12 IMPACT ON CULTURAL HERITAGE

12.1 Introduction

12.1.1 This section presents the assessment of impacts to terrestrial archaeology, marine archaeology and built heritage resources within the Project area of Kai Tak Development. The Project is the redevelopment of the former Kai Tak Airport site and its adjoining waterfront areas at To Kwa Wan, Ma Tau Kok and Kwun Tong.

12.1.2 The Project falls within item 1 under Schedule 3 of the EIAO, i.e. engineering feasibility study of urban development project with a study area covering more than 20 hectares or involving a total population of more than 100,000. The Project also contains various Schedule 2 Designated Projects (DPs) under the EIAO. Details of the Schedule 2 DPs are described in Section 1 of this report and the locations of all the Schedule 2 DPs can be found in **Figure 1.2**.

12.2 Environmental Legislation and Standards

12.2.1 Legislation, standards, guidelines and criteria relevant to the consideration of cultural heritage impacts under this study include the following:

- Antiquities and Monuments Ordinance
- Environmental Impact Assessment Ordinance
- Hong Kong Planning Standards and Guidelines
- Technical Memorandum on Environmental Impact Assessment Process
- Criteria for Cultural Heritage Impact Assessment

Antiquities and Monuments Ordinance

12.2.2 The Antiquities and Monuments Ordinance (the Ordinance) provides the statutory framework to provide for the preservation of objects of historical, archaeological and palaeontological interest. The Ordinance contains the statutory procedures for the Declaration of Monuments. The proposed monument can be any place, building, site or structure, which is considered to be of public interest by reason of its historical, archaeological or palaeontological significance.

12.2.3 Under Section 6 and subject to sub-section (4) of the Ordinance, the following acts are prohibited in relation to certain monuments, except under permit;

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

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

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

Environmental Impact Assessment Ordinance

12.2.6 The *Environmental Impact Assessment Ordinance* (EIAO) was implemented on 1 April 1998. Its purpose is to avoid, minimise and control the adverse impact on the environment of designated projects, through the application of the EIA process and the Environmental Permit (EP) system.

Hong Kong Planning Standards and Guidelines

12.2.7 Chapter 10 of the HKPSG details the principles of conservation of natural landscape and habitats, historical buildings and archaeological sites. It also addresses the issue of enforcement. The appendices list the legislation and administrative controls for conservation, other conservation related measures in Hong Kong, and Government departments involved in conservation.

Technical Memorandum on Environmental Impact Assessment Process

12.2.8 The general criteria and guidelines for evaluating and assessing impacts to cultural heritage are listed in Annexes 10 and 19 of the Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM). The guidelines state that preservation in totality and measures for the integration of sites of cultural heritage into the proposed project will be a beneficial impact.

Criteria for Cultural Heritage Impact Assessment

12.2.9 This document, as issued by the Antiquities and Monuments Office, outlines the specific technical requirement for conducting terrestrial archaeological and built heritage impact assessments. It includes the parameters and scope for the Baseline Study, specifically desk-based research, field survey and the reporting requirements. As well, the prerequisite conditions for conducting impact assessment and mitigation measures are presented in detail.

12.3 Assessment Methodology

Marine Archaeology

12.3.1 A complete review of all previous relevant investigations in the study area was completed to establish the scope of any further work required. The following reports were reviewed:

- August 2000: Marine Archaeological Investigation. SDA Marine Ltd. SE Kowloon Reclamation. Environmental Management Ltd;
- July 2001: Comprehensive Feasibility Study for the Revised Scheme of South East Kowloon Development – Cultural Heritage Impact under Agreement No. CE32/99;
- December, 2001: Marine Archaeological Investigation at SEKD – Final Report, prepared by IGGE under CED Contract GE/2001/20, Works Order No. GE2001/20/04 Geophysical Surveys;
- March 2002: Marine Archaeological Investigation prepared by SDA Marine Ltd under Agreement CE 32/99 for Environmental Management Ltd;

- September 2002: Marine Archaeological Investigation, Field Investigation; prepared by Cosmos Coroneos under Agreement CE32/99 for Archaeo-Environments Ltd HK (March 2003);

- March 2006: Kai Tak Planning Review, Twin 40mm Submarine Gas Mains Laid in 1977/1978 Identification of Pipeline Position. Final Report prepared by EGS; and

- March 2007: Marine Archaeological Investigation. KDO 01/2006. Site Investigation and Contamination Assessment at Remaining Area of Former Kai Tak Airport and Proposed Cruise Terminal. Prepared by SDA Marine Ltd for Meinhardt Ltd.

Terrestrial Archaeology

12.3.2 As stated in the Criteria for Cultural Heritage Impact Assessment, the purpose of the baseline study is to compile a comprehensive inventory of all sites of archaeological interest within the Project Study Area. The results must be presented in a report that must include concrete evidence to show that the required processes have been satisfactorily completed. It also required to include a detailed inventory of all identified sites of archaeological interest and a full description of their cultural significance.

12.3.3 The first step that was undertaken was to identify all known sites of archaeological interest within and in the vicinity of the Project Study Area and to calculate the archaeological potential of Study Area that do not contain any known archaeological sites. The collected information was then analysed and used to determine the cultural significance of any archaeological resources identified in the Study Area.

12.3.4 The following tasks were undertaken as required to gather the information necessary for the compilation of the report of the baseline study:

Task 1: Desk-based research

12.3.5 Firstly, desk-based research was carried out in order to identify any known or potential sites of archaeological interest within the Project Study Area and to evaluate the cultural significance of these sites once identified. The following is a non-exhaustive list of resources that were consulted as part of the research programme: the Antiquities and Monuments Office published and unpublished papers and studies; publications on relevant historical, anthropological and other cultural studies; unpublished archival, papers, records; collections and libraries of tertiary institutions; historical documents which can be found in Public Records Office, Lands Registry, District Lands Office, District Office, Museum of History; cartographic and pictorial documentation; study of existing geotechnical information. It should be noted that as archaeological impact assessments and field evaluations have been conducted in the project Study Area previously, all such reports were also consulted.

Task 2: Site visit

12.3.6 To supplement the information gathered in the desk-based study, a site visit was undertaken to assess the current status of the Study Area and also to make note of existing impacts.

Task 3: Archaeological Field Investigation

12.3.7 If the results of the desk-based study and site visit indicate that there is insufficient data for purposes of identification of sites of archaeological interest, determination of cultural significance and assessment of impacts, an archaeological field investigation programme would be designed and submitted to the AMO for approval. Once approved, a qualified archaeologist must apply for a licence to undertake the archaeological excavation, which must be approved by the Antiquities Authority before issuance.

Built Heritage

12.3.8 A desk-based study was undertaken and included a review of previous investigation reports in order to locate previously identified resources and also to update previous impact assessments and mitigation recommendations.

12.3.9 The desk-based study also included research on the history of the site, through documentary, cartographical and photographic sources. This information was used to evaluate the heritage significance of the identified built heritage resources and to assess impacts and make mitigation recommendations.

12.3.10 A built heritage field survey was conducted to identify any previously undocumented resources and also to assess the current condition of the resources. The scope of the resources that was included in the survey covered all structures associated with the former airport as well as any other heritage structures within the Study Area. Detailed recording of all identified built heritage resources is provided in this section which includes photographic and written descriptions of the resources and their surrounding environment.

12.4 Results of Baseline Review

Marine Archaeology

12.4.1 The areas covered by the seven previous studies within the Project area combine to provide 100% coverage of the dredging areas contained in this Project.

12.4.2 The 2001 CHIA report does not make specific reference to the seawall, however, it recommends that "cultural relics of the old airport" be salvaged and reused in the future development of Kai Tak.

12.4.3 In 2002 and 2003 Archaeo-Environments conducted an underwater field investigation to locate 25 targets identified during the 2002 geophysical survey. No archaeological remains were located. The report recommended that (i) the contractors engaged for the dredging component of the development should be briefed on the potential objects of cultural significance that they may encounter and the steps to take upon identifying them; and (ii) if dredging is to take place within 20m of Kowloon Rock, a marine archaeologist should be consulted in the event that such objects are found during this phase of development.

12.4.4 The March 2007 MAI specifically covers the dredging area for the proposed cruise terminal (excluding the 'No Dredging' area where dredging is not required for the proposed cruise terminal because of adequate water depth in the 'No Dredging' area) as shown in **Figure 12.1**. The Baseline Review concluded that there was high potential for archaeological remains based on previous finds and historical background.

Terrestrial Archaeology

12.4.5 The majority of the Study Area consists of land reclaimed for expansions of the former Kai Tak Airport and has no archaeological potential, however, historical research has indicated the current project Study Area once contained historically significant structures and sites, specifically, the Longjin Pier, Kowloon Fort, Sacred Hill, the Kowloon City Execution Ground as well as two demolished historical villages. These are listed below:

*Kai Tak Archaeological Site (***Figure 12.2)**

12.4.6 The Kai Tak archaeological site is situated mainly on reclaimed land and a small section of solid geology, all within the boundaries of the Former Kai Tak Airport.

