

**ARCHAEOLOGICAL MONITORING OF A
NEW SEPTIC TANK OUTFLOW PIPE TRENCH
AT TILBURY FORT
ESSEX**



**Essex County Council
Field Archaeology Unit**

December 2012

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ESSEX**

ARCHAEOLOGICAL MONITORING

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Document Ref.	2491rep
Report Issue Date	December 2012
Circulation	English Heritage
	ECC Historic Environment team
	Essex Historic Environment Record

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**ARCHAEOLOGICAL MONITORING OF A
NEW SEPTIC TANK OUTFLOW PIPE TRENCH
AT TILBURY FORT
ESSEX**

Client: English Heritage

Site Code: TF 12

NGR: TQ 6515 7543

FAU Project No: 2491

OASIS No: 139301

Date of Fieldwork: 9th-13th February 2012

SUMMARY

A programme of archaeological monitoring and recording was undertaken by the ECC Field Archaeology Unit on behalf of English Heritage, as a condition of Scheduled Monument Consent for the replacement of the existing septic tank serving the visitor toilets at the Fort and associated new pipe work. The footprint of the existing tank was excavated prior to installation in 1990 by Newham Museum Service and the new tank was installed in the same position, following the removal of the old tank, to avoid any further damage or disturbance to the archaeological record. New underground pipes were then installed running behind the South-East Curtain, to the south of the General Artillery Store and Officer's Quarters, and the excavation of the associated pipe trenches was monitored accordingly.

Tilbury Fort is a Scheduled Monument (SAM 26309, EHER 1678) that encompasses the buried remains of a blockhouse built by Henry VIII and the far larger and more complex fort and battery that succeeded the blockhouse in the late 17th century. Also included are the 18th, late 19th and early 20th century components/alterations, including a World War II pillbox. Monitoring of the relatively shallow and narrow pipe trenches noted only dumped layers of 19th-century date, no doubt imported onto the site to raise ground levels or deriving from periodic cleaning out of the fort ditches, and a late 19th century rubbish pit. As a consequence of the reuse of the existing tank site and the relatively small-scale pipe trenching works it appears that the scheme as a whole has had very little impact upon the archaeological record.

1.0 INTRODUCTION

Archaeological monitoring was undertaken by Essex County Council Field Archaeology Unit (ECC FAU) on the excavation of an 80m-long outfall pipe trench to serve a new septic tank behind the old Officer's Quarters. The work was carried out in accordance with a brief issued by English Heritage (EH 2011), who also commissioned and monitored the work.

Copies of the report will be supplied to English Heritage and the Essex Historic Environment Record (EHER) at County Hall, Chelmsford. The paper archive will be stored with Thurrock Museum and finds retained by English Heritage, at Tilbury Fort. An OASIS online record has been created at <http://ads.ahds.ac.uk/oasis/index.cfm>.

2.0 BACKGROUND

2.1 Site location and description

Tilbury fort is situated on low-lying ground on the north bank of the River Thames (TQ 6515 7543), south east of the modern outskirts of Tilbury and immediately east of Tilbury Docks. It is accessed via Fort Road off of the modern A1089 (Ferry Road) from Tilbury (fig. 1). Once surrounded by marshland, it is now flanked by commercial and industrial development, with Tilbury Power Station situated on its eastern edge.

The fort covers an area of c.16 hectares which has been subject to extensive landscaping over time. This means that ground levels within and immediately surrounding the fort are artificial and predominantly consist of re-worked soils with the alluvial marshland sealed beneath.

The route of the outfall pipe is designed to cause minimum disturbance to the site. It passes from the new tank to the east of the 18th century Officer's Quarters on a south-west trajectory through the grass sidings between the tarmac access road and inner bank of the rampart, finishing at manhole (MH) 66 to the south-west of the late 19th century General Artillery Store, where it links into the existing drainage system (fig. 2).

2.2 Project background

Plans to replace the existing septic tanks and install new pipework were produced for the English Heritage property maintenance team in July 2011. As the site lies within the boundary of the Scheduled Monument (10211092/ SM 26309) any such works have high archaeological potential and the English Heritage Inspector of Ancient Monuments

recommended that a programme of archaeological works as a condition of Scheduled Monument Consent, in order to mitigate the impact of the development. Since the new tank was a replacement for the old, whose installation was preceded in 1990 by the archaeological excavation of the tank footprint, no new monitoring works were required. However, monitoring works were required for new pipework associated with the tanks, primarily along the route of the new outflow pipe.

