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Abbreviation

AH	Auger Holes
AIA	Archaeological Impact Assessment
AMO	Antiquities and Monuments Office
AM&O	Antiquities and Monuments Ordinance
EAPs	Emergency Access Points
EIAO	Environmental Impact Assessment Ordinance
EIAO-TM	Technical Memorandum on Environmental Impact Assessment Process
ERS	Emergency Rescue Station
ESB	Environmental Impact Assessment Study Brief
GCHIA	Guidelines for Cultural Heritage Impact Assessment
LKST	Lung Kwu Sheung Tan Barging Point
MPV	Works Area of Mai Po Ventilation Building
NTV	Works Area of Ngau Tam Mei Ventilation Building
PHV	Works Area of Pat Heung Ventilation Building
PLA	People's Liberation Army
SLB	Siu Lam Barging Point
SLS	Nursery site at Siu Lang Shui
SKW	Magazine and nursery sites at So Kwun Wat
SSS	Works Area of Shek Kong Stabling Sidings
TSHW	Magazine site at Tai Shu Ha Road West
TCB	Tsing Chau Tsai Barging Point
TP	Test Pits
TPP	Works Area of Tai Kong Po Emergency Access Point
TUW	Tse Uk Tsuen Works Area
WKT	West Kowloon Terminus
XRL	Guangzhou-Shenzhen-Hong Kong Express Rail Link

English abstract

The Hong Kong Section of Guangzhou-Shenzhen-Hong Kong Express Rail Link (the Project) is approximately 26 km long, in a dedicated underground railway from the boundary at Huanggang to West Kowloon Terminus. In order to evaluate the archaeological potential of the Project study area, an Archaeological Impact Assessment (AIA) was conducted by AECOM Asia Co. Ltd.

A desktop review of archaeological potential and field investigation (including field walk, hand augering and test pit) were conducted. Review of archaeological potential and field evaluation identified that the Shek Kong Stabling Sidings (SSS) Tai Kong Po Emergency Access Point (TPP) and Tse Uk Tsuen Works Area (TUW) would have archaeological potential where else the remaining work areas have no archaeological potential. Based on the findings of the field walk, augering and test pit, the indicative extent of an archaeological deposit area with a cultural layer of Song to Ming Dynasty at southern SSS site was delineated. As such, the proposed mitigation measure for this area would be a rescue excavation, in which the archaeological remains discovered would be preserved by detailed record.

During the preparation of this EIA Report, field investigation has been undertaken to the accessible portion of the proposed work areas at the SSS and TPP. However, due to the inaccessibility presently to some portions of the SSS and TPP, a further archaeological investigation should be conducted in order to verify its archaeological potential. If significant archaeological remains are discovered, rescue excavation(s) should be carried out. With limited archaeological potential identified in TUW, an archaeological watching brief should be carried within the site of TUW during the course of construction.

The further archaeological investigation and rescue excavation should be conducted after land resumption and prior to the commencement of construction works. Details of the further archaeological investigation, rescue excavation and watching brief should be included in an Archaeological Action Plan, which should be submitted and approved by relevant authority prior to the commencement of investigation and excavation. Lung Kwu Sheung Tan Barging Point (LKST) and its associated access road is located within a known archaeological site, and therefore regular site audit should be conducted during the construction of barging point to confirm that no excavation works is carried out at the archaeological deposit area .

中文摘要

「廣深港高速鐵路香港段」(以下簡稱“項目”)長約 26 公里，爲一條連接皇崗邊境，與高鐵總站的鐵路。爲了評估此項目研究範圍內的考古潛質，AECOM Asia Co. Ltd.爲此進行了考古影響評估。

是次評估包括桌上研究考古潛質和田野考古調查(包括野外徒步勘察，徒手鑽探，和探方發掘)。在考古潛質研究中，確定了石崗列車停放處、大江埔緊急進入及逃生點和謝屋村等地盤均有考古潛質，其餘的工地，則屬無考古潛質之地。田野考古調查發現在石崗停車側線地盤南部，有宋代至明代的文化層，其分佈範圍亦大致確定。因此，建議該區應進行搶救發掘，以作爲項目的緩解措施，而出土的考古遺物，則以詳細記錄保存之。

在準備環評報告時，考古調查僅限在可進入的地方內進行；而目前部分石崗地區和大江埔緊急進入及逃生點，仍不能進入；爲確定該等不能進入的地方內，有否考古潛質，建議進行後續考古調查，以確定該等地方有否考古潛質。如發現重要考古遺存，則應進行考古搶救發掘。因謝屋村地盤有些考古潛質，應在施工期內在該地盤內進行考古監察。

後續考古調查及搶救發掘須在收地後及工程動工前進行，爲此，應制訂「考古行動計畫」，訂明後續考古調查、搶救發掘方案及於施工區的考古監察，並於進行調查和發掘前送交有關政府部門批准。龍鼓上灘躉船轉運站及其現行道路皆位於考古遺址內，故建議在該地建造轉運站時，進行定期監察以確定該地沒有挖掘工程。

1 INTRODUCTION

1.1 Background of the Project

1.1.1 The Express Rail Link (XRL) aims at providing a fast and convenient railway service linking the three cities of Guangzhou-Shenzhen-Hong Kong. The Hong Kong Section of Guangzhou-Shenzhen-Hong Kong Express Rail Link (the Project) is approximately 26 km long, in a dedicated underground railway from the boundary at Huanggang to West Kowloon Terminus (WKT), as shown in **Figure Nos. NOL/ERL/300/C/XRL/ENS/M50/001-003**.

1.1.2 Ventilation buildings along the railway corridor required for fire safety, will be located at Mai Po, Ngau Tam Mei, Pat Heung, Shing Mun, Kwai Chung, Nam Cheong, Mong Kok West and West Kowloon. Emergency Access Points (EAPs) will be integrated at these ventilation buildings and also provided in Tai Kong Po for emergency services.

1.1.3 Stabling sidings and a first-line maintenance facility will be located at Shek Kong to provide train stabling, minor maintenance and cleaning activities. An Emergency Rescue Station (ERS) will be located next to Shek Kong Stabling Sidings (SSS) for emergency evacuation of passengers and access by emergency personnel.

1.1.4 The Project was gazetted under the Railway Ordinance in November 2008. It is expected that the construction of the Project will commence in late 2009, and be completed in 2015.

1.1.5 As required under Clause 3.4.11.3 (i) of the Environmental Impact Assessment Study Brief No. ESB-197/2008 (ESB), an Archaeological Impact Assessment (AIA) was conducted for the EIA Study of the Project.

1.2 Duration of Field Survey and the Application of License

1.2.1 The field archaeological survey was conducted between 25 October 2008 and 15 November 2008 to establish and evaluate the archaeological potential of the Project study area.

1.2.2 A License to Excavate and Search for Antiquities (License number 268) from the Secretary of Development was obtained by Mr. Steven Wai-hung Ng on behalf of ENSR Asia (HK) Ltd prior to the commencement of field survey.

1.3 Report Structure

1.3.1 The structure of the AIA Report is set out below:

- Section 2 describes the relevant legislation and guidelines;
- Section 3 sets out the objectives and methodology;
- Section 4 presents the related geological, historic and archaeological background to the Project, and findings of desktop review;
- Section 5 presents the result of archaeological investigation;
- Section 6 presents the potential impact on archaeology and recommends mitigation measures according to Antiquities and Monument Office (AMO) guidelines;
- Section 7 presents a summary of the conclusions of the AIA; and
- Section 8 presents bibliography.

2 LEGISLATION AND GUIDELINES

2.1 Environmental Legislation and Standards

2.1.1 Legislation, Standards, Guidelines relevant to the consideration of AIA under this EIA study include the following:

- *Environmental Impact Assessment Ordinance* (EIAO);
- *Technical Memorandum on Environmental Impact Assessment Process* (EIA-TM);
- *Antiquities and Monuments Ordinance* (AM&O); and
- *Guidelines for Cultural Heritage Impact Assessment* (GCHIA).

Environmental Impact Assessment Ordinance (Cap.499)

2.1.2 Schedule 1 Interpretation of the EIAO defines “Sites of Cultural Heritage” as “an antiquity or monument, whether being a place, building, site or structure or a relic, as defined in the AM&O and any place, building, site, or structure or a relic identified by AMO to be of archaeological, historical or palaeontological significance”.

Technical Memorandum on Environmental Impact Assessment Process

2.1.3 The criteria and guidelines for evaluating and assessing impacts are listed in Annexes 10 and 19 of the EIA-TM respectively. The criteria for evaluating impact on sites of cultural heritage include:

- The general presumption in favour of the protection and conservation of all sites of cultural heritage because they provide an essential, finite and irreplaceable link between the past and the future and are points of reference and identity for culture and tradition; and
- Adverse impacts on sites of cultural heritage shall be kept to an absolute minimum.

Antiquities and Monuments Ordinance (Cap.53)

2.1.4 The AM&O provides the statutory framework for the preservation of objects of historical, archaeological and palaeontological interest.

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

2.1.6 Under section 6 and subject to subsection (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; or*
- *To demolish, remove, obstruct, deface or interfere with a proposed monument or monument.*

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

2.1.8 No archaeological excavation can be carried out by any person, other than the Authority and the designated person, without a licence issued by the Authority. A licence will only be issued if the Authority is satisfied that the applicant has sufficient scientific training or experience to enable him to carry out the excavation and search satisfactorily, is able to conduct, or arrange

for, a proper scientific study of any antiquities discovered as a result of the excavation and search, and has sufficient staff and financial support.

Guidelines for Cultural Heritage Impact Assessment

2.1.9 The GCHIA is attached in Appendix C-1 of the EIA Study Brief No. ESB-197/2008 (ESB) including a baseline study, field evaluation and impact assessment.

3 OBJECTIVES AND METHODOLOGY

3.1 Objectives

3.1.1 With reference to the *GCHIA*, the objective of this AIA is to examine, record and interpret archaeological resources within the Project sites.

3.1.2 The interpretation of archaeological resources is based upon the following aspects:

(a) the extent of archaeological deposit;
(b) the depth of archaeological deposit;
(c) the chronology of artefacts;
(d) the nature and condition of archaeological deposit; and
(e) the significance of findings.

3.2 Methodology

Study Area

3.2.1 Given the Project works areas and supporting sites in southern section (i.e. from West Kowloon to Shing Mun, Tsuen Wan and Kwai Chung) are located in urbanized areas, it is therefore anticipated that there would be no archaeological potential at these works areas.

3.2.2 In addition, it is anticipated that there would be no archaeological potential within deep underground tunnel alignment, and therefore the study area of this AIA covers 500m from the boundaries of above-ground works areas and supporting sites in northern section (i.e. from Pat Heung to Mai Po, Lung Kwu Sheung Tan, Tai Shue Ha Road West, Siu Lang Shui, Siu Lam, Tsing Chau Tsai and So Kwun Wat).

Desktop Study

3.2.3 A desktop study was conducted to collect available and relevant information of previous archaeological, historic, geographic and geological studies related to the study area where excavation works would be conducted.

3.2.4 Landform, previous land-use, distance to fresh water, superficial geological deposit and previous archaeological investigations carried out in or near to the study area and information of archaeological sites recorded in the official archaeological site listed by AMO was reviewed and used as a reference to find out the archaeological potential areas along the alignment and associated areas.

3.2.5 Based on the desktop findings, the archaeological potential within the study area was assessed to identify the subsequent fieldwork strategy.

Field Walk

3.2.6 Field walk were undertaken for surface collection within the above-ground works areas, in order to assess the archaeological potential based on the distribution density of artefacts on the ground surface. The position of any special artefacts discovered, together with their extent, quantity and chronology were recorded. Findings of the field walk also assisted in refining the proposed test pit and auger hole locations.

Field Investigation and Recording

3.2.7 Test pits excavation and hand augering were conducted in above-ground works areas where the archaeological resources, if any, would be affected by the construction works.

3.2.8 With reference to the result of archaeological potential review and field walk within the study areas, the representative areas with archaeological potential had been identified in the accessible areas, a total of 8 test pits (each with at least a dimension of 1m x 1.5m or 1.2 m x

1.8m) and 24 hand auger holes therefore were dug and drilled at the representative areas where were accessible areas during field evaluation. The locations of the test pits and auger holes are presented in **Figure Nos. NOL/ERL/300/C/XRL/ENS/M55/303-307**.

3.2.9 Trench recording sheets were used for all field records. Excavation of test pits was carried out down to the sterile layer. Standard procedures of archaeological excavation were adopted. Each stratum was recorded and the measured drawings of each test pit were drawn.

3.2.10 The locations of test pits were surveyed by a qualified land surveyor according to the Hong Kong metric grid system. The site benchmark was tied to the Hong Kong principal Datum, i.e. mPD.

Stratigraphy

3.2.11 The formation of soil strata was influenced by both natural and human factors. A soil stratum formed naturally and without being disturbed by humans or without artificial remains is generally classified as a "natural layer". Soil layer with man-made features or remains (artefact) is regarded as "cultural layer". The stratum of each pit was divided by the soil colour and texture. The recording of the soil color was made according to the Revised Standard Soil Colour Charts (新版標準土色帖, 2000)[1].

3.2.12 The status of cultural remains is divided into "primary context" and "secondary context", which are adopted to assess the stability of the cultural layer.

Artefacts Treatment

3.2.13 Any retrieved artefacts were processed in accordance with the AMO's *Guidelines for Handling of Archaeological Finds and Archives*. The site code of this survey followed AMO's designated code.

Impact Assessment

3.2.14 Based on the findings from the above tasks, the impact assessment was undertaken to assess the potential archaeological impact arising from the Project. The assessment was carried out according to Clause 2.13 of GCHIA and Annexes 10 and 19 of EIAO-TM.

[1] Research Council for Agriculture, Forestry and Fisheries, 2000 *Revised Standard Soil Colour Charts*, Japan, Ministry of Agriculture and Forestry,

4 DESKTOP STUDY

4.1.1 A desktop study was conducted to collate available information in order to establish the baseline conditions and to identify the archaeological potential areas within the works areas. Historical, geological and archaeological information of the study area were reviewed, including previous historical, geological and archaeological studies, aerial photograph, historic maps and geological maps.

4.2 Historical and ethnological background

4.2.1 A review of historic information indicated that the inhabitants settled into Kam Tin and Nga Tam Mei since Tang Dynasty (618-907AD). However, archaeological findings indicate that human activities were recorded in Kam Tin Valley since the Bronze Age, which is about 3,500 years ago.

4.2.2 As early as the 24th year of Kaiyuan (開元) reign (736AD), during the Tang Dynasty, a navy base named as Tunmen Zhen (屯門鎮), was set up as a military division of Guangzhou. It was believed that the soldiers and their supporters settled in the valleys of Yuen Long, Kam Tim, San Tin and Shekou in Shenzhen.

4.2.3 Kam Tin was originally named as Sam Tin (岑田) before 1587, because of some people under the surname of Sam were living there, it was suggested that these people settled in Kam Tin early Tang clan in 12th century. Some villages within and near to the works areas were established between Song and Qing Dynasties. Tai Hong Wai, Wing Lung Wai and Kai Hing Wai villages were established between 1465 and 1487. Their enclosure walls were also built between 1662 and 1735.

4.2.4 During early Qing Dynasty (late 17th century), the Qing court encouraged Hakka people to migrate from eastern Guangdong to Hong Kong which belonged to Xian County. These people established their villages at the eastern New Territories and Kowloon. Hakka people also settled in Lung Kwu Sheung Tan in the middle of 18th century. There were battles between aboriginal people (Cantonese or Puntin) of Kam Tin and the new comers, Hakka people of Pat Heung in late 18th to middle centuries[2]. Pat Heung Temple was the Hakka people's command centre for battles.

4.2.5 All villages along the proposed alignment were listed in both 1688 and 1819 editions of the Xian County Gazetteer. A detailed land survey in the New Territories was conducted in both 1866 and 1899. Seven villages in Kam Tin were indicated in the 1868 Father Volunteri's "Map of the Sun-on-District (新安縣全圖)" (**Figure A1** of **Appendix A**). 32 years later, eight villages in Kam Tin along the Project alignment were shown in the 1899 to 1904 map in the scale of 1:31,600 (**Figure A2**). However no settlement in Ngau Tam Mei was indicated on both the 1868 and 1899 maps, as well as in the village inventory of the 1819 editions of Xian County Gazetteer (新安縣志)[3]. Shek Kong Wai (石崗圍) was mentioned and indicated in two historic documents and a historical map (1819 editions of Xian County Gazetteer, Report on Extension of The Colony of HK, 1898 and 1899 maps), but this village has yet to be found.

4.2.6 The villages within the study area marked on the Map of the Sun-On-District of 1866 are Mai Po (米埔), Kam Tin Hu (錦田墟), Shek Tau Wai (石頭圍) and Sheung Tsuen (上村). The villages within the study area marked on the New Territories map of 1889 to 1904 are Mai Po, Wai Tsai, Shui Tau, Kam Tin, Shek Kong and Sheung Tsuen.

4.2.7 A battle was fought between the volunteers of Kam Tin villages and the British troop in Shek Tau Wai on 17th April 1898. The British troop took over the New Territories on the second day of battle and killed over 100 volunteers.

[2] 瀨川昌久 1999 《族譜：華南漢族的宗教、風水、移居》(第二章)，上海，上海書店出版社。
[3] 舒懋官 1819 ，2006 《新安縣誌》，《深圳舊誌三種》，深圳，海天出版社

4.3 Geological background and landform

4.3.1 The Kam Tin is a broad alluvial valley surrounded by hills, except towards the west where the valley possess into coastal deposit. The valleys are filled by late Pleistocene fluvial terrace deposit overlain by Holocene alluvium, marked as "Qpa" and "Qpd" in the 1:20,000 geological map (**Figures A3** and **A4**). On the top of the valley, Pleistocene colluvium (Chek Lap Kok Formation colluvium), is interpreted as debris flow deposits, are mostly derived from volcanic rocks. The deposits are up to 19m thick and comprise moderately to highly decomposed boulders, up to 4m diameter, and cobbles of coarse ash tuff in a matrix of yellowish brown gravelly silty sand.

