

WA_72435_1001: Selection of Animal Bones



A collection of animal bones was discovered within the dredged material from channel deepening and land reclamation scheme. Photographs were shown to Wessex Archaeology's animal bone specialist, Lorrain Higbee.

To date, 23 animal bones have been recovered from the dredging process in Zones 32, 33 and 34.

The bones all appear to come from cattle and include vertebrae, hind leg and front leg fragments. These include broken elbow, knee, shoulder and pelvic joints. The bones could be the remains of butchered meat that have been dumped at sea, either from a vessel or wharf, or cargo or provisions being carried on a vessel that sank.

Without closer inspection it will not be able to suggest a date for the material.



WA_72435_1002: Ships Timbers and Rigging



A collection of worked timber has been recovered from within the dredged material from the channel deepening and land reclamation scheme.

A total of 21 pieces of worked wood have been recovered to date from the dredging activity in Zones 32, 33 and 34. The wood appears to be wreck material including an example of rigging, planking and framing from an unknown number of wrecks.

The deadeye is from the rigging of a sailing vessel. It is not possible to ascertain what type of vessel this may have come from. However, on part of the HMS *London* site (the section known as the 'King') a similar dead eye was recovered during clearance work.

The framing timbers appear to represent a one or more relatively small wooden vessels. They are similar in size to the framing from a Thames Barge. Due to the smooth outer edges of the frames, carvel (rather than clinker) construction is most likely. However, one of the possible planks shows features that could suggest clinker construction, horse hair caulking survives on the face of the timber and the only apparent fastenings are iron nails. If the material is coming from one site then it could suggest a combination of two types of construction being used in that vessel.

The two types of fastenings noticed on the timbers included iron nails and wooden trenails. The later being the more prevalent in the recorded timbers. This technology has been used for a long time, and does not offer a conclusive date or vessel type for the recovered material.



WA_72435_1003: Cannonballs



A collection of iron cannonballs has been recovered from within the dredged material from the channel deepening and land reclamation scheme. A total of six cannonballs have been recovered to date from the dredging activity in Zones 32, 33 and 34.

The cannonballs are all made of iron and in relatively good condition. They have two size ranges, from 8-9cm (3.1"-3.5") diameter for the smaller examples, and from 10-11cm (3.9"-4.3") diameter for the larger examples.

There are three examples of each size range. According to the British standard for cannonball sizes the shot would have been used in 4 to 6-pounder guns for the smaller range, and 9 to 12-pounder guns for the larger range. The size of the guns could be indicative of a (possibly merchant) vessel only armed with smaller guns, or alternatively they could be the smaller guns carried on the upper deck of a larger (possibly military) vessel.

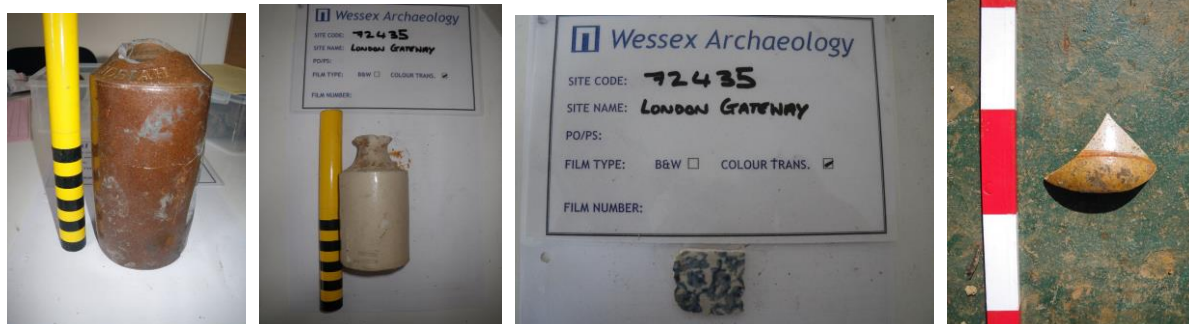
Iron shot was in use from at least the 15th century, and by the 17th century much of the shot being produced was done so using iron. In the British Navy round shot was phased out in the mid 19th century, although it continued in use on merchant vessels throughout this century. It is therefore likely that the cannonballs must be older than the turn of the 20th century.

