13 CULTURAL HERITAGE

13.1 INTRODUCTION

This Section presents the cultural heritage impact assessment (CHIA) for the proposed Project at Black Point Power Station (BPPS). It summarises the baseline cultural heritage conditions of the Project Site and its surrounding area. Potential impacts have been evaluated and measures have been recommended to mitigate potentially adverse impacts, where appropriate.

The additional gas-fired generation unit(s) and associated facilities of the Project are proposed to be installed within the site boundary of the BPPS. It should be noted that if only one gas-fired generation unit is installed, no marine works will be required and therefore no marine archaeological investigation (MAI) is deemed required.

If a second gas-fired generation unit is installed, it will involve minor marine dredging works close to the existing cooling water system to enhance the cooling water system. In this case, an MAI is required in accordance with Clause 3.4.12.2 of the EIA Study Brief (No. ESB-286/2015) (hereafter referred to as “the Study Brief”). This section also presents the MAI of construction works associated with the construction of the second gas-fired generation unit.

13.2 RELEVANT LEGISLATION & ASSESSMENT CRITERIA

The following legislation and guidelines are applicable to the assessment of sites of cultural heritage, marine archaeological and historic resources in Hong Kong:

- Environmental Impact Assessment Ordinance (Cap 499 S16) and the associated Technical Memorandum on the EIA Process (EIAO-TM);
- Antiquities and Monuments Ordinance (Cap 53) (AM Ordinance);
- Hong Kong Planning Standards and Guidelines (HKPSG);
- Requirements for Cultural Heritage Impact Assessment of the Study Brief; and
- Guidelines for Marine Archaeological Investigation of the Study Brief.

13.2.1 Environmental Impact Assessment Ordinance (Cap 499)

According to the EIAO, Schedule 1 Interpretation, “Sites of Cultural Heritage” are defined as:

“an antiquity or monument, whether being a place, building, site or structure or a relic, as defined in the AM Ordinance and any place, building, site, or structure or a relic identified by the Antiquities and Monuments Office to be of archaeological, historical or palaeontological significance.”
The technical scope of CHIAs defined within Annex 10 of the EIAO-TM states that the criteria for evaluating impacts to sites of cultural heritage should include the following:

- 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; and

- Adverse impacts on sites of cultural heritage shall be kept to an absolute minimum.

The EIAO-TM outlines the approaches required in investigating and assessing the impacts on marine archaeological sites. The following sections of the EIAO TM are applicable:

Annex 19: “There is no quantitative standard in deciding the relative importance of these sites, but in general, sites of unique archaeological, historical or architectural value will be considered as highly significant. A baseline study shall be conducted: (a) to compile a comprehensive inventory of places, buildings, sites and structures of architectural, archaeological and historical value within the proposed project area; and (b) to identify possible threats of, and their physical extent, destruction in whole or in part of sites of cultural heritage arising from the proposed project.”

The EIAO-TM also outlines the approach in regard to the preservation in totality; and in part to cultural resources:

Annex 19: “Preservation in totality will be a beneficial impact and will enhance the cultural and socio-economic environment if suitable measures to integrate the sites of cultural heritage into the proposed project are carried out. If, due to site constraints and other factors, only preservation in part is possible, this must be fully justified with alternative proposals or layout designs, which confirm the impracticability of total preservation.”

13.2.2 Antiquities and Monuments Ordinance (Cap 53)

In addition to the EIAO, the heritage resources of Hong Kong are protected by a range of legislative and planning mechanisms. The AM Ordinance (Cap 53) provides statutory protection of best examples of Hong Kong’s heritage. The AM Ordinance also establishes the statutory procedures to be followed in making such a declaration.

