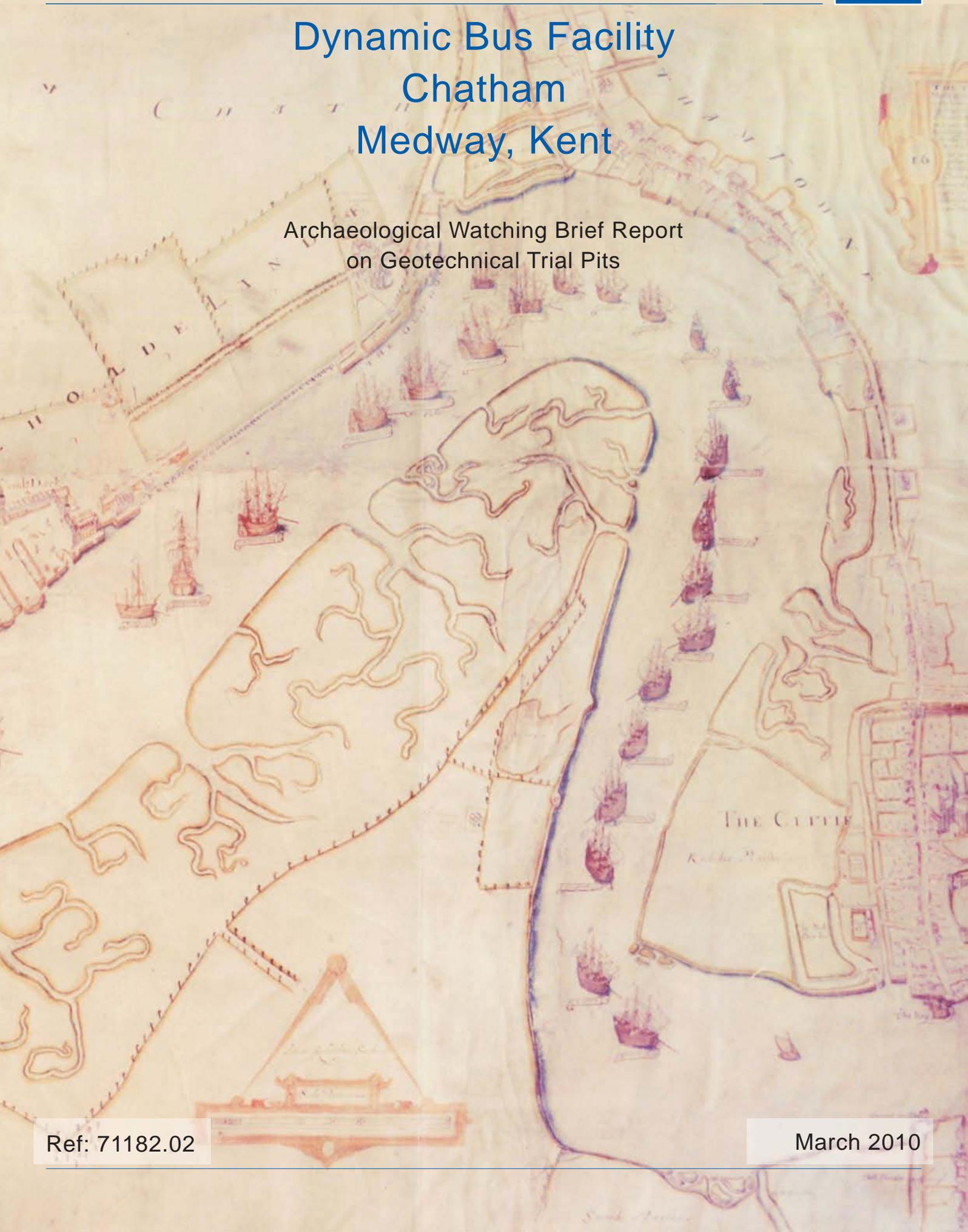




## Dynamic Bus Facility Chatham Medway, Kent

Archaeological Watching Brief Report  
on Geotechnical Trial Pits





**Dynamic Bus Facility  
Chatham  
Medway, Kent**

**Archaeological Watching Brief Report on  
Geotechnical Investigations**

NGR: 575782,168104

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# **Dynamic Bus Facility Chatham Medway, Kent**

## **Archaeological Watching Brief Report on Geotechnical Investigations**

### **Summary**

Wessex Archaeology was commissioned by Medway Council to undertake an archaeological watching brief during geotechnical investigations within the proposed footprint of the Dynamic Bus Facility, Chatham, Medway, Kent (hereafter 'The Site'), centred on National Grid Reference (NGR) 575782,168104.

The geotechnical investigations were required in order to determine existing structural foundations and buried services across the Site that may affect the proposed design and associated enabling works for the development.

Originally, seven geotechnical trial pits and five boreholes were to be excavated across the Site. Wessex Archaeology however requested that an additional trial pit be located within the impact footprint of a pumping station. This footprint appears on cartographic evidence to overlie the position of a former defensive bastion. Two unplanned trial pits were also opened during the geotechnical investigation: one to replace a trial pit that had hit an obstruction and the other, to further investigate a service that had been revealed. Similarly, the excavation of a borehole had to be abandoned and recommenced elsewhere.

In total, nine of the ten trial pits and three of the six borehole investigation pits were excavated under constant archaeological supervision. Most of the pits were dug by hand to a depth of between 1.20m and 1.53m below ground level, when unhindered by services or a concrete obstruction. The three trial pits opened by mechanical excavator were deeper, ranging between 1.70m and 2.05m below ground level in depth.

During the watching brief, two post-medieval/modern features were uncovered within two separate trial pits. These features comprised a shallow layer of laid brick with an unknown function and a brick culvert. No other archaeological features, deposits or artefacts were identified within the trial pits or borehole investigation pits. The stratigraphy in the remainder has been identified as made ground, comprising largely of chalk or clay consolidation layers, used to raise ground levels and reclaim marshland.

The bore holes identified potentially important environmental sequences surviving below the made ground, comprising of alluvium and peat deposits, and it is possible that some of the deepest peat deposits may date to the Late Mesolithic or Early Neolithic periods.

# **Dynamic Bus Facility Chatham Medway, Kent**

## **Archaeological Watching Brief Report on Geotechnical Investigations**

### **Acknowledgments**

Wessex Archaeology would like to thank Medway Council for commissioning this watching brief. Gratitude is extended to Richard Harper of Mott MacDonald Limited for providing schedule information concerning the groundwork programme and to Josef Selway of Northwest Holst for providing the borehole logs.

The project was managed on behalf of Wessex Archaeology by Richard Greatorex, who also edited this report. Caroline Russell conducted the fieldwork and prepared the report. The illustrations were prepared by Kenneth Lymer.

