

**Foreshore survey at COALHOUSE FORT PARK
Princess Margaret Rd
East Tilbury
RM18 8QD**

NGR: TQ 68968 76239
OASIS reference: molas1-325825
CITIZAN region: South East

Report on a CITIZAN site survey



Sign-off History:

| Issue No. | Date: | Prepared by: | Checked/ Approved by: | Reason for Issue: |
|-----------|------------|--------------|-----------------------|-------------------|
| 1 | 22/06/2018 | Lara Band | Stephanie Ostrich | First issue |

Graphics: L Band

Summary

This report presents the results of a survey and training session carried out by CITiZAN, the Coastal and Intertidal Zone Archaeological Network, at the south western ern tip of the foreshore at Coalhouse Fort Park, East Tilbury as a part of a volunteer training session on 20-21 May 2017, in collaboration with Thurrock Council. A preparatory visit, to prepare a plan of the site with GNSS (sub cm accuracy GPS) was carried out in February 2017 by CITiZAN archaeologists Lara Band, Oliver Hutchinson and CITiZAN volunteer Lawrence Northall. The results of that survey are also included in this report. A one day training event, covering the use of the CITiZAN app was carried out in June 2016: the results of this can be seen on CITiZAN's interactive map at www.citizan.org.uk.

The foreshore lies within Scheduled Ancient Monument *Coalhouse Fort battery and artillery defences* (List entry no. 1013943) and also falls under the following designations: RAMSAR site Thames Estuary and Marshes (ref UK11069); SSSI Mucking Flats and Marshes (Ref 1002013) and Special Protection Areas (England) Thames Estuary and Marshes (Ref UK9012021).

Coalhouse Fort Park, owned by Thurrock Council, includes the various 19th and 20th century military remains as well as the remains of an earlier coal wharf. The park lies on an inner bend in the Thames with a foreshore of mudflats bordered by saltmarsh. The current level of the mudflats is between 1.6m OD (Ordnance Datum) at the southwestern tip of the site, rising to 2.6m OD at the north east. At the southwestern end the saltmarsh lies at c 0.2m, rising steeply towards the north east to c 1.0m above sea level.

In October 2000 English Heritage carried out a survey of the whole stretch of foreshore at 'Coalhouse Point' (Brown and Pattison 2003). The report included a history of the area, a description of features and the general topography and was used as the baseline for CITiZAN work at the southern tip of the site. The area is not covered by any Rapid Coastal Zone Assessment.

Work on the 20-21 May was carried out in the afternoon, in the three hour window at low tide. The tides were as follows, calculated with POLTIPS.3.

| TILBURY | Time (BST) | Height (in metres, Chart Datum) |
|------------|------------|---------------------------------|
| 20/05/2017 | 14:18 | 1.59 |
| 21/05/2017 | 15:42 | 1.43 |

The CITiZAN survey and training session recorded areas of brick work and made ground probably dating to the 19th century and associated with the former coal wharf. There were two separate areas of brickwork. The westernmost line of bricks may even be associated with the early phase of coal wharf buildings noted on historic maps from 1777. The other brickwork is likely to be associated with a coal wharf building in place by 1838 and may be at least in part constructed of reused bricks from the earlier building. It seems likely that there were at least two episodes of levelling /raising ground: one prior to constructing the later coal wharf buildings in the early 19th century and one following their demolition in the later 19th century, possibly in conjunction with the building of a tramway at some point between 1872 and 1890.

Acknowledgements

The work of CITIZAN would not be possible without the support of our volunteers, sponsors and project partners.

CITIZAN would like to thank all the volunteers who gave their time to record the foreshore at Coalhouse Fort Park: Valerie Benmehirize, Sue Cooper, James Hockett, Sam Stancomb, Emma Chubb, Lawrence Northall (who also assisted with the survey in February 2017), Molly Dixon, Terry Barclay, Cecile Hauvette, Stephen Neale, Lana Joyce, Jay Humphrys, Andrew Dixon, Jo Cooper and Paul Cooper as well as MOLA Geoarchaeologist Jason Mole who assisted with the app training workshop in June 2016. We would also like to thank Hazel Sacco (Museums and Heritage Officer, Thurrock Council) and Michelle Savage (Education and Community Development Officer), for facilitating and hosting CITIZAN's visits to Coalhouse Fort Park and providing copies of historic maps. CITIZAN would also like to thank Jim Pullen for assistance with the DGPS survey in February 2017 and Deborah Priddy (Inspector of Ancient Monuments, Historic England) for her help and advice.

CITIZAN is funded by a generous grant of £1.4 million from the Heritage Lottery Fund, with match funding from the Crown Estate and National Trust and additional support from Historic England. CITIZAN is hosted by MOLA (Museum of London Archaeology); our regional teams are based with MOLA in London and with our partners the Council for British Archaeology in York and Nautical Archaeology Society in Fort Cumberland, Portsmouth.

Contents

| | |
|--|-----------|
| Summary | i |
| Acknowledgements | ii |
| Contents | iii |
| <u>1</u> Introduction | <u>1</u> |
| <u>2</u> Background research | <u>3</u> |
| <u>3</u> Survey methodology | <u>5</u> |
| <u>4</u> Results | <u>6</u> |
| <u>5</u> Conclusions and recommendations | <u>10</u> |
| <u>6</u> Dissemination | <u>13</u> |
| <u>7</u> Bibliography | <u>14</u> |
| <u>8</u> Figures | <u>16</u> |
| <u>9</u> Appendix 1 | <u>29</u> |
| <u>10</u> OASIS form | <u>30</u> |

List of illustrations

Front cover: CITiZAN volunteers recording Areas 1 and 2

| | |
|---|----|
| Figure 1 Site location | 16 |
| Figure 2 Plan of Areas and features, based on the preparatory survey of February 2017 | 17 |
| Figure 3 CITiZAN app workshop, June 2016 (Image: Hazel Sacco) | 18 |
| Figure 4 Excerpt from Chapman & Andre's Map of the County of Essex, 1777 (Image: Biblioteca Virtual del Patrimoni Bibliogràfic) | 18 |
| Figure 5 Excerpt from the 1805 Ordnance Survey map of Essex (Image: British Library) | 19 |
| Figure 6 Excerpt from the 1838 Tithe map of East Tilbury (Image: www.thegenealogist.co.uk) | 19 |
| Figure 7 The clay pipe found on the foreshore during CITiZAN's preparatory survey, February 2017 | 20 |
| Figure 8 18726" to 1 mile Ordnance Survey map (Image: supplied by Coalhouse Fort) | 20 |
| Figure 9 18906" to 1 mile Ordnance Survey map (Image: National Library of Scotland) | 21 |
| Figure 10 Area 1: the line of bricks | 21 |
| Figure 11 Area 1: the line of bricks (drawing) | 22 |

| | |
|---|----|
| Figure 12 Area 2: Brick feature and surrounding contexts | 23 |
| Figure 13 Area 2: Brick feature and surrounding contexts (drawing) | 24 |
| Figure 14 Area 3: made ground | 25 |
| Figure 15 Area 3: made ground (drawing) | 26 |
| Figure 16 Area 4 in May 2015 (left) and February 2017 (right) | 27 |
| Figure 17 The layer extending westwards from the brick feature, possibly a bed of mortar, February 2017 | 27 |
| Figure 18 Lines of brushwood on the foreshore in May 2015 (left) and June 2016 (right). | 28 |

1 Introduction

1.1 Site background

An archaeological survey was carried out by CITiZAN on the foreshore at Coalhouse Fort Park, East Tilbury, RM18 8QD as a part of a volunteer training session on 20-21 May 2017. This document is the report on that work.

Coalhouse Fort Park, owned by Thurrock Council, includes the various 19th and 20th century military remains as well as the remains of an earlier coal wharf. The park lies on an inner bend in the Thames; the site lies at the southern tip of the park. It is bounded by the Thames to the south and east and by saltmarsh and fields to the west and north (Figure 1, Figure 2).

The centre of the site lies at National Grid reference (NGR) TQ 68968 76239. The site is not covered in any Rapid Coastal Zone Assessment but was surveyed and reported on for English Heritage in 2003 (Brown and Pattison 2003). The site lies within Scheduled Ancient Monument *Coalhouse Fort battery and artillery defences* (List entry no. 1013943, see Appendix 1).

The site is also within the following Designated sites and areas: RAMSAR site Thames Estuary and Marshes (ref UK11069); SSSI Mucking Flats and Marshes (Ref 1002013) and Special Protection Areas (England) Thames Estuary and Marshes (Ref UK9012021).

In October 2000 a survey of the foreshore at Coalhouse Point, i.e the area of the site, was carried out by English Heritage following the observation of fragments of stonework on the mudflats (Brown and Pattison 2003). The stonework was thought to mark, possibly, the location of a documented Henrician blockhouse. The survey created a plan of all the features on the foreshore as well as the general topography (ibid.).

CITiZAN site reconnaissance and an initial meeting with Hazel Sacco, Museums and Heritage Officer, Thurrock Council, was carried out by CITiZAN archaeologists Lara Band and Oliver Hutchinson in May 2015. A one day training event, covering the use of the CITiZAN app was carried out in June 2016. The results of this can be seen on CITiZAN's interactive map at www.citizan.org.uk. The two day training event, i.e. the subject of this report, was conducted organised and delivered by Lara Band on the 20 – 21 May 2017. A total of 14 people attended and recorded features in the eroding saltmarsh. A preparatory visit, to prepare a plan of the site through sub cm accuracy DGPS survey, was carried out in February 2017 by Lara Band, Oliver Hutchinson and CITiZAN volunteer Lawrence Northall.

For the two day event a method statement was prepared by CITiZAN taking into account health and safety issues, tidal windows, staffing and methodologies (Band 2017).

On 20-21 May we worked in the afternoon to an estimated 3 hour tidal window, with the tides for the weekend as follows (calculated with POLTIPS.3).

| TILBURY | Time (BST) | Height (in metres, Chart Datum) |
|------------|------------|---------------------------------|
| 20/05/2017 | 08:21 | 5.54 |
| 20/05/2017 | 14:18 | 1.59 |
| 20/05/2017 | 20:48 | 5.44 |
| 21/05/2017 | 03:03 | 1.17 |
| 21/05/2017 | 09:33 | 5.69 |
| 21/05/2017 | 15:42 | 1.43 |

1.2 Research frameworks

Work has been undertaken within the research priorities established in the *Research and Archaeology revisited: a revised framework for the East of England* (Medlycott 2011). The framework acknowledges that much work has been carried out on military fortifications along the coast but, with relevance to this CITiZAN survey:

The infrastructure of the coast needs further study, including ports, jetties, landings, railways/tramways (including some of the earliest associated with industry) and canals. They represent key components of the coastal landscape, and are a link between the land and sea. (p 87)

Further work is required on the development of time/ cost-effective strategies for the study of remains within the inter-tidal zone (p88).

Greater co-operation with the museum, conservation and education worlds would be beneficial (p89).

Greater effort is needed on the dissemination of results to the wider community and the encouragement of a more proactive role through education and outreach initiatives. In particular there is a need to increase general awareness of the nature of the evidence, its presence all around us, and the significance and distinctiveness of the historic environment in the East of England. The potential for public contribution to advances in knowledge should be encouraged (p89).

