

# PRINCE EDWARD'S BASTION, CHATHAM LINES, KENT TOPOGRAPHIC SURVEY REPORT

Magnus Alexander



**PRINCE EDWARD'S BASTION,  
CHATHAM LINES, KENT**

**Topographic Survey Report**

Magnus Alexander

NGR: TQ 7646 6878

© English Heritage

ISSN 1749-8775

*The Research Department Report Series incorporates reports from all the specialist teams within the English Heritage Research Department: Archaeological Science; Archaeological Archives; Historic Interiors Research and Conservation; Archaeological Projects; Aerial Survey and Investigation; Archaeological Survey and Investigation; Architectural Investigation; Imaging, Graphics and Survey, and the Survey of London. It replaces the former Centre for Archaeology Reports Series, the Archaeological Investigation Report Series and the Architectural Investigation Report Series.*

*Many of these are interim reports which make available the results of specialist investigations in advance of full publication. They are not usually subject to external refereeing, and their conclusions may sometimes have to be modified in the light of information not available at the time of the investigation. Where no final project report is available, readers are advised to consult the author before citing these reports in any publication. Opinions expressed in Research Department reports are those of the author(s) and are not necessarily those of English Heritage.*

Requests for further hard copies, after the initial print run, can be made by emailing:

Res.reports@english-heritage.org.uk

or by writing to:

English Heritage, Fort Cumberland, Fort Cumberland Road, Eastney, Portsmouth PO4 9LD

Please note that a charge will be made to cover printing and postage.

## SUMMARY

Prince Edward's Bastion is a part of the Chatham Lines, the landward defences of Chatham naval dockyard, Kent, which dates from the mid-16th century. The lines themselves were first built in the mid-18th century and substantially redeveloped in the early 19th century. In February 2010, English Heritage's Archaeological Survey and Investigation team (Cambridge) undertook a topographic survey of the bastion together with supporting documentary research. This work has shown that the rampart is perhaps the most seriously damaged part of the lines, though much of this damage is likely to be superficial. Some evidence survived hinting at 19th century recreational use of the bastion. To the north, Brompton Barrier, the main route through the lines, was removed and the road re-aligned in the late 1870s. To the south, Sally Port, a less important gate, was opened up between 1896 and 1909, and in the 1960s its gatehouse was demolished and the roadway straightened. From the later 18th century the interior of the bastion housed a range of buildings, including the Engineer's Office, and functioned as a works yard for most of its life. Many of these buildings survived until the 1960s. The ditch was mainly filled between 1932-40 for unknown reasons and a tank defence ditch cut into this fill in about 1940; it was completely filled in the 1960s. The glacis was largely removed during the earlier 20th century, either during construction of a First World War underground shelter or the Garrison Sports Ground on the same site. Despite this history, significant archaeological deposits and features are likely to remain in several areas, as well as the buried ditch revetment walls.

## CONTRIBUTORS

Anna Komar assisted with the survey whilst on an EPPIC placement with English Heritage (EH). Deborah Cunliffe (EH, Graphics Officer, Imaging Graphics and Survey) produced the hachure plan. Steve Cole (EH, Head of Imaging, Imaging Graphics and Survey) undertook the ground photography. Peter Kendall (EH, Inspector of Ancient Monuments, South East Region) supplied much of the background historical material.

## ACKNOWLEDGEMENTS

Thanks to the Ministry of Defence for permission to access the site and for undertaking scrub clearance through their local agents Entec. All images from The National Archive UK are reproduced by kind permission.

## ARCHIVE LOCATION

The physical archive will be deposited with English Heritage, Swindon.

## DATE OF SURVEY

February 2010.

## CONTACT DETAILS

English Heritage, Brooklands, 24 Brooklands Avenue, Cambridge, CB2 8BU  
Magnus Alexander; 01223 582776, [magnus.alexander@english-heritage.org.uk](mailto:magnus.alexander@english-heritage.org.uk)

*Cover: Prince Edward's Bastion and Brompton Barracks from the south (TQ7663/63 04 AUG 2003 ©English Heritage NMR 23187/23). Prince Edward's Bastion lies immediately to the west (left) of the oval running track bottom right, with Brompton Barracks beyond in the centre of the image. Part of the dockyard can be seen in the top of the image with the Medway visible beyond.*

# CONTENTS

INTRODUCTION	1
Background to the project	1
Location	2
Topography and geology	2
Designations	3
Public access	4
PREVIOUS RESEARCH	5
DOCUMENTARY EVIDENCE FOR THE HISTORY OF THE SITE	6
Overview	6
Chronological summary	8
Phased history	8
DESCRIPTION AND INTERPRETATION OF THE REMAINS	26
General description	26
Phased interpretation	33
DISCUSSION AND CONCLUSIONS	37
Recommendations for further work	38
METHODOLOGY	39
ABBREVIATIONS AND TECHNICAL TERMS USED IN THE TEXT	40
REFERENCES	42

## INTRODUCTION

Internationally, Chatham is recognised as the best surviving example of a dockyard from the age of sail. The completeness of the dockyard and its surrounding defences is complemented by the survival of associated barracks, workers' housing and other military installations. The significance of the dockyard, together with its defences and garrison town, is reflected by recent efforts to secure World Heritage Site status and Chatham is now one of 11 sites on the UK's new Tentative List (DCMS 2011).

Prince Edward's Bastion (centred on TQ 7646 6878) is part of the system of landward defences for the dockyard, known as the Chatham Lines. They originated in the 18th century and followed the principles of contemporary European designs, comprising a series of bastions and externally cleared ground to provide an open field of fire. Most of the lines are a Scheduled Ancient Monument, and due to their overgrown condition are on the Heritage at Risk register.

This project originated with a request from EH's Planning & Development Department to undertake a survey of Prince Edward's Bastion, in part to secure a partnership agreement with the MoD to clear woodland from the monument which is on the Heritage at Risk register. It was designed to improve our understanding of this section of the Chatham Lines, and by preceding scrub clearance by the Ministry of Defence (MoD), through their local agents Entec, reduce the threat from tree growth. The results will also feed into English Heritage's (EH's) Designation Department's reassessment of the Chatham Lines and contribute to a longer term vision, supported by EH's Planning & Development Department, to develop the Great Lines Heritage Park and establish Chatham's place as a World Heritage Site.

### Background to the project

During the 1980s the withdrawal of the Royal Navy from the dockyard had a major impact on the area through job losses and the release of large tracts of land and property onto the open market. Since then, heritage-led regeneration has played a key role in the redevelopment of the area while maintaining its distinctive character. One aspect of this work is the project to create the Great Lines Heritage Park out of the Chatham Lines and field of fire for which £2.1 million government funding was secured in 2009. It is hoped to incorporate the currently inaccessible Ministry of Defence (MoD) owned parts of the lines into this linear park around the town during future phases of this project. In another part of the lines (known as Lower Lines) creation of a public park in association with a major new college of secondary education is well advanced. This work required a major programme of survey and investigation and has produced significant new understanding that will complement the survey work described here (CAT 2008, CAT 2009).

### Aims

The project had two main aims: 'To enhance the condition and management of this section of the Chatham Lines; [and] To reach a better understanding of this section of the Chatham Lines' (Alexander 2010). This report is intended to address the second of

these, specifically: 'To reach a more nuanced understanding of this section of the Lines, including perhaps its later modification as part of a 19th century recreational walk and incorporation into 20th century wartime defence schemes' (Alexander 2010).

## **Scope**

This project consisted of the detailed analytical topographic survey of Prince Edward's Bastion, supported by sufficient background research to date and explain, as far as possible, those features identified during the survey and assess the potential for survival of archaeological features.

## **Extent**

The bastion runs for just over 200m between Wood Street (the A231) to the north and a road known as Sally Port/Sally Port Gardens (hereafter simply Sally Port) to the south. A post-war MoD housing estate has been constructed within the bastion, to the west, and to the east lies the Garrison Sports Stadium.

## **Level and scale**

This was a Level 3 survey (EH 2007) undertaken at a notional scale of 1:1000.

## **Partners**

The work was requested by EH's Planning & Development and Designation Departments. The project was carried out in partnership with the MoD and their local agents Entec who arranged for scrub clearance to take place at the time of survey.

## **Location**

The Chatham Lines are the 18th and 19th century landward defences of Chatham naval dockyard. The dockyards are situated on the River Medway in north Kent about 45km east of central London, and 4km down-river from Rochester, the more significant settlement prior to the development of the docks.

## **Topography and geology**

The section of Chatham Lines of which Prince Edward's Bastion forms a part is oriented approximately NNE to SSW (Figure 28). The bastion lies on fairly level ground at about 40m OD and when looking outwards from the lines (east to southeast) the field of fire is also generally level. To the north the ground falls gently towards Prince Henry's Bastion at about 35m OD, and to the south rises to King's Bastion at about 45m OD. Behind Prince Edward's Bastion, to the west and northwest, the ground remains level for about 300m before falling away steeply to the Medway. This level area behind the lines narrows to the south but opens out to the north where Brompton Barracks are located.

The survey area sits upon a plateau formed by a cap of the Thanet Sand Formation



Figure 1 – Location

(Palaeocene, 57.9mya to 54.8mya) overlying the Seaford Chalk Formation (Late Cretaceous, 89mya to 83.5mya) (BGS 1977) which can be seen where the ground drops away to the south west.

## Designations

Chatham Lines, including most of the survey area, are designated a Scheduled Ancient Monument (SAM), Kent number ME201. The current description reads:

'18th-century land defences of Chatham dockyard and barracks. A bastion trace of regular form constructed in 1756 is the basis of the line which extends NE-SW across the high ground from the site of Gillingham Fort to Chatham. This survives for much of its length as revetted ditch and rampart though in places the ditch has been partially filled and the rampart cut away. At the S end the reconstruction of 1778 led to the provision of the 'Couvre Porte', Spur Battery and Prince William's Bastion and by retrenchments to create Amherst Redoubt and Belvedere Battery. These additions gave greater enfilade fire in the moats and created a 'keep' in Amherst Redoubt. Much of these additions remain but are now extremely overgrown. At the N end a similar reconstruction, Townshend's Redoubt, has now largely disappeared.' (SAM description 1984).

## **Public access**

The whole of Prince Edward's Bastion lies on MoD owned land. To the south, the part of the bastion facing onto Sally Port and Inner Lines is unenclosed and the small section opposite the gymnasium to the north is also accessible. The filled ditch south of the bastion flank and north of Sally Port is used as a play area for a nursery. The remainder does not have any access but the fences are broken down in places and eroded footpaths, dumped material and litter demonstrate that people do visit the site.



## PREVIOUS RESEARCH

Surprisingly little has been published about the Chatham Lines. The longest article is 'The fixed fortifications of the 16th to 19th centuries illustrated by the defences of Chatham' (Hamilton-Baillie 1974).

Over the past decade Peter Kendall (Inspector of Ancient Monuments) has carried out extensive documentary research into the history of Chatham's defences and associated structures. The general historic context of Prince Edward's Bastion is well understood (Kendall forthcoming) and this research has been made available for the project.

EH's Archaeological Survey & Investigation team has undertaken a number of investigations to support the Planning & Development and Designation Departments' efforts to secure the future of these works. These have included Fort Clarence (Pattison 2002) and land adjacent to Fort Pitt (Alexander 2008). The adjacent King's Bastion has been surveyed and the drawing completed (Pattison forthcoming).

There has been considerable historical research undertaken in advance of the development of the linear park and in support of Chatham's application for WHS status. The Great Lines Heritage Park is supported by a Landscape Management plan by HTA Architects (unpublished), and a draft World Heritage Site management plan has been produced (available through [www.chathamworldheritage.org.uk](http://www.chathamworldheritage.org.uk)).

Archaeological survey and investigation of the Lower Lines park was carried out by Canterbury Archaeological Trust under the terms of both planning permission and scheduled monument consent for the development of the new college (Diack and Kendall forthcoming).

## DOCUMENTARY EVIDENCE FOR THE HISTORY OF THE SITE

### Overview

Use of the Medway at Chatham by the Navy began in about 1550 and by 1559 Upnor Castle was providing defence for the anchorage. A disastrous Dutch raid in 1667 caused a major reorganisation of the defences but they remained focussed on the river. During this raid the Dutch put troops ashore and this may have created a fear that the dockyard at Chatham was vulnerable to a landward assault, although the earliest known designs for bastioned fortifications on the high ground behind the dockyard and gunwharf date to 1708. None were actually built until 1755-6 in response to the threat of French invasion during the Seven Years War (1756-63). These were largely earthwork fortifications and created the fundamental form of the militarised landscape that survives to the present.

The early form of these defences is shown in Figure 2. The four bastions at the centre of the fortifications show clearly and beyond these, land was bought and cleared to form a field of fire that was the start of the area now known as the Great Lines. Brompton is the civilian settlement where many of the dockyard workers lived and this was brought within the defences. Not shown in the survey are the first infantry barracks of 1757, built to hold the garrison of troops to defend Chatham, which helps to date the map. In the next period of warfare and invasion threat, the American Revolutionary War (1778-83), the lines were considerably enhanced by the addition of redoubts behind the rampart at their northern and southern ends, but they remained mainly earthwork constructions.

The greatest period of construction and reconstruction at Chatham was after 1803 under the stimulus of the Napoleonic wars. The dockyard at this date was engaged in building and repairing the fleet and Chatham was turned into a heavily defended and



Figure 2 – Detail from a plan of the River Medway showing 'the new line at Chatham and the Fortifications Adjacent', undated (1756-7), north to bottom left (The National Archive UK (TNA UK) MPH 1154).

garrisoned station for the army that a French invasion force would have to defeat before advancing on London. Much of the still visible form of defences was established at this time. Additional defences south of Chatham were built at Fort Pitt (Alexander 2008) and the Clarence Lines. The lines were strengthened by the expansion of Fort Amherst to its present-day form and by the addition at the northern end of new fortifications known as Lower Lines. Brompton Barracks, which are still the home of the Corps of Royal Engineers, were built from 1804. By the peace of 1815 Chatham was heavily defended, though it was never attacked.

