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立法會工務小組委員會
2018 年 5 月 23 日會議

連接朗屏站的元朗市高架行人通道

補充資料

就謝偉銓議員及朱凱廸議員在 2018 年 5 月 23 日工務小組委員會會議上及朱凱廸議員其後電郵予工務小組委員會主席要求政府提供補充資料，本局現綜合回覆如下。

擬議工程計劃在紓緩元朗市中心區內行人路擠迫的情況及改善行人環境方面的效益

就擬議高架行人通道及其附近的地面行人路和過路設施的人流分析(於 2015 年完成)請見附件 1。

從當時(2015 年)的人流數據所顯示，區內主要街道的地面行人路段和過路設施已十分擠迫，例如青山公路－元朗段近元朗康樂路的一段行人路及該處的過路行人流量在繁忙時間每小時已分別超過 6 200 和 5 100 人次，並預測將會於 2027 年分別上升至約 7 500 和 6 600 人次。

擬議高架行人通道位處元朗市中心的策略性位置，可提供一條額外和直接貫通南北的路線連接西鐵朗屏站至元朗安寧路、青山公路－元朗段和教育路一帶。此外，擬議工程項目會於上述 3 條主要街道旁興建合共 6 個行人接駁平台，並於每個行人接駁平台提供升降機、雙向自動梯和樓梯，連接高架行人通道和地面行人路。在擬議高架行人通道落成啟用後，我們估計在 2027 年的繁忙時間，由西鐵朗屏站步行到教育路以南的時間可由經地面行人路長達 14 分鐘縮短至經高架行人通道的約 8 分鐘。

從 2027 年的預測人流數據所顯示，擬議高架行人通道將有效地分流元朗市中心地面行人路和過路設施的人流。屆時，在繁忙時間預計可吸引每小時介乎約 6 300 至 11 000 人次使用擬議高架行人通道橫越元朗安寧路、青山公路－元朗段和教育路，而經過行人接駁平台上落高架行人通道和地面行人路的人流亦介乎每小時約 4 700 至 11 000 人次。同時，區內主要街道的地面行人路段和過路設施的人流整體上將有所減少(例如青山公路－元朗段近元朗康樂路的一段行人路及該處的過路行人流量在繁忙時間每小時將分別減少約三成半至 4900 和 4350 人次)，從而可紓緩擠迫狀況、提升道路安全和改善行人環境。

然而，即使擬議高架行人通道落成後，估計仍有相當的人流繼續使用現有的地面行人過路設施，在不影響交通的情況下，這些過路設施仍會繼續保留。對路面行車交通情況而言，由於行人過路設施擠迫狀況得以紓緩，運輸署將會密切留意相關路段的交通情況，檢視及調校相關交通燈的控制方式及交通燈時間的分配，例如青山公路-元朗段近元朗康樂路的交通燈，從而改善元朗市中心行車交通繁忙的情況。

<u>2014 年就擬議項目完成的可行性報告</u>

因應委員要求，現附上《元朗市行人環境改善計劃－可行性研究》報告的節錄[1]（只有英文版本，並已將商業或敏感資料隱去）（見附件 2），供委員參閱。由於該報告節錄近 100 頁，為減少用紙，我們建議存放一份完整的資料在立法會秘書處，供議員參閱；我們另把電子複本交予秘書處，以便秘書處向議員提供超連結。

[1] 該報告涵蓋多個元朗市行人環境改善措施（其中一個為擬議連接朗屏站的元朗市高架行人通道）的可行性研究，為方便議員省覽，我們將報告中有關擬議高架行人通道工程的部分節錄於附件 2。

2014 年完成的可行性研究的目的主要是就擬議高架行人通道制定一個可行的方案，以便推展下一階段的勘測研究和設計工作。經過其後的勘測研究、環境和排水等影響評估和詳細設計工作，並考慮到公眾諮詢期間收集到的意見，擬議高架行人通道的走線、結構和設計已有所改變；當中，在 2015 到 2017 年進行的土地勘測所得資料顯示，擬議高架行人通道之地基所處的地質變化很大，部分岩石出現溶洞，亦有部分岩石面層深度超過地下 20 米到 100 米不等。因此，該份於 2014 年完成的報告的內容（包括擬議高架行人通道的走線、行人接駁平台、結構及地基的方案等）已與現時的方案有所不同，而當時的粗略估算亦不適用，為避免產生誤解，實不宜引用相關資料。

<u>元朗明渠一帶的溶洞分布圖</u>

根據發展局的技術通告，新界西北部（包括元朗市中心）地質由沉積地層包括大理石組成，部分位置大理石有大型溶洞。現附上擬議高架行人通道工程範圍內土地勘測所顯示的溶洞分布圖（見附件 3），供委員參閱。總括而言，工程範圍內 36 個土地勘測鑽孔中共 21 個鑽孔發現有溶洞。現同時附上有關的土地勘測報告（只有英文版本）（見附件 4），但由於該報告達 1,000 多頁，為減少用紙，我們建議存放一份完整的資料在立法會秘書處，供議員參閱；我們另把電子複本交予秘書處，以便秘書處向議員提供超連結。

<u>專業學會另議方案的初步造價估算</u>

路政署在設計高架行人通道方案時的大原則為其功能作用，目標是要有效紓緩元朗市行人路擠迫的情況及改善行人環境。在 2013 至 2014 年期間，路政署曾與本地的專業學會（即香港建築師學會、香港規劃師學會、香港城市設計學會和香港園境師學會）就高架行人通道的設計進行多次商討，交換意見，並根據他們的倡議擬備一個另議方案[2]。另議方案在某程度上能紓緩元朗市行人路擠迫的情況，然而行人若要由教育路通往西鐵朗屏站，需多上落一次行人天橋，因此在疏導人流表現上，較擬議高架行人通道的原有方案遜色(例如根據於 2014 年就另議方案的預測，青山公路－元朗段近元朗康樂路的一段行人路及該處在繁忙時

[2] 另議方案包括建造一條行人天橋連接西鐵朗屏站和元朗安寧路以南（長約 180 米，闊約 6 米）、建造一條行人天橋橫跨青山公路－元朗段（總長約 90 米，闊約 4 米），以及擴闊元朗安寧路至教育路一段元朗市明渠兩旁的地面行人路（總長約 650 米，擴闊約 3 米）。

間的過路行人流量於 2026 年仍高達約 5 300 人次，同時亦只能吸引約 6 700 人次使用另議方案下橫越青山公路－元朗段的行人天橋。) 路政署在 2014 年 7 月 24 日與專業學會就另議方案連同原有方案一同諮詢元朗區議會轄下的交通及運輸委員會（下稱「元朗區議會交委會」）。經詳細討論後，元朗區議會交委會支持擬議高架行人通道的原有方案。

擬議高架行人通道亦比一般的行人天橋長約 10 倍和闊約 1.5 倍。因此，擬議高架行人通道的造價估算會相應較高。同時，擬議高架行人通道較一般行人天橋工程項目面對較多獨特的限制和挑戰，例如擬議高架行人通道之地基所處的地質變化很大，部分岩石出現溶洞，亦有部分岩石面層深度超過地下 20 米到 100 米不等，令擬議高架行人通道樁柱平均深約 55 米及最深接近 100 米。此外，所有明渠內的地基工程（例如高架行人通道的樁柱和樁帽等）只可在旱季進行，以確保工程不會影響明渠的排水和減低工程對明渠水質的影響。還有，為減低對附近居民在視覺和景觀上的影響，路政署決定採用長跨度橋身鋼架結構。

由於專業學會所提出的另議方案當時並未獲元朗區議會交委會支持，而該方案亦只屬概念性構想，因此路政署過往沒有就另議方案進行詳細設計以估算造價。

基於專業學會方案的行人天橋長度較短（總長約 270 米），故造價一般相應較低。然而，該方案涉及擴闊元朗安寧路至教育路一段元朗市明渠兩旁的地面行人路（總長約 650 米，擴闊約 3 米），需要沿明渠兩旁建造地基及支柱等結構，以承托擴闊後的行人路段，這其實與箱形結構（即邊牆被地基及支柱所取代）相似，因此另議方案的造價並非如一般相像中低。

運輸及房屋局局長

（陳凱庭 陳凱庭 代行）

2018 年 5 月 25 日

副本抄送：

財經事務及庫務局局長（經辦人:夏鎂琪女士（傳真:2523 5722）
路政署署長　　（經辦人：盧國華先生）（傳真：2714 5222）
運輸署署長　　（經辦人：何廣鏗先生）（傳真：2381 3799）

表 1 – 主要地面行人設施的人流分析(於 2015 年完成)

地點 [1]	路段	最高行人流量 (每小時人流)
地面行人過路設施		
C1	橫越青山公路元朗段近元朗康樂路	5,120
C2	橫越青山公路元朗段近擊壤路	3,990
C3	橫越教育路近元朗康樂路	1,160
C4	橫越教育路近西裕街	2,370
C5	橫越教育路近裕榮徑	1,930
C6	橫越教育路近馬田路	850
地面行人路		
F1	青山公路元朗段近元朗康樂路	6,270
F2	青山公路元朗段近擊壤路	2,630

註 1:位置見附圖

表 2a – 主要地面行人設施於 2027 年的人流分析

地點 [1]	路段	最高行人流量 (每小時人流)	
		假設沒有擬議高架行人通道的情況	擬議高架行人通道落成後的情況
地面行人過路設施			
C1	橫越青山公路元朗段近元朗康樂路	6,620	4,350
C2	橫越青山公路元朗段近擊壤路	5,090	2,560
C3	橫越教育路近元朗康樂路	2,320	1,560
C4	橫越教育路近西裕街	2,820	2,400
C5	橫越教育路近裕榮徑	2,730	1,250
C6	橫越教育路近馬田路	1,290	410
地面行人路			
F1	青山公路元朗段近元朗康樂路	7,500	4,910
F2	青山公路元朗段近擊壤路	3,420	2,880

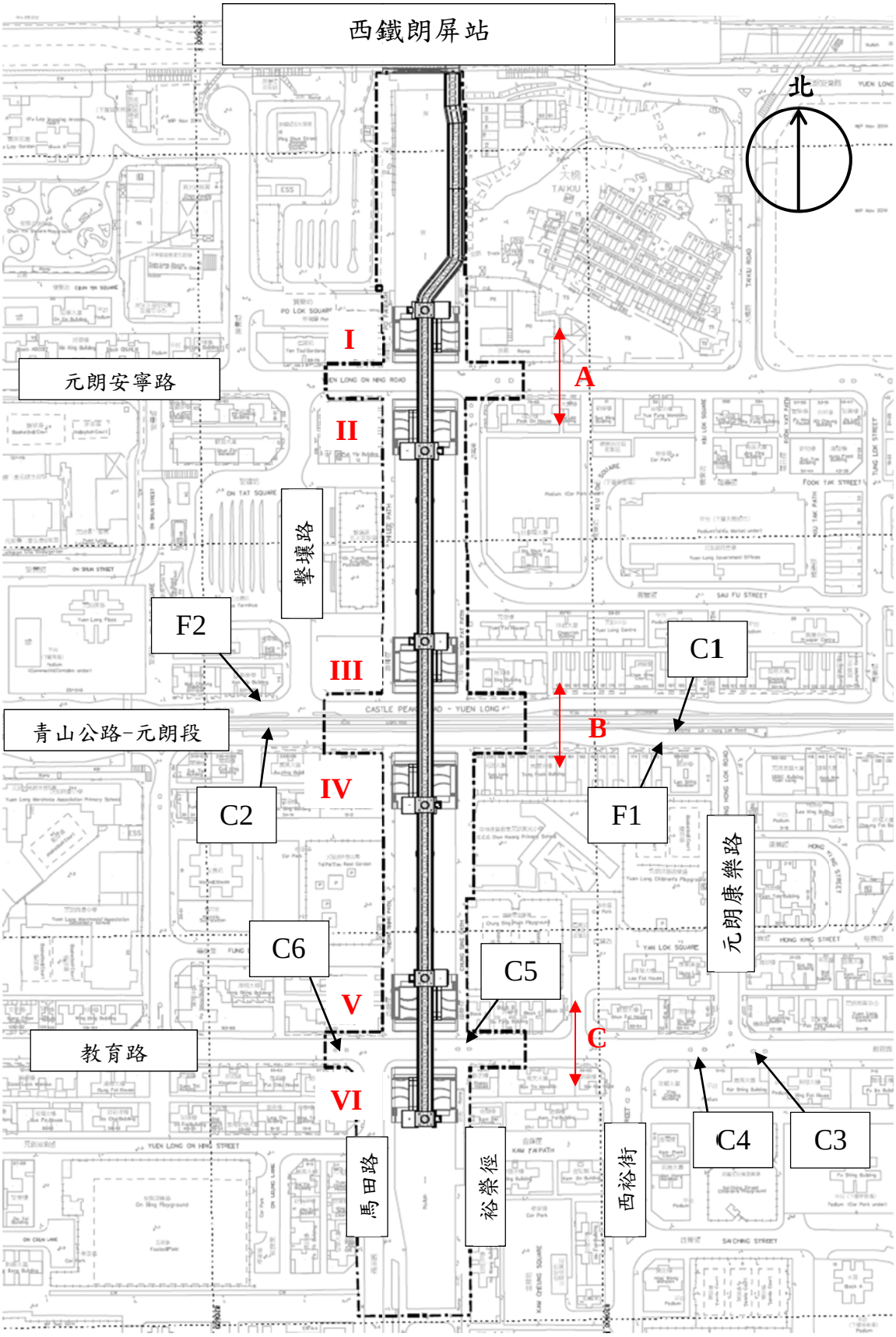
註 1:位置見附圖

表 2b – 擬議高架行人通道於 2027 年的人流分析

地點 [1]	路段	最高行人流量 (每小時人流)
擬議高架行人通道		
A	橫越元朗安寧路	6,440
B	橫越青山公路元朗段	11,030
C	橫越教育路	6,290
擬議行人接人接駁平台		
I	元朗安寧路以北	6,700
II	元朗安寧路以南	4,700
III	青山公路元朗段以北	10,200
IV	青山公路元朗段以南	11,200
V	教育路以北	6,000
VI	教育路以南	6,290

註 1:位置見附圖

附圖


西鐵朗屏站
北
元朗安寧路
擊壤路
青山公路-元朗段
教育路
馬田路
裕榮徑
西裕街
元朗康樂路
I
II
III
IV
V
VI
A
B
C
F1
F2
C1
C2
C3
C4
C5
C6

附件2

Highways Department

Major Works Project Management Office

Agreement No. CE4/2011 (HY) Improvements to Pedestrian Environment in Yuen Long Town - Feasibility Study

Final Report

083-01

January 2014

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ARUP

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1 Introduction

1.1 Background

In the 2008-09 Policy Address and 2009-10 Policy Agenda, Government proposes to take forward schemes for improving the pedestrian environment so as to minimise vehicle-pedestrian conflicts and improve roadside air quality. The schemes may cover footbridges, pedestrian subways, pedestrianized streets and traffic calming streets. Highways Department (HyD) is responsible for taking forward the pedestrian improvement scheme in Yuen Long Town.

Over the years, Yuen Long has experienced substantial changes to its built form and characteristic. The introduction of Light Rail Transit (LRT) in the early 90s has provided a new impetus to the development in the Yuen Long District. Following the completion of significant infrastructure improvements including the operation of Tai Lam Tunnel in 1998 and West Rail service in 2003, the accessibility of Yuen Long with other part of urban Kowloon has been improved. Rapid growth in major residential developments and large-scale integrated developments were observed in the recent years both within Yuen Long town and at its outskirt area. Consequently, the congestion in Yuen Long town due to heavy pedestrian flows is much exacerbated and is also anticipated to be further deteriorated in future with the new residential development in the vicinity of Yuen Long Town.

In May 2009, HyD commissioned Kadoorie Institute of the University of Hong Kong as the Public Engagement (PE) Consultant for the public engagement exercise in order to collect public view to improve the pedestrian environment in Yuen Long Town. In September 2009, HyD commissioned Ove Arup & Partners Hong Kong Limited as the Engineering Consultant to provide engineering input and formulate suitable improvement measures to enhance the pedestrian environment in Yuen Long Town with reference to the comments received from the public engagement.

In 21 September 2011, Ove Arup & Partners Hong Kong Limited has been commissioned by Highways Department under "*Agreement No. CE 4/2011(HY) Improvements to Pedestrian Environment in Yuen Long Town - Feasibility Study*".

1.2 Description of the Project

The works of Packages 1 to 4 are also considered as major improvement schemes upon collecting the public views in previous public engagement activities in 2010. As far as the works of Package 5 is concerned, consideration of providing a grade–separated linkage was requested by a LegCo Member. The table below outlines the projects details:

Project Information	Description
Project Title	Agreement No. CE 4/2011(HY) Improvements to Pedestrian Environment in Yuen Long Town – Feasibility Study
Project proponent	Highways Department – Major Works Project Management Office

Project Information	Description
Nature and description of the project	Provision of five pedestrian environment improvement schemes in Yuen Long Town, namely: • Package 1 – North-South Connection in Yuen Long Town • Package 2 – Old-New Development Connection in Yuen Long Town • Package 3 – Improvement of Junction between Castle Peak Road Yuen Long Section and Tai Tong Road • Package 4 – Extension to Footbridge across Castle Peak Road Yuen Long Section adjacent to Yuen Long Plaza • Package 5 – Grade-separated Pedestrian Link along Castle Peak Road Yuen Long Section for Connecting Packages 1 and 2

1.2.1 Package 1 – North-South Connection in Yuen Long Town

It is to provide a direct pedestrian corridor along Yuen Long Town Nullah to facilitate the pedestrian connection between Yuen Long North and Yuen Long South.

In previous public engagement activities, the public has strong desire to have an elevated footbridge above Yuen Long Town Nullah. One of the major reasons is that the pedestrian in Yuen Long town going to or coming from WRLPS is required to detour through some existing busy pedestrian crossings and some congested footpaths. This not only lengthen the travelling time, but also exacerbates the pedestrian congestion in footpath, particularly in YLONR, CPR(YLS) and KYR. Introduction of an elevated pedestrian corridor can relieve the pedestrian congestion problem and improve the pedestrian connectivity in Yuen Long Town.

1.3 Purpose and Structure of this Report

The purpose of this report is to cover the aspects of the works which are necessary to serve as the technical backup for the public consultation/engagement activities. Aspects including alignment option evaluation, engineering feasibility of the Project, assessment on the impacts arising from the Project and the solutions to address issues of concerns to the public.

This report is structured as follows:

a) Section 1 – **Introduction** gives a general background of the project and the objectives of this report.
b) Section 2 – **Public Engagement Activities**
c) Section 3 – **Feasibility Study of Package 1** summarizes the assessments which have been carried out to verify the feasibility of the works under Package 1

h) Section 8 – **Environmental Considerations** summarizes the environmental issues including water quality, air, noise and waste management issues of all packages
i) Section 9 – **Project Implementation** presents the implementation strategy

k) Section 11 – **Conclusion**

1.4 Abbreviations

Governments

HyD	Highways Department
AMO	Antiquities and Monuments Office
CEDD	Civil Engineering and Development Department
LandsD	Lands Department
DSD	Drainage Services Department
EMSD	Electrical and Mechanical Services Department
EPD	Environmental Protection Department
FSD	Fire Service Department
HKPF	Hong Kong Police Force
PlanD	Planning Department
LCSD	Leisure and Cultural Services Department
TD	Transport Department
WSD	Water Supplies Department
HA	Hong Kong Housing Authority
AFCD	Agriculture, Fisheries and Conservation Department
FEHD	Food and Environmental Hygiene Department

ASD	Architectural Services Department
THB	Transport and Housing Bureau
DEVB	Development Bureau

Road and place

YLONR	Yuen Long On Ning Road
CPR(YLS)	Castle Peak Road (Yuen Long Section)
KYR	Kau Yuk Road
YL	Yuen Long
WRLPS	West Rail Long Ping Station
YLTTS	Yuen Long Tung Tai Street
FYSN	Fung Yau Street North
YLONR	Yuen Long On Lok Road

Others

MTRCL	Mass Transit Railway Corporation Limited
LRT	Light Rail Transit
CLP	China Light and Power
HKCG	Hong Kong and China Gas Company Limited
WTT	Whart T&T Limited
CATV	Hong Kong Cable Television Limited
NWT	New World Telecommunications Limited

Design Standard

TPDM	Transport Planning Design Manual
SDMHR	Structures Design Manual for Highways and Railways
HKSC 2011	Code of Practice for The Structural Use of Steel 2011

1.5 Design Standard

In this Study, the scheme of each Package was developed in accordance with the standards stipulated in the Transport Planning and Design Manual (TPDM), Structure Design Manual for Highways and Railways (SDMHR) and Particular Specifications for Works in Vicinity of Light Rail.

2 Public Engagement Activities

Upon completion of Phase 1 public engagement activities, 5 major improvement schemes were proposed to be further investigated under this Study. As the scheme of each Package has been largely developed through coordination of different government department, it was considered to be the right timing to further consult the public on the improvement schemes. Publicity materials, including Public Engagement Digest, leaflet, poster, banner, advertisement, exhibition panels related to the major improvement schemes were prepared. And a series of public engagement activities were held in late March to April 2013. Some key public engagement activities are listed below:

Key Public Engagement Activities	Date
Consultation with T&TC of Yuen Long District Council	28 March 2013
Workshop with T&TC of Yuen Long District Council	16 April 2013
Public Forum	20 April 2013

The opinions from the public on each scheme are discussed in this report. Details of the full public engagement exercises can be referred to Public Consultation Report which is separately submitted.

3 Feasibility Study of Package 1

This section describes in general the assessment being carried out on package 1. Full details can be referred to separate assessment reports and interim report.

3.1 Design Development

Following the recommendations in Stage 1 public engagement activities and subsequent engineering study in 2009-2010, several footbridge options were formulated to connect WRLPS and Ma Tong Road.

Here below are the brief descriptions of the six options recommended in the first draft Option Assessment Report:

Option A1: A 6m clear width elevated footbridge connecting existing WRLPS at concourse level to Yuen Long South with supports on the nullah (See Drawing **218321/SK/P1/002**)

Option A2: A 6m clear width elevated footbridge connecting existing WRLPS at concourse level to Yuen Long South with supports on the sides of the nullah (See Drawing **218321/SK/P1/003**)

Option A3: A 6m clear width elevated footbridge connecting existing WRLPS at concourse level to Yuen Long South with a combination of supports in the nullah and on the sides of the nullah (See Drawing **218321/SK/P1/004**)

Option B1 & B2: A 6m clear width elevated footbridge connecting existing WRLPS at concourse level to Yuen Long South on either side of the nullah. (See Drawing **218321/SK/P1/005 & 006**)

Option C: Generally at grade with individual footbridges across YLONR, CPR(YLS) and KYR (See Drawing **218321/SK/P1/008)**

Among the above options as described, Option A3 was recommended taking into account of various criterion including transport and operation, public perception, engineering, land use, environmental impacts, landscape and visual impact. The structural form of the footbridge is an oval-shaped steel truss. Arup received many comments on the proposed option.

An option (Option C) of having three discrete footbridges across YLONR, CPR(YLS) and KYR was also proposed and evaluated to be less attractive and effective in relieving pedestrian congestion.

3.1.3 Traffic Justifications on the Requirement of a Continuous Footbridge between WRLPS and KYR

It is identified that the LOS at pedestrian crossings and footways at various locations along CPR(YLS) are no longer satisfactory to cope with the existing pedestrian flow, not to mention the possible increase of population. Provision of a continuous footbridge is considered conducive in altering the characteristic of the pedestrian which in turn easing the congestion at those critical locations. A table showing the existing and forecast LOS at some pedestrian crossings and footpaths

is enclosed in **Appendix B**. Other options such as relocation of the LRT terminus from Sun Yuen Long Centre to Shui Pin Wai were also reviewed with full illustration to prove its infeasibility.

Notwithstanding the above findings and assessment, the current traffic data forecast is not sufficient in justifying the continuous footbridge to be extended from CPR(YLS) till Kau Yuk Road. Though it is the public expectation to have the footbridge constructed till Kau Yuk Road or even Ma Tong Road, DEVB considered that the footbridge should terminate in CPR(YLS) at this stage, with adequate provisions for future extension.

3.2 Recommendation by Transport and Housing Bureau (THB) in March 2013

In 6 March 2013, HyD reported that upon liaison with THB, it is preferable to have the section of footbridge between CPR(YLS) and KYR included in the current stage. The section between KYR and Ma Tin Road will be further subject to the residential development in Yuen Long South.

It is well known that apart from YLONR and CPR(YLS), KYR is also one of the busiest roads in Yuen Long Town, where pedestrian always gather for shopping or other leisure activities. Having the footbridge section between CPR(YLS) and KYR included in the current stage can provide an added benefit in that area. The landing facilities in the vicinity can also facilitate tourists to access KYR in a more direct way.

Scope of works is briefly outlined below:

1. Construction of a 540m long footbridge and foundations
2. Construction of pedestrian interchanges including lift towers, escalators, staircases and ramp
3. Construction of intermediate crossing facilities near the midway between YLONR and CPR(YLS), and between CPR(YLS) and KYR
4. Construction of parapet walls in form of tempered glass from WRLPS to KYR along the banks of Yuen Long Town Nullah
5. Streetscape enhancement works from WRLPS to KYR

General Arrangement of the footbridge and the associated pedestrian interchange is enclosed in **218321/SK/P1/081 to 085, 101 to 109.** Photomontages of the proposed footbridges are enclosed in **Appendix E.**

3.3 Concept of Pedestrian Interchange

Currently, the footway of CPR(YLS) is very congested. One of the main causes is that a number of bus and shuttle bus stops are provided in the footpath of the CPR(YLS) eastbound near Yuen Long Town Nullah where passengers waiting on board exacerbate the congestion. The design of pedestrian interchange (Interchange) primarily aims at providing a new pedestrian platform at the northern and southern of each major road across the nullah.