*Kowloon Fort Archaeological Site (***Figure 12.2***)*

12.4.7 Kowloon Fort (or Battery) was situated to the Southwest of the pier near the Southern gate of the former Kowloon Walled City. It was square in shape with 1 metre high battlements and manned by a commander and 42 men (Siu 1997). It was built in 1811 and rebuilt in 1846 (ERM 2003). The fort was abandoned by the Chinese in 1898 and was used as a police station by the British up until the time it was demolished for redevelopment in the 1930's (ERM 2003). The map in **Figure 12.3** shows the fort marked as a "police station" at the edge of the reclamation for the unsuccessful Kai Tak Residential Development of 1924 (Empson 1997).

*Longjin Bridge Archaeological Site (***Figure 12.2***)*

12.4.8 The pier was constructed between 1873 and 1875 and extended in 1892. A pavilion was located at the northern end of the pier. The pier was originally constructed to serve the main gate (East Gate) of the Kowloon Walled City. The pier and pavilion were demolished during the redevelopment of Kowloon in the first half of the twentieth Century. The 1924 map (Empson 1924) in **Figure 12.3** shows the residential development at Kai Tak that predated the sites use as an airport as covering the majority of the length of the pier. With a 1947 map (Empson 1997) showing the entire pier site having been redeveloped (see **Figure 12.4**). Stone plaques commemorating its construction were relocated to a nearby park but were destroyed during the Japanese Occupation.

Site of the Former Sacred Hill

12.4.9 This site is most famously associated with the last boy emperor of the Song Dynasty, who fled south from the invading Mongol Army in the Late 13th Century. The hill remained a significant cultural site up until the point of its destruction. The photograph in **Figure 12.5** shows the hill prior to its levelling. The levelling of the hill was begun by the Japanese in 1942 for use as reclamation fill for the runway extension at Kai Tak. The remainder of the hill was levelled by the Hong Kong Government in the 1950's for further runway extensions at Kai Tak (Henry 1961). The former location of the hill with respect to the current layout of the site can be seen hand sketched onto a 1969 map (CLSO 1969) (**Figure 12.6**). As well, the map in **Figure 12.7** from 1990 (Empson 1997) shows that no evidence of the hill remained.

Kowloon City Execution Ground

12.4.10 The execution ground was a stretch of beach located near the former Sacred Hill at the boundary of Hong Kong and China prior to 1898. The area was used to execute criminal such as pirates, who as can be seen in historical photographs were beheaded. The execution ground did not contain any structural features and the landscape was filled in for development at the site and is thought to have been located near the western end of the former terminal building of Kai Tak Airport (Ove Arup 2001). The predicted location of the former Kowloon City Execution Ground is shown on a geological map in **Figure 12.7a**.

Historical Villages

12.4.11 After the coastal evacuation period was over, two villages, Ma Tau Chung and Kau Pui Shek were established near the coast of Kowloon Bay in the vicinity of Sacred Hill as it existed prior to the reclamations at Kai Tak and the 1902 – 1903 map in **Figure 12.8**, shows their historical locations.

12.4.12 Previous Investigations in the Study Area have been undertaken for a number of studies and a summary of the findings is presented below.

12.4.13 The earliest recorded investigation in the area was undertaken by Walter Schofield between 1918 and 1937. Pre-Han sherds and historical ceramic material was identified from the surface and "shallow diggings" on the hill and from the beach, described as boulder strewn, to the southeast of the hill (Schofield 1968). Unfortunately, no full scale archaeological investigation was ever undertaken at the site prior to its destruction and the next archaeological investigation did not occur until 2002.

Agreement No. CE 32/99 Comprehensive Feasibility Study for the Revised Scheme of South East Kowloon Development – Archaeological Investigation

12.4.14 This investigation consisted of two machine dug trenches and one hand dug trench to the southwest of the terminal building, in what was thought to be in the vicinity of Sacred Hill. The results of the survey were that the area investigated was formerly part of Kowloon Bay, prior to modern reclamation.

South East Kowloon Development, Site Investigation at North Apron of Kai Tak Airport: Archaeological Investigation- Findings for Trenches AT1 –AT10

12.4.15 The purpose of this investigation was to identify any remains of archaeological interest in the Project Study Area, especially the location of the Longjin Pier, the foundation of Kowloon Fort, the foothill area of Sacred Hill, to attempt to recover two stone tablets associated with the Longjin Pier, that were lost during the Japanese Occupation, to search for remains of former Ma Tau Chung and Kau Pui Shek villages and to investigate the former coastline of the area.

12.4.16 The results of the investigation were that no evidence of the pier location or the associated stone tablets or of the foundation of Kowloon Fort was identified. As well no evidence of the villages was identified in the investigation. Recommendations were included in the report for further investigations to be conducted at areas not covered by the investigation and that the location of the 1924 seawall may be able to be used as a reference point for refining the likely location of the Longjin Pier and Kowloon Fort.

"Site Initial Evaluation Records" as per a series of site visits conducted as a result of the discovery of Wooden Piles during excavation works for *Contract No. KL39/03 South East Kowloon Development Site Preparation and Drainage Works at North Apron Area of Kai Tak Airport*

12.4.17 Although not an archaeological investigation, archaeological material was identified during the excavation works for the box culvert. Monitoring of the construction works was undertaken by AMO staff at the site with the following results; wooden piles and pottery sherds were identified in several sections of the drainage alignment, and a suspected stone pavement was identified in the proposed vicinity of the Longjin Bridge (see **Figure 12.9** for locations).

12.4.18 An evaluation of archaeological potential of the Project Study Area has been undertaken and as can be seen in the geological map in **Figure 12.19**, almost the entire Study Area is situated on reclaimed land, apart from a small section at the north-western corner at the site of the former Sacred Hill and another small area to the south of San Po Kong.

12.4.19 The reclamations in the Study Area date back to 1924. This reclamation was undertaken as part of a residential property development prior to the use of the site as an airport (Piggott 1997). Subsequent reclamations were undertaken for airport expansion in 1940's by the Japanese Occupying Forces during World War II and during the 1950's and 1970's by the Hong Kong Government, again for airport expansion.

12.4.20 Archaeological field investigations in the Study Area were undertaken in 2002 and 2003 and no significant archaeological resources were identified, although a section of the 1924 seawall was identified in the 2003 investigation. As the findings of these investigations were inconclusive, further archaeological investigations have been recommended and a proposal for the scope and methodology for the works has been submitted to AMO for comment and approval.

Built Heritage

Historical Background

12.4.21 The history of Kai Tak Airport is well documented and detailed information can be found in previous reports. The site was originally intended for residential purposes, but the project fell through and from 1925 the site was put to use as an airfield. An RAF base was established and the government took over the airfield in 1928. Airport expansion through reclamation of Kowloon Bay continued over the history of the airport.

12.4.22 The currently existing runway was first constructed in 1957-58 and extended to its current length in 1974 (WOHK 1998). The reclamation for the runway construction included construction of seawalls with large masonry block facing. The South Apron area was used for aircraft storage and maintenance, the original apron area was expanded in 1994.

12.4.23 The cultural heritage value of the resources presented in this report will be through association with the former airport and the aviation history of Hong Kong.

Identified Built Heritage Resources in the Project Study Area

12.4.24 The resources that have been identified are for the most part associated with the aviation history of the site. The following resources have been identified:

Remnants of the Former Kai Tak Airport

12.4.25 Three former fire stations, two piers, three wind poles and the runway and the seawall have been identified in previous investigations. It is noted that the wind pole at the south-western tip of the runway has already been removed.

Old Far East Flying Training School

12.4.26 The current Hong Kong Aviation Club structures were first built in 1958 and then subsequently expanded in 1974 and consist of a hangar, workshops and club building. The buildings were formerly part of the Far East Flying Training School and were sold to the Aviation Club in 1983. The Far East Flying Training School was established in 1943 and moved to the Sung Wong Toi Road in 1958 (Piggott 1998). The Old Far Fast Flying Training School has been identified as a Government Historic Site (as identified by the AMO).

Fish Tail Rock

12.4.27 This site was formerly an island, but was joined to the mainland by reclamation during the 1960's, during which a temple on the site was demolished. The name of the site comes from the fact that the large rock which resembles the tail of a fish diving into the sea and the site was used as a place of worship by the local boat people for many generations. The rock is now situated in a public park that was opened in 1972 (Ove Arup 2001).

Kowloon Rock

12.4.28 Unlike Fish Tail Rock there is no evidence that Kowloon Rock has any cultural heritage value as any associations of the past are lost and there is no active tradition associated with the rock.