Vessels from 17th to 19th centuries have been recorded within and close to Zones 32, 33 and 34; it is therefore possible that these cannonballs could be wreck material from one of these sites.

HMS *London* is the only known wreck within this area that was armed. It is a British Naval ship lost in 1665 that would have been carrying iron cannonballs of varying sizes for its armament. Due to the circumstances of its loss (an explosion in the magazine) it is entirely possible that cannon balls could have been spread across the seabed around the wreck.



WA_72435_1004: Ceramics



A collection of ceramic remains has been recovered from within dredged material from the channel deepening and land reclamation scheme. A total of three broken or partial ceramic vessels have been recovered to date. The images of the remains were shown to the Wessex Archaeology ceramic specialist for interpretation.

The ceramic bottle in the first picture is a late 19th early 20th century carbonated drink bottle, these bottles usually held ginger beer. The name 'Josiah Russell' is embossed on the shoulder of the bottle and is the name of the manufacturer of the contents. The bottle itself was made in Denby as was stamped on the lower part of the body of the bottle.

The centre left image is of a late 19th early 20th century inkwell or blacking bottle. It has 'Doulton Lambeth' embossed onto the lower end of the main body, showing where the bottle was made.

The centre right image is of a fragment of mid 19th century china with a blue sponged decoration.

The picture on the right is a ceramic fragment and is also of a late 19th early 20th century date. It is likely that the fragment is from the shoulder of a large storage jar or jug.

The archaeological significance of these finds is relatively low as they represent a broad period from which we have a vast amount of other examples of the same material. It is entirely possible that some or all of these finds could be part of a wreck assemblage which would give vital information for the dating of the site, but as the context is unknown it is not possible to say for certain.



WA_72435_1005: Bricks



A collection of various bricks has been recovered from within dredged material from the channel deepening and land reclamation scheme. A total of 18 fragments of varying types of brick have been recovered to date.

The bricks all seem to represent relatively modern examples with the earliest possible date being mid 19th century for the yellow bricks (London Stock bricks) through to modern day. Until further investigation can be done with the artefacts no further information can be ascertained.

It is not possible to ascertain the context from which the bricks were recovered. The date of the bricks does not suggest a high level of archaeological importance, however if they do come from a wreck site they could provide a date for the loss. Therefore the bricks hold some level of importance until further investigation into the context from which the bricks originated can be concluded.





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WA_72435_1006: Other Objects



A collection of other remains has been recovered from within dredged material from the channel deepening and land reclamation scheme. This consists of a section of chain, a lead sounding weight and a leather sole of a shoe.

The chain is made of iron and is heavily corroded but without concretion. The total length of chain surviving is 11 links measuring 0.83m. Each link is approximately 0.12m long by 0.09m wide. The links are welded together with each other using one length of iron per link.

The lead sounding weight is the centre image; it is 0.258m long and 0.53m wide at the bottom end. The weight is tapered from thin to thick from top to bottom and would have been hexagonal rather than cylindrical in section view. The top of the weight has a circular drilled hole in order to lower it into the water to take the depth measurements. It is not possible to provide an accurate date for this piece without further study of the artefact.

The image on the right is a leather sole of a shoe. The shoe is from the right foot and has stitching surviving around the edges. It is 0.24m long and 0.8m wide at its widest point. It is not possible to ascertain an accurate date for this piece without further study of the artefact itself.

It is not possible to say whether this material can be associated with a wreck site as the context of its recovery is unknown. This said the chain and the sounding weight are likely to have been from a vessel and as such have high potential to be from a wreck site.



WA_72435_1007: Shredded timber



A collection of shredded timber has been recovered from within the dredged material from the channel deepening scheme and land reclamation scheme.

A total of 40 pieces of shredded timber have been recovered to date. The wood shows signs of having been worked with some sawn edges being apparent. As no evidence for ships fastenings can be seen it is not possible to definitively conclude if they have been recovered from a wreck site, however the timbers show signs of working consistent with shipbuilding techniques and are similar in dimensions and condition to ship's timbers with fastenings recovered during the same phase of the watching brief (**WA_72435_1008**). It is therefore probable that some of the material is from one or more wrecks that have been impacted by dredging.