Constrained by the lift pit requirement, the Interchange is divided into lower and upper grounds. The lower ground is designed with the same level of the existing footway, on which about 1m widen newly constructed footway near the existing footway is reserved. This is conducive in widening the existing footway to improve the congestion. The upper ground is equipped with lift, staircase and an up-movement escalator. In addition, a ramp of 18m long and staircase are designed to connect the upper and lower grounds. As the Interchange will only occupy the space of the nullah, the width of existing footways in three sides will be maintained.

3.4 Concept of Intermediate Crossing

In the two footbridge sections between YLONR and KYR, intermediate crossing coupled with a staircase will be provided near the middle of each footbridge section to connect the footway on eastern and western banks of the nullah. This crossing can reduce pedestrian detouring through the major roads such that the pedestrian flow in YLONR, CPR(YLS) and KYR can be reduced.

3.5 Interfacing Projects

- *Agreement No. CE 6/2010(DS) Improvement of Yuen Long Town Nullah (Town Centre Section) – Investigation*

  The project seeks to enhance the local environment of about 800m of existing nullah in Yuen Long town centre. The project will provide rehabilitation / improvement of existing Yuen Long Town Nullah and will provide a dry weather flow interception system to reduce pollution and a scenic water supply system to improve aesthetics and amenity. According to the information received from DSD's Consultant, the preliminarily proposal of works at Yuen Long Town Nullah that would interface with the Package 1 works are as follows:

  - Reconstruction of affected sections of the existing nullah walls with dry weather flow interceptor
  - Proposed dry weather flow channel
  - Proposed dry weather flow interception pipelines/channels at Yuen Long Nullah town centre sections and its upstream
  - Proposed twin rising mains for scenic water supply system

- Proposed beautification works inside nullah.

The above project has been completed in 2012 and followed up by the following agreement.

- *Agreement CE 37/2012 (DS) Improvement of Yuen Long Town Nullah (Town Centre Section) - Design and Construction*

  This project, which has commenced in late 2012, is taking forward the design and construction of all the works which were investigated in CE 6/2010(DS) except the proposed beautification works inside nullah. The proposed beautification works inside the nullah will be reviewed in the project in view of the close interface with this Study which is undertaken by HyD.

- *Agreement No. CE 46/2007 (DS) Review of Drainage Master Plans in Yuen Long and North Districts – Feasibility Study*

  To improve the flood protection standard of Yuen Long Town Nullah, the proposed works recommended under the study include the replacement of existing nullah railings by parapet walls along both sides of the channel banks. In addition, some urban drainage systems in Yuen Long Town Centre are proposed to be improved.

Other interfacing projects include:

- *Agreement No. CE 20/2010 (TP) – Greening Master Plans for New Territories North West– Investigation, Design and Construction*
- *Agreement No. CE35/2012 (CE) – Planning and Engineering Study for Housing Sites in Yuen Long South Investigation*
- *Agreement No. CE 24/2006 (WS) – Replacement and Rehabilitation of Water Mains Stage 3 - Mains in New Territories - Investigation, Design and Construction*
- *Agreement No. CE 10/2008 (WS) – Replacement and Rehabilitation of Water Mains Stage 4, Mains in New Territories – Investigation, Design and Construction*

3.5.1 Coordination with Interfacing Projects

In the course of design development of the proposed footbridge, coordination has been carried out between HyD and DSD upon completion of VM workshop in early 2012 to ensure the design of footbridge and nullah beautification works are well integrated. A coordination meeting amongst HyD, DSD, Arup and BV (DSD's consultant) were organized in mid 2012 to each others' design concept.

Some planting works would be carried out at Yuen Long On Ling Road near Yuen Long Town Nullah, which is closed to the streetscape works proposed in package 1. Further liaison with CEDD, especially for landscape works, is recommended in next stage.

For other interfacing projects, coordination with relevant departments is recommended in the next stage.

3.6 Planned Development near Package 1

In 9 May 2012, a coordination meeting was held amongst HyD, TD, Arup and the developer of Tai Kiu Development. A layout plan of the proposed development showing the future footbridge connection is enclosed in **Appendix F**. The alignment of footbridge between WRLPS and YLONR has been designed to align near the eastern bank of the nullah to facilitate the future connection.

It is also known that MTRCL is taking forward the residential development around WRLPS, i.e. one development at north of WRLPS and one development at south of WRLPS and east of Yuen Long Town Nullah.

3.7 Land Requirements

Land Requirement Plan (refer Drawing Nos. **218321/SK/P1/041 to 045**) and Reports have been prepared and it is found that encroachment of private lots due to construction of the footbridge as well as streetscape enhancement is not required.

Construction of the footbridge and its foundations will only occupy Yuen Long Town Nullah which is maintained by DSD, and the airspace above YLONR, CPR(YLS) and KYR. Although the streetscape enhancement works will fall within some lot boundaries of government allocations, the works will just include upgrading the pavers and landscape works at ground levels.

It should be noted that some modification works will be required on the elevated platform at Exit D of WRLPS in order to facilitate connection of the proposed footbridge. Nevertheless, the modification works are temporary and the vested boundary of West Rail will not be affected in operation stage.

Two numbers of Works Areas have been identified to facilitate the construction works. Locations and area of the work areas are shown in drawing no. **218321/SK/G/001**.

Details of land requirement can refer to the relevant report.

3.8 Geotechnical Assessment

3.8.1 Proposed Ground Investigation Works in Detail Design Stage

The subject area falls within Schedule Area No. 2, marble rock and cavities were identified in existing GI records. Detailed ground investigation is required to identify local variation of the geology especially the rock head level, which is highly related to the foundation design. Deep drill holes penetrating the marble bedrock will be required to determine the likely extent of the karst dissolution features and the thickness of the overburden. Total 39 nos. drill holes are proposed to obtain required information. 27 drill holes will be at box culverts and 12 drill holes will be at pier locations of the proposed footbridge. 20 nos. trial pit at piers locations abutting bank of nullah are also required to verify underground utilities or any other possible obstructions in front or behind the retaining walls.

The drill holes are proposed to be terminated at a minimum penetration of 20m into sound marble rock or to a depth of 90m, whichever is shallower. The trial pits are proposed to be terminated at a maximum depth of 3.0m. The proposed ground investigation works shall be reviewed in the detailed design stage based on the updated information.

Field tests such as Standard Penetration Test with liner sampling should be carried out for the proposed boreholes, field Vane Shear Test should also be done if soft clay encountered. Soil/rock samples should be collected at regular interval for deriving soil strength parameters. Relevant laboratory tests such as soil classification and tri-axial compression tests should be carried out to obtain the soil shear strength parameters for detail design. Frequencies of field and laboratory tests are subjected to ground condition.

As recommended in Paragraph 10 in Appendix B of ETWB TC (W) No. 4/2004, where cavities are encountered in the hole being drilled or in adjacent boreholes, increased penetration is required. The use of water as a flushing medium should also be carefully controlled as there have been cases where sinkholes were induced by excessive use of flushing water. Moreover, as stipulated at Appendix C of ETWB TC (W) No. 4/2004, the cores/samples recovered should be examined and properly logged by a logging geologist with the minimum qualifications and experience.

In accordance with the requirements in Appendix 7.47 of the Project Administration Handbook for Civil Engineering Works (PAH), qualified site supervision package of Categories I and III should be provided during the ground investigation works.

The ground investigation and foundation works shall follow Geoguide 2 - Guide to site investigation and shall be in accordance with ETWB Technical Circular (Works) No. 4/2004, "Checking of Foundation Works in the Scheduled Areas of Northwest New Territories and Ma On Shan and the Designated Area of Northshore Lantau". The GEO Technical Guidance Note No. 26 (TGN 26) "Supplementary Guidelines for Foundation Design in Areas Underlain by Marble and Marble-bearing Rocks" shall also be observed. Before finalization of the ground investigation plan and the foundation design, the proposed details shall be submitted to the Chief Geotechnical Engineer/Mainland West for comment.

3.8.2 Existing Slopes and Retaining Walls

Apart from the proposed foundations and upgrading of existing retaining walls/slopes to accommodate the proposed structures may be required at some location. Existing slopes and retaining walls likely to be affected by the proposed works are identified and as listed the Table below:

Slope Feature No.	Easting	Northing	Maintenance Responsibility	Consequence-to-Life Category	Status
6NW-B/R14	820732	833447	DSD	3	Stage 1
6NW-B/R15	820707	833448	DSD	2	Stage 1
6NW-B/R30	820731	834042	DSD	2	Stage 1
6NW-B/R31	820700	834044	DSD	2	Stage 1

6NW-B/R32	820697	833811	DSD	1	Stage 1
6NW-B/R33	820728	833797	DSD	1	Stage 1
6NW-B/R34	820731	833670	DSD	2	Stage 1

3.8.3 Foundation Works

The foundation works will involve piles installation and cap excavations. Since the study area is located in Schedule area No 2, it is expected that both ground investigation and foundation construction may encounter significant difficulties. The geotechnical assessment of the proposed foundation works is discussed as below.

3.8.4 Foundation of Proposed Footbridges, Lift Shafts and Staircases

The loading of the proposed footbridge is expected to be of small to medium magnitude of vertical and lateral loading. Smaller size foundation type including mini-pile and H-pile are considered adequate.

After reviewing existing available geological information, the magnitude of the loading and the site surrounding, mini-pile and pre-bored H-pile are considered the most suitable foundation types for footbridge structure. Mini-pile and pre-bored H-pile are considered adequate in resisting loadings of the proposed structures, and the plants required for construction are relatively lightweight and small in size, which are ideal for working on narrow footpaths and within existing nullah and minimizing disturbance to the public. During construction, due consideration should also be given to the drilling method adopted in order to minimize the potential ground loss and hence the settlement of the surroundings.

When necessary, limitation of compressed air pressure and use of ring bit boring method or equivalent instead of conventional ODEX method where the casing advance together with the drill bit shall be proposed to minimize uncontrolled ground loss. Permanent casing may also be proposed to prevent grout loss during construction of piles. The bearing condition of the proposed box culvert should be critically assessed to investigate the possibility of the use of shallow foundations in lieu of piled foundation.

For the footbridge foundations to be installed in the nullah, temporary working platforms and excavation with lateral support (ELS) shall be constructed whenever necessary for sitting of piling rigs and for construction of pile caps. To avoid adverse impact to the drainage channel, the construction works inside the nullah shall be carried out during the dry season. The detail design of such working platforms and the ELS issues shall be addressed in detail design stages.

3.8.5 Slope and Retaining Wall and the Stabilization Works

There are registered slopes and retaining walls which may affect or being affected by the proposed foundation works for the footbridge proposed along the nullah. Since DSD has proposed improvement works to these retaining walls. Liaison meetings with DSD will be required to resolve program and work interface. When designing modification work for these walls, advice from DSD should be sought.

3.9 Traffic Impact Assessment

As mentioned before, the final option of this Package is to construct a continuous footbridge connecting between WRLPS and KYR on the grounds that YLONR, CPR(YLS) and KYR are three of the major east-west roads in Yuen Long Town. With the introduction of this pedestrian linkage, it is envisaged that the Level of Service (LOS) of the at-grade pedestrian facilities can be improved.

The proposed elevated footbridge will serve as a vital strategic link bypassing the existing heavily utilised pedestrian crossings and footpaths, thus relieving the crowded condition on the existing south-north corridors and providing much-needed capacity for accommodating the south-north pedestrian movements generated by the new developments in Yuen Long Town.

To appreciate the pedestrian flow pattern between the southern and the northern part of Yuen Long Town, pedestrian flow surveys were conducted at the major south-north footpaths and crossings. The observed peak pedestrian flows have been used for assessment. The Level of Service (LOS) for affected pedestrian facilities was assessed based on criteria set out in the Highway Capacity Manual.

Assessments of existing pedestrian facilities showed that assessed pedestrian crossings across CPR(YLS) were operating at a less than desirable LOS "E" during peak hour, which was mainly due to the limitation on balancing vehicular/light rail transit (LRT) and pedestrian traffic movement. Knocked on congestion on existing footpath was also observed due to pedestrian waiting at existing crossings. There is a necessity for implementing improvement schemes in order to improve the pedestrian environment and cope with the future increased pedestrian demand.

With the shorten walking time and distance, the proposed elevated footbridge would be a great attraction to influence the existing walking behaviour in Yuen Long Town as the strategic link provides a more convenient way of travelling between south and north. It is anticipated that the pedestrian flows via the existing north-south corridors in Yuen Long Town would be attracted to the proposed linkage, which relieves the overcrowd condition at the existing pedestrian facilities.

3.9.1 Temporary Traffic Arrangement during Construction of Footbridge and Foundations

Majority of the construction works will be confined within the existing Yuen Long Town Nullah across Yuen Long North and Yuen Long South. The foundations and structural columns of the proposed footbridge would be constructed and located within the Yuen Long Town Nullah and nullah walls in order to minimize the impacts on vehicular traffic and pedestrian circulation in the vicinity of the subject works. Details of the temporary traffic arrangement would be discussed in the later design stage.

About the footbridge sections spanning across YLONR, CPR(YLS) and KYR, the footbridge sections will be constructed via in-situ balanced cantilever method to avoid traffic disruption. Temporary closure of the carriageway and footpath sections for prolonged period is not envisaged. Nevertheless, during transportation of equipment and plants from the YLONR, CPR(YLS) and KYR into the corresponding nullah sections, considerable duration would be required at night

time to implement temporary closure of the carriageways. Proposed vehicular diversion routes are proposed in order to minimize the impacts induced by the construction works.

During the temporary closure of the section of YLONR, the vehicular traffic (Eastbound) originally along this section will be diverted to Ma Miu Road (Southbound), CPR(YLS) (Eastbound), Tung Lok Street (Northbound) and Sau Fu Street (Westbound). On the other hand, the vehicular traffic (Westbound) originally along this section will be diverted to Tung Lok Street (Northbound), Yuen Long Tai Hang Street (Eastbound), Yuen Long Tung Tai Street (Northbound), Yuen Long On Lok Road (Westbound) and Pui Wui Street (Southbound).

Throughout the temporary closure of the section of CPR(YLS), the vehicular traffic (Eastbound) originally along this section will be diverted to Kik Yeung Road (Northbound), YLONR (Eastbound), Tung Lok Street (Southbound) and Fuk Tak Street (Southbound) before returning to the CPR(YLS).

Besides, the vehicular traffic (Westbound) originally along this section will be diverted to Tai Tong Road (Southbound), KYR (Westbound) then Yuen Long Tai Yuk Road (Northbound), or, alternatively, Fung Nin Road (Northbound) before returning to the CPR(YLS).

Moreover, the vehicular traffic originally coming from Yuen Long Hong Lok Road (Northbound) will be diverted to Hong King Street (Eastbound) and return to Yuen Long Hong Lok Road (Southbound), KYR (Westbound) and Yuen Long Tai Yuk Road (Northbound)/Fung Nin Road (Northbound) before returning to the CPR(YLS).

3.9.2 Temporary Traffic Arrangement during Construction of Pedestrian Interchanges and Intermediate Crossing Facilities

Majority of the construction works would be confined on footways and no vehicular traffic in the vicinity of the subject works would be affected. Details of the temporary traffic arrangement would be discussed in the next design stage.

3.10 Drainage Impact Assessment

The recommended footbridge option will be elevated along Yuen Long Town Nullah between WRLPS and KYR. Potential future extension of the footbridge option till Ma Tong Road has also been considered in this DIA. The proposed footbridge scheme together with its potential future extension requires a number of supporting structures to be positioned within the flow area of the Yuen Long Town Nullah. These include a total of 13 nos. footbridge support columns, 2 nos. intermediate walkway supports, and 8 nos. pedestrian interchange supports and decking.

The main drainage impact due to the proposed footbridge works is the direct impact on the existing Yuen Long Town Nullah. A hydraulic assessment using MIKE11 modelling has been carried out in this DIA. The increase in water levels due to the proposed footbridge structures when compared with the base case nullah has been assessed. The maximum increase in water levels are found to be

355mm and 420mm respectively for 50 year and 200 year design events. Nevertheless, detailed assessment is recommended via Computational Fluid Dynamics (CFD) in the next design stage, in order to obtain more accurate results of increase in water levels.

To mitigate the drainage impact due to the proposed footbridge (including future extension to Ma Tin Road), parapet walls are proposed on both banks of the Yuen Long Town Nullah from WRLPS box culverts to just upstream of Kau Yuk Road as mitigation measures. These parapet walls can be provided by converting the existing railings along both banks of the nullah to parapets walls. The minimum required height of the proposed parapet wall is shown on drawing no. **218321/SK/P1/306**. With the implementation of the proposed parapet walls, the concerned section of the Yuen Long Town Nullah with the proposed footbridge can convey (i) the 50 year design flows with 500mm freeboard and (ii) the 200 year design flows and the hydraulic impact due to the proposed footbridge can be adequate mitigated.

Other drainage mitigation measures shall also be considered to further mitigate the drainage impact due to the proposed footbridge in the next stage of the project. These may include connecting and streamlining the existing rows of supporting columns of the 4 nos. existing road bridges of Highways Department.

Details of drainage impact assessment can refer to the separate report.

3.11 Landscape Study

3.11.1 Summary of Existing Trees

A total of **221** trees belonging to **36** species were recorded within the surveyed area. The surveyed tree species and their respective quantities are summarised in the following table:

Table 3.1 Existing Tree Species and Quantities

Botanical Name	中文名稱	**Quantity**
Acacia confusa	台灣相思	3
Aleurites moluccana	石栗	2
Bauhinia blakeana	洋紫荊	34
Bauhinia variegata	宮粉羊蹄甲	7
Bischofia javanica	秋楓	4
Bombax ceiba	木棉	1
Callistemon viminalis	串錢柳	5
Cassia fistula	臘腸樹	1
Cassia surattensis	黃槐	19
Casuarina equisetifolia	木麻黃	2
Celtis sinensis	朴樹	5
Cinnamomum burmannii	陰香	1
Cinnamomum camphora	樟	3
Clausena lansium	黃皮	4
Cleistocalyx nervosum	水翁	3
Delonix regia	鳳凰木	6
Dimocarpus longan	龍眼	3

Table 3.1 Existing Tree Species and Quantities		
Eucalyptus citriodora	檸檬桉	4
Ficus benjamina	垂榕	5
Ficus benjamina 'Variegata'	花葉垂榕	1
Ficus microcarpa	細葉榕	19
Ficus virens	黃葛樹	2
Ilex rotunda	鐵冬青	1
Lagerstroemia speciosa	大花紫薇	26
Livistona chinensis	蒲葵	6
Macaranga tanarius	血桐	10
Mangifera indica	杧果	2
Melaleuca quinquenervia	白千層	21
Melia azedarach	苦楝	4
Michelia alba	白蘭	1
Peltophorum pterocarpum	雙翼豆	2
Pterocarpus indicus	紫檀	2
Spathodea campanulata	火焰木	4
Sterculia lanceolata	假蘋婆	2
Syzygium hancei	韓氏蒲桃	1
Terminalia catappa	欖仁樹	5
	Total:	**221**

3.11.2 Impact to Existing Trees

Total **221** trees are surveyed within the study area. **202** trees are not affected by the proposed layout and will be retained and protected on site.

Total **19** trees are affected by the proposed works, of which **5** trees are recommended for transplanting, and **14** trees with accumulated DBH of **4.81m** are recommended for felling. Summary on the proposed treatment on existing trees:

Table 3.2 Proposed Treatment on Existing Trees	
Proposed Treatment	**Quantity**
Total	221
Retain	202
Transplant	5
Fell	14
Accumulated loss of DBH (m)	4.81m

The Tree Survey Plans are shown on Drawings Nos.**218321/SK/P1/201 to 205**.

3.11.3 Greening Master Plan (Yuen Long District)

Reference for the planting theme of Yuen Long GMP has been made on data from public forums undertaken on 13 April 2012, coordination meetings among GMP consultants (Hyder/ACLA) on 25 April 2012 and materials received from GMP Consultants (Hyder and ACLA). In order for the planting design to be complementary with the Yuen Long GMP, the trees and shrubs proposed in this

study would have the following characteristics, which is in-line with the Yuen Long GMP planting proposal:

- A warm theme chromatic proposal, with preference to red and orange;
- Species with heritage or cultural interest e.g. species with traditional characteristics, species commonly cultivated in villages;
- Native species to provide ecological benefits, to echo with Yuen Long's high ecological value habitats e.g. wetlands.

3.11.4 Compensatory Tree Planting Proposal

To mitigate for the loss of greenery, compensatory tree planting of a ratio not less than 1:1 in terms of quality and quantity shall be provided. That is, the total numbers and the aggregated girth size of compensatory trees should not be less than that of the felled trees.

The proposed felling of **14** trees has an accumulated DBH of **4.81m**. To compensate for the felling of trees, **49** heavy standard trees of 100mm DBH with an accumulated DBH of **4.9m** are proposed to be planted.

The proposed compensatory locations are scattered in the Yuen Long town centre due to lack of further tree planting opportunities along Yuen Long Town Nullah. The proposed locations, after initial comments from related parties, will be further coordinated with Yuen Long GMP to avoid duplication of proposed planting.

This study report is NOT a tree removal application. Detailed compensatory tree planting proposal including species, quantities and locations are to be agreed with future maintenance departments in the Detailed Design stage before commencement of works.

3.11.5 Further Tree Planting Opportunities

In the Package 1 study area, i.e. along the Yuen Long Town Nullah, suitable tree planting locations have generally already been planted with trees, which include some undersized trees that are not recorded on the tree survey plan. Due to existing trees and underground utilities, there is not much space available for further tree planting along the nullah.

The lack of tree planting space along the nullah is also reflected in the preliminary Yuen Long GMP planting plans which generally do not add new trees along the nullah.

Due to lack of tree planting opportunities within the Package 1 study area, and the comprehensive tree planting by GMP within the Yuen Long town centre which is anticipated to commence before implementation of Package 1, no additional tree is proposed in this Package. Extract of conceptual YL GMP planting plan is enclosed in **Appendix G** for reference.

3.11.6 Proposed Compensatory Tree Species

Proposed tree species for compensatory tree planting should have the following characteristics:

- In line with the design concept as defined in the Yuen Long GMP;
- High in amenity value, e.g. ornamental tree form, conspicuous flowers, seasonal interest, shading to pedestrians;
- Native species to provide ecological benefit;
- Species that can blend in with the site and proved adaptable to similar site condition; and
- Available in the market.

Native tree species will be adopted as far as possible with the principle of "right tree species for the right place", subjected to factors such as specific site condition, growth habit of the tree species, technical requirement, land use, aesthetic and maintenance consideration for provision of better greening effect and amenity value.

Sufficient space should be provided for planting of trees taking into account the minimum space required to cater for the establishment, healthy growth and mature size of the trees. Relevant guidelines published by GLTMS of DevB should be followed, e.g.:

- Proper Planting Practice - Provide Adequate Growing Space for Future Growth of Canopy;
- Proper Planting Practice - Provide Sufficient Growing Space between Trees and Adjacent Building/Structures.

The following tree species are proposed for compensatory tree planting.

Table 3.3 Proposed Tree Species for Compensatory Planting

Botanical Name	Chinese Name	Origin	Size	Remarks
Lagerstroemia speciosa	大花紫薇	Exotic	Heavy Standard	• Purple flower May-Jul
Cassia fistula	豬腸豆	Exotic	Heavy Standard	• Yellow flowers Jun-Aug
Cinnamomum burmanii	陰香	Native	Heavy Standard	• YL GMP theme tree • Dense evergreen foliage
Ilex rotunda	鐵冬青	Native	Heavy Standard	• YL GMP theme tree • Decorative red fruits in winter
Liquidambar formosana	楓香	Native	Heavy Standard	• Colourful foliage in autumn
Michelia alba	白蘭	Exotic	Heavy Standard	• YL GMP theme tree • Traditional / cultural interest
Tabebuia chrysantha	黃花風鈴木	Exotic	Heavy Standard	• YL GMP theme tree • Yellow flower Mar-Apr
Tabebuia impetiginosa	紅花風鈴木	Exotic	Heavy Standard	• YL GMP theme tree • Purple flower Mar-Apr

according to the guideline from DEVB, Bauhinia spp. are brittle tree species which are prone to tree failure thus causing public injury. Therefore, they are considered not suitable to be planted as street trees along carriageway and/or footpath.

3.11.7 Proposed Shrub Species

Shrubs are proposed at locations deemed unsuitable for tree planting along the nullah to enhance the pedestrian environment. In case of at-grade planting is not feasible, raised planters are to be provided. Opportunities will be explored in providing shrubs near the existing trees along the nullah bank to further enhance the greening environment.

Proposed shrubs species should have the following characteristics:

- In line with the design concept as defined in the Yuen Long GMP;
- High in amenity value: e.g. ornamental flowers, fragrant flowers, colourful foliage;
- Native species to provide ecological benefit;
- Species that can blend in with the site and proved adaptable to similar site condition; and
- Available in the market.

If shrubs are to be planted near trees, the area around the base of tree trunk should be kept clear of vegetation or excessive soil / mulch to avoid adverse impact on tree growth and hindrance to tree inspection. The following guideline published by GLTMS of DevB refers:

- Proper Planting Practice - Keep Sufficient Space Clear of Vegetation at the Base of Trees;

The following shrubs species are proposed for shrubs planting.

