Appendix: Archaeology

Annex 1: Archaeological Desk Based Assessment 2021
Annex 2: PCA Archaeological Evaluation Summary and Full Report 2018

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VINEGAR YARD
and
St THOMAS STREET
LONDON SE1

ARCHAEOLOGICAL DESK BASED ASSESSMENT

Prepared for CIT

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Executive Summary

The purpose of this report is to identify the archaeological potential of the redevelopment site at the junction of Vinegar Yard / St Thomas Street London SE1. The site is centred on National Grid Reference TQ 3310 7990 and is approximately 2,700m² (Fig.1).

The proposed development will include a basement, underside of slab at -15.30m OD. Redevelopment of the site to include the demolition of existing buildings, retention and refurbishment of the warehouse and the erection of a ground, mezzanine and 18 storey building (with plant at roof level, levels 3 and 8 and 3 basement levels) comprising of café and community space within the warehouse and office floorspace, together with flexible retail and affordable workspace and flexible medical and research and development floorspace within the new building, cycle and disabled car parking, servicing and refuse areas, public garden (including soft and hard landscaping), highway improvements and all other associated works.

During the preparation of this report the Greater London Historic Environment Record (HER) was consulted for an area of 200m radius (Fig. 2) centred on TQ 3310 7990 (GLHER Report 16561). The subject site does not contain any Scheduled Ancient Monuments and does not lie within a Designated Archaeological Area as defined in Schedule Ancient Monuments & Archaeological Areas Act 1979. The site does not contain any listed buildings but does lie within an Archaeological Priority Zone, as defined by LB Southwark.

The data indicates that during the prehistoric and Roman period the site lay towards the eastern periphery of an eyot (gravel island) which lay on the eastern side the Guy's Channel. It has been suggested that this particular eyot was low lying and prone to inundation. The Roman and mediaeval settlement lay on the western bank of the Guy's Channel approximately 500m west of the site.

Archaeological and cartographic evidence shows that in the Saxon and mediaeval periods the site remained open, waterlogged ground until the 15th century. By the 16th century ribbon development along Bermondsey Street had reached the subject site. The subject site probably lies partially within the curtilage of a Tudor mansion.

Subsequently the site was redeveloped for industrial and domestic purposes, finally being occupied by warehouses, industrial buildings, houses and flats. The buildings were largely cleared in the 1980s with the exception of buildings in the south-west.

An evaluation of the site was undertaken by PCA in 2018. This confirmed the general sequence of gravel, alluvium, reclamation and late mediaeval and post mediaeval structures.

There are two possible aspects of archaeological interest. The first is the geoarchaeological deposits present on the site. It is suggested these deep naturally deposited riverine strata can be examined by means of suitable borehole sampling.

The second archaeological aspect of interest is the post mediaeval structures, the earliest of which are probably 2m deep from the modern surface. These can be quantified by means of targeted conventional archaeological excavations.

VINEGAR YARD and St THOMAS STREET LONDON SE1

1. INTRODUCTION

1.1 Mills Whipp Projects has been commissioned by CIT to prepare a desk-based assessment of archaeology on the proposed redevelopment at Vinegar Yard / St Thomas Street (Fig.1).

1.2 The 'L' shaped site is centred on TQ 3310 7990 and is approximately 2,700m²). It lies at the eastern end of St Thomas Street and is bisected by Vinegar Yard and bounded on the west by Fenning Street.

1.3 The site does not contain any Scheduled Ancient Monuments nor does it lie within a Designated Archaeological Area as defined in Schedule Ancient Monuments & Archaeological Areas Act 1979. It does, however, lie in an Archaeological Priority Zone as defined by LB Southwark. There are no listed buildings on the site as indicated by Historic England's Historic Environment Record (HER) (report No 16561, 200m radius search area).

1.4 An evaluation of the site took place in 2018 (Pre-Construct Archaeology, PCA 2018, Site Code VYS18) which revealed a sequence of deep waterlain deposits, reclamation from the 15th century onwards and buildings from the 16th century onwards.

1.5 The chief map sources have been used to assess historic landuse. The site outline varies according to the cartographers' metrics. Sources consulted in the course of the preparation of the assessment include the London Metropolitan Archive, and the London Library.

1.6 The proposed development consists of a new multi-storey with a triple basement to -15.30m OD.

1.7 Redevelopment of the site will include the demolition of existing buildings, retention and refurbishment of the warehouse and the erection of a ground, mezzanine and 18 storey building (with plant at roof level, levels 3 and 8 and 3 basement levels) comprising of café and community space within the warehouse and office floorspace, together with flexible retail and affordable workspace and flexible medical and research and development floorspace within the new building, cycle and disabled car parking, servicing and refuse areas, public garden (including soft and hard landscaping), highway improvements and all other associated works.

1.8 Dates used in this report:

Palaeolithic c 700,000–12,000 BC
Mesolithic c 12,000–4000 BC
Neolithic c 4000–2000 BC
Bronze Age c 2000–600 BC
Iron Age c 600 BC–43 AD
Roman 43–410
Saxon 410–c 1000
Mediaeval c 1000–1500
Post mediaeval–modern (1500–present industrial)

Mills Whipp Projects
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2. GEOLOGY and TOPOGRAPHY

2.1 Overlying the London Clay basal geology are Pleistocene drift deposits of Kempton Park Gravel capped in places with a layer of brickearth. The brickearth varies in thickness between about 1m and 3m (BGS 1998 sheet 270). These deeply buried deposits represent the base of the archaeological sequence. They form a series of low-lying islands, eyots, that stretch along the ancient inter-tidal zone defining the southern bank of the Thames. The surface of the islands lay at elevations ranging between approximately 0.5m to 2m OD. They were separated by tidal channels filled with alluvium which produced mud flats at low tide.

2.2 At high tide the islands were exposed to frequent and regular inundations throughout the prehistoric, Roman and early mediaeval period depositing thick layers of alluvial silts on their surface. This explains the widespread nature of ancient alluvial deposits recorded during archaeological interventions across north Southwark (see Gazetteer). This problem was only properly resolved when an efficient river wall was constructed on the Thames frontage in the post mediaeval period.

2.3 Various topographic models of the drift geology of north Southwark have been developed and refined over the last 25 years, in particular as a result of work undertaken for the Jubilee Line Extension in the mid 1990s (Drummond-Murray et al 2002). Further examination of Southwark was subsequently produced (MOLA 2009) and a map of Roman London published the Museum of London in 2011. It shows a conjectural arrangement of the gravel eyots and alluvial channels in the Roman period. Although sea levels have gradually, but not consistently, risen since the last Ice Age, the natural topography of the late prehistoric / Roman period is generally considered to be representative of the area when the archaeological record begins. So, it has been used to assess the natural topography underlying the subject site (Fig.3).

2.4 The site lies approximately 400m south of the River Thames at a modern elevation of about 3.6m OD. In the prehistoric and Roman periods it lay towards the eastern edge of the eyot on the eastern bank of the Guy's Channel at an elevation of approximately varying between 0.50m OD and 1m OD (Fig.3) (MOLA 2011). Its surface was recorded at 106 Weston Street, approximately 200m south of the site at 0.62m OD and was composed of brickearth (Gaz.ref.9). Alluvial deposits sealing the northern periphery of the eyot may also have been recorded at the Rose Public House in 2010 (Gaz.ref.5). They lay at a depth of 0.36m OD. MOLA also suggest that the eyot's surface was low lying, marginal ground which may have remained mostly unoccupied in the prehistoric, Roman and early mediaeval periods.

2.5 This is in direct contrast to the larger principal eyot on the western side of Guy's Channel which has evidence for prehistoric activity and became the centre of the Roman suburb of *Londinium*. Plans produced (MOLA 2009) demonstrate the eyot during the Roman period was sometimes two eyots or one with a channel depending on the sea level at the time.

2.6 The Guy's Channel has been recorded during several archaeological interventions to the south-east of Guy's Hospital (Gaz. refs.19, 20, 24, 25). At Great Maze Pond, approximately 250m west of the subject site, a post and plank revetment was recorded on its western side while on the eastern side, on the eyot on which the subject site lies, 'rose gradually into mud flats without a very discernible bank' (Gaz.ref.19) (MOLA 2011).

2.7 The low lying margins of the eyots were subject to diurnal flooding creating extensive areas of intertidal marshland criss-crossed by braided channels (PCA 1997). The tidal range of the Thames in north Southwark has been broadly estimated for the Roman period based on archaeological evidence as having an amplitude of between -1m OD to +1.5m OD (Milne 1995 39). This would suggest that in the vicinity of the subject site the marginal ground was flooded on an almost continual basis. At 106 Weston Street a sequence of alluvial deposits 4.5m deep was recorded interspersed with peats (Gaz.ref.9). They were overlain by 1.5m of made ground. Similarly, on the site undated alluvium was found to lie from -2.5m OD to 2.33m OD (Gaz.ref.34). At the nearby Snowfields site (Gaz.ref.33) the alluvium extended from -2.4m OD to 2.4m OD.

2.8 Although the shape and distribution of the eyots remained broadly the same from the post-glacial period to the Roman period, small changes in sea level would have profoundly affected their peripheral areas, expanding and reducing their floodplains and encouraging the development of peats as vegetation colonised the exposed mudflats. Alluvial channel deposits and peats have been recorded on numerous sites across the study area to the south of Guy's Hospital (Gaz.refs.9, 17, 21, 23, 24).

3. PREHISTORIC

3.1 No finds of Palaeolithic date are recorded in the HER for the study area or are mentioned within 'The archaeology of Greater London' (MOLAS / EH 2000). The earliest indication of human activity in the area is evidenced by possible Mesolithic (8,000 – 4000 BC) worked flints. These have been found at Guy's Hospital, Great Maze Pond (Gaz.Ref.19) although they are not associated with any archaeological features. Some 'tufa' found on Snowfields (Gaz.ref.33) has been taken to indicate Mesolithic deposits (MOLA 2019 13).

3.2 The archaeological evaluation at Great Maze Pond (Gaz.ref.19) also recorded the surface of the prehistoric eyot on the western bank of the Guy's Channel. It was composed of a weathered alluvial deposit arranging between 0.41m OD to 1.04m OD. The deposit contained occasional burnt flint and rare worked flint and was cut by shallow linear features interpreted as ditches and linear pits (PCA 1997 16). Further inundations were recorded which may have been deposited in the late prehistoric or early Roman period. They are described as firm brown clays with a maximum elevation of 0.81m OD. This land surface was cut by a further phase ditches and postholes some of which may be late prehistoric / early Roman in date.

3.3 Although there is evidence of prehistoric landuse on several of the main eyots in Southwark, including evidence of farming on the Horselydown eyot (Phoenix Wharf) and at Long Lane (Gaz.ref.20). A Middle Iron Age inhumation on the Borough High Street and at Fennings Wharf a Late Bronze Age round barrow indicate a presence but there is only limited evidence for actual settlement. A possible ard mark and gravel platform on the western side of the Guy's Channel was recorded at Long Lane approximately (Gaz.refs.20, 25).

3.4 Nonetheless, it is certain that during the prehistoric period there was some limited exploitation of the general area with settlement on the higher ground and fishing, trapping and wild-fowling on the marginal, peripheral ground. Generally, however, current evidence for the late prehistoric landuse of the area suggests a landscape occupied by a few dispersed farmsteads on higher ground rather than a nucleated proto-urban settlement (PCA 1997 8).

3.5 In the Late Iron Age central London appears to have had very limited occupation. It has been suggested (Millett 1990 89) that it was precisely *because* there was no strong tribal presence in the area that the Roman town, *Londinium*, was placed where it was on the north bank of the Thames. During an overarching assessment of archaeological evidence for London, Gerald Wait and Jonathan Cotton suggest that in the Mid to Late Iron Age London lay at the junction of several ceramic zones and may have been a 'liminal' region on the edge of the 'contact zone' of continental influence (MOLA / EH 2000, 113).

3.6 This archaeological and topographical evidence shows that the subject site lay on 'marginal ground' in a waterlogged area. The limited archaeological evidence for the prehistoric period in the immediate vicinity of the site suggests is very unlikely to have been intensively exploited in terms of landuse.

4. ROMAN

4.1 Soon after the invasion of AD 43 the Romans established *Londinium* on a low gravel hill (Cornhill) on the north bank of the River Thames. Soon it was connected to the south side of the river by a bridge built from the northern bank of the principal eyot west of the Guy's Channel. In the mid 1st century, a suburb to the Roman town developed on this eyot along the main Roman road which headed south; now Borough High Street and Old Kent Road. A large religious / cemetery complex including two mid-2nd century Romano-Celtic temples was excavated at Tabard Square (Gaz.ref.20) close to Watling Street.

4.2 The settlement was mainly confined to this eyot, with the exception of its cemeteries. The subject site lay approximately 500m southeast of the Roman suburb's core but more importantly on the far side (east) of the Guy's Channel, on a completely separate and lower lying eyot. Here the general lack of Roman archaeological evidence indicates that it lay outside the Roman settlement on uninhabitable ground (Fig.3).

4.3 At its highpoint in the 2nd century the Southwark settlement may have occupied 20 - 24 ha. Archaeological evidence indicates that it contained large masonry buildings of both public and administrative function. At Great Maze Pond (Gaz.ref.19) there was recorded evidence of a mid-2nd century inundation which may have affected the settlement (PCA 1997). Evidence for the latter part of the Roman period, although scarce, implies that the settlement declined thereafter. The cutting of drainage ditches indicated land reclamation in the late 2nd century which was followed by the dumping of domestic refuse in an attempt to consolidate the marginal land by the western bank of the Guy's Channel. During the same period the old channel revetment was replaced. There is no evidence for such Roman settlement near the subject site on the smaller eyot.

4.4 The tidal channels were used for transport and provided access to the islands and mainland via jetties and quays. An archaeological evaluation at Great Maze Pond (Gaz.ref.19) recorded a post and plank revetment dating the late 1st / early 2nd century on the western side of the Guy's Channel. A Roman river barge constructed of oak and with a shallow draught was discovered at New Guy's House in 1958 close to the eastern bank. It is now a Scheduled Ancient Monument (LO157). This shows that the channel was navigable for at least part of the Roman period. The vessel lay on the bed of the channel at -0.30m OD and PCA suggest the channel may have been only about 1m deep when the vessel was abandoned. Pottery indicates this to date to be around AD 200.

4.5 Roman law forbade burials within settlements so cemeteries developed along the main roads leading to and from the settlement. Numerous Roman burials have been recorded on the periphery of the suburb. However, the low lying marginal ground of the eyot on the east bank of Guy's Channel was unsuitable for burials and none have been recorded in the vicinity of the site.

5. SAXON

5.1 There is no archaeological evidence for early Saxon landuse in the vicinity of the subject site. This may be due to a rise in the level of the Thames in the early mediaeval period, so rendering the eyot even more inaccessible than it previously was.

5.2 By the 9th century, however, the Southwark bridgehead located on the principal eyot may have become a Saxon 'burh' or fortified town in response to Viking attacks from the Thames (SLAEC 2000 21). It may have been defended by a ditch, part of which may have been recorded during excavations at Montague Close in the vicinity of Southwark Cathedral approximately 800m north-west of the site. If this were the case then the subject site lay well to the south-east of the defended town which, again, centred on the norther section of Borough High Street.

5.3 To the south-east of the site lay Bermondsey Abbey, probably originally founded on an eyot in the 7th century.

5.4 No significant Saxon finds have been reported from the vicinity of the subject site

6. MEDIAEVAL

6.1 Southwark remained a relatively small settlement throughout the mediaeval period stretching from Horselydown in the east to Bankside in the west and the church of St. George the Martyr to the south. The subject site lay 500m beyond its south-eastern side in an open, undeveloped area of fields later called Snows Field. Archaeological evidence in the study area shows that the marshy conditions in this area, such as those on the low lying eyot, continued into the mediaeval period. Where good ground existed the settlement expanded ribbon like along the main roads, such as Borough High Street and Long Lane. Bermondsey Street was a causeway across the marshes to Bermondsey Abbey, a Cluniac House.

Liberty of the Archbishop of Canterbury

6.2 The lands of the Liberty were in the parishes of St. George, St. Margaret and St. Olave. The subject site lay in the parish of St Olave. Part of the king's possessions in the borough was granted to the Archbishop of Canterbury in the 12th century. The Pipe Rolls record that in 1130 4*s*. out of the aid of the borough was remitted to him, and in 1157 20*s*. out of the sum due by the men of Southwark. In 1275 an inquiry as to the yearly monies due to John de Warenne Earl of Surrey were found to be worth £4. yearly.

6.3 In 1349 the extent of the rights enjoyed in this Liberty becomes clear, for the king confirmed a grant for life to his chamberlain, William atte Fen, of the bailiwick and custody of the archiepiscopal Liberty of Southwark, with power to seize, levy fines, issues and amercements, waif and stray, escheats and chattels of felons and fugitives, and to execute writs and other mandates of the king. He should render no account nor farm, saving that he must satisfy the Archbishop or the steward of the Liberty of the debts of the king, according to the tenor of its estreats delivered to him. It is evident that the holding was free not only of the borough but also of the shire jurisdiction.

6.4 The subject site's eyot is likely to have remained marshy open ground for pasture. Evidence for land drainage ditches is found whenever mediaeval deposits are observed during archaeological investigations (Gaz.refs.19, 20, 24). It is uncertain how long the Guy's Channel remained as a visible landscape feature in the mediaeval period. Although it is not easily recognisable on early post mediaeval maps of the area (Figs.3-6), PCA suggest it may have continued to flow until the 17th century and may be represented on Rocque by a long narrow pond in area of Great Maze Pond (PCA 1997 10) (Fig.9).

6.5 No significant mediaeval finds have been made in the vicinity of the subject site. It seems that the waterlogged nature of the ground in the vicinity of the subject site delayed any intense development of this area until the 16th century. This area would have been occupied by fields, some of a marshy nature, and agricultural soils have been recorded across the study area (Gaz.refs.20, 22, 24 25).

7. POST MEDIAEVAL

7.1 In 1538 the Liberty was surrendered to the Crown. Edward VI in 1550 granted to the Mayor, commonalty and citizens of London 'all our manor and borough of Southwark' and some rents from tenements in Southwark which had been in the same ownership. In 1567–8 the City claimed certain dues on the ground of Cranmer's surrender and of the subsequent grant by Edward VI. This term 'the borough of Southwark' does not occur in regard to the Archbishop's Liberty in earlier records. It would here seem to imply only those rights of the Liberty which were equivalent to the burghal rights from which it was exempt. The Liberty was subsequently identified with the City's Great Liberty Manor of Southwark. This includes roughly the ancient borough to the east of the Borough High Street, except that part of it which is in the Gildable Manor, and its outlying southern portion around Tabard Street and the Old Kent Road

7.2 As well as the modest houses fronting onto the new street pattern, other more prestigious properties were also being built within the main settlement. About 750m south-west of the site Duke of Suffolk built a palace, Suffolk Place in 1518-22, replacing an earlier house. To the north of the subject site stood Fastolf Place, a moated house on the riverbank owned by the warrior knight Sir John Fastolf. To the south-east of the site stood Bermondsey House, originally a Cluniac House acquired by Sir Thomas Pope who, having demolished substantial portions of the Abbey, then built a fine residence for himself in 1541. Pope then founded Trinity College Oxford with the wealth he had accumulated from the Dissolution.

7.3 On or near the subject site stood another Tudor mansion owned by one Henry Goodyere (Gaz.ref.30). Goodyere was assessed for tax in 1547 and was the second richest man in Southwark, having an income of £500 (Carlin 1995 166). For comparison, Queen Anne of Cleeves was granted an annual pension of £500 by Henry VIII following their divorce, considered at the time to be generous. It would be in excess of £250,000 today. Goodyere was an alderman of London and had been a leading merchant in Calais, then in English hands. Goodyere in 1544 with others gained possession of Horseydown as trustees of the parish of St Olave's. However, it seems he and the others retained personal ownership (and presumably the income) until it was compulsorily retrieved and handed to the local grammar school following his death in 1556. His funeral at St Olave's was an elaborate affair as he was a leading light in the Company of Leathersellers.

7.4 On a map of 1542 (Fig.4) his house was marked as a substantial double fronted structure with a chimney issuing smoke. Only one other mansion was shown on the map with smoke which, as has been commented, was "a remarkable condition, no doubt, as the draughtsman so plainly notices it" (Rendle 1878 280). In addition, the house was described as being built of "stone", highly unusual at that time when as a 16th century Spaniard noted "these English have houses made of sticks and dirt" (recorded by Rev Harrison in 1577 quoted in Rendle 280). It appears that a large barn lay behind the house.

7.5 The 1542 map is only a crude sketch and the locations of the buildings can only be regarded as approximate. Goodyere was assessed in Southwark as a resident of St Olave's parish. On the map the road outside his house has an inscription:

"Hyer endith the kings lyberte" [Here ends the King's Liberty of Southwark].

This boundary crossed the south-eastern corner of the subject site and was still clearly defined in 1872 (Fig.12). Therefore, the curtilage of the mansion had to lie on the western side of Bermondsey Street apparently immediately adjacent to the Liberty's boundary. The property would probably have comprised a principal house with ancillary buildings lying within a walled garden precinct. The subject site probably lay within this curtilage. During the evaluation in 2018 (Gaz.ref.34) a chalk foundation was uncovered which may a structure related to Goodyere's buildings (PCA 2018 23).

7.6 Southwark in the later 16th century was a thriving suburb expanding southwards along the major routes from its mediaeval core, including Bermondsey Street. Within the general vicinity of the subject site the ground remained waterlogged and suffered seasonal flooding; a situation that persisted until the establishment of an effective river wall on the Thames frontage in the later post mediaeval period. Bermondsey Street was described as a causeway, indicating the wet conditions. A map of 1572 shows the expanding ribbon development near the site, which is just off the map (Fig.5).

7.7 Consequently, away from the street frontages the general area remained open and undeveloped until well after the early expansion of the suburb had overtaken it. Alluvial deposits and drainage schemes including land consolidation dumps, a network of ditches and brick and timber drains from this period have been recorded across the study area (Gaz.refs. 19, 21, 24, 25). Faithorne and Newcourt's map of 1658 clearly illustrates this situation (Fig.6). Bermondsey Street was lined with buildings almost for its entire length. The subject site is shown occupied by buildings on the eastern side with open ploughed land to the rear. The line of Snows Fields is a hedged boundary with marshy ground to the south. To the south-east lies the substantial mansion of Bermondsey Abbey or House.

7.8 By 1682 Morgan's map (Fig.7) shows the area was densely occupied by buildings apart from the marshy area of Snows Fields which was crossed by numerous drainage ditches cum sewers. The site was occupied by a series of tenements running back from Bermondsey Street which had yards, one named Bradleys Yard, and outbuildings to the rear. At the western part of the side a large ditch ran north-east to south-west. Another ditch formed the western boundary. Traces of various of these features were found during the evaluation of the site (Gaz.ref.34, PCA 2018 Fig.9). In 1705 Homann (Fig.8) showed a similar pattern of buildings and a major ditch crossing the site.

7.9 In 1746 Rocque (Fi.9) showed the area to be increasingly built up but large open fields with drainage ditches shown ground conditions to be damp. Remnants of buildings were found during the evaluation and these roughly match the buildings shown (Gaz.ref.34, PCA Fig.10). On the site the open yard had been renamed 'Vinegar Yard' presumably as a result of the opening of a Vinegar Works. Vinegar was used as a preservative, for flavouring and a wide range of medical purposes.

7.10 Details of the layout of the site were given in 1799 (Fig.10). A number of small buildings were irregularly ranged around a number of open yards, including Vinegar Yard. A similar depiction in 1813 (Fig.11) showed a townscape of cramped houses and industrial buildings. The arrival of the railways radically altered the landscape. London Bridge station was opened on 14 December 1836, making it the oldest of the London railway termini that is still running. The completion of the line into London Bridge was postponed because of delays in constructing a bridge at Bermondsey Street, just to the north of the site. From the 10th October 1836, trains were able to operate as far as the east end of this bridge, with passengers having to walk the last 300 yards (270m). The railway and the associated viaducts meant the construction of new roads notably St Thomas's Street.

7.11 By 1872 (Fig.12) the industrial nature of Southwark was clear. The map showed breweries, tanneries, wool warehouses and hop warehouses in profusion. These are often found during excavations in Southwark, such as the tannery tanks to the east of the site (Gaz.ref.29). The subject site was occupied by a timber yard, a hop warehouse, a pub and an open building plot. Further details were given by Goad's map of 1887 (Fig.13) showing the hop warehouse had a basement but other buildings apparently did not.

7.12 By 1894 (Fig.14) most of the site was built over. The buildings were described as a hop warehouse, a warehouse and 'Gordon Chambers' described as 'artizans dwellings', undoubtedly purpose built hygenic housing built to replace slums. Small houses occupied the western side of the site along Fenning Street, previously John Street. A similar pattern of landuse was shown in 1914 (Fig.15). Traces of various 19th century buildings were recorded during the evaluation (Gaz.ref.34, PCA Figs.11 – 14).

7.13 During the Second World War a V1 fell near the site causing extensive destruction (Fig.16), the buildings described as "seriously damaged but repairable at cost". In 1951 (Fig.17) it appears the buildings had been repaired but the Fenning Street houses had been demolished. By 1982 (Fig.18) the Fenning Street site had been built over but the remainder of the site had been cleared of buildings.

7.14 The site is now vacant and is used as a temporary market.

8. ARCHAEOLOGICAL ASSESSMENT

Significance

Prehistoric, Roman, Saxon and Mediaeval

8.1 The site lay within the eastern floodplain of the eyot on the eastern side of the Guy's Channel within a tidal channel (MOLA 2011) (Fig.3). Excavations indicate the site was in the tidal regime of river in the later prehistoric periods.

8.2 This particular eyot was considered (MOLA 2011) to be unoccupied, forming marginal ground in the Roman period. Excavations in the area confirm this.

8.3 During the Saxon and mediaeval periods the land was marginal. Bermondsey Street was built on a causeway above the marshes.

8.4 The site has low significance for the prehistoric, Roman, Saxon and mediaeval periods.

Post Mediaeval

8.5 It appears a Tudor mansion stood in the vicinity of the subject site. From the later 16th century onwards a series of buildings occupied the site until the late 20th century. These probably include industrial and domestic structures.

8.6 This period is likely to be regarded by LB Southwark as being of medium to high significance.

Survival

8.7 An archaeological evaluation, undertaken in 2018, demonstrated the site has deep geoarchaeological deposits, water management features and dumping from the 15th century onwards then a series of buildings from the 16th century.

8.8 The last phase of buildings in the 19th century caused extensive damage to the remains of the earlier buildings. However, it is probable that more vestiges of the earlier post mediaeval buildings will be present.

Potential

8.9 The site has potential for providing information on the development of north-east Southwark from the prehistoric to mediaeval periods. Deep waterlain deposits revealed during the evaluation can be examined by sampling.

8.10 It is likely that traces of post mediaeval houses, warehouses, factories and workshops are present.

9. IMPACT ASSESSMENT

9.1 The proposed development will be the construction of a new multi-storey building including a three storey basement. The underside of the basement slab will be at -15.30m OD (Fig.20)[1].

9.2 The associated groundworks necessary to provide the foundations of the new building will entail the removal of all earlier deposits within the footprint of the new building.

9.3 In addition, the refurbishment of the retained industrial building on Fenning Street, groundworks for new services and ancillary structures will also involve the removal of deposits.

[1] The Option 2 (B1b) basement plans have been used for this assessment, however it is acknowledged that the three basement levels for both Option 1 and Option 2 are the same and therefore either can be used with regards to the archaeology assessment.

10. PROPOSED ARCHAEOLOGICAL STRATEGY

10.1 The modern ground level is c.3.6m OD. On the basis of the evaluation (Gaz.ref.34) undertaken on the site and other investigations in Southwark it is assumed the prehistoric / Roman ground level was about 1m OD in this area. The tidal channel which is predicted to cross the area may extend to -3m OD.

10.2 The post mediaeval ground level may lie at c. 2m OD with deeper intrusions for wells, pits etc. The research for this report has broadly concluded the probable presence of low grade, deep, naturally deposited riverine layers which are widespread in north Southwark. Although low grade they can provide information on the environment and topography through a suitable sampling strategy which can be agreed with LB Southwark. This sampling may comprise archaeological boreholes.

10.3 In addition there are remains of structures from the 16th century to the 19th century at a shallower depth. These could be examined in focussed areas of excavation where significant structures have been identified in the evaluation and research.

10.4 The evaluation has not indicated the presence of deposits which merit preservation in situ. Therefore, it is suggested preservation by record (ie excavation) is adopted as the mitigation strategy.

10.5 The archaeological aspects of the redevelopment can be secured by means of conditions attached to the planning permission. The details of the mitigation strategy can be determined following discussions with LB Southwark.

11. CONCLUSIONS

11.1 The archaeological evidence indicates the subject site lay in marginal land prone to frequent flooding from the later prehistoric periods until the later mediaeval period.

11.2 From the 16th century onwards improved drainage and water management led to the gradual development of the area with the construction of houses, including a notable mansion on or near the site.

11.3 An archaeological evaluation has demonstrated the presence of deep low-grade alluvial deposits with late mediaeval reclamation dumped deposits and structures from the 16th century onwards.

11.4 The proposed development comprises a multi-storey building with 3 basement levels. All archaeological deposits will be removed within the footprint of the new building. New services will also impact on deposits in the surrounding area.

11.5 There is no indication that deposits which merit preservation in situ are present. It is proposed that the mitigation strategy should be preservation by record (ie excavation).

11.6 It is suggested the deep naturally deposited riverine strata and later dumping can be examined by means of suitable borehole sampling.

11.7 The post mediaeval structures, the earliest of which are probably 2m deep from the modern surface, can be examined by means of focussed areas of excavation in the high potential areas of the site indicated by the evaluation.

11.8 It is concluded that the archaeological aspects of the redevelopment can be secured by means of suitable conditions attached to the planning permission.

APPENDIX 1 – GAZETTEER

The Greater London Historic Environment Record data has been provided by Historic England (GLAAS). It is set out in report no. 16561, Vinegar Yard TQ 3310 7990 with a 200m search radius. This Gazetteer provides a summary of that data.

1. Address: St Thomas St / Bermondsey St
   NGR: TQ 3316 7994
   HER No.: ELO101168
   Description: WB 2009 revealed 16th / 17th cent cellars. Alluvial clay at 1.4m OD to 2m OD.

2. Address: 7 Holyrood St
   NGR: TQ 3319 8003
   HER No.: ELO10225
   Description: Eval 16th cent drainage ditch and 17th cent brick drain. Natural clay at 2.57m OD.

3. Address: 2 Carmarthen Place
   NGR: TQ 3319 7979
   HER No.: ELO12749
   Description: WB 2005 recorded tidal silts over gravels under thick layers of peat Neo / Bronze Age date. Tidal alluvium and PM dumps.

4. Address: London Bridge Station
   NGR: TQ 3300 8013
   HER No.: ELO12763
   Description: Site investigations 2010-2013 revealed a sequence of early Holocene sands overlain by fluvial sands. Over lay extensive BA peats. Traces of Guy's Channel were identified and eyots. Limited Roman material was found but there was evidence of management of the Guy's Channel. Late Roman flooding found. Evidence for 11th cent to 13th cent activities then later 15th cent to 16th cent developments. Evidence for industrial uses including leatherworking, metalworking. Natural alluvium at 2.71m OD to -2.7m OD.

5. Address: 123 Snowfields / Rose PH
   NGR: TQ 3297 7986
   HER No.: ELO13345
   Description: WB revealed PM deposits. This area lies on the northern periphery of the eyot on which the subject site lies. Three trial pits were monitored. TP1 recorded post mediaeval and modern made ground while TP3 recorded alluvial clay 0.36m below the basement slab (TP2 only recorded brick rubble and modern material). 17th century clay pipe fragment was found and redware dated to 16th century. The alluvial deposit may represent the mud flats at the northern periphery of the eyot on the eastern side of Guy's Channel or alluvium deposited on the edge of the eyot during inundation events. Alluvial clay at 1.14m OD.

6. Address: Tooley St / Shand St / Barnham St
   NGR: TQ 3331 7999
   HER No.: ELO14576
   Description: WB recorded 15th / 16th cent channel and evidence for tanning. Alluvial deposits over gravel at -0.31m OD and 0.84m OD.

7. Address: 12-26 Magdalen St
   NGR: TQ 3326 8003
   HER No.: ELO15048
   Description: Eval / exc revealed a 16th cent revetted channel 4m wide and backfilled in the 17th cent Brick 18th cent structures found. Natural alluvial clays at 0.47m OD.

8. Address: 59-63 Bermondsey St
   NGR: TQ 3322 7983
   HER No.: ELO15471
   Description: WB revealed alluvial clay at 0.1m OD and 0.56m OD. Overlain by modern deposits.

9. Address: 106 Weston St
   NGR: TQ 3300 7970
   HER No.: ELO15793
   Description: Evaluation in 2012 indicated that the area "attracted little in the way of permanent settlement before the 18th century". The lower deposits (up to -0.80m OD) were composed of alluvial material and no archaeology or the natural gravel was found. The establishment of an effective river wall on the Thames frontage in the post mediaeval period would have been crucial to the development of such a low lying area of north Southwark. Nat not found.

10. Address: 40-46 Weston St
    NGR: TQ 3299 7999
    HER No.: ELO15794
    Description: Eval revealed late med revetment standing to 1.28m OD. Poss built by Battle Abbey. 16th cent silts against the revetting. Cut by later pits. Nat sand found.

11. Address: St Thomas St
    NGR: TQ 3301 8001
    HER No.: ELO17746
    Description: WB revealed 14th cent alluvium at 1.58m OD to 1m OD. Sealed by 19th cent deposits.

12. Address: Guy's Hospital Phase III
    NGR: TQ 3290 8003
    HER No.: ELO177936
    Description: Exc revealed the Roman 2nd / 3rd cent revetting Guy's Channel. The eastern edge of the main Southwark eyot was established. Over 30m of waterfront was uncovered. Small scale industries were identified. Flooding from the 4th cent onwards until 17th cent reclamation.

