

9 CULTURAL HERITAGE

9.1 Introduction

9.1.1 This section presents the cultural heritage impact assessment (CHIA) identifying the cultural heritage resources within the assessment area and assessing potential direct and indirect impacts resulting from the construction and operation of the Project on these heritage resources. The assessment was conducted following the criteria and guidelines as stated in the requirements given in Annexes 10 and 19 of the EIAO-TM as well as Clause 3.4.12 and Appendix J of the EIA Study Brief (ESB-323/2019). Appropriate mitigation measures are proposed to alleviate the adverse impacts if necessary.

9.2 Environmental Guidelines, Standards and Criteria

General

9.2.1 The assessment was carried out by referring to the following guidelines and procedures:

- Environmental Impact Assessment Ordinance (EIAO) (Cap.499)
- Technical Memorandum on the Environmental Impact Assessment Process (EIAO-TM)
- Antiquities and Monuments Ordinance (A&MO) (Cap.53)
- Guidelines for Cultural Heritage Impact Assessment
- Hong Kong Planning Standards and Guidelines (HKPSG)

Environmental Impact Assessment Ordinance (EIAO) and Technical Memorandum (EIAO-TM)

9.2.2 The EIAO was implemented on 1 April 1998. It aims to avoid, minimize and control the adverse impacts on the environment of designated projects, through the EIA process and the Environmental Permit (EP) system. The EIAO stipulates that consideration must be given to issues associated with built heritage and archaeology as part of the EIA process. Annexes 10 and 19 of EIAO-TM provide general criteria and guidelines for evaluating the impacts to sites of cultural heritage. Annex 19 provides the scope and methodology for undertaking Cultural Heritage Impact Assessment, including baseline study, impact assessment and mitigation measures.

Antiquities and Monuments Ordinance (Cap.53)

9.2.3 The A&MO provides the statutory framework for the preservation of objects of historical, archaeological and paleontological interest. The Ordinance contains the statutory procedures for the Declaration of Monuments. A monument can be a place, building, site or structure of historical, archaeological or paleontological significance. Excavations, building works, planting or removal of trees, demolition, removal, obstruction or inference in or with a proposed monument or monument are prohibited except under permit. The discovery of an antiquity must be reported to the Antiquities and Monuments Office (AMO), or a designated person. No archaeological excavation can be carried out by any person, other than the AMO and the designated person, without a license issued by the AMO.

Guidelines for Cultural Heritage Impact Assessment

9.2.4 The document outlines the technical requirements for conducting terrestrial built heritage and archaeological impact assessments. A comprehensive CHIA comprises of a baseline study including desk-top research and field evaluation, and an impact assessment associated with appropriate mitigation measures. The evaluation of impacts is based upon five levels of significance, including beneficial impact, acceptable impact, acceptable impact with mitigation measures, unacceptable impact and undermined impact. The latest Guideline for CHIA should be followed in the Project.

Hong Kong Planning Standards and Guidelines

- 9.2.5 Chapter 10 of HKPSG covers planning considerations relevant to conservation. It states that conservation aims to protect Declared Monuments, Historical Buildings, Sites of Archaeological Interest and other heritage items including local activities, customs and traditions. Efforts should be made to protect and preserve buildings of historical or architectural merits either in their own right or as an integral part of a group or series of buildings. It is encouraged that town planners should consult the AMO for any land use or development which may impose impacts on a declared monument or a historic building and its setting.

9.3 Assessment Methodology

General

- 9.3.1 The assessment covers an area within 300m from the Project Boundary. The scope of cultural heritage resources includes:

- All declared and proposed monuments;
- All buildings/ structures/ sites graded or proposed to be graded by the Antiquities Advisory Board (AAB);
- Government historic sites identified by AMO;
- Buildings/ structures/ sites of high architectural or historical significance which are not included above;
- AMO's list of Sites of Archaeological Interest (SAIs); and
- Previous related EIA studies and archaeological reports

Built Heritage

- 9.3.2 A baseline study including a desk-top research and a field visit was undertaken to compile a comprehensive inventory of heritage sites within the assessment area. The desk-top research was conducted based on the examination on the following resources:

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

- List of Declared Monuments in Hong Kong issued by AMO;
- List of the 1,444 Historic Buildings with Assessment Results by the AAB –

Definition of the Gradings¹

Grade 1 Buildings of outstanding merit, which every effort should be made to preserve if possible.

Grade 2 Buildings of special merit; efforts should be made to selectively preserve.

Grade 3 Buildings of some merit; preservation in some form would be desirable and alternative means should be considered if preservation is not practicable.

- List of new items for grading assessment with assessment results the AAB;
- Government Historic Sites Identified by AMO;
- All available literatures, including previous Built Heritage Impact Assessment (BHIA), Archaeological Impact Assessment (AIA) and EIA Studies, related publications on relevant historical issues, historical, cartographic and pictorial documentations; and

¹ Antiquities Advisory Board (2021). *1,444 Historic Buildings and New Items in addition to 1,444 Historic Buildings - Definition of the Gradings*. <https://www.aab.gov.hk/en/built3.php>.

