

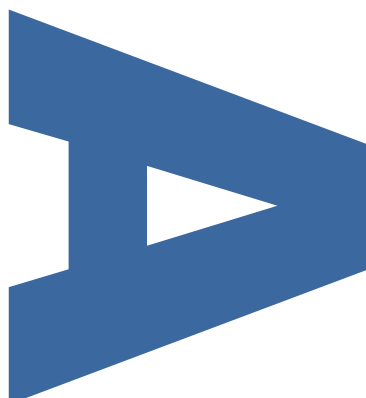
**BALLAST WHARF, WEST
STREET, ERITH, DA8 1NT:
AN ARCHAEOLOGICAL
EVALUATION**



**SITE CODE: BAW16
REPORT NO: R12579**



AUGUST 2016



BALLAST WHARF, WEST STREET, ERITH, DA8 1NT:
AN ARCHAEOLOGICAL EVALUATION

MUSEUM OF LONDON SITE CODE: BAW16

PLANNING APPLICATION NUMBER: 08/11096/FULM

LOCAL PLANNING AUTHORITY: LONDON BOROUGH OF BEXLEY

CENTRAL NGR: TQ 5099 7863

COMMISSIONING CLIENT: HASLEMERE BUILDING COMPANY

WRITTEN AND RESEARCHED BY: MATTHEW EDMONDS

PROJECT MANAGER: HELEN HAWKINS MCIFA

PRE-CONSTRUCT ARCHAEOLOGY LIMITED
AUGUST 2016

Contractor: **Pre-Construct Archaeology Limited**
Unit 54, Brockley Cross Business Centre
96 Endwell Road, Brockley
London SE4 2PD
Tel: 020 7732 3925
Email: hhawkins@pre-construct.com
Website: www.pre-construct.com


© Pre-Construct Archaeology Limited
AUGUST 2016

© The material contained herein is and remains the sole property of Pre-Construct Archaeology Limited and is not for publication to third parties without prior consent. Whilst every effort has been made to provide detailed and accurate information, Pre-Construct Archaeology Limited cannot be held responsible for errors or inaccuracies herein contained.

DOCUMENT VERIFICATION

BALLAST WHARF, WEST STREET, ERITH, DA8 1NT:

Type of project
ARCHAEOLOGICAL EVALUATION
Quality Control

Pre-Construct Archaeology Limited Project Code			K4654
	Name	Signature	Date
Text Prepared by:	M Edmonds		11.8.16
Graphics Prepared by:	J Simonson		11.8.16
Graphics Checked by:	J Brown	<i>Josephine Brown</i>	11.8.16
Project Manager Sign-off:	H Hawkins		11.8.16

Revision No.	Date	Checked	Approved

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

CONTENTS

1	NON-TECHNICAL SUMMARY	3
2	INTRODUCTION	4
3	PLANNING BACKGROUND	5
4	GEOLOGY AND TOPOGRAPHY	8
5	ARCHAEOLOGICAL AND HISTORICAL BACKGROUND	9
6	ARCHAEOLOGICAL METHODOLOGY	12
7	THE ARCHAEOLOGICAL SEQUENCE	13
8	CONCLUSIONS.....	17
9	ACKNOWLEDGMENTS.....	18
10	BIBLIOGRAPHY	18
	APPENDIX 1: CONTEXT REGISTER.....	19
	APPENDIX 2: OASIS FORM	20
FIGURES		
	Figure 1: Site Location	22
	Figure 2: Trench Locations.....	23
	Figure 3: Plan of Trenches.....	24
	Figure 4: Sections 1-3.....	25

1 NON-TECHNICAL SUMMARY

- 1.1 This report details the working methods and results of an archaeological evaluation undertaken by Pre-Construct Archaeology Limited on land at Ballast Wharf, West Street, Erith, London Borough of Bexley, DA8 1NT (Figure 1). The fieldwork was undertaken between 1st and 4th August 2016 for Haslemere Building Company.
- 1.2 Three evaluation trenches were excavated across the site.
- 1.3 A sequence of Thames Alluvium, as illustrated on the British Geological Survey Sheet for the area (Sheet 271 Solid & Drift Edition), was encountered in all three trenches, at varying levels of between 3.25m OD and 2.87m OD.
- 1.4 Dump deposits were noted in all three trenches sealing the alluvial deposits. These were in turn capped by layers of modern made ground.
- 1.5 The completed archive will be deposited with LAARC under site code BAW16

2 INTRODUCTION

- 2.1 An archaeological evaluation was undertaken on land at Ballast Wharf, West Street, Erith, DA8 1NT in the London Borough of Bexley, by Pre-Construct Archaeology Ltd between 1st and 4th August 2016. The site was located at National Grid Reference TQ 5099 7863 (Figure 1).
- 2.2 The Ballast Wharf site lies adjacent to the River Thames and c 250 m to the north west of Erith town centre. The site is bounded to the south-west by West Street, to the north-east by the River Thames, to the south-east by properties fronting West Street and the Ocean Park development and to the north-west by the West Street Youth and Family Centre and properties on Chandlers Drive (Figure 2).
- 2.3 A desk-based assessment had previously been prepared for the site by Oxford Archaeology (DBA, Oxford Archaeology, 2008).
- 2.4 The archaeological evaluation was conducted by Pre-Construct Archaeology Limited under the supervision of Matthew Edmonds, and the project management of Helen Hawkins. This report was written by Matthew Edmonds. The archaeological work was commissioned by Haslemere Building Company and the project was monitored by Mark Stevenson of Historic England, archeological advisor to the London Borough of Bexley. The work was undertaken in accordance with an approved Written Scheme of Investigation (Hawkins 2016).
- 2.5 The site archive was identified using the unique site code BAW16, issued by the Museum of London. The completed archive comprising written, drawn and photographic records will, upon completion of the project, be deposited with the London Archaeological Archive and Research Centre (LAARC) under that code.
- 2.6 There were no Scheduled Monuments on or close to the site.