The survey was carried out within the terms of one or more of the CITiZAN themes and research priorities developed for the project:

- Coastal erosion
- Defence

1.3 Aims and objectives

The following research aims and objectives were established:

- Are the features on this site at serious risk from natural or anthropogenic threats?
- Can features in Brown and Pattison's report for Historic England (2003) be identified?
- Have new features been revealed by erosion since Brown and Pattison's report (2003)? If yes, what is their nature and extent?

1.4 Scope of the survey

A CITiZAN survey is not the same as full excavation. It is designed to locate and identify significant archaeological features currently exposed on the coast or foreshore and highlights those that are under threat from erosive forces. These surveys provide a baseline dataset so that their condition can be effectively monitored in the future.

1.5 Related outreach events

In June 2016 a CITiZAN App workshop was carried out on the site in lieu of a full training event that summer (Figure 3). 16 people attended, 3 of whom subsequently came to the training weekend in May 2017. CITiZAN were assisted in this survey by MOLA geoarchaeologist Jason Mole who gave an insight into the geoarchaeology of the site.

2 Background research

2.1 Topography

The site lies on the northern shore of the Thames within the expanse of mudflats and saltmarsh known as the Mucking Flats. The Thames is 1.5km wide at this point and the site lies on an inner bend. The current level of the foreshore is between 1.6m OD (Ordnance Datum) at the south west tip of the site, rising to 2.6m OD at the north east tip of the site. The height of the saltmarsh varies. At the southern end of the site it lies at c 0.2m above the foreshore; in Areas 2, 3 and 4 (see Figure 2) it lies between c1m above sea level, at the northern end of the site the height varies due to the remains of the tramway and its sidings.

The area has deep clayey soils overlain by marine alluvium (Brown and Pattison 2003), with a bedrock of chalk (<http://mapapps.bgs.ac.uk>).

2.2 Archaeology and documentary evidence

The site lies within the Scheduled Ancient Monument (SAM) *Coalhouse Fort battery and artillery defences* (List entry no. 1013943, see Appendix 1). The SAM includes the mid-19th century Coalhouse Fort with a jetty and railway line; the remains of a Henrician blockhouse; a late 19th century Quick-Firer battery and a World War II radar installation. The site lies at the southern tip of the SAM, close to the jetty.

For a detailed discussion of the history and archaeology of the site see Brown and Pattison (2003). A summary of the chronological development of the site, with reference to known archaeological sites and features is provided below.

A ferry is thought to have linked East Tilbury and Higham in the Roman period, providing a connection between Dover and London via Watling Street and is well documented from the 13th through to the 16th century (Brown and Pattison 2003).

The suitability of this point in the Thames as a crossing place also gave it strategic importance, and vulnerability. The village of East Tilbury was fortified in 1402 with a rampart and towers for defence against incursion (www.thurrock.gov.uk).

With growing concern about the state of the nation's defences Henry VIII began a programme of fortification along the south and east coast of England from the 1530s. Because of the strategic importance and vulnerability of London and its associated dockyards blockhouses, i.e. fortifications purpose built to house artillery, were constructed on the Thames. Between 1539 and 1540 opposing pairs of blockhouses were constructed at East Tilbury (MEX6347) in the area known later as Coalhouse Point and at Higham, with a second pair further west at Tilbury and Gravesend. A fifth, single, blockhouse was also built at Milton between Gravesend and Higham (Brown and Pattison 2003).

The East Tilbury and Higham blockhouses protected the ferry crossing and were also placed at a point where crossfire could be established; the other forts provided a second line of defence. All blockhouses were disarmed in 1553. Although some were later reinstated that at East Tilbury was not (Brown and Pattison 2003) and an estate map of 1735 shows the ruined blockhouse within 'land lost to the sea' (*ibid.*, not reproduced). The blockhouse is likely to lie deep in the intertidal zone, if not nearly permanently submerged, just to the south of the jetty: the OS map of 1872 (see Figure 8)

shows an embankment in the intertidal zone with a similar curve to the blockhouse shown on the 1735 map.

A ferry at this point may have continued until the 18th century (Brown and Pattison 2003). Chapman and André's map of 1777 (Figure 4) shows a drainage cut with two possible structures just to the east, labelled Coal Wharf. The Ordnance Survey map of 1805 shows two buildings differentiated by colour, labelled Coal Ho[use] Flag (Figure 5) though these appear to be either side of the drainage cut. The Coal Wharf buildings are shown in more detail on the 1838 Tithe Map with three buildings sitting inside two rectangular enclosures, the boundaries of which are probably drainage ditches (Figure 6). According to the Tithe Apportionment book the wharf is owned and occupied by the War Department. The Coal Wharf is recorded in Essex HER as MEX1037623.

During the CITiZAN preparatory survey, 16 February 2017, we found a clay pipe lying in the coal wharf area. It was unabraded so had clearly recently eroded out of the mud flats or salt marsh (Figure 7). It is not in the remit of CITiZAN to collect finds and objects should not be removed from SAMs without permission but as the pipe was lying on the surface and could easily have been lost to the next tide or to a curious visitor the decision was made to retrieve it, record it and deposit it with Thurrock Museum Service. The pipe probably dates from 1800-1830 and from the style of decoration, probably comes from the north east of England, likely having arrived with a coastal shipment of coal from that area (David Higgins, National Pipe Archive, pers. comm; Higgins 2006). A record of the pipe was lodged with the Portable Antiquities Scheme (Unique ID CITiZAN-1A2B74).

In 1861-2 work began on the fort which survives today (MEX6378). This replaced East Tilbury Battery, completed 1855, which had replaced Hope Point Battery, completed 1799. By 1864 the coal wharf had been augmented with a Coastguard's Lookout as can be seen on the OS map of 1872 (Figure 8). The surviving timbers of the jetty probably date to this period (Brown and Pattison 2003). A tramway, following the line of earlier raised path was used to transport guns and stores from the river to the fort (Brown and Pattison 2003): a comparison of Ordnance Survey maps suggest tramway was built between 1872 and 1890 (Figure 8, Figure 9). The maps also show that the buildings at the coal wharf were razed during this period possibly because the tramway would have enabled direct traffic of goods between the fort and waiting barges. Between CITiZAN site visits in May 2015 and June 2016 an area of brushwood had become increasingly visible in this area and possibly relates to the path that preceded the tramway. Remains of the tramway still exist today and form the main visitor route between the Fort and the foreshore.

In 1893 a Quick Firer battery was built close to the fort. The guns were replaced in 1902, and augmented with searchlights (Brown and Pattison 2003); the remains of these can still be seen on the foreshore close to the site. In the Second World War the radar tower on the foreshore was erected as were ancillary buildings (ibid.).

In 1949 the fort was let to the nearby Bata Shoe Co. for storage. It was also used as emergency housing for demobbed ex service men and their families and as a coal store during a miners strike in 1959. In 1962 Coalhouse Fort Thurrock Urban District Council acquired the site from the Ministry of Defence and it became a recreational area (Thurrock Nd.). The area became a Scheduled Ancient Monument in the same year (List entry no. 1013943, see Appendix 1). Conservation and restoration of the Fort was started by the volunteer group the Coalhouse Fort Project in 1983 and the fort has been open to the public every year since (Coalhouse Fort Project 1983-2017).

3 Survey methodology

3.1 Training methodology

The survey on 20-21 May 2017 was conducted as part of a two-day CITiZAN training session, organised and delivered by Lara Band (CITiZAN archaeologists) and facilitated by Michelle Savage (Education and Community Development Officer, Thurrock Council). 14 people attended the training session, including 4 Coalhouse Fort Park volunteers.

Two-day training sessions comprise one day off-site briefing on site background, health and safety and methodologies and one day of on-site practical work as in section 3.2. All volunteers must adhere to Health and Safety assessments (CITiZAN, 2015c) and the CITiZAN code of conduct (CITiZAN, 2015a).

3.2 Field methodology

The survey was carried out in accordance with the Written Scheme of Investigation (Band 2017). Levels and the positions of archaeological and topographical features were recorded during the DGPS survey of the site that took place on 16 February 2016 (see Figure 2).

For all CITiZAN surveys areas/ features are cleaned by hand and surveyed by the CITiZAN volunteer teams, supervised by a member of CITiZAN staff. Intrusive archaeological methods are not used during CITiZAN training and outreach events, with the exception of surface cleaning to reveal obscured archaeological detail. Where wooden features are encountered they are not cleaned with metal tools but with soft brushes, sponges or the direct application of low pressure water as appropriate.

On this site elevations were not cleaned back/straightened prior to recording so as not to add to erosion. The sea purslane growing on top and overhanging the elevations was gently lifted to one side during recording.

3.3 Recording methodology

A written record of features was produced using CITiZAN proformas, Plans and elevations of features were drawn at 1:20 scale. 38 photographs were taken of the features and of the site and workshop in general. The known features were identified by the name or number as given in Brown and Pattison (2003).

The site was divided into four areas each with a set of features to concentrate on. Volunteers worked in teams of three to produce all the records and interpretation for their area, with the help of CITiZAN archaeologist Lara Band..

4 Results

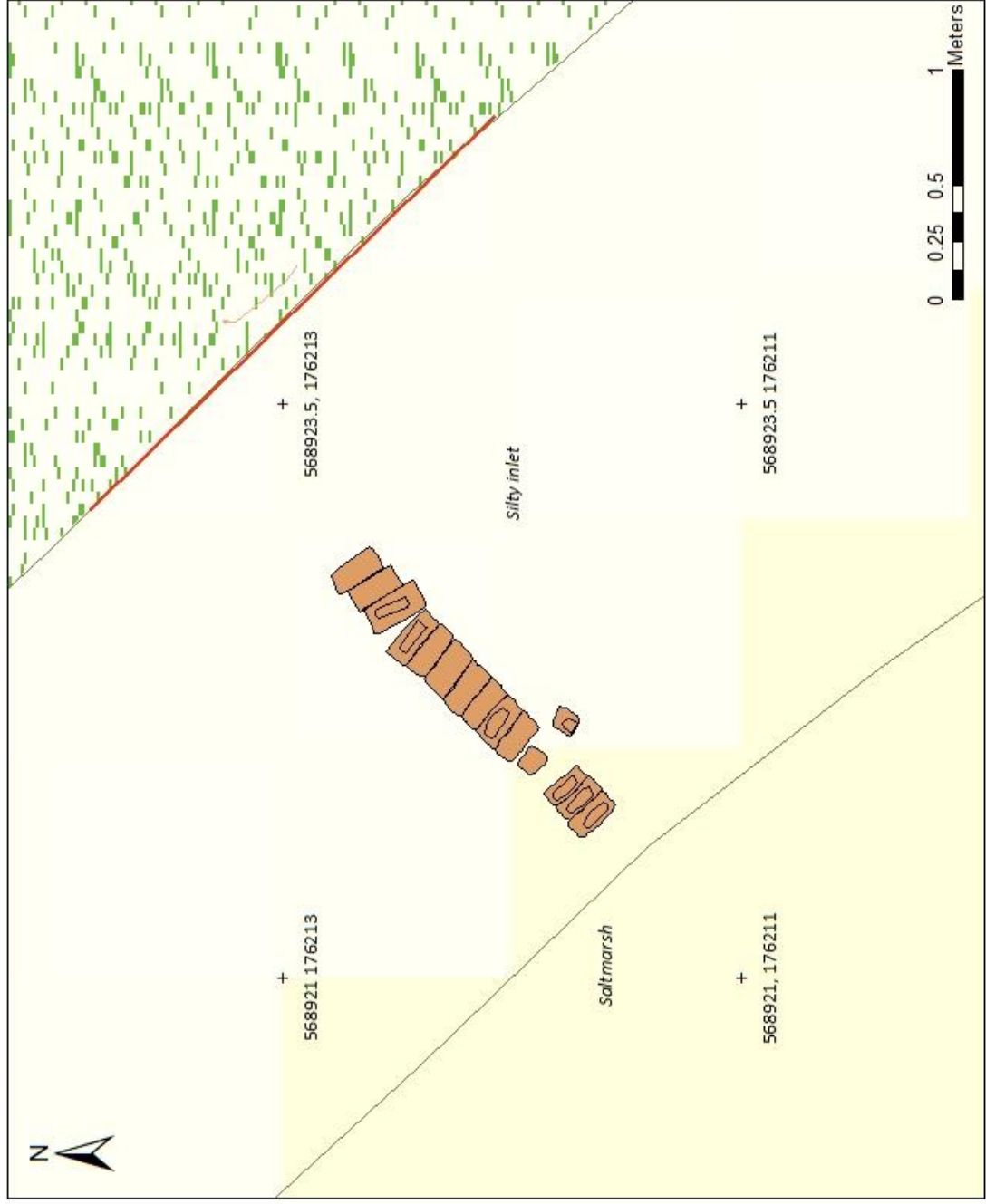
For feature locations see Figure 2. For feature photographs and drawings see Figure 10 - Figure 16.