13. Address: 6-13 Melior St
NGR: TQ 3302 7990
HER No.: ELO179044
Description: Natural gravels were at -0.41m OD and -0.52m OD sealed by 3.31m of alluvium. Over the alluvium was another layer of 17th cent date. No occupation levels until 19th cent.

14. Address: Kipling Garages Weston St
NGR: TQ 3296 7975
HER No.: ELO17952
Description: Eval revealed alluvium at 1.04m OD and over 17th c alluvium at 1.78m OD. Augering revealed the edge of an ancient Pleistocene channel.

15. Address: 7-25 Bermondsey St / 2-10 Magdalen St
NGR: TQ 3316 8009
HER No.: ELO3998
Description: Eval / exc revealed low lying prehistoric landscape with channel. Evidence for Roman flooding / 2nd – 4th cent Roman pit. Channel with revetting, brick and timber structures found from 16th cent. Mod overburden.

16. Address: 8 Tyers Gate
NGR: TQ 3317 7975
HER No.: ELO4768
Description: Eval revealed clay at -0.20m OD, peat at 0.10m OD and upper clay at 0.75m OD. Evidence for PM tanning.

17. Address: 74-90 Weston St
NGR: TQ 3298 7980
HER No.: ELO4869
Description: Eval revealed poss pre pit, a poss Roman channel, PM drainage.

18. Address: 46-58 Bermondsey St
NGR: TQ 3316 7983
HER No.: ELO8056
Description: Eval revealed natural deposits (clay and peat) from -0.09m OD to 0.20m OD and structures 17th cent to 19th cent date.

19. Address: New Guy's House, Guy's Hospital
NGR: TQ 3282 7990
HER No.: 1001979 MLO74581, 7788, 4301, 4202-11, 23082, 30419-20, 4304, 53659, 105299, 14264,

Description: Numerous archaeological interventions and chance finds are recorded for this area.

In 1997/8 PCA's evaluation and watching brief recorded natural sand at between -0.82m OD and 0m OD an ancient soil horizon which indicated that the eyot on the west side of the Guy's Channel "had been utilised in the prehistoric eras" probably the Mesolithic and certainly the Neolithic and Bronze Age.

The western edge of the Guy's channel cut across marshland to the east of the main Roman Southwark settlement. Timber waterfront installations were recorded including collapsed post and plank revetment and possibly a jetty. Early land management was also recorded including ditches and ground consolidation.

A Roman barge was abandoned in the channel between AD 190 and 225 and was preserved by the fluvial sediments. Portions of the boat were uncovered in 1958 and 1960 recorded at 0.70m OD – i.e. the approximate interface of the active channel deposits and initial silting up. Later in 2010 MOLA recorded the alluvial deposits which showed that the channel gradually silted up over the centuries culminating in the dumping of masses domestic rubbish in the late 17th century and 18th century. MOLA also recorded the fluvial channel fills to the bed of the channel at -1.1m OD or more. HER number MLO4301 states that "Currently the scheduled area is partially grassed, part road and pavement" - SAM – LO157 (DLO13267).

A site wide horizon of alluvium was recorded indicating that the area was inundated and abandoned for a period in the second half of the 2nd century AD. Later in AD 300 it was recolonised and timber walk way erected on the western edge of the channel along with a further network of drainage ditches. The area became a dumping ground for domestic refuse after AD 300. In the 4th century the Guy's Channel slowly began to silt up. At this time a gravel surface was laid out on the west bank.

Alluvial deposits sealed the Roman archaeology indicating that the eyot was flooded for long periods – possibly several centuries - after the Roman period. It was not until the mediaeval period that the land became useable again and the marshland was drained by "vast ditches".

In 2013/14 further excavations were carried out which helped characterise the eastern edge of the Guy's Channel. Results suggest it was totally different to the western bank i.e. in this case it gradually rose into mud flats without a very discernible bank. It also further recorded post mediaeval timber and later brick drains.

The List states:

Roman boat found in the Guy's Channel. Carvel built barge uncovered in 1958, 1960, 2010. SAM in situ.

The monument includes a Roman riverboat surviving as below-ground remains. It is situated on the east side of New Maze Pond at New Guy's House, the surgical wing of Guy's Hospital. The remains of the boat are 3.5m below ground level and orientated broadly north-south. They survive under a grass area between two buildings of the hospital. The boat is situated on the east side of what was originally an estuarine creek off the River Thames. The northern end of the boat comprises a stem or sternpost with carvel-laid strakes. It is constructed of oak (Quercus) timbers between which is some caulking of hazel (Corylus avellana) shavings in pine resin.

The planks are attached to the oak frames by iron nails with flat heads and square shanks, whose points have been bent over their inboard faces. Near the centre of the vessel is a ceiling of oak planks.

The total length of the vessel is thought to be at least 16m and it has a beam of about 4.25m and a height amidships of about 1m. Hydrostatic analysis has indicated that it was a river craft or barge, which probably carried a cargo of about 7 tonnes. Roman pottery sherds recovered from the site indicate that the boat was abandoned in about AD 200, after which the creek silted up. Partial excavation in 1959-60 uncovered the northern part of the boat but the southern part remains unexcavated and the vessel is in-situ apart from a few fragments preserved at the Shipwreck Heritage Centre, Hastings. The monument excludes all modern buildings, roadways, pavements, fences and fence posts but the ground beneath all these features is included.

20. Address: 29-35 & 34-70 Long Lane / 31-47 & 34-79 Tabard Street, Southwark, SE1
NGR: TQ 3263 7968
HER No.: MLO77403, 74785, 105241, 4785, 77380, 74788, 4285, 7699, 7755, 8745, 104087
Event ID: ELO1008,15281, 2374, 13062
Description: Several investigations in this locale have recorded significant archaeology. In 2001 an evaluation recorded natural gravel at 1.15m OD overlain by Roman mid-1st - 2nd century deposits with evidence of buildings i.e. post holes and a metalled surface. In the eastern half of the site an alluvial channel running approximately N-S was recorded with evidence of 3rd / 4th century land reclamation with possible wooden revetment or small jetty on the side of the channel. This could be part of the Guy's channel.

Further investigations in 2000-3 at Tabard Square recorded Bronze Age peats with possible agricultural ard marks. 291 mostly residual struck flints and Iron Age pottery was also retrieved.

Roman late 1st – early 2nd century land management in the form of ditches were noted along with clay and timber buildings. One ditch may have followed a natural stream in which ritual material (whole pots) were recorded. A number of post holes in a radial pattern may indicate a theatre. In the 2rd century the buildings were demolished and two Romano-Celtic temples built. Gravel surfaces, mosaic, plinths and alters were found. In the 3rd century some of the buildings were removed and a 22m long building erected with a timber lined cellar.

During the mediaeval period most of the site was used for agriculture and quarrying associated with brick yards and a network of ditches dividing the ground.

Post Roman deposits consisted of dark soils dating from the 15th century and buildings with 'backploy features' from the 17th century onwards. The survival of a 17th century wooden stave floor and timber lined pit was noted.

MOLA notes in their DBA for 29-35 Long Lane that skeletal remains from the former graveyard of a Baptist Chapel to the north-east were recorded after bomb damage clearance. A later watching brief recorded the disarticulated human bones.

This area became more urbanised in the 17th-19th century with animal processing, tanning and cloth production and clay pipe production.

21. Address: 52 Weston Street, Sparricks Row, Southwark, SE1
NGR: TQ 3299 7993
HER No.: MLO4381, 102621, 74580, 74557
Event ID: ELO10282, 4869, 7684,
Description: At Sparricks Row excavations in 1972 recorded natural gravel covered by alluvium up an elevation of 3.50m OD with a horizon of peat at 0.40m OD.
A flint tool was recovered in an earlier evaluation of the site in 1989 sealed by a layer of peat. A ditch with two sherds of Roman pottery in the fill was also recorded, possibly representing early land management.

Eval in 2007 found a rubble filled 19th century warehouse cellar destroyed in WWII – 17th / 18th century pottery was recovered. It may have been associated with a tannery. The site appeared to be 'marginal swampy ground' until the later post mediaeval period. The 19th century ground lay at 3.90m OD and was composed of made ground with 17th-19th century pottery. It overlay two alluvial deposits.

22. Address: 127 Long Lane, Nelson Street, Southwark, SE1
NGR: TQ 32860 79645
HER No.: MLO72264-5, 74534, 74571, 72266
Event ID: ELO10640,
Description: WB in 1998 revealed natural gravel at 0.80m OD, a Roman trackway and a post Roman alluvial deposit 1m thick with a surface at 2.10m OD. It was sealed by a mediaeval / post mediaeval garden soil. A tannery and small timber yard lay on the site in 1872

23. Address: Crosby Row / Porlock Street, Southwark, SE1
NGR: TQ 3275 7975
HER No.: MLO788, 98764-5, 104946
Event ID: ELO12359, 12645,
Description: Eval in 2011 recorded nat sand at -0.85m OD overlain by alluvium and peat which sloped to the south. The peat was recorded at 0.30m OD. It was deliberately dumped on in the Roman period. This was sealed by alluvium. A Late Roman ditch was also recorded. The remains of a Roman burial were found on Crosby Row in 1818. MOLA recorded PM garden soil and a 19th century cellar.

In 2012 AOC recorded a probable water channel with alluvial deposits sealed by peat which sloped downwards to the south. The peat deposit was sealed by Roman flood deposits which was then cut by a “possible” Roman drainage ditch.

24. Address: 1-2 Bowling Green Place, Southwark, SE1
NGR: TQ 3271 7985
HER No.: MLO
Event ID: ELO14590
Description: Geo-arch survey in 2001 showed nat gravel at -2m OD and the Guy’s Channel with a series of sand and silty clay bars within it. The main flow of water appeared to have migrated. Peat began to form in the Iron Age. By the Late Roman period the rising water level had caused the peat and sedge fen to become inundated with tidal water as the former channel and low lying marshy area became a tidal creek. In the PM period a drainage ditch was dug and a black soil was deposited across the area to reclaim the ground. This as sealed by 2-3m of building rubble.

25. Address: 5-27 Long Lane, Southwark, SE1
NGR: TQ 3260 7978
HER No.: MLO 75036-53, 20134
Event ID: ELO15793
Description: Eval in 1999 located the south edge of the main Southwark eyot with a palaeochannel to the south. The north bank appeared to be consolidated by a layer of compacted stones overlain by a timber platform in the Bronze Age. At some stage a peat marsh formed. In AD 75-80 a timber jetty may have been constructed but was sealed by Roman dumps in AD 80-90 followed by the construction of clay and timber strip buildings. They went out of use in the mid-2nd century to be replaced by new buildings which in turn were overlain by Late Roman dark earth deposits. Most of the building phased were also associated with drainage ditches. In the post mediaeval period the site was part of a field with agricultural soils and drainage ditches east of Borough High Street and St Georges Church. Later horticultural soils were recorded and a horncore lined pit. Later 19th century brick buildings lay on the site.

26. Address: 171 & 174-178 Long Lane, Weston Street, Southwark, SE1
NGR: TQ 3296 7957
HER No.: MLO
Event ID: ELO13101
Description: Eval in 2013 recorded natural gravel at 1m OD and mediaeval cut features containing residual Roman building material. They were sealed by PM levelling layers. Cut by 3 18th cent horn lined pits sealed by 19th cent wall and floor.

27. Address: 174-178 Long Lane, Southwark, SE1
NGR: TQ 3294 7953
HER No.: MLO98111
Event ID: ELO6488, 15023
Description: WB in 2005 recorded Roman pits and ditches and early mediaeval pits sealed by 18th century soil later truncated by a 19th century brick cellared building.

28. Address: Guy Street / Kipling Street, Southwark, SE1
NGR: TQ 3288 7985
HER No.: MLO 16588
Description: Guy’s Hospital 18th cent burial ground, now the western part of Guy Street Park. It was closed in the 1850s.In the 1890s it was bought by Bermondsey Vestry for a public recreation ground.

29. Address: 49-55 Bermondsey Street SE1
NGR: TQ 3291 7991
HER No.: ELO14592
Address: A WB recorded a series of 19th cent tanning tanks BMZ06. Highest survival 2.50m OD.

30. Address: Bermondsey Street / St Thomas Street, Southwark, SE1
NGR: TQ 3316 7992
HER No.: n/a
Event ID: n/a
Description: Mansion belonging to Henry Goodyere in 1542

31. Address: 2-4 Melior Place
NGR: TQ 3305 7989
HER No.: n/a
Event ID: ELO19994
Description: Watching Brief borehole MLI18 revealed gravel surface at -0.50m OD sealed by made ground. Area was marginal.

32. Address: Great Maze Pond (Orthopaedic Centre, Guy’s Hosp)
NGR: TQ 3319 7972
HER No.: n/a
Event ID: ELO020013
Description: Watching Brief GUH17 recorded organic silty clay and gravel at 0.67m OD to -1.09m OD, sealed by alluvium to 1.6m OD under waterlain clays to 2.6m OD to 2.3m OD under 18th cent dumps.

33. Address: 1-7 Snowfields / 40/42-44 Bermondsey Street
NGR: TQ 3312 7989
HER No.: n/a
Event ID: n/a
Description: Evaluation ERO18 revealed gravel at -2.4m OD, alluvium at 2.4m OD containing ‘tufa’ which may indicate a mesolithic date, post med dumping and 18th cent houses.

34. Address: Vinegar Yard, St Thomas's Street SITE
NGR: TQ 3310 7990
HER No.: n/a
Event ID: n/a
Description: Evaluation VYS18 revealed a natural channel later managed and 15th cent to 17th cent reclamation dumping. Chalk foundations prob 16th cent found at east. Poss part of Henry Goodyere's estate. Gravel lay at -1.3m to -2.5m OD. Alluvium lay over to 2.33m OD, Reclamation dumping to 3m OD with post med buildings including tannery structures.

APPENDIX 2 – SOURCES

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APPENDIX 3 PLANNING BACKGROUND

KEY LEGISLATION	Ancient Monuments & Archaeological Areas Act 1979, amended by the National Heritage Acts of 1983 and 2002. Statutory protection for archaeological remains is provided by the Ancient Monuments and Archaeological Areas Act 1979, as amended by the National Heritage Acts 1983 and 2002 and, updated in April 2014. Nationally important sites may be included on the schedule of monuments and are then accorded statutory protection. Details of scheduled monuments are maintained by Historic England and they provide the secretary of state with advice on these assets.
KEY NATIONAL PLANNING POLICY	National Planning Policy Framework (NPPF). 2021 Section 12 of the NPPF, entitled Conserving and Enhancing the Historic Environment provides guidance for planning authorities, property owners, developers and others on the conservation and investigation of heritage assets.
KEY REGIONAL PLANNING POLICY	London Plan Consolidated with Alterations Since 2011. Development affecting heritage assets and their settings should conserve their significance, by being sympathetic to their form, scale, materials and architectural detail. London Plan 2021
KEY LOCAL PLANNING POLICY	London Borough of Southwark Core Strategy 2011 New Southwark Plan Draft 2020 Southwark's Proposed Submission Draft Local Plan 2019
OTHER RELEVANT STANDARDS & GUIDANCE	Including but not limited to: National Planning Practice Guidance (NPPG) 2018; Historic England Good Practice Advice 1: The Historic Environment in Local Plans 2015; Historic England Good Practice Advice 2: Managing Significance in Decision-Taking in the Historic Environment 2015; Historic England Good Practice Advice 3: The Setting of Heritage Assets 2017; Chartered Institute for Archaeologists Standard and Guidance for historic environment desk-based assessment 2017; and Greater London Archaeological Advisory Service (GLAAS) Guidelines for Archaeological Projects in Greater London 2015.

FIG.1 SUBJECT SITE

FIG.2 ARCHAEOLOGICAL BACKGROUND

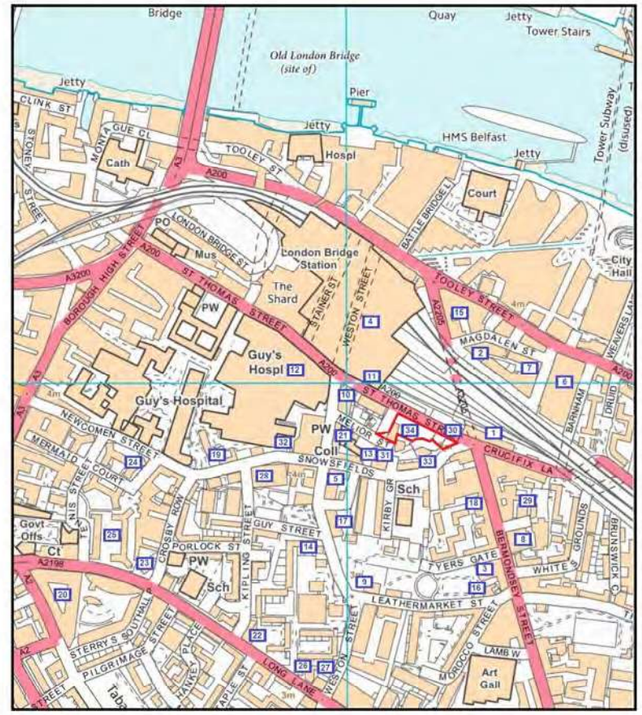
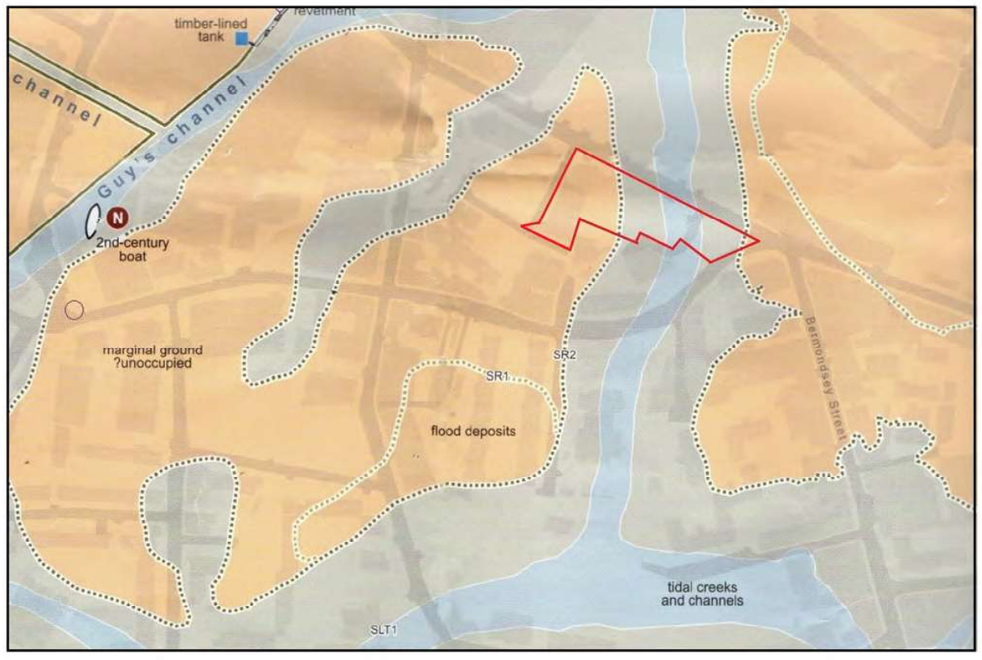


FIG.3 ROMAN TOPOGRAPHY c.270 AD (MOLA)