3 PLANNING BACKGROUND

3.1 National Planning Policy Framework (NPPF)

- 3.1.1 In March 2012 the Department for Communities and Local Government issued the National Planning Policy Framework (NPPF), replacing Planning Policy Statement 5 (PPS5) 'Planning for the Historic Environment' which itself replaced Planning Policy Guidance Note 16 (PPG16) 'Archaeology and Planning'. It provides guidance for planning authorities, property owners, developers and others on the investigation and preservation of heritage assets.
- 3.1.2 In considering any planning application for development, the local planning authority will be guided by the policy framework set by government guidance, in this instance NPPF, by current Unitary Development Plan policy and by other material considerations.

3.2 Regional Guidance: The London Plan

- 3.2.1 The over-arching strategies and policies for the whole of the Greater London area are contained within the Greater London Authority's London Plan (2016) which includes the following statement relating to archaeology.

Policy 7.8

Heritage assets and archaeology

Strategic

- A London's heritage assets and historic environment, including listed buildings, registered historic parks and gardens and other natural and historic landscapes, conservation areas, World Heritage Sites, registered battlefields, scheduled monuments, archaeological remains and memorials should be identified, so that the desirability of sustaining and enhancing their significance and of utilising their positive role in place shaping can be taken into account.
- B Development should incorporate measures that identify, record, interpret, protect and, where appropriate, present the site's archaeology.

Planning decisions

- C Development should identify, value, conserve, restore, re-use and incorporate heritage assets, where appropriate.
- D Development affecting heritage assets and their settings should conserve their significance, by being sympathetic to their form, scale, materials and architectural detail.
- E New development should make provision for the protection of archaeological resources, landscapes and significant memorials. The physical assets should, where possible, be made available to the public on-site. Where the archaeological asset or memorial cannot be preserved or managed on-site, provision must be made for the investigation, understanding, recording, dissemination and archiving of that asset.

LDF preparation

- F Boroughs should, in LDF policies, seek to maintain and enhance the contribution of built, landscaped and buried heritage to London's environmental quality, cultural identity and economy as part of managing London's ability to accommodate change and regeneration.
- G Boroughs, in consultation with English Heritage, Natural England and other relevant statutory organisations, should include appropriate policies in their LDFs for identifying, protecting, enhancing and improving access to the historic environment and heritage assets and their settings where appropriate, and to archaeological assets, memorials and historic and natural landscape character within their area.

3.3 Local Policy: Archaeology in the London Borough of Bexley

- 3.3.1 The study aims to satisfy the objectives of the London Borough of Bexley, which fully recognise the importance of the buried heritage for which they are the custodians. The London Borough's 'Unitary Development Plan' (UDP), adopted in 2006 contains policy statements in respect of protecting the buried archaeological resource.
- 3.3.2 The proposed development of the site is subject to the Council's Archaeology Policies and justifications, outlined in Chapter 5 of the UDP:

Policy ENV56

In Areas of Archaeological Search and other areas where finds are likely to occur and in certain historic standing buildings where development proposals may affect archaeological remains or historical evidence, the Council will expect applicants to have properly assessed and planned for the archaeological implications. The Council may require a preliminary archaeological site evaluation before proposals are considered.

5.77 The Proposals Map identifies the most important known archaeological areas, indicated as Areas of Archaeological Search, prepared by representatives of the Museum of London. This indicates approximate areas where there could be interesting remains, but the boundaries should not be taken as being definitive, and finds may occur outside these areas. Historical evidence may also be revealed during alterations to standing buildings, and it is important that such evidence is properly recorded. In areas where finds are most likely to occur, the Council may require preliminary site investigation, so that the possible extent of interest can be established in advance. Such an assessment will involve a field evaluation carried out by a recognised archaeological organisation or suitably qualified individuals to a specification set by the Local Planning Authority. In certain cases, applications may not be considered before such an evaluation is completed. This will benefit developers in that they will be fully aware of any implications before works begin on site, since later changes of design to accommodate archaeological remains can prove expensive. Developers are invited to discuss implications and the need for evaluations at the earliest possible stage.

Policy ENV57

Where sites of archaeological significance or potential are discovered the Council will seek to ensure that:

- 1 the most important archaeological remains and their settings are preserved in situ (if appropriate for public access and display) and that where appropriate they are given statutory protection; and
- 2 sites not requiring preservation in situ shall be made available for an appropriate level of archaeological investigation and excavation by a recognised archaeological organisation before development begins.

Archaeology

5.78 Archaeological sites can be damaged or destroyed by even modest developments. The most important remains should be preserved wherever possible because of their historic interest. Where sites are to be developed, and archaeological remains are not to be preserved in situ,

arrangements should be made, including planning agreements as necessary, for the proper investigation, excavation and recording of remains. A specification of work for any investigation will need to be agreed beforehand. There should also be provision for the subsequent analysis, interpretation and presentation to the public of the archaeological results and findings. Developers will be expected to co-operate in archaeological investigations and, if not prepared to do so voluntarily, the Council will consider whether it would be appropriate to direct an applicant to supply further information under the provisions of the Town and Country Planning (Applications) Regulations 1988. This is in accordance with the Government's advice in PPG16. A code of practice has been agreed by developers and archaeologists (the British Archaeologists' and Developers' Code of Practice) and the use of this will be encouraged. The Council appreciates the need to minimise the impact on development proposals and in conjunction with the Museum of London and English Heritage will offer advice to help minimise any possible delays or alterations to developments and to guide design around sensitive locations.

5.80 The Council has a range of means at its disposal to secure the protection of archaeological remains. In general, the preference is to use voluntary agreements freely entered into by all parties concerned. However, where necessary, the Council will consider using its statutory powers or seeking action by others such as English Heritage and the Department for Culture, Media and Sport.

- 3.3.3 In accordance with the archaeological planning condition for the site a written scheme of investigation was prepared for the client by PCA (Hawkins 2016) and approved by Mark Stevenson.

3.4 Site Specific Constraints

- 3.4.1 There were no Scheduled Ancient Monuments or listed buildings within the development site.

