

> Prepared For Architectural Services Department

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# **1.0 INTRODUCTION**

# 1.1 Background

AGC Design Ltd ("AGC") has been engaged by Architectural Services Department ("ArchSD") to conduct a Heritage Impact Assessment ("HIA") for the Lung Tsun Stone Bridge Preservation Corridor project ("the Project"). Leisure and Cultural Services Department ("LCSD") will manage the venue after its completion.

Chief Executive announced in his 2007-08 Policy Address a package of initiatives for heritage conservation including the requirement to undergo Heritage Impact Assessment for all new capital works projects involving historic and built heritage. The initiatives include the requirement for assessing impacts on historic/heritage sites and building arising from the implementation of capital works projects. In this Project, the HIA will serve as reference by ArchSD in the preparation of detailed design study, tender drawings and documents for the Project. The HIA will also serve as reference by LCSD in preparing the management and operation plan of the site.

# **Project Brief**

The Project targets to provide landscape open space within a 30-meter wide preservation corridor for heritage conservation and public appreciation of the Lung Tsun Stone Bridge ("LTSB") remnants *in-situ* at Kai Tak. The Project covers two sites, Site A (the Site) and Site B. The location of Site A and Site B are indicated in Fig.1.

The scope of the Project includes the followings:

## Site A

## In-situ Preservation of LTSB Remnants

- a) displaying the LTSB remnants in the original location to reinstate the historical landmark and demonstrate the cultural significance of the Site;
- b) conserving the LTSB remnants *in-situ*, including providing treatment to ensure their structural integrity; and
- c) providing interpretation facilities including display areas and appropriate media for virtual presentation to facilitate public appreciation of the LTSB remnants and the relationship between LTSB and Kowloon Walled City ("KWC").

## Open Space at Preservation Corridor

- a) A continuous traffic-free pedestrian walkway;
- b) Landscape area including but not limited to benches, rain shelters, pavilions and

flowering trees;

- c) Easy accessibility from the adjoining Comprehensive Development Area ("CDA") sites and good connection with the proposed Underground Shopping Street ("USS");
- d) Ancillary facilities including but not limited to a meter room, a first aid room, toilets, a baby care room, drinking fountains, store rooms; and
- e) Interface between the preservation corridor and the proposed pedestrian subway underneath Prince Edward Road East (PERE) as well as the proposed USS.

## Site B

- a) A continuous landscape walkway ("Green Corridor") for connecting the pedestrian subway underneath PERE with the Kowloon Walled City Park;
- b) Pedestrian entrance/exit connected to Sa Po Road;
- c) Vertical greening/ planting areas as appropriate for screening the high football backstops of the 5-a-side soccer pitches along the landscaped walkway;
- d) Landscaped areas; and
- e) Sitting-out facilities.

## **1.2** Site Location

Site A, where the Lung Tsun Stone Bridge Site of Archaeological Interest is situated, will be developed into a 30-meterwide LTSB Preservation Corridor with display of LTSB remnants in the Project. Site B involves modification of existing facilities at Shek Ku Lung Road Playground and the adjacent Shek Ku Lung Road Rest Garden. No heritage site is found within the Site B and the area of 50 meters from Site B's boundary. Hence, in this HIA Report, the Study Area will only cover Site A and the area of 50 meters from its boundary.

The Site is a reclaimed land besides Kowloon Bay. It has been left vacant since the relocation of airport in 1998 and now part of the Kai Tak Development ("KTD") Area. It is adjacent to the PERE on the west and surrounded by Kowloon City, Wong Tai Sin and Kowloon Bay districts. The boundary of the Site is indicated by red line with hatch in Fig. 2. The remnants of the South Gate and the Former Yamen of the KWC were retained at the original location for more than one hundred years of time (Fig. 3). They form a historic cluster with the Site in telling the early history of Kowloon.



Fig. 1: Location of the Site (Site A) and Site B are indicated by red colour hatch. (Source: Google Map, modified by author.)



Fig. 2: The Site (Site A) indicated by red colour hatch is surrounded by Kowloon City, Wong Tai Sin and Kowloon Bay. (Source: ArchSD)



Fig. 3: The Site (Site A) indicated by red colour hatch is surrounded by historical sites. (Source: Google Map, modified by author.)

# **1.3** Objective and Scope of Heritage Impact Assessment (HIA)

The objective of this HIA is to identify the direct and indirect impacts on the Lung Tsun Stone Bridge Site of Archaeological Interest at the planning stage of the Project and formulate conservation policy and mitigation measures for due protection of the remnants within the Site. It provides a set of guiding principles for the design proposal of the Site, as a public open space with *in-situ* preservation of remnants of the historic stone bridge.

The HIA will include a Baseline Study, with comprehensive inventory of the heritage items within the Site, an Impact Assessment Study to identify the impacts on the heritage items, and suggested mitigation measures for due protection of the Character Defining Elements (CDEs). The Conservation Management Plan will be prepared after understanding of the Site, assessing the Levels of Significance, identification of the CDEs and direct and indirect impacts to the Site. They will make reference to the proposed design scheme, available reports and documents of desk-top research.

# 1.4 Methodology

The methodology of this HIA is in accordance with the requirements of the Development Bureau Technical Circular (Works) No. 6/2009 and the Antiquities and Monuments Office ("AMO")'s Guidelines for Archaeological Impact Assessment (as at 5 Sept 2012).

International charters and standards are followed in this HIA.

- The Venice Charter (1964) The ICOMOS International Charter for the Conservation and Restoration of Monuments and Sites, UNESCO.
- The Burra Charter (2013) The Australia ICOMOS Charter for Places of Cultural Significance.
- China Principles (2005) Principles for the Conservation of Heritage Sites in China.

The HIA is based on the two-stage approach of Dr. J. Kerr's *Conservation Plan*, Stage 1 of the process for understanding the place has been modified by the use of the more comprehensive Historic Places Initiative approach. The framework of the HIA has adopted the format of the *Conservation Plan* by Dr. J. Kerr, Sidney, National Trust of Australia (NSW), 7<sup>th</sup> edition (2013) with modification.

The structure of this HIA report is generally described as follow:

- Baseline Study will make reference of the best available reports and documents, including but not limited to the *Conservation Management Plan for the Site of Lung Tsun Stone Bridge, Full Excavation for Defining the Preservation Approach of Lung Tsun Stone Bridge Remnants, Further Archaeological Excavation Report for Kai Tak Development Engineering Study cum Design and Construction of Advance Works Investigation, Design and Construction, Environmental Impact Assessment Report for Kai Tak Development, A Research on Lung Tsun Stone Bridge and Its Surrounding Area, Interpretation Principles and Guidelines for the Lung Tsun Stone Bridge Preservation Corridor etc. Such information is considered adequate for the Baseline Study and further field evaluation is considered not necessary.*
- Conservation Management Plan
- Impact Assessment with recommendations of Mitigation Measures

# 1.5 Definition of Terms

In this report, the following definitions have been used.

**LTSB remnants** means remnants of Pavilion for Greeting Officials, solid mass section, supporting pillar section and landing platform.

**The Site** means Site A, i.e. the boundary of the Lung Tsun Stone Bridge Preservation Corridor ("LTSBPC") (refer to Fig. 4)

The following definitions are borrowed from the Burra Charter – Australia ICOMOS Charter for Places of Cultural Significances if not specified.

Adaptation means changing a place to suit the existing use or a proposed use.

<sup>1</sup>Authenticity means those characteristics that most truthfully reflect and embody the cultural heritage values of a place.

<sup>2</sup>Character Defining Element (CDE) means the materials, forms, location, spatial configurations, uses and cultural associations or meanings that contribute to the heritage value of a historic place, which must be retained to preserve its heritage value.

**Conservation** means all the processes of looking after a place so as to retain its cultural significance.

**Cultural Significance** means aesthetic, historic, scientific or social value for past, present or future generations. Cultural significance is embodied in the place itself, its fabric, setting, use, associations, meanings, records, related places and related objects

**Fabric** means all the physical material of the place, including components, fixtures, contents, and objects.

**Interpretation** means all the ways of presenting the cultural significance of a place.

**Maintenance** means the continuous protective care of a place, and its setting. Maintenance is to be distinguished from repair which involves restoration or reconstruction. **Place** means a geographically defined area. It may include elements, objects, spaces and views. Place may have tangible and intangible dimensions.

**Preservation** means maintaining a place in its existing state and retarding deterioration.

**Setting** means the immediate and extended environment of a place that is part of or contributes to its cultural significance and distinctive character.

**Use** means the functions of a place, including the activities, traditional and customary practices that may occur at the place or are dependent on the place.

The names of the remnants in the HIA are based on the *Full Excavation for Defining the Preservation Approach of Lung Tsun Stone Bridge Remnants* (2013) if not specified.

#### Notes:

- 1. The Nara Document on Authenticity Australia ICOMOS Charter for the Conservation of Places of Cultural Significance 1994
- 2. Parks Canada. Standards and Guidelines for the Conservation of Historic Places in Canada. 2010.

# 2.0 UNDERSTANDING THE SITE

# 2.1 Location and Area of the Study

No declared monument, proposed monument, graded historic site / building and Government historic site are situated within the Site. The Lung Tsun Stone Bridge, a Site of Archaeological Interest recorded by AMO, is situated within the Site where the remnants of LTSB, former Kowloon City Pier ("KCP"), 1924 built seawall ("Seawall") and 1933 built causeway ("Causeway") were identified in previous archaeological work.



Study Area, includes the Site and area 50m away from the Site boundary. Fig. 4: The Site boundary is indicated in edged-red. (Source: ArchSD, modified by author.)

# 2.2 Geology

The Site is mainly composed of 20<sup>th</sup> century reclamation fill over with marine mud and sand. In outer northern edge of the Site, there are mapped as alluvium. As indicated in the 1:20000 geological map (Appendix A) of Hong Kong and Kowloon, the marine silty sand of Hang Hau formation of Holocene is identified as the superficial stratum of Kowloon Bay seabed. The LTSB and former Kowloon City Pier are standing at the marine deposit of marine silty sand. The Kowloon Bay is characterized by a generally low-lying and gently sloping coastal plain, within which the 35m high Sacred Hill (and its slightly higher sister "peak") provided the sole interruption to the broad sweep of the Bay.

# 2.3 Zoning

Since the relocation of the airport in 1998, the planning of Kai Tak area has undergone several reviews. Due to the public concerns over harbour reclamation, a Preliminary Outline Development Plan (PODP) with "Zero reclamation" was commissioned by Government in 2004. After rounds of public consultation and with the guidance of the Town Planning Board, the statutory Kai Tak Outline Zoning Plan (Kai Tak OZP) was formulated in 2007 with subsequent changes made in 2009.

Taking into account public's aspirations to preserve the LTSB remnants which were recovered in 2008, as well as better access to the precious harbourfront spaces, subsequent amendments reflecting urban design planning enhancement were implemented and approved in the Outline Zoning Plan (OZP) (No. S/K22/4) in 2012. The Site is now designated as "Open Space (3)" intended for *in-situ* preservation of the LTSB remnants. Three CDA sites are located adjacent to the Site.

# 2.4 Outline Description of LTSB

LTSB was a landing pier built in 1873 - 1875 (Fig. 5-6). It was originally about 210 meters in length and 2.6 to 4 meters in width. A wooden extension of about 80 meters was added in 1892 to its seaward end. The stone bridge was physically connected to the Pavilion for Greeting Officials, i.e. a two-storey pavilion with dimension of 8m x 7m which was used by the local elders to greet new Chinese officials to the Yamen (衙門) in Kowloon Walled City, at the landward end. They linked the main gate of the KWC and the Kowloon Street with Kowloon Bay in the late 19<sup>th</sup> century to early 20<sup>th</sup> century.

The wooden extension of the bridge was demolished in the 1900s. Parts of LTSB including the Pavilion were demolished at the 1920s for the Kai Tak reclamation. Kowloon City Pier was constructed at 1910 to serve the connection purpose and was modified in 1936-1937. Other than Kai Tak reclamation and development, the stone bridge suffered several serious damages since 1940s. It was largely buried by Japanese Army in 1940s to extend the Kai Tak airfield. In 1954, master plan for the development of Kai Tak Airport was approved. The reclamation of Kai Tak Airport and building of extension facilities and runway were conducted from 1956 to 1981 to further covering the remains of LTSB.



Fig. 5: A photo of LTSB; Fig. 6: Map of LTSB at the 1900s. The edged-red areas indicate the major compositions of the LTSB: (1) Pavilion for Greeting Officials, (2) solid mass section, (3) supporting pillar section, (4) landing platform, (5) wooden extension. (Source :(Fig. 5) *A Research on Lung Tsun Stone Bridge and Its Surrounding Area*; (Fig. 6) *Full Excavation for Defining the Preservation Approach of Lung Tsun Stone Bridge Remnants.*)

## 2.5 Archaeological Findings

#### 2.5.1 Archaeological Excavation

There are three archaeological investigation and excavations conducted on the Site and its surrounding areas under the Kai Tak Development (KTD). Major archaeological findings are presented as below:

## 2008 EIA for Kai Tak Development Area

From March to June 2008, an archaeological investigation (Fig. 7-9) was undertaken by Civil Engineering and Development Department (CEDD) for the *Environmental Impact Assessment (EIA) Report for Kai Tak Development (KTD)*. It was conducted to investigate the archaeological potential of the North Apron area of the Former Kai Tak Airport. A section of the 1924 seawall (Fig. 10), two supporting concrete pillars of former Kowloon City Pier as well as remnants of LTSB including granite supporting pillars and granite walkway decking of LTSB (Fig. 12 & 13) and a landing platform (Fig. 11) were identified in one of the five test trenches (Trench AA5) (Fig. 8-9). The approved EIA report for KTD (AEIAR-130/2009) recommended further archaeological investigation to demarcate the extent of the bridge remnants; and upon the completion of the investigation, all identified sections of the historic stone bridge should be preserved *in-situ* and integrated into the future Kai Tak Development as an historical site for public education and tourism purposes.



Fig. 7: The full study area of the Kai Tak Development.



Fig. 8: The location of the five test trenches.



Fig. 9: LTSB remnants were found in AA5 trench and its extension AA5A to AA5D.



Fig. 10: LTSB granite decking near 1924 seawall.



Fig. 12: Well-preserved granite decking.

Fig. 11: The landing platform of LTSB.



Fig. 13: Supporting pillar SP6 (renamed SP17 in 2011-2012 excavation).