4.1 Area 1 – Line of bricks

Context 1

A single line of 12 red handmade bricks, laid with stretchers adjoining, visible for 1.7m on an east-west orientation (Figure 10,

Coalhouse Fort Park, Area 1
 Drawn 20.5.17, digitised 5.7.18



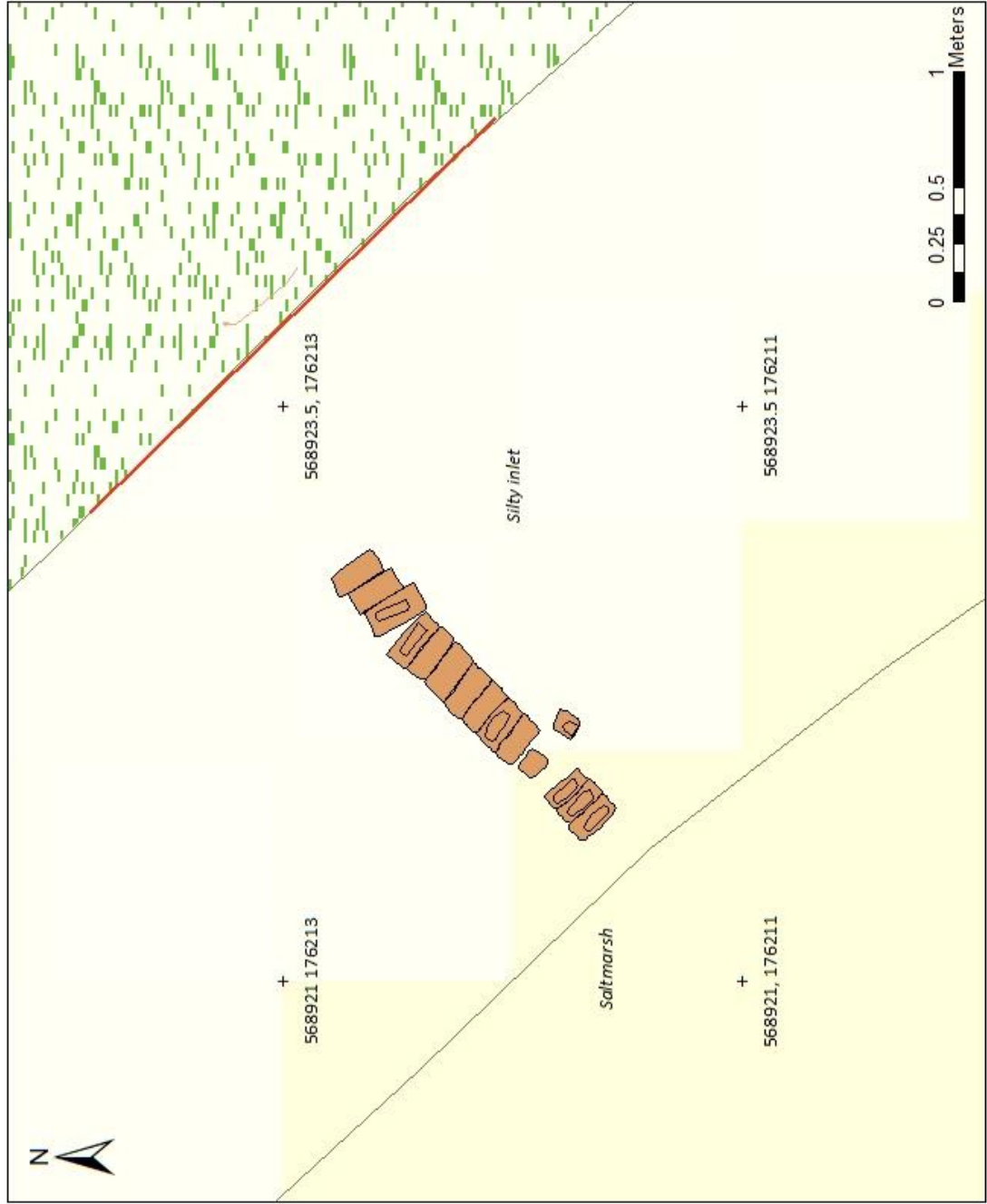
- Legend**
- Brick
 - Made ground (saltmarsh)
 - Saltmarsh edge
 - Area 2 baseline

Figure 11). The line starts in the middle of an area of mudflat and shingle and runs into the saltmarsh to the east. It lies embedded in the tidal flats at c 1.8m OD. The bricks are all 220mm long by 100mm wide; their thickness could not be measured without disturbing the bricks . Some of the bricks have a shallow frog, some have no frog. There is no sign of mortar on any of the bricks. No construction cut was visible.

4.2 Area 2 – Brick feature and associated cut and layers

The west facing elevation of a raised area of saltmarsh, the top of which lies c 1.0m above the tidal flats (Figure 10,

Coalhouse Fort Park, Area 1
 Drawn 20.5.17, digitised 5.7.18







- Legend**
-  Brick
 -  Made ground (saltmarsh)
 -  Saltmarsh edge
 -  Area 2 baseline

Figure 11)

Context 2

A 0.72m – 0.76m thick layer of firmly compacted mid yellow brown silty clay with moderate inclusions of mortar, brick and tile and charcoal/coal

Context 3

A 0.16m – 0.25m thick layer of firm dark grey brown silty clay with frequent inclusion of charcoal/coal, becoming rare towards the bottom of the layer and moderate inclusions of 5mm-10mm flint pebbles nodules.

Context 4

A 0.25m – 0.32m thick thick layer of firm dark grey brown silty clay with moderate inclusions of flecks of charcoal/coal, becoming rare towards the bottom of the layer.

Context 5

An 0.37 – 0.41m thick layer of firm dark grey brown silty clay with moderate inclusions of flecks of charcoal/coal, becoming rare towards the bottom of the layer and occasional small flint pebbles throughout.

Context 6 (brickwork)

A brick feature with an elevation approximately flush with the vertical face of the saltmarsh. This is 0.45m high and 0.37m wide, with six courses of irregularly laid brick and one stretcher and two headers wide. The bricks are all handmade and a mix of yellow London stock brick, and red brick. The bricks are of slightly different sizes and some have sharp edges while some are more rounded/abraded. The difference in size and clarity of edges does not appear to relate to their colour. Some of the bricks have traces of mortar on their surface and some of the bricks appeared to be bedded in mortar. In May 2015 and June 2017 a smooth compact layer extending south eastwards beyond and in line with the brickwork could be seen; this is no longer visible.

Context 7

There is a void either side of the bricks, with uneven outer edges. This was recorded as a context, as will be discussed below.

Context 8

As the void was so deep either side of the brickwork the context immediately adjacent to the northern and southern side of the brickwork could not be described in detail though it appeared to be mid grey brown silty clay.

4.3 Area 3 – Saltmarsh

The east facing elevation of the raised area of saltmarsh, measuring c 1.0m high from the tidal flats to the top of the saltmarsh and comprising several distinct, dumped layers (Figure 14, Figure 15).

Context 9

A 0.12m – 0.23m thick loosely compact layer of dark brown silt with no inclusions except the roots of sea purslane running the full length of the elevation recorded.

Context 10

A 0.10m - 0.2m thick compact layer of light brown silty clay with frequent inclusions of 0.02m – 0.05m rounded and sub-rounded flint pebbles.

Context 11

A 0.08m – 0.12m thick layer of fine and crumbly light yellow brown chalky silt with frequent lumps of compact chalk

Context 12

A 0.08m – 0.36m thick compact dark grey brown layer of fine silty peat with no inclusions. This layer dried quickly in the sun and began to crack.

Context 13

A 0.10m – 0.40m thick layer of very compact light yellow brown chalky silt with frequent lumps of compact chalk and infrequent flecks of charcoal and occasional sub-rounded and sub-angular flint pebbles from 0.03m – 0.05m in diameter. This layer has mid yellow brown patches with similar inclusions.

Context 14

A 0.04m – 0.1m thick layer of lightly compacted light yellow brown silty clay with no inclusions

Context 15

A 0.10m – 0.20m thick layer of very compact light yellow brown chalky silt with frequent lumps of compact chalk and infrequent flecks of charcoal and occasional sub-rounded and sub-angular flint pebbles from 0.03m – 0.05m in diameter.

4.4 Area 4 – Laid bricks in a narrow inlet

During the site visit in May 2015 a laid area of red handmade was noted at the base of a narrow inlet in the saltmarsh. This lay just to the east of Area 2 (also noted in 2015) and at approximate right angles to it. This area of brickwork was also noted during the preparatory survey of February 2017 though with yellow London stock brick laid in running bond and, again, covering the base of the narrow inlet. The brickwork was four headers wide east – west and at least 4 stretchers long north-south. This area was to be one of the targets for recording for May 2017 survey but was no longer visible.

During the May 2017 survey however two or three horizontal bricks were noted in east facing elevation of this inlet, roughly in line with the brick feature recorded in Area 2. The general position of this feature is recorded on Figure 2, and photographs taken in May 2015 and February 2017 are included for reference (Figure 16).

4.5 The finds

CITiZAN is focused on recording and monitoring structures, landscapes and archaeological features, and does not systematically collect artefacts. Any artefacts encountered were dealt with in accordance with the CITiZAN finds policy (CITiZAN, 2015b).

No finds were encountered during this survey though see section 2.2 for discussion of a clay pipe found during the preparatory survey of 2017 (See Figure 7).