3.5 Research Objectives

- 3.5.1 The evaluation aimed to address the following primary objectives:

- To determine the natural topography of the site.
- To establish the presence or absence of prehistoric and Roman activity
- To establish the presence or absence of Saxon activity.
- To establish the presence or absence of medieval and post-medieval activity at the site.
- To establish the nature, date and survival of activity relating to any archaeological periods at the site.
- To establish the extent of all past post-depositional impacts on the archaeological resource, specifically the effects of the terracing on the natural ground level.

4 GEOLOGY AND TOPOGRAPHY

- 4.1 The following backgrounds are taken from the desk based assessment (OA 2007).
- 4.2 The Site was located on level ground at c 5 m OD. The riverside boundary was followed by a sea wall. The north-east corner of the site comprised a former wharf which extends into the Thames.
- 4.3 The Ballast Wharf Site was located where higher ground meets the Thames. The high ground to the west of the Site was formed by the Upper Chalk of Cretaceous date which was overlain by the Thanet, Blackheath and Woolwich Beds of Palaeocene date. These were extensively quarried for chalk, gravel and loam from a quarry pit c 500 m to the west of the Site.
- 4.4 Scrutiny of the contours on Ordnance Survey mapping and the British Geological Survey (BGS) sheet 271 indicated that a narrow valley ran from this ridge of higher ground at Lesnes Heath and that the site lay in the general area of where the watercourse in this valley met the Thames. The presence of an outfall immediately to the north of the Site suggested that this may be where the tributary stream meets the Thames. It is therefore possible that the Site lay in or next to, the valley floor of this former stream and therefore within or on the edge of a palaeochannel
- 4.5 The British Geological Survey (Sheet 271, Solid & Drift Edition) indicated that the site itself was underlain by Thames Alluvium, although this rested on a steep exposure of chalk and overlaying Thanet Beds which may once have formed a river cliff. Deposits of Holocene Flood Plain Gravel series were also exposed on the flanks of the ridge of higher ground c 200 m to the north west and c 200 m to the south east of the site.
- 4.6 The geotechnical investigations noted that alluvium was present in all the interventions. The alluvium was sealed by made ground. Generally, the top of the alluvium was located at between 0.50m BGL and 1.00m BGL, although in two interventions the made ground was much thicker, suggesting that the alluvium had been locally truncated. Gravel was only reached in two of the interventions, at 7.5m BGL and 10.0m BGL.
- 4.7 The evaluation recorded the Thames Alluvium varying in height from a high point of 3.25m OD in the north-western trench to 2.87m OD in the south-eastern trench.
- 4.8 Gravel was only seen in one of the trenches, at 0.90m OD.

5 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

- 5.1 The archaeological and historical background is taken from the archaeological desk based assessment (Oxford Archaeology 2008).

5.2 Palaeoenvironmental

- 5.2.1 A The successions of peat and clay deposition caused by marine transgressions and regressions means that important and very well preserved waterlogged remains could be present on any site adjacent to the Thames. For instance, Bronze Age timber trackways have been found within marshland adjacent to the Thames in many locations including in the Erith area. The closest of these trackways was identified during the investigations on Bronze Age Way c 500 m to the north west of the Site.
- 5.2.2 There is also an indication from investigations off Corinthian Way c 300 m to the west of the Site, that existing or former watercourses flowing from the higher ground to the west of the site are preserved as palaeochannels. Palaeochannels may potentially contain important environmental remains as well as archaeological remains. The Site itself may be located in, or immediately adjacent to, the channel bed within the base of the valley recognised at Corinthian Way. Later Post Medieval saltings have also been identified, (from the Lesne Estate Map of 1860) as being on immediately adjacent to Ballast Wharf.
- 5.2.3 The Thames foreshore is also a valuable archaeological resource and recognised as such by its designation by the GLHER as an Archaeological Priority Area (APA). The presence of extensive areas of former Mesolithic woodland has, for instance, been identified in the mud of the Thames foreshore throughout the Thames estuary area

5.3 Prehistoric

- 5.3.1 A number of Palaeolithic finds, including Lower Palaeolithic tools of Mousterian and Levellois type have been made from the general area of the Thames foreshore or Erith. These are, however, likely to have been re-deposited by riverine action. Superficial deposits of Pleistocene date, such as the outcroppings of Terrace Gravel that lie c 200 m to the south and north of the Site may, however, contain in-situ Palaeolithic remains.
- 5.3.2 It is apparent that in many sections of the foreshore of the Thames estuary the remains of probably Mesolithic woodland are preserved and finds of Mesolithic flint indicate that the estuary edges were being exploited. Probable Mesolithic land surfaces may also have been identified within the Erith Marshes during investigations on Bronze Age Way.
- 5.3.3 Mesolithic remains, including buried land surfaces, may potentially exist within the Site but are likely to be buried under later alluvial and estuarine deposition.

5.4 Neolithic to Roman

- 5.4.1 Evidence that at least seasonal Neolithic to Roman exploitation of a tidal and/or wetland environment exists within the Study Area has been demonstrated in the Erith marshes by investigations at Bronze Age Way, c 500 mm to the north west of the Site. Additional evidence comes from the Neolithic to Roman finds from the Thames foreshore and finds of Iron Age and Roman coins from Erith High Street and in the general area of Erith. The finds from the river have included weapons of Bronze Age date that may have been ritually deposited. The potential presence of surviving remains associated with estuarine and even continental trade, such as boats and imported pottery and metalwork, again cannot be discounted.
- 5.4.2 Furthermore, the investigations on Corinthian Way suggest peat deposits of Bronze Age date are present in the stream valley which descends from the higher ground to the west of the Site. The

presence of peat at this site may indicate that the stream had already become silted up during the prehistoric period. The Site lies in the area where this valley meets the Thames and may, therefore be located within or adjacent to the valley floor of a silted up tributary stream of the Thames.

- 5.4.3 Although the Site itself stands at only c 5 m OD, it lies where a ridge of higher ground meets the Thames. If the Site lies beside rather than in a former palaeochannel then this location would have been an attractive place for early settlement to have become established on dry ground yet with easy access to the Thames and the resources of the Erith Marshes. The possibility that intact Neolithic to Roman landsurfaces (including organically rich peat horizons (Tilbury II - V)) lie sealed under later deposits on the Site cannot, therefore, be discounted. During periods of Marine Regression, the Site may have been dry enough to have been used for seasonal pasture, access or salt extraction. During periods of marine transgression, the Site is likely to have been inundated by the Thames in which case evidence for riverine exploitation (jettys, boats, fish traps) could be expected. The location of the Site not only next to the Thames but also possibly within the silted up valley floor of a tributary stream may mean that any organic structural elements and deposits such as revetting, boats and fish traps that may be present will be well preserved.

