Assessment of an Archaeological Strip,
Map and Sample exercise at Enderby Wharf,
Christchurch Way, Royal
Borough of Greenwich





END 13

March 2016

PRE-CONSTRUCT ARCHAEOLOGY

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	Name & Title	Signature	Date
Text Prepared by:	J. Taylor		10/03/2016
Text Checked:	F.M.Meddens		10/03/2016
Graphics	M. Roughly		10/03/2016
Prepared by:			
Graphics	J.Brown		10/03/2016
Checked by:			
Project Manager	F.M. Meddens		10/03/2016
Sign-off:			

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1	18/3/2016	F.M.Meddens	V

Pre-Construct Archaeology Ltd Unit 54 Brockley Cross Business Centre 96 Endwell Road London SE4 2PD

Assessment of an Archaeological Strip, Map and Sample exercise at Enderby Wharf, Christchurch Way, Royal Borough of Greenwich

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Written and Researched by: Joanna Taylor

Pre-Construct Archaeology Ltd

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Project Manager: Chris Mayo

Post-Excavation Manager: Frank Meddens

Commissioning Client: CgMs Consulting

Contractor: Pre-Construct Archaeology Ltd,

Unit 54 Brockley Cross Business Centre

96 Endwell Road

London

SE4 2PD

Tel: 020 7732 3925

Fax: 020 7732 7896

Email: fmeddens@pre-construct.com

Website: www.pre-construct.com

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CONTENTS

1	Abstract		4
2	Introduction		5
3	Plann	Planning Background	
4	Geolo	Geology and Topography	
5	Archa	eological and Historical Background	13
6	Archa	eological Methodology	17
7	Archa	Archaeological Sequence	
8	Resea	arch Objectives	27
9	Conte	ents of the Archive	33
10	Impor	tance of Results, Further Work and Publication Outline	34
11	Ackno	owledgements	36
12	Bibliography		37
App	endices	3	
Арре	endix 1	Context Index	38
Appe	endix 2	Test Pit Register	39
Appe	endix 3	Pottery	40
Appe	endix 4	Clay Tobacco Pipe	44
Appe	endix 5	OASIS Form	45
Figu	ires		
Figu	re 1	Site Location	7
Figu	re 2	Trench Location	8
Figu	re 3a	Phase 3 (north)	24
Figu	re 3b	Phase 3 (south)	25
Figu	re 4	Section 102	26
Figu	re 5	1762 Kings Land adjoining magazine	29
Figu	re 6	1840 Tithe Map	30
Figu	re 7	1896 Ordnance Survey	31

Enderby Wharf, Christchurch Way, Royal Borough of Greenwich
Archaeological Assessment Report

Figure 8	1916 Ordnance Survey	32
Plates		
Plate 1	View of Enderby House at the time of the investigations	
	(looking south).	21
Plate 2	General view of Archaeological Strip, Map and Record	
	area (looking northeast).	21
Plate 3	View of Trench 2 (looking west).	22
Plate 4	View of the western site boundary, the Thames and	
	Canary Wharf (looking northeast).	22
Plate 5	Mechanical excavation of test pits (Test Pit 3; facing north).	23
Plate 6	Archaeological deposits seen within the test pits	
	(Test Pit 5; looking east).	23

March 2016 Report No. R12400

1 ABSTRACT

- 1.1 This document details the results and working methods of an Archaeological Strip, Map and Sample exercise conducted at Enderby Wharf, Christchurch Way, Royal Borough of Greenwich (Figs. 1 & 2; CgMs 2014). The archaeological work also monitored the excavation of eight test pits excavated in the northern part of the site, close to its western site boundary. The archaeological work was conducted between September 2014 and February 2015. The site is centred at National Grid Reference TQ 3925 7873.
- 1.2 The Archaeological Strip, Map and Sample exercise found that the earliest deposits on site comprised peat and alluvium layers of probable prehistoric date. The alluvium was encountered at 0.96m OD and colour variations to the deposit are considered a consequence of varying soil oxidation levels across the site. Finds and features of prehistoric date were not found in association with these deposits and land occupied by the site does not seem to have experienced significant exploitation during the prehistoric periods.
- 1.3 Evidence was found to indicate that the alluvium was overlain by re-deposited silty clay layers. The layers are undated, however it is probable that they formed during an extended period of time following the prehistoric periods and pre-dating the use of the site during the post-medieval period.
- 1.4 Part of the Archaeological Strip, Map and Sample exercise was concentrated above a historically documented 17th century gunpowder magazine. An archaeological evaluation of the site had previously encountered elements of the outer and inner walls of the powder magazine, whilst the Archaeological Strip, Map and Sample exercise encountered part of a brick structure located within the inner part of the magazine. The foundations of further post-medieval brick walls, a brick culvert and a number of timber posts were also uncovered during the Archaeological Strip, Map and Sample exercise.
- 1.5 This report outlines the results of the Archaeological Strip Map and Recording exercise, and assesses the importance of the Enderby Wharf archaeological site investigations. Recommendations for further analysis are made, along with proposals for the publication of the results.

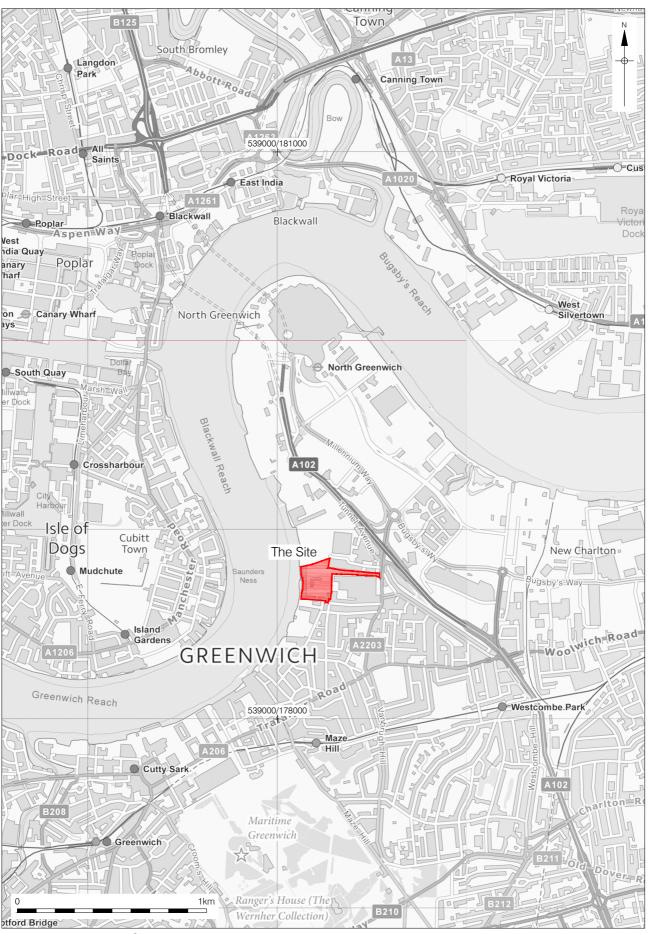
2 INTRODUCTION

- 2.1 This document details the results and working methods of an Archaeological Strip, Map and Sample work conducted at Enderby Wharf, Christchurch Way, Royal Borough of Greenwich (Figs. 1 & 2). The archaeological work was undertaken by Pre-Construct Archaeology Ltd and was commissioned by CgMs Consulting. The archaeological work was undertaken as part of planning application 10/3063/F.
- 2.2 The site is one of a number of historic Thames wharfs located on the Greenwich peninsula. The site is bound by Christchurch Way to the east, the River Thames to the west, and existing property boundaries to the north and south (CgMs 2013; ASE/CgMs 2013). The site is located within the Royal Borough of Greenwich.
- 2.3 An archaeological desk-based assessment was conducted for the site in 2013 (CgMs 2013) and found that:
 - '6.2 The site is thought to have a low archaeological potential for the Palaeolithic and Mesolithic periods.
 - 6.3 The archaeological potential of the study site for the Neolithic and Bronze Age is moderate. A peat unit of early Neolithic to late Bronze Age date is present on the centre and east of the site.
 - 6.4 The study site has a low archaeological potential for the Iron Age, Roman, Anglo Saxon and early Medieval and late Medieval periods.
 - 6.5 The study site was the location of a gunpowder magazine from 1694 to 1771 when it was comprehensively demolished.
 - 6.6 From before 1799 the study site was the location of a Rope Factory and from 1857 a wire rope factory which produced submarine cables. The first transatlantic cable was manufactured on the site' (CgMs 2013).

