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Queen Elizabeth Class Capital Dredge Project
Her Majesty's Naval Base, Portsmouth

Archaeological Assessment Report

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Queen Elizabeth Class Capital Dredge Project
Her Majesty's Naval Base, Portsmouth

Archaeological Assessment Report

1 INTRODUCTION

1.1 Project background

1.1.1 Wessex Archaeology was commissioned by Boskalis Westminster Limited (BWL), the dredging contractor, on behalf of the Defence Infrastructure Organisation (DIO) to undertake quayside archaeological monitoring and administer an on-board finds reporting protocol (hereafter the 'Protocol') undertaken as part of the Queen Elizabeth Class (QEC) Capital Dredge Project at Her Majesty's Naval Base (HMNB) Portsmouth. This fulfils two of the conditions from the MMO Consent Decision document (MLA/2012/00474).

1.1.2 Works were undertaken in line with the Written Scheme of Investigation (WSI) (Wessex Archaeology 2015a) and the *Method Statement for On-board Finds Reporting Protocol and Quay Side Archaeological Monitoring* (Wessex Archaeology 2015b).

1.1.3 The Protocol set out a framework to facilitate the reporting of finds of archaeological interest that were discovered during clearance operations and dredging works. The vessel crews, dive teams, and UXO operatives were made aware of the Protocol and their responsibilities, through awareness presentations prior to work commencing. Reports of discoveries were forwarded to Wessex Archaeology for initial archaeological assessment, and actions were taken to determine the level of investigation appropriate for each discovery. Finds were then transferred to the quay side for archaeological assessment.

1.1.4 Quayside archaeological monitoring took place once the items of archaeological interest had been delivered to the quay. The material was visually reviewed and recorded by suitably qualified marine archaeologists.

1.2 Development description

1.2.1 The project comprised the capital dredging of areas within Her Majesty's Naval Base (HMNB) Portsmouth, Hampshire (**Figure 1**) in order to allow access for QEC aircraft carriers.

1.2.2 The scheme involved deepening the main Harbour approach channel and Harbour entrance to 10.8 m below Chart Datum (CD). As a result, the inner harbour channel was dredged to a depth of 11.0 m below CD and the berthing pocket to 13.8 m below CD. The total volume of dredged material arising from the proposed capital dredging activities was approximately 3.2 million m^3.

1.3 Consultation

1.3.1 Consultation was undertaken with Historic England (the Archaeological Curator), from the start of the project. Staff from Historic England were invited to attend awareness briefings for the finds reporting protocol, to ensure that the training adequate and fit for purpose. Historic England was consulted with regards to the recommended Archaeological Exclusion Zones, their extents, and their later removal. Historic England has also been

advised of all of the finds, and received draft copies of the finds reports for their review (**Appendix 2**).

1.4 Scope of document

1.4.1 The purpose of this assessment is to present a compilation of all the discoveries made during the capital dredging works associated with the finds reporting protocol and quayside archaeological monitoring for the project. The finds are discussed by material type and include a general discussion as to their identification, archaeological and historical significance, and current state of conservation.

1.4.2 This report is a finds assessment. Further discussion about finds analysis, conservation, storage, discard, deposition/acquisition or publication will be dealt with separately in a post-excavation assessment, in line with CIfA guidelines (CIfA 2014a and b).

1.5 Aims

1.5.1 The specific aims of this assessment are to:

- *Present the assemblage of archaeological material that was discovered during the project;*
- *Present the archaeological assessment of the material including their significance;*
- *Discuss the archaeological material that warranted exclusion zones; and*
- *Provide advice regarding storage, conservation, post-fieldwork assessment, reporting, and archiving.*

2 FINDS REPORTING PROTOCOL

2.1 Introduction

2.1.1 The Finds Reporting Protocol was specifically designed to deal with any discoveries made on the seabed in a proposed capital dredging area undertaken during the QEC Project.

2.2 Method

2.2.1 The method for undertaking the Finds Reporting Protocol is detailed within the Method Statement (Wessex Archaeology 2015b). Awareness training was delivered to office staff, divers and UXO operatives before the start of the project, and was delivered to crews on the dredging and clearance vessels prior to each vessel starting work. Provision was made for representatives from Historic England to attend training session to monitor the approach and to provide additional information if required. The awareness training provided information and resources on the identification of finds of archaeological potential, the responsibilities of staff to report finds, how to report discoveries, and how to store finds. All finds of archaeological interest were reported by the on-board operatives to the Site Representative, who informed the Project Manager, who in turn informed Wessex Archaeology and the DIO. Wessex Archaeology in turn reported any finds of wreck related material to the Receiver of Wreck (RoW), in compliance with the Merchant Shipping Act 1995.

2.2.2 Following the discovery of a major archaeological finds on the seabed, BWL ceased all dredging immediately within the area, and a temporary exclusion zone (TEZ) was

implemented around the location of the find. BWL immediately informed the DIO Project Manager verbally and redeployed equipment to work in an alternative location.

2.2.3 In order to identify the vessel responsible for the discovery of material, each vessel was given a BWL# so that finds from each vessel were separated. Additional objects recovered from the quayside by Wessex Archaeology staff were given the number BWL9.

Table 1 BWL numbers and associated vessels

ID	Vessel	Vessel type
BLW1	*Strekker / Stemat 87*	Crane Barge / Flat Top Pontoon
BWL2	*Freeway*	Hopper Dredger
BWL4	*Shoalway*	Hopper Dredger
BWL6	*Reynaert*	Hopper Dredger
BWL7	*Manu Pekka*	Backhoe Dredger
BWL8	*Causeway*	Hopper Dredger
BWL9	Wessex Archaeology	

2.2.4 The BWL1 code was re-used after *Strekker* finished work.

3 QUAYSIDE ARCHAEOLOGICAL MONITORING

3.1 Introduction

3.1.1 The WSI noted that there was no facility to easily or safely examine anything of archaeological interest on the clearance or dredging vessels, and therefore provision was made for material of interest to be recovered to the quayside, where it could then be assessed by Wessex Archaeology staff.

3.1.2 Quayside archaeological monitoring took place throughout the dredging project. Recovered material was stored in a secure location on the quayside, with large pieces laid out for ease of access, and smaller items of potential archaeological interest retained in an 'archaeological skip'. Following confirmation of a drop off to shore, staff from Wessex Archaeology attended the laydown area at a time agreed with the client representative.

3.2 Method

3.2.1 A Wessex Archaeology archaeologist made regular visits to the quayside to review the material of archaeological interest on the quayside. In addition, during each of the visits an inspection was made of the material that had not been identified as of archaeological interest in order to confirm the initial assessment undertaken by the vessel crews. Any items deemed to be of archaeological interest were also reviewed by Wessex Archaeology.

3.2.2 Large objects, such as anchors, were delivered by the vessels directly to the quayside, while smaller items, such as glass bottles, were collated into plastic storage boxes and delivered together.

3.2.3 The quayside assessment was undertaken in conjunction with the corresponding preliminary reporting forms, when available.

3.2.4 Large objects such as anchors were recorded on the quayside. Recording included measurements, photographs, photogrammetry, and in some cases, drawings. Smaller

objects were transferred to Wessex Archaeology's Salisbury office for recording and stable storage.

3.2.5 Depending on the size of the objects and the availability of storage space at Wessex Archaeology's facilities, objects were transferred for storage to Wessex Archaeology, Salisbury or to H.T. Hughes & Sons Ltd, or the Mary Rose Trust. H.T. Hughes & Sons Ltd is a transport company based in Portsmouth that had ample secure storage facilities. Objects transferred to the Mary Rose Trust were moved primarily for storage purposes, although initial conservation is being undertaken (see **Section 6.2** below for details).

3.2.6 Objects recovered from outside the harbour, which are required to be declared to the RoW, in accordance with the Merchant Shipping Act 1995, were reported by Wessex Archaeology on behalf of Boskalis. The droit numbers received from the RoW are recorded in **Appendix 1**. Finds from within the harbour were not reported to the RoW, as they fall under the jurisdiction of the Harbour Master.

3.2.7 Each object reported to Wessex Archaeology or found by Wessex Archaeology during quayside monitoring has been recorded researched, and a short archaeological report has been produced for each find. A gazetteer of all the finds is presented in **Appendix 1** and the corresponding archaeological report is found in **Appendix 2**.

3.2.8 Some large objects assessed as of low archaeological interest, such as timber piles, natural boulders, and modern metal debris were discarded on the quay side during the archaeological monitoring visit, as these finds were unlikely to warrant storage or conservation. See **Appendix 1** for details.

3.2.9 Due to the open nature of the quayside location, in a small number of cases, finds of potential archaeological interest were removed without authorisation, and have been recorded as 'discarded' in **Appendix 1**. Although the quayside location was secure within the port, and had generally limited access, it was not possible to guard all of the finds, and some finds were removed from the quayside before further storage could be secured.

4 ARCHAEOLOGICAL EXCLUSION ZONES

4.1 Introduction

4.1.1 Preservation of archaeological remains in situ can often be achieved through the implementation of Archaeological Exclusion Zones (AEZs). Initially, Temporary Exclusion Zones (TEZs) were implemented around sensitive sites to stop project works potentially damaging archaeological material.

4.1.2 Details are presented below for the finds that received TEZs. The sites underwent further assessment, and following consultation and agreement with Historic England, it is recommended that all existing TEZs be removed.

4.2 Human skull

4.2.1 One discovery of human remains was made during the dredging works; a human skull was recovered from the draghead of the *Reynaert* during works in Dredging Zone A (**BWL6_0008**). Following its discovery, a TEZ was put into place, covering the location of the *Reynaert* where the find could have become lodged in the draghead (see Location Map in **Appendix 1**). The location was provided with a 100 m buffer, which then covered a very large area (*c.* 1.5 x 0.5 km). Following discussions with Historic England, it was agreed that based on the difficulty of locating the findspot and the current working methods, the TEZ

was recommended for removal, with these caveats in place: increased vigilance was undertaken by vessel crew whilst in the area; careful inspection of the draghead was undertaken; the area was dredged as two separate zones; the TEZ would be imposed if further human remains were recovered.

4.2.2 The remains include articulated facial bones and frontal vault of an adult male aged between 25 to 35 years old. This age range has been postulated due to the eruption and level of wear present on the remaining teeth. Due to the lack of dental hygiene and no obvious indication of dental interventions, the skull is not considered to be modern in date and could date to the post-medieval period or earlier.

4.2.3 The exact position for the skull is unknown since it was recovered from the draghead after dredging had finished, however a trackplot for the vessel was provided which has limited the area from which it may have originated, and the centre-point of this is presented in **Figure 2**.

4.3 Aircraft engine

4.3.1 Originally identified as a sidescan sonar anomaly (SS-2552) in October 2015, a military aircraft engine was recovered from this location in Dredging Zone A the following year (**BWL1_0050**; **Figure 3**).

4.3.2 Images of the engine were taken by Wessex Archaeology during a quayside visit and sent to Steve Vizard, a historic aircraft specialist, for identification. The information available suggests that the engine is a Jumo 211, used to power many different types of Luftwaffe bombers during the Second World War. At present, it has not been possible to identify the aircraft from which the engine came from, however, it could be from the Ju-88 A1 of 8/KG51 that was shot down over Portsmouth Harbour by anti-aircraft fire on 12 August 1940 (National Record of the Historic Environment (NRHE) Monument No. 1400101).

4.3.3 After a review of magnetic and sidescan geophysical data from the area it was concluded that the engine was isolated, and probably relocated from its original position and as such the exclusion zone was lifted.

4.4 Cannon

Introduction

4.4.1 A total of eight cast iron cannon have been recovered during the dredging works, all of which were removed from an area of 6400 m² within Dredging Zone D South, close to the historic harbour. **Table 2** below presents a brief description of the cannon and their potential date. The locations of the cannon are illustrated on **Figure 2** and **Figure 4**.

Table 2 Cast iron cannon recovered from Area D

Date	Date discovered	Description	Date
BWL1_0035	21/01/2016	English smooth bore gun, three or four pounder	Pre-1670
BWL1_0036	28/01/2016	Cast ion Sweden used by either Dutch or French, ands taken into service in England as an eight pounder	1630-1650
BWL1_0051	15/10/2016	Small English Falcon gun cast by Robert Sackville	1590-1605

Date	Date discovered	Description	Date
BWL1_0077	26/01/2017	Small smooth bore gun, three or four pounder	Pre-1715
BWL1_0078	26/01/2017	Small smooth bore gun	Post-medieval
BWL1_0079	26/01/2017	Smooth bore English 8 foot gun, likely an eight to 12 pounder	*c.*17th century
BWL1_0080	26/01/2017	Smooth bore English gun cast by Thomas Western with a Royal monogram	*c.*1702-1707
BWL1_0081	27/01/2017	Smooth bore heavily concreted gun, no larger than a three pounder	Post-medieval

Watching brief

4.4.2 Following the discovery of the cannon from a confined area within Portsmouth Harbour, and given the possibility for associated buried remains (with no magnetic signature) that could possibly be impacted by further clearance and dredging works, Historic England requested, a watching brief was undertaken during the remaining clearance within the area from 3 - 5 February 2017.

4.4.3 Due to the potential significance of the discovery, the location of the dredging was refined from the general dredging area (ie: Zone C) to numbered boxes within the area. The remaining area to be cleared consisted of 13 boxes numbered C-71 to C-83 positioned approximately 150 m west from the southern end of the South Railway Jetty. The boxes measure 5 m² and working from a depth of between 12 m to 12.5 m. The area to be cleared could only be worked between midnight and 4 am due to the harbour traffic. The watching brief took place with an archaeologist from Wessex Archaeology working alongside the EOD manager on board the clearance barge. The EOD manager would direct and inspect the footage received from the Aris camera fitted to the dredge and grab. Any anomaly visible on the footage transmitted by the Aris camera would be grabbed and retrieved to the surface for removal and inspection. After the area was clear of anomalies the dredging would begin while under supervision of the EOD manager using the Aris camera.

4.4.4 The first shift began at 6 pm on 3 February 2017 and ended at 6 am the following day. Clearance work took place within the berthing pocket. During the shift, boxes C-77 to C-83 were cleared. Each box was inspected using the Aris camera before dredging began, any anomalies were grabbed and inspected on deck. During the clearance of these seven boxes, four grabs were made and anomalies were all identified as natural features. No archaeological or other intrusive material was recovered.

4.4.5 The second shift began at 6 pm on 4 February 2017 and ended at 6 am the following day. Clearance was restricted to the same timeslot as the previous shift and boxes C-71 to C-76 were to be cleared. Again, each box was individually inspected prior to dredging. Four grabs were made over the six boxes with one object being recovered, a strip of scrap metal measuring 0.3 m.

4.4.6 The seabed in all of the boxes in the area comprised a thick grey clay on top of a hard, compact layer.

4.4.7 Since no further cannon or other archaeological material were identified and recovered during the watching brief, it was recommended that the TEZ be removed from the area.

Background research

4.4.8 In order to find out more about how the cannon came to be on the seabed at their positions and the potential ships from which they may have originated, further research was undertaken using a variety of sources.

4.4.9 A National Record of the Historic Environment data request was made in order to identify potential vessels that are recorded as having sunk in the area that may have carried these cannon. The data indicated that no known wrecks/obstructions are in proximity to the cannon.

4.4.10 The data also contained many Recorded Losses; these are records for ships (or aircraft) that are known to have wrecked (or crashed) offshore, but for which the exact locations are not known but are grouped together at Named Locations. The positional data of these records is unreliable and serve only to provide an indication of the types of vessels that passed through the area and the wrecking incidents that are known to have occurred in the general area. Whilst the remains of these vessels are expected to exist somewhere on the seafloor, their location is unknown. As such, they signify the potential maritime (and aviation) resource.

4.4.11 With regard to these Recorded Losses, data located within the three closest Named Locations were assessed for relevance to the cannon: Portsmouth Harbour Hampshire; Gosport Beach Hampshire; and Portsmouth Hampshire.

4.4.12 Due to the age of the cannon recovered, only records relating to vessels lost between 1500 and 1800 were interrogated, and the results are presented in the table below. Further research will be undertaken to confirm/refute their associations with the cannon.

Table 3 Recorded Losses that may be related to the cannon

NRHE ID	Date lost	Name	Details
895821	1794	HMS *Impetueux*	French. Captured by Royal Navy in 1794 but never commissioned due to the fire. 74 guns: 28 x 36 pdr, 30 x 18 pdr, 16 x 8 pdr. Accidentally caught fire in Portsmouth Harbour, drifted ashore into the mud on the west side of the harbour, and burnt out. Boats from nearby ships on the dockyard cut her free and towed her onto mudflats, where she burnt out.
1152142	1692	*Spy*	Whilst under repair at Portsmouth, accidentally caught fire and was destroyed 8 x guns
1233981	1748	*Modeste*	1748 wreck of French East Indiaman which was taken as a prize outward bound from France to Mauritius with a general cargo, and burnt in Portsmouth Harbour almost a year after being taken. Carried 18 guns.
1324710	1779	*Charming Molly*	This vessel had guns and swivels

4.4.13 Several historic charts covering Portsmouth Harbour were also analysed for information regarding reasons for the cannon locations. In general, the water depth from where the cannon were recovered was the same as in 1902 (37 ft/11.3 m). In 1902, mud flats to the west of the location of the cannon were undergoing dredging, perhaps indicating a movement of material into the harbour along with the deposition of the cannon. It is

also possible that cannon were disposed of in this area, either in a single event or as a phased occurrence. Again, further research is necessary to confirm this.

4.4.14 These charts also indicated historic anchorages and moorings in proximity to the cannon, often for named vessels such as HMS Victory and the Duke of Wellington (**Figure 4**). It is therefore possible that the cannon were used as clump weights for mooring ships to whilst at anchor inside the harbour. This is corroborated by the fact that some of the cannon were clearly at the end of their working life and no longer useable as ordnance.

4.4.15 In addition, the mooring of vessels within the harbour, for example HMS Victory after it ceased to be a frontline warship, has resulted in the deposition of debris within the area and it is possible that the cannon were merely discarded from vessels that were moored in this area of the harbour.

4.5 Ship's launch

4.5.1 A wooden wreck with copper fastenings (**BWL1_0069**) was located during pre-dredge clearance from close to the Naval Base in Dredging Zone D (**Figure 2**) and was recovered by grab during UXO clearance. A TEZ of 50m radius was implemented around the site.

4.5.2 Geophysical survey images within the TEZ were analysed by Wessex Archaeology. There were no obvious anomalies identified at the location in the gradiometer or bathymetry data, however the interpretation of the sidescan sonar data suggested two areas of debris fields within the TEZ. These most likely indicate the wreck site, although at the time, the wreck site was not clear, and it was thought that the debris fields could comprise rope, cable, fishing gear or similar.

4.5.3 The wreck is incomplete, which may be due to the type of recovery used whereby structure was disarticulated, or could be due to the wrecking event itself. The recovered material comprises several sections and numerous individual pieces of a wooden wreck, including a large section of the keel structure (comprising the keel, hog, parallel framing and the keelson), two sections of hull, disarticulated frames, loose planking and other timbers, including two sections of washstrake. Archaeological review of the Aris camera data and geophysical data from the area suggests that no further remains of this vessel are present in the area. There is no evidence of any of the bow or stern or starboard side of the boat.

4.5.4 The discovery of a copper alloy lifting eye fitted to the keel using copper bolts with markings ('TD. 9 TONS. JP. 25.10.98') indicates that this wreck was a late 19th century ships launch. The launch would have been supported by slings from a davit, from which it could be lowered into the water as necessary.

4.5.5 Identification of these components has been interpreted from McDermaid's *Shipyard practice as applied to warship construction* (1911) and from a similar launch, *Cyclops*, which dates to 1915 and is currently undergoing restoration in Portsmouth Historic Dockyard. This vessel was a general work boat often seen hanging from davits on Royal Navy battleships and has many similar features with **BWL1_0069**. Further details are presented in the finds report in **Appendix 2**.

4.5.6 As no further material was identified in this area, following discussions with Historic England, the TEZ was removed.

4.6 Wrecks investigated using sidescan sonar

4.6.1 Two geophysical anomalies were surveyed by Boskalis using sidescan sonar survey in 2015; the images produced were assessed by Wessex Archaeology and identified as potential wreck sites (**SSS-2480** and **SSS-2546**). TEZs were implemented around the extent of the potential wreck sites until further information became available as to their true nature.

4.6.2 Based on the identification of the sites supported by the dive video and conversations with the diver, it is recommended that the TEZs on both sites are removed.

Geophysical Assessment

4.6.3 **SSS-2480** (Wreck 2) was observed on the sidescan sonar imagery as a curvilinear array of thin irregular objects whose shadow suggests individual thin objects protruding from the seabed with irregular heights. The image indicated the possible presence of a section of articulated shipwreck comprising elements of the hull, but whose overall structure has been broken up and worn. The curvature of the visible material suggests that a majority of the length of the vessel is apparent, and as only one edge is visible it was inferred that any remaining structure could be buried beneath the seabed sediments. From the geophysical image supplied, it is not possible to ascertain the orientation of the wreck site, its construction materials or composition.

4.6.4 **SSS-2546** (Wreck 1) was observed as several intermittent thin curvilinear objects, with irregular height shadow, that appeared to make up an overall curved edge that may represent the curved hull of a shipwreck with further structure possibly buried beneath the seabed sediments, or merely linear debris on the seabed. From the geophysical image supplied, it is not possible to ascertain the orientation of the site, any dimensions, or the materials that are present.

Diving video review

4.6.5 Both sites investigated using sidescan sonar were subsequently inspected by divers from RS Divers on 20 April 2017. Due to harbour traffic, the ground truthing fieldwork took place between midnight and 2 am. The diver was Ruben Thorpe, and the dive was conducted using surface supply equipment with a video camera mounted to the dive helmet.

4.6.6 Video footage of the dives was recorded and the footage was reviewed by Wessex Archaeology. Following the review, a phone conversation with Ruben Thorpe added further interpretation of the dives.

4.6.7 Both sites were initially scanned using the Aris camera over approximately a 20 m² area. Specific targets were identified and a shot line was accurately placed on the site.

4.6.8 The first dive took place on **SSS-2480** (Wreck 2). Video footage from the dive immediately shows images of the target, which the diver describes as being a large metal chain with links measuring approximately 1 m x 0.3 m. An area of interlink was cleaned using a knife to get a clearer image of the chain.

4.6.9 The second dive was on **SSS-2546** (Wreck 1). No distinctive larger targets were identified using the Aris camera, only several smaller anomalies. The shot was positioned close to these smaller targets and the diver conducted circular searches up to 6 m out from the shot. The diver described the area as a shingle seabed with two large rocks present; presumably the smaller anomalies identified with the Aris camera.

4.6.10 As a result of the diver survey, both sites have been categorised as 'non wreck' and their TEZs removed.

5 FINDS ASSESSMENT

5.1 Introduction

5.1.1 Over a thousand objects were recovered and subsequently recorded as part of the capital dredge works. The number of finds includes 953 individual artefacts together with more than 300 pieces of wood relating to a single shipwreck (**BWL1_0069**).

5.1.2 These finds were reported via 265 individual reports, which often comprised multiple objects. Nine additional reports refer to voided numbers or natural stones and have been disregarded in this assessment.

5.1.3 Due to the way objects were recovered, many do not have accurate positions, including those for which no position was known and those for which the centre-point of a dredger trackplot was used. Of the 265 individual reports, a total of 173 do not have locations. However, those objects that were recovered during UXO clearance or were identified using geophysical survey data do have accurate GPS fixed positions. Reports that do have associated positions are presented in **Figure 2** by material type.

5.1.4 There are a number of reasons that 173 objects do not have locations; some of which were identified in the Method Statement (Wessex Archaeology 2015b), prior to the obstruction clearance and dredging works beginning. Large finds discovered on the seabed during the obstruction clearance survey were provided with a survey location, as were finds that completely blocked the dredge during dredging works and were recovered immediately, and in both cases were identified on-board as of archaeological interest. However, it has not been possible to determine the location of many of the smaller finds or large finds not identified as of archaeological interest until they were assessed by an archaeologist during quayside archaeological monitoring. For example, small finds that only partially blocked a draghead would only have been discovered at the end of a dredging run, and as some dredging runs extended from well outside the harbour into the harbour itself, it was not possible to determine a precise location. In addition, some of the small finds were discovered on-board, having been trapped in the mud surrounding obsolete cables that were washed on deck – in these instances a location was only determined for shorter sections of cable. For discoveries not identified as of possible archaeological interest, and discovered on the quayside during archaeological monitoring, it was not always possible to confirm when they had been recovered or where they were from.

5.1.5 For the purposes of reporting (to the NRHE, Historic Environment Record (HER) and Portsmouth Museum), the position ascribed to finds without confirmed locations will be based on the level of information known. For finds where the specific dredging zone is known, the co-ordinates will be the centrepoint of the dredging zone (see **Table 4** below). For finds where no dredging zone has been recorded, the co-ordinates will be the centrepoint of the entire dredging area.

Table 4 Centrepoints of dredging zones for finds without a specific location

Dredging Zone	BNG Easting	BNG Northing
A	463871	97173

Dredging Zone	BNG Easting	BNG Northing
B	462772	99413
C	462623	99898
D	462452	100941
E	462633	100857
Entire Dredging Area	463576	98097

5.1.6 A complete inventory of all the reports and artefacts is presented in **Appendix 1**, and **Appendix 2** comprises the corresponding Archaeological Object Report Form for each report.

5.2 Metal

5.2.1 A majority of the objects recovered during the project were made of metal, comprising a broad range of fragments and complete objects dating from the post-medieval to the modern period. Many objects were related to the First and Second World Wars and indicate the defensive and offensive military actions that occurred in and around Portsmouth, however various objects were also related to shipwrecks indicating the extensive and enduring maritime history of this harbour.

5.2.2 The location of all metal objects with known positions is presented in **Figure 3**.

Metal associated with ships

Anchors

5.2.3 A total of 37 whole and partial anchors were recovered as obstructions during the project; a majority of which were removed from Zones A and D.

5.2.4 The assemblage indicates a range of typologies of anchor, including Admiralty Pattern wooden stocked anchors (e.g. **BWL1_0038** and **BWL1_0082**), various designs of stocked and stockless anchors, and a mushroom anchor (**BWL1_0021**). These anchors range in date from the late 18th century to around the Second World War.

5.2.5 The earliest anchor recovered dates to between the late 18th century and c.1840 (**BWL1_0032**), and is currently undergoing concretion removal and conservation treatment at the Mary Rose Trust (see **Section 6.2** below). This anchor is an early example of a Pattern Admiralty long shank.

5.2.6 Many of the anchors are likely to have been used for moorings with several examples of deliberate modification for this purpose whereby arms have been bent into the stock (e.g. **BWL1_0003**, **BWL1_0026** and **BWL9_0100**). Some of the anchors are broken which may be another reason for their discard (e.g. **BWL9_0074** and **BWL1_0056**).

Ships' fittings and equipment

5.2.7 A diverse range of items were recovered that originated from ships. These objects were either lost or discarded from vessels, or potentially sank along with the vessel; often it is impossible to know.

5.2.8 Four rudders were uncovered during the works, all of which were similar in construction and size and therefore potentially coming from comparable vessels dating to the post-medieval or modern periods (**BWL1_0057**, **BWL1_0070**, **BWL1_0083** and **BWL1_0090**). Three rudders came from within the harbour, however the fourth (**BWL1_0090**) was recovered from Horse Sand, which implies it may have been lost at sea.

5.2.9 One fixed pitch propeller was recovered (**BWL1_0084**) constructed of either copper or brass, and has suffered damage to one of the blades, perhaps indicating why it was discarded.

5.2.10 Two objects recovered relate to engines, including an electric motor designed for marine use and identified from an attached plaque as having been built by the General Electric Company in around the 1950s (**BWL1_0075**), and a large cylinder head for a four-stroke stationary/marine diesel engine dating to the 20th century (**BWL1_0060**).

5.2.11 Several plaques or signs were recovered during the project, the most interesting of which was a diamond shaped insignia from a shore establishment, with a crest at the top, an elephant in the centre, cordage decoration around the edge, and the name 'GANGES' identifying the ship that it originated from (**BWL1_0042**). HMS *Ganges* was based alternately in Falmouth, Harwich (from 1899) and Shotley (from 1905). She remained in service at RNTE Shotley until October 1976. It is unknown how the insignia found its way into the harbour, but such a significant object is unlikely to have been purposefully discarded. The plaque is still being conserved by specialists at Wessex Archaeology, Salisbury.

5.2.12 Located approximately 200 m away and possibly associated with the HMS Ganges plaque was the discovery of another depiction of an elephant that had been cut from a hand hammered copper sheet (**BWL7_0002**).

5.2.13 Five plaques were also recovered and reported as **BWL7_0017**, and were predominantly used for identification purposes regarding an oxygen cylinder and details regarding fuse ratings. Another plaque was identified as the lid of a speaking tube that connected different areas of a ship. The inscription reads '2PDR GUN' suggests this speaking tube would have been used to give orders regarding the 2-pounder gun.

5.2.14 Six plaques were reported as **BWL9_0093** all of which were recovered from close to the MoD quayside. One of the inscriptions ('MAXIM & LEWIS GUN AMMN') present on a plaque suggests it was from a First or Second World War vessel.

5.2.15 One copper plaque (**BWL9_0033**) reads '45 FT MOTOR LAUNCH', and would have been attached to a small coastal military vessel during the First World War. The plaque gives details regarding passenger capacity, for instance in fair weather during the day the vessel's capacity was 150, which suggests it was a small ferry or similar vessel.

5.2.16 Another sign (**BWL9_0062**) was made of copper alloy and nail holes present on it suggests it was attached to something. No writing is visible on the sign and it is believed to be the back plate for a sign.

5.2.17 The final sign (**BWL9_0059**) dates to the 20th century and was painted yellow with black lettering, which suggests it was a warning sign. Lettering visible on the sign implies it originally said the word 'DANGER', and due to its poor condition, it was most likely discarded at sea.

5.2.18 Other recovered fixtures from vessels were identified include a modern oval porthole constructed of iron (**BWL9_0031**), an air vent cover (**BWL9_0047**), a lid or hatch (**BWL9_0028**), six fragments of copper sheathing (**BWL9_0088**) that may have been attached to the hulls of wooden ships to prevent wood boring organisms from damaging the vessel and may date as early as the 18th century, a 19th century condensing bulb for a steam pressure transmitter (**BWL1_0048**), an iron eye, section of a steel angle bar and a steel bar all of which were used extensively on board ships (**BWL9_0064**, **BWL9_0001** and **BWL9_0002** respectively).

5.2.19 A small section of a speaking tube still attached to its lid was also recovered during the project (**BWL9_0049**), however unlike the example reported as **BWL7_0017**, the lid of this tube did not have any details as to its function. A section of damaged speaking tube made of copper was also uncovered within an assemblage of various metal items reported as **BWL9_0077**.

5.2.20 A damaged lead sounding weight (**BWL9_0106**) incised with a broad arrow indicating the Royal Navy (used since the 17th century) was recovered, which would have been used to measure the water depth and identify the composition of the seabed.

5.2.21 These items were most likely discarded or lost overboard or from the quay side (depending on their location of discovery).

Metal associated with military action

5.2.22 Numerous objects have been recovered from Portsmouth Harbour, ranging from 16th century cannon to Second World War torpedoes, which indicate the longevity of this area's military involvement.

Cannon

5.2.23 Details are presented in section 4.4 above and illustrated on **Figure 4**.

Cannonballs

5.2.24 A total of 107 iron shot were found during the project. These mostly comprised standard solid iron cannonballs of various diameters (e.g. **BWL1_0045**), however, one complete barshot (**BWL6_0005**), one solid shot with a hexagonal cross-section (**BWL1_0028**) and several fragmentary examples were also among the collection. Three stone cannonballs were also recovered during the project including **BWL1_0040** and **BWL6_0019** (see section 5.9 for more details).

5.2.25 A large number of the iron cannonballs were recovered from within the harbour, either in Dredging Zone E (berthing pocket) or Dredging Zone D South. Most notably, 67 cannonballs were recovered between 12 - 18 December 2016 by *Manu Pekka* within the berth pocket (**BWL7_0009**).

5.2.26 Eight cannonballs were recovered from Horse Sand (Dredging Zone A) during dredging by *Reynaert* (**BWL6_0001-0006**). The position of these cannonballs is limited to the area of Horse Sand as they were recovered from the draghead after it was raised.

Aircraft engine

5.2.27 Details are presented in section 4.3 above.

Aircraft remains

5.2.28 Three fragments of aluminium sheeting were recovered from Dredging Zone D (**BWL9_0019-21**), however due to their fragmentary state and the corrosive damage apparent it has not been possible to positively identify them as aircraft remains.

Underwater aeroplane ADF

5.2.29 *Stemat 87* recovered a possible aircraft automatic direction finder (ADF) (**BWL1_0076**) on the 31 December 2016 from within Dredging Zone A.

5.2.30 The ADF unit would have been fitted to the underside of an aircraft and used as a receiver for radio transmissions from various beacons in order to calculate the magnetic heading. The ADF unit is likely to date post-Second World War.

Degaussing units

5.2.31 A total of four single array degaussing units have been found during pre-dredge clearance. Three of these were recovered by *Manu Pekka* close to Horse Bank (**BWL7_0014**), whilst the fourth was located on the quayside during archaeological monitoring by Wessex Archaeology (**BWL9_0099**). The units recovered are from a single array degaussing range, each fitted within a frame with lead block sinkers attached. Further discussion is presented in the report for **BWL7_0014**.

5.2.32 Degaussing units were used during the Second World War to counteract the disturbance in the earth magnetic field created by ships hulls. This disturbance triggered the detonation of magnetic sea mines.

5.2.33 Degaussing was achieved by fitting electromagnetic coils on board that constantly induced a small field to offset the effect. This was expensive and required by many ships, both Royal Navy and Merchant Navy, so additional degaussing ranges were used. Sunken units would be put in place that offset the change in the magnetic field caused by a passing ship, however, the effect this caused gradually wore off requiring repeat visits to the range.

5.2.34 Within Portsmouth a special degaussing range was put in place in the 1950s for the use of coastal minesweepers. The range was a large structure with between 20-40 units placed on to a frame.

Mine cradles

5.2.35 Two mine cradles (**BWL1_0073** and **BWL1_0074**) were found in Area A outside the harbour entrance during pre-dredge clearance by *Stemat 87*.

5.2.36 Both recovered examples are British L MK II controlled sea mine cradles. This was used with the MK II mine, which was commonly used for harbour defence during the Second World War. The mine would be armed when laid and detonation would be controlled from an observation post onshore.

5.2.37 Britain laid 150,000 mines for coastal defence during the Second World War and the two mine cradles would likely have been part of Portsmouth Harbour's own strategic defence during the War.

5.2.38 After the War clearance of these mines was essential, and sweepers would drag cables to cut the mine cables allowing the mine to float to the surface for disposal. The mine cradles remained on the seabed.

Torpedo

5.2.39 The mid-section of a torpedo (**BWL9_0037**) and a Brotherhood burner cycle torpedo engine (**BWL9_0038**) were both discovered during quayside archaeological monitoring on 9 September 2016.

5.2.40 The two torpedo sections are from a 21-inch British torpedo likely to date to the inter-war period and may relate to Portsmouth torpedo development and training ranges based at Horsea Island from 1889, later moving to HMS Veron at Gunwharf in 1923.

Other military ordnance

5.2.41 Nine further examples of material related to ordnance were recovered during the dredging works in Dredging Zones A and D.

5.2.42 A small projectile believed to have come from an Armstrong Breech loading 20 pounder gun was discovered (**BWL7_0007**) within a concretion. The Armstrong Breech was a field and naval gun introduced in 1859.

5.2.43 **BWL4_0017** relates to a bullet that belongs to a Martini-Henry breech-loading single shot rifle, of which four versions were produced between 1871 and 1889. Although production ended in 1889 they remained in use up until the First World War, and were even used in military weapons as late as the Soviet-Afghan War that ended in 1989.

5.2.44 **BWL9_0061** has been identified as a large shell cartridge casing made of brass that was likely used with a 6-inch naval gun known as the BL 6-inch gun Mark VII designed by Vickers. This type of shell was used from around 1899 on large naval ships and it remained in use throughout the Second World War

5.2.45 **BWL_0029** was identified as a large, successfully detonated, German 'Spreng Cylindrisch' 50 kg High Explosive (HE) General Purpose bomb dating to the Second World War. This type of bomb was dropped from almost any type of German military aircraft and used extensively during the War. It is assumed that this bomb was dropped on Portsmouth Harbour during an air-raid.

5.2.46 Finally, **BWL7_0021** relates to a collection of five artillery fuze caps dating from between 1938 and 1940. These disposable items were used to protect artillery whilst being transported and during storage, and perhaps unsurprisingly were recovered from the seabed close to the MOD berths.

Other metal objects

5.2.47 Recovered objects identified as having archaeological significance included a stock fragment from a 19th century shotgun (**BWL7_0015**), a small cast iron counter weight used on scales most likely dating to the post-medieval period (**BWL4_0018**), and a single lead ingot (**BWL9_0102**).

5.2.48 Various other metal objects were recovered and identified as being of no archaeological significance. These included an Imperial wrench (**BWL1_0013**), a valve casing and axel (**BWL1_0016**), a copper fence/flag pole topper (**BWL4_0019**), an iron saw (**BWL7_0007**), a concreted iron spike (**BWL7_0006**), seven examples of sections of fire hoses including a section dating to post-1950s comprising the coupling unit used to link sections of hose

together (**BWL9_0108**) and hose plugs, couplings and nozzles (**BWL7_0020**), and the base of an iron (**BWL9_0065**).

5.2.49 Metal objects that could be grouped into clear assemblages of similar items are presented in the following paragraphs.

Cutlery and cooking/serving vessels

5.2.50 Cutlery (knives, forks and spoons) and cooking/serving wares include items of definite Crown and naval issue, as well as items likely to have been used on other shipping (e.g. ferries, passenger ships or private vessels). The cutlery amounts to 49 items: 13 knives, 17 forks and 19 spoons (teaspoon to tablespoon size). All date to the 19th or 20th centuries. Most of these are plated, or stainless steel, although there are a few items that might be of silver (and therefore more likely to belong to private vessels for example **BWL9_0022**).

5.2.51 At least two manufacturers' marks are present (**BWL9_0063**): Hiram Wild of Sheffield, on a knife with a date stamp of 1991, and Arthur Price of Sheffield, on a fork with a date stamp of 2008; both bear the broad arrow of naval issue. One dessertspoon (**BWL9_0093**) is stamped 'W.S. Ltd', with a date stamp of 1957; the manufacturer is unknown. One other fork (**BWL9_0077**) has a partially legible mark including 'Birmingham', and also the number 43, presumably a mess number.

5.2.52 Two, or possibly three, serving/cooking vessels were identified. One (**BWL9_0105**) comprises the base of a cast iron cooking pot, stamped on the base 'BEECH HILL & Co LTD / N / 4 PINTS / WEST BROMWICH'; this company of iron founders was established in West Bromwich in 1903, and specialised in cast iron hollow ware (Grace's Guide website). A stainless steel platter, stamped 'SG 1979' has no crown or naval supplier mark and may therefore have been used on a passenger ship or ferry (**BWL9_0107**). The third item (**BWL9_0060**) comprises a straight-sided vessel (diameter 455 mm, height 90 mm) with two holes drilled through the vessel wall close together, through which a short length of rope has been threaded. While this could have been used as a (large) skillet or cooking pan (the drilled holes could originally have held fastenings for a handle), it could also have functioned as a gong.

Personal items

5.2.53 Three small containers probably represent personal items. Two are naval issue 'Piccadilly' cigarette tins dating to the 1950s (**BWL9_0004** and **BWL7_0020**). The third is the lid from a small tin of Rolls Razors (**BWL9_0046**). Rolls Razors began trading in 1927, in both the UK and the US. This particular lid is likely to belong to the Imperial No. 2 set, which was a later design issued in the 1930s, consisting of a razor in a nickel-plated tin with the three-row Greek key design on the lid (as seen here). This was one of the most common versions purchased, and would have cost around £1 in 1938. The company went into liquidation in 1964 (Rolls Razors website).

5.2.54 In addition, five parts of a wristwatch were found (**BWL1_0044**). The watch has no markings and remains undated, although is probably 19th or 20th century.

5.3 Wood

19th century buoy

5.3.1 An extremely rare and archaeologically significant early 19th century wooden buoy was recovered in multiple parts from Dredging Zone E, comprising three substantial rounded timbers with copper sheathing and evidence of rope caulking, and numerous pieces of

timber planking (**BWL7_0001**). The buoy would have been constructed much like a wooden barrel and would have been held securely using iron banding. Since none of the planking have any evidence of a mooring ring, it is likely that the large Royal Navy buoy functioned as a navigational marker in the approaches to Portsmouth or a mooring within the harbour itself.

5.3.2 Four timbers have inscribed timber marks or raze marks, which are evidence of the management of timber within the Royal Dockyards, with each timber being numbered depending on species, dated together with the initials of the dock yard official processing the timbers. Further details regarding the raze marks are presented in the Archaeological Object Report Form for this record.

Dock pilings

5.3.3 Over 10 timbers with square cross sections varying in length have been recovered, that may indicate dock piling or similar marine infrastructure that had been discarded at sea. These include **BWL1_0004**, **BWL1_0025**, **BWL9_0003** (6.1 m in length), **BWL9_0008** (up to c.5 m in length), **BWL9_0011** (9.5 m in length), **BWL9_0012**, and **BWL9_0024-27**.

Ships' timbers

5.3.4 Numerous pieces of worked timbers have been recovered from across the dredging areas that may have originated from vessels traversing the approaches to Portsmouth Harbour. Elements of identified ship structure include a timber strake (**BWL9_0009**), a cant frame (**BWL9_0014**), a floor timber (**BWL9_0023**), a stringer (**BWL9_0086**), sections of planking (**BWL9_0085** and **BWL9_0005**) a mast boom (**BWL9_0101**), a small tiller (**BWL6_0020**), and three worked timbers with treenails and coated by lead and copper sheeting (**BWL1_0092**). Many other wooden timbers (detailed within 23 reports) are currently unidentified but are thought to be maritime in nature.

Various worked timbers

5.3.5 Other worked timbers include the lid of a wooden barrel (**BWL9_0089**), another wooden lid marked 'MOYLE' and '1966' (**BWL9_0032**), and three pulley wheels (**BWL9_0044**, **BWL9_0084** and **BWL9_0096**).

5.3.6 A short wooden object thought to be a broken flag pole was also recovered (**BWL4_0015**), together with two wooden shafts and one wood and steel tool (**BWL9_0103**).

5.4 Pottery

5.4.1 A total of 206 pieces of pottery (including both complete vessels and sherds, plus one object) was recovered. All date to the post-medieval/modern periods, and the overwhelming majority belong to the 19th or 20th centuries.

5.4.2 Of interest amongst the pre-19th century material is a fragment from a German stoneware jug (probably from the Frechen production centre), dating to the later 17th century (**BWL9_0041**), six sherds that conjoin to form most of a Spanish olive jar of globular form (**BWL9_0051**), and parts of two further olive jars, of carrot form (**BWL9_0095**). Olive jars (which confusingly were also used to carry honey, wine and vinegar) are almost impossible to date within their overall range of late 16th to 18th century. The basic classification by Goggin (1960) uses a combination of overall shapes and rim forms, but this is complicated by the fact that the different shapes (globular, elongated and carrot-shaped) are likely to reflect different uses rather than chronological developments. Conversely, the globular jar

recovered probably dates to the 17th century, while the carrot type, on the basis of the collared, rounded rim, is probably of a similar date (Hurst et al. 1986, figs 29.79, 29.81).

5.4.3 A small group of earthenwares probably pre-date the modern period. Three of these were found together, and comprise the bases of three internally lead-glazed jars, or more probably chamberpots, dating to the 17th century or later (**BWL9_0095**). A two-handled jug (**BWL9_0078**) is a type that is not common in Britain, and this example is likely to have come from continental Europe, possibly Spain. The form could date anywhere from the 16th century or later, but this example is likely to date to around the 18th century. A plate in tinglazed earthenware (**BWL9_0045**), of continental origin, may date as early as the 18th century, but this style of ceramic continued to be used into the modern period.

5.4.4 The remainder of the pottery assemblage comprises a range of refined wares and stonewares of 19th and 20th century date. Of interest here are a number of vessels (around 70) that can be related to naval or Crown suppliers. These include table wares - plates, (drinking) bowls, cups and mugs - many bearing the backstamps of the manufacturers (a number of different firms, mainly from the Potteries) with date stamps spanning the 20th century and into the early 21st century, and some with mess numbers. This evidence complements, and extends chronologically, a group of early 20th century naval victualling ceramics from the Royal Clarence Yard in Gosport (Jarrett and Thompson 2012). A few vessels are of more exotic origin, including at least three from the United States, one with a date stamp of 1943, possibly brought over by American troops in the build-up to D-Day (**BWL1_0043**). There are also a few other examples of 'institutional' tableware which could belong to, for example, shipping lines, but for which the marks have not been traced.

5.4.5 While the refined wares supplied the tablewares, stonewares were used for containers, for beverages, foodstuffs and other household goods (ink, cleaning products, etc). Some of these products may also have been destined for naval victualling, but there is nothing to directly connect these vessels. Some of the containers carry the marks of their manufacturers (including Doulton of Lambeth, Stephen Green of Lambeth, Price of Bristol, Joseph Bourne of Codnor Park, Derbyshire and Maling of Newcastle), and some have the marks of the suppliers of the contents. The latter include local suppliers (e.g. Nathaniel Antill of Portsmouth and Portsea), and some from further afield (e.g. WM Barker of Bishopsgate Without, London, as well as preserves from W P Hartley of Liverpool, and the Scottish firms of James Keiller and John Moir).

5.4.6 Two stoneware vessels are of interest. One bears the stamped legend 'Warren's Liquid Blacking, Wholesale Retail Exportation, No 14 St Martins Lane' (**BWL9_0097**). Warren's started trading as a bootmaker in 1791 at 14 St Martin's Lane, London. In 1795 his two sons, Thomas and Jonathan, split and both started to produce liquid blacking (for use as boot polish or blacking for household grates), Thomas continuing the business in St Martins Lane, where the business continued until 1816. This example can therefore be dated quite tightly to 1795–1816. The second vessel is a cylindrical genever (gin) bottle (1-litre size), stamped 'WYNANDFOCKINK / AMSTERDAM' on the shoulder opposite the handle, and '2' under the lower handle attachment (**BWL9_0040**). Wynand Fockink started a liqueur distillery in the Pijlsteeg in Amsterdam in 1679, and the company is still trading today, making liqueurs and genevers (Dutch gin) although taken over by Lucas Bols in 1954 (Wynand Fockink gin website). This bottle is of later 19th or early 20th century date – the same form was also used for seltzer (mineral) water imported from France and Germany.

Clay tobacco pipes

5.4.7 Nineteen fragments of clay tobacco pipe were found (three conjoining, in two findspots (**BWL1_0068** and **BWL9_0090**). Seven of these are plain stem fragments that cannot be dated more closely, but there are ten datable bowls. Using regional typologies (Oswald 1975, fig 4, G, 24; Atkinson and Oswald 1969, types 19, 21, 25 and 30), these range in date from c. 1680–1910.

5.4.8 Three of the pipes are decorated, and two of these (**BWL1_0090**) also carry makers' marks in the form of relief-moulded initials IG on the spur. One of these is of simple fluted design, with a wheat-ear decorated seam (Fox and Hall 1979, fig. 16, 114); the other is of 'Masonic' design, and as well as the spur mark, has a relief stem mark GOODALL / FAREHAM (*ibid*., fig. 17, 115). Several members of the Goodall family were pipemakers in Fareham during the first half of the 19th century (other Goodalls worked in Gosport); these two pipes are the products of James Goodall, born in 1806 (*ibid*., 21).

5.4.9 The third decorated bowl (**BWL1_0068**) is of standard late 19th century type, a spurless form copying the wooden briar pipe (see Atkinson and Oswald 1969, type 30, dated c. 1850–1910). In this instance, however, it may be of later date (see below). The bowl is decorated; and although the design does not survive complete it appears to show a ship (*ibid*., fig. 6, no. 37), and may be a public house pipe – 19th century inns and public houses sold their own 'branded' pipes to customers. The stem bears the maker's mark, stamped on both sides of the stem: LEIGH & Co / PORTCHESTER. The company was founded in Portchester as Leigh & Co. by Henry Leigh in 1840, and used pipeclay from Devon. The company survived until 1932 (Arnold 1974). The maker's mark on the stem is of the later type, in use after c. 1883 (earlier pipes were marked 'H. Leigh'). All this evidence could point to a late 19th century date, but it is known that some of Henry Leigh's earliest pipe moulds were still in use in 1932, so the potential date range should probably be extended.

Other ceramics

5.4.10 Other ceramics comprise a complete brick (**BWL1_0008**) and part of a ceramic drainpipe (**BWL4_0024**). The brick is handmade, of imperial size and is wire cut. It is probably of 19th century date, and its most likely use was as a facing brick. The drainpipe is of salt-glazed stoneware and is stamped with the mark of Sharp Jones of Parkstone, Dorset. The company of Sharp Jones was part of the Bourne Valley Pottery and was established in 1853 at Branksome, Dorset. Later the company produced bricks and drainage pipes until the company's closure in 1958.

5.5 Glass

5.5.1 The assemblage of glass amounts to 246 pieces, including complete vessels (bottles, jars, drinking vessels), fragments, and also six objects. The date range spans from the early 18th to 20th (or 21st) century, and nearly all are containers of some kind. There is possible evidence for naval victualling supplies, but the connection is far more tenuous than for the pottery, and the supply could equally well have been to other shipping.

5.5.2 The earliest vessels comprise a small group of five wine bottles, all of which are free-blown form. Four of these were found together (**BWL9_0092**), and comprise two of 'onion' form, dating to the early years of the 18th century (Dumbrell 1983, 62, fig. a), and two of 'mallet' form, dating to the second quarter of the same century (*ibid*., 79, figs b and c). The fifth (**BWL1_0085**) also dates to the mid-late 18th century, and is a long-necked cylindrical form typical of Dutch bottles of the period (*ibid*., plate 50).

5.5.3 All other vessels are of 19th or 20th century date, and include a range of bottles and jars, containers for wine and other beverages, foodstuffs, and other household goods. Wine bottles are dominated by French types, with the characteristic flat collar around the rim. Other beverage bottles illustrate the development from Hamilton or 'torpedo' types of the mid-late 19th century, through late 19th century Codd bottles with patent closures, to those with crown closures or screw tops in the 20th century, by which time glass had entirely superseded stoneware as the preferred material for beverage bottles (including both soft drinks and alcohol). Amongst the latest are Coca-Cola bottles. As for the stoneware containers (see above), the bottles occasionally carry proprietary names (mainly of the contents supplier); these are more frequently from local firms (e.g. Peters & Co of Portsmouth, Webb & Salmon of Landport, Mew & Co, Isle of Wight, Eldridge Pope of Dorchester) but also include some from further afield (e.g. Leney of Dover, Cowells Table Waters of Goole).

5.5.4 Suppliers of other alcoholic beverages include the well-known brand names of Whitbread, Gordon's (gin), Teacher and Walker.

5.5.5 One bottle (**BWL1_0055**), instead of a mark denoting the manufacturer or supplier of the contents, bears the mark of the Great Eastern Hotel in Calcutta (formerly the Auckland Hotel, until 1915); presumably the bottle was brought back from India by a guest of the hotel.

5.5.6 There is also a significant proportion of milk bottles, and these could very well have included naval supplies, or supplies to other shipping using the harbour. Suppliers include Gauntlett & Walker of Portsmouth, the Safety First Milk Association (the brand name of Home Counties Dairies), Co-operative Milk and Unigate.

5.5.7 Foodstuffs are represented by various sauce bottles (e.g. Mason's OK sauce, Pan-Yan pickle) and jars (e.g. meat/fish paste), and a salt cellar.

5.5.8 In terms of pharmaceutical or health/beauty products, there are a few small bottles that may have held scent. Of more interest is a bottle of Barrys Florida Water (**BWL1_0085**). This was a perfumed spirit or cologne developed in the United States in the 19th century; during the last three decades of that century many North American druggists and pharmaceutical houses produced their own Florida waters. The bottle seen here is an example of one of the two standard bottle shapes used for Florida Water in the late 19th century (Sullivan 1994).

5.5.9 Other identifiable products are limited to a few small inkwells, although some of the unmarked bottles and jars could have held other household products.

5.5.10 One vessel is not a container, but an item of kitchen ware – this is an oval pie dish, probably Pyrex (**BWL1_0043**).

5.5.11 The six objects comprise a possible deck light and five sight glasses (two of them Pyrex products). Sight glasses would have been used in reflex gauges on boilers or storage tanks. They would be positioned to allow the operators to observe the levels of liquid within.

5.6 Leather

5.6.1 The 30 pieces of leather recovered represent at least 17 shoes, with other miscellaneous boot/shoe fragments, as well as two short lengths of leather tubing with copper alloy rivets. Most of the footwear only as soles, and on the basis of sole outline (see Goubnitz 2001, 82) have a wide potential date range. Two examples (**BWL4_0013** and **BWL9_0004**) have the

pointed toes characteristic of the 16th, one is a square-toed 18th-century form (**BWL1_0043**), and the remainder belong to the 19th or 20th centuries. The development of boot/shoe construction is illustrated, from the use of wooden pegs (a technique used from the 16th century) through metal tacks to glue.

5.6.2 Two boot/shoe soles found together (**BWL9_0030**) are of similar type, although not a pair, and appear to be naval supply. One is around a size 9 in UK sizing, and there is a possible partial date (…918) stamped on the sole of the shoe. The second is around a size 9.5 (the numbers 9 and 5 are stamped on the underside of the sole). Above this is a partial date stamp (195…) and below is the partial maker's name CO…INS & SONS. This is believed to be a Northamptonshire-based shoe maker, Coggins Shoes. Founded in 1892 and based in Raunds, they were one of a number of boot- and shoe-makers in Northamptonshire who were known for their manufacture of footwear for the British Army and Navy, particularly during the First World War (Coggins shoes website), but still working into the late 20th century.

5.7 Human bone

5.7.1 Details regarding the human skull are presented in section 4.2 above.

5.8 Animal bone

5.8.1 A small number of animal bones were recovered (20). These consist largely of cattle and sheep/goat, with one pig bone. Long bones are the most common body part represented (tibia, femur, humerus), with sheep/goat mandible and vertebra, and a cattle rib. Several bones show butchery marks (cutting and sawing), with filleting marks on one sheep/goat femur. These bones could represent animals eaten on board ship (or possibly taken on board to supply milk), but could equally well have resulted from refuse disposal from shore.

5.9 Stone

Cannonballs

5.9.1 Three examples of stone shot were recovered during the dredging works (**BWL1_0040**, **BWL7_0010** and **BWL6_0019**). The use of stone for shot was widely used throughout the 15th and 16th centuries, having been sourced predominantly from Kentish Ragstone, a hard form of limestone from the Kent area, but igneous rocks and even marble (in Greece) have been used (Caruana 1994, 189).

Worked stone

5.9.2 Two examples of worked stone were recovered during the project; a quernstone and a stone base/footing.

5.9.3 One half of a quernstone was recovered (**BWL6_0021**), possibly made of Kentish Ragstone. A rotary quern comprised two stones, the handstone and the saddle stone. Due to the lack of wear often associated with the saddle stone, this quernstone is most likely the hand stone, which would generally be heavier in order to crush the grains, and would have a handle and a central hole in which to place the grain. The stone may have been discarded, but equally it may have been lost as it only has minor damage. Due to the long running use of the quern stone it is difficult to accurately date without associated material, so the date range is entirely speculative.

5.9.4 The other worked stone **(BWL9_0069**) was sub-rectangular in shape with an off-centre groove present around the outside. This has been identified as a possible

base/footing although it is unknown what was attached to it, or a counter weight with tied rope around its exterior causing the groove, however rope wear has not been identified in the sandstone.

Natural

5.9.5 Several natural objects were recovered during the project, including at least five stones or boulders (**BWL1_0039**, **BWL4_0021**, **BWL7_0013**, **BWL9_0056** and **SSS-2546**).

5.9.6 One spherical object was initially identified as an unfinished stone shot, however it was later confirmed that **BWL1_0049** is unlikely to be a stone cannonball and is probably Blue Lias limestone from the Isle of Wight that has been rolled in the marine environment giving a rounded appearance.

5.10 Unidentified objects

5.10.1 **BWL1_0018** relates to a composite aluminium, cuprous metal, steel, wood and cement(?) object that will require further work to identify it. Originally discounted as ordnance, this object was then thought to be an aircraft engine, however, this is now known not to be the case due to several features that are inconsistent with that interpretation.

6 RECOMMENDATIONS

6.1 Analysis

6.1.1 A basic catalogue in the form of individual record sheets has been created for all of the objects recovered during dredging, in some cases grouping objects found together by material type. It is recognised that this assemblage is essentially unstratified, and cannot be related to specific shipping or episodes of activity.

6.1.2 With the exception of the concreted cannon, the assemblage of wooden and metal artefacts has been recorded. For the cannon, ongoing research, analysis and conservation (see **Section 6.2** below) is also recommended. For any wooden and metal items that are ultimately disposed of it is recommended that the finds catalogue and record are amended and enhanced where appropriate with research undertaken to publication standard. This is particularly recommended for the 19th Century wooden buoy (**BWL7_0001**) and the ships launch **(BWL1_0069**) both which provide interesting insights into both the use of Portsmouth Harbour and naval construction techniques in the 19th century. With regards to **BWL7_0001**, given the significance of this object, Historic England has recommended that the subsequent analysis programme should include accurate modelling and reconstruction to illustrate its possible original form. There is also a significant collection of Second World War related artefacts related to both naval and aviation history (including the German aircraft engine **BWL1_0050**, degaussing units **BWL7_0014** mine cradles (**BWL1_0073** and **BWL1_0074**) the ADF unit (**BWL1_0076**) for which further research is recommended for publication and enhancement of the catalogue.

6.1.3 The eight cannon currently held at the Mary Rose Trust require further work recommended includes deconcreting, recording, analysis and conservation (see **Section 6.2** below). Wessex Archaeology would recommend the involvement of Charles Trollope, an independent ordnance expert, to aid in the analysis of the guns.

6.1.4 The human skull **BWL6_0008**, currently held at the Hampshire Constabulary also requires further research and analysis by an osteoarchaeologist. The animal bone has been

recorded and identified and some limited further research is recommended for publication and enhancement of the catalogue.

6.1.5 The finds catalogue requires some amendment and enhancement to incorporate relevant parallels and references, and some limited consultation of trade directories could provide refinement of the dating in particular for some of the pottery and glass vessels. The catalogue would usefully be translated into a single spreadsheet for ease of future reference. Some further photography is recommended to highlight the detail of individual objects, for example the marks on pottery and glass vessels.

6.1.6 The small assemblage of leather boots/shoes is fragmentary, but still has the potential to provide useful information on the development of footwear during the post-medieval period, as this has as yet received relatively little specialist attention. The naval issue boots are of particular interest.

6.1.7 The assemblage of pottery, glass and clay tobacco pipes has the potential to provide information on local industries (primarily the production of beverages), but one particular strand that could be drawn out is the supply of crockery to naval shipping (and, as a minor element, other shipping). This evidence augments that published for the early 20th century naval victualling ceramics from the Royal Clarence Yard in Gosport (Jarrett and Thompson 2012), and illustrates the continuing supply to naval shipping into the early 21st century. It might warrant a short publication note in the local archaeological journal.

6.1.8 As stated within the WSI (Wessex Archaeology 2015b) further analysis of finds will constitute a separate item of work, for which an updated project design will be prepared by Wessex Archaeology for approval by DIO and the Archaeological Curator(s).

6.2 Conservation

6.2.1 In July 2017, all of the finds were offered to Portsmouth Museum and the forthcoming conservation and/or disposal strategy will be based upon their response regarding accession (see below) in the first instance. It is also noted that the ownership of some of the finds has not yet been allocated by the RoW, however the RoW has begun discussions with other organisations, such as the National Museum of the Royal Navy (NMRN) regarding accession of material that Portsmouth Museum are unable to take Wessex Archaeology can however offer the following recommendations regarding conservation, to be agreed by the relevant curators based on discussions internally and with Dr Eleanor Schofield from the Mary Rose Trust.

Iron (Cannon)

6.2.2 The following conservation method is proposed for the iron artefacts (specifically the eight cannon but could if required be applied to other iron artefacts) on the advice of Dr Eleanor Schofield from the Mary Rose Trust.

6.2.3 Marine archaeological iron is notoriously difficult to conserve due to the presence of chlorides incorporated due to prolonged exposure to sea water. If chlorides remain in the iron, and moisture is available, corrosion products can form which can ultimately split and destroy the item.

6.2.4 The only way currently to ensure all of the chlorides are removed is via Hydrogen Reduction. Whilst used in the 1970/80s, this technique was stopped due to fundamentally changing the microstructure of the iron, and the health and safety implications of disposing of the by- product (hydrochloric acid). Since then items have been soaked in

solutions which extract chlorides from the iron. The level of chlorides coming out of the item can be recorded and the process continued until no more chlorides are registered, however it is important to note that this does not conclusively say that no more chlorides are present in the iron, and future corrosion is possible. Throughout the process the level of chlorides in the solution is monitored and recorded, which can help to inform how long the overall soaking process should be.

6.2.5 Subsequent to the removal of chlorides drying will need to take place over 4 instalments (estimated at 3 months for each instalment) within an environmentally controlled unit.

6.2.6 At this stage it is suggested not to put a coating on the metal. Unless all of the chlorides are removed, this traps the metal inside with any residual moisture and can result in the corrosion products forming inside and progressing outwards. When the volume they require exceeds the space of the initial metal structure, cracking occurs. Dr Hayley Simon from University College London, under the supervision of Dr Eleanor Schofield, has offered to experiment on some of the iron cannonballs to evaluate the efficacy of the chlorides removal and drying technique described above.

6.2.7 Wessex Archaeology are currently monitoring and storing numerous smaller iron, wood and glass artefacts and are awaiting the decision from Portsmouth Museum for long term conservation and/or disposal.

6.3 Selection policy

6.3.1 Wessex Archaeology follows the guidelines set out in *Selection, Retention and Dispersal of Archaeological Collections* (Society of Museum Archaeologists 1993), which allows for the dispersal of selected artefact categories which are not considered to warrant any future analysis. In this instance, the assemblage recovered during harbour dredging is essentially unstratified, and much of it is of relatively recent date, comprising commonly occurring and well-documented types. As such its potential for further research beyond the remit of this project is limited, but there are individual objects, and groups of objects, of intrinsic interest which may warrant retention for long-term curation.

6.3.2 Wessex Archaeology fully support the conservation (see above) and public display of archaeological artefacts. As stated above, all of the finds were offered to Portsmouth Museum in the first instance. However, as the museum does not have the storage capacity for the entire archive of finds, the remaining archive of finds will be offered to other relevant curatorial bodies, museums and archives (e.g. the NMRN in Portsmouth) with a date at which, subject to RoW and curatorial agreement, the remaining archive will be disposed.

6.3.3 Further options for public display of specific finds has been discussed in consultation with Historic England, including a request received by DIO to display one of the cannon on board the QEC carrier following conservation. DIO has also received a request from the Royal Navy for a number of cannonball to be mounted on plinths and gifted to notary individuals. These alternative options for specific items within the archive will be guided by ongoing consultation with Historic England carried out in order to inform the forthcoming conservation and/or disposal strategy.

6.3.4 The wooden piles, ceramics, glass and clay tobacco pipes, once the proposed catalogue enhancement is complete, are of limited further value. Sufficient written and photographic detail will be included in the catalogue, which will form part of the project archive. The leather, too, does not warrant long-term retention once full specialist record has been made.

6.4 Publication

6.4.1 Once the catalogue has been enhanced and the de-concretion, recording and analysis has been completed for the cannon, it is recommended that the finds are published. It is recommended that a monograph style publication would be the most appropriate form of publication. As specified within the WSI (Wessex Archaeology 2015b), in consultation with DIO, and the Environmental Consultant who will seek the approval of the Archaeological Curator(s), Wessex Archaeology will ensure that the results of archaeological discoveries made and investigations undertaken in connection with the project will be published in an integrated manner, where warranted by the results of the archaeological work.

6.4.2 The project record will be logged on OASIS – *Online Access to the Index of Archaeological Investigations* (http://oasis.ac.uk/). OASIS is an online archive managed by the Archaeological Data Service, the aim of which is to provide information about archaeological investigations and so to facilitate access to and dissemination of 'grey literature' that is produced in the course of archaeological fieldwork of all kinds.

6.5 Archive transfer

6.5.1 The entire archive has been offered to Portsmouth Museum and the project archives, including written, drawn, photographic and material elements (together with a summary of the contents of the archive) will be prepared and deposited by Wessex Archaeology in accordance with the requirements of Portsmouth Museum. Best practice will be adhered to in line with Archaeology Archives Forum, *Archaeological Archives: A guide to best practice in creation, compilation, transfer and curation* (2007) and CIfAs *Standard and Guidance for the creation, compilation, transfer and deposition of archaeological archives* (2014).

6.5.2 Portsmouth Museum has responded to indicate which of the objects they will accession, in the cases of the pottery and glass assemblages, this will be subject to a sampling process.

6.5.3 Other museums and organisations, such as the NMRN, have been contacted with regards to possible accession of material not suitable for the Portsmouth Museum accession. For example, the NMRN has expressed interest in the cannons, anchors and a representative range of domestic material.

6.5.4 The timetable for depositing archives with the Museum(s) after completion of the post- fieldwork programme is as yet to be agreed between Wessex Archaeology and DIO. The archive will be stored, at the Client's expense, in a secure location until instructions are received from the receiving Museum for its deposition.

6.5.5 The project record will be logged on OASIS – *Online Access to the Index of Archaeological Investigations* (http://oasis.ac.uk/). OASIS is an online archive managed by the Archaeological Data Service, the aim of which is to provide information about archaeological investigations and so to facilitate access to and dissemination of 'grey literature' that is produced in the course of archaeological fieldwork of all kinds.

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APPENDICES

Appendix 1: Finds register

Unique ID	Number of finds	Description	Material type	Dredging zone	Artefact location	Comment from Portsmouth Museum	RoW ID
BWL1_0001	1	Anchor stockless	Iron	D	Hayes Yard		Report sent to RoW 12/11/2015
BWL1_0002	1	Worked timber. No report	Wood	D	Discarded		Report sent to RoW 12/11/2015
BWL1_0003	1	Anchor and mooring	Iron	D	Hayes Yard		Report sent to RoW 12/11/2015
BWL1_0004	1	Wooden pile	Wood	D	Discarded		Report sent to RoW 12/11/2015
BWL1_0005	1	Ovoidal glass bottle	Glass	D	Arrived at WA broken	Accession	Report sent to RoW 12/11/2015
BWL1_0006	1	Inkwell	Glass	D	WA	Accession	Report sent to RoW 12/11/2015
BWL1_0007		Object reported but not found during Quay Side Archaeological Monitoring. No report					
BWL1_0008	1	Brick	Pottery	D	WA		Report sent to RoW 24/11/2015
BWL1_0009	1	Glass bottle	Glass	D	WA		Report sent to RoW 24/11/2015
BWL1_0010	1	Cut bone	Bone	D	WA	Accession	Report sent to RoW 24/11/2015

Unique ID	Number of finds	Description	Material type	Dredging zone	Artefact location	Comment from Portsmouth Museum	RoW ID
BWL1_0011	2	Ceramic sherds	Pottery	D	WA		Report sent to RoW 24/11/2015
BWL1_0012	15	Ceramic sherds	Pottery	E	WA	Accession	Report sent to RoW 24/11/2015
BWL1_0013	1	Imperial wrench	Steel	E	Discarded		
BWL1_0014	38	Ceramic sherds	Ceramic	E	WA	Accession, subject to sampling	
BWL1_0015	43	Bottles	Glass	E	WA	Accession – subject to sampling	
BWL1_0016	1	Metal valve casing and axle	Metal	E	Discarded		
BWL1_0017	1	Two ton Trotman anchor and chain	Ferrous	A	Hayes Yard		282/15
BWL1_0018	1	Composite wood, metal and cement object	Composite	A - spit	WA	Consideration subject to identification	291/15
BWL1_0019	1	Ship timber	Wood	D South	Discarded		
BWL1_0020	1	Anchor - stockless	Iron	B	Hayes Yard		
BWL1_0021	1	Mushroom anchor	Iron	C	DIO		
BWL1_0022	1	Anchor - Admiralty Pattern	Iron	E	Hayes Yard		
BWL1_0023	1	Anchor	Iron	D	Hayes Yard		
BWL1_0024	1	Anchor - Trotman type	Iron	A	DIO		002/16
BWL1_0025	1	Timber pile	Wood	E	Cut up and discarded		
BWL1_0026	1	Mooring anchor	Iron	D	Hayes Yard		
BWL1_0027	1	Byers Improved Stockless Anchor	Iron/steel	B	DIO		
BWL1_0028	1	Solid shot	Iron	D	WA	Accession	
BWL1_0029	1	Wooden structure with cuprous nails	Wood/copper alloy	D	WA		

Unique ID	Number of finds	Description	Material type	Dredging zone	Artefact location	Comment from Portsmouth Museum	RoW ID
BWL1_0030	1	Large anchor	Iron/steel	D	Hayes Yard		
BWL1_0031	1	Admiralty anchor	Iron	C	Hayes Yard		
BWL1_0032	1	Angle crown admiralty anchor	Iron	D	Mary Rose Trust		
BWL1_0033	1	Anchor - Hall's improved patent	Iron/steel	A-Hamilton	Used as temporary mooring buoy		008/16
BWL1_0034	1	Ship timber, possible stringer/keelson	Wood	A-Hamilton	WA		007/16
BWL1_0035	1	Cannon	Cast iron	D-south	Mary Rose Trust		
BWL1_0036	1	Cannon	Cast iron	D	Mary Rose Trust		
BWL1_0037	1	Anchor	Iron	D-south	DIO		
BWL1_0038	1	Stocked anchor - Admiralty long shank	Iron	A-Hamilton	Hayes Yard		014/16
BWL1_0039	3	Natural boulder	Conglomerate	A	Discarded		
BWL1_0040	1	Stone Metal - cannonball	Stone	A - Hamilton	WA	Accession	062/16
BWL1_0041	1	Bone	Bone	D	WA	Accession	
BWL1_0042	1	*Ganges* plaque	Metal alloy	E	WA	Accession	
BWL1_0043	126	2 black boxes of mixed small finds	Ceramic, glass, animal bone, metal and leather	D	WA	Accession – subject to sampling	
BWL1_0044	5	Gold watch	Gold and metal	E	WA	Accession	
BWL1_0045	1	Metal - cannonball 5 inch	Iron	E	WA	Accession	
BWL1_0046		MWS cobb bottle reported but not found by WA for inspection					
BWL1_0047	1	Warren liquid blackening bottle	Ceramic	E	WA	Accession	
BWL1_0048	1	Condensing bulb for a steam pressure transmitter	Steel/iron	A	WA	Possible accession, subject to review by marine engineer	313/16

Unique ID	Number of finds	Description	Material type	Dredging zone	Artefact location	Comment from Portsmouth Museum	RoW ID
BWL1_0049	1	Possible stone shot	Stone	E	WA	Accession	
BWL1_0050	1	Military aircraft engine (Jumo 211b)	Composite	A	WA		
BWL1_0051	1	Cannon	Cast iron	D	Mary Rose Trust		
BWL1_0052	1	Metal - cannonball	Cast iron	D	WA	Accession	
BWL1_0053	1	Ceramic plate (fragment)	Ceramic	E	WA	Accession	
BWL1_0054	1	Large angle crown anchor	Wrought iron	E	Hayes Yard		
BWL1_0055	1	Glass bottle	Glass	E	WA		
BWL1_0056	2	Steel object	Steel	E	Discarded		
BWL1_0057	1	Rudder	Metal	E	WA		
BWL1_0058	1	Brown, Lenox & Co. stockless anchor	Metal	D	Discarded		
BWL1_0059	1	Admiralty pattern anchor (broken arm)	Metal	A	Hayes Yard		
BWL1_0060	1	Iron block (poss part of engine casing?)	Metal	D	Discarded		
BWL1_0061	4	Glass bottles	Glass	Unknown	WA	Accession	
BWL1_0062	4	Modern plate, bowl and sherd	Ceramic	Unknown	WA	Accession	
BWL1_0063	1	Stoneware jug (complete)	Ceramic	Unknown	WA		
BWL1_0064	1	Bishopsgate stoneware jug	Ceramic	Unknown	WA	Accession	
BWL1_0065	2	Stoneware sherds	Ceramic	Unknown	WA		
BWL1_0066	1	Animal jawbone	Bone	Unknown	WA	Accession	
BWL1_0067	1	Glass bowl sherd	Glass	Unknown	WA		
BWL1_0068	3	Clay pipe (3 parts)	Ceramic	Unknown	WA	Accession	
BWL1_0069	Numerous	Wreck	Wood; copper alloy fastenings	D or E	WA & Hayes Yard		
BWL1_0070	1	Balanced spade rudder	Metal	D	Discarded		
BWL1_0071	1	Section of vessel structure?	Steel	A	Unknown, not seen by WA		007/17
BWL1_0072	1	Anchor	Ferrous	A	Hayes Yard		001/17
BWL1_0073	1	Mk2 mine cradle	Steel	A	Hayes Yard		001/17
BWL1_0074	1	Mk2 mine cradle	Steel	A	Hayes Yard		001/17

Unique ID	Number of finds	Description	Material type	Dredging zone	Artefact location	Comment from Portsmouth Museum	RoW ID
BWL1_0075	1	Small engine	Steel	D	Hayes Yard		
BWL1_0076	1	Aircraft ADF unit	Metal	A	NMRN		003/17
BWL1_0077	1	Cannon	Cast iron	D	Mary Rose Trust		
BWL1_0078	1	Cannon	Cast iron	D	Mary Rose Trust		
BWL1_0079	1	Cannon	Cast iron	D	Mary Rose Trust		
BWL1_0080	1	Cannon	Cast iron	D	Mary Rose Trust		
BWL1_0081	1	Cannon	Cast iron	D	Mary Rose Trust		
BWL1_0082	1	Angle crown Admiralty anchor	Iron	A	Hayes Yard		
BWL1_0083	1	Balanced spade rudder	Composite	Unknown	Hayes Yard		
BWL1_0084	1	Small propeller	Bronze/ copper alloy	E	WA	Accession	
BWL1_0085	18	16x glass bottles, 2x animal bone	Glass/ bone	E	WA	Accession – subject to sampling	
BWL1_0086	19	Glass bottles and deck light	Glass	E	WA	Accession – subject to sampling	
BWL1_0087	2	Spring and oil lamp	Metal	E	WA		
BWL1_0088	8	Ceramics	Ceramic	E	WA	Accession – subject to sampling	
BWL1_0089	1	Large stocked Admiralty anchor	Iron	A	Hayes Yard		042/17
BWL1_0090	1	Balanced spade rudder	Copper alloy	A	Not seen by WA, Discarded		061/17
BWL1_0091	1	Stocked anchor	Iron	A	Hayes Yard		057/17
BWL1_0092	1	Possible ships' timber	Wood	E	Hayes Yard		
BWL2_0001	1	Animal bone	Bone		Discarded		
BWL4_0001	1	Worked timber	Wood	Unknown	WA		275/16
BWL4_0002	1	Worked timber with brass nails	Wood/ metal	Unknown	WA		275/16
BWL4_0003	1	Worked timber with treenail	Wood	Unknown	WA		275/16
BWL4_0004	1	Worked timber with treenail	Wood	Unknown	WA		275/16

Unique ID	Number of finds	Description	Material type	Dredging zone	Artefact location	Comment from Portsmouth Museum	RoW ID
BWL4_0005	1	Worked timber with circular hole	Wood	Unknown	WA		275/16
BWL4_0006	1	Worked timber with soft copper nails	Wood/ metal	Unknown	WA		275/16
BWL4_0007	1	Worked timber	Wood	Unknown	WA		276/16
BWL4_0008	1	Bone	Bone	Unknown	WA	Accession	276/16
BWL4_0009	1	Bone	Bone	Unknown	WA	Accession	276/16
BWL4_0010	1	Metal - cannonball	Iron	E	WA	Accession	276/16
BWL4_0011	1	Worked timber	Wood	Unknown	WA		276/16
BWL4_0012	1	Metal - cannonball	Iron	E	WA	Accession	276/16
BWL4_0013	1	Shoe sole	Leather	A	WA		311/16
BWL4_0014	1	Metal - cannonball	Iron	A	WA	Accession	311/16
BWL4_0015	1	Flag pole	Wood/ copper alloy	A	WA	Accession	312/16
BWL4_0016	1	Brass hoop	Brass	A	WA		312/16
BWL4_0017	1	Bullet	Metal	A	WA	Accession	312/16
BWL4_0018	1	Possible counter weight	Iron	A	WA		312/16
BWL4_0019	1	Copper fence/flag pole topper	Copper	A	WA	Accession	312/16
BWL4_0020	1	Rubber ball	Rubber	A	WA		312/16
BWL4_0021		Natural Stone - no report					
BWL4_0022	1	Worked timber	Wood	Unknown	WA		276/16
BWL4_0023	2	Glass bottles	Glass	Unknown	WA		276/16
BWL4_0024	1	Ceramic drainpipe	Ceramic	Unknown	WA		276/16
BWL4_0025	1	Worked wood	Wood	A	WA		311/16
BWL6_0001	2	Metal - cannonballs	Cast iron	A	WA	Accession	
BWL6_0002	3	Metal - cannonballs	Cast iron	A	WA	Accession	
BWL6_0003	2	Metal - cannonballs	Cast iron	A	WA	Accession	
BWL6_0004	1	Metal - cannonball	Cast iron	A	WA	Accession	
BWL6_0005	1	Barshot	Iron	Unknown	WA	Accession	
BWL6_0006	2	Metal - cannonballs	Iron	Unknown	Discarded		
BWL6_0007	1	Metal - cannonball	Iron	Unknown	Discarded		

Unique ID	Number of finds	Description	Material type	Dredging zone	Artefact location	Comment from Portsmouth Museum	RoW ID
BWL6_0008	1	Human skull	Bone	A	Police		
BWL6_0009		Void - number unused					
BWL6_0010	1	Metal - cannonball	Iron	E	Discarded		
BWL6_0011	1	Metal - cannonball	Iron	E	Discarded		
BWL6_0012	1	Possible ship timber	Wood; cu alloy fastenings	Unknown	WA		
BWL6_0013	1	Possible ship timber	Wood	Unknown	WA		
BWL6_0014	1	Possible ship timber	Wood; cu alloy fastenings	A	WA		001/17
BWL6_0014	1	Wooden object	Wood	A	Discarded		
BWL6_0015	1	Metal - cannonball	Iron	Unknown	Cannonball discarded. Timber at WA		
BWL6_0016	3	Timber and 2x metal cannonballs	Wood / metal	Unknown	Cannonballs discarded. Timber at WA		
BWL6_0017	1	Metal - cannonball	Iron	Unknown	Discarded		
BWL6_0018	4	Metal - cannonballs	Iron	E	Discarded		
BWL6_0019	10	9x iron cannonballs, 1x stone shot	Iron/stone	E	WA	Accession – subject to sampling	
BWL6_0020	1	Small boats tiller	Copper/ wood	E	WA		
BWL6_0021	1	Quern stone	Stone	Unknown	WA	Accession	
BWL7_0001		19th century buoy	Wood; fastenings	D	Discarded / WA	Accession	
BWL7_0002	1	Elephant badge	Metal	D	WA	Accession	
BWL7_0003	1	Metal - cannonball	Ferrous	D	WA		
BWL7_0004	1	Metal - cannonball	Ferrous	D	WA		
BWL7_0005	1	Anchor	Ferrous	D	Discarded		
BWL7_0006	1	Possible sword/iron spike	Ferrous	D	Discarded		

Unique ID	Number of finds	Description	Material type	Dredging zone	Artefact location	Comment from Portsmouth Museum	RoW ID
BWL7_0007	2	Saw? and projectile from concretion	Iron	D	WA / Disposed		
BWL7_0008	1	Anchor	Ferrous	D	WA		
BWL7_0009	67	Iron Metal - cannonballs	Iron	D	20x WA / the rest were Discarded	Accession – depending on which ones have been discarded	
BWL7_0010	1	Stone shot	Stone	Unknown	WA	Accession	
BWL7_0011		Void - number unused					
BWL7_0012		Void - number unused					
BWL7_0013	2	Natural boulder	Stone	Unknown	Discarded		
BWL7_0013		Void - number unused					
BWL7_0014	3	Degaussing units and sinker	Metal	A	Hayes Yard		003/17
BWL7_0015	1	Shotgun/ Brown Bess fragment	Wood/metal	B	WA	Accession	
BWL7_0016	1	Timber	Wood	E	Hayes Yard		
BWL7_0017	5	5 plaques	Metal	E	WA	Accession	
BWL7_0018	4	4x ceramics	Ceramic	E	WA	Accession	
BWL7_0019	22	19x glass bottles, 3x glass rods	Glass	E	WA		
BWL7_0020	12	12x metal objects	Metal	E	WA	Accession	
BWL7_0021	5	5x World War II fuse caps	Metal	E	WA	Accession	
BWL7_0022	12	Ceramic sherds and glass	Ceramic/glass/metal	Unknown	WA	Assess when viewed in person	
BWL8_0001	1	Small anchor	Metal	C	WA		
BWL8_0002	3	Leather shoes	Leather	C	WA	Accession	
BWL9_0001	1	Angle bar	Iron	Unknown	Discarded		
BWL9_0002	1	Girder	Iron	Unknown	Discarded		

Unique ID	Number of finds	Description	Material type	Dredging zone	Artefact location	Comment from Portsmouth Museum	RoW ID
BWL9_0003	1	Dock/piling timber	Wood	Unknown	Discarded		
BWL9_0004	38	Miscellaneous finds reported with BWL1_0013, BWL1_0014, BWL1_0015 and BWL_0016	Metal and leather	E	WA	Accession	
BWL9_0005	1	Eroded plank with fastenings	Wood	Unknown	WA		
BWL9_0006	1	Martin anchor	Iron	Unknown	Hayes Yard		
BWL9_0007	30	Various small finds	Glass, animal bone, ceramic, metal and leather	Unknown	WA		
BWL9_0008	Numerous	Various dock or harbour timbers	Wood	Unknown	Discarded		
BWL9_0009	1	Timber strake	Wood	Unknown	Discarded		
BWL9_0010	1	Iron stock	Iron	Unknown	Discarded		
BWL9_0011	1	Timber piling	Wood	Unknown	Discarded		
BWL9_0012	1	Dock timber	Wood	Unknown	Discarded		
BWL9_0013	36	Various small finds	Ceramic, glass, leather, metal and animal bone	Unknown	WA		
BWL9_0014	1	Cant frame	wood	Unknown	WA		
BWL9_0015	1	Timber	Wood	D	WA		
BWL9_0016	7	Glass bottles	Glass	D	WA		
BWL9_0017	1	Ceramic attached to concretion	Ceramic	D	WA		
BWL9_0018	1	Large tool	Iron	D	WA		
BWL9_0019	1	Possible aircraft frag	Aluminium	D	WA		
BWL9_0020	1	Possible aircraft frag	Aluminium	D	WA		
BWL9_0021	1	Possible aircraft frag	Aluminium	D	WA		
BWL9_0022	1	Silver fork	Silver	D	WA		
BWL9_0023	1	Floor timber	Wood	D	WA		
BWL9_0024	1	Timber piles	Wood	D	Discarded		
BWL9_0025	1	Timber piles	Wood	D	Discarded		

Unique ID	Number of finds	Description	Material type	Dredging zone	Artefact location	Comment from Portsmouth Museum	RoW ID
BWL9_0026	1	Timber piles	Wood	D	Discarded		
BWL9_0027	1	Timber piles	Wood	D	Discarded		
BWL9_0028	1	Metal lid/hatch	Metal	D	Discarded		
BWL9_0029	1	Large exploded bomb	Metal	D	Discarded	Accession	
BWL9_0030	2	2x leather shoe soles	Leather	Unknown	WA		
BWL9_0031	1	Porthole	Metal	Unknown	WA		
BWL9_0032	1	Wooden lid/hatch cover marked 'MOYLE' & '1966'	Wood/metal	Unknown	WA		
BWL9_0033	1	Copper plaque '45ft motor launch'	Copper	Unknown	WA	Accession	
BWL9_0034	1	Stockless anchor	Iron	E	Discarded		
BWL9_0035	1	Metal - cannonball	Iron	Unknown	WA		
BWL9_0036		Void - renumbered as BWL1_0050: Aircraft engine					
BWL9_0037	1	Torpedo mid-section	Steel	E	Discarded		
BWL9_0038	1	Torpedo engine	Composite	Unknown	Discarded		
BWL9_0039	1	Metal - cannonball	Iron	Unknown	WA		
BWL9_0040	1	Stoneware Genever bottle	Ceramic	Unknown	WA	Accession	
BWL9_0041	1	Stoneware jug handle	Ceramic	Unknown	WA	Accession	
BWL9_0042	11	11x glass bottles	Glass	Unknown	WA		
BWL9_0043	1	W.P. Hartley jam jar	Ceramic	Unknown	WA	Accession	
BWL9_0044	1	Pulley wheel	Wood	Unknown	WA	Accession	
BWL9_0045	1	Tin glaze plate	Ceramic	Unknown	WA	Accession	
BWL9_0046	1	Rolls razor tin lid	Metal	Unknown	WA	Accession	
BWL9_0047	1	Air vent cover	Metal	Unknown	WA		
BWL9_0048	1	Deck light glass	Glass	Unknown	WA		
BWL9_0049	1	Speaking tube	Metal	Unknown	WA	Accession	
BWL9_0050	2	2x animal bone	Bone	Unknown	WA	Accession	
BWL9_0051	6	Olive jar	Ceramic	Unknown	WA	Accession	
BWL9_0052	10	Modern plates	Ceramic	Unknown	WA		

Unique ID	Number of finds	Description	Material type	Dredging zone	Artefact location	Comment from Portsmouth Museum	RoW ID
BWL9_0053		Void – number unused					
BWL9_0054	1	Possible ship timber	Wood; iron fitting or fastening	Unknown	WA		
BWL9_0055	1	Possible ship timber	Wood; copper alloy sheathing	Unknown	WA		
BWL9_0056		Natural Stone - no report					
BWL9_0057		Possible ship timbers	Wood; copper alloy fastenings	Unknown	WA		
BWL9_0058	3	Shoe fragments	Leather	D	WA		
BWL9_0059	1	Danger sign	Aluminium	D	WA		
BWL9_0060	1	Copper dish	Copper	D	WA	Accession	
BWL9_0061	1	Shell casing	Brass	D	WA	Accession	
BWL9_0062	1	Sign backing	Copper alloy	D	WA		
BWL9_0063	6	Cutlery	Stainless steel/silver	D	WA		
BWL9_0064	1	Iron eye	Iron	D	WA		
BWL9_0065	1	Flat iron	Iron	D	WA		
BWL9_0066	1	Y-shaped hook	Iron	D	WA	Accession	
BWL9_0067	1	Large Doulton stoneware jug	Ceramic	D	WA		
BWL9_0068	10	10x stoneware jars	Ceramic	D	WA	Accession – subject to sampling	
BWL9_0069	1	Stone base	Stone	D	Discarded		
BWL9_0070	10	10x glass bottles	Glass	Unknown	WA		
BWL9_0071	4	Ceramics, 1x plate, 2x jars, 1x sherd	Ceramic	Unknown	WA		007/17
BWL9_0072	1	Angle crown anchor	Iron	Unknown	Hayes Yard		
BWL9_0073	1	Stockless anchor	Iron	Unknown	Discarded		
BWL9_0074	1	Large stocked anchor	Iron	Unknown	Hayes Yard		

Unique ID	Number of finds	Description	Material type	Dredging zone	Artefact location	Comment from Portsmouth Museum	RoW ID
BWL9_0075	1	Possible ships' timber	Wood	Unknown	WA		
BWL9_0076	1	Iron grapnel	Iron	Unknown	Discarded		
BWL9_0077	6	Assorted metal objects	Metal	Unknown	WA	Accession	
BWL9_0078	1	Jug	Ceramic	Unknown	WA	Accession	
BWL9_0079	6	Assorted objects	Ceramic, leather, bone, stone, *et al*	Unknown	WA	Accession	
BWL9_0080	3	3x iron hooks	Iron	Unknown	WA	Accession	
BWL9_0081	1	Stockless anchor	Iron	Unknown	Hayes Yard		
BWL9_0082	1	Folding stock anchor	Iron	Unknown	Hayes Yard		
BWL9_0083	1	Possible ships' timber	Wood	Unknown	Discarded		
BWL9_0084	1	Timber with pulley wheel	Wood	Unknown	Discarded	Museum will undertake further research	
BWL9_0085	1	Section of ships' planking	Wood	E	Discarded		
BWL9_0086	1	Stringer	Wood	E	Hayes Yard		
BWL9_0087	1	Wood/iron wheel object	Wood/iron	E	WA		
BWL9_0088	6	Copper sheathing	Copper	E	WA	Accession	
BWL9_0089	1	Barrel lid	Wood	E	WA	Accession	
BWL9_0090	16	Clay pipe fragments	Ceramic	E	WA	Accession	
BWL9_0091	7	Stoneware	Ceramic	E	WA		
BWL9_0092	14	Glass bottles	Glass	E	WA	Accession	
BWL9_0093	10	10x metal objects	Metal	E	WA	Accession	
BWL9_0094	9	Preserve jars and a mug	Ceramic	E	WA		
BWL9_0095	6	Olive jar fragments and glazed redwares	Ceramic	E	WA	Accession	
BWL9_0096	2	Pulley wheel and brush	Wood	E	WA	Accession	
BWL9_0097	19	Ceramic sherds	Ceramic	E	WA	Accession	
BWL9_0098	1	Stockless anchor	Iron	Unknown	Hayes Yard		
BWL9_0099	1	Degaussing unit	Metal	Unknown	Hayes Yard		

Unique ID	Number of finds	Description	Material type	Dredging zone	Artefact location	Comment from Portsmouth Museum	RoW ID
BWL9_0100	1	Folding stock mooring anchor	Iron	Unknown	Hayes Yard		
BWL9_0101	1	Mast boom	Wood	Unknown	Hayes Yard		
BWL9_0102	1	Lead ingot	Lead	E	WA	Accession	
BWL9_0103	2	Wooden coil core and tool	Wood	E	WA		
BWL9_0104	4	Glass bottles	Glass	E	WA		
BWL9_0105	1	Base of iron cooking pot	Iron	E	WA		
BWL9_0106	1	Sounding lead with broad arrow	Lead	E	WA	Accession	
BWL9_0107	14	Metal objects, including silver tray and brass brackets	Metal	E	WA		
BWL9_0108	1	Fire hose coupling	Bronze	Unknown	WA		
SSS-2546 (Wreck 1)	1	Natural boulders	Stone	Edge of dredging channel	Seabed		
SSS-2480 (Wreck 2)	1	Chain	Metal	Further from edge of dredging channel	Seabed		

Appendix 2: Finds reports

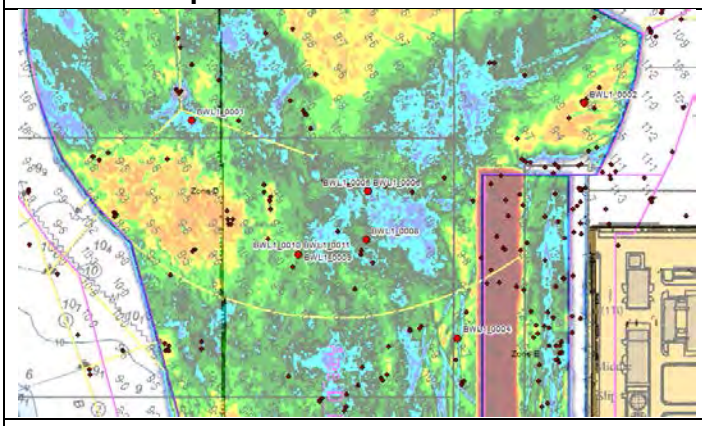
Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

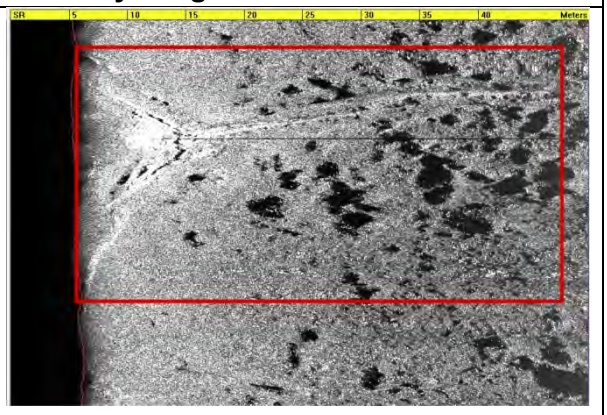
Archaeological Object Report Form

UID BWL1_0001	Brown, Lenox & Co. stockless anchor, post-1892	
Date of Discovery	8/11/2015	
How Discovered	Retrieved by grab by *Strekker*	
Position of Discovery (British National Grid)	462318.07 E	101302.4 N

Location Map



Anomaly Image



Images of object

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09/12/2015
Final Version 02

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
Brown, Lenox & Co. Ltd. stockless anchor with cast steel crown and arms, cast stock and forged iron shank. The squared shank is 1.9m long, the distance between the bills is 0.95m, the maximum dimensions of the palms are 0.18 by 0.3m and the stock is 1.24m long and 0.24m deep. The anchor is probably not later than very early 20th century because it is stocked and would not have been drawn up into a hawse pipe.
Interpretation
Naval anchor, post 1892. The anchor was probably used for mooring although it cannot be excluded that it was lost by a ship. No markings were found on the anchor. Manufactured after 1892 when this particular design was approved by Lloyd's and probably in Pontypridd, Glamorgan where Brown, Lenox & Co. Ltd had their main works (although the company were initially based at Millwall on the Thames). They manufactured chains, cables, anchors, buoys and moorings for the Admiralty and others and the anchor chain of the *Titanic* was reputedly manufactured at their Pontypridd works. They were the main supplier of anchor chain to the Admiralty until 1916 and the factory at Pontypridd did not close until 2000 (http://www.archiveswales.org.uk/anw/get_collection.php?inst_id=33&coll_id=2077&expand=).

Period	Victorian or Early 20th century	**Date Range**	1892-c.1920

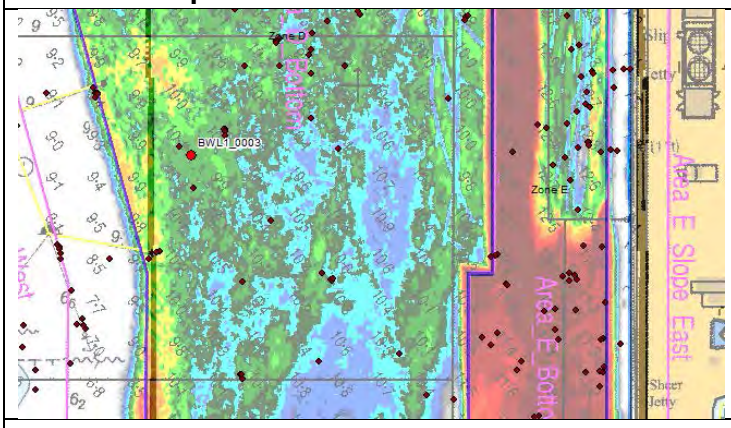
Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL1_0003	Admiralty pattern anchor	
Date of Discovery	8/11/2015	
How Discovered	Retrieved by grab by *Strekker*	
Position of Discovery (British National Grid)	462380.02 E	100949.34 N

Location Map



Anomaly Image

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Images of object

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Archaeological Object Report Form

Description
Admiralty pattern anchor with iron stock. This type of anchor was introduced in 1841 by Admiral Sir William Parker. The presence of an iron stock suggests that this is not one of the earliest of this type. The arm bent over flush with the shank indicates that this anchor was adapted for permanent mooring. The shank is 2.46m long, 0.20m wide tapering to 0.17m at the crown and 0.8m thick. The distance between the bill of the curved arm and the shank is 0.92m, the maximum dimensions of the palms are 0.40 wide and 0.44m not including the bill. The arms of the iron stock measure 0.52m length and 0.125m diameter and the pinned balls are missing. Two large shackles are attached to the anchor. The weight of the anchor estimated from the length of the shank is around 355 kg, which is almost 7 cwt.
Interpretation
The anchor was used as a mooring. No markings were found on the anchor.

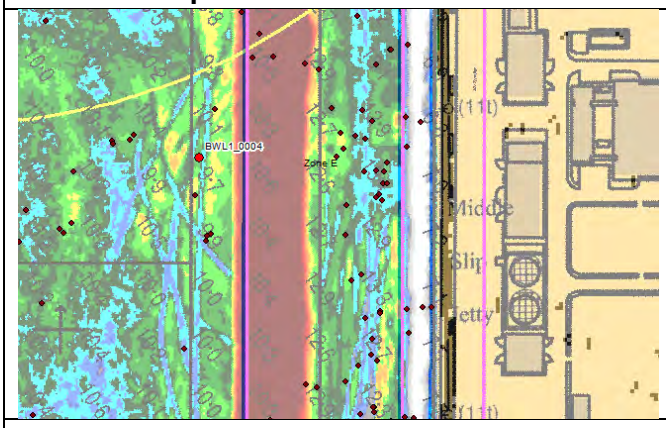
Period	Victorian	**Date Range**	Post 1841

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL1_0004	Wooden pile	
Date of Discovery	10/11/2015	
How Discovered	Retrieved by grab by *Strekker*	
Position of Discovery (British National Grid)	462575.61 E	101092.17 N

Location Map	**Anomaly Image**
	-

Images of object

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Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
This timber is 7.25m long and has a maximum diameter of 0.43m. It has an irregular profile along the length and shows slight squaring off. Both ends are eaten by marine borers and the all surfaces are also worn. No fastening was observed and there are no apparent tool-marks.
Interpretation
The timber could be either a lost semi-worked timber, possibly part of a cargo, or a pile used in marine construction.