# Dynamic Bus Facility Chatham Medway, Kent

## Archaeological Watching Brief Report on Geotechnical Investigations

### Contents

<b>1</b>	<b>INTRODUCTION .....</b>	<b>1</b>
1.1	PROJECT BACKGROUND .....	1
1.2	SITE DESCRIPTION .....	2
<b>2</b>	<b>ARCHAEOLOGICAL AND HISTORICAL BACKGROUND .....</b>	<b>2</b>
2.1	PREHISTORIC SETTLEMENT (100,000BC - AD43) .....	2
2.2	ROMANO-BRITISH SETTLEMENT (AD 43-410).....	3
2.3	SAXON AND MEDIEVAL SETTLEMENT (AD410-1500) .....	3
2.4	POST-MEDIEVAL AND MODERN SETTLEMENT (AD 1500-PRESENT) .....	4
2.5	DEVELOPMENT OF THE EXTANT BUILT ENVIRONMENT .....	6
<b>3</b>	<b>AIMS .....</b>	<b>8</b>
3.1	ARCHAEOLOGICAL WATCHING BRIEF .....	8
<b>4</b>	<b>HEALTH AND SAFETY .....</b>	<b>8</b>
<b>5</b>	<b>METHOD.....</b>	<b>8</b>
5.1	MONITORING OF INVESTIGATIONS .....	8
<b>6</b>	<b>RESULTS .....</b>	<b>9</b>
6.1	ARCHAEOLOGICAL FEATURES (APPENDIX 1) .....	9
6.2	STRATIGRAPHIC SEQUENCE (APPENDICES 1-4).....	10
<b>7</b>	<b>FINDS .....</b>	<b>10</b>
<b>8</b>	<b>ENVIRONMENTAL.....</b>	<b>10</b>
<b>9</b>	<b>CONCLUSIONS .....</b>	<b>11</b>
<b>10</b>	<b>ARCHIVE .....</b>	<b>12</b>
10.1	PREPARATION AND DEPOSITION .....	12
<b>11</b>	<b>REFERENCES .....</b>	<b>12</b>

### APPENDICES

- Appendix 1** Context summary table for trial pits
- Appendix 1** Context summary table for borehole investigation pits
- Appendix 3** Excavation logs for trial pits (provided by Northwest Holt)
- Appendix 4** Excavation logs for boreholes (provided by Northwest Holt)

### FIGURES

- Figure 1** Site location plan, proposed site layout, and boreholes and trial pits

- Figure 2** Plan showing the potential location of key archaeological features on Site, identified through map regression and overlaid with the current development scheme, in relation to the boreholes and trial pits
- Figure 3** Plan showing location of present and previous buildings on the Site, overlaid with the current development scheme, in relation to the boreholes and trial pits
- Figure 4** Ordnance Survey Map, 1932, with boreholes and trial pits overlaid

**PLATES**

- Plate 1** Laid brick (**103a**) within TP DBF 01a: facing south-east
- Plate 2** Brick culvert (**503/503a**) within TP DBF 05 and TP DBF 05a: facing south-west

**FRONT COVER:** Map of Chatham Docks, 1633

# Dynamic Bus Facility Chatham Medway, Kent

## Archaeological Watching Brief Report on Geotechnical Investigations

### 1 INTRODUCTION

#### 1.1 Project background

- 1.1.1 Wessex Archaeology were commissioned by Medway Council (hereafter 'the Client') to undertake an archaeological watching brief during geotechnical investigations within the proposed footprint of the Dynamic Bus Facility, Chatham, Medway, Kent (hereafter 'The Site'), centred on National Grid Reference (NGR) 575782,168104 (**Figure 1**).
- 1.1.2 The design scheme (issued November 2009) comprises the introduction of a new road system, including a new branch of Globe Lane and a slight realignment of the existing (historic) Globe Lane. The development will include the introduction of thirteen dynamic bus stands serviced by free standing platform buildings with associated seating and information boards. A detached information centre to the immediate south of the bus stands, installation of services and amendments to the soft and hard landscaping are also proposed. Also included in the design is a utility trench which runs approximately north to south-west of the westernmost bus stand (for all of the above see **Figure 1**).
- 1.1.3 The current geotechnical investigations were required for engineering purposes, in order to determine existing structural foundations and buried services across the Site that may affect the proposed development design and associated enabling works. A specification by Mott Macdonald (Mott Macdonald 2009) was prepared on behalf of the Client detailing the methods by which the geotechnical work was to be undertaken. Seven geotechnical trial pits and five bore holes were proposed for excavation.
- 1.1.4 An archaeological Written Scheme of Investigation (WSI) was prepared in advance of the watching brief (Wessex Archaeology 2010). It set out the manner in which Wessex Archaeology was to monitor the geotechnical investigations at the Site. Within the WSI, Wessex Archaeology requested that an additional geotechnical trial pit (**TP DBF 09**) be opened, located within the impact footprint of the pumping station. This footprint appears on cartographic evidence to overlie the position of a former defensive bastion (see **Figure 2**).
- 1.1.5 The watching brief was undertaken by Caroline Russell and involved five Site visits between 14<sup>th</sup> and 20<sup>th</sup> January 2010.

## 1.2 Site description

- 1.2.1 The Site is located within the centre of Chatham, Medway, Kent, which lies on the south-east bank of the River Medway to the south-east of the town of Rochester and to the west of the town of Gillingham (**Figure 1**).
- 1.2.2 The Site comprises an irregular parcel of land occupying an area of approximately 1.16 hectares and encompassing the alignment of Globe Lane and open and landscaped land to the west. The north-eastern extent of the Site is bounded by The Brook and Dock Road. The Site extends west of Globe Lane; encompassing an area occupied by part of the Library and car park along with two detached 19th century buildings (the White House and the Riverside Rooms) set amongst trees and open space.
- 1.2.3 The topography of the Site is generally flat at approximately 5m above Ordnance Datum (aOD). The Site sits within a narrow valley where a stream (The Brook) once drained into the adjacent River Medway. High ground comprising Upper Chalk bedrock is situated to the south-west and immediately to the north-east. The underlying geology of the Site is mapped as (Holocene) alluvium (British Geological Survey, Drift, Sheet 272, 1:50,000).

## 2 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

### 2.1 Prehistoric settlement (100,000BC - AD43)

- 2.1.1 Little evidence of prehistoric activity is recorded within the immediate environs of the Site. However, the rich and varied natural resources of the valley of the River Medway and its marshy, floodplain environment, would have been very attractive to prehistoric cultures.
- 2.1.2 Palaeo-landscapes of potential Mesolithic-Neolithic date are likely to occur within, or in the near vicinity of the Site, beneath the modern ground surface. However, it would require a programme of geoarchaeological borehole sampling (similar to that recently carried out at Strood Riverside, Wessex Archaeology 2007) to establish the depth of such deposits.
- 2.1.3 During Neolithic times, it is likely that the River Medway would have seen much activity as a means of communication and transport as well as for food purposes.
- 2.1.4 The earliest evidence for settlement activity within the immediate area comes from near to Highsted Wood, where an excavation trench found a number of pottery sherds dating to the Bronze Age and Iron Age.
- 2.1.5 It is likely that by the later prehistoric period the Thames and Medway would have seen regular boat traffic to and from the Continent. It is, therefore, possible that wrecks dating to the Bronze Age and later periods may be found in the sediments of the riverbed or sealed within the alluvium of the riverside margins (Wessex Archaeology 2007, 7).

## **2.2 Romano-British settlement (AD 43-410)**

- 2.2.1 The nearby town of Rochester originated as the important Roman town of Durobrivae (the fort at the bridges, VCH 1932, 81) and the main Roman road between Rochester and Canterbury runs to the south-west of the Site.
- 2.2.2 Evidence for Roman activity comes from several sites in the vicinity, with the most significant settlement evidence comprising foundations of a building with painted wall plaster, pottery and coins dating to the first century AD. Elsewhere, Roman pottery has been found during excavations near to Highsted Wood and evidence for Romano-British urn burials were discovered at the Brook Mission Hall. A Romano-British lead coffin was discovered on the opposite side of the River Medway in 1838.
- 2.2.3 The topographical position of the Site adjacent to the River Medway and the proximity of the Site to the important Roman town of Rochester could indicate that there is some potential for encountering maritime or other remains of the period. Although situated away from the Roman town, it is probable that the area was used for fishing and even possibly for salt production.

