PED (PSQ) DUCTING SCHEME

PARLIAMENT SQUARE, MILLBANK, ABINGDON STREET AND PARLIAMENT STREET, LONDON

AN ARCHAEOLOGICAL WATCHING BRIEF

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AN ARCHAEOLOGICAL WATCHING BRIEF.

Site Code:	**PTS16**
Central NGR:	**TQ 30110 79630**
Local Planning Authority:	**City of Westminster**
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1 ABSTRACT

1.1 An archaeological watching brief was conducted by Pre-Construct Archaeology Ltd at Parliament Square, Millbank, Abingdon Street and Parliament Street for the Parliamentary Estates Ducting Scheme, City of Westminster. The investigation was conducted intermittently between 24th April 2017 and 14th February 2018. It was commissioned by WSP UK Ltd and was monitored by the Archaeology Advisor to the City of Westminster, Diane Abrams, of Historic England.

1.2 PCA had previously undertaken an archaeological desk-based assessment (Banens and Buczak 2016) which determined a high potential for uncovering medieval and post-medieval archaeological remains.

1.3 The watching brief monitored the excavation of 31 trenches with variable lengths and widths up to 1.20m depth, excavated in order to install new service ducts and manholes. During the excavations, severe truncations to archaeological horizons as a result of service cuts were found.

1.4 Archaeological evidence for the medieval period was identified in two trenches that needed to be deeper to evade existing service ducts. A number of walls were identified which may be related to the former Palace Yard Gate.

1.5 Archaeological evidence was seen for post-medieval activity in a third of the trenches excavated. These were identified at locations which underwent substantial alteration and demolition at the beginning of 20th century.

1.6 None of the trenches were deep enough to uncover natural deposits.

2 INTRODUCTION

2.1 Pre-Construct Archaeology Limited was commissioned by WSP UK Ltd to undertake an archaeological watching brief during works associated with the Parliamentary Estates Ducting Scheme (Figure 1 and 2). The project encapsulated works to Parliament Square, Millbank, Abingdon Street and Parliament Street within the City of Westminster.

2.2 The site was located within an Area of Special Archaeological Priority Area as defined by the City of Westminster in their Strategic Policies Map dated January 2013, covering Lundenwic and Thorney Island. The site is wholly situated within this World Heritage Site. It is centred at TQ 30110 79630 (530110, 179630). It is also partially within a World Heritage Site (number 426, designated inscription in 1987), which covers Westminster Abbey, along with Westminster Palace and St. Margaret's Church.

2.3 The proposed scheme sought to implement new communications ducting around Parliament Square, Millbank, Abingdon Street and Parliament Street. The monitored works included 31 linear trenches excavated to varying depths, generally between c1.0m and c1.3m below ground level. Deeper levels were reached in localised areas where existing services were encountered.

2.4 PCA previously prepared an archaeological Desk-Based Assessment (Banens and Buczak 2016) which confirmed that the site is one of extreme archaeological sensitivity. The DBA included the results of a watching brief during a wide-ranging series of test-pits excavated to inform upon ground conditions and existing services; the fieldwork showed a limited potential for archaeology due to the extent of late post-medieval and modern truncation, however it was clear that where survival did occur the remains could be at least of local significance and at risk of heavy disturbance from proposed works.

2.5 Based on the known resource, and the extent and location of the works, a watching brief was maintained during the development groundworks to ensure that appropriate records were made of any surviving archaeological remains.

2.6 The excavation of the trenches was carried out by FM Conway Ltd.

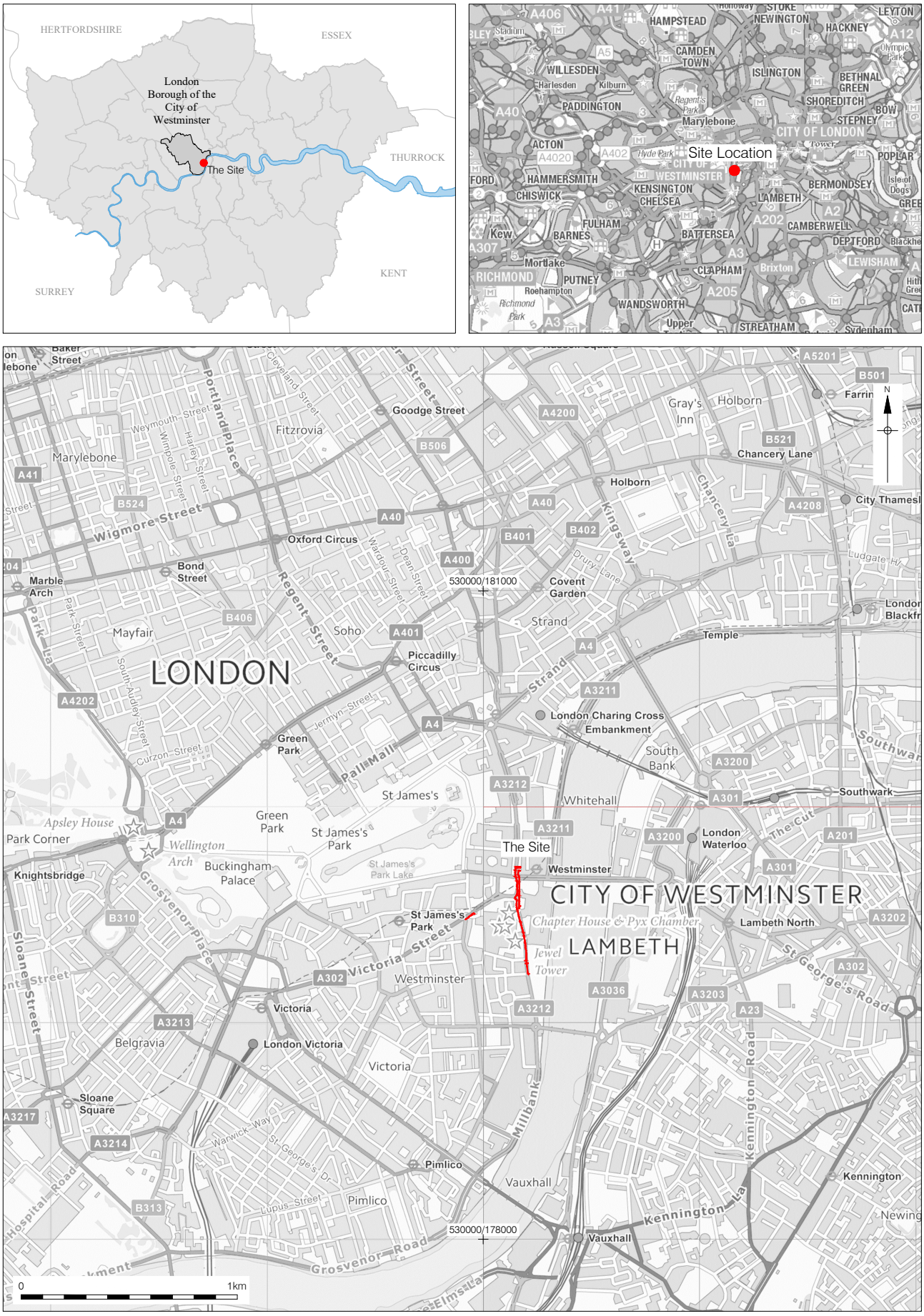
2.7 The archaeological work was monitored by the Archaeology Advisor to the City of Westminster, Diane Abrams of Historic England (GLAAS).

2.8 All works were undertaken in accordance with the following documents:

- *Parliamentary Estates Ducting Scheme, London, Parliament Square, Millbank, Abingdon Street and Parliament Street: Written Scheme of Investigation for an Archaeological Watching Brief* (Mayo, C, 2017, unpublished report for Pre-Construct Archaeology Limited).
- *MoRPHE* (English Heritage, 2008).
- *Guidelines for Archaeological Projects in Greater London* (Greater London Archaeological Advisory Service, Historic England, 2015).
- *'Standard and guidance for archaeological field evaluation'* (CIfA 2014)

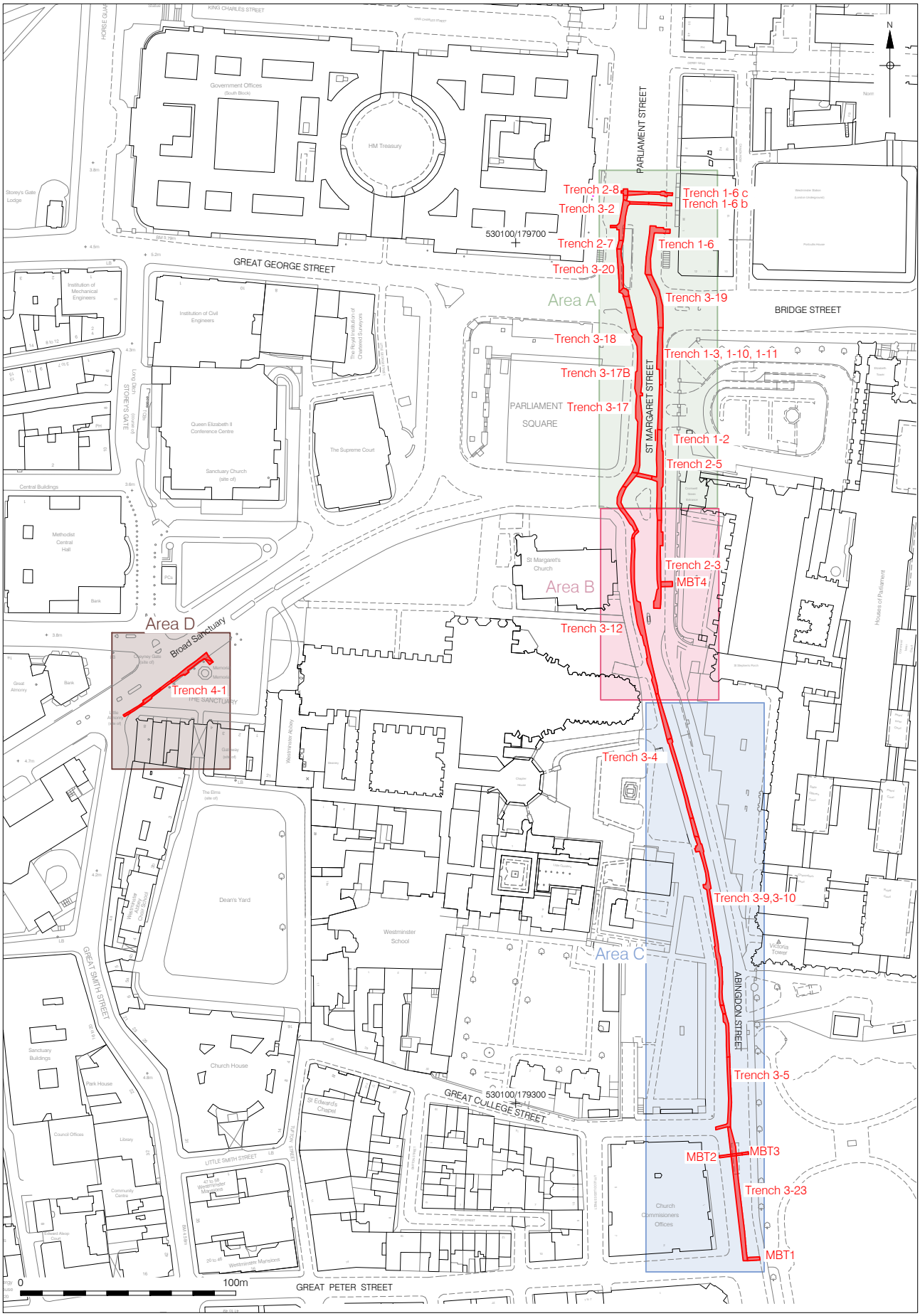
2.9 The site was allocated the unique Site Code PTS16

2.10 Following project completion, the completed archive comprising written and photographic records from the excavation will be deposited with LAARC.



19/01/19 RM

Figure 1
Site Location
1:800,000, 1:250,000, 1:25,000 at A4



19/01/19 RM

Figure 2
Detailed Site Location
1:2,500 at A4

3 PLANNING BACKGROUND

3.1 The detailed planning background to the project is set out in the desk-based assessment by PCA (Banens and Buczak 2016). The following represents a summary of that document

3.2 National planning guidance is provided by Section 12 of the National Planning Policy Framework (NPPF) published in 2012 and since updated in 2018. Regionally, guidance is provided by The London Plan, updated in 2015 and 2018.

3.3 Local guidance is provided by the Westminster Unitary Development Plan, adopted in 2007, and its replacement, the Westminster City Plan: Strategic Policies, dated 2010. The following policy is of key relevance:

Policy 11: Scheduled Ancient Monuments, Areas and Sites of Archaeological Priority and Potential

Aim: To identify archaeological remains of national and local importance, conserve them in their settings, and provide public access to them. Where new development is proposed on sites of archaeological potential, to ensure adequate archaeological impact assessment, followed by appropriate provision for preservation or investigation, recording, and publication.

B) Areas and Sites of Special Archaeological Priority and Potential:

Permission will be granted for developments where, in order of priority:

1) all archaeological remains of national importance are preserved in situ

2) remains of local archaeological value are properly evaluated and, where practicable, preserved in situ

3) if the preservation of archaeological remains in situ is inappropriate, provision is made for full investigation, recording and an appropriate level of publication by a reputable investigating body.

Reasons: Archaeological remains are important evidence of the City's past and are a valuable historical, educational and tourist resource. They are finite and fragile; once lost, they cannot be recovered. The City Council considers that the archaeology of Westminster is a national as well as a local asset and that its preservation is a legitimate objective, against which the needs of development must be carefully balanced and assessed. The destruction of such remains should be avoided wherever possible and should never take place without prior archaeological excavation and record.

The preservation of Westminster's archaeological heritage is a material planning consideration and applicants will need to show that proposed development is compatible with the objectives of the City Council's archaeological policy. The Council will wish to implement that policy under relevant legislation and statutory guidance and by means of legal agreements and planning conditions.

3.4 In terms of designated heritage assets, no Historic Wreck sites or Historic Battlefield designations lie within the vicinity of the study site. The site does, however, lie partially within a Registered Garden (Victoria Tower Gardens), and a Scheduled Ancient Monument

(The Jewel Tower) and several Listed Buildings also lie within a 50m study area of the proposed development site.

3.5 The site also lies within both the *Lundenwic* and Thorney Island Archaeological Priority Area, as defined by Westminster City Council, and a World Heritage Site, which protects the buildings of St Margaret's Church, Westminster Abbey and Westminster Palace.

3.6 In advance of the commencement of the fieldwork project, a Written Scheme of Investigation was prepared by PCA (Mayo 2017) and approved by the archaeology advisor to the local planning authority, Diane Abrams of GLAAS at Historic England.

4 GEOLOGY AND TOPOGRAPHY

4.1 Geology

4.1.1 According to the British Geological Survey, the study site is underlain by London Clay Formation, deposits of silt and clay which formed approximately 34-56 million years ago in the Palaeogene Period and are indicative of a local environment previously dominated by seas. Across the northern and southern ends of the study site, the bedrock geology is overlain by superficial deposits of alluvium; clays, silts, sands and peats deposited by the Thames up to 2 million years ago (BGS 2016; Donovan 2016; Barrowman 2010)

4.1.2 The remainder, and majority, of the study site lies above Kempton Park Gravel Formation, deposits of sand and gravel which are believed to have formed a higher island within the Thames at its confluence with the River Tyburn, known from the 8th century as Thorney Island (BGS 2016; Thomas et al 2006).

4.2 Topography

4.2.1 The modern topology of the study site is dramatically different to that represented by the natural geology, owing to the significant amount of made ground that has been deposited (as part of reclamation and general landscaping activities) since at least the medieval period. Today, the modern ground surface across the study site shows a gentle slope down from north to south, with the ground ranging in height from 19.24m OD on Parliament Street in the very north, to 7.91m OD at the southern end of Abingdon Street (Thomas et al 2006).

4.2.2 Today, owing to substantial historical reclamation, the Thames lies between 80m – 140m east of Abingdon Street, the street along which most of the site lies. The River Tyburn, which approached the study site from the west, has now been entirely culverted and filled in; however, its original course and location remain uncertain (Barton 1982).

5 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

5.1 Paleo-environmental

5.1.1 The British Geological Survey (1:50,000 Sheet 270 South London 1998) shows the area around Westminster Abbey as a small, 'island' of Kempton Park Gravel, surrounded by alluvium. Sub-surface conditions beneath the 'high ground' of the island have not been extensively investigated but there is sedimentary evidence for widespread flooding of the island on at least one occasion in the early medieval period, ca. AD1050 (Thomas 2000).

5.1.2 Much of the study site is thus likely to have lain upon Thorney Island which, until recently, was believed to be an island completely isolated by the Thames to the east and branches of the River Tyburn to the north, south and west. The island reached its highest point (of above 2.00m OD) in the vicinity of Westminster Abbey (Thomas et al 2006). A recent re-appraisal of the geological evidence now suggests that this 'island' was not as isolated as previously believed; whilst the Thames always formed an edge to land in the east, the hypothesis that the Tyburn branched out to encircle Thorney Island has now been revealed to have been drawn more from unreliable medieval sources than objective scientific analysis (Donovan 2016).

5.1.3 Whilst the original course of the (now culverted) Tyburn is still uncertain, Donovan (2016) cites good evidence which suggests that it did not encircle the Westminster area and that Thorney Island was thus not a true island, but rather an area only mostly/partially encircled by low-lying land which experienced periodic flooding and/or existed as marsh. Boreholes and excavations have certainly confirmed that there was low-lying marshy land across at least the area north of modern-day Parliament Square. Thus, while the term Thorney Island will still be used in this report, it will refer to an area periodically or partially isolated from surrounding land by marsh and water, rather than to a true, permanently isolated island (Thomas et al 2006; Donovan 2016; Rodwell & Tatton-Brown 2015(a)).

5.1.4 Evidence of other streams or inlets has also been found in the area along the Thames foreshore. One possible such channel has been located running beneath New Palace Yard, in close proximity to part of the study site (Thomas et al 2006). In the Anglo-Saxon period branches of the Tyburn appear to have passed to north and south of Thorney Island, with the southern branch having an alignment parallel with and slightly to the south of Great Peter Street (Jorgensen 2008).

5.2 Prehistoric

5.2.1 It is uncertain exactly when Thorney Island first became an area of higher land within an otherwise generally low-lying area of marsh and flooding. Radiocarbon dates of a twig preserved in the 'island's' sand and silt deposits at -2.09m to -2.12m OD suggest that sand was accreting in the mid to later Neolithic (3100-2690 BC). However, it has not yet been possible to date the base of the sand 'island', which persisted to at least -2.4m OD, making it difficult to ascertain the date at which the 'island' began to form and may have first

become accessible for human activity and habitation (Thomas et al 2006).

5.2.2 In addition to residual artefacts, a number of in situ prehistoric features have also been recorded across the study area, and are suggestive of the 'island's' occupation, at least during the later prehistoric period. These include a number of Late Bronze Age/Early Iron Age postholes at Westminster Station (MLO66028), Bronze Age-Iron Age gullies, postholes and stake-holes in two separate locations off St Margaret Street (MLO9208; MLO2837), and an Iron Age quarry pit or ditch in Parliament Square (MLO62781). Three prehistoric features interpreted as a structure were also found just north of Parliament Square, probably situated on the northern edge of the 'island' and just south of an extensive area of marsh (MLO4906).

5.2.3 Alluvial deposits containing prehistoric material have also been recorded in a number of different locations, often truncated by or overlying the aforementioned prehistoric features. This evidence is again suggestive at least of prehistoric activity within the general vicinity, as well as ongoing flooding and natural changes to the landscape. At New Palace Yard, a land surface of Bronze Age date was covered by alluvial sands containing Neolithic arrowheads and Bronze Age pottery (MLO62884) whilst further Neolithic flints were discovered in a water-lain sand layer at Westminster Station (MLO66027). Two separate locations off St Margaret's Street also revealed a flood deposit containing Iron Age potsherds (MLO9209), and a succession of alluvial strata dated by finds to the Bronze-Iron Age (MLO2837).

5.2.4 It is noteworthy that prehistoric evidence is predominantly concentrated across the central part of the site - where Thorney Island would have existed at its highest elevation of c.2m OD - and is notably sparse/absent from the site's southern and western limits, which may well then have existed as flooded or marshy land, sloping down to -0.5m OD.