2.3 Historic background

The history of the fort is summarised below. Further information may be found from the entry in the English Heritage Record of Scheduled Monuments (SM 26309), the Essex Historic Environment Record (EHER 1678), held by Essex County Council, County Hall, Chelmsford and the Written Scheme of Investigation (ECC FAU 2011).

Tilbury Fort encompasses the buried remains of a blockhouse built by Henry VIII and the far larger and more complex fort and battery that succeeded the blockhouse in the late 17th century. Also included are the 18th, late 19th and early 20th century components and alterations.

The blockhouse is thought to have been constructed in the 1540's as part of Henry VIII's campaign to improve coastal defences and was eventually encircled by a ditch and counterscarp bank with drawbridge and timber palisade. A barrack block and associated store buildings were also thought to exist within this enclosure.

Following successful raids up the Thames by the Dutch, a new fort was built during the reign of Charles II, incorporating the blockhouse. The existing pentagonal plan form dates to this time, designed by Sir Bernard de Gomme (1620-1685), with arrow-shaped bastions projecting from the four main angles and a linear battery extending along the shoreline. A curtain wall both encloses and links the bastions with massive earthen banks behind the walls to absorb impact from bombardment. The fort is further enclosed by a wide moat that follows its outline.

Alterations and maintenance to the curtain wall, gun emplacements and earth banks have taken place over the fort's history in order to modernise its defensive capabilities and internal structures and buildings have also been added or altered throughout the 18th and 19th centuries.

2.4 Archaeological background

Only small areas of the fort have been excavated in the past. The only works affecting this part of the site were when Newham Museum Service undertook an excavation in advance of the installation of the original sewage tank, in 1990, where they excavated the footprint of the tank to a width of 3m and a depth of 6m. This revealed a sequence of 18th and 19th century soil dumps and layers, overlying make-up layers of crushed chalk and other materials laid down to consolidate the underlying marsh as part of the construction of the 1670-83 fort. These layers sealed what was interpreted as a ditch associated with the refortification of the 1540's blockhouse fort due to the threat of Spanish Invasion in 1588, lying at a depth of approximately 4.3m below existing ground level. With the exception of the Armada-period ditch and an associated pit, no structural remains or other cut features were identified. The excavation continued to a depth of 6m, bottoming the Armada-period ditch and reaching the underlying marsh clay.

On the opposite side of the parade is the 18th century officers' barracks, which are Grade II* Listed.

3.0 AIMS AND OBJECTIVES

The main aim was to assess the date, nature significance and extent of any archaeological deposits along the route of the pipe trench and its relationship with the fort. Previous excavations to the east in 1990 found at least 4.3m of made ground associated with levels within the 1680 fort, and 18th and 19th century layers, possibly originating from the construction of the Officer's Quarters just to the west.

4.0 METHODOLOGY

Site visits were undertaken whilst the pipe trench was being excavated. Most of the work was undertaken using a mechanical excavator using a 0.3m-wide bucket, apart from a small area at the back of the General Artillery Stores, where the machine could not reach, which was dug by hand.

Descriptions of deposits were recorded on pro-forma FAU trench sheets. Scale plans and sections were drawn and finds collected, which mostly consisting of 19th century material from a pit behind the General Artillery Stores.

A series of photographs were taken in digital format. A representative selection of these is reproduced at the back of the report as plates 1-6. The remainder can be found in the archive.

5.0 FIELDWORK RESULTS

The area of archaeological monitoring encompassed a long, narrow, trench measuring 72m in length, 0.3m in width and dug to a depth of c.0.7m, on a broadly south-west to north-east alignment to link the existing manhole (MH66) with the new septic tank (fig. 2, plates 1 & 2).

