Victoria Tunnel.

Main Works:

- Archaeological targeted watching brief to monitor demolition of section of existing sub-station adjacent to the link passage.
- Archaeological watching brief at excavation of roof slab for passageway, including exposure of the Victoria Tunnel.

Results of the archaeological evaluation will inform the mitigation design, and will constitute *preservation-by-record* (e.g. archaeological excavation and/or watching brief). Archaeological mitigation (if required) would be undertaken commensurate with the Enabling Works and/or Main Works, dependent on the construction programme. These mitigation measures are defined in the Crossrail Archaeology Generic Written Scheme of Investigation (2007).

Moorgate Ticket Hall

Enabling Works:

- Archaeological general watching brief at utilities diversions on Moorgate, Moorfields and Fore Street Avenue.

Results of the archaeological evaluation will inform the mitigation design, and will constitute *preservation-by-record* (e.g. archaeological excavation and/or watching brief). Archaeological mitigation (if required) would be undertaken commensurate with the construction programme. These mitigation measures are defined in the Crossrail Archaeology Generic Written Scheme of Investigation (2007).

Finsbury Circus Access Shaft and Worksite

Enabling Works:

Archaeology Detailed Desk Based Assessment – Liverpool Street Station

- Archaeological general watching brief on utility diversions within the Finsbury Circus park.
- Archaeological general watching brief on worksite establishment.
- Archaeological general watching brief at utilities diversions on the carriageway of Finsbury Circus and Circus Place.
- Recording of the Grade II Registered Park & Garden, including the bowling green and pavilion, comprising a photographic record and archive research, to inform a detailed landscape restoration design.

Results of the archaeological evaluation will inform the mitigation design, and will constitute *preservation-by-record* (e.g. archaeological excavation and/or watching brief). Archaeological mitigation (if required) would be undertaken commensurate with the construction programme. These mitigation measures are defined in the Crossrail Archaeology Generic Written Scheme of Investigation (2007).

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9 Appendices

9.1 Plans and Illustrations

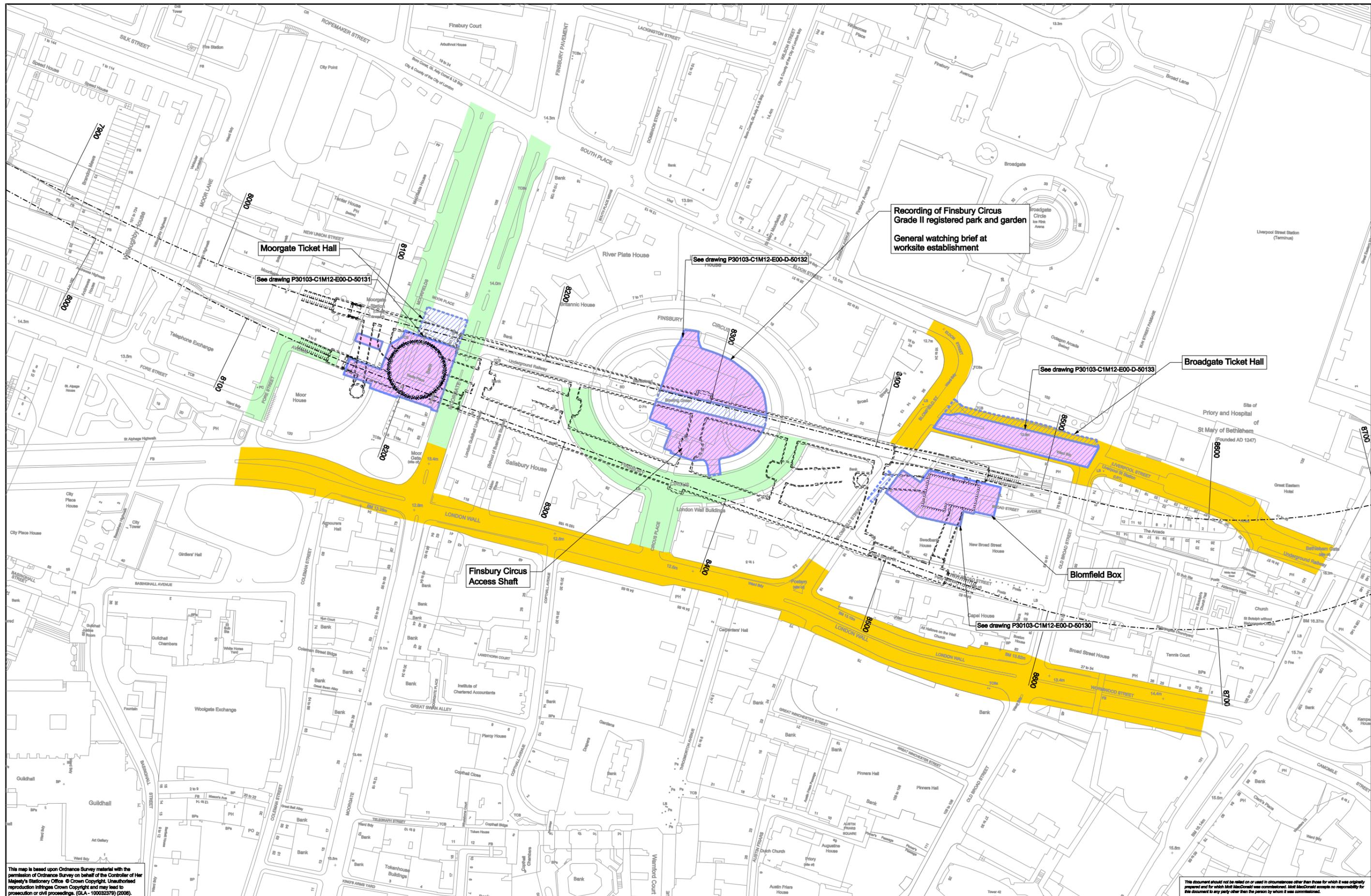
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Recording of Finsbury Circus
Grade II registered park and garden
General watching brief at
worksite establishment

Moorgate Ticket Hall
See drawing P30103-C1M12-E00-D-50131

See drawing P30103-C1M12-E00-D-50132

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Broadgate Ticket Hall

Finsbury Circus
Access Shaft

Blomfield Box

See drawing P30103-C1M12-E00-D-50130

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- Crossrail Worksite
- Trial trench evaluation during Phase 1 enabling works
- General watching brief at utilities diversions
- Targeted watching brief at utilities diversions

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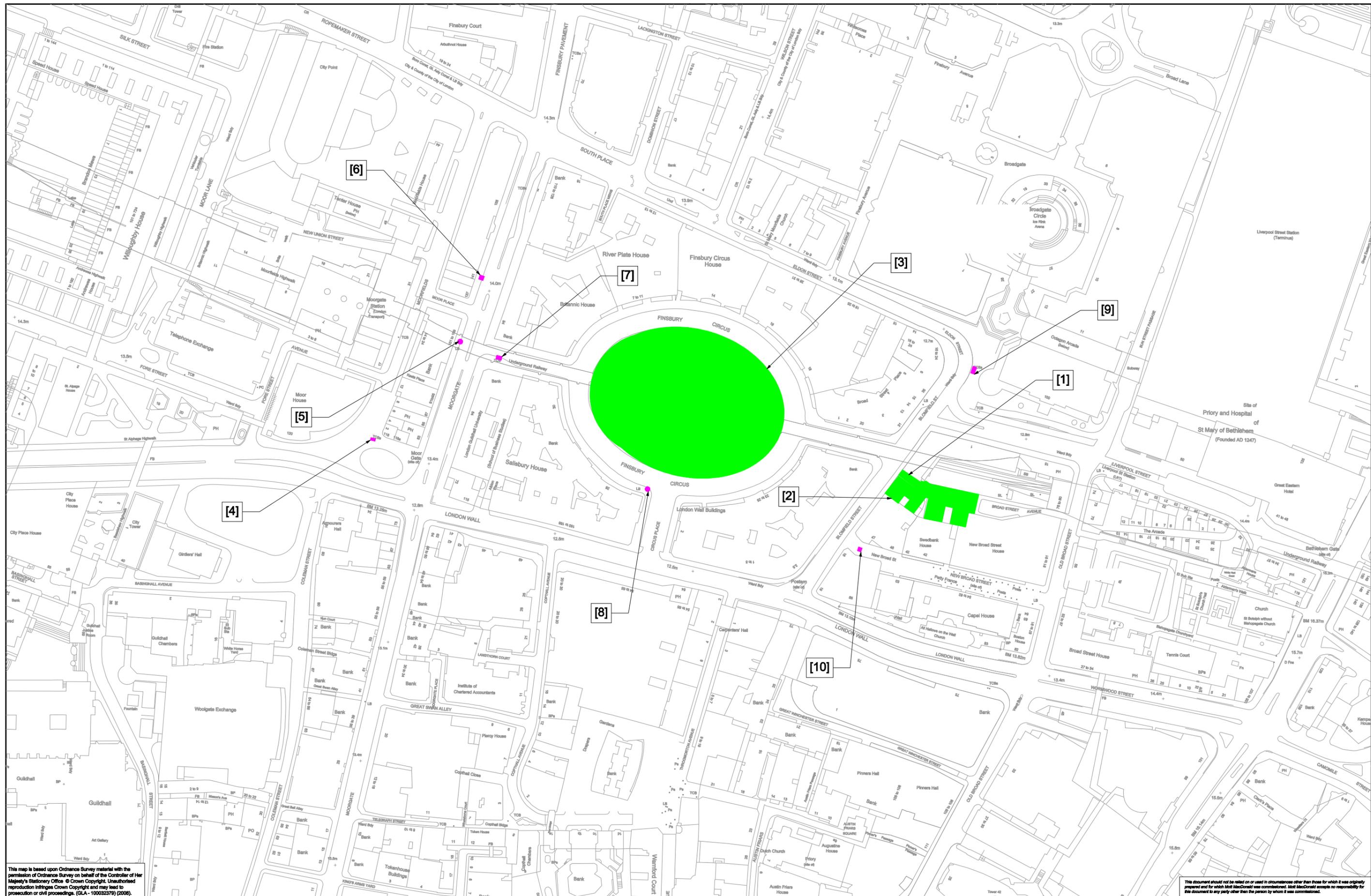
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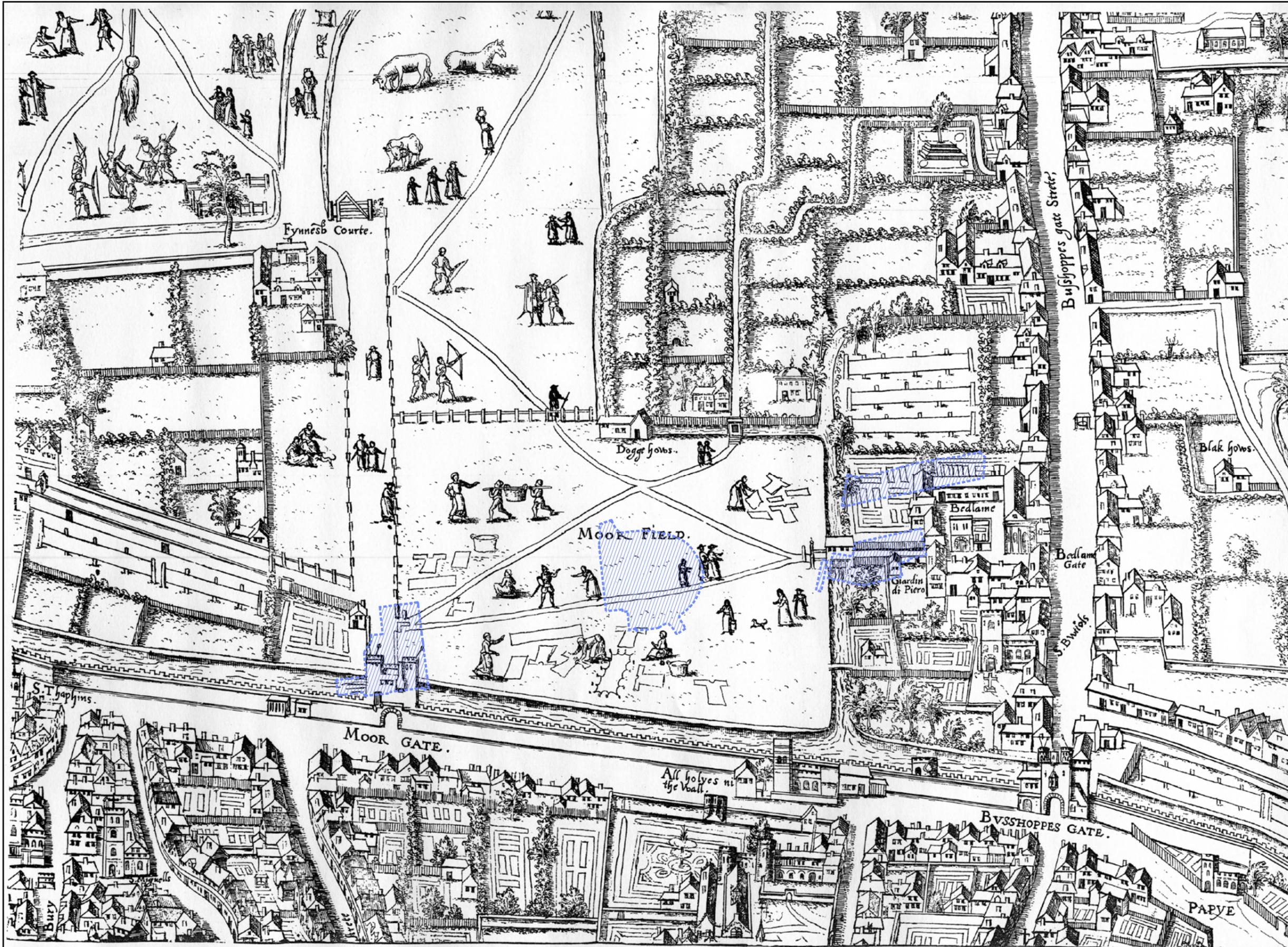
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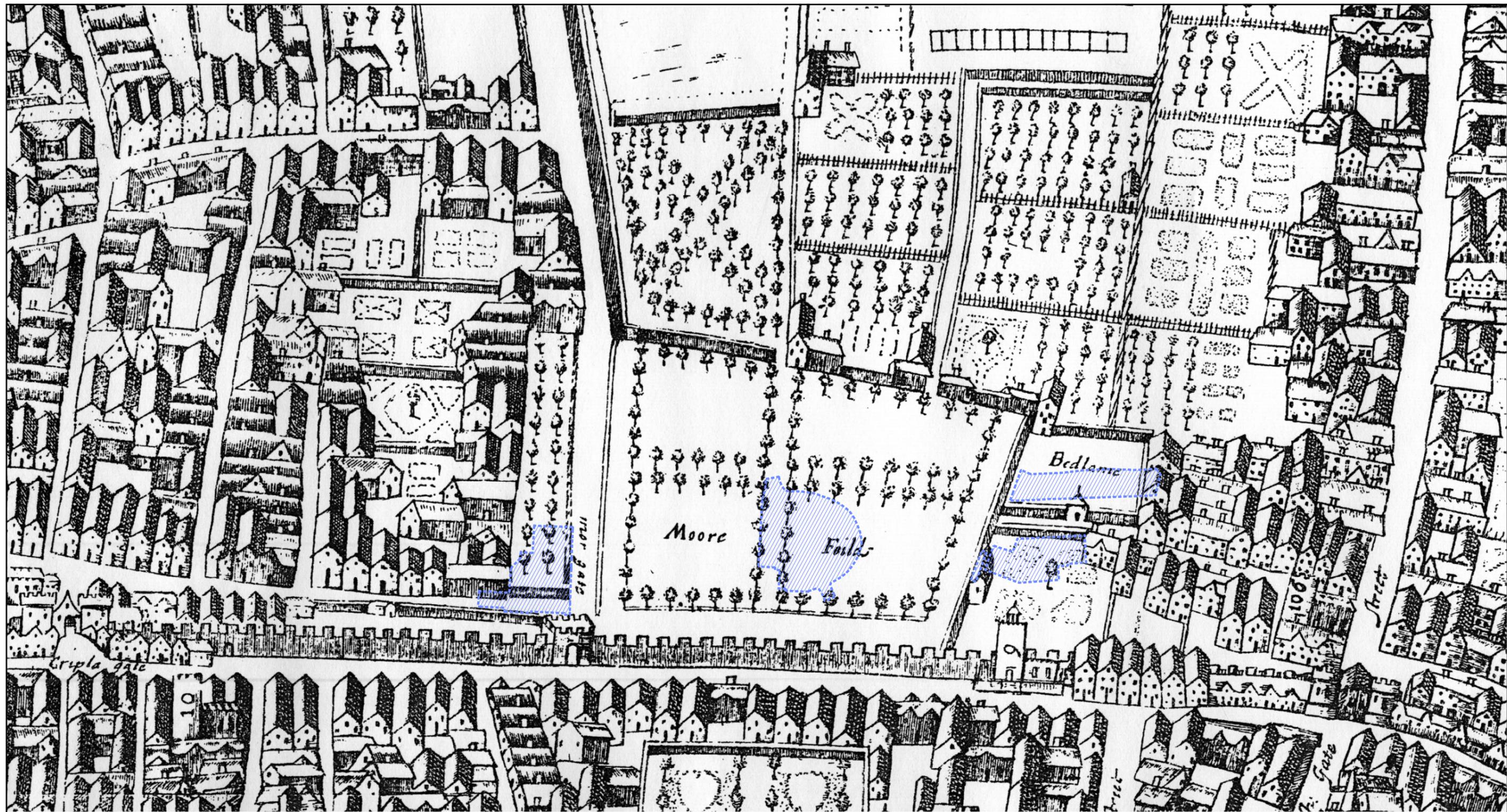
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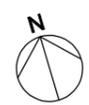


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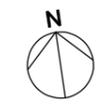
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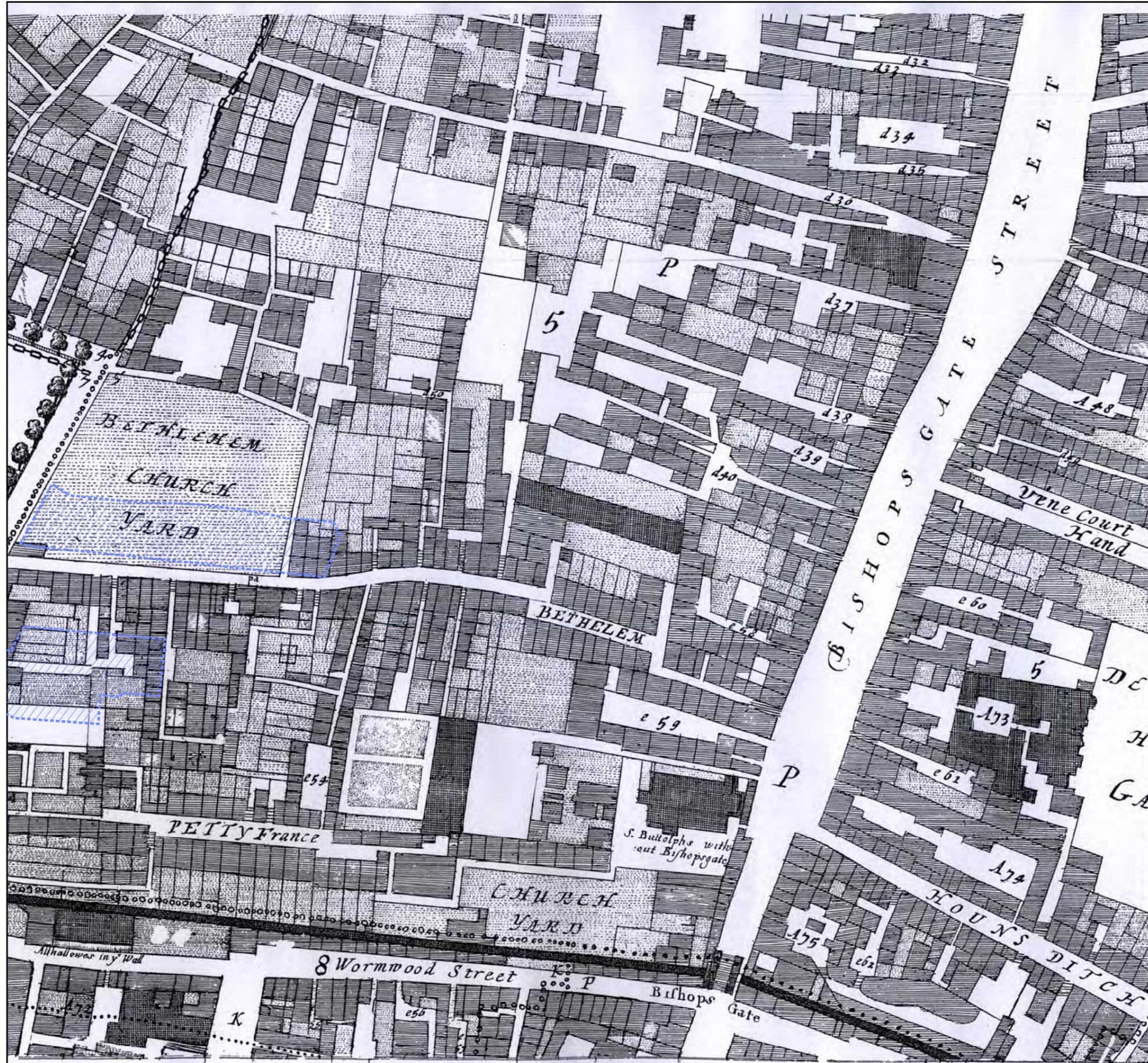
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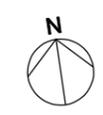
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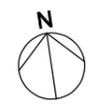
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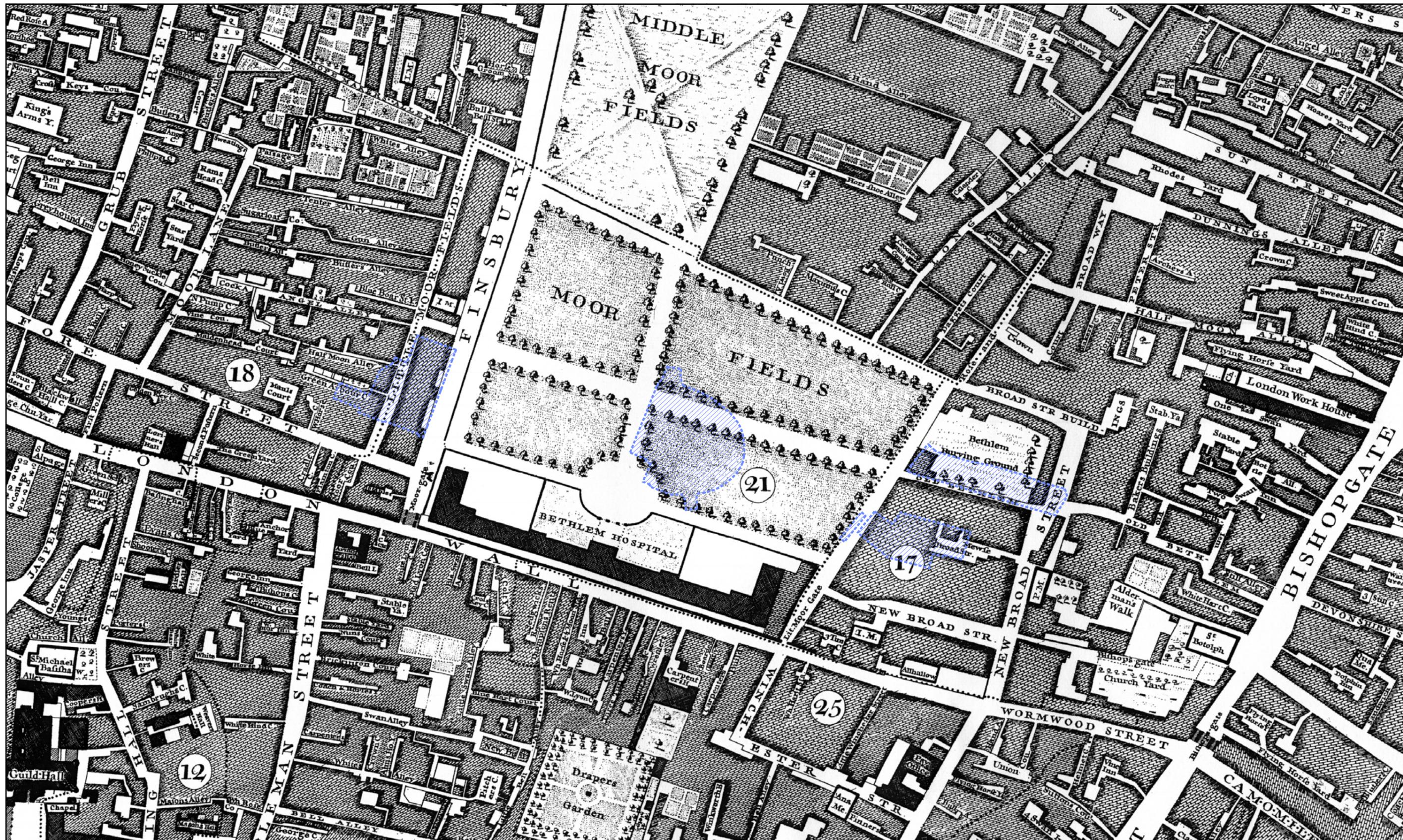
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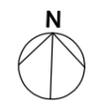
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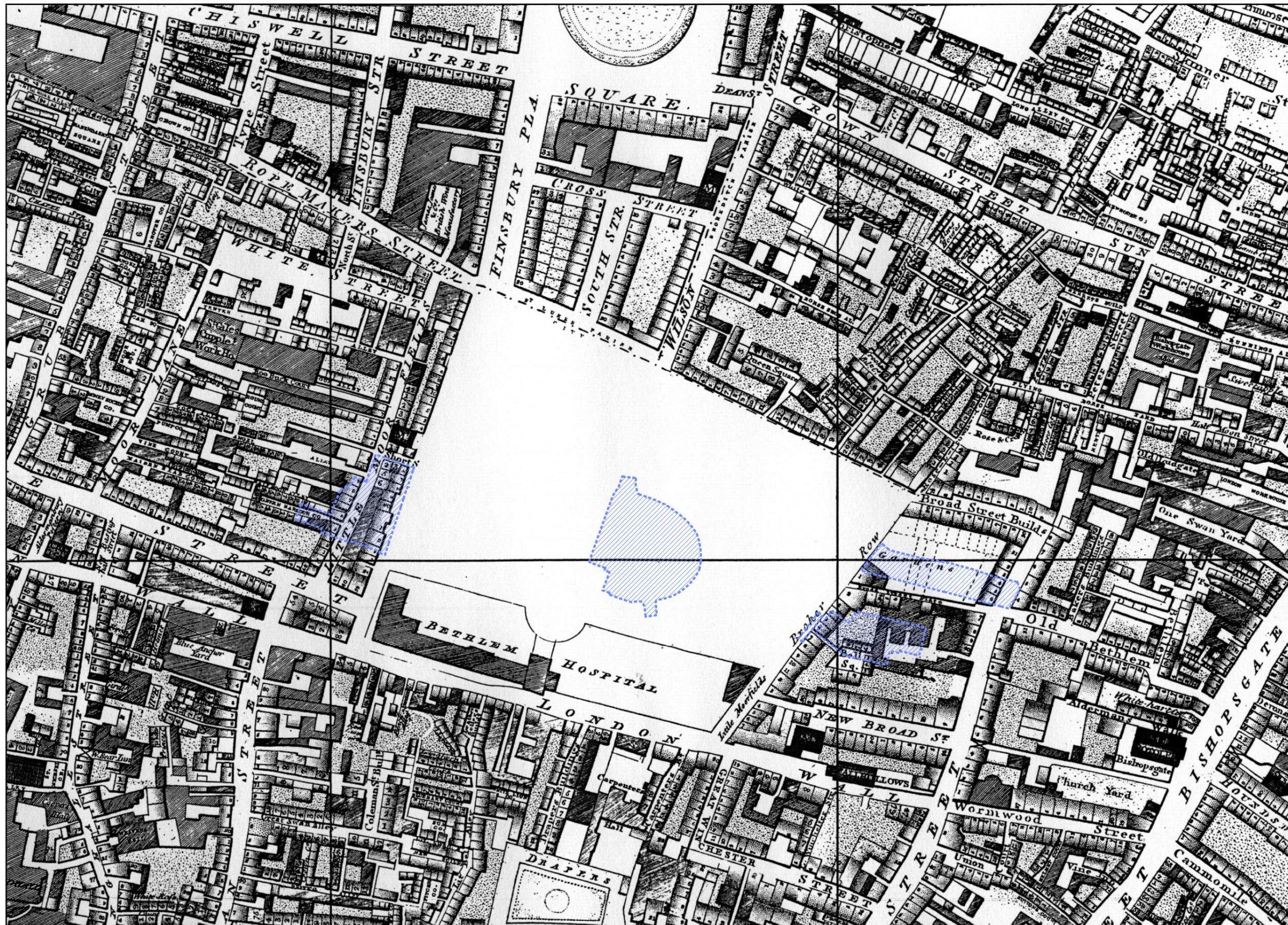
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TITLE:
 LIVERPOOL STREET STATION
 HISTORICAL MAPPING
 ROCQUE 1746

SCALE: NTS @ A1 DRAWING AND CAD FILE No: P30103-C1M12-E00-D-50106 REV: A02

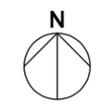
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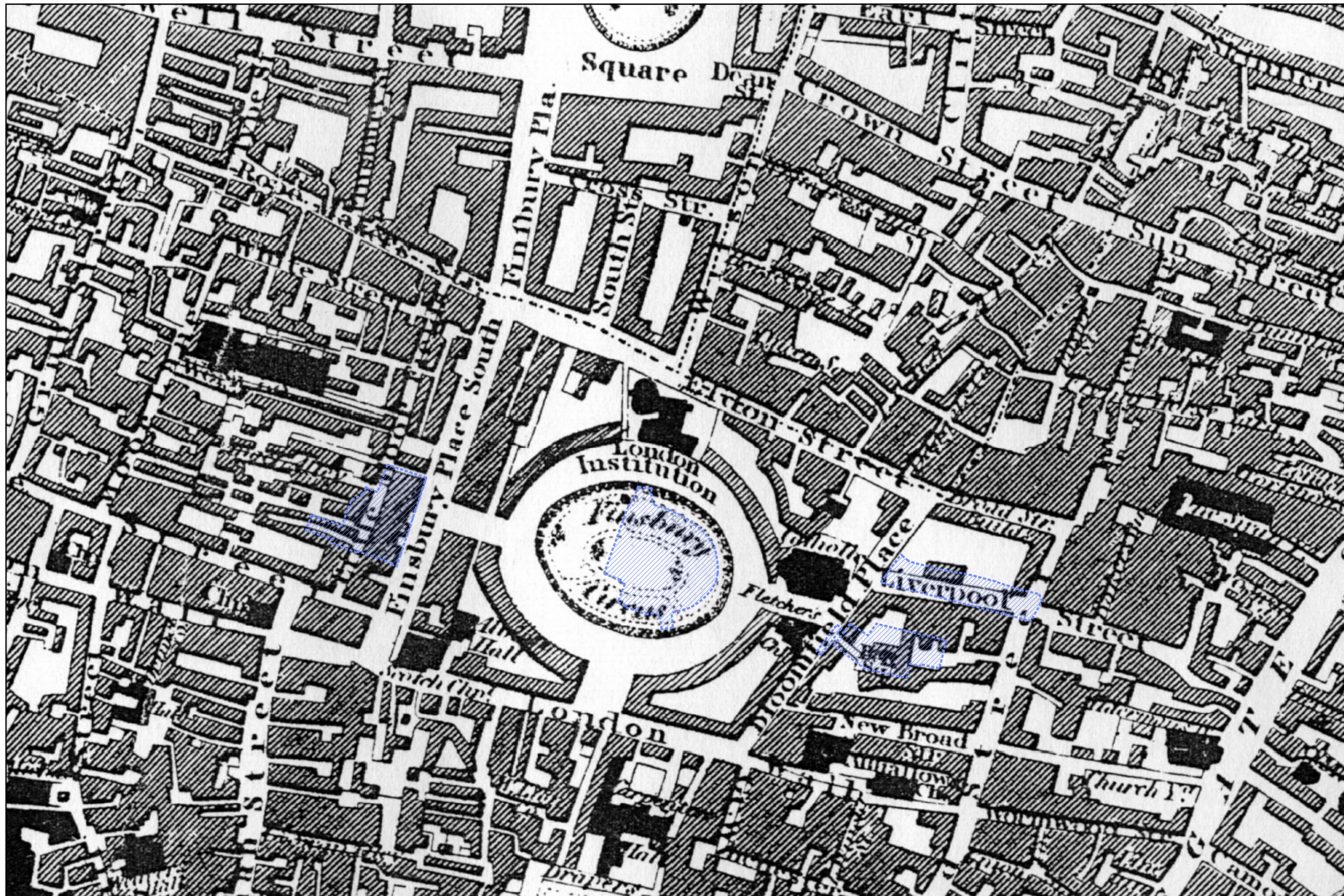
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 HISTORICAL MAPPING
 HISTORICAL 1799

SCALE: NTS @ A1 DRAWING AND CAD FILE No: P30103-C1M12-E00-D-50107 REV: A02

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 LIVERPOOL STREET STATION
 HISTORICAL MAPPING
 GREENWOOD 1824

SCALE: NTS @ A1
 DRAWING AND CAD FILE No: P30103-C1M12-E00-D-50108
 REV: A02

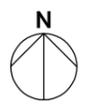


REV	DATE	DESCRIPTION	BY	CHKD	APP	CAD	ACC
A02	05/12/2008	SCHEME DESIGN 3 ISSUE	PWC	MC	DSW		

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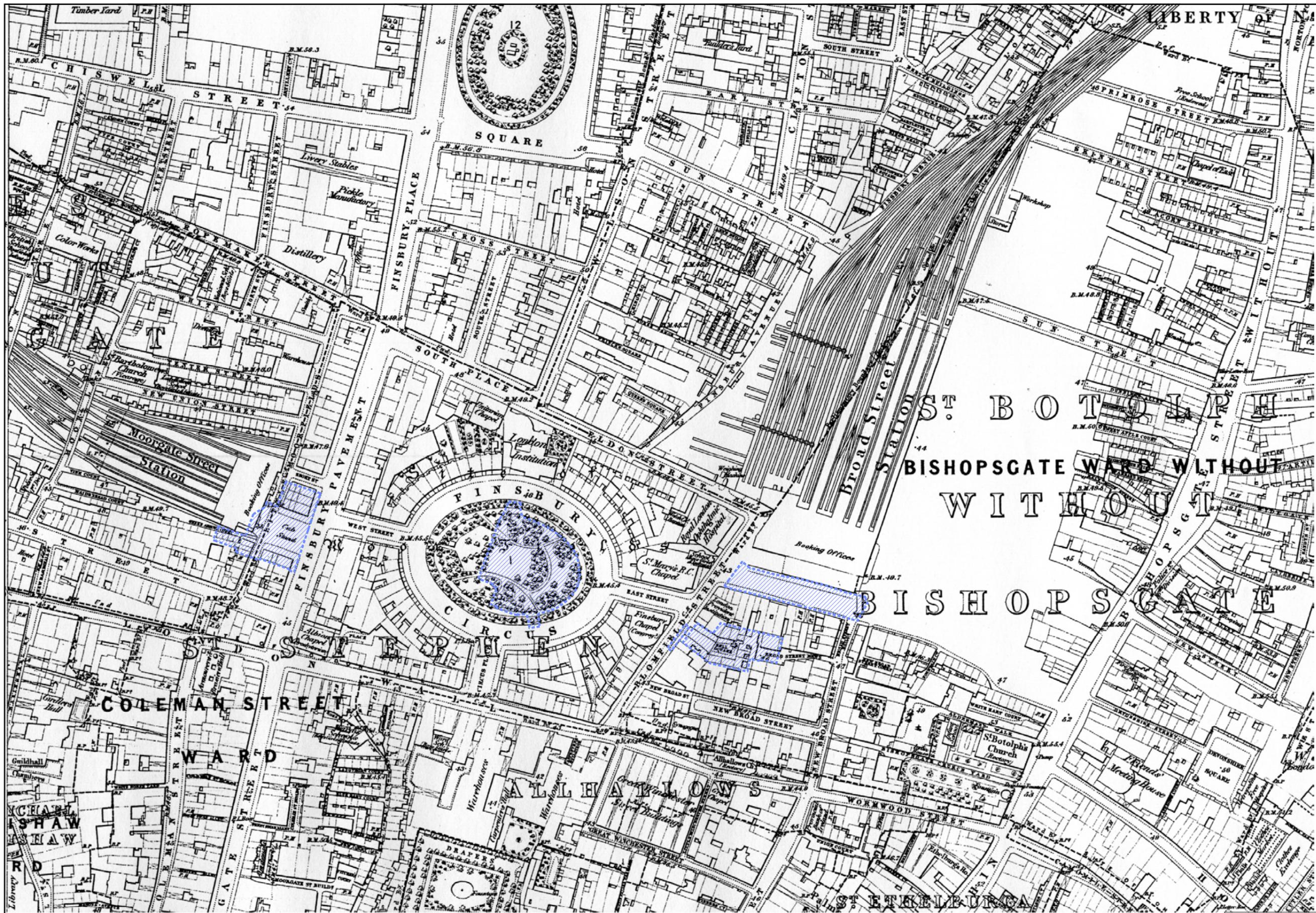

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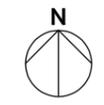
TITLE:
 LIVERPOOL STREET STATION
 HISTORICAL MAPPING
 STANFORD 1862

SCALE: NTS @ A1
 DRAWING AND CAD FILE No: P30103-C1M12-E00-D-50109
 REV: A02



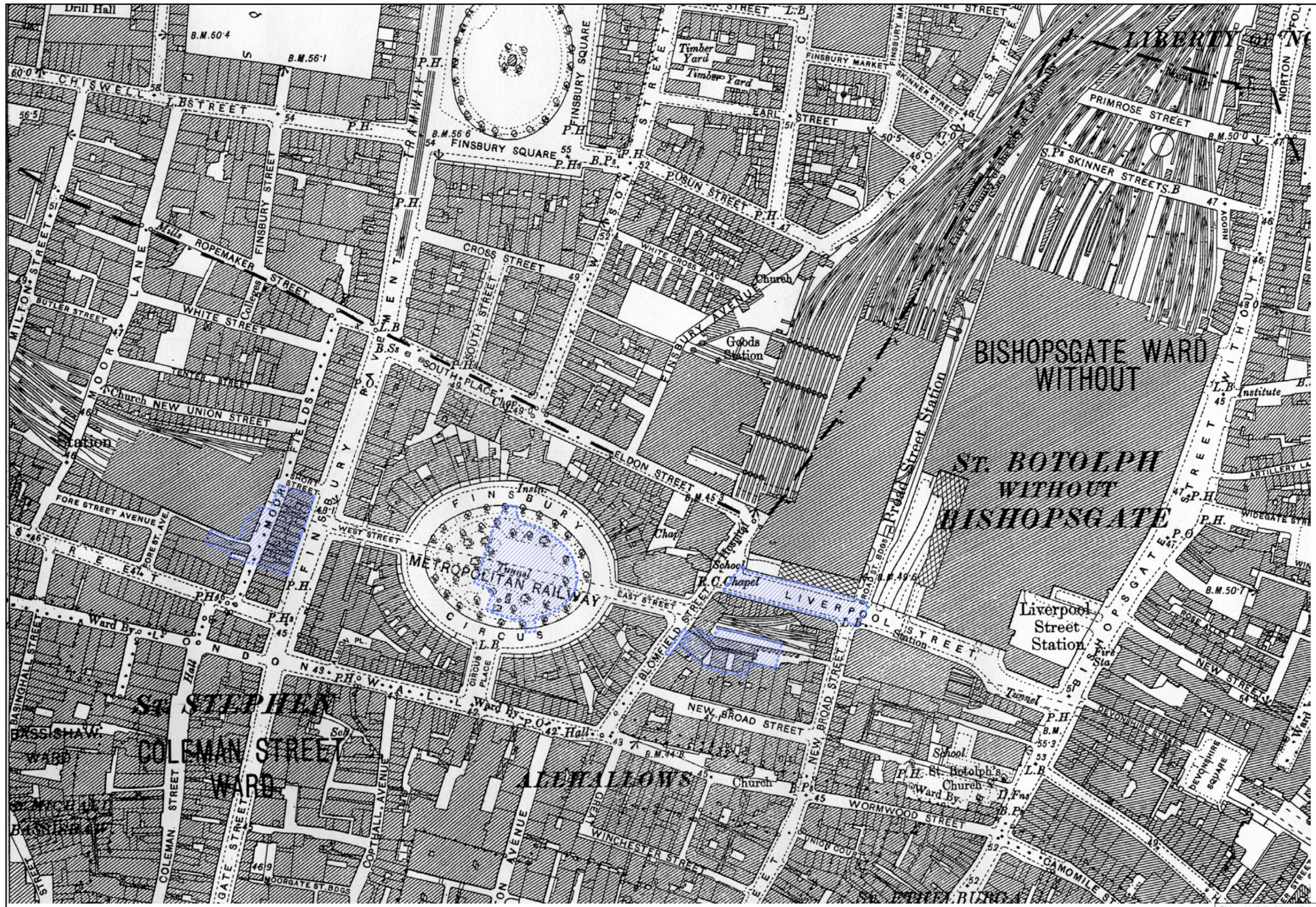
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 TITLE:
 LIVERPOOL STREET STATION
 HISTORICAL MAPPING
 ORDNANCE SURVEY 1873
 SCALE: NTS @ A1 DRAWING AND CAD FILE No: P30103-C1M12-E00-D-50110 REV: A02



REV	DATE	DESCRIPTION	PWC	MC	DSW	ACC
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TITLE:
LIVERPOOL STREET STATION
HISTORICAL MAPPING
ORDNANCE SURVEY 1894

