

9 IMPACT ON CULTURAL HERITAGE

9.1 Introduction

9.1.1 This section presents a Cultural Heritage Impact Assessment (CHIA) of the Project, identifying cultural heritage resources such as terrestrial and marine archaeological sites, built heritage structures and assessing potential direct and indirect impacts from the proposed construction activities on these heritage resources, and recommending mitigation measures where required.

9.2 Environmental Legislation and Standards

9.2.1 The following legislation and guidelines are relevant to this study:

- Antiquities and Monuments Ordinance (Cap. 53)
- Environmental Impact Assessment Ordinance (EIAO) (Cap. 499, S.16)
- Technical Memorandum on the Environmental Impact Assessment Process (EIAO-TM)
- Guidance Notes on Assessment of Impact on Sites of Cultural Heritage in Environmental Impact Assessment Studies (GN-CH)
- Hong Kong Planning Standards and Guidelines (HKPSG)
- Guidelines for Cultural Heritage Impact Assessment
- Guidelines for Marine Archaeological Investigation
- Vibration Limits on Heritage Building

Antiquities and Monuments Ordinance (Cap.53)

9.2.2 The Antiquities and Monuments Ordinance provides the statutory framework for the preservation of objects of historical, archaeological and paleontological interest.

9.2.3 The Ordinance contains the statutory procedures for the Declaration of Monuments. Under the Ordinance, a monument means a place, building, site or structure which is declared to be a monument, historical building, archaeological or paleontological site or structure because of its historical, archaeological or paleontological significance under section 3 of the Ordinance.

9.2.4 Under section 6 and subject to subsection (4) of the Ordinance, the following acts are prohibited in relation to monuments, except under permit granted by the Antiquities Authority.

- To excavate, carry on building works, plant or fell trees or deposit earth or refuse on or in a proposed monument or monument; or
- To demolish, remove, obstruct, deface or interfere with a proposed monument or monument

9.2.5 The discovery of an Antiquity, as defined in the Ordinance, must be reported to the Antiquities Authority, or a designated person. The Ordinance also provides that, the ownership of every relic discovered in Hong Kong after the commencement of this ordinance shall vest in the Government from the moment of discovery. The Authority on behalf of the Government may disclaim ownership of the relic.

- 9.2.6 No archaeological excavation can be carried out by any person, other than the Authority and the designated person, without a licence issued by the Authority. A licence will only be issued if the Authority is satisfied that the applicant has sufficient scientific training or experience to enable him to carry out the excavation and search satisfactorily, is able to conduct, or arrange for, a proper scientific study of any antiquities discovered as a result of the excavation and search, and has sufficient staff and financial support.

EIAO, EIAO-TM & GN-CH

- 9.2.7 The EIAO provides additional legislative protection to sites of cultural heritage that are threatened by development and the Environmental Protection Department is its authority. Annexes 10 and 19 of the EIAO-TM outline the guidelines and criteria for the CHIA. The GH-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.

Hong Kong Planning Standards and Guidelines

- 9.2.8 Chapter 10 of the HKPSG provides general guidelines and measures for the conservation of historical buildings, archaeological sites and other antiquities. It also addresses the issue of enforcement. The appendices list the legislation and administrative controls for conservation, other conservation related measures in Hong Kong, and Government departments involved in conservation.

Guidelines for Cultural Heritage Impact Assessment (GCHIA)

- 9.2.9 Guidelines for Cultural Heritage Impact Assessment issued by the AMO regulate the conduct of evaluating impacts to terrestrial archaeology and built heritage. This Guideline is in Appendix E of Annex E of this EIA Study Brief.

Guidelines for Marine Archaeological Investigation (GMAI)

- 9.2.10 The AMO have also issued Guidelines for Marine Archaeological Investigation (MAI) which details the standard practice, procedures and methodology which must be undertaken in determining the marine archaeological potential, presence of archaeological artefacts and defining suitable mitigation measures. This Guideline is in Appendix D of Annex E of this EIA Study Brief.

Vibration Limits on Heritage Buildings

- 9.2.11 In accordance with vibration limit applied to blasting operations in Hong Kong by Civil Engineering and Development Department (CEDD), the vibration level should be controlled within a peak particle velocity (ppv) limit of 5mm/s measured inside historical buildings to prevent potential damage to built heritages, i.e. Declared Monuments and graded historical buildings, during blasting operations.

9.3 Assessment Methodology

- 9.3.1 This CHIA was carried out in accordance with GCHIA, GMAI, and the requirements as set out in Annex 10 and 19 of the EIAO-TM. The CHIA was conducted and reviewed by a qualified person. The assessment methodology for the CHIA is described in the following sections.