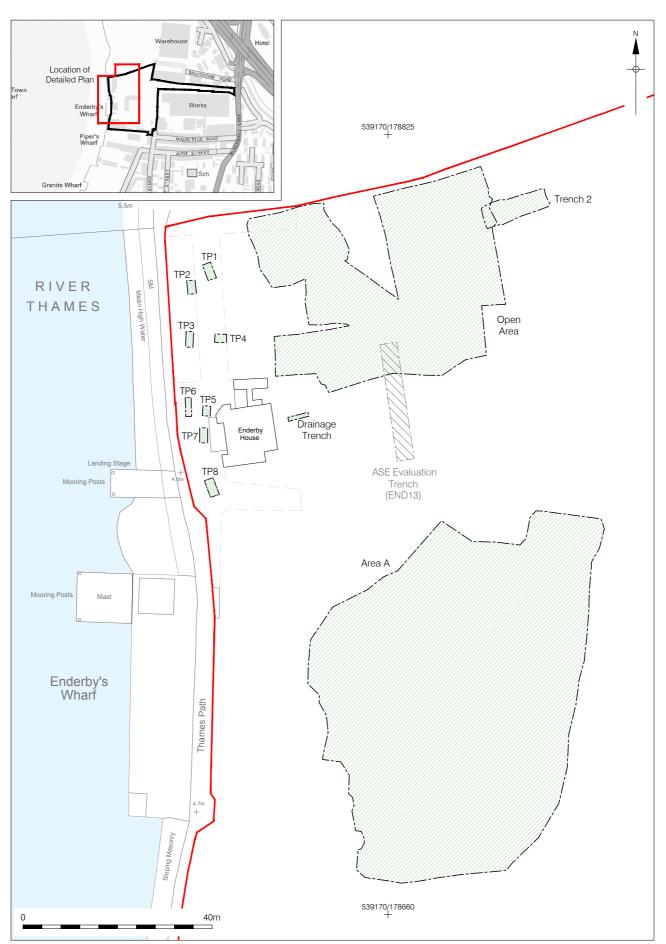
And concluded:

'6.8 Past archaeological impacts are thought to have been severe and widespread as a result of cumulative phases of redevelopment. The demolition of the Magazine, Rope Factory buildings, and submarine cable factory buildings to at least ground level, and probably to foundation level will have had a severe impact on the industrial archaeology of the site' (CgMs 2013).

- 2.4 Historic building recording (OASIS ID: archaeol6-162210; ASE/CgMs 2013) was undertaken on Enderby House in 2013, whilst an archaeological evaluation (OASIS ID archaeol6-168417; Hogg 2014) was conducted between 7th and 9th January 2014. The archaeological evaluation comprised a single trench measuring 25m in length and 3.6m in width and found that:
 - '... alluvial clay was identified between 0.79m and 0.89m AOD, it was cut by a brick foundation and a robbed wall relating to a 17th and 18th century gunpowder magazine, locating which had been the main purpose of the evaluation. The bricks recovered from both of these features are consistent with a late 17th century date, the magazine being constructed in 1694. The magazine was overlain by Victorian structural remains probably related to cable manufacturing which took place on site in the late 19th century' (Hogg 2014).
- 2.5 The subsequent archaeological 'Strip, Map and Sample' exercise was conducted between September 2014 and February 2015. The results of the archaeological 'Strip, Map and Sample' work are detailed in this assessment, with incorporation of the findings of the archaeological evaluation (Hogg 2014) also undertaken.
- 2.6 The Archaeological Strip, Map and Sample assignment was project managed by Chris Mayo and supervised by Alistair Douglas, Alexis Haslam, Richard Humphrey and Guy Seddon. The post-excavation work was project managed by Frank Meddens and undertaken by Joanna Taylor. The archaeological work was commissioned by CgMs Consulting and monitored by Mark Stevenson of the Greater London Archaeological Advisory Service (GLAAS).
- 2.7 The completed archive comprising written, drawn and photographic records, and artefactual material will be deposited under the site code END13.



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Figure 2
Detailed Site Plan showing the Location of Archaeological
Interventions and Monitored Areas
Inset: 1:12,500, Detail: 1:800 at A4

3 PLANNING BACKGROUND

3.1 National Planning Policy Framework (NPPF)

- 3.1.1 The National Planning Policy Framework (NPPF) was adopted on 27 March 2012, and now supersedes the Planning Policy Statements (PPSs). The NPPF constitutes guidance for local planning authorities and decision-takers both in drawing up plans and as a material consideration in determining applications.
- 3.1.2 Chapter 12 of the NPPF concerns the conservation and enhancement of the historic environment, with the following statements being particularly relevant to the proposed development:
 - 128. In determining applications, local planning authorities should require an applicant to describe the significance of any heritage assets affected, including any contribution made by their setting. The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance. As a minimum the relevant historic environment record should have been consulted and the heritage assets assessed using appropriate expertise where necessary. Where a site on which development is proposed includes or has the potential to include heritage assets with archaeological interest, local planning authorities should require developers to submit an appropriate desk-based assessment and, where necessary, a field evaluation.
 - 129. Local planning authorities should identify and assess the particular significance of any heritage asset that may be affected by a proposal (including by development affecting the setting of a heritage asset) taking account of the available evidence and any necessary expertise. They should take this assessment into account when considering the impact of a proposal on a heritage asset, to avoid or minimise conflict between the heritage asset's conservation and any aspect of the proposal.

3.1.3 Additionally:

141. Local planning authorities should make information about the significance of the historic environment gathered as part of plan-making or development management publicly accessible. They should also require developers to record and advance understanding of the significance of any heritage assets to be lost (wholly or in part) in a manner proportionate to their importance and the impact, and to make this evidence (and any archive generated) publicly accessible. However, the ability to record evidence of our past should not be a factor in deciding whether such loss should be

March 2016

Report No. R12400

permitted.

3.1.4 In considering any planning application for development, the local planning authority will now be guided by the policy framework set by the NPPF.

3.1.5 The NPPF also states:

- 214. For 12 months from the day of publication, decision-takers may continue to give full weight to relevant policies adopted since 2004 even if there is a limited degree of conflict with this Framework.
- 215. In other cases and following this 12-month period, due weight should be given to relevant policies in existing plans according to their degree of consistency with this framework (the closer the policies in the plan to the policies in the Framework, the greater the weight that may be given).

3.2 Local Policy: Archaeology in the Royal Borough of Greenwich

3.2.1 The study aims to satisfy the objectives of the Royal Borough of Greenwich, which fully recognises the importance of the heritage for which they are the custodians. The Royal Borough of Greenwich 'Unitary Development Plan contains policy statements in respect of the borough's heritage. The relevant sections can be found fully referenced in the Desk Based Assessment previously compiled for the site (see CgMs 2013).

3.3 Historic Environment Considerations

- 3.3.1 The site is located within an Archaeological Priority Zone as defined by the Royal Borough of Greenwich (see CgMs 2013). There are no World Heritage Sites, Scheduled Ancient Monuments, Historic Battlefields or Historic Wreck designations located within the study site or within its immediate vicinity (CgMs 2013).
- 3.3.2 Enderby House is located in the central-west of the site and is classed as a listed building (Plate 1). Listed Building Consent (10/3064/L) was granted on the 30th March 2012 (see CgMs 2013) and historic building recording was undertaken in 2013 (ASE/CgMs 2013). The List Entry Description (List Entry Number: 1079026) details Enderby House as:

Early-mid C19 building of 2 storeys 2 windows and with wide projecting bay placed diagonally across left corner, Modern rendering with incised lines. Stone cornice and blocking course. Sash windows, some with vertical bars. Nondescript external appearance but contains a handsome octagonal first floor room (giving onto the diagonal bay, from whence the ship owner saw his vessels approach). At angles narrow columns, with leafy capitals, support enriched entablature. Above this a domed

roof light with cast iron tracery. Oval landing outside has doors curved to wall shape. Enderby House belonged to the firm of Samuel Enderby, the largest whalers and sealers in Britain, and pioneers of Antarctic exploration. Hermann Melville describes their flagship and crew in "Moby Dick". After the decline of British whaling the Submarine Cable Company berthed the "Great Eastern" at this spot. Listed partly for historical reasons.

3.4 Planning Permission

- 3.4.1 Outline planning permission was granted for the redevelopment of the site in 2012 (Planning Application Number 10/3063/F). The proposal 'was granted for a mixed use scheme comprising the provision of a new Thames jetty, a hotel, and various commercial and residential units involving the conversion and extension of Enderby House' (Hogg 2014).
- 3.4.2 The planning permission was granted subject to a number of archaeological conditions being met (Condition 25). These were:

"No demolition shall take place within the site until the applicant has secured the implementation of a programme of archaeological work in accordance with a written scheme of investigation which has been submitted to and approved in writing by the Local Planning Authority.

REASON: The site lies within an area where archaeological remains have been identified and any archaeological remains there is should be retrieved or recorded before they are damaged or destroyed due to the development and ensure compliance with Policies D30 and D31 of the Unitary Development Plan 2006."