- Unpublished archival papers and records, and collection and libraries of tertiary institutions.
- 9.3.4 Based on the information of desk-top review, a site visit was conducted in the study area to evaluate the current condition of the built heritage resources and identify any additional heritage resources that were not covered by the desk-based study within the assessment area.
- 9.3.5 The potential direct and indirect impacts that may affect the built heritage resources were assessed by following the procedures and requirements of Guidelines for CHIA (GCHIA) and Annexes 10 and 19 of the EIAO-TM. The potential impacts are classified into five levels of significance in accordance with GCHIA:
- a) Beneficial impact: the impact is beneficial if the Project will enhance the preservation of the heritage site(s);
 - b) Acceptable impact: if the assessment indicates that there will be no significant effects on the heritage site(s);
 - c) Acceptable impact with mitigation measures: if there will be some adverse effects, but these can be eliminated, reduced or offset to a large extent by specific measures, such as conducting a follow-up Conservation Proposal or Conservation Management Plan for the affected heritage site(s) before the commencement of work in order to avoid any inappropriate and unnecessary interventions to the buildings;
 - d) Unacceptable impact: if the adverse effects are considered to be too excessive and are unable to mitigate practically; and
 - e) Undetermined impact: if the significant adverse effects are likely, but the extent to which they may occur or may be mitigated cannot be determined from the HIA Study. Further detailed study will be required for the specific effects in question.

Archaeology

- 9.3.6 A desk-top literature review and a field scanning were conducted to identify and assess the potential existence of archaeological resources within the assessment area. The desk-top review was conducted based on the review of the following:
- List of Sites of Archaeological Interest (SAIs) in Hong Kong published by AMO (as at Nov 2012);
 - Previous related EIA studies and archaeological reports;
 - Relevant archaeological and geographical monographs; and
 - Geological and historical maps, aerial photos and relevant visual archives.
- 9.3.7 The potential direct and indirect archaeological impacts were assessed by following the procedures and requirements of Guidelines for CHIA and Annexes 10 and 19 of the EIAO-TM.

9.4 Background of the Assessment Area

Physical and Geological Background

- 9.4.1 The Project Area is located at Sha Tin valley, to the south of Shing Mun River, southwest of Tide Cove (also known as “Sha Tin Hoi”) and across Lion Rock to Wong Tai Sin. The area is mainly formed of granite pluton. The superficial deposits in the area generally include debris

flow deposits on the hilly ground, and alluvium in the main valleys². Some narrow debris flow deposits were identified at the foothill of Beacon Hill³.

Historical Background

- 9.4.2 Clues of human settlements in Hong Kong region can be found in historic textual records such as *Lushi Chunqiu* (呂氏春秋)⁴ and *Hanshu* (漢書)⁵ written in the first century BC to first century AD. These records describe that Yue (越) ethnic groups scattered in southern China. During Qin Period (211-206 BC), the region was subordinated to Panyu (番禺) County. And later Hong Kong region had been subordinated to Xin'an (新安) County since AD1573⁶ until AD1912 Xin'an was renamed to Bao'an (寶安) County.
- 9.4.3 Since the 9th century onwards, Pearl River delta was an important salt production centre. Hong Kong was one of the salt production centers in Southern Song Dynasty (AD 1127 -1279). Historic textual records *Yudi Jisheng* (輿地紀勝) and *Songhuiyao Jilu* (宋會要輯錄) describe smuggling related to salt production. Five major clans including the Pangs, Lius, Haus, Mans and Tangs, settled in the New Territories in Southern Song Dynasty⁷. During Ming Dynasty, Sha Tin was famous for production of fragrant wood (香木) as recorded in *Xin'an Gazetteer* (新安縣誌)⁸.
- 9.4.4 In 1661, the Coastal Evacuation Order (遷界令) was implemented by the Qing government. People lived in the coastal area of Canton including the New Territories, were forced to move 25 km inland. People were allowed to move back to the New Territories in 1684 but the coastal population severely dropped. Thus, Hakka people were encouraged to move to the New Territories in the late 17th century. They developed villages at the hillside and practiced agriculture. *Sha Tin Kau Yeuk* (九約, "Alliance of Nine Villages") was founded in late Qing Dynasty.
- 9.4.5 The villages of *Sha Tin Kau Yeuk* in vicinity of the Project include Sha Tin Tau of *Sha Tin Tau Yeuk* (沙田頭約), as well as Kak Tin and Shan Ha Wai (山廈圍) of *Kak Tin Yeuk* (隔田約)⁹. Sha Tin Tau was recorded as "Sha Tin" in the 1819 edition of the *Xin'an Gazetteer*¹⁰. It is a Hakka village of multiple surnames. The ancestral halls of clans of Lau, Lam, Chan and Lee were established in the village. On the other hand, Kak Tin was one of the earliest villages established in Shatin¹¹ and was recorded in the 1688 edition of the *Xin'an Gazetteer*¹². It is a single-surnamed *Punti* (本地) village of the Tsang clan originated in *Shandong*¹³. The ancestor Tsang Nam-hin (曾南軒) moved from *Shipai* (石排) in *Guangdong* to Tai Wai and Tin Sam, and finally settled in Kak Tin by the late Ming dynasty¹⁴. Shan Ha Wai, also known as Tsang Tai Uk, was a single-clan walled village established by Tsang Koon-man (曾貫萬), a Hakka from *Wuhua* (五華) of *Guangdong*. He was a famous granite quarry contractor in late

² Geotechnical Control Office. (1986). *Hong Kong Geological Survey Memoir No.1: Geology of Sha Tin*. Civil Engineering Services Department. Hong Kong.

³ Geotechnical Control Office. (1986). *Hong Kong Geological Survey Memoir No. 2: Geology of Hong Kong Island and Kowloon*. Civil Engineering Services Department. Hong Kong.