5.5 Saxon and Medieval

- 5.5.1 The only archaeological evidence within the Study Area for Early Medieval (AD 410 -1066) activity comprises finds of coins of Alfred the Great made in the general area of Erith. However, documentary evidence strongly suggests that a settlement had become established beside the Thames at Erith by 1066. The place name Erith gives a hint of the nature of the settlement as its meaning is Gravel Harbour which may refer either to a gravelly landing place or possibly a harbour where gravel was imported or exported.
- 5.5.2 The Domesday reference to Lesenes records the presence of three fisheries indicating that marshland or riverside resources were being exploited.
- 5.5.3 There is excavated evidence that the medieval centre of Erith lay in the general area of the Site (c 500m - 1km to the north of the present centre of Erith). This excavated evidence comprises the identification of medieval settlement activity of 13th to 14th century date and structural evidence for buildings of 16th century date from West Street c 50 m to the west of the Site. A medieval building was also identified during the investigations on Bronze Age Way c 500 m to the north of the Site. Medieval finds have also been made from the Thames foreshore.
- 5.5.4 From the 11th century, deterioration in climate and associated flooding prompted the development of river defences on the Thames. The stretch of river front at Ballast Wharf may first have had defences built in the later 13th century as part of system of marsh enclosure by Lesnes abbey. If this was the case the medieval sea walls are likely to have been constructed of clay banks that were possibly strengthened with timber piling. In 1885, Spurrel mapped the sea walls of the Erith Marshes which shows a system of walls that incorporates the area of the site

5.6 Tudor Period (1485 – 1603)

- 5.6.1 There are records of Erith being established as a harbour and supply store for Henry VIII's navy. The first records are from 1513 when there is mention of a "Keeper of Storehouses lately erected at Deptford and Erith" and a 1514 record of an orchard and garden bought at Erith so that a storehouse for masts, cables, canvas etc. could be built. The anchorage and stores at Erith were, however, apparently abandoned by the navy by the end of Henry VIII's reign.
- 5.6.2 The exact location of the Henrician stores and naval anchorage at Erith remains unknown. It is however possible that the reference to a lee shore indicates that the anchorage may have been in the north/south reach in which the Site lies, in which case ships attempting to make anchor into a north westerly could find themselves beating into the wind and/or causing them to helplessly drift downwind to come aground either near the centre of modern Erith or on the opposite side of the Thames at Coldharbour. The discovery of 16th century buildings during investigations on West Street c 50 m to the west of the Site also suggest that Tudor Erith remained focused on the slightly higher ground beside the Thames and near St John's Church.

- 5.6.3 The 16th century also witnessed an increasing number of episodes of Thames flooding breaching or overtopping the established river defences and culminating in the Great Breach of 1574 which flooded much of the Erith Marshes. To counter this the sewer commissions were established to oversee the construction and maintenance of the Thames river defences between the 16th and 19th centuries.

5.7 Post-Medieval

- 5.7.1 The river defences at Erith are shown on Carey's 1787 map and this map also shows a small grouping of buildings in the general vicinity of the Site. Three of these buildings may survive as a terrace of relatively grand and apparently 18th century buildings that stand on West Street c 100 m to the south of the site. Carey's map indicates that the Site lay in an area of small enclosed fields adjacent (possibly used for seasonal grazing) to the Thames at the turn of the 19th century. The area of the Site may also have already lain in an area of saltings as Saltings are shown on the 1844 Tithe Map and associated apportionment of Erith.

5.8 Upper Ballast Wharf (1842 – 1971)

- 5.8.1 Archaeological Investigations at the Vic Industrial Park, adjacent to the south of the Site indicated that the existing river wall was improved or replaced between 1843 and 1860 and that a number of boats (cargo lighters) probably dating to c 1820, were used to provide part of the structure.
- 5.8.2 Ballast Wharf (Upper Ballast Wharf as it became known) was constructed in 1842 to load chalk ballast and loam from the extensive quarry workings c500m to the south west of the Site. The wharf and a tramway are clearly shown on the 1st edition Ordnance survey maps of 1863 and 1865. These maps also show two small buildings on the site.
- 5.8.3 An estate map of the Lesney Estate dating to 1874 shows the original Wharf with a jetty and an associated flushing reservoir and foreman's cottage. The flushing reservoir lay just outside the northern boundary of the Site. The same map indicates that the foreshore beside the wharf was still in use as saltings at this date. A salting may be indicated by the presence of a pond on the foreshore shown on the 1865 O/S 6". By 1895 this pond had been built over by a second jetty c 30 m to the south of the original Ballast Wharf jetty.
- 5.8.4 In 1889 the Wharf had become Upper Ballast Wharf (to differentiate it from other ballast wharfs at Erith) and was incorporated into a system of light/narrow gauge railways serving the extensive new arms factories at Erith.
- 5.8.5 The 2nd Edition O/S 25" map of 1897 gives a very good record of the features on the site, including light railways, at the turn of the 20th century. The O/S 25" of 1909 shows how the wharf and associated light railway was becoming incorporated into the rail infrastructure of the Vickers armament works at this date. This map also shows a slipway and probably a boat shed lying immediately to the south of the second wharf.
- 5.8.6 Ballast Wharf continued in use for loading ballast by Vickers and Fraser-Chalmers until 1971, although the light railway to the wharf was replaced by lorries in 1957. The Wharf closed in 1971. The O/S mapping of 1938 and 1948 show that the site had not appreciably changed since 1909 although the adjacent slipway and boat shed had gone by 1938. The light railway on the site is no longer depicted on the 1974 map and by this date the foreman's cottage shown on the 1860s mapping has also gone. A Crane is shown on the river end of the southernmost wharf on the 1897 O/S 25 "but is absent from the 1909 map. A travelling crane is depicted on the southernmost wharf on the 1938 O/S map. The crane which now occupies the surviving stub of the southernmost wharf may be shown on the 1974 map, but if so appears to have since been moved from its location at the end of a jetty to its current location on the river wall. The date that the crane was first built, or its original location, therefore remain uncertain. The flushing reservoir that used to lie just to the north of the Site appears to have gone.