5.3 **Roman**

5.3.1 Westminster lay some distance to the west of the Roman settlement of Londinium (centred upon the modern-day City of London) (Weinreb & Hibbert 1995), and thus far there has been little evidence to suggest extensive Roman activity in the area. While there are antiquarian reports of Roman walls, a hypocaust and concrete floor beneath Westminster Abbey, as well as the discovery of a stone sarcophagus immediately north of the abbey nave in 1851 (Poole 1870), there are few instances of modern finds and features (Thomas 2008). More recent excavations have recorded Roman ceramics from a mid-11th century ditch in the undercroft of the east range of the abbey cloister, opus signinum and ceramic tiles in the robber trenches of a 12th century building, a robbed-out wall and two drystone walls in Parliament Square of probable Roman date (MLO62782), Roman pits below the Treasury Buildings (immediately to the north of Thorney Island), and various other artefacts (Thompson 1998; Thomas 2008). It has been suggested that, despite the paucity of attributable features, the finds corpora, in particular the building material, indicates the presence of Roman structures and occupation of Thorney Island (Thomas 2008).

5.3.2 Historically, the alignment of roads on either side of the Thames has led to the belief that Westminster was the site of a ford (de la Bédoyere 2004). Despite a lack of archaeological evidence, it is thought that this might have been the site of the original Roman river crossing during the invasion of AD 43 (Thomas et al 2006). If so, Roman Tothill Street would have run across the site of the Abbey and through the study area (MLO68996). Although a credible and persuasive theory, there is as yet no archaeological evidence to support it and it must for now remain speculation (Thomas et al 2006).

5.3.3 Within the study area itself, residual Roman material has been recorded from within a medieval ditch in New Palace Yard (MLO62891), from gullies close to St Margaret Street (MLO11182) and in robber cuts excavated in Parliament Square (MLO62782). Whilst the quantity of residual Roman material recovered does suggest at least some Roman activity within the area, it should be remembered that much of this redeposited material may well be a result of its curation, re-use and transportation to the site during the Saxon period (Thomas et al 2006).

5.3.4 Possible Roman material was also found within a flood layer recorded to the north of Parliament Square (MLO20127) which suggests the northern area of the study site remained prone to flooding and was uninhabitable during this period.

5.3.5 The little Roman evidence there is seems to come from the highest ground of Thorney Island, below the abbey. This would imply that the river level was higher at the time, resulting in the low-lying areas being prone to flooding. Thus, it is thought that evidence for Roman occupation at Thorney Island would occur on gravel lying above 1m OD, perhaps 1.5m OD, in the areas beneath Westminster Abbey and possibly Parliament Square (Thomas 2008).

5.4 **Early Medieval**

5.4.1 The evidence for Saxon activity on Thorney Island is generally slight and until the 7th century missing entirely. The only evidence for Middle Saxon activity comes from residual material or chance find-spots, and includes an 8th century sword found near Abingdon Street during excavations for building foundations (MLO1691). The 11th century monk Sulcard claims that the first precursor to Westminster Abbey was founded during the reign of Aethelberht of Kent (AD 589 – 616). The founding of a minster at this date seems unlikely, especially since Bede makes no mention of the event; however, a 9th century minster is believed to be more credible, and would various Middle Saxon finds (Cowie 2012). A small abbey was however definitely founded on the site by St Dunstan between AD 959 and 971 during the reign of King Edgar (Thomas et al 2006). Remains belonging to the monastery of St. Dunstan were uncovered in 2013, during works at the Cellarium in Westminster Abbey, along with a small assemblage of Middle Saxon finds (Jorgensen 2013). Within the report it was suggested that the “relative paucity of finds, deposits and features from this period may be reflective of the limited depth of most of the interventions excavated and not necessarily of an absence of activity/occupation during this time” (Jorgensen 2013). Should the Middle

Saxon minster exist on Thorney Island, as has been suggested, then it likely would have occupied the higher ground towards Parliament Square.

5.4.2 During the reign of Edward the Confessor (1003-1066 AD) the area gained even more importance, with the founding of the Palace of Westminster (MLO18812, MLO5612, MLO28296), and the Collegiate Church of St Peter (soon to be known as Westminster Abbey) on the site of the former abbey (Weinreb & Hibbert, 1995; MLO22403). Along the middle section of Abingdon Street, the proposed development area is believed to have lain partially across at least the yard of the medieval palace, and may additionally have lain partly within the precincts of the Abbey. In St Margaret Street the development area also lies above the estimated location of the former Palace Yard Gate, or Inner Gateway (MLO5681).

5.4.3 Although parts of the study site thus appear to have been situated over areas of fairly substantial Saxon activity, much still lay at a considerable distance from this activity centre (e.g. the area of modern-day Broad Sanctuary in the west of the site). Nonetheless other parts of the site clearly sat above land that would have remained marshy, flooded and unused by the Saxons; across and around the northern end of St Margaret Street, a number of investigations have revealed the Saxon period represented by thick alluvial deposits only. In New Palace Yard, 2-3m of riverine silt indicate the area remained as marshland until the 1090s (MLO24691), whilst excavations in Parliament Square also identified extensive early medieval alluvial clay layers indicating periodic flooding (MLO62787). Investigations at Westminster Abbey and the surrounding area between 2008 to the present day by PCA have recorded further evidence of Saxon activity, however, this is limited to the higher ground of Thorney Island.

5.5 **Medieval**

5.5.1 The area of Westminster is well known to have undergone significant development during the medieval period (Schofield 2011) as Westminster Abbey (MLO22403) was rebuilt even more elaborately, and Westminster Palace was developed as the principal royal residence of England, and the country's seat of government and law (Rodwell & Tatton-Brown 2015) (MLO18812; MLO27372; MLO5681; MLO48871; MLO, MLO5682).

5.5.2 Across the south of the study area, significant development occurred for the first time in the form of a bridged ditch which was later developed into a moat associated with the Jewel Tower. The moat fed into the Thames and functioned as a dock (MLO5681). Evidence associated with this construction (including dock walls and bridge timbers) has been found either side of modern-day Abingdon Street (MLO57045, MLO5615, MLO5684, MLO48816), indicating that in this area, part of the study site would have lain immediately above the site of this medieval construction.

5.5.3 A little further south along Abingdon Street, remains of another medieval dock and quay wall were discovered, with thick alluvial deposits beyond (MLO48873, MLO5681; MLO9180) indicating an area of flooding or marshland which may have extended across to modern-day

Millbank where another area of elevated land existed. A medieval bridge is known to have been constructed between Thorney Island and Millbank in this area, parts of which are said to still exist beneath the pavement here and may have been found in 1903 (MLO9182). Excavations also show that by the end of the medieval period, more of this marsh/flood land had been reclaimed and an extension to the line of the great brick and timber drain of Westminster Abbey was constructed in the area (MLO5690).

5.5.4 Further known developments in the area, which in places do or may underlie parts of the study site, include: St Margaret's Church (and associated graveyard) on the corner of modern-day St Margaret Street (MLO104620, MLO63551), the 'Great Tower' on the western side of Abingdon Street (MLO53727), Smith Places weigh house under a modern-day road intersection north-east of Parliament Square (MLO3016 7966) and a complex of buildings associated with the Wool Staple at Parliament Square (MLO49058). The road from Charing Cross to Westminster was also established by at least the 11th century (MLO11185), although it is known to have deviated from the modern road along modern-day Parliament Street, so may never have existed below the development area. While these developments are or might be underlying the study area, the narrowness of the proposed development site means that it does not overlap many of these features.

5.5.5 The west of the study area also first witnessed activity during this period. Across and around the site of the modern Sanctuary, there was established both an alms-house (probably in 1485 AD) (MLO9231and the Great Gateway, a double gateway also used as a prison (MLO5643). Remains of the Great Gateway were discovered during excavations in the Sanctuary during archaeological monitoring in 2008 (Jorgensen). Here, a substantial medieval wall was uncovered directly a thin layer of made ground and concrete, with a later brick repair also recorded. It was observed at a maximum height of 3.82m OD (c. 0.30m below ground level), extending to a maximum depth of 1.07m OD and at least 1.1m in width (Jorgensen 2008).

5.5.6 Archaeological investigations in the area have also succeeded in revealing evidence of more mundane medieval activity that is not as evident within historical records, mostly in the form of settlement and reclamation activities. At Parliament Square, excavation recorded a residence, and possible drainage and reclamation activities, ranging in date between the 11th and 15th centuries AD (MLO66105 – MLO66107, MLO66109, MLO62788).

5.5.7 Further to the north and east, reclamation of the land appears to have continued to be difficult; at New Palace Yard, a thick medieval sequence of dumping, ditch construction and flooding episodes preceded the development of the area in the 13th century (MLO62892, MLO62898). Meanwhile, on Parliament Street, revetted drainage channels were found to have been abandoned, silting up in the 13th-14th centuries (MLO20130, MLO6985, MLO7128). Remains of a 15th century fish trap from the same location suggest this area remained abandoned to flooding until at least the late medieval period (MLO20160). At the very northern end of the study site, a bridge is also known to have been constructed from

Thorney Island across to an area of higher land further north; this bridge continued in use into the post-medieval period (MLO9184).

5.6 **Post-Medieval (including map regression study)**

5.6.1 The area of Westminster is known to have become heavily built up during the post-medieval period (Schofield 2015), as the existing medieval establishments (e.g. Westminster Abbey and Palace, St Margaret's Church, the almshouse and prison at the Sanctuary) continued to evolve and expand. Post-medieval remains of many of these have found during various recent excavations across the study area (MLO48580, MLO48324, MLO29356, MLO97939, MLO5681, MLO18812, MLO29357, MLO63551, MLO63549). Meanwhile, the medieval moat to the south of the Palace fell out of use, eventually being backfilled to become a smaller pond by the 17th century, and a garden by 1720 (MLO5681, MLO5681).

5.6.2 The areas surrounding these important administrative and religious complexes also continued to be developed and fill in. This is evident from cartographic and historical evidence but also from archaeological excavations which have recovered the remains of 16th – 18th century houses in a number of locations; under Parliament Street (MLO62816, MLO62818), along the north side of New Palace Yard (MLO62915) and lining the north-east corner of Parliament Square (MLO66109-MLO66111).

5.6.3 This was undoubtedly possible due to the substantial amount of reclamation that took place in this period, activity also borne out within the archaeological record. At the southern end of Parliament Street, excavations demonstrate that this previously marshy/flooded area was finally reclaimed by post-medieval dumping (MLO20161, MLO7557), whilst substantial land reclamation across the south of the study site allowed previously uninhabitable areas to become the site of various wharves, cement works, oil factory and mills, before being converted to a public garden in 1879 (MLO23201, MLO59282).

5.6.4 It is during the post-medieval period that a number of roads across the study area were also first altered to their modern widths. In the north of the study site, Bridge Street was laid out in the mid-18th century, replacing a narrower road along the same course (named Wool-Staple) which had probably been lined with various shops and residential buildings. Remains of earlier road surfaces, and the edges of these buildings, may thus survive beneath the study site in this area (Barrowman 2010).

5.6.5 There is even more potential for building remains to have existed beneath modern-day Parliament Street, as no road along this alignment existed here until the mid-18th century (MLO11185); before this time, the area was occupied by a market, residential buildings and a network of narrow roads and alleys. The construction of Parliament Street across this area in the mid-18th century lead to the creation of an 'island' of buildings between it and King Street to the west; this survived until the late 19th century when the buildings were demolished to allow Parliament Street to be finally widened to its current width (Atkins Ltd 2006).

5.6.6 The 1560s Agas map depicts only the north-east of the study site, and illustrates that the area was already built-up. Westminster Abbey and Palace are surrounded by various buildings and open squares, and separated by what appears to be a road, bridged in many places. Although the inaccuracy of the map does not allow the location of the study area to be exactly overlaid, one can determine that the site must have run variously through buildings and open squares in the north, and probably roughly along the course of the road in the south. Given the fact that modern roads in the area often tend to be wider than their post-medieval predecessors, it is quite possible that parts of the study site in the south may also have run through the edges of various buildings on either side of this road.

5.6.7 Morgan's map of 1682 shows that the site would have run through a market area and various streets and buildings in the north. To the south it runs mainly along the course of the road, although it once again occupies an area greater than the road's width, thereby encompassing the edges of various buildings and gardens in places. Parts of the site would also have run through New Palace Yard and Old Palace Yard, whilst in the west the site appears to lie entirely within a large open yard at the end of the Sanctuary, possibly associated with the Great Gatehouse.

5.6.8 Rocque's map of 1747 (not illustrated) closely resembles the layout of Morgan's map, and the layout and naming of roads in the area had by then become one that is largely recognisable today. In the south, the study area again lies predominantly within streets (Abingdon Street, St Margaret Street, Millbank) and yards (Barnetts Yard, Old Palace Yard, New Palace Yard), and partially over the edges of the buildings lining them. In the north, following considerable residential demolition in the area, the site now lies predominantly within Bridge Street and Parliament Street, although also partially over buildings lining the western side of the latter. To the west, the site appears to remain within an open yard/road space.

5.6.9 Horwood's map of 1792-99 shows a very similar situation with little apparent development across the study site, although the Great Gatehouse which lay close to the western part of the site has been demolished. In the north, the western part of Palace Yard, through which the site ran, also appears to have been redeveloped to become part of Margaret Street, whilst part of the site in the very south now partially overlies a building depicted as a brewery.

5.6.10 On Horwood's 2nd edition map of 1813 there is again little substantial change to the study site, although in the north a substantial number of buildings lining the western side of St Margaret Street have been demolished, to be replaced with a landscaped garden, the predecessor of modern Parliament Square.

5.6.11 The OS Map of 1873 shows little change across the development area except for the construction of Westminster Bridge Station and the associated underground line running from it. Running through parts of the development site in both St Margaret Street and Bridge Street, this construction is likely to have had a significant impact upon buried deposits in

these locations.

5.6.12 Bacon's map of 1888 shows little change across the development area except for the construction of Victoria Tower Gardens, over part of which some of the study site lies. Previously an area of factories and wharfs, its conversion to gardens is conducive to good preservation of these earlier archaeological remains.

5.6.13 The OS map of 1896 shows no further changes within the study area apart from the construction of a few small traffic islands in the middle of Bridge Street.

5.7 **Modern**

5.7.1 The Westminster area has changed relatively little during the modern period, no doubt largely due to its already built-up nature and the desire to preserve the historical and architectural character of this nationally important part of London. Significant changes have thus generally been restricted to essential works; the construction of Westminster station and underground line, and various traffic, security and service works along roadways. Unfortunately, considering the positioning of the study site predominantly across roads and pavements, the study area is likely to have experienced a disproportionately high modern impact compared with the area in general.

5.7.2 The OS map of 1915 also shows no further changes to the study site except for the redesign of Victoria Tower Gardens, which appears to have included some minor landscaping that is unlikely to have had any substantial further impact upon below-ground remains.

5.7.3 In the 1956 OS map little has changed regarding the study site. Parliament Square has been expanded westwards, and houses at the junction of Abingdon Street and Old Palace Yard have been demolished to make further space for the road, however, the majority of the layout remains the same as the 1915 OS Map.

5.7.4 The OS Map of 1991-93 shows that the majority of Old Palace Yard, through which part of the site ran, has by now been redeveloped as part of Abingdon Street. It also shows that further pedestrian islands have been constructed in the middle of a number of streets: St Margaret's Street, Bridge Street, Broad Sanctuary and Parliament Street. Far more significant is the demolition of previous (mid-18th century) buildings along the west of Parliament Street to allow the street to be widened to its current extent, and the construction of a subway across the southern end of Parliament Street which will have removed buried deposits in this location to a substantial depth.

5.8 **Previous Investigations in Proximity to the Site**

Western End of Study Site: The Sanctuary, Dean's Yard and UK Supreme Court

5.8.1 Within the Sanctuary and Dean's Yard, archaeological monitoring in 2011 encountered a thick medieval - post-medieval sequence, in places up to 2.50m-3.50m thick and extending all the way down to natural deposits approximately 4.00m below ground level (BGL). Medieval walls often showed continued use and rebuilding into the post-medieval period.

Most noteworthy was the discovery of medieval walls presumably associated with the Chapter Clerks dwelling and the Bishop of London's Prison (Double Gateway), surviving just 0.29m below the modern ground level (Jorgensen 2008).

5.8.2 The impact of modern activity in the Sanctuary varied, truncating earlier remains from as little as 0.29m BGL to as much as 1.50m BGL (Jorgensen, 2008). The monitoring of two earlier phases of work within the Sanctuary which involved excavations down to 0.55m BGL, revealed either exclusively, or predominantly, modern deposits. The modern impact took the form of made ground and road surfaces, but predominantly service trenches (Barrowman 2009, Bright 2010).

5.8.3 On the nearby site of the UK Supreme Court, the monitoring of excavation works extending down to 1.57m BGL revealed structures and deposits dating exclusively to the late post-medieval and modern periods. The impact of modern activity was again substantial with modern deposits extending down to at least 0.87m BGL and sometimes as deep as the excavation limit itself (Barrowman 2009).

5.8.4 Despite the impact of modern activity (variable across the area), the potential for the survival of medieval, but especially post-medieval, remains is clearly relatively high in this area. Activity from the latter period in particular tends to have had a moderate-high adverse impact on earlier remains, although post-medieval tendencies to reuse and repair earlier walls are conducive to some medieval survival.

Southern End of Study Site: College Gardens

5.8.5 Archaeological monitoring of excavations (0.90m deep) in College Gardens reveal a similar story: evidence for late medieval – post-medieval activity was discovered, but had also witnessed relatively substantial truncation by modern service cuts (Boyer 2015).

Northern End of Study Site: Whitehall Streetscape

5.8.6 The Whitehall Streetscape Improvement Project involved the monitoring of a number of trenches along the west side of Parliament Street, immediately west of the currently proposed works; its results are therefore likely to provide a particularly reliable insight into survival potential across this area of the site. Excavation rarely exceeded 1m in depth and revealed much modern activity as well as some post-medieval made ground and masonry remains, many belonging to the 18th century buildings which stood on the site before the street was widened (Atkins Ltd 2006; Jorgensen 2010 & 2011).

Central Area of Study Site: Poets Corner Yard

5.8.7 Recent excavations at Poets Corner Yard have uncovered the remains of three cist tombs (likely of 11th century date) along with the monumental footings of the south transept (mid-13th century), as well as evidence for later post-medieval activity. Land reclamation deposits dating to the 11th century – likely indicating large scale land reclamation taking place for the construction of Edward the Confessor's church and monastery – were also recorded

(Jorgensen 2016). Site excavated in the 1970s and 80s, such as 37-46 Parliament Square (PAR87), interpreted this sequence of land reclamation deposits as river silt deposits and this interpretation was adopted during the excavations in the dormitory undercroft and during the underpinning of 17 Dean's Yard (Thompson 1998; Jorgensen 2016). However, there is no evidence to suggest that these deposits were flood related, and it is more likely that they represent land reclamation efforts prior to construction of Edward's church and the adjoining monastery reclamation efforts prior to construction of Edward's church and the adjoining monastery.

5.9 **Trial Pits for the PED Ducting Scheme**

5.9.1 Most relevant are the results of the monitoring of trial excavations that were carried out in advance of the main development to investigate the proposed ducting route. These were monitored by Richard Krason and Guy Seddon of Pre-Construct Archaeology Limited, in accordance with an approved Written Scheme of Investigation (Mayo 2016), and are reported therein at Appendix 2. Of the 29 trial pits excavated, which measured on average 1.5m x 0.6m and 1m in depth, just 9 were considered archaeologically interesting.

The Area North of Bridge Street (Trial Pits 25, 26, 27, 28 & 29)

5.9.2 This area showed evidence of heavy modern development, especially along the eastern side of the road. As such, few significant archaeological features or deposits were discovered, amounting in sum to a Victorian wall and one possibly pre-modern deposit. Even in those trenches where pre-modern remains survived, truncation by modern services and concrete was substantial (Appendix 2).

The Area of Abingdon Street, south of St. Margaret's Church (Trial Pits 1, 2, 3, 4, 5, 6, 30, 31, 32, & 33)

5.9.3 Modern truncation was somewhat less destructive within this area, with some form of possible early Victorian deposits revealed to survive within most of the trial pits. Evidence included late post-medieval – Victorian bedding layers, service runs, and made ground. Some trial pits however were still completely devoid of pre-modern material; Trial Pits 2, 4 and 5 revealed only recent made ground and services, whilst Trial Pit 33 hit the roof of an underground tunnel (Appendix 2).

The Area around Parliament Square and St. Margaret's Church (Trial Trenches 7, 8, 9, 11, 12, 13, 14, 15, 16 17, 18, & 19)

5.9.4 The majority of trial pits in this area almost exclusively revealed only concrete and Victorian – modern service runs, with the roofs of Westminster station and an underground car park revealed in Trial Trenches 18 and 14 respectively. Significant archaeological remains were revealed in Trial Pits 7, 9, and 16. These included a cobbled surface, dumping deposits (land reclamation perhaps), and timbers possibly associated with a pre-Victorian structure (Appendix 2). It is possible that the dumping/land reclamation deposits recorded in Trial Pit [9] are the same as the 'flood deposits' recorded in excavations from the 1970s and 80s as

well as the land reclamation deposits from more recent investigations at Poets Corner Yard, dating them to approximately the 11th century.

