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12. IMPACT ON CULTUTAL HERITAGE

12.1 Introduction

12.1.1.1 This section presents the Cultural Heritage Impact Assessment (CHIA) findings of the Project. This CHIA, which covers Built Heritage Impact Assessment (BHIA), Archaeological Impact Assessment (AIA) and Marine Archaeological Investigation (MAI) has been conducted in accordance with the requirements given in Clause 3.4.13, Appendix K and Appendix K-1 of the EIA Study Brief (No. ESB-360/2023).

12.1.1.2 The assessment area for CHIA is defined as 300m from the Project boundary in accordance with the EIA Study Brief. Built heritage and archaeological heritage that are located within the assessment area have been identified, as well as sites or objects of cultural heritage within the seabed in areas to be affected by the marine works of the Project. The potential direct and indirect impacts resulting from the construction and operation of the Project on the identified built heritage, archaeological heritage and sites or objects of cultural heritage within the seabed have been assessed. Appropriate mitigation measures have been proposed to alleviate the adverse impacts as necessary.

12.2 Environmental Legislation, Standards and Guidelines

12.2.1.1 Legislation, standards and guidelines relevant to the CHIA include the following:

- Environmental Impact Assessment Ordinance (EIAO) (Cap. 499)[1]
- Technical Memorandum on Environmental Impact Assessment Process (EIAO -TM) Annexes 10[2] and 19[3]

Others

- Antiquities and Monuments Ordinance (A&MO) (Cap. 53)[4]
- Guidelines for Marine Archaeological Investigation

Environmental Impact Assessment Ordinance (EIAO) (Cap. 499) and EIAO-TM Annexes 10 and 19

12.2.1.2 The EIAO was implemented on 1st April 1998. It aims to avoid, minimise and control the adverse impacts on the environment of designated projects, through the EIA process and the Environmental Permit (EP) system.

12.2.1.3 According to Schedule 1 of the EIAO, *Site of Cultural Heritage* refers to “an antiquity or monument, whether being a place, building, site or structure or a relic, as defined in the Antiquities and Monuments Ordinance (Cap. 53) 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.”[5]

12.2.1.4 Annexes 10 and 19 of EIAO-TM provide the criteria and guidelines for evaluating the impacts to Sites of Cultural Heritage. It is stated in Annex 10 that all adverse impacts to Sites of

[1] Hong Kong e-Legislation. *Cap. 499 Environmental Impact Assessment Ordinance*. Retrieved from https://www.elegislation.gov.hk/hk/cap499.
[2] Environmental Protection Department. *Annex 10: Criteria For Evaluating Landscape And Visual Impact, And Impact On Sites Of Cultural Heritage*. Retrieved from https://www.epd.gov.hk/eia/english/legis/memorandum/annex10.html.
[3] Environmental Protection Department. *Annex 19: Guidelines For Assessment Of Impact On Sites Of Cultural Heritage And Other Impacts*. Retrieved from https://www.epd.gov.hk/eia/english/legis/memorandum/annex19.html.
[4] Hong Kong e-Legislation. *Cap. 53 Antiquities and Monuments Ordinance*. Retrieved from https://www.elegislation.gov.hk/hk/cap53.
[5] Hong Kong e-Legislation. Cap. 499 Environmental Impact Assessment Ordinance. Retrieved from https://www.elegislation.gov.hk/hk/cap499?xpid=ID_1438403274391_002.

Cultural Heritage shall be kept to an absolute minimum and that the general presumption of impact assessment shall be in favour of the protection and conservation of all Sites of Cultural Heritage. Annex 19 provides the commonly adopted approaches and methodologies for assessment of impact on Sites of Cultural Heritage.

Antiquities and Monuments Ordinance (A&MO) (Cap. 53)

12.2.1.5 The Ordinance provides the statutory framework for preservation of objects of historical, archaeological and paleontological interest and for matters ancillary thereto or connected therewith. 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 or archaeological or paleontological site or structure under Section 3 of the Ordinance. Excavations carried out on building works, demolition and interference of a proposed monument or monument are prohibited except under permit under Section 6 of the Ordinance.

Guidelines for Marine Archaeological Investigation

12.2.1.6 A *Guidelines for Marine Archaeological Investigation* is provided in Appendix K-1 of the EIA Study Brief No. ESB-360/2023 for the Project. The guidelines provide instructions on the standard practice, methodologies and procedures that should be adopted when determining the marine archaeological potential and presence of archaeological artefacts.

12.2.1.7 The guidelines state that the standard practice for MAI consists of four separate tasks, i.e. (1) Baseline Review, (2) Geophysical Survey, (3) Establishing Archaeological Potential and (4) Remote Operated Vehicle (ROV)/Visual Diver Survey/Watching Brief. Tasks 1 and 2 would collect the information required to facilitate the analysis and evaluation in Task 3, and the outcome of the three tasks would help determine if Task 4 should be undertaken and its strategy for further investigation.

12.3 Assessment Methodology

12.3.1.1 Following the requirement in Clause 3.4.13.2 of the EIA Study Brief, the CHIA consists of a BHIA, an AIA and a MAI. The BHIA is to assess the impacts on the known and unknown built heritage items within or near the Project Area, while the AIA is to assess the possible impact on any terrestrial archaeological resources fall within the Project Area. Moreover, the MAI is to identify whether there is any potential existence of sites or objects of cultural heritage within the seabed that will be affected by the marine works of the Project and ascertain the archaeological value of the affected seabed area. The assessment methodology for BHIA, AIA and MAI are described below.

Built Heritage Impact Assessment (BHIA)

12.3.1.2 A desktop review was conducted to identify any built heritage within 300m assessment area based on examination on the following resources, when available:

- List of proposed and declared monuments[6];

[6] Antiquities and Monuments Office. *List of Declared Monuments and Proposed Monuments (as at 10 October 2024)*. Retrieved from https://www.amo.gov.hk/filemanager/amo/common/form/List%20of%20Declared%20Monuments%20and%20Proposed%20Monuments.pdf.

- List of the 1,444 Historic Buildings[7] and list of new items for grading assessment[8] by the Antiquities Advisory Board (AAB);
- Government historic sites[9];
- Previous related EIA studies, publications and monographs on relevant historical and geographical issues;
- Unpublished archival papers and records, and collection and libraries of tertiary institutions; and
- Geological and historical maps, aerial photos and relevant visual archives.

12.3.1.3 Site visits were carried out within the assessment area during January to April 2024 and July 2024 to evaluate the current condition of built heritage identified during the desktop review, as well as any items that might not be revealed by the desktop review.

12.3.1.4 The potential direct and indirect impacts on the built heritage during the construction and operational phases of the Project have been assessed in the CHIA by following the procedures and requirements of Annexes 10 and 19 of the EIAO-TM.

12.3.1.5 Mitigation measures are proposed in the CHIA for any affected built heritage to minimise any adverse impacts when necessary.

Archaeological Impact Assessment (AIA)

12.3.1.6 An Archaeological Impact Assessment (AIA) was carried out by the archaeologist Mr. Patrick Lai of AECOM Asia Company Ltd. in accordance with Appendix K of the EIA Study Brief (No. ESB-360/2023). The archaeological impact imposed by the Project and its associated works has been identified and assessed by the archaeologist following the requirements of the EIA Study Brief.

12.3.1.7 A desktop review was conducted to identify any potential existence of terrestrial archaeological resources based on examination on the following resources, when available:

- List of proposed and declared monuments[10];
- List of Sites of Archaeological Interest[11] identified by the AMO;
- Previous related EIA studies and archaeological reports;
- Related publications and monographs on relevant archaeological, historical and geographical issues;
- Unpublished archival papers and records, and collection and libraries of tertiary institutions; and
- Geological and historical maps, aerial photos and relevant visual archives.

12.3.1.8 The potential impacts that may affect the possible terrestrial archaeological resources during the construction and operational phases of the Project have been assessed in the CHIA by following the procedures and requirements of Annexes 10 and 19 of the TM.

[7] Antiquities Advisory Board. *List of the 1,444 Historic Buildings with Assessment Results (as at 10 October 2024)*. Retrieved from https://www.aab.gov.hk/filemanager/aab/en/content_29/AAB-SM-chi.pdf
[8] Antiquities Advisory Board. *List of New Items for Grading Assessment with Assessment Results (as at 12 September 2024)*. Retrieved from https://www.aab.gov.hk/filemanager/aab/en/content_29/list_new_items_assessed.pdf.
[9] Antiquities and Monuments Office. *Government Historic Sites Identified by AMO (as at May 2022)*. Retrieved from https://www.amo.gov.hk/filemanager/amo/common/form/build_hia_government_historic_sites.pdf.
[10] Antiquities and Monuments Office. *List of Declared Monuments and Proposed Monuments (as at 10 October 2024)*. Retrieved from https://www.amo.gov.hk/filemanager/amo/common/form/List%20of%20Declared%20Monuments%20and%20Proposed%20Monuments.pdf.
[11] Antiquities and Monuments Office. *List of Sites of Archaeological Interest in Hong Kong (as at Nov 2012)*. Retrieved from https://www.amo.gov.hk/filemanager/amo/common/form/list_archaeolog_site_eng.pdf.

12.3.1.9 In case adverse impacts on terrestrial archaeological resources cannot be avoided, appropriate mitigation measures would be designed and recommended in the CHIA to minimise the impacts.

Marine Archaeological Investigation (MAI)

12.3.1.10 A Marine Archaeological Investigation (MAI) was carried out by SDA Marine Ltd. in collaboration with the marine archaeologist, Dr Michael Walsh of Coracle Archaeology Ltd., in accordance with the Guidelines for Marine Archaeological Investigation in Appendix K-1 of the EIA Study Brief (No. ESB-360/2023). The MAI Report is provided in **Appendix 12.4**. The significance of any underwater archaeological resources that may be impacted by the proposed reclamation/marine works under the Project has been identified and assessed by the marine archaeologist following the requirements of the guidelines.

Baseline Review

12.3.1.11 A baseline review was conducted to compile the existing information to identify the potential for archaeological resources within the assessment area and, if identified, their likely character, extent, quality and value of the seabed within the assessment area. The review was conducted through a desktop review of the following resources:

- Previous related geophysical surveys and MAI studies;
- Admiralty charts;
- Records of shipwrecks and dredging;
- Marine Disposal Areas and Borrow Areas[12];
- Geological and historical maps, aerial photos and relevant visual archives; and
- Related publications and monographs on relevant archaeological, historical and geographical issues.

Geophysical Survey

12.3.1.12 Two geophysical surveys were conducted from 2022 to 2024 in support of the Project. The geophysical survey included multibeam echo sounder survey (MBES), side scan sonar survey (SSS), sub-bottom profiling (SBP), marine magnetometer survey (MAG) with the aims to investigate ferromagnetic objects and to reveal the nature of both seabed materials and sub-surface geology. The relevant data / images of processed data obtained from the geophysical survey were reviewed and studied in detail by the marine archaeologist to:

- define the areas of greatest archaeological potential;
- assess the depth and nature of the seabed sediments to define which areas consist of suitable material to bury and preserve archaeological material;
- examine the boomer and side scan sonar records to map anomalies in and on the seabed which may be archaeological material; and
- examine the multi beam sonar data to assess the archaeological potential of the sonar contacts.

Establishing Archaeological Potential

[12] Fill Management Division CEDD. 2019. *Marine Fill Resources and Sediment Disposal Areas (as at 18 Dec 2021)*. Retrieved from https://www.cedd.gov.hk/eng/public-services-forms/fill-management/marine/marine-fill/index.html.

12.3.1.13 An analysis of findings of the baseline review and geophysical survey data collected from the geophysical survey was conducted to establish the archaeological potential of the assessment area and determine the need for further investigation.

Remote Operated Vehicle (ROV) / Visual Diver Survey / Watching Brief

12.3.1.14 A proposal for diver survey based on the established archaeological potential of the assessment area was prepared and submitted to AMO for approval. Upon the approval of the proposal by AMO, application for a Licence to Excavate and Search for Antiquities under the Antiquities and Monuments Ordinance was submitted to AMO before conducting the diving inspection. The *Licence to Excavate and Search for Antiquities (No. 478)* was issued on 27th June 2024 by the Antiquities Authority to the archaeologist Dr. Michael Walsh, hereafter known as the "licenced archaeologist".

12.3.1.15 Upon the Licence was granted, the diver survey commenced on 8th July 2024 and completed on 11th July 2024 to further examine the archaeological potential of identified targets likely to be affected by the Project.

12.3.1.16 In case adverse impacts on marine archaeological resources cannot be avoided during the early planning stage, justifications will be provided and appropriate mitigation measures to minimise the impacts will be suggested for comment and agreement by AMO.

12.4 Background of the Assessment Area

12.4.1 Geographical and Geological Background

Physical Geography and Past Landscape

12.4.1.1 The proposed works of the Project are at TKO 137 and TKO 132, both are located near Junk Bay (also known as "Tseung Kwan O (將軍澳)" in Chinese). Junk Bay is located to the east of Kowloon and bounded by Clear Water Peninsular to the east. TKO 137 is a reclaimed land located to the southeast coast of the Junk Bay that connected Fat Tau Chau (佛頭洲) and Tit Cham Chau (鐵篸洲) to the mainland. It is bounded by Fat Tau Chau and Tseung Kwan O InnoPark (將軍澳創新園) to the north, Clear Water Peninsula (清水灣半島) to the east and Tit Cham Chau to the south. On the other hand, TKO 132 is located along the western coast of Junk Bay, where part of the Project boundary includes the eastern hill foot of Devil's Peak (魔鬼山). Extension of water main, salt water main and sewage rising mains connecting TKO 132 and Tseung Kwan O Town Centre is also proposed.

12.4.1.2 It is noteworthy that the original Junk Bay was a long bay that extended from the Tseung Kwan O village to Lyemun Pass in the south (**Plate 1 in Appendix 12.3** refers). Junk Bay was also located between two straits, namely Fat Tong Mun (佛堂門) and Lyemun Pass. At the mouth of Junk Bay, there used to be two islands, namely Fat Tau Chau and Tit Cham Chau. Following the approval of Tseung Kwan O New Town development plan by the Executive Council in 1982[13], extensive reclamation works have begun for Tseung Kwan O New Town Phase I and II development. In 1988, the government proposed the Phase III development with the aim of developing an industrial estate and residential buildings[14], as well as to support the redevelop the Tiu Keng Leng (調景嶺) Cottage Area[15]. The

[13] Civil Engineering and Development Department (n.d.). *E1 Tseung Kwan O New Town.* Retrieved from https://www.cedd.gov.hk/eng/about-us/achievements/land/regional-development/e1-tseung-kwan-o-new-town/index.html
[14] Planning Department (n.d.). *Pamphlets on Planning for New Towns / New Development Areas – Tseung Kwan O.* Retrieved from https://www.pland.gov.hk/pland_en/outreach/educational/NTpamphlets/2019/pdf/nt_tko_en.pdf.
[15] *Ibid*.

reclamation works had thus extended to the south-eastern part of Junk Bay, as well as Fat Tau Chau and Tit Cham Chau. The latest reclamation works at Junk Bay was completed in 2005[16]. The extensive reclamation works have significantly changed the coastline of Junk Bay. The northern half of the original Junk Bay was filled and platforms were formed on the eastern side of the Bay.

TKO 137

12.4.1.3 TKO 137 is currently a piece of formed land of around 80 hectares (ha). However, before the 1990s, TKO 137 was only the water between the Clear Water Peninsular and two islands, namely Fat Tau Chau and Tit Cham Chau (**Figure 12.1** refers). The reclaimed land and the southern part of Fat Tau Chau fall within the Project boundary in TKO 137.

12.4.1.4 Fat Tau Chau is formed by Mesozoic volcanic rocks, eutaxite (JSS), trachydacite lava (Jmw), and tuffite (tt) during the Upper Jurassic period. (**Figure 12.2** refers).