In 1812, the inadequacies of the British army in the many bloody sieges of the Peninsular War prompted the founding of a Royal Engineer training establishment for siege warfare at Chatham, which was the forerunner of the Royal School of Military Engineering. The Chatham Lines provided a ready-made facility upon which to practice the skills required for the attack and defence of fortifications. Such training continued at Chatham until the outbreak of the First World War. The live-fire training exercises, involving large siege works and thousands of troops, grew ever more complex as the 19<sup>th</sup> century advanced and became a public spectacle attracting large crowds.

The engineer troops trained at Lower Lines were based in Brompton Barracks. The other barracks of the Chatham garrison took on a new role after 1815 as a recruitment centre and as the place to which sick and injured troops were sent for invaliding out of the army. Many soldiers, particularly those serving in India and other parts of the empire, thus began and ended their army careers at Chatham. Experience in the Crimean War (1854-56) demonstrated that the development of the army had largely stagnated after 1815. One of the realisations was the high mortality rates of troops housed at home in crowded and out-of-date barracks. The consequent barracks reform agenda led to major changes in the standard of barracks after 1860 and new buildings at Chatham.

In the 20<sup>th</sup> century Chatham provided major service in both world wars. From the First World War the introduction of aerial warfare created change within the military and civilian estates in terms of passive defence through shelters and active defence by gun sites. During the invasion threat of 1940 the Chatham Lines were pressed back into service as a ready-made anti-tank ditch to turn the Chatham garrison area into a nodal point. In 1945 Chatham emerged from conflict with remarkably little bomb damage to the military estate both for the army and navy.

The new post-war world-order had serious consequences for the military assets and many sites were demolished as no longer necessary or affordable and others, including the fortifications, were left to decay. In 1984 Chatham dockyard closed leaving the continuing presence of the Royal Engineers at Brompton barracks as the only connection to a military tradition that dates back more than 450 years.

## Chronological summary

- 1550 Use of the Medway by the navy begins.
- 1559 Upnor Castle acts as the primary defence.
- 1667 Defences reorganised but still focussed on river.
- 1708 First designs for landward defence.
- 1755-6 Chatham Lines first built, primarily as earthwork defences.
- 1778-83 Chatham Lines enhanced but remained mainly earthwork defences.
- 1803 Upgrading of Chatham's defences in response to the Napoleonic war begins; rebuilt in brick.
- 1812 Founding of the Royal Engineer training establishment for siege warfare, later the Royal School of Military Engineering.
- 1860s Barracks reform agenda; new buildings at Chatham.
- 1914-18 New works to defend against aerial attack, included shelters and gun positions.
- 1939-45 Invasion threat; Chatham garrison area a nodal point, lines used as anti-tank defences. Chatham emerged largely unscathed from the war.
- 1950s-70s Cold War; many sites demolished, others allowed to decay
- 1984 Dockyard closed.

## Phased history

### Phase 0 – before the Lines

A plan of 1821 (Figure 3 and Figure 11) shows the outline of the lines by the end of the Napoleonic era (Phase 3 below). Its main interest though is perhaps the underlying plan, a copy of a survey of the dockyard and surrounding lands undertaken in 1708 'in order to make a design for fortifying the same'. It therefore gives a 'before and after' view and the farms and fields bought in order to construct the lines, with named owners, can clearly be seen, as well as the size of the dockyard in the early 18<sup>th</sup> and early 19<sup>th</sup> centuries.

### Phase I – the mid-18th century

The Chatham Lines were first built, mainly as earthwork defences, in the period after 1755 and the three main bastions were completed by 1756. They have been described as 'simple and unsophisticated bastioned lines' (Saunders 1989, 120, 121). Where shown



Figure 3 – An 1821 plan of the lines overlaid upon a copy of a survey of 1708, north to bottom left (TNA UK MFQ 1/1280/10).

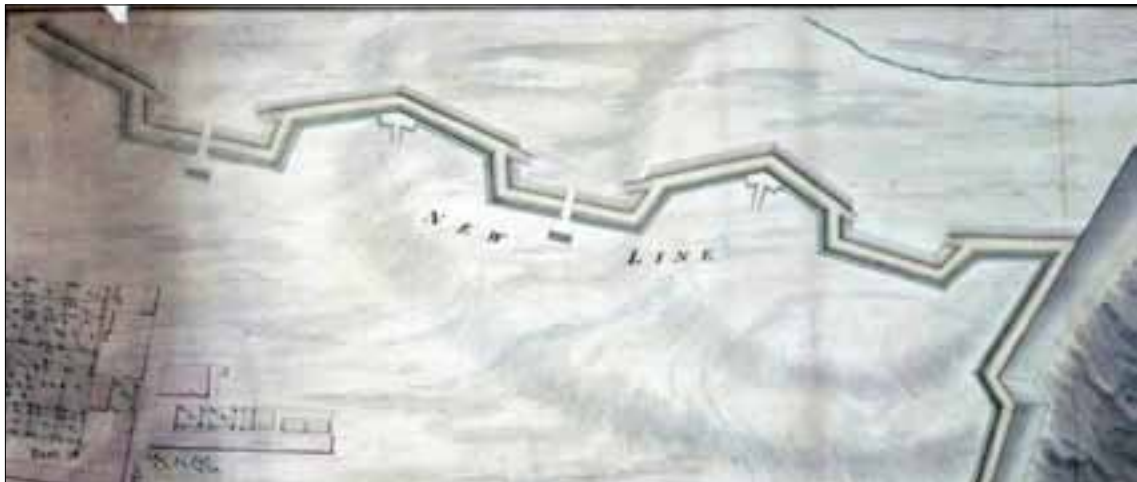


Figure 4 – Detail from a plan of 'the New Barracks within the Lines at Chatham', 1763, Prince Edward's Bastion to left of centre, north to left (TNA UK MPH 1/23).

on early maps, the bastions were all of a similar form which was laid out during this period (Figure 4). They had four straight sides with an obtuse point, the salient, about which they were symmetrical. The northern and southern ramparts of each bastion, the flanks, were considerably shorter than the faces to either side of the salient. Straight sections of rampart (curtains) connected each bastion and each of these had a centrally placed sallyport. The sallyports appear to have initially been relatively simple openings with short sections of rampart behind to strengthen them. The ditch in front of the rampart was relatively narrow.

The cross-sectional form of the original defences is shown on a plan of 1779 (Figure 6). This appears to have been typical for the era with a slope (the talus) rising up from the natural ground surface behind the defences (often known as the parade) to a level step, the terre-plein, where guns could be mounted. Above this was the banquette, the infantry firing step, directly behind the upper defensive work – the parapet. Together these elements formed the rampart. Beyond this was the main defensive ditch which was cut well below the original ground surface enhancing the height of the rampart. The internal slope of the ditch (the scarp) was originally un-revetted with a palisade set horizontally into its face (fraises) to hinder a direct infantry attack. The external ditch slope was known as the counterscarp and there was a broad bank on the top of this known as the glacis. This was low enough that weapons on the parapet could fire over it into the cleared ground beyond. It is hard to be certain but early plans (for example Figure 4) show that during this period a substantial terre-plein was only placed within the salient of each bastion and that these were gained by centrally placed ramps. Elsewhere the rampart appears quite narrow so it may be that the rampart sections as shown on Figure 6 only related to the salient.

French spies were active during this period. There is a series of plans in The National Archive which are all described as '*figure de memmoire*' and dated 1768. One of these shows Rochester and part of Chatham Lines (TNA UK MF 1/54/4).

## Phase 2 – after 1779

The defences at most of the naval dockyards were considerably enhanced in the period around 1780 when the threat of invasion arose again when France and Spain sided with the American revolutionaries. Generally, 'greater attention was paid to the weaknesses of existing bastioned lines, and evidence of internal retrenchments appears'. There was



Figure 5 – Detail from a plan of 1779 showing the lines 'as they are to be restored this year' (TNA UK MPH1/358).

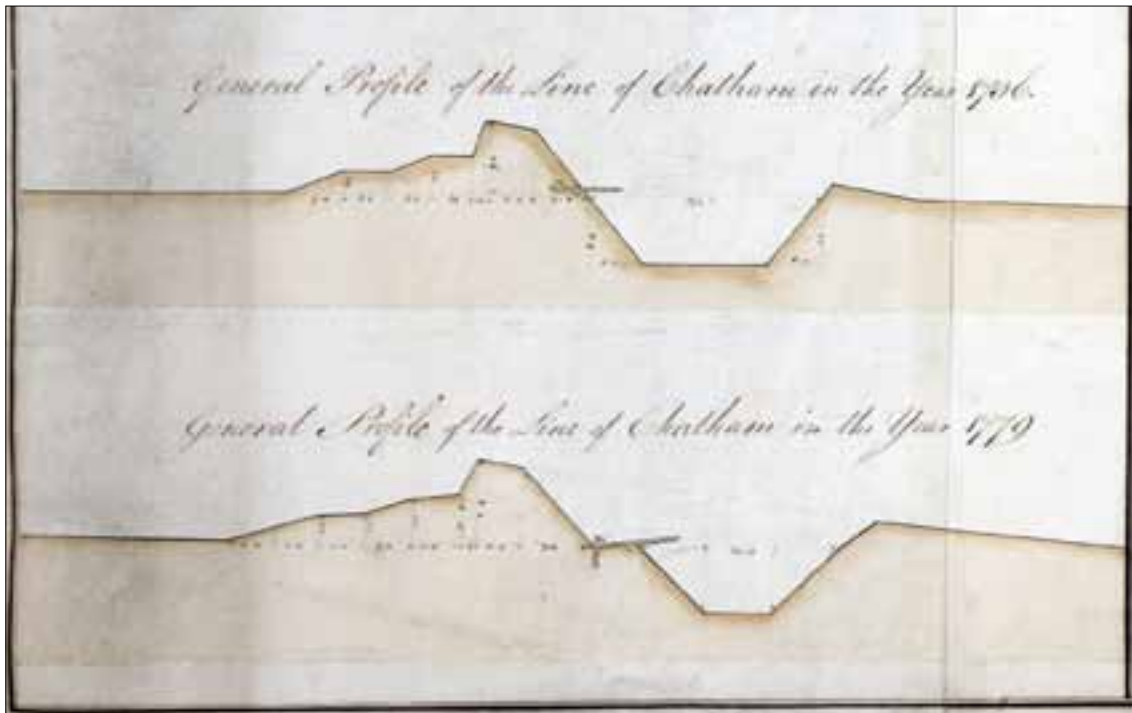


Figure 6 - Detail from the above plan showing profiles of the ramparts in 1756 and as planned in 1779 (TNA UK MPH1/358).

also an 'outward expansion of the defences' (Saunders 1989, 121, 122). This can be seen in the intended changes shown on the plans of 1779 (Figure 5) and 1783 (Figure 7), though they were not all implemented immediately. Initially the lines were enhanced at each end, and two redoubts (Townshend to the north and Amherst to the south) were constructed behind these improved defences. Few of the planned advanced works were built at this time though. An insert on the 1779 plan (Figure 6) shows that it was also intended to change the profile of the ramparts, though it is hard to be sure if this was carried out. However, the plan of 1783 shows a terre-plein running right around the bastions and curtains in contrast to the earlier plans, which suggests that the ramparts were rebuilt, confirmed by Debbeig's reports to the Board of Ordnance (Kendall, pers comm). The 1779 plan shows that the terre-plein was to be gained by ramps roughly half way along each bastion face and though these do not appear on the 1783 plan this may be due to simplification. The building shown within Prince Edward's Bastion in 1779 does not appear in 1783 but it is shown on a plan of 1786 (Royal Engineers 1987) together with two smaller buildings to either side. It is hard to see why a building would be shown on a plan of intended works to the lines if it were not already in existence so it could be that the omission from the 1783 plan may also be due to simplification.

### Phase 3 – the Napoleonic era

During this period new lines were built to the north (Lower Lines), on a similar plan to those proposed in 1779, and complex redevelopments to the south created Fort Amherst (Hamilton-Baillie 1974). To the southwest a series of detached works ringed Rochester to protect Chatham's flank and guard the crossing there, the largest of which was Fort Pitt (Saunders 1989, 142). There were also changes to the lines themselves which were remodelled and revetted in brick throughout (Hamilton-Baillie 1974).



Figure 7 – Detail from a plan of 1783 showing 'the country two miles each way from the centre of Chatham dockyard'. The yellow shaded defences were planned but never built (TNA UK MPH 11296).

By 1806 (Figure 8), and probably by 1804 (if the information in Figure 10 is correct), the rear face of the parapet, the scarp and the counterscarp had all been steepened and revetted in brick and embrasures inserted into the rampart. The sallyports, being weak points, were strengthened. That to the south consisted of an arched gateway through a continuous rampart with a substantial brick-built guardhouse behind to prevent direct access to the parade beyond. That to the north appears not to have had an archway and may have been larger. The guardhouse here was set off on the north side of the road but a wall and a dogleg in the road again prevented direct access through the gate. The approaches were reinforced by opening out the ditches in front of the curtain, which had previously followed the rampart more closely (compare Figure 4 with Figure 8), allowing more effective flanking fire from the bastion faces to either side. The sally-ports would have been approached via causeways with drawbridges, probably of wood, immediately in front of the ramparts. This was clearly the case to the north of Prince Edward's Bastion but no drawbridge or causeway is shown to the south (see Figures 8 and 10).

Also by 1806 there were a range of buildings within the bastion, some of which were probably first built in the middle 1780s or perhaps a little earlier. They are shown in detail on a plan (Figure 9) that originally accompanied Board of Ordnance returns which give details of the buildings' function, size and construction, painting a picture of the bastion at this time as a busy work yard (Table 1). This was the only bastion on the lines occupied in this way.

A plan of 1821 (Figure 10) recorded changes in the area around the lines during this period. In 1804 additional land in front of the lines was purchased by government and West Court and Upbury farmhouses were 'taken down', probably to open up the field of fire in front of the lines. There is also a reference to 'Dark Lane so called previously to 1804' which implies that it was taken out of use at the same time and a little later





Figure 8 – Detail from ‘Plan shewing the boundary of the ordnance lands at Chatham...’, 1806, north to bottom left (TNA UK MR 1/81516).