The west end of the trench, between MH 66 and the Artillery Store, was disturbed by several electricity cables lying beneath a shallow, 0.1m thick topsoil. Modern material (sand, rubble, etc) surrounded the cables to a depth of 0.3m from ground level. Beyond this, continuing beneath the base of the trench, was context 3, a layer of grey-brown silty clay containing fragments of red brick, tile and lumps of mortar. Since the brick and tile are red, they are unlikely to derive from the construction of the nearby Artillery Store, which is built in yellow stock brick, though the brick may be of 19th century date. No finds of interest were evident.

The shallow topsoil continued behind the Artillery Store, where it was laid over ashy layer 6 and context 9, which may be earlier, redeposited topsoil. Underneath the ashy layer was pit 5, a small rubbish pit, 0.8m wide and 0.3m deep that contained several whole bottles of late 19th century date, contemporary with the building (fig. 3 section 1 & plate 3). Most of the unstratified finds collected during the monitoring works were collected from the area of pit 5 and some probably originated from it. The pit was cut into context 7, a dumped layer of clay mottled with grey soil from tree roots, containing moderate quantities of brick rubble and mortar fragments, which continued beyond the base of the trench.

Further to the east, a central foundation pier for the Artillery Store was exposed on the north face of the pipe trench. The pier (context 8) comprised four courses of yellow stock bricks identical to those used in the Artillery Store that extended beyond the base of the trench and was overlain by context 9 (fig. 4 section 2 & plate 4). The pier stood within a straight-sided 0.8m-wide construction cut (context 11), which was backfilled with similar material (10) to layer 9 above, both of which appear derived from the former topsoil. The construction cut was dug into context 7, the dumped clay layer, which is one several layers of made ground extending eastwards towards the tank. Such layers are represented in section 3 (fig. 5 & plate 5), comprising layers of redeposited subsoil (context 13) and redeposited chalky

boulder clays and rubble (contexts 12, 16 and 17) indicating 19th century made ground around the base of the Inner Bank.

The new tank (plate 6) was designed to fit into the cut for the old tank footprint, which was subject to previous archaeological work, and was therefore not included in the monitoring requirements.

6.0 FINDS REPORT

Finds were recovered from three contexts, one stratified (4) and two unstratified (14 & 15). All of the finds have been recorded by count and weight, in grams, by context. Full quantification details can be found in Appendix 2. The finds are described below.

Stratified finds relate to the single fill (4) of a late 19th-century rubbish pit (5) noted at to the rear of the Artillery Store, which it is likely to be contemporary with. The finds comprised typical, everyday Victorian-era refuse including bottles, jars, a tin can base, transfer-printed earthenware and iron objects. The presence of a tin can base suggests the pit is late Victorian at the earliest, since canned food only became available from this time, after improvements in canning technology meant that tin cans could be produced more cheaply. The presence of metal screw tops to one of the smaller bottles would seem to confirm that the group is all contemporary.

The most interesting part of the assemblage was a hollow handle from a small brown-glazed, Red Border Ware or Low Counties Red Ware cauldron (cooking vessel) from context 14. Similar examples have a date range between 1550 and 1700, though this example is likely to be residual and part of a group of otherwise unstratified finds of 19th century china around pit 5. Other unstratified finds from context 14 included two 19th century clay pipe bowls, a cattle bone rib and three sherds of ironstone china, one with a manufacturers mark to the base, Geo. Ashworth & Bros Ltd, and the date 1940.

The iron end to a tool that was perhaps used for measuring shot and charging the guns was found by the machine either from the dumped redeposited boulder clay/rubble layers or topsoil and is part of unstratified context 15 along with fragments from two(?) blue, glass medicine bottles.

The Custodian of the Fort has expressed an interest in retaining some of the complete bottle and jars in the site museum/ teaching collection, otherwise following any recommendations for discard, the remaining material will be deposited with the site archive at Thurrock Museum.