6 METHODOLOGY

6.1 The majority of the trenches were excavated by machine, using a 360^{o} type and / or a JCB mechanical excavator fitted with a flat-bladed bucket. However, where machine excavation was not possible (around existing services and masonry) deposits were excavated by hand. All excavation was monitored by the attendant archaeologist under watching brief conditions.

6.2 Where archaeologically significant features were encountered, excavation was halted until hand-cleaning and recording were completed.

6.3 All deposits were recorded on pro-forma context sheets. The trenches were recorded and planned with GPS. Where this was not possible, the trench and archaeological features were planned using triangulations and base lines. The plans were drawn at a scale of 1:20 and the sections at a scale of 1:10. A full photographic record of the site was maintained.

6.4 Finds, brick and mortar samples were collected according to standard retrieval methods as outlined in the Written Scheme of Investigation (Mayo 2017).

7 ARCHAEOLOGICAL SEQUENCE

7.1 Introduction

7.1.1 The watching brief monitored the excavation of numerous trenches along Parliament Street, Parliament Square, Margaret Street, Abingdon Street, Millbank and Broad Sanctuary, all in the City of Westminster (Figure 1 and 2). Prior to describing the archaeological results by phases, the trenches have been divided into four different areas as follows:

- AREA A: Parliament Street and Parliament Square.
- AREA B: St. Margaret Street and Old Palace Yard.
- AREA C: Abingdon Street and Millbank.
- AREA D: Broad Sanctuary.

AREA A	AREA B	AREA C	AREA D	TRENCHES WITH NO RESULTS
TR. 1_2	TR. 2_3	TR. 3_4	TR. 4_1	TR. 1_3
TR. 1_6B	TR. 3_12	TR. 3_5		TR. 1_6
TR. 2_7	MBT4	TR. 3_9		TR. 1_6C
TR. 2_8		TR. 3_23		TR. 1_10
TR. 2_8B		MBT1		TR. 1_11
TR. 3_2		MBT2		TR. 2_5
TR. 3_2C		MBT3		TR. 3_10
TR. 3_17				TR. 3_17B
TR. 3_19				TR. 3_17C
TR. 3_20				TR. 3_18

7.1.2 Only 21 of the 31 excavated trenches provided archaeological results. In general, all the trenches presented long and deep modern service truncations for pipes and electric cables. Normally these truncations eliminated any presence of archaeological features, and where features appeared, it was in very small areas.

7.1.3 There was a greater chance for archaeological horizons being encountered when the excavation had to go deeper than 1.20m BGL, primarily due to the presence of existing services.

7.1.4 The results of the excavations will are presented in four phases, from the late-medieval period to the modern era.

7.2 Phase 1: Late Medieval Period (15th Century)

Area B: St Margaret Street and Old Palace Yard (Figure 4)

7.2.1 Archaeological features related to this period were only found in Area B, close to Westminster Abbey and Houses of Parliament.

7.2.2 In Trench 3_12, stone walls [180] and [182] were uncovered at the bottom of the trench

(3.00m OD), just in front of the Abbey, with the former being laid over chalk foundation [173]. Both walls followed the same roughly east-west alignment and appeared to be part of a room which had been infilled by a series of working surfaces composed of gravels, crushed mortar, chalk and Reigate, layers [175], [176], [177], [178], and [179]. The sequence of layers was identified at a maximum height of 3.02m OD and had a total thickness of 0.40m. These layers were interpreted as a levelling or surface layers inside a building. The fact that these two walls were following the same orientation, suggests that they represent a single structure. It is very likely that these were either the remains of the former Palace Yard Gate or Inner Gateway demolished in 1731 (Plates 1 and 2 and Figure 4).

CONTEXT	TYPE	MEASUREMENTS N-S	MEASUREMENTS E-W	HEIGHT	HIGHEST LEVEL OD	LOWEST LEVEL OD
173	Foundation	0.84m	0.68m	0.26m	2.72m	2.69m
180	Wall	0.80m	>0.10m	0.25m	2.97m	2.97m
182	Wall	0.74m	0.30m	0.15m	3.01m	2.95m

7.2.3 The remains of another chalk wall [142] were identified in Trench 2_3 at 3.32m OD. This suggested that despite the later development of the area, elements of the former Palace of Westminster could have survived among truncations. Where seen it measured 0.50m north to south, 0.60m east to west and 0.20m in height.

7.3 **Phase 2: Early Post-medieval Period (16th to 17th Centuries)**

Area A: Parliament Street and Parliament Square

7.3.1 A small section of brick wall was seen in section in Trench 1_2 [138] (see Figure 7). As found it measured 0.76m north to south, 0.15m east to west and 0.40m high with its highest level at 3.65m OD. The wall was built with red Tudor/Stuart bricks bonded with soft light brown lime mortar (Plate 3 and Figure 10). It is difficult to ascertain the structure's function, as it was not possible to determine the shape of the wall within the confines of the trench.

Area B: St Margaret Street and Old Palace Yard (Figure 3)

7.3.2 In Area B features from the early post-medieval period were also encountered in Trench 2_3, to the south of Trench 1_2. A repair to earlier wall [142] was recorded. This comprised a refacing to the southern side of [142] with [145] from 3.30m OD. Additional construction was identified with masonry [141], at 3.59m OD, which was added to the northern side of [142]. A few reused medieval peg tiles and narrow red Tudor bricks were used in both structures (Plate 4, see also Figure 9).

CONTEXT	TYPE	MEASUREMENTS N-S	MEASUREMENTS E-W	HEIGHT	HIGHEST LEVEL OD	LOWEST LEVEL OD
141	Wall	0.63m	0.50m	0.45m	3.59m	3.14m
145	Wall	0.80m	0.74m	0.22m	3.30m	3.08m

7.3.3 Additional evidence for this period was recorded in Trench 3_12 and comprised brick structure [159], recorded at 3.35m OD (Figure 4). The structure was heavily truncated by

modern service trenches which made interpretation difficult. It is likely that the structure would have related to a drainage system as a small gully (Plate 5).

7.4 **Phase 3: Post-Medieval Period (18th to 19th Centuries)**

Area A: Parliament Street and Parliament Square

7.4.1 From this period a number of brick-walls [100], [102], [104], [106], [107], [108], [111], [123], [127], [134], and brick vaulted ceilings [116] and [128] were identified. These contexts were located in different trenches (1_6B, 2_8B, 3_2, 2_7, 3_19 and 3_20), and when combined form the plan of a block of buildings with different internal divisions (Figures 3 and 5).

CONTEXT	TYPE	MEASUREMENTS N-S	MEASUREMENTS E-W	HEIGHT	HIGHEST LEVEL OD	LOWEST LEVEL OD
100	Wall	0.75m	0.36m	0.32m	4.54m	4.54m
102	Wall	0.45m	0.55m	0.70m	4.54m	4.54m
104	Wall	0.50m	1.74m	0.75m	4.41m	4.41m
106	Wall	0.40m	1.95m	0.85m	4.40m	4.40m
107	Wall	0.45m	1.65m	0.80m	4.46m	4.46m
108	Wall	0.45m	0.30m	0.75m	4.35m	4.35m
111	Wall	0.50m	>0.10m	0.75m	4.45m	4.45m
116	Ceiling	1.00m	1.80m	0.40m	4.07m	4.05m
123	Wall	0.50m	>0.10m	0.50m	4.60m	4.60m
127	Wall	0.35m	2.32m	0.45m	3.70m	3.70m
128	Ceiling	0.70m	0.20m	0.30m	3.70m	3.70m
134	Wall	1.15m	0.22m	0.30m	4.05m	4.00m

7.4.2 The walls and vaulted basement ceilings were built using reused Tudor red bricks and post Great Fire bricks bonded with grey clinker mortar. The spot date for these materials and review of the map regression confirms that these are highly likely to represent the remains of a block of houses dating, at least, from the end of the 17th century (see William Morgan's Survey of London of 1682, Figure 7 in Banens and Buczak 2016).

7.4.3 The structure in Trench 3-2 composed of walls [106] and [107] is noteworthy. The walls were built against each other, leaving a square shaped gap as a chimney to a fireplace (Plates 6 and 7, Figure 9). The depth of the feature (with the hearth base at approximately 3.95m OD) and the discovery of two vaulted ceilings almost at the bottom of the trench (Plates 8 and 9) suggested that all of these structures were within basements to the buildings shown on Horwood's Map of 1799, at the southern end of Parliament Street, facing eastwards (see Figure 8 in Banens and Buczak 2016).

Area B: St Margaret Street and Old Palace Yard

7.4.4 In this area a wall and two surfaces were recorded (Trench 3_12). The brick wall [160] represented the corner of a building which extended beyond the limit of the excavation (Figure 4). It was made of post Great Fire bricks bonded with grey clinker mortar, recorded from a highest level of 3.45m OD. Where seen it measured 1.20m north to south, 0.54m

east to west and was 0.15m high (Plate 10). This feature has been interpreted as the remains of one of the shops or buildings that were located next to St. Margaret's Church along St. Margaret Street in the post-medieval period. These buildings appear for the first time in William Morgan's Survey of London, 1682.

7.4.5 Two cobblestone surfaces were also identified in Trench 3-12. Surface [157] was uncovered at the northern end of the trench with its highest level at 3.35m OD. This surface was heavily truncated by modern services and an area of only 1.60m by 0.65m. survived. The surface was made of medium size flint cobbles pressed in to bedding layer [158] and was interpreted as a truncated yard surface (Plate 11).

7.4.6 Cobblestone surface [167] was uncovered at 3.14m OD at the southern area of the trench, near Old Palace Yard. It was interpreted as a residual part of a road surface because of the large measurements of the cobbles (over 0.25m in diameter). This fragment of road was set over a sandy bedding layer [168]. Where seen the surface measured 0.38m north to south by 0.24m east to west.

7.4.7 At the beginning of the 19th century, all the buildings along St Margaret Street and Old Palace Yard were demolished in order to widen the roads. This change on the streetscape was illustrated in the different versions of Horwood's map from 1799 and 1813 (Banens and Buczak 2016, Figures 8 and 9).

Area C: Abingdon Street and Millbank

7.4.8 The trenches excavated in this area revealed a number of masonry structures dating from the post-medieval period (Figure 6).

7.4.9 In Trench 3_4, brick wall [193], with a later addition [192] as a reinforcement, were exposed. This structure was made of post Great Fire bricks bonded with grey silty mortar. Its highest level was 3.45m OD, and its orientation was east-west (Plate13).

7.4.10 Wall [190] was recorded in Trench 3_9 at a highest level of 3.23m OD. It represented the connection between two walls forming a T-shape, one element running north to south and the other one running to the east beyond the limit of the trench (Plate12). Where seen it measured 1.80m north to south by 0.50m east to west and 0.20m height.

7.4.11 In Trench 3_5 a brick well [164] was found directly below the concrete bedding for the present road. The well measured c.1.30m of diameter by at least 1.00m in height and was made of red frogged bricks bonded with grey silty lime mortar. Its top level was 4.10m OD (Plate 14).

7.4.12 Further brick walls were found in Trenches MBT1, MBT2 and Trench 3_23. Walls [197] (with a top level of 0.70m BGL), [131], [199] and [203] (with its highest level at 0.68m BGL) were built of post Great Fire bricks bonded with grey silty mortar

7.4.13 The structures described above within Area C can be attributed to former buildings along Abingdon Street during the post-medieval period.

7.5 Phase 4: Modern Period (20th Century)

Area A: Parliament Street and Parliament Square

7.5.1 As illustrated by historic maps, the block of buildings in the north of the site were cleared at the beginning of the 20th century to create the present Parliament Street and allow the construction of the "Board of Education and Local Government Offices" (compare Figures 12 and 13 in Banens and Buczak 2016).

7.5.2 Before this demolition, a room/building composed of walls [107], [102] and [104] was sub-divided by the construction of north-south aligned wall [103] (see Figure 3). The chimney and fireplace were also refurbished in this period. The construction of a possible cupboard next to the chimney was represented by walls [109] and [110], and the re-facing of the fireplace with cemented mortar [105] was also evident (Plate15).

7.5.3 Demolition towards the end of the 19th/early 20th century was confirmed by the presence of demolition rubble in many of the trenches excavated. Such contexts [101], [112], [113], [114], [115], [117], [118], [121], [125], [126], [129] and [133], were recorded from a maximum level of between 4.65m and 4.50m OD, and comprised the backfill of the former basements. Thus material was undoubtedly derived from the demolition of these buildings.

7.5.4 Directly below the concrete bedding for the road in Trench 3_17, a brick structure [130] was exposed (Plate 16). This was interpreted as an access for the main sewer running below Parliament Square. It was recorded from an upper height of 4.7m OD and reaching a basal level of 0.20m OD, giving an exposed height of 4.5m. A remote-controlled car with an attached camera was lowered down the shaft to inspect the base. The footage revealed that the shaft was located on top of the junction between two corridors, one running east towards the Houses of Parliament, flowing to a main sewer, and the other running north for 10m towards Parliament Street and blocked with bricks.

Area B: St Margaret Street and Old Palace Yard (Figure 7)

7.5.5 The trenches revealed that this area was raised up by c.0.80m, by a combination of made-ground layers [139], [161] and [166]. These reached an upper level of 3.85m OD.

7.5.6 An early 20th century brick culvert [148] in Trench 2_3 was the only archaeology of this period recorded in this area. As seen it measured 0.80m north to south by 0.48m east to west. It ran east-west, probably flowing into the main sewer which runs along the present St Margaret Street (Plate 17).

7.5.7 Within Trench 3_12 a 20th century cobblestone surface [186] was identified 3.73m OD. The location of the surface, aligned in front of the current path which runs east to west between St Margaret's Church and Westminster Abbey, suggested that this was the remains of the previous cobblestone road from the modern period.

7.5.8 No further archaeological features were found in this area due to the high degree of truncation by service trenches.

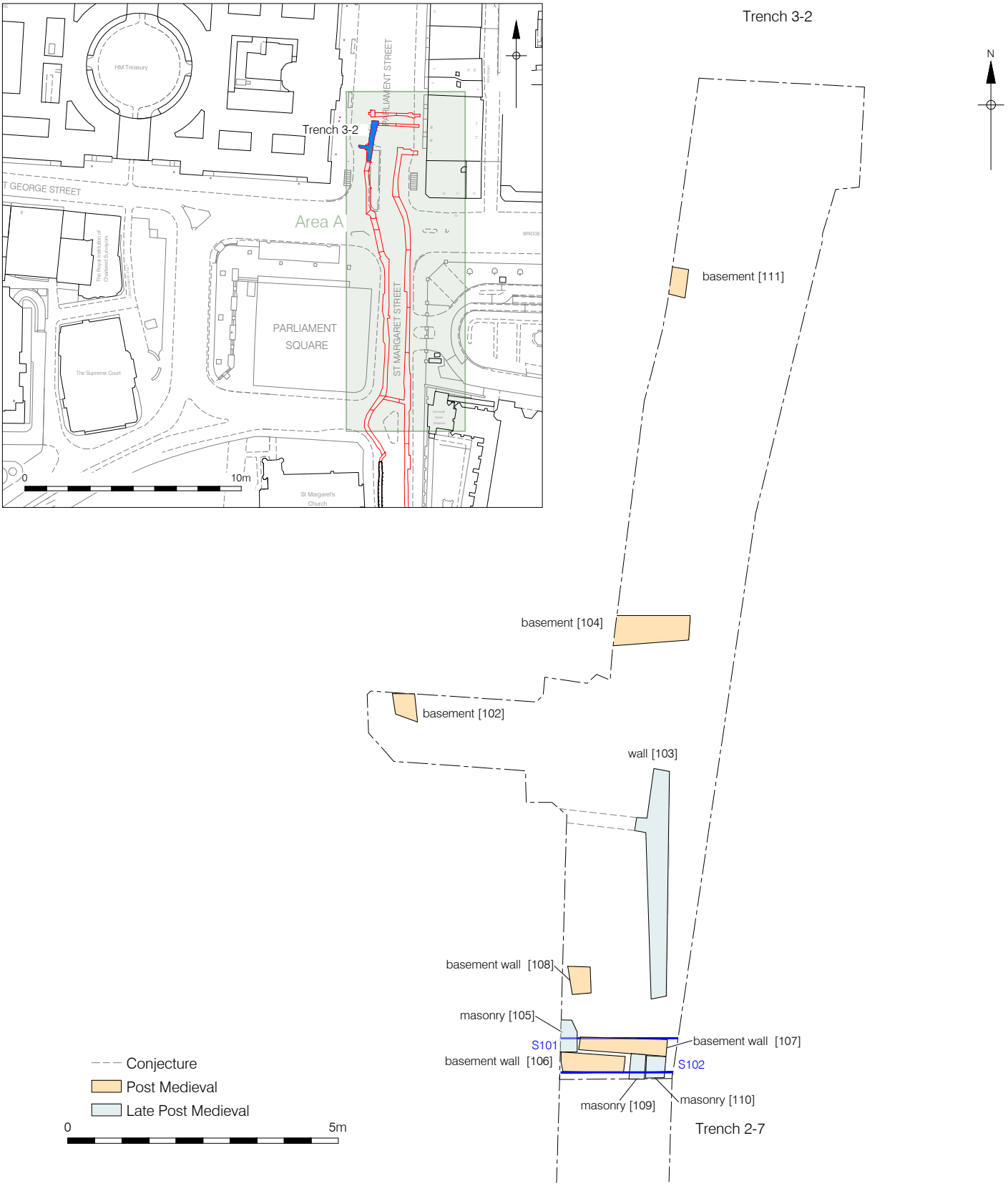
Area C: Abingdon Street and Millbank

7.5.9 Similar to Area A, the buildings from the previous period were in use until the early 20th century. The map regression shows that these buildings were cleared between 1915 and 1952 (compare Figures 13 and 14 in Banens and Buczak 2016), as a result of works to widen the carriageway in Millbank and Abingdon Street. The demolition debris resultant form the clearance was used to backfill the basements of the buildings (fills [191], [189]).

7.5.10 Further evidence of the demolition of former buildings was seen from demolition rubble layers ([195], [196], [198] and [204]), and made-ground layers [205] and [206], up to a level of c.4.05m OD, in Trenches MBT 1, 2 and 3. There was a noticeable absence of structural remains in these trenches.

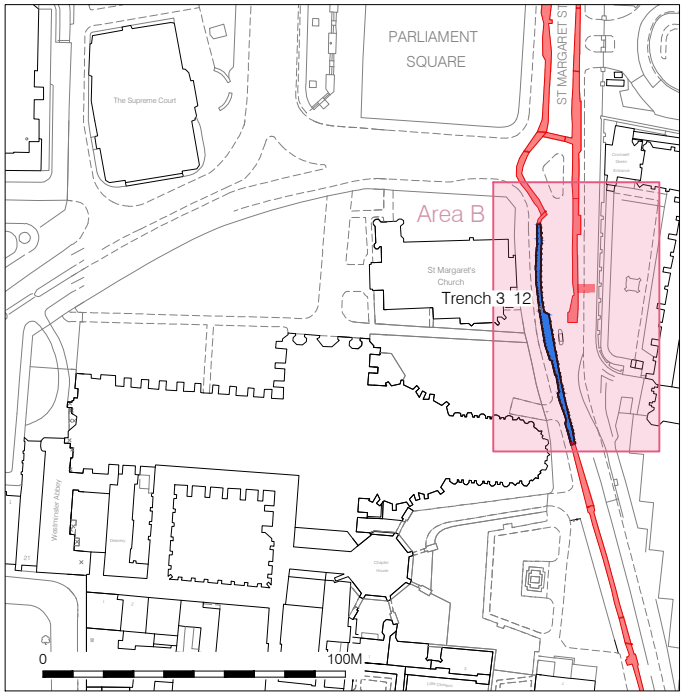
Area D: Broad Sanctuary

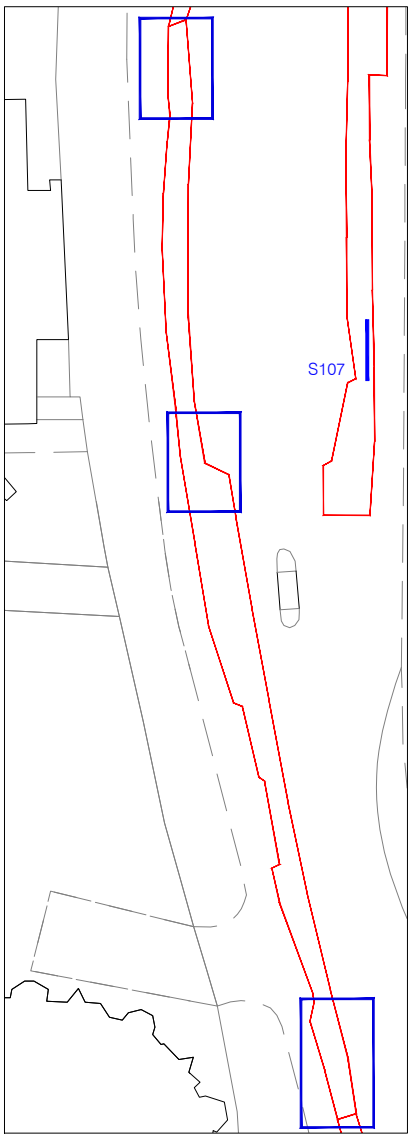
7.5.11 In this area, an L-shape trench (Trench 4-1) was excavated, measuring 23m east-west, 3.30m north-south and 1.20m depth. The trench uncovered several service lines and ducts which had disturbed most of modern made-ground levelling layer [194].