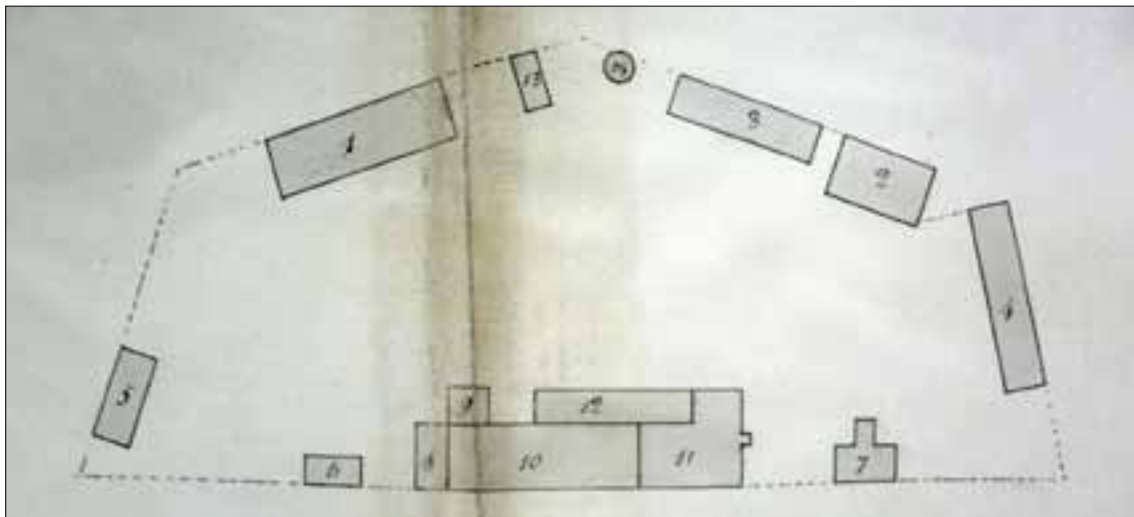


Figure 9 – Detail of plan to accompany the Board of Ordnance returns for 1806, north to bottom left (TNA UK MR 1/81511).

Transcribed extract from the Board of Ordnance returns for 1806 (TNA UK WO 55/2298)

	Buildings	Height	Length	Breadth	Walls	Roof	N° of stories
1	Carpenters shop	12'	73'10	23'7	Wood	Slate	One
2	Wheelers D°	9'	41'	2'6	Wood	Tiles	One
3	Storehouse	13'6	60'3	24'6	Wood	Tiles	One
4	Wheelers Coopers & Store	10'	76'3	16'	Wood	Tiles	One
5	Sawpits	10'	36'3	15'4	D°	D°	One
6	Office Keeper's House	8'6	23'3	10'3	D°	D°	One
7	Foreman of the Laborer's call office	12'	26'8	14'10	D°	D°	One
8	Coal Hole	10'	16'	14'	Brick	D°	One
9	Wire Workers & Screen Makers Forge	9'	15'7	14'9	D°	D°	One
10	Blacksmiths D° & Store	12'6	74'	25'	D°	D°*	One
11	Engineers Office	13'	40'	38'	Wood	D°	One
12	Painters Shop & Store	13'	60'	12'	D°	D°	One
13	Collar makers Shop	7'	20'	10'	Brick	D°	One
14	Well	7'	Diam	~	Wood	Wood	One

\*NB only a part 15' broad and 40' long is brick & tiles & the rest next the Engineers Office is wood & tiles

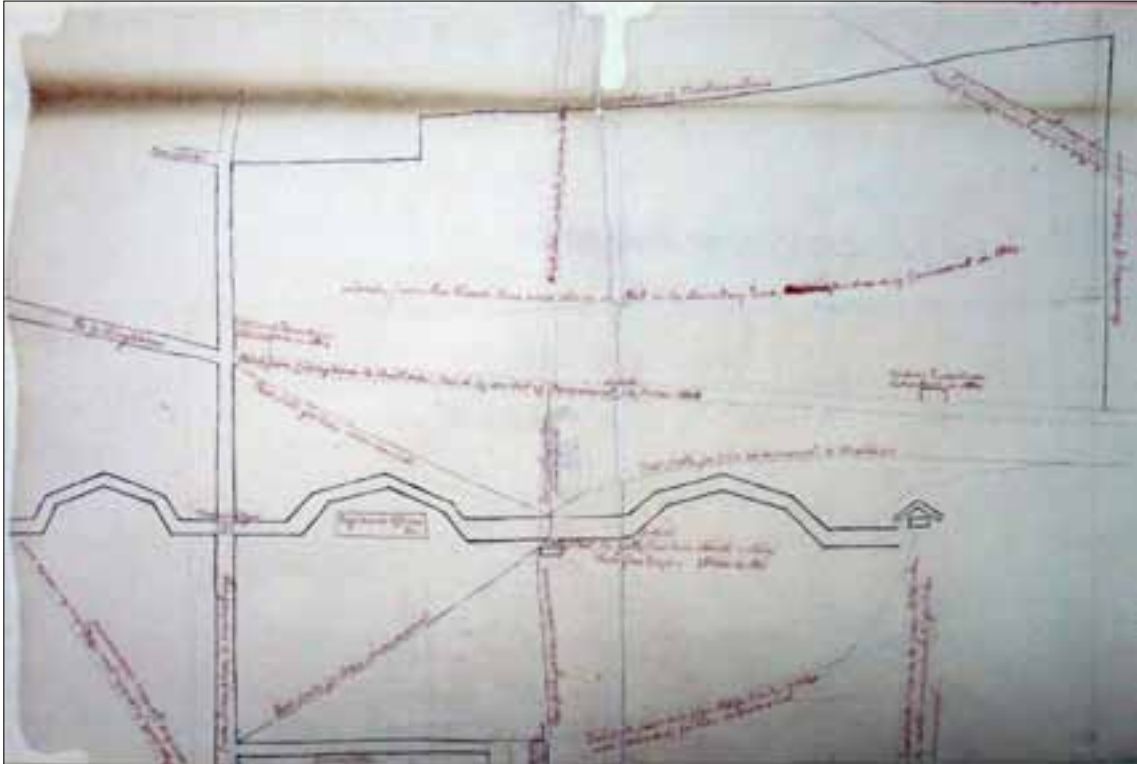


Figure 10 – Plan of 1821 showing changes in the vicinity of the lines in the previous two decades, north to bottom left (TNA UK MFQ 111280/1).

the 'Road from Gillingham to Chatham', which ran through the field of fire, was 'closed by an act of Parliament passed in June 1808', leaving the main road to run through the sallyport to the north of Prince Edward's Bastion via a 'drawbridge'. Several footpaths 'from time immemorial', which ran through the sallyport south of the bastion, remained in use. Those that ran to the south of King's Bastion appear to have been taken out of use in 1803 'when the works were extended', presumably the forward works, and increasing traffic elsewhere. Another to the north of Prince Henry's Bastion was also apparently taken out of use at this time and for the same reason, in this case apparently the construction of Lower Lines.

Some of these features and changes are more accurately located on another plan of 1821 (Figure 11). For example, this latter plan shows that West Court was actually located directly in front of Prince Edward's Bastion rather than in front of the sallyport to the north of it. This plan also shows that this sallyport was known as 'Brompton Barrier', though the name may be a later addition, and that to the south was formally called 'Sally Port' by this time.

#### **Phase 4 – the middle and later 19th century**

After about 1820 work on the lines ceased; the only military activity was by the garrison, including engineer training (Hamilton-Baillie 1974). This was generally a period of stasis in military terms with few direct threats. New barracks buildings were only constructed following the 1860s reforms; the garrison gymnasium to the northwest of the bastion was built at this time (1863) and is listed grade II\* (LB description).



Figure 11 – Detail from a plan of the lines in 1821 (Figure 3), north to bottom left (TNA UK MFQ 111280/10).

The first large scale Ordnance Survey (OS) map of the lines is a version compiled from 'candidates' for the first edition 6" to 1 mile map of Kent in 1860 (Figure 12). As such it is a pre-publication version and is interesting in that it uses contours to show the topography very clearly. The lines are shown in red; Prince Edward's Bastion is immediately below 'Brompton'. It can be seen to be the only bastion housing any buildings and they appear to be arranged roughly as they were in 1806, though there is no building inside the south flank.

A record plan of 1876 (see Figure 14, left) shows that Brompton Barrier was still intact at this date, though as the guard house is marked as 'disused' the barrier itself may already have been out of use.

From the 1860s onwards the OS began to publish large-scale, 6" and 25" to 1 mile (approximately 1:10,000 and 1:2,500 respectively), maps of each county, Kent being the first. The first three generally published editions do not show the lines at all, as they were rather crudely deleted for military reasons. There were however military versions of these maps that show the defences, generally marked as 'For War Department use only'.

The 'War Department' 25" to 1 mile map of 1879 (Figure 13) shows several buildings within the bastion including two stores, the 'Royal Engineers Office', another office, a workshop and an earth closet (toilet). These were enclosed by a walled compound within the bastion that separated them from the open ground to the west. Numerous paths radiated out from the buildings suggesting that they were well used. The store to the north appears to be the same as that of 1806, and there had been some



Figure 12 – Detail from an unpublished 1860 Ordnance Survey map compiled as part of the process of creating the first edition 6" to 1 mile series, not to scale (TNA UK MR 111276).

expansion of the 'Royal Engineer's Office' since the 1806 plan which now connected with the originally separate 'Office Keeper's House'. All the buildings along the bastion faces recorded in 1806 had been demolished but this may have been relatively recent as buildings appear in these locations on the small-scale map of 1860 (Figure 12). The building along the south flank is not the same building as was on this site in 1806; it is of a different size and orientation and has been cut into the terre-plein. It probably dates to after 1860 but was not a direct replacement for the earlier building as the 1860 map is blank in this area.

The 1879 map also shows the form of the rampart at this time. A talus ran up to a terre-plein around the whole of the rampart apart from at the corner of the north curtain and bastion flank; several paths ran towards this area so it may have been the main access point up onto the rampart. No glacis is shown around the guardhouse behind the southern sallyport and it is possible that the terre-plein here was retained by splayed walls. The terre-plein was rather variable in width. It was quite broad behind the south curtain, widening significantly at the corner with the south flank, behind which it was also quite broad, and had been broader as it had been cut into to allow for the construction of the 'workshop' building. Around the face of the bastion the terre-plein was narrower, though it broadened a little at the salient where there may have been ramped access from the garden/yard within the bastion. It also broadened out somewhat behind the north flank where it was again cut into by one of the 'store' buildings. Behind the north curtain the talus was not visible and the terre-plein appeared to be much narrower than elsewhere, perhaps being retained by a wall. A banquette ran around the entire rampart behind the parapet revetment, with narrow breaks at the embrasures. There were six of these, four (arranged in two pairs) in the north flank

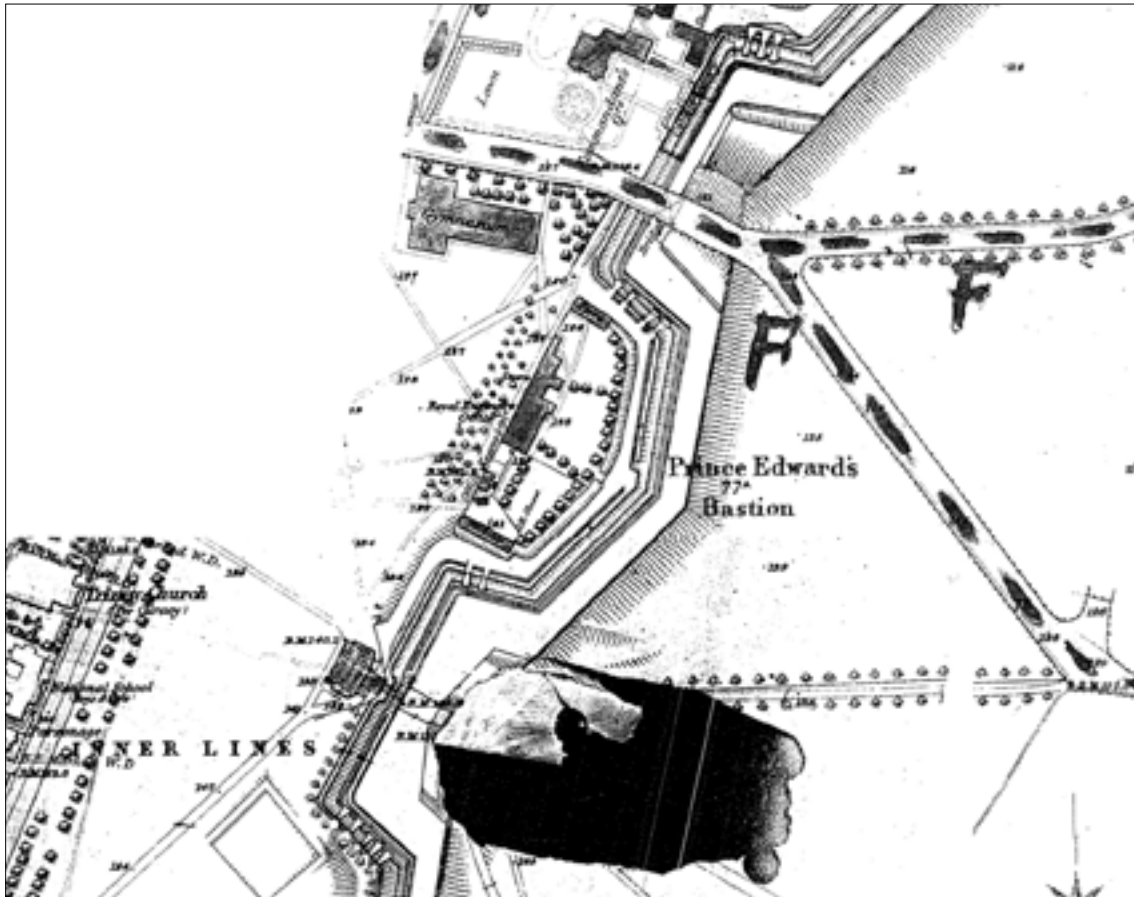


Figure 13 - Detail from an Ordnance Survey 25" to 1 mile 'War Department' map of 1879, not to scale (TNA UK WO 32/18207)

and two in the south flank. There was a short projection in the parapet revetment just to the north of the salient and a break in the banquette around it, perhaps to create a slightly reinforced firing position for a gun. Forward of the parapet revetment two slopes are shown dropping away from the parapet, the outer (lower) slope presumably being steeper than the upper. Two walls, close to, and parallel with each other, are shown running along the face of the rampart. The inner wall is probably the revetted face of the parapet/rampart and the outer the lower ditch scarp. The ditch is shown as featureless with a simply revetted counterscarp without a covered way and a glacis running out into the field of fire for almost twice the width of the ditch.