4.6 Training results

Sixteen people attended the training session including 8 who had previously attended CITiZAN events and 3 Coalhouse Fort Park volunteers. For the Saturday morning session Michelle Savage gave a talk on the history of the fort. This was followed by a tour given by a Fort volunteer guide who was attending the training session. On Sunday morning CITiZAN delivered a session on documentary research including a map regression exercise. All the volunteers came up with excellent observations. Of particular note, the Fort volunteer guide noticed a jetty shown only on the 1872 OS map and suggested it may have been a temporary feature built to aid construction of the fort. This has previously gone unremarked and adds another layer to the interpretation of the site.

In the afternoons the volunteers created the written, drawn and photographic records for brickwork and other features on the foreshore. The foreshore sessions went well with the volunteers making good progress with scale plans and elevation drawings and with the proformas, especially considering that less than 50% of them had direct experience of field archaeology through membership of local societies.

Following the weekend the Fort guide emailed to say they'd been inspired by CITiZAN to apply for a job as an archaeological site assistant. CITiZAN acted as one of their referees and we then heard back that they'd been offered the job: this direct result of our work was a definite high to start the 2017 summer season on.

The volunteers gave very positive feedback via the evaluation sheets they filled in at the end of the event: all participation evaluation is being undertaken by an external evaluator as a condition of our HLF grant and a thorough interpretation of results will appear in the evaluator's report.

4.7 Resources created

- A map regression worksheet with copies of the following map: C Sloane's 1735 map of South Hall in the Parish of East Tilbury; Andre and Chapmans 1777 map of Essex, 1805 Ordnance Survey map of Essex; 1838 Tithe map, and Ordnance Survey maps of 1872, 1890, 1898-99, 1923, 1966-67, 1980-81 and 2014 all either supplied by Coalhouse Fort Park or accessed online via the National Library of Scotland and Google Maps.
- A list of online resources including <https://www.heritagegateway.org.uk>, www.oldmapsonline.org and <https://britainfromabove.org.uk> to help with further research

5 Conclusions and recommendations

5.1 General discussion of the survey

The location of the 18th-century coal wharf buildings and 19th-century coastguard station are known from maps and Brown and Pattison (2003) suggested there might be remains relating to these buried in the saltmarsh: it is possible that the features we recorded are the footings of some of these buildings.

5.2 Area 1 – Line of bricks

The appearance of the bricks indicates that they are handmade. The bricks with no frogs are very similar in size, colour and composition to those with frogs and seem likely to be the same but laid the other way up: no firm conclusions could be drawn about this without disturbing the brickwork however.

Frogged bricks were introduced in the later 17th century at the earliest (Watt 1990) while the size of the bricks, at 220mm x 100mm, suggests that the bricks recorded may date to the end of the 18th century (The Architects Journal 2000). The form of the feature suggests a single skin wall. This is not quite on the same orientation as the brickwork in Areas 2 and 4 (see below) and is of different brick and construction it seems unlikely that the features are directly related, i.e. part of the same building.

Though the date of the bricks, even if it could be defined, would not necessarily date the structure a tentative suggestion is that this line of bricks is associated with the early phase of coal wharf buildings noted on historic maps from 1777. It may be the lowest level of a foundation; the single skin of bricks suggests a fairly lightweight structure.

5.3 Area 2 – Brick feature, associated cut and layers

The form and materials of the brick structure suggest it is part of a trench built foundation of reused bricks. From the relationship with the brickwork in Area 4 it seems likely that these formed part of the foundation of a building measuring at least 5m x 6m with the long axis orientated SE – NW. The inclusion of a high amount of charcoal and coal in the surrounding contexts suggests this was associated with the coal wharf noted on maps from the late 18th century.

The top of the brickwork is level with the interface between contexts 3 and 2. It seems possible then that the building supported by the foundation wall was demolished to the height of the extant brickwork then the ground above raised with deposited material. The very clear and straight dark line at the interface of context 2 may indicate a former floor/working surface, i.e. the building was demolished to floor level.

The void either side of the bricks is likely to be the cut for the foundation, with the backfill removed by tidal scour. It appears to have been cut through a relatively charcoal/coal rich deposit suggesting that the building was constructed on made ground, or at least disturbed ground, after the coal wharf had already come into use.

The thin smooth layer under the bricks observed extending beyond the bricks in May 2015 and February 2017, but no longer visible may have been the remains of a bed of mortar at the base of the trench (Figure 17).

5.4 Area 3 – Layers

This area of saltmarsh is formed by layers of dumped material including chalk and clay with inclusions such as brick or tile, coal, flint. The inclusion free layer of silty peat (context 12) seems likely to be redeposited natural and so may relate to contemporary building work or excavation in the area.

The clay pipe (see 2.2) was found close to this and may have eroded out of a dumped layer.

5.5 Area 4 – Laid bricks

This brickwork was not visible during the survey and may now be lost completely but see Area 2 for a possible interpretation.

5.6 Areas 1-4 summary

Georectifying the Ordnance Survey map of 1872 in ArcGIS places the largest building of the group, also shown on the Tithe map of 1838, directly over the brickwork of Areas 2, 3 and 4. It also confirms that the structure associated with the brickwork in Area 1 was no longer extant by this time. Bricks from this structure may have been reused in the new building, built after raising the ground in this area.

It seems likely that there were at least two episodes of levelling /raising ground: one prior to constructing the coal wharf buildings in the early 19th century and one following their demolition in the later 19th century, possibly in conjunction with the building of the tramway at some point between 1872 and 1890.

5.7 Answering original research aims

- Are the features on this site at serious risk from natural or anthropogenic threats?

Yes

Between February 2017 and June 2017 the line of bricks in Area 1 had been revealed. In Area 2 between May 2015 and June 2017 a thin, compact layer extending eastwards beyond the elevation of the brickwork has been lost to erosion. This may still be present underneath the bricks.

In Area 4 between May 2015 and February 2017 it appears that at least one layer of brick has been removed from the feature either by tidal scour or by visitor erosion. Bricks were no longer visible by June 2017. While this feature may have been silted over in June 2017, the longer term trend is for erosion.

Not covered in this survey but noted in February 2015 and June 2016 the former tramway had lost a sleeper on the edge of the intertidal zone. The brushwood (Figure 18) following south west from the end of the tramway into the intertidal zone also became much more visible over this period. The DGPS survey carried out in February 2017, which forms the basis of Figure 2, also highlights erosion along coast edge foreshore to the immediate south west of the tramway path.

- Can features in Brown and Pattison's report (2003) be identified?

Yes.

On the whole all the features recorded in the 2003 report can still be identified on the foreshore, though, apart from the area of made ground between the between the jetty and the radar tower, i.e. Area 3, they were not surveyed as part of this report.

Area 3 was found to be very similar in make up to that described in the 2003 report though from a comparison of photographs has clearly suffered from erosion since then..

- Have new features been revealed by erosion since Brown and Pattison's report (2003)? If yes what is their nature and extent?

Yes

None of the areas of brickwork recorded, i.e. Area 1, Area 2 and Area 4, were visible in 2003 report though the potential for the survival of such stratigraphy within the saltmarsh was noted.

5.8 New research aims

- Long term monitoring of features across the site using the CITIZAN app
- Further desk top study including georectification of all historic maps to see if the bank in the intertidal zone on the 1872 OS map could be linked with the Blockhouse.
- DGPS survey for spot heights on the features recorded and for various points across the site. While the February 2017 survey recorded heights for points recorded this data was missing from the areas recorded as lines, including the edge of the saltmarsh and the remains of the tramway
- Comparison of height data from various sources including Admiralty charts and if available, from the 2003 survey to see if this reveals any information about erosion and the Blockhouse.
- A drawn and photographic record of Area 4, if the bricks are still extant
- Specific questions:
 - Do the red bricks in the structure in Area 2 match any recorded in Area 1 or seen in Area 4? If so, can any conclusions be drawn from this i.e. was the structure in Area 2 built at least partially from the remains of a structure in Area 1?

6 Dissemination

The results of the survey will be made publicly available on the CITIZAN website:

<http://www.citizen.org.uk/>. The feature data will be uploaded to the CITIZAN interactive database, to allow ease of future long-term monitoring of the site via the CITIZAN online interactive map and smart phone app and to permit inclusion of the data in any future academic researches into coastal and intertidal archaeology. This can be found at <http://www.citizen.org.uk/interactive-coastal-map/>.

Records created by this survey will be deposited with the Archaeology Data Service (ADS) where it will make up a part of the archive of all data and materials created by CITIZAN. It will be deposited with appropriate local repositories via the ADS.

A short note on the results of the survey will be submitted to the appropriate journals to be included in annual county and period fieldwork round-ups. A copy of the report will be sent to Maria Medlycott (Historic Environment Officer, Essex County Council).

7 Bibliography

- Band, L. 2017. Coal House Fort Park: written scheme of investigation for CITIZAN training event
- Brown, M and Pattison, P. 2003. Coalhouse Point: Archaeological features in the inter-tidal zone, East Tilbury, Essex Archaeological. Investigation series 7/2003. Cambridge: English Heritage
- Chartered Institute for Archaeologists. (CIFA). 2014 By-Laws, Standards and Policy Statements of the Chartered Institute for Archaeologists, Standard and guidance: the creation, compilation deposition and transfer of archaeological archives
- CITIZAN. 2015a. Code of conduct <http://www.citizen.org.uk/terms-and-conditions/code-of-conduct/>
- CITIZAN. 2015b. Finds policy and guidance <http://www.citizen.org.uk/terms-and-conditions/finds-policy-and-guidance/>
- CITIZAN. 2015c. Health and safety policy, <http://www.citizen.org.uk/health-and-safety/>
- Fulford, M; Champion, T and Long, A (eds) 1997. England's Coastal Heritage: a survey for English Heritage and the RCHME, Swindon: English Heritage
- Heritage Gateway [<http://www.heritagegateway.org.uk/> Accessed 25.06.2017]
- Higgins, D A. 2006. Clay Tobacco Pipes in N R Brown 'A Medieval Moated Manor by the Thames Estuary: Excavations at Southchurch Hall, Southend, Essex', *East Anglian Archaeology*, **115**, Essex County Council, Chelmsford, 118-125.
- Medlycott, M. (eds.). 2011. Research and Archaeology revisited: a revised framework for the East of England. The Scole Archaeological Committee for East Anglia: Norwich
- Murphy, P. 2014. England's Coastal Heritage: a review of progress since 1997, Swindon: English Heritage
- Coalhouse Fort Project. 1983-2017. Coalhouse Fort 1940-2013. Accessed via <http://www.coalhousefort.co.uk>, 25.06.2013
- The Architect Journal. 2006 (April 6). The dating game. Accessed via <https://www.architectsjournal.co.uk/home/the-dating-game/189590.article>, 25.06.2018
- Thurrock Council. Nd. Historical Places in Thurrock: Coalhouse Fort, East Tilbury. Accessed via <https://www.thurrock.gov.uk/historical-places-in-thurrock/coalhouse-fort-east-tilbury>, 25.06.2018
- Watt, K. 1990. 19th Century Brick Making Innovations in Britain: Building and technological change (unpublished PhD thesis accessed via <http://etheses.whiterose.ac.uk/4248/1/DX094368.pdf>, 25.06.2018