This Ordinance provides for the preservation of objects of historical, archaeological and palaeontological interest…”

The Ordinance defines an antiquity as a relic (a movable object made before 1800) and a place, building, site or structure erected, formed or built by human agency before the year 1800. The Ordinance also states, amongst
other things, that the discovery of an antiquity shall be reported to the Antiquities Authority (Secretary for Development); that ownership of all relics discovered after 1976 shall be vested in the Government; that the Authority can declare a place, building, site or structure to be a monument, historic building or archaeological or palaeontological site or structure (and therefore introducing certain additional controls for these sites); and that licences and permits can be granted for excavation and for other work.

Being the executive arm of the Antiquities Authority, the Antiquities and Monuments Office (AMO), in practice, also identifies Deemed Monuments (1) and then seeks to reach agreements with the owners of the monuments to provide for specific measures that will ensure preservation. Deemed Monuments have the potential to be upgraded to statutory Declared Monuments under the AM Ordinance.

Built Heritage

In addition to heritage resources declared under the AM Ordinance, the AMO had carried out a territory-wide survey of historic buildings between 1996 and 2000, during which some 8,800 buildings were recorded. About 1,000 items with higher heritage value were graded according to the definition presented in Table 13.1.

**Table 13.1**  **Definition of Grading of Historic Buildings**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Buildings of outstanding merit, which every effort should be made to preserve if possible</td>
</tr>
<tr>
<td>2</td>
<td>Buildings of special merit; efforts should be made to selectively preserve</td>
</tr>
<tr>
<td>3</td>
<td>Buildings of some merit; preservation in some form would be desirable and alternative means could be considered if preservation is not practicable</td>
</tr>
</tbody>
</table>

It should be noted that the grading of historic buildings is intended for AMO’s internal reference only and has no statutory standing. Although there are no statutory provisions for the protection of sites of archaeological interest and historic buildings and features, the Government has established a set of administrative procedures (2) for giving consideration to the protection of these resources.

Archaeological Resources

The AMO also organises and coordinates surveys and excavations of areas of archaeological significance and has established boundaries for the identified

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1. Deemed Monument – a building that has been identified by AMO as historically significant. The owner of the building has entered an agreement with AMO to allow restoration work to take place and reasonable access for the public. This designation provides no legal protection over the building under the AM Ordinance.

2. Administrative procedures are adopted by AMO with the intention to protect sites of archaeological and historical interests that are not protected under the provisions of AM Ordinance. For example, heritage protection measures are included as conditions in developing graded built heritage is referred to as administrative procedures.
sites and a set of administrative procedures for the protection of the sites of archaeological interest. However, the present record of sites of archaeological interest is known to be incomplete as many areas have not yet been surveyed. Therefore, procedures and mechanisms which enable the preservation and formal notification of previously unknown archaeological resources that may be revealed or discovered during project assessment or construction, must be identified and implemented at an early stage of the planning of a project.

Section 11 of the *AM Ordinance* requires any person who discovers an antiquity, or supposed antiquity, to report the discovery to the Antiquities Authority. By implication, construction projects need to ensure that the Antiquities Advisory Board (AAB) \(^{(1)}\) is formally notified of archaeological resources which are discovered during the assessment or construction of a project.

### 13.2.3 Hong Kong Planning Standards and Guidelines

The HKPSG, *Chapter 10 (Conservation)*, provides general guidelines and measures for the conservation of historic buildings, sites of archaeological interest and other antiquities.

### 13.2.4 Requirements for CHIA

*Appendix H* of the Study Brief provides the requirements for CHIA (Marine Archaeological Investigation).

### 13.2.5 Guidelines for MAI

The guidelines stated in *Appendix H-1* of the Study Brief provide details on the standard practices, procedures and methodology utilised in determining the marine archaeological baseline, establishing archaeological potential, evaluating the potential impact and establishing suitable mitigation measures.

### 13.3 ASSESSMENT METHODOLOGY

#### 13.3.1 Introduction

The CHIA follows the criteria and guidelines in *Annexes 10 and 19* of the *EIAO-TM*. It also follows the Requirements for Cultural Heritage Impact Assessment and Guidelines for Marine Archaeological Investigation, as stated in *Appendices H and H-1* of the Study Brief, respectively.