7.0 ASSESSMENT OF RESULTS

Archaeological monitoring along the route of the new septic tank outflow pipe trench provided an opportunity to view a long cross-section along a significant length of the inner rampart, from the cutting for the old septic tank at the back of the Officer's Quarters to just west of the General Artillery Store, a length of 72m. However its limited depth of 0.7m meant that only later deposits and features were recorded, in the form of several dumped layers of 19th-century redeposited chalky boulder clay and brick rubble spread between the General Artillery Store and roadway and the base of the Inner Bank. Similar deposits were recorded by Newham Archaeology Service in 1990 when the previous septic tank was installed and probably extend beneath the parade ground too. The only feature observed was a small late 19th century rubbish pit located at the rear of the General Artillery Store, (built c.1868-71), which it post-dates. The most interesting finds were from unstratified contexts, in particular a possible shot measurer/loader and a residual probably 17th century, ceramic cauldron handle that may be a disturbed find from 19th activity around the Inner Bank, which was constructed between 1670 and 1685.

As a consequence of the reuse of the existing tank site and the relatively small-scale pipe trenching works it appears that the scheme as a whole has had very little impact upon the archaeological record.

ACKNOWLEDGEMENTS

Thanks are due to Martin Palmer from English Heritage Property Maintenance Team for commissioning the work. Thanks also to the Custodian at Tilbury Fort for his enthusiasm and information and to the groundworkers from Godfrey Water Products for their interest and cooperation. Monitoring visits were undertaken by the author. Illustrations were prepared by the author and produced by Andrew Lewsey. The project was managed by Adrian Scruby and monitored by Deborah Priddy from English Heritage.

BIBLIOGRAPHY

- | | | |
|------------------|------|---|
| DCMS | 2010 | <i>Planning Policy Statement 5: Planning in the Historic Environment</i> |
| English Heritage | 2011 | <i>Brief for Archaeological Evaluation at Tilbury Fort, County Monument 26309 (unpub.)</i> |
| ECC FAU | 2011 | <i>Written Scheme of Investigation for Archaeological Monitoring and Recording: Replacement Septic Tank, Tilbury Fort, Essex (unpub.)</i> |
| Patterson, P | 2004 | <i>Tilbury Fort</i> English Heritage guidebook, London |

Appendix 1: Context data

Context	Type	Description	Period
1	Topsoil	Shallow mid brownish-grey silty sand, thickening to E	Modern
2	Layer	Modern disturbance at W end	Modern
3	Layer	Greyish-brown silty clay & rubble	Probably Victorian or modern
4	Fill of 5	Loose fine silt clay. Glass bottles, cans, etc	Victorian.
5	Pit	Small rubbish pit 0.8m wide & 0.3m deep	Victorian
6	Layer	Ashy spread over pit 5, 0.10m thick	Victorian
7	Layer	Extensive grey-brown silt clay, similar to layer 3	Probably Victorian
8	Structure	Central pier base to Artillery Store, under layer 9	Victorian (c.1868)
9	Layer	Brownish-grey clay silt with brick & chalk frags	Victorian
10	Fill	Brownish-grey clay silt fill of cut 11; same as layer 9	Victorian (c.1868)
11	Cut	Construction cut for pier 8 sealed by layer 6	Victorian (c.1868)
12	Layer	Chalky boulder clay & rubble	Victorian
13	Layer	Dark brown loamy clay & rubble subsoil overlying 7	Victorian
14	u/s	Finds in vicinity of pit 5	Post-med & Victorian.
15	u/s	Finds towards NE end of trench	Victorian/modern
16	Layer	Mid grey brown silt clay band between 12 & 17. Dump	Victorian
17	Layer	Chalky dump layer, same as layer 12	Victorian

Appendix 2: Finds data

Pottery data

Context	Feature	Count	Wt (g)	Description	Date
14	u/s	1		Hollow handle from a cauldron, either Red border Ware from Surrey or Low Countries Red ware	1550-1700
14	u/s	1		Rim piece from china mug with sunrise & ropework motif transfer	Mid-19th to 20th C
14	u/s	1		Small china base, possibly from a milk jug	Mid 19th C to 20th C
14	u/s	1		China mug base, GEO Ashworth & Bros, dated 1940	Mid 20th C

Clay pipe data

Context	Feature	Count	Wt (g)	Description	Date
14	u/s	1		Clay pipe stem, relatively narrow diameter and bore suggesting a later date	19th C
14	u/s	1		Clay pipe bowl, rounded with small-bore stem	19th C
14	u/s	1	4	Clay pipe bowl, angled and straight with small-bore stem	19th C