- 3.4.3 The archaeological work previously undertaken in relation to the planning condition has included:
 - Desk-Based Assessment (CgMs 2013)
 - Historic Building Recording (ASE/CgMs 2013)
 - Written Scheme of Investigation Evaluation (ASE 2013)
 - Archaeological Evaluation (Hogg 2014)
 - Written Scheme of Investigation 'Strip, Map and Sample' (CgMs 2014)

4 GEOLOGY AND TOPOGRAPHY

4.1 Geology

- 4.1.1 A geotechnical investigation has previously been undertaken on the site and demonstrated that the underlying geology comprises London Clay, capped by floodplain gravel. This is sealed by a sequence of alluvial clays measuring up to 5m in thickness. Peat deposits were also recorded and probably date to the early Neolithic to late Bronze Age (see Section 5, Archaeological & Historical Background; CgMs 2013 Appendix 2).
- 4.1.2 Alluvial clay was recorded during the archaeological evaluation (Hogg 2014) and comprised a bluish grey alluvial clay [1/005] present at between 0.79m OD and 0.89m OD.
- 4.1.3 The Archaeological Strip, Map and Sample exercise found that the earliest deposits encountered comprised prehistoric peat and alluvium layers (Phase 1; Appendices 1 & 2). The alluvium was encountered at 0.96m OD and colour variations to the deposit are considered a consequence of varying soil oxidation levels across the site.

4.2 Topography

- 4.2.1 The site is located on the south bank of the Thames, on the west side of the north-south aligned Greenwich Peninsula. Ground level on the site is at c.2.6m OD (CgMs 2013) whilst the raised bank of the Thames Path located along the western boundary of the site arises at c.4.5m OD (ASE/CgMs 2013).
- 4.2.2 The archaeological evaluation of the site found that the upper deposits comprised of made ground deposits, overlain by a 0.20m thick concrete slab and a 0.05m thick tarmac surface (Hogg 2014).
- 4.2.3 The Archaeological Strip, Map and Sample work found that the upper part of the archaeological sequence present on site comprised a firm, blackish brown, made ground layer (Phase 4; Appendices 1 & 2) encountered at 2.47m OD.

5 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

5.1 Introduction

5.1.1 The following text has largely been extracted from the Archaeological Desk Based Assessment previously compiled for the site (CgMs 2013). Where other reports and publications are cited, individual references are provided within the text.

5.2 Prehistoric

- 5.2.1 Geotechnical work previously conducted on the site (CgMs 2013 Appendix 2) demonstrated that a peat horizon overlay the earlier alluvial deposits in the area (see Section 4, Geology & Topography). The peat horizon measured between 0.8m and 1.9m in thickness, and was found between 2.5m and 4.2m below ground level. The peat is thought to be early Neolithic to late Bronze Age in date (CgMs 2013).
- 5.2.2 The site-specific desk based assessment undertaken for the site (CgMs 2013) found that a number of Neolithic and Bronze Age finds have been recorded within a 500m radius of the site. These include a Neolithic flint axe (HER Ref: MLO 26756; TQ 3880 7820), a polished axe (HER Ref: MLO 26723; TQ 3882 7830) and a 'flint sickle' (HER Ref: MLO 26751; TQ 3872 7825) as well as a Bronze Age spearhead ferrule (HER Ref: MLO26752; TQ 3879 7835). It was also established that archaeological investigations undertaken to the south of the site at Bellot Street had uncovered a Bronze Age trackway (HER Ref: ELO 7328, TQ 39352 78394; HER Ref: ELO 6383, TQ 39345 78447/HER Ref: MLO 98089; TQ 39345 78447) associated with a high resolution environmental sequence including proxy temperature data derived from insect records (pers. comm. F Meddens) and a probable Bronze Age flint assemblage (HER Ref: MLO 78020; TQ 3936 7840).

5.3 Late Iron Age, Roman, Saxon & medieval

- 5.3.1 The area is likely to have been occupied by tidal mud flats during the late Iron Age, early Roman, late Roman and Saxon periods, with the land possibly having been used as a marsh pasture for summer grazing during the middle part of the Roman period (CgMs 2013).
- 5.3.2 Some reclamation was undertaken in the area during the twelfth century and a marsh drain, known as the 'Bendish Sluice', is thought to have been located on the site (CgMs 2013). Despite the reclamation, the site was largely used as pasture during the medieval period (CgMs 2013.

5.4 Post-medieval (see Figs. 5, 6 & 7)

- 5.4.1 Land occupied by the site was purchased from Francis Peyton by the Crown in October 1694 for the construction of a gunpowder magazine alongside the 'Bendish Sluice' (see above). The gunpowder had previously been stored in the Tower of London, with obvious potential for disaster, with the Enderby Wharf site being chosen due to its relative isolation and easy river access (ASE/CgMs 2013).
- 5.4.2 A 1730s engraving suggests that the gunpowder magazine was built as a large, square brick structure arranged around a central quadrangle, with ten doors and fifty windows (Jenkins 1998; ASE/CgMs 2013). The main building was flanked by a smaller 'proof house' where the gunpowder was tested and an office building, with a guard house located nearby. The complex was served by a pair of jetties, with the northern jetty extending into the Thames. The substantial gunpowder magazine is shown on plans from 1695, 1700, 1727, 1762, John Rocque's map of 1766 and Chapman and Andre's map of 1769 (CgMs 2013; ASE/CgMs 2013).
- 5.4.3 The archaeological evaluation conducted on site in 2014 (ASE 2014) was targeted on the 17th century gunpowder magazine and found that a late 17th century wall foundation (construction cut END[1/012], containing wall END[1/011]) and an east-west orientated robber trench (END[1/015]) survived. It was considered that both of these features likely related to the targeted powder magazine with END[1/012] representing the outer wall and END[1/015] the robbed out inner wall (Hogg 2014). Analysis of brick samples taken from the wall foundation and robber cut found that the brick type present was unfrogged with surface traces of lime mortar and a tarry substance adhearing. The bricks samples were identified as an early version of fabric 3032 typically seen in bricks produced in the second half of the 17th century (Pringle 2014).
- 5.4.4 Concerns regarding the concentration of explosives in a single place led to the closure of the gunpowder magazine in AD 1768, with the land sold to Henry Vansittart who demolished its buildings and jetties shortly afterwards (Mills 1997a; ASE/CgMs 2013). The minutes of the Surveyors General Office of 1771 -1773 reference the demolition of the powder-house. From these it is clear that demolition was comprehensive and that the building materials of the magazine were recovered for reuse (Jenkins 1998). The description suggest demolition to foundation level. The 2014 archaeological evaluation found evidence confirming that the gunpowder magazine had indeed been demolished to foundation level, with no surviving evidence of floor surfaces and with some isolated areas of foundation robbing (Hogg 2014).
- 5.4.5 The land was further occupied by a rope house, rope walk, houses and wharf in 1810 and at this time is listed as belonging to Millington and James Littlewood (Mills 2013). The rope works and associated land were purchased by the whaling company Samuel Enderby & Sons in 1819 and a sail works and hemp factory were added (Jenkins 1998; CgMs 2013). Parts of the

premises were also leased to other industries and in the early 1830s a rental was made to John Beale for the manufacture of steam engines, latterly the 'Common Road Steam Conveyance Company' a precursor of the modern motor-car (Mills 2013). In 1837 the Enderbys' became involved with William Cooke a pioneering inventor who used the site to develop insulated cable for setting up an electric telegraph across the Thames, possibly representing the earliest effective telegraph cable in the world (Mills 2013; ASE/CgMs 2013).

- 5.4.6 The rope works were destroyed by fire in 1845. Contemporary reports in the Kentish Mercury and the Illustrated London News give an account of the factory at this time, with it stated to have been consisting of 'two large waterside buildings used to manufacture canvas and spin hemp, a flax mill and a 'pitch house', together with a steam engine, boiler, stables, houses for the foremen, a smithy, a joinery shop and the Enderbys' residence' (ASE/CgMs 2013; Mills 2013). The buildings are shown on the 1840 Tithe Map (CgMs 2013), with Enderby House representing the only extant building from this part of the site's history (Plate 1).
- 5.4.7 The premises were sold in 1854 to the Glass and Elliot wire rope company, who shared it with the WT Henley Telegraph Works Company until the end of the decade (Hill & Jeal 2000; ASE/CgMs 2013). A detailed plan of the site from 1857 shows the replacement of the old rope walk with a wire factory and the construction of new wharfside facilities. Enderby Wharf was closely involved in testing and improving renewed attempts to lay a successful transatlantic cable and large underwater tanks were constructed to test the coiled cables and provide stable storage conditions prior to transportation.
- 5.4.8 By 1864, Glass Elliot merged with the Gutta Percha Company to form the Telegraph Construction and Maintenance Company (Telcon), which offered to make the new transatlantic cable at Greenwich (Hill & Jeal 2000). Enderby Wharf was visited by the Prince of Wales, the future King Edward VII, in May 1865. The visit was timed to coincide with seeing the last piece of the new cable being manufactured prior to being loaded for transportation on board Brunels's famous ship, the Great Eastern, which was docked alongside the site (Green 2004; ASE/CgMs 2013). The development of the factory is clear from early images of the site and has been traced in detail from 1893 (see ASE/CgMs 2013 Porthcurno Telegraph Museum). Enderby Wharf had been built by 1888, whilst the jetty to the north and a surviving concrete causeway were in place by 1896.
- 5.4.9 The 2014 archaeological evaluation (ASE 2014) found evidence of the late 19th century and early 20th century buildings known to have been present (CgMs 2013). The archaeological remains included concrete and yellow brick stepped foundations and a semi-circular structure of unknown function.