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\(^{(1)}\) The Antiquities and Monuments Office provides secretarial and executive support to the AAB. The AAB is a statutory body consisting of expertise in relevant fields to advise on any matters relating to antiquities and monuments.
13.3.2 *Assessment Area*

*Figure 13.1* shows the proposed land-based Project Site area (also defined as the Cultural Heritage Impact Assessment Area) is within the site boundary of the BPPS. There is no declared monument protected under the AM Ordinance, graded/ proposed graded historic buildings, built heritage or sites of archaeological interest located within 500m from the proposed land-based Project Site area. The BPPS site was formed by excavation of hill and reclamation and therefore has no archaeological potential. The proposed works are mainly within the BPPS which is a developed land formed by reclamation without cultural heritage significance, potential impacts on built heritage and terrestrial archaeological resources are not anticipated. Therefore, the proposed Project Site area is of no terrestrial built heritage and archaeological potential. A terrestrial cultural heritage impact assessment is thus not deemed necessary.

According to *Appendix H*, Section 1 (i) of the Study Brief, the Assessment Area for this MAI is defined as the areas affected by the marine and dredging works of the Project.

The marine works associated with the construction of CCGT Unit No.2 will include seabed dredging for the construction and operation of a new intake and a new outfall. For both the new intake and new outfall, dredging is expected to be over an area of about 100m x 100m adjacent to the BPPS seawall, to a depth of up to 5m below the existing seabed level. The indicative locations within which marine dredging may be undertaken are presented in *Figure 13.1*.

13.3.3 *Baseline Review*

A marine archaeological review was conducted by qualified marine archaeologists, Dr Bill Jeffery and Ms Peggy Wong, based on the best available information such as review of available geotechnical survey data from previous geological research held by Geotechnical Engineering Office, historical documents and dredging history from relevant government departments, public library and libraries from tertiary institutions, hydrographic data, charts and ‘wreck’ files held by Hydrographic Office of Marine Department and United Kingdom Hydrographic Office (UKHO), and previous marine archaeological investigations to identify known and potential existence of sites or objects of cultural heritage within the Assessment Area.

13.3.4 *Establish Marine Archaeological Potential*

The synthesis and analysis of the baseline conditions and the scope and nature of the proposed marine works of CCGT Unit No.2 were used to establish if there are any marine archaeological resources/sites within Assessment Area and determine the need for further investigation.
13.3.5 **Impact Assessment and Recommendations**

Based on the findings and analysis of the baseline conditions and result of the evaluation of the marine archaeological potential, an impact assessment was conducted to evaluate the potential impacts of the Project on marine archaeological resources/sites, and recommend necessary marine archaeological actions or mitigation measures.

13.4 **MARINE ARCHAEOLOGICAL REVIEW**

13.4.1 **Geotechnical Survey Data**

Generally, the submarine deposits in the Hong Kong region are subdivided into two formations, Chek Lap Kok Formations and the overlying Hang Hau Formations.

The Chek Lap Kok Formations, the lowest part of the Quaternary succession are considered to be Middle to Late Pleistocene in age and consists of colluvium, alluvium and lacustrine sediments (Fyfe et al (2000)). The marine sediments on top of this formation are sediments related to the Holocene period (from about 13,000 BP to the present day) and referred to as the Hang Hau Formations consisting of clayey silt sediments and some sand.

The Sham Wat Formation, found between Chek Lap Kok Formations and Hang Hau Formations is considered to be the Eemian deposit with uncertain age and consists of soft to firm silty clays with yellowish mottling. This formation is presently not widespread but only in subcrops beneath the Hang Hau Formation (1).

More modern sediments are related to the discharge from the Pearl River, (which would have an effect on the Assessment Area located downstream from the mouth of the Pearl River) having a seasonal discharge of about 370,000 million m³ each year (2). They consist of sand, mud and some gravel.