12.4.1.5 The reclamation works at Fat Tau Chau commenced at the northeastern part of the island in 1991[17]. From there, the works expanded eastward and removed the eastern half of the island[18]. Subsequently, the works extended northward, filling the water between Fat Tau Chau and Clear Water Peninsula[19]. By 1993, Fat Tau Chau have connected to the Clear Water Peninsula by the newly reclaimed land[20]. The coastline of the Clear Water Peninsula had thus extended towards the west, and the Junk Bay had become narrower. (**Plate 2 to 5 in Appendix 12.3** refer)

12.4.1.6 The reclamation works near Clear Water Peninsula continued in 1997 at the south-western coastline of Clear Water Peninsula[21]. By 2005, the newly reclaimed land, currently known as TKO 137, had connected to Fat Tau Chau and Tit Cham Chau[22]. Therefore, the Junk Bay had further become narrower with no islands situated in the Bay. (**Plate 6 to 9 in Appendix 12.3** refer)

12.4.1.7 As TKO 137 was created mostly through reclamation, the geology of part within Project boundary would mainly be fill. The northernmost of the proposed development in TKO 137 still remains partially the original landscape of Fat Tau Chau.

12.4.1.8 Currently, the terrestrial elevation within Project boundary in TKO 137 is generally ranged between +4mPD and + 102mPD. The north-western corner of the Site would be the original landscape of Fat Tau Chau, which rise to the highest at +102mPD. The elevation of Fat Tau Chau ranges between <1° and 40°.

12.4.1.9 The remaining reclaimed area would be a flat land at about +4 to +11mPD.

[16] Survey and Mapping Office. 2005. Digital Orthophoto. Survey and Mapping Office, Lands Department. Retrieved from https://ginfo.cedd.gov.hk/3DGInfo/index.html
[17] Survey and Mapping Office. 1991. Digital Aerial Photo. 10000(ft). *A26527*. Survey and Mapping Office, Lands Department.
[18] Survey and Mapping Office. 1992. Digital Aerial Photo. 10000(ft). *A33158*. Survey and Mapping Office, Lands Department.
[19] *Ibid.*
[20] Survey and Mapping Office. 1993. Digital Aerial Photo. 10000(ft). *CN4018*. Survey and Mapping Office, Lands Department.
[21] Survey and Mapping Office. 1997. Digital Aerial Photo. 10000(ft). *CN8629*. Survey and Mapping Office, Lands Department
[22] Survey and Mapping Office. 2005. Digital Orthophoto. Survey and Mapping Office, Lands Department. Retrieved from https://ginfo.cedd.gov.hk/3DGInfo/index.html

TKO 132

12.4.1.10 Another part of the proposed development is located to the west of Junk Bay, which is known as TKO 132. Project boundary in TKO 132 covers the lower eastern slopes of Devil's Peak and Chiu Keng Wan Shan (照鏡環山), as well as the offshore area from them. Meanwhile, the proposed extension of water main, salt water main and sewage rising mains would generally follow the existing roads connecting TKO 132 and TKO Town Centre near Tiu Keng Leng Station, which were created through reclamation in the late 1990s[23].

12.4.1.11 The terrestrial area within the Project boundary at TKO 132 is characterised by the hilly landscape. It is formed mostly by fine-grained granite (Klb_gf) and coarse ash crystal tuff (Krd_cat). River valleys were formed by Pleistocene and Holocene colluvium (Qd) through the weathering of bedrock. Meanwhile, minerals (mostly quartz (q), beryl (Be), Wolframite(W)) are also distributed along the slopes of Devil's Peak and Chiu Keng Wan Shan. As for the coastal area, marine sand (Qhs) and dark grey marine mud (Qhm) formed during Holocene would be the major superficial sediments. The details of the geological characters are illustrated in **Figure 12.3.**

12.4.1.12 The original landscape within the Project boundary at TKO 132 was generally maintained until the early 1970s. Developments at Devil's Peak and Chiu Keng Wan Shan had been slowly taken places, where roads were built to connect the hills and Yau Tong in the 1970s[24] (**Plate 10 to 11 in Appendix 12.3** refer). The most significant alteration to the physical landscape of Devil's Peak is the construction of the Tseung Kwan O Chinese Permanent Cemetery between 1988 and 2014[25] [26] (**Plate 12-14 in Appendix 12.3** refer). Large-scale cut and fill works and constructions of cemetery access roads and associated infrastructures were conducted along the slopes of Devil's Peak and Chiu Keng Wan Shan.

12.4.1.13 Apart from the construction of Tseung Kwan O Chinese Permanent Cemetery, the landscape within the Project boundary were mostly unchanged in the following decades. In 2019, in light of the building of Tseung Kwan O-Lam Tin Tunnel, construction and reclamation works were conducted near the north-eastern slope of Chiu Keng Wan Shan and the western coast of Junk Bay[27] (**Plate 15 in Appendix 12.3** refers).

12.4.1.14 Currently, the terrestrial elevation within Project boundary is generally ranged between +4mPD and + 70mPD. Gradients of land within the Project boundary is roughly between <1° and 36 °, while the slope are approximately 30°.

Human Geography

TKO 137

12.4.1.15 Fat Tau Chau is also known as *Fat Tong* Chau (佛堂州) or Fu Tau Chau (斧頭州). "*Fu Tau Chau Tsuen*" ("斧頭洲村", literally the village of axe island) at Fat Tau Chau was a settlement in the vicinity of TKO 137. The *Yip* (葉) family, who are *Hakka* people, settled at the north of Fat Tau Chau. The exact arrival time of the settlers is uncertain, but it shall be no later than 1903 as observed in the map[28]. *Fu Tau Chau Tsuen* was a small settlement that

[23] Survey and Mapping Office. 1998. Digital Aerial Photo. 2500(ft). *CN2091*. Survey and Mapping Office, Lands Department
[24] Survey and Mapping Office, Lands Department. (1971). Topographic Map in 1971 [map]. 1:4800. Sheet G5. Survey and Mapping Office, Lands Department.
[25] Survey and Mapping Office. 1988. Digital Aerial Photo. 4000(ft). *A14401*. Survey and Mapping Office, Lands Department
[26] Survey and Mapping Office. 2014. Digital Aerial Photo. 8000(ft). *CW106610*. Survey and Mapping Office, Lands Department
[27] Survey and Mapping Office. 2019. Digital Aerial Photo. 6900(ft). *E079543N*. Survey and Mapping Office, Lands Department
[28] Commander W.U. Moore et al. *Hong Kong Waters East*. [Map] I inch:350 yards. London: Admiralty (No.3279), 1903.

contains five households[29]. The village was demolished and relocated in Hang Hau due to the reclamation works conducted in the 1990s[30] [31].

12.4.1.16 The physical landscape of the existing TKO 137 is the result of the extensive reclamation works conducted between 1982 and 2004 (**Section 12.4.1.5** and **12.4.1.6** refer). The eastern half of Fat Tau Chau was razed to ground, while the newly reclaimed land was formed and connected the remaining part of Fat Tau Chau, Tit Cham Chau and the Clear Water Bay Peninsula.

TKO 132

12.4.1.17 From the results of desk-top studies, traditional settlements were unlikely to have taken place at Devil's Peak. Nevertheless, a village named *On Luen Village* (安聯村) was established at Devil's Peak during the late 1950s[32]. According to a local informant, the village was established by the workers of the quarries in Lei Yue Mun. More workers resided in the village after the quarries closed. They crushed and cut stones from the hill and build their own houses. The village was once abandoned but old villagers came back in recent decade.

12.4.1.18 Developments at Devil's Peak and Chiu Keng Wan Shan had been slowly taken places since the 1970s, where roads were built to connect the hills and Yau Tong. In light of the construction works of Tseung Kwan O Chinese Permanent Cemetery and its associated infrastructures in 1988, hillslopes along Devil's Peak and Chiu Keng Wan Shan were cut (**Section 12.4.1.12** refers).

12.4.1.19 As for the area near the current Tiu Keng Leng Station, it was formerly known as "*Tiu Keng Wan*" (吊頸環) or Rennie's Mill. *Tiu Keng Wan* had been inhabited by a substantial number of refugees originated from mainland China, particularly the supporters of *Kuomintang*, since the 1950s[33]. Houses, schools and other public facilities had been constructed in the following years[34], the area was then known as Tiu Keng Leng Cottage Area. Tiu Keng Leng Cottage Area was cleared in the 1996[35] and redeveloped as part of the Tseung Kwan O New Town.

12.4.2 Historical Background

Qin to Yuan Dynasties (221BC-AD1368)

12.4.2.1 Clues of human occupation within the south China can be found in historic textual records such as *Shiji* (史記) and *Hanshu* (漢書), written in the first century BC and first century AD respectively. These records describe that *Yue* ethnic groups (also known as *Hundreds of Yue* (百越)) were scattered in southern China. The *Yue* ethnic groups were comprised of different tribes bearing various surnames and can be differentiated from the *Han* ethnic group who lived in central China in terms of physical characteristics, language, and folklore.

12.4.2.2 The *Yue* people were gradually assimilated into the *Han* culture when southern China became an administration territory of the central government since *Qin* dynasty (221-206BC).

[29] 黃佩佳(著)、沈思(編)（2016）。新界風土名勝大觀。香港商務印書館（香港）有限公司。

[30] 斧頭洲古村須遷離（1991 年 6 月 8 日）。華僑日報，第六頁。

[31] 馬木池、張兆和、黃永豪、廖迪生、劉義章與蔡志祥（2011）。《西貢歷史與風物》。香港：西貢區議會。

[32] Survey and Mapping Office. 1954. Digital Aerial Photo. 20000(ft) V81A_545-0067. Survey and Mapping Office, Lands Department.

[33] 劉義章與計超（2015）。《孤島扁舟：見證大時代的調景嶺》。香港：三聯書店香港有限公司。

[34] 馬木池、張兆和、黃永豪、廖迪生、劉義章與蔡志祥（2011）。《西貢歷史與風物》。香港：西貢區議會。

[35] 政府新聞處（1997）。《香港 1997 年: 1996 年的回顧》。香港：政府印務局。

During the *Qin* period, the *Guangdong* region was subordinated to *Panyu* (番禺) County. In 208 BC, *Southern Yue* State (南越國) was established around the *Guangdong* region by military officials, who were sent from the *Qin* Court to conquer the *Yue* in the south. Following the collapse of Qin's political power in the north, *Han* dynasty (206BC-AD220)[36] began. *Southern Yue* State was soon becoming a vassal state of Han before integrated into the *Han* Empire.

12.4.2.3 Between *Han* and *Eastern Jin* dynasties (AD317-420), Hong Kong was subordinated to *Bolou* (博羅) County[37]. From AD331 to AD756, Hong Kong was subordinated to ***Bao'an*** (寶安) County. After AD757, Hong Kong was subordinated to *Dongguan* (東莞) County and followed by *Song* dynasty (AD960-1279) and *Yuan* dynasty (AD1271-1368) [38].

Ming to Qing Dynasties (AD1368-1912)

12.4.2.4 During the 15th century, the coastal areas of *Dongguan* County suffered from frequent marauding bandit and pirate attacks. *Xin'an* (新安) County was thus set up in AD1573 to defend such attacks. According to *Xin'an Gazetteer* (新安縣誌) [39], the modern region of Hong Kong fell within the *Xin'an* County.

12.4.2.5 Fat Tong Mun was a primary waterway for accessing Guangzhou through Hong Kong waters[40]. As recorded in historical documents dating back to *Ming* dynasty[41], Fat Tong Mun held strategic significance for both military and trading history. Being in close proximity to Fat Tong Mun, heavy maritime traffic could have been taken places near Junk Bay. Apart from Fat Tong Mun, records of "Tseung Kwan O" (將軍澳) could also be dated back to the 16th century. "Tseung Kwan" (將軍) means "General" in Chinese, while "O" (澳) refers to a bay where ships and boats can be docked. Therefore, "Tseung Kwan O" literally means "Geneal's Bay". "Tseung Kwan O" was first appeared in the map in *Yue Da Ji* (粵大記)[42], a chronicle of Guangdong District published during the *Wanli* reign of the *Ming* dynasty (1573-1620). In *Coastal Map of Guangdong* (全廣海圖) of *Cangwu Zongdu Junmen Zhi* (蒼梧總督軍門志), which was edited in 1581, "Tseung Kwan O" was noted as a typhoon shelter[43] [44].

12.4.2.6 In 1661, Coastal Evacuation Order was compelled by the *Qing* Court in order to stifle the anti-Manchu troops in Taiwan. People living in coastal area were forced to move 50 *li* (里) (approximately 25 km) inland, including the New Territories inhabitants. The Order was lifted in 1669. However, after the coastal evacuation, population dropped severely. During the *Shunzhi* reign (1643-1661), the population of *Xin'an* County was recorded as 6,851. The population dropped to 2,172 in 1664 during the enforcement of the Order. After the Order was lifted, people were encouraged to move back to *Xin'an* County during late 17th to early

[36] 司馬遷 (c.a. 91BC)。史記 卷一百一十三 南越列傳 第五十三。北京：中華書局 (1959) 。

[37] Although the boundary between Boluo (博羅) County and Panyu (番禺) County during Han to East Jin period is unclear, it is generally suggested that Hong Kong region belonged to Boluo County at that time, according to Xinan Gazetteer (1819), Social Change in Hong Kong Before and After the Early Qing Clearance (1986), and Brief History of Ancient Shenzhen (1997). However, Professor Jao Tsung-I (2005) discussed that the area belonged to Panyu based on the inscriptions on bricks of Lei Cheng Uk Han Tomb.

[38] 劉智鵬、劉蜀永 (編) (2020) 。《方志中的古代香港-《新安縣志》香港史料選》。香港，三聯書店（香港）有限公司。

[39] *Ibid.*

[40] Lui, A. Y.-C. (ed.) (1990). *Forts and Pirates - a history of Hong Kong*. Hong Kong: Hong Kong History Society.

[41]霍啟昌（2019）。《香港與近代中國：霍啟昌香港史論》。 香港，三聯書店（香港）有限公司。（顧炎武：《天下郡國利病書 97 卷 》「海口有三路,設巡海備倭官軍以守之‥‥‥中路自東莞南頭城，出佛堂門、十字門、冷水角諸海澳。」）

[42] 郭棐(2014)。《粵大記（上下冊）》。廣州：廣東人民出版社。

[43] Empson, H. (1992). *Mapping Hong Kong: A Historical Atlas*. Hong Kong: Government Information Services.

[44] 應檟 (1581 (明萬曆九年))。《蒼梧總督軍門志》〈全廣海圖〉：「將軍澳可避颶風，至龍船灣半潮水，至擔竿州二潮水，至沱濘一潮水」

18th centuries. In 1671, the population increased to 3,972, 1,648 people were encouraged to move back during 1669-1671[45].

12.4.2.7 The record of quarrying activities in Hong Kong could be dated back to the 1810 when a Tang clansman in Kam Tin persuaded the stonemasons in East Kowloon to cut stones and construct a fort in Kowloon, in order to protect the local waters against pirates[46]. Quarries in Lei Yue Mun, Ngau Tau Kok, *Sai Cho Wan* (茜草灣) and *Cha Kwo Ling* were known as "*Si Shan*" ("四山", literally "Four Hills"), a quarry-villages alliance in Kowloon East. The representative of each hill was appointed by the Qing government to manage and collect taxes from the quarries[47]. *Si Shan* had a reputation for high quality granite production[48]. Granite extracted from *Si Shan* would be transported to Hong Kong Island and Southern China by water[49].