Maps consulted

- 1777 Chapman and André's Map of the County of Essex: from an Actual Survey. Biblioteca Virtual del Patrimoni Bibliogràfic. Accessed via <http://bvpb.mcu.es/ca/consulta/registro.cmd?id=441216>, 26.06.2018
- 1805 Ordnance Survey map of Essex. British Library (Shelfmark OSD 134). Accessed via www.oldmapsonline.org.uk, 26.06.2018

1838 Tithe map of East Tilbury (The National Archives, IR 30/12/343), accessed via <https://www.thegenealogist.co.uk/>, 26.06.2018

1839 Tithe apportionment of East Tilbury, (The National Archives, IR 29/12/343), accessed via <https://www.thegenealogist.co.uk/>, 26.06.2018

1872 6" to 1 mile Ordnance Survey map, supplied by Coalhouse Fort Park

1890 6" to 1 mile Ordnance Survey map sheet Essex LXXXIV, accessed via <https://maps.nls.uk>, 26.06.2018

8 Figures

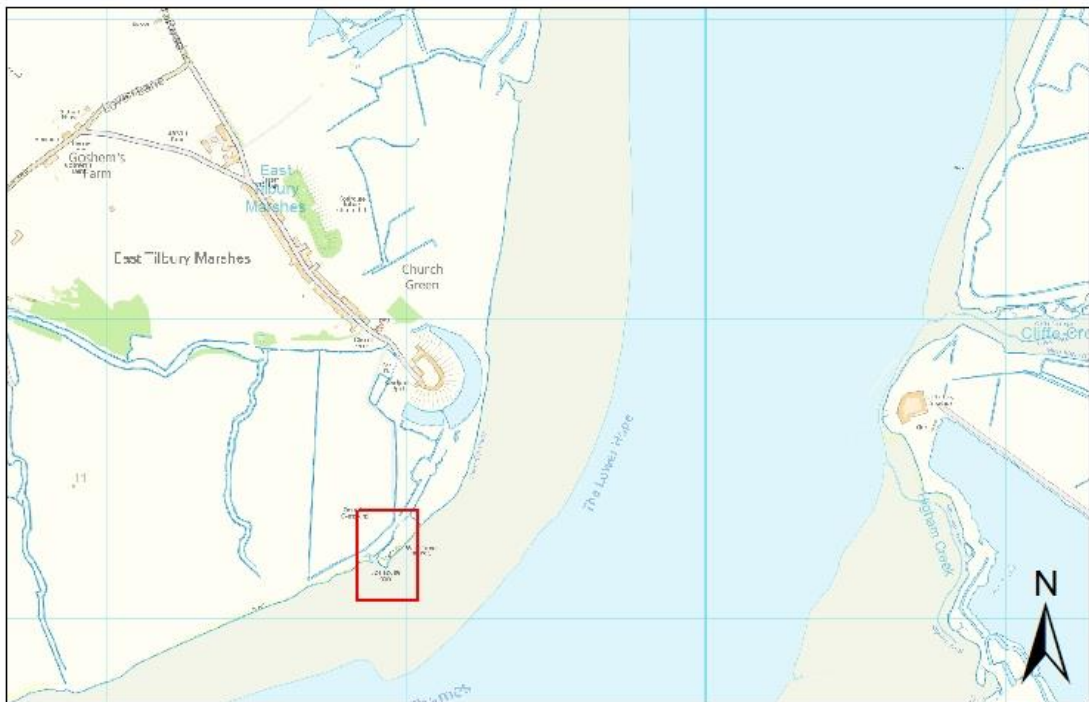
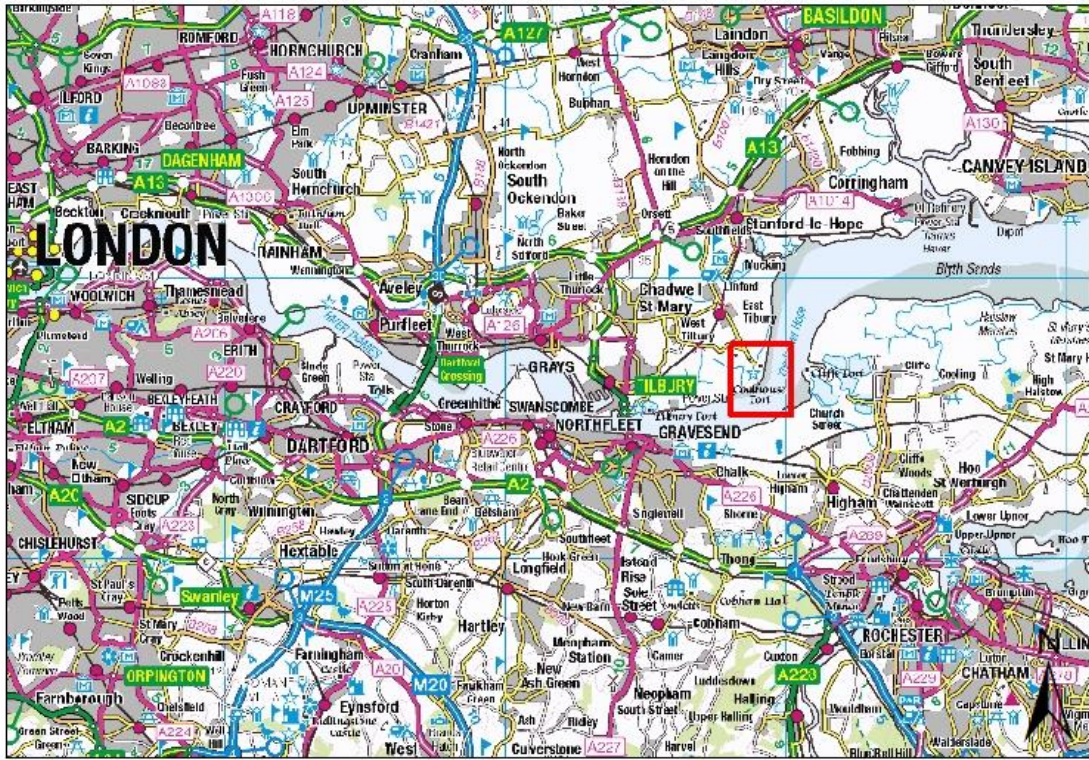


Figure 1 Site location

Foreshore survey
 Coalhouse Fort Park, East Tilbury
 Surveyed 16.2.2017; 20-21.5.2017
 Digitised 19.6.2018

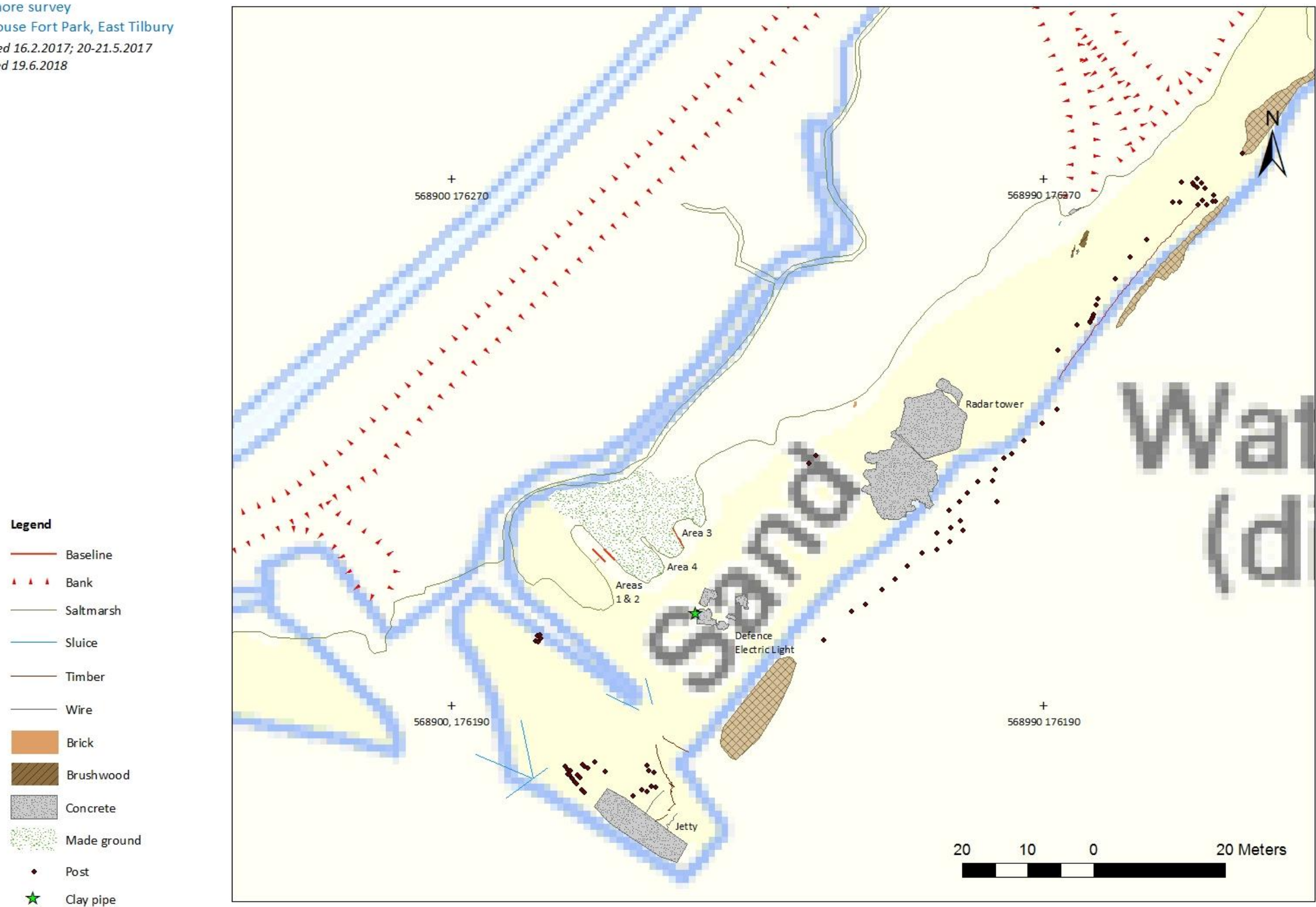


Figure 2 Plan of Areas and features, based on the preparatory survey of February 2017



Figure 3 CITIZAN app workshop, June 2016 (Image: Hazel Sacco)



Figure 4 Excerpt from Chapman & Andre's Map of the County of Essex, 1777 (Image: Biblioteca Virtual del Patrimoni Bibliogràfic)



Figure 5 Excerpt from the 1805 Ordnance Survey map of Essex (Image: British Library)