⁴ 呂不韋《呂氏春秋·侍君覽》載《諸子集成》第六冊(1954)，北京：中華書局。

⁵ 班固《漢書·地理志》載《中華書局點校本二十五史》(1962)，北京，中華書局。

⁶ 王崇熙(1819)《新安縣誌》載張一兵(點校)(2006)，《深圳舊志三種》，深圳：海天出版社。

⁷ 陳國成(2006)《香港地區史研究之三：粉嶺》，香港：三聯書店。

⁸ 劉蜀永(2016)《簡明香港史(第三版)》，香港：三聯書店。

⁹ 沙田區議會編(1997)。《沙田古今風貌》。香港：沙田區議會。

¹⁰ 劉智鵬、劉蜀永(2007)《方志中的古代香港 新安縣志 香港史料選》，香港：三聯書店。

¹¹ 邱東(2006)。《新界風物與民情》。香港：三聯書店。

¹² 劉智鵬、劉蜀永(2007)《方志中的古代香港 新安縣志 香港史料選》，香港：三聯書店。

¹³ 沙田區議會編(1997)《沙田古今風貌》，香港：沙田區議會。

¹⁴ Antiquities Advisory Board. (2020). Historic Building Appraisal – No. 11 Kak Tin Village. https://www.aab.gov.hk/historicbuilding/en/1130_Appraisal_En.pdf.

19th century¹⁵. He bought a piece of land from Kak Tin Village in 1848 and built Tsang Tai Uk for his clansmen in 1867¹⁶.

- 9.4.6 To alleviate the crowding problems in the urban areas of Hong Kong, the Public Works Department prepared a comprehensive development scheme to propose the development of a new town in Sha Tin in 1965. With the large scale of reclamation along Tide Cove and Shing Mun River since the early 1970s, Sha Tin developed into a New Town with the population over 500,000.

*Lion Rock Tunnels*¹⁷¹⁸¹⁹

- 9.4.7 The current Lion Rock Tunnels were constructed in two phases in the 1960s and 1970s respectively. The first Lion Rock Tunnel was first considered by the Waterworks Office of Public Works Department to provide an economical route to transfer water from the Sha Tin filters of the Plover Cove Water Supply Scheme to the urban areas of Kowloon. The drilling of tunnel commenced in 1962 by Public Works Department and the laying of three water mains were completed in 1965. The tunnel was then enlarged to provide a roadway between Sha Tin and Kowloon. The road construction above the water mains commenced in 1965. The major construction method of the tunnel was drill and blast. The tunnel was 1.4km long and its interior was concrete-lined. The portals of the tunnel were in arched form with the facades decorated with coursed blue stone facing the inscription of the name of the tunnel. An administration building and two ventilation buildings at the two portals were built along with the tunnels (**60604728/R42b/Figures 9.2 to 9.4**). The construction of the tunnel costed HK\$22.17 million. The tunnel operated on 14 November 1967 and the 24th Governor of Hong Kong Sir David Trench attended the opening ceremony.
- 9.4.8 The second Lion Rock Tunnel was constructed to the west along the first tunnel in the 1970s by Public Works Department for transferring more water from the Plover Cove reservoir and improving the traffic between the Sha Tin New Town and Kowloon. The second tunnel was also constructed mainly by drill and blast. The waterworks in the tunnel were completed in 1975 and the road works completed in 1978. Similar to the first tunnel, the interior of the tunnel was constructed with concrete-lining and the portals were decorated with masonry. Two ventilation buildings were built at each of the portals and an additional administration building was built (**60604728/R42b/Figures 9.2 to 9.4**). The administration building and ventilation buildings are still in use at present. The toll plaza was also widened. The construction of the tunnel costed HK\$68 million. The second tunnel operated on 18 January 1978 and the 25th Governor of Hong Kong Sir Murray MacLehose attended the opening ceremony.

9.5 Baseline Conditions

Built Heritage

- 9.5.1 Four listed built heritage resources were identified within 300m from the Project Boundary. Ex Kowloon-Canton Railway Beacon Hill Tunnel (Government Historic Site) is located approximately at 90m from the Project Boundary. A Grade 1 Historic Building, a Grade 2 Historic Building and a Grade 3 Historic Building are located approximately at 160m to 280m from the Project Boundary.

¹⁵ Antiquities Advisory Board. (2020). Historic Building Appraisal – Tsang Tai Uk. http://www.aab.gov.hk/historicbuilding/en/1_Appraisal_En.pdf.

¹⁶ 沙田區議會編 (1997) 《沙田古今風貌》，香港：沙田區議會。

¹⁷ Public Works Department. (1967). *Lion Rock Tunnel: Commemorative Booklet on the Opening of the Tunnel by His Excellency the Governor Sir David Trench, K.C.M.G., M.C.* The Government Printer, Hong Kong.

¹⁸ Highways Office, Public Works Department. (1978). *Second Lion Rock Tunnel*. The Government Printer, Hong Kong.

¹⁹ Waterworks Office, Public Works Department. (1972). *H.I.W.S. Construction of Second Lion Rock Tunnel and Mainlaying: Tunnel Portal – General Arrangement, W7185/6C*. Hong Kong Government.

- 9.5.2 Furthermore, the first and second Lion rock tunnels, and seven associated buildings and structures are located within the Project Boundary. Twelve non-graded buildings are identified within the 300m assessment area as well.
- 9.5.3 The identified built heritage and non-graded buildings are summarized in **Table 9.1**. Their indicative locations are presented in **60604728/R42b/Figure 9.1 to 9.6**. The photos of the built heritage and non-graded buildings are presented in **Appendix 9.1**.