5.5 Modern (see Fig. 8)

- 5.5.1 Telson merged in 1935 with the submarine cable division of Siemens and became known as Submarine Cables Ltd. The company traded until 1971 and the last submarine cable was shipped from the site in 1975. Standard Telephones and Cables then occupied the site until 1991, Northern Telecom until 1994 and Alcatel until the closure for current redevelopment (Green 2004).
- 5.5.2 Archaeological planning conditions were attached to the planning permission granted for the redevelopment of the site. As a consequence, an archaeological desk based assessment was compiled in 2013 (CgMs 2013), historic building recording was undertaken in the same year (ASE/CgMs 2013) and an archaeological evaluation was conducted in 2014 (Hogg 2014). The historic building recording documented the causeway, Enderby House and twenty-seven associated buildings recorded in (ASE/CgMs 2013), whilst the evaluation comprised a single trench located above the southern footprint of the 17th century gunpowder magazine (Hogg 2014).

6 ARCHAEOLOGICAL METHODOLOGY

- The archaeological methodology employed on site was detailed in the site-specific 'Written Scheme of Investigation' (CgMs 2014). The relevant sections are reproduced below:
 - '5.3 The strip, map and sample will be undertaken in the area of the main basement: an area which overlies the location of the powder magazine building.
 - 5.4 In addition to the main strip and map exercise all deep excavations penetrating into the alluvial sequence will be monitored.
 - 5.5 The machine excavation will be undertaken using a 360° tracked excavator fitted with a 1.8m wide flat-bladed ditching bucket. The machine excavation will be excavated through undifferentiated topsoil and modern made ground in spits of no more than 0.25m until archaeological deposits are encountered or the top of the underlying natural sediments reached. Care will be taken that archaeological deposits are not damaged due to over machining. All machining will stop if significant archaeological deposits are encountered.
 - 5.6 Any exposed archaeological features/deposits will then be cleaned by hand and recorded in plan and section. Made ground will be removed in areas where cores are being drilled to allow the recovery of intact samples.
 - 5.7 All hand excavation will be carefully undertaken and will follow the stratigraphy of any encountered archaeological layers, features and/or deposits.
 - 5.12 All excavated archaeological features; layers and/or deposits will be planned, photographed and recorded utilising the assigned Museum of London site code. All excavated contexts; structures, features and deposits will be drawn on plastic film at a scale of 1:20. Additional plans at a scale of 1:10 will be made of specific features where appropriate, such as human inhumations or cremation burials. Sections of all excavated archaeological contexts will generally be drawn at a scale of 1:10, and where appropriate at a larger scale of 1:20. All site drawings will be digitised.
 - 5.15 A full digital photographic record will be made of all archaeological features. All photographs, except working shots, will include a board that will detail: the site code, date and context number, a scale and a north arrow.
 - 5.16 All archaeological remains will be recorded and levelled relative to Ordnance Datum by an archaeological surveyor, using DGPS (Differential Global Positioning System) technology. All archaeological features and deposits will be recorded using

the standard context record sheets... Soil colours are recorded using visual inspection and not by reference to the Munsell Colour chart.

5.17 An ongoing site matrix will be compiled during the fieldwork stage, which will be fully phased during the subsequent post excavation stage.'

- 6.2 The excavation of eight text pits located in the northwest of the site, adjacent to the site boundary, was also archaeologically monitored. The test pits measured between 2.90m and 4.00m in depth and were recorded under watching brief conditions (Appendix 2; Plates 4, 5 & 6).
- 6.3 The site, inclusive of the historic building recording (CgMs/ASE 2013) and archaeological evaluation (Hogg 2014), was given the site code END13.

7 THE ARCHAEOLOGICAL SEQUENCE

7.1 Introduction

7.1.1 The following description of the site stratigraphy details the main characteristics of each context and its position within the phased stratigraphic matrix. Ordnance Datum levels, physical dimensions and soil descriptions are referenced when relevant to an understanding of the archaeological sequence and, when not cited, are detailed in Appendix 1.

7.2 Phase 1: Prehistoric (Fig. 4)

- 7.2.1 The earliest deposit encountered on site comprised a firm, dark brown, peat [502] seen within an area of deeper machine excavation. The peat horizon measured 0.26m in thickness and is thought to have formed during the prehistoric period.
- 7.2.2 A firm, bluish grey clay [500]/[503]/[514] and a firm, light brown clay [501] sealed the peat horizon and were encountered across the site. The clay layers represent a naturally formed alluvium, with the variation in colour considered a consequence of soil oxidation. The alluvium and was encountered at 0.96m OD.
- 7.2.3 A deeper area of machine excavation also found that a secondary, firm dark brown peat horizon [504] was present in the area. The upper peat layer measured 0.60m in thickness and is thought to represent a second episode of peat formation during the prehistoric period.
- 7.2.4 Alluvium deposits were also seen in all eight test pits monitored in the northwest of the site (Appendix 2; Plate 6), with the horizon encountered between 2.00m and 3.50m below ground level (BGL).

7.3 Phase 2: Undated (Fig. 4)

- 7.3.1 A soft, dark brown black, clay silt layer [513] encountered at 1.16mOD overlay the alluvium in the north-east of the site. The layer was overlain by a re-deposited, firm, light brownish grey silty clay layer [512] encountered at 1.43m OD. The precise date of deposition is uncertain, however it is possible that the two layers may have formed during the extended period of time which followed the prehistoric periods (see above) and pre-date the use of the site during the post-medieval period (see below).
- 7.3.2 Re-deposited clay layers were also seen during the monitoring of test pits located in the northwest of the site (Appendix 2; Plate 6). The re-deposited clay layers measured between 0.70m and 2.00m in thickness, and were encountered between 1.00m and 2.30m BGL.

7.4 Phase 3: post-medieval (Figs. 3a, 3b & 4; Plate 2)

- 7.4.1 The archaeological Strip, Map and Sample exercise undertaken in the northern part of the site focussed on the historically documented 17th century gunpowder magazine (Fig. 5; see Section 5, Archaeological and historic background). The archaeological evaluation of the site (ASE 2014) had previously encountered an east-west orientated brick wall [1/011] and a parallel, east-west orientated robber cut [1/015], which represented elements of the outer and inner walls of the powder magazine. The Strip, Map and Sample work did not encounter continuations of these walls, however the brick foundations of a rectangular structure [516]/[517]/[518] located within the inner part of the magazine were present. The function of this structure remains unclear, however it is likely to have formed an integral part of the 17th century gunpowder magazine.
- 7.4.2 The earlier evaluation of the site had also encountered a number of brick walls [1/008], [1/009] and [1/010], and a brick chimney base [1/006] which related to the use of the site during the later post-medieval period (Figs. 6 & 7; see Section 5, Archaeological and historical background).
- 7.4.3 The foundations of additional post-medieval brick walls were encountered in the northern part of the site during the Strip, Map and Sample exercise. These comprised: two east-west orientated brick walls with north-south returns ([519] and [520]); an east-west orientated brick wall [521]; a north-south orientated brick wall [522]; and a northeast-southwest orientated brick wall [523]. Additional structural elements associated with the post-medieval development of the site were encountered further to the south and comprised: a dispersed group of timber posts [508]; and a north-south orientated brick culvert [506], contained within construction cut [509], which had been backfilled with a firm, dark brown, peat fill [505].
- 7.4.4 The remaining archaeological evidence comprised a firm, black dump layer [511] composed of tar, wood and stone. The layer was encountered at 1.71m OD in the northeast of the site and represents a working horizon associated with industrial activity in the area. Comparable layers were also seen within test pits located in the northwest of the site (Appendix 2; Plate 6).

7.5 Phase 4: Modern

- 7.5.1 The upper part of the archaeological sequence present on site comprised a firm, blackish brown, made ground layer [510]. This layer was encountered at 2.47m OD and was composed of cinder and silty clay (Plate 3).
- 7.5.2 Tarmac and reinforced concrete deposits were encountered within test pits monitored in the northwest of the site, with the latter measuring up to 0.40m in thickness (Appendix 2; Plates 4, 5 & 6).