SCALE: NTS @ A1

DRAWING AND CAD FILE No.: P30103-C1M12-E00-D-50111

REV: A02

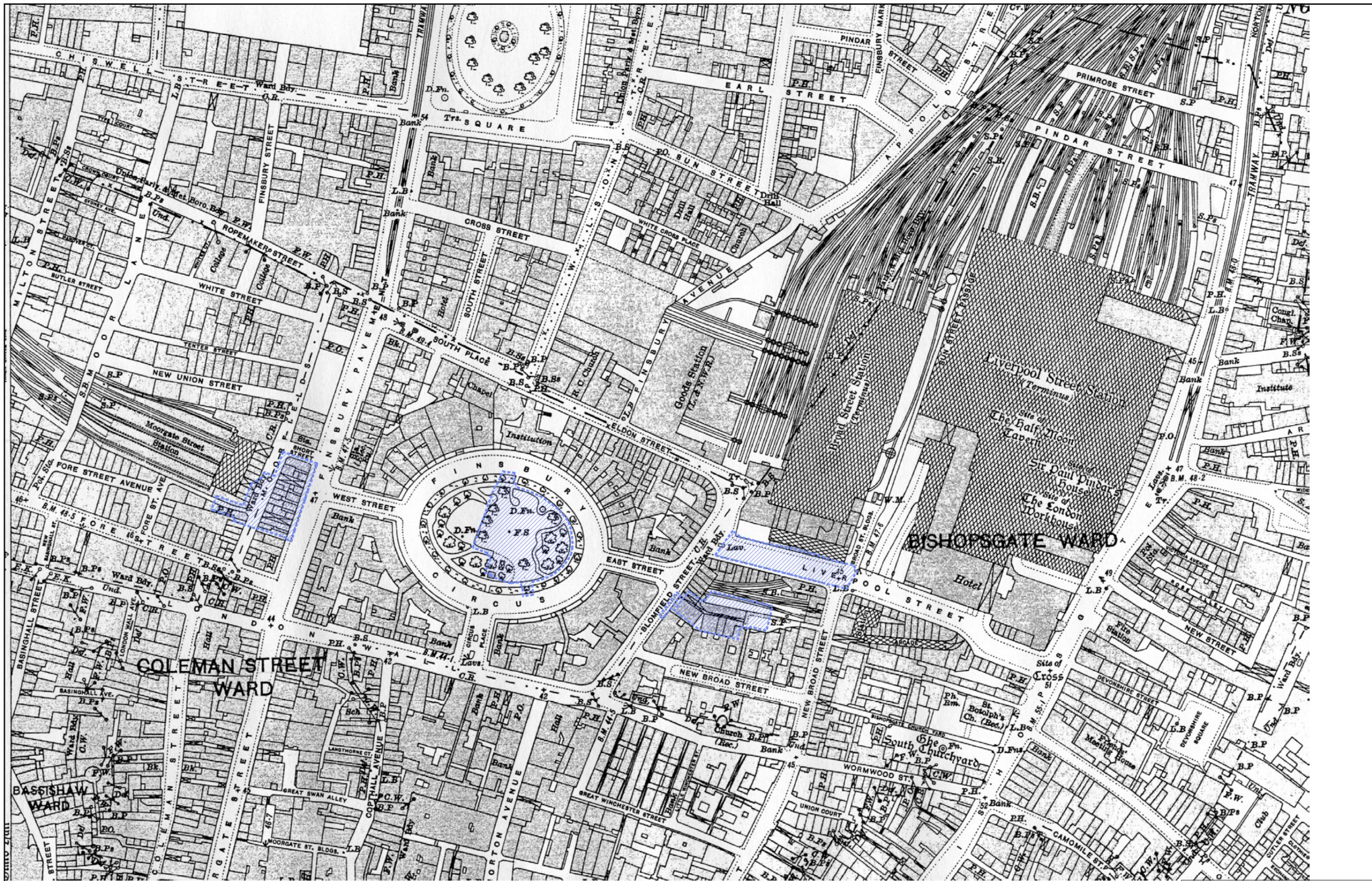
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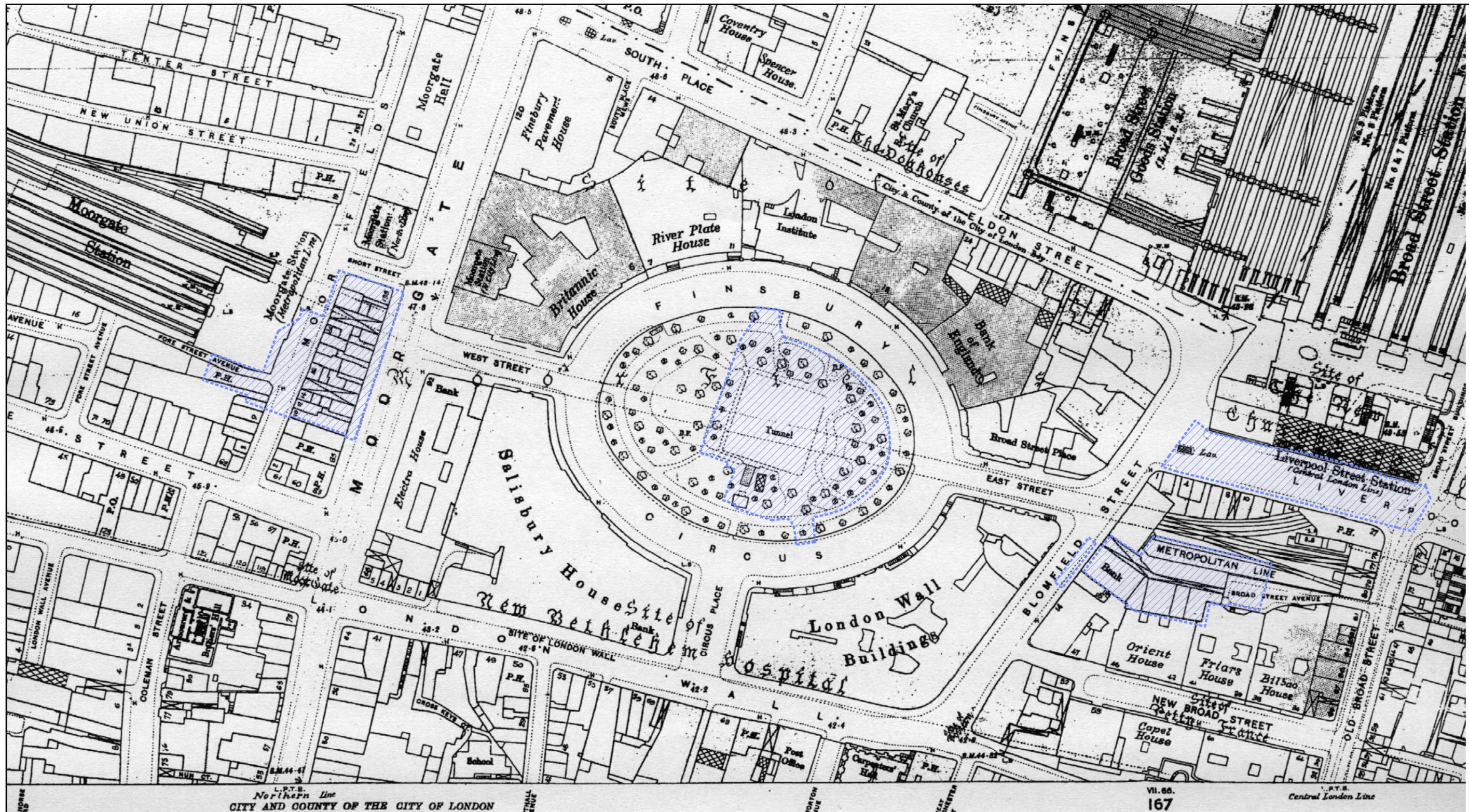
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TITLE:
 LIVERPOOL STREET STATION
 HISTORICAL MAPPING
 1913

SCALE: NTS @ A1 DRAWING AND CAD FILE No: P30103-C1M12-E00-D-50112 REV: A02

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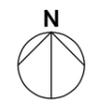


L.P.T.B. Northern Line
 CITY AND COUNTY OF THE CITY OF LONDON
 vii.66. 167
 Central London Line

REV	DATE	DESCRIPTION	BY	CHKD	APP	CAD	ACC
A02	05/12/2008	SCHEME DESIGN 3 ISSUE	PWC	MC	DSW		

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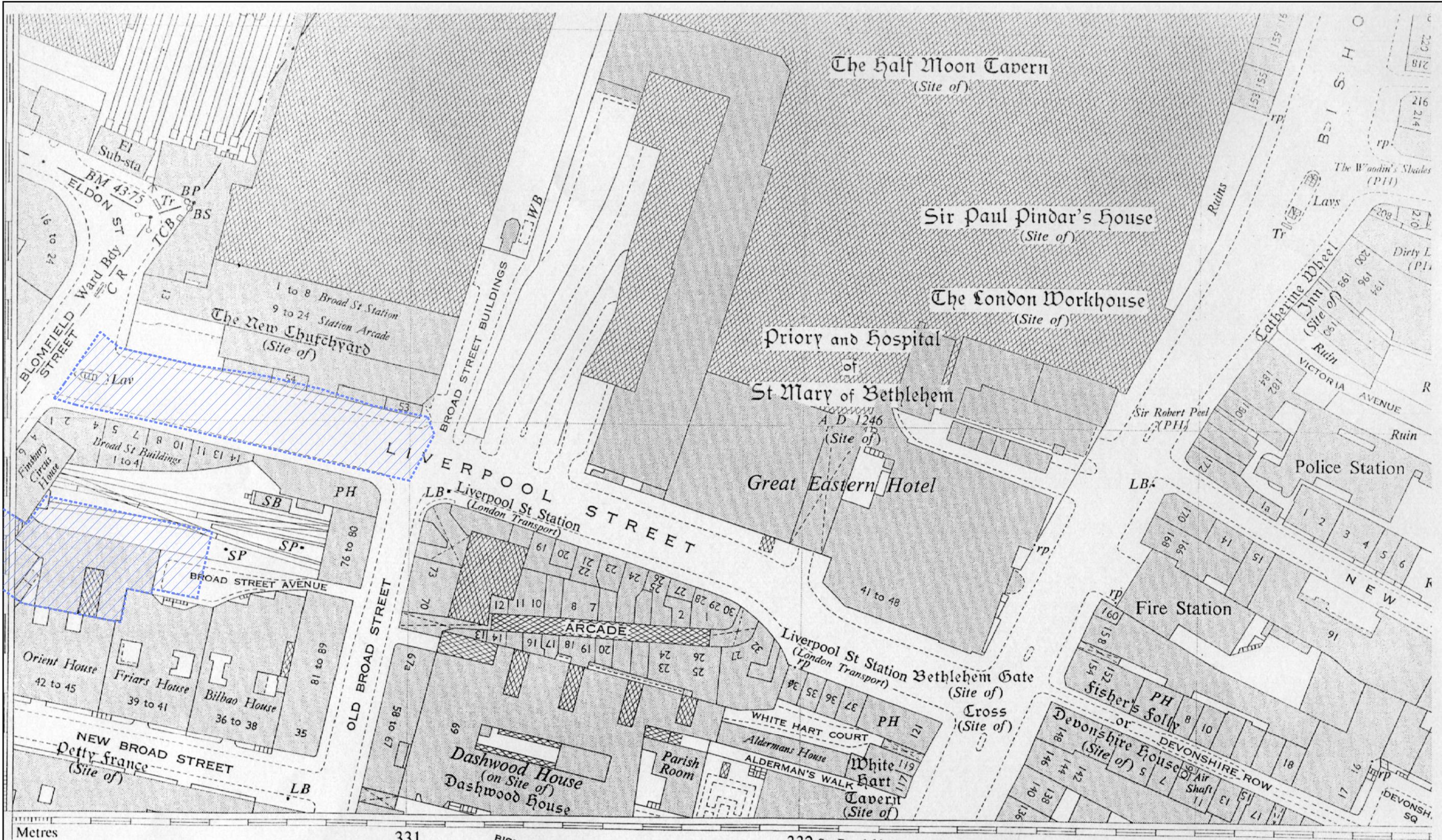


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TITLE:
 LIVERPOOL STREET STATION
 HISTORICAL MAPPING
 ORDNAV SURVEY 1938

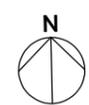
SCALE: NTS @ A1
 DRAWING AND CAD FILE No: P30103-C1M12-E00-D-50113
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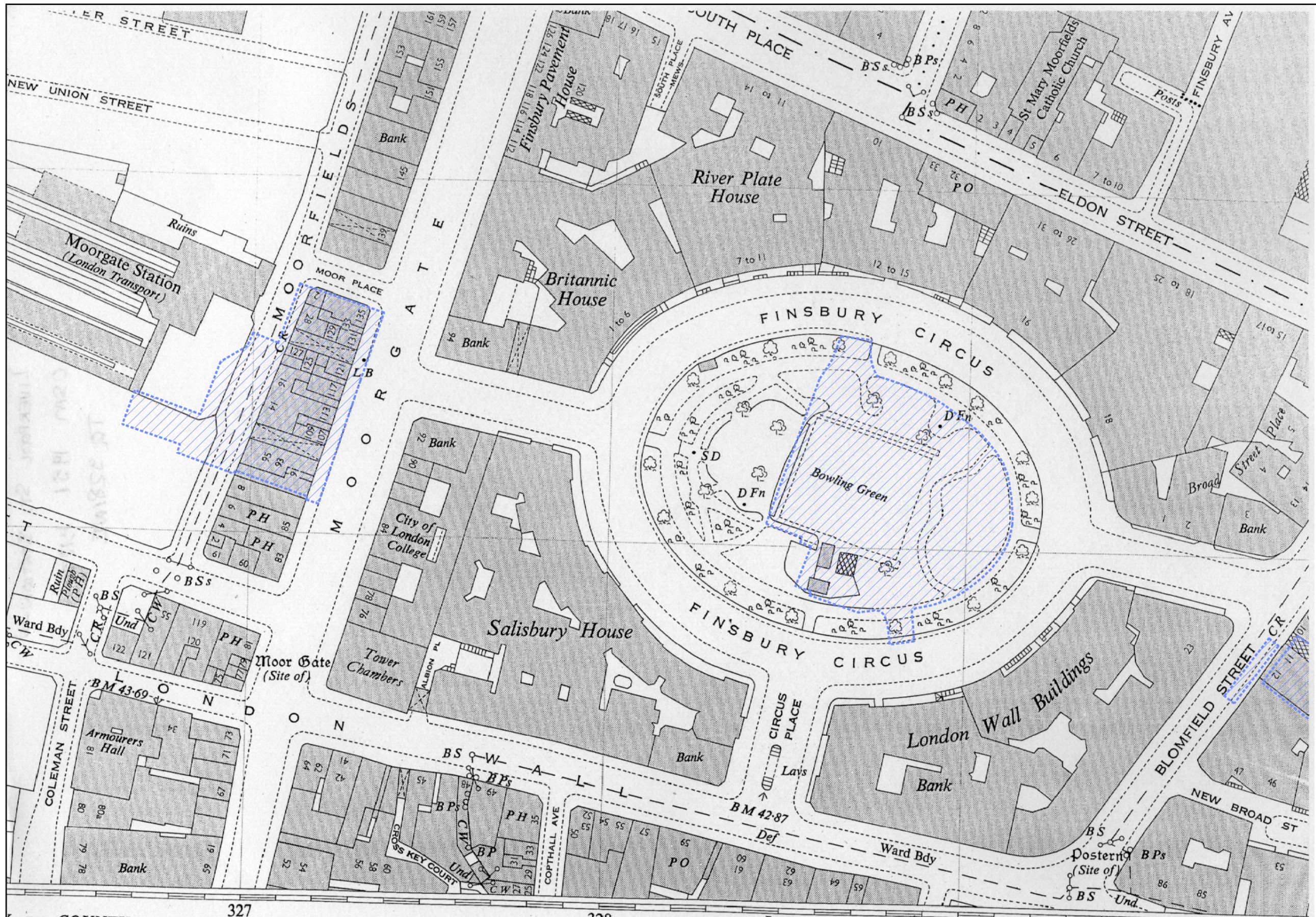
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TITLE:
**LIVERPOOL STREET STATION
 HISTORICAL MAPPING
 ORDNANCE SURVEY 1951 (EAST)**

SCALE: NTS @ A1 DRAWING AND CAD FILE No: P30103-C1M12-E00-D-50114 REV: A02

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TITLE:
LIVERPOOL STREET STATION
HISTORICAL MAPPING
ORDNANCE SURVEY 1951 (WEST)

SCALE: NTS @ A1

DRAWING AND CAD FILE No.: P30103-C1M12-E00-D-50115

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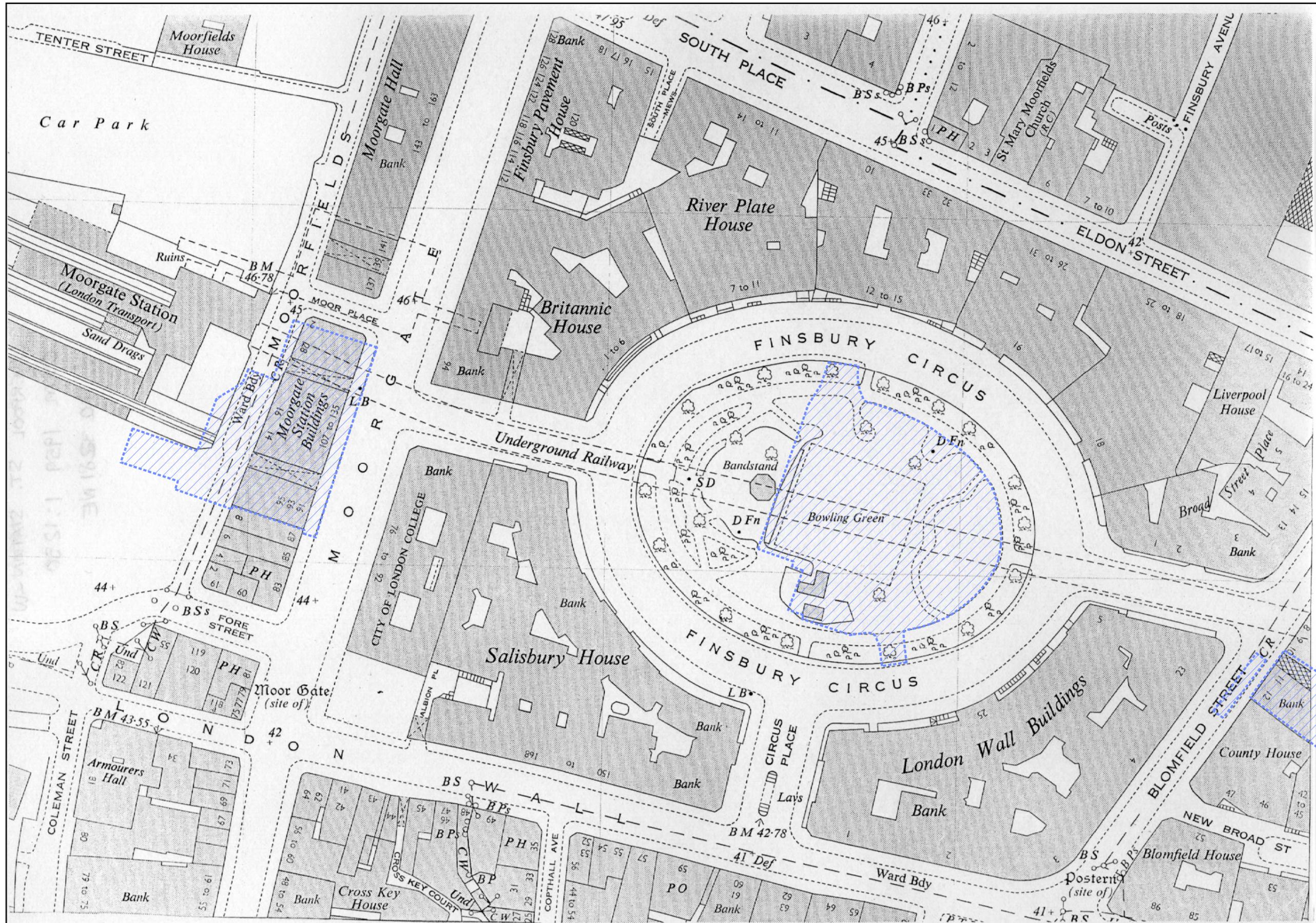
TITLE:
LIVERPOOL STREET STATION
HISTORICAL MAPPING
ORDNANCE SURVEY 1951 (WEST)

SCALE: NTS @ A1

DRAWING AND CAD FILE No.: P30103-C1M12-E00-D-50115

REV: A02

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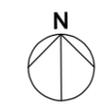


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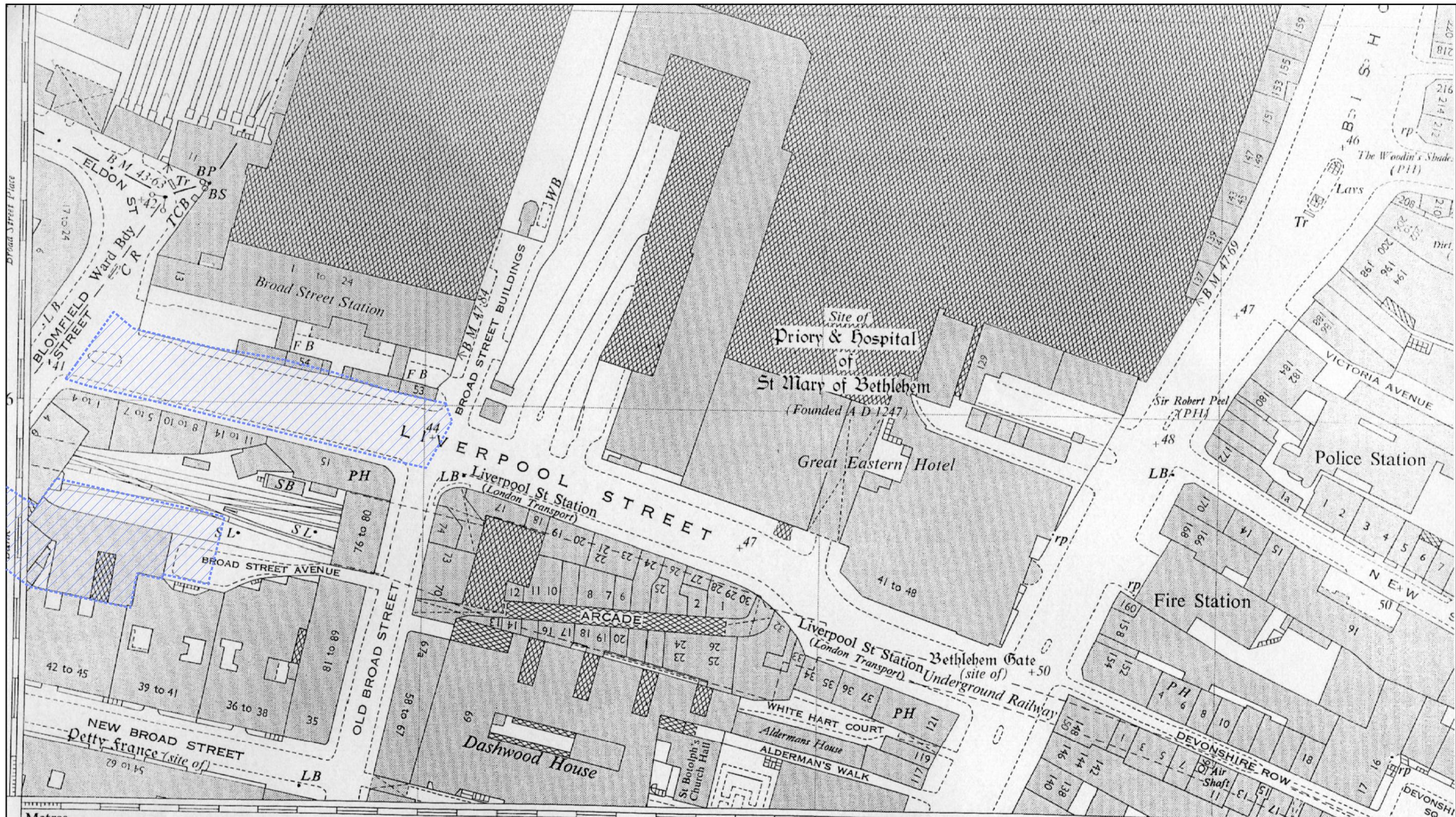

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 LIVERPOOL STREET STATION
 HISTORICAL MAPPING
 ORDNANCE SURVEY 1959 (WEST)

SCALE: NTS @ A1 DRAWING AND CAD FILE No: P30103-C1M12-E00-D-50116 REV: A02

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TITLE:
LIVERPOOL STREET STATION
HISTORICAL MAPPING
ORDNANCE SURVEY 1963 (EAST)

SCALE: NTS @ A1

DRAWING AND CAD FILE No.: P30103-C1M12-E00-D-50117

REV: A02

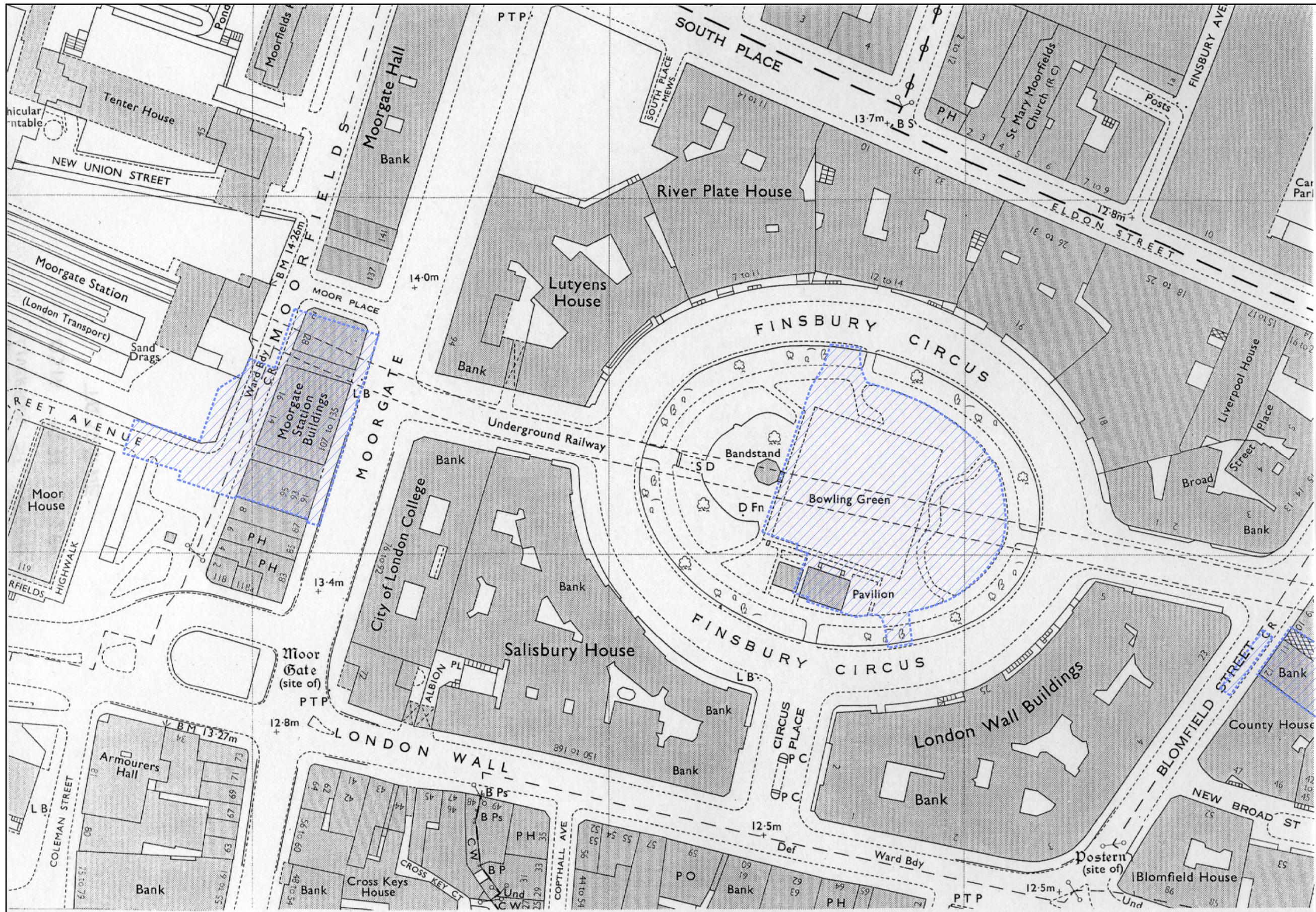
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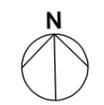
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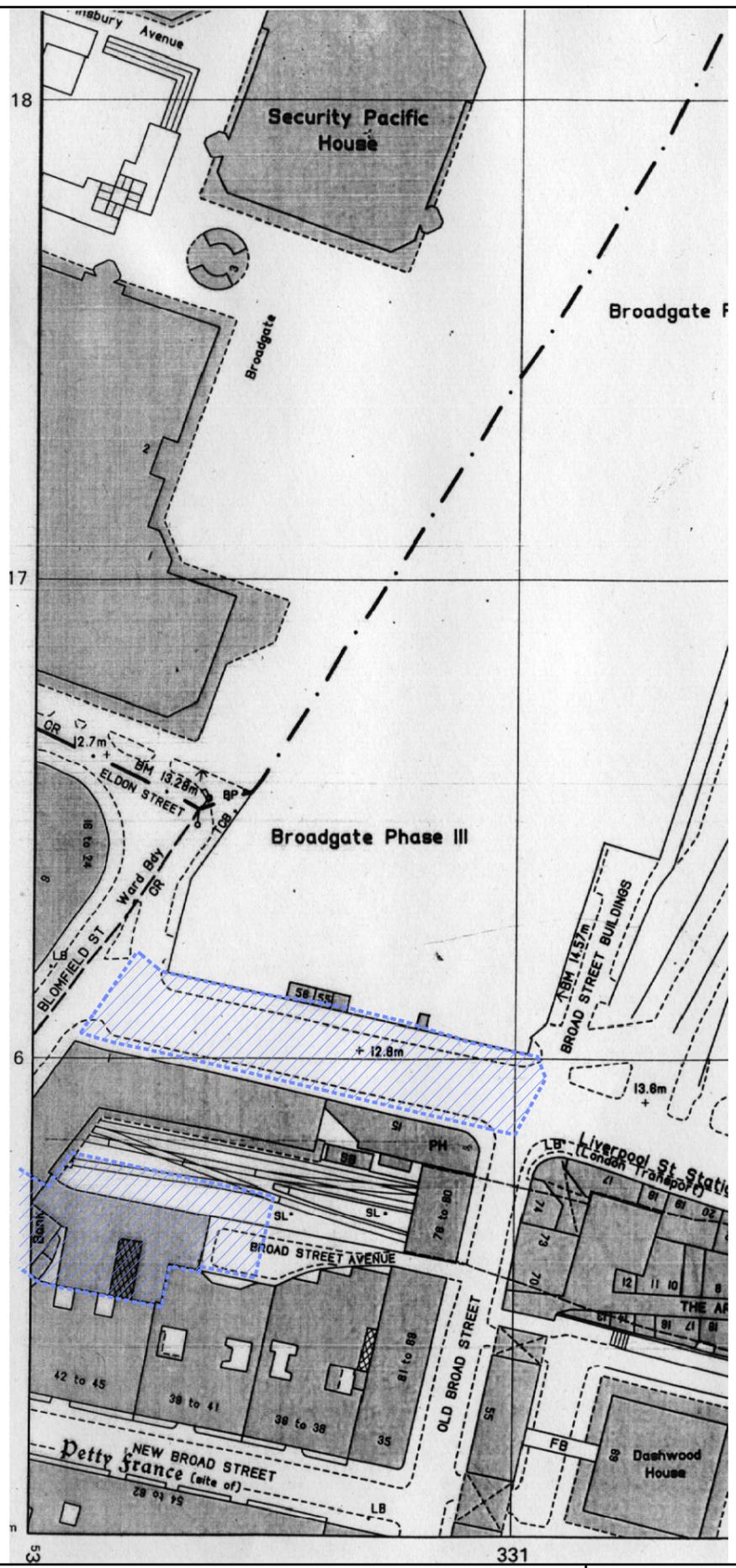
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 ORDNANCE SURVEY 1971 (WEST)

SCALE: NTS @ A1 DRAWING AND CAD FILE No: P30103-C1M12-E00-D-50118 REV: A02

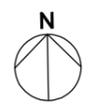
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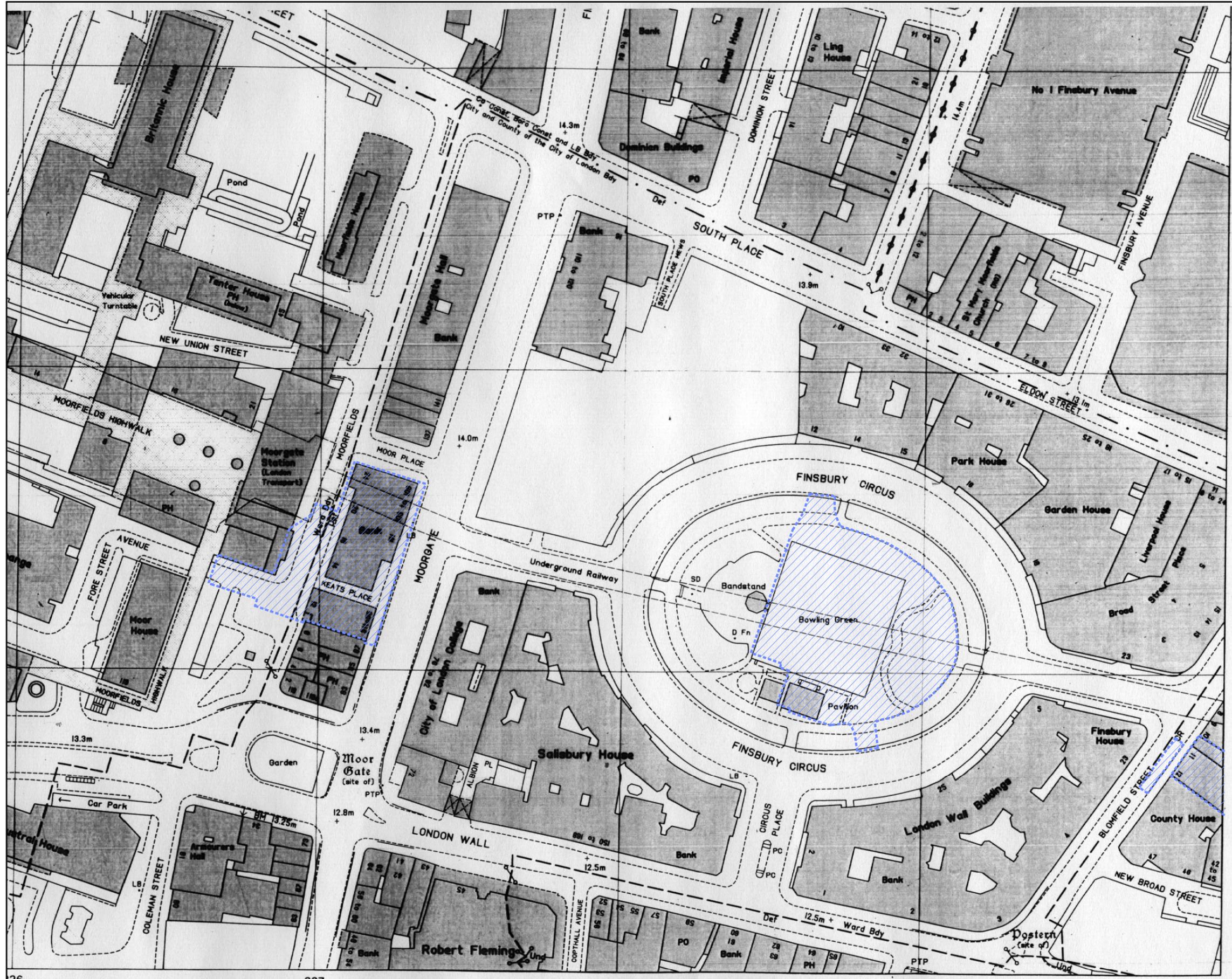
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 ORDNANCE SURVEY 1988 (EAST)

SCALE: NTS @ A1 DRAWING AND CAD FILE No: P30103-C1M12-E00-D-50119 REV: A02

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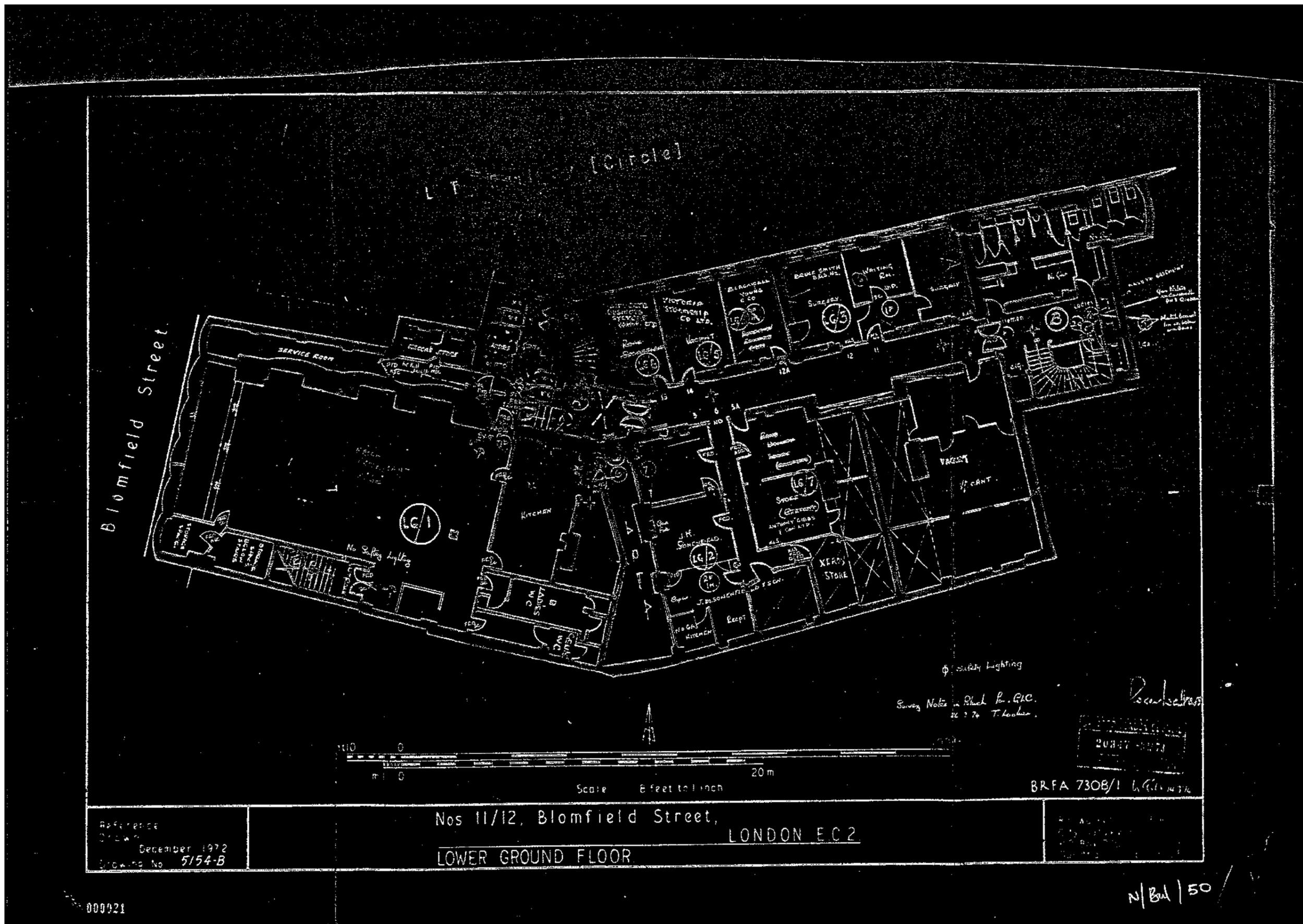
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 ORDNANCE SURVEY 1988 (WEST)

SCALE: NTS @ A1 DRAWING AND CAD FILE No: P30103-C1M12-E00-D-50120 REV: A02



Reference
 December 1972
 Drawing No 5/54-B

Nos 11/12, Blomfield Street,
 LONDON EC2
 LOWER GROUND FLOOR

BRFA 7308/1
 2008-08-21
 D. Macdonald

N/Bud / 50

REV	DATE	DESCRIPTION	BY	CHKD	APP	CAD	ACC
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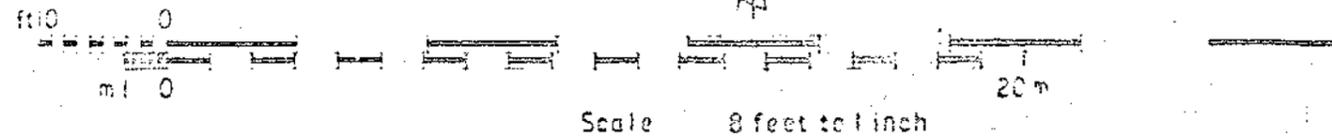
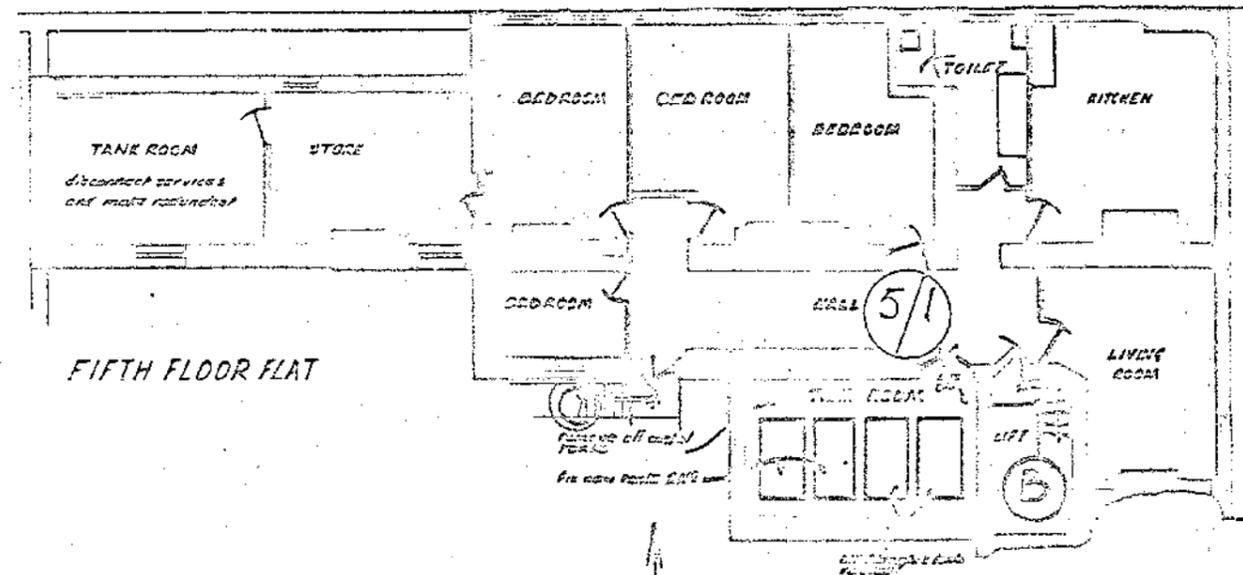
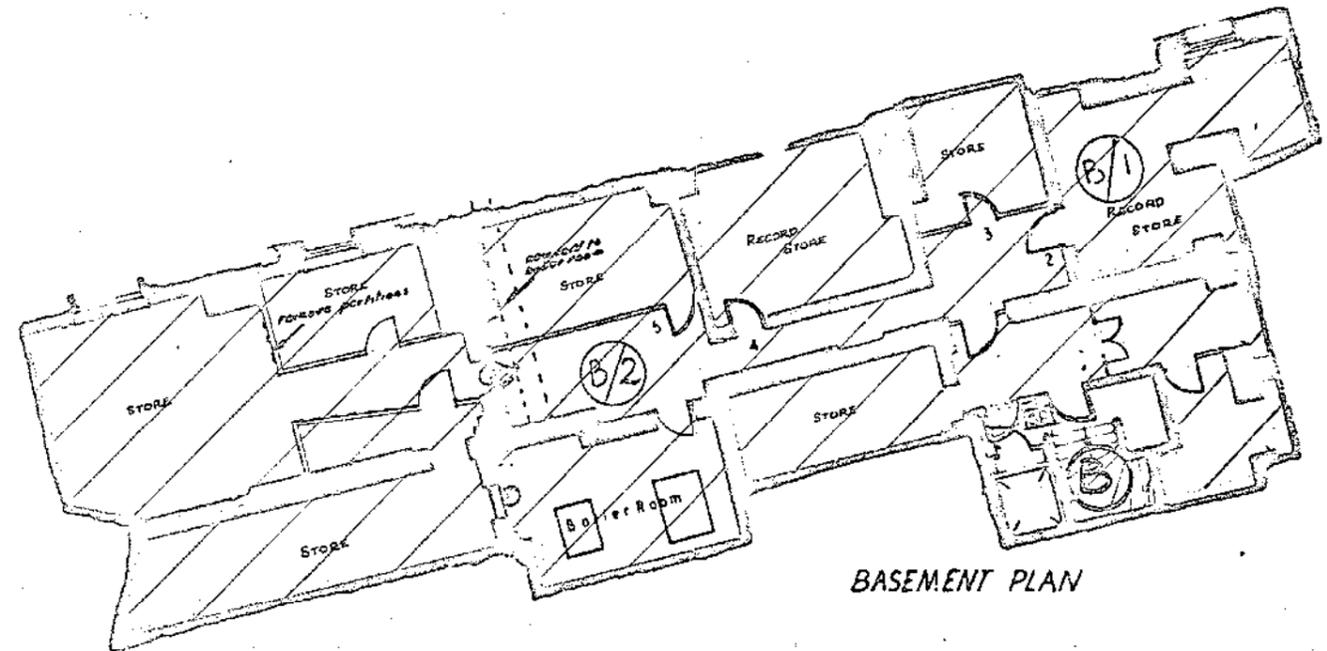
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 1199 / MOTT MACDONALD

TITLE:
 LIVERPOOL STREET
 11/12 BLOMFIELD STREET 1972
 LOWER GROUND FLOOR PLAN

SCALE: NTS @ A1
 DRAWING AND CAD FILE No: P30103-C1M12-E00-D-50140
 REV: A01

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 2. Coordinates to the London Survey Grid, heights to the London height datum which is 100 metres below Ordnance Datum Newlyn. See Crossrail standard CR-STD-010.