Terrestrial Archaeology

Study Area

- 9.3.2 The Study Area covers an area that stretches 300m from the Project boundary on land (See **Figure 9.1**). It covers the proposed development areas in Tseung Kwan O (TKO) region including Town Centre South (TCS) and Tiu Keng Leng (TKL), and Cha Kwo Ling (TKO) region including Cha Kwo Ling village and Chiu Keng Wan Shan.

Assessment Methodology

- 9.3.3 A desk-based archaeological review was conducted to identify any known or potential sites of archaeological interest. Information collected for desktop study includes the following sources:

- Lists of sites of archaeological interest by the AMO;
- Published and unpublished papers and studies by the AMO;
- Publications on relevant historical, anthropological, archaeological and other cultural studies;
- Lists and archives kept in the Reference Library of the AMO;
- Unpublished papers, records, archival and historical documents through public libraries, archives, and tertiary colleges;
- Historical documents which can be found in Public Records Office, Lands Registry, District Lands Office, District Office, Museum of History;
- Cartographic and pictorial documentations; and
- Previous Archaeological Impact Assessment, Cultural Heritage Impact Assessment and / or approved EIA studies conducted within the study area.

Marine Archaeology

Study Area

- 9.3.4 Study Area for marine archaeology covers the proposed reclamation and bridge structure for TKO Interchange situated at west coast of Junk Bay (see **Figure 1.1 in Appendix 1 of Appendix 9.2**).

Assessment Methodology

- 9.3.5 In accordance with the Guidelines for Marine Archaeological Investigation (MAI), a MAI was carried out to identify the archaeological potential of the Study Area based on a baseline review and the findings of a marine geophysical survey conducted by SDA Marine Ltd in 2009.

Baseline Review

- 9.3.6 The aim of the Baseline Review is to compile a comprehensive inventory of cultural heritage resources in the MAI assessment area. Incidents and information relevant to the current study are included.
- 9.3.7 The aim of the Baseline Review was to compile the most significant information in order to establish the archaeological potential of the seabed within the reclamation area. The Review has been drawn from desktop literature including:
- Publications on local historical, architectural, anthropological, archaeological and other cultural studies;

- Unpublished papers, records, archival and historical documents held in local libraries and other government departments;
- Marine charts records held in British Library and the National Maritime Museum Library in London; and
- All archives holding information on shipwrecks in Hong Kong and UK were explored for relevant data.

Geophysical Survey

9.3.8 A Geophysical Survey was carried out during the period of 26th and 30th June 2009, to optimise the acquisition of data for the MAI. Marine side scan sonar survey was conducted to find objects at or above the seabed with archaeological potential. Marine seismic profiling survey was carried out to establish the geological succession over the survey area and locate buried objects. Echo sounding and swath survey was also employed to measure sea bed levels in detail and map anomalous features.

Visual Diver Survey

9.3.9 A visual diver survey was undertaken between in September and October 2009 in order to further examine in total 28 sonar contacts generated from the Marine Archaeological Investigation for Further Development of Tseung Kwan O Feasibility Study (2003) and the Geophysical Survey of August 2009. (**Appendix I of Appendix 9.2**, records the detailed practice).

Built Heritage

Study Area

9.3.10 The Study Area covers an area that stretches 300m from the Project boundary on land (See **Figure 9.1** and **Figure 9.2**). It covers the proposed development areas in Tseung Kwan O (TKO) region including Town Centre South (TCS) and Tiu Keng Leng (TKL), and Cha Kwo Ling (CKL) region including Cha Kwo Ling village and Chiu Keng Wan Shan.

Assessment Methodology

9.3.11 Features which fall within the scope of built heritage resources include:

- Pre-1950 structures, including all built features such as domestic structures, ancestral halls, temples, shrines, monasteries and nunneries, village gates, village walls, sections of historical stone paving, wells, schools;
- Post 1950 structure deemed to possess features containing architectural or cultural merit;
- Pre-World War Two (pre-1942) historic graves;
- Cultural landscape features; and
- Historical land use features, such as historical tracks and pathways, stone walls and terraces, ponds and other agricultural features.
- List of 1,444 Historic Buildings Assessment issued by AMO with their existing and proposed gradings.

9.3.12 The definitions of the gradings are guidelines adopted by the Antiquities Advisory Board and the AMO for the preservation of historic buildings. The classification has three gradings:

- Grade 1: Buildings of outstanding merit, which every effort should be made to preserve if possible.
- Grade 2: Buildings of special merit; efforts should be made to selectively preserve.
- Grade 3: Buildings of some merit; preservation in some form would be desirable and alternative means could be considered if preservation is not practicable.