0 100m

FIG.4 ANON 1542

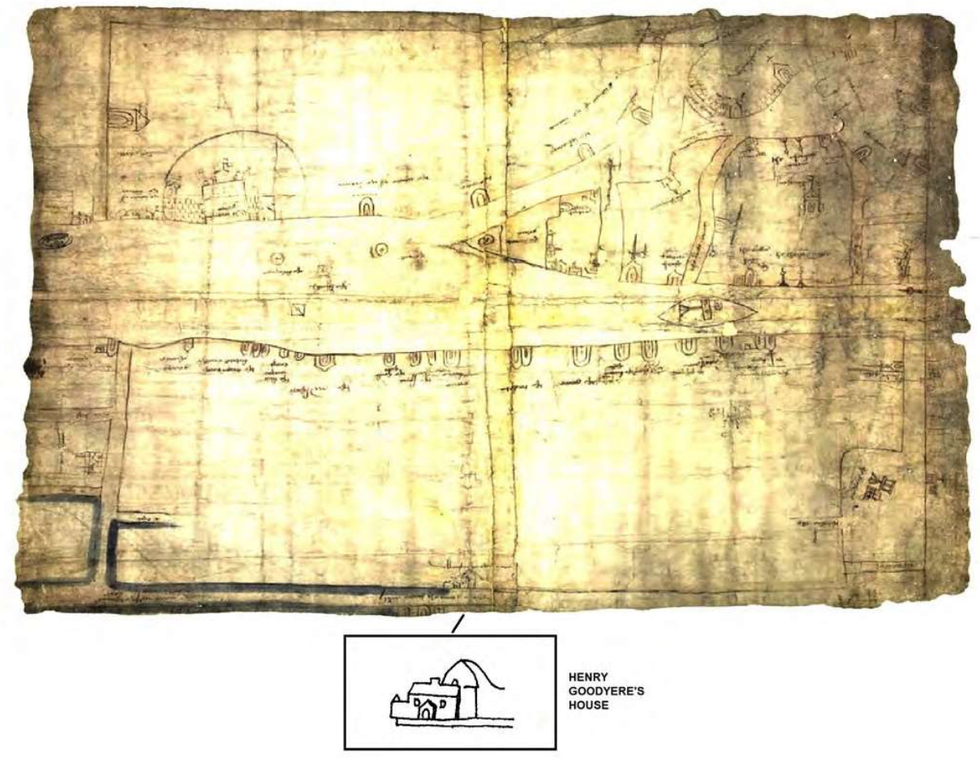


FIG.5 HOGENBERG 1572

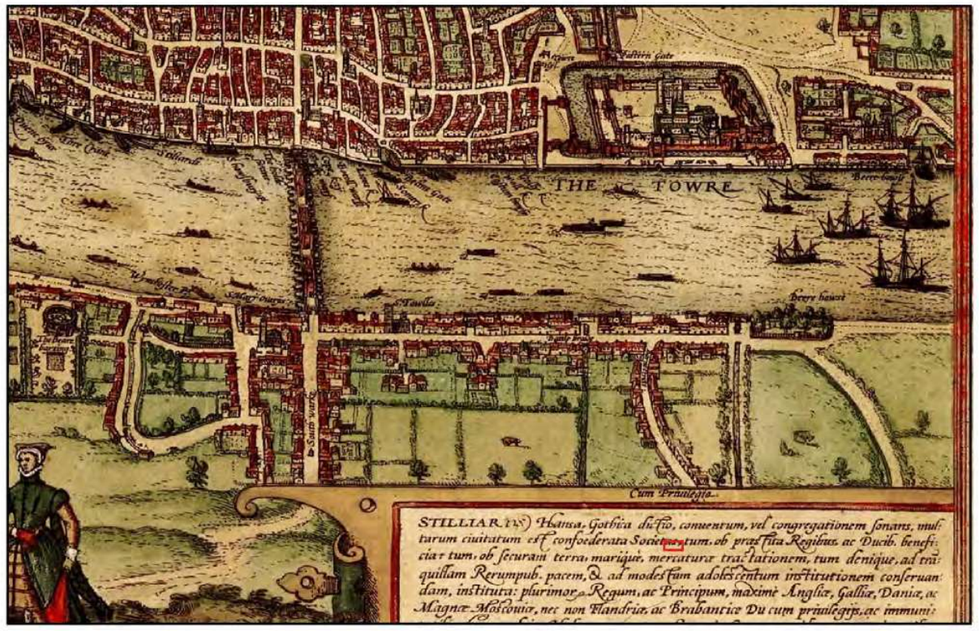


FIG.6 FAITHORNE & NEWCOURT 1658

FIG.7 MORGAN 1682

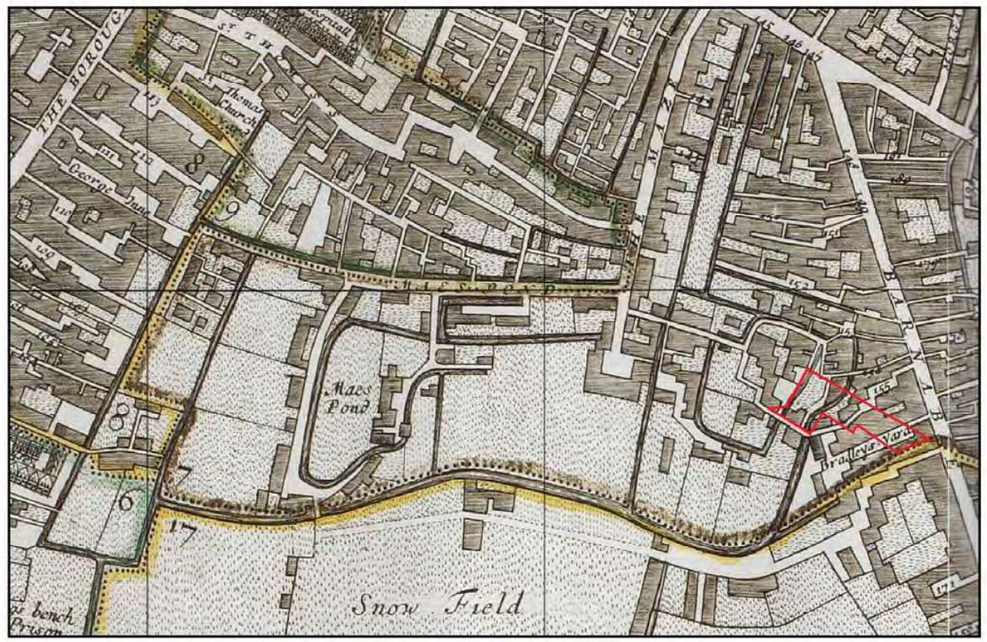


FIG.8 HOMANN 1705

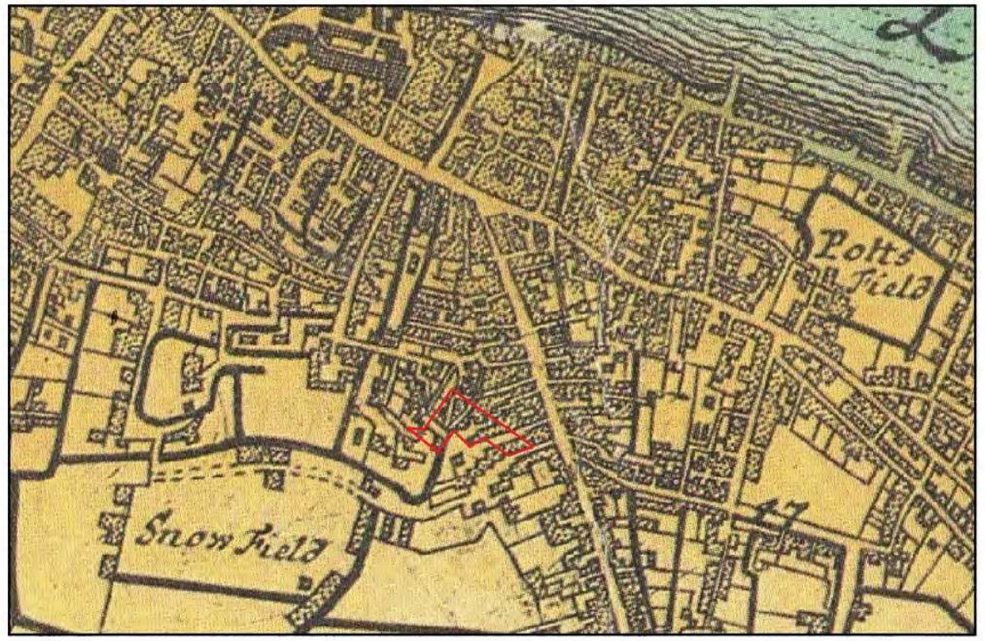


FIG.9 ROCQUE 1746

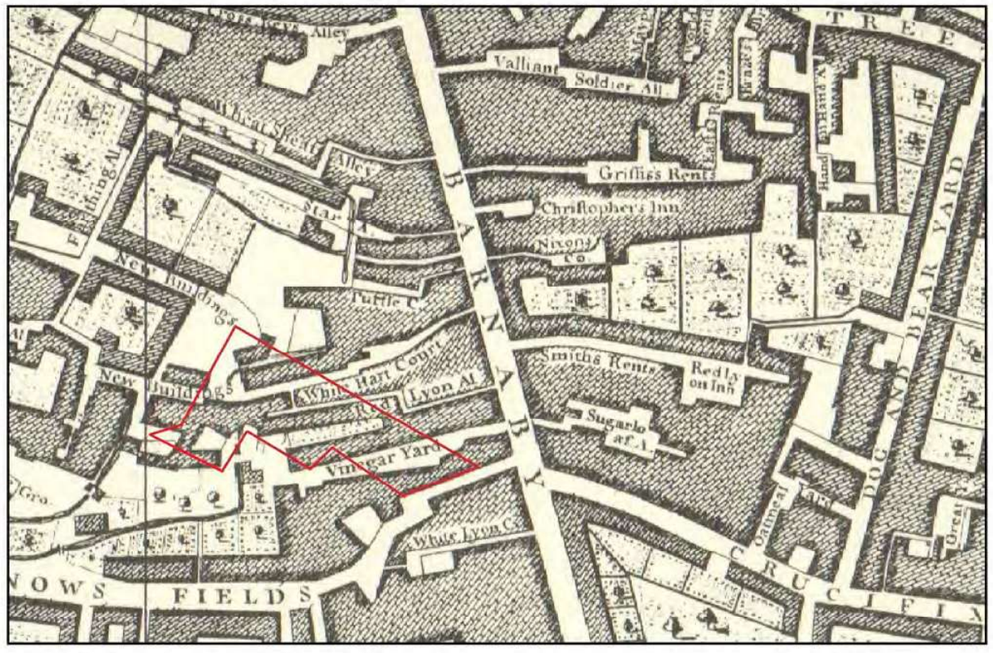


FIG.10 HORWOOD 1799

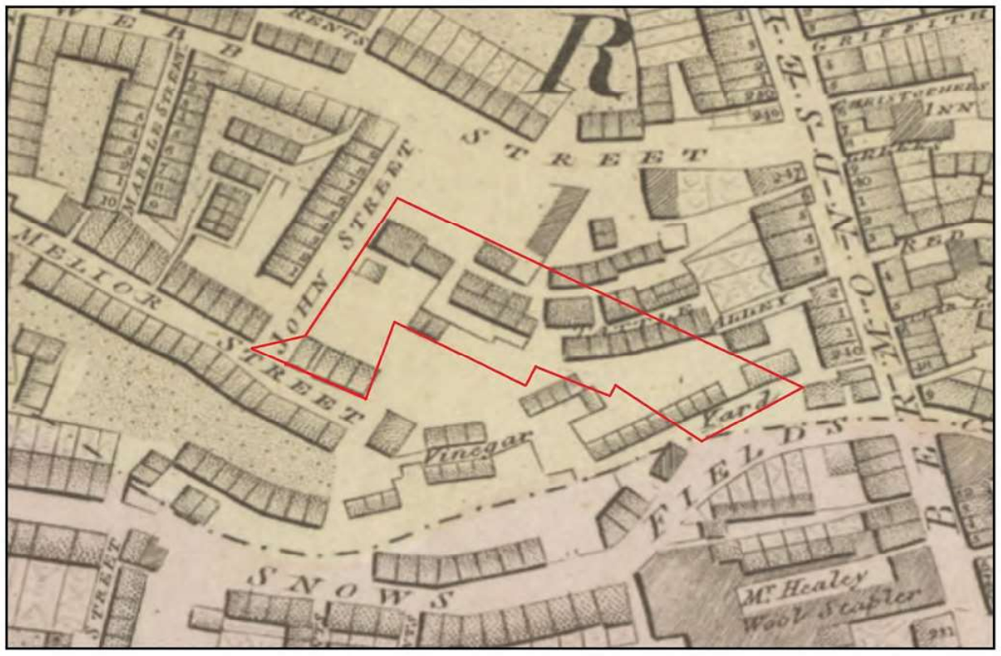


FIG.11 HORWOOD 1813

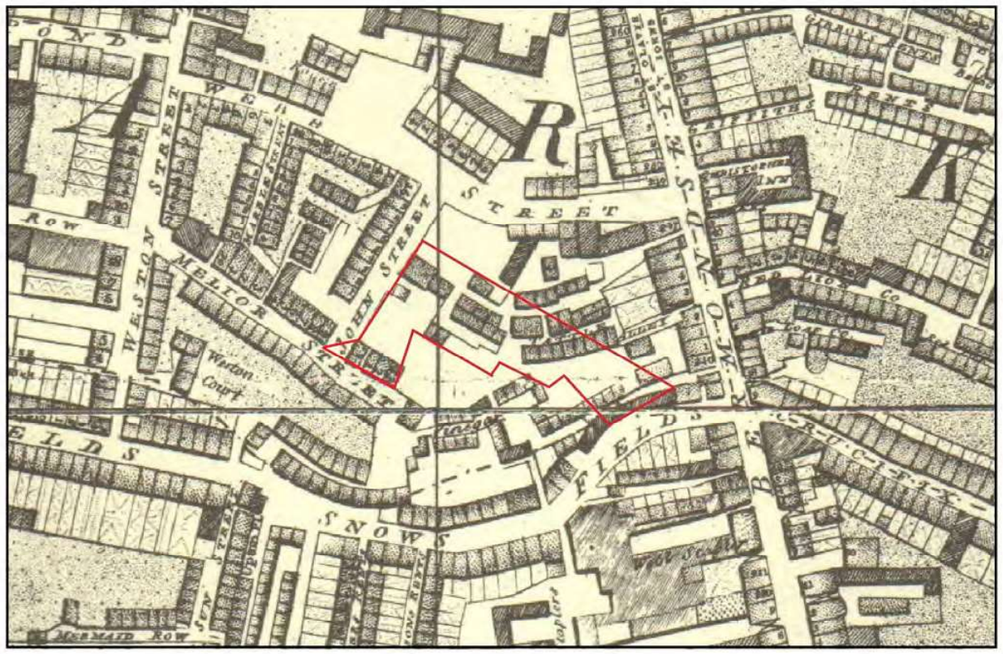


FIG.12 ORDNANCE SURVEY 1872

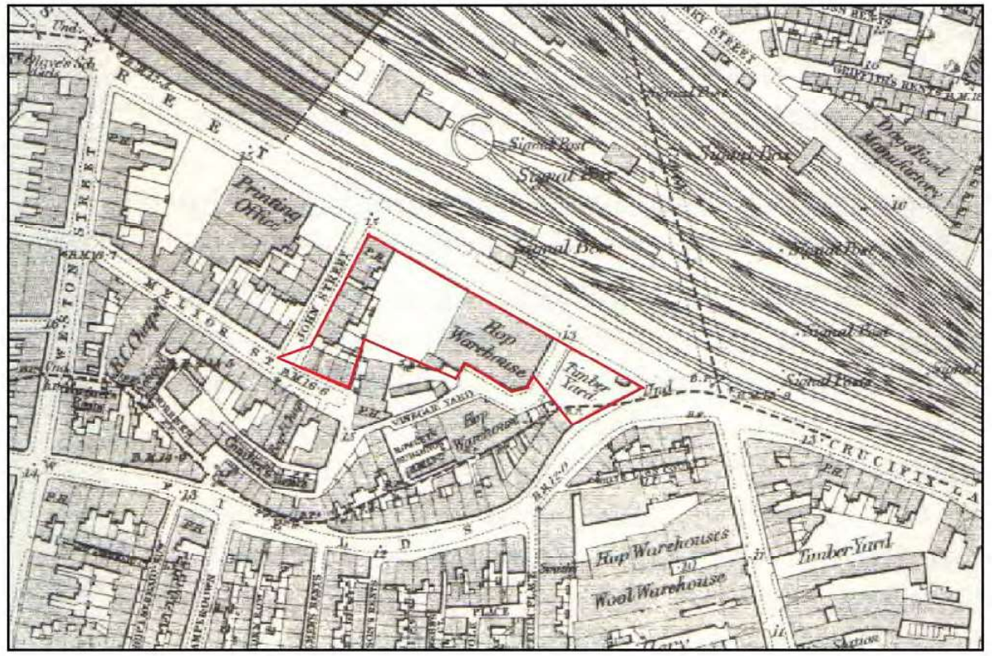


FIG.13 GOAD 1887

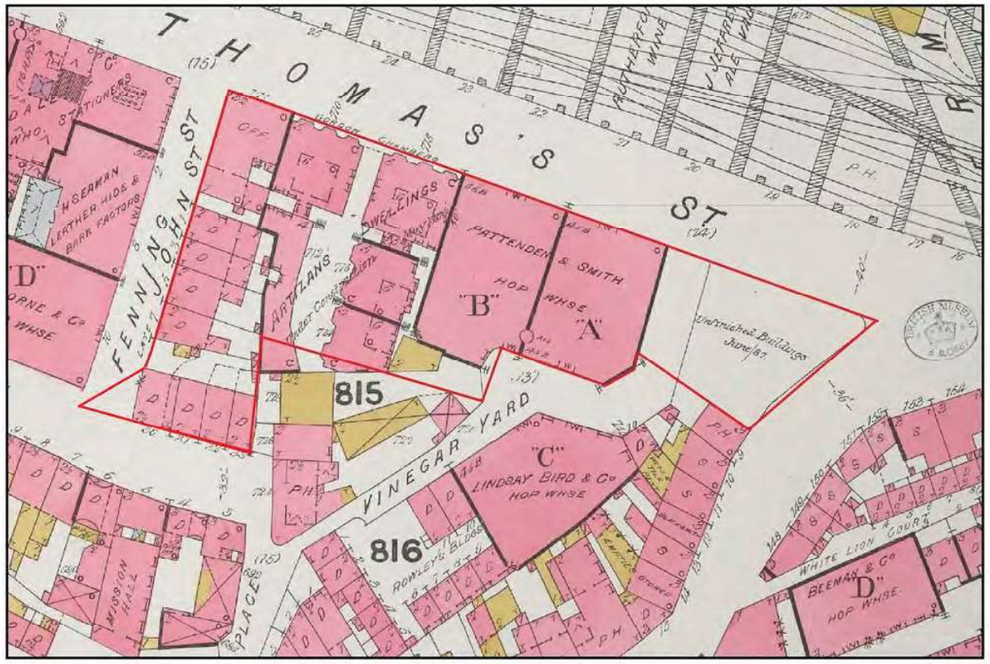


FIG.14 ORDNANCE SURVEY 1894

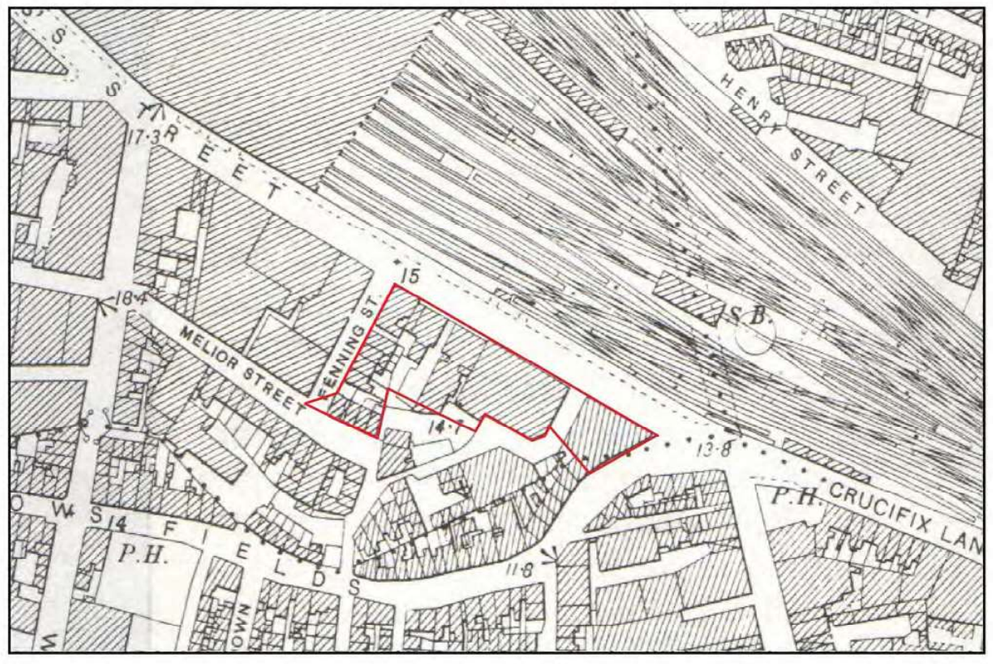


FIG.15 ORDNANCE SURVEY 1914

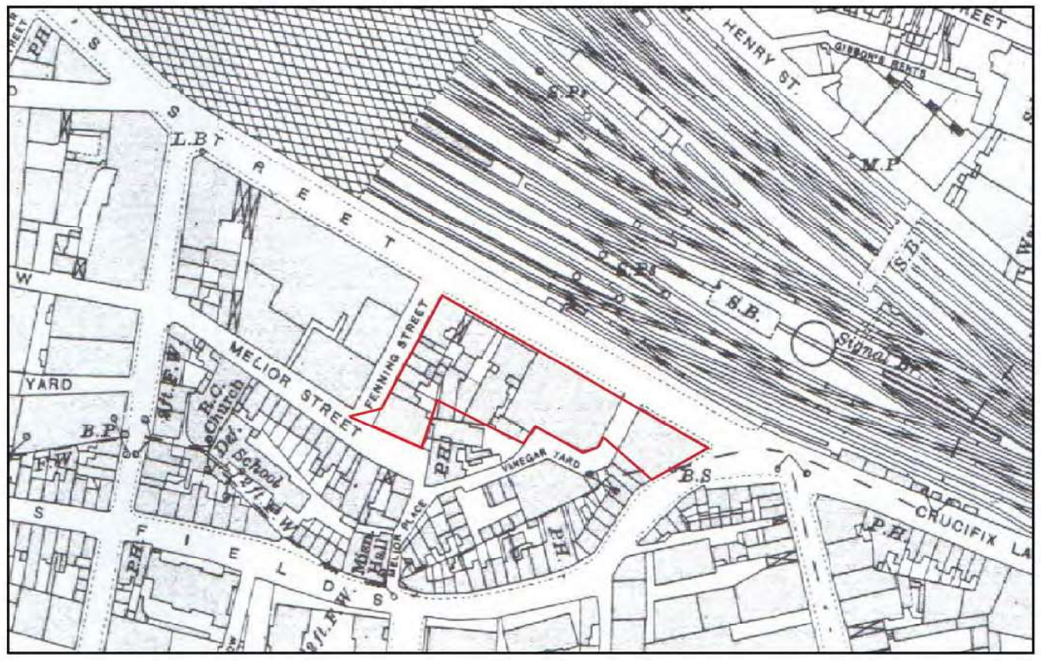


FIG.16 LCC BOMB MAP 1945

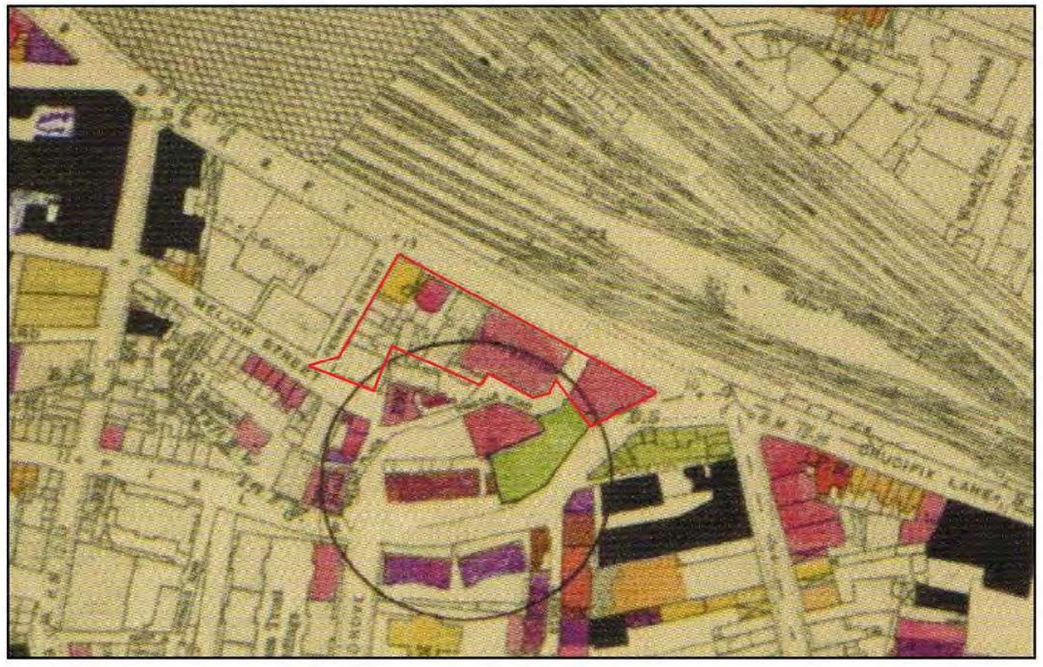


FIG.17 ORDNANCE SURVEY 1951

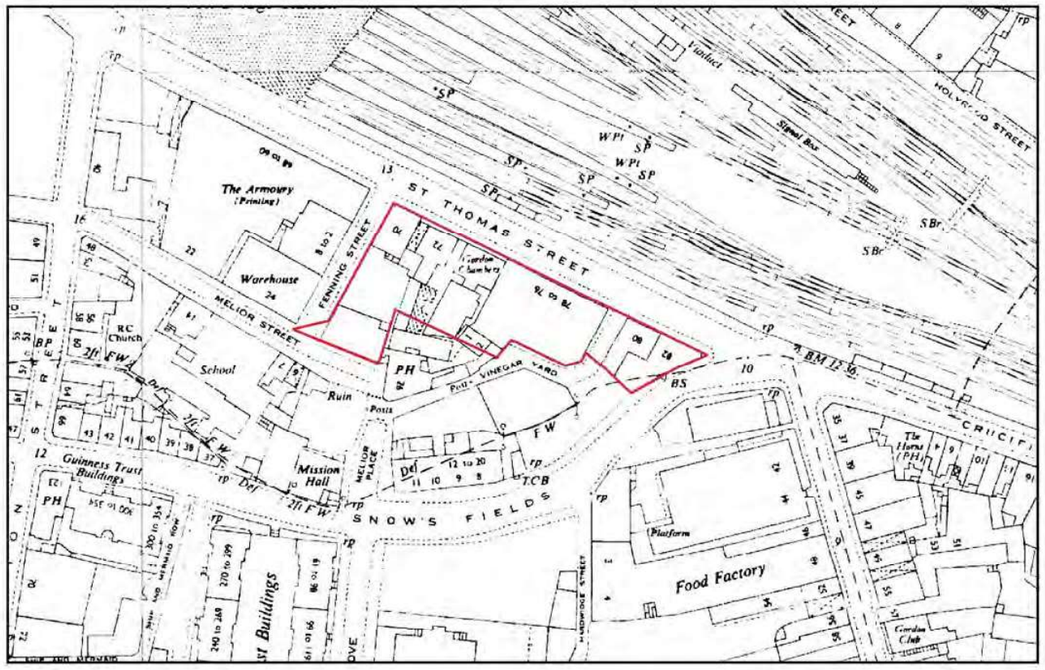


FIG.18 ORDNANCE SURVEY 1982

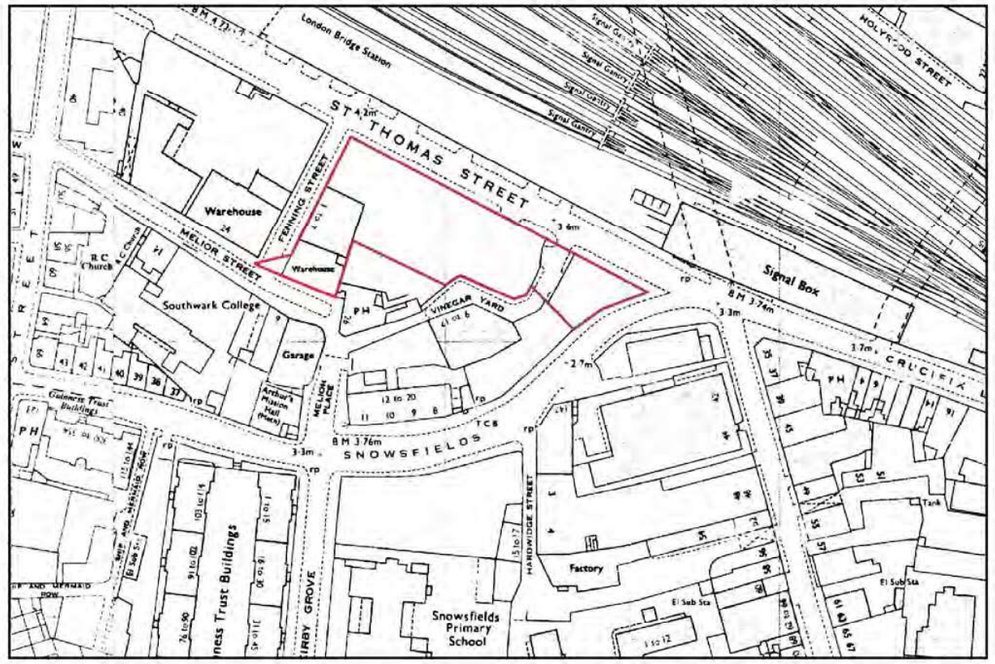


FIG.19 PROPOSED GROUND FLOOR

APPLICATION BOUNDARY

SCALE 1:500

KPF

Vinegar Yard
St. Thomas St
SE1 3QR

Client
St. Thomas Bermondsey Ltd.
3rd Floor, 50 Jermyn Street,
London, SW1Y 6LX
Tel: 020 7667 7766

Building Services Consultant
Sweco
1 Bath Road
Maidenhead, SL6 4AQ
Tel: 016 2662 5123

Planning Consultant
Montagu Evans
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Structural Consultant
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White Collar Factory
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Environmental Consultant
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Transport Consultant
Caneparo Associates
21 Little Portland Street
London, W1W 8BT
Tel: 020 3617 8200

Cost Consultant
Arcadis
Arcadia House, 34 York Way
London, N1 9AB
Tel: 0 20 7812 2999

P01	Planning Issue	Sep 2021
P00	Planning Issue	Dec 2020
No.	Note	Date

Key Plan

Kohn Pedersen Fox Associates (International) PA
Architects and Planning Consultants

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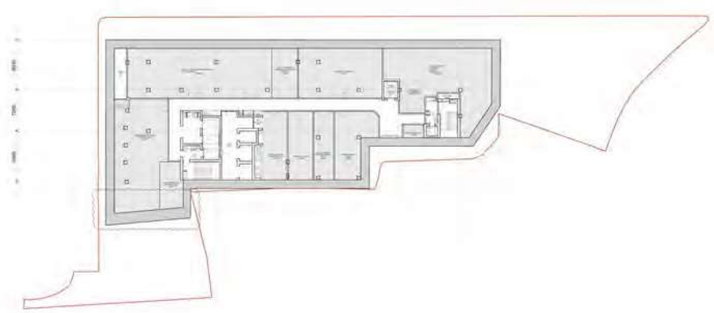
England
T: +44 (0) 20 3119 5300
F: +44 (0) 20 7497 1175
http://www.kpf.com

Proj No. 2472	Project Vinegar Yard		
Scale 1:500 @ A1	Drawn by SZh	Checked by AF	

Drawing Title and No.
PROPOSED SITE PLAN

No.	Rev.
PA-012	P01

FIG.20 PROPOSED BASEMENT



DRAWINGS TO BE PRINTED IN COLOUR

KEY:

APPLICATION BOUNDARY

PLANT

SCALE 1:250

KPF

Vinegar Yard
St. Thomas St
SE1 3QR

Client
St. Thomas Bermondsey Ltd.
3rd Floor, 50 Jermyn Street,
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Townscape Consultant
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P01	Planning Issue	SE
P00	Planning Issue	AF
No.	Note	Date

Key Plan

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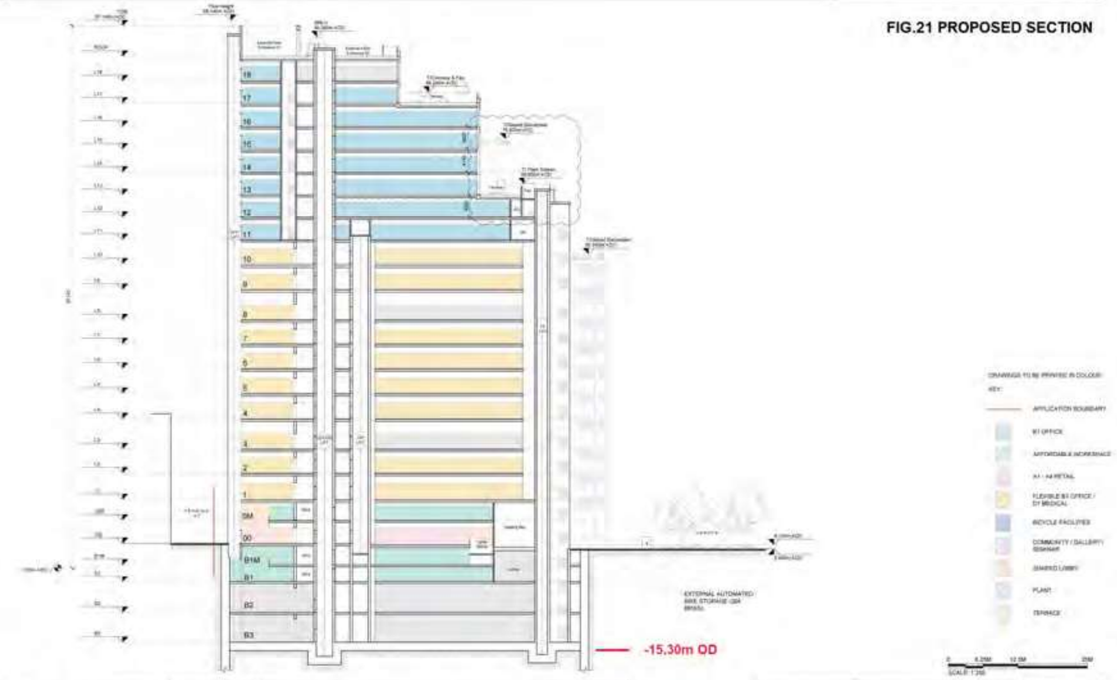
Proj No. 2472	Project Vinegar Yard		
Scale 1:250 @ A1	Drawn by SE	Checked by AF	

Drawing Title and No.
PROPOSED GENERAL ARRANGEMENT PLAN
LEVEL BASEMENT 02

No.	Rev.
PA-097	P01

FIG.21 PROPOSED SECTION



KPF

Vinegar Yard
St. Thomas St
SE1 3QR

Kohn Pedersen Fox Associates (International) PA
Architects and Planning Consultants

2472 Vinegar Yard

PROPOSED SECTION

AA

PA-250 P01

Appendix: Archaeology

Annex 1: Archaeological Desk Based Assessment 2021

Annex 2: PCA Archaeological Evaluation Summary and Full Report 2018

VINEGAR YARD AND ST THOMAS STREET, LONDON SE1

AN ARCHAEOLOGICAL EVALUATION

SITE CODE: VYS18

LOCAL PLANNING AUTHORITY: LONDON BOROUGH OF SOUTHWARK

PCA REPORT NO: R13504

DECEMBER 2018

PRE-CONSTRUCT ARCHAEOLOGY

DOCUMENT VERIFICATION

VINEGAR YARD AND ST THOMAS STREET, LONDON SE1

AN ARCHAEOLOGICAL EVALUATION

Quality Control

Pre-Construct Archaeology Ltd	
Project Number	K5808
Report Number	R13504

	Name & Title	Date
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Project Manager Sign-off:	Chris Mayo	November 2018

Revision No.	Date	Checked	Approved

Pre-Construct Archaeology Limited
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VINEGAR YARD / ST THOMAS STREET, LONDON SE1
AN ARCHAEOLOGICAL EVALUATION

Site Code:	**VYS18**
Central NGR:	**TQ 3310 7990**
Local Planning Authority:	**London Borough of Southwark**
Planning Reference:	**Pre-application**
Commissioning Client:	**St Thomas Bermondsey Limited**
Written/Researched by:	**Ireneo Grosso** **Pre-Construct Archaeology Limited**
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CONTENTS

PLATES

ILLUSTRATIONS

An Archaeological Evaluation at Vinegar Yard/St Thomas Street, SE1, London Borough of Southwark
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1 ABSTRACT

1.1 This report presents the results of an archaeological evaluation conducted by Pre-Construct Archaeology Ltd at Vinegar Yard / St Thomas Street, London SE1 in the London Borough of Southwark. The site extended to some 2,700m² and the evaluation consisted of the excavation of 4 trenches varying in size between 20m by 2m and 10m by 2m.

1.2 Evaluation Trenches 1, 2, 3, and 4 uncovered a sequence of archaeological deposits above natural spanning from the 15th century to the late 19th century, which were phased as follow: Phase 2 (Undated Alluvium); Phase 3 (15th to early 17th century reclamation activity); Phase 4 (Mid 17th to early 18th century); Phase 5 (18th century) and Phase 6 (19th century).

1.3 Phase 2 consisted of a sequence of undated alluvial deposits varying in thickness across the site. A borehole survey of this strata was carried out by PCA and the results are detailed in this report (see Appendix 8).

1.4 The archaeological evidence for Phase 3 shows that works associated with the management of the natural channel and the reclamation of the marshland environment started as early as the 15th century. These works consisted of drainage features (gullies) and reclamation dumps. A chalk foundation located in the southeast part of the site (Trench 3) was dated between the late 15th and 16th centuries.

1.5 During Phase 4 the site was already developed with tanning activity occurring in the southeast part of the site and the canalisation of the natural channel.

1.6 In Phase 4 the site underwent further development. The manmade channels were diverted into underground drains and the areas previously occupied by the channels was further developed.

1.7 Between the second half of the 19th and early 20th centuries the site was extensively redeveloped with the construction of a large warehouse which occupied the east part of the site.

2 INTRODUCTION

2.1 This report describes the results and working methods of an archaeological evaluation undertaken by Pre-Construct Archaeology Limited (PCA) at a proposed development site located on land at Vinegar Yard / St Thomas Street, London SE1 in the London Borough of Southwark (Fig. 1). The evaluation took place between the 5th and 22nd of November 2018 and was commissioned by St Thomas Bermondsey Limited.

2.2 The site is located approximately 400m south of the river Thames at an elevation of about +4m OD. In the prehistoric and Roman period, the site was located alongside the eastern bank of the eyot to the east of the Guy's Channel and alongside the western edge of Bermondsey Eyot forming marginal ground which may have remained mostly unoccupied form the prehistoric to the medieval period.

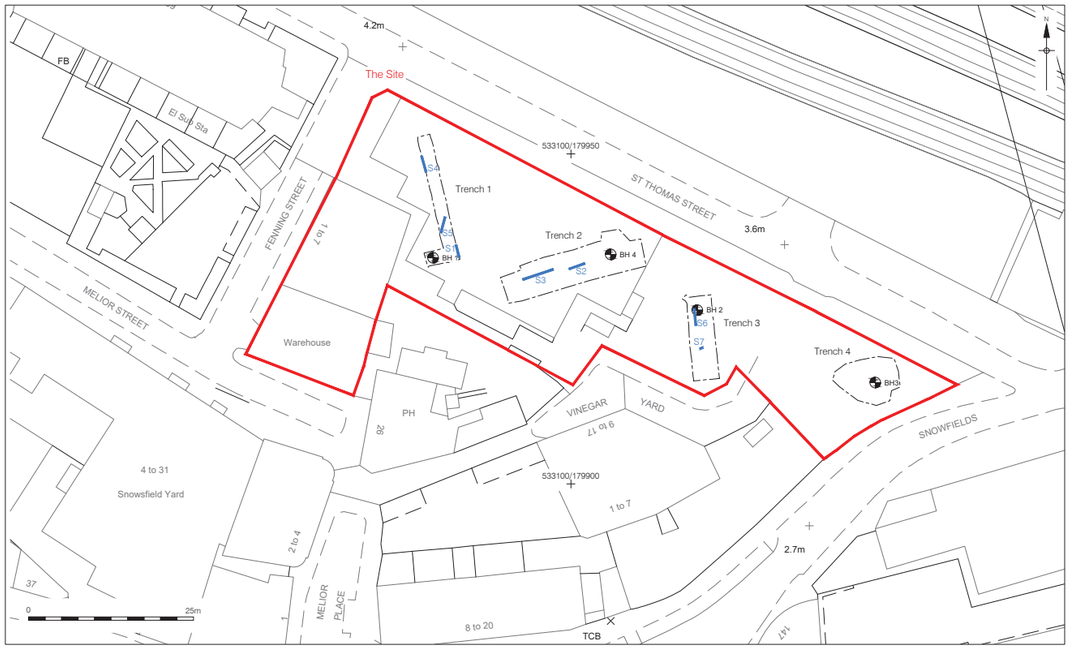
2.3 The evaluation consisted of four trenches between 10m and 20m in length, completed in accordance with an approved Written Scheme of Investigation (Mills Whipp Projects Ltd 2018b).

2.4 The central national Grid Reference for the site is TQ 3310 7990.

2.5 The site was given the unique Museum of London site code VYS18.

2.6 The project was monitored by Gillian King, the Senior Archaeology Officer for the London Borough of Southwark, project-managed for Pre-Construct Archaeology by Chris Mayo and supervised by the author. The archaeological consultant for the project was Mills Whipp Projects Ltd.

Figure 1
Site Location
1:800,000, 1:250,000, 1:20,000 at A4



13/12/18 DV

Figure 2
Detailed Site Location
1:625 at A4

3 PLANNING BACKGROUND

3.1 General

3.1.1 The proposed development of the site is subject to planning guidance and policies contained within the National Planning Policy Framework (NPPF), The London Plan and LB Southwark's Local Plan. These recognise the importance of heritage assets of which they are the custodians.

3.2 National Guidance: National Planning Policy Framework

3.2.1 The revised National Planning Policy Framework (NPPF) was published on 24 July 2018 and replaces the previous NPPF published in March 2012. The NPPF constitutes guidance for local planning authorities and decision-takers both in drawing up plans and as a material consideration in determining applications.

3.2.2 Chapter 16 of the NPPF concerns the conservation and enhancement of the historic environment.

3.3 Regional Policy: The London Plan

3.3.1 The London Plan, first published July 2011, updated March 2016, includes Policies 7.4, 7.8 and 7.9 regarding the historic environment in central London, to be implemented through the Local Development Framework (LDF) being compiled at the Borough level.

3.4 Local Planning Policy: LB Southwark's Development Plan

3.4.1 The Borough Council's Archaeology Policy is set out within the Southwark Plan (July 2007), a framework for development within the Borough. In 2011 the Core Strategy document was adopted incorporating several saved policies. That relating to archaeology is set out in Policy 3.19 from the Southwark Plan and Policy E5.1 from the Core Strategy.

3.5 Site Specific Background

3.5.1 The site does not contain any Scheduled Ancient Monuments, nor does it lie within a Designated Archaeological Area as defined in Scheduled Ancient Monument & Archaeological Areas Act 1979. It does, however, lie in an Archaeological Priority Area as defined by the London Borough of Southwark. There are not listed buildings on the site as indicated by Historic England's Historic environmental Record (HER).

3.5.2 A planning application to develop the site is currently in preparation, supported by an archaeological desk-based assessment (Mills Whipp Projects Ltd 2018a). The need for a pre-application archaeological evaluation was directed by the London Borough of Southwark with advice from their Senior Archaeologist, Gillian King.

3.5.3 Accordingly, the evaluation was agreed and designed within a Written Scheme of Investigation (Mills Whipp Projects Ltd 2018b).

4 GEOLOGY AND TOPOGRAPHY

4.1 Geology

4.1.1 The geological Survey of Great Britain, South London, Sheet 270, shows that the site lies within a larger area of Southwark consisting of Pleistocene drift deposits such as Kempton Park Gravel which in turn overly London Clay. The Kempton Park Gravel is capped in places with a layer of Brickearth varying in thickness between 1m and 3m. This deeply buried deposits represents the base of the archaeological sequence as they formed a series of low-lying islands (eyots) interspersed with braided channels stretching along the ancient inter-tidal zone defining the southern bank of the Thames. The surface of the islands has been recorded at elevations ranging between approximately +0.5m OD and +2m OD.

4.2 Topography

4.2.1 The site lies within a buried channel spanning from the eastern bank of the eyot located to the east of Guy's Channel, to the eastern bank of the Bermondsey Eyot. As a result, the top of the drift geology is sealed by an extensive deposit of Alluvium associated with the slow silting up of the channel itself.

4.2.2 The top of the underlying Alluvium, observed in each evaluation trench between +2.35m OD and (Trench 1) and +0.63m OD (Trench 4), was later sampled by a power auger to the basal superficial geology such as the Kempton Park Gravel (see Appendix 8).

4.2.3 During the majority of the later prehistoric, Roman and medieval periods the site was located in marginal land and may have remained mostly unoccupied (Sidell *et al.* 2011).

4.2.4 The site is currently flat at a level of around 4.0m OD. Until recently it has been used by Network Rail as one of their sites for the Thameslink Project. Vinegar Yard cuts across the site N-S at the eastern side, splitting the site into two unequal areas

An Archaeological Evaluation at Vinegar Yard/St Thomas Street, SE1, London Borough of Southwark
© Pre-Construct Archaeology Limited, December 2018

5 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

Most of the archaeological and historical background reproduced below was written for the Archaeological Desk Based Assessment (Mills Whipp 2018a).

5.1 Prehistoric

5.1.1 The topography of Southwark was very different in the prehistoric than it is seen today. The River Thames was wider, stretching further to the south, and consisted of a series of abraded channels. The shoreline would have been made up of several sandy islands, which were crossed by channel and streams. The area would have been fairly marshy in nature and locations set within the floodplain would have been unstable and unattractive for settlement (Sidell et al. 2002). However, the higher gravel islands along the shoreline would have provided easy access to fresh water and fishing and seem to have attracted prehistoric settlement to the area, at least on a temporary or occasional basis (Tames 2001).

5.1.2 Within this riverside topography, the site was located on what was once a large channel separated from Guy's Channel to the west by a low-lying island and defined to the east by the western bank of Bermondsey Eyot.

5.1.3 No finds of Palaeolithic date are recorded in the HER for the study area or are mentioned within 'The archaeology of Greater London' (MOLAS / English Heritage 2000). The earliest indication of human activity in the area is evidenced by possible Mesolithic (8,000 – 4000 BC) worked flints. These have been found at Guy's Hospital, Great Maze Pond (Taylor-Wilson 1997) although they are not associated with any archaeological features.

5.1.4 The archaeological evaluation at Great Maze Pond (*Ibid*) also recorded the surface of the prehistoric eyot on the western bank of the Guy's Channel. It was composed of a weathered alluvial deposit arranging between 0.41m OD to 1.04m OD. The deposit contained occasional burnt flint and rare worked flint and was cut by shallow linear features interpreted as ditches and linear pits (*Ibid*,16). Further inundations were recorded which may have been deposited in the late prehistoric or early Roman period. They are described as firm brown clays with a maximum elevation of 0.81m OD. This land surface was cut by a further phase ditches and postholes some of which may be late prehistoric / early Roman in date.