Animal bone data

Context	Feature	Count	Wt (g)	Description
14	u/s	1		Rib from a

Metalwork data

Context	Feature	Count	Wt (g)	Description	Date
4	5/s	1		Copper slag	Post-med/modern
14	u/s	1		Large iron bolt	modern
14	u/s	1		Hollow iron shaft with threaded ends	modern
15	u/s	1		Iron tool with scooped end and fittings for a long wooden handle. ?Shot measure/loading implement	19th C

Glass data

Context	Feature	Count	Wt (g)	Description	Date
4	5	1		Jam jar, lipped top & 'M S' moulded into base	Mid 19th or later
4	5	1		HP-style bottle with screw neck	Late 19th or 20th C
4	5	1		Flat-bodied 6oz bottle with screw neck & 'U G B 6 oz' moulded into base	Late 19th or 20th C
4	5	2		Small metal screw top 3oz bottles retaining brown liquid inside. 'U G B 3' moulded into base	Late 19th or 20th C
4	5	1		Small glass phial with lipped top	Mid 19th C or later
15	u/s	2		Blue glass fragments from a 3oz medicine bottle	19th or early 20th C

Appendix 3: Contents of Archive

Site name: New Septic Tank Outflow Pipe, Tilbury Fort, Essex

Project no: 2491

Site code: TF 12

Index to the Archive:

Document wallet containing:

1. Introduction

- 1.1 Client/archive report
- 1.2 Unbound version of report
- 1.3 CD containing digital photographs & copy of report, pdf-formatted

