

12 ARCHAEOLOGY AND HERITAGE

12.1 INTRODUCTION

12.1.1 An archaeological assessment was commissioned as part of the EIA and was undertaken by Wessex Archaeology (a major archaeological contractor with particular expertise in the maritime field). The assessment comprised four phases as summarised below, with further details provided below:

- Desk-based study;
- Interpretation of selected vibrocores that were taken as part of the SI (see Section 2.1);
- Archaeological interpretation of geophysical data; and,
- Diving investigation.

12.1.2 Topographical, geological, sea level, and archaeological data from the interpretation of vibrocores and interpretation of geophysical data have been combined to assess archaeological potential in three broad temporal zones, defined as follows:

- Lower Palaeolithic, Middle Palaeolithic and Early Upper Palaeolithic remains, either as derived artefacts, or possibly as *in situ* remains;
- Late Upper Palaeolithic to Roman artefacts and/or sites; and,
- Wrecks and maritime related sites from prehistoric to modern times.

Methodology

Desk-based sources

12.1.3 The principle sources consulted in the archaeological assessment were:

- Records held by Dorset Historic Environment Record (HER);
- Records held in the maritime section of the National Monuments Record (NMR);
- Records held by the Receiver of Wreck;
- Cartographic records and historic charts;
- Secondary sources relating to the palaeo-environment, Palaeolithic and Mesolithic within Northern Europe;
- Secondary sources relating to maritime development and activity within the Poole Harbour area; and,
- Cartographic and UKHO wreck data obtained from Metoc.

12.1.4 The MoD (Naval Staff Directorate) was consulted with respect to the Protection of Military Remains Act (1986). A meeting was held with the Poole Maritime Trust to discuss the methodology and progress of the archaeological assessment on the 14th April 2004.

12.1.5 The information regarding the known archaeological sites within the study area was collated into two gazetteers. Appendix III within Appendix 7 contains a gazetteer of prehistoric and Roman sites and Appendix IV within Appendix 7 contains a gazetteer of wrecks, seabed obstructions, findspots and associated coastal maritime sites.

Archaeological interpretation of vibrocores

- 12.1.6 A sample of 31 of the vibrocores taken during the SI was selected by Wessex Archaeology for archaeological assessment. From these, eight vibrocores were selected that had the potential for containing organic deposits for detailed archaeological recording.

Archaeological interpretation of the geophysical survey

- 12.1.7 In light of the findings from the archaeological interpretation of vibrocores and the desk based study, and in accordance with best practice for archaeological assessments in the marine environment, a marine geophysical survey was undertaken. The survey comprised side scan sonar, magnetometer and shallow seismic sources and was undertaken between 11th August 2004 and 3rd September 2004.
- 12.1.8 The geophysical survey was designed to assess whether there were any (as yet) unknown sites lying on or beneath the seabed and to answer questions that arose from the vibrocore assessment as to the extent and character of identified peat deposits.

Diving investigation

- 12.1.9 A diving investigation was undertaken to establish the extent and character of a shipwreck identified in the geophysical survey. The site was inspected by a team of archaeological divers from Wessex Archaeology working in conjunction with Quest Diving Services on board the vessel *Shoreline Engineer*.

12.2 EXISTING ENVIRONMENT

- 12.2.1 Full details of the history of environmental conditions within the study area that are of relevance to the potential archaeological interest (e.g. sea level changes) and archaeological evidence for each of the three broad temporal zones defined above are provided in Sections 4 and 5 of Appendix 7. A summary of this detailed information is provided below.

Lower, middle and early Upper Palaeolithic

Summary of known archaeological remains

- 12.2.2 There are 32 sites from which artefacts of Lower Palaeolithic, or Palaeolithic date have been recovered in the study area. Of these 32 sites, none have been recovered from within the proposed dredging or the proposed disposal area. Around Poole Harbour, six findspots have produced artefacts of Lower Palaeolithic or Palaeolithic date, including one from within the harbour (see WA 1024 on Figure 8; Appendix 7).
- 12.2.3 Poole and Bournemouth beaches have 17 sites of Lower Palaeolithic date producing over 150 individual Lower Palaeolithic artefacts, and a further eight sites dated generally to the Palaeolithic which may also be of Lower Palaeolithic date.