Fyfe et al (2000) (3) further explains the rate of sedimentation:

“In general, present day sedimentation rates in Hong Kong waters are low, though they were undoubtedly greater earlier in the Holocene when sea level was rising rapidly. … Without tidal flushing, the sediment entering Victoria Harbour from the Pearl River, sewage solids and losses from dredging and reclamation might be expected to raise the seabed level by 40 mm per year. However, comparison of Hydrographic charts of Victoria Harbour from 1903 to 1980 revealed no conclusive evidence of net sedimentation, implying that the seabed is a state of dynamic equilibrium. Assuming that sedimentation in Hong Kong waters began about 8,000 years ago, deposition of the 10 to 20 m of marine mud must have occurred at an average sedimentation rate of between 1.25 and 2.5 mm per year. Available evidence

(1) Fyfe, J.A., R. Shaw and et al. 2002. The Quaternary Geology of Hong Kong, Hong Kong: Civil Engineering Department.

(2) Fyfe, J.A., R. Shaw and et al. 2002. The Quaternary Geology of Hong Kong, Hong Kong: Civil Engineering Department.

(3) Fyfe, J.A., R. Shaw and et al. 2002. The Quaternary Geology of Hong Kong, Hong Kong: Civil Engineering Department.
indicates that the rate of Holocene sedimentation has not been steady. Radiocarbon dating suggests that the majority of sedimentation has taken place over the past 4,000 to 5,000 years.”

During the late Pleistocene period (18,000 BP) sea levels began to rise until about 6,000 BP and to levels similar to the present day. “The extent of the rise could be as great as perhaps 140 m in parts”(1).

The sediments of the Late Holocene period, considered to be relatively homogenous very soft to soft silty clay and with high moisture content, offer the greatest potential to include well preserved remains associated with the occupation and use of the islands in Hong Kong waters. This is in contrast to the surface of the seabed, which is often found to have been disturbed by fishing and other shipping related activities. These remains could include shipwrecks.

13.4.2 Review of Historical Documents

The water between Shekou (situated in Shenzhen) and Black Point was in use as a war junk anchorage since the 8th century. In the 8th century (Tang Dynasty), Black Point was within the military division area of Tunmen Bing Zhen (屯門兵鎮) where 2,000 soldiers were under the command of one Defence Commissioner. The headquarters of this division was situated in the present Nantou (南頭) walled city of Shenzhen and its military division area also covered the HKSAR, as well as the Huizhou (惠州) and Chaozhou (潮州) areas (2). The military division was serving the same area until the Yuan Dynasty (A.D.1279-1368).

In the late 16th century (Ming Dynasty), China was facing more frequent disturbance from coastal invaders and more forts and beacon towers were set up to protect the key locations from Japanese pirates. The Nantou Military Division (南頭寨) was set up in 1565. It commanded 53 war junks and 1,486 soldiers (3). The military force was increased to 1,659 soldiers in 1645.

During this period, the Portuguese explorer, Jorge Alvares was permitted to land on Lintin Island (Neilingding 内伶仃) in 1513 (4), he then built a fort and erected a stone column with a carving of the Portuguese national symbol. The Chinese navy attacked and demolished the Portuguese fort in 1518 (5). In 1522, it was also recorded that a sea battle between the Chinese navy and Portuguese ships was fought in the water between Lantau Island and Tuen Mun. The Chinese navy won the battle.

(2) Siu, K.K 1997 Forts and Batteries: Coastal Defence in Guangdong During Ming to Qing Dynasties, Hong Kong, Urban Council.
(3) 陈国健 1994 〈明代粵東海防中路之南願頭寨〉，《香港歷史與社會》，香港教育圖書公司。
A review of a historical chart of the mouth of the Pearl River dated 1658 \( ^{(1)} \), also indicated that the waters between Black Point and Lintin Island were part of the main voyaging route from the East to the West of the river.