Table 3.4 Proposed Shrub Species

Botanical Name	Chinese Name	Origin	Remarks
Ardisia crenata	朱砂根	Native	• Ornamental red fruits in winter & spring
Hibiscus rosa-sinensis	大紅花	Exotic	• Red flower year round
Ixora chinensis	龍船花	Native	• Red flower in spring to autumn
Melastoma candidum	野牡丹	Native	• Pink flower May-Jul
Osmanthus fragrans	桂花	Exotic	• Traditional / cultural interest • Fragrant flower in autumn
Rhaphiolepis indica	車輪梅	Native	• White flower in spring
Rhododendron simsii	紅杜鵑	Native	• Red flower in spring
Rhodomyrtus tomentosa	崗棯	Native	• Purple flower Apr-May

3.11.8 Street Furniture

The paving design along two-sides of Yuen Long Nullah and the adjacent pedestrian streets will follow HyD's Paving Master Plan for Yuen Long, which was provided by HyD's Landscape Unit. 200x100mm Grade A concrete pavers with recycled aggregates will be used for the whole paving works, which was suggested by HyD's Landscape Unit for their maintenance purpose.

The colour tone of the paving improvement works will be integrated with the existing paving and in earth tone. The colour scheme adopted will be mainly in combination of Brown, Orange, Red, and Cream. Existing manholes and utilities covers shall be converted into matching covers.

Tactile warning tile / block will be provided and they should be visually contrasted with the adjoining surface to provide clear indication of routes to visually impaired people.

Existing railings along the nullah bank will be replaced by transparent parapet wall.

3.11.9 Landscaping on Footbridge

In order to reduce the bulkiness of the footbridge by putting planters on each side of the footbridge for the whole length, planters are only provided at the footbridge section directly above YLONR and KYR. Consideration of not putting continuous planters was supported by the committees in the First Meeting of Project Steering Committee which was held in 26 February 2013. The Master Paving and Landscape Plan is enclosed in Appendix H.

3.12 Utility Impact

3.12.1 Utilities along the Nullah Bank

Large diameter sewers up to 1050mm, one 125mm diameter MP gas main, a bunch of CLP electricity cables and some fresh water mains were identified along the footway adjacent to the nullah. Since the proposed pedestrian interchange will only replace the existing nullah wall by the outer walls of the box culvert, it is envisaged that local diversions of the gas main, water mains and electricity cables are deemed not necessary. Notwithstanding no potential clashing is identified, prior to commencement of any works adjacent to the footpath, utility detection must be carried out to verify the exact locations of those utilities. In particular, settlement monitoring of gas mains shall be required to ensure no abnormal settlement is identified throughout the construction stage.

3.12.2 Utilities across the Existing Bridges

Based on the record drawings and site observations, there are some small diameter water mains and telecommunication cables mounted on decks and the edge of the bridge supports. The crown levels of some pipeworks are close to the adjacent ground level of the footpath. Since the finished ground level of the pedestrian interchange is designed to be flushed with the adjacent ground level, those pipes which are in conflict with the structure of pedestrian interchange will have to be

locally lowered or relocated. In order to facilitate future maintenance of those side mounted utilities, removable concrete covers of 1m wide will be designed to hide the utilities. As these exposed pipeworks are not pleasant from aesthetic viewpoints, provision of these maintenance covers is conducive in mitigating these visual impacts and possibility of vandalism.

Coordinated utility drawings can be referred to drawing nos. **218321/SK/P1/031~035**.

3.13 List of Historic Buildings

No known archaeological sites and Declared Monuments are located within the 500m assessment area of the Project. However, there are several structures included on the "List of Historical Buildings in Building Assessment (as of 17 December 2012)" of Antiquities and Monuments Office (AMO) as summarised in the following table.

Table 3.5: List of historical buildings

AMO Reference No.	English	Chinese	Grading	Distance from the site (m)
116	Tin Hau Temple, Fung Chi Tsuen	新界元朗屏山鳳池村天后宮	Grade 1	~500
570	Lung Ting Study Hall, Lung Tin Tsuen, Shap Pat Heung, Yuen Long, N.T.	新界元朗十八鄉龍田村龍田書室	Grade 2	~300
847	Lung Wah Yuen, No. 83 Fung Chi Tsuen	新界元朗橫洲鳳池村83號龍華園	Grade 3	~500
893	No.23 Lung Tin Tsuen, Shap Pat Heung, Yuen Long, N.T.	新界元朗十八鄉龍田村 23 號	Grade 3	~300
904	No.21 Lung Tin Tsuen, Shap Pat Heung, Yuen Long, N.T.	新界元朗十八鄉龍田村 21 號	Grade 3	~300
905	No.22 Lung Tin Tsuen, Shap Pat Heung, Yuen Long, N.T.	新界元朗十八鄉龍田村 22 號	Grade 3	~300
994	No.119 Tai Kei Leng Tsuen, Shap Pat Heung, Yuen Long, N.T.	新界元朗十八鄉大旗嶺村 119 號	Grade 3	~450
1005	No.27 Tai Kei Leng Tsuen, Shap Pat Heung, Yuen Long, N.T.	新界元朗十八鄉大旗嶺村 27 號	Grade 3	~500
1024	No.26 Tai Kei Leng Tsuen, Shap Pat Heung, Yuen Long, N.T.	新界元朗十八鄉大旗嶺村 26 號	Grade 3	~500
1040	Entrance Tower, Tai Kiu Tsuen, Shap Pat Heung	新界元朗十八鄉大橋村門樓	Proposed Grade 3	~100
1097	Ji Yeung Study Hall, No.23 Tai Kei Leng Tsuen, Shap Pat Heung, Yuen Long, N.T.	新界元朗十八鄉大旗嶺村 23 號子養書室	Grade 3	>450
1102	No.112 Tai Kei Leng Tsuen, Shap Pat Heung, Yuen Long, N.T.	新界元朗十八鄉大旗嶺村 112 號	Grade 3	~450

AMO Reference No.	English	Chinese	Grading	Distance from the site (m)
1139	Ss. Peter and Paul Church, No. 201 Castle Peak Road, Yuen Long, N.T.	新界元朗青山公路201號聖伯多祿聖保祿堂	Grade 3	>450
1372	No. 21 Tai Kiu Tsuen, Yuen Long, N.T.	新界元朗大橋村21號	no grade	~100

3.13.1 Potential Impacts and Mitigation Measures during Construction Phase

These historical structures are about 100 m away from the Project and therefore there will be no works or new infrastructure encroaching upon these historical structures. Hence, direct impact is not anticipated. Indirect impacts from construction dust and vibration will also be negligible given the distances to the works. No adverse impact is anticipated during construction.

3.13.2 Potential Impacts and Mitigation Measures during Operational Phase

No adverse impact is anticipated during the operation of the Project.

3.14 Impacts to Existing Highway Structures

Pedestrian interchanges are designed in YLONR (Footbridge no. N212), CPR(YLS) (Footbridge no. N20), KYR (Footbridge no. N211), existing cross-nullah footbridge (Footbridge no. NF204) and Ma Tin Road (Footbridge Nos. N633 & 633A) to facilitate access to and from the proposed footbridge.

To facilitate integration of the pedestrian interchange with the existing footways, the parapet and associated railings have to be demolished. And the proposed pedestrian interchange is designed to be structurally separated from the existing bridge with movement joint installed. However, the existing foundation of the bridge should be carefully monitored during construction to ensure the concrete piles are not adversely affected.

Based on preliminary assessment, the structural integrity of the existing bridges should not be adversely affected.

3.15 Views from the Public

Under this Study, public consultation activities, including Public Forum and consultation with Traffic & Transport Committee of Yuen Long District Council have been held since late March 2013. The public generally expressed support on the provision of a continuous footbridge with some advices to be followed up. Some key suggestions are highlighted below.

- Consideration should be given to extend the footbridge till Ma Tong Road or even Shap Pat Heung Road due to continuous growth of residential development in the vicinities.

- Straight instead of meandering alignment of footbridge should be adopted.
- Two-way travelators should be designed on the footbridge to increase the attractiveness of the footbridge.
- Reflected glare from the roof cover as a result of exposure to sunlight should be avoided as much as possible.
- Consideration should be given to protect the privacy issues of nearby residential buildings if the footbridge is meandered.
- The upper ground of the pedestrian interchange should be explored to extend further outwards to create more leisure space for the public.

Comprehensive records of the public concerns and suggestions can be referred to Public Consultation Report.

The public suggestions should be reviewed in next design stage in order to enhance the design of the footbridge.

3.16 Alternative Schemes Proposed by HKIA, HKIP, HKILA and HKIUD

A Joint Professional Institutes Briefing Session was held on 21 May 2013. Around 30 representatives from the Hong Kong Institute of Architects (HKIA), the Hong Kong Institute of Landscape Architects (HKILA), the Hong Kong Institute of Planners (HKIP) and the Hong Kong Institute of Urban Design (HKIUD) participated in the event.

There was strong reservation on the proposed footbridge by the majority of the participants. Concerns were expressed on the justifications, design and potential adverse impacts of the proposal, while having more crossings as an alternative and effective solution to the identified problems was counter-proposed.

Further to the briefing session, the 1st and 2nd Core Working Group meeting were held on 5 & 7 November 2013 amongst the joint professional institutions and HyD, in which the joint professional institutions presented initial ideas for alternative scheme to the footbridge.

Subsequently, HyD engaged Arup to provide technical support and assess technical feasibility of the alternative schemes. Various alternative options including individual footbridges, at-grade pedestrian crossing enhancement and elevated structures along the sides of the nullah were further explored.

In the 3rd Core Working Group meeting held on 13 December 2013, HyD and Arup presented schematic design for the alternative footbridge system comprising elevated walkways along the nullah banks developed based on the initial ideas. The design was however found unfavourable to the joint professional institutions. Another alternative design scheme with individual footbridges and elevated decks flushing with the footpaths on both sides of the nullah was subsequently proposed. It was however shown in the pedestrian flow analysis that the scheme would be less attractive to pedestrians. The findings were presented on the 4th Core Working Group meeting held on 8 January 2014.

8 Environmental Considerations

Package 1 of this Study has been confirmed to fall into Item I.1(b) of Part 1, Schedule 2 of the EIA Ordinance and classified as designated project. A draft Project Profile has been prepared for the application of EIA Study Brief. A separate EIA Study should be carried out further to issuance of the EIA Study Brief at the next design stage.

The remaining packages under this Study are not designated projects under EIAO. This section generally describes the environmental considerations such as air quality, noise, water quality and waste management issues of all packages.

8.1 Air Quality

It is known that the proposed works under all packages will be close to adjacent residential buildings and shops. Sufficient air quality control measures should be in place in order to maintain a good living environment during construction.

8.1.1 Potential Impacts and Mitigation Measures during Construction Phase

During construction, it is anticipated that all construction activities will not produce adverse air pollution impact. With appropriate dust suppression measures such as water spraying or shielding, construction dust will be acceptable.

The following lists the key mitigation measures stipulated in the Air Pollution Control (Construction Dust) Regulation:

- Use of regular watering to reduce dust emissions from exposed site surfaces, dusty construction areas;
- Adoption of side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering shall be used to aggregate fines;
- Open stockpiles shall be avoided or covered and dusty materials shall not be stored near ASRs; and
- All dusty vehicle loads transported to, from and between site locations shall be covered by tarpaulin.

With the implementation of appropriate mitigation measures, adverse dust impact is not anticipated during the construction stage. Air pollution control shall be implemented according to EPD's Recommended Pollution Control Clauses for Construction Contracts. These requirements will be included in the Particular Specification for the contractor to implement.

8.1.2 Potential Impacts during Operational Phase

There will be no emission from the proposed works under each package. Therefore, no air quality concerns during the operational phase are anticipated.

8.2 Noise

8.2.1 Potential Impacts and Mitigation Measures during Construction Phase

The construction activities will not require heavy plants. As the use of plants is unlikely to cause serious noise impact, noise from construction activities could be controlled by good site practice and adherence to EPD's Recommended Pollution Control Clauses for Construction Contracts (Noise Control). These requirements will be included in the Particular Specification for the Contractor. In general, the following shall be adopted:

- Group static PMEs at work site away from NSRs;
- Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme;
- Machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum;
- Plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs;
- Silencers or mufflers on construction equipment, if required, should be properly fitted and maintained during the construction works;
- Mobile plant should be sited as far away from NSRs as possible and practicable; and
- Material stockpiles, site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.

The benefits of these techniques can vary according to specific site conditions and operations. The environmental noise climate would certainly be improved through the following control practices:

- Use of quiet plant and working methods where necessary;
- Use of site hoarding as noise barriers to screen noise at ground level of NRSs where necessary;
- Use of shrouds/temporary noise barriers to screen noise from relatively static PMEs where necessary; and
- Alternative use of plant items within one worksite, wherever practicable.

8.2.2 Potential Impacts and Mitigation Measures during Operational Phase

There will be no emission during the operation stage. Therefore, no noise impact concerns during the operational phase are anticipated. However, upon imposition of left-turn ban from Kuk Ting Street to CPR(YLS) eastbound, it is envisaged that the no. of vehicles along that section of CPR(YLS) eastbound can be reduced. As such, the noise levels can be reduced to a certain extent.

8.3 Water Quality

Though some of the proposed works under Packages 1 and 3 will be carried out within the nullah, the water quality inside the nullah should not be adversely affected as long as proper mitigation measures are put in place.

8.3.1 Potential Impacts and Mitigation Measures during Construction Phase

Potential water quality impact during the construction phase may arise from surface runoff, effluent from dewatering activities as well as implementation of dust suppression measures, the sewage from construction workforce (e.g. site toilets), and the accidental spillage of chemicals. Appropriate mitigation measures shall be adopted to minimize the impacts.

ProPECC PN 1/94 "Construction Site Drainage" and "Recommended Pollution Control Clauses for Construction Contracts" issued by EPD should be implemented to minimize the potential impacts. Key mitigation measures are summarized as below:

Construction Site Runoff:

- Sand/silt removal facilities such as sand traps, silt traps and sediment basins shall be provided to remove sand/silt particles from runoff to meet the requirements of the Technical Memorandum standard under the Water Pollution Control Ordinance. The design of silt removal facilities shall be based on the guidelines provided in ProPECC PN 1/94. All facilities shall be inspected monthly and maintained to ensure proper and efficient operation at all times and particularly during rainstorms;
- Open stockpiles of construction materials or construction wastes on-site of more than $50m^3$ shall be covered with tarpaulin or similar fabric during rainstorms;
- Debris and rubbish generated on-site shall be collected, handled and disposed of properly to avoid entering the nearby watercourses and storm water drains. Stockpiles of cement and other construction materials shall be kept covered when not being used; and
- Oils and fuels shall only be used and stored in designated areas which have pollution prevention facilities. All fuel tanks and storage areas shall be provided with locks and be sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank. The bund shall be drained of rainwater after a rain event.

Sewage from Construction Workforce:

- Adoption of chemical toilets to handle the sewage from construction workers.

Accidental Spillage of Chemicals:

- All the tanks, containers and storage areas should be bunded and the locations should be located as far as possible from the stormwater drains;

- Storage of chemical waste arising from the construction activities should be stored with suitable labels and warnings; and
- Disposal of chemical wastes should be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation.

With the implementation of the above measures and full compliance of WPCO, adverse water quality impact during construction phase is not anticipated.

It is recommended that construction works in and near nullah to be conducted during dry season and will not encroach the dry weather flow channel area. There will be generally no contact with dry weather flow water during construction.

8.3.2 Potential Impacts and Mitigation Measures during Operational Phase

Given there would not be discharge from all packages during the operation phase, no water quality impact concerns are anticipated.

8.4 Waste Management Implications and Land Contamination

8.4.1 Potential Impacts and Mitigation Measures during Construction Phase

The construction activities will generate a variety of wastes, including:

- Construction and demolition (C&D) materials;
- Construction and demolition (C&D) waste;
- Chemical waste (e.g. lubricating oil, solvents); and
- General refuse (e.g. food, paper).

Construction waste may impose pressure on landfill space in Hong Kong. Chemical waste may pose serious environmental, health and safety hazards if not stored and disposed of in an appropriate manner. The storage of general refuse also has potential environmental impact of odour, water quality, pests and litter.

Mitigation measures recommended in ETWB(W) No. 19/2005 Environmental Management on Construction Sites and other relevant guidelines including EPD's Recommended Pollution Control Clauses for Construction Contracts (Waste Management), will be included in the Particular Specification for the Contractor as appropriate. The waste management hierarchy should be as follows:

- Avoidance and minimization;
- Reuse of materials;
- Recovery and recycling; and
- Treatment and disposal.

C&D Materials

C&D materials contain a mixture of inert and non-inert materials. The inert portion (e.g. soil, building debris, concrete, etc) is the public fill, while the non-inert portion (e.g. timber, bamboo, vegetation, etc) is the C&D waste. C&D materials will be generated during breaking up of the existing footbridge. Mitigation measures include:

- Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement;
- Carry out on-site sorting;
- Make provisions in the contract documents to allow and promote the use of recycled aggregates where appropriate;
- Adopt 'Selective Demolition' technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible;
- Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified; and
- Implement an enhanced Waste Management Plan, which would become a part of the Environmental Management Plan in accordance with "ETWBTC (Works) No. 19/2005 – Waste Management on Construction Site", to encourage on-site sorting of C&D materials and to minimize their generation during the course of construction.
- Disposal of the C&D materials onto any sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall be required to propose the final disposal sites to the Project Proponent and obtain its approval before implementation.

C&D Waste

As all the C&D materials will be recycled, no C&D waste will be generated.

Chemical Waste

Chemical wastes are generated from:

- Scrap batteries or spent acid/alkali from their maintenance;
- Used paint, engine oils, hydraulic fluids and waste fuel;
- Spent mineral oils/cleansing fluids from mechanical machinery; and
- Spent solvents/solutions, some of which may be halogenated, from equipment cleansing activities.

Chemical waste should be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes.

Containers used for storage of chemical wastes should:

- Be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed;

- Have a capacity of less than 450 L unless the specification have been approved by EPD; and
- Display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Regulations.

If storage area is required on site for chemical waste arising, this should:

- Be clearly labelled and used solely for the storage of chemical wastes;
- Be enclosed on at least 3 sides;
- Have an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in the area, whichever is greatest;
- Have adequate ventilation;
- Be covered to prevent rainfall entering (water collected within the bund must be tested and disposed as chemical waste, if necessary); and
- Be arranged so that incompatible materials are adequately separated.

Disposal of chemical waste should:

- Be via a licensed waste collector; and
- Be to a facility licensed to receive chemical waste, such as the CWTC which also offers a chemical waste collection service and can supply the necessary storage containers; or
- Be to a re-user of the waste, under approval from EPD.

It is difficult to quantify the amount of chemical waste as it will be highly dependent on the Contractor's on-site maintenance practice and the quantities of plant and vehicles deployed. However, it is anticipated that the quantity of chemical waste, such as lubricating oil and solvent produced from plant maintenance will be small.

General Refuse

The presence of the construction workforce will generate a variety of general refuse requiring disposal. General refuse will mainly consist of food waste, aluminium cans and waste paper. Mitigation measures include:

- General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes.
- A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law.
- Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible.
- Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection

scheme should be considered by the Contractor. In addition, waste separation facilities for paper, aluminium cans, plastic bottles etc., should be provided.

The number of work force (workers) to be employed for the Project is not available at this stage. The total refuse generated per day would be estimated once the number of work force becomes available.

With the implementation of the above mitigation measures, no adverse waste implication is anticipated.

8.4.2 Potential Impacts and Mitigation Measures during Operational Phase

No solid waste will be produced during the operational stage and therefore, no waste management implication phase is anticipated.

8.5 Visual Impact

Visual impact should also be duly considered in the project. Package 1 and Package 4 involve construction of footbridge whereas other packages are comparatively minor civil works without affecting living environment in Yuen Long Town.

The outline of the footbridge extension in Package 4 will be tally with the existing footbridge to achieve harmony with the existing environment. The visual impact to the nearby people is considered negligible.

As far as the visual impact of the proposed footbridge in Package 1 is concerned, railings made of frosted glass will be used and part of the roof will be made of transparent material. However, materials should be carefully chosen in the next design stage to prevent reflective glare and bright surface from affecting the nearby residents. Visual impact assessment will be carried out in next design stage if necessary.

9 Project Implementation

9.1 Description of Works of 5 Packages

Here below outlines the major works of each package.

Package 1:

(a) Construction of footbridge of 540m long and 6m wide above Yuen Long Town Nullah

(b) Connection to the existing concourse of West Rail Long Ping Station Exit D

(c) Construction of pedestrian interchange above Yuen Long town Nullah

(d) Streetscape enhancement of existing footway adjacent to Yuen Long Town Nullah

(e) Modification of existing railings to parapet wall which is made of tempered glass

(f) Construction of intermediate crossings in the two footbridge sections between Yuen Long On Ning Road and Kau Yuk Road.

9.2 Implementation Strategy

9.2.1 Package 1

Package 1 is considered with the largest scope of works and the highest complexity among the other packages. It is recommended that an Investigation, Design-and-Construction (IDC) assignment is required to further coordinate with

major parties (including DSD, MTRCL, etc), and formulate the final design scheme.

11 Conclusion

Final design options are all formulated in each package in the progress of design development. Upon completion of Stage 2 public engagement activities, except Package 5 which was not included, the public expressed general support to all the improvement schemes.

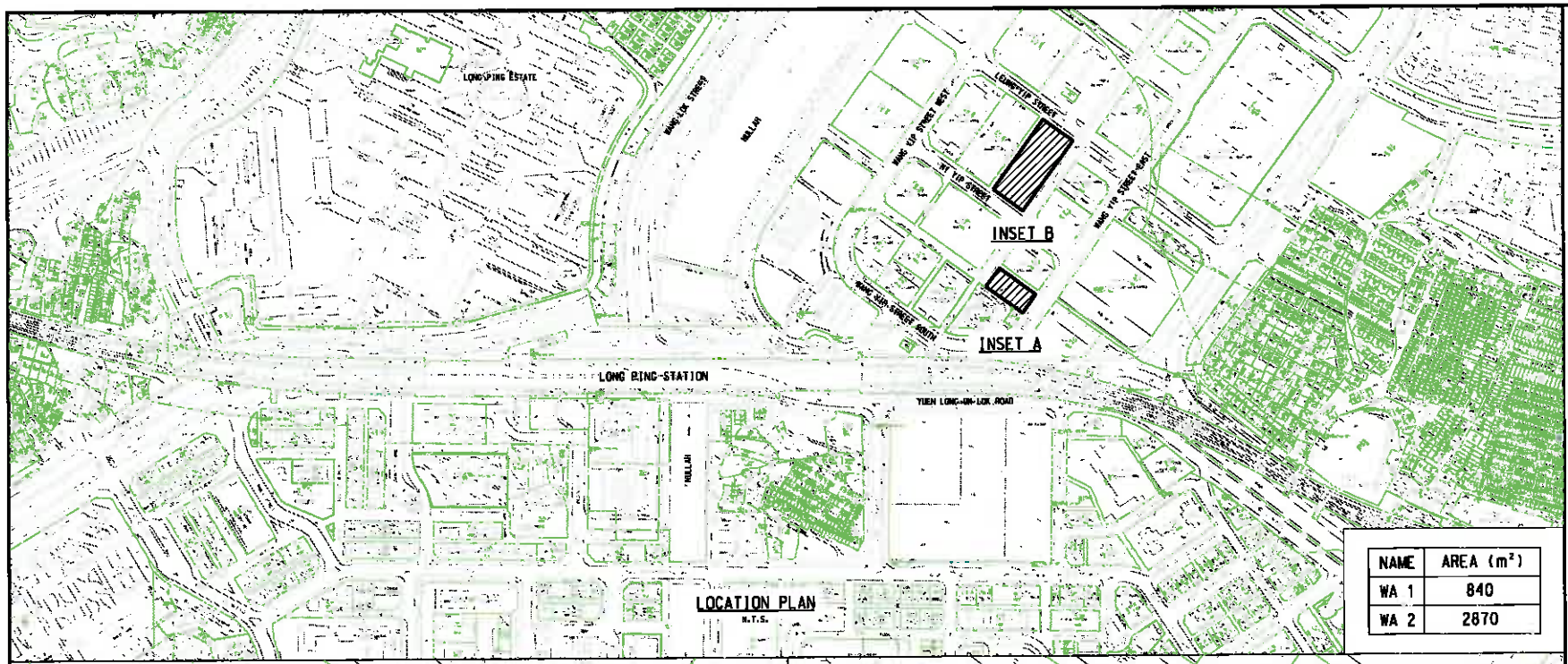
In the next design stage, the Consultant and the Works Division of HyD should enhance the improvement scheme based on the collected public views. With the implementation of the improvement schemes, it is envisaged that the pedestrian environment in Yuen Long Town can be significantly improved in stages.