Summary of potential for archaeological remains

- 12.2.4 Outcrops of gravel terraces within Poole Harbour, and the tentative identification of submerged gravel terraces, suggests some potential for artefacts of this date in secondary contexts within the proposed dredged channel. It is unlikely that *in situ* material of this date will survive within the proposed dredged channel.
- 12.2.5 The beaches identified for nourishment have produced a large number of artefacts dating from these periods, representing as it does part of the palaeo-Stour valley. The potential for further artefacts from secondary contexts from the beaches is, therefore, high. However, it is unlikely that *in situ* sites of this date survive.
- 12.2.6 The potential for archaeological remains dating to this period within the proposed disposal area cannot be quantified. However, within this area any stratigraphy of archaeological interest is likely to be buried beneath modern sediment.

Late Upper Palaeolithic and Mesolithic

Summary of known archaeological remains

- 12.2.7 There is one site of late Upper Palaeolithic date and one site of Mesolithic date both of which lie within the protected area of the Hengistbury Head Scheduled Ancient Monument. In addition there are three findspots of artefacts of Mesolithic date.
- 12.2.8 No archaeological sites of this date are known from within the proposed dredging or proposed disposal areas.

Summary of potential for archaeological remains

- 12.2.9 The archaeological assessment demonstrated that the area of both Hengistbury Head and Poole Harbour would have been attractive river valley environments for Late Upper Palaeolithic and Mesolithic communities. The nationally important sites at Hengistbury Head, and additional findspots at Southbourne and Canford, demonstrate the high potential for archaeological remains of this date within beach and cliff deposits at Poole and Bournemouth.
- 12.2.10 Peat deposits recorded by Wessex Archaeology from within the proposed dredging area have been tentatively identified as of later Mesolithic date. The survival of archaeological remains from waterlogged sites of this date is demonstrated by sites such as Star Carr in North Yorkshire (Darvill, 1987) and Bouldner Cliff in the Solent (Momber, 2000). This suggests that the archaeological potential of the proposed dredging area is high.
- 12.2.11 To date, no archaeological remains from the Late Upper Palaeolithic or Mesolithic have been found around the beaches of Swanage or Studland. Thus, the potential for Late Upper Palaeolithic and Mesolithic archaeological remains on these beaches is considered to be lower than that within Poole Harbour.

Late prehistoric and Roman terrestrial sites

Summary of known archaeological remains

- 12.2.12 The study area contains a wealth of evidence for the exploitation of the area around Poole Harbour by later prehistoric and Roman communities, including settlements, ritual and industrial sites. The sea level at this time was still 1m to 3m below its current position, and some areas within Poole Harbour that are currently below the high water mark would, at this time, have been dry land. Within the current approach channels, later prehistoric artefacts have previously been recovered, including:
- Two Roman ceramic vessels from within the proposed dredging area (see WA 1084, 1100 on Figure 8; Appendix 7);
 - An Iron Age logboat (see WA 1063 on Figure 8; Appendix 7) dredged 150m to the south of the proposed dredging area, and,
 - A Bronze Age axe head discovered by divers at the entrance to Poole Harbour (Markey, 2004); this is outside of the proposed dredging area.
- 12.2.13 There are also other maritime related sites and finds elsewhere in the harbour, including two Iron Age jetties, which demonstrate the growing importance of Poole Harbour as a port.
- 12.2.14 Terrestrial sites have been found around the fringes of the proposed dredging area, including Romano-British pottery (see WA 1085 on Figure 8; Appendix 7) discovered in a ditch on the north-east foreshore of Brownsea Island less than 150m from the proposed dredging area. Saltworks dating to the Iron Age (see WA 1082 on Figure 8; Appendix 7) and Romano-British period (see WA 1103 on Figure 8; Appendix 7) have been found on the foreshore in Poole less than 300m from the proposed dredging area.
- 12.2.15 Along the beaches identified for nourishment, the main focus of later Prehistoric activity was around Hengistbury Head, where a Late Neolithic settlement, Bronze Age barrow cemetery, Iron Age earthworks and Iron Age port have been identified (see WA 1039, 1062, 1133, 1136, 1143 on Figure 8; Appendix 7). All these sites lie within the Hengistbury Head SAM. The recording of an ancient forest on the foreshore at Bournemouth pier suggests that in addition to archaeological monuments, evidence for past landscapes is also preserved within the beach deposits.
- 12.2.16 There are no sites or finds of this date from within the proposed disposal area.