5.1.5 Although there is evidence of prehistoric land use on several of the main eyots in Southwark, including evidence of farming on the Horselydown eyot (DoGLA 1988) and at Long Lane. A Middle Iron Age inhumation on the Borough High Street and at Fennings Wharf a Late Bronze Age round barrow indicate a presence but there is only limited evidence for actual settlement. A possible ard mark and gravel platform on the western side of the Guy's Channel was recorded at Long Lane approximately.

5.1.6 Nonetheless, it is certain that that during the prehistoric period there was some limited exploitation of the general area with settlement on the higher ground and fishing, trapping and wild-fowling on the marginal, peripheral ground. Generally, however, current evidence for the late prehistoric land use of the area suggests a landscape occupied by a few

dispersed farmsteads on higher ground rather than a nucleated proto-urban settlement (Taylor-Wilson, 1997a, 8).

5.1.7 In the Late Iron Age central London appears to have had very limited occupation. It has been suggested (Millett 1990, 89) that it was 'precisely because there was no strong tribal presence in the area that the Roman town, Londinium, was placed where it was on the north bank of the Thames. During an overarching assessment of archaeological evidence for London, Gerald Wait and Jonathan Cotton suggest that in the Mid to Late Iron Age London lay at the junction of several ceramic zones and may have been a 'liminal' region on the edge of the 'contact zone' of continental influence (MOLA / EH 2000, 113).

5.1.8 This archaeological and topographical evidence shows that the subject site lay on 'marginal ground' in a waterlogged area. The limited archaeological evidence for the prehistoric period in the immediate vicinity of the site suggests is very unlikely to have been intensively exploited in terms of land use.

5.2 Roman

5.2.1 Soon after the invasion of AD 43 the Romans established Londinium on a low gravel hill (Cornhill) forming the north bank of the River Thames. Soon it was connected to the south side of the river by a wooden bridge whose southern bridgehead lay on the northern bank of the principal eyot west of the Guy's Channel. In the mid-1st century, a suburb to the Roman town developed on this eyot along the main Roman road, Watling Street, which headed south; now Borough High Street and Old Kent Road. A large religious / cemetery complex including two mid-2nd century Romano-Celtic temples was excavated at Tabard Square (Killock *et al.* 2015) close to Watling Street.

5.2.2 Archaeological evidence suggests that the settlement was mainly confined to this eyot, with the exception of its cemeteries. The subject site lay approximately 300m southwest of the Roman suburb's core but more importantly on the far side (east) of the Guy's Channel, on a completely separate and lower lying eyot. Here the general lack of Roman archaeological evidence indicates that it lay outside the Roman settlement on uninhabitable ground.

5.2.3 At its highpoint in the 2nd century the Southwark settlement may have occupied 20 - 24 hectares. Archaeological evidence indicates that it contained large masonry buildings of both public and administrative function. At Great Maze Pond there was recorded evidence of a mid-2nd century inundation which may have affected the settlement (Taylor-Wilson, 1997a, b). Evidence for the latter part of the Roman period, although scarce, implies that the settlement declined thereafter. The cutting of drainage ditches indicated land reclamation in the late 2nd century which was followed by the dumping of domestic refuse in an attempt to consolidate the marginal land by the western bank of the Guy's Channel. During the same period the old channel revetment was replaced. There is no evidence for such Roman settlement near the subject site on the smaller eyot.

5.2.4 The tidal channels were used for transport and provided access to the islands and mainland

via jetties and quays. An archaeological evaluation at Great Maze Pond (*Ibid.*) recorded a post and plank revetment dating the late 1st / early 2nd century on the western side of the Guy's Channel. A Roman river barge constructed of oak and with a shallow draught was discovered at New Guy's House in 1958 close to the eastern bank. It is now a Scheduled Ancient Monument (LO157). This shows that the channel was navigable for at least part of the Roman period. The vessel lay on the bed of the channel at -0.30m OD and PCA suggest the channel may have been only about 1m deep when the vessel was abandoned. Pottery indicates this to date to be around AD 200.

5.2.5 Roman law forbade burials within settlements, so cemeteries developed along the main roads leading to and from the settlement. Numerous Roman burials have been recorded on the periphery of the suburb. However, the low-lying marginal ground of the eyot on the east bank of Guy's Channel was unsuitable for burials and none have been recorded in the vicinity of the site.

5.3 Saxon

5.3.1 There is no archaeological evidence for early Saxon land use in the vicinity of the subject site. This may be due to a rise in the level of the Thames in the early mediaeval period, so rendering the eyot even more inaccessible than it previously was.

5.3.2 By the 9th century, however, the Southwark bridgehead located on the principal eyot may have become a Saxon 'burh' or fortified town in response to Viking attacks from the Thames (SLAEC 2000, 21). It may have been defended by a ditch, part of which may have been recorded during excavations at Montague Close in the vicinity of Southwark Cathedral approximately 800m northwest of the site. If this were the case then the subject site lay well to the southeast of the defended town which, again, centred on the norther section of Borough High Street.

5.3.3 To the southeast of the site lay Bermondsey Abbey, probably originally founded on an eyot in the 7th century.

5.4 Medieval

5.4.1 Southwark remained a relatively small settlement throughout the mediaeval period stretching from Horselydown in the east to Bankside in the west and the church of St. George the Martyr to the south. The subject site lay 500m beyond its southeastern side in an open, undeveloped area of fields later called Snows Field. Archaeological evidence in the study area shows that the marshy conditions in this area, such as those on the low lying eyot, continued into the mediaeval period. Where good ground existed, the settlement expanded ribbon like along the main roads, such as Borough High Street and Long Lane. Bermondsey Street was a causeway across the marshes to Bermondsey Abbey, a Cluniac House.

Liberty of the Archbishop of Canterbury

5.4.2 The lands of the Liberty were in the parishes of St. George, St. Margaret and St. Olave. The subject site lay in the parish of St Olave. Part of the king's possessions in the borough was granted to the Archbishop of Canterbury in the 12th century. The Pipe Rolls record that in 1130 4s. out of the aid of the borough was remitted to him, and in 1157 20s. out of the sum due by the men of Southwark. In 1275 a commission was issued for an inquiry as to the yearly value of the tolls of the men and tenants of the Archbishop and of the Prior and convent of Christchurch, Canterbury, in the fairs and markets of Southwark, which were due to John de Warenne Earl of Surrey. They were found to be worth £4. yearly.

5.4.3 In 1349 the extent of the rights enjoyed in this Liberty becomes clear, for the king confirmed a grant for life made by the late Archbishop John Stratford to his chamberlain, William atte Fen, of the bailiwick and custody of the archiepiscopal Liberty of Southwark, with power to seize, levy fines, issues and amercements, waif and stray, escheats and chattels of felons and fugitives, and to execute writs and other mandates of the king. He should render no account nor farm, saving that he must satisfy the Archbishop or the steward of the Liberty of the debts of the king, according to the tenor of its estreats delivered to him. It is evident that the holding was free not only of the borough but also of the shire jurisdiction.

5.4.4 The subject site's eyot is likely to have remained marshy open ground for pasture. Evidence for land drainage ditches are evident whenever mediaeval deposits are observed during archaeological investigations (Taylor Wilson 1997a, b; Killock 2015). It is uncertain how long the Guy's Channel remained as a visible landscape feature in the mediaeval period. Although it is not easily recognisable on early post mediaeval maps of the area, PCA suggest it may have continued to flow until the 17th century and may be represented on Rocque by a long narrow pond in area of Great Maze Pond (Taylor-Wilson 1997b, 10).

5.4.5 No significant mediaeval finds have been made in the vicinity of the subject site. It seems that the waterlogged nature of the ground in the vicinity of the subject site delayed any intense development of this area until the 16th century. This area would have been occupied by fields, some of a marshy nature, and agricultural soils have been recorded across the study area.

5.5 Post-Medieval

5.5.1 In 1538 the Liberty was surrendered to the Crown by Thomas Cranmer, Archbishop. Edward VI in 1550 granted to the Mayor, commonalty and citizens of London 'all our manor and borough of Southwark, with all their rights, members, and appurtunances, lately parcel of the possessions of the Archbishopric of Canterbury', and some rents from tenements in Southwark which had been in the same ownership. In 1567–8 the City claimed certain dues on the ground of Cranmer's surrender and of the subsequent grant by Edward VI. This term 'the borough of Southwark' does not occur in regard to the Archbishop's Liberty in earlier records. It would here seem to imply only those rights of the Liberty which were equivalent to the burghal rights from which it was exempt. The Liberty was subsequently identified with

the City's Great Liberty Manor of Southwark. This includes roughly the ancient borough to the east of the Borough High Street, except that part of it which is in the Guildable Manor, and its outlying southern portion around Tabard Street and the Old Kent Road.

5.5.2 As well as the modest houses fronting onto the new street pattern, other more prestigious properties were also being built within the main settlement. About 750m southwest of the site Duke of Suffolk built a palace, Suffolk Place in 1518-22, replacing an earlier house. To the north of the subject site stood Fastolf Place, a moated house on the riverbank owned by the warrior knight Sir John Fastolf. To the southeast of the site stood Bermondsey House, originally a Cluniac House acquired by Sir Thomas Pope who, having demolished substantial portions of the Abbey, then built a fine residence for himself in 1541. Pope then founded Trinity College Oxford with the wealth he had accumulated from the Dissolution.

5.5.3 On or near the subject site stood another Tudor mansion owned by one Henry Goodyere. Goodyere was assessed for tax in 1547 and was the second richest man in Southwark, having an income of £500 (Carlin 1995, 166). For comparison, Queen Anne of Cleeves was granted an annual pension of £500 by Henry VIII following their divorce, considered at the time to be generous. It would be in excess of £250,000 today. Goodyere was an alderman of London and had been a leading merchant in Calais, then in English hands. Goodyere in 1544 with others gained possession of Horsleydown as trustees of the parish of St Olave's. However, it seems he and the others retained personal ownership (and presumably the income) until it was compulsorily retrieved and handed to the local grammar school following his death in 1556. His funeral at St Olave's was an elaborate affair as he was a leading light in the Company of Leathersellers.

5.5.4 On a map of 1542 his house was marked as a substantial double fronted structure with a chimney issuing smoke. Only one other mansion was shown on the map with smoke which, as has been commented, was "a remarkable condition, no doubt, as the draughtsman so plainly notices it" (Rendle 1878, 280). In addition, the house was described as being built of "stone", highly unusual at that time when as a 16th century Spaniard noted "these English have houses made of sticks and dirt" (recorded by Rev Harrison in 1577 quoted in Rendle 280). It appears that a large barn lay behind the house.

5.5.5 The 1542 map is only a crude sketch and the locations of the buildings can only be regarded as approximate. Goodyere was assessed in Southwark as a resident of St Olave's parish. On the map the road outside his house has an inscription:

"*Hyer endith the kings lyberte*" [Here ends the King's Liberty of Southwark].

5.5.6 This boundary crossed the southeastern corner of the subject site and was still clearly defined in 1872. Therefore, the curtilage of the mansion had to lie on the western side of Bermondsey Street apparently immediately adjacent to the Liberty's boundary. The property would probably have comprised a principal house with ancillary buildings lying within a

walled garden precinct. The subject site probably lay within this curtilage.

5.5.7 Southwark in the later 16th century was a thriving suburb expanding southwards along the major routes from its mediaeval core, including Bermondsey Street. Within the general vicinity of the subject site the ground remained waterlogged and suffered seasonal flooding; a situation that persisted until the establishment of an effective river wall on the Thames frontage in the later post mediaeval period. Bermondsey Street was described as a causeway, indicating the wet conditions. A map of 1572 shows the expanding ribbon development near the site, which is just off the map.

5.5.8 Consequently, away from the street frontages the general area remained open and undeveloped until well after the early expansion of the suburb had overtaken it. Alluvial deposits and drainage schemes including land consolidation dumps, a network of ditches and brick and timber drains from this period have been recorded across the study area (Taylor-Wilson 1997b; Sygrave 2007; MoLAS 2002). Faithorne and Newcourt's map of 1658 clearly illustrates this situation. Bermondsey Street was lined with buildings almost for its entire length. The subject site is shown occupied by buildings on the eastern side with open ploughed land to the rear. The line of Snows Fields is a hedged boundary with marshy ground to the south. To the southeast lies the substantial mansion of Bermondsey Abbey or House.

5.5.9 By 1682 Morgan's map shows the area was densely occupied by buildings apart from the marshy area of Snows Fields which was crossed by numerous drainage ditches cum sewers. The site was occupied by a series of tenements running back from Bermondsey Street which had yards and outbuildings to the rear. One yard is named, Bradleys Yard, which indicates it was more notable at the time. At the western part of the side a large ditch ran northeast to southwest. Another ditch formed the western boundary. In 1705 Homann showed a similar pattern of buildings and a major ditch crossing the site.

5.5.10 In 1746 Rocque showed the area to be increasingly built up but large open fields with drainage ditches shown ground conditions to be damp. On the site the open yard had been renamed 'Vinegar Yard' presumably as a result of the opening of a Vinegar Works. Vinegar was used as a preservative, for flavouring and a wide range of medical purposes.

5.5.11 Details of the layout of the site were given in 1799. A number of small buildings were irregularly ranged around a number of open yards, including Vinegar Yard. A similar depiction in 1813 showed a townscape of cramped houses and industrial buildings. The arrival of the railways radically altered the landscape. London Bridge station was opened on 14 December 1836, making it the oldest of the London railway termini that is still running. The completion of the line into London Bridge was postponed because of delays in constructing a bridge at Bermondsey Street, just to the north of the site. From the 10th October 1836, trains were able to operate as far as the east end of this bridge, with passengers having to walk the last 300 yards (270m). The railway and the associated viaducts meant the construction of new roads notably St Thomas's Street.

An Archaeological Evaluation at Vinegar Yard/St Thomas Street, SE1, London Borough of Southwark
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5.5.12 By 1872 the industrial nature of Southwark was clear. The map showed breweries, tanneries, wool warehouses and hop warehouses in profusion. These are often found during excavations in Southwark, such as the tannery tanks to the east of the site (Mackinder 2006). The subject site was occupied by a timber yard, a hop warehouse, a pub and an open building plot. Further details were given by Goad's map of 1887 showing the hop warehouse had a basement, but other buildings apparently did not.

5.5.13 By 1894 most of the site was built over. The buildings were described as a hop warehouse, a warehouse and 'Gordon Chambers' described as 'artizans dwellings', undoubtedly purpose-built hygienic housing built to replace slums. Small houses occupied the western side of the site along Fenning Street, previously John Street. A similar pattern of land use was shown in 1914.

5.5.14 During the Second World War a V1 fell near the site causing extensive destruction, the buildings described as "seriously damaged but repairable at cost". In 1951 it appears the buildings had been repaired but the Fenning Street houses had been demolished. By 1982 the Fenning Street site had been built over, but the remainder of the site had been cleared of buildings. Subsequently, the site has been used as temporary office accommodation 5 storeys high.

6 ARCHAEOLOGICAL METHODOLOGY

6.1 The evaluation was undertaken according to a Written Scheme of Investigation (WSI) prepared by Mills Whipp Project Ltd (Mills 2018b). The aim of the archaeological investigation was to determine the location, form, extent, date, character, significance and quality of any surviving archaeological remains.

6.2 The WSI proposed the excavation of five evaluation trenches distributed across the site designed to reach, at least partially, the top of the underlying alluvial deposit. Two of the evaluation trenches were designed to be 20m long by 2m wide at base whilst the remaining three trenches measured 10m long by 2m wide at base. However, logistical issues related with the lack of available space in the easternmost part of the site prevented the excavation of one of the proposed trenches (Trench 5). As a result, a total of four evaluation trenches were excavated, however the easternmost trench was enlarged as far as was safe to compensate for the lack of Trench 5 (Fig 2). The dimensions of these trenches were as follows:

Trench No.	Orientation	Dimension at top	Dimension at base	Maximum Depth (BGL)
1	NW-SE	21.60m by 4m	19.60m by 2m	1.60m
2	NE-SW	22m by 5.50m	17.20m by 2m	3.50m
3	N-S	12.70m by 4m	9.50m by 2m	2.50m
4	E-W	10.20m by 7.30m	8m by 4m	2.90m

6.3 The removal of the first 0.5m of modern deposits was undertaken using a 13-ton 360º mechanical tracked excavator. Any further machining was preceded by scanning for live services and the remaining of the modern deposits reduced in 100mm horizontal spits using a flat bladed ditching bucket under the constant observation of an archaeologist.

6.4 The proposed trenches were designed to reach, at least partially, the level of the underlying alluvial deposit. As a result, the trenches were stepped with a maximum depth of the steps of 1.2m depending on the stability of the trenches edges, with the spoil stored at least 1.5m away.

6.5 Once the first archaeological horizon was reached it was cleared by hand. Representative sections were cleaned and drawn, and the base of the trenches cleaned in order to define cut features, layers and masonry foundations. Where these were identified localised excavation took place to characterise the features and recover dating evidence.

6.6 Having partially reached the top of the underlying alluvium in each trench, a power auger was then used to penetrate and sample the alluvial deposits to the basal superficial geology (Kempton Park Gravel) in order to record the stratigraphic sequence and produce an east-west orientated transect model across the natural channel which underlay the site.

6.7 The fieldwork was carried out according to the relevant methodologies, as follows:

- *Southwark Archaeology policy and Supplementary Planning Guidance,*

Southwark Council undated document;

- Historic England (GLAAS), *Guidelines for Archaeological Projects in Greater London, 2015;*
- *Management of Archaeological Projects (English Heritage, 1990);*
- The Chartered institute for Archaeologists '*Standard and guidance for archaeological field evaluation' (2014);*
- The Institute for Archaeologist *Code of Conduct (1999);*
- The Institute for Archaeologist *Code of Approved Practices for the Regulation of Contractual Arrangements in Field Archaeology (1999);*
- The Institute of Archaeologist *Standard and Guidelines for Archaeological Evaluation* (1994, revised 2001);
- The *Treasure Act* (1996);
- The *Burial Act (1857).*

6.8 Pre-Construct Archaeology Limited is a Registered Organisation (number 23) with the Institute of Archaeologists and operates within the Institute's 'Code of Practice'.

6.9 The recording systems adopted during the investigation were fully compatible with those developed out of the Department of Urban Archaeology Site Manual, now presented within PCA's Site Manual (Taylor 2009).

6.10 Individual descriptions of all archaeological and geological strata and features excavated and exposed were entered onto *pro-forma* recording sheets. All plans and sections of archaeological deposits were recorded on polyester based drawing film, the plans being at scale 1:20 and the sections at 1:10. The OD heights of all principle strata were calculated and indicated on the appropriate plans and sections.

6.11 A photographic record of the investigation was made using HQ digital cameras.

6.12 Levels were calculated from two Temporary Bench Mark with values of 4.11m OD (TBM1) and 3.84m OD (TBM2), obtained with a GPS, which were located in the west and east parts of the site respectively.

6.13 The archaeological works were inspected and monitored by Gillian King, the Senior Archaeological Officer for the London Borough of Southwark.

6.14 The complete site archive including site records, photographs and finds will be deposited at the London Archaeological Archive Research Centre (LAARC) under the site code VYS18.

7 THE ARCHAEOLOGICAL SEQUENCE

7.1 Introduction

7.1.1 The following description of the stratigraphy details the main characteristics of each context and its position within the phased stratigraphic matrix. Ordnance Datum levels, physical dimensions and soil description are referred where relevant to the understanding of the archaeological sequence and, when not cited, can be found in Appendix 1.

7.1.2 The stratigraphy revealed by the auger survey and evaluation has been phased as follows:

- *Phase 1: Natural superficial geology*
- *Phase 2: Undated Alluvium*
- *Phase 3: 15th to early 17th century reclamation activity*
- *Phase 4: Mid 17th to early 18th century*
- *Phase 5: 18th century*
- *Phase 6: 19th century*

7.2 Phase 1: Natural Superficial Geology

7.2.1 The underlying superficial geology was not found by means of evaluation trenches but rather was reached within the augers drilled within each trench and reported at Appendix 8. As per the conclusions of that report:

> *According to the BGS lexicon records for the local region, bands of sand are commonly found in the Holocene alluvial sequences around Southwark. The material encountered to the base of boreholes 1 and 3 may be the eroded surface of the sand/gravel islands (eyots) that are known to be present in the area, and in boreholes 2 and 4 could be part of the base of the river channel. The height of these compared to the levels of sand/gravels in previous surveys, would again suggest an environment of gravel islands interspersed with small channels. The gravel encountered at the base of boreholes 2 and 4 (-1.28m OD and -2.48m OD) is likely to be the point at which the weathered sand surface ceases, and the main gravel of these eyots is reached.*

7.2.2 The superficial geology revealed in the augers was sealed in each trench by alluvial deposits forming Phase 2. These results have been used to create a linear transect deposit model, see Figs 18 and 19).

7.3 Phase 2: Undated Alluvium

7.3.1 In the southern part of Trench 1 a test pit was excavated by machine in order to record the underlying alluvial deposits present on site (Plate 1 and Fig. 15 Section 1). This was then supplemented by an auger hole (borehole 1) drilled adjacent to the test pit.

7.3.2 The machine managed to excavate to a maximum depth of approximately 4.90m BGL (-0.80m OD). The earliest deposit encountered here consisted of dark blueish grey silty clay [8] found at 0.55m OD which was in turn overlaid by a 1.23m thick layer of silty clay [7] with moderate organic inclusions, at 0.75m OD and 1.79m OD respectively. These were capped

by mid brown silty clay [5] at 2.33m OD.

7.3.3 This sequence of deposits was interpreted as part of the alluvial sequence associated with the silting of the natural channel towards the edge of the channel catchment, which was subject to regular flood events.

Plate 1: machine excavated test pit in Trench 1, showing part of the alluvial sequence

7.3.4 The top of the alluvial sequence was recorded in evaluation Trench 2 as [87] at 1.55m OD. Here the alluvium was partially truncated by a substantial late post-medieval basement which occupied most of the eastern area of the site. In Trench 3 the top of the alluvium was recorded as context [142] at 1.25m OD and in Trench 4 was observed at a truncated level of 0.63m OD, recorded as [145].

7.3.5 These alluvial deposits have been subject to a geoarchaeological survey by PCA which is reported separately at Appendix 8.

Plate 2: Excavation of Borehole 4 in Trench 2, looking west.

7.4 Phase 3: 15th to Early 17th Century Reclamation Deposits

7.4.1 The earliest evidence for human occupation on site was recorded in Trenches 1, 2 and 3. Some of these layers were recorded as re-worked alluvium, others as reclamation/consolidation or made ground. These layers are illustrated in Figures 15, 16 and 17. Dating evidence recovered from layer [115] and [1] in Trench 1 consisted of clay tobacco pipes (CTP) and sherds of pottery with a date range between 1480 and 1640. In Trench 3 layers [124] and [105] contained ceramic building material (CBM) and pottery dated between the late 15th and mid-17th century. In the south part of Trench 3, a layer [130] consisting of a spread of post-medieval roof tiles was interpreted as a consolidation deposit. A sample of the tiles was recovered and dated between 1480 and 1900.

7.4.2 The table below details all layers assigned to Phase 3:

Context	Interpretation	Highest Level	Lowest Level	Trench No.	Section No.
1	Post-medieval made ground	2.85	2.57	1	1
2	Post-medieval made ground	2.49	2.48	1	1
73	Re-worked Alluvium	1.64	1.55	2	3
74	Re-worked Alluvium	2.8	2.42	1	4
79	Re-worked Alluvium	1.8	1.65	2	2
86	Post-med made up	1.89	1.88	2	3
102	Post-med make-up	1.62	1.61	3	6
103	Post-med make-up	1.56	1.55	3	
104	Post-med make-up	1.56	1.55	3	
105	Post-med make-up	1.82	1.79	3	6
115	Post-med layer	2.76	2.75	1	

Context	Interpretation	Highest Level	Lowest Level	Trench No.	Section No.
123	Post-med levelling layer	1.59	1.58	3	6
124	Post-med make-up	1.53	1.52	3	
129	Post-med make-up	1.63	1.6	3	
130	Post-med consolidation layer	1.63	1.62	3	
133	Post-med make-up	1.7	1.69	3	
141	Re-worked Alluvium	1.42	1.38	3	6

7.4.3 Evidence for activity associated with the reclamation during this phase was recorded in Trench 3 in the form of cut features [140] and [138]. Cut feature [140] truncated layer [141] at 1.42m OD and had silted up before the early 17th century. A residual shard of Roman pottery was recovered from fill [139] together with CBM dated to the post-medieval period. Northwest to southeast gully [140] was partially excavated within a 0.40m wide slot located alongside the northwest limit of excavation of Trench 3 and measured 0.50m long by 0.60m wide by 0.37m deep (see Figs 3 and 17).

7.4.4 Fill [139] was sealed by layer [124] (see paragraph 7.3.1 above) which was in turn truncated by cut feature [138] at 1.62m OD. This approximately east-west orientated cut was filled by [137] which produced shards of pottery dated to the 16th century and CBM dated between 1450 and 1800. Cut feature [138] measured 1.34m long by 0.61m wide by 0.22m deep and was interpreted as a gully, associated with a later phase of drainage and reclamation, which had silted up before the mid-17 century (see Figs 3 and 17).

7.4.5 In the southern part of Trench 3, post-medieval consolidation layer [130] (see paragraph 7.3.1) was in turn truncated by a northeast to southwest orientated chalk foundation [132] which measured 2.10m long by 0.76m wide. This foundation was the earliest masonry recorded during the evaluation and was interpreted as part of a building dating to the early post-medieval period. It extended beyond the southern limits of Trench 3 (see Plate 3 and Fig 3). No construction cut could be discerned for the foundation, which was exposed at an upper height of 1.71m OD.

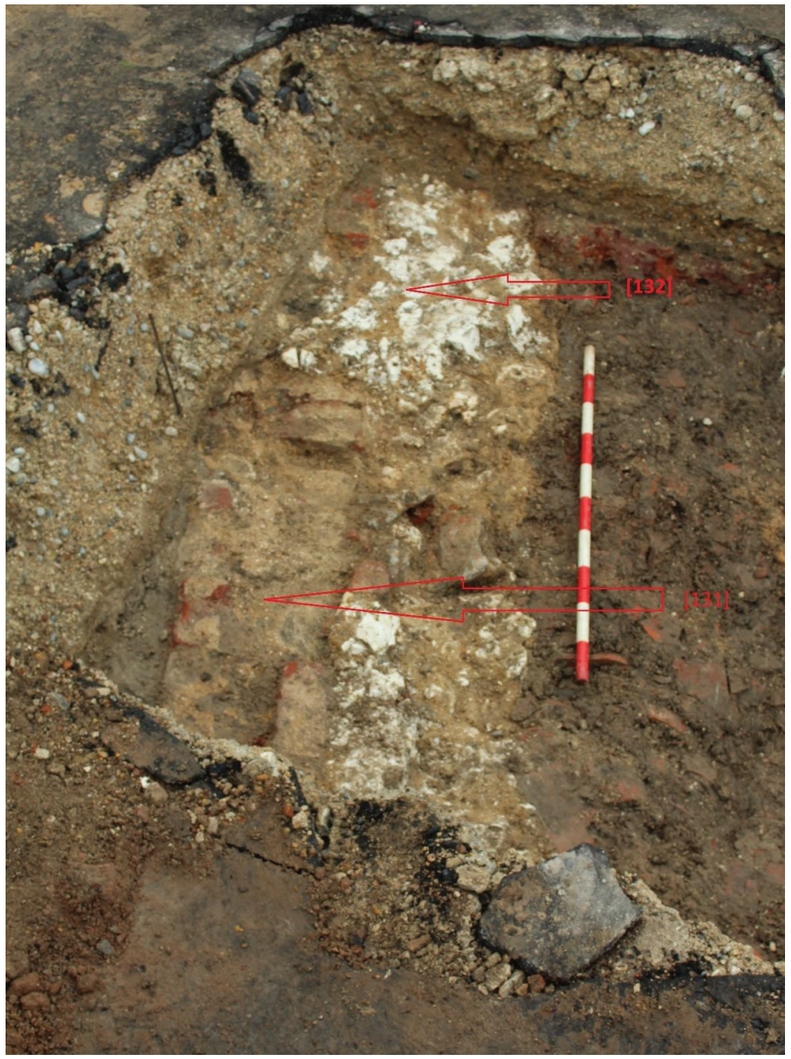


Plate 3: Phase 3 chalk foundation [132] and Phase 4 brick foundation [131] (1m scale), looking SW

7.5 Phase 4: Early 17th Century to 1740

7.5.1 Archaeological evidence for this phase was observed in Trenches 1, 2 and 3. In the south of Trench 1 a 2.40m long by 0.55m wide slot was excavated to investigate the sequence of deposits in this part of the trench. The slot was excavated to a maximum depth of 2m OD and revealed a 0.40m thick dark brownish deposit of silty clay recorded as [136] in turn sealed by mixed dump of light grey silty sandy clay [135] at 2.74m OD (Fig 15, Section 5). Context [136] produced pottery dated to the early 17th century together with CBM dated

between 1630-1900. Context [135] yielded CTP and sherds of pottery of a 17th century date. Context [136] was interpreted as part of a fill of a larger cut feature whilst [136] as a consolidation/levelling layer. The overlying of the Morgan map of 1682 suggests that context [135] is very likely to be part of the 17th century backfill or natural silting of a manmade channel orientated northeast to southwest and in turn sealed by consolidation/levelling [136] (see Plate 4 and Fig 9).

Plate 4: Slot across context [135] and [136] (2m scale), looking northwest.

7.5.2 Layer [136] was in turn truncated to the north by a sequence of intercutting pits dated to the 17th century by sherds of pottery, CTP and CBM. In the north of Trench 1 another cluster of intercutting pits produced dating evidence in the form of sherds of pottery and CTP dated also to the 17th century (Fig 4). All Phase 4 pitting from Trench 1 was interpreted as rubbish pits associated with the development of the site dating the 17th century. The table below details all Phase 4 features from Trench 1:

Context	Type	Interpretation	Highest Level	Lowest Level	Section No.
29	Fill	Fill of pit cut [30]	2.84	2.83	1
30	Cut	Pit cut filled by [29]	2.84	2.59	1
31	Fill	Fill of pit cut [32]	2.8	2.67	1
32	Cut	Pit cut filled by [31]	2.8	2.57	1
33	Fill	Fill of pit [34]	3.03	2.73	1
34	Cut	Pit cut filled by [33]	3.03	2.58	1
35	Fill	Upper fill of pit cut [37]	3.07	3.02	1
36	Fill	Primary fill of pit cut [37]	3.95	2.69	1
37	Cut	Pit cut filled by [35] and [36]	3.07	2.64	1

Context	Type	Interpretation	Highest Level	Lowest Level	Section No.
38	Fill	Upper fill of cut [54]	2.94	2.83	4
45	Fill	Primary fill of cut [54]	2.76	2.65	4
46	Fill	Upper fill of cut [67]	2.78	2.65	4
48	Fill	Upper fill of cut [92]	2.67	2.58	
54	Cut	Shallow pit cut	2.84	2.57	4
65	Fill	Secondary fill of cut [67]	2.84	2.63	4
66	Fill	Primary fill of cut [67]	2.6	2.36	4
67	Cut	Cut filled by [66], [65] and [46]	2.54	2.2	4
77	Fill	Fill of Pit cut [78]	2.6	2.59	
78	Cut	Pit cut filled by [77]	2.6	2.49	
89	Fill	Secondary fill of pit cut [92]	2.44	2.43	
90	Fill	Primary fill of pit cut [92]	2.34	2.33	
91	Fill	Primary fill of pit cut [94]	2.22	2.21	
92	Cut	Pit cut filled by [90], [89] and [48]	2.64	2.22	
93	Fill	Secondary fill of pit cut [92]	2.64	2.63	
94	Cut	Pit cut filled by [91] and [93]	2.64		
106	Fill	Fill of pit cut [107]	2.74	2.73	
107	Cut	Pit cut filled by [106]	2.74	2.64	
108	Fill	Fill of pit cut [109]	2.76	2.75	
109	Cut	Pit cut filled by [108]	2.76	2.69	
113	Fill	Fill of shallow ditch or gully	2.76	2.75	
114	Cut	Shallow ditch or gully filled by [113]	2.76	2.66	
121	Fill	Fill of pit cut [122]	2.74	2.66	
122	Cut	Pit cut filled by [121]	2.74	2.43	
135	Layer	Levelling layer	2.74	2.67	5
136	Layer	Dump layer or fill	2.52	2.44	5

7.5.3 In the eastern half of Trench 2, the re-worked alluvial deposit [79] was truncated at 1.70m OD by northeast to southwest orientated cut feature [64]. This 6m long by 4m wide by 0.82m deep (not fully excavated) feature was filled with dark grey black sandy silty clay with occasional oyster shells, charcoal, fragments of CBM, and animal bones inclusions. Pottery, CTP and CBM collected from fill [63] were dated between the 17 and 18th century. Cut feature [64] was interpreted as a part of a channel constructed during the 17th century channel as shown in the Morgan map of 1682 and backfilled during the 18th century (Fig 9).

7.5.4 In the western half of Trench 2, Phase 3 layer [86] (see Paragraph 7.3.1) was truncated at 1.95m OD and 2.10m OD by cut features [70] and [72] respectively. Feature [70] was northeast to southwest orientated and measured 2.50m long by 1.40m wide by 0.30m deep,

and can be associated to an earlier phase of the channel discussed above. A shard of pottery and CBM recovered from fill [69] suggests the infilling of this possible early channel during the late 17th early 18th century. Cut [72] measured 2m north-south by 2.50m east-west by 0.85m deep (not fully excavated) was interpreted as part of a large post-medieval rubbish pit.