(Source (Fig. 7 - 13): Environmental Impact Assessment Report for Kai Tak Development.)

# 2008-2009 Further Archaeological Excavation of Lung Tsun Stone Bridge

The further archaeological excavation was conducted by a qualified archaeologist commissioned by the CEDD from October 2008 to February 2009 in order to determine the extent of the LTSB (Fig. 14). Three main trenches with some sub-trenches (T1, T2 and T3a to T3d) were excavated along the predicted footprints of LTSB and the former Kowloon City Pier and the possible location of the Pavilion for Greeting Officials. Portions of the northern section of the LTSB were recovered beneath the former Terminal Building basement slab at levels between +1.03mPD and +2.37mPD in T3a, T3b, T3c and T3d. All decking of those sections of the LTSB were found demolished. 47 supporting pillars and two landing steps of the former Kowloon City Pier (Fig. 18), pre-shaped dressed granite blocks at the western, eastern and southern edges (Fig. 19 & 20), two granite slabs of the Pavilion and the landing platform of the LTSB (Fig. 16) were unearthed. The 1933 causeway was also discovered next to the seaward end (Fig. 17). But no evidence of remains of the 1892 wooden extension or the 1910 concrete extension was revealed.

Solid mass section (Fig. 21 & 22) was found at trench T3a to T3d. Two side walls of solid mass section with five layers of granite block and a layer of the footing stones were discovered at T3b (Part of Grid 2 in 2011-2012 full archaeological excavation) at excavation level down to +0.6mPD. These remains consisted of solid mass with rocks and sandy mortar infills while the top level decking was demolished. An additional grid was also introduced in order to assess the existing condition of the supporting pillar SP6 (renamed SP17 in 2011-2012 excavation) (Fig. 15). The grid was excavated down to the pillar's lowest footing at -0.8mPD. The pillar was hexagonal shape in plan. It was a solid mass with rocks and sandy mortar infills and its side walls were constructed of longitudinal and transverse granite blocks. The wall blocks were bonded together by sandy mortar in orange colour. Based on the findings in this grid, it was considered that the condition of other pillars of LTSB would be similar to that of SP6 (renamed SP17 in 2011-2012 excavation).

A structural assessment of the remains on LTSB and former Kowloon City Pier was also conducted. Possible impacts on the structural integrity of the remains were assessed with mitigation measures proposed in the report for *Full Excavation for Defining the Preservation Approach of Lung Tsun Stone Bridge Remnants* conducted in 2011-2012. Most of the granite blocks of supporting pillar SP6 (renamed SP17 in 2011-2012 excavation) and the seaward end and solid mass section of the LTSB were in good and stable condition, except for the loose granite blocks and fragments on top of supporting pillars and solid mass section of the LTSB.



Fig. 14: Layout plan of 2008-2009 Further Archaeological Excavation of Lung Tsun Stone Bridge.



Fig. 15: Further excavation of the supporting pillar SP6 (renamed SP17 in 2011-2012 excavation).

Fig. 16: Steps of stairs at eastern and western sides of landing platform were excavated. The landing platform is also at the seaward end of LTSB.



Fig. 17: Seaward end of the LTSB in connection with 1933 built causeway.





Fig. 19: Foundation stone walls at three sides of the Pavilion for Greeting Officials.

Fig. 18: The remains of former Kowloon City Pier.



Fig. 20: Wall edge stones of the Pavilion for Greeting Officials.



Fig. 21: Top view of the solid mass section of Trench 3d. (Part of Grid 4 in 2011-2012 full archaeological excavation.)

Fig. 22: Top view of the solid mass section of Trench 3b. (Part of Grid 2 in 2011-2012 full archaeological excavation.)

(Source (Fig. 14-22): Further Archaeological Excavation Report for Kai Tak Development Engineering Study cum Design and Construction of Advance Works - Investigation, Design and Construction.)

### 2011-2012 Full Archaeological Excavation of Lung Tsun Stone Bridge

A full archaeological excavation was conducted by a qualified archaeologist commissioned by the CEDD in 2011-12 to unearth the remnants of LTSB (Fig. 23) in order to expose all the uppermost surface of the remnants and record the conditions as much as possible. All the remnants were backfilled after the full excavation. The archaeological excavation unearthed the remnants of the Pavilion for Greeting Officials (Fig. 30), solid mass section, 20 supporting pillars (For example, supporting pillar SP17 in Fig. 27), partial concrete decking (Fig. 28) and the landing platform of LTSB (Fig. 29) as well as the 1924 seawall and 1933 causeway. All remnants of LTSB had been subjected to various degrees of destruction of top five tiers except for SP13 and the landing platform. The decking remains among SP12, SP13 and SP14 (Fig. 26) were the only surviving original granite decking. The broken concrete decking was found from SP18 to SP20. At the northern portion, the exposed solid mass section was truncated into eight sections by the pile caps and concrete beams of Kai Tak Airport (Fig. 25), while most of the top tiers were also destructed.



Fig. 23: Layout plan of 2011-2012 Full Archaeological Excavation of Lung Tsun Stone Bridge.



Fig. 24: Wall foundation stones of the Pavilion for Greeting Officials and northern end of solid mass section of LTSB;

Fig. 25: Solid mass section was truncated into eight sections by the pile caps and concrete beams of Kai Tak Airport.



Fig. 26: The decking remains among SP12,

- Fig. 27: The supporting pillar SP17.





Fig. 28: Partial concrete decking between SP19 and SP20.

Fig. 29: The landing platform.



Fig. 30: Two granite slabs of the Pavilion for Greeting Officials.

(Source (Fig. 23-30): Full Excavation for Defining the Preservation Approach of Lung Tsun Stone Bridge Remnants.)



 Extent of LTSB remnants and former Kowloon City Pier on the Site
Foundation Structure of Kai Tak Airport (Passenger Terminal Building Basement Area)

Fig. 31: Summary of locations and extents of major archaeological findings: (1) Pavilion for Greeting Officials, (2) solid mass section, (3) supporting pillar section, (4) landing platform, (5) former Kowloon City Pier. The archaeological excavation map has overlaid with historical map at the early 20<sup>th</sup> century to show the original setting. (Remarks: The remnants of 1924 seawall and 1933 causeway were not

fully excavated in previous archaeological work. The extents in this figure are indicative only and referenced from historical maps.)

(Source: Full Excavation for Defining the Preservation Approach of Lung Tsun Stone Bridge Remnants.)



Fig. 32: Summary of major archaeological findings in sectional drawings. Former Kowloon City Pier is not shown in this drawing. (Source: *Full Excavation for Defining the Preservation Approach of Lung Tsun Stone Bridge Remnants.*) **\*The names of remnants are based on the** *Full Excavation for Defining the Preservation Approach of Lung Tsun Stone Bridge Remnants* **(2013) if not specified.** 

# 3.0 HISTORICAL DEVELOPMENT

# **3.1 Pre-LTSB Construction:**

## Early Life of Kowloon City and the Kowloon Street

The area of present day Kowloon City, known as Guanfu Chang (官富場) during Song dynasty (960-1279), was once dominated by salt production. Its waterway business was believed to be well-developed since then. According to the *A Research on Lung Tsun Stone Bridge and Its Surrounding Area*, village settlements appeared in the area not until the late 12th century due to the land sales by the government. Together with plain land and flowing streams around, this area had been made rich and livable (Fig. 33).

The Qing imperial government implemented the Great Evacuation from 1662 to 1669 that resulted in severe economic downturn of villages in Kowloon. After the rescinding of Coastal Evacuation Order in 1669, the Qing government encouraged villagers especially Hakka people, to set up villages along coastal areas. In the 19th century, there were more than twenty villages established in Kowloon City area. Village alliances such as Kowloon Seven Yeuk (九龍七約) and Six Heung (六鄉) were formed.



Fig. 33: Ships were crowded around the end of Kowloon Street as indicated in edged-red area. The Ordnance Map of Hong Kong in 1845, surveyed by Lieut. Collinson. (Source: *A Research on Lung Tsun Stone Bridge and its surrounding area.*)



Fig. 34 - 35: Kowloon Street and shops in 1900s. (Source: A Research on Lung Tsun Stone Bridge and its surrounding area.)

The Kowloon Street (九龍街) (Fig. 34 - 35) developed naturally after the growing of populations. Water transportation was popular before  $20^{th}$  century especially for the coastal areas. The natural bay besides was ideal for boat berthing. "Kowloon Street" was not a street as indicated by its name, but an area / market from the foot of Pak Hok Shan (白鶴山) to the coast of Kowloon Bay. In 1840s, a few hundreds of shops and houses were found in the area. Ships from Huizhou (惠州), Tamsui (淡水) and New Territories traveled all along to the Kowloon Market for sales and shopping. By the late 19th century, restaurants and entertainment venues such as teahouses, wine shops, tobacco stores, opium dens and gambling dens started to emerge.



Fig. 36: Kowloon Walled City in early 20<sup>th</sup> century. (Source: A Research on Lung Tsun Stone Bridge and its surrounding area.)

In 1842, Hong Kong Island was ceded to Britain under the *Treaty of Nanking*《南京條 約》 due to the loss of Opium War. Kowloon Walled City ("KWC") (Fig. 36) was constructed by Qing imperial government to strengthen the defence of Kowloon Peninsula against the new Possession Hong Kong Island in 1846. Yamen, military buildings, gunpowder and ordnance magazines were built inside to station civil and military officials of Qing Dynasty. KWC was enclosed by massive stone walls with six watchtowers and four gates to enhance the defence ability. It was physically separated from Kowloon Street and had no business activity at that time.

### **3.2** Construction of LTSB:

#### **Opium and the Chinese Customs Stations as Reasons**

Qing imperial government was forced to sign a series of unequal treaties with western powers after the Opium War. The terms included the legitimization of the trade of opium. Since then, Hong Kong became a base of opium smuggling. Almost all the opium delivered to China came from Hong Kong. According to the treaties, the import of opium would incur both import tax at trading ports controlled by Western powers and regional tax to the Qing government. In order to avoid import tax, smugglers went for water transport from Hong Kong by wooden boats to non-trading

ports. Six Chinese Customs Stations were established by Qing government in 1868 in order to collect tax from wooden boats. Four of the Chinese Customs Stations in Guangdong waters were further set up at the outbound of Hong Kong including Kowloon City in 1871 to impose customs tax effectively. A pier could serve Chinese Customs force vessels in blocking opium smuggling. That made part of the reason to call for the construction of a new stone pier (later named "Lung Tsun Stone Bridge") by Major-general of Depang Xie (大鵬協副將) and Kowloon Deputy Magistrate to replace the old timber pier. Lung Tsun Stone Bridge (LTSB) was constructed in 1873-1875 (Fig. 37).

Pavilion for Greeting Officials was located at the landward end of LTSB. A stone lintel of 1873 inscribed with two large Chinese characters "Lung Tsun" (龍津) was placed at the main entrance of the Pavilion. It is believed that it was built around that time but official records cannot be found. The Pavilion was used by the local elders to greet new officials to the Yamen in KWC (Fig. 38 - 39) after their landing from LTSB.

#### 3.3 Raising Importance:

### Critical Location of LTSB and Gambling in Kowloon Walled City

After the signing of *Convention of Peking*《北京條約》 in 1860, Britain's colony extended to Kowloon (south of present day Boundary Street). KWC located to the north of Boundary Street was not fallen into the line. In 1872, public gambling was prohibited by the colonial government due to strong protest against gambling by prominent Chinese businessmen. While, the gambling houses in KWC were under Chinese jurisdiction to continue their operation. The flourishing gambling business in KWC increased the use of water transport to Kowloon City, with LTSB as the landing pier. In 1892, a "T" shape wooden extension (Fig. 40-41) was added by the local charity organization Lok Sin Tong (樂善堂) after fund raising, in order to satisfy the needs of local residents and outsiders.

In 1898, under *The Convention Between Great Britain and China Respecting an Extension of Hong Kong Territory*《中英展拓香港界址專條》, the area north of present day Boundary Street to south of Sham Chun River and surrounding islands were leased to Britain, except KWC and the area of existing pier (LTSB) for the convenience of Chinese men-of-war, officials, merchants and passenger vessels. LTSB became an important gateway for the Chinese forces in the British colony. In early 1899, British troops were sent to force all Chinese civil and military officials to vacate from KWC. The *Order-in-Council* was issued to legalize British jurisdiction in KWC in December 1899. Though the issue of LTSB was not mentioned, the colonial



government repaired LTSB in 1900 to reinstate its jurisdiction.

Fig. 37: The edged-red area indicates the Lung Tsun Stone Bridge in 1904. (Source: *Full Excavation for Defining the Preservation Approach of Lung Tsun Stone Bridge Remnants*)



Fig. 38: The front view of the Pavilion for Greeting Officials. (Source: *Full Excavation for Defining the Preservation Approach of Lung Tsun Stone Bridge Remnants*)



Fig. 39: The solid mass section of Lung Tsun Stone Bridge connecting to the Pavilion for Greeting Officials (1898). (Source: *Full Excavation for Defining the Preservation Approach of Lung Tsun Stone Bridge Remnants*)



Fig. 40: Wooden extension built in 1892. (Source: A Research on Lung Tsun Stone Bridge and its surrounding area.)



Fig. 41: The edged-red area indicates the LTSB in 1891. As the bay was no longer suitable for berthing due to shallow water level, a wooden extension was added one year later. (Source: *A Research on Lung Tsun Stone Bridge and its surrounding area.*)

## 3.4 Destruction of LTSB: Kai Tak Development

Sir Kai Ho (何啟) and Mr Au Tack (區德) established Kai Tack Land Investment Company Limited (KTLIC) which was granted the right of reclaiming the land of the northern part of Kowloon Bay. They planned to convert this huge land into an area of tenement buildings to serve the increasing housing needs of local. The Pavilion for Greeting Officials was demolished and about 170m of landward portion of LTSB was buried to make way for the reclamation (Fig. 42). The project was finally taken over by colonial government due to bankruptcy of KTLIC. Eastern part of the reclamation was converted to an airfield for Royal Air Force (RAF) and other areas remained residential. A seawall of Kai Tack Bund was built to stabilize the LTSB from the sea erosion after reclamation. A new causeway was built to link the 1924 seawall with the LTSB landing platform in 1933 (Fig. 45).

A 85-meter long concrete Kowloon City Pier was constructed in 1910 as replacement of the 1892 wooden extension. Modification works were carried out between 1936 and 1937 and a wooden shelter was also added in the 1930s (Fig. 43-44). During Japanese occupation, the new Japanese military government modified facilities of the airfield for their planes (Fig. 46). The remaining parts of LTSB and the KCP structure were entirely covered.