4.3.2 Pleistocene fluvial terrace deposit (Chek Lap Kok Formation alluvium) was identified in the eastern part of the Kam Tin Valley plain. This fluvial deposit comprises yellowish brown gravelly sand, about 1 to 3m thick, with thin layers of mottled red and brown silty clay, layers of cobbles beneath this silty clay (**Figure A6**)[4].

4.3.3 Through the classification of superficial sediment of works areas, slope colluvium were identified in NTV, TPP and TCB, alluvium deposits were identified in SSS and PHV. According to the geological study and observation of the cutting face on-site, the superficial sediment of SSS (Shek Kong) comprises of alluvium, a stratum of pebbles and cobbles below a strata of loamy soil, clay or sandy soil.

4.3.4 NTV is located in a narrow valley with Pleistocene fluvial terraces. The deposits are 1 to 10m thick and comprise of silty coarse sand with some boulders in proximal environments and silty sand with thin layers of clay distally.

4.3.5 The archaeological remains were found within the brown silty clay layer above cobble layers of the Pleistocene alluvium in eastern Kam Tin Valley.

4.4 Archaeological Background and Literature Review

4.4.1 As Early in 1960, two cremation burial urns of Tang dynasty (618-907) were found in Shek Kong, indicating that the human settled in Kam Tin before Song dynasty (960-1279)[5].

4.4.2 There are 7 archaeological sites (**Figure Nos. NOL/ERL/300/C/XRL/ENS/M55/202-203**) within the study area of the Project, including:

(1) Shui Lau Tin Archaeological Site, situated 300m far from the SSS;
(2) Tsat Sing Kong Archaeological Site, situated 50m far from TPP;
(3) Ngau Tam Mei Archaeological Site, situated 450m far from NTV;
(4) Mai Po Archaeological Site, situated 100m far from MPV;
(5) Lin Fa Tei Archaeological Site, situated 450 m far from SSS;
(6) Lung Kwu Sheung Tan Archaeological Site, in which LKST is located; and
(7) Pat Heung Sheung Tsuen Archaeological Site, situated 200m far from PHV.

4.4.3 Artefacts unearthed from Tsat Sing Kong and Ngau Tam Mei Archaeological Sites were dated to the Bronze and early Iron Age, while the other archaeological sites were dated to Song to Ming dynasties[6].

4.4.4 Since 1980, at least 18 archaeological investigations were carried out in Mai Po, Kam Tin, Yuen Long, Ngau Tam Mei and Lung Kwu Shang Tan. Pottery shards of the Bronze Age, early Iron Age and Song to Ming dynasty were found in the investigations. Over 400 bronze cash coins of Song dynasty were recovered in Mai Po and some celadon ware fragments were also found in a small hill south to Mai Po in 1980. The location of the coins finding and celadon

[4] Langford , R.L and others 1989 *Geology of the Western New Territories*, Hong Kong, Civil Engineering Service Department.
[5] Meacham, W. 2009 *The Archaeology of Hong Kong*, Hong Kong University Press
[6] 黃慧怡 2007 〈香港出土宋元瓷器的初步研究〉，《考古》，2007(6)。

fragment was completely built over. Archaeological investigation was carried out in 1985, the result of the investigation confirmed that no artefacts were observed[7].

4.4.5 In 1998, an archaeological investigation was undertaken in Pat Heung, a cultural layer of Song dynasty where fragments of roof tiles and celadon were dug out in a test pit west to the Pat Heung Temple, indicating that a settlement was found nearby the Pat Heung Temple few hundreds years ago[8].

4.4.6 The archaeological investigation conducted at Shui Lau Tin discovered few pieces of Song or Ming dynasty celadon adjacent to the existing village houses of Shui Lau Tin. However, no stable cultural layer of Song or Ming dynasty was identified.

4.4.7 Due to river channel improvement works, an archaeological investigation was conducted along the old river channels in Kam Tin. The river terrace at Tsat Sing Kong was identified to have archaeological potential. Over 100 pieces of the Bronze Age pot shards were collected on the ground surface, cultural layer of this age was observed in test pits[9].

4.4.8 Ngau Tam Mei Archaeological Site was discovered in a terrace in 1998 during the second round of terrestrial wide archaeological survey, the Bronze Age and union jack pattern pot shards were discovered[10].

4.4.9 Two hoards of 499 bronze cash coins mainly of Song dynasty were found at a foot slope of Mai Po in 1980, 3 trenches were then dug nearby but no archaeological deposit were observed. Further field investigation was conducted in 1985 and concluded that the locations of the archaeological finds of coins and pottery have been completely built over.

4.4.10 Lung Kwu Sheung Tan Archaeological Site had been known since the 1930s and it was only due to the threat of destructive engineering works that led to the excavation. In 1990, the Hong Kong Archaeological Society conducted a testing and salvage excavation at Lung Kwu Sheung Tan[11]. The excavation discovered an abundance of the Bronze Age and Song pottery at almost every test pit, yielding huge quantities of Song village ware and fragments of finer celadon bowls. The amount of pottery was massive, including the discovery of one square 6 x 15m yielded 91kg. Nearly all the pieces of dateable historical ceramics were assigned to the Northern Song period (960-1127). The excavation was important as it indicated that the site was only sparsely occupied during the Southern Song, Ming and early Qing.

[7] Peacock and Nixon 1986 *Report of the Hong Kong Archaeological Survey*, vol.III, Part I, Antiquities and Monuments Office.
[8] 中港考古研究室 1998 《香港錦田八鄉古廟宋代遺址試掘報告》，古物古蹟辦事處。
[9] 中港考古研究室 2000 《1999 年元朗錦田水渠第三期剩餘工程考古調查及評估報告》，古物古蹟辦事處。
[10] 區家發等 1998 《全港文物普查 1997 年第一區(元朗區)工作報告》，古物古蹟辦事處。
[11] Meacham, W. 1992 Report on Salvage Excavations at Lung Kwu Sheung Tan, 1990, *Journal of The Hong Kong Archaeological Society*, Vo. XIII.

5 ARCHAEOLOGICAL SURVEY FINDINGS

5.1 Findings from Field Walk and Literature Review

5.1.1 The archaeological potential was identified through a desktop review of existing available information, such as past relevant archaeological survey data and EIA studies, hydrographic data, geological studies, archaeological studies and other relevant historic records. The results from the review were then verified by a field walk.

5.1.2 The field walk covers study areas as defined in **Section 3.2.2**, including MPV, NTV, TPP, SSS, PHV, TUW, LKST, SLB, TCB, SLS, SKW and TSHW.

5.1.3 The purpose of conducting the field walk and surface artefact collection is to identify the landscape area that has been less disturbed by previous land uses, in which artefacts might be exposed on the ground surface. Most of the ground surfaces of the works areas were used as open storage yards, pig and chicken farms etc. The artefacts discovered during the field walk are listed in the **Table 5.1**.

MPV

5.1.4 MPV was originally comprised of fish ponds about two decades ago. Since early 1990s, these ponds were filled and occupied as open storage yards. The geological studies identified MPV was an estuary few hundreds ago and there was a coastal bay at 6,000 years ago[12] (**Figures A5 and A7**). No artefact was found at MPV during field walk. It is therefore considered that MPV has no archaeological potential.

NTV

5.1.5 NTV has a steep slope and is located far away from the stream or river such that it was not suitable for human to live in the past. No artefact was found at NTV during field walk. It is therefore considered that NTV has no archaeological potential.

TPP

5.1.6 TPP is located at a slope and currently occupied by pig and chicken farms. The site formation of farms was leveled from the original slope. A total of 15 pieces of the Bronze Age pot shards with decoration of net and double-f, 8 pieces of celadon bowl fragment and 1 blue-and-white porcelain bowl fragments were found within Tsat Sing Kong Archaeological Site, or outside of which locate about 100 m away from the south of TPP. It is therefore considered that TPP has some archaeological potential.

SSS

5.1.7 SSS is located to the east of PLA Shek Kong Barrack. There are no records of historic settlement nearby. In terms of land form, SSS would has some archaeological potential. However, most of the areas in SSS are inaccessible and currently occupied by open storage yards, manufacturing facilities, garage, residential houses and dumping sites. It is envisaged that site formation activities from current uses in these inaccessible areas might have disturbed shallow archaeological deposit.

5.1.8 A stone tool, known as chipped pick which is made of pebble, was found in the ground surface of the cultivation land located about 90m away from the east of PLA Shek Kong Barrack within the SSS. Associated with this stone pick were 8 pieces of celadon bowl fragments of Song Dynasty, 8 pieces of pot fragments and a piece of roof tile fragment. Five pieces of celadon bowl of Song dynasty were found in three spots within SSS. The concentration area of these artefacts was about 50m x 30m at 80 m west of Kei Ling. A piece of blue-and-white porcelain bowl fragment and 50 pieces of roof tiles were observed on the ground surface. According to

[12] Fyfe, J.A. and others 2000 *The Quaternary Geology of Hong Kong*, Hong Kong, Civil Engineering Department.

their characters, roof tiles are dated to Ming to Qing Dynasties (1368-1911). It is therefore considered that SSS has some archaeological potential.

PHV and TUW

5.1.9 PHV and TUW are located in front of a hill slope. The eastern portion of PHV was filled in a decade ago. TUW is used as cultivation field. One piece of celadon bowl fragment dated from Song Dynasty was found on the ground surface within TUW. PHV and TUW are located far away from the stream or river and also have no historic settlement that was found nearby. It is considered that the PHV have no archaeological potential while TUW would have archaeological potential.

LKST

5.1.10 No artefact was found at the LKST and access road during field walk but the works areas are located within Lung Kwu Sheung Tan Archaeological Site, the works areas would have some archaeological potential. As no excavation works would be conducted at the LKST and access road, there would be no potential impact on the known archeological site.

SLB

5.1.11 No artefact was found at SLB, which is adjacent to Tsing Fat Street near former Lok On Pai Siu Lam Flea Market and is currently an open area with some grasses.

TCB

5.1.12 TCB is situated at a reclaimed land and it has an original landscape of rock shore with a steep slope. No artefact was found at TCB during field walk. Therefore it is considered that the TCB has no archaeological potential.

SLS

5.1.13 Siu Lang Shui nursery site situated at steep slopes, field walk was carried out in these areas. It was not suitable for human to live in the past. No artefact was found at this proposed works area, it is therefore considered that this site has no archaeological potential.

SKW

5.1.14 So Kwun Wat nursery and magazine sites situated at steep slopes and it was not suitable for human to live in the past. No artefact was found at this works area during field walk, it is therefore considered that this site has no archaeological potential.

TSHW

5.1.15 Magazine site at Tai Shu Ha Road West are situated at steep slopes, and it was not suitable for human to live in the past. No artefact was found at this works area during field walk, it is therefore considered that this site has no archaeological potential.

Table 5.1 Summary of Findings from Field Walk and Literature Review

Areas	**Late Neolithic Age (ca. 4000-3500 years ago)**	**Bronze Age (ca. 3500-2 800 years ago)**	**Song Dynasty (960-1279)**	**Ming to Qing Dynasty (1368-1911)**	***Archaeological Potential from Literature Review***	***Follow up action***
MPV	No artefacts	No artefacts	No artefacts	No artefacts	*Indicating no potential*	*Nil*
NTV	No artefacts	No artefacts	No artefacts	No artefacts	*Indicating no potential*	*Nil*
TPP	No artefacts	No artefacts (15 pieces of pot fragment found at or outside of Tsat Sing Kong Archaeological Site)	No artefacts (8 pieces of celadon bowl fragment found at or outside of Tsat Sing Kong Archaeological Site)	No artefacts (1 blue-and-white porcelain bowl fragment found in or outside of Tsat Sing Kong Archaeological Site)	*Indicating some potential*	*Test pits and auger holes were proposed to confirm any archaeological remains within the works areas.*
SSS (includes ERS)	1 stone pick	No artefacts	- 5 pieces of celadon bowl fragment - 8 pieces of celadon bowl fragment	- 1 piece of blue-and-white porcelain bowl fragment - 50 pieces of roof tile fragment - 8 pieces of pot fragments and a piece of roof tile fragment	*Indicating some potential within accessible area; potential uncertain in inaccessible areas.*	*Test pits and auger holes were proposed to confirm any archaeological remains within the works areas.*
PHV	No artefacts	No artefacts	No artefacts	No artefacts	*Indicating no potential*	*Test pits and auger holes were to confirm any archaeological remains within the works areas.*
TUW	No artefacts	No artefacts	1 piece of celadon bowl fragment	No artefacts	*Indicating some Potential*	
LKST	No artefacts	No artefacts	No artefacts	No artefacts	*Indicating some Potential*	*No excavation work will be conducted at this works area, and therefore no test pit or auger holes were proposed at this works area.*
SLB	No artefacts	No artefacts	No artefacts	No artefacts	*Indicating no potential*	*Nil*

Areas	**Late Neolithic Age (ca. 4000-3500 years ago)**	**Bronze Age (ca. 3500-2 800 years ago)**	**Song Dynasty (960-1279)**	**Ming to Qing Dynasty (1368-1911)**	***Archaeological Potential from Literature Review***	***Follow up action***
TCB	No artefacts	No artefacts	No artefacts	No artefacts	*Indicating no potential*	*Nil*
SLS	No artefacts	No artefacts	No artefacts	No artefacts	*Indicating no potential*	*Nil*
SKW	No artefacts	No artefacts	No artefacts	No artefacts	*Indicating no potential*	*Nil*
TSHW	No artefacts	No artefacts	No artefacts	No artefacts	*Indicating no potential*	*Nil*

5.2 Findings from Hand Augering

5.2.1 In order to verify the preliminary results from the desktop review and field walk, hand augering (AH) and test pitting were recommended on the identified works areas as stated in **Table 5.1**.

5.2.2 Representative locations of test pits and auger holes were therefore identified, according to geological and landform categories, observations during field walk, surface artefact collections, existing site conditions and past land uses. A License to Excavate and Search for Antiquities (License number 268) from the Secretary of Development was obtained by Mr. Steven Wai-hung Ng on behalf of ENSR Asia (HK) Ltd prior to the commencement of field survey.

5.2.3 With reference to the findings of archaeological potential review and field walk within the study area, an archaeological field survey in an extent of a total of 8 test pits and 24 hand auger holes was conducted within the representative accessible areas between October and November 2008 in the course of this EIA study.

5.2.4 The locations of test pits, auger holes, inaccessible area, artefact discovered points and artefact discovered areas are indicated in **Figure Nos. NOL/ERL/300/C/XRL/ENS/M55/303-307.**

5.2.5 A cultural layer was identified in AH10 near to TP4 at southern SSS. Two pot rim fragments were drilled out from the AH24 at southern SSS, near to Shek Tau Wai. No artefact and cultural layers were identified at the works area in TPP, PHV and TUW. A summary of findings from hand augering is presented in **Table 5.2**.

Table 5.2 Summary of Findings from Hand Augering

Study Area	No. of AH	Soil Profile	Findings
TPP	3	Humus top soil→filled soil→sandy loamy soil→ regolith soil	No artefacts and cultural layers were identified.
SSS	15	Humus top soil→sandy loamy soil→ silty soil→ cobbles	Two pieces of pot rim were found at AH24. Cultural layer was identified in AH10.
PHV and TUW	6	Humus top soil → sandy loamy soil→silty soill→coarse sand	No artefacts and cultural layers were identified.

5.3 Findings from Test Pitting

5.3.1 Stratigraphy of all test pitting (TPs) was similar, consisting of a top soil layer (L1), sandy soil layer (L2), and regolith stratum (L3) at colluvium areas (i.e. TPP). At alluvium areas (i.e. SSS, TUW and PHV), the strata consists of a top soil layer (L1), cultivation layer (L2), loamy soil layer (L3), clay layer (L4) and pebbles layer (L5, about 1m below surface). Artefacts were found in SSS, PHV and TUW but no artefact was found in TPP. A summary of findings from test pitting is shown in **Table 5.3**.

5.3.2 “Cultural layer” is a term referring to a soil layer with ancient man-made features of physical remains. A cultural layer, made up of a substantial number of roof tile fragments (46) and kitchen utensil fragments (73), was identified in TP4 (**Figure B4 of Appendix B)**. The characters of celadon bowl rims and foot ring indicate that the relics are dated to Song to Ming Dynasties.

5.3.3 A cultural layer below ground surface 15 to 40cm was identified TP4, which is located at southern part of the SSS (**Figure B1**).

5.3.4 A total of 119 pieces of roof tile fragments (46), pot fragments (43), basin fragments (19) and celadon bowl fragments (11) were unearthed in L3 of TP4 at SSS.

5.3.5 The inaccessible areas are mainly occupied by pig farms, chicken farms, residential houses, open storage yards, garages, manufacturing facilities, fish ponds, etc. Archaeological deposits were found in local shallow inland areas, these identified deposits are below ground surface between about 15 cm and 40 cm in SSS. The soil profile was observed in two face-cuttings of a river in SSS. The pebble layer was observed (**Figure A6**) below ground surface at about 0.8 to 1m and the same pebble layer was found in the SSS test pit. Therefore, archaeological remains would unlikely be present at levels above the pebble layer. It is therefore envisaged that if archaeological remains exist in such shallow burial condition, the current land use might have already destroyed their original context.