Period	Unknown	**Date Range**	Unknown

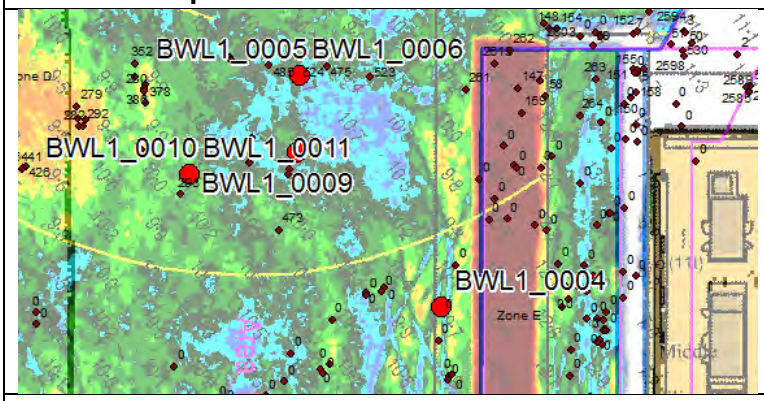
Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL1_0005	Glass bottle	
Date of Discovery	10/11/2015	
How Discovered	Retrieved by grab by *Strekker*	
Position of Discovery (British National Grid)	462488.53 E	101234.02 N

Location Map



Anomaly Image

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Archaeological Object Report Form

Description
Flat egg bottle in pale greenish glass. The bottle carries an embossed proprietary mark (LENEY DOVER).
Interpretation
The 'flat egg' is a variant of the ovate 'egg bottle' and was introduced around the turn of the 20th century. The earliest known advert for this type dates to 1902. They were particularly common during the Edwardian period, i.e. first decade of the 20th century. Alfred Leney's brewing company seems to have been a well-established company in Dover – it was traced in trade directories from 1882 to 1913. The find is interpreted as a stray item possibly thrown overboard or redeposited from the shore.

Period	Edwardian	**Date Range**	1882-1913

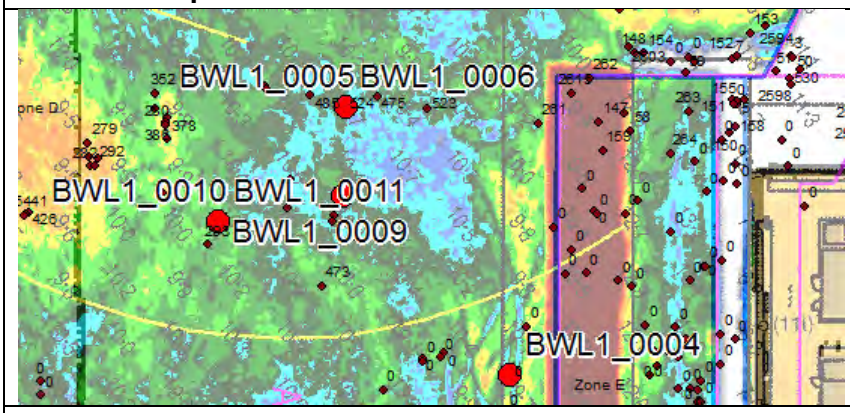
Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL1_0006	Glass inkwell	
Date of Discovery	11/11/2015	
How Discovered	Recovered by grab by *Strekker*	
Position of Discovery (British National Grid)	462488.53 E	101234.02 N

Location Map



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Archaeological Object Report Form

Description
Greenish glass rectangular inkwell. On the side there is embossed a decorative marking that reads ‘M’. It is dated to later 19th or quite possibly 20th century.
Interpretation
This inkwell is a stray item and was possibly lost from a vessel or the shore

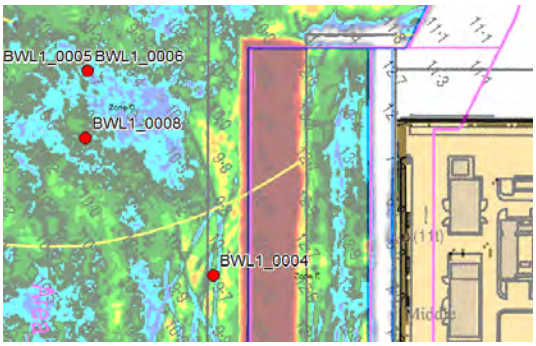
Period	20th Century	**Date Range**	1890-1950

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL1_0008	Brick	
Date of Discovery	12/11/2015	
How Discovered	Recovered by grab by *Strekker.*	
Position of Discovery (British National Grid)	462486.86 E	101187.30 N

Location Map	**Anomaly Image**
	-

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Archaeological Object Report Form

Description
This is a handmade brick of imperial size with surfaces traces that indicates that it was wire cut. The quality of the brick suggests that this is very likely used as a facing brick (1st choice).
Interpretation
The absence of trace of mortar on the surface indicates that this is brick was not used before its deposition suggesting that it was lost.

Period	19th century	**Date Range**	1800-1900

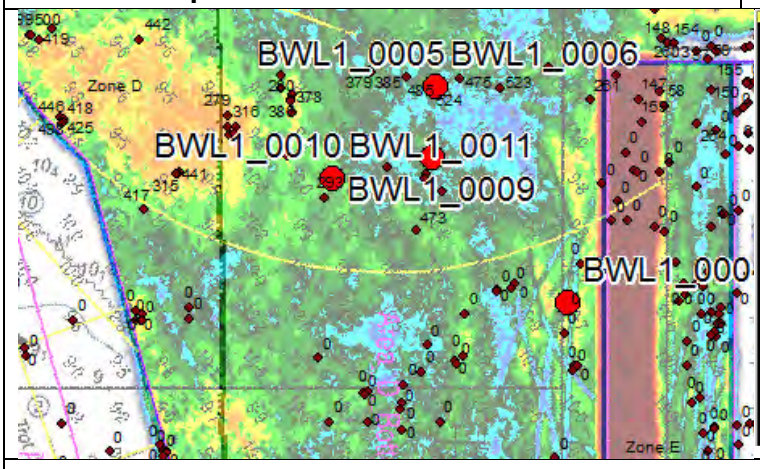
Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL1_0009	Glass bottle	
Date of Discovery	12/11/2015	
How Discovered	Recovered by grab by *Strekker*	
Position of Discovery (British National Grid)	462421.6 E	101173.41 N

Location Map



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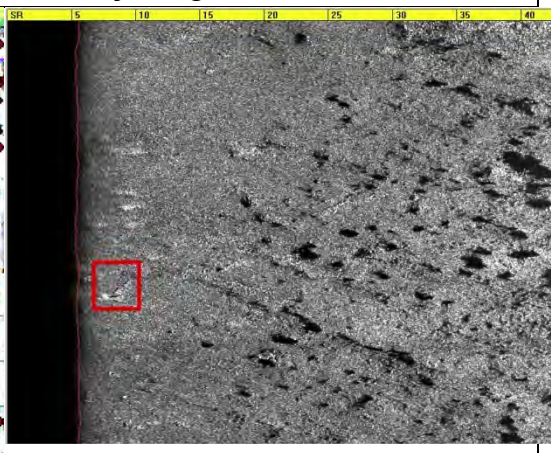

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Archaeological Object Report Form

Description
Glass bottle. The greenish glass and shape of the bottle suggest it was used as a wine container and the flat collar indicates that the bottle is of continental provenance. It is dated from the mid-19th to the mid-20th century.
Interpretation
The bottle is a stray item possibly lost or thrown away from a vessel or the shore.

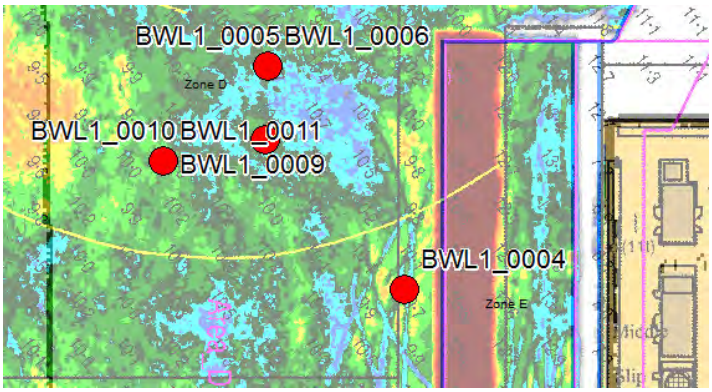
Period	20th century	**Date Range**	1850-1950

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL1_0010	Animal bones	
Date of Discovery	12/11/2015	
How Discovered	Recovered by grab by *Strekker.* Further bones were recovered during the quay Archaeological Monitoring.	
Position of Discovery (British National Grid)	462421.60 E	101173.41 N

Location Map	**Anomaly Image**
	-

Images of object

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Archaeological Object Report Form

Description
The bones belong to cattle, sheep (or goat) and pig. Their size suggests that they are from improved breeds of livestock so probably post-medieval/modern in date. The saw marks on one of the fragments confirms this since saws were not really used as butchery tools until fairly late.
Interpretation
Dumped material.

Period	Post-medieval/20th century	**Date Range**	1800-2000

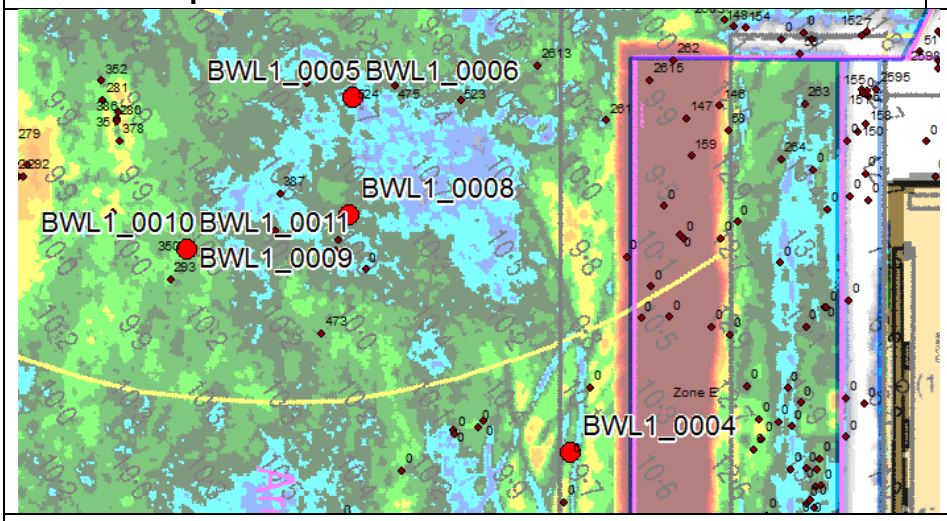
Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL1_0011	Two ceramic fragments	
Date of Discovery	12/11/2015	
How Discovered	Recovered by grab by *Strekker*	
Position of Discovery (British National Grid)	462421.60 E	101173.41 N

Location Map



Anomaly Image

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Museum Acc No. : 2015/462

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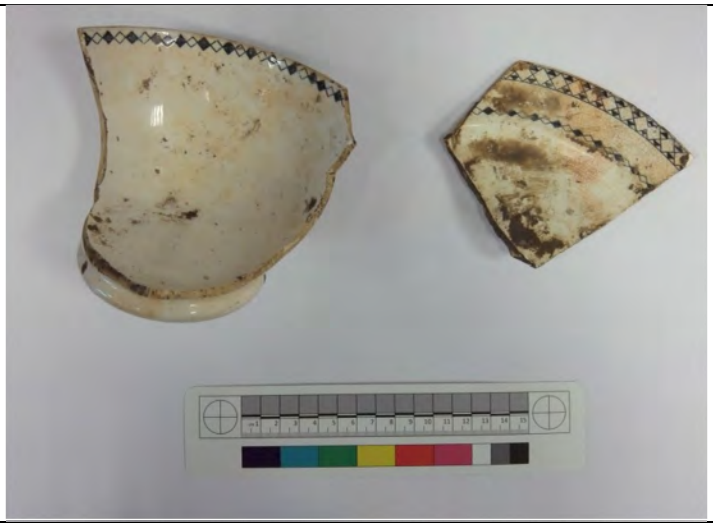
Archaeological Object Report Form



Description
Two white ceramic fragments with simple decorative band. They do not present any significant features and are dated from the 19th to 20th century
Interpretation
Dumped material.

Period	19th- 20th century	**Date Range**	1800-2000

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL1_0012	Two ceramic fragments	
Date of Discovery	15/11/2015	
How Discovered	Recovered by grab by *Strekker*	
Position of Discovery (British National Grid)	462672.22 E	100724.69 N

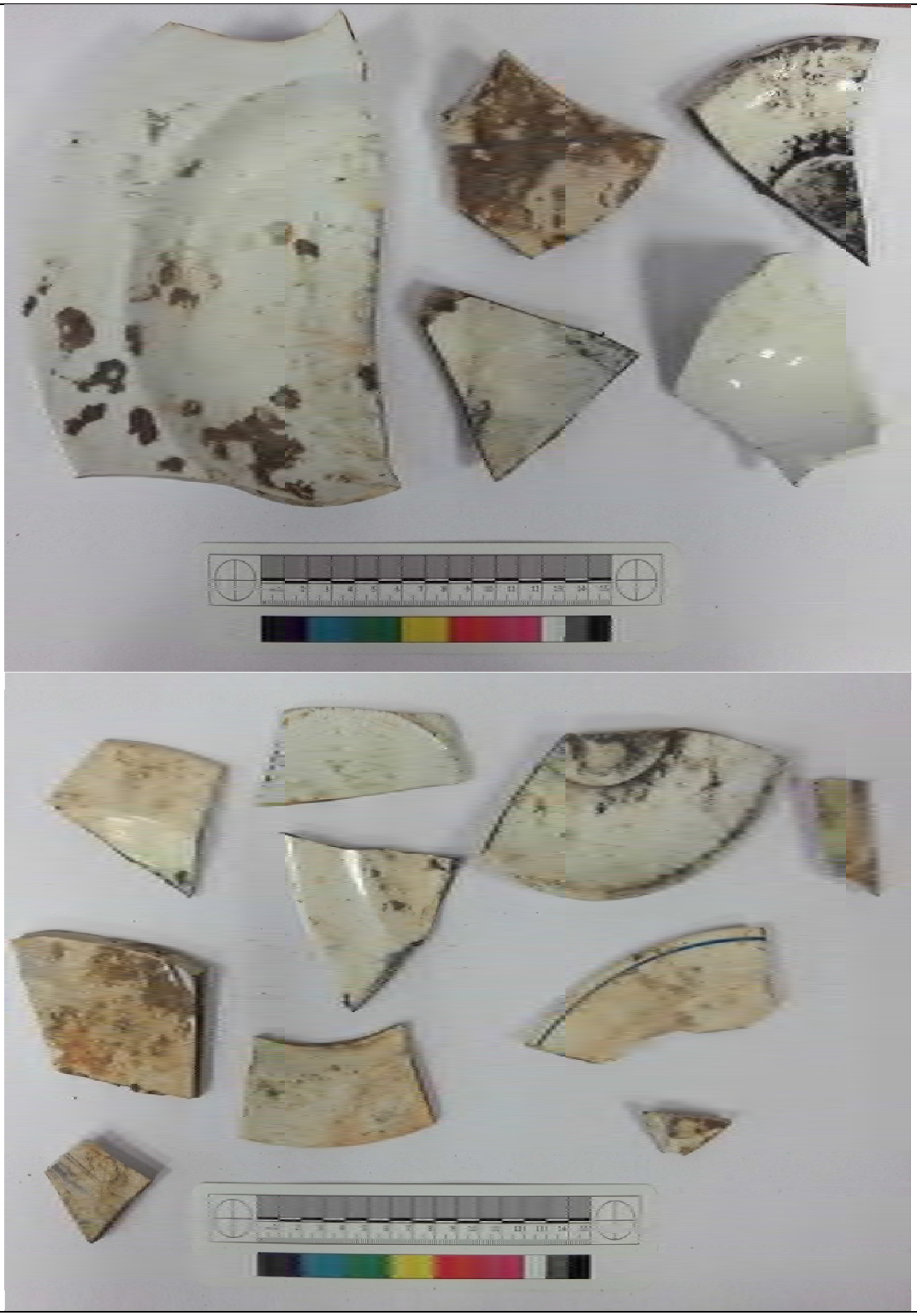
Location Map

Anomaly Image

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Images of object



Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
Fifteen fragments of white ware with simple transfer blue print decoration. One fragment shows a Syracuse China Corporation backstamp. The Syracuse China Corporation was founded in 1871 as the Onondaga Pottery Company (O.P.Cp.) and the Syracus China backstamp was used from 1895. These fragments are dated from the end of the 19th to the 20th century.
Interpretation
Dumped material.

Period	19th- 20th century	**Date Range**	1895-20th century

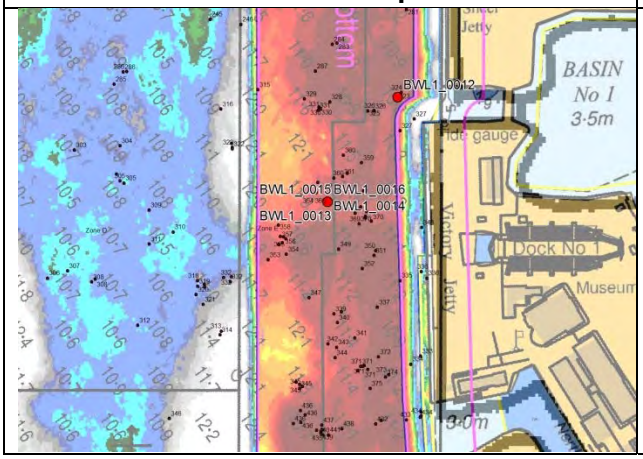
Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

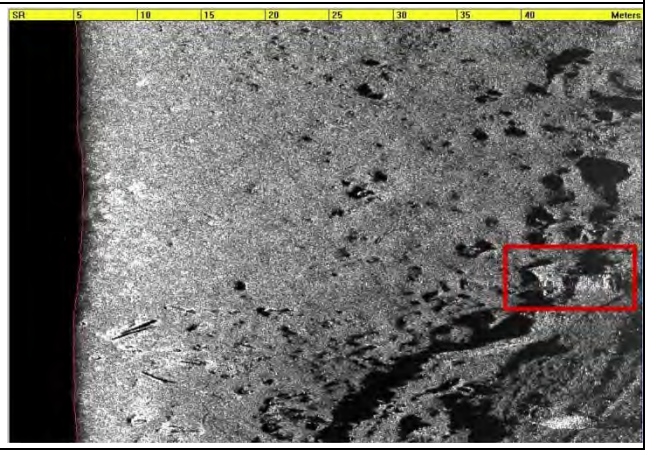
Archaeological Object Report Form

UID BWL1_0013-16 BWL9_0004	Ceramic, glass and miscellaneous late 18th-20th century objects	
Date of Discovery	15-16/11/2015	
How Discovered	Recovered during investigation of sidescan sonar anomaly (Target List Name 366)	
Position of Discovery (British National Grid)	**462627.11 E**	**100657.43 N**

Location Map



Anomaly Image



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Archaeological Object Report Form

Images of objects

BWL1_0014

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Detail from BWL1_0014

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BWL9_0004 - Miscellaneous

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Archaeological Object Report Form

Description

BWL1_0013

This object, described as an 'Imperial wrench', was not identified shore-side. A number of recovered tools were examined, none of which were archaeologically significant.

BWL1_0014

19th and 20th century ceramic fragments, probably dumped in more than one episode. They include:

- Various 'utility' china and other white ware sherds, most naval/Crown Suppliers issue. Some examples have mid-late 20th century transfer printed dates of 1945, 1949, 1961 and 1987.
- Rim sherd of a late 18th-19th century chamber pot, transfer printed with an oriental scene.
- Various sherds of transfer printed Victorian white ware, including one with part of an ironclad of the third quarter of the 19th century.
- Single base sherd of green-glazed 19th century majolica, with moulded leaf pattern.
- Undateable oriental stoneware sherd.

BWL1_0015

Late 19th - 20th century bottles and bottle fragments, including green, brown and clear glass. Forms include:

- Various milk bottles, moulded marks include 'Safety First Milk Association', 'Co-operative Milk' and 'Unigate'.
- Various beer and spirit bottles, including 'Groves & Sons…Weymouth' (pre-1960) and 'Mew & Co…Isle of Wight' (19th century).
- Various glass containers for foodstuffs and a salt cruet.

BWL1_0016

This object, described as a 'Metal valve casing and axle', was not identified shore-side. A number of recovered metal objects were examined, none of which were archaeologically significant.

BWL9_004 - Miscellaneous

Miscellaneous finds from this location not separately reported included:

- Various Crown Supplier stainless steel and plated metal cutlery, including table knives, forks and spoons. Probably all 20th century.
- Brass and steel screws and eye bolts (undated).
- Short lengths of leather tube with cuprous riveting (undated).
- Small brass door latch (undated).
- Brass end cap for shipboard pipe (possibly for fire/water hydrant).
- Service-issue 'Piccadilly' tobacco tin, early 1950s.

Interpretation
Dumped material unlikely to have been deposited at the same time due to differences in date. The location is approximately 60 m off Victory Jetty, which is historically a very high traffic zone. The extent to which the finds are associated with the sidescan sonar anomaly other than by location is uncertain.

Period	Hanoverian; Georgian; Victorian; 20th century	**Date Range**	Late 18th-20th century

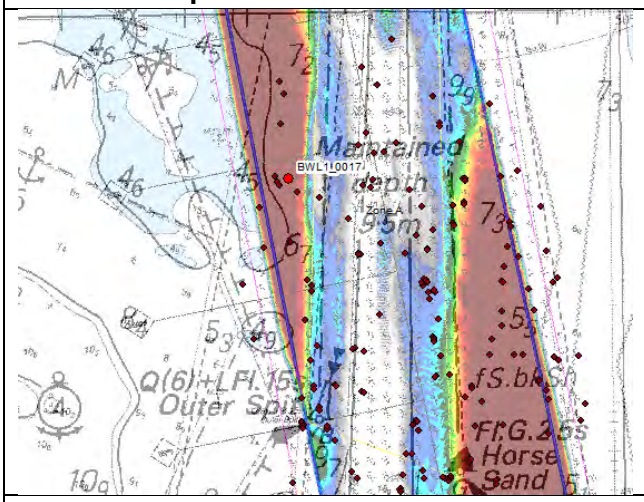
Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

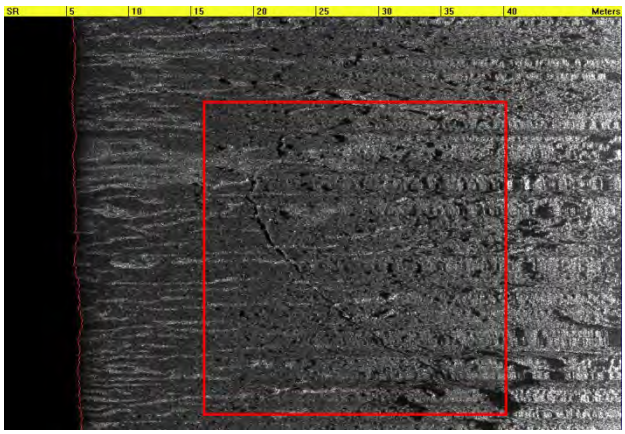
Archaeological Object Report Form

UID BWL1_0017	Trotman's Anchor	
Date of Discovery	22/11/2015	
How Discovered	Retrieved by grab by *Strekker*	
Position of Discovery (British National Grid)	464132	96430

Location Map



Anomaly Image



Images of object

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Archaeological Object Report Form

Description
An exemplar of Trotman's anchor (circa 1860), improved from Porter's design. It consists of a shank with square section measuring 3.76m length and tapers slightly towards the crown (0.24 to 0.17 m width, 0.24 m depth). Along it the fish-buckle has a diameter of 0.41 m. At the other end of the shank there is a large shackle and chain and the shackle eye has a diameter of 0.16 m. A single piece crescent shaped crown (0.3 m width and 0.12 m depth) swivels on a large bolt (0.07m) to the shank. The triangular palms are flat and measure 0.87 m by 0.4 m by 0.033 m and include flat-spade like protrusions mounted at a right angle. The bills distance is 1.72 m. The iron stock is bent (length 3.31 m) and circular in section and tapers towards the ends (diameter 0.072 m and 0.016 m). Crown, shank and shackles appear to be made of forged iron.
Interpretation
The Trotman's anchor was patented in 1852 and although it provided great holding qualities/weight ratio it was not adopted by the Royal Navy. However, it was widely used by the merchant marine. This type of anchor was widely used at the end of the 19th century.

Period	Victorian	**Date Range**	1852 - 20th century

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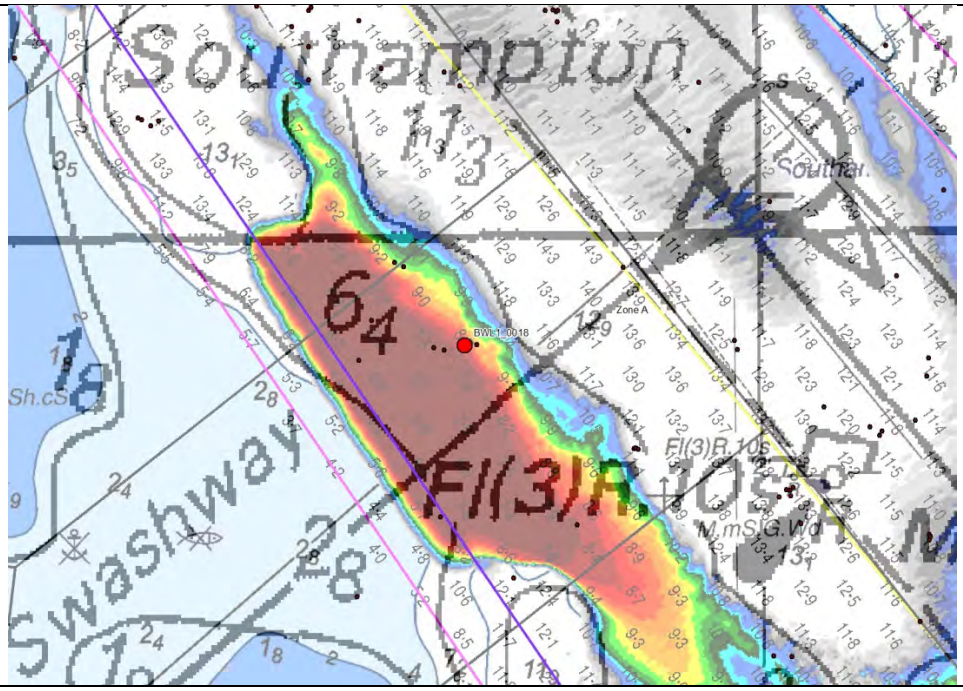
Archaeological Object Report Form

UID BWL1_0018	Unidentified composite wood and metal object, probably of 20th century date	
Date of Discovery	25/11/2015	
How Discovered	Recovered during investigation of UXO84	
Position of Discovery (British National Grid)	**463359.56 E**	**98107.3 N**

Location Map	**Anomaly Image**
	Not available

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Archaeological Object Report Form

Images of object

BWL1_0018 post-recovery, on board *Strekker*

See also separate 3D pdf photogrammetry model file.

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description

Composite aluminium, cuprous metal, steel, wood and cement (?) object with complex form. Currently unidentified.

The object is cylindrical and 1.59m long. It comprises three distinct but attached elements:

- A cylindrical main body, 0.64m long. This is barrel-like in its form (0.35m and 0.41-0.42m diameter at either end; 1.46m circumference at approximate mid-point). The shell comprises two thin cylindrical aluminium plates separated by a thin cuprous strip and two thin cylindrical cuprous plates of different widths at the wider end. The means of joining of the shell plates is not apparent and no rivets can be seen externally. The aluminium plates appear to have been subject to external force and have deformed over what appear to be thin internal reinforcing frames running along the long axis. The cylinder is closed at the narrower end by a circular aluminium end plate, where there is a brass-like ring reinforcing the edge and attached by very small cuprous rivets, only one of which is now in place. The cylinder is open at the wider end and appears to be incomplete, as there are a number of highly deformed thin aluminium frames attached to the shell. These have the same axis and spacing as the frame-like impressions at the other end, suggesting that there was originally more aluminium shell plating which is now missing. Recessed within is a rough cement-like surface of unknown thickness. One side of the object has received a heavy impact, which has forced in and partly opened the cylinder. It does not appear to be empty, although what is in there is unknown.
- Attached to one side of the shell plating towards the wider end is a three-sided, rectangular shaped two-part bracket made of ferrous (?) angle and attached to the shell by a number of stainless steel (?) bolts. At the open end and attached to the shell is a metal nut with a circular through hole, possibly for wiring or a very small diameter tube. The bracket appears to be a socket for an attachment, although the only means of securing the bracket to the inserted object is a single bolt hole.
- At the narrower end are the highly eroded remains of a wooden object of laminar construction. The remains do not project beyond the circumference of the narrow end of the cylinder. It comprises three parts: a section that is flush to the aluminium end plate of the cylinder and may be attached to it; and two flush sections that will revolve if pushed around a central cuprous shaft of 17mm diameter; the outer section's end surface has a number of substantial screw or bolt holes around the central shaft. Total thickness of the laminated wood is 0.13m, leaving a gap. The wood type is unidentified but appears to be softwood.
- The end of the shaft is threaded to fit a solid cone-like boss. This appears to be brass and has a diameter of 0.12m. There is an 'x 10' marking inscribed onto the base. Inside of this and also attached to the shaft is a circular brass-like plate, whose diameter matches the base of the boss and whose bevelled edge aligns with its face, suggesting that it fitted flush to the inner side of the boss. The screw positions and size do not match those of the wood and there is a gap between which must have been filled with a missing section of wood. The surface of the plate is also marked 'x 10'. There are countersunk screw holes with the remains of slot-headed wood screws.

Interpretation

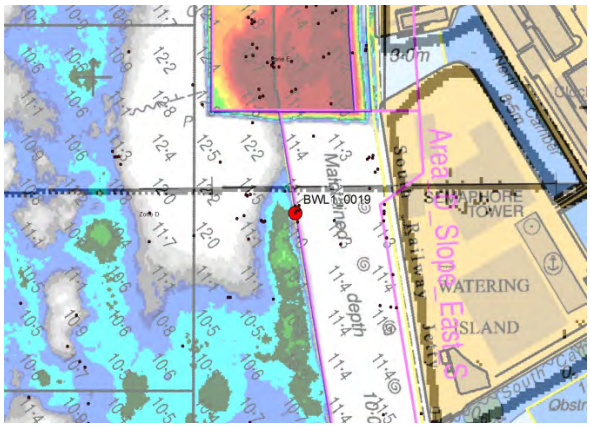
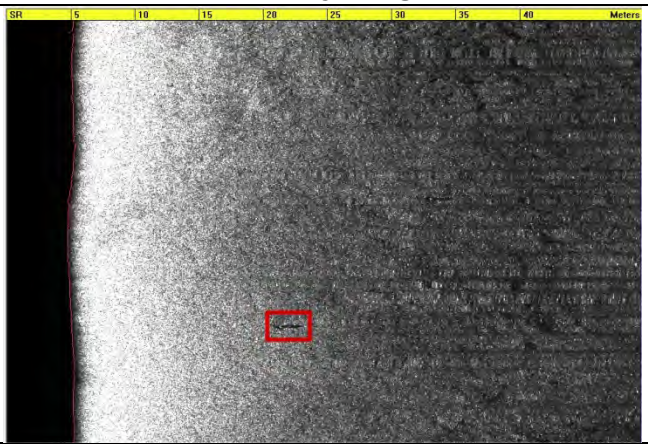
Initially identified but then discounted as a potential UXO, the object was subsequently interpreted on site as a possible aircraft engine. Closer examination by Wessex Archaeology suggests that it has several features inconsistent with that interpretation. Enquiries are ongoing to identify this object, which is currently unidentified. The materials used suggest that a 20th century date is likely.

Period	20th century	**Date Range**	Not yet known

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID **BWL1_0019**	Probable timber ship structure	
Date of Discovery	01/12/2015	
How Discovered	Recovered by diver from anomaly 6005	
Position of Discovery (British National Grid)	**462638.81 E**	**100407.49 N**
Location Map	**Anomaly Image**	
		

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Archaeological Object Report Form

Images of object

BWL1_0019 on board *Strekker* after recovery

Face view (2D image of photogrammetry model)

Side view (2D image of photogrammetry model)

(Separate digital file)

Low resolution 3D pdf of photogrammetry model

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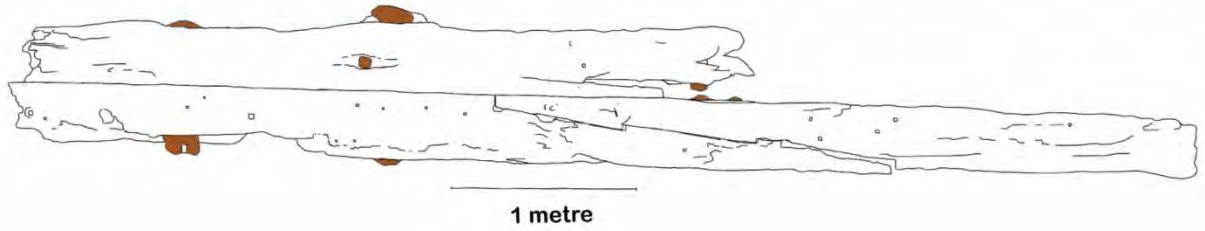
Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form



Scale drawing based upon photogrammetry model (red-brown is concretion)

Description
Large three section hardwood timber structure. The object is heavily eroded and incomplete, with only part of its original length surviving. Due to this damage the original dimensions are unknown, but surviving length is 6.44m, maximum width is 0.73m and maximum depth 0.34m. Two of the three sections are scarphed together (see model and drawing). The diagonal scarph is 2.15m long and is indented (hooked), although it is not clear whether the indents are stopwaters. The scarph is bolted through by three heavily concreted ferrous bolts. A small amount of fibrous material, interpreted as caulking was found in the joint next to one of the indents. The third piece is bolted onto one of the other sections by two heavily concreted ferrous through-bolts. One of the concreted ends has broken. The round section bolt within is not present but the impression has a 25mm diameter (1”). A heavily concreted ferrous bolt end is present in the face of the third section. There is some evidence in the form of a possible indent face, that a similar scarph, slightly offset to the surviving scarph, joined the third section to another missing piece. There are a number of small round and sub-round empty nail or bolt holes, most of which are 25mm diameter. Due to the weight of the object, it was not possible to examine both faces.

Provisional Interpretation
Nothing else is reported to have been found at the anomaly location and the sidescan sonar image suggests that this is probably an isolated find rather than part of a larger object or site. However, the object is clearly part of a larger structure. The presence of a complex scarph joint suggests that the original structure was subject to considerable and probably variable external stresses, which in turn suggests that it moved. The caulking in the scarf joint suggests that this structure was waterproofed and therefore intended for use in a marine environment. Whilst it is conceivable that this object is part of a wooden dock structure, for example a dock gate, it is more likely that it is part of a wooden ship. If so then the presence of iron bolts suggests that it would have been part of the above-waterline structure. However, the presence of caulking suggests that it would have been part of the ship subject to regular inundation and therefore perhaps the deck or its supporting structure is the likely origin. Further and more detailed analysis may identify its likely use. The apparently isolated nature of the find indicates that it is debris rather than a wreck. It may therefore be the result of ship maintenance or breaking activities associated with the naval dockyard. Date is likely to be no later than the first half of the 19th century. Dendrochronological assessment is recommended in order to obtain a date range for the object. However, due to the condition of its surface, it is not possible to assess its suitability before a sample is taken.

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Archaeological Object Report Form

Period	Post-medieval	**Date Range**	Probably pre-1850

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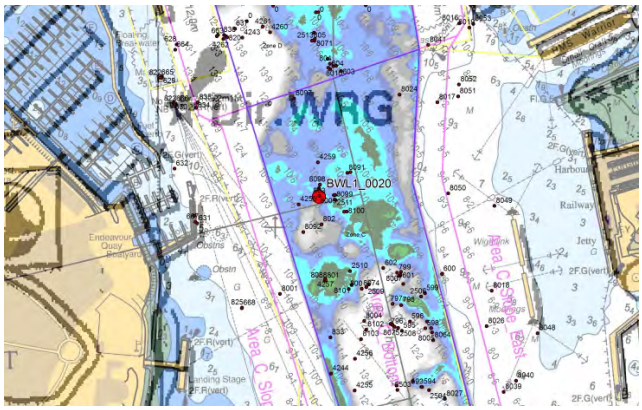
Archaeological Object Report Form

UID **BWL1_0020**	Stockless anchor	
Date of Discovery	05/12/2015	
How Discovered	Recovered by crane barge *Strekker* during investigation of anomaly 803 position in Zone B	
Position of Discovery (British National Grid)	**462552 E**	**100037 N**
Location Map	**Anomaly Image**	
		

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Images of object

View looking along shank towards crown (0.5m scales)

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Archaeological Object Report Form

Crown and blades of anchor with retaining pins and head of shank

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Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Left arm and palm/fluke with diamond boss

Description
Cast iron or steel stockless anchor. Wide shoulders and crown with tripping palm blades either side. Arms distinct from palms/flukes, which are arrow-head shaped. D shackle for chain. Shank 2.00m long, rectangular section with bevelled edges, slightly tapering towards had of shank. Crown and blades 1.01m wide. Arms c.0.80m long, flukes 0.51m long and 0.36m wide. The left arm has a diamond shaped boss, the right arm circular. These would have been inscribed with proof and other marks. Nothing is currently visible.

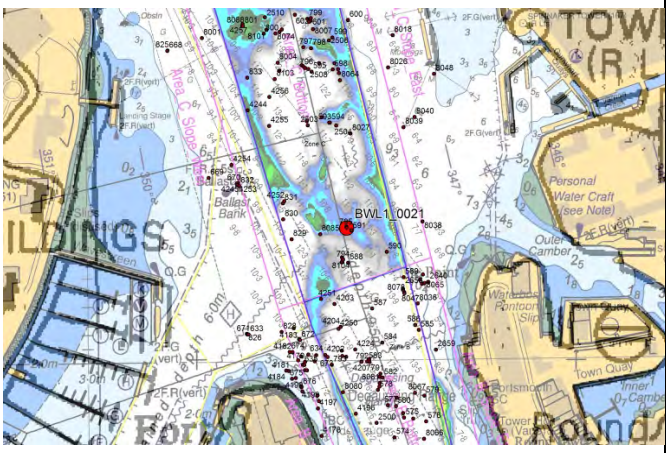
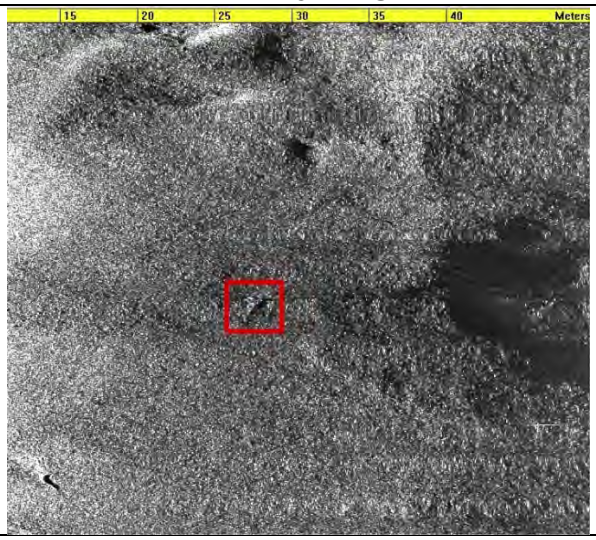
Interpretation
Anchor type is currently unidentified but is likely to be early 20th century. Probably naval. The anomaly SSS image suggests that there may have been chain or other cable associated with this anchor on the seabed. Otherwise it appears to be an isolated find. Circumstances of deposition are uncertain but its position in the harbour entrance suggests that it has been lost and abandoned.

Period	20th century	**Date Range**	First quarter of 20th century?

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL1_0021	Mushroom anchor, possibly associated with First or Second World War boom defences	
Date of Discovery	07/12/2015	
How Discovered	Recovered by the crane barge *Strekker* during investigation of anomaly 795 in Zone C	
Position of Discovery (British National Grid)	**462697 E**	**99673 N**
Location Map	**Anomaly Image**	
		

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Archaeological Object Report Form

Images of object

Side profile

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Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Detail of base/crown, showing concavity in the crown (stock is from another anchor)

Description

Forged iron or steel mushroom anchor with hemispherical crown, complex tapering stock, counterweight and d-shaped shackle ring. Approximately 1.9m tall, the anchor is approximately 1.0m square at the four sided crown. The crown is concave on the underside, with a lifting/tripping ring set into it (this could not be inspected due to the position of the anchor. Counterweight is 0.3m wide by 0.3m long and is 0.16m thick. The shackle ring is 0.13m long by 0.1m wide.
The anchor was reported to be recovered with 2m of chain, but this was not attached or identified when inspected on the quayside.

Interpretation

Reputed to have been invented in the early 1800s, mushroom anchors were difficult to manufacture because of their complex shape. The first designs were patented in about 1840[1]. They were used as mooring anchors for mud, silt or fine sand seabeds, where they could become buried and derive holding power from suction.
Although the anchor is within 6m of Anomaly 591, it appears from the SSS image to be an isolated find, although possibly associated with a wire or cable. Due to its position in the channel just to the north of the harbour mouth, it is likely to have been lost or abandoned rather than deliberately placed.
Heavy mushroom anchors were used to secure the Boom Defence of Portsmouth Harbour during the Second World War[1]. Due to position just to the north of the harbour mouth, the anchor may have been used for this purpose in either world war and thereafter abandoned. Mushroom anchors were also used by submarines and as the find location is close to the former HM submarine base at Gosport, it is conceivable that it is a submarine anchor.

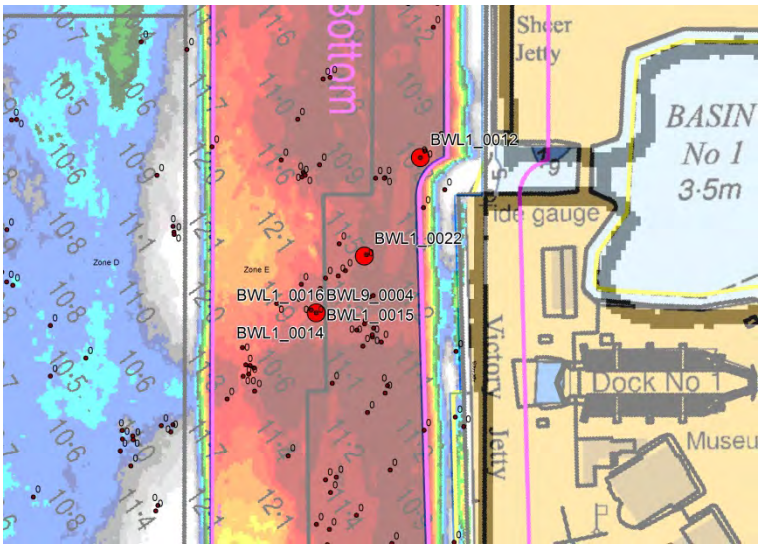
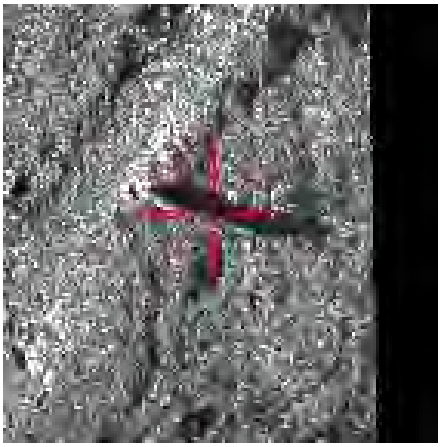
[1] Curryer, B.N., 1999, Anchors. An Illustrated History, Chatham Publishing, p139-40.

Period	Victorian or 20th century	Date Range	1850 onwards

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL1_0022	Mooring anchor	
Date of Discovery	07/12/2015	
How Discovered	Recovered by crane barge *Strekker* during investigation of anomaly 359 in Dredge Zone E	
Position of Discovery (British National Grid)	**462648 E**	**100682 N**
Location Map	**Anomaly Image**	
		

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Archaeological Object Report Form

Images of object

BWL1_0022

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Archaeological Object Report Form

Reforged arm bent onto shank during conversion to a mooring anchor

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Archaeological Object Report Form

Broken palm/fluke

(See also separate 3D pdf model attached)

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Archaeological Object Report Form

Anchor shackles and iron stock

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Archaeological Object Report Form

Description
Admiralty Pattern forged iron anchor. The shank is 2.37m long with a rectangular section tapering away from the head and rounded edges. The arms are curved and have a rounded profile. One arm has been modified by bending it onto the shank. The palm has been wrapped around the shank and has partly separated from the arm. The bill to bill measurement would have been 2.11m before modification. The palm/fluke of the unmodified arm is 0.4m long and one half of its original width of 0.42m at the base is broken off. The palm would have had a round point shape with a pronounced bill. Only half of the round section iron stock survives. It is 1.250m long with a 0.24m long and 0.19m diameter elongated ball and a pronounced shoulder at the shank. At the head of the shank is an anchor shackle approximately 0.5m long by 0.42m wide and with a diameter of 70mm. It is secured by a pin. A short length of stud link chain (first link not studded) is attached to it by another shackle. The chain links have a length of 0.29m and a diameter of 45mm. The SSS image suggests that this is an isolated find.

Interpretation
Mid-19th century Admiralty pattern anchor probably manufactured post-1840. Subsequently modified for harbour use as a mooring anchor. Very probably naval. Circumstances and date of deposition are unknown, although the anchor may have been lost in use and/or abandoned. Its position close to the entrance of Basin No.1 suggests that it could have been used by vessels to manoeuvre in and out of the basin.

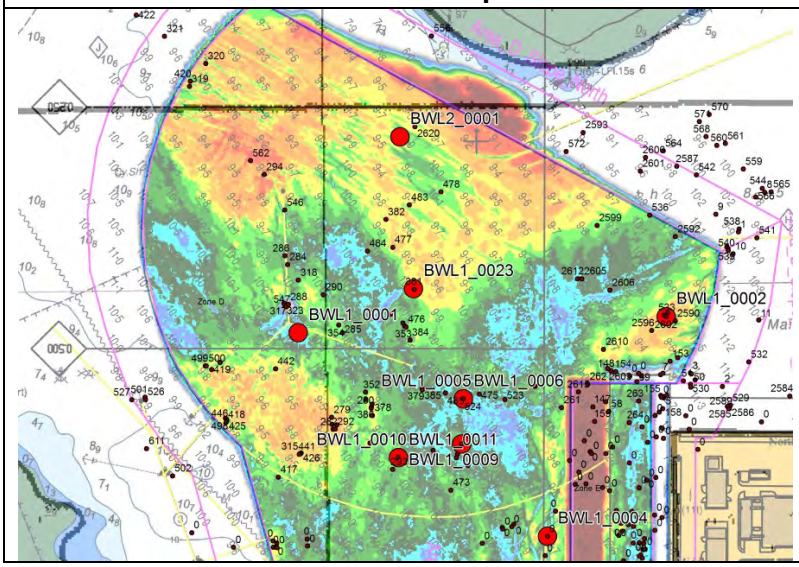
Period	Victorian/20th century	**Date Range**	1840 onwards

Queen Elizabeth Class Capital Dredging Project

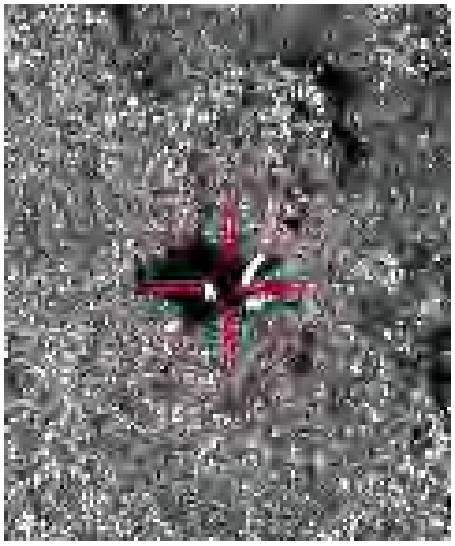
Archaeological Object Report Form

UID **BWL1_0023**	Stockless anchor	
Date of Discovery	22/12/2015	
How Discovered	Recovered by crane barge *Strekker* during investigation of anomaly 381 position in Dredge Zone D	
Position of Discovery (British National Grid)	**462437 E**	**101348 N**

Location Map



Anomaly Image



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Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Images of object

BWL1_0023 on the deck of *Strekker* following recovery

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Archaeological Object Report Form

Side view showing the tripping palms and double plate girder shank

Tripping palms. The crown and head of the shank are obscured by the chain.

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Archaeological Object Report Form

Description
Stockless anchor with cast double plate girder shank and slightly curved tripping palm. Estimated weight about two tons. The shank is approximately 2.5m long. The large and gently curved convex shoulders/blades are 1.1m wide and 0.78m deep. The arms extend laterally slightly and bill to bill is 1.4m. The anchor was partly obscured from inspection by non-studded chain, with links 0.23m long and 25mm (1”) diameter that was wrapped around it. The post-recovery image above appears to show this chain wrapped around the anchor.

Interpretation
Stockless anchor probably made of cast steel with wrought arms, possibly made from the same type of girder as the shank. The anchor has not been identified or dated but is probably mid to late 20th century in date and on a balance of probability basis is likely to be naval. The use of a double plate girder shank improved resistance to vertical and lateral bending strains and the open structure improved soil penetration. Above recovery image suggests that the anchor was recovered with a considerable quantity of steel hawser and possibly armoured cable. Although the circumstances of deposition are uncertain, this may indicate that the anchor was dumped with this material. Otherwise it appears to be an isolated find and was probably either lost whilst in use and then abandoned.

Period	20th century	**Date Range**	Mid-late 20th century

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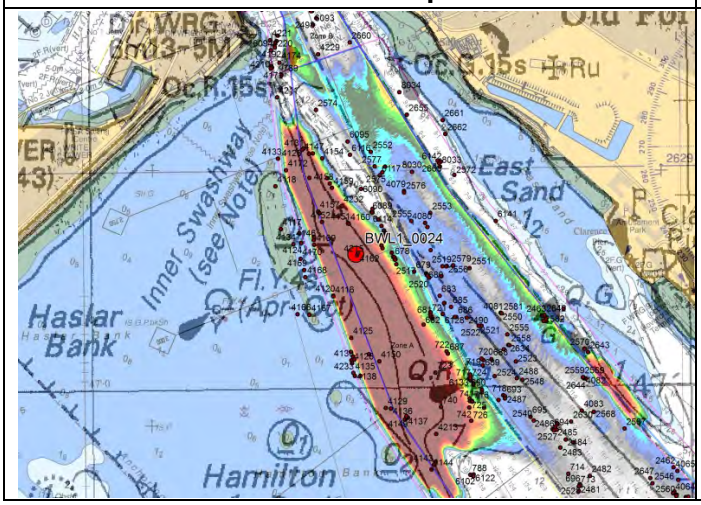
Archaeological Object Report Form

UID BWL1_0024	Mooring anchor	
Date of Discovery	18/12/2015	
How Discovered	Recovered by crane barge *Strekker* from within 5m of anomaly positions 4162 and 4215 in Dredge Zone A.	
Position of Discovery (British National Grid)	**462899 E**	**98837 N**
Location Map	**Anomaly Image (4162)**	



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Archaeological Object Report Form

Images of object

Anchor on the deck of the *Strekker* post-recovery, note tyre around shank and stock

Anchor post-recovery, note chain is wrapped around the base of the stock

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Detail of crown and balancing band

Detail of palm/fluke

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
Small wrought iron stocked anchor with a swivelling crown and arms. The shank is square in section and is forked at the heel to fit the crown. Above this is a bow-shaped balancing/gravity shackle secured by a pin through the shank. The iron stock is circular and tapers in section and appears to be a single piece. The stock is secured at the shank on both sides by curved flanges. It is bent at a right angle at one end. Slightly elongated iron spheres are fitted at both ends. Above the stock is an anchor shackle secured to the stock by a pin. A small piece of badly corroded stud link chain 0.13m long and *c.*20mm in diameter is attached to this shackle by means of a smaller shackle and is wrapped around the stock. The crown and strongly curved arms are rectangular and quite flat in section and the crown swivels on a pin secured through the fork of the shank. The palms are L-shaped, with a pointed round outward facing section and a rectangular upward facing section. When recovered a 20th century tyre was found jammed around the stock and shank. It is not clear whether it was deliberately attached in this way or whether the anchor has become fouled. There is no indication that the anchor was recovered with other material, although a linear feature that may be cable can be seen in the SSS image.

Interpretation
Small Trotman type anchor, mid-late 19th century, probably manufactured after 1860. Circumstances of deposition are uncertain. The find was made outside of the harbour on the edge of the current shipping channel and just outside of the eastern edge of the Hamilton Bank Area of Archaeological Interest.

Period	Victorian	**Date Range**	Post-*c.*1860

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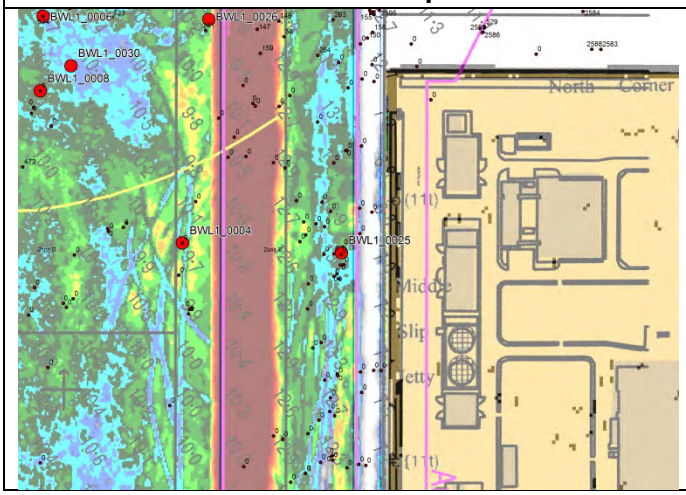
Archaeological Object Report Form

UID BWL1_0025	Late 20th century harbour/dock pile	
Date of Discovery	22/12/2015	
How Discovered	Recovered by grab of the crane barge *Strekker* from anomaly 197 position.	
Position of Discovery (British National Grid)	**462675 E**	**101086 N**
Location Map	**Anomaly Image**	
	Not available (description is an elongated contact)	

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Archaeological Object Report Form

Images of object

Head of pile with cylindrical flanged steel fitting

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Archaeological Object Report Form

Looking along pile towards heel

Description
Hardwood timber pile. Approximately18m long with section 0.44m square. Machine cut. Wooden rubbing strip on one face. A small number of ferrous fasteners. Cylindrical flanged steel connector or base plate attached to the head of the pile (not safe to inspect closely). Very good condition.

Interpretation
Late 20th century wooden pile from dock or harbour structure. Location suggests that it may be associated with Middle Slip Jetty, which was reconstructed in 1990.

Period	20th century	**Date Range**	1950-2000

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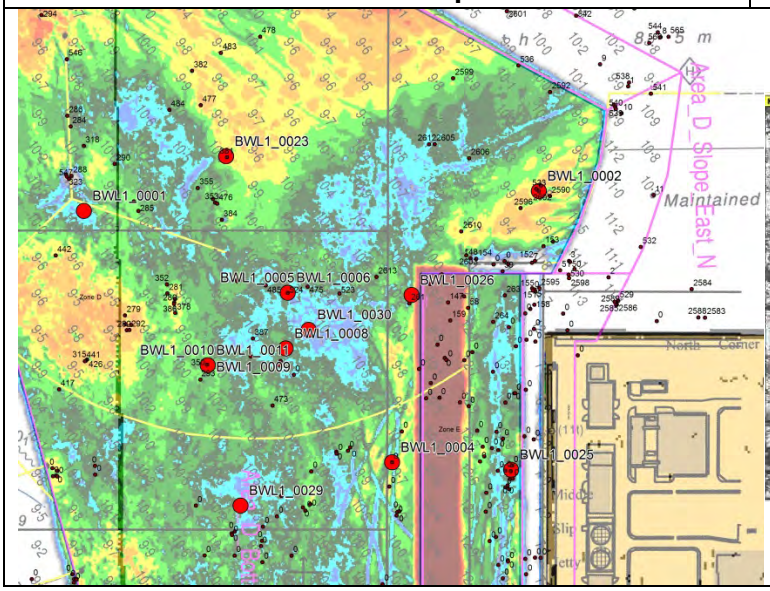
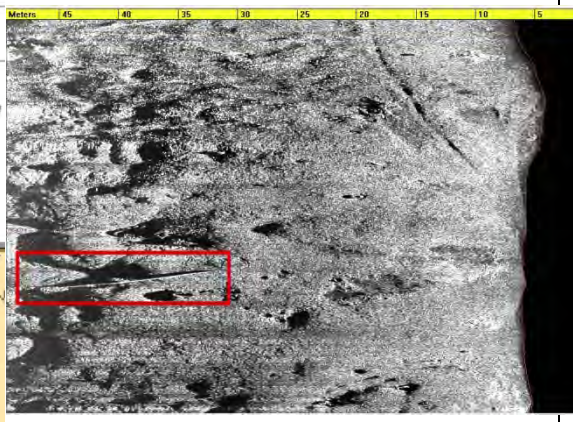
Archaeological Object Report Form

UID **BWL_0026**	Admiralty pattern iron stocked anchor converted into mooring anchor	
Date of Discovery	25/12/2015	
How Discovered	Recovered by grab of crane barge *Strekker* during investigation of anomaly 261 in Area D.	
Position of Discovery (British National Grid)	**462592 E**	**101232 N**

Location Map



Anomaly Image



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Archaeological Object Report Form

Images of object

BWL1_0026 on the quayside following recovery

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Archaeological Object Report Form

Head of the anchor, showing reforged arm and damaged palm

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Archaeological Object Report Form

Heel of shank, showing oval socket for an iron stock (missing) and anchor shackle

Description
Admiralty pattern iron anchor that has been converted into a mooring anchor by bending one arm back. The shank has a rectangular section with rounded edges that tapers from the crown to the heel and is 5.25m long. The crown is 0.23m deep. The arms have a rounded profile with flat side faces and rounded end faces. The width of the anchor in its original form, bill to bill, would have been c.1.560m. The palm of the unmodified arm is 0.68m long by 0.62m wide at the base, with a round point shape. The design has a pronounced bill. One edge is damaged and bent back. The other arm has been heated and bent down onto the shank, around which the palm is wrapped. At the heel of the shank is an oval through hole approximately 120 by 130mm with bevelled edges for an iron stock, which is missing. At the heel of the shank is an anchor shackle 0.510m long by 0.54m wide that is closed and secured with what may by a pin (the concretion was not removed). The anchor is recorded as having been recovered with copper cables (the linear feature in the SSS image may be a cable). Recovery position was approximately 7m north-east of the anomaly.

Interpretation
Mid-19th century Admiralty pattern anchor converted at an unknown later date for use as a mooring anchor. Probably manufactured post-1840 and very probably naval. Circumstances and date of deposition are unknown, although the anchor may have been lost in use and/or abandoned.

Period	Victorian - 20th century	**Date Range**	1840 onwards

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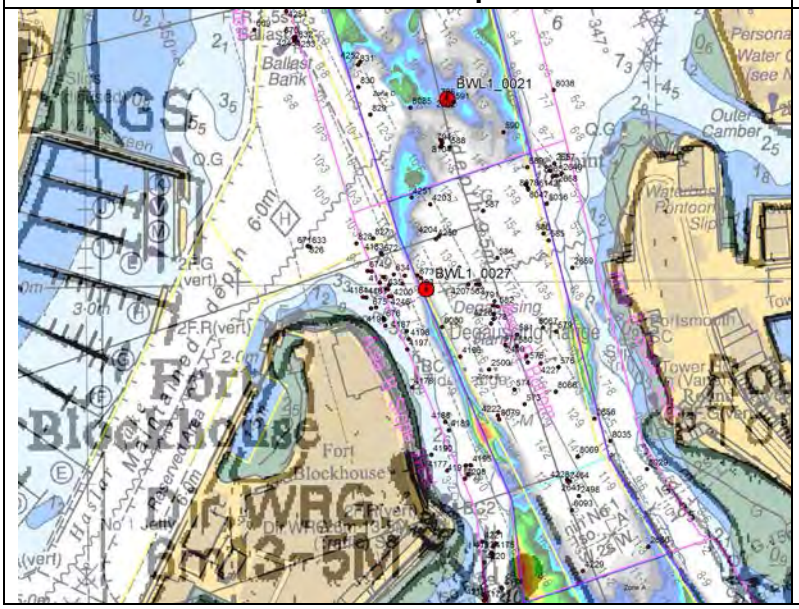
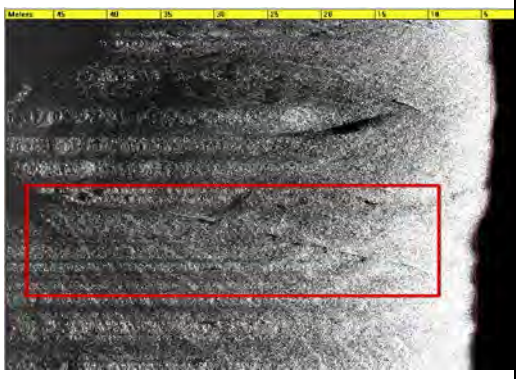
Archaeological Object Report Form

UID **BWL1_0027**	Byers stockless anchor	
Date of Discovery	28/12/2015	
How Discovered	Recovered by grab of crane barge *Strekker* during investigation of anomaly 793 in Zone B.	
Position of Discovery (British National Grid)	**463677 E**	**99494 N**
Location Map	**Anomaly Image**	
		

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Archaeological Object Report Form

Images of object

BWL1_0027 on quayside following recovery; some concretion removed

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Archaeological Object Report Form

Left-handed swastika on the left fluke

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Archaeological Object Report Form

Makers name and circular boss on the right fluke

(See also separate 3D pdf model)

Description
Small cast iron stockless anchor with inclined tripping fins, pointed spoon shaped flukes and a surviving length of studded chain. Length crown to heel of shank c.1.3m; width across crown shaft c.0.78m; length of arms 0.57m; estimated weight c. 1 ton. The chain links have an external length of 0.175m and a diameter of 25mm (1”). The left fluke is ‘concave’ with a raised edge and features: • a cast left-handed swastika; • the cast mark ‘N5’ (or ‘N3’); • a diamond shaped boss for proof and other required marks (not visible). The right fluke is similar and features: • The cast name W L Byers & Co Ltd and Sunderland on either side of a circular boss; • The boss would have been inscribed with proof and other required marks. • There is an indication that there are numbers or letters on the raised edge, which may include the weight of the anchor (further removal of concretion may be required to identify these and any surviving marks in the circle and diamond).

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Archaeological Object Report Form

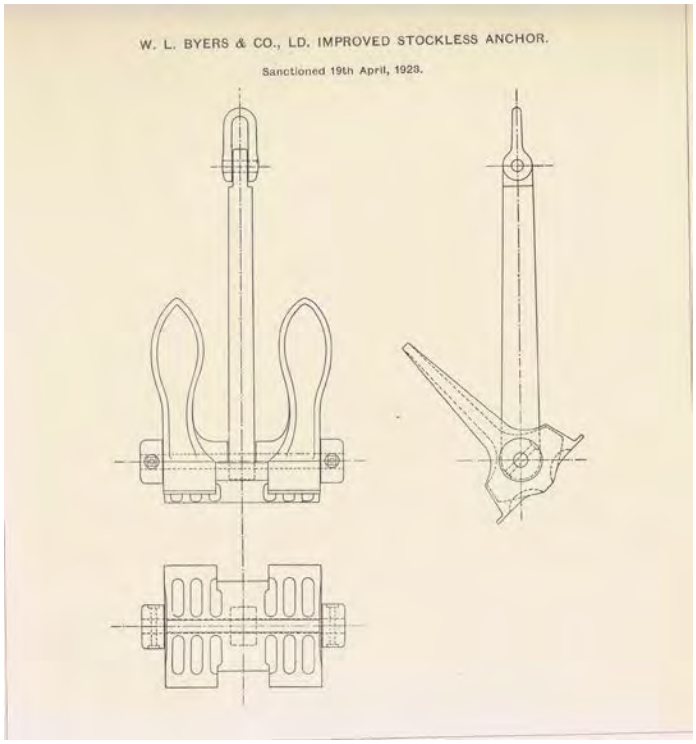
Interpretation

Byers Improved Stockless Anchor, post-1923.

W L Byers of Sunderland first patented a stockless anchor in 1887. The concave inner surface of the flukes and the inclined tripping fins indicate a post-1900 date and the anchor appears to be identical to a design approved in 1923 and described as a 'Byers Improved Stockless Anchor'.

The swastika is an ancient symbol and was adopted by Byers as his firm's 'house flag'. He is thought to have got the idea from its use as a decorative device on pottery found during archaeological investigations at the ancient city of Troy[2]. Later Byers anchors do not feature this device and it seems likely that it was dropped from Byers designs as a result of either the rise of the Nazi party in Germany during the 1930s or during the Second World War.

Byers anchors were used world-wide by both merchant ships and warships. They were used extensively by the Royal Navy and on a balance of probability basis, BWL1_0027 is likely to be a naval anchor. A number of examples survive.



100m of copper cable was recovered with this anchor. There were also small fragments of welding rod adhering to the concretion and the anomaly location is in the harbour mouth. The anchor may therefore have been part of a dump of unwanted material rather than lost in use.

[2] Curryer, B.N., 1999, Anchors, An Illustrated History, Chatham Publishing (p123-5)

Period	20th century	**Date Range**	Probably 1923-c.1939

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Museum Acc No. : 2015/462

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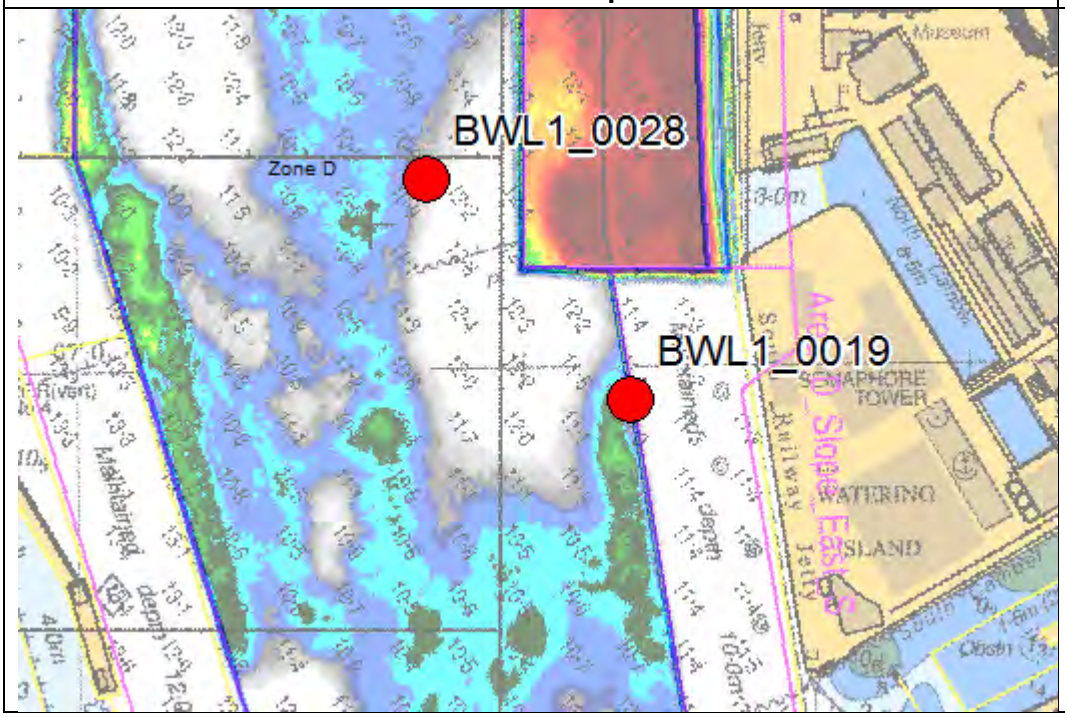
Archaeological Object Report Form

UID BWL1_0028	Whitworth Solid Shot	
Date of Discovery	01/01/2016	
How Discovered	Recovered by grab of crane barge *Strekker* in the South area of Zone D.	
Position of Discovery (British National Grid)	**462531 E**	**100524 N**

Location Map	**Anomaly Image**
	-

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
Metal solid shot with six flat sides in a spiral arrangement and hexagonal cross section with rounded corners. Calibre is 145mm and the shot is 500mm long. The original surfaces suffered from corrosion and it is uncertain whether the shot was fired or unspent when it reached the seabed. The calibre is close to a 70-pounder gun.

Interpretation
This was correctly identified by the crew of the *Strekker* as a Whitworth shot. The spiral hexagonal bore design was patented in the late 1850s by Sir Joseph Whitworth and by 1862 his company was producing guns of cast steel with his hexagonal bore design in Manchester[1]. Whitworth guns were recognised as the best armour-piercer of its time[2] although Armstrong's guns were preferred over the Whitworth's in an 1863 trial. In 1864 the British Forces formally adopted rifled guns and Armstrong received the ordnance contract for the Royal Navy. A series of 70-pounder Whitworth shots were fired during artillery experiments at Portsmouth in the 1860s[3]. However, due to the position close to the shore, it is unlikely that this particular shot was fired during one of this experiments it is more probable that the shot was discarded at a later stage and dumped at sea.

Period	Victorian	**Date Range**	1850-1870

[1] HMSO, 1976, *The Armouries Of The Tower Of London: Volume 1: Ordnance*, London
[2] Lambert, 1992, *Steam, Steel and Shell fire: The steam Warship 1815-1915,* Conway's History of Ships, London, p. 159.
[3] http://trove.nla.gov.au/ndp/del/article/13102986 accessed on 15-01-2016

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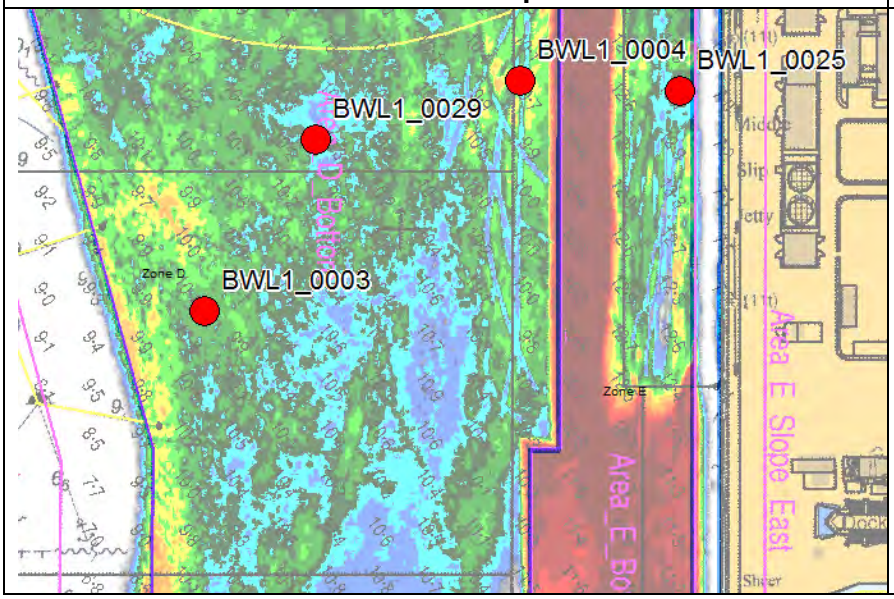
Archaeological Object Report Form

UID **BWL1_0029**	Elements of wooden structure with cupreous nails	
Date of Discovery	25/12/2015	
How Discovered	Recovered by grab of crane barge *Strekker* in Zone D.	
Position of Discovery (British National Grid)	**462449 E**	**101056 N**

Location Map	Anomaly Image
	-

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Archaeological Object Report Form

Images of object

BWL1_0029 on quayside following recovery

(See also 3D pdf model below)

Description

Fragmented wooden planks with nails with washer and clenched nail, all of cuprous materials. The planks were related to the same structure as suggested by similarities in the condition, general dimensions and typology and arrangement of fasteners. All the planks seem to be of the same wood specie and have similar thickness (c. 12mm) and width (c. 180mm). The most complete plank is c. 1.4m long and the planks end with an angle of c. 45 degrees along the width.

Apart from two stray planks, all the remaining timbers are attached in three larger assemblages containing four, six and ten planks arranged in two layers of boards. Traces of paint are visible on the surface of the planks. A further small timber is fastened with a clenched nail to two of the features.

The nails found on the planks are of different dimensions (15mm to c. 140mm) and different heads but all have squared section. They are disposed in an alternated pattern with some variations.

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Archaeological Object Report Form

Interpretation
Although the origin of these planks remains unclear, these planks could have been part of a structure on shore relating to a roof or a temporary construction that may have been washed away or discarded at sea. The presence of paint and the general characteristic of the nails and the planks indicate that it is relatively modern.

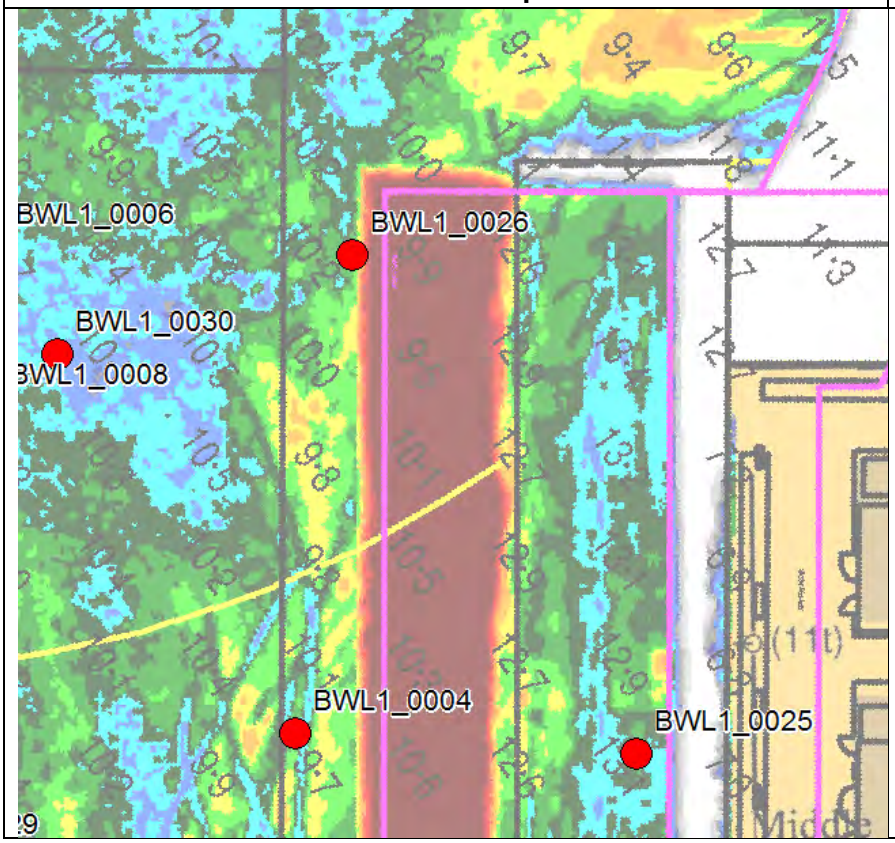
Period	Late 1920th century	**Date Range**	Late 19th – 21st century

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL1_0030	Stocked close-stowing anchor	
Date of Discovery	29/12/2015	
How Discovered	Recovered by grab of crane barge *Strekker* in Zone D.	
Position of Discovery (British National Grid)	**462506 E**	**101203 N**

Location Map	Anomaly Image
	-

Museum Acc No. : 2015/462

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Archaeological Object Report Form

Images of object

Description

This is a Dantforth Anchor, which was patented in the 1940s and was approved as a High Holding Power anchor by Lloyd's register of Shipping in 1964. According to the Admiralty Manual of Seamanship issued in 1995 (2-10) it was fitted in some older minor war vessels. A D-ring shackle but no chain was attached to this anchor when it was recovered. The weight of the anchor is estimated as approximately 3 ton.

Interpretation

This modern anchor was recovered with no chain attached and it is possible that was lost whilst in use.

Period	20th Century	**Date Range**	Post-1940

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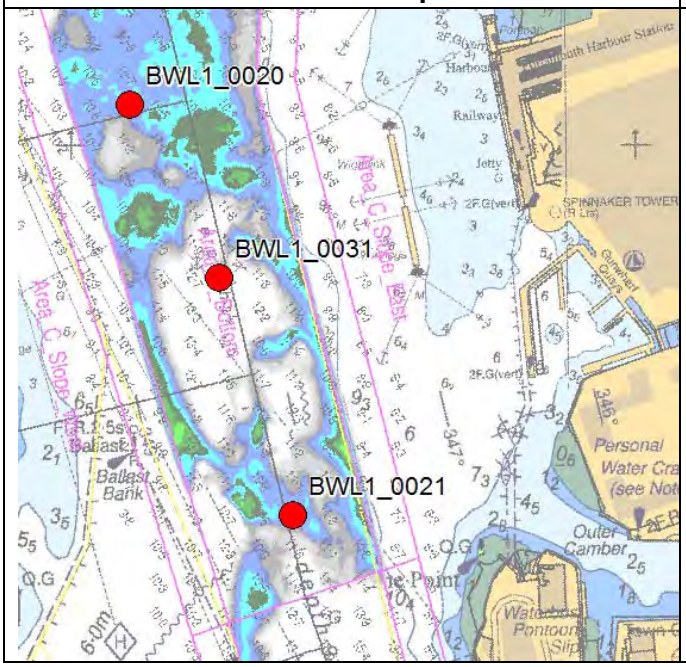
Archaeological Object Report Form

UID **BWL1_0031**	Admiralty pattern anchor	
Date of Discovery	01/01/2016	
How Discovered	Recovered by grab of crane barge *Strekker* c. 10 m east of anomaly 796 in Zone C.	
Position of Discovery (British National Grid)	**462632 E**	**99883 N**

Location Map



Anomaly Image

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Images of object

BWL1_0031 on quayside

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Archaeological Object Report Form

Side view showing the shackles and the broken iron stock

(See also 3D pdf model below)

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Archaeological Object Report Form

Description
Admiralty pattern anchor with iron stock. This Admiralty patter anchor was introduced in 1841 by Admiral Sir William Parker and progressively took the place of the previous anchors adopted by the Royal Navy. The overall length of the anchor is 3.18 m and the shank is 2.84 m long with a rectangular section with rounded sides. The section of the shank has a diameter of 0.20 m at the crown tapering to 0.17 m at the ring. At the ring the shank tapers into a square section with sides of 0.17 m. The distance between the bills is 2.19 m; the maximum dimensions of the palms are 0.51 m wide and 0.57 m not including the bill. The iron stock is broken and only a partial arm with ball is present. The remaining part of the arm measures 0.52 m in length and 0.125 m in diameter and the pinned ball diameter is c. 0.15 m. Two large shackles are attached to the anchor connecting a un-studded and the studded chain with rings 0.3 m long and 0.50 mm thick. The weight of the anchor estimated from the length of the shank is around 546 kg, which is almost 11 cwt.

Interpretation
Mid-19th century Admiralty pattern anchor probably manufactured post-1840. Circumstances and date of deposition are unknown, although the anchor may have been lost in use and/or abandoned.

Period	Victorian	**Date Range**	Post 1841

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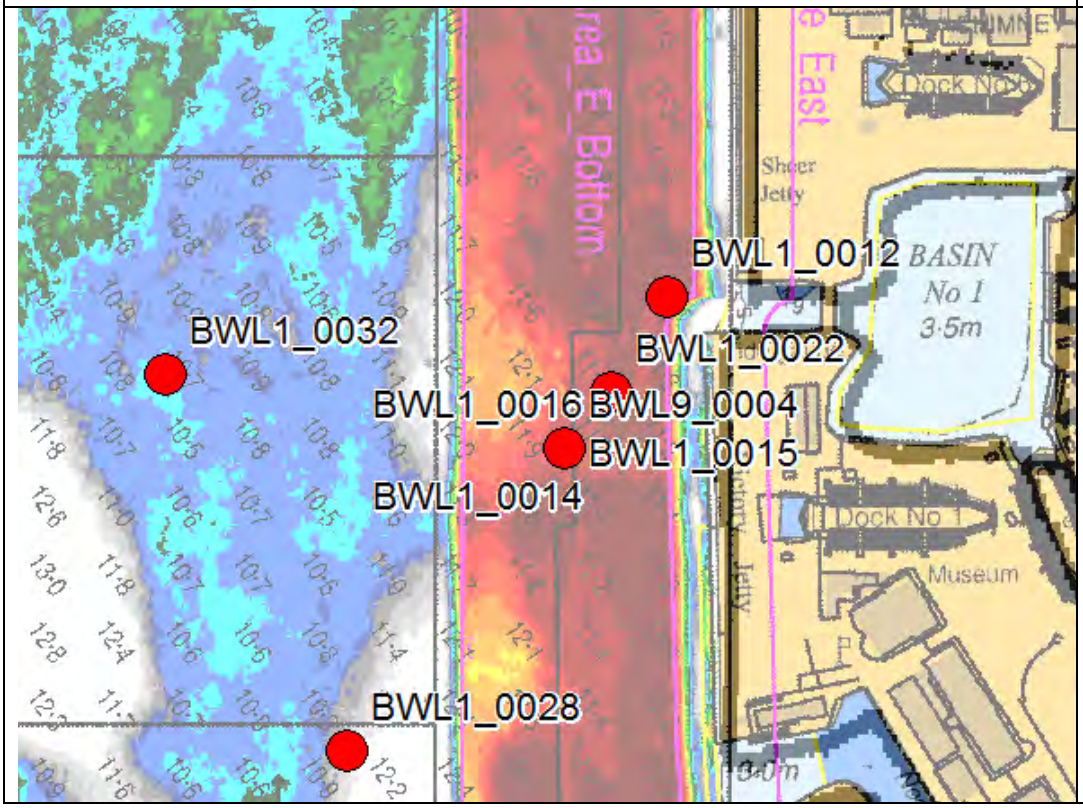
Archaeological Object Report Form

UID **BWL1_0032**	Admiralty longshank anchor	
Date of Discovery	04/01/2016	
How Discovered	Recovered by crane barge *Strekker* in Dredge Zone D	
Position of Discovery (British National Grid)	**462451 E**	**100690 N**

Location Map	**Anomaly Image**
	-

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Archaeological Object Report Form

Images of object

BWL1_0032

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Detail of broken shank and flukes shape.

(See also 3D pdf model below)

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Archaeological Object Report Form

Description
Admiralty long shank anchor possibly of wrought iron. The shank 2.27 m long with rounded section tapering away from the crown from 0.15 m to 0.75 m in diameter. The stock end of the shank is broken and reveals a rounded shank underneath the thick layer of concretion. The arms are covered by concretions but appear to be straight or very slightly rounded. The arms are 1.2 m long and come to a point at the crown and the flukes have large prominent palms. The palms are triangular (0.46 m long and 0.47 width) and 0.25 m thick and present pronounced bill (0.09 m long). The bill to bill measurement is 1.82 m. A small piece of wood protrudes the concretion in the middle of shank.

Interpretation
This anchor could be either an Old Pattern Admiralty Long Shank anchor, common from the late 18th century to early 19th century or a Pering's improved long shanked anchor, developed from 1813. However, the sharp angle between the arms and the shank at the crown and the size of the palms seems to suggest that this is more likely to be an Old Pattern Admiralty Long Shank anchor. This type of anchor was widely used by the Royal Navy up until c. 1840 when the Improved Admiralty design progressively took place. As the damaged area is covered by concretion it is very likely that the damage is not recent and could have occurred during the weighting of the anchor. This seemed to be a frequent problem for this type of anchor that was obviated in the beginning of the 19th century by the introduction of the curved arm[1]. The anchor was very probably naval and although the circumstances and date of deposition are unknown, it is likely that the anchor may have been lost in use. Its position close to the entrance of Basin No.1 suggests that it could have been used by a vessel waiting to manoeuvre in and out of the basin. [1] Cotsell, G., 1856, *A treatise on ships anchor*, London, p.8

Period	Georgian	**Date Range**	Late 18th to c. 1840

Museum Acc No. : 2015/462

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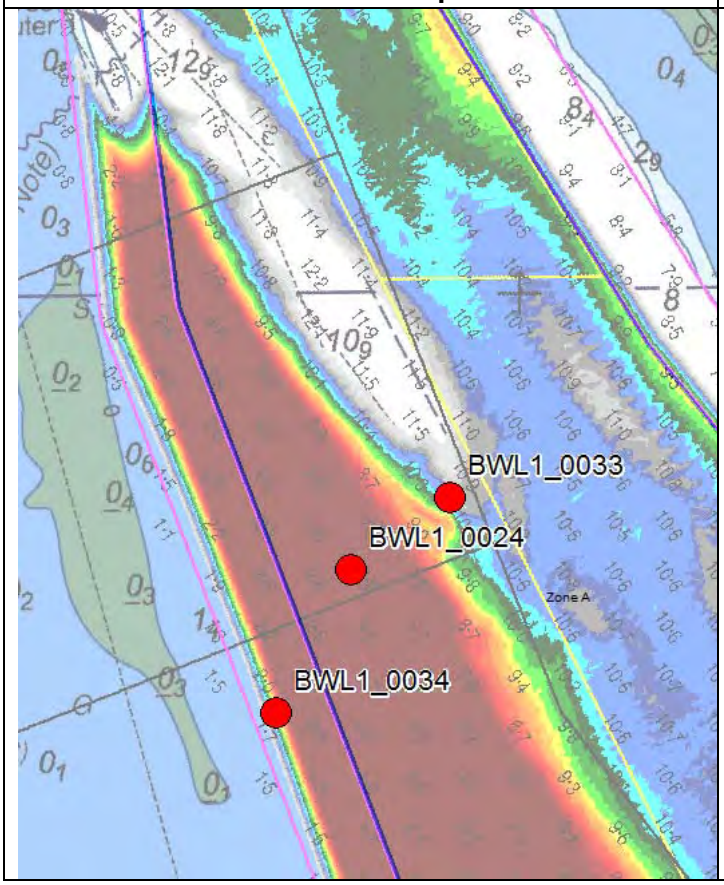
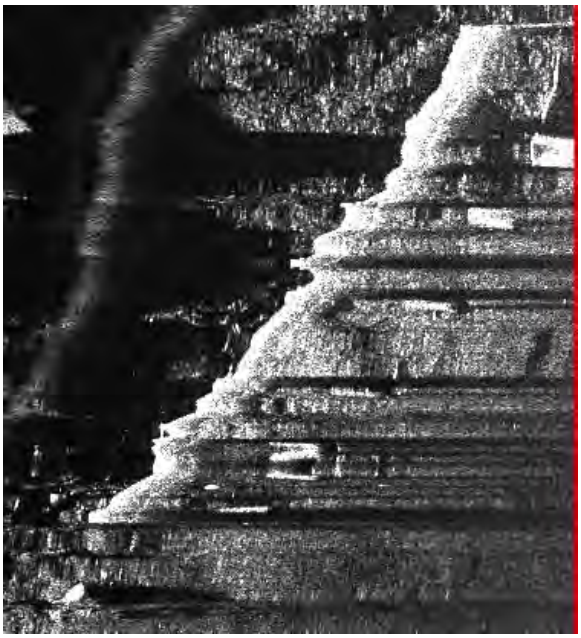
Archaeological Object Report Form

UID **BWL1_0033**	Hall's stockless anchor	
Date of Discovery	15/01/2016	
How Discovered	Recovered by crane barge *Strekker* during investigation of anomaly 667 position in Zone A	
Position of Discovery (British National Grid)	**462957.63 E**	**98880.48 N**

Location Map



Anomaly Image



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Archaeological Object Report Form

Images of object

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Archaeological Object Report Form

Description
This cast iron stockless anchor was recovered from the eastern limit of Hamilton Bank in c. 10m of water. It has a rectangular shank (120 x 110 mm) with rounded sides slightly tapering down towards the shackle eye (120 x 80 mm). The shank is 1140 mm long. The swivelling crown section is casted in a single piece with the arms and flukes and there is a rectangular aperture for the shank where the two plates of the swivelling mechanism are visible. Two large pins are on top of the crown in front of the large and slightly convex tripping palm (840 mm wide). The arms are shaped similarly to a slightly convex crescent and connected to the palm with a rounded shoulder. The arms are c. 560 mm long and both have a mould running across their length and the right arm has a diamond shaped boss, the left arm circular. The only marking visible are “UN” moulded on the right arm and “P6” on the upper side of the crown to the right of the large bolt. The flukes have rounded shape and present the same thickness of the arms. They are 190 mm wide and 180 mm long. Two D shackles and a studded chain are attached to the anchor.

Interpretation
Hall’s stockless anchor, possibly a version improved by Joseph Wright & Co. Ltd. Hall’s stockless anchor was sanctioned by Lloyds in 1888 and several improved version followed. The anomaly SSS image suggests that there may have been a long chain or other cable associated with this anchor on the seabed. Circumstances of deposition are uncertain but it is possible that has been lost or abandoned from a vessel.

Period	Early 20th Century	**Date Range**	Late 19th – beginning 20th century

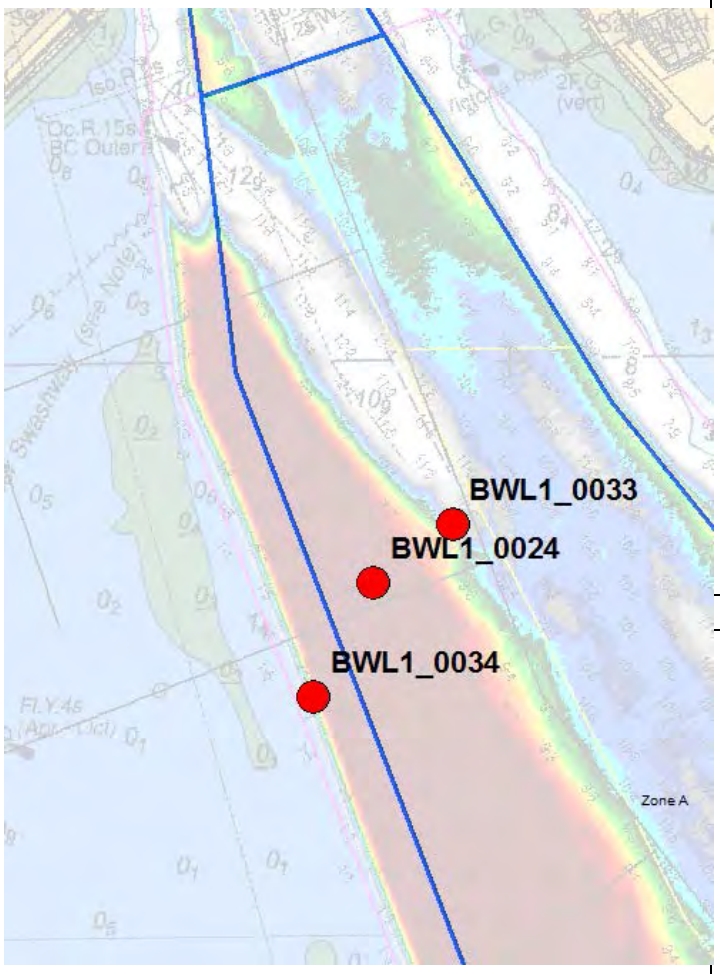
Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

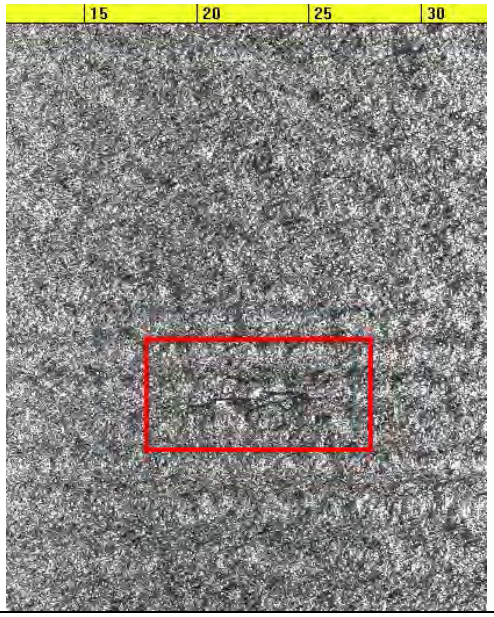
Archaeological Object Report Form

UID **BWL1_0034**	Ship timber	
Date of Discovery	15/01/2016	
How Discovered	Recovered by grab from the barge *Strekker* in anomaly 1-4116 position.	
Position of Discovery (British National Grid)	**462854.82 E**	**98752.04 N**

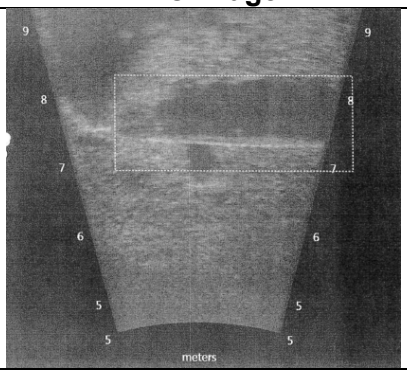
Location Map



Anomaly Image



Aris Image



Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Images of object

Figure 1 BWL1-0034 on the quayside after recovery

Figure 2 Face view (2D image of photogrammetry model)

Figure 3 Side view (2D image of photogrammetry model)

Figure 4 Scale drawing based upon photogrammetry model (red-brown is iron concretion)

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description

Timber BWL1_0034 measures 3.41 m in length, 0.175 m width and 0.125 m depth. The timber upper profile is straight with the ends with diagonal faces and the underside presents a slightly curved profile; the original surfaces are still visible and show traces of very limited erosion. The two diagonal faces at the end of the timbers suggest a scarf joints measuring c. 320 mm in length, one being particularly eroded.

The upper side of the timber presents nine recesses or notches of similar dimension (80-120 mm) and depths (5 mm) that are regularly spaced, especially on the left side (centre to centre c. 240-420 mm). Three more recesses, located at the centre and extremities of the timber, have similar width and length but are carved deeper (440-500 mm) into the surface of the timber.

The timber was fastened with 18 through treenails, of which two are missing and only the holes are visible and the remaining 16 still retain the treenails *in situ*, The diameter of the treenails holes is on average 26 mm. Some of the treenails are wedged and all the holes were augured in a single direction, perpendicular to the run of the grain of the timber. The wood used for the treenails is different from the one used for the timber and has a more red colour. The pattern of the fastening is not clear but seems to correspond to a double fastening in the spaces between the recesses with some exceptions.

A large knot is visible on the upper surface of the timber on the right side and tool marks, probably adze, are also visible on the worked upper surface and within the recesses. The lower side of the timber was left un-squared so it shows rounded edges.

Having more than 50 rings, the timber has been sampled for dendrochronology.

Provisional Interpretation

The ARIS image shows that this timber was stray and not associated with other material on the seabed. It is possible that it was lost at sea in an accident that may or may not have caused a vessel to sink and then floated to its current position, or it could have redeposited from a nearby wreck by the action of tide and currents.

The presence of wedged treenails suggests that that this is a ship timber, although its function is not clear at the present. If interpreted as floor timber the three deeper recesses would be interpreted as limber-channels cut in the underside of the timber and the smaller notches could be remaining features of a previous use. Similar recesses are present in early ships for laying frames over planks that are leashed or clenched in the clinker fashion. Another explanation is that the timber could have been used as a stringer or longitudinal element and the recesses represent the frames and it could have used as chine keelson with outer planking not fastened to the frames.