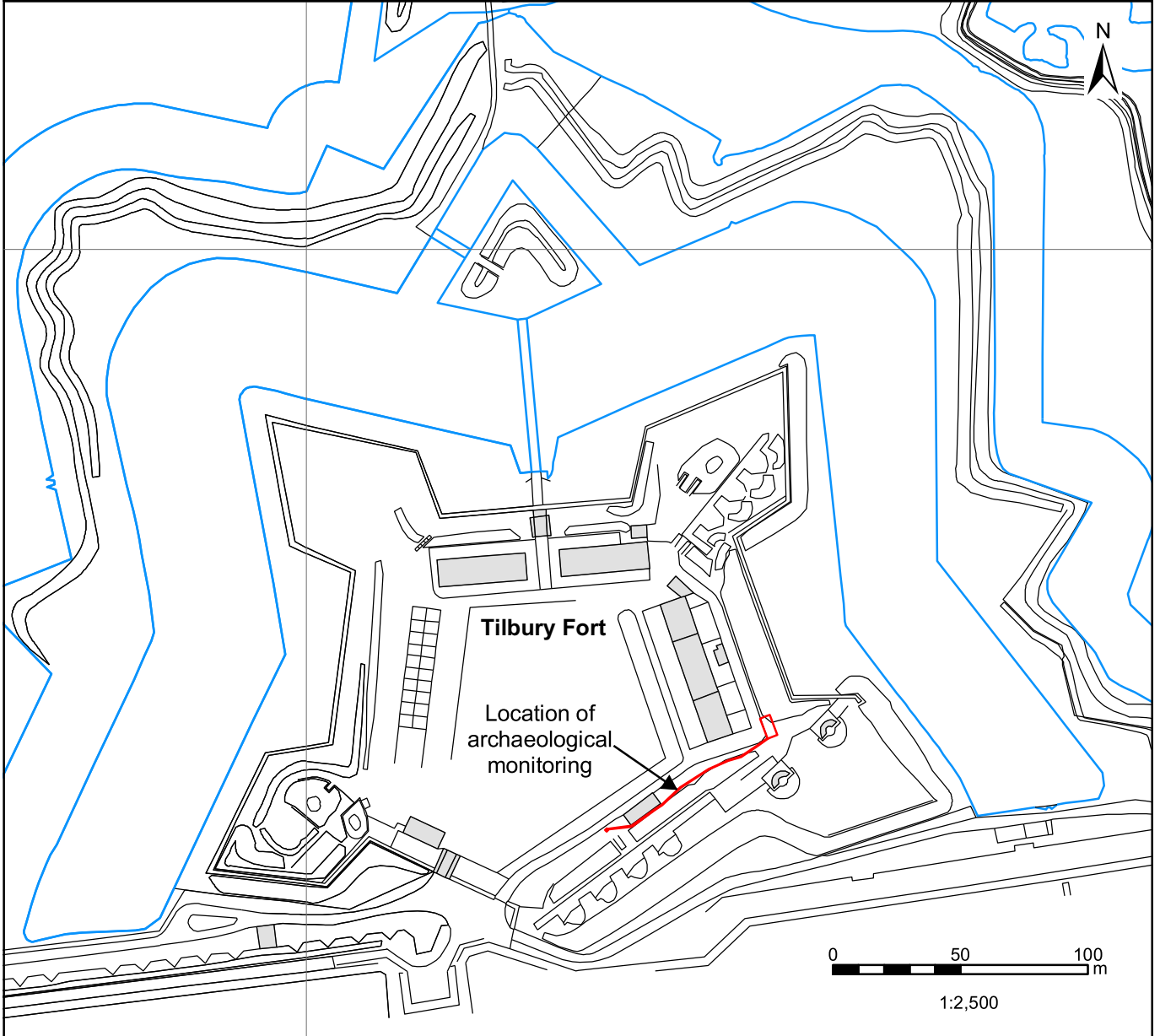
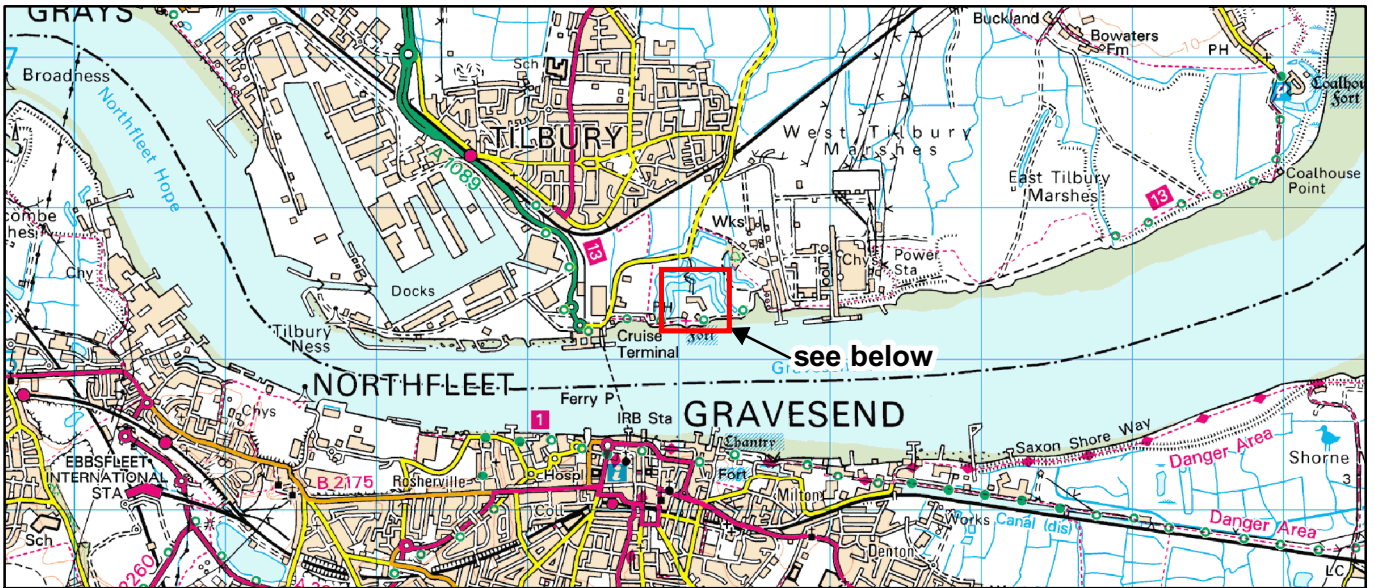
2. Site Archive

- 2.1 Trench sheets
- 2.2 Plans and sections
- 2.3 Photographic record (digital images & photographic register)