7.5.5 In southern half of Trench 3, Phase 3 reclamation deposits [103], [104] and [130] (see Paragraph 7.3.1) were truncated by a construction cut [19] for two timber lined sunken tanks orientated southwest to northeast. The tank to the west was defined by timbers [13] to [16] with a timber base recorded as [19]. The sides were truncated horizontally by a later basement floor (see Phase 6.2) and survived at a maximum level of 1.60m OD whilst the timber base, partially truncated on its northwest corner, was recorded at 1.35m OD. The overall dimension of this timber lined tank was 1.75m long by 1.40m wide by 0.25m deep. To the east another sunken tank, partially exposed at its northwest corner, was defined by timbers [20] and [21] and at its base by timber [22] found at 1.38m OD. Construction cut backfill [18] was not excavated, however the excavation of the disuse backfills [3] and [4] within these two tanks produced sherds of pottery and CTP dated between the second half of the 18th and early 19th century. These tanks were interpreted as tanning pits in use from the 17th century (Plate 5 and Fig 4).

Plate 5: Rectangular timber lined tanning pits in Trench 3 (1m scale), looking NE.

7.5.6 Approximately 0.5m to the north was another circular timber lined sunken tank. Located in the central area of Trench 3, this tank survived significant truncation associated with the construction of a basement floor and was found at a maximum height of 1.62m OD. It was defined by timber lining [10] and timber base [88], found at 1.22m OD; it had a diameter of 1.56m and was constructed within construction cut [12]. Backfill [9] contained pottery and

CBM dating between the late 16th and 17th centuries and suggest that it was contemporary with the two rectangular timber thanks to the south. As a result, this sunken timber lined tank was also interpreted as a tanning pit (Plate 6 and Fig 4).

Plate 6: Circular timber lined tanning pit (1m scale), looking east.

Plate 7: Northeast to southwest orientated timber drain [120] (0.10m scale), looking NW.

7.5.7 In the northwest corner of Trench 3, Phase 3 reclamation deposit [105] (see paragraph 7.3.1) was truncated at 1.87m OD by construction cut [118] for timber [120]. This northeast to southwest orientated feature was found at 1.66m OD, measured 0.54m long and extended beyond the north and west limit of excavation of Trench 3. With a diameter in

excess of 0.26m this was interpreted as a timber drain contemporary and possibly associated with the industrial activity represented by the timber lined tanks (Plate 7)

7.5.8 In the southern part of Trench 3, Phase 3 chalk foundation [132] (see paragraph 7.3.2) was truncated alongside its south side by brick foundation [131] at 1.71m OD. This northeast to southwest orientated foundation was 1.26m long, 0.37m wide and extended beyond the west limit of excavation of Trench 3. It consisted of post-medieval sandy red bricks dated between 1550 and 1800 and was interpreted as a later modification to masonry [132]. The northeast to southwest orientation of masonry [131]/[132] is mirrored by tanning pits immediately to the north and as a result masonry [131] was interpreted as contemporary with or influential upon the tanning activity (Plate 3) – however the exact chronology may only be revealed by wider excavations.

7.6 Phase 5.1: 1746 to 1780

7.6.1 The archaeological evidence for this phase was found in Trenches 1 and 3. In Trench 1 two parallel northeast to southwest masonry walls recorded as [59] and [126] represent the early phase of a substantial brick drain which was later replaced by masonry drain [60] during the early 19th century (see Phase 5.2 below). Brick drain [59]/[126] was 2.70m long by 2m wide and extended beyond the east and west limit of excavation of Trench 1.

7.6.2 In the northern part of Trench 1 and parallel to masonry drain [59]/[126] was recorded masonry foundation [42]. This measured 2m long by 0.50m wide and was interpreted as part of the northeast to southwest orientated buildings depicted on the Rocque map of 1746 (Fig 10).

7.7 Phase 5.2: 1780 to 1853

7.7.1 In the southern half of Trench 1 northwest to southeast masonry foundation [28] was recorded at 3.01m OD. This 3.10m long by 0.40m wide segment of masonry defined the southwest side of a narrow alleyway labelled as Bell's Rent on Newman's Map of 1853 (Fig 11).

7.7.2 To the north of [28] a right-angle wall was recorded as [119] and found at 3.17m OD. It consisted of sandy red bricks dated to the post-medieval period and represented the southwest corner of a building defining the northwest side of Bell's Rents as depicted on Newman's Map of 1853.

7.7.3 In the central part of Trench 1 a masonry drain was constructed in order to replace drain [59]/[126]. This new drain, recorded as [60], was built within the earlier drain and was capped with a substantial concrete cover. Drain [60] is shown on Newman's Map of 1853 which also shows the position of all other drain runs constructed or mapped during the mid-19th century.

7.8 Phase 6.1: 1854 to 1872

7.8.1 The archaeological evidence for this phase was recorded in Trenches 1, 2 and 3. In the northwest corner of Trench 1 a concrete slab constructed against the northwest face of

masonry [42] was interpreted as part of a building labelled as Public House on the OS Map of 1872 (Fig 12).

7.8.2 In Trench 2 northeast to southwest orientated masonry wall and foundation [61] defined the western limit of a large warehouse labelled on the OS Map of 1872 as 'Hop Warehouse'. This 7.24m long by 1.10m wide wall was found at 3.04m OD and was excavated to a lowest level of 1.30m OD. It was associated with a series of 1.50m square brick piers found at 1.82m OD and constructed on substantial concrete foundations, all recorded in Trenches 2 and 3. The northwest to southeast orientated warehouse occupied a large portion of the eastern part of the site and measured 31m long by 23m long.

Plate 8: Phase 6.1 masonry [61], looking NE.

7.9 Phase 6.2: Late 19th to early 20th Century

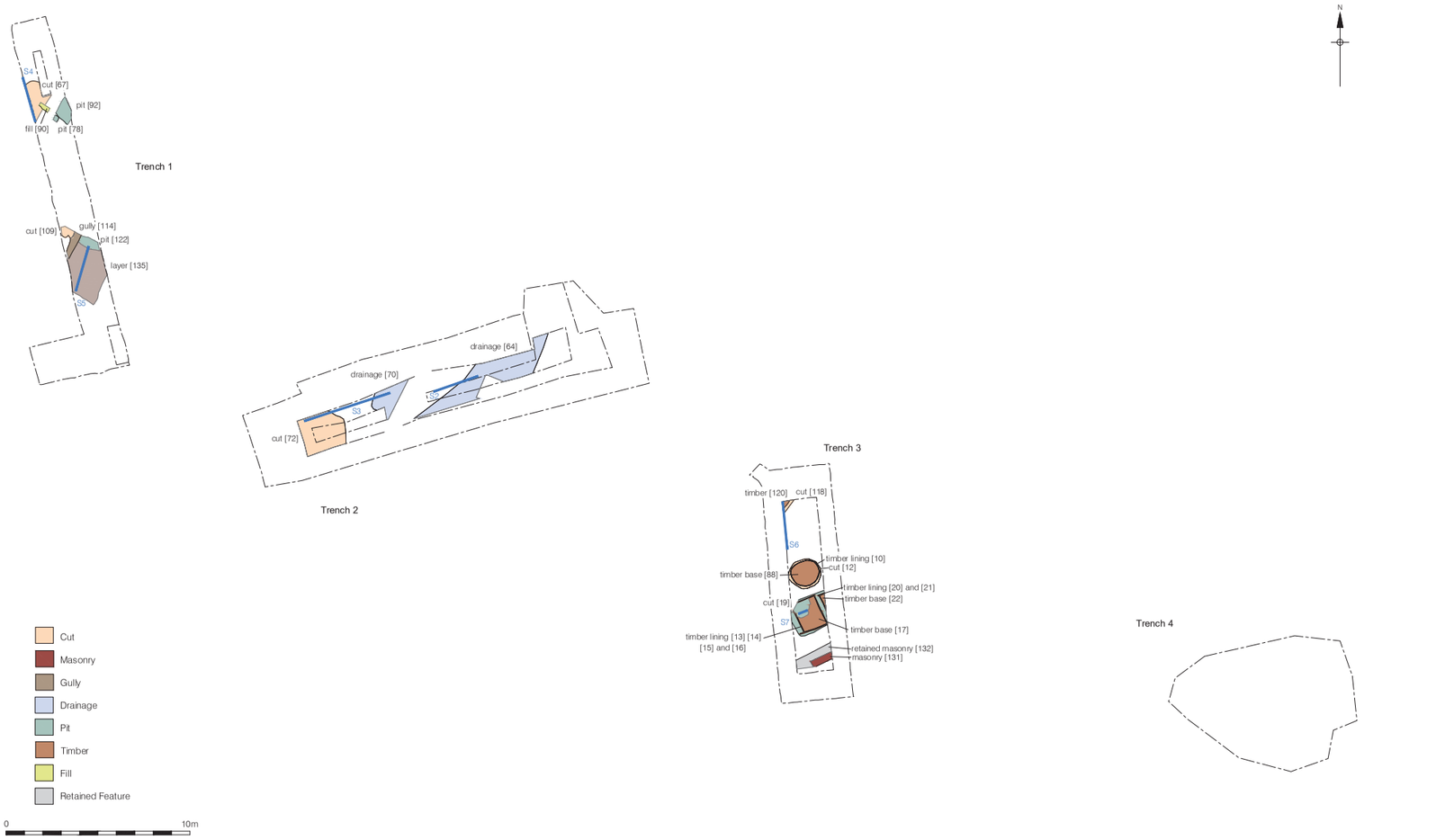
7.9.1 Archaeological evidence for this phase was recorded in Trenches 1 and 4. In Trench 1 brick structure [110] was constructed alongside the southeast facing side of drain [60]. Found at 2.95m OD and spanning 2.50m long by 2.40m wide, this brick structure was interpreted as part of a manhole or drainage system connected to drain [60].

7.9.2 To the north of drain [60] two concrete foundations recorded as [39] and [44] were interpreted as being associated with a square building labelled as 'Artizans Dwellings' and

facing onto St Thomas Street, as shown on Goad's Plan of 1887 (Fig 13).

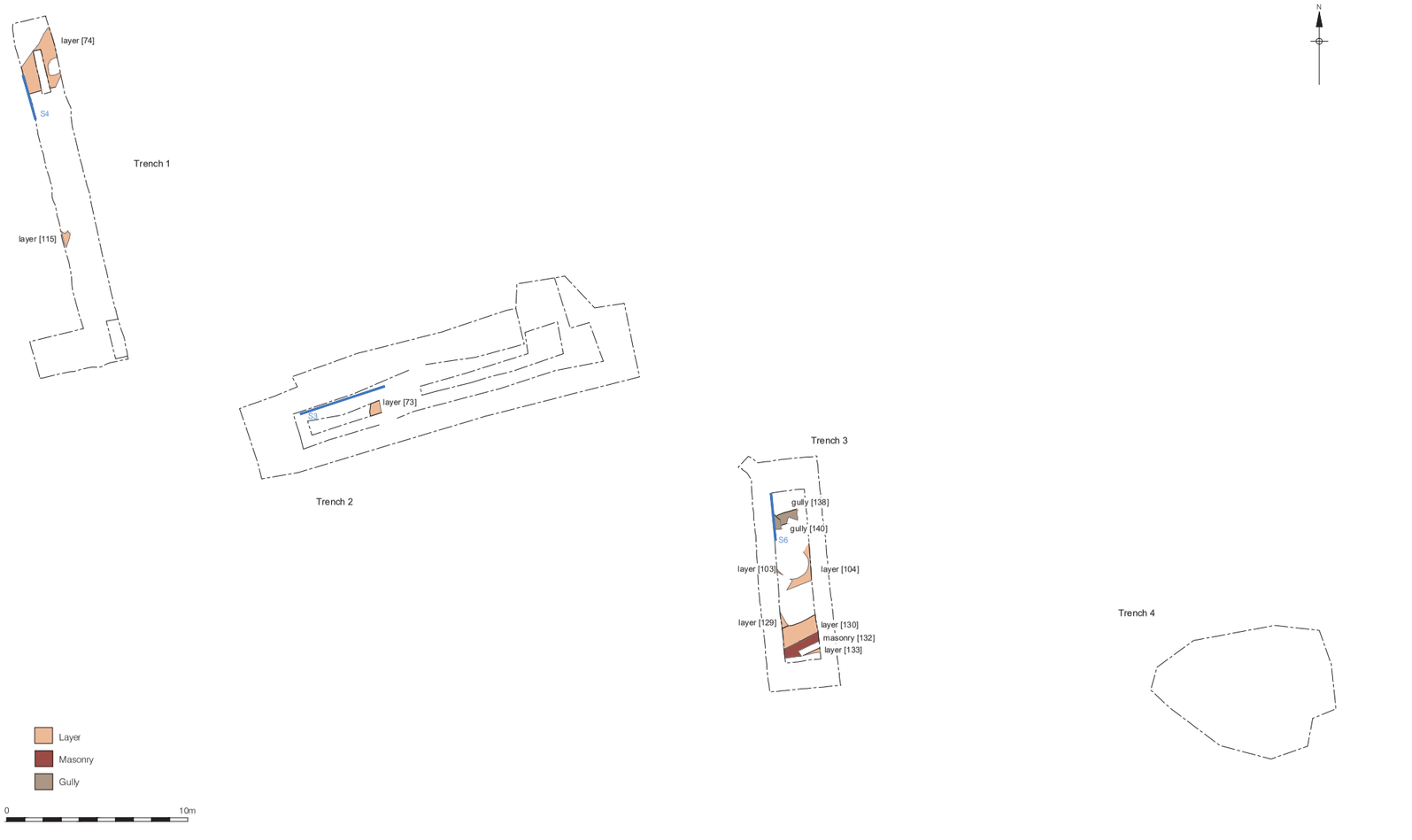
7.9.3 In the eastern part of the site, in Trench 4, the concrete and masonry foundations unearthed during the evaluation were interpreted as part of the basement to a warehouse, recorded as walls [50], [51], [52] and [53] between 2.49m OD and 2.79m OD. The basement's concrete floor [49] was recorded at 1.03m OD (Plate 9), having truncated to the alluvium beneath.

Plate 9: General shot of Trench 4 showing modern masonry element of warehouse, looking SW.



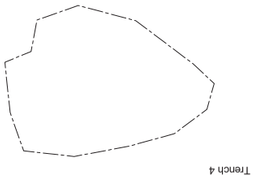
17/12/18 DV

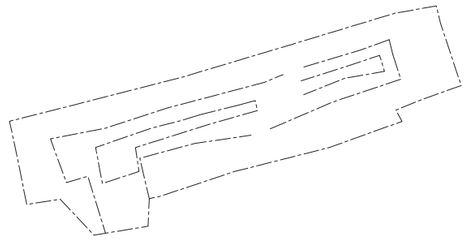
Figure 4
Phase 4
1:200 at A3



17/12/18 DV

Figure 3
Phase 3
1:200 at A3





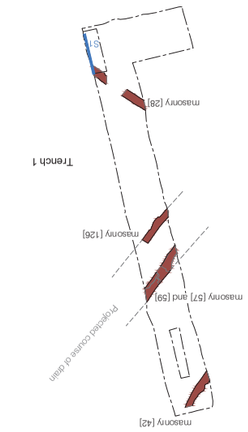


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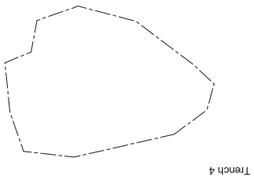
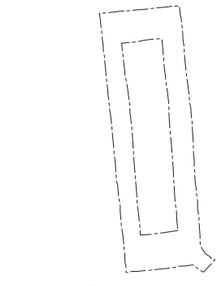
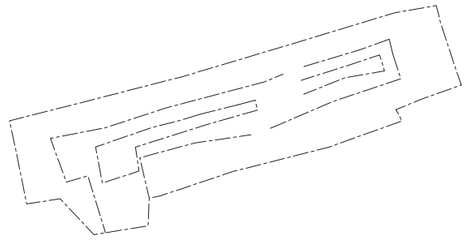
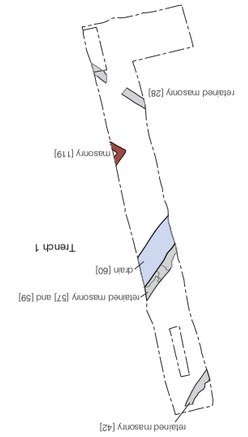
Figure 5
Phase 5.1
1:200 at A3









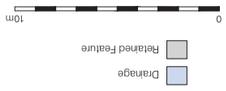


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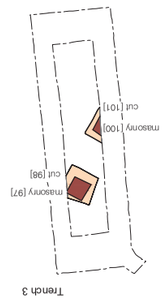
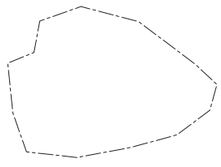
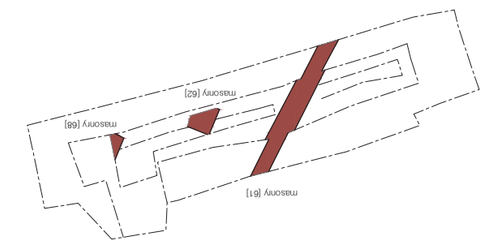
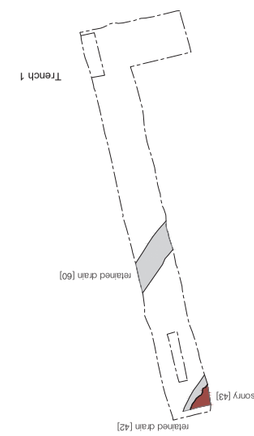
Figure 6
Phase 5.2
1:200 at A3









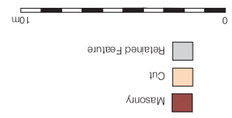
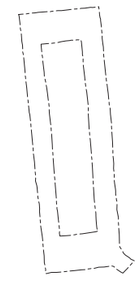
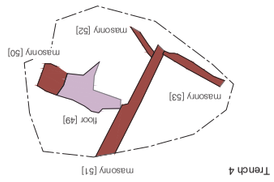
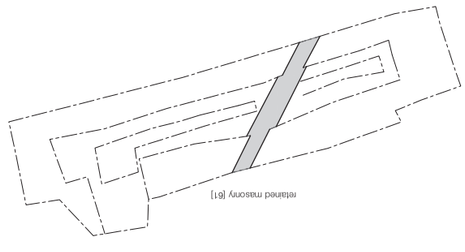
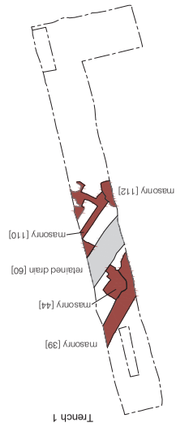


Figure 7
Phase 6.1
1:200 at A3









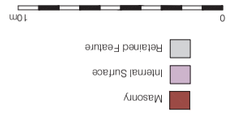


Figure 8
Phase 6.2
1:200 at A3

17/12/18 DV

Figure 10
Phase 5.1 Features overlain on Rocque 1746
1:400 at A4

17/12/18 DV

Figure 9
Phase 4 Features overlain on Morgan 1682
1:400 at A4

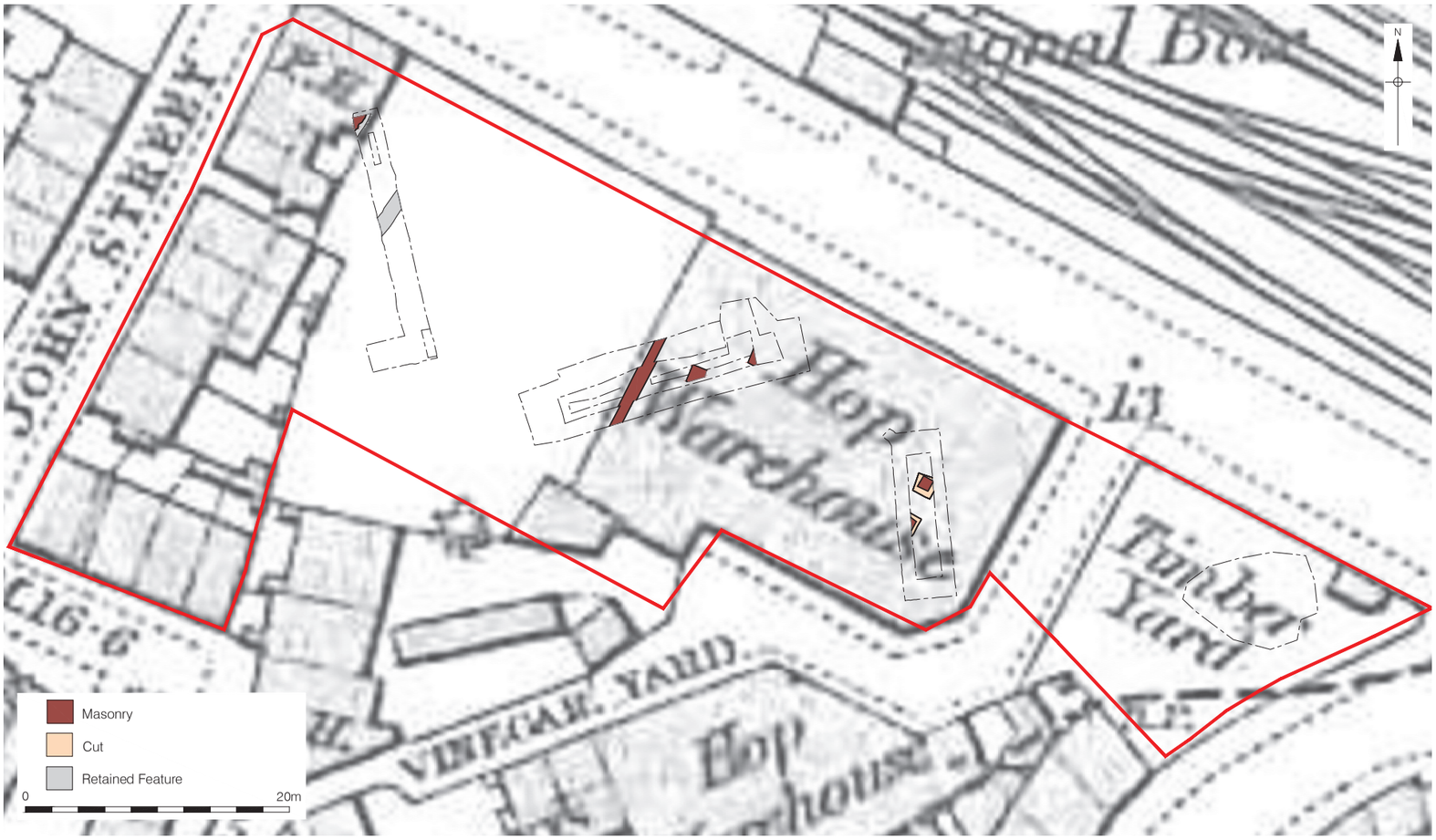


Figure 12
Phase 6.1 Features overlain on Ordnance Survey 1872
1:400 at A4

17/12/18 DV

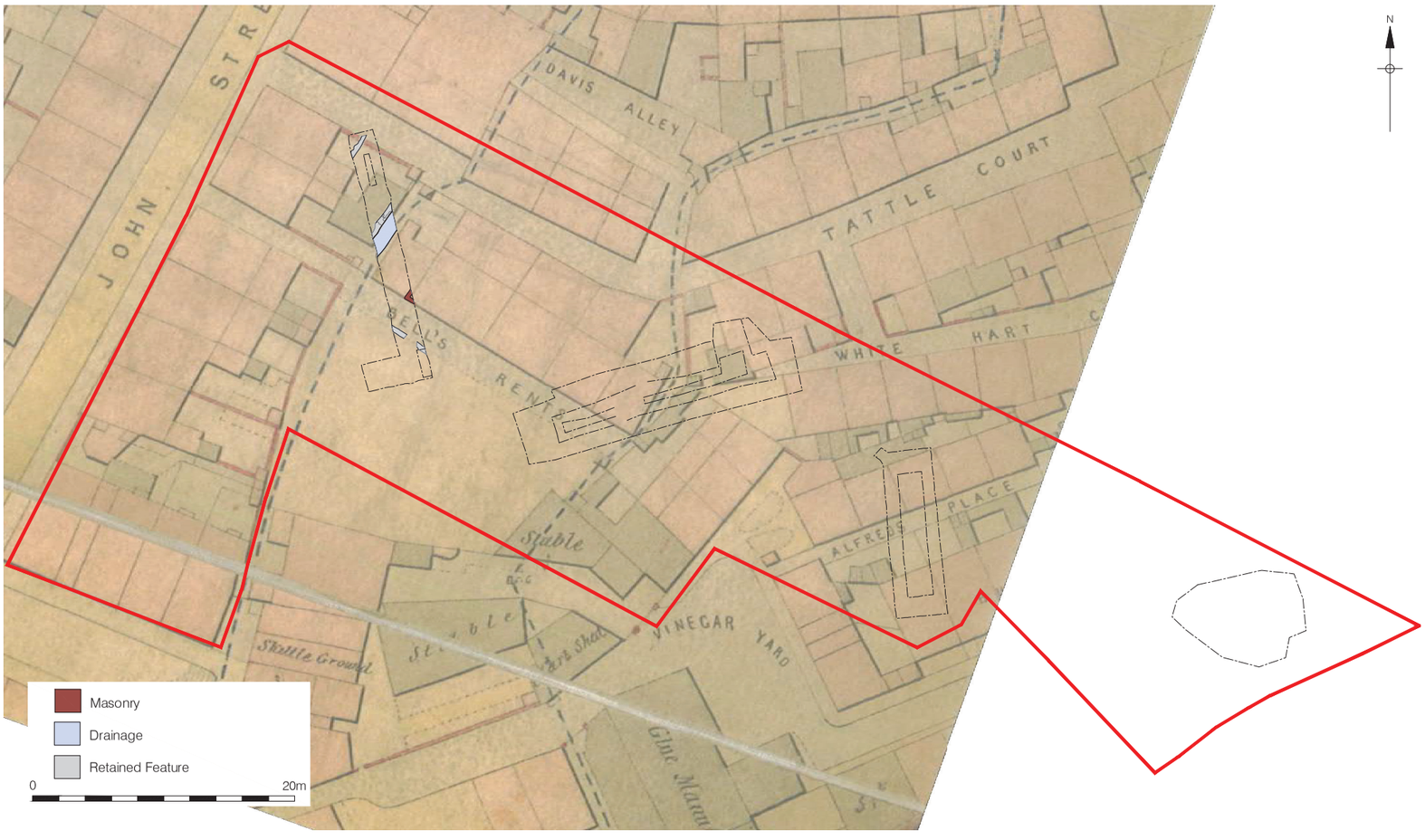


Figure 11
Phase 5.2 Features overlain on Newman 1853
1:400 at A4

17/12/18 DV

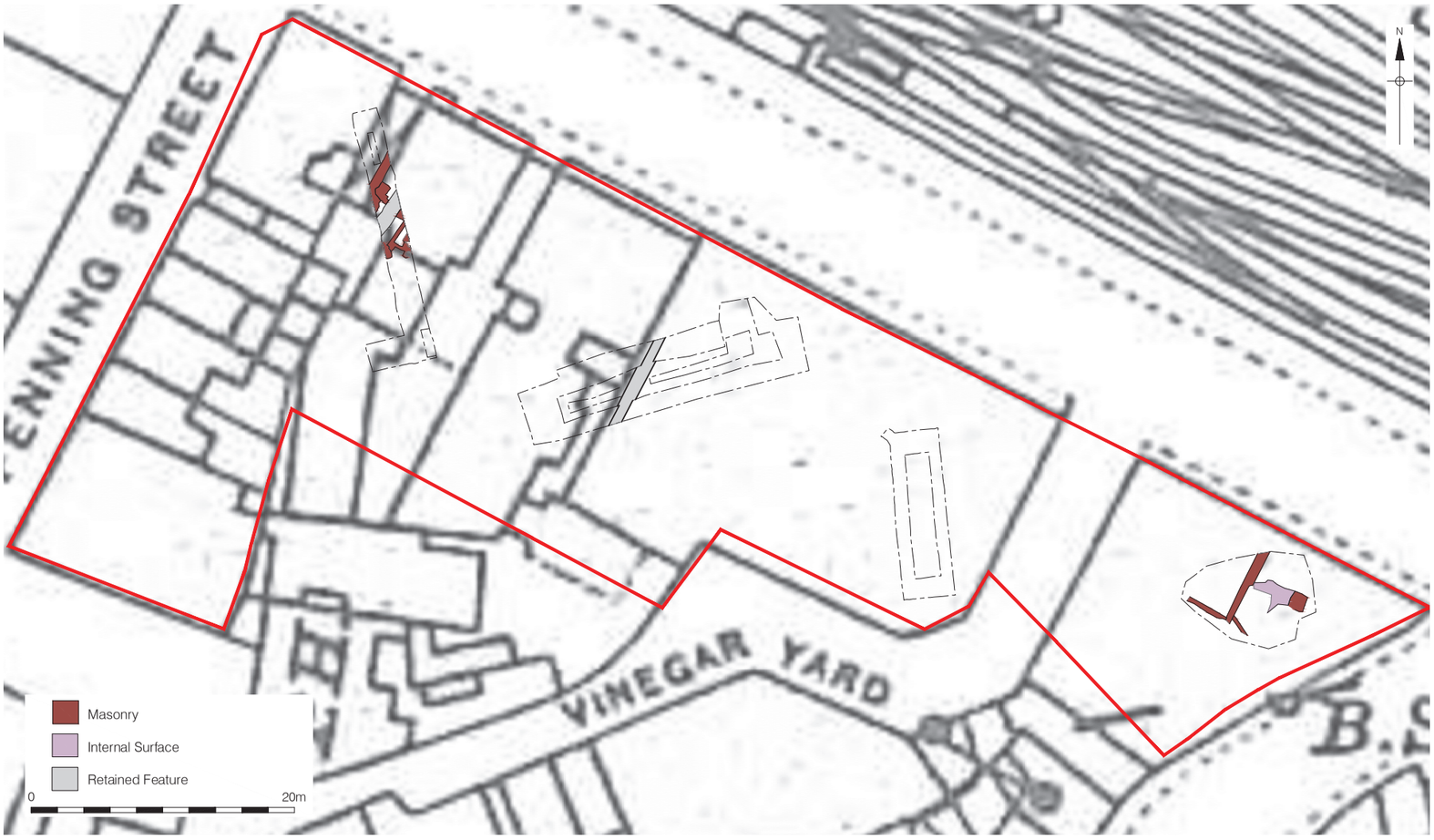


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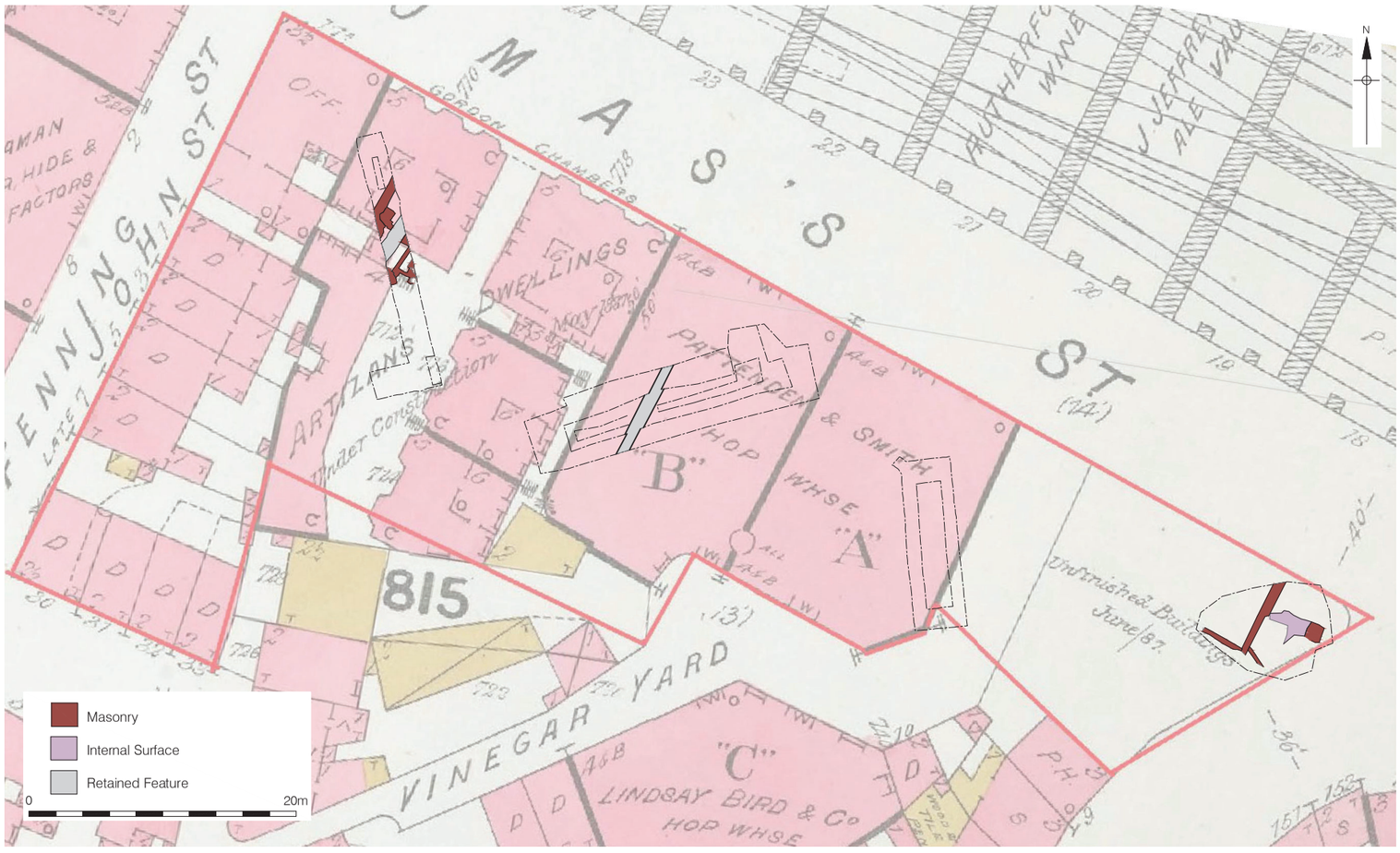
Figure 14
Phase 6.2 Features overlain on Ordnance Survey 1914
1:400 at A4



17/12/18 DV

Figure 13
Phase 6.2 Features overlain on Goad 1887
1:400 at A4

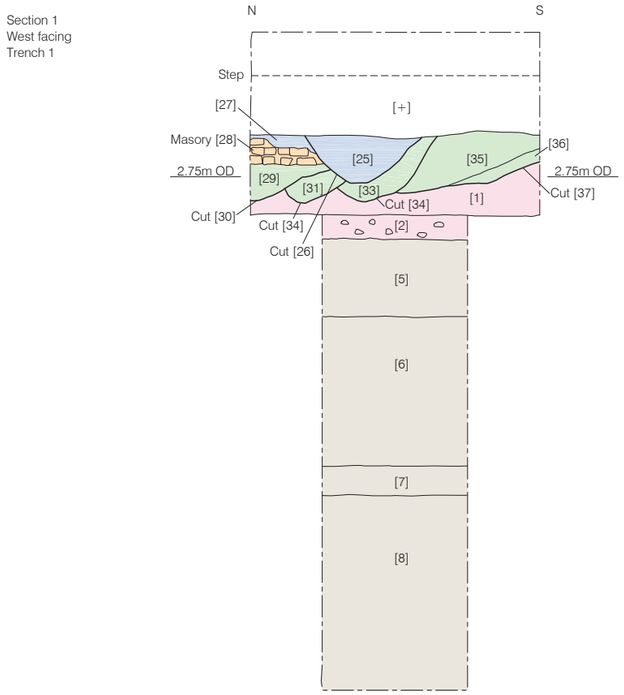


Figure 15
Trench 1, Sections 1, 4, and 5
1:40 at A4

Figure 16
Trench 2, Sections 2 and 3
1:40 at A4

8 ARCHAEOLOGICAL PHASE DISCUSSION

8.1 Introduction

8.1.1 The archaeological evaluation identified six main phases and 4 sub-phases spanning from the superficial geology (Phase 1) to the early 20th century (Phase 6.2). The phasing is based on these evaluation results only and may change following further archaeological works.