In 1954, the colonial government approved a master plan for Kai Tak Airport (KTA) development. Kai Tak Airport reclamation and major construction works were completed from 1956 to 1962 (Fig. 47). The economic growth of Hong Kong reached the peak in following decades. Further extension and modification were undergone from 1965 to 1988 to increase the capacity of air transportation (Fig. 48). The airport

was relocated to Chek Lap Kok in 1998.

Fig. 42: The edged-red area indicates the location of original LTSB in Kowloon City Development Plan of 1920. (Source: *Full Excavation for Defining the Preservation Approach of Lung Tsun Stone Bridge Remnants.*)



Fig. 43: The locations of (1) Kowloon City Pier, (2) 1933 causeway (3) 1924 seawall and (4) LTSB landing platform were shown in 1930s map. (Source: *Full Excavation for Defining the Preservation Approach of Lung Tsun Stone Bridge Remnants.*)



Fig. 44: Kowloon City Pier in 1932. (Source: *Full Excavation for Defining the Preservation Approach of Lung Tsun Stone Bridge Remnants.*)



Fig. 45: Close up of Lung Tsun Stone Bridge, Kowloon City Pier and causeway in the late 1930s. (Source: *Full Excavation for Defining the Preservation Approach of Lung Tsun Stone Bridge Remnants.*)



Fig. 46: The edged-red area indicates the original location of LTSB in a 1957 map. LTSB above ground was demolished by airfield construction. (Source: *Full Excavation for Defining the Preservation Approach of Lung Tsun Stone Bridge Remnants.*)



Fig. 47: Kai Tak Airport in 1973. The edged-red area indicates the original location of LTSB. The basement of airport terminal further damaged the foundations of LTSB. (Source: *Full Excavation for Defining the Preservation Approach of Lung Tsun Stone Bridge Remnants.*)



Fig. 48: Plan of Kai Tak airport basement was overlapped with the plan of LTSB archaeological excavation. The edged-red area indicates the original location of LTSB. (Source: *Full Excavation for Defining the Preservation Approach of Lung Tsun Stone Bridge Remnants.*)

#### 3.5 Discoveries of LTSB: Archaeological Excavations

After the relocation of the airport, several archaeological investigations were conducted by Civil Engineering and Development Department for the South East Kowloon Development and the subsequent Kai Tak Development. In 2002, Archaeological Investigation of Comprehensive Feasibility Study for the Revised Scheme of South East Kowloon Development was carried out. This investigation targeted the area formerly part of Kowloon Bay. Further archaeological work was carried out in 2003 for South East Kowloon Development to identify any remains of archaeological interest in the project area. No remains of the LTSB were identified at that time.

In 2008, an Archaeological Impact Assessment was undertaken as part of the Environmental Impact Assessment ("EIA") for Kai Tak Development. Southern section of LTSB and 1924 Seawall were found. Following the recommendation of the EIA report, a further excavation was conducted from October 2008 to February 2009. From 2011 to 2012, a full archaeological excavation was carried out to unearth all the remaining features of LTSB as much as possible for the purpose of defining the preservation approach of LTSB remnants (Fig. 49).



Fig. 49: Archaeological excavation was carried out to unearth the remnants of LTSB. (Source: *Full Excavation for Defining the Preservation Approach of Lung Tsun Stone Bridge Remnants.*)

Year	Event
1200-1847	A pier was built at the seaside to meet transportation and landing needs
	of fishermen, merchants of market, custom, official, navy and gambling
	houses of KWC in different periods of time.
1842	Signing of The Treaty of Nanking《南京條約》 on the 29th of August,
	Hong Kong Island was ceded to Britain.
1846-47	A walled garrison-city, later known as KWC was constructed for
	maritime defence. Soon after then, Yamen was built.
1873-75	Construction of Lung Tsun Stone Bridge (LTSB)
1892	About 80 metres long wooden extension was added, ending with "T"
	shape on plan. Lok Sin Tong played the leading role in fund raising.
1898	Signing of The Convention Between Great Britain and China
	Respecting an Extension of Hong Kong Territory《中英展拓香港界址
	專條》 on the 9th of June. KWC and LTSB remained under Chinese
	jurisdiction.
1899	Chinese civil and military officials were forced to vacate from KWC on
	the 19th of May by British Army.

Table 1Chronological Events

1910	Construction of concrete bridge in replacement of timber old bridge. (It
	was not yet named Kowloon City Pier (KCP), the pier renamed as KCP
	in 1920s).
1916-20	1st stage of Kai Tak Reclamation
1920s	Demolition of the Pavilion for Greeting Officials and LTSB was partly
	buried
1924	Seawall of Kai Tack Bund was built and the LTSB was shortened
1927-30	Construction of Kai Tak Airfield
Ca. 1932	New construction of KCP, wooden shelter built
1936-37	Reconstruction of KCP
1942-45	During occupation, Japanese demolished a few supporting pillars, part
	of the landing platform of LTSB, and concrete structure of KCP for the
	extension of military airfield.
1956-88	Kai Tak Airport reclamation and major construction completed in the
	period of 1956 to 1962. More underground components of LTSB were
	destroyed. Further extension and modification were undergone from
	1965 to 1988.
1998	Relocation of the airport to Chek Lap Kok
2008	An Archaeological Impact Assessment was undertaken as part of the
	EIA for Kai Tak Development. Southern section of LTSB and 1924
	seawall were found.
2008-2009	Further archaeological excavation was undertaken to investigate the
	remains of LTSB, KCP and the Pavilion for Greeting Officials and a
	structural assessment was conducted.
2011-2012	Full excavation was undertaken to unearth all remaining structures of
	LTSB as much as possible for the purpose of defining the preservation
	approach of LTSB remnants. All of the LTSB remnants were backfilled
	after the full excavation.


## Table 2Summary of Major Interventions on LTSB

## 4.0 STATEMENT OF CULTURAL SIGNIFICANCE

## 4.1 Historic Value

The Lung Tsun Stone Bridge (LTSB) (Fig. 53) is a unique historical landmark with strategic position epitomizing the long history of diplomatic exchanges between the Qing government and British colonial government. It symbolizes the presence of the Qing government's jurisdiction over Kowloon Walled City. It also testifies the flourishing trade of opium and gambling in 19<sup>th</sup> century, the early commercial activities in Kowloon City and the economic growth of Hong Kong under British governance.



Fig. 53: First built Lung Tsun Stone Bridge. (Source: *Conservation Management Plan for the Site of Lung Tsun Stone Bridge.*)

## 4.2 Architectural Value

The LTSB is of architectural significance because it is one of the surviving examples of typical Qing stone bridge in urban area of Hong Kong other than four existing bridges in the rural areas. It showcases the construction method and materials used for Guangdong bridge during the Qing dynasty. It also demonstrates the influence of Chinese architecture as well as local adaptation in Hong Kong.

The LTSB was built in granite slabs with supporting pillars in hexagonal shape. According to San On Gazetteer (《新安縣誌》), a stone bridge named "Longjin Bridge"(龍津橋) with hexagonal shape supporting pillars (cutwater) was built at Panyu (番禺) country in Qing dynasty. According to the research of Conservation

*Management Plan for the site of Lung Tsun Stone Bridge*, 1989 published Guangdong Relics Map (*Zhongguo wen wu di tu ji- Guangdong Province*《中國文物地圖集廣東 分冊》) recorded that a hundred of similar Qing dynasty stone bridges were built with supporting pillars in hexagonal shape located in various cities or counties of Guangdong area.

In Hong Kong, four stone bridges with similar supporting pillars are recorded in the AMO's research files. They are Bin Mo Bridge (便母橋) (Fig. 58) built in 1710, Lee Tat Bridge (利達橋) (Fig. 57) built in 1903, Old Bridge in Lin Ma Hang (蓮麻坑) of Sha Tau Kok (沙頭角) probably constructed before 1913, and Wui Sin Bridge (會仙橋) built in 1926. The LTSB and a small stone bridge leading to Sacred Hill built in the area of Kowloon City (Fig. 59) both resembled the style of stone supporting pillar and craftsmanship of Qing dynasty stonework in Guangdong area.

According to the *Full Excavation for Defining the Preservation Approach of Lung Tsun Stone Bridge Remnants*, there were two types of 19<sup>th</sup> century piers identified in Victoria Harbour: column structure pier and solid mass pier. The deckings of column structure pier were supported by concrete or timber columns. The columns were fixed by triangular beams which shared the loading of the decking. Column structure pier could be identified in Central, Admiralty, Stonecutter Island and Yau Ma Tei. Solid mass pier was constructed with stone blocks and infilled with stone and mortar. They are identified in old photos of piers in Central (Fig. 66) and Sheung Wan (Fig. 67). LTSB is a mixture of the solid mass and column structure.

### Solid Mass Section of LTSB

The LTSB portion connecting with inland and the Pavilion for Greeting Officials is identified as solid mass (Fig. 54-55). The granite slabs arrangement strikes resemblance to the walls of the Kowloon Walled City (Fig. 56). Pre-shaped dressed transverse blocks were placed between five layers of pre-shaped dressed longitudinal blocks as identified in a few historical photographs. Such arrangement can provide stability for the wall structure. Similar arrangement was also adopted in the brick walls of Chinese vernacular houses.



Fig. 54: Solid mass section was constructed with granite blocks and sandy mortar infill. (Source: *Further Archaeological Excavation Report for Kai Tak Development Engineering Study cum Design and Construction of Advance Works - Investigation, Design and Construction.*)



Fig. 55: Granite arrangement of the side wall of solid mass section. (Source: Further Archaeological Excavation Report for Kai Tak Development Engineering Study cum Design and Construction of Advance Works - Investigation, Design and Construction.)



Fig. 56: Stone Block Arrangement of Northern Wall of Kowloon Walled City. (Source: *Further* Archaeological Excavation Report for Kai Tak Development Engineering Study cum Design and Construction of Advance Works - Investigation, Design and Construction.)



Fig. 57: Stone supporting pillar of Lee Tat Bridge, Shui Tsan Tin, Pat Heung, Yuen Long. (Source: *Conservation Management Plan for the Site of Lung Tsun Stone Bridge.*)



Fig. 58: Old Bridge, Bin Mo Bridge, Kam Tin. (Source: *Conservation Management Plan for the Site of Lung Tsun Stone Bridge.*)



Fig. 59: Stone bridge at Kowloon City area. LTSB shares the similar construction style with supporting pillars in hexagonal shape. (Source: *Conservation Management Plan for Lung Tsun Stone Bridge*.)

## **Supporting Pillar Section of LTSB**

The seaward portion is considered column structure. There were a total of 20 stone supporting pillars excavated in the full archaeological excavation in 2011-12. Each stone supporting pillar consisted of several parts: granite decking at the top (Fig. 62), nine tiers of granite slabs laying in a hexagonal shape on plan and was constructed in an alternating straight-cross manner (丁順建築法) (Fig. 60). This hexagonal plan can minimize the effect of waves and tides for the stability of the bridge. This is given a technical term of "point for break water" (分水尖). Such design is similar to other Chinese column bridges (Fig. 61). The bottom part of the supporting pillar was foundation boulders of over 50cm in size. Wooden poles struck into the sea floor to stabilize the structure in the bottom. Wooden planks and foundation boulders on top of the wooden poles provided platforms for granite structure. It is believed that timber posts were possibly vertically arranged under pillar footing slabs to support the pillar above (Fig. 63).



Fig. 60: Reconstruction of the stone supporting pillar. (Source: *Full Excavation for Defining the Preservation Approach of Lung Tsun Stone Bridge Remnants.*)



Fig. 61: Drawing of Chinese horizontal bridge. (Source: Further Archaeological Excavation Report for Kai Tak Development Engineering Study cum Design and Construction of Advance Works -Investigation, Design and Construction.)



Fig. 62: Granite decking between SP12 and 13. (Source: *Full Excavation for Defining the Preservation Approach of Lung Tsun Stone Bridge Remnants.*)



Fig. 63: One of the supporting pillars of the LTSB (SP17) unearthed in previous archaeological work. (Source: *Full Excavation for Defining the Preservation Approach of Lung Tsun Stone Bridge*)



Fig. 64: The edged-red area indicates the supporting pillar section at the end of solid mass section. (Source: *Conservation Management Plan for Lung Tsun Stone Bridge.*)

## Landing Platform of LTSB

Landing Platform at the seaward end of LTSB was constructed using pre-shaped dressed granite blocks with two passenger boarding steps on both NE and SE sides. It is a solid mass structure built of granite slabs (Fig. 65). Similar forms of seaward ends were observed in masonry piers of Sheung Wan (Fig. 67), Central (Fig. 66), Admiralty and Wan Chai.

LTSB is not an ordinary bridge but a landing pier adopting the style of stone cutwater (supporting pillar in hexagonal shape) commonly used in river bridges of Guangdong province during the Qing dynasty.



Fig. 65: Remains of the LTSB Landing Platform. (Source: *Full Excavation for Defining the Preservation Approach of Lung Tsun Stone Bridge Remnants.*)



Fig. 66: A masonry pier in Central in 1874. (Source: *Further Archaeological Excavation Report for Kai Tak Development Engineering Study cum Design and Construction of Advance Works - Investigation, Design and Construction.)* 



Fig. 67: Landing platform of a pier in Sheung Wan in the late 19th century. (Source: *Full Excavation for Defining the Preservation Approach of Lung Tsun Stone Bridge Remnants.*)

# **Pavilion for Greeting Officials**

The Pavilion for Greeting Officials (the Pavilion) (接官亭) was a two-storey Chinese style architecture with double-eaved hip roof (重檐式廡殿). It was constructed with green bricks and stones. It had a recessed (凹斗式) entrance, a granite tablet with "龍 津" carved/written on top of the front door and two murals on the two sides of the granite tablet (Fig. 68). However, only southern, eastern and western foundation walls and two footing granite slabs of the Pavilion were unearthed according to the findings of previous archaeological work.



Fig. 68: A stone lintel inscribed with Chinese character "龍津" was placed at the main entrance of the Pavilion. (Source: *Conservation Management Plan for Lung Tsun Stone Bridge*.)

## 4.3 Social Value

LTSB facilitated development of Kowloon Street, the most important commercial and entertainment hub in Kowloon district during the Qing dynasty. It served as a landing pier for Kowloon City area for over 60 years. The construction, interventions and demolitions of LTSB illustrate the urban transformation of Kowloon City. Kowloon Walled City ("KWC") is an urban legend in Hong Kong. It completes the story of early life of KWC. It also testifies the activities of charitable organization, Lok Sin Tong in 19th century, which played an important role in the community development of early colonial Hong Kong (Fig. 69).



