

## 9. IMPACT ON CULTURAL HERITAGE

### Introduction

- 9.1 The findings of the assessment of potential impacts on cultural heritage arising from the proposed advance works are presented in this Section. The assessment is based on a desktop review and Marine Archaeological Investigation (MAI) undertaken by a qualified marine archaeologist with reference to *NLDFS EIA Report*. This Section includes a description of baseline condition, evaluation of potential impacts and recommends mitigation measures, where appropriate.

### Environmental Legislation

- 9.2 The legislation, polices, plans, standards and criteria relevant to this study are:
- ♣ Guidance Notes on Assessment of Impact on Sites of Cultural Heritage in Environmental Impact Assessment Studies (GN-CH);
  - ♣ Environmental Impact Assessment Ordinance (EIAO) (Cap. 499, S.16);
  - ♣ Technical Memorandum on the Environmental Impact Assessment Process (EIAO-TM);
  - ♣ Antiquities and Monuments Ordinance (Cap. 53); and
  - ♣ Hong Kong Planning Standards and Guidelines (HKPSG).

### EIAO, EIAO-TM and GN-CH

- 9.3 The EIAO stipulates that consideration must be given to issues associated with cultural heritage and archaeology as part of the EIA process. Annexes 10 and 19 of the EIAO-TM outline the guideline and criteria for cultural heritage assessment. The criteria for evaluating impacts to sites of cultural heritage stated in Annex 10 of the EIAO-TM are:
- ♣ The general presumption in favour of the protection and conservation of all sites of cultural heritage because they provide an essential, finite and irreplaceable link between the past and the future and are points of reference and identity for culture and tradition.
  - ♣ Adverse impacts on sites of cultural heritage shall be kept to an absolute minimum.
- 9.4 The GN-CH serves as a reference to assist the understanding of the requirements set out in Section 2 of Annex 10 and Annex 19 of the EIAO-TM under the EIAO in assessing impact on sites of cultural heritage in EIA studies.
- 9.5 Since the introduction of the EIAO, the AMO have the power to request a MAI for developments affecting the seabed.
- 9.6 In addition, a wide range of non-statutory sites of cultural heritage are identified and recorded by the AMO. Recorded historic buildings and structures are classified into grades I, II and III by the Antiquities Advisory Board (AAB) to indicate their relative importance, as defined below:
- ♣ Grade I – Buildings of outstanding merit, of which every effort should be made to preserve if possible.
  - ♣ Grade II – Buildings of special merit, of which efforts should be made to selectively preserve.
  - ♣ Grade III – Buildings of some merit, but not yet qualified for consideration as possible monuments. These are to be recorded and used as a pool for future selection.

- 9.7 Although the graded buildings and structures, and deemed monuments carry no statutory protection, the Government has administrative procedures that require consideration be given to these historic buildings and sites of cultural interest.

***Antiquities and Monuments Ordinance (Cap. 53)***

- 9.8 The Antiquities and Monuments Ordinance provides statutory protection against the threat of development for Declared Monuments including historical buildings / structures and archaeological sites (both on land and underwater), which have been recommended by the AAB, approved by the Chief Executive and gazetted to enable their preservation for posterity.
- 9.9 Certain Deemed Monuments have been identified by the Antiquities and Monuments Office (AMO) and agreement reached with the owners of the Monuments to ensure their preservation. Deemed monuments have the potential to be upgraded to statutory Declared Monuments.
- 9.10 For archaeological sites, all relics dated prior to 1800AD belong to the Hong Kong Government under the Antiquities and Monuments Ordinance. Once identified as having the potential for conservation, archaeological sites are entered into the record.

***Hong Kong Planning Standards and Guidelines***

- 9.11 Chapter 10 of the HKPSG provides general guidelines and measures for the conservation of historical buildings, archaeological sites and other antiquities.