By the time of the 1879 map Brompton Barrier and its guardhouse had been removed and the road straightened. All previous maps show the gate here as being centrally placed in this section of curtain yet the 1879 map shows the roadway to be offset to the south. An overlay to the record plan of 1876 from the 1890s (see Figure 14) makes it clear that the new roadway was in fact on a new, more southerly line and that the rampart to the north had been narrowed and its rear revetted. It also suggests that the motivating factor in the barrier's removal and the realignment of the road may have been to enlarge the commandant's garden; the house was under construction in 1876. There is the potential for buried remains of the guardhouse and associated structures to survive in the garden. This means that the causeway and bridge approaching the gateway over the ditch must have been a completely new construction at this time (the later 1870s).

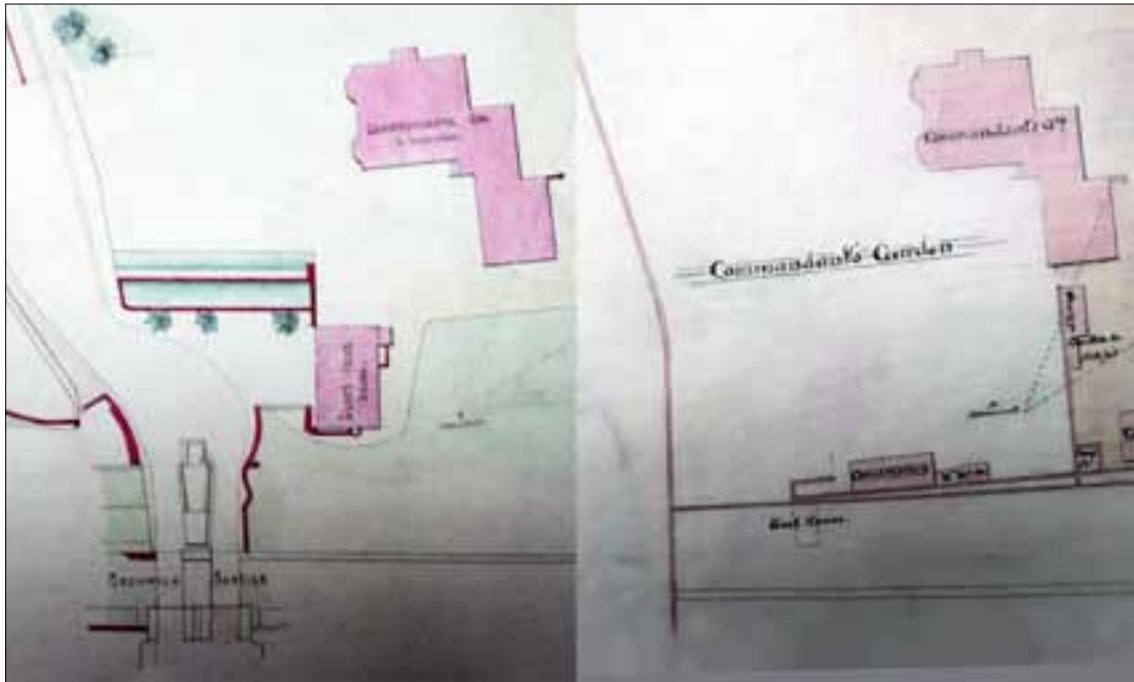


Figure 14 – The 1876 record plan (left) and 1890s overlay (right), north to top right (TNA UK WO 78/2825/5 and 78/2825/4 respectively).

Sally Port, to the south of the bastion, remained intact in 1879 and appears to have been approached by a causeway or bridge, though any bridge is not explicitly indicated as such which it was to the north, perhaps suggesting a causeway as the more likely form. It apparently remained intact until at least 1896 when the second published edition OS map (Figure 15) still shows the whole area as a blank, in contrast to that to the north. By the third edition of 1909 (Figure 16) however, the road appears as continuous, so it would seem that Sally Port was dismantled between these two surveys. The substantial guardhouse did however remain.

Within the ditch in front of each curtain was a structure first shown on the 1879 map but resembling the early ditch plan shown in 1763 (Figure 4). Though not identical they appear to be of a similar form, mirroring the ditch scarp and effectively narrowing the ditch, with a low central ridge and steeper scarps to either side. That to the north, in front of the former Brompton Barrier, was the larger and was apparently brick revetted, that to the south was smaller and may not have had any revetment. Their function is uncertain as they would have created blind spots for flanking fire, but they served to carry the roadways much of the distance across the ditch. In front of Brompton Barrier it extended as far as the point where the drawbridge started but in front of Sally Port the gap was larger, again suggesting a causeway or fixed bridge rather than a drawbridge.

The first two editions of the OS maps show the area behind Prince Edward's Bastion as being criss-crossed by footpaths in a fairly organic pattern, suggesting that the area was accessible and well used. The same would also appear to be the case on the cleared area in front of the bastion. By the third edition this appears to have changed with far fewer paths visible and increased tree cover implying less frequent access. Though this could be due to changing mapping conventions the road layout in front (east) of Sally Port had clearly been changed and the point at which the various roads, paths and tracks

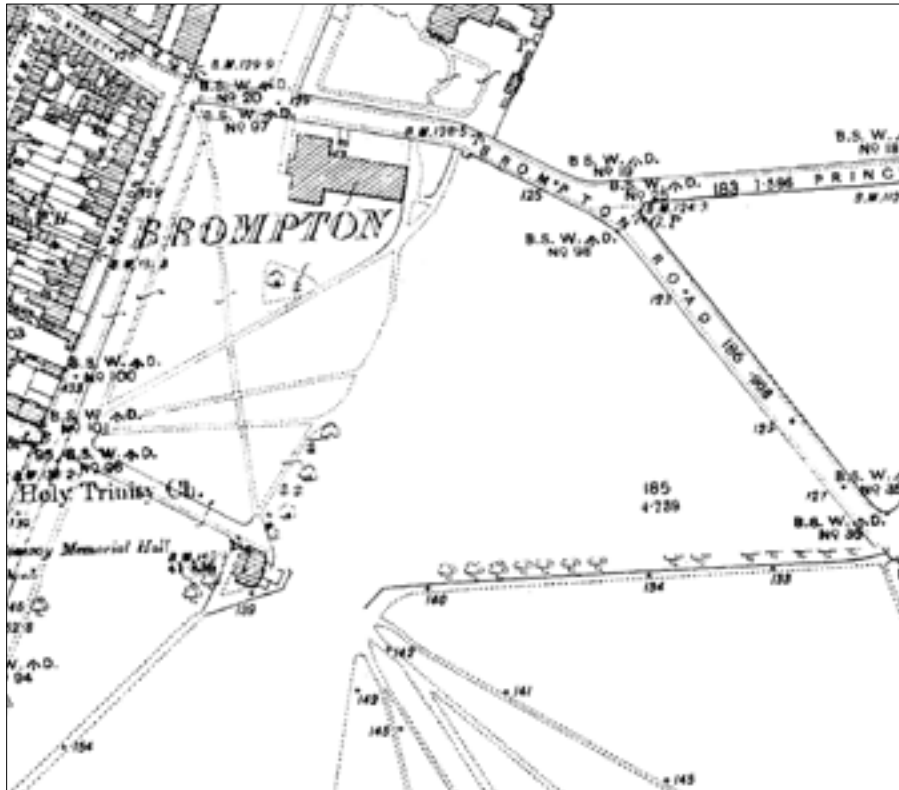


Figure 15 - Extract from the 2nd published edition of the Ordnance Survey 25'' to 1 mile map of 1896, not to scale (© and database right Crown Copyright and Landmark Information Group Ltd (all rights reserved) Licence numbers 000394 and TP0024)

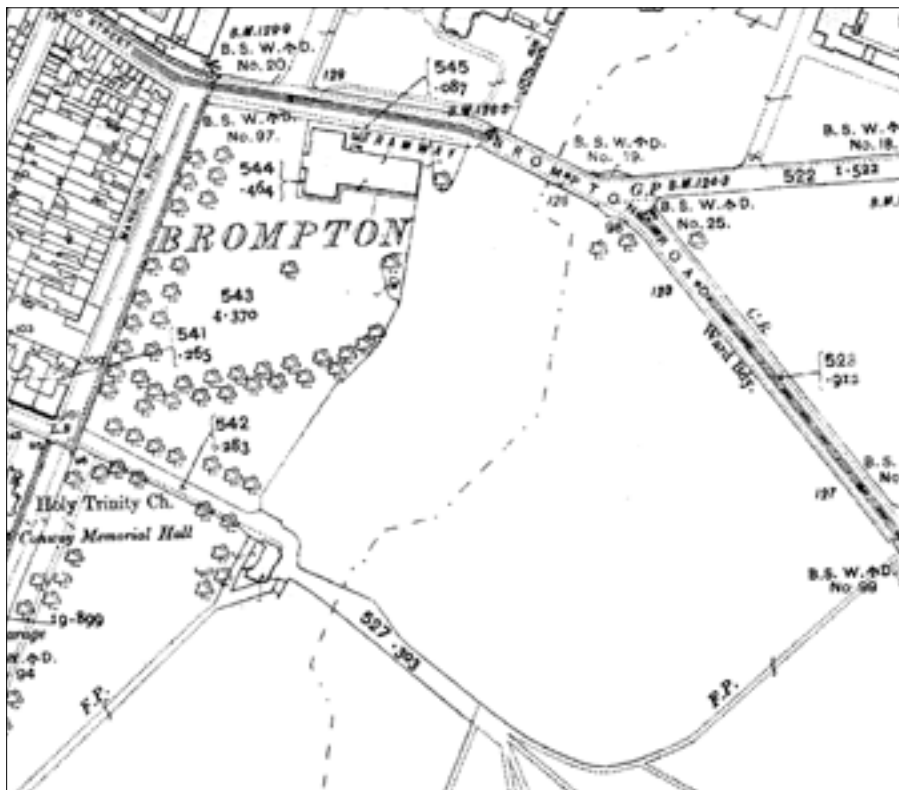


Figure 16 - Extract from the 3rd published edition of the Ordnance Survey 25'' to 1 mile map of 1909, not to scale (© and database right Crown Copyright and Landmark Information Group Ltd (all rights reserved) Licence numbers 000394 and TP0024)

fanned out across the open ground moved away from the rampart, perhaps suggesting an increased desire to control access to the land around the lines. It is perhaps relevant that a bank is shown on the fourth edition OS map (Figure 17) running south from the point at which the paths newly diverged on the third edition map.

### Phase 5 – the First World War and the inter-war period

During the 1914-18 war various shelters and gun emplacements were established around Chatham. In particular there was a large underground shelter in the area of the existing Garrison Sports Ground known from photographs held in the Royal Engineers collection and an MoD plan (Kendall, pers comm). They were very probably used; on the night of the 3<sup>rd</sup> and 4<sup>th</sup> of September 1917 the south of England was subject to an air raid. A map held at The National Archives (TNA UK MPI 1/608/5) shows that several 12 kilo bombs fell in the vicinity of the lines, one only about 50m from Sally Port. It is not clear if there was any damage to the lines as a result but this would seem unlikely. There were however 135 fatalities in the naval barracks (Kendall pers comm).

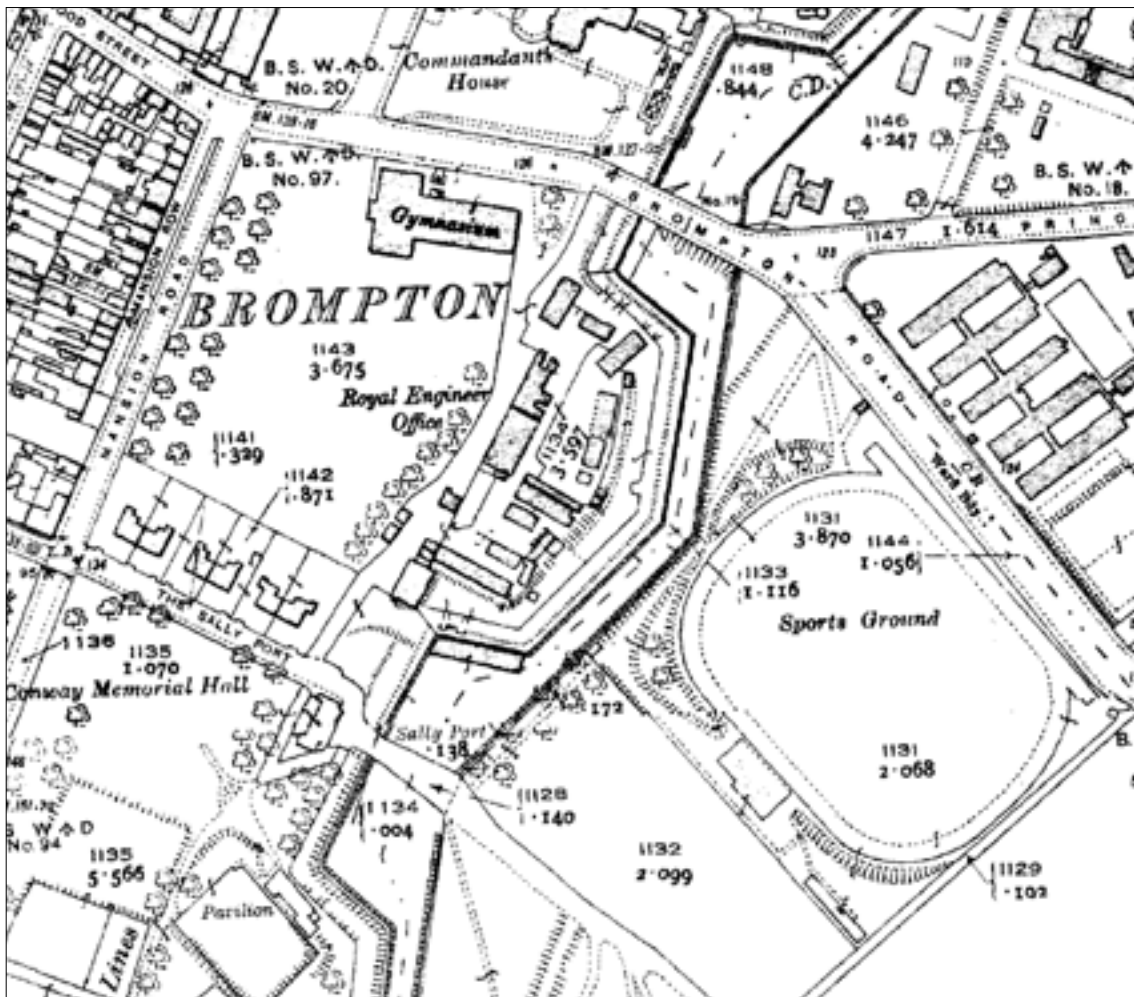


Figure 17 – Extract from the 4th edition of the Ordnance Survey 25" to 1 mile map of 1932, not to scale – same area as earlier editions but reproduced larger here to show detail (© and database right Crown Copyright and Landmark Information Group Ltd (all rights reserved) Licence numbers 000394 and TP0024)



The fourth edition OS map of 1932 (Figure 17) was the first published version that showed the lines, a sign of the declining military significance of the lines. As well as the first houses to be built on Sally Port it also shows a range of sports facilities in the area behind King's Bastion. Within the bastion were a range of buildings, some of which are shown for the first time to extend west beyond the enclosure within the bastion, though they could date to any time after 1885. Whilst a few appear on the 1879 map the majority appear to be new. Some of these were located quite tight to the rampart necessitating cutting back into the terre-plein, particularly against the north flank. Another large new building is also shown to be cut into the rampart at the rear of the west end of the south flank.