8.2 Phase 1: Natural Superficial Geology

8.2.1 The underlying superficial geology was not found by means of evaluation trenches but rather was reached within the augers drilled within each trench. The material encountered at the base of boreholes 1 and 3 may be the eroded surface of the sand/gravel islands (eyots) that are known to be present in the area, and in boreholes 2 and 4 could be part of the base of the river channel. The height of these compared to the levels of sand/gravels in previous surveys, would again suggest an environment of gravel islands interspersed with small channels. The gravel encountered at the base of boreholes 2 and 4 (-1.28m OD and -2.48m OD) is likely to be the point at which the weathered sand surface ceases, and the main gravel of these eyots is reached (from Appendix 8).

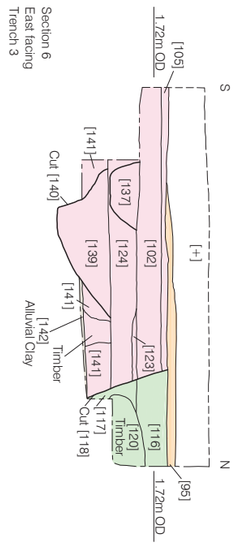
8.3 Phase 2: Undated Alluvial

8.3.1 The earliest archaeological evidence on the site is represented by a sequence of alluvial deposits identified in all trenches, as follows:

	alluvial deposits		
	Top of deposits	Base of deposits	Thickness of deposits
Trench 1	2.33m OD	-0.80m OD	3.13m
Trench 2	1.55m OD (truncated)	-1.15m OD	2.7m (truncated)
Trench 3	1.25m OD (truncated)	-0.37m OD	1.62m (truncated)
Trench 4	0.63m OD (truncated)	-1.18m OD	1.81m (truncated)

8.4 Phase 3: 15th to Early 17th Century

8.4.1 This phase represents the earliest dated human occupation on the site. It consisted of a series of reclamation deposits recorded in Trenches 1, 2 and 3 and two drainage gullies found in Trench 3. The deposits and gullies from this phase show that the site was in the process of being reclaimed during the late medieval and early post-medieval period. Of note are a series of small finds recovered from layer [124] consisting of bone bead-making waste (SF 2-4 and 10, see Appendix 7). The beads would have been produced mainly for rosaries and could have being globular as well as discoidal in shape. The presence of artisans associated with the production of ecclesiastical goods in the proximity of the site can be explained by the location of the site, close to a well-established pilgrimage route (Bermondsey Street) leading to Bermondsey Abbey during the medieval period whilst to the west of the site, St Thomas's church, founded in the early twelfth century, would have been also a refuge for the poor and sick.



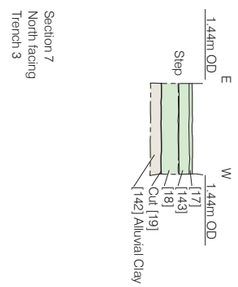


Figure 17
Trench 3, Sections 6 and 7
1:40 at A4

8.4.2 A chalk foundation found in the southeast part of the site (Trench 3) represents the earliest archaeological evidence for the development of the site, representing the northern extent (based on the presence of later features to the north) of a building positioned in the southeast area of the site and beyond. Further investigation will be needed in order to define extent, date, character, significance and quality of this building. It has been postulated that the Tudor mansion of Henry Goodyere may have stood on or near the subject site, and it is feasible that the chalk foundation relates to that estate.

8.5 Phase 4: Early 17th Century to 1740

8.5.1 During this phase the site underwent significant reclamation works, consisting of the canalization of the natural channel. Evidence for a northeast to southwest orientated channel or large drainage ditch was found in the central part of the site (Trench 2) together with another parallel man-made channel or large ditch found in the western part of the site (Trench 1). The Morgan Map of 1682 shows two approximately parallel channels with a southwest to northeast orientation which intersected the site. Overlaying the historic map to the channel or drainage ditches found in Trenches 1 and 2 (Figure 9) shows that the excavated ditches correspond well to the position of the channel depicted on the Morgan's Map.

8.5.2 In the southeast part of the site (Trench 3) a series of timber sunken tanks were interpreted as tanning pits orientated northeast to southwest. The tanning pits occupied an open area immediately to the north of the building from Phase 3. The evaluation also collected a moderately sized collection of bones from this phase which represents the deposition of food waste as well as detritus from tanning activities (Appendix 6).

8.5.3 It is also noted that clay tobacco pipes recovered during the evaluation from this period "indicate the presence of middling and higher socio-economic groups resident on the study area" (Jarrett in Appendix 4).

8.6 Phase 5.1: 1746 to 1780

8.6.1 The archaeological evidence for this phase was mainly recorded in Trench 1: a substantial brick drain ([59] and [126]) orientated northeast to southwest was found in the central part of the trench. During this phase the western channel discussed in Phase 4 was backfilled and sealed with dumps of clay in preparation for the development of the site. Rocque's Map of 1746 (Figure 10) shows that during the mid-18th century the site was occupied by buildings, and by this time the channels had been diverted into a system of underground brick drains.

8.6.2 The area previously occupied by the tanning pits, during this phase, was occupied by an alleyway or yard defined to the north and south by east-west orientated narrow buildings. Masonry foundation [132] and its later brick modification [131] continued to be in use as they define the north extent of the narrow east-west orientated building located in the southeast part of the site as shown on Rocque's Map.

8.7 Phase 5.2: 1780 to 1853

8.7.1 During this phase the brick drain (Phase 5.1) in Trench 1 underwent further modification or repair with the construction of brick drain [60]. Newman's Map of 1853 shows further development across the site; of note are the locations and orientation of the drainage systems during the mid-19th century which mirrored the original position of the man-made channels discussed in Phase 4. Super-imposing the 1853 map with the archaeological features from this phase (Fig 11) shows that drain [60] closely matches the illustrated drain.

8.7.2 In the southern part of Trench 1 a right-angled brick foundation represents the southwest corner of a northwest to southeast orientated building which defined the northeast side of Bell's Rents, as depicted on the 1853 map (Fig 11). Parallel and to the south of it was recorded masonry [28] (Trench 1) which defined Bell's Rents to the southwest.

8.8 Phase 6.1: 1854 to 1872

8.8.1 The development of the site during this phase is mostly associated with the construction of London Bridge Station, as with the arrival of the railways the landscape across the site and within the wider area was radically altered. The archaeological evidence from Trench 2 and 3 shows that during the second half of the 19th century the site was redeveloped with the construction of a large warehouse. The Ordnance Survey Map of 1872 (Fig 12) shows a large warehouse positioned in the eastern part of the site, labelled as 'Hop Warehouse'.

8.9 Phase 6.2: Late 19th to Early 20th Century

8.9.1 During this phase the Hop Warehouse underwent modification with the construction of a basement floor as recorded in Trenches 2 and 3. In Trench 4 structural remains of a warehouse were recorded. These were identified as part of the warehouse which started construction during the 1880s as shown on Goad's Plan of 1887 (Fig 13) and was complete by the early 20th century, as shown on the Ordnance Survey Map of 1914 (Fig 14).

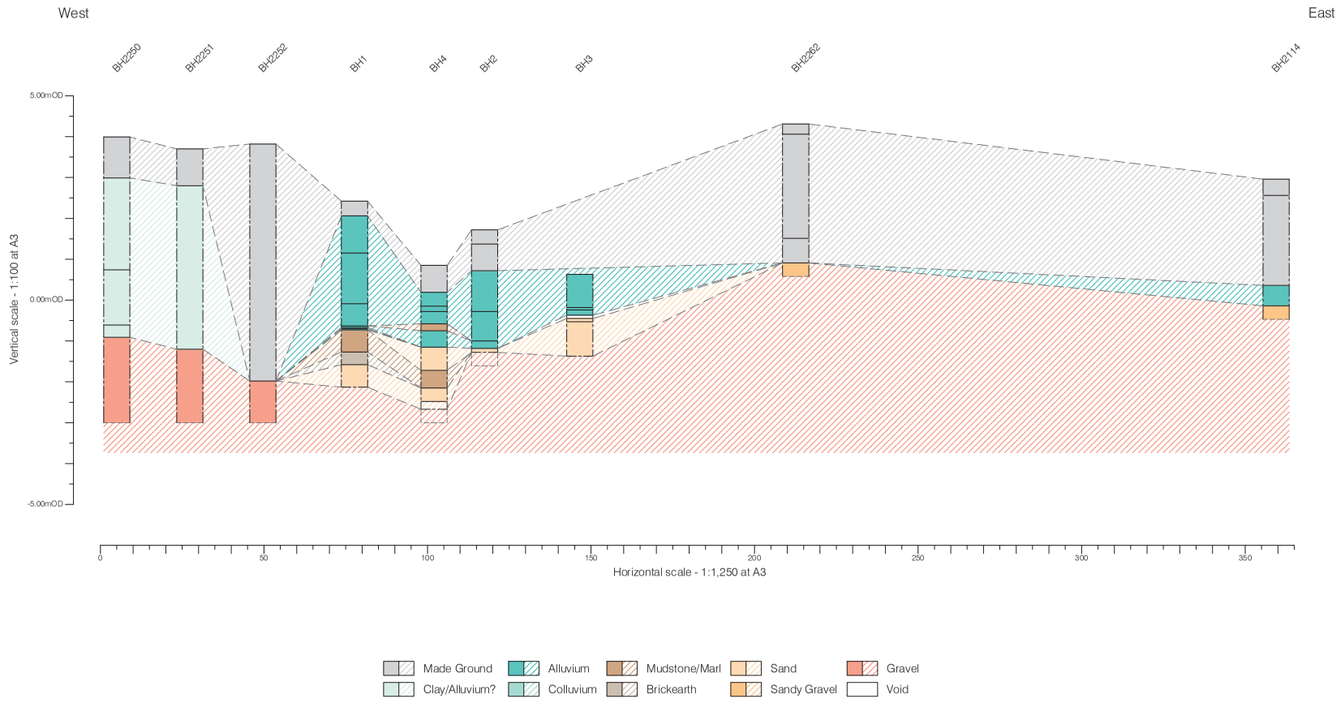
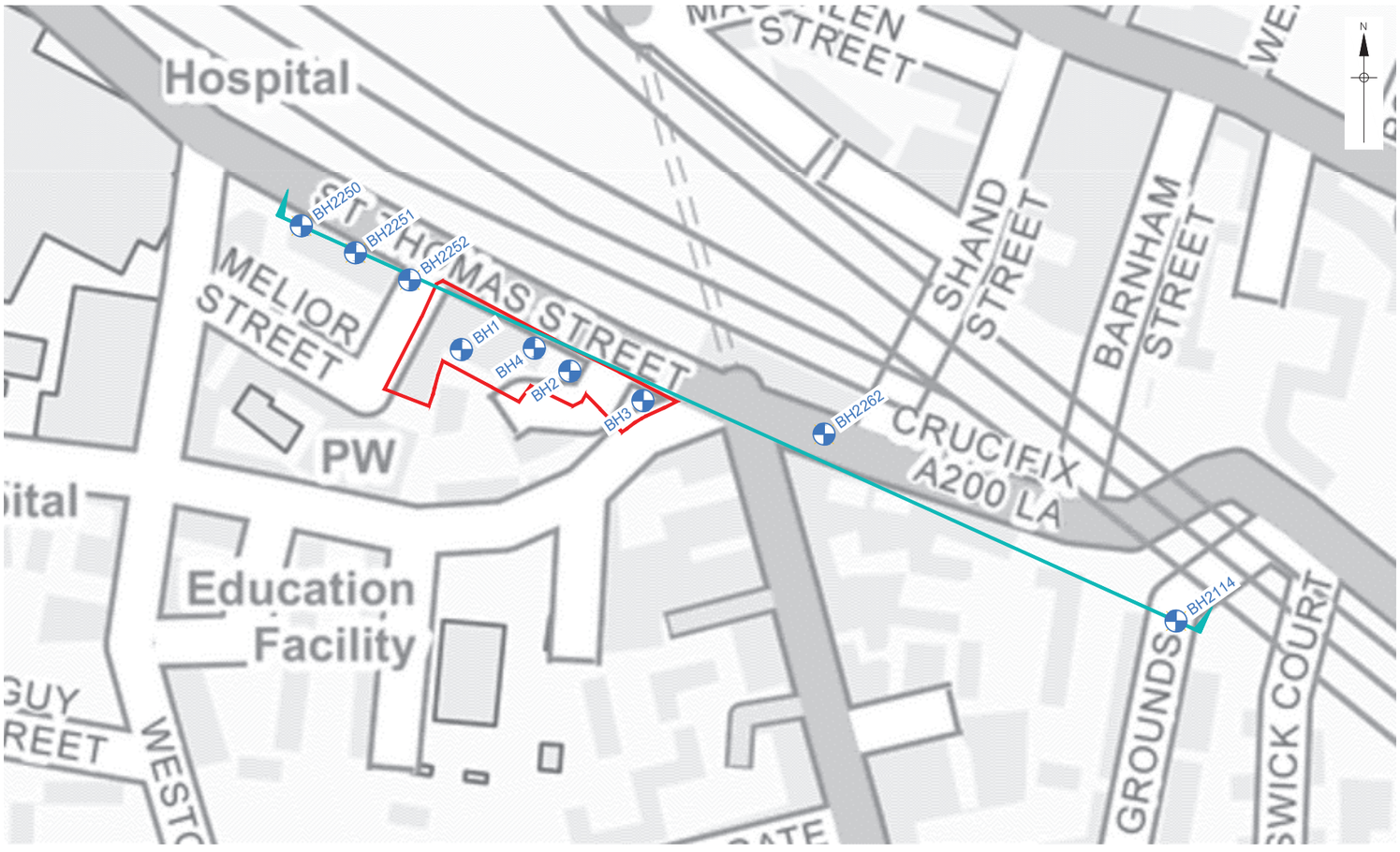


Figure 19
Geotechnical Transect
(Scales indicated on drawing)



0 100m

Figure 18
Borehole and Transect Location
1:2,000 at A4

9 ORIGINAL AND REVISED RESEARCH OBJECTIVES

9.1 The evaluation was designed by Mills Whipp Project (Mills 2018b) to address the following research questions:

What is the nature and OD height of the natural strata on the site?

What is the natural topography of the area?

9.2 Superficial deposits of sand and gravel lie beneath the site at varying elevations between -0.37m OD (Trench 3) and -1.18m OD (Trench 4). These levels indicate that the surface of the gravel varies, representing the course of the Guy's Channel which is present within the site.

9.3 Within Borehole 1 (Trench 1) a deposit of brickearth material was recorded above the sands and gravels at an upper height of -1.27m OD and itself sealed by mudstone/marl at -0.73m OD. Mudstone/marl was also recorded in Borehole 4 (Trench 4) at -1.72m OD.

9.4 The above deposits are sealed by natural alluvium. The top of this sequence was recorded across the site: in Trench 1 at 2.35m OD; Trench 2 at 1.55m OD; Trench 3 at 1.25m OD and in Trench 4 at 0.63m OD, although only in Trench 1 was its surface untruncated.

9.5 The borehole survey exercise carried out by PCA on site details the sequence of alluvial deposits. In Trench 1 (BH1) at -0.70m OD, the alluvial deposit consisted of "…slightly sandy clay, with dissolved organics (humo 4), and into a calcium-carbonate rich marl-like deposit with larger gravel inclusions and wood fragments at -0.73m OD" suggesting its location is in marginal ground adjacent to the channel, an area which would have being subject to regular flood events (see Appendix 8).

What is the depth of truncation, relative to natural deposits, of the existing and/or previous modern foundation work?

9.6 The top of the alluvial sequence was partially truncated in Trenches 2 and 4 by the construction of large basements (Phases 5.1 and 5.2). In Trench 2 the alluvial was found at 1.25m OD and in Trench 4 at 0.63m OD.

9.7 The alluvium in Trench 3 was truncated by archaeological activity (Phases 3 onwards).

Are there any indications of prehistoric activity, worked flints or any cut features?

9.8 No archaeological evidence for prehistoric activity was recorded during the evaluation.

Is there any evidence for a Roman presence on the site?

9.9 No archaeological in situ evidence for Roman occupation was recorded during the evaluation. However, two residual sherds of pottery collected from fill [139] (Phase 3) and fill [117] (Phase 4) shows that Roman activity in the close proximity of the site should be expected.

Is there any evidence for Saxon activity on the site?

9.10 The archaeological investigation did not record archaeological evidence for Saxon activity at the site.

Is there any evidence for medieval activity on the site?

9.11 Archaeological evidence for the development the site from the 15th century onwards was recorded during the evaluation. The medieval activity (Phase 3) consisted of reclamation dump deposits together with evidence for drainage features associated with the medieval reclamation of the site.

9.12 Of note, was a small segment of chalk foundation possibly dated to the late 15th century. This foundation was part of the northern extent of a building located in the southeast part of the site. Further investigation should clarify the date, extent, character, significance and quality of this building.

What evidence is there for post-medieval activity in the area of the site?

9.13 The bulk of the archaeological evidence found during the evaluation was for post-medieval activity spanning the 16th to the late 19th centuries (Phase 3 to Phase 6.1). In the southwest area of the site were recorded timber-lined sunken tanks associated with tanning activity which followed the same orientation of the postulated late medieval building from Phase 3.

9.14 Evidence for two parallel northwest to southeast orientated channels were also found in the central part of the site, associated with post-medieval reclamation.

9.15 With the site fully reclaimed and developed during the 18th century, the man-made channels were further canalised in purpose-built masonry drains which are illustrated on Newman's Map of 1853.

9.16 Archaeological evidence for the late post-medieval development of the site (Phase 6.1 and 5.2) was found in the form of a large warehouse labelled 'Hop Warehouse' on the Ordnance Survey Map of 1872. In the easternmost part of the site, the small plot of land separated from the rest of the site by Vinegar Yard was developed during the late 19th century with the construction of a warehouse.

10 CONCLUSIONS

10.1 The evaluation at Vinegar Yard has been able to demonstrate multi-phase activity spanning the natural to the 20th century. Four trenches were completed rather than the five proposed in the WSI, however the fourth trench was enlarged to compensate for the lack of the fifth and the results from Trench 4 are more than sufficient to characterise potential in this eastern area.

10.2 The augers completed in with each trench have shown a natural profile of sand and gravels at depth, and the data recovered has been used to create an east-west transect model (Figure 19). This shows a complex alluvial sequence with a notable absence of peat or peat-like deposits, suggesting that the channel beneath the site was a high-energy feature. Comparison of the site-won data with historic logs from nearby interventions is problematic as the historic logs have not necessarily record the alluvium in close detail; however, the profile of the sands and gravels, and the alluvial thickness, resembles that from boreholes to the west of the site, supporting the conjectured position of the site upon the eastern bank of Guy's Channel.

10.3 From the late medieval period evidence for land reclamation of the channel was apparent, along with management of the marshy ground, and the earliest suggestion of structural development for the chalk foundation found at the southern end of Trench 3; the nature of this wall cannot be ascertained without further work, but it seems likely that it forms part of a structure lying to the south, given that it seemed to have affected the position of the later tanning pits to the north. It was certainly still extant by the later 17th century to 1740, when a brick wall was added to its top.

10.4 Evidence for the management of a natural channel was present within the western half of the site, a channel which was still recognisable on 19th century maps (i.e. Figure 11) having been culverted by then into a series of brick drains.

10.5 By the late 17th and 18th centuries the site was being used for tanning activities, in common with much land in Bermondsey. Land reclamation and management continued through this period, leading to the driving of the watercourses underground to allow development for warehouse structures at the surface. By the late 19th century these warehouses included shallow basement levels; only in Trench 4 was it apparent that the basements had impacted to the level of alluvium – elsewhere the truncation was not total. The table below shows the levels below which archaeological survival can be expected:

	Top of archaeology as found
Trench 1	c 3.05m OD
Trench 2	c 2.60m OD
Trench 3	c1.82m OD

10.6 Any further archaeological works at the site should aim to fully establish the presence or

absence of Roman remains at the edge of the Guy's Channel, as well as closely scrutinizing the profile of the channel.

10.7 Further works should also aim to clarify the date, extent, character, significance and quality of the chalk foundation from Phase 3, the extent of the tanning activity on the site and the date, function and extent of the post-medieval manmade channels from Phase 4.

10.8 Regarding the 19th century development of the site (Phases 5.1, 5.2 and 6), further works should aim to clarify this activity and the use of the site.

10.9 The specialists reports at Appendices 2-8 highlight areas for further investigation or focus during any further work at the site.

10.10 Once the project is deemed complete and this report is approved, the completed archive comprising all site records from the fieldwork will eventually be deposited by Pre-Construct Archaeology Limited with LAA under the site code VYS18.

10.11 The results of the archaeological investigation will be published as an entry in the *London Archaeologist* annual Round-Up.

11 ACKNOWLEDGEMENTS

11.1 Pre-Construct Archaeology Limited would like to thank St Thomas Bermondsey Limited for funding the investigation and Pete Mills of Mills Whipp Projects Ltd for designing and overseeing the archaeological work.

11.2 We also thank Gillian King, on behalf of Senior Archaeological Officer for the London Borough of Southwark, for monitoring the archaeological investigation.

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11.4 Special thanks go to the field team: Ellen Green, Cecilia Galleano, Patric Cavanagh, Guy Seddon, Richard Krason, Joe Brooks and Duncan Field for their work on site. Finally thank you to Kate Turner, environmental archaeologist for PCA, for supervising the excavation of the boreholes.

An Archaeological Evaluation at Vinegar Yard/St Thomas Street, SE1, London Borough of Southwark
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13 APPENDIX 1: CONTEXT INDEX

Context	Type	Trench	Interpretation	Highest Levels (m OD)	Lowest Levels (m OD)	Phase
1	Layer	1	Post-medieval made ground	2.85	2.57	3
2	Layer	1	Post-medieval made ground	2.49	2.48	3
3	Fill	3	Post-medieval backfill of tanning pit	1.61	1.6	4
4	Fill	3	Post-medieval backfill of tanning pit	1.64	1.63	4
5	Layer	1	Natural Alluvium	2.33	2.32	2
6	Layer	1	Peat Layer	1.79	1.78	2
7	Layer	1	Natural Alluvium	0.75	0.74	2
8	Layer	1	Natural Alluvium	0.55	0.54	2
9	Fill	3	Backfill of tanning pit	1.62	1.6	4
10	Timber	3	Timber lining of pit	1.62	1.61	4
11	Timber	3	Timber base of tanning pit	1.61	1.6	4
12	Cut	3	Construction cut for circular sunken tank	1.62		4
13	Timber	3	Timber lining of tanning pit	1.56	1.54	4
14	Timber	3	Timber lining of tanning pit	1.6	1.56	4
15	Timber	3	Timber lining of tanning pit	1.6	1.56	4
16	Timber	3	Timber lining of tanning pit	1.6	1.56	4
17	Timber	3	Timber base of tanning pit	1.35	1.34	4
18	Fill	3	Construction cut backfill of tanning pit	1.6		4
19	Cut	3	Construction cut of tanning pit	1.56		4
20	Timber	3	Timber lining of tanning pit	1.56	1.55	4
21	Timber	3	Timber lining of tanning pit	1.54	1.53	4
22	Timber	3	Timber base of tanning pit	1.38	1.37	4
23			Void			
24			Void			
25	Fill	1	Fill of post-med pit [26]	3.04	3.01	5.2
26	Cut	1	Post-med pit filled by [25]	3.04	2.71	5.2
27	Layer	1	Post-med layer	3.04	3.03	5.2
28	Masonry	1	Post-medieval foundation	3.01	2.84	5.1
29	Fill	1	Fill of pit cut [30]	2.84	2.83	4
30	Cut	1	Post-med pit cut filled by [29]	2.84	2.59	4
31	Fill	1	Fill of pit cut [32]	2.8	2.67	4
32	Cut	1	Post-med pit cut filled by [31]	2.8	2.57	4
33	Fill	1	Fill of pit [34]	3.03	2.73	4
34	Cut	1	Post-med pit cut filled by [33]	3.03	2.58	4
35	Fill	1	Upper fill of pit cut [37]	3.07	3.02	4
36	Fill	1	Primary fill of pit cut [37]	3.95	2.69	4
37	Cut	1	Post-med pit cut filled by [35] and [36]	3.07	2.64	4
38	Fill	1	Upper fill of cut [54]	2.94	2.83	4
39	Masonry	1	Concrete foundation	2.82	2.81	6.2
40	Cut	1	Construction cut for foundation/drain	2.53	2.52	5.1
41	Fill	1	Construction cut backfill for masonry [42]	2.51	2.5	6.1
42	Masonry	1	Possible post-med drain	2.76	2.49	5.1
43	Masonry	1	Post-medieval masonry	2.85	2.84	6.1
44	Masonry	1	Concrete foundation	2.32	2.31	6.2
45	Fill	1	Primary fill of cut [54]	2.76	2.65	4
46	Fill	1	Upper fill of cut [67]	2.78	2.65	4
47	Cut	1	Construction cut for concrete foundation [44]	2.58		6.2
48	Fill	1	Upper fill of cut [92]	2.67	2.58	4
49	Masonry	4	Late post-medieval basement floor	1.03		6.2
50	Masonry	4	late post-med basement pillar	2.49	2.48	6.2
51	Masonry	4	Late post-med basement wall	2.53	2.52	6.2
52	Masonry	4	Late post-med basement wall	2.79	2.78	6.2
53	Masonry	4	Late post-med basement wall	2.71	2.7	6.2
54	Cut	1	Shallow post-med pit cut	2.84	2.57	4
55	Fill	1	Construction cut backfill	2.58	2.57	6.2
56	Fill	1	Construction cut backfill	2.58	2.57	5.1
57	Masonry	1	Masonry foundation	2.81	2.33	5.1
58	Cut	1	Construction cut for foundation [57]	2.58		5.1

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Context	Type	Trench	Interpretation	Highest Levels (m OD)	Lowest Levels (m OD)	Phase
59	Masonry	1	Possible earlier brick drain	2.83	2.68	5.1
60	Masonry	1	Late post-med drain	2.89	2.55	5.2
61	Masonry	2	Late post-med basement foundation	3.04	1.85	6.1
62	Masonry	2	Late post-med pillar	1.7	1.22	6.1
63	Fill	2	Fill of cut feature [64]	1.75	1.65	4
64	Cut	2	N-S orientated drainage cut	1.7	0.9	4
65	Fill	1	Secondary fill of cut [67]	2.84	2.63	4
66	Fill	1	Primary fill of post-med cut [67]	2.6	2.36	4
67	Cut	1	post-med cut filled by [66], [65] and [46]	2.54	2.2	4
68	Masonry	2	Late post-med pillar	1.65	1.52	6.1
69	Fill	2	Fill of post-med pit cut [70]	1.95	1.93	4
70	Cut	2	Post-med cut feature filled by [69]	1.95	1.65	4
71	Fill	2	Fill of post-med pit cut [72]	2.1	2.09	4
72	Cut	2	Post-med pit cut filled by [71]	2.1		4
73	Layer	2	Re-worked Alluvium	1.64	1.55	3
74	Layer	1	Re-worked Alluvium	2.8	2.42	3
75	Layer	1	Natural Alluvium	2.35	2.24	2
76	Masonry	2	Post-med brick wall	2.12	2.11	5.1
77	Fill	1	Fill of post-med pit cut [78]	2.6	2.59	4
78	Cut	1	Post-med pit cut filled by [77]	2.6	2.49	4
79	Layer	2	Natural Alluvium	1.8	1.65	3
80	Fill		Upper fill of pit cut [83]	2.6	2.58	5.2
81	Fill	2	Secondary fill of cut [83]	2.4	2.39	5.2
82	Fill	2	Primary fill of cut [83]	2.16	2.12	5.2
83	Cut	2	Large post-med cut feature filled by [82], [81] and [80]	2.6	2.1	5.2
84	Layer	2	Post-medieval made ground	2.95	2.94	5.2
85	Layer	2	Post-med made ground	2.4	2.3	4
86	Layer	2	Post-med made up	1.89	1.88	5.2
87	Layer	2	Natural Alluvium	1.55	1.25	2
88	Timber	3	Timber base of circular tanning pit	1.22	1.21	4
89	Fill	1	Secondary fill of pit cut [92]	2.44	2.43	4
90	Fill	1	Primary fill of pit cut [92]	2.34	2.33	4
91	Fill	1	Primary fill of pit cut [94]	2.22	2.21	4
92	Cut	1	Post-med pit cut filled by [90], [89] and [48]	2.64	2.22	4
93	Fill	1	Secondary fill of pit cut [92]	2.64	2.63	4
94	Cut	1	Post-med pit cut filled by [91] and [93]	2.64		4
95	Layer	3	Post-med dump layer	1.87	1.82	5.1
96	Fill	3	construction cut backfill for [97]	1.82	1.81	6.1
97	Masonry	3	Late post-med pillar	1.82	133	6.1
98	Cut	3	Construction cut for pillar [97]	1.61	1.33	6.1
99	Fill	3	Construction cut backfill for [100]	1.35	1.34	6.1
100	Masonry	3	Late post-med pillar	1.65	1.64	6.1
101	Cut	3	Construction cut for pillar [100] NFE	1.56	1.35	6.1
102	Layer	3	Post-med make-up	1.62	1.61	3
103	Layer	3	Post-med make-up	1.56	1.55	3
104	Layer	3	Post-med make-up	1.56	1.55	3
105	Layer	3	Post-med make-up	1.82	1.79	3
106	Fill	1	Fill of pit cut [107]	2.74	2.73	4
107	Cut	1	Post-med pit cut filled by [106]	2.74	2.64	4
108	Fill	1	Fill of post-med pit cut [109]	2.76	2.75	4
109	Cut	1	Post-med pit cut filled by [108]	2.76	2.69	4
110	Masonry	1	Masonry foundation	2.95	2.73	6.2
111	Cut	1	construction cut for [110]	2.72		6.2
112	Masonry	1	Post-med foundation	3.39	3.38	6.2
113	Fill	1	Fill of shallow ditch or gully	2.76	2.75	4
114	Cut	1	Shallow ditch or gully filled by [113]	2.76	2.66	4
115	Layer	1	Post-med layer	2.76	2.75	3
116	Fill	3	Construction cut backfill for [120]	1.84	1.83	4
117	Fill	3	Construction cut backfill for [120]	1.67	1.66	4
118	Cut	3	Construction cut for timber pipe [120]	1.87	1.47	4

Context	Type	Trench	Interpretation	Highest Levels (m OD)	Lowest Levels (m OD)	Phase
119	Masonry	1	Post-med masonry foundation	3.17	3.15	5.2
120	Timber		Post-med timber pipe	1.66	1.65	4
121	Fill	1	Fill of pit cut [122]	2.74	2.66	4
122	Cut	1	Post-med pit cut filled by [121]	2.74	2.43	4
123	Layer	3	Post-med levelling layer	1.59	1.58	3
124	Layer	3	Post-med make-up	1.53	1.52	3
125			Void			
126	Masonry	1	Post-med masonry foundation	2.93	2.92	5.1
127	Cut	1	Construction cut for [39]	2.82		6.2
128	Cut	1	construction cut for [60]	2.89		5.2
129	Layer	3	Post-med make-up	1.63	1.6	3
130	Layer	3	Post-med consolidation layer	1.63	1.62	3
131	Masonry	3	Post-med masonry foundation	1.71	1.7	4
132	Masonry	3	Early post-med chalk and mortar foundation	1.71	1.7	3
133	Layer	3	Post-med make-up	1.7	1.69	3
134			Void			
135	Layer	1	Post-med levelling layer	2.74	2.67	4
136	Layer	1	Post-med dump layer or fill	2.52	2.44	4
137	Fill		Fill of post-med gully [138]	1.62	1.61	3
138	Cut	3	Post-med gully filled by [137]	1.62	1.4	3
139	Fill	3	Fill of gully [140]	1.42	1.4	3
140	Cut	3	Post-med gully filled by [139]	1.42	1.05	3
141	Layer	3	Re-worked Alluvium	1.42	1.38	3
142	Layer	3	Natural Alluvium	1.25	1.22	2
143	Timber	3	Timber joist for base of tanning pit	1.32	1.31	4
144	Masonry	2	Concrete floor of basement	2.01	2	6.2
145	Layer	4	Natural Alluvium	0.63	0.62	2

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14 APPENDIX 2: POTTERY ASSESSMENT

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14.1 Introduction

14.1.1 A small sized assemblage of pottery was recovered from the site (two boxes). The pottery dates to the Roman, medieval and post-medieval periods. None of the pottery is abraded, while less than 1% by sherd count appears to be residual or intrusive. Therefore, the ceramics appear to have been deposited under mostly secondary circumstances. The assemblage comprises mostly sherd material and only six vessels have a complete profile. The pottery was quantified by sherd count (SC), estimated number of vessels (ENV) and weight. The sizes of the groups of pottery are all small (fewer than 30 sherds). The assemblage was recovered from 23 contexts.