Fig. 69: Close-up of the Kowloon Walled city and Kowloon Street. (Source: *Conservation Management Plan for the Site of Lung Tsun Stone Bridge.*)

## 4.4 Contextual Value

The originality of the location of LTSB is a key to illustrate the early Kowloon City development and political importance of KWC. The LTSB Preservation Corridor and the declared monuments in Kowloon Walled City Park (i.e. Former Yamen Building of Kowloon Walled City and Remnants of the South Gate of Kowloon Walled City) as well as Hau Wong Temple (also a declared monument), and Stone Houses ( $\overline{\Box}$   $\overline{E}$  $\overline{s}$ )<sup>1</sup> can join together to embrace and enrich their distinctive roles in the Chinese civil and military establishment as well as the local community in the late 19<sup>th</sup> century Hong Kong. With the heritage displays in the future To Kwa Wan MTR Station and the Sung Wong Toi Park, a wider historical cluster will be formed to tell the story of Hong Kong from Song dynasty to the early colonial period of Hong Kong (Fig. 70).

<sup>&</sup>lt;sup>1</sup> A Grade 3 historic building and revitalized under Revitalising Historic Building Through Partnership Scheme.



Fig. 70: Location of the original LTSB and the heritage items nearby. They include: (1) Former Yamen Building and Remnants of the South Gate of Kowloon Walled City, Kowloon Walled City Park (Declared Monuments), (2) Archaeological remains to be displayed at the future To Kwa Wan Station, (3) the future Sung Wong Toi Park, (4) Stone Houses and (5) Hau Wong Temple. (Source: GeoInfo Map, modified by author.)

## 4.5 Townscape and Landscape Value

The LTSB was an important landmark on the coastline, linking the Kowloon Street and KWC. Before the extension of colony's territory, it was a visual reminder of the presence of Chinese officials and navy. The archaeological features unearthed within the original site of LTSB could represent the rapid change of townscape and landscape in Kowloon from 1875 to 1998.



Fig. 71 - 72: The evolution of townscape of Kowloon Bay from 1900 to mid-20<sup>th</sup> century. (Source: *Conservation Management Plan for the Site of Lung Tsun Stone Bridge.*)

## 4.6 Archaeological Value

The excavated archaeological features of LTSB are physical evidences relating to the Kowloon villages, KWC, Lok Sin Tong, Kowloon City Pier, Kai Tack Bund and Kai Tak Airport development. They are valuable in terms of urban or historical archaeology in Hong Kong. It is particularly significant in studying history of KWC against the Hong Kong's colonial background. Archaeological discoveries of LTSB provided detailed information to understand the technology and skill of masonry works in the 19th century. These remnants are important for the study of stone pier architecture in Hong Kong and surrounding regions.

## 4.7 Authenticity and Rarity

LTSB is a rare remaining example of typical Qing stone bridge in urban area of Hong Kong. The location and orientation of LTSB have remained unchanged for over a hundred years. Though the LTSB has suffered from several interventions and various degrees of destructions, the overall layout as well as the construction materials and method are highly authentic.

# 5.0 DEVELOPMENT OF CONSERVATION MANAGEMENT PLAN

## 5.1 Character Defining Elements (CDEs) required to be Preserved and Displayed

Character Defining Element (CDE) means the materials, forms, location, spatial configurations, uses and cultural associations or meanings that contribute to the heritage value of a historic place, which must be retained to preserve its heritage value. CDEs have different levels of significance. This assessment of significance of CDE is to facilitate decisions to be made on the future conservation of the historic place concerning the establishment of conservation policies, recommended treatments for the CDEs as well as the interpretation for the historic place. The Levels of Significance are based on the Conservation Plan by James Kerr.

Levels of	Meaning	
Significance		
Exceptional	Where an individual space or element is assessed as displaying a strong contribution to	
	the overall significance of the place. Spaces, elements or fabric exhibit a high degree	
	of intactness and quality, though minor alterations or degradation may be evident.	
High	Where an individual space or element is assessed as making a substantial contribution	
	to the overall significance of the place. Spaces, elements of fabric originally of	
	substantial quality, yet may have undergone considerable alteration or adaptation	
	resulting in presentation, which is either incomplete or ambiguous.	
Moderate	Where an individual space or element is assessed as making a moderate contribution to	
	the overall significance of the place. Spaces, elements or fabric originally of some	
	intrinsic quality, and may have undergone alteration or degradation. In addition,	
	elements of relatively new construction, where the assessment of significance is	
	difficult, may be included.	
Low	Where an individual space or element is assessed as making a minor contribution to	
	the overall significance of the place, especially when compared to other features.	
	Spaces, elements or fabric originally of little intrinsic quality, may have undergone	
	alteration or degradation. This category also includes original spaces, elements or	
	fabric of any quality which have undergone extensive alteration or adaptation to the	
	extent that only isolated remnants survive.	
Neutral	Where an individual space or element is assessed as having an unimportant	
	relationship with the overall significance of the place. Spaces, elements or fabric are	
	assessed as having little or no significance.	
Intrusive	Where an individual space or element detracts from the appreciation of cultural	
	significance, by adversely affecting or obscuring other significant areas, elements or	
	items.	



## Character Defining Elements (CDEs) are identified as below:

Fig. 73: CDEs of the Site. (Source: Full Excavation for Defining the Preservation Approach of Lung Tsun Stone Bridge Remnants.)

## 5.1.1 Site Location and Context

Item	Character Defining Element (CDE)	Photo/ Reference	Level of Significance
No			
A-1	Setting and Context	The Tein	Exceptional
	Lung Tsun Stone Bridge (LTSB) was located at	the second second	The originality of the location and
	the coastal area of Kowloon City (Fig. 75) upon		setting of LTSB are keys to illustrate
	its construction in 1873-75. The setting and		the early Kowloon City development
	context of the LTSB remnants are remained		and political importance of Kowloon
	unchanged for over a hundred years (Fig. 74).	KOWLDON CITY OR RAU LUNG SHING	Walled City in the late 19 <sup>th</sup> century.
		Fig. 75: The edged-red area indicates the LTSB in 1904.	
	Fig. 74: The edged-red area indicates the location of LTSB		
	remnants in previous archeological work. (Source: Google		
	map, modified by author.)		

## A-2 Overall Master Layout

LTSB consists of solid mass section, supporting pillar section, landing platform and the Pavilion for Greeting Officials. The overall setting (Fig. 76-77) was found retained during previous archaeological work.



Fig. 76: LTSB in early 20th century. (Source:Conservation Management Plan for the Site of LungTsun Stone Bridge.)



## Exceptional

LTSB is a unique historical landmark with strategic position epitomizing the long history of diplomatic exchanges between the Qing government and the British colonial government. It is exceptionally significant in historic and social values.

## 5.1.2 Historical Fabric

Item No	Character Defining Element (CDE)	Photo/ Reference	Level of significance
B-1	Remnants of the Pavilion for Greeting Officials		High
	(the Pavilion) The Pavilion was a two-storey pavilion with dimension of 8m × 7m. However, only the eastern, western, southern foundation wall stones and two footing granite slabs of the Pavilion were identified in previous archaeological work (Fig. 78-80). The standing structure of the Pavilion left		Built in the late 19 <sup>th</sup> century, the Pavilion is of high significance because it was used by the local elders to greet new officials to the Yamen in Kowloon Walled City in the 19 <sup>th</sup> century.
	no trace.	Fig. 79 & 80: (1) Southern side wall, (2) Eastern side wall, (3) Footing granite slabs.	

# B-2 Remnants of the Solid Mass (SM) Section of LTSB

The SM section is 85.6m in length (Grid 1 to 4 in 2011-12 archaeological excavation) (Fig. 81-82) and about 2.6m in width (Fig. 83-85). The exposed solid mass is truncated into eight sections by the concrete pile caps and beams of the Kai Tak Airport Terminal Building Basement (Fig. 83). Auger hole test results of the 2011-12 archaeological excavation indicated that the solid mass may be one continuous alignment beneath the excavation limit.



## Solid mass section of LTSB



Pile cap and, beam of the Kai

Fig. 83: Southern end of the solid mass section in Grid 4. North facing.



Fig. 84: Bird's eye view of solid mass section.

# High

Built in 1873 to 1875, the SM section is one of the major parts of the LTSB connecting inland and the Pavilion for Greeting Officials. It was constructed in solid mass structure similar to Chinese vernacular houses with granite blocks and cobbles used.

It is one of the rare remaining Qing stone bridges in urban area of Hong Kong which showcases the construction method and materials used for Guangdong bridge during Qing dynasty.



**B-3** The decking between SP13 and SP14 has been alternating straight-cross manner (丁順建築法). notched into half at the middle which might be (cont.) caused by construction of the 1924 seawall (Fig. 91). It is one of the rare remaining Qing stone bridges in urban area of Hong SP17 was fully excavated in 2008 archaeological Kong which showcases construction method and materials investigation up to a depth of -0.8mPD. A total of eight tiers were visible above the foundation used for Guangdong bridge in Qing stones at the base of the pillar. The slabs were laid dynasty. in an alternating straight-cross manner in a Fig. 91: Remnants of SP12 to SP14. hexagonal plan. The base of the supporting pillars had irregular granite boulders of size about 0.5m long that acted as foundation supports. SP17 is appx. 2.5m along its axial length and 3.5m in its width (Fig. 92-93). The top 2 tiers of SP19-20 were demolished by the construction of former Kowloon City Pier and partial concrete decking was added on the top of original granite decking (Fig. 94). Fig. 92: Remnant of SP17.

the





# B-4 Remnants of the Landing Platform (LP) of LTSB

The LP has the same alignment to the LTSB, which was connected to SP20 with a slab for access (Fig. 95). Three layers of concrete pavement were found on top of the original granite structure illustrating the later modifications in 1892, 1910s, 1920s and 1930s (Fig. 96-97).

The construction of the LP is similar to the stone supporting pillar with the use of granite slabs. The slabs were laid in a cross-alternative ways in a T-shaped plan, and two sets of stairs for passenger boarding were observed on the northeast and southeast sides of the LP. A total of at least six steps of stairs exist on the eastern and western sides were excavated in previous archaeological work.





Fig. 96 - 97: Pavements of the landing platform:(1) Original granite slabs, (2) 1892 concrete repair,(3) 1910 concrete repair, (4) 1930s concrete ramp to former Kowloon City Pier.

# High

Built in 1873 to1875, the LP is one of the major parts of the LTSB at the seaward end. It was continuously in use during Kai Tack Bund development until early 1942. It was constructed with granite slabs originally.

The 1892, 1910s, 1920s and 1930s layers of concrete pavement were found on top of granite structures that illustrate the Kowloon development from 19<sup>th</sup> to the early 20<sup>th</sup> century.

The design of the LP is similar to some piers in Hong Kong Island at same period. It demonstrates the influence of Chinese architecture as well as local adaptation in Hong Kong.



# **B-5**

# **Remnants of the 1924 Seawall (Seawall)**

Remnants of the Seawall were unearthed in previous archaeological work. According to the archaeological data, the Seawall is a roughly trapezoidal section and connects to the northeast side of the landing platform of the LTSB. It was constructed by irregular granite boulders of size over 0.5m in width and concrete paste as gluing.

There was no observable disturbance to the remnants; however, the Seawall was not fully excavated in previous archaeological work. The edged-red area in below drawing indicating the location of seawall is based on historic maps (Fig. 98-100).





# Low

The Kai Tack Bund seawall was built in 1924 by granite boulders and concrete paste gluing to stabilize the bridge from sea erosion.

The significance of the Seawall is considered low because it is not the original structure of the LTSB. It can only illustrate the development of Kai Tack Bund in early 20<sup>th</sup> century.





	THE TARE THE ATTIC A	Landing steps	seaward end of the original LTSB
			in connecting both.
	Fig. 104: The edged-red is the indicative area of remnants of former Kowloon City Pier.	Fig. 105 & 106: The remnants of former Kowloon	The significance of the KCP is considered moderate because it is not the original structure of the LTSB. However, it continued the function of LTSB as a landing pier and served the district for nearly half a century.
		City Pier.	
B-8	Foundation Structures of Kai Tak Airport (KTA) Only the basement and foundations of the Passenger Terminal Building of KTA were identified in previous archaeological work. No standing walls of the KTA were found.	Pile cap of the airport   Solid mass section is covered by the airport foundation Ground beam of the airport	Intrusive KTA and the later extension of Passenger Terminal Building were built from 1956 to 1988. It is considered intrusive because it caused serious damages to LTSB remnants especially the solid mass section and the Pavilion
	the Terminal Building made of reinforced		Moreover, the remaining

concrete in a standardised and uniform way have	Fig. 107: The foundation structures of the Kai Tak	foundation structures still cover the
intruded LTSB remnants below. That resulted in	Airport on top of the solid mass section of LTSB.	LTSB remnants on the top and
serious damages to the remnants, especially the		result in visual obstruction to the
solid mass section of LTSB and the Pavilion (Fig.		remnants.
107).		

(Source (Fig. 75, 77, 78-107): Kai Tak Development Engineering Study cum Design and Construction of Advance Works – Investigation, Design and Construction, Further Archaeological Excavation Report and Full Excavation for Defining the Preservation Approach of Lung Tsun Stone Bridge Remnants.)

# 5.2 User's Requirement

The works agent Architectural Services Department (ArchSD) has proposed the Site to be developed into a preservation corridor for *in-situ* preservation of LTSB remnants within a 30-metre wide landscape open space. This Project aims to meet the public aspiration for the remnants of Lung Tsun Stone Bridge (LTSB) by accommodating interpretive displays and related activities in a proper setting. It also provides convenient access for public enjoyment and appreciation of the remnants.

## 5.3 Community Needs and Social Context

The Site is located in Kowloon City area. This is a district with low and middle income groups as well as many educational institutes and community facilities. The demand for public open space is high. The proposed open space to be managed by LCSD can fit the local needs. Moreover, Kowloon City is an area rich in historical and archaeological treasures. The Site can serve as a link to connect the historic sites in this area. It will be beneficial to local economy and create strong sense of belonging.

## 5.4 Statutory Requirements

Since the Site is on vacant land and will be developed into a public open space for *in-situ* preservation of LTSB remnants within a 30-metre wide landscape preservation corridor for public access and leisure purposes, new works are necessary to comply with prevailing statutory requirements.