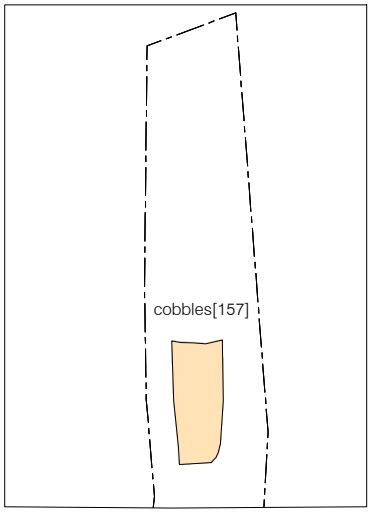


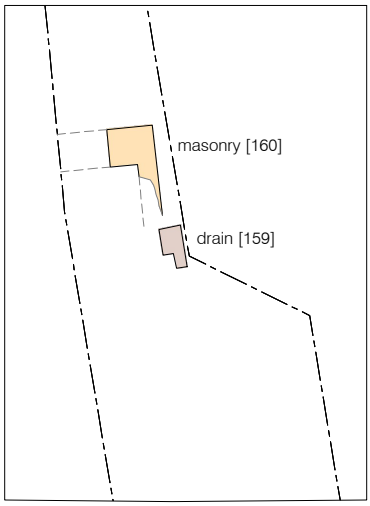
19/01/19 RM

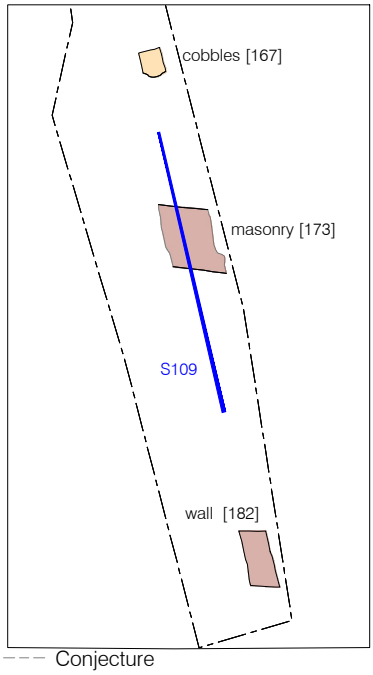
Figure 3
Plan of Trench 3-2 (Area A)
1:100 inset 1:2,500 at A4







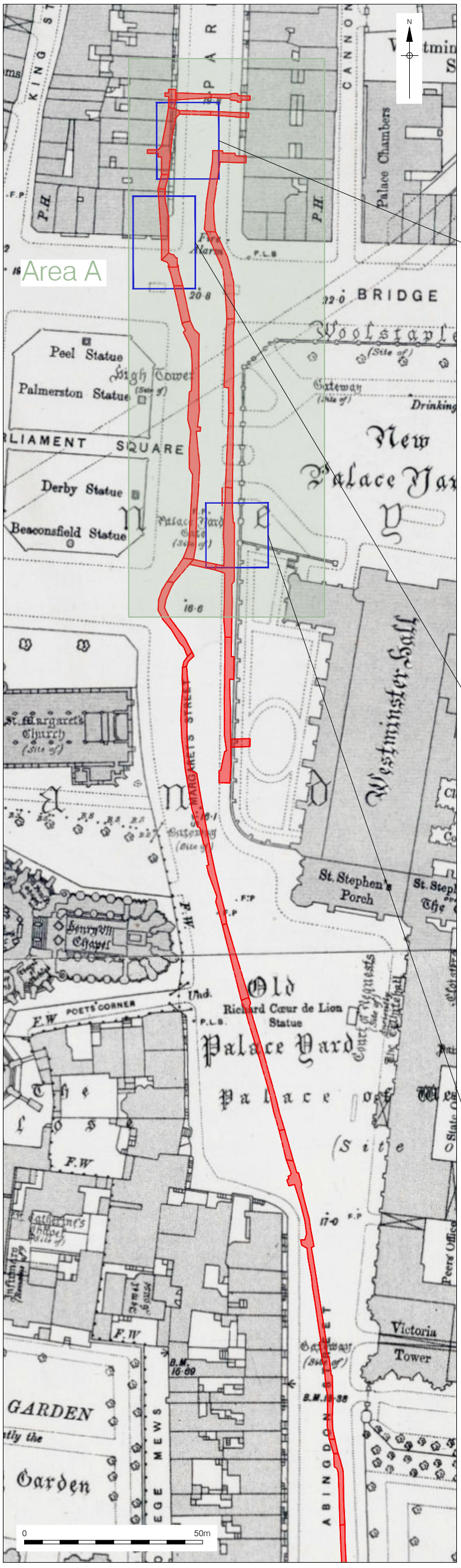


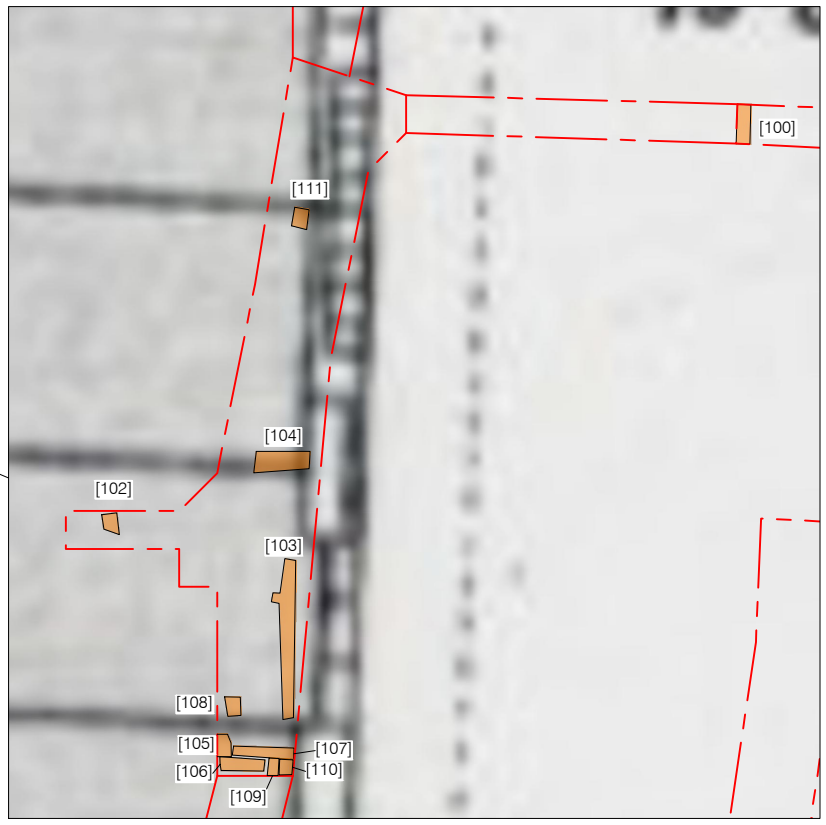


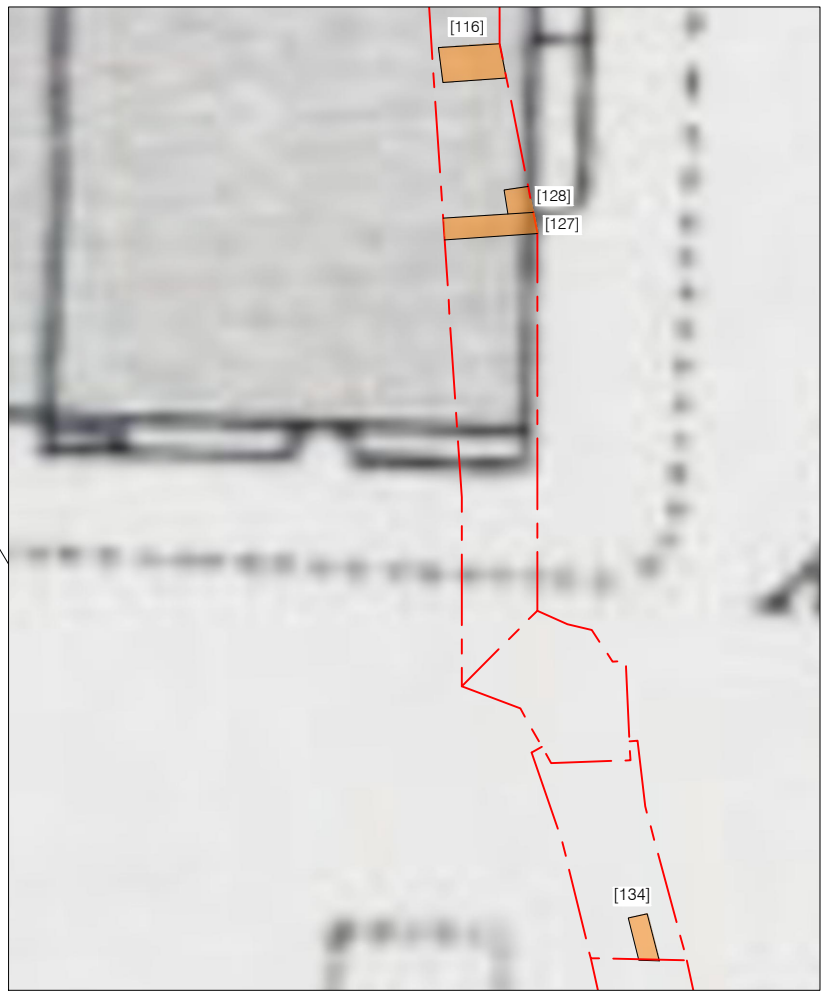
Conjecture
Early Post Medieval
Post Medieval
0
5m

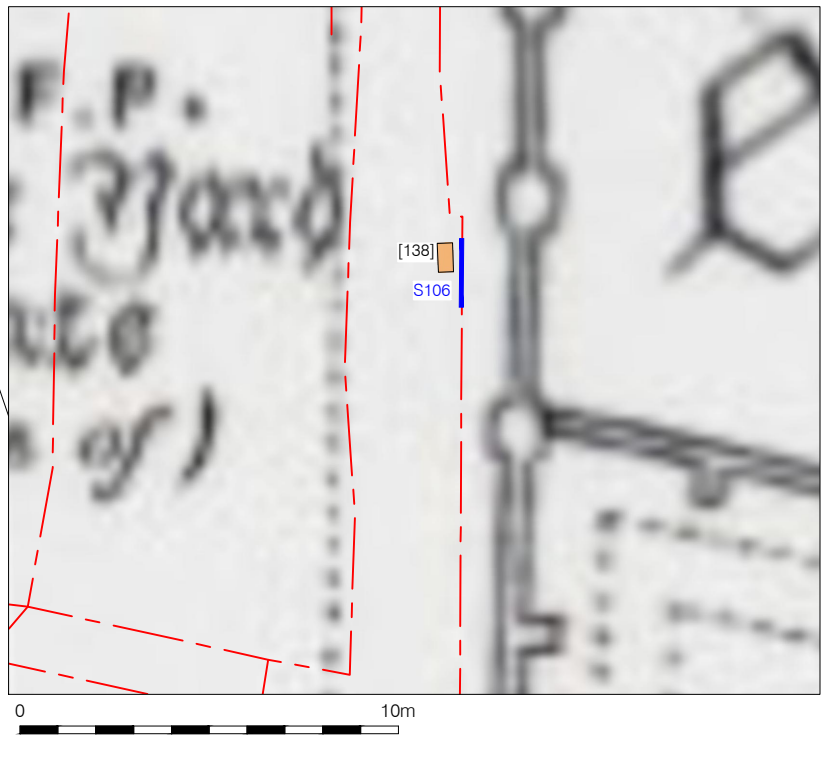
Figure 4
Plan of Trench 3-12 (Area B)
1:100 insets 1:2,500 and 1:500 at A4

19/01/19 RM



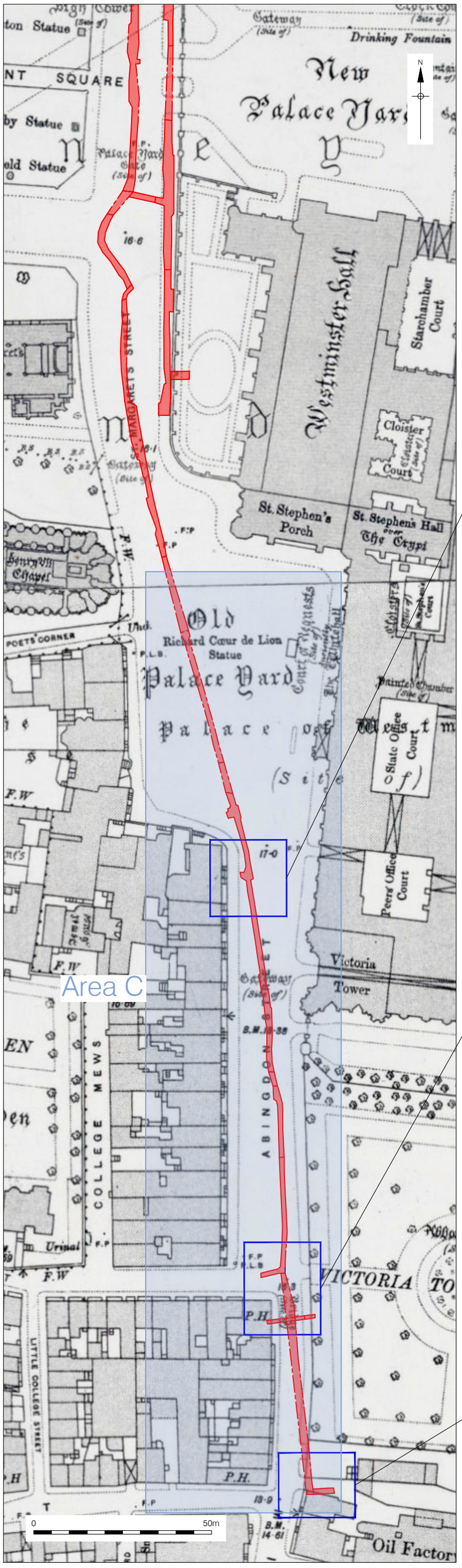


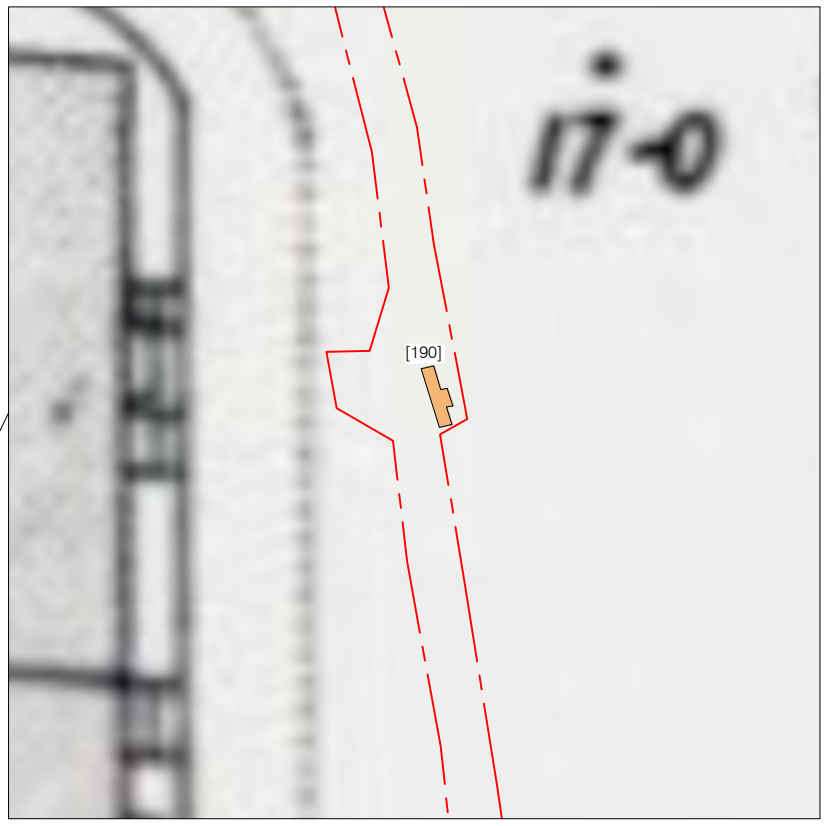


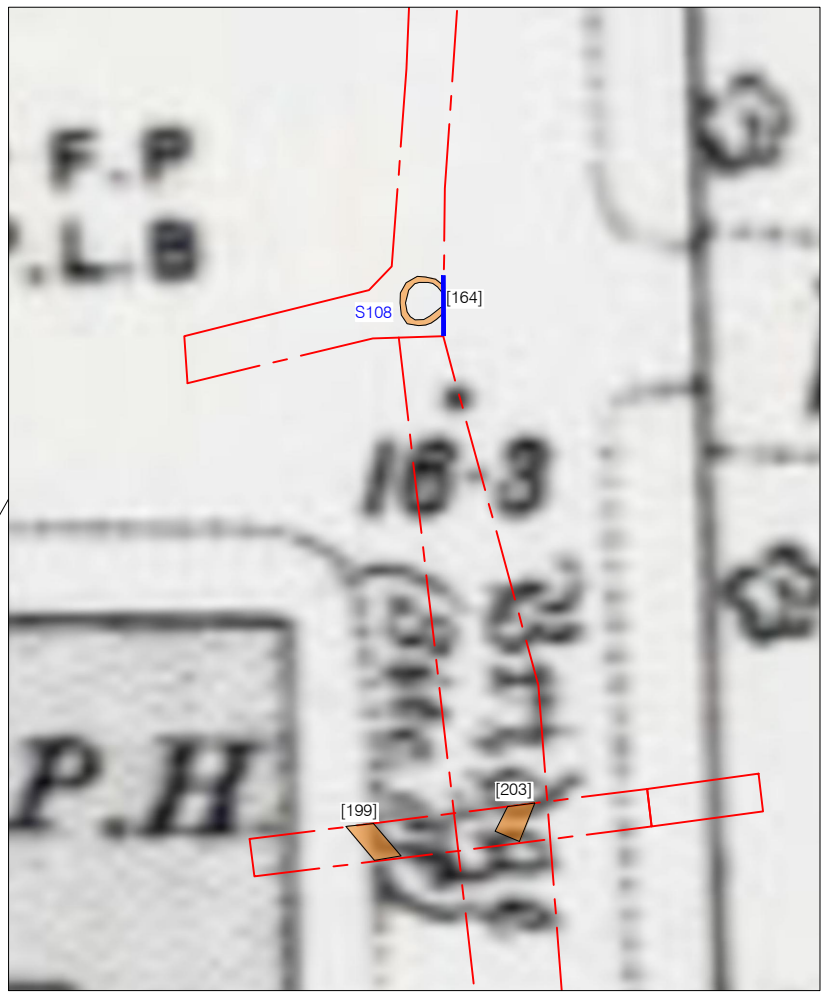


19/01/19 RM

Figure 5
Post Medieval walls (Area A) overlain on Ordnance Survey map, 1896
1:1,250 and 1:500 at A4



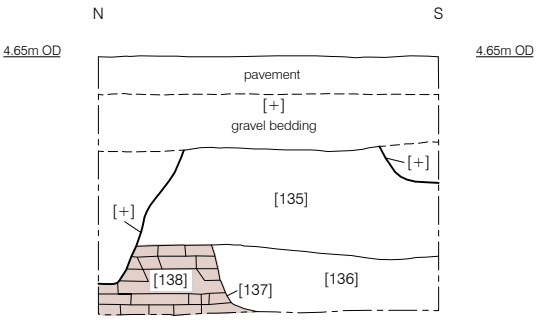




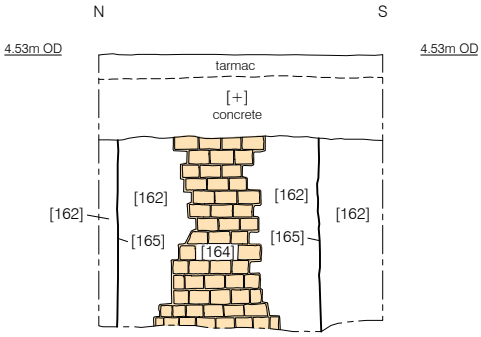
0 10m

19/01/19 RM

Figure 6
Post Medieval walls (Area C) overlain on Ordnance Survey map, 1896
1:1,250 and 1:500 at A4