6 ARCHAEOLOGICAL METHODOLOGY

- 6.1 The proposed methodology of the archaeological work was detailed in the site specific Written Scheme of Investigation (Hawkins 2016).
- 6.2 The archeological work involved digging three stepped evaluation trenches with a 360° mechanical excavator. The three trenches were excavated between the existing buildings. Contamination hotspots were identified in the east of the site and therefore the trenches were concentrated on the western part of the site. The trenches were excavated by machine to the top of the first significant archaeological horizon or natural ground.
- 6.3 The full depth of the trench was designed to stop at the developers' formation level.
- 6.4 Trench dimensions and highest and lowest levels are listed below:

Trench Number	Length	Width	Depth	Highest level	Lowest level
1	10.00m	4.50m	2.26m	4.70m OD	2.44m OD
2	14.50m	4.60m	2.11m	4.48m OD	0.90m OD
3	12.00m	5.00m	2.12m	4.77m OD	2.65m OD

- 6.5 All recording systems adopted during the investigations were fully compatible with those most widely used elsewhere in London; that is those developed out of the Department of Urban Archaeology Site Manual, now presented in PCA's Operations Manual 1 (Taylor 2009). Individual descriptions of all archaeological and geological strata and features excavated and exposed were entered onto pro-forma recording sheets. All plans and sections of archaeological deposits were recorded on polyester based drawing film, the plans being at scale of 1:20 and the sections at 1:10 as applicable. The OD heights of all principle strata were calculated and indicated on the appropriate plans and sections. A digital photographic record was made during the works.
- 6.6 The trenches were located using a GPS prior to excavation.
- 6.7 The completed archive produced during the evaluation, comprising written, drawn and photographic records, will be deposited with the London Archaeological Archive and Research Centre (LAARC) under the allocated site code BAW16.

7 THE ARCHAEOLOGICAL SEQUENCE

7.1 Phase 1: Natural Sand Gravel

- 7.1.1 The earliest deposits recorded during the evaluation were the natural sandy gravels, which were present in Trench 2. This natural deposit [9], was recorded at a highest level of 0.90m OD.
- 7.1.2 The natural deposits found were consistent with the underlying geology described by the British Geological Survey as Thanet, Blackheath and Woolwich Beds of Palaeocene date.

7.2 Phase 2: Natural Alluvium

- 7.2.1 In all of the trenches a sequence of alluvium was identified. These alluvial deposits varied from dark grey [2] and [8] to orange/yellow [5], [10], [13].
- 7.2.2 The earliest deposit recorded in Trench 1 was a layer of alluvial silt [8]. This was recorded at c. 3.15m OD and was at least 0.60m thick, continuing deeper beyond the excavated limit of the trench. This deposit represented the upper level of the alluvial sequence of the site.
- 7.2.3 Sealing the natural gravel in Trench 2 was a sequence of alluvial deposits. This sequence of alluvial clays and silts, layers [2] and [13] were recorded at a highest level of 2.87m OD. The overall thickness of this sequence was 1.97m to the natural gravel. This sequence of alluvial deposits was completely sterile and devoid of any anthropogenic artefacts or organic material.
- 7.2.4 The earliest deposit recorded in Trench 3 was a layer of alluvial sandy clay [10]. This layer was recorded at c. 3.25m OD and was at least 0.60m thick, continuing deeper beyond the excavated limit of the trench. Overlaying this was a layer of orange alluvial clay [5]. This layer was recorded at 3.97m OD and was 0.70m thick. This layer represented the upper level of the alluvial sequence of the site, a sequence which was identified in the deeper machine slot in Trench 2.
- 7.2.5 Also identified in Trench 3 was the north-western edge of a palaeo-channel [4]. This natural feature continued beyond the excavated limit of trench but it was encountered at 3.97m OD and was at least 1.32m deep. It was filled by a loose light yellowish grey sandy/clay alluvium [3] which was roughly 0.70m thick and a lower fill [6] of firm light to dark greyish/brown clay/silt alluvium which was at least 0.60m in thickness. This sequence of alluvial channel fills was completely sterile and devoid of any anthropogenic artefacts or organic material.

7.3 Phase 3: Post-Med. Made-Ground

- 7.3.1 Capping this sequence of alluvial deposits were various layers of made-ground and dump deposits. These were identified in all of the trenches excavated.
- 7.3.2 In Trench 1 a layer [7] of dumped sand seemed to be the main deposit covering the alluvial sequence. It was a loose mid yellowish brown clay sand with a maximum thickness of 1.20m and was encountered at a highest level of 4.20m OD.
- 7.3.3 In Trench 2 a layer of made-ground [1] was sealing the alluvial sequence. This layer was soft light to mid yellowish brown silty clay with occasional fragments of chalk rubble, occasional flecks of charcoal, occasional cbm frags and occasional patches of gravel. This deposit had an overall thickness of 0.80m and a highest level of 3.61m OD. Sealing this layer was a further dumped levelling deposit [11] of mid to dark grey brown clay silt with occasional cbm fragments and lenses of sand and gravel. The layer was 0.30m in thickness and was encountered at a highest level of 3.85m OD.
- 7.3.4 Sealing the alluvial sequence in Trench 3 was a layer of made-ground [12]. The layer was firm mid to dark yellowish brown silty clay with occasional fragments of chalk, occasional flecks of charcoal, occasional cbm fragments and occasional patches of gravel and sand. This deposit had an overall maximum thickness of 0.40m and a highest level of 4.13m OD.