Summary of potential for archaeological remains

- 12.2.17 Sea level was lower during the later prehistoric and Roman periods than at present. As such, there is some potential for submerged terrestrial or foreshore archaeological sites or finds dating to this period. However, due to the depth of water in those areas it is unlikely that later prehistoric foreshores fall within the proposed dredging areas, hence the most likely sites or finds from this date are likely to be of maritime origin.

- 12.2.18 A number of Bronze Age barrow sites are located less than 300m from the beaches at Swanage and Hengistbury, demonstrating a high potential for ritual sites around the beach promontories. Hengistbury Head has been investigated thoroughly and has produced evidence of human activity from the Late Upper Palaeolithic to the Roman Period. There is, therefore, some potential for similar promontories, such as that between Studland and Swanage Bays, to produce similar levels of archaeological remains.
- 12.2.19 The beaches have produced a number of finds from all periods, which could indicate either further sites eroding out of the beach deposits, artefacts lost during past foreshore activities, artefacts deposited in the course of beach recharge or artefacts washed ashore from losses at sea. The submerged forest recorded at Bournemouth indicates a potential for surviving prehistoric landscapes within the beach deposits. The potential for maritime related sites is discussed below.
- 12.2.20 There is a no potential for non-maritime archaeological sites or finds of this date from within the proposed disposal area.

Maritime

Summary of known archaeological remains

- 12.2.21 The known post-Roman maritime archaeological resource is summarised in Table 12.1.

Table 12.1 Summary of the known post-Roman maritime archaeological resource in the study area

Site type	Total in study area
Wreck (maritime vessel)	25
Wreck (Valentine tank)	6
Possible wrecks	5
Obstructions	27
Finds of material on the seabed	26
Reported loss sites (maritime vessels)	172
Reported loss sites (aircraft)	34
Wreck sites where wreck has been lifted	3
Other maritime features	6
Coastal sites	28
Total	332

- 12.2.22 In addition to the above, the earliest archaeological evidence for maritime activity within the Harbour occurs in the form of an Iron Age logboat and two Iron Age jetty structures. The Bronze Age winged axe found at the entrance to Poole Harbour may be evidence of yet earlier maritime activity. Hengistbury Head provides evidence for cross-channel trade dating to the Late Iron Age/Romano-British period, demonstrating that by this time travel by sea was commonplace within the study area.
- 12.2.23 The loss of over 100 ships is recorded off the beaches identified for nourishment; however, only a small proportion of these have been located on the seabed. Finds distributed across the study area suggest that there are further, as yet unlocated wrecks offshore.

12.2.24 One unknown shipwreck (see WA 2309 on Figure 9; Appendix 7) lies within the proposed disposal area, and one obstruction now considered to be 'dead' (see WA 2321 on Figure 9; Appendix 7) lies at the northern extent of the Swash Channel but was not identified in the geophysical survey.

12.2.25 The geophysical survey identified the following:

- Four sites (see WA6192, WA6191, WA6190, WA6189 on Figure 10; Appendix 7) that comprise a shipwreck and associated features;
- An obstruction reported by the Admiralty (see WA2327 on Figure 9; Appendix 7), that is believed to be a wreck that sank in 1973 (Steve Pearce, PHC, *pers comm.*);
- A further 28 sites of medium archaeological potential, six of which are located within the proposed channel; and,
- A further 202 sites of low and very low archaeological potential.