Ex Kowloon-Canton Railway Beacon Hill Tunnel (Government Historic Site)

- 9.5.4 The Ex Kowloon-Canton Railway Beacon Hill Tunnel (hereinafter as “Ex Beacon Hill Tunnel”) was first constructed in 1906 and opened in 1910²⁰ (Plate 9.1 of **Appendix 9.1**). It is a single lane tunnel of standard gauge, located between Kowloon Tong and Tai Wai stations of MTR East Rail line. It has been the major route between the New Territories and Kowloon since then, where freight and passengers can swiftly move along by train. The portals at two ends of the tunnel were constructed of granite ashlar and the original internal walls of the tunnel were built with brick lining. The Ex Beacon Hill Tunnel was disused in 1980s. Concrete lining, gas pipelines and some auxiliary systems, such as lighting, gas detectors, etc. were then installed along the Ex Beacon Hill Tunnel by The Hong Kong and China Gas Company Limited after its disuse²¹. The Ex Beacon Hill Tunnel’s entrance and the surroundings currently have restricted access.

Lau Ancestral Hall (Grade 3)

- 9.5.5 Sha Tin Tau was a Hakka village formed by families of various surnames, including the Chans (陳), the Laws (羅), the Lams (林), the Yips (葉), the Laus (劉), the Lees (李), the Yeungs (楊) and the Fungs (馮). The Lau Ancestral Hall (Plate 9.2 of **Appendix 9.1**) was built before 1900²². Dim Dang (點燈) ritual and wedding ceremonies were held at the hall. The ancestral hall is still used for ancestral worship.
- 9.5.6 It is a Qing vernacular building of two-hall-one-courtyard layout. The open courtyard is situated in between the entrance hall and the main hall. It is constructed of green bricks. The Chinese tiled roof is supported on timber purlins. The name of the building (劉氏家祠) is engraved on the granite lintel on top of the main entrance. The internal walls are plastered and floors are paved with cement. The altar occupies the end wall of the main hall with a soul tablet of the Lau ancestors.

Tsang Tai Uk (Grade 1)

- 9.5.7 Tsang Tai Uk, also named as Shan Ha Wai, was built by Tsang Koon-man (曾貫萬), who was a famous granite quarry contractor in late 19th century. Tsang was a Hakka originated from Wuhua (五華) of Guangdong²³. The construction of Tsang Tai Uk was started in 1847 and completed in 1867. He built the village and accommodated around 100 residential units for his family and descendents²⁴.
- 9.5.8 Tsang Tai Uk is a typical Hakka three-hall-four-row (三堂四橫) walled village (Plate 9.3 of **Appendix 9.1**). It is in a Qing vernacular design having a symmetrical layout with the main entrance, entrance hall, middle hall and main hall at the central axis. Two wells are located at the open space in between the entrances and the entrance hall. The village is mainly built of bluish bricks and the pitched roofs of clay tiles. The walls and the rows of houses are with

²⁰Civil Engineering and Development Department. (2011). *Catalogue of Hong Kong Tunnels (up to February 2019)*. https://www.cedd.gov.hk/filemanager/eng/content_446/hktunnel_cat.pdf.

²¹Hong Kong and China Gas Company Ltd. (2011). *Project Profile for Installation of 500mm NB Gas Pipelines inside the Existing Disused Tunnel (Old Beacon Hill Tunnel)*.

²²Antiquities Advisory Board. (2020). *Historic Building Appraisal – Lau Ancestral Hall*. http://www.aab.gov.hk/historicbuilding/en/968_Appraisal_En.pdf.

²³沙田區議會編 (1997) 《沙田古今風貌》，香港：沙田區議會。

²⁴Antiquities Advisory Board. (2020). *Historic Building Appraisal – Tsang Tai Uk*. http://www.aab.gov.hk/historicbuilding/en/1_Appraisal_En.pdf.

two storeys. Each of the four corners of the walls is built with a three-storeys watch tower (Plate 9.4 of **Appendix 9.1**). Each watch tower is built with wok yee (鑊耳) gable walls. There are three arched entrances to the village. The main entrance doorway is built with a cockloft supported on timber purlins. The ancestral hall of the Tsangs is located in the middle of the village (Plate 9.5 of **Appendix 9.1**). It is a three-hall-one-bay layout with two courtyards. The upper part of the entrance hall is built of bluish bricks, and the lower part is built of granite blocks. The roof with glazed tiles is supported on granite columns, timber purlins and rafters. The fascia board and *chenggong* is decorated with flowers and birds motif (Plate 9.6 of **Appendix 9.1**). The entrance is framed in granite with the granite lintel engraved with Chinese characters “祥徵萬福”. A plaque written Tai Fu Tai (Chief Official Mansion “大夫第”) is hung above the lintel.

High Rock Christian Camp (Grade 2)

- 9.5.9 The building was originally constructed as a police office around 1924 to replace that in Yuen Chau Kok²⁵. It was taken over by the Japanese army during Japanese Occupation (Dec. 1941 - Aug. 1945) as a command office. The building was reused by the Mennonite Central Committee as a hostel for children who had contact with tuberculosis at homes but were yet free from infection. The building was rented to a missionary, Miss Mildred Dibden, to set up Shatin Babies Home in 1953 for the abandoned children. The building was used as the Shatin High Rock Christian School in the 1960s. Since 1980, the building was used by Stewards (HK) Ltd to provide campsite service for the youth.
- 9.5.10 The building is with a L-shaped layout enclosing the playground in the middle (Plate 9.7 of **Appendix 9.1**). The design of the building is simple and functional, at the same time demonstrating both Western and Chinese influences. It is mainly constructed of red bricks. The facades facing the playground is believed to be the parts of the earliest construction, with wooden framed windows and verandahs supporting tiled roofs identified. A pitched Chinese tiled roof with chimneys is built on the North and West blocks respectively.