Drawings

Drawing No.	Drawing Title	Revision
218321/SK/P1/002	PACKAGE 1 DIRECT PEDESTRIAN CORRIDOR ALONG YL NULLAH – OPTION A1 (ALONG YL NULLAH WITH SUPPORTS ON NULLAH)	A
218321/SK/P1/003	PACKAGE 1 DIRECT PEDESTRIAN CORRIDOR ALONG YL NULLAH – OPTION A2 (ALONG YL NULLAH WITH SUPPORTS AT SIDES OF NULLAH)	B
218321/SK/P1/004	PACKAGE 1 DIRECT PEDESTRIAN CORRIDOR ALONG YL NULLAH – OPTION A3 (ALONG YL NULLAH WITH SUPPORTS ON AND AT SIDES OF NULLAH)	A
218321/SK/P1/005	PACKAGE 1 DIRECT PEDESTRIAN CORRIDOR ALONG YL NULLAH – OPTION B1 (ON WESTERN SIDE)	A
218321/SK/P1/006	PACKAGE 1 DIRECT PEDESTRIAN CORRIDOR ALONG YL NULLAH – OPTION B1 (ON EASTERN SIDE)	A
218321/SK/P1/008	PACKAGE 1 DIRECT PEDESTRIAN CORRIDOR ALONG YL NULLAH – OPTION C (FOOTBRIDGE ACROSS YLONR, CPRYL AND KYR)	-
218321/SK/P1/009	PACKAGE 1 PEDESTRIAN BRIDGE CONNECTION NORTH AND SOUTH VERTICAL ALIGNMENT FOR OPTIONS 1 & 2	C
218321/SK/P1/010	PACAKGE 1 – YUEN LONG NULLAH MAJOR CONSTRAINTS	B
218321/SK/P1/031	PACKAGE 1 COORDINATED UTILITY DRAWINGS (SHEET 1 OF 5)	C
218321/SK/P1/032	PACKAGE 1 COORDINATED UTILITY DRAWINGS (SHEET 2 OF 5)	C
218321/SK/P1/033	PACKAGE 1 COORDINATED UTILITY DRAWINGS (SHEET 3 OF 5)	C
218321/SK/P1/034	PACKAGE 1 COORDINATED UTILITY DRAWINGS (SHEET 4 OF 5)	B
218321/SK/P1/035	PACKAGE 1 COORDINATED UTILITY DRAWINGS (SHEET 5 OF 5)	A
218321/SK/P1/041	PACKAGE 1 NORTH –SOUTH CONNECTION IN YUEN LONG TOWN LAND REQUIREMENT PLAN (SHEET 1 OF 5)	D
218321/SK/P1/042	PACKAGE 1 NORTH –SOUTH CONNECTION IN YUEN LONG TOWN LAND REQUIREMENT	C

Drawing No.	Drawing Title	Revision
	PLAN (SHEET 2 OF 5)	
218321/SK/P1/043	PACKAGE 1 NORTH –SOUTH CONNECTION IN YUEN LONG TOWN LAND REQUIREMENT PLAN (SHEET 3 OF 5)	C
218321/SK/P1/044	PACKAGE 1 NORTH –SOUTH CONNECTION IN YUEN LONG TOWN LAND REQUIREMENT PLAN (SHEET 4 OF 5)	C
218321/SK/P1/045	PACKAGE 1 NORTH –SOUTH CONNECTION IN YUEN LONG TOWN LAND REQUIREMENT PLAN (SHEET 5 OF 5)	B
218321/SK/P1/101	PACKAGE 1 DIRECT PEDESTRIAN CORRIDOR ALONG YL NULLAH DETAILS (SHEET 1)	D
218321/SK/P1/102	PACKAGE 1 DIRECT PEDESTRIAN CORRIDOR ALONG YL NULLAH DETAILS (SHEET 2)	C
218321/SK/P1/104	PACKAGE 1 DIRECT PEDESTRIAN CORRIDOR ALONG YL NULLAH DETAILS (SHEET 3)	B
218321/SK/P1/106	PACKAGE 1 DIRECT PEDESTRIAN CORRIDOR ALONG YL NULLAH DETAILS (SHEET 4)	F
218321/SK/P1/107	PACKAGE 1 DIRECT PEDESTRIAN CORRIDOR ALONG YL NULLAH DETAILS (SHEET 5)	D
218321/SK/P1/109	PACKAGE 1 DIRECT PEDESTRIAN CORRIDOR ALONG YL NULLAH DETAILS (SHEET 6)	B
218321/SK/P1/110	PACKAGE 1 DIRECT PEDESTRIAN CORRIDOR ALONG YL NULLAH ROOFING DETAILS	A
218321/SK/P1/081	PACKAGE 1 DIRECT PEDESTRIAN CORRIDOR ALONG YL NULLAH OVERALL GENERAL LAYOUT	-
218321/SK/P1/082	PACKAGE 1 DIRECT PEDESTRIAN CORRIDOR ALONG YL NULLAH GENERAL ARRANGEMENT (SHEET 1 of 5)	-
218321/SK/P1/083	PACKAGE 1 DIRECT PEDESTRIAN CORRIDOR ALONG YL NULLAH GENERAL ARRANGEMENT (SHEET 2 of 5)	-
218321/SK/P1/084	PACKAGE 1 DIRECT PEDESTRIAN CORRIDOR ALONG YL NULLAH GENERAL ARRANGEMENT (SHEET 3 of 5)	-
218321/SK/P1/085	PACKAGE 1 DIRECT PEDESTRIAN CORRIDOR ALONG YL NULLAH GENERAL ARRANGEMENT (SHEET 4 of 5)	-
218321/SK/P1/086	PACKAGE 1 DIRECT PEDESTRIAN CORRIDOR ALONG YL NULLAH GENERAL ARRANGEMENT (SHEET 5 of 5)	-

Drawing No.	Drawing Title	Revision
218321/SK/P1/201	PACKAGE 1 TREE SURVEY PLAN (SHEET 1 OF 5)	C
218321/SK/P1/202	PACKAGE 1 TREE SURVEY PLAN (SHEET 2 OF 5)	C
218321/SK/P1/203	PACKAGE 1 TREE SURVEY PLAN (SHEET 3 OF 5)	C
218321/SK/P1/204	PACKAGE 1 TREE SURVEY PLAN (SHEET 4 OF 5)	C
218321/SK/P1/205	PACKAGE 1 TREE SURVEY PLAN (SHEET 5 OF 5)	C
218321/SK/P1/306	EXTENT AND HEIGHT OF PARAPET WALL	C



LOCATION PLAN
N.T.S.

NAME	AREA (m^2)
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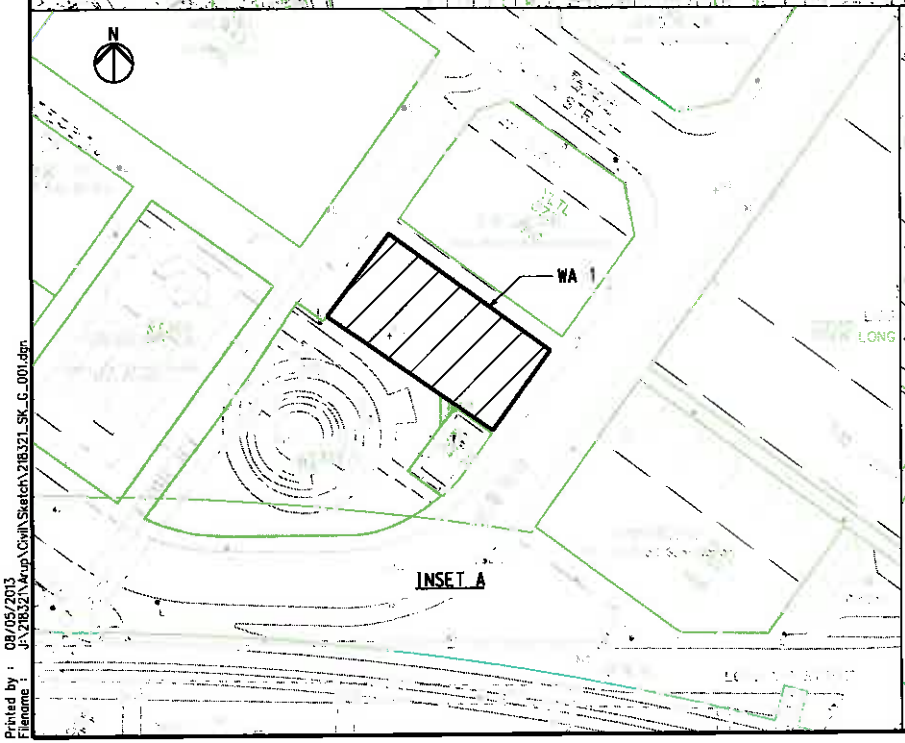
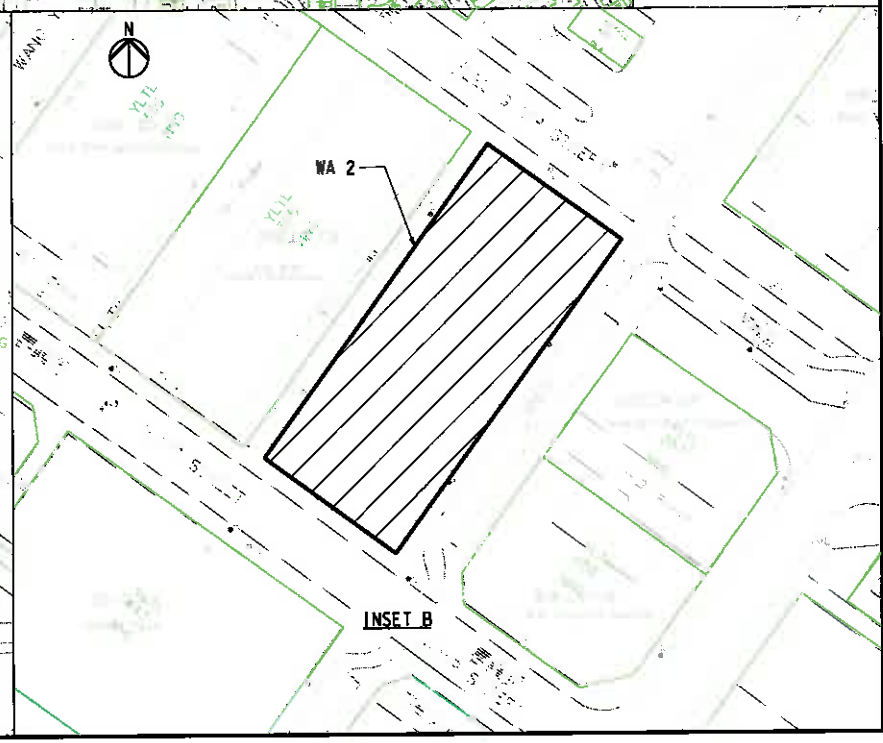
WA 2	2870





LEGEND :

PROPOSED WORKS AREA

Rev	Description	By	Date
B	WORKS AREA UPATED	TYW	05/13
A	FIRST ISSUE	TYW	07/12

Consultant

ARUP

Project title

Agreement No. CE 4/2011 (HY)

Improvements to Pedestrian Environment in Yuen Long Town - Feasibility Study

Drawing title

WORKS AREA REQUIREMENT PLAN

Drawing no. 218321/SK/G/001 Rev. B

Drawn CSK | Date 07/12 | Checked KYL | Approved EC

Scale 1:1000 ON A3 | Status FEASIBILITY STUDY

路政署
HIGHWAYS DEPARTMENT
主要工程管理辦處
MAJOR WORKS PROJECT MANAGEMENT OFFICE

Printed by : 08/05/2013
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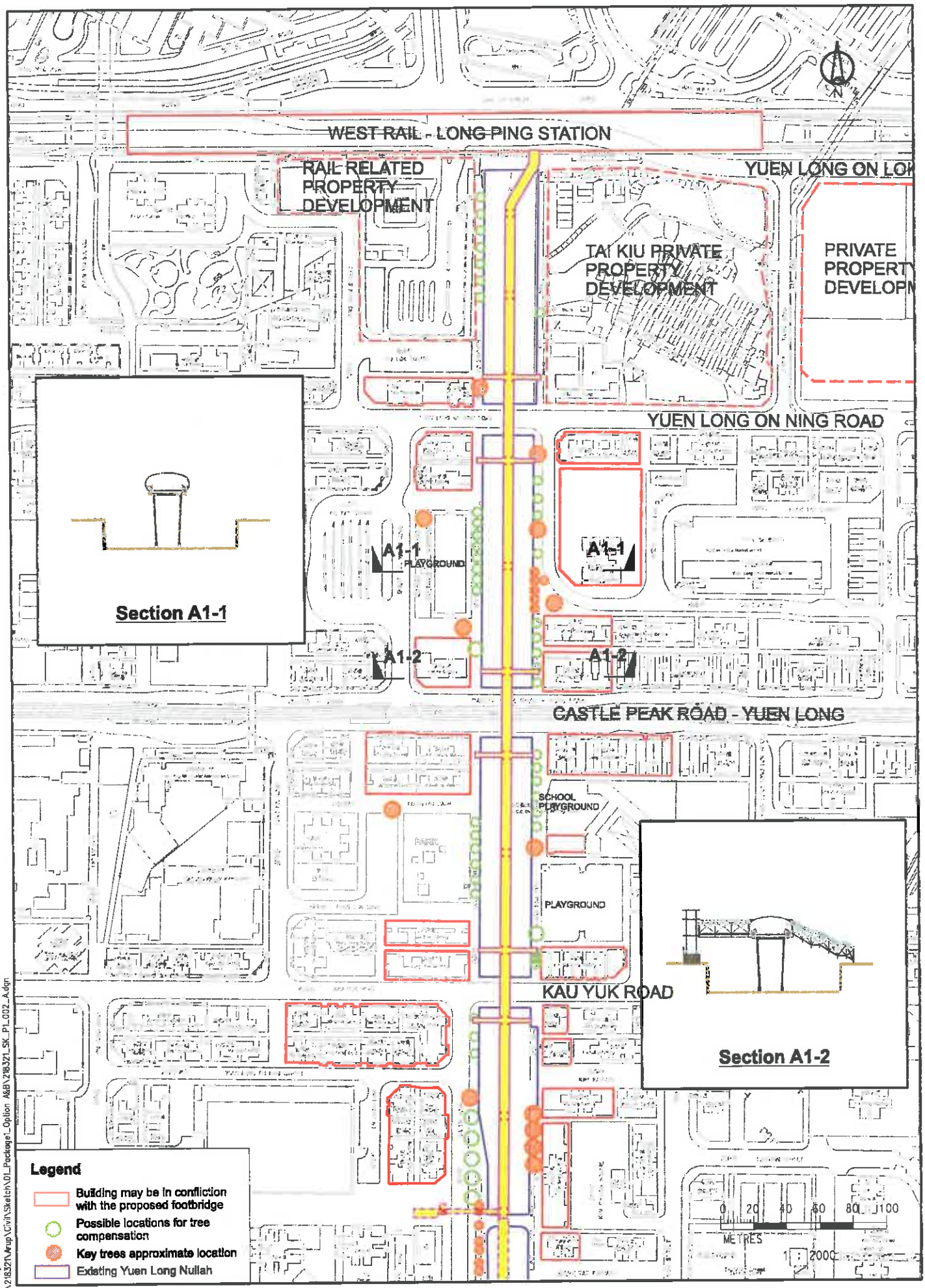

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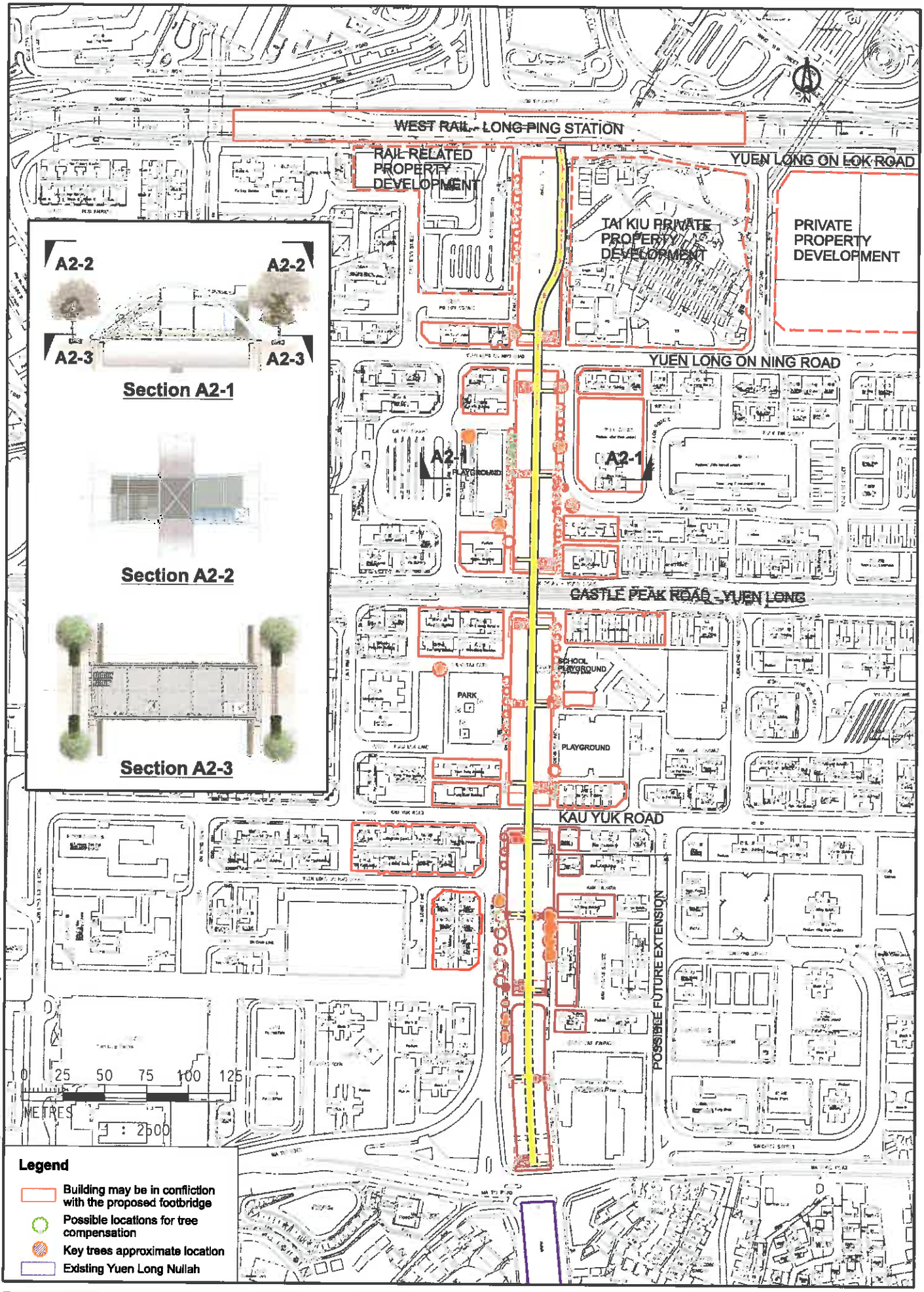
路政署 HIGHWAYS DEPARTMENT	ARUP 奧雅納工程顧問 Ove Arup & Partners Hong Kong Limited	Job Title Agreement No. HMW 3/2009(HY) Engineering Consultancy for Pedestrian Environment Improvement Scheme in Yuen Long Town	Title Package 1 Direct Pedestrian Corridor Along YL Nullah - Option A1 (Along YL Nullah with Supports on Nullah)	Drawing No. 218321/SK/P1/002 Scale 1:2000 ON A3 Rev. A



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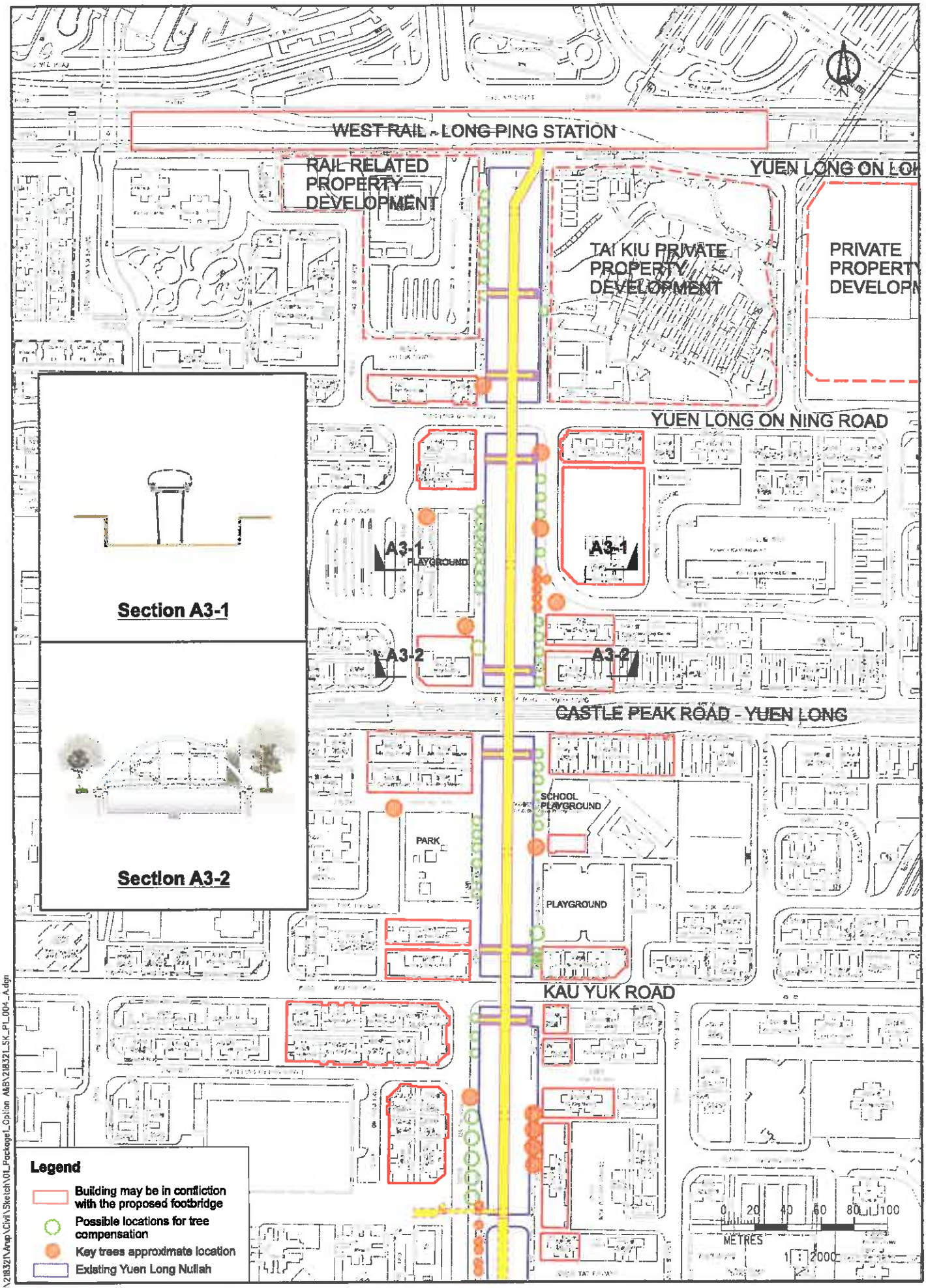
路政署 HIGHWAYS DEPARTMENT	ARUP 奧雅納工程顧問 Ove Arup & Partners Hong Kong Limited	Job Title Agreement No. HWW 3/2009(HY) Engineering Consultancy for Pedestrian Environment Improvement Scheme in Yuen Long Town	Title Package 1 Direct Pedestrian Corridor Along YL Nullah - Option A2 (Along YL Nullah with Supports at sides of Nullah)

Drawing No. 218321/SK/P1/003
Scale 1:2500 ON A3
Rev. B



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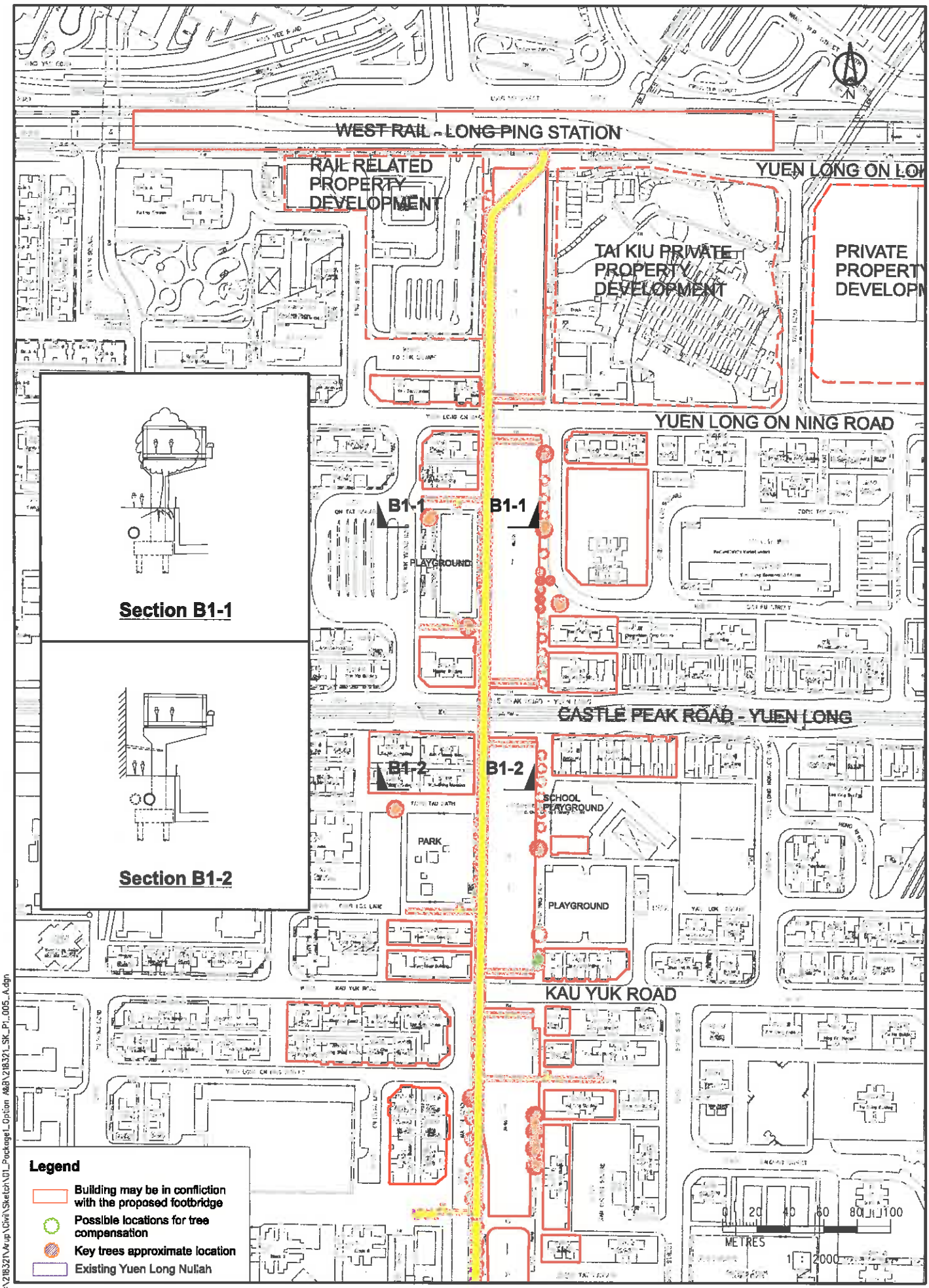
路政署 HIGHWAYS DEPARTMENT	奧雅納工程顧問 Ove Arup & Partners Hong Kong Limited	Job Title: Agreement No. HMW 3/2009(HY) Engineering Consultancy for Pedestrian Environment Improvement Scheme in Yuen Long Town	Title: Package 1 Direct Pedestrian Corridor Along YL Nullah - Option A3 (Along YL Nullah with Supports on and at sides of Nullah)	Drawing No. 218321/SK/P1/004 Scale 1:2000 ON A3 Rev. A