Assuming that the material did come from a wreck the dimensions of the timber pieces would appear to suggest a small to medium sized vessel. In terms of archaeological interpretation, it is difficult to suggest anything further as the condition of the material is extremely poor. The potential to gain additional information from further analysis, such as dendrochronological sampling, appears to be low given the poor state of preservation of the material and the fact that it has been allowed to dry out.

If this material is related to the ship's timbers reported in **WA_72435_1008**, it may be possible to draw some further conclusions based on the description of those timbers. However, as previously mentioned, the association between these assemblages is unclear at present.



WA_72435_1008: Ship timbers



A total of nine ship timbers of varying sizes were recovered from within the dredged material from the channel deepening scheme and land reclamation scheme.

The timbers vary in size from 0.5m to 1.1m long. They all show signs of working from notches to treenails and iron bolts and all are likely to represent structural elements of a wreck. These timbers are additional to the 21 timbers previously recovered during the watching brief (**WA_72435_1002**) and it is probable that at least some of them formed part of the same structure.

Only one of the timbers appears to represent outer planking; the others all appear to be internal and upper structural pieces of a wreck or wrecks predominately constructed of oak timbers. It is difficult to ascertain the constructional style, but it appears more likely to be carvel -built due to the lack of ferrous staining and concretion evidence on any of the assemblage; clinker vessels required a much greater number of fastenings, particularly iron nails. The timbers are light in bulk and are unlikely to represent a particularly large vessel, although there is insufficient evidence at present to make any definitive suggestions regarding the form, function or date of the vessel.

Some general constructional themes are also apparent among the timbers such as the differing sizes in auger holes, which range between 20mm and 40mm. There are also some smaller non-oak elements with small fastenings present in the assemblage. It is possible that these differences could indicate that two different vessels are represented in the material.

The level of shipping within the Thames and its approaches make it very difficult to identify a potential origin for this wreck or wrecks. Inspection of the timbers has suggested that these timbers represent small to medium sized craft and the quality of wood used in construction was noted to be poor, exhibiting wavy grain and a significant number of knots. This may indicate a smaller vernacular vessel or vessels, the loss of which may not have been documented in historical records.





WA_72435_1009: Leather Jug



A leather jug or possible flask has been recovered from within dredged material from the channel deepening and land reclamation scheme. The leather has come un-stitched on one side and the base is no longer attached.

Leather jugs or flasks such as these were made by moulding the damp leather over a wooden form which was allowed to dry slowly so the shape was retained. This shape was then stitched using double saddle stitching and the interior was treated with black tar to maintain the water resistance of the leather. Examples of leather flasks were recovered from the wreck of the *Mary Rose*, however they tended to be made in three parts without a separate base section. This feature would suggest a later date than the *Mary Rose* collection and upon inspection by Wessex Archaeology finds specialists a post-medieval date has been suggested for this artefact.

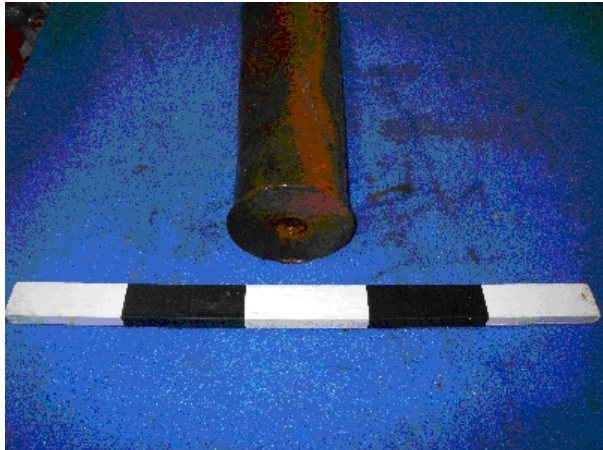
Due to the fragility of organics it is relatively rare within the archaeological record to see this level of survival of a leather artefact. Many examples of leather bottles that have been recovered previously show beautifully embossed patterns and motifs. The lack of any design on the bottle could suggest it was a utilitarian object or may have belonged to an individual of limited means.