5.3.6 A total of 5 pieces of pot, blue-and-white porcelain bowl fragment and celadon bowl fragment were unearthed in L4 of TP2 at TUW. The reversed stratification was identified in TP2 in TUW, modern pot shards and blue-and-white porcelain bowl fragment was found with a piece of Song celadon bowl in this layer.

Table 5.3 Summary of Findings from Test Pitting

Study Area	Test Pit	Stratum	Findings	Quantity of artefacts	Nature of deposit	Chronology of findings
TPP	TP1	-	None	-	-	-
TUW	TP2	L4	Celadon, Blue –and-white bowl fragments, pot shard	5	Secondary deposit (reversed stratification)	Song and Qing Dynasties
PHV	TP3	L2	Kitchen utensil	1	Secondary deposit	Modern
SSS	TP4	L3	Kitchen utensil fragments and roof tile fragments	119	Primitive deposit	Song to Ming Dynasties
SSS	TP5	-	None	-	-	-
SSS	TP6	-	None	-	-	-
SSS	TP7	-	None	-	-	-
SSS	TP8	-	None	-	-	-

5.4 Artefacts Assessment

5.4.1 The artefacts collected on the ground surface and dug out from test pits and auger holes included a stone chipped pick, kitchen utensil fragments (i.e. basin, pot, bowl) and some roof tile fragments. These artefacts dated back to the Late Neolithic Age, the Bronze Ages, Song, Ming and Qing Dynasties. Among the significant findings in Tsat Sing Kong Archaeological Site were 15 pieces of the Bronze Age pot fragments, decorated with double-f, net and raised square pattern.

Prehistoric Chipped Pebble Pick

5.4.2 A chipped pebble pick was collected at the surface of a cultivation field terrace about 15m northeast to TP7. This pick was found with some celadon bowl fragments and pot shreds of Song dynasty. The pick was chipped of pebble and has a length (along the chipped axis) of 109mm, width of 60mm, and height of 22mm. A point was formatted by chipping from left and right direction, the angle of the point is 60^{o} **(Figure B5)**. In terms of technique, the chipped pick should be dated to the Late Neolithic Age. Similar chipped picks made of pebble were found at the coastal archaeological sites of Hong Kong region.

Bronze Age Pot Shards

5.4.3 A total of 15 pieces of the Bronze Age pot shards were found in Tsat Sing Kong Archaeological Site, in which the discovered area was situated about 130 m southeast to the boundary of works area of TPP. Same kind of shards was discovered in numerous archaeological sites in Hong Kong and Guangdong. The decoration patterns identified are presented below:

- Double-f;
- Net; and
- Raised square pattern (**Figure B6**).

Historic Pottery Shards

5.4.4 The historic pottery shards were collected on the ground surface and unearthed from TPs 2 and 4. According to glaze, fabric, shape and decoration patterns, the shards are dated to Song to Qing dynasties and further described below:

- Song dynasty celadon: these shards were collected and unearthed in Tsat Sing Kong Archaeological Site, TUW and SSS. Most of the glazes are brown in colour and peeled off. The cracked light green glazed broken bowl unearthed from L2 of TP4, this kind of cracked light green glaze is one of the characters of products from Guangdong coastal kilns in southern Song dynasty (1127-1279). (**Figures B7** to **B10**).
- Dark brown glaze pot: a shoulder portion with an ear of a pot covering dark brown glaze was found in L2 of TP4 (**Figure B11**). Similar pot fragments were collected on the ground surface surrounding of TP4 and unearthed from L3 of TP4.
- Basin: some basin fragments with line incised in internal body were unearthed from L2 of TP4 and collected on the ground surface of an area surrounding of TP4.
- Blue-and-white bowl shards: floral pattern was identified on the exterior of the shards, these shards were collected from Tsat Sing Kong Archaeological Site (**Figure B12**), SSS and unearthed from TP2 in TUW.

Roof Tiles

5.4.5 Roof tiles were found in SSS were mostly exposed on the ground surface of the area surrounding TP4 (**Figure B2**). The roof tiles are evidences that houses were built in this area. Reddish colour roof tiles were unearthed in Layers 2 and 3 of TP4 (**Figure B13**).

5.5 Overall Summary of Desktop Study and Field Evaluation

5.5.1 An overall summary of field evaluation and recommended mitigation measures is presented in **Table 5.4.**

Table 5.4 Overall Summary of Field Evaluation

Works Areas	Literature review	Form of Field Works	Findings of Archaeological Investigation – Archaeological Potential	Recommended mitigation measures
MPV	Indicating no potential	Field walk	No potential	No mitigation measures required
NTV	Indicating no potential	Field walk	No potential	No mitigation measures required
TPP	Indicating some potential	Field walk, augering and test pitting	No potential identified at accessible area but there may be some potential at inaccessible areas.	1. Further archaeological investigation is recommended at inaccessible area. 2. If any significant

Works Areas	Literature review	Form of Field Works	Findings of Archaeological Investigation – Archaeological Potential	Recommended mitigation measures
				archaeological remains are discovered, rescue excavation(s) should be conducted. 3. Boundary of TPP should not be extended to the relics discovered area outside TPP.
SSS	Indicating some potential	Field walk, augering and test pitting	Some potential	1. Further archaeological investigation at inaccessible areas. If any significant archaeological remains are discovered, rescue excavation(s) should be conducted. 2. Rescue excavation at the identified area with archaeological remains.
PHV	Indicating no potential	Field walk, augering and test pitting	No potential	No further action
TUW	Indicating some potential	Field walk, augering and test pitting	Some potential	A watching brief is recommended for the identification of any historical finds in this works area.
LKST	Indicating no potential	Field walk	Some potential but no impact is envisaged	Regular site audit is recommended to confirm no excavation works is conducted at archaeological deposit area during the construction of barging point.
SLB	Indicating no potential	Field walk	No potential	No further action
TCB	Indicating no potential	Field walk	No potential	No further action
SLS	Indicating no potential	Field walk	No potential	No further action
SKW	Indicating no potential	Field walk	No potential	No further action
TSHW	Indicating no potential	Field walk	No potential	No further action

6 EVALUATION OF POTENTIAL IMPACTS

6.1 Construction Phase

6.1.1 The Project will be an underground railway system, therefore any impacts on potential archaeological remains would be limited to subsurface works (below surface 0.15 to 1.0m) which would have an interface with the archaeological resources. The Project has been carefully considered during the project design stage, to avoid and minimize impacts on archaeological remains, if any.

6.1.2 The findings of the archaeological potential review and field evaluation indicate that the works areas including MPV, NTV, PHV, SLB, SLS, SKW, TSHW and TCB have no archaeological potential. No artefact was observed during field walk at these areas, and hence construction works in these areas would not cause adverse archaeological impact.

6.1.3 In addition, no excavation works would be involved in the construction of LKST barging point, it is therefore anticipated that there would be no adverse archaeological impact arising from the construction works.

6.1.4 According to the findings of desktop review and archaeological investigation, SSS has archaeological potential and an area with archaeological remains was identified at southern SSS, and therefore potential impact on the identified archaeological remain area is envisaged.

6.1.5 Field investigation revealed that some areas in SSS were found to have archaeological potential. The inaccessible areas in SSS are currently occupied by pig and chicken farms, open storage yards, manufacturing facilities, garages, dumping sites etc, it is therefore anticipated that any archaeological deposits in these inaccessible areas have probably been disturbed, however, the archaeological potential in these areas are uncertain yet.

6.1.6 Although the archaeological investigation within the accessible area in TPP revealed that no archaeological potential was identified but the archaeological potential in inaccessible areas are uncertain yet. The inaccessible areas in TPP are currently occupied by pig and chicken farms. A few prehistoric and historic ceramic fragments were found at about 130 m away from the southeast of the TPP works area. Thus, it is likely indicated that TPP has some archaeological potential.

6.1.7 Desktop review and archaeological investigation indicated that TUW would have some archaeological potential but only 5 artefacts were unearthed in field investigation. With limited archaeological potential anticipated in TUW, precautionary measure is therefore required to avoid direct impact on archaeological resources, if any.

6.2 Operation Phase

6.2.1 There would be no archaeological impact due to the operation of the Project. No mitigation measures are therefore required.

6.3 Recommended Mitigation Measures

Archaeological Action Plan

6.3.1 An Archaeological Action Plan (AAP) following the *Guidelines for Cultural Heritage Impact Assessment* should be prepared for the approval of AMO. The project proponent should appoint qualified and experienced archaeologist(s) with sufficient funding, time and personnel arrangements to implement the AAP. Details of the proposal plan with specification for the further archaeological investigation, rescue excavation and watching brief shall be agreed with AMO. The AAP should include the details of the archaeological actions required to mitigate potential impact on archaeological deposits. The AAP will include the following:

- a detailed plan for further archaeological investigation at inaccessible areas in TPP and SSS;
- a detailed plan for rescue excavation at the southern SSS;
- a contingency plan to address possible arrangement when significant archaeological findings are unearthed during the further archaeological investigation and rescue excavation; and
- a detailed plan for archaeological watching brief during the construction works at TUW.

6.3.2 Details of further archaeological investigation, rescue excavation and watching brief are provided in the following sections.

Further Archaeological Investigation

6.3.3 The inaccessible areas identified in SSS and TPP, though archaeological remains, if exists, a few areas might have been disturbed by existing land uses (including pig and chicken farms, open storage yards, garages, dumping sites and village houses).

6.3.4 There are a few significant artefacts collected on the ground surface at some areas within northern and central area of SSS and area away from TPP. These areas are therefore considered to have archaeological potential and a further archaeological investigation should be conducted within the following areas:

- The northern area of SSS located near Shek Kong PLA Barrack - A stone pick, some Song dynasty celadon bowls and roof tile fragments were identified in a cutting face of a cultivation field.
- The central area of SSS – It is being occupied by pig and chicken farms. A few Song celadon bowls and roof tile fragments were collected in a foot path.
- The southern area of SSS – It is being occupied by agricultural farms and factories. A lot of fragment of bowl, pot and roof tile were discovered in surface and subsurface, those artefacts dated to Song to Ming dynasties.
- The inaccessible area of TPP– It is being occupied by pig and chicken farms.

6.3.5 A minimum of 18 test pits (1m x 1.5m) and some auger holes are proposed to be carried out in these areas (refer to **Figure Nos. NOL/ERL/300/C/XRL/ENS/M55/303-304**). If archaeological data collected from these 18 test pits is insufficient to ascertain the archaeological potential of the inaccessible areas, additional test pits should be recommended. If there are significant findings discovered in further archaeological investigation, AMO should be informed immediately, a rescue plan should be worked out and agreed with AMO prior to commencement of rescue excavation(s).

Rescue Excavation

6.3.6 A cultural layer was identified in southern SSS in which artefects dated to Song and Ming dynasties were unearthed. A rescue excavation is therefore recommended so as to preserve the archaeological remains by detailed records. Proposed rescue excavation area is shown in **Figure No. NOL/ERL/300/C/XRL/ENS/M55/304.**

Watching Brief

6.3.7 A watching brief is recommended, as a precautionary measure, for the identification of any historical finds during the construction works at TUW, which might have a potential for finds and remains of archaeological interest to be found. The watching brief should be undertaken by qualified archaeologist(s). Details of the frequency of inspection will be provided in AAP for AMO to review and comment. The qualified archaeologist should liaise with the contractor with respect to details of the construction programme. The contractor should immediately inform the archaeologist and the AMO if any significant archaeological deposits are identified during the course of the construction works.

Site Audit

6.3.8 No excavation works would be conducted during the construction of barging point in LKST, and thus no adverse archaeological impact is anticipated. In order to avoid any impact on the archaeological potential of LKST, regular site audit is recommended to ensure that no excavation works at the archaeological deposit area is carried out. Audit finding should be reported in monthly EM&A reports and be submitted to AMO upon completion of construction works.

Restriction of Works Boundary of TPP

6.3.9 To avoid any potential impact to relic discovered area in Tai Kong Po, works boundary of TPP should not be extended to relics discovered area outside TPP.

7 CONCLUSION

7.1.1 In order to obtain field data in evaluating archaeological potential of the Project study area, an AIA was carried out for the EIA Study of the Project. Archaeological potential was established for the study area based on findings of desktop review and field walking.

7.1.2 Archaeological investigation was carried out and the findings revealed that SSS, TPP and TUW would have some archaeological potential and the other remaining works areas have no archaeological potential.

7.1.3 Some prehistoric and historic artefacts were collected on the ground surface at some areas within the SSS. A cultural layer of Song to Ming dynasty was discovered in test pit TP4 at the southern portion of SSS, indicating that there were human activities in SSS at ancient periods. The indicative extent of an archaeological deposit area with a cultural layer at southern SSS was defined, and rescue excavation is recommended at this area, in which the archaeological remains would be preserved by detailed records.

7.1.4 Due to the inaccessibility presently to some portions of the SSS and TPP, a further archaeological investigation is therefore recommended to verify their archaeological potential. If significant archaeological remains are discovered, rescue excavation(s) should be carried out.

7.1.5 Only limited archaeological potential is anticipated at TUW, watching brief is therefore recommended as a precautionary measure to identify any historical finds in this works area.

7.1.6 An Archaeological Action Plan (AAP) should be prepared for the approval of relevant authority. The plan should include the details of further archaeological investigation, rescue excavation, a watching brief and a contingency plan to address possible arrangement when significant archaeological findings are unearthed.

7.1.7 Regular site audit should also be conducted to confirm that no excavation works is carried out at archaeological deposit area during the construction of barging point in LKST. Restriction on the extension of TPP works boundary is also recommended to avoid any potential impact to relic discovered area in Tai Kong Po.

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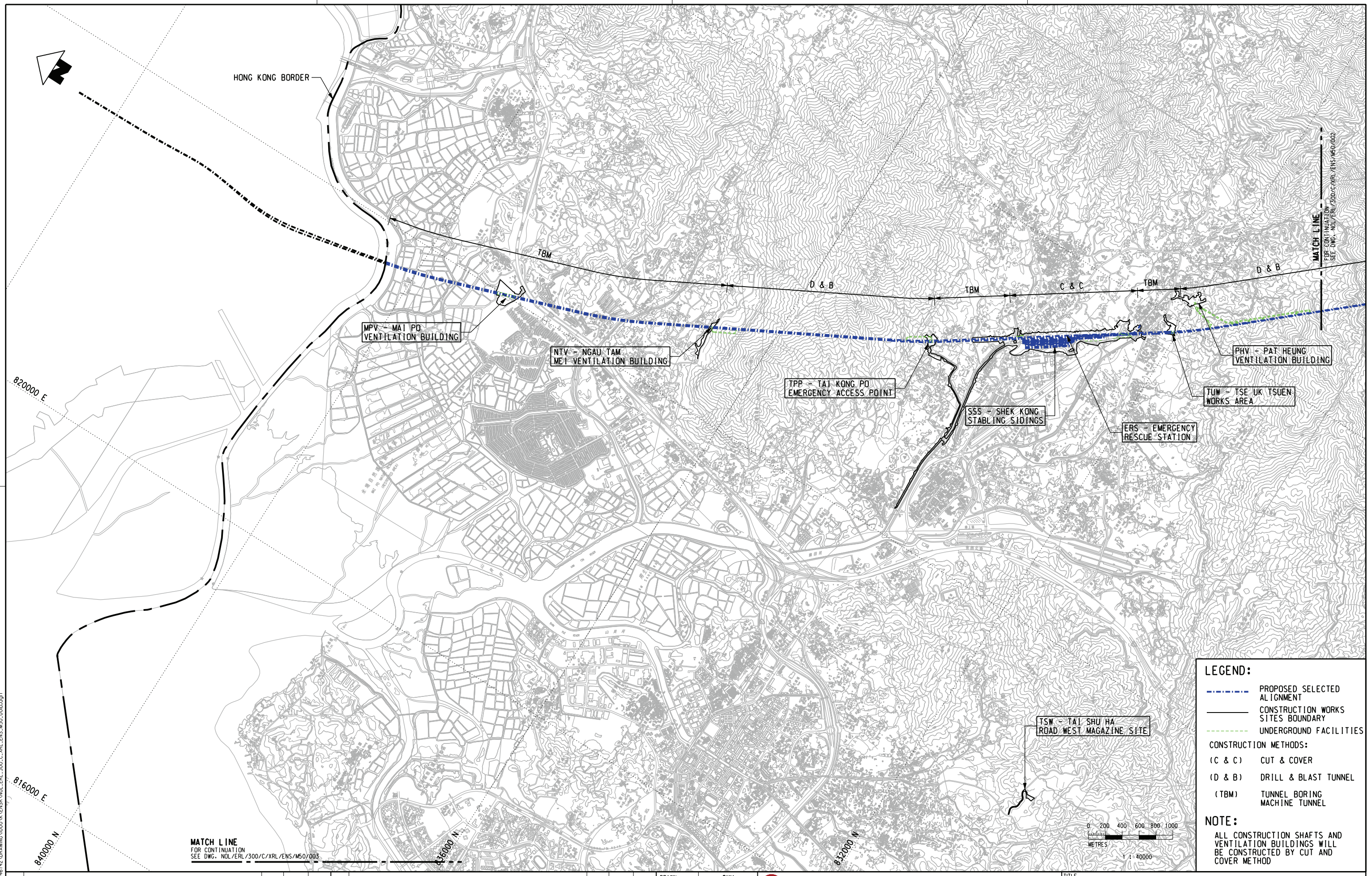
Figures



LEGEND:

- PROPOSED SELECTED ALIGNMENT
- CONSTRUCTION WORKS SITES BOUNDARY
- UNDERGROUND FACILITIES

CONSTRUCTION METHODS:

(C & C)	CUT & COVER
(D & B)	DRILL & BLAST TUNNEL
(TBM)	TUNNEL BORING MACHINE TUNNEL

NOTE:

ALL CONSTRUCTION SHAFTS AND VENTILATION BUILDINGS WILL BE CONSTRUCTED BY CUT AND COVER METHOD

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DRAWN	GXH
DESIGNED	TWF
CHECKED	KCC
APPROVED	PL
DATE	19/AUG./2008

MTR

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ORIGINATOR

ENSR | AECOM

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TITLE

NOL / ERL-300
ENVIRONMENTAL IMPACT ASSESSMENT
OVERALL VIEW OF ALIGNMENT

SCALE	FIGURE NO.	REV.
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836000 E

828000 E

824000 N

820000 N

D & B

SMV - SHING MUN VENTILATION BUILDING

SYW - SHEK YAM WORKS AREA

KCV - KWAI CHUNG VENTILATION BUILDING

MLW - MEI LAI ROAD WORKS AREA

LCW - LAI CHI KOK WORKS AREA

RCB - RAMBLER CHANNEL BARGING POINT

TBM

C & C

NCV - NAM CHEONG VENTILATION BUILDING

MKV - MONG KOK WEST VENTILATION BUILDING

NCB - NAM CHEONG BARGING POINT

PTI - PUBLIC TRANSPORT INTERCHANGE

WKT - WEST KOWLOON TERMINUS

WKB - WEST KOWLOON BARGING POINT

MATCH LINE
FOR CONTINUATION
SEE DWG NO. NOL/ERL/300/C/XRL/ENS/M50/001

TSUEN WAN

RAMBLER

VICTORIA

LEGEND:

- PROPOSED SELECTED ALIGNMENT
- CONSTRUCTION WORKS SITES BOUNDARY
- UNDERGROUND FACILITIES

CONSTRUCTION METHODS:

(C & C)	CUT & COVER
(D & B)	DRILL & BLAST TUNNEL
(TBM)	TUNNEL BORING MACHINE TUNNEL

NOTE:

ALL CONSTRUCTION SHAFTS AND VENTILATION BUILDINGS WILL BE CONSTRUCTED BY CUT AND COVER METHOD

0 200 400 600 800 1000
METRES

1 : 40000

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DESIGNED	TWF
CHECKED	KCC
APPROVED	PL
DATE	19/AUG./2008

MTR

EXPRESS RAIL LINK

ORIGINATOR

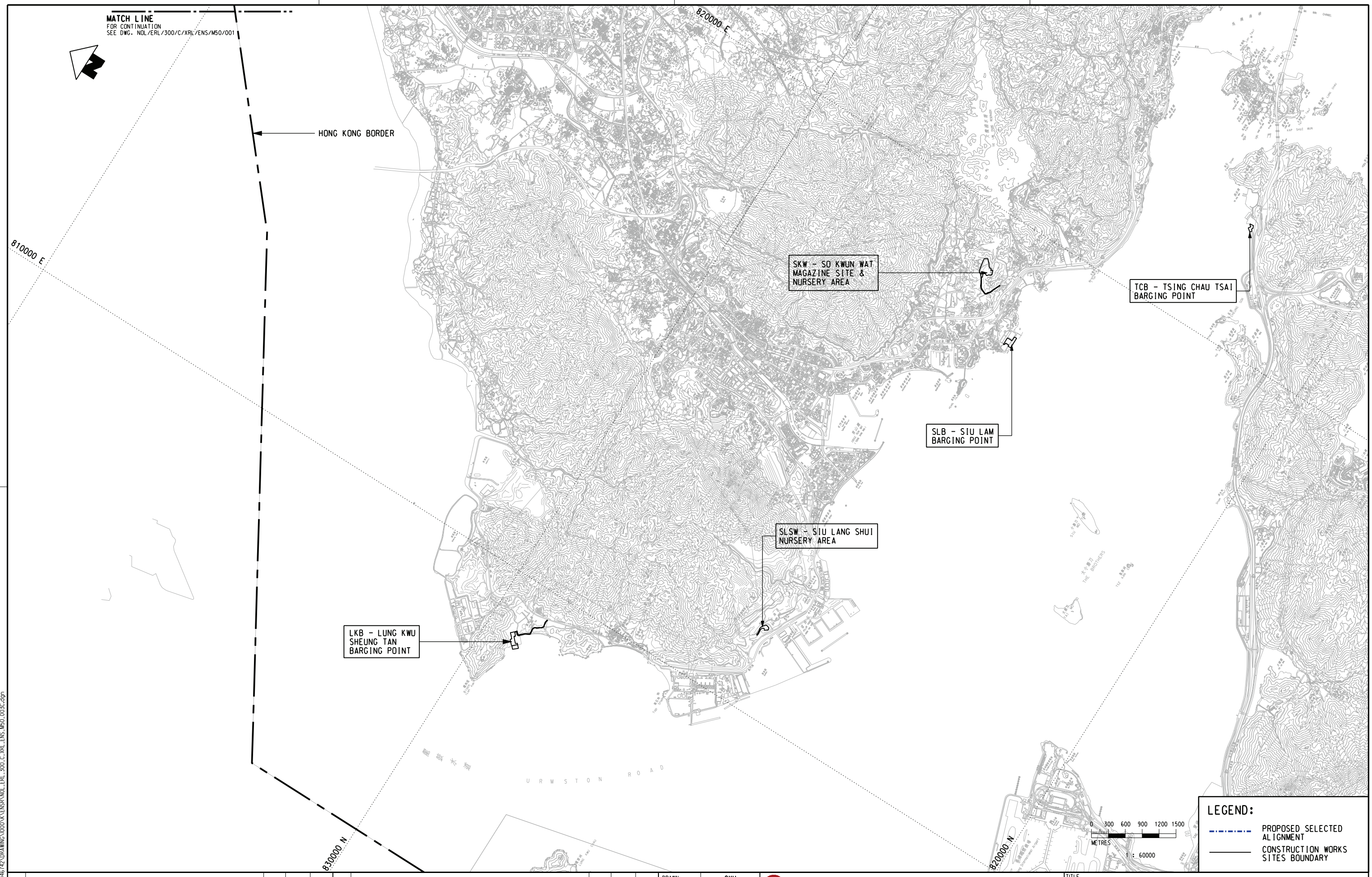
ENSR | AECOM

CADD REF. NOL_ERL_300_C_XRL_ENS_M50_002D.dgn

TITLE

NOL / ERL-300
ENVIRONMENTAL IMPACT ASSESSMENT
OVERALL VIEW OF ALIGNMENT

SCALE	FIGURE NO.	REV.
1 : 40000 (A3)	NOL/ERL/300/C/XRL/ENS/M50/002	D



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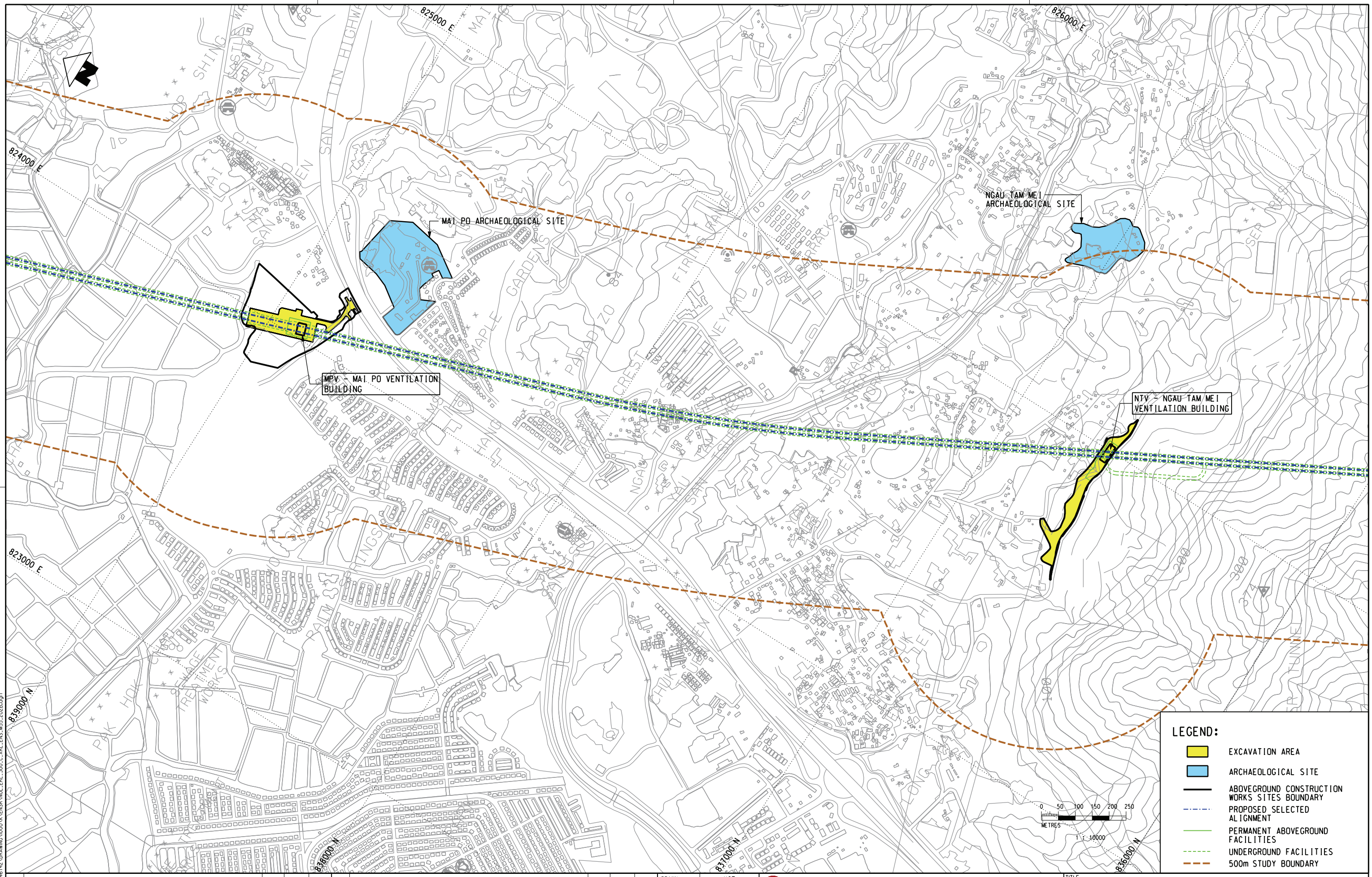
REV	DESCRIPTION	BY	DATE	APPROVED	REV	DESCRIPTION	BY	DATE	APPROVED

DRAWN	GXH
DESIGNED	TWF
CHECKED	KCC
APPROVED	PL
DATE	19/AUG./2008

MTR
EXPRESS RAIL LINK
ORIGINATOR
ENSR | AECOM
CADD REF. NOL_ERL_300_C_XRL_ENS_M50_003C.dgn

TITLE
NOL / ERL-300
ENVIRONMENTAL IMPACT ASSESSMENT
OVERALL VIEW OF ALIGNMENT

SCALE 1 : 60000 (A3) | FIGURE NO. NOL/ERL/300/C/XRL/ENS/M50/003 | REV. C



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REV	DESCRIPTION	BY	DATE	APPROVED

REV	DESCRIPTION	BY	DATE	APPROVED

DRAWN	XCF
DESIGNED	TWF
CHECKED	KCC
APPROVED	PL
DATE	04/JAN./2009

MTR

EXPRESS RAIL LINK

ORIGINATOR

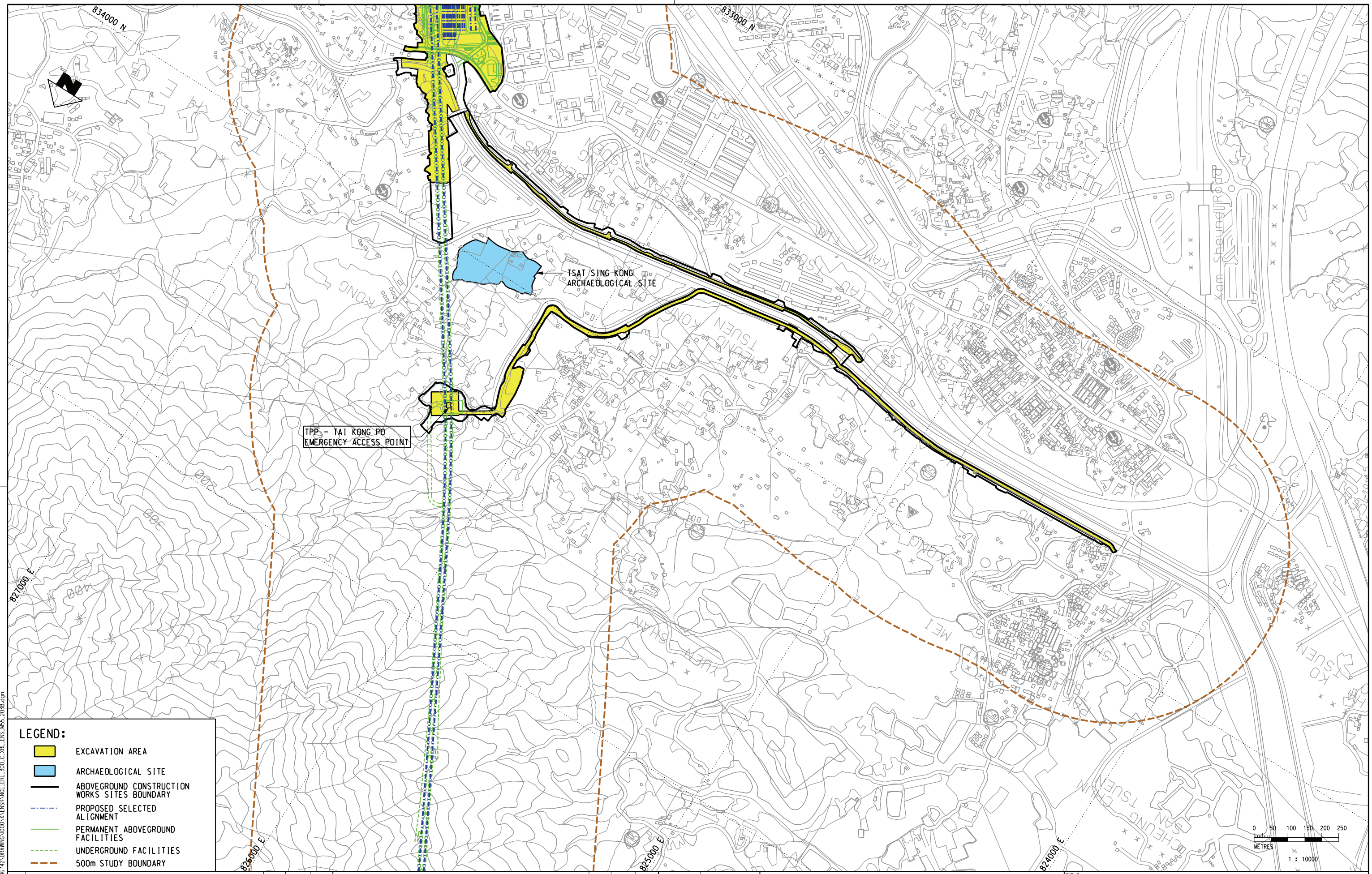
ENSR | AECOM

CADD REF. NOL_ERL_300_C_XRL_ENS_M55_202B.dgn

TITLE

NOL / ERL-300
ENVIRONMENTAL IMPACT ASSESSMENT
LOCATION OF ARCHAEOLOGICAL SITES & EXCAVATION AREA

SCALE	FIGURE NO.	REV.
1 : 10000 (A3)	NOL/ERL/300/C/XRL/ENS/M55/202	B



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REV	DESCRIPTION	BY	DATE	APPROVED

REV	DESCRIPTION	BY	DATE	APPROVED

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DESIGNED	TWF
CHECKED	KCC
APPROVED	PL
DATE	04/JAN./2009

MTR

EXPRESS RAIL LINK

ORIGINATOR

ENSR | AECOM

CADD REF. NOL_ERL_300_C_XRL_ENS_M55_203B.dgn

TITLE

NOL / ERL-300
ENVIRONMENTAL IMPACT ASSESSMENT
LOCATION OF ARCHAEOLOGICAL SITES & EXCAVATION AREA

SCALE	FIGURE NO.	REV.
1 : 10000 (A3)	NOL/ERL/300/C/XRL/ENS/M55/203	B

828000 E

829000 E

827000 E

826000 N

834000 N

833000 N

832000 N

831000 N

PAT HEUNG SHEUNG TSUEN
ARCHAEOLOGICAL SITE

PHV - PAT HEUNG
VENTILATION BUILDING

ERS - EMERGENCY
RESCUE STATION

TSAT SING KONG
ARCHAEOLOGICAL SITE

SSS - SHEK KONG
STABLING SIDINGS

SHUI LAU TIN
ARCHAEOLOGICAL SITE

LIN FA TEI
ARCHAEOLOGICAL SITE

TSE UK TSUEN
CONSTRUCTION SHAFT

LEGEND:

- EXCAVATION AREA
- ARCHAEOLOGICAL SITE
- ABOVEGROUND CONSTRUCTION WORKS SITES BOUNDARY
- PROPOSED SELECTED ALIGNMENT
- PERMANENT ABOVEGROUND FACILITIES
- UNDERGROUND FACILITIES
- 500m STUDY BOUNDARY

0 50 100 150 200 250
METRES
1 : 10000

REV	DESCRIPTION	BY	DATE	APPROVED	REV	DESCRIPTION	BY	DATE	APPROVED

DRAWN	XCF
DESIGNED	TWF
CHECKED	KCC
APPROVED	PL
DATE	04/JAN./2009

MTR

EXPRESS RAIL LINK

ORIGINATOR

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CADD REF. NOL_ERL_300_C_XRL_ENS_M55_204B.dgn