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20347-31273
ARCHITECTS

BRFA 7308/7

Reference:
Drawn
December 1972
Drawing No. 5154-A

Nos 11/12, Blomfield Street,
LONDON E.C.2.

R S Walker, F.R.C.S.
City Surveyor
P O Box 270
Guildhall EC2P 2EJ

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TITLE:
LIVERPOOL STREET
11/12 BLOMFIELD STREET 1972
BASEMENT PLAN OF REAR MOST BUILDING

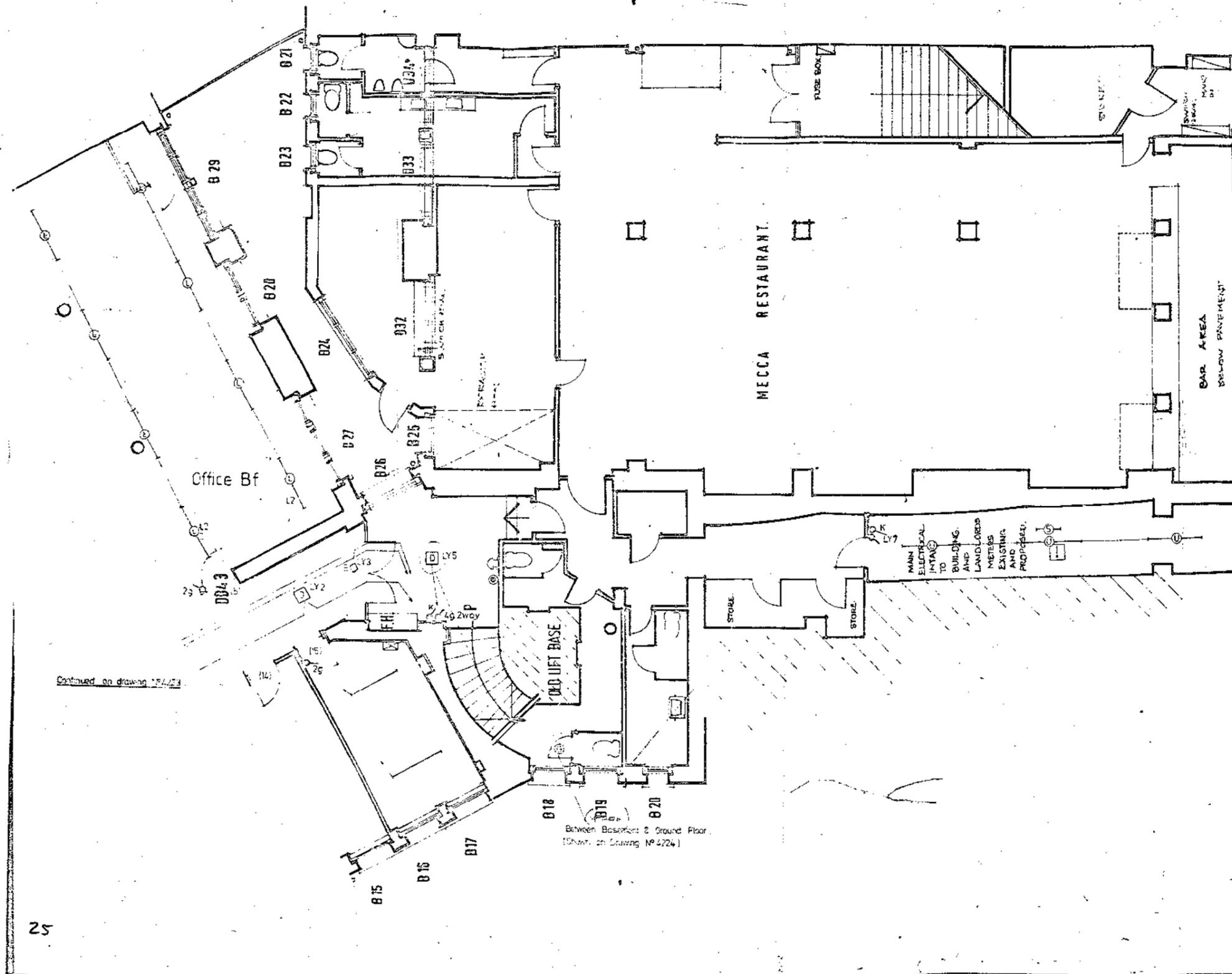
SCALE: SCALE @ A1
DRAWING AND CAD FILE No: P30103-C1M12-E00-D-50141
REV: A01

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2. Coordinates to the London Survey Grid, heights to the London height datum which is 100 metres below Ordnance Datum Newlyn. See Crossrail standard CR-STD-010.

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REFER TO LEGEND
DRAWING NO 4222
FOR CONTROL OF CORRIDOR
LUMINAIRES SEE SECTION 12/14
ON SPECIFICATION

- A REQUIRED LIGHTING LAYOUT TO OFFICE Bf
- B MAGN 55 OFFICE Bf SWICED TO ROOM OFFICES Bf 45
- C DECEMBER 1995 LIGHTING LAYOUT REVISED TO ELECTRICAL TAKE ROOM
- D TRAINING USE LIGHTING INSTALLATION ABOVE TO OFFICE Bf



Continued on drawing NP 4224

City of London
Department of Architecture & Planning
11-12 Blomfield St
London EC2
OCT 81 GRP
1:50
Basement Floor Plan
Lighting Layout
(West)
4222

REV	DATE	DESCRIPTION	BY	CHKD	APP	CAD	ACC
A01	05/12/2008	SCHEME DESIGN 3 ISSUE					

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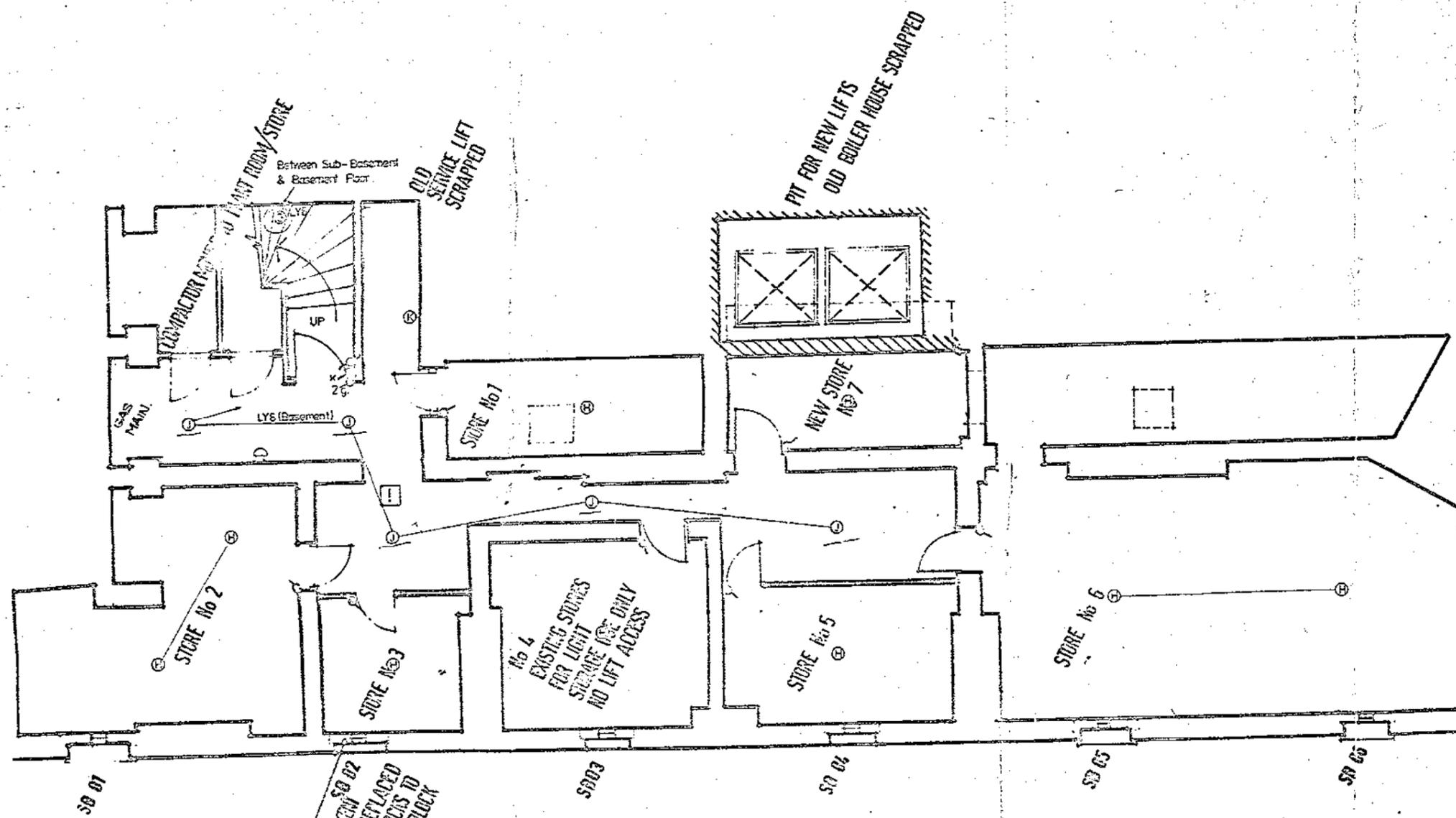
CONTRACT No. / CONSULTANT:
1199 / MOTT MACDONALD

TITLE:
LIVERPOOL STREET
11/12 BLOMFIELD STREET 1981
BASEMENT PLAN (FRONTING BLOMFIELD ST)

SCALE: NTS @ A1
DRAWING AND CAD FILE No: P30103-C1M12-E00-D-50142
REV: A01

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Refer to legend
Dwg. No. 4236



ALL SUB BASEMENT WINDOWS REPLACED BY GLASS BLOCKS TO INCLUDE VENT BLOCK



City of London
Department of Architecture & Planning

OCT 81 / GRP
1:50

11-12 Blomfield St
London EC2

Sub-Basement Plan
Lighting Layout.

4221

N/BW/59

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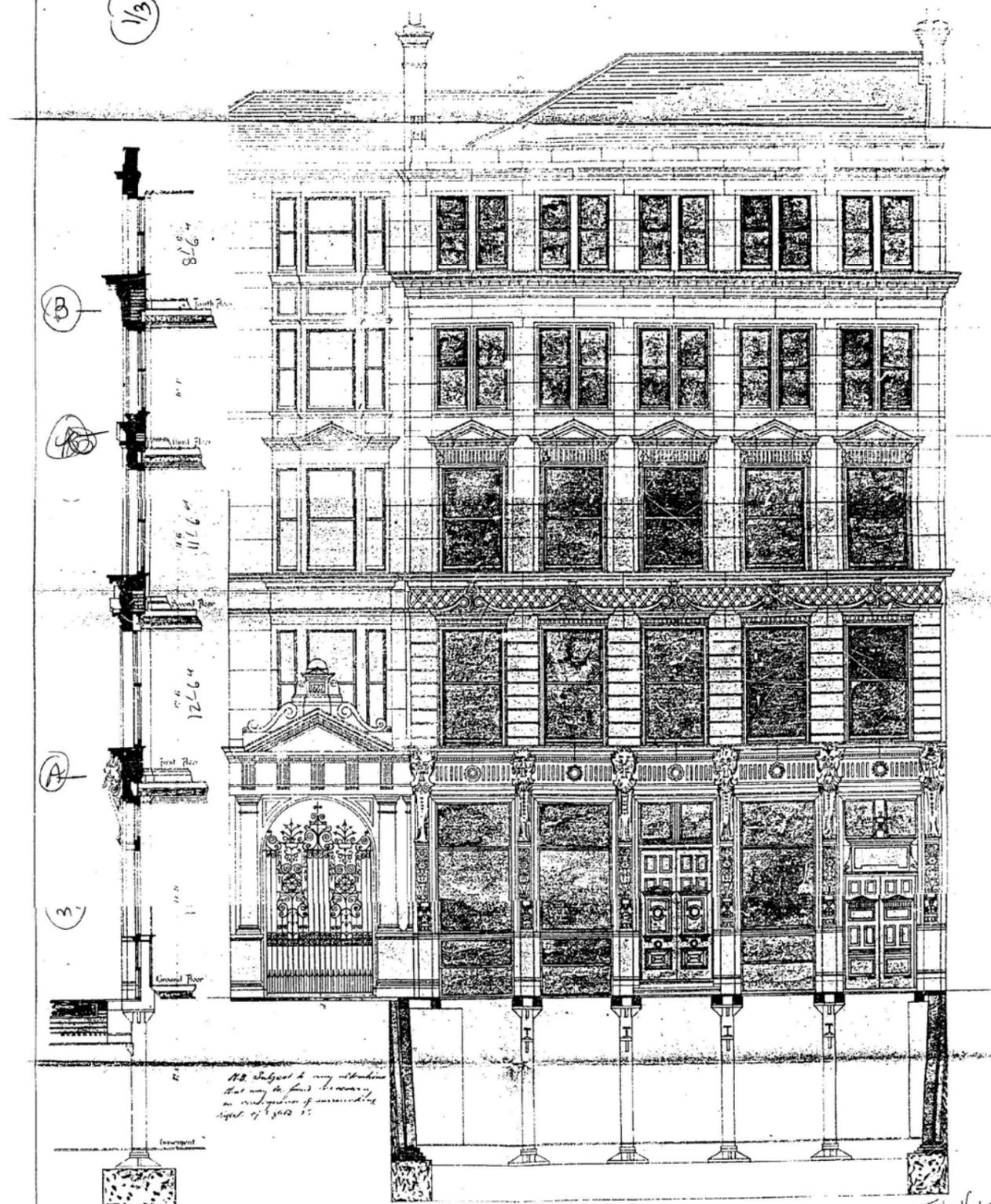
CONTRACT No. / CONSULTANT:
1199 / MOTT MACDONALD

TITLE:
LIVERPOOL STREET 11/12 BLOMFIELD ST.
1981 SUB BASEMENT PLAN
(FRONTING BROAD STREET AVENUE)

SCALE: NTS @ A1
DRAWING AND CAD FILE No: P30103-C1M12-E00-D-50143
REV: A01

1. Confirmation of all survey data must be obtained from the Crossrail survey team.
2. Coordinates to the London Survey Grid, heights to the London height datum which is 100 metres below Ordnance Datum Newlyn. See Crossrail standard CR-STD-010.

Myer Salaman Esq.
Blomfield Street & Bell Square E.C.
Scale



Calder Ashby Co. on behalf of the City of London
ELEVATION TO BLOMFIELD STREET
Scale 1:50 J.No.1018/002 DWG#08

F. & H. Heeketh
Architects
21, Aldermanbury, E.C.

REV	DATE	DESCRIPTION	BY	CHKD	APP	CAD	ACC
A01	05/12/2008	SCHEME DESIGN 3 ISSUE	VRM	MC	DSW		

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CONTRACT No. / CONSULTANT:
1199 / MOTT MACDONALD

TITLE:
LIVERPOOL STREET- BLOMFIELD BOX
11/12 BLOMFIELD STREET 1887
ELEVATION TO BLOMFIELD STREET

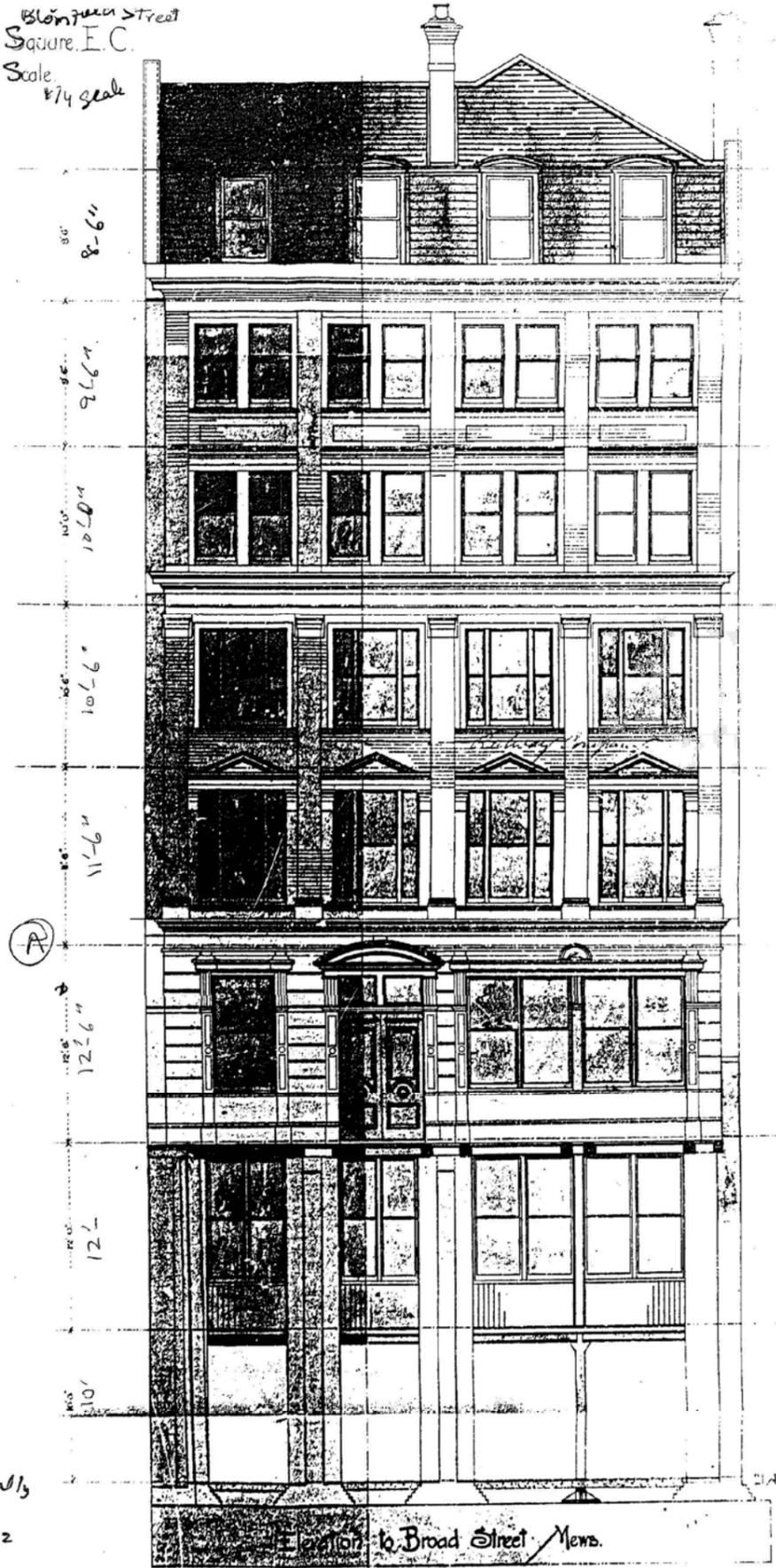
1. Confirmation of all survey data must be obtained from the Crossrail survey team.
2. Coordinates to the London Survey Grid, heights to the London height datum which is 100 metres below Ordnance Datum Newlyn. See Crossrail standard CR-STD-010.

SCALE: NTS @ A1
DRAWING AND CAD FILE No: P30103-C1M12-E00-D-50144
REV: A01

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Mayer Salaman
Blomfield St.

Blomfield Street
Square, E.C.
Scale 1/4 scale



Scale Photographically
reduced to 1:50
Job No. 1018/002
Dwg # 07.

Find & He
21 Aldersgate
A1887

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TITLE:
LIVERPOOL STREET
11/12 BLOMFIELD STREET 1887
ELEVATION TO BROAD STREET AVENUE

SCALE: NTS @ A1
DRAWING AND CAD FILE No: P30103-C1M12-E00-D-50145
REV: A01

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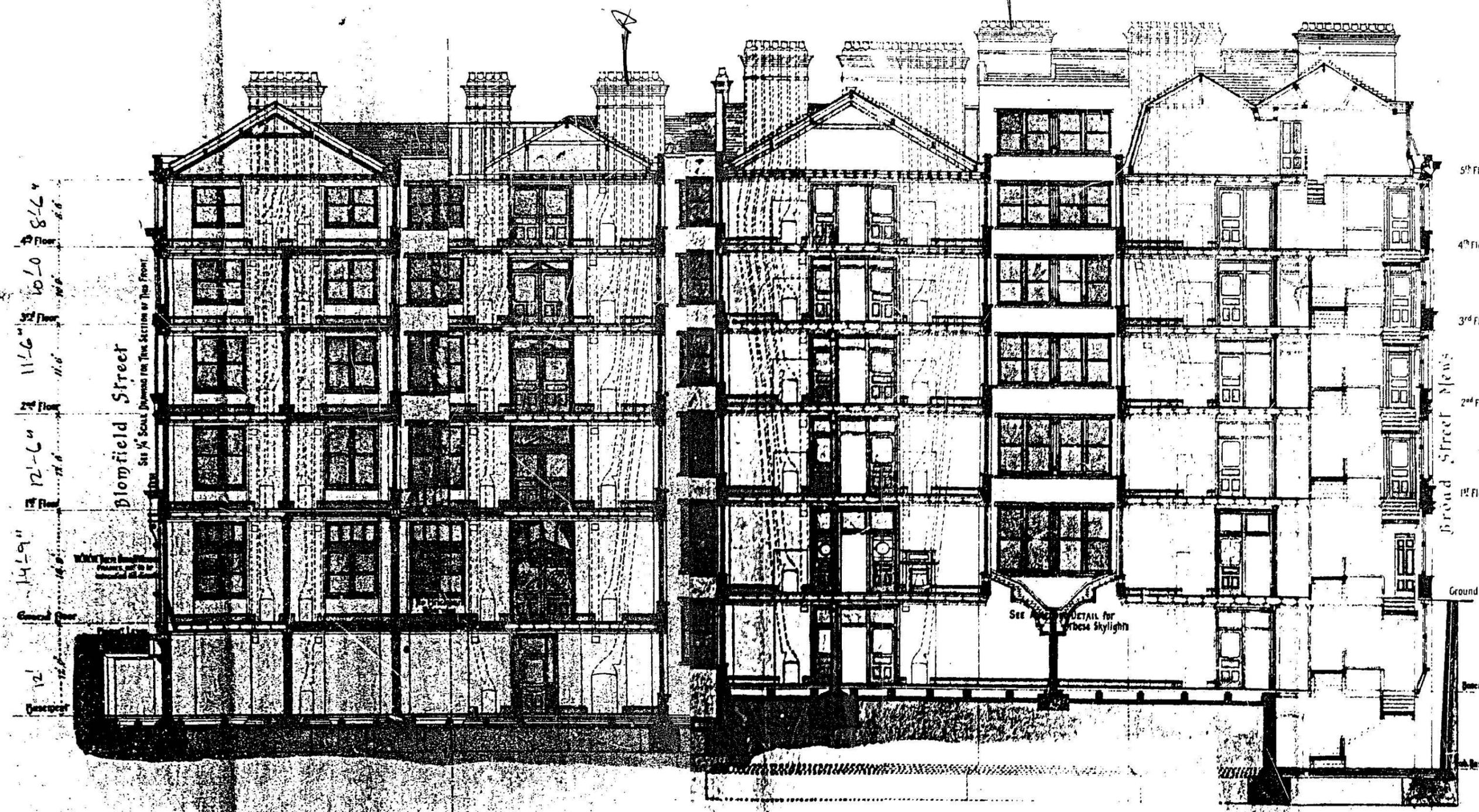
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Myer Salaman Esq^{re}
Blomfield Street & Bell Square E.C.

No

N.B. Subject to any Alterations that may be found necessary in consequence of surrounding Rights of Light.

1/4" Scale.



Section on line C.D

1/2" *

3/8" *

Ford & He
Arc
21, Aldermanbur
Arc

REV	DATE	DESCRIPTION	BY	CHKD	APP	CAD	ACC
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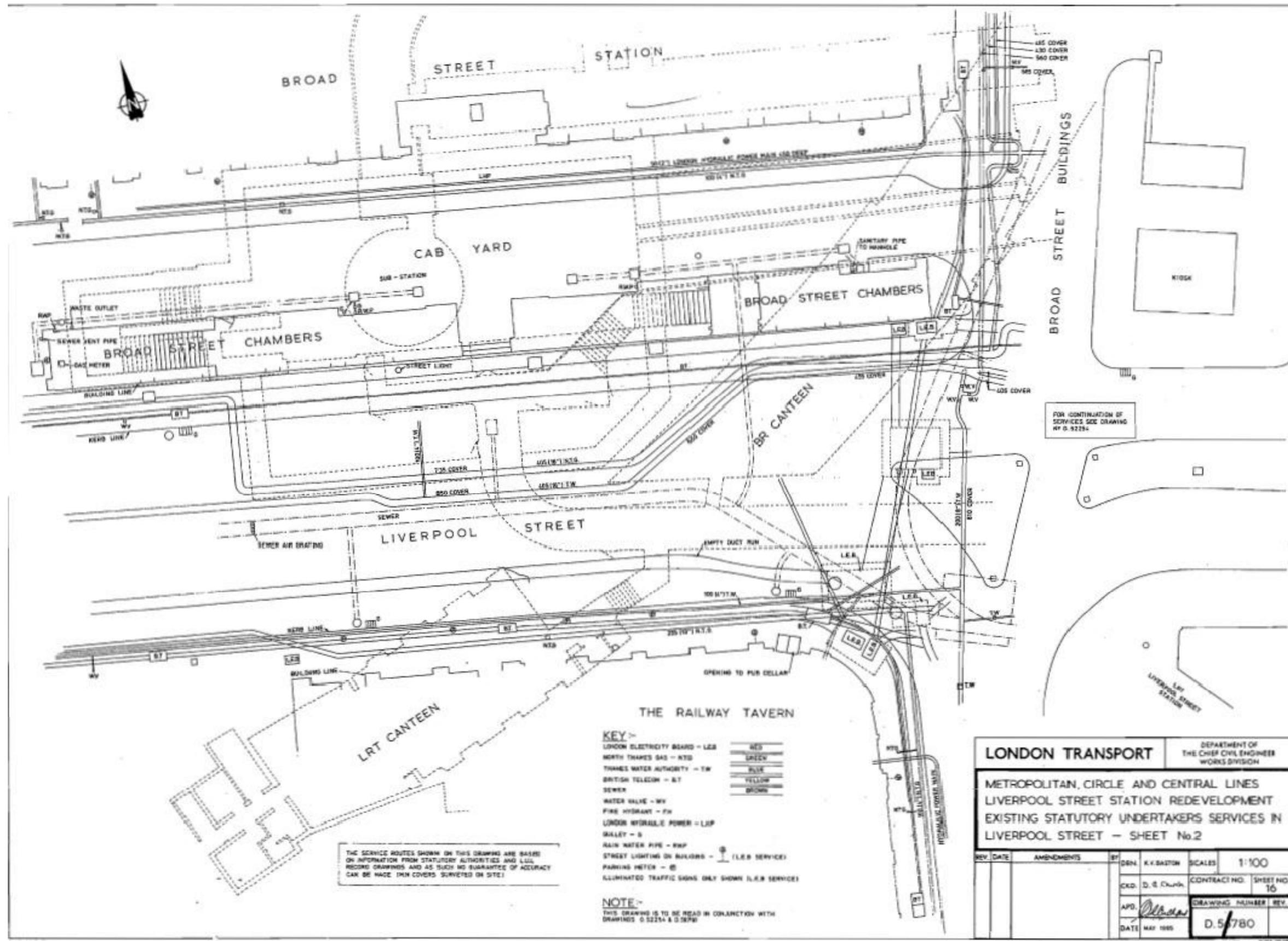
TITLE:
LIVERPOOL STREET
BLOMFIELD BOX - 11/12 BLOMFIELD STREET
ELEVATION 1887

SCALE: SCALE @ NTS P30103-C1M12-E00-D-50146
DRAWING AND CAD FILE No:
REV: A01

1. Confirmation of all survey data must be obtained from the Crossrail survey team.
2. Coordinates to the London Survey Grid, heights to the London height datum which is 100 metres below Ordnance Datum Newlyn. See Crossrail standard CR-STD-010.

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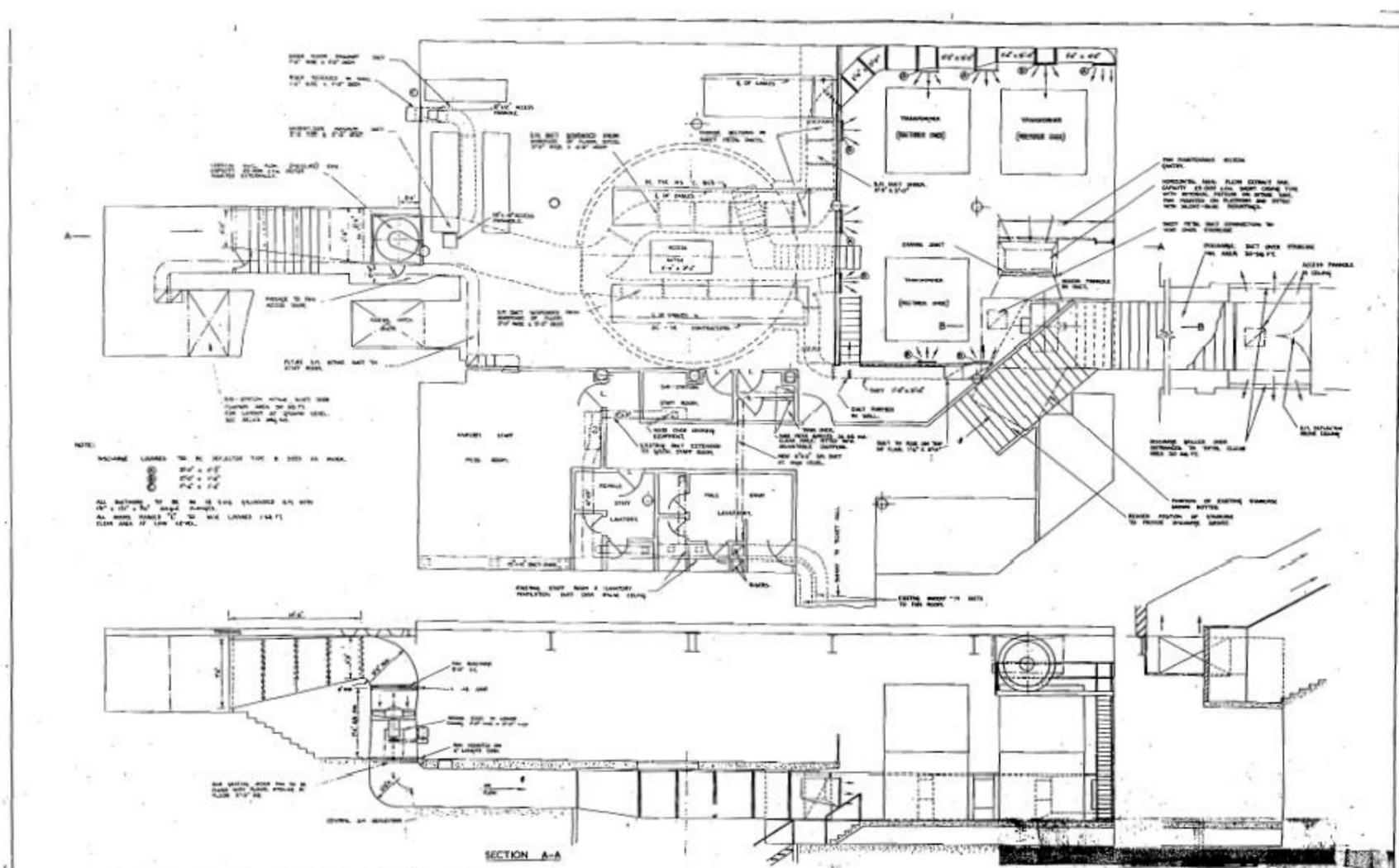
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REV	DATE	DESCRIPTION	BY	CHKD	APP	CAD	ACC
A01	05/12/2008	SCHEME DESIGN 3 ISSUE	VRM	MC	DSW		

LONDON TRANSPORT		DEPARTMENT OF THE CHIEF CIVIL ENGINEER WORKS DIVISION	
METROPOLITAN, CIRCLE AND CENTRAL LINES LIVERPOOL STREET STATION REDEVELOPMENT EXISTING STATUTORY UNDERTAKERS SERVICES IN LIVERPOOL STREET - SHEET No.2			
REV. DATE	AMENDMENTS	BY	SCALE 1:100
		DRN. K.K. BAXTON	CONTRACT NO. SHEET NO. 10
		CKD. D. S. Clark	DRAWING NUMBER REV.
		APD. <i>[Signature]</i>	D.5/780
		DATE MAY 1985	

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	TITLE: LIVERPOOL ST. BROADGATE TICKET HALL PLAN OF DISUSED TICKET HALL & QUEEN VICTORIA TUNNEL 2	SCALE: NTS @ A1 DRAWING AND CAD FILE No: P30103-C1M12-E00-D-50147 REV: A01



LIVERPOOL STREET SUB-STATION
VENTILATION ARRANGEMENTS.
Scale: 4 Feet to 1 Inch.

DO NOT SCALE

RECORD DRAWING FOR INFORMATION ONLY

LONDON TRANSPORT DEPARTMENT OF THE CHIEF CIVIL ENGINEER WORKS DIVISION

METROPOLITAN, CIRCLE AND CENTRAL LINES
LIVERPOOL STREET STATION REDEVELOPMENT
SUBSTATION
EXISTING LAYOUT

REV.	DATE	AMENDMENTS	BY	CHKD.	ORIP.	SCALE	NOT TO SCALE
EXD.			D. G. O'HARA			CONTRACT NO.	SHEET NO.
APD.						DRAWING NUMBER	REV.
	April 1986					D57 400	

Comments
per
Date
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A01	05/12/2008	SCHEME DESIGN 3 ISSUE	VRM	MC	DSW		

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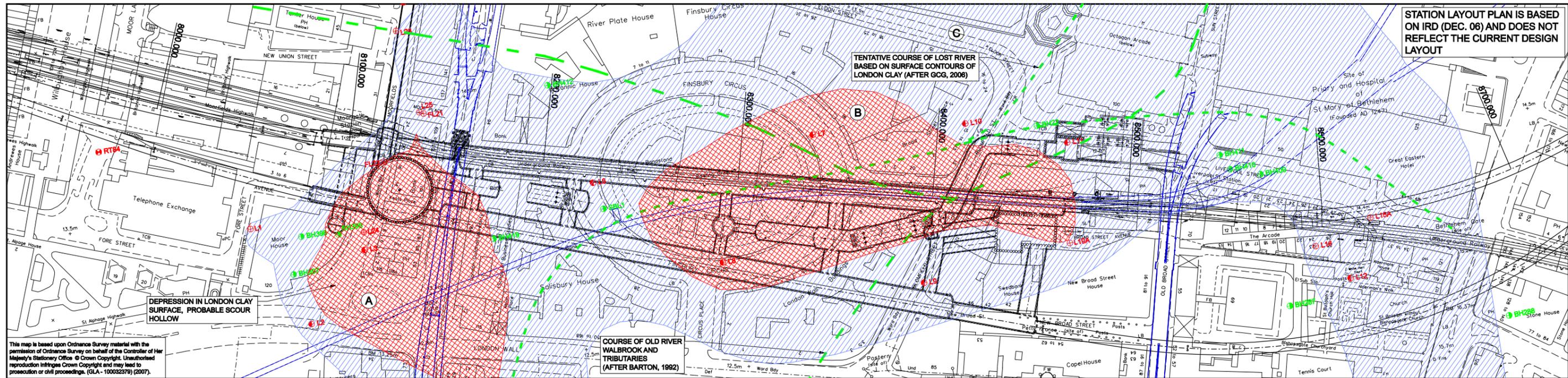
TITLE:
LIVERPOOL ST. BROADGATE TICKET HALL
PLAN & SECTION OF
DISUSED TICKET HALL

SCALE: NTS @ A1 DRAWING AND CAD FILE No: P30103-C1M12-E00-D-50149 REV: A01

1. Confirmation of all survey data must be obtained from the Crossrail survey team.
2. Coordinates to the London Survey Grid, heights to the London height datum which is 100 metres below Ordnance Datum Newlyn. See Crossrail standard CR-STD-010.

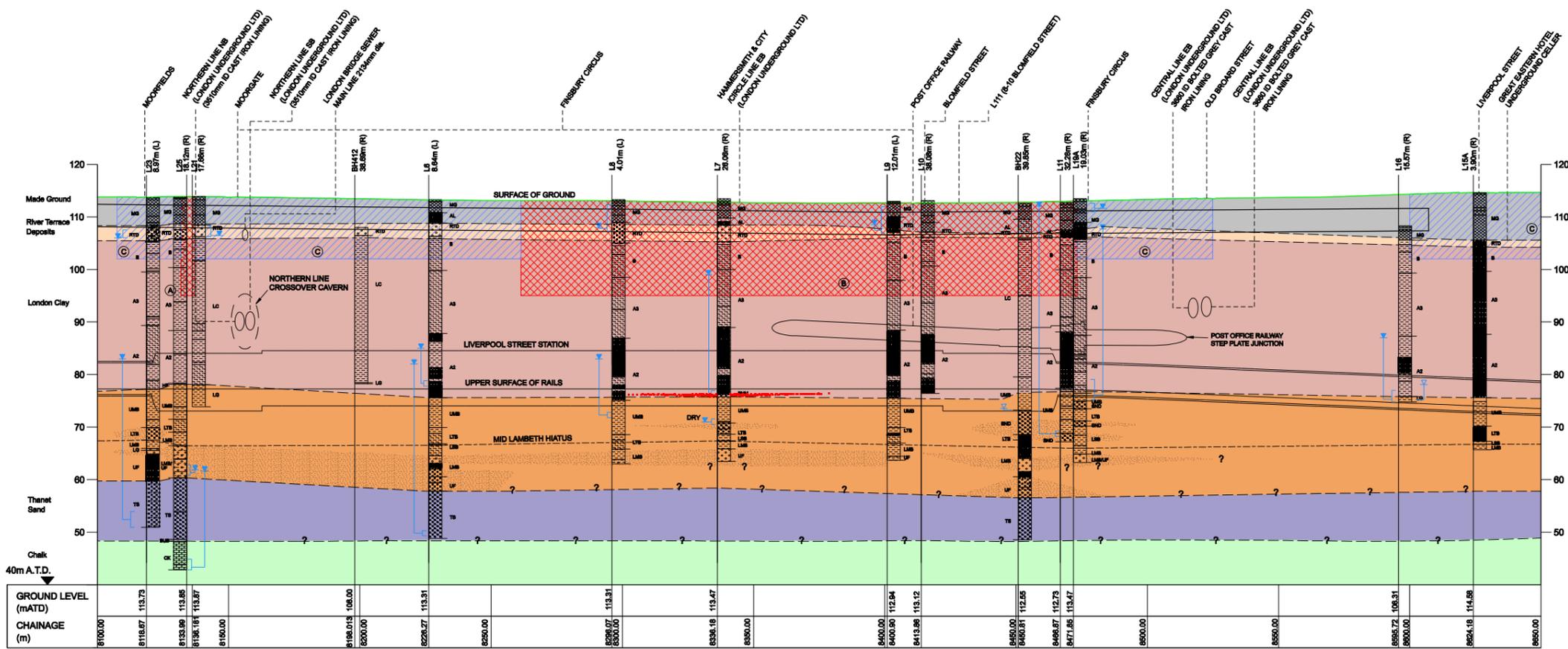
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COURSE OF OLD RIVER WALBROOK AND TRIBUTARIES (AFTER BARTON, 1992)

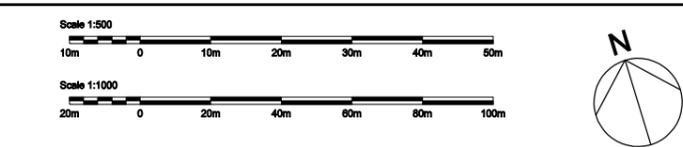


Longitudinal Section
Scale H=1:1000, V=1:500

- KEY**
- Crossrail Boreholes Package D (5m) (1992)
 - ⊕ Crossrail Additional Boreholes (5m) (1994-1996)
 - Third Party Boreholes
 - 18.32m (L) Offset From Centre Line (Left Or Right)
 - - - Interpreted Geological Boundary
 - Existing Ground Level
 - ☐ Cohesion less layers, potentially water bearing (principle particle size silt, sand or gravel) - within LC and LG
 - ⊗ Zone of potential anomaly and/or uncertainty - High risk
 - ⊕ Zone of potential anomaly and/or uncertainty - Moderate risk
 - Recorded water level during water strike
 - Water strike level
 - Maximum recorded groundwater level (Piezometer)
 - Piezometer tip level and sand filter zone
 - ? Indicates uncertainty in stratum boundary level and/or extent

- NOTES**
- The scheme plan and vertical alignment is revision 'L' alignment.
 - This drawing presents the existing geotechnical information provided by GCG and third party information gained from other sources. Where required Mott MacDonald have re-interpreted the existing data for the purposes of the ground model construction.
 - The geotechnical long sections have been interpreted principally from the boreholes closest to the section line. However, the overall geological structure has been interpreted from all the data available. Where exploratory holes are offset from the section line, strata boundaries shown on the long section may not coincide with the strata boundaries within individual exploratory holes.
 - For detailed information regarding material type, reference should be made to the factual exploratory hole records.
 - Most reliance has been placed on the Crossrail ground investigation boreholes.
 - The ground model will be subject to ongoing geotechnical input and interpretation throughout the design development phase.
 - Chainages shown on the plan and sections are indicative only, and subject to change. Both sections chainages increase running west to east.
 - A detailed review of the piezometric profile within the Liverpool Street station area has been carried out by GCG in their Desk Study Report Rev.1. Within the Liverpool Street area the majority of groundwater monitoring data is limited to 1992-7 readings.
 - Shaded area 'A' indicates a local depression in the top of the London Clay. It is thought this represents a small scour hollow.
 - It is possible that unidentified scour hollows could be present in the vicinity of the lost river courses. Potential risk zones A, B and C have been identified from surface plots of the London Clay formation.
 - Reference: Barton, N (1992) 'The Lost Rivers of London', Historical Publications, London.
 - The quality of the logging of BH287 is poor. The ground level for this borehole is also anomalous. GCG have re-interpreted the level of BH287, this revised level appears to be more appropriate and has been used in producing this section, a low reliance has been put on this borehole.
 - Drawings based on available information up to April 07.