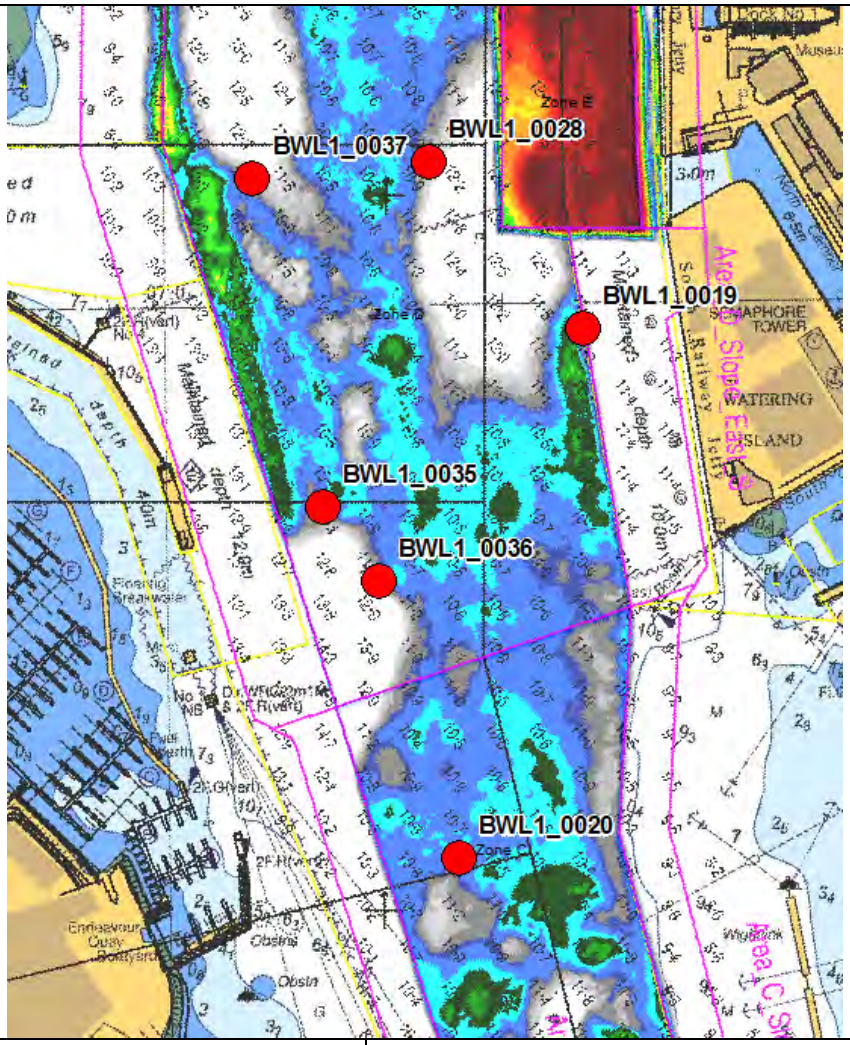
Period	unknown	**Date Range**	unlikely to be more recent than 1910

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID **BWL1_0035**	Cast iron smooth bore cannon	
Date of Discovery	21/01/2016	
How Discovered	Recovered by divers from the barge *Strekker* during investigation of target 4239.	
Position of Discovery (British National Grid)	**462456.59 E**	**100282.69 N**

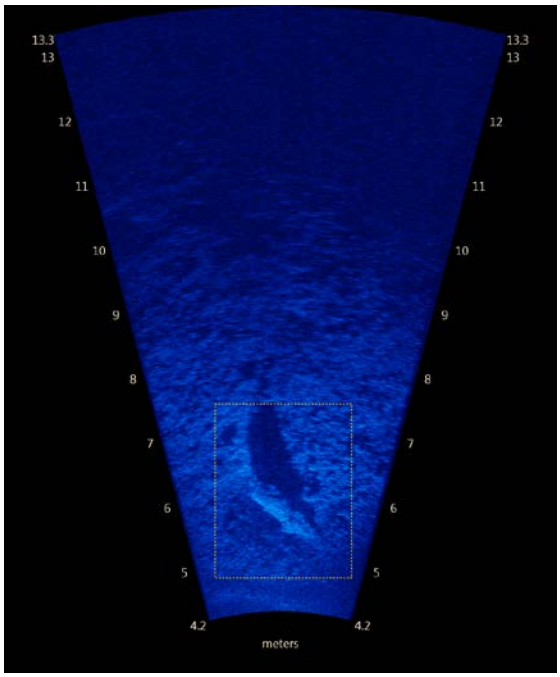
Location Map

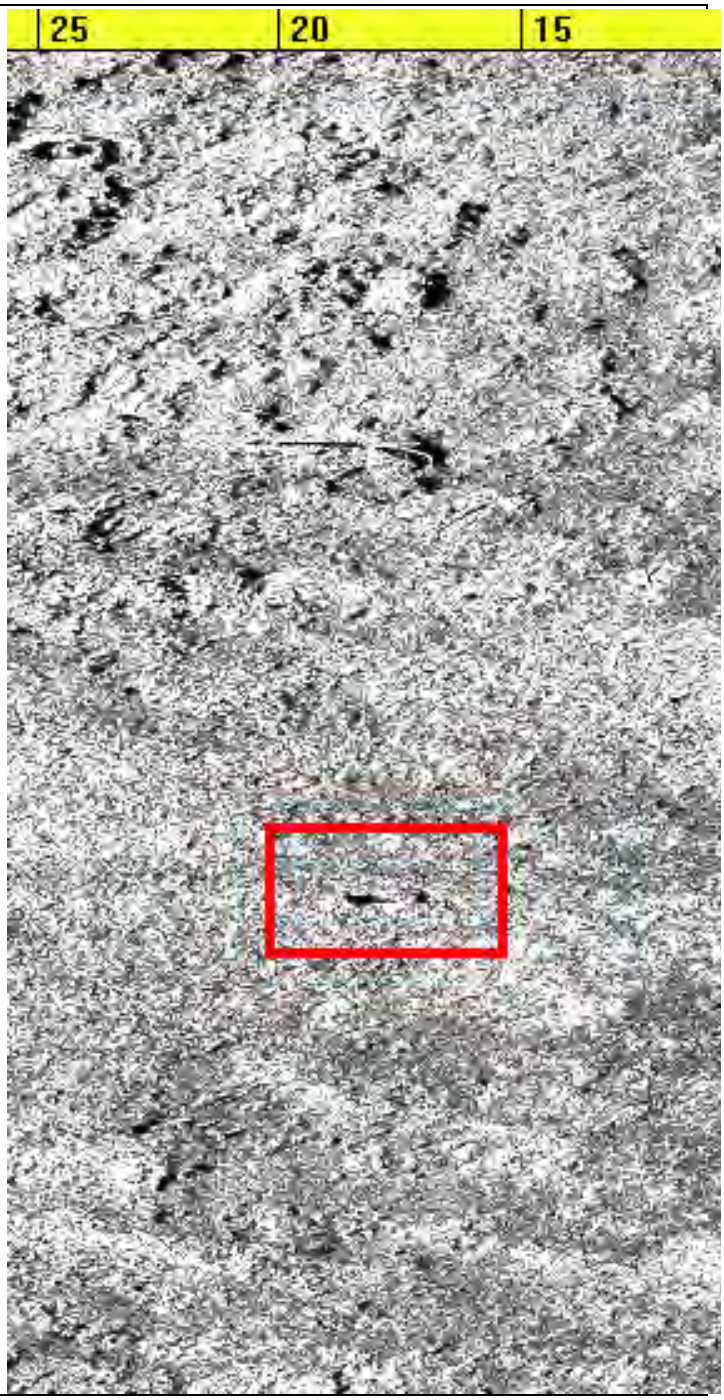


ARIS Image	**Anomaly Image**

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form





Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Images

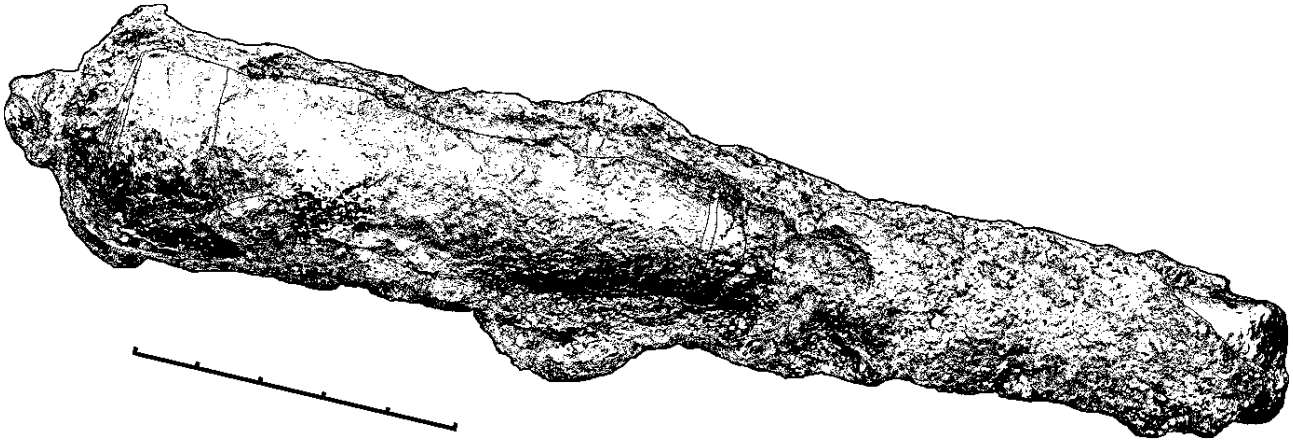


Figure 1: Orto-photo of BWL1-0035 taken from 3d model and drawing with rings visible on the surface of the cannon (scale increments are 100mm each)

Figure 2 Profile and detail of cascabel

Figure 3 Bore and muzzle swell

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description

The cannon is a cast iron smooth bore gun. It is very concreted (30 to 90 mm in places) and the muzzle suffered some minor damage when the some concretion was removed in order to expose the bore. No trunnions are visible but at least part of them may be covered by the concretion. Similarly, no mouldings are visible except for the 2nd reinforce ring and two mouldings of the base ring on the breech side.

The following table contains the measurements of the cannon in metric and imperial:

Element	Length in mm/inches	Diameter in mm/inches
Muzzle	*too concreted*	*too concreted*
Muzzle face	-	150 mm/6''
Head	-	-
Muzzle neck	*too concreted*	*too concreted*
Bore	-	*Surface eroded* 84 mm/3½''
Muzzle face to 2nd reinforce ring	900 mm	-
Chase girdle ring	-	*too concreted*
Second reinforce ring	-	*circa* 274 mm
Second reinforce ring - base ring	910 mm	-
First reinforce ring	-	*too concreted*
Cascabel	-	90 mm
Vent field	150 mm	-
Base ring	-	*circa* 300 mm
Breech - Cascabel	155 mm	-
Trunnion	*concreted*	
Width across trunnions	*concreted*	-
Overall Length	**1840 mm**	**-**

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Interpretation

From the ARIS image it appears that the cannon was exposed on the seabed and was not associated to any other material on the seabed. The cannon was found c.150 m E of the floating breakwater of Gosport Marina, and c. 60 m from another cannon (**BWL1_0036**) that was recovered a week later. At the present there is no evidence of further archaeological material in this area and the cannon is assessed as an isolated find.

BWL1_0035 is identified as an English gun, probably a three or four pounder, cast before 1670. The lack of prominence of the gun at the trunnions suggests that these may have been fully or partially knocked off and the gun was used as ballast (pers. comm. Charles Trollope) and it is possible that it is associated with gun **BWL1_0036**.

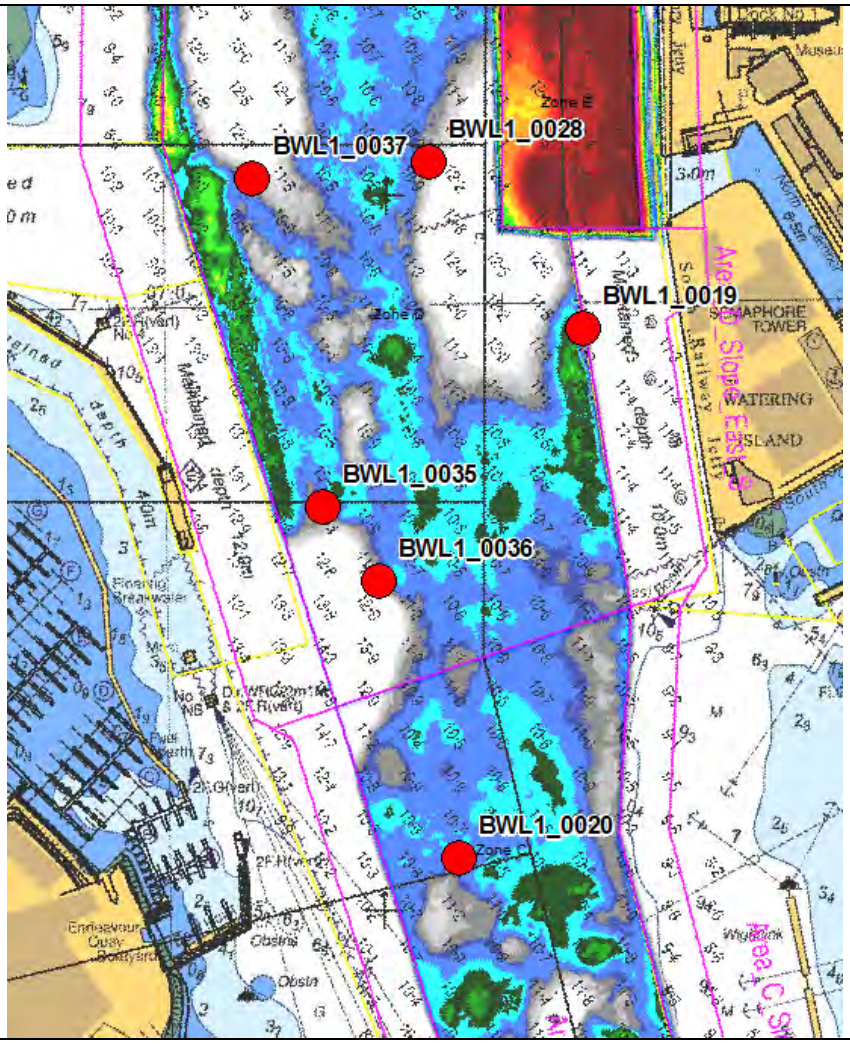
Period	Post Medieval/Jacobean	**Date Range**	Cast before 1670

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

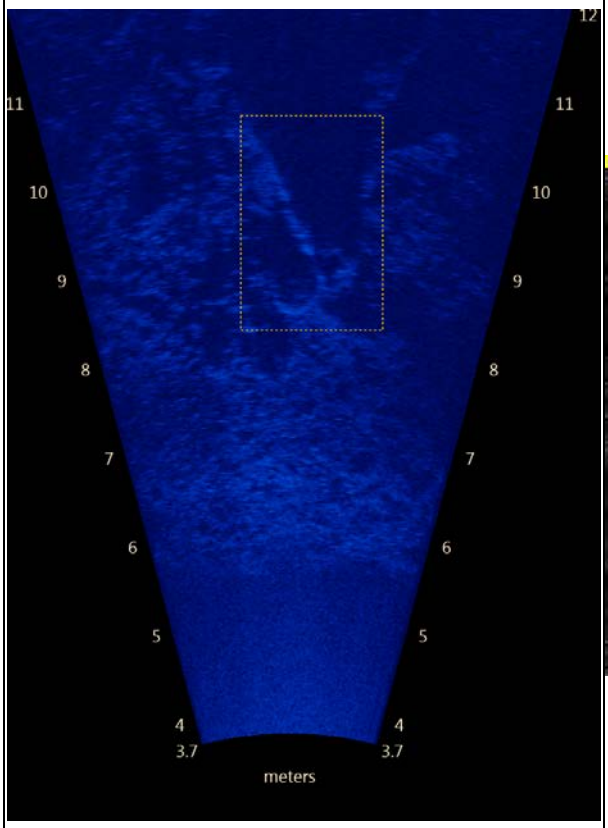
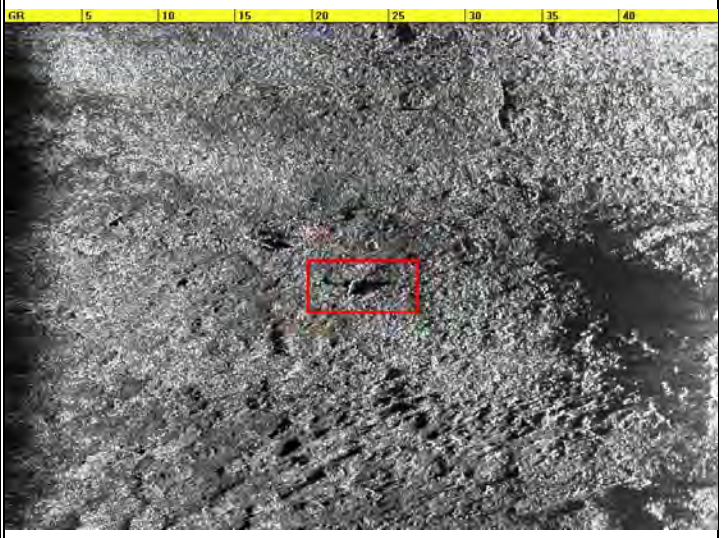
UID **BWL1_0036**	Cast iron smooth bore cannon	
Date of Discovery	28/01/2016	
How Discovered	Recovered by grab from the barge *Strekker* during investigation of target 4239.	
Position of Discovery (British National Grid)	**462495.95 E**	**100230.66 N**

Location Map



Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

ARIS Image	Anomaly Image
	

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Images

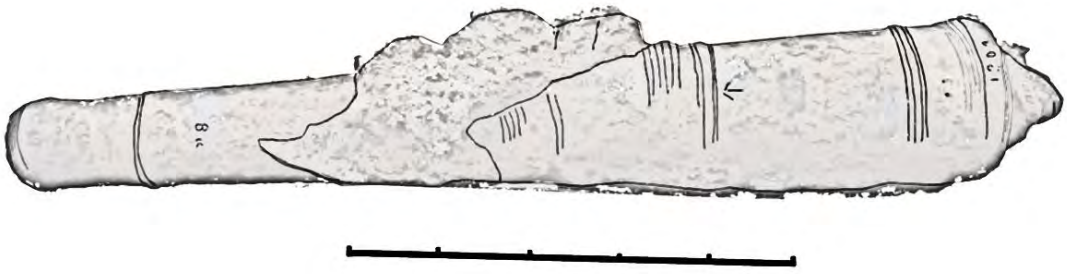


Figure 1: Orto-photo of **BWL1_0035** taken from 3D model and drawing with rings and markings visible on the surface of the cannon (scale increments are 100 mm each)

Figure 2 Profile and detail of cascabel

Figure 3 Bore and muzzle swell

Figure 4 Details of markings on the base ring, first reinforce and chase

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description

The cannon is a cast iron smooth bore gun. The fact that it is almost clear from concretions and it is just partially visible in the ARIS image suggests that it was buried in the seabed at the time of the recovery.

The cascabel is spherical and is decorated with a ring on the button. The base ring bears the numbers 1204 although these are very faint and the 4 could be in fact an A. In the vent field no clear traces of the vent were visible maybe suggesting a simple hole. An 8 is marked on the chase seemingly along the centreline of the barrel.

The number of rings visible is as follows: at least three on the cascabel-breech, two on the breech side of the base ring, four on the vent field side of the base ring, and a narrow band of three rings on the first reinforce astragal, at least one on the muzzle astragal, four on muzzle face. The first reinforce ring consists of a narrow band of three rings and a broad band of four/five rings. The second reinforce ring consists of one narrow bands of three rings followed by at least four ring. In the first reinforce segment along the centreline a possible broad arrow is visible.

The following table contains the measurements of the cannon in metric and imperial:

Element	Length in mm/inches	Diameter in mm/inches
Muzzle	305 mm/12''	-
Muzzle face	-	190 mm/7 ½''
Head	120 mm/4.7''	at swell 230 mm/9''
Muzzle neck	180 mm/7.08''	255 mm/10''
Bore	-	*circa* 76 mm/3''
Chase	965 mm/38½''	-
Chase girdle ring		*concreted* 305 mm
Second reinforce	370 mm/14½''	-
First reinforce	484 mm/19''	-
First reinforce ring		*circa* 355 mm/14''
First reinforce astragal		381 mm/15''
Vent field	90 mm/3½''	-
Base ring	-	355 mm/14½''
Cascabel	127 mm/5'	-
Trunnion	*concreted*	
Width across trunnions	*concreted*	-
Overall Length	**2340 mm**	**7' 8''-**

The trunnions are only barely discernible underneath the concretion and it is very possible that they only partially survive or are absent as the lack of any prominence of the concretion at the trunnions would suggest. The gun is now being stored in alkaline solution at the Mary Rose Trust premises.

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Interpretation

When originally found, the cannon was only partially exposed and at the time of the recovery some of the concretions had been removed by the finder under instruction of the UXO disposal team in order reveal the bore to assess the presence of a charge within the bore.

The multiple rings on the gun, together with the straight neck, the cascabel cup and button indicate that this gun was cast in Sweden. The marking at the base ring suggests that it was used by either the Dutch or French. The gun was then taken into service in England where it was marked with the Broad Arrow and the calibre 8 Pdr added into the chase in the English fashion. The measurements of the gun suggests that it dates from the 1630s-1640s (Charles Trollope pers. Comm.).

As with gun **BWL1_0035**, that was found c. 60 m NE of **BWL1_0036**, the lack of prominence at the trunnions might show that these were fully or partially knocked off and that the gun was used as ballast.

At present there is no evidence of further archaeological material in this area and the cannon is assessed as an isolated find although the anomaly target **1-4261** is c. 12 m NW of the position of the cannon.

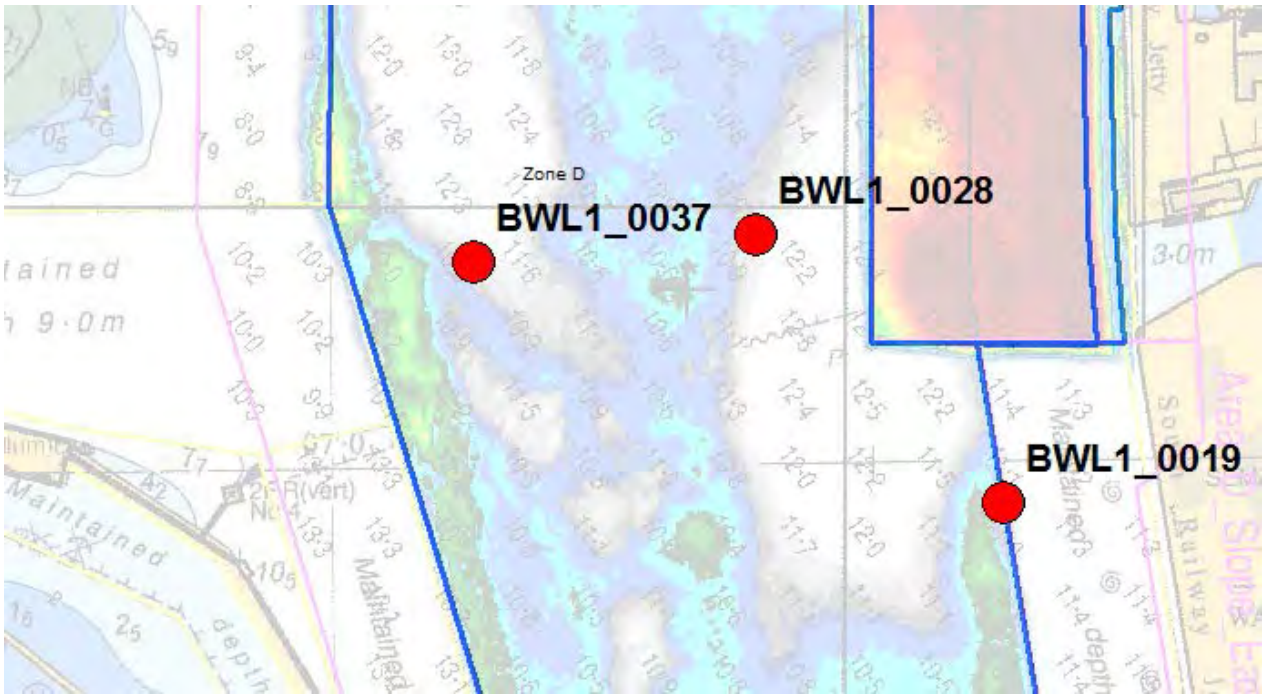
Period	Post Medieval/Jacobean	**Date Range**	From 1630-1650

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID **BWL1_0037**	Iron stocked anchor c	
Date of Discovery	28/01/2016	
How Discovered	Recovered by grab of crane barge *Strekker*	
Position of Discovery (British National Grid)	**462407.72 E**	**101512 N**

Location Map



Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Figure 1 BWL1_0026 on the quay side

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Figure 2: Fluke shape

Description
Small iron anchor. The shank is 700 mm long and has rounded section that tapers slightly from the crown to the stock eye (34 mm). The stock is missing and a shackle is attached to the anchor by a large pin. The palms are 90 mm wide and 120 mm long and are leaf shaped with rounded lower corners and a pronounced bill, the edges of the flukes are corroded. The width of the anchor bill to bill is 470 mm. Two recesses are visible on the face of the anchor, one at the centre of the crown and the other approximately in the middle of the shank.

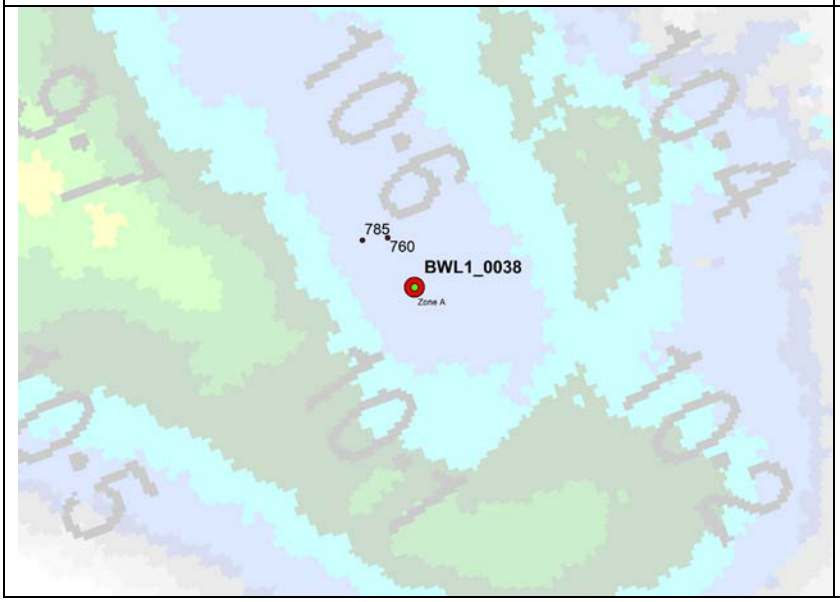
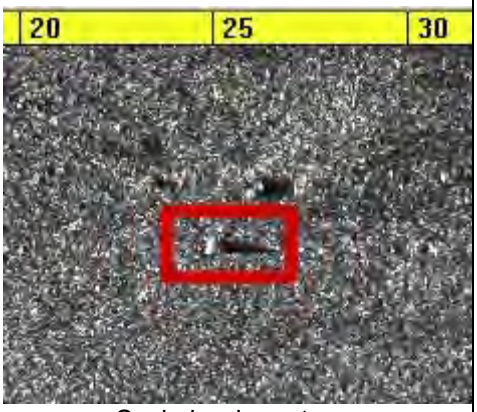
Interpretation
The iron stock was introduced in most small types of European anchor at the end of the 18th century throughout the first half of the 19th century. The shape of the flukes does not correspond to any of the commonest fluke shapes of the 19th century although this does not mean that the anchor could not have cast in the 19th century. An anchor of this dimension could have been used in a variety of small boat and was probably lost whilst in use.

Period	Post-medieval	**Date Range**	1800-1950

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID **BWL1_0038**	Small Admiralty 'longshanks' anchor	
Date of Discovery	18/02/2016	
How Discovered	Recovered by grab by MV *Strekker* during investigation of SSS anomaly 760/785 in dredging Zone A (Hamilton Bank)	
Position of Discovery (British National Grid)	**463570.42 E**	**97858.16 N**

Location Map	**Anomaly 760/785 Image**
	
	Scale bar in metres

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Images of object (3D photogrammetry model attached)

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
Small stocked wrought iron anchor. Concreted to a minimum/maximum depth of c. 2/10 mm prior to recovery. Overall length is 2570 mm. The anchor is heavily corroded and the original metal surface has been lost. The shank section is 90 mm wide along its length. Although the shape is obscured by loss of surface, it appears to have been facetted. The head of the shank is squared off with a small parallel stock key (24 mm wide and deep) on each side to accept a wooden stock, now missing. There is an anchor ring eye of 50 mm diameter but the ring is missing. The arms are of shallow angled section form and the crown has a very shallow point. One arm is damaged and is missing most of the fluke and bill, but the undamaged arm has a length of 940 mm. Distance bill to bill is estimated to have been 1365 mm, with an amplitude of 975 mm and a bill height of approximately 600 mm. The surviving fluke has a tipped spade shape, 515 mm long by 310 mm wide. Weight is estimated to be 4-5 cwt.

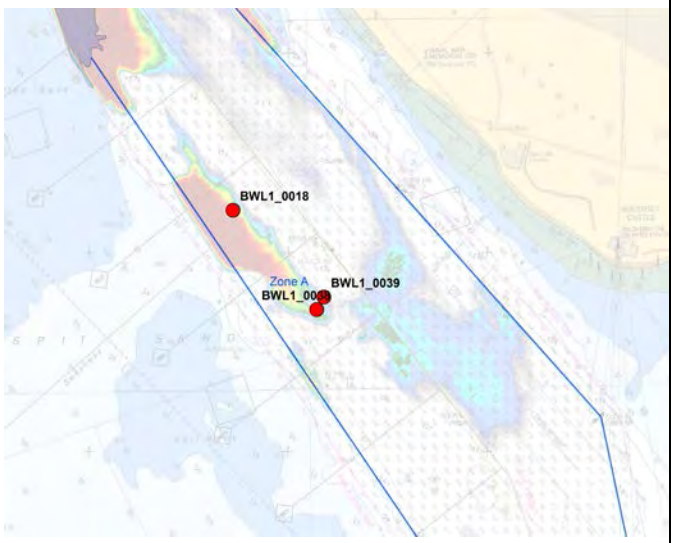
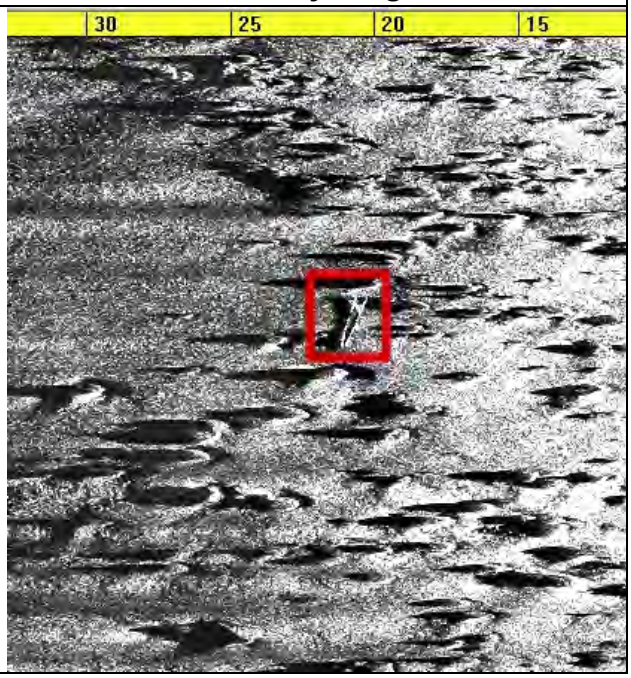
Interpretation
The shape and construction of the anchor indicates that it is an Admiralty longshanks type. It was therefore probably constructed in the 18th or early 19th century, although the relatively small size of the flukes in proportion to the shanks length suggests that a 19th century date is less likely. Proximity to Portsmouth suggests but does not prove a naval usage. The dimensions and weight suggest that it is unlikely to have been a stream or bower anchor for anything but the smallest of ships. It may therefore have been a kedge anchor, possibly for a frigate or smaller sized warship or merchant ship. SSS anomalies 760 and 785 are less than 3 m apart and appear to be the same object. Assuming that they are the anchor, which seems highly probable, the SSS anomaly image above suggests that it is an isolated find. Photographs taken immediately after recovery suggest that one side of the anchor, including both arms, were covered in marine growth, indicating that the anchor was not found in a deployed condition. This may indicate that the anchor was lost as a result of a broken stock or whilst not in use; otherwise its orientation could be due to a post-loss event. The damage noted to one of the flukes appears to be pre-recovery.

Period	Post medieval	**Date Range**	18th century date of manufacture likely

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID **BWL1_0039**	Natural boulder	
Date of Discovery	18/02/2016	
How Discovered	Recovered by grab of MV Strekker during UXO investigation of SSS anomaly 753 in Zone A.	
Position of Discovery (British National Grid)	**463588.46 E**	**97889.37 N**
Location Map	**Anomaly Image**	
		

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Images of object

20cm scale bar

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
Three irregularly shaped fine grained sandstone boulders up to 2m in diameter and 4-5 tons weight. Partially covered in marine growth. The sandstone is fossiliferous, including bivalve molluscs. No evidence that the boulder surfaces have been worked. Rock type and fossiliferous component has not been formally identified but has been briefly inspected by a WA geoarchaeologist.

Interpretation
Natural boulders. They are possibly of the nearby Earnley Formation, part of the Bracklesham Group of Eocene/Lutetian age (c.45 million years BP). The SSS data suggests that they are part of a boulder field. This has been confirmed by the direct observation of numerous other similar boulders that are part-buried on the seabed in the vicinity. Their presence if probably the result of ancient coastal erosion.

Period	Pre-HE Period List	**Date Range**	Eocene/Lutetian, c.45 million years BP

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID **BWL1_0040**	Stone Shot	
Date of Discovery	17/04/2016	
How Discovered	Observed in grab arisings recovered by *Strekker* during UXO anomaly investigation.	
Position of Discovery (British National Grid)	**462852.15 E**	**98803.72 N (within an 8m radius)**
Location Map	**Anomaly Image**	
N/A	N/A	

Images of object

Scale = 200mm

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
The stone shot recovered during UXO anomaly investigations weighs just under 16 kg, it has an approximate circumference of 680 mm and a 210 mm diameter. The approximation on the measurements is due to the shot being handmade it is not perfectly circular. Measurements of its diameter varied between 205 mm and 216 mm. There is a notable indentation that allows the spherical projectile to sit without rolling and the rest of the surface area is very pitted and some light marine growth remains on its surface. While the surface has been inspected for tool marks, there is no clear evidence of tool marks. Stone shot were made by creating a rough shape then the use of a pick hammer, turning lathe or any sharp or blunt blade cuts in order to create the finished shot (Caruana 1994. 194, Hildred 2011. 339 + 387), this is the likely result of having spent several hundred years underwater. The stone shot is awaiting specialist analysis for lithological identification. Much of the stone used in England for this purpose was Kentish Ragstone, a hard form of limestone, 7000 stone shot were ordered to be made from this type of stone in 1417, sourcing the materials from quarries in Kent (Caruana 1994. 189). The shot was recovered using a grab from Hamilton Bank just outside of Portsmouth Harbour mouth, and the location of its recovery was recorded to an accuracy of an 8 m to the co-ordinates provided.

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Interpretation

It is difficult to suggest the source area for the stone material without specialist analysis, but stone shot was widely used between the 15th and 16th centuries. In Britain, much of the stone shot was produced from Kentish Ragstone, but igneous rocks and even marble (in Greece) have been used (Caruana 1994. 189). Iron shot became the majority choice in the 1630s, although having been in use for over a hundred years prior to this (Caruana 1994. 194).

With a diameter of just over 200 mm, this represents a large bore of cannon. And the use of stone shot, as a general rule, were commonly used in chambered guns. This is notably due to the higher amount of force required to fire an iron shot. Wrought iron guns and cast breech guns could not take the increased pressure (Caruana 1994. 190). So a likely gun is going to be chambered. Chambered guns recovered from the *Mary Rose*, related to stone shot, although no gun from this particular ship has the bore size to take such a shot. The most likely candidate being a gun know as a port piece: a large wrought iron gun constructed using iron bars built up and secured by the banding of iron rings. At the breech end of the gun, a chamber is loaded, this would contain the powder, wad and tampion, externally it would have lifting lugs to allow it to be loaded into the gun. Guns of this type can be very large, the port pieces on the *Mary Rose* measured between 2870 mm-3025 mm in length (Hildred 2011. 142). Port pieces were carried by many of the other ships at the time of the *Mary Rose*, with the *Matthew* carrying up to 16 port pieces in 1546-7 (Hildred 2011. 137). Although the shot represents a gun too large for those discussed here, land based defences could take a much larger cannon, and in the mid-16th century the Tower of London is reported to have contained port pieces with bore sizes of up to 254 mm (Hildred 2011. 136).

With the evidence discussed the stone shot recovered from Hamilton Bank is possible to have come from a gun known as a port piece. Although the size of this particular shot is likely to be oversized for those guns known to be aboard ships of the period. With the *Mary Rose* being heavily armed to being with, its largest bore port piece is estimated to be 200 mm, yet shore based guns were not restricted by size and weight, and as noted in Tower of London, could have bore sizes in excess of 250 mm. During this period there was many threats of war, particularly with the French during the 16th century. In Portsmouth itself there was the Round Tower and an opposing defensive battery on the other side of the harbour entrance at Gosport. Around the southern coasts there were many other land based defences, such as South Sea castle, that are much more likely to have been able to house such a cannon, several of which are in range of Hamilton Bank.

During the Battle of the Solent, in which the *Mary Rose* was lost, the French ships were located outside of Portsmouth harbour and with sight of many of the south coast shore defences, such as those positioned at the harbour entrance, Gosport and Southsea Castle, all of which overlooked the Hamilton Bank. Yet during this time of war it is not clear whether the fortifications surrounding the area were used during this particular battle or the armament that they contained (http://www.fortified-places.com/portsmouth/ 2016).

(Caruana, A B 1994. *The History of English Sea Ordnance 1523-1875 Volume 1 The Age of Evolution.* East Sussex. Jean Boudroit Publications

Hildred, A 2011 *Weapons of Warre: The Armaments of the Mary Rose Volume 3*. Portsmouth. Mary Rose Trust)

Period	Medieval-Post-medieval	**Date Range**	15th-16th Century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID **BWL1_0041**	Bone	
Date of Discovery	21/04/2016	
How Discovered	Recovered amongst the mud on deck, making it difficult to provide accurate positioning (Area D).	
Position of Discovery (British National Grid)	-	-
Location Map	**Anomaly Image**	
N/A	N/A	

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
This bone has been identified by staff of Wessex Archaeology as being a cattle tibia. The bone itself shows signs of possible butchery or gnawing marks displayed on the bone which would suggest that this may have been aboard a ship and discarded over board as rubbish. It is difficult to determine a date for such an object, the discolouration would suggest it has been underwater for some time, but this is often misleading. The area from which the bone was discovered is in the middle of the harbour's main traffic, and due to the harbour's historically high traffic, an endless list of ships has passed and could have discarded their food waste.

Interpretation
This bone is a cattle tibia that displays butchery marks and is likely to have been discarded into the sea afterwards due to it being found it an historically high traffic area for all boats and ships.

Period	19th - 20th Century	**Date Range**	19th - 20th Century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID **BWL1_0042**	HMS Ganges insignia	
Date of Discovery	21/04/2016	
How Discovered	Found by the grab on the quay side	
Position of Discovery (British National Grid)	**462668.52 E**	**100649.58 N**
Location Map	**Anomaly Image**	
N/A	N/A	

Images of object

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Scale in 100 mm divisions

Description

The metal alloy plaque is in a diamond shape with a crest on the top displaying the stern castle and the port and starboard views either side, separated by the two main sails. Below this the word “GANGES” is bordered off. In the centre of the diamond shape is the depiction of an elephant. The sign has a total height of 480 mm and width of 450 mm. The borders of the diamond depict cording with three fixing holes in the corners, these measure 12x12 mm. The plaque itself has a thickness of 28 mm. The sign measures 316 mm along its longest external edge and 256 mm along it longest internal edge. The sign appears to be a copper/brass alloy. The sign itself has no other markings to indicate a date or any other information, and some of the paint work has started to flake off.

A similar example is known to be in the possession of the National Maritime Museum, Greenwich, London. This example is smaller and less decorative than the object discussed. Measuring 195 mm x 195 mm x 20 mm and believed to be from the HMS *Ganges* (1928). (http://collections.rmg.co.uk/collections/objects/1218.html)

The similarities between the two designs is striking, the corded pattern around the edges and the number of waved lines on which the elephant stands are identical. Perhaps suggesting the original colours to the example found. The additional size and crest suggest that the sign discovered would have held a more prominent position within the ship or have been higher prized in some other way.

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Interpretation

Due to the diamond shape of the plaque, it is unlikely to be a ship's plaque, as these are usually round, but rather the insignia of a shore establishment. There have been two HMS *Ganges*; 1782 and 1821.

The HMS *Ganges* 1782 was a third rate ship of the line, carrying 74 guns. The ship measured 169 ft in length with a beam of 47 ft. Launched from Rotherhithe, it remained in active service until 1811, taking part in both the French Revolutionary Wars and the Napoleonic wars. During this time the *Ganges* was an escort ship taking a Spanish ship into Portsmouth sometime between late 1794 and early 1795. The ship was broken up in 1816.

The more likely source of the insignia is the successor ship which was built from teak in Bombay in 1821 and arrived in Portsmouth for fitting out in 1822. This ship was a second rate ship of the line of 2,284 tons and carried between 84 and 92 guns. With a length of 196 ft and beam of 52 ft, the vessel was slightly larger than her predecessor. Commissioned at Portsmouth by Captain Sir Edward Brace, it worked out of Portsmouth, sailing to the West and returning to Portsmouth for payment every few years. In 1829 the HMS *Ganges* was used as a guard ship at Portsmouth and after a brief service in the Mediterranean seas it was used as a demonstration ship at Portsmouth between 1832 and 1838. After work out of Sheerness, the vessel was converted to a boy's training ship in 1865. Initially based on board a number of hulks, it was later moved on shore. From 1899, it was based in in Falmouth, Harwich and from 1905 in Shotley. It remained in service at RNTE Shotley until October 1976 (http://www.hmsgangesassoc.org/cmspage/9/hms-ganges-at-shotley)

The sign was found inside the harbour at Portsmouth and as such a significant object is unlikely to have been discarded, its presence remains a mystery.

Period	18th Century	**Date Range**	1865-1976

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

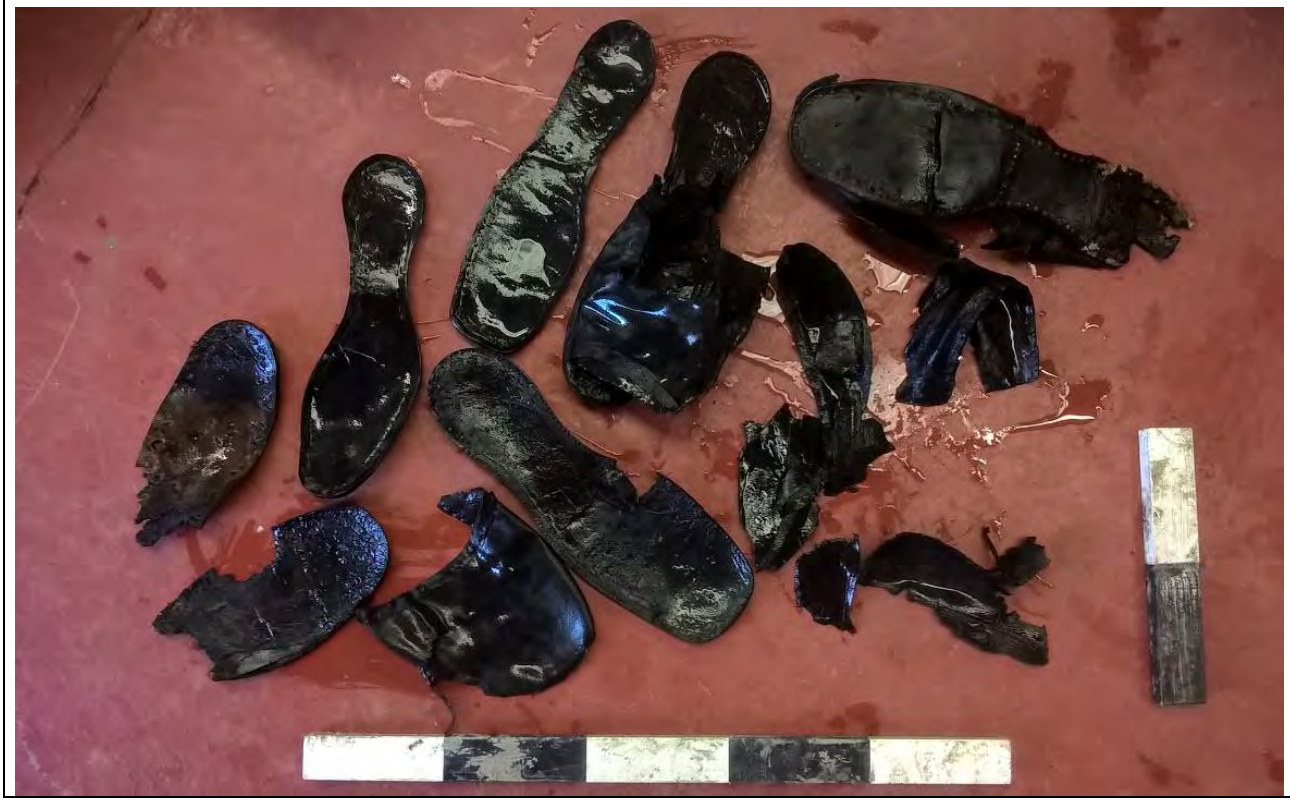
UID **BWL1_0043**	126 Assorted Objects	
Date of Discovery	22/04/2016	
How Discovered	Found after cleaning the deck from a location of the berth pocket up to 120 m sheer jetty out into the channel	
Position of Discovery (British National Grid)	-	-
Location Map	**Anomaly Image**	
N/A	N/A	

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

All scales in 100 mm divisions



Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description

Ceramics

- The assemblage of ceramic material is notably of a modern date with the most modern being the blue and red rimmed plate, dated to 2005 by the OGC company. Others include naval or crown supplier's markings, all of post Second World War in date. The collection includes four sherds, three cups, two bowls and four plates. All of the collection date from 1943, with further dates noted of 1953, 1956, 1972, 1982, 1996 and 2005.
- One interesting piece of the ceramic collection is the small side plate or tea saucer. This originates from McNicol in Clarksburg, West Virginia. Dated to 1943, it possibly came over with the American troops in the build up to D-Day.
- One piece of Royal Doulton with an admiralty anchor on the upside and underneath, underneath the number "5" can be seen below the anchor motif, this is likely to be the mess number assigned to one of the sailors. There is no date unfortunately, but its plain style dates it to a more modern timeframe. A very similar plate is in the collection, with the exact same style, shape and anchor motif, yet made by Keeling & Co Ltd, the anchor motif on the underside is marked with a "2" at the bottom.
- Another ceramic artefact worth mention is the white and blue bowl, once again with the distinctive number "6" on its side, this would likely be the mess number, although there are no further markings to the bowl.
- A less domestic find is that of a ceramic insulator of Admiralty patent 7600. Insulators are used to create non-conductive bridges between electronic components, and find use in electronics, lighting, fire suppression and heat treatment among others.

Cutlery

- A total of six forks, three knifes and eleven spoons were found, of various Crown Supplier stainless steel and plated metal cutlery, including table knives, forks spoons and probably all 20th century. Many are marked underneath but the majority of the markings are too worn to read, although the knives were all produced of Sheffield Steel.

Bone

- Two pieces of bone were found during the clean up on deck, both belong to the cattle species, one is a fragment of the tibia and the other a fragment of humerus. The tibia is more externally worn, but the humerus shows clear signs of butchery marks.

Wood

- A single wooden object was recovered. Measuring just over 40 cm in length with a small break at the finer end. The object has been carefully made, with a very smooth finish, and a consistently rounded profile. The best suggestion for it purpose at the moment is a pin from pin rail rigging. Pins would have been attached to the side of the decks and rigging would be tied off on to the pins when not in use.

Leather

- An estimated total of at least six shoes were also discovered. Most of which are very fragmented, with 14 small fragments, and cover both male and female foot types, ranging between a size 7.5 and 14 UK
- One particular shoe is of interest as it is pinned together. This style of shoe making moved to stitching and then later glue for the attachment of the leather. The shoe measures 32 cm which equates to a size 13-14 UK in modern terms.
- The probable ladies shoe measures 27.5 cm, or UK size 9, and is also constructed with pins, although this shoe is more degraded and few pins remain.

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description

Glass

- Large numbers of complete bottles were discovered, a total of 53.
- Various milk bottles, moulded marks include ‘Safety First Milk Association’, ‘Co-operative Milk’ and ‘Unigate’.
- Several bottles for beers, spirits and wines were also found. Although no markings on the bottles themselves make dating very difficult.
- Several coke bottles of modern style and a Pepsi bottle dating to the 1950s were also included.
- Brylcream jars, perfumes and scents are also represented in the collection.
- As well as several jars likely to have contained condiments and other food stuffs.
- Two bottles are marked with “Masons OK sauce”. OK sauce is still distributing now, mostly to the East. The firm started production in 1928 and George Mason left the firm prior to the First World War, suggesting that these are early examples from the initial factory.
- One of the large green bottles is marked with “S & T.N. Blake & Co Ltd. Gosport”. A company that can be dated back to 1897-1938.

Metal

- A total of 18 metal finds were reported, with small rivets, a bolt, copper pipe, a key, two small hooks, a spanner and a door latch. Most of which likely dates to the 20th century.
- The most interesting of these finds is a small padlock. Marked on the front of which is Walsall locks and cart gear 1935. During this period Walsall was in its hay day producing locks for all needs, along with other metal work such as chains and rings. The company started in 1873 and are still in business today.
- Other items include a possible fuel cap. The heavy duty screw top with a deep thread and protruding metal work for the use of a specific tool.
- Another item is a gauge, likely from a ship as it is marked “W H” with a broad arrow.
- And a small 19x12 cm metal plate marked with “AP 9577”, unfortunately no other markings are visible of the plate, making a further identification very difficult.

Interpretation

It is likely that this is all dumped material unlikely to have been deposited at the same time due to differences in date. The find location is approximately 120 m off the Jetty, which is historically a very high traffic zone for shipping in and out of Portsmouth Harbour.

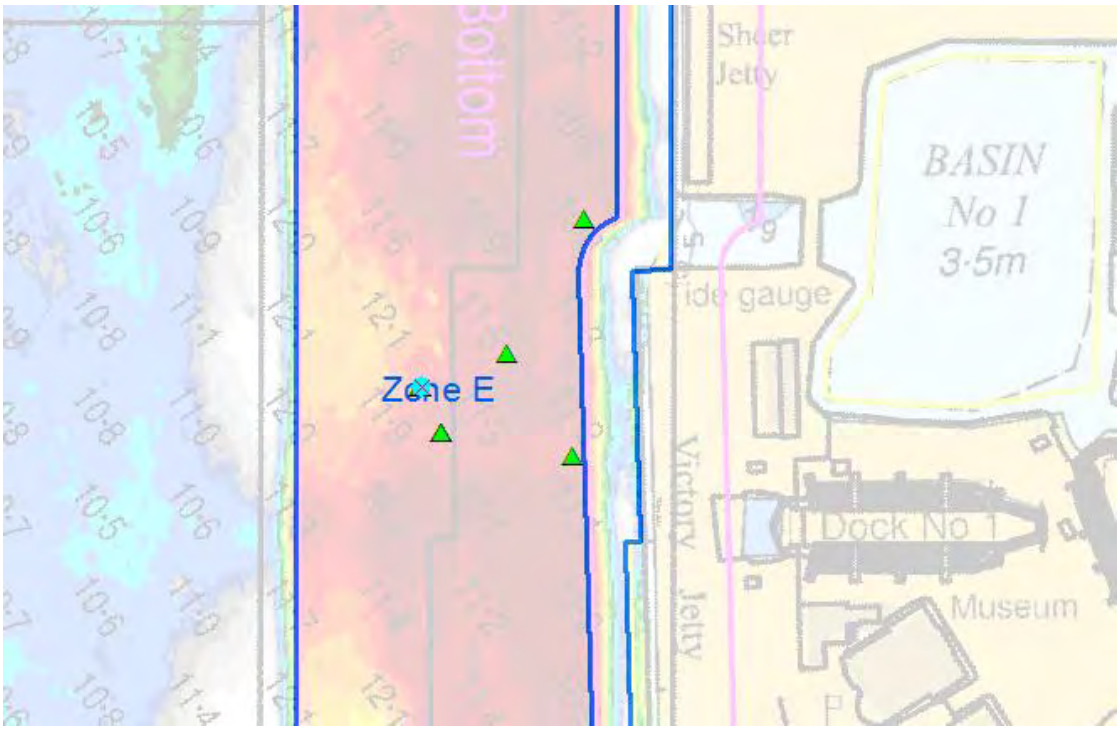
Period	Victorian, 20th century	**Date Range**	19th and 20th century

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL1_0044	Gold watch	
Date of Discovery	01/09/2016	
How Discovered	Found after cleaning the deck after dredging the turning circle.	
Position of Discovery (British National Grid)	**462620.7 E**	**100671.7 N**

Location Map	**Anomaly Image**
	**N/A**

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
Parts from a gold watch, likely to have been a wrist watch. Five parts were found in total, with the gold watch face and four internal parts of the mechanism. The watch face measures 32 mm in diameter. There is one hand remaining, measuring 11 mm, but without the other it is difficult to say which remains. The times are indicated by raised areas coloured black with the quarters being larger and rectangular in shape. The 12 o'clock being the largest. The internal parts of the mechanism include the top plate, the balance bridge, the balance and hair spring and probably the 4th wheel. There are no marks on the watch components, including a lack of hallmarks on the watch face itself. With parts being as small as 6 mm, its an impressive find for the deck of a dredger.
Interpretation
The watch has no visible markings either in the form of a hallmark or maker's marks. This makes the watch very difficult to date, with the first wristwatches being made in the 16th century, later becoming an important piece of equipment for military officers and by the end of the First World War a large proportion of military men and civilians wore wristwatches. Although this watch is unlikely to date pre 19th/20th century. The location of the find, close to the naval base, may suggest that this was worn by a member of the military, likely to have been an officer due to the gold face. Although it may have been lost or discarded by a civilian member of the public.

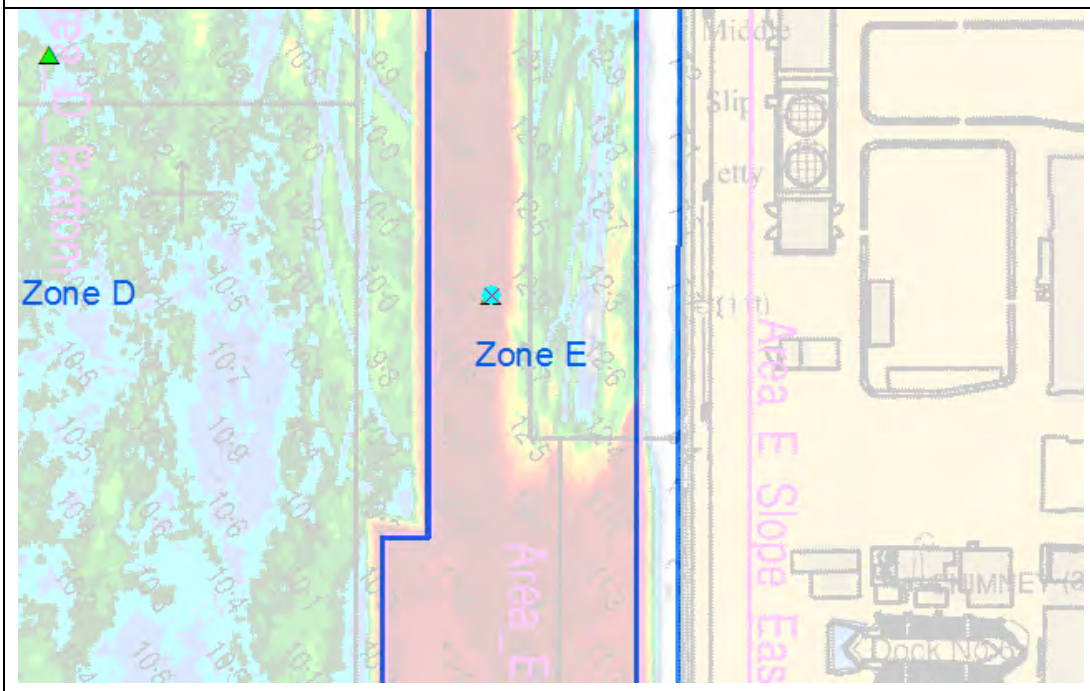
Period	19th - 20th century	**Date Range**	-

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL1_0045	Cannonball	
Date of Discovery	20/08/2016	
How Discovered	Recovered by grab.	
Position of Discovery (British National Grid)	**462625 E**	**100960 N**

Location Map	**Anomaly Image**
	**N/A**

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Images of object

Scale 200 mm

Description
Four and a half inch cannonball with some mild concretion attached. The diameter of the cannonball is 115 mm, it weighs 8.5 kg or 19 lbs.
Interpretation
Cannonballs are a common occurrence in the waters around Portsmouth, with a long running naval history in the area. It is unlikely to relate to the site of a shipwreck as no other material or obstructions were discovered in the location.

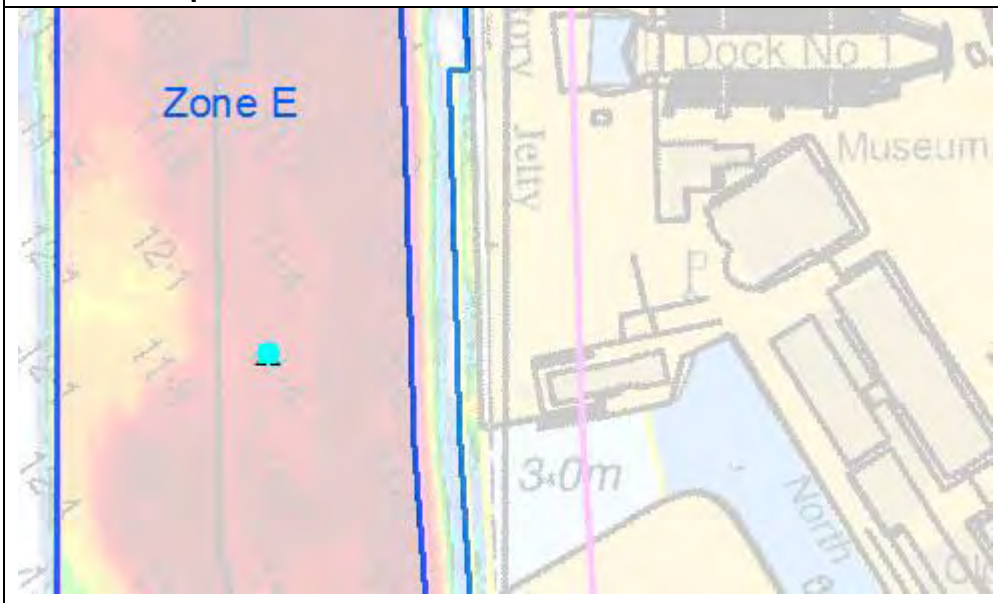
Period	Medieval-post-medieval	**Date Range**	Medieval-post-medieval

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL1_0047	Warren's liquid blackening bottle	
Date of Discovery	03/09/2016	
How Discovered	Recovered by grab from *Stemat 87*	
Position of Discovery (British National Grid)	**462637.03 E**	**100547.45 N**

Location Map



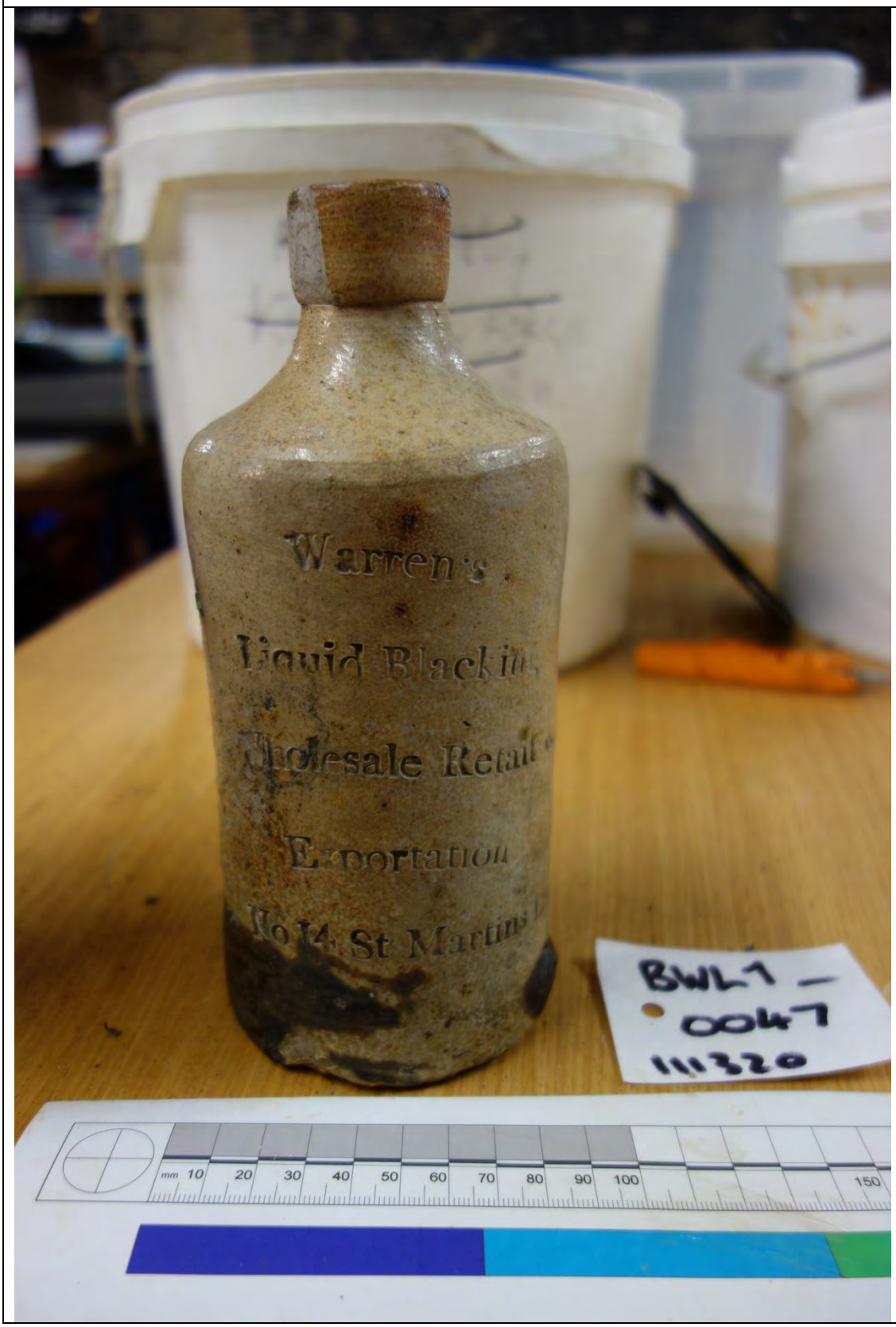
Anomaly Image

N/A

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Images of object



Queen Elizabeth Class Capital Dredging Project

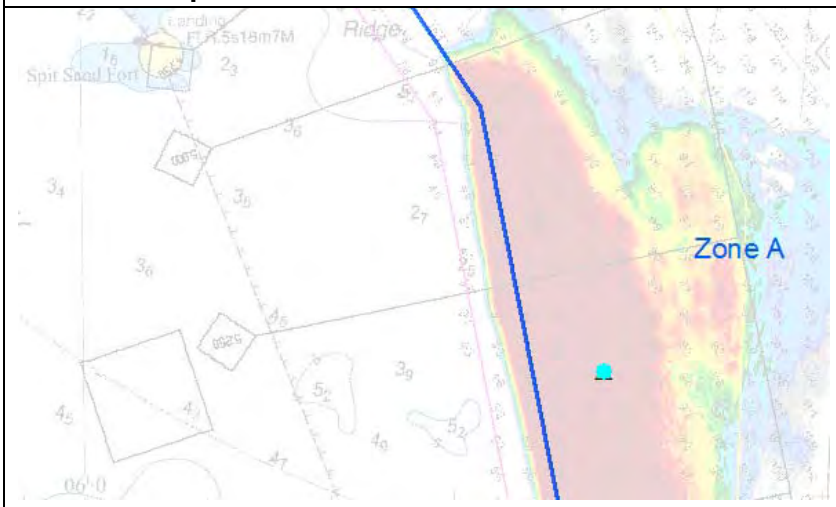
Archaeological Object Report Form

Description			
The bottle is clearly labelled with “Warren’s Liquid Blackening, Wholesale Retail & Exportation, No 14. St Martins Lane”. The bottle is made of stone ware and measures 195 mm in height and the diameter at the base is 85 mm.			
Interpretation			
Liquid blackening was an early form of shoe polish. The company Warren’s started trading as a boot maker in 1791 at No. 14 St Martin’s Lane, London. In 1795 the two sons, Thomas and Jonathan, split and both started to produce liquid blackening. With Thomas Warren continuing business on St Martins Lane. Thomas Warren died in 1805 and his son Robert continued to be based on St Martins Lane until 1816, when he moved the business to the Strand, London. The example that has been found is from this short period between 1795 and 1816 when the company was based out of No. 14 St Martins Lane.			
Period	Late 18th – early 19th century	**Date Range**	1795-1816

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL1_0048	Condensing bulb for a steam pressure transmitter	
Date of Discovery	18/09/2016	
How Discovered	Recovered by grab from *Stemat 87*	
Position of Discovery (British National Grid)	**464061 E**	**96860 N**

Location Map	**Anomaly Image**
	**N/A**

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Scale 500 mm

Queen Elizabeth Class Capital Dredging Project

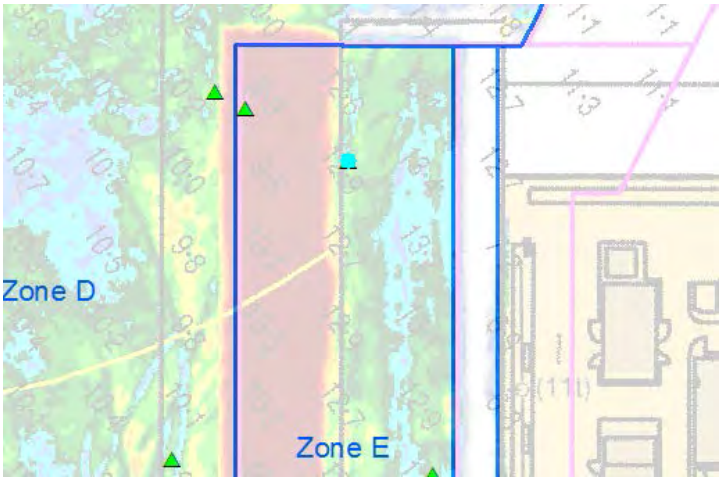
Archaeological Object Report Form

Description
The object is made of what is likely to be both steel and iron. The base is a solid piece of steel and the spherical object on the top is hollow and possibly iron. The object weighs in the region of 40 kg. The base has a diameter of 325 mm and the rim sticks out by 16 mm for a total diameter of 357 mm, the height of base ranges between 10 mm and 100 mm. The sphere on the top has a diameter of 230 mm and the total height of the object is 230 mm. There is a hole in the top of the ball that measures 15 x 22 mm. The protruding feature on the spherical object is 50 mm in diameter and the pin is 15 mm wide and 20 mm long.
Interpretation
The object has been identified as a condensing bulb for a steam pressure transmitter. The condensing bulb would have been attached to the side of a ship's boiler with the steel base facing the boiler. Steam from the boiler would pass through the small hole in the base and into the sphere. In the sphere the steam would be condensed into water, this would feed through the protruding feature found on the sphere and into a pressure gauge. This would be used for monitoring the pressure within the ship's boiler. This object would have been located well within the ship's hull and as it is an isolated find, it may indicate that it was lost or discarded during ship breaking.

Period	Modern	**Date Range**	20th Century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL1_0049	Natural stone	
Date of Discovery	25/09/2016	
How Discovered	Recovered by grab from *Stemat 87*	
Position of Discovery (British National Grid)	**462642.82 E**	**101206.3 N**
Location Map		**Anomaly Image**
		**N/A**

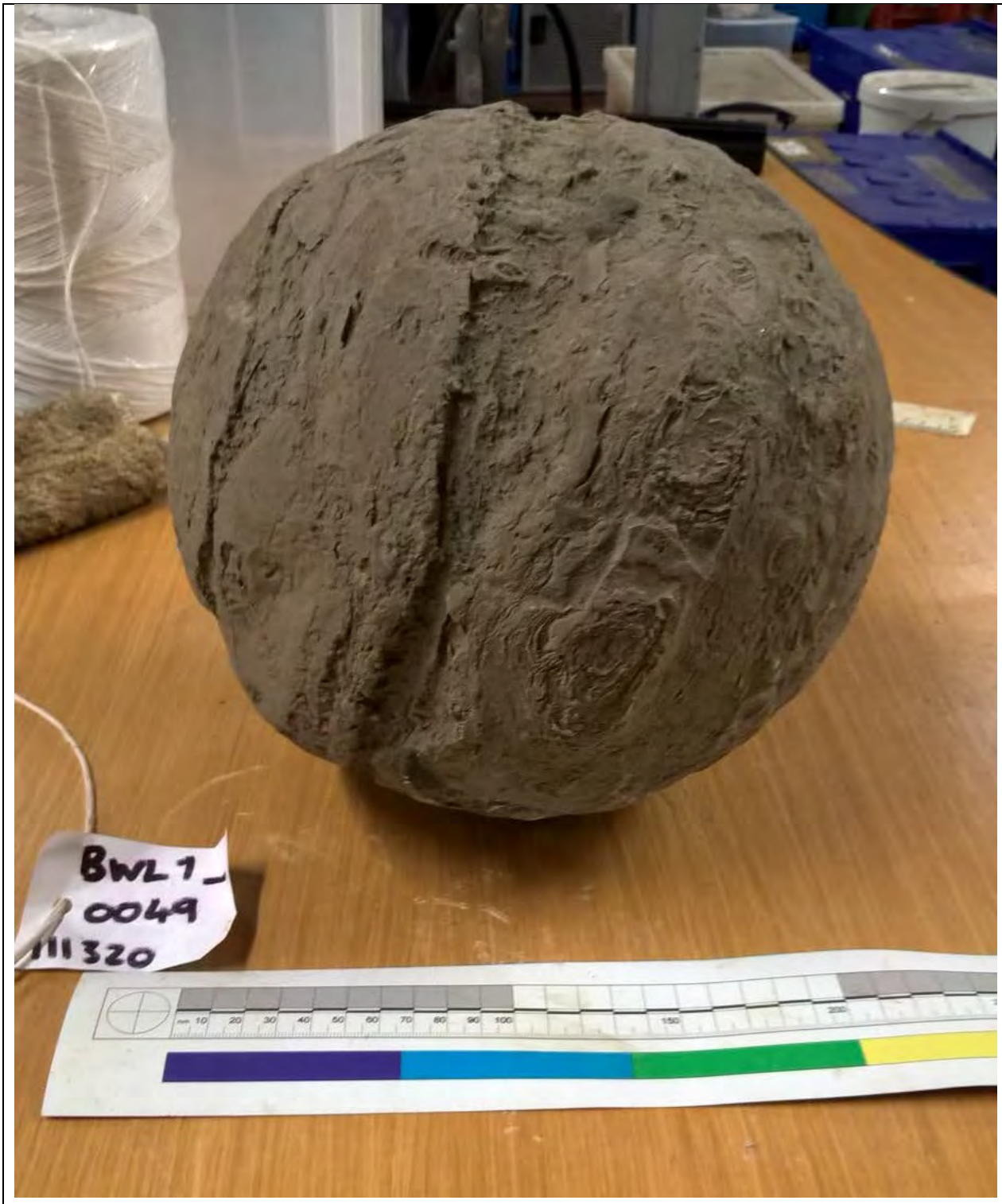
Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form



Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

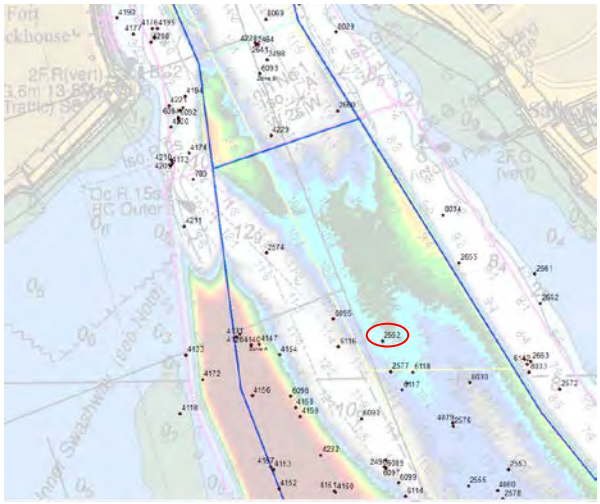
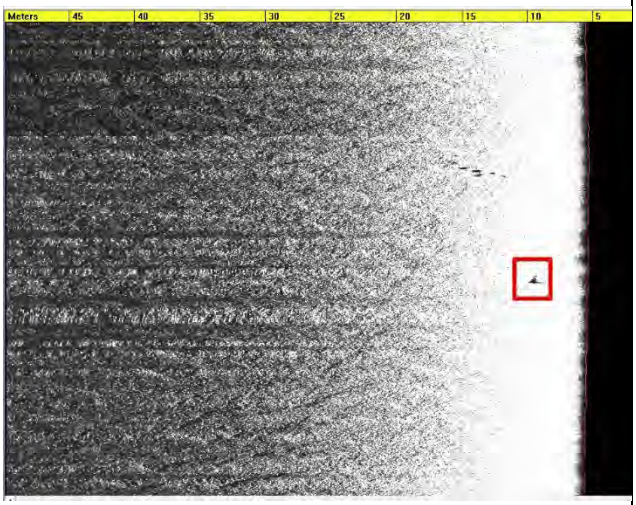
Description
The stone measures 250 mm in diameter at its widest and is slightly oval in shape. It weighs 20 kg or 44 lb. There is a central groove that runs around its entire circumference and a smaller ring on the same axis. The stone itself is a fossiliferous limestone, with inclusions of shells and small marine creatures.
Interpretation
The appearance of the stone is very similar to an unfinished stone cannonball. Stone cannonballs were used prior to iron or lead cannonballs up until around the middle of the 17th century. Stone cannonballs were made of hard stones such as Kentish ragstone, and it is likely that the completed stone shot previously recovered (BWL1_0040) was made of Kentish ragstone, but limestone examples do exist. Stone shot would be loaded on board the ship unfinished and then it could be quickly finished to the desired size later. The groove around the circumference is a common feature of an unfinished cannon ball, being used for marking and as a guide for further reduction. This particular object is unlikely to be an example of stone shot. It is probable to be Blue Lias limestone, the nearest source of which is the Isle of Wight. As limestone is formed in bedding plains this creates layers throughout the stone. These bedding plains will each have slightly different inclusions. Around the centre of the stone there is a thick layer containing more fossilised shells than those above and below. Additionally, different layers may be harder or softer than others. This is likely to be the reason for the grooved rings that can be seen. The larger central groove is likely to be the softest area and as a result has worn away quicker than other areas. While its rounded appearance is probably the result of rolling.

Period	Natural	**Date Range**	Natural

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL1_0050 (formerly BWL9_0036)	Military aircraft engine	
Date of Discovery	Reported to Wessex Archaeology on 4 October 2016	
How Discovered	Located as sidescan sonar anomaly SS-2552 (774) in Zone A on 10 October 2015. Date of recovery to be confirmed. Initially identified as a winch engine by the contractors concerned.	
Position of Discovery (British National Grid)	462928.67 E	99037.3 N

Location Map	Anomaly Image
 Location of SS-2552	 Sidescan sonar image. Unknown orientation.
 Side view (Wessex Archaeology)	 End view (Wessex Archaeology)

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Geophysical description of sidescan sonar image

The side scan sonar image is recorded as an isolated 'contact'. Length is 1.2 m, width 0.51 m and height 0.2 m.

Archaeological Interpretation

This military aircraft engine was reported to Wessex Archaeology during a quayside visit on 4 October 2016. The following description and interpretation has been compiled with the assistance of historic aircraft specialist Steve Vizard.

The engine is a V-12 steel and aluminium composite. It is very heavily corroded and damaged and is only partially intact. Surviving elements include: pistons, cylinder liners (sleeves) and connecting rods; flywheels and crankshaft and an engine mount fixture 1.27 m long and has twelve cylinders of 0.15 m diameter and 0.27 m height. The cylinder O-rings are still in place. The gear at one end of engine is 0.2 m diameter (addendum circle) and 70 mm wide, with a circular pitch of approximately 15 mm.

The available information suggests that the engine is a Jumo 211, an inverted V-12 German aero engine. This engine was used to power a number of Luftwaffe bomber types during the Second World War, including the Junkers Ju 87 and Ju 88 and the Heinkel He 111. The aircraft that it belonged to has not yet been identified. Ju-88 A1 of 8/KG51 shot down over Portsmouth Harbour by anti-aircraft fire on 12 August 1940 can be discounted on the basis that wreckage associated with this loss has been found north of Whale Island and the character of that material suggests that the aircraft concerned dived steeply into the harbour (NRHE Monument No. 1400101; Steve Vizard, pers. comm.).

During the quayside inspection, fragments of fishing net were found entangled with the cylinder liners. A heavy rope was also coiled around part of the engine, although it was not clear when the latter entanglement occurred. The fact that the engine was detected as a sidescan sonar anomaly with height indicates that the likelihood of some entanglement having occurred on the seabed is high. It is possible that this could indicate that the engine has been moved from the original aircraft crash site, as it has been informally reported that aircraft wreckage recovered in nets from as far afield as the Isle of Wight has occasionally been dumped by fishing vessels in the approaches to Portsmouth (Steve Vizard, pers. comm.).

At the present time it is unclear whether any associated aircraft wreckage remains at or near the anomaly location. It is conceivable that the engine is an isolated find, perhaps the result of the break-up of the aircraft in the air or dumping. No other anomaly has been identified in the vicinity, except perhaps a faint trace of a rope or cable-like feature (see Anomaly Image above).

Recommendations

The following recommendations are made:

1. the anomaly location should be treated as a probable military aircraft crash site and therefore protected under the Protection of Military Remains Act 1986;
2. the 100m Temporary Exclusion Zone (TEZ) should be retained around the anomaly location pending the results of recommendations 3 & 4;
3. further investigations to confirm the identification of the engine and of the aircraft it came from should be undertaken; and
4. further investigations to determine whether the engine is an isolated find or part of a wider crash site in the vicinity should be undertaken.

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

In order for recommendation 4 to be carried out, it is strongly advised that Wessex Archaeology should: be provided with and review any existing geophysical survey datasets for the anomaly location, including sidescan sonar, magnetometer, multibeam bathymetry and sub-bottom profiler; be provided with any sector scanning or similar sonar data acquired immediately before and during the recovery; and interview the supervisor and any divers involved.

Period	20th century	**Date Range**	1939-45

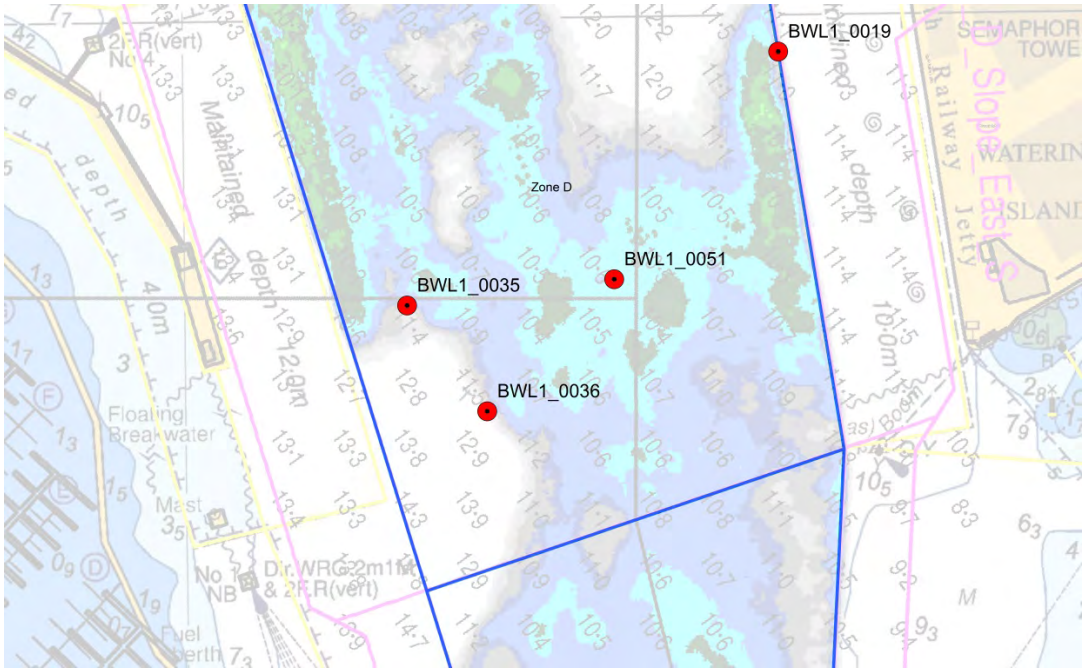
References

National Record of the Historic Environment (accessed through Pastscape on 12 October 2016, https://pastscape.org.uk/hob.aspx?hob_id=1400101&sort=4&search=all&criteria=Ju88 Portsmouth&rational=q&recordsperpage=10)

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL1_0051	Cast iron cannon	
Date of Discovery	15/10/2016	
How Discovered	Recovered by grab at a depth of 0.8m below seabed during investigation of UXO Subtem anomaly ST-449 in Area D.	
Position of Discovery (British National Grid)	**462558.32 E**	**100295.58 N**

Location Map	**Anomaly Image**
	Buried Subtem anomaly

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Images of object

BWL1_0051 on deck following recovery

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

2D representation of 3D photogrammetry model (rectangular bars on either side are 0.5 m scales)

Queen Elizabeth Class Capital Dredging Project

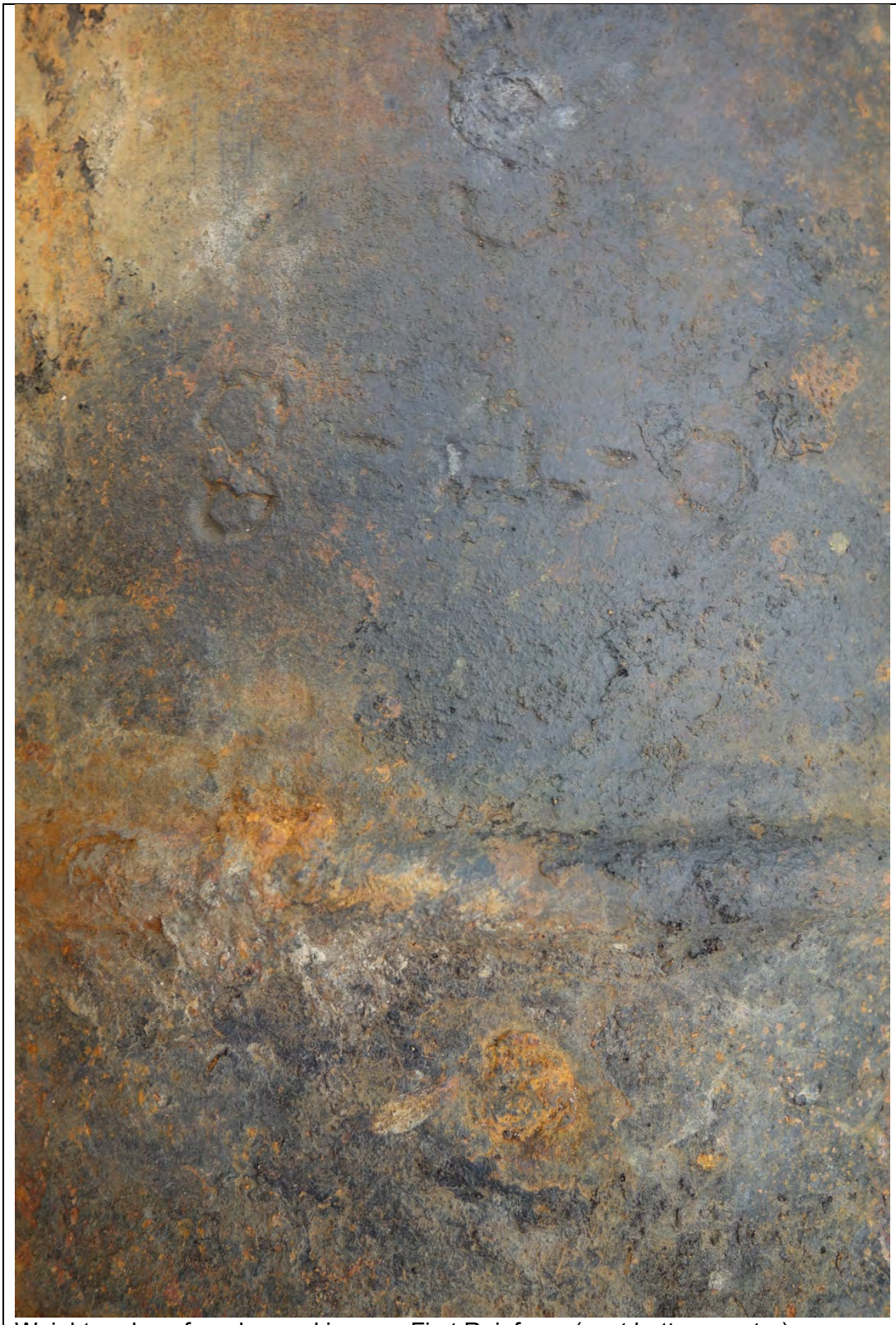
Archaeological Object Report Form

Detail of breech and cascable (0.5 m scales)

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Detail of muzzle



Weight and gunfounder markings on First Reinforce (vent bottom centre)

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description

Small cast iron cannon. The gun when recovered was largely covered in concretion. However, most of this was missing when subsequently inspected by Wessex Archaeology.

The gun has two muzzle mouldings. The swell is not very pronounced and is curved rather than straight. The muzzle astragal has a fillet on either side; the one towards the breech is separate. The second reinforcement ring has six or seven fillets/ogee; the first has four, with a separate ring forward and separated by a few millimetres. The vent field astragal has two fillets; the base ring has several, which are very worn. The vent is plain and slightly oval. The cascabel mouldings are complicated and best appreciated by looking at the model. One trunnion is worn and corroded; the other is covered with concretion. The trunnions are offset and are positioned at about 40%of the length of the gun.

There are no markings on the base ring or vent field. Neither trunnion is in good condition and no markings are apparent. The weight is inscribed on the first reinforce (8 – 1 (?) – 0). Forward of that is inscribed the letter ‘S’, the maker’s mark.

Key measurements are as follows:

Measurement	mm	Feet and inches (converted)
Muzzle face to base ring	1658	5’ 5.3”
Muzzle length	170	6.7”
Chase length	635	2’ 1”
Second Reinforce length	377	1’ 2.8”
First Reinforce Length	476	1’ 6.7”
Vent Field length	33	1.3”
Cascabel length	232	9.1”
Muzzle face to mid-trunnion	Approx. 995	3’ 3.2”
Damaged trunnion dimensions (other obscured by concretion)	69 long 70 diameter	2.7” x 2.7”
Muzzle face diameter (not including mouldings)	143	5.63”
Bore (obscured by concretion but estimated from width of muzzle face at one point)	73	2.87”
Base ring diameter	Approx. 281	11.06”
Muzzle astragal diameter	154	6.06”
Muzzle swell diameter	172	6.77”

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Interpretation

The assistance of independent ordnance expert Charles Trollope in identifying the gun is gratefully acknowledged.

The shape of the button, neck and cascabel are typical of English guns of the late 16th and very early 17th century. The chase length, the position of the second reinforce and the position of the trunnions are also all typical of the last quarter of the 16th century. There are no markings of the type associated with government service and this and the very small size of the gun suggest that it was produced for service on a merchant ship. Only Robert Sackville, 2nd Earl of Dorset, an iron master working in the Weald of Kent, is likely to have used an 'S' as his mark during this period.

The gun can therefore be identified as a Falcon cast by the iron master Robert Sackville in the Weald between 1590 and 1605.

Sackville, the 2nd Earl of Dorset, lived at Knole House in Kent and the gun was part of a number of small guns he was allowed to cast during this period for non-military use. It would almost certainly have been intended to form part of the defensive armament of a merchant ship.

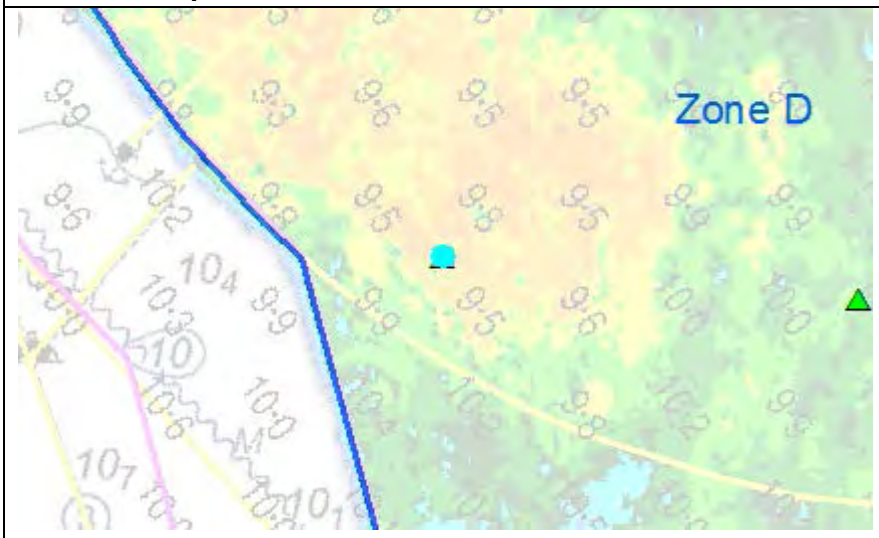
The circumstances of the gun's deposition are unknown. No associated archaeological material has been observed or detected. Two 17th century guns (BWL1_0035 and 36) were recovered from approximately 90-100 m to the west and south-west but these are both later in date and there is no evidence for association other than general proximity. Buried Subtem anomalies 442, 441 and 451 are located within 7m but have not yet been investigated.

Period	Post-medieval/Tudor/Jacobean	**Date Range**	1590-1605

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

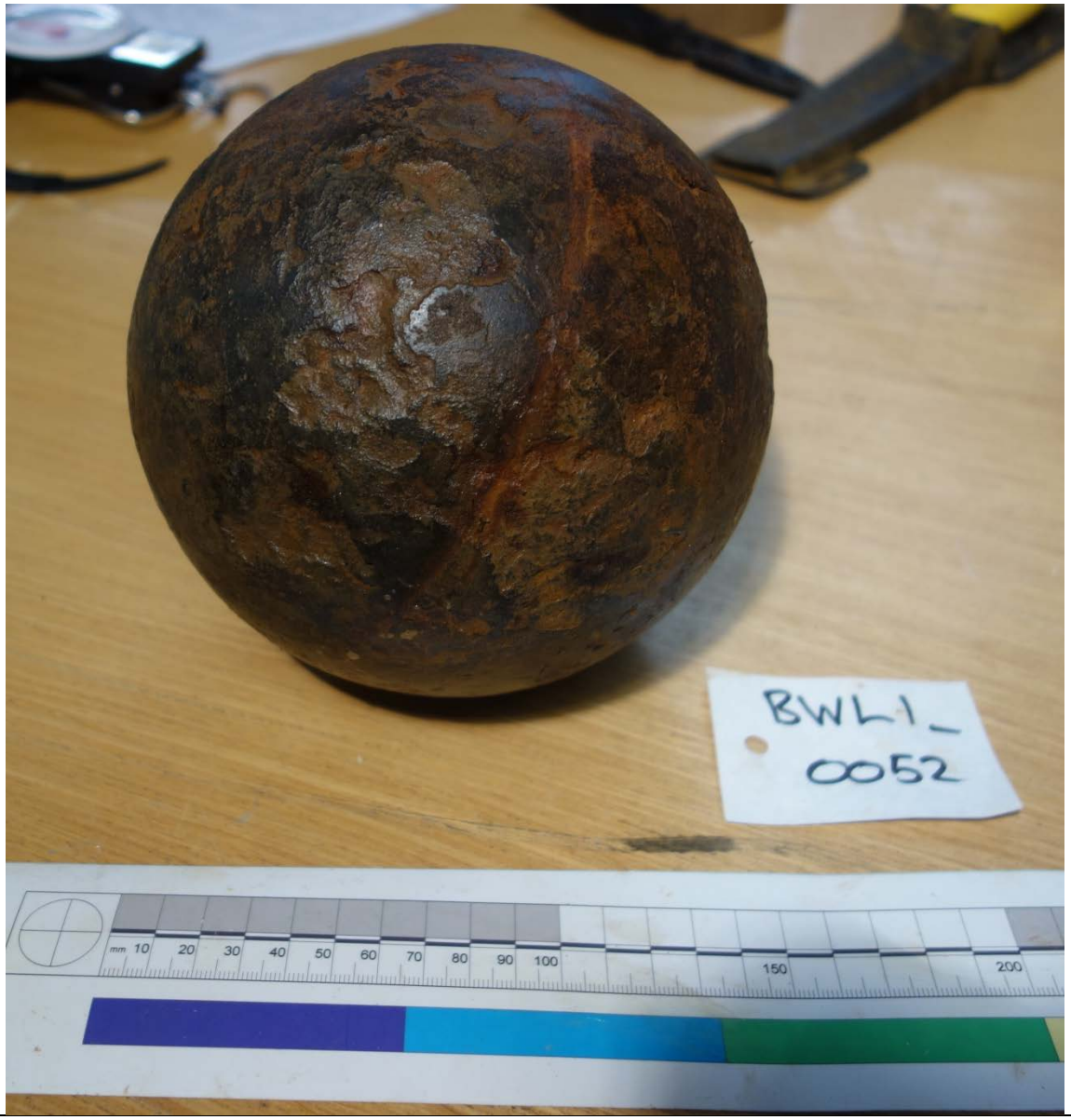
UID BWL1_0052	Cannonball	
Date of Discovery	13/10/2016	
How Discovered	Recovered by grab from the barge *Stemat* 87	
Position of Discovery (British National Grid)	**462300.39 E**	**101185.96 N**

Location Map	**Anomaly Image**
	N/A

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Image of object



Queen Elizabeth Class Capital Dredging Project

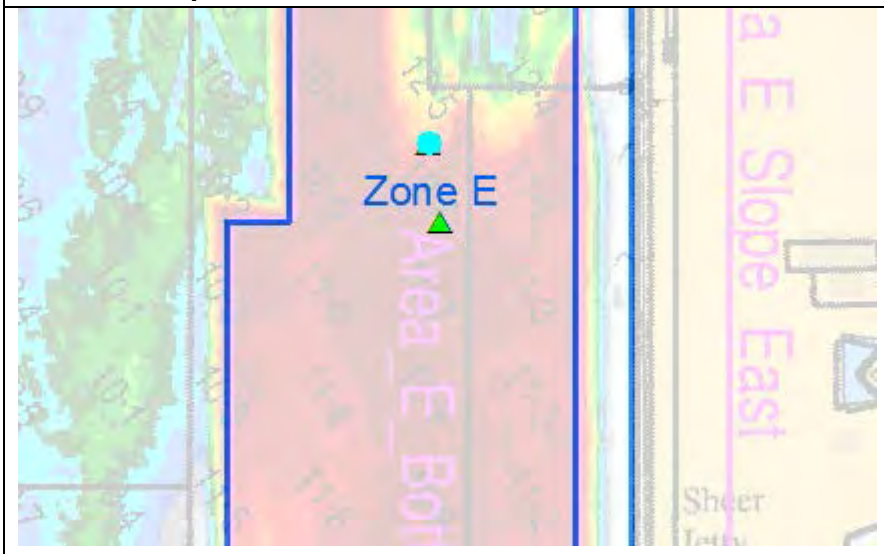
Archaeological Object Report Form

Description			
The cannonball is iron and has a diameter of 144 mm. It weighs 30 lb or 13.6 kg.			
Interpretation			
This cannonball is likely to have been used for a 30 or 32 pounder cannon. A relatively large bore cannon fitted to warships of the time. Portsmouth has a long running naval history leaving a variety of reasons for cannonballs to be found, it could have been lost or fired in training or battle.			
Period	16th – 17th century	**Date Range**	16th – 17th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL1_0053	Royal Navy mess plate	
Date of Discovery	15/10/2016	
How Discovered	Recovered by grab from the barge *Stemat* 87	
Position of Discovery (British National Grid)	**462460.37 E**	**100886.45 N**

Location Map	**Anomaly Image**
	N/A

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

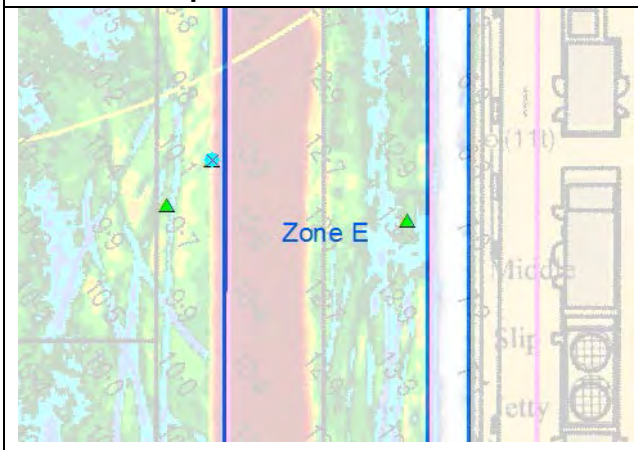
Description
A Royal Navy mess plate with approximately half of the rim missing. The plate is a ceramic known as pearl ware. The plate has an approximate diameter of 248 mm and is 4 mm thick. The central design is a French inscription that reads 'HONI SOIT QUI MAL Y PENSE', which translates roughly to 'shame on him who thinks evil of it'. The inscription surrounds a fouled anchor with the words 'MESS No 14'. A crown surrounds the inscription and anchor. Below is an arrangement of flowers, likely to consist of roses, laurel and thistles, representing England, Scotland, Wales and Ireland. Similar floral designs are found around the rim of the plate, while in-between these there are depictions of naval scenes.
Interpretation
The plate would have belonged to mess room number 14 on board a Royal Navy ship. The mess rooms were divided in this way up until 1907, with each mess having its own sets of plates, bowls and cups. This particular design was made by Morgan and is known as the Morgan pattern, a particularly rare example of a mess plate. The central design is of a fouled anchor surrounded by the old French inscription "Honi soit qui mal y pense" which translates to "Shame be to him who thinks evil of it", and was also used as the motto of the Order of the Garter. Above this there is a crown and below a floral design to represent the UK countries. A rope pattern boarder runs around the central part of the plate. The outer designs show naval scenes, with an image of a three masted war ship, with others in the distance and a castle, the other ship is a two masted paddle steamer. The floral designs around the plate represent the countries within the UK as their national flowers. The final design on the rim is a collection of naval material, showing a rudder, fouled anchor, cannon and the red ensign flag. This particular design was in use by the Royal Navy between the 1850s and 1870s. It is probable that the plate was discarded over board from a passing Royal Navy vessel.