The revetment to the parapet would appear to have remained intact along the whole length of the rampart within the study area, apart from behind the south curtain, and the embrasures remain intact. Behind this the terre-plein seems to have retained much of its earlier form, but the banquette is now largely missing, except on the north curtain. Behind the north face the terre-plein appears to be partly retained by a wall with small buildings at each end. To the south of this hachures indicate a slope down to the parade. At the north end of the south curtain a north facing scarp is shown suggesting a break in the rampart. A slope down from the parapet towards the scarp is shown along the full length of the rampart though it appears to be less well defined than it appears on the 1879 map suggesting some neglect of the rampart.

It is unclear from this map if the ditch had been filled in by this time. It is shown as generally featureless suggesting that the structures shown in 1879 may have been levelled or filled around. However, the revetment for both the scarp and counterscarp is clearly depicted, a slope is shown running down from Brompton Road (modern Wood Street) into the ditch but only as far as the point where the bridge is shown on the 1879 map, and a building appears to have been constructed within the ditch against the south flank of the bastion (visible in Figure 18), suggesting that the ditch was still open.

In advance of the bastion and ditch the glacis is shown to have been cut back quite tight to the ditch counterscarp revetment, apart from a triangle of ground against Brompton Road (modern Wood Street). This was probably due to levelling operations during the construction of the 'Sports Ground', which probably dates to the 1920s, but may have been earlier, at the time of the construction of the wartime shelter on the same site. A triangle of higher ground east of the north end of the ditch, south of Brompton Road (Wood Street), may be a remnant of the glacis.

## **Phase 6 – the Second World War and immediate post-war period**

During the Second World War Chatham was established as a nodal point for the defence of Britain and the lines were used as anti-tank defences. Small-scale wartime aerial photographs exist, but although they are generally not of sufficient quality to reproduce, they do confirm the form of the bastion described below. Two photographs from 1948 give an idea of the bastion's war-time appearance (Figure 18 is the clearer image but some of the survey area is missing from the foreground which can be seen, rather hazily, in Figure 19). A range of buildings can be seen within the bastion, most of



Figure 18 - Prince Edward's Bastion from the southwest (extract from RAF 30015 PFFO-0079 TQ 7668/3 4 February 1948 English Heritage (NMR) RAF Photography)

which appear to be the same as those on the 1932 map and give the appearance of a work yard. Those behind the north face were different (confirmed by Figure 20) and were constructed much closer to the rampart which resulted in the removal of most of the terre-plein here.

By this time the ditch had been partially filled and a large 'V'-shaped ditch cut into this infill. This can be seen running along the south side of Brompton Road (now Wood Street), and in front of the north curtain, north flank, north face and most of the south face of the bastion. White material within the 'V' ditch suggest the partial infilling it at this time (it remained visible in 1950, Figure 20), perhaps to make it safer. It is not clear when the ditch was filled or why but the 'V' ditch was very probably a part of the war-time defences. Elsewhere the full width of the ditch was used for this purpose so it seems most likely that the ditch was filled sometime between 1932 and 1940 and that rather than empty the ditch out the expedient measure was to cut the 'V' ditch into this backfill. Such a ditch was also constructed at Lower Lines to create a secure perimeter around the underground naval command centre as this was in front of the older lines. This ditch was revetted in corrugated iron sheeting held in place by lengths of rail (Kendall, pers comm).

The infill and 'V' ditch appear to stop rather abruptly 20m or more before the south end of the bastion face; the revetment wall of the counterscarp can be seen in the bottom right corner of Figure 18. Within this low area was a large shed built against the south flank of the bastion, just visible in Figure 18, which was shown on the 1932 OS map. It can be seen in Figure 19 that the low area around the side of the south flank was relatively restricted. To the south, a strip perhaps 20-30m wide immediately north of Sally Port Gardens, had been partially filled in and a building constructed upon it. This



Figure 19 - Prince Edward's Bastion from the west (extract from RAF 30015 PFFO-0078 TQ 7668/2 4 February 1948 English Heritage (NMR) RAF Photography)

may be remains of the structure shown within the ditch on the 1879 map, though hints of a track suggested that the slope up to Sally Port had been graded. The building on the raised area appears to be a temporary shed and was not shown on the 1932 OS map or the 1950 aerial photograph. The area to the south of Sally Port appears to be completely filled and levelled, though not built upon. As noted above there is no firm evidence for any infilling of the ditch prior to the Second World War and it therefore seems likely that much of the ditch was filled during construction of the war-time defences.

The aerial photograph from 1950 mentioned above (Figure 20) shows the new buildings behind the north face and confirms that the terre-plein had been cut back. The same pattern of filling in the ditch is also visible, although the two buildings to the south have been demolished. The guardhouse associated with the sallyport, and the dog-leg in Sally Port also remained.

### Phase 7 – the Cold War

During the Cold War the military importance of Chatham gradually declined, and the end of conscription reduced the need for barracks accommodation. Nevertheless, Brompton remained the main centre for the Royal Engineers and during the 1960s a nuclear submarine refit facility was built in the dockyard (Cocroft & Thomas 2003, 51). Chatham's land defences though were obsolete and subject to neglect and piecemeal demolition and infilling.

Prince Edward's Bastion appears to have suffered as part of this process; the military buildings within the bastion, some of which may have been two hundred years old, were



Figure 20 – A vertical aerial photograph of Prince Edward's Bastion in 1950, north to top (extract from RAF/58/550, frame 5204 14 August 1950 English Heritage (NMR) RAF Photography)

demolished and replaced by a small housing estate for married military personnel. This seems to have taken place in or very shortly before 1968 as an aerial photograph from this year (Figure 21) shows the new buildings and road layout, including the straightening of Sally Port/Sally Port Gardens, all of which appear to be recent. The guardhouse had also been removed by this time, although apparently not so recently. This aerial photograph also shows damage to the north face of the bastion and evidence of earth-moving work in the form of tracks and scrapes marks within the ditch, suggesting that much of the damage visible today may have occurred at this time.

### **Phase 8 – Recent developments: heritage-led regeneration**

This period saw a new appreciation of Chatham's heritage. A linear park is proposed as an element of the Great Lines Heritage Park and as a significant component of the World Heritage Site bid. There was no evidence of this period on site and it was partly as a step towards incorporating this section of the lines into these plans that this project was undertaken.



Figure 21 – Vertical aerial photograph showing the bastion shortly after the construction of the housing estate, north to top (extract from OS/68004, frame 211 | February 1968 © Crown copyright. Ordnance Survey)

## DESCRIPTION AND INTERPRETATION OF THE REMAINS

Prince Edward's Bastion lies between Wood Street (A231) to the north and Sally Port/Sally Port Gardens (hereafter Sally Port) to the south. To the west, the survey area was mainly delineated by the fences to the gardens of modern houses built within the bastion, to the east of a road called Inner Lines and to the north and south of these, by Inner Lines itself. To the east it was defined by an unnamed roadway giving access to the rear of houses on Sally Port and a tarmac path running between the Garrison Sports Stadium and the Bastion, which originally joined Wood Street to the north. To the north lies Prince Henry's Bastion which is within Brompton Barracks and has not been surveyed to date. To the south is King's Bastion which has been surveyed (Pattison forthcoming).

### General description

The bastion will be described from the rear of the defences forward and from north to south. The parade and bastion interior will therefore be discussed first, then the rampart, the ditch and the field of fire. [Letters in square brackets refer to Figure 29]

### The parade/bastion interior

As noted above the underlying ground surface generally fell away to the north. Though not surveyed it was clear that within the bastion the ground surface to the south was below the level of the ditch fill, revetment and field of fire beyond and the ground surface to the north above them. It therefore seems likely that there had been some levelling within the bastion. Though this could have taken place at any time, the most likely context would be during the construction of the housing estate in the 1960s when there is evidence for considerable earth moving activity elsewhere around the bastion. This will have had an impact on the preservation of sub-surface archaeological remains, with the south, where the ground surface was lowered, being considerably less likely to retain significant deposits than the north, where the ground was made up.

### The rampart

The remaining section of the north curtain [A], which runs towards Prince Henry's Bastion, retained at least part of the terre-plein, banquette and rear revetment of the parapet though this had lost its upper courses (see Figure 22). The terre-plein appeared to be rather narrow and the talus quite steep, probably preserving the Napoleonic form of the rampart here. It is possible that the terre-plein was originally retained by a wall which may have collapsed or been removed, but it is also possible that the rear of the work here had been truncated somewhat by the widening of Inner Lines. The rampart here was significantly lower than the south curtain [G] and it is possible that the surrounding ground level had been raised, probably by road improvements. There was no evidence of the scarp revetment and the rampart had either been cut back or eroded several metres; probably the latter as there was considerable evidence of damage by tree-fall and active erosion sites. The side facing Wood Street had clearly been cut back quite recently, presumably when the road was widened and this had a much more uniform appearance than that of the scarp.



Figure 22 - The north curtain from the rear, looking SSE (© English Heritage DP 119304 Steve Cole).

The rear of the bastion's northern flank [B] has been severely cut back and the talus, terre-plein and banquette completely removed apart from a very narrow strip, a process apparently started before 1879 and complete by 1968. The rear parapet revetment remained and it was possible to identify four embrasures along this section. Again there was no evidence of the revetment to the scarp and the front of the rampart appeared to have eroded back several metres, showing the same damage and erosion seen on the scarp of the north curtain.

On the corner between these two sections was a concrete lined slit trench, probably from the Second World War defences.

The north face of the bastion [C] was the most severely damaged section. Only a rough bank that was lower and narrower than elsewhere remained. The rear rampart elements had all been removed and there was no sign of the scarp revetment. At its southern end where it approached the salient the top of the bank rose significantly towards the point where the rear revetment could once again be clearly seen (Figure 23).

This section of the bastion projected forward from a line reflecting the south face and had a distinct change of angle about halfway along its length (see Figure 24). The plan form seen today is not original, which is shown on the 1932 OS map (Figure 17) and on aerial photographs as late as 1950 (Figure 20). The changed alignment is still not shown on modern OS mapping but is visible on the aerial photograph of 1968 (Figure 21), at which time the damage looked recent, and probably associated with the construction of the new housing within the bastion. It is therefore highly unlikely that much of this part of the rampart remains undisturbed. Towards the north end of this section part of the front face of the rampart had been severely damaged and was collapsing at the time of



Figure 23 - The salient from the north (© English Heritage DPI 19293 Steve Cole)

survey [c]. This may mark the point at which the orientation of the bastion face had been changed, with the old line to the north and the new to the south. No such transition was visible to the south.

The salient [D] and south face of the bastion [E] were both in fair condition. The parapet revetment remained along this entire section, including part of the small rear projection just north of the salient, first shown on the 1879 map, though most of the rear elements had been removed (see Figure 25). There were no traces of the scarp revetment along the front of this section and the rampart had probably been cut back several metres as indicated by the 1968 aerial photograph (Figure 21) but there was no major damage as seen on the north curtain and flank.

The south flank of the bastion [F] was also in reasonable condition. The revetment of the parapet remained and connected with that of the face. Although it had been damaged by vegetation growth (see Figure 26), one embrasure and part of a second could be seen at its west end where it reached a height of about 1.5m. This was in contrast to the lower revetment (about 1.0m) seen elsewhere and may give an indication of the original height of the parapet, though the north curtain was rather higher and so it may be the result of rising rampart levels to accommodate the rising terrain.

Behind the south flank was a level area about 26m by 10m on the same level as the narrow step running away northwards behind the south face. This platform is all that remains of the broad terre-plein that ran around the inside of the bastion, shown on the 1879 map. It would appear to have been modified however, perhaps by having it level raised as there was no evidence for the banquette and the parapet would appear





Figure 24 - Looking south along the north face (© English Heritage DPI 19291 Steve Cole)

to be too low to have provided much cover. It may have been modified for military reasons, perhaps to create a larger terre-plein to accommodate bigger guns and/or because developments in small arms and the construction of the embrasures rendered the banquette obsolete, in which case it is most likely to be contemporary with the Napoleonic rebuilding. However, it may be associated with late 19th century leisure use of the bastion, perhaps to create a walkway allowing views out across the cleared ground to the east, which accords better with the current height of the parapet. The rear works were removed in several stages; the section behind the north flank had already been encroached upon by 1879 and more significantly so by 1932 as had the corner to the south, the section behind the north face was cut back between 1932 and 1941 (NMR RAF/S/377 101 7 Aug 1941), and between 1950 and 1968 the area behind the north face was destroyed, and the areas behind the north flank and south face largely removed though leaving the parapet revetment in place. The area west of the remaining part of the platform was also cut back at this time, removing several metres of the parapet revetment, including half of an embrasure and leaving a very steep and still eroding face.