14.1.2 In total the assemblage consists of 132 sherds, representing 115 ENV and weighing 4.808kg (of which none are unstratified). The assemblage was examined macroscopically and microscopically using a binocular microscope (x20) and entered into a database format. The classification of the pottery types follows the Museum of London Archaeology (2014) typology (form and fabric series). The pottery is discussed by its types and distribution.

14.2 THE POTTERY TYPES

14.2.1 The quantification of the pottery for each archaeological period is as follows:

- *Roman: 2 sherds, 2 ENV, 31g*
- *Medieval: 3 sherds, 3 ENV, 17g*
- *Post-medieval: 127 sherds, 110 ENV, 4.746kg*

14.2.2 The range of pottery types present in the assemblage are shown in Table 1. The pottery is further discussed by period and the forms present in each type.

Roman

14.2.3 Two sherds of Roman pottery occur singly in different contexts. Both sherds occur in fine sandy fabrics. The example from context [117] is decorated externally with incise horizontal lines and made in a brickearth-type fabric with clear quartzes and has a pale brown exterior, a dull orange margin and a very dark grey core and inner margin. The Roman sherd from deposit [139] is completely fired a pale brown colour and has a wiped eternal surface and has frequent fine, ill-sorted, mostly white quartzes and sparse red iron-ores.

Medieval

14.2.4 The three sherds of medieval pottery all appear to be residual, two of which were recovered from context [9] and could not be assigned to a form. One sherd consists of coarse Surrey-Hampshire border ware (CBW), dated 1270–1500 1500 (Pearce and Vince 1988) and another sherd is recorded as a miscellaneous ware and consists of a high-fired pale grey fabric with coarse, sub-rounded grey quartz inclusions and has an external clear glaze splashes. A sherd of a Cheam ware (CHEA) jug, dated 1350–1500 (Pearce and Vince 1988) and was found in deposit [137].

14.3 Catalogue

Pottery type	Code	Date Range	SC	ENV	Wt (g)	Forms
Medieval						
Coarse Surrey-Hampshire border ware	CBW	1270–1350	1	1	3	Unidentified
Cheam whiteware	CHEA		1	1	4	Jug
Miscellaneous unsourced medieval pottery	MISC	1480–1500	1	1	10	Unidentified
Post-medieval						
Blackware	BLACK	1600–1900	2	1	402	Chamber pot
Bone china with under-glaze painted decoration	BONE PNTD	1797–1900	1	1	5	Saucer
Surrey-Hampshire border whiteware with brown glaze	BORDB	1600–1900	4	3	127	Dish, rounded dish, unidentified,
Surrey-Hampshire border whiteware with green glaze	BORDG	1550-1700	7	7	165	Bowl or dish, tripod pipkin, dish, unidentified,
Surrey-Hampshire border whiteware with olive glaze	BORDO	1550-1700	4	4	95	Tripod pipkin, unidentified
Surrey-Hampshire border whiteware with clear (yellow) glaze	BORDY	1550-1700	4	4	98	Chamber pot, dish, bowl or dish, unidentified,
Chinese blue and white porcelain	CHPO BW	1590-1900	1	1	1	Unidentified
Creamware	CREA	1730-1830	8	5	256	Medium rounded bowl, plate, dinner plate, unidentified
Dutch tin-glazed ware	DTGW	1512–1800	1	1	194	Charger
Dutch red earthenware	DUTR	1350–1650	3	3	92	Cauldron or pipkin, unidentified
Early Surrey-Hampshire border whiteware	EBORD	1480–1550	1	1	1	Unidentified
Frechen stoneware	FREC	1550–1700	5	5	131	Rounded jug, Bartmann jug
London stoneware	LONS	1670-1926	1	1	147	Cylindrical section bottle
Martincamp-type ware type III flask (red earthenware)	MART3	1600–1650	1	1	13	Globular flask
Metropolitan slipware	METS	1630-1700	1	1	44	Bowl or dish
Miscellaneous unsourced post-medieval pottery	MISC	1480–1900	2	2	120	Standing costrel, unidentified
Miscellaneous unsourced medieval/post-medieval whiteware	MISC WW	1480–1900	1	1	28	Unidentified
Midlands purple ware	MPUR	1480–1750	1	1	20	Unidentified
Pearlware with under-glaze blue-painted decoration	PEAR BW	1770–1820	15	6	472	Rounded jug, plate: dinner large saucer,
Pearlware with transfer-printed decoration	PEAR TR	1770–1820	1	1	2	Saucer
London-area post-medieval bichrome redware	PMBR	1480–1600	1	1	22	Unidentified
Essex-type post-medieval fine redware	PMFR	1580–1700	5	5	82	Cauldron, unidentified
London-area post-medieval redware	PMR	1580–1900	14	14	574	Bowl or dish, bowl: medium and deep flared, flower pot, jug, unidentified,
London-area early post-medieval redware	PMRE	1480–1600	6	6	373	Bowls or dishes: double-handled carinated flanged/ cordoned, two-handled carinated bowl, type 2, flanged/collared rim, type 3 cauldron, jug, unidentified,
London-area post-medieval slipped redware with green glaze	PMSRG	1480–1650	6	5	385	Bowl or dish, cauldron or pipkin, tripod pipkin, unidentified,
London-area post-medieval slipped redware with clear (yellow) glaze	PMSRY	1480–1650	6	5	306	Bowl or dish, type 3 cauldron,
Raeren stoneware	RAER	1480–1610	1	1	93	Panel jug
Surrey-Hampshire border redware	RBOR	1550–1900	2	2	101	Chamber pot, small rounded jug
Surrey-Hampshire border redware with brown glaze	RBORB	1600–1800	2	2	49	Bowl or dish, dish
Refined white earthenware	REFW	1805-1900	2	2	55	Chamber pot, unidentified,
Saintonge ware with mottled green glaze	SAIM	1250–1650	1	1	11	Jug
Siegburg salt-glazed stoneware	SIEGS	1500–1630	1	1	24	Rounded jug
Sunderland-type coarseware with mottled glaze	SUND MOT	1775–1850	1	1	27	Bowl
English tin-glazed ware	TGW		3	2	36	Bowl or dish, charger, Britton shape B-D
London biscuit-fired tin-glazed ware	TGW BISC	1570–1846	2	2	85	Saggar, unidentified
London tin-glazed ware with blue- or polychrome-painted decoration and external lead glaze (Orton style D)	TGW D	1630–1680	3	3	45	Charger, Britton shape B-D, medium rounded bowl
Refined whiteware with under-glaze transfer-printed decoration	TPW	1780–1900	3	3	33	Bowl, chamber pot, plate,
Refined whiteware with under-glaze colour transfer-printed decoration (green, mulberry, grey etc)	TPW4	1825–1900	1	1	8	Medium rounded bowl
Wealden buff ware	WEAL	1480–1750	1	1	15	Unidentified
Westerwald stoneware	WEST	1590–1900	1	1	5	Jug: rounded
Yellow ware with slip decoration	YELL SLIP	1820–1900	1	1	8	Unidentified

Table 1. VYS18: Pottery types. SC: sherd count; ENV: estimated number of vessels.

Post-medieval

14.3.1 The post-medieval wares date mostly to the 16th and 17th century or the end of the 18th and 19th century and consists of typical pottery types and forms recorded in London for these periods (see Table 1). The 16th- and 17th-century dated deposits produced mostly red earthenwares from London or Essex (Nenk and Hughes 1999) or Surrey-Hampshire border red and whitewares (Pearce 1992). A small quantity of tin-glazed wares (Orton 1988; Orton and Pearce 1984) is recorded and found mostly as chargers, although two sherds of biscuit ware are recorded and include the base of a saggar with a central piercing (context [65]). The closest source for these biscuit wares were the Pickleherring and Still Stairs pot houses to the north east of the study area and located in the Potters Field area. Of note is the rim and lugs from a costrel made in a miscellaneous redware fabric (MISC), which is made in a dull orange in colour fabric with large, visible white quartzes in a clean matrix (context [135]).

14.3.2 The imported pottery (Hurst *et al* 1985) consists typically of German stonewares and particularly as rounded jugs that includes a bartmannen (context [38]), although the base of a Raeren stoneware (RAER) panel jug, dated *c*. 1600 was recovered from deposit [65]. A sherd of a 17th-century Westerwald stoneware (WEST) jug has applied decoration with a depiction of a possible tree (context [63]). Dutch wares occur as a small quantity (four

sherds/4 ENV/286g) and consist of mostly the redware (DUTR), which includes the base of a cauldron or pipkin (context [124]). Additionally, there is a tin-glazed ware (DTGW) charger with a Wanli panel border dated *c*. 1610/20–40/50 (Korf 1981, 51, fig. 101.46) and found in deposit [38]. French wares consist of a sherd of Saintonge ware with mottled green glaze (SAIM), dated 1250–1650, but of a post-medieval date (context [65]) and a sherd of a red earthenware Martincamp (MART3) globular flask (deposit [38]).

14.3.3 The groups of pottery dated to the end of the 18th and 19th-century typically consist of factory-made wares (Hildyard 2005), such as creamware (CREA), pearl wares (PEAR BW/TR), refined whiteware (REFW, TPW/4) and yellow ware (YELL), which are recorded mostly in the form of table wares. Large fragments of a late 18th-early 19th century dated non-local blackware (BLACK) chamber pot was noted in deposit [3].

14.4 Distribution

The distribution of the pottery is shown in Table 2 which conveys for each context containing pottery its size, the number of sherds and ENV, besides weight. Additionally, the date range of the latest pottery is shown (Context ED and LD), the types of pottery present and a considered deposition date.

Context	Size	SC	ENV	Wt (g)	Context ED	Context LD	Pottery-type code	Spot date
1	S	1	1	6	1480	1650	PMSRY	1480–1650
3	S	25	13	1225	1770	1820	BLACK, CREA, RBOR, PEAR BW, PMR, TGW BISC,	1789–1810
9	S	8	8	204	1580	1900	DUTR,PMR,PMRE,PMRE,FREC, MISC,CBW	1580–1600
38	S	8	8	368	1630	1680	BORDY, DTGW, FREC, MART3, PMR, TGW D	1630–1680
45	S	4	4	100	1580	1700	BORDG, BORDO,PMFR	1580–1700
48	S	3	3	79	1550	1700	BORDG, FREC	1550–1700
55	S	3	2	190	1740	1830	CREA, PMR	1760–1830
63	S	10	9	265	1590	1650	BORDB, BORDO, CREA, FREC, MPUR, PMBR,PMR,PMFR, PMSRG,	1590–1650*
65	S	22	20	1194	1600	1700	BORDB,BORDG, BORDO, BORDY, PMR, PMRE, PMSRG, PMSRY, RAER, SAIM,TGW BISC, WEAL	1600–1650
66	S	2	2	52	1550	1700	BORDG, PMSRY	1550–1600
69	S	2	2	54	1580	1900	PMR	1580–1900
71	S	6	6	183	1805	1900	BONE PNTD,CHPO BW, LONS, PEAR TR, REFW, SUND MOT	Mid 19th century
90	S	5	5	146	1780	1900	METS, PMR, TGW, TPW,	Mid 19th century *
96	S	5	5	100	1825	1900	REFW, TPW, TPW4, YELL SLIP,	Mid-late 19th century
113	S	1	1	22	1550	1900	RBOR	17th - 18th century
117	S	1	1	15	50	400	RPOT	50–400
124	S	3	3	56	1480	1650	DUTR, EBORD, MISC WW	1480–1650
135	S	11	10	237	1600	1700	BORDB,BORDY, BORDO,FREC, MISC, PMFR, RBORB, TGW,	Early 17th century
136	S	6	6	129	1600	1700	BORDG, PMR, PMSRG, RBORB, SIEGS,	Early 17th century
137	S	3	3	85	1480	1600	CHEA, DUTR, MISC	1480–1600

138	S	1	1	27	1480	1600	PMRE	1480–1600
139	S	1	1	30	50	400	RPOT	50–400
141	S	1	1	41	1480	1600	PMRE	1480–1600

Table 2. VYS18: distribution of pottery types showing the phase, the size/number of sherds (SC), ENV, weight in grams, the date range of the latest pottery type, the pottery types present and a spot date (context considered date) for each context Post-Roman pottery occurs in.

14.5 SIGNIFICANCE OF THE COLLECTION

14.5.1 The pottery has some significance at a local level and contains some interesting forms, such as the MISC costrel (context [135]), which is usually associated with travelling and the base of the Raeren stoneware panel jug (context [65]). The small quantity of Dutch pottery may relate to the community of Dutch immigrants documented in this area of Bermondsey (Blatherwick and Bluer 2009). The assemblage largely follows the ceramic profile for London. The pottery has the potential to date the contexts it was recovered from and also to relate to site activities. There are no recommendations for further work on the assemblage at this stage, although if future archaeological work is undertaken on the study area then the importance of the pottery from the evaluation should be reviewed.

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15 APPENDIX 3: GLASS ASSESSMENT

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

15.1 Introduction

15.1.1 The glass is recorded as a small sized assemblage dating solely to the post-medieval period and particularly the 19th century. All of the six fragments of glass (representing 5 vessels (ENV) or items and weighing 646g, of which none are unstratified) is in a good condition, but only includes fragmentary items. The glass appears to have been deposited under secondary conditions. The material occurs in three contexts as small (under 30 fragments) sized groups. The glass is discussed as an index.

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15.1.2 Context [3], spot date: 19th century

- *Bottle, cylindrical-section: moulded, clear soda glass, moulded, 1 fragment, 1 ENV, 14g. Preparation rim finish, short neck, rounded shoulder, cylindrical wall. Pharmaceutical. 1810+*
- *English wine bottle, cylindrical, early-type: olive-green soda-glass, free-blown, 2 fragments, 1 ENV, 615g. Rim with a string finish dated c. 1800–10, wall and splayed base with a rounded kick.*
- *Window quarry, diamond-shaped: clear soda glass, cylinder made, 1 fragment, 1 ENV, 14g. rounded apex top of part of a thin walled diamond-shaped window quarry. Probably a replacement for an earlier leaded window. ?19th century*

15.1.3 Context [38], spot date: post-medieval

- *Window glass: clear soda glass, cylinder-made, 1 fragment, 1 ENV, 1g. Small thin-walled polygonal fragment. Post-medieval*

15.1.4 Context [90], spot date: 1550–1680

- *Wine glass/goblet: clear soda glass, free-blown, 1 fragment, 1 ENV, 1g. A ribbed rounded knop with a noticeable violet iridescence. 1550–1680*

15.2 Significance, potential and recommendations for further work

15.2.1 Much of the glass is mundane and fairly typical for the forms recovered from London archaeological deposits dated to the post-medieval period and 19th century. The material informs very little upon site activities. The knop of the early post-medieval goblet/wine glass, however, is of interest and indicates that its owner was at least from a middling socio-economic group. The glass has the potential to date the contexts it was recovered from. There are no recommendations for further work on the assemblage at this stage, although if further archaeological work is to be undertaken on the site, then its importance should be reviewed if new glass finds are recovered.

16 APPENDIX 4: CLAY TOBACCO PIPE ASSESSMENT

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

16.1 Introduction

16.1.1 A small sized assemblage of clay tobacco pipes was recovered from the site (less than one box). Most fragments are in a good condition, indicating that they had been deposited soon after breakage. Clay tobacco pipes occur in twelve contexts as small (under 30 fragments) sized groups.

16.1.2 All the clay tobacco pipes (29 fragments, of which none are unstratified) were recorded in a database format and classified by Atkinson and Oswald's (1969) typology (AO) and 18th-century examples are according to Oswald's (1975) typology and prefixed OS. The material was catalogued according to Higgins (2017) and the pipes were coded by decoration and quantified by fragment count. The stamps were compared to the catalogue of Museum of London Archaeology (MOLA) maker's marks from London (https://webarchive.nationalarchives.gov.uk/20090418203932/http:// www.museumoflondon.org.uk/claypipes/index.asp). The quality of finish, including the level of burnishing and the degree of milling of the rims (recorded in quarters) has been noted on 17th-century types. The tobacco pipes are discussed by their types and distribution.

16.2 The Clay Tobacco Pipe Types

16.2.1 The clay tobacco pipe assemblage from the site consists of 21 bowls and eight stems. The clay tobacco pipe bowls range in date between *c.*1610 and 1740. All the bowls show evidence for being smoked.

1610–1640

- *AO4: one bowl with a rounded profile and a heel that projects forward. The bowl has full, although poorly defined, milling of the rim and has a poor burnish. Context [115].*
- *AO5: five heeled bowls with a rounded profile all of which have full milling of the rim while the burnishing varies from average to fine. Four of the bowls are maker marked with stamps on the underside of the heel:*
- *?Eight spoked wheel stamp in relief: one bowl and the stamp was poorly impressed. The die is most similar to the Museum of London Archaeology die number 100033, which also occurs on a 1610–40 AO10 dated bowl. Context [135], SF 9*
- *W I: three bowls: one example is very nicely burnished, including the stem and the initials are incuse (context [108], SF 5), a second bowl has a small oval relief stamp with the W consisting of two overlapping Vs (context [108], SF 6) and the third bowl has a circular relief stamp with four dots/pellets in a pattern above and below the initials (context [115], SF 8). None of the stamps can be directly paralleled to the MOLA stamp catalogue, although similar examples exist*

(https://webarchive.nationalarchives.gov.uk/20090419222606/http://www.museumoflondon.org.uk/claypipes/pages/pipe.asp?sitecode=SIN88&context=4&acc_no=34&form=AO4). The possible maker of these bowls was William Jeffes, who is recorded in the Westminster clay tobacco pipe makers' charter of 1619 (Oswald 1975, 140)

1640–1660

- *AO9: two spurred, rounded profile bowls with a half and full milling of the rim and an average and fine burnish. Contexts [38] and [65]*
- *AL10: one heeled, tall biconical profile variant bowl with no milling on the rim and an average finish. Context [63]*

1660–1680

- *AO15: ten spurred, rounded profile bowls with similar numbers having a quarter, half, three quarters and full milling of the rim and most example have an average finish. Single examples were noted in contexts [65], [77] and [90], three bowls came from deposit [48] and four items were noted in deposit [38].*

1680–1710

- *AO22: one tall, angled straight-sided bowl with a quarter milling of the rim and an average burnish. Context [63]*

1700–1740

- *OS10: one heeled upright bowl with a rounded front and a straight back, which has a maker's mark on the sides of the heel consisting of two simple flower-type marks with a central disc. The flower mark on the left side of the heel is better defined. Context [113], SF7*

Stem fragments

- *The stem fragments were broadly dated according to their thickness and more pertinently the size of the bore, which becomes finer from c. 1700.*

16.3 Distribution

16.3.1 The distribution of the clay tobacco pipes is shown in Table 1, which shows the number of fragments, assemblage size, date range of the latest bowl type (context ED and context LD) and a considered deposition date for each context the material occurred in.

Context	No. of fragments	Assemblage size	Context ED	Context LD	Bowl types (makers)	Spot date
3	2	S	1580	1910	Stems	1730–1910
38	5	S	1660	1680	x1 AO9, x4 AO15	1660–1680
48	3	S	1660	1680	x3 AO15	1660–1680
63	2	S	1680	1710	x1 AO10, x1 AO2,	1680–1710
65	1	S	1660	1680	x1 AO15	1660–1680
71	1	S	1580	1910	Stems	1730–1910
77	1	S	1660	1680	x1 AO9	1660–1680
77	3	S	1580	1910	x1 AO15	1730–1910
90	1	S	1660	1680	x1 AO15	1660–1680

108	2	S	1610	1640	x2 AO5 (W I: SF 5 and 6)	1610–1640
113	1	S	1700	1740	x1 OS10 (* *: SF7)	1700–1740
115	4	S	1610	1640	x1 AO4, x1 AO5	1610–1640
135	2	S	1610	1640	x2 AO5 (?eight-spoked wheel stamp: SF 9, W I: SF8)	1610–1640

Table 1. VYS18: distribution of the clay tobacco pipes showing for each context clay tobacco pipes occurred in, the number of fragments, size of the assemblage, the date range of the latest bowl type or part (Context ED and Context LD) and a spot date (context considered date).

16.4 Significance, potential and recommendations for further work

16.4.1 The clay tobacco pipes have some significance at a local level and it is assumed that the assemblage is derived from sources on the site. The bowl types present fit within the typology for London. There is no evidence for clay tobacco pipe production on the site. Of interest is the occurrence of the three AO5 stamped bowls W I and probably made by William Jeffes, recorded in 1619. The stamps cannot be paralleled to the dis in the MOLA catalogue. Interestingly, the current knowledge of the distribution of these W I stamps are north of the Thames and are found mostly on the western side of the City (https://webarchive.nationalarchives.gov.uk/20090419005734/http://www.museumoflondon.org.uk/claypipes/pages/maker.asp?maker_id=28; PCA clay tobacco pipe database). The occurrence of early 17th-century clay tobacco pipes is more likely to indicate the presence of middling and higher socio-economic groups resident on the study area. The main potential for the tobacco pipes is as a dating tool for the contexts in which they were found in and to provide a sequence for them. The assemblage also adds to an understanding of the distribution of the products of individual early 17th-century pipe makers in London and Southwark. There are no recommendations for further work on the clay tobacco pipes at this stage, although if further archaeological work is undertaken on the study area and new material is recovered, then the importance of this component of the assemblage should be reviewed.

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17 APPENDIX 5: BUILDING MATERIALS ASSESSMENT

By Amparo Valcarcel, Pre-Construct Archaeology Limited, December 2018

17.1 Catalogue and Spot-Dates

Context	Fabric	Form	Size	Date range of material		Latest dated material		Spot date	Spot date with mortar
3	2276, 2279, 2271	Post-medieval roofing pan and peg tiles	4	1180	1900	1480	1900	1630-1900	No mortar
4	3100, 2271, 2276	Render; Post-medieval peg tiles	6	1180	1900	1480	1900	1480-1900	No mortar
9	2271, 2276, 3046, 2452	Early Roman sandy brick and imbrex; post-medieval peg tiles and sandy red bricks	44	55	1900	1480	1900	1600-1800	1600-1800
28	3046	Post-medieval sandy red bricks	2	1450	1900	1450	1900	1700-1900	1700-1900
38	2279	Post-medieval pan tile	1	1630	1850	1630	1850	1630-1850	1700-1900
45	2279	Post-medieval pan tile	1	1630	1850	1630	1850	1630-1850	No mortar
48	2276, 3046, 2279	Post-medieval peg and pan tiles; post-medieval sandy red brick	6	1450	1900	1480	1900	1500-1800	1500-1900
57	3046	Post-medieval sandy red brick	2	1450	1900	1450	1900	1600-1800	No mortar
65	2276	Post-medieval peg tiles	3	1480	1900	1480	1900	1480-1900	No mortar
66	3046	Post-medieval sandy red bricks	3	1450	1900	1480	1900	1450-1900	No mortar
69	2276	Post-medieval peg tiles	2	1480	1900	1480	1900	1480-1900	No mortar
69	2279	Post-medieval pan tile	1	1630	1900	1630	1850	1630-1900	No mortar
71	3046, 3100, 2276	Post-medieval sandy peg tiles and sandy red bricks; wall plaster	5	1480	1900	1480	1900	1480-1900	1480-1900
76	3046	Post-medieval sandy red bricks	2	1450	1900	1450	1900	1600-1900	No mortar
95	2276	Post-medieval peg tiles	5	1480	1900	1480	1900	1480-1900	No mortar
105	2276, 3033	Post-medieval peg tiles and sandy red bricks	6	1450	1900	1480	1900	1480-1900	No mortar
106	3046	Post-medieval sandy red brick	1	1450	1900	1450	1900	1600-1900	1600-1900
113	2276, 2271	Post-medieval peg tiles	7	1180	1900	1480	1900	1480-1900	No mortar
119	3046	Post-medieval sandy red bricks	3	1450	1900	1450	1900	1650-1900	No mortar
124	2276, 2586	Medieval and post-medieval peg tiles	11	1180	1900	1480	1900	1480-1900	No mortar
130	2271, 2276	Post-medieval peg tiles	15	1180	1900	1480	1900	1480-1900	No mortar
131	3046	Post-medieval sandy red bricks	3	1450	1900	1450	1900	1550-1800	1550-1800
135	2276, 2586, 2279	Post-medieval peg and pan tiles	4	1180	1900	1480	1900	1630-1900	No mortar
136	2318L, 2279, 2276	Post-medieval yellow glazed floor tiles, peg and pan tiles	4	1450	1900	1480	1900	1630-1900	No mortar
141	2276	Post-medieval peg tiles	8	1480	1900	1480	1900	1480-1900	No mortar

17.2 Methodology

17.2.1 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.

An Archaeological Evaluation at Vinegar Yard/St Thomas Street, SE1, London Borough of Southwark
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17.3 Review

17.3.1 This medium sized assemblage (164 fragments, 46.13 kg) consists of pieces of early Roman, medieval and mainly post-medieval (78.88% by size) ceramic building material and some stone examples. More than 77% of the assemblage is roofing material. A large assemblage of material was recovered from post-medieval contexts.

17.3.2 The Roman building material (2 examples, 55 g.) from [9] is in a fragmentary and abraded condition which would suggest that it has been re-deposited. The fragment is made of London sandy fabric 2452, dated from the mid1st to mid2nd century (c.AD 50 – 160). These materials are residual.

17.3.3 Some of the peg tiles (9.31% by size) can be assigned a later medieval (12th to 13th century) date on the basis of fabric and form, indicating derivation from the demolition of building(s) of this date. They were collected from post-medieval contexts [3] [4] [9] [113] [124] [130] [135] and [137]. No other medieval form was found in the excavation.

17.3.4 One Flemish silty floor tile came from context [136]. The fragment is plain yellow glazed and has sharp arises, which indicates that came from building post-dating 1600.

17.3.5 Post–medieval rectangular shaped roofing tiles made from the London sandy fabric 2276, and curved, nibbed roofing tile (2279) were recovered from the site attesting to extensive post-medieval roofing tile development in this area.

17.3.6 Two different sandy red brick fabrics were identified: the fine sandy 3033 with abundant coarse quartz and the very sandy red 3046. Tudor bricks were irregular in size and shape. The largest proportion of bricks are shallow (54-58mm), wide (104-109mm), unfrogged and have sunken margins. They were by far the most common in London from the mid15th century to 1666. The earliest bricks with any quantifiable dimensions came from period 1500 to 1700, but the great majority of brick is dated 1600-1800. All were manufactured for city use from local London brick clay, but outside the confine of London they were produced until 19th century. Most of the fragments preserved just one dimension and are reused, suggesting may be a later date. The post-medieval structures were bonded with different types of mortar, indicating different period of build and re-building.

17.3.7 The small amount of stone found on the excavation is probably due to the scarcity of local sources, and the reclaiming for reuse in the post-medieval periods. An ashlar made of Reigate stone used in Roman and medieval buildings has been identified from [65]. It is probable that Reigate was being used from the first to at least the third century, although some could be recycled. Reigate stone was not used for external architecture after the 15th century due to poor weathering properties. Chalk [136] probably was used in the foundations and in the walls, using a rubble core of mortared stone. A small fragment of burnt slate was collected from [38], in absence of any holes is difficult to determinate its function as a roofing or such as a levelling in walls. Stone imported to London was an expensive building material, often robbed and reused and this may explain the absence of

this material in all the phases.

17.4 Discussion

17.4.1 An assessment of the building materials (stone; ceramic building material; mortar) from Vinegar Yard, London Borough of Southwark shows that post-medieval ceramic building material consists of 78.88% of the assemblage. The building material assemblage reflects the early Roman occupation in Southwark associated with the structural development of the Roman road. Southwark developed into a major Roman waterfront town during the 1st century AD. There is abundant evidence of Roman activity within the area of the study site from previous excavations. These materials would indicate a date during the 1st or 2nd century, although as commonly dumped material and with most in fairly abraded condition, a later date is not only possible but for some at least quite likely, and probably the archaeological remains had been impacted by post-medieval activity. By comparison the medieval component is very small (9,31 %), and is limited to standard peg tile suggesting a very limited scale of activity. In Roman and early medieval phases the area was subject to flooding and the building material redeposited. The Roman and medieval materials have little intrinsic interest, other than a dating tool. The first post-Roman structures documented at the site were built in 1500-1800, using mainly sandy red brick fabrics (3033 and 3046), common fabrics of early post-medieval activity. The value of this small assemblage lies in dating structures and features dating from between the 16th and late 18th century. The fragments of Roman tiles and medieval peg tiles indicate some earlier activity around the area of investigation. There are no recommendations for further work on the ceramic building material at this stage, although if further archaeological work is undertaken on the study area and new material is recovered, then the importance of this component of the assemblage should be reviewed.

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18 APPENDIX 6: ANIMAL BONES ASSESSMENT

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

18.1 Introduction

18.1.1 The study area is located immediately south of London Bridge Station bordered by St Thomas Street to the north, Fenning Street to the west, Melior Street to the south and Snowstreet to the east. The excavation consisted of four evaluation trenches, trench 1 in the western part of the site and 3 and 4 in the eastern part. These various incursions produced evidence for Tudor through to late post-medieval activity, the latter limited to 19th century construction overriding alluvial layers. Animal bones were discovered in each trench with the exception of Trench 4 and in levels dating throughout this sequence although with a majority taken from deposits dating between the late 16th and 18th centuries.

18.1.2 All the bones were hand collected, these featuring a small quantity of fish bones.

18.2 Methodology

18.2.1 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.

18.3 Description of faunal assemblage

18.3.1 The site provided a total of 156 animal bones, all collected by hand, divided between various deposits in Trenches 1, 2 and 3 and allocated to the site sequence as shown in Table 1. This collection displayed a minimal level of surface damage and fragmentation, suggestive of rapid burial and limited redeposition.

Phase 3

18.3.2 Bones from this phase were taken from deposits within trenches 1 and 2 (see Table 1), including alluvial (a general layer and within two gullies) and make-up layers, mainly taken from trench 3. These various deposits have provided dates between the late 15th and mid-17th centuries, although there are some residual Roman potsherds within one of the gullies. Sheep/goat is well represented (see Table 2), this collection largely composed of sheep metapodials (20 bones) the remainder including a single first phalange and scapula. The wealth of footbones can be interpreted as tanning (or rather tawing) waste, these no doubt dumped or redeposited (a large proportion of the bone was taken from make-up levels) from some nearby tawyard. The small collection of cattle bones comprises a greater mix of parts, so representing food as well as preparation waste. Notably there are two metapodials, from separate levels, derived from juvenile individuals, these probably representing processing waste from veal calves. The other species present in this phase assemblage are chicken and goose, both tibias, the chicken from a young individual signifying a choice food item

rather than making use of a dilapidated cockerel or hen (an old boiler).

Phase:	2	3			4.1	Total
Trench:	**1/3**	**1**	**2**	**3**	**3**	
Feature type						
Pit		21	15			36
Tanning pit				81		81
Construction cut				1		1
Drain			12			12
Gully	0/5	2				7
Alluvium	9/0					9
Dump		8			5	13
Make-up	0/20	7				27
Grand Total	**34**	**38**	**27**	**82**	**5**	**186**

Table 1. Distribution of hand collected animal bones by Phase, trench and feature type

Phase:	2	3	4.1
Species			
Cattle	7	30	2
Cattle-size	1	21	
Sheep/Goat	22	40	3
Sheep		9	
Pig		3	
Sheep-size	2	12	
Fallow deer		1	
Cat		1	
Chicken	1		
Goose	1		
Fish		30	
Grand Total	**34**	**147**	**5**

Table 2. Distribution of hand collected bones by phase and species.

Phase 4

18.3.3 This phase provided the largest collection, most taken from trench 3 with approximately equal amounts from trenches 1 and 2 (Table 1). These were essentially derived from a series of cut features with a small proportion provided by dumps and make-up levels in trench 1. Most of the bones were taken from deposits dated between the late 16th to 17th centuries, although two features, pit [70] in trench 2 and tanning pit [3] in trench 3 appear to date from or at least up to the 19th century. These latter two features provided 15 and 48 bones respectively. The latter feature represents a complete rectangular tank parallel to another tank, most of which was located beyond the side of the trench. This type of

structure, incorporating a series of timber tanks slotted into a clay lined rectangular trench, were classed as tanning pit complexes in Rielly (2011, 167), these tending to date in Bermondsey from the 18th century onwards. A nearby circular wood-lined tank [12] or sunken barrel also provided a bone collection and, in contrast, appears to date to the late 16th century. Notably circular tanpits or indeed individual rectangular timber-lined pits generally date from this period, becoming more widespread through the 17th century (ibid, 162). It can be proposed that while only centimetres apart, the use of these two tanning structures may in fact be separated by several decades.

18.3.4 There is again a large proportion of sheep/goat, with metapodials (27) and phalanges (4) making a major contribution. Although now there is also a number of horncores (9) amongst a variety of other skeletal parts. However, the bones from the two tanning features are almost exclusively comprised of 'tanning waste', the circular feature also providing 4 horncores and a scapula. It is proposed that skins were provided to the tanner with the feet still attached (after Serjeantson 1989, 199) and the same may apply to a section of the skull (the horns), though it is generally thought that the inclusion of the latter parts are more applicable to cattle skins, the horns then being transferred to the hornworker (Rielly 2011, 161 and see Stevens 2011, 188). Clearly tawing was again in evidence within this locality moving into this later phase. Of interest in this respect was the appropriate size of the circular tanpit, while the rather larger size of the tanks within the tanning complex are suggestive more of a tanyard than a tawyard. The evidence from the cattle bones, however, as with the previous phase, is indicative of mixed dumps of food and processing waste, certainly with no obvious indication, as with the sheep bones, of tanning waste. Yet also like the previous phase there are a few bones from young individuals again indicative of the use of veal.