TITLE

NOL / ERL-300
ENVIRONMENTAL IMPACT ASSESSMENT
LOCATION OF ARCHAEOLOGICAL SITES & EXCAVATION AREA

SCALE 1 : 10000 (A3)

FIGURE NO. NOL/ERL/300/C/XRL/ENS/M55/204

REV. B

PLOT DRV: R:\usrtmse\MTR\PLOTDRIVER\WINDOWS\A3 COLOUR.pltPRINTED BY: CONGPA 2009-6-21 11:40:24
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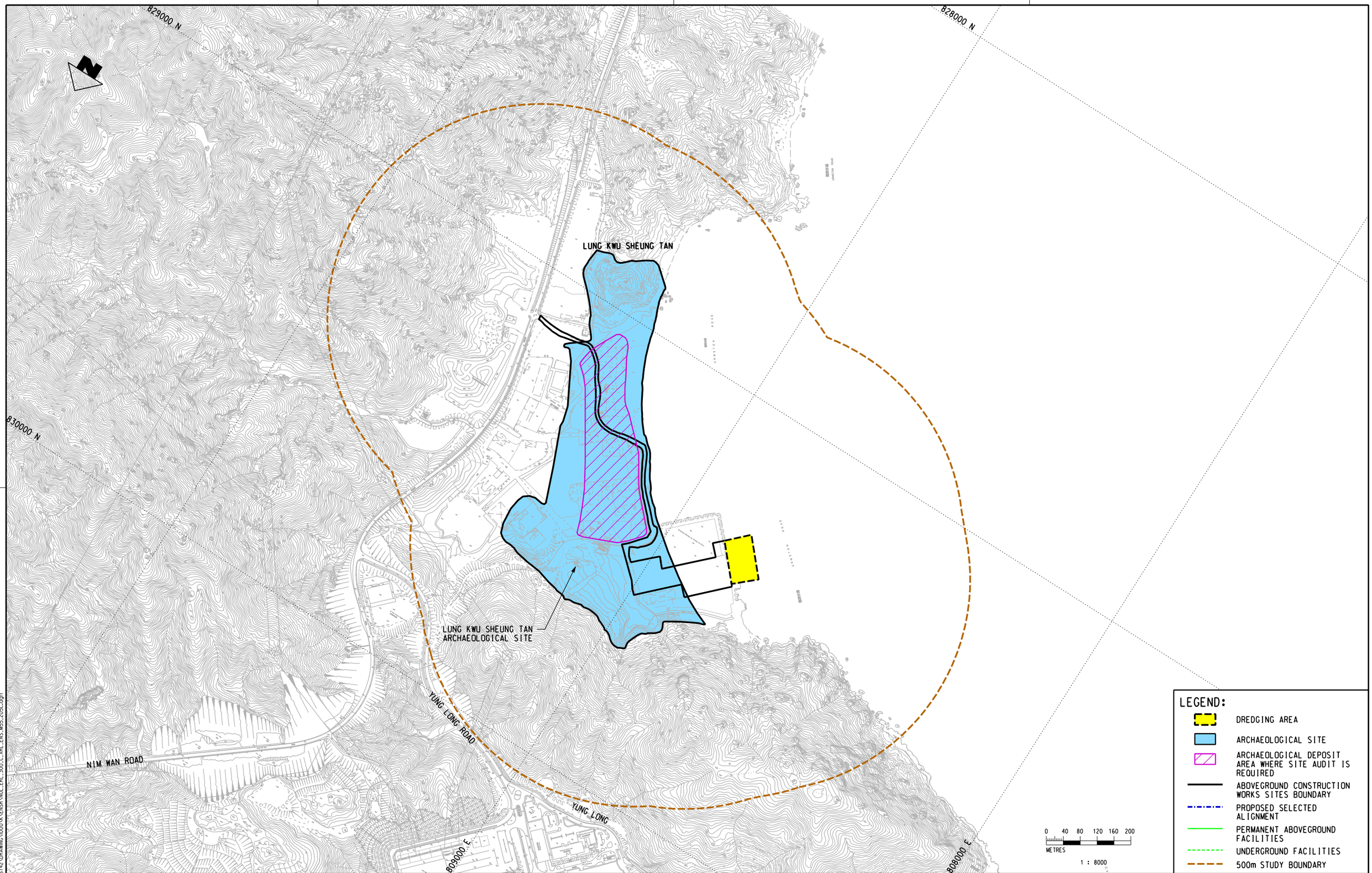

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REV	DESCRIPTION	BY	DATE	APPROVED	REV	DESCRIPTION	BY	DATE	APPROVED

DRAWN	GXH
DESIGNED	TWF
CHECKED	KCC
APPROVED	PL
DATE	30/DEC./2008

MTR
EXPRESS RAIL LINK
ORIGINATOR
ENSR | AECOM
CADD REF. NOL_ERL_300_C_XRL_ENS_M55_205C.dgn

TITLE
NOL / ERL-300
ENVIRONMENTAL IMPACT ASSESSMENT
LOCATION OF ARCHAEOLOGICAL SITES & EXCAVATION AREA

SCALE	FIGURE NO.	REV.
1 : 8000 (A3)	NOL/ERL/300/C/XRL/ENS/M55/205	C

826200 E

826400 E

826600 E

834600 N

834400 N

834200 N

TAI KONG PO EMERGENCY ACCESS POINT (TPP)

AH9

AH7

AH8

SP1

SP2

SP3

TP1

TAI KONG PO

TSAT SING KONG ARCHAEOLOGICAL SITE

LEGEND:

- PROPOSED SUPPLEMENTARY TRIAL PIT
- AUGER HOLE
- ARTEFACT DISCOVERED POINT
- TRIAL PIT
- ABOVEGROUND CONSTRUCTION WORKS SITES BOUNDARY
- PROPOSED SELECTED ALIGNMENT
- UNDERGROUND FACILITIES
- INACCESSIBLE AREA
- ARTEFACT DISCOVERED AREA
- ARCHAEOLOGICAL SITE

0 10 20 30 40 50 METRES

1 : 2000

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REV	DESCRIPTION	BY	DATE	APPROVED	REV	DESCRIPTION	BY	DATE	APPROVED

DRAWN	XCF
DESIGNED	TWF
CHECKED	KCC
APPROVED	PL
DATE	08/JAN/2009

MTR

EXPRESS RAIL LINK

ORIGINATOR

ENSR | AECOM

CADD REF. NOL_ERL_300_C_XRL_ENS_M55_303C.dgn

TITLE

NOL/ERL-300
ENVIRONMENTAL IMPACT ASSESSMENT
ARCHAEOLOGICAL RESOURCES IN TPP

SCALE 1 : 2000 (A3)

FIGURE NO. NOL/ERL/300/C/XRL/ENS/M55/303

REV. C

827200 E

827600 E

826800 E

826400 E

833400 N

833200 N

832800 N

832400 N

AH21 TP6 SP4 SP5 SP9 SP14 AH13 TP5 SP15 AH12 AH11 AH23

TP8 AH17 SP13 AH14 AH15 TP4 AH10 AH24 SP18

SP8 SP16 SP17 AH22

SP12

AH20 AH19 SP7 SP10 AH16

AH18 TP7 SP11

SP6

SHEK KONG STABLING SIDINGS (SSS)

LEGEND:

- PROPOSED SUPPLEMENTARY TRIAL PIT
- AUGER HOLE
- ARTEFACT DISCOVERED POINT
- STONE PICK DISCOVERED POINT
- TRIAL PIT
- ABOVEGROUND CONSTRUCTION WORKS SITES BOUNDARY
- PROPOSED SELECTED ALIGNMENT
- UNDERGROUND FACILITIES
- INACCESSIBLE AREA
- RESCUE EXCAVATION AREA

0 20 40 60 80 100
METRES
1 : 4000

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REV	DESCRIPTION	BY	DATE	APPROVED	REV	DESCRIPTION	BY	DATE	APPROVED

DRAWN	XCF
DESIGNED	TWF
CHECKED	KCC
APPROVED	PL
DATE	08/JAN/2009

MTR

EXPRESS RAIL LINK

ORIGINATOR

ENSR | AECOM

CADD REF. NOL_ERL_300_C_XRL_ENS_M55_304C.dgn

TITLE

NOL/ERL-300
ENVIRONMENTAL IMPACT ASSESSMENT
ARCHAEOLOGICAL RESOURCES IN SSS

SCALE	FIGURE NO.	REV.
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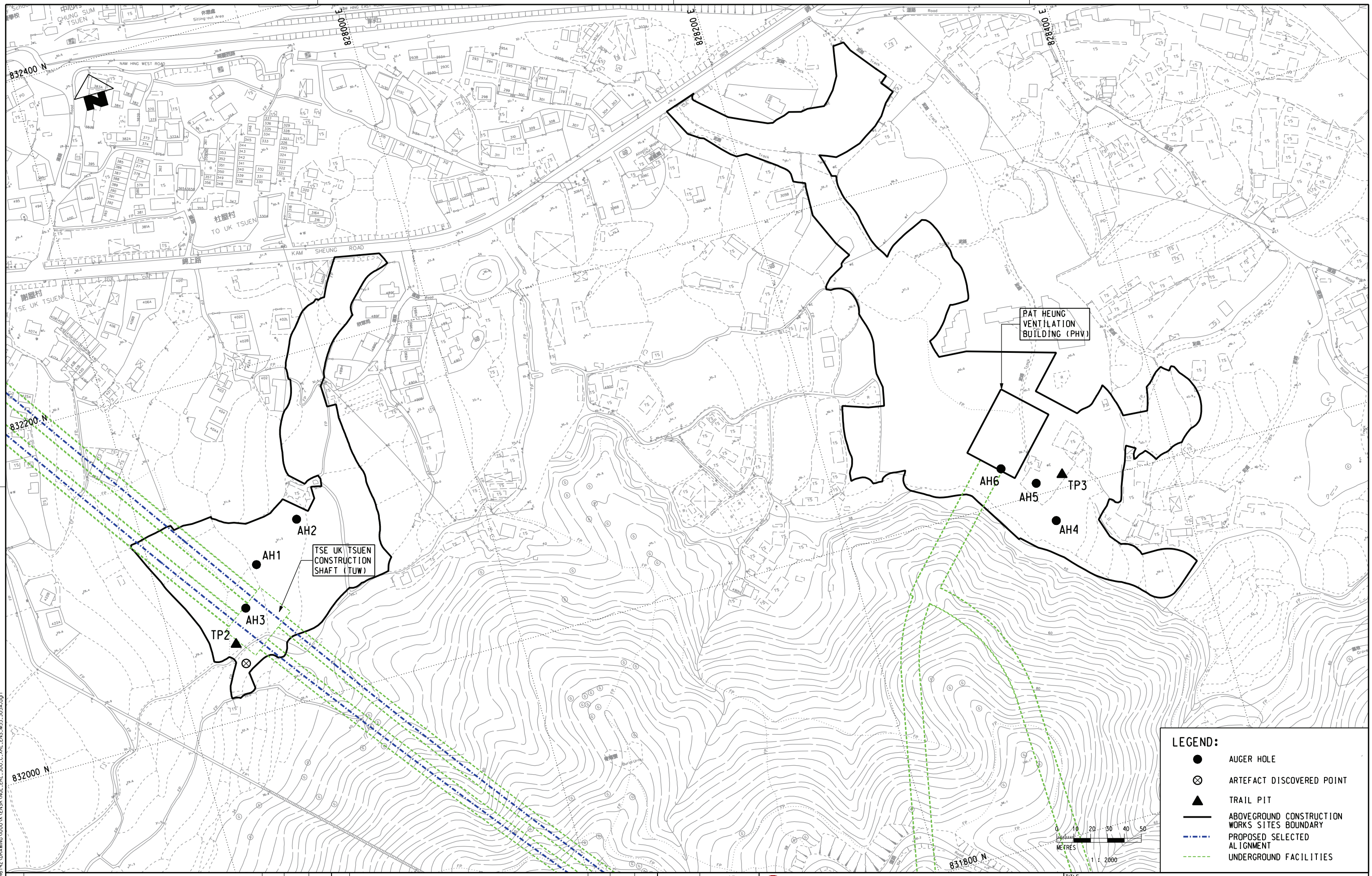

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DRAWN	XCF
DESIGNED	TWF
CHECKED	KCC
APPROVED	PL
DATE	08/JAN/2009

MTR
EXPRESS RAIL LINK
ORIGINATOR
ENSR | AECOM
CADD REF. NOL_ERL_300_C_XRL_ENS_M55_305A.dgn

TITLE
NOL/ERL-300
ENVIRONMENTAL IMPACT ASSESSMENT
ARCHAEOLOGICAL RESOURCES IN TUW AND PHV

SCALE 1 : 2000 (A3) | FIGURE NO. NOL/ERL/300/C/XRL/ENS/M55/305 | REV. A

827000 E

827200 E

826800 E

833600 N

833400 N

833200 N

833000 N

SHEK KONG STABLING SIDINGS (SSS)

AH21

TP6

SP5

SP4

SP9

AH17

TP8

SP8

SP12

SP7

SP10

AH16

AH20

AH19

AH18

TP7

SP11

SP6

MATCH LINE
FOR CONTINUATION
SEE DWG NO. NOL/ERL/300/C/XRL/ENS/M55/307

LEGEND:

- PROPOSED SUPPLEMENTARY TRIAL PIT
- AUGER HOLE
- ARTEFACT DISCOVERED POINT
- STONE PICK DISCOVERED POINT
- TRIAL PIT
- ABOVEGROUND CONSTRUCTION WORKS SITES BOUNDARY
- PROPOSED SELECTED ALIGNMENT
- UNDERGROUND FACILITIES
- INACCESSIBLE AREA
- RESCUE EXCAVATION AREA

0 10 20 30 40 50
METRES
1 : 2000

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REV	DESCRIPTION	BY	DATE	APPROVED

DRAWN	GSR
DESIGNED	TWF
CHECKED	KCC
APPROVED	PL
DATE	08/JAN/2009

MTR

EXPRESS RAIL LINK

ORIGINATOR
ENSR | AECOM

CADD REF.
NOL_ERL_300_C_XRL_ENS_M55_306C.dgn

TITLE
NOL/ERL-300
ENVIRONMENTAL IMPACT ASSESSMENT
ARCHAEOLOGICAL RESOURCES IN SSS

SCALE	FIGURE NO.	REV.
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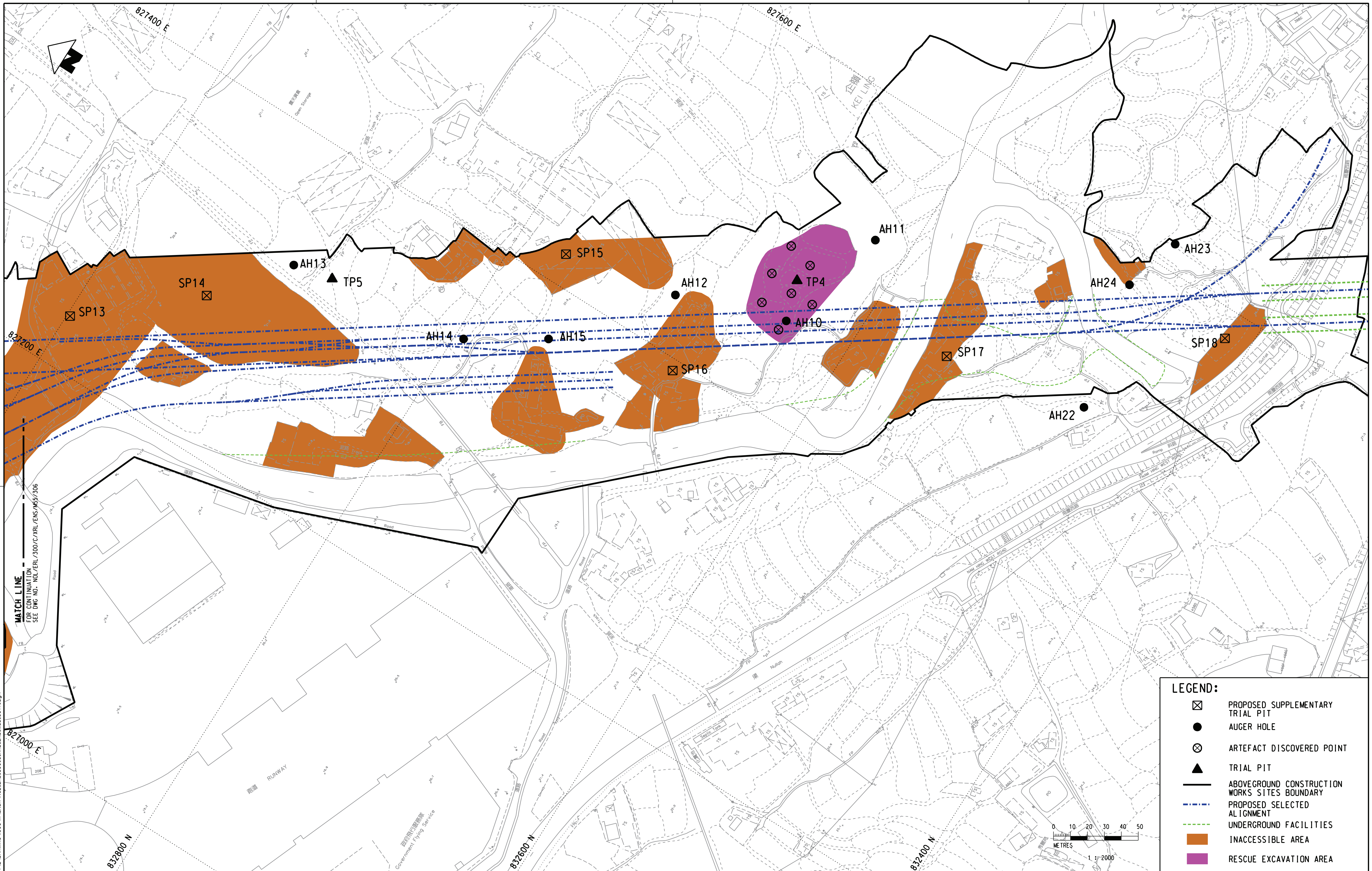

DRAWN	GSR
DESIGNED	TWF
CHECKED	KCC
APPROVED	PL
DATE	08/JAN/2009

DO NOT SCALE DRAWINGS. ALL DIMENSIONS SHALL BE VERIFIED ON SITE.