Lion Rock Tunnels

- 9.5.11 The two 1.4km long Lion Rock Tunnels with associated toll plaza, administrative buildings and ventilation buildings have been in use since its construction in the two phases, 1960s and 1970s respectively (**60604728/R42b/Figures 9.2 to 9.4**). Two commemorative plaques were installed in the two administration buildings respectively, which showed the opening date of the two tunnels by the two governors (Plates 9.17 and 9.19 of **Appendix 9.1**).

Buildings/structures within the assessment area that is included in this CHIA

- 9.5.12 Twelve buildings/structures with no listing by the Antiquities Authority have been included in this assessment (**Table 9.1**, and **Plate No. 9.21 to 9.31** in **Appendix 9.1** refer). The criteria is based on either they are “pre-1969 buildings/structures” or as advised, both criteria are recommended by the Antiquities Authority.
- 9.5.13 After review, these buildings / structures do not contain high cultural heritage significance. All of them contain no distinctive architectural features that made them become the representable ones (NB10 and NB11), nor do they have architectural virtuosity on the appearance that is unique or of rare quality (NB12 to NB21). Moreover, these buildings/structures do not have group significance with other local built heritage resource. On the other hand, there lack any significant historic events happened in relations to these buildings/structures.
- 9.5.14 Nevertheless, impact assessment includes these twelve buildings based on the rationale that are old.

²⁵ Antiquities Advisory Board. (2020). Historic Building Appraisal – High Rock Christian Camp. http://www.aab.gov.hk/historicbuilding/en/563_Appraisal_En.pdf.

Table 9.1 Summary of the Built Heritage Resources within Assessment Area

| Ref No. | Built Heritage | Historic Building Grading | Approximate Distance from the Project Boundary |
|---------------------------------------------------------|------------------------------------------------------------------|---------------------------|------------------------------------------------|
| Listed Buildings | | | |
| GH10 | Ex Kowloon-Canton Railway Beacon Hill Tunnel | Government Historic Site | 90m |
| HB968 | Lau Ancestral Hall (Sha Tin Tau) | Grade 3 | 160m |
| HB1 | Tsang Tai Uk | Grade 1 | 215m |
| HB563 | High Rock Christian Camp | Grade 2 | 280m |
| Non-graded Buildings and Structures²⁶ | | | |
| NB1 | First Lion Rock Tunnel | No grade accorded | Within Project boundary |
| NB2 | Second Lion Rock Tunnel | | Within Project boundary |
| NB3 | Ventilation Building of First Lion Rock Tunnel (Sha Tin Portal) | | Within Project boundary |
| NB4 | Ventilation Building of First Lion Rock Tunnel (Kowloon Portal) | | Within Project boundary |
| NB5 | Ventilation Building of Second Lion Rock Tunnel (Sha Tin Portal) | | Within Project boundary |
| NB6 | Ventilation Building of Second Lion Rock Tunnel (Kowloon Portal) | | Within Project boundary |
| NB7 | Old administration building of Lion Rock Tunnel | | Within Project boundary |
| NB8 | New administration building of Lion Rock Tunnel | | Within Project boundary |
| NB9 | Toll plaza of Lion Rock Tunnel | | Within Project boundary |
| NB10 | 20 Sha Tin Tau | | 180m |
| NB11 | 21 Sha Tin Tau | | 180m |
| NB12 | 25 and 25A Sha Tin Tau | | 170m |
| NB13 | 27 Sha Tin Tau | | 170m |
| NB14 | Lam Ancestral Hall, 35 Sha Tin Tau | | 170m |
| NB15 | Chan Ancestral Hall, 44 Sha Tin Tau | | 160m |
| NB16 | 47-49 Sha Tin Tau | | 160m |
| NB17 | Lion Rock Valve House | | Within Project boundary |
| NB18 | Lion Rock High Level No.1 Primary Service Reservoir | | 15m |
| NB19 | Lion Rock Low Level Primary Service Reservoir | | 2m |
| NB20 | Radio Television Hong Kong Broadcasting House | | 85m |
| NB21 | Ho Sin Hang Campus, Hong Kong Baptist University | | 170m |

Archaeology

- 9.5.15 No SAIs are identified within the assessment area. The Project Site is mostly located at existing roads and tunnels. Any possible archaeological resources within the Project Site had been destroyed when construction of the Lion Rock Tunnel and Lion Rock Tunnel Road.
- 9.5.16 Although arable lands in the assessment area before the development of Sha Tin New Town might have archaeological potential, the area had been modified and transformed into an

²⁶ The non-graded buildings and structures are included in this EIA study according to advice from AMO dated 4 June 2021.

urban landscape during since the 1970s. Such landforms in the assessment area have been modified with modern fill lands for high-rise buildings and new road networks, such as Lion Rock Tunnel Road and Sha Tin Road. In the Kowloon side, some narrow debris flow deposits were identified at the foothill of Lion Rock within the assessment area. Such landform is mostly located on steep slope or urban landscape, such as roads, tunnels and service reservoirs, which is not favourable for archaeological deposits.

9.5.17 The natural terrain of the assessment area has been largely modified and the potential archaeological resources may have been removed or seriously disturbed. The archaeological potential of the assessment area is negligible. Thus, Archaeological Impact Assessment is not required.