The survival of the object would suggest a sealed context, but due to the dredging process it is not possible to associate this find with any of the other items recovered so far. Therefore, while it is possible that this object came from a wreck site impacted by the dredging process it is equally possible that it could be a piece of waste or material lost from a passing vessel.





WA_72435_1010: Fired Shell Casing



A shell casing was recovered within dredged material from the channel deepening and land reclamation scheme.

The shell is brass and is 0.38m long, 0.12m wide at the base. This shell's firing pin was no longer present when recovered, indicating that the round had been fired, leaving the empty shell behind.

Following consultation with the Royal Armouries Museum the shell casing was identified as a casing from a 120mm anti-aircraft gun, most likely from the Second World War. As this was found in a marine environment it is likely that the shell came from an anti-aircraft gun on board a vessel.

The 120mm Anti-Aircraft gun was designed in the 1920's for the Royal Navy and saw service through into the Second World War. These guns were mounted on the two Nelson-class battleships (the *Nelson* and the *Rodney*) and two of the three Courageous-class aircraft carriers (the *Courageous* and the *Glorious*).

It is also possible that this shell casing could have come from a land-based artillery unit and was dumped after use. American armed forces based in England used a 120mm AA gun (M1 gun). This was a super-heavy anti-aircraft gun that was mounted on an eight-wheeled carriage. Several batteries of these guns were placed around London in 1944 and 1945 to combat the V1 "Buzz Bomb". It is possible then that the shell could have been dumped after use at one of these sites around London.





WA_72435_1011: Leather Shoe Soles



A collection of three fragments of leather shoe soles have been recovered within dredged material from the channel deepening and land reclamation scheme. The shoe on the right was previously reported as in the first phase of reports for the archaeological watching brief (**WA_72435_1006**).

There are two right shoes and one left shoe, the dimensions of which range from 0.15m to 0.3m long and 0.09m to 0.1m wide. Each shoe type appears to be different so it is unlikely that there is a pair present in the assemblage. Following inspection by Wessex Archaeology's finds specialists the soles were dated to the 19th or early 20th centuries. This date was suggested by the rounded shape of the toe on each sole, a feature characteristic of footwear from the early modern period. All three fragments have remnants of stitching, rather than metal tacks which are sometimes noted in the manufacture of shoes of similar date.

As the location of the material is not known, it is not possible to conclude whether this is part of a wreck assemblage or if they simply represent rubbish or material that has been jettisoned from a passing vessel.



WA_72435_1012: Pulley



A piece of ship's tackle has been recovered from within dredged material during the channel deepening and land reclamation scheme.

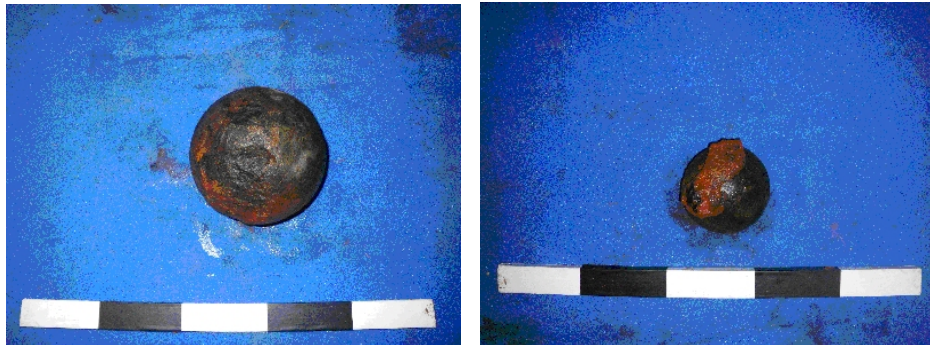
The object consists of an iron hook and casing around a wooden block with the remains of a wooden wheel in the centre of the block. The object is 0.38m long, 0.12m wide and 0.06m thick. The wood is heavily eroded with very little of the original surface surviving. The iron is in equally poor condition with heavy corrosion and some concretion forming in sections.