## a. Protective Barrier

Protective glass balustrades of 600mm height will be provided at the new corridors and link-walkways of LG1/F. Protective glass balustrades of 1100mm height will be provided at the new corridors, link-bridges of G/F as well as new ramps and staircases to comply with the current regulation.

## b. Fire Service Installation

New Fire Services Installation ("FSI") such as hose reels, fire services tank, sprinkler tank and a Fire Services control room are required to comply with the statutory requirement.

## c. Barrier Free Access and other ancillary facilities

New accessible lift, ramps, accessible toilet, braille map etc will be provided in the

project to comply with current statutory requirement. The lift and ramps will be located at areas which will not obstruct the remnant display area and are convenient to public. The ramps will be able to connect all levels, access to Kai Tak Station Square and subway to Kowloon City.

## d. Building Services Installation

Since the Site will be used as a preservation corridor for *in-situ* preservation of LTSB remnants, addition of building services system, such as plant room, store rooms, toilets, water pipe ducts and drainage system etc are required.

## 5.5 Condition of Fabric

According to the archaeological excavation reports from 2008 to 2013, the solid mass section of LTSB and the Pavilion at the northern end were seriously damaged while some parts of the southern end, i.e. the granite decking between SP12 and SP13 as well as SP13 and SP17 were in better condition.

Construction of the Pavilion above ground had completely disappeared. The upper portion of the Pavilion, solid mass section of LTSB and former Kowloon City Pier were mostly removed during Kai Tack Bund reclamation. The lower portion and footing part of the Pavilion and solid mass section of LTSB were also damaged by foundation and substructure of the Passenger Terminal Building Basement of the Kai Tak Airport. The lower portion and footing part of the supporting pillar section of LTSB were in relatively good condition.

The long-term exposure of the remnants after the further excavation in 2008 caused deterioration of the remnants. They included loosening of some fragments of LTSB remnants, such as a few isolated or small slabs, rubbles, concrete pavement, and lime mortar that lie on the surface have been subjected to movement. Structural defects were observed: -

## Solid Mass Section of LTSB

Some granite blocks side wall of the solid mass section had collapsed. Lateral deformation of rubble filled material and collapsed side wall granite blocks were found in solid mass section.

## **Supporting Pillar Section of LTSB**

Lateral deformation in SP13, SP17 and landing platform was caused by raining and

plant growth. Soil contamination was observed at the areas of SP18 and SP19.

## Landing Platform of LTSB

Decays of masonry structure and lime mortar were found. Plant growth resulted in deformation of the landing platform.

Remnants on site were backfilled after full archaeological excavation in 2011-2012 in order to protect the remnants under a stable environment. Mitigation measures with reference to the recommendation in the report of *Full Excavation for Defining the Preservation Approach of Lung Tsun Bridge Remnants* should be conducted after the remnants are unearthed by archaeological excavation. Precautionary measures should be well-planned and implemented to avoid any adverse impact on the remnants.

## 5.6 Conservation Policies and Guidelines

## a. Objectives

Based on the Statement of Significance established and the assessment of the existing condition of fabric, the Conservation Objectives adopted for the new use of the Site are as follows:

- Preserve *in-situ* the remnants of the Pavilion for Greeting Officials, the solid mass section, supporting pillar section and the landing platform of the LTSB for long-term protection and slow down the deterioration by conservation treatment of the remnants and effective management plan.
- Provide the Site with a new compatible use as a preservation corridor for *in-situ* preservation of LTSB remnants within a 30-metre wide landscape open space.
- Enhance the heritage value of the remnants for public appreciation.
- Promote public awareness and education in heritage conservation, and bring social benefits to the local communities.

# b. Conservation Standards

The HIA is based on the following international standards and principles:

- The Venice Charter (1964) The ICOMOS International Charter for the Conservation and Restoration of Monuments and Sites, UNESCO.
- The Burra Charter (2013) The Australia ICOMOS Charter for Places of Cultural Significance.
- China Principles (2015) Principles for the Conservation of Heritage Sites in China.

## c. Conservation Principles

The following conservation principles will be used:

- Preserve in-situ

To maintain the remnants in its existing state on site and retarding deterioration.

## - Conserve and Enhance Heritage Value

Conserve the heritage value of a historic place, and respect its changes over time which represents a particular period of time. Do not remove, replace, or substantially alter its intact or repairable CDEs which contributing to its heritage value.

## - Retain Authenticity & Integrity

To measure the degree in which the values of a heritage property may be understood to be truthfully, genuinely and credibly, expressed by the attributes carrying the values.

## - Minimum Intervention

To ensure minimum interference to the CDEs with the lowest level of interventions.

## - Maximum Reversibility

The interventions should be removed as if the intervention had never occurred, leaving no indelible harm to the asset.

## - Integrating Old and New

Make the new work physically and visually compatible with and distinguishable from the original fabric of the historic place.

## d. Guidelines

## i. Management of Conservation

## Policy 1

The context of a place is part of its cultural significance. LTSB remnants should remain in its historical location and setting. Relocation is generally unacceptable unless this is the sole practical means of ensuring its survival.

Guideline: The strategic location of LTSB and its linkage with Kowloon Walled City showcase the change of political situation of Hong Kong from under Chinese governance to being a British colony. The LTSB remnants should remain in its original location and setting. Relocation of the remnants for display is not recommended.

## ii. Change of Use

## Policy 2

The Site was originally used as landing pier. The new use of the Site should be
# compatible. Interpretation area and program should be provided in the Site for introducing the cultural significance of the LTSB to the public.

Guideline: The proposed new use as a preservation corridor for *in-situ* preservation of LTSB remnants within a 30-metre wide landscape open space is considered compatible to the site of archaeological interest. New ancillary facilities for the open space related to the operation of the preservation corridor should be allowed. The exhibition area with display of historic photos and documents etc. should be located in the open space for the easy access by the public.

#### iii. Historical Fabrics

#### Policy 3

The levels of significance form the basis for any actions applicable to each CDE within the Site. These can layout a soundly based analysis and assessment to determine the scope of preservation and display, and to facilitate planning and maintenance decisions.

Guideline: The key Character Defining Elements (CDEs) and features identified of high/ exceptional level of significance should be retained as far as possible. The CDE with moderate level of significance should be preserved as the preferred option, but could be recorded by an archaeologist and removed if necessary. Otherwise, removal of any elements shall be restricted to intrusive elements on the LTSB or those of low significance, for example, the foundation structure of the Kai Tak Airport, part of the 1924 seawall and 1933 causeway remnants which are laid outside the remnant display area. (refer to Appendix C).

#### Policy 4

Preservation means maintaining a place in its existing state and retarding deterioration. Preservation protects fabrics without obscuring evidence of its construction and use. It should be applied where the evidence of the fabrics is of such significance that it should not be altered.

Guideline: The main conservation approach of "preserve *in-situ*" is adopted in this project. The key CDEs identified of exceptional/high level of significance should be retained *in-situ* as far as possible. The CDE with moderate level of significance should be preserved as the preferred option, but could be recorded by an archaeologist and removed if necessary. Otherwise, removal of any elements shall be restricted to intrusive elements on the LTSB or those of low significance, for example, the foundation

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structure of the Kai Tak Airport, part of the 1924 seawall and 1933 causeway remnants which are laid outside the remnant display area. (refer to Appendix C). As defects of remnants were identified in the report of the *Full Excavation for Defining the Preservation Approach of Lung Tsun Stone Bridge Remnants*, conservation treatments are required for certain remnants with decay of masonry structure or collapsed granite blocks. Such conservation measures should be fully implemented in accordance with the interpretation of the LTSB. Any disturbance to the existing archaeological evidence should be avoided.

#### iv. New Alteration and Addition

#### Policy 5

Respect each historic place as a physical record of its time, place and use. Do not create a false sense of historical development by adding elements from other historic places or by combining features of the same property that never co-existed.

Guideline: The LTSB remnants including the Pavilion should be preserved *in-situ* to achieve authenticity. Their construction, layout and relationship with the Site should be retained to achieve the authenticity and integrity. Proper maintenance measures should be taken according to the existing and predicted conditions of the remnants.

#### Policy 6

Any new alteration and additional works to the Site should be at a less obstructive location and not affecting the overall layout and setting of the LTSB. The new alteration and addition works should be of compatible design and distinguishable from the existing fabrics.

Guideline: New addition and alteration works for the compliance of current regulations and standards including protective barrier (e.g. protective balustrades), fire services installations (e.g. hose reels, fire services tank, sprinkler tank), barrier free access (accessible lift, ramps) and building service installation to fulfill the operational needs (e.g. corridors, link-walkways/bridges, staircases, plant rooms, store room, first aid room and baby care room) should be located at the areas which will not obstruct the remnant display area to minimize the adverse visual impact.

#### v. Landscaping

#### Policy 7

The ambience and details of the landscape design should be compatible with LTSB remnants including the Pavilion.

Guideline: The original LTSB was a landing platform surrounded with seawater. Landscape design with a new water feature (e.g. pool) in central part of the preservation corridor is proposed which is compatible with the character and ambience of the historic LTSB. For areas at the general excavation level of +1.2mPD adjoining the remnants, which are only accessible by management/maintenance staff, dark coloured marble chips will be provided to imitate the surface of seawater. For pedestrian corridors and link-walkways on LG1/F, outdoor type flooring, say granite slabs tiles, would be adopted. An intention in the selection of colours and materials of the aforesaid finishes is to showcase the remnants more prominently. An artist's impression is in Appendix B for reference.

The planting design concept will follow the winning scheme to echo the bamboo theme along the preservation corridor with planting of bamboo, shrubs and groundcovers at proper locations, which can also soften the architectural elements and enhance the amenity value. The planting design will be reviewed in detail design stage to ensure that the remnants will not be structurally affected and visually blocked by the vegetation.

#### 5.7 Strategies to Document the Change during the Course of Works introduced by the Project

#### a. Design Stage

Prior to the adoption of design proposal of the Project, Heritage Impact Assessment (HIA) has to be ready to make sure the cultural significance of the Site can be appropriately preserved. The specifications and documentation of the proposed archaeological and conservation work as well as proposed design treatment for the CDEs should be included in the tender document. Necessary archaeological work and conservation work should be in compliance of the approved HIA and form part of the tender requirements. For any change of the conservation work in the adopted design scheme or change affecting CDEs, AMO's advice should be sought at the early design stage. A heritage consultant (including a qualified archaeologist) should be appointed by ArchSD at the design stage and construction stage to ensure the conservation policies and guidelines in the HIA are properly executed.

#### b. Construction Stage

During the construction stage, a qualified archaeologist should be engaged to apply for a licence under the Antiquities and Monuments Ordinance (Cap. 53) to conduct archaeological watching brief to monitor the construction works as well as to conduct

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archaeological excavation to re-expose the remnants down to the finished levels and to uncover the remnants which have not been excavated before to the level agreed for future display. Archaeological excavation of individual remnants should be conducted before commencement of construction works within the area for archaeological excavation. If any significant archaeological findings and on-site archaeological issue are identified during the course of the archaeological fieldwork or construction works within the Site, AMO should be informed immeditately for any agreement on the follow up actions as required. Conservation treatment should be applied to certain remnants with decay of masonry structure or collapsed granite blocks after the remnants are unearthed. Method statement, safety measures (e.g. protection measures to CDEs during excavation works) and alternative proposals (if actual situation is found different from original detail /design intent) should be submitted for AMO's prior approval. Appropriate protective measures should be taken on site by the Contractor of the construction works in consultation with the heritage consultant and the archaeologist and in prior agreement with AMO, to prevent the remnants from being affected by the construction works, such as further deformation, decay and settlement problems. Photos of "before", "during" and "after" for works to CDEs should be properly recorded.

ArchSD's contractor should appoint a structural engineer to carry out condition survey, structural appraisal and photographic report under the recommendations of the heritage consultant and the qualified archaeologist before related works and to verify the actual site and CDEs' condition against the proposed design. Method statement (e.g. for conservation treatment, granite cleaning etc.), safety measures (e.g. protection measures to CDEs during construction works) and alternative proposals (if actual situation is found different from original detail /design intent) should be submitted for AMO's prior approval.

#### c. Post-construction Stage

All conservation studies, conservation plans, site inspection records during construction stage, record drawings and photographs after completion of works should be documented by the Contractor, vetted and agreed by the heritage consultant and filed at ArchSD and/or LCSD. Records of any future alteration works should also be documented. The documents should be made available to future users or professionals who are responsible for up-keeping the Site and reviewing the development of the Site.

#### 5.8 Strategies on Interpretation and Display

This Project could facilitate to promote public appreciation of the cultural significance

of the Site by proper site interpretation.

This goal can be achieved by the following means:

- To reinstate and display the visual landmark "LTSB" at original location by exposing most of the LTSB remnants down to the optimal level of +1.2mPD and preserve *in-situ*.
- To illustrate the construction method of the LTSB by exposing remnants of SP17 and selected part of Grid 2 down to the footing stones at -0.1mPD and +0.6mPD respectively and preserve *in-situ*.
- To establish interpretation areas at corridors, link-walkways/bridges and a large open space area to allow viewing of remnants from different angles and easy access by public.
- To establish an open space area for group gathering and community activities, to facilitate heritage education as well as enjoyment for everyone.
- To provide a heritage path connecting the Site and Kowloon Walled City Park. (refer to Appendix B)

#### a. Remnant Display area and Interpretation Area

It is recommended that remnant display area will be established to allow appreciation of the authentic LTSB fabrics at original location. Interpretation areas with presentation of old photographs, maps, documents, physical models, historical objects and artifacts can enrich the layers of understanding of the Site and stimulate thoughts. (Locations of the remnant display area and interpretation area are shown in Appendix B.)

#### b. Accessibility and Connectivity

There are easy accesses of the Site from the subway currently under construction coming from Kowloon City center and future Kai Tak Station Square as well as adjoining Comprehensive Development Areas (CDAs). Heritage path will be designed to connect the LTSB with Kowloon Walled City Park to tell their historic relationship (refer to Appendix B). Furthermore, suitable directional signs and boards will be installed to direct visitors to visit other heritage sites in the vicinity.

#### c. Potential Theme and Media of Interpretation

Potential theme and subjects include the history and development of Kowloon City, history of early colonial Hong Kong and Kowloon Peninsula, relationship of LTSB and Kowloon Walled City, water transportation in Hong Kong, bridge construction in Qing dynasty, Kowloon Street and early commercial life of Hong Kong.