Sung Wong Toi Inscription Rock

12.4.29 The original boulder was situated at the top of the Sacred Hill and is associated with the last boy emperor of the Sung Dynasty. The Hill and boulder were left intact until the Second World War when the Japanese destroyed part of the hill for the construction of a new runway at Kai Tak. The remainder of the hill was levelled for further runway expansion in the 1950's. The remnants of the large inscribed boulder that survived the levelling of the hill were placed in the Sung Wong Toi Garden in 1950's. According to the inscription on the rock, it was renovated during the Qing Dynasty in 1807. The original date of its creation is unknown, although some scholars have argued that the stone was first inscribed during the Yuan Dynasty (e.g. Jen 1967, 26-7; Chung 2001, 211). The Song Wong Toi Inscription Rock is the Government Historic Site identified by the AMO. The rock is currently located in a small public garden outside the proposed boundary of the Kai Tak Development.

Results of Previous Investigations

Agreement No. CE 32/99 Comprehensive Feasibility Study for the Revised Scheme of South East Kowloon Development: Cultural Heritage Impact (2001) Ove Arup and Partners

12.4.30 This report covered the current Project Study Area, the remaining parts of the airport as well as surrounding areas in South-east Kowloon. The report includes discussion of the importance of the Fishtail Rock at Hoi Sham Park, the former Far East Flying School buildings and remnants of the Former Kai Tak Airport.

12.4.31 The report also makes a general statement that cultural relics of the old airport should generally be salvaged and reused. Finally, the report recommends that detailed cartographic and photographic surveys should be conducted on post war structures associated with the former airport prior to their demolition.

12.4.32 Full cartographic and photographic surveys of Fire Station A, Fire Station B, Fire Station C and its adjacent wind pole, the wind poles at the former runway and the Airport Pier were completed in 2003 and 2004 by Raymond Chan Surveyors Ltd.

12.5 Result of the Field Survey

Marine Archaeology

12.5.1 Upon the instructions of the Geotechnical Engineering Office (GEO), Civil Engineering and Development Department (CEDD) with Works Order No. GE/2005/26.31 dated January 24, 2007, a geophysical survey was conducted by IGGE (Hong Kong) Engineering Geophysical Company Limited (called IGGE hereafter) between 29 January and 3 March 2007. The survey methodology was defined through close consultation between CEDD, IGGE, Meinhardt and SDA Marine. In order to ensure that the study area was adequately covered, the actual survey area was slightly larger than the part of the study area which has not been covered in pervious MAI studies.

12.5.2 The geophysical survey provided very detailed information about features on the seabed. Within the study area, the seabed is characterised by the presence of dumped materials, deeply incised trawl marks, scars and other evidence of previous disturbance.

12.5.3 Nineteen targets were initially identified in the side scan sonar and eleven in the seismic profiler data. Further research enabled accurate assessment of side scan sonar targets as follows: two associated with recent engineering works, four mooring buoys, two targets for the submarine outfall, two outside study area and nine modern debris or disturbance. Once the eleven seismic profiler targets were plotted on the chart it was found that they were associated with the gas mains which crosses the study area and buoys in the area. The interpretation of the nine targets as modern debris or disturbance was supported by the results of the diving inspection completed in 2002 (Agreement CE32/99). It is therefore concluded that none of the targets indicate archaeological resources on the seabed within the study area. There is therefore no need for any further archaeological investigation.

12.5.4 Guidelines for the monitoring brief have been prepared in consultation with the AMO as shown in **Appendix 12.1**. A qualified marine archaeologist needs to be on standby to provide specialist advice, if required, but the monitoring can be carried out by a member of staff on the dredging barge.

Terrestrial Archaeology

12.5.5 A field investigation consisting of the excavation of five machine and hand dug trenches has been undertaken. The locations of the five trenches are shown in **Figure 12.20**. For the small area to the south of San Po Kong, no further archaeological work was recommended because the area was previously tested (without significant archaeological findings) during ERM's 2003 fieldwork via their trench AT8. A summary of the findings is provided below and the Archaeological Investigation Report is included as **Appendix 12.3** of this EIA Report.

Trench AA1

Methodology

12.5.6 Trench AA1 was 20x5m ($100m^2$) in size and was positioned to investigate the archaeological potential of the area immediately to the south of the former Sacred Hill in the general location of the post-coastal evacuation historical village of Ma Tau Chung. Due to site constraints within the car park of the Hong Kong Aviation Club, it was necessary to excavate the trench as a vertical cut with the sides supported by sheet piling with cross-bracings. In common with the other four trenches, the depth of completely decomposed granite (CDG) fill was first tested by a small sondage and was shown to reach to 3.75m below the car park surface (*c*.5.6mPD).

12.5.7 Based on this sounding, the fill was removed to approximately 1m above the sub-fill stratum and the sheet-piling was driven down and safely toed-in to the base of the trench. The western 10x5m half of the trench was then excavated by small backhoe through the remaining CDG fill to reveal a thick, sterile deposit of marine / estuarine clay at between 1.865 and 1.845m PD. Within the lower fill levels water became an increasing problem that had to be maintained by pumping, however, water eventually began to gush into the trench through joints high up in the sheet piling – indicating that material to the rear of the piling was being scoured out – thus destabilising the trench.

Archaeological Findings and Interpretation

12.5.8 This trench revealed no pre-fill archaeological strata and no finds. Given the aforementioned safety issues and the absence of archaeological findings, it was decided (with AMO approval) to close down and backfill the trench at the earliest possible opportunity. The complete absence of evidence for sub-fill former 'dry land' deposits can be taken to indicate that the trench had probably encountered part of the estuary of the river that formerly entered Kowloon Bay to the south of Sacred Hill.

Trench AA2

Methodology

12.5.9 Trench AA2 was 70x5m (350m^2) in size and was positioned to investigate the archaeological potential of the area thought to contain the site of the Kowloon Fort, landward end of the Longjin Pier and its Pavilion. Unfortunately the footprint of the trench overlay parts of the former Kai Tak Airport Car Park and Terminal Building, as well as the recently-constructed Box Culvert, whose alignment ran between the latter two structures broadly following the line of the former access road. Together, the Box Culvert and the substantial steel-reinforced concrete foundations of the former airport buildings meant that only three discrete areas within the trench were accessible for testing.

12.5.10 Excavation work was severely hampered by a combination of the presence of substantial, vertical-faced concrete structures in each area, the inherently unstable fill strata beneath and between them, and the rapid in-flow of water at base-of-fill levels. As a consequence of these factors, hand-excavation at sub-fill levels was deemed unsafe and the majority of the excavation work was conducted by large backhoe using a toothless bucket under close archaeological supervision. In the end, three small areas were thus tested: at the east end of the trench (*c.*8x3m) between the Box Culvert and Terminal Building foundations; immediately to the west of the Box Culvert and between it and the Car Park foundations (*c.*4x3m); and in-between the Car Park foundations at the western end of the trench (*c.*4.5x4.7m).

Archaeological Findings and Interpretation

12.5.11 Trench AA2 revealed no pre-fill archaeological remains associated with the Longjin Pier, its Pavilion or the Kowloon Fort. Indeed, in accord with the findings in Trench AA1, there was no evidence of pre-fill land surfaces and the base stratum of shell-rich beach sand (at approximately 1.9m PD). Having said that, some evidence for what appeared to be earlier 20th-century reclamation and somewhat later development activity was respectively evidenced by the presence of a lower fill stratum with brick, tile and ceramics and a regularly-spaced pattern of timber pile caps, which seemed to have been inserted through the former deposit.

12.5.12 Given the aforementioned safety issues and the absence of archaeological findings associated with the target sites, it was decided (with AMO approval) to close down and backfill the trench at the earliest possible opportunity. The findings in this trench correlate well with the lack of evidence for the Pier, Pavilion or Kowloon Fort recorded during the construction of the Box Culvert, the conclusion can therefore be drawn that the landward end of the Pier, Pavilion and Kowloon Fort may well have been substantially robbed-out and removed during the early reclamation and development work in the area.

Trench AA3

Methodology

12.5.13 Trench AA3 was originally planned to be 20x5m (100m^2) in size but, due to the presence of a live sewer at the north-eastern end of the trench, the footprint was altered to be 14x7m (98m^2). The trench was positioned to investigate the archaeological potential of the area formerly occupied by the post-coastal evacuation period historical village of Kau Pui Shek. The trench was machine-excavated using a large backhoe with toothless bucket leaving a shallow covering of fill for hand-excavation and cleaning down to the sub-fill surface at between 2.9 to 3.07m PD. Below this level the ceramic-rich sandy alluvial soil was hand-excavated, but became increasingly unstable and mobile when water was encountered at around 2.9m PD.