## **2.3 Saxon and Medieval settlement (AD410-1500)**

- 2.3.1 The origins of Chatham appear to have begun on the high ground above the River Medway around the parish church of St Mary's. An early Anglo-Saxon burial ground was found nearby in the late 18th - early 19th centuries when a group of small tumuli situated on the western slope of the steep hill facing Rochester were disturbed during excavation of the Chatham lines defensive works. Excavation of these barrows unearthed inhumations accompanied by grave goods including swords, shield umbos, spearheads, brooches, beads glassware, pottery and Roman coins.
- 2.3.2 At a similar time to the development on the high ground, linear development was also taking place on the line of the Roman road leading out of Rochester as it followed the higher ground on the south-west side of the valley of the Brook (Kendall 2007, 1). It is unlikely that there would have been any development of the ground currently occupied by the Site. The ground would at this time have comprised marshland which, with The Brook running through, would always have been wet and marginal, especially at the north-western extent of the valley where The Brook joined the River Medway.
- 2.3.3 By the medieval period Chatham consisted of two centres with a development around the church and a ribbon development situated along the road from Rochester. Access between the two centres was made possible via a causeway, which led over the low-lying boggy ground at the mouth of The Brook. This causeway appears to have served as a defence against flooding, becoming known as the Land Wall (ibid). The nature of such a large structure on a river margin that was often prone to flooding suggests that this was likely to be a man-made structure, which would have needed to have been maintained on a fairly regular basis.
- 2.3.4 The line of the Land Wall would appear to be represented by the present day Globe Lane with a mill on the site probably by the late medieval period,

as shown in the earliest maps of Chatham. Despite the presence of the Land Wall and a mill, no archaeological evidence exists for medieval settlement activity within the immediate area indicating that the land in the vicinity of the Site was still largely unusable marshland.

## **2.4 Post-medieval and modern settlement (AD 1500-present)**

- 2.4.1 On the river side (north-west) of the Land Wall post-medieval maps indicate the presence of a Mill Pond with a painting of 1633 showing that the base of the river valley was still undeveloped during the early 17th century (**Figure 2**). As well as the difficulty of development within a marshy area the lack of settlement may have been for health reasons. Several hot decades, which occurred during the 17th century, are recorded as affecting low-lying areas, which were accompanied by widespread outbreaks of malaria, known then as “marsh fever” or “ague” (Dobson 1997).
- 2.4.2 Evidence of settlement activity close to the Site is recorded away from the river valley, with a collection of 17th century rubbish and cess pits and an early 17th century house.
- 2.4.3 Maps of 1708 and 1719 (not reproduced) give more detail of the Mill Pond and Land Wall and illustrate the growth of Chatham town with the expansion of the dockyard (Kendall 2007, 2), with buildings clustered either side of the Mill Pond. The 1719 map reveals that the Mill Pond appears to have been capable of being filled both by The Brook and the tidal River Medway. A study of the two maps indicates that development extended to the north of the mill including the Gun Wharf and houses, although the base of the valley of The Brook (including The Paddock immediately east of the Site) still remained undeveloped and described as marsh. Development either side of the valley continued apace during this time with houses and industries surviving from the period.
- 2.4.4 In response to a perceived threat of a landward attack on Chatham, in 1756 a decision was made to fortify the dockyard with the creation of the Chatham Lines. This required the compulsory acquisition of most of the land and properties around the parish church of St Mary the Virgin and the demolition of many properties including the tide mill (ibid). This is likely to account for the absence of many late medieval and early post-medieval buildings which originally were present adjacent to the church. Such works had no direct impact on the Land Wall (now Globe Lane).
- 2.4.5 By the mid-late 18th century development had spread along either side of the higher slopes above The Brook and was only held in check by the boundary of the Government land ownership (ibid 4). A map of 1763 (not reproduced) reveals that the Mill Pond had disappeared by this time with the site becoming mud flats.
- 2.4.6 By the end of the 18th century the area to the south-east of the Land Wall occupied by marshland had now been drained, with The Brook channelled into a series of narrow open canals which served as open sewers. As Chatham’s population swelled to 10,505 by 1801 the area became covered with low class housing and narrow alleyways. The growing population relied on the culverts and cess pits to deal with the ever increasing waste. The Land Wall and the recently constructed river wall had the effect of making

the central area of Chatham like a cupped hand with little natural flow of water and frequent flooding (Brook pumping station website 2009).

- 2.4.7 In 1803 a decision was made to completely remodel the Chatham Lines. This re-fortification created Fort Amherst as it exists today and saw the Barrier Ditch built in its present form, with two roadways across it in place of the one that had existed to this date (Kendall 2007, 4). Construction began on a new road to serve the garrison area, further away from the river on higher ground. Military Road, as it was named, defined the south-eastern extent of The Paddock east of the Site. A plan of 1804 (not reproduced), shows the proposed works, and earlier plans dating to 1796 (not reproduced) indicate that originally the Military Road was on a completely different alignment to the present arrangement.
- 2.4.8 By 1806 the proposed arrangement of 1803 had been implemented with the road to the south-east of The Paddock described as New Road (ibid). This work coincided with the work on the Chatham Lines, with supplies of brick and timber being brought in by ship adjacent to the Land Wall. A map of 1806 (not reproduced) shows that the current shape of The Paddock had been established, with the area being used as a 'Timber Pound' before being transported to carpenters shops and sawpits located in the area presently occupied by the Town Hall. The work on the Chatham Lines included defensive works present or once present within the Study Area.
- 2.4.9 Following the work on the Chatham Lines it was considered that the existing Gun Wharf had outgrown its cramped site within the fortification. It was therefore decided to reclaim land from the river in the location of the former Mill Pond (ibid). A map of 1816 (not reproduced) shows that the New Gun Wharf had been completed by this time, with a series of buildings possibly representing warehouses or storerooms constructed on the north-west side of Globe Lane adjacent to open land.
- 2.4.10 Chatham started to expand into the valley bottom during the early 19th century in addition to the valley sides. A number of houses, a brewery and two churches close to the Site date from the early 19th century. An Admiralty map of 1840 (not reproduced) shows The Paddock with tree cover and assuming the same broad character with mature trees as it now retains. It is likely that The Paddock was by this date surplus to Board of Ordnance requirements and that the site was left for civilian use, most probably as grazing (ibid). A Board of Ordnance return for 1851 confirms that by that date The Paddock was leased out. To the south-east of The Paddock the developing town around The Brook was not the most pleasant place to live, with the Court Leet Papers from the beginning of the century showing an increasing concern with both the health of the town and the increasing pollution of the river that was killing off both the oyster and the fishing industry with the loss of estuarial fish (Brook pumping station website 2009). The young Charles Dickens lived at 18 The Brook between 1821 and 1823; he did not enjoy the experience (ibid).
- 2.4.11 By the late 19th century new fortifications (The Chatham Ring) made the Chatham Lines redundant, allowing for urban development where formerly encroachment by housing had been forbidden. The 1866 Ordnance Survey map (not reproduced) reveals that Chatham was developing to the south-east of The Paddock, which at this time was known as The Shrubbery.

Terraced housing accessed off 'Dark Lane' and 'Medway Street' is shown within the southern Site boundary at this date marking the limit of open ground formally occupied by New Gun Wharf and mudflats west of Globe Lane.