12.2.26 Further details are provided in Section 6 of Appendix 7.

Summary of potential for archaeological remains

12.2.27 It has been demonstrated that the Poole Harbour area was probably inundated sometime during the Mesolithic. Ship finds from elsewhere in northern Europe have demonstrated that water travel was used from the Mesolithic onwards whilst the earliest ship finds in Britain date from the Bronze Age.

12.2.28 The archaeological evidence presented above demonstrates that shipping is likely to have been passing along the approach channels to the Harbour to the area of Hamworthy and Poole from at least the Iron Age.

12.2.29 Archaeological and documentary sources indicate that shipping activity within Poole Harbour increased throughout the Roman and Saxon period. By the early Medieval period, the Port of Poole had been established. Examples of the types of ships frequenting the Harbour are provided by the Studland Bay wreck (see WA 2169 on Figure 9; Appendix 7) and the Foundry boatyard timbers (see WA 2304 on Figure 9; Appendix 7). The potential for shipwrecks within the study area as a whole is likely to increase with increasing levels of shipping in the area through time.

12.2.30 Although the geophysical survey undertaken as part of the archaeological assessment has considerably minimised the chance of unknown wrecks being present within the dredge footprint, it is possible that some of the anomalies identified are of archaeological importance.

12.3 POTENTIAL IMPACTS ASSOCIATED WITH THE APPROACH CHANNEL DEEPENING

Construction phase

Potential impact on Palaeolithic and Mesolithic sites and/or finds

- 12.3.1 As stated above, the date of the gravels identified in the vibrocores is presently unclear, and as such it can not be ascertained as to whether gravel containing *Palaeolithic* artefacts would be impacted by the dredging activity. However, any Lower or Middle Palaeolithic artefacts within the Poole Harbour gravel deposits would be removed from their context during the process of the dredging, but only if sites are present within the footprint of the proposed dredging. No such sites are currently known.
- 12.3.2 As described above, peat deposits from within the proposed dredging area have been tentatively identified as of later *Mesolithic* date. The presence of peat layers confirm the potential for the presence of landsurfaces dating to this period. These layers may contain archaeological material as well as providing palaeo-environmental and palaeogeographic information that will contribute to the understanding of the formation of Poole Harbour in the past. Where peat and any associated deposits fall within the proposed dredge depth, they would be impacted by dredging. However, across large areas of the proposed dredge footprint, peat and associated deposits lie below the proposed dredge depth and would not be impacted. Further, peat layers extending beyond the extent of the scheme, as indicated by the geophysical survey, will also not be impacted. Consequently, the deposits that would be impacted form only a small proportion of the overall deposits. No archaeological sites of this date are known from within the proposed dredging areas.
- 12.3.3 On the basis of their age, and the rarity of such finds underwater, if such material dating to the periods described above was present it would be of high, national (and probably international) importance to the archaeological record. The potential for Palaeolithic remains underwater is generally recognised as a gap in current knowledge, and any surviving material in a submerged context would be extremely rare and largely unparalleled.
- 12.3.4 Given that the presence of sites and/or finds from this period is unknown, a precautionary approach must be adopted and a worst case potential impact of **major adverse significance** is assumed should sites and/or finds be present and are lost due to the capital dredging. If sites and/or finds from this period are not present within the footprint of the dredging, **no impact** would arise.

Mitigation and residual impact

It is proposed that an overall mitigation strategy would be prepared and the agreement of curatorial authorities to this strategy would be sought. There is limited scope for any form of watching brief during dredging. However, in view of the potential importance of chance discoveries of sites and/or finds of Palaeolithic or Mesolithic date, the strategy would comprise the following:

- a) Preparation and implementation of a protocol for reporting finds made during dredging;
- b) Provision within the protocol for temporarily relocating dredging activity away from areas of possible archaeological interest pending archaeological advice;
- c) Provision within the protocol for emergency first-aid conservation, and for archaeological inspection of recovered features and the sites from which they were recovered; and,
- d) A programme of periodic visits to monitor the effectiveness of the reporting protocol.