12.4.2.8 After the First Opium War (1839-1842) between the Qing government and the British Empire, the Qing government "…ceded … the Island of Hongkong, to be possessed in perpetuity by … Great Britain" signed in 1842 under the *Treaty of Peace, Friendship, and Commerce Between Her Majesty The Queen of Great Britain and Ireland and the Emperor of China* (also known as the *Treaty of Nanking* (南京條約))[50]. After Hong Kong was ceded to the British, there is a high demand for granite for developing Hong Kong Island. Granite in Si Shan were transported to Hong Kong Island, quarries there grew rapidly.

12.4.2.9 The Qing government lost the Second Opium War (1856-1860), which led to the ceding Kowloon as a dependency of Hong Kong under the *Convention of Peace Between Her Majesty and The Emperor of China* (also known as the *Convention of Peking* (北京條約)) in 1860.[51]

12.4.2.10 To combat opium smuggling activities and generate more revenue, the Viceroy of Guangdong and Guangxi (兩廣總督) announced the establishment of six *likin* tax (釐金) checkpoints near Kowloon Peninsula and Macao in 1868[52], one of which was designated in Fat Tau Chau. These tax checkpoints were managed by the Guangdong Likin Tax Bureau (廣東省釐金局)[53]. They were responsible for levying *likin* tax on opium which loaded by Chinese vessels and patrolling the coast of Guangdong Province[54].

12.4.2.11 In 1871, the Guangdong Customs (粵海關) followed the Guangdong Likin Tax Bureau to establish four tax checkpoints near Kowloon, including Cheung Chau (長洲), Fat Tau Chau, Kap Shui Mun (汲水門) and Kowloon City (九龍城) [55]. They were either located next to the tax checkpoints of the Guangdong Likin Tax Bureau or operated together as one unit[56]. At first, the checkpoints only levied opium (鴉片關稅) on Chinese merchant ships in Hong Kong. Since 1873, they also collected Native Customs' tariffs (常關關稅) on other merchandise[57]

[45] 靳文謨修、鄧文蔚纂 (1688) 。新安縣志。在廣東省地方志辦公室編，廣東歷代方志集成：廣州府部（二六）[康熙]新安縣志 [嘉慶]新安縣志。廣東：嶺南美術出版社。
[46] Poon, S. W. and Ma, K. Y. (2012). Report on the History of Quarrying in Hong Kong 1840-1940. Hong Kong: Lord Wilson Heritage Trust. Retrieved from https://www.lordwilson-heritagetrust.org.hk/filemanager/archive/project_doc/10-194/PDF1.pdf.
[47] 朱晉德與陳式立（2016）。《礦世鉅著 – 香港礦業史》。香港：地球知源。
[48] 朱晉德與陳式立（2016）。《礦世鉅著 – 香港礦業史》。香港：地球知源。
[49] *Ibid.*
[50] Mayers, W. F. (1902). *Treaties Between the Empire of China and Foreign Powers*. Shanghai: North-China Hera Treaty of London (1871).
[51] *Ibid.*
[52] 周佳榮（2017）。《香港通史：遠古至清代》。香港：三聯書店（香港）有限公司。
[53] 馬光（2009）。〈晚清珠三角地區鴉片貿易、走私與緝私〉。《澳門研究》，55，127-143。
[54] *Ibid.*
[55] Au, C. K.; Chan, W. S. and Ho, W. C. (2009). *Hong Kong Customs – A Centenary History*. Hong Kong: Customs and Excise Department.
[56] 陳新文（2003）。〈「封鎖香港」問題研究（1868—1886）〉。《近代史研究》，1，167-185
[57] 馬光（2009）。〈晚清珠三角地區鴉片貿易、走私與緝私〉。《澳門研究》，55，127-143。

[58]. Being one of the customs stations, frequent trading activities with the tributary states might have taken place at Fat Tau Chau in the past. According to the inscriptions on the ruins of the Customs Station, it might have connections with *Annam* (today northern Vietnam) [59].

12.4.2.12 At the turn of the 20th century, *The Convention between the United Kingdom and China, Respecting an Extension of Hong Kong Territory* (also known as the *Second Convention of Peking* (第二北京條約)) signed between the British and the Qing government in 1898 allowed the British colony to "… enlarged under lease … [for] ninety-nine years." [60] Fat Tau Chau Chinese Customs Station was taken over by the British (Kowloon New Customs) in 1887 and later ceased its operation in 1899[61].

The Early 20th Century

12.4.2.13 The takeover of Kowloon and New Territories had led to a high demand for granite for the construction and development of the city[62]. Majority of the quarries in Lei Yue Mun were managed by the *Yip* (葉), *Tsang* (曾), *Cheung* (張) clans[63]. They would recruit workers or townsman from *Wuhua* (五華), *Huiyang* (惠陽), *Meixian* (梅縣), and *Dongguan* (東莞) to engage in quarrying[64]. The more prominent quarries in Lei Yue Mun included *Tung Li Tong* ("同利堂", owned by *Ip Wa-shing*), *Tung Tai Tong* ("同泰堂", owned by *Tsang Lam-on*), and *Tung Fuk Tong* ("同福堂", owned by *Ip Fuk*)[65]. Stone quarries in Lei Yue Mun in the early 20th century were mostly located to the west and south-west of Devil's Peak (current *Sam Ka Tsuen* (三家村) and *On Li Sai Tsuen* (安里西村))[66].

12.4.2.14 Soon after the New Territories were leased to Britain in 1898, the British had scheduled to construct military structures in the New Territories. Although Devil's Peak was located to the south-eastern corner of Kowloon Peninsula, it was not leased to the British until 1898. Situated above the narrow Lyemun Pass, Devil's Peak offers a direct line of sight to the eastern entrances of Victoria Harbour.

12.4.2.15 In 1898, the *Committee on Armaments of Certain Stations at Home and Aboard* suggested that two 6-inch and two 9.2- inch breech loaders should be built on Devil's Peak in order to cover the Lyemun Pass[67]. As a result, Pottinger Battery and Gough Battery were built one after another and came into operation in 1902-1903[68]. Pottinger Battery was named after Sir Henry Pottinger, the first governor of Hong Kong, while Gough Battery was named after Hugh Gough, Hong Kong's first general officer commanding.

12.4.2.16 In addition to coastal defence, the British had also reviewed the landward defence scheme taken into account of the New Territories and Kowloon. In 1911, Major General Charles

[58] Au, C. K.; Chan, W. S. and Ho, W. C. (2009). *Hong Kong Customs – A Centenary History*. Hong Kong: Customs and Excise Department.
[59] Antiquities and Monuments Office (n.d.). *Site of Chinese Customs Station, Junk Island, Sai Kung.* Retrieved from https://www.amo.gov.hk/en/historic-buildings/monuments/new-territories/monuments_18/index.html
[60] Mayers, W. F. (1902). *Treaties Between the Empire of China and Foreign Powers*. Shanghai: North-China Hera Treaty of London (1871).
[61] 蕭國健（2021）《鑑古尋根：香港歷史與古蹟尋蹤》。香港：三聯書店（香港）有限公司。
[62] Antiquities Advisory Board. (2010). Historic Building Appraisal – Old Quarry Sites Structures. Retrieved from https://www.aab.gov.hk/filemanager/aab/common/historicbuilding/en/N86_Appraisal_En.pdf.
[63] 何佩然（2018）。《班門子弟：香港三行工人與工會》。香港：三聯書店（香港）有限公司。
[64] Antiquities Advisory Board. (2010). Historic Building Appraisal – Old Quarry Sites Structures. Retrieved from https://www.aab.gov.hk/filemanager/aab/common/historicbuilding/en/N86_Appraisal_En.pdf.
[65] Antiquities Advisory Board. (2010). Historic Building Appraisal – Old Quarry Sites Structures. Retrieved from https://www.aab.gov.hk/filemanager/aab/common/historicbuilding/en/N86_Appraisal_En.pdf.
[66] Ordinance Survey Office. (1904). Kowloon and Part of New Territories. Sheet 3. Devil's Peak (Map No. 99(3)).
[67] 鄺智文與蔡耀倫（2018）。《東方堡壘：香港軍事史（1840 – 1970）》。香港：中華書局（香港）有限公司。
[68] Antiquities Advisory Board. (2010). Historic Building Appraisal – Fortifications at Devil's Peak, Retrieved from https://www.aab.gov.hk/filemanager/aab/common/historicbuilding/en/463_Appraisal_En.pdf.

Anderson proposed a defensive line comprised six sections, stretching from Lyemun to Lai Chi Kok, traversing through Devil's Peak along its path[69]. The defensive line would be equipped with redoubts, blockhouses and artillery positions with the aims to prevent or delay the enemy from occupying Kowloon, as well as protecting Kowloon and Hong Kong Island. Furthermore, Anderson believed that the certain sections along the defensive line could protect the batteries at Devil's Peak. Although the War Office authorised Anderson to construct defences in the eastern part of Kowloon Ridge in 1912, major revisions had been made to Anderson's plan in the following year. It is uncertain whether Anderson's initial defence scheme was ever fully executed. The redoubt on the summit of Devil's Peak was constructed around 1914-1915 and served as a command post[70].

12.4.2.17 Considering the change in defence scheme in the 1930s, guns in these two batteries were removed and transferred to Bohara Battery and Stanley Battery, so that defence in southern Hong Kong Island could be strengthened[71]. As a result, there was no fixed armaments in the two batteries by the late 1930s.

12.4.2.18 During the World War II, after the fall of the Shing Mun Redoubt, some of the British and Canadian forces retreated to Devil's Peak on 10th December 1941 and withdrawn from Kowloon on 13th December 1941. The Japanese forces occupied Devil's Peak and established artillery positions to attack the military facilities on the opposite of Victoria Harbour. On 18th December 1941, they crossed the Harbour from Devil's Peak and landed on Hong Kong Island.

12.4.2.19 Following the surrender of Hong Kong to the Japanese on 25th December 1941, the territory had been used by the Japanese as their naval and logistics base in the Western Pacific[72]. Considering the strategic importance of Hong Kong to Japan, the territory had been targeted by the Allies[73]. Intensive airstrikes were used to attack ships, docks and oil tanks along the Victoria Harbour since 1942. In face of the artillery attacks, the Japanese had excavated a vast number of tunnels into the terrains across Hong Kong for military and other purposes, such as storage of ammunitions and hangars[74] [75].

12.4.2.20 As many workers left Hong Kong or starved to death during wartime, operation of quarries in *Si Shan* was heavily interrupted[76].

Mid- 20th Century - Modern

12.4.2.21 World War II ended in 1945 and Hong Kong was handed over back to the British. The fortifications at Devil's Peak were abandoned after war and fell into ruins.

12.4.2.22 Although quarries which were abandoned during WWII remained closed after war, crushed stone was in demand due to the reconstruction and development of the city. The government thus issued permits to small operators to open privately-run quarries[77]. Quarrying business in Lei Yue Mun resumed under new policy. The coastal area of Devil's Peak facing Lyemun Point became a quarry which operated on permits by three firms,

[69] 鄺智文與蔡耀倫（2018）。《東方堡壘：香港軍事史（1840 – 1970）》。香港：中華書局（香港）有限公司。
[70] Lai, L. W. C., Ho, D. C. W., & Yung, P. (2007). Survey of the Pottinger Battery. *Journal of the Royal Asiatic Society Hong Kong Branch*, *47*, 91–114
[71] 陳國豪與黃柔柔（2019）。《線下導賞：屢見仍鮮的香港古蹟》。香港：明窗出版社。
[72] Kwong, C. M. and Tsoi, Y. L. (2014). *Eastern Fortress - A Military History of Hong Kong, 1840–1970*. Hong Kong: Hong Kong University Press.
[73] 鄺智文（2015）。《重光之路—日據香港與太平洋戰爭 》。香港：天地圖書有限公司。
[74] *Ibid*.
[75] Civil Engineering and Development Department (2022). *Information Note 06/2022 – Disused Tunnels*. Retrieved from https://www.cedd.gov.hk/filemanager/eng/content_454/IN_2022_06E.pdf
[76] 何佩然（2018）。《班門子弟：香港三行工人與工會》。香港：三聯書店（香港）有限公司。
[77] Antiquities Advisory Board. (2010). Historic Building Appraisal – Old Quarry Sites Structures. Retrieved from https://www.aab.gov.hk/filemanager/aab/common/historicbuilding/en/N86_Appraisal_En.pdf.

namely Tai Hing Quarry Company, Oriental Quarry Company, and Wong Tin Quarry Company[78]. In the heyday, there were 400 workers in Lei Yue Mun[79]. These quarries ensured the supply of crushed stones during the times when construction materials were in demand after war.

12.4.2.23 Mining activities had taken place at Devil's Peak. Discovery of economic minerals, such as beryl, wolframite and quartz, were reported in the area. In 1955, William Harries, a British soldier discovered beryl in air-raid tunnels built by the Japanese at Devil's Peak[80]. Mining had then been conducted afterwards but ceased in 1957[81]. Therefore, underground tunnels of military or prospecting purposes might be found at Devi's Peak. The beryl deposit at Devil's Peak had not been commercially exploited[82].

12.4.2.24 In 1967, the government introduced a ban on carrying or storing fireworks to impede the manufacturing of home-made bombs amid the social unrest. The government also restricted the use of explosives in quarries[83], workers had to extract stone materials manually. At least 80 quarries were closed and abandoned in the late 1960s[84] due to rising production costs, safety violations, license renewal cessation[85]. The quarries in Lei Yue Mun were closed and abandoned in the late 1960s after the expiry of permits[86].

12.4.2.25 Furthermore, the ruins of Site of Chinese Customs Station, Fat Tau Chau were discovered in 1962, some broken stone slabs with inscriptions were also found in the ruins. The site was declared a monument in 1983 and remained to be a ruined site.

12.4.2.26 In the 1980s, development of Tseung Kwan O New Town was endorsed. Extensive reclamation works were carried out in the 1990s, so that Fat Tau Chau is connected to Clear Water Bay Peninsula. In this regard, the eastern half of Fat Tau Chau, including Fu Tau Chau Tsuen was razed to the ground. The razed part is now part of Tseung Kwan O InnoPark.

12.4.3 Terrestrial Archaeological Background

12.4.3.1 Site of Chinese Customs Station, Fat Tau Chau (DM18)[87] (also known as Old Chinese Customs Station on Fat Tau Chau[88]) is located outside the Project boundary but within the 300m assessment area of TKO 137. The site would be referred as *Site of Chinese Customs Station, Fat Tau Chau* in the following sections.

12.4.3.2 Also, three (3) Sites of Archaeological Interest (SAIs) are located outside the Project boundary but within the 300m assessment area of TKO 137. These SAIs include Fat Tau Chau (SAI184), Fat Tau Chau House Ruin (SAI185), and Fat Tau Chau Qing Dynasty Gravestone (SAI186).

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[78] *Ibid.*

[79] *Ibid.*

[80] 一英軍在香港 發現綠玉鑛（1955 年 8 月 30 日）。工商晚報，第一頁。

[81] 哈理斯昨否認發現金砂 鬼仔山綠玉礦停工（1957 年 7 月 6 日）。工商晚報，第四頁。

[82] Sewell, R.J.; Tang, L.T. and Shaw, R. (2009). *Hong Kong Geology – A 400-million year journey*. Hong Kong: Geotechnical Engineering Office, Civil Engineering and Development Department.

[83] 生產建築石材蓋樓房 打石工人冇樓住（1969 年 4 月 21 日）。大公報，第一張第四版。

[84] *Ibid.*

[85] 香港地方志中心（2023）。《香港志：自然·自然資源與生態》。香港：中華書局(香港)有限公司。

[86] Antiquities Advisory Board. (2010). Historic Building Appraisal – Old Quarry Sites Structures. Retrieved from https://www.aab.gov.hk/filemanager/aab/common/historicbuilding/en/N86_Appraisal_En.pdf.

[87] Site of Chinese Customs Station, Fat Tau Chau (Declared Monument) is an archaeological site and would be discussed in **Section 12.6 Archaeological Impact Assessment**.