12.5.14 In order to manage the high inflow of water, a pump-pit was established in the less finds-rich central portion of the trench. However, as water rushed, the sides collapsed and the 1.5m square pump-pit very rapidly expanded to *c*.3m diameter. The water problem and concentration of finds was more intense in the north-eastern half of the trench and it was therefore decided to quite rapidly excavate and reduce the level in the south-western end of the trench in an attempt to dry out the most interesting area. Additionally, a further attempt to improve the drainage of the north-eastern end was attempted using small drainage ditches around the trench base periphery, but these also slumped and simply added to the problem. At this point a Black Rainstorm intervened, the trench sides collapsed and work was suspended. The full sequence of deposits was finally recovered by excavating and hand-bailing the water from a separate 2x2m test pit to the north of the main trench. Excavation work was thus severely hindered by the destabilising influence of a continual and high rate of water flow through the sequence of four very sandy strata.

Archaeological Findings and Interpretation

12.5.15 The key finding of this trench was a very substantial and closely dated assemblage of Song Dynasty ceramics, although given the very wet and muddy conditions, it was sadly impossible to establish whether the large quantities of ceramics being recovered were contained within cut features or not. Nevertheless, the close-packed nature and sheer density of the ceramics in the ground strongly supports their interpretation as the result of one or more dumping events, which could have occurred in pits or as a deep surface spread of rubbish. Intriguingly, most of the Song Dynasty material was recovered from the first soil horizon encountered below the modern fill and no material earlier than the 12th century or later than the early 14th century was recovered from the four sub-fill strata. Professor Peter Lam of CUHK has examined a sample of the material and confirmed the complete absence of Ming and Qing material and the presence of some very good quality material among an assemblage dating consistently to the Southern Song to Yuan Dynasties.

Trench AA4

Methodology

12.5.16 Trench AA4 was 20x5m (100m^2) in size and was positioned to further investigate the Kai Tak Archaeological Site and the cultural materials it contains that were derived from the WWII demolition of historical villages and parts of Kowloon Walled City by the Japanese military for the airport extension. The rate of water ingress in this trench was very high and, even with multiple pumps working, it was impossible to manage the water. The trench bottom was therefore deemed unsafe for hand-excavation work and the trench was excavated under close archaeological supervision using a large backhoe mounted with flat bladed bucket. Then following a concerted and successful effort to recover material from the WWII reclamation fill, the trench was closed down.

Archaeological Findings and Interpretation

12.5.17 The trench was intentionally positioned to (what was mapped to be) the landward side of the former coastline but, once again, initial indications suggest that below the WWII reclamation fill there are beach deposits and not the alluvium of the former dry land edge. In addition, several post WWII concrete timber pile caps and larger foundations were respectively noted at the western and eastern ends of the trench. The WWII reclamation fill produced the expected assemblage of green bricks, red bricks, drain pipe, floor and wall tiles, plaster, rough-dressed granite building blocks and a wide range of ceramics seemingly suggestive of a late 19th- or early 20th-century date.

Trench AA5

Methodology

12.5.18 The original east-west orientated Trench AA5 was 20x5m in size and was positioned to explore the predicted intersection point of the Longjin Pier and the 1924 Seawall (see **Figure 12.20**). A further series of extensions were subsequently added running diagonally across the original trench from NW to SE which, in the end, measured 139m in length – 70x10m in the central portion, with NW and SE portions measuring 29.5x5m and 39.5x5m respectively (see **Figure 12.21**). The original trench was excavated using a large backhoe with a flat-bladed bucket under close archaeological supervision, while the lower fill was removed by hand – water was encountered at roughly 2.4m PD, although the level rose and fell with the tide. Following the discovery of the Longjin Pier within the original Trench AA5 (see below), the methodology was more formally agreed with AMO to ensure that any further portions of the monument were not disturbed during the progress of the excavation. The subsequent excavation involved the machine removal of fill to a minimum of 0.3m above the predicted surface level of the Pier (at 2.6m PD), hand probing of fill to a depth of 1m (i.e. 0.7m below the Pier's predicted upper surface level) and then machine removal of such hand-tested fill to a general minimum excavation level of around 2.2m PD.

Archaeological Findings and Interpretation

12.5.19 The original Trench AA5 uncovered the intersection point of the Longjin Pier and the 1924 Seawall, revealing in the process what now seems to be the best-preserved length of the granite Pier which, on further extension of the trench, has been shown to comprise almost two spans (looking identical to the old photographs of the monument with diamond-shaped supporting pillars and decking comprising five long, narrow granite blocks). A sloping-faced portion of the Seawall (identical to that in ERM's Trench AT10 immediately to the east) was uncovered and measured c.2m wide by at least 2m high and 20.3m long, although part of its structure had been removed and damaged during the insertion of a later concrete-encased pipe. The construction of the Seawall had similarly impacted upon the Longjin Pier in that the five decking stones of the span crossed by the path of the former had been cut off to accommodate its insertion. The five stones of the northern granite span was One of the Pier's supporting pillars, which also fell under the Seawall's footprint, had been reduced in height and disturbed during the construction of the Seawall or by the later insertion of the aforementioned pipe.

12.5.20 To the north of the well-preserved spans, in the northern 60m of the trench, excavation produced no evidence for any *in situ* or disturbed elements of the Longjin Pier. The Pier is reported to have originally had 21 supporting pillars (Chiu and Chung 2001, 90), which was interpreted as meaning 21 spans by Hase (2001, 12-21). In the 65m to the south of the well-preserved spans (and their three supporting pillars) the positions of a further six supporting pillars were identified, plus two collapsed mild steel-reinforced concrete spans just to the north of what is likely to be the original (much modified) granite Pier end structure. The current excavation has thus identified a total of 9 spans of the Longjin Pier. The Pier end structure provides good evidence for three (possibly four) phases of modification: an original granite-built structure was modified and rebuilt in concrete on at least two separate occasions – some of the latter surfacing is identical in character to that evidenced on the two nearby concrete spans and it seems likely that they go together. The historical records mention that in 1910 (Hase 2001, 12-49) the earlier timber-built extension was replaced with a concrete structure and it is therefore very interesting to note that, some 6.5m to the south of the suspected original Pier end structure (and exactly in alignment with its western edge), the remains of two free-standing concrete cantilever structures – commonly known as dolphin piers were discovered. The latter are associated with three rectangular section vertical wooded posts, which were clearly originally bolted to the dolphin piers, designed to serve as fenders for berthing vessels (Tsui pers. comm.) – such structural arrangements can still be observed today on any of Hong Kong's ferry piers.

12.5.21 In summary, the findings in Trench AA5 suggest that – beyond the short length of well-preserved Pier – to the rear (north) of the 1924 Seawall the Longjin Pier has been adversely impacted upon by large-scale groundworks associated with a combination of the pre-war Kowloon City development of Messrs. Kai and Tak, the WWII extension of the airport, and the later construction and use of Kai Tak International Airport with all its heavy steel-reinforced concrete foundations and utilities. That said, the possibility (however remote) does exist that some traces of the Pier's supporting pillars or landward end solid construction exist at lower (sub 1.9m PD) levels beneath the North Apron. In contrast, the excavations in the central and southern areas of Trench AA5 and its extensions have uncovered highly significant and important remains of the Longjin Pier, reflecting its original construction in granite and several phases of its later modification and extension in concrete. The Pier's dynamic history of creation, use, modification and abandonment is thus reflected in the archaeological record from Trench AA5. In addition, Trench AA5 has also revealed a well-preserved length of the 1924 Seawall identical to that found in ERM's trench nearby.

Built Heritage

12.5.22 A field survey of the Study Area was undertaken and the results were that no additional built heritage resources were identified apart from those identified in the desk-based study. A brief summary of the identified resources is presented below and the inventory is presented in the catalogue in **Appendix 12.2**. The locations of the identified built heritage resources are shown in **Figure 12.24**.

Fire Station A (FS-A)

12.5.23 Fire station A is located at the western side of airport site. A full photographic and cartographic survey was undertaken for the fire station (Chan 2003). The fire station was likely constructed in the 1970's as the construction plans for the fire station were included in the runway extension project of the early 1970's. There is a main building with bays for fire engines and a switch room. There is also a single storey garage, an independent timber structure with pitched roof. The fire station was being used as a recycling depot at the time of the survey and access was limited. From cursory visual inspection the buildings appeared to be in fair condition. A 1:1000 scale map of the fire station can be seen in **Figure 12.10**.

Fire Station B (FS-B) and Associated Pier

12.5.24 This fire station is located on the north-eastern side of the runway. A full photographic and cartographic survey was undertaken for the fire station (Chan 2004). It is a beam and column concrete structure with a vehicle maintenance bay in the ground floor garage. The external finish of the structure is mainly plaster and paint (Chan 2004). The plans for the construction of the fire station can be found in the PWD Contract for the Runway Extension at Kai Tak dating from 1970 and the station was constructed during this period along with the associated pier.

12.5.25 The fire station is also the site of an anemometer station of the Hong Kong Observatory, which was set up in 1998 after the airport closed (Hong Kong Observatory website). A 1:1000 scale map of the fire station can be found in **Figure 12.11**. From visual inspection the building appears to be in good condition.