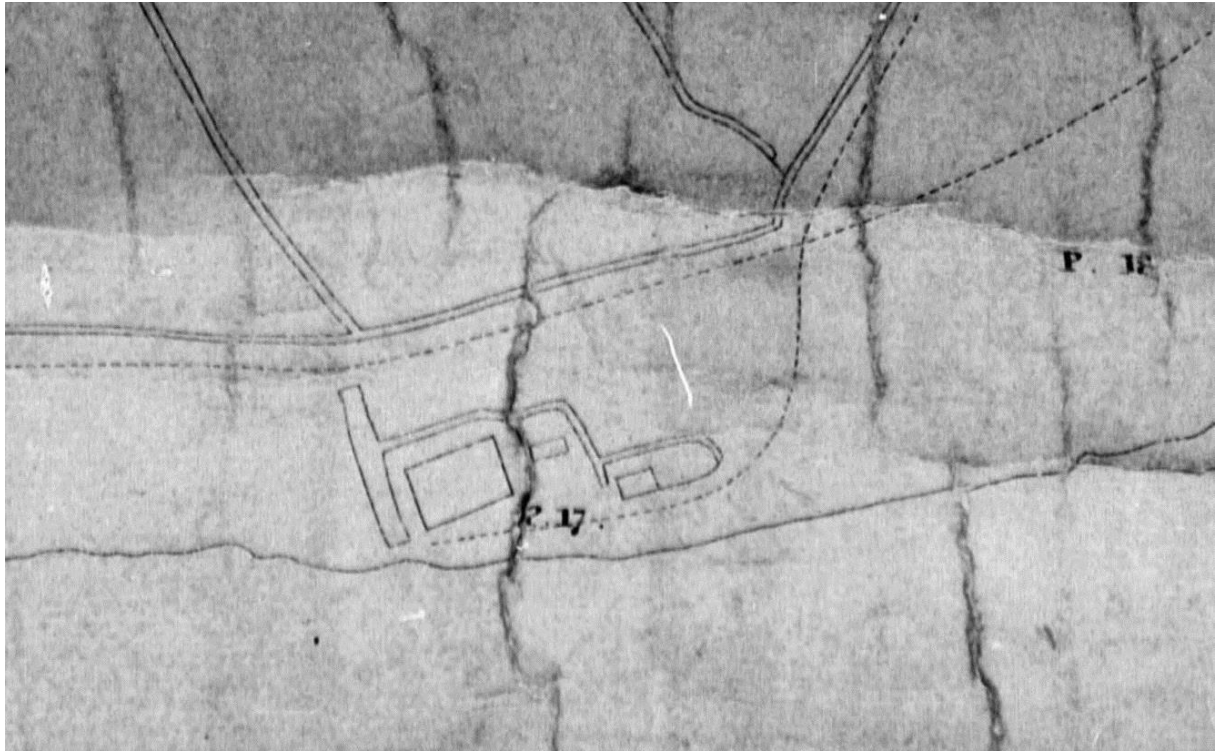


Figure 6 Excerpt from the 1838 Tithe map of East Tilbury (Image: www.thegenealogist.co.uk)



Figure 7 The clay pipe found on the foreshore during CITiZAN's preparatory survey, February 2017

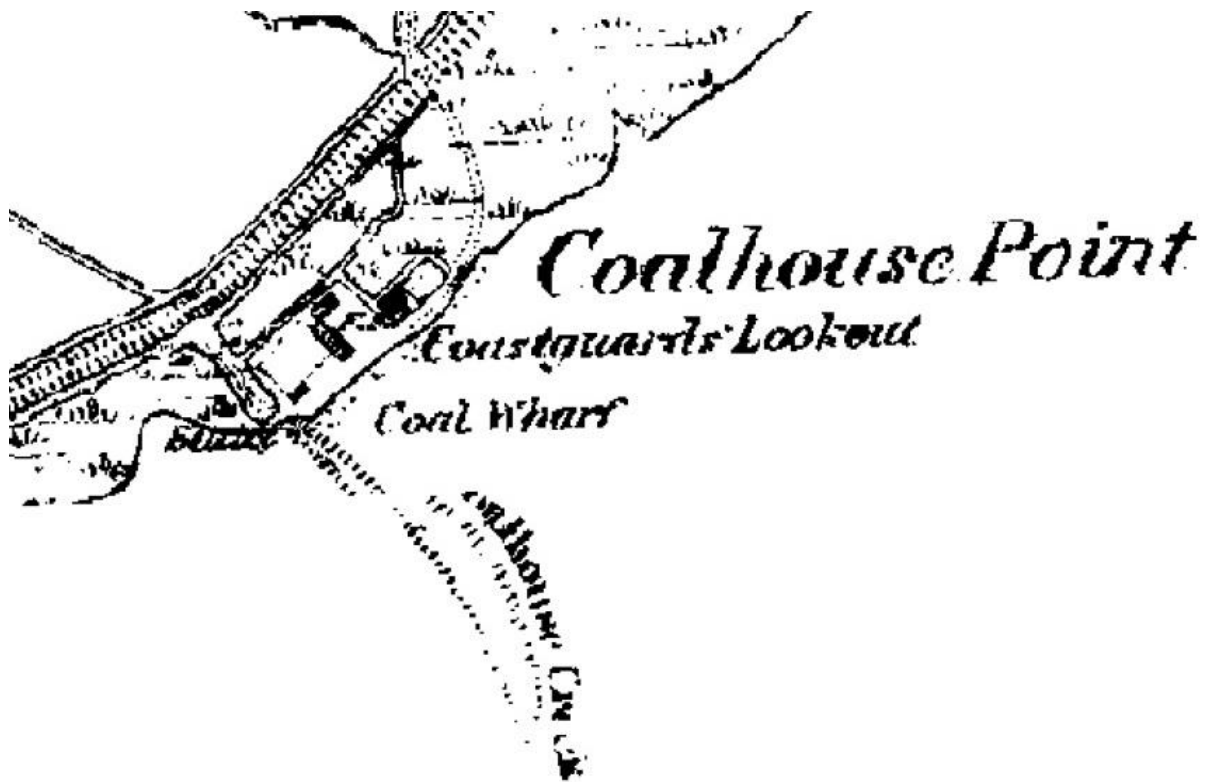


Figure 8 18726" to 1 mile Ordnance Survey map (Image: supplied by Coalhouse Fort)

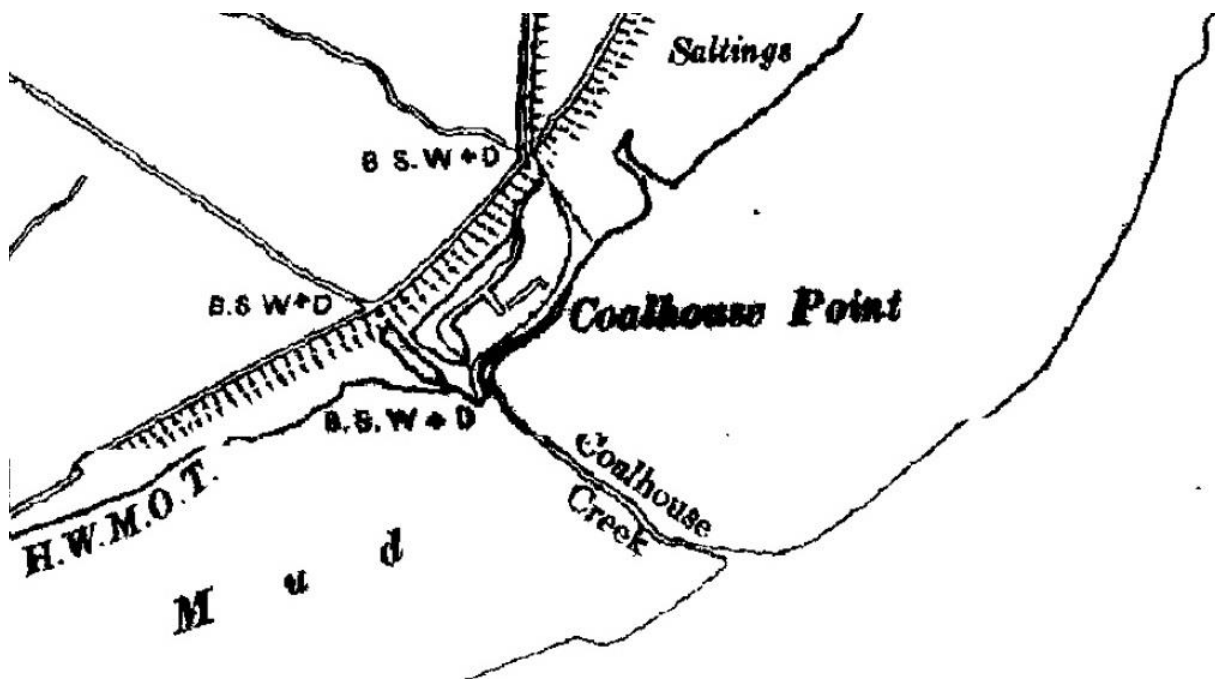
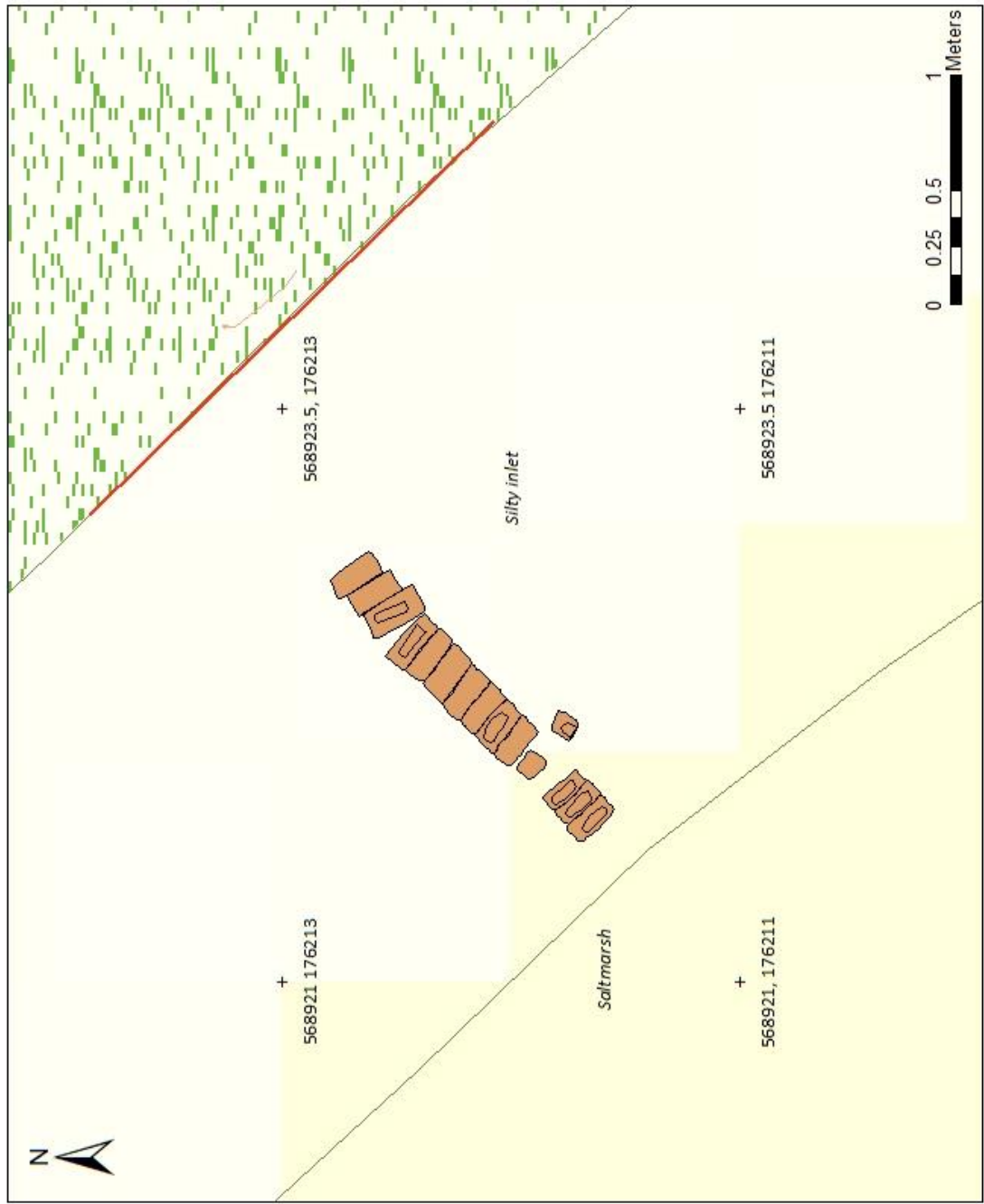