- Stratigraphic Units**
- | | | | | | |
|-----|------------------------|-----------|--------------------------|-----|------------------------|
| MG | Made Ground | A2, A3, B | London Clay Formation | LMB | Lower Mottled Beds |
| AL | Alluvium | LC | Unclassified London Clay | LG | Unclassified |
| LS | Langley Silt | HF | Harwich Formation | UF | Upper Formation |
| RTD | River Terrace Deposits | USB | Upper Shelly Beds | TS | Thermet Sand Formation |
| WR | Weathered London Clay | UMB | Upper Mottled Beds | BUB | Bullhead Beds |
| | | LTB | Laminated Beds | CK | Chalk |
| | | LSB | Lower Shelly Beds | | |



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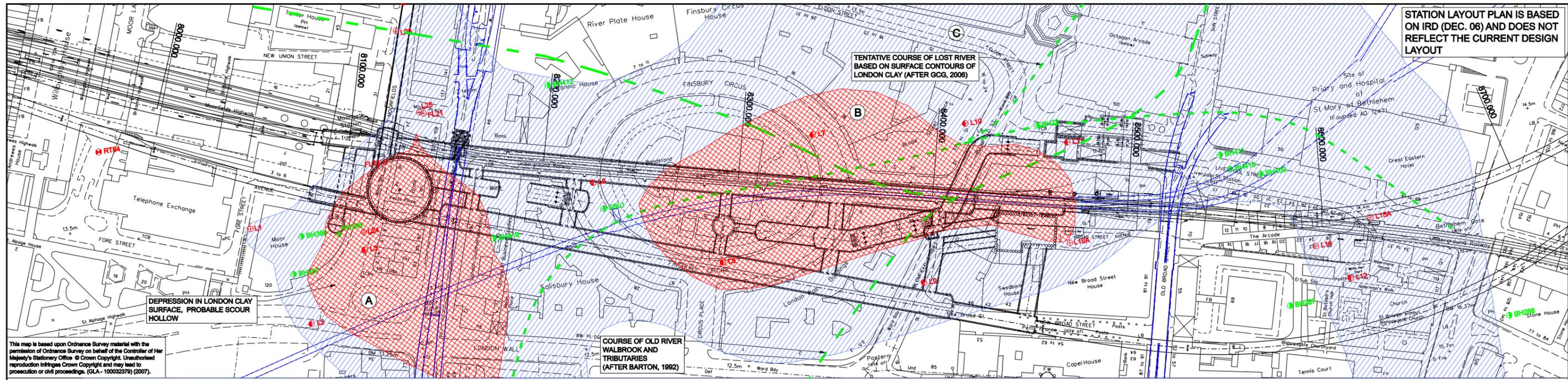
CONTRACT No. / CONSULTANT:
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TITLE:
**LIVERPOOL STREET STATION
GEOLOGICAL SECTION
EASTBOUND TUNNEL**

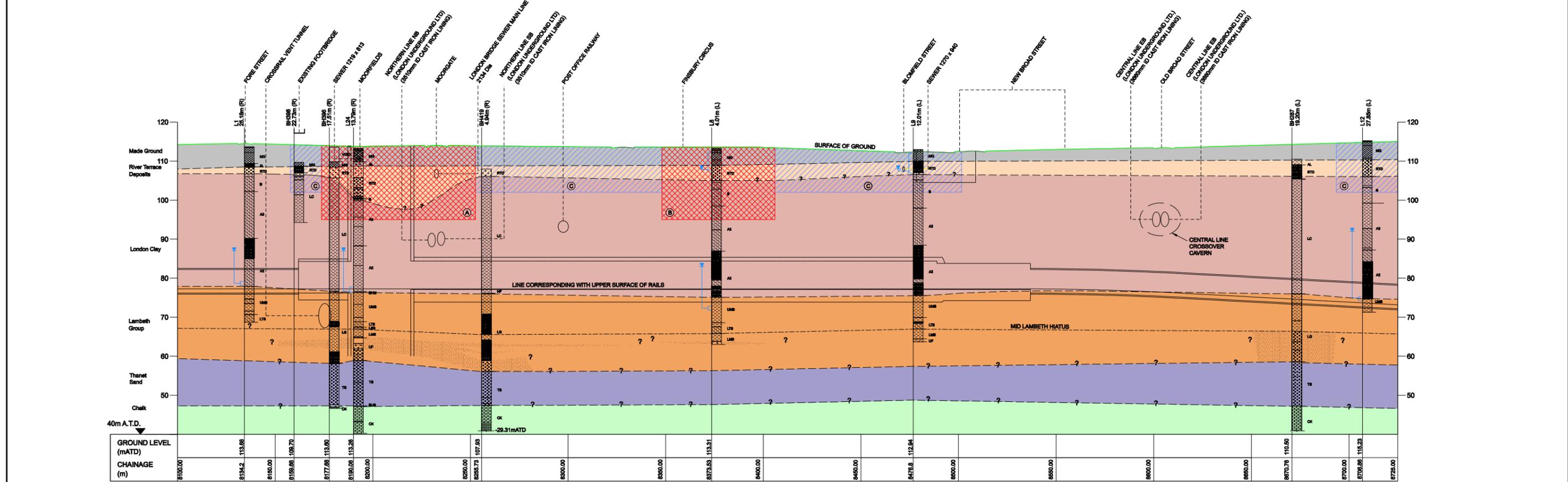
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DRAWING AND CAD FILE No: P30101-C1M12-G00-D-50021
REV: A01

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A01	17/12/2007	FIRST ISSUE - INTERMEDIATE REFERENCE DESIGN	DJC	BUL	DSW		



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LONGITUDINAL SECTION
SCALE H=1:1000, V=1:500

- KEY**
- Crossrail Boreholes Package D (5m) (1992)
 - ⊕ Crossrail Additional Boreholes (5m) (1994-1996)
 - Third Party Boreholes
 - 18.32m (L) Offset From Centre Line (Left Or Right)
 - Interpreted Geological Boundary
 - Existing Ground Level
 - ☐ Cohesion less layers, potentially water bearing (principle particle size silt, Sand or gravel) - within LC and LG

- ⊗ Zone of potential anomaly and/or uncertainty - High risk
- ⊕ Zone of potential anomaly and/or uncertainty - Moderate risk
- Recorded water level during water strike
- Water strike level
- Maximum recorded groundwater level (Piezometer)
- Piezometer tip level and sand filter zone
- ? Indicates uncertainty in stratum boundary level and/or extent

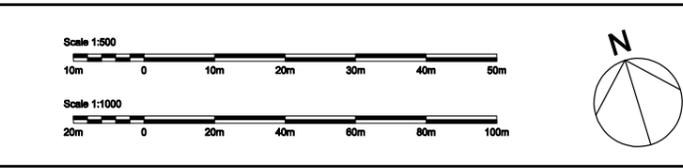
- NOTES**
1. The scheme plan and vertical alignment is revision 'L' alignment.
 2. This drawing presents the existing geotechnical information provided by GCG and third party information gained from other sources. Where required Mott MacDonald have re-interpreted the existing data for the purposes of the ground model construction.
 3. The geotechnical long sections have been interpreted principally from the boreholes closest to the section line. However, the overall geological structure has been interpreted from all the data available. Where exploratory holes are offset from the section line, strata boundaries shown on the long section may not coincide with the strata boundaries within individual exploratory holes.
 4. For detailed information regarding material type, reference should be made to the factual exploratory hole records.
 5. Most reliance has been placed on the Crossrail ground investigation boreholes.
 6. The ground model will be subject to ongoing geotechnical input and interpretation throughout the design development phase.

7. Chainages shown on the plan and sections are indicative only, and subject to change. Both sections chainages increase running west to east.
8. A detailed review of the piezometric profile within the Liverpool Street station area has been carried out by GCG in their Desk Study Report Rev.1. Within the Liverpool Street area the majority of groundwater monitoring data is limited to 1992-7 readings.
9. Shaded area 'A' indicates a local depression in the top of the London Clay. It is thought this represents a small scour hollow.
10. It is possible that unidentified scour hollows could be present in the vicinity of the lost river courses. Potential risk zones A, B and C have been identified from surface plots of the London Clay formation.
11. Reference: Barton, N (1992) 'The Lost Rivers of London', Historical Publications, London.

12. The quality of the logging of BH287 is poor. The ground level for this borehole is also anomalous. GCG have re-interpreted the level of BH287, this revised level appears to be more appropriate and has been used in producing this section, a low reliance has been put on this borehole.
13. Drawings based on available information up to April 07.

REV	DATE	DESCRIPTION	BY	CHKD	APP	CAD	ACC
A01	17/12/2007	FIRST ISSUE - SCHEME DESIGN	DJC	BUL	DSW		

Stratigraphic Units	
MG	Made Ground
AL	Alluvium
LS	Langley Silt
RTD	River Terrace Deposits
WR	Weathered London Clay
A2, A3, B	London Clay Formation
LC	Unclassified London Clay
HF	Harwich Formation
USB	Upper Shelly Beds
UMB	Upper Mottled Beds
LTB	Laminated Beds
LSB	Lower Shelly Beds
LMB	Lower Mottled Beds
LG	Unclassified Lambeth Group
UF	Upnor Formation
TS	Thanet Sand Formation
BUB	Bullhead Beds
CK	Chalk



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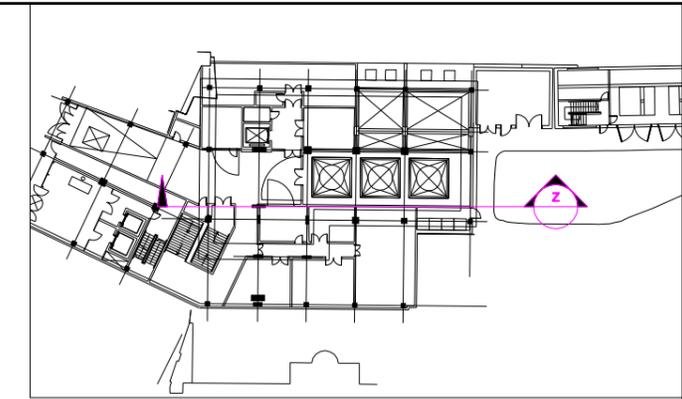
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TITLE:
**LIVERPOOL STREET STATION
GEOLOGICAL SECTION
WESTBOUND TUNNEL**

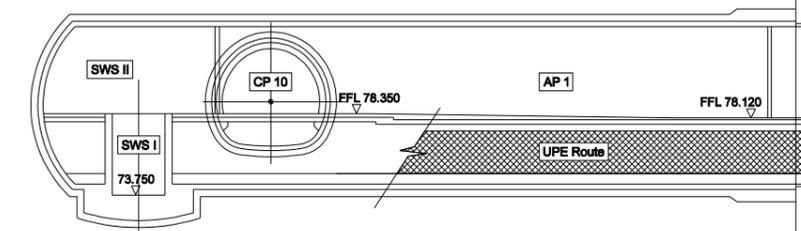
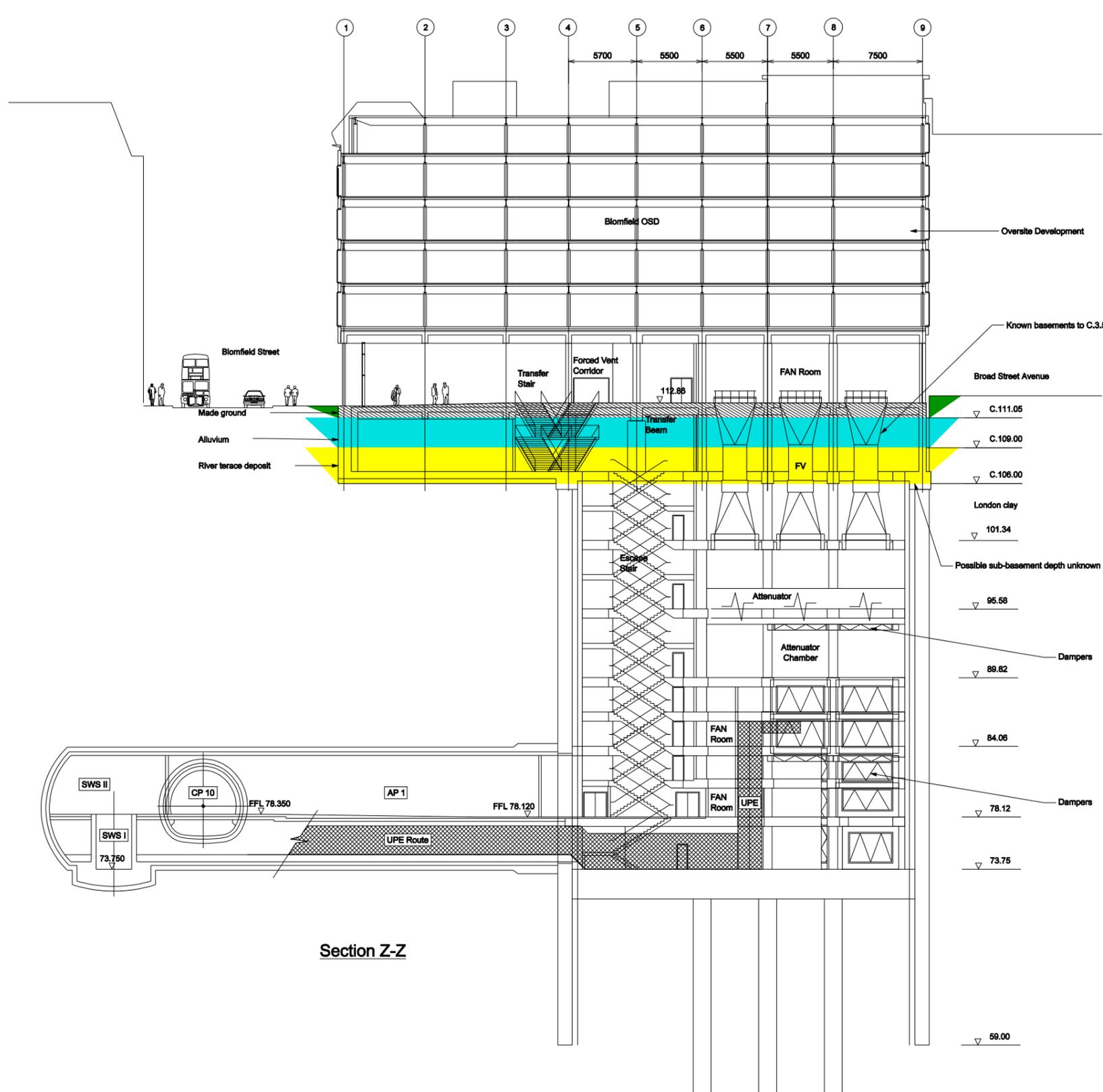
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9.2 Site Deposit Model



(See drawing P30103-C1M12-E00-D-50003 for areas of archaeological investigation)



Section Z-Z

Safety, Health and Environmental Information
 Notes below are additional to hazards/risks normally associated with this type of work:

Construction
 Ci. Damage to Blomfield Box roof due to OSD construction HNS-LIS-078/078

Operations
 OI. No significant issues currently identified

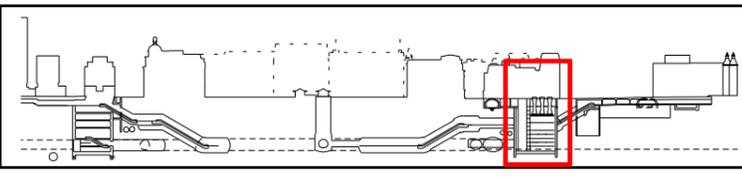
Maintenance
 MI. SWS 1, confined space HNS-LIS-149
 MII. Blomfield Box crash deck, access to temporary drainage system at height HNS-LIS-062

Dismantling/Demolition (Future)
 DI. Blomfield OSD, injury to public and operatives HNS-GEN-101

These notes are based on the use of experienced and competent contractors carrying out the work using an approved safe method of working.

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REV	DATE	DESCRIPTION	BY	CHKD	APP	CAD	ACC
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Key

- Known basement to C.3.5m BGL
- Made ground including possible services
- Alluvium including possible Moorfield marsh deposits
- River terrace deposits

Scale 1:200

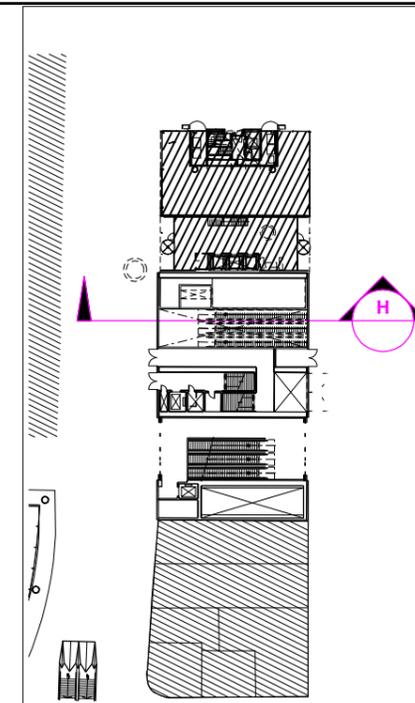
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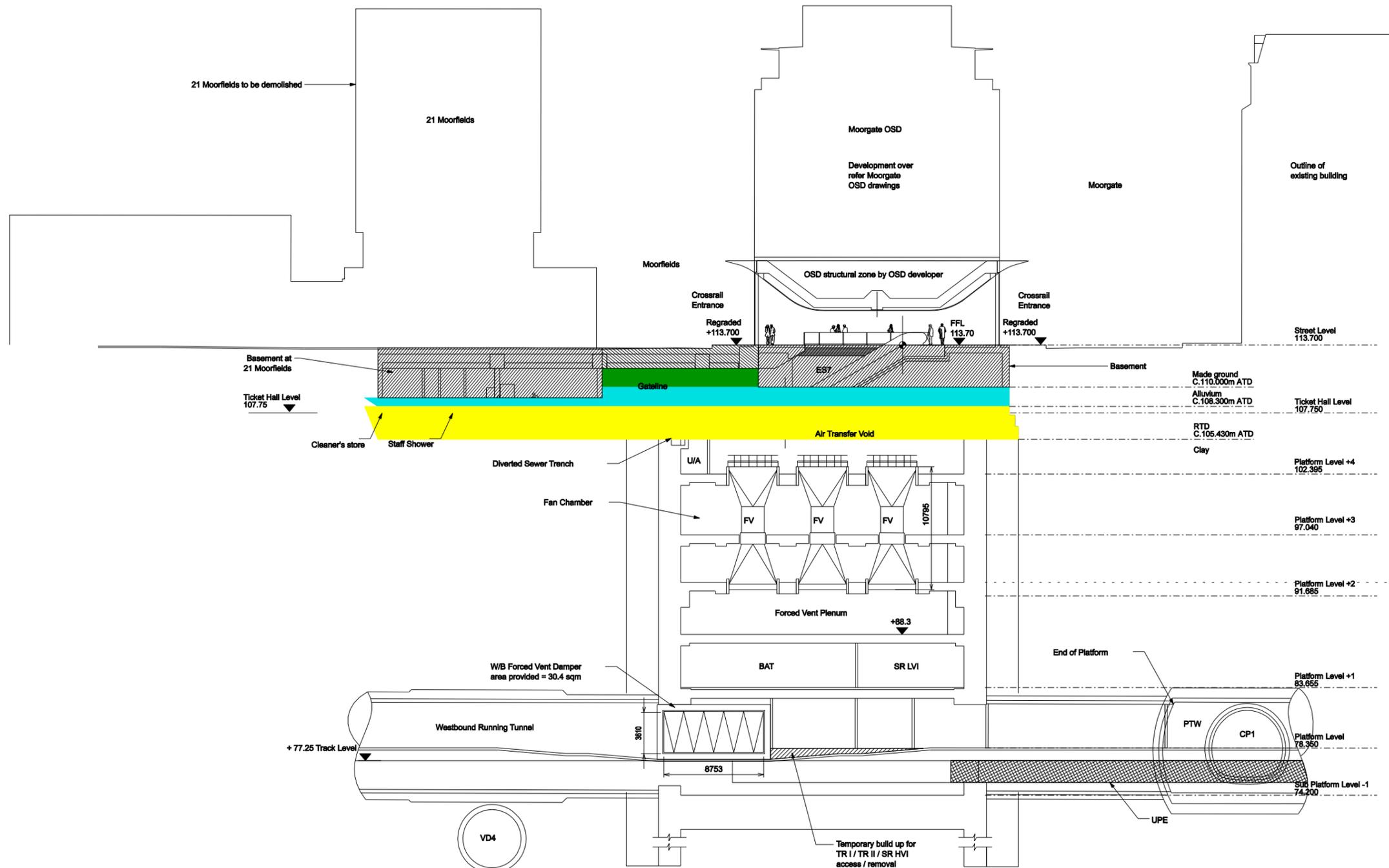
CONTRACT No. / CONSULTANT:
 1199 / MOTT MACDONALD

TITLE:
 LIVERPOOL ST. STATION - BLOMFIELD BOX
 POTENTIAL SURVIVAL OF ARCHAEOLOGICAL
 DEPOSITS THROUGH SECTION Z - Z

SCALE: 1:200 @ A1 DRAWING AND CAD FILE No: P30103-C1M12-E00-D-50130 REV: A01



(See drawing P30103-C1M12-E00-D-50003 for areas of archaeological investigation)



Section H-H

Safety, Health and Environmental Information
 Notes below are additional to hazards/risks normally associated with this type of work:

Construction
 C1. Damage to Moorgate TH roof due to OSD construction HNS-LIS-075/077
 C1. Damage to Moorfields when tunnelling under foundations HNS-LIS-034

Operations
 O1. No significant issues currently identified

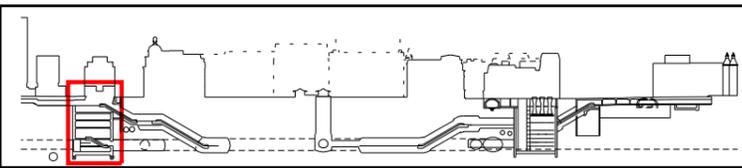
Maintenance
 M1. 101 Moorgate crash deck, access to temporary drainage system at height HNS-LIS-062

Dismantling/Demolition (Future)
 D1. Moorgate and Moorfields OSD, injury to public and operatives HNS-GEN-101
 D1. Moorgate and Moorfields OSD, exposure to asbestos HNS-LIS-026/033
 D11. 21 Moorfields and 101 Moorgate, injury/damage to persons and railway below HNS-LIS-113

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REV	DATE	DESCRIPTION	BY	CHKD	APP	CAD	ACC
A01	05/12/2008	SCHEME DESIGN 3 ISSUE	VRM	MC	DSW		ACC



Key

- Approximate level of truncation by services
- Known basements
- Made ground
- Alluvium including Moorfield marsh deposits
- River terrace deposits

Scale 1:200

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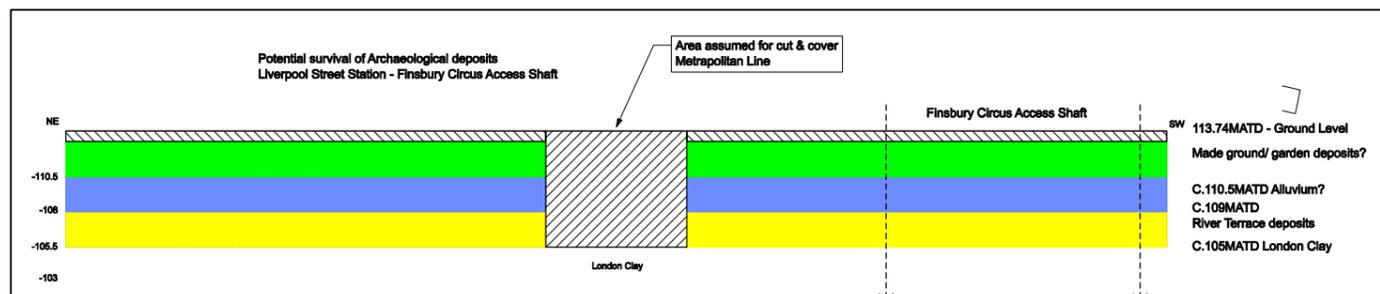
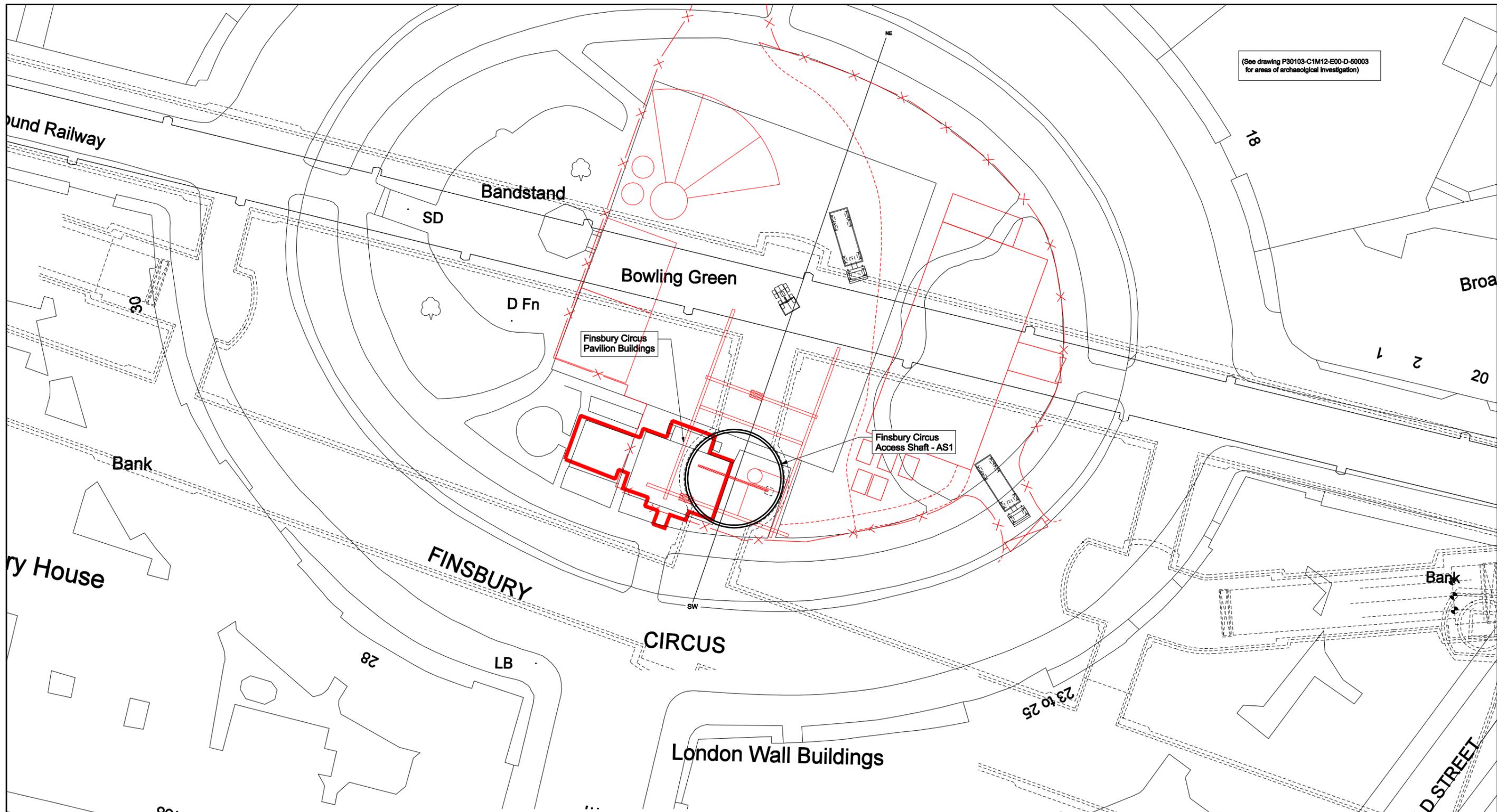
CONTRACT No. / CONSULTANT:
 1199 / MOTT MACDONALD

TITLE:
**LIVERPOOL STREET STATION (MOORGATE)
 POTENTIAL SURVIVAL OF ARCHAEOLOGICAL
 DEPOSITS THROUGH SECTION H - H**

SCALE: 1:200 @ A1 DRAWING AND CAD FILE No: P30103-C1M12-E00-D-50131 REV: A01

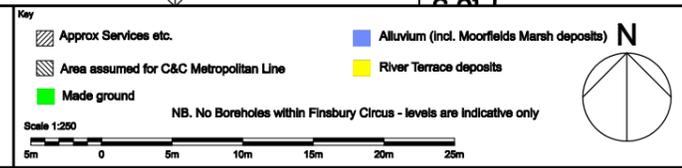
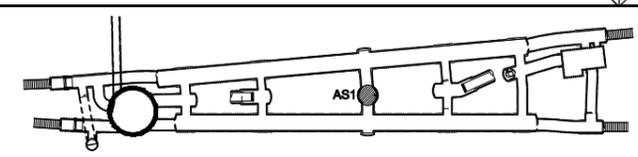
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(See drawing P30103-C1M12-E00-D-50003 for areas of archaeological investigation)



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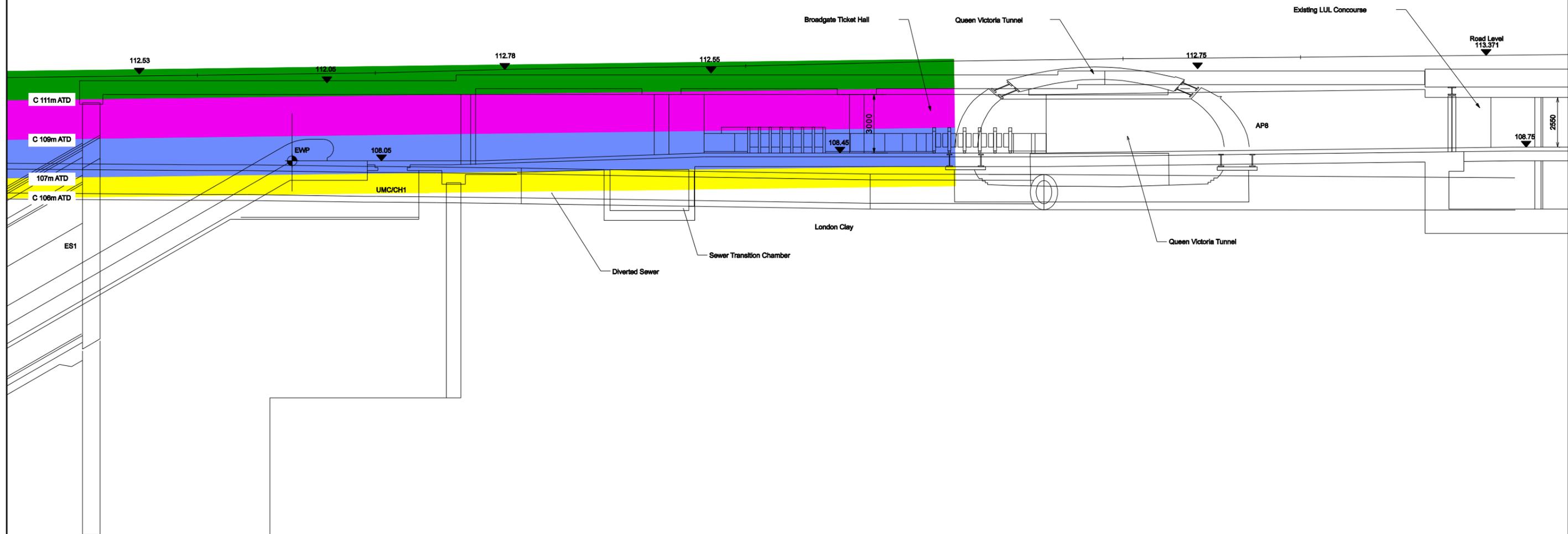
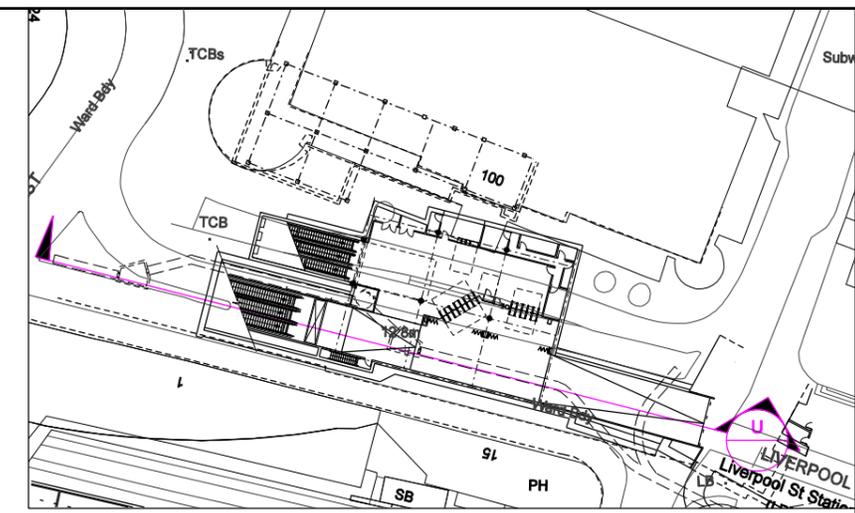
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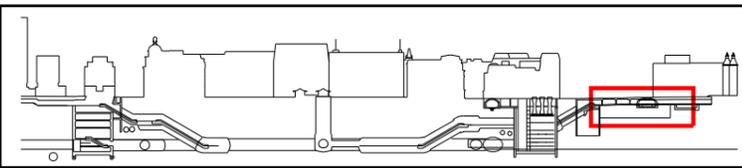
TITLE:
 LIVERPOOL STREET STATION
 FINSBURY CIRCUS ACCESS SHAFT
 DEPOSIT MODEL

SCALE: 1:250 @ A1
 DRAWING AND CAD FILE No: P30103-C1M12-E00-D-50132
 REV: A01

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REV	DATE	DESCRIPTION	BY	CHKD	APP	CAD	ACC
A01	05/12/2008	SCHEME DESIGN 3 ISSUE					



Key

- Green box: Approx truncation by services/levelling layer/ made ground
- Magenta box: Possible disturbed Moorfield Marsh/ post-med deposits
- Blue box: Alluvium/ Moorfields Marsh deposits
- Yellow box: River Terrace Deposits

NB. Levels of disturbance in carriageway are unknown, therefore levels shown below represent a worst case scenario

Scale 1:100

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CONTRACT No. / CONSULTANT:
 1199 / MOTT MACDONALD

TITLE:
 LIVERPOOL ST STN-BROADGATE TICKET HALL
 POTENTIAL SURVIVAL OF ARCHAEOLOGICAL
 REMAINS THROUGH SECTION U-U

SCALE: 1:100 @ A1 DRAWING AND CAD FILE No: P30103-C1M12-E00-D-50133 REV: A01

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9.3 Previous Archaeological Interventions in the Area

The list below comprises a gazetteer of archaeological excavations and observations within the vicinity of the site. These LAARC (London Archaeological Archive and Resource Centre) summaries were provided by MoLAS.

Site record: MRL98	
Site name	Moor House
Site location	London Wall, EC2
Borough	City of London
Year	1998
Greater London SMR No.	085018-20
National Grid Ref.	TQ32658161
Organisation	PCA
Type of fieldwork	watching brief; excavation
Archaeological periods	Roman, Saxon?, Medieval
Summary	<p>See Also: 'London Archaeologist Round-up 1998 and 2002': Four struck flints probably Neolithic or Bronze Age and some burnt flint were recovered residually from later deposits. Natural brickearth lay above gravel, the latter cut by possible stream channels, some of which contained Late Iron Age or early Roman pottery. The Roman period was characterized by 2nd-c quarry pits and ditches, structural features and 1st-2nd c AD gravel surfaces. The partial remains of a human skeleton, apparently within a cut, together with a quantity of human bone recovered residually, could be evidence of a Roman cemetery. Above these features a probable marsh deposit had built up. In the southern part of the site waterlaid fills containing Roman, Saxon and possibly medieval artefacts were found, and are likely to have been part of the medieval City Ditch, a section of which was also revealed, including several phases of re-cutting. A network of drainage ditches cut the marsh deposits: two large E-W ditches in the N and S of the site, and at least 6 smaller N-S ditches in between, at regular intervals. The fill of the southern ditch contained several timber barrel staves; these may have been reused in a fence along the ditch which later collapsed into it. Evidence of a much larger N-S ditch was revealed along the E side of the site; this ditch, originally revetted, continued beyond the southern ditch towards the City ditch. Its latest phase is dated to the late 16th - early 17th c. A large rectangular pit was found containing a number of antlers. A series of barrel- and brick-lined wells, brick-lined and timber-lined cesspits and rubbish pits was recorded which belonged to the first buildings constructed on the former marsh in the second half of the 17th c. One of the barrel wells was backfilled with a large quantity of early 17th c pottery wasters, suggesting the presence of pottery kilns nearby. The final phase of activity</p>

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recorded was a large 19th-c brick culvert. (AA)

Related sites: *None linked*

Site record: MFL97

Site name Moorgate Station

Site location 21 Moorfields, EC2

Borough City of London

Year 1997

Greater London SMR No.

National Grid Ref. [TQ3265081675](#)

Organisation MOLAS

Type of fieldwork evaluation

Archaeological periods 20th century

Summary See Also: 'London Archaeologist Round-up 1997': Natural sand and clay was truncated by modern construction activity.

Related sites: *None linked*

Site record: LNA99

Site name Austral House

Site location London Wall, Coleman Street, Basinghall Avenue, EC2

Borough City of London

Year 1999

Greater London SMR No. 085090

National Grid [TQ32618154](#)

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Ref.	
Organisation	MOLAS
Type of fieldwork	evaluation; watching brief
Archaeological periods	20th century
Summary	<p>See Also: 'London Archaeologist Round-up 1999': The site was truncated down to natural brickearth.</p> <p>See Also: 'London Archaeologist Round-up 2002': Following an earlier evaluation (LA 9, supp. 2 (2000), 38), a watching brief was undertaken. Modern rubble and concrete slabs were observed in test pits, suggesting extensive truncation during construction of the standing building. Natural strata were not reached.</p>
Related sites:	<i>None linked</i>

Site record: RIV87	
Site name	Riverplate House
Site location	7-11 Finsbury Circus, EC2
Borough	City of London
Year	1987
Greater London SMR No.	043895-903
National Grid Ref.	TQ3283081700
Organisation	DUA
Type of fieldwork	not defined
Archaeological periods	Roman, Medieval, Post-Medieval
Summary	<p>During April 1987 an excavation funded by the Hammerson Group took place inside a standing building. The purpose of the excavation was to investigate evidence of prehistoric activity, Walbrook tributaries, a Roman road, possibly the continuation of one found at Copthall Avenue in 1981 (see OPT81 above), any evidence of a Roman cemetery, a marsh deposition and later medieval and post-medieval dumping activity. A similar sequence was recorded in all the areas. Natural sands and gravels were located; a few fragments of Late Iron Age pottery</p>

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were found in one of the areas. Immediately over this lay brickearth which showed evidence of naturally formed silted-up stream-beds cutting into it. A brown fibrous organic marsh deposit approximately 0.2m deep containing freshwater snails had formed over the brickearth. This phase on the site marks the last naturally formed deposition and probably represents the Roman and medieval marsh deposits which had built up outside the N perimeter of the Roman wall in the 2nd c. The final sequence of deposits consisted of medieval and post-medieval dumps; in one of the dumps a few fragments of a Valencian Lustre ware altar vase (1380-1650) were found, the form of which is quite rare in Britain. During this phase of excavation a series of six underpinning holes, 8m to the S of the excavation and fronting onto Finsbury Circus, were investigated. Waterlogged black silts and organic material underlay the post-medieval dumping sequence, of which one bore certain evidence of a V-shaped channel 1.2m wide filled with these waterlogged deposits, cut into brickearth and gravel. This was the only evidence of a possibly manmade channel cut to divert or drain one of the Walbrook tributaries in the vicinity. A further period of excavation took place to the N of the first excavation, fronting onto South Place. The same sequence of medieval and post-medieval dump deposits was located on top of the brown organic 'marsh' deposit as found earlier. In the area to the S a redeposited brickearth was found to overlie a cobbled and metallated surface consisting of gravel and coarse ragstone and chalk blocks with broken red tiles. A slight camber on the surface may indicate a road surface and could possibly be the continuation of the Roman road found at Copthall Avenue in 1981. Further investigation was not possible due to lack of time. The area to the N contained three inhumations which had been truncated by the deep foundations, and a cremation within the underlying brickearth. Grave cuts were impossible to see possibly due to later marsh flooding which had resorted the deposited brickearth. Associated with one of the burials was a Verulamium Region White ware flask with bands of rouletted decoration around the rim, neck and shoulder and probably dates to the mid-late 2nd c. No other occurrences of this vessel type have been found in London to date. The site was also observed when the building was erected in 1920; see GM315 above.

Source: Schofield, John with Maloney, Cath (eds.) (1998). Archaeology in the City of London, 1907-1991: a guide to records of excavations by the Museum of London and its predecessors. The Archaeological Gazetteer Series, Volume 1. London: Museum of London. ISBN 0-904818-81-0.