12.5.26 A pier associated with Fire Station B is located just to the northwest of the fire station on the north-eastern side of the runway and a plan of the pier can be seen in **Figure 12.11**. The pier has flat cut stone flat sided supporting walls and concrete surface. It has a modern metal chain link fence around its perimeter. The plans for the construction of the pier can be found in the PWD contract for the Kai Tak Runway Extension that was undertaken in 1974 (PWDHK 1970) and the pier dates from this time. From visual inspection the pier appears to be in good condition.

Fire Station C (FS-C)

12.5.27 A full photographic and cartographic survey was undertaken for the fire station (Chan 2003). The building is constructed of beam and column concrete with structural steel trusses over the fire engine parking bays. The building has a watchtower on the roof and a vehicle maintenance bay in the parking area for the fire engines. The external finishes of the building were as with Fire Station B mainly plaster and paint (Chan 2003). The only reference for dating of this structure is from the Government Annual Report, which states that a fire station was completed at Kai Tak Airport in 1980 (HKGAR 1980). As Fire Station B dates from the 1970's runway extension, it is most likely that the fire station referred to in the annual report is Fire Station C. A 1:1000 scale map of the fire station can be found in **Figure 12.12**. From visual inspection the building appears to be in good condition.

Runway and Seawall

12.5.28 The section of the runway in the current Project Area was originally constructed in 1957-58 and extended to its current length in 1974 (WOHK 1998). The seawall of the runway was constructed in 1957-58 and extended along with the runway expansions in the 1970's. The area of the bay that was to be reclaimed was dredged in advance of the reclamation and the fill material for the reclamation was a combination of sand (from Hung Hom Bay) and decomposed granite (Eather 1996).

12.5.29 The seawall runs along the length of the runway. A plan of the runway can be found in **Figure 12.13**.

Wind Pole (WP-1)

12.5.30 This wind pole is located on the south-western side of the runway near the airport pier. A full photographic and cartographic survey was undertaken for the wind pole (Chan 2003). The wind pole consists of a structural steel hollow tube with rungs for climbing and a mast. The location of the wind pole can be seen on the 1:1000 scale map in **Figure 12.14**. From visual inspection the wind pole appears to be in good condition.

Wind Pole (WP-3)

12.5.31 This wind pole is located adjacent to Fire Station C. This wind pole was included in the detailed photographic and cartographic survey of the Fire Station C at Kai Tak in 2003 (Chan 2003). The wind pole was constructed of structural steel works. It consists of a hollow pole structure with ladder and safety hoop. There is a lightning rod on the roof and a platform with two red lights. The location of the wind pole can be seen on **Figure 12.12**. From visual inspection the wind pole appears to be in poor condition.

Airport Pier

12.5.32 The airport pier is located on the south-western side of the runway. A plan of the pier can be found in **Figure 12.14**. The pier is a reinforced concrete L shaped platform with no sides. A plan for the construction of the pier can be found in a PWD contract from 1961 (PWDHK 1961). A full cartographic and photographic survey of the pier was carried out in 2004 (Chan 2004). From visual inspection the pier appears to be in poor condition.

Old Far East Flying Training School

12.5.33 The current Hong Kong Aviation Club structures were first built in 1958 and then subsequently expanded in 1974 and consist of a hangar, workshops and club building, see 1:1000 scale map in **Figure 12.16** for location. The buildings have been modernized and are in use by the club.

Fish Tail Rock

12.5.34 The interestingly shaped rock is situated in a public park on the current coast of Kowloon Bay. The location of the rock can be seen on the map in **Figure 12.17**.

Kowloon Rock

12.5.35 The rock is located to the west of the runway of the former Kai Tak Airport. It is rounded in shape and located in the Kowloon Bay. There is a metal pole on the rock. The location can be seen on the map in **Figure 12.18**.

Sung Wong Toi Inscription Rock

12.5.36 The rock is currently mounted in a small park between Olympic Avenue and Ma Tau Chung Road. The rock is inscribed with three characters. The current location of the rock can be seen in **Figure 12.16**.

12.6 Evaluation of Heritage Significance of the Identified Built Heritage Features

12.6.1 None of the identified resources at the former Kai Tak Airport are Declared Monuments or Historical Graded Buildings. From previous reports the heritage significance of the resources has been based purely on their association with the former airport. No criteria for cultural significance has been provided in any of the former reports and recommendations for preservation *in situ*, reuse and relocation are based upon the classification of resources as "Cultural Relics of the Old Airport" in the 2001 Feasibility Study for the SEKD (Ove Arup 2001). The review carried out under Agreement No. CE 4/2004 (TP) South East Kowloon Development Comprehensive Planning and Engineering Review Stage 1: Planning Review noted that "the history of Kai Tak remains a very important part of Hong Kong's aviation history and technology development." (Maunsell/City Planning 2006). Again, the review did not provide the criteria upon which this statement was based.

12.6.2 The other heritage resources identified are Fish Tail Rock, Kowloon Rock, Old Far East Flying Training School and Sung Wong Toi Inscription Rock, currently situated in garden adjacent to the airport site. The Old Far East Flying Training School and the Sung Wong Toi Inscription Rock are two government historic sites identified by the AMO. The heritage significance of the Sung Wong Toi Inscription Rock is high. The heritage significance of Old Far East Flying Training School and Fish Tail Rock are moderate. The heritage significance of Kowloon Rock is low.

12.6.3 An evaluation based upon international best practice is presented below. The indicators that are used include:

- Historical Associations, specifically with events in the aviation history of Hong Kong and if the resource is representative of the association;
- Rarity Value, i.e. are there other examples of the identified resources in Hong Kong;
- Potential of the resource for use in educational and cultural tourism development;
- Association with technological innovations or achievements as part of the aviation history of Hong Kong;
- Community Association, including the collective memory of a place and with the individual resources.

Fire Station A

12.6.4 The Fire Station A was located in an area that was not accessible to the public during the operation of the former airport and as such it is not valued highly for community associations. The site does also not have any particular historical or technological associations during the operational years of the airport and rates low on heritage significance with regards to these factors. The rarity value of the fire station is rated low as there are examples of fire stations in other parts of Hong Kong.

Fire Station B and Associated Pier

12.6.5 The Fire Station B and the associated pier were located in areas that were not accessible to the public during the operation of the former airport and as such they are not valued highly for community associations. The site does also not have any particular historical or technological associations during the operational years of the airport and rates low on heritage significance with regards to these factors. The rarity value of the fire station and pier is rated low as there are examples of other fire stations and piers in other parts of Hong Kong. It must be noted, however, that Fire Station B is located in an area that is compatible with current development plan. If the future use of Fire Station B is identified, it is worth considering incorporating the Fire Station B into the Kai Tak Development for educational and tourism purposes. Overall the cultural heritage significance is low.

Fire Station C

12.6.6 Again this fire station was located in an area that was not accessible to the public during the operation of the former airport and as such it is not valued highly for community associations. The site does also not have any particular historical or technological associations during the operational years of the airport. The rarity value of the fire station is rated low as there are examples of other fire stations in other parts of Hong Kong. Based upon the above factors the heritage significance of the structure must be classified as low. In addition, the proposed Central Kowloon Route / Trunk Road T2 interchange would impinge and surround the fire station at its current location.

Runway and Seawall

12.6.7 The significance of the runway is exemplified by its location which is intrinsically connected with the operation of the former airport, in that landing on the runway "called for a curved approach from the west at a speed of 120 knots with a 47 degree banked turn to the right" (Wings over Hong Kong). This approach was unique and gave the airport international fame. The actual structural elements of the runway, i.e. the building materials from which it is made do not have heritage value. The seawall outlines the shape of the runway and this maintains a visual connection with the original function of the runway during the use of the site as an airport. Overall, the heritage significance of the remaining runway and seawall structure is low.

The Wind Poles (WP-1 and WP-3)

12.6.8 The wind poles do not have any specific historical associations, they are however representative of the development of aviation weather forecasting at Kai Tak Airport. Reference to use of anemometers for the runway in the current project area date back to the 1950's with reference made to the installation of an anemometer for the analysis of surface winds during the construction period of the section of runway completed in 1958 (Chin and Ma, 1959). A system for the detection of wind shear was also undertaken at Kai Tak, beginning in the 1970's and a number of technological papers were produced outlining the development of the system (Bell and Tsui, 1981). No information is available on the construction year of the wind poles and details on any alteration made to the wind poles.

12.6.9 Whilst the existing wind poles may not have been specifically used in the cited projects (as the ongoing development of technology required the updating and replacement of wind poles) the existing wind poles will be the only visible connection with the development and technological advances of aviation weather forecasting at the former airport and as such have potential for use as presentation tools for any future educational and tourism development.