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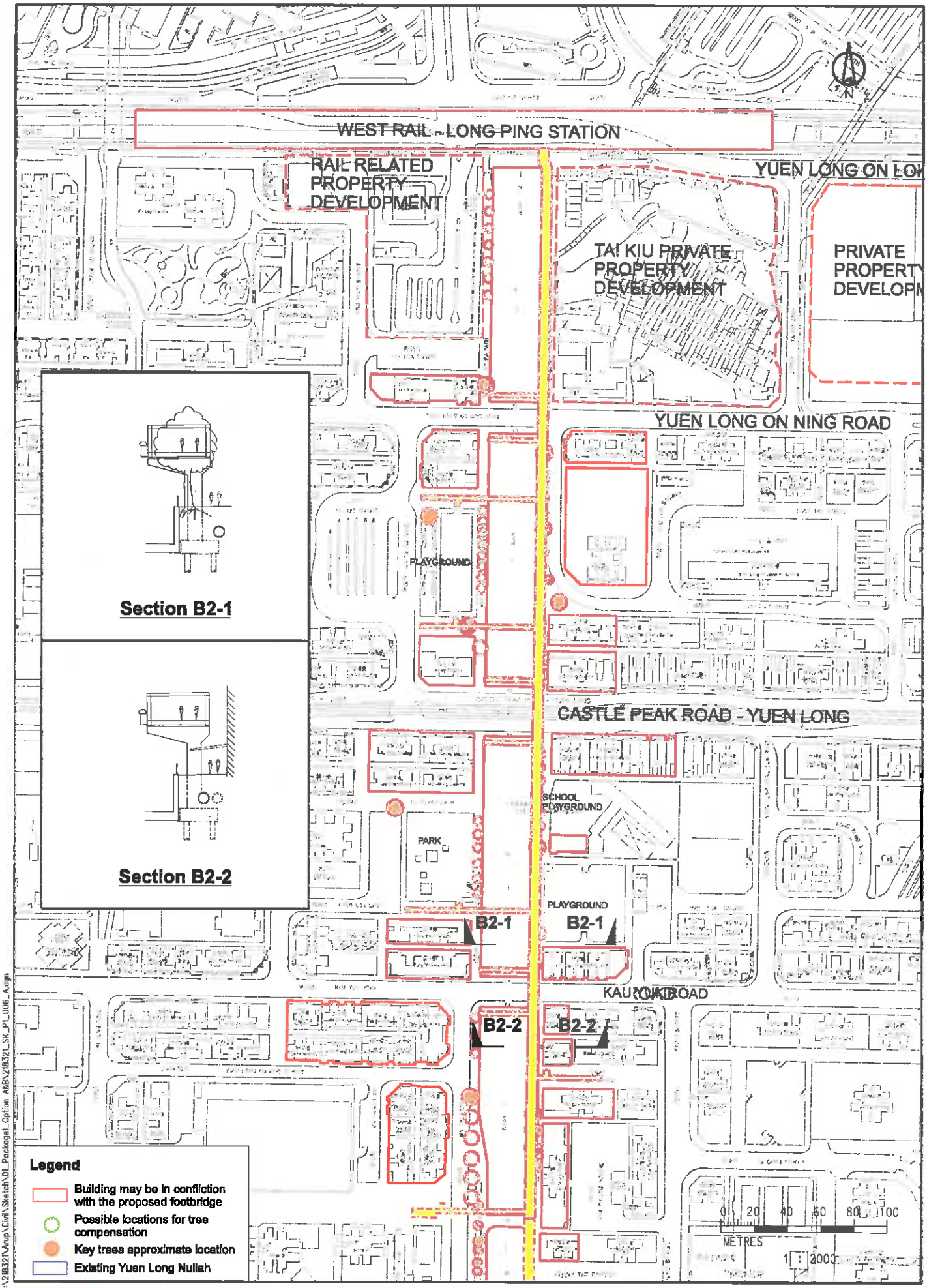
路政署 HIGHWAYS DEPARTMENT	ARUP 奧雅納工程顧問 Ove Arup & Partners Hong Kong Limited	Job Title Agreement No. HMW 3/2009(HY) Engineering Consultancy for Pedestrian Environment Improvement Scheme in Yuen Long Town	Title Package 1 Direct Pedestrian Corridor Along YL Nullah - Option B1 (On Western Side)	Drawing No. 218321/SK/P1/005 Scale 1:2000 ON A3 Rev. A



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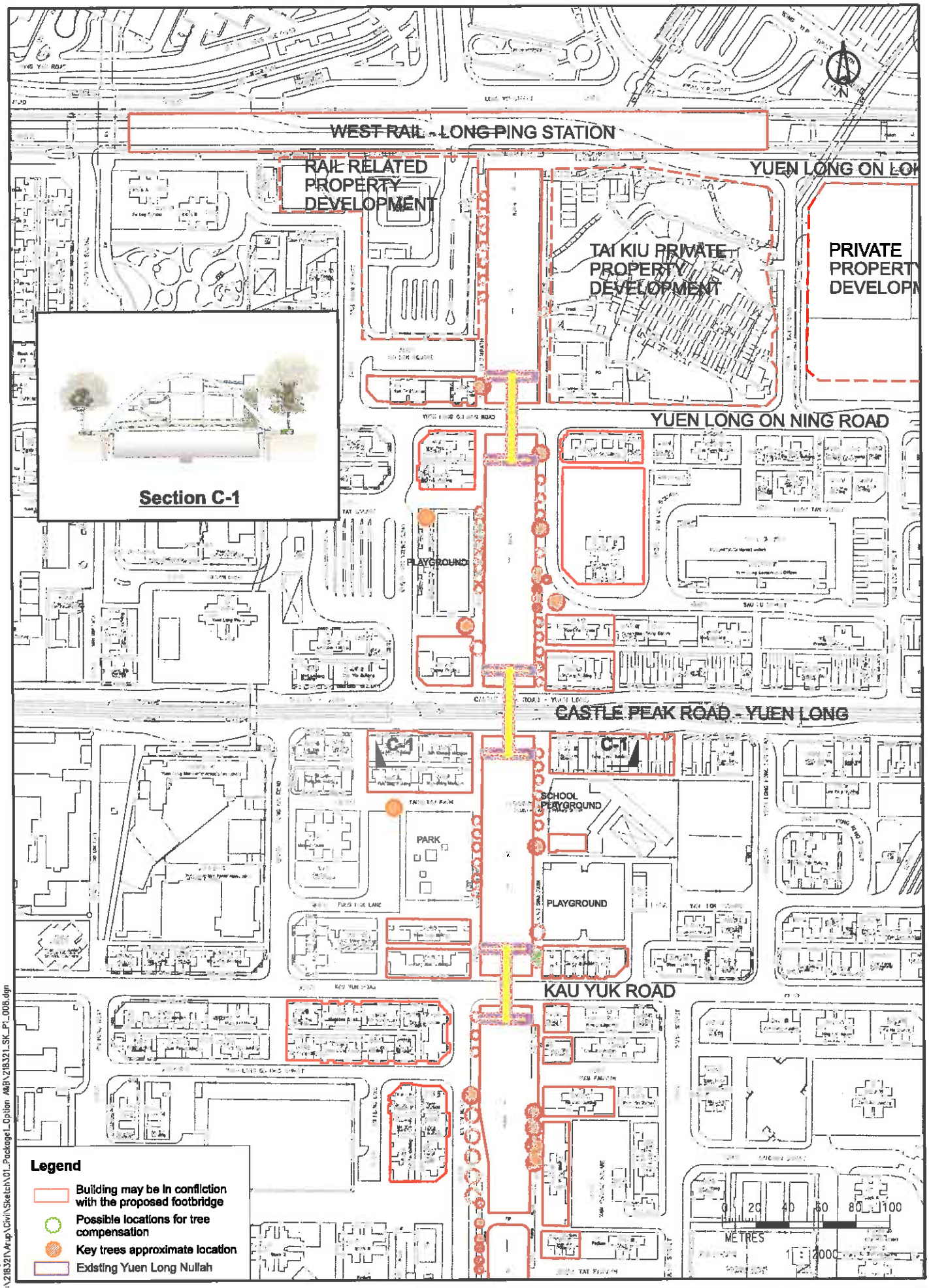
路政署 HIGHWAYS DEPARTMENT	ARUP 奧雅納工程顧問 Ove Arup & Partners Hong Kong Limited	Job Title Agreement No. HMW 3/2009(KY) Engineering Consultancy for Pedestrian Environment Improvement Scheme in Yuen Long Town	Title Package 1 Direct Pedestrian Corridor Along YL Nullah - Option B2 (On Eastern Side)	Drawing No. 218321/SK/P1/006 Scale 1:2000 ON A3 Rev. A



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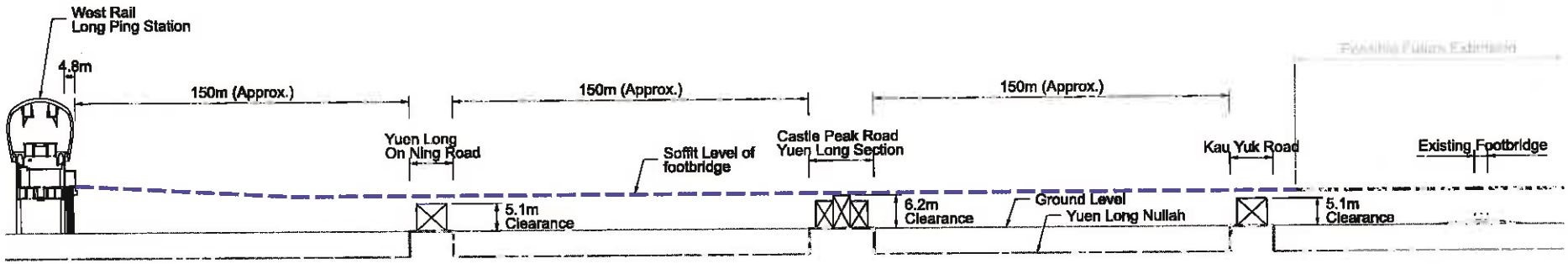
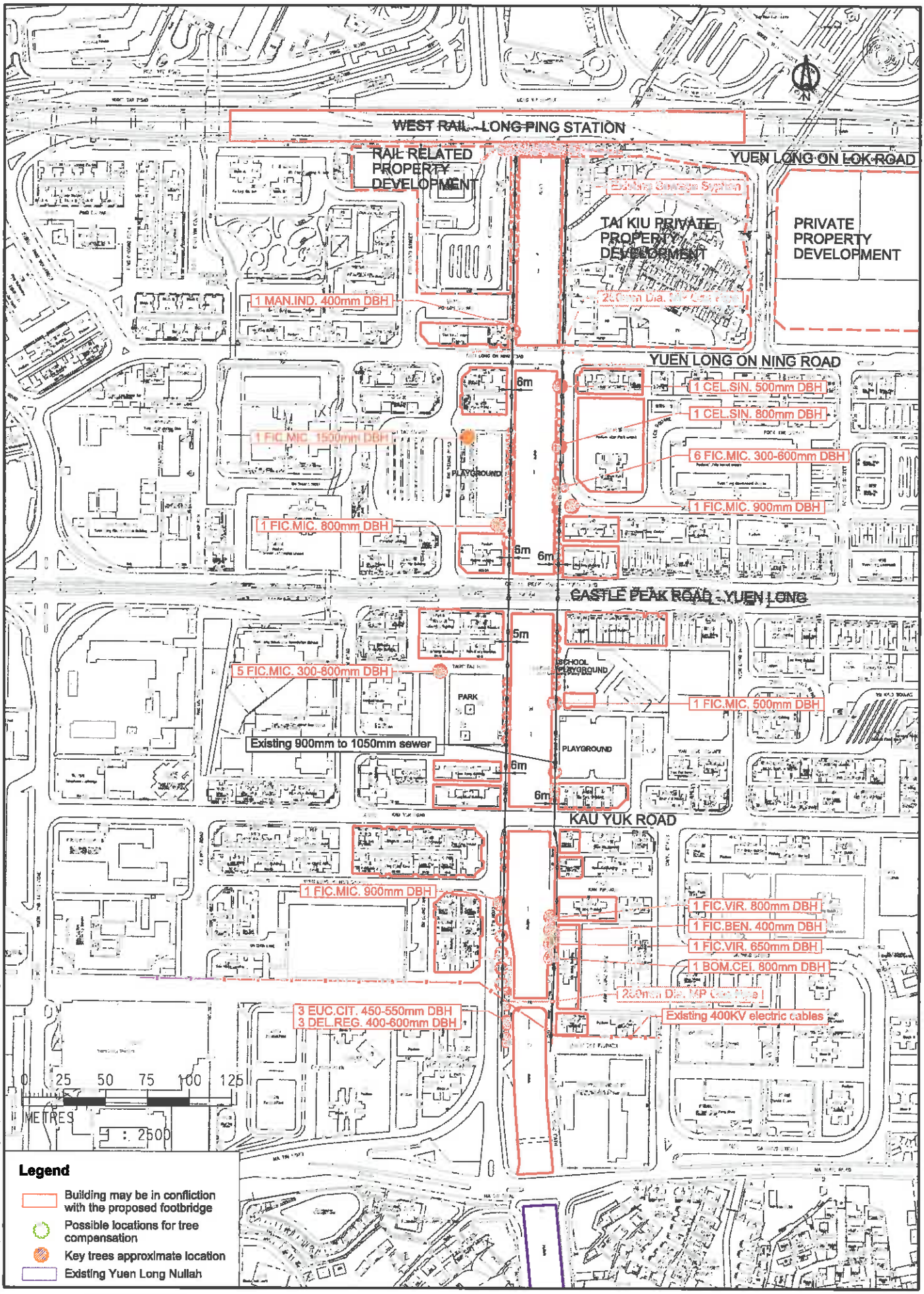
路政署 HIGHWAYS DEPARTMENT	ARUP 奧雅納工程顧問 Ove Arup & Partners Hong Kong Limited	Job Title Agreement No. HMW 3/2009(HY) Engineering Consultancy for Pedestrian Environment Improvement Scheme in Yuen Long Town	Title Package 1 Pedestrian Footbridge Along YL Nullah - Option C (Footbridge cross YLONR, CPRYL and KYR)	Drawing No. 218321/SK/P1/008 Scale 1:2000 ON A3 Rev.



Vertical Alignment for Options 1 & 2

Printer by : kam-lung.ile 15/08/2013
Filename : J:\218321\Arup\Civil\Sketch\01_Package1_Option A&B\218321_SK_P1_009_C.dgn

路政署 HIGHWAYS DEPARTMENT	ARUP 奧雅納工程顧問 Ove Arup & Partners Hong Kong Limited	Job Title Agreement No. CE 4/2011 (HY) Improvements to Pedestrian Environment in Yuen Long Town - Feasibility Study	Title Package 1 Pedestrian Bridge Connecting North and South Vertical Alignment for Options 1&2	Drawing No. 218321/SK/P1/009 Scale 1:2000 ON A3 Rev. C



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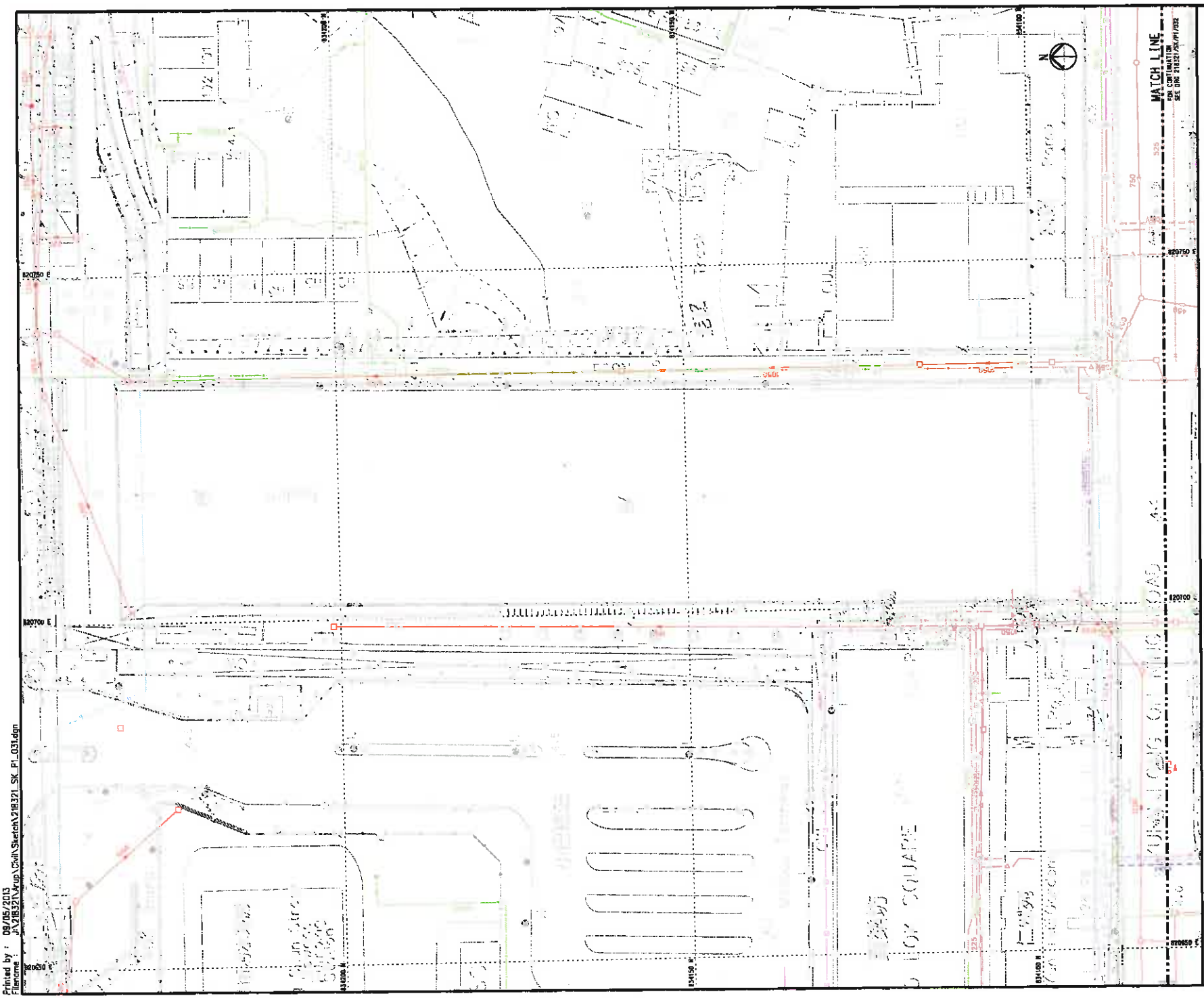
路政署 HIGHWAYS DEPARTMENT	ARUP 奧雅納工程顧問 Ove Arup & Partners Hong Kong Limited	Job Title: Agreement No. CE 4/2011 (HY) Improvements to Pedestrian Environment in Yuen Long Town - Feasibility Study	Title: Package 1 - Yuen Long Nullah Major Constraints	Drawing No. 218321/SK/P1/010 Scale 1:2500 ON A3 Rev. B



LEGEND:

- EXISTING DRAIN PIPE AND MANHOLE
- EXISTING SEWER PIPE AND MANHOLE
- EXISTING WATER MAIN
- EXISTING GAS MAIN
- EXISTING POWER CABLE
- EXISTING 400KV POWER CABLE
- EXISTING COMMUNICATION CABLE

Rev	Description	By	Date
C	THIRD ISSUE	TYW	05/13
B	SECOND ISSUE	TYW	04/13
A	FIRST ISSUE	TYW	11/12

Consultant

ARUP

Project Title

Agreement No. CE 4/2011 (HY)

Improvements to Pedestrian Environment in Yuen Long Town - Feasibility Study

Drawing Title

PACKAGE 1
COORDINATED UTILITY DRAWING
(SHEET 1 OF 5)

Drawing no. 218321/SK/P1/031 Rev. C

Drawn	Date	Checked	Approved
A.LIE	11/12	KYL	EC

Scale 1:500 ON A3 Status FEASIBILITY STUDY

路政署
HIGHWAYS DEPARTMENT
土木工程拓展署
MAJOR WORKS PROJECT MANAGEMENT OFFICE

Printed by : 08/05/2013
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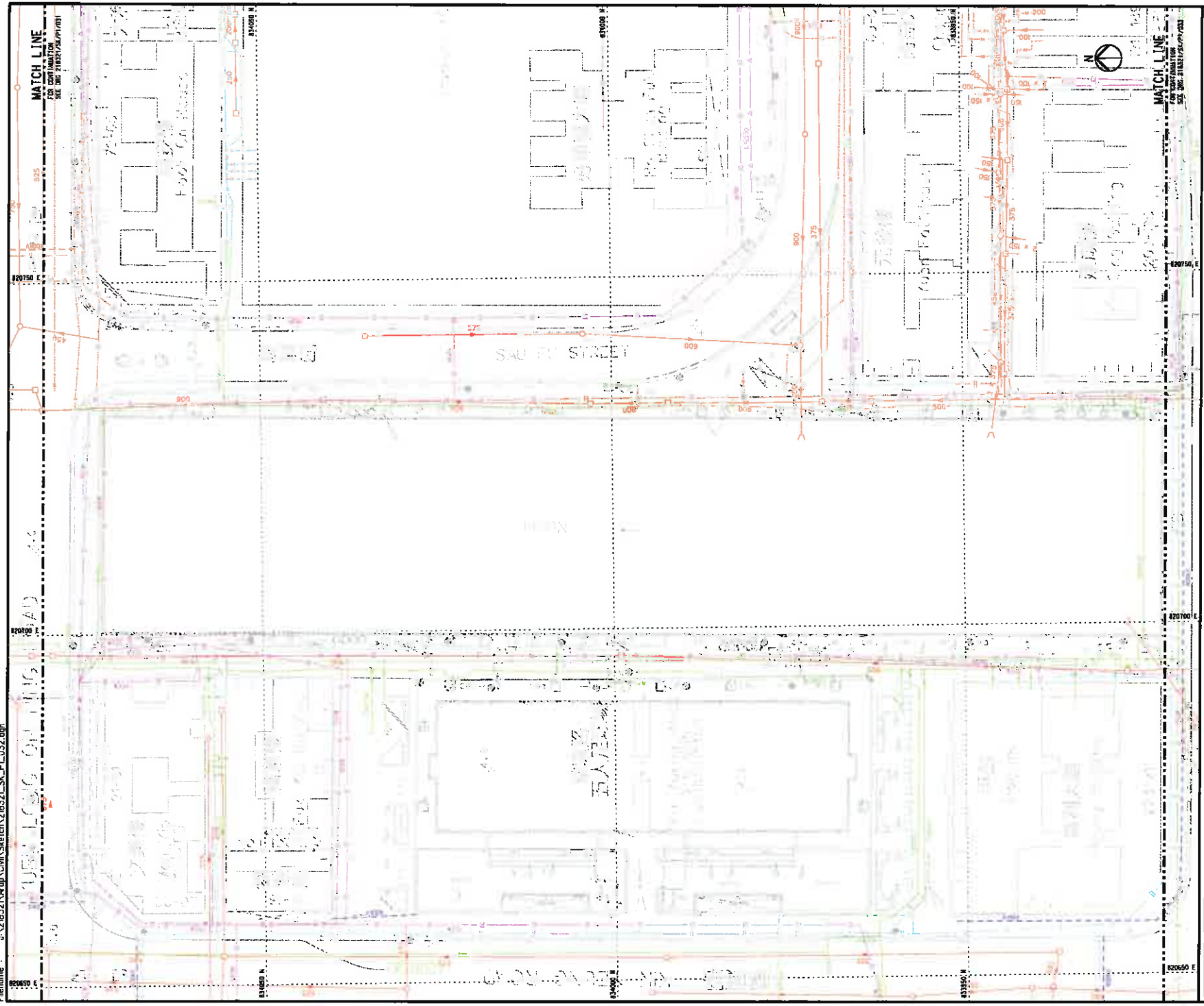