MTR

EXPRESS RAIL LINK

ORIGINATOR ENSR | AECOM

TITLE

NOL/ERL-300
ENVIRONMENTAL IMPACT ASSESSMENT
ARCHAEOLOGICAL RESOURCES IN SSS

REV	DESCRIPTION	BY	DATE	APPROVED	REV	DESCRIPTION	BY	DATE	APPROVED

CADD REF. NOL_ERL_300_C_XRL_ENS_M55_307A.dgn

SCALE 1 : 2000 (A3) | FIGURE NO. NOL/ERL/300/C/XRL/ENS/M55/307 | REV. A

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APPENDIX A

Historical and Geological Information

Figure A1 Kam Tin, Ngau Tau Mei and Mei Po in 1868 Map of the Sun-on-District

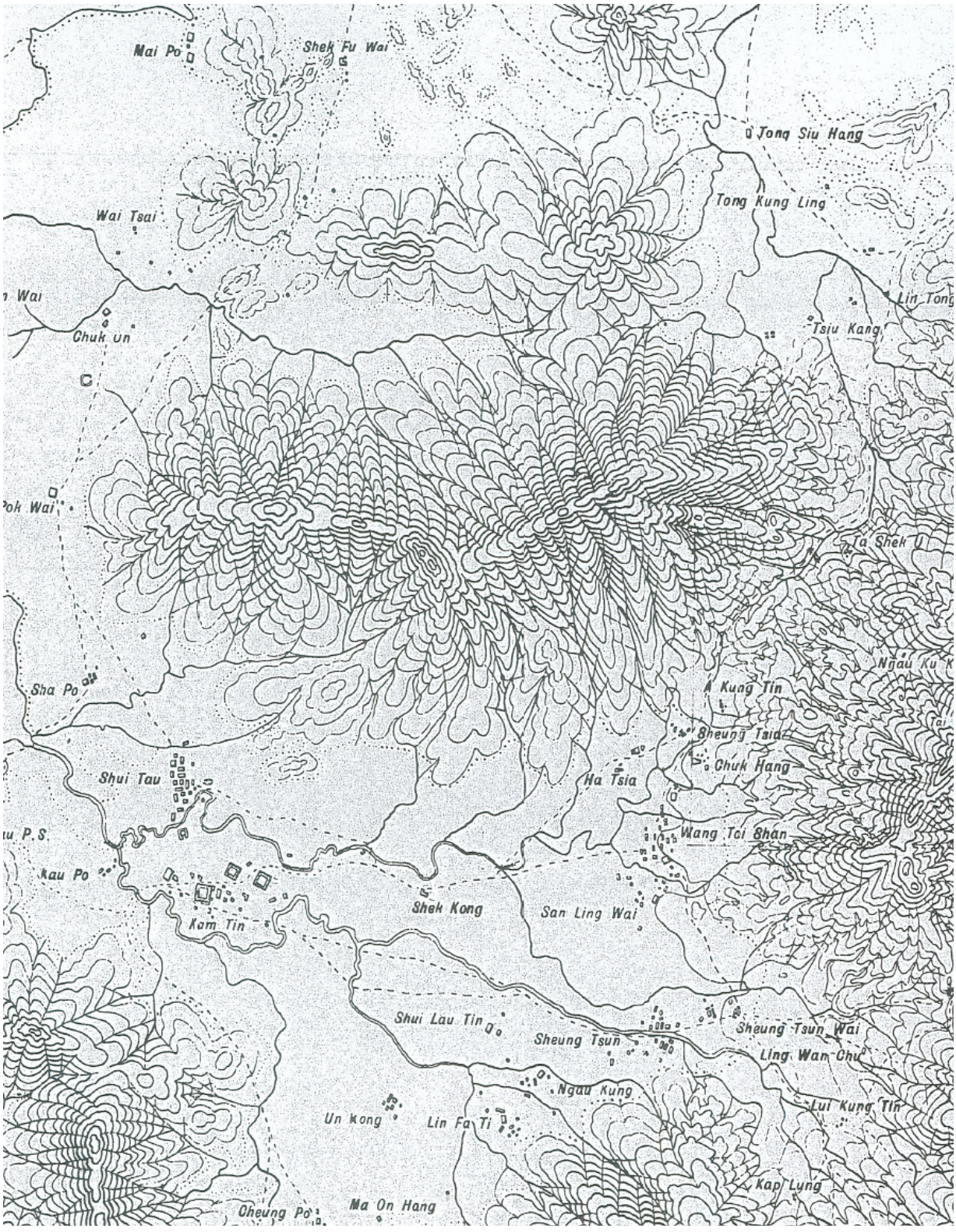


Figure A2 Mai Po , Ngau Tam Mei and Kam Tin in the 1899 map

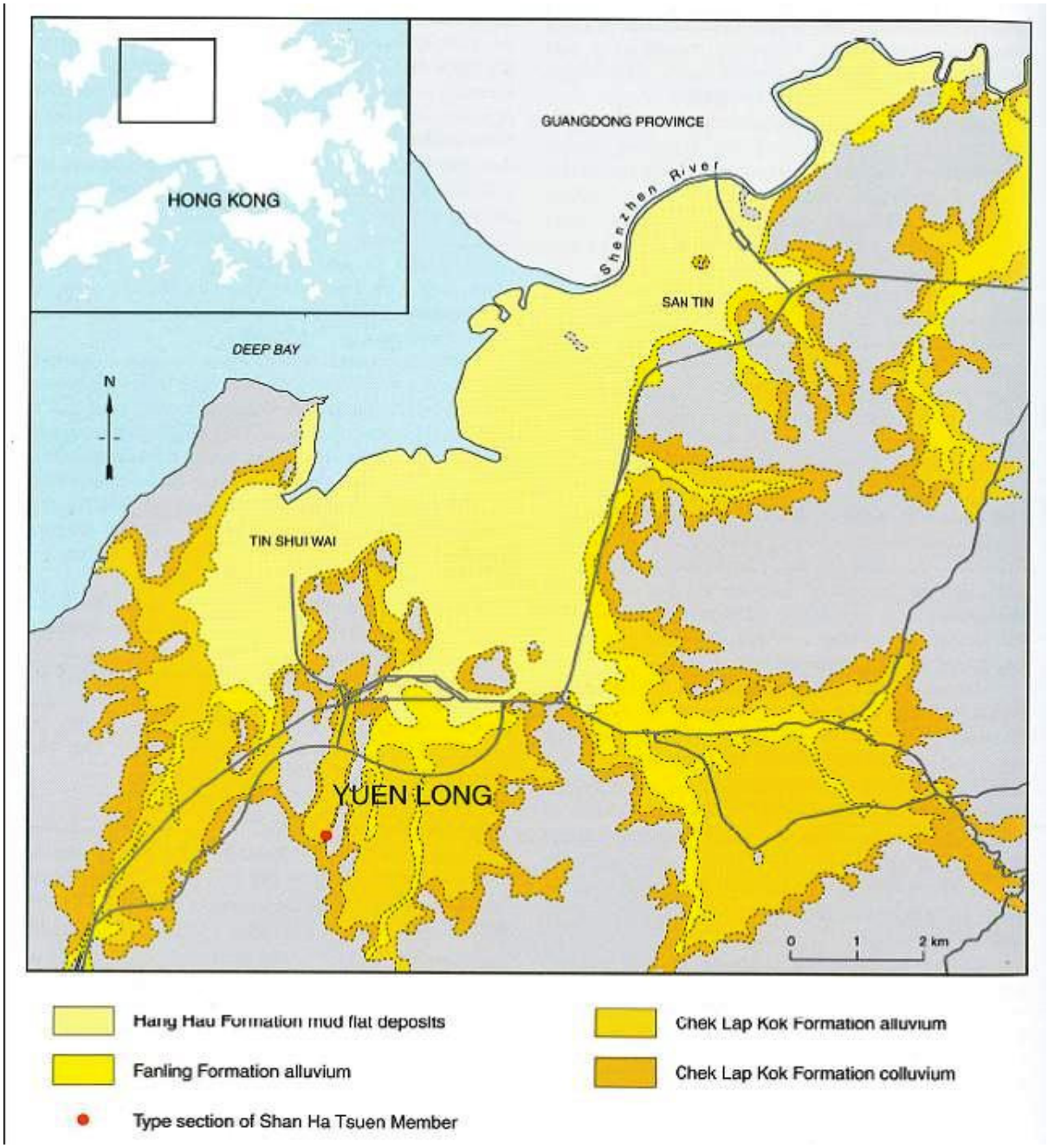


Figure A3 Pleistocene Fluvial Terrace and Holocene Alluvium of Ngau Tam Mei and Kam Tin

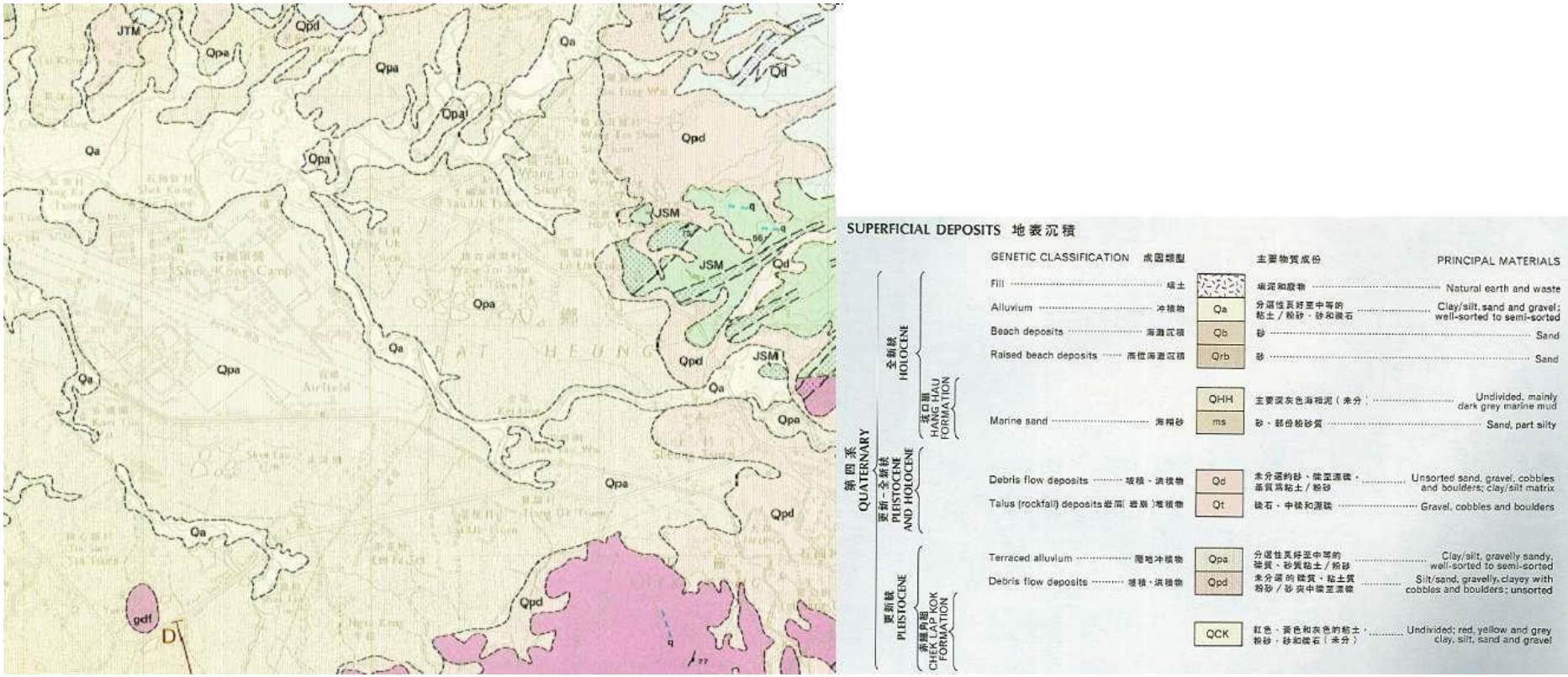


Figure A4 Superficial Geological Map of Kam Tin (1:20,000)

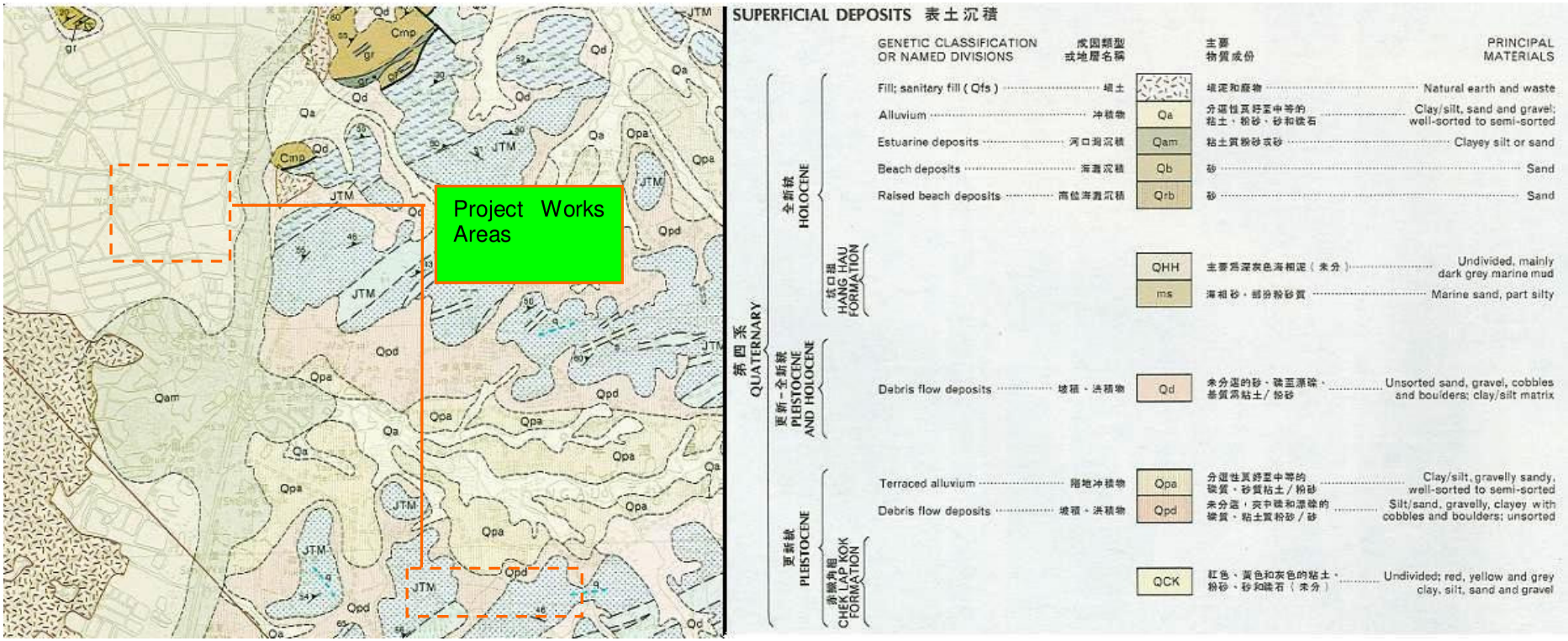


Figure A5 Superficial Geological Map of Ngau Tam Mei and Mai Po (1:20,000)

Figure A6 **Geological Profile of Pleistocene Alluvium (Chek Lap Kok Formation) Overlain by Holocene alluvium in SSS**