The object is a pulley block and the metal casing around the wooden pulley would suggest a date from the Post-medieval period through to the early modern period (19th century), although a later date cannot be precluded based on the evidence available. After the 19th century pulleys which were fully metal in construction were used on many vessels and composite pulley blocks were less common.

Whether this pulley represents the remains of rigging from a wreck site is unclear, given that the object was not found in association with any structural remains. It is possible that it could have been jettisoned or lost over board as opposed to being part of a wreck assemblage.



WA_72435_1013: Cannon Balls



Two cannon balls were recovered within dredged material from the channel deepening and land reclamation scheme. These are additional to the six cannon balls already reported from dredging in Dredging Zones 32, 33 and 34 (WA_72435_1003).

The two cannon balls recovered measure 0.15m (5.9") and 0.10m (3.9") in diameter. According to the British standard for cannonball sizes the shot would have been used in 9-pounder and 6-pounder cannons respectively. The size of the shot could reflect of a vessel armed with smaller guns, such as a merchant vessel, or alternatively they could be indicative of the smaller guns carried on the upper deck of a naval vessel.

Iron shot was in use from at least the 15th century, and by the 17th century much of the shot being produced was done so using iron. In the British Navy round shot was phased out in the mid 19th century, although it continued in use on merchant vessels throughout this century. It is probable that the cannon balls are of 19th century or earlier date.

Wrecks of 19th century date have been recorded within Zones 32, 33 and 34; however no armaments have previously been noted during investigations of wrecks in these areas. Due to the nature of the dredging process, these finds have not been recovered in context and it is therefore not possible to associate them with a wreck or any other archaeological material with any degree of certainty.

The closest known armed wrecks to these dredging areas are the 17th century HMS *London*, some 3 kilometres to the west and the site of an unknown wreck (Site 5046) 5 kilometres to the east from which a 19th century cannon was recovered during dredging in 2009.



WA_72435_1014: Coal



A collection of coal was recovered from within dredged material from the channel deepening and land reclamation scheme.

The pieces of coal are likely to have come from a vessel. However, whether this represents material jettisoned over board or material from a wreck site is unknown. It is possible that, if this is wreck material, pieces of coal could be spread over a wide area carried by currents and hydrodynamic processes.

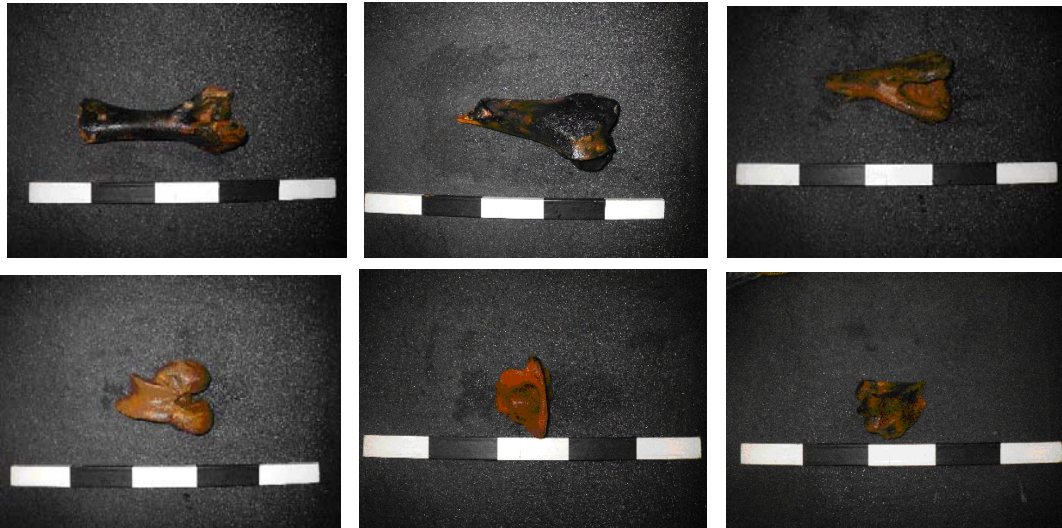
This may represent evidence of a ship carrying coal as a cargo or as fuel. The coal trade has always been a major activity within the Thames from the start of the industrial revolution right through to the Second World War. During World War I and World War II a large number of vessels were lost carrying raw materials from the coal fields of the north east to the industry of London. These were deliberately targeted by enemy aircraft and submarines seeking to cripple British industry and manufacturing by disrupting the supply of fuel.