LEGEND:

- EXISTING WATER MAIN
- EXISTING DRAIN PIPE AND MANHOLE
- EXISTING SEWER PIPE AND MANHOLE
- EXISTING POWER CABLE
- EXISTING COMMUNICATION CABLE
- EXISTING GAS MAIN

Rev	Description	By	Date
C	THIRD ISSUE	TYW	05/13
B	SECOND ISSUE	TYW	04/13
A	FIRST ISSUE	TYW	11/12

Consultant

ARUP

Project title

Agreement No. CE 4/2011 (HY)

Improvements to Pedestrian Environment in Yuen Long Town - Feasibility Study

Drawing title

PACKAGE 1
COORDINATED UTILITY DRAWING
(SHEET 2 OF 5)

Drawing no. 218321/SK/P1/032 Rev. C

Drawn	Date	Checked	Approved
A.L.T.E	11/12	K.Y.L	EC

Scale 1:500 ON A3 Status FEASIBILITY STUDY

路政署
HIGHWAYS DEPARTMENT
主要工程管理處
MAJOR WORKS PROJECT MANAGEMENT OFFICE

Printed by : 21/06/2013
Filename : u:\218321\Arup\Civil\Sketch\218321_SK_P1_032.dgn

LEGEND:

- EXISTING DRAIN PIPE AND MANHOLE
- EXISTING SEWER PIPE AND MANHOLE
- EXISTING WATER MAIN
- EXISTING GAS MAIN
- EXISTING POWER CABLE
- EXISTING 400kV POWER CABLE
- EXISTING COMMUNICATION CABLE

Rev	Description	By	Date
C	THIRD ISSUE	TYW	05/13
B	SECOND ISSUE	TYW	04/13
A	FIRST ISSUE	TYW	11/12

Consultant

ARUP

Project title

Agreement No. CE 4/2011 (HY)

Improvements to Pedestrian Environment in Yuen Long Town - Feasibility Study

Drawing title

PACKAGE 1
COORDINATED UTILITY DRAWING
(SHEET 3 OF 5)

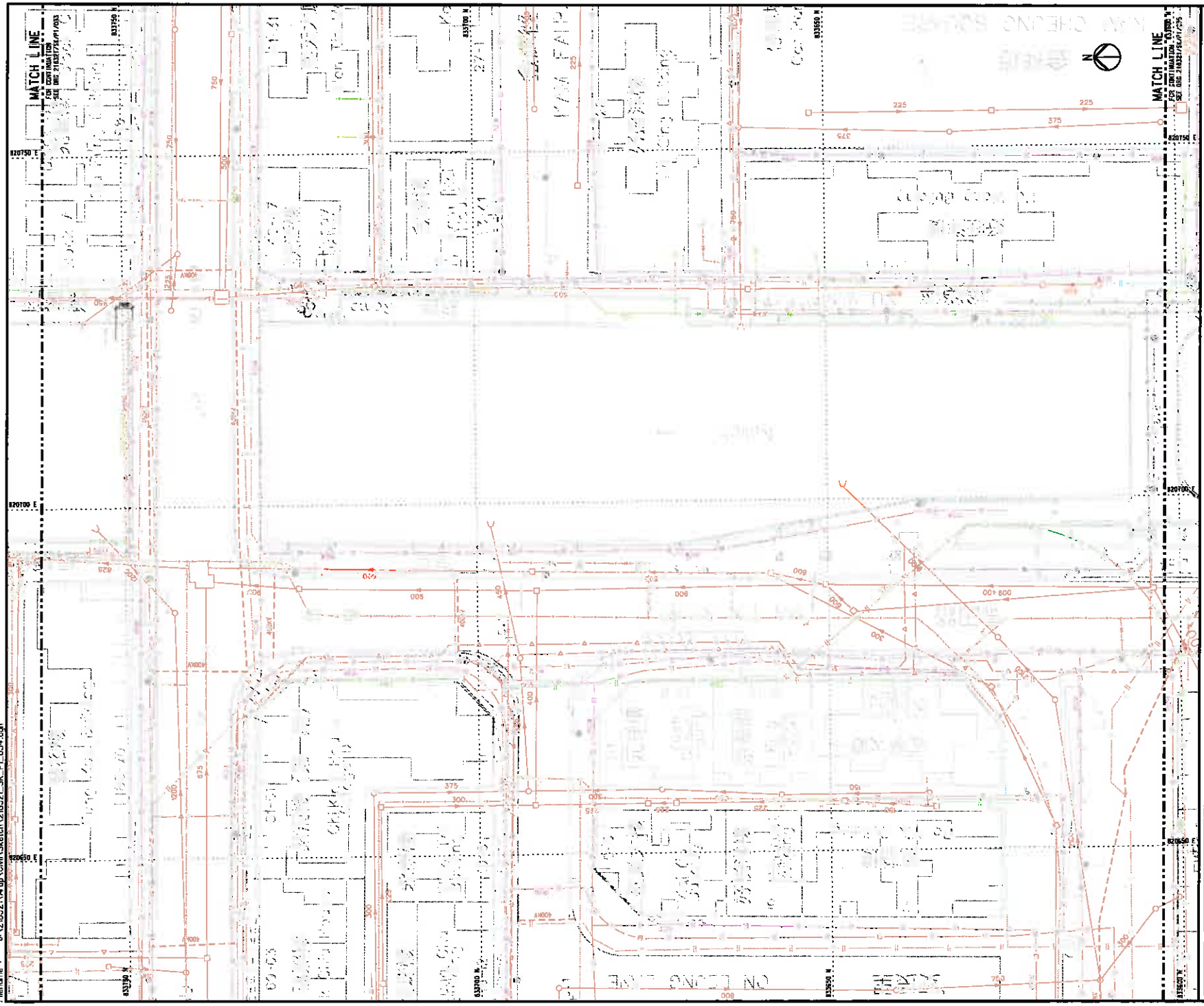
Drawing no. 218321/SK/P1/033 Rev. C

Drawn	Date	Checked	Approved
A.LIE	11/12	KYL	EC

Scale 1:500 ON A3 Status FEASIBILITY STUDY

政府
HIGHWAYS DEPARTMENT
主要工程管理處
MAJOR WORKS PROJECT MANAGEMENT OFFICE

Printed by : 09/05/2013
Filename : J:\218321\Arup\Civil\Sketch\218321_SK_P1_033.dgn



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- EXISTING WATER MAIN
- EXISTING GAS MAIN
- EXISTING POWER CABLE
- EXISTING 400kV POWER CABLE
- EXISTING COMMUNICATION CABLE

Rev	Description	By	Date
B	SECOND ISSUE	TYW	05/13
A	FIRST ISSUE	TYW	04/13

Consultant

ARUP

Project Title

Agreement No. CE 4/2011 (HY)

Improvements to Pedestrian Environment in Yuen Long Town - Feasibility Study

Drawing Title

PACKAGE 1
COORDINATED UTILITY DRAWING
(SHEET 4 OF 5)

Drawing no.	Rev.
218321/SK/P1/034	B

Drawn	Date	Checked	Approved
A.LIE	04/13	STL	EC

Scale	Status
1:500 ON A3	FEASIBILITY STUDY

路政署
HIGHWAYS DEPARTMENT
主要工程管理處
MAJOR WORKS PROJECT MANAGEMENT OFFICE

Printed by : 09/05/2013
Filename : J:\218321\Arup\Civil\Sketch\218321_SK_P1_034.dgn

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- EXISTING DRAIN PIPE AND MANHOLE
- EXISTING SEWER PIPE AND MANHOLE
- EXISTING WATER MAIN
- EXISTING GAS MAIN
- EXISTING POWER CABLE
- 400kV EXISTING 400kV POWER CABLE
- EXISTING COMMUNICATION CABLE

Rev	Description	By	Date
A	FIRST ISSUE	TYW	05/13

Consultant

ARUP

Project title

Agreement No. CE 4/2011 (HY)

Improvements to Pedestrian Environment in Yuen Long Town - Feasibility Study

Drawing title

PACKAGE 1
COORDINATED UTILITY DRAWING
(SHEET 5 OF 5)

Drawing no. 218321/SK/P1/035 Rev. A

Drawn	Date	Checked	Approved
A.LIE	04/13	EYL	EC

Scale 1:500 ON A3 Status FEASIBILITY STUDY

路政署
HIGHWAYS DEPARTMENT
主要工程管理處
MAJOR WORKS PROJECT MANAGEMENT OFFICE

Printed by : 09/05/2013
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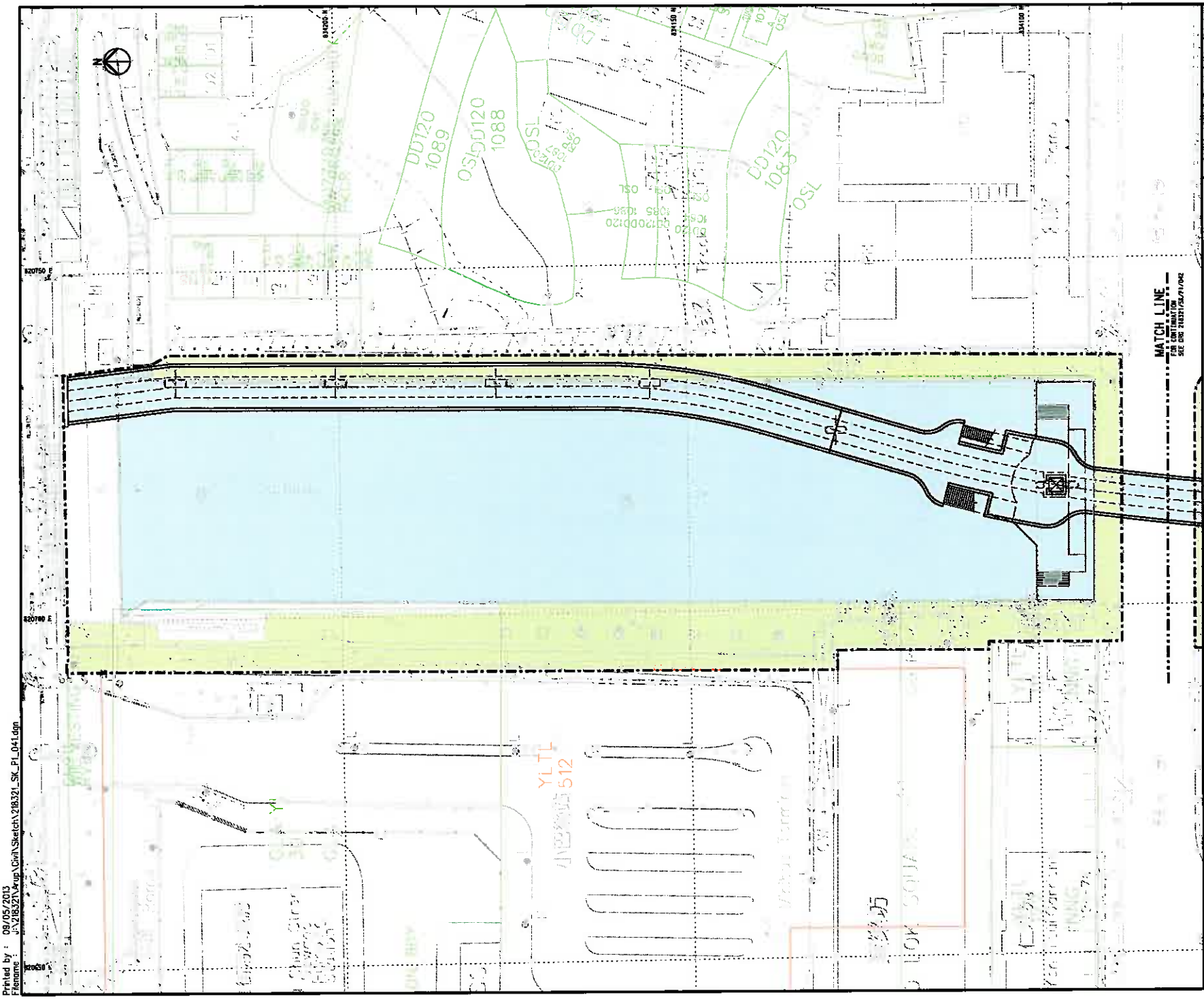
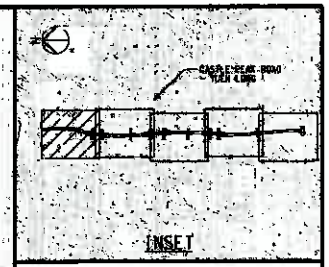




NOTE

THE AREA UNDERNEATH THE PROPOSED FOOTBRIDGE WHICH COINCIDE WITH THE FOOTPATH SHOULD BE CONSIDERED AS THE WORK SITE FOR STREETSCAPE ENHANCEMENT

LEGEND

- WORKS LIMIT
- WORKS SITE FOR FOOTBRIDGE CONSTRUCTION
- WORKS SITE FOR STREETSCAPE ENHANCEMENT

Rev	Description	By	Date
D	WORKS LIMIT UPDATED	TYW	05/13
C	THIRD ISSUE	TYW	04/13
B	SECOND ISSUE	TYW	01/13
A	FIRST ISSUE	TYW	09/12

Consultant

ARUP

Project title

Agreement No. CE 4/2011 (HY)

Improvements to Pedestrian Environment in Yuen Long Town - Feasibility Study

Drawing title

PACKAGE 1 -
NORTH - SOUTH CONNECTION
IN YUEN LONG TOWN
LAND REQUIREMENT PLAN
(SHEET 1 OF 5)

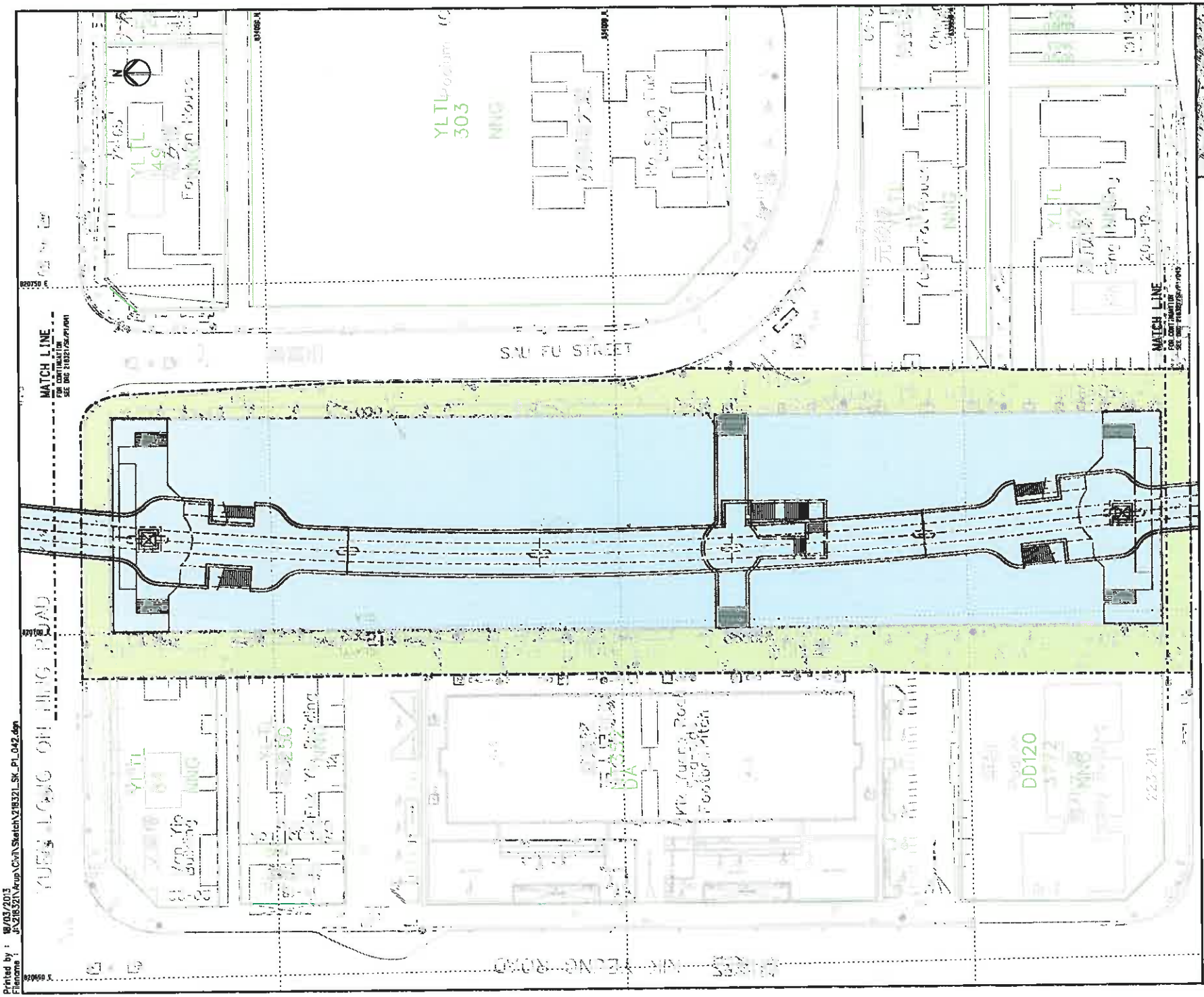
Drawing no. 218321/SK/P1/041 Rev. D

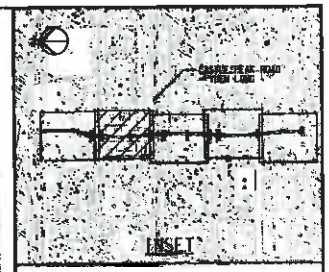
Drawn	Date	Checked	Approved
MAN	09/12	KYL	EC

Scale 1:500 ON A3 Status FEASIBILITY STUDY

路政署
HIGHWAYS DEPARTMENT
土木工程拓展署
MAJOR WORKS PROJECT MANAGEMENT OFFICE

Printed by : 09/05/2013
Filename : J:\218321\Arup\Civil\Sketch\218321_SK_P1_041.dgn





NOTE

THE AREA UNDERNEATH THE PROPOSED FOOTBRIDGE WHICH COINCIDE WITH THE FOOTPATH SHOULD BE CONSIDERED AS THE WORK SITE FOR STREETSCAPE ENHANCEMENT

LEGEND

- WORKS LIMIT
- WORKS SITE FOR FOOTBRIDGE CONSTRUCTION
- WORKS SITE FOR STREETSCAPE ENHANCEMENT

Rev	Description	By	Date
C	THIRD ISSUE	TYW	03/13
B	SECOND ISSUE	TYW	01/13
A	FIRST ISSUE	TYW	08/12

Consultant

ARUP

Project title

Agreement No. CE 4/2011 (HY)

Improvements to Pedestrian Environment in Yuen Long Town - Feasibility Study

Drawing title

PACKAGE 1 -
NORTH - SOUTH CONNECTION
IN YUEN LONG TOWN
LAND REQUIREMENT PLAN
(SHEET 2 OF 5)

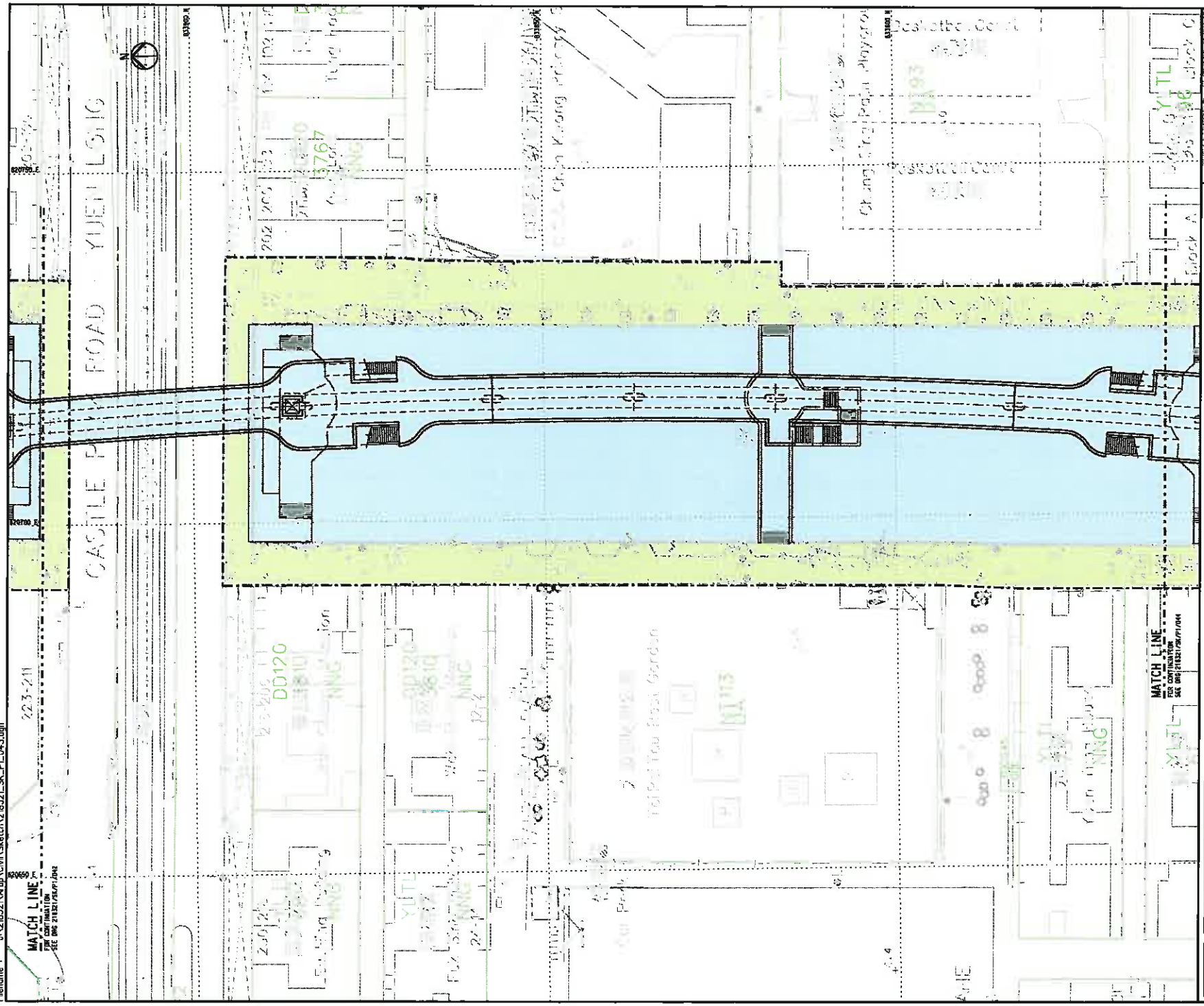
Drawing no. 218321/SK/P1/042 Rev. C

Drawn	Date	Checked	Approved
MNK	09/12	KYL	EC

Scale 1:500 ON A3 Status FEASIBILITY STUDY

政府總部
HIGHWAYS DEPARTMENT
土木工程拓展署
MAJOR WORKS PROJECT MANAGEMENT OFFICE

Printed by : 18/03/2013
Filename : J:\218321\Arup\Civil\Sketch\218321_SK_P1_042.dgn



NOTE

THE AREA UNDERNEATH THE PROPOSED FOOTBRIDGE WHICH COINCIDE WITH THE FOOTPATH SHOULD BE CONSIDERED AS THE WORK SITE FOR STREETSCAPE ENHANCEMENT

LEGEND

- WORKS LIMIT
- WORKS SITE FOR FOOTBRIDGE CONSTRUCTION
- WORKS SITE FOR STREETSCAPE ENHANCEMENT

Rev	Description	By	Date
C	THIRD ISSUE	TYW	03/13
B	SECOND ISSUE	TYW	01/13
A	FIRST ISSUE	TYW	09/12

Consultant

ARUP

Project title

Agreement No. CE 4/2011 (HY)

Improvements to Pedestrian Environment in Yuen Long Town - Feasibility Study

Drawing title

PACKAGE 1 -
NORTH - SOUTH CONNECTION
IN YUEN LONG TOWN
LAND REQUIREMENT PLAN
(SHEET 3 OF 5)