Figure 9 1896" to 1 mile Ordnance Survey map (Image: National Library of Scotland)



Figure 10 Area 1: the line of bricks

Coalhouse Fort Park, Area 1
 Drawn 20.5.17, digitised 5.7.18







- Legend**
-  Brick
 -  Made ground (saltmarsh)
 -  Saltmarsh edge
 -  Area 2 baseline

Figure 11 Area 1: the line of bricks (drawing)



Figure 12 Area 2: Brick feature and surrounding contexts

Coalhouse Fort Park, Area 2 elevation
 Drawn 21.5.2017, digitised 5.7.2018

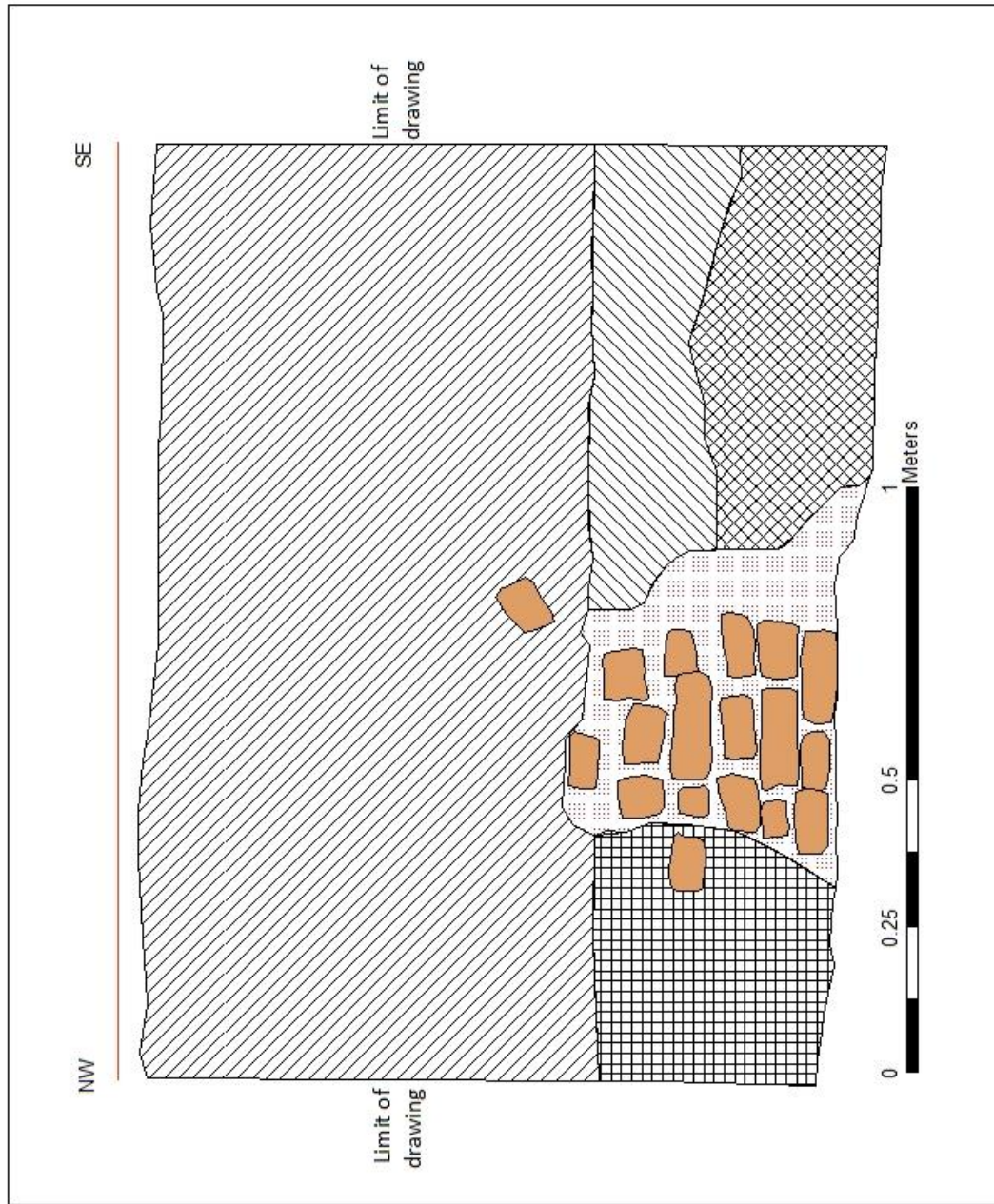


Figure 13 Area 2: Brick feature and surrounding contexts (drawing)



Figure 14 Area 3: made ground

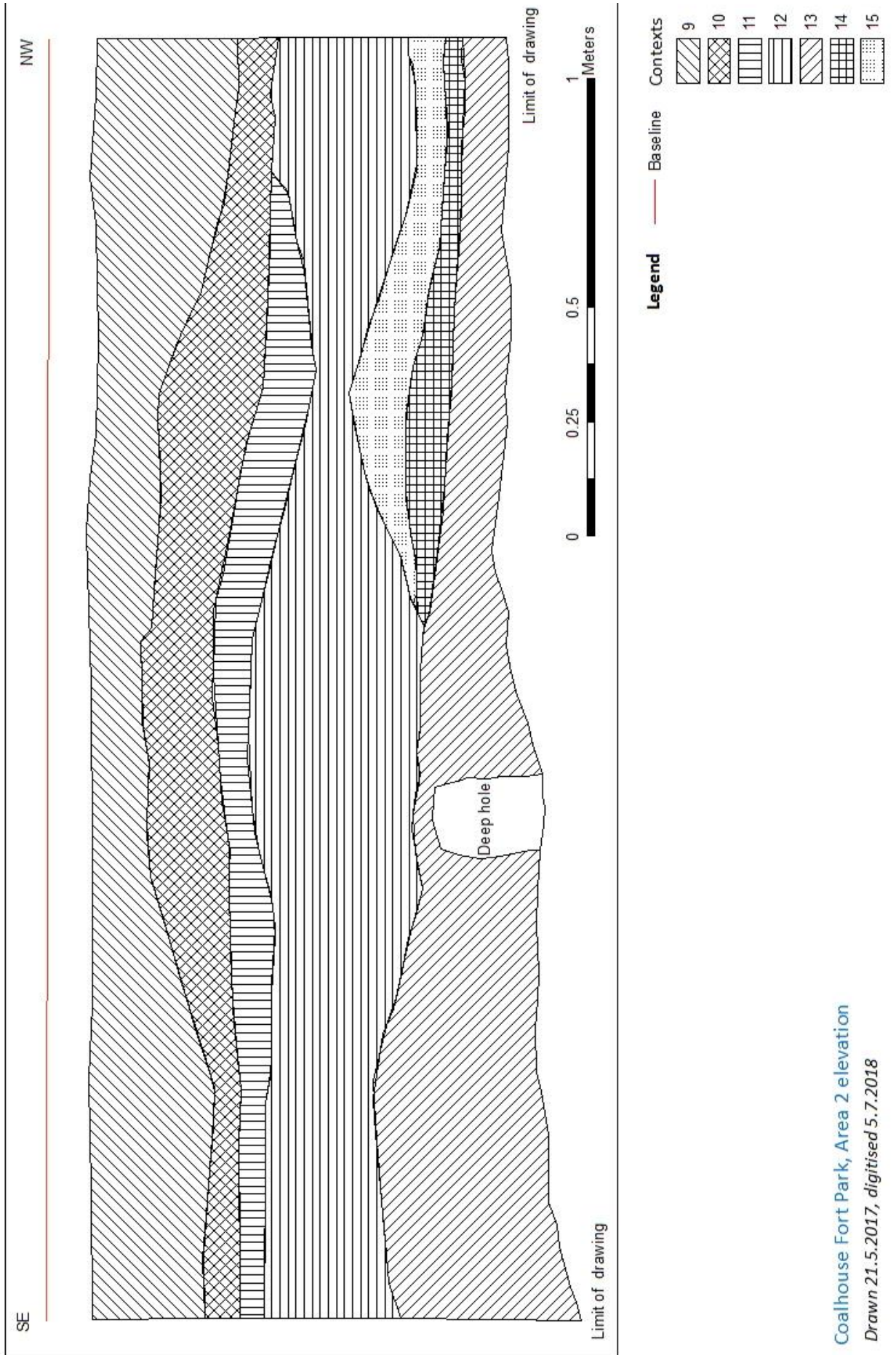


Figure 15 Area 3: made ground (drawing)

Coalhouse Fort Park, Area 2 elevation
 Drawn 21.5.2017, digitised 5.7.2018



Figure 16 Area 4 in May 2015 (left) and February 2017 (right)



Figure 17 The layer extending westwards from the brick feature, possibly a bed of mortar, February 2017



Figure 18 Lines of brushwood on the foreshore in May 2015 (left) and June 2016 (right).

9 Appendix 1



Coalhouse Fort battery and artillery defences

List Entry Summary

This monument is scheduled under the Ancient Monuments and Archaeological Areas Act 1979 as amended as it appears to the Secretary of State to be of national importance. This entry is a copy, the original is held by the Department for Culture, Media and Sport.

Name: Coalhouse Fort battery and artillery defences

List entry Number: 1013943

Location

The monument may lie within the boundary of more than one authority.

County:

District: Thurrock

District Type: Unitary Authority

Parish:

National Park: Not applicable to this List entry.

Grade: Not applicable to this List entry.

Date first scheduled: 09-Aug-1962

Legacy System Information

The contents of this record have been generated from a legacy data system.

Legacy System: RSM

UID: 12707

Asset Groupings

This list entry does not comprise part of an Asset Grouping. Asset Groupings are not part of the official record but are added later for information.

List entry Description

Summary of Monument

Legacy Record - This information may be included in the List Entry Details.

Reasons for Designation

Coalhouse Fort is a remarkably well preserved late 19th century fort built on the recommendation of the Royal Commission on the Defence of the UK in 1860. It is one of the finest examples of an armoured casemate fort in England and is well documented historically. The jetty and railway line are an integral part of the fort. The Henrician blockhouse is well documented historically and has high archaeological potential due to waterlogging. Such a site adds to the knowledge of the coastal fortifications made by Henry VIII. The Quick-Firer battery, built in 1893, is the sole surviving purpose-built battery of its type in the Thames basin. The rifle range is an unusual survival which adds to the known range of earthwork monuments and is closely associated with the fort. Virtually intact World War II radar installations of the type at East Tilbury are known at only two other places in England, making this an extremely rare survivor of a once widespread system. The group of structures demonstrate the former strategic importance of Coalhouse Point and demonstrate the changing approaches

to defence over 400 years. Furthermore the sites formed elements of wider defence systems designed to protect the Thames Estuary and especially London.