In view of the effect on an albeit limited proportion of the peat layers, environmental assessment, analysis and scientific dating of samples retained from the earlier vibrocores may be warranted.

Although the potential for unrecorded loss of finds from this period would remain, the implementation of the above measures would provide a mechanism for mitigation which would reduce the likelihood of loss of important finds. With this mechanism in place, the potential residual impact associated with the dredging on sites and/or finds from this period (assuming sites are present within the dredged footprint) would be of **minor adverse significance** (for discovered finds during dredging) to **moderate adverse significance** (given that some finds may be lost but the likelihood of loss of unknown sites of importance would be minimised through the proposed mitigation strategy). If it is assumed that there are no sites from this period within the dredge footprint, there would be **no residual impact**.

Potential impact on late prehistoric and Roman terrestrial sites and/or finds

12.3.5 Any sites or finds that lie within the proposed dredging areas would be impacted. During the construction phase, damage to such sites/finds could occur in the following ways:

- Direct damage to the site structure and contents; and,
- Disturbance to relationships between structures, artefacts and their surroundings.

12.3.6 Although finds of Roman, Iron Age and Bronze Age date have been made in the past in the vicinity of the footprint of channel dredging, these are not thought to be indicative of *in situ* terrestrial sites and landsurfaces of this date. Such finds are discussed below in Section 12.3.8 onwards.

12.3.7 As described in Section 12.2.18, given the depth of water in areas that would be directly impacted by dredging it is unlikely that later prehistoric foreshores fall within the

proposed dredging areas; hence the most likely sites or finds from this date are likely to be of maritime origin (this is assessed below). It is concluded that the potential for such sites to be present is, therefore, very low and **no impact** is predicted.

Mitigation and residual impact

As described above, an overall mitigation strategy would be prepared and the agreement of curatorial authorities to this strategy would be sought. In view of the limited scope for impact on terrestrial sites/finds of later prehistoric and Roman date, no further specific mitigation is proposed and it is predicted that there would be **no residual impact**.

Potential impacts on the maritime archaeological resource

12.3.8 In general terms, during the construction phase the proposed capital dredging may impact upon wreck sites through the following processes:

- Direct damage to shipwreck structure and/or contents; and,
- Disturbance to the relationships between structures, artefacts and their surroundings.

12.3.9 While no direct impacts would occur to the wreck site identified during the geophysical surveys undertaken as part of this EIA given that the wreck is outside of the footprint of the capital dredging, there may be an indirect impact should the proposed dredging enhance the existing tendency for erosion at the wreck site (see 'Operational phase').

12.3.10 The proposed capital dredging would directly impact a number of anomalies that were identified during the geophysical survey and which have been categorised in terms of their potential archaeological importance. While the anomalies subject to impact are not known to be of archaeological origin, some are regarded as having archaeological potential. However, it should be noted that the majority of the area over which anomalies have been identified and which would be directly impacted by the proposed dredging has been dredged in the past. Nevertheless, such dredging could have exposed underlying features.

12.3.11 While the scope for the dredging to impact upon as yet undiscovered wreck sites has been considerably reduced by the geophysical survey, it is possible that unknown wrecks could be present within the footprint of the dredging.

12.3.12 In summary, the capital dredging would not directly impact on known wreck sites but there are a number of anomalies that are likely to be of archaeological interest to a greater or lesser extent. The geophysical survey has considerably minimised the chance of unknown wrecks (i.e. features likely to be of high importance) being present within the dredge footprint, although it is possible that some of the anomalies identified are of archaeological importance. It is concluded that the capital dredging has the potential to result in an impact of **moderate adverse significance** on the unknown archaeological resource of the proposed dredge area given that a number of anomalies could have some archaeological importance.