[88] Lands Department (n.d.). *Antiquities & Monuments Ordinance (CAP.53) Plan of Old Chinese Customs Station On Fat Tau Chau (Junk Island Deposited in the District Land Office, Sai Kung, Under SEC. 3(4) Serial No. NTM 22*. Retrieved from https://www.amo.gov.hk/filemanager/amo/common/form/plan/plan_18.pdf

12.4.3.3 On the other hand, there is no SAI located within the Project boundary or the 300m assessment area of TKO 132.

12.4.3.4 Previous archaeological works conducted within the assessment area are described below, and their locations are indicated in the accompanying **Figures 12.4 to 12.6**. The current condition of these sites is presented in **Appendix 12.2**.

Declared Monument / Sites of Archaeological Interest (SAIs)

Site of Chinese Customs Station, Fat Tau Chau (DM18)/

Fat Tau Chau Site of Archaeological Interest (SAI184)

12.4.3.5 In 1964, *Walter W. T. Chiu* conducted a visit at Fat Tau (Tong) Chau and found three (3) broken tablet with inscriptions referring to a customs station, noting also the existence of dressed masonry and intricately carved pedestals at the site[89].

12.4.3.6 In 1979, Solomon Bard carried out a survey of the site and recovered the missing fragments of the tablet. One of the stone slabs with inscriptions of "德懷交趾國貢賦遙通" (literally mean "Sovereign of Annam that Embraced by the Benevolence (of the Qing Emperor) pays tribute from afar") and signed "稅廠值理重修" (literally mean "Renovated by the Manager of the Customs Station") were found beneath the surface. It indicates the existence of previous structures at location, most likely referring to the former customs station[90].

12.4.3.7 In 2004, the site underwent archaeological survey based on its known potential of a Chinese Customs Station that existed from 1869 to 1899. A total of twenty-two (22) test pit squares, measuring 2m X 2m, were excavated across the raised flat ground above a small bay at the north-west portion of Fat Tau Chau[91]. The excavation work is reported into four (4) respective areas (Area I, II, III and IV) according to the sequence of excavation, as depicted in **Figure 12.5**. Each area exhibits similar stratigraphic deposits, with a surface layer consists of a greyish-brown cohesive sandy soil filled with bricks and tiles. Below this layer, architectural remains were discovered.

12.4.3.8 In Area I, notable findings include tiled floors and remnants of stone wall foundations. Possibly a wall foundation was also discovered in Area II, consisting of granite slabs still adorned with green bricks. The most significant discoveries were made in Area III. Among them were threshold stones with shallow holes for doors, remnants of stone slabs, and a pair of inscribed columns bearing the inscriptions "公義祠堂業" (literally mean "Benevolent Society Common Property") and "拜舞肅鳥趨抒將令切" (literally mean "Fluttering birds approaching to offer their earnest respects")[92]. A paved ground covered with oval pebbles and square red tiles was uncovered. These findings, combined with the presence of stone wall foundations, provide compelling evidence that the stone wall foundation, paved ground and threshold stones belong to the same structure. Lastly in Area IV, a drainage channel was identified, constructed using materials such as green bricks, grey sand mortar, and granite slabs. A square brick pavement was observed at the outlet of the drainage channel[93].

12.4.3.9 These findings were accompanied by various artifacts. Roof tiles and bricks were generally observed in the surface layer. Small quantity of nails, underglaze blue and white porcelain,

[89] Solomon Bard. (2005). *Archaeological Survey at Fat Tong Chau, Phase I (SKFTC2004/I)*. Hong Kong: Antiquities and Monuments Office.
[90] *Ibid.*
[91] 香港古物古蹟辦事處（2007）《香港佛頭州遺址 2004 年考古調查簡報》。《華夏考古》第 4 期，頁 35-41。
92 It is noted that there are multiple interpretations on the archaic characters of the inscription on the stone column. Bard (2005) interprets as "拜舞肅鳥趨抒將令切"; Antiquities and Monuments Office (2007) interprets as "拜舞肅鳥趨舒將念切"; The display board of the column at the Hong Kong Heritage Discovery Centre interprets as "拜舞肅鳥趨舒將念切".
[93] Solomon Bard. (2005). *Archaeological Survey at Fat Tong Chau, Phase I (SKFTC2004/I)*. Hong Kong: Antiquities and Monuments Office.

village ware, and glass were also be found across the respective areas. Moreover, a stone adze was able to be collected on the surface outside the excavated areas[94].

12.4.3.10 The archaeological survey in 2004 provided substantial evidence confirming the existence of the Site of Chinese Customs Station, Fat Tau Chau since the late-Qing dynasty. The site was declared as monument (DM18) in 1983 and Fat Tau Chau Site of Archaeological Interest was identified (SAI184)[95] [96].

12.4.3.11 Its archaeological finds, current condition and surrounding environment are presented in **Appendix 12.2 Plate 1 to 8**.

Fat Tau Chau House Ruin Site of Archaeological Interest (SAI185)

12.4.3.12 In close proximity to Fat Tau Chau SAI, a ruined stone structure suspected as the signal relay post was found at the southern tip of Fat Tau Chau[97]. The structure was constructed with semi-dressed granite slabs and appeared to have been divided into two rooms with a partition wall. It has been designated as Fat Tau Chau House Ruin SAI. The *Report On Archaeological Survey At Fat Tong Chau Phase 1* referred the structure as “pau toi” (炮臺) [98].

12.4.3.13 Its current condition and surrounding environment are presented in **Appendix 12.2 Plate 9 to 14**.

Fat Tau Chau Qing Dynasty Gravestone Site of Archaeological Interest (SAI186)

12.4.3.14 During the Customs Station at Fat Tau Chau became operative in 1874, a severe typhoon (later known as *The 1874 Hong Kong Typhoon*) struck Hong Kong, causing damage to the Customs Station and several deaths. As a poignant reminder of this tragic event, a gravestone atop the hill stands as a testament to the devastation. The gravestone bears an inscription from the 13th year of the reign of Emperor *Tongzhi*, serving as a marker for the year when the typhoon struck. It has been officially recognised as the Fat Tau Chau Qing Dynasty Gravestone SAI [99].

12.4.3.15 Its current condition is presented in **Appendix 12.2 Plate 15 to 16**.

[94] 香港古物古蹟辦事處（2007）《香港佛頭州遺址 2004 年考古調查簡報》。《華夏考古》第 4 期，頁 35-41。
[95] Antiquities and Monuments Office (n.d.). Site of Chinese Customs Station, Junk Island, Sai Kung. Retrieved from https://www.amo.gov.hk/en/historic-buildings/monuments/new-territories/monuments_18/index.html.
[96] Antiquities and Monuments Office. (1985). *Report of the Hong Kong Archaeological Survey*. Hong Kong: Hong Kong Government.
[97] Solomon Bard. (2005). *Archaeological Survey at Fat Tong Chau, Phase I (SKFTC2004/I)*. Hong Kong: Antiquities and Monuments Office.
[98] *Ibid.*
[99] Antiquities and Monuments Office. List of Sites of Archaeological Interest in Hong Kong (as at Nov 2012). Retrieved from https://www.amo.gov.hk/filemanager/amo/common/form/list_archaeolog_site_eng.pdf.

Previous archaeological survey and EIA reports covering TKO 132

12.4.3.16 In addition to the SAIs with known archaeological potential, the terrestrial archaeological potential of the assessment area in TKO 132 have also been assessed in previous archaeological survey and EIA reports. Their results are presented as follows (**Figure 12.6** refers).

1998 Archaeological Survey in West Coast Road Area, Tseung Kwan O [100]

12.4.3.17 An archaeological survey was conducted in 1998 for the planning of Western Coast Road of Tseung Kwan O project. The survey covered areas from the western coast of Tseung Kwan O and Lei Yue Mun Point to Cha Kwo Ling, including *Tsau Wan* (酒灣), *Yau Tong* (油塘) and *On Luen Village*. Four trenches (T1, T2, T3 and T4) were excavated at *On Luen Village* (**Figure 12.6** refers). No cultural remains were discovered. The survey concluded that as *On Luen Village* was developed by new migrants after WWII, there was no earlier cultural remains.

Agreement No. CE87/2001 (CE) Further Development of Tseung Kwan O – Feasibility Study (AEIAR-092/2005)[101]

12.4.3.18 The EIA study primarily assessed the construction and operation of the proposed development works from Cha Kwo Ling to Pak Shing Kok and LOHAS Park. The assessment on terrestrial archaeology of the Tseung Kwan O section primarily focused on area within 50m from the proposed developments and works areas, which covers the northern part of the Project boundary and the 300m assessment area of TKO 132 (**Figure 12.6** refers). Desk-based archaeological review was carried out in order to identify any known or areas possessed of archaeological interest. Since the proposed development works were mainly situated on existing roads, reclaimed or disturbed land, there was expected to be no archaeological potential in these areas.

Agreement No. CE42/2008 (CE) Tseung Kwan O – Lam Tin Tunnel and Associated Works (AEIAR-173/2013)[102]

12.4.3.19 The EIA study primarily assessed the above ground works areas situated along the western shoreline of Junk Bay in TKO, which covered the Project boundary and 300m assessment area of TKO 132 upon the Project. As part of the study, a desk-based terrestrial archaeological review was conducted to identify any known or areas possessed with archaeological potential[103]. The study area of the terrestrial archaeological review is shown in **Figure 12.6**.

12.4.3.20 It was observed that the western shoreline area of TKO 132 is characterised by hilly topography, featuring steep slopes (>27º). Referring to the findings of the 1998 Archaeological Survey carried out in the Western Coast Road area (**Section 12.4.3.17** refers), which encompassed the hill slope of Lei Yu Mun and the eastern slope of Devil's

[100] Sino – Hong Kong Archaeological Workshop. (1999). *The 1998 Archaeological Survey in West Coast Road Area, Tseung Kwan O*. Hong Kong: Antiquities and Monuments Office.
[101] Civil Engineering and Development Department. (2005). *Further Development of Tseung Kwan O – Feasibility Study (Agreement No. CE87/2001 (CE)).* 13 Impact on Cultural Heritage. Retrieved from https://www.epd.gov.hk/eia/register/report/eiareport/eia_1112005/index.htm.
[102] Civil Engineering and Development Department. (2013). *Tseung Kwan O – Lam Tin Tunnel and Associated Works (Agreement No. CE42/2008 (CE)).* 9 Impact on Cultural Heritage. Retrieved from https://www.epd.gov.hk/eia/register/report/eiareport/eia_2102013/index.htm.
[103] Civil Engineering and Development Department. (2013). *Agreement No. CE 42/2008 (CE) Tseung Kwan O – Lam Tin Tunnel and Associated Works – Investigation - Working Paper on Terrestrial Archaeological Review and Marine Archaeological Investigation (Final)*. Retrieved from https://www.epd.gov.hk/eia/register/report/eiareport/eia_2102013/EIA/Appendices/Appendix%209.2.pdf.

Peak, no terrestrial archaeological potential has been identified or anticipated in these hillside areas. Additionally, there were no historical records indicating any past occupation or cultivation at the site.

12.4.3.21 The results of the desk-based review concluded that no known archaeological sites or areas with terrestrial archaeological potential have been identified within the EIA study area.

12.4.4 Marine Archaeological Background

Previous EIA reports covering TKO 137 and TKO 132

12.4.4.1 Previous EIA reports have assessed the marine archaeological potential of TKO 137 and TKO 132. The findings and discussions are presented in the followings (**Figure 12.7** and **Figure 12.8** refer).

Agreement No. CE87/2001 (CE) Further Development of Tseung Kwan O – Feasibility Study (AEIAR-092/2005)[104]

12.4.4.2 A marine geophysical survey was undertaken in 2003 at the northern half of Junk Bay to assess the sub-seabed strata, features, and man-made objects on or beneath the seabed. The survey revealed four (4) surface anomalies and two (2) buried anomalies were within the proposed marine works areas. These areas mainly cover the northeast section within the Project boundary and 300m assessment area of TKO 132.

12.4.4.3 Out of these six (6) anomalies, three (3) were identified as having archaeological potential (**Figure 12.8** refers). Target 1, due to its isolated location away from other debris concentrations and its relatively small size, was considered to have archaeological significance. Additionally, buried anomalies SN62-31 and SN62-34 were deemed to contain archaeological potential as they were situated in an area where shipwrecks could have formed. For the remaining three (3) anomalies, they were found in areas heavily disturbed by numerous anchor marks, indicating recent deposition with no archaeological potential. A visual diver survey was recommended as a mitigation measure for Target 1, along with transect dives for the area along western shore of Junk Bay that was not covered by the geophysical survey under this feasibility study. SN62-31 and SN62-34 are located within the Project boundary of TKO 132, while Target 1 is located outside the Project boundary but within the 300m assessment area.

Agreement No. CE42/2008 (CE) Tseung Kwan O – Lam Tin Tunnel and Associated Works (AEIAR-173/2013)[105]

12.4.4.4 Under this project, a marine geophysical survey was conducted in 2009 to cover the proposed reclamation and bridge structure for TKO Interchange situated at the west coast of Junk Bay to optimise the acquisition of data for the Marine Archaeological Investigation (MAI). The survey covered the majority part within the Project boundary of TKO 132 and extended north towards the 300m assessment area (**Figure 12.8** refers). Based on the results from the 2003 geophysical survey under the Further Development of Tseung Kwan O Feasibility Study and the geophysical survey conducted in 2009 for this project, a total of 28 side scan sonar and seismic profiler contacts were identified on the seabed, requiring further investigation.

[104] Civil Engineering and Development Department. (2005). *Further Development of Tseung Kwan O – Feasibility Study (Agreement No. CE87/2001 (CE)).* 13 Impact on Cultural Heritage. Retrieved from https://www.epd.gov.hk/eia/register/report/eiareport/eia_1112005/index.htm.

[105] Civil Engineering and Development Department. (2013). *Tseung Kwan O – Lam Tin Tunnel and Associated Works (Agreement No. CE42/2008 (CE)).* 9 Impact on Cultural Heritage. Retrieved from https://www.epd.gov.hk/eia/register/report/eiareport/eia_2102013/index.htm.

12.4.4.5 A visual diver survey was hence undertaken to further examine the 28 contacts as above-mentioned. All twenty-eight (28) targets, including SN62-31 and SN62-34 identified in the 2003 geophysical survey, were successfully located and assessed. These targets were determined to be modern construction waste, dumped materials and rubber tyres. No targets with archaeological value were found. Consequently, it was concluded that no marine archaeological resources were identified within the survey area which covers the majority part of the Project boundary and the northern part of 300m assessment area of TKO 132.

Hong Kong Offshore Wind Farm in Southeastern Waters (AEIAR-140/2009)[106]

12.4.4.6 A geophysical survey was conducted to examine the geological characteristics of various areas, including the region between central Junk Bay and the northern section of the Tathong Channel. The survey area primarily encompassed TKO 137 and TKO 132, although the exact boundaries were not specified in the report. Within these areas, the seabed predominantly consisted of coarser materials, such as potential rock outcrops and dumped materials. This type of seabed environment was considered less favourable for preservation and burial of artifacts, suggesting minimal to no archaeological potential.