7.4 Phase 4: 20th Century Landscaping

- 7.4.1 Covering the sequence described above was a sequence of levelling and made ground that created the current ground level. This sequence was evident in all of the trenches that were excavated.
- 7.4.2 In Trench 1 was a mixed layer of rubble which was capped by material from the more recent demolition. These deposits had an overall thickness of c. 0.50m, being located at 4.70m OD, the modern ground level.
- 7.4.3 Sealing the earlier layers of made ground in Trench 2 was a sequence of modern levelling layers capped by concrete to the south-west and tarmac to the north-east. These deposits had an overall thickness of c. 0.63m being located at c. 4.48m OD, the modern ground level.
- 7.4.4 Trench 3 was a mixed leveling deposit comprising dumped railway sleepers and pieces of twisted metal. This layer was capped by tarmac. These layers had an overall thickness of c. 0.64m being located at c. 4.77m OD, the modern ground level.



Plate 1: Trench1 facing south



Plate 2: Trench 2 facing north-east



Plate 3: Trench 3 facing south-east

8 CONCLUSIONS

- 8.1 Evidence of significant archaeological activity was limited on this evaluation. The nature of the work carried out and the formation level of the new development combined to yield very little in terms of significant archaeological remains. Deposits recorded either represented a general sequence of dumping or ground build-up of material for landscaping the site during the 19th and 20th century or alluvial deposits which were part of a sequence of Thames Alluvium as described in sheet 271 of the British Geological Survey that formed part of the natural build up on the Thames flood plain.
- 8.2 The alluvial sequence present on site contained no dating evidence or structural remains and no evidence of peat formation either. This would suggest that this part of the site would not have experienced the relatively dry periods associated with the forming of peaty deposits and is more likely, as the evidence suggests, formed by extensive alluvial inundation of the area through flooding. Given the generally wet nature of the environment suggested by these deposits, it does partly explain why there is no evidence of significant human occupation within the study area during later or early prehistory.
- 8.3 There was no direct dating of the layers forming the alluvial deposits but it is believed that this material was deposited over a broad length of time up to the late medieval/early post-medieval period. The broad picture for the surface of post-medieval made ground gives a general indication for the level at which deposits of potential archaeological interest may be encountered, though much of this evidence is likely to be associated with development of Ballast Wharf during the 19th century.
- 8.4 The more recent deposits of made ground were most likely part of the landscaping of the site during the middle of the 20th Century when Ballast Wharf closed in 1971.
- 8.5 The site will be published as an entry in the annual fieldwork round-up of the *London Archaeologist*. The completed archive will be deposited with LAARC under site code BAW16.

9 ACKNOWLEDGMENTS

- 9.1 Pre-Construct Archaeology Ltd would like to thank John Bowdery of Haslemere Building Company for commissioning the work. We also thank Mark Stevenson, archeological adviser to the London Borough of Bexley, for monitoring the site works.
- 9.2 The authors would also like to thank Helen Hawkins for her project management and editing, Poppy Alexander for her assistance in the field and Jennifer Simonson for the CAD illustrations.

10 BIBLIOGRAPHY

- Greater London Archaeology Advisory Service: Standards for Archaeological Work (GLAAS 2015)
- Hawkins, H 2016, *Ballast Wharf, West Street, Erith, DA8 1NT: Written Scheme of Investigation for an Archaeological Evaluation*, PCA unpublished report
- Taylor, J with Brown, G 2009, *Fieldwork Induction Manual: Operations Manual 1*, Pre-Construct Archaeology Limited

APPENDIX 1: CONTEXT REGISTER

Site Code	Context No.	Trench	Plan	Section	Type	Description	Phase	Highest Level	Dimensions (N-S)	Dimensions (E-W)	Thickness /Depth	Photos
BAW 16	1	2	Tr. 2	1	Layer	Dump Layer	3	3.61m OD	14.50m	4.60m	0.80m	D1
BAW 16	2	2	Tr. 2	1	Layer	Grey Alluvium	2	2.87m OD	9.80m	2.60m	1.00m	D1
BAW 16	3	3	Tr. 3	2	Fill	Fill of [4]	2	3.97m OD	3.40m	5.00m	0.70m	D1
BAW 16	4	3	Tr. 3	2	Cut	Cut of Channel	2	3.97m OD	3.40m	2.60m	Unknown	D1
BAW 16	5	3	Tr. 3	2	Layer	Orange Alluvium	2	3.97m OD	5.80m	5.00m	0.70m	D1
BAW 16	6	3	Tr. 3	2	Fill	Fill of [4]	2	3.97m OD	3.40m	2.60m	Unknown	D1
BAW 16	7	1	Tr. 1	3	Layer	Dump Layer	3	4.20m OD	10.00m	4.50m	1.20m	D1
BAW 16	8	1	Tr. 1	3	Layer	Grey Alluvium	2	3.15m OD	6.00m	3.00m	0.60m	D1
BAW 16	9	2	Tr. 2	N/A	Layer	Natural Sandy/Gravel	1	0.90m OD	2.00m	2.60m	Unknown	D1
BAW 16	10	3	Tr. 3	2	Layer	Yellow Sandy/Clay	2	3.25m OD	5.00m	2.60m	0.60m	D1
BAW 16	11	2	Tr. 2	1	Layer	Made-Ground	3	3.85m OD	14.50m	4.60m	0.30m	D1
BAW 16	12	3	Tr. 3	2	Layer	Made-Ground	3	4.13m OD	12.00m	5.00m	0.40m	D1
BAW 16	13	2	N/A	N/A	Layer	Orange Alluvium	2	1.87m OD	2.00M	2.60m	1.00m	D1

APPENDIX 2: OASIS FORM

OASIS ID: preconst1-259602

Project details

Project name	Ballast Wharf, West Street, Erith, DA8 1NT
Short description of the project	An archaeological evaluation was undertaken by Pre-Construct Archaeology Limited on land at Ballast Wharf, West Street, Erith, London Borough of Bexley, DA8 1NT. The fieldwork was undertaken between 1st and 4th August 2016 for Haslemere Building Company. Three stepped evaluation trenches were excavated across the western side site. Alluvium was encountered in all three trenches at varying levels of between 3.25m OD and 2.87m OD. Above the alluvium, post medieval dump deposits were noted in all three trenches sealing the alluvial deposits. These were in turn capped by layers of modern made ground.
Project dates	Start: 01-08-2016 End: 04-08-2016
Previous/future work	No / Not known
Any associated project reference codes	BAW16 - Sitecode
Type of project	Field evaluation
Site status	Local Authority Designated Archaeological Area
Current Land use	Vacant Land 3 - Despoiled land (contaminated derelict and ?brownfield? sites)
Monument type	NONE None
Significant Finds	NONE None
Methods & techniques	"Sample Trenches"
Development type	Housing estate
Prompt	Planning condition
Position in the planning process	After full determination (eg. As a condition)