History

Legacy Record - This information may be included in the List Entry Details.

Details

The monument comprises the Victorian Coalhouse Fort at East Tilbury, with its associated railway link and jetty and its rifle range, as well as the foundations of an Henrician 'blockhouse' coastal battery, a late 19th century 'Quick-Firer' battery and a low-level radar tower dating from World War II. The earliest of this remarkable sequence of Thameside defences is the blockhouse, the construction of which was ordered by Henry VIII in 1539/40. It was built of stone and timber robbed from St Margaret's Chantry nearby. Nothing is visible of the structure itself but the landward ditch survives as a creek, and timber palisading running along the shore in the area may belong to this phase. Beside the blockhouse a jetty was built, perhaps initially to support the blockhouse but later to land coal. After several phases of rebuilding, the jetty served Coalhouse Fort, to which it was joined by a full-gauge railway line which survives almost intact but for the tracks themselves. The first phase of the fort, begun in 1799, was replaced in 1847-55 by a more complex structure which was in turn superseded by the present buildings between 1861-74. This latest fort was added to in the First and Second World Wars and only went out of military use in 1949. Near the waterfront a little distance from the fort are a 19th century battery for Quick-Firer guns and searchlights, a rifle range and a World War II low-level radar tower. The structures form a remarkable group of defensive sites at the strategically important Coalhouse Point.

MAP EXTRACT The site of the monument is shown on the attached map extract.

Selected Sources

Books and journals

Raymond, W, 'Essex Archaeology and History' in *The Med Hospitals At E And W Tilbury And Henry VIII's Forts*, , Vol. 19, (1988), 19

Saunders, Mr A D, 'Antiquaries Journal' in *Tilbury Fort and the Development*

of Artillery Fortification..., (1960), 152-74

Saunders, Mr A D, 'Antiquaries Journal' in Tilbury Fort and the Development of Artillery Fortification..., (1960)

Smith, VT C, 'Coalhouse Fort Project' in Coalhouse Fort and the Artillery Defences at East Tilbury, (1985)

Smith, VT C, 'Coalhouse Fort Project' in Coalhouse Fort and the Artillery Defences at East Tilbury, (1985), 152-74

Smith, VT C, 'Coalhouse Fort Project' in Coalhouse Fort and the Artillery Defences at East Tilbury, (1985), 152-74

Wilson, J D, 'Journal of the Society for Army Historical Research' in Later 19th Century Defences of the Thames, , Vol. 12, (1963)

Other

Catton, J, Coalhouse Fort Project, Unpublished excavations

Essex Record Office D/Q 18/P2, 1735, (1735)

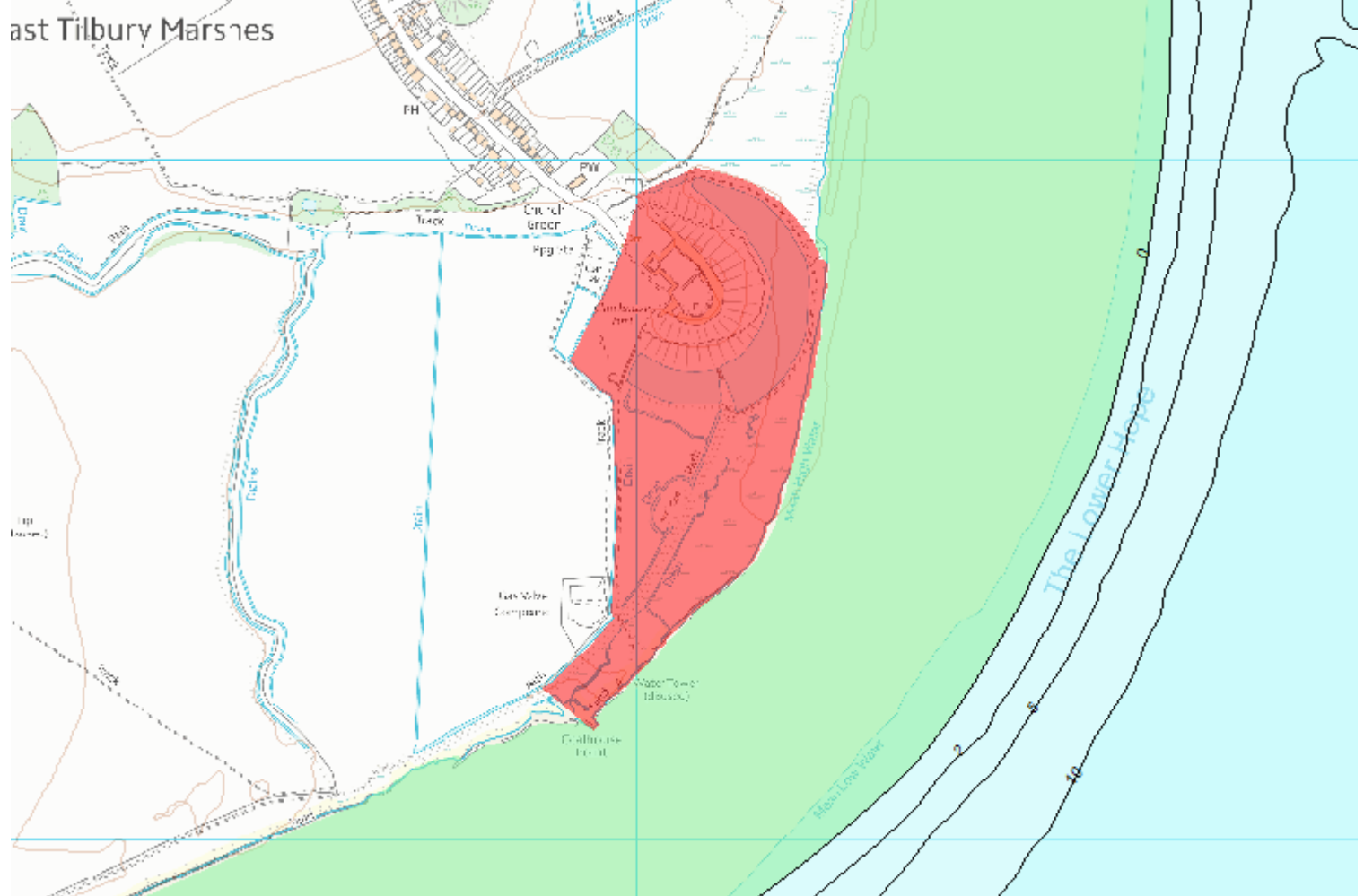
Smith, V T C and Catton, J, Recommendations for Scheduling of Several Military Structures, 1984, Unpublished report

Supplied by J Catton, Thurrock D.C., Catton, J,

Title: 1596 Source Date: 1596 Author: Publisher: Surveyor: Reported by J Catton, source unknown

National Grid Reference: TQ 69069 76653

Map



© Crown Copyright and database right 2018. All rights reserved. Ordnance Survey Licence number 100024900.
© British Crown and SeaZone Solutions Limited 2018. All rights reserved. Licence number 102006.006.
Use of this data is subject to [Terms and Conditions \(https://historicengland.org.uk/terms/website-terms-conditions/\)](https://historicengland.org.uk/terms/website-terms-conditions/).

The above map is for quick reference purposes only and may not be to scale. For a copy of the full scale map, please see the attached PDF - [1013943.pdf](#) (http://mapservices.HistoricEngland.org.uk/printwebservicehle/StatutoryPrint.svc/23690/HLE_A4L_NoGrade|HLE_A3L_NoGrade.pdf).

The PDF will be generated from our live systems and may take a few minutes to download depending on how busy our servers are. We apologise for this delay.

This copy shows the entry on 02-Aug-2018 at 06:53:34.

End of official listing

10 OASIS form

OASIS DATA COLLECTION FORM: England

[List of Projects](#) | [Manage Projects](#) | [Search Projects](#) | [New project](#) | [Change your details](#) | [HER coverage](#) | [Change country](#) | [Log out](#)

Printable version

OASIS ID: molas1-325825

Project details

| | |
|--|--|
| Project name | Foreshore survey at Coalhouse Fort Park, Thurrock |
| Short description of the project | A survey of features on foreshore at Coalhouse Fort Park, Thurrock including areas of brick work and made ground probably dating to the 19th century and associated with the former coal wharf. There are two separate areas of brickwork. The westernmost line of bricks may be associated with the early phase of the coal wharf noted on historic maps from 1777. The other brickwork is likely to be associated with a coal wharf building in place by 1838 and may be at least in part constructed of reused bricks from the earlier building. It seems likely that there were at least two episodes of levelling /raising ground: one prior to constructing the later coal wharf buildings in the early 19th century and one following their demolition in the later 19th century, possibly in conjunction with the building of the tramway to the fort at some point between 1872 and 1890. |
| Project dates | Start: 20-05-2017 End: 21-05-2017 |
| Previous/future work | Yes / No |
| Any associated project reference codes | 1013943 - SM No. |
| Type of project | Recording project |
| Site status | Scheduled Monument (SM) |
| Site status | Site of Special Scientific Importance (SSSI) |
| Current Land use | Community Service 2 - Leisure and recreational buildings |
| Current Land use | Other 14 - Recreational usage |
| Monument type | COASTAL BATTERY Post Medieval |
| Monument type | FORT Post Medieval |

Project location

| | |
|------------------|--|
| Country | England |
| Site location | ESSEX THURROCK EAST TILBURY Coalhouse Fort Park |
| Postcode | RM18 8QD |
| Study area | 100 Square metres |
| Site coordinates | TQ 68968 76239 51.459341583602 0.432486765732 51 27 33 N 000 25 56 E Point |

Project creators

| | |
|--------------------------|---------|
| Name of Organisation | CITIZAN |
| Project brief originator | CITIZAN |

| | |
|------------------------------|--------------------------|
| Project design originator | CITiZAN |
| Project director/manager | Lara Band |
| Project supervisor | Lara Band |
| Type of sponsor/funding body | Heritage Lottery Funding |

Project archives

| | |
|---------------------------|--------------------|
| Physical Archive Exists? | No |
| Digital Archive recipient | ADS |
| Digital Contents | "other" |
| Digital Media available | "GIS","Text" |
| Paper Archive recipient | To be designated |
| Paper Contents | "other" |
| Paper Media available | "Drawing","Report" |

Project bibliography 1

| | |
|-------------------------------|--|
| Publication type | Grey literature (unpublished document/manuscript) |
| Title | Foreshore survey at Coalhouse Fort Park |
| Author(s)/Editor(s) | Band, L. |
| Date | 2018 |
| Issuer or publisher | CITiZAN |
| Place of issue or publication | London |
| Description | A report in pdf form with text, photographs and drawings |
| Entered by | Lara Band (lband@hotmail.com) |
| Entered on | 14 August 2018 |

OASIS:

Please e-mail Historic England for OASIS help and advice

© ADS 1996-2012 Created by [Jo Gilham and Jen Mitcham](#), email Last modified Wednesday 9 May 2012

Cite only: <http://www.oasis.ac.uk/form/print.cfm> for this page

[Cookies](#) [Privacy Policy](#)