Related sites: *None linked*

Site record: FIB88

Site name	
Site location	12-15 Finsbury Circus, EC2
Borough	City of London
Year	1988
Greater London SMR No.	043716-22
National Grid	TQ3288081680

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Ref.	
Organisation	DUA
Type of fieldwork	excavation
Archaeological periods	Roman, Medieval, Post-Medieval
Summary	<p>Excavation funded by MEPC Developments Ltd took place here between June and August 1988. Large-scale intrusive activity on the site, identified as the foundations of the London Institution built in 1817, confined the areas of excavation to two trenches, designated A and B respectively: a N-S aligned trench measuring 11m x 2m on the E side, and one aligned E-W measuring 7m x 2m to the SW of the former. Natural gravel was located. The earliest activity was found in Area A and was represented by a flexed inhumation (on its side with its knees up) aligned E-W with the head to the W, and a possible associated superstructure which was demolished prior to the construction of an E-W aligned cobbled road in the early 2nd c. Activity following the disuse of the road was indicated by the presence of redeposited brickearth with a series of six burials, four of which were aligned E-W, and two cremation pits cutting through it. Two of the burials contained whole pots, one a Black-burnished ware, as yet undated, and the other a colour-coated ware from Cologne provisionally dated to the late 2nd/early 3rd c. Evidence of a truncation horizon, postdating the cemetery, was indicated by the shallow depth of the graves and the absence of the brickearth in all but the N quarter of the trench, and was also represented by the construction of a drainage channel filled with marsh deposits sealing the Roman stratigraphy. Similar activity in this later period was recorded in Area B with the presence of a NW-SE aligned channel also containing marsh deposits. No evidence of any earlier Roman activity was identified; although disarticulated human remains, probably of Roman date, were found at the bottom of the channel, they were presumably residual. Sealing the marsh was a series of later medieval dumps approximately 1.4m in depth in both areas on the site. In Area A an E-W aligned ditch 1.4m deep cut through the dumps which contained backfill dating to the 17th c.</p> <p>Source: Schofield, John with Maloney, Cath (eds.) (1998). Archaeology in the City of London, 1907-1991: a guide to records of excavations by the Museum of London and its predecessors. The Archaeological Gazetteer Series, Volume 1. London: Museum of London. ISBN 0-904818-81-0.</p>
Related sites:	<i>None linked</i>
No. of Related publications:	0

Site record: ENS03

Site name	
Site location	18-31 Eldon Street, 16-18 Finsbury Circus, EC2
Borough	City of London

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Year	2003
Greater London SMR No.	
National Grid Ref.	TQ3294981664
Organisation	MOLAS
Type of fieldwork	evaluation
Archaeological periods	Roman
Summary	See Also: 'London Archaeologist Round-up 2003': Tributaries of the Walbrook stream were revealed above the natural gravels in a number of trenches. To the south of the site a channel had partially silted up and was then infilled in the Roman period with clay and gravel deposits, probably for land reclamation. A single human bone was recovered from the infill of one of these channels, possibly deriving from the known Roman cemetery in this area. Roman deposits of clay and gravel, probably for reclamation, were also revealed in another of the trenches. In another area of the site a secondary channel had been inserted through the silt of its predecessor; the secondary channel then silted up and was sealed by a consolidated gravel surface. The west and the north of the site also contained natural stream channels which had silted up. In some areas these silts were covered by a series of humic deposits associated with the post-Roman Moorfields Marsh.
Related sites:	<i>None linked</i>

Site record: BSP91	
Site name	
Site location	6 Broad Street Place, 16-24 Blomfield Street, 14 Eldon Street, EC2
Borough	City of London
Year	1991
Greater London SMR No.	042746
National Grid Ref.	TQ3299081660
Organisation	DUA

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Type of fieldwork	excavation, watching brief
Archaeological periods	Roman
Summary	<p>An excavation and watching brief funded by Norwich Union Pensions took place in July 1991 during contractors' groundworks, after the contractors had discovered evidence of ancient burials. One complete burial was recorded and further evidence was found for others, all probably part of a Roman cemetery known to have existed in the area.</p> <p>Source: Schofield, John with Maloney, Cath (eds.) (1998). Archaeology in the City of London, 1907-1991: a guide to records of excavations by the Museum of London and its predecessors. The Archaeological Gazetteer Series, Volume 1. London: Museum of London. ISBN 0-904818-81-0.</p> <p>See Also: 'London Archaeologist Round-up 1991(1)': The excavation and watching brief took place during contractors' ground works, after the contractors had discovered evidence of ancient burials. One complete burial was recorded and further evidence was found for others, all probably part of a Roman cemetery known to have existed in the area.</p>
Related sites:	<i>None linked</i>

Site record: BDC03	
Site name	
Site location	6 Broad Street Place, EC2
Borough	City of London
Year	2003
Greater London SMR No.	
National Grid Ref.	TQ3300081650
Organisation	MOLAS
Type of fieldwork	evaluation; excavation
Archaeological periods	Prehistoric; Roman

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Summary

See Also: 'London Archaeologist Round-up 2003': Natural gravels in the centre of the site were overlaid by brickearth; elsewhere the brickearth had been eroded by the Walbrook stream which here is formed of two main branches: that in the north of the site near the Eldon Street frontage was at least 4m wide, whilst to the south were several shallow streams. An isolated flint tool was the only evidence for prehistoric activity. The channel system appears to have been rationalised during the Roman period, with the smaller channels infilled and those in the south revetted. The northern part of the site became a cemetery, probably from the late 1st c AD. At least 10 burials were excavated, including two from a previous watching brief (BSP91). Several burials were in wooden coffins, with one placed on a reused hurdle bier. Several graves had been partially eroded by the northern stream, a process that would have been visible during the life of the cemetery. Disarticulated human remains was recovered from stream fills; these may have been associated with the eroded burials, or indicate that originally there were more. A series of semi-articulated human remains were observed and will be excavated in early 2004.

The channel in the southern part of the site was infilled and a series of consolidation dumps prepared the ground for a metalled surface, probably in the early 2nd c. This extended across the site and may be related to, or part of, a Roman road observed to the west. In the 3rd c the area was used for rubbish disposal. It is not clear at what date burial in the cemetery ceased. A marsh developed across the site in the late Roman period, with the stream in the north of the site silting up. No material later than the 4th c was recovered. WC

Related sites: *None linked*

Site name	Drapers Gardens
Site location	12 Throgmorton Avenue, EC2
Borough	City of London
Year	2003
Greater London SMR No.	
National Grid Ref.	TQ32828140
Organisation	MOLAS
Type of fieldwork	evaluation
Archaeological periods	Roman

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Summary

See Also: 'London Archaeologist Round-up 2003': The site lies across the course of two major tributaries of the Walbrook stream. These tributaries, of Holocene date, had eroded the terrace gravels so that a series of alluvial deposits was found to overlie the London Clay. Some peaty deposits were also noted within the alluvial deposits. Sealing the stream channels was a series of Roman deposits, dating from the mid-1st c AD. These deposits gradually infilled the channels, although it appears that there were problems with flooding. Structural timbers were observed on the projected line of a culvert found to the north (LA 9, supp. 2 (2000), 42). Deposits dating from the mid-3rd c were also recorded.

Site record: LSS85

Site name Broadgate

Site location 123-229 Bishopsgate (odd numbers), 41-54 Liverpool Street, 10-11 Eldon Street, Finsbury Avenue, Appold Street, Primrose Street, Pindar Street, Broad Street Buildings, Sun Street Passage, EC2

Borough City of London

Year 1985

Greater London SMR No. 042900-5

National Grid Ref. [TQ3310081700](#)

Organisation DUA

Type of fieldwork excavation

Archaeological periods Roman, Medieval, Post-Medieval, 18th century

Summary A series of excavations, cutting and drawing of sections and inspections of testpits were in progress during 1985 on this large site, funded by Rosehaugh Stanhope plc. The earliest deposits comprised a stream-bed, one of the channels of the upper Walbrook, seen as a naturally eroded surface of sands and gravels occupying a shallow, broad channel running NE-SW across the site. Within this main channel were series of smaller stream channels interspersed with washouts of pea gravel and fine waterlaid silts. Brickearth and clay dumping during the Roman period on the E and W banks of the stream complement wooden revetments seen on other Walbrook sites to the S, implying control of the upper watercourse in the Roman period. Thereafter marsh and peat deposits up to 1.3m thick within the Walbrook Valley indicate part of the large marsh which accumulated in the area (later Moorfields) from the late Roman to the medieval period. A large 13th-14th-c N-S linear feature, probably a ditch, corresponds with a ditch shown on the copperplate map (c 1558) and one previously recorded nearer the city wall to the S. Wooden revetments running E-W were recorded near the

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assumed line of the precinct of St Mary Bethlem Hospital. Excavations in the SW corner of the site were completed in April 1986. Excavation revealed considerable dumping over the marsh deposits and produced a section through the E bank of the Walbrook. The bank in this part of the site was constructed of compacted gravel, clay and building rubble. Tentative dating evidence from ceramic material places its construction to 180-230. Some 400 post-medieval burials were excavated from an area within the boundaries of the new churchyard, founded in 1569 by the City to relieve the congestion occurring in parish burial grounds. The burials were found in high density, some eight per cubic m. The cemetery was used up to at least 1720. Primary burials were mostly uncoffined but a large proportion of the later inhumations were coffined burials. A large brick vault contained six members of the Jenkes family, in lead coffins with highly decorated wooden inner coffins, dating from 1686 to 1714. Other finds included two Roman hipposandals and good groups of post-medieval pottery.

Source: Schofield, John with Maloney, Cath (eds.) (1998). Archaeology in the City of London, 1907-1991: a guide to records of excavations by the Museum of London and its predecessors. The Archaeological Gazetteer Series, Volume 1. London: Museum of London. ISBN 0-904818-81-0.

Related sites: *None linked*

Site record: NEB87**Site name**

Site location 35-45 New Broad Street, EC2

Borough City of London

Year 1987

Greater London SMR No. 043765-73

National Grid Ref. [TQ3303081530](#)

Organisation DUA

Type of fieldwork not defined

Archaeological periods Roman, Medieval, Post-Medieval, 19th century

Summary A series of 20 testpits dug during 1987 prompted a controlled excavation of this large extramural site between March and June 1988. The investigation was generously funded by Norwich Union. The site was in a low-lying part of the upper Walbrook Valley just to the E of one of the main stream channels which ran on the line of the present Blomfield Street. The site was cut through by a network of small tributaries running down a natural slope in the gravels which lay at 9.5m to the E of

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the site and 7.5m to the W. During the 2nd c the lower terrace was reclaimed from the stream and the upper terrace was extensively quarried. Roman inhumation burials were found in a small cemetery in the central S part of the site. The site was apparently abandoned from the time of the construction of the city wall c ad200 until it was drained in the 14th c. A substantial E-W ditch at least 4m wide along the N of the site was replaced by a line of earth-fast posts 0.3m in width, probably by the early 17th c. These features most likely represent the S boundary of the St Mary Bethlem Hospital (later Bedlam) which stood from 1247 to 1676 approximately on the site of the present Liverpool Street Station. During most of the 17th c the area was used as a rubbish dump; a group of tenements called Petty France, mentioned by Stow (1598), was represented on site by brick cellars and wells, as well as brick and wood lined rubbish pits. These features were used into the 19th c and probably until the site was developed as offices in 1905. The facades of these offices were retained to the S and E in the present redevelopment. Finds from this site include a large assemblage of post-medieval kitchen ware, a large Stuart cloth seal, a silver half groat of 1561-77 and a highly decorated bone handle of late 16th- or early 17th-c date with Renaissance motifs.

Source: Schofield, John with Maloney, Cath (eds.) (1998). Archaeology in the City of London, 1907-1991: a guide to records of excavations by the Museum of London and its predecessors. The Archaeological Gazetteer Series, Volume 1. London: Museum of London. ISBN 0-904818-81-0.

Related sites: *None linked*

Site record: VLT86

Site name	Liverpool Street Station (Booking Hall)
Site location	Liverpool Street (opposite 20-24), EC2
Borough	City of London
Year	1986
Greater London SMR No.	044555-9
National Grid Ref.	TQ3315081570
Organisation	DUA
Type of fieldwork	watching brief
Archaeological periods	Roman, Medieval, Post-Medieval, 19th century
Summary	Natural gravels were overlaid by disturbed or redeposited brickearth above which lay a metallised surface, possibly an E-W Roman road, with Roman occupation debris to its N at a similar level. The metallised surface was cut by a large feature,

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probably a pit, and the site then covered by a thick dark deposit which contained medieval material. This was succeeded by a N-S chalk wall foundation and, to its W, an E-W brick wall on a foundation of chalk and flint. Truncating the post-medieval brick wall was 19th-c brickwork which is assumed to be part of the underground railway tunnel.

Source: Schofield, John with Maloney, Cath (eds.) (1998). Archaeology in the City of London, 1907-1991: a guide to records of excavations by the Museum of London and its predecessors. The Archaeological Gazetteer Series, Volume 1. London: Museum of London. ISBN 0-904818-81-0.

Related sites: *None linked*

Site record: XRD92

Site name	Crossrail Project (Package D)
Site location	Moorgate, Finsbury Circus, 6-8 Moorfields, EC2; Brick Lane to Vallance Road, E1
Borough	City of London & Tower Hamlets
Year	1992
Greater London SMR No.	
National Grid Ref.	TQ32708161
Organisation	MOLAS
Type of fieldwork	evaluation
Archaeological periods	Post-Medieval
Summary	<p>See Also: 'London Archaeologist Round-up 1992(1)': Moorfields/Finsbury Circus area. Evaluation May-July 1992 Crossrail. A single test pit was dug outside 6-8 Moorfields, where post-medieval structures were recorded, and a number of boreholes drilled in the Finsbury Circus/Liverpool St area where the Moorfields marsh and the New Churchyard were identified.</p> <p>See Also: 'London Archaeologist Round-up 1992(3)': Brick Lane/Vallance Road/Bethnal Green, E1 Evaluation May-July 1992 Crossrail. Undated cut features, possibly related to the Roman cemetery or to Saxon activity, were recorded in three test pits.</p>

The following sites were also identified in the LAARC database:

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GM122

46-47 New Broad Street

TQ3298281548

Archaeological Periods: Roman, Medieval

Watching brief in 1925 found a line of stout oak posts, irregularly placed but roughly parallel with Blomfield Street, was seen in the N part of the site. This might be the remains of the embankment of the Walbrook, and the bed of the stream was believed to be between the posts and Blomfield Street. Merrifield thought the stream was more likely to be W of the site, and that the supposed stream-bed here was the E edge of the flood silt. In the silt W of the posts were found fragments of Roman pottery, including a ring-necked jug of the 1st c, and samian ware of the 1st and 2nd c, together with an iron knife and the linch-pin of a cart. Marsden's 1981 listing notes: 'a medieval city ditch was recorded, and also a stream-bed containing medieval objects, which had presumably once flowed into the medieval city ditch'; but there is no PRG gazetteer entry for the site. Merrifield's entry for this site refers to 'MS notes by Q Waddington in Guildhall Museum', but there is no site file.

GM193

74-77 London Wall, EC2

TQ3296081450

Archaeological Periods: Roman

Watching brief in 1963 encountered a length of a Walbrook tributary was seen, cut into natural gravel; it flowed from NE to SW, with a slight bend in its course on the site. The first few feet of deposit were grey silt (pre-Roman), above which was a dark grey sandy silt deposit which contained pottery ER 810.

BLM87

85-86 London Wall, 53 New Broad Street, EC2

TQ3297081510

Archaeological Periods: Roman, Medieval, Post-medieval

Between January and April 1988 an investigation sponsored by Trafalgar House Developments was undertaken which included the excavation of two, broadly linear, areas through the defences outside the city wall, a watching brief concurrently on site groundwork, and photogrammetric recording of the city wall. Beneath and therefore preceding the city defences on the E side of the site were found two successive wooden buildings of the 1st and 2nd c. The first was aligned with the Walbrook tributary to the W (the line of Blomfield Street) and had one wall built in an interlocking upright plank technique previously assumed to be typically medieval. Adjacent to this building was a substantial box drain over 1m deep. The development of a drainage system was traced from a small land drain running NE-SW on the E side of the site, through the box drain mentioned above, via a system of parallel ditches to a large defensive ditch 5m wide and 1.5m deep that accompanied the construction of the Roman city wall, immediately to the S. This drainage system was subject to extreme fluctuations in flow, presumably reflecting changes in land use upstream, leading to the deposition of up to 1.5m of sediments on the W side of the site. During this period of natural aggradation, burials were inserted many of which were then subject to disturbance by erosion, leading to a mixed deposit of human bone, leather sandals, and funerary pots holding offerings of chickens and coins; also recovered was a scatter of over 500 forger's coin moulds, some of which were of later 3rd-c low-denomination bronze coins. After more silting in this area, a masonry structure was built against the outer face of the city wall. This badly truncated structure was apparently at first a bastion and was then altered, perhaps for a non-defensive purpose. More fluvial deposition followed, deriving from the Walbrook tributary to the W, and continued in the medieval period, when drier parts of the site were used for agriculture and perhaps for grazing, evidenced by a fence-line. This was followed by the cutting of a large city ditch, 1m deep and 12.5m wide, in the early 17th c, reversing the flow of the drainage system, and taking water from the Walbrook around the outside of the City. It may also have removed any evidence for a medieval ditch. Above the ditch sediments the area was covered by large landfill dumps of domestic waste and building debris, possibly from buildings postdating the Great Fire of London. A well in the NW corner was perhaps part of the 18th-c housing development known as Petty France. The lengths of the upstanding city wall exposed along the S side of the site revealed details of both face and core. The face of the Roman wall includes the ferruginous sandstone plinth, four ragstone courses and the first tile string course, but the core of this wall survives to above the

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second tile string course. The core of the Roman wall was poured from above, leaving clear tip-lines at 45 degrees, the angle of repose. The medieval face of the wall used reworked Roman core blocks of ragstone and tiles, and the medieval core used new materials such as flint and chalk. A post-Great Fire of London redbrick church precinct wall on a sandstone plinth, visible from the pavement, was recorded directly above the sequence. The wall is preserved as a Scheduled Ancient Monument and a panel exposing the face of the medieval wall is to be left uncovered for public inspection. Other finds from this site included part of a ceramic Langewehe horn, and most of a decorated Montelupo plate.

CAP86

Capel house, 54-62 New Broad Street, EC2

TQ3364081500

Archaeological Periods: Roman, Medieval, Post-medieval

During a ten-week period between January and March 1986, a total of seven N-S trenches were excavated across the line of the city ditches. The work was generously funded by Haslemere Estates. The earliest features, which were cut into natural gravels, comprised a series of predominantly E-W stream and drainage channels running W towards the Walbrook. Following their natural silting and consolidation during the 2nd c, the ground level was raised across the N half of the site by upwards of 1.2m, with the large-scale dumping of mainly gravel-based make-ups. Running parallel to, and lying 6m from, the external face of the city wall (which formed the S boundary of the site) were the truncated remains of the associated early 3rd-c V-cut defensive ditch. Cut into its berm was a solitary grave of Roman date. During the 12th c, the ground level was raised by a further 1.5m. The absence of any clear sign of a medieval ditch cut and the presence, instead, of a series of substantial dumped make-ups (which were waterlogged at the time of deposition) suggest that the marshy area around Moorfields precluded the cutting of a ditch during this period. It therefore seems likely that an artificial N bank was raised in order to delineate the line of the outer defensive circuit. In the 16th c, a massive city ditch (which survived to a depth of 2m and extended E-W across the entire site) was cut into the reclamation dumps. The ditch was relatively short lived and was backfilled by the middle of the 17th c; the fill contained a fine 16th-c intaglio ring. Following its consolidation, a series of linear E-W horncore-filled land drains was cut into its uppermost fills. A large assemblage of 17th-c pottery included a range of delftware, Saintonge ware, bellarmines and other imported wares. The later encroachment of properties across the N edge of the ditch during the 18th c was indicated by a group of brick-lined wells and drains.

BRO90

90-94 Old Broad Street, Boston House, 63-64 New Broad Street

TQ3306081490

Archaeological Periods: Roman, Medieval, Post-medieval

The Roman city wall was known to have crossed the S part of the site but any traces of this were completely removed during the construction of later buildings. Truncated remains of the V-shaped city ditch dated to the 3rd c were recovered about 5.5m out from the line of the wall. In the W part of the site the backfill of the ditch contained two disarticulated skeletons; a further burial was laid out parallel to the line of the Roman wall. This may have been disturbed during the construction of Boston House and reburied near its original find spot. A shallow ditch at the N end of the site may be the medieval city ditch. A later, flat-bottomed ditch probably of the late medieval or Tudor period ran across the site, truncating both the Roman and medieval ditches. The latest ditch was backfilled with dumps containing quantities of whole and broken pots. The area was backfilled in the 17th c; this backfill contained quantities of glass which may have been from the manufacturing complex nearby in Austin Friars.

See Also: 'London Archaeologist Round-up 1991(1)' (edited): The site straddled the line of the city wall. The earliest feature cutting natural was a V-shaped ditch, only the base of which (with 'ankle-breaker' profile) survived severe truncation. This ditch lay in front of and c 6m to the N of the line of the wall of the late 1st-early 2nd-c Roman defences (projected from a surviving segment to the W, at the church of All Hallows-on-the-Wall (LA 5 no 10 (1987) 272-3)). This ditch, the backfill of which contained disarticulated skeletons, was the first of 6 successive ditches or recuttings. The second is late Roman or early medieval in origin, its backfill containing a medieval bone skate, and the third is dated to the late 13th c. The fourth ditch was cut at the beginning of the 16th c and was recut, after silting up, after 1630. The recut was systematically backfilled in the mid-17th, marking an end to the defences.

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Later features included a horncore-lined drainage ditch, rubbish pits and chalk or mortar foundations of 17th c date, and 18th c brick-lined wells. The 17th c ditch backfill contained large quantities of glass vessel fragments and glass-working debris, possibly from Mansell's glassworks, Austin Friars. Large quantities of 17th c pottery were also recovered from the backfill. Much is in good condition with many complete profiles. Post-medieval redwares and Border wares predominate. A wide range of imports includes Werra and Weser wares and Rhenish stonewares.

The following additional sites were also identified in the Updated Baseline Assessment (Crossrail 2007b).

LAL04	<p>Watching brief. Waterlogged deposits (City ditch/Moorgate Marsh?) Roman activity and undated human remains. Post-medieval refuse dumping. <i>Within</i> LLAU/LOD.</p> <p>Natural sands and gravel at c 108.2m ATD. Depth of archaeological deposits, including waterlain silt over the terrace gravels between c 1.2m to 2.4m, 2nd-century to 17th-century, possible City Ditch deposits</p>
LVB06	<p>Watching brief. 16th–18th century human remains from former burial ground of Bethlem hospital–BG208), and post-medieval occupation. <i>Within</i> LLAU/LOD.</p> <p>Natural geology not seen (base of shaft = 107.70m ATD); Walbrook alluvium/Moorgate marsh deposits up to 109.60m ATD, cut by charnel pit from 16th to 18th-century Bethlem burial ground with intensive burials up to 111.30 to 111.50m ATD.</p> <p>Medieval–post medieval wetland reclamation from 107.7m– 109.7m ATD beneath further burials and charnel pits. Post medieval burials at 111.5m ATD.</p>

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9.4 Gazetteer of the Known Archaeological Resource

Record ID	Description	Subject(s)	Period(s)	Relevant Sub-sites
MLO422	Moorgate, TQ 3209 8236, the line of a medieval road from New Moorgate to Islington (TQ 31450 83150 to TQ 32730 81560).	Road	Medieval	Liverpool Street Station
MLO992	Eldon Street, TQ 3295 8167, Roman cremation urns found on this site were received by the Museum of London in 1915.	Cremation burials	Roman	Liverpool Street Station
MLO1587	Bishopsgate opposite St Botolph's Church EC2, TQ 3323 8149, a small urn containing a thighbone was recovered from this site.	Burial	Roman	Liverpool Street Station
MLO1599	Old Broad Street EC2, TQ 3308 8150, 2 'poppy heads', 1 containing bones were found in 1872 at an unspecified location, possibly outside the city wall.	Cremation / Burial urn	Roman	Liverpool Street Station
MLO1615	16 Finsbury Circus EC2, TQ 3292 8168, an urn containing burnt bones of Roman date, was found 3.35m below the ground surface on the south bank of a stream, by F Lambert in 1915.	Cremation / Human Remains	Roman	Liverpool Street Station
MLO1623	Moorfields, TQ 3290 8180, prick type spur (Type R.586), found in an unspecified location.	Find spot	Early Medieval	Liverpool Street Station
MLO1632	Eldon Street, TQ 3295 8167, Roman Caistor Ware vase containing iron fragments found beside a wooden coffin during unspecified works in September 1915.	Inhumation burial	Roman	Liverpool Street Station
MLO6485	North end of Cophthall Avenue EC2, TQ 3279 8151, numerous piles observed in 3.66m of mud and peat overlying London Clay, recorded in 1923.	Piling	Roman	Liverpool Street Station
MLO7705	Finsbury Circus EC2 (West Side), TQ 3277 8164, a buff Roman urn with lid, which contained burnt bones, was found at an unspecified time/location.	Cremation burial	Roman	Liverpool Street Station
MLO7935	Rear of 89-115 London Wall EC2, TQ 3285 8155, a stone coffin (probably Roman) was found at a depth of 3.95m below ground level prior to 1917.	Stone Coffin	Roman	Liverpool Street Station
MLO7937	North end of Blomfield Street towards Eldon Street EC2, TQ 3302 8164, Roach Smith noted many Roman burial urns during sewer works in 1841,	Burial Urn	Roman	Liverpool Street Station
MLO7939	Old Broad Street EC2, Roman limestone cist, in the form of a pillar was found in 1864. No bones were recorded.	Cist	Roman	Liverpool Street Station
MLO8205	Eldon Street, TQ 3292 8173, post-medieval church of St Mary Moorfields, not Listed.	Church	Post-medieval	Liverpool Street Station
MLO8331	Eldon Street, TQ 3295 8167, unspecified Roman potsherds found during unspecified works.	Find spot	Roman	Liverpool Street Station
MLO8369	South Place, TQ 3289 8173, a Roman slip ware vase and four urns; one with a 'deposit of leaves', found at an unspecified location in 1929.	Find spot	Roman	Liverpool Street Station, Moorgate Shaft
MLO9944	30 Moorgate EC2, TQ 3270 8145, a large pit containing the skulls of three pole-axed oxen, but no datable finds, were revealed during an excavation by the Guildhall Museum in 1951.	Occupation evidence	Post-Roman	Liverpool Street Station
MLO11066	London Wall EC2, TQ 3292 8151, two skeletons and a dog skull were recorded buried in a disused culvert through the city wall, during sewer works in 1837.	Human burial & animal remains	Roman	Liverpool Street Station
MLO11072	Bishopsgate EC2, TQ 3324 8150, an urn containing burnt bone dated as 'Antonine' is recorded; location and date	Cremation burial	Roman	Liverpool Street

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Record ID	Description	Subject(s)	Period(s)	Relevant Sub-sites
	unspecified.			Station
MLO11135	London Wall EC2, TQ 3270 8155, Roman, dark grey urn decorated with a smoothed lattice pattern containing burnt bones found at an specified location.	Cremation burial	Roman	Liverpool Street Station
MLO11139	Moorgate EC2, TQ 3272 8166, a grey-ware urn containing burnt bone was found at an unspecified location.	Cremation burial	Roman	Liverpool Street Station, Moorgate Shaft
MLO11143	London Wall EC2, TQ 3270 8155, find spot of cylindrical pewter jar with lid containing burnt bones.	Cremation burial	Roman	Liverpool Street Station
MLO11145	Eldon Street EC2, TQ 3295 8169, 'many' Roman burial urns noted by J E Price during sewer works in 1841.	Find spot Burial Urns	Roman	Liverpool Street Station
MLO11148	St Alphege Garden EC2, TQ 3247 8159, the location of the medieval Church of St Alphege. Documentary sources suggest that the church was originally built against the Roman city wall, but moved to the nearby location of the Tudor priory of Elsing Spittal when it became vacant.	Church	Medieval & Post-medieval	Liverpool Street Station, Moorgate Shaft
MLO11495	40 Basinghall Street EC2, TQ 3248 8156, a possible pit containing a brown layer of 'vegetable mould' and 2 sherds of Pingsdorf ware was recorded during building works in 1961. A second pit containing 'green glazed' jugs dated to the 13 th century was also recorded in the northern part of the site.	Occupation evidence	Early medieval & Medieval	Liverpool Street Station, Moorgate Shaft
MLO11548	40 Basinghall Street EC2, TQ 3254 8152, several chalk foundations of probable medieval date were recorded during buildings works in 1961.	Wall	Medieval	Liverpool Street Station, Moorgate Shaft
MLO11783	55-61 Moorgate, TQ 3268 8149, embankments of streams running into the Walbrook, comprising river gravels sealed by 'thick black mud', were recorded during excavations for the Guildhall Museum.	Stream	Unknown	Liverpool Street Station
MLO11786	15 Cophthall Avenue EC2, TQ 3278 8148, vertical Oak piling and horizontal planking "believed to be part of an embankment of the Walbrook", were revealed during sewer excavations in 1851-2.	Piling / Revetment	Roman	Liverpool Street Station
MLO11790	2 Throgmorton Avenue EC2, TQ 3288 8149, a 'black soil and running sand' containing some Roman pottery was found sealing the Roman Road (MLO12866) during building works in 1880.	Occupation evidence	Roman	Liverpool Street Station
MLO11791	22 Great Winchester Street EC2, TQ 3292 8143, an eastern tributary of the Walbrook was located when shafts for an air raid shelter were excavated in 1940. The shafts cut through organic and peat deposits containing human and animal bone, domestic refuse including pottery dated to the 1 st to 3 rd century AD and onto the natural gravels.	Watercourse	Unknown	Liverpool Street Station
MLO11973	55-61 Moorgate, TQ 3267 8150, Roman occupation deposits (c.1.5m deep) containing 2 nd century pottery and a silver repousse plaque of "Mother goddesses" were found during an excavation for the Guildhall Museum in 1929.	Occupation evidence	Roman	Liverpool Street Station
MLO12219	26-31 Eldon Street EC2, TQ 3292 8168, a streambed running parallel with Eldon Street was discovered during building works in 1915. A Roman cremation (see MLO1615) and 2 nd -3 rd century artefacts were found on the southern bank.	Watercourse	Unknown	Liverpool Street Station
MLO12220	46-47 New Broad Street EC2, TQ 3298 8155, a line of Roman Oak piles aligned northeast to southwest and driven into flood deposits were recorded during an archaeological excavation by the Guildhall Museum in 1925. The flood deposits contained fragments of Samian	Piling / Revetment	Roman	Liverpool Street Station

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Record ID	Description	Subject(s)	Period(s)	Relevant Sub-sites
	pottery dating to from the 1 st century AD and 'much worn' riles of 13 th or 14 th century date. The streambed appears to lie to the west of this site.			
MLO12690	26-31 Eldon Street EC2, TQ 3292 8168, a Roman wooden gutter was discovered running along the southern side of the streambed (see MLO14945) during building works in 1915.	Drain	Roman	Liverpool Street Station
MLO12866	2 Throgmorton Avenue EC2, TQ 3288 8149, building works in 1880 revealed a gravel metalled road (0.30M thick and c. 3.66m wide) crossing the site on a diagonal alignment, 4.57m below street level. Merrifield suggested that this was a minor Roman road leading to the main perimeter road due to the absence of a gateway at this location.	Road	Roman	Liverpool Street Station
MLO1386	Great Winchester Street EC2, TQ 3296 8145, excavations by the Guildhall Museum –n 1962-1963, located the eastern tributary of the Walbrook. The stream was not revetted and poorly defined; its course was plotted using valley profiles and the extent of flood deposits.	Watercourse	Unknown	Liverpool Street Station
MLO14103	23 Blomfield Street EC2, TQ 3294 8156, a canalised stream and flood deposits (the lower of which contain Roman pottery), was recorded during building works monitored in1901-2.	Watercourse	Unknown	Liverpool Street Station
MLO14945	12-21 Finsbury Circus EC2, TQ 3292 8168, a Neolithic chipped flint axe, part polished, was found on this site in 1915.	Find spot - Axe	Neolithic	Liverpool Street Station
MLO14974	12-21 Finsbury Circus EC2, TQ 3292 8168, the base of a Red Deer antler used as a mattock or haft, of Mesolithic date was found during building works prior to1915 when it was presented to the Guildhall Museum.	Find spot	Mesolithic	Liverpool Street Station
MLO14984	Blomfield Street EC2, TQ 3299 8159, flint flake reportedly found in the Walbrook deposits; purchased from the Smith collection in 1925.	Find spot	Neolithic	Liverpool Street Station
MLO15005	Moorgate EC2, TQ 3270 8152, an Iron Age bronze terret found in Moorgate was purchased by the Museum of London in 1911.	Find spot	Iron Age	Liverpool Street Station
MLO15006	London Wall EC2, TQ 3249 8157, a small 'Celtic Style' Bronze Mask; human or animal(?) was found at this location.	Find spot	Iron Age	Liverpool Street Station, Moorgate Shaft
MLO15552	Moorfields EC2, TQ 3271 8169, Mesolithic 'stag horn' adze or hoe with perforated handle.	Find spot	Mesolithic	Liverpool Street Station, Moorgate Shaft
MLO16280	South Place, TQ 3278 8177, a dark organic layer recorded at a depth of c.5.5m during an excavation by the ILAU (Site Code SOP77). This are was within Moorfield marsh. A dump deposit found contained leather, fabric, pot, bone and metal.	Dump Land Reclamation Marsh	Medieval & Early post-medieval	Liverpool Street Station, Moorgate Shaft
MLO16313	London Wall North Side EC2, TQ 3256 8157, 2 (residual?) flakes were recovered from 'Roman levels' by F W Reader during building works.	Find spot	Neolithic	Liverpool Street Station, Moorgate Shaft
MLO16622	London Wall, TQ 3247 8159, became the parish church of St Alphege moved to this location in 1538-9 following the Dissolution of Elsing Spittal priory. The church was rebuilt in the 17 th century and mostly demolished in 1923, although the tower (MLO16796) and some walls survive.	Church	Medieval & Post-medieval	Liverpool Street Station, Moorgate Shaft
MLO16796	London Wall EC2, TQ 3247 8159, location of the Priory of Elsing Spittal, founded in 1329 by William de Elsing a mercer, as a hospital for the blind. At the Dissolution in	Priory / Religious House	Medieval & Post-medieval	Liverpool Street Station, Moorgate Shaft

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Record ID	Description	Subject(s)	Period(s)	Relevant Sub-sites
	1538-8 the Chapel of the priory became the parish church of St Alphege.			
MLO16874	Aldermanbury (Junction London Wall Road Section) EC2, TQ 3248 8156, three layers of gravels with 'hard surfaces' and containing fragments of bone and sherds of pottery dated to the 13 th century were recorded during archaeological excavations for the Guildhall Museum in 1961. The lower levels of road surface were separated by a layer of silting suggesting that it was prone to flooding. The road deposits sealed possible Saxon activity. Aldermanbury was formally called Gayspore Lane (attested as early as 1332-3) until the 18 th century.	Road	Medieval	Liverpool Street Station, Moorgate Shaft
MLO16875	Aldermanbury (Junction London Wall Road Section) EC2, TQ 3248 8156, Saxon pottery was recovered from two silt filled parallel gullies separated by a gravel bank, which was cut by a posthole. These features were recorded cut into the natural gravel, during an archaeological excavation for the Guildhall Museum in 1961.	Occupation evidence & Building	Early medieval	Liverpool Street Station, Moorgate Shaft
MLO16876	40 Basinghall Street EC2, TQ 3254 8152, a layer of black mud was recorded overlying a layer of grey clay containing animal bones and flecks of wood ash during building works in 1961. A pit containing sherds of Pingsdorf ware (7 th century AD) was also recorded within the black mud, which was interpreted to have formed under marshy conditions in the post-Roman period.	Marsh	Medieval	Liverpool Street Station, Moorgate Shaft
MLO18117	16 South Place, TQ 3279 8175, a layer of 'mud' containing large quantities of shoe leather and other 15 th century artefacts and interpreted as part of Moorfield marsh, was recorded during excavations in 1927.	Marsh	Roman & Medieval	Liverpool Street Station, Moorgate Shaft
MLO18118	40 Basinghall Street Route 11 EC2, TQ 3255 8155, a shallow depression possibly a pit was excavated near to the base of the black mud deposit, in 1962. It is not clear whether the pit cut the natural gravels/brick earth; one of its fills a 'vegetable mould', produced 11 th /12 th century pottery.	Occupation evidence	Medieval	Liverpool Street Station, Moorgate Shaft
MLO18351	168 Finsbury Circus EC2, TQ 3292 8167, a layer of peat and black mud 4ft thick containing artefacts dating to the 14 th and 15 th centuries was excavated by F Lambert of the Society of Antiquaries in 1915. This deposit was interpreted as being part of the 'moor' that formed in the post-Roman period outside the city wall. The deposit seals Roman burials (See MLO1615). The marsh was cleared and reclaimed in the late 18 th century.	Marsh	Roman, Medieval, Post-medieval	Liverpool Street Station
MLO18353	4-6 Finsbury Circus EC2, TQ 3280 8167, 'white streaks of burnt chalk' 1.82-3.05m in diameter were recorded during excavations for the Society of Antiquaries in 1920. These were associated with artefacts of late 15 th century date. Stow's Survey of London indicates that lime burning and brick production took place in the area in the late 15 th century.	Dump, Fire debris	Medieval & Early Post-medieval	Liverpool Street Station, Moorgate Shaft
MLO18354	40 Basinghall Street Route 11 EC2, TQ 3255 8155, a layer of grey clay containing animal bones and flecks of wood ash graded into an overlying layer of black mud was recorded during building works in 1961.	Marsh	Medieval & Post-medieval	Liverpool Street Station, Moorgate Shaft
MLO18355	40 Basinghall Street Route 11 EC2, TQ 3255 8155, several chalk foundation of probable late medieval date were observed but not recorded during building works in 1962. Workmen's finds included a number of 13 th century jugs said to have been recovered from a well or pit on the northern part of the site.	Wall Well	Medieval / Early Post-medieval	Liverpool Street Station, Moorgate Shaft
MLO18750	101-117 Finsbury Pavement, TQ 3280 8180, stream or ditch aligned north-south with a fill comprising sand/gravel,	Ditch / Stream	Unknown	Liverpool Street Station, Moorgate

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Record ID	Description	Subject(s)	Period(s)	Relevant Sub-sites
	clay and some organic material. Recorded during an excavation for the ILAU in 1978 (Site Code FIN78).			Shaft
MLO19228	10-13 Dominion Street Ling House, TQ 3287 8180, evidence of clay quarries found during excavation in 1988.	Clay pit / Quarry	Medieval	Liverpool Street Station, Moorgate Shaft
MLO19229	10-13 Dominion Street Ling House, TQ 3287 8180, post-medieval layer of dumping, likely land reclamation were recorded overlying marsh deposits and clay quarries, during evaluation of the site in 1988,	Dump / Land Reclamation	Post-medieval	Liverpool Street Station, Moorgate Shaft
MLO19477	10-13 Dominion Street Ling House, TQ 3287 8180, 'marsh deposits' 0.30m thick were recorded during an evaluation in 1988. These were interpreted as pond deposits possibly in the base of clay quarries.	Marsh	Roman & Medieval	Liverpool Street Station, Moorgate Shaft
MLO21690	99 Bishopsgate EC2, TQ 3319 8144, a medieval tunnel-vaulted undercroft of at least four bays divided by plain chamfered ribs to form four centred pointed arches supported by corbels was observed by T Hugo in 1867.	Undercroft	Medieval	Liverpool Street Station
MLO22112	London Wall EC2, TQ 3302 8149, All Hallows on the Wall church. The church was first mentioned in the early 12 th century, with a new aisle being added in 1528-9. Extensive repairs were carried out between 1613 and 1627 and it escaped the Great Fire of 1666. The church was demolished in 1764 and replaced by the present building.	Church	Medieval & Post-medieval	Liverpool Street Station
MLO22131	55 Basinghall Street EC2, TQ 3246 8154, Roman features on the site were found to have been truncated by medieval rubbish and cess pits during excavation by the DUA in 1989 (Site Code BAS88).	Occupation evidence	Medieval	Liverpool Street Station, Moorgate Shaft
MLO22132	55 Basinghall Street EC2, TQ 3246 8154, Roman features on the site were found to have been truncated by medieval features including cellars. (Site Code BAS88).	Cellar	Medieval	Liverpool Street Station, Moorgate Shaft
MLO22133	55 Basinghall Street EC2, TQ 3246 8154, Roman features on the site were found to have been truncated by medieval and post-medieval cellars. (Site Code BAS88).	Cellar	Post-medieval	Liverpool Street Station, Moorgate Shaft
MLO22147	158-164 Bishopsgate EC2, TQ 3330 8154, excavation (Site Code OPS88) revealed evidence of metalised surfaces, possibly representing tracks connecting with Roman Ermine Street to the west.	Surface / Track way	Roman	Liverpool Street Station
MLO22148	158-164 Bishopsgate EC2, TQ 3330 8154, thick deposits of a dark soil, resembling dark earth of possible horticultural origin were recorded sealing a sequence of large quarry pits (MLO22146). DUA in 1988-1990 (Site Code OPS88).	Dark Earth	Roman or Early Medieval	Liverpool Street Station
MLO22150	158-164 Bishopsgate EC2, TQ 3330 8154, excavation (Site Code OPS88) recorded a long sequence of pits cut into the dark soil (MLO22148). The southwest part of the site revealed cess and domestic refuse pits (one containing 2 dog skeletons) evidencing nearby occupation, probably along Bishopsgate. The area probably remained open until the 17 th century.	Occupation evidence	Medieval / Post-medieval	Liverpool Street Station
MLO22151	158-164 Bishopsgate EC2, TQ 3330 8154, excavation in the northeast corner of the site were two horn core lined pits, which may have had an industrial use. DUA (Site Code OPS88).	Pits possible industrial activity	Medieval / Post-medieval	Liverpool Street Station
MLO22152	158-164 Bishopsgate EC2, TQ 3330 8154, excavation by the DUA (Site Code OPS88) revealed chalk and brick cellar walls amongst medieval and post-medieval structures truncated by 19 th century levelling and construction,	Cellar & Wall	Medieval / Post-medieval	Liverpool Street Station

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Record ID	Description	Subject(s)	Period(s)	Relevant Sub-sites
MLO22153	158-164 Bishopsgate EC2, TQ 3330 8154, an excavation by the DUA in 1988-1990 (Site Code OPS88) revealed chalk and brick cesspit walls amongst medieval and post-medieval structures truncated by 19 th century levelling and construction on the site.	Cess pit & Wall	Medieval / Post-medieval	Liverpool Street Station
MLO22155	166-170 Bishopsgate EC2, TQ 3330 8156, an excavation by the DUA in 1989 (Site Code ISH88) recorded disturbed human remains; the site lay within the precinct of a known extra-mural Roman cemetery. No intact burials were found.	Human remains	Roman	Liverpool Street Station
MLO22156	166-170 Bishopsgate EC2, TQ 3330 8156, an excavation by the DUA in 1989 (Site Code ISH88) revealed a north-south aligned flint and Ragstone foundation, which was probably part of a medieval or post-medieval building fronting onto Bishopsgate. See also MLO22157 and MLO22158.	Wall	Medieval / Post-medieval	Liverpool Street Station
MLO22157	166-170 Bishopsgate EC2, TQ 3330 8156, medieval or post-medieval brick built drains probably part of buildings fronting Bishopsgate were found during an excavation by the DUA in 1989 (Site Code ISH88). See also MLO22156 and MLO22158.	Drains	Medieval & Post-medieval	Liverpool Street Station
MLO22158	166-170 Bishopsgate EC2, TQ 3330 8156, brick lined cess pits of medieval or post-medieval date, likely associated with the buildings fronting Bishopsgate, were recorded during an excavation by the DUA in 1989 (Site Code ISH88). See also MLO22156 and MLO22157.	Cess pits	Medieval / Post-medieval	Liverpool Street Station
MLO22528	20-56 Copthall Avenue EC2, TQ 3283 8147, eastern most of two Roman buildings found on this site. Constructed from wattle and daub (see also MLO25108). Excavated by the DUA in 1989 (Site Code LOW88).	Building	Roman	Liverpool Street Station
MLO22529	20-56 Copthall Avenue EC2, TQ 3283 8147, marsh deposits were recorded sealing Roman buildings (MLO25108 & MLO22528) found on the site, after they had fallen out of use. Excavated by the DUA in 1989 (Site Code LOW88).	Marsh	Roman - Early Medieval	Liverpool Street Station
MLO22530	20-56 Copthall Avenue EC2, TQ 3283 8147, a ditch aligned east-west was identified cutting in to the marsh deposits (MLO22529) during an excavation by the DUA in 1989 (Site Code LOW88). This may represent an 11 th century attempt to re-establish drainage in the area.	Ditch	Early Medieval	Liverpool Street Station
MLO22538	15–17 Eldon Street EC2, TQ 3296 8164, a Roman timber lined well, with backfill containing horse bones and later sealed by marsh deposit (MLO22539), was excavated by the DUA in 1989 (Site Code ELD88).	Well	Roman	Liverpool Street Station
MLO22539	15–17 Eldon Street EC2, TQ 3296 8164, a thick marsh deposit was recorded extending across the southern part of the site during an excavation by the DUA in 1989 (Site Code ELD88). This deposit sealed a road () and well ().	Marsh	Roman – Early Medieval	Liverpool Street Station
MLO22540	15–17 Eldon Street EC2, TQ 3296 8164, three east - west aligned ditches were recorded cut into the marsh deposits (MLO22539) during an excavation by the DUA in 1989 (Site Code ELD88). These were likely drainage ditches and were backfilled no earlier than the 17 th century	Drainage ditches	Post-medieval	Liverpool Street Station
MLO22541	15–17 Eldon Street EC2, TQ 3296 8164, a pit and post-medieval features were recorded during excavation work by the DUA in 1989 (Site Code ELD88).	Pit	Post-medieval	Liverpool Street Station
MLO22542	15–17 Eldon Street EC2, TQ 3296 8164, leather waste found in the fill of a pit (See MLO22541), was recorded during an excavation by the DUA in 1989 (Site Code	Find spot	Post-medieval	Liverpool Street Station