***Assessment Methodology***

- 9.12 The assessment area comprises the land and seabed area that may be affected by construction of the proposed works.
- 9.13 Available information from the relevant cultural heritage baseline data presented in the *NLDFS EIA Report* was reviewed.
- 9.14 A MAI was undertaken to locate and assess underwater archaeological resources within the seabed area that would be affected by the proposed marine works (**Figure 9.1**), in accordance with AMO guidelines, comprising:
- ♣ Baseline review of the potential for the existence of the submerged cultural resources;
  - ♣ Seismic profiling;
  - ♣ Echo sounding; and
  - ♣ Side scan sonar surveys.
- 9.15 The impact assessment followed the criteria and guidelines for evaluating and assessing cultural heritage impacts as stated in Annexes 10 and 19 of the *EIAO TM* respectively.

***Description of the Environment***

- 9.16 The assessment area is located on the southern shore of a small cove situated on the north-eastern coast of Sunny Bay. This relatively long, narrow (app.1 km x 250 m) and shallow embayment is protected from all winds except from the north-east. The small fetch between Lantau, at this point and the mainland – approximately 4 km, is not conducive for the creation of large waves in the study area. This is best reflected by the present use of the cove for log ponds. Such an activity requires all-year round still waters. The alignment of the present shoreline along the southern part of Sunny Bay is the result of land reclamation that has been taken place in recent years.

### ***Historical Background of Sunny Bay***

- 9.17 Historical information on Sunny Bay is very limited. During the Ming Dynasty, a customs station was located on nearby Ma Wan Island suggesting that the sheltered areas nearby, such as Sunny Bay, may have been used by vessels waiting to clear customs. Smaller vessels also travelling to and from market centres such as Tuen Mun and Tai O may have also used Sunny Bay as a temporary shelter.
- 9.18 It would seem that the most common usage of Sunny Bay was that of a minute fishery for inshore fishing methods, which were prevalent in Hong Kong until the 1950s when overexploitation made them redundant. Two small, semi-abandoned hamlets, Sunny Bay and Luk Keng Tsuen, along the southern and northern shores were most likely partially sustained by the now defunct inshore fishery. The area is being currently utilised for the storage of logs.

### ***Land-based Archaeological Resources***

- 9.19 Two known archaeological sites (**Figure 9.1** refers) are located in the Sunny Bay area:

#### **Luk Keng Tsuen Archaeological Site**

- 9.20 Neolithic coarseware pottery and stone ring fragments, Tang dynasty lime kiln debris and Ming dynasty blue and white porcelain was unearthed, is considered to have significant archaeological value.

#### **Yam O Archaeological Site**

- 9.21 Previous archaeological surveys identified some blue and white porcelain through surface survey; the site is located to the southwest of the Luk Keng Tsuen Archaeological Site.

### ***Historical Buildings and Landscape Features***

- 9.22 Neither declared/deemed monuments nor graded historical buildings are located within the assessment area.

### ***Marine Archaeology***

- 9.23 A review of Admiralty charts and other archival sources revealed no evidence of shipwreck in vicinity of the assessment area.
- 9.24 Archaeological surveys and test excavations at Luk Keng Tsuen found artefacts dating back to the Late Neolithic, as well as to the Tang and Ming Dynasties. The evidence suggests that the Luk Keng Bay, was a popular anchorage along the main trading route from the Pearl River to Guangzhou.
- 9.25 A previous geophysical survey and subsequent diver survey was undertaken by Civil Engineering and Development Department (CEDD) at a proposed the 10 ha reclamation area at Sunny Bay for the *NLDFS EIA*. The result did not reveal any seabed anomalies, and only anthropogenic material including tyres, oil drums, fishing nets and construction waste were identified. It was concluded that no significant marine archaeological deposits were identified as buried in the seabed of the proposed 10 ha Sunny Bay reclamation.

### ***Geophysical Survey***

- 9.26 A marine geophysical survey was undertaken in November 2002 for the 3 ha reclamation area and the construction of seawall of the advanced P1 works next to on-going Sunny Bay reclamation,

### Bathymetry

9.27 The survey area is dominated by a 'protuberance' or ridge which runs through the centre of the study area on a NE – SW axis. The width of this ridge is approximately 25 to 30 m. The water depth above this feature is -0.5 mPD and less. On either side of the protuberance, the water depth reaches -3 mPD (east side), and -3.5 mPD (west). In the north east corner of the study area the water depth reaches -7 mPD. This area appears to have been dredged.