Although additional coal could be found to be dispersed over a large area, if it had been carried as a cargo a larger concentration of material would be expected to be retrieved during dredging. Therefore it appears more likely that this coal could represent fuel carried by a relatively small vessel, or material lost or dumped overboard by a passing vessel.





WA_72435_1015: Animal Bone



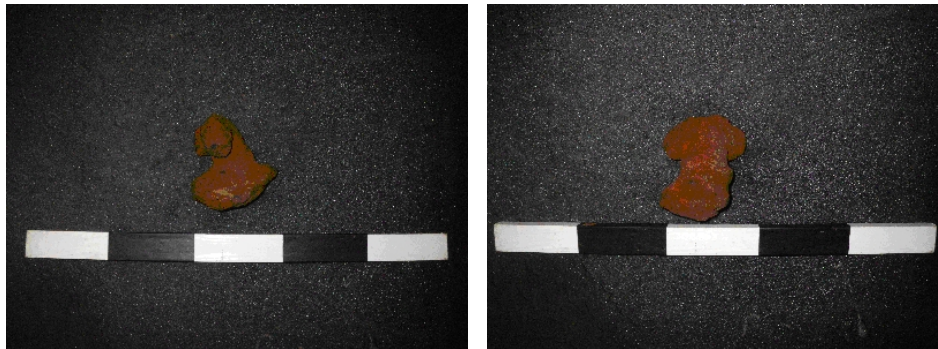
A collection of 10 animal bones have been recovered within dredged material from the channel deepening and land reclamation scheme. These are additional to the assemblage of animal bone already reported from dredging in Zones 32, 33 and 34 (**WA_72435_1001**).

Analysis by Wessex Archaeology's zooarchaeologist has suggested that these are cattle bones and include hind and front leg fragments and broken elbow and knee joints. This breaking appears to be the sign of butchering, and could suggest that the bones are waste that was jettisoned from passing vessels after consumption.

The butchered bones could equally represent commercial waste deliberately dumped in this area, rather than material casually jettisoned by passing vessels. There is a history of using parts of the estuary as dumping grounds from the surrounding abattoirs following slaughter and butchery.



WA_72435_1016: Concretion



A piece of concretion was recovered within dredged material from the channel deepening and land reclamation scheme.

It was originally thought to be stoneware however upon further inspection it was concluded that it was a piece of marine concretion. It is likely to be ferrous as the staining is a rusty colour indicative of oxidation of iron.

Isolated concretions such as this are often difficult to identify, even when found in context with identifiable archaeological material. It is not possible to offer additional archaeological interpretation of this object without more intensive analysis. An X-ray could potentially reveal an image of the original object; however given the size of the concretion it is unclear as to whether this would produce particularly worthwhile results.



WA_72435_1017: Ceramics



A collection three sherds of pottery have been recovered within dredged material from the channel deepening and land reclamation scheme. These are additional to the ceramics already reported from dredging in Zones 32, 33 and 34 (**WA_72435_1004**).

Following inspection by Wessex Archaeology's ceramics expert, these fragments were dated to the 19th or early 20th century. The three pieces are from two different ceramic objects. The piece pictured on the right is the neck of a large rimmed vase or jug whereas the two sherds on the left are from the base of a bowl or plate. The fragments are refined white wear with a transfer print. This transfer print was introduced in the late 18th century and continues to be used in ceramic production today.

It is unclear as to the context from which these objects were recovered. As with many of the isolated finds recovered from dredging it is difficult to ascertain whether the ceramic fragments have been recovered from a wreck site or represent material lost overboard from a passing vessel.