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Record ID	Description	Subject(s)	Period(s)	Relevant Sub-sites
	ELD88).			
MLO22592	Moorgate Hall EC2, TQ 3274 8172, a single intact Roman burial and large quantities of disarticulated human bone to suggest other burials had existed on the site (Site Code MOH88).	Inhumation burial Cemetery	Roman	Liverpool Street Station, Moorgate Shaft
MLO22593	Moorgate Hall EC2, TQ 3274 8172, remains of the medieval 'More Fyeld' were recorded in the form of a series of waterlain silts and clays. DUA (Site Code MOH88).	Marsh	Medieval	Liverpool Street Station, Moorgate Shaft
MLO22594	Moorgate Hall EC2, TQ 3274 8172, several large west-east aligned ditches were recorded cutting marsh deposits during an excavation by the DUA (Site Code MOH88). These ditches probably drained the marshes and silted up naturally, although some evidence of re-cutting was recorded.	Drainage ditches	Medieval	Liverpool Street Station, Moorgate Shaft
MLO23137	Liverpool Street EC2, TQ 3313 8158, Roman amphora, cut in half and containing 2 urns (1 decorated) containing burnt bone. Associated with urns and a wooden box and found on the easternside of the Station site in 1872.	Cremation	Roman	Liverpool Street Station
MLO24628	30 Moorgate EC2, TQ 3270 8145, 2 chalk walls aligned north and east and meeting at right angles were recorded during an excavation by the Guildhall Museum in 1951. The walls were 0.50m thick and cut into silt layers in the middle of the southern side of the site, and formed the corner of a room, possibly an undercroft with a floor of crushed chalk (0.15m thick). The walls were dated 12 th -13 th century, a mixed fill containing 13 th -14 th century sherds sealed the floor.	Undercroft & Wall	Medieval	Liverpool Street Station
MLO24740	1-6 Finsbury Circus EC2, TQ 3278 8168, shallow streambed 2.13m wide was recorded at 4.27-4.57m below street level during building works in 1920.	Stream	Unknown	Liverpool Street Station, Moorgate Shaft
MLO24791	77-82 London Wall EC2, TQ 3302 8145, a large circular Roman pavement overlain by burnt corn, charcoal, pottery and coins, was revealed by sewer excavations in 1792.	Tessellated floor	Roman	Liverpool Street Station
MLO24810	30 Moorgate EC2, TQ 3270 8145, a possible tributary of the Walbrook, evidenced by black peaty silt overlying natural gravels were recorded during an excavation by the Guildhall Museum in 1951. The lower levels are reported to have contained Roman pottery, animal bones and shell, the upper levels are reported to contain medieval tiles and wood.	Occupation site, flood deposit and stream	Roman and Medieval	Liverpool Street Station
MLO24907	Liverpool Street Station EC2, TQ 3324 8169, Neolithic polished stone axe found on this site.	Find spot - axe	Neolithic	Liverpool Street Station
MLO24934	Aldermanbury (Junction London Wall Road Section) EC2, TQ 3248 8156, medieval dump deposits 2.44m thick containing finds of 13 th and 14 th century date were recorded during 1961. The lowest dumps containing the earlier material. A ditch containing a decayed wooden pipe connected with iron collars, was recorded cutting the lower level of dump deposits and sealed by later dumping. Numerous pieces of slag found in the dump deposits suggest metalworking took place in the vicinity. These deposits appear to represent deliberate land reclamation/raising of the ground level.	Dump/Land reclamation	Medieval	Liverpool Street Station, Moorgate Shaft
MLO24981	4-6 Finsbury Circus EC2, TQ 3280 8167, deposits of peat and 'mud' were recorded during excavations for the Society of Antiquaries in 1920. These deposits were interpreted as part of the Roman or medieval 'moor'.	Marsh	Roman & Medieval	Liverpool Street Station, Moorgate Shaft
MLO25076	Bishopsgate EC2, TQ 3320 8144, a length of drain measuring 2ft 3ins wide by 1ft 9ins high, built of Ragstone	Drain	Medieval	Liverpool Street

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	blocks and medieval tiles was found 7ft 8ins below street level at base, during post office excavations in 1906. It was suggested that the culvert may have been associated with Bishopsgate, although its exact relationship with the gate could not be ascertained.			Station
MLO25086	55 Basinghall Street EC2, TQ 3246 8154, Roman floor surfaces were found sealing the backfilled ditch of the Cripplegate fort; these were described as 'of late Roman date'. (Site Code BAS88).	Floor	Roman	Liverpool Street Station, Moorgate Shaft
MLO25092	166-170 Bishopsgate EC2, TQ 3330 8156, inter-cutting Roman pits for cess and rubbish disposal were revealed during an excavation by the DUA in 1989 (Site Code ISH88).	Settlement evidence	Roman	Liverpool Street Station
MLO25107	20-56 Copthall Avenue EC2, TQ 3283 8147, a series of Roman gullies were recorded on the west bank of and draining into the Walbrook, during an excavation by the DUA (Site Code LOW88).	Drainage gullies	Roman	Liverpool Street Station
MLO25108	20-56 Copthall Avenue EC2, TQ 3283 8147, two Roman buildings were located in the northwest corner of the site; the western one was constructed of brick earth sills and timber uprights. Excavated by the DUA in 1989 (Site Code LOW88).	Building	Roman	Liverpool Street Station
MLO25115	Moorgate Hall EC2, TQ 3274 8172, extensive dumps 'rich' in animal bone, leather waste and pottery; this domestic refuse was probably carted out of the city and dumped at the roadside (Site Code MOH88).	Dump, Land reclamation and rubbish layer	Medieval	Liverpool Street Station, Moorgate Shaft
MLO26188	St Alphage Garden EC2, TQ 3246 8163, three phases of the city defensive ditch were recorded during excavations by Grimes in 1949-50. North of the Roman ditch (3.66-3.96m wide), lay a broad 'U' shaped medieval ditch apparently of 2 periods. The earlier ditch was flat bottomed with a minimum depth of 1.85m, and contained dark clay and silt fills. The later ditch was also 'U' shaped (14.35m wide by 2.90m wide) lying 4.55m from the city wall; its edges were revetted by wooden stakes and its upper fill contained a large amount of 17th century pottery. This suggests that the ditch was either backfilled or re-cut at this time.	City defensive ditch	Roman Medieval & Post-medieval	Liverpool Street Station, Moorgate Shaft
MLO26189	6-7 St Alphage Garden (west of) EC2, TQ 3247 8162, a sequence of Roman and medieval city defensive ditches were excavated by the Guildhall Museum in 1960, modern foundation have however destroyed the junctions between several surviving features. The Roman city ditch was recorded as being 'U' shaped and contained brick and ragstone in its fill; this lay north of the defensive ditch of Cripplegate fort. North of the Roman ditch was a wide flat bottomed ditch containing a 'black earth' fill; Grimes suggested that the profile was reminiscent of a section recorded to the west that may have represented re-cutting of the ditch during the Civil War, or possibly backfilling of the 17 th century.	City defensive ditch	Roman Medieval & Post-medieval	Liverpool Street Station, Moorgate Shaft
MLO26190	2 Fore Street EC2, TQ 3249 8161, location of a gate said to have been made in 1655. Arches found to the rear of the city wall near to this point were thought to suggest a Roman origin for the gate, the arches were however purely structural and proved not to support this theory.	Gate	Post-medieval	Liverpool Street Station, Moorgate Shaft
MLO26191	London Wall EC2, TQ 3251 8160, a section of city wall of was revealed during building work monitored by Roach in 1857. The wall was said to be of 'unusual' construction in that behind the base of the wall were a series of blind arches. These were later shown to be those of Mayor Jocelyn's strengthening of the wall in 1477.	Wall	Roman	Liverpool Street Station, Moorgate Shaft

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MLO26193	London Wall EC2, TQ 3258 8158, a section of the city defensive ditch (3.66m wide, 1.22m deep) was recorded by W F Grimes in 1957. This may relate to the excavation by Harris in 1956-7.	City defensive ditch	Roman	Liverpool Street Station, Moorgate Shaft
MLO26194	London Wall EC2, TQ 3258 8158, a section of the Roman internal bank associated with the city wall was recorded by Grimes in 1957.	Bank / Earthwork	Roman	Liverpool Street Station, Moorgate Shaft
MLO26195	123 London Wall EC2, TQ 3265 8157, a section of the Roman city wall was recorded during building work in 1911. The wall survived to a height of 3.12m, reaching to within 0.61m, of pavement level. The outer face of the wall had been cut away.	City Wall	Roman	Liverpool Street Station, Moorgate Shaft
MLO26196	123 London Wall EC2, TQ 3265 8158, a section of the city defensive ditch was recorded during building work in 1911. The ditch extended beneath Fore Street in the north and was 5.48m deep at its deepest point (15.24m north of the city wall), its northern edge was not located. The ditch was filled with a 'black soil'.	City defensive ditch	Medieval & Post-medieval	Liverpool Street Station, Moorgate Shaft
MLO26197	122 London Wall EC2, TQ 3267 8157, a section of the Roman city wall was revealed during demolition work in 1920. The wall bore evidence of early rebuilding of uncertain date; above the plinth were five courses of squared ragstone and a double brick bonding course. The outer face had fallen away above this point and had been replaced by a battering plinth 1.83m high resting on a foundation 0.61m thick laid in front of the wall's original face. The wall above the batter was vertical comprising a double course of bonding tiles capped by four courses of squared ragstone; the repaired section of wall core contained many fragments of brick and roof tile.	City Wall	Roman	Liverpool Street Station, Moorgate Shaft
MLO26199	London Wall EC2, TQ 3269 8157, location of part of the medieval city defensive ditch, evidence by a 'mass of yielding black mud'. This was recorded by Brock during building works in 1882 extending across the site and beneath the south edge of Fore Street (now the northern side of the traffic island between Moorfields and Moorgate).	City defensive ditch	Medieval	Liverpool Street Station, Moorgate Shaft
MLO26210	St Alphege Garden EC2, TQ 3246 8163, a section of 'U' shaped ditch which contained a large amount of 17th century pottery was interpreted as either 17 th century re-cutting or infilling of the city ditch; possibly during the Civil War.	Ditch / Siegework	Post-medieval	Liverpool Street Station, Moorgate Shaft
MLO26211	122 London Wall EC2, TQ 3267 8157, a human skull was discovered half buried in a level of gravel at the foot of the Roman city wall (0.61m from the plinth). Recorded by Lambert in 1920.	Human remains	Roman	Liverpool Street Station, Moorgate Shaft
MLO26213	London Wall EC2, TQ 3278 8154, a red brick arch ("for the transit of water") measuring 1.83m high and 1.22m wide and supported by massive Elm piles 1.83m in length were recorded during monitoring of building work in 1835. It is possible that the arch carried the city wall over the western branch of the Walbrook.	Arch & piling	Roman	Liverpool Street Station
MLO26214	London Wall EC2, TQ 3278 8154, a black soil containing frequent animal bones was recorded under a Roman arch (MLO26213) during building works in 1835. This deposit may represent the western branch of the Walbrook.	Watercourse	Roman / Unknown	Liverpool Street Station
MLO26215	London Wall EC2, TQ 3278 8154, a timber planked pit or well which contained a store of earthenware vessels and a coin of Allectus (293-296 AD) was recorded during the monitoring of building works in 1835.	Pit / Well	Roman	Liverpool Street Station
MLO26216	London Wall EC2, TQ 3290 8151, 2 human skulls were recorded lying in a deposit of sand and silt overlying	Human remains	Roman	Liverpool Street

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	undisturbed ballast at the foot of the city wall during an excavation for the Society of Antiquaries in 1905. ON of the skulls was partly embedded in the mortar of the Roman foundations.			Station
MLO26217	London Wall EC2, TQ 3300 8149, a sandy silt filled depression (1.07m deep) was recorded at the foot of the north face of the city wall (MLO57267) during building works monitored in 1905. The feature has been interpreted as a probable north-south flowing tributary of the Walbrook. Roman pottery, animal bone and oyster shell was recovered from the bed of the stream. 'Curiously' culvert (MLO55932), which pierced the wall at the base of the depression, ran south-north.	Watercourse	Roman & Unknown	Liverpool Street Station
MLO26219	54-62 New Broad Street EC2, TQ 3304 8154, a human burial cut into the berm of the Roman city ditch was recorded during an excavation for the DUA (Site Code CA86). The burial was male aged 28-35 years old and 5ft 10 inches tall; the grave fill contained a corroded Eradiate coin dated 270-280 AD.	Inhumation burial	Roman	Liverpool Street Station
MLO26231	85 London Wall EC2, TQ 3297 8151, a sequence of the city defensive ditch was recorded during an excavation by the DUA (Site Code BLM87). The earliest ditch associated with the construction of the city wall was 5m wide and 1.5m deep. A large early 17 th century ditch (12.5m wide and 1m deep) may have removed any evidence of the medieval ditch.	City defensive ditch	Roman & post-medieval	Liverpool Street Station
MLO26232	85 London Wall EC2, TQ 3297 8150, the badly truncated remains of a masonry structure built against the outer face of the city wall were recorded during an excavation by the DUA (Site Code BLM88). The structure was interpreted as a bastion possibly altered at a later date for a non-defensive purpose.	Bastion	Roman	Liverpool Street Station
MLO26233	46-47 New Broad Street EC2, TQ 3298 8154, 'black mud' of the medieval ditch was recorded in the southern part of the site during an archaeological excavation by the Guildhall Museum in 1925. The mud contained numerous 15 th to 17 th century artefacts including shoes, knives, bone skates, pin makers bones and pottery.	City defensive ditch	Medieval & Post-medieval	Liverpool Street Station
MLO26235	New Broad Street EC2, TQ 3303 8152, excavations in 1905 on the site of 54-62 New Broad Street and 1986 by the DUA (Site Code CAP86) revealed evidence for the Roman, medieval and post-medieval city defensive ditch. The Roman ditch was recorded as being a c.4.88m wide with 'V' cut section with its inner edge 4.57 –6.0m from the city wall. The medieval ditch was identified as a broad expanse of black mud in 1905, with a gently sloping section some 22.85m from the Roman wall. The 1986 excavation did not identify a cut but recorded the line of the defensive circuit by a raised bank of 12 th century dump deposits at the edge of an earlier ditch. A 16 th century ditch (15m wide and 2m deep) was recording extending east-west across the site. This ditch had been backfilled by the mid 17 th century.	City Defensive Ditch	Roman, Medieval & Post-medieval	Liverpool Street Station
MLO26240	St Botolph Bishopgate Churchyard EC2, TQ 3316 8146, a bastion on the Roman wall was noted on the Copperplate Map of 1777, by J Schofield in 1777. The bastion is not included within the established sequence; a resistivity survey proved inconclusive and the bastion may be located further west in the area of 34-35 Wormwood Street.	Bastion	Roman	Liverpool Street Station
MLO26243	Bishopsgate EC2, TQ 3322 8145, part of the medieval city ditch was revealed during excavation for a British Telecom Tunnel by the DUA in 1989-1990 (Site Code BTB89). The ditch was wide and flat-bottomed, with no evidence for an	City Defensive Ditch	Medieval	Liverpool Street Station

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	earlier ditch found. A later arched foundation spanned the ditch cutting the water lain sediments within it.			
MLO26496	114-118 Bishopsgate EC2, TQ 3321 8145, a trench built foundation constructed from flints and brick earth cut the natural brick earth. This foundation was interpreted as being part of a monument on the boundary of the Roman City and recorded during the tunnelling for a British Telecom Tunnel (Site Code BTB89).	Commemorative Monument or building	Roman	Liverpool Street Station
MLO38794	1-6 Finsbury Circus EC2, TQ 3278 8168, a grey clay with frequent water worn pebbles, representing the flood deposits of a stream were recorded during building works in 1920.	Flood deposit	Roman	Liverpool Street Station, Moorgate Shaft
MLO38795	1-6 Finsbury Circus EC2, TQ 3278 8168, a reed bed (0.31m thick) containing 'much' roman refuse (pottery, coins etc) and possibly resulting from a diversion of the Walbrook was recorded during building works in 1920.	Reed bed	Roman & Medieval	Liverpool Street Station, Moorgate Shaft
MLO38796	23 Blomfield Street EC2, TQ 3294 8156, a timber lined and floored channel or tank was recorded following limited excavation during building works monitored in 1902.	Water tank	Roman	Liverpool Street Station
MLO39117	55-61 Moorgate, TQ 3267 8150, Roman piling and 'camp-sheathing' held together by piles driven into gravels, were recorded during excavations for the Guildhall Museum in 1929.	Piling	Roman	Liverpool Street Station
MLO39498	20 Copthall Avenue EC2, TQ 3278 8146, a series of Oak and Elm piles c.0.29m in diameter (arranged randomly and in rows) were recorded driven vertically within peat deposits and into the underlying natural gravels, by Colonel Lane Fox (later General Pitt Rivers) during building works in 1866. Some of the piles had horizontal planking attached. Merrifield suggests that the piles form a revetment on the east bank of the Walbrook; although their use as building foundations could not be disproved.	Piling / Revetment	Roman	Liverpool Street Station
MLO49270	St Alphage Garden EC2, TQ 3248 8161, the location of the northern corner turret of Cripplegate fort, as extrapolated by Grimes. Archaeological excavation between 1947 and 1951 revealed that "where early features had not been destroyed by deep floors they had been replaced by massive modern walls or foundations".	Turret	Roman	Liverpool Street Station, Moorgate Shaft
MLO50055	55 Basinghall Street EC2, TQ 3246 8154, excavation revealed traces of a timber structure on the western (internal) berm of the external defensive ditch of the Cripplegate fort. (Site Code BAS88).	Structure	Roman	Liverpool Street Station, Moorgate Shaft
MLO52728	London Wall EC2, TQ 3302 8149, human bones likely from the churchyard of All Hallows on the Wall were revealed during the excavation of a Post Office trench along London Wall in 1905.	Cemetery / Churchyard	Medieval & Post-medieval	Liverpool Street Station
MLO52729	London Wall EC2, TQ 3302 8159, a cell for anchorites is noted built adjacent to All Hallows on the Wall Church in 1474. The London Encyclopaedia (1983) sites its location as being next to the chancel wall. In 1907 Daniell suggested that it was "perhaps in a bastion of the city wall" (See MLO57268).	Hermits cell	Medieval	Liverpool Street Station
MLO53323	20-56 Copthall Avenue EC2, TQ 3283 8147, external yard containing a tile and mortar plinth associated with wattle and daub building (MLO22528). Excavated by the DUA in 1989 (Site Code LOW88).	Yard / Courtyard	Roman	Liverpool Street Station
MLO53728	1-14 Wallside EC2, TQ 3235 8154, sections of gravel metalling interpreted as part of the perimeter road of the Roman Cripplegate fort, were excavated by Grimes between 1947 and 1957. The road ran within the perimeter	Road	Roman	Liverpool Street Station, Moorgate Shaft

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	bank and wall of the fort, and comprised of gravel metalling up to 0.61m thick and 5.81m wide, flanked by side gullies. These gullies were probably revetted with wicker as the approached the gates.			
MLO54850	23 Blomfield Street EC2, TQ 3294 8156, platforms constructed from wooden piles in filled with "earth and rubbish containing first and second century finds" were recorded during excavations in 1901-2. The northern most group of piles comprised two platforms separated by a timber lined channel or pit.	Piling	Roman	Liverpool Street Station
MLO55904	Bishopsgate EC2, TQ 3341 8111, Roman, medieval and post-medieval city wall from running from Bishopsgate to Trinity Place (TQ 33212 81447 to TQ 33611 80764).	City Wall	Roman, medieval & Post-medieval	Liverpool Street Station
MLO55906	Aldersgate Street (East from) EC1, TQ 3232 8154, location of the city defensive ditch between Aldersgate to St Alphage Garden; i.e. the point at which the Roman city ditch departs the perimeter ditch of Cripplegate fort.	City defensive ditch	Roman Early medieval & Medieval	Liverpool Street Station, Moorgate Shaft
MLO55907	London Wall East of St Alphage House EC2, TQ 3285 8153, city defensive ditch running from St Alphage House, London Wall to Bishopsgate (TQ 32493 81606 to TQ 33207 81451).	City Defensive Ditch	Early-Medieval / Medieval	Liverpool Street Station
MLO55907	London Wall East from St Alphage House EC2, TQ 3285 8153, city defensive ditch from St Alphage House, London Wall to Bishopsgate.	City defensive ditch	Roman Early medieval & Medieval	Liverpool Street Station, Moorgate Shaft
MLO55927	Moorgate EC2, TQ 3271 8156, a mass of concrete comprising brick, tile, ragstone and septaria was recorded in 1925 'set on' a raft of timber (762mm) thick, which rested on a layer of rammed chalk 0.228m thick. This may be a section of medieval Moorgate.	Building	Medieval	Liverpool Street Station
MLO55930	48 London Wall EC2, TQ 3276 8154, a stone built culvert (probably medieval in date) which carried a tributary of the Walbrook through Roman city wall, was revealed during work monitored by the DUA (Site Code LWL87). The culvert measured 1.20m wide by 0.90m roof to floor and extended south from the inner face of the wall.	Culvert	Medieval	Liverpool Street Station
MLO55932	London Wall EC2, TQ 3300 8149, a brick lined Roman culvert (0.38m by 0.23m high) passed through the city wall and into a shallow depression (MLO26217) approximately 0.71m below the wall plinth. The culvert was recorded during building works in 1905; a human skeleton was excavated within the deposits filling the drain.	Culvert	Roman	Liverpool Street Station
MLO56308	St Alphage Garden EC2, TQ 3245 8162, the base and foundation of an extant section of the city wall are suggested by Grimes to have originally formed part of the Cripplegate fort perimeter wall.	Wall	Roman	Liverpool Street Station, Moorgate Shaft
MLO56778	100 Wood Street EC2, TQ 3231 8143, a 5.79m section of the external defensive ditch of the Cripplegate fort, was excavated by Grimes for RMLEC in 190-51. The ditch was 'V' shaped measuring 1.52m wide by 1.22m deep and was apparently spanned by a bridge carrying a roadway to the fort's gate.	Defensive ditch	Roman	Liverpool Street Station, Moorgate Shaft
MLO56936	London Wall EC2, TQ 3300 8149, a 'solid' Ragstone wall at the east end of All Hallows Church c. 9.14m south of the city wall. The wall extended east for 9.14m before turning north towards the city wall. The wall was interpreted as being part of All Hallows Church Yard wall destroyed during it rebuilding in 1765.	Wall	Medieval / Post-medieval	Liverpool Street Station
MLO57082	29 Noble Street EC2, TQ 3223 8150, section of the Roman internal bank associated with the perimeter wall of	Bank / Earthwork	Roman	Liverpool Street Station, Moorgate

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	Cripplegate fort was recorded during monitoring of landscaping work in 1973 (Site Code NOB73). The bank comprised orange clay (brick earth) and measured 2.40m wide by 0.95m high.			Shaft
MLO57261	St Alphage Garden EC2, TQ 3245 8162, a 46.5m section of the city wall (formerly acting as the north wall of St Alphage churchyard) was cleaned and restored by the City Corporation. The core of the wall of the Cripplegate fort lies at its base, above this at its east end lies c.3.35m of coursed rubble of (?) early medieval date, which merges with probable brickwork of 1477. At the west end (?) early medieval coursed rubble survives and was replaced by mid 14 th century smaller coursed ashlar with bands of knapped flint and tiles.	City Wall	Roman & Medieval	Liverpool Street Station, Moorgate Shaft
MLO57262	London Wall EC2, TQ 3258 8158, a 64.01m length of the city wall was recorded in an excavation by W F Grimes in 1957. The Roman wall survived to a height of 0.61-1.83m above the footing and chamfered sandstone plinth and tile levelling course, with a thickness of 2.52-2.59m. Much of the north face of the wall survived, while to the rear of the wall 16 supporting arches were recorded resting on the internal Roman bank. The arches varied from 1.35m wide by 0.90m high, to 2.75m wide by 1.50m high, spaced at between 0-2.00m. These arches represent strengthening of the wall by Mayor Jocelyn in 1477. A portion of the wall is preserved in an underground carpark.	City Wall	Roman & Medieval	Liverpool Street Station, Moorgate Shaft
MLO57263	London Wall EC2, TQ 3269 8156, a section of the city wall was recorded by Brock during building work in 1882. The wall measured 13.11m long by 2.79m wide (0.61m of this was medieval thickening). A series of 6 semi-circular supported arches (0.76m wide, 0.58m deep) with piers 0.58m wide, were noted on the inner face. The wall was recorded as standing 1.22m above the surface of the excavated site.	City Wall	Roman & Medieval	Liverpool Street Station, Moorgate Shaft
MLO57264	Moorgate EC2, TQ 3271 8156, location of a medieval gateway, the product of an enlargement to an earlier postern in 1415. The gateway is mention by Stow to have been rebuilt in1472 and improved in 1511. A new stone gateway built in 1672 was demolished in 1762.	Gateway	Medieval & Post-medieval	Liverpool Street Station
MLO57266	85 London Wall EC2, TQ 3297 8150, lengths of upstanding city wall were revealed on the southern side of the site during an excavation by the DUA in 1988 (Site Code BLM87). The Roman wall survived as the ferruginous sandstone plinth, 4 courses of ragstone and the 1 st tile bonding course; the core survived to the 2 nd tile bonding course and had evidently been poured from above leaving clear tip lines. The medieval face of the wall incorporated reused Roman materials; the core was comprised of new materials such as chalk and flints. The wall is preserved as a Scheduled Ancient Monument.	City Wall	Roman & Medieval	Liverpool Street Station
MLO57267	London Wall EC2, TQ 3300 8149, part of the Roman city wall was recorded during building works in1905. The wall formed the northern boundary of All Hallows churchyard, extending 12.60m west from the northwest corner of All Hallows Church. The wall survived to a height of 3.66m to present ground level and comprised a plinth on which four courses of squared ragstone, a triple tile bonding course, five courses of ragstone, a second triple bonding course, and six courses of ragstone were laid.	City Wall	Roman	Liverpool Street Station
MLO57268	All Hallows Vestry EC2, TQ 3302 8149, the vestry of All Hallows Church has its foundations set on a bastion of the city wall. Measuring 5.79m in diameter and projecting 4.57m from the wall, it survived to a height of c.2.40m. The bastion was built from rubble with white mortar resting on a plinth of ashlar, lying on a rectangular platform of the same	Bastion	Roman	Liverpool Street Station

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	material set with pink mortar. The north edge of the foundation overlay the southern edge of the Roman ditch, which had been backfilled with chalk and stones. The bastion may have been used to house and anchorite during the medieval period.			
MLO57269	All Hallows Church EC2, TQ 3305 8148, a small portion of the Roman city wall was revealed approximately 13.72m east of All Hallows Church during building work monitored in 1905. The wall comprised the plinth and two courses of squared Ragstone.	City Wall	Roman	Liverpool Street Station
MLO57270	22 Wormwood Street EC2, TQ 3317 8146, building work monitored by the Guildhall Museum in 1959 revealed the northern wall of the basement incorporated part of the medieval city wall. Both the Guildhall Museum Notebook and medieval Archaeology Volume 4 give the address as No. 21 but no wall is visible in this property.	City Wall	Medieval	Liverpool Street Station
MLO57351	108 Bishopsgate EC2, TQ 3322 8145, monitoring by W C Edwards work on the northern side of 108 Bishopsgate in 1921, revealed Roman masonry aligned north-south (perpendicular to the city wall) and comprising a wall 5ft thick at a depth of 3 ft from the surface. This may have formed part of a gateway.	Wall	Roman	Liverpool Street Station
MLO57353	Bishopsgate Street EC2, TQ 3321 8145, Roman foundations of Kentish Rag with clay with mortared Ragstone facing, were recorded during British Telecom tunnelling (Site Code BTB89).	Building	Roman	Liverpool Street Station
MLO58409	Bishopsgate Pedestrian Subway, TQ 3329 8158, Roman quarrying of the natural brick earth and gravels was recorded during a watching brief carried out by the DUA/ MoLAS (Site Code BSY91).	Quarrying	Roman	Liverpool Street Station
MLO58418	Bishopsgate Pedestrian Subway, TQ 3328 8159, Roman cremation in an Alice Holt Surrey ware jar. The cremation indicates the presence of the known roadside cemetery. No evidence of the road was observed during the watching brief carried out by the DUA/ MoLAS (Site Code BSY91).	Cremation burial	Roman	Liverpool Street Station
MLO58420	Bishopsgate Pedestrian Subway, TQ 3328 8159, a watching brief carried out by the DUA/ MoLAS (Site Code BSY91) recorded a well shaft probably backfilled during the 2 nd century AD and Roman quarrying.	Well	Roman	Liverpool Street Station
MLO58422	Bishopsgate Pedestrian Subway, TQ 3328 8159, a watching brief carried out by the DUA/MoLAS in 1991 (Site Code BSY91) recorded dumps of medieval roof tile, sealed by a gravel metalled surface; it was not clear whether the tile dumps were make-up for the metalling (See MLO58424).	Dump	Medieval	Liverpool Street Station
MLO58424	Bishopsgate Pedestrian Subway, TQ 3328 8159, gravel metalled surface confirming the medieval re-alignment of Roman Ermine Street; a line followed by the modern road or perhaps a little to the east of it. The surface sealed a dump of medieval roof tiles (See MLO58422). The metalled surface was recorded during a watching brief carried out by the DUA/MoLAS in 1991 (Site Code BSY91).	Road	Medieval	Liverpool Street Station
MLO58425	Bishopsgate Pedestrian Subway, TQ 3328 8159, medieval rubbish pits were found on at this location during a watching brief carried out by the DUA/MoLAS in 1991 (Site Code BSY91).	Occupation activity	Medieval	Liverpool Street Station
MLO58426	Bishopsgate Pedestrian Subway, TQ 3328 8159, medieval well found during a watching brief carried out by the DUA/MoLAS in 1991 (Site Code BSY91).	Well	Medieval	Liverpool Street Station

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MLO58428	Bishopsgate Pedestrian Subway, TQ 3328 8159, location of post-medieval cellars found during a watching brief carried out by the DUA/MoLAS in 1991 (Site Code BSY91).	Building Cellars	Post-medieval	Liverpool Street Station
MLO58429	6 Broad Street Place, TQ 3299 8166, one complete Roman burial and evidence for others was discovered by contractors during works in 1991. An excavation and watching brief to record the burials was carried out by the DUA in July 1991 (Site Code BSP91). The burials are thought to relate to a known burial ground in the area.	Inhumation Burial	Roman	Liverpool Street Station
MLO58681	90-94 Old Broad Street, TQ 3306 8149, the chalk and mortar foundation of a 17 th century building were recorded on this site during an excavation by the DUA in May 1991 (Site Code BRO90).	Building	Post-medieval	Liverpool Street Station
MLO58686	90-94 Old Broad Street, TQ 3306 8149, an excavation by the DUA in May 1991 (Site Code BRO90) recorded 17 th century pits.	Occupation evidence	Post-medieval	Liverpool Street Station
MLO58691	90-94 Old Broad Street, TQ 3306 8149, an excavation by the DUA in May 1991 (Site Code BRO90) recorded 18 th century wells.	Well	Post-medieval	Liverpool Street Station
MLO58692	90-94 Old Broad Street, TQ 3306 8149, a 20 th century reinterment recorded during an excavation by the DUA (Site Code BRO90), provides the only evidence for the medieval cemetery of All Hallows on the Wall located in the southern half of the site and extended after the documented post-medieval dismantling of the city wall.	Inhumation burial	Post-medieval	Liverpool Street Station
MLO 59273	Basinghall Avenue, TQ 3257 8152, the location of Girdler's Hall on this site owned by the Girdler's Company since 1431 and extended in 1505. The hall was destroyed in 1666 and rebuilt in 1681, only to be destroyed again in 1940. It was rebuilt by C Ripley and reopened in 1961 when the site boundaries were changed, as the surrounding roads were realigned. The new building is partly on the site of the earlier hall with a garden containing a mulberry tree descended from a tree of 1750. The basement (8ft by 10ft), contains no trace of earlier the site appears to have been totally cleared and the new building was built on a raft foundation. The site has been Scheduled as an Ancient Monument.	Livery Hall	Post-medieval	Liverpool Street Station, Moorgate Shaft
MLO59799	Finsbury Circus EC2, TQ 3285 8160, The gardens in the centre of Finsbury Circus occupy an 0.5ha oval plot, enclosed by railings, the long axis of which is orientated east-west. Gates to the north, south, west and east provide the access into the gardens. Finsbury Circus was laid out to the design of George Dance for the city of London, as part of the redevelopment of their Moorfield estate. The gardens surrounded by terraced houses and the London Institution were built after the Bethlehem Hospital had been demolished in 1815. In 1898 the Comptroller of the City Lands Committee produced a report recommending that an Act of parliament be obtained to open the garden to the public. This was secured in 1900, although it was not until 1909 that the garden was replanned and new facilities added. Following the boundary, but separated from the encircling roads by a ring of dense planting, is a perimeter walk, an original feature of the layout. Serpentine paths, also following the earlier pattern, lead off the outer walk, across lawns dotted with beds of shrub planting and formal bedding, towards the bowling green, surrounded by a low box edge, which forms the centre of the design. This area was cleared and remodelled as part of the early 20 th century alterations, at which time a patch of shrubbery on the western side of the site was replaced by a railed off seating area, now surrounded by low walls. The structure of the rest of the	Garden	Post-medieval	Liverpool Street Station

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Record ID	Description	Subject(s)	Period(s)	Relevant Sub-sites
	design remains much as it was in the early 19 th century. The drinking fountain (SMR 200860) in the northeastern quarter of the gardens also dates from the early 20 th century. Near to it, at the western end of the bowling green, is a bandstand, erected in 1955. On the south side of the bowling green, opposite Circus Place, stands a pavilion, put up in 1966 to replace the early 20 th century bowling hut, greenhouse and toolshed.			
MLO62876	31-35 Wilson Street, TQ 3292 8166, archaeological monitoring of trial pits by the Department of Greater London Archaeology in May 1989 (Site Code WIL89) revealed no significant archaeological remains other than a brick earth deposit containing bone, pottery and CBM fragments which backfilled a probable quarry. Excavation in 1989 revealed no archaeological features.	Negative Evidence	Unknown	Liverpool Street Station
MLO62897	7-21 Wilson Street, TQ 3288 8177, a possible watercourse was observed aligned north to south on the eastern boundary of the site. The channel was filled with a black waterlain clay. This may be the watercourse shown on the Copperplate Map running from 'Doggelhouse' to Moorfield.	Watercourse	Unknown	Liverpool Street Station, Moorgate Shaft
MLO63398	Finsbury Pavement (Island site), TQ 3282 8180, cut features of prehistoric or Roman date sealed by medieval marsh deposits were revealed during archaeological evaluation by MoLAS (Site Code FIP92).	Structure	Unknown	Liverpool Street Station, Moorgate Shaft
MLO63402	Finsbury Pavement (Island site), TQ 3282 8180, medieval marsh deposits were revealed sealing cut features of prehistoric or Roman date. (Site Code FIP92).	Marsh	Medieval	Liverpool Street Station, Moorgate Shaft
MLO63774	Broad Street Station, TQ 3304 8167, excavation by the DUA in 1985 (Site Code LSS85) identified one of the channels of the Upper Walbrook. The channel was observed as a naturally eroded surface of sands and gravels occupying a shallow, broad channel running northeast-southwest across the site. Within this main channel were series of smaller stream channels interspersed with washouts of pea gravel and fine waterlain silts.	Watercourse	Prehistoric	Liverpool Street Station
MLO63775	Broad Street Station, TQ 3304 8167, excavation by the DUA (Site Code LSS85) recorded dumps of brick earth dated as Roman, on the east and west banks of the stream (see MLO63774). This dumping activity complements wooden revetments seen on other Walbrook sites to the south, implying control of the upper watercourse at this time.	Dump deposits	Roman	Liverpool Street Station
MLO63776	Broad Street Station, TQ 3304 8167, peat and marsh deposits within the Walbrook valley indicate that the site lay within a large marsh formed in the area from the late Roman period to the medieval period.	Peat	Roman & Medieval	Liverpool Street Station
MLO63777	Broad Street Station, TQ 3304 8167, a large medieval ditch corresponding to one depicted on the Copperplate Map of c.1558, and one previously recorded near the city wall to the south was identified during an excavation by the DUA in 1985 (Site Code LSS85).	Ditch	Medieval	Liverpool Street Station
MLO63778	Broad Street Station, TQ 3304 8167, excavation by the DUA in 1985 (Site Code LSS85) recorded a burial ground located in the SW corner of the site. Over 200 burials, some in coffins, were recorded; the number of infants was notable. Pottery evidence from the graveyard suggests use in the 16th to 18th centuries; documentary evidence suggests that it is part of the New Church Yard founded in 1569 in ground enclosed and donated by Sir Thomas Roe. It is possible that some burials are from the nearby post-medieval Bethlem Hospital.	Inhumation & Human remains	Post-medieval	Liverpool Street Station

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Record ID	Description	Subject(s)	Period(s)	Relevant Sub-sites
MLO63779	Broad Street Station, TQ 3304 8167, several wooden revetments aligned east-west were recorded (DUA; Site Code LSS85) near to the assumed line of the precinct of St Mary Bethlem Hospital.	Revetment Revetment	Post-medieval Unknown	Liverpool Street Station
MLO64145	Fore Street EC2, TQ 3248 8165, the top of an 18 th century brick built culvert was exposed during a watching brief carried out by MoLAS (Site Code FBS93).	Culvert	Post-medieval	Liverpool Street Station, Moorgate Shaft
MLO64146	Fore Street EC2, TQ 3248 8165, two 19 th century brick built vaults were revealed during a watching brief carried out by MoLAS (Site Code FBS93).	Vault	Post-medieval	Liverpool Street Station, Moorgate Shaft
MLO64569	41-53 Threadneedle Street, TQ 332 814, a post-medieval brick structure, possibly a drain of 18 th century date was recorded during an archaeological evaluation by the DUA in 1991 (Site Code TEE91).	Drain	Post-medieval	Liverpool Street Station
MLO64570	41-53 Threadneedle Street, TQ 332 814, archaeological evaluation (DUA 1991, Site Code TEE91) revealed the remains of a substantial chalk, brick and sandstone cellar or cesspit. The cesspit was filled with a rich organic deposit, which contained frequent potsherds dating to the 17 th and 18 th centuries.	Cellar / Cesspit	Post-medieval	Liverpool Street Station
MLO64572	41-53 Threadneedle Street, TQ 332 814, an evaluation by the DUA in 1991 (Site Code TEE91) revealed a dark brown silty layer 0.47m thick (interpreted as a dark earth) overlying redeposited brick earth material.	Dark earth	Unknown	Liverpool Street Station
MLO64573	41-53 Threadneedle Street, TQ 332 814, a straightsided cut containing a dark grey mixed material was found possibly a linear feature or a square well of Roman date. This date is suggested in the absence of finds by the nature of the cut and the depth in the sequence.	?Ditch/Well	Roman	Liverpool Street Station
MLO64574	41-53 Threadneedle Street, TQ 332 814, a layer of mixed burnt daub, mortar, organic material and sandy brick earth was recorded during an evaluation by the DUA in 1991 (Site Code TEE91).	Dump	Unknown	Liverpool Street Station
MLO64732	49-53 Moorgate, TQ 3267 8147, a number of truncated rubbish pits dated 12 th century to c.1500 were recorded during an excavation by the DUA (Site Code MOG86). Of note were two large square rubbish pits and a smaller wattle lined pit dated to the 12 th century. These features were probably located at the back of a property fronting Coleman Street.	Occupation evidence	Medieval	Liverpool Street Station
MLO64733	49-53 Moorgate, TQ 3267 8147, a medieval chalk well, backfilled in the 18 th century was recorded by the DUA (Site Code MOG86).	Well	Medieval	Liverpool Street Station
MLO64734	49-53 Moorgate, TQ 3267 8147, post-medieval metalwork found during excavations by the DUA (Site Code MOG86).	Find spot	Post-medieval	Liverpool Street Station
MLO64815	43 London Wall, TQ 3271 8153, a post built structure was constructed on higher ground west of the Roman road and a north-south aligned ditch/drain. Recorded during an excavation in 1984 (Site Code LWA84)	Structure	Roman	Liverpool Street Station
MLO64817	43 London Wall, TQ 3271 8153, an east-west aligned drainage ditch of 11 th century date was recorded during an excavation in 1984 (Site Code LWA84),	Drain	Medieval	Liverpool Street Station
MLO64897	44 London Wall, TQ 3272 8153, a succession of brick earth floors and occupation deposits were recorded sealing road deposits during an excavation by the DUA (Site Code LDW84).	Floor	Post-Roman	Liverpool Street Station
MLO64933	Cophthall Avenue, TQ 3275 8150, a watching brief by the	Posts &	Roman	Liverpool Street