- 2.4.12 By the late 19th century the need to control building development adjacent to the now defunct Chatham Lines had been relaxed, with the appearance of significant and established new buildings including a school to the north-east of The Paddock (ibid). Other buildings established within close to the Site during this period included the theatre, Chatham Sun Pier (which was constructed on the site of a pier dating back to the late 18th century) and a public house at 248 High Street.
- 2.4.13 The site of the future Town Hall was not occupied until 1899, appearing for the first time on the 1932 Ordnance Survey map (**Figure 4**). The Paddock is first named as such (as opposed to The Shrubbery) on the 1932 map. West of The Paddock and Globe Lane, the Site was occupied by a tramway, associated depot and the War Department Gun Wharf. The White House which remains extant within the Study Area was in use as the Ordnance Officers Quarters.
- 2.4.14 By 1901, the population of Chatham had expanded to 36,944. Early 20th century development within proximity of the Site continued with two banks, a Sailors Home and a statue of Lord Kitchener. With the increase in population came the inevitable increase in pollution, leading in 1911 to the establishment of the Drainage Committee under the chairmanship of Alderman E A Billingshurst. Together with the engineer Mr. W H Radford, these two men saw the creation of the Brook Low Level Pumping Station project through to its completion in 1929 (Brook pumping station website 2009).
- 2.4.15 Development occurred within The Paddock for the first time some time after 1932. The 1955 Ordnance Survey map (not reproduced) reveals a complex of buildings at the south-western end of The Paddock including a restaurant, lavatories and the Imperial Forces Public House, with a car park situated to the north-east. The development was ringed by trees on the north-western side of The Paddock. The area west of Globe Lane is shown as blank at this date. It may be that the area was not mapped because of its military function.
- 2.4.16 Evidence of WWII military defences within the proximity of the Site, includes three pillboxes and a Spigot mortar emplacement.
- 2.4.17 The development within The Paddock was demolished and the present situation established during the early 1980s as part of the redevelopment of the south-east side of Military Road, which included the construction of Mountbatten House and the Pentagon Shopping Centre.

## **2.5 Development of the extant built environment**

- 2.5.1 The urban morphology that remains recognisable today was developed in the first decade of the 19th century, as evidenced by a map of 1804 which shows the proposed layout of Military Road, parallel and to the north of Globe Lane, which ran along the Land Wall. It was this development, which

had been implemented by 1806, which created the linear parcel of land now known as The Paddock, set between the parallel roads which also survive today. The function of the new road is clearly shown on a plan of 1806 which identifies it as the 'New road to the Lines and Fort Pitt', which were under construction at the time.

- 2.5.2 By 1816, the eastern frontage of this new road and the western frontage of Globe Lane had been developed, leaving The Paddock as a linear island of undeveloped open space down the centre, with clear visual connections to the open land adjacent to the Lines to the north, and outside the Old Gun Wharf to the north-west. Built development had also taken place on the land block to the south of The Paddock.
- 2.5.3 An Admiralty map of 1840 (not reproduced) is the first to show The Paddock with tree cover, similar in character to that of areas to the north-east, later occupied by the former Town Hall and National Schools. The National Schools had been built by 1866, but retained much of the tree cover of their site, and by this date the tree covered island had been given the name of The Shrubbery.
- 2.5.4 By 1898, further schools buildings had been constructed on the north-east side of Church Hill, immediately to the north of The Shrubbery, and which extended up to the line of the fortifications.
- 2.5.5 The former Town Hall was constructed in 1899, on the last remaining undeveloped site to the north-east of The Shrubbery. This area of open space obviously formed a very significant element of the setting of this important civic building, though a postcard at the turn of the 19th/20th centuries shows that it was still let out by the War Department and used as pasture at this date.
- 2.5.6 In the second decade of the 20th century, the local authority developed a programme to form areas of public open space in the town, through which they purchased the Shrubbery and laid it out as a small park, with new boundary treatments, serpentine paths and formal tree planting. It is probable that the name of this area of public open space was changed to The Paddock at this time, as it is shown by the latter name on the OS map of 1932 (**Figure 4**), which also shows that the park was furnished with public lavatories at its southern end.
- 2.5.7 A view along Military Street dating to the early 20th century shows the visual prominence of the town hall at this date; partially closing the view, but allowing views to the military fortifications beyond. The mature trees of The Paddock provide a natural linear mirror to the terrace of commercial and residential properties on the east side of the road at this date.
- 2.5.8 The 1932 map also shows the built development of the New Gun Wharf at this date (which had been conspicuously omitted from earlier OS editions), with linear development along the Globe Lane frontage, and large War Department sheds behind, served by a tramway. The buildings on Gun Wharf included the Ordnance Officers Quarters, which is shown on a plan of 1816 (**Figure 4**), and the smaller ordnance building to its south.

2.5.9 The 1955 map shows a large restaurant occupying much of the southern half of The Paddock, with other structures along its eastern side, and appears to indicate that the tree cover has been reduced to a line of trees along the western perimeter of the 'island'. The northern half of The Paddock was used for the temporary location of retail outlets during the major construction of the Pentagon Centre in the late 1970s, and these, together with the restaurant, were removed following the opening of the new shopping centre. The eastern side of The Paddock was remodelled at this time; reducing the width of Military Road, and radically changing the pattern of vehicle movement. The surviving character of the Paddock dates from this time. The late 20th century redevelopment of the area also included the construction of the multi-storey Mountbatten House to the south-east of The Paddock.

### **3 AIMS**

#### **3.1 Archaeological Watching Brief**

3.1.1 The aims of the watching brief will be to:

- provide further information concerning the presence/absence, date, nature and extent of any buried archaeological remains and to investigate and record all archaeological features revealed during groundwork.
- to inform and provide information for any future archaeological evaluation or other stages of archaeological mitigation that maybe required.

### **4 HEALTH AND SAFETY**

4.1.1 All work was carried out in accordance with the Health and Safety at Work Act 1974 and the Management of Health and Safety regulations 1992. A Project Health and Safety Risk Assessment was produced by Wessex Archaeology.

### **5 METHOD**

#### **5.1 Monitoring of Investigations**

5.1.1 Under constant archaeological supervision, seven geotechnical **Trial Pits (DBF 01-05, 01a and 05a)** were excavated by hand, whilst the other three **Trial Pits (DBF 07-09)** were excavated with the use of a 3.5t mechanical excavator with a toothless bucket. **TP DBF 06** was not undertaken.

5.1.2 **Trial Pits DBF 01, 01a and 02-03** were located within the car park, whilst **Trial Pits DBF 04-05a and 09** (the requested archaeological trial pit) were excavated on the landscaped grass area within the northern half of the Site. The remaining Trial Pits **DBF 07 and 08** were opened adjacent to the old Ordnance Officers Quarters (the White House) in order to determine the depth of this building's structural foundations.

5.1.3 The excavation of **TP DBF 01** had to be abandoned, on hitting a concrete obstruction at 0.25m below ground level, and opened close by as **TP DBF**

**01a. TP DBF01** was not archaeologically monitored or recorded. Due to the presence of services, **TP DBF 08** had to be repositioned to a different side of the building. **TP DBF 09** also had to be relocated, as its original position stood outside the area surveyed for services prior to the geotechnical investigation. This trial pit was still nevertheless placed over the former bastion defence.

- 5.1.4 The hand excavated trial pits were approximately c.0.40m<sup>2</sup> in plan with a depth of between 1.46m and 1.53m below ground level (bgl), where unhindered by services or concrete. **TP DBF 05a** was slightly larger and more irregular in shape, having been opened to solely determine the alignment of a brick culvert identified within the adjacent **TP DBF 05**. **Trial Pits DBF 05** and **05a** had to stop at 0.61m and 0.9m respectively on reaching the brick culvert (**503/503a**). **TP DBF 01a** was abandoned at at 1.25m bgl on hitting a lead pipe, having already been widened after exposing a ceramic pipe closer to the ground surface.
- 5.1.5 The machine excavated trial pits were between 1.45m and 2.00m long and 0.79m and 1.14m wide. They had a depth of between 1.7m and 2.05m below ground level.
- 5.1.6 Excavation of the investigation pits for **Bore Holes DBF 03-05** was also archaeologically monitored, unlike for **Bore Holes DBF 01, 01a** (the replacement for **01** upon its abandonment) and **02**. This is because **Bore Holes DBF 01a** and **02** were in the process of being drilled when the watching brief commenced. The investigation pits were of a similar size in plan to the trial pits, but had a shallower depth of c.1.20m bgl. **Bore Holes DBF 03** and **05** were both relocated due to encountering subsequent obstructions.
- 5.1.7 All recording was undertaken using Wessex Archaeology's *pro forma* recording system, supported by a digital photographic record.