12.6.10 The two wind poles have low rarity value, as wind poles are commonly found in other parts of Hong Kong including the existing Hong Kong International Airport.

12.6.11 The wind poles are easily identifiable with the old airport and as such can act as visual links to the aviation history of the site. Yet the wind poles were located in areas that were not accessible to the public during the operation of the former airport and as such they are not valued highly for community associations.

12.6.12 Based upon the above evaluation, the wind poles have low cultural heritage significance and should be incorporated into the future Kai Tak Development if they are good enough condition to be relocated. Based upon visual inspection it was decided that Wind Pole WP-1 was in a condition suitable for relocation and that Wind Pole WP-3 was in poor condition and there would not be a requirement to relocate it. It should be noted that the relocation of Wind Pole WP-1 will not affect the evaluation of its heritage significance.

Airport Pier

12.6.13 The pier is situated on a section of runway that was constructed in 1958 and plans for the construction of the pier have been found in a public works contract dating from 1961 (P.W.D.H.K 1961). As such, it does not qualify as an historical structure and the evaluation of its heritage significance would not be based upon historical factors. Very little information is available on the airport pier and there are no known historical or community associations. The pier is not associated with any technological advances in the aviation history of the site and it does not have any special architectural elements. The pier also does not contain any specific features identifiable with the site usage as an airport, and it has low rarity value as there are examples of other piers in Hong Kong. It does not have value as a representative link to the former site usage for educational or tourism purposes. Based upon the above factors the airport pier has low cultural heritage significance.

Old Far East Flying Training School

12.6.14 According to Chapter 8 of the book called “Wings over Hong Kong: an aviation history 1891 – 1998” (edited by Cliff DUNNAWAY and published in Hong Kong by Pacific Century Publishers), the Far East Flying Training School (1943) was moved to Sung Wong Toi Road in1958 due to the construction of new runway of Kai Tak Airport (1956). The school was finally sold in 1983 to the Hong Kong Aviation Club which has been formed in 1981.

12.6.15 The Far East Flying Training School was the first commercially aviation enterprise in Hong Kong providing a fully spectrum of flying and engineering training for pilots of British and other nationalities, and was once the largest aviation – training establishment east of Suez. In addition to training civil pilots and engineers, it is also an approved Royal Air Force (RAF) training school providing training to members of the air Arm of the Hong Kong Volunteer Defence Corps and to reserve pilots of the RAF. Their graduates also included those sent from the Chinese Government before the World War II.

12.6.16 The pilot training of the school was taken over by the Aero Club of Hong Kong in 1964 and the school subsequently changed its name to the Far East Flying and Technical School. Despite the elimination of flying training, demand for engineering, radio and electronic courses remained high especially as all of the courses were recognised by the Department of Civil Aviation and the City and Guilds of London Institute. In 1969, enrolments were nearly 800 for a full schedule of day and evening courses. About 20 per cent of the students came from overseas.

12.6.17 Since the 1970s, the school, however, began to face competition from educational institutes such as the Hong Kong Polytechnic and also from commercial aviation enterprises which set up their own in-house training programmes. The school was finally sold to the Hong Kong Aviation Club in 1983.

12.6.18 The Old Far East Flying Training School is a Government Historic Site identified by AMO and has a long standing association with aviation in Hong Kong. The heritage significance of Old Far East Flying Training School is moderate.

Fish Tail Rock

12.6.19 The Fish Tail Rock was originally a tiny island within To Kwa Wan Bay. It comprises a huge and dramatically shaped rock, which looks like the tail of a giant fish diving into the sea. This rock has been worshipped by the local boat people for many generations. There was a tiny temple at the foot of the rock: this is shown in a drawing of the bay of 1840s, and in a map of 1924. The tiny temple was recorded as Hoi Sham Lung Mu Temple (海心龍母廟). Lung Mu means dragon mother, according to the records of Chinese Temple Committee, she was removed from Hoi Sham Temple (海心廟) which was demolished in 1964 to make way for urban development. Dragon mother is now worshipped in the side hall of Tin Hau Temple at To Kwa Wan between the junction of Ha Heung Road and Lok Shan Road (Hase 2001).

12.6.20 This rock was joined to the land in a reclamation of the late 1960s. Hoi Sham Lung Mu Temple was demolished in 1964 and the Hoi Sham Park was open on 28th June, 1972.

12.6.21 This rock represents the way of life and culture of the boat-people of the Kowloon Bay area. The rock has a long historical association as a religious site and is still regarded as an important landmark in Hong Kong. The rock is a natural feature in its original location and as such is a unique feature. Based upon the above, the heritage significance of the rock is moderate.

Kowloon Rock

12.6.22 As to the boat-people of Victoria Harbour, very little is known of their ritual and religious practices. It is known that they worshipped predominantly at land temples (especially the Tai Miu in Joss-house Bay, and at those at Shau Kei Wan, Yaumatei, Sham Shui Po, and Lei Yue Mun). It is known that they venerated the Fishtail Rock (Tokwawan Island), and worshipped the Hoi Sham Lung Mu Temple on that Island. Nothing is currently known of any veneration of the Kowloon Rock (Hase 2001).

12.6.23 There is no known historical cultural tradition associated with Kowloon Rock and as such the heritage significance of Kowloon Rock is low.

Sung Wong Toi Inscription Rock

12.6.24 The Sacred Hill is one of the most important historical sites in Kowloon. The stay of the Song Court in Kowloon City for the five months of the summer and autumn of 1277 is an important historical event, and the Sung Wong Toi was the central local memorial of that stay. Since the sacred part of the Sacred Hill lay entirely within the airport area, the presence of the hill makes of the westernmost part of the Kai Tak site an area of extremely important historical and cultural heritage significance, even though no trace of the original hill survives (Hase 2001). The inscription rock being the section of the original boulder is the only remaining identifiable feature of the former Sacred Hill and as such is a unique and valuable historical artefact. It should be noted that even though the original location of the rock has been destroyed the heritage significance of the rock is still high, as an original feature of the site. The Sung Wong Toi Inscription Rock is a Government Historic Site identified by the AMO. The heritage significance of the Sung Wong Toi Inscription Rock is high.

12.7 Impact Assessment

Marine Archaeology

12.7.1 A number of dredging works have been proposed within the study area of the Kai Tak Development. These include the dredging works required for the manoeuvring basin of the proposed cruise terminal, immersed tunnel section of Road T2 and CKR, public landing steps cum fireboat berth, 600m runway opening, and the localised maintenance dredging at KTAC. The locations of these proposed dredging activities are shown in **Figure 9.1**.

12.7.2 The geophysical survey showed the marine deposit across the study area is from 14-20m thickness. It is therefore possible that archaeological material could be deeply buried within the sub-seabed sediments. The seismic profiler, though capable of reflecting the geological information deeper down the seabed surface, does not have full coverage. It is also possible that the modern dumped material could be masking the indicators for a shipwreck. However, for those dredging locations close to the former runway, the construction of the former runway would have already caused significant disturbance to the surface layer of the seabed in the past. Those areas should not be of any archaeological significance.

12.7.3 Apart from the above dredging activities, the removal of the existing gas pipeline and submarine outfall to be carried out within the project area will also involve disturbance of the seabed. However, it is assumed that the installation of these facilities in the past would have already caused significant disturbance to the seabed. Archaeological remains, if any, would have been destroyed in the past during the installation of the gas pipeline and the submarine outfall. The removal of the existing gas pipeline and submarine outfall should therefore not disturb any seabed of archaeological significance. Besides, in 2006, EGS were commissioned to detect the alignment of the existing gas pipeline using geophysical survey. The EGS report does not document any significant anomalous features along the pipeline route.

12.7.4 With regards to the relocation of the GMBs and reconfigured EQIA with relocation of the PHE buoy, it is understood that the dead weight anchors of the GMB and PHE buoys would be dropped and submerged at the surface layer of the seabed, disturbance of the deeper layer of the seabed due to the proposed relocation should therefore be minimal. Besides, the harbour area where the GMB and PHE buoys are to be relocated is currently subjected to regular maintenance dredging. The maintenance dredging would have already caused significant disturbance to the surface layer of the seabed in the past. The relocation of the anchors of the GMB and PHE buoys should therefore not disturb any seabed of archaeological significance.

Terrestrial Archaeology

12.7.5 Areas of archaeological potential have been identified in the North Apron Area of the Former Kai Tak Airport (NAKTA) in former archaeological investigations. Further archaeological investigation was then proposed to gather more archaeological data.

12.7.6 As a result of the further archaeological investigation, two areas of archaeological interest were identified, one at Trench AA3 and the other at Trench AA5, see **Figure 12.20** for locations of the trenches. The impacts to these areas will be direct and irreversible and mitigation will be required in the form of further archaeological investigation and rescue excavation proposal at Trench AA3, and further archaeological investigation as well as preservation *in situ* of all extant sections of the Longjin Pier at Trench AA5.