Drawing no. 218321/SK/P1/043 Rev. C

Drawn	Date	Checked	Approved
MAN	09/12	LYL	EC

Scale 1:500 ON A3 Status FEASIBILITY STUDY

路政署 HIGHWAYS DEPARTMENT
主要工程管理辦 MAJOR WORKS PROJECT MANAGEMENT OFFICE

Printed by : 18/03/2013
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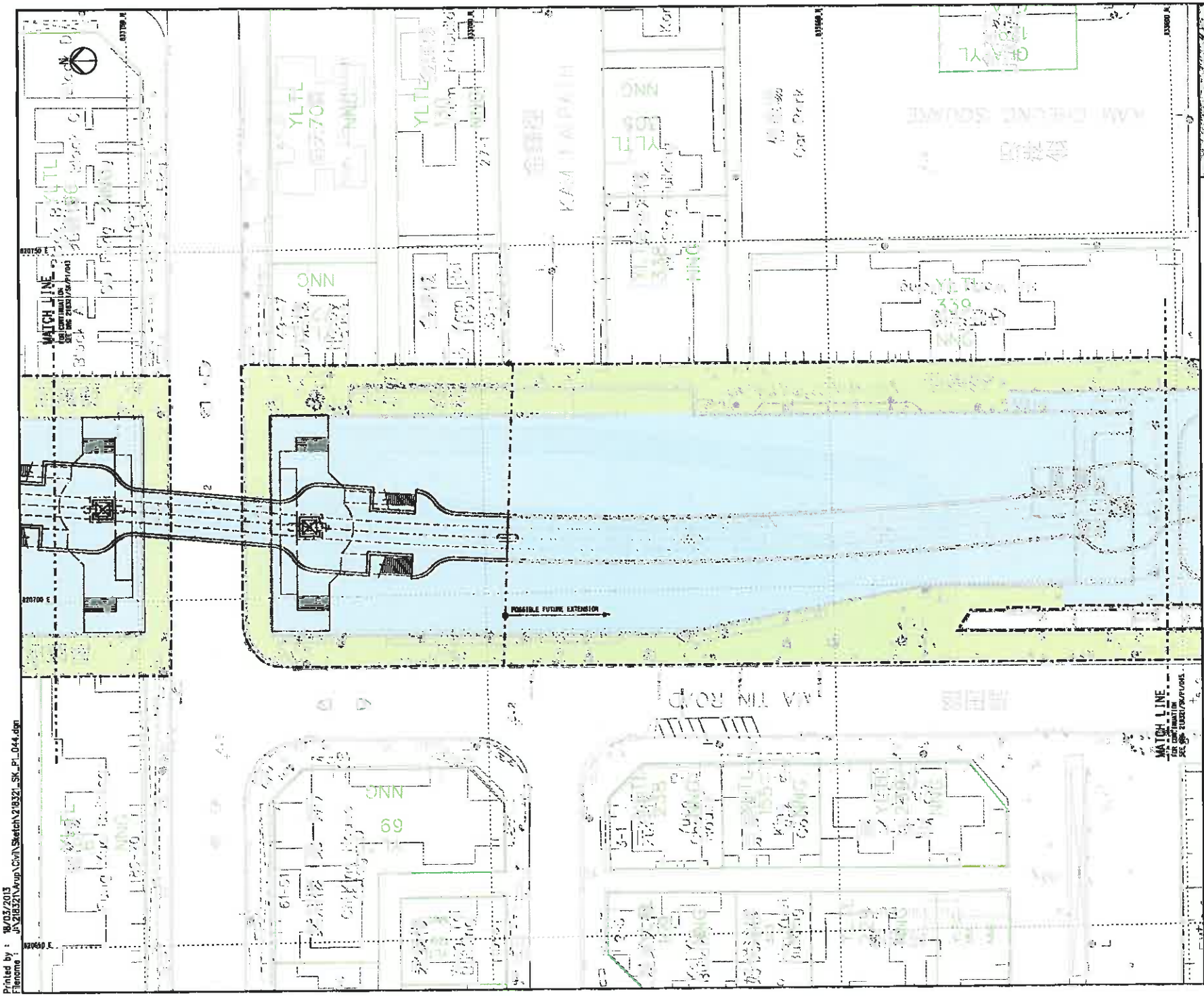
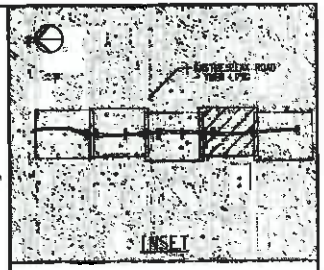




NOTE

THE AREA UNDERNEATH THE PROPOSED FOOTBRIDGE WHICH CONINCIDE WITH THE FOOTPATH SHOULD BE CONSIDERED AS THE WORK SITE FOR STREETSCAPE ENHANCEMENT

LEGEND

- WORKS LIMIT
- WORKS SITE FOR FOOTBRIDGE CONSTRUCTION
- WORKS SITE FOR STREETSCAPE ENHANCEMENT

Rev	Description	By	Date
C	THIRD ISSUE	TYN	03/13
B	SECOND ISSUE	TYN	01/13
A	FIRST ISSUE	TYN	09/12

Consultant

ARUP

Project title

Agreement No. CE 4/2011 (HY)

Improvements to Pedestrian Environment in Yuen Long Town - Feasibility Study

Drawing title

PACKAGE 1 -
NORTH - SOUTH CONNECTION
IN YUEN LONG TOWN
LAND REQUIREMENT PLAN
(SHEET 4 OF 5)

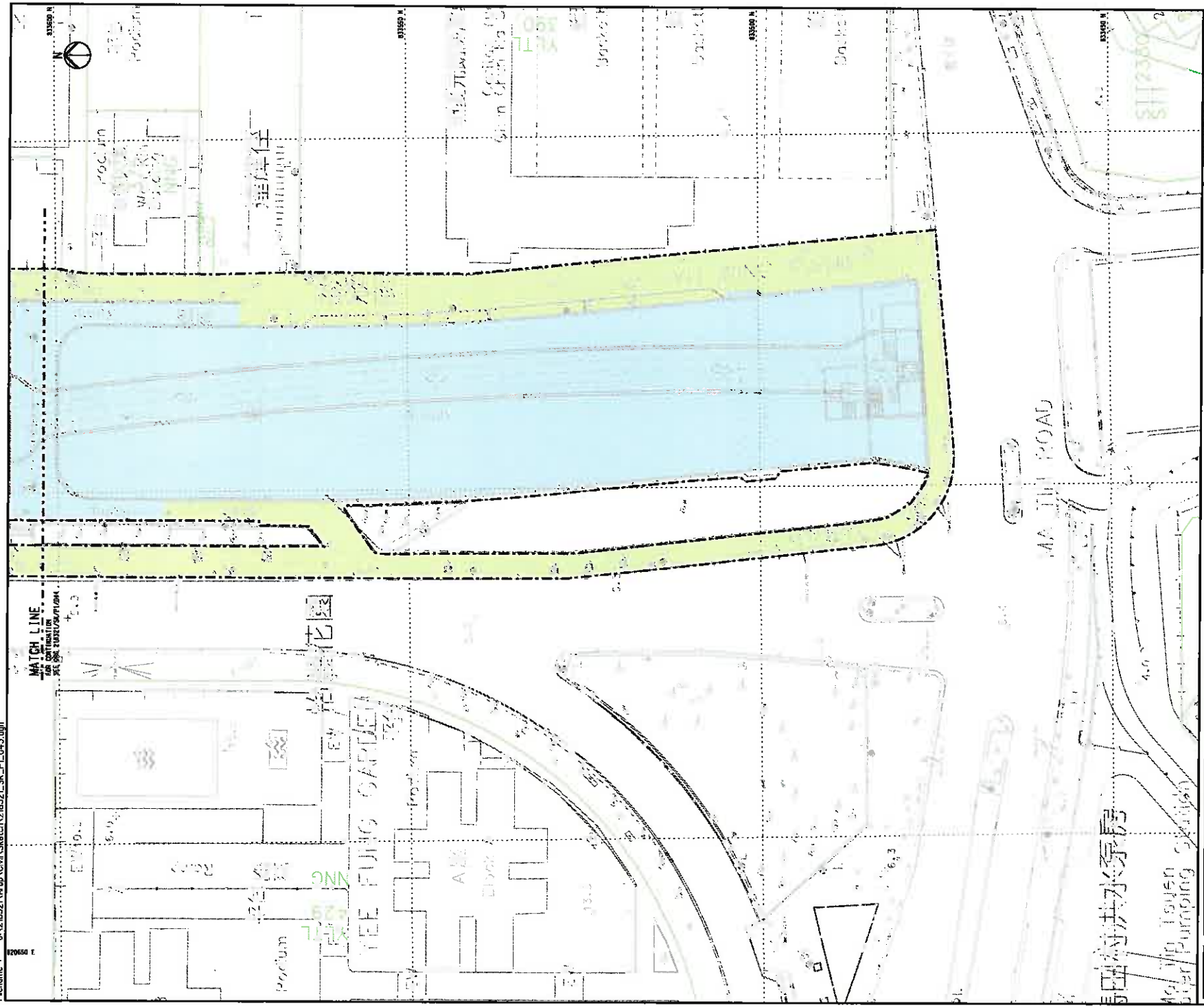
Drawing no. 218321/SK/P1/044 Rev. C

Drawn MMI | Date 09/12 | Checked KYL | Approved EC

Scale 1:500 ON A3 | Status FEASIBILITY STUDY

路政署 HIGHWAYS DEPARTMENT
土木工程拓展署 MAJOR WORKS PROJECT MANAGEMENT OFFICE

Printed by : 18/03/2013
Filename : J:\218321\Arup\Civil\Sketch\218321_SK_P1_044.dgn



NOTE

THE AREA UNDERNEATH THE PROPOSED FOOTBRIDGE WHICH COINCIDE WITH THE FOOTPATH SHOULD BE CONSIDERED AS THE WORK SITE FOR STREETSCAPE ENHANCEMENT

LEGEND

- WORKS LIMIT
- WORKS SITE FOR FOOTBRIDGE CONSTRUCTION
- WORKS SITE FOR STREETSCAPE ENHANCEMENT

Rev	Description	By	Date
B	SECOND ISSUE	TYW	03/13
A	FIRST ISSUE	TYW	01/13

Consultant

ARUP

Project title

Agreement No. CE 4/2011 (HY)

Improvements to Pedestrian Environment in Yuen Long Town - Feasibility Study

Drawing title

PACKAGE 1 -
NORTH - SOUTH CONNECTION
IN YUEN LONG TOWN
LAND REQUIREMENT PLAN
(SHEET 5 OF 5)

Drawing no.	Rev.
218321/SK/P1/045	B

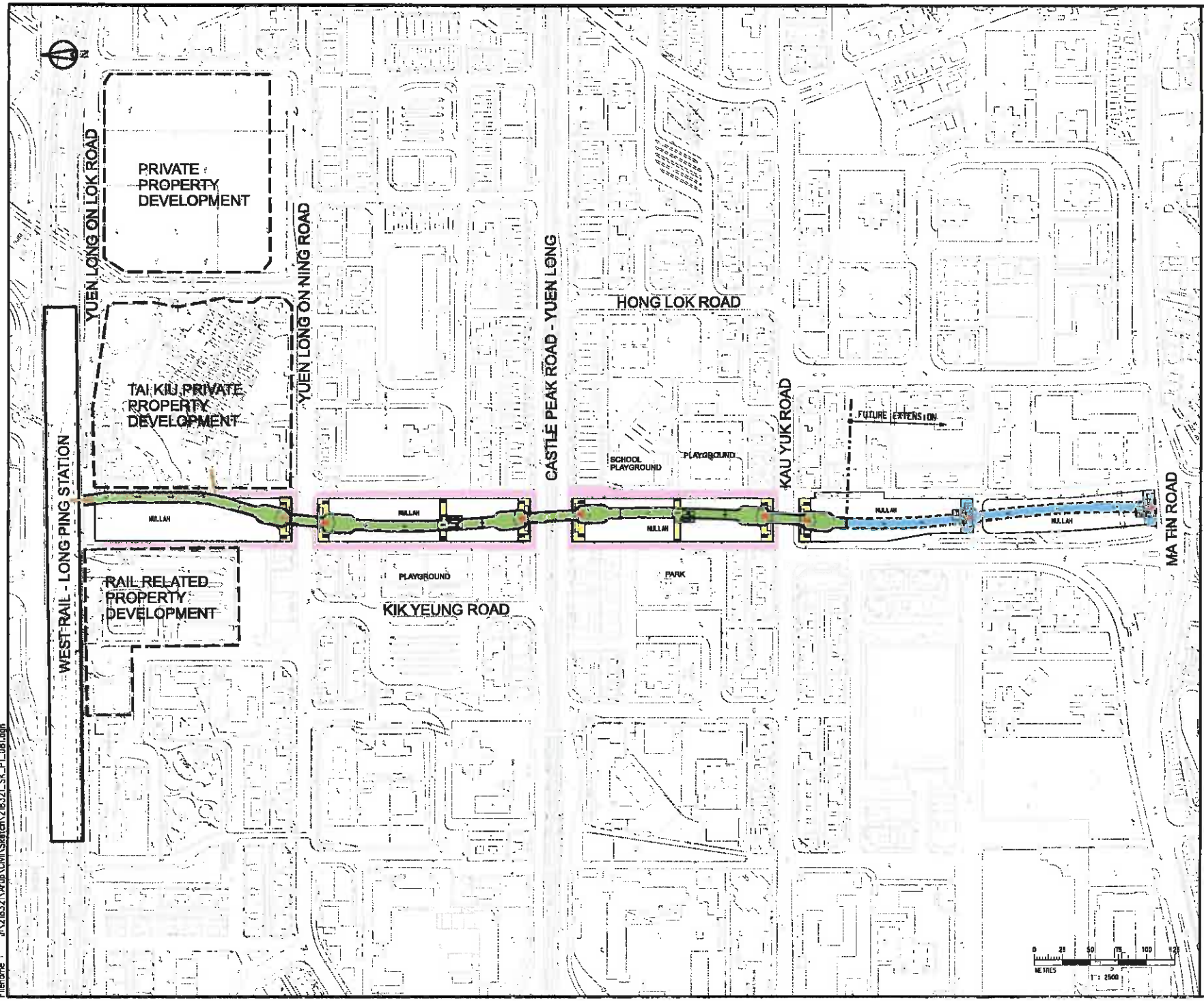
Drawn	Date	Checked	Approved
MAV	09/12	KYL	EC

Scale: 1:500 ON A3

Status: FEASIBILITY STUDY

路政署
HIGHWAYS DEPARTMENT
主要工程管理處
MAJOR WORKS PROJECT MANAGEMENT OFFICE

Printed by : 18/03/2013
Filename : J:\218321\Arup\Civil\Sketch\218321_SK_P1_045.dgn



LEGEND:

- FOOTBRIDGE SECTION
- FUTURE EXTENSION
- LANDING AREA
- RECOMMENDED STREETSCAPE ENHANCEMENT UNDER THIS STUDY
- CONNECTION WITH WESTRAIL / ADJACENT DEVELOPMENT

Rev	Description	By	Date
-	FIRST ISSUE	TYW	05/13

Consultant

ARUP

Project title

Agreement No. CE 4/2011 (HY)

Improvements to Pedestrian Environment in Yuen Long Town - Feasibility Study

Drawing title

PACKAGE 1 DIRECT PEDESTRIAN CORRIDOR ALONG YUEN LONG NULLAH OVERALL GENERAL LAYOUT

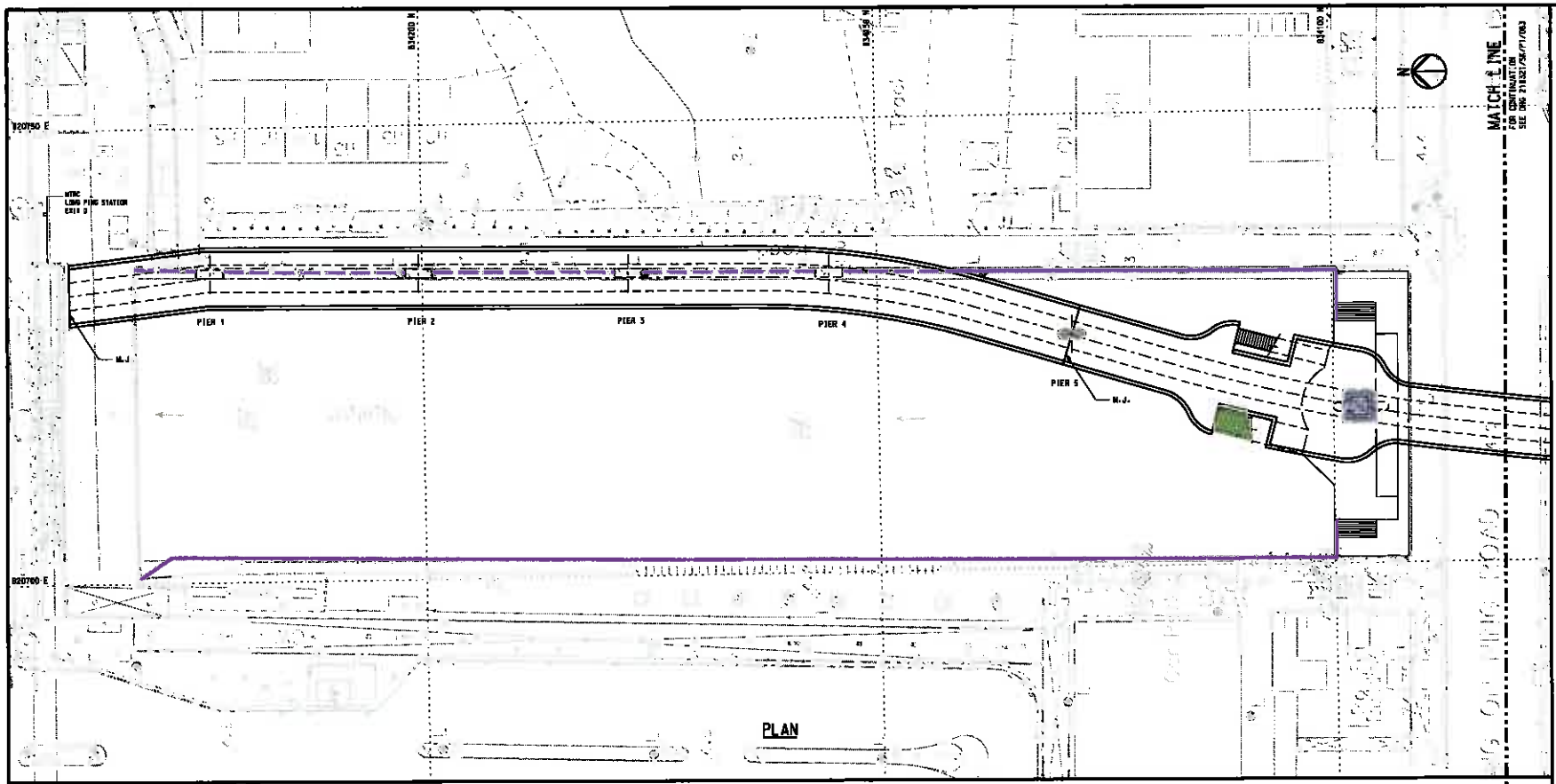
Drawing no. 218321/SK/P1/081 Rev. -

Drawn	Date	Checked	Approved
A.LIE	05/13	KYL	EC

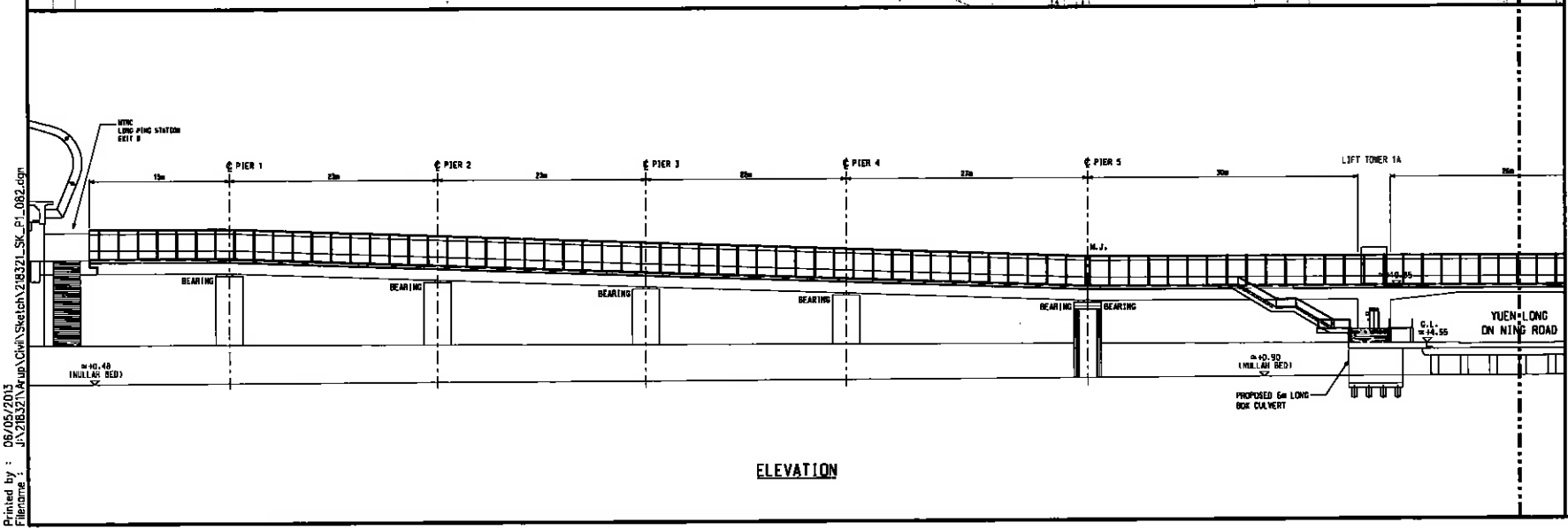
Scale 1:2500 ON A3 Status FEASIBILITY STUDY

路政署 HIGHWAYS DEPARTMENT
主要工程管理處 MAJOR WORKS PROJECT MANAGEMENT OFFICE

Printed by : 06/05/2013
Filename : J:\218321\Arup\Civil\Sketch\218321_SK_P1_081.dgn



PLAN



ELEVATION

LEGEND:

- STREAMLINED COLUMN (3m x1m)
- STREAMLINED CENTRAL WALL (6m x 1m)
- RECTANGULAR COLUMN (3m x 1m)
- M.J. MOVEMENT JOINT
- LIFT TOWER
- ESCALATOR
- STAIRCASE
- PARAPET WALL

Rev	Description	By	Date
-	FIRST ISSUE	TYW	05/13

Consultant: ARUP

Project title: Agreement No. CE 4/2011 (HY) Improvements to Pedestrian Environment in Yuen Long Town - Feasibility Study

Drawing title: PACKAGE 1 DIRECT PEDESTRIAN CORRIDOR ALONG YUEN LONG NULLAH GENERAL ARRANGEMENT (SHEET 1 OF 5)

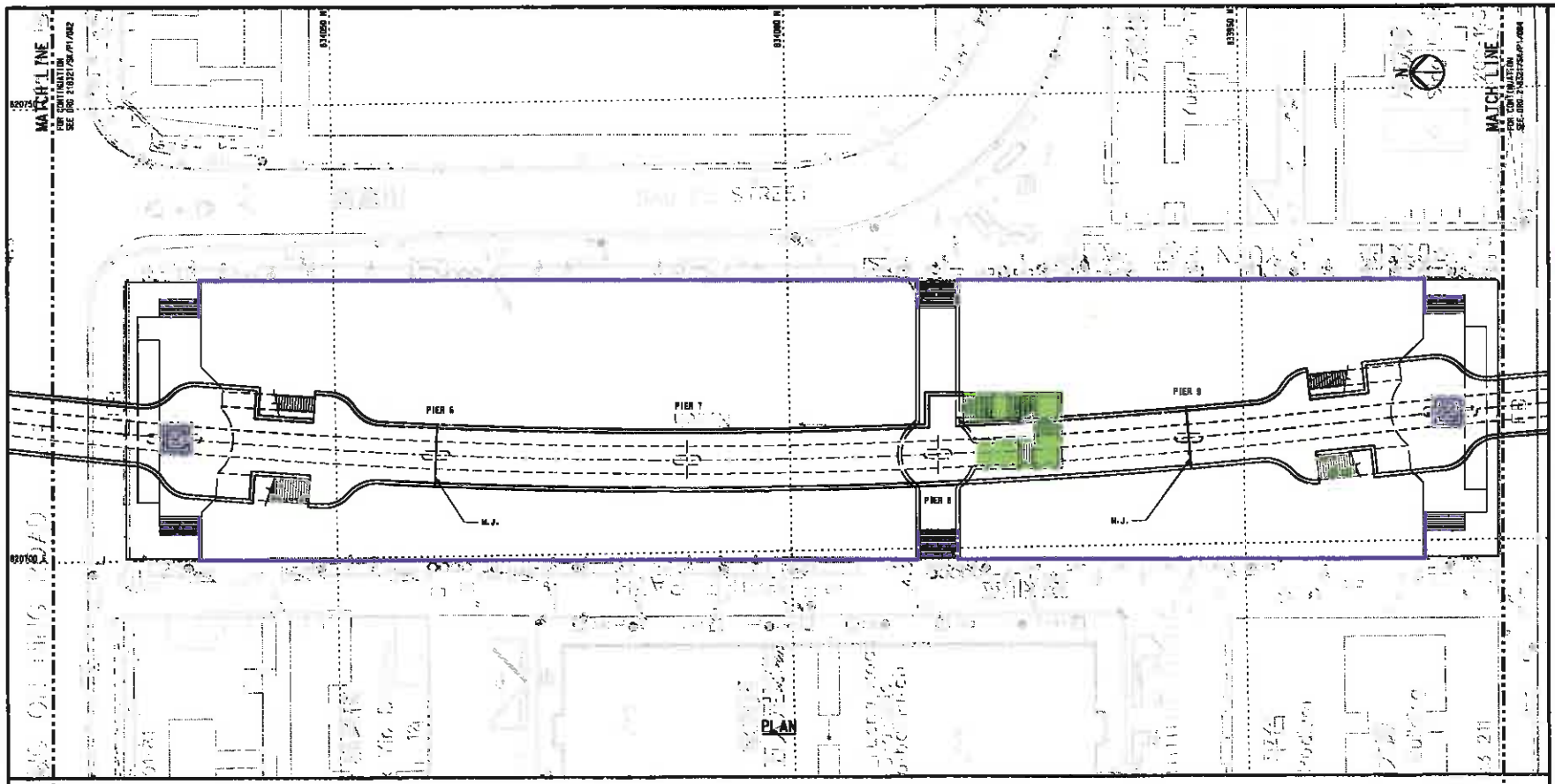
Drawing no. 218321/SK/P1/082 Rev. -

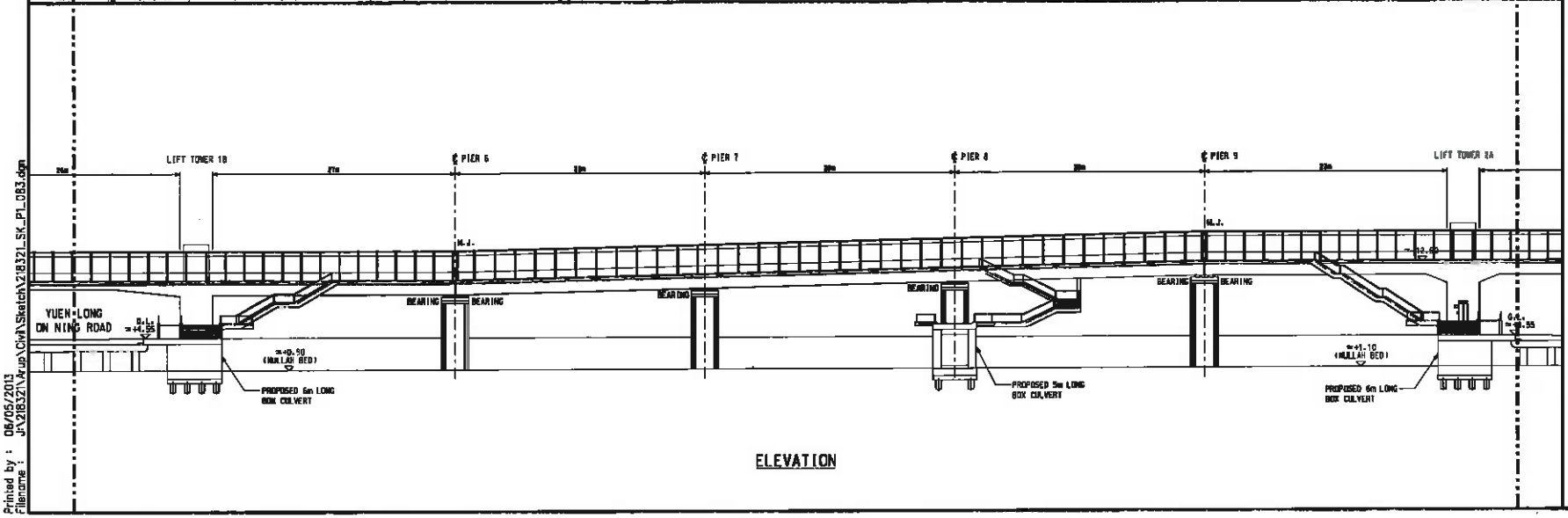
Drawn	Date	Checked	Approved
A.LIE	05/13	KYL	EC