9.6 Evaluation of Cultural Heritage Impacts

Construction Phase

Built Heritage

9.6.1 The Ex Kowloon-Canton Railway Beacon Hill Tunnel (Government Historic Site) is located approximately at 90m from the Project Boundary. The tube of the Ex Beacon Hill Tunnel has been largely altered, for which the original internal brick walls have been concrete-lined. Due to the considerable distance from the Project Site, no direct impact would be anticipated on Ex Beacon Hill Tunnel during the construction phase. Indirect impacts of ground-borne vibration, settlement and tilting would be anticipated on the Ex Beacon Hill Tunnel during the construction phase.

9.6.2 Lau Ancestral Hall (Sha Tin Tau) (Grade 3), Tsang Tai Uk (Grade 1) and High Rock Christian Camp (Grade 2) are situated approximately at 160m to 280m from the Project Boundary. In view of a considerable distance from the Project Site, no adverse impact would be anticipated on these historic buildings during the construction phase.

9.6.3 The first Lion Rock Tunnel will be subjected to expansion during the construction phase, while the second Lion Rock Tunnel will undergo refurbishment. It is anticipated that the first tunnel will undergo significant widening and alternations, while the second tunnel would be minor.

9.6.4 Moreover, most of the associated buildings of the Lion Rock on both sides of the portals (NB-9) will be demolished to make way for the proposed third tunnel in between the existing two tunnels.

9.6.5 The twelve non-graded buildings within the assessment area do not contain high cultural heritage significance (Section 9.5.12 to 9.5.14 refer). As NB10 to NB16 and NB21 are over 100m away from the proposed works area, no impact is anticipated due to considerable distance from the Project Site. On the other hand, NB17 is located within the project boundary but no works is planned to demolish, alter or modify this structure, while NB18 to NB20 are located within 100m away from the proposed works area. Hence, indirect impacts of ground-borne vibration, settlement and tilting would be anticipated to NB17 to NB20 during the construction phase.

9.6.6 The assessment of impacts to the built heritage from the Project during construction phase is summarized in **Table 9.2**.

Table 9.2 Assessment of Impacts of Built Heritage Resources

| Ref No. | Built Heritage Resources | Approximate Distance from the Site Boundary | Impact Assessment | Levels of Significance of Impact |
|---------|----------------------------------------------|---------------------------------------------|--------------------------------------------------------------------------------------------------------------|--------------------------------------------|
| GH10 | Ex Kowloon-Canton Railway Beacon Hill Tunnel | 90m | No direct impact would be anticipated. Indirect impacts of ground-borne vibration, settlement and tilting | Acceptable impact with mitigation measures |

| Ref No. | Built Heritage Resources | Approximate Distance from the Site Boundary | Impact Assessment | Levels of Significance of Impact |
|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|
| | | | would be anticipated during the construction phase. | |
| HB968 | Lau Ancestral Hall (Sha Tin Tau) | 160m | Located at a considerable distance from the proposed construction works, no impact would be anticipated. | No impact |
| HB1 | Tsang Tai Uk | 215m | | |
| HB563 | High Rock Christian Camp | 280m | | |
| NB1-2 | First and Second Lion Rock Tunnels | Within Project Boundary | The first tunnel will be subjected to expansion and the second tunnel will undergo refurbishment. Direct impact would be anticipated to the two tunnels during the construction phase. | Acceptable impact with mitigation measures |
| NB3-9 | Associated buildings of Lion Rock Tunnels | Within Project Boundary | Most of the associated buildings of the Lion Rock Tunnel on both sides of the portals will be demolished for construction of the proposed third tunnel which is located between the existing two tunnels | Acceptable impact with mitigation measures |
| NB10-16, NB21 | 20 Sha Tin Tau, 21 Sha Tin Tau, 25 and 25A Sha Tin Tau, 27 Sha Tin Tau, Lam Ancestral Hall, 35 Sha Tin Tau, Chan Ancestral Hall, 44 Sha Tin Tau, 47-49 Sha Tin Tau, Ho Sin Hang Campus, Hong Kong Baptist University | Within 300m assessment area | The buildings do not contain high cultural heritage significance. No impact anticipated during construction and operational phase. | No impact anticipated |
| NB17 | Lion Rock Valve House | Within project boundary | The building does not contains high cultural heritage significance. Indirect impacts of ground-borne vibration, settlement and tilting would be anticipated during the construction phase. | Acceptable impact with mitigation measures |
| NB18-20 | Lion Rock High Level No.1 Primary Service Reservoir, Lion Rock Low Level Primary Service Reservoir, Radio Television Hong Kong Broadcasting House | Within 100m from the project boundary | The buildings do not contain high cultural heritage significance. Indirect impacts of ground-borne vibration, settlement and tilting would be anticipated during the construction phase. | Acceptable impact with mitigation measures |

Archaeology

9.6.7 No SAIs are identified within the assessment area. Any potential archaeological resources might have been disturbed by the urban developments. No archaeological impact would be anticipated during the construction phase.

Operational Phase

Built Heritage

9.6.8 Ex Kowloon Canton Railway Beacon Hill Tunnel (Government Historic Site), Lau Ancestral Hall (Sha Tin Tau) (Grade 3), Tsang Tai Uk (Grade 1) and High Rock Christian Camp (Grade 2) are located at substantial distance from the Project Site. Thus, no adverse impact would be anticipated during the operational phase.

Archaeology

9.6.9 No archaeological impact would be anticipated during the operational phase.

9.7 Mitigation of Adverse Cultural Heritage Impacts

Construction Phase

Built Heritage

9.7.1 Pre and post condition survey of Ex Kowloon Canton Railway Beacon Hill Tunnel (Government Historic Site) should be conducted by professional qualified building surveyor or engineer before and after the construction works respectively. The survey results shall be submitted to AMO for record. Protective measures shall be provided to the built heritage subject to the results of the pre-condition survey. Post-condition survey should be conducted after the construction works to identify any damages that have occurred or caused by the construction. If damages to the four built heritage are identified, AMO shall be informed immediately.