The interpretation facilities will also echo the information about the discoveries found at the works site of the To Kwa Wan Station, the heritiage displays in the future To Kwa Wan MTR Station and the future Sung Wong Toi Park to facilitate public understanding of the cultural heritage of the district as a whole.

Information on history and story of the LTSB can be provided in various means such as pamphlets and electronic media for visitors. It is also proposed to document the process of preservation and new use of the Site in the future interpretation facilities.

Kowloon City is a district with numbers of education institutes and community organizations. The interest of teenagers and children should be taken into consideration when preparing exhibition materials and planning activities. Public involvement/ participation should be encouraged.

Activities can also be arranged to enrich the appreciation experience of the Site and promote the arts and culture to the community. Potential activities such as guided tours along the heritage trail linking LTSB with the neighbourhood declared monuments Former Yamen Building and Remnants of the South Gate of Kowloon Walled City at Kowloon Walled City Park, Hau Wong Temple and archaeological remains to be displayed at future To Kwa Wan Station as well as the future Sung Wong Toi Park can highlight the historic and social significance of the Site.

#### 5.9 Strategies to Operate and Safeguard the Lung Tsun Stone Bridge during Operation Stage against Deterioration and Improper Use

#### a. Control of Visitors

An appropriate area of the Site will be open to public on a 24-hour basis to facilitate pedestrian circulation to the adjoining subway, Kai Tak Station Square and the proposed USS. The opening hours for the remaining parts will be limited to suit operational needs. To avoid overloading of the Site and facilitate the daily operation of the preservation corridor for *in-situ* preservation of LTSB remnants within a 30-metre wide landscape open space, available space on G/F and LG1/F for visitors and extent of accessibility would be considered and confirmed in the design and construction stages. Leisure Services Branch of LCSD will be responsible for the daily operation of the Site to avoid unauthorized entry to the Site and crowd management of the open space especially during emergency situations. ArchSD will work with LCSD, their maintenance agents

including but not limited to Property Services Branch of ArchSD, Electrical and Mechanical Services Department ("EMSD") and other specialist parties to resolve the detailed management and maintenance issues of the preservation corridor in the design stage of the project.

#### b. Control of Further Development or Alteration

It is unlikely that extensive alterations and additions would be required at the Site in the near future. For any large scale renovation works involving substantial changes, the recommendations of this HIA endorsed by AMO should be followed with the input from heritage consultant. The development of adjacent CDA sites is suggested to be compatible with the Site. Appropriate requirements are planned to be included in the Planning Brief of these CDA sites.

#### 5.10 Strategies on Maintenance

#### a. Maintenance of the Historic Fabric

Maintenance manual with respect to the maintenance of the remnants in remnant display area with specifications of the significance and appropriate management of CDEs and its setting should be issued to the management team and operational staffs of the Site. Such maintenance manual should include routine cleaning schedule, procedures and use of cleaning materials. Maintenance of the new designed landscapes around the remnants should also be stipulated. Site inspections, repair and maintenance should be carried out on a regular basis as per such manual. All the above activities should be recorded accordingly. ArchSD will work with LCSD, their maintenance agents including but not limited to Property Services Branch of ArchSD, EMSD and other specialist parties to resolve the detailed maintenance issues of the preservation corridor and prepare the Maintenance manual accordingly.

#### b. Guidelines for use by future operator/use

Small scale repair works shall follow the recommendations of this HIA. The recommended conservation policies and guidelines should be made known to the frontline management & operational staff, technicians and workmen who are responsible for carrying out or supervising the repair works. The required information should be summarized and documented in a simple form of manuals or handbooks and included in the standard Operation Manual. Briefing session or training workshop should be arranged for the related parties to ensure full understanding of the requirements in their duties. ArchSD will work with LCSD, their maintenance agents including but not limited to Property Services Branch of ArchSD, EMSD and other specialist parties to

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resolve the detailed management and maintenance issues of the preservation corridor in the design stage of the project and prepare the Operation manual accordingly.

#### 6.0 IMPACT ASSESSMENT

#### 6.1 Proposed Use, Layout and Setting

#### Change in Use

The proposed new use of the Site as preservation corridor for *in-situ* preservation of Lung Tsun Stone Bridge (LTSB) remnants within a 30-metre wide landscape open space is compatible with the cultural significance of the LTSB. The new use is also technically feasible to the Site in terms of location and site condition. Alteration and addition works have to be carried out to satisfy the operational needs, current statutory regulations and standards for the new use. These works may cause adverse impact to the CDEs of the Site.

# 6.2 Potential Impact to the Fabric, Setting and Significance and the Corresponding Mitigation Measures

The proposed preservation corridor at the Site will be achieved through display of *in-situ* preserved LTSB remnants with continuous corridors and easy access from Kowloon City centre, Kai Tak Station Square, adjoining Comprehensive Development Area (CDA) sites and proposed Underground Shopping Street (USS). Ancillary facilities including baby care room, first-aid room, store rooms, toilets etc and landscape areas with benches, shelters, pavilions and trees will be added to facilitate the new use of the Site.

The Site is a heritage site that embodies archaeological, historic, architectural, social, contextual, townscape as well as landscape significance. The LTSB was one of the visual landmarks of Kowloon City since late 19<sup>th</sup> century and it is highly significant in the history of Hong Kong because its strategic position epitomized the important history of diplomatic exchanges between the Qing government and British colonial government in the early colonial period. The display of the physical form of "LTSB" at its original location and layout is a strong expression of the heritage site. The LTSB will be presented and the historic water atmosphere / surface around will be imitated.

The remnants have been backfilled after 2011-2012 archaeological excavation. To reinstate the LTSB bridgeline for future interpretation, there is a need to re-expose the remnants. LTSB has been subjected to various degrees of destruction in last one hundred years. The top 5 tiers had been demolished for most of the remnants. The

long-term exposure of the remnants after the further excavation in 2008-2009 also caused deterioration of the remnants. According to the archaeological reports on the excavations of LTSB, the original decking level of LTSB was likely to be +2.6mPD to +2.8mPD, while the existing topmost levels (structure top) of the remnants range from +1.39mPD (SP11) to +2.67mPD (SP12).

Due to the continuous seepage of ground water problem of the Site, excavation level of the remnants for display becomes crucial in striking a balance between public appreciation of remnants and technical, management and cost implications. If the remnants are exposed down to +1.2mPD, the topmost level of all LTSB remnants (including the Pavilion for Greeting Officials, solid mass section, supporting pillar section and landing platform) can be unearthed with at least 100mm (approx.) thickness and up to 1.47m height of remnants for display above +1.2mPD, which can facilitate better understanding of the original form and function of the stone bridge. In addition, previous archaeological findings suggested that the tidal level at the time LTSB was in use was about +1.0mPD to +1.5mPD. Thus, +1.2 mPD is considered the optimal level in unearthing all the remnants.

While the remnants are mostly exposed down to +1.2mPD, the soil underneath the original broken granite decking between SP12 & SP13, SP13 & SP14, and the broken concrete decking between SP18 & SP19, SP19 & SP20, and associated soil berms are planned to remain in place to provide required support to the remaining structure between supporting pillars.

The foundation structures of Kai Tak Airport and any other concrete modifications covering the original LTSB should be removed except the 1892, 1910s, 1920s and 1930s concrete modifications on the landing platform (refer to Appendix C) and the concrete decking among SP18, SP19 and SP20.

LTSB is of architectural significance because it is one of the surviving examples of typical stone bridges of Qing period. The supporting pillars were constructed in hexagonal shape on plan with alternating straight-cross manner. This construction method was commonly used in most Guangdong river bridges in Qing dynasty. In order to showcase the construction method and the materials of LTSB, one of the supporting pillars is recommended to be excavated down to the footing level (-0.1mPD). Supporting pillar SP17 (with axial length 2.51m and axial width 3.48m) is selected because it is rather complete as its top eight tiers still remain according to the archaeological excavations conducted before.

The solid mass section is another major part of LTSB. From the archaeological excavations, it is noted that part of the remnants with five layers of granite blocks (about 5.5m long) and a layer of pre-shaped footing stones has remained at Grid 2 (named T3b in the further archaeological excavation conducted in 2008-2009). It is suggested to excavate to the footing level at +0.6mPD for future display.

The permanent exposure of SP17 and the remnant at Grid 2 ("Grid 2 remnant") down to the footing level at -0.1mPD and +0.6mPD respectively will allow better viewing and appreciation of the construction method and materials of LTSB, though more technical and management issues such as more groundwater seepage, falling of debris to the local voids below +1.2mPD, would need to be addressed.

The construction of the link-walkways on LG1/F adjacent to the remnants will follow the conditions imposed by the watching brief to avoid damaging the remnants. Though the solid mass section is truncated into sections by ground beams of the airport building, the unexposed bottom part of the solid mass section is likely continuous. The design of the link-walkway near to Grid 2 remnant and the central walkway linking the proposed USS will consider this "continuous solid mass" situation and may need to be revised to suit the actual conditions revealed on site after the associated archaeological excavation.

In order to allow more space for visitors and closer views of SP17, the corridor at the northeast side near to SP17 will be widened (see Design Proposal – SP17 in Appendix B) and that a link-walkway is planned to be constructed between SP17 and SP18. In view of the limited clear spacing between the two supporting pillars and to allow good view of the bottom part of SP17, the link-walkway is planned to be of 1.5m clear width which still permits 2 wheelchairs to pass each other. Footings/columns of this link-walkway will be located away from the zone directly between the two supporting pillars to avoid damage to the latter.

Visitors can appreciate the LTSB remnants including the Pavilion for Greeting Officials, solid mass section, supporting pillar sections, landing platform and remnants of partial 1924 seawall and 1933 causeway from different distances and levels at the new viewing spaces, link-walkways, link-bridges and corridors. Interpretation area with exhibition boards will be set along the remnant display area to tell the stories of LTSB.

The key proposed works within the Site are listed as follows:

#### a. Remnants of the Pavilion for Greeting Officials, the Solid Mass Section, Supporting Pillar Section of Lung Tsun Stone Bridge

- Excavate down to the level of +1.2mPD (finished level; except SP17 and Grid 2 remnant) in order to expose all the remnants of the bridge surface and the original form of LTSB for *in-situ* preservation and display in the LTSB Preservation Corridor.
- Excavate and expose the whole supporting pillar SP17 down to the level of -0.1mPD.
- Excavate and expose Grid 2 remnant down to the level of +0.6mPD.
- Remove the foundation structure of Kai Tak Airport and any concrete modifications which have covered the original granite stones of the LTSB except the concrete decking among SP18, SP19 and SP20. (refer to Appendix B).

#### Justification:

- Better interpretation of Lung Tsun Stone Bridge remnants
- Previous archaeological findings suggested that the tidal level at the time LTSB was in use is about +1.0 mPD to +1.5 mPD. Thus, +1.2 mPD is considered the optimal level in unearthing all the remnants and in striking a balance between public appreciation of remnants and technical, management, cost implications.
- SP17 is an almost-complete profile of stone pillar with top eight tiers having remained according to previous archaeological excavations. It is a good example in showcasing the construction method and materials of a typical stone bridge of Qing period.
- Grid 2 remnant is a remnant of solid mass section with five layers of granite blocks and a layer of pre-shaped footing stones having remained according to previous archaeological excavations. It is a good example in showcasing the construction method and materials of a typical stone bridge of Qing period.
- Better control of time and cost as SP17 and Grid 2 remnant had been exposed and recorded in previous archaeological excavations.
- Remove the foundation structures of Kai Tak Airport which are intrusive and cause visual obstructions to the LTSB remnants.

#### **Mitigation measures:**

- A qualified archaeologist should be engaged to apply for a licence under the Antiquities and Monuments Ordinance (Cap. 53) to conduct archaeological watching brief to monitor the construction works as well as to conduct archaeological excavation during the construction stage. Archaeological excavation of individual remnants should be conducted before commencement of construction works within the area for archaeological excavation. Protective measures should be taken by the Contractor of the construction works in consultation with the heritage consultant and the archaeologist as well as in prior agreement with AMO to prevent the CDEs from further deformation, decay and settlement problems.
- ArchSD's contractor should appoint a structural engineer to carry out condition survey, structural appraisal and photographic report under the recommendations of the heritage consultant and qualified archaeologist before related works and to verify the actual site and CDEs condition against the proposed design.
- Method statement (e.g. for conservation treatment, granite cleaning etc.) and safety measures (e.g. protection measures to LTSB remnants during excavation and construction works) and alternative proposals (if actual situation is found different from original detail / design intent) should be submitted for AMO's approval before works.
- Exhibition board(s) will be placed on the Site for depicting the history of LTSB and relevant archaeological findings.

#### b. Remnants of Landing Platform of Lung Tsun Stone Bridge

- Excavate down to the level of +1.2mPD (finished level) in order to expose the remnants for *in-situ* preservation and display in the LTSB Preservation Corridor.
- Retain the 1892, 1910s, 1920s concrete repairs and 1930s constructed ramp to the former Kowloon City Pier for *in-situ* preservation and display. (refer to Appendix C)

#### Justification:

- Better interpretations of Lung Tsun Stone Bridge remnants
- Previous archaeological findings suggested that the tidal level at the time LTSB was in use is about +1.0 mPD to +1.5 mPD. Thus, +1.2 mPD is considered the optimal level in unearthing all the remnants and striking a balance between appreciation of remnants and technical, management and cost implications.
- Concrete modification in 1892, 1910s, 1920s and 1930s are important evidences of the development of LTSB from late 19<sup>th</sup> to early 20<sup>th</sup> century.

(refer to Appendix C)

#### Mitigation measures:

- A qualified archaeologist should be engaged to apply for a licence under the Antiquities and Monuments Ordinance (Cap. 53) to conduct archaeological watching brief to monitor the construction works as well as to conduct archaeological excavation during the construction stage. Archaeological excavation of individual remnants should be conducted before commencement of construction works within the area for archaeological excavation. Protective measures should be taken by the Contractor of the construction works in consultation the heritage consultant and the archaeologist as well as in prior agreement with AMO to prevent the CDEs from further deformation, decay and settlement problems.
- ArchSD's contractor should appoint a structural engineer to carry out condition survey, structural appraisal and photographic report under the recommendations of the heritage consultant and qualified archaeologist before related works and to verify the actual site and CDEs condition against the proposed design.
- Method statement (e.g. for conservation treatment, granite cleaning, etc.) and safety measures (e.g. protection measures to LTSB remnants during works) and alternative proposals (if actual situation is found different from original detail /design intent) should be submitted for AMO's approval before works
- Exhibition board(s) will be placed on the Site for displaying the history of LTSB and Kowloon City development.