Built Heritage

12.7.7 A total of 11 built heritage resources have been identified. The construction activities anticipated in the vicinity of these built heritage resources are shown in **Figure 12.24** and the impacts to these resources are presented below:

Fire Station A

12.7.8 The Fire Station A may be in conflict and directly impacted by the construction of the proposed Sung Wong Toi Park and the adjacent Government site, yet the detailed design of the proposed Sung Wong Toi Park and the Government site would be subject to detailed design.

Fire Station B and Associated Pier

12.7.9 The fire station and associated pier are located in an area zoned RO and OU respectively that is compatible with current development plan. If the future use of Fire Station B is identified, it is worth considering incorporating the Fire Station B into the Kai Tak Development for educational and tourism purposes. The fire station and the associated pier will not be adversely affected by the proposed development.

Fire Station C

12.7.10 The Fire Station C may be in conflict and directly impacted by the construction of the proposed loop road for Central Kowloon Route under *Agreement No. CE 58/2006 (HY) Central Kowloon Route and Widening of Gascoigne Road Flyover – Investigation*, yet the detailed design of the loop road for Central Kowloon Route would be subject to detailed design.

Runway and Seawall

12.7.11 The section of seawall within the project area of the proposed cruise terminal, public landing steps cum fireboat berth and 600m runway gap opening will be directly impacted by the associated construction works.

Wind Pole WP-1

12.7.12 The wind pole will be removed in due course.

Wind Pole WP-3

12.7.13 The wind pole may be in conflict and directly impacted by the construction of the proposed loop road for Central Kowloon Route under *Agreement No. CE 58/2006 (HY) Central Kowloon Route and Widening of Gascoigne Road Flyover – Investigation* yet the detailed design of the loop road for Central Kowloon Route would be subject to detailed design.

Airport Pier

12.7.14 The pier will not be adversely affected by the proposed development including the construction of the proposed Road L13 and public landing steps cum fireboat berth which is at about 100m away from the pier.

Old Far East Flying Training School

12.7.15 The site is zoned as IC and the site will be left intact. The area adjacent to the site has been proposed as Sung Wong Toi Park. The structures within the site of Old Far East Flying Training School may be affected by laying of services (e.g. power and tel-com cable) in the vicinity (about 8m away from the Old Far East Flying Training School) but the impact is considered not significant provided that appropriate protective measures to avoid physical disturbance and vibration to the structures are adopted.

Fish Tail Rock

12.7.16 The site of Fish Tail Rock will be preserved *in situ* and the surrounding area has been zoned as DO and RO. The site will not be adversely impacted by the proposed redevelopment.

Kowloon Rock

12.7.17 There are no proposed works in the vicinity of the rock and it will not be adversely impacted by the proposed redevelopment project.

Sung Wong Toi Inscription Rock

12.7.18 The rock is currently located in a small public garden outside the project boundary of the Kai Tak Development. The Sung Wong Toi Inscription Rock will not be affected by the infrastructure work of KTD and thus will not be adversely impacted by the proposed development. However, whether the Sung Wong Toi Inscription Rock will be relocated to the new Sung Wong Toi Park in KTD will be subject to future consideration by the project proponent of the new Sung Wong Toi Park.

12.8 Mitigation Recommendations

Marine Archaeology

12.8.1 Due to the depth of the proposed dredging works contained in this Project and the fact that the archaeological potential of the area cannot be completely ruled out, it is recommended that the dredged spoil from those marine works that caused significant impact to the seabed should be monitored for the presence of archaeological material. Guidelines for the monitoring brief have been prepared in consultation with the AMO as shown in **Appendix 12.1**. A qualified marine archaeologist needs to be on standby to provide specialist advice, if required, but the monitoring can be carried out by a member of staff on the dredging barge. Marine works in KTD that may cause significant impact to the seabed include the dredging works for the immersed tunnel section of CKR at To Kwa Wan, dredging works for the relocation of the Hong Kong China Gas (HKCG) submarine main, dredging works for the proposed cruise terminal, and dredging works for the immersed tunnel section of Road T2 (including the dredging required for the associated reconstruction of a section of the existing Kwun Tong submarine outfall). Details of the impacts and the recommended mitigation measures for the dredging works for proposed cruise terminal are presented in the corresponding approved EIA Report (EIAO Register No.: AEIAR-115/2007). Whereas the impacts and mitigation measures required for CKR, HKCG submarine main relocation, and Road T2 will be examined under the respective Schedule 2 EIA study.

Terrestrial Archaeology

12.8.2 Archaeological investigation was conducted at five locations (Trenches AA1, AA2, AA3, AA4 and AA5). The findings of Trenches AA1, AA2 and AA4 resulted in no archaeological deposits being identified. No further investigation would be required for Trenches AA1, AA2 and AA4.

12.8.3 For Trench AA3, further archaeological investigation is recommended to establish the fuller extent and wider context of the Song Dynasty material recovered during the present fieldwork campaign.

12.8.4 **Figure 12.23** shows the Sacred Hill (North) area. Within this area there are two significant known impacts – one planned, the other existing – as shown in **Figure 12.23**, the former is a proposed pumping station PS3, which forms part of DSD's Kowloon Sewage Interception Scheme, and the latter is the WWII nullah; both are dealt with below, but first we must consider the immediate environs of AA3. There can be little justification for the evaluation of the entire area to the north of Sacred Hill, but there must be some attempt to determine the full extent of the deposits noted in AA3. It is therefore recommended that a series of 3m-wide by (initially) 30m long transects be investigated on the pattern shown in **Figure 12.23** – preferably employing intermittent 3x3m test-pitting rather than continuous trenching (to facilitate easier management of the water issue). The legs to the west and north are limited by the site boundary, but those to the east and south could, if required, be expanded beyond this initial further investigation. The WWII nullah is a massive feature whose construction would have severely impacted upon sub-surface archaeology and its footprint does not therefore require archaeological testing. The archaeological evaluation of pumping station PS3 will be conducted under the aforementioned DSD project and should only require a maximum of two 3x3m test pits – one in each of the two areas of the footprint outside the line of the nullah. This would obviously feed back useful data regarding the possible presence of Song Dynasty material in those areas.

12.8.5 The further archaeological investigation should be possible to specify the size and location of a rescue excavation commensurate with the nature and extent of Song Dynasty remains recovered within the Sacred Hill (North) area. Upon completion of the required rescue excavation in the vicinity of Trench AA3, the area would be ready for any future development.

12.8.6 The Longjin Pier is a unique historical structure that was though to have been completely demolished during past site works associated with reclamation for the failed Kai Tak residential development in the 1920's and for works associated with the former Kai Tak Airport. The Pier has historical associations with the former Kowloon Walled City and the former Kowloon Fort. The Pier represents a unique and valuable historical resource and all identified sections of the Pier (after the completion of further archaeological investigation) should be preserved *in situ* and integrated into the future Kai Tai Development as an historical site for public education and tourism purposes.

12.8.7 Further archaeological investigation and preservation *in situ* will be required for the extant sections of the Longjin Pier identified in Trench AA5. After the further archaeological investigation has been completed, it will be necessary to draw up a Conservation Management Plan to ensure that the identified sections of pier are properly conserved and integrated into the future Kai Tak Development.

12.8.8 The full scope and methodology of the further investigations recommended above shall be submitted and agreed with AMO prior to the investigation.

12.8.9 A section of well-preserved 1924 seawall with landing steps was uncovered in the 2002 ERM investigation (Trench AT4 in **Figure 12.22**). The 1924 seawall was constructed as part of a residential development prior to the use of the site as an airport and as such does not have any association with the former Kai Tak Airport. The uncovered section of the 1924 seawall were not found to contain any significant architectural features and the wall itself does not have any significant historical associations. Therefore, the entire 1924 seawall is evaluated to be of having low heritage significance and no mitigation on cultural heritage ground will be required during the future development. The section of well-preserved seawall with landing steps is located in an area of planned open space in KTD, it is worth considering incorporating that well-preserved section of 1924 seawall with landing steps as well as the section of 1924 seawall coincides with the corridor of the Longjin Pier into the Kai Tak Development for educational and tourism purposes.

Built Heritage

Fire Station A

12.8.10 The fire station has been recorded by cartographic and photographic survey, no further mitigation will be required.

Fire Station B and Associated Pier

12.8.11 The fire station and the associated pier will not be adversely affected by the proposed development and thus no mitigation will be required.

Fire Station C

12.8.12 The fire station has been recorded by cartographic and photographic survey, no further mitigation will be required.

Runway and Seawall

12.8.13 The shape of the runway will be maintained under the KTD, no further mitigation will be required.

Wind Poles WP-1 and WP-3

12.8.14 The wind poles have been recorded by cartographic and photographic survey, no further mitigation will be required.

Airport Pier

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12.8.15 The airport pier will not be adversely affected by the proposed development and thus no mitigation will be required.