12.4.4.7 However, there was one notable exception referred to as Target A8, initially located just outside the 300m assessment area of TKO 137, but later falling within the 300m assessment area following a boundary revision (**Figure 12.7** refers). Based on the geophysical data collected for the HK Offshore Wind Farm in Southeastern Waters, Target A8 exhibited an unusual appearance and possible partial burial. It was situated in a sandy area to the south of Fat Tong Chau, where extensive trawl or drag marks were visible. This led to the assumption that Target A8 represented deposits related to shipwreck, which have been redistributed by trawling activity. This interpretation has been revised on the basis of new geophysical data collected for the Project. The new sidescan sonar data are higher resolution and provide a clearer image of Target A8 compared to the HK Offshore Wind Farm in Southeastern Waters data. Based on the new data, Target A8 does not resemble shipwreck debris. It also does not have an associated magnetic signature. It can now be seen to comprise two separate rectangular features which lie on the seabed surface. These correspond to sonar anomalies B1-SC001 and B1-SC002 as identified by the MAI under the Project (see **Appendix 12.4**). These are similar in size and shape to other rectangular features seen elsewhere in Junk Bay (and HK waters, in general) which are interpreted as modern objects, such as concrete mooring blocks or blocks used for seawalls and rock armour. B1-SC001 and B1-SC002 were considered therefore to be of low archaeological potential by the MAI under the Project (**Appendix 12.4**); no diver inspection was required and the 150m buffer zone suggested as mitigation in the EIA Report for HK Offshore Wind Farm in Southeastern Waters (AEIAR-140/2009) is no longer required.

Agreement No. CE 43/2008 (HY) Cross Bay Link, Tseung Kwan O (AEIAR-172/2013)[107]

12.4.4.8 A MAI was conducted within the alignment corridor of Junk Bay. The study area encompassed the eastern tip within the Project boundary of TKO 132 and extended towards the 300m assessment area (**Figure 12.8** refers).

12.4.4.9 Based on the results of the 2003 geophysical survey for the Further Development of Tseung Kwan O Feasibility Study (**Section 12.4.4.2** refers), eight (8) unidentified objects were recognised within the study area (**Figure 12.8** refers). A visual diver survey was subsequently carried out to establish the archaeological significance of the identified targets.

[106] Hong Kong Offshore Wind Limited. (2009). *Hong Kong Offshore Wind Farm in Southeastern Waters.* 9 Cultural Heritage. Retrieved from https://www.epd.gov.hk/eia/register/report/eiareport/eia_1672009/index.html.

[107] Civil Engineering and Development Department. (2013). *Cross Bay Link, Tseung Kwan O (Agreement No. CE43/2008 (HY)).* 12 Cultural Heritage Impact. Retrieved from https://www.epd.gov.hk/eia/register/report/eiareport/eia_2092013/.

Upon examination, all of the identified targets, including Target 1 identified in the 2003 geophysical survey, were found to contain of modern dumped rock, as commonly observed in the rubble mound seawalls surrounding the survey area. It was indicated that the seabed in various areas had also been disturbed by construction works. The survey did not locate any archaeological findings.

12.5 Built Heritage Impact Assessment

12.5.1 Built Heritage

12.5.1.1 According to the Appendix K of the EIA Study Brief (No. ESB-360/2023), the BHIA has been conducted, taking into account the results of the previous studies and other background of the site, to identify known and unknown built heritage items within the assessment area that may be affected by the Project and its associated works, and to assess the possible direct and indirect impacts on the identified built heritage items. For the purpose of this report, both known built heritage and unknown built heritage are defined as below.

12.5.1.2 Known built heritage are the tangibles (buildings/structures/features/places/areas) that have been identified and / or accorded with a status. They are either under statutory protection or administrative protection. The known built heritage exclusively includes the following:

i. **monuments declared by the Authority**: a place, building, site or structure which is declared to be a monument, historical building or archaeological or palaeontological site or structure under under section 3 of the Antiquities and Monuments Ordinance (Cap. 53) by the Authority (i.e. the Secretary for Development)[108] ; and included in the latest list of Declared Monuments in Hong Kong[109].

ii. **proposed monuments declared by the Authority**: a place, building, site or structure which is declared to be a proposed monument, proposed historical building, or proposed archaeological or palaeontological site or structure under section 2A of the Antiquities and Monuments Ordinance (Cap. 53) by the Authority (i.e. the Secretary for Development)[110]

iii. **grade 1 historic buildings assessed by the Antiquities Advisory Board**: as defined by the Antiquities Advisory Board, they are buildings of outstanding merit, which every effort should be made to preserve if possible.

iv. **grade 2 historic buildings assessed by the Antiquities Advisory Board**: as defined by the Antiquities Advisory Board, they are buildings of special merit; efforts should be made to selectively preserve.

v. **grade 3 historic buildings assessed by the Antiquities Advisory Board**: as defined by the Antiquities Advisory Board, they are buildings of some merit; preservation in some form would be desirable and alternative means should be considered if preservation is not practicable.

vi. **All sites, buildings / structures in the list of new items pending for grading assessment by the Antiquities Advisory Board**: currently under the latest *list of new items for grading assessment with grading results* pending for grading assessment by the Antiquities Advisory Board, and yet to be grading accorded.

[108] Hong Kong e-Legislation. Cap. 53 Antiquities and Monuments Ordinance. Retrieved from https://www.elegislation.gov.hk/hk/cap53.
[109] Antiquities and Monuments Office. *List of Declared Monuments and Proposed Monuments (as at 10 October 2024)*. Retrieved from https://www.amo.gov.hk/filemanager/amo/common/form/List%20of%20Declared%20Monuments%20and%20Proposed%20Monuments.pdf.
[110] Hong Kong e-Legislation. Cap. 53 Antiquities and Monuments Ordinance. Retrieved from https://www.elegislation.gov.hk/hk/cap53.

vii. **Government historic site identified by the Antiquities and Monuments Office**: under the *list of government historic site* maintained by the Antiquities and Monuments Office.

12.5.1.3 Unknown built heritage are the tangibles (buildings/structures/features/places/areas) that have not been identified and / or accorded with a status. They are not included under the known built heritage listed above. They would be assessing from perspectives of historical, architectural, cultural as well as group values[111]. Particular items would also be considered should they are excluded from the known built heritage listed above.

12.5.1.4 For the purpose of this report, unknown built heritage identified under this report are presented as other identified items. Their significance in cultural heritage are also presented.

12.5.2 Overview of Built Heritage and Other Identified Items Within the Assessment Area

TKO 137

12.5.2.1 One (1) declared monument, namely Site of Chinese Customs Station, Fat Tau Chau (DM18) is located outside the Project boundary but within the 300m assessment area of TKO 137. As this declared monument is an archaeological heritage, it has been discussed in **Section 12.6**.

12.5.2.2 No proposed monument, graded historic building or government historic site were identified within the Project boundary or its 300m assessment area.

12.5.2.3 No other identified item is located within the Project boundary or its 300m assessment area.

TKO 132

12.5.2.4 No declared monument, proposed monument, graded historic building or government historic sites were identified within the Project boundary. One (1) grade 2 historic building and one (1) grade 3 historic building were identified within the 300m assessment area but outside of the Project boundary.

12.5.2.5 In addition, there are four (4) other identified items located within the 300m assessment area but outside the Project boundary. A summary of built heritage and other identified items is presented in **Table 12.5.1**.

Fortifications at Devil's Peak (HB463) (Grade 2 Historic Building)

12.5.2.6 Fortifications at Devil's Peak is a group of military structures built at Devil's Peak during the early 20th century, which includes Pottinger Battery, Gough Battery, and Devil's Peak Redoubt. Pottinger Battery and Gough Battery were built came into operation in 1902-1903[112]. Pottinger Battery was named after Sir Henry Pottinger, the first governor of Hong Kong, while Gough Battery was named after Hugh Gough, Hong Kong's first general officer commanding. Each battery is equipped with two breech loaders, while underground magazines and bunkers were established surrounded the batteries[113]. The Redoubt on the summit was on the other hand constructed around 1914-1915 and served as a command

[111] Environmental Protection Department (2011). *Guidance Notes on Assessment of Impact on Sites of Cultural Heritage in Environmental Impact Assessment Studies*. Environmental Protection Department website. Retrieved from https://www.epd.gov.hk/eia/english/guid/cultural/basis.html.
[112] Antiquities Advisory Board. (2010). Historic Building Appraisal – Fortifications at Devil's Peak. Retrieved from https://www.aab.gov.hk/filemanager/aab/common/historicbuilding/en/463_Appraisal_En.pdf.
[113] 鄺智文與蔡耀倫（2018）。《東方堡壘：香港軍事史（1840 – 1970）》。香港：中華書局（香港）有限公司。

post[114]. Details of the Fortifications at Devil's Peak are presented in **Appendix 12.1 Built Heritage and Other Identified Item Recording Sheet No. 1**.

12.5.2.7 The significance in cultural heritage of Fortifications at Devil's Peak is noteworthy in terms of historical, architectural and group value. The fortifications at Devil's Peak serve as an indispensable part of Hong Kong's coastal defence, in particular, protecting the Victoria Harbour. They are excellent examples of British military facilities and have exhibited some fine features that are rarely seen in military installations. They contain group value with the other military installations at Devil's Peak.

Old Quarry Site Structures, Lei Yue Mun (Grade 3 Historic Building)

12.5.2.8 "Old Quarry Site Structures" in Lei Yue Mun is a group of thirteen (13) structures relating to the quarrying industry in Lei Yue Mun after war, such as a jetty, quays for the loading of vessels, stone huts. Details of Old Quarry Site Structures, Lei Yue Mun are presented in **Appendix 12.1 Built Heritage and Other Identified Item Recording Sheet No. 2**.

12.5.2.9 The significance in cultural heritage of the old quarry site structures at Lei Yue Mun is noteworthy in terms of historical and architectural perspective. The stone quarrying at Lei Yue Mun could be dated back to the 18th century. Despite the disturbance in World War II, the stone quarried at Lei Yue Mun had been used in many developments in Hong Kong, such as the seawall in front of North Point Estate. The quarry site serves as a remnant of an important local industry in Hong Kong. The existing quarry site structures provide insights to the prospecting and operation of a stone quarry. While many of the stone quarries in Hong Kong have been redeveloped and demolished, it is rare that a group of quarry structures remain for the public to appreciate.

Other Identified Items (Military Structures)

12.5.2.10 Four (4) other identified items were identified. They are the remains of different military installations at Devil's Peak, including coastal searchlight emplacements, a bunker and a pillbox. The construction year of these military structures is uncertain, probably before WWII. Most of them could be recognised in a 1945 aerial photo[115]. Details of these military structures are presented in **Appendix 12.1 Built Heritage and Other Identified Item Recording Sheet Nos. 3 to 6**

12.5.2.11 These military structures are mostly constructed of concrete or rock and in Utilitarian style. Situated along the slope of Devil's Peak, their strategic positioning enables monitoring of the eastern entrances of Victoria Harbour. Not only do these buildings/structures contain group value with other fortifications at Devil's Peak, but also survive as a witness of the defence of Hong Kong in the first half of the 20th century.

12.5.2.12 Records of built heritage and other identified items are presented in **Appendix 12.1**. Their locations are presented in **Figure 12.9**.

[114] Lai, L. W. C., Ho, D. C. W., & Yung, P. (2007). Survey of the Pottinger Battery. *Journal of the Royal Asiatic Society Hong Kong Branch*, *47*, 91–114

[115] Survey and Mapping Office. 1945. Digital Aerial Photo. 20000(ft). 681_6-4037. Survey and Mapping Office, Lands Department.

Table 12.5.1 Built Heritage and Other Identified Items within 300m Assessment Area of TKO 132

Ref. No.	Name	Status	Approximate Distance from the Project boundary
Built Heritage			
HB463	Fortifications at Devil's Peak – Pottinger Battery	Grade 2 Historic Building	295m
	Fortifications at Devil's Peak – Gough Battery		427m
	Fortifications at Devil's Peak – Redoubt		385m
HBN86	Old Quarry Site Structures, Lei Yue Mun	Grade 3 Historic Building	269m
Other Identified Items			
BH01	Bunker	No Status	228m
BH02	Northern Coastal Searchlight Emplacement	No Status	104m
BH03	Southern Coastal Searchlight Emplacement	No Status	221m
BH04	Pillbox (East of Pottinger Battery)	No Status	185m

12.5.3 Identification and Evaluation of Potential Impacts

Construction Phase

12.5.3.1 The Project has been designed to exclude any built heritage within its boundary in order to avoid or minimise any adverse impacts on them.

TKO 137

12.5.3.2 No declared monument, proposed monument, graded historic building or government historic sites were identified within the Project boundary and 300m assessment area. Therefore, no direct or indirect impact on built heritage would be anticipated during the construction phase.

TKO 132

12.5.3.3 No declared monument and proposed monument were identified within the Project boundary and 300m assessment area. No direct or indirect impact would be anticipated during the construction phase.

12.5.3.4 There are no graded historic buildings identified within the Project boundary, however, two graded historic buildings, namely Fortifications at Devil's Peak (grade 2 historic building, HB463) and Old Quarry Site Structures, Lei Yue Mun (grade 3 historic building, HBN86), are located within 300m assessment area. Due to the considerable distance between these two graded historic buildings and the Project boundary as presented in **Table 12.5.1**, no potential adverse impact is anticipated.

12.5.3.5 There are four other identified items located within 300m assessment area. Given the separation distance of more than 100m between the four (4) other identified items (namely Bunker (BH01), Northern Coastal Searchlight Emplacement (BH02), Southern Coastal Searchlight Emplacement (BH03) and Pillbox (East of Pottinger Battery) (BH04)) and the Project boundary, no adverse direct or indirect impact would be anticipated.

12.5.3.6 There is no change of water-table due to the works of the Project. Hence, no direct impact on the historic buildings and structures through change of water-table would be anticipated.

Operational Phase

12.5.3.7 No direct or indirect impact is anticipated by the Project during the operational phase to all the built heritage and other identified items in concern.

12.5.3.8 The two graded historic buildings, HB463 and HBN86, are located at least 269m away from the Project boundary. For HB463 located at the elevated locations at the hilltop of Devil's Hill, the existing views to the Project are screened by existing trees along the eastern hillside of Devil's Hill and the degree of visibility to the Project is glimpse. Hence, the visual impact is considered as negligible. For HBN86 at the waterfront location near Lei Yue Mun Point, there is panorama view facing to the Victoria Habour and Hong Kong Island in the South. The degree of visibility of HBN86 to the Project is glimpse as the viewing direction to TKO 132 is visually blocked by the natural terrain, and the viewing distance to TKO 137 is long (at least 2,500m). Therefore, the visual impact is considered as negligible. For the four other identified items, BH01, BH02, BH03 and BH04, they are located approximately 104m to 228m from the Project boundary. As they are not located along popular hiking trail, the number of public viewer is few and viewer sensitivity is low. In view of the long viewing distance from the Project boundary and the lack of known fungshui or visual corridor of the historic building within the assessment area, magnitude of visual change and the resultant visual impact is considered as negligible.

12.5.3.9 A summary of the potential adverse impacts on built heritage and other identified items is presented in **Table 12.5.2**.

Table 12.5.2 Summary of Impact Assessment Result on Built Heritage and Other Identified Items

Ref. No.	Name	Status	Approximate Distance from the Project boundary	Potential Impacts and Assessment
HB463	Fortifications at Devil's Peak – Pottinger Battery	Grade 2 Historic Building	295m	**No Impact**
	Fortifications at Devil's Peak – Gough Battery		427m	**No Impact**
	Fortifications at Devil's Peak – Redoubt		385m	**No Impact**
HBN86	Old Quarry Site Structures, Lei Yue Mun	Grade 3 Historic Building	269m	**No Impact**
BH01	Bunker	No Status	228m	**No Impact**
BH02	Northern Coastal Searchlight Emplacement	No Status	104m	**No Impact**
BH03	Southern Coastal Searchlight Emplacement	No Status	221m	**No Impact**
BH04	Pillbox (East of Pottinger Battery)	No Status	185m	**No Impact**

12.5.4 Mitigation Measures

12.5.4.1 As no adverse impact is anticipated to all the built heritage and other identified items in concern during the construction and operational phases, no mitigation measure is required.

12.5.5 Environmental Monitoring and Audit

12.5.5.1 As no adverse impact is anticipated to all the built heritage and other identified items in concern during the construction and operational phases, no environmental monitoring and audit (EM&A) is required.