Desk-based Study

- 9.3.13 A desk-based Study and a field survey were conducted within the boundary of the Study Area.
- 9.3.14 In this study, the following information was collected, analyzed and collated to determine the presence of historical occupation in the project area and thus to assess the potential existence of cultural heritage within the potential impacted area:
- Background information (e.g. AMO files, Public Records Office, map libraries, university and public libraries, published and unpublished government and non-government documents, cartographic and pictorial documents) of heritage sites (including declared monuments, government historic sites, sites of archaeological interest and graded historic buildings identified by AMO) within and in close proximity to the study area;
 - Areas proposed for construction and operation activities and potential impacts induced by the project;
 - Identification of previous recorded cultural heritage resources within the project boundary which will be supplemented by a field survey as necessary subject to findings of the desktop review; and
 - AMO's 1,444 newly proposed historic buildings with their existing and respective proposed grading.

Field Survey

- 9.3.15 Based on the information of desk-based study, field visits were conducted among the historical buildings and structures within the Study Area, to evaluate and identify any additional heritage resources that were not covered by the desk-based study within the study area. The methodology of the field survey is described below.
- 9.3.16 The survey consisted of a field evaluation incorporating the collection of photographic, oral and written information on the architecture and history of built heritage structures that might be impacted by the proposed works. The information collected in the field survey was then entered onto typewritten forms.

9.4 Background of Study Area

Historical Background

Tseung Kwan O Region

- 9.4.1 A review to geographical information indicates the role of TKO in the history of south China coastal area. TKO is located at the eastern entrance to Victoria Harbour. Joss House Bay – now lost to reclamation – lies to the southeast. Junk Island is also known as Fat Tong Chau (佛頭洲 Junk Island). The mountains that separate Junk Bay and Joss House Bay from Clearwater Bay and Port Shelter are highest at High Junk Peak.

- 9.4.2 TKO was mentioned in a marine chart in a book named *Great Record of Guangdong* (粵大記), which was published in late 16th century in Guangzhou. The book indicates that TKO bay lay along a vital trade route established from the time of the Sung Dynasty (960-1279), which connected Guangzhou on the Pearl River to northern China. TKO was considered a significant anchorage or place of shelter, as shown by it being named Fat Tong Mun on Imperial maps from as early as the 15th century.
- 9.4.3 Due to its important coastal location at the eastern chokepoint of the Victoria Harbor, TKO has functioned as a redoubt throughout the history of Hong Kong during 1900 to 1941. The fortifications were built on the shorelines and on Devil's Peak in the 1900s, and can still be found today.
- 9.4.4 A review of historical information indicated that settlements established in TKO since early Ming Dynasty, among them TKO village is the earliest. During the Coastal Evacuation in the early Qing Dynasty, the village was abandoned and the villagers moved back inland. In the late 17th Century, with the abolishing of the Edict of the Coastal Evacuation, they returned and re-established the village, such as Hang Hau Village.
- 9.4.5 A review to historical maps shows that little settlement in TKO except for TKO village at end of a long embayment can be seen on maps from the 17th Century onwards¹. Villages Yau Yue and Hang Hau, which are near the Project Site, were not listed in 1819 editions of *Xian County Gazetteer* (新安縣誌). A detailed land survey was conducted in 1868 in Hong Kong Kowloon and New Territories, five villages near the Study Area, Kwun Tong, Hang Hau, Tseung Kwun O, Yau Yue Wan and Fat Tong (佛堂), were indicated in *1868 Map of the Sun-on-District*.
- 9.4.6 TKL, also called Rennie's Mill, were settled in the first half of the 20th Century. The place got its name from a Canadian businessman named Alfred Herbert Rennie, who established the Hong Kong Milling Company and a manufacture factory at Junk Bay. The business failed, and Rennie drowned himself there in 1908. The factory site was re-developed as a secondary school at Tiu Keng Leng refugee camp in the 1950s.
- 9.4.7 Other villages skirting the old coastline of Junk Bay include Hang Hau (Stream mouth), Yau Yue Wan (Cuttlefish Bay), and PSK (Hundred Victories Cape) – once near the coast of Junk Bay but now well inland as a result of phases of reclamation since the 1970s.