Project location

Country	England
Site location	GREATER LONDON BEXLEY ERITH Ballast Wharf, West Street, Erith, London Borough of Bexley
Postcode	DA8 1NT
Study area	1626 Square metres
Site coordinates	TQ 5099 7863 51.485924275942 0.174906975764 51 29 09 N 000 10 29 E Point
Height OD / Depth	Min: 0.9m Max: 3.97m

Project creators

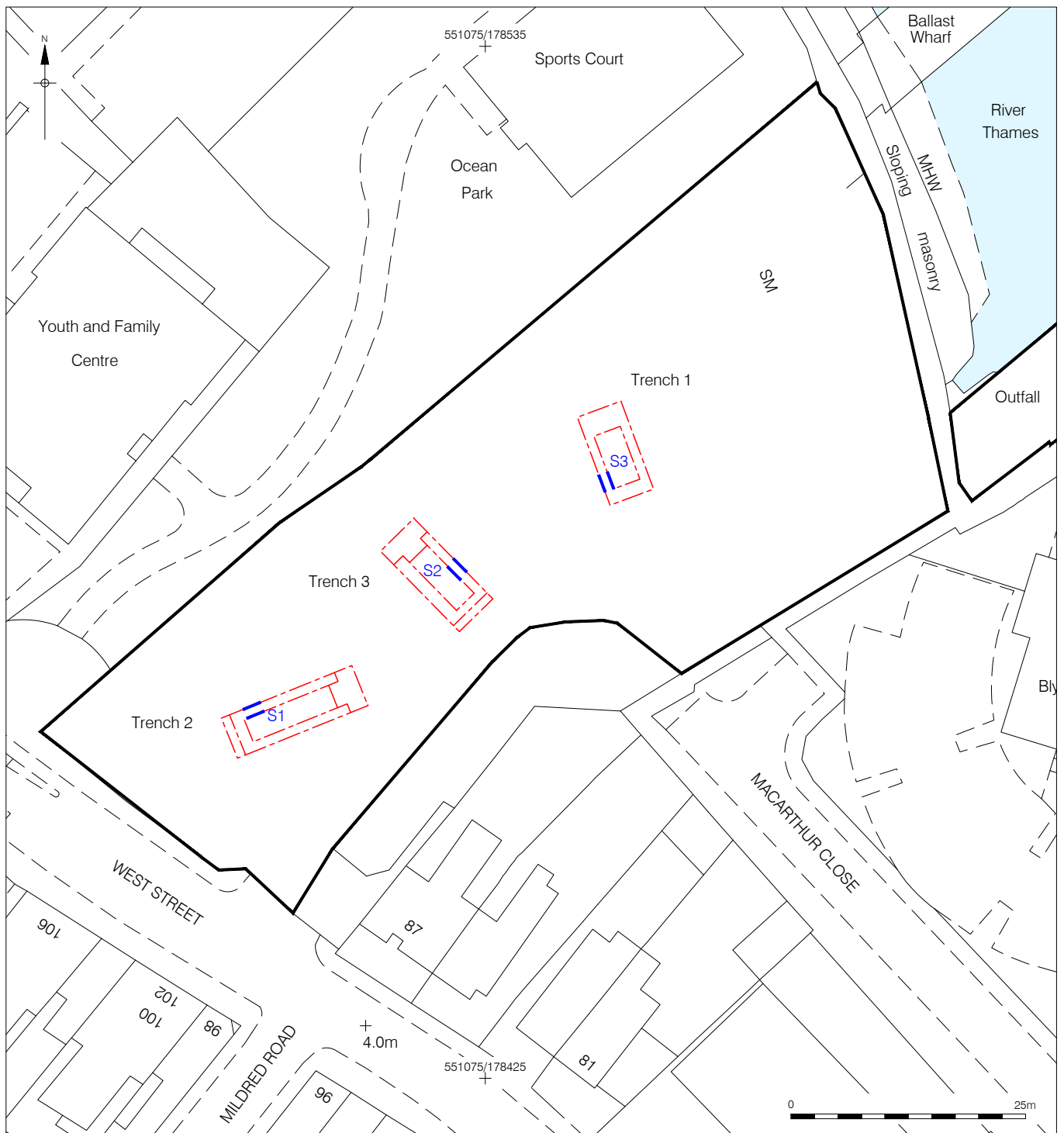
Name of Organisation	Pre-Construct Archaeology Ltd.
Project brief originator	GLAAS

Project design originator	Helen Hawkins
Project director/manager	Helen Hawkins
Project supervisor	Matt Edmonds
Type of sponsor/funding body	House builder
Name of sponsor/funding body	Haslemere Building Company
Project archives	
Physical Archive recipient	LAARC
Physical Archive ID	BAW16
Physical Contents	"other"
Digital Archive recipient	LAARC
Digital Archive ID	BAW16
Digital Contents	"none"
Digital Media available	"Database","Images raster / digital photography","Survey","Text"
Paper Archive recipient	LAARC
Paper Archive ID	BAW16
Paper Contents	"none"
Paper Media available	"Context sheet","Photograph","Plan","Report","Section","Survey","Unpublished Text"
Project bibliography 1	
Publication type	Grey literature (unpublished document/manuscript)
Title	Ballast Wharf, West Street, Erith, London Borough of Bexley, DA8 1NT
Author(s)/Editor(s)	Edmonds, M
Date	2016
Issuer or publisher	PCA
Place of issue or publication	London