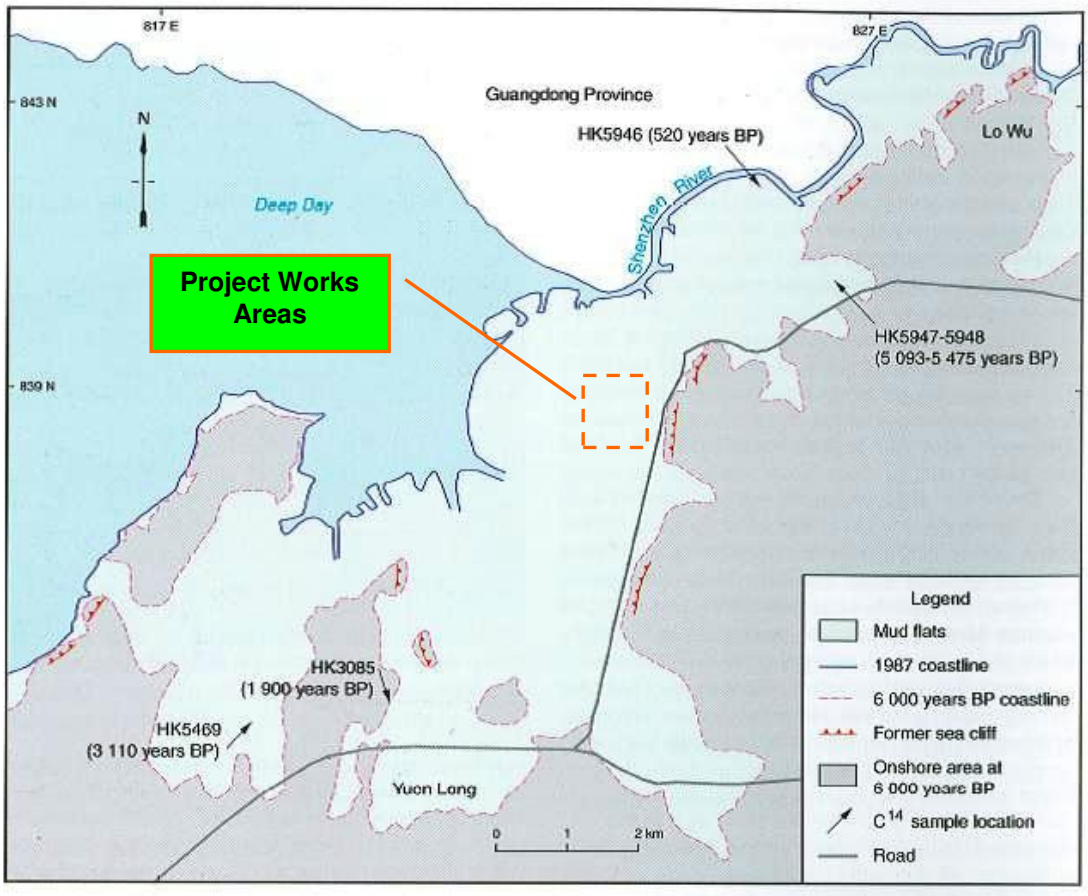


Figure A7 **Coastal Line Change in Kam Tin and Mai Po**

APPENDIX B

Photographic Record of Archaeological Investigation

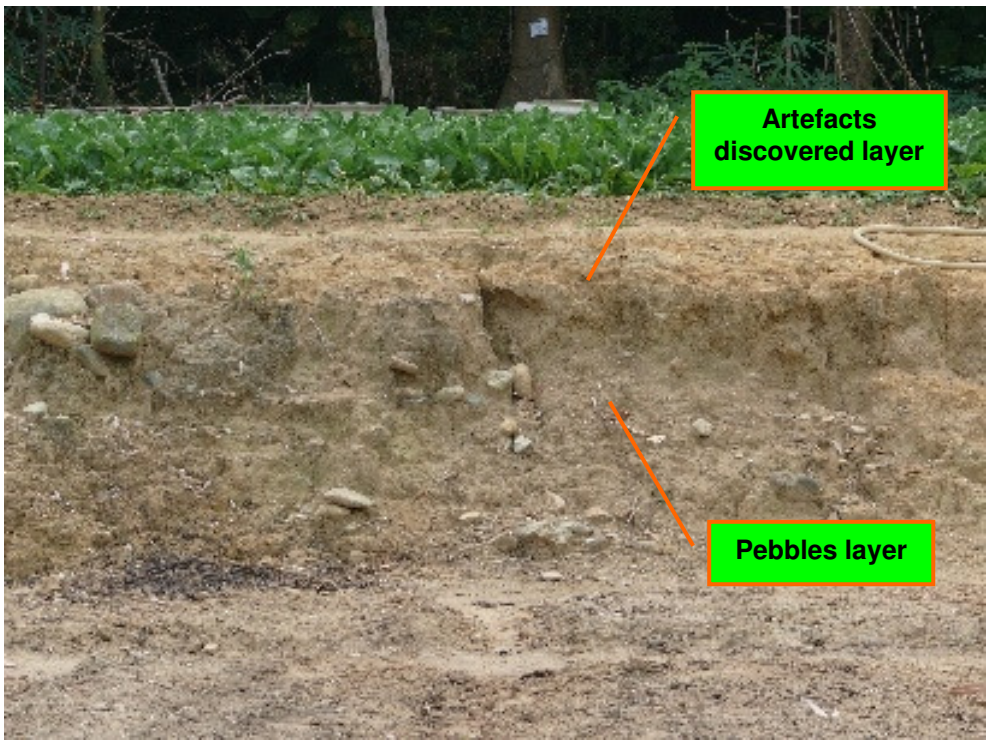


Figure B1 Stone Chipped Pick with Song Celadon Shards were collected in the face-cutting at Southern SSS near TP4

Figure B2 Roof Tiles Are Exposed in Ground near to TP4

Figure B3 Hand Augering in SSS

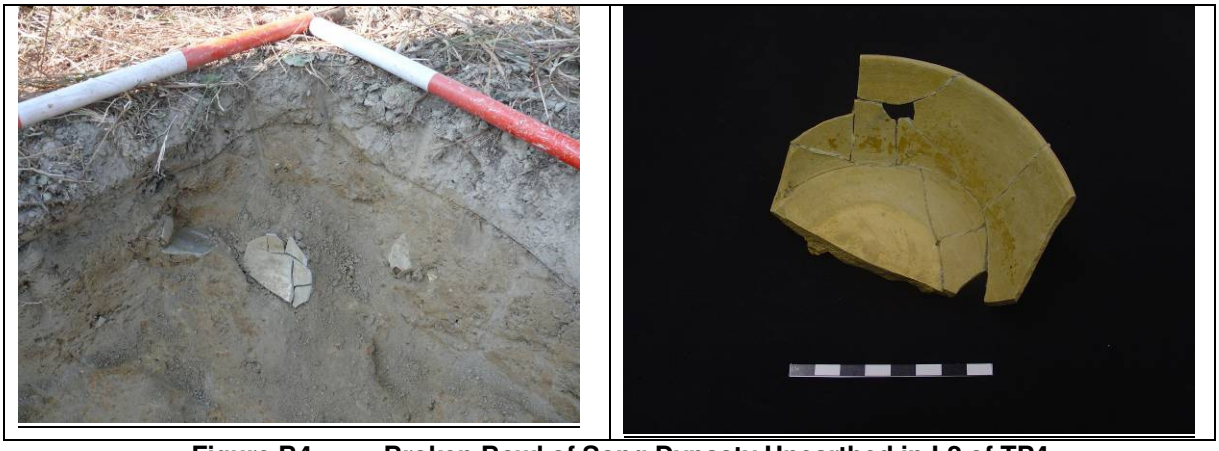


Figure B4 Broken Bowl of Song Dynasty Unearthed in L2 of TP4

Figure B5 Pebble Chipped Pick Collected in Ground Surface of SSS

Figure B6 Bronze Age Pot Shards Collected Form Ground Surface in Tsat Sing Kong Archaeological Site

Figure B7 Song Celadon Collected From Ground Surface in Tsat Sing Kong Archaeological Site

Figure B8 Song Celadon Collected From SSS

Figure B9 Song Celadon Collected in Ground Surface Surrounding of TP4

Figure B10 Song Celadon Collected in Ground Surface Surrounding of TP4

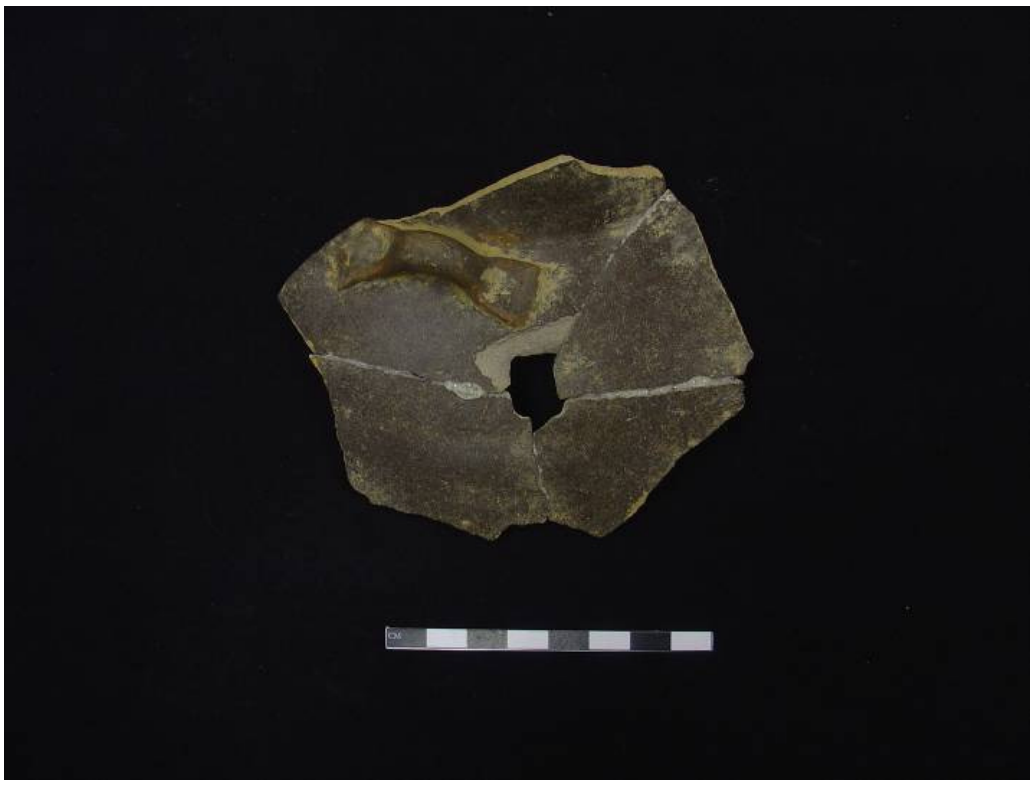


Figure B11 Pot shoulder shard Unearthed in L2 of TP4

Figure B12 Blue-and-white Porcelain Bowl Shard Collected in Tsat Sing Kong Archaeological Site

Figure B13 Roof Tiles Collected in An Area Surrounding of TP4

APPENDIX C

Stratigraphy of Test Pit

Test Pit Record

Location	**TPP**	**Site Code**	----	**Test Pit No.**	TP 1
Test Pit Coordinate	**834404.483 Northing**	**826162.774 Easting**	**Test Pit Measurement**	**1 m x 1.5 m**	
Digging Method	Hand Digging		**Ground Level**	**14.583 mPD (SW corner)**	

Stratigraphy and Finds

Layer	Soil Texture	Soil Colour	Finds	Chronology
L1	Asphalt	Black	None	-----
L2	Loamy soil	2.5YR 8/3 light gray	None	-----
L3	Silty soil	2.5YR 8/3 pale yellow	None	-----
L4	Alluvial loamy soil	2.5YR 4/2 dark grayish yellow	None	------

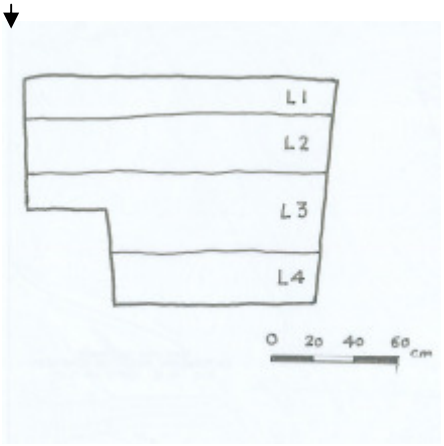
Test Pit Wall Photography

Northern Wall Section

Test Pit Wall Drawing

Northern Wall Section

14.583 mPD



Representative Artefacts

None

Test Pit Record

Location	**TUW**	**Site Code**	-----	**Test Pit No.**	TP 2
Test Pit Coordinate	**832051.497 Northing**	**827837.711 Easting**	**Test Pit Measurement**	**1.5 m x 1 m**	
Digging Method	Machine & Hand Digging		**Ground Level**	**31.300 mPD (SW corner)**	

Stratigraphy and Finds

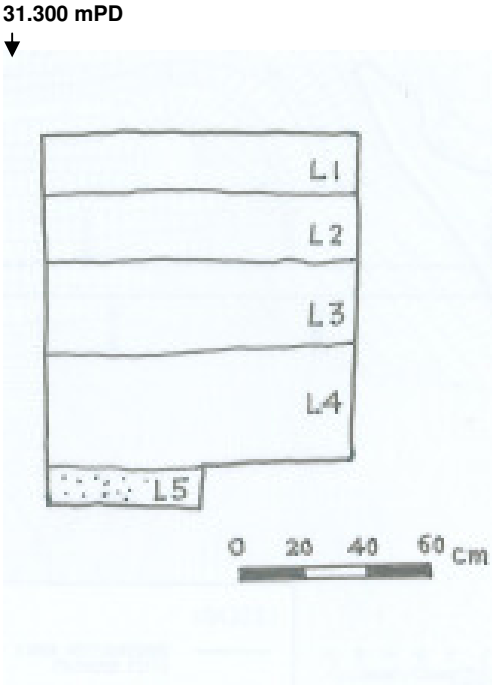
Layer	Soil Texture	Soil Colour	Finds	Chronology
L1	Sandy soil	2.5YR 8/4 pale yellow	Blue-and White porcelain bowl fragment	Modern
L2	Loamy soil	2.5YR 7/4 light yellow	Bowl rim	Modern
L3	Loamy soil with iron stains	2.5YR 6/3 dark yellow	Brown glazed pot shards	Modern
L4	Loamy soil	2.5YR 5/1 yellowish gray	Brown glazed pot shards, blue-and-white bowl shards and a piece of Song celadon bowl shard (reversed stratification)	Modern
L5	Gravelly soil	2.5YR 6/1 yellowish gray	N/A	----

TestI Pit Wall Photography

Southern Wall Section

Test Pit Wall Drawing

Southern Wall Section



Location	**TUW**	**Site Code**	-----	**Test Pit No.**	TP 2
Test Pit Coordinate	**832051.497 Northing**	**827837.711 Easting**	**Test Pit Measurement**	**1.5 m x 1 m**	
Digging Method	Machine & Hand Digging		**Ground Level**	**31.300 mPD (SW corner)**	

Stratigraphy and Finds

Representative Artefacts

Artefacts form L4

Test Pit Record

Location	**PHV**	**Site Code**	-	**Test Pit No.**	TP 3
Test Pit Coordinate	**832008.243 Northing**	**828329.281 Easting**	**Test Pit Measurement**	**1 m x 1.5 m**	
Digging Method	Hand Digging		**Ground Level**	**38.237 mPD (SW corner)**	

Stratigraphy and Finds

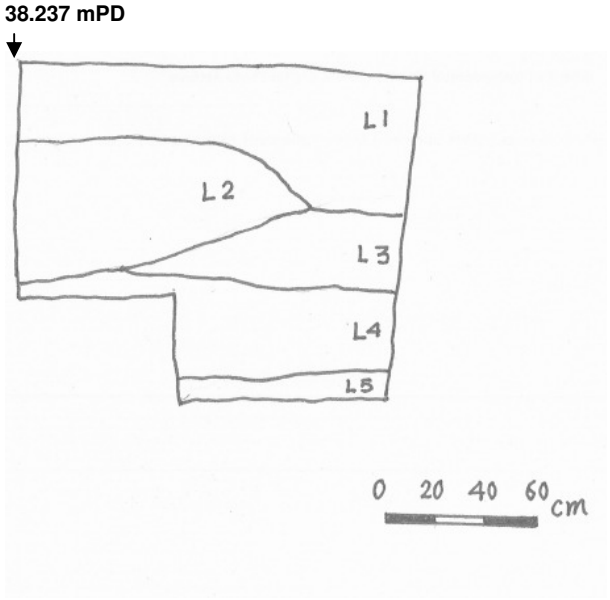
Layer	Soil Texture	Soil Colour	Finds	Chronology
L1	Clay	Dark brown	None	----
L2	Silty soil	7.5 YR brownish grey	None	----
L3	Loamy soil	7.5YR 7/4 dull orange	A piece of pot base	Modern
L4	Loamy soil	7.5YR 5/1 brownish grey	None	-----
L5	Corse Sandy soil	7.5YR 4/1 brownish grey	None	-----

Test Pit Wall Photography

Southern Wall Section

Test Pit Wall Drawing

Southern Wall Section



Representative Artefacts

None

Test Pit Record

Location	**SSS**	**Site Code**	----	**Test Pit No.**	TP 4
Test Pit Coordinate	**832647.049 Northing**	**827487.600 Easting**	**Test Pit Measurement**	**1.2 m x 1.8 m**	
Digging Method	Hand Digging		**Ground Level**	**24.584 mPD (SW corner)**	

Stratigraphy and Finds

Layer	Soil Texture	Soil Colour	Finds	Chronology
L1	Sandy soil	10YR 7/1 light grey	None	-----
L2	Loamy soil	10YR 6/6 bright yellowish brown	Song celadon bowl, glazed pot shards, basin and roof tile fragment	Song to Ming dynasty (AD960-1638)
L3	Loamy soil	10YR 6/8 bright yellowish brown	glazed pot shards, basin and roof tile fragment	Song to Ming dynasty (AD960-1638)
L4	Loamy soil	10YR 6/4 dull yellow orange	None	-----
L5	Coarse sandy soil	10YR 5/8 yellowish brown	None	-----