Cha Kwo Ling Region

- 9.4.8 Cha Kwo Ling lies to the southeast of Kowloon Bay. It is a small hill lying between Lei Yue Mun region and Kwun Tong region. Legend said that the small hill resembles a Hakka dim sum called 'Cha Kwo' (茶果 'Tea Biscuit'). Others said that the knoll gets its name from the large amount of 'Cha Kwo' wrapping leaves in the nearby area².
- 9.4.9 At the end of the 18th century, the Hakkas migrated into the region. Quarrying became their main occupation. Some grew crops and vegetables. Others helped the fishermen to mend their fishing nets. They went to the market of Shaukiwan to buy their necessities. The elders and gentries of Cha Kwo Ling, with those of Ngau Tau Kok, Sai Tso Wan and Lei Yue Mun, formed the Si Shan Kung So (四山公所 the Communal Office of the Four Hills). The organization ran the quarrying business of the region. They formed the Hop Yee Lung (合義龍 the Hop Yee Dragon Boat Committee) with the fishermen of Shaukiwan.
- 9.4.10 By that time, the villages of Cha Kwo Ling, Ngau Tau Kok, Sai Tso Wan and Lei Yue Mun

¹ Empson, H, 1992 *Mapping Hong Kong, A Historical Atlas*, Hong Kong, Government Printer.

² Siu, Kwok-kin and Sham, S I (2001) *Heritage Trails in Urban Hong Kong*, Wan Li Book Co. Ltd., H.K., pp. 180.

together were called Si Shan (四山 Four Hills). The villagers were all stonecutters of Hakka people. The Qing Government appointed someone in each Shan (山 ‘Hill or Village’) to be the ‘Tau Yan (頭人 headman)’. They together were called the Si Shan Tau Yan (四山頭人 the Headmen of the Four Hills or Villages). They were responsible to rule the area and to collect taxes for the government. The system ended before the Second World War³.

9.4.11 Nowadays, the land has been developed into part of the Kwun Tong New Town.

Archaeological Background

Terrestrial Archaeology

9.4.12 The desk-based study reveals no known archaeological sites or areas of archaeological potential within the Study Area⁴, as TKO region is located in urbanized area and a previous Baseline Archaeological Study conducted in 2008⁵ reveals no archaeological potential in Cha Kwo Ling Village.

Marine Archaeology

9.4.13 Based on the literature review, there are no reported wreck sites in the northern half of TKO. The closest reported wreck sites are situated near the “dangerous goods” anchorage at the south-western entrance to TKO.

9.4.14 A marine geophysical survey⁶ was undertaken in July 2003 for the northern half of Junk Bay (TKO Bay) to determine sub-seabed strata, features (anomalies), and man-made objects on or beneath the seabed within the survey area. Based on the results of the marine geophysical survey, four surface anomalies (2004, 3401, EW 28-59 and Target 1) and two buried anomalies (SN62-31 & SN62-34) were identified within, or in the vicinity of, the proposed marine works areas.

9.4.15 However, based on a previous MAI study⁷ prepared for AMO, Study Area of which covered the whole TKO Bay, it was considered that surface anomalies 2004, 3401 and EW 28-59 were located in an area which had been identified to be extensively disturbed from numerous anchor marks. Hence, these three anomalies were considered to be deposited recently and to have no archaeological potential.

9.4.16 In order to verify results of the 2003 marine geophysical survey and to also cover the extreme west coast area of TKO, an MAI in the area was conducted in 2009. The detailed MAI Report is provided in **Appendix 9.2**. Eight new side sonar contacts and five seismic profiler contacts were detected. Along with 15 contacts scanned in 2003, 28 contacts have been examined by a visual diver survey of the 2009 MAI. The results show that all the 28 contacts are modern objects such as tyres used as protection on HK ships and construction waste. No objects of archaeological interest were discovered under the water of the proposed Bridge Structure for TKO Interchange (see **Figures 1 and 10 of Appendix 1 in Appendix 9.2**).

Built Heritage Background

³ Siu, Kwok-kin and Sham, S I (2001) *Heritage Trails in Urban Hong Kong*, Wan Li Book Co. Ltd., H.K., pp. 180.

⁴ AMO 2009 *List of Sites of Archaeological Interest in Hong Kong*.

⁵ ENSR Asia (HK) Ltd 2008. *Baseline Archaeological Study for Planning and Site Review for the South East Kowloon Material Recovery and Transfer Station – Feasibility Study*.

⁶ Institute of Geophysical and Geochemical Exploration, MCR, PRC. 2003. *Geophysical Surveys and Water Sampling*.

⁷ SDA Marine Ltd, 2000. *Marine Archaeological Investigation. Road P2 of Tseung Kwan O Development*. Prepared for the Antiquities and Monuments Office.