12.6 Archaeological Impact Assessment

12.6.1 Terrestrial Archaeological Heritage

12.6.1.1 Terrestrial archaeological heritage are the places/areas of archaeological significance, or where the archaeological potential is considered noteworthy. The terrestrial archaeological heritage exclusively including the following:

i. **monuments declared by the Authority**: any place, building, site or structure which is declared to be a monument, historical building or archaeological or palaeontological site or structure under under section 3 of the Antiquities and Monuments Ordinance (Cap. 53) by the Authority (i.e. the Secretary for Development)[116]; and included in the latest list of Declared Monuments in Hong Kong[117].

ii. **site of archaeological interest in Hong Kong**: under the list of sites of archaeological interest in Hong Kong maintained by the Antiquities and Monuments Office.

iii. area of archaeological potential identified in previous studies and / or this Project, but not included in the item above.

12.6.2 Desktop Study for Terrestrial Archaeology

12.6.2.1 There is one (1) declared monument, namely Site of Chinese Customs Station, Fat Tau Chau (DM18) located outside the Project boundary but within the 300m assessment area of TKO 137. Also, three (3) Sites of Archaeological Interest (SAIs) are located within the 300m assessment area of TKO 137 but outside of the Project boundary. These SAIs include Fat Tau Chau SAI (SAI184), Fat Tau Chau House Ruin SAI (SAI185), and Fat Tau Chau Qing Dynasty Gravestone SAI (SAI186). The locations of terrestrial archaeological heritage are presented in **Figure 12.10**. The above terrestrial archaeological heritage are presented in **Table 12.6.1**.

12.6.2.2 On the other hand, there is no SAI or declared monument located within the Project boundary or the 300m assessment area of TKO 132.

Table 12.6.1 Declared Monument and Sites of Archaeological Interest in the 300m Assessment Area of the Project

Ref. No.	Name	Status	Approximate Distance from the Project boundary	Approximate Distance from the Development Area
DM18	Site of Chinese Customs Station, Fat Tau Chau	Declared Monument	173m away	245m away
SAI184	Fat Tau Chau SAI	SAI	165m away	234m away
SAI185	Fat Tau Chau House Ruin SAI	SAI	4m away	13m away
SAI186	Fat Tau Chau Qing Dynasty Gravestone SAI	SAI	290m away	373m away

[116] Hong Kong e-Legislation. Cap. 53 Antiquities and Monuments Ordinance. Retrieved from https://www.elegislation.gov.hk/hk/cap53.
[117] Antiquities and Monuments Office. *List of Declared Monuments and Proposed Monuments (as at 10 October 2024)*. Retrieved from https://www.amo.gov.hk/filemanager/amo/common/form/List%20of%20Declared%20Monuments%20and%20Proposed%20Monuments.pdf.

12.6.3 Evaluation of Terrestrial Archaeological Potential

TKO 137

12.6.3.1 Within the Project boundary, no declared monuments, proposed monuments, graded historic buildings or SAI have been identified. Within the 300m assessment area, one (1) declared monument, Site of Chinese Customs Station, Fat Tau Chau (DM18) is present. Three (3) Sites of Archaeological Interest (SAIs) are located within the assessment area but outside of the Project boundary, namely Fat Tau Chau SAI (SAI184), Fat Tau Chau House Ruin SAI (SAI185) and Fat Tau Chau Qing Dynasty Gravestone SAI (SAI186). Being listed as Sites of Archaeological Interest (SAIs), these three (3) SAIs are deemed to hold archaeological potential (**Section 12.4.3** refers).

12.6.3.2 While previous EIA studies have not covered the assessment area of TKO 137, its archaeological potential could be deduced through desktop analysis.

Comparison with Archaeological Sites in Similar Landscape Settings

12.6.3.3 Archaeological sites on outlying islands in Hong Kong that contain remains of human settlements during the prehistoric period are commonly found in coastal lower-lying area or on raised beaches. *Lung Kwu Chau* (龍鼓洲), Lamma Island and Cheung Chau[118] have provided substantial evidence in supporting the notion. Based on the observed settlement patterns of these islands, it is suggested that Fat Tau Chau would likely to follow a similar pattern. The discovery of a stone adze in 2004 indicates the possible / potential existence of prehistoric archaeological remains in the vicinity of Fat Tau Chau SAI (SAI184).[119] Hence, the coastal lowlands at the Fat Tau Chau SAI (SAI184), located to the northwest of the island but outside the Project boundary, holds significant archaeological potential in prehistorical period.

12.6.3.4 For historical period, traditional villages near TKO 137, such as *Sheung Sze Wan* (相思灣) in Sai Kung, shares a common featured landscape with Fat Tau Chau SAI (SAI184). The village was recorded in the *Map of the San-On District*[120]. It is characterised by relatively flat areas along coast and small hills. These traditional villages hold historical significance, as past human activities in these areas would have yielded abundant archaeological materials *in situ* or heirlooms. The landscape of *Sheung Sze Wan* and Fat Tau Chau SAI (SAI184) are both set behind the coast (indicated as "Qb" in geological maps) at approximately 6m to 13m and extended into solid geology of "gf", "rq", "JSS" and "JCB" (**Plate 16 and 17 in Appendix 12.3** refer). It supports the suitability of Fat Tau Chau SAI (SAI184) for human activities. The fact that this coastal low-lying area at the northwest of Fat Tau Chau being chosen for the establishment of customs station also supported the notion that its geological characteristics are preferred for human activities and settlements.

12.6.3.5 For the rest of the natural terrain of Fat Tau Chau, it is characterised by high elevation and steep slopes. Their elevation ranges from +8mPD to +102mPD, and their gradient varies from 4° to 40° respectively. There is a lack of freshwater resources (i.e. first river terrace, floodplain, river course), which is reflected by the absence of "Qa" (alluvium) on geological map (**Figure 12.2** refers). Areas with these characteristics are not favourable to human settlements during prehistoric and historical periods.

[118] 商志醰 、吳偉鴻 (2010) 。《**香港考古學敘研**》。北京：文物出版社。
[119] 香港古物古蹟辦事處（2007）《香港佛頭州遺址 2004 年考古調查簡報》。《華夏考古》第 4 期，頁 35-41。
[120] Volonteri, S. & Brockhaus, F. A . (1866). *Map of the San-On District, (Kwangtung Province) drawn from actual observations made by an Italian Missionary of the Propaganda in the course of his professional labors during a period of four years : being the first and only map hitherto published, May 1866 = Xin'an Xian quan tu* Retrieved May 2, 2024, from http://nla.gov.au/nla.obj-231220841.

Nature of Archaeological Findings at Fat Tau Chau

12.6.3.6 It is noted that the location of the three SAIs known at Fat Tau Chau has different settings. The customs operations on Fat Tau Chau is located at coastal lowland behind a beach (i.e. the Fat Tau Chau SAI (SAI184)) between +5mPD and +34mPD with a gradient ranging between 10° and 30°, while Fat Tau Chau House Ruin SAI (SAI185) is located on a slightly higher elevation on the southern tip of the Island at +37mPD on a 24° slope. Archaeological remains of Fat Tau Chau SAI (SAI 184) and Fat Tau Chau House Ruin SAI (SAI185) might be related to the Customs Station or other facilities.

12.6.3.7 During the site visits held on 25th January and 24th July 2024, attempts have been made to access areas of Fat Tau Chau Island that would be encroached by the Project boundary of TKO 137 and its assessment area. However, due to thick vegetation and steep slopes (**Plate 17 to Plate 20** of **Appendix 12.2** refer), the remains in the area could not be accessed. Hence this analysis relies on the best available information, with aerial photos[121] [122] and LiDAR (*Light Detection And Ranging*) images[123]. The structures in relation to the Customs Station at Fat Tau Chau were built on ground that had undergone some form of site formation, with LiDAR images of lighter areas showing straight-lined features for reference (**Figure 12.1**, and **Plate 18 to Plate 20** of **Appendix 12.3** refer). On the other hand, no such phenomenon was observed at other areas of Fat Tau Chau, including the areas within the Project boundary of TKO 137. Hence, any prominent and noticeable structures at grade that might be related to the Customs Station at Fat Tau Chau outside the known SAIs are considered unlikely based on the best available information. Nonetheless, it cannot rule out the archaeological potential that buried features in relation to custom station, as well as other facilities that cannot be identified from the ground.

12.6.3.8 On the other hand, Fat Tau Chau Qing Dynasty Gravestone SAI (SAI186) is located at approximately +53mPD and 8°. However, due to the small size of this grave, it is not visible on both aerial photos and LiDAR images. While the existing SAI186 is known to be the grave in relations to the death tolls of the *1874 Hong Kong Typhoon*, the short operational time of the Customs Station between 1869 and 1899 and the relatively non-eventful history of Fat Tau Chau during that period, any similar prominent remains located within the Project boundary of TKO 137 are unlikely. Due to the limitation of the site condition at the time of the preparation of this report, it is not possible to confirm through site inspection if relatively small size archaeological remains, or features of the Fat Tau Chau Customs Station and of other facilities would exist within the Project boundary of TKO 137 on Fat Tau Chau.

12.6.3.9 Yet, given the historical context and known archaeological sites of Fat Tau Chau, particularly concerning customs and military operations, the possibility of the presence of archaeological remains, or features within the Project boundary of TKO 137 on Fat Tau Chau cannot be entirely ruled out without confirmation of site inspection that is not viable at the time of the writing of this report.

Modern Development and the Disturbance to Archaeology of Fat Tau Chau

12.6.3.10 Furthermore, the northeastern part of Fat Tau Chau, the south-western coastline of Clear Water Bay Peninsular and northern coastline of Tit Cham Chau have also been largely

[121] Survey and Mapping Office. *Digital Orthophoto DOP1000-1963. T12-SW-11A.* Survey and Mapping Office, Lands Department.
[122] Survey and Mapping Office. *Digital Orthophoto DOP1000-1982. T12-SW-11A.* Survey and Mapping Office, Lands Department.
[123] Geotechnical Engineering Office, Civil Engineering and Development Department. Geotechnical Information Infrastructure. *Slope Gradient LiDAR*. Retrieved from https://ginfo.cedd.gov.hk/3DGInfo/index.html.

modified. The reclamation works in the 1990s [124] [125] have significantly altered the landscape of the area by connecting one another. The reclaimed land mainly consists of fill. The change in physical geography and landscape can be referred to **Section 12.4.1** while details are presented in **Appendix 12.3 Plate 2 to 9**. Archaeological deposit should have been removed or demolished, if any. Areas that have experienced large-scale site formation works or created by reclamation are not expected to host any terrestrial archaeological potential.

12.6.3.11 Based on the best available information at the time of the writing of this report, the area within the Project boundary of TKO 137 possesses low terrestrial archaeological potential. The aforementioned declared monument, i.e. Fat Tau Chau Customs Station and the three SAIs (SAIs 184, 185 and 186) located outside the Project boundary but within the 300m assessment area are deemed to have archaeological potential.

TKO 132

12.6.3.12 There is no Site of Archaeological Interest (SAI) identified within the Project boundary of TKO 132 or the corresponding 300m assessment area.

12.6.3.13 Previous EIA study (Agreement No. CE42/2008 (CE) Tseung Kwan O – Lam Tin Tunnel and Associated Works – Investigation Working Paper on Terrestrial Archaeological Review and Marine Archaeological Investigation (Final)[126]) has conducted desktop study to assess the archaeological potential of the area of TKO 132. Based on these analyses, it has been determined that the area of TKO 132 has no terrestrial archaeological potential due to the environmental factors (high gradients and hilly terrain landscape) and previous quarrying activities in the area.

12.6.3.14 With reference to previous archaeological findings from prehistoric period in Hong Kong, archaeological sites from prehistoric period are usually identified on the relatively flat area on coastal beaches in the western Hong Kong near the *Zhujiang* river estuary[127]. *Lung Kwu Chau*, *Tai Wan* (Lamma Island), *Man Kwok Tsui* (萬角咀), etc. are some examples of prehistoric archaeological sites with the mentioned landscape. However, the Project boundary of TKO 132 is in hilly terrain landscape with steep slopes (gradient >27º) [128] (**Figure 12.11** refers). The landscape of the Project boundary of TKO 132 is not similar to those known prehistoric archaeological sites. Therefore, the Project boundary of TKO 132 does not hold terrestrial archaeological potential in prehistoric period.

12.6.3.15 Previous archaeological findings from historical period in Hong Kong also reflects that gentle hillslopes on coastal areas, small hillocks and relatively flat areas on river terraces are preferred for human settlements in historical period[129]. *Mong Tseng* Wai (輞井圍), *Tai Hom Tsuen* (大磡村) and *Chok Ko Wan* (竹篙灣), etc. are some examples of historical archaeological sites with the mentioned landscape. However, as abovementioned, the

[124] Survey and Mapping Office, Lands Department. (1989). Topographic Map in 1989 [map]. 1:1,000. 12-SW-11B. Survey and Mapping Office, Lands Department.
Survey and Mapping Office, Lands Department. (1996). Topographic Map in 1996 [map]. 1:1,000. 12-SW-11B. Survey and Mapping Office, Lands Department.
[125] Survey and Mapping Office, Lands Department. (1994). Topographic Map in 1994 [map]. 1:1,000. 12-SW-6D. Survey and Mapping Office, Lands Department.
Survey and Mapping Office, Lands Department. (1996). Topographic Map in 1996 [map]. 1:1,000. 12-SW-6D. Survey and Mapping Office, Lands Department.
Survey and Mapping Office, Lands Department. (1998). Topographic Map in 1998 [map]. 1:1,000. 12-SW-6D. Survey and Mapping Office, Lands Department.
[126] Civil Engineering and Development Department. Working Paper on Terrestrial Archaeological Review and Marine Archaeological Investigation (Final) (Agreement No. CE42/2008 (CE)). Civil Engineering and Development Department.
[127] 商志醰、吳偉鴻 (2010)。《香港考古學敘研》。北京：文物出版社。
[128] Civil Engineering and Development Department. (2013). *Tseung Kwan O – Lam Tin Tunnel and Associated Works (Agreement No. CE42/2008 (CE)).* 9 Impact on Cultural Heritage. Retrieved from https://www.epd.gov.hk/eia/register/report/eiareport/eia_2102013/index.htm.
[129] *Ibid.*

Project boundary of TKO 132 is in a hilly terrain landscape with steep slopes, which is not similar to those known historical archaeological sites. Hence, it can be observed that the Project boundary of TKO 132 is not favourable for historical settlements.

12.6.3.16 According to the 1998 archaeological survey conducted in *On Luen Village* (**Section 12.4.3.17** refers), the excavations had found no archaeological deposits. It was thus concluded there was no earlier cultural remain as the village was developed by new migrants after WWII. Additionally, according to an anonymous local informant, *On Luen Village* was built by the villagers crushing and cutting stones from the hill in the area. These quarrying activities in the area have caused heavy disturbances in which the surface soil had been removed. Therefore, those areas are considered to have no terrestrial archaeological potential. Moreover, part of the Project boundary of TKO 132 (at the east of *Chiu Keng Wan Shan*) is located on reclaimed land (**Plate 11**, **Plate 14** and **Plate 15** of **Appendix 12.3** refer). It is not expected to host any terrestrial archaeological potential in the reclamation area.

12.6.3.17 In conclusion, the Project boundary of TKO 132 has no terrestrial archaeological potential. No archaeological investigation is required.

12.6.4 Identification and Evaluation of Potential Impacts on Terrestrial Archaeology

12.6.4.1 The following discussion on the impact to archaeology are based on their relations to the Project boundary and Recommended Outline Development Plan (RODP).

Construction Phase

12.6.4.2 Since there is no declared monument and SAI within the Project boundary of TKO 137 and TKO 132, no direct impact on them is anticipated during the construction phase.