Plate 1 – View of Enderby House at the time of the investigations (looking south)



Plate 2 – General view of Archaeological Strip, Map and Record area (looking northeast)



Plate 3 – View of northeast investigations (Trench 2; looking west)



Plate 4 – view of the western site boundary, the Thames and Canary Wharf (looking northeast)



Plate 5 – Mechanical excavation of test pits (Test Pit 3; facing north)

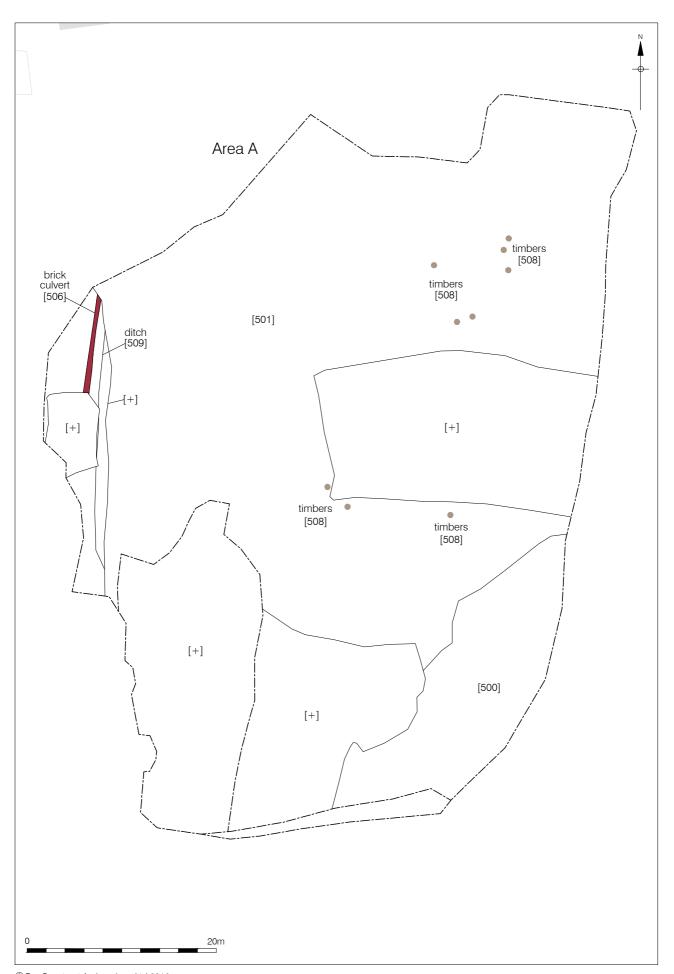


Plate 6 – archaeological deposits seen within the test pits (Test Pit 5; looking east)



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E

2.44m OD

[+] concrete

[510]

[511]

[512]

[513]

[514]

Section 102 North facing Trench 2

8 RESEARCH OBJECTIVES

8.1 Original research objectives

- 8.1.1 Original research objectives were defined in the site-specific Written Scheme of Investigation (CgMs 2014). The original research objectives will be considered in detail in the publication report of the site to follow on from this assessment. Initial consideration, where possible, is given in this report. The research objectives were defined as:
 - The foundations of the 17th century gunpowder magazine survive on the site (ASE 2014). What was the original nature, form and function of this building(s)? Did this building evolve over time? What was the date, form and function of the later re-builds?

The outer and inner walls of the 17th century gunpowder magazine were encountered during the initial evaluation of the site (ASE 2014), the location of which indicates that the general structure of the building conforms to that shown on 17th and 18th century cartographic sources. Whilst the Archaeological Strip, Map and Sample exercise did not encounter additional evidence of the outer and inner walls, a rectangular building of comparable alignment and located within the proposed footprint of the 17th century magazine is thought to be contemporary. The nature, form and function of the rectangular building and whether it may have been a rebuild to the original magazine is not immediately apparent, however it is possible that further work (see below) may clarify this.

• What were the later land-uses of the site?

The Archaeological Strip, Map and Sample exercise demonstrated the presence of post-medieval walls post-dating the 17th century gunpowder magazine. Although it is not yet apparent to which buildings these masonry elements apply, further consideration of the archaeological record alongside cartographic and documentary sources is likely to provide clarification. As a preliminary identification these structural elements may well form part of late Post-medieval the wire rope factory which produced submarine cables which was present on the site.

• Can the site identify the industries that especially represented London (the conurbation, different neighbourhoods or areas and the region as a whole), and, through the ability of the archaeological record to trace back to individuals, considering the role of those industries in developing the character of Londoners in different areas (MoL 2002, para 1)? How can the mitigation works contribute to the understanding of London's place as an industrial power (MoL 2002, para 2)?

The archaeological work conducted at Enderby Wharf has the potential to contribute to a wider consideration of the industrial area, with consideration of this expansive topic to be undertaken as part of the publication of the archaeological investigations (see below).

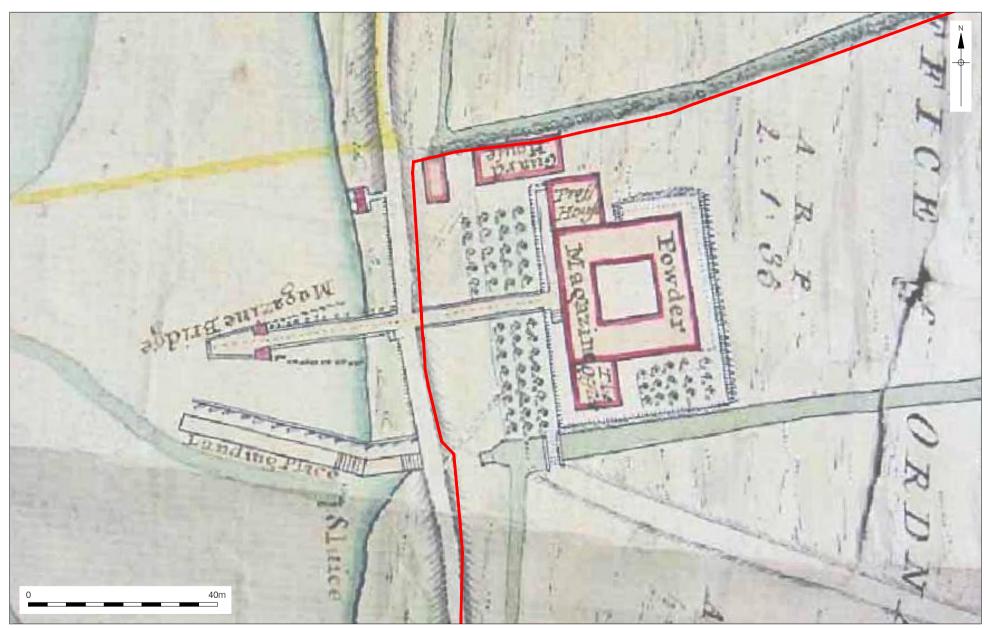
8.2 Additional Research Questions

- 8.2.1 The archaeological investigations have raised a number of additional research questions.

 These are:
 - Does the surving archaeological evidence inform on the veracity of the documentary records concerned with the use, abandonment and pulling down of the powder magazine.

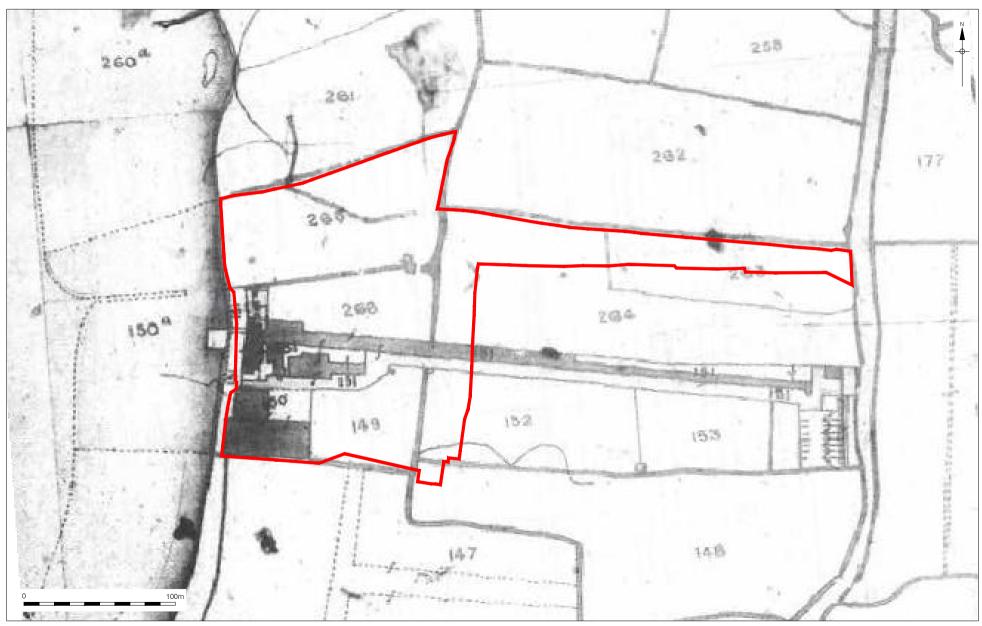
The records of the Surveyor General's office suggest comprehensive demolition of the gunpowder magazine between 1771 and 1773 with efforts being made to recover all the building materials used in its construction for re-use and sale (WO 47/77 & WO 47/81 - Jenkins 1998). The excavations confirmed the notions raised in the documentary source material with the structures not only having been demolished to below floor-level and into the foundations but indeed with in part the foundations having been grubbed out to recover their building materials for re-use elsewhere.

- Does the available evidence support a premise that the inner structure identified within the remains of the powder magazine is contemporary with it?
- Can the characteristics, and function of the rectangular structure located within the gunpowder magazine be further qualified?
- Do cartographic and documentary sources provide further clarification of the date and function of the post-medieval masonry encountered on site (Figs. 6, 7 & 8)?
- How can the group of post-medieval timbers be better understood?
- Can further consideration of the archaeological evidence 'identify the industries that especially represented London (the conurbation, different neighbourhoods or areas and the region as a whole), and, through the ability of the archaeological record to trace back to individuals, considering the role of those industries in developing the character of Londoners in different areas (MoL 2002, para 1)'?
- How can the mitigation works contribute to the understanding of London's place as an industrial power (MoL 2002, para 2)?