- 9.4.17 Based on the Desk-Based Study, no Declared Monuments or Government Historic Sites as identified by the AMO and no pre-war historical graves, notable feng shui woods/woodlands and ponds, historical trackways or other historical features were found within the Study Area.
- 9.4.18 Nonetheless, two previous studies which both covered the assessment area in Cha Kwo Ling—Built Heritage Impact Assessment (BHIA) conducted for the EIA Study for Further Development of Tsueng Kwan O – Feasibility Study (2004)⁸ and Collective Memory and Oral History Study of Cha Kwo Ling (2009)⁹— identified five items of historical interest within the Study Area, including Cha Kwo Ling Tin Hau Temple, Four Hills Public School, Cha Kwo Ling Rural Committee, Law Mansion and Tsang Mansion.
- 9.4.19 Field Survey has also been conducted to identify heritage resources located within Study Area. Apart from results of Desk-Based Study, the field survey further identified one more item, which is a Stone Column located at west coast at TKO located within the Study Area.
- 9.4.20 Built heritage resources identified within the 300m study boundary are summarized in **Table 9.1**.

Table 9.1 List of Built Heritage Resources within the 300m Study Boundary

Region	Buildings / Structures	AMO Grading (as of 21 September 2012)
CKL	Cha Kwo Ling Tin Hau Temple	Grade 3
	Four Hills Public School	No grade
	Cha Kwo Ling Rural Committee	No grade
	Law Mansion	Grade 3
	Tsang Mansion	No grade
TKO	Stone Column	No grade

- 9.4.21 Each of the six items is briefly described below:

Cha Kwo Ling Tin Hau Temple (Grade 3)

- 9.4.22 The temple is a granite structure. It is located next to Cha Kwo Ling Village for the worshipping of Tin Hau, the Goddess of Sea. The temple was first sited by the coast of Kwun Tong Bay at the place of the present Laguna City. It was built by the people of the Four Hills in mid 19th century and served as both worshipping and meeting place¹⁰. It was rebuilt in 1891, destroyed by typhoon in 1912, and again rebuilt in 1941 (oral history). In 1947, for the development of Oil Tanks, the temple was moved to the present site, and completed in 1948. It was again repaired in 1999. The temple is a two-hall type building with three houses and a square in front. The stone inscriptions inside the temple provide evidence on the development of the Kwun Tong region. They are good research materials.
- 9.4.23 In front of the temple are two nature huge rocks called “Child-Giving Rocks” or “Fung Shui Rocks”. Due to the similarity between their shapes and men’s testicles, the locals believe that the rocks can bring sons to those who pray to them.

⁸ MAUNSELL 2004 *EIA Study for Further Development of Tsueng Kwan O – Feasibility Study*.

⁹ AECOM 2009. *Collective Memory and Oral History Study of Cha Kwo Ling*.

¹⁰ 梁炳華 2008《觀塘風物誌》，觀塘區議會與觀塘民政事務處。

Four Hills Public School

- 9.4.24 Before the set up of Four Hills Public School, there was a Sze Shan Free School (四山義學) in the original Cha Kwo Ling Tin Hau Temple located in Sai Tso Wan. Due to the demolition of Tin Hau Temple for Shell Company's development, the Government had promised to rebuild the school. In 1952, with fund raised by the locals and support from the Government (in particular efforts from Dodd, Secretary of Chinese Affairs between 1940s and 60s was significant in this event), Four Hills Public School was re-established in Cha Kwo Ling Village. The school was a two storey building with six classrooms, providing primary education.
- 9.4.25 Since 1954, there was insufficient room for the students because of their increasing amount of admission. As a consequence, the school had adopted a bisectonal operation. With reference to a memorandum issued by the Director of Education in 1967, there were 208 and 221 enrolments in the a.m. and p.m. session respectively. Large-scale renovation was then taken place in 1974 and 1982 to enhance the school facilities. Then, after its closure in late 1990's, the school facilities were occupied for art activities.
- 9.4.26 Besides of Four Hills Public School, Cha Kwo Ling villagers also recalled that there were several private study halls (私學) set up in Cha Kwo Ling during different periods. A private school called Ming Tak School was as well set up in the village. At present, a tablet of “明德學校” can still be seen on a two storey building at Cha Kwo Ling Main Street.

Cha Kwo Ling Rural Committee

- 9.4.27 Cha Kwo Ling Rural Committee is situated beside of Four Hills Public School. It was a single-story building in a rectangular layout. The building was constructed in western style, with which a stepped pediment appears on top of its front entrance. On the pediment it writes “1956 茶果嶺鄉公所街坊值理會”, which shows its building year and official title in Chinese. The building style was a common one adopted from English buildings of its construction days. The building has been used as the office of Cha Kwo Ling Rural Committee and the Kaifong Association. Its current structural condition remains intact.