During the Ming to Qing Dynasties (A.D.1368 -1911), Imperial Junks sailing from Guangdong to Southeast Asian countries were required to anchor at a bay known as Chiwan (赤灣) of Nantou peninsula, located to the west of Shenzhen City (located some 9km north of Black Point). A Tin Hau Temple was established in this Bay, probably in 1410 according to an inscription of the Temple where sailors worshipped Tin Hau for sea travelling safety \( ^{(2)} \). During the early Qing dynasty in the 1660s, although the Nantou Military Division was replaced by Xin’an Camp (新安營), it was still situated in the Nantou Walled City \( ^{(3)} \). Two stone forts were also built near the Tin Hau Temple during the Qing Dynasty and the remains of the forts can still be found.

Based on the historical development review, it is considered that Black Point is located in the vicinity of a busy marine sea route. The waters at Black Point, Deep Bay and Neilingding Island were the main voyaging channel between Guangdong and the Southern China Sea and Southeast Asian countries as well as East and West for centuries. On this basis, the waters at Black Point are considered in general to have marine archaeological potential.

A review of the Study on the Potential, Assessment, Management and Preservation of Maritime Archaeological Sites in Hong Kong undertaken in 1998 \( ^{(4)} \) identified two shipwrecks/obstructions over 2.7 km to the northwest of the Assessment Area as listed in Table 13.2 but no shipwreck was identified within the Assessment Area.

13.4.3 United Kingdom Hydrographic Office ‘Wreck’ Files

The UKHO in Taunton maintains a database of known obstructions/shipwrecks in Hong Kong. A total of two obstructions/shipwrecks were found to be over 2.7 km from the Assessment Area (see Table 13.2, Figure 13.2 and Annex 13A).

The Hong Kong Hydrographic Office could not provide any additional information beyond what was provided by the UKHO.

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\( ^{(1)} \) Nessel, Johan 1658 Tngqvin, in 格斯・冉福立 (Kees Zenlvliet) 江樹生 譯 1997 《十七世紀荷蘭人繪製的台灣老地圖》, 台北, 漢聲出版社。

\( ^{(2)} \) 王應華 1660年代，2000〈赤灣天妃廟記〉，《明清兩朝深圳檔案文獻演繹》，廣州，花城出版社；蔡學元 1814，2000〈重修赤灣天后廟記〉，《明清兩朝深圳檔案文獻演繹》，廣州，花城出版社。

\( ^{(3)} \) 靳文謨 1688 《新安縣志》，新安縣志。

### Table 13.2 UKHO Known Obstructions/shipwrecks Identified in the Vicinity of the Assessment Area

<table>
<thead>
<tr>
<th>UKHO Number</th>
<th>Latitude</th>
<th>Longitude</th>
<th>Approximate Distance from Assessment Area</th>
<th>Type of Obstruction</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>46602</td>
<td>22° 24.803 N</td>
<td>113° 52.455 E</td>
<td>3,150 m</td>
<td>Shipwreck</td>
<td>It was a 3,130 ton (97 m in length) Japanese merchant vessel sunk by United States of America submarine Amberjack in September 1942. It was last seen by divers in 1987, and in 2005 it was classified as DEAD—‘considered not to exist anymore’, therefore presumed as salvaged between 1987 and 2005.</td>
</tr>
<tr>
<td>46685</td>
<td>22° 25.783 N</td>
<td>113° 53.267 E</td>
<td>2,750 m</td>
<td>Unknown</td>
<td>It was considered in 1997 as a wreck, then noted as LIFTED (salvaged) in 1998, and in 2003 was amended to DEAD</td>
</tr>
</tbody>
</table>

#### 13.4.4 Review of Charts

A review of Charts of Black Point was carried out. British Admiralty (BA) Chart 2562, from surveys implemented between 1857 and 1955, shows the location of the Shirogani Maru, but no other wreck; BA Chart 342, from surveys of 1900-1959 also shows only the Shirogani Maru; and French Chart De La Riviere De Canton, from surveys of 1844-1866, shows no shipwrecks within the Assessment Area.