9.7.2 Monitoring of vibration, settlement and tilting incorporated with a set of Alert, Alarm and Action (AAA) system shall be employed for Ex Beacon Hill Tunnel (Government Historic Site) during the construction phase, measuring inside the tunnel tube at locations closest to the proposed construction works. If the alert level is exceeded, the monitoring frequency should be increased. If the alarm level is exceeded, the design of the construction may need to be amended. If the action level is exceeded, all works should be stopped. The proposed AAA limiting criteria are presented in **Table 9.3**. The actual limiting criteria should be further agreed with the AMO. A monitoring proposal, including type and frequency of monitoring, distribution of monitoring points and proposed actions to be taken when reaching respective monitoring limits, should be submitted to AMO for agreement before the commencement of 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 built heritage before the commencement of works. Installation of monitoring checkpoints shall be carried out in great care and adequate protection shall be provided so as to avoid unnecessary disturbance/damage to nearby historic fabrics. Photo records of monitoring checkpoints shall be submitted upon installation for AMO's record. Record of monitoring should be submitted regularly to AMO during the construction. AMO should be alerted in case any irregularities are observed.

Table 9.3 Proposed AAA Limiting Criteria for Vibration, Settlement and Tilting Level Monitoring during Construction

| Alert, Alarm and Action (AAA) Values | | |
|--------------------------------------|------------|------------------------|
| Vibration | Settlement | Tilting |
| 5/6/7.5 mm/s | 6/8/10 mm | 1/2000, 1/1500, 1/1000 |

9.7.3 No mitigation measure would be required for the Lau Ancestral Hall (Sha Tin Tau) (Grade 3), Tsang Tai Uk (Grade 1) and High Rock Christian Camp (Grade 2).

9.7.4 As the first Lion Rock Tunnel would be expanded, destruction of the portals would be imminent. The second Lion Rock Tunnel will undergo refurbishment. It is suggested that fonts on both sides of the portals of the two tunnels, namely “Lion Rock Tunnel 獅子山隧道” and “Second

Lion Rock Tunnel 第二獅子山隧道”, should be kept or replicated and placed on similar position as the current setting.

- 9.7.5 The associated buildings are administrative offices and ventilation blocks for the operation of the tunnels, with utilitarian style and has no distinctive architectural elements that stands out. While the destruction of these buildings is imminent, the colour scheme of these buildings could be adopted to the new administrative buildings in order to maintain the original sentiment. Moreover, the two commemorative plaques marking the opening ceremony of the tunnel should be kept at prominent position at the new administrative buildings visible to all guests. Detailed cartographic record and photographic recording on the Lion Rock Tunnel and its associated buildings (both exterior and interior) should be conducted before any works to commence. A copy of the cartographic and photographic documentation should be provided to AMO for record.
- 9.7.6 No impact is anticipated to NB10 to NB16 and NB21 identified within the 300m assessment area due to considerable distance from proposed works. Hence, no mitigation measure is required to be carried out on these buildings from the point of view of cultural heritage.
- 9.7.7 Monitoring of vibration, settlement and tilting incorporated with a set of Alert, Alarm and Action (AAA) system shall be employed for NB17 to NB20 in the same fashion as the Ex Beacon Hill Tunnel (Section 9.7.2 above).
- 9.7.8 The mitigation measures of the built heritage are summarized in **Table 9.4**.

Table 9.4 Summary of Mitigation Measures of Built Heritage Resources

| Ref No. | Built Heritage Resources | Mitigation Measures |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| GH10 | Ex Kowloon-Canton Railway Beacon Hill Tunnel | <ul style="list-style-type: none"> • Pre and post condition survey • Monitoring of vibration, settlement and tilting incorporating with 3As system • Monitoring proposal • Photo records of monitoring checkpoints • Monitoring records • Alert AMO if the monitoring reach 3As levels |
| HB968 | Lau Ancestral Hall (Sha Tin Tau) | <ul style="list-style-type: none"> • No impact anticipated, and no mitigation measure would be required |
| HB1 | Tsang Tai Uk | |
| HB563 | High Rock Christian Camp | |
| NB1-2 | First and Second Lion Rock Tunnels | <ul style="list-style-type: none"> • Fonts on both sides of the portals of the two tunnels should be kept or replicated and placed on similar position as the current setting • Detailed photographic recording |
| NB3-9 | Associated buildings of Lion Rock Tunnels | <ul style="list-style-type: none"> • Colour scheme of the buildings could be adopted to the new administrative buildings • Commemorative plaques should be kept at prominent position at the proposed administrative buildings • Detailed cartographic and photographic recording before construction phase |
| NB10-16, 21 | 20 Sha Tin Tau, 21 Sha Tin Tau, 25 and 25A Sha Tin Tau, 27 Sha Tin Tau, Lam Ancestral Hall, 35 Sha Tin Tau, Chan Ancestral Hall, 44 Sha Tin Tau, 47-49 Sha Tin Tau, Ho Sin Hang Campus, Hong Kong Baptist University | <ul style="list-style-type: none"> • No impact anticipated, and no mitigation measure would be required |
| NB17 | Lion Rock Valve House | <ul style="list-style-type: none"> • Monitoring of vibration, settlement and tilting incorporating with 3As system • Monitoring proposal |

| Ref No. | Built Heritage Resources | Mitigation Measures |
|---------|---------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | <ul style="list-style-type: none"> • Photo records of monitoring checkpoints • Monitoring records • Alert AMO if the monitoring reach 3As levels |
| NB18-20 | Lion Rock High Level No.1 Primary Service Reservoir, Lion Rock Low Level Primary Service Reservoir, Radio Television Hong Kong Broadcasting House | <ul style="list-style-type: none"> • Monitoring of vibration, settlement and tilting incorporating with 3As system • Monitoring proposal • Photo records of monitoring checkpoints • Monitoring records • Alert AMO if the monitoring reach 3As levels |

Archaeology

- 9.7.9 No archaeological impact would be anticipated, and thus, no mitigation measure would be required. As a precautionary measure, AMO should be informed immediately in case of discovery of antiquities or supposed antiquities in the course of works, so that appropriate mitigation measures, if needed, can be timely formulated and implemented in agreement with AMO.