Scale: 1:2500 ON A3 Status: FEASIBILITY STUDY

路政署 HIGHWAYS DEPARTMENT
主要工程管理處 MAJOR WORKS PROJECT MANAGEMENT OFFICE

Printed by : 06/05/2013
Filename : J:\218321\Arup\Civil\Sketch\218321_SK_P1_082.dgn





LEGEND:

- STREAMLINED COLUMN (3m x1m)
- STREAMLINED CENTRAL WALL (5m x 1m)
- RECTANGULAR COLUMN (3m x 1m)
- M.J. MOVEMENT JOINT
- LIFT TOWER
- ESCALATOR
- STAIRCASE
- PARAPET WALL

Rev	Description	By	Date
-	FIRST ISSUE	TYW	05/13

Consultant: ARUP

Project title: Agreement No. CE 4/2011 (HY) Improvements to Pedestrian Environment in Yuen Long Town - Feasibility Study

Drawing title: PACKAGE 1 DIRECT PEDESTRIAN CORRIDOR ALONG YUEN LONG NULLAH GENERAL ARRANGEMENT (SHEET 2 OF 5)

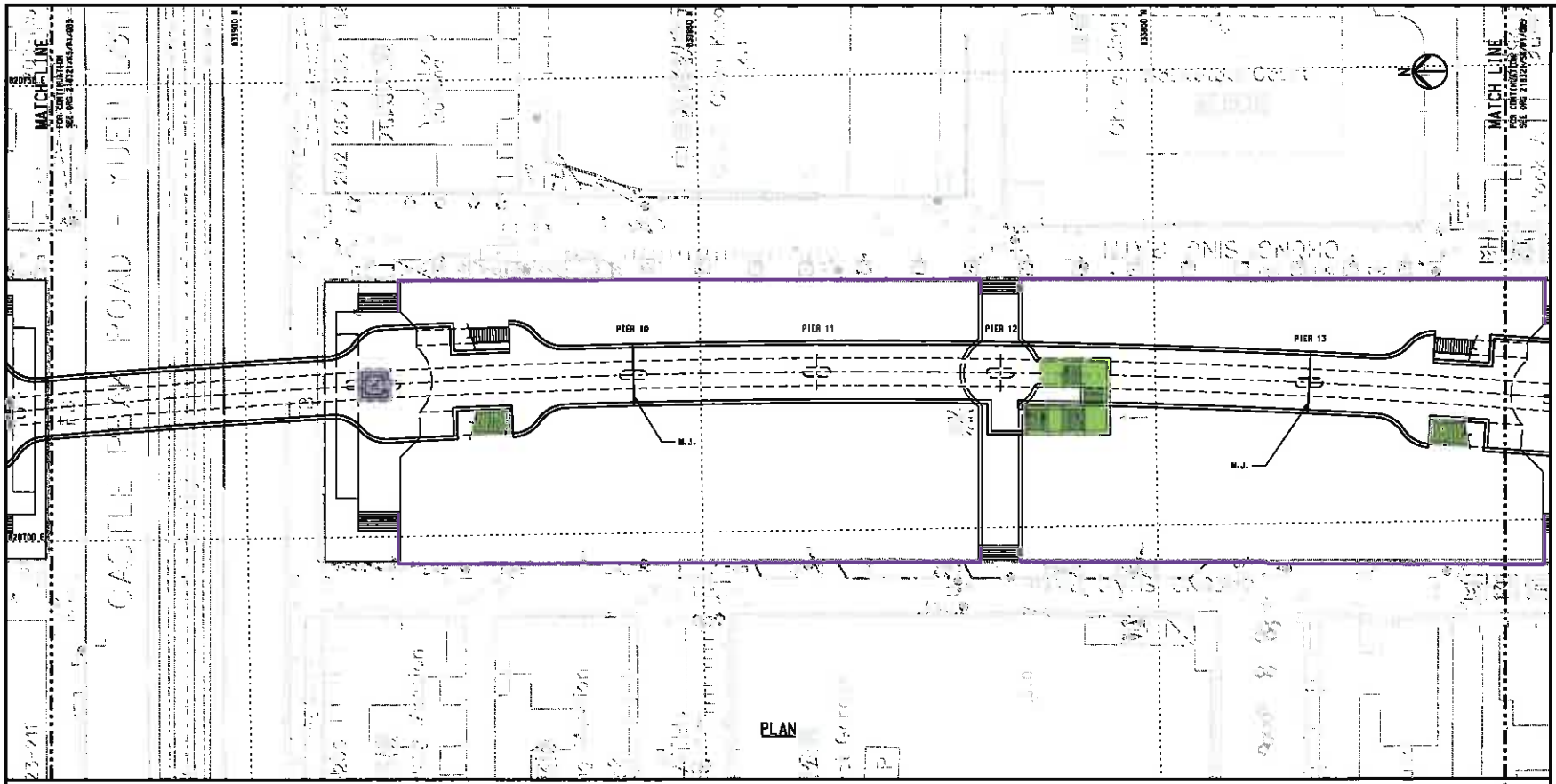
Drawing no. 218321/SK/P1/083 Rev. -

Drawn: A.LIE | Date: 05/13 | Checked: KYL | Approved: EC

Scale: 1:2500 ON A3 | Status: FEASIBILITY STUDY

政署 HIGHWAYS DEPARTMENT
土木工程拓展署 MAJOR WORKS PROJECT MANAGEMENT OFFICE

Printed by : 06/05/2013
Filename : J:\218321\Arup\Civil\Sketch\218321_SK_P1_083.dgn



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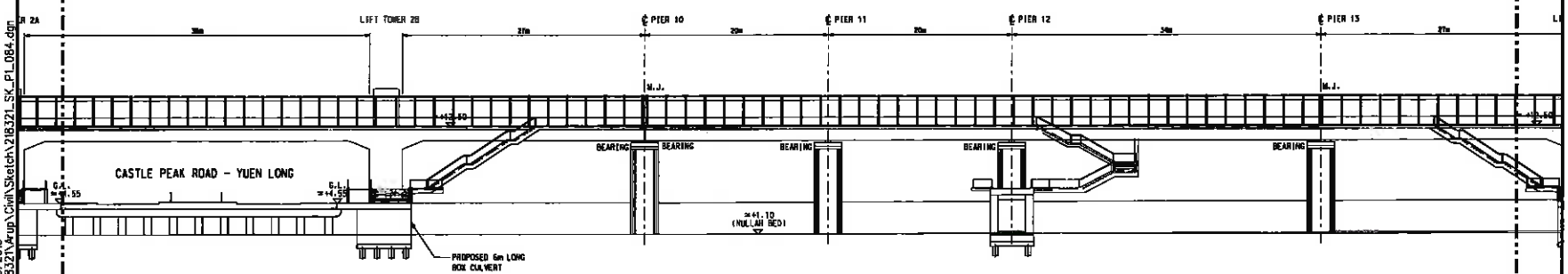


ELEVATION

LEGEND:

- STREAMLINED COLUMN (3m x1m)
- STREAMLINED CENTRAL WALL (6m x 1m)
- RECTANGULAR COLUMN (3m x 1m)
- M.J. MOVEMENT JOINT
- LIFT TOWER
- ESCALATOR
- STAIRCASE
- PARAPET WALL

Rev	Description	By	Date
-	FIRST ISSUE	TYW	05/13

Consultant

ARUP

Project Title

Agreement No. CE 4/2011 (HY)

Improvements to Pedestrian Environment in Yuen Long Town - Feasibility Study

Drawing title

PACKAGE 1 DIRECT PEDESTRIAN CORRIDOR ALONG YUEN LONG NULLAH GENERAL ARRANGEMENT (SHEET 3 OF 5)

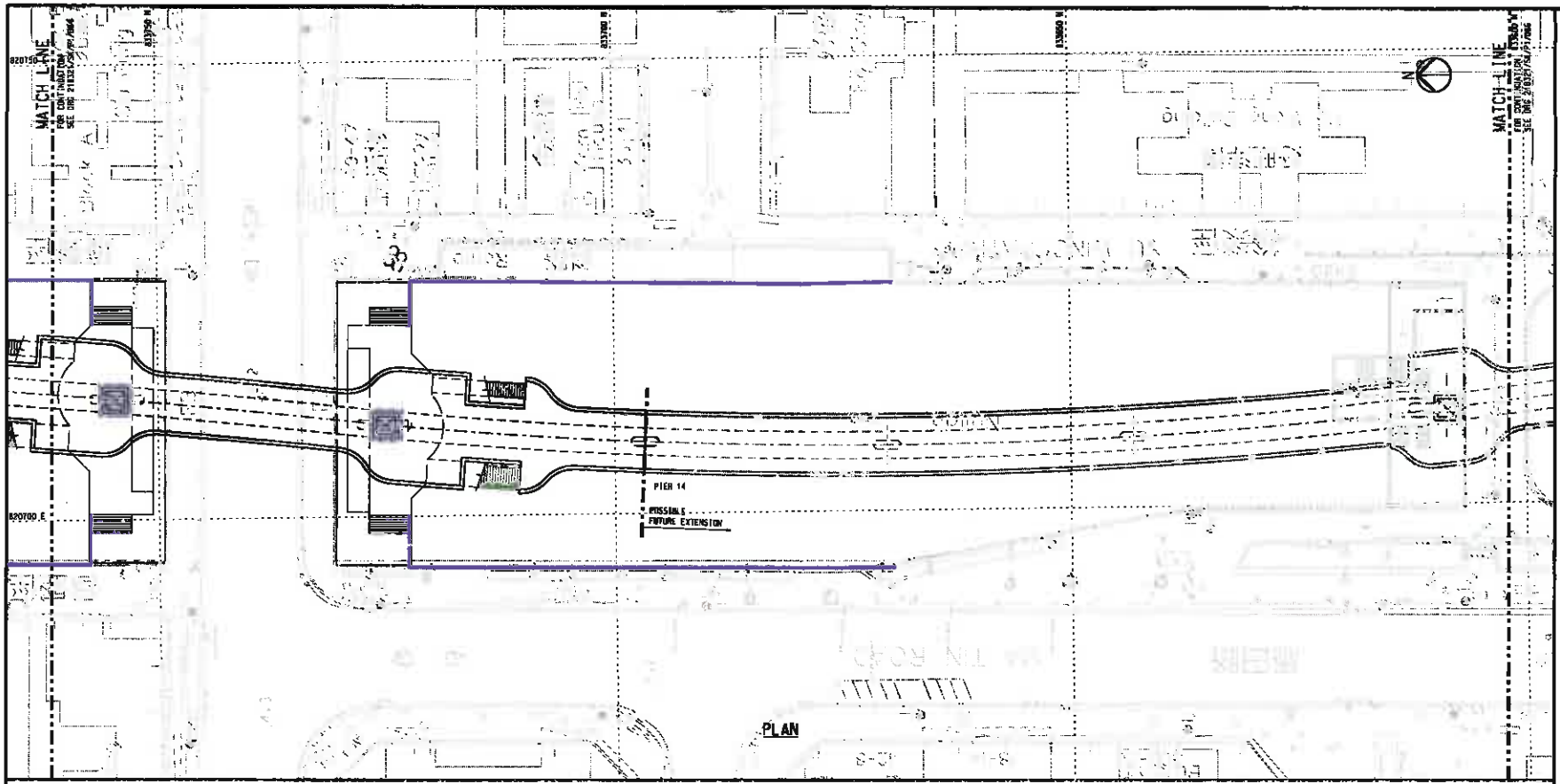
Drawing no.	Rev.
218321/SK/P1/084	-

Drawn	Date	Checked	Approved
A.LIE	05/13	KTL	EC

Scale	Status
1:2500 ON A3	FEASIBILITY STUDY

路政署
HIGHWAYS DEPARTMENT
主要工程管理處
MAJOR WORKS PROJECT MANAGEMENT OFFICE

Printed by : 06/05/2013
Filename : J:\218321\Arup\Civil\Sketch\218321_SK_P1_084.dgn



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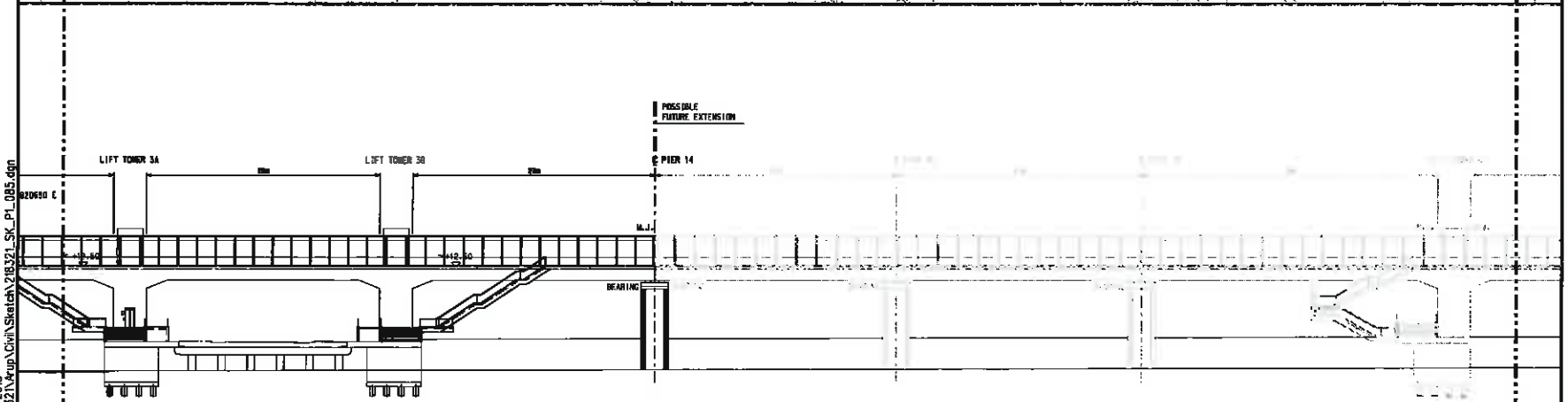


ELEVATION

LEGEND:

- STREAMLINED COLUMN (3m x1m)
- STREAMLINED CENTRAL WALL (6m x 1m)
- RECTANGULAR COLUMN (3m x 1m)
- M.J. MOVEMENT JOINT
- LIFT TOWER
- ESCALATOR
- STAIRCASE
- PARAPET WALL

Rev	Description	By	Date
-	FIRST ISSUE	TYW	08/13

Consultant

ARUP

Project title

Agreement No. CE 4/2011 (HY)

Improvements to Pedestrian Environment in Yuen Long Town - Feasibility Study

Drawing title

PACKAGE 1 DIRECT PEDESTRIAN CORRIDOR ALONG YUEN LONG NULLAH GENERAL ARRANGEMENT (SHEET 4 OF 5)

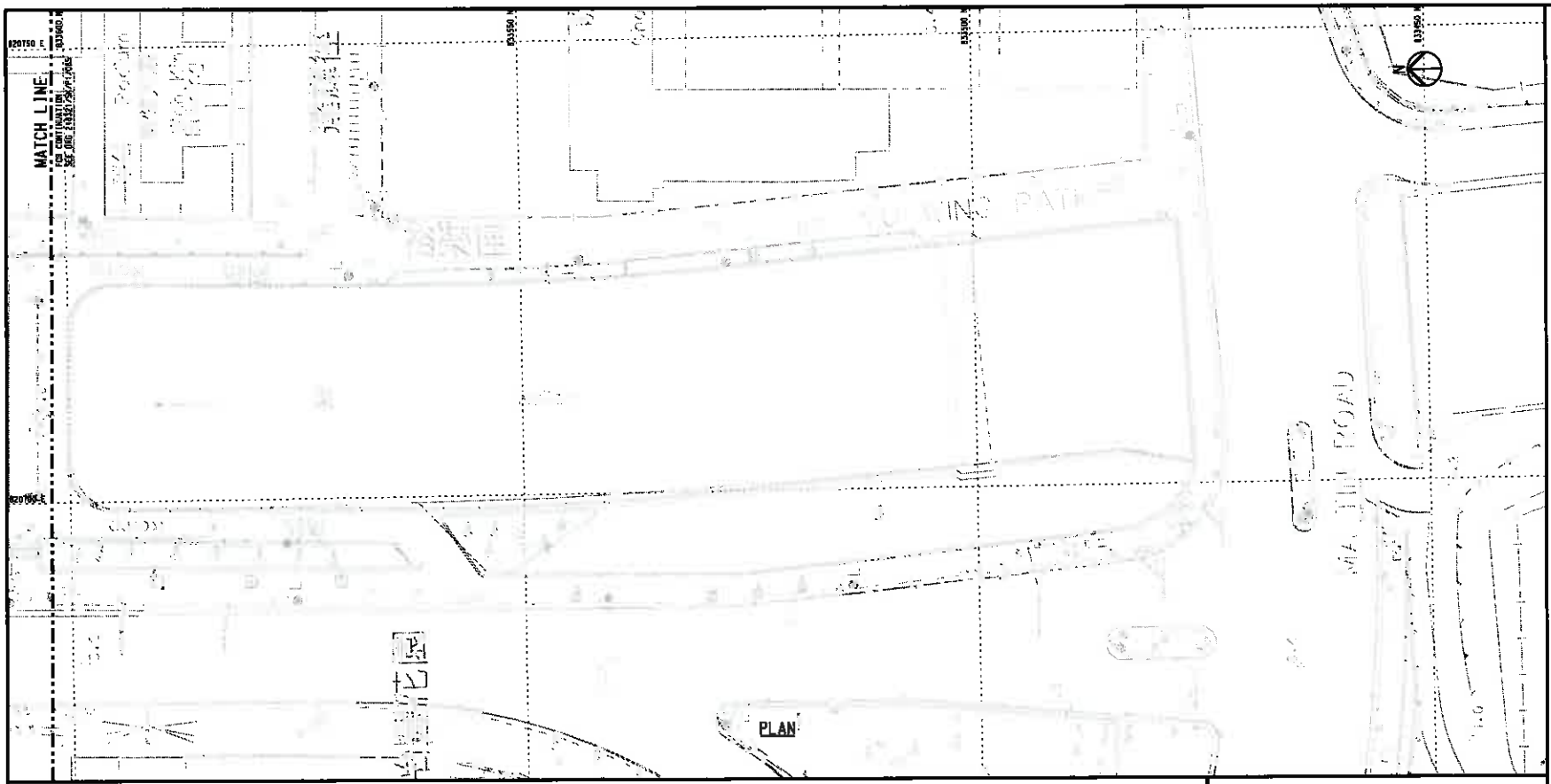
Drawing no. 218321/SK/P1/085 Rev. -

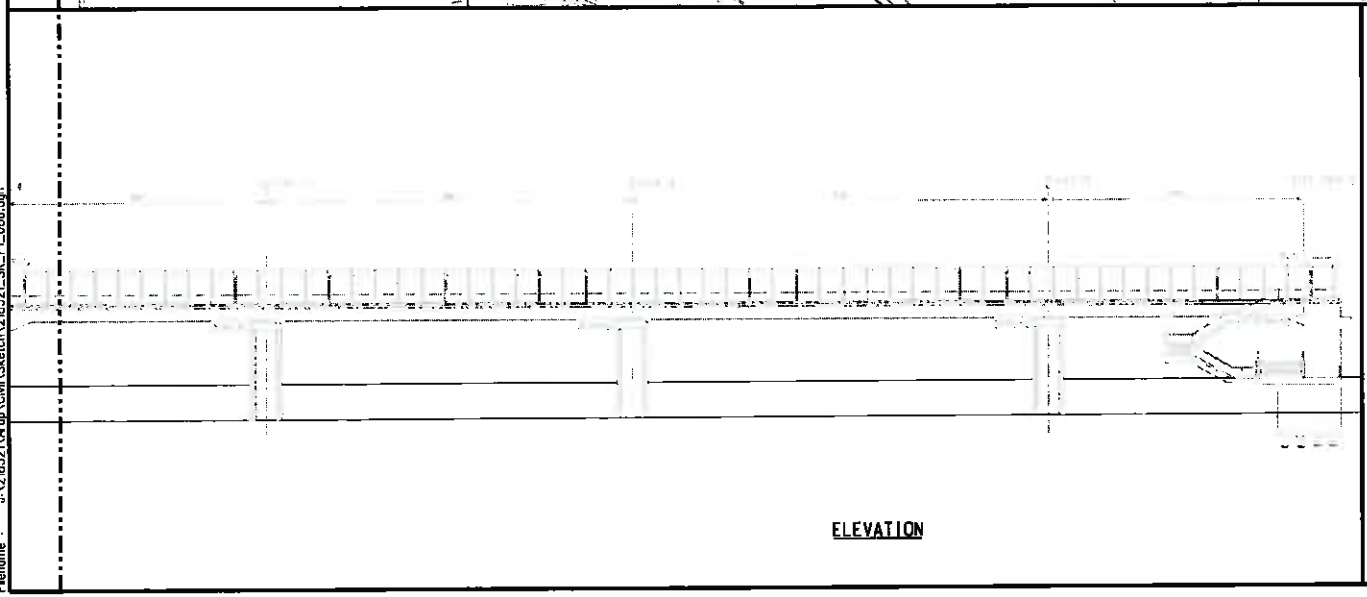
Drawn	Date	Checked	Approved
A.LIE	05/13	K.YL	EC

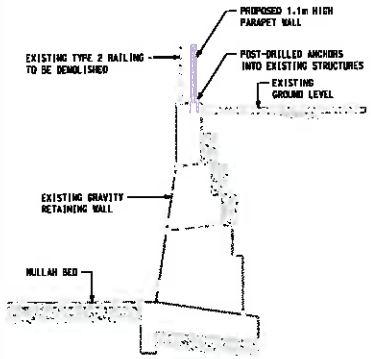
Scale 1:500 ON A3 Status FEASIBILITY STUDY

路政署 HIGHWAYS DEPARTMENT
主要工程管理處 MAJOR WORKS PROJECT MANAGEMENT OFFICE

Printed by : 08/05/2013
Filename : J:\218321\Arup\Civil\Sketch\218321_SK_P1_085.dgn







TYPICAL CROSS SECTION OF PROPOSED PARAPET WALL

1:100 ON A3

LEGEND:

- STREAMLINED COLUMN (3m x1m)
- STREAMLINED CENTRAL WALL (6m x 1m)
- RECTANGULAR COLUMN (3m x 1m)
- M.J. MOVEMENT JOINT
- LIFT TOWER
- ESCALATOR
- STAIRCASE

Rev	Description	By	Date
-	FIRST ISSUE	TYW	05/13

Consultant

ARUP

Project title

Agreement No. CE 4/2011 (HY)

Improvements to Pedestrian Environment in Yuen Long Town - Feasibility Study

Drawing title

PACKAGE 1 DIRECT PEDESTRIAN CORRIDOR ALONG YUEN LONG NULLAH GENERAL ARRANGEMENT (SHEET 5 OF 5)