Section 106
West Facing
Trench 1-2



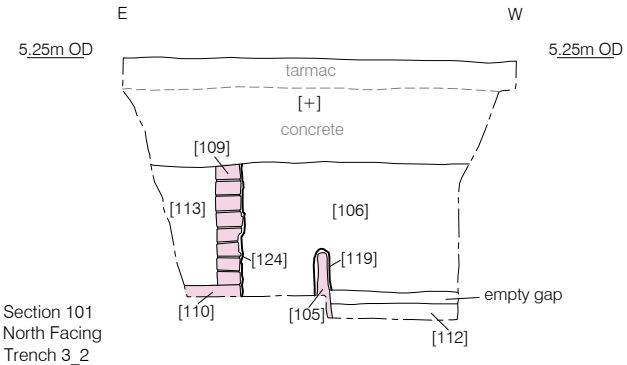
Section 108
West Facing
Trench 3-5

Early Post Medieval
Post Medieval

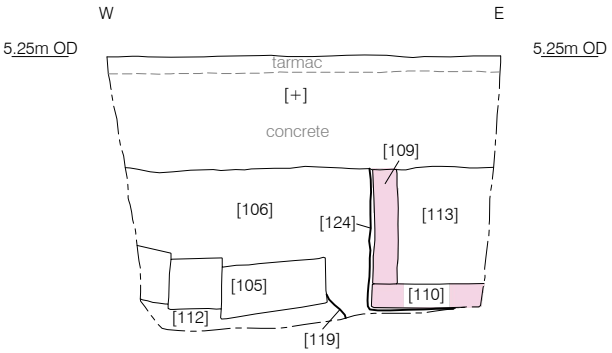
0 2m

19/01/19 RM

Figure 7
Sections
1:40 at A4



Section 101
North Facing
Trench 3_2



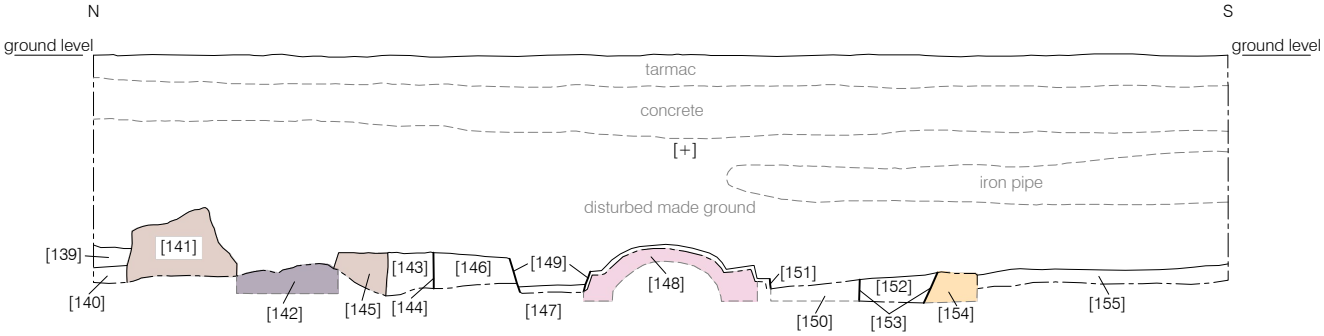
Section 102
South Facing
Trench 3-2c

Modern

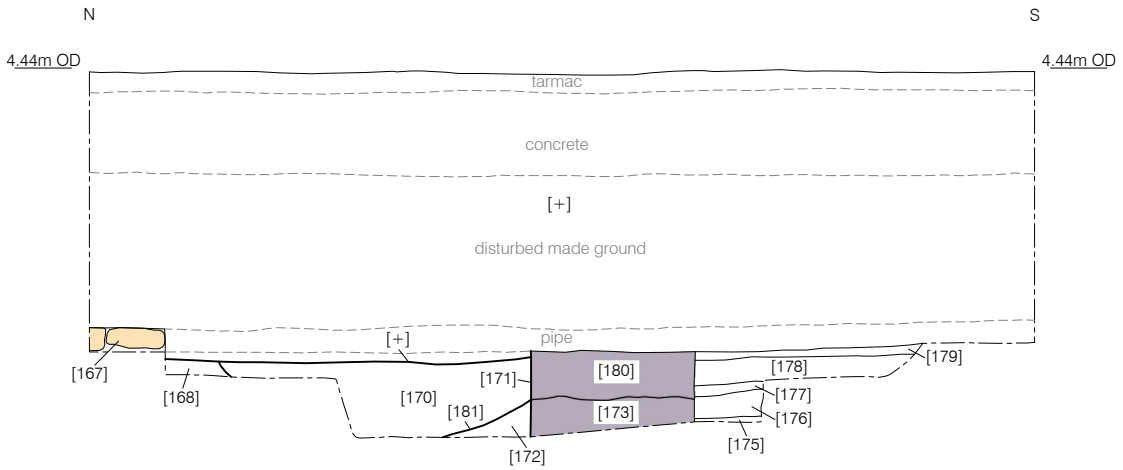
0 2m

19/01/19 RM

Figure 8
Sections
1:40 at A4



Section 107
West Facing
Trench 2-3



Section 109
West Facing
Trench 3-12

Late Medieval
Early Post Medieval
Post Medieval
Modern

0 2m

19/01/19 RM

Figure 9
Sections
1:40 at A4

8 CONCLUSIONS

8.1 Natural stratigraphy was not observed during any of the works as the excavations did not extend deep enough to do so.

8.2 The earliest observed remains were located at St. Margaret Street and Old Palace Yard (Area B). These comprised two late medieval and early post-medieval structures, facing each other, as a part of a room. This room was infilled with several layers that most likely sealed earlier features and deposits. These walls could be related to the former Palace Yard Gate, constructed in the early medieval period but demolished in 1731 (GLHER reference MLO5681).

8.3 In the post-medieval period there was a substantial increase in urban development in the Westminster area. This development was archaeologically represented by structural remains to buildings and basements, albeit heavily truncated. These were identified in the Parliament Street to Parliament Square area and in the Abingdon Street to Millbank area. Part of the medieval structures near St. Margaret Street/Old Palace Yard were demolished during this period and new buildings and shops were constructed close to the abbey and St. Margaret's Church.

8.4 Later, in the 19th century, the shops and houses which surrounded St. Margaret's Church and Westminster Abbey were demolished, establishing new property boundaries which have endured into the present day.

8.5 In the Parliament Street and Millbank areas, the post-medieval houses and shops were in use until the beginning of the 20th century. The clearance of these buildings was seen through extensive demolition deposits, which often had been dumped within basement voids, and as levelling. This change on the streetscape is visible in Ordnance Survey maps from 1915 and 1952 (compare Figures 8 to 14 in Banens and Buczak 2016).

8.6 The results of these works are significant as they demonstrate that despite extensive truncation from modern services at upper levels, there are structural remains from multiple phases of occupation within the study area. The works demonstrated the potential for the survival of intact archaeological sequences dating to the medieval period and later.

8.7 No further impacts are necessary for the PED project as all works are now complete.

8.8 The entire site archive comprising written and photographic records from the excavation will be deposited with LAARC under site code PTS16. The results of the site investigation will be published by PCA as a summary in the annual 'Round-Up' of *London Archaeologist*.

9 ACKNOWLEDGMENTS

9.1 Pre-Construct Archaeology Ltd would like to thank WSP UK Ltd for commissioning the work and the staff of FM Conway for their on-site assistance.

9.2 We also thank Diane Abrams of Historic England, Archaeology Advisor to the City of Westminster, for monitoring the work.

9.3 The author thanks Ray Murphy of PCAs CAD section for the illustrations, Kevin Hayward for dating the CBM, Chris Jarret for studying the pottery, glass and clay tobacco pipes, Kevin Rielly for studying the animal bones, Märit Gaimster for studying the metal and small finds, and Chris Mayo for editing this report and project management.

10 BIBLIOGRAPHY

10.1 Written Sources

Atkins Ltd, 2006 Whitehall Streetscape Improvement Project: Archaeological Desk-Based Assessment. City of Westminster: Unpublished report

Banens, R. and Buczak, M. 2016 PED (PSQ) Ducting Scheme, Parliament Square, Millbank, Abingdon Street and Parliament Street, London. An Historic Environment Desk-Based Assessment. PCA. Unpublished report

Barrowman, S. 2009 (a) An Archaeological Watching Brief for the United Kingdom Supreme Court Streetscape Scheme, Little Sanctuary, City of Westminster, SW1P 3EE. PCA: Unpublished report

Barrowman, S. 2009 (b) An Archaeological Watching Brief During Ducting Installation at the Sanctuary, Westminster Abbey, City of Westminster, London. PCA: Unpublished report

Barrowman, S. 2010 Parliament Street, Bridge Street and Victoria Embankment Streetscape Improvements, City of Westminster, SW1Y: An Archaeological Desk-Based Assessment. PCA: Unpublished report

Barton, N. 1982 *The Lost Rivers of London* Historical Publications Ltd: New Barnet

Boyer, P. 2011 The Sanctuary and Dean's Yard, Westminster Abbey, City of Westminster, SW1P 3PA: An Archaeological Watching Brief During Gas Main Replacement Works. PCA: Unpublished report

Boyer, P. 2015 College Gardens, Westminster Abbey, SW1P 3PA: Summary of an Archaeological Watching Brief During Gas Main Replacement Works. PCA: Unpublished report

Bright, I. 2010 An Archaeological Watching Brief During the Installation of Ducting at the Sanctuary, Westminster Abbey, City of Westminster, SW1P 3PA. PCA: Unpublished report

Butler, J. 2011 Royal Courts of Justice Streetscape Improvements, London: An Archaeological Desk-Based Assessment. PCA: Unpublished report

Cowie, R. and Blackmore, L., with Davis, A., Keily, J, and Reilly, K. 2012. *Lundenwic: excavations in Middle Saxon London*, 1987-2000. MoLAS: London

de la Bédoyere, G. 2004. *Roman Towns in Britain*. Tempus: London

Donovan, D. 2016 'The River Tyburn and Thorney Island: A Topographical Study' in *London Archaeologist*. XIV.9, 245-249

Jorgensen, P. 2008 An Archaeological Watching Brief During Drainage Repair Works at the Sanctuary, Westminster Abbey, City of Westminster, London. PCA: Unpublished report

Jorgensen, P. 2010 Whitehall Streetscape Improvement Project: Interim Report Number 4. PCA: Unpublished report.

Jorgensen, P. 2011 Assessment of an Archaeological Watching Brief During the Whitehall Streetscape Improvement Project, City of Westminster. PCA: Unpublished report

Jorgensen, P. 2013 The Cellarium, Westminster Abbey, City of Westminster: Assessment of

an Archaeological Evaluation. PCA: Unpublished Report

Jorgensen, P. 2016 Poets Corner Yard Archaeological Evaluation: Interim Summary Report. PCA: Unpublished Report

Krason, R. 2016 PED Ducting Scheme, London (Parliament Square, Millbank, Abingdon Street and Parliament Street): Summary of an Archaeological Evaluation. PCA: Unpublished report

Mayo, C. 2016 PED Ducting Scheme, London: Written Scheme of Investigation for an Archaeological WB. PCA: Unpublished report

Mayo, C. 2017 PED Ducting Scheme, London: Written Scheme of Investigation for an Archaeological WB. PCA: Unpublished report.

Poole, H. 1870 'Some account of the discovery of the Roman coffin in the north green of Westminster Abbey' in *Archaelogical Journal* XXVII, 119-28.

Rodwell, W. and Tatton-Brown. T. (eds.) 2015 (a) *Westminster I: The Art, Architecture and Archaeology of the Royal Abbey*. Maney Publishing: Leeds

Rodwell, W. and Tatton-Brown. T. (eds.) 2015 (b) *Westminster II: The Art, Architecture and Archaeology of the Royal Abbey*. Maney Publishing: Leeds

Schofield, J. 2011 London 1100-1600: *The Archaeology of a Capital City*. Equinox Publishing Ltd: Sheffield

Sidell, J., Wilkinson, K., Scaife, R. and Cameron, N. 2000 *The Holocene Evolution of the London Thames: Archaeological Excavations (1991-1998) for the London Underground Limited Jubilee Line Extension Project*. MoLAS: London

Thomas, C., Cowie, R. and Sidell, J. 2006 *The royal palace, abbey and town of Westminster on Thorney Island: Archaeological excavations (1991-8) for the London Underground Limited Jubilee Line Extension Project*. MoLAS: London

Thomas, C. 2008 'Roman Westminster: fact or fiction?' in *Londinium and Beyond: Essays on Roman London and its hinterland for Harvey Sheldon*. Council for British Archaeology: York

Thompson, G. 1998 *Archaeology in Greater London 1965-90: a guide to records of excavations by the Museum of London*. MoLAS: London

Westminster City Council, 2016 PED (PSQ) Ducting Scheme: Trial Excavation Works Methodology Statement. Unpublished report

Weibreb, B. and Hibbert, C. 1995 *The London Encyclopaedia*. Macmillan Publishers Ltd: London

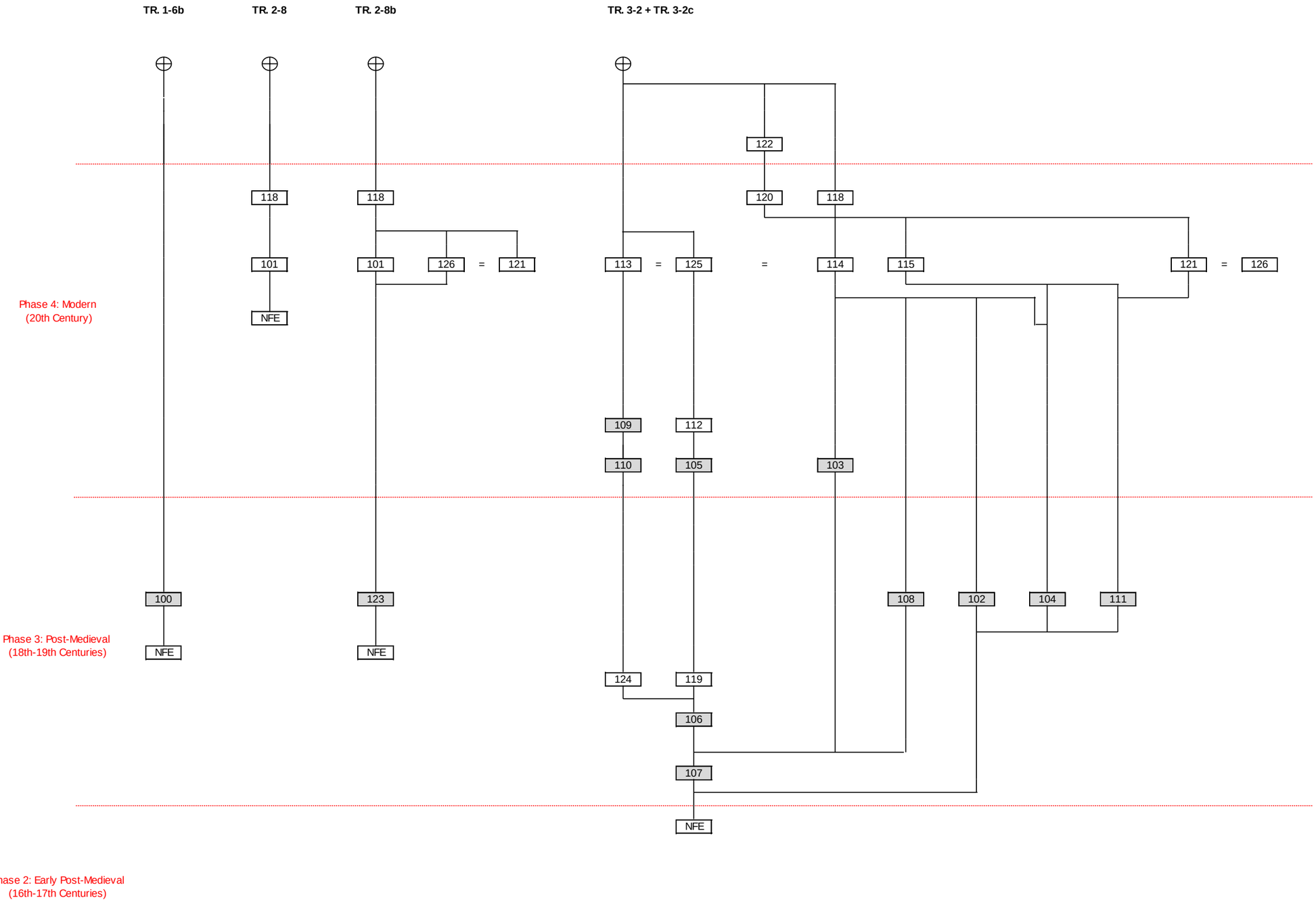
11 APPENDIX 1: CONTEXT INDEX

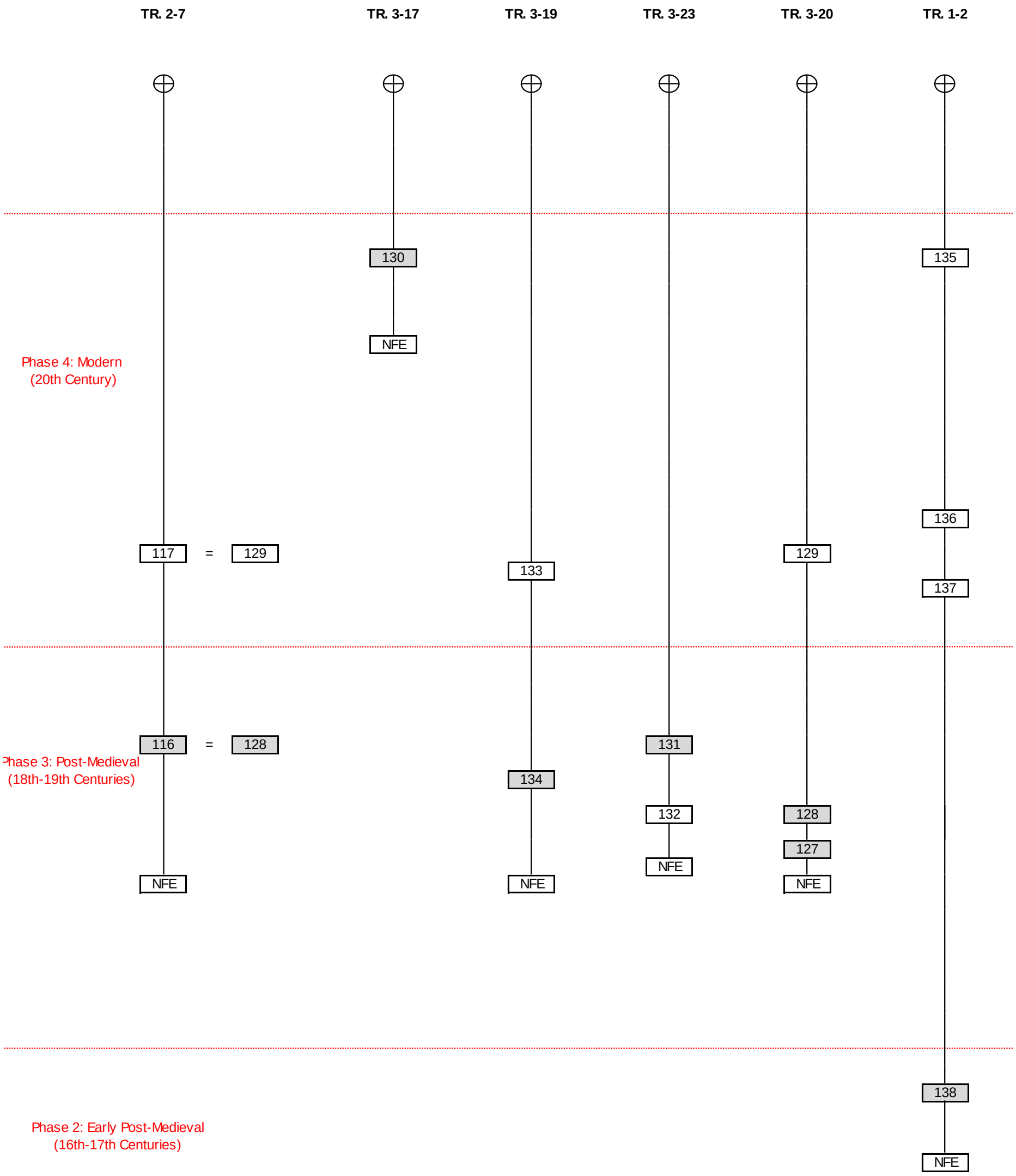
Context	CTX_Type	Trench	CTX_Interpretation	Highest Level OD	Lowest Level OD
100	Masonry	TR. 1-6b	Post-medieval basement wall.	4.54	4.54
101	Layer	TR. 2-8	Demolition layer.	4.5	4.4
102	Masonry	TR. 3-2	Post-medieval basement wall.	4.54	4.54
103	Masonry	TR. 3-2	Late post-medieval basement wall.	4.39	4.04
104	Masonry	TR. 3-2	Post-medieval basement wall.	4.41	4.41
105	Masonry	TR. 3-2	Modern repare of a fire-place.	4.01	3.93
106	Masonry	TR. 3-2	Post-medieval wall added to wall [107]	4.4	4.4
107	Masonry	TR. 3-2	Post-medieval basement wall.	4.46	4.46
108	Masonry	TR. 3-2	Post-medieval basement wall.	4.35	4.35
109	Masonry	TR. 3-2	Side of built-in closet.	4.45	4.45
110	Masonry	TR. 3-2	Bottom of built-in closet.	3.75	3.75
111	Masonry	TR. 3-2	Post-medieval basement wall.	4.45	4.45
112	Fill	TR. 3-2	Fill of [205]	3.96	3.96
113	Layer	TR. 3-2	Demolition layer.	4.55	4.55
114	Layer	TR. 3-2	Demolition layer.	4.4	4.4
115	Layer	TR. 3-2	Demolition layer.	4.55	4.55
116	Masonry	TR. 2-7	Vaulted ceiling of basement	4.45	4.05
117	Fill	TR. 2-7	Fill of basement	4	4
118	Layer	TR. 3-2	Demolition layer.	4.7	4.65
119	Cut	TR. 3-2	Construction cut	4.01	4.01
120	Cut	TR. 3-2	Robber cut	4.65	4.35
121	Layer	TR. 3-2	Demolition layer.	4.49	4.49
122	Fill	TR. 3-2	Fill of [120]	4.65	4.65
123	Masonry	TR. 2-8b	Post-medieval basement wall.	4.6	4.6
124	Cut	TR. 3-2	Construction cut	4.6	3.85
125	Layer	TR. 2-7	Demolition layer.	4.65	4.65
126	Layer	TR. 3-2	Demolition layer.	4.55	4.55
127	Masonry	TR. 3-20	Post-medieval wall of basement	3.7	3.7
128	Masonry	TR. 3-20	Vaulted ceiling of basement	3.7	3.7
129	Fill	TR. 3-20	Backfill of [127]	3.3	3.3
130	Masonry	TR. 3-17	Modern Vent	4.7	4.7
131	Masonry	TR. 3-23	Post-medieval paving slab	-	-
132	Layer	TR. 3-23	Post-medieval made ground	-	-
133	Fill	TR. 3-19	Backfill of a basement	3.7	3.7
134	Masonry	TR. 3-19	Post-medieval basement wall	4.05	4
135	Layer	TR. 1-2	Made-ground	4.1	4.1
136	Fill	TR. 1-2	Fill of [137]	3.65	3.58
137	Cut	TR. 1-2	Cut of pit	3.65	3.3
138	Masonry	TR. 1-2	Wall	3.65	3.65
139	Layer	TR. 2-3	Made ground	3.82	3.77
140	Layer	TR. 2-3	Demolition layer.	3.26	3.2
141	Masonry	TR. 2-3	Wall foundation	3.59	3.14
142	Masonry	TR. 2-3	Chalk stone foundation	3.32	3.12
143	Fill	TR. 2-3	Backfill of Construction Cut [144]	3.29	3.29
144	Cut	TR. 2-3	Construction cut for [145]	3.29	3.05
145	Masonry	TR. 2-3	Wall foundation	3.3	3.08