Law Mansion (Nos. 50A, 51 & 51A Cha Kwo Ling Main Street, Cha Kwo Ling, Grade 3)

- 9.4.28 Law Mansion, one of the oldest surviving residential buildings in Cha Kwo Ling, was built in late 19th century by the Law clansmen who migrated from Huiyang, Guangdong, and settled in this area. Granite quarrying was the main occupation of the Laws. Law Mansion is a two-storey structure and is nearly square in layout. It is constructed of granite and the roof is of pitched Chinese style. The original granite walling and the horizontal security barred timber door system are of fine quality. At the time of its construction, Law Mansion was located near the seashore, but the original shoreline of the village was later reclaimed to form the present Cha Kwo Ling Road. The ground floor of the house was once used as an ancestral hall. After the Second World War, the house was once converted into a plastics factory and a storeroom. In the 1960s, it was sublet to new tenants.

Tsang Mansion (No 212, Cha Kwo Ling Main Street, Cha Kwo Ling)

- 9.4.29 Tsang Mansion, another old residential building in Cha Kwo Ling, was built in mid 19th century by the Tsang clan, one of the prominent clan of the Four Hills. Same as the Laws, the Tsang family also practiced in granite quarrying business. This explains why both houses were built of granite, which is a relatively expensive building material at the time. The house is a two-story granite structure with tiled roof and it is comprised by three close lying houses. It is currently vacant and part of it has ruined. No pattern of traditional Chinese residential building of its days can be observed. Moreover, no elaborate building

techniques and artistic decoration was applied onto building it. Currently, structures made of modern material are built by the house and conceal its appearance.

Stone Column, Chiu Keng Wan

9.4.30 For the seafront site adjacent to TKO Chinese Permanent Cemetery, no built heritage is identified at the hillside area next to the western shoreline of Junk Bay, during site visiting in Western Coast Road Area.

9.4.31 A stone column about 1m height is erecting in the headland rocky shore of Chiu Keng Wan. Few former residents of Tiu Keng Leng refugee camp regarded that column as a ferry milestone when they took ferry between Shaukeiwan and Tiu Keng Ling . Tiu Keng Leng was a refugee camp of Chinese Nationalist soldiers and supporters between 1950 and 1996.

9.4.32 These built heritages have been carrying significant social and religious functions with respect to their landmark roles in the local community, and are regarded as the witness to the history and livelihood of Cha Kwo Ling Villagers and former residents of Tiu Keng Leng.

9.5 Impact Assessments

Level of Impact

9.5.1 According to the GCHIA (as at April 2011) , the evaluation of the impacts on heritage resources affected by the proposed development is classified into five levels of significance/ level, based on type and extent of the effect:

- Beneficial impact: the impact is beneficial if the project will enhance the preservation of the heritage site(s) such as improving the flooding problem of the historic building after the sewerage project of the area;
- Acceptable impact: if the assessment indicates that there will be no significant effects on the heritage site(s);
- Acceptable impact with mitigation measures: if there will be some adverse effects, but these can be eliminated, reduced or offset to a large extent by specific measures, such as conduct a follow-up Conservation Proposal or Conservation Management Plan for the affected heritage site(s) before commencement of work in order to avoid any inappropriate and unnecessary interventions to the building;
- Unacceptable impact: if the adverse effects are considered to be too excessive and are unable to mitigate practically;
- Undetermined impact: if the significant adverse effects are likely, but the extent to which they may occur or may be mitigated cannot be determined from the study. Further detailed study will be required for the specific effects in question.

9.5.2 The impacts were assessed for both the construction and operation phases with the potential sources of impacts are discussed in the following sections. A proposal with details for the mitigation measures and monitoring of impacts on built heritage shall be submitted to AMO for comments before commencement of work.

Construction Phase

9.5.3 Any heritage resources, located in close proximity to the Project Site may be impacted through:

- Direct impact to historical buildings (e.g. demolition) and sites of terrestrial archaeological potential (e.g. excavation)
- Indirect vibration impact on historical buildings due to drilling and piling activities during construction phase that may lead to the structural damage or interference of normal activities; and
- Indirect visual impact to historical buildings due to construction works e.g. excavation works at surface.

Operation Phase

9.5.4 Impacts on sites of cultural heritage during operational phase of the Project Site includes indirect visual impact associated with alteration in surrounding environment of the historical structures due to the above-ground structures of the Project.