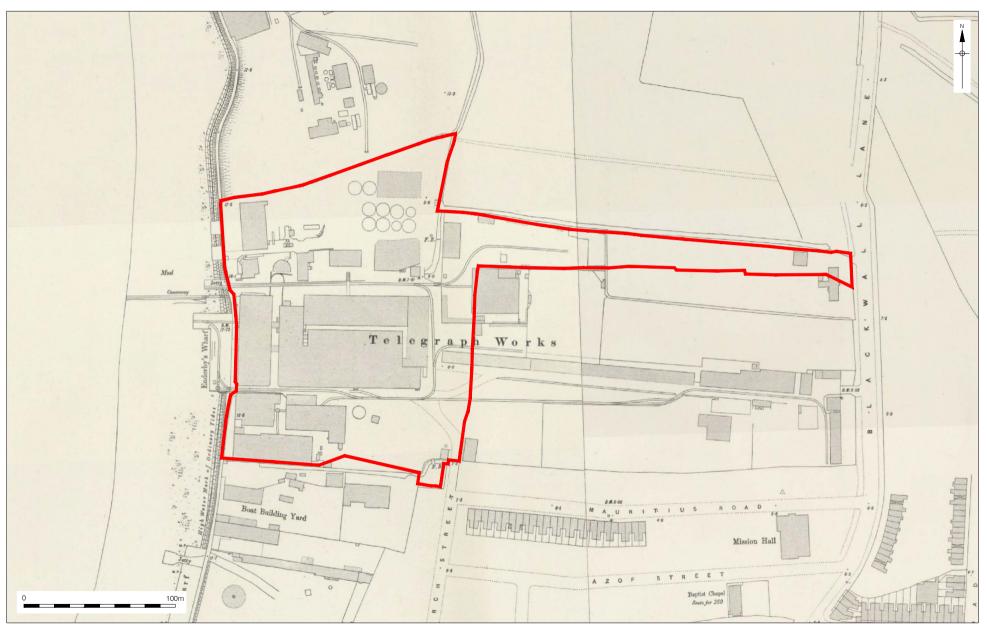


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Figure 5 Detail from the plan 'Kings Land adjoining Magazine', 1762 1:800 at A4

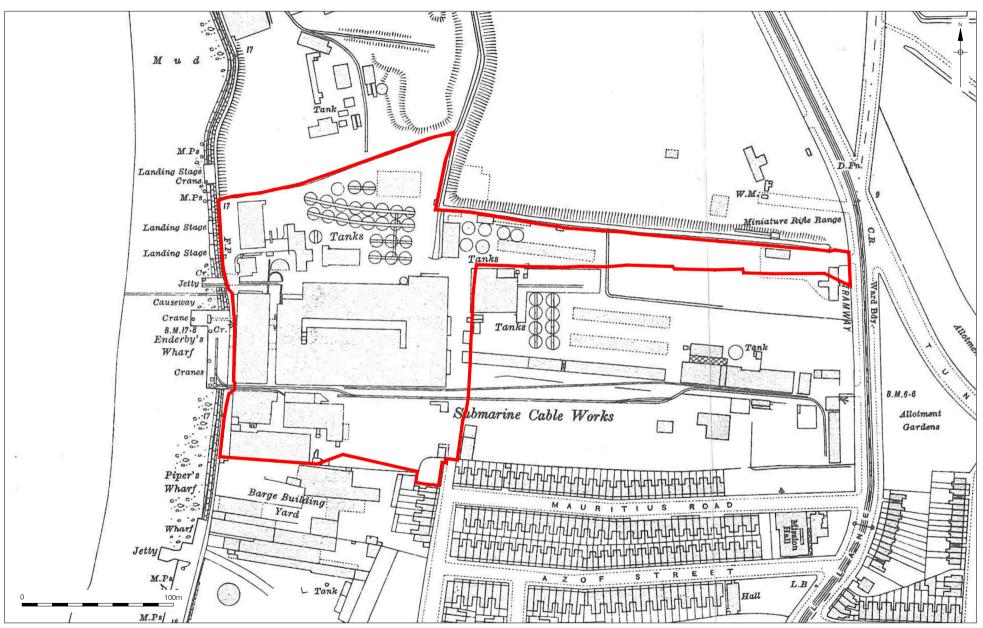


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Figure 7 Ordnance Survey map, 1896 1:2,500 at A4



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Figure 8 Ordnance Survey map, 1916 1:4,000 at A4

9 CONTENTS OF THE STRIP, MAP AND SAMPLE ARCHIVE

9.1 Paper Records

• Contexts 24 sheets

• Test Pit Records 8 Sheets

Plans & Sections7 sheets

9.2 Finds

Pottery1 bag

• CTP 1 bag

Building material
 1 bag

• Animal bone 1 bag

9.3 Photographic Record

• Digital 8 folders

10 IMPORTANCE OF THE RESULTS, FURTHER WORK AND PUBLICATION OUTLINE

10.1 Importance of the Results

- 10.1.1 The archaeological investigations at Enderby Wharf, Christchurch Way, Royal Borough of Greenwich demonstrated the presence of an archaeological sequence dating largely to the post-medieval period. The presence of structural elements relating to a 17th century gunpowder magazine are of particular significance.
- 10.1.2 The Archaeological Strip, Map and Sample exercise found that the earliest deposits comprised peat and alluvium layers of probable prehistoric date. Prehistoric finds and features were not found in association and it is apparent that land occupied by the site did not experience significant exploitation during the prehistoric periods.
- 10.1.3 Evidence was found to indicate that the prehistoric alluvium was overlain by re-deposited silty clay layers. Whilst undated, it is probable that the layers formed during an extended period of time following the prehistoric periods and pre-dating the development of the site during the post-medieval period.
- 10.1.4 Part of the Archaeological Strip, Map and Sample exercise was focussed on the historically documented 17th century gunpowder magazine. An archaeological evaluation of the site had previously encountered elements of the outer and inner walls of the powder magazine, whilst the Archaeological Strip, Map and Sample exercise encountered part of a brick structure located within the magazine. The foundations of post-medieval brick walls, a brick culvert and a number of timber posts were also encountered and relate to the complex use and development of the site during the post-medieval period.

10.2 Further work

- 10.2.1 Further work will focus on fully integrating the specialist data and stratigraphic record. Full incorporation and interpretation of available historical documents, images and cartographic sources with the archaeological record should be undertaken and any further research undertaken as appropriate. Understanding the archaeological sequence within the context of its vicinity should also be attempted.
- 10.2.1 The Environmental reports prepared by Quaternary Scientific (QUEST) on the site deal predominantly with earlier periods than those represented in the archaeological record. Nevertheless these reports need to be cross checked against the archaeological data and any relevant linkages included in the analysis and publication work.

10.3 Publication outline

- 10.3.1 The results of the archaeological investigations will be published in an appropriate journal such as the London Archaeologist or London Industrial Archaeology (GLIAS). The publication of the investigations will focus on the development of the site during the post-medieval period, with an emphasis placed on understanding the site within the wider archaeological and historic landscape of the area.
- 10.3.2 A proposed outline of the publication is detailed below:

Archaeological Investigations at Enderby Wharf, Christchurch Way, Royal Borough of Greenwich

- Introduction to the Project
- · Historical and Archaeological Background
- Archaeological Sequence
- Discussion (incorporative of specialist reports)
- Acknowledgements
- Bibliography
- 10.3.3 The text will be illustrated by AutoCAD plans, historic maps and photographs where appropriate.

11 ACKNOWLEDGMENTS

- 11.1 Pre-Construct Archaeology Limited would like to thank CgMs Consulting for funding the archaeological investigations and Mark Stevenson of the Greater London Archaeological Advisory Service (GLAAS) for monitoring and advising on the archaeological investigations.
- 11.2 The author would like to thank Chris Mayo for his project management and Alistair Douglas, Alexis Haslam, Richard Humphrey and Guy Seddon for supervising the site investigations. Further thanks are offered to the fieldwork team for their hard work on site.
- 11.3 Lastly, the author would like to offer her thanks to Frank Meddens for his post-excavation project management and Mark Roughly for compiling the assessment illustrations included in this report. Furthermore, thanks are also offered to Chris Jarrett, Kevin Hayward and Kevin Rielly for their respective reports.

ASE/CgMs 2013. An Historic Building Record – Land at Enderby Wharf, Christchurch Way, Greenwich, SE10 0AG. CgMs: Unpublished Report.

ASE 2013. Written Scheme of Investigation Archaeological Evaluation. Land at the Rear of Enderby House, Enderby Wharf, Royal Borough of Greenwich.

CgMs 2013. Archaeological Desk Based Assessment – Land at Enderby Wharf, Christchurch Way, Greenwich, SE10 0AG. CgMs: Unpublished Report.

CgMs 2014. Written Scheme of Investigation for an Archaeological Strip, Map and Sample – Land at Enderby Wharf, Christchurch Way, Greenwich, SE10 0AG. CgMs: Unpublished Report.