18.3.5 The other species in this phase include fallow deer, a notable high-status comestible, here represented by a metatarsal provided by the drain [64]. In addition, there were a few fishbones, all provided by the fill of tanning pit [3]. While as yet unidentifiable, the majority clearly represent head parts from a single large fish. The non-food component equals a cat tibia, also from drain [64].

18.4 Conclusions and recommendations for further work

18.4.1 This moderately sized, well dated and well-preserved collection demonstrates the deposition of food waste as well as the detritus from tanning activities. The dating evidence would appear to demonstrate the continuation of both aspects through at least the 17th and 18th centuries. It is generally known, within Bermondsey, that tanning activity while starting with tawyards (essentially using sheep and goat skins), tended to revert to tanyards (cattle skins) from the late 17th/early 18th century onwards. This is certainly shown by several sites in this area (Rielly 2011, 173) and apparently also by this site as demonstrated by the size of the later tanpits. The presence of sheep tanning waste within these later pits may argue otherwise, however, it is possible that these may derive from earlier levels. The same

argument could apply to the presence of fallow deer within one of the Phase 4 deposits, this dated up to the mid-17th century. It can perhaps be assumed that such waste may in fact date to one of the Tudor mansions hereabouts, the nearest being that owned by Henry Goodyere occupied in the mid-16th century (see Historical background, this report).

18.4.2 Further excavation should certainly provide a greater quantity of bones, the resulting information hopefully answering questions related to food use and the possible status of the occupants prior to and during the use of this area for industrial purposes. The question concerning the change from tawing to tanning activity is clearly important, here adding to evidence already compiled from several other contemporary tawing/tanning sites in this locality. Sheep tawing waste inevitably includes several complete metapodials, as here, and it is of some importance to recover suitably large collections of these bones in order to provide information on the age, sex and size of the animals entering London during this period. The 17th and 18th centuries witnessed a number of changes in the conformation of domestic livestock culminating in the 19th century 'breeds' (see Rixson 2000, 212). Recent studies have suggested size changes in the sheep brought to the capital (as shown in Thomas et al 2013).

18.4.3 Finally, the state of the bones obviously suggest that further recovery should incorporate a sieving programme, as also stressed by the quantity of fish bones hand recovered from the later tanpit. As previously mentioned, the identification of these bones will be undertaken at a later stage, adding to the collection potentially available from further excavation.

18.5 References

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19 APPENDIX 7: METAL, SMALL FINDS AND ORGANIC OBJECT ASSESSMENT

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

19.1 Introduction

19.1.1 Around twenty individual objects or fragments were recovered from the excavations; they are listed in the table below. The finds will be discussed here by phase.

19.2 Phase 3: 15th to early 17th centuries (Reclamation)

19.2.1 Four objects came from Phase 3 contexts, mostly from make-up Layer [124]. This layer produced three characteristic pieces of bone bead-making waste (SF 2–4 and 10). All three pieces are from cattle or horse long bone that has been split lengthwise and further shaved down to form flat panels or strips. The bead blanks were extracted by way of drilling from both sides, producing a characteristic ridge at the centre of the remaining holes. Two of the panels from Vinegar Yard show the typical row of closely drilled holes while on the third (SF 10) only one blank was produced, while the drilling of the second caused the panel to split and be discarded. The marks of the iron drill and its central pin can be clearly seen on one side of the panel. Numerous similar panels of bead-working waste are known from late medieval to early modern contexts, and from sites across Europe (cf. Egan and Pritchard 1991, 305–17 and figs 307–8; Meyer 1979; Spitzers 1997). The beads would have been produced mainly for rosaries and could be globular as well as discoidal in shape (cf. Riddler and Trzaska-Nartowski forthc). Besides the bead-making waste, a cut tapering strip of leather waste was retrieved from Gully [138].

19.3 Phase 4: Early 17th century to 1740

19.3.1 The vast majority of finds came from this phase, although two contexts sit uneasily within the given date brackets. One is context [3], the backfill of Tanning pit [19], which produced a likely copper-alloy coin, very heavily corroded (SF 12). Associated finds were late 18th/early 19th-century pottery and 19th-century glass (see Jarrett this report) and the condition and corrosion of the coin might fit well with a similar date. The other is context [71], the fill of Pit [72], which included leather and wood along with pottery with a date range of 1805–1900 (see Jarrett this report). The leather, which may be cobbling waste, included a part of upper that might be from a 19th-century boot. The fragment of wood may come from tongue-and-groove panelling, another 19th-century indication. Among the remaining seven finds, more securely associated with the 17th and early 18th centuries, is the near-complete sole of a child's shoe (SF 13). The sole has a pointed toe and narrow instep, a shape that would fit well with a date before 1620. This was before the more widespread use of heeled shoes normally characterised by straight soles rather than ones shaped for the left or right foot (Mould 2008, 14 and fig. 11 no.25). A piece of worked Kentish ragstone is suggestive of a vessel or other container (SF 11). The piece retains parts of a worn edge that appears to correspond well with a curved interior; however, the hard quality of Kentish ragstone

would make it less suitable to be worked in this way (pers comm Kevin Hayward). The remaining finds consist of at least three nails and parts of a heavily corroded iron strap fitting (SF 14). In addition, an unstratified bone cutlery handle may also date from this phase (SF 1). The handle is lathe-turned with a moulded finial finished with a small integral knop. The handle echoes knives of the Elizabethan and Early Stuart periods with decorative separate pommels securing their through-tang hafting (Moore 2006, 12). The shape of the Vinegar Yard handle, too, has parallels in table knives of the late 17th and early 18th centuries (Ibid., 23, top image).

19.4 Significance and recommendations for further work

19.4.1 Metal and small finds potentially provide key elements of domestic material culture and activities related to the investigated site. The finds from the Vinegar Yard site are not numerous but include some significant material dating from the late medieval to early modern periods. Objects of particular interest are the child's leather shoe and the bone bead-making waste. While no further work is recommended at this stage these and other relevant finds should be included in any further publication of the site. To establish fuller identification, and for archival purposes, some corroded metal objects would require x-raying.

19.5 References

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20 APPENDIX 8: BOREHOLE SURVEY ASSESSMENT

By Kate Turner, Pre-Construct Archaeology Limited, December 2018

20.1 INTRODUCTION

20.1.1 This report outlines the findings of an archaeological borehole survey undertaken as part of an archaeological evaluation at the site of Vinegar Yard, Southwark. The purpose of this survey was to address the following research aims, outlined in the Written Scheme of Investigation for the site:

- *What is the nature and OD height of the natural strata on the site?*
- *What is the natural topography of the area?*
- *What is the depth of truncation, relative to natural deposits, of the exiting and/or previous modern foundation works?*

20.1.2 In order to achieve these aims the following actions were proposed:

- *To take boreholes from selected locations within the four excavated trench areas;*
- *To record the stratigraphic sequence from these boreholes, and to use this information, and records of other nearby borehole surveys, to build a transect model for the site.*

20.1.3 The local geology consists of superficial deposits of alluvium overlaying the bedrock, in this case London Clay. The site itself is also located directly south of an outcropping of the Kempton Park Gravel member. Historical data indicates that during the Roman period, Vinegar Yard was towards the eastern end of a gravel eyot which lay in the area of the Guy's channel and was susceptible to frequent flooding. The eastern part of the area excavated by Pre-Construct archaeology, comprising trenches 3 and 4, has been suggested to be located directly within the channel and its catchment area.

20.2 METHODOLOGY

20.2.1 Four geoarchaeological boreholes were put down, one in each of the excavated trenches, by a three-person drilling team from PCA, using an Eijkelkamp gouge set with a Makita HM-1820 percussion breaker. As detailed analysis of the deposits was not required at this stage, closed window sampling was not undertaken, although sub-samples were taken of several of the extracted units, to be examined off-site.

20.2.2 The soils were described in the field using standard procedures; (1) the composition was recorded using the Tröels-Smith scheme (1955); gravel (Gg) medium to fine sand (Gs, Ga), silt (Ag) and clay (As); (2) colour was noted using a Munsell Soil Colour Chart; (3) the degree of humification of organic material was recorded on a scale from 0-4 with '0' being poorly humified, and '4' being completely humified and (4) the unit boundaries were recorded, for example sharp. The results of this assessment are presented in tables 1.1 to 1.4.

20.3 RESULTS

20.3.1 The lithostratigraphic descriptions for boreholes 1 to 4 are presented in tables 1.1 to 1.4 and illustrated in a 2-D transect model (Figure 19), that also incorporates data from five historical BGS boreholes (TQ37NW2250, TQ37NW 2251, TQ37NW 2252 and TQ37NW 2114).

20.3.2 Borehole 1 was located in the southern corner of trench 1. The sequence comprised Made Ground to 2.06m OD, underlain by fine-grained clay alluvium with minimal organic remains (humo 4), reed remains and molluscs to -0.63m OD. At this point the Alluvium becomes sandier, grading into a possible Colluvial deposit at -0.67m OD, comprised of sandy clay with larger gravel inclusions. At -0.70m OD this turns into a slightly sandy clay, with dissolved organics (humo 4), and into a calcium-carbonate rich marl-like deposit with larger gravel inclusions and wood fragments at -0.73m OD. Possible Brickearth is encountered at -1.27m OD to -1.58m OD and is bottomed by Sand at -1.58m OD. Coring was ceased at -2.13m OD; however, the nature of the sediment suggests that Gravel may be present not far below this point.

20.3.3 Borehole 2 was located to the northern end of trench 3. Made ground was recorded from 1.72m OD to 0.72m OD, followed by clay Alluvium with fragments of molluscs and wood to -0.28m OD. From -0.28m OD to -1.0m OD peaty lenses were observed in the Alluvial sequence which became banded towards the base of this unit. From -1.0m OD the alluvium becomes sandier, reaching Sand at 2.90m OD. Coring ceased at -1.28m OD as an obstruction was encountered, which may be the beginning of the Gravel sequence.

20.3.4 Borehole 3 was taken from the centre of trench 4, from the surface under a significantly sized layer of modern occupational debris. Alluvium with bands of slightly organic clay was present from the surface to -0.37m OD, becoming sandier towards the base of the unit. Silty sands were encountered at -0.45m OD, grading into sands at -0.53m OD. Coring was ceased at -1.37m OD due to sediment drop out from the gouge.

20.3.5 Borehole 4 was located at the north east end of trench 2. Made ground was recorded to 0.19m OD, grading into organic clay Alluvium with wood and reed inclusions, this deposit becomes mottled at -0.28m OD, with orange and grey colour banding before transitioning to a marl-like deposit at -0.58m OD. Alluvium with banded sands was present from -0.75m OD to -1.15m OD, indicating the possibility of colluvial in-wash, becoming Sand at the base of this deposit. From -1.72m OD to 2.15m OD Marl was encountered again, interbedded with clay Alluvium and Sands. Sands were reached at -2.15m OD, and coring ceased at -2.67m OD due to an obstruction being hit, which may suggest that the surface of the Gravels has been reached.

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Table 1: Lithostratigraphic description of BH1, TR 1

Depth (BGL) (m)	Depth OD (m)	Thickness (cm/m)	Stratigraphy	Description
0 - 0.36	2.42 to 2.06	36 cm	Made Ground	As3 Ag1, slightly silty clay with anthropogenic inclusions; charcoal and building material. 10YR 4/2 (dark greyish brown).
Sharp boundary				
0.36 - 1.27	2.06 to 1.15	91 cm	Alluvium	AS4, clay alluvium. 10 YR 5/3 (brown).
Diffuse boundary				
1.27 - 2.51	1.15 to -0.09	124 cm	Alluvium	As4 SH+ Molluscs+ Dl+, stiff clay with well humified organic inclusions (humo 4). Gley 1 5/10GY (greenish grey).
Diffuse boundary				
2.51 - 3.05	-0.09 to -0.63	54 cm	Alluvium	As4 SH+ Dh+ Molluscs+, stiff clay with well humified organic inclusions (humo 4) and reed remains. 10 YR 4/1 (dark grey).
Sharp boundary				
3.05 - 3.09	-0.63 to -0.67	4 cm	Alluvium	As3 Ga1 As+ Dl+, slightly sandy clay with small wood fragments. 10 YR 3/1 (very dark grey).
Sharp boundary				
3.09 - 3.12	-0.67 to -0.70	3 cm	Colluvium	As2 Gg2 Gg+, sandy clay with large gravel-sized inclusions, possibly colluvium. 10 YR 5/4 (yellowish brown).
Diffuse boundary				
3.12 - 3.15	-0.70 to -0.73	3 cm	Alluvium	As3 Ga1 Sh+, slightly sandy clay with organic component (humo 4). 2.5 Y 5/1 (grey).
Diffuse boundary				
3.15 - 3.69	-0.73 to -1.27	54 cm	Mudstone/Marl	Lc2 As1 Gg1 Dl+, marl-like calcium- carbonate rich deposit with larger gravel inclusions and wood/charcoal fragments. Grades downwards. Gley 1 5/5 GY (greenish grey).
Sharp boundary				
3.69 - 4.0	-1.27 to -1.58	31 cm	Brickearth	As2 Ag1 Ga1, silty, sandy clay - possible brickearth. 10 YR 4/3 (brown).
Diffuse boundary				
4.0 - 4.55	-1.58 to -2.13	55 cm	Sand	Ga2 Gs2. Sand. 2.5 Y 5/6 (light olive brown).
Stopped coring due to drop out of sand at 4.55 metres				

Table 2: Lithostratigraphic description of BH2, TR3

Depth (BGL) (m)	Depth OD (m)	Thickness (cm/m)	Stratigraphy	Description
0.0 - 0.35	1.72 to 1.37	35 cm	Made Ground	Ag3 As1, made ground with alluvial clay matrix. 10 YR 5/3 (brown)
Diffuse Boundary				
0.35 - 1.0	1.37 to 0.72	65 cm	Made Ground	As3 Ag1 Dl+ Molluscs+, anthropogenic clay alluvium with charcoal, pot and shell inclusions. 10 YR 4/1 (dark grey).
Diffuse Boundary				
1.0 - 2.0	0.72 to -0.28	100 cm	Alluvium	As4 Dl+ Mollusc+, alluvial clay with molluscs and wood. 10 YR 3/1 (very dark grey).
Diffuse Boundary				

Depth (BGL) (m)	Depth OD (m)	Thickness (cm/m)	Stratigraphy	Description
2.0 - 2.72	-0.28 to -1.0	72 cm	Alluvium	As3 Sh1 / As2 Th2, organic clay alluvium with peaty lenses (humo 4) sediments become banded toward base of unit. 10 YR 3/1 / 2.5 Y 2.5/1 (very dark grey/black).
Diffuse Boundary				
2.72 - 2.90	-1.0 to -1.18	18 cm	Alluvium	Ga2 As1 Ag1, sandy silty clay alluvium. 10 YR 4/1 (dark grey).
Diffuse Boundary				
2.90 - 3.0	-1.18 to -1.28	10 cm	Sand	Ga2 Gs1 Ag1 As+ Sh+, sand with organic clay lenses (humo 4). 10 YR 4/3 (brown).
Stopped coring at 3.0 metres as obstruction encountered (possibly gravels)				

Table 3: Lithostratigraphic description of BH3, TR4

Depth (BGL) (m)	Depth OD (m)	Thickness (cm/m)	Stratigraphy	Description
0 - 0.81	0.63 to -0.18	81 cm	Alluvium	As4 Dl+ Molluscs+, clay alluvium with bands of organic clay (humo 4) and wood inclusions toward base. 10 YR 4/1 (dark grey).
Sharp Boundary				
0.81 - 0.87	-0.18 to -0.24	6 cm	Alluvium	As2 Ag1 Th1 Lc+, organic clay (humo 4) with reed inclusions. 10 YR 2/1 (black).
Sharp Boundary				
0.87 - 1.0	-0.24 to -0.37	13 cm	Alluvium	As3 Ga1 Th+, banded sandy clay. 10 YR 3/2 (very dark greyish brown).
1.0 - 1.08	-0.37 to -0.45	8 cm	VOID	VOID
1.08 - 1.16	-0.45 to -0.53	8 cm	Sand	Ga3 As1, silty sand. 10 YR 6/4 (light yellowish brown).
Diffuse Boundary				
1.16 - 2.0	-0.53 to -1.37	84 cm	Sand	Ga4, sand. 10 YR 6/4 (light yellowish brown).
Coring ceased at 2.0m due to sediment drop out from gouge				

Table 1: Lithostratigraphic description of BH4, TR2

Depth (BGL) (m)	Depth OD (m)	Thickness (cm/m)	Stratigraphy	Description
0 - 0.66	0.85 to 0.19	66 cm	Made Ground	Occupational debris, with a clay matrix (As 4).
Diffuse Boundary				
0.66 - 1.0	0.19 to -0.15	34 cm	Alluvium	As4 Ag+ Molluscs + Dl+ Th+, organic clay alluvium (humo 4) with reed and wood inclusions. 10 YR 5/2 (greyish brown).
Diffuse Boundary				
1.0 - 1.13	-0.15 to -0.28	13 cm	Alluvium	As3 Dl1 Th+, clay alluvium with wood and reed inclusions. 10 YR 5/3 (brown).
Sharp Boundary				
1.13 - 1.43	-0.28 to -0.58	30 cm	Alluvium	As4 Th+ Mollusc+, mottled orange/grey clay alluvium with reed inclusions. 10 YR 5/4 / 10 YR 5/1 (yellowish brown/grey).
Sharp Boundary				
1.43 - 1.60	-0.58 to -0.75	17 cm	Mudstone/Marl	Ga 2 As1 Lc1, sandy clay alluvium with marl component. 10 YR 5/1 (grey).
Diffuse Boundary				

Depth (BGL) (m)	Depth OD (m)	Thickness (cm/m)	Stratigraphy	Description
1.60 - 2.0	-0.75 to -1.15	40 cm	Alluvium	Ga 4 / As 4 Lc+ Th+, banded clay alluvium and sand, possible colluvial in wash. 10 YR 6/6 / 10 YR 6/1 (brownish yellow/grey.
Diffuse Boundary				
2.0 - 2.57	-1.15 to -1.72	57 cm	Sand	Ga 4, sand. 10 YR 5/6 (yellowish brown).
Diffuse Boundary				
2.57 - 3.0	-1.72 to -2.15	43 cm	Mudstone/Marl	As 4 Ga+ / Ga 4 Lc+, interbedded clay alluvium with marl component and sand. Gley 1 5/5 GY (greenish grey).
Diffuse Boundary				
3.0 - 3.33	-2.15 to -2.48	33 cm	Sand	Ga 4, sand. 10 YR 5/4 (yellowish brown).
3.33 - 3.52	-2.48 to -2.67	19 cm	VOID	VOID - sand drop out
Coring ceased at 3.52 m as obstruction encountered (suspected gravels)				

20.4 INTERPRETATION

Alluvium

20.4.1 The alluvial sequence recorded during this survey is shallowest in BH3, where it reaches approximately -0.37m OD, levelling down to -1.15 to -1.18m OD in BH2 and BH4 respectively, and then increasing upwards, to -0.73m OD, in BH1. Historical boreholes BH2250 and BH2251, located to the west of trench 1, show alluvium ceasing at -0.91m OD and -1.20m OD. This data could roughly be interpreted to correspond with topographic records for the area during the Roman period, produced by MoLA, which indicate that the location of BH1 is in an area of 'marginal ground' adjacent to the channel, which would be subject to regular flood events, BH2 and BH3, with the deepest alluvial sequence, are within the channel itself, and BH4 is towards the edge of the channel catchment, where deposits become shallower. BH2250 and BH2251 are, according to these records, located within another part of the channel, which could be used to explain the relative depths of water-lain material in these sequences.

20.4.2 The presence of reed material and/or peaty lenses within the alluvial deposits in boreholes 1-4 may be indicative of fluctuating water levels, during which the area has remained uncovered for long enough periods to allowing marshland and reed fen to form. This may be related to lowered river levels, or in the case of borehole 1, periodic flooding of the land adjacent to the channel.

20.4.3 Based on the data from BH2250 and BH2251, the upper level of the alluvium could be as high as 2.99m OD in the area of Vinegar Yard. The highest level recorded for the alluvium in the 2018 borehole survey was 2.06m OD, in BH1, and the lowest 0.19m OD in borehole 4, which is significantly lower than in these previous boreholes, with alluvium being completely absent in BH2252 and BH2262; this suggests that modern foundation works in the area may have significantly truncated this deposit.

Sands and Gravels

20.4.4 According to the BGS lexicon records for the local region, bands of sand are commonly found in the Holocene alluvial sequences around Southwark. The material encountered to the base of boreholes 1 and 3 may be the eroded surface of the sand/gravel islands (eyots) that are known to be present in the area, and in boreholes 2 and 4 could be part of the base of the river channel. The height of these compared to the levels of sand/gravels in previous surveys, would again suggest an environment of gravel islands interspersed with small channels. The gravel encountered at the base of boreholes 2 and 4 (-1.28m OD and -2.48m OD) is likely to be the point at which the weathered sand surface ceases, and the main gravel of these eyots is reached.

20.5 CONCLUSIONS

20.5.1 The information recorded in the PCA boreholes broadly corresponds with data from previous work undertaken by the Museum of London Archaeology Service (MOLA 2011) and the British Geological Survey, indicating that the historical landscape around Vinegar Yard was dominated by series of gravel eyots, interspersed with narrow channels. There is also shown to be substantial truncation of the alluvial deposits by modern foundation work.

20.5.2 Due to the potential for preservation of organic material within sections of the alluvium, in the form of well humified organic silts, and wood and reed material, further fieldwork is suggested. Closed-window sampling should be undertaken in at least four areas across the site, with the aim of collecting the complete alluvial sequence, in order to undertake micro and macro environmental analysis and radiocarbon dating. Samples should be taken across the recovered sequences to assess the potential for the preservation of micro remains such as pollen and diatoms, which may aid in reconstructing the environment and hydrology of the area. If suitable macro plant material is recovered, then radiocarbon dating should be carried out to establish the date of the collected sequences, with rangefinder dates taken at the top and base of the alluvial sequence. If this is not possible then dating of bulk material may be desirable.

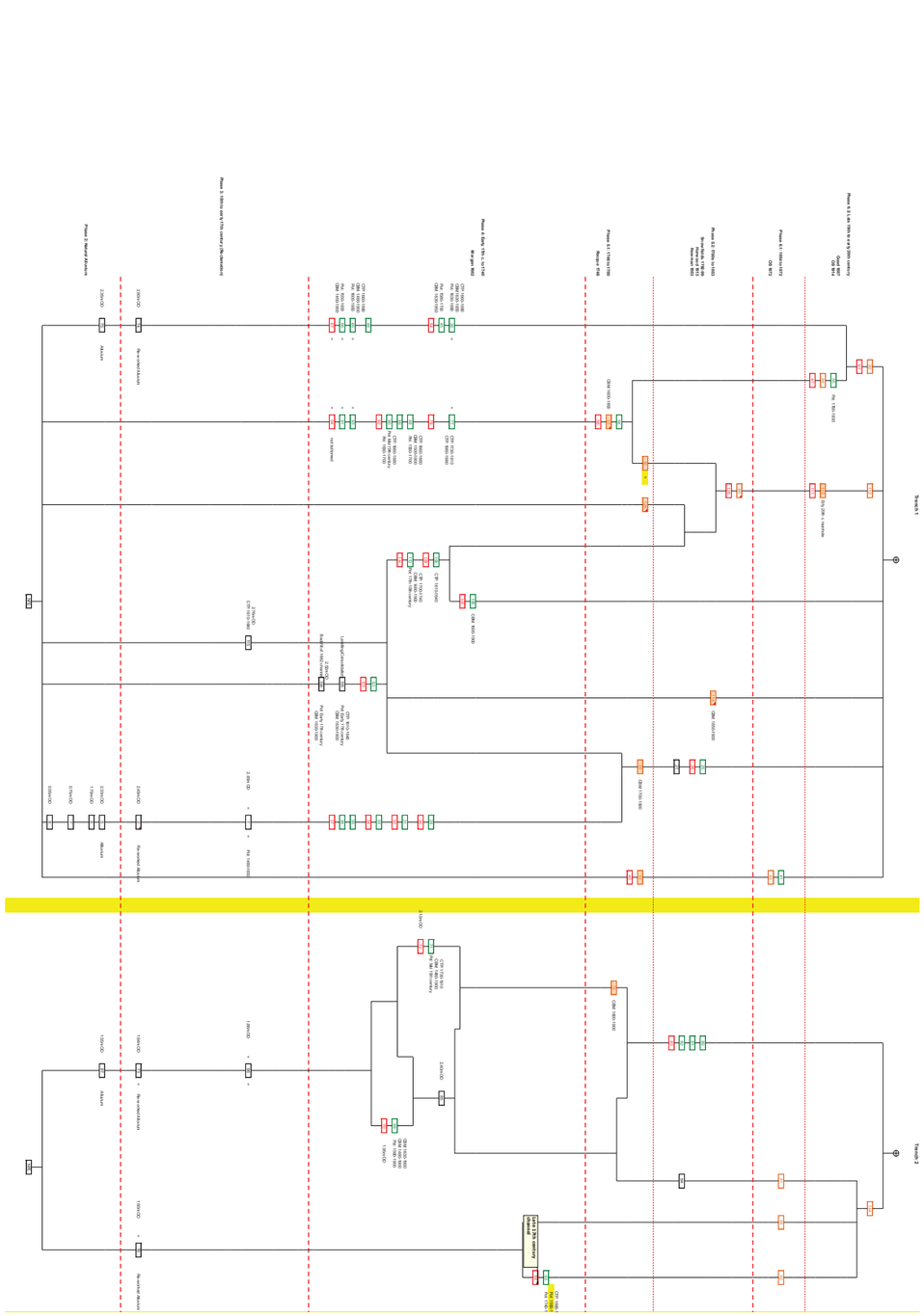
21 APPENDIX 9: OASIS FORM

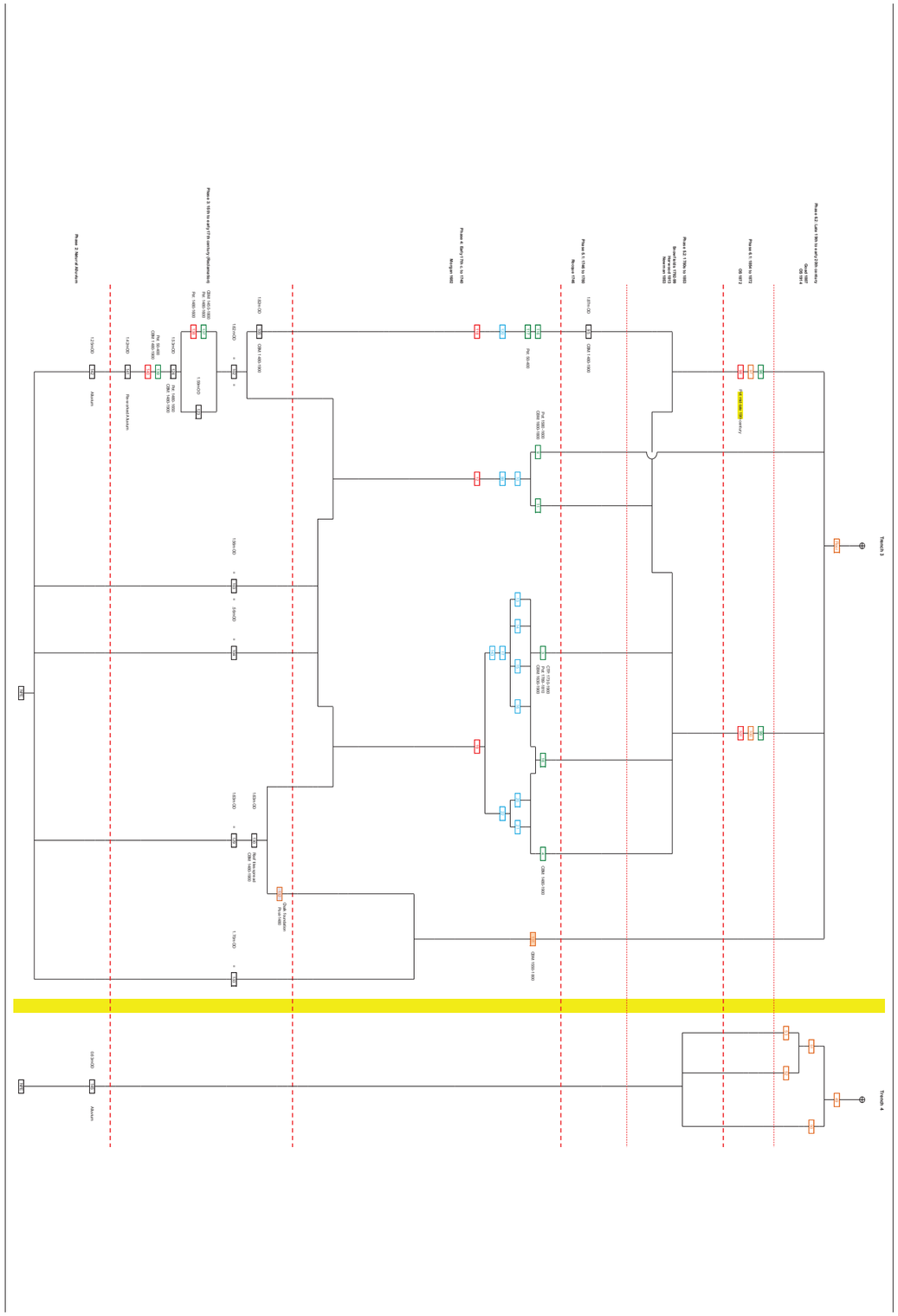
OASIS ID: preconst1-336651

Project details	
Project name	An Archaeological Evaluation at Vinegar Yard/St Thomas Street, Southwark
Short description of the project	The excavation of evaluation Trenches 1, 2, 3, and 4 uncovered a sequence of archaeological deposits spanning from the 15th century to the late 19th century, which were phased as follow: Phase 2 (Undated Alluvium); Phase 3 (15th to early 17th century reclamation activity); Phase 4 (Mid 17th to early 18th century); Phase 5 (18th century) and Phase 6 (19th century). The archaeological evidence from Phase 2 consisted of a sequence of undated alluvial deposits varying in thickness across the site. A borehole survey was carried out by Pre-Construct Archaeology Limited and the results are detailed in this report. The archaeological evidence for Phase 3 shows that reclamations works associated with the natural channel and the marshland environment started as early as the 15th century. These works consisted of drainage features (gullies) and reclamation dumps. A chalk foundation located in the southeast part of the site (Trench 3) was dated between the late 15th and 16th centuries. During Phase 4 the site was already developed with tanning activity carried out in the southeast part of the site and the canalisation of the natural channel. During Phases 4.1 and 4.2 the site underwent further development. The manmade channels were diverted into underground masonries drains and the areas previously occupied by the channels was further developed. Between the second half of the 19th and early 20th centuries the site was extensively redeveloped with the construction of large warehouse which occupied the east part of the site.
Project dates	Start: 05-11-2018 End: 22-11-2018
Previous/future work	No / Yes
Any associated project reference codes	VYS18 - Sitecode
Type of project	Field evaluation
Site status (other)	Archaeological Priority Area
Current Land use	Vacant Land 1 - Vacant land previously developed
Monument type	MASONRY Medieval
Monument type	MASONRY Post Medieval
Monument type	DITCH Post Medieval
Monument type	PIT Post Medieval
Significant Finds	CLAY TOBACCO PIPES Post Medieval
Significant Finds	BONE BEAD Post Medieval
Significant Finds	POTTERY Roman
Significant Finds	POTTERY Medieval
Significant Finds	POTTERY Post Medieval
Project location	
Country	England
Site location	GREATER LONDON SOUTHWARK SOUTHWARK Vinegar Yard/St Thomas Street, London Borough of Southwark
Postcode	SE1
Study area	2700 Square metres
Site coordinates	TQ 3310 7990 51.501843477324 -0.082141593167 51 30 06 N 000 04 55 W Point
Lat/Long Datum	Unknown
Height OD / Depth	Min: 0.63m Max: 2.35m

Project creators	
Name of Organisation	Pre-Construct Archaeology Limited
Project brief originator	Mills Whipp Projects Ltd
Project design originator	Mills Whipp Projects Ltd
Project director/manager	Chris Mayo
Project supervisor	Ireneo Grosso
Type of sponsor/funding body	Developer
Name of sponsor/funding body	CIT
Project archives	
Physical Archive recipient	LAARC
Physical Contents	"Animal Bones","Ceramics","Glass","Leather","Metal","Worked bone","other"
d	
Digital Archive recipient	LAARC
Digital Contents	"Environmental","Stratigraphic","Survey"
Digital Media available	"Database","GIS","Images raster / digital photography","Survey","Text"
Paper Contents	"Stratigraphic","Survey"
Paper Media available	"Context sheet","Diary","Miscellaneous Material","Plan","Section"
Project bibliography 1	
Publication type	Grey literature (unpublished document/manuscript)
Title	Vinegar Yard/St Thomas Street, London Borough of Southwark SE1: An Archaeological Evaluation
Author(s)/Editor(s)	Grosso, I.
Date	2018
Issuer or publisher	Pre-Construct Archaeology Ltd
Place of issue or publication	London
Description	A4 report
Entered by	Ireneo Grosso (igrosso@pre-construct.com)
Entered on	12 December 2018

Appendix 10: Site Matrix





An Archaeological Evaluation at Vinegar Yard/St Thomas Street, SE1, London Borough of Southwark

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