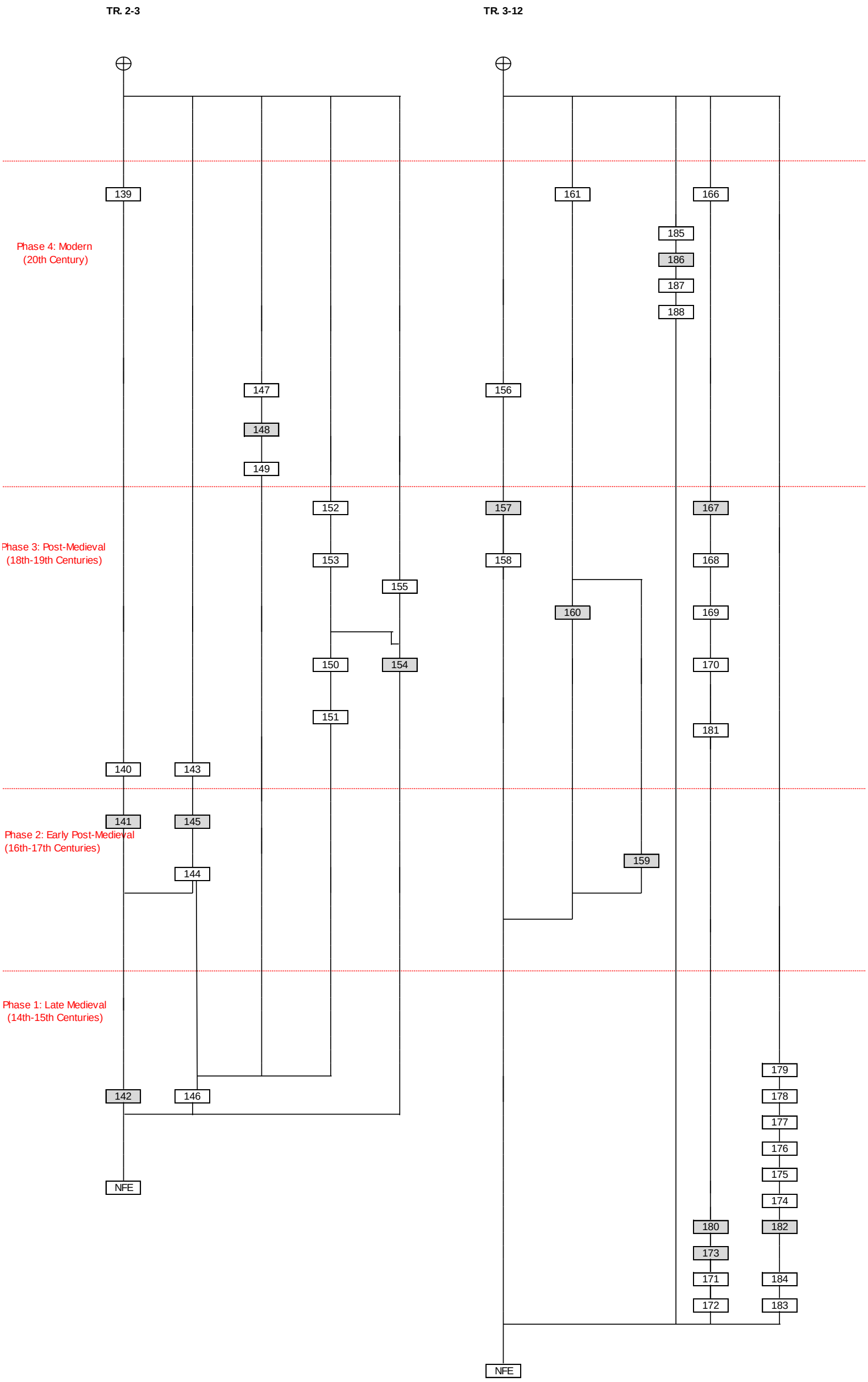
146	Layer	TR. 2-3	Demolition layer.	3.25	3.25
147	Fill	TR. 2-3	Fill of [149]	3.25	3.25
148	Masonry	TR. 2-3	Culvert	3.31	3.2
149	Cut	TR. 2-3	Construction cut for [148]	3.31	3.31
150	Fill	TR. 2-3	Fill of [151]	3.14	3.1
151	Cut	TR. 2-3		3.14	3.14
152	Fill	TR. 2-3	Fill of [153]	3.09	3.09
153	Cut	TR. 2-3		3.09	2.91
154	Masonry	TR. 2-3	Wall foundation	3.09	3.09
155	Layer	TR. 2-3	Occupation layer	3.02	3.02
156	Layer	TR. 3-12	Dump layer	3.45	3.45
157	Layer	TR. 3-12	Cobblestone surface	3.35	3.35
158	Layer	TR. 3-12	Bedding layer	3.15	3.15
159	Masonry	TR. 3-12	Drainage system	3.35	3.29
160	Masonry	TR. 3-12	Brick wall	3.45	3.45
161	Layer	TR. 3-12	Made-ground	3.9	3.78
162	Layer	TR. 3-5	Made-ground	4.05	4.02
163	Fill	TR. 3-5	Fill of [164]	3.1	3.1
164	Masonry	TR. 3-5	Well	4.1	4.1
165	Cut	TR. 3-5	Construction cut for [164]	4.1	4.1
166	Layer	TR. 3-12	Made-ground	3.95	3.94
167	Layer	TR. 3-12	Cobblestone surface	3.14	3.14
168	Layer	TR. 3-12	Bedding layer	2.95	2.95
169	Layer	TR. 3-12	Mortar surface	2.8	2.8
170	Fill	TR. 3-12	Fill of [181]	3.02	3.02
171	Cut	TR. 3-12	Construction cut for [173]	2.74	2.7
172	Layer	TR. 3-12	Backfill of [171]	2.72	2.72
173	Masonry	TR. 3-12	Medieval foundation.	2.72	2.69
174	Layer	TR. 3-12	Occupation layer	2.6	2.6
175	Layer	TR. 3-12	Surface layer	2.65	2.62
176	Layer	TR. 3-12	Working surface.	2.77	2.73
177	Layer	TR. 3-12	Working surface	2.82	2.79
178	Layer	TR. 3-12	Working surface.	2.92	2.92
179	Layer	TR. 3-12	Working surface.	3.02	3.02
180	Masonry	TR. 3-12	Wall	2.97	2.97
181	Cut	TR. 3-12	Pit	2.72	2.52
182	Masonry	TR. 3-12	Medieval wall.	3.01	2.95
183	Layer	TR. 3-12	Occupation layer	2.95	2.95
184	Cut	TR. 3-12	Construction cut for [182]	3.01	3.01
185	Layer	TR. 3-12	Dump layer	3.78	3.76
186	Layer	TR. 3-12	Cobblestone surface	3.73	3.71
187	Layer	TR. 3-12	Bedding layer	3.49	3.45
188	Layer	TR. 3-12	Made-ground	3.38	3.33
189	Layer	TR. 3-9	Made-ground	4.07	4.07
190	Masonry	TR. 3-9	Post-medieval basement wall.	3.23	3.13
191	Layer	TR. 3-4	Demolition layer.	4.05	4.05
192	Masonry	TR. 3-4	Post-medieval basement wall	3.45	3.4
193	Masonry	TR. 3-4	Brick wall	3.45	3.38
194	Layer	TR. 4-1	Made-ground	-	-
195	Layer	MBT1	Made-ground	-	-

196	Layer	MBT1	Made-ground	-	-
197	Masonry	MBT1	Basement wall	-	-
198	Layer	MBT2	Made-ground	-	-
199	Masonry	MBT2	Brick wall	-	-
200	Masonry	TR. 3-5	Same as [164]	4.1	4.1
201	Masonry	TR. 3-12	Same as [160]	3.45	3.45
202	Masonry	TR. 3-12	Same as [159]	3.35	3.29
203	Masonry	MBT2	Basement wall	-	-
204	Layer	MBT2	Made-ground	-	-
205	Layer	MBT3	Made-ground	-	-
206	Layer	MBT4	Made-ground	-	

12 APPENDIX 2: STRATIGRAPHIC MATRICES




TR. 2-7
TR. 3-17
TR. 3-19
TR. 3-23
TR. 3-20
TR. 1-2
130
135
NFE
Phase 4: Modern
(20th Century)
117 = 129
133
129
136
137
116 = 128
131
134
132
128
127
NFE
NFE
NFE
NFE
Phase 3: Post-Medieval
(18th-19th Centuries)
138
NFE
Phase 2: Early Post-Medieval
(16th-17th Centuries)


TR. 2-3
TR. 3-12
Phase 4: Modern (20th Century)
Phase 3: Post-Medieval (18th-19th Centuries)
Phase 2: Early Post-Medieval (16th-17th Centuries)
Phase 1: Late Medieval (14th-15th Centuries)
139
147
148
149
152
153
155
150
154
151
140
143
141
145
144
142
146
NFE
161
166
185
186
187
188
156
157
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160
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168
169
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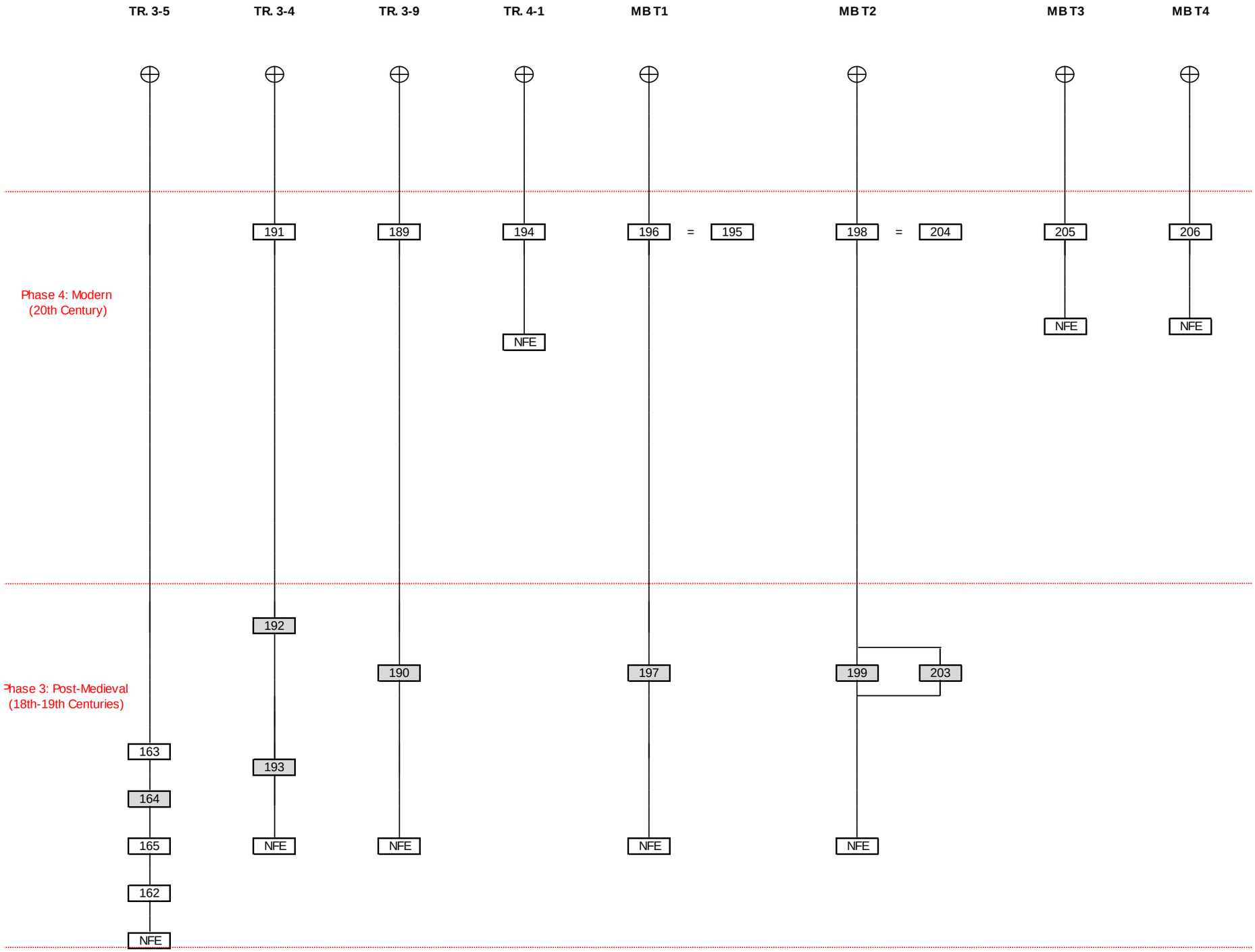
175
174
180
182
173
171
184
172
183
NFE


TR. 3-5
TR. 3-4
TR. 3-9
TR. 4-1
MB T1
MB T2
MB T3
MB T4
Phase 4: Modern
(20th Century)
191
189
194
196
=
195
198
=
204
205
206
NFE
NFE
NFE
NFE
192
190
197
199
203
Phase 3: Post-Medieval
(18th-19th Centuries)
163
193
164
165
162
NFE
NFE
NFE
NFE
NFE

13 APPENDIX 3: PLATES

Plate 1: Stone foundation [173] in Trench 3-12, looking south-west, 0.20m scale

Plate 2: Stone wall [182] in Trench 3-12, looking east, 0.20m scale

Plate 3: Elevation of masonry wall [138] in Trench 1-2, looking east

Plate 4: Aerial photo of masonries [141], [142] and [145] in Trench 2-3, looking east, 0.50m scale

Plate 5: Early Post-medieval brickwork [159] in Trench 3-12, looking north, 0.20m scale

Plate 6: North facing elevation of chimney/fireplace structure in Trench3-2, 0.50m scale

Plate 7: South facing elevation of chimney/fireplace structure in Trench 3-2b, 0.50m scale

Plate 8: Vaulted ceiling [116] in Trench 3-2b, looking south, 0.50m scale

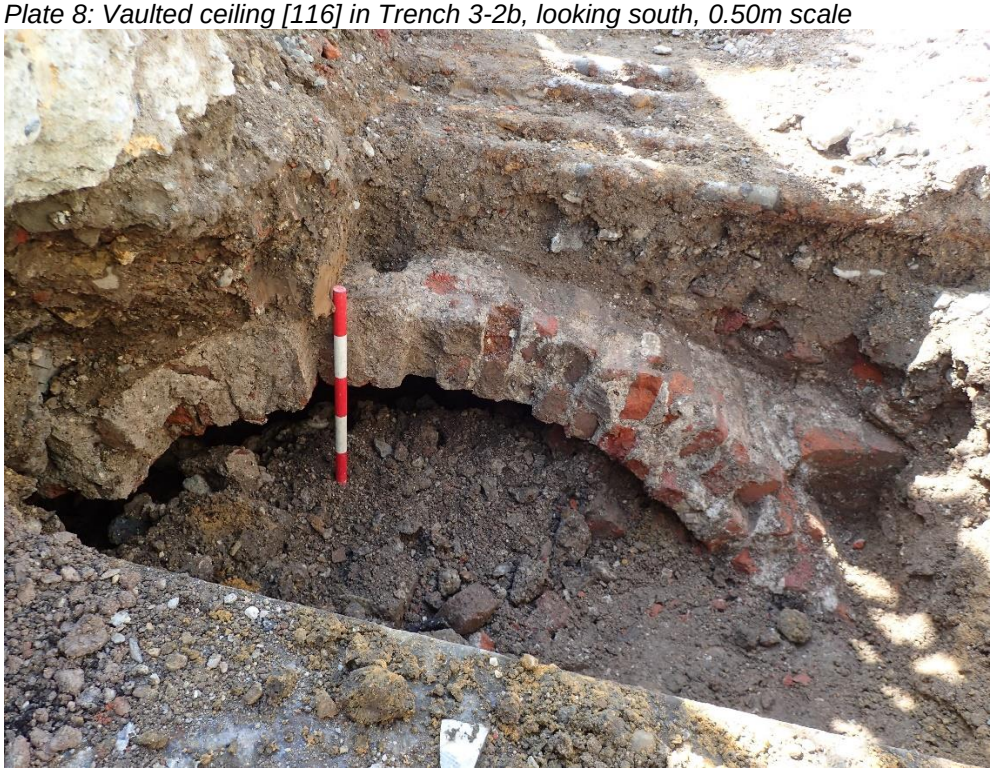


Plate 9: Vaulted ceiling [128] and basement wall [127] in Trench 3-20, looking south-east

Plate 10: Corner of a brick building [160] in Trench 3-12, looking east, 0.20m scale

Plate 11: Cobblestone surface [157] for a yard in Trench 3-12, looking from above

Plate 12: Brick wall [190] in Trench 3-9, looking east, 0.20m scale

Plate13: Structure made up of masonries [192] and [193] in Trench 3-4, looking from above, 0.20m scale

Plate 13: Brick well in Trench 3-5, looking east, 0.20m scale

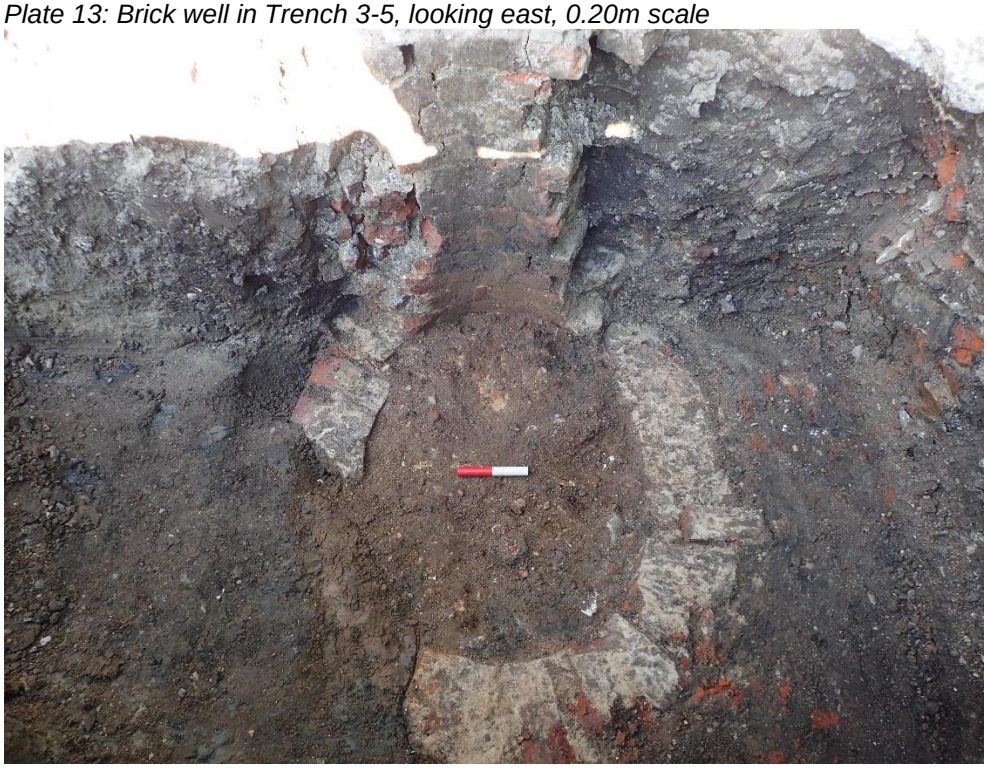


Plate 15: Chimney re-plastered with cemented mortar [105], looking south, 0.50m scale

Plate16: Modern brick structure interpreted as a vent [130] in Trench 3-17, looking north.