Green, H. 2013. 150 Years of Industry & Enterprise at Enderby's Wharf. In: History of the Atlantic Cable & Undersea Communications; http://www.atlantic-cable.com/Article/EnderbyAG/

Hill, S. & Jeal, L., 2000. Greenwich: Centre for Global Telecommunications Since 1850. London: Alcatel.

Hogg, I. 2014. Archaeological Evaluation Report Land at the Rear of Enderby House, Enderby's Wharf, Royal Borough of Greenwich. Archaeology South East: Unpublished report (ASE Report No. 2014019)

Jenkins, P. 1998. 'A Closing Date for the Greenwich Magazine'. In: Gunpowder mills Study Group, Newsletter 22, 4-5

Mills, M. 1997a. 'The Explosive Magazine at Greenwich'. In: Bygone Kent, Volume 18.12,731 – 737

Mills, M. 2013. Greenwich Peninsula History; http://greenwichpeninsulahistory.wordpress.com/

Pringle, S. 2014. 'The Ceramic Building Material'. In: I. Hogg, Archaeological Evaluation Report Land at the Rear of Enderby House, Enderby's Wharf, Royal Borough of Greenwich. Archaeology South East: Unpublished report (ASE Report No. 2014019)

Appendix 1 Context Index

Context	Plan	Section	Trench	Туре	Description	Details	Thickness (m)	High (m OD)	Provisional date	Phase
500	Survey	S100; S101	Area A; Open Area	Layer	Alluvium	Firm, dark blue grey, clay = [501]	-	-	Prehistoric	1
501	Survey	-	Area A	Layer	Alluvium	Firm, light mid brown, clay = [500]	-	-	Prehistoric	1
502	-	S102	-	Layer	Peat	Firm, dark brown, peat - see in section	0.26	-	Prehistoric	1
503	-	S102	-	Layer	Alluvium	Firm, mid blue grey, clay	1	-	Prehistoric	1
504	-	S102	-	Layer	Peat	Firm, dark brown, peat - see in section	0.6	-	Prehistoric	1
505	-	-	Area A	Fill	Fill of drain [509]	Firm, dark brown, peat	-	-	Post-medieval	3
506	Survey	-	Area A	Masonry	Brick drain	Brick culvert, E/W orientated - replacement of [507]	-	-	Post-medieval	3
507	void	void	void	void	void	void	void	void	void	void
508	Survey	-	Area A	Timber	Posts	Group of posts - function unknown	-	-	Post-medieval	3
509	Survey	-	Area A	Cut	Drain	Linear, N/S orientated - open drain	-	-	Post-medieval	3
510	Tr2; survey	S103	Trench 2	Layer	Made ground	Firm, blackish brown, cinder silt clay	-	2.47	Modern	4
511	-	S103	Trench 2	Layer	Dump layer	Firm, black, tar wood stone - working horizon	-	1.71	Post-medieval	3
512	-	S103	Trench 2	Layer	Redeposited clay	Firm, light brown grey, silty clay - redeposited	-	1.43	Undated	2
513	-	S103	Trench 2	Layer	Redeposited clay	Soft, dark brown black, clay silt	-	1.16	Undated	2
514	Tr2; survey	S103	Trench 2	Layer	Alluvium	Firm, light blue grey, clay	-	0.96	Prehistoric	1
515	void	void	void	void	void	void	void	void	void	void
516	Survey	-	Open Area	Masonry	Brick wall	Red brick, orientated E/W = [517]/[518] - part of powder magazine?	-	-	Post-medieval	3
517	Survey	-	Open Area	Masonry	Brick wall	Red brick, orientated E/W = [516]/[518] - part of powder magazine?	-	-	Post-medieval	3
518	Survey	-	Open Area	Masonry	Brick wall	Red brick, orientated E/W = [516]/[517] - part of powder magazine?	-	-	Post-medieval	3
519	Survey	-	Open Area	Masonry	Brick wall	Orientated E/W with N/S return - no details	-	-	Post-medieval	3
520	Survey	-	Open Area	Masonry	Brick wall	Orientated E/W with N/S return - no details	-	-	Post-medieval	3
521	Survey	-	Open Area	Masonry	Brick wall	Orientated E/W - no details	-	-	Post-medieval	3
522	Survey	-	Open Area	Masonry	Brick wall	Orientated N/S - no details	-	-	Post-medieval	3
523	Survey	-	Open Area	Masonry	Brick wall	Orientated N/E-S/W - no details	-	-	Post-medieval	3

Appendix 2 Test Pit Register

	Phase Test Pit 1		Test Pit 2		Test Pit 3		Test Pit 4		Test Pit 5		Test Pit 6		Test Pit 7		Test Pit 8		
		Thick	BGL	Thick	BGL	Thick	BGL	Thick	BGL	Thick	BGL	Thick	BGL	Thick	BGL	Thick	BGL
Tarmac/Reinforced																	
concrete	4	0.4	-	1	-	Present	-	Present	-	0.2	-	Present	-	0.4	-	0.2	-
Made Ground	3	1.1	0.4	1.9	1	Present	Present	Present	Present	1.8	0.2	Present	_	1.9	0.4	1.3	0.2
Redeposited clay	2	2	1.5	-	-	Present	Present	1	1	Present	2	1.5	1	0.7	2.3	1.3	1.5
Alluvium	1	0.4+	3.5	0.2+	2.9	0.5+	2.5	1+	2	Present	-	1+	2.5	1+	3	0.2+	2.8
Total Depth		-	3.9	-	3.1	-	3	-	3	-	2.9	-	3.5	-	4	-	3

Appendix 3

POTTERY ASSESSMENT

By Chris Jarrett

Introduction

A small sized assemblage of pottery was recovered from the site (one box). The pottery dates solely to the post-medieval period. None of the sherds show evidence for abrasion and were therefore probably deposited fairly rapidly after discard, although almost certainly through tertiary depositional circumstances. The fragmentation of the pottery ranges from sherd material to one vessel with a complete profile. The pottery was quantified by sherd count and estimated number of vessels (ENV), besides weight. All of the pottery is unstratified and was recovered from one location described as 'Bank'. However, as all of the pottery consists of tin-glazed earthenware wasters, which were recorded mostly as biscuit ware, then it can be presumed that the it originally derived from a dump of material.

All of the material (22 sherds, 22 ENV, 590g) was examined macroscopically and microscopically using a binocular microscope (x20), and recorded in a database format, by fabric, form and decoration. The classification of the pottery types is according to Museum of London Archaeology (2014). The pottery is discussed by its types.

THE POTTERY TYPES

The quantification of the delftware/tin-glazed earthenware types is shown in Table 1.

Code	Pottery type	Date range	sc	ENV	Wt (g)	Form
TGW BISC	London biscuit-fired tin-glazed ware	1570-1846	20	20	56	Bowl or dish, charger, dish: lobed, mug: cylindrical, ointment pot, porringer. Kiln furniture: peg, saggars: types 1 and 2
TGW C	London tin-glazed ware with plain white glaze (Orton style C)	1630-1846	1	1	17	?chamber pot
TGW D	London tin-glazed ware with blue- or polychrome-painted decoration and external lead glaze (Orton style D)	1630-1680	1	1	8	Charger

Table 1. END13: post-medieval pottery types and their forms

All of the tin-glazed earthenware forms occur as biscuit ware unless otherwise stated. Many of the sherds are oxidised, which often turn yellow or cream coloured during the second glaze firing. Fragments of bowls or dishes are represented by three sherds. One item has a footring (45mm in diameter) and a flaring wall and is in an oxidized condition, while all surfaces, including the breaks are

covered in a black, possible wood smoke firing deposit. Another vessel has a carinated wall with an external cordon. The base of another vessel consists of a footring (100mm in diameter) with a wide flat basal 'overhang' and this vessel may represent a porringer.

A body sherd from a probable chamber pot in plain white tin-glazed ware (TGW C has a possible firing fault with glaze present on a crack, which may possibly represent a sherd break. It should be noted that chamber pots appear in the delftware industry at the same time as the introduction of plain white wares in c. 1630.

Chargers comprise seven sherds/7 ENV and occur mostly in the form of body sherds which are often oxidized to different extents. Three rim sherds are narrow and flat, with either a groove on the side (180mm in diameter), or slightly curved (the diameter could not be calculated). The third charger rim (225mm in diameter) is wide and everted and probably belongs to Britton's (1987, 194), type E shape, mainly dated to the late 17th to early 18th century. This rim sherd appears to have been used as a practice decoration piece and shows evidence for square panels and stacked lines forming a pyramid, a motif which mainly dates to the mid 17th century. The painting was done in a brown coloured, possibly under-fired pigment, while discoloured glaze drips occur on the underside of the rim. Otherwise, the sherd has no surface glaze coating. A body sherd of a charger is glazed and decorated in the TGW D style. The interior decoration of this sherd consists of blue lines comprising blue crosses on white, which has a slightly fuzzy appearance, while the external blue-green lead glaze has not fully 'matured' in places during the vessels firing. One charger wall sherd appears to indicate a rounded profile vessel: Britton's (1987, 194) shape C.