In front of the rampart the scarp revetment could be traced along the full length of this section as a low step at the base of the rampart with brickwork visible in places. The height of this had clearly been reduced and the rampart above cut back, as indicated by the 1968 aerial photograph (Figure 21). There had also been some erosion demonstrated by the accumulation of material at the base of the slope.

The south curtain [G] was relatively well preserved and reached a height of over 4.0m above the roadway to give an impression of the original size of the rampart. The talus and terre-plein were clearly visible and in something like their 19<sup>th</sup> century form, though



Figure 25 - Looking southwest from the salient along the south face (© English Heritage DPI 19295 Steve Cole)

the terre-plein was not level, partly due to erosion of the talus. The parapet revetment was missing, apart from a small block of in-situ brickwork protruding from the ground, and the parapet itself had partially collapsed onto the terre-plein forming a bank on the top of the rampart. The scarp revetment remained along almost the full length of this section, though its height had been reduced and the rampart above collapsed somewhat.

To the north this section of the rampart had been partially truncated by what appeared to be a track running ENE from Inner Lines up onto the rampart and then turning towards the southeast to meet the north end of this section where the majority of the rampart had been completely removed. There may be two features here; the lower western section was smaller in scale, on a different orientation, and had the appearance of a track, in marked contrast to the much larger breach in the rampart. Neither appears on the 1879 map but they are shown on the 1932 map. The former may have been a ramped track up onto the terre-plein but the function the latter is unknown. They could relate to leisure use of the bastion during the late 19th century, the possible track allowing easy access to the terre-plein and views out across the field of fire. They must though date to after 1885 which is rather late and the large breach at least may mark a gun emplacement from the 1914-18 war.

At the south end of this section the rampart had clearly been cut through, the sallyport removed and the road straightened. The map evidence indicates that until the sallyport was removed sometime between 1896 and 1909 the talus ran was probably retained by a wall. Once the sallyport was removed the road was widened necessitating the removal of this wall and the western part of the south facing slope, including the corner with Inner Lines reached approximately its current position. The eastern half of this slope



Figure 26 – The parapet revetment along the south flank, from the east (© English Heritage DPI 19301 Steve Cole). The gap visible to the left is damage rather than an embrasure.

however was cut back several metres when Sally Port was straightened. This took place after 1950 when aerial photographs still show the guardhouse and associated dog-leg in the road and before 1968 when aerial photographs show the guardhouse to have been removed, the road straightened and the low retaining wall visible today built. In this photograph the road works look to have been recent and the cut back section of the rampart appears fresh.

### The ditch

The ditch had been filled in around the entire bastion although this was not a single operation, as discussed above. The ditch appears to have remained largely open until sometime between 1932 and 1940 when most of it north of the south flank was filled. During the Second World War anti-tank defences were cut into this backfill. These consisted of a 'V'-shaped ditch that ran parallel to Wood Street into the angle of the bastion and back along the north flank, and then around the faces of the bastion. This work stopped several metres short of the south end of the south flank leaving a low area before more material raised the level close to that of Sally Port. This arrangement remained in place until at least 1950 but the whole area had been levelled by 1968 taking close to its current form.

Along the north side of the survey area was a well-constructed wall, presumably contemporary with the most recent widening of Wood Street. Behind this a steep slope, that approached 2m in height at its east end, ran up to a low broad bank of modern material, probably thrown up by the road widening operations. This overlay earlier deposits presumably from the Second World War defences and 1960s levelling



Figure 27 – looking southwest along the filled ditch from the salient (© English Heritage DPI 19298 Steve Cole)

operations. The rest of this area was generally fairly level but much of it was obscured by dumped material. There was though a large irregular hollow in the northernmost angle of the bastion that appeared to have been left by the raising of the levels around it rather than the excavation of a pit within the ditch back-fill. This was probably a remnant of the war-time defences with modern fill material dumped within the anti-tank ditch to the southeast and material from the road widening operations to the north.

In front of the bastion faces the surface of the back-filling was generally level with only relatively subtle earthworks visible. Here, the main feature was a broad shallow gully that was probably the remains of the Second World War tank defence ditch (visible running away to left of centre in Figure 27). A similar gully could also be traced in front of the north flank but any possible junction between the two features was obscured by dumped material and scrub growth. To the south this broad gully ended about 30m before the south external angle of the bastion where a low ridge of material ran across the ditch. From examining Figure 18 it would appear that this is approximately the point where the war-time ditch ended and south of this the character of the earthworks was subtly different. The ground fell away slightly to the north, was slightly more concave than the level ditch fill to the north and rather than a single broad gully there were several narrower gullies as well as a few mounds and hollows. It is possible that the inner edge of the most westerly gully [e] was marking the line of the buried scarp revetment, reflecting the evidence seen along the face of the south flank.

The area within the angle between the southern flank of the bastion and the curtain was in use as a playground by a nursery based in the NAAFI building on Sally Port and had a swing in the south corner. It was consequently under short grass and subtle earthworks were visible that may well have existed elsewhere but could not be picked up due to

the ground cover. Given that this area was probably levelled up in the late 1960s these earthworks are probably not significant, just being the remains of earth moving activities or previous, but recent, use of the area.

The counterscarp revetment could be seen quite clearly in the south of the survey area and its line could be traced as a low bank, with brickwork occasionally visible, for almost its full length (visible along the tree line in the left of Figure 27). A shallow gully ran along behind (west of) most of the northern two-thirds of this bank within the ditch backfill, probably just from settling of less firmly packed material following the levelling operations of the 1960s. The counterscarp was not visible at both the extreme north and south ends where it approached the improved modern roads, presumably because it had been removed at the north end, at least to a greater depth, to allow for the road construction and it had been built over at the south end.

### **Forward of the ditch**

Beyond the counterscarp and south of its salient, all evidence for earlier phases had been removed by development. From about 25m south of the salient northwards, the ground level had clearly been reduced as the existing surface was up to a metre lower than the top of the revetment (increasing to the north) and a very steep and still eroding face had been left, running quite tightly to the revetment. North of this, from about 50m north of the salient, a triangular area of ground, measuring up to about 14m east-west by 35m north-south, in front (east) of the ditch remained at close to the same level as the top of the counterscarp revetment bank. Given the evidence to the south, it seems likely that this area of higher ground was a remnant of glacial, left behind after levelling operations, perhaps associated with the construction of the First World War shelter or the Garrison Sports Stadium. Both these features, the steep drop down from the revetment and the triangular area of higher ground, are shown on the 1932 OS map (Figure 17).

## **Phased interpretation**

### **Phase 1 – the mid-18th century**

The general plan form of the lines around Prince Edward's Bastion, with four-sided bastions linked by curtains, is that of the original construction shown on the 1756/7 plan (Figure 2). It seems that there was always a centrally placed sallyport on each of the curtains that appear to have originally been fairly simple gaps in the rampart with defensive earthworks behind to control access. There must also have been some form of causeway or bridge crossing the ditch at each sallyport.

### **Phase 2 – after 1779**

Most of the major developments during this period took place elsewhere but it is likely that this section of the lines were modified removing some of the original elements and adding to others. This period probably saw the extension of a broad terre-plein, which had previously been restricted to the salients, right around the ramparts. The rear of the parapet and the scarp and counterscarp to the ditch were all later revetted in brick and

their angles steepened which makes it highly unlikely that any of the original form of the defences survives unmodified. However, the remaining section of the south curtain [G] clearly shows the talus and terre-plein and it may be that these remain from this phase.

### **Phase 3 – the Napoleonic era**

This phase saw a substantial redevelopment of the lines and the introduction of revetment in brick throughout. Most of the structural remains that can be seen date from this phase. Whilst the basic plan and cross-sectional elements of the bastion were laid out in Phase 1 and remodelled in Phase 2, the redevelopment during this phase probably obliterated most, if not all, of the original features.

All visible field evidence for the internal use of the bastion in this and earlier periods has been removed by the 1960s estate but the maps indicate that there were offices, stores and workshops within the bastion by 1806, and perhaps earlier. By this time it was clearly a busy work yard.

The 1879 map (Figure 13) only shows a marked distinction between the terre-plein and banquette along the curtains rather than right around bastion as implied by the sections shown on the 1779 map (Figure 6) and the plan of 1783 (Figure 7). If this is correct and originally the banquette ran right around the bastion then the terre-plein had probably been raised and broadened. If this was for military reasons, such as to allow for larger guns, then this would be the most likely context (but see Phase 4 below). The broad platform within the south angle of the bastion is all that remains of this feature.

All the main brickwork elements are from this period. The brick revetment behind the parapet was visible on the north curtain and around the north flank where four embrasures could still be seen. It was missing along the north face which was heavily damaged in the 1960s but remained around the salient and the south face and south flank where one embrasure and part of a second could be seen. A trace of it also remained on the south curtain. The revetment on the ditch scarp could only be clearly seen along the front of the south curtain though there was evidence for it along the south flank and perhaps around to the southern end of the south face. The revetment of the ditch counterscarp could clearly be seen at the south end, opposite the south curtain and traced almost as far as Wood Street to the north. There is no surviving earthwork evidence for the forward works from this period, other than the small area of the glacis immediately south of Wood Street.

### **Phase 4 – the middle and later 19th century**

This phase was largely one of stagnation; it appears that military development of the lines ceased after 1820 and they became a training ground for the Royal School of Military Engineering. Leisure activity also seems to have become increasingly important with large-scale military exercises drawing big crowds, who may well have watched from the vantage point of the lines, which also become incorporated into formal gardens and recreation grounds by the end of this period.

As noted above (Phase 3) the broad terre-plein that ran around the entire bastion was probably raised and broadened at some point prior to 1879. This may have been for military reasons but was perhaps to create a walkway for recreational use during this period. The ramparts appear to have remained largely unchanged but there may have been some neglect. Brompton Barrier was removed soon after 1876 and the road straightened crossing the ditch on a new line to the south probably via a brick revetted causeway and bridge. Sally Port remained intact until the early years of the 20<sup>th</sup> century when the arch was removed. It is not certain to what extent the roadway here was improved but it appears to have remained on the same line but been somewhat broadened by 1909 (Figure 16). The evidence for infilling the ditch here is uncertain and it is not clear how the roadway was carried over the ditch. By 1932 (see Phase 5 below) there is some circumstantial evidence that it may have been partially filled (the absence of the structures shown on Figure 13 from Figure 17) and the roadway appears to be identical in 1909 so the ditch may have been partly filled and the road carried on a broad earth embankment.

### **Phase 5 – the First World War and the inter-war period**

During the 1914-18 war the threat of aerial attack led to the creation of various defensive shelters and gun positions. One of the largest underground shelters was constructed in the area to the east of the bastion under what is now the Garrison Sports Stadium. It is not clear if this had any effect on the bastion, though it may have led to the levelling that removed much of the glacis. It is also not known if any gun positions were set up around the bastion, but one possible explanation for the breach in the rampart at the junction between the south flank and south curtain, visible on the first generally published OS map to show the lines, of 1932, is to accommodate a gun emplacement.

This map also shows the bastion as being largely intact with a range of buildings within; apparently it was still a busy work yard. To the rear of the north flank several of these had clearly encroached upon the rear elements of the bastion as had a building on the corner between the south face and south curtain. Elsewhere the terre-plein remained largely intact.

There is no certain evidence that the ditch had been filled in before 1932. The ditch revetment is clearly visible around the whole of the bastion, a slope is shown running down from Wood Street into the ditch and a building is shown within the ditch against the south flank of the bastion which was visible in the 1948 aerial photographs where it could be seen to be constructed within an open area of the ditch. However, the structures visible within the ditch in the 1879 map (Figure 13) are not shown, suggesting that they may have been levelled or covered over, and what appears to be a wall running parallel to the north curtain may be retaining this levelling, allowing the bridge to remain open. The majority of the ditch, from a point about 30m north of the south end of the south face was probably filled after 1932, but before 1940 when the tank-defence ditch was cut into the backfill.

In front of the ditch the ground had been lowered by 1932, apart from a triangular area to the north, very much as seen today. This levelling may have taken place when the

First World War shelter was constructed but it is perhaps more likely that it was when the stadium was laid out. This work removed most of the evidence for advance works.

### **Phase 6 – the Second World War and immediate post-war period**

During this period some of the buildings within the bastion were demolished, the terre-plein to the rear of the north face was cut back and new buildings were constructed tight to this new line. Elsewhere the bastion itself appears to have remained largely unchanged. Anti-tank defences associated with the nodal point at Chatham were cut into the ditch that had probably only recently been filled. These consisted of a large 'V'-shaped ditch running along the south side of Wood Street and around the bastion to a point about 30m short of the corner between the south face and south flank, where the earlier infilling stopped. The ditch remained open around the south flank but a strip, 20-30m wide, appears to have been filled in along Sally Port, possibly at this time but more probably during an earlier period. The wartime layout remained until at least 1950 though by this time the buildings in the ditch against the front of the south flank and that to the south-east had been demolished (Figure 20).

### **Phase 7 – the Cold War**

By 1968 a small housing estate had been constructed within the bastion, the ditch filled, Sally Port straightened and the guardhouse removed. This appears to have been a particularly destructive process. The remaining terre-plein behind the north flank was cut back and that behind the south face almost completely so, leaving only a very narrow step. The north face was pushed forward onto a new line and a large area on the corner of the south flank and curtain was also cut back destroying a large part of the parapet revetment including half of an embrasure. The ditch was fully filled and levelled, apparently by machine and this would appear to be the period when much of the scarp revetment was removed and the rampart above taken back. Also, the straightening of Sally Port necessitated cutting back part of the south curtain.