## 6 RESULTS

### 6.1 Archaeological Features (Appendix 1)

- 6.1.1 Archaeological features were only identified within two of the trial pits, and in none of the bore holes.
- 6.1.2 In **TP DBF 01a**, a feature (**103a**) of uncertain function, comprised of laid red brick courses was observed between two layers of made ground (**102a** and **104a**), 0.48m below ground level (**Plate 1**). This brick coursing layer was only about three courses (or 0.32m) thick. The feature is presumably either post-medieval or modern in date. Within the restrictions of the trial pit it was not possible to determine for certain its function (if any). It may have been simply discarded and used as make-up to help raise ground levels as with much of the other made ground on the Site. This seems the most likely explanation since it was sealed between two other dump layers.
- 6.1.3 In **TP DBF 05**, a brick culvert (**503**) was partially uncovered 0.61m below ground level, within possible subsoil (**502**) (**Plate 2**). It was revealed to run north to south on opening **TP DBF 05a**. The culvert is likely to have been built in the post-medieval period, if not more recently.

6.1.4 No other archaeological features or deposits were identified during the watching brief of the geotechnical investigations.

## **6.2 Stratigraphic Sequence (Appendices 1-4)**

6.2.1 *Trial pits* - Every trial pit excavated, revealed stratigraphy comprising, mostly if not wholly, of made ground. Natural deposits were not encountered. Chalk deposits, it would appear from the evidence, were frequently used to help raise, level or consolidate ground surfaces. It is observed in every pit of any depth. Dumps/deposits of clay (often with considerable chalk inclusions) also appear to have been frequently used for these purposes. The greatest depth of single clay deposits were identified in **TPs DBF 07 and 08** alongside the foundations of the White House. Here clear evidence that that part of the Site had been heavily consolidated either as part of the process of land reclamation for the construction of New Gun Wharf (between the late 18<sup>th</sup> and early 20<sup>th</sup> centuries) or as ground preparation for the construction of the White House itself in the early decades of the 19<sup>th</sup> century, was recorded. Dumps of roof tile (**906-907**) were identified within **TP DBF 09** to the east, directly overlying a substantial chalk layer **908**.

6.2.2 Although **TP DBF 07** was the deepest trial pit, being just over 2.0m deep, it had the least complicated stratigraphy with just three deposits of made ground being identified. Tarmac (**701**) sealed a clay dump/consolidating layer (**702**) of at least 1.90m in depth. At 2.05m below ground level, the test pit reached a chalk levelling layer (**703**).

6.2.3 **TP DBF 08** was also opened up against a wall of the White House. Remnant topsoil, (**801**), sealed just less than 1.5m of clay (**802**). The test pit was excavated to a maximum depth of 1.7m bgl. The clay would also have acted as a good form of water proof lining for the cellar of the White House.

6.2.4 *Boreholes* – On the evidence provided by the borehole logs made ground appears to extend to a depth of between 3.0m and 3.40m below the ground level. Alluvium, first occurring at a depth of between 2.7m and 4.5m bgl sealed below the made ground, appears to extend to a maximum depth of 7.7m bgl. This deposit is described as soft grey silt, sometimes with gravel inclusions, clay, and with bands of fibrous peat (Medway Council 2010, 9). These peat bands varied between 0.2m and 0.6m thick and were discovered either between 4.5m and 5.0m or 6.8m and 7.6m below the ground level. The underlying head deposit was sandy gravel and flint, with concentrations of flint cobbles present in places. Solid chalk lay beneath the head deposits, at a minimum depth of 9.8m below ground level.

## **7 FINDS**

7.1.1 No artefactual evidence was noted during excavation of the trial pits and the borehole investigation pits. Nor was any recovered from the excavated spoil.

## **8 ENVIRONMENTAL**

8.1.1 No material suitable for environmental analysis was present within any of the trial/borehole investigation pits.

8.1.2 It was not deemed viable to analyse bulk samples taken by the Site engineers for geoarchaeological and environmental information.

## 9 CONCLUSIONS

9.1.1 The trial pits and bore holes have revealed there to be a substantial depth of made ground right across the Site. Borehole findings reveal that the made ground was up to 3.2m thick. The most substantial layers of made ground had a strong chalk composition and were c.2.4m thick maximum. Bands of chalk and clay layer were identified in all of the three machine excavated trial pits.

9.1.2 The result of the consolidation of made ground is obvious on Site, when it is observed that the adjacent River Medway is considerably lower in height than the Site itself. As the Site was originally part of a wider expanse of marshland, the artificial build up of land within it was presumably a preventative measure taken against flooding and also to reclaim marshland that had been the cause of earlier outbreaks of disease.

9.1.3 That flooding/tidal/inundation had taken place here on several occasions is confirmed by the borehole readings, which record alternating layers of peat and alluvium at varying depths. Some of the lower peat may date to the Late Mesolithic/Early Neolithic as has been identified and dated elsewhere in the Chatham area. The alluvium may also be indicative of the presence of ancient sandbanks and the peat of former salt marches. The earliest peat (at greatest depth) may also be related to submerged forests killed off by rises in sea level and the advance of marsh/salt rich environments.

9.1.4 A layer of laid brick and a brick culvert were discovered during the watching brief. Both are likely to date to the post-medieval/modern period. More substantial archaeological features may nevertheless be present beneath the made ground. During much of the construction programme for the proposed development, this made ground should serve as an effective protection buffer for many archaeological features and deposits.

9.1.5 However, the deeper sections of the Service Trench (in its northern half), the footprint of the pumping station (located approximately in the area of **TP DBF 09**), and in the location of construction piles (the latter required for the main design build), will impact upon any archaeological remains and deposits in these locations that still survive *in situ* below the base of the made ground.

9.1.6 Any further archaeological requirements for the Site would be recommended by the Archaeological Officer for Kent County Council. In similar circumstances within Kent, apart from the already programmed monitoring of groundwork, the geoarchaeological sequence across similar sites has been better understood by the taking of sleeved cores to the impact depth of the proposed piles which are then subjected to environmental analysis and may also help to provide Radio Carbon dates for the various sequences of alluvium and peat build up.

## 10 ARCHIVE

### 10.1 Preparation and Deposition

- 10.1.1 The project archive was prepared in accordance with the guidelines outlined in Appendix 3 of *Management of Archaeological Projects* (English Heritage 1991) and in accordance with the *Guidelines for the preparation of excavation archives for long term storage* (UKIC 1990). It comprises a ring-bound file containing a watching brief attendance form, site 'day book' and photographic register. It is currently held at Wessex Archaeology's office building under the site code 71182, but will ultimately be deposited for permanent storage with an appropriate museum.