Period	19th century	Date Range	c.1850-1870s

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL1_0054	Anchor	
Date of Discovery	17/10/2016	
How Discovered	Recovered by grab from the barge *Stemat 87*	
Position of Discovery (British National Grid)	**462594.6 E**	**101110.6 N**

Location Map	**Anomaly Image**
	N/A

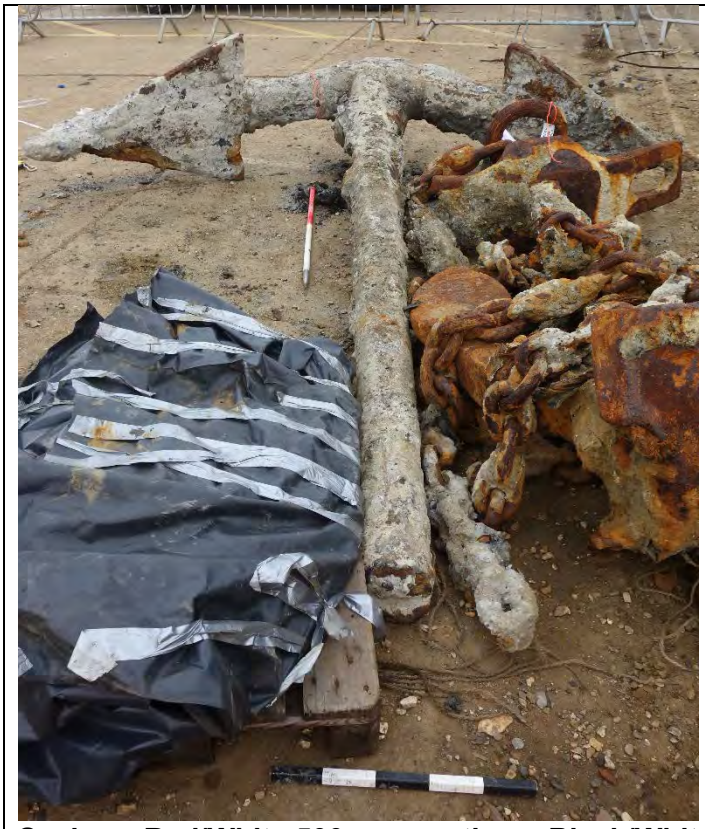
Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form



Scales – Red/White 500 mm sections. Black/White 100 mm sections.

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

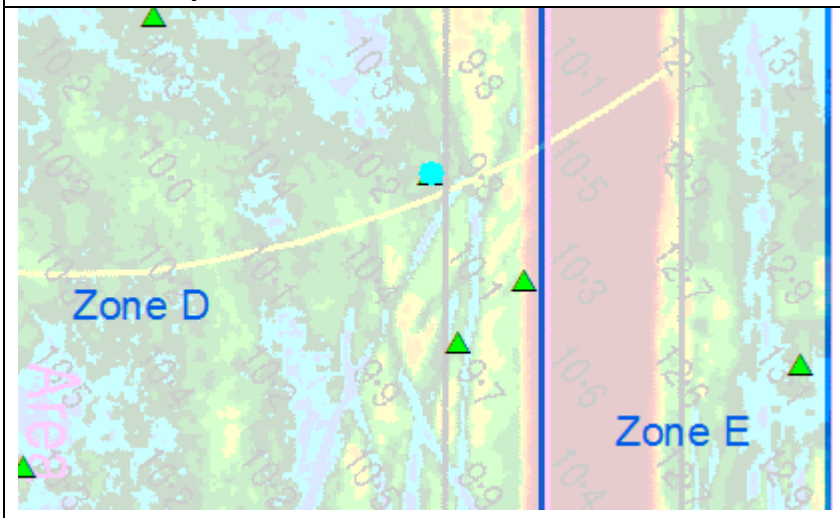
Description
The anchor's shank has a remaining length of 3300 mm. The shank has a rounded section and a diameter of 200 mm at towards the crown, tapering to 170 mm towards where the ring would have been. The distance between the bills is 3160 mm and the palms have maximum dimensions of 800 mm wide and 840 mm in length, with very pronounced bills measuring 240 mm long. The anchor shank appears to be broken at the ring end, losing the remains of the stock and ring.
Interpretation
This anchor is possibly one of two anchor types. The first possibility is an Old Pattern Long Shank anchor which was common from the late 18th century to the early 19th century, and has become one of the most memorable anchor shapes in the public eye. The design was eventually replaced by the Improved Admiralty design in 1841 with more curving arms, and this anchor could relate to the improved design. The angled arms caused issues with the strength of the anchor and many were broken and repaired. The anchor was an isolated find and it is likely that the anchor was lost or abandoned.

Period	18th - 19th Century	**Date Range**	Late 18th century – c. 1841

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL1_0055	Great Eastern Hotel bottle	
Date of Discovery	17/10/2016	
How Discovered	Recovered by grab from the barge *Stemat* 87	
Position of Discovery (British National Grid)	**462567.5 E**	**101141.6 N**

Location Map	**Anomaly Image**
	N/A

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

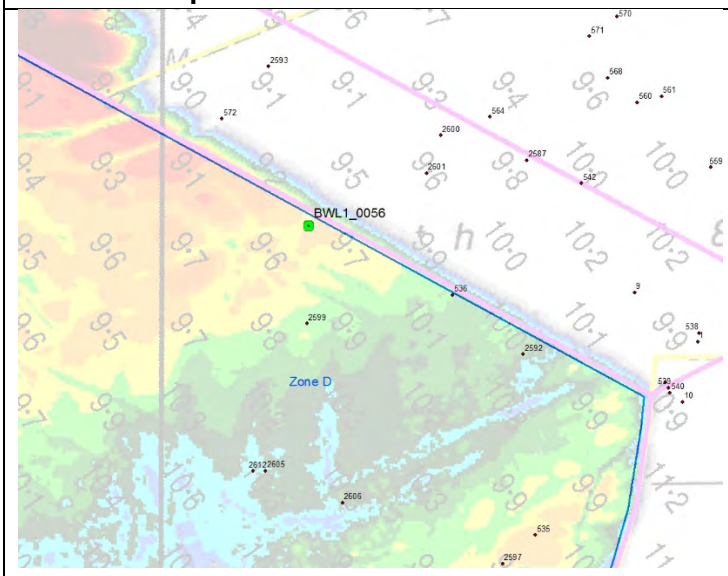
Description
This clear glass bottle is 163 mm in height with a diameter at the base of 72 mm. Around the bottle it has “Great Eastern”, “Hotel Co”, “Limited”, and “Calcutta” with each spaced at quarters around the circumference.
Interpretation
The Great Eastern Hotel was opened in 1840 under the name of the Auckland Hotel. At the time Calcutta was the most important city in India. The hotel opened at a time of industrial growth in the city, with a large part of the city inhabited by European traders and manufacturers. The hotel became known as “The jewel of the East” with department stores, restaurants and bars as well as being the first hotel in India to have electric lighting. The hotel changed its name from the Auckland Hotel to the Great Eastern Hotel in 1915, which dates this bottle to post 1915, and Calcutta changed its name to Kolkata in 2001, so the bottle is pre-2001. It is probable that the bottle was brought back from India by a guest of the hotel, and eventually discarded lost over board or within a rubbish dump.

Period	20th century	**Date Range**	Post 1915

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL1_0056	Anchor stock	
Date of Discovery	22/10/2016	
How Discovered	Recovered by grab from the barge *Stemat 87*	
Position of Discovery (British National Grid)	**462627.5 E**	**101449.8 N**

Location Map	**Anomaly Image**
	N/A

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Images of object

Above – part A. Below – part B.

Scales 500 mm sections.

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

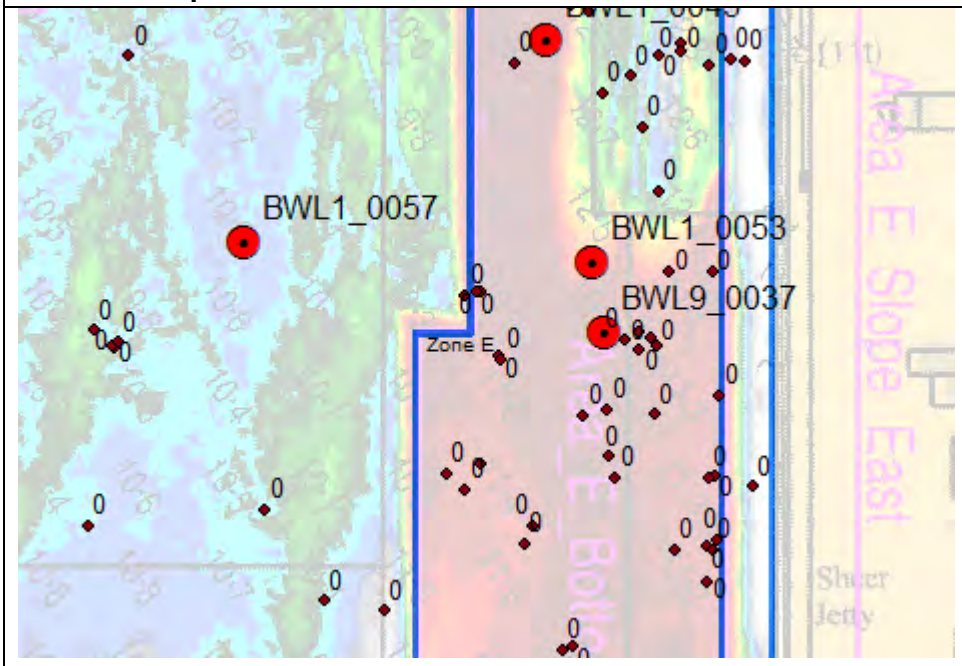
Description
This object comprises two pieces that were originally held together by metal bands, with the recessed end joining the widest end of the other part. The entire object is made from metal, possibly steel, which has been bent at around the midpoint and looks to have resulted in it breaking in two. Part A has a total length of 2270 mm and at its widest is 460 mm at the joining end. After the joining end there is a band measuring 120 mm long and 270 mm wide, then a gap of 440 mm, and a width of 290 mm, to the next band. The second band is 120 mm long and 240 mm wide. Then another gap 180 mm wide and 1210 mm long, followed by the final band which measures 110 mm long and 210 mm wide, with the end piece measuring 140 mm long and 160 mm wide. The depth of the object is a consistent 110 mm except the central socket which is 120 mm deep. The second piece, part B, is 2650 mm long and 470 mm at its widest. The broken end that connects to part A has two protruding arms which when connected to the after half creates a square socket in the centre of the object measuring approximately 320 x 270 mm. There is a split clearly visible in this end that looks to form a seam for the socket end to approximately half way along its length. A similar seam can be seen in the other part; this would suggest that two halves are banded together. The first of the bands measures the same as the corresponding band on part A, 120 x 270 mm. The gap to the second band is a long 820 mm and 200 mm wide. The second band is 130 x 230 mm, then a 770 x 180 mm gap to the third band. The third and final band is 130 x 210 mm with the end measuring 180 x 160 mm. The anchor was recovered from 0.65 m below the seabed, and was located 36 m to the north of side scan sonar target **2599** described as a ‘contact’, and 60 m to the WNW of side scan sonar target **536**, a section of chain.
Interpretation
The metal anchor stock has clearly broken in two at the socket, and this is why the two parts were on the seabed.

Period	19th century - Modern	**Date Range**	19th century - Modern

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL1_0057	Rudder	
Date of Discovery	23/10/2016	
How Discovered	Recovered by grab from the barge *Stemat 87.*	
Position of Discovery (British National Grid)	**462525.1 E**	**100893 N**

Location Map	**Anomaly Image**
	N/A

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

The wooden core of the rudder

Queen Elizabeth Class Capital Dredging Project

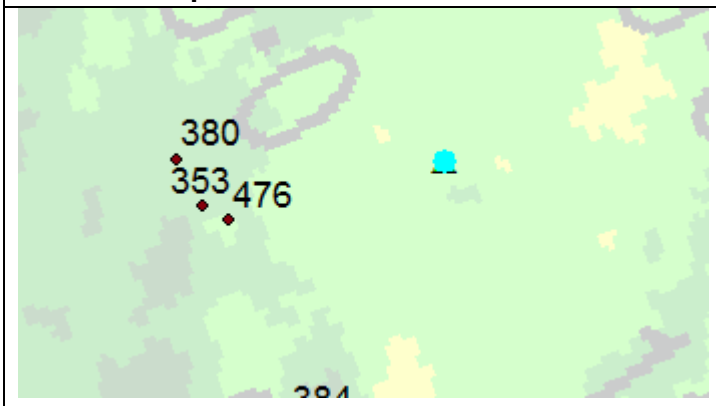
Archaeological Object Report Form

Description
The rudder measures 1100 mm in height and has a maximum width of 750 mm. At the top of the rudder, the rudder stock protrudes 120 mm from the blade and has a diameter of 130 mm and an internal diameter of 90 mm. The rudder has a thickness of 12 mm at the forward part, increasing to 100 mm towards the centre and towards aft it is 15 mm thick. There are pin holes around the whole circumference with two horizontal rows running through the centre. There are some pins and screws remaining towards the top of the rudder, the holes measure 8 mm in diameter. The rudder is made using a wooden core, with a copper alloy strip running around the edge, the outside is then plated with a single sheet of a copper alloy that is possibly Muntz metal or “yellow metal”. Muntz metal is 60% copper, 40% zinc and traces of iron.
Interpretation
The rudder blade is a balanced spade rudder, only being attached via the rudder stock at the top of the blade. The balanced rudder refers to the position of the stock in relation to its width. The balanced position reduced the energy required to move the rudders position, additionally the absence of a skeg reduces the drag associated with turning, in turn this reduces fuel consumption and can increase speed. The down side to the spade rudder is that it is more susceptible to damage compared to other designs. With only the rudder stock holding the blade to the boat it becomes more likely to become damaged in strong seas or through making contact with the sea floor, quaysides and tangling with fishing gear. Commonly this type of rudder can be found on inshore cruising yachts and boats, it is used commonly by racing yachts for its advantages of reduced drag and energy requirements. It is common for a rudder to be constructed with a wooden core, and many are either bronze or copper alloy plated in order to reduce their vulnerability in salt water. Muntz metal, also known as “yellow metal” from its appearance, was a cheaper alternative to copper invented in 1832 by George Frederick Muntz. It uses around 60% copper and 40% zinc. It provided the same results as copper sheathing, except it was cheaper and lasted longer. Muntz metal was famously used to sheath the hull and rudder of the *Cutty Sark*. This design is more prone to breaking than other rudder designs, but usually they will not break at the stock but slightly below this, leaving the stock and upper portion of the blade. It is possible that a boat has lost its entire rudder as no other remains of a wreckage have been recovered or located from the location.

Period	19th – 20th Century	**Date Range**	Post 1832

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL1_0058	Brown, Lenox & Co. stockless anchor, post-1892	
Date of Discovery	05/10/2016	
How Discovered	Recovered by grab from the barge *Stemat 87*	
Position of Discovery (British National Grid)	**462443.76 E**	**101312.23 N**
Location Map	**Anomaly Image**	
	N/A	
Images of object		
		

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Scales 100 + 500 mm sections.

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

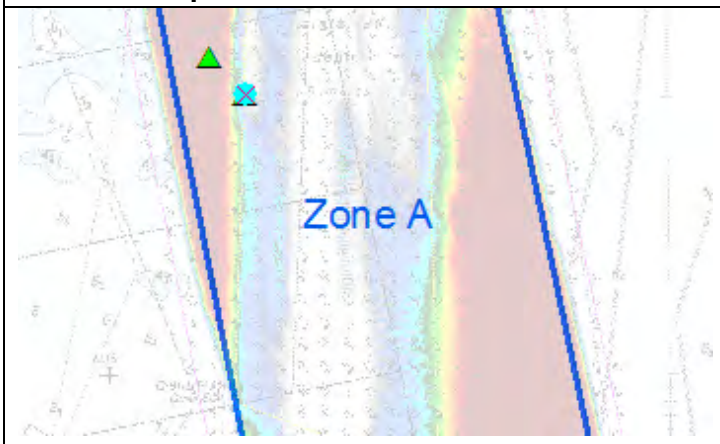
Description
The anchor appears to have been made with a cast steel crown, arms and stock and a forged iron shank. The square profile shank measures 1800 mm long and 130 mm wide at the crown and tapering to 110 mm towards the ring. The bill to bill measurement is 1050 mm and the palms have a maximum measurement of 630 mm high and 430 mm wide. Each of the palms also has a small protruding notch on the inside edge which measures 50 mm out from the palm. The stock is 1120 mm wide and 660 mm deep at its maximum. Just over half way along the shank there is a balance band and ring, this would be used to lift the anchor in a horizontal position. There is an extensive section of chain still attached to the ring of the anchor. Each of the chain links measures 180 mm x 120 mm, with an internal spacing of 100 x 50 mm. The anchor was located within 20 meters of the side-scan sonar targets 353, 380 and 476.
Interpretation
This is the second anchor of this type to have been found during these works (the first was BWL1_0001). The anchor is likely to have been made by Brown, Lenox & Co. Ltd, who were based originally in Pontypridd, Glamorgan. The design was approved by Lloyds in 1892, so it is probable it was made after this date. The company manufactured chains, cables, anchors, and moorings for the Admiralty and for others. They were the main supplier of chain to the Admiralty until 1916, although the factory did not close until 2000. No markings were found on the anchor and it may have been lost or abandoned, although it is just as likely that it was used as a mooring.

Period	Late 19th – 20th Century	**Date Range**	1892 – *c*.1920

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

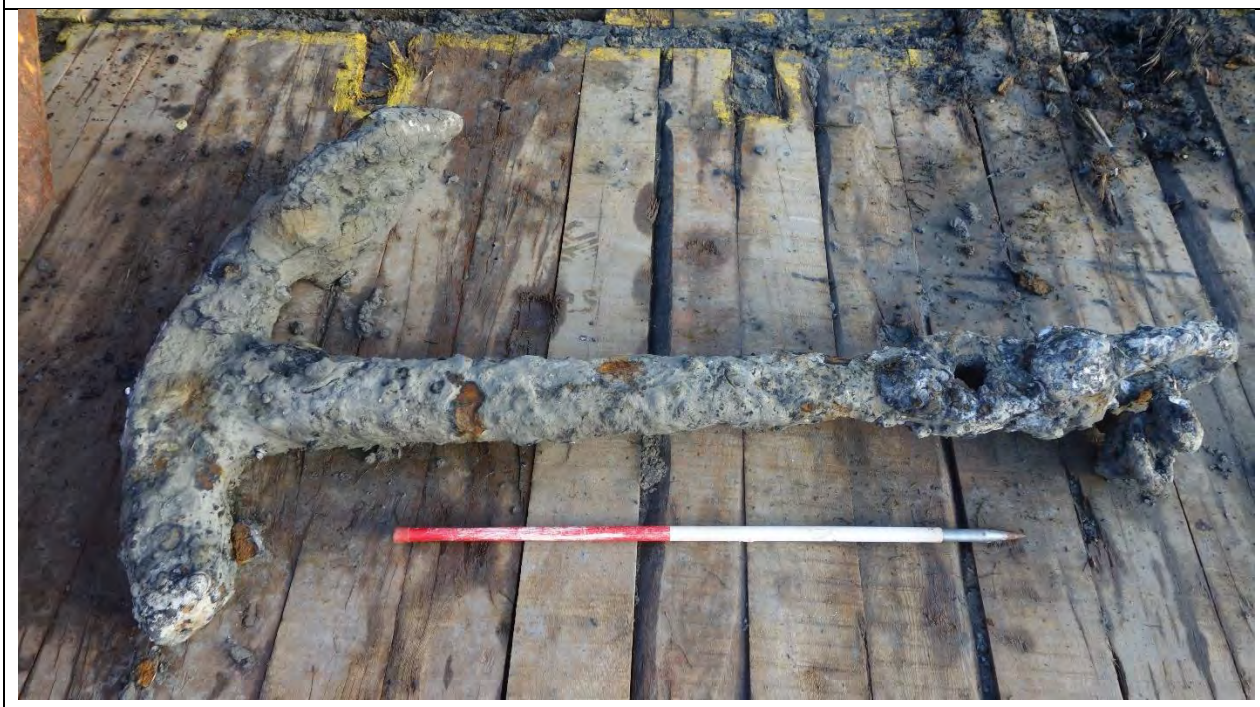
UID BWL1_0059	Admiralty Pattern Anchor	
Date of Discovery	26/10/2016	
How Discovered	Recovered by grab from the barge *Stemat 87*	
Position of Discovery (British National Grid)	**464178.6 E**	**96379.48 N**

Location Map	**Anomaly Image**
	N/A

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Image of object



Scales 500 mm sections.

Description

The anchor's shank has a length of 1600 mm with a total length of 1850 mm. The shank itself measures 180 mm in diameter towards the crown and tapers off to 120 mm at the ring. One of the arms has broken, the remaining arm has a bill to shank measurement of 720 mm, for a bill to bill measurement of 1440 mm. The palm has maximum dimensions of 450 mm wide and 500 mm long. There is a hole towards the ring which measures 60 mm in diameter, this is where the stock would have been, likely also to be made of iron. At the anchor ring there is a large shackle followed by a smaller shackle.

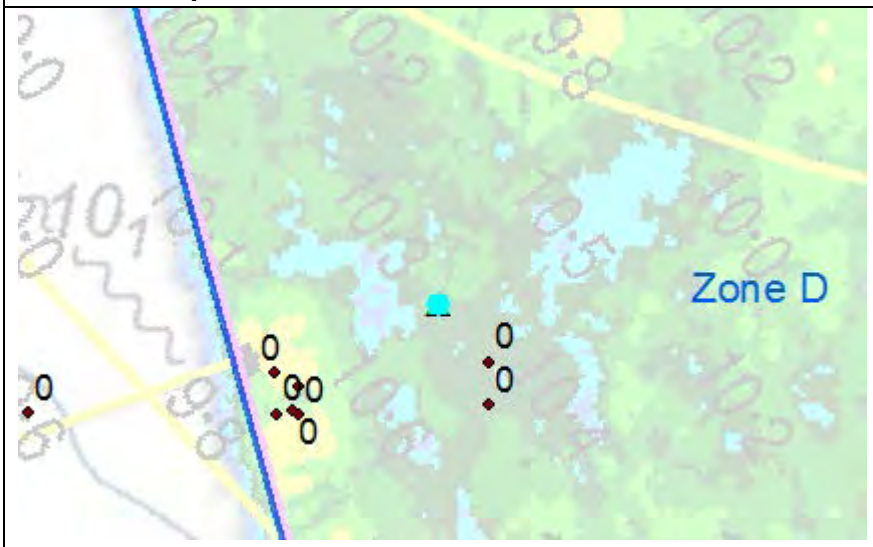
Interpretation

The anchor is an Admiralty pattern anchor, which would have had an iron stock. The Admiralty pattern anchor was introduced in 1841 by Admiral Sir William Parker and became one of the most recognisable anchor shapes to be used by the Royal Navy. The anchor was an isolated find and it is likely that the anchor was lost or abandoned.

Period	19th Century	**Date Range**	Post 1841

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL1_0060	Iron cylinder head for a four stroke stationary/marine diesel engine	
Date of Discovery	24/10/2016	
How Discovered	Recovered by grab by barge *Stemat* 87	
Position of Discovery (British National Grid)	**462319 E**	**101098.7 N**
Location Map		**Anomaly Image**
		N/A

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Scale 100 mm sections

Description
The object is made of iron and measures 650 mm in height and 600 mm in width and has a thickness of 220 mm. There are a series of eight holes in a circle around the edge, and two further holes outside the main circle. Each of these holes measures 90 mm in diameter, with the internal hole measuring 46 mm in diameter. In the centre there is one hole measuring 50 mm in diameter with two 120 mm diameter holes either side.
Interpretation
This object is a cylinder head for a four stroke stationary/marine diesel engine. The two larger holes are probably for the inlet and exhaust valves, and the smaller hole is for the fuel injection. It was push rod operated. The eight of the holes around the outside of the are the head studs. The engine has probably been stripped because at some point it got a crack, which is likely now hidden under the concretion. There would be makers stamps along the thinner sides or the rim that might provide further information, but they are presently covered by the concretion, and a substantial amount of concretion would have to be removed for them to be visible.

Period	19th – 20th century	**Date Range**	Est. 1900-modern

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL1_0061	Four Glass Bottles	
Date of Discovery	03/11/2016	
How Discovered	Recovered by grab from the barge *Stemat* 87	
Position of Discovery (British National Grid)	**…… E**	**…… N**

Location Map	**Anomaly Image**
N/A	N/A

Image of objects

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
Four complete glass bottles. (From left to right): • The first bottle is a very dark green/black bottle with the moulded logo of “Geo. Peters & Co. Portsmouth. Kingston Brewery”. This bottle measures 247 mm tall and a maximum diameter of 76 mm. • The large brown bottle is unmarked and measures 295 mm tall and a maximum diameter of 77 mm and may have been used for spirits or possibly beer. • A small four sided bottle with “D.B & Co Ld” on the base. The bottle measures 195 mm high and 70 mm in width. • The last bottle measures 167 mm high and 63 mm in diameter, and it has “C.S & Co Ld” and “5575” marked on the base. The number may be a lot number relating to production.
Interpretation
George Peters & Co was a brewers and a wine and spirit merchant, owning several properties. The Kingston brewery was purchased in auction in 1884 and sold on in 1910. The lack of markings limits research into the large brown bottle, which may well be for spirits or beer. The four sided bottle marked D.B & Co is possibly from Dodson-Braun, St. Louis, Missouri. The company produced condiments and relishes and specialised in pickles. The company was in business between c. 1898 and 1914. The bottle marked with C.S & Co is a bottle made by Canninton, Shaw & Co. Ltd. A company based in St. Helens, Lancashire. They produced glass between 1875 and 1913, becoming a large supplier and employing over 1,000 people. The marks on this particular bottle date it to between 1892 and 1913. All of the bottles are likely to have been discarded over board from passing vessels or washed out to sea.

Period	Late 19th century – early 20th century	**Date Range**	c.1884-1914

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL1_0062	Modern plate and bowl	
Date of Discovery	03/11/2016	
How Discovered	Recovered by grab from the barge *Stemat* 87	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Images of object

Maker's mark on the back of the plate

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
Four pieces of ceramic, including a complete plate, two pieces of a broken bowl, and a plate sherd. The plain white plate measures 251 mm in diameter. It has a maker's mark on the base which reads "W.H. Grindley 1962" with a broad arrow. A small sherd of a plate rim which measures 136 mm by 80 mm, it has a blue ring around the outside and no marks are visible. The two parts of a bowl fit together, it is decorated with three rings in red with a crown and a "WA" and the number "17".
Interpretation
W.H. Grindley is a pottery manufacturer based in Tunstall, Stoke-on-Trent. The company ran from c.1880 to 1991, producing dinner set, jugs, teapots and provided dinner sets to Canada, the United States and Australian markets. This particular plate is marked with a broad arrow which signifies it is owned by the Royal Navy and would have been used in a mess room on board. The bowl is also likely to be a Navy mess bowl, with the number signifying which mess station it belongs to. Numbers were no longer used post 1907, which may date the bowl to around the early 1900s. Although it was commonly blue designs used on the mess plates and bowls. It is probable that all of these finds were discarded from passing vessels.

Period	19th – 20th century	**Date Range**	Bowl: post c.1907 Large plate: 1962 Plate sherd: modern

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

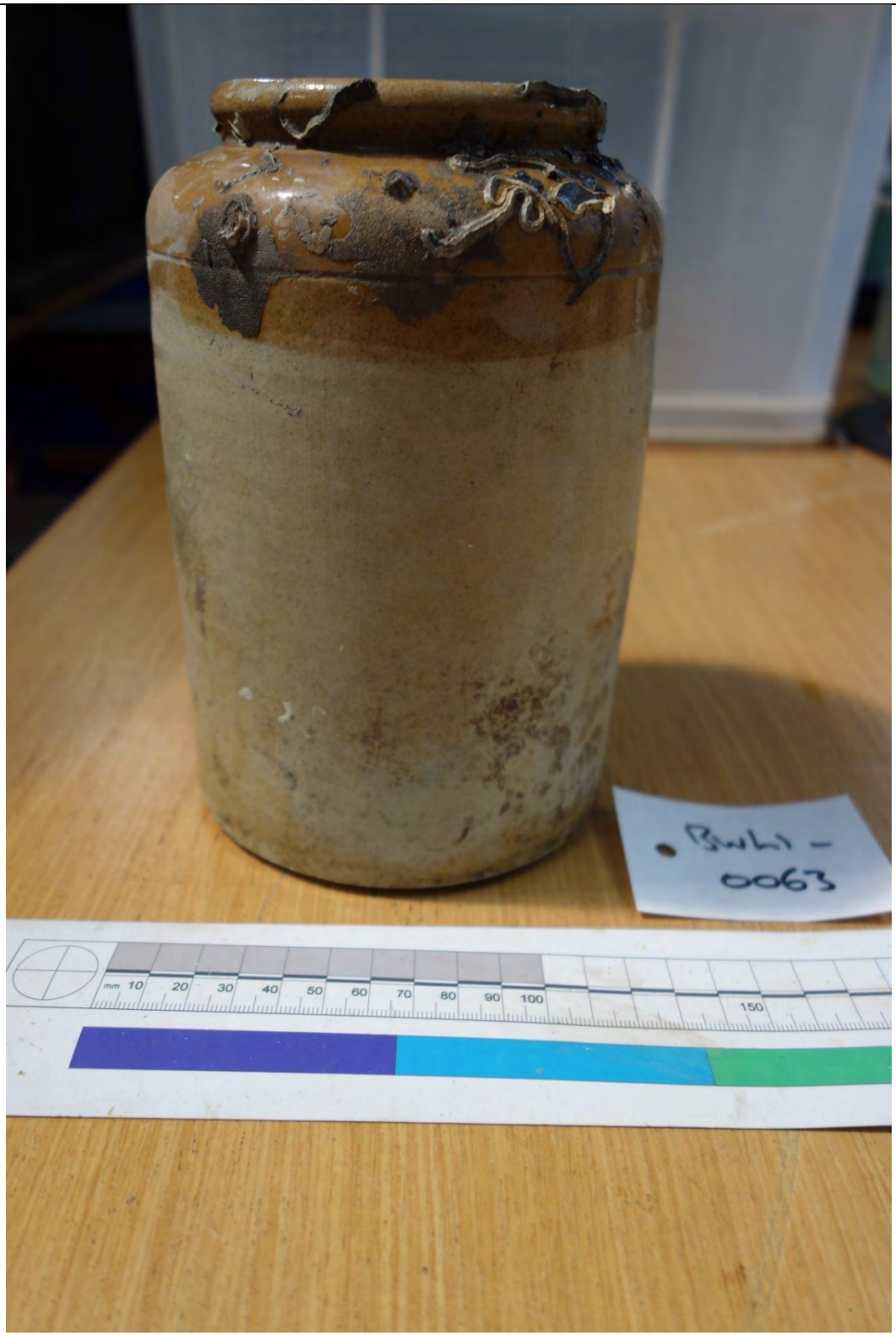
UID BWL1_0063	Stoneware Jar	
Date of Discovery	03/11/2016	
How Discovered	Recovered by grab from the barge *Stemat* 87	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Image of object



Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
A complete stoneware jar measuring 183 mm high with a diameter at the base of 122 mm, and the opening at the top of the jar measures 75 mm in diameter. There are no markings from a maker or for the contents visible.
Interpretation
This shape of jar is known as a tripe, lime and butter jar and would have been used to store a range of different food types. The collared neck would have been to tie on a paper or cloth lid. The jar is finished with a feldspathic glaze, which uses a high percentage of crystalline mineral found in granite. The use of a feldspathic glaze dates the jar to post 1830. As the jar is still complete it is likely to have been emptied and discarded or lost overboard.

Period	19th – early 20th century	**Date Range**	post 1830s – c.1920

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

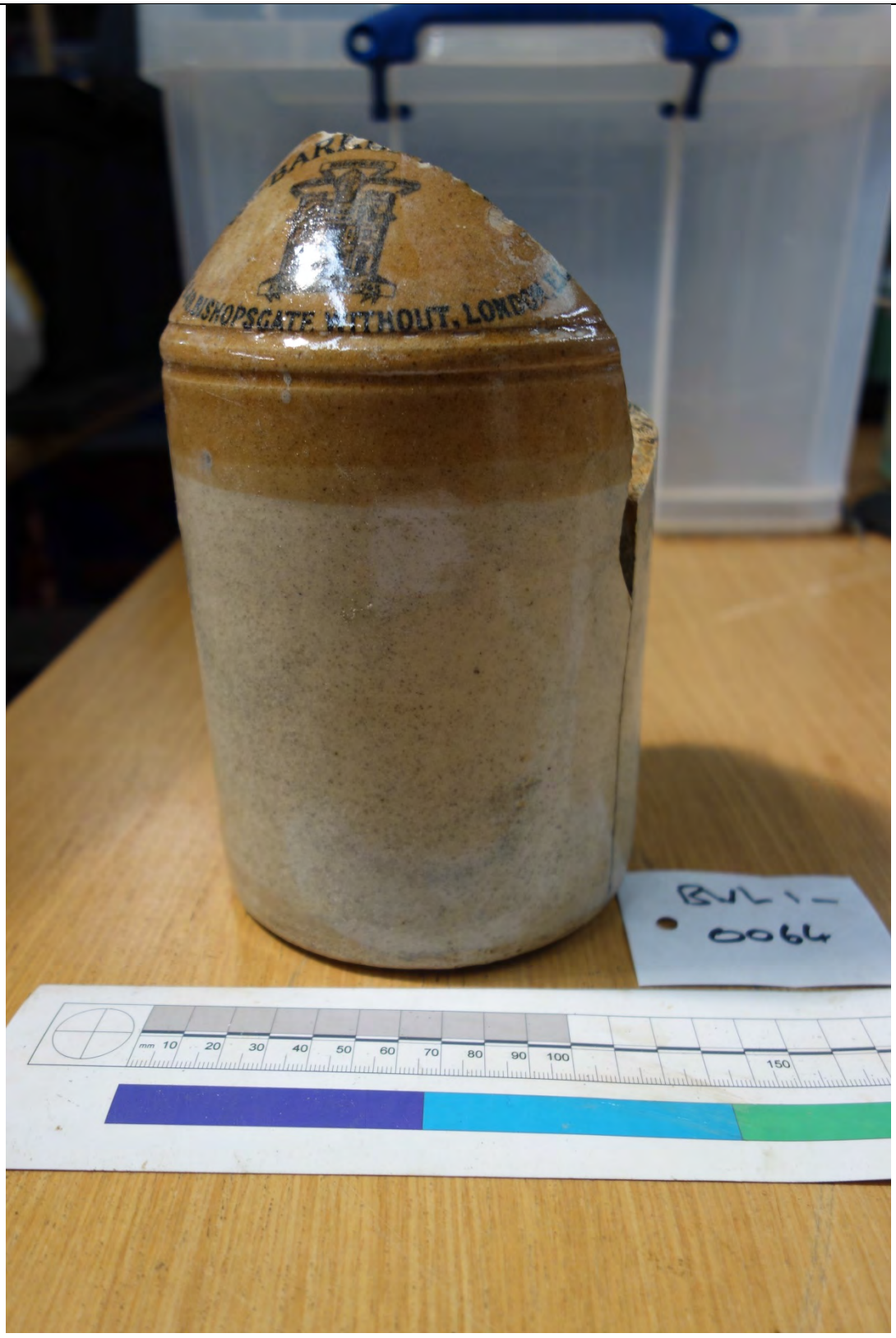
UID BWL1_0064	W.M. Barker Stoneware jug	
Date of Discovery	03/11/2016	
How Discovered	Recovered by grab from the barge *Stemat* 87	
Position of Discovery (British National Grid)	**…… E**	**…… N**

Location Map	**Anomaly Image**
N/A	N/A

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form



Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
The jug is made of a ceramic known as stoneware. It measures 197 mm in height with a diameter of 124 mm. The remains of a handle are visible just below the missing section, and the ceramic measures 7 mm thick in this area. On the shoulder of the jug there is writing for W.M. Barker 41 & 49 Bishopsgate Without, London, and a logo of a large gateway with a bishop's mitre.
Interpretation
W.M. Barker was established in 1745 at the address 48 & 49 Bishopsgate Without, London, although this jug seems to read 41 & 49 Bishopsgate Without. This is the address of The Old Jerusalem drinking house, which was established in 1745. The company changed its name in 1814 to Dirty Dicks Old Port Wine & Spirit House, named after a local business owner named Nathaniel Bentley. Nathaniel Bentley's bride-to-be died on their wedding day and supposedly he never cleaned or washed again, and he died in 1809. He is believed to be the inspiration behind the character of Miss Havisham in Great Expectations by Charles Dickens. The pub became an early example of a themed bar, become well renowned for its "Dustbin Bar", keeping the bar particularly dirty, with cobwebs, sawdust floors and even dead cats behind the bar among other curios. The jug is likely to have been used to serve alcohol and may have been discarded overboard from a passing ship or as part of terrestrial rubbish dumping.

Period	Late 18th – Early 20th Century	**Date Range**	Post 1745

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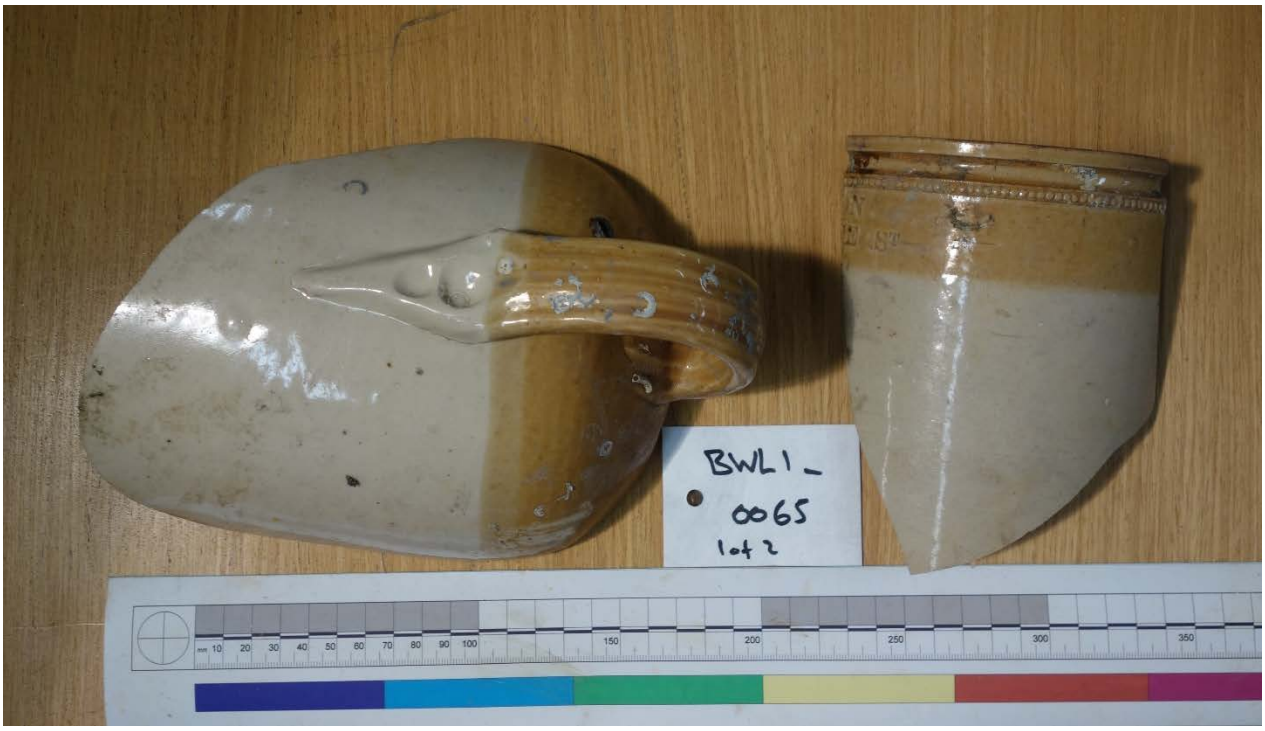
Archaeological Object Report Form

UID BWL1_0065	Two stoneware fragments	
Date of Discovery	03/11/2016	
How Discovered	Recovered by grab from the barge *Stemat* 87	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Images of object



Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
The two fragments of stoneware represent two separate vessels. The fragment with a handle measures 185 mm in height and 143 mm wide, the handle is 144 mm long, 70 mm wide and 15 mm thick, the thickness of the ceramic varies between 5 and 7 mm. The other fragment is the rim of a vessel. It has some lettering, but not enough to work out what it said. It measures 148 mm tall and 110 mm wide, it is a consistent 6 mm in thickness.
Interpretation
Both fragments are examples of stoneware pottery with a feldspathic glaze. Feldspathic glazes use a high percentage of crystalline mineral found in granite. The use of a feldspathic glaze dates both fragments to post 1830s. The handle comes from a vessel called a flagon, a large container used to serve drinks. The other fragment is the rim from a preserves jar known as a wide mouth jar or extract pot, the groove running around the lip would have been used to hold the lid of paper or cloth. Both fragments are likely to have been discarded after being broken.

Period	19th – early 20th century	**Date Range**	Post 1830s – c.1920

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL1_0066	Animal jawbone	
Date of Discovery	03/11/2016	
How Discovered	Recovered by grab from the barge *Stemat* 87	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description			
A jaw bone from a medium sized mammal, with molars and premolars still *in situ*. The jaw bone measures 164 mm long and 100 mm high. The four remaining teeth range from 21 mm to 8 mm in width, with sockets for an additional two teeth.			
Interpretation			
The jaw bone is from either a goat or sheep and is possibly the remains of an animal eaten on board a vessel and then discarded. The jaw bone is missing some of its premolars and also the canine and incisors. Live sheep or goat would have been able to provide milk to those on board but their ultimate use would have been a source of meat, or alternatively the animal could have been used for trade. Another possibility is that the bones washed into the sea from a terrestrial context.			
Period	Unknown	**Date Range**	Unknown

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL1_0067	Glass base	
Date of Discovery	03/11/2016	
How Discovered	Recovered by grab from the barge *Stemat* 87	
Position of Discovery (British National Grid)	…… **E**	…… **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description			
The object comprises the base of a glass bowl, jug or vase that measures 80 mm in diameter. The glass is 2 mm thick and while the majority of the glass is missing, the curve of the bowl can be seen from what remains.			
Interpretation			
This is the base of a glass bowl, jug or possibly vase. It is likely that the bowl was broken and discarded over board or it may have been lost.			
Period	Modern	**Date Range**	Modern

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL1_0068	Clay pipe	
Date of Discovery	03/11/2016	
How Discovered	Recovered by grab from the barge *Stemat* 87	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description

The clay pipe is broken at the bowl and the stem is also broken in length. The bowl would have measured 21 mm in diameter and 37 mm high, the stem is 7 mm in diameter and the total remaining length is 68 mm. The pipe has a red colour to it and it has the faint remains of the makers stamp along the stem “Leigh & Co. Portchester”.

Interpretation

The pipe has been assessed by Wessex Archaeology’s Senior Post Excavation Manager Lorraine Mepham.

The bowl is of standard late 19th century type, a spurless form copying the wooden briar pipe (see Atkinson and Oswald 1969, type 30, dated c. 1850–1910). In this instance, however, it may be of later date (see below). The traces of red colouring on the pipe’s surface are probably incidental – red clay pipes were made, but of red-firing rather than the usual white-firing pipeclay.

The bowl is decorated; and although the design does not survive complete it appears to show a ship (Atkinson and Oswald 1969, fig. 6, no. 37), and may be a public house pipe – 19th century inns and public houses sold their own ‘branded’ pipes to customers.

The stem bears the maker’s mark, stamped on both sides of the stem: LEIGH & Co / PORTCHESTER. The company was founded in Portchester as Leigh & Co. by Henry Leigh in 1840, and used pipeclay from Devon. The company survived until 1932 (Arnold 1974). The maker’s mark on the stem is of the later type, in use after c. 1883 (earlier pipes were marked ‘H. Leigh’). All this evidence could point to a late 19th century date, but it is known that some of Henry Leigh’s earliest pipe moulds were still in use in 1932, so the potential date range should probably be extended.

References

Arnold, C J, 1974 The nineteenth century clay tobacco-pipe industry at Portchester, Hants., *Proceedings of the Hampshire Field Club Archaeological Society* 31, 43–52

Atkinson, D and Oswald, A, 1969 *London clay tobacco pipes, British Archaeological Association* (3rd series) 32, 171–227

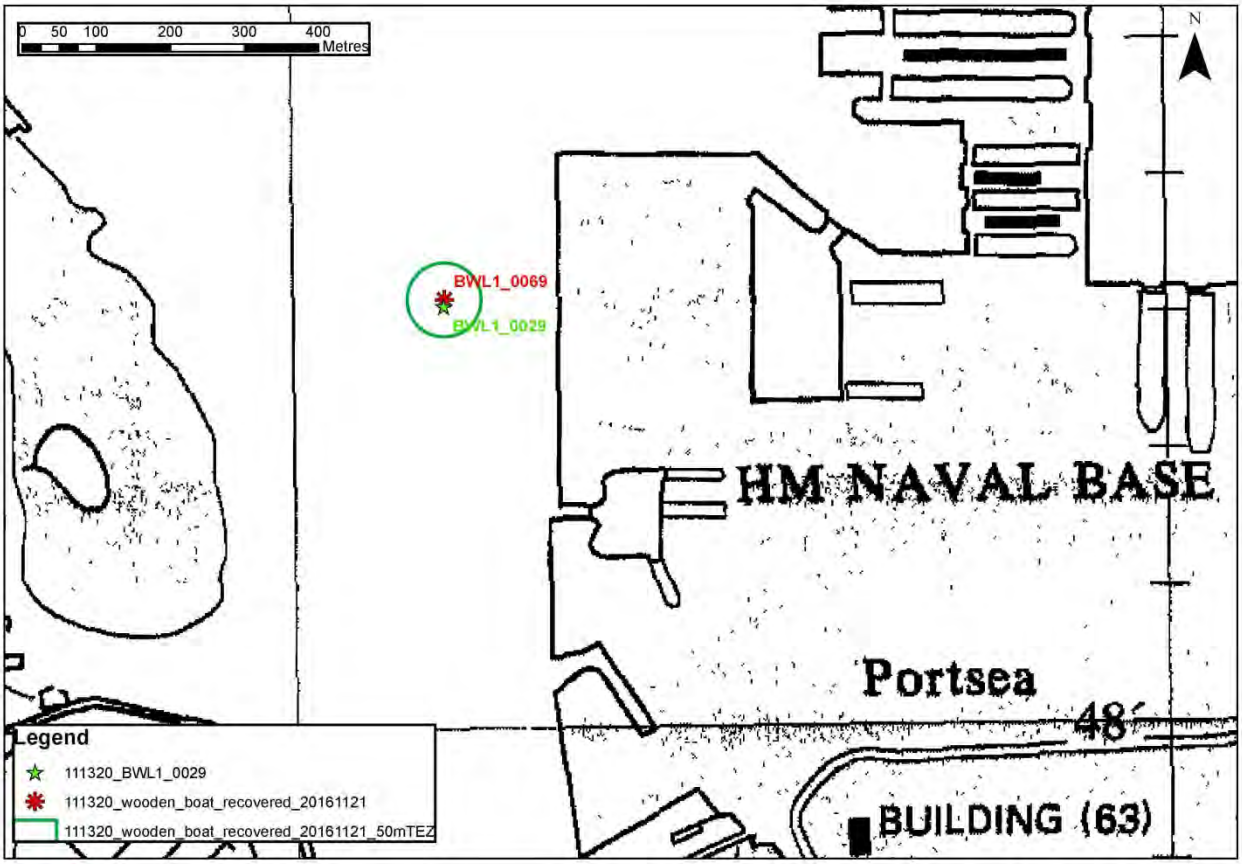
Period	Late 19th – early 20th century	**Date Range**	c. 1883-1932

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form (Provisional Results)

UID BWL1_0069	Wooden wreck	
Date of Discovery	21/11/2016	
How Discovered	Recovered by grab of *Stemat 87* from box D-N 696 (Berthing Pocket) during UXO clearance.	
Position of Discovery (British National Grid) Position is for the centre of box and not actual find location	**462449.94 E**	**101065.03 N**

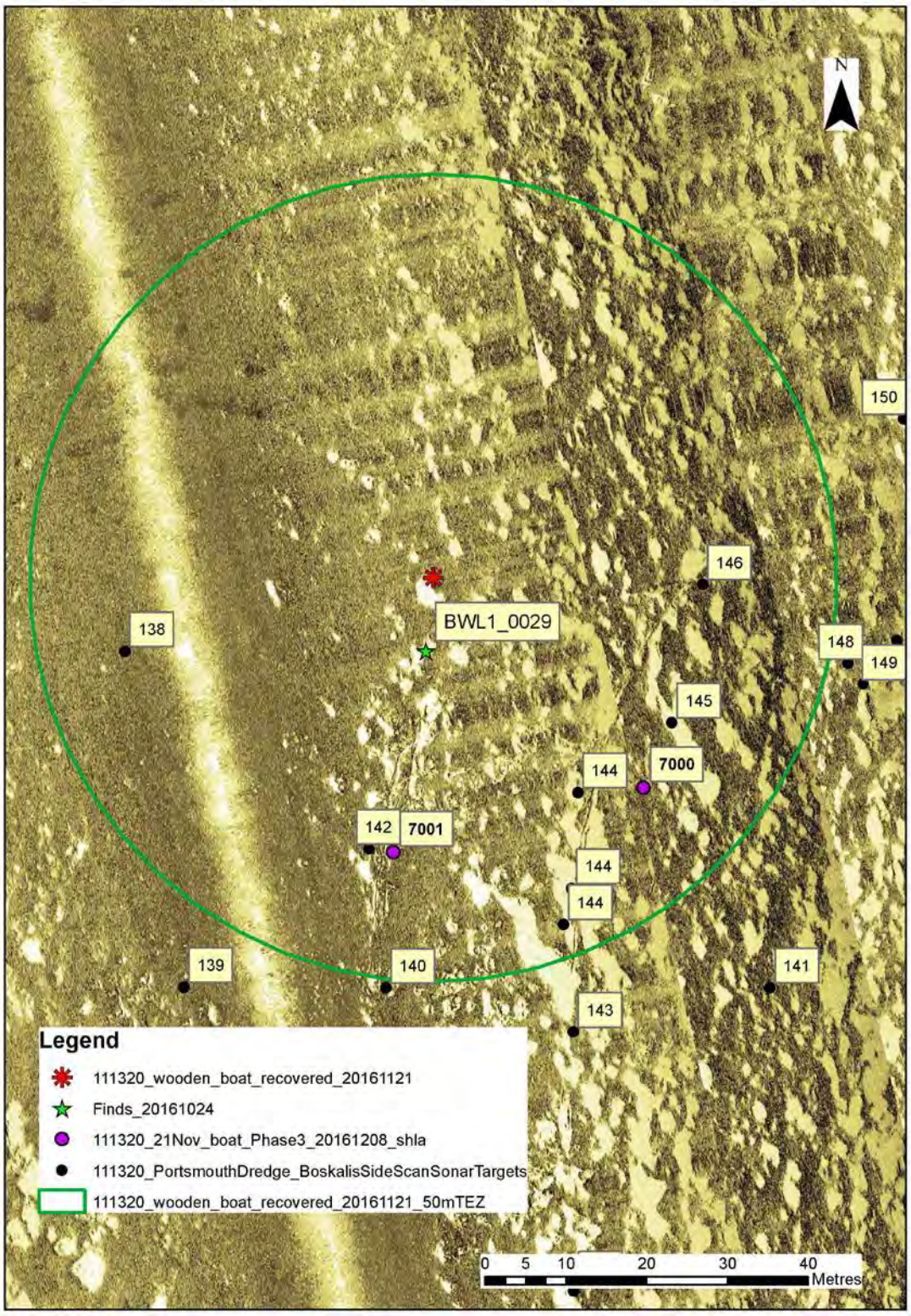
Location Map



Anomaly Image (pre-recovery SSS data interpreted by WA)

Queen Elizabeth Class Capital Dredging Project

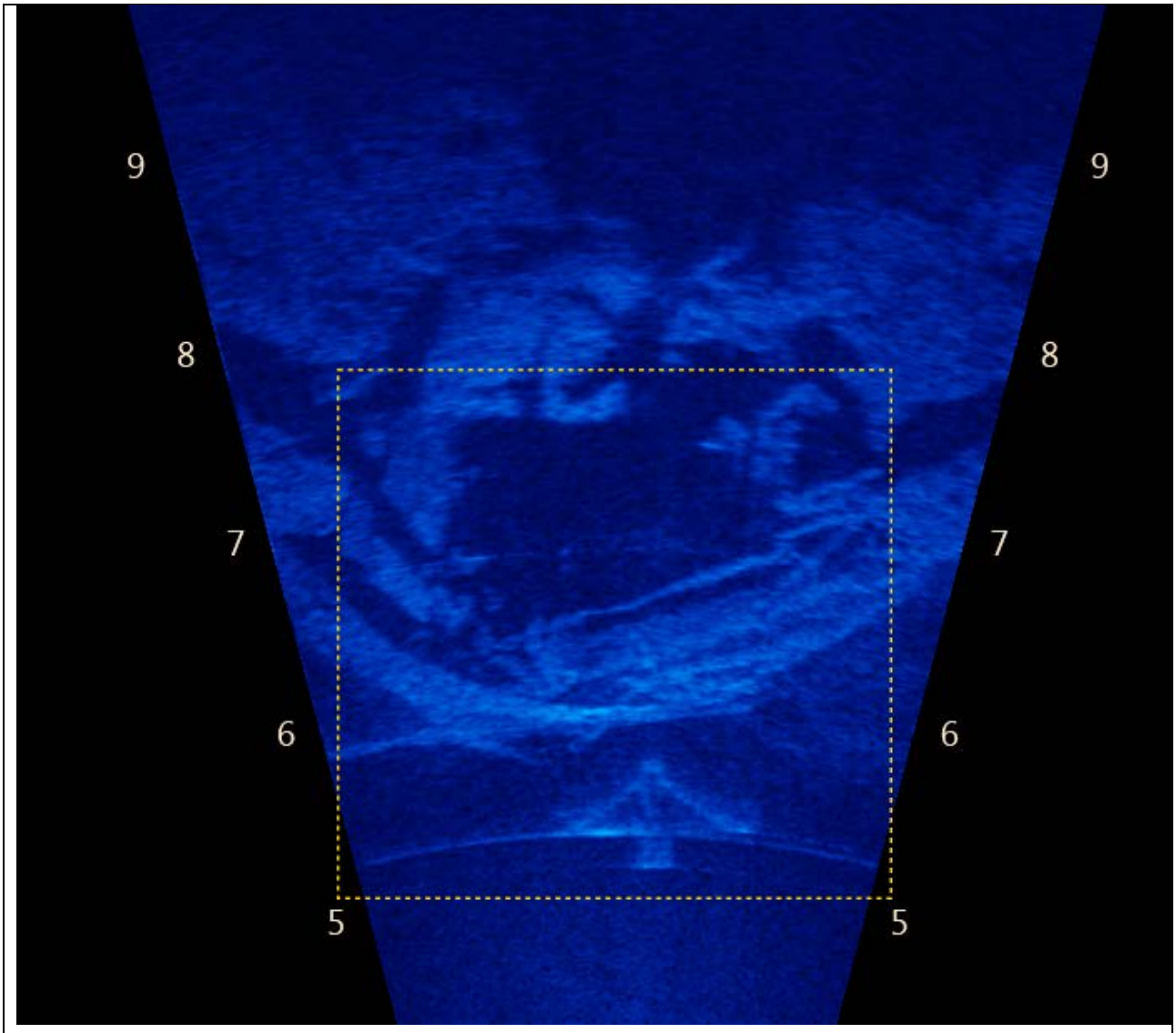
Archaeological Object Report Form (Provisional Results)



Anomaly Image (Aris sector-scanning sonar, acquired immediately prior to recovery)

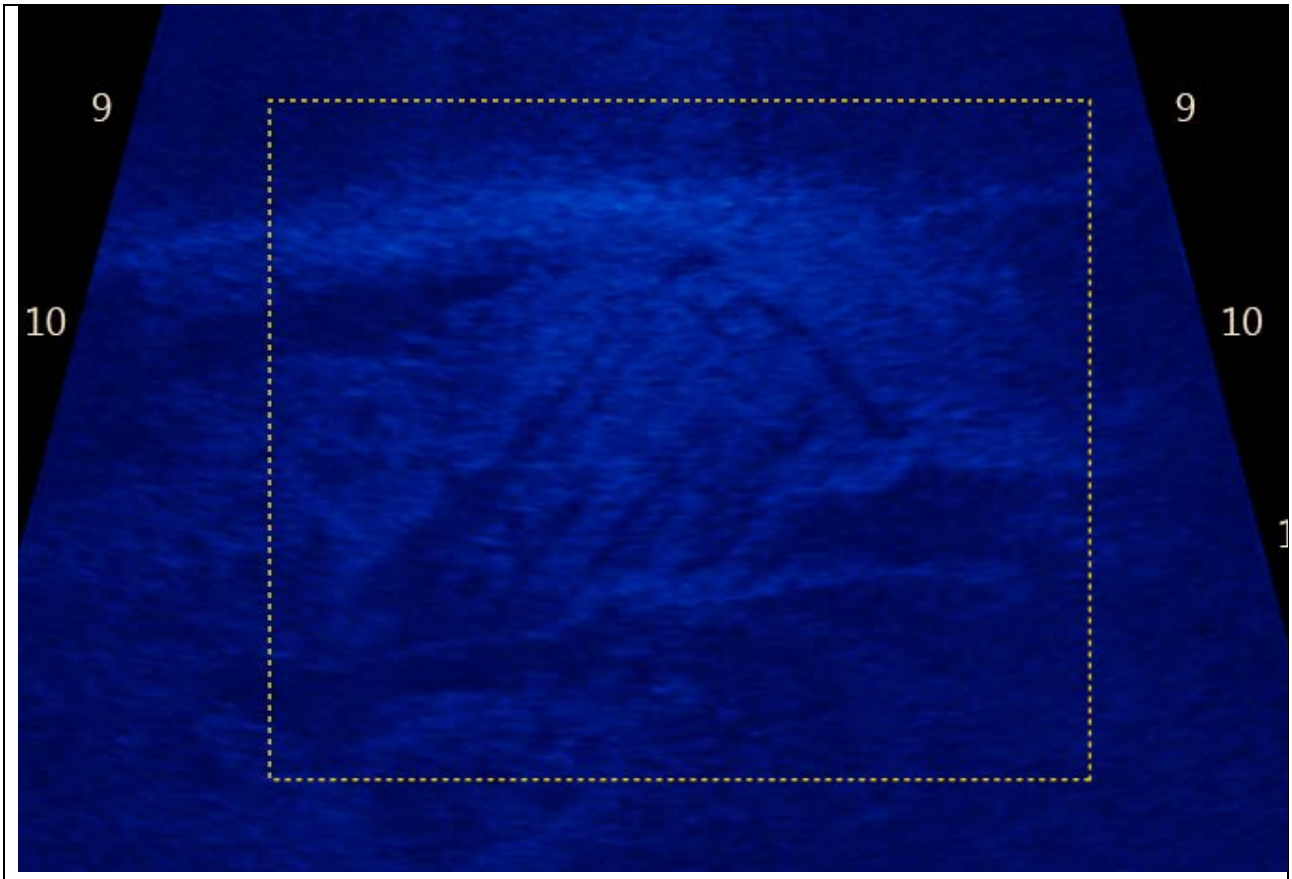
Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form (Provisional Results)



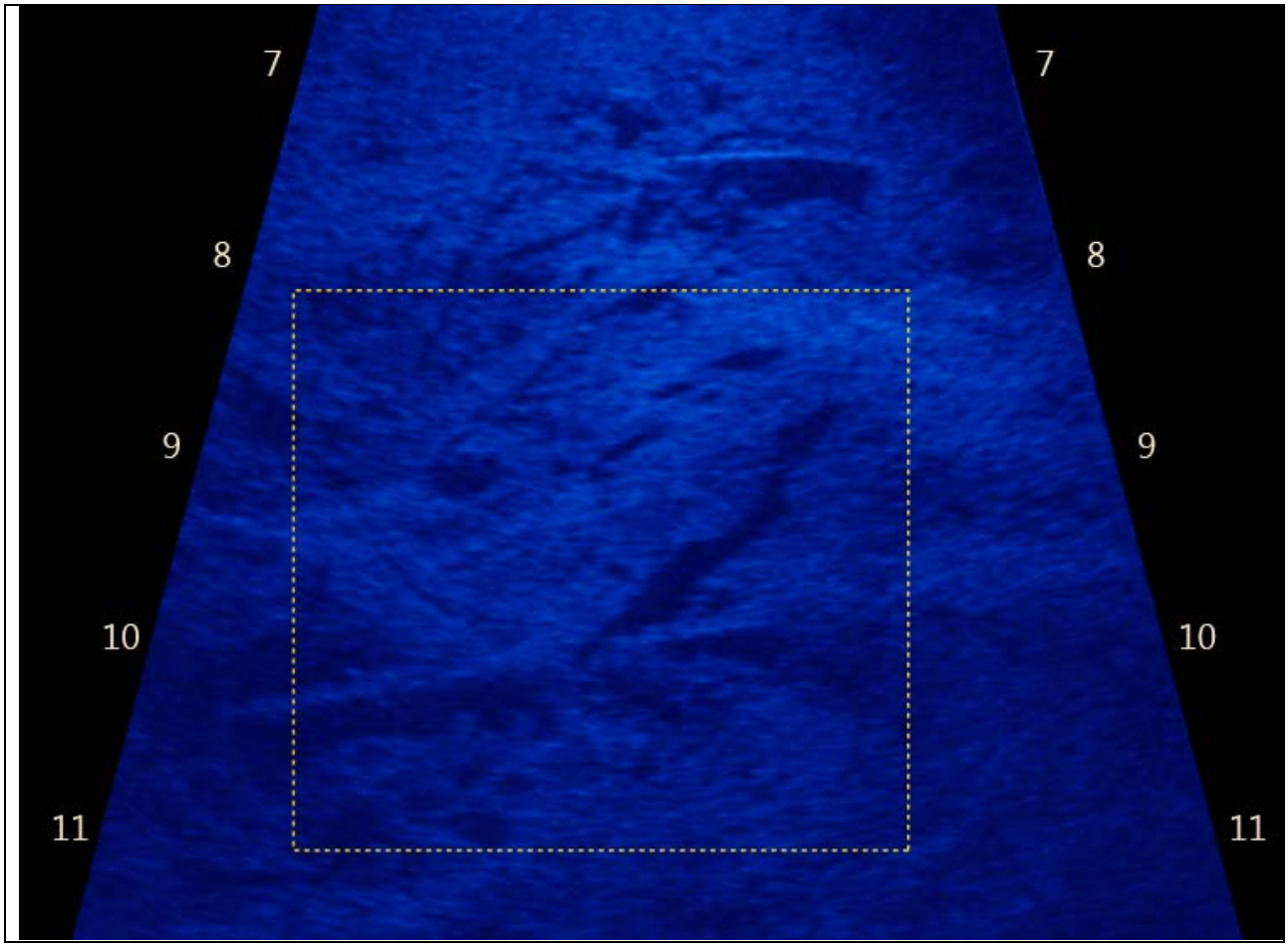
Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form (Provisional Results)



Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form (Provisional Results)



Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form (Provisional Results)

Images of object

Plate 1 (2D projection of a 3D model)

Plate 2 (2D projection of 3D model)

Rising timber. As seen (left) sits on top of the framing and is also the end of the internal frames.

Stretcher bracket.

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form (Provisional Results)

Frame and sliver seen on Cyclops and example recovered from BWL9_0057

Description

A partial and fragmented wooden wreck site was located during pre-dredge clearance and recovered by grab. The remains of the vessel are timber with copper fastenings. The wreck is incomplete with no confirmed timbers from the bow or the stern. The vessel may have been more complete on the seabed but due to the type of recovery the remaining structure has become disarticulated.

The largest remaining component is a section of the keel structure. This consist of the keel, hog, parallel framing and the keelson which are connected used double clenched copper bolts. The bolts have a diameter of approx. 16 - 18 mm and an inconsistent centre to centre spacing of between 470 and 650 mm. The remains of the keel measure 5.03 m in length a width of 120 mm and a maximum depth where it survives of 200 mm. On top of the keel is the hog, the hog measures 6.5 m in length and has a maximum width of 240 mm with a thickness of between 50 and 60 mm. The hog over hangs the keel on either side by 60 mm creating a back rabbet for the garboard strake to be attached, the nails for the garboard strake measure between 3 and 4 mm with a square profile with a c-to-c spacing of 50 – 60 mm. On top of the hog are the floor timber frames, some of these remain in position crossing over the hog and keel. The frame are square profiled and measure 62 x 62 mm. The centre to centre spacing of the floor timber is 536 mm. Between the floor timbers there are filling pieces. To one end of the keel structure there is a larger floor timber frame surviving to about 60% with one side lost. The frame is attached to the hog with a copper bolt. The frame has the same width of the other floor timbers of 62 mm but is 134 mm thick and there is a limber hole 70 mm from the base. Above the floor timbers is the keelson which survives to a length of 3.29 m, a width of 256 mm and a thickness of 60 mm. On the keelson there is two metal features. One is a lifting eye made of a Cu alloy, likely to be brass. The lifting eye is a triangular shape with a central hole. It is fitted to the keel structure by eight 16 mm copper bolts that extend through the entire structure into a Cu alloy plate attached to the bottom of the keel. The plate measures 650 mm by 122 mm and is 15 mm thick. The lifting eye on top of the keelson is marked with “TD. 9 tons. JP. 25.10.98”. The marking on the lifting eye have identified the wreck as being a ships launch, the date at the end of the markings reads 25th October 1898. The 9 ton lifting eye shows that this would have been supported via slings from a davit, where it could be lowered off the side of the ship when needed. A diagram in Shipyard Practice (McDermaid 1911) shows a likely candidate with identical features and also fitted with two 9 ton lifting eyes and eight 5/8 in (16 mm) copper bolts. 710 mm from the lifting eye there is an iron bracket with a bolt through the centre connecting the two sides. The iron brackets each measure 290 x 130 mm and they are spaced 125 mm apart with a 38 mm iron bolt between them. This may be the mast step for a collapsible mast, a later addition of a gun mount or an identified later addition to the boat. If this was the mast step then, this is featured in McDermaids book (1911) and it is shown to have similar spacing between the bracket and lifting eye being a two frame spacing. The position of the frames

in the keel remains however would suggest that this as the aft lifting eye, with a floor frame running underneath the lifting eye with the two floor timbers protruding towards the port side.

A total of thirteen disarticulated frames were recovered from the wreck. The boat is lightly framed with a hard wood. The frames have varying dimensions with molded dimensions between 46 and 57 mm and sided between 37 and 60 mm. The surviving lengths vary between 490 and 1795 mm with no complete frames being identified. The centre to centre of the fastening varies greatly throughout the frames, with spacing's varying from 120 to 283 mm with the majority being spaced between *c.*150-200 mm.

A large quantity of loose planking was retrieved from the site, the double diagonal construction requiring many more individual planks than traditional carvel and clinker building. Four sections of planking were recovered, while 95 individual loose plank fragments were found. Many of these may have been attached to the structure prior to recovery by grab. The planking is possibly made from teak, a hardwood native to India and Asia commonly used for shipbuilding, currently awaiting specialist identification to confirm the species.

The planking on the boat is double diagonal, with two layers of thin planking crossing over each at 45 degrees to the centre line of the hull. The multiple direction of the wood grain that this creates adds strength to the hull while keeping the weight down. Another advantage for a boat such as this that will much of the time out of the water is to do with wood shrinkage. Once the boat is in the water the planks will swell and when it dries they will shrink, which can cause leaks until the wood has swollen again. The double diagonal construction will prevent this with multiple layers with a bedding compound in between.

The planks from the wreck are 13 mm thick. The longest plank that was recovered measures 2.6 m long and is damaged at one end, the other end has a diagonal scarf. The diagonal scarf is noted on several of the planks, no other type of scarf joint is seen. The width varies between approximately 156 and 175 mm with the majority being *c*.170mm. The double diagonal construction needs a large number of fastenings and there are two main sizes used. To fasten the inner and outer skin of planks, 2 mm copper tacks are used. These are seen in three rows, a line along each of the long edges with approximate centre to centre spacing of 30 – 60 – 90 - 30 – 60 – 90 mm …. There is some variance noted of *c*.10 mm. a third row of tacks is used down the centre line of the plank, these are approximately spaced as 30 – 150 – 30 – 150 mm… again with a variance of 10 mm. The other fastening is an 8 mm copper screw. These have been used to attach the planking to the frames, gunwale and other inner components such as the stretcher brackets.

Two stretcher brackets have been found attached to loose planks, these are 'U' shaped timbers that the horizontal stretcher timbers would have attached to. The stretcher is a beam that extends from one side of the boat to the other adding additional strength to the hulls shape.

The planking would have been fastened to the back rabbet in the hog and would have gone as far as the gunwale leaving the washstrake exposed. Opposing the gunwale a rubber was attached, a curving timber for protection to the hull. This is noted in situ on the large section of hull that was recovered and five fragments have also been recovered. The rubber is between 40 and 50 mm thick and 80 to 100 mm wide and attached to the planking and gunwale using 20 mm copper bolts spaced 180 mm apart. A likely later modification is seen below the rubber with at least two rows of longitudinal planking added to the outer hull, screws noted in the large section would suggest three rows. The timber is a much poorer quality compared to the rest of the boat and likely to have been sacrificial. The planks are 200 mm wide and attached by 8 mm screws spaced *c*.220 mm apart. The location of these 'sacrificial' planks could possibly have been used as a fender, protected the

thin double diagonal hull. The boat may have been used after being removed from service, possibly as a pleasure boat, or more likely (due to the fender) as a work boat, ferrying people and materials across and/or around the inner harbour at Portsmouth. A small engine may have been fitted for this task similarly to *Cyclops* found at Boat House #4 (Portsmouth Historic Dockyard) although there is no evidence of an engine being fitted in this wreck.

Part of the rising timber was recovered from the wreck site; the rising would stretch along the inside of the hull below the gunwale. The rising would have sat on top of the frames with recesses along its length for the thwart timbers. The recesses have an iron plate to attach to the thwart timber and provide support. The timber remains to a length of 3.1 m and is 165 mm wide. The recesses are 250 mm wide and 20 mm deep. The centre to centre spacing of the two remaining recesses is *c.*980 mm. From the centre of one of the recesses to the end of the timber measures 1325 mm, this would suggest that these represent the final recesses along the rising timber and would position the timber towards the bow or stern of the boat, likely to towards the stern due to the shallow curve of the timber. The rising timber still has a distinct but shallow curve, less of what is found towards the bow, as the timber is likely to represent the aft end then it can be suggested that this is from the port side of the boat.

Two sections of washstrake have been identified both with partial and full remains of the row locks and one lumber crutch plate. From the diagram provided in McDermaid (1911) it shows that the 42' launch had two lumber crutch plates and nine poppet rowlocks to allow for a total of 18 oars. The simple 'U' shaped recess would prevent the oar from sliding along the wash strake while rowing. One of the two lumber crutch plates remain on the smaller of the two washstrake timbers. One is 2.12 m in length and the other is 3.7 m. The washstrake has a maximum width of 255 mm its profile is triangular with the underside having a thickness of 90 mm and the top is 55 mm wide. The underside would have attached directly to the gun wale and has a series of bolt holes along its length. These are inconsistently spaced between 260 and 380 mm. The iron bolt has a diameter of 20 mm. The rowlock recess measures 120 mm wide and 100 mm deep. There is one complete and two half rowlocks on the smaller of the two timbers and 1.5 on the larger at a spacing of approximately 950 mm. The lumber crutch plate is very close to a row lock which would suggest that it is the aft lumber crutch. The final row lock on the larger timber has a spacing of 2780 mm to the end of the timber, this would again suggest that this represents the aft wash strake. The large gap between the complete rowlock and the end of the timber on the longer timber may suggest that this is the aft rowlock and the timber stretches back towards the stern.

Interpretation

The timbers discussed would suggest that the wreck remains include the aft lifting eye portion of the keel and the aft section of the upper works, likely from the port side of the boat. The sections of planking and the loose timbers are likely to have been those positioned between these two sections, including two of the stretcher brackets. There is no conclusive evidence of any of the bow or stern or starboard side of the boat. No other wreckage from this type of vessel has been recovered during Portsmouth dredge.

Identification of these components has been interpreted from McDermaid (1911) and from the "*Cyclops*" a 1915 launch undergoing restoration at Boat house #4 at Portsmouth Historic Dockyard.
Cyclops (*c*.1915)
Length 42 ft
Beam 13 ft
Draft 1.9 ft
Weight 18 tons
Double diagonal teak construction.
Ships launch on board HMS *Sovereign* (1915)

This type of ship boat was the general work boat attached to Royal Navy battleships often seen hanging over the side from the davits. The 42 ft launch was the largest of its type at the time being manned by 36 men with 18 oars. These and similar examples would have been used to land troops during the First World War such as the landing on the Gallipoli Peninsula on 25th April 1915.
(Portsmouth Historic Dockyard, Boat House #4)

The *Cyclops* has many of the same features as the example found during the dredging of Portsmouth, with a large number of direct comparisons and similar dimensions can be seen between the two. The example in Boat House #4 is missing its washstrake, removed by a later owner after being taken out of service. McDermaid (1911) describes the 42" launch as having teak planking, and *Cyclops* does comply with this, although unconfirmed it is likely that the wreck also is made from teak. *Cyclops* was more heavily built than the wreck that has been recovered with 16 mm thick planking. The wreck has 13 mm planking, this may be a variance in the large number of boats produced or an updated specification over the 17 year difference. After service with HMS Sovereign *Cyclops* was fitted with a combine harvester engine and served as a ferry on the Hebridian Islands in Scotland.

It is possible that a similar post war fate was experienced with the wreck, although no evidence of an engine can be seen. The large section of hull has additional timbers attached below the rubber, possibly to serve as a fender to protect the timbers from concrete quaysides and other boats. The timber is of a poorer quality to the rest of the timber used in the build and it is well worn. This may suggest that following naval service the boat was used as a ferry or served a similar inner harbour task, possibly being fitted with an engine in a similar way to *Cyclops*. The boat may have become a wrecked either by accident, possibly a collision with a larger vessel as a large part is missing or intentionally at the end of its working life.

McDermaid, N. J. 1911 *Shipyard practice as applied to warship construction*. London: Longmans, Green and Co.

Period	20th century	**Date Range**	Built c.1898

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL1_0070	Balanced spade rudder	
Date of Discovery	14/12/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	462489.21 **E**	100579.64 **N**

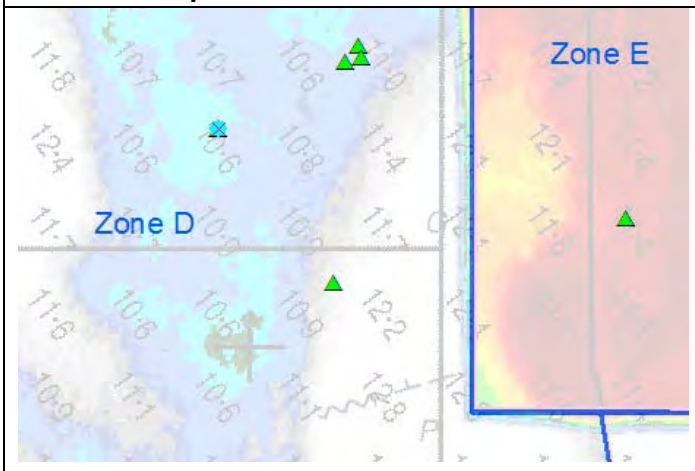
Location Map	**Anomaly Image**
	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
The rudder blade measures 1230 mm in height with a maximum width of 675 mm. The stock measures 768 mm long with a maximum diameter of 70 mm and 40 mm at the end where the metal has sheared. At the base is the other end of the stock which has a diameter of 49 mm and has sheared off in line with the rudder blade. The rudder has a thickness of 70 mm at the top near the stock, and then this is reduced to 12 mm along the leading edge and base. There is a small hole near the top which is surrounded by a plastic ring with polypropylene rope coming from it. Towards the base a section of the copper plating has broken away, the core of the rudder is wooden planks surrounded by a rim of cooper alloy, the copper alloy plating is then nailed into the rim. As well as the metal shearing at both ends the bottom of the blade is bent suggesting a side on impact.
Interpretation
The rudder blade is a balanced spade rudder, attaching via the rudder stock at the top of the blade. This is the second balance spade rudder to have been recovered from Portsmouth harbour (BWL1_0057). This is a slightly different design as it connected at the base and not just with the stock. The balanced rudder refers to the position of the stock in relation to its width. The balanced position reduced the energy required to move the rudders position, additionally the absence of a skeg reduces the drag related to turning. It is common for a rudder to be constructed with a wooden core, and many are either bronze or copper alloy plated in order to reduce their vulnerability in salt water. The draw backs to this style of rudder is that it is more susceptible to damage compared to other designs. With only the rudder stock holding the blade to the boat it becomes more likely to become damaged in strong seas or through making contact with the sea floor, which is what this example may have done. The rudder has a slight bend towards the base (making it the lowest part of the boat) as well as both ends being sheared. Also notably the area of missing plating is opposite the bend in the blade, which may suggest that this is the impact point. The impact would have torn the rudder blade out breaking both ends of the stock at the same time. If this were the case, then the vessel would have been immobilised completely losing its rudder.

Period	Modern	**Date Range**	20th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL1_0071	Metal structure	
Date of Discovery	19/12/2016	
How Discovered	Recovered by grab on board *Stemat 87*	
Position of Discovery (British National Grid)	**…… E**	**…… N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
A metal structure consisting of a longitudinal, rectangular sectioned structure with a thin right angled strip running down the centre for the entire length. It may be constructed of steel. Both of the sides of the strip of aluminium are punched with a regular pattern of holes with regularly spaced rivets in some areas. Crossing the object at right angles there are at least five similar right angled strips of frame, again these are punched with regular holes. The object could not be located during quayside monitoring so no dimensions are available, although it can be estimated to have a length of around 2.5 - 3 meters.
Interpretation
Without being able to examine the object, interpretation becomes difficult. It is possible that this is a piece of a small boat, possibly a keel with framing. The use of regular rivets to hold the structure together with some larger bolts visible running horizontally through the main part of the structure. There is also the possibility that this is a piece from a small iron or steel vessel, likely the keel. This may have been from a small lightly built vessel but the loss of this structure would have resulted in sinking. There is no sign of a wreck site has been found which may suggest that the wreckage is from elsewhere, having been dragged in by a fishing trawler or similar marine activity. Another possibility is the MoD, who may have used a small vessel for firing practice. The area should be reviewed closely during further dredging work in case any additional wreckage is found in the area.

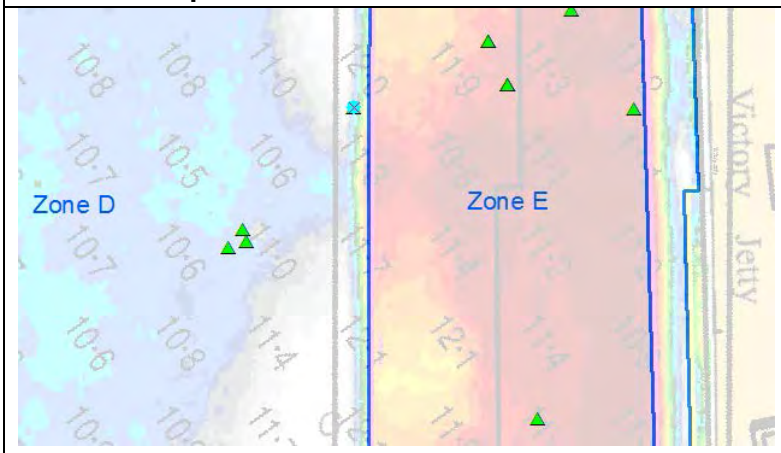
Period	Modern	**Date Range**	c. 20th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL1_0072	Fisherman's anchor	
Date of Discovery	14/12/2016	
How Discovered	Recovered during dredging on board *Manu Pekka*.	
Position of Discovery (British National Grid)	**462576.06 E**	**100649.88 N**

Location Map



Anomaly Image

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

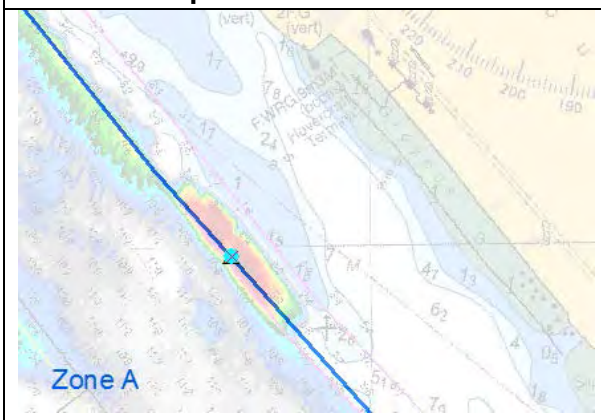
Description
The remaining length of the anchor is 1070 mm, with the shank measuring 90 mm in diameter which tapers to 68 mm towards the ring. The ring is broken but is estimated to measure c.90 mm, although this may have been the hole for a folding stock to pass through. The distance between the bills is 800 mm and the arms are 570 mm long. The bills have a maximum dimension of 200 x 100 mm.
Interpretation
This small admiralty pattern anchor is known as a fisherman's anchor. Fisherman's anchors are designed for use in reefs, rocks and weed to enable fishermen to anchor within the areas with most fish. The small flukes are ideal for a rocky bottom, but will drag if used in sand or mud. To counteract the small flukes, the weight of the anchor is increased to help provide an adequate holding. This type of anchor often has a folding stock, this allows for the anchor to be stored flat on the deck, as this design will not store in a hawse pipe. This design is the most easily recognised style of anchor and has been widely used for several hundred years. As the shank has broken at either the stock or the eye, this may suggest that the anchor was discarded rather than lost.

Period	Modern	**Date Range**	19th – 20th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

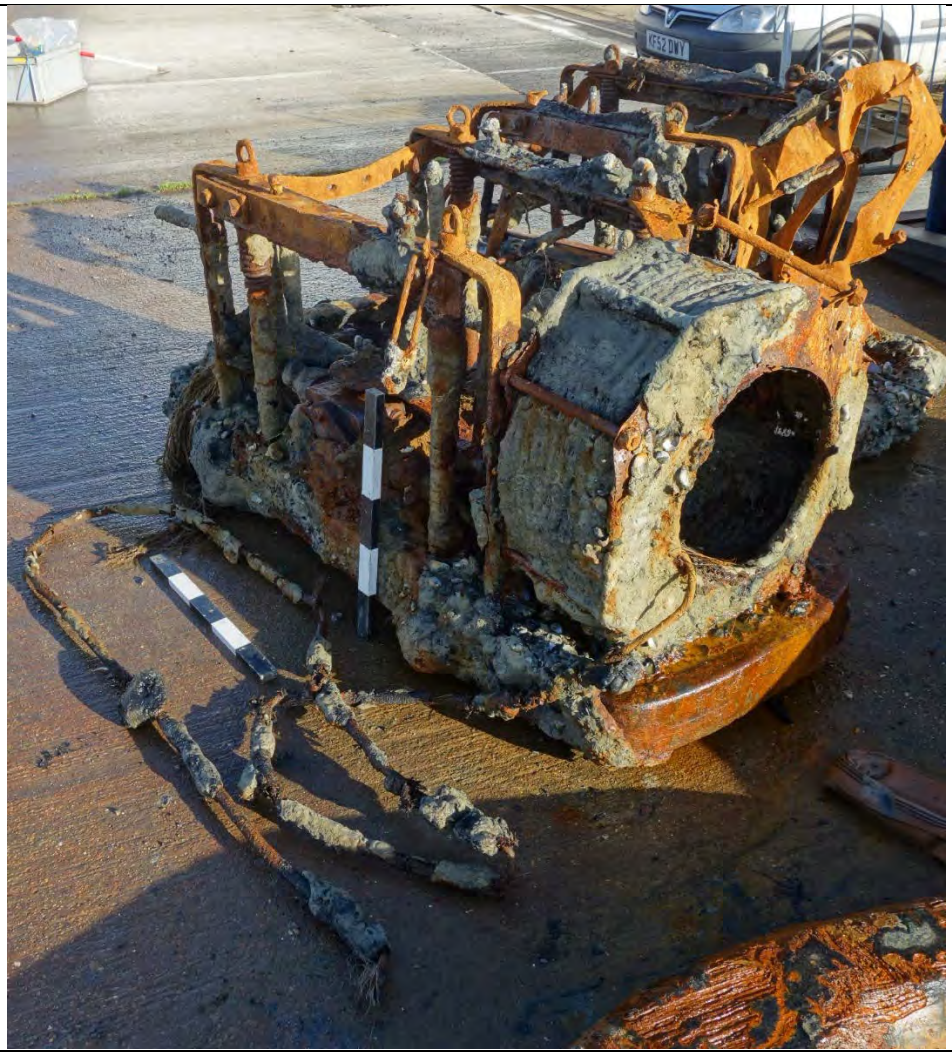
UID BWL1_0073 BWL1_0074	Two British L MK II controlled sea mine cradles	
Date of Discovery	19/12/2016	
How Discovered	Recovered by grab during clearance by *Stemat* 87.	
Position of Discovery (British National Grid)	**463406.17 E**	**98573.21 N**

Location Map	**Anomaly Image**
	N/A

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form



Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

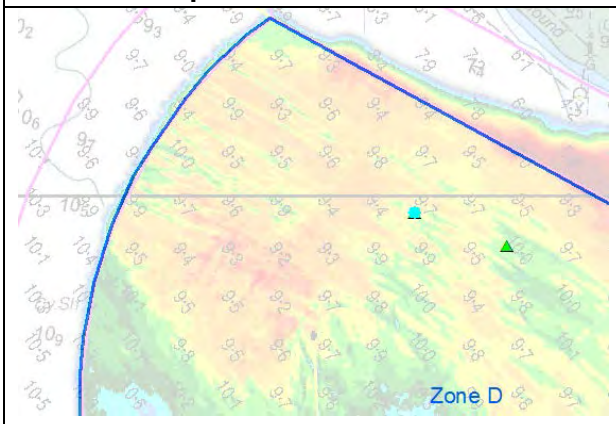
Description
Two near identical objects recovered close to one another. The base of the objects measures 1660 x 620 mm; the overall height of the objects is 720 mm. One of the objects has a cable drum in place, while the other is visibly damaged at the mountings and the drum is missing. The cable drum contains 19 mm steel cable and the drum itself measures 620 mm in diameter with a depth of 260 mm.
Interpretation
These objects are mine cradles or sinkers from British sea mines. The mine would be positioned on top of the cradle and attached to the cable on the drum. Multiple mines would be laid at a time, so each would be paired with a sinker and put on rails on the deck of the minelayer. Each of the cradles could then roll off the side of the ship when required. The sinker would anchor the mine to the sea bed and a predetermined depth would have been set. The wire on the drum would allow the buoyant mine to float up to the required depth. The mine cradles date to the Second World War, being used with the L MK II contact mine. This was commonly used for harbour defence by the British during the war and would have been part of Portsmouth's coastal defences. The mine was spherical with a diameter of 40 inches and a total weight of 1100 lbs. The mine would hold a 500 lb charge of TNT. It would be armed by the vessel which laid it and the detonation would be controlled by an observer on shore. Britain exploited the use of mines as a defensive weapon rather than an offensive one like the Germans. The British laid over 150,000 mines in protective fields during the Second World War. Each would then have to be located and removed for safety after the war. It is likely that these would have been swept following the Second World War. Minesweepers would drag cables that could cut the mines free from their individual sinkers causing them to float to the surface where they would be destroyed with rifle fire. The cradles then remained on the sea bed as discarded objects.

Period	Modern	**Date Range**	1940s

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL1_0075	G.E.C. Electric Motor	
Date of Discovery	28/12/2016	
How Discovered	Recovered by *Stemat 87* in Horsebank	
Position of Discovery (British National Grid)	**462364.94 E**	**101525.09 N**

Location Map	**Anomaly Image**
	N/A

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
The motor has a length of 750 mm and a maximum width of 800 mm, the central motor block has a length of 340 mm and a diameter of c.400 mm. There is a maker's plaque on the side of the motor that reads; *"G.E.C.* *Made in England* *The general electric …. With* *Watertight motor* *… ….. Year 19..* *HP ….. Volts 220* *AMPS ….. RPM …..* *Winding series* *Rating conti….. Class 2"* The large plate attached to one end looks to be the remains of the plate it was mounted to; the plate is a thin sheet of iron with hexagonal bolts around the outside.
Interpretation
The General Electric Company (G.E.C.) began trading in 1886 and soon became an established manufacturer of telephones, electric bells and light switches. By 1909 the company had seven large factories within Britain, additionally producing fans, motors and lamps. During the First World War G.E.C was producing radios, signalling lamps as well as power plants for munitions works. In between wars, in the 1920s, the company became heavily involved in the creation of the National Grid. By the Second World War the company was employing over 40,000 people and again became a major supplier for the military. The company continued to produce a wide range of electrical equipment up until 1999 when the company became Marconi plc, focusing on communications and IT. This electric motor was likely to have been purpose built for the marine sector as it is a watertight model. The exact model could not be identified, but the motor may date to the 1950s and may have been for a pump of dredge. It is likely that the motor was discarded as these would generally be positioned within the ship, also the remaining mounting plate would suggest that it would have been bolted to the ships structure.

Period	Modern	**Date Range**	c.1950s

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL1_0076	Aircraft Automatic Direction Finder	
Date of Discovery	31/12/2016	
How Discovered	Recovered by grab during clearance by *Stemat 87* barge.	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
An aluminium object with a cone shape on one end and a domed end. The cone has been bent and crushed to mis-shape the object. The inner frame can be seen on the coned end where the aluminium coating has been lost. On the top of the object there is a mounting bracket that looks to have sheared off. From the top of the mounting there are two wires that would have connected the object to the inside. Inside the centre of the object there is a large disc that fills the diameter of the object. The disc does not spin in its current condition, but looks to have been mobile when in working order.
Interpretation
The object is an aircraft automatic direction finder (ADF). These were fitted to the aircraft, usually the underside, and would have been used to detect radio communication to gain a heading. The central disc would be able to spin and locate the direction from which radio signals are received from beacons. The main beacon known as a non-directional beacon is a radio transmitter in a known location. The unit would calculate the magnetic heading in relation to the aircraft for the pilot to keep course. The ADF unit could also pick up on standard AM radio beacons, by detecting multiple radio stations the position would become more accurate. The ADF unit is likely to date to post Second World War, possibly into the 1950s. It is unclear on how the unit was lost as no known aircraft crash sites are in the area and no further wreckage was discovered, although the unit appears to be sheared off from its mounts. It is possible that the unit was dragged from a wreck site by fishing gear, but this is very speculative.

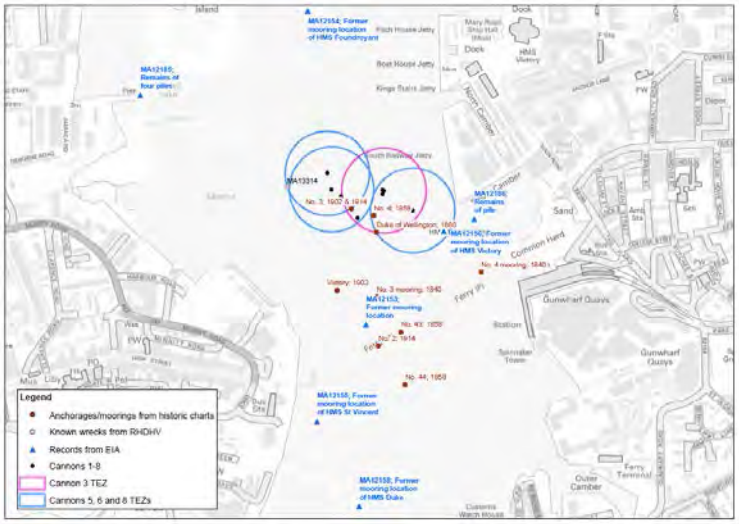
Period	Modern	**Date Range**	c.1950s

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL1_0077	Cannon	
Date of Discovery	26/01/17	
How Discovered	Recovered by grab on board *Stemat 87* during pre-dredge clearance.	
Position of Discovery (British National Grid)	**462555.04 E**	**100287.21 N**

Location Map



Anomaly Image

N/A

Image of object

Tampion in situ

Defence Infrastructure Organisation

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description

Small smooth bore cast iron cannon. This gun is largely covered in concretion and its dimensions are obscured by this. Estimated length from the unconcreted muzzle face to the estimated position of the base ring is 2.02 m, which suggests that this is a 6 foot 6 inch gun. The gun is largely covered with concretion, obscuring features such as mouldings. Areas which are exposed are well worn and the trunnions are partially intact being worn to stubs.

The following table contains the measurements of the cannon in metric and imperial:

Element	Length in mm/inches	Diameter in mm/inches
Muzzle	250 mm / 9.8 in	*too concreted*
Muzzle face	-	140 mm / 5.5 in
Head	-	-
Muzzle neck	*too concreted*	180 mm / 7 in
Bore	-	80 mm / 3.1 in (Tampion in place)
Muzzle face to 2nd reinforce ring	910 mm / 35.8 in	-
Chase girdle ring	60 mm / 2.36 in	260 mm / 10.2 in
Second reinforce ring	-	*too concreted*
Second reinforce ring - base ring	too concreted	-
First reinforce ring	-	*too concreted*
Cascabel	95 mm / 3.7 in	*circa* 90 mm / 3.5 in
Vent field	-	-
Base ring	-	*circa* 290 mm / 11.4 in
Breech - Cascabel	135 mm / 5.3 in	-
Trunnion	*concreted*	*circa* 60 mm / 2.36 in
Width across trunnions	*concreted*	-
Overall Length	**2020 mm / 6.6 ft**	**-**

Interpretation

The cannon was recovered approximately 260 m east of the floating breakwater of Gosport marina along with four other examples (**BWL1_0078-0081**) and three other previously discovered cannon (**BWL1_0035, BWL1_0036** and **BWL1_0051**). No other archaeological material was recovered with the cannon which would suggest that these are isolated and unrelated finds.

The tampion is in place, which suggests that the gun was still in service when it came to be deposited on the harbour bed, although the surface of the gun is worn and the trunnions survive only as stubs. The cannon may have been used as ballast or possibly as a mooring anchor once the gun came to the end of its working life. The area in which it was recovered is a historic anchorage during the 19th century and may have been used as such prior to this.

Assuming that the diameter of the tampion equates to that of the bore, the gun would have fired a 3-4 pound shot, depending upon the windage allowed. Given the length (2.02 m), best guess at this stage is a pre-1715 minion.

Period	Post-medieval	**Date Range**	c. pre-1715

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL1_0078	Cannon	
Date of Discovery	26/01/17	
How Discovered	Recovered by grab on board *Stemat 87* during pre-dredge clearance.	
Position of Discovery (British National Grid)	**462434.17 E**	**100298.29 N**

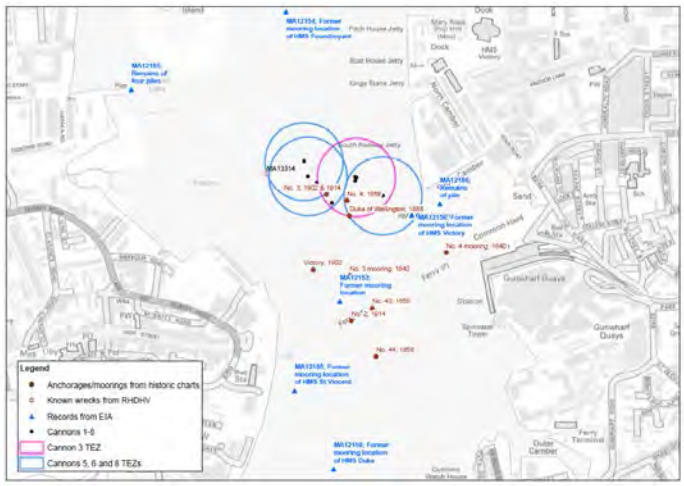
Location Map	**Anomaly Image**
	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description

Small smooth bore cast iron cannon. A largely concreted gun with an estimated length from the unconcreted muzzle face to the estimated position of the base ring of 1.76 m, which suggests that this is a 5 foot 9 inch gun. The gun is largely covered with concretion, obscuring features such as mouldings. Areas which are exposed are well worn and the trunnions have been lost.

The following table contains the measurements of the cannon in metric and imperial:

Element	Length in mm/inches	Diameter in mm/inches
Muzzle	*too concreted*	*too concreted*
Muzzle face	-	180 mm / 7 in
Head	-	-
Muzzle neck	*too concreted*	*too concreted*
Bore	-	-
Muzzle face to 2nd reinforce ring		-
Chase girdle ring	-	-
Second reinforce ring	-	*too concreted*
Second reinforce ring - base ring	400 mm / 15.7 in	-
First reinforce ring	-	*too concreted*
Cascabel	Circa 140 mm / 5.5 in	*too concreted*
Vent field	70 mm / 2.75 in	-
Base ring	-	*circa* 240 mm / 9.45 in
Breech - Cascabel	190 mm / 7.48 in	-
Trunnion	-	-
Width across trunnions	*concreted*	-
Overall Length	**1760 mm / 5.9 ft**	**-**

Interpretation

The cannon was recovered approximately 140 m east of the floating breakwater of Gosport marina along with four other examples (**BWL1_0077, BWL1_0079-0081**) and three other previously discovered cannon (**BWL1_0035, BWL1_0036** and **BWL1_0051**). No other archaeological material was recovered with the cannon which would suggest that these are isolated and unrelated finds.