Sherds from two different lobed dishes are represented by a partially oxidised rim and a fully oxidised rim wall carination. The slightly splayed base (80mm in diameter) of a cylindrical mug is recorded in a fully oxidised state.

The only item with a complete profile is a squat ointment pot, 27mm in height, with an everted rim (35mm in diameter), straight-sided wall and splayed base (30mm in diameter) and this item broadly dates to the 17th century.

The base of a 17th-century type A porringer is recorded with its characteristic straight-sided wall and a footring with a diameter of 80mm.

Two vertical loop strap handles are present with oval (concave on the under-side) and D-shaped profiles, measuring 18mm wide x 8mm thick and 14mm wide x7mm thick respectively and were probably associated with drinking forms.

Four sherds can be attributed to kiln furniture and three of these are parts of saggars, used to protect vessels in the kiln from smoke damage. Two basal sherds with diameters of 130 and 140mm derive from type 1 saggars with U-shaped cut outs. All of the saggar sherds have marbled fabrics to varying degrees and the most pronounced comprises a single sherd of a type 2 saggar, defined by staggered columns of triangular piercings. Type 2 saggars were used to fire flat wares, such as plates and the triangular piercings took pegs which supported the underside of the rims of the vessels placed inside the saggars. The other kiln furniture recorded is indeed a peg, which is nearly intact, except for missing the very tip of the item. The peg has a rounded head, while one side is flat and the other two sides are concave in profile. The peg measures 69mm in length x 23mm wide x 19mm thick.

On balance, the combination condition, the range of forms and the decorative styles represented indicates that this group of tin-glazed earthenware comprises production wasters dating to the late 17th century and perhaps more to the third quarter of the that century.

Significance and potential of the collection and recommendations for further work

The pottery, despite being unstratified, has some significance at a local level for representing a dump of tin-glazed earthenware wasters, probably deposited in a single dumping event. It has been speculated that tin-glazed earthenware was made in Deptford and Greenwich, which was a thriving centre for coarse red earthenware production from at least the mid 16th century onwards, while at Woolwich, further to the east, production started earlier (Edwards 1974, 6; Pryor and Blockley 1977; Garrod 1990; Jarrett 2004). However, to date no evidence for tin-glazed earthenware production has been found in either Deptford or Greenwich and the group of wasters from Enderby Wharf is unlikely to provide the first evidence for this. It is more than likely that the delftware wasters here are the refuse of London pot houses located further west and mostly found on the south bank of the Thames in Southwark and Lambeth (Britton 1987). The locations of these pothouses were in heavily developed areas where there was no space to store or dump large quantities of pottery production refuse. Consequently, the tin-glazed ware potters (who often jointly made stoneware from c. 1690) were very adept at finding ways for disposing of their wasters, often at some distance from the production source. This is in contrast to red earthenware and stoneware wasters, which tend to be found closer to their points of production (e.g. Jarrett 2004). Tin-glazed ware wasters have previously been found on the Isle of Dogs, where they were used to backfill a ditch and construct the mound of a windmill at Winkleys Wharf (Jarrett 2000), while on waterfront sites wasters were used as backfill behind revetments (e.g. Adlards Wharf, Bermondsey: Jarrett 2002). It is therefore more than likely that the wasters recovered from Enderby Wharf are the products of either Southwark or Lambeth Delftware master potters passing on their refuse to builders for use in the construction of riverside revetments on the site.

The pottery has little potential, except to infer that it was used as hardcore or as building material, possibly as backfill for the construction of a waterfront revetment probably during the third quarter of the 17th century. The material otherwise has no relationship to activities associated with the site. There are no recommendations for further work on the assemblage and should a publication text be required then the information should be taken from this report.

References

Britton, F., 1987. London Delftware, Jonathan Horne Publications: London.

Edwards, R. 1974. London Potters circa 1570-1710. Journal of Ceramic History, No 6.

Garrod, D. 1990. 'Research into the Deptford Potters'. *Kent Archaeological Review*. Winter 1990. No. 102. p. 158-166.

Jarrett, C. 2000. 'Post-medieval pottery assessment' in: K. Wooldridge, An archaeological excavation at Winkleys Wharf, Isle of Dogs, London Borough of Tower Hamlets. Pre-Construct Archaeology Ltd unpublished document.

Jarrett, C. 2002. 'The Pottery', in: D. Divers, 'The post-medieval waterfront development at Adlards Wharf, Bermondsey, London. *Post-Medieval Archaeology*, 36, 102-108.

Jarrett, C. 2004. 'The post-medieval red earthenware and Peninsular House earthenware pottery', in: D. Divers 'Excavations at Deptford on the site of the East India Company dockyards and the Trinity House almshouses', *Post-Medieval Archaeology* 38:1, 89-120.

Museum of London 2014. Medieval and post-medieval pottery codes. http://www.mola.org.uk/resources/medieval-and-post-medieval-pottery-codes.

Pryor, S. and Blockley, K. 1978. 'A seventeenth century Kiln site at Woolwich'. *Post-Medieval Archaeology* 12, 30-85.

Appendix 4

Clay tobacco pipe ASSESSMENT

By Chris Jarrett

A single fragment of a clay tobacco pipe stem was recovered from the excavation. The stem is unstratified and was found in the 'Bank' area. The stem has a medium-thick size, a wide bore and broadly dates to the late 17th century. As the item is unstratified it has no significance or potential for inferring upon site activities. There are no recommendations for further work on the stem.

Appendix 5 OASIS Form

OASIS ID: preconst1-240042

Project details

Project name An Archaeological Strip, Map and Sample exercise at Enderby Wharf,

Christchurch Way, Royal Borough of Greenwich

Short description of the project

An Archaeological Strip, Map and Sample exercise conducted at Enderby Wharf, Christchurch Way, Royal Borough of Greenwich. The archaeological work also monitored the excavation of eight test pits excavated in the northern part of the site, close to the western site boundary. The Archaeological Strip, Map and Sample exercise found that the earliest deposits on site comprised peat and alluvium layers of probable prehistoric date. The alluvium was encountered at 0.96m OD and colour variations to the deposit are considered a consequence of varying soil oxidation levels. Finds and features of prehistoric date were not found in association and land occupied by the site does not seem to have experienced significant exploitation during the prehistoric periods. Evidence was found to indicate that the alluvium was overlain by redeposited silty clay layers. The layers are undated, however it is probable that they had formed during an extended period of time following the prehistoric periods and pre-dating the use of the site during the postmedieval period. Part of the Archaeological Strip, Map and Sample exercise was concentrated above a historically documented 17th century gunpowder magazine. An archaeological evaluation of the site had encountered elements of the outer and inner walls of the powder magazine, whilst the Archaeological Strip, Map and Sample exercise encountered a brick structure located within the inner part of the magazine. The foundations of additional post-medieval brick walls, a brick culvert and a number of timber posts were also encountered.

Project dates Start: 01-08-2014 End: 28-02-2015

Previous/future

work

Yes / No

Type of project Recording project

Monument type GUNPOWDER MAGAZINE Post Medieval

Monument type BUILDINGS Post Medieval

Investigation type "Part Excavation", "Part Survey", "Recorded Observation", "Test-Pit

Survey","Watching Brief"

Prompt Planning condition

Project location

Country England

Site location GREATER LONDON GREENWICH GREENWICH Enderby Wharf,

Christchurch Way

Study area 0 Square metres

March 2016 Report No. R12400

Site coordinates TQ 3925 7873 51.48984358257 0.005955847008 51 29 23 N 000 00 21 E

Point

Project creators

Name of Organisation

CgMs Consulting Ltd.

Project brief originator

CgMs Consultants Ltd

Project design originator

Duncan Hawkins

Project

director/manager

Chris Mayo

Project supervisor

Alistair Douglas, Alexis Haslam, Richard Humphrey and Guy Seddon

Project bibliography 1

Grey literature (unpublished document/manuscript)

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PCA

PCA SOUTH

UNIT 54

BROCKLEY CROSS BUSINESS CENTRE 96 ENDWELL ROAD

BROCKLEY

LONDON SE4 2PD

TEL: 020 7732 3925 / 020 7639 9091

FAX: 020 7639 9588

EMAIL: info@pre-construct.com

PCA NORTH

UNIT 19A

TURSDALE BUSINESS PARK DURHAM DH6 5PG

TEL: 0191 377 1111

FAX: 0191 377 0101

EMAIL: info.north@pre-construct.com

PCA CENTRAL

THE GRANARY, RECTORY FARM BREWERY ROAD, PAMPISFORD CAMBRIDGESHIRE CB22 3EN

TEL: 01223 845 522 FAX: 01223 845 522

EMAIL: info.central@pre-construct.com

PCA WEST

BLOCK 4
CHILCOMB HOUSE
CHILCOMB LANE
WINCHESTER
HAMPSHIRE SO23 8RB

TEL: 01962 849 549

EMAIL: info.west@pre-construct.com

PCA MIDLANDS

17-19 KETTERING RD LITTLE BOWDEN MARKET HARBOROUGH LEICESTERSHIRE LE16 8AN TEL: 01858 468 333

EMAIL: info.midlands@pre-construct.com