## 11 REFERENCES

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## APPENDIX 1: CONTEXT SUMMARY TABLE FOR TRIAL PITS

Table 1: TP DBF01a		Dimensions: 0.41m x 0.38m Max. depth: 1.25m
Context	Description	Depth (m)
101a	<b>Made Ground</b> - Comprises two layers of tarmac. Top layer is a dark black layer of finer tarmac, 0.11m thick. Lower layer is a mottled light to dark grey layer of less refined tarmac.	0.00-0.17
102a	<b>Made Ground</b> - Possible tarmac. Mainly comprising 'clinker'.	0.17-0.48
103a	<b>Brick layer</b> - Laid red brick and mortar. About three courses thick.	0.48-0.80
104a	<b>Made Ground</b> - Dark grey. Clay. Frequent chalk (up to 4cm x 3.5cm x 2cm), grit and CBM fragments. Contains an eight to ten inch clay pipe that runs parallel with the road.	0.80-0.86
105a	<b>Made Ground</b> - Pale grey. Clay. Frequent chalk. Contains a six inch lead pipe with a different alignment to the clay pipe in <b>104</b> .	0.86-1.25
106a	<b>Made Ground</b> - Chalk	1.25-

Table 2: TP DBF02		Dimensions: 0.46m x 0.40m Max. depth: 1.46m
Context	Description	Depth (m)
201	<b>Made Ground</b> - Tarmac	0.00-0.12
202	<b>Hardcore</b> - Pink in colour.	0.12-0.30
203	<b>Made Ground</b> - Light grey. Extremely frequent gravel. Loose to compact. Mostly compact.	0.30-0.40
204	<b>Made Ground</b> - Dark brown. Clay. Frequent chalk inclusions. Occasional flint (up to several cm <sup>3</sup> max.).	0.40-0.60
205	<b>Made Ground</b> - Chalk	0.60-0.65

206	<b>Made Ground</b> - Mid orangey brown. Clayey sand. Extremely frequent gravel and stone, including flint (up to 12cm x 7cm x 6.5cm max.) and flint pebbles. Occasional chalk flecks.	0.65-0.96
207	<b>Made Ground</b> - Mottled pale yellowish brown, pale bluish grey and dark orangey red. Mainly pale yellowish brown. Clay. Occasional grit (under 1cm <sup>3</sup> ) and stone (including flint up to 8cm x 5cm x 2cm max.).	0.96-1.22
208	<b>Made Ground</b> - Mottled dark grey and mid yellowy/orangey brown. Mostly dark grey. Clay. Occasional slate (up to 6.5cm x 4.5cm max. x 0.5cm), CBM (up to 3cm x 2.5cm x 1cm max.) and oyster shell.	1.22-1.34
209	<b>Made Ground</b> - Light grey. Clay. Frequent chalk (up to 6.5cm x 5cm x 2cm max). Frequent slate and CBM fragments. Brick fragments up to 9.5cm x 6.5cm x 5cm max. Occasional oyster shell. Like <b>208</b> except contains chalk.	1.34-

Table 3: TP DBF03		Dimensions: 0.43m <sup>2</sup> Max. depth: 1.53m
Context	Description	Depth (m)
301	<b>Made Ground</b> - Tarmac	0.00-0.13
302	<b>Made Ground</b> - Same as <b>203</b> .	0.13-0.24
303	<b>Made Ground</b> - Dark grey. Frequent grit. Occasional stones (up to 5cm <sup>3</sup> max), chalk inclusions and brick fragments.	0.24-0.40
304	<b>Made Ground</b> - Mid orangey brown. Clay. Frequent gravel.	0.40-0.68
305	<b>Made Ground</b> - Chalk	0.68-0.88
306	<b>Made Ground</b> - Mid orangey brown. Sandy clay. Frequent flint (up to 9cm x 8cm x 6cm) and grit. Occasional brick fragments (up to 6cm <sup>3</sup> max.).	0.88-1.16
307	<b>Made Ground</b> - Mid beige and mid reddish orange. Clay.	1.16-

Table 4: TP DBF04		Dimensions: 0.45m x 0.43m Max. depth: 1.47m
Context	Description	Depth (m)
401	<b>Topsoil</b> - Dark brown. Clayey silt. Frequent chalk flecks, small stones (up to 2.5cm x 2cm x 2cm max.) and brick fragments (up to 7cm x 5cm max. as seen in section). Small stones include flint (up to 4cm x 4cm x 2.5cm) and flint pebbles.	0.00-0.20
402	<b>Made Ground</b> - Mid orangey brown. Sandy grit.	0.20-0.55
403	<b>Made Ground</b> - Chalk	0.55-0.84
404	<b>Made Ground</b> - Frequent flint nodules, grit and chalk flecks. Occasional flint pebbles. Very occasional charcoal flecks (under 0.5cm <sup>3</sup> max.).	0.84-1.27
405	<b>Made Ground</b> - Clay. Frequent chalk and grit. Occasional brick fragments (up to 2cm x 2cm x 1.5cm max.).	1.27-

Table 5: TP DBF05		Dimensions: 0.40m <sup>2</sup> Max. depth: 0.61m
Context	Description	Depth (m)
501	<b>Topsoil</b> - Same as 401.	0.00-0.38
502	<b>(?) Sub-soil</b> - Mid greyish brown. Clay. Frequent chalk, flint (up to 7cm x 4cm x 4cm max.) and CBM (up to 14cm x 5cm x 6cm max).	0.38-0.61
503	<b>Brick Culvert</b> - Set within 502. Runs north to south. Not filled in.	0.61-

Table 6: TP DBF05a	<b>NB: Sides of trial pit have mixed stratigraphy. Table 7 is the stratigraphy for one side of trial pit only.</b>	<b>Dimensions: 0.50m x 0.46m Max. depth: 0.90m</b>
Context	Description	Depth (m)
501a	<b>Topsoil</b> - Same as 401.	0.00-0.45
502a	(?) <b>Sub-soil</b> - See above.	0.45-0.90
503a	<b>Brick culvert</b> - Exposed c.16cm width and c. 0.30m length.	0.61-0.90
504a	<b>Made Ground</b> - Chalk	0.90-

Table 7: TP DBF07		<b>Dimensions: 2m x 0.79m Max. depth: 2.05m</b>
Context	Description	Depth (m)
701	<b>Made Ground</b> - Tarmac	0.00-0.15
702	<b>Made Ground</b> - Mottled mid greyish brown and mid orangey brown. Clay. Frequent chalk. Occasional flint. Frequent brick fragments (mostly c. 5cm x 5.5cm x 2cm).	0.15-2.05
703	<b>Made Ground</b> - Chalk	2.05-

Table 8: TP DBF08		<b>Dimensions: 1.65m x 1m Max. depth: 1.7m</b>
Context	Description	Depth (m)
801	<b>Topsoil</b> - Dark brown. Clayey silt. Frequent chalk flecks, small stones (up to 2.5cm x 2cm x 2cm max.) and brick fragments (up to 7cm x 5cm max. as seen in section). Small stones include flint (up to 4cm x 4cm x 2.5cm) and flint pebbles.	0.00-0.24
802	<b>Made Ground</b> - Mottled light to dark brown. Clay. Frequent chalk (up to 24cm x 15cm x 12cm max.). Occasional flint (up to 22cm x 13 cm x 9cm max.). Frequent brick fragments (up to 6cm x 10cm x 9cm max.).	0.24-1.7
803	<b>Made Ground</b> - Chalk	1.7-

Table 9: TP DBF09	NB: Requested archaeological trial pit	Dimensions: 1.45m x 1.14m Max. depth: 1.90m
Context	Description	Depth (m)
901	<b>Topsoil</b> - Dark Brown. Silty clay. Occasional stone inclusion.	0.00-0.10
902	<b>Subsoil</b> - Similar to <b>901</b> . Still dark brown but slightly lighter. Silty clay. Frequent chalk flecks. Occasional CBM.	0.10-0.32
903	<b>Made Ground</b> - Mottled mid brown and mid yellowy brown. Clay. Extremely frequent chalk (including blocks up to c.20cm x 15cm x 10cm max.).	0.32-0.65
904	<b>Made Ground</b> - Pale pink. Silt. Frequent chalk and charcoal flecks, and CBM (including brick fragments and roof tiles).	0.65-0.70
905	<b>Made Ground</b> - Chalk. Varies considerably in width across the length of the trial pit.	0.70-0.78
906	<b>Made Ground</b> - Mottled mid brown and mid orangey/reddish brown. Clay. Contains frequent roof tiles.	0.78-0.88
907	<b>Made Ground</b> - Dump of roof tiles	0.88-1.20
908	<b>Made Ground</b> - Chalk.	1.20-

## APPENDIX 2: CONTEXT SUMMARY TABLE FOR BOREHOLE INVESTIGATION PITS

Table 10: BH DBF03		Dimensions: 0.47m x 0.30m Max. depth: 1.20m
Context	Description	Depth (m)
BH 301	Top Soil - Dark brown. Silty clay. Friable. Frequent chalk flecks (a few mm <sup>3</sup> in size). Occasional red brick fragments (up to 2.5cm x 2.5cm x 1cm). Occasional red brick fragments (up to 4.5cm x 2.5cm x 2cm). Occasional stones, not chalk (up to 4.5cm x 3cm x 1cm).	0.00-0.22
BH 302	Made Ground - Large brick fragments (found 0.85m below ground level to base). Occasional flint (up to 7.5cm x 8cm x 3cm). Frequent, often degraded, chalk (up to 8cm x 6cm x 6cm).	0.22-1.20

Note: The excavation of the investigation pits for BH DBF 01, BH DBF 01a and BH DBF 02 were not archaeologically monitored. Drilling of BH DBF 01a and BH DBF 02 both commenced before their stratigraphy could be recorded.