12.6.4.3 For the areas within the Project boundary of TKO 137, they are considered to have low archaeological potential based on the desktop review that the topography did not favour residential settlements and there is a lack of evidence to indicate the existence of prominent and noticeable remains within the Project boundary of TKO 137 based on the best available information (**Sections 12.6.3.3 to 12.6.3.512.6.3.9** refer). Yet, given the historical context and known archaeological sites of Fat Tau Chau, particularly concerning customs and military operations, the possibility of the presence of archaeological remains or features within the Project boundary of TKO 137 on Fat Tau Chau cannot be entirely ruled out without confirmation of site inspection that is not viable at the time of writing of this report. However, since the detailed design on the proposed development within the Project boundary of TKO 137 on Fat Tau Chau has not been available, the extent of impact to the areas of low archaeological potential could not be assessed. Due to the importance of Fat Tau Chau in relation to the history of Customs Station, to ensure the preservation of archaeological heritage within the Project boundary of TKO 137 on Fat Tau Chau, this AIA would consider that there would possibly be potential impact during the construction phase from the archaeological preservation perspective. Mitigation measure is suggested in later sections (**Section 12.6.5.1** refers).

12.6.4.4 For the areas within the Project boundary of TKO 132, they are considered to have no terrestrial archaeological potential based on both desktop review and site visits results. Therefore, no direct impact is anticipated on terrestrial archaeology during the construction phase.

12.6.4.5 For the coastal lowlands at the Fat Tau Chau SAI, it is located to the northwest of the island but fall outside the Project boundary of TKO 137. As no works will be carried out outside the Project boundary, no impact from the Project is anticipated in construction phase.

12.6.4.6 Fat Tau Chau House Ruin SAI (SAI185) is a site located on the cliff with an elevation at about +20 mPD. The site is located about 13m from the Development Area of TKO 137 RODP (**Figure 12.10** refers) and 4m from the Project boundary. Therefore, no direct impact is anticipated to Fat Tau Chau House Ruin SAI (SAI185). However, indirect impact of ground borne vibration, tilting and settlement on Fat Tau Chau House Ruin SAI (SAI185) would be anticipated during the construction phase. Considering Fat Tau Chau House Ruin (SAI185) is situated just outside the Project boundary of TKO 137, details regarding the land use proposed in TKO 137 RODP near SAI185 are presented in the **Table 12.6.2.**

12.6.4.7 For Site of Chinese Customs Station, Fat Tau Chau (DM18), Fat Tau Chau SAI (SAI184) and Fat Tau Chau Qing Dynasty Gravestone SAI (SAI186), they are located over 150m from the Project boundary of TKO 137 (**Figure 12.10** refers). Considering there are sufficient separation distances between the archaeological heritage and the Project boundary, no direct or indirect impact is anticipated.

Operational Phase

12.6.4.8 No direct or indirect impact is anticipated by the Project on terrestrial archaeology during the operational phase within the Project boundary of TKO 137 and TKO 132.

12.6.4.9 Since Site of Chinese Customs Station, Fat Tau Chau (DM18), Fat Tau Chau SAI (SAI184), Fat Tau Chau House Ruin SAI (SAI185) and Fat Tau Chau Qing Dynasty Gravestone SAI (SAI186) are located outside the Project boundary, no direct or indirect impact is anticipated during the operational phase.

Table 12.6.2 Proposed Land Use in TKO 137 RODP near Fat Tau Chau House Ruin SAI (SAI185)

Concerned Proposed Land Use (Zoning)	Site Reference No.	Approximate Distance from Fat Tau Chau House Ruin SAI (SAI185)	Site Area (sqm)	Proposed Building Height Restriction (mPD)
Open Space (O)	O1	13m	29,239	/
Private Housing – Zone 1 (R1)	PR1	60m	45,362	200
Other Specified Uses (OU)	OU6	170m	3,360	80

12.6.5 Mitigation Measures for Terrestrial Archaeology

Construction Phase

12.6.5.1 Since there is no declared monument and SAI identified within the Project boundary of TKO 137 and TKO 132, no direct impact on them is anticipated during the construction phase. The indirect impact on them, however, has to be reviewed when the design of the proposed development is available. For areas of Fat Tau Chau within the Project boundary of TKO 137, this AIA has reviewed the area to have low archaeological potential (**Sections 12.6.3.6 to 12.6.3.9** refer) based on desktop review (**Sections 12.3.1.6 to 12.3.1.9** refer), while site visits dated 25th January and 24th July 2024 were hindered by a lack of safe access and thick vegetation coverage over the steep slopes. While it is unlikely to have any prominent and noticeable remains related to the custom station at grade located within the Project boundary of TKO 137, it is not possible to confirm whether archaeological remains or features of the Fat Tau Chau Customs Station and other facilities below ground would exist within the Project boundary of TKO 137. To ensure that no archaeological resources related to the Customs Station or other facilities on Fat Tau Chau would be affected by the Project, an Archaeological Impact Assessment should be undertaken during the detailed design

phase when the details of the proposed works on Fat Tau Chau are available. This Archaeological Impact Assessment at the detailed design phase shall assess the archaeological potential concerning the existence of remains or features in relation to the Customs Stations or other facilities within the Project boundary of TKO 137 on Fat Tau Chau, particularly in areas that would be affected by the proposed works. Based on the details and extent of proposed works to be carried out on Fat Tau Chau, the Archaeological Impact Assessment at the detailed design phase would propose appropriate measures, if any impact on archaeological heritage is identified, for consideration and agreement by AMO. The Archaeological Impact Assessment at the detailed design phase shall be conducted by an archaeologist. It shall incorporate desktop information, site inspection results and recommendation of appropriate mitigation measures, namely change of work design, preservation of archaeological heritage *in-situ*, preservation by relocation, archaeological survey cum excavation or rescue excavation, archaeological watching brief or preservation by record subject to the level of potential impacts to be confirmed in the Archaeological Impact Assessment at detailed design phase upon availability of the details and extent of the proposed works to be carried out on Fat Tau Chau, as necessary for consideration and agreement by AMO. This Archaeological Impact Assessment at the detailed design phase should be conducted by the project proponent. In the light of the above considerations, no adverse impact would be anticipated with mitigation measures agreed by AMO and implemented to the satisfaction of AMO to ensure preservation of the archaeological heritage within the Project boundary of TKO 137 on Fat Tau Chau.

12.6.5.2 Furthermore, if antiquities or supposed antiquities under the Antiquities and Monuments Ordinance (Cap. 53) are discovered during the construction works within the Project boundary of TKO 137 and TKO 132, the project proponent is required to inform AMO immediately for discussion of appropriate mitigation measures to be agreed by AMO before implementation by the project proponent to the satisfaction of AMO.

12.6.5.3 Regarding indirect impact, and with reference to **Figure 12.10**, there are sufficient separation distances between the Project boundary and the Site of Chinese Customs Station, Fat Tau Chau (DM18), Fat Tau Chau SAI (SAI184) and Fat Tau Chau Qing Dynasty Gravestone SAI (SAI186). Therefore, no direct or indirect impacts on these sites are anticipated during the construction phase, and no mitigation measures are required.

12.6.5.4 Concerning the Fat Tau Chau House Ruin SAI (SAI185) which is in close proximity to the Project boundary, indirect impact is anticipated if construction works are carried out nearby. Therefore, the following mitigation measures are proposed for the construction phase.

(1) Monitoring of ground-borne vibration, tilting and ground settlement

12.6.5.5 A condition and structural survey, as well as a baseline vibration review shall be conducted for construction works located in close proximity to the Fat Tau Chau House Ruin SAI (SAI185) (**Figure 12.12** refers), namely:

1) Reclamation of Phase 1B and Construction of Box Culvert and Seawall Outfall Works;
2) Reclamation of Phase 1C;
3) TKO 137 Infrastructure Works (O1) (should there be considerable piling works or works that would create strong ground-borne vibration occurred);
4) TKO 137 Infrastructure Works (O6);
5) Site Formation and Site Development of Service Reservoirs (OU5 and OU6); and
6) Site Development of PR1 including Permanent PTI/TIH (PR1).

12.6.5.6 Condition and structural survey should be carried out for Fat Tau Chau House Ruin SAI (SAI185) both before and after all construction works to inspect its physical condition and

structural integrity. The surveys shall be undertaken by registered structural engineers or heritage specialists. The methodology for the condition and structural surveys shall be proposed by the registered structural engineers or heritage specialist. The results of the pre-construction condition survey shall form a baseline and taken into consideration when formulating the monitoring strategy. The pre- and post- condition survey reports should be submitted for AMO's record.

12.6.5.7 Based on the pre-construction condition and structural survey results and construction details, the baseline vibration review before the construction phase shall evaluate if monitoring of ground-borne vibration, tilting and ground settlement is required for Fat Tau Chau House Ruin SAI during the construction phase. The baseline vibration review should be submitted to AMO for comment and agreement before implementation. Any vibration and building movement induced from the construction works should be strictly monitored to ensure no disturbance and physical damages made to the heritage sites during the course of works. If monitoring of ground-borne vibration is required, a monitoring proposal, including vibration limit, type of monitoring, checkpoint locations, installation details and frequency of monitoring should be submitted by contractor to AMO for agreement before commencement of the works. Prior agreement and consent should be sought from the owner(s), stakeholder(s) and relevant Government department(s) for the installation of monitoring points on the archaeological heritage before commencement of the works. Should the monitoring data be approaching to the vibration limit, the contractor shall propose measures to mitigate movement situation at the heritage site for consideration by AMO and implement on site, with examples, not limited to, increasing monitoring frequency, additional condition surveys, amendment / review of design of the construction, etc., so that the concerned archaeological heritage would be protected and preserved. AMO should be informed immediately should irregularities be observed.

(2) Dust Suppression

12.6.5.8 Due to the close proximity of the Fat Tau Chau House Ruin SAI (SAI185) to the Project boundary, dust from the works area might have potential impact. Air Pollution Control (Construction Dust) Regulation shall be followed.

12.6.5.9 Dust suppression measures and good site practice as detailed in **Section 3** should be observed by the project proponent during the construction phase in order to avoid dust accumulation on Fat Tau Chau House Ruin SAI (SAI185).

(3) Buffer Zone

12.6.5.10 Fat Tau Chau House Ruin SAI (SAI185) is located outside of the Project boundary and Development Area of TKO 137. To ensure no construction workers or equipment will be in contact with the archaeological heritage directly, a buffer zone should be reserved during the construction phase of the Project to safeguard Fat Tau Chau House Ruin SAI (SAI185). The buffer zone should be established in the form of physical barrier to separate the works area from the concerned structures. No works shall be allowed within the buffer zone. No workers or any construction related equipment and materials should trespass the buffer zone to avoid direct contact with Fat Tau Chau House Ruin SAI (SAI185). It is suggested that the buffer zone should be of 10m from the concerned SAI or as practical as possible. Considering the challenging terrain of the environment nearby, implementation details shall be proposed by the contractor and agreed with AMO prior to commencement of the proposed works.

Operational Phase

12.6.5.11 As no adverse impact on any terrestrial archaeology potential within the Project boundary of TKO 137 and TKO 132 in concern during the operational phase, no mitigation measure is required.

12.6.5.12 No mitigation measure is required for Site of Chinese Customs Station, Fat Tau Chau (DM18), Fat Tau Chau SAI (SAI184), Fat Tau Chau House Ruin SAI (SAI185) and Fat Tau Chau Qing Dynasty Gravestone SAI (SAI186) during the operational phase.

12.6.5.13 A summary of potential impact and proposed mitigation measures on terrestrial archaeological heritage is presented in **Table 12.6.3.**

Table 12.6.3 Summary of Potential Impact and Proposed Mitigation Measures on Terrestrial Archaeological Heritage

Ref. No.	Name	Status	Potential Impact Anticipated		Recommended Mitigation Measures
			Construction Phase	Operational Phase	
DM18	Site of Chinese Customs Station, Fat Tau Chau	Declared Monument	No impact is anticipated due to the sufficient separation distance between the archaeological heritage and the Project boundary.	No Impact	No mitigation measures are required during construction phase and operational phase.
SAI184	Fat Tau Chau SAI	Site of Archaeological Interest (SAI)	No impact is anticipated due to the sufficient separation distance between the archaeological heritage and the Project boundary.	No Impact	No mitigation measures are required during construction phase and operational phase.
SAI185	Fat Tau Chau House Ruin SAI	Site of Archaeological Interest (SAI)	Located approximately 4m from the Project boundary and approximately 13m from the Development Area. No direct impact is anticipated. Potential adverse indirect impact of ground-borne vibration, tilting and ground settlement is anticipated.	No Impact	1. Condition and structural survey should be carried out both before and after all construction works to inspect its physical condition and structural integrity. Based on the pre-construction condition and structural survey results and the details of construction works to be carried out in close proximity of the archaeological heritage, a baseline vibration review before the construction phase shall be conducted to evaluate if monitoring of ground-borne vibration, tilting and ground settlement is necessary. The baseline vibration review should be submitted to AMO for comment and agreement before implementation. If affirmative, monitoring of ground-borne vibration, tilting and ground settlement should be conducted during the construction phase. Should the monitoring data be approaching to the vibration limit, the contractor shall propose measures to mitigate movement situation at the heritage site for consideration by AMO and implement on site. 2. Air Pollution Control (Construction Dust) Regulation shall be followed. Dust suppression measures and good site practice should be observed. 3. A buffer zone shall be set up in form of physical barrier during the proposed construction works to separate the works areas from the structure. No works shall be allowed within the protective zone. No worker or any construction related equipment(s) and material(s) should trespass the protective zone. No mitigation measure is required during the operational phase.

Ref. No.	Name	Status	Potential Impact Anticipated		Recommended Mitigation Measures
			Construction Phase	Operational Phase	
SAI186	Fat Tau Chau Qing Dynasty Gravestone SAI	Site of Archaeological Interest (SAI)	No impact is anticipated due to the sufficient separation distance between the archaeological heritage and the Project boundary.	No Impact	No mitigation measures are required during construction phase and operational phase.
/	Area Within Project boundary	/	As no declared monument, SAI is located within the Project boundary, no impact to them is anticipated. No terrestrial archaeological potential for the areas within the Project boundary of TKO 132. No direct impact is anticipated. Based on the best available information at the time of the writing of this report, the area within the Project boundary of TKO 137 possesses low terrestrial archaeological potential. Due to the importance of Fat Tau Chau in relation to the history of Customs Station, to ensure the preservation of archaeological heritage within the Project boundary of TKO 137 on Fat Tau Chau, this AIA would consider there would possibly be potential impact to terrestrial archaeology for areas within the Project boundary of TKO 137. No adverse impact would be anticipated with mitigation measures agreed by AMO and implemented to the satisfaction of AMO during construction phase.	No impact	1. To ensure that no archaeological resources related to the Customs Station or other facilities on Fat Tau Chau would be affected by the Project, an Archaeological Impact Assessment should be undertaken during the detailed design phase when the details of the proposed works on Fat Tau Chau are available. This Archaeological Impact Assessment at the detailed design phase shall assess the archaeological potential concerning the existence of remains or features in relation to the Customs Stations or other facilities within the Project boundary of TKO 137 on Fat Tau Chau, particularly in areas that would be affected by the proposed works. Based on the details and extent of proposed works to be carried out on Fat Tau Chau, the Archaeological Impact Assessment at the detailed design phase would propose appropriate measures, if any impact on archaeological heritage is identified, for consideration and agreement by AMO. The Archaeological Impact Assessment at the detailed design phase shall be conducted by an archaeologist. It shall incorporate desktop information, site inspection results and recommendation of appropriate mitigation measures, namely change of work design, preservation of archaeological heritage *in-situ*, preservation by relocation, archaeological survey cum excavation or rescue excavation, archaeological watching brief or preservation by record subject to the level of potential impacts to be confirmed in the Archaeological Impact Assessment at detailed design phase upon availability of the details and extent of the proposed works to be carried out on Fat Tau Chau, as necessary for consideration and agreement by AMO. This Archaeological Impact Assessment at the detailed design phase should be conducted by the project proponent. In the light of the above considerations, no adverse impact would be anticipated with mitigation measures agreed by AMO and implemented to the satisfaction of AMO to ensure preservation of the archaeological heritage within the Project boundary of TKO 137 on Fat Tau Chau. 2. If antiquities or supposed antiquities under the Antiquities and Monuments Ordinance (Cap. 53) are discovered during the construction works within the Project boundary of TKO 137 and

Ref. No.	Name	Status	Potential Impact Anticipated		Recommended Mitigation Measures
			Construction Phase	Operational Phase	
					TKO 132, the project proponent is required to inform AMO immediately for discussion of appropriate mitigation measures to be agreed by AMO before implementation by the project proponent to the satisfaction of AMO. No mitigation measure is required during the operational phase.