Small smooth bore cast iron cannon. Similar heavily concreted condition to the others found in the area. A small area of muzzle swell is exposed and estimated muzzle face to base ring measurement is 1.76m (5 ft 9 in). Part of the breech and cascabel is visible. There is no sign of trunnions and the surface of the gun is very worn. The cannon may have been used as ballast or possibly as a mooring anchor once the gun came to the end of its working life. The area in which it was recovered is a historic anchorage during the 19th century and may have been used as such prior to this.

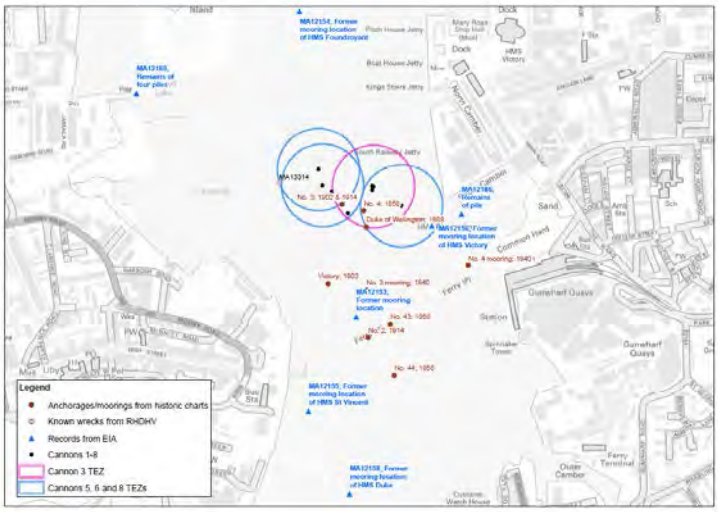
Period	Post-medieval	Date Range	Post-medieval

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL1_0079	Cannon	
Date of Discovery	26/01/17	
How Discovered	Recovered by grab on board *Stemat 87* during pre-dredge clearance.	
Position of Discovery (British National Grid)	**462424.2 E**	**100336.5 N**

Location Map



Anomaly Image

N/A

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description

Smooth bore cast iron cannon. This gun is largely covered in concretion. Total length is 2.63 m, although the length by which guns are compared (muzzle face to base ring) is 2.485 m. The gun is largely covered with concretion, obscuring features such as mouldings and the muzzle head and face. Areas which are exposed are well worn, both trunnions are intact, one is covered by concretion.

The following table contains the measurements of the cannon in metric and imperial:

Element	Length in mm/inches	Diameter in mm/inches
Muzzle	*too concreted*	*too concreted*
Muzzle face	-	*circa* 220 mm
Head	-	-
Muzzle neck	*too concreted*	*too concreted*
Bore	-	-
Muzzle face to 2nd reinforce ring	1340 mm / 52.75 in	-
Chase girdle ring	-	320 mm / 12.6 in
Second reinforce ring	-	*too concreted*
Second reinforce ring - base ring	400 mm / 15.7 in	-
First reinforce ring	-	*too concreted*
Cascabel	*circa* 110 mm / 4.3 in	*too concreted*
Vent field	*too concreted*	-
Base ring	-	*circa* 400 mm / 15.75 in
Breech - Cascabel	*circa* 160 mm / 6.3 in	-
Trunnion	90 mm / 3.5 in	90 mm / 3.5 in
Width across trunnions	530 mm / 20.9 in	-
Overall Length	**2485 mm / 8.15 ft**	

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Interpretation

The cannon was recovered approximately 150 m east of the floating breakwater of Gosport marina along with four other examples (**BWL1_0077, BWL1_0078, BWL1_0080 and BWL1_0081**) and three other previously discovered cannon (**BWL1_0035, BWL1_0036** and **BWL1_0051**). No other archaeological material was recovered with the cannon which would suggest that these are isolated and unrelated finds.

The length of the gun is uncertain due to concretion but it is likely to be an English 8 foot gun. The calibre of guns of this size could vary very significantly, particularly before the 18th century, but we are most probably looking at a gun in the range 8-12 pounder. The cannon may have been used as ballast or possibly as a mooring anchor once the gun came to the end of its working life. The area in which it was recovered is a historic anchorage during the 19th century and may have been used as such prior to this.

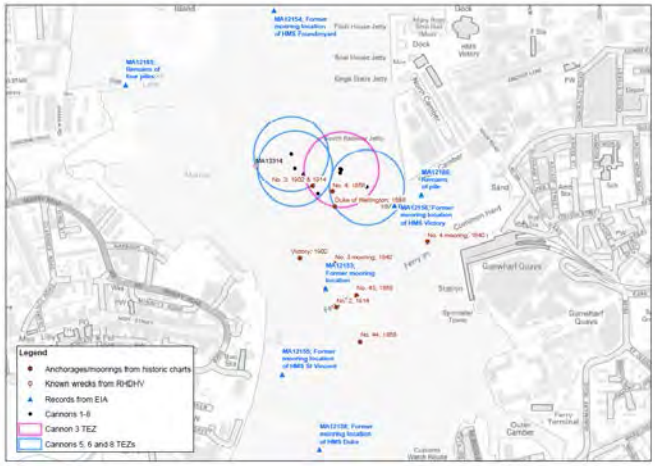
Period	Post-medieval	**Date Range**	c. 17th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL1_0080	Cannon	
Date of Discovery	26/01/17	
How Discovered	Recovered by grab on board *Stemat 87* during pre-dredge clearance.	
Position of Discovery (British National Grid)	**462626.2 E**	**100248.4 N**

Location Map



Anomaly Image

N/A

Image of object

3D Orthomosaic images of cannon BWL1_0080

The markers mark "TW" positioned either side of the touch hole

Royal Navy Broad arrow

The Royal monogram possible of Queen Anne (rose and crown) and the Board of Ordnance number below "743"

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description

It is a cast iron smooth bore muzzle loader with the usual division into cascabel, first and second reinforces, chase and muzzle. It is approximately 1.54 m long, so in terms of naval ordnance is a 5 foot gun. Although it was not possible to measure the bore because of the presence of concretion, the length and weight (inscribed on the first reinforce as 6-3-(7?) – about a third of a ton) suggest that it is probably a 3 pounder or similar. It is clearly marked with the broad arrow and is therefore an English naval gun.

The following table contains the measurements of the cannon in metric and imperial:

Element	Length in mm/inches	Diameter in mm/inches
Muzzle	*216 mm / 8.5 in*	-
Muzzle face	-	*210 mm / 8.26 in*
Head	35 mm / 1.37 in	-
Muzzle neck	*too concreted*	*too concreted*
Bore	-	-
Muzzle face to 2nd reinforce ring	719 mm / 28.3 in	-
Chase girdle ring	-	158 mm / 6.2 in
Second reinforce ring	-	207 mm / 8.1 in
Second reinforce ring - base ring	*too concreted*	-
First reinforce ring	-	*230 mm / 9 in*
Cascabel	*125 mm / 4.9 in*	-
Vent field	*50 mm / 1.96 in*	235 mm / 9.25 in
Base ring	26 mm / 1 in	*concreted*
Breech - Cascabel	*200 mm / 7.87 in*	-
Trunnion	*60 mm / 2.36 in*	82 mm / 3.2 in
Width across trunnions	*One missing*	-
Overall Length	**1540 mm / 5 ft**	

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Interpretation

The cannon was recovered approximately 250 m east of the floating breakwater of Gosport marina along with four other examples (**BWL1_0077 - BWL1_0079 and BWL1_0081**) and three other previously discovered cannon (**BWL1_0035, BWL1_0036** and **BWL1_0051**). No other archaeological material was recovered with the cannon which would suggest that these are isolated and unrelated finds.

Either side of the touch hole are the letters ‘T’ and ‘W’, which stands for Thomas Western, a well-known gunfounder. Western was born in 1624 and married into the family of a London ironmaster. From about 1660 he started supplying guns to the Board of Ordnance. By the time of his death in 1707 he had become one of the main ironmongers and gunfounders in England, supplying both the Royal Navy and the international market, and extremely rich (a billionaire in today’s terms). The initials therefore date the manufacture of the gun to the period c.1660-1707. Many of Western’s guns reportedly survive.

There is a Royal monogram on the second reinforce. Too concreted to be readable, this would require careful cleaning by a specialist to remove the concretion, although it also looks quite worn. The outline looks vaguely like that of Queen Anne (1702-14). This would narrow the date range for the gun.

Below the monogram is the number ‘743’. This is likely to be the Ordnance Board’s UID for the gun, meaning that its history may be traceable.

The cannon may have been lost or possibly used as ballast or as a mooring anchor once the gun came to the end of its working life. The area in which it was recovered is a historic anchorage during the 19th century and may have been used as such prior to this. It is also noted that several ships are recorded to have wrecked or become damaged by fire during the 17th and 18th century in this anchorage, although no wreck is yet to be discovered.

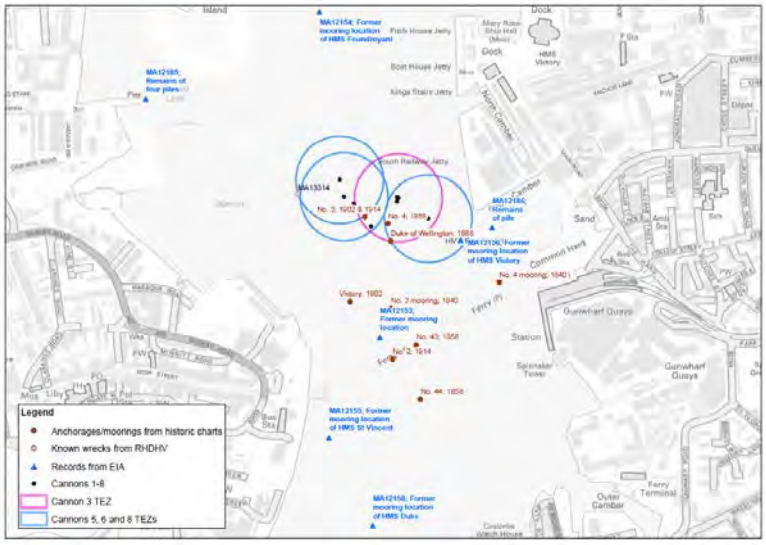
Period	Post-medieval	**Date Range**	c.1702-1707

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL1_0081	Cannon	
Date of Discovery	27/01/17	
How Discovered	Recovered by grab on board *Stemat 87* during pre-dredge clearance.	
Position of Discovery (British National Grid)	**462555.4 E**	**100297.21 N**

Location Map



Anomaly Image

N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description

Smooth bore cast iron cannon. This gun is completely obscured by concretion, and it has an overall length of 1760 mm. All of the gun's features are covered making measurements and interpretation impossible. The only exposed feature is the face of one of the trunnions, suggesting that these may be intact on this gun. Muzzle and base ring measurements are oversized as they are made over the concretion.

The following table contains the measurements of the cannon in metric and imperial:

Element	Length in mm/inches	Diameter in mm/inches
Muzzle	*too concreted*	*circa 190 mm / 7.5 in*
Muzzle face	-	*too concreted*
Head	-	-
Muzzle neck	*too concreted*	*too concreted*
Bore	-	-
Muzzle face to 2nd reinforce ring	*too concreted*	-
Chase girdle ring	-	*too concreted*
Second reinforce ring	-	*too concreted*
Second reinforce ring - base ring	*too concreted*	-
First reinforce ring	-	*too concreted*
Cascabel	*too concreted*	*too concreted*
Vent field	*too concreted*	-
Base ring	-	*circa 320 mm / 12.6 in*
Breech - Cascabel	*too concreted*	-
Trunnion	*too concreted*	80 mm / 3.1 in
Width across trunnions	*too concreted*	-
Overall Length	**1760 mm / 5.77 ft**	

Interpretation

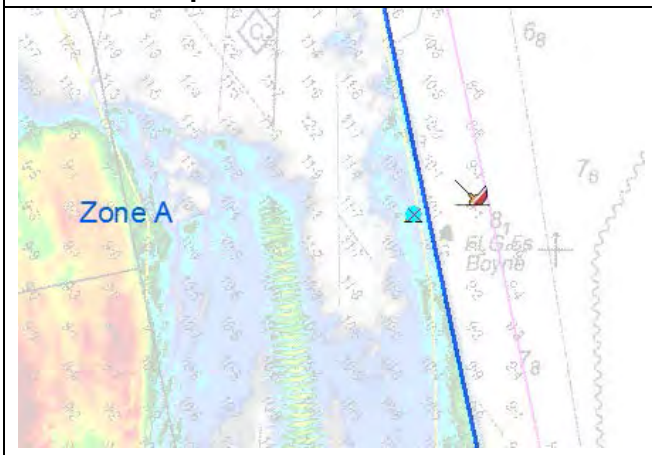
The cannon was recovered approximately 320 m east of the floating breakwater of Gosport marina along with four other examples (**BWL1_0077 - BWL1_0080**) and three other previously discovered cannon (**BWL1_0035, BWL1_0036** and **BWL1_0051**). No other archaeological material was recovered with the cannon which would suggest that these are isolated and unrelated finds.

The length of the gun is uncertain due to concretion and no diagnostic features can be assessed. Unless it is a 'cut' (a larger gun whose barrel has been shortened), it is unlikely to be bigger than a 3 pounder. Dating is impossible on current evidence. The cannon may have been used as ballast or possibly as a mooring anchor once the gun came to the end of its working life. The area in which it was recovered is a historic anchorage during the 19th century and may have been used as such prior to this.

Period	Post-medieval	**Date Range**	Post-medieval

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL1_0082	Old Pattern Admiralty anchor	
Date of Discovery	08/01/2017	
How Discovered	Recovered by grab and found during Quayside Archaeological Monitoring.	
Position of Discovery (British National Grid)	**464395.53 E**	**97029.93 N**
Location Map		**Anomaly Image**
		N/A

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
The anchor is made of iron and would have had a wooden stock which has been lost. The shank is 2810 mm in length with a rounded square profile. The ring has a diameter of 40 mm. The area of the shank where the stock would have attached is rectangular in section measuring 100 x 90 mm. At the midpoint of the shank it measures 120 x 100 mm and at the crown the shank is 170 x 140 mm. The crown is angular and has a depth of 210 mm. From the crown to bill, the arms measure 1160 mm long. The bill to centre measurement is 920 mm and the height of the bills is 660 mm, the tipped spade flukes measure 490 x 450 mm, while the bills extend out 120 mm and are 50 mm wide. One of the fluke has bent round into a right angle from its original position.
Interpretation
The anchor is an old pattern angle crown admiralty long shank. It would have been fitted with a wooden stock. These types of anchors were commonly used in the late 18th century until the middle of the 19th century. The design was replaced by the Improved Admiralty long shank which used curved arms in c.1840. The straight arms of the old pattern anchor were a common issue, causing many anchors to be damaged while attempting to weigh anchor. This issue was solved with the introduction of curved arms on the Improved Admiralty anchor. This anchor is likely to have belonged to the Royal Navy and has been discarded after becoming damaged.

Period	Georgian	**Date Range**	Late 18th century – c.1840

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL1_0083	Balanced Spade Rudder	
Date of Discovery	11/02/17	
How Discovered	Recovered by grab on board *Stemat 87*	
Position of Discovery (British National Grid)	**462634.93 E**	**100545.11 N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Note: The rope in the picture was from the recovery of the object.

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
The rudder is made of copper and would have had a copper frame with a wood plank core. The type of rudder is a balanced spade rudder that appears to have sheared off at the base. The rudder measures 1200 mm in length with a maximum width of 750 mm. It is 30 mm thick at the top, 60-80 mm at the base and facing aft the rudder is 15 mm thick. There is a small copper ringed eye towards the bottom of the rudder. The stock at the top measures 65 mm in diameter and at the base it is 120 mm in diameter, the stock at the base looks to have been sheared off. The tacks are also copper and spaced 65 mm apart. The rope pictured is unrelated and was used to recover the rudder.
Interpretation
This is a balanced spade rudder, it would have attached via a stock at the top of the blade and again at the base. Balanced spade rudders have a reduced drag compared to the skeg mounted rudder. The balance of the rudder is referring to the position of the stock in relation to the width of the rudder, by placing it ¾ back creates a more balanced and efficient rudder movement. It is a common construction type with a wooden core, copper alloy frame and then plated in a copper alloy, this would have been to protect the rudder from wood borers and salt water corrosion. This is the third of this type of rudder to have been found during the dredging of Portsmouth harbour (BWL1_0057 and BWL1_0070) both of which were similar in construction and more interestingly very similar in size. They may have come from very similar vessels. This may suggest that these rudders became damaged and were replaced with the harbour.

Period	Modern	**Date Range**	20th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL1_0084	Boat propeller	
Date of Discovery	11/02/2017	
How Discovered	Recovered by grab and found during Quayside Archaeological Monitoring.	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
Copper or brass fixed pitch propeller. One of the blades has been damaged, becoming bent and losing its tip. The prop shaft has been broken at the forward end. The prop shaft measures 560 mm in length and 62 mm in diameter. The propeller itself measures 815 mm across with each blade measuring 362 mm and a maximum width of 165 mm. The central bolt has a diameter of 50 mm.
Interpretation
The propeller may have come from several vessel types, possibly relating to fishing, or judging by the find location, possibly military. The propeller looks although it has been in a collision, possible with the seabed or upstanding rocks, bending one of the blades. The propeller was likely replaced and the old one has been discarded in to the harbour. It is also possible that a boat has lost the propeller whilst motoring within the harbour.

Period	Modern	**Date Range**	20th Century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL1_0085	19 Glass bottles, 2 bones and a ceramic jar	
Date of Discovery	04/02/17	
How Discovered	Recovered by grab on board *Stemat 87* during pre-dredge clearance.	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
Nineteeen glass bottles including milk and beer bottles. Including a “Webb & Salmon. Landport” Cobb bottle, “Crusse & Blackwell. London England” pot, “Brickwood & Co Ltd. Portsmouth” bottle, “Barrys Florida Water, Double Strength. New York” bottle and an 18th century Dutch wine bottle. The two bones are from a large mammal and measure 120 and 170 mm in length. A ceramic jar measuring 160 mm and 120 mm in diameter.
Interpretation
The bottles are likely to have been discarded either from passing vessel or from the shore. The selection here has a wide range of sources showing the some of the wide reach that Portsmouth harbour has had. The bottles range from UK sources such as local Portsmouth, Landport, Southsea and Gosport, but also London, Weymouth and Scotland. Longer distances include the 18th century Dutch wine bottle dating to c.1760-1780 and the Barrys Florida Water bottle from New York. The bones are likely to be a large mammal such as cattle and were probably taken aboard as small joints and the remains discarded. The ceramic jar would likely have contained preserves or similar food stuffs and again is likely to have been discarded after use.

Period	Modern	**Date Range**	Dutch wine bottle – c.1760-1780 Rest – 19th-20th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL1_0086	18 glass bottles and a sight glass	
Date of Discovery		
How Discovered	Recovered by grab and found during Quayside Archaeological Monitoring.	
Position of Discovery (British National Grid)	**…… E**	**…… N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description

18 Glass bottles and one sight glass:

- Clear glass bottle, unmarked, 293 mm tall.
- Brown glass bottle, unmarked, 300 mm tall.
- Clear glass bottle, marked with “A4 R12 UGB” on the base, 290 mm tall.
- Clear glass bottle, marked with “Southsea Ideal Mineral Water, Southsea”, 280 mm tall.
- Clear/green glass bottle, marked with “Brickwood & Co Ltd, Portsmouth”, 260 mm tall.
- Clear glass bottle, marked with “Teacher & Sons Ltd”, 280 mm tall.
- Clear glass bottle, marked with “Western” and “R.White REC” on the base, 255 mm tall.
- Green glass bottle, marked with “Eldridge.Pope.Dorchester & Co Ltd”, 252 mm tall.
- Green glass bottle, marked with “The Portsmouth United Breweries Ltd”, 250 mm tall.
- Clear glass bottle, unmarked, 250 mm tall.
- 3x clear glass bottles, marked with “Safety First Milk Assn” in a triangle, 215 mm tall.
- Clear/green glass jar, marked on the base with “HR” and “3932”, 195 mm tall.
- Clear glass jar, marked with “Pan-Yan”, 176 mm tall.
- Clear/green glass jar, unmarked, 153 mm tall.
- Clear glass jar, unmarked, 142 mm tall.
- Clear glass bottle, marked with “Pimco Portsmouth”, 158 mm tall.
- Clear glass bottle, marked with “B231, C, 21, UGB” on the base, 166 mm tall.
- Clear glass bottle, marked with “C. Mumby & Co. Portsmouth and Gosport”, “Soda water markers to her majesty the Queen”, “trademark” with an anchor. 225 mm tall.
- Clear sight glass, measuring 130 x 40 mm.

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Interpretation			
A collection of glass bottles from various sources. Some would have contained liquids such as the C. Mumby & Co soda water and Southsea ideal mineral water. The Safety First Milk Association bottles in particular are a frequent find during the dredging of Portsmouth harbour. Other bottles are likely to have contained spirits, beer and soft drinks. The jars would have contained food stuffs such as preserves, the Pan-Yan jar is a well-known brand of pickle, the recipe for which was lost in a fire at the Branston pickle factory, the only known recipe was kept written on paper stored in a safe. The sight glass would have been used in a reflex gauge on a boiler or storage tank. It would be positioned on the outside of the boiler or tank and allowed the operator to observe the levels of liquid. All the objects here are likely to have been discarded by passing vessels or washed out into the sea after discard on shore. The sight glass is likely to have been discarded also.			
Period	Modern	**Date Range**	20th – 21st Century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL1_0087	Part of an oil lamp and a spring	
Date of Discovery	04/02/17	
How Discovered	Recovered by grab on board *Stemat 87* during pre-dredge clearance	
Position of Discovery (British National Grid)	**…… E**	**…… N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
The top section of an oil lamp burner, consisting of the collar, wick raiser, burner and shade holders. The object has a maximum width of 260 mm and a height of 150 mm. The coil is housed in a metal frame with a perforated disk at either end and supported by three longitudinal bars. At either end there is a small thread. The object measures 190 mm long and 85 mm in diameter.
Interpretation
The upper part of the oil lamp is something that has been used for some time and is still in use today. It is likely to have been either lost overboard or discarded in to the sea. The function of the other object is unclear but it has been suggested that it is a buffer spring similar to what is found within a clutch plate used for shock absorption, but again the machinery it would be from is unclear.

Period	Modern	**Date Range**	20th – 21st Century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL_0088	Seven ceramics and an alloy tin	
Date of Discovery	04/02/17	
How Discovered	Recovered by grab on board *Stemat 87* during pre-dredge clearance.	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
Seven ceramic objects including: • Stoneware base measuring 150 mm in diameter; • Stoneware bottle measuring 90 mm in diameter and remaining to a height of 170 mm; • Half of a whiteware mess bowl with a logo of an admiralty anchor and a number 7; • A complete vase or storage container measuring 160 mm in height and 160 mm in diameter at the widest point; • Small preserves jar measuring 80 mm high and 70 mm in diameter; • A powder or snuff pot measuring 30 mm high and 100 mm in diameter; • Stoneware pouring jug measuring 230 mm high and 100 mm in diameter, marked with “Price, Bristol”; and • An alloy polish tin measuring 40 mm high and 75 mm in diameter, marked with “Manufactured by The Chiswick Polish Co Ltd, London England”.
Interpretation
A variety of objects likely to have been discarded by passing vessels or from the shore. The stoneware bottle (top left of picture) is a genever gin bottle dating to the late 19th or early 20th century. The Price stoneware jug will date to between 1820 – 1906 after which Price merged with Powell becoming Price Powell & Co. The mess bowl would have been use on board Naval vessels where it was common practice for items to be numbered to identify mess rooms. The small preserves jar has an incised ring close to the lip, this is where a paper or cloth lid could be tied down. And the alloy polish tin dates between c.1886 and 1929 when the company changed its name, this example is likely to date to the early 20th century.

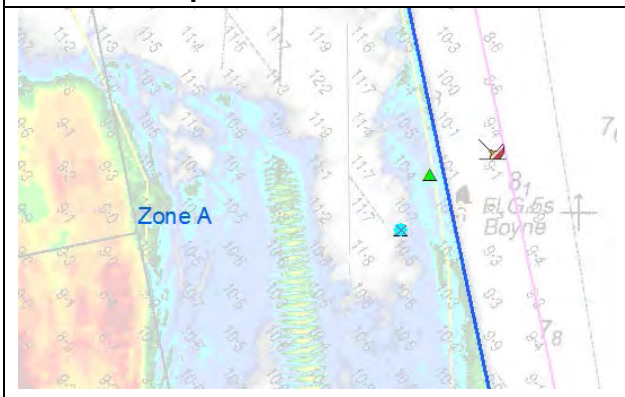
Period	Modern	**Date Range**	19th – 20th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL1_0089	Large Admiralty anchor	
Date of Discovery	29/03/2017	
How Discovered	Recovered by grab on board *Stemat 87* during pre-dredge clearance	
Position of Discovery (British National Grid)	**464375.1 E**	**96991.2 N**

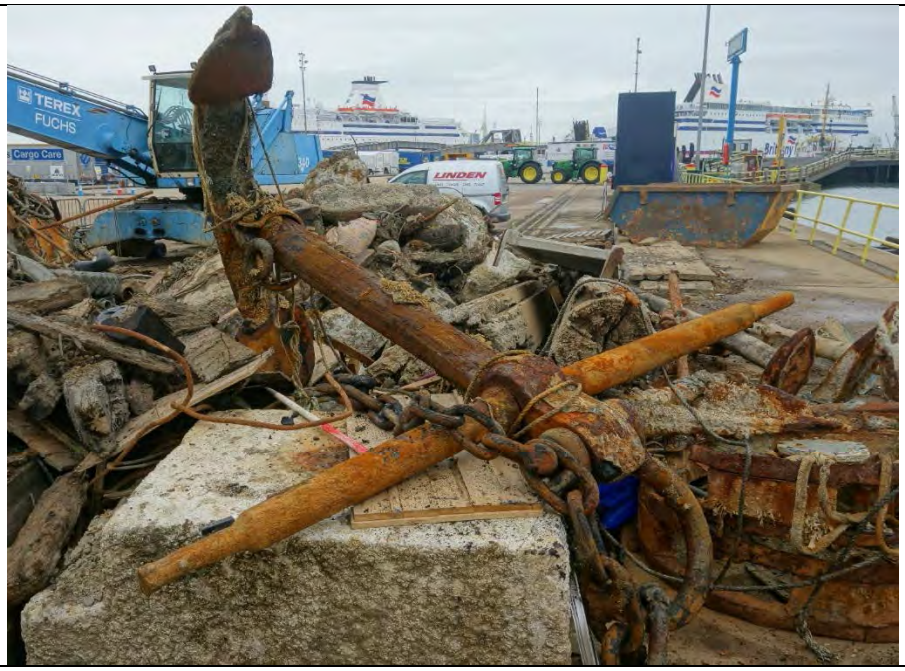
Location Map



Anomaly Image

N/A

Image of object



Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
A large Admiralty type stocked anchor. The total length of the anchor is 3 m. The stock measures 160 x 180 mm towards the ring and increases to 220 x 240 at the crown. The crown is rounded and has a height of 260 mm and a depth of 220 mm. The arms measure 1500 mm from crown to bill. The bill to bill measurement is 2100 mm at a height of 700 mm. The flukes are spade shaped and measure 450 mm in length and 430 mm in width and the bill projects out 100 mm and is 60 mm wide. The stock appears to be steel and has a maximum diameter of 180 mm which narrows to 60 mm, its total length is 2900 mm. The shackle measures 700 mm x 560 mm and connected to this is a smaller shackle measuring 380 x 210. There is a series of 14 chain links which roughly alternates between open and stud link measuring between 300 x 170 mm and the final link is 150 x 110 mm. There is an iron balance band with lifting rings towards the crown that would have been used for lifting the anchor in a horizontal position.
Interpretation
The anchor is an Admiralty pattern anchor, which has an iron stock. The Admiralty pattern anchor was introduced in 1841 by Admiral Sir William Parker and became one of the most recognisable anchor shapes to be used by the Royal Navy. Originally the anchor had straight arms and a wooden stock, later the design changed to curving arms for added strength and iron stocks. The anchor was an isolated find and it is likely that the anchor was lost or abandoned.

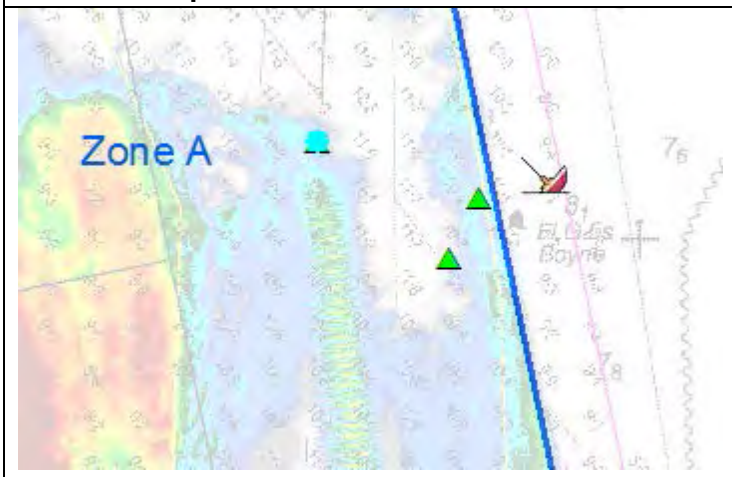
Period	Modern	**Date Range**	19th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BW1_0090	Balanced spade rudder	
Date of Discovery	28/03/17	
How Discovered	Recovered by grab on board *Stemat 87* during pre-dredge clearance.	
Position of Discovery (British National Grid)	**464287.89 E**	**97067.58 N**

Location Map



Anomaly Image

N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
A balanced spade rudder measuring approximately 1500 x 1000 mm. It is likely to have a wooden core framed and coated by a copper alloy.
Interpretation
This is a balanced spade rudder, it would have attached via a stock at the top of the blade and again at the base. Balanced spade rudders have a reduced drag compared to the skeg mounted rudder. The balance of the rudder is referring to the position of the stock in relation to the width of the rudder, by placing it ¾ back creates a more balanced and efficient rudder movement. It is a common construction type with a wooden core, copper alloy frame and then plated in a copper alloy, or possibly Muntz metal, this would have been to protect the rudder from wood borers and salt water corrosion. This is the fourth of this type of rudder to have been found during the dredging of Portsmouth harbour (BWL1_0057, BWL1_0070 and BWL1_0083) all of which were similar in construction and more interestingly very similar in size. They may have come from very similar vessels. The other three have all be found close together within the harbour but this one was found out of the harbour by Horse Sand which may suggest it was lost while at sea.

Period	Modern	**Date Range**	19th-20th century

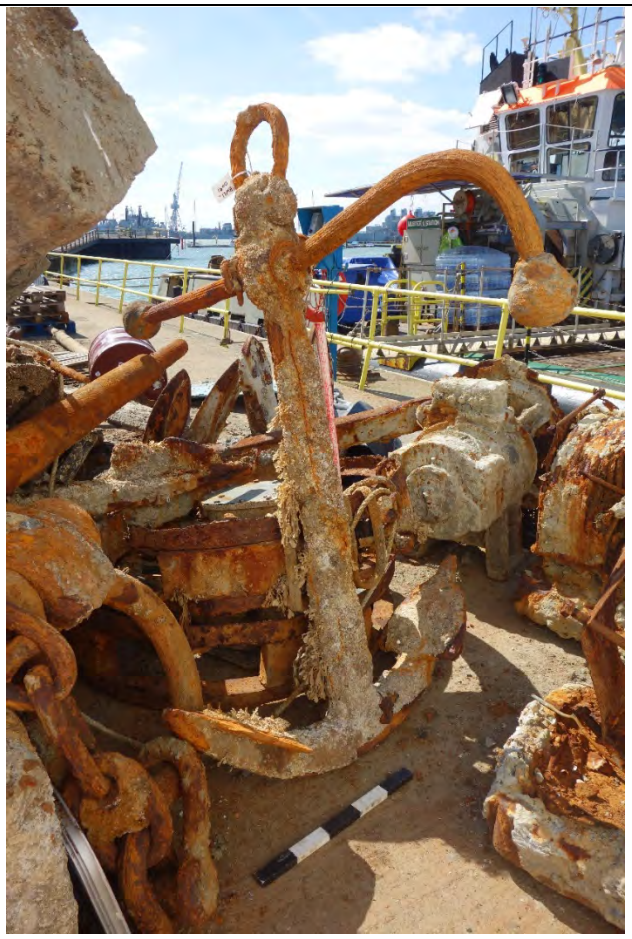
Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL1_0091	Admiralty pattern anchor	
Date of Discovery	03/04/17	
How Discovered	Recovered by grab on board *Stemat 87* during pre-dredge clearance work.	
Position of Discovery (British National Grid)	**…… E**	**…… N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object



Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
The anchor measures 1580 mm in length and the stock is 1410 mm long. The shank is square profiled and measures 90 x 90 mm towards the ring and 130 x 160 mm towards the crown. The crown measures 125 x 100 mm. The bill to bill measurement is 1170 mm and the bills are 360 mm above the crown. The flukes measure 290 x 270 mm and the bill protrudes 100 mm.
Interpretation
The anchor is an Admiralty pattern dating to the second half of the 19th century. The Admiralty pattern was developed in 1841 and the design was updated throughout the 19th century, changing the arms to a curved design and the stock to iron as opposed to wood. This anchor style is one of the most recognisable designs to be used by the Royal Navy.

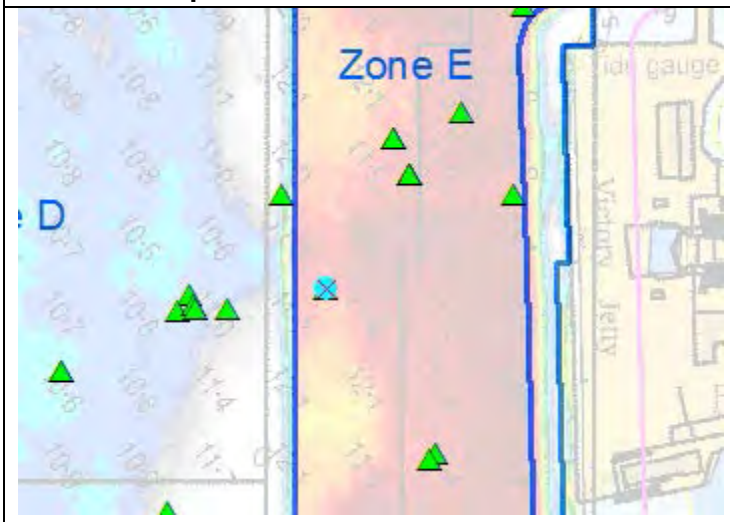
Period	Modern	**Date Range**	19th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL1_0092	Lead sheathed timber	
Date of Discovery	09/04/17	
How Discovered	Recovered by grab by *Stemat 87* during pre-dredge clearance	
Position of Discovery (British National Grid)	**462593.6 E**	**100612.5 N**

Location Map



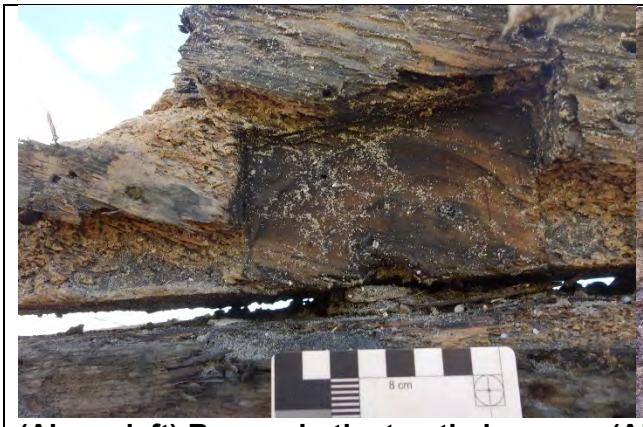
Anomaly Image

N/A

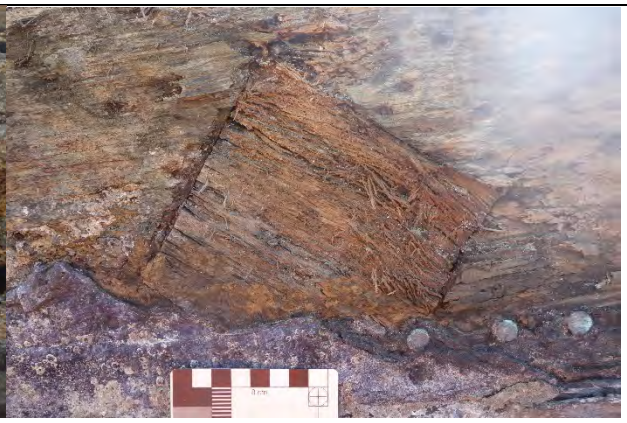
Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form



(Above left) Recess in the top timber



(Above right) Timber patch in the middle timber

Photogrammetry model of BWL1_0092 from the opposite side, showing the additional lead sheathing or hawse pipe to the bottom left

Lead sheathing profile and a thin layer of copper sheathing in between the lead and the timber.

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description

Three worked timbers fixed by treenails and partially coated by lead and copper sheathing. The total length of the timbers is 2860 mm with a width of 390 mm. The longest timber has a height of 145 mm at the centre reducing to 80 mm at the exposed end, the other measurement is obscured by the sheathing. The middle timber is 1820 mm on the underside by 280 mm. The top triangular timber is 960 mm by 400 x 720 mm. The top timber has a small recess measuring 130 x 70 mm and 30 mm deep, there is a half-cut peg hole (24 mm) and an incised half circle with the same diameter as the recess. There are four treenails running vertically through the timber into the middle timber, these vary between 26 and 35 mm. The middle timber has a square insert of timber in the middle measuring 130 x 135 mm. The timber has a series of zig zag wooden pegs running along its length with diameters of 5 mm, although there is no evidence of what they attached. Along the bottom edge joining to the bottom timber the lead sheathing begins, this is attached with copper nails measuring 12 mm. At the exposed end of the timber there are two copper bolts 200 mm long and 20 mm in diameter, in between the two bolts there is a semi-circular cut 115 mm in diameter. The bottom timber has further copper nails along the joining edge to the middle timber and then a single line of larger 15 mm copper nails attaching the sheathing at the bottom of the timber, The sheathing wraps around the underside of the timber and there is no evidence of nails on the underside, forming a rounded profile. The sheathing is bent and torn out of position and the extended piece on the other side (pictured) may have been a continuation of the timber sheathing of a possible hawse pipe. The lead sheathing is 7 mm thick and it covers a thin layer of copper sheathing (1 mm) thick.

Interpretation

There are several possible interpretations for this timber, none of which are conclusive, the condition and limited evidence prevent a conclusive interpretation.

It is possible that this is a section of ship's timber. The use of large treenails, copper fastenings and sheathing all suggest ship's structure. The large bottom timber is wrapped in the sheathing and would have been an external part. While the small top timber is likely to be a piece of deadwood, used to fill gaps between frames, the small recess may show that the timber has been reused. The use of copper sheathing was introduced in the middle of the 18th century to protect ship's hulls from wood borers when traveling through warmer climates, and the sheathing also helped increase speed by reducing other growth such as barnacles. The use of lead sheathing saw some use, but the high weight of lead meant a high dead-weight had to be carried. The use of lead sheathing can date back to the Romans, and the use was discontinued by the British merchants by 1691 once it was discovered that the lead caused damage to the iron fastenings (McCarthy 2005 p.102). This damage to iron may have been counteracted here by the presence of copper sheathing underneath the lead. The *Santa Margarita* (1622) was sheathed with lead measuring between 0.5 and 0.9 mm thick (Malcom 2001), this example has a thickness of 7 mm, this would suggest that it is unlikely to be hull sheathing. The more likely explanation of a need for such thick lead protection is for isolated areas of protection. It is possible that the timbers are from the bow of a ship namely either the knee of the head or the cutwater. This is where the hawse pipe for the anchor cables would be located and the movement of both the anchor and its cables has the potential to cause damage to the timbers either through banging or rubbing. It is possible that this thick layer of lead sheathing was added to the area to protect the bow of the ship. The evidence of this practice of protecting the timbers from the anchor and its cables is limited and dating is very speculative. However, the location of the find is on the edge of an historic anchorage noted on charts from 1840.

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

No signs of a shipwreck or any other ship structure has been recovered so this is an isolated find likely representing discarded material.

References

Malcom. C. 2001. *Lead Hull-Sheathing of the Santa Margarita*. The Navigator: Newsletter of the Mel Fisher Maritime Heritage Society. Vol 16. No 1 December 200/January 2001.

McCarthy. M. 2005. *Ships' Fastenings: From Sewn Boat to Steamship*. Texas A&M University Press. Texas.

Period	Post-medieval	**Date Range**	c.18th-19th century

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID **BWL2_0001**	Probable cattle femur	
Date of Discovery	18/12/2015	
How Discovered	Recovered from the bomb grid of THSD *Freeway* at the end of Trip 7	
Position of Discovery (British National Grid)	**462423 E**	**101505 N**

Location Map

The discovery position above is the estimated centre point of an area with a radius of approximately 200m within which Trip 7 dredging took place.

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111320
21/12/2015
Draft Version 01

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Images of object

Description

Large quadrupedal mammal femur; probably cattle.

(Assessed from the above photograph by a non-specialist archaeologist; non-urgent transfer ashore and physical examination during quayside monitoring recommended)

Interpretation

Probable dumped butchery remains. Likely to be an isolated find or from a small dump of similar material. Unknown date but understood to have been recovered from shallow silt deposit and therefore on a balance of probability basis likely to be 19-20th century.

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL4_0001	Worked Wood	
Date of Discovery	04/08/2016	
How Discovered	Retrieved from drag head during dredging	
Position of Discovery (British National Grid)	**…… E**	**…… N**

Location Map	**Anomaly Image**
N/A	**N/A**

Images of object

Scale 500 mm

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Scale 200 mm (above) 500 mm (below)

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Archaeological Object Report Form

Description
This timber is a maximum of 205 mm long, 85 mm wide and 130 mm high. It has an off centre V-section cut out of the timber and it also appears to have been cut on both wider ends.
Interpretation
This could be an off cut of a larger piece of timber.

Period	Unknown	**Date Range**	Unknown

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL4_0002	Worked Wood	
Date of Discovery	05/08/2016	
How Discovered	Retrieved from drag head during dredging	
Position of Discovery (British National Grid)	..... E	..... N

Location Map	**Anomaly Image**
N/A	**N/A**

Images of object

Scale 500 mm

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Scale 200 mm

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
This timber is a maximum of 420 mm long, 65 mm wide and 45 mm high. It is in very poor condition with evidence of wood borer activity. There is one brass nail through the cross section of the timber and treenail holes at various locations along the length of the timber.
Interpretation
This object appears to be part of a long timber for a ship or wharf structure

Period	Unknown	**Date Range**	Unknown

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL4_0003	Worked Wood with treenail	
Date of Discovery	05/08/2016	
How Discovered	Retrieved from drag head during dredging	
Position of Discovery (British National Grid)	**…… E**	**…… N**

Location Map	**Anomaly Image**
N/A	**N/A**

Images of object

Scale 200 mm

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Museum Acc No. : 2015/462

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Archaeological Object Report Form

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111320

09/09/2015

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
This timber is a maximum of 405 mm long, 80 mm wide and 75 mm high. It has a 30 mm diameter treenail towards the edge of the shortest remaining side and a 16 mm treenail hole very close to the longest edge. It is straight grained with no tree rings or marks and is in very poor condition.
Interpretation
This object appears to be part of a longer timber for a ship or wharf structure

Period	Unknown	**Date Range**	Unknown

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL4_0004	Worked Wood with treenail	
Date of Discovery	05/08/2016	
How Discovered	Retrieved from drag head during dredging	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	**N/A**

Images of object

Scale 200 mm

Defence Infrastructure Organisation

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Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Scale 200 mm

Defence Infrastructure Organisation

Boskalis Westminster

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Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
This timber is a maximum of 500 mm long, 70 mm wide and 86 mm high. It has a 28 mm diameter treenail towards the edge of the shortest remaining side and a partial treenail hole towards what would have been the middle of the timber prior to weathering. It is straight grained with no tree rings or tool marks or original surfaces and is in very poor condition.
Interpretation
This object appears to be part of a longer timber for a ship or wharf structure

Period	Unknown	**Date Range**	Unknown

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL4_0005	Worked Wood with treenail	
Date of Discovery	09/08/2016	
How Discovered	Retrieved from drag head during dredging	
Position of Discovery (British National Grid)	**…… E**	**…… N**

Location Map	**Anomaly Image**
N/A	**N/A**

Images of object

Scale 200 mm

Defence Infrastructure Organisation

Boskalis Westminster

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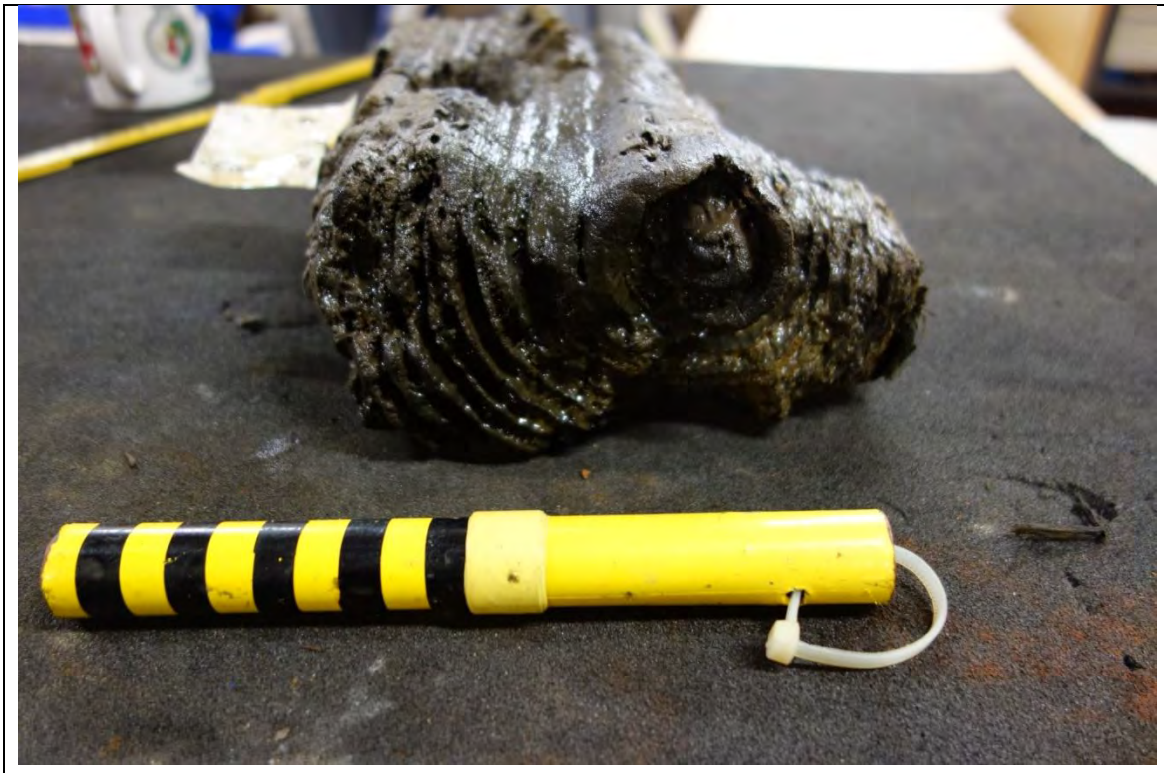
Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form



Scale 200 mm

Defence Infrastructure Organisation

Boskalis Westminster

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Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
This timber is a maximum of 305 mm long, 198 mm wide and 90 mm high. It has a large socket 60 mm in diameter that narrows to a 25 mm treenail hole. It is straight grained with heartwood exposed and some tree rings visible. There are no original surfaces or tool marks. The timber is in very poor condition with evidence of wood borer attack.
Interpretation
This object appears to be part of a longer timber for a ship or wharf structure

Period	Unknown	**Date Range**	Unknown

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL4_0006	Worked Wood with treenail	
Date of Discovery	09/08/2016	
How Discovered	Retrieved from drag head during dredging	
Position of Discovery (British National Grid)	**…… E**	**…… N**

Location Map	**Anomaly Image**
N/A	**N/A**

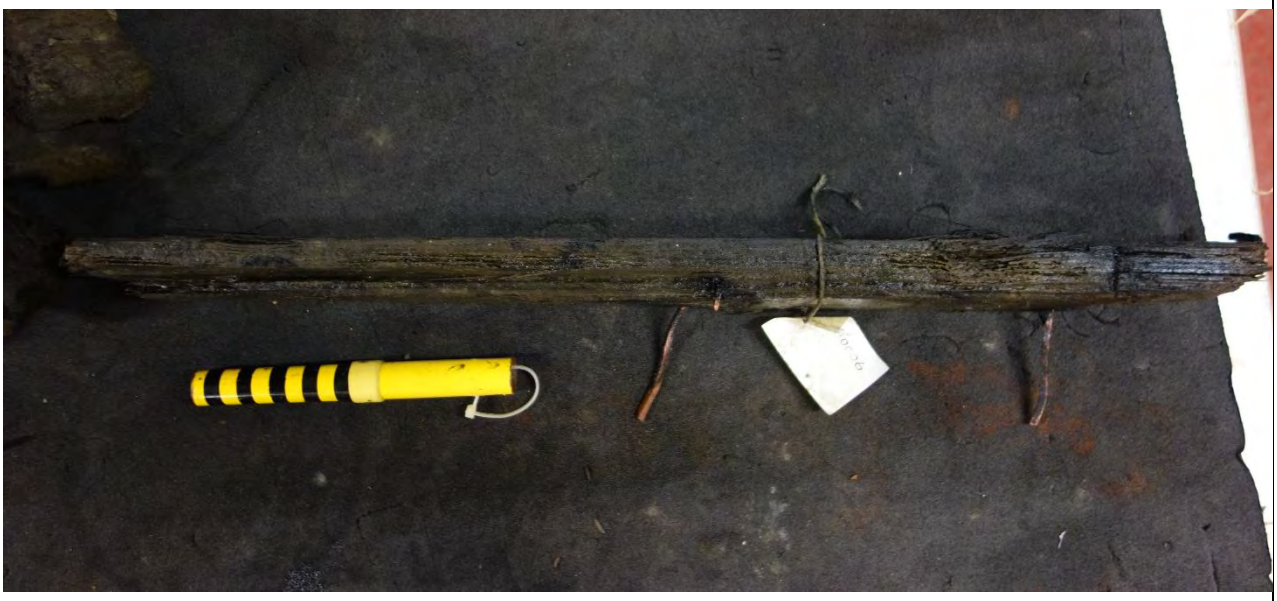
Images of object

Scale 200 mm

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form



Scale 200 mm

Defence Infrastructure Organisation

Boskalis Westminster

wessex archaeology

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
This timber is a maximum of 690 mm long, 84 mm wide and 31 mm thick. It has two 105 mm long brass square profile nails extant along one edge of the plank and along the other edge of the planks are two shorter brass square profile nails – one 37 mm long and the other 44 mm. It is straight grained with no curve in the plank and the remains of red paint on the outer original surface.
Interpretation
Part of a longer straight timber for a small clinker built boat – possibly a rowing boat.

Period	Late 20th century	**Date Range**	20th century

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL4_0007	Worked Wood with treenail	
Date of Discovery	16/08/2016	
How Discovered	Retrieved from drag head during dredging	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	**N/A**

Images of object

Scale 200 mm

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Scale 200 mm

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
This timber is a maximum of 720 mm long, maximum of 140 mm wide and 70 to 120 mm thick. It has one 20 mm treenail hole with part of the treenail still remaining. It is straight grained with no tree rings visible and has at least one original surface which is very flat and worked smooth.
Interpretation
The object appears to be part of a longer timber for a vessel or wharf structure.

Period	20th century	**Date Range**	20th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL4_0008	Cut bone	
Date of Discovery	27/08/2016	
How Discovered	Retrieved from drag head during dredging	
Position of Discovery (British National Grid)	..... E	..... N

Location Map	**Anomaly Image**
N/A	**N/A**

Images of object

Scale 200 mm

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
This is the distal end of a femur from a large mammal, probably cattle, that has been purposely cut. It has a maximum length of 185 mm and is 150 mm wide and 48 mm thick at the cut end. There are no other butchery marks.
Interpretation
Remains of a long bone from a large mammal that was either part of a shipboard meal or cargo.

Period	Unknown	**Date Range**	Unknown

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL4_0009	Cut bone	
Date of Discovery	27/08/2016	
How Discovered	Retrieved from drag head during dredging	
Position of Discovery (British National Grid)	..... E	..... N

Location Map	**Anomaly Image**
N/A	**N/A**

Image of object

Scale 200 mm

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

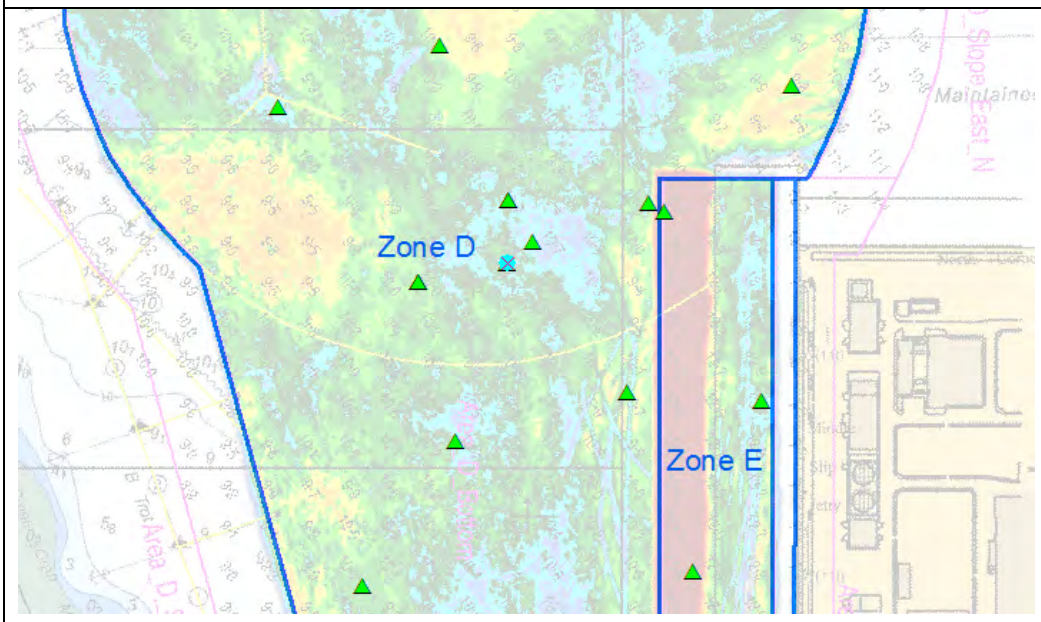
Description
This is the distal end of a femur from a large mammal, probably cattle, that has been purposely cut. It has a maximum length of 135 mm and is 100 mm wide and 47 mm thick at the cut end which is also broken. There are no other butchery marks.
Interpretation
Remains of a long bone from a large mammal that was either part of a shipboard meal or cargo.

Period	Unknown	**Date Range**	Unknown

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL4_0010	Cannonball	
Date of Discovery	27/08/2016	
How Discovered	Retrieved from drag head during dredging	
Position of Discovery (British National Grid)	**462620.53 E**	**100671.69 N**

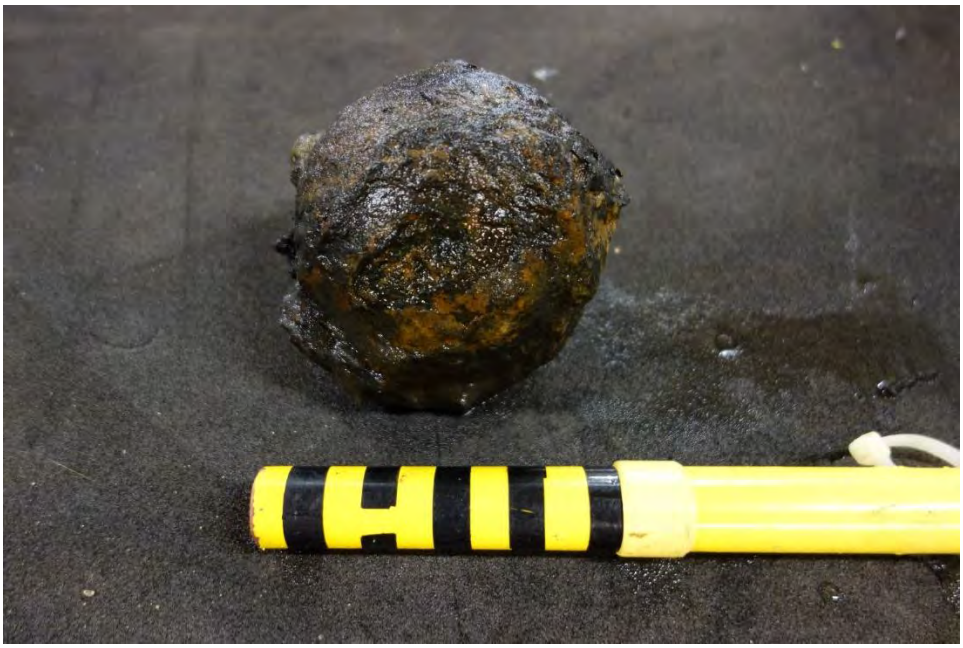
Location Map	**Anomaly Image**
	**N/A**

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Images of object



Scale 200 mm

Description
Three inch cannonball with some concretion attached. The diameter of the cannonball is 74 mm, it weighs 3 kg or 7 lbs.
Interpretation
Cannonballs are a common occurrence in the waters around Portsmouth, with a long running naval history in the area. It is unlikely to relate to the site of a shipwreck as no other material or obstructions were discovered in the location.

Period	Post-medieval	**Date Range**	Post-medieval

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL4_0011	Worked wood	
Date of Discovery	28/08/2016	
How Discovered	Retrieved from drag head during dredging	
Position of Discovery (British National Grid)	**…… E**	**…… N**

Location Map	**Anomaly Image**
N/A	**N/A**

Images of object

Scale 200 mm

Defence Infrastructure Organisation

Boskalis Westminster

wessex archaeology

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
Section of worked timber with maximum length of 390 mm with a maximum width of 150 mm and thickness of 130 mm. Overall it is somewhat trapezoidal in shape and roughly represents half of the cross section of a tree trunk. The tree rings that are visible on the cross section of the timber show that the longest face of this find is just on the outside of the heartwood. The three shorter sides of the trapezoid show signs of being sawn. There are also saw marks evident on two sides perpendicular to the tree rings. In total there are seven sides of this find that show saw marks. There is no evidence of treenails or nails. The top and the bottom of this find are badly worn.
Interpretation
Segment of half the cross section of a tree trunk that has been further worked into a trapezoidal shape. Possibly part of a stock of timber being prepared for construction.

Period	Unknown	**Date Range**	Unknown

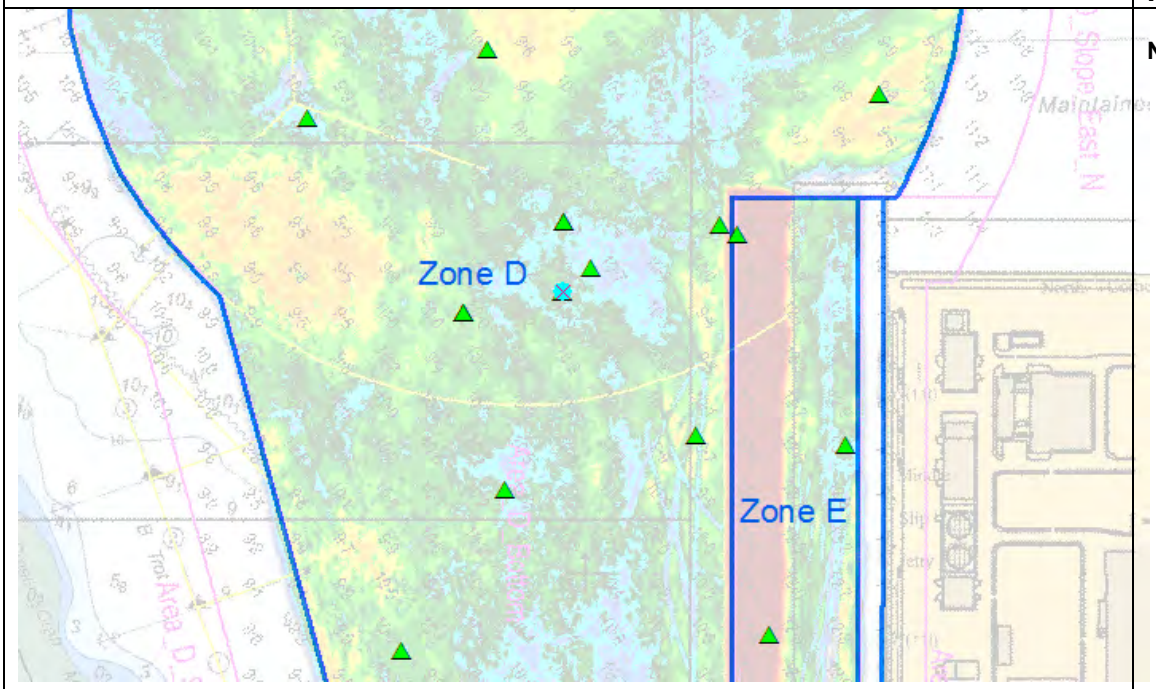
Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL4_0012	Cannonball	
Date of Discovery	28/08/2016	
How Discovered	Retrieved from drag head during dredging	
Position of Discovery (British National Grid)	**462620.53 E**	**100671.69 N**

Location Map



Anomaly Image

N/A

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Images of object

Scale 200 mm

Description
Six inch cannonball. Its diameter is 144mm, and it weighs 14 kg or 31 lbs.
Interpretation
Cannonballs are a common occurrence in the waters around Portsmouth, with a long running naval history in the area. It is unlikely to relate to the site of a shipwreck as no other material or obstructions were discovered in the location.

Period	Post-medieval	**Date Range**	Post-medieval

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL4_0013	Leather shoe sole	
Date of Discovery	03/10/2016	
How Discovered	Retrieved from drag head during dredging	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	**N/A**

Images of object

Scale 200 mm

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
This shoe sole is likely to be from a men's pointed leather shoe. It measures 270 mm in length, 85 mm at its widest point and between 5 and 7 mm thick. The underside of the sole has horizontal holes for the stitching.
Interpretation
The length of the shoe sole is 270 mm, this converts to a UK shoe size of 8 or 8.5. The stitching holes are visible on the underside of the sole. This suggests that this is likely to have been the inner or mid sole of the shoe, with the outer sole and upper leather stitched around it. The pointed toe and flat profile mean it is likely to have been from a classic pointed toe leather shoe. The shoe may have been lost or discarded overboard, or alternatively may have lost or discarded terrestrially and washed out to sea.

Period	19th century - modern	**Date Range**	19th century - modern

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL4_0014	Cannonball	
Date of Discovery	04/10/2016	
How Discovered	Retrieved from drag head during dredging	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description			
This iron cannon ball measures 146 mm in diameter, and weighs 14.5 kg or 32 lb.			
Interpretation			
Cannonballs are a common find, especially in areas such as Portsmouth, with a long naval history. The cannon ball weighs 32 lb which would be from a 32 pounder cannon.			
Period	Medieval – post-medieval	**Date Range**	Medieval – post-medieval

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL4_0015	Flag pole	
Date of Discovery	04/09/2016	
How Discovered	Retrieved from drag head during dredging	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	**N/A**

Image of object

Scale 200 mm

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
The object is made from both wood and copper. It measures 660 mm in length, the shaft is 17 mm in diameter and the top end is 38 mm in diameter. The shaft is wooden as is the end, which has a two ring design etched into the top. There are two collars, both made of copper and have a single ring and a double ring design etched into both. There is a ring of pale green staining roughly two thirds the way down the shaft, which may suggest a third copper hoop was present.
Interpretation
A possible interpretation for the object is that it is a small flag pole that would have been positioned over the stern of a vessel. These are often found on motor launch vessels, and a commonly seen on modern day yachts. The original interpretation of the object was a walking stick, although this may still be the case, the length of the object is too short, although the end of it is clearly broken.

Period	20th century	**Date Range**	20th century

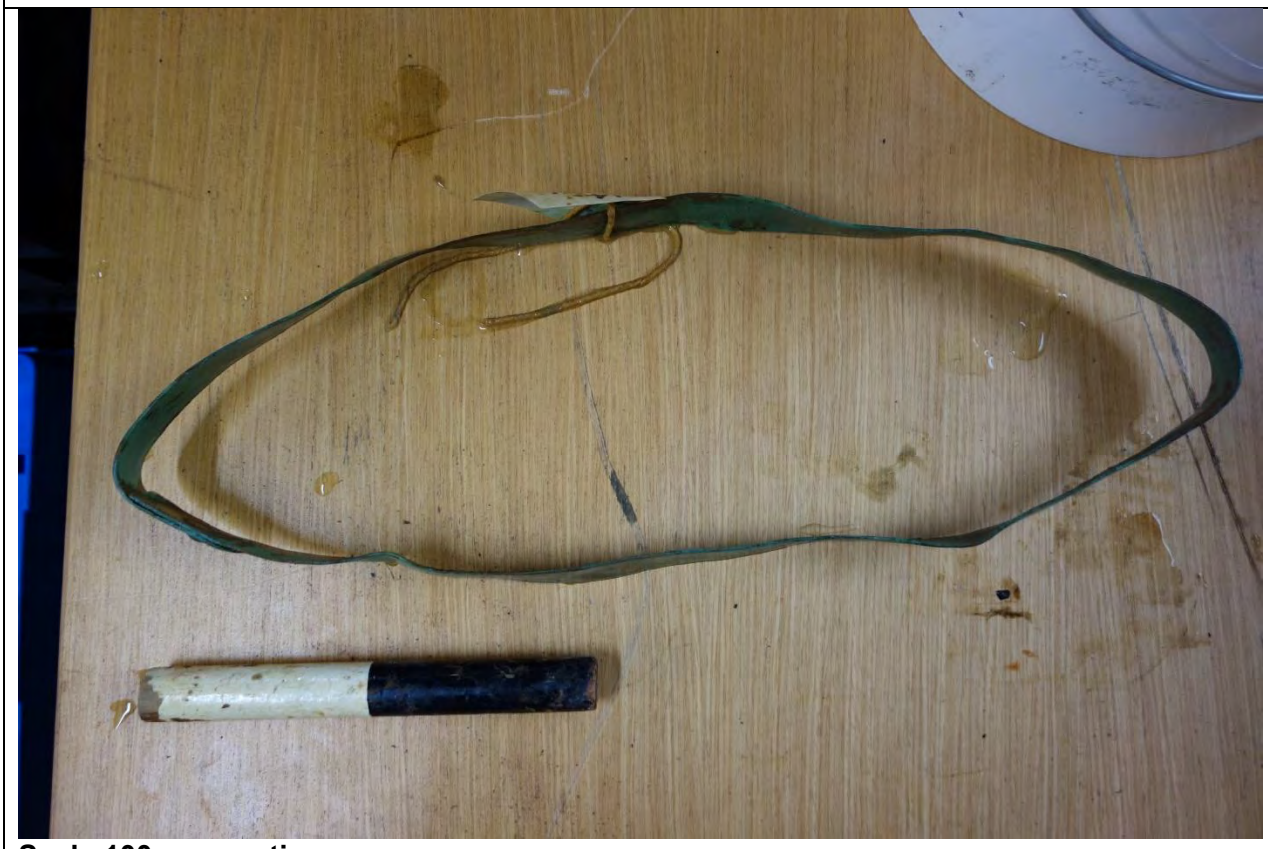
Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL4_0016	Copper hoop	
Date of Discovery	04/09/2016	
How Discovered	Retrieved from drag head during dredging	
Position of Discovery (British National Grid)	..... E	..... N

Location Map	**Anomaly Image**
N/A	**N/A**

Images of object



Scale 100 mm sections

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
The object is likely to be made from copper. The hoop has a circumference of 1063 mm, a width of 31 mm and a thickness of around 1 to 1.5 mm. Where the two ends meet there is a single rivet holding them together.
Interpretation
The hoop may have been the hoop from a barrel. Commonly these hoops were made of copper and held together by a rivet. While this would have been a relatively small barrel, it was a common method of storing supplies and goods for trade. Some uses for a barrel may include the maturing of alcohol, or the storage of water, fuel and dry goods. With barrels being hand made by the cooper, barrels could be sized dependant of their purpose. The use of barrels has gone on for hundreds of years and is still used today, commonly for the maturing of alcohol such as wine and whiskey. Alternatively, it could be a tension hoop from a drum, used to keep the skin in place and under tension.

Period	Medieval - modern	**Date Range**	Medieval - modern

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL4_0017	Martini-Henry bullet	
Date of Discovery	04/09/2016	
How Discovered	Retrieved from drag head during dredging	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
The bullet measures 32 mm in length and has a diameter of approximately 11.5 mm (0.452”). It has two greasing grooves towards the base and is made of lead.
Interpretation
The bullet belongs to a Martini-Henry rifle, which was a breech-loading single shot rifle. There were four versions of the Martini-Henry produced between 1871 and 1889. Although production ended in 1889 they remained in use up until the First World War, and were even used in war as later as the Soviet-Afghan war ending in 1989. The Martini-Henry became an important weapon during the times of the British Empire, featuring in many colonial wars, and it is best remembered for its use in the Zulu war in 1879. The bullet would have been wrapped in a thin paper and featured a brass cartridge. Earlier versions were rolled brass, which often got stuck in the chamber, so later versions were drawn brass. The charge in the cartridge was black powder. Very large numbers of these guns were produced and some are still in use today by shooting enthusiasts.

Period	Modern	**Date Range**	c. 1871 - modern

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL4_0018	Balance weight	
Date of Discovery	04/09/2016	
How Discovered	Retrieved from drag head during dredging	
Position of Discovery (British National Grid)	..... E	..... N

Location Map	**Anomaly Image**
N/A	**N/A**

Images of object

Scale 100 mm sections

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
This object is made from cast iron. It measures 111 mm in height, 83 mm at its widest diameter and weighs 6 pounds or 2.7 kg. The base is flattened and is 45 mm in diameter. The teardrop shape narrows to 36 mm in diameter at the top, in which there is a hole, which appears like two holes joined together.
Interpretation
A possible interpretation for this object is that it is a counter balance weight from a hanging slide balance scale. The weight would be attached to the balance arm using a small chain with a hoop around the balance arm to allow it to slide up and down. Along the balance arm there would be units of weight. On the other end of the balance arm would be a hook, from this, goods could be hung and weighed. This sort of scale was common on board all merchant ships and would be found at the docks, shops and manufactures to ensure that they were getting a fair deal. The use of scales is not new, but dates back to before 2000 BC. A common image from Egyptian hieroglyphics is one of a pan balance scale, symbolising justice. All scales in use up until the seventeenth century would have been a variation of the balance scale.

Period	Medieval – late post-medieval	**Date Range**	Medieval – late post-medieval

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL4_0019	Copper pole top	
Date of Discovery	08/09/2016	
How Discovered	Retrieved from drag head during dredging	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	**N/A**

Images of object

Scale 200 mm

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Scale 100 mm section

Description
The object is made of copper or a copper alloy. It measures 167 mm high, the base has a diameter of 34 mm and is socketed with an internal diameter of 30 mm. The shaft is 62 mm high leading to the ball, which is 80 mm in diameter. On top of this is a three sided spike which is 38 mm high. The top of the ball, below the spike, has become slight crushed inwards. Below the ball there is a small hole measuring 6 mm in diameter.

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Interpretation			
The object's use is unclear, although it appears to have been ornamental over functional. One interpretation is that it is a flag pole topper, a socketed, metal decoration that would have slotted on to the top of a flag pole. Alternatively, it may have been the topper for a fence or possibly a weather vane. Another possibility is that it was the top off a Jack staff on a ship – Portsmouth Museum has indicated that there is a similar object in their military history collection.			
Period	Post-medieval - modern	**Date Range**	Post-medieval - modern

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL4_0020	Rubber ball	
Date of Discovery	08/09/2016	
How Discovered	Retrieved from drag head during dredging	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	**N/A**

Images of object

Scale 100 mm sections

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
The object is a toy rubber ball, measuring 64 mm in diameter. The word “OSMOND” which is possibly the manufactures name is visible, on the opposite side is “Made in IN…”
Interpretation
This is a modern toy ball, possibly a child’s or dog’s toy. It is likely to have been lost overboard or more likely to have been washed into the sea.

Period	Modern	**Date Range**	Modern

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

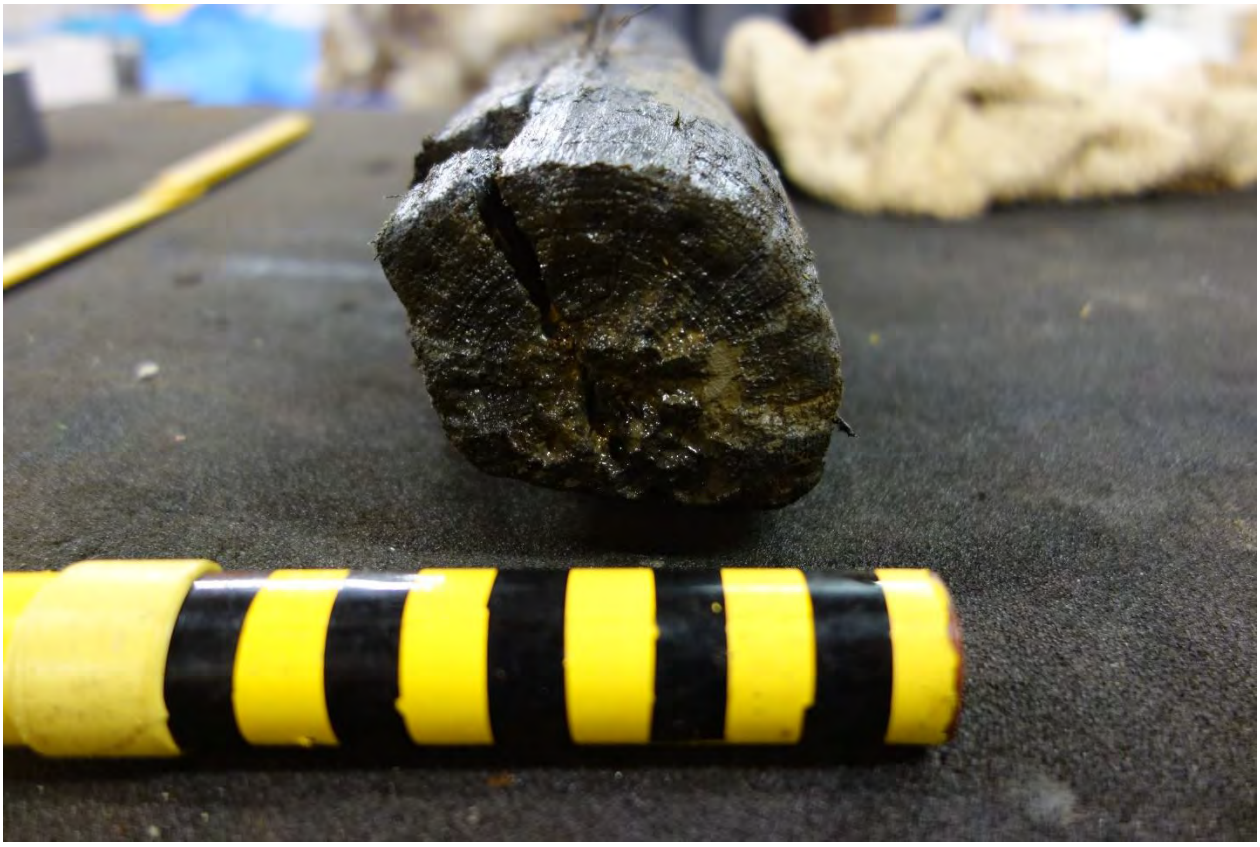
UID **BWL4_0022**	Worked timber	
Date of Discovery	28/08/2016	
How Discovered	Retrieved from drag head during dredging	
Position of Discovery (British National Grid)	**…. E**	**…. N**
Location Map	**Anomaly Image**	
N/A	**N/A**	

Images of object

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form



Scale 200 mm

Description
This timber has a maximum length of 490 mm, 82 mm wide and 70 mm high. It has two partial treenail holes measuring 24 mm and 25 mm in diameter, with one further treenail *in situ* measuring 24 mm. All of the treenails are positioned on the edge of the timber. The profile of the timber is partially rounded, this may be natural or evidence of working, the timbers surface is in poor condition and exposure has led to attacks by wood boring organisms.

Interpretation
Part of a longer timber for a ship or wharf structure.

Period	Unknown	**Date Range**	Unknown

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID **BWL4_0023**	2 x Glass bottles	
Date of Discovery	28/08/2016	
How Discovered	Retrieved from drag head during dredging	
Position of Discovery (British National Grid)	**…. E**	**…. N**
Location Map	**Anomaly Image**	
N/A	**N/A**	

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Image of object

Scale 200 mm

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
The taller of the bottles measures 285 mm in height and 78 mm is diameter at the base. The bottle is of clear glass and reads “Cowell’s Table Waters, Goole” in moulded letters. The second of the bottles measures 220 mm in height and 80 mm in diameter. The bottle reads “Portsmouth, Cooperative Milk” in moulded letters.

Interpretation
Both bottles are relatively modern in date, with milk first being bottled in Britain in 1880 by the Express Dairy Company, and they are likely to have either been dumped or washed into the sea.

Period	Modern	**Date Range**	c.1900-1980

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID **BWL4_0024**	Drainage pipe	
Date of Discovery	28/08/2016	
How Discovered	Retrieved from drag head during dredging	
Position of Discovery (British National Grid)	**…. E**	**…. N**
Location Map	**Anomaly Image**	
N/A	**N/A**	

Images of object

Scale 200 mm

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
This piece of ceramic measures 165 mm in length and 115 mm wide, it is curved and has a remaining diameter of 100 mm. It has a glazed red finish and a maker's stamp on the outer face. The stamp reads: "Sharp Jones Parkstone Dorset".

Interpretation
This is a fragmentary piece of pipe, that would have been used for drainage. The company Sharp Jones is part of the Bourne Valley Pottery and was established in 1853 at Branksome, Dorset. In the later times the company started to produce bricks and drainage pipes until the company's closure in 1958. It is likely to have been dumped into the sea as part of a larger disposal.

Period	Modern	**Date Range**	1853-1958

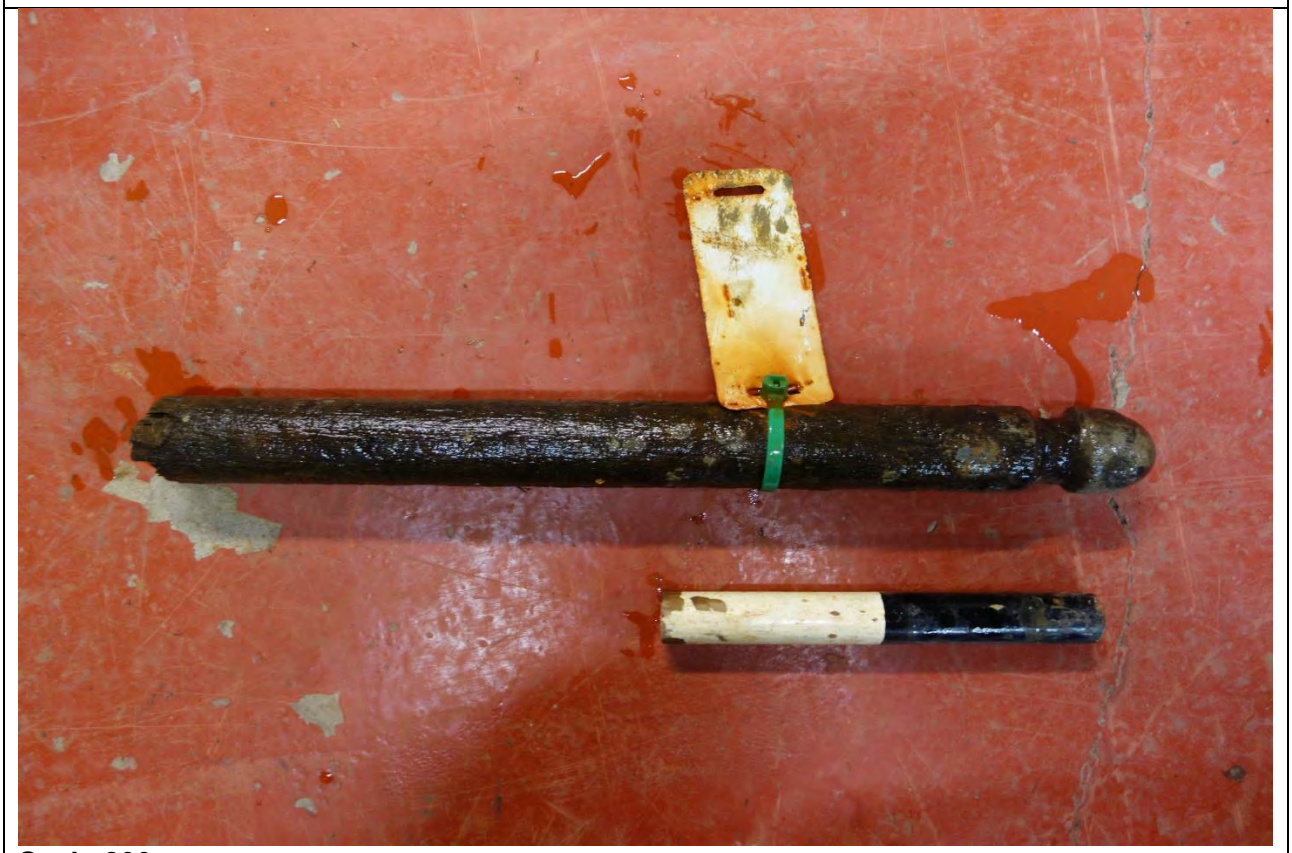
Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL4_0025	Worked wood	
Date of Discovery	04/10/2016	
How Discovered	Retrieved from drag head during dredging	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	**N/A**

Images of object



Scale 200 mm

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
The object is a length of straight grained wood, it has been rounded and smoothed. It measures 450 mm in length and a diameter of 40 mm. One end is broken, and the other end has been worked into a smooth, rounded end. The rounded end is 33 mm long and then there is a groove cut into the wood. The groove is equally worn, and possibly cut on a form of lathe.
Interpretation
This piece of worked wood has no distinguishing marks or features along it. With exception of the rounded end. Possible interpretations for its use have been a rolling pin or a piece of furniture, possibly a chair or table leg that has broken and been discarded.

Period	Post-medieval - modern	**Date Range**	Post-medieval - modern

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL6_0001	Two cannonballs	
Date of Discovery	19/10/2016	
How Discovered	Recovered from the drag head aboard the dredger *Reynaert*	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
Both cannonballs are iron. One has a diameter of 144 mm and weighs 28.5 lb or 12.9 kg. The other has a diameter of 146 mm and weighs 31 lb or 14 kg. Both are damaged with the smaller of the two showing more damage than the other.
Interpretation
These two cannonballs are likely to be from 30 and 32 pounder cannon. 30 pounder cannon were commonly used by the French, while 32 pounders were often British and Spanish sizes, although this does vary. With Portsmouth's naval history there are a number of reasons for them to be found, such as being fired during training or battle, lost or discarded.

Period	16th – 17th century	**Date Range**	16th – 17th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL6_0002	Three cannonballs	
Date of Discovery	21/10/2016	
How Discovered	Recovered from the drag head aboard the dredger *Reynaert*	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of objects

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
Three cannonballs of varying sizes, all made of iron. One has a diameter of 180 mm and weighs 51 lb or 23.1 kg. The middle sized cannonball has a diameter of 144 mm and weighs 28.5 lb or 12.9 kg. The smallest of the three measures 90 mm in diameter and weighs 9.5 lb or 4.3 kg.
Interpretation
This cannonball find highlights the variety of guns used on board vessels during the period. With a probable 52 pounder, a 30 or 32 pounder and a 6-pound gun all represented here. A 52-pound cannonball is very large, and for comparison, the largest guns on the 104 gun first rate ship of the line HMS *Victory* were only 42 pounders. A 30 or 32 pounder cannon is a relatively large gun, while the 6 pounder would have been a common gun to find and would have been used by merchantmen and the navy.

Period	16th – 17th century	**Date Range**	16th – 17th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL6_0003	Two cannonballs	
Date of Discovery	22/10/2016	
How Discovered	Recovered from the drag head aboard the dredger *Reynaert*	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of objects

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description			
Two cannonballs made from iron. The larger of the two has a diameter of 146 mm and weighs 31 lb or 14 kg. The other has a diameter of 130 mm and weighs 20 lb or 9 kg, and has some damage which suggests it would have originally weighed more.			
Interpretation			
These two cannonballs are likely to be from a 32 pounder cannon and a 24 pounder. Both are common sizes of gun, and probably would have been used on warships, as the size and weight of the guns would have limited the amount of cargo that could be carried by a merchant ship.			
Period	16th – 17th century	**Date Range**	16th – 17th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL6_0004	Cannonball	
Date of Discovery	22/10/2016	
How Discovered	Recovered from the drag head aboard the dredger *Reynaert*	
Position of Discovery (British National Grid)	**…… E**	**…… N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
A single iron cannonball measuring 118 mm in diameter with a weight of 19 lb or 8.6 kg.
Interpretation
With only minor damage to this cannonball it is possibly a 20 pounder. A 20 pounder gun is uncommon for a ship and it may have been for a 20-pound field gun, although some field guns would have been adapted and used on board ships.

Period	16th – 17th century	**Date Range**	16th – 17th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL6_0005	Bar shot	
Date of Discovery	01/11/2016	
How Discovered	Recovered by *Reynaert* during dredging	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
The object is an iron bar shot measuring 400 mm in total length. The short at either end have diameters of 120 and 110 mm and widths of 35 mm. The bar has a diameter of 40 mm. The total weight of the shot is 8.8kg or 19.4lbs.
Interpretation
Bar shot was a specialist form of shot fired from cannons from the 15th century. There are many different styles of bar shot, including chain shot. The shot at either end can be flat such as the example here, half balls or full ball. They would be connected by either a solid bar or chain. In the case of the chain, the chain links are standard chain and the length can vary greatly, with up to 6 feet of chain being used. With other types of chain link the links may lock out once fired, effectively making it a solid bar shot. The overall effect of the weapon remains the same. Upon leaving the gun barrel, the bar shot would begin to spin, targeting the shot towards riggings, sails, mast and crew would not only cause extensive damage to the enemy ship but also demoralise the crew and possible immobilise the ship completely. The are many variations of bar shot and chain shot. The diameter of this shot would suggest it may have been from a small culverin type gun. It shot was an isolated find so may have been fired, discarded or lost while in Portsmouth.

Period	Post-medieval	**Date Range**	15th – 19th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL6_0006	Two cannonballs	
Date of Discovery	22/12/2016	
How Discovered	Recovered during dredging by *Reyneart*	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
Both cannonballs measure 154 mm in diameter.
Interpretation
The diameter of the cannonball converts to approximately 30 pounds. A relatively large shot weight, this is more likely to have been used by a naval vessel, with a 30-pounder cannon being used on the main gun deck on larger warships. Large numbers of cannonballs are being found within Portsmouth harbour which shows the long running history of naval presence in the area. It is likely to have been discarded or possibly fired.

Period	Post medieval	**Date Range**	16th – 19th century

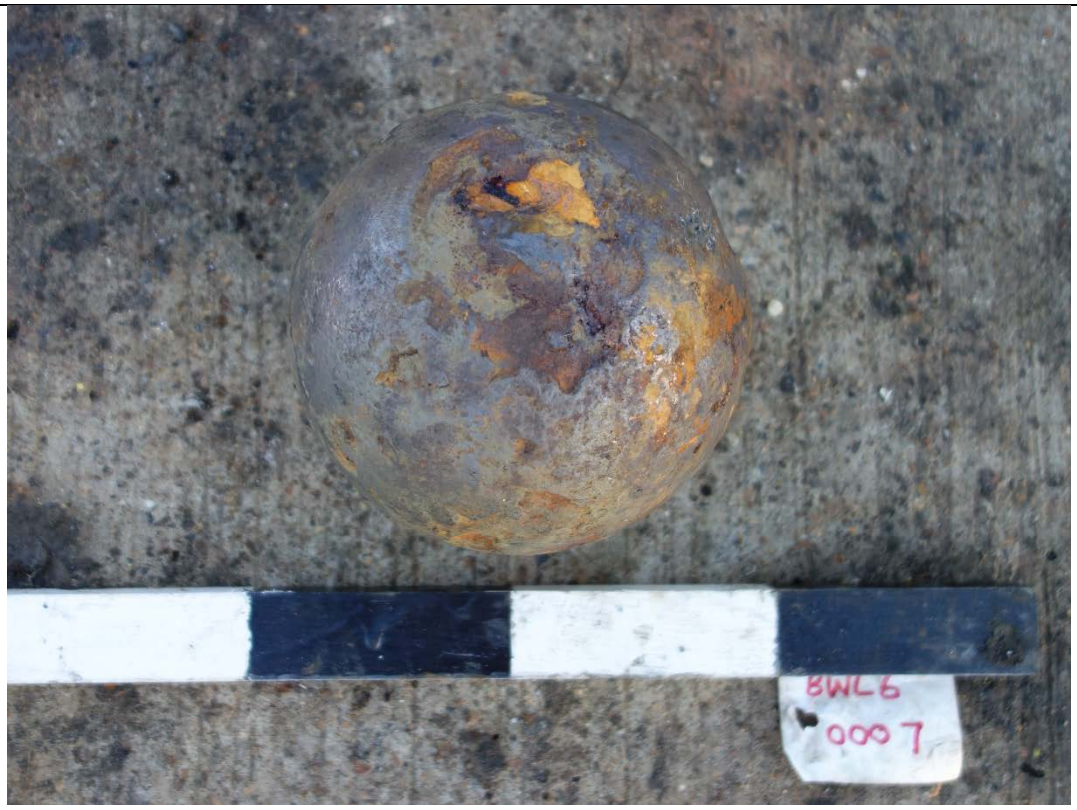
Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL6_0007	Cannonball	
Date of Discovery	22/12/2016	
How Discovered	Recovered during dredging by *Reyneart*	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Images of object



Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description			
Cast iron cannonball measuring 152 mm in diameter.			
Interpretation			
The cannonball's diameter suggests that it would have been used in a cannon rated 30 or 32 pound. This is a large sized cannon, commonly found on larger warships, although some smaller military vessels may have carried small numbers. It is probable that this cannonball was either discarded or it may have been fired.			
Period	Post medieval	**Date Range**	16th – 19th century

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL6_0008	Human bone
Date of Discovery	02/11/2016
How Discovered	Recovered from the draghead of *Reynaert.*
Position of Discovery (British National Grid)	n/a see image below

Location Map

Red dots indicate the position of the *Reynaert* between 8am and 10am on 2nd November with associated dredge tracks

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Object photographs

Description

Facial bones (maxilla, malars, nasal bones) and frontal vault (all articulated) of an adult male.

Interpretation

Most of teeth are missing but eruption and level of wear suggests the individual aged around 25-35 yr. There are the remnants of moderate calculus deposits (calcified plaque) on the remaining teeth, and evidence for dental caries in the cervical area of one molar. The lesions suggest a lack of dental hygiene and a high carbohydrate diet (e.g. stews, pottages, bread). There are no visible indications of dental interventions (though the photographs are slightly out of focus and not all angles are covered). The individual had a very distinctively shaped face with large, squared eye sockets and a very broad nasal aperture. On current evidence it is unlikely to be a modern skull; possibly Post-medieval or earlier.

Period	?Post-Medieval or earlier	**Date Range**	Pre *c*. 1900

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Temporary Exclusion Zone review

Since its discovery at 10.10am on 2/11/2016, a Temporary Exclusion Zone has been in place which covers the known location of the *Reynaert* when the find could have become lodged in the draghead (see Location Map). This, with a 100m buffer covers a very large area *c*.1.5 x 0.5km. The police were also informed and Hampshire Constabulary collected the remains (on 2/11/2016) and are now undertaking an investigation. The police have not imposed any restrictions on work in the area.

The method of discovery (during an inspection of the draghead) is considered extremely fortuitous and raises the likelihood that other associated remains (human skeletal material), if present, may have been dredged and redeposited at the dumping ground. The levels at which the dredging has reached are *c*. 4-5m below that before the work commenced. Interestingly they correspond roughly to the levels from charted depths on a 1947 chart, meaning that 4 to 5m of sediment have accumulated in the area since that time. This confirms that the skull is unlikely to be modern. Cross referencing the anomaly locations recorded prior to the commencement of dredging (Maritime Archaeology Ltd. 2007) is therefore unlikely to prove fruitful (as the anomalies have now been investigated and/or removed). Geophysical data (multibeam and magnetic data) was collected prior to, during and after the discovery and it is this data that has been reviewed in order to try and locate any material that might be associated with the find given that the most likely (although not only) possibility is that the skull derives from a shipwreck. It is noted however that if a shipwreck were present at the same location the material would likely have been recovered and reported through the protocol.

Another possibility is that the skull is an isolated find. Being a light object the find could potentially become redeposited and/or moved within mobile marine sediments, possibly from a nearby wreck site. There are three recorded wreck sites (MAL 2007) near the discovery area two of which are based on “documentary evidence” (MA121106 and MA12152 and the third MA12001 described as a known location wreck *Roway*, a dredger that sank in 1967 (see multibeam image below). The *Roway* can be ruled out due to its date and no firm evidence exists about the other two sites. Either way the recorded location of all three of these wreck sites (see geophysical data images below) are not within the dredging area and would not be affected by continuation of dredging within the TEZ.

As of 4/11/2016 the following has been undertaken:

- A review of photographs of the skull by osteologist (Jacqui McKinley)
- Locating the position of the *Reynaert* during the discovery
- Obtaining further multibeam data of the site (2/11/2016)
- Review of pre-dredge and post-dredge multibeam data
- Review of TSS and Subtem (magnetic data)
- Review of known documentary evidence

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Review of Geophysical data

The data were provided to WA as two .pts files.

The multibeam echosounder data were analysed to identify any unusual seabed structures that could be shipwrecks or other anthropogenic debris within the pre-find and post-find datasets. The data were gridded at 0.5 m and analysed using Fledermaus software, which enables 3-D visualisation of the acquired data and geo-picking of seabed anomalies.

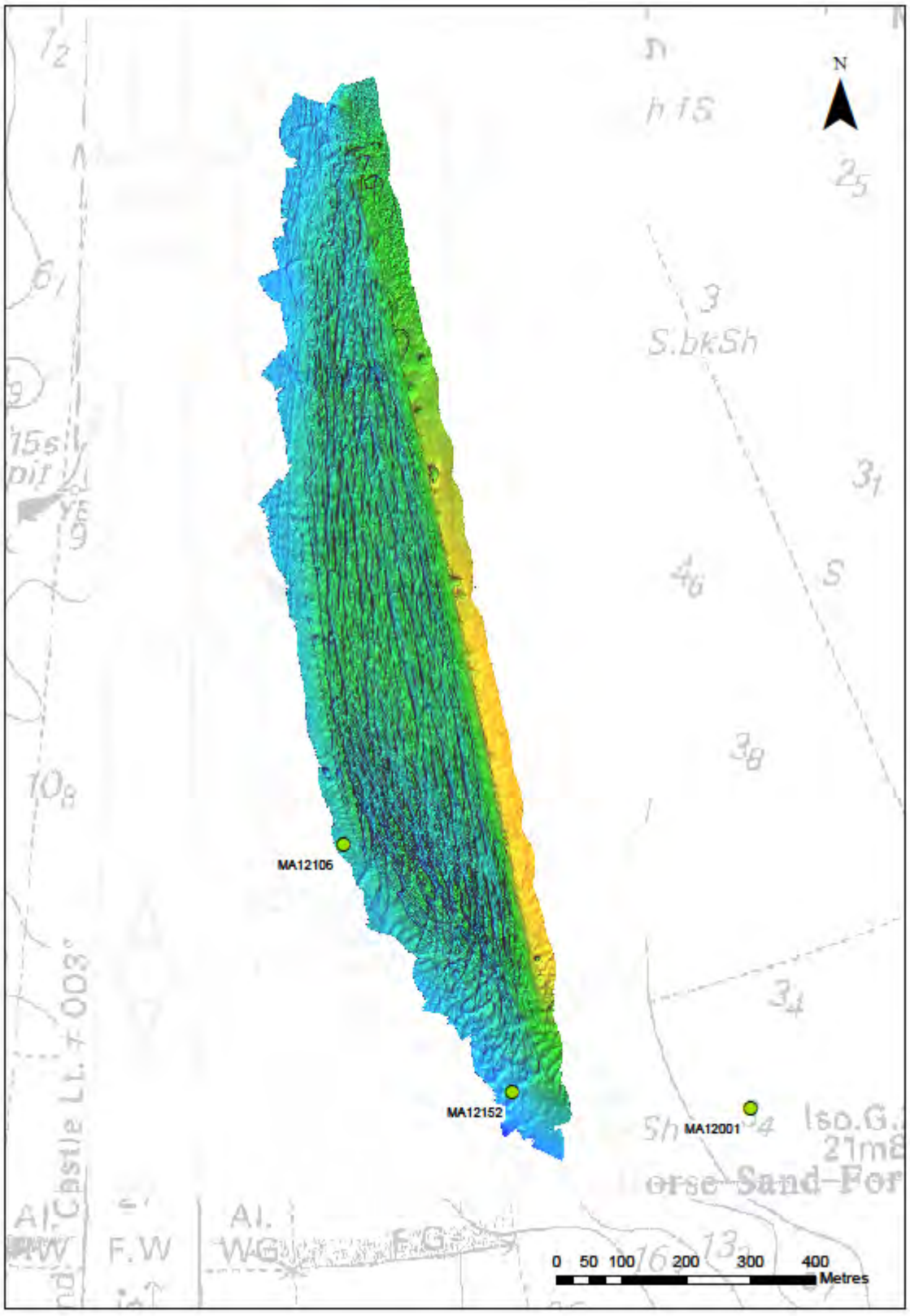
After interpretation of the two datasets no anomalies of archaeological interest were recorded. There is an area of slight disturbance to the north of the datasets which has most likely been caused by the dredging being undertaken.