#### 13.4.5 Review of Previous Marine Archaeological Investigations

During the construction of the BPPS in 1993-1994 an area of seabed was dredged 100 m out from the present seawall of the power station (Figure 13.3). Any objects of cultural heritage value located on the seabed would have been destroyed during this process, and given it was before the EIA legislation, there was no requirement to investigate the area before being impacted. Two MAIs were conducted in the Black Point area, including the MAIs for the
Liquefied Natural Gas (LNG) Receiving Terminal and Associated Facilities EIA Study (1) conducted in 2005-2006 and the Black Point Gas Supply Project EIA Study (2) conducted in 2009. Geophysical surveys were conducted as part of these MAIs (please refer to Figure 13.3 showing geophysical survey coverage as part of the MAIs conducted in 2005 and 2009) but both MAI results identified no sites or objects of cultural heritage were identified in those areas as shown in Figure 13.3. Most of this MAI Assessment Area is in an area that has been both impacted by dredging and intensively studied.

13.4.6 Establishment of Marine Archaeological Potential

Although review of the historical documents and literature indicates that Black Point is in the vicinity of a busy shipping route, review of the 19th to 20th century charts, previous MAIs and wreck database identified no evidence of any archaeological sites / shipwrecks sites in the Assessment Area. The proposed marine works of the Project are also considered small in scale and localised at the seawall of the BPPS (please refer to Section 3 for details), and in an area that has been disturbed due to the past construction and operation of the BPPS activities. Therefore, further detailed investigation, e.g. by means of geophysical survey, is considered not necessary. The proposed marine works areas of CCGT Unit No.2 are concluded to have no archaeological potential.

13.5 IMPACT ASSESSMENT

The additional CCGT units and associated facilities are proposed to be installed within the site boundary of the BPPS. As there are no declared monument protected under the AM Ordinance, graded/proposed graded historic buildings, built heritage or sites of archaeological interest located within the Project Site area, no terrestrial cultural heritage impacts are expected to occur during the construction and operation of the proposed Project.

As no marine works will be required for CCGT Unit No.1, no marine archaeological impact is expected to occur during the construction and operation of CCGT Unit No.1.

Findings of the MAI for CCGT Unit No.2 conclude that there is no marine archaeological potential within the Assessment Area. No marine archaeological impact is expected to occur during the construction and operation of the marine works of CCGT Unit No.2.


At present, there are no planned projects within the Assessment Area that could have cumulative cultural heritage impacts with the proposed Project.

13.6 **Mitigation Measures**

As no impacts to terrestrial and marine cultural heritage resources are expected, no mitigation measure is required.

13.7 **Conclusions and Recommendations**

The proposed land-based Project Site area is within the site boundary of the BPPS. There is no declared monument protected under the *AM Ordinance*, graded/ proposed graded historic buildings, built heritage or sites of archaeological interest located within the proposed land-based Project Site area. The BPPS site was formed by excavation of hill and reclamation and therefore has no archaeological potential. It is considered that the proposed Project Site area is of no terrestrial built heritage and archaeological potential. The proposed Project will have no unacceptable impact on terrestrial built heritage and archaeological resources. No mitigation measures are considered necessary. No cumulative impact or residual impact on terrestrial built heritage and archaeological resources is expected.

No marine works will be required for CCGT Unit No.1 and therefore no marine archaeological impact is expected to occur during its construction and operation. A comprehensive marine archaeological review identified no marine archaeological interest within the Assessment Area for CCGT Unit No.2 and the proposed marine works is considered small in scale and localised at the seawall of the BPPS (please refer to Section 3 for details), which are likely disturbed area due to the past construction and operation of the BPPS activities. Therefore, further detailed investigation, e.g. by means of geophysical survey, is considered not necessary. The Assessment Area is concluded to have no marine archaeological potential. Therefore, no impact on marine archaeological resources is expected due to the construction and operation of CCGT Unit No.2. No mitigation measures are considered necessary. No cumulative impact or residual impact on marine archaeological resources is expected.