Table 11: BH DBF04		Dimensions: ? Max. depth: 1.20m
Context	Description	Depth (m)
BH 401	Made Ground - Tarmac	0.00-0.29
BH 402	Made Ground - Contains brick	?
BH 403	Made Ground - Chalk	?
BH 404	Made Ground - Clay. Similar to alluvium.	?-1.20

Table 12: BH DBF05		Dimensions: 0.45m <sup>2</sup> Max. depth: 1.22m
Context	Description	Depth (m)
BH 501	Top Soil	0.00-0.18
BH 502	Made Ground - Mid orangey brown. Sandy gritty clay. Frequent chalk flecks (a few mm <sup>3</sup> in size). Occasional brick fragments (up to 3cm x 2.5cm x 2cm max.). Occasional flint pebbles (up to 3cm x 2.5cm x 2cm max.). Occasional flints (up to 7cm x 5cm x 2.5cm).	0.18-0.37

<b>BH 503</b>	<b>Made Ground</b> - Chalk	0.37-0.53
<b>BH 504</b>	<b>Made Ground</b> - Same as <b>502.</b>	0.53-0.78
<b>BH 505</b>	<b>Made Ground</b> - Chalk	0.78-1.00
<b>BH 506</b>	<b>Made Ground</b> - Same as <b>502.</b>	1.00-1.22

**APPENDIX 3: EXCAVATION LOGS FOR TRIAL PITS (PROVIDED BY  
NORTHWEST HOLET)**

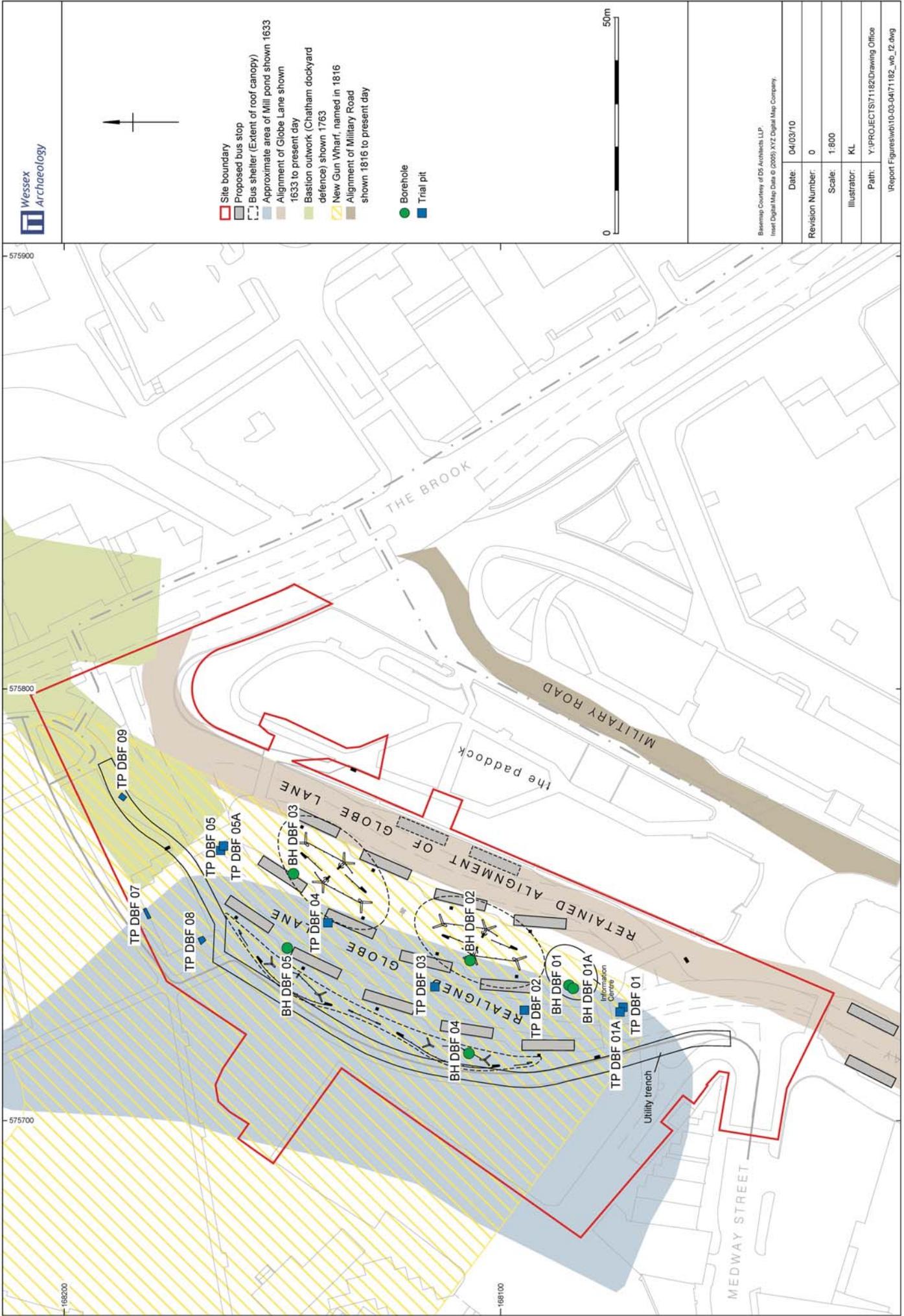
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due to copyright

**APPENDIX 4: EXCAVATION LOGS FOR BOREHOLES (PROVIDED BY  
NORTHWEST HOLET)**

Appendices removed  
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Site location plan, proposed site layout, and boreholes and trial pits Figure 1