Evaluation of Potential Impacts

Terrestrial Archaeology

9.5.5 Since all development elements of the Project would not be on areas of archaeological interest on land, no adverse impact is anticipated during either the construction or operation phases of the Project.

Marine Archaeology

9.5.6 No objects of archaeological interest were identified within the proposed marine works area of the Project. Therefore, no adverse impact is anticipated during either the construction or operation phases of the Project.

Built Heritage

Direct Impact

9.5.7 No direct impact on the identified historical buildings/ structures is expected since all of them are located outside the site boundary of the Project.

Indirect Impact

9.5.8 The proximity of identified notable buildings and structures to the proposed work areas of the Project is summarised in **Table 9.2**.

Table 9.2 Proximity of Notable Built Heritages and Structures to the Project Worksites

Notable buildings and structures	Distance from Proposed Roundabout (approx)
<u>Cha Kwo Ling region</u>	
Cha Kwo Ling Tin Hau Temple	<50m
Four Hills Public School	>50m
Cha Kwo Ling Rural Committee	>50m
Law Mansion	>50m
Tsang Mansion	>100m
<u>Tseung Kwan O region</u>	
Stone Column	>50m

Construction Phase

- 9.5.9 Cha Kwo Ling Tin Hau Temple would be susceptible to dust, vibration and temporary visual impact arising from the nearby construction activities due to its close proximity (<50m) from the worksite of the proposed roundabout and road works at Cha Kwo Ling. Tilting and settlement monitoring should will be applied on the Cha Kwo Ling Tin Hau Temple as well. The impact level to the concerned temple and these built heritages is thus evaluated as acceptable impact with mitigation measures.
- 9.5.10 Level of indirect impacts on other identified built heritages is anticipated as acceptable as they are located more than 50m from the works areas. Since the proposed above ground road works at CKL region requires no substantial piling works and the underground tunnel worksite is located more than 100m from the concerned buildings, the existing buildings at Cha Kwo Ling Village and the green fields to the east can act as soft buffers between the Project Site and the built heritages to reduce potential vibration, dust and visual impacts. Potential vibration impact on Stone Column at shore of Chiu Keng Wan caused during construction activities should be buffed by seawater.

Operational Phase

- 9.5.11 Given the fact that the Project comprises mainly the underground tunnel works and modification to existing road, it is anticipated that there will be no visual impact to built heritages within the study area, if there is any, during the operation phase.

9.6 Mitigation of Adverse Impacts

Construction Phase

Terrestrial Archaeology

- 9.6.1 No mitigation measures would be required.

Marine Archaeology

- 9.6.2 No mitigation measures would be required.

Built Heritage

- 9.6.3 Apart from the Cha Kwo Ling Tin Hau Temple, no adverse impact on other historical buildings and structures is expected.
- 9.6.4 To prevent dust and visual impacts to the Cha Kwo Ling Tin Hau Temple and its fung shui rocks (Child-given Rocks) during the construction phase, mitigation measure in the form of a temporarily fenced off buffer zone (about 5 meters from the edge of Rocks and about 15m from the edge of Rocks alter) with allowance for public access (minimum 1m) should be provided around the temple and the fung shui rocks. The open yard in front of the temple should be kept as usual for annual Tin Hau festival. Such mitigation measures should be consulted with Cha Kwo Ling Villagers during the detailed design stage and before construction stage. In addition, monitoring of vibration impacts should be conducted when the construction works are less than 100m from the temple.

It is suggested that in the case when indirect vibration impact occurs during the construction phase, vibration level is to be controlled within a peak particle velocity (ppv) limit of 5mm/s measured inside the historical buildings to prevent potential damage to built heritage. Monitoring of vibration should be carried out during construction phase. Tilting and settlement monitoring should be applied on the Cha Kwo Ling Tin Hau Temple as well. A proposal with details for the mitigation measures and monitoring of impacts on built heritage shall be submitted to AMO for comments before commencement of work.

Operational Phase

Terrestrial Archaeology

- 9.6.5 No mitigation measures are required.

Marine Archaeology

- 9.6.6 There would be no adverse marine archaeological impact associated with the Project during the operational phase and hence no mitigation measures would be required.

Built Heritage

- 9.6.7 There would be no adverse built heritage impact associated with the Project *during the operational* phase and hence no mitigation measures would be required.

9.7 Residual Environmental Impact

- 9.7.1 No residual cultural heritage impact is expected.

9.8 Environmental Monitoring and Audit Requirements

- 9.8.1 The CHIA has identified that there would be indirect impact on Cha Kwo Ling Tin Hau Temple due to their close proximity to the work site of the Project. To ensure no damage to the temple, monitoring of vibration impact should be conducted during the construction phase.