#### c. Remnants of 1924 seawall and 1933 causeway

- Excavate down to the level of +1.2mPD (finished level) and preserve *in-situ* if the remnants of the seawall and causeway are laid within the remnant display area.
- Remove if remnants of 1924 seawall and 1933 causeway are laid outside the remnant display area.
  (refer to Appendix B for Design Proposal)

#### Justification:

- Despite the 1924 seawall and 1933 causeway are low in significance, the seawall and causeway remnants lying inside the display area will be preserved in-situ in order to better illustrate the setting and context of LTSB in the early Kowloon City development.

Removal of the remnants of 1924 seawall and 1933 causeway lying outside the remnant display area aims to give way for the new corridors and link-walkways. These ancillary facilities facilitate the operation needs, current statutory regulations and standards for the new use.

# Mitigation measures for those remnants of 1924 seawall and 1933 causeway within the remnant display area:

- A qualified archaeologist should be engaged to apply for a licence under the Antiquities and Monuments Ordinance (Cap. 53) to conduct archaeological watching brief to monitor the construction works as well as to conduct archaeological excavation during the construction stage. Archaeological excavation of individual remnants should be conducted before commencement of construction works within the area for archaeological excavation. Protective measures should be taken by the Contractor of the construction works in consultation with the heritage consultant and the archaeologist as well as in prior agreement with AMO to prevent the CDEs from further deformation, decay and settlement problems.
- Photographic and drawing records should be carried out.
- ArchSD's contractor should appoint a structural engineer to carry out condition survey, structural appraisal and photographic report under the recommendations of the heritage consultant and qualified archaeologist before related works and to verify the actual site and CDEs condition against the proposed design.
- Method statement (e.g. for conservation treatment, granite cleaning, etc.) and safety measures (e.g. protection measures to LTSB remnants during works) and alternative proposals (if actual situation is found different from original detail /design intent) should be submitted for AMO's approval before works
- Exhibition board(s) will be placed on the Site for depicting the history of LTSB and Kowloon City development.

#### d. Remnants of former Kowloon City Pier (KCP)

- Remain backfilled.
- The area above ground will be converted to an open space. (Refer to Appendix B for Design Proposal)

#### Justification:

- The cultural significance of the foundation structures of former KCP is moderate.

- Due to the limited space of the Site, the foundation structures of former KCP will be covered up for providing an open space for facilitating heritage and community related activities as well as enjoyment of public.

#### **Mitigation Measures:**

- Stone paving with colours different from adjoining paving will be used to indicate the footprint of KCP. The design pattern will follow the stone pattern of the former KCP. For stones and tiles, they will be in brick pattern/ grid pattern/ bush rock pattern/ cobble stone pattern depending on character of the location. The design will be further developed in detail design stage.
- Method statement (e.g. for laying pavement on top of the remnants etc.) and safety measures (e.g. protection measures to existing KCP remnants during works) should be submitted for AMO's approval before works.
- Exhibition board(s) place on the Site for displaying the old photos or records of former KCP as part of the LTSB history.

#### e. Means of Escape (MOE)

- New fire escape staircases to be added.

#### Justification

- To meet current statutory requirements on MOE.

#### **Mitigation Measures**

- Liaise with authorities on the requirements for this particular open space project with a sunken space.
- Adopt fire engineering or other suitable approach if considered appropriate.
- Locate the fire escape staircases in less obstructive areas to avoid visual disturbance to the LTSB remnants.
- Simple and subtle design compatible but distinguishable from the LTSB remnants

#### f. Barrier Free Access

- A new accessible lift is added.
- Ramp will be provided to connect all levels, access to Kai Tak Station Square and subway to Kowloon City centre.

#### Justification

- To meet current standard prescribed in "Design Manual of Barrier Free Access".

#### Mitigation Measures

- New accessible lift and ramps will be added to comply with current statutory requirement.
- Locate the lift and ramps at less obstructive but convenient places
- Simple and subtle design compatible with but distinguishable from the LTSB remnants.

#### g. New Ancillary Facilities

- New corridors, link-walkways/bridges, ramps and staircases will be added on or between G/F, LG1/F and LG2/F (Refer to Appendix B).
- Baby care room, first-aid room, store rooms and toilets etc. will be added on LG1/F and G/F (Refer to Appendix B).
- Exhibition boards will be located along the display area of remnants.

#### Justification:

- Allow viewing of the remnants from different directions and distances.
- Better enjoyment of the remnants with exhibition boards with descriptions for understanding of the remnants.
- Effective circulation within the Site and connection to Kowloon City centre.

#### **Mitigation Measures:**

- New corridors, link-walkways/bridges, ramps and staircases will be in compatible design with the remnants.
- The structural supports of new corridors, link-walkways/bridges, ramps and staircases should not cause any damage to the remnants or major visual obstruction to LTSB.
- Any other new ancillary facilities (e.g. baby care room, first-aid room, store rooms, toilets etc.) should be located in less obstructive areas.
- Exhibition boards will be in compatible design with the LTSB remnants which can facilitate both individual and group visitors.

#### h. Building Service Installation

- New building services such as plumbing & drainage and plant rooms will be

added.

#### Justification:

- To meet the new use.

#### **Mitigation Measures:**

- New building services should be grouped together and located at less prominent locations which would not affect the remnants.

#### 6.3 Potential Visual Impact

Design of future buildings to be built in Comprehensive Development Area (CDA) sites adjacent to the Site may cause visual impact to the Site.

#### Mitigation Measures:

Appropriate requirements are planned to be included in the Planning Brief of these CDA sites.

#### 6.4 Potential Impact during Construction of the Project

Due to the close proximity of the construction works, potential vibration, dust deposition, debris during demolition, excavation, foundation and substructure construction in different stages of the construction works may pose potential impact on the LTSB remnants.

#### **Mitigation measures:**

Vibration/settlement/tilting limit as agreed by the AMO will be fully adopted in the construction works to control potential vibration/settlement/tilting due to excavation, foundation and substructure construction. Regular monitoring of the vibration/settlement/tilting should be conducted and relevant records should be submitted to AMO for record.

Percussive piling would not be used in order to minimize the vibration during the construction works. Excavation and lateral support system along the construction site will be provided to minimize the settlement and ground movement affecting the adjacent remnants.

Heritage Impact Assessment for Lung Tsun Stone Bridge Preservation Corridor at Kai Tak

A qualified archaeologist will be engaged to apply for a licence under the Antiquities and Monuments Ordinance (Cap. 53) to conduct archaeological watching brief to monitor the construction works as well as to conduct archaeological excavation during the construction stage. Archaeological excavation of individual remnants should be conducted before commencement of construction works within the area for archaeological excavation. Protective measures should be taken by the Contractor of the construction works in consultation with the heritage consultant and the archaeologist as well as in prior agreement with AMO to prevent the CDEs from further deformation, decay and settlement problems.

# 7.0 IMPLEMENTATION OF CONSERVATION MANAGEMENT PLAN

#### 7.1 The Responsible Parties and Staffing Structure to Implement the Strategies

The responsible parties and staffing to implement the strategies are as follows:

#### a. Documentation

ArchSD will maintain the records and distribute to relevant parties after the construction stage. Leisure Services Branch of LCSD will take the role as the management party after handover of the Site. Heritage consultant may be engaged to assist if necessary.

#### b. Interpretation

Heritage consultant will prepare the Conservation Interpretation and Management Plan with proposal on Interpretation and recommendations on the selection of interpretation approach and materials to present the significances of the Site.

#### 7.2 The Implementation Programme

The potential impact to the CDEs will be started from the commencement of construction works. The documentation of the change will be prepared prior to, during and after the construction works. The preparation of interpretation work will be started during the detailed design stage until the completion of the project. Regular review (e.g. annual review) on the strategies to operate and safeguard the heritage should be carried out by the time of opening of the open space.

Archaeological watching brief is required as part of mitigation measures for monitoring the construction works and archaeological excavation is required to expose the remnants during the construction stage. Archaeological excavation of individual remnants should be conducted before commencement of construction works within the area for archaeological excavation. A qualified archaeologist should be engaged to obtain a Licence from the Antiquities Authority under the Antiquities and Monuments Ordinance (Cap. 53). In this connection, the archaeologist should submit an archaeological proposal for agreement with AMO prior to apply for the Licence. The application will normally be completed in two months upon AMO's final acceptance of the application form, all necessary information and documents. Protective measures should be taken by the Contractor of the construction works in consultation with the Heritage consultant and the archeologist in prior agreement with AMO to prevent the CDEs from further deformation, decay and settlement problems.

#### 7.3 Recommendation

This HIA prepared by AGC Design Ltd. should form the base for the planning, design and implementation of the new use of the Site as recommended.

Heritage Impact Assessment for Lung Tsun Stone Bridge Preservation Corridor at Kai Tak

#### Appendix A

Geological Map and Information

#### Appendix B

**Design** Proposal

#### Appendix C

List of Impact Assessment and Mitigation Measures

Heritage Impact Assessment for Lung Tsun Stone Bridge Preservation Corridor at Kai Tak

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# APPENDIX A Geological Map and Information

## **Geological Map**



(Source: Full excavation for defining the preservation approach of Lung Tsun Stone Bridge remnants.)

#### Heritage Impact Assessment Lung Tsun Stone Bridge Preservation Corridor at Kai Tak



## Full Archaeological Excavation of LTSB



(Source: Full excavation for defining the preservation approach of Lung Tsun Stone Bridge remnants.)

#### Heritage Impact Assessment Lung Tsun Stone Bridge Preservation Corridor at Kai Tak



## **Site Location**



(Source: ArchSD)





# APPENDIX B Design Proposal

## **Design Proposal – Site Context**



Heritage Impact Assessment Lung Tsun Stone Bridge Preservation Corridor at Kai Tak

## Design Proposal - Connection with Kowloon Walled City Park



Heritage Impact Assessment Lung Tsun Stone Bridge Preservation Corridor at Kai Tak

### Design Proposal – G/F Plan



## Lung Tsun Stone Bridge Preservation Corridor at Kai Tak

## Design Proposal – Overall





#### Heritage Impact Assessment Lung Tsun Stone Bridge Preservation Corridor at Kai Tak

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## Design Proposal – G/F Plan





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## Design Proposal – LG1/F & LG2/F Plan



Heritage Impact Assessment Lung Tsun Stone Bridge Preservation Corridor at Kai Tak




# Design Proposal – LG2/F Plan









(Source: ArchSD)



## **Design Proposal – Section**



(Source: ArchSD)

Section 1:200 (A1)





(Source: ArchSD)



# **Design Proposal – SP17**



Key Plan





(Source: ArchSD)







# Design Proposal – Grid 2 Remnant



think at

Key Plan



(Source: ArchSD)





(Source: ArchSD)



# **Design Proposal**







# **Design Proposal**





View from GF Prince Edward Road East entrance

(Source: ArchSD)



APPENDIX C List of Potential Impact and Mitigation Measures With reference to Section 5.1, the following tables have identified the overall assessment of the potential impact and mitigation measures for the components of the existing building fabric including the key Character Defining Elements (CDEs) in respect of their levels of significance of Lung Tsun Stone Bridge. The evaluation of heritage impact assessment is classified into five levels of impact based on type and extent of the effects concluded in the HIA study:

- i) Beneficial impact: the impact is beneficial if Project will enhance the preservation of the heritage site(s);
- ii) Acceptable impact: if the assessment indicates that there will be no significant effects on the heritage site(s);
- iii) 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 Interpretation Proposal or Conservation Management Plan for the affected heritage site(s) before commencement of work in order to avoid any inappropriate and unnecessary interventions to the remnants;
- iv) Unacceptable impact: if the adverse effects are considered to be too excessive and are unable to be mitigated practically;
- v) Undetermined impact: if the significant adverse effects are likely, but the extent to which they may occur or may be mitigated cannot be determined from the study. Further detailed study will be required for the specific effects in question.

Item	Character Defining Element	Level of	Recommended Treatment	Justification/ Mitigation Measure	Impact
No	(CDE)	Significance			Level
A-1	Setting and Context Fig. 125: The edged red area indicates the location of LTSB remnants.	Exceptional	- Remnants of the historic Lung Tsun Stone Bridge should be preserved <i>in-situ</i> in the current setting and location. Relocation is not acceptable.	Justification: - Retain the historic, social, and contextual values of the Site	Acceptable
A-2	Overall Master Layout	Exceptional	- Remnants of the historic Lung Tsun Stone Bridge should be preserved <i>in-situ</i> in the current setting and location. Change of overall master layout is not acceptable.	Justification: - Retain the historic, social, and contextual values of the Site	Acceptable

#### A. Site Location and Context

(Source: (Fig. 125) Google map, modified by author.), (Fig. 126) Conservation Management Plan for the Site of Lung Tsun Stone Bridge.)