All finds have been transferred to the Custodian at the Fort

Appendix 4: EHER Summary Sheet

Site Name/Address: Tilbury Fort, Fort Road, Tilbury, Essex RM18 7NR	
Parish: Tilbury	District: Thurrock
NGR: TQ 6515 7543	Site Code: TF 12
Type of Work: Watching Brief	Site Director/Team: Andy Letch ECC FAU
Dates of Work: 9th-13th February 2012	Size of Area Investigated: 72m x 0.30m pipe trench, 0.70m deep
Curating Museum: Thurrock Museum	Funding Source: English Heritage
Further Work Anticipated? No	Related HER Nos. SM 26309 & EHER 1678
Final Report: Summary in EAH	OASIS Ref: 139301
Periods Represented: Post-medieval and modern	
<p>SUMMARY OF FIELDWORK RESULTS:</p> <p>A programme of archaeological monitoring and recording was undertaken by the ECC Field Archaeology Unit on behalf of English Heritage, as a condition of Scheduled Monument Consent for the replacement of the existing septic tank serving the visitor toilets at the Fort and associated new pipe work. The footprint of the existing septic tank was excavated prior to installation in 1990 by Newham Museum Service and the new tank was installed in the same position, following the removal of the old tank, to avoid any further damage or disturbance to the archaeological record. New underground pipes were then installed running behind the South-East Curtain, to the south of the General Artillery Store and Officer's Quarters and the excavation of the associated pipe trenches was monitored accordingly.</p> <p>Tilbury Fort is a Scheduled Monument (SAM 26309, EHER 1678) that encompasses the buried remains of a blockhouse built by Henry VIII and the far larger and more complex fort and battery that succeeded the blockhouse in the late 17th century. Also included are the 18th, late 19th and early 20th century components/alterations, including a World War II pillbox. Monitoring of the relatively shallow and narrow pipe trenches noted only dumped layers of 19th-century date, no doubt imported onto the site to raise ground levels or deriving from periodic cleaning out of the fort ditches, and a late 19th century rubbish pit. As a consequence of the reuse of the existing tank site and the relatively small-scale pipe trenching works it appears that the scheme as a whole has had very little impact upon the archaeological record.</p>	
Previous Summaries/Reports: None	
Author of Summary: A Letch	Date of Summary: 30th November 2012