Old Far East Flying Training School, Fish Tail Rock, Kowloon Rock, and Sung Wong Toi Inscription Rock

12.8.16 The Old Far East Flying Training School may be affected by laying of services (e.g. power and tel-com cable) in the vicinity (about 8m away from the Old Far East Flying Training School) but the impact is considered not significant, appropriate protective measures to avoid physical disturbance and vibration to the structures should be provided for the works.

12.8.17 The Fish Tail Rock and Kowloon Rock will not be adversely affected and no mitigation will be required.

12.8.18 The Sung Wong Toi Inscription Rock is currently located in a small public garden outside the project boundary of the Kai Tak Development. The rock will not be affected by the infrastructure work of KTD and thus will not be adversely impacted by the proposed development. However, whether the Sung Wong Toi Inscription Rock will be relocated to the new Sung Wong Toi Park in KTD will be subject to future consideration by the project proponent of the new Sung Wong Toi Park. In case of relocation, the project proponent should conduct protective measures during the course of relocation.

12.9 Evaluation of Residual Environmental Impacts

Marine Archaeology

12.9.1 Once the dredging works are completed there will be no residual impact for the marine archaeology.

Terrestrial Archaeology

12.9.2 Once the final archaeological investigation has been completed, there will be no residual impacts from terrestrial archaeology.

Built Heritage

12.9.3 No residual impacts have been identified for built heritage resources.

12.10 Environmental Monitoring and Audit

Marine Archaeology

12.10.1 The recent 2007 MAI concluded no further MAI is necessary, yet it did not preclude the possibility that there could be items buried within the Marine Deposit which may be exposed by the dredging works. It is therefore recommended that the dredging contractor(s) should monitor the dredged spoils from those marine works that caused significant impact to the seabed. Guidelines for the Monitoring Brief have been prepared in consultation with the AMO and are attached as **Appendix 12.1**. Marine works in KTD that may cause significant impact to the seabed include the dredging works for the immersed tunnel section of CKR at To Kwa Wan, dredging works for the relocation of the Hong Kong China Gas (HKCG) submarine main, dredging works for the proposed cruise terminal, and dredging works for the immersed tunnel section of Road T2 (including the dredging required for the associated reconstruction of a section of the existing Kwun Tong submarine outfall). Details of the impacts and the recommended mitigation measures for the dredging works for proposed cruise terminal are presented in the corresponding approved EIA Report (EIAO Register No.: AEIAR-115/2007). Whereas the impacts and mitigation measures required for CKR, HKCG submarine main relocation, and Road T2 will be examined under the respective Schedule 2 EIA study.

Terrestrial Archaeology

12.10.2 Further archaeological investigation and rescue excavation will be undertaken at Trench AA3. Whereas for Trench AA5, preservation *in situ* of all identified sections of the Longjin Pier will be required after the completion of further archaeological investigation. The implementation of the works will be undertaken by the Hong Kong Government.

Built Heritage

12.10.3 No monitoring and audit programme specific for built heritage would be required.

12.11 Summary

Marine Archaeology

12.11.1 The 2007 MAI did not locate any archaeological resources but it cannot rule out that there may be archaeological material deeply buried within the sub-seabed sediments.

12.11.2 Due to the depth of proposed dredging and other activities which will disturb the seabed and the fact that the archaeological potential of the area cannot be completely ruled out, the need of precautionary measures during dredging works is required. Guidelines for a Monitoring Brief have been prepared in consultation with the AMO.

Terrestrial Archaeology

12.11.3 As a result of the archaeological investigation, two areas were identified as containing archaeological deposits that will require further investigation. The full scope and methodology of the further investigations shall be submitted and agreed with AMO prior to the investigation.

12.11.4 Upon completion of the further archaeological investigation at Trench AA5, all identified sections of the Longjin Pier should be preserved *in situ* and integrated into the future Kai Tak Development.

Built Heritage

12.11.5 A desk-based study and a built heritage field survey have been conducted and revealed several heritage resources associated with the former Kai Tak Airport, which include two wind poles, the airport pier, Fire Station A, Fire Station B (and associated pier), Fire Station C, seawall and the runway, the Old Far East Flying Training School, Sung Wong Toi Inscription Rock, Fish Tail Rock, and Kowloon Rock. The heritage significance of the Old Far East Flying Training School and Fish Tail Rock are moderate. The heritage significance of the Sung Wong Toi Inscription Rock is high. The heritage significance of the other examined heritage resources are low. No mitigation is required for the examined heritage resources except appropriate protective measures for the structures within the site of Old Far East Flying Training School during any laying of services in its vicinity and protective measures for the Sung Wong Toi Inscription Rock in case of relocation.

12.11.6 The Sung Wong Toi Inscription Rock is currently located in a small public garden outside the project boundary of the Kai Tak Development. The rock will not be affected by the infrastructure work of KTD and thus will not be adversely impacted by the proposed development. However, whether the Sung Wong Toi Inscription Rock will be relocated to the new Sung Wong Toi Park in KTD will be subject to future consideration by the project proponent of the new Sung Wong Toi Park. In case of relocation, the project proponent should conduct protective measures during the course of relocation.

12.12 Reference

1. Bell G & Tsui K S 1981 A Low Level Windshear Detection System, Royal Observatory Hong Kong, *Weather* Vol. 2 pp. 42 -46
2. Chin P.C & Ma G. 1959 An Analysis of Surface Winds at the New Runway of Hong Kong Airport 1956-1958, Royal Observatory Hong Kong (Climatological Section), Technical Note No. 20
3. Criteria for Assessment of Cultural Heritage Significance; Victoria Heritage Act 1995
4. Eather Charles,1996 Airport of the Nine Dragons – Kai Tak, Kowloon, Ching Chic Publishing Queensland Australia.
5. Hong Kong Government Annual Report 1973
6. Hong Kong Government Annual Report 1980
7. LC Paper No. CB(2)1599/06-07(01) Views and Suggestions Received from the Public on the Review of Built Heritage Conservation Policy; Legislative Council on Home Affairs, Hong Kong
8. Ontario Heritage Act (09/06) *Criteria for Determining Cultural Heritage Value or Interest*
9. Piggott, Peter 1989/1990 Kai Tak: A History of Aviation in Hong Kong, Government Information Services, Government Printer, Hong Kong
10. Public Works Department Hong Kong 1961 *Contract No. 64 of 1961 : Construction of Pier for the Runway Promontory – Kai Tak Airport*
11. Raymond Chan Surveyors Ltd 2003 Cartographic Survey and Photographic Record of Wind Pole at Former Kai Tak Airport Volumes 1 and 2
12. Raymond Chan Surveyors Ltd 2003 Cartographic Survey and Photographic Records of Fire Station C and Adjacent Wind Pole at Former Kai Tak Airport; Volumes 1 and 2
13. Raymond Chan Surveyors Ltd 2004 Cartographic Survey and Photographic Records of the Airport Pier at the Former Kai Tak Airport; Volumes 1 and 2
14. Raymond Chan Surveyors Ltd 2004 Cartographic Survey and Photographic Records of Fire Station B at Former Kai Tak Airport; Volumes 1 and 2
15. Raymond Chan Surveyors Ltd 2004 Cartographic Survey and Photographic Records of Wind Pole at Runway Tip of Former Kai Tak Airport Volumes 1 and 2
16. Scott Wilson Kirkpatrick and Partners (Date of issue not available) P.W.D. Contract No. 427 of 1970 : Kai Tak Runway Extension , Public Works Department, Hong Kong
17. Operative Waikato Regional Policy Statement (October 2000) ; Appendix 4: Criteria for Determining Significance of Cultural Heritage Resources; Environment New Zealand
18. Wings over Hong Kong: A Tribute to Kai Tak: An Aviation History 1891 – 1998 (1998) Odyssey Hong Kong
19. Aerial Photographs: 9269 (1974) Central Library Hong Kong
20. Aerial Photographs: 0257 (1975) Central Library Hong Kong
21. Raymond Chan Surveyors Ltd 2003 Cartographic Survey and Photographic Records of The Fire Station A at Former Kai Tak Airport; Volumes1 and 2
22. Government Historic Sites Identified by AMO (as at 7 December 2007)
23. Schofield, W. 1968 “Further notes on Sung Wong Toi”. *JHKBRAS*
24. Chiu, Yulok and Po Yin Chung 2001 *Kowloon City*. Hong Kong: Joint Publisher.
25. Hase, P. 2001. Agreement No. CE32/99, Comprehensive Feasibility Study for the Revised Scheme of South East Kowloon Development – Cultural Heritage Impact Assessment. (Unpublished report)
26. Ove Arup & partners Hong Kong Ltd. 2001. Feasibility Study for the SEKD.
27. Maunsell/City Planning. 2006. Agreement No. CE 4/2004 (TP) South East Kowloon Development Comprehensive Planning and Engineering Review Stage 1: Planning Review.