Finally, in about 1980 (Gulvin pers comm), Wood Street was widened resulting in the creation of a bank of modern material to its south and the further cutting back of the remains of the north curtain.



## DISCUSSION AND CONCLUSIONS

It is clear from the above that the bastion has been damaged in the past. However, much of this damage may be rather superficial and it is likely that archaeologically significant deposits remain in many places.

To the north and south of the bastion it is likely that elements of Brompton Barrier and Sally Port survive as buried features. This is particularly likely for the guard house associated with Brompton Barrier remains of which may survive in the garden of the former Governor's House.

Much of the parade has been built over several times and few significant archaeological features are likely to remain. It is probable that there will be pockets of survival but the location of these is difficult to predict. The probability that this area has been levelled, perhaps in the 1960s suggests that there will be very poor survival in the south of the bastion where the ground surface appears to have been lowered but a higher possibility of survival to the north where the ground has been raised. The centre of the bastion, the site of the first building within it, the 'Engineer's Office', has not been built upon and appears to have been minimally levelled so there is a good chance of significant deposits remaining here.

Most of the rear works have been removed although they remain behind the south curtain in what may be close to their original form. This section of the rampart may therefore be particularly significant and is currently excluded from the scheduled area. Within the bastion the most important deposits are those associated with the terre-plein north of the south flank. This originally ran right around the bastion and it is uncertain what its original form was, when it was modified and why. The deposits here may contain the answers to these questions and preserve the original form of the rampart within them. This area therefore also has a very high potential.

The core of the rampart will remain around most of the bastion and curtain surveyed although that along the north face has been seriously disturbed. These deposits are likely to be informative about the construction and reconstruction of the bastion but given the likely presence of more significant deposits elsewhere are only of moderate significance.

The ditch was filled relatively late and it is therefore likely that there are archaeologically significant deposits at some depth (2m plus). Within the ditch-fill however there may be significant deposits relating to the Second World War defensive works that might be considered significant. However, the upper levels of the ditch fill were clearly disturbed during the filling and levelling operations of the 1960s though significant archaeological deposits are probably at some depth and therefore protected.

Forward of the ditch much of the ground level has been reduced and it is unlikely that there are significant deposits here. The triangular area to the north however appears to have been unaffected and may therefore contain evidence for former advance works associated with the bastion for which there is no evidence elsewhere on this section of the lines. This makes this area of some significance. It is also currently outside of the scheduled area.

### **Recommendations for further work**

No further archaeological work is required at this stage other than in direct response to development. The site will require on-going management to ensure the condition of the monument does not deteriorate.

## METHODOLOGY

The earthwork plan was produced within Ordnance Survey National Grid coordinates using a combination of total-station theodolite (TST) and Global Positioning System (GPS) equipment.

Initially, a Trimble 5600 series TST was used to observe a ten station ring traverse. Due to the topography a link traverse with two additional stations was also observed in order to allow full coverage of the site, and where possible additional station shots were taken to improve the reliability of the traverse. No stations were permanently marked. From each station topographical observations were recorded directly into the TST.

Four of the traverse stations on the ring traverse were subsequently re-observed using GPS to enable transformation of the arbitrary local site grid to National Grid coordinates. For each observation a Trimble base station was set up over the point and an observed control point was recorded using real time differential data provided by the Ordnance Survey via VRS. This took approximately 3 minutes and was repeated for each station. Some infill work was undertaken with a Trimble R8 GPS rover recording directly to OS National Grid coordinates.

Traverse observations and topographic points were imported into Trimble GeoSite V software where the raw data was checked for errors. The traverse was analysed and the standard chi-squared test was passed after a single iteration of the adjustment routine. These were then transformed to OS National Grid coordinates based upon the GPS observed control points.

The survey was then transferred into AutoCAD 2008 3D Map software where some editing was undertaken to clean the survey data. A plan was then printed out, and sketch hachured on polyester film in the field. From this and the original survey data an inked hachure plan was produced by Deborah Cunliffe of EH's Imaging Graphics and Survey team. This was then scanned, geo-referenced, and edited to produce the final earthwork plan.

## ABBREVIATIONS AND TECHNICAL TERMS USED IN THE TEXT

### Abbreviations

BGS –	British Geological Survey
BL –	British Library
CAT –	Canterbury Archaeological Trust
DCMS –	Department of Culture Media and Sport
EH –	English Heritage
EPPIC –	English Heritage Professional Placement in Conservation
GPS –	Global Positioning System
MoD –	Ministry of Defence
mya –	million years ago
NAAFI –	Navy, Army and Air Force Institutes
OD –	Ordnance datum, more commonly, sea level
OS –	Ordnance Survey
SAM –	Scheduled Ancient Monument
TNA UK –	The National Archive UK
TST –	Total Station Theodolite
VRS –	Virtual Reference Station
WHS –	World Heritage Site

### Technical terms

The following explanations are largely taken from Saunders (1989, 246-9). A few generalisations have been made in the text for simplicity's sake, these are explained here.

Advance works:	Usually works beyond the glacis but still commanded from the main defences, here taken to include the glacis.
Banquette:	An infantry firing step.
Bastion:	A projection, generally four sided, from the general line of the defences allowing flanking fire along the line of the ramparts.
Counterscarp:	The exterior slope or revetment of a ditch.
Curtain:	A length of rampart between two bastions.
Embrasure:	An opening in a parapet through which a gun can be fired
Face:	The outer sides of a bastion facing the field.
Flank:	The sides of a bastion between the face and the curtain, the principal defensive element of a bastioned fortification.
Fraises:	Stakes of palisades set horizontally on the scarp of a rampart to prevent an infantry rush.
Glacis:	Usually the parapet of a covered way (continuous walkway on the outer side of the ditch protected by a parapet) extending into the field but here taken as an earthwork of similar form with or without the covered way.
Palisade:	An obstacle of close-set pointed wooden stakes.
Parade:	Level ground on which regular musters and exercises are held, more generally the open ground behind a rampart.
Parapet:	A wall or earthwork on the forward edge of a rampart for the

	protection of troops.
Rampart:	The mass of excavated earth (usually taken from the ditch) forming the main defensive line, here taken to include the talus, terre-plein, banquette and parapet.
Revetment:	A retaining wall, usually of a rampart or ditch.
Salient:	An angle projecting outwards towards the field.
Sallyport:	A small entrance leading out of the fortifications.
Scarp:	The outer slope of a rampart or inner slope of a ditch.
Talus:	The slope leading up to the terre-plein from the parade.
Terre-plein:	The level surface on top of a rampart but below the parapet where guns are mounted.

## REFERENCES

### Primary sources

Date	TNA UK ref #	TNA UK catalogue description	Notes
1756 (after)	MPHH 1/54	Kent. 'Plan of the River Medway from Rochester to Sheerness with the new Line at Chatham and the Fortifications Adjacent ...': showing soundings, anchorages, batteries, drawings of ships and new fortifications at Chatham. Approximate scale: 1 inch to 560 yards. Compass star. 2 copies by Richard Coombs of an original plan endorsed 'Col. Lilly' [Colonel Christian Lilly, Engineer, Colonel in 1705, died 1738].	Undated but shows 'new lines completed in 1756 and omits barracks built in 1757'.
1763	MPHH 1/23	Kent. 'Plan of the New Barracks within the Lines at Chatham with part of the Town of Brompton &c'. Scale: 1 inch to 130 feet. Copied by Henry Mercier, 30 June 1763. (1) Probably a draft with part missing; (2) probably the final version.	
1768	MF 1/54/4	Kent. 'Planche 2': plan of the Rochester and Chatham dockyards. Reference notes. No scale shown. Compass indicator.	Plans of various coastal ports dated 1768, in French and drawn from memory. Perhaps by a spy?
1779	MPH 1/358	(1) Kent: 'Plan of Chatham Dock and its environs Comprehending Rochester Bridge and Stroode Gillingham, Fort Gillingham, Upnor Castle, Cockham Wood Fort, and the adjoining Country. Copied from a Survey made in the Year 1724. The ground altered and a Plan of the Lines of Chatham is inserted thereon as they are to be restored this present Year 1779'. Title and sections through the Line in (i) 1756 and (ii) 1779 are to the left of the plan. Scale: 5.1 inches to 4,100 feet. Compass indicator: oriented to the south. Bears Board of ordnance stamp. (2) Duplicate of (1).	
1783	MPH 1/296	Sketch map of the course of the Medway at Rochester and Chatham, Kent, and the country two miles each way from the centre of Chatham Dockyard, showing proposed defences. 1 inch to about 270 yards. Compass indicator. Signed by Hugh Debbeig, Col RE, 7 November 1783.	
1806	MR 1/815/1	6 items (originally accompanying a report to the Board of Ordnance) extracted from WO 55/2298. Kent: Chatham. 6 plans of Ordnance land and buildings. (1) 'Plan of the workshop and buildings in Prince Edward's bastion used by the artificers ...'. Reference notes: Scale: 1 inch to 50 feet [1:600]; [by] Captain John Nandfield, Commanding Royal Engineer, 30 August 1806; Dimensions: 33 cm x 64 cm.	
1806	MR 1/815/6	6 items (originally accompanying a report to the Board of Ordnance) extracted from WO	

Date	TNA UK ref #	TNA UK catalogue description	Notes
		[cont] 55/2298. Kent: Chatham. 6 plans of Ordnance land and buildings. (6) 'Plan shewing the boundary of the Ordnance lands at Chatham, Fort Pitt and Upnor ...': also showing relief, rivers, vegetation, soil-types, roads, bridges, forts, other named buildings, and place names. Reference notes: Scale: 1 inch to 200 feet [1:2,400]; Compass indicator; [by] Captain John Nandfield, Commanding Royal Engineer, 30 August 1806; Dimensions: 169 cm x 152 cm.	
1806	WO 55/2298	Chatham.	Plan MR 1/815/1 above refers to No.8 within this 'A statement of the storehouses, magazines, workshops &c...'
1821	MFQ 1/1280/9	Kent. Plan of part of the defence lines at Chatham showing the drawbridges and sally-port and the lines of footpaths and roads with the dates of their closure. The site of Upbury Farmhouse, 'taken down in 1804', and 'Dark Lane so called previously to 1804' are also shown. No scale shown. Originally accompanying correspondence concerning rights of way through military lands.	
1821	MFQ 1/1280/10	Kent. Map of Chatham, taken from a survey of 1708, showing the dockyard and the lands around (with named owners) with later details added to show the extension of the dockyard, the development of the defensive lines and the closure of roads. The River Medway, St Mary's Creek, boundary lines, barracks, stables and Gillingham Fort are also shown. Scale: 1 inch to 275 feet. Compass indicator. Signed by Colonel R D'Arcy, Royal Engineers, 13 April 1821. Originally accompanying correspondence concerning a claim by Gillingham Parish of a right of way through the sally-port at Chatham Lines.	1821 title: 'No 3: Plan shewing within the letters A. B. C. D. the situation of the town of Brompton and the lands surveyed in the year 1708 near Her Majesty's dockyard at Chatham to make a design to fortify the same, also beyond the letters, the government lands as they now are, leaving the roads and private property 'except the town of Brompton' uncoloured'.
1821	MFQ 1/1280/18	Kent. Plan of the dockyard at Chatham showing where roads from Chatham town cross drawbridges to the right of the defensive lines. The Army and Royal Marine barracks, the town of Brompton and four barriers through the lines with the position of sentinels are also shown. Scale: 1 inch to 200 feet. Compass indicator. Signed by Lieutenant T H Fenwick, Royal Engineers, 1 May 1821.	
1860	MR 1/1276	Kent. Map, on two joined sheets, of Rochester, Chatham and the surrounding area, as far north as Cliffe, as far west as Gillingham and as far south-east as Lower Halling. Scale: 6 inches to 1 mile. [?] Produced as part of the survey for the Ordnance Survey six-inch County Series sheets Kent XI and XIX. Minor pencilled amendments. A small sheet extending the map as far south as Blue Bell Hill is affixed to the lower edge. Endorsed: 'Chatham and Environs - Compiled from plans of the	

Date	TNA UK ref #	TNA UK catalogue description	Notes
		[cont] candidates and 1 inch Ordnance Survey... 15 July 1860'.	
1866 (after)	WO 78/2460/1	Map on four joined sheets. Scale: 3 inches to 1 mile [1:21,120]. Enlarged from [Ordnance Survey six-inch County Series] sheets Kent XI-XII and [Kent XIX-XX]; photozincographed at the Ordnance Survey Office, Southampton, under the superintendence of Captain Parsons, 1866. Coloured MS additions form a graphic index to the sheetlines of items (2-10) and mark land areas in the environs of Chatham and the Eastern Defences in green and pink [?to show clearance lands].	Reduced?
1866 (after)	WO 78/596	Kent: map made up from reduced-size copies of nine sheets of the Ordnance Survey 1:2,500 County Series, joined and mounted on a backing sheet: all or parts of [Kent IV-VI], [Kent X-XIII] and [Kent XVIII-XX]; the combined map shows the area between Gravesend in the west and Sheerness in the east, and between the River Thames in the north and Rainham in the south. Portions of sheets X, XVIII and XX have been left blank. Scale: 3 inches to 1 mile. All marginalia have been trimmed away. Reduced and photozincographed at the Ordnance Survey Office, Southampton. Signed by Colonel Henry James, Royal Engineers, [Superintendent of the Ordnance Survey], 10 June 1863. MS title: 'Thames & Medway shewing the Fortifications existing and in progress 1863': coloured MS additions reflect this title, marking the northern (Essex) bank of the River Thames on the basis of Admiralty charts, and filling in hill shading and lines of high and low tide. MS reference table. MS compass indicator. Further signed by Colonel P Freeth, Commanding Royal Engineer, Sheerness, [Kent]; by Lieutenant Colonel C G Gordon, Commanding Royal Engineer, Gravesend, [Kent]; and by [E M Mail], Commanding Royal Engineer, Chatham, [Kent]; May and June 1866. Various pencilled additions and notes.	
1870-2	WO 78/616	Four sheets of the Ordnance Survey six-inch County Series joined: Kent XI-XII and [Kent XIX-XX], together forming a map of the area between Higham Saltings, the Isle of Grain, Newington and Lower Halling. Scale: 6 inches to 1 mile. [Sheet XI surveyed and contoured by Captain [the Honourable W le Poer] Trench, Royal Engineers, 1862; engraved at the Ordnance Survey Office, Southampton, under the direction of Colonel Cameron, 1864, with the outline by W H Tinkler; writing by James Knox and ornament by M Marshall; published 15 January 1870. Sheet XII surveyed and contoured by Captain Trench and	