#### **B.** Historical Fabrics

Item	Character Defining Element	Level of	Recommended Treatment	Justification/ Mitigation Measure	Impact
No	(CDE)	Significance			Level
B-1	<b>Remnants of the Pavilion for</b>	High	- Excavate down to the level of	Justification:	Acceptable
	Greeting Officials (the		+1.2mPD (finished level) in order	- Better interpretation of the LTSB	with
	Pavilion)		to expose the remnants for in-situ	remnants.	Mitigation
			preservation and display.	- +1.2mPD is an optimal level in	Measure
	A Standard Co. A		- Removal of foundation structures	unearthing all the remnants to	
	A A A A A A A A A A A A A A A A A A A		of Kai Tak Airport and concrete	facilitate better understanding of	
			modifications which had covered	the original form and function of	
			the original granite stones of LTSB.	the stone bridge and in striking a	
	2		- Remove vegetation and rubbish	balance between appreciation of	
			with hand tools if necessary.	remnants and technical,	
			- Any new addition works placed	management and cost implications.	
	TO THE REAL PROPERTY OF		directly on the remnants or causing	- The foundation structures of Kai	
	ALL		any visual impact should be	Tak Airport and concrete	
			prohibited.	modifications are intrusive and	
	3			cause visual obstruction to the	
				display of LTSB remnants.	
	A CONTRACTOR OF A CONTRACTOR A			Mitigation Measures:	
	Fig. 127-128: (1) Southern side wall,			- Condition survey, structural	
	(2) Eastern side wall, (3)Footing			appraisal and photographic report	
	granite slabs.			to verify the actual site and CDEs	

B-1			condition against the proposed	
(cont.)			design should be conducted.	
		-	Method statement (e.g. for	
			conservation treatment), safety	
			measures (e.g. protection measures	
			to LTSB remnants during	
			excavation and construction works)	
			and alternative proposals (if any)	
			should be submitted for AMO's	
			approval.	
		-	Monitoring system for structural	
			impact on the remnants should be	
			devised and implemented.	
		_	A qualified archaeologist should be	
			engaged to conduct archaeological	
			watching brief to monitor the	
			construction works as well as to	
			conduct archaeological excavation	
			to expose the remnants down to the	
			finished levels	
			Protective massures should be	
		-	taken to present the CDEs f	
			taken to prevent the CDEs from	
			further deformation, decay and	

				<ul> <li>settlement problems.</li> <li>Exhibition board(s) will be placed on the Site for depicting the history of LTSB and relevant archaeological findings.</li> </ul>	
<b>B-2</b>	Remnants of the Solid Mass	High	- Excavate down to the level of	Justification:	Acceptable
	(SM) Section of LTSB		+1.2mPD (except Grid 2 remnant)	- Better interpretation of the LTSB	with
			in order to expose the remnants for	remnants.	Mitigation
	Solid mass Pile cap and beam of Kai		in-situ preservation and display.	- +1.2mPD is an optimal level in	Measure
	section of Tak Airport		- Grid 2 remnant will be exposed	unearthing all the remnants to	
			down to +0.6mPD	facilitate better understanding of	
			- Removal of foundation structure of	the original form and function of	
			Kai Tak Airport and concrete	the stone bridge and in striking a	
			modifications which had covered	balance between appreciation of	
			the original granite stones.	remnants and technical,	
			- Remove vegetation and rubbish	management and cost implications.	
			with hand tools if necessary	- Better viewing of the construction	
			- Any new addition works placed	method and materials of SM	
	Fig. 129: Southern end of the solid		directly on the remnants or cause	section.	
	mass section in Grid 4. North facing.		any visual impact should be	- Remove the foundation structures	
			prohibited	of Kai Tak Airport which are	
				intrusive and cause visual	



				<ul> <li>to expose the remnants down to the finished levels.</li> <li>Protective measures should be taken to prevent the CDEs from further deformation, decay and settlement problems.</li> </ul>	
				on the Site for depicting the history of LTSB and relevant	
				archaeological findings.	
B-3	Remnants of the Supporting	High	- Excavate down to the level of	Justification:	Acceptable
	Pillar (SP) Section of LTSB		+1.2mPD (except SP17) in order to	- Better interpretation of the LTSB	with
			expose the remnants for in-situ	remnants	Mitigation
	SP 13 SP 12		preservation and display.	- +1.2mPD is an optimal level in	Measure
			- Soil underneath the original broken	unearthing all the remnants to	
			granite decking between SP12 &	facilitate better understanding of	
			SP13, SP13 & SP14, and the	the original form and function of	
			broken concrete decking between	the stone bridge and in striking a	
	A SAME AND A SAME		SP18 & SP19, SP19 & SP20, and	balance between appreciation of	
	A MARINE		associated soil berms are planned	remnants and technical.	
	and the second second second		to remain in place.	management and cost	
	Fig. 131: Granite decking between		- SP17 will be exposed down to	implications	
	SP12 and SP13		-0 1mPD	- Better viewing of the	
	51 12 and 51 15.		-0.11m D.	Detter viewing Of the	

		-	Removal of foundation structure of		construction method and	
	UNA ANTAILA - M. R.		Kai Tak Airport and concrete		materials of SP section. Remove	
	and the second sec		modifications which had covered		the foundation structures of Kai	
	593	i	the original granite stones.		Tak Airport which are intrusive	
	SPACE AND A SPACE	-	Remove vegetation and rubbish		and cause visual obstruction to	
			with hand tools if necessary.		the LTSB remnants.	
B-3	E' 122 SP12 14		Any new addition works placed	Mit	igation Measures:	
(cont.)	F1g. 132: SP13-14		directly on the remnants or cause	-	Condition survey, structural	
	then a had		any visual impact should be		appraisal and photographic report	
			prohibited.		to verify the actual site and CDEs	
	A CONTRACT				condition against the proposed	
	CALL PHONE				design should be conducted.	
				-	Method statement (e.g. for	
					conservation treatment), safety	
	Fig. 133:. SP17				measures (e.g. protection	
					measures to LTSB remnants	
					during excavation and	
					construction works) and	
	A second the second				alternative proposals (if any)	
	A state of the sta				should be submitted for AMO's	
					approval	
	Fig. 134: Partial concrete decking			-	Monitoring system for structural	
	between SP19 and SP20.				impact on the remnants should be	

				<ul><li>devised and implemented.</li><li>A qualified archaeologist should</li></ul>	
				be engaged to conduct	
				archaeological watching brief to	
				monitor the construction works as	
				well as to conduct archaeological	
				excavation to expose the	
B-3				remnants down to the finished	
(cont.)				levels.	
				- Protective measures should be	
				taken to prevent the CDEs from	
				further deformation, decay and	
				settlement problems.	
				- Exhibition board(s) will be	
				placed on the Site for depicting	
				the history of LTSB and relevant	
				archaeological findings.	
B-4	Remnants of the Landing	High	- Excavate down to the level of	Justification:	Acceptable
	Platform (LP) of LTSB		+1.2mPD (finished level) in order	- Better interpretation of the LTSB	with
			to expose the remnants for in-situ	remnants.	Mitigation
			preservation and display.	- +1.2mPD is an optimal level in	Measure
			- Retain the concrete modification in	unearthing all the remnants to	

1892, 1910s, 1920s and 1930s. facilitate better understanding of	
- Remove vegetation and rubbish the original form and function of	
with hand tools if necessary. the stone bridge and in striking a	
- Any new addition works placed balance between appreciation of	
directly on the remnants or cause remnants and technical,	
any visual impact should be management and cost implications.	
prohibited Concrete modifications of 1892,	
<b>B-4</b> <sup>+320mp0</sup> / <sub>9</sub> 1910s, 1920s and 1930s are	
(cont.) (cont.) (cont.) (cont.) (cont.)	
development of LTSB from late	
19 <sup>th</sup> to early 20 <sup>th</sup> century.	
Mitigation Measures:	
- Condition survey structural	
Fig. 125-126: Devements of the landing	
appraisal and photographic report	
platform. (1) Original granite slabs, (2) to verify the actual site and CDEs	
1892 concrete repair, (3) 1910s condition against the proposed	
concrete repair, (4)1930s concrete ramp design should be conducted.	
to Kowloon City Pier Method statement (e.g. for	
conservation treatment), safety	
measures (e.g. protection measures	
to LTSB remnants during	
excavation and construction works)	
and alternative proposals (if any)	

r		r		
			should be submitted for AMO's	
			approval	
			- Monitoring system for structural	
			impact on the remnants should be	
			devised and implemented.	
			- A qualified archaeologist should be	
			engaged to conduct archaeological	
			watching brief to monitor the	
			construction works as well as to	
<b>B-4</b>			conduct archaeological excavation	
(cont.)			to expose the remnants down to the	
			finished level.	
			- Protective measures should be	
			taken to prevent the CDEs from	
			further deformation, decay and	
			settlement problems.	
			- Exhibition board(s) will be placed	
			on the Site for displaying the	
			history of LTSB and Kowloon City	
			development.	
			-	
B-5	Remnants of the 1924 Seawall	Low	- Excavate down to the level of <b>Justification:</b>	Acceptable
	(Seawall)		+1.2mPD (finished level) for - 1924 seawall is of low	with

		in-situ preservation and display if	significance.	Mitigation
		the remnants of Seawall are laid	- Remnants of the Seawall within the	Measure
	and the second second	within the remnant display area.	remnant display area will be	
		- Remove if the remnants of	preserved in-situ in order to better	
		Seawall are laid outside the	illustrate the setting and context of	
		remnant display area.	LTSB in the early Kowloon City	
		(refer to Appendix B).	development.	
	Fig. 137: The edge red is the indicative		- Removal of the remnants of	
	area of 1924 seawall.		Seawall lying outside the remnant	
			display area aims to give way for	
B-5			the new corridors and link	
(cont.)			walkways. These ancillary facilities	
			facilitate the operation needs,	
			current statutory regulations and	
			standards for the new use.	
			Mitigation Measures:	
			- Condition survey, structural	
			appraisal and photographic report	
			to verify the actual site and CDEs	
			condition against the proposed	
			design should be conducted.	
			- Method statement (e.g. for	
			conservation treatment), safety	

			measures (e.g. protection measures	
			to LTSB remnants during	
			excavation and construction	
			works ) and alternative proposals	
			(if any) should be submitted for	
			AMO's approval	
		-	Monitoring system for structural	
			impact on the remnants should be	
			devised and implemented	
		_	A qualified archaeologist should be	
R 5			angaged to conduct archaeological	
<b>D-3</b>			engaged to conduct archaeological	
(cont.)			watching brief to monitor the	
			construction works as well as to	
			conduct archaeological excavation	
			to expose the remnants down to the	
			finished level.	
		-	Protective measures should be	
			taken to prevent the CDEs from	
			further deformation, decay and	
			settlement problems.	
		-	Exhibition board(s) will be placed	
			on the Site for depicting the history	
			of LTSB and Kowloon City	
			of LISD and Kownoon City	

				development.	
B-6	Remnants of the 1933	Low	- Excavate down to the level of	Justification:	Acceptable
	Causeway (Causeway)		+1.2mPD (finished level) for	- The remnants of Causeway are of	impact with
			in-situ preservation and display if	low significance.	mitigation
			the remnants of Causeway are	- Remnants of the Causeway within	measures
			laid within the remnant display	the remnant display area will be	
			area.	preserved in order to better	
			- Remove if remnants of Causeway	illustrate the setting and context of	
			are laid outside the remnant	LTSB in the early Kowloon City	
			display area.	development.	
	Fig. 138: The edge red is the indicative		(refer to Appendix B)	- Removal of the remnants of	
	area of 1933 causeway.			Causeway lying outside the	
				remnant display area aims to give	
				way for the new corridors and link	
				walkways. These ancillary	
				facilities facilitate the operation	
				needs, current statutory regulations	
				and standards for the new use.	
				Mitigation Measures:	
				- Condition survey, structural	
				appraisal and photographic report	
				to verify the actual site and CDEs	
				condition against the proposed	

			design should be conducted.	
		-	Method statement (e.g. for	
			conservation treatment), safety	
			measures (e.g. protection measures	
			to LTSB remnants during	
			excavation and construction	
			works) and alternative proposals	
			(if any) should be submitted for	
			AMO's approval	
B-6		-	Monitoring system for structural	
(cont.)			impact on the remnants should be	
			devised and implemented.	
		-	A qualified archaeologist should be	
			engaged to conduct archaeological	
			watching brief to monitor the	
			construction works as well as to	
			conduct archaeological excavation	
			to expose the remnants down to	
			the finished level.	
		-	Protective measures should be	
			taken to prevent the CDEs from	
			further deformation, decay and	
			settlement problems.	

<b>B-6</b>				- Exhibition board(s) will be placed	
(cont.)				on the Site for depicting the	
				history of LTSB and Kowloon City	
				development.	
<b>B-7</b>	Remnants of the Former	Moderate	- The remnants will remain	Justification:	Acceptable
	Kowloon City Pier (KCP)		backfilled.	- The cultural significance of the	impact with
			- The area above ground will be	former KCP remnants is of	mitigation
	7.		converted to an open space	moderate significance.	measures
	/		(refer to Appendix B).	- Due to the limited space of the	
	The states			Site, the remnants of former KCP	
				will be covered up for providing an	
				open space for better enjoyment of	
				public.	
				Mitigation Measures:	
				- Rock paving with colours different	
				from adjoining paving will be used	
				to indicate the footprint of the	
				former KCP. The design pattern	
				will follow the stone pattern of the	
				KCP. The design will be further	
				developed in detail design stage.	
				- Method statement (e.g. for laying	



B-8	Foundation Structures of Kai		Intrusive	- Remove of foundation structures		Ju	stification:	Beneficial
	Tak Airport (KTA)			of KTA after excavation of the remnants.		-	Foundation structures of KTA	
							remnants are considered intrusive	
							to LTSB remnants	
		Pile cap of the Airport	Ĺ			-	Better viewing of the LTSB	
	Solid mass section is c	s Ground covered beam of					Foundation structures of KTA remnants are considered intrusive to LTSB remnants Better viewing of the LTSB remnants after removal of foundation structures of KTA. <b>tigation Measures:</b> Exhibition board(s) place on Site for displaying the history and archaeological findings of the KTA. Photographic and drawing records should be carried out. Condition survey, structural appraisal and photographic report	
	by the airp	port the airport				<ul> <li>Justification: Base</li> <li>Foundation structures of KTA remnants are considered intrusive to LTSB remnants</li> <li>Better viewing of the LTSB remnants after removal of foundation structures of KTA.</li> <li>Mitigation Measures:</li> <li>Exhibition board(s) place on Site for displaying the history and archaeological findings of the KTA.</li> <li>Photographic and drawing records should be carried out.</li> <li>Condition survey, structural appraisal and photographic report should be conducted.</li> <li>Method statement safety measures and alternative proposals (if any) should be submitted for AMO's</li> </ul>		
	structures		] T			Μ	litigation Measures:	
						-	Exhibition board(s) place on Site	
		AS EL					for displaying the history and	
							archaeological findings of the	
	The seal						KTA.	
		Cargo and the second				-	Photographic and drawing records	
	Fig. 141: T	he foundation structures of					should be carried out.	
	the Kai Tak	Airport.				-	Condition survey, structural	
							appraisal and photographic report	
							should be conducted.	
						-	Method statement safety measures	
							and alternative proposals (if any)	
							should be submitted for AMO's	
							approval	
						-	Monitoring system for structural	

	impact on the remnants should be	
B-8	made.	
(cont.)	- A qualified archaeologist should be	
	engaged to conduct archaeological	
	excavation to expose the remnants	
	and archaeological watching brief	
	to monitor the construction works	
	during the construction stage.	

(Source (Fig. 127-141): Environmental Impact Assessment Report for Kai Tak Development, Further Archaeological Excavation Report for Kai Tak Development Engineering Study cum Design and Construction of Advance Works - Investigation, Design and Construction and Full Excavation for Defining the Preservation Approach of Lung Tsun Stone Bridge Remnants.)