The provided mag datasets were analysed and no anomalies of archaeological interest have been identified. Those observed at the eastern extents of the dataset are considered to be modern in origin.

All positions were recorded and expressed as OSGB 1936 British National Grid.

Queen Elizabeth Class Capital Dredging Project

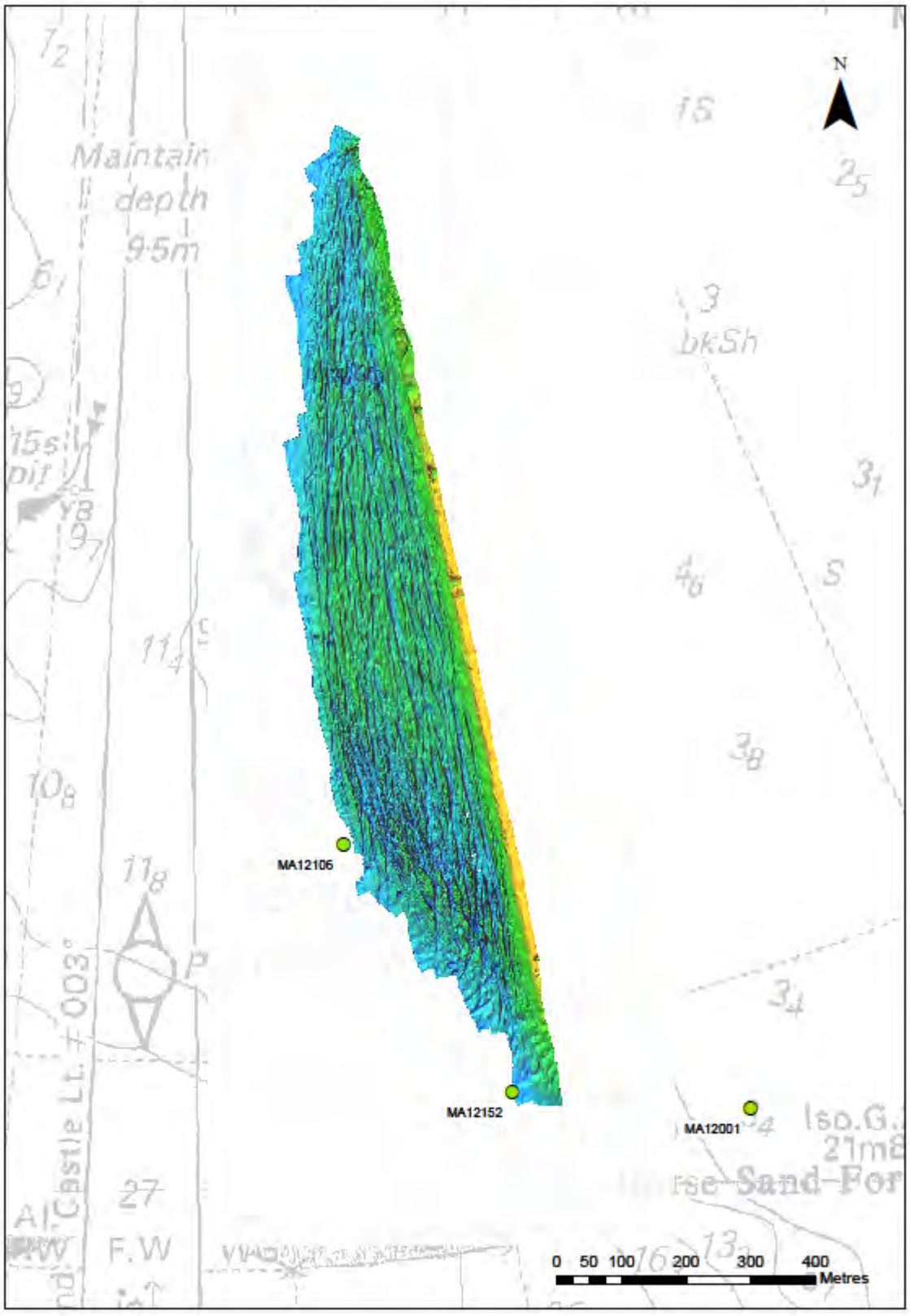
Archaeological Object Report Form



Pre dredge multibeam survey

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form



Post dredge multibeam survey

111320
04/11/2016
Draft Version 01

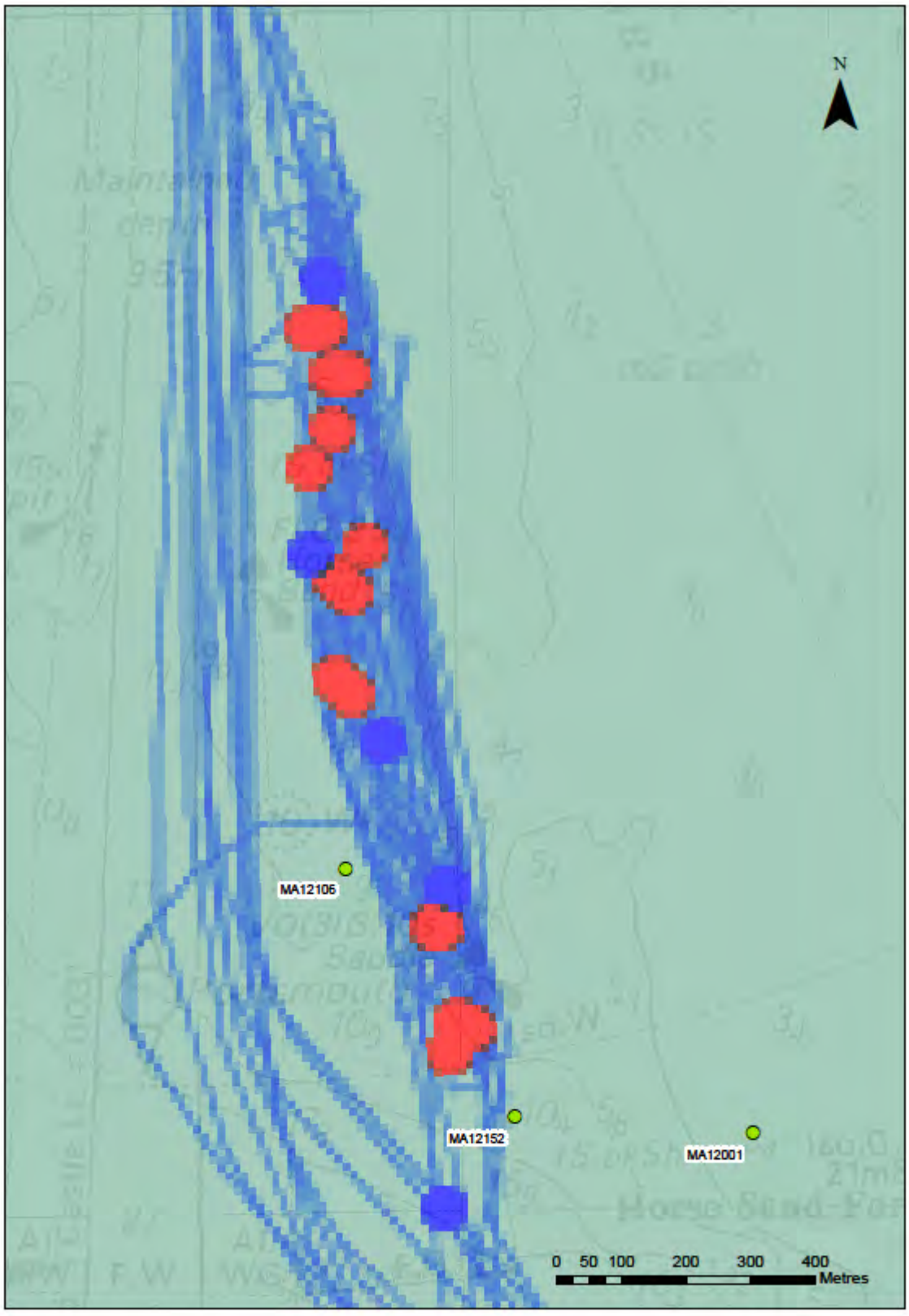
Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Pre dredge magnetic (Subtem and TSS) survey

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form



Closeup of *Reynaert* location and dredge tracks

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Recommendations

Based on the difficulty of locating the findspot and the current working methods, it is recommended that the TEZ is removed with the following caveats:

- Increased vigilance will be undertaken by vessel crew whilst dredging the area
- Careful inspection of the draghead is undertaken
- The area is dredged in two zones, East and West for a period of one week
- The TEZ will be reimposed if further human remains are located

It is also recommended, subject to the investigations of the Hampshire Constabulary, that the skull be transferred to Wessex Archaeology where it can be properly inspected.

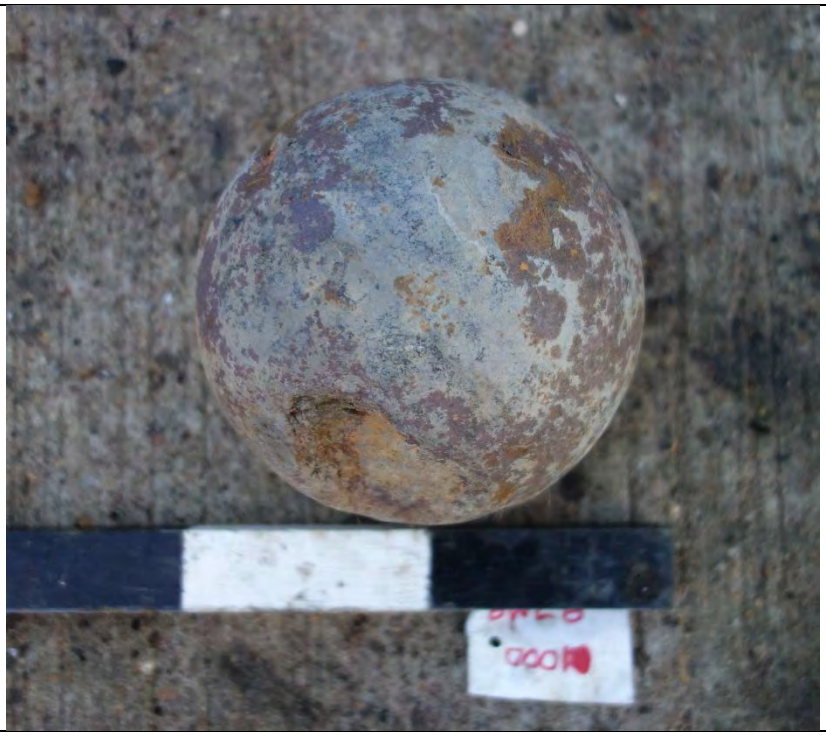
Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL6_0010	Cannonball	
Date of Discovery	22/12/2016	
How Discovered	Recovered during dredging by *Reyneart*	
Position of Discovery (British National Grid)	**…… E**	**…… N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object



Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description			
The cannonball measures 155 mm in diameter.			
Interpretation			
The diameter of the cannonball converts to approximately 31-32 pounds. A 32 pounder represents a larger size of cannon, and is likely to have been a naval gun, guns of such size are unlikely to been used by merchants due to the excessive size and weight of the guns. Large warships would often use 32 pounders throughout the main gun deck. Large numbers of cannonball are being found within Portsmouth harbour which shows the long running history of naval presence in the area. It is likely to have been discarded or possibly fired.			
Period	Post medieval	**Date Range**	16th – 19th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL6_0011	Cannonball	
Date of Discovery	22/12/2016	
How Discovered	Recovered during dredging by *Reyneart*	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
This cannonball measures 94 mm in diameter.
Interpretation
The diameter of the cannonball converts to approximately 7 pounds. A relatively small shot weight, this is more likely to have been used by a merchant vessel, although larger warships may also have carried smaller cannon on deck. Large numbers of cannonballs have been found within Portsmouth harbour which shows the long running history of naval presence in the area. The cannonball is likely to have been discarded or possibly fired.

Period	Post medieval	**Date Range**	16th – 19th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL6_0012	Ship's timber	
Date of Discovery	22/12/2016	
How Discovered	Recovered during dredging by *Reynaert.*	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description			
A fragment of timber containing a series of copper nails. The timber measures 780 x 100 mm and is 50 mm thick. The copper nails are 5 x 5 mm and have a centre to centre spacing of 80 mm.			
Interpretation			
This timber is likely to have been a part of a small boat, possibly part of the double diagonal boat discovered during dredging (BWL1_0069) although this is not confirmed. The small size of this fragment limits any possible interpretation of where on a ship this would fit, although it may be part of the framing or wale with the nails fixing the planking to the hull. It may be part of a small wreck previously discovered although it is more likely to be an isolated fragment.			
Period	Modern	**Date Range**	19th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL6_0013	Worked timber	
Date of Discovery	07/11/2016	
How Discovered	Recovered during dredging by the TSHD *Reynaert*.	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
A worked timber measuring 1330 mm in length with a maximum width of 200 mm. The timber is in very poor condition with much of one end being badly damaged and frayed. There are two patched of iron staining along one edge, but no evidence of iron fastenings. At the damaged end, there is a treenail hole, this extends through the whole of the timber and part of the treenail remains, blocking the other side of the hole, it has a diameter of 30 mm.
Interpretation
The timber is worked and could possibly be a ship's timber or alternatively part of a quayside structure such as piling. However, the damage to the timber prevents any positive identification. The only remaining evidence of timber working is the treenail hole found at one end, and the iron staining may suggest that it was joined or banded with iron. The timber may have been removed from a ship or quayside structure and discarded. With the condition of the timber being so bad any dating is very speculative.

Period	Post-medieval – modern	**Date Range**	c.18th-20th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL6_0014	Possible ship's timber	
Date of Discovery	07/11/2016	
How Discovered	Recovered during dredging by *Reynaert*.	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Treenail

Description
A possible ship's timber measuring 1350 mm in length with a maximum width of 270 mm and a thickness of 100 – 130 mm. There is a treenail measuring 40 mm in diameter running through the width of the timber features are noted. The timber is in a very poor condition with a large amount of fraying.
Interpretation
It is difficult to positively identify the timber due to its poor condition and lack of distinctive features. The presence of a treenail may suggest that this was a ship's timber, possibly replaced and discarded during a refit. Although treenails have been used in the construction of quayside features such as pilings which cannot be ruled out. The date range for the timber is purely speculative.

Period	Post-medieval – modern	**Date Range**	c.18th-19th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL6_0015	Cannonball	
Date of Discovery	22/12/2016	
How Discovered	Recovered during dredging by *Reyneart*	
Position of Discovery (British National Grid)	**…… E**	**…… N**

Location Map	**Anomaly Image**
N/A	N/A

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
The cannonball measures 139 mm in diameter.
Interpretation
The diameter of the cannonball converts to approximately 22 pounds. A cannon of this size could have been fitted to a number of ships, it may have been used as a larger gun on board a merchant vessel, or equally it may have been used on a naval vessel. Large numbers of cannonball are being found within Portsmouth harbour which shows the long running history of naval presence in the area. It is likely to have been discarded or possibly fired.

Period	Post-medieval	**Date Range**	16th – 19th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL6_0016	Possible timber pile and two cannonballs	
Date of Discovery	07/12/2016	
How Discovered	Recovered during dredging on board *Reynaert*.	
Position of Discovery (British National Grid)	**…… E**	**…… N**

Location Map	**Anomaly Image**
N/A	N/A

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
The timber is 1500 mm in length and has a semi-circular profile, with a smooth, flat base surface. The timber has a maximum width of 290 mm and a maximum height of 167 mm. One end is rounded, while the other is squared off with is possibly a joint cut in. One end of the timber survives well and has evidence of two iron bands, the bands have a width of 52 mm and there is two square profile holes associated which each band, each measuring 10 x 10 mm. The other end of the timber is damaged, losing part of the width from the timber and also the surface area which is now partially removed. The cannonballs measure 79 mm and 101 mm in diameter.
Interpretation
The flat surface on the timber, along with the iron banding, suggests that the timber was joined to another timber or structure. The circular shape of this timber may have been the rounded end of a structure or a fender for a structure such as timber piling. The joint at the other end of the timber would suggest that it was also joined to the structure at this end, extending its length beyond 1.5 meters, although there is no evidence of joinery such as nails except for some iron staining. The wood does not have a very dark patina as is expected with old timbers, also while the timber is damaged, it has not been exposed to wood borers or other marine life, probably making the timber more modern in date. Due to the damage to the timber, it is likely that this was the reason for its discard, possibly discarded as it was replaced. Alternatively, it may have become damaged and detached for a structure. The diameter of the cannonballs converts to approximately 4 and 9 pounds. Both are from reasonably small bore guns; both may have come from either naval or merchant vessels. The smaller shot may have come from either a large minion or a small saker, while the larger 9 pounder would likely be from a demi-culverin. Large numbers of cannonballs are being found within Portsmouth harbour which shows the long running history of naval presence in the area. It is likely to have been discarded or possibly fired. These are likely to be unrelated finds.

Period	Timber – Modern Cannonballs – Post Medieval	Date Range	Timber - c.19th century Cannonballs – 16th – 19th century

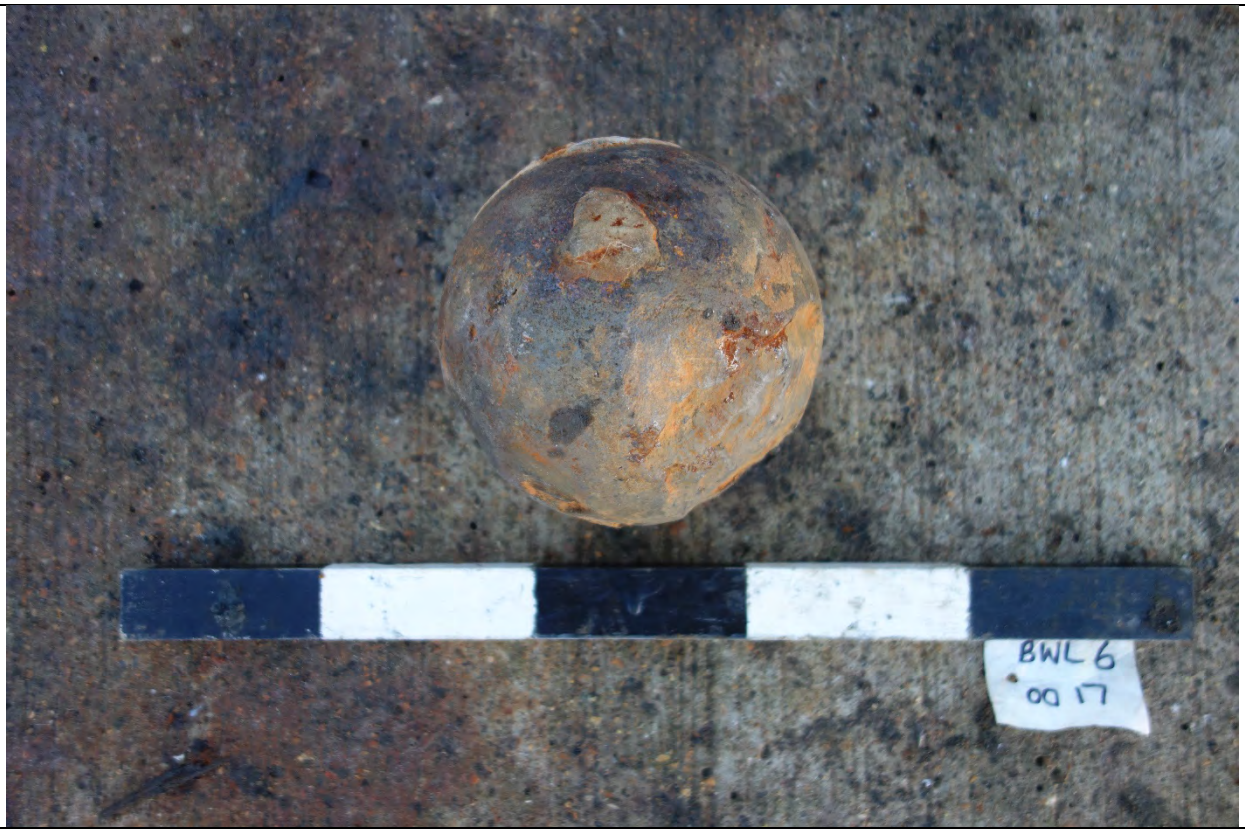
Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL6_0017	Cannonball	
Date of Discovery	22/12/2016	
How Discovered	Recovered during dredging by *Reyneart*	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Images of object



Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description			
This cannonball measures 155 mm in diameter.			
Interpretation			
The diameter of the cannonball converts to approximately a 32 pounder cannon. This was a large gun and would only have been fitted to large warships, although some smaller ships would have carried the 32 pounder carronade later in the 18th and early 19th century. A 32 pounder cannon on average would measure between 9 ½ and 10 feet in length with a weight approaching 3,000 kg, it would be capable of firing this cannonball some 2,000 yards. Large numbers of cannonball are being found within Portsmouth harbour which shows the long running history of naval presence in the area. It is likely to have been discarded or possibly fired.			
Period	Post medieval	**Date Range**	16th – 19th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL6_0018	Four cannonballs	
Date of Discovery	22/12/2016	
How Discovered	Recovered during dredging by *Reyneart*	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of objects

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
The cannonballs measure 103, 139, 154 and 155 mm in diameter. (Pictured in size order)
Interpretation
The diameters of the cannonballs convert to approximately 9 pounds, 22 pounds, 30 pounds and 32 pounds. The selection here shows the variety in cannon that may be carried on a single ship, although it is unlikely in this case that they are related finds. The smaller shot is from a 9 pounder, which may have been a demi-culverin, these would have been used on all types of armed shipping as the smaller bore gun would take up less deck space and weight. The larger shot are more likely to have been found on naval ships, where fire power outweighed the need for cargo space and larger more powerful guns were required. Large numbers of cannonball are being found within Portsmouth harbour which shows the long running history of naval presence in the area. It is likely to have been discarded or possibly fired.

Period	Post medieval	**Date Range**	16th – 19th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL6_0019	Ten cannonballs	
Date of Discovery	25/02/2017	
How Discovered	Recovered by grab and found during Quayside Archaeological Monitoring.	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of objects

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
Ten cannonballs, including stone and bar shot. (working form left to right, top to bottom.) • Iron shot, 140 mm / 5.5 in • Iron shot, 156 mm / 6.1 in • Iron shot, 140 mm / 5.5 in • Stone shot, 120 mm / 4.7 in • Iron shot, 118 mm / 4.6 in • Iron shot, 112 mm / 4.4 in • Iron shot, 114 mm / 4.5 in • Iron shot, 128 mm / 5 in • Iron bar shot, 86 mm / 3.4 in • Iron shot, 74 mm / 2.9 in
Interpretation
A selection of various sized cannonballs including examples of stone shot and bar shot. The cannonballs would have been used in a variety of guns ranging from a 3 pounder up to a 32 pounder. Warships of the time would have carried a wide range of calibres from small signalling guns to the large 32 pounder cannon. The stone shot is an earlier shot type, with use dating to around the 15th and 16th centuries. Stone shot would be carved by hand using chisels and picks with many being finished on board. The use of stone shot was phased out around the 1630s when iron became a more favourable choice. The bar shot was a type of shot designed specifically for damaging the rigging of ships, but would also do considerable damage to the ships structure and crew. Two cannonballs would be connected by an iron bar (partially remaining) and once fired they would rotate, creating a projectile cutting bar to slice through rope, canvas and anything else in its path. The cannonballs are unlikely to relate to each other to signify the location of a shipwreck; it is more likely that they have been either lost or discarded by various vessels while in Portsmouth harbour.

Period	Post medieval	**Date Range**	15th – 19th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL6_0020	Small boat tiller	
Date of Discovery	22/12/2016	
How Discovered	Recovered during dredging on board *Reynaert*	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
This is possibly part of a small boats tiller; it is made of wood and copper alloy. The shaft measures 340 mm in length with a smaller shaft measuring 111 mm long. Attached to the other end of the longer shaft is a piece of timber surrounded by a copper alloy. The copper alloy section is 153 mm x 94 mm x 60 mm and the timber extends out 143 mm and measures 92 mm wide.
Interpretation
It is possible that this object may be a part of a small boat's tiller, possibly a ship's boat or life raft. The materials would be consistent with boat tillers, but the object is difficult to conclusively interpret as one. The bracket seen close to the right angled join of the two metal shafts is a confusing component. It is likely that this represents discarded material, the bent shaft or broken timber end may have been the reason for its discard.

Period	Modern	**Date Range**	19th-20th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL6_0021	Quern stone	
Date of Discovery	30/12/2016	
How Discovered	Recovered during dredging by *Reynaert.*	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

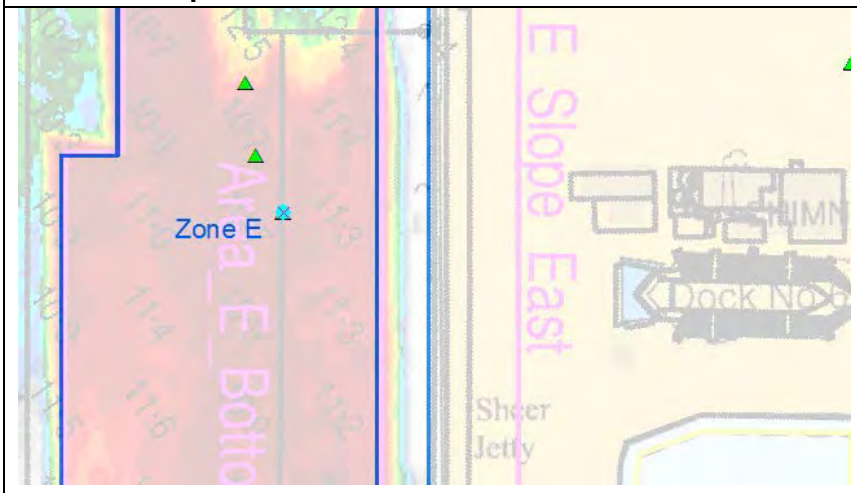
Description
A circular stone measuring 300 mm in diameter and 90 mm in depth. The stone is perforated with a square hole in the centre, the hole measures 60 x 60 mm. The stone weighs 15.3 kg or 33.7 lbs. The stone is limestone, possibly Kentish Ragstone, a hard form of limestone from the Kent area.
Interpretation
The object is a quern stone, an item used for the processing of grains. The quern stone has been used in forms since the Neolithic and while the size and form has changed, they are still used today. This is from a style known as a rotary quern. Comprising of two stones, the handstone and the saddle stone. The hand stone would generally be heavier in order to crush the grains, and would have a handle and a central hole in which to place the grain. The stone would be turned on top of saddle stone where the grain would fall through perforations. It is more likely that this is the handstone as there is no evidence of a concaved surface which would be expected from a used saddlestone. The small cut in the edge of the stone may have been where a turning handle would have attached. Due to the long running use of the quern stone it is difficult to accurately date without associated material, so the date range is entirely speculative. The stone may have been discarded, but it seems to have only minor damage which may suggest the item was lost. It is unlikely to have come from a shipwreck as no wrecks are known to be in the area and no further material was recovered.

Period	Post medieval	**Date Range**	c.15th-18th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL7_0001	Early 19th century Buoy	
Date of Discovery	01/12/2016	
How Discovered	Recovered during dredging by *Manu Pekka*	
Position of Discovery (British National Grid)	**462652.48 E**	**100845.23 N**

Location Map	**Anomaly Image**
	N/A

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Images of object

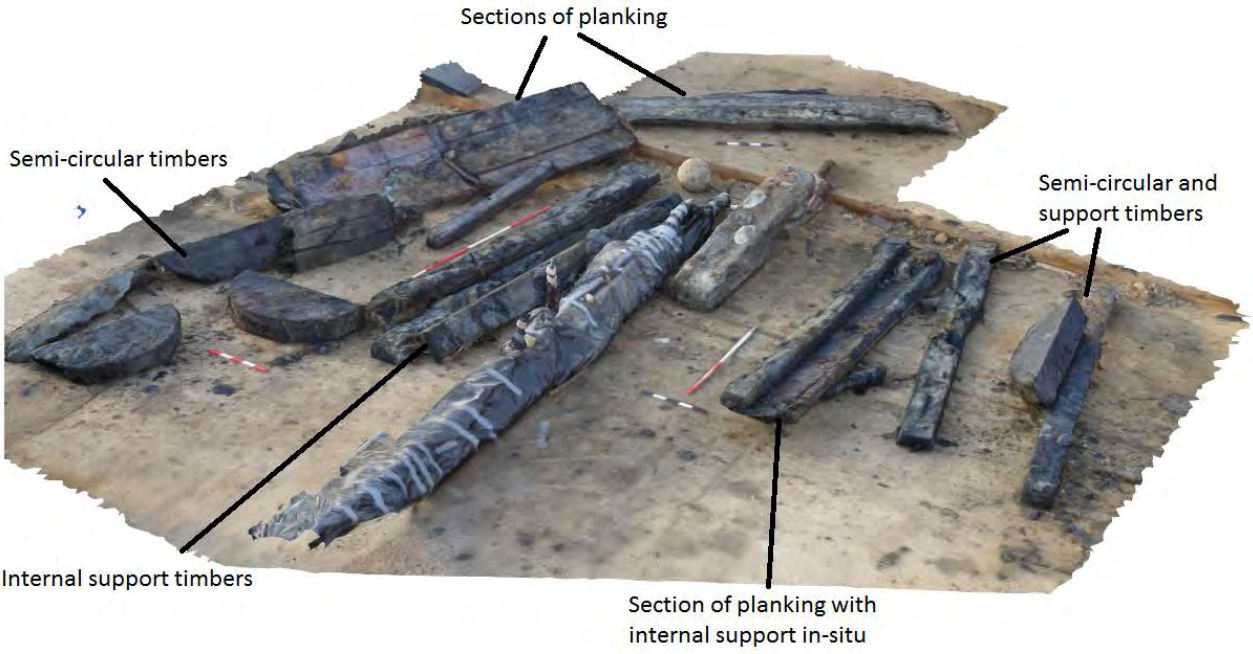
Section of the planking or staves, showing the copper sheathed outer surface

Showing the inside of the planking. Note the semi-circular timber still in situ to the top left of the image and the deep groove for the larger central iron hoop in the centre of the image.

Internal view of the planking showing two of the iron hoop grooves and overhanging copper sheathing at the bottom of the image

Rase marks seen on one of the semi-circular timbers

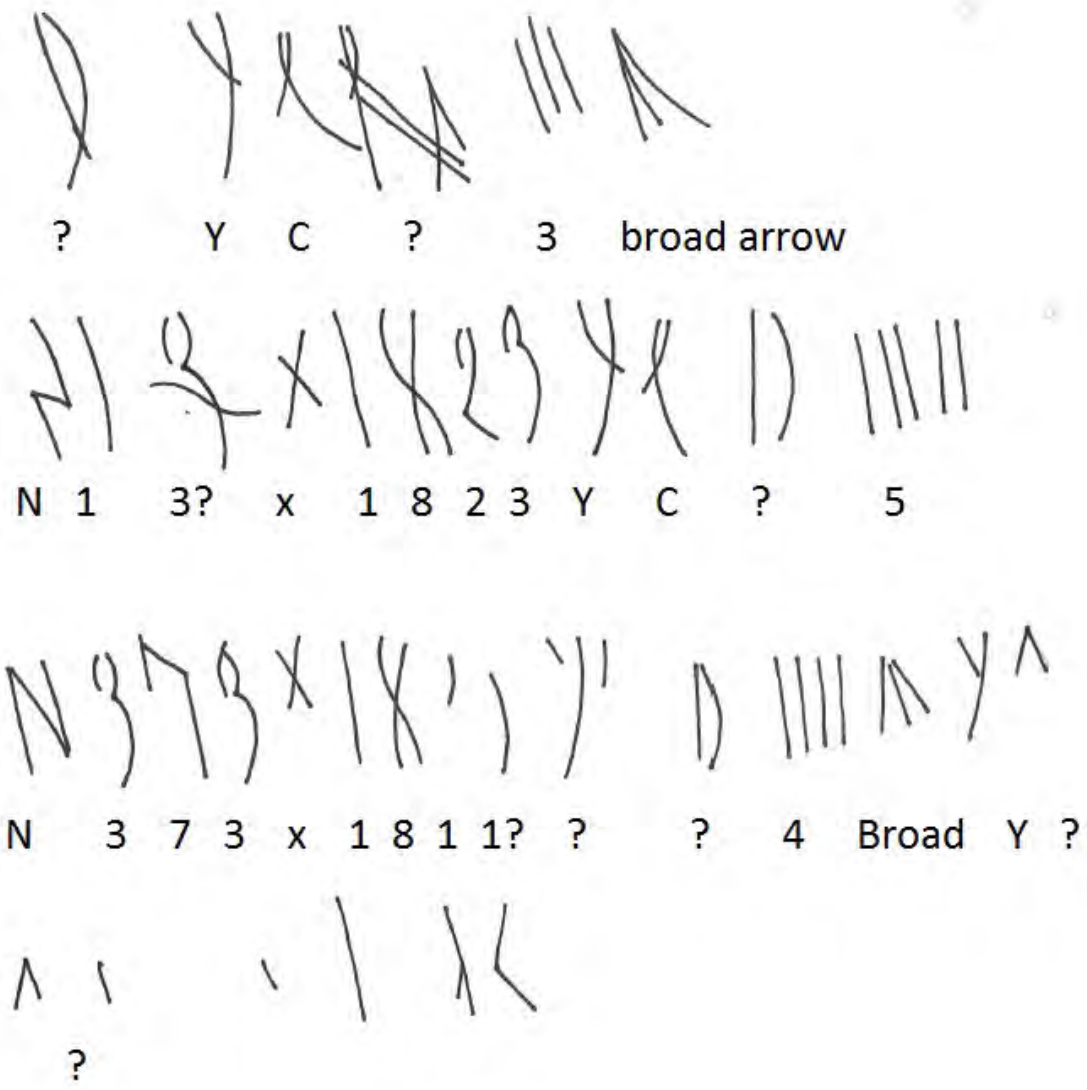
Copper sheathed outer face of one of the semi-circular timbers



Some of the additional timbers recovered

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form



Interpretation of the four sets of rase marks

Description

The object is very fragmented and was recovered in multiple parts. The parts include three rounded pieces, each represents a chord of a circle. Each timber tapers in slightly and each timber has rase marks. Each of the timbers has a width of 1235 mm and a height of 334 mm, the thickness at the base is 326 mm tapering to 190 mm at the top. The measurements of the other two timbers are very similar with thicknesses of 348 and 244 mm and 340 and 190 mm. All three of the timbers are copper sheathed on the curved outer face and have evidence of rope caulking remaining around the base of the rounded face. A fourth timber with rase marks is again a chord of a circle, but thinner and it does not taper. The timber has a width of 1224 mm, a height of 347 mm and a thickness of 235 mm. There were at least three more of this component type although the others showed no evidence of rase marks. One of these timbers was discovered partially attached to one of the chord timbers. They are positioned stacked one on top of the other, with the flat chords being positioned between the planking and the rounded chord.

The rest of the material has the appearance of large barrel staves. Measuring 3128 mm in length with each plank or stave measuring c.230 mm wide and 85 mm thick. The outer face of the planking is copper sheathed while on the inside of the planking there is evidence for five iron hoops that would have given the structure support. The iron bands had widths between 105 mm and 128 mm and depths of 10 mm and 35 mm, with the largest width and depth being the central band. Inside the barrel shape there was at least five longitudinal timbers running the whole length, likely for extra support to the structure. Each of these timbers measured approximately 3130 mm long with a width of 260 - 290 mm and a thickness of 120 mm. These timbers were positioned over the top of the internal iron hoops. It is likely that the object would have had a metal eye on one end or positioned along its length, yet the was no evidence of this. Should the object been complete and assumed to be symmetrical estimated dimensions give it a total height of 4.3 meters and a diameter of around 1.25 meters.

Interpretation

The timber object appears to be a large wooden buoy, either for mooring or navigation. Early wood buoys were constructed like wooden barrels; the wood staves would be held together with iron banding. Some of the earliest examples of this type come from the Dutch in 1358, using them as navigation aids in the rivers. The buoys were large cone shapes that could be anchored in place, British versions of the wood buoy soon followed, although using a different style, known as keg or can buoys, a linear shape with two flatten ends, much like a barrel. Navigation buoys were still a new concept and by 1818 there was only 73 buoys in the Thames river and approaches (US lighthouse society 2016). The use of wooden buoys continued on until around 1870 when iron began to take preference as a construction material.

None of the sections of planking from the main body of the buoy have any evidence of a mooring ring, and this is likely to suggest that it was probably a navigational buoy with the ring positioned on one of the ends. The timbers are sheathed with copper, covering all externally facing parts of the buoy. This would be to extend the life of the buoy, as a navigational marker it is important for the buoy to require minimal upkeep and be expected to last without excessive maintenance. The use of copper sheathing dates to the 18th century when the Royal Navy required additional protection for their ships from wood boring shipworm and gribble.

A notable feature on four of the timbers is the presence of inscribed timber marks, or rase marks. These inscribed marks are evidence of the management of timber within the Royal Dockyards, including Portsmouth from the late 18th century. During the Age of Sail when large

numbers of timber ships were being built, repaired and fitted out in Portsmouth, the vast quantities of timber required had to be managed and accounted for. The timber was brought in from Royal and privately managed forests, the timbers having already been carefully selected by an official from the dock yard known as the Purveyor (Atkinson 2007). Each timber would have to be numbered depending on species and dated. Additionally, the timbers would also be marked with the initials of the dock yard official processing the timbers, likely to be the Timber Master (from 1801 onwards), who would also mark the size in cubic feet and a broad arrow. This was known as a syntax, a commonly recognised series of marking that would identify each individual timber coming in to the Royal dockyard (Atkinson 2007). The process of timber marking can date back to the Egyptian's but this 'syntax' was carried out in all the Royal Dockyards during the late 18th and 19th centuries. Importantly this provides a lot of information about the finished object. Two of the syntax contain a broad arrow, this means that the timber was clearly owned by the Royal Navy and the finished buoy would have been also. Additionally, two of the syntax contain the date in which the timbers arrived at Portsmouth, one may read 1811, while the other clearly reads 1823. It can also be established that the timbers measured between 3 and 5 cubic feet when they arrived and are likely to have been checked over and accounted for by someone signing 'YC'. This process of management would have taken place with every timber brought into the dockyard with ships timbers being treated in the same way. Notably the timber markings in HMS *Victory* have been well documented during the ongoing restoration. HMS *Victory* was repaired and refitted several times throughout its history, with nine separate repairs or refits taking place between 1800 and 1830 (Atkinson 2007). When comparing the syntax from HMS *Victory* and the buoy timbers, there are several similarities that can be noted. The most notable being the initials of 'YC' which are present from both sources, although the ones on the Victory are followed by 'GG' (Atkinson 2007).

As this was a particularly large Royal Navy buoy, it is likely to have been a navigational marker in the approaches to Portsmouth or a mooring within the harbour itself. The markings on the timbers provide a huge amount of information of the object as a whole. The marked date on the timbers arriving in Portsmouth is 1811 and 1823, so it would have been built sometime after 1823 – unless it was repaired. However, the date 1811 is not clear and is suggestive, the gap between the two dates is 12 years, which is a large time period for seasoning timbers, it is possible that some of the markings have been lost and obscured the date of this timber. Alternatively the timber marked with 1823 may have been a later timber used for repair. The Broad arrow shows that they belonged to the Royal Navy and the syntax shows it was processed and likely manufactured in the Royal dockyard at Portsmouth. With so few buoys in England by 1818, it possibly makes this one of the earliest examples of a hollow wooden buoy in England. It is likely that the buoy went into disrepair, its positon well within the harbour may suggest that it was brought back into the harbour for repair or discard. With its date being so close to use of iron buoys it may have been later replaced by iron.

References

Atkinson, D. 2007. *Shipbuilding and timber management in the Royal dockyards 1750-1850: An archaeological investigation of timber marks*. University of St Andrews.

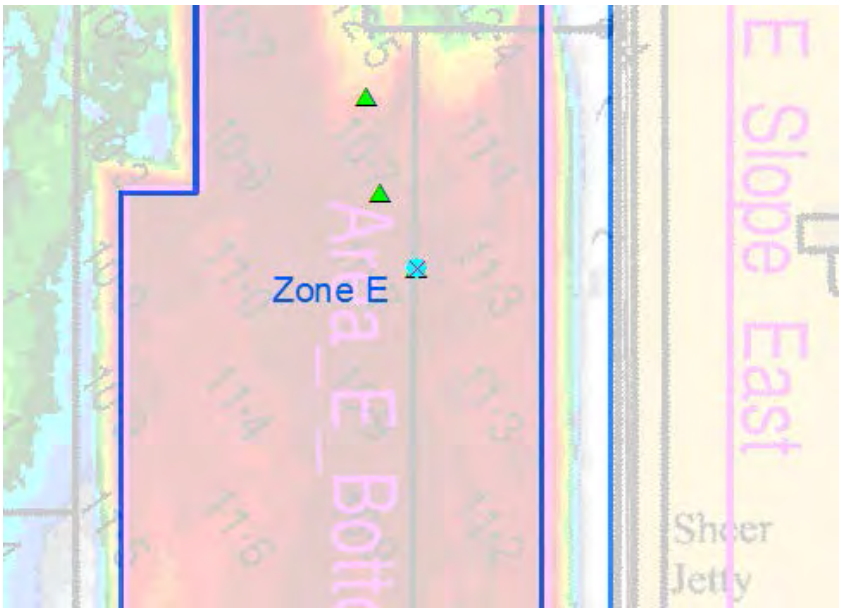
United States Lighthouse Society. 2016. *Buoys – Guideposts of the Sea*.

Period	Post medieval	Date Range	c.1823 - c.1870

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL7_0002	Elephant plaque	
Date of Discovery	01/12/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	**462652.48 E**	**100845.23 N**

Location Map	**Anomaly Image**
	N/A

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Image of object

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Archaeological Object Report Form

Description
This elephant has been cut from a sheet of hand hammered copper. The plate is 2 mm thick and has a maximum length of 292 mm and a maximum width of 184 mm. The eye has been drilled out and is 2 mm in diameter.
Interpretation
The elephant is likely to have been made for decorative purposes and may have been hung on a wall, but there is only one hole through which it could be attached to anything. The eye hole appears a lot cleaner than the rest of the metal, which may suggest that it was drilled out at a later date. Another depiction of an elephant has already been found during the Portsmouth dredging operations, BWL1_0042, was a plaque from the HMS Ganges shore establishment. The two finds were made approximately 200 m apart and it is possible that the two finds may be related but no conclusions can be drawn.

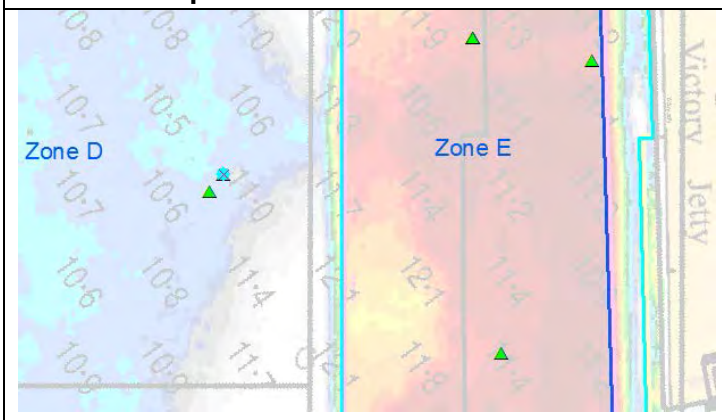
BWL1_0042. HMS *Ganges* plaque

Period	Modern	**Date Range**	19th-20th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL7_0003 BWL7_0004	Two Cannonballs	
Date of Discovery	11/12/2016	
How Discovered	Recovered during dredging on board *Manu Pekka*.	
Position of Discovery (British National Grid)	**462539.84 E**	**100609.78 N**

Location Map	**Anomaly Image**
	N/A

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

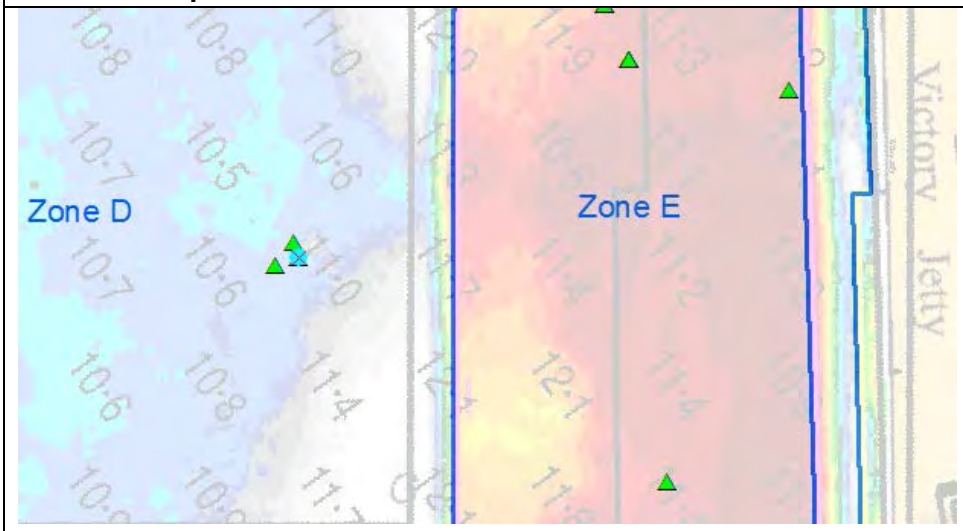
Description
Two cannonballs both made of cast iron. Both cannonballs measure 124 mm in diameter. Although, BWL7_0003 weighs 17 lb or 7.7 kg, while BWL7_0004 weighs 13.5 lb or 5.9 kg.
Interpretation
Both cannonballs were recovered from the same area, and they are also the same size. This may suggest that they were from the same vessel, although there has been a high quantity of cannonballs recovered from the dredging operations. Interestingly the two cannonballs have different weights. A cannonball of this size can have an expected weight of around 16 lb. While one has lost weight, likely from corrosion, the other has gained corrosion materials. This are likely to have been either lost or discarded whilst the vessel was within the harbour.

Period	Post medieval	**Date Range**	16th – 18th Century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL7_0005	Fisherman's anchor	
Date of Discovery	11/12/2016	
How Discovered	Recovered during dredging on board *Manu Pekka*.	
Position of Discovery (British National Grid)	**462541 E**	**100605.7 N**

Location Map	**Anomaly Image**
	N/A

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Images of object

Anchor before and after concretion removal

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Archaeological Object Report Form

Description
The anchor was fully covered in concretion when found, however the concretion was removed for recording. The total length of the anchor is 730 mm, with the shank measuring 670 mm and 48 mm in diameter which tapers to 45 mm towards the ring. The ring measure 70 mm. The distance between the bills is 510 mm and the maximum dimensions of the palms are 170 x 105 mm. The stock measures 710 mm long and 36 mm in diameter.
Interpretation
This type of anchor is known as a fisherman's anchor. Fisherman anchors are designed for use in reefs, rocks and weed to enable to fisherman to anchor within the areas with most fish. The small flukes are ideal for a rocky bottom, but will drag if used in sand or mud. To counteract the small flukes, the weight of the anchor is increased to help provide an adequate holding. The anchor also has a folding stock, this allows for the anchor to be stored flat on the deck, as this design will not store in a hawse pipe. This design of anchor has remained basically unchanged since the move to iron stocks in the 1840s. Overall the condition of the anchor is good, which may suggest that the anchor was lost rather than discarded.

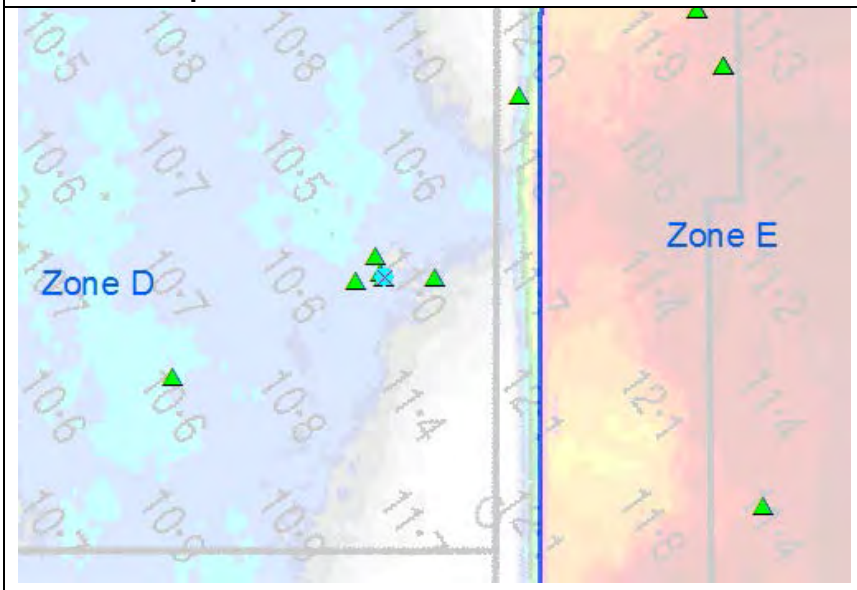
Period	Modern	**Date Range**	19th – 20th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL7_0006	Iron spike	
Date of Discovery	11/12/2016	
How Discovered	Recovered during dredging by *Manu Pekka*	
Position of Discovery (British National Grid)	**462542 E**	**100604.7 N**

Location Map



Anomaly Image

N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

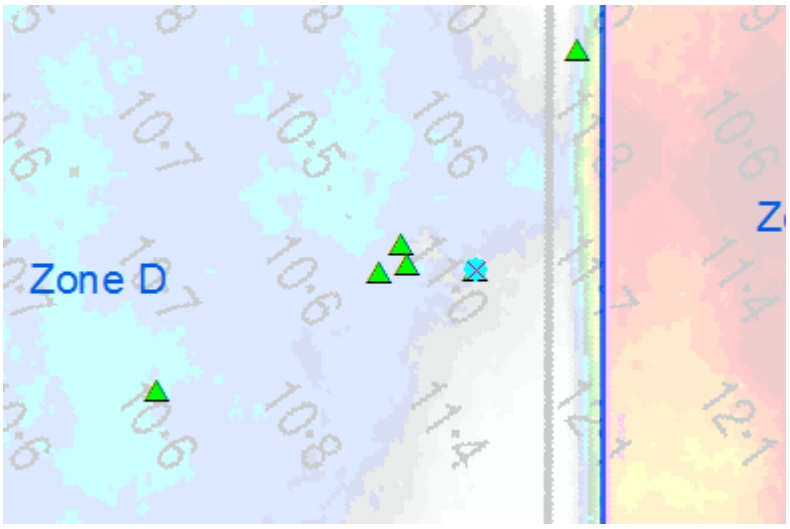
Archaeological Object Report Form

Description			
A concreted Iron spike, measuring 1366 mm in length with a maximum diameter of 18 mm.			
Interpretation			
The iron spike may have come from a number of sources as the use of iron spikes is very common. A couple of possibilities are a working vessel such as a fishing boat or work platform. Additionally, it may have come from construction or maintenance of harbour structures, although equally it may have been part of a fence running along the harbour edge. This object is commonly used and it is unlikely for its source to be identified. It is likely to have been lost or discarded and is likely to be isolated modern debris.			
Period	Modern	**Date Range**	19th- 20th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL7_0007	Serrated blade and 3.75in projectile (from concretion)	
Date of Discovery	12/12/2016	
How Discovered	Recovered by grab on board *Manu Pekka*	
Position of Discovery (British National Grid)	**462555 E**	**100604.54 N**

Location Map	**Anomaly Image**
	N/A

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Images of object

Object as recovered

Projectile found within the concretion

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Archaeological Object Report Form

Possible saw blade found within concretion

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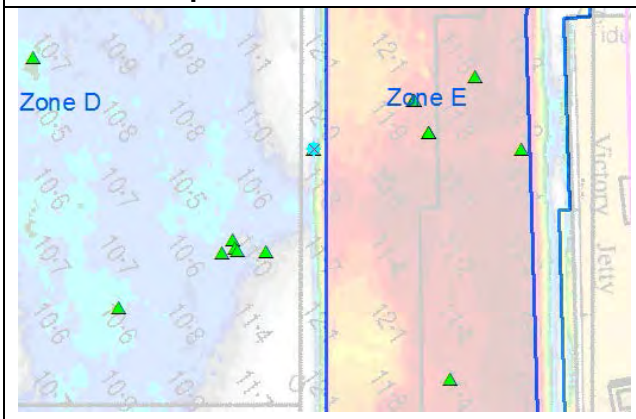
Archaeological Object Report Form

Description
A lump of concretion measuring 300 mm by 180 mm, with several stone and shell inclusions. Part of the saw blade was visible, and within the concretion there was also a 3 inch projectile. The saw blade measures 291 mm along one edge and 282 mm along the other with a maximum width of 48 mm. There are 15 teeth along each of the edges at spacings between 18 and 20 mm. It has a thickness of 6 to 7 mm and is made of iron. The projectile measures 95 mm in diameter (3.75 inches) and 270 mm in length. There are several brass studs to provide rifling within the gun barrel. It is possible that the projectile comes from an Armstrong Breech loading 20 pounder gun. The projectile was inspected and retained for safety reasons by Bactec UXO specialists.
Interpretation
Concretions are commonly found in marine environments; they are the result of corroding ferrous metals such as iron. The reaction that takes place creates corrosion by-products, which will engulf objects around them creating a conglomerate of materials, often this will be stones and shells from the sea floor, but also other objects. Concretions are often removed from shipwreck sites as they hold a high potential for preservation compared to the sea floor, and will contain objects such as ships fixture and fittings, armaments, personal items and cargo. The Armstrong breech loader was used as a field gun and as a naval gun. The naval version being slightly shorter. It was brought into use in 1859, and a year later for land service. Many of this type of armament were sent over to America for use in the American Civil War. This particular round is unlikely to contain any gunpowder and is probably a solid shot. As a matter of safety the projectile was treated as a UXO and specialists were called to safely deal with the object. The serrated blade is possible a saw, but the blade does not appear to be broken at either end, so it is unclear how it would have attached to a handle.

Period	Modern	**Date Range**	Post c.1859

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL7_0008	Small fisherman's anchor	
Date of Discovery	14/12/2016	
How Discovered	Recovered by grab on board *Stemat 87*	
Position of Discovery (British National Grid)	**462576.06 E**	**100649.88 N**
Location Map		**Anomaly Image**
		N/A
Image of object		
		

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Archaeological Object Report Form

Description
An anchor recovered from opposite Victory jetty. The anchor was not seen during quay side archaeological monitoring, and the photograph taken immediately after recovery does not include a scale. Judging by the size of the planks in the photograph, this is a relatively small anchor, likely to be under one meter in length.
Interpretation
Although the anchor is broken at the ring and concreted it is a recognisable anchor, this type of anchor is known as a fisherman's anchor. Fisherman anchors are designed for use in reefs, rocks and weed to enable to fisherman to anchor within the areas with most fish. The small flukes are ideal for a rocky bottom, but will drag if used in sand or mud. To counteract the small flukes, the weight of the anchor is increased to help provide an adequate holding. This anchor is likely to have also had a folding stock, this allows for the anchor to be stored flat on the deck, as this design will not store in a hawse pipe. This design of anchor has remained basically unchanged since the move to iron stocks in the 1840s. The anchor is in poor condition and the shank is broken before the stock, this may be the reason for losing the anchor or for discarding.

Period	Modern	**Date Range**	c. 20th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL7_0009	65 Cannonballs	
Date of Discovery	22/12/2016	
How Discovered	Recovered during dredging on board *Manu Pekka*.	
Position of Discovery (British National Grid)	**……. E**	**……. N**

Location Map	**Anomaly Image**
N/A	N/A

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

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Archaeological Object Report Form

Note: in this photo, the top left cannonball is recorded as BWL7_0003 and the top middle is recorded as BWL7_0004.

Left: Broken barshot
Right: Hollow shell

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Archaeological Object Report Form

Description
A total of 65 cannonballs recovered from within Portsmouth Harbour. The assemblage contains cannonballs ranging from 52 mm in diameter up to 209 mm. Their condition varies, with some being broken, some concreted and others in excellent condition. Within the group there are examples of standard shot, bar shot and hollow shells.
Interpretation
This group of cannonballs shows the large variety in sizes of naval armaments, ships would carry a variety of different sized cannon, and a variety of shot types. The smallest of the cannonballs would have been used in small signalling guns, others for swivel guns positioned around the ship's rails. Larger shot would have been used in the main armament. Particularly in larger ships with multiple gun decks, each deck will contain different sized guns, with the largest close to the water line. HMS *Victory* for example carried at least six different sizes of gun in its main armament, while the *Mary Rose* carried nearly double this. Some of the shot is more specialised. The bar shot for example consisted of two cannonballs joined together by an iron bar. Once the bar shot leaves the cannon the weight at either end will cause the shot to spin in the air. The purpose of the bar shot was to immobilise an enemy ship by targeting the masts and rigging. Another type of shot represented here are shells, these were hollow cannonballs that would be filled with black powder. There were several types used, impact fuses, timed fuses and occasionally shrapnel. This large group of cannonballs was found within the harbour and is likely to represent multiple events rather than a single deposit, most likely having been discarded overboard.

Period	Post-medieval	**Date Range**	17th – 19th Century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL7_0010	Stone shot	
Date of Discovery	22/12/2016	
How Discovered	Recovered during dredging on board *Manu Pekka*.	
Position of Discovery (British National Grid)	**…… E**	**…….. N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
Small shot of stone measuring 96 mm in diameter and weighing 2.8 lb or 1.27 kg.
Interpretation
Stone shot was commonly used throughout the 15th and 16th centuries up until iron became the more favourable choice in the 1630s. Frequently a local stone known as Kentish ragstone was used for carving out stone shot, but other hard stone types were also used. Without petrographic examination it is difficult to say whether this example is also made of Kentish ragstone. Stone shot was carved out by hand using chisels and picks. Often the shot was not finished when loaded on to a ship, but was instead finished at sea. Wooden boards with holes cut in them were used as gauges to ensure the finished shot would fit the gun. With a diameter of 96 mm it is possible that the shot was to be fired from a saker, a small to medium sized cannon commonly used from the late 16th century. A small shot such as this could have come from a wide range of armed vessels, with larger ships also carrying these smaller bore guns. There have been several other examples of stone shot previously recovered during the dredging. This particular shot was found within the harbour and it is most likely to have either been lost or discarded.

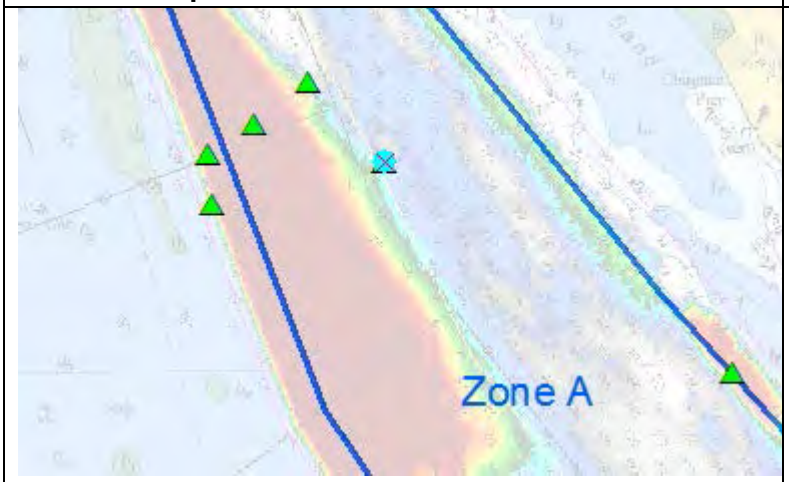
Period	Post medieval	**Date Range**	15th – 16th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL7_0014	Degaussing coil detectors	
Date of Discovery	03/01/2017	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	**463038 E**	**98796 N**

Location Map



Anomaly Image

Image of object

Central brass unit

Unit contains a sealed lead container surrounded by bitumen

Inside the lead container is capped by a metal plate (possibly steel)

Underneath the metal disc there is a thin cardboard disc

Inside of the central unit there is a copper coil that is connected to wires leading outside of the unit

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
A total of four wheel-like objects were recovered at once, within the same area a concrete sinker and a small section of scaffold frame was also recovered at the same time. The cone shaped sinker has a diameter of c.1200 mm, made of concrete with an eye and shackle on the top of the cone. The scaffold frame has a length of approximately 1500 mm and a height of 1000 mm. The four wheel-like objects have a diameter of 1206 mm and a width of 290 mm. The outer frame is steel and measures 70 mm x 70 mm with a right angled section. Around the edges of the upper ring there are four lifting eyes positioned in equally spaced quarters. In between each of the lifting eyes there is a shackle. Below each of the lifting eyes and positioned between the two steel rings there are four lead blocks, each measuring 415 x 150 x 70 mm. Two brass 'spokes' cross the centre of the wheel and hold a central unit in place. The unit is also made from brass and measures 390 mm long, 305 mm wide and 250 mm in depth. After removal of the brass bolts, the unit is filled with a lead container surrounded in bitumen. Removal of the top of the lead container reveals a metal plate (possibly steel) covered a coil of copper wire. Cables run from the copper wire out of the unit and feed along the 'spokes' to the edge of the frame. All four of the wheels were identical in dimensions with varying degrees of damage.
Interpretation
The concrete sinker would have been used to anchor an object to the seabed, it may have been used for a buoy, mooring or possibly linked to the degaussing units found close by. It is likely to have been discarded after used or possibly lost if the attaching chain or rope was cut. The scaffold frame is likely to have been discarded and may be connected to construction or repair work. The four identical wheel-like objects are actually degaussing units. Degaussing ranges were set up to help protect shipping from magnetic sea mines. During the Second World War the introduction of magnetic mines caused catastrophic results to Allied shipping. Steel hulled ships create a magnetic signature as they travel which disturbs the earth's magnetic field as it moves. This disturbance in the magnetic field is what is detected by the mines. The mines would be anchored to the bottom and positioned within the water column, unlike contact mines, the ships would only need to pass nearby to activate the mine. The resulting explosion would cause great damage to the hull of the ship, tearing out plating, rivets and would be capable of breaking the back of a ship. As British shipping suffered heavily, a solution was needed. It was found that by inducing a small field to the ship, this could offset the effect that it had on the earth's magnetic field. Some ships were fitted with their own degaussing units, electromagnetic coils, which would allow them to consistently offset the effect. This was expensive so another method had to be devised, one method involved dragging the cable around the ship's hull or by using specially designed ranges. As the affect would gradually wear off, several degaussing ranges existed for merchant and naval shipping. Within Portsmouth there are several versions of the degaussing range, all very similar variations using the same equipment. The unit itself, the central box with the copper coil, was used on all of the Portsmouth ranges. The unit could be positioned at different angles and with multiple other unit to increase the effectiveness and sensitivity of the degaussing range. In Portsmouth there was single axis, two axis and three axis ranges, with this

particular example coming from a single axis range. The two and three axis ranges mounted the unit onto large frames along with 20 – 40 other units, these were developed in the 1950s for use with coastal minesweepers. Single axis units would likely be related to others, such as the four found together here, but instead of being mounted into a single frame, each was built in to its own anchor and would have been individually positioned to create a range area. The units are likely to have no longer been required as technology improved. The units may have been discarded (abandoned) by the Navy after they became obsolete, or alternatively lost, although this is unlikely.			
Period	Modern	**Date Range**	1950s

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL7_0015	Stock from double barrelled shotgun	
Date of Discovery	23/01/2017	
How Discovered	Recovered by grab during clearance by *Manu Pekka*	
Position of Discovery (British National Grid)	**462600.12 E**	**99780.03 N**

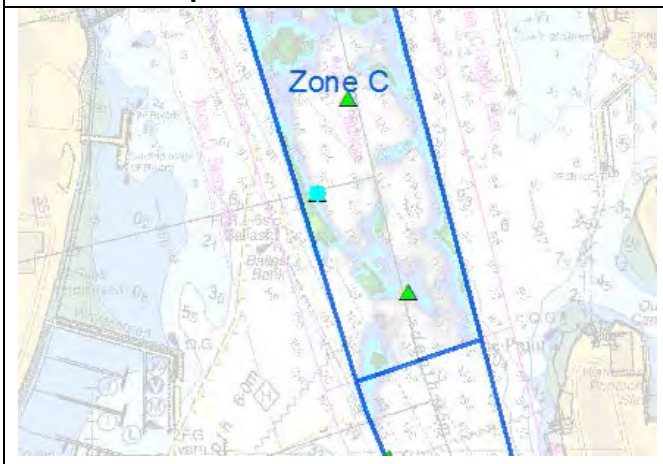
Location Map	**Anomaly Image**
	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
The remains of the stock from a double barrelled shotgun. The remaining stock measures 240 mm in length and 53 mm in width, it has a thickness of 24 mm towards the butt and 45 mm towards the barrel. Half of the stock is covered by concretion starting from just behind the lock plates. Just behind the lock plates some of the cross hatched design can be seen. Towards the barrel, the hinge pin is still in place that would have allowed the barrels to be cocked for loading. The lock plates are heavily worn, losing the outer surface of the metal. They measure 104 mm in length with a maximum width of 24 mm and are held in place by three 4 mm pins. One of the two hammers remains, although detached and heavily worn. The hammer measures 55 mm in length and is a percussion cap type. The top lever is also present, but again detached and heavily worn, it measures 181 mm in length and 56 mm wide.
Interpretation
This is part of the stock from a side by side double barrelled shotgun. The trigger has been lost but the screws that would attach the trigger guard are visible on the underside of the object. On both side of the trigger there are the lock plates, both have lost the outer surface so it is unclear if they would have been decorated or not, some of these plates would have been highly decorative pieces. From the lock plate there is a percussion cap hammer on either side, one is missing but there is visible evidence of the pin. Again these can be very decorative, but the example here appears plain, possible due to corrosion. The hinge pin at the breach is still in place which is the best evidence to suggest that this was a side by side breach loading double barrel shotgun. Along the stock behind the lock plates a cross hatched diamond pattern can be seen, this is another common feature on the stock of a shotgun. Shotguns such as this were often custom made and around the early to mid-19th century custom made shotguns were popular items and varied greatly in style. The shotgun may have been lost overboard, washed out to sea or discarded along with terrestrial spoil.

Period	Modern	**Date Range**	c. Early–mid 19th century

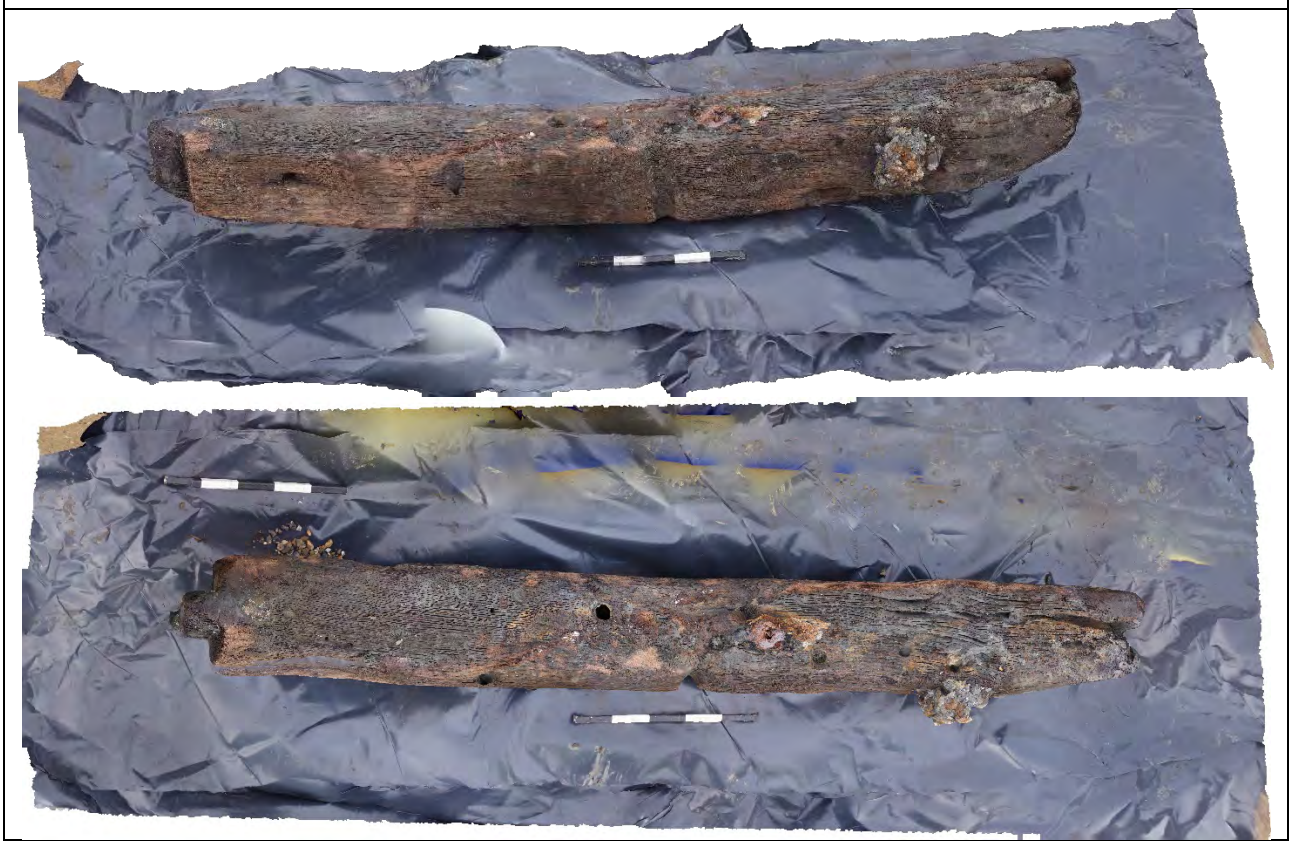
Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL7_0016	Possible ship's timber	
Date of Discovery	29/03/17	
How Discovered	Recovered by grab on board *Manu Pekka* during pre-dredge clearance.	
Position of Discovery (British National Grid)	…… **E**	…… **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object



Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
The timber measures 2650 mm in length and 270 x 290 mm in width. A large number of treenails remains *in situ* throughout the timber and an equal number of empty holes are also noted. The treenails range between 10 and 45 mm, with the majority being 40 mm. There is a slight curve to the timber and one end has a tenon joint. There is also evidence of two iron fitting with the presence of concretion material.
Interpretation
The timber may be a ship's timber, the slight curve and large number of treenails may suggest that this is a frame or part of the keel or keelson which would have had external planking attached and additional smaller framing timbers. This cannot be positively identified and the timber may have been part of a quayside structure such as piling although the curve would suggest against this. The timber is likely to have been discarded and is unlikely to indicate the presence of a wreck site, with no other timbers, particularly of this size, having been located in the area. Due to the unconfirmed identity, the date range is purely speculative.

Period	Post medieval	**Date Range**	c.16th-19th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL7_0017	Five metal plaques	
Date of Discovery	17/02/2017	
How Discovered	Recovered by grab on board *Manu Pekka* during obstruction clearance.	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description

Five metal plaques.

Top left:
Measures 150 x 70 mm and reads:
"*Oxygen gas,*
Flask to be kept cool & not
Exposed to any form of heat
No oil or grease to be used
On any part liable to come
In contact with gas."

Top Right:
Measures 230 x 115 mm and reads:
"*MZT*"

Middle left:
Measures 165 x 105 mm and reads:

"Circuit		*Fuse rating*
1	*Radiator sergt. Marines Mess at 2Q*	*15*
2	*Radiator chief stokers & Mechanicians mess at 2N*	*15*
3	*Radiator officer's cooks & Stewards mess at 2O*	*15*
4	*N23-51-D5I AT 3Pi*	*30"*

Middle right:
Measures 165 x 130 and reads:

"Circuit		*Fuse rating*
1	*15" supply fan (352)*	*10*
2	*5000 CF supply fan (2T)*	*20*
3	*7500 CFM exhaust fan (451)*	*20*
4	*P2I-11-D21 (3SAI)*	*20"*

Bottom:
Measures 116 x 115 mm, 220 mm including the hinge and reads:
"2 PDR GUN"

Interpretation

The plaques are all for identification other than perhaps the "MZT" plaque which is an unknown. The oxygen gas plaque would have been fitted to either an oxygen gas bottle or pipe. More modern versions would be a sticker applied to the bottle, so this may have some age possibly dating to around the 1930s or 1940s. The two plaques with fuse ratings are from Navy vessels, with the mention of marines, stokers and stewards mess rooms. These are difficult to date, but again may date to the 1930s or 1940s. The final object is the lid from a speaking tube, these would have been positioned around ships in order for communication to be made between different parts of the ship. This particular speaking tube lid has a plaque reading "2 PDR GUN", so this would have been used to give orders to the 2-pounder gun. It was likely to have been inside as it is not constructed from copper or brass. It may date to around the early 1900s to 1940s.

All of these plaques were discovered close to the military docks in Portsmouth and are likely to have been discarded overboard. As they would have been located well within the ship they are unlikely to represent a sinking of a military vessel.

Period	Modern	**Date Range**	c. 1930s – 1940s

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL7_0018	Four ceramic objects	
Date of Discovery	03/02/17	
How Discovered	Recovered by grab on board *Manu Pekka*	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Detail on the Navy mess mug

Description
Four ceramic objects recovered by the dredger Reynaert. Working left to right: • Stoneware bottle, measures 165 mm tall, 70 mm diameter. The side is stamped with “Stephen Green, Lambeth, Imperial Potteries”. • Royal Navy mess mug, measures 85 x 85 mm. Printed with the name “H.M.S. Serapis” and below “Our guide heaven light” surrounding a star and a “7” below this. • Preserves jar measuring 95 mm tall and 85 mm in diameter. It is marked with “MALNC” on the base.
Interpretation
A selection of discarded pottery that is likely to have been thrown overboard from passing or moored vessels. The stoneware bottle is a common find and is likely to have been a drinks container thrown away once finished. The preserves jar would have been used for jams and spreads, the incised ring near to the mouth of the jar would have been used for tying a cloth or paper lid on to the jar. The Royal Navy mess cup would have been used on board H.M.S. *Serapis*. There has been five versions of H.M.S. *Serapis*, the most likely candidate is the 1941 Savage Class Destroyer. The destroyer spent much of the war with the Home Fleet in Scapa Flow, but also spent some time in the Solent, taking part in Operation Neptune, the Normandy landings. In 1945 it was transferred to the Royal Netherland’s Navy and renamed *Piet Hein*. The vessel was scrapped in 1962. Strangely the motto for *Serapis* was “Beware my horns”, the motto and logo on the mug are for the city of Portsmouth, granted in 1929. Alternatively, it may be for H.M.S. *Serapis* (1918), another S-class destroyer, which was commissioned until 1934. …….

Period	Modern	**Date Range**	1918-1962

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL7_0019	19x glass bottles, 3x sight glasses	
Date of Discovery	17/02/17	
How Discovered	Recovered by grab on board *Manu Pekka* during obstruction clearance.	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description

19 Glass bottles and three sight glasses.

- Clear glass bottle, marked with “GW” “Contents 1 pint”, 216 mm tall.
- Green glass bottle, marked with “Brickwood & Co Limited, Portsmouth”, 260 mm tall.
- Dark green glass bottle, marked with “H&G Simonds Limited” “Brewers Reading”, bottle still has its cap with rubber seal, 220 mm tall.
- Dark green glass bottle, marked with “Brickwood & Co LTD, Portsmouth”, 260 mm tall.
- Green glass bottle, marked with “S&T. N. Blake & Co Limited, Gosport”, 255 mm tall.
- Pale green glass bottle, unmarked, 250 mm tall.
- Clear glass jar, unmarked except “5 D” on the base, 155 mm tall.
- Clear (yellowed) glass jar, unmarked except “C19/529C” on the base, 175 mm tall.
- Green glass bottle, marked with “Kilner Bro’ LTD”, 220 mm tall.
- Clear glass bottle, marked with “Safety first milk assn” in a triangle, 215 mm tall.
- Green glass bottle, unmarked, 185 mm tall.
- Pale green glass bottle, marked with “Mumby, Makers to H.M. the king”, 210 mm tall.
- Clear glass bottle, marked with “Masons OK Sauce”, 225 mm tall.
- Green glass bottle, marked with “Coca-Cola” “Trademark registered in the US patent office”, 195 mm tall.
- Pale green glass bottle, marked with “Sheridan & Co” “Steam mineral” “Water works” “St Georges square” “Portsea”, tear shaped bottle, 210 mm tall.
- Clear glass bottle (stained orange), spiral decoration, marked with “MM 50” on the base, 75 mm tall.
- Clear glass ink well, unmarked, 60mm tall.
- Clear glass jar, marked with “FMF” on the base, 120 mm tall.
- Clear glass jar, marked with “FMF” on the base, 120 mm tall.
- Clear sight glass (stained orange), unmarked, 240 x 40 mm.
- Clear sight glass, marked with “Pyrex” “3658”, 325 x 35 mm.
- Clear sight glass, marked with “Pyrex” “1043”, 250 x 25 mm.

Interpretation

A collection of mostly local glassware, consisting of drinks bottles for water, soft drinks and beer, also preserve jars and an inkwell. The bottles which are identifiable are all local companies with examples from Portsmouth, Portsea, Gosport and Reading. The sight glasses are from various sized reflex gauges; these were positioned on the outside of a liquid container such as a storage tank or boiler and allowed the operator to see the content level. These bottles and the sight glasses were likely discarded over board form passing vessels, thrown in from the harbours wall or washed out into the sea from a terrestrial deposit. The majority of the bottles are likely to date to the around the middle of the 20th century, the Coca-Cola bottle for example is from the 1960s and is one of the more modern in the collection.

Period	Modern	**Date Range**	c. Late 19th – 21st Century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL7_0020	Twelve metal objects	
Date of Discovery	04/02/17	
How Discovered	Recovered by grab on board *Manu Pekka* during pre-dredge clearance.	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
Various metal objects. • Two brass ship's light cages measuring 160 mm tall and 110 mm in diameter. • A stainless-steel fork measuring 195 mm and marked with "2009 Arthur Price 1324644". • Brass locking pin measuring 130 mm and 20 mm diameter. • Aluminium Piccadilly cigarette tin measuring 115 x 75 mm. • Brass locking 'dog' from a porthole or hatch. • Two brass fire hose plugs measuring 70 mm in diameter. • Two brass fire hose couplings measuring 150 x 70 mm. • Two brass industrial fire hose nozzles measuring 150 x 70 mm.
Interpretation
Most of the finds are likely to have been discarded during ship maintenance, such as the light cages which would have protected the lights on deck and within the ship and the locking dog which is used to secure portholes and hatches on board ships. The fork and cigarette tin are likely to have been thrown overboard or in from the shore once used. The fire hose components would represent two fire hoses and where possibly discarded but may also have fallen in. These are likely to date to post 1950s. Similarly, the Piccadilly cigarette tin also dates to the 1950s.

Period	Modern	**Date Range**	c.1950s

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL7_0021	Second World War dated fuze caps	
Date of Discovery	03/02/2017	
How Discovered	Recovered by grab on board the barge *Manu Pekka.*	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
A collection of five 1938 and 1940 fuze caps. • One is a cover for a number 198 II fuze dated “2/38”. It measures 55 mm tall and 65 mm diameter. • Two are the same and are from a No 206 II N fuze. One still has the identification plaque in place which reads “No206 II N” “2 VAE 1940”. There is a small thread on the inside that would have screwed onto the shell, covering the fuze. The caps measure 75 mm tall and 60 mm in diameter. • The tall basic cap is from either a No 199 or a No221 fuse. It measures 90 mm tall and has a 65 mm diameter. The 199 and 221 fuzes were identical except for a few internal parts. • The last fuze cap has a locking ring and pinch tabs; it measures 100 mm tall and has a diameter of 65 mm. It is from an unknown fuse type.
Interpretation
The fuze cap would have either pressed, screwed or been locked on top of a fuse for protection during transport and storage. These are disposable items which would suggest why they have ended up in Portsmouth harbour close to the MOD berths. The No 198 II fuze was used from 1925 and throughout the Second World War, it was for a naval star shell, an illumination round that would exploded on a timed fuze. The No 206 II N fuze cap also has the letters “VAE” for Vickers Armstrong Erith. The 206 fuze would have been used with the 5.25 inch Anti-Aircraft (AA) gun. The No 206 fuse was a timed fuze and interestingly used a German timing mechanism. The No 199 or No 221 fuze, was another Second World War fuze, used with the QF 25pdr and BL 5.5” guns. 3.7” and 4.5” guns. The fifth fuze cap is currently unidentified, but it is very tall and narrow, one suggestion is that it is from a No 700 rocket.

Period	Modern	**Date Range**	1938-1940

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL7_0022	Ceramics and glass	
Date of Discovery	05/05/17	
How Discovered	Recovered by grab on board *Manu Pekka* during pre-dredge clearance.	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
A selection of ceramic and glass material. • "Mumby & Co" stoneware vessel; • Whiteware Royal Navy mess bowl marked with "33"; • Four sherds of a decorated vessel with the remains of opposing handles; • Small stoneware ink bottle; • Hand blown glass bottle; • Ceramic preserves jar marked with "Maling" on the base; • Large sherd of a ceramic vessel and a large rim sherd from a second ceramic vessel; • A copper alloy window frame and glass measuring 480 x 150 mm.
Interpretation
• The Mumby & Co sherd is part of a large stoneware jug that would likely have held ginger beer. The hole is the attaching point for a tap from which the contents could be poured. • The Royal Navy mess bowl would have been used on board Navy vessels, the mess areas where individually numbered to help with organisation. • The four decorated sherds are all from the same vessel, it would have been a round shaped jar with two opposing handles close to the lip. • Stoneware was commonly used for many types of containers including food, drinks, oils and inks and it is likely that this small bottle was used for inks or a similar substance. • The hand blown bottle would likely have contained wine and may date to the 18th century. • The preserves jar would have contained preserves such as marmalade or pastes. The Maling company produced these jars in the latter half of the 19th century until they changed production to decorative pieces. • The two large sherds are likely to be from storage jars and may date to the 18th century. • The copper alloy window is likely to have come from a boat or ship, with this being a common material for the production of ship's windows. It is likely to have been discarded after a refit and unlikely to signify a wreck. All of these items are likely to have been discarded after being broken.

Period	Late post-medieval – modern	**Date Range**	18th-20th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL8_0001	Small anchor	
Date of Discovery	29/03/17	
How Discovered	Recovered from the draghead on board *Causeway*	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
The anchor has a total length of 570 mm and the shank is rounded with a diameter of 20 mm. The flukes have been lost and the remaining bill to bill is 220 mm. Each of the arms are 113 mm long and 20 mm in diameter. The stock is fragmented and mostly remains only as concretion, the stock had a diameter of 20 mm.
Interpretation
This is a small fisherman's type anchor that would likely had a folding stock. This is one of the most easily recognisable shapes of anchor and popular in the latter half of the 19th century. This example is in a very poor condition. It may have been lost during use or discarded after being damaged.

Period	Modern	**Date Range**	19th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL8_0002	Leather shoe fragments	
Date of Discovery	04/04/17	
How Discovered	Recovered from the draghead on board *Causeway*.	
Position of Discovery (British National Grid)	**462705 E**	**99870. N**

Location Map	**Anomaly Image**
	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
Three fragments of leather shoes, possibly all from the same shoe. One piece is the heel and it has wooden pegs remaining within the heel. The heel measures 80 x 90 mm. The middle fragment is an inner sole, measuring 255 mm, 64 mm at the heel and 85 mm wide at the ball of the foot. The right-side fragment is an outer sole and measures 260 mm, 70 mm at the heel and 90 mm wide at the ball of the foot.
Interpretation
All of the fragments look to be for a right foot shoe and the size of the shoes converts to approximately a UK men's size 7-8 / EU 40-42 (Women's UK size 6.5 – 7.5). The technique of pegging layers of leather on to build up the heel seems to have appeared by the 16th century, and then it extends into the 19th century. The sole shape could fit anywhere within that date range. All three pieces could well come from the same shoe. *Lorraine Mepham, Senior Post Excavation Manager, Wessex Archaeology.* Reference Goubnitz, O. 2001. *Stepping Through Time: archaeological footwear from prehistoric times until 1800*, pages 88-9).

Period	Post-medieval - modern	**Date Range**	16th – 19th century

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0001	Angle bar	
Date of Discovery	11/11/2015	
How Discovered	Retrieved by grab by *Strekker* – found during quay side Archaeological Monitoring	
Position of Discovery (British National Grid)	-	-

Location Map	**Anomaly Image**
-	-

Images of object

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
Steel angle bar 6.28m long. 0.065 x 0.107m wide and 0.012m (3/8in) thick. The bar shows two rows of holes of 0.042m (1½ in) diameter for rivets (reeled riveting) on the wider side and two at the end on the adjacent side. Some of the holes are slightly oblong potentially indicating that the bar suffered from longitudinal stress. Steel was used for ship construction from the late 19th century and riveted ships were built until the end of the Second World War.
Interpretation
Angle bars were used in a wide range of applications including shipbuilding. This particular bar could have been part of a small vessel although the fact that was not found in association with other material suggests that was dumped at sea.

Period	Late 19th- 20th century	**Date Range**	1880-1940

Museum Acc No. : 2015/462

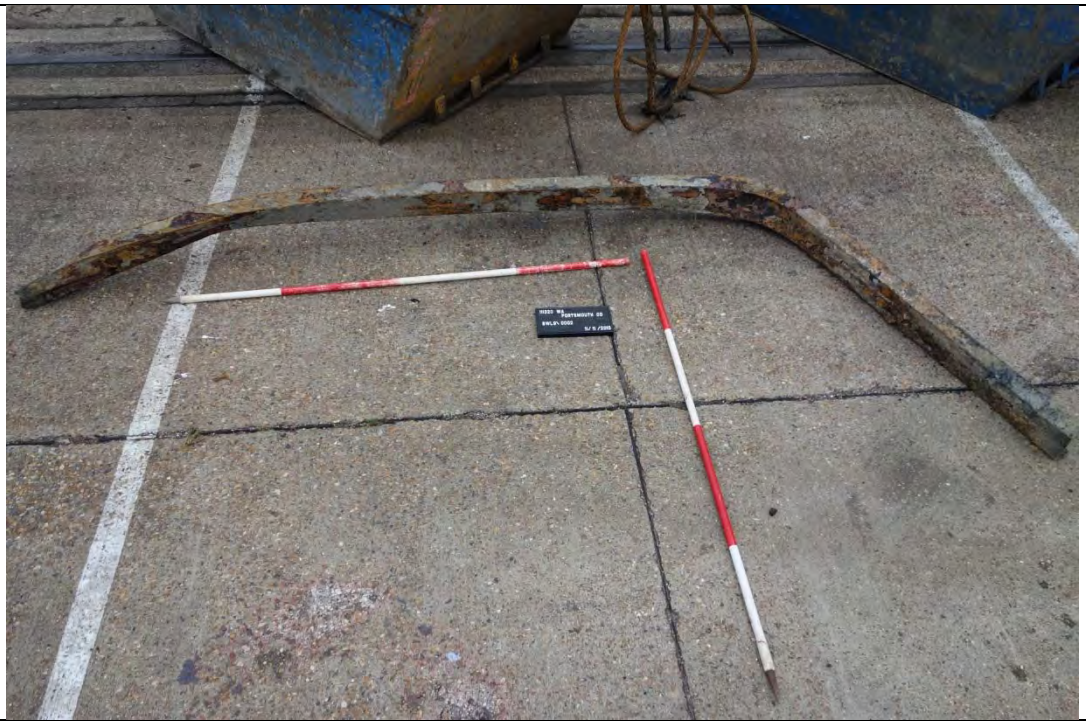
Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0002	Steel Bar	
Date of Discovery	11/11/2015	
How Discovered	Recovered by grab by *Strekker.* Found during quay side archaeological Monitoring.	
Position of Discovery (British National Grid)	-	-

Location Map	**Anomaly Image**
-	-

Images of object



Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description			
Steel channel bar with seven rectangular openings on the upper face.			
Interpretation			
This channel bar is probably construction material and likely to have been dumped or lost from a ship. It is condition suggest that the time of the deposition is relatively recent.			
Period	20th century	**Date Range**	1950-2000

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0003	Dock or pile timber	
Date of Discovery	18/11/2015	
How Discovered	Retrieved by grab by *Strekker* – found during quay side Archaeological Monitoring	
Position of Discovery (British National Grid)	-	-

Location Map	**Anomaly Image**
-	-

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
Squared dock or piling timber of 6.1m length, 0.4m width, 0.35m depth. All surfaces and both ends are eroded with a loss of at least 0.05m of surface in places. It must have had a squared section originally. There is evidence of marine growth on one side and on both ends suggesting that the timber must have been lying flat on the seabed although the presence of mud on all surfaces indicates that it had been possibly buried. A number of roughly circular holes are visibly mainly along the edges. The holes are eroded and have a maximum diameter of 0.03m. Some of the holes are angled but it is not clear whether they are through holes. It is not possible to say whether it was drilled or what sort of fastening was used although no rust staining was observed. A small fragment of white glazed pottery was found embedded on the timber surface in mud. The blue transfer prints on the bottom reads LEADLESS.
Interpretation
This timber might have been part of a dock structure or similar marine infrastructure that may have been discarded at sea. There is no indication of a potential date although the poor condition would suggest that it has been in the water for some time.

Period	Unknown	**Date Range**	Unknown

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID **BWL9_0005**	Fragment of a wooden plank, whale or stringer	
Date of Discovery	c.04/12/2015	
How Discovered	Recovered by crane pontoon *Strekker*	
Position of Discovery (British National Grid)	Not known	Not known
Location Map	**Anomaly Image**	
n/a	Anomaly number unknown	

Images of object

BWL9_0005 Face 1 (2D projection of 3D model; cut line across is for sampling)

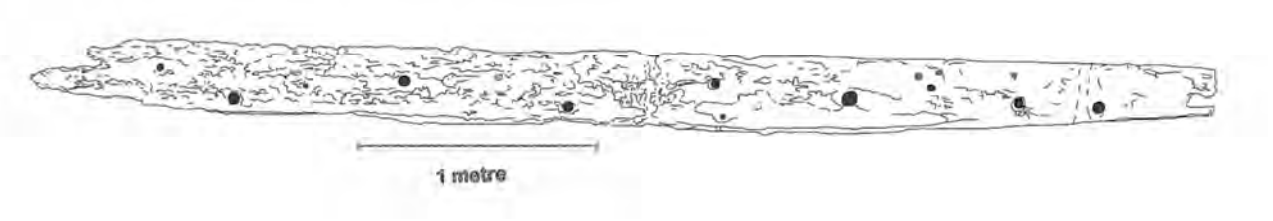
BWL9_0005 Face 1 (concretion and ferrous nails in red brown; empty fastener holes in dark grey)

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

BWL9_005 Face 2 (2D projection of 3D model)



BWL9_0005 Face 2

Description
Worked, plank-like timber object. Original dimensions truncated by erosion but maximum dimensions are 5.07m long, 0.27 wide and 0.17m thick. Face 2 significantly more eroded, but below surface the tight grained light coloured timber is in good condition with no evidence of marine borers. Box halved conversion. Twelve drilled through fastening holes of 24-55mm diameter, plus square headed ferrous nail holes. Partial survival of two drilled holes for through fastenings through the thickness axis. No obvious curve along long axis. Object cut in half for dendrochronological sampling and for transport from site. Sample cut from plank at WA.

Interpretation
Uncertain. Fragment of a wooden plank, whale or stringer likely. Probably a large boat or ship timber but other purposes such as a dockyard structure plank cannot be ruled out. As this find is not associated with a Preliminary Recording Form, its find location and the anomaly it is associated with are not known. WA is informed that there is no other material associated with it and it is therefore assumed to be an isolated find. Dendrochronological analysis of the sample may produce a date or date range for this find.

Period	Post-medieval or modern	**Date Range**	Unknown

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID **BWL9_0006**	Martin self-canting anchor	
Date of Discovery	c.04/12/2015	
How Discovered	Recovered by crane pontoon *Strekker*	
Position of Discovery (British National Grid)	Not known	Not known
Location Map	**Anomaly Image**	
n/a	Anomaly number unknown	

Images of object

BWL9_0006 (0.5m scales)

See also scaled 3D pdf of BWL9_0006 below (click to trust content and then click on question mark symbol to display image)

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
Forged iron anchor. Forged rectangular section shank, 2.09m long, with D-shackle at the crown and a bow shackle at the foot. Forged swivelling arms with spade shaped palms, 0.94m between bills. Securing bolt for the arms screwed through the end of the crown. Shallow v-shaped forged iron stock, 1.25m across. Short length of non-studded iron chain cable (c.0.12m link internal length).

Interpretation
Martin self-canting anchor. With its short stabilising stock, this anchor was a fairly long-lived transitional design between stocked Admiralty and modern stockless pattern anchors. In contrast to the Admiralty pattern, the stockless design was less likely to foul or be fouled, had great strength and could be very neatly stowed on an inclined 'anchor bed' on the foredeck. Designed by François Martin and first manufactured in Gateshead in 1859, it was certificated by Trinity House in the same year and patented in 1864 following a successful trial held by the Royal Navy. Admiralty approval assured its success and the Martin in its original and improved patterns remained in service with the Admiralty, a number of foreign navies and the merchant marine into the 20th century. The arms were secured by a bolt screwed into the crown and a groove cut across the arms for the bolt allowed them to turn. This example has its bolt securing the arms screwed into the end of the crown. This suggests that this anchor is late 1890s or very early 20th century, as prior to this it was positioned vertically at the back of the crown. The presence of a short length of chain cable suggests that this anchor is likely to have been lost in use when the cable parted. Whether it was acting as a permanent mooring or as a normal anchor at the time is not known.

Period	Victorian/Early 20th century	**Date Range**	c.1895-early 20th century

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID **BWL9_0007**	Ceramic, glass and miscellaneous late 18th-20th century objects	
Date of Discovery	30/12/2015	
How Discovered	Recovered by grab possibly from same anomaly locations as BWL1_0025. Found during quay side archaeological Monitoring.	
Position of Discovery (British National Grid)	-	-
Location Map	**Anomaly Image**	
-	-	

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Images of objects

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Defence Infrastructure Organisation

Boskalis Westminster

wessex archaeology

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18/01/2016
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Museum Acc No. : 2015/462

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Archaeological Object Report Form

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wessex archaeology

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18/01/2016
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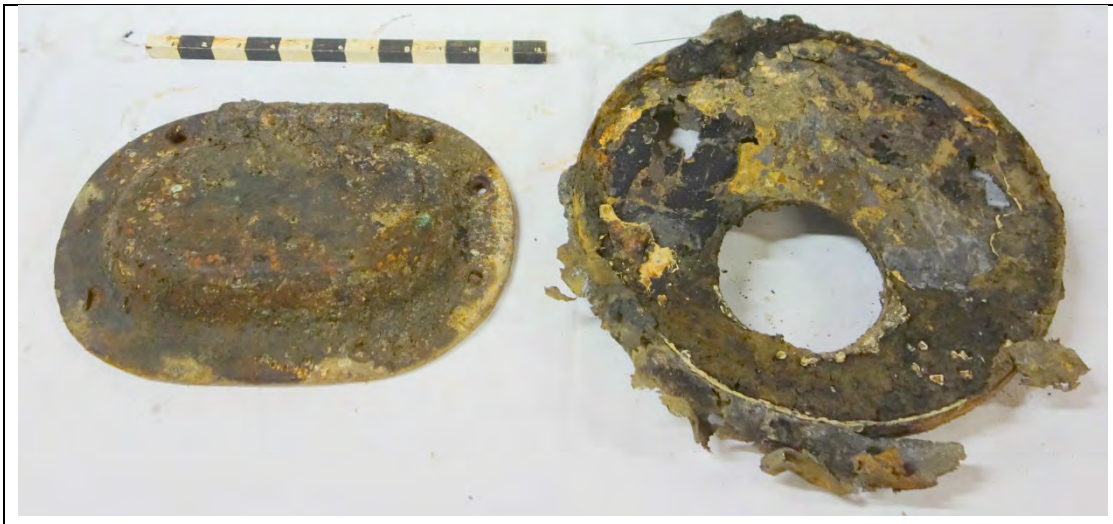
Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form



Defence Infrastructure Organisation

Boskalis Westminster

wessex archaeology

111320
18/01/2016
Draft Version 01

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
Miscellaneous finds – comprising: Three fragments of sheep bones including a halved lumber vertebra, partial proximal femur that shows saw marks .The saw marks on one of the fragments confirms a later date, since saws were not generally used as butchery tools until fairly recently. Seven 19th and 20th century ceramic fragments. They include: • Three white ware complete plate and mugs with simple decorations and 21st century transfer printed dates. • Single base sherd with blue transfer print with fouled anchor with letters A and I and the manufacturer's name 'MALING'. This mark was used after the factory moved to Newcastle in 1817. The anchor mark is the Royal Navy Government and Approval Stamp and was used in the beginning of the 20th century. 20th century bottles and a glass fragment, including green, brown and clear glass. Forms include: • Various milk bottles, moulded marks include 'Safety First Milk Association', 'Unigate' and 'Gauntlett and Walker'. • Wine, beer and spirit bottles with makes including 'Gordon dry Gin' and 'Whitbread&Co' Two metal objects. The first object is a hinged hatch with heavy cover and flanged frame. It is believed that it may have been part of the fittings of a vessel but it could have mounted onto other vehicles. The second object has a circular shape and a central opening and after a thick layer of concretion was removed, it was revealed to be the upper rim of a metal container possibly for oil or similar. Plated metal cutlery, including one table knife and two forks. Probably all 20th century. Leather shoe probably a man's shoe with several small metal rivets on the sole (tacks). Riveted (nailed) constructions using either iron (steel) rivets or brass rivets were employed during the second half of the 19th century and were commonly used throughout the first half of the 20th century.