Mitigation and residual impact

As described above, an overall mitigation strategy would be prepared and the agreement of curatorial authorities to this strategy would be sought. In addition, specific mitigation measures are being developed (through discussions with English Heritage) for the wreck identified during the geophysical survey. These mitigation measures will be subject to agreement with curatorial authorities.

Archaeological diver investigation would be carried out on a sample of the total range of geophysical anomalies to establish any correlation between anomalies and the presence of wrecks or wreckage of archaeological interest. All investigations undertaken as part of mitigation would be subject to professional standards, including standards for reporting, archiving and publication. Copies of records will be submitted to lodged with the Dorset Historic Environment Record and the National Monuments Record.

The above programme of mitigation measures would allow those unknown anomalies to be defined and characterised in detail, thereby allowing action to be taken if any anomaly is considered to be of sufficient archaeological importance. As a result, the residual impact of the capital dredging on the maritime archaeological interest is considered to be of **minor adverse significance**.

Operational phase

Potential impacts on the maritime archaeological resource

12.3.13 During the operational phase, the proposed capital dredging may impact upon the wreck site identified during the geophysical survey through the following processes:

- Destabilisation of the site prompting renewed corrosion and/or decay; and,
- Erosion leading to damage, disturbance and instability in the medium to long term.

12.3.14 The significance of the impact is dependant on the importance of the wreck; this is currently under investigation. However, for the purposes of assessment it is assumed that the wreck is of high importance and that any impacts on the structure due to erosion would be detrimental during the operational phase. It should be noted that the wreck is located in an area which appears to be subject to natural erosion and, judging by the current state of the wreck, some of this erosion appears to be very recent (i.e. possibly within the last year). In the area where the wreck is present, the scheme is predicted to result in a minor contribution to the existing trend of erosion; however, in view of the likely high importance of the wreck, this potential impact is considered to be of **moderate adverse significance**.

Mitigation and residual impact

Discussions are currently ongoing with English Heritage regarding appropriate mitigation measures in view of the likely increase in erosion at the wreck site. At this stage it is proposed that measures would be implemented that would allow preservation of the wreck *in situ*. Such measures would greatly increase the chances of the survival of the wreck in view of the erosive nature of the environment in which it is located. The success of such mitigation measures would be monitoring through bathymetric survey.

Given the above mitigation, it is considered adverse impacts that are predicted to arise at the site of the wreck would be avoided. Furthermore, in the absence of this mitigation, it is believed that there is a high risk that the wreck would be lost due to the existing eroding nature of the site. Therefore, in addition to mitigating the predicted impact associated with the proposed dredging, the above mitigation measures would also counteract the existing erosion of the site. The net effect of the mitigation is, therefore, considered to represent a potential impact of **major beneficial significance** given that the overall effect would be to preserve an archaeological site of potentially high importance.

12.4 POTENTIAL IMPACTS ASSOCIATED WITH THE OFFSHORE DISPOSAL OF DREDGED MATERIAL

Construction phase

Potential impact on Palaeolithic or Mesolithic sites and/or finds

- 12.4.1 The offshore disposal of dredged material has a low potential to have an adverse impact on sites/finds of these periods within the disposal ground and any artefacts deposited at sea are likely to be lost. This impact is, therefore, encompassed within the potential impact associated with capital dredging. The offshore disposal of dredged material would have an impact of **negligible significance** on any potential sites of Palaeolithic or Mesolithic date within the offshore disposal ground.

Mitigation and residual impact

No mitigation measures are required beyond those described for the capital dredging. The residual impact on potential sites of this period within the offshore disposal ground would be of **negligible significance**.

Potential impact on late prehistoric and Roman terrestrial sites and/or finds

- 12.4.2 The evidence suggests that the offshore disposal ground was fully inundated by the later prehistoric and Roman periods. Therefore, non-maritime sites/finds are not expected to be present and **no impact** is anticipated.

Mitigation and residual impact

No mitigation measures are required and there would be **no residual impact**.