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Record ID	Description	Subject(s)	Period(s)	Relevant Sub-sites
	DUA (Site Code KEY83) recorded a number of Roman posts and postholes.	postholes		Station
MLO64934	Copthall Avenue, TQ 3275 8150, gravel surfaces of Roman date were recorded during a watching brief undertaken by the DUA (Site Code KEY83).	Surface	Roman	Liverpool Street Station
MLO64935	Copthall Avenue, TQ 3275 8150, water lain deposits of the Walbrook were found during a watching brief by the DUA (Site Code KEY83). The Walbrook was effectively controlled during the Roman period.	Watercourse	Roman	Liverpool Street Station
MLO64936	Copthall Avenue, TQ 3275 8150, a peat formation dating to the end of the Roman period indicates that the area became marshy. Recorded during a watching brief by the DUA (Site Code KEY83).	Marsh	Roman	Liverpool Street Station
MLO65063	2-3 Cross Key Court, TQ 3275 8148, a series of pits dating to the 11 th – 12 th century were found during an excavation and watching brief carried out by the DUA (Site Code OPT81).	Occupation evidence	Early Medieval - Medieval	Liverpool Street Station
MLO65064	2-3 Cross Key Court, TQ 3275 8148, a ditch dated 11 th – 12 th century was recorded during an excavation and watching brief carried out by the DUA (Site Code OPT81).	Occupation evidence	Early Medieval - Medieval	Liverpool Street Station
MLO65065	2-3 Cross Key Court, TQ 3275 8148, a thick peat deposit (becoming level in the 12 th century) representing a marsh, which developed in the area from the Roman period onwards, was recorded by the DUA in 1981-2 (Site Code OPT81).	Marsh	Medieval	Liverpool Street Station
MLO65066	2-3 Cross Key Court, TQ 3275 8148, large quantities of clay were dumped during the 12 th century to consolidate the marshy ground, which had formed on the site. Recorded during excavation work by the DUA (Site Code OPT81).	Dump	Medieval	Liverpool Street Station
MLO65067	2-3 Cross Key Court, TQ 3275 8148, 13 th century clay tanks, possibly for the storage of shellfish, were recorded during excavation work by the DUA (Site Code OPT81).	Structure	Medieval	Liverpool Street Station
MLO65068	2-3 Cross Key Court, TQ 3275 8148, large quantities of slag, crucibles and a mould for casting bronze buckles provide evidence for a metal working site in the area in the 14 th /15 th century. Recorded during an excavation and watching brief carried out by the DUA (Site Code OPT81).	Metalworking site	Medieval	Liverpool Street Station
MLO65079	Finsbury House, TQ 3283 8155, a north-south timber post alignment was recorded when a section was cut through fine river gravels during an excavation for the DUA in 1981 (Site Code FIN81). This may represent a revetment for a tributary of the Walbrook.	Revetment	Unknown	Liverpool Street Station
MLO65347	80 Coleman Street EC2, TQ 3267 8152, a medieval pit containing slag was found during an excavation by the DUA (Site Code CEM88).	Occupation evidence	Medieval	Liverpool Street Station
MLO65407	12-15 Finsbury Circus, TQ 3288 8168, a dump of re-deposited brick earth was recorded sealing a Roman road during an excavation by the DUA (Site Code FIB88).	Dump	Roman	Liverpool Street Station, Moorgate Shaft
MLO65408	12-15 Finsbury Circus, TQ 3288 8168, a large dump of brick earth was cut by 6 burials (four aligned east-west) and 2 cremations. The burials had associated 'whole' posts one of black-burnished ware, the other Cologne colour coat, dated to the late 2 nd or early 3 rd century.	Inhumation & Cremation burials Cemetery	Roman	Liverpool Street Station, Moorgate Shaft
MLO65409	12-15 Finsbury Circus, TQ 3288 8168, a northwest-southeast aligned water channel containing 'marsh' deposits. Residual disarticulated human remains and	Water channel	Roman	Liverpool Street Station, Moorgate Shaft

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Record ID	Description	Subject(s)	Period(s)	Relevant Sub-sites
	pottery were found at the bottom of the channel.			
MLO65410	12-15 Finsbury Circus, TQ 3288 8168, a series of later medieval dumps were recorded sealing a water channel. (Site Code FIB88).	Dump	Medieval	Liverpool Street Station, Moorgate Shaft
MLO65411	12-15 Finsbury Circus, TQ 3288 8168, an east-west aligned post-medieval ditch containing 17 th century backfill was recorded during excavations by the DUA (Site Code FIB88).	Ditch	Post-medieval	Liverpool Street Station, Moorgate Shaft
MLO65471	48 London Wall, TQ 3276 8154, a stone built culvert of probable medieval date fed a tributary of the Walbrook through the Roman wall was recorded during monitoring of BT works by the DUA in 1988.	Culvert	Medieval	Liverpool Street Station
MLO65477	35-45 New Broad Street, TQ 3303 8153, Roman inhumation burials were found in a small cemetery in the southern part of the site during an archaeological excavation in 1988 (NEB87). The site appears to have been abandoned between the construction of the city wall (c. 200 AD) and the medieval period.	Cemetery Inhumation burials	Roman	Liverpool Street Station
MLO65478	35-45 New Broad Street, TQ 3303 8153, a substantial east-west aligned ditch was recorded along the northern part of the site during an excavation by the DUA (Site Code NEB87).	Ditch	Medieval	Liverpool Street Station
MLO65479	35-45 New Broad Street, TQ 3303 8153, the medieval ditch (MLO65478) was replaced by a line of 'earth-fast' posts 0.30m in diameter, which probably date to the early 17 th century. The line of posts probably represent the southern boundary of St Mary Bethlam (later Bedlam) hospital (c.1246-1676) which stood on the site of Liverpool Street Station. (Site Code NEB87)	Boundary / post-holes	Post-medieval	Liverpool Street Station
MLO65479	35-45 New Broad Street, TQ 3303 8153, archaeological excavation (Site Code NEB87) revealed that most of the site was used as a rubbish dump during the 17 th century.	Dump	Post-medieval	Liverpool Street Station
MLO65481	35-45 New Broad Street, TQ 3303 8153, archaeological excavation (Site Code NEB87) recorded a group of tenements known as Petty France and mention by Stow in 1598, represented by brick cellars and pits.	Tenements	Post-medieval	Liverpool Street Station
MLO65483	35-45 New Broad Street, TQ 3303 8153, archaeological excavation (Site Code NEB87) recorded brick and wood lined rubbish pits associated with the tenements known as 'Petty France' (see MLO65481).	Occupation evidence	Post-medieval	Liverpool Street Station
MLO65621	River Plate House, TQ 3283 8160, three inhumations of Roman date, truncated by deep foundations, were recorded during excavations in 1987 (Site Code RIV87). The grave cuts were indistinguishable, due to later marsh flooding and the deposition of re-worked brick earth. One of the burials had an associated Verulamium Region White Ware flask, decorated with rouletted bands around the rim, neck and shoulder, likely to the date to the mid-late 2nd century. No other vessel of this type has been found in London.	Inhumation burials	Roman	Liverpool Street Station
MLO65622	River Plate House, TQ 3283 8160, medieval dump deposits were found sealing marsh deposits in the southern part of the site during excavations in 1987 (Site Code RIV87).	Dump	Medieval	Liverpool Street Station
MLO65623	River Plate House, TQ 3283 8160, post-medieval dump deposits were recorded site during excavations in 1987 (Site Code RIV87). Several fragments of a Valencian Lustre Ware altar vase (1380-1650), of a form rare in Britain were found in one of these dumps.	Dump	Post-medieval	Liverpool Street Station

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Record ID	Description	Subject(s)	Period(s)	Relevant Sub-sites
MLO65624	River Plate House, TQ 3283 8160, an undated cremation was found in the northern part of the site within the underlying brick earth, during excavation in 1987 (Site Code RIV87).	Cremation burial	Unknown	Liverpool Street Station
MLO65625	River Plate House, TQ 3283 8160, a 'V'shaped channel 1.2m wide was recorded within six underpinning pits (Site Code RIV87) in the southern area of the site. The channel had been cut into the brick earth and gravel and was filled with organic, waterlogged 'black silts'. It provides the only evidence in the area of a (possibly) man-made channel cut to divert or drain one of the tributaries of the Walbrook.	Culvert / Channel	Unknown	Liverpool Street Station
MLO65626	River Plate House, TQ 3283 8160, naturally-formed, silted-up stream beds were found cut into brick earth which overlay deposits containing late Iron Age pottery and the natural sands and gravels, during archaeological works (Site Code RIV87).	Stream	Unknown	Liverpool Street Station
MLO65742	55-61 Moorgate, TQ 3268 8149, an important collection of Roman glass working debris was found associated with a building (in use until 120-140 AD), during an excavation by the DUA (Site Code MGT87). A dump of leather shoe-making waste was also found in one trench.	Glass working site Leather working site	Roman Roman	Liverpool Street Station
MLO65744	55-61 Moorgate, TQ 3268 8149, a damaged Roman statue of a god, possible Mercury, was found associated with a metal yard and timber plank during excavations by the DUA (Site Code MGT87).	Statue Yard	Roman	Liverpool Street Station
MLO65745	55-61 Moorgate, TQ 3268 8149, a metal yard of provisional date 100-200 AD was excavated by the DUA (Site Code MGT87).	Yard	Roman	Liverpool Street Station
MLO65750	55-61 Moorgate, TQ 3268 8149, excavations by the DUA (Site Code MGT87), revealed that Roman occupation of the site ended with a phase of deep dumping dated late 2 nd to 3 rd centuries.	Dump	Roman	Liverpool Street Station
MLO65751	55-61 Moorgate, TQ 3268 8149, medieval well recorded during a DUA excavation (Site Code MGT87).	Well	Medieval	Liverpool Street Station
MLO65752	55-61 Moorgate, TQ 3268 8149, a series of medieval wattle lined pits appeared to lie along a property boundary parallel to the modern line of Nun Court, in an excavation by the DUA (Site Code MGT87).	Occupation evidence	Medieval	Liverpool Street Station
MLO65869	Moorfields, TQ 3270 8161, unspecified post-medieval structures were recorded in a single test pit during an evaluation undertaken by MoLAS (Site Code XRD92).	Structure	Post-medieval	Liverpool Street Station, Moorgate Shaft
MLO65870	Moorfields, TQ 3270 8161, Moorfields marsh was identified in a test pit at this location during an evaluation undertaken by MoLAS (Site Code XRD92).	Marsh	Unknown	Liverpool Street Station, Moorgate Shaft
MLO65931	22-24 24 Wormwood Street EC2, TQ 3316 8146, archaeological evaluation (Site Code WOE94) established the width and survival of the Roman City Wall; the original poured core was exposed near to ground level. A modest slope in the wall was observed and thought to indicate a degree of settling after ground reduction in modern times it is also thought that the modern basement has truncated deposits to a depth below the bottom of the foundation trench of the city wall.	City Wall	Roman	Liverpool Street Station
MLO65932	22-24 24 Wormwood Street EC2, TQ 3316 8146, two truncated Roman rubbish pits were found, finds recovered included pottery dated 70-120 AD and pre-dated the construction of the City Wall, were recorded during an evaluation carried out by MoLAS in 1994 (Site Code WOE94).	Occupation evidence	Roman	Liverpool Street Station

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Record ID	Description	Subject(s)	Period(s)	Relevant Sub-sites
MLO65933	23-24 24 Wormwood Street EC2, TQ 3316 8146, a well or cess pit of 18 th or possibly 19 th century date was found was found during evaluation (Site Code WOE94). The backfill contained a set of dentures, which used real human teeth (Waterloo Teeth).	Cess Pit / Well	Post-medieval	Liverpool Street Station
MLO66356	74-78 London Wall, TQ 3300 8145, two phases of a Roman building separated by levelling dumps were recorded during an evaluation undertaken by MoLAS in 1995 (Site Code WCH95).	Building	Roman	Liverpool Street Station
MLO66357	74-78 London Wall, TQ 3300 8145, Roman levelling dumps were recorded separating two phases of building (see MLO66356) and sealing a drainage channel, during an evaluation undertaken by MoLAS in 1995 (Site Code WCH95).	Dump	Roman	Liverpool Street Station
MLO66358	74-78 London Wall, TQ 3300 8145, a drainage channel dating to the Roman period was recorded during an evaluation undertaken by MoLAS in 1995 (Site Code WCH95).	Drain	Roman	Liverpool Street Station
MLO66359	74-78 London Wall, TQ 3300 8145, a single pit with organic fill of medieval date was recorded during an evaluation undertaken by MoLAS (Site Code WCH95). A subsequent excavation and watching brief in 1996-7 recorded further pits cutting a thick dumped deposit; pottery was sparse ceramic building material predominating. One pit contained redeposited Roman material.	Occupation evidence	Medieval	Liverpool Street Station
MLO66360	74-78 London Wall, TQ 3300 8145, a large 17 th century pit and 19 th century brick line cesspit were recorded during a 1995 evaluation carried out by MoLAS (Site Code WCH95).	Occupation evidence	Post-medieval	Liverpool Street Station
MLO66875	Liverpool Street (Crossrail), TQ 3313 8159, modern services, pier bases and backfill were recorded during monitoring by MoLAS in 1994 (Site Code CLS94).	Negative Evidence	Unknown	Liverpool Street Station
MLO67033	6-8 Moorfields Close, TQ 3269 8163, a north-south aligned semi-circular vaulted drain constructed from unfrogged red bricks with a sandy mortar, was recorded during evaluation (Site Code XRD92). The base of the drain had slumped to the west and it was blocked by a black organic silt, interpreted as a residue of its last use.	Drain	Medieval & Post-medieval	Liverpool Street Station, Moorgate Shaft
MLO67034	6-8 Moorfields Close, TQ 3269 8163, several phases of medieval and post-medieval footings were recorded during monitoring of test pits by MoLAS (Site Code XRB92).	Building	Medieval & Post medieval	Liverpool Street Station
MLO67034	6-8 Moorfields Close, TQ 3269 8163, several phases of footings were recorded in a test pit during an evaluation undertaken by MoLAS (Site Code XRD92).	Building	Medieval & Post-medieval	Liverpool Street Station, Moorgate Shaft
MLO67035	6-8 Moorfields Close, TQ 3269 8163, the drain (MLO67033) was re-used as a springer for a medieval or post-medieval wall footing with a rubble core. Recorded during evaluation work undertaken by MoLAS (Site Code XRD92).	Wall	Medieval / Post-medieval	Liverpool Street Station, Moorgate Shaft
MLO67036	Fore Street, TQ 3263 8163, a greenish black, organic peat clay containing plant debris, shell and charcoal was recorded during monitoring of test pits by MoLAS (Site Code XRB92), and interpreted as part of the Moorfields Marsh.	Peat	Unknown	Liverpool Street Station, Moorgate Shaft
MLO67037	South Place, TQ 3279 8175, a black-brown organic silt containing clay pipe and brick fragments thought to be post-medieval dumping was recorded during borehole monitoring by MoLAS (Site Code XRB92).	Dump	Post-medieval	Liverpool Street Station, Moorgate Shaft

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Record ID	Description	Subject(s)	Period(s)	Relevant Sub-sites
MLO67038	South Place, TQ 3279 8175, a grey to black organic deposit with animal bone and several copper alloy objects was recorded during borehole monitoring by MoLAS (Site Code XRB92), Its highly organic nature suggests it was part of the Moorfields Marsh.	Marsh	Unknown	Liverpool Street Station, Moorgate Shaft
MLO67039	Finsbury Circus (West Side), TQ 3280 8162, a greenish-black organic peat containing plant debris, mussel shells and charcoal interpreted as part of the 'Moorfields Marsh' was recorded during monitoring of boreholes by MoLAS (Site Code XRB92).	Peat	Unknown	Liverpool Street Station
MLO67040	Finsbury Circus, TQ 3286 8156, monitoring of testpits by MoLAS in 1992 (XRB92) revealed a black organic silty clay with plant debris and shell. This deposit became progressively more peaty with depth, comprising almost entirely of matted grasses with seeds and beetles and a blue sandy-silt lens at its base. This deposit was interpreted as being part of the Moorfields Marsh. Leather fragments were also noted but were not clearly actual objects and may have been waste cut-offs.	Peat	Unknown	Liverpool Street Station
MLO67041	Blomfield Street, TQ 3297 8155, monitoring of test pits by MoLAS in 1992 (Site Code XRB92) recorded layers of peaty sandy clay, with a high organic content. These deposits may lie on the edge of the Walbrook.	Watercourse	Unknown	Liverpool Street Station
MLO67042	Liverpool Street near junction with Blomfield Street EC2, TQ 3303 8161, pieces of human skull were found in a black silty-clay deposit (see MLO67043) during archaeological monitoring of test pits by MoLAS in 1992 (Site Code XRB92). The skull fragments recovered have been identified as belonging to the skull of a male with a receding forehead, pronounced skull ridges and anterior muscle attachments.	Human Remains	Unknown	Liverpool Street Station
MLO67043	Liverpool Street near junction with Blomfield Street EC2, TQ 3303 8161, an organic silty-clay with peaty lense which became more peaty with depth was found during monitoring MoLAS in 1992 (Site Code XRB92). The deposite contained pieces of orange-red ceramic building material, which may have been Roman tile or brick. The upper parts of these deposits may have been part of the Moorfields Marsh.	Peat	Unknown	Liverpool Street Station
MLO67416	Coleman Street, TQ 3265 8155, a watching brief undertaken by MoLAS in 1996 (Site Code CYE96) revealed no archaeological features or deposits.	Negative evidence	Unknown	Liverpool Street Station, Moorgate Shaft
MLO67915	Fore Street, TQ 3270 8155, an organic silty layer possibly of medieval date was recorded during a watching brief by MoLAS (Site Code FOS95). It is unclear whether this deposit forms part of Moorfields marsh or is the fill of an intrusive feature.	Unclassified deposit	Medieval	Liverpool Street Station
MLO67916	Fore Street, TQ 3270 8155, two post-medieval pits (no later than 18 th century) cut an undated organic deposit. Recorded during a watching brief by MoLAS (Site Code FOS95).	Occupation evidence	Post-medieval	Liverpool Street Station
MLO68015	London Wall opposite Copthall Avenue EC2, TQ 3279 8154, in 1934 a section of the Roman city wall was recorded when a was tunnel cut through it. The wall had a depth of 12ft 3in and was just over 7ft thick. A double brick bonding course could be seen at the back of the wall; two foot above the course was a triple bonding course with 1 1/2 in offset between middle bricks. The core of the wall, at a depth of 10-12 ft was of rag, poorly mortared and the top of this work was not level. Above this was a plinth of ragstone with some brown sandstone bonded by a hard white mortar. A double bonding course appeared in it, but was not visible on the outer face. A layer of loose red tiles	City Wall	Roman	Liverpool Street Station

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Record ID	Description	Subject(s)	Period(s)	Relevant Sub-sites
	(one with a flange) was observed in the middle of the wall. (Site Code GM72)			
MLO68018	London Wall opposite Coleman Street, TQ 3265 8156, a (45ft) length of the Roman city wall was uncovered immediately beneath the street frontage of the buildings on the northern side of London Wall at the corner of Moorgate and recorded for the Guildhall Museum in 1961 (Site Code GM108). This is the same piece of wall recorded in 1882 and had been underpinned when the 1882 building was constructed. Six feet below the modern pavement an irregular double course of Roman tiles in yellow cement was seen.	City Wall	Roman	Liverpool Street Station, Moorgate Shaft
MLO68033	London Wall between EC2, TQ 3260 8151, a 64.01m length of the city wall was recorded in an excavation by E Harris in 1957 (Site Code GM173). The wall survived as part of the south basement wall on the site and was cleaned, surveyed and photographed. A section across the bank, wall and ditch was drawn. A feature of the wall at this location were brick supporting arches dated c.1477. This is likely to be the same section of wall recorded by Grimes (MLO57262).	City Wall	Roman	Liverpool Street Station, Moorgate Shaft
MLO68034	London Wall between EC2, TQ 3260 8151, a 64.01m length of the city wall was recorded in an excavation by E Harris in 1957 (Site Code GM173). A feature of the wall at this location were brick supporting arches dated c.1477.	Arches	Medieval	Liverpool Street Station, Moorgate Shaft
MLO68037	20 Cannon Street Waites Site EC4, TQ 3256 8159, several medieval rubbish pits were recorded during building works in 1959. One pit of 13 th century date produced a 'few' sherds of pottery, a second pit (c.5ft diameter by 6ft deep) cut the gravel ballast at the southern end of the site and produced pottery, animal bone and a human skull.	Occupation evidence	Medieval	Liverpool Street Station, Moorgate Shaft
MLO68098	12-16 Finsbury Circus EC2, TQ 3290 8168, GuildHall Museum archive report records that a photograph is held showing two Roman pots found in the gravel. The address may be 12-15, as No. 16 is a separate building. No details of any excavation work are recorded.	Find spot	Roman	Liverpool Street Station
MLO68164	20-21 Wormwood Street EC2, TQ 3318 8145, a 17 th century brick lined cesspit and earlier cess and rubbish pits were recorded during a watching brief carried out by MoLAS (Site Code WOM94). The 17 th century cesspit lay immediately south of the projected line of the Roman city wall. This suggests that at the time the pit was dug the wall was still in place.	Occupation evidence	Post-medieval	Liverpool Street Station
MLO68557	Liverpool Street Station Booking Office EC2, TQ 3315 8157, archaeological work carried out by the DUA (Site Code VLT86) recorded a large cut feature probably a pit.	Pit	Unknown	Liverpool Street Station
MLO68558	Liverpool Street Station Booking Office EC2, TQ 3315 8157, a thick dark deposit containing medieval material was observed during work by DUA (Site Code VLT86).	Unclassified deposits	Medieval & Unknown	Liverpool Street Station
MLO68559	Liverpool Street Station Booking Office EC2, TQ 3315 8157, a north-south aligned chalk wall foundation and an east-west aligned brick wall on a chalk and flint foundation were recorded during work by the DUA (Site Code VLT86). Truncating the east-west aligned wall was brickwork assumed to be part of the underground railway tunnel.	Wall	Unknown	Liverpool Street Station
MLO68575	2 Fore Street EC2, TQ 3251 8163, undated ditch located within a test pit during archaeological work for the DUA (Site Code FRS89).	Ditch	Unknown	Liverpool Street Station, Moorgate Shaft
MLO69625	Finsbury Circus, TQ 3270 8160, location of the new Royal Bethlehem Hospital, built on the southern edge of	Hospital	Post-medieval	Liverpool Street Station, Moorgate

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Record ID	Description	Subject(s)	Period(s)	Relevant Sub-sites
	Moorfields in 1676, replacing its medieval predecessor in Liverpool Street. It was moved again to Lambeth prior to the laying out of Finsbury Circus in 1815.			Shaft
MLO69627	New Broad Street, TQ 3305 8153, many tenements are noted existing around the quadrant of 'Petty France' by the 16 th century.	Tenement	Post-medieval	Liverpool Street Station
MLO70124	Finsbury Square, TQ 3300 8170, location of a post-medieval cemetery/churchyard identified by Holmes on her map (1896), annotated that very little remained.	Cemetery / Churchyard	Post-medieval	Liverpool Street Station
MLO70945	Broad Street, TQ 332 815, the former site of a post-Roman (410 AD to 1900 AD) churchyard identified by Holmes; built over by houses prior to 1896.	Churchyard	Post-Roman	Liverpool Street Station
MLO70949	Old Jewry, TQ 327 814, unspecified location of a medieval cemetery, Holmes identified that the site was taken 'for the making of Jewry Street'.	Cemetery	Medieval	Liverpool Street Station
MLO70953	Bishopsgate EC2, TQ 3320 8170, post-Roman (410 AD to 1900 AD) cemetery known as 'Rowes' identified by Holmes as being covered by Liverpool Street Station. Exact location unknown.	Cemetery	Post-Roman	Liverpool Street Station
MLO71039	80 Coleman Street EC2, TQ 3267 8152, two parallel Roman ditches were recorded backfilled with rubbish and sealed by a dump deposit. (Site Code CMA87)	Ditch	Roman	Liverpool Street Station
MLO71041	80 Coleman Street EC2, TQ 3267 8152, Roman dump deposit containing evidence of burning found during archaeological works (Site Code CMAQ87).	Dump	Roman	Liverpool Street Station
MLO71043	80 Coleman Street EC2, TQ 3267 8152, truncated remains of a brick earth built building found during archaeological works (Site Code CMAQ87).	Building	Unknown	Liverpool Street Station
MLO71045	80 Coleman Street EC2, TQ 3267 8152, east-west aligned medieval ditch partially lined with timber, recorded during archaeological works (Site Code CMAQ87).	Ditch	Medieval	Liverpool Street Station
MLO71046	80 Coleman Street EC2, TQ 3267 8152, a medieval pit containing slag was recorded during archaeological works (Site Code CMAQ87).	Occupation evidence	Medieval	Liverpool Street Station
MLO71073	London Wall junction with Blomfield Street, TQ 3294 8151, undated water lain deposits of the Walbrook were recorded in 1989 (Site Code LWB89).	Unclassified Deposit	Unknown	Liverpool Street Station
MLO71856	Finsbury Circus, TQ 3276 8165, documentary evidence (Mayor's Court Rolls of 1301) state that Moorfield was either water meadow or was intersected by trenches deep enough to carry a boat. It was mentioned again in 1411 when it is noted that the moor was covered with trees, gardens and hedges. The moor was drained in 1527 but continued as wasteland, traversed by open sewers and became a rubbish dump.	Marsh	Medieval	Liverpool Street Station, Moorgate Shaft
MLO71857	Finsbury Circus, TQ 3276 8165, A desk based assessment by MOLAS states that in the early 17th century, the area was systematically infilled and the ground level raised and converted into a public park. In the second half of the 17th century, Moorfields was used as a temporary camping ground for the homeless after the Great Fire of London. Reclamation by dumping rubbish up to 3 ft deep was undertaken in 1730; by 1777 it was possible to convert Upper Moorfields into Finsbury Square.	Marsh Garden	Post-medieval Post-medieval	Liverpool Street Station, Moorgate Shaft
MLO72940	Great Eastern Hotel Liverpool Street EC2, TQ 3323 8157, a watching brief carried out by MoLAS on 1996 (Site Code LPS96) revealed only natural deposits and modern	Negative Evidence	Unknown	Liverpool Street Station

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Record ID	Description	Subject(s)	Period(s)	Relevant Sub-sites
	backfill, no archaeological features were observed.			
MLO74110	8-10 Throgmorton Avenue EC2, TQ 3287 8144, Roman external gravel surfaces were recorded in the north and western parts of the site during an evaluation undertaken by MoLAS in 1999 (Site Code TGM99).	Surface	Roman	Liverpool Street Station
MLO74111	8-10 Throgmorton Avenue EC2, TQ 3287 8144, an evaluation undertaken by MoLAS in 1999 (Site Code TGM99) suggested that a stream/channel occupied the southern and eastern parts of the site during the Roman period.	Watercourse	Roman	Liverpool Street Station
MLO74112	8-10 Throgmorton Avenue EC2, TQ 3287 8144, an undated but extensive, very compact gravel of unclear origin was recorded in the northeast corner of the site during an evaluation undertaken by MoLAS in 1999 (Site Code TGM99).	Unclassified Deposit	Unknown	Liverpool Street Station
MLO74141	Austral House, TQ 3261 8154, archaeological evaluation by MoLAS (Site Code LNA99) revealed no archaeological features or deposits.	Negative evidence	Unknown	Liverpool Street Station, Moorgate Shaft
MLO74448	6 Eldon Street EC2, TQ 3293 8173, later post-medieval (19 th century) construction was recorded truncating the natural and probable archaeological horizons across the site, during an evaluation undertaken by AOC in December 1999 (Site Code ELO99). A layer dated to the 19 th century produced two residual undiagnostic medieval potsherds.	Find spot	Medieval	Liverpool Street Station
MLO75753	Dominion Buildings, TQ 3281 8179, a late Neolithic or Early Bronze Age distal blade flake was found in re-deposited position just above the natural brick earth. (Site Code FIP92).	Find spot	Late Neolithic / Early Bronze Age	Liverpool Street Station, Moorgate Shaft
MLO75890	2-2a Throgmorton Avenue EC2, TQ 3288 8149, late 19 th century foundation cuts backfilled with a compacted dark grey, clayey silt with frequent sand and stones, containing animal bone and oyster shell, overlying concrete strip foundation of the standing building, were recorded during monitoring by MoLAS (TGT00).	Deposit	Post-medieval	Liverpool Street Station
MLO75967	22-24 Wormwood Street EC2, TQ 3316 8145, Roman rubbish pits and two wells were excavated producing glass, pottery and three bovine scapulae (Site Codes OWE94 & WOD86).	Occupation evidence	Roman	Liverpool Street Station
MLO76607	22-24 Wormwood Street EC2, TQ 3316 8145, a watching brief examined part of the foundations and superstructure of the Roman City Wall, which forms part of the northern basement wall of 23-24 Wormwood Street. This is designated a Scheduled Ancient Monument. Fragments of Roman tile reused in footings for the post-medieval basement wall of 22 Wormwood Street were removed and have been dated and sourced.	City Wall	Roman	Liverpool Street Station
MLO76608	22-24 Wormwood Street EC2, TQ 3316 8145, 17 th and 18 th century wells and 19 th century foul drainage were selectively sampled producing tobacco pipes and a small collection of ceramics. The northern basement wall of 22 Wormwood Street was constructed out of re-used stone from the City wall. (Site Code WOM94)	Well & Sewer	Post-medieval	Liverpool Street Station
MLO76634	6 Eldon Street EC2, TQ 32926 81726, archaeological evaluation carried out by AOC in December 1999 (Site Code ELO99). Trench 1 revealed a concrete foundation base, which supported a well cemented, stepped brick foundation of yellow stock bricks in an indiscernible bond. This was sealed by three dumped layers; firstly a redeposited clayey sand and gravel with brick and tile inclusions; overlain by a dark brown, mixed clay silt with	Dump deposit & Foundation	Post-medieval	Liverpool Street Station

Archaeology Detailed Desk Based Assessment – Liverpool Street Station

Record ID	Description	Subject(s)	Period(s)	Relevant Sub-sites
	chalk, mortar and brick fragments and sherds of late 18th and early 19th century creamware pottery and a residual sherd of medieval glazed earthenware; thrirdly overlain by a mid yellow brown silty clay. A linear cut probably the foundation trench for the existing building on the site, was also found running along the length of the east side of the trench and cutting the second dump deposit. It was comprised of three backfills mainly of 19th and 20th century date.			
MLO76664	Finsbury Square Avenue EC2, TQ 33008 81798, building remains dating to the 17 th and 18 th century were found during an evaluation carried out by MoLAS in 2002 (Site Code FNB02). Two phases of construction evidence buildings built of red brick of 17 th and 18 th century date. Associated finds including leatherwork, suggest high status domestic and industrial activity in the area.	Building	Post-medieval	Liverpool Street Station
MLO76680	105-107 Bishopsgate EC2, TQ 3319 8145, a watching brief within the projected line of the City wall (Site Code WOM94) revealed only natural gravel at 10.45m OD and a deposit of clean loess referred to as brick earth.	Negative Evidence	Unknown	Liverpool Street Station
MLO76741	Moor House, TQ 3265 8161, unspecified archaeological deposits (possibly fills of the city defensive ditch) 2.40m in depth were recorded overlying the natural gravels located at 5.40m below ground level. The top of the archaeological deposits was recorded at 10.38m OD (Site Code MRL98).	Deposit	Roman	Liverpool Street Station, Moorgate Shaft
MLO76742	Moor House, TQ 3262 8161, archaeological excavation (Site Code MRL98), revealed post-medieval dump deposits across some areas of the site.	Dump	Post-medieval	Liverpool Street Station, Moorgate Shaft
MLO77046	Dominion Buildings, TQ 3281 8179, a gully containing pottery dated to between 950 and 1050 AD, with associated undated stake-holes. (Site Code FIP92).	Post-hole, Gully	Early Medieval	Liverpool Street Station, Moorgate Shaft
MLO77048	Dominion Buildings, TQ 3281 8179, brick pits possibly dating to the 15 th century and were backfilled with material unsuitable for brick production. (Site Code FIP92).	Pit / Brick pit	Medieval	Liverpool Street Station, Moorgate Shaft
MLO77699	Moor House 119 London Wall EC2, TQ 3265 8161, the medieval city ditch, was recorded along the southern part of the site, several phases of re-cutting the ditch could be identified. The earliest fills contained residual 1st and 2nd century pottery. A network of drainage ditches were observed cutting marsh deposits, comprising two large ditches aligned east-west in the northern and the southern parts of the site. These ditches had been re-cut several times during their period of use following the line of earlier ditches which may date to the Roman era. A number of timber barrel staves were recovered from the fill of the southern drainage ditch; this may represent reuse as part of a fence flanking part of the ditch and ultimately collapsing in to it. Six smaller north-south aligned ditches were recorded between the larger ditches to the north and south; these ditches had been laid out at regular intervals of c.5.0m.	City defensive ditch, Fence, Drainage ditch system & Marsh	Medieval	Liverpool Street Station, Moorgate Shaft
MLO77700	Moor House 119 London Wall EC2, TQ 3265 8161, a number of barrel wells, brick lined wells and brick and timber lined cess and rubbish pits were recorded across the site. The features would have been located in the garden areas of the first buildings constructed on the former marsh. Map evidence suggests that the buildings are known to have been erected by the second half of the 17 th century. Evidence for a kiln site in the vicinity (possibly on the site) was recovered in the form of a larger quantity of early 17 th century kiln wasters used to backfill one of the barrel wells.	Wells & Occupation evidence	Post-medieval	Liverpool Street Station, Moorgate Shaft
MLO77919	Pindar Street to Great Tower Street Cable Trench EC2,	Foundation and	Medieval / Post-	Liverpool Street

Archaeology Detailed Desk Based Assessment – Liverpool Street Station

Record ID	Description	Subject(s)	Period(s)	Relevant Sub-sites
	TQ 3321 8144, a medieval rubbish pit and truncated foundation of late-medieval or post-medieval date were recorded (Site Code JCW03); the medieval remains consisted of one stone built fragment of pier base and two lengths of wall foundation, one of which contained a relieving arch constructed of late 15th century 'large bricks' locally made at Moorfields. This wall had been partly rebuilt in brick during the 18th or early 19th century. Other post-medieval remains consisted of an isolated brick foundation of 18th or early 19th century date. This stretch of the city wall and its gatehouse forms part of a nationally significant Scheduled Ancient Monument.	rubbish pit	medieval	Station
MLO77935	Finsbury Avenue Square E3, TQ 33008 81798, unspecified archaeological works identified two palaeo-channels, both filled with clean brick earth that sealed the natural gravels.	Palaeo-channel	Prehistoric	Liverpool Street Station
MLO78077	Finsbury Square Avenue EC2, TQ 3301 8178, an excavation and subsequent watching brief carried out by MoLAS in 2002 (Site Code FNB02) recorded four postholes, a gully and two possible bedding trenches dated to the medieval period; a large ditch may have had 15 th century origins. Other artefacts of medieval date were residual. All features were sealed by pre-Great Fire of London deposits.	Settlement Evidence	Medieval	Liverpool Street Station
MLO78078	Finsbury Square Avenue EC2, TQ 3300 8179, large drainage ditch and shallow flat bottomed rectangular pits were recorded during an excavation and subsequent watching brief carried out by MoLAS in 2002 (Site Code FNB02). The rectangular pits were interpreted as cloth dying pits and a large sunken feature as the possible footprint of a building.	?Dying pits & Ditch	Post-medieval	Liverpool Street Station
MLO78079	Finsbury Square Avenue EC2, TQ 33008 81798, brown cultivation soil of possible 17 th century date, recorded during an excavation and subsequent watching brief carried out by MoLAS in 2002 (Site Code FNB02). An extensive black deposit of fire debris (possibly relating to the Great Fire of London) marks the disuse of the brown soil.	Cultivation Soil	Post-medieval	Liverpool Street Station
MLO78093	6 Broad Street Place, TQ3300 8165, at least 10 Roman burials in wooden coffins were excavated by MOLAS in November-December 2003 (Site Code BDC03). Few grave goods were present; one coffin was placed in a re-used hurdle bier. Further disarticulated and semi-articulated human remains were observed in stream fills. It is not clear what date the cemetery went out of use.	Cemetery	Roman	Liverpool Street Station
MLO78094	6 Broad Street Place, TQ3300 8165, an in filled channel was identified in the southern part of the site. The channel was filled in the early 2 nd century with a series of consolidation dumps used to prepare for a metal surface, which extended across the site. The surface may be related to a Roman road found near by. MOLAS (Site Code BDC03)	Road	Roman	Liverpool Street Station
MLO78095	6 Broad Street Place, TQ3300 8165, excavation by MOLAS (Site Code BDC03), revealed that the area was used for rubbish disposal in the 3 rd century AD; no material later than the 4 th century was recovered.	Rubbish Pit	Roman	Liverpool Street Station
MLO78219	128-150 Bishopsgate, 1-17 Devonshire Row, Stone House, Staple Hall, Stone House Court & Cavendish Court, TQ 3328 8150, archaeological evaluation (BDV03) revealed a layer of garden soil (0.24m thick) approximately 0.24m below ground level (12.82m OD), overlying a compact surface at 12.58m OD. A more substantial layer of garden soil (0.325m thick) lay at a 12.56m OD. Post-medieval dump deposits were also identified.	Made ground	Post-medieval	Liverpool Street Station

Archaeology Detailed Desk Based Assessment – Liverpool Street Station

Record ID	Description	Subject(s)	Period(s)	Relevant Sub-sites
MLO78401	6 Broad Street Place, TQ 32999 81647, archaeological investigation carried out by Museum of London Archaeology Service between Nov 2003 and May 2004 (Site Code BDC03) identified a brick earth filled palaeochannel from which several sherds of redeposited prehistoric pottery and flint tools and flakes were recovered, running across the eastern half of the site. During the later prehistoric period a series of shallow, braiding channels formed across the area. The site is situated in the upper valley of the River Walbrook, a tributary of the Thames.	Palaeochannel	Prehistoric	Liverpool Street Station
MLO78402	6 Broad Street Place, TQ 32999 81647, an archaeological investigation carried out by Museum of London Archaeology Service between Nov 2003 and May 2004 (Site Code BDC03) revealed that prehistoric channels were infilled in the first century AD replaced by ditches or channels. The site may have been used as burial ground in the 1st century AD with a single burial cut through an infilled ditch. A large amount of dis-articulated and semi-articulated human remains were recorded in a 'ponded' area at the east of the site. In approximately 120AD a road was laid across the area, running in an east-west line along the southern limit of the site, with a rough ditch to the north. A wide drainage channel was dug along the northern edge of the site containing human and horse remains. A series of burials (appearing to date from 2nd century) were dug to the south of the 'Eldon Street channel'. The centre of the site had been truncated in antiquity, possibly removing further burials. However, in the centre of the site a group of three confined burials did survive, associated with a gully or drain. The complete corpse of a ram had been disposed of in the gully. At least 22 burials have been identified, although the burial conditions were such that analysis of scattered remains may reveal more burials. In the late 2nd or early 3rd century the site became increasingly waterlogged prompting rubbish disposal road. The drainage channels silted up and a marsh formed across the area, which remained into the post-medieval period. This marsh may have been a caused by the construction of the Roman city wall, which culverted the Walbrook lower down its valley. Natural terrace gravels were exposed between 7.3m and 9.2m OD.	Settlement Evidence, Road & Burials	Roman	Liverpool Street Station
MLO78403	6 Broad Street Place, TQ 32999 81647, a medieval iron horseshoe, bone ice skate and bone sledge runner made from a horse mandible were excavated were recovered from Roman contexts during archaeological works carried out by Museum of London Archaeology Service between Nov 2003 and May 2004 (Site Code BDC03). These finds are probably intrusive which is not unlikely given the marshy nature of the site, all medieval deposits had been truncated by later basements. Natural terrace gravels were exposed between 7.3m and 9.2m OD.	Find spot	Medieval	Liverpool Street Station
MLO81676	Lutyens House, TQ 32782 81682, Grade II* Listed Building, 1924-27, by Lutyens. A large building of seven storeys with south return and west elevation to Moorgate. Elaborate Portland stone facing in free, classical style with much carved decoration. Main openings to the ground storey are round arched, including the three entrances in Finsbury Circus. The two storeys above are treated together with the upper part with richly modelled engaged Corinthian order. The building has a hipped, slated roof with secret gutter and modest eaves-cornice. Two piers with urns flank the to entrance in Finsbury Circus. Other entrances in plainer, south elevation and in west front which incorporates the entrance to Moorgate underground station.	Listed Building	Modern	Liverpool Street Station, Moorgate Shaft

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Record ID	Description	Subject(s)	Period(s)	Relevant Sub-sites
MLO82047	Liverpool Street Station EC2, TQ 33206 81714, Grade II Listed Building, Gothic style offices flanking the ramp, and the 2 western bays of the train sheds, at Liverpool Street Station. Dated 1872-1875, by Edward Wilson, engineer to the Eastern Counties Railway Company. The L-shaped range of office buildings have Gothic detailing, around the ramp down from Liverpool Street. The north range is asymmetrical with plain central tower with missing spire, constructed from brick with stone dressings. Paired tile windows to principal floor beneath simple pointed arches, plate tracery in tympanum. The offices also face onto the station. The train sheds have twin naves separated by a double row of columns with flanking aisles; the long eastern nave extending to Liverpool Street served long-distance trains. Slim columns with faceted capitals support slight arched wrought iron trusses with cast iron ornament in spandrels. Glazed roof. Cross-vaulted 'transept' across tile concourse of the western nave spans the whole shed. The aisles are also vaulted at right angles to the main roofs. Western boundary wall with 3 grouped lancets to each bay, blocked to the springing point of the outer arches.	Listed Building	Modern	Liverpool Street Station
MLO82181	Moorgate Underground Station, TQ 32730 81691, Grade II Listed Building dated 1900 designed by T Phillips Figgis. Constructed from red brick with Portland stone ground floor and upper floor dressings. Roofed in slate and standing six storeys high; four storey return with roof-storey. Ground storey stone-faced with massive keyed segmental-headed arches (those to return elevation blind) containing station entrance and shopfront. 1st, 2nd and 3rd storeys with sash windows over continuous cill bands, with architraves and cornices, those to 1st storey keyed; 4th and 5th storeys with sashes in eared architraves, beneath deeply projecting plain cornice. 6th storey gable-end over with pediment moulding corresponding with main cornice, central 3-light window with attached colonettes to mullions and continuous cornice. Round window over. Round corner tower in form of oriel deriving additional support from attached columns flanking shop-entrance, with plain square caps and carved relief band in lieu of cornice. Intermediate storeys with 3-light leaded-light windows; 4th storey rusticated stone, with round-headed windows between attached columns carried by enriched corbels, the principal cornice carved round above the column caps; leaded dome over. The ticket hall was remodelled in the 1930s.	Listed Building	Modern	Liverpool Street Station, Moorgate Shaft
MLO97822	Austral House Drains London Wall EC2, TQ 32613 81555, an archaeological watching brief undertaken by MoLAS (Site Code AUH05) revealed no archaeological features or deposits. The archaeological potential of the site was considered low due to extensive truncation by modern services.	Negative evidence	Unknown	Liverpool Street Station, Moorgate Shaft
MLO98046	Cable Trench between Finsbury Market and Devonshire Square, TQ 33116 81728, a watching brief carried out by MoLAS in 2004, recorded post-medieval finds. Trenches 13, 14, and 19 along the western wall of Liverpool Street revealed a large quantity of disarticulated human bone and a double child burial (articulated infant skeletons aged 18 months at death). The remaind are believed to have originated from the (?)New Cemetery or (?)Bethlem Church Ground in use between 1569 and 1720. The total number of individuals comprised 15 adults and 7 sub-adults (Approximate grid reference from GIS TQ 33044 81605).	Cemetery Human remains	Post-medieval	Liverpool Street Station

9.5 Construction and Construction Process Report

12 Construction and Construction Process Report

12.1 Introduction

12.1.1 This section of the report draws together the information relating to the construction of Liverpool Street Station covering the Methodology and Sequence, Advanced Works, Enabling Works and Contractors worksites.