9.9 Conclusion

- 9.9.1 The CHIA has assessed current condition and potential impact on cultural heritage resources within the Study Area. As no terrestrial and marine archaeological potential was identified, it is thus considered no impact on archaeology and therefore no mitigation measure required. However, indirect impact on one of the built heritage resources, Cha Kwo Ling Tin Hau Temple, located within the Study Area was anticipated. Mitigation measures have been suggested to protect the concerned temple during construction phase. As long as the recommended mitigation measures are followed, no unacceptable adverse impact on the temple would be anticipated. It is concluded that the CHIA complied with the criteria and guidelines for evaluating and assessing the cultural heritage impact as stated in Annexes 10 and 19 of the EIAO-TM respectively.

Reference

- AECOM 2009. Collective Memory and Oral History Study of Cha Kwo Ling.
- Bard, S. (1980) Junk Island. *Journal of the Hong Kong Archaeological Society* , Vol 9 pp12-13.
- Blake, C. F.(1981) Ethnic Groups and Social Change in a Chinese Market Town. *Asian Studies at Hawaii No. 27*, University of Hawaii: The University Press of Hawaii.
- Day, C.A., (2001) Reading *Archaeological Landscapes: Palaeoenvironments and potential in Hong Kong*. Report prepared for Lord Wilson Heritage Trust, Hong Kong Govt. pp 110.
- ENSR Asia (HK) Ltd. (2008) *Baseline Archaeological Study for Planning and Site Review for the South East Kowloon Material Recovery and Transfer Station – Feasibility Study*.
- Empson, H. (1992), *Mapping Hong Kong*, Hong Kong, Government Information Services.
- Frost, R. J. (1974) Sha Tsui, High Island, *Journal of the Hong Kong Archaeological Society*, Vol. 5:23-30.
- Fyfe, J. A., Shaw, R., 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 the Hong Kong SAR.
- Guo Fei, ed. 1990. *Great Record of Guangdong (粵大記)*. Beijing: Bibliography and Document Publishing House.
- Harbour-Eastern Part HK 0801 Hydrographic Office, Marine Department. Published 1999, printed 2000 and corrections up to 2002.
- Hayes, J. W. (1977) *The Hong Kong Region 1850-1911*, Institutions and Leadership in Towns and Countryside Archon Books, Dawson, U.S.A.
- Institute of Geophysical and Geochemical Exploration, MCR, PRC. (2003). Further Development of Tseung Kwan O Feasibility Study-Geophysical Surveys and Water Sampling.
- Kwantung Provincial Museum (1984) *Archaeological Finds from Pre-Qin Sites in Guangdong; presented by the Guangdong Provincial Museum and the Art Gallery*, Hong Kong: Chinese University of Hong Kong.
- MAUNSELL 2004 EIA *Study for Further Development of Tsueng Kwan O – Feasibility Study* .
- SDA Marine, (May 2000) *Road P2 of Tsueng Kwan O Development*, prepared for the AMO.
- SDA Marine, (March 2010) *Marine Archaeological Investigation Tseung Kwan O – Lam Tin Tunnel and Associated Works Investigation*.
- Sino-Hong Kong Archaeology Workshop (May 1999) *The 1998 Archaeological Survey in Western Coast Road Area*, TKO.
- Siu, Kwok-kin and Sham, S I (2001) *Heritage Trails in Urban Hong Kong*, Wan Li Book Co. Ltd., H.K.
- Siu, Kwok-kin and Meacham W (1980-1) Comments on the Question of an Early Customs House at Junk Island, *Journal of the Hong Kong Archaeological Society* Vol. 9 pp 95-8.
- 香港中文大學東亞研究中心口述歷史計劃組編 2002《西貢：一九四零至一九五零年》，旺角區議會、香港中文大學人文學科研究所跨文化研究中心。

香港古物古蹟辦事處 2007 〈香港佛頭洲遺址 2004 年考古調查簡報〉，《華夏考古》，2007(4)。

司馬龍 1990《新界滄桑話鄉情》，三聯書局古今圖書系列，香港，三聯書局。

蔡子傑 1990《西貢古今風貌》，西貢區議會。

胡春惠主編 李谷成整理 1997，《香港調景嶺營的誕生與消失》，〈國史館歷史叢書(12)〉，台北，國史館。

馬木池 等 2003《西貢歷史與風物》，西貢區議會出版。

梁炳華 2008《觀塘風物誌》，觀塘區議會與觀塘民政事務處。