Interpretation
These finds likely represent dumped material that is unlikely to have been deposited at the same time due to differences in date.

Period	Victorian; 20th century	**Date Range**	19th-20th century

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID **BWL9_0008** **BWL_0009**	Dockyard piles and timbers	
Date of Discovery	30/12/2016	
How Discovered	**BWL9_0008:** Retrieved by grab and inspected on *Strekker* during Archaeological Monitoring. **BWL_0009:** Retrieved by grab and found on the quayside during Archaeological Monitoring.	
Position of Discovery (British National Grid)	-	-

Location Map	**Anomaly Image**
-	-

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
BWL9_0008: Dockyard piles and other timbers of various sizes including planks. These timbers have square or rectangular sections and measure up to c. 5 m in length. Most of them are very eroded. They are fastened with iron bolts, plates and very simple scarf but no treenails or small nails were observed suggesting that they were more likely to be dockyard timbers and not obviously ship timbers. **BWL9_0009:** Wooden strake of softwood of tapering circular section (max c. 0.15 m) with one end sharpened. It is c. 2.27 m long and one the upper end is broken.
Interpretation
The timbers probably related to a former dockyard or pier and may have been washed away by the sea or actively discarded at sea because of their conditions. As the location of recovery is not known it is impossible to associate them with any former or existing structure.

Period	19th - 20th Century	**Date Range**	19th - 20th century

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID **BWL9_0010**	Admiralty iron stock	
Date of Discovery	06/01/2016	
How Discovered	Recovered by grab of crane barge *Strekker* and found during on the Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	-	-
Location Map	**Anomaly Image**	
-	-	

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
Anchor stock made of wrought iron. The curved arm of the stock is broken while the straight arm is complete and still has the ball attached. The stock is identified as admiralty stock from the shoulder piece that held it in place.

Interpretation
Circumstances and date of deposition are unknown, although it was possibly part of an anchor that may have been lost in use and/or abandoned. The stock could have been fitted to an anchor around 25 cwt (of similar dimensions to BWL1_0022). According to G. Cotsell's Treatise on Ships' Anchor[1] iron stocks were progressively adopted during the 19th century by the Royal Navy. He states that "*in 1807 by iron stocks were used in Her Majesty's service with anchors up to 15 cwt. only; in 1832, the practice had extended to anchors of 30 cwt.; in 1847, to 56 cwt.; and in 1852, to anchors of 60 cwt*".

Period	Victorian - 20th century	**Date Range**	1800 onwards

[1] Cotsell, G., 1856, *Treatise on Ships' Anchor,* London.

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID **BWL1_0011**	Wooden pile	
Date of Discovery	14/01/2016	
How Discovered	Recovered by grab and found during quay side archaeological Monitoring	
Position of Discovery (British National Grid)	-	-

Location Map	**Anomaly Image**
-	-

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Images of object

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Museum Acc No. : 2015/462

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Archaeological Object Report Form

Description
This timber is 9.50 m long and has a roughly squared section of 0.45 by 0.48 m. Both ends are eaten by marine borers and the all surfaces are worn, particularly on the upper side. The corners and edges appear to have been smoothed. The timber presents a slight curve along its main axis. No fastening was observed and there are no apparent tool-marks.
Interpretation
The timber could be a pile used in marine construction.

Period	Unknown	**Date Range**	Unknown

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0003	Dock timber	
Date of Discovery	14/01/2016	
How Discovered	Retrieved by grab and found during Quay Side Archaeological Monitoring	
Position of Discovery (British National Grid)	-	-

Location Map	**Anomaly Image**
-	-

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
Squared timber of 2 m length, 0.26 m width, 0.12 m depth. Broken at one end. At the other end the timber presents a flat lap which tapers along the width. It is a wedge shaped end, and it is possible that the timber was inserted in the seabed although it cannot be ruled out that this lap was used to attach this timber to a corner piece. Two blind holes drilled are skewed at the end opposite to the lap. One of the edges appears to be rounded.
Interpretation
This timber might have been part of a dock structure (as stringer) or used as a post in a bank revetment. It is possible that it came loose or it was discarded at sea. There is no indication of a potential date although the good condition of the timber and the two blind holes at one end suggests that it is likely to be modern. At least three more dock timbers were visible on the quay at the time of the archaeological monitoring and could have been part of the same structure. However, it is not known from which dredging zone BWL9_0003 or other timbers were recovered.

Period	20th Century	**Date Range**	20th century

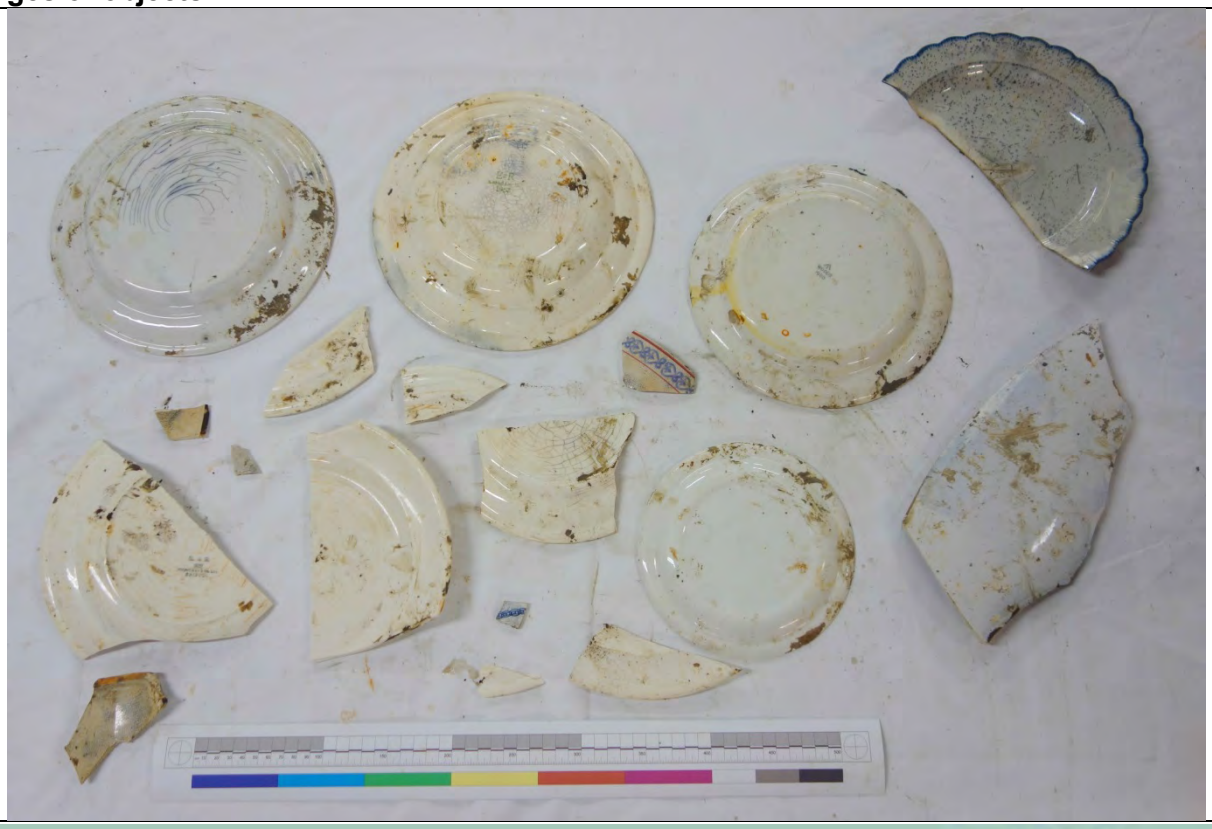
Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID **BWL9_0013**	Ceramic, glass and miscellaneous late 18th-20th century objects	
Date of Discovery	14/01/2016	
How Discovered	Recovered by grab and found during quay side archaeological Monitoring.	
Position of Discovery (British National Grid)	-	-
Location Map	**Anomaly Image**	
-	-	

Images of objects



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111320
18/01/2016
Draft Version 01

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Archaeological Object Report Form

Description

Miscellaneous finds comprising glass bottles, ceramic fragments and complete plates, two iron artefacts, one shoe and two animal bones. They are dated from the 19th to the 20th century.

22 ceramics fragments including four complete plates, and dated to the 19th and 20th century. They include:

- Three white ware complete plates with 20th century transfer printed dates of 1983, 1953 and 1966.
- Two sherds of refined whitewares; the smaller sherd has transfer-printed decoration of a chain, and the larger one (which appears to be from a bowl) has sponged decoration. Both could be described as 'tablewares' and the date range from the 19th to 20th century.

20th century clear-glass milk bottles, one dark-glass beer bottle, one dark-glass neck of a bottle still with the cork. Moulded marks include:

- 'Safety First Milk Association', 'Portsmouth Cooperative', 'Portsmouth farm milk', 'Alpine'.
- 'Brickwood & co, Portsmouth' – local firm since the mid-nineteenth century.

One 2 1/8 inch iron spanner and a concreted iron rod with a washer were also found.

One leather shoe likely to be a man's shoe. The outsole seems made of rubber and presents marking. The insole shows the mark that likely represents the size of the shoe (7/5). The sole insole and midsole appears to have been glued together and no fastening was obvious suggesting that the shoe is probably of recent manufacture.

Two fragments of animal bones including a broken sheep femur with filleting marks at one end and a cattle rib.

Interpretation

The material is likely to represent dumped material, which is unlikely to have been deposited at the same time due to differences in date.

Period	Victorian; 20th century	**Date Range**	19th-20th century

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID **BWL9_0014**	Ship timber – cant frame	
Date of Discovery	26/01/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	-	-

Location Map	Anomaly Image
-	-

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Images of object

Figure 1 BWL9-0014 on the quayside after recovery

Figure 2 Isometric view (scale increment 200mm) – rear / outer face view

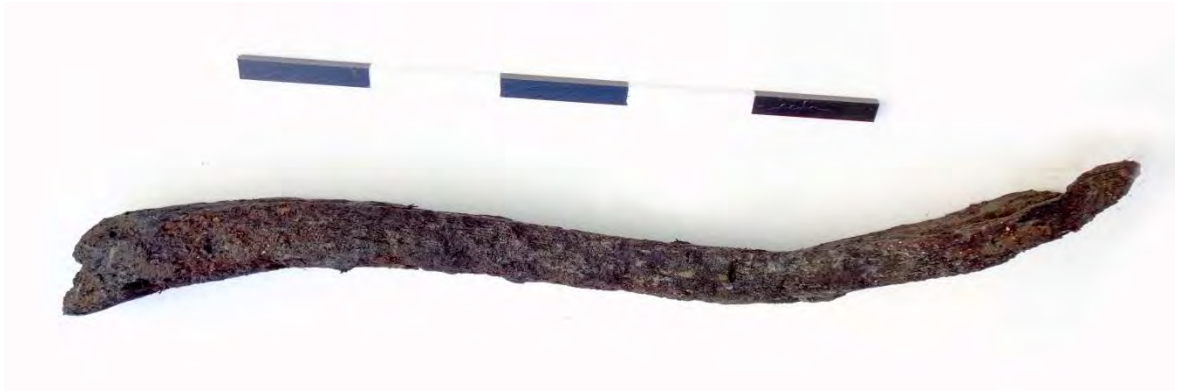

Figure 3 Rear view / inner face is on top

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Archaeological Object Report Form

Figure 4 Front view/ outer face is on top

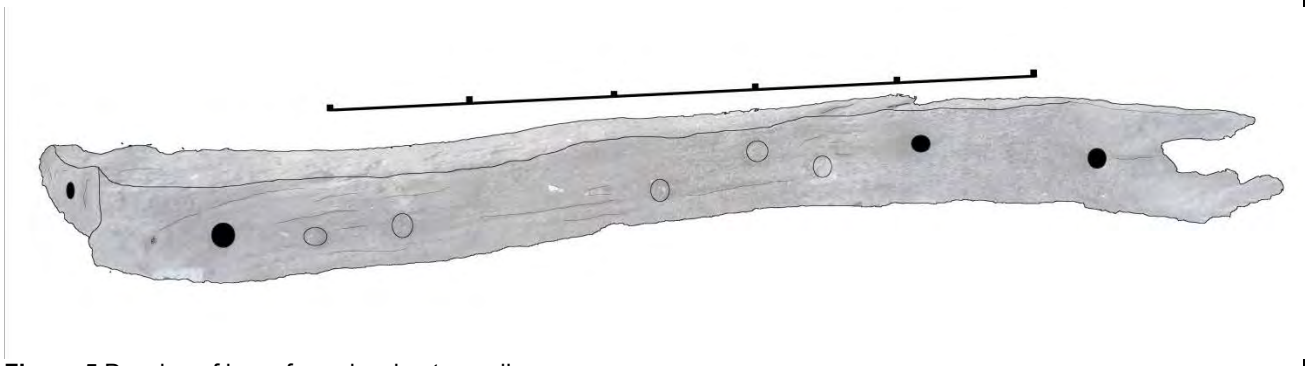

Figure 5 Drawing of inner face showing treenails

Description

Timber **BWL9_0014** measures 1.6 m in length, 160-130 mm sided and 80 mm moulded.

The timber profiles are curved in two direction and the sides taper slightly towards the head.

There are nine treenails, eight of which driven through the inner/outer face and driven with different directions across the run of the grain. Three treenails are missing and the holes are c. 40 mm in diameter.

At the heel of the timber there is a trapezoidal face with bevel which likely indicates the presence of a scarf. The face measures 200 mm side by 80 mm by 160 mm and was fastened by a through treenail driven diagonally across the scarf face. The other end the timber appears to have suffered from erosion although it does not seem scarfed.

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Provisional Interpretation
This ship timber is provisionally identified as a cant frame. Although the timber is likely to have been part of a ship it was not reported through the protocol and the recovery location is unknown so it was not possible to ascertain if further material was recovered from that position. It is possible that it is related with the ship timber **BWL1_0034** reported one week earlier and recovered from the Hamilton Bank. Due to the characteristic of the fastening and dimensions of the frame it is possible that belonged to a medium/small sized vessel planked with flush laid planking. The date of the timber is currently unknown although it is unlikely to be later than the beginning of the 20th century.

Period	Post-Medieval	**Date Range**	1500 - 1910s

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID **BWL9_0015**	Timber	
Date of Discovery	22/04/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	-	-
Location Map	**Anomaly Image**	
N/A	N/A	

Images of object

Scales = 100 mm sections

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description

A one meter long timber with a width between 120 and 217mm and a thickness of 88 mm. The timber has a half cut groove about halfway along its length, resembling a seat for a trunnion. Closer inspection after recovery and cleaning suggests that this circular cut is more modern, likely to have been cut out using modern tools. The addition of a 10 mm dowel hole running to its centre makes this more unlikely. There is a 23 x 22 mm hole on one side and a small concretion in a relating position on the other. The other end of the timber displays a slight curve. Both ends of the timber are barely worn and no tool marks or other markings are surviving in the timbers surface.

Interpretation

Due to the condition of the timber, interpretation is difficult, but it has been suggested that this is part of a ship's framing. Possibly forming part of the decking, the most likely candidate has been suggested as being a carling timber. Carling timbers were used as short lengths that were placed horizontally between the beams of the ship's deck(s) forming longitudinal support to the ship's decks, which would suggest the small size of this particular timber. This would explain the curve to the timber, as decking timbers are cambered, to allow for water movement. Often these carling timbers would be found around the boundaries of hatchways and found in more numbers as the deck weight is increased. Carling timbers were each slotted in between the beams with their upper side flush to the deck, and then secured by nails (Goodwin 1987 p73 + p159, Greenhill1988 p134).

The interpretation of this being a carling timber is speculative due to the poor condition of the timber, but it can be suggested that this timber did come from a ship's structure, which may suggest a wreck in the area, although it would be very broken up and in poor condition judging by this particular find.

Goodwin. P. 1987. *The construction and fitting of the English Man of War 1650-1800.* London. Conway Maritime Press Ltd.

Greenhill. B. 1988. *The evolution of the wooden ship*. New Jersey. B.T. Batsford Ltd.

Period	Mid – post medieval	**Date Range**	15th-19th Century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID **BWL9_0016**	7 x Glass Bottles	
Date of Discovery	22/04/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	-	-
Location Map	**Anomaly Image**	
N/A	N/A	

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Images of object

Description

A group of seven glass bottles were collected from a small area on the quay side. (From left to right)

- Small dark brown glass bottle, unmarked. The top is slightly broken away.
- Tall clear glass bottle, unmarked.
- Tall green glass bottle, unmarked, likely to have been a wine bottle.
- Clear glass bottle marked with “Portsmouth” on one side and “Cooperative milk” on the other side.
- 2x Clear glass bottles marked with a equilateral triangle with the word “Safety” “First” and “Milk Assn” around the boarders of the triangle.
- The Clear glass bottle on the right is marked with “Tom Parker Davies” “Fareham”.

Interpretation

This collection of glass bottles date from the 20th Century and are most likely to have been discarded as rubbish either overboard, from the quay side or further up the channel.

Period	20th Century	**Date Range**	20th Century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID **BWL9_0017**	Refined white ware and concretion	
Date of Discovery	22/04/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	-	-
Location Map	**Anomaly Image**	

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
The ceramic sherd measures 160 mm across and represents only a small fragment of what was likely to have been a plate. Identified by members of the finds department at Wessex Archaeology, the style of the ceramic is known as Refined Whiteware and was in use from the 18th Century to the early 20th Century. This particular example is believed to date from the late 18th to the 19th century. An early style of white and blue ceramics are from the Chinese, but demand and influences lead to the reproduction of many similar designs in Europe. This particular example is attached to a thin layer of iron concretion, covering up any marks underneath, although the sherd is likely to be too small anyway for a makers mark to be visible.

Interpretation
A small sherd such as this may have been broken on board a vessel and discarded overboard, but as it is attached to an iron concretion it is possible that multiple objects went in at once. This could indicate the location of a shipwreck or an area which has seen higher levels of dumping.

Period	Post Med - Modern	**Date Range**	Late 18th -19th Century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID **BWL9_0018**	Large iron socket tool	
Date of Discovery	22/04/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	-	-
Location Map	**Anomaly Image**	
N/A	N/A	

Images of object

Description

The object is made from iron and consists of two interlinked parts. Measuring just over 900 mm in length and with a general diameter of around 28 mm. At one end of the main shaft there is a large hexagonal shaped block. Measuring 60 mm wide and 73 mm in length, the overall shape and depth of this would suggest that it is a socket for the tightening and untightening of large bolts. The other end of the main shaft is a hoop, measuring 30 mm in size, through which the second component, which has an average diameter of 17 mm, is able to freely move through the hoop, with bulbous ends act as stoppers, both ends measure 32 mm and 35 mm in diameter. While the second component is bent, it measures approximately 700 mm, this second component is suggested to be the handle of the tool.

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Archaeological Object Report Form

Interpretation
A likely candidate for a large socket tool that would have been used on ships and on harbours sides for large bolt work. The object was most likely discarded or lost overboard or from the quay side.

Period	late 19th - 20th century	**Date Range**	Late 19th - 20th Century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID **BWL9_0019-0021**	Probable Aircraft Fragments	
Date of Discovery	22/04/2016	
How Discovered	Discovered during on site archaeological monitoring	
Position of Discovery (British National Grid)	-	-
Location Map	**Anomaly Image**	
N/A	N/A	

Images of object

BWL9_0019

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Archaeological Object Report Form

BWL9_0020

BWL9_0021

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

BWL9_0021 – Line of visible rivet holes

All scales in 100 mm sections

Description

BWL9_0019

- The smallest fragment recovered, measuring 310 x 260 mm in its crumpled condition.
- The metal itself is painted black, and has a thin, but extensive covering of marine growth.
- On this example a total of five possible rivet holes can be counted amongst the holes caused by corrosion.
- A length of thin rope is caught between one of the folds, but this is likely to have become entrapped in the fold at a later date.

BWL9_0020

- The middle sized fragment measures roughly 530 x 362 mm, although due to the irregular shape, some further measurements of the intentional folds were made.
- The metal itself is painted black, and has a thin, but extensive covering of marine growth.
- This piece contains at least five intentional folds in the metal, although it had been shaped for a larger object.
- Although this is a larger piece and contains more intentional folds, only five possible rivet holes could be accounted for. Yet this piece has been more affected by corrosion.

BWL9_0021

- The largest and most damaged from this series of three finds measures up to 885 x 620 mm.
- The metal itself is painted black, and has a thin, but extensive covering of marine growth.
- Only two intentional folds in the metal could be observed on this piece and a total of ten possible rivet holes.

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Archaeological Object Report Form

Description
• There are three main areas of damage, where the metal has folded over several times. One of these has a length of black plastic wire casing stuck between the folds, there is evidence of electrical wiring at one end, but it is not obvious if this is a later addition to the wreckage or not.

Interpretation
Images of all three objects were shown to Ewen Cameron, Curator of the Royal Air Force Museum and to Steve Vizard of Airframe Assemblies Ltd. Neither specialist, nor anyone at Wessex Archaeology could confirm or deny if these aluminium sheets once belonged to an aircraft. The damage caused from a possible crash, the fragmentary state of the finds and the corrosive damage all hinder the interpretation. Malleable aluminium would suggest against the theory, but these pieces, while only 1-2 mm thick are very stiff and something notable in aircraft aluminium. One comment, is that the sheeting could have been for the outer skin of an aircraft, but without further evidence for rivets, fixing points, or any other airframe, once again this can neither be confirmed nor denied. Should these be aircraft remains, this would suggest that a crash site may lie within Portsmouth Harbour and this would be a protected war grave under the Protection of Military Remains Act 1986. It is recommended that those working in the area are vigilant to further possible aircraft remains.

Period	First World War - Modern	**Date Range**	20th Century

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Archaeological Object Report Form

UID **BWL9_0022**	Silver Fork	
Date of Discovery	22/04/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	-	-
Location Map	**Anomaly Image**	
N/A	N/A	

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Images of object

Description

This silver four pronged fork measures 175 mm in total length, while the handle is 100 mm and the prongs themselves 50 mm in length. The prongs of the fork have been damaged which may have been caused by the dredging or be the reason for discard. The back of the fork displays a hallmark which is difficult to make out, but part possibly reads “NOX10”? The blackened colour of the fork would suggest that it has been submerged for quite a while.

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Archaeological Object Report Form

Interpretation
This object is likely to represent either lost or discarded material.

Period	20th Century	**Date Range**	20th Century

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Archaeological Object Report Form

UID **BWL9_0023**	Floor Timber	
Date of Discovery	22/04/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	-	-
Location Map	**Anomaly Image**	
N/A	N/A	

Images of object

Scale = 500 mm sections and 100mm sections

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Archaeological Object Report Form

Scale = 500 mm sections

Scale = 100 mm sections

Scarf joint from either end of the timber.

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Archaeological Object Report Form

Description

The timber discovered at the wharf is a floor timber, with a singular recess for the keel rabbet and either side of this there is a single watercourse. The timber's grain is very straight and only a single knot is identifiable along its length, which has been avoided and worked around.

The timber measures a total length of 2100 mm with a width of 150 mm at the top and 130 mm on its underside; and a depth of 150 mm at around the mid-point. Its overall shape is slightly rounded to the base, with the topside width being 150 mm and the underside width of 130 mm. The keel rabbet does not sit exactly at the mid-point with the floor timbers arms extending 940 mm on one side and 880 mm on the other, both of these being measured from the respective watercourse. The keel rabbet measures 130 mm in length, 100 mm in width and a depth of 15 mm, the keel rabbet has a smaller, possibly iron bolt hole measuring 20 mm. Either side of the keel rabbet, at a spacing of 100 mm are the two watercourses. Each watercourse measures 40 mm in width, 100 mm in length and 20 mm in depth. At each extent of the timber is a scarf joint. These are plain scarfs joined by two treenails and measure 280 mm and 300 mm in length. The scarf joints extend up at an angle of 22 degrees on the longer side and 20 degrees on the shorter.

There are 20 treenails visible in the top of the timber, yet only 16 proceed out through the bottom. There are however four sets of treenails that are touching at the entry point but only have one exit, suggesting that one does not pass the whole way through. None of the treenails have been wedged. These additional treenails that do not pass through the whole timber may have been in relation to the ceiling planking. Although there is no noticeable evidence for any timbers crossing the floor timber, either a keelson or ceiling planking. The underside of the timber does not show any obvious evidence for external planking. The treenails are spaced inconsistently, making an estimation of the width of any planking difficult, but general spacing varies between 70 – 200 mm. But without evidence for any clinker joinery, it is likely that this was a carvel built vessel, with planks joining end to end and not overlapping.

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Archaeological Object Report Form

Description

One of the treenails suggests a possible later repair, with an iron bolt or nail running through the middle of it. Other than this there is only one other possible iron bolt, and that is to connect the floor timber to the keel, although the bolt is not *in-situ*.

The timber has some tool marks found with the watercourse recesses, both of these show the chisel marks. The outer surface of the timber revealed little in the way of markings although a close inspection was undertaken. One end of the timber has also been quite heavily attacked by wood borers and this has affected the timbers shape at that particular end.

No other timbers that may relate to this floor timber were recovered and this can be considered an isolated find. The angle at which it appears to have been exposed, looking at the wood borer damage, would suggest that the timber was lying on its side with one side partially exposed from the sea bed.

Interpretation

The floor timber recovered can be considered as an isolated find due to the likely positioning on the seabed and no further relating timbers have been discovered.

The timber would have been a part of a single framed hull with no horizontal fixings to allow for double framing. The timber appears to have been attached to the keel using a 20 mm iron bolt, with ceiling and external planking attached using 25 mm treenails. With a possible later repair seen in one of the treenails which has had an iron nail pushed through its centre. The timbers outer surface has been exposed prior to its recovery, and much of the external details have been removed, with tool marks only discovered within the watercourses. The chisel is a tool dating back to the Neolithic and the first metal examples appeared in the Iron Age over 2000 years ago. The tool marks themselves are very straight and cleanly cut, which would suggest the use of a ‘modern’ chisel, by this meaning one that is constructed from good quality metal and sharp. The outer planking of the boat can be assumed to be of carvel constructions as no evidence exists for a clinker built design.

If this were to be considered as a near mid-ship frame, due to its flat profile, then Desmond (1998 p.53) suggests that in flat floored ships the timber can extend out one fourth of the total

breath. This could be used to suggest a ship with a breath of around 3500-3750 mm, although it cannot be defined where along the ships length this floor timber would relate.

It is common to see treenails with wedges or pegs inserted through their middle, this is to create a much more solid fit as seen of ships such as the *Vasa* (McCarthy 2005 p.66), although this is not a necessity with the *Sea Venture*, which was found to be mostly constructed using un-wedged treenails (Adams 1985 p292). There is no evidence of any wedging of the treenails in the floor timber discussed.

The iron bolts in the timber given some aid towards dating, with very early bolts being produced in 1417 at the Royal forge at Southampton (McCarthy 2005 p.73). These would have been very expensive and unlikely to have been used in anything other than a large naval ship at the time which would date the floor timber to after this date.

What can be said is that the limited used of iron and the high use of treenails would suggest an early date. The form of the floor timber, is not specifically distinctive, being a common form of which similar examples can date back to the Roman period, or to only a hundred years ago. The floor timbers shape and construction techniques are very generic, and without relating timbers from which further conclusions could be drawn, the dating of this timber is exceptionally difficult without the use of dendrochronology. The boat itself is likely to have been a flat bottomed vessel of carvel design, but as for any other dimensions or typology, evidence is too limiting.

This timber is likely to have ended up isolated and partially buried for some time. This can be said due to the wood borer attack to one end and the other end remaining untouched. Repairs have taken place on the timber, yet no further timbers come for the area. This could suggest that a ship has come to the end of its working life and slowly the timbers are stripped from the hulks seen along the estuaries by the constant tidal cycle.

Adams. J. 1985. *Sea Venture*: A Second interim report – part 1. *The International Journal of Nautical Archaeology and Underwater Exploration.* 14 (4). 275-299.
Greenhill. B. 1988. *The Evolution of the Wooden Ship*. New Jersey. The Blackburn Press
Desmond. C. 1998. *Wooden Ship-Building*. Maryland. Vestal Press Inc.
McCarthy. M. 2005. *Ships' Fastenings: From sewn boat to steamship*. Texas. Texas A&M University Press

Period	Post medieval - Modern	**Date Range**	15th – 20th Century

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Archaeological Object Report Form

UID **BWL9_0024**	Timber	
Date of Discovery	22/04/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	-	-
Location Map	**Anomaly Image**	
N/A	N/A	

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
This timber measures approximately 3500 mm and originally looks to of had a square section of around 350 x 350 mm. The timber is well prepared and likely to have been done by machine, there were no visible tool marks along its length, although the timber was in poor condition. The timber's inner structure was almost gone. There are two bolt holes along its length, and one of these shows evidence around the holes to suggest that it was bolted using iron. The overall length and thickness of the timber along with the positioning of the fixing holes would suggest that this is a vertical timber from a wooden harbour/quay side.

Interpretation
This timber is likely to relate to a wooden harbour/quay side. Its length and width suggest that this would have been a vertical timber. With a couple of fixing holes for attachment to the harbour/quay side.

Period	20th Century	**Date Range**	20th Century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID **BWL9_0025**	Timber	
Date of Discovery	22/04/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	-	-
Location Map	**Anomaly Image**	
N/A	N/A	

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
This timber measures approximately 5000 mm and originally looks to of had a rectangular section of around 300 x 100 mm. The timber is well prepared and likely to have been done by machine, there were no visible tool marks along its length, despite its relatively good condition. There are several sets of treenail or bolt holes along its length, in sets of two and spaced around a meter between each set. There was no evidence around the holes to suggest whether they were treenails, iron, or copper. The overall length and thickness of the timber along with the positioning of the fixing holes would suggest that this is a horizontal timber from a wooden harbour/quay side.

Interpretation
This timber is likely to relate to a wooden harbour/quay side. Its length and width suggest that this would have been a horizontal timber. With the series of fixing holes for attachment to the vertical piles.

Period	20th Century	**Date Range**	20th Century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID **BWL9_0026**	Timber	
Date of Discovery	22/04/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	-	-
Location Map	**Anomaly Image**	
N/A	N/A	

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
This timber measures approximately 2500 mm and although in very poor condition, originally looks to of had a square section of around 300 x 300 mm. One end (bottom picture to the right) is much more decayed than the other, this end also has no features to report on. The other end is in much better condition and has a series of four large bolt holes running through. On the other face, right at the end of the timber there is a larger circular cut that overlaps the edge to leave an opening.

Interpretation
This timber is likely to relate to a wooden harbour/quay side. Being a vertical pile, the more degraded end of which would have likely been positioned at the bottom, while the uppermost section, received the least in terms of degradation. The series of holes are likely to have supported the horizontal timbers.

Period	20th Century	**Date Range**	20th Century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID **BWL9_0027**	Timber	
Date of Discovery	22/04/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	-	-
Location Map	**Anomaly Image**	
N/A	N/A	

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
Approximately 800 x 450 mm timber block. The timber has two large holes for either bolts or treenail, and with one hole slightly out sizing the other. There was no evidence to suggest whether or not it was bolted or treenailed for attachment. But it displays no obvious tool marks and its square sides and corners suggest it was likely to have been machine cut.

Interpretation
This timber is likely to have been a part for a wooden harbour/quay side. Wear to the timber would suggest that this is of a modern date.

Period	20th Century	**Date Range**	20th Century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID **BWL9_0028**	Metal cover	
Date of Discovery	22/04/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	-	-
Location Map	**Anomaly Image**	
N/A	N/A	

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
Circular metal object measuring 550 mm in diameter. There are a total of nine holes of slightly varying sizes positioned around the object. The four close together and the two holes found opposite that break the borders of the object, together suggest a hinge and handle setup. This may be a cover from on board a vessel of some kind, possibly a service hatch, or to be part of the harbour side itself.

Interpretation
The object is likely to be a service hatch or similar from on board a vessel, and is likely to have been dumped overboard at some point.

Period	20th Century	**Date Range**	20th Century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID **BWL9_0029**	German “Spreng Cylindrisch” 50kg HE bomb	
Date of Discovery	28/04/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	-	-
Location Map	**Anomaly Image**	
N/A	N/A	

Images of object

50cm sections on front scale

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description

The bomb is difficult to get dimensions of in its deformed state. But it was approximately 1600 mm in length. The surface of the metal was very clean, with no evidence of suspension lugs, markings on the metal or any evidence of a fuse. This was a very successful detonation of a bomb.

The nose cone is attached to approximately a quarter of the main body, this has been spread out by the force of the explosion. Similarly, the tail end is barely attached but displays the full base of the bomb which has a diameter of 300 mm. The thread into with the cavity of the bomb would be filled and tail fins attached was cracked through in one spot, measuring 175 mm in diameter and a thread depth of approximately 45 mm, demonstrating the force of the explosion.

Interpretation

Photographs taken by Wessex Archaeology of this exploded piece of ordnance were shown to Lt Col Norman Bonney, research officer from the National Armouries for identification.

The interpretation received on this large sized bomb, is that it is a Second World War German “Spreng Cylindrisch” 50 kg HE General Purpose Bomb. This type of bomb was used extensively during the Second World War by most of those involved.

This particular example is one of the most common to be used, dropped extensively from almost any type of German plane. This bomb was dropped on Portsmouth Harbour during one of the German air-raids.

Period	20th Century	**Date Range**	Second World War

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0030	2 x Leather shoe soles	
Date of Discovery	08/07/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	**N/A**

Images of object

Scale 500mm

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
Two similarly sized and designed shoe soles. The first measures 275 mm in length, where it is broken at the toe. The leather is in very poor condition. It is constructed using pins and also possibly glue. There is a possible partial date on the sole of the shoe ending in "…918". The shoe is likely to have been either a size 9 or 9.5 in UK sizing. The second of the two shoe soles measures 285 mm in length. This is in slightly better condition with some of the upper shoe still remaining, which shows that the shoe would have been made of suede leather. The construction is similar except for a second internal row of stitching holes. On the sole of the shoe are the numbers "9" and "5" positioned one above the other, this is likely to be the shoe size 9.5 in UK sizing, which measures 280-285 mm in length. Above this is the partial date of "195…" and below this the partial makers name of "CO…INS & SONS". This is believed to be a Northamptonshire based shoe maker, Coggins Shoes. Founded in 1892, they were mostly commonly known for their production of Army and Navy work wear for the First World War.
Interpretation
Both shoe soles are likely to have ended up in the sea either by being washed in from the shore or having been discarded overboard on separate occasions.

Period	Modern	**Date Range**	c.1918-1959

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0031	Iron Porthole	
Date of Discovery	08/07/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Scale 500mm

Description

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

An oval shaped porthole, constructed of iron and with some remaining iron plating around the outside edge. The internal measurements for the porthole are 360 mm x 285 mm, the width of the rim is 45 mm and it is fastened with 15 mm rivets. The outer rim is mostly covered by concretion. The iron plating is very thin and fragmented, with multiple 20 mm fixing holes.
Interpretation
The porthole is likely to have been discarded into the sea, possibly during repair work. It is unlikely to have fallen from a ship or to relate to the site of a shipwreck as no other material or obstructions were recovered with it.

Period	Modern	**Date Range**	Modern

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0032	Wooden hatch/lid	
Date of Discovery	08/07/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Images of object

Scale 500mm

Defence Infrastructure Organisation

Boskalis Westminster

wessex archaeology

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Defence Infrastructure Organisation

Boskalis Westminster

wessex archaeology

111320

09/09/2016

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
The wooden hatch or lid measures a maximum of 335 mm in length, 305 mm in width and a depth of 45 mm. The wood is straight grained and the sides are worked to a smooth and rounded finish, indicating that these are the original edges. Strangely the copper alloy hinges are not positioned at right angles to the sides as expected. The hinges themselves possibly date the object to post 1966, with the wording “Item 15 1966, Moyle” on each, although this may just relate to the part number. At the opposite end to the hinges there is an iron plate screwed and nailed into place, the wood underneath this plate is very worn, which may indicate that this is a repair. The iron plate measures 305 mm long and 75 mm wide.
Interpretation
Searches into the name on the hinges has not revealed any further information on the object. The hinges would suggest a hatch or lid, yet the strange angle which it is set at and the iron plate along the bottom edge confuse the interpretation.

Period	Modern	**Date Range**	Probably c.1966

Museum Acc No. : 2015/462

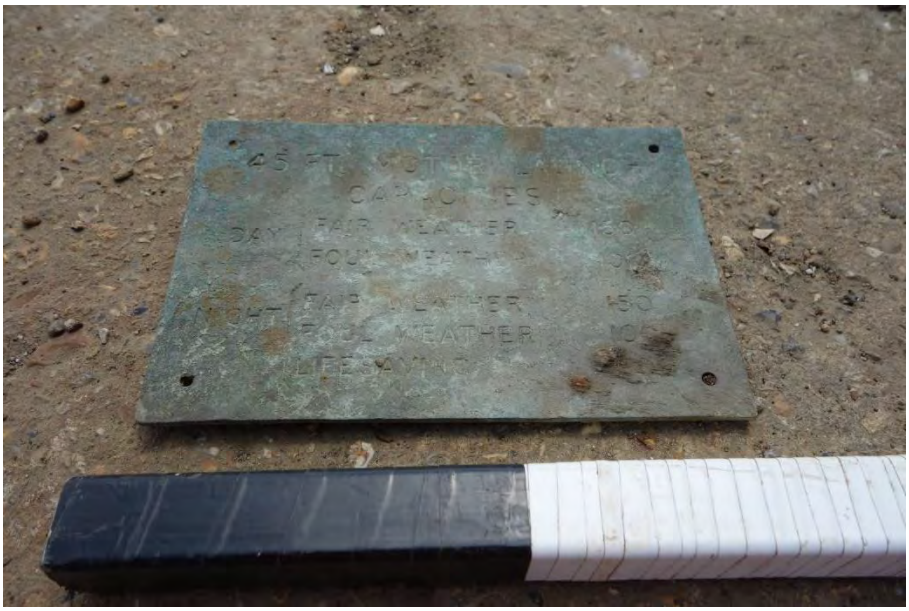
Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0033	Motor launch plaque	
Date of Discovery	08/07/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	**…….. E**	**……. N**

Location Map	**Anomaly Image**
N/A	**N/A**

Image of object



Scale 100mm sections

Defence Infrastructure Organisation

Boskalis Westminster

wessex archaeology

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
The plaque is made of copper and measures 154 mm across and 103 mm in length and with a thickness of 3 mm. The plaque was attached through small holes in each corner, measuring 3 mm in diameter. On the plaque the writing reads: 45FT MOTOR LAUNCH CAPACITIES DAY – FAIR WEATHER 150 - FOUL WEATHER 100 NIGHT – FAIR WEATHER 150 - FOUL WEATHER 100 - LIFE SAVING [??] The capacity figure after lifesaving is obscured. The reverse side has writing, but this is covered and almost unreadable.
Interpretation
The plaque reads '45 ft motor launch'. A motor launch was a small coastal military vessel during the First World War. They were used for harbour defence, submarine chasing and for high speed sea rescues. They were designed to be a small fast boat, capable of reaching speed in excess of 30 knots. Many of these vessels were sold on after the war as motor yachts. Whether this plaque is from one of these boats is unclear, as the capacities are very high for such a small boat. The 40 ft coastal motor boats only carried a compliment of 2-3, while the larger 75 ft motor launch boats had a compliment of 8 crew. Alternatively, a Launch is a type of open motorboat and the finding of this plaque would suggest that a 45 ft vessel was operating in the area. With the listed capacities, it may be a small ferry or similar type of water transport vessel. Given nothing else related to the find was recovered, it is likely that this was either discarded or washed into the sea as an isolated object.

Period	20th century	Date Range	c. post 1916

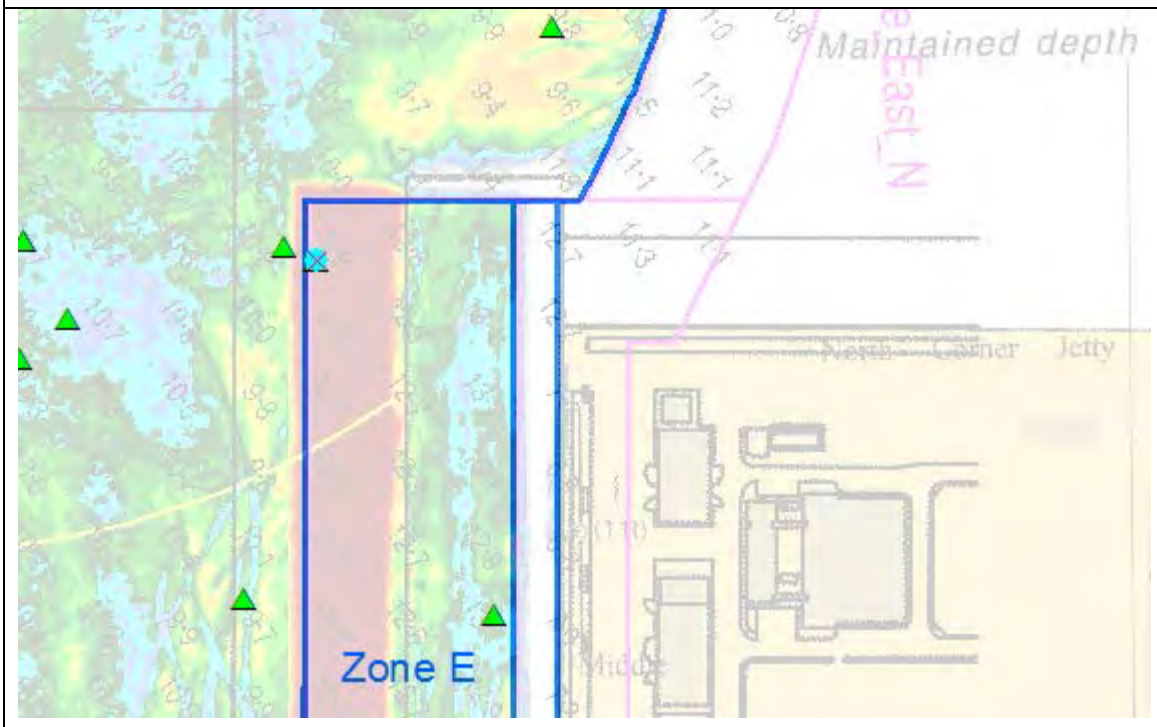
Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0034	Baldt Stockless Anchor	
Date of Discovery	01/09/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	**462604 E**	**101226 N**

Location Map



Anomaly Image

N/A

Images of object

Defence Infrastructure Organisation

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Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Scale 500 mm

Defence Infrastructure Organisation

Boskalis Westminster

wessex archaeology

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Scale 500 mm

Defence Infrastructure Organisation

Boskalis Westminster

wessex archaeology

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Scale 500 mm

Defence Infrastructure Organisation

Boskalis Westminster

wessex archaeology

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Scale 500 mm

Description
A forged iron stockless anchor, likely to be of Baldt type, measures 1.56 m along the shank. The shank is a rectangular profile measuring 0.13 m x 0.16 m at the centre point. The shank tapers off towards the head. At the head of the shank is an anchor shackle, 0.46 m long and 0.26 m wide. Two further, smaller, shackles are attached to this followed by a short length of non-studded chain. The shank is attached to the crown by a ball and socket joint. The bill to bill measurement on the anchor is 1.05 m, with the palms measuring 0.91 m in length and a maximum of 0.45 m wide with a thickness of 0.06 m. The tripping palms each measure 0.68 m long by 0.36 m wide with a thickness of 0.04 m.
Interpretation
The Baldt Anchor company of Chester, Pennsylvania, patented the stockless anchor design in 1897. Circumstances and date of deposition are unknown, although the anchor may have been lost in use and/or abandoned. Alternatively, it may have been used as a mooring anchor given the find location just off the naval base. It appears to be an isolated find.

Period	20th century	**Date Range**	1897 - present

Museum Acc No. : 2015/462

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0035	Cannonball	
Date of Discovery	01/09/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Scale 200 mm

Defence Infrastructure Organisation

Boskalis Westminster

wessex archaeology

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

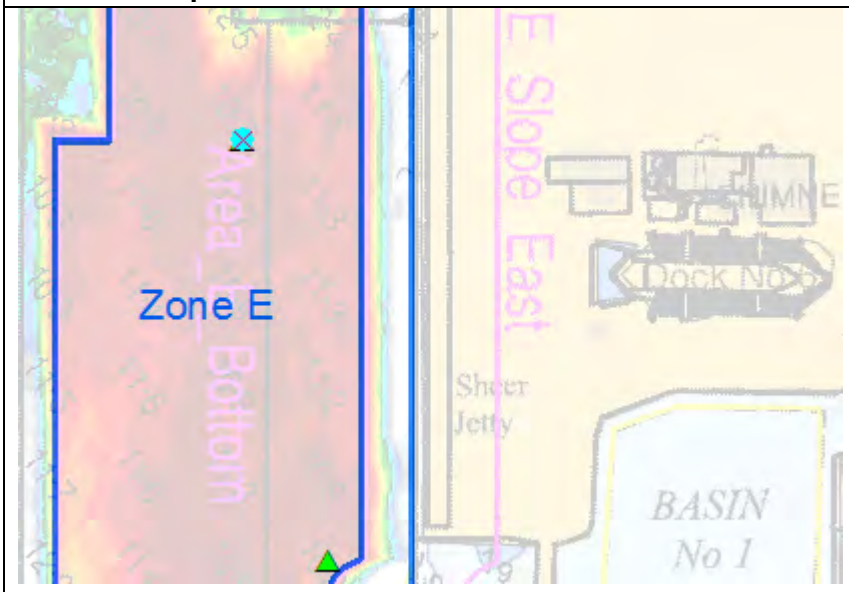
Description
Five inch cannonball with some heavy concretion attached. The diameter of the cannonball is 130 mm, it weighs 13.5 kg or 30 lbs.
Interpretation
Cannonballs are a common occurrence in the waters around Portsmouth, with a long running naval history in the area. It is unlikely to relate to the site of a shipwreck as no other material or obstructions were discovered in the location.

Period	Medieval – post-medieval	**Date Range**	16th – 19th Century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0037	Mid-section of Torpedo	
Date of Discovery	9/09/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	**462643.8 E**	**100863.4 N**

Location Map	**Anomaly Image**
	N/A

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
Cylindrical tubular mid-section of a torpedo. The section measures 3680 mm in length and 533 mm (21 inch) in diameter. Both ends are domed; one end protrudes 70 mm from the cylindrical tube and the other end protrudes 120 mm and also has a threaded bolt end that protrudes even further. The threated bolt end is 30 mm diameter and has '185' embossed on the end. It is in a raised ring that is 80 mm diameter. The torpedo cylinder has a degraded paint coating.
Interpretation
This section of a torpedo is from a 21 inch torpedo, the most common size produced by the British. The 21 inch torpedo was used by submarines, destroyers and motor torpedo boats, with the smaller 18 inch models being used mainly by aircraft. They were first used in service in 1916 and while the design was updated over time, the 21 inch torpedo continued in use throughout the Second World War. Since the Second World War, there have been only a few records of casualty due to torpedoes, such as when HMS *Conqueror* sank ARA *General Belgrano* with three 21 inch MKVIII** during the Falklands War. Dependant on the mark, torpedoes would typically carry between 250 – 800 lb of explosives, often TNT or torpex. This size of torpedo commonly had a total length of around 22 feet or 6.8 metres. Some of these were capable of travelling at up to 40 knots, and had maximum ranges of over 18,000 yards. The section that is described here is the mid-section of the torpedo, known as the air flask. It would be pressurised up to around 2200 psi, and the air would be used to run the torpedo engine by providing the oxidiser needed for combustion. The air would be extracted through the small valve situated at the aft end of the air flask, part of this remains as a threaded bolt with '185' embossed into the end. This torpedo section may relate to the torpedo school at Horsea Island which opened in 1889. In 1923 the school moved to HMS *Vernon* shore establishment at Gunwharf close to the harbour entrance. Torpedo trials continued in and around Portsmouth until the school moved to Stokes Bay in 1939. It is possible that this component was either lost or discarded during the torpedo schools time at Portsmouth.

Period	20th Century	**Date Range**	c. 1916 - 1939

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

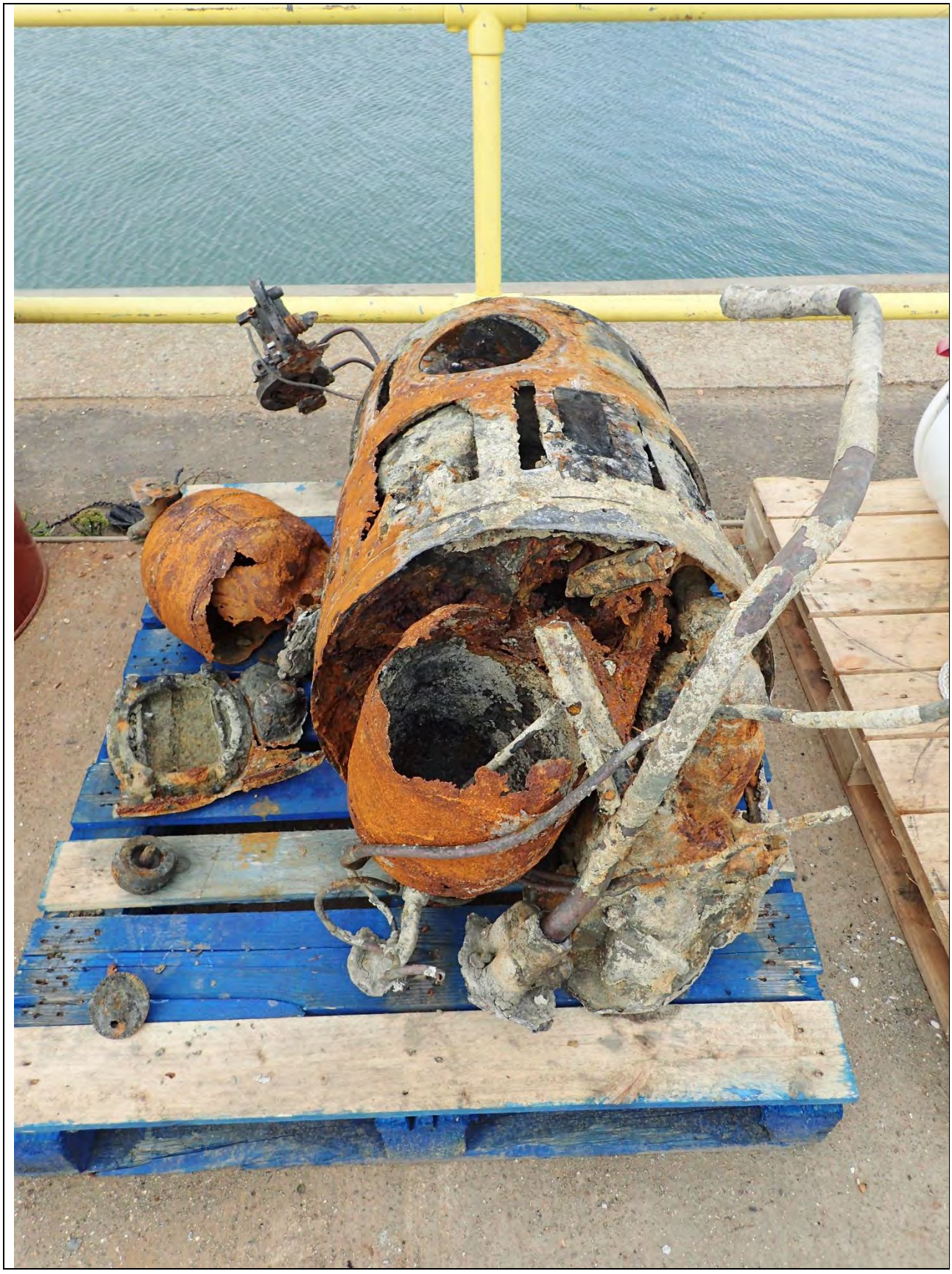
UID BWL9_0038	Brotherhood Burner Cycle engine from a 21 inch torpedo	
Date of Discovery	9/09/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form



Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Scale 200 mm sections

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Scale 100 mm sections

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Possibly the starting gear.

The steering engine or depth mechanism

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
Cylindrical remains of an engine with separate cylindrical tank, with visible remains of a hatch and two cogs. The cylindrical barrel of the engine is 565 mm long and *c*.500 mm diameter. A shaft protrudes from one end of the cylinder and is 60 mm diameter and 280 mm extant from where the remainder has been removed. The remains of half of an air cylinder are attached at the opposite end and it is 230 mm at its widest point with 360 mm remaining in height. Another completely detached air cylinder is mostly extant and shows that the full height of these air cylinders is 380 mm and also 360 mm diameter. The hatch is 200 mm wide and 160 mm high with a bolt in each of the four corners. It is made from a different type of metal to the rest of the engine and is still grey and not rusted. It appears to be an access hatch for up to two controls along one of the long edges.
Interpretation
The two fuel tanks would suggest that this is a Brotherhood burner-cycle engine. Used by the British from the First World War and throughout the Second World War in both the 18 inch and 21 inch torpedoes. Effectively this was a semi-diesel engine, with one cylinder filled with air and the other filled with a kerosene fuel. The air in the cylinder would be pressurised and heated to around 1,000 degrees. Injecting the hot gas into the engine mixed with a small amount of kerosene fuel created the combustion required to power the engine. The diameter of the engine would be from a 21 inch torpedo, commonly used by submarines, motor torpedo boats, cruisers and destroyers. The open circular hatch seen on the top is possibly the top of the gyro clamp plate and cover. The gyro mechanism would be responsible for controlling the steering rudders. Close by this is what is either the depth or steering engine, featuring a small dial. Both of these are found on either side of the gyro as they each connect to the torpedoes' rudders, one to the depth rudders, the other to the steering rudders. All three components are closely grouped as all three work with the rudders. Another feature on the engine is the starter mechanism (pictured above). A small switch would have protruded from the torpedo body allowing it to be switched on and off. When fired from a torpedo tube the switch would be moved to the rear by the tripping latch, turning the torpedo on as it is fired. Torpedoes found in this area are likely to have derived from the torpedo training range which opened on Horsea Island in 1889. The torpedo school later moved to HMS *Vernon* at Gunwharf in 1923. Torpedo trials continued around Horsea Island until around 1939, when trials moved to Stokes Bay Torpedo Experimental Station once it became apparent that the 1,100 yard range at Horsea Island was too short for modern torpedo testing. Horsea Island continued to be involved with the motor torpedo boats and submarine trials. So it is possible that this torpedo engine is the result of the training school, possibly being discarded.

Period	Modern	**Date Range**	c. 1916 - 1939

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0039	Cannonball	
Date of Discovery	04/10/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	…… **E**	…… **N**

Location Map	**Anomaly Image**
N/A	N/A

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Image of object

Scale 200 mm

Description
This iron cannon ball measures 146 mm in diameter, and weighs 14.5 kg or 32 lb.
Interpretation
Cannonballs are a common find, especially in areas such as Portsmouth, with a long naval history. The cannon ball weighs 32 lb which would be from a 32 pounder cannon.

Period	Medieval – post-medieval	**Date Range**	16th – 19th Century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0040	Wynandfockink, Amsterdam jug	
Date of Discovery	04/10/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	…… **E**	…… **N**

Location Map	**Anomaly Image**
N/A	N/A

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
The bottle measures 272 mm in height and has a diameter at the base of 90 mm, the ceramic is 5mm thick. It is made of a stoneware ceramic in an apollinaris form. It has “Wynandfockink, Amsterdam” printed on one side and a number “2” on the other.
Interpretation
The bottle has been assessed by Wessex Archaeology’s Senior Post Excavation Manager Lorraine Mepham. She described the find as an almost complete wheelthrown cylindrical salt-glaze stoneware genever (gin) bottle (1-litre size), with traces of applied single looped handle on the shoulder (handle and rim missing); stamped ‘WYNANDFOCKINK / AMSTERDAM’ on shoulder opposite handle, and ‘2’ under lower handle attachment. Wynand Fockink started a liqueur distillery in the Pijlsteeg in Amsterdam in 1679, and the company is still trading today, making liqueurs and genevers (Dutch gin) although taken over by Lucas Bols in 1954 (http://wynand-fockink.nl/tasting-tavern/history). This bottle is of later 19th or early 20th century date – the same form was also used for seltzer (mineral) water imported from France and Germany.

Period	Modern	**Date Range**	19th – 20th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0041	Stoneware jug handle	
Date of Discovery	04/10/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
This is a fragment of a much larger vessel, the mouth of the jug measures 55 mm across with an internal diameter of 33 mm. The ceramic is between 5 and 6 mm thick. The handle is 20mm wide and the handle hole measures 55 x 40 mm. It is made of a ceramic known as stoneware.
Interpretation
The handle belongs to a large jug and is made of a ceramic known as stoneware. Stoneware is fired at temperatures between 1100 and 1300 degrees, and has a long running history, with evidence of its use dating back several thousand years, and it is still produced today. The jug is likely to have been of German origin and dates between the late 17th and early 18th century. It is probably that the jug was broken and discarded overboard.

Period	Post-medieval	**Date Range**	Late 17th – 18th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0042	Eleven glass bottles	
Date of Discovery	04/10/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of objects

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
A collection of 11 modern glass bottles. (From left to right) - Small clear bottle, possibly a perfume bottle. Measures 135 mm in height. - Clear glass, 'Portsmouth Cooperative Milk' bottle. Measures 217 mm high. - Clear glass, possibly a perfume bottle. Measures 154 mm. - Large green bottle, possibly for wine. Measures 320 mm. - Clear glass jar, likely to have been for food storage. Measures 153 mm. - Clear glass, 'Gordons Dry Gin' bottle. Measures 232 mm. - Clear glass jar, with six sides. Measures 136 mm. - Small clear glass bottle. Measures 180 mm. - Tall brown glass beer bottle. Measures 255 mm. - Short brown glass beer bottle. Measures 157 mm. - Clear glass bottle with a broken neck. Measures 230 mm. All but two of the bottles are unmarked and would have had labels attached.
Interpretation
The bottles are not related to each other and were collected during quay side archaeological monitoring. They are likely to have been discarded over board or possibly washed into the sea from the shore.

Period	Modern	**Date Range**	Modern

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0043	W.P.Heartly jam jar	
Date of Discovery	04/10/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	…… **E**	…… **N**

Location Map	**Anomaly Image**
N/A	N/A

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
The jar is made of a stoneware ceramic with a feldspathic glaze. It measures 134 mm tall with a diameter at the base of 95 mm which increases to 100 mm at the mouth. The jar is 5 mm thick, giving an internal opening at the mouth of 90 mm. On the base it is inscribed with “W.P. Hartley. London. Liverpool” with an image of a light house.
Interpretation
W.P. Hartley produced jam preserves in Lancashire from 1871. In 1874 the business moved to Liverpool and began to produce jams, marmalade and jellies. In 1884 the company changed its name to William Hartley & Sons Limited. This would date this particular jar to between 1874 and 1884. It is likely to have been discarded after use.

Period	Modern	**Date Range**	1874-1884

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0044	Wooden pulley wheel	
Date of Discovery	04/10/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
The object is made of wood, with a central hole and a curved groove cut around it's circumference. It has a diameter of 185 mm and the inner hole has a diameter of 42 mm. It has a thickness of 36 mm and the groove is 32 mm wide.
Interpretation
The object is a pulley wheel, and would have had many uses on board ships as well as in the harbour. It is likely to have been used for the loading and unloading of goods being transported overseas and around the coasts of Britain. Pulley wheels are difficult to date, the pulley has been in use for hundreds of years and wooden wheels can still be found today. It may have broken off while in use within Portsmouth harbour or have been discarded or lost.

Period	Medieval – modern	**Date Range**	Medieval - modern

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

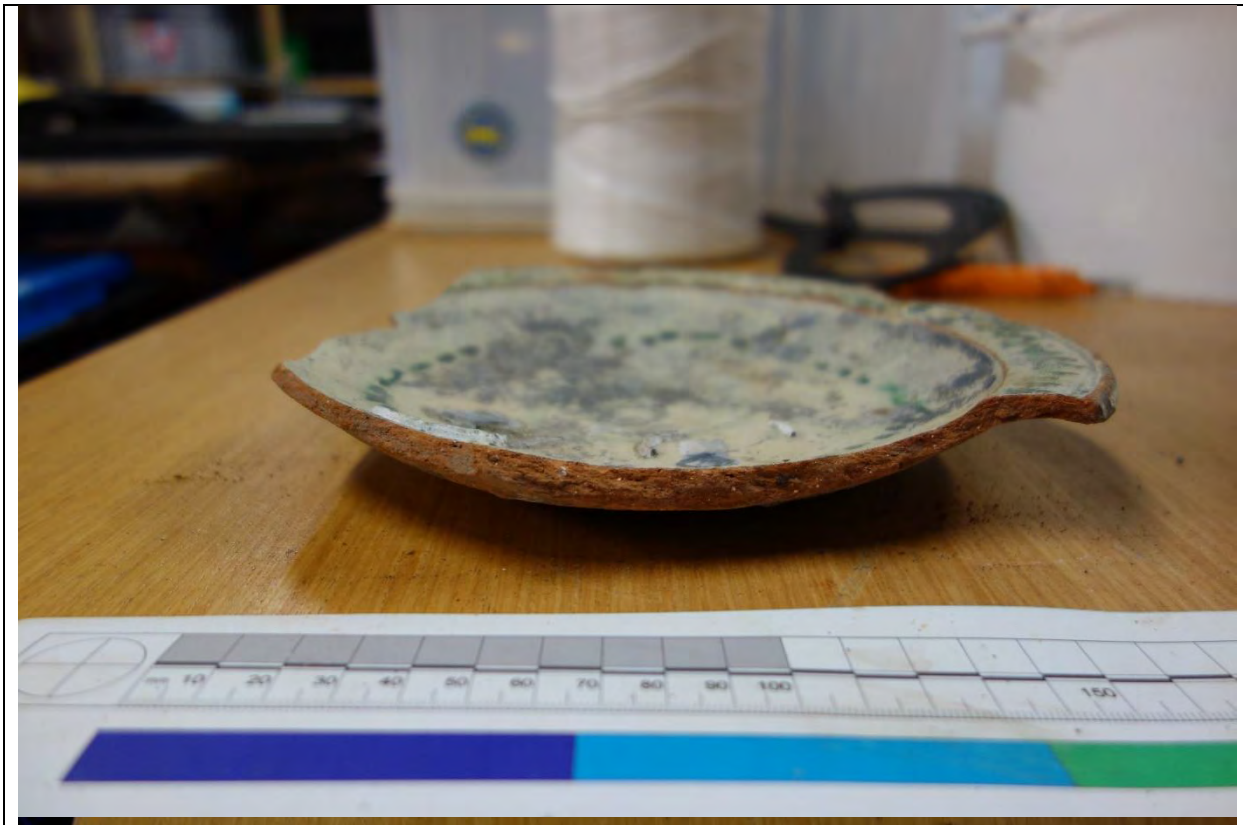
UID BWL9_0045	Tin glaze plate	
Date of Discovery	04/10/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form



Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
This plate is made of an earthenware ceramic with a tin glaze. The remains of the plate measure 217 mm at its widest. The rim is 23 mm wide and is 5 mm thick, the base of the plate has a thickness of 7 mm. It is decorated with a very simple and hand painted design, with a central spiral and a series of dots around the base and the rim.
Interpretation
Tin glazing involves the use of a tin oxide based glaze that is used to give the object a white, glossy, finish, and is often applied to a red earthenware. In this example it looks although only the top of the plate was glazed, while the base remained its natural red. Often this was used to form the base colour, and then patterns would be hand painted over the white finish. Tin glazed pottery is known to date back to around the 8th – 10th century in and around Iraq and Egypt. While appearing later in Europe, around the 13th century. This style of ceramic is still in use today in the Mediterranean. This example is likely to date around the 18th century and to have come from the Continent, most likely from either France, Italy or Spain. The plate may have been lost or discarded over board after being broken.

Period	Post medieval - modern	**Date Range**	17th – 19th Century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0046	Rolls Razors tin lid	
Date of Discovery	04/10/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
The tin lid measures 142 mm long and 50 mm wide, including the hinge it is 150 mm long. There is a lip around the edge of the lid that is 4 mm long and the metal is very thin, measuring just under 1 mm thick. It has a 3-row Greek key design and the company logo stamped in near the hinge. The tin lid is made of a copper alloy with a nickel plating.
Interpretation
The tin lid belongs to a Rolls Razor shaving set. Rolls Razors began trading in 1927, trading in both the UK and the US This particular lid is likely to belong to the Imperial No. 2 set, which was a later design issued in the 1930s, which was the basic set consisting of a razor in a nickel plated tin with the 3-row Greek key design on the lid. This was one of the most common versions purchased, and would have cost around £1 in 1938. The company went into liquidation in 1964.

Period	Modern	**Date Range**	c.1930-1964

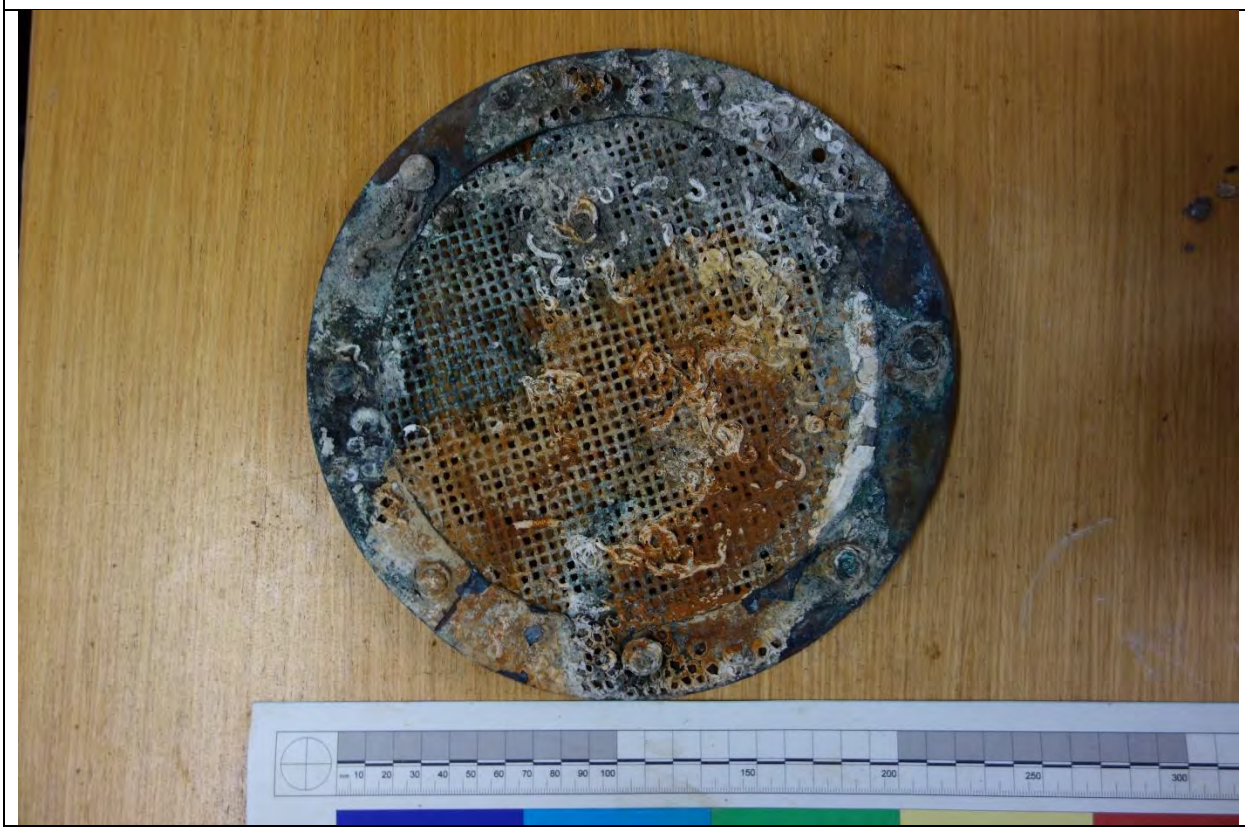
Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0047	Air vent cover	
Date of Discovery	04/10/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Images of object



Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description			
The object is made from a copper alloy and consists of a circular frame with mesh covering the interior. It was held in place by eight screws which measure 6 mm in diameter. The object itself measures 230 mm in diameter, 180 mm internal diameter, and is 2 mm thick.			
Interpretation			
It is possible that this object is the cover for a vent, for either air or steam. It may have belonged to a ship or a building in the harbour. It may have been discarded in to the sea after being removed or dislodged from its position and lost.			
Period	Modern	**Date Range**	Modern

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0048	Deck light glass	
Date of Discovery	04/10/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	**…… E**	**…… N**

Location Map	**Anomaly Image**
N/A	N/A

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description			
The object is made of clear glass. It is an elongated shape and measures 242 mm in length, 38 mm wide and 15 mm thick.			
Interpretation			
This object may be a part of a deck light from a vessel. The glass would have covered the light bulb, protecting it from damage and also diffusing the light beam. The fitting may have come loose and lost over board or possibly may have been discarded during a refit.			
Period	Modern	**Date Range**	Modern

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0049	Ship's speaking tube	
Date of Discovery	04/10/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	…… **E**	…… **N**

Location Map	**Anomaly Image**
N/A	N/A

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
The object is the end of a tube with a hinged lid on one end, it is made of copper. The object measures 180 mm long and the open hole is 80 mm in diameter. The lid is 150 mm wide and 160 mm high.
Interpretation
The object is probably the end of a speaking tube, commonly used on board ships to give orders, such as to the engine room. But they were also used in submarines, trains, aircraft, automobiles and in buildings. Copper speaking tubes were used on ships from the early 1800s and were still in use during the Second World War. A lid was used to keep out the rain and sea spray, so this particular example was probably located on deck. Often a name plate would be on the lid to show where on the ship the other end of the speaking tube is located, although there is no evidence that one was present on this example.

Period	Modern	**Date Range**	c.1800-1950

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0050	Two animal bones	
Date of Discovery	04/10/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
Two fragments of animal bone. The left measures 97 mm at its widest and 162 mm in length. The one on the right measures 47 mm at its widest and 125 mm in length.
Interpretation
Both fragments are bleached and have some iron staining visible, suggesting they have been in contact with an iron rich area while on the seabed. One is the distal end left humerus from a large mammal, most likely cattle or horse. The other is a fragment of a long bone. They were possibly eaten on board and then discarded over the side. Or they may have been washed into the sea from a terrestrial context.

Period	Unknown	**Date Range**	Unknown

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

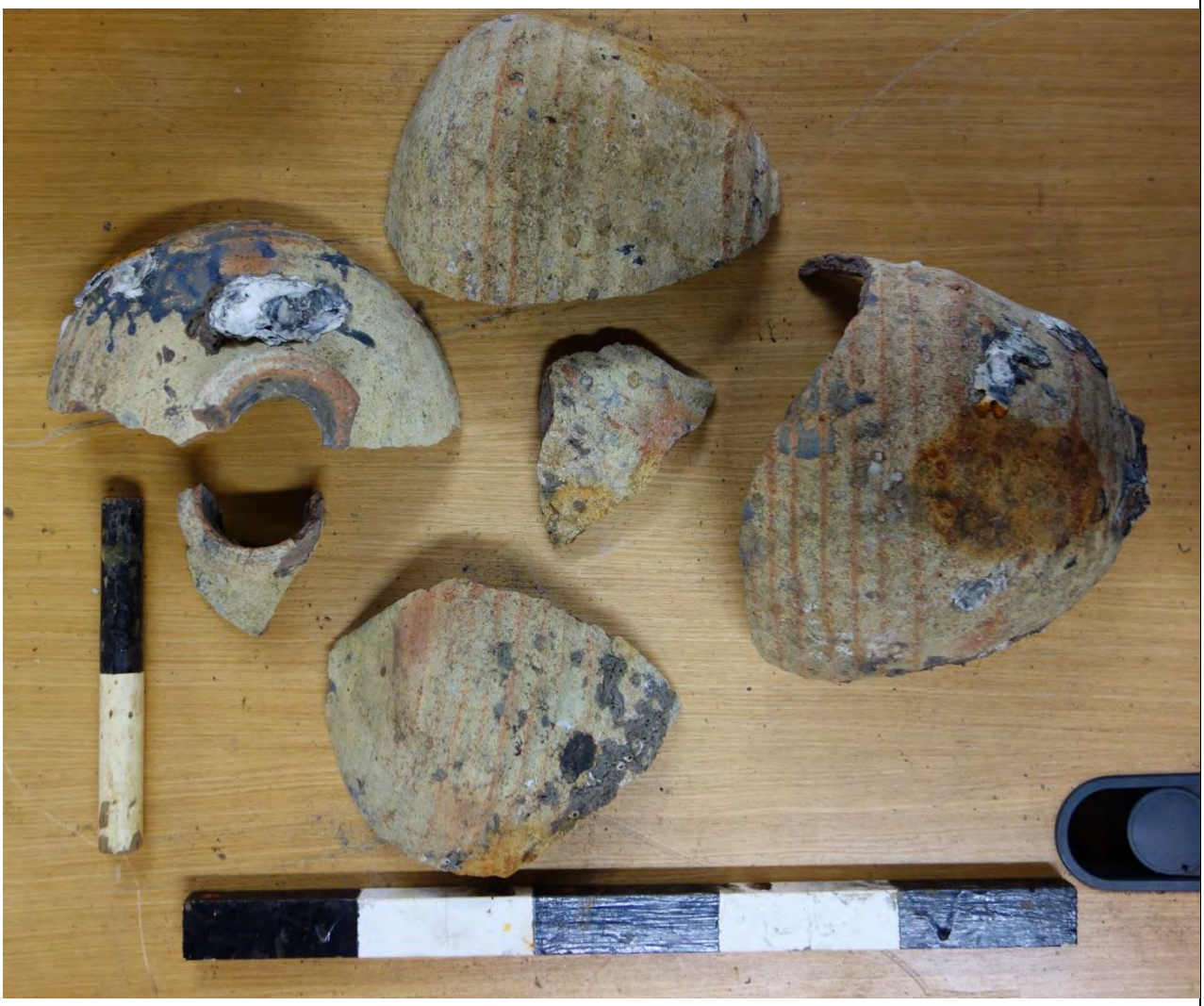
UID BWL9_0051	Olive jar	
Date of Discovery	04/10/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	**…… E**	**…… N**

Location Map	**Anomaly Image**
N/A	N/A

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Images of object



Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Scale 100 mm sections

Description
The jar was unfortunately found in six pieces, but does fit together to form a complete jar. The breaks are relatively fresh which would suggest that the jar was complete on the seabed and was broken during recovery by the dredger. The height of the complete jar is 280 mm and is 240 mm across at its widest point. The base is rounded and has a thickness of 15 mm. The rim is 90 mm in diameter with an interior diameter at the mouth of 62 mm. The rim is 14 mm wide and 30 mm high and the neck of the vessel is 6 mm thick.
Interpretation
This object was assessed by Wessex Archaeology's Senior Post Excavation Manager, Lorraine Mepham. She described it as sherds of an olive jar of globular form, with a thickened rim. The early classification of these jars by Goggin places this example in his Middle Style Type A jars (Goggin 1960; Hurst et al. 1986, fig. 29, no 79), which he dated as c. 1580–1780. The rim form of this example is of thickened or 'doughnut' type (Marken 1994, fig. 4.2), and the whole is comparable to a vessel from an Armada vessel of 1588 (ibid., plate 4), although a later date within the range is equally possible. The vessel is described as an 'olive jar' - the Spanish botija (jar) or botija perulera (wide-bellied jar) - although the form was also used for honey, wine and vinegar. Olive jars were made in the Seville area of Spain; these post-medieval examples follow in a long (although not continuous) tradition starting with Roman Dressel 20 amphorae and continuing through the medieval period. <u>References</u> Goggin, J M, 1960, The Spanish Olive Jar: an introductory study, Yale University: Publications on Anthropology 62 Hurst, J G., Neal, D S and van Beuningen, H, 1986, Pottery Produced and Traded in North West Europe 1350–1650, Rotterdam Papers 4 Marken, M W, 1994, Pottery from Spanish Shipwrecks 1500–1800, Gainesville: University Press of Florida

Period	Post-medieval	**Date Range**	c. 1580-1780

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0052	Ten Modern plates	
Date of Discovery	04/10/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of objects

Scales 100 mm sections

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
A collection of ten modern plates and dishes. - Four of the plates are made by TBA Steelite. They are decorated with three coloured circles of dark blue, red then light blue. They are dated 1998 and 2000 and all four measure 228 mm in diameter. These plates are generally sold to the catering services. - One of the plates made by OGC buying solution 2003 and is the same as the TBA Steelite plates. - Two of the plain white plate are marked 'Crown suppliers, Wood & Sons'. One is dated 1988, and the other 1989. Both have a diameter of 230 mm. - The white and green floral dish is made by Copeland & Garrett. The company used this name between 1833 and 1847. The dish is broken and measures 250 mm at its widest point. - The small white saucer measures 160 mm in diameter, and is made by Buffalo China in the USA - The plain white bowl measures 180 mm in diameter and is marked with 'Woods 1973' and a broad arrow.
Interpretation
The most numerous plates are made by TBA Steelite, these are sold the catering companies and are likely to have been on board a large ship, such as a ferry. They are likely to have been discarded overboard or lost. The oldest of the objects is the Copeland & Garrett floral dish, a well-known and desirable company that followed the Spode brand. It is probable that these plates were all either lost or discarded over the side of a passing ship.

Period	Modern	**Date Range**	c. 1833-2003

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0054	Possible ship's timber	
Date of Discovery	16/02/2017	
How Discovered	Recovered by grab and recovered during quay side archaeological monitoring.	
Position of Discovery (British National Grid)	**…… E**	**…… N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
A timber measuring 1860 mm in length with a maximum width of 240 mm and a thickness of 100 mm. The timber is in very poor condition being largely eroded and subject to a heavy attack from wood boring organisms such as gribble and shipworm. At one end, there is a possible treenail hole measuring 18 mm in diameter, towards the centre there is a circular concretion measuring 60 mm in dimeter and at the other end there is a second possible treenail hole measuring 14 mm in diameter.
Interpretation
The timber has a relatively consistent thickness of around 100 mm that is likely to suggest that it has been worked into a plank. The evidence of two possible treenails and a small concretion would also support that this is a worked timber. The concretion does not appear to cover any fastenings. The timber is in a very poor condition which obscures any positive identification of the timber's source. However, it may be that the timber relates to a quayside structure such as pilings and it being a ship's timber cannot be ruled out. The timber was not recovered with any relating material and is likely to have been an isolated object. The dating of a timber in this condition is very difficult and only a speculative date range can be given.

Period	Post-medieval – modern	**Date Range**	c.18th-20th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0055	Worked timber with sheathing	
Date of Discovery	13/12/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
The timber measures 2520 mm in length and has a square profile with maximum dimensions of 336 x 316 mm. The timber itself is in very poor condition with approximately half of the timber having been lost to wood borers such as shipworm and gribble as well as other damage. There are several tubes of calcium carbonate visible which are left by the boring shipworm. There is evidence on all four faces of the timber of copper sheathing, which would have covered the majority of the timber's surface. There is also indication of the joinery used on the timber, at one end there is an angled face that would have been a scarf joint. The join is damaged, but the remains of two treenail holes are visible in the break. In the centre of the timber there is a raised section on one face running at a slight angle across the timber, this may be where it attached to horizontal timbers, although there are no treenails holes relating to this area.
Interpretation
This timber is likely to have been used as a dock pile. Although the timber is badly damaged, this conclusion is made due to the presence of copper sheathing on all four faces, which would suggest that all sides were exposed to salt water. Copper sheathing was developed by the Royal Navy during the 18th century and was used to protect the wood form wood boring organisms. The timber has become exposed and affected by the presence of wood borers in the surrounding waters. The scarf joint at one end would have attached to another timber in order to extend the overall length. While the horizontal join may have been for crossing timbers used to support the structure giving it additional strength. The timber is likely to have been part of a harbour structure and may have been discarded after having been replaced or lost due to excessive damage from wood borers.

Period	Post medieval - modern	**Date Range**	18th-19th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0057	Fragments of 42' Launch (BWL1_0069)	
Date of Discovery	21/11/2016	
How Discovered	Recovered by grab and recovered during quay side archaeological monitoring.	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
Five loose fragments from BWL1_0069 collected from the quayside: • Two disarticulated planks; • One floor timber frame and attached sliver; • A section of double diagonal planking and frame; and • An unidentified timber wedge.
Interpretation
These are parts relating to a 42 ft ship's launch dating to around 1898 discussed in more detail in report **BWL1_0069**. The wreck was discovered during clearance within the harbour and recovered by grab on board *Stemat 87*, these remains were later collected from the quayside. The only object that cannot be positively identified to the launch is the wedge. This may have been part of the launch but its purpose and position within the boat cannot be identified. Visits to boat house #4 at Portsmouth Dockyard have been undertaken to compare to *Cyclops,* an almost identical 1915 dated 42 ft launch, and no similar timber could be seen and the shipwrights involved could not identify its purpose. It looks to have been placed between two large timbers which would have sat over the lip on either side of the wedge. The upper side has a raised diamond which may have seated a fitting or sat between diagonal planks. In the centre of the diamond there is a circular plug which extends through the timber into a larger octagon shape. This may have been a later repair, plugging up a hole, possibly from a removed bilge pump.

Period	Modern	**Date Range**	c. 1898

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0058	Leather shoe	
Date of Discovery	22/12/2016	
How Discovered	Recovered by grab and recorded during quay side archaeological monitoring.	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
A leather shoe measuring 280 mm in length. Its length equates to approximately a men's UK size 11 or European size 45 and it is for the right foot. It is may be a loafer or possibly a strap and buckle style shoe which has lost its strap.
Interpretation
The shoe is unlikely to date much past the early 20th century due to its glued soles and it is likely to have been worn by a man, possible who worked in the harbour itself or on board a vessel. Alternatively, it may have been a terrestrial object that has been discarded and washed into the sea. The shoe is likely to have been either lost or discarded.

Period	Modern	**Date Range**	c.20th century

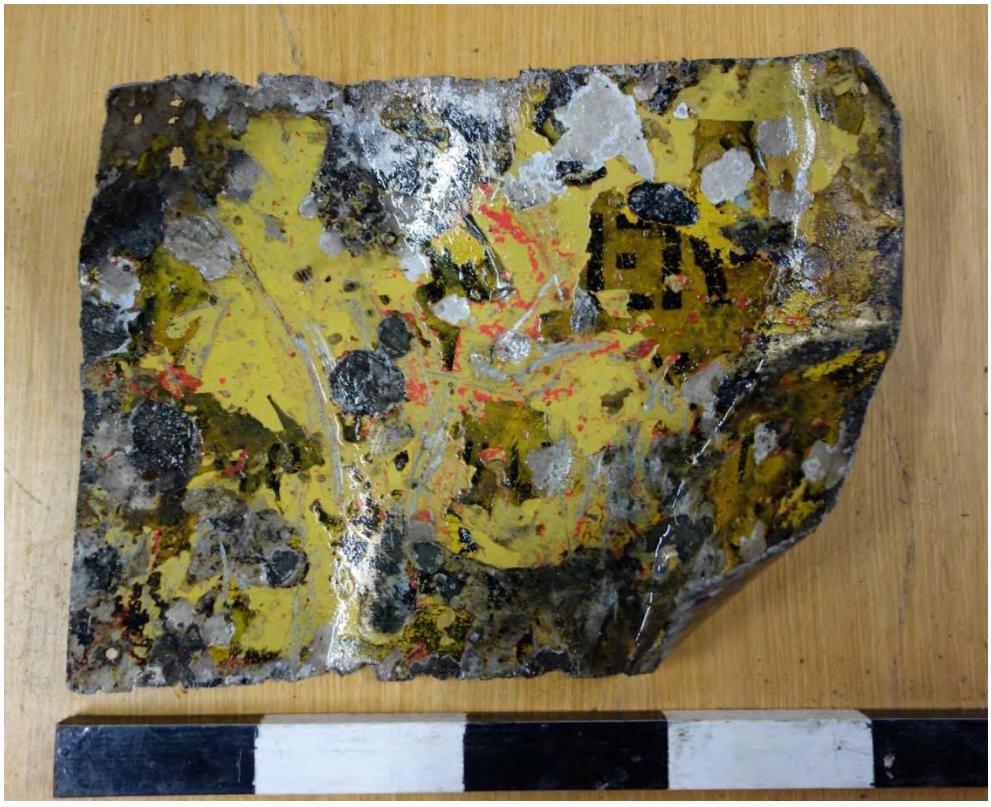
Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0059	Warning sign	
Date of Discovery	26/11/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	**……. E**	**…….. N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object



Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
This object is made of thin aluminium and has the remains of paint on one side. There is a small hole in each corner for attaching to a wall. The plate measures 400 mm by 300 mm.
Interpretation
The remains of the paint are largely yellow with the slight remains of black lettering. The colour scheme of black and yellow is one commonly associated with danger and the remaining letters would suggest that this is a danger sign. A large “E” and “R” are visible towards the top right, suggesting the upper line of the sign was DANGER. Below this there is evidence of more lettering although only an “MO” and what is possibly “WU” are visible. The sign is in very bad condition, which may be the reason for its discard. It is likely to have come from a terrestrial site, and has been eventually discarded at sea.

Period	Modern	**Date Range**	20th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

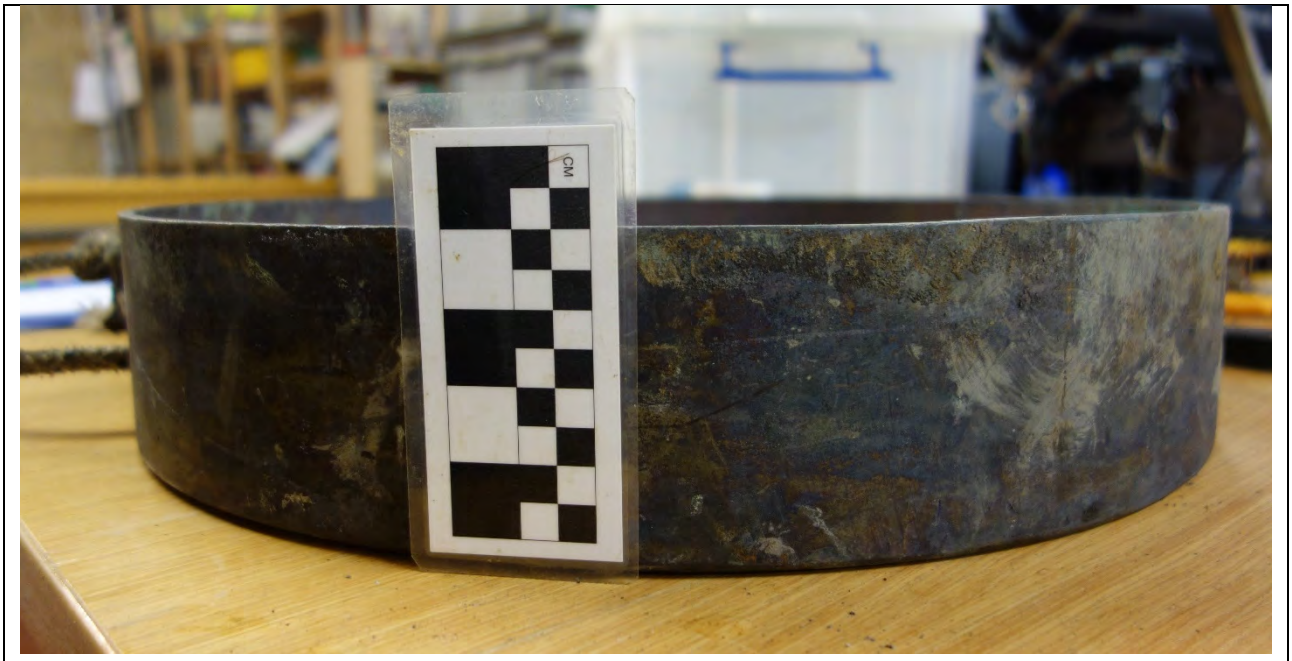
UID BWL9_0060	Copper gong or possible cooking skillet	
Date of Discovery	26/11/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	**……. E**	**……. N**

Location Map	**Anomaly Image**
N/A	N/A

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form



Description
A large dish-shaped object made from copper, with two holes at a length of rope attached. The dish has a diameter of 454 mm and a height of 88 mm. The two holes are positioned closely and are both 12 mm in diameter. In the centre of the dish there is a “51” in raised numbers. The object weighs 32 lb or 14.5 kg.
Interpretation
The two holes in the side of the dish would suggest that it was either hung or fitted with a handle. It is likely that the rope in the picture was a later addition due to its condition. The most likely explanation is that it was a gong, although it has also been suggested that it could be a large skillet or baking tray. If related to cooking, the large size, especially its weight at 14.5 kg, could suggest that it is a copper cooking pan such as those found on ships, and its large size would help to accommodate cooking for a large crew. If this was the case, then the two holes would have attached to a handle. More likely, if the object is hung from rope or wire, then the position of the holes would cause it to hang vertically. This way, it could have been used to make noise, as a gong. The object is more likely to have been lost, as a large piece of copper such as this would likely have been kept and repaired.

Period	Post-medieval - modern	**Date Range**	c.18th-20th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0061	6-inch shell casing	
Date of Discovery	26/11/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	……. E	…….. N

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
A large shell cartridge casing made of brass. It has been crushed and the base has been cut away. The remains of the cartridge measure 630 mm in length and have an approximate diameter of 152 mm or 6 inches.
Interpretation
This 6-inch shell is likely to have been used with a 6-inch naval gun known as the BL 6-inch gun Mark VII designed by Vickers. This was in use from around 1899 on large naval ships and it remained in use throughout the Second World War. It was first introduced on the Formidable class battleships in 1899 and was fitted to a large number of battleships, cruisers and monitors. The cartridge would hold the charge responsible for propelling the round, the large charge capacity of these shells enabled a maximum firing range of over 15,000 yards. With Portsmouth's long running naval history, it is likely that this shell cartridge was discarded from one of the ships. As the base has been cut away it may suggest that it was salvaged for the base, although the reasons for doing this are unclear.

Period	Modern	**Date Range**	Post c.1899

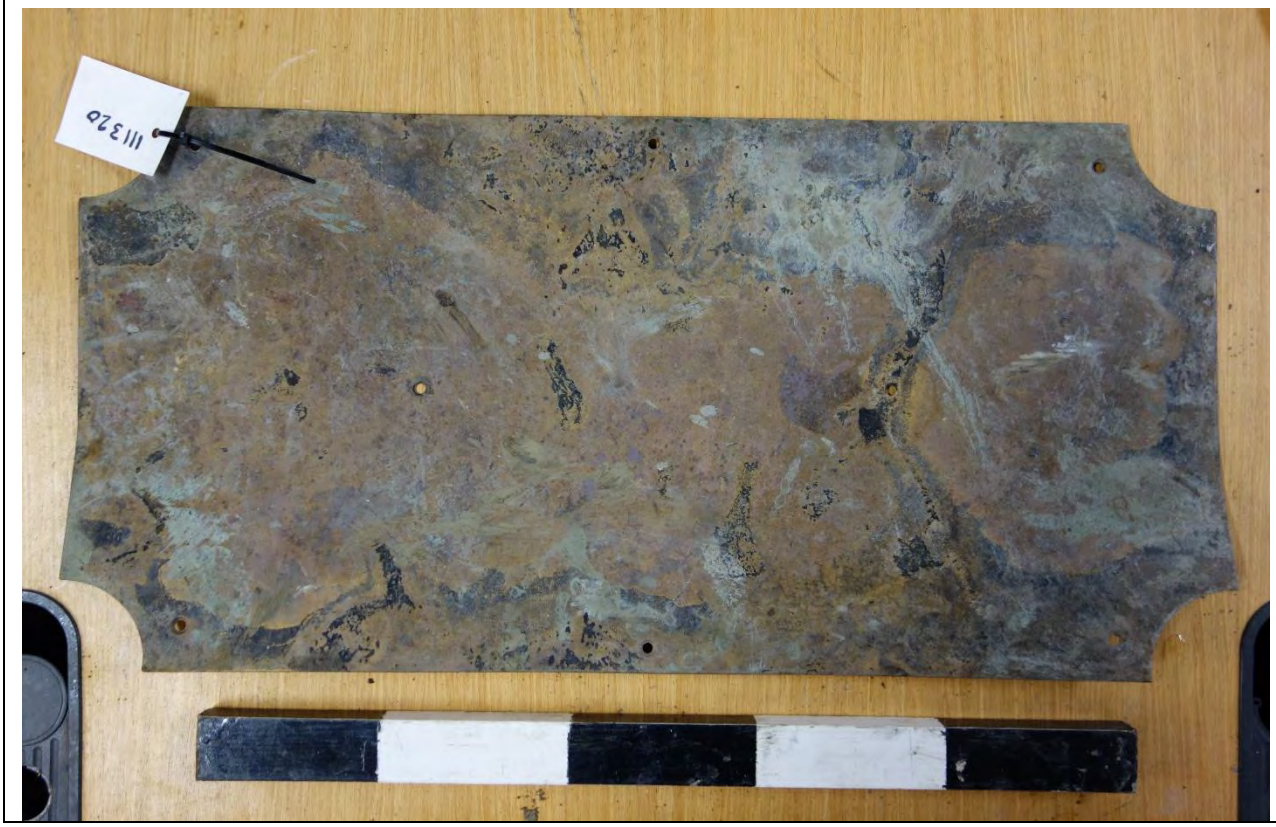
Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0062	Sign back plate	
Date of Discovery	26/11/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	……. E	……. N

Location Map	**Anomaly Image**
N/A	N/A

Images of object



Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
This object is made of a copper or a copper alloy, and measures 626 mm in length and 304 mm in width. The corners are cut away and there are six holes around the edge and two in the centre.
Interpretation
The holes in the plate would suggest that it was screwed or nailed onto something such as a wall or board. The cut away corners are often seen on signs and this is the most likely interpretation for the copper plate. If it was a sign back plate, then it would have had a printed sticker over the plate which has since been lost. The sign may have been discarded from a ship, but it is more likely to have come from a terrestrial source, perhaps from Portsmouth harbour itself, alternatively it may have been dumped as part of a larger mass of terrestrial rubbish.

Period	Modern	**Date Range**	19th-20th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0063	Assorted cutlery	
Date of Discovery	12/12/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	**……. E**	**……. N**

Location Map	**Anomaly Image**
N/A	N/A

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
Assorted cutlery. - Serving spoon, measuring 208 mm in length. It is made from silver, with the hallmarks barely visible on the handle. - Stainless steel knife, measuring 206 mm. Inscription on the blade reads “Hiram Wild 1991” with a broad arrow followed by “5932274, Sheffield England” - Stainless steel knife, measuring 222 mm. Inscription on the blade reads “Arthur Price 2006” with a broad arrow followed by “3337736, Sheffield England” - Four pronged stainless steel fork, measuring 185 mm. Inscription on the back of the handle reads “2008 Arthur Price 1324644” - Four pronged fork, possibly made of silver, measuring 180 mm - Four pronged fork, made of silver, measuring 196 mm
Interpretation
Cutlery is a relatively common find in areas of busy shipping, with many of the ships using the harbour offering catering to the passengers and crew. The examples found here represent two very different classes of ship. Those with inscriptions for Arthur Price and Hiram Wild are also marked with the broad arrow, representing ownership by the Navy. These are both well-established makers from Sheffield, and at different dates both have produced cutlery for the mess on board navy vessels. The examples made of silver on the other hand are far more likely to have come from a passenger or private vessel. Commonly cutlery is treated as disposable and often gets discarded over board by passengers or by kitchen staff, alternately they may have been lost overboard. Cutlery is a common find around harbours and is likely to be an isolated find.

Period	Modern	Date Range	Post c.1990

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0064	Iron eye	
Date of Discovery	14/12/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	**……. E**	**……... N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description			
An iron eyed object measuring 192 mm in total length. The opening in the eye measures 49 mm in diameter and the iron is 20 mm thick. There is 98 mm of the shaft leading from the eye.			
Interpretation			
This object is likely to be a fragment from a ship's fitting, it may have been a part of the rigging, a component to a hoist for cargo or used for a host of other tasks. With so many objects on vessels requiring hooped eyes it is difficult to make a precise interpretation. Similarly, it is difficult to provide a date for the object, with iron having been a common material for several hundred years and the need for eyed objects as common now as it was in the past.			
Period	Post Medieval - Modern	**Date Range**	c.16th-19th Century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0065	Flat iron	
Date of Discovery	14/12/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	**……. E**	**……. N**

Location Map	**Anomaly Image**
N/A	N/A

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
This is the base to a flat iron. It measures 142 mm in length with a maximum width of 88 mm. The base of the object is very smooth and flat, while the top (shown) is slightly concreted where the handle has broken off.
Interpretation
The flat iron, or pressing iron, was developed in the 17th century and was in common use through the 17th and 18th centuries. Flat irons comprise slabs of solid iron with a handle attached. The iron would be heated in the fire and then it could be used for the ironing of clothes. As the metal would gradually cool during use, often more than one iron was needed to keep a constant work flow as one was heated another was in use. These were later replaced by the charcoal iron, which had a box of hot coals the maintain heat in the iron. This flat iron is likely to have been discarded in a terrestrial context and dumped at sea as part of a larger cargo.

Period	Victorian	**Date Range**	c.1800s

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0066	'Y' shaped hook	
Date of Discovery	14/12/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	**……. E**	**……. N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
This 'Y' shaped object was removed from a concretion. It is made from iron and measures 500 mm in length and the shaft is 24 mm wide, with two protruding arms with hooked ends.
Interpretation
It is unclear what the use of this object would have been, objects with hooked ends are common place on board ships, in harbours and on land. It may have been a functional item relating to cargo, such as a cotton hook, or part of the ships fittings. It is likely that the object was discarded, although it may have been from either marine or terrestrial sources.