12.1.2 Each of these topics has been divided into the four geographic work areas that make up Liverpool Street Station namely Moorgate Ticket Hall, Blomfield Box, Broadgate Ticket Hall and Link passage and the subsurface works to be constructed from the Finsbury Circus worksite.

12.1.3 Details of construction risks, the extents of demolition, lorry histograms, Environmental Impacts, Plant schedules and the Construction Programme are addressed in separate Sections of this Scheme Design Submission.

12.2 Methodology and Sequence

12.2.1 Moorgate Ticket Hall

The works required to form the Moorgate ticket hall consist of: -

- The construction of the ticket hall box between Moorfields and Moorgate together with the escape, emergency and ventilation shaft from road level to the Crossrail tunnels;
- Extension of the ticket hall into the basement area of 21 Moorfields, including partial demolition of the existing structure;
- The construction of the escalator shaft from ticket hall to Crossrail platform level.

12.2.2 Moorgate Ticket Hall, Escape Shaft and Escalator Box Construction

A bored pile wall is to be used for the construction of the deep shaft. The piles will be excavated using a hydraulically operated rig and, due to the nature of the ground at lower levels, will need to be bored under bentonite or drilling mud for stability. Due to the confined nature of the worksite reinforcement cages will need to be fabricated off site and transported to site in lengths of approximately 12m. The cages will then be linked together as they are being lifted into the pile bores. Concrete for the piles will be supplied from ready mixed plants off site. Given the depth of the piles and need to place concrete as soon as possible after excavation, concreting operations may extend beyond 7pm on any given working day.

In order to carry out the piling works it will be necessary to reduce the whole of the site to the basement level of the demolished building. This will be achieved using a combination of temporary works sheet piles and king post piles to support the surrounding roads and

basements as indicated on the worksite layout drawing P30103–C1M12-C00-D-50001 included in Appendix A.

Following piling, to create usable construction space, a top down construction method may be employed to excavate the shaft. However, this requirement will be dependent on the available working space when 21 Moorfields is partially demolished. Final details for this construction will be subject to detailed design considerations, although a number of plunge column piles will be required to transfer loads from the ground level and basement slabs whilst the shaft is excavated. A number of load bearing piles will be required outside the shaft to support the permanent ground floor slab and to construct the upper escalator machine chamber. These piles will need to be extended upward as columns within the basement area to the level of the ground floor slab. Once this slab has been constructed, progressive excavation can take place through temporary openings as indicated on worksite layout drawing P30103–C1M12-C00-D-50002 included in Appendix A.

Construction of the Ticket Hall, Escape Shaft and Escalator Box will be carried out in the following sequence:

- Complete advance enabling works including demolition of the AMRO Bank building, partial demolition of 21 Moorfields, diversion of utilities and protective measures to the Thames Water sewer in Moorgate.
- Working from street level, construct contiguous bored piled walls to the escalator box, and install temporary works for first stage excavation (existing basement). Excavate locally and breakdown piles and construct pile capping beam. It should be noted that for this work the pedestrian route along the west side of Moorgate will need to be closed.
- Reduce the general site level to 110m ATD (existing building basement) to enable the piles for the main shaft to be constructed together with plunge column piles and other works.
- Construct guide wall for the piles for the main shaft and commence pile construction.
- Excavate site generally to underside of ticket hall slab level 106.75m ATD, then locally to underside of pile capping beams. Breakdown piles and construct capping beam to shaft and bearing piles. Construct ticket hall slab outside line of shaft, followed by walls and columns between 107.5m.ATD and 112.75m.ATD and construct the ground floor slab 113.5m ATD.
- Working from worksite set up on top of the ground floor slab excavate Moorgate shaft to approximately 101.8m.ATD and construct in-situ concrete ring beam as detailed on structural drawings. Following adequate curing of the ring beam repeat the above sequence to shaft levels 96.4m, 91.0m, 87.7m, 82.9m and 77.5m.ATD.
- Excavate to level 75.5m ATD and Install temporary support frame. As stated elsewhere the shaft extends into the potentially water bearing Lambeth Group. As a minimum this will need to be depressurised as the shaft is excavated to ensure stability of the ground at the base of the shaft. For details of proposed

- Installation of propping and hoarding to the sub-station roof adjacent to the link passage;
- Installation of king post piles and construction of temporary support works between the west end of the sub-station and excavation of the new Crossrail escalator box;
- Partial demolition of sub-station roof and walls adjacent to link passage;
- Construction of new columns and section of roof.

These requirements are shown in Figure 12.2 below:

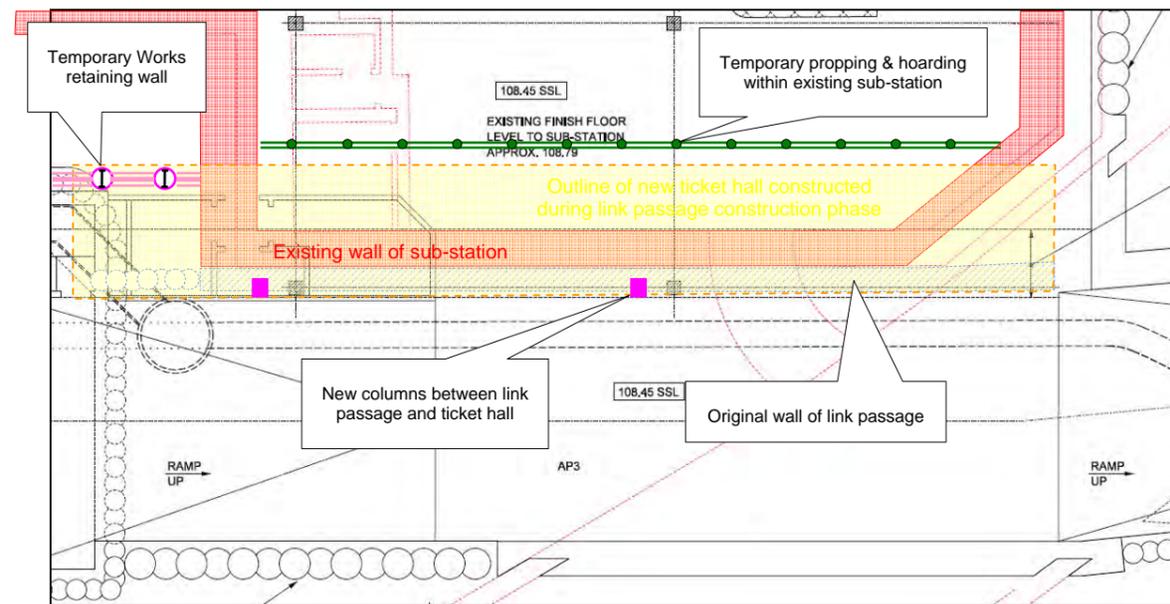


Figure 12.2 Interface between Link Passage and Broadgate Ticket Hall

Construction of the link passage can then be completed in the following sequence:

- Install contiguous bored piles for the passage. To minimise vibration impacts CFA methods are favoured for this work;
- Excavate roof slab for the passageway. Excavation will be carried out working from the existing LU ticket hall towards the west end of the site, the crown to the Queen Victoria tunnel being exposed as work progresses. This excavation will need to be deepened locally adjacent to the piles to allow for breaking down and pile-cap construction. Depending on the depth of these excavations and available width of worksite some ground support may be required when carrying out this work;
- Concurrent with the preparation of the piles and once the crown of the Queen Victoria tunnel has been exposed the brickwork will be stitch drilled / saw-cut adjacent to the previously installed concrete retaining walls to isolate the section of tunnel to be demolished from the remainder. Pneumatic breakers mounted on excavators can then be used to break out the crown of the tunnel;

- Once the crown has been demolished the 900mm diameter piles to support the passageway roof in the area of the Queen Victoria Tunnel will be installed using a small rig;
- Following preparation of the piles the lining walls to the Queen Victoria tunnel will be constructed followed by the roof slab to the full length of the passageway. Openings will be provided where necessary in the roof slab by the contractor for access to excavate and construct the lower passageway walls and base slab;
- Working through the openings left in the roof slab the passageway will be excavated to just below passenger floor slab level and the base slab constructed;
- Following a suitable period for curing any temporary props will be removed and the reinforced concrete lining walls to the new passage constructed;
- On completion of the concrete works the holes in the roof-slab will be in-filled, the roof slab waterproofed and the new structure backfilled allowing Liverpool Street to be reinstated and any services temporarily diverted onto the roof of the sub-station to be permanently reinstated.

Escalator Shafts and passage AP2 from Liverpool Street to the Station Tunnels

The escalator link from Access passage AP8 to station platform level is to be constructed using SCL methods. Given the proximity of the crown of the upper escalator shaft to the Thames Gravel / London Clay interface, the sand and gravel will need to be pre-grouted to ensure stability (refer to Section 28.4.2 in Volume 8 for grouting procedures). From Liverpool Street the alignment for the escalator threads along Blomfield Street beneath the LU Metropolitan and Circle Line tunnel whilst simultaneously passing over the post office railway tunnel to a lower escalator leading to platform level. For this reason, and to maximise the clearance to these structures, a two stage escalator shaft is proposed with HD Metro escalators to minimise the size of the shafts.

Following the completion of the upper machine chamber and grouting works construction of the escalator shaft will be carried out in the following sequence:

- Set up, excavate and primary line escalator shafts as detailed in Volume 8 Section 31.8;
- Clean out shafts and passage and install waterproof membrane to invert;
- Set shutters and concrete invert;
- Erect scaffold, install waterproof membrane, fix reinforcement, set shutters and concrete crown of shafts and passage;
- Set shutters and cast concrete bed for escalators in shafts;
- Commence Builders Work, install escalators and Fit Out.

depressurisation scheme refer to Section 10.2.19 of this volume and Section 28.4.1 of Volume 8.

- Construct sump and base slab to shaft and after adequate curing remove temporary support frame.
- Working back up the shaft, construct the shaft perimeter walls, internal walls and intermediate slabs in in-situ concrete using traditional working methods.
- Commence Builders Work and Fit Out.

12.2.3 Escalator Shaft from Ticket Hall to Station Tunnels

The escalator shaft from ticket hall level to station platform level is to be constructed using SCL methods. Given the proximity of the crown of this escalator shaft to the Thames Gravel / London Clay interface, the sand and gravel will need to be pre-grouted to ensure stability (see Section 28.4.2). The alignment for the escalator threads beneath the London Bridge Sewer whilst simultaneously passing over the Northern Line running tunnels. For this reason, and to maximise the clearance to these structures, a two stage escalator shaft is proposed with compact escalators to minimise the size of the shaft.

Following the completion of these grouting works construction of the escalator shaft will be carried out in the following sequence:

- Set up, excavate and primary line escalator shafts as detailed in Section 31.8 in Volume 8 of this report;
- Clean out shaft and install waterproof membrane to invert;
- Set shutters and concrete invert;
- Erect scaffold, install waterproof membrane, fix reinforcement, set shutters and concrete crown of shaft;
- Set shutters and cast concrete bed for escalators;
- Commence Builders Work, install escalators and Fit Out.

12.2.4 Blomfield Box

Blomfield Box will be constructed with a contiguous piled wall providing both temporary and permanent ground support. Given the depth of the box these piles will need to be constructed to a high degree of verticality. They will be excavated using a hydraulically operated rig and due to the nature of the ground at lower levels will need to be bored under bentonite or drilling mud for stability. To ensure that there is no water ingress through the River Terrace Deposits and to reduce softening of the clay during excavation, as discussed in Section 10.3.1, a hard/soft wall will need to be constructed. The 900mm diameter soft piles will extend into the Lambeth Group. The hard piles will extend down into the Lambeth Group and Thanet Sands. This stratum will necessitate the use of either bentonite or drilling polymer to ensure the integrity of the pile shaft during construction. Due to the confined nature of the worksite, reinforcement cages will need to be fabricated off site and transported to site in lengths of approximately 12m. The cages will then be

linked together as they are being lifted into the pile bores. Concrete for the piles will be supplied from ready mixed plants off site. Given the depth of the piles and need to place concrete as soon as possible after excavation, concreting operations may extend beyond 7pm on any given working day.

On completion of piling works the shaft will be excavated with mini excavators loading into skips. These skips being removed by tower or preferably gantry crane due to the need to work in close proximity to the live railway. The piled wall will be propped at appropriate levels, using permanent in situ concrete struts and waling beams. The design will require the construction of a permanent internal wall tied into the piles to provide a watertight structure.

As already stated the shaft extends into the potentially water bearing Lambeth Group. As a minimum this will need to be depressurised to ensure stability of the ground at the base of the shaft as it is excavated. For details of an envisaged depressurisation scheme refer to Section 10.2.19 of this volume and Section 28.4.1 of Volume 8.

The passage and ventilation tunnels will be constructed either from the station tunnels or from the base of the shaft depending on programme and worksite restraints. This will result in a large proportion of the piled wall being broken out requiring substantial waling beams to be installed using fabricated steel sections as part of the framing to the openings.

To give best access for construction it is currently envisaged that Blomfield box will be lined and fitted out prior to the over-site development works being started.

Given the restricted working space available it is envisaged that excavated material will be removed from site via a conveyor to a loading stage located on Blomfield Street, as shown on worksite layout drawing P30103-C1M12-C00-D-50011 included in Appendix A. Materials will be delivered via the same loading point using cranes and concrete pump located on a service platform as indicated on the site layout drawing. Piling rigs, cranes and other heavy equipment will be lifted into the site by heavy duty mobile cranes during temporary closures of Blomfield Street and if required nighttime closures of the adjacent railway.

Construction will be carried out in the following sequence:

- Complete advance utility diversion works and demolition of the existing buildings on the site;
- Working from street level install temporary works for first stage excavation (existing basement) including underpinning of adjacent buildings where required;
- Reduce the general site level to 107m ATD (existing basement level) to enable the piles for the main shaft to be constructed together with foundation piles for the new building basement and OSD.
- Construct guide wall for piles to main shaft and construct piles.

- Excavate basement generally to underside of slab level 106.5m ATD, then locally to underside of pile capping beams. Breakdown piles and construct capping beam to shaft and the piled foundations. Construct basement slab outside line of shaft.
- Working from basement slab level excavate Blomfield box to approximately 100.4m.ATD and construct in-situ concrete waling beams and struts as detailed on structural drawings. Following adequate curing repeat the above sequence to shaft levels 94.65m, 88.9m, 87.7m, 83.1m, 80.2m and 77.1m.ATD.
- Excavate to underside of base slab, level 72.5m ATD.
- Construct base slab to box.
- Working back up the box, construct the shaft perimeter walls, internal walls and intermediate slabs in in-situ concrete using traditional working methods.
- Construct basement walls and columns between 107.2m.ATD and 112.0m.ATD and construct the ground floor slab 113.0m ATD and roof slab.
- Commence Builders Work, M&E installations and Fit Out.

12.2.5 Broadgate Ticket Hall and Link passage Liverpool Street

Broadgate Ticket Hall has been designed as a sub surface/basement concourse to be located predominantly below the forecourt of No. 100 Liverpool Street and partly below Liverpool Street as shown on drawing P30103-C1M12-C00-D-50401. The ticket hall is designed as an integral connection with the link passage AP8 to the south and will occupy the footprint of the existing LU electrical sub-station as shown on drawing P30103-C1M12-C00-D-50403. Public access from street level will be via a bank of compact escalators on the west side of the ticket hall. The link passage AP8 will provide access to the Crossrail platforms to the west via a bank of escalators and the existing Liverpool Street ticket hall to the east. This link will allow interchange between Crossrail and the Central, Hammersmith and City and Metropolitan & Circle lines.

12.2.6 Reuse of the existing EDF/Powerlink Sub-station and escalator shafts

The existing sub-station originally served as the ticket hall of Broad Street station. The structure generally consists of masonry walls supported on pad foundations with iron columns and beams supporting the concrete roof. Since the finished floor level of the new ticket hall will generally be below the existing floor level of the existing structure and the supporting columns are not compatible with the layout of the new ticket hall it will be necessary to demolish the existing structure in these areas. However, the areas in the upper machine chamber of the disused escalator and the disused lift shaft, which are below the required formation level, will not need to be demolished and foamed concrete will be used to provide a level foundation for the new base slab.

The disused escalator shafts that originally linked the Broad Street station to the LU Central Line platforms are constructed with cast iron rings and are currently used to provide a cable route from the sub-station to the Central Line. It is proposed to continue to use these escalator shafts for the cable routing.

A new sub-station is currently being proposed as described separately in the scheme design report. This sub-station will need to be built and commissioned before the existing sub-station can be decommissioned and stripped out to allow construction of the new ticket hall and passage to commence.

12.2.7 Existing Connect CER equipment

In addition to relocating the sub-station the existing Connect CER equipment room within the Queen Victoria tunnel will either require relocation or protection to enable construction of passageway AP8. The current assumption is that this structure will be protected.

12.2.8 Property No. 100 Liverpool Street

Information currently available on the substructure of No.100 Liverpool Street indicates the following structural conditions: -

- The line of columns on the front façade of No.100 Liverpool Street are supported by individual piles, which will allow the required excavations to be undertaken without any requirement for temporary propping.
- The basement wall facing Liverpool Street is self supporting and will provide the necessary ground support to the new ticket hall excavation as shown in Figure 12.1 below.

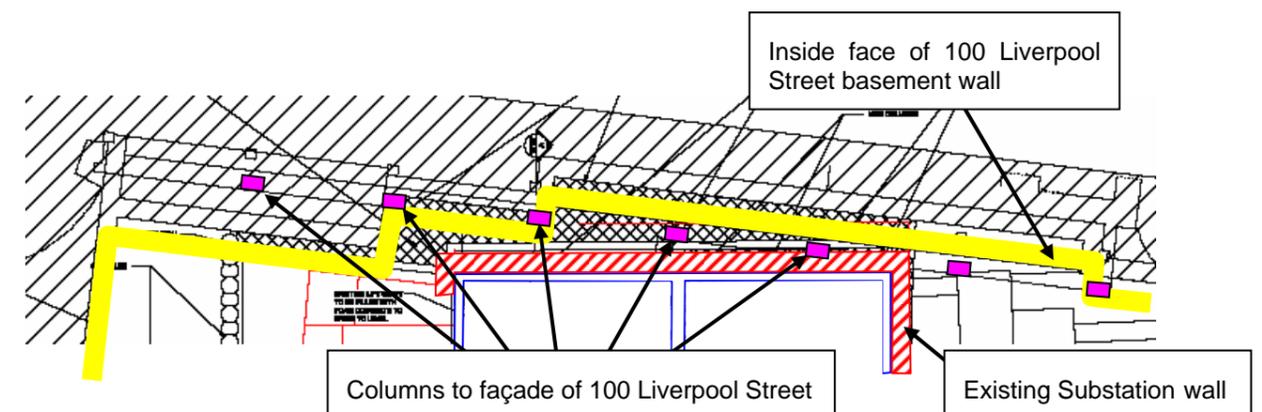


Figure 12.1 Interface between 100 Liverpool Street and Broadgate Ticket Hall

12.2.9 Construction of Link Passage (AP8)

In order to maintain access to 100 Liverpool Street during construction it will be necessary to construct the new link passage AP8 prior to the new ticket hall.

As the boundary between the link passage and the existing sub-station structure overlap the following enabling works will be required:

- Relocation of cables and equipment within the sub-station;

12.2.10 Construction of Broadgate Ticket Hall

Following completion of the enabling works and construction of the link passage detailed above, a worksite will be established in front of No.100 Liverpool Street. Access to No.100 Liverpool Street will be maintained through the front entrance from the west side of the building via the existing covered walkway shown on Figure 12.3 and a temporary deck over the works near the entrance canopy as shown on worksite drawing P30103-C1M12-C00-D-50024 included in Appendix A. Vehicular access to the building will be maintained off Blomfield Street / Eldon Street.



Figure 12.3 Covered walkway to No.100 Liverpool Street

The first task will require the careful removal of the entrance canopy and its supporting columns to No.100 Liverpool Street (see Figure 12.4). This work will be carried out over a weekend period to minimise disruption to the occupants of the building and the general public. The canopy will be dismantled carefully and stored to allow full reinstatement on completion of the ticket hall construction.

In order to maintain access via the main entrance to 100 Liverpool Street, it will be necessary to construct a temporary decking at the same location as the current canopy. This will need to be designed to allow the demolition of the existing sub-station roof with minimum impact to the existing entrance although there will be a need to temporarily close the entrance at weekends or overnight.



Figure 12.4 Canopy to No.100 Liverpool Street

Construction of the ticket hall will then proceed in two phases followed by the final fitting out phase:

- Phase 1 - Construct ticket hall (East);
- Phase 2 - Construct ticket hall (West);
- Builders Work, M&E Installations and Fit Out.

This construction sequence will allow pedestrian access to be maintained to No.100 Liverpool Street and along Liverpool Street itself at all times.

12.2.11 Broadgate Ticket Hall Phase 1 – Construct ticket hall (East)

Following establishment of the worksite and removal of the entrance canopy to No.100 Liverpool Street, the sequence of work will be as follows:

- Install contiguous piles to east wall, including temporary works king posts adjacent to No.100 Liverpool Street;
- Install necessary temporary props to the underside of the existing sub-station roof to support the phase 2 (west) construction areas (approximately mid-span in a north-south orientation) and allow construction traffic to work above.
- Break out sub-station roof to phase 1 construction area. This involves the area between the basement line of No.100 Liverpool Street to the north (including steps), the newly constructed link passage roof slab to the south and the propped roof on the west. Stitch drilling and diamond saw cutting techniques will be used where possible to avoid the use of hydraulic demolition equipment;
- Break out sub-station floor and excavate to new level where necessary;
- Backfill reduced level floor area with foam concrete up to the new level;
- Cast ticket hall floor slab;

- Construct new walls to ticket hall on east and north sides and backfill void between old and new structures with foam concrete;
- Cast support columns and new roof slab, with internal temporary propping as required;
- Reinstate forecourt steps and architectural finishes.

12.2.12 Broadgate Ticket Hall Phase 2- Construct ticket hall (West)

Following completion of the east section of the works, the construction area will be relocated to the west and the hoarding line adjusted to suit. This will allow pedestrian access to No.100 Liverpool Street from the east over part of the newly constructed ticket hall roof. Liverpool Street will still be opened for general pedestrian access.

The sequence of work will be as follows:

- Install contiguous piles to west wall and escalator box;
- Break out roof to sub-station over remaining area between basement line of No.100 Liverpool Street to the north (including steps) and the newly constructed link passage roof slab to the south. Stitch drilling and diamond saw cutting techniques to be used as far as possible to avoid excessive use of hydraulic demolition equipment;
- Break out sub-station floor and excavate for escalator box and lower machine chamber;
- Cast new ticket hall, escalator box and lower machine chamber floor;
- Construct new walls to ticket hall and escalator box on north, west and south sides and backfill void between old and new structures to the north with foam concrete;
- Cast support columns and new roof slab, with internal temporary propping as required;
- Reinstate forecourt steps and architectural finishes;
- Reinstate Liverpool Street for traffic.

Apart from a detailed condition survey of the existing structures and the installation of a movement monitoring system, it is not envisaged that there will be any requirements for temporary works other than those described in the sections above.

12.2.13 Broadgate Ticket Hall Fit out

The main items to be installed as part of the fit out works are:

- Escalators
- Ticket gates
- Public Operated Ticket Machines (POMs)

- Miscellaneous operations rooms
- Security gates
- Architectural finishes

These works will be carried out within the newly created ticket hall with minimum disruption to the public and third parties. Deliveries of the main items of equipment will be timed to minimise impact to the traffic and public. Installation of the security gates and canopy at street level will be contained within a small hoarded off zone in the footway.

12.2.14 Enhancement of the Gateline and Refurbishment of Existing LU Ticket Hall

The Crossrail platforms at Liverpool Street Station utilise the existing LU Ticket Hall for passengers to both enter and exit at the eastern end of the station. The additional number of passengers utilising the ticket hall will require the ticket hall to be modified to cater for the increased passenger flows.

Figure 12.5 below illustrates the existing and proposed revised gatelines. The existing gateline has 4 gates adjacent to the ticket office (location C), 8 gates between the three columns in the middle of the gateline area (location B), and 4 gates beyond the column line to the south (location A). The proposed revision moves all the gates to the line of columns north of the existing to maximise the space available and allows a line of 24 slimline gates to be installed. Two luggage chutes are also provided.

The changes increase the gateline capacity to 24 gates from the existing 16 and provide two luggage chutes.

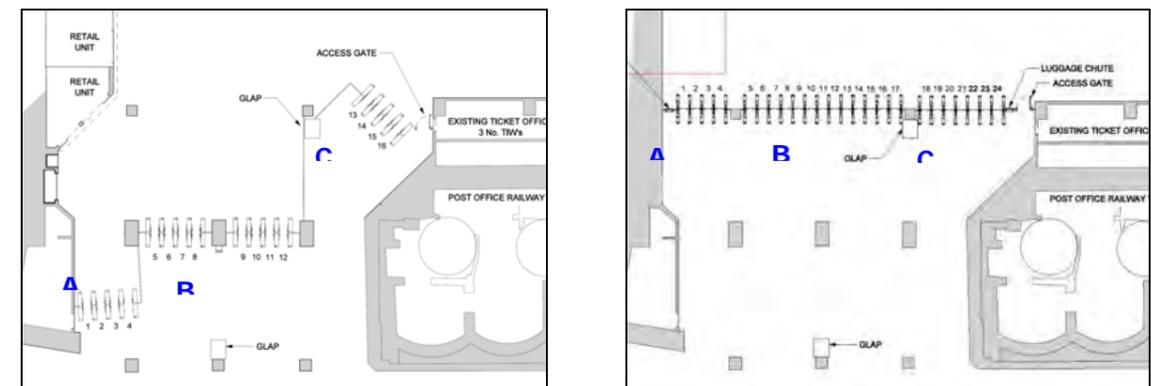


Figure 12.5 Ticket Hall B – Gateline Configuration Existing (left), Proposed (right)

12.2.15 Construction and refurbishment

To implement this scheme, the impacts to the operation of the ticket hall will include:

- The retail units on the west side of the ticket hall will be removed to make room for the new gateline;

- The gates along the existing gateline will be removed from service (a number of gates at a time) and replaced by new “slimline” gates in their new alignment. Each section will be hoarded off during the removal and installation to maintain a continuous secure division between the ‘paid’ and ‘unpaid’ sides.

The programme to carry out these works will be phased to minimise the impact on the normal ticket hall service. These works would be undertaken with a minimal dedicated worksite in the location of the retail units. Equipment and materials will be transported to the ticket hall during the night time station closures. It is likely that all of the gateline work, together with any necessary subsurface demolition will also be undertaken during night time closures although it may be that certain elements can be undertaken during weekends when limited operations can be maintained.

All the work is contained within the ticket hall itself below street level. The work requires the use of hand tools only and deliveries would be from one or two vehicles parked at night on Liverpool Street. In order to mitigate the impact and disruption to the passengers, the gateline refurbishment is programmed to be undertaken after the opening of Broadgate Ticket Hall as the passenger pressure in the existing ticket hall will then be expected to have eased off.

12.2.16 Subsurface Works

The subsurface works consists of construction of the temporary work shaft located in Finsbury Circus and all of the below ground works, namely the platform tunnels and associated cross-passages, ventilation tunnels, escalator shafts including machine chambers and the tunnelled link to the existing Northern Line platform tunnels.

As a general principle all of these works are to be constructed using sprayed concrete lining (SCL) tunnelling methods with permanent secondary linings of in-situ concrete in public areas and sprayed concrete in non public areas.

12.2.17 Temporary work Shaft

The top of the London Clay at the location of the shaft is some 8m to 9m below ground level. Consideration could be given to constructing either a polygonal diaphragm wall shaft through the upper 10m or 12m, designed to be stable with no internal propping. This shaft would then be extended using SCL to say 2m to 3m below station tunnel invert. Alternatively the shaft may be constructed using concrete shaft rings excavated by the traditional method of a wet caisson or by dewatering and underpinning to a cut off in the London Clay, again with SCL over the lower section. For Scheme Design the latter sunk as a caisson to avoid any need for dewatering through the made ground and river Terrace Deposits has been assumed.

12.2.18 Station and Ventilation Tunnel Construction

Details of construction of these tunnels are given in Volume 8 Sections 31.7 to 31.14

12.3 Advanced Works Requirements

It is understood that the definition for Advance Works relates to Enabling Works that need to be undertaken ahead of the Main Construction Contracts solely because of programme constraints/drivers.

On this basis the following activities will need to be carried out as Advance Works:

- Construction of the new Substation on the south side of the Metropolitan and Circle Line Platforms at Liverpool Street Station, next to Blomfield Box and decommissioning of the existing sub-station;
- Protective measures to the Connect CER facility in the Queen Victoria Tunnel;
- Erection of Hoardings / crash decks and demolition of structures in Moorgate, Moorfields and Blomfield Street adjacent to the London Underground Railway;
- Enabling works for and protection / diversion of Utilities at Moorgate and Liverpool Street;
- Protection / Diversion of LUL assets (Cables) Moorgate and Liverpool Street Stations;
- The relocation of existing LU plant rooms 2/666, 2/672 and 2/239 Liverpool Street Station.

A detailed description of these works is included in Section 12.4. The co-ordination and management of these works is currently being undertaken by EWMA.

12.4 Enabling Works Requirements

12.4.1 Moorgate Ticket Hall

Significant Enabling Works activities that will be required for construction of the Moorgate ticket hall, include demolition of the of the Amro bank building occupying 91 to 133 Moorgate, partial demolition of 21 Moorfields and settlement protection for the London Bridge Sewer. Note that access to the high level walkway and LU ticket hall will be temporarily closed during these works.

Details of requirements for Utility and Railway service diversions are included in Section 10 of this document. It has been assumed that these diversions will be carried out by the relevant Utility Undertakers and railway asset maintainers who will provide details of their proposed methods of work. A scope of advanced works for the demolition of 91-109 Moorgate has been produced (DomDoc reference CR-SD-LIV-TP-00003). A scope of advanced works for the partial demolition of 21 Moorfields will be prepared following clarification from CLRL on the extent of the demolition works.

Demolition Activities

A report and outline programme for the demolition of 91 to 109 Moorgate has been prepared by John F Hunt and is available on DomDoc. It is considered that as this

structure is demolished that the adjacent building occupying the site at 87 Moorgate will need to be propped, possibly by use of raking shores. Subject to further analysis, these shores may need to be constructed on a piled foundation and be installed prior to demolition of the AMRO Bank. This shoring will need further modification to facilitate subsequent retaining wall construction; possibly using temporary kingpost piles outside the line of the permanent works retaining wall. The temporary works requirement will be dependant on a detailed survey of the adjacent structures to determine exact building lines and an understanding of their inherent stability. In addition, 87 Moorgate is a Grade II listed building and as such any temporary works will be subject to approvals and consents.

A report for the demolition of 21 Moorfields is shortly to be prepared by John F Hunt.

London Bridge Sewer

The London Bridge Sewer carries combined foul and surface water effluent and runs along a line approximately coincident with the centre of Moorgate. The sewer has been subject to detailed survey and its position is known with a reasonable degree of confidence. It was constructed in the 19th Century as a brick egg-shaped pipe, approximately 1.8m across by 2.2m high. On the line of the escalator shaft the sewer invert is believed to be at 105.18m.ATD. The brickwork is believed to be approximately 330mm thick and in good condition.

Whilst the crown of the sewer is at approx 107m.ATD, the system has been known to surcharge at times of high rainfall and tide, to a level of 110.2m.ATD. Ground level is 113.7m.ATD. Given the construction of the sewer, its close proximity to the works to be undertaken, levels of settlement predicted and the potential for surcharge, there is a risk of bursting if the sewer is left without adequate protective measures such as reinforcement with steel arches and / or secondary lining with GRP. For details of the settlement analysis for this sewer completed to date and the process being undertaken regarding the agreement of protective measures with Thames Water, refer to Section 10.2.20. Potential mitigation measures are outlined in Section 10.2.19.

12.4.2 Blomfield Box

As for Moorgate Ticket Hall significant Enabling Works activities will be required for construction of the Blomfield Box. These include demolition of 11-12 Blomfield Street, construction of a new utilities crossing in Blomfield Street and relocation of a number of railway services. A scope of advanced works for the demolition of 11-12 Blomfield Street has been produced (DomDoc reference CR-SD-LIV-TP-00002).

Details of requirements for Utility and Railway service diversions, including construction of the utilities crossing are included in Sections 10.3.13 and 10.3.14 of this document. It is assumed that the utility diversions will be carried out by the relevant Utility Undertakers and railway asset maintainers who will provide details of their proposed methods of work.

Demolition Activities

A report and outline programme for the demolition of 11-12 Blomfield Street has been prepared by John F Hunt and is available on DomDoc (ref AW /QMS /R /06 /09). The worksite at Blomfield Street will be restricted in size it is therefore important that it is at one level to commence piling construction. To achieve this level site two possible alternatives are available:

- Either as part of the demolition it can be reduced to the level of the surrounding basements, which may require some temporary works, and/or underpinning to the surrounding buildings.
- Alternatively following demolition the basement may be backfilled to raise the site to the level of Blomfield Street, but this will necessitate the construction of a retaining wall alongside the LU lines. Due to its proximity to the railway of this retaining wall this is not considered to be a practical option.

Protective Barrier / Crash Deck

Prior to commencement of the demolition and in order to construct the piles in close proximity to the LU lines it will be necessary to construct a substantial screen or canopy enclosing both tracks to protect the railway from construction operations. This may be achieved by boring 600 mm diameter piles in possession and placing UC's that project above ground. A system of lateral beams will then be used to connect these columns, and the whole structure shrouded with suitable panels. The exact details for protection will require detailed discussion and agreement with LU.

12.4.3 Broadgate Ticket Hall and Liverpool Street Passage

Enabling works that will need to be carried prior to the demolition of the sub-station and construction of the new ticket hall and passageway include relocation of the EDF/Powerlink substation and associated switchrooms from in front of 100 Liverpool Street to a new structure on the south side of Liverpool Street station, protective measures or relocation of the Connect CER Rooms in the Queen Victoria tunnel (the current preferred option being protection) and the relocation of all of the existing utility services from within the carriageway of Liverpool Street.

Relocation of existing EDF/Powerlink Electrical Sub-station

A new sub-station is currently being proposed on the south side of the Circle and Metropolitan lines at Liverpool Street Station. A cable tunnel will need to be constructed to link the existing cable routes with the new sub-station. An outline scheme has been prepared for this work (Domdoc ref CR-SD-LIV-PB-PR-00003). and is currently being reviewed by LU. The detailed design and planning for its construction will need to be undertaken in association with LU and their contractors as early as possible as:

- De-commissioning and removal of all the existing equipment for construction of , plant and cabling within the area of the existing sub-station can only commence once the new facility has been commissioned.

- Due to limited access off Old Broad Street into Broad Street Avenue access to construct the new facility will need to be provided from Blomfield Street. This can only be provided after 11-12 Blomfield Street has been demolished and the main structural works will need to be complete before construction of the new Blomfield shaft can commence.

Protection of the Connect CER facility

Construction of the new ticket hall and associated passage do not directly require the relocation of the CER rooms in the Queen Victoria Tunnel. However, as the work will need to be carried out in close proximity and involves partial demolition of the existing tunnel the existing access routes (including cable routes) and switch rooms serving the CER will be lost and there is a potential risk that the construction will cause vibration to the surrounding area. A number of enabling activities are therefore required including the re-provisioning of access routes, station radio equipment room and switchrooms and the diversion of services.

Diversion of existing public services in Liverpool Street and footways

A key constraint in the construction of the works is the presence of existing public utilities within the road and footways of Liverpool Street. Mott MacDonald report "Liverpool Street Station – Liverpool Street Link Passage, Impact on Utilities" No. 1D0200-C1S12-00867 (March 2006) identified key services and offered options to maintain these services during construction of the link passage and in particular the Thames Water sewer. The proposals to accommodate the sewer included diversions on the outside and within the link passage box. The option currently adopted is for the sewer to be diverted for the escalator UMC with the existing sewer being retained beneath the floor of the link passage as shown on the structural drawings. A detailed assessment of the structural condition of this sewer and if needed strengthening or lining with GRP may be required to ensure its stability during construction as the cover to the length of retained sewer, whilst the passage is excavated, will be limited.

It is planned that the essential services which serve the adjoining properties will be diverted into a designated services corridor to the south of the new passageway. The details associated with the diversion of services including the sewer diversion have yet to be finalised. Allowance has been made in the construction sequence for the link passage to accommodate diversion of the sewer.

It is recognised that local services running across Liverpool Street, which serve the adjoining properties, will also require diversions. The details of these services are not currently known and as such they may have some impact on the method and sequence of construction.

12.5 Contractor's Compound and Worksite

Four main worksites are proposed for the construction of Liverpool Street Station, these are located at Moorgate, Blomfield Street, Liverpool Street and Finsbury Circus.

12.5.1 Moorgate Work Site

Location	91-133 Moorgate, Moorfields & 21 Moorfields
Area	2650m ² Approx. The boundaries of the site will be controlled by the need to ensure adequate pedestrian access to Moorgate Station.
Proposed Use	Main shaft site for western end of station including ticket hall, escalators and PRM lift, emergency and intervention access. Offices, stores and workshops for construction of above.

Table 12.1 Moorgate Work Site

The main site at the Moorgate end of the station will be bounded by, Moorgate to the east, 21 Moorfields to the west (part of which will be demolished to allow for construction of the ticket hall), and Moor Place to the north. Listed buildings at 87 Moorgate and 8 Moorfields delineate the southern boundary.

Two drawings have been prepared to show the layout of this site during the main phases of construction:

- Drawing P30103–C1M12-C02-D-50001 shows the layout during piling for the main shaft;
- Drawing P30103–C1M12-C02-D-50002 shows the layout after construction of the main ticket hall slab as the main shaft is constructed top down.

The main area of worksite will be created by the demolition of 91 to 133 Moorgate and 21 Moorfields, together with the southern Part of Moorfields between the entrance to Moorgate (Metropolitan, Circle and District Lines) Station and Fore Street. In addition, the site will be extended to the south by closing the eastern end of Fore Street to construct the western end of the ticket hall. It will also be necessary to temporarily close the footpath on the west side of Moorgate to facilitate construction of the upper machine chamber for the Crossrail escalator.

Planning of pedestrian routes will need detailed consideration to ensure the safety of the public. It will be necessary to maintain pedestrian access from Moorgate Station to London Wall either via Moorfields or along the west side of Moorgate. Since the construction extends beneath both of these areas, it will be necessary to relocate the pedestrian ways on a number of occasions to ensure that safe access is maintained.

12.5.2 Blomfield Street Work Site

Location	11-12 Blomfield Street
Area	1800m ² Approx.
Proposed Use	Construction of new LU Substation Construction of shaft for PRM lift, emergency and intervention access and for ventilation at east end of station. Construction of basement 11-12 Blomfield Street for Crossrail plant rooms

Table 12.2 Blomfield Street Worksite

The Blomfield Street site is created by the demolition of 11-12 Blomfield Street, together with part of Broad Street Avenue, to a level of approximately 107m.ATD. This provides a work site some 6m or so below street level, approximately the same level as the disused LUL Metropolitan/Circle/District Lines siding.

Two drawings have been prepared to show the layout of this site during the main phases of construction:

- Drawing P30103–C1M12-C00-D-50011 shows the layout during piling for the main shaft;
- Drawing P30103–C1M12-C00-D-50012 shows the layout for construction of the main Blomfield Street shaft.

12.5.3 Broadgate Ticket Hall and Passage Worksites

Location	Liverpool Street
Area	Varied to suit stage of construction but no greater than 1500m ² at any time
Proposed Use	Construction of passageway from Liverpool Street ticket hall concourse to Crossrail escalator. Construction of Broadgate Ticket Hall Construction of eastern Escalator to Crossrail station.

Table 12.3 Broadgate Ticket Hall and Passage Worksites

The construction of the link passage and ticket hall will be carried out within worksites established in Liverpool Street and the forecourt of No. 100 Liverpool Street. Timber hoardings will be erected around the worksites. Since the excavations for the ticket hall will be in close proximity to No. 100 Liverpool Street and the hoarding will need to be very close to the glass frontage, close liaison with the property owners will be required.

The section of Liverpool Street between the junctions with Old Broad Street and Blomfield Street will be closed to vehicular traffic throughout the construction period of the link passage and ticket hall. Access for Pedestrians and emergency vehicles will be maintained in Liverpool Street at all times during construction either via the existing carriageway or along the disused bus lane to the front of 100 Liverpool Street.

Five drawings have been prepared to show the layout of this site during the main phases of construction:

- Drawing P30103–C1M12-C00-D-50021 shows the layout during piling for the passageway along Liverpool Street;
- Drawing P30103–C1M12-C00-D-50022 shows the layout for excavation of the passageway;
- Drawing P30103–C1M12-C00-D-50023 shows the layout during construction of the escalators and mid-level passage;
- Drawing P30103–C1M12-C00-D-50024 shows the layout for construction of the eastern half of Broadgate Ticket Hall;
- Drawing P30103–C1M12-C00-D-50025 shows the layout for construction of the western half of Broadgate Ticket Hall.

12.5.4 Finsbury Circus Worksite

Location	Finsbury Circus Site
Area	900m ² Approx.
Proposed Use	Sinking of temporary shaft for construction of station tunnels. Construction of platform tunnels and associated passageways and ventilation tunnels Tunnel access shaft for men and materials Materials delivery and spoil handling and loading trucks Welfare and offices for tunnelling operations.

Table 12.4 Finsbury Circus Worksite

This site will occupy the centre of Finsbury Circus, currently a bowling green and garden area bounded by a number of mature trees. Detailed planning of this site will be required to mitigate the intrusion that is inevitable during the construction period.

The site plan is shown on drawing P30103-C1M12-C00-D-50026. It should be noted that the layout for the construction site will need to be planned such that it minimises any impact on the existing trees in Finsbury Circus. In addition extended height attenuating hoarding will be required to assist in reducing the impact of construction noise on adjacent properties.

The compound will be split into 4 areas: -

(a) Offices and Welfare facilities.

Whilst it may be possible to consider a number of arrangements it should be noted that there will be considerable workforce engaged on underground work and that team will need a reasonably large area for changing and welfare facilities.

(b) Main shaft area.

This will be serviced by travelling gantry cranes for lifting spoil out from the tunnels and lifting in plant and machinery, reinforcement, shutters and the like. Shotcrete and later concrete will either be conveyed or transported from the batching plant to the shaft, for both the SCL work as well as for the finished inner lining and internal works. Underground these materials will either be pumped or transported by rubber tyred vehicle.

(c) Batching Plant Area.

Use of an on site batching plant is a prerequisite for large scale underground SCL works to ensure that there is always an adequate supply of shotcrete when required to ensure stability of the work face.

(d) Laydown Area.

The site will form the main access and egress for the construction of some 500 metres of station tunnel as well as cross passages and ventilation tunnels. At Finsbury Square this will involve the excavation of approximately 100,000 cubic metres of ground (in the solid) and the placing of about 26,000 cubic metres of concrete works over a two year period.

12.6 Conclusions

12.6.1 The foregoing sections describe the construction processes assumed for the scheme design of Liverpool Street Station. These details will need to be developed further as the design is further progressed.

12.6.2 The following items have not been addressed in detail at this stage and will need to be developed as part of the next design stage:

- Confirmation of an agreed way forward for the Connect CER Room;
- Detailed design & planning for construction of the LU Substation Liverpool Street Station.