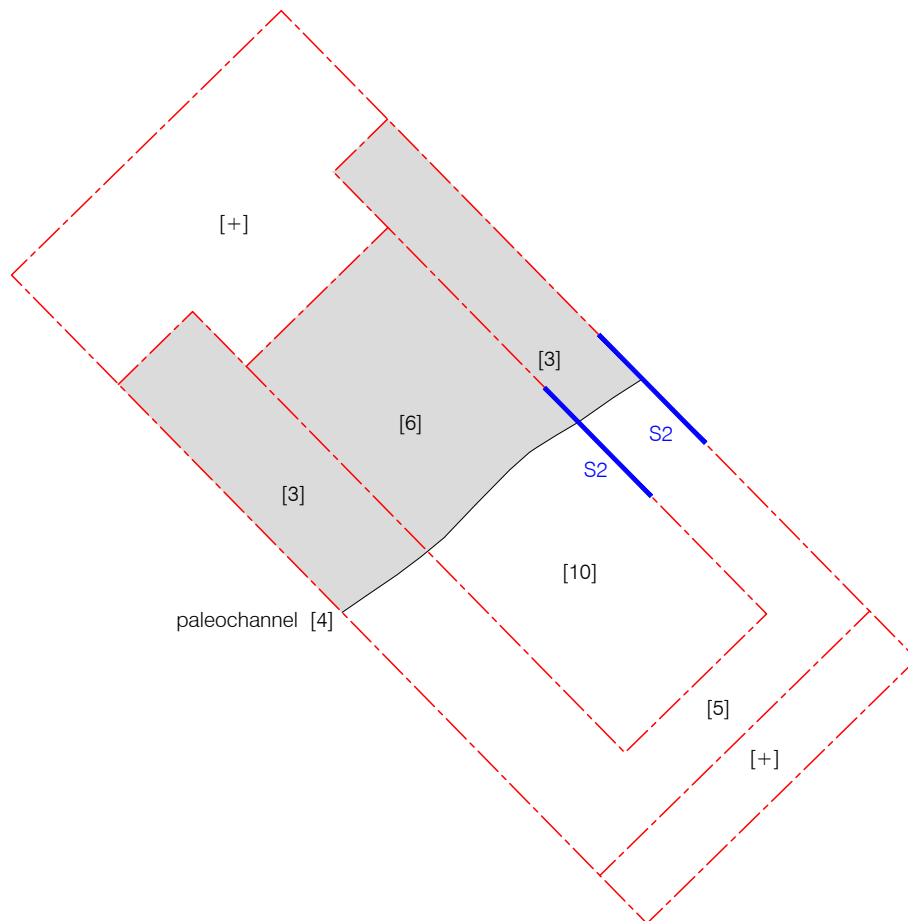
Contains Ordnance Survey data ©Crown copyright and database right 2014
 © Pre-Construct Archaeology Ltd 2016
 09/08/16 JS

Figure 1
 Site Location
 1:25,000 at A4



© Crown copyright 2016. All rights reserved. License number PMP36110309
 © Pre-Construct Archaeology Ltd 2016
 09/08/16 JS

Figure 2
 Trench Location
 1:625 at A4



© Pre-Construct Archaeology Ltd 2016
09/08/16 JS

Figure 3
Plan of Trench 3
1:100 at A4

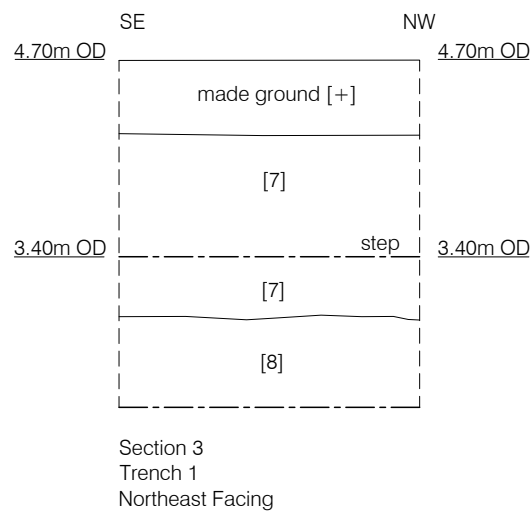
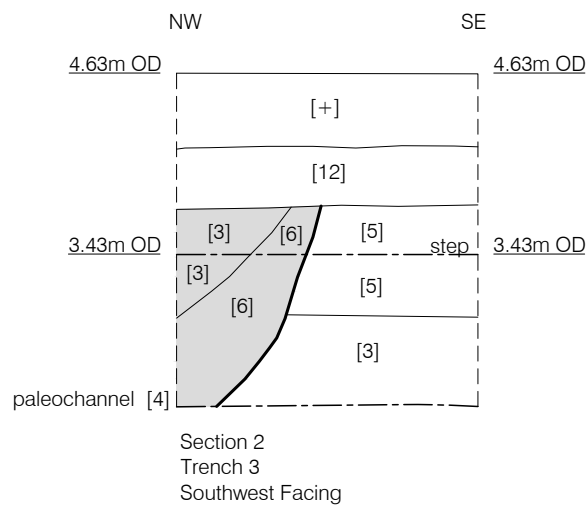
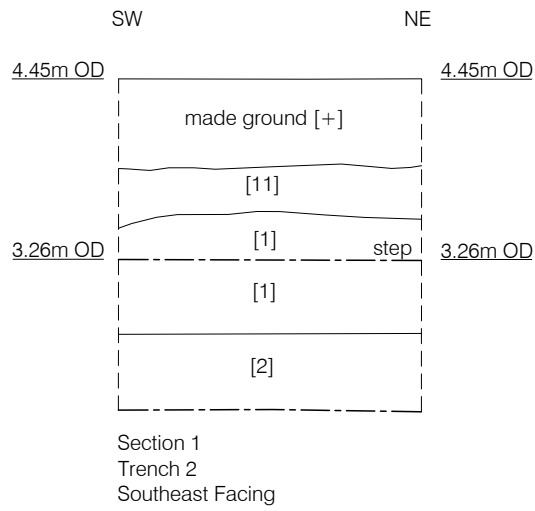


Figure 4
Sections 1 - 3
1:50 at A4

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