Date	TNA UK ref #	TNA UK catalogue description	Notes
		[cont] Captain Carey, 1862-1863; engraved in 1866, with the outline by T McLeod, writing by W Green and ornament by A McFadden; published 31 May 1870.] Sheet XIX surveyed and contoured by Captain Trench and Lieutenant Sanford; engraved in 1868, with the outline by J Slight, writing by J Hutchinson and ornament by F Racine; published 31 December 1869. Sheet XX surveyed and contoured by Lieutenant Sandford, 1864-1865; engraved by 1867, with the outline by A H Swanston, writing by 2nd Corporal Butler, Royal Engineers, and ornament by A McFadden; published 15 September 1869. Coloured MS additions show War Department property in the environs of Chatham, Gillingham and Rochester. Signed by Colonel Lovell, Commanding Royal Engineer. A note on the dorse states that this map was received from Colonel Lovell on 5 March 1872.	
1876	WO 78/2825/5	Chatham, Plan, Sections and photographs.	Record plan of the Royal Engineers Institute, largely within Prince Henry's Bastion but shows 'Brompton Barrier' intact.
1885 (after)	WO 78/4167	Chatham Survey Maps Chatham, etc.	OS 6" map 'For War Department use only', survey 1863-5, published 1869, partly revised 1885 (Epoch 2?). Annotated.
1893	WO 78/2825/4	Chatham, Plan, Sections and photographs.	Overlay sheet to WO 78/2825/5 showing 'Brompton Barrier' had been removed and road straightened.
1917	MPI 1/608/5	14 items extracted from AIR 1/592/16/15/208 (items (1)-(8)) and AIR 1/592/16/15/209 (items (9)-(14)). Detailed descriptions are given at item level. Ordnance Survey six-inch County Series Kent sheets (5) XIX NE, (6) XIII NW, (7) XIII SW and (8) XIX SE with coloured, MS additions illustrating an air raid 3-4 September 1917. Scales: 1 inch to 293.3 yards. Published by the Ordnance Survey Office, Southampton.	

## Secondary sources

Alexander, M 2008 *Fort Pitt, Chatham, Kent*. English Heritage RDRS 5-2008

Alexander, M 2010 'Prince Edward's Bastion, Chatham, Kent – Project Design: A Project Design for analytical survey to assist in the understanding and conservation of Heritage at Risk'. Internal: English Heritage, typescript document

BGS 1977 *Chatham: Sheet 272, Solid and Drift Edition, 1:50,000 Series*. Southampton: British Geological Survey

CAT 2008 *Canterbury's Archaeology 2007-2008: 32<sup>nd</sup> annual report of the Canterbury Archaeological Trust*. Canterbury: Canterbury Archaeological Trust

CAT 2009 *Canterbury's Archaeology 2008-2009: 32<sup>nd</sup> annual report of the Canterbury Archaeological Trust*. Canterbury: Canterbury Archaeological Trust

Cocroft, WD and Thomas, RJC 2003 *Cold War: Building for nuclear confrontation*. Swindon: English Heritage

DCMS 2011 'Eleven potential World Heritage sites make up UK shortlist'. Internet: [http://www.culture.gov.uk/news/news\\_stories/7970.aspx](http://www.culture.gov.uk/news/news_stories/7970.aspx), accessed 29/3/2011

Diack, M and Kendall, P forthcoming *Chatham Lower Lines*. Canterbury: Canterbury Archaeological Trust

EH 2007 *Understanding the Archaeology of Landscapes: A guide to good recording practice*. Swindon: English Heritage

Hamilton-Baillie, JRE 1974 'The fixed fortifications of the 16th to 19th centuries illustrated by the defences of Chatham', *Royal Engineers Journal*, **87**, accessed at [http://webring.com/people/kr/rbaal/Jock\\_Ham.html](http://webring.com/people/kr/rbaal/Jock_Ham.html), 16/01/2011

Kendall, P forthcoming 'Chatham as a militarised landscape- its conservation and management', *Journal of the Association for the Study of the Conservation of Historic Buildings*

Pattison, P 2002 *Fort Clarence, Rochester, Kent, Napoleonic gun tower and defensive line*. English Heritage AS&I Report 40/2002

Pattison, P forthcoming *King's Bastion, Chatham Lines, Kent*. English Heritage.

Royal Engineers 1987 *Plan of Chatham Lines shewing their state in the year 1786*. Chatham: 42<sup>nd</sup> Survey Engineer Group, reproduction of manuscript plan

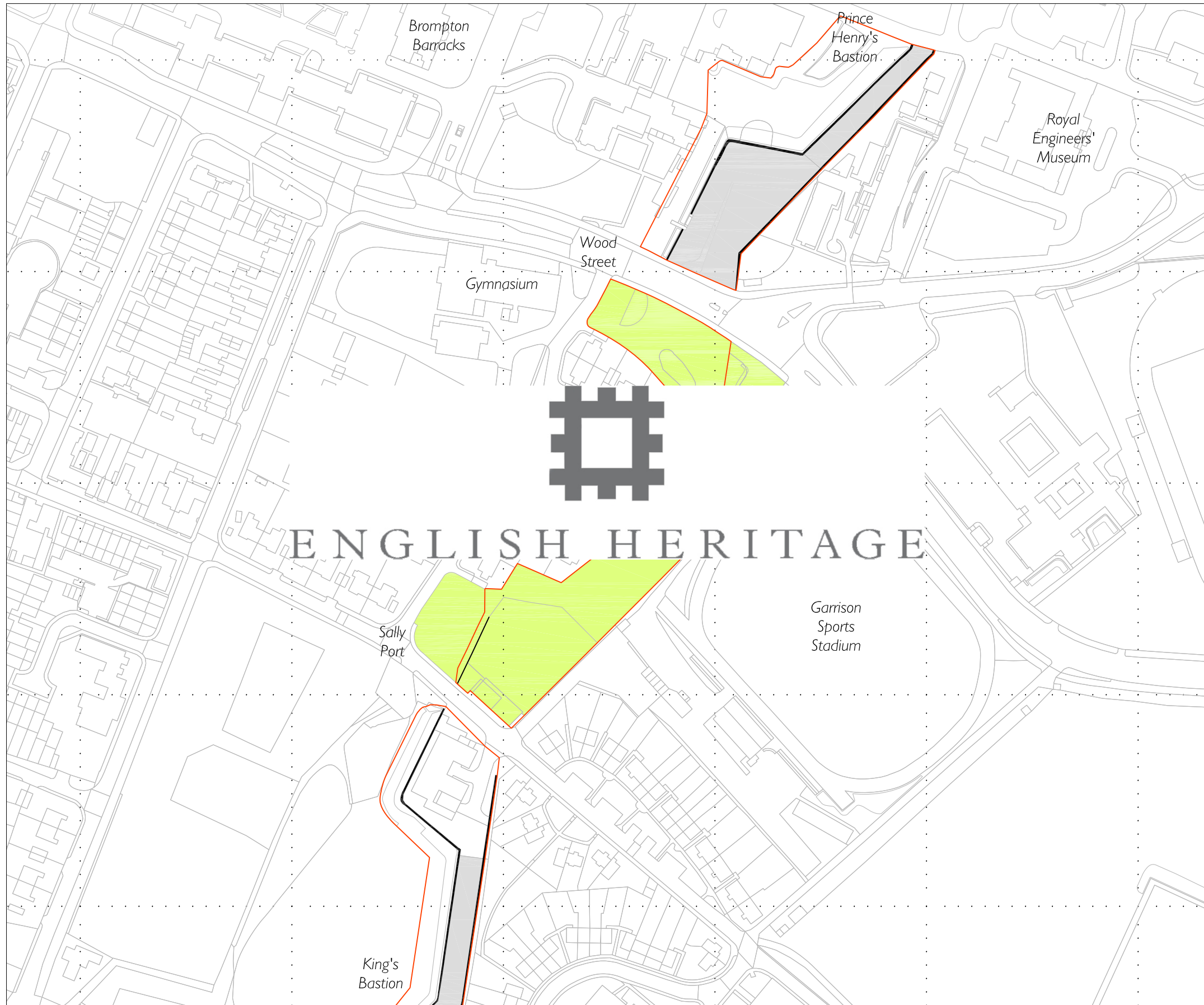




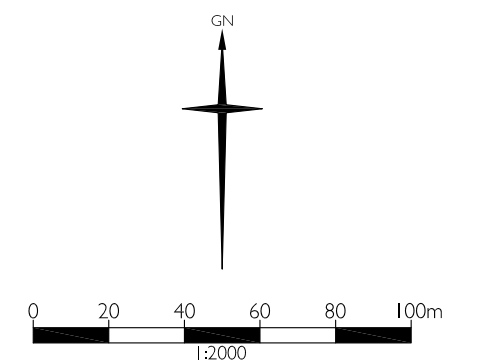


Figure 28 - The area around Prince Edward's Bastion

KEY:

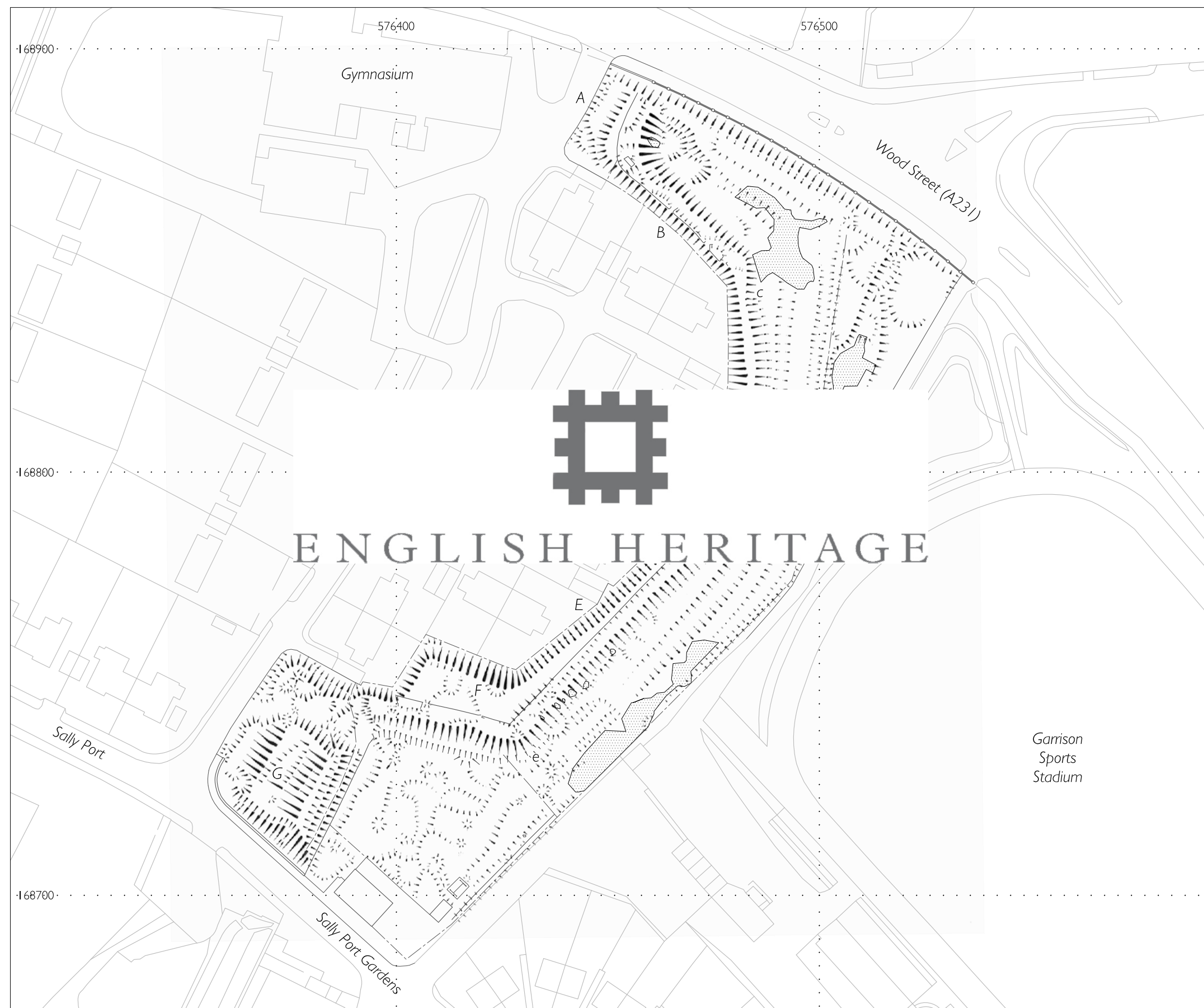
- Scheduled Area - 
- Survey Area - 
- Ditch revetment - 
- Open ditch - 

Note that the scheduled area shown here is for illustrative purposes only and should not necessarily be taken to be legally binding.








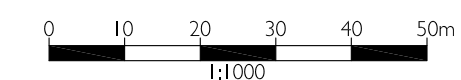
This map is based upon Ordnance Survey material with permission of the the Ordnance Survey on behalf of Her Majesty's Stationary Office © Crown Copyright and database right 20##. All rights reserved. Ordnance Survey Licence number 100019088.

Figure 29 - Prince Edward Bastion, Chatham  
Earthwork survey plan



KEY:

- Ordnance Survey background mapping - 
- Surveyed buildings/walls/brickwork - 
- Surveyed kerbs - 
- Surveyed fences - 
- Areas obscured/disturbed - 



This map is based upon Ordnance Survey material with permission of the the Ordnance Survey on behalf of Her Majesty's Stationary Office © Crown Copyright and database right 20##. All rights reserved. Ordnance Survey Licence number 100019088.