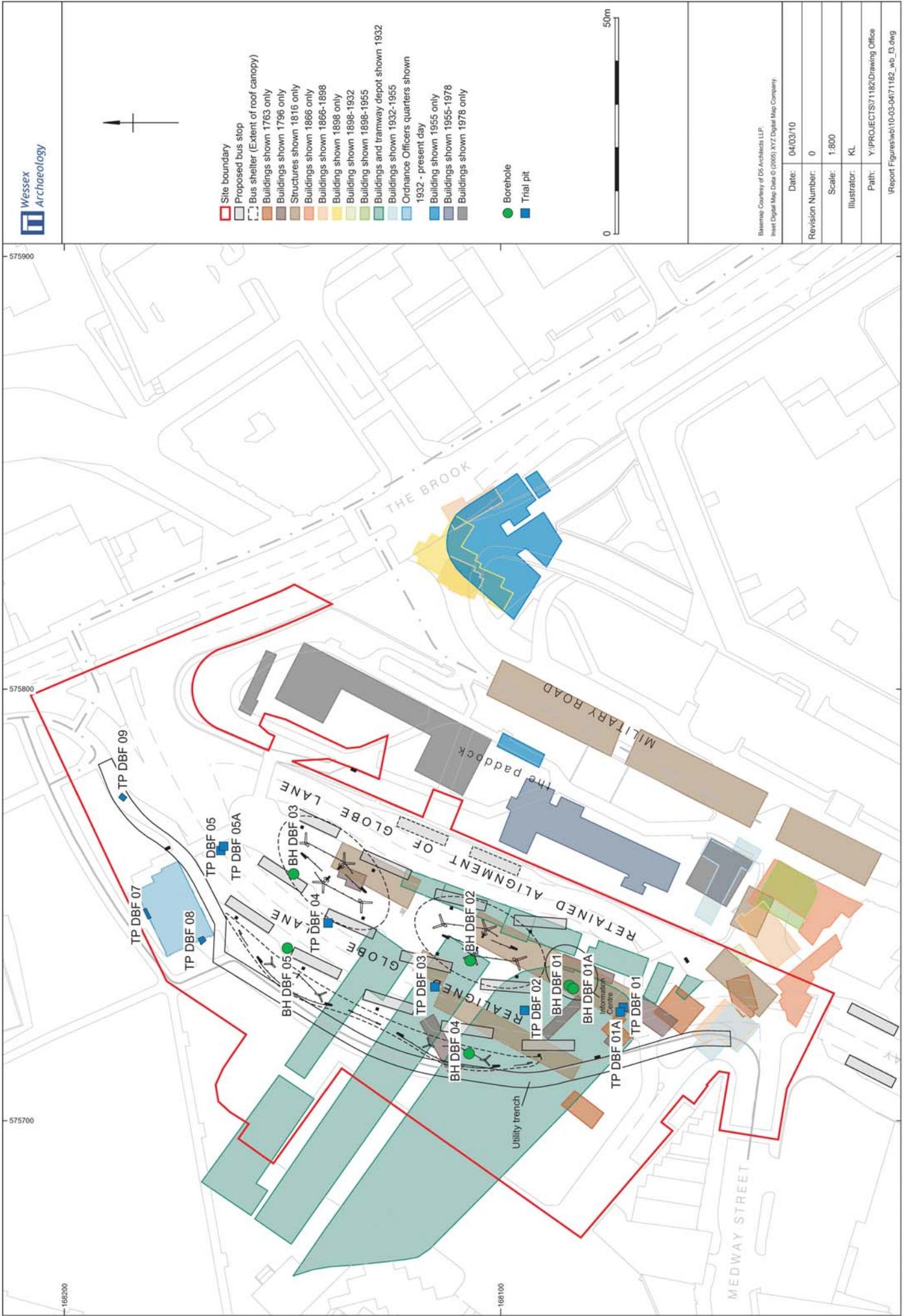
- Site boundary
- Proposed bus stop
- Bus shelter (Extent of roof canopy)
- Approximate area of Mill pond shown 1633
- Alignment of Globe Lane shown 1633 to present day
- Bastion outwork (Chatham dockyard defence) shown 1763
- New Gun Wharf, named in 1816
- Alignment of Military Road shown 1816 to present day
- Borehole
- Trial pit



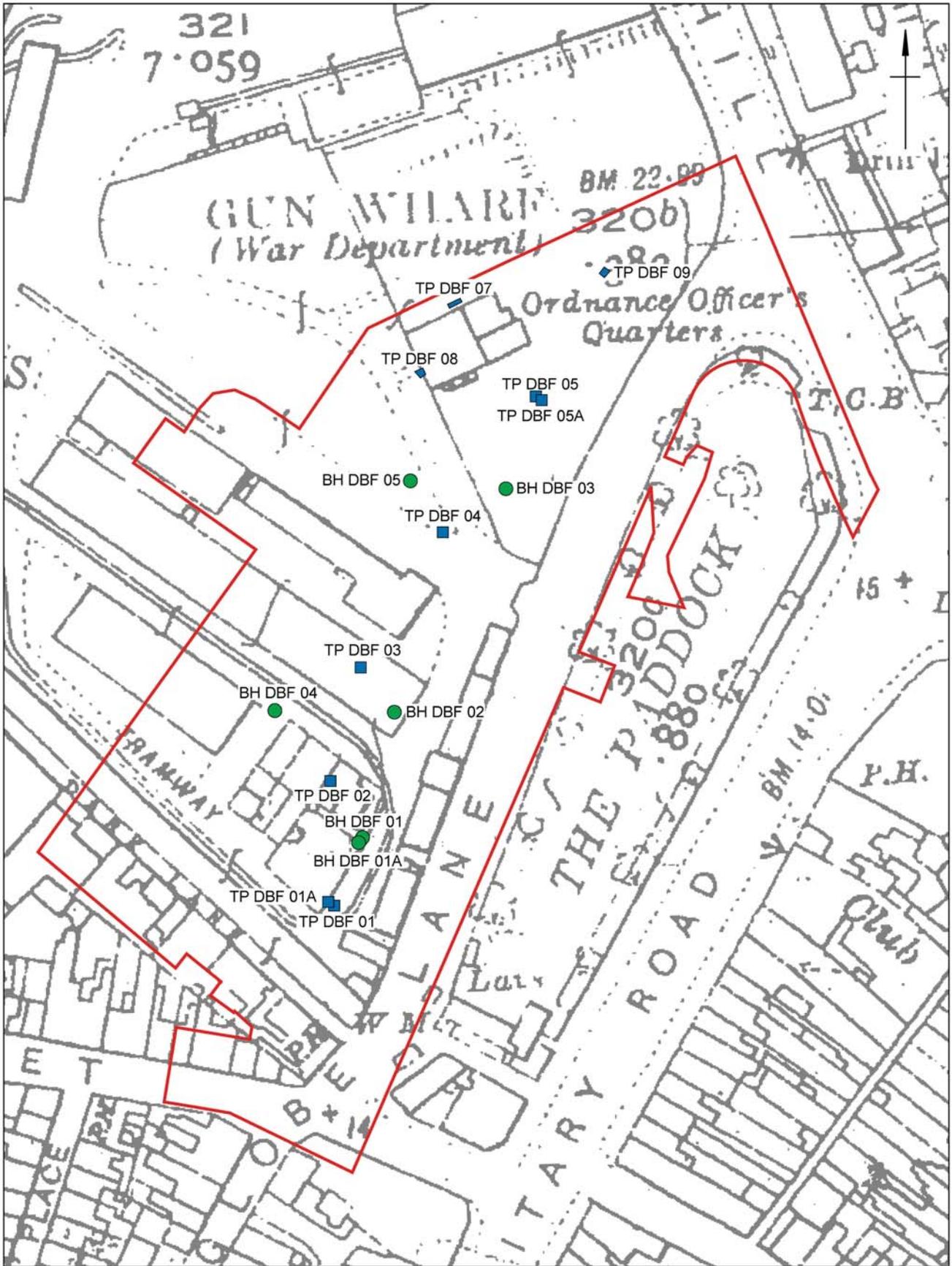
Basemap Courtesy of DS Architects LLP.  
Inset Digital Map Data © (2005) XYZ Digital Map Company.

Date:	04/03/10
Revision Number:	0
Scale:	1:800
Illustrator:	KL
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Plan showing the potential location of key archaeological features on Site identified through map regression overlaid with the current development scheme: relation to the boreholes and trial pits



Plan showing location of present and previous buildings on the Site overlaid with the current development scheme: relation to the boreholes and trial pits



<p>This material is for client report only © Wessex Archaeology. No unauthorised reproduction.</p> 	<p>Site boundary</p> <p>Borehole</p> <p>Trial pit</p>		
	Date: 04/03/10	Revision Number: 0	
	Scale: 1:1000	Illustrator: KL	
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Ordnance Survey Map, 1932, with boreholes and trial pits overlaid

Figure 4



Plate 1: Laid brick (103a) within TP DBF 01a: facing south-east



Plate 2: Brick culvert (503/503a) within TP DBF 05 and TP DBF 05a: facing south-west

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