Plate 17: Post-medieval brick culvert [148] in Trench 2-3, looking east, 0.50 scale

14 APPENDIX 4: POTTERY ASSESSMENT

By Chris Jarrett, Pre-Construct Archaeology Limited, October 2018

14.1 Introduction

14.1.1 A small sized assemblage of pottery was recovered from the site (two boxes). The Post-Roman pottery dates solely to the post-medieval period. None of the sherds show evidence for abrasion and none of the pottery appear to be residual, indicating that the material was deposited fairly rapidly after breakage and under secondary depositional circumstances. The assemblage comprises mostly sherd material, although five vessels have a complete profile and two items are intact. The pottery was quantified by sherd count (SC) and estimated number of vessels (ENV's), besides weight. Pottery was recovered from six contexts. The sizes of the groups of pottery are all small (fewer than 30 sherds).

14.1.2 In total the assemblage consists of 65 sherds, 37 ENV, 4.350kg (of which none are unstratified). The assemblage was examined macroscopically and microscopically using a binocular microscope (x20), and entered into a database format, by fabric, form and decoration. The classification of the pottery types follows the Museum of London Archaeology (Museum of London Archaeology 2014), typology (form and fabric series). The pottery is discussed by types and its distribution.

14.2 The pottery types and their forms

14.2.1 The range of post-medieval pottery types and the forms that occur in those wares are shown in Table 1. The main source of the pottery is deemed to be from a generic British one as most of the pottery types represented is industrial finewares that could have been made at various ceramic production centres and include The Potteries, Staffordshire (Hildyard 2005). Such pottery types include creamware (CREA) in the form of a bowl (context [42]) and a domed lid (context [129]), while developed from the latter ceramic is pearl ware and represented here by the variant with transfer-printed decoration (PEAR TR) and this only occurs in the form of two dinner plates with the willow pattern (context [195]).

14.2.2 Refined whiteware, plain or decorated and dated to after 1805, is the main pottery type recorded in the assemblage. Forms in the plain ware consist of a small pudding basin (context [198]), cylindrical jars for the selling of jams etc. (contexts [117] and [198], which included an intact squat example), a robust dinner plate and parts of a water closet, both of which were found in deposit [117]. Refined white earthenware with under-glaze polychrome-painted decoration in 'chrome' colours (REFW CHROM) dated from *c*. 1830. includes a tea cup with painted floral decoration (context [117] and the unusual find of a pap boat. The latter is intact and has the appearance of a very squat rounded jug with a pinched lip and is absent of a handle. Just above the widest point of the body is a squared cordon, which is painted red as is a line above it (context [198]). Refined whiteware with under-glaze painted decoration occurs as a coffee cup, moulded with diagonal fluting and further decorated with

four external gilded lines below the rim (context [198]), as well as a plate decorated with two brown lines, each found at the extremities of the rim (deposit [129).

Pottery type	Code	Date range	SC	ENV	Wt (g)	Forms
Bone china	BONE	1794–1900	3	1	159	Octagonal jug
Creamware	CREA	1740–1830	2	2	55	Medium rounded bowl, domed lid
English brown salt-glazed stoneware	ENGS	1700–1900	1	1	184	Black-leading bottle
English stoneware with Bristol glaze	ENGS BRST	1830–1900	4	2	717	Tall cylindrical jar
London stoneware	LONS	1670–1926	2	2	128	Bottle or jar, tankard
Miscellaneous unsourced medieval/post-medieval whiteware	MISC WW	900–1500	3	1	82	Bottle
Pearlware with transfer-printed decoration	PEAR TR	1770–1840	3	2	21	Dinner plate
London-area post-medieval redware	PMR	1580–1900	5	4	1551	Two-handled rounded bowl, unidentified,
London-area post-medieval slipped redware with clear (yellow) glaze	PMSRY	1480–1650	1	1	90	Rounded jug
Refined white earthenware	REFW	1805–1900	17	7	826	Pudding basin, dinner plate, cylindrical jar, including a squat example, water closet, unidentified
Refined white earthenware with under-glaze polychrome-painted decoration in 'chrome' colours	REFW CHROM	1830–1900	2	2	87	Squat rounded jar, tea cup,
Refined whiteware with under-glaze painted decoration	REFW PNTD	1805–1900	2	2	64	Coffee cup, dinner plate
Rockingham ware with mottled brown glaze	ROCK	1800–1900	8	2	181	Teapot, teapot lid
London late tin-glazed ware	TGW LATE	1745–1846	1	1	47	Ointment pot
Refined whiteware with under-glaze transfer-printed decoration	TPW	1780–1900	4	3	90	Rectangular dish. Large plate, unidentified,
Refined whiteware with under-glaze brown or black transfer-printed decoration	TPW3	1810–1900	1	1	4	Dinner plate
Refined whiteware with under-glaze colour transfer-printed decoration (green, mulberry, grey etc)	TPW4	1825–1900	4	3	55	Dinner plate, breakfast tea cup
Yellow ware	YELL	1820–1900	2	1	9	Unidentified

Table 1. PTS16: post-medieval pottery types quantified by sherd count (SC), ENV and weight and the forms that occur in those pottery types.

14.2.3 The transfer-printed whiteware (TPW), dated from *c*. 1780, includes a small rectangular dish with a thick blue line around the simple rim and a late 19th century scrolling foliage and floral border on the flaring wall. A simple geometrical floral border occurs around the edge of the flat base, while the underside is stamped 'MZ/H' (context [198]). Part of a large plate with the Asiatic Pheasant design dated from *c*. 1830 was recovered from context [117]. The rim of a plate has a black transfer (TPW3) border featuring an ivy-type leaf (context [117]). Colour-transfer printed wares (TPW4) date from 1825 and in a purple blue colour print are two vessels both found in context [117]. First, is a breakfast sized tea cup with a design featuring a geometrical border on the inside of the rim, while the exterior has a design featuring gothic windows and a fountain in the form of a pedestal bowl. The second vessel is a dinner plate with a late 19th-century design featuring rope motifs twisted into circles and ovals containing foliage motifs. A dinner plate from context [198] has a moulded rim that matches an overlain green transfer-printed0 scrolling foliage with flowers borders. Fragments of a bone china (BONE) octagonal jug has a scalloped rim and moulded decoration in the form of fluting and

a geometrical floral motif on the front of the vessel (context [198]).

14.2.4 Additionally, in Rockingham-type ware there are fragments of a teapot and a nearly intact teapot lid, which were both found in context [198], although the items do not match. Also, there is an oriental gourd-shaped bottle, which is similar to English yellow-glazed refined earthenware (EYGE), dated 1735–1830, although the vessel is made in a coarser fabric and probably dates later than that of EYGE. It was therefore classified as a miscellaneous whiteware (MISC WW). The vessel survives as a constricted neck with a rounded thickening at the base. The surface of the neck is covered with very close, but spaced out fine white dots, on top of which are painted red oriental scrolls and flowers with gilded outlines. The base of the neck has a gilded line and the body is decorated with white slip simple flowers, black stems and red frond foliage. The item is copying Kutani and Satsuma style Japanese porcelain and was found in context [198].

14.2.5 A number of stonewares occur in the assemblage. London stoneware (LONS), dated 1670–1923, occurs as the rim of a tankard (context [117]) and the base of a bottle or jar (context [195]). A blacking bottle made in English brown salt-glazed stoneware (ENGS) has on the base a semi-circular stamp that reads 'BELPER & DENBY POTTERIES DERBYSHIRE/VITREOUS STONE BOTTLES/J. BOURNE/PATENTEE/WARRANTED NOT TO ABSORB/EX 4'. The 'EX' dates the bottle to the period 1817–34 when an excise duty was imposed upon ceramic bottles and the item was found in context [195] and the most closely dated item. Deposit [198] produced two tall cylindrical jars used for selling food stuffs and are made in late 19th-century English stoneware with Bristol glaze (ENGS BRST). One has a complete profile and a plain exterior and an internal white slip, while the other example has external panels of fine fluting.

14.2.6 The local coarse red earthenwares (Nenk and Hughes 1999) include the earliest item in the assemblage and in the form of the rim and handle from a 16th-century rounded jug. This was made in London-area post-medieval slipped redware with clear (yellow) glaze (PMSRY) and this was found in context [146]. The only identifiable form made in London-area post-medieval redware (PMR), dated 1580–1900 are a deep two-handled rounded bowl surviving as large fragments. The vessel survives as a squared rim with immediately below it an incised horizontal line on which is positioned a horizontal loop strap handle with a finger tip impression on one terminal. The top of the strap touches the rim. The vessel is glazed inside and out and dates to the 19th century and was found in context [198]

14.2.7 A single item of delftware occurs in the assemblage (Orton 1988) and was found in context [42]. The vessel occurs as London late tin-glazed ware (TGW LATE), dated 1745–1836 and this is found in the form of an ointment pot base with a pale blue glaze.

14.3 Distribution

14.3.1 Table 2 shows the contexts containing pottery, the cut number and area or trench and phases they occur in, the size/number of sherds, ENV and weight, the earliest and latest

date of the most recent pottery type (Context ED/LD) and a considered (spot) date for the group. All of the pottery was recovered from Phase 3 dated deposits.

Context	Fill of	Phase	Size	SC	ENV	Wt (g)	Context ED	Context LD	Pottery types	Spot date
42	-		S	2	2	72	1745	1830	TGW LATE, CREA	1745–1830
117	116		S	23	11	744	1820	1900	LONS, REFW, REFW CHROM TPW, TPW3, TPW4, YELL	Late 19th century
129	128		S	4	4	85	1805	1900	CREA, PMR, REFW PNTD, TPW	Late 19th century
146	-		S	1	1	90	1480	1640	PMSRY	16th century
195	-		S	7	6	383	1780	1900	ENGS, LONS, PMR, PEAR TR	1817–1834
198	-		S	28	13	2976	1830	1900	BONE, ENGS BRST, PMR, MISC WW, REFW, REFW CHROM, REFW PNTD, ROCK, TPW, TPW4,	Late 19th century

Table 2. PTS16. Distribution of pottery showing individual contexts containing pottery, the cut number for the context, what phase the context occurs in, the number of sherds (SC), ENV's and weight, the date range of the latest pottery type (Context ED/LD) and a suggested deposition date.

14.4 **Significance of the collection**

14.4.1 The assemblage of pottery recovered from PTS16 is of little significance as it contains pottery types and forms that are frequently found in London and Westminster. However, the occurrence of the intact pap boat is a rare manufactured form.

14.5 **Potential of the assemblage**

14.5.1 The pottery has the potential to date the features in which it was found and to provide a sequence for them.

14.6 **Recommendations for further work**

14.6.1 There are no recommendations for further work on the pottery and the majority of material can be discarded once a photographic record shot of the material by context has been taken. It is recommended that the pap boat, gourd-shaped bottle and the PMSY jug are retained.

14.7 **References**

Hildyard, R. 2005. *English Pottery 1620-1840.* London: V & A publications.

Museum of London Archaeology 2014. Medieval and post-medieval pottery codes. http://www.mola.org.uk/medieval-and-post-medieval-pottery-codes. Accessed November 2014.

Nenk, B. and Hughes M. 1999, Post-medieval redware pottery of London and Essex, in Egan, G. and Michael, R. L. *Old and New Worlds*. Oxbow Books, 235-245.

Orton, C. 1988. Post-Roman pottery from Mark Browns Wharf. In Hinton, P. (ed.) *Excavations in Southwark, 1973-76, Lambeth 1973-79*. Joint publication No. 3. London and Middlesex Archaeology Society and Surrey Archaeology Society, 307-348.

Vince A. and Jenner, A. 1991. The Saxon and early medieval pottery of London. In: A. Vince (ed.), *Aspects of Saxo-Norman London: Finds and Environmental work*. London Middlesex Archaeol Soc Spec Pap 12, 409-35, London Middlesex Archaeology Society, London.

Vince, A. 2002. The pottery. In: G. Hull, Barkingwic?: Saxon and medieval features adjacent to Barking Abbey, *Essex Archaeology* 33, 164-8.

15 APPENDIX 5: METAL AND SMALL FINDS ASSESSMENT

By Märit Gaimster, Pre-Construct Archaeology Limited, October 2018

15.1 Introduction

15.1.1 Around twelve metal and small finds were recovered from the excavations; they are listed in the table below. The small assemblage is composed of objects that represent a range of categories, including footwear, household objects and architectural fittings. All finds, with the majority from context [198], were associated with pottery dating from the late 19th century.

15.1.2 Personal belongings are reflected in the remains of at least four leather shoes, including at least one lace-up boot (SF 10) and a low-cut lace-up shoe (SF 13), while household objects are represented by two spoons. A complete electroplated copper-alloy spoon has a characteristic fiddle handle (SF 11); it is made of very thin metal, suggesting a cheap mass produced item. A further, larger, spoon is likely of pewter (SF 12). Only the rounded tapering handle remains. Other household items can be seen in a pair of large iron chest handles. The handles differ slightly in size, and one of them retains its plates for fixing. Remains of tin plate metal indicates that the handles were fixed to a metal receptacle, likely a wash basin or a tin bath. Curved fragments of tin plate with rolled edges are perhaps the remains of one or the other of such. A complete iron vessel handle of a different form was retrieved from context [117]. This is a bucket handle of shallow U-shape section, curved at both ends to fit the handle straps that would have been fixed at opposing sides of the vessel rim. One end retains the incomplete handle strap, which appears to have been T-shaped with a flat and rounded end that was perforated for the strap. There are some remains of the bucket attached to the plate, in the form of thin tin-plate metal sheet. The handle is now somewhat distorted, but would have been fitted to a bucket with a diameter of c. 250mm. Besides these objects were also two iron ties or brackets, architectural fittings to hold timber or brick in place. Finally, there were fragments of loosely woven coarse textile that are likely the remains of sacking.

15.2 Significance and recommendations for further work

15.2.1 The small group of finds from the Parliament Square site provide some evidence of households and activities in and around the site in the 19th century, a period that is still frequently neglected in archaeological publications (although see Crewe 2012; License 2015). Beyond the recording of these objects, however, no further work is recommended for the assemblage. It is suggested the majority of objects are photographed for the final site archive; following the publication of this report, they may be discarded.

15.3 References

Crewe, V. 2012. ‘‘Ancient luxury and modern filth”: new insights into 19th-century life at Sheffield Manor Lodge’, *Post-Medieval Archaeology* **46/2**, 333–41.

License, T. 2015. *What the Victorians Threw Away*, Oxford: Oxbow Books.

15.4 Catalogue

context	SF	description	pot date	recommendations
117		Iron vessel handle; complete with simply curved ends; one in-situ ?T-shaped handle strap; remains of tin-plate vessel body	late 19th century	discard
198	10	Leather shoe; toe and part of waist of leather right lace-up boot; size suggests child or woman's boot; L 200mm+ Flat stacked leather heel and waist insole fragment likely from different shoe; heel W 70mm; ht. 20mm	late 19th century	discard
	11	Copper-alloy electroplated tea spoon; complete but corroded with fiddle handle; very light of thin metal; L 131mm	late 19th century	
	12	?Pewter spoon; end of tapering handle with simple rounded end only; L 80mm+	late 19th century	
	13	Leather shoe; complete sole of straight shoe for ?left foot with worn tapering heel of stacked leather; L 230mm; heel ht. 25mm; second tapering stacked leather heel with remains of insole seat is likely from the same pair; heel ht. 30mm Leather shoe; low-cur lace-up shoe with toe part missing; low flat heel of stacked leather; L 160mm+; heel ht. 13mm Five pieces of upper from lace-up boot	late 19th century	discard
	14	Textile; several fragments of coarsely woven ?hessian; two pieces with roughly sawn edges show material as double layers	late 19th century	discard
		Iron chest handles; complete pair; one with in-situ oval plates of slightly differing size; handle W 115 and 120mm; L 80mm; plates 45 x 35mm and 50 x 40mm respectively; remains of tin-plate suggest they were attached to a metal receptacle	late 19th century	
		Iron vessel; two curved fragments of tin-plate with rolled edges; from bucket or tin bath	late 19th century	discard
		Iron tie/bracket; Z-formed flat sturdy strap with ends at opposing angles; L 157mm; strap W 25mm	late 19th century	discard
		Iron tie/bracket; flat tapering strap with angled head; L 120mm; strap W 13mm	late 19th century	discard

16 APPENDIX 6: GLASS ASSESSMENT

By Chris Jarrett, Pre-Construct Archaeology Limited, August 2018

16.1 Introduction

16.1.1 The glass assemblage consists of a total of three fragments, representing the same number of vessels and weighs 245g in total. The material was recovered from a single context: [198] and consists of two intact items and therefore the finds appears to have been deposited rapidly after their use. All of the glassware appears to have been mould made and in green-tinted soda glass. The first complete item consists of a sauce bottle with an applied club sauce rim finish and has an internal ledge. The bottle has a deep conical neck, rounded shoulder, a cylindrical wall and a concave base. The vessel has a rim and base diameter of 26mm and 51mm respectively and a height of 198mm. The bottle has no marks to indicate who made the bottle, the company it was manufactured for or the product contained in the bottle: the latter information would have been displayed on a now missing paper label. The sauce bottle can be dated by the rim finish to the period *c*. 1850–1930 (Lindsey 2017: https://sha.org/bottle/finishstyles3.htm#Club%20Sauce). The second intact item consists of a stopper comprised of a disc (23mm in diameter) with a rounded top and slightly bevelled edges, which is attached to a 'spike' and the item has an height of 28mm and a weight of 10g. The third glass item consists of a 'spike' (7g) from a second stopper. One of the stoppers was most likely to have been a closure for the sauce bottle.

16.1.2 The glassware has little significance at a local level as the forms consist of mass manufactured items that are frequently recovered from 19th century dated archaeological deposits in London. However, it is of some interest that at least two of the items are associated with each other: otherwise the glass ware has little meaning except to state that the owners of the items purchased sauce. The only potential of the glass is to date the context it was recovered from. There are no recommendations for further work on assemblage, which as it is fully recorded, can be discarded. A photographic record of the glass would be beneficial to the deposition of the site archive.

16.2 Reference

Lindsey, B. 2017. Historic Glass Bottle Identification & Information Website. https://sha.org/bottle/index.htm. Accessed 28th March 2018.

17 APPENDIX 7: CLAY TOBACCO PIPES ASSESMENT

By Chris Jarrett, Pre-Construct Archaeology Limited, September 2018

17.1 A single clay tobacco pipe stem was recovered from the archaeological work and this was found in context [198]. The stem is thick in diameter and has a medium-wide bore and can only be broadly dated to the 17th century.

17.2 The clay tobacco pipe stem is of no significance and its potential as a dating tool is limited, especially as the item appears to be residual in deposit [198], which contained both mid and late 19th century pottery and glass (see Jarrett: pottery and glass assessments). There are no recommendations for further work on the stem and as it has been fully recorded, then it can be discarded.

18 APPENDIX 8: BUILDING MATERIAL ASSESSMENT

By Dr Kevin Hayward, Pre-Construct Archaeology Limited, April 2018

18.1 INTRODUCTION AND AIMS

18.1.1 Three crates and two boxes of stone, brick and mortar were retained from watching briefs which formed part of the PED Ducting Scheme, Millbank SW1 in the London Borough of Westminster PTS16.