Period	Post medieval - modern	**Date Range**	16th – 19th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0067	Doulton Stoneware jug	
Date of Discovery	14/12/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	**……. E**	**……. N**

Location Map	**Anomaly Image**
N/A	N/A

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
This large stoneware jug measures 365 mm in height and has a diameter at the base of 246 mm. It is largely complete with only the loss of the handle. It has remains of the glaze in areas and it looks to be a dark blue and white glaze. The maker's stamp is visible on the neck, which reads "Doulton, Lambeth".
Interpretation
Doulton wares are famously known for their Royal Doulton range, whilst also producing industrial ceramics, such as drainage pipes and sanitary fittings. In the early 1860s the company started to produce domestic ware using salt glazed stoneware, this was achieved at their base in Lambeth. At the same time, they began employing local artists to produce ornamental work from the stoneware, peaking in the 1890s with around 370 artists being employed. The manufacturer's mark visible on this stoneware jug is one of the earliest after the company became Doulton and Co. dating between 1869 and 1877. In 1872 the company began to add the date into the centre of the stamp, although the date is unreadable in this example, it would date the jug between 1872 and 1877. The jug may have been lost overboard or was possibly discarded, although this is less likely as it appears to have had a handle when it entered the water, as the break is relatively fresh, it may have broken during recovery. The break on the rim appears to be much older.

Period	Post medieval - modern	**Date Range**	c. 1872-1877

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0068	10 stoneware jars	
Date of Discovery	12/12/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	**…….. E**	**…….. N**

Location Map	**Anomaly Image**
N/A	N/A

Images of objects

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
An assortment of ten small stoneware jars, ranging from 93 mm in height to 172 mm. One of the bottles still has a cork in place, although the contents have been lost.
Interpretation
J. Bourne pottery began trading in 1809 and is still running today under the name of Denby Holdings. The company has had several slight name changes and has changed location a few times over the last 200 years. In 1833 the company acquired the Codnor Park works which is mentioned on the stamp on the jar. Later, c.1850, the company became Joseph Bourne and Son, when his son was taken into partnership. As the company name is J. Bourne on this example, this would give the date range of 1833 to 1850 for both examples. Powell pottery, Bristol, began trading in 1816, producing brown stone pottery. The company remained a family business working from Bristol until the company became a part of Price, Sons & Co in 1907. This would date this particular jar between 1816-1907. The remaining seven jars in this collection of objects do not have any makers marks visible. Stoneware jars were widely used throughout the 18th and 19th century and continue in use today. They were produced in a wide range of sizes and colours as can be seen in this collection, and they would have been used to store a wide range of liquids, including drinks, blackening and acids.

Period	Post medieval - modern	**Date Range**	17th-20th century Bourne – 1833-1850 Powell – 1816-1907

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0069	Worked stone	
Date of Discovery	12/12/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	……. E	…….. N

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description			
A worked stone, likely to be sandstone. The object is rectangular with rounded sides and a prominent groove running around the side. It has a maximum length of 527 mm, a width of 305 mm and it is 183 mm thick. The groove is off centre and measures 10 mm in depth and 30 mm in width.			
Interpretation			
As both faces of the stone are worked and smoothed to be very flat, this stone may have been worked as a base or footing, although there is no evidence that anything was attached to it, so possibly another object would have stood on top of it. Another possibility is a counter weight, with rope being tied around the central groove, although there is no evidence of any rope wear in the groove. Unfortunately, the function of this worked stone block is unclear.			
Period	Unknown	**Date Range**	Unknown

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0070	10 glass bottles	
Date of Discovery	26/11/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of objects

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
From left to right. - Large clear glass bottle, square profile, 267 mm in height, marked with “Walkers, Kilmarnock Whiskey, 1562” on base. - Clear bottle, round profile, 214 mm in height, marked with “Bottled by members of the safety first milk association” and on the other side a triangle with “Safety first” inside. - Tall brown bottle, with square profile, 244 mm in height, marked with what is possibly a castle and below this a square with STS inside. - Clear bottle, round profile, 212 mm in height. - Clear bottle, round profile, 260 mm in height, marked with “Sterilised milk, contents 1pt” and on the other side “please return bottle” with a crown logo and “Regd trade mark”. - Clear bottle with broken neck, round profile, 195 mm in height, marked with a triangle with “Safety first milk assn” inside the triangle. - Small clear jar, octagonal profile, 162 mm in height. - Clear/green glass bottle, round profile which is pinched at the neck (cobb bottle), 227 mm in height, marked with “Baccs bro, Canal walk, Portsmouth. - Clear/green glass bottle, round profile, torpedo shape, 190 mm in height, marked with “C.Mumby & Co, Portsmouth and Gosport”, and on the other side an anchor and “Soda water makers to her majesty the Queen”. - Clear glass jar, round profile, 177 mm in height, marked with “Pan-Yan”.
Interpretation
A collection of glass bottles and jars that would have held drinks such as water, milk and alcohol and jars that would have been used for various preserves. Glass bottles and jars are a common find from the dredging in the harbour, many of them would have been discarded after use, either from a passing vessel, thrown in from land or they have been deposited as part of a much large dumping of rubbish. The Johnnie Walker whiskey bottle is likely to date between 1860 and 1909. In 1860 the square profile bottle was introduced and by 1909 the company had changed its name from Walker’s Kilmarnock Whiskey to Johnnie Walker. The Mumby soda water bottle is dated to approximately 1880-1890. The Pan-Yan jar is from the Pan-Yan pickle company. The brand produced a variety of preserves and spreads, but was well known for their sweet pickle, the name became established in 1907, and remained in production until 2002. In 2004 the secret recipe for the pickle was destroyed in a fire at the Branston pickle factory in Bury St Edmunds.

Period	Modern	**Date Range**	Post c.1860

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BW9_0071	Ceramic plate and preserve jars	
Date of Discovery	26/11/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of objects

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
Plain white plate measuring 245 mm in diameter. On the back is printed “G R” “A.J. Wilkinson LTD” “England 1944”. Two preserve jars. One measures 92 x 90 mm and the other 96 x 88 mm, both are unmarked. A sherd from jar, printed with a logo with “TRA…..” underneath and “MAYPO……” above in larger lettering.
Interpretation
The sherd is likely to be from a jar similar to the small ones in this collection of objects, instead of being straight sided it would have flared out towards the rim. It is probable that this is from Maypole Dairy and the jar would have contained butter. The Maypole Dairy company was set up in the late 1800s and soon became the biggest seller of margarine in Britain, by 1918 they had a 50% market share in the UK. The plate by A.J. Wilkinson Ltd is dated 1944, this may have been issued to a navy or passenger vessel due to its plain, mass produced, design. The two preserve jars have no identifying marks, but these would have held produces such as jams and spreads. The groove around the rim would have been used to tie the paper or cloth lid to the jar. All of these items are likely to have been either discarded over board from a passing vessel, or dumped into the sea as part of a larger collection of terrestrial rubbish.

Period	Modern	**Date Range**	c.1880-1944

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0072	Old Pattern Admiralty Long Shank anchor	
Date of Discovery	30/12/2016	
How Discovered	Recovered during dredging on board *Manu Pekka*.	
Position of Discovery (British National Grid)	**…… E**	**…… N**

Location Map	**Anomaly Image**
N/A	N/A

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
The remaining length of the anchor is 2420 mm, with the shank is rounded in section and measures 150 mm in diameter which tapers to 110 mm towards the ring. The shank is broken before the ring and before where there may have been the hole for a stock to pass through. The distance between the bills is 2200 mm and the arms are 1400 mm long. The palms have a maximum dimension of 550 x 520 mm.
Interpretation
The sharp angle between the arms and the shank at the crown and the size of the palms would suggest that this anchor is an Old Pattern Admiralty Long Shank anchor, commonly used from the late 18th century by the Royal Navy up until c.1840 when the Improved Admiralty design gradually took its place. Damage to the shank is a frequent problem with this style of anchor and is likely to have occurred during the weighing of the anchor, an issue that was corrected in the early 19th century with the introduction of curved arms. The anchor is likely to have belonged to a Royal Navy vessel. While it is unclear, it is possible that the breaks in the anchor are the reasons for its loss or discard.

Period	Georgian	**Date Range**	Late 18th – c. 1840

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0073	Hall's stockless anchor	
Date of Discovery	30/12/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	**…… E**	**…… N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
Stockless anchor. The shank has been lost close to the crown with approximately 250 mm remaining, it has a square section measuring 120 x 130 mm. The distance between the bills is 700 mm and the palms have a maximum dimension of 250 x 220 mm.
Interpretation
The anchor is likely to be an example of Hall's stockless anchor, sanctioned by Lloyds in 1888. The anchor was designed to be stockless with tripping palms that would secure to the seabed. The shank of this anchor has broken away close to the crown. The condition of the break would suggest that it was broken later, with concretion building up over the rest of the crown. Although the break is not fresh enough to have occurred during recovery. This may suggest that the anchor was reused multiple times, possibly as a mooring. The location of the anchor within the harbour and the break in the shank mean it is likely to have been discarded or used as a mooring.

Period	Modern	**Date Range**	Late 19th – early 20th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0074	Perrin Anchor	
Date of Discovery	22/12/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	**…… E**	**…… N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
One of the anchor's arms has broken off and the fluke is missing from the other arm. The anchor is also missing its wooden stock. The total length of the anchor is 2860 mm and the remaining arm measures 1289 mm from the crown and is 160 mm wide. From bill to centre measures 920 mm, the length of the missing fluke is approximately 580 mm. The shank is oval in section and measures 200 x 180 mm towards the crown and 150 x 120 mm towards the ring. Close to the ring there are two protruding plates, these would have been for the wooden stock which is now missing. At the ring, there is a D shackle 430 mm long and 210 mm wide.
Interpretation
It is likely that this anchor is a type known as a Perrin (or Pering) anchor, designed by Richard Perrin (or Pering) in 1813. It is a stocked anchor, originally the wooden stock would have crossed the shank over the two raised plates. The stock would have been lengths of timber banded together by iron bands. The curved arms on this anchor were introduced in 1813 by Perrin, Perrin later improved his design in the British Admiralty anchor in 1852, which now used an iron stock with the capability to change to a wooden stock. The anchor is broken which may have been the reason for its loss or discard.

Period	Georgian	**Date Range**	c.1813 - 1852

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0075	Possible ship's timber	
Date of Discovery	14/12/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	…… **E**	…… **N**

Location Map	**Anomaly Image**
N/A	N/A

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
A square profiled worked timber measuring 1650 mm in length. The width varies along its length and on each side, with the maximum being 173 mm and the majority of widths vary between 121 mm and 135 mm. There are three definite treenail holes on the timber, there are two partial holes on one end with estimated diameters of 27 mm and 38 mm, with a half sectioned hole 162 mm towards the centre estimated to be 59 mm in diameter. In the middle of the timber there is the only complete treenail hole which still has a treenail *in situ* measuring 40 mm in diameter. Close to the centre there are the remains of another treenail. At the other end of the timber is the sixth treenail hole which again is only partially remaining.
Interpretation
The timber is clearly worked, and the presence of treenails shows that it was part of a larger structure. There is no evidence of any scarf joints, previously attached timber or sheathing. It is difficult to be conclusive about the structure that the timber belonged to as there is so little evidence available. It may have been a beam within a ship or part of a structure within the harbour such as timber piling. The timber is in reasonably good condition, although one edge is uneven and some of the wood in frayed, as the half sectioned treenail holes are one the same face the timber may have split along its length, which may have been a reason for its discard. The timber is also likely to be broken at both ends. The timber was an isolated find and may have been discarded during shipbreaking or during maintenance work within the harbour.

Period	Post-medieval - modern	**Date Range**	c. 18th – 19th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0076	Grapnel	
Date of Discovery	06/01/2017	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
A three arm grapnel made from iron. It measures 970 mm in length with a diameter around the shaft of 100 mm at the crown that tapers off to 60 mm at the ring. The ring has a diameter of 100 mm and the eye has a diameter of 40 mm. The arms measure 370 mm with a diameter of 50 mm.
Interpretation
Grapnels have been in use for several hundred years, and the design has remained relatively unchanged, however, newer designs having folding arms for easier storage. Grapnels work very well in anchorages with a rock or reef seabed, in other conditions they do not hold well. Grapnels are commonly found in smaller boats, such as a dinghy, a ship's boat or small fishing boat, where space is limited. This grapnel is damaged which may be the reason for discard, alternatively I could have been lost.

Period	Modern	**Date Range**	c.19th century - 20th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

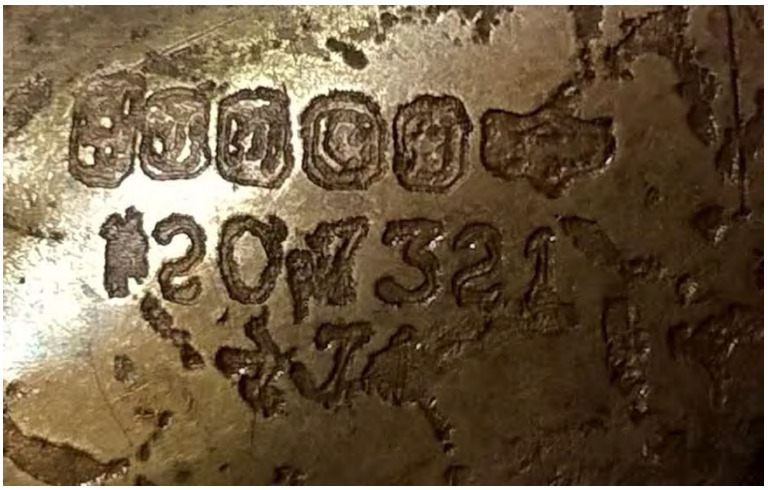
UID BWL9_0077	Assorted metal objects	
Date of Discovery	22/11/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	…… **E**	…… **N**

Location Map	**Anomaly Image**
N/A	N/A

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form



Marking on the base of the dish

Inscription on the back of the fork handle

Description
A collection of metal objects that consists of: - A four pronged stainless steel fork, measuring 193 mm in length. At the base of the handle it is inscribed with the number “43”, and a maker’s name is visible of the back on the handle, which is difficult to read but the second line reads “Birmingham”. - A brass grease gun, measuring 210 mm in length and a maximum diameter of 42 mm. - Brass fitting which appears to have broken away, inside the centre there is a layer of wood blocking a through route. It also has a thread below the central ring. c.50 mm high and 43 mm wide. - Copper ship’s speaking tube. It has been crushed, but measures 170 mm in length and 144 mm wide. There is two holes, both 7 mm, for attaching a lid. - Crushed metal dish, likely to be silver. Approximately 286 x 182 mm in current state. On the base there are five hallmarks and below this “207321” followed by a broad arrow and the number “7”. - Copper alloy folded lid. This object is folded in half using a hinge, with another hinge at a right angle to this. On the reverse side is part of the locking system. Maximum dimensions are 235 x 238 mm.

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Interpretation

This collection of finds is very unlikely to be related to one another, and is more likely to have been discarded at different times.

The fork may have come from a military ship, with the “43” mess number. There is no other likely reason for a numbered piece of cutlery.

The grease gun is an older type and made of brass. The blunter end of the gun unscrews so that the grease may be refilled. This grease gun still contains a fair amount of grease. These were invented in the early 1900s and the design has not changed dramatically.

The brass fitting looks to have been fitted to an object at an angle. The inside of the fitting contains wood as part of the fitting. Its function is unclear.

Speaking tubes are a form of communication used on-board ships since the early 1800s, it was also used to communicate between the decks, engine room and wheelhouse as well as other areas that must work together. Other uses for speaking tubes has been on trains, aircraft and in buildings. The two holes show that the lid is missing, this would have a plaque to say where was on the other end and would be used to keep water from entering, so it is likely that this speaking tube was used on deck. This is the second speaking tube to be discovered during the project, the first is recorded as BWL9_0049.

The silver dish has what appear to be hallmarks on the base, a broad arrow and a set of numbers. The broad arrow shows ownership by the Navy. If this is made of silver it must have been for a special use as objects of such value would not be standard issue. It is likely to have formed part of a set of silver dinnerware.

The final object is a copper alloy lid or container. The object is folded in half via a hinge, yet another hinge at a right angle to this would confuse this interpretation, some of the other edges are folded over and may also be hinges or for joining to additional sections. On the other side is a metal object which is fixed to the object by three pins, the other half of which is raised and would function as part of a locking mechanism, although this would be very oversized if this object is complete.

All of the finds here represent relatively modern objects and are likely to have been discarded as waste or possibly lost in the case of the silver dish which would have remained valuable after being crushed.

Period	Modern	**Date Range**	Post c.1900

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0078	Two handled jug	
Date of Discovery	22/12/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	**…… E**	**…… N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
The jug is made of a form of ceramic known as red ware. It has a height of 230 mm and a diameter at the base is 75 mm. The maximum diameter of the jug is 135 mm. The pottery is around 5 mm thick at the break. The jug would have had two handles, one remains intact, and there is a visible break where the second would have attached. There are the remains of a green glaze on the rim and some inside the jug, this would suggest that the jug was internally glazed.
Interpretation
This jug would have been used to store and/or serve drinks. The two handled design is not common in Britain and this example is likely to have come from continental Europe, possible Spain. This type of design is very long running and has been used extensively throughout the 15th – 19th centuries, this particular example is likely to date to around the 18th century. This may have come over during trade or it may have come over with a passenger off a passing ship. The jug may have been lost, or more likely, discarded either from a passing vessel or as part of a larger dumping of rubbish.

Period	Georgian	**Date Range**	18th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0079	Six assorted objects	
Date of Discovery	13/12/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	**…… E**	**…… N**

Location Map	**Anomaly Image**
N/A	N/A

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description

Assorted objects collected during quay side archaeological monitoring.

- Two Stoneware jars:
  - One white preserves jar, measures 107 x 62 mm.
  - One bottle, measures 164 x 72 mm.
- Copper grommet, measures 48 mm in diameter with an internal space measuring 27 mm in diameter.
- Fragment of animal bone, with maximum dimensions of 158 x 69 mm.
- Stone ball, measures 38 mm in diameter.
- Sole of a leather shoe, measures 277 mm in length, with a mix of tack and glue construction.

Interpretation

The two stoneware objects are likely to date to the 19th century. This was a popular ceramic style still in use today. It was widely used to contain preserves, liquids and other food stuffs, the small white jar is likely to have contained preserves such as jam and would have been sealed with a piece of paper of cloth tided down around the rim. The other bottle is likely to have contained liquids such as drinks or oils.

The copper grommet would have been used as a seal around a hole through which a pipe would pass through. Being made of copper it may have been used for a number of reasons, with copper grommets being used on fabrics, engines and for general purposes such as a drainage pipe.

The fragment of animal bone is likely to have come from a large mammal. It is possible that the animal or part of the animal was taken aboard, butchered, eaten and the bones discarded overboard.

The small stone ball was recovered due to its similarity to stone shot, but closer examination of the find suggests that it is natural and of no archaeological interest.

The shoe sole converts to approximately a UK size 10.5 (EU 45), this makes it more likely to have been a men's shoe. It is constructed using both glue and copper tacks. The production of shoes using tacks dates back into the 1600s, but this example is more likely to date to the 19th – 20th century.

All the objects here are likely to have been either lost or discarded and are unlikely to represent the presence of a shipwrecks or any other archaeological site.

Period	Modern	**Date Range**	19th – 20th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0080	Three iron hooks	
Date of Discovery	22/12/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	**…… E**	**…… N**

Location Map	**Anomaly Image**
N/A	N/A

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
Three wrought iron hooks. Left – length 210 mm, width 110 mm, 20 mm thick, 48 mm eye. Middle – Length 343 mm, width 180 mm, 43 mm thick, 78 mm eye. The ring through the eye may be steel, measures 80 mm in diameter and 38 mm wide. Right – Length 238 mm, width 129 mm, 29 mm thick, 55 mm eye.
Interpretation
These hooks are likely to have been from either an on-board or quay side block and tackle pulley system, used for the loading and offloading of cargo from moored vessels. The block and tackle pulley system involves a hook attached to a pulley block lowered from a fixed pulley block. Rope can be fed between the two pulley blocks and used to reduce the force required to lift heavy loads. Not an easy object to date, as the use of similar block and tackle systems has been in use for hundreds of years, although these are more likely to relate to the wooden block and tackle than to any modern version of lifting gear. This sort of object is common on board all types of vessel and would have often been discarded into the sea once they had come to the end of their working life.

Period	Post medieval - Modern	**Date Range**	17th – 19th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

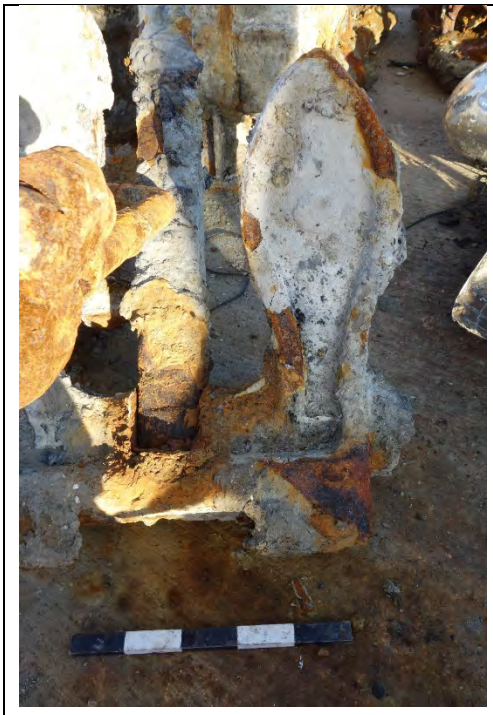
UID BWL9_0081	Byer's Improved Stockless Anchor	
Date of Discovery	06/01/2017	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form



Description
Cast iron stockless anchor measuring 1680 mm in length. The shank measures 1500 mm long with a width of 130mm at the crown, tapering to 115 mm at the ring. The shank is rectangular in profile, with a thickness of 150 mm at the crown and 135 mm at the ring. The arms measure 620 mm long with a maximum width of 245 mm across the palm, around the edge of both palms there is a raised edge measuring 30 mm in width. The bill to bill measurement is 580 mm. The only marking visible is a diamond shape on one fluke and a circle on the other, these would have been inscribed with proof marks and any other required markings, such as weight.
Interpretation
W. L. Byers & Co. Ltd. Produced anchors of all sizes, based out of Sunderland the company produced anchors for the navy and the general public. In 1887 Byer's patented his first stockless anchor, then in 1923 his improved stockless anchor was patented. This particular anchor is the Byers Improved Stockless Anchor. The Byers trademark logo was a left handed swastika that was moulded into the flukes of the anchors up until sometime in the 1930s, whether this change is related to the Nazi party or the Second World War is unclear. This is the second Byer's Improved Stockless Anchor to have been found during the dredge (BWL1_0027), the previous find was an earlier version with the swastika logo. No swastika was visible on the flukes of this anchor which would suggest that it post-dates the 1930s. This style of anchor was widely used by the Royal Navy around the time of the Second World War. It is likely that this anchor was either lost or discarded and is unlikely to be connect to a shipwreck.

Period	Modern	**Date Range**	Post 1930s

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0082	Folding stock Admiralty anchor	
Date of Discovery	06/01/2017	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	**…… E**	**…… N**

Location Map	**Anomaly Image**
N/A	N/A

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Anchor weight on the shank

Description
The anchor is likely to be made of cast steel and has a total length of 1620 mm, with the shank measuring 1490 mm long. The shank is 110 mm wide at the crown which tapers down to 80 mm at the ring, and has a rectangular profile, with a thickness of 65 mm at the crown and 45 mm at the ring. On the shank the anchor's weight is shown at 201 kg. The arms measure 770 mm long with a width of 130 mm at the crown and 40 mm at the bill. The bill to bill measurement is 1165 mm and the palms have a maximum width of 295 mm and a maximum height of 310 mm. The folding stock has a diameter of 75 mm and a length of 1520 mm. At the ring there are two shackles attached and a third is attached to the crown.
Interpretation
The anchor is an Admiralty type anchor with a folding stock. The folding stock allowed for easier deck storage when not in use. This style of anchor is very long running, originally being fitted with straight wooden stocks, this was later updated to be an iron stock in the 1700s. This style of folding stock anchor was brought into naval service c.1850. This particular example has a tripping ring attached to the crown. The use of tripping rings is a method of releasing a stuck anchor. A second line and an anchor buoy would be attached to this ring, it will show the exact position of the anchor, but can also be lifted to reverse a stuck anchor free. This anchor is bent which may be a reason for its discard. It may have been used as a mooring although there is no evidence for this.

Period	Modern	**Date Range**	20th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0083	Possible ship's timber	
Date of Discovery	13/12/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of objects

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
The timber measures 2080 mm in length with a maximum width of 358 mm. At both ends of the timber it begins to taper down, which may have been two scarf joints to increase the timbers overall length. On the opposite surface of the timber there is a recess cut 100 mm into the timber and 70 mm deep, this runs the majority of the length and there are four treenails present within this recess. Five other treenail holes are visible on the same surface of the timber, none of which extend through the whole of the timbers width. The timber is also damaged at both ends.
Interpretation
This timber may have come from a ship, but equally may have been part of a quayside structure such as piling. The large profile of the timber would suggest that it came from a large vessel if it was from a ship. The wood has a dark patina which would suggest that it is relatively old and the lack of any wood borer attacks would suggest that it has remained buried for the majority of this time. As the timber was found with the harbour it is unlikely to represent a shipwreck but more likely to have been discarded during repairs to a ship or quayside structure.

Period	Post-medieval	**Date Range**	c. 18th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0084	Timber with snatch block	
Date of Discovery	13/12/2016	
How Discovered	Recovered by grab and found during Quay Side Archaeological Monitoring.	
Position of Discovery (British National Grid)	**…… E**	**…… N**

Location Map	**Anomaly Image**
N/A	N/A

Images of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
The timber measures a maximum of 2770 mm in length with a width of 375 mm. One end of the timber is damaged and may have had a scarf joint, although there is no evidence of any fixings such as tree nails. The other end of the timber splits into two with a central recess, in which there is a wooden pulley wheel. The pulley wheel is made of wood and measures 300 mm in diameter with a width of 100 mm. The timber to one side of the pulley wheel is undamaged and extends just past the wheel and is rounded at the end. The other side of the pulley wheel the timber extends further out and is damaged.
Interpretation
This timber is a snatch block, the timber would have extended on one side of the pulley wheel almost closing it in, leaving a gap in the timber so that rope can be quickly put into the block or removed. Snatch blocks are used on board vessels and within the harbours themselves for a multitude of jobs, such as manoeuvring objects on and off vessels, mooring and anchoring and general lifting duties around the harbour itself. The dimensions of the timber are similar to those expected of timber piling, and it may be that this timber was part of the harbour structure that has been discarded after having been replaced, although it cannot be discounted that it may have come from a ship. Snatch blocks of this design have been in use for several hundred years and this may date back to the 17th – 18th century, yet the condition of the timber and the staining would suggest that it is more likely to be more modern in date.

Period	Post medieval - modern	**Date Range**	18th – 20th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0085	Section of planking	
Date of Discovery	30/01/2017	
How Discovered	Recovered by grab and found during Quayside Archaeological Monitoring.	
Position of Discovery (British National Grid)	**…… E**	**…… N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

2D representation of 3D photogrammetry model (0.5 m scales)

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
A straight section of planking consisting of three full length timbers measuring 6680 mm in length. The timber vary in their widths with one plank measuring 320 mm at one end and 220 mm at the other, the central plank measures 100 mm and 110 mm and the second larger plank is 240 mm and 330 mm. All three planks are a fairly consistent 80 mm thick along the length. There are two sets of fixings in the timbers, with horizontal fixings and transverse fixings. The horizontal fixings are present in both long edges in the planking section. The spacing of these is irregular with centre to centre spacing of 440 – 990 mm only the same edge. The transverse fixings are similarly irregular, with spacing between 540 and 950 mm. All of the fixings appear to have been a ferrous metal. Much of the timbers surface has been exposed to gribble and other wood borers.
Interpretation
This section of joined timbers is likely to be a section of either hull of deck planking. The timbers appear to be flat, which may make deck planking a more likely interpretation. The use of ferrous nails for the fixing would suggest that this is an earlier construction or it may have been a cheaper build. The timbers look to have some age but a specific date range is difficult to apply in this case. The timbers were found well with the harbour and close to shore, this would suggest that these were possibly removed from a vessel either during maintenance or breaking and they have been discarded on site, or possibly dropped in to the water and never recovered. Their size and location do not look to indicate the presence of a shipwreck.

Period	Post-medieval – Modern	**Date Range**	c.17th-19th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0086	Ships timber - stringer	
Date of Discovery	30/01/2017	
How Discovered	Recovered by grab and found during Quayside Archaeological Monitoring.	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

2D representation of 3D photogrammetry model (0.5 m scales)

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Underside of the timber. The two large recesses may have joined to the side of the ship.

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
The timber has a total length of 2000 mm, a maximum width of 325 mm and depth of 170 mm. Both ends are triangular but with different length faces, one end has sides measuring 270 mm and 200 mm, the other end has sides measuring 390 mm and 90 mm. Along the length of the timber there are seven recesses cut in, they are spaced between 110 and 140 mm apart. The recesses are 140 mm wide at the timbers edge and 90 mm wide in the centre, the recesses cut into the timber 200 mm and 50 mm deep. In recesses three and four there is a large treenail hole running through the whole timber, each measuring 60 mm in diameter. On the opposite side of the timber there are two large recesses both measuring 250 x 380 mm, as well as evidence for six treenails between 20 and 35 mm in diameter. Along the timbers edge opposite the recesses there is evidence for iron fixings.
Interpretation
The timber is a stringer for a set of stairs also known as a companion ladder, these would have been found on wooden ships and would have been a feature of many different vessel types. The stringer would have supported the stairs, possibly up to the quarter deck or within the hold moving from deck to deck. The first photograph has been positioned as it would have been used. The base would sit on the deck, then a small step up to the first of the seven steps. At the top end of the timber the long flat face would have joined onto the wall close to the next floor level. Many of these timbers would have been very plain, even the highly decorative Swedish warship, the *Vasa*, had plain ladder stringers, yet most other external parts were decorated. The timber is a substantial size and made of oak which may suggest it was from a larger, more expensive ship build. The dating of the timber is very difficult due to the long running and largely unchanged use of stairs on ships, although the dark staining would suggest some age to the timber, but a date range cannot be confidently applied. It is probable that this timber was either replaced or part of a ship that was dismantled and the stringer was discarded.

Period	Medieval – modern	**Date Range**	c.16th-19th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0087	Wheeled object	
Date of Discovery	07/12/2016	
How Discovered	Recovered by grab and recovered during Quayside Archaeological Monitoring.	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
An iron wheel with wooden planks attached parallel on each side. The wheel has an approximate diameter of 400 mm and a thickness of 22 mm, the surface of the wheel is smooth and unlikely to have accommodated a tire. The wooden planks have a maximum length of 385 mm and each plank is 75 mm wide.
Interpretation
It is uncertain what this object may be. One possibility is that it is the wheel from an old style of wheel barrow. This would suggest that it was a terrestrial object discarded into the sea, possibly as part of a rubbish dump. Another suggestion has been a surveyor's wheel, an object used for the measurement of long distances. However, the approximate circumference of the wheel is estimated at 1256 mm going by the approximate diameter. Other options theorised are a fan belt or pulley wheel, these were commonly constructed from cast iron and in a similar style to the one recovered. The slightly rounded profile of the outer face would possibly suggest otherwise. The origin of the object is unclear and date is speculative. It is likely to have been discarded, possibly as part of a larger discard of rubbish.

Period	Modern	**Date Range**	c.19th-20th century

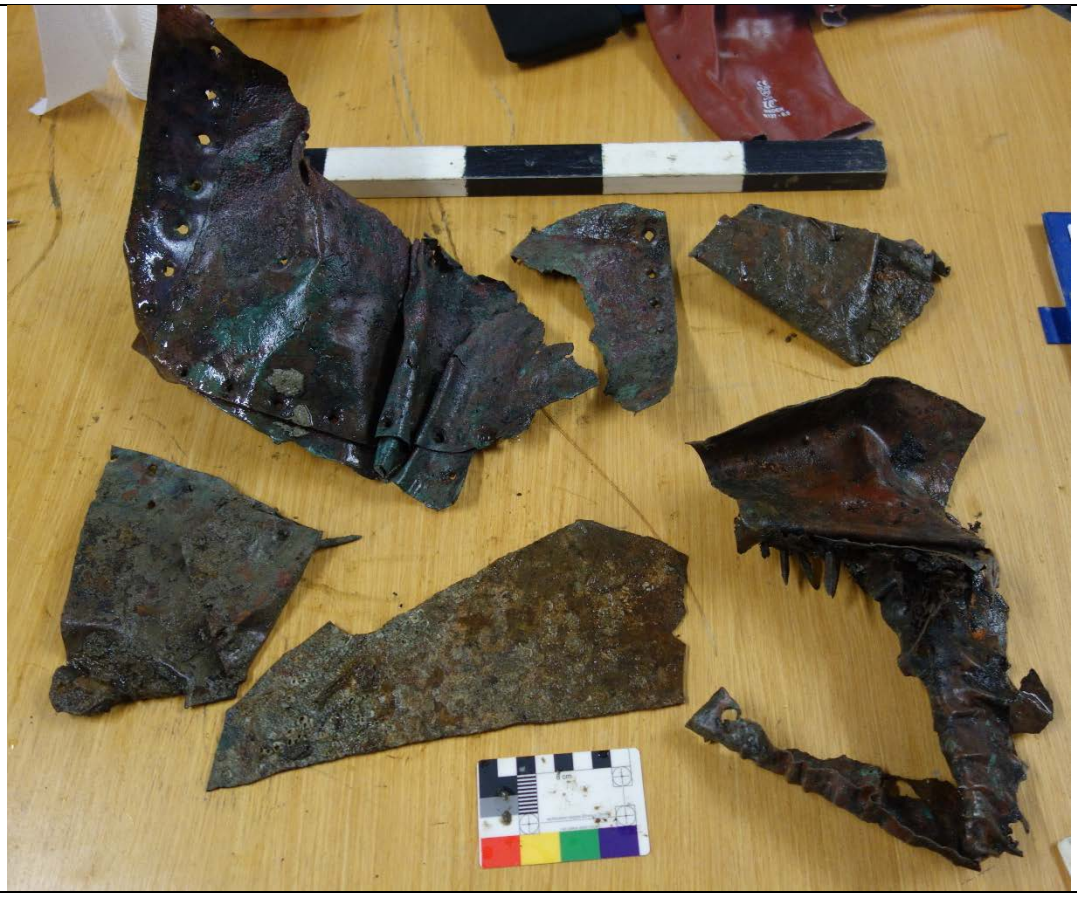
Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0088	Copper sheathing	
Date of Discovery	22/12/2016	
How Discovered	Recovered by grab and found during Quayside Archaeological Monitoring.	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object



Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
Six fragments of copper sheathing, with the largest fragment measuring approximately 400 x 300 mm. Copper nails are present in four out of the six fragments and measure 35 mm in length with a centre to centre spacing of 28 mm.
Interpretation
Copper sheathing was introduced in the 18th century in order to combat the wood boring organisms that were damaging so many of the trade ships, particularly those sailing to the warmer climates such as the West Indies. Early attempts of sheathing used sacrificial wooden boards, this was cheap and easily replaced in a dry dock. Substantial quantities of weed would grow over the timber and this created drag, slowing the ship and increasing travel time. Copper sheathing was very expensive in comparison but provided good protection without dramatically reducing the vessels speed. Copper sheathing was used on ships of the Royal Navy, merchant vessels, quay side structures and even on navigational buoys such as the one discovered within Portsmouth Harbour (BWL7_0001). The selection of sheathing is unlikely to have been the same vessel and may be discarded fragments during the replacing of the sheathing or breaking up of several vessels.

Period	Post-Medieval - Modern	**Date Range**	18th – 20th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0089	Barrel lid	
Date of Discovery	04/02/2017	
How Discovered	Recovered by grab and found during Quayside Archaeological Monitoring.	
Position of Discovery (British National Grid)	**…… E**	**…… N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
A wooden lid from a barrel. It is made from three planks joined by small wooden pegs. It has a diameter of 350 mm. The top and bottom planks have widths of 110 mm, while the centre is 130 mm.
Interpretation
Wooden barrels were used to transport a wide range of goods on land and overseas. The barrel itself is made of longitudinal staves bound together with metal hoops. Barrels are usually constructed from oak and it is likely that this example will also be oak. The contents would have ranged from liquids, grains, food stuffs and any other materials in need of transport. Barrels have been used for storage and trade for hundreds of years making this example difficult to date accurately. It may date to between the 16th and 19th centuries during a busy period of Portsmouth dockyards history, but this is speculative without dating. The lid may have been discarded after use or lost during the loading or unloading of a ship's cargo.

Period	Post medieval – modern	**Date Range**	c.16th-19th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0090	Clay pipe fragments	
Date of Discovery	04/02/2017	
How Discovered	Recovered by grab and found during Quayside Archaeological Monitoring.	
Position of Discovery (British National Grid)	**…… E**	**…… N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
Fragments of clay smoking pipes. Seven stems ranging from 80 to 114 mm in length with diameters of 9 and 10 mm. Nine pipe bowls, some with a partial stem remaining. With heights between 32 mm and 47 mm Two of the pipe bowls have designs, one shows castles and a floral design with the maker “I. G. Co” and the other has a more simplistic linear design with a “G” which is possibly the makers mark.
Interpretation
Clay pipes were commonly used since the introduction of tobacco from the New World in the late 16th Century. By the mid-17th Century the production of clay pipes and the smoking of tobacco had become a big business and fashion lead to larger bowls and longer stems. The extended length of stems cooled the smoke but was also very fragile, broken pipes would be discarded on the spot, stem fragments can commonly be found all over the UK. By the 19th century the use of clay pipes had come back into fashion, highly decorative pipes were created with large numbers being exported. By the early 20th century the introduction of cigarettes caused a drop in their popularity. This collection of clay pipes is likely to date to around the 18th and 19th century and are most likely to have been broken and discarded over board or from the harbour wall.

Period	Georgian – Victorian	**Date Range**	18th-19th Century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0091	Assorted stoneware	
Date of Discovery	06/01/17	
How Discovered	Recovered by grab and recovered during Quayside Archaeological Monitoring.	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
Seven stoneware objects. (Left to right) *Back row* Stoneware bottle measuring 190 x 95 mm and marked with “Doulton Lamberth London”. Stoneware genever bottle measuring 270 x 80 mm. *Middle row* Base of a stoneware bottle measuring 90 x 65 mm. Base of a stoneware tankard measuring 100 x 95 mm, the base of the handle is still visible. *Front row* Stoneware ink pot measuring 45 x 52 mm. Stoneware small bottle measuring 80 x 37 mm. Stoneware ink pot measuring 43 x 46 mm.
Interpretation
Stoneware has been a common material for containers for food, liquids and other substances such as inks and oils. Stoneware is fired at temperatures between 1100 and 1300 degrees, and has a long running history, with evidence of its use dating back several thousand years, and it is still produced today. These examples are later in date, the genever bottle for example dates to the 18th or 19th century. All of these examples are likely to have been discarded from shore or passing vessels.

Period	Modern	**Date Range**	18th-19th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0092	14 glass bottles	
Date of Discovery	06/01/17	
How Discovered	Recovered by grab and recovered during Quayside Archaeological Monitoring.	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
14 Glass bottles of various forms. *Back row* Four green glass bottles measuring 310 x 90 mm. Brown glass bottle measuring 310 x 95 mm. Green glass bottle measuring 300 x 85 mm. *Front left* Wide mouth milk bottle measuring 220 x 70 mm. The bottle is marked with a triangle and "*Bottled by the Safety First Members of the Safety First Milk Association".* Clear glass bottle with a broken neck measuring 260 x 70 mm. Pear shaped clear glass bottle measuring 140 x 60 mm. Marked with "*Camwal*". Octagonal clear glass bottle measuring 240 x 70mm. *Front right* Mallet type bottle measuring 210 x 130 mm. Onion type bottle measuring 140 x 140 mm. Onion type bottle measuring 140 x 140 mm. Mallet type bottle measuring 180 x 130 mm.
Interpretation
The majority of the bottles can be dated to the 20th and 21st century. Safety first milk for example dates to the middle of the 20th century and the wide mouth bottle design dates to the 1920's – 1930's. The small Camwal bottle is from a drink known as Orangina, the drink was created 1936. The Mallet type bottles date to between 1725 and 1760 and the Onion bottles date slightly earlier to between 1680 and 1730. These would have been used for drinks such as water or alcohol. All of these bottles are likely to have been discarded by passing vessels or from the shore. <u>Reference</u> R Dumbrell, 1983, *Understanding Antique Wine Bottles*

Period	Early Georgian - Modern	**Date Range**	Onion bottles c.1680 – 1730 Mallet bottles c.1725 – 1760 Rest c. 20th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0093	10x Metal objects	
Date of Discovery	04/02/17	
How Discovered	Recovered by grab and recovered during Quayside Archaeological Monitoring.	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
Ten metal objects: • Brass light cage measuring 170 x 110 mm • 'U' shaped brass object measuring 120 x 30 mm • Stainless steel spoon measuring 165 mm and marked "1957" "W.S.Ltd" • Brass military belt buckle measuring 63 x 30 mm • Brass plaque measuring 110 x 76 mm and marked with "6D1-1 To Hand F-pump 15 FT" • Brass plaque measuring 110 x 76 mm and marked with "3E1-1 To 3E1-2 15 FT" • Brass plaque measuring 110 x 76 mm and marked with "6F1-6 To Hand F-pump 18 FT" • Brass plaque measuring 110 x 76 mm and marked with "3E1-1 To 3E1-5 39 FT" • Brass plaque measuring 185 x 55 mm and marked with "Pressure to control values for stanchion raising gear NI" • Brass plaque measuring 172 x 23 and marked with "Maxim & Lewis gun Ammn"
Interpretation
The objects are all likely to have been discarded from either the quayside or vessels during maintenance or refits or discarded after use, such as the spoon and belt buckle. The plaques would likely be located within the vessel, the stanchion raising gear for example may have been out on deck where it is likely the controls would be located. The brass light cage would have protected light bulbs around the ship and similar cages are still used today. The brass plaque for the Maxim & Lewis gun ammunition is likely to date to the First or Second World War. Both weapons are light machine guns and use the same 0.303 calibre ammunition. The Maxim gun dates to the late 19th century with use in the Colonial wars and was the first recoil operated machine gun. The Lewis gun did not come into service until around the outbreak of the First World War and both guns were obsolete before 1960. These objects were located close to the MoD quayside and are likely to have been discarded either from the quayside or moored MoD vessels. The objects are not necessarily associated but they are likely to have been discarded after the Second World War.

Period	Modern	**Date Range**	Late 19th century - 1959

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0094	Ceramic preserve jars	
Date of Discovery	06/01/17	
How Discovered	Recovered by grab and recovered during quay side archaeological monitoring.	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description

Nine ceramic objects
(From left to right)

Back row

- Preserves jar measuring 95 x 83 mm.
- Preserves jar measuring 95 x 80 mm. Marked with "*International Exhibition 1862. James Keiller & sons. Marmalade. Dundee. The only prize medal awarded for marmalade*".
- Preserves jar measuring 112 x 105 mm. Marked with "*Grand Medal of Meriti Vienna 1873. James Keiller & sons. Dundee. Marmalade. The only prize medal awarded for marmalade. London"*.
- Preserves jar measuring 132 x 100 mm.

Front row

- Small snuff or powder pot measuring 31 x 72 mm.
- Preserves jar measuring 95 x 85 mm. Marked with "*Awarded at the Vienna Exhibition 1873. John Moir & Son. Genuine Scotch. Raspberry Jam. London & Aberdeen. The Grand Medal of Merit*".
- Tea cup measuring 80 x 80 mm. Marked on the base with "*E.II.R Grindley 1957*".
- Preserves jar measuring 95 x 80 mm. Marked with "*Grand Medal of Meriti Vienna 1873. James Keiller & sons. Dundee. Marmalade. The only prize medal awarded for marmalade. London*".
- Small lid for a teapot or sugar bowl measuring 55 x 22 mm.

Interpretation

A collection of modern preserves jars including a snuff or powder pot and a tea cup. The cup is dated on the base to 1957 and is likely to have been discarded from a passing ferry. The preserve jars all have an incised ring close to the lip, this is where a string would be tied to hold a paper or cloth lid. Some of the jars are marked, clearly showing their previous contents of Marmalade and Raspberry jam. These jars are also dated for awards dating between 1862 and 1873.

These are likely to have been discarded either from shore or passing vessels.

Period	Modern	**Date Range**	c.1862 - 1957

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0095	Carrot form olive jars and glazed redwares	
Date of Discovery	04/02/17	
How Discovered	Recovered by grab and recovered during quay side archaeological monitoring.	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
Carrot form olive jars and glazed redwares (Left to right) *Back row* Olive jar rim measuring 200 mm in diameter Base of an olive jar measuring 230 mm in length Base of an olive jar measuring 210 mm and 160 mm in diameter *Front row* Redware sherd measuring 180 x 160 mm Redware pot base measuring 100 mm diameter at the base Redware pot base measuring 110 mm in diameter at the base
Interpretation
Wessex Archaeology's Senior Post Excavation Manager, Lorraine Mepham, has assessed the discoveries, and provided the following interpretation. The ceramics on the back row are olive jars in the 'carrot' forms, and date somewhere between the late 16th to 18th century. Olive jars would have been used extensively for the trade of goods during these periods. The three bases in the front row are all in glazed redwares (which is the standard coarseware current during the post-medieval period). They are not susceptible to particularly close dating within this overall period (15th – 20th century), but these three vessels are likely to be 17th century or later. The middle and right-hand vessels are internally glazed jars, possibly chamberpots. The left-hand vessel has a straight side, and could be a dripping dish. They cannot be linked to any specific source. The finds are likely to have been lost of discarded over board and no further evidence of a wreck site was found in the area.

Period	Post medieval	**Date Range**	16th-18th Century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

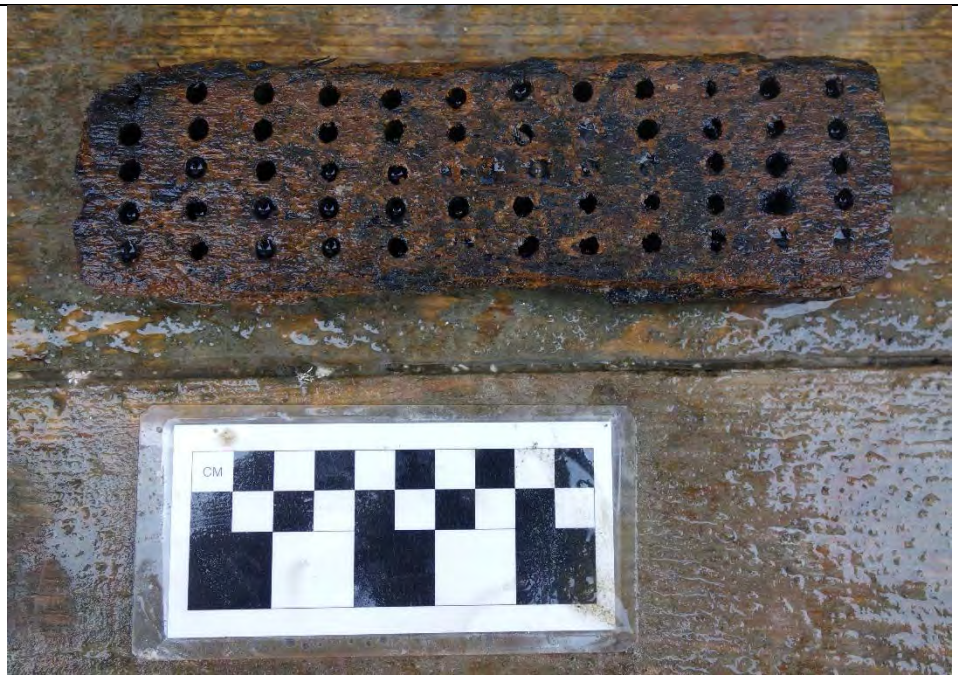
UID BWL9_0096	Pulley wheel and a brush	
Date of Discovery	04/02/2017	
How Discovered	Recovered by grab and found during archaeological quayside monitoring.	
Position of Discovery (British National Grid)	**…… E**	**…… N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form



Description
The pulley wheel is made of wood, with a central hole and a curved groove cut around its circumference. It has a diameter of 235 mm and the inner hole has a diameter of 45 mm and a thickness of 45 mm. The second object is also wooden and measures 190 mm in length and 50 mm wide. There are twelve rows of five holes equally spaced and covering on surface. On the reverse side, there is a small central hole. All the holes are 5 mm in diameter.
Interpretation
The pulley wheel would have had many uses on board ships as well as in the harbour. It is likely to have been used for the loading and unloading of goods being transported overseas and around the coasts of Britain. Pulley wheels are difficult to date; the pulley has been in use for hundreds of years and wooden wheels can still be found today. It may have broken off while in use within Portsmouth harbour or have been discarded or lost. The second object is possibly a hand brush. The holes in one surface may have contained bristles and it would have been used for the cleaning of ships and other objects. The hole on the reverse side of the object may suggest it had a handle, but the diameter of the hole is too small to be able to support a handle. Other suggestions for the object have been that it as a game board of some sort, involving wooden pegs. Again, this is likely to have been discarded or lost overboard.

Period	Post-medieval – modern	**Date Range**	c.16th-19th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0097	19x Ceramic sherds	
Date of Discovery	04/02/17	
How Discovered	Recovered by grab and recovered during quay side archaeological monitoring.	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description

Nineteen various ceramic fragments largely in refined whiteware.

Interpretation

The finds were analysed by Lorrain Mepham (Senior Post Excavation Manager, Wessex Archaeology)

1: Medium-sized bowl, refined whiteware, transfer-printed with (mess) number '9' in cartouche – this may actually be '6', as these vessels were stored inverted (Coysh and Henrywood 1989, 135). These bowls, termed 'basins' in a naval context), were used by ratings at mealtimes.

2: Sub-rectangular serving dish, refined ware (either whiteware or pearlware), transfer-printed, pattern unknown; scratched with initial 'W' on underside of base; surface badly deteriorated.

3: Possible plate, refined ware (either whiteware or pearlware), transfer-printed, but surface badly deteriorated.

4: Small flared bowl or cup, pearlware, transfer-printed with pattern 'The Gem', featuring a harvesting scene on the inside. The pattern was used by the Bovey Tracey Pottery Company (1842–94; Godden 1964, 92), but was re-registered by Mintons in 1896 (Coysh and Henrywood 1982, 152–2).

5: Medium-sized bowl ('basin'), plain, refined whiteware. Backstamp KEELING & CO LTD BURSLEM, with the fouled anchor naval mark. The company were in operation 1886-1936, and used 'Limited' on their backstamps from 1909 (Godden 1964, 367). Another mess bowl with the Keeling backstamp was recorded at the Royal Clarence Yard in Gosport (Jarrett and Thompson 2012, 95).

6: Small plate, pearlware, transfer-printed 'flow blue'. This technique involved the deliberate blurring of the blue colour in the transfer-printed design; it was introduced c. 1820 and was particularly popular in the US. It continued to be made into the 20th century.

7: Strainer, refined whiteware, transfer-printed.

8: Base of cup or bowl, transfer-printed pearlware, pattern unknown; number (presumably mess number) '3' scratched into underside of base.

9: Rim of plate, refined whiteware, transfer-printed.

10 and 12: Two plates, refined whiteware, transfer-printed, standard 'Willow Pattern'.

11: Rim of plate, refined whiteware, transfer-printed.

13: Medium rounded bowl, refined whiteware, transfer-printed (in purple) with decorative band around rim.

14: Small rounded bowl or cup, refined whiteware, transfer-printed (in red) with crown above monogram, and number '18' below horizontal line; simple banding around rim. A similar monogrammed design has been recorded from the Harbour, and while apparently designed for mass-produced institutional use (e.g. naval, military, hospital, etc), and dating probably to the 1870s or 1880s, is of uncertain origin (D. Barker pers. comm.).

15: Handle from stoneware vessel.

16: Plate, refined whiteware, transfer-printed with pattern 'Genevese' (backstamp 'Genevese / STONE CHINA' in floral cartouche, above initials T.B.G. The pattern features alpine chalets

in a romantic setting; it was used by various makers, including Thomas and Benjamin Godwin, who were operating in Burslem 1809–34 (Coysh and Henrywood 1982, 151; Godden 1964, 278–9).

17: Plate rim, refined ware (either whiteware or pearlware), transfer-printed, but surface badly deteriorated.

18: Shoulder of 2-gallon bottle, stoneware; stamped with the mark of Nathaniel Antill Ltd, wine and spirit merchant of Portsmouth and Portsea. Nathaniel Antill is listed in the Post Office Directory of Hampshire, Wiltshire and Dorset for 1855 and 1875, and (as 'Limited') Kelly's Directory for 1898 and 1911.

19: Medium rounded mess bowl ('basin'), refined whiteware, plain.

NB All vessels are of 19th or 20th century date; more specific dates are given where known.

References

Coysh, A W and Henrywood, R K, 1982, *The Dictionary of Blue & White Printed Pottery 1780–1880*, Volume 1, Woodbridge: Antique Collectors' Club

Coysh, A W and Henrywood, R K, 1989, *The Dictionary of Blue & White Printed Pottery 1780–1880,* Volume II, Woodbridge: Antique Collectors' Club

Godden, G A, 1964, *Encyclopedia of British Pottery and Porcelain Marks,* London: Barrie & Jenkins

Jarrett, C and Thompson, G, 2012, *A group of early 20th-century naval victualling finds from Royal Clarence Yard, Gosport, Hampshire*, Post-medieval Archaeology. 46, 89–115

Period	Modern	**Date Range**	19th – 20th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0098	Brown, Lenox & Co's "Lenox patent unchokeable" stockless anchor	
Date of Discovery	29/03/17	
How Discovered	Recovered by grab and recovered during quay side archaeological monitoring.	
Position of Discovery (British National Grid)	…… **E**	…… **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Photogrammetry model of BWL9_0098

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
The anchor measures 2000 mm in length and 1240 mm wide at the crown. The stock is rectangular in section and measures 110 x 130 mm towards the ring and 130 x 160 mm towards the crown. The shoulders are 250 x 540 mm and 25 mm thick. The flukes measure 940 mm and are 320 mm wide. The bill to bill measurement is 780 mm. There is a balance ring shackle on the shank towards the crown, the shackle had a thickness of 35 mm and a height of 210 mm. At the ring, there is a series of three shackles, the first is 380 mm and 55 mm thick, these progressively reduce to 200 x 30 and 140 x 25 mm.
Interpretation
The anchor is an early 20th century stockless design, made by Brown Lenox & Co in 1921 and known as the “Lenox Patent Unchokeable”. The stockless anchor was a significant change in anchor design. Although the stockless design has a lower holding power to weight ratio than the stocked predecessors, they were much easier to handle and store. The stockless design allows for the shank to be pulled right up into the hawse pipes and the flukes can rest against the hull. The tripping palm design allows for the anchor to be dragged along the seabed until the palms ‘trip’ and are forced into the seabed. This anchor has a balance ring which is used to lift the anchor in a horizontal position. The anchor design was sanctioned in 1921 and the anchor may have been either lost or abandoned.

Period	Modern	**Date Range**	Post 1921

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0099	Degaussing unit	
Date of Discovery	29/03/17	
How Discovered	Recovered by grab and recovered during quay side archaeological monitoring.	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
The unit has a diameter of 1206 mm and a width of 290 mm. The outer frame is steel and measures 70 mm x 70 mm with a right angled section. Around the edges of the upper ring there are four lifting eyes positioned in equally spaced quarters. In between each of the lifting eyes there is a shackle. Below each of the lifting eyes and positioned between the two steel rings there are four lead blocks, each measuring 415 x 150 x 70 mm. Two brass 'spokes' cross the centre of the wheel and hold a central unit in place. The unit is also made from brass and measures 390 mm long, 305 mm wide and 250 mm in depth. Three of these have previously been reported (**BWL7_0014**) and the central unit was opened. Removal of the brass bolts revealed that the unit is filled with a lead container surrounded in bitumen. Removal of the top of the lead container reveals a metal plate (possibly steel) covered a coil of copper wire. Cables run from the copper wire out of the unit and feed along the 'spokes' to the edge of the frame.
Interpretation
Also see **BWL7_0014** where three previously discovered degaussing units are discussed. The degaussing unit would have been part of a series making up a degaussing range. Degaussing ranges were set up to help protect shipping from magnetic sea mines. During the Second World War the introduction of magnetic mines caused catastrophic results to Allied shipping. Steel hulled ships create a magnetic signature as they travel which disturbs the Earth's magnetic field as it moves. This disturbance in the magnetic field is what is detected by the mines. It was found that by inducing a small field to the ship, they could offset the effect that it had on the Earth's magnetic field. Some ships were fitted with their own degaussing units, electromagnetic coils, which would allow them to consistently offset the effect. This was expensive so other method had to be devised, one method involved dragging the cable around the ship's hull or by using specially designed ranges. As the effects would gradually wear off, several degaussing ranges existed for merchant and naval shipping. This particular unit is likely to have been developed in the 1950s for use with coastal minesweepers. The units are likely to have no longer been required as technology improves. The units may have been discarded (abandoned) by the navy after they became obsolete.

Period	Modern	**Date Range**	1950s

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0100	Stocked mooring anchor	
Date of Discovery	29/03/2017	
How Discovered	Recovered by grab and recovered during quay side archaeological monitoring.	
Position of Discovery (British National Grid)	…… E	…… N

Location Map	**Anomaly Image**
N/A	N/A

Image of object

BWL9_0100 – The bent over arm can be seen facing the camera. An example of a stockless anchor can be seen in the background.

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
The anchor measures 1870 mm in length and the stock is 1960 mm long. The shank is rounded in section and has a diameter of 50 mm towards the ring and 80 mm towards the crown. The bill to centre measurement is 500 mm and the flukes are spade shaped and measure 320 mm wide and 360 mm long. One of the arms has been bent up to join parallel to the shank and the fluke on this arm has been wrapped around the shank. The arm measures 700 mm from crown to bill.
Interpretation
The anchor is an admiralty pattern anchor, one of the most recognisable anchor forms to be used by the Royal Navy. The admiralty anchor was developed in 1841 and was a wooden stocked, angle armed anchor. Later in the 19th century the design was updated to curving arms for added strength and the stock was made of iron. This design of anchor continued use throughout the 19th century until the development of the stockless anchors late in the 19th century (an example of a stockless anchor can be seen in the back of the photograph above). This anchor has been modified by having one of the arms carefully bent round to join in neatly with the shank. This is likely to suggest that it has been used as a mooring anchor. It is probably that this mooring was abandoned and the anchor was never recovered.

Period	Modern	**Date Range**	19th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0101	Mast boom	
Date of Discovery	29/03/2017	
How Discovered	Recovered by grab and recovered during quay side archaeological monitoring.	
Position of Discovery (British National Grid)	**…… E**	**…… N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
A wooden mast boom measuring 4004 mm in length with a maximum diameter of 450 mm. One end of the boom is pointed with a 60 mm diameter hole through the centre, on the other face there are three 20 mm diameter holes, two of which run all the way through the timber. At the end, there is evidence of royal blue paint. At the opposite end of the mast boom there are three rectangular holes for pulleys, two of which are still in place. The pulley wheels measure approximately 80 mm in diameter. Between two of the pulleys there is a concretion running the full diameter, this may suggest the presence of an iron strap or similar fitting.
Interpretation
The mast boom is fitted to the fore and aft mast of most sailing vessels. The boom projects horizontally from the bottom of the mast, just below the main sail. The use of a mast boom helps to keep the shape of the sail and it is common for the sail to be folded away onto the mast boom. Further benefits are improved control, due to this added control it is rare to find a sailing vessel without a mast boom. Mast booms are commonly made of wood, and the wear and decay on this object are not high, so this would suggest a more modern date. It is unlikely to be from a wreck as no other related material has been recovered to suggest this. It may have been discarded or lost during a refit within the harbour.

Period	Modern	**Date Range**	c.20th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0102	Lead ingot	
Date of Discovery	30/12/2016	
How Discovered	Recovered by grab and recovered during quay side archaeological monitoring.	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
A domed shaped lead ingot weighing 14.1 kg or 31 lbs, it has a diameter of 230 mm and a height of 60 mm. There are two indentation of the top of the ingot, 15 and 20 mm in depth.
Interpretation
The ingot has been formed in a shape known as plano-convex, a common form used since the Middle Bronze Age, and seen in the tin ingots from the Erme estuary ingot site. This does not suggest the date of this ingot is as old at the Bronze Age, but the object is very difficult to date as such a simple form has remained unchanged throughout the Roman and medieval periods. The plano-convex form is produced in the base of a furnace during the smelting process, where the liquid lead will settle below the bi-product, slag. Ingots where formed in order to facilitate metal trade and transport, and may have been roughly uniform to make trade easier. The function of the two indentations is unclear and may be a maker's mark or a similar identification relating to trade. A single ingot is unlikely to represent a shipwreck site or a discarded item, and is likely to be an item that was lost, possibly falling overboard.

Period	Bronze Age to medieval	**Date Range**	2200 BC – AD 1500

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0103	Three wooden objects	
Date of Discovery	04/02/17	
How Discovered	Recovered by grab and recovered during quay side archaeological monitoring.	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
Two wooden shafts with worked ends. One measures 475 mm in length and the other is 690 mm, both have diameters of 40 mm. One wood and steel tool, 265 mm long. The handle has a diameter of 35 mm and the head is 90 mm long and 24 mm in diameter.
Interpretation
Similar examples of the wooden shafts have been recovered previously during this project and their function is unknown. It is possible that they are stanchions or used for coiling rope or cable, other suggestions have included rope ladder rungs and rolling pins. The tool is possibly for adjusting nuts although the socket is rounded so this is unlikely. Alternatively, it may be a hammer that has lost the heads that would have been inserted into the sockets. Again, this function of this object is unknown. The dating and origins of the finds is purely speculative. All three finds are likely to have been discarded either from passing vessels or from the shore.

Period	Modern	**Date Range**	c.19th-20th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0104	Four glass bottles	
Date of Discovery	29/03/2017	
How Discovered	Recovered by grab and recovered during quay side archaeological monitoring.	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
Four glass bottles. (Left to right) • Large dark green glass bottle measuring 240 mm in height and 85 mm diameter. There are no markings. • Small clear glass jar with yellow staining. Measuring 110 mm in height and 60 mm in diameter. There are no markings. • Clear glass jar measuring 150 mm in height and 70 mm in diameter, there are no markings. • Clear glass bottle measuring 210 mm in height and 75 mm in diameter. The bottle is marked with a triangle with “Safety First” on one side and “Bottled by members of the Safety First Milk Association” on the other.
Interpretation
An assortment of relatively modern glass bottles and jars. The square jar would almost definitely have been for preserves. The smaller jar may also have been used for preserves. The Safety First milk bottle is a common find during the dredging project and dates to around the middle of the 20th century. The large green bottle is likely to have been for alcohol. The bottles are likely to have been discarded from passing vessels or from the quayside.

Period	Modern	**Date Range**	19th – 20th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0105	Beech Hill & Co Ltd iron pot base	
Date of Discovery	04/02/2017	
How Discovered	Recovered by grab and found during archaeological quayside monitoring.	
Position of Discovery (British National Grid)	**…… E**	**…… N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
A cast iron circular object with a flat base. The inside of the object is filled with concreted material. The object remains to a height of 80 mm and has a diameter of 170 mm. On the base it has: *"BEECH HILL & CO LTD* *N* *4 PINTS* *WEST BROMWICH"*
Interpretation
This is the base of a cast iron cooking pot or a similar form of kitchen ware. The '4 pints' will refer to its contents once complete. It was made by Beech Hill & Co Ltd of West Bromwich, an iron founders established in 1903, specialising in cast iron hollow ware. The object may have been discarded or lost and it is unclear if the item was broken prior to discard or not.

Period	Modern	**Date Range**	c. Early – mid-20th Century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0106	Sounding Lead	
Date of Discovery	30/12/2016	
How Discovered	Recovered by grab and recovered during quay side archaeological monitoring.	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Royal Navy Broad Arrow

Description
A lead sound weight incised with a broad arrow. The top of the lead has broken and it is missing the hole where a line would be attached. The lead measures 325 mm in length and between 55 and 60 mm in width. The weight of the object is 10.4 kg or 22.9 lbs.
Interpretation
Sounding leads had two purposes, to measure the depth of water and to identify the composition of the seabed. The lead would be attached to a line and the line would have marks tied in intervals so that the depth could be quickly identified. The base of the sounding lead is concaved and would be filled with tallow, this was so that once the lead was retrieved a sample of the seabed couple be observed. This information could be used to aid in navigation and whether the area is suitable to anchor. Sounding leads date back thousands of years, being used by the Greeks and Romans, however their use continued throughout the medieval and early modern periods. Sounding leads and tallow can still be purchased today at some chandlery stores, although modern echo sounders have replaced the necessity that they once were. The broad arrow incised on this example shows that this belonged to the Royal Navy and the use of the mark dates to at least the 17th century. It is likely that the lead was either broken and discarded or broken during use and was lost.

Period	Post-medieval	**Date Range**	c.17th – 19th century

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0107	Assorted metal objects	
Date of Discovery	04/02/17	
How Discovered	Recovered by grab and recovered during quay side archaeological monitoring.	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Description
Assorted metal objects • Stainless steel platter measuring 410 x 320 mm and marked on the underside with “S.G. 1979” “129-1178” • Six brass brackets measuring 180 x 125 mm in a “U” shape • Brass bracket measuring 180 x 25 mm • Steel plate with four fixing holes measuring 250 x 130 mm • Brass nozzle cap measuring 75 x 45 mm • Brass flange with domed top measuring 120 x 90 mm • Steel riveted shoot or grab plate measuring 640 x 330 mm • Copper alloy coin with 27 mm diameter, all markings have been lost. • Crumpled copper alloy sheet with rivet holes.
Interpretation
The stainless steel plater would have been used for food service, and therefore it is more likely to have come from a ferry or similar passenger ship as MoD material would usually be identified by a broad arrow. The six matching brass brackets where recovered on board the dredger tied together with sting so were out of use when they were discarded. Their function is unclear but they may have supported a post of some sort against a timber pile or wall. The other brass bracket may have been a handle for a door or hatch, although it is quite lightly made. The steel plate has no marking on it and it may have been the backing to a sign, with a sticker or similar placed over the plate. The nozzle cap is from a fire hose or hydrant and would have covered the attachment points while not in use. The function of the flange is unclear. The riveted shoot or grab plate possible comes from an old style of dredge grab, probably used for previous dredges of Portsmouth harbour. Alternatively, it may be a hinge’s shoot lip, opening to allow the contents exit the shoot. The copper alloy coin is very worn and is now very thin. All of the design has been lost and is now a smooth surface. It is unclear what sort of coin it is, it is 1 mm wider in diameter than a modern two pence coin ruling out this possibility. The crumpled copper sheet is possibly a sheet of sheathing although it may have been used to coat a number of objects other than a ship’s hull.

Period	Modern	**Date Range**	c.20th century

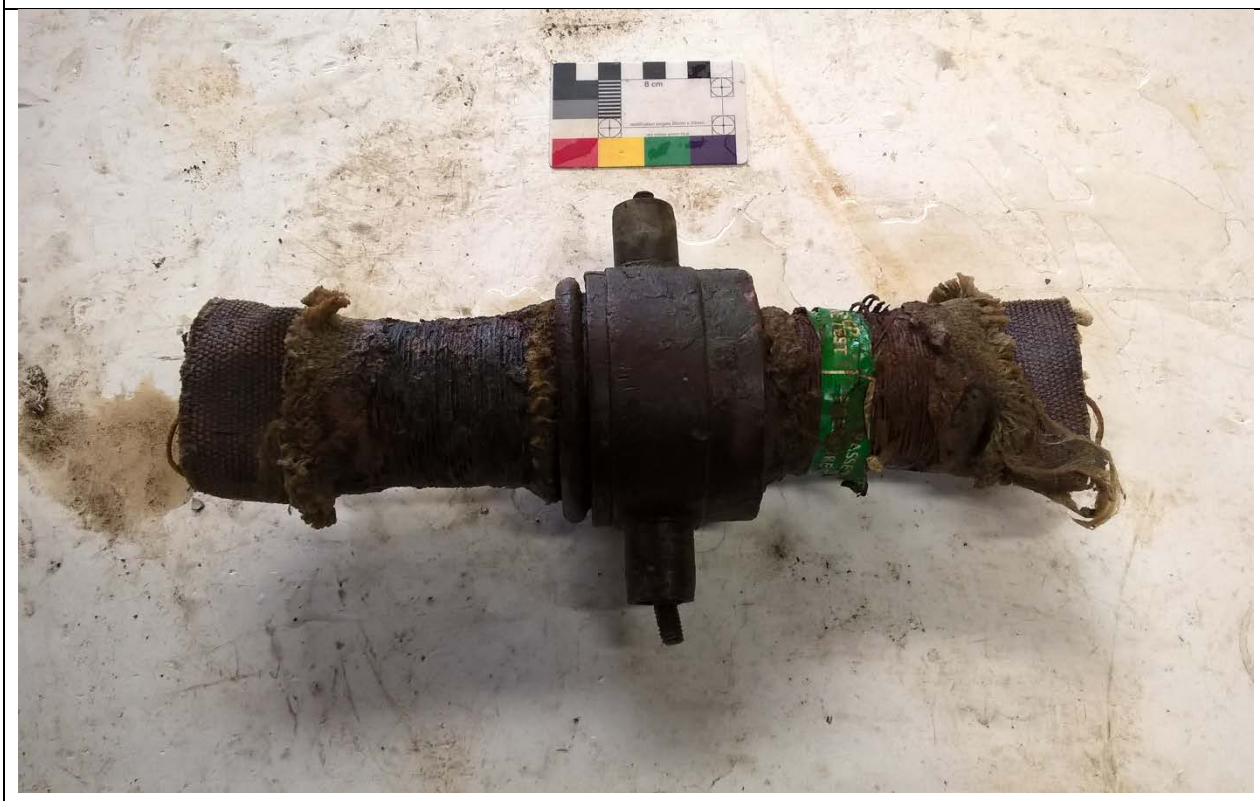
Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID BWL9_0108	Fire hose coupling	
Date of Discovery	12/04/17	
How Discovered	Recovered by grab and recovered during quay side archaeological monitoring.	
Position of Discovery (British National Grid)	..... **E**	..... **N**

Location Map	**Anomaly Image**
N/A	N/A

Image of object



Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

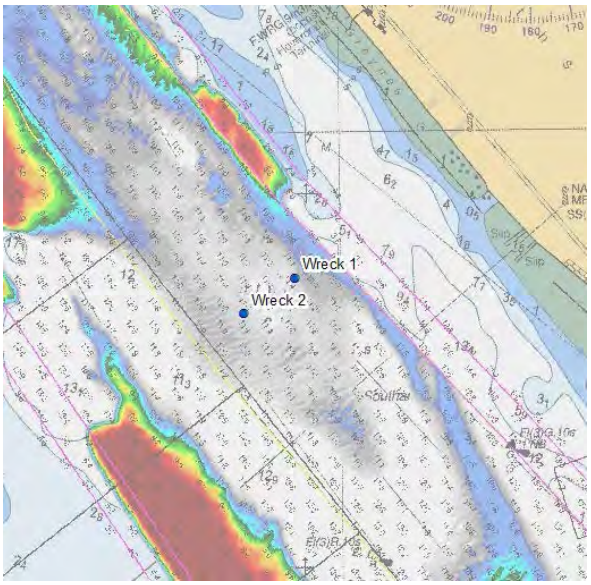
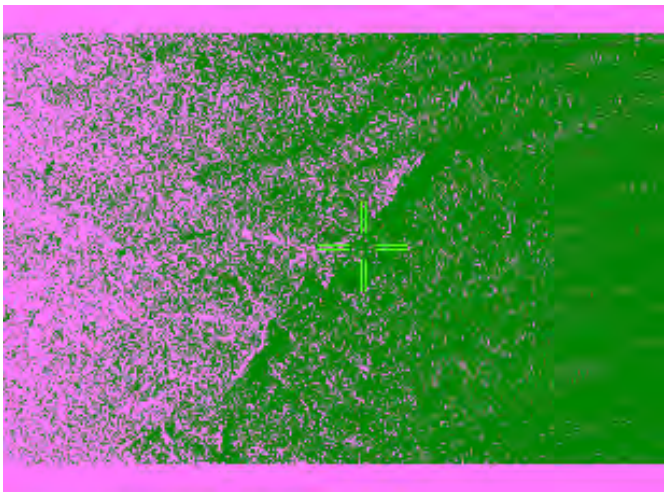
Description
The central coupling is brass and is 65 mm wide and 160 mm in diameter. The hose is 60 mm in diameter and has a stiffened core with iron bands. A green label remains showing that the coupling has been pressure tested although there is no date.
Interpretation
This section of the hose is the coupling and is used to link sections of hose together. The metal coupling is made of brass and the small sections of remaining hose are likely to be made of a combination of polyester and/or nylon, all of these materials are those commonly used in the making of fire hoses and are still in use today. The hose is likely to have been discarded from the quayside, with several other fire hose components having been recovered already during the dredging of the inner harbour. This may date to the 1950s or later judging by other components found, although this design has remained relatively unchanged.

Period	Modern	**Date Range**	Post c.1950s

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID Target SSS-2546 (Wreck 1)	Possible wreck site, later identified by diving investigation as natural boulders	
Date of Discovery	Identified by Boskalis: October/November 2015 Reported to Wessex Archaeology: 17 September 2016	
How Discovered	Identified on sidescan sonar data undertaken by Boskalis in October/November 2015	
Position of Discovery (British National Grid)	463484.28 E	98388.80 N

Location Map	Anomaly Image
	 Sidescan sonar image supplied by Boskalis. Unknown orientation.

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Geophysical description of sidescan sonar image

Observed as several intermittent thin curvilinear objects, with irregular height shadow, that appear to make up an overall curved edge. The gaps are quite widely spaced and there is no clearly defined structure but this could represent one edge of a broken up hull. As only one edge is present it is possible that any further structure may be buried beneath the seabed sediments. Several irregular objects are located in the vicinity of this object.

From the image supplied, it is not possible to ascertain the orientation of the site, any dimensions, or the materials that are present.

Archaeological Interpretation

The image indicates the presence of a linear feature that may represent the curved hull of a shipwreck or merely linear debris on the seabed, although neither of these can be confirmed without further information regarding the site.

It is possible that the site has been exposed as a result of the movement of sediment on the channel floor, perhaps caused by the propellers of vessels navigating the channel.

According to the Environmental Statement (Royal Haskoning DHV 2012), no records for known shipwrecks are present at this location within any archaeological databases interrogated for the assessment. However, it is possible that the site was identified as a geophysical anomaly or magnetic anomaly by MAL (2007) in the Environmental Impact Assessment (EIA).

No further information can be ascertained about the site from the image supplied, however the potential for a large amount of associated material to be buried within the sediment is extremely high. Furthermore, as an unidentified seabed feature, the archaeological value of the site at present is also considered to be high until further information and data can be obtained and archaeologically assessed allowing its value to be reconsidered.

Diving Video Review

The site was subsequently inspected by divers from RS Divers on 20 April 2017 and the video footage was reviewed by Wessex Archaeology. The site was initially scanned using the Aris camera over approximately a 20 m² area. Specific targets were identified and a shot line was accurately placed on the site.

No distinctive larger targets were identified using the Aris camera, only several smaller anomalies. The shot was positioned close to these smaller targets and the diver conducted circular searches up to 6 m out from the shot.

The diver described the area as a shingle seabed with two large rocks present; presumably the smaller anomalies identified with the Aris camera.

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Recommendations			
Based on the identification of the site as a natural anomaly, supported by the dive video and conversations with the diver, it is recommended that the TEZ be removed.			
Period	Unknown	**Date Range**	Unknown

References

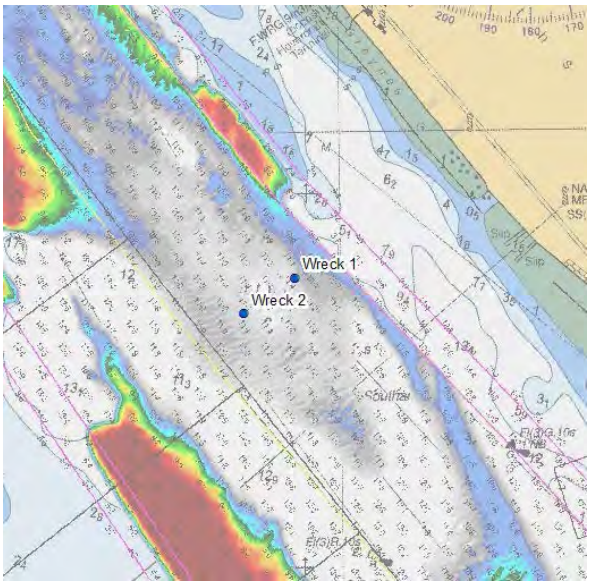
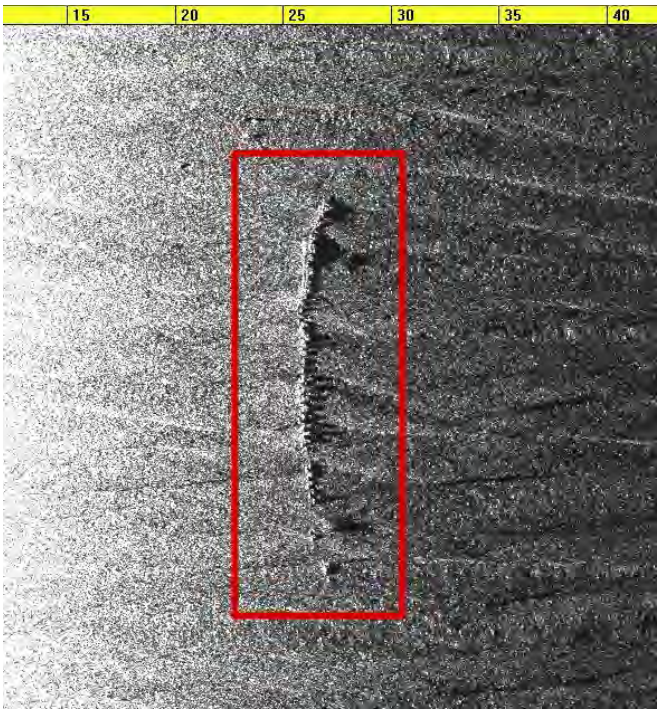
Maritime Archaeology Ltd. (2007) HMNB Portsmouth Approach Channel and Harbour EIA – Gazetteer. MAL Reference: 1741.

Royal Haskoning DHV. (2012) Portsmouth Channel Dredging and Associated Works - Environmental Statement.

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

UID Target SSS-2480 (Wreck 2)	Shipwreck, later identified by diving investigation as a length of chain	
Date of Discovery	Identified by Boskalis: October/November 2015 Reported to Wessex Archaeology: 17 September 2016	
How Discovered	Identified on sidescan sonar data undertaken by Boskalis in October/November 2015	
Position of Discovery (British National Grid)	463416.86 E	98341.18 N

Location Map	Anomaly Image
	 Sidescan sonar image supplied by Boskalis. Unknown orientation.

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Geophysical description of sidescan sonar image

Observed as a curvilinear array of thin irregular objects with irregular shadow and intermittent sections at one end which has been interpreted as the edge of a hull structure. Two pieces of possible debris have been identified to one side of the hull at each end. Some further irregular objects are identified within the vicinity of the wreck.

From the appearance of the height shadow the edge appears comprised of individual thin objects which protrude from the seabed at irregular heights suggesting that the structure has been broken up and worn. As only one edge of a hull is visible it may be inferred that any remaining structure would be buried beneath the seabed sediments.

From the image supplied, it is not possible to ascertain the orientation of the wreck site, its construction materials or composition. Although the length of the vessel cannot be ascertained from the image, the horizontal scale provided suggests that the width of the visible edge of structure measures approximately 1 m.

Archaeological Interpretation

The image indicates the presence of a section of articulated shipwreck comprising elements of the hull. The remains that are visible appear to be upstanding from the seabed and appear to be in a coherent condition. The curvature of the visible material suggests that a majority of the length of the vessel is apparent, with high potential for further buried material to be present at the site. The shadow cast by the anomaly and visible in the sidescan sonar image indicates a series of irregular framing elements protruding from the seabed at varying heights. This suggests a degree of degrading or corrosion amongst the frames present, depending on their material composition.

It is possible that the vessel has been exposed as a result of the movement of sediment on the channel floor, perhaps caused by the propellers of vessels navigating the channel.

According to the Environmental Statement (Royal Haskoning DHV 2012), no records for known shipwrecks are present at this location within any archaeological databases interrogated for the assessment. However, it is possible that the site was identified as a geophysical anomaly or magnetic anomaly by MAL (2007) in the Environmental Impact Assessment (EIA).

No further information can be ascertained about the wreck site from the image supplied, however the potential for a large amount of associated wreck material to be buried within the sediment is extremely high. Furthermore, as an unidentified ship wreck, the archaeological value of the site is also considered to be high until further information and data can be obtained and archaeologically assessed.

Queen Elizabeth Class Capital Dredging Project

Archaeological Object Report Form

Diving Video Review

The site was subsequently inspected by divers from RS Divers on 20 April 2017 and the video footage was reviewed by Wessex Archaeology. The site was initially scanned using the Aris camera over approximately a 20 m² area. Specific targets were identified and a shot line was accurately placed on the site.

Video footage from the dive immediately shows images of the target, which the diver describes as being a large metal chain with links measuring approximately 1 m x 0.3 m. An area of interlink was cleaned using a knife to get a clearer image of the chain.

Recommendations

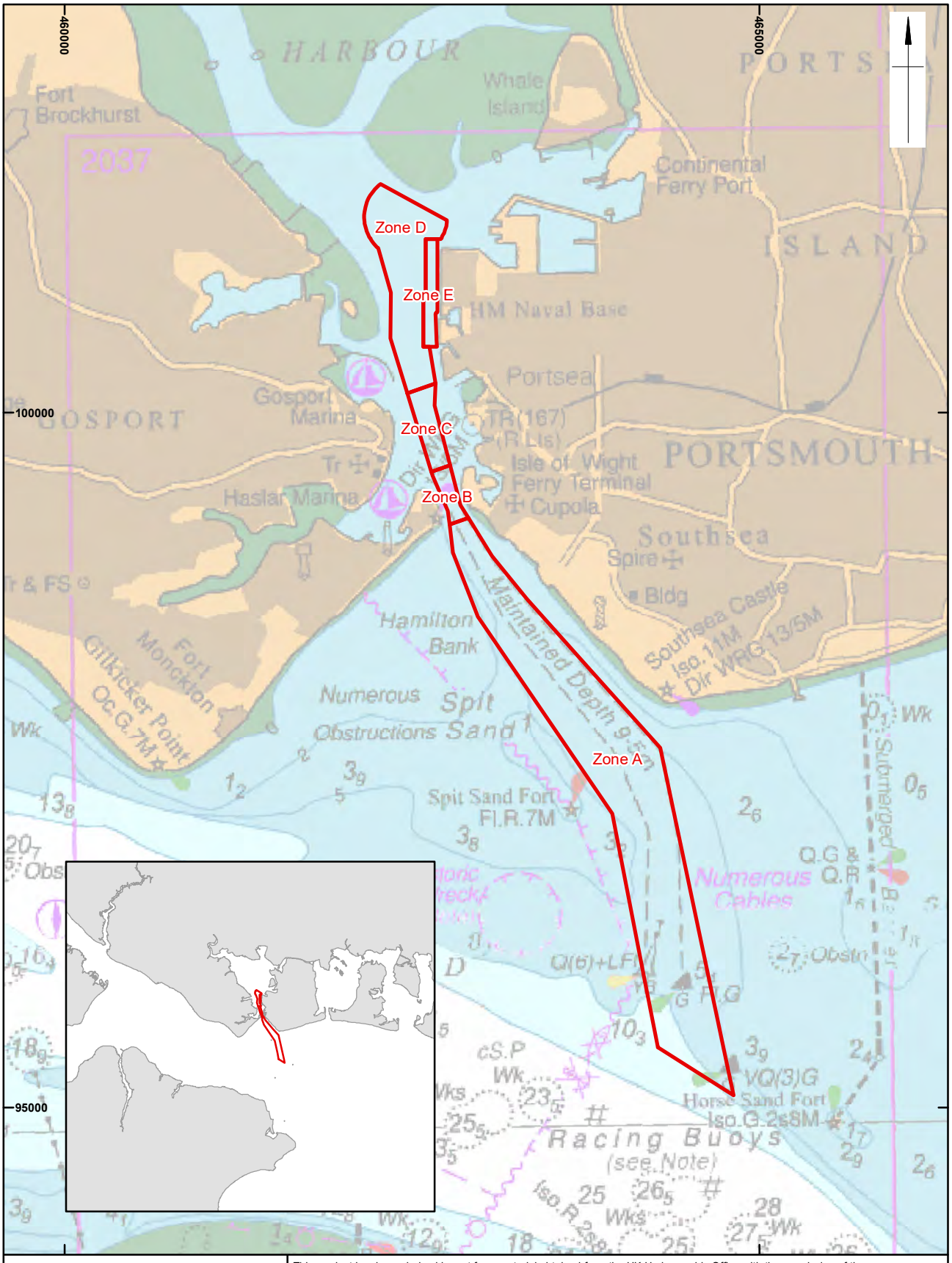
Based on the identification of the site as a natural anomaly, supported by the dive video and conversations with the diver, it is recommended that the TEZ be removed.

Period	Unknown	**Date Range**	Unknown

References

Maritime Archaeology Ltd. (2007) HMNB Portsmouth Approach Channel and Harbour EIA – Gazetteer. MAL Reference: 1741.

Royal Haskoning DHV. (2012) Portsmouth Channel Dredging and Associated Works - Environmental Statement.



Dredging Zones

0 1 km

Date:	12/07/2017	Revision Number:	0
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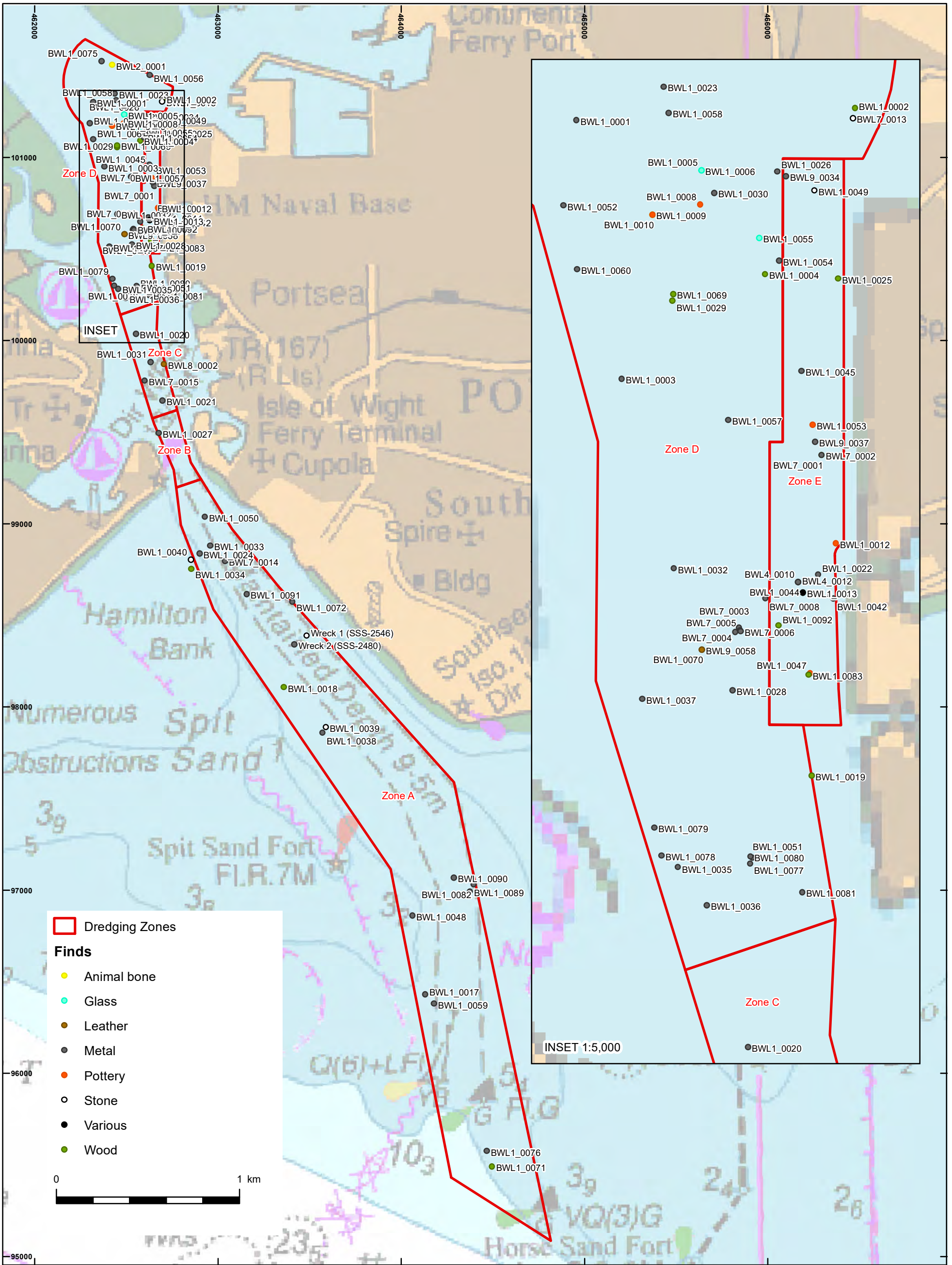
Location of Dredging Zones

Figure 1



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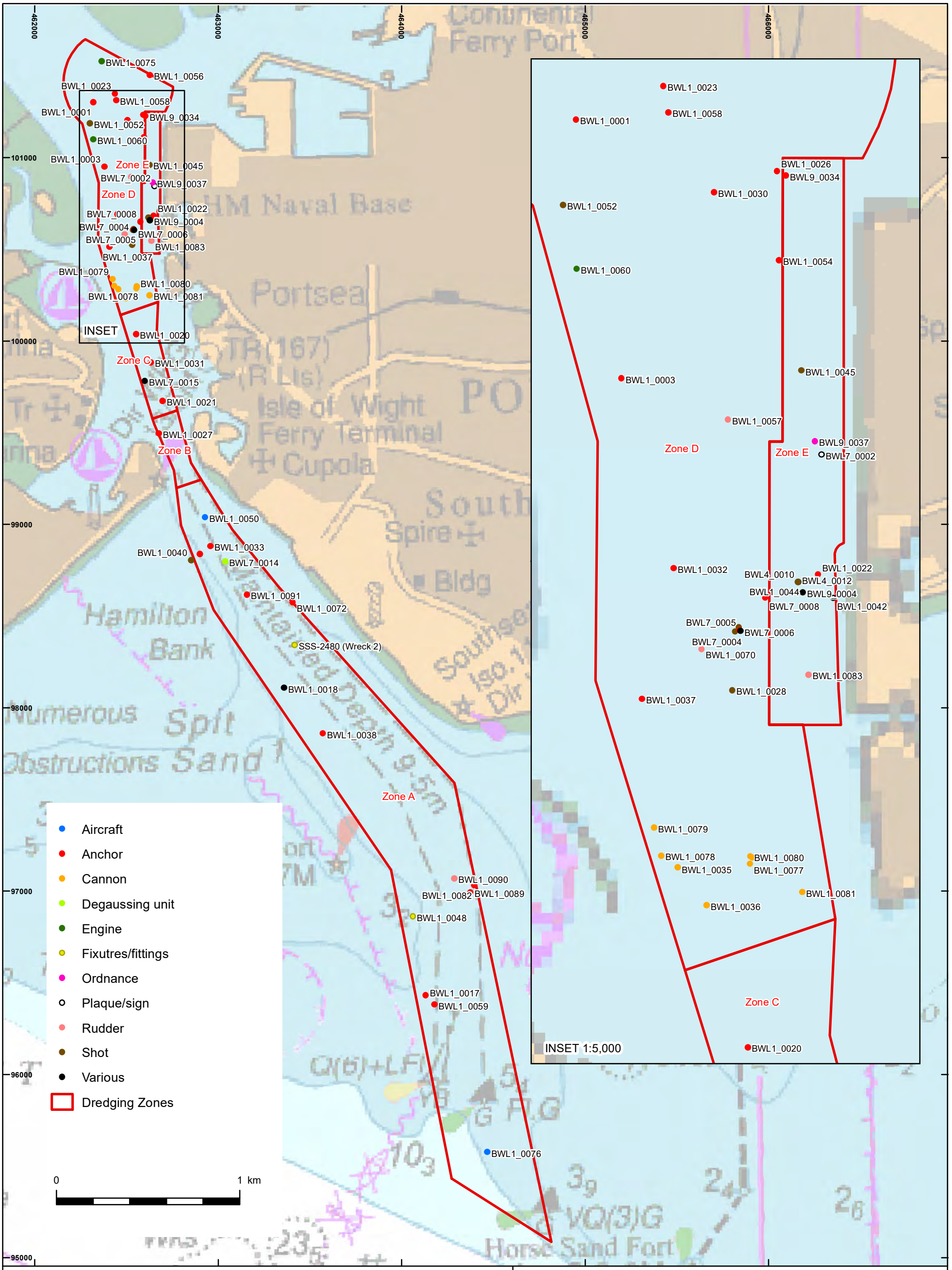
Scale:	1:20,000 at A3	Illustrator:	KMN
Path:	\\mciserver\wessex\Projects\111320\GIS\FigsMXD\2017_07_12_assessment		

Location of finds with associated positions inside the Dredging Zones

Figure 2



Date:	05/01/2018	Revision Number:	1
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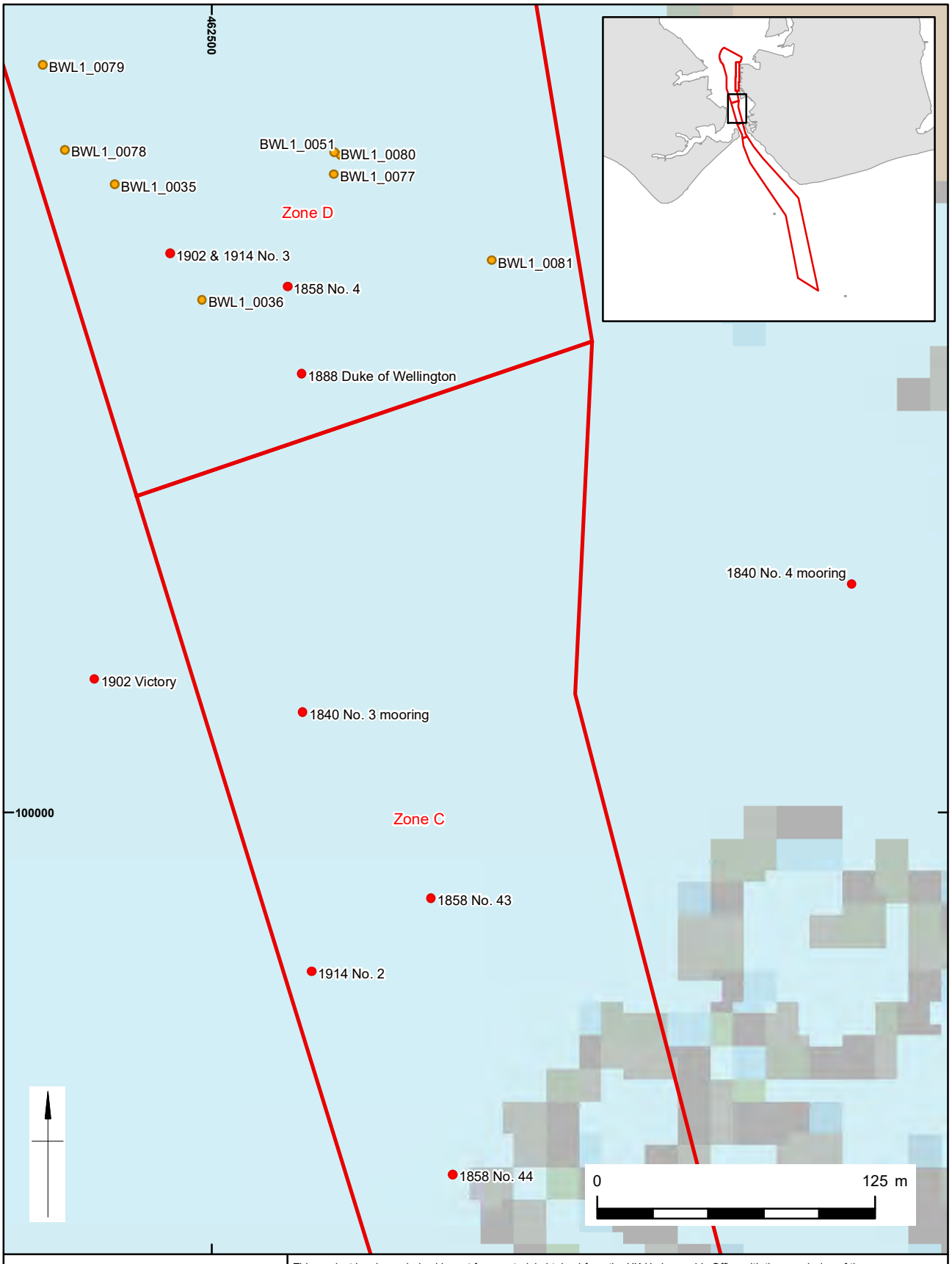
Location of metal objects with associated positions inside the Dredging Zones

Figure 3



Cannon
Dredging Zones
Historic anchorages and moorings

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Location of cannon recovered from Dredging Zone D

Figure 4

Museum Acc No. : 2015/462

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