Test Pit Wall Photography

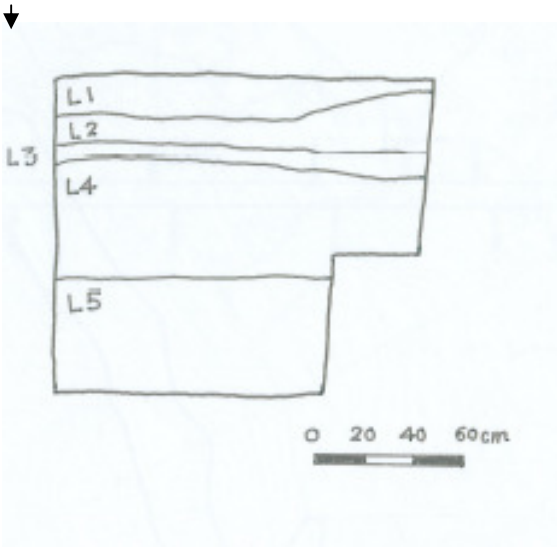
Western Wall Section

Close-up of Song celadon bowl discovered in L2

Test Pit Wall Drawing

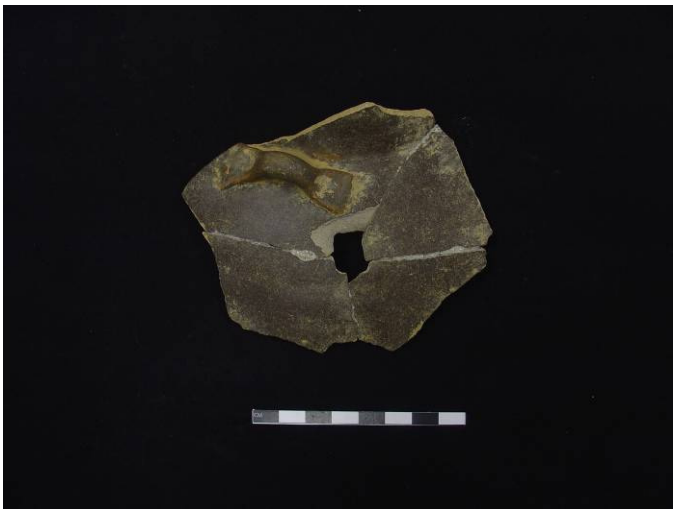
Western Wall Section

24.584 mPD



Close-up of basin shard discovered in L2

Representative Artefacts



Glazed pot shoulder with an ear from L2

Green Glazed Bowl from L2

Test Pit Record

Location	SSS	**Site Code**	----	**Test Pit No.**	TP 5
Test Pit Coordinate	**832878.899 Northing**	**827344.745 Easting**	**Test Pit Measurement**	**1.3 m x 1.5 m**	
Digging Method	Machine & Hand Digging		**Ground Level**	**21.630 mPD (SW corner)**	

Stratigraphy and Finds

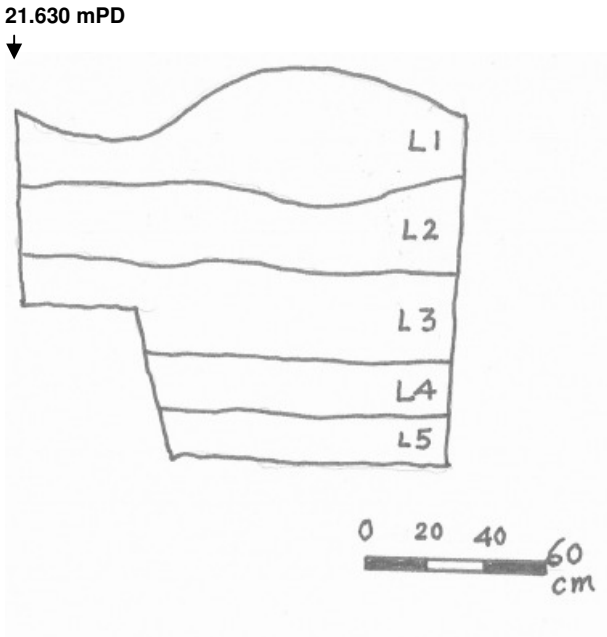
Layer	Soil Texture	Soil Colour	Finds	Chronology
L1	Silty soil	7.5YR 8/3 light yellow orange	None	----
L2	Silty soil	7.5YR 8/6 light yellow orange	None	-----
L3	Loam soil	7.5YR 5/6 bright brown	None	-----
L4	Clay	7.5YR 6/8 orange	None	-----
L5	Clay	7.5YR 5/6 bright brown	None	-----

Test Pit Wall Photography

Eastern Wall Section

Test Pit Wall Drawing

Eastern Wall Section



Representative Artefacts

None

Test Pit Record

Location	**SSS**	**Site Code**	-	**Test Pit No.**	TP 6
Test Pit Coordinate	**833343.228 Northing**	**826985.441 Easting**	**Test Pit Measurement**	**1 m x 1.5 m**	
Digging Method	Hand Digging		**Ground Level**	**15.398 mPD (SW corner)**	

Stratigraphy and Finds

Layer	Soil Texture	Soil Colour	Finds	Chronology
L1	Sandy soil	10YR 7/1 light grey	None	----
L2	Loamy soil	10YR 7/4 dull yellow orange	None	----
L3	Sandy soil	10YR 7/6 bright yellow brown	None	-----
L4	Loamy soil with few pebbles	10YR 6/6 bright yellowish brown	None	-----
L5	Sandy soil	7.5YR 6/8 orange	None	------

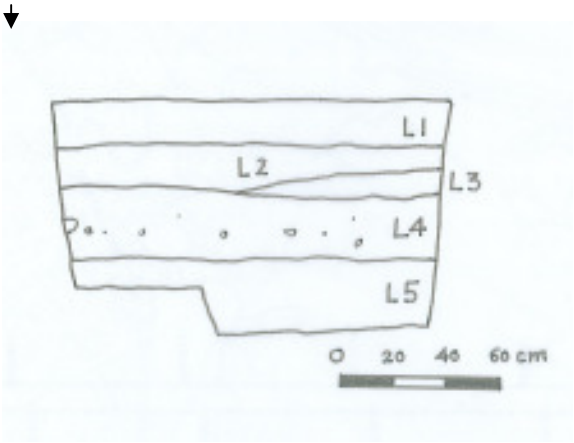
Test Pit Wall Photography

Southern Wall Section

Test Pit Wall Drawing

Southern Wall Section

15.398 mPD



Representative Artefacts

None

Test Pit Record

Location	SSS	**Site Code**	-	**Test Pit No.**	TP 7
Test Pit Coordinate	**833351.101 Northing**	**826801.791 Easting**	**Test Pit Measurement**	**1.2 m x 1.8 m**	
Digging Method	Hand Digging		**Ground Level**	**13.269 mPD (SW corner)**	

Stratigraphy and Finds

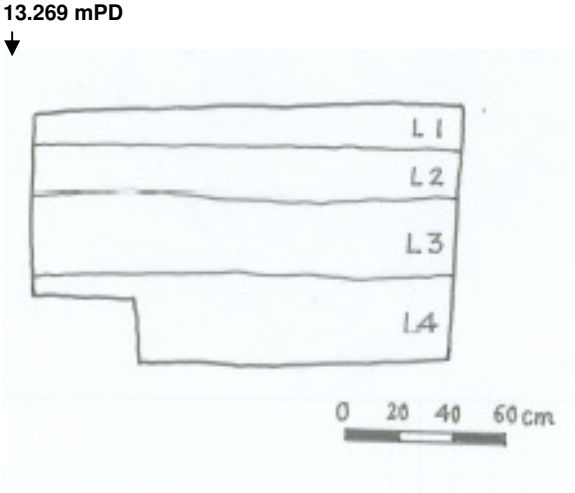
Layer	Soil Texture	Soil Colour	Finds	Chronology
L1	Sandy soil	7.5YR 7/3 dull orange	None	----
L2	Loamy soil	7.5YR 7/6 orange	None	-----
L3	Loamy soil	7.5YR 6/6 orange	None	-----
L4	Sandy soil	7.5YR 6/8 orange	None	-----

Test Pit Wall Photography

Eastern Wall Section

Test Pit Wall Drawing

Eastern Wall Section



Representative Artefacts

None

Test Pit Record

Location	SSS	**Site Code**	-	**Test Pit No.**	TP 8
Test Pit Coordinate	**833378.811 Northing**	**826937.190 Easting**	**Test Pit Measurement**	**1.2 m x 1.8 m**	
Digging Method	Machine & Hand Digging		**Ground Level**	**14.899 mPD (SW corner)**	

Stratigraphy and Finds

Layer	Soil Texture	Soil Colour	Finds	Chronology
L1	Sandy soil	10YR 7/2 yellow orange	None	-----
L2	Loamy soil	10YR 7/6 yellow orange	None	------
L3	Pebble in coarse sandy soil matrix	10YR 7/6 bright yellow	None	------

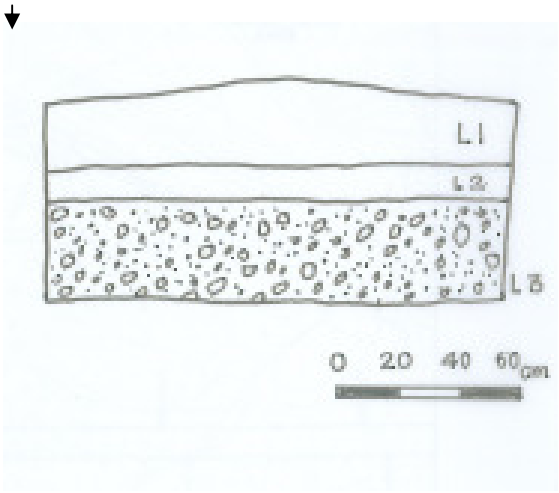
Test Pit Wall Photography

Northern Wall Section

Test Pit Wall Drawing

Northern Wall Section

14.899 mPD



Representative Artefacts

None

APPENDIX D

Records of Hand Auger Holes

Records of Hand Auger Holes

AH1 TUW

Layer	Depth	Soil Texture	Cultural Remains
L1	0-15	Light Grey Sandy soil	N/A
L2	16-60	Yellowish brown loamy soil	N/A
L3	61-130	Yellowish red Regolith soil	N/A

AH2 TUW

Layer	Depth	Soil Texture	Cultural Remains
L1	0-10	Light grey sandy soil	N/A
L2	11-70	Yellow loamy soil	N/A
L3	71-110	Yellowish red Regolith soil	N/A

AH3 TUW

Layer	Depth	Soil Texture	Cultural Remains
L1	0-15	Brown sandy soil	N/A
L2	16-89	Grayish brown loamy soil	N/A
L3	90-129	Brown sandy soil	N/A
L4	130-150	yellowish red regolith soil	N/A

AH4 PHV

Layer	Depth	Soil Texture	Cultural Remains
L1	0-10	Brown topsoil	N/A
L2	11-35	Light brown sandy soil	N/A
L3	36-60	Sandy soil	N/A
L4	> 61	Coarse sandy soil with boulder	N/A

AH5 PHV

Layer	Depth	Soil Texture	Cultural Remains
L1	0-29	Dark gray topsoil	N/A

L2	30-69	Gray sandy alluvial soil	N/A
L3	70-100	Gravelly sandy alluvial soil	N/A

AH6 PHV

Layer	Depth	Soil Texture	Cultural Remains
L1	0-15	Yellowish brown topsoil, corse	N/A
L2	16-84	Brown sandy soil	N/A
L3	85-129	Dark brown sandy soil	N/A
L4	130-150	Grayish brown sandy soil	N/A

AH7 TPP

Layer	Depth	Soil Texture	Cultural Remains
L1	0-25	Dark gray sandy soil (cultivated layers)	N/A
L2	26-55	Gray sandy soil (cultivated layers)	N/A
L3	56-130	Gray loamy soil/ clay	N/A

AH8 TPP

Layer	Depth	Soil Texture	Cultural Remains
L1	0-14	Dark brown sandy soil	N/A
L2	15-49	Gray sandy soil	N/A
L3	50-100	Brown sandy soil	N/A

AH9 TPP

Layer	Depth	Soil Texture	Cultural Remains
L1	0-40	Brown sandy soil	N/A

AH10 SSS

Layer	Depth	Soil Texture	Cultural Remains
L1	0-19	Yellowish brown topsoil	N/A
L2	20-50	Gray sandy soil	N/A
L3	51-140	Gray clay	

AH11 SSS

Layer	Depth	Soil Texture	Cultural Remains
L1	0-15	Brown sandy soil	N/A
L2	16-25	Yellowish brown sandy soil	N/A
L3	26-120	Reddish brown sandy soil	N/A

AH12 SSS

Layer	Depth	Soil Texture	Cultural Remains
L1	0-20	Grayish brown sandy soil	N/A
L2	21-96	Dark yellow sandy soil	N/A
L3	97-145	Yellow loamy soil	N/A
L4	146-200	Light yellow loamy soil	N/A
L5	201-230	Grayish yellow sand	N/A

AH13 SSS

Layer	Depth	Soil Texture	Cultural Remains
L1	0-24	Brown sandy soil	N/A
L2	25-65	Brownish yellow sandy soil	N/A
L3	66-130	Yellow sandy soil (regolith layer)	N/A

AH14 SSS

Layer	Depth	Soil Texture	Cultural Remains
L1	0-30	Light gray sandy soil	N/A
L2	31-60	Yellowish gray sandy soil	N/A

AH15 SSS

Layer	Depth	Soil Texture	Cultural Remains
L1	0-30	Brown sandy soil	N/A
L2	31-70	Yellowish brown loamy soil	N/A

AH16 SSS

Layer	Depth	Soil Texture	Cultural Remains
L1	0-25	Yellow sandy soil	N/A
L2	26-40	Brown loamy soil	N/A

AH17 SSS

Layer	Depth	Soil Texture	Cultural Remains
L1	0-30	Brown sandy soil	N/A
L2	31-65	Brown loamy soil	N/A

AH18 SSS

Layer	Depth	Soil Texture	Cultural Remains
L1	0-20	Gray sandy soil	N/A
L2	21-110	Reddish brown sandy soil	N/A

AH19 SSS

Layer	Depth	Soil Texture	Cultural Remains
L1	0-10	Light brown sandy soil	N/A
L2	11-100	Brown sandy soil	N/A

AH20 SSS

Layer	Depth	Soil Texture	Cultural Remains
L1	0-15	Light brown sandy soil	N/A
L2	16-105	Reddish brown sandy soil	N/A

AH21 SSS

Layer	Depth	Soil Texture	Cultural Remains
L1	0-25	Grayish brown sandy soil	N/A
L2	26-70	Brown loamy soil	N/A
L3	71-85	Pebbles	N/A

AH22 SSS

Layer	Depth	Soil Texture	Cultural Remains
L1	0-35	Yellow sandy soil	N/A
L2	36-75	Dark brown loamy soil	N/A
L3	76-80	Light yellow loamy soil	N/A
L4	>80	Pebbles	N/A

AH23 SSS

Layer	Depth	Soil Texture	Cultural Remains
L1	0-30	Grayish brown sandy soil	N/A
L2	31-75	Dark brown sandy soil	N/A
L3	>75	Pebbles	N/A

AH24 SSS

Layer	Depth	Soil Texture	Cultural Remains
L1	0-35	Grayish brown sandy soil	N/A
L2	36-50	Brown sandy soil	Modern pot rim fragment
L3	>51	Pebbles	

APPENDIX E

Land Survey Record of Test Pits

LAND MARKER (1980) H.K. CO. LTD.

To : ENSR Asia (HK) Ltd.

Site : Archaeological Test Pit at Kam Tin

Date : 18 December 2008

POINT	DESCRIPTIONS	EASTING	NORTHING	R.L.	PLACE
TP1	FINAL	826162.774	834404.483	14.583	1
TP1A	FINAL	826162.562	834403.703	14.531	2
TP1B	FINAL	826162.133	834405.111	14.570	3
TP1C	FINAL	826162.995	834405.413	14.585	4
TP1D	FINAL	826163.440	834403.999	14.523	5
TP2	FINAL	827837.711	832051.497	31.300	6
TP2A	FINAL	827837.865	832050.492	31.306	7
TP2B	FINAL	827836.928	832050.699	31.296	8
TP2C	FINAL	827837.444	832052.401	31.301	9
TP2D	FINAL	827838.375	832052.007	31.278	10
TP3	FINAL	828329.281	832008.243	38.237	11
TP3A	FINAL	828329.203	832007.139	38.313	12
TP3B	FINAL	828328.308	832007.786	38.280	13
TP3C	FINAL	828329.137	832009.089	38.328	14
TP3D	FINAL	828330.133	832008.477	38.319	15
TP4	FINAL	827487.600	832647.049	24.584	16
TP4A	FINAL	827487.132	832646.211	24.536	17
TP4B	FINAL	827486.610	832647.169	24.541	18
TP4C	FINAL	827488.010	832647.910	24.562	19
TP4D	FINAL	827488.552	832647.023	24.563	20
TP5	FINAL	827344.745	832878.899	21.630	21
TP5A	FINAL	827345.317	832878.205	21.630	22
TP5B	FINAL	827344.367	832877.879	21.608	23
TP5C	FINAL	827344.073	832879.508	21.635	24

POINT	DESCRIPTIONS	EASTING	NORTHING	R.L.	PLACE
TP5D	FINAL	827345.052	832879.637	21.569	25
TP6	FINAL	826985.441	833343.228	15.398	26
TP6A	FINAL	826985.800	833343.885	15.427	27
TP6B	FINAL	826986.280	833343.080	15.345	28
TP6B	FINAL	826985.007	833342.444	15.328	29
TP6D	FINAL	826984.555	833343.192	15.345	30
TP7	FINAL	826801.791	833351.101	13.269	31
TP7A	FINAL	826802.435	833350.519	13.239	32
TP7B	FINAL	826801.552	833350.216	13.234	33
TP7C	FINAL	826801.103	833351.654	13.240	34
TP7D	FINAL	826802.035	833351.903	13.199	35
TP8	FINAL	826937.190	833378.811	14.899	36
TP8A	FINAL	826936.376	833378.966	14.855	37
TP8B	FINAL	826936.992	833379.605	14.860	38
TP8C	FINAL	826938.104	833378.652	14.909	39
TP8D	FINAL	826937.498	833377.920	14.869	40