18.1.2 This moderate sized assemblage (84 examples 56.1kg) was assessed in order to:

- Identify (under binocular microscope) the fabric and forms of the ceramic building material (all periods).
- Identify the fabric of any unworked and worked stone
- Reference should also be made to the access catalogues for the ceramic building material and stone on Pelican.
- Made recommendations for further study.

18.2 METHODOLOGY

18.2.1 The application of a 1kg masons hammer and sharp chisel to each example ensured that a small fresh fabric surface was exposed. The fabric was examined at x20 magnification using a long arm stereomicroscope or hand lens (Gowland x10) and compared with Pre-Construct Archaeology's stone and ceramic building material reference collection. The appropriate Museum of London building material fabric code is then allocated to each item.

18.2.2 In accordance with Pre-Construct Archaeology Ltd sampling policy, where possible, two whole bricks were sampled from each structure.

18.3 CERAMIC BUILDING MATERIAL 83 examples 55.6 kg

18.3.1 A majority of the assemblage is post medieval in date, dominated by material recovered from extant brick walls and foundations. There are small quantities of medieval and Roman period.

18.4 ROMAN 1 example 0.3 kg

- 2459a (AD50-160)

18.4.1 A single fragment of Roman tile, probably from a broken tegulae, made from the common sandy London fabric 2459a was recovered from an intermixed layer [50]

18.5 MEDIEVAL 6 examples 0.7kg

- Sandy fabric 2271 (1180-1460/1600)
- Iron Oxide fabric 2587 (1240-1450)

18.5.1 Concentrated in features from Trench 2/3 [141] and especially Trench 3/12 [170] [172] [174] are a small group of roofing peg tiles, which because of their fabrics, some glazing, coarse

moulding sand and thickness (<10mm) can be assigned as medieval in date. A majority of these however have been reused in an early post medieval T1 calf brown mortar.

18.6 **EARLY POST MEDIEVAL 23 examples 12.4kg**

18.6.1 This sizeable assemblage of Tudor-Stuart peg tile and Brick (1450-1700) include a number of brick structures [104] [145] [202] bonded in a light calf brown mortar (Type 1) (see Table 1) typical of the period, suggesting brick foundations from this period. On top of this there are a number of later brick foundations consisting of reused Tudor and Stuart bricks and post great fire brick [102] [106]

18.6.2 Brick (1450-1700) 14 examples 11.5kg

- 3033; Fine hard red sandy brick
- 3046 loose red sandy brick
- 3065 loose red sandy brick with flint pebbles

18.6.3 All the brick here is red, unfrogged and poorly made out of local brick-earth. The brick from structure [104] is particularly shallow 50mm (2 inches) and wide (110mm 4 3/8 inch), dimensions that are in accordance with Henrician sized bricks. Other brick is slightly narrower or thicker from [145] [202] and may later 16th or 17th century date.

18.6.4 Peg Tile 5 examples 0.5kg

- 2276 fine sandy fabric (1480-1700)

18.6.5 Unglazed red sandy peg tile from this period was identified

18.7 **LATER POST MEDIEVAL 44 examples 36.6kg**

18.7.1 Ceramic building material dating from the mid 17th century onwards accounts for over two-thirds of the assemblage by weight %. Most of this is brick including examples from structures [102] [103] [106] [111] [116] [127] [148] [190] [197] [199] [201]. These are pointed in a range of mortar types (see Figure 1).

18.7.2 Brick 19 examples 29.7kg

- 3032nr3033 (1664-1725) maroon unfrogged intermediate post great fire brick 3 examples 3kg

18.7.3 Examples of this intermediate late 17th to early 18th century brick fabric were recorded from walls [102] [127]. Both bricks had sunken margins indicative of early use. It is probable that both walls date from this period.

- 3032; 3032R; 3034 (1664-1900) Purple clinker post great fire bricks 15 examples 26.2kg

18.7.4 Dominating the assemblage are clinker rich post great fire bricks. Based on form and associated mortar it is possible to subdivide them into a) the earlier, 17th to 18th century, unfrogged bricks and b) later (1780-1900) narrower often well-made, sometimes frogged brick.

a. These are recorded, intermixed with intermediate post great fire bricks, fresh and reused Tudor-Stuart Bricks from [102] [103]

b. More common, narrow, sometimes frogged (100mm) 2 inches thick with white T2 Portland cement and T3/T5 grey clinker mortar and T6 mortar from structures [106] [111] [116] [127] [148] [190] [197] [199] [201]. These walls must date from after 1780 as the government brick tax legislation brought in to reduce the overall size of the brick came in shortly after the American War of Independence.

- 3498 (1800-1900) Gault brick 1 example 500g

18.7.5 An example of a dense cream coloured unfrogged brick from [196] derives from the gault clays of Cambridgeshire or Bedfordshire. Brick from these clay-fields was widely exploited and supplied to London during the Victorian period, especially after the advent of the railways.

- Pan Tile 2271; 2279; 2586 (1630-1850) 4 examples 4.8kg

18.7.6 Curved, nibbed imported pan tiles from Holland became popular in England from the early-mid 17th century onwards. A near complete example is represented at [198], where there is up to 5kg of roofing material is represented

- Peg Tile 2276 (1600-1900) 1 example 0.2kg

18.7.7 A rectangular peg tile, with fine moulding sand and two nail holes at one end has been identified from [198].

- Wall Tile 3067W (1680-1800) 1 example 0.1kg

18.7.8 Part of an 18th century thin delftware wall tile was recovered from [54]. This has a non-diagnostic decorated landscape scene.

18.8 PLASTER

18.8.1 An unstratified example of late post medieval (probable) Victorian moulded plaster was cylindrical in shape.

18.9 MORTAR; CEMENT

18.9.1 A summary of the mortar types as well as their period of use from the excavations at PTS16 are given below (Figure 1). Apart from T1 mortar is associated with the earlier post medieval bricks from structures [104] [145] [202] and T1a with pebbles from [182] the rest date from between the late 17th century onwards (Type 3) to common Regency/Victorian recipes including Portland cement (Type 2), Grey clinker mortar (Type 5), gritty light cream mortar (Type 6) and Type 8 – concrete.

Mortar/Concrete Type	Description	Use at PTS16
T1 Soft calf brown lime mortar with chalk inclusions	Soft calf brown lime mortar with chalk inclusions	Early Post medieval walls associated with red Tudor/Stuart [104] [145] [202]
T1a Fawn pebble mortar	Fawn pebble mortar	Late medieval to early post medieval [182]
T2 White Portland Cement	Hard white gritty mortar	19th century associated with Post

		Great Fire brick Walls [148] [201] as well as walls [148] [152]
T3 Light grey mortar	Light Grey Mortar	Late 17th to early 18th century wall [127]
T5 Grey clinker mortar sometimes with charcoal and brick fragments occasional twig fragments	Grey to white coal mortar sometimes with brick fragments occasional twig fragments	1800-1900 associated with walls [103] [111] [116] 190] [197] [199]
T6 mortar Hard light cream gritty mortar	Hard light cream gritty mortar	19th century reused over Type 1 mortar from [106]
T8 Concrete	Hard pebbly concrete mortar	1850-1950 Recorded from feature 1[09]

Figure 1 list of mortar types identified from the excavation PTS16

18.10 **STONE 1 example 742g**

18.10.1 One rock-type was identified from the assemblage; its geological character, form and use are summarised below

fabric code	Description	Geological Type and source	Use at ECB5268
3124	Open-textured, fawn-light brown prominent oolitic limestone	Ketton stone or related rock e.g. Casterton or Edithweston stone – Middle Jurassic (Bajocian) Rutland and South Lincolnshire	1 example 724g paving slab 37mm thick 16-18th century

18.10.2 An item of paving made from Ketton stone, a golden yellow open textured limestone [50] has been retained because its use relates to 16th to 18th century opulent buildings and garden features such as Hampton Court Privy Garden (Hayward pers. obs.). There is a later 20th century period of use for example in architectural repairs from the Tower of London e.g. Wardrobe Tower.

18.11 **DISTRIBUTION**

Structures in bold

Context	Fabric	Form	Size	Date range of material		Latest dated material		Spot date	Spot date with mortar
0	3100	Moulded plaster	1	1500	1900	1500	1900	1500-1900	No mortar
50	3033; 3124; 2459a; 3101	Roman Tile, Ketton stone paver and early post medieval brick fragment Type 1 mortar	3	50	1800	1500	1800	1500-1800	1450-1700+
54	3067; 3032nr3033; 3101	Wall Tile Tin Glazed Delft and early post great fire brick Type 1 mortar	1	1664	1800	1690	1800	1690-1800	No mortar
60	3032	Narrow unfrogged post great fire brick	1	1664	1900	1664	1900	1780-1900	No mortar
102	**3032nr3033; 3046; 3032**	**Mixture of early post medieval brick, intermediate post great fire brick and post great fire brick some with sunken margins other narrow no mortar**	**3**	**1450**	**1900**	**1664**	**1900**	**1664-1800+**	**No mortar**
103	**3032**	**Post Great Fire**	**1**	**1664**	**1900**	**1664**	**1900**	**1700-1850**	**1800-1900+**

Context	Fabric	Form	Size	Date range of material		Latest dated material		Spot date	Spot date with mortar
		brick large possibly reused in a clinker rich white coal mortar T5							
104	**3033; 3046; 3065**	**Shallow poorly made Thin Tudor Stuart Bricks with T1 mortar**	**6**	**1450**	**1700**	**1450**	**1700**	**1450-1700**	**1450-1700**
106	**3033; 3046; 3032; 3101**	**Narrow post great fire brick, early post medieval bricks; T1 mortar overprinted by T6**	**3**	**1450**	**1900**	**1780**	**1900**	**1750-1900**	**1700-1900**
109	3101	Concrete T8	1						1850-1950
111	**3032; 3101**	**Post Great Fire Narrow grey clinker mortar T5**	**2**	**1664**	**1900**	**1664**	**1900**	**1780-1900**	**1780-1900**
116	**3032; 3101**	**Post Great Fire Narrow grey clinker mortar T5**	**3**	**1664**	**1900**	**1664**	**1900**	**1780-1900**	**1780-1900**
117	3032	Post Great fire frogged brick no mortar machined	3	1664	1900	1664	1900	1780-1900	No mortar
127	**3032nr3033; 3101**	**Intermediate Post Great Fire Brick reused in T5 grey mortar**	**1**	**1664**	**1725**	**1664**	**1725**	**1664-1725**	**1800-1900**
141	**2587**	**Medieval peg tile Reused in T1a early post medieval mortar**	**3**	**1240**	**1450**	**1240**	**1450**	**1240-1450**	**1450-1700**
142	**3101**	**Type 2 hard lime mortar possibly early post medieval**	**1**						**1400-1700**
143	3046; 2276	Early post medieval brick and peg tile Type 2 hard lime mortar	3	1450	1900	1480	1900	1480-1700	1400-1700
145	**3101; 3046**	**Early post medieval mortar Type 1 and narrow red brick Tudor-Stuart**	**2**	**1450**	**1700**	**1450**	**1700**	**1450-1700**	**1450-1700**
146	3046	Early post medieval brick shallow Tudor-Stuart	1	1450	1700	1450	1700	1450-1700	No mortar
148	**3032; 3101**	**Narrow post great fire brick and grey hard mortar T2**	**1**	**1664**	**1900**	**1664**	**1900**	**1780-1900**	**1800-1900**
150	3101	Mortar T2	1						1800-1900
154	**3101**	**Mortar T2**	**1**						**1800-1900**
155	2276	Early post medieval peg tile	3	1480	1900	1480	1900	1600-1900	No mortar
170	2271; 2587	Medieval peg tile splash glaze	2	1180	1800	1180	1800	1240-1450+	No mortar

Context	Fabric	Form	Size	Date range of material		Latest dated material		Spot date	Spot date with mortar
172	2271; 3101	Medieval peg tile reused in T1 early post medieval mortar	1	1180	1800	1180	1800	1180-1450+	1450-1700
173	3101	Type 1 early post medieval mortar	1						1450-1700
174	2271; 2587; 3101	Medieval peg tile reused in T1 early post medieval mortar	3	1180	1800	1180	1800	1240-1450+	1450-1700
176	3101	T1 early post medieval mortar	1						1450-1700
182	**3101**	**Type 1a fawn pebble mortar**	**1**						**1500-1800**
183	2587; 3101	Medieval peg tile reused in T1 early post medieval mortar	3	1240	1450	1240	1450	1240-1450	1450-1700
190	**3032; 3101**	**Narrow post great fire brick T3 grey clinker mortar**	**1**	**1664**	**1900**	**1664**	**1900**	**1780-1900**	**1750-1900**
196	3032nr3033;	Early post great fire brick	1	1664	1725	1664	1725	1664-1725+	No mortar
197	**3034**	**Narrow post fire brick T3/T5 grey clinker mortar**	**1**	**1664**	**1900**	**1664**	**1900**	**1780-1900**	**1750-1900**
198	2271; 2586; 2279; 2276	Post medieval fresh pan and peg tile	4	1480	1900	1480	1900	1700-1900	No mortar
199	**3034; 3101**	**Frogged well made machined brick Type 3 mortar**	**1**	**1664**	**1900**	**1664**	**1900**	**1850-1900**	**1750-1900**
201	**3034**	**Mortar 2 Hard White Gritty Mortar post great fire brick**	**1**	**1664**	**1900**	**1664**	**1900**	**1750-1900**	**1800-1900**
202	**3046**	**Tudor Stuart Brick Type 1 mortar**	**1**	**1450**	**1700**	**1450**	**1700**	**1600-1700+**	**1450-1700**

18.12 RECOMMENDATIONS/POTENTIAL

18.12.1 An assessment of the building materials (stone; ceramic building material; daub) from a series of trenches relating to the PED Ducting Scheme, Millbank, London Borough of Westminster SW1 (PTS16)**,** shows that the assemblage is dominated by later post medieval (1700-1900) brick structures and features. These were from Trench 3/2 [111]; Trench 2/7 [116]; Trench 2/3 [148] [154] Trench 2/9 [190] with a collection of walls at [190] [197] [199] [201]. Given that they were narrow, sometimes frogged and pointed in hard clinker and coal rich mortars, or Portland cement would suggest that they date from 1800-1900 and probably include culverts and drains.

18.12.2 However, there is a notable imprint of Tudor/Stuart activity represented by Phase 2 walls from Trench 3/2 [104] and Trench 2/3 [145]. In fact, the bricks from [104] a Phase 2 wall Trench 3/2 are shallow (2inch) by wide (4 3/8 inch) comparable to Henrician bricks, although possibly reused. Ketton stone paving, a rock associated elsewhere in London with 17th and 18th century prestigious buildings was recorded at evaluation from [50].

18.12.3 There was only a solitary Roman tile from [50] but a notable concentration of glazed and unglazed medieval peg tile from Trench 3/12 period 1 and period 2 layers [170] [172] [173] [174] [183]. Structure [182] contained an early Type 1a mortar and may date to the late medieval to early post medieval period the peg tile however had been reused in a calf brown mortar (T1) and are likely to date from between 1450-1700.

18.12.4 In summary, the assemblage from a number of trenches associated with the PED Ducting Scheme, Millbank Westminster (PTS16() contains facets of early post medieval walling, early 18th century walls and a large group of Victorian walls, some almost certainly associated with brick culverts associated with drainage improvements in this part of Westminster.

19 APPENDIX 9: ANIMAL BONE ASSESSMENT

By Kevin Rielly, Pre-Construct Archaeology Limited, November 2018

19.1 Introduction

19.1.1 4 trenches were monitored in Millbank, these revealing evidence for post-medieval activity, essentially dating to the 19th century. A small quantity of animal bone was hand recovered from at least one of these trenches.

19.2 Methodology

19.2.1 The bone was recorded to species/taxonomic category where possible and to size class in the case of unidentifiable bones such as ribs, fragments of longbone shaft and the majority of vertebra fragments. Recording follows the established techniques whereby details of the element, species, bone portion, state of fusion, wear of the dentition, anatomical measurements and taphonomic including natural and anthropogenic modifications to the bone were registered.

19.3 Description of faunal assemblage by phase

19.3.1 The Watching Brief provided just 5 bones, 3 from (117) and 2 from (198), a silty/sandy deposit representing the lowest level in Millbank Trench 2. These few bones comprise: - (117) - two cattle-size ribs and a sheep/goat 1st phalange; and (198) – a sheep/goat pelvis and femur. The phalange from the former deposit is fused, as is the pelvis acetabulum from (198), while the femur has unfused proximal and distal epiphyses, perhaps signifying a sub-adult individual. The femur is clearly quite large and may represent the remains of an 'improved' type (here following Rixson 2000, 215 and also see Rielly, in prep). Both deposits date to the late 19th century.

19.4 Conclusion and recommendations for further work

19.4.1 These few bones were in good condition and apparently well dated. They demonstrate the utilisation of cattle and sheep/goat amongst the local late 19th century populace. Of interest is the presence of at least one bone from a large individual, no doubt signifying one of the new 'breeds' of livestock entering London in the 19th century. These were created following intensive selective breeding programmes carried out through the 18th and into the 19th centuries (Rixson 2000, 215 and Hall and Clutton-Brock 1995, 14-15).

19.4.2 No further work can be recommended for these few bones.

19.5 References

Hall, J.G. and Clutton-Brock, J. 1995. *Two hundred years of British farm livestock.* The Natural History Museum. London:HMSO.

Rielly, K, in prep, The animal bones, in S, Teague and A, Fairman, Thameslink Post Roman Monograph

Rixson, D, 2000 *The History of Meat Trading,* Nottingham University Press

20 APPENDIX 10: OASIS

OASIS ID: preconst1-318612

Project details	
Project name	PED (PSQ) Ducting Scheme, City of Westminster. An Archaeological Watching Brief.
Short description of the project	A total of 31 trenches were excavated along Parliament Street, Parliament Square, Abingdon Street and Millbank in order to install new service ducts. Circa one metre of modern made ground was recorded all over the area. Archaeological evidences were seen for post-medieval buildings which were demolished at the beginning of 20th Century. Medieval and post-medieval building remains were seen at Abingdon Street, close to the eastern end of Westminster Abbey. All medieval evidences were reached due to the need of excavating deeper trenches evading modern service ducts. Any of the trenches were deep enough to uncover natural deposits.
Project dates	Start: 24-04-2017 End: 14-02-2018
Previous/future work	Yes / Not known
Any associated project reference codes	PTS16 - Sitecode
Type of project	Recording project
Site status	Local Authority Designated Archaeological Area
Current Land use	Transport and Utilities 1 - Highways and road transport
Monument type	DRAINS Modern
Monument type	WALLS Modern
Monument type	WALLS Post Medieval
Monument type	WALLS Medieval
Monument type	SURFACES Post Medieval
Monument type	SURFACES Modern
Significant Finds	CBM Post Medieval
Significant Finds	CBM Modern
Significant Finds	CBM Medieval
Significant Finds	POTTERY Post Medieval
Significant Finds	ANIMAL BONES Uncertain
Significant Finds	GLASS Post Medieval
Significant Finds	METAL Post Medieval
Significant Finds	CTP Medieval
Project location	
Country	England
Site location	GREATER LONDON CITY OF WESTMINSTER CITY OF WESTMINSTER PED (PSQ) Ducting Scheme, City of London
Postcode	SW1P 3JX
Study area	0 Square metres
Site coordinates	TQ 30110 79630 51.500114547454 -0.125299498962 51 30 00 N 000 07 31 W Point
Lat/Long Datum	Unknown
Project creators	
Name of Organisation	Pre-Construct Archaeology Limited

Project brief originator	Local Authority Archaeologist and/or Planning Authority/advisory body
Project design originator	Chris Mayo
Project director/manager	Chris Mayo
Project supervisor	Leonardo Penades
Type of sponsor/funding body	Client
Name of sponsor/funding body	WSP UK Ltd
Project archives	
Physical Archive recipient	LAARC
Physical Archive ID	PTS16
Physical Contents	''Animal Bones'',''Ceramics'',''Glass'',''Metal''
Digital Archive recipient	LAARC
Digital Archive ID	PTS16
Digital Contents	''Stratigraphic''
Digital Media available	''Images raster / digital photography'',''Images vector'',''Spreadsheets'',''Text''
Paper Archive recipient	LAARC
Paper Archive ID	PTS16
Paper Contents	''Stratigraphic''
Paper Media available	''Context sheet'',''Notebook - Excavation','' Research','' General Notes'',''Plan'',''Report'',''Section'',''Unpublished Text''
Project bibliography 1	
Publication type	Grey literature (unpublished document/manuscript)
Title	PED (PSQ) Ducting Scheme, Parliament Square, Millbank, Abingdon Street and Parliament Street, London. An Archaeological Watching Brief.
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