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Fig.1. Location plan

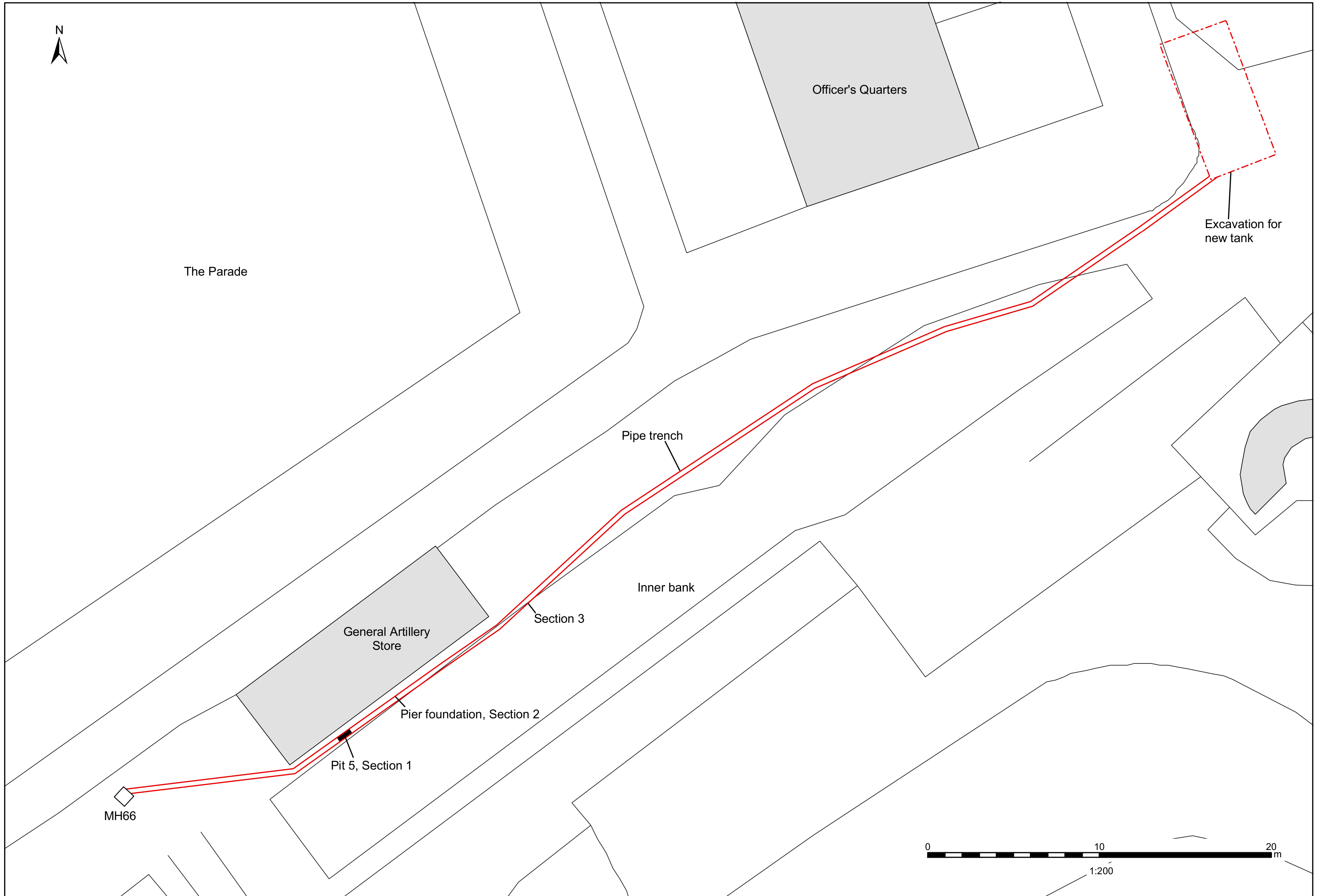


Fig.2. Area of archaeological monitoring

Fig.3. Section 1

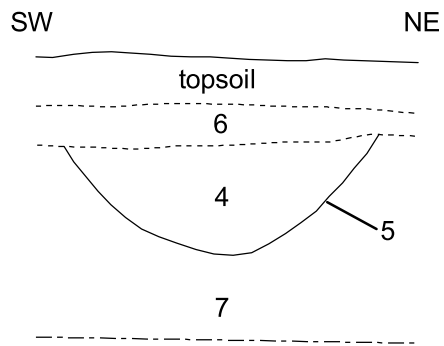


Fig.4. Section 2

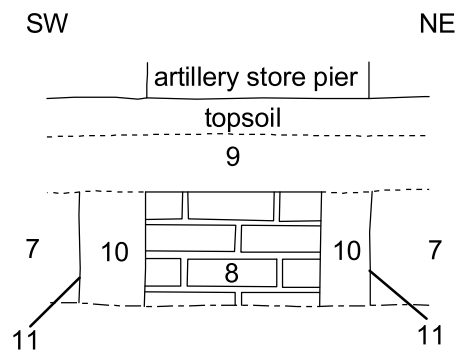


Fig.5. Section 3

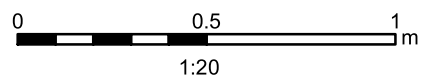
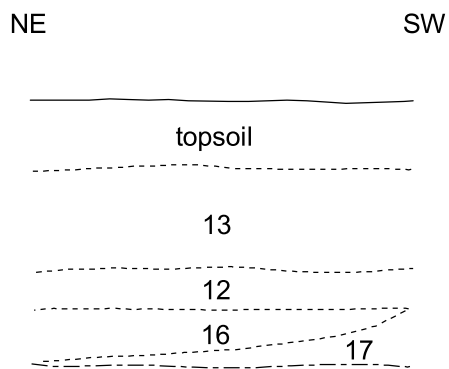




Plate 1 Pipe trench viewed from south-west end



Plate 2 Pipe trench viewed from north-east end



Plate 3 Pit 5 in section (1m scale)



Plate 4 Brick pier 8 and rear wall of Artillery Store viewed to north-east (1m scale)



Plate 5 Layers of chalky made ground north-east of the Artillery Store (1m scale)



Plate 6 Excavated area for new tank viewed to north