12.6.6 Environmental Monitoring and Audit for Terrestrial Archaeology

Construction Phase

12.6.6.1 As indicated in **Figure 12.10**, there are sufficient separation distances between the Project boundary and the Site of Chinese Customs Station, Fat Tau Chau (DM18), Fat Tau Chau SAI (SAI184) and Fat Tau Chau Qing Dynasty Gravestone SAI (SAI186). Hence, no direct or indirect impact is anticipated during the construction phase and no environmental monitoring and audit is required.

12.6.6.2 Based on the best available information at the time of the writing of this report, the area within the Project boundary of TKO 137 possesses low terrestrial archaeological potential. Given the importance of Fat Tau Chau in relation to the history of Customs Station, this AIA would consider there would possibly be potential impact during construction phase. To ensure no archaeological resource related to the Customs Station or other facilities on Fat Tau Chau would be affected by the Project, an Archaeological Impact Assessment should be conducted during the detailed design phase as detailed in **Section 12.6.5.1**.

12.6.6.3 As the Fat Tau Chau House Ruin SAI (SAI185) is located in close proximity to the Project boundary, indirect impact is anticipated if construction works are carried out nearby, mitigation measures are recommended to protect this heritage site as detailed in **Section 12.6.5**. EM&A is required to ensure the implementation of these mitigation measures.

Operational Phase

12.6.6.4 As no adverse impacts on any terrestrial archaeology within the Project boundary of TKO 137 and TKO 132 in concern during the operational phase is anticipated, no EM&A is required.

12.6.6.5 As no mitigation measure is required for Site of Chinese Customs Station, Fat Tau Chau (DM18), Fat Tau Chau SAI (SAI184), Fat Tau Chau House Ruin SAI (SAI185) and Fat Tau Chau Qing Dynasty Gravestone SAI (SAI186) during the operational phase, no EM&A is required.

12.7 Marine Archaeological Investigation

12.7.1 Summary of Marine Archaeology Investigation

12.7.1.1 The MAI for the Project was conducted by SDA Marine Ltd. in collaboration with the marine archaeologist, Dr Michael Walsh of Coracle Archaeology Ltd., in accordance with the Guidelines for Marine Archaeological Investigation in Appendix K-1 of the EIA Study Brief (No. ESB-360/2023). The findings and recommendations of the MAI are summarized below and detailed in the MAI Report as provided in **Appendix 12.4**.

Baseline Review

12.7.1.2 A baseline review was conducted under the MAI based on the previous geophysical surveys and MAI studies, available archaeological and historical sources. The review shows that the Project would be undertaken in an area that had considerable maritime activity in the past. The marine archaeological potential of the area is therefore considered to be high.

12.7.1.3 No known shipwrecks are present within the study area. Two wrecks close to the study area on the southwestern side of Junk Bay where it meets the Tathong Channel were previously reported but subsequently removed. In addition, the area has undergone significant

modification in the more recent time due to land reclamation, dredging and construction activities. This might have a significant negative effect on any marine archaeological resources, if present.

12.7.1.4 A review of previous geophysical surveys and MAIs shows that all identified anomalies investigated by diver surveys under the MAIs have been confirmed to be modern items, such as dumped debris. All the MAIs have also highlighted that extensive seabed disturbance within Junk Bay caused by activities such as anchoring and construction which reduces the chance of finding well-preserved archaeological material on the seabed.

Geophysical Survey and Marine Archaeological Review

12.7.1.5 Geophysical surveys were conducted under the Project in November 2022 and January 2024. The survey results were passed on to SDA Marine / Coracle Archaeology for marine archaeological review.

12.7.1.6 Archaeological assessment of the geophysical survey data identified 296 anomalies, including 107 sidescan sonar (SSS) contacts and 189 magnetic contacts, distributed throughout the survey areas. No anomalies of high archaeological potential were identified. Of these, 60 anomalies, comprising 41 SSS and 19 magnetic contacts, were assessed to be of medium archaeological potential. As three of the anomalies were located more than 300m from the boundary of marine works at the time of investigation, a total of 57 anomalies were selected for further investigation by diver survey.

Diver Survey

12.7.1.7 The diver surveys were carried out in July 2024 upon the Licence to Excavate and Search for Antiquities.

12.7.1.8 All 57 anomalies were positively identified during the diver survey. They comprised geological features, fishing gear, detritus associated with modern construction activities and dumped modern detritus. None of the targets inspected during the diver survey was considered to be of archaeological or historical significance. No further investigation is considered necessary.

12.7.2 Impact Assessment for Marine Archaeology

12.7.2.1 The diver survey results show that none of the targets was considered to be of archaeological or historical significance and no further investigations are required. Therefore, no impact on marine archaeology is anticipated from the construction and operation of the Project.

12.7.2.2 Following the geophysical and diver surveys, adjustments to the Project boundary have resulted in minor data gaps and one uninvestigated anomaly. Given that the areas with data gaps and the uninvestigated anomaly are located at least approximately 225m outside the marine works boundary of the Project, no marine archaeological impact is anticipated. Nevertheless, as a precautionary measure, it is recommended to designate these locations as archaeological exclusion zones (AEZs) during the marine works of the Project. The aim of an AEZ is to exclude activities that disturb the seabed within the exclusion zone, thereby protecting potential archaeological assets from accidental damage. This will ensure no impact on the seabed in these locations from anchoring of work vessels during the marine works of the Project. The AEZs shall comprise the gaps with no Project-specific or previous geophysical survey coverage: a strip c. 50-75m wide along the eastern edge of the 300m assessment area of TKO 132, the northern part of the Fat Tong Chau gap and eastern part of the Tit Tam Chau gap. An anomaly-specific AEZ is recommended to be placed around SSS anomaly B1-SC004 (a scatter) in a form of a circle of 15m radius centred on the

anomaly. Details of the proposed AEZs are provided in **Appendix 12.4**. The extent of the AEZs is illustrated in **Figure 12.13**.

12.7.3 Mitigation Measures for Marine Archaeology

12.7.3.1 As no impact on marine archaeology is anticipated from the Project, no mitigation measures are required. Nevertheless, as mentioned in **Section 12.7.2.2**, AEZs are recommended as a precautionary measure during the marine works of the Project, to ensure no impact on the seabed from anchoring of work vessels during the marine works of the Project in the areas with data gaps and the uninvestigated anomaly.

12.7.4 Environmental Monitoring and Audit for Marine Archaeology

12.7.4.1 As no impact on marine archaeology would be anticipated from the Project during both the construction and operational phases, no mitigation measures have been recommended. Nevertheless, as a precautionary measure, it has been recommended to designate the areas with data gaps and the uninvestigated anomaly as exclusion zones during the marine works of the Project to ensure no impact on the seabed in these locations.

12.8 Conclusion

12.8.1 Built Heritage Impact Assessment

12.8.1.1 No declared monument, proposed monument, graded historic building or government historic sites were identified within the Project boundary of TKO 137 or TKO 132.

12.8.1.2 Fortifications at Devil's Peak (grade 2 historic building, HB463) and Old Quarry Site Structures, Lei Yue Mun (grade 3 historic building, HBN86) were identified within the 300m assessment area but outside the Project boundary of TKO 132. Meanwhile, four (4) other identified items are located within the 300m assessment area but outside the Project boundary of TKO 132.

12.8.1.3 No adverse impact is anticipated on Fortifications at Devil's Peak (grade 2 historic building, HB463) or Old Quarry Site Structures, Lei Yue Mun (grade 3 historic building, HBN86), as well as the four other identified items in concern. As a result, no mitigation measure is required for built heritage and other identified items.

12.8.2 Archaeological Impact Assessment

12.8.2.1 There is one (1) declared monument, namely Site of Chinese Customs Station, Fat Tau Chau (DM18) located outside the Project boundary but within the 300m assessment area of TKO 137. Also, three (3) Sites of Archaeological Interest (SAIs) are located outside the Project boundary but within the 300m assessment area of TKO 137. These SAIs include Fat Tau Chau SAI (SAI184), Fat Tau Chau House Ruin SAI (SAI185), and Fat Tau Chau Qing Dynasty Gravestone SAI (SAI186). On the other hand, there is no SAI located within the Project boundary or the 300m assessment area of TKO 132.

12.8.2.2 The coastal lowlands at the Fat Tau Chau SAI, located to the northwest of the island but outside the Project boundary of TKO 137, may hold archaeological potential for having environment settings that are favourable to prehistoric settlements. For areas of Fat Tau Chau within the Project boundary of TKO 137, this AIA reviewed the area to have low archaeological potential (Sections **12.6.3.6** to **12.6.3.9** refer) based on desktop review (Sections **12.3.1.6** to **12.3.1.9** refer) while site visits dated 25th January and 24th July 2024 were hindered by lack of safe access and thick vegetation coverage over the steep slopes. However, while it is unlikely to have any prominent and noticeable remains located within

the Project boundary of TKO 137, it is not possible to confirm whether archaeological remains or features of the Fat Tau Chau Customs Station and other facilities below ground would exist within the Project boundary of TKO 137 at the time of the writing of this report.

12.8.2.3 Since no declared monument and SAI within the Project boundary of TKO 137 and TKO 132, no direct impact on them is anticipated during the construction phase or operational phase.

12.8.2.4 Also, no works under this Project are in close proximity to the Site of Chinese Customs Station, Fat Tau Chau (DM18), Fat Tau Chau SAI (SAI184) and Fat Tau Chau Qing Dynasty Gravestone SAI (SAI186), no impact is anticipated on these three heritage sites during construction phase or operational phase. Hence no mitigation measure is required.

12.8.2.5 For the areas within the Project boundary of TKO 132, they are considered to have no terrestrial archaeological potential based on both desktop review and site visits results. Therefore, no direct impact is anticipated on terrestrial archaeology during the construction phase.

12.8.2.6 For the areas within the Project boundary of TKO 137, they possess low terrestrial archaeological potential. Due to the importance of Fat Tau Chau in relation to the history of Customs Station, but the detailed design on the proposed development within the Project boundary of TKO 137 on Fat Tau Chau has not been available, the extent of impact to the areas of low archaeological potential could not be assessed. To ensure the preservation of archaeological heritage within the Project boundary of TKO 137 on Fat Tau Chau, this AIA would consider there would possibly be potential impact from the archaeological preservation perspective.

12.8.2.7 To ensure that no archaeological resources related to the Customs Station or other facilities on Fat Tau Chau would be affected by the Project, an Archaeological Impact Assessment should be undertaken during the detailed design phase when the details of the proposed works on Fat Tau Chau are available. This Archaeological Impact Assessment at the detailed design phase shall assess the archaeological potential concerning the existence of remains or features in relation to the Customs Stations or other facilities within the Project boundary of TKO 137 on Fat Tau Chau, particularly in areas that would be affected by the proposed works. Based on the details and extent of proposed works to be carried out on Fat Tau Chau, the Archaeological Impact Assessment at the detailed design phase would propose appropriate measures, if any impact on archaeological heritage is identified, for consideration and agreement by AMO. The Archaeological Impact Assessment at the detailed design phase shall be conducted by an archaeologist. It shall incorporate desktop information, site inspection results and recommendation of appropriate mitigation measures, namely change of work design, preservation of archaeological heritage *in-situ*, preservation by relocation, archaeological survey cum excavation or rescue excavation, archaeological watching brief or preservation by record subject to the level of potential impacts to be confirmed in the Archaeological Impact Assessment at detailed design phase upon availability of the details and extent of the proposed works to be carried out on Fat Tau Chau, as necessary for consideration and agreement by AMO. This Archaeological Impact Assessment at the detailed design phase should be conducted by the project proponent. In the light of the above considerations, no adverse impact would be anticipated with mitigation measures agreed by AMO and implemented to the satisfaction of AMO to ensure preservation of the archaeological heritage within the Project boundary of TKO 137 on Fat Tau Chau.

12.8.2.8 Furthermore, if antiquities or supposed antiquities under the Antiquities and Monuments Ordinance (Cap. 53) are discovered during the construction works within the Project boundary of TKO 137 and TKO 132, the project proponent is required to inform AMO immediately for discussion of appropriate mitigation measures to be agreed by AMO before implementation by the project proponent to the satisfaction of AMO.

12.8.2.9 In addition, Fat Tau Chau House Ruin SAI (SAI185) is an above-ground structures situated in close proximity to the Project boundary of TKO 137. While no direct impact is anticipated to the site, indirect impacts of ground borne vibration, tilting and settlement would be anticipated for during the construction phase, subject to the details of the construction works of future development in the proximity.

12.8.2.10 Condition and structural survey should be carried out for Fat Tau Chau House Ruin SAI (SAI185) both before and after all construction works to inspect its physical condition and structural integrity. The baseline vibration review shall determine whether monitoring of ground-borne vibration, tilting, and ground settlement is necessary during construction phase. Also, a buffer zone shall be set up for Fat Tau Chau House Ruin SAI (SAI185) during the proposed construction works to separate the works areas from the structure. No works shall be allowed within the protective zone. No worker or any construction related equipment(s) and material(s) should trespass the protective zone. Meanwhile, Air Pollution Control (Construction Dust) Regulation shall be followed. Dust suppression measures and good site practice should be observed by the project proponent during the construction phase in order to avoid dust accumulation on Fat Tau Chau House Ruin SAI (SAI185).

12.8.3 Marine Archaeological Investigation

12.8.3.1 A Marine Archaeological Investigation (MAI) has been conducted for the Project. The baseline conditions have been established by reviewing the previous geophysical surveys and MAI studies, available archaeological and historical sources. The baseline review shows that while the Project would be undertaken in an area with high marine archaeological potential due to the considerable maritime activity in the past, the area has undergone significant modification in the more recent time due to land reclamation, dredging and construction activities that might have a significant negative effect on any marine archaeological resources, if present. The previous MAIs have also highlighted that the chance of finding well-preserved archaeological material on the seabed has been reduced due to the extensive seabed disturbance within Junk Bay caused by activities such as anchoring and construction.

12.8.3.2 The marine archaeological assessment of project-specific geophysical survey data identified a total of 57 anomalies, comprising 38 sidescan sonar and 19 magnetic contacts, for further inspection by diver survey. The diver survey results show that none of the targets were considered to be of archaeological or historical significance, and no further investigations are required. No impact on marine archaeology is anticipated from the Project during both the construction and operational phases. Therefore, no mitigation measures are required.

12.8.3.3 Following the geophysical and diver surveys, adjustments to the Project boundary have resulted in minor data gaps and one uninvestigated anomaly. Given that the areas with data gaps and the uninvestigated anomaly are located at least approximately 225m outside the marine works boundary of the Project, no marine archaeological impact is anticipated. Nevertheless, as a precautionary measure, it is recommended to designate these locations as AEZs during the marine works of the Project to ensure no impact on the seabed from anchoring of work vessels during the marine works of the Project in these locations.

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