Operational Phase

Built Heritage and Archaeology

- 9.7.10 No adverse impact would be anticipated, and thus, no mitigation measure would be required.

9.8 Environmental Monitoring and Audit

- 9.8.1 Pre and post condition survey of Ex Kowloon Canton Railway Beacon Hill Tunnel (Government Historic Site) should be conducted by professional qualified building surveyor or engineer before and after the construction works respectively. The survey results shall be submitted to AMO for record.
- 9.8.2 Monitoring of vibration, settlement and tilting incorporated with a set of AAA system shall be employed for Ex Beacon Hill Tunnel (Government Historic Site) during the construction phase, measuring inside the tunnel tube at locations closest to the proposed construction works. The proposed AAA limiting criteria are presented in **Table 9.3**. The actual limiting criteria should be further agreed with the AMO. A monitoring proposal, including type and frequency of monitoring, distribution of monitoring points and proposed actions to be taken when reaching respective monitoring limits, should be submitted to AMO for agreement before commencement of construction 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 built heritage before the commencement of construction works. Installation of monitoring checkpoints shall be carried out in great care and adequate protection shall be provided so as to avoid unnecessary disturbance/ damage to nearby historic fabrics. Record of monitoring should be submitted regularly to AMO during the construction phase. AMO should be alerted in case any irregularities are observed.
- 9.8.3 It is suggested that fonts on both sides of the portals of the two tunnels, namely “Lion Rock Tunnel 獅子山隧道” and “Second Lion Rock Tunnel 第二獅子山隧道”, should be kept or replicated and placed on similar position as the current setting. The colour scheme of associated buildings is suggested to be adopted to the new administrative buildings in order to maintain the original sentiment. Moreover, the two commemorative plaques marking the opening ceremony of the tunnel should be kept at prominent position at the new administrative buildings visible to all guests.
- 9.8.4 Detailed photographic recording on the Lion Rock Tunnel and its associated buildings (both exterior and interior) should be conducted before any works to commence. A copy of the photographic documentation should be provided to AMO for record.

9.9 Conclusion

- 9.9.1 Ex Kowloon Canton Railway Beacon Hill Tunnel (Government Historic Site) is located approximately at 90m from the Project Boundary. No direct impact would be anticipated on Ex Beacon Hill Tunnel but indirect impacts including ground-borne vibration, tilting and settlement, would be anticipated during the construction phase. Pre and post condition survey of Ex Beacon Hill Tunnel (Government Historic Site) should be conducted by professional qualified building surveyor or engineer. Monitoring of vibration, settlement and tilting incorporated with a set of AAA system shall be employed for the Ex Beacon Hill Tunnel during the construction phase, measuring inside the tunnel tube at locations closest to the proposed construction works. A monitoring proposal should be submitted to AMO for agreement before the commencement of construction works.
- 9.9.2 Lau Ancestral Hall (Sha Tin Tau) (Grade 3), Tsang Tai Uk (Grade 1) and High Rock Christian Camp (Grade 2) are located at substantial distance from the Project Site. No adverse impact would be anticipated on these historic buildings during the construction phase.
- 9.9.3 The first lion rock tunnel will be subjected to expansion during the construction phase, while the second lion rock tunnel will undergo refurbishment. It is suggested that fonts on both sides of the portals of the two tunnels should be kept or replicated and placed on similar position as the current setting. Colour scheme of the associated buildings of the tunnels is suggested to be adopted to the new administrative buildings. Moreover, the two commemorative plaques marking the opening ceremony of the tunnel should be kept at prominent position at the new administrative buildings visible to all guests. Detailed cartographic and photographic recording on the Lion Rock Tunnel and its associated buildings (both exterior and interior) should be conducted before any works to commence. A copy of the cartographic and photographic documentation should be provided to AMO for record. Eight other non-graded buildings (NB10-16 and NB21) identified within the 300m assessment area are over 100m away from the proposed works area, no impact is anticipated due to considerable distance from the Project Site and no mitigation measure is required for these buildings.
- 9.9.4 No direct impact is anticipated to NB17 that locates within the proposed works area. Indirect impacts including ground-borne vibration, tilting and settlement, would be anticipated during the construction phase for NB17 to NB20. Monitoring of vibration, settlement and tilting incorporated with a set of AAA system shall be employed to NB17 to NB20 in the same manner as the Ex Beacon Hill Tunnel during the construction phase.
- 9.9.5 The archaeological potential in the assessment area is negligible. No archaeological impact would be anticipated during the construction phase of the Project. No adverse impact would be anticipated on both built heritages and archaeology during the operational phase. As a precautionary measure, AMO should be informed immediately in case of discovery of antiquities or supposed antiquities in the course of works, so that appropriate mitigation measures, if needed, can be timely formulated and implemented in agreement with AMO.

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