Potential impacts on the maritime archaeological resource

- 12.4.3 The disposal of dredged material would take place in the south-east quadrant of the disposal ground and largely comprises fine material. The disposal would not, therefore, directly impact the wreck that is located within the north-west quadrant of the disposal ground (see WA 2309 on Figure 9; Appendix 7). The wreck is also outside of the immediate streamline of the dispersion of fine material, although a very small volume of fine material may deposit temporarily (at slack water) in the vicinity of the wreck. As a result, the impact of the proposed disposal on the wreck is predicted to be of **negligible significance**.

Mitigation and residual impact

No mitigation measures are required and the residual impact would be of **negligible significance**.

Operational phase

Potential impacts on the maritime archaeological resource due to the disposal of maintenance dredgings

- 12.4.4 During the operational phase, maintenance dredgings would be deposited at the offshore disposal site. However, the volume of dredged material that would be deposited at the disposal ground on a typical maintenance dredging campaign would be reduced compared with the existing situation. As a result, **no impact** is predicted as a result of the disposal of maintenance dredgings following the channel deepening.

Mitigation and residual impact

No mitigation measures are required and there would be **no residual impact**.

Potential impact on Palaeolithic, Mesolithic, late prehistoric and Roman terrestrial sites and/or finds

- 12.4.5 The disposal of maintenance dredgings is not expected to have an effect on any potential sites of these periods and, therefore, **no impact** is predicted.

Mitigation and residual impact

No mitigation measures are required and there would be **no residual impact**.

12.5 POTENTIAL IMPACTS ASSOCIATED WITH BEACH NOURISHMENT

Construction phase

Potential impact on Palaeolithic or Mesolithic sites and/or finds

- 12.5.1 The nourishment of beaches with sand and gravel arising from the proposed channel dredging would redeposit any artefacts of this date, removing them from their context and contaminating any sites of similar date in beach nourishment areas.
- 12.5.2 Any artefacts redeposited onto the beaches may be recovered at a later date, however their archaeological value would be reduced having been removed from their original, or secondary place of deposition. This potential impact is considered to arise during the removal of artefacts from their source and, therefore, the potential impact is encompassed within that described for capital dredging above. Beach nourishment may have a beneficial effect by reducing erosion of Palaeolithic and Mesolithic sites and/or finds at the coast (see 'Operational phase' below).
- 12.5.3 There is one site of Upper Palaeolithic date and one site of Mesolithic date both of which lie within the protected area of the Hengistbury Head Scheduled Ancient Monument and would not be affected by beach nourishment.
- 12.5.4 It is concluded that the deposition of artefacts from these periods onto the beach represents **no impact** in itself as the impact of loss of archaeological context occurs of removal occurs during capital dredging.

Mitigation and residual impact

The reporting protocol described above would also apply here and this would ensure that any finds discovered on the beaches are not lost. **No residual impact** is predicted.

Potential impact on late prehistoric and Roman terrestrial sites and/or finds

- 12.5.5 The multi-period site of Hengistbury Head is of national importance, and is protected as a Scheduled Ancient Monument. Additional Bronze Age barrows in the area are also designated. The beach nourishment works are not within this designated site and **no impact** is predicted on the designated site.

Mitigation and residual impact

No mitigation measures are required and **no residual impact** is predicted.

Potential impacts on the maritime archaeological resource

- 12.5.6 No effect on maritime finds and sites is considered likely to occur as a result of beach nourishment and, therefore, **no impact** is predicted.

Mitigation and residual impact

No mitigation measures are required and **no residual impact** is predicted.

Operational phase

Protection of potential sites of all periods from erosion

- 12.5.7 The beach nourishment schemes would provide an increased standard of protection to the coast and, therefore, decrease the potential for erosion of potential sites dating from the all periods, particularly in areas where the beaches are not backed by seawalls. This represents an impact of **minor beneficial significance**.

Mitigation and residual impact

No mitigation measures are required and a residual impact of **minor beneficial significance** is predicted.