### Interpretation of the Seabed

9.28 Based on the side scan sonar survey, the study area was divided into five zones:

- ♣ Base of the existing seawall.
- ♣ Possible sandy seabed - within this zone is situated a low stone or reef.
- ♣ This zone is defined as a 'protuberance' - no description of sediment composition has been provided but an examination of the side scan sonar trace suggests that this 'protuberance' is composed of very low reflective material, most likely fine silt.
- ♣ Mud seabed scarred with anchor and trawl marks.
- ♣ Dredged area - no accompanying sediment description.

9.29 Scattered throughout the western half of the study area are also singular linear objects, which have been interpreted as being logs and large rock. The singular logs would be associated with the log ponds, which are situated along the western edge of the study area.

### Interpretation of the Stratigraphy

9.30 There were only two distinct stratigraphical layers, Marine Deposit and Rock Head. The base level of the marine deposits ranged from -12 mPD, closest to shore, to -26 mPD in deeper water to the west. These sediments are presumably associated with the Hang Fau Formation, which have been formed during the Holocene (Fyfe, Shaw, et al, 2000:129). Such deposits are characterised by fine sands and mud. The commencement of the rock head stratum has the same variation tendencies as that of the marine deposits. Another stratum, 'Decomposed in-situ Soil', is assumed that this is weathered bedrock or Rock Head.

### Findings of Geophysical Survey

9.31 It is concluded from the survey findings that the potential for the presence of significant archaeological and cultural remains within the survey area is low. The marine geophysical survey did not reveal any anomalies or targets of potential archaeological significance. No additional archaeological investigation is therefore recommended.

### **Identification of Potential Impacts**

9.32 Any area of potential archaeological interest immediately at proposed works would potentially be impacted.

9.33 Permanent land take may result in damage or loss of any archaeological remains and deposits, and culturally significant features, and changes of the physical coherence of historic landscape due to the following activities:

- ♣ disturbance through excavation at or near an archaeological site, and the passage of heavy machinery on exposed and buried deposits;

- ♣ the burial of sites resulting in a limitation on accessibility for future archaeological investigations and obscuring visible surface evidence; and
- ♣ disturbance by machinery working on the present surface.

### **Assessment of Cultural Heritage Impacts**

- 9.34 The land based archaeological data indicates that the two archaeological sites, Sunny Bay and Luk Keng Tsuen, are approximately 300m and 380m from the project area respectively. As these archaeological sites are located well outside the proposed advance works area, no adverse impact is expected.
- 9.35 The marine geophysical survey of the assessment area did not reveal any features with archaeological potential. The side scan sonar data provided evidence that the seabed within the Road P1 Advance Works area has been extensively trawled and disturbed by dredging. This was indicated by the presence of a large number of trawl and anchor scars on the seabed. These activities may therefore have served to destroy or redistribute archaeological material, if present, thereby reducing the archaeological potential of the assessment area. Since there was no archaeological resource present within the seabed of the assessment area, it follows that there would be no related constraint on the proposed development.

### **Mitigation of Cultural Heritage Impacts**

- 9.36 No impact to the archaeological resources within the proposed advance works area is expected and therefore, no mitigation is required. However, it should be noted that according to the Antiquities and Monuments Ordinance (Chapter 53: Section 11), during the course of the development, should any antiquity or supposed antiquity be uncovered, the AMO is to be contacted.
- 9.37 As recommended in the *NLDFS EIA Report*, Road P1 may directly impact on the Yam O Archaeological Site. Design of the Road P1 should consider to avoid direct impacts to the Yam O Archaeological Site and an archaeological field evaluation should be performed as part of a separate Schedule 2 EIA for the Road P1 project.

### **Conclusion**

- 9.38 The marine archaeological investigation did not reveal any anomalies or targets of potential archaeological significance. The Yam O Archaeological Site and Luk Keng Tsuen Archaeological Site are located well outside the proposed advance works area. No adverse cultural heritage impact would therefore be expected.

### **Reference**

J.A. Fyfe, R. Shaw, S.D.G. Campbell, K. W. Lai & P.A. Kirk, 2000. *The Quaternary Geology of Hong Kong*, Hong Kong Geological Survey, Geotechnical Engineering Office, Civil Engineering Department, The Government of Hong Kong SAR

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Figure 9.1 Archaeological Sites and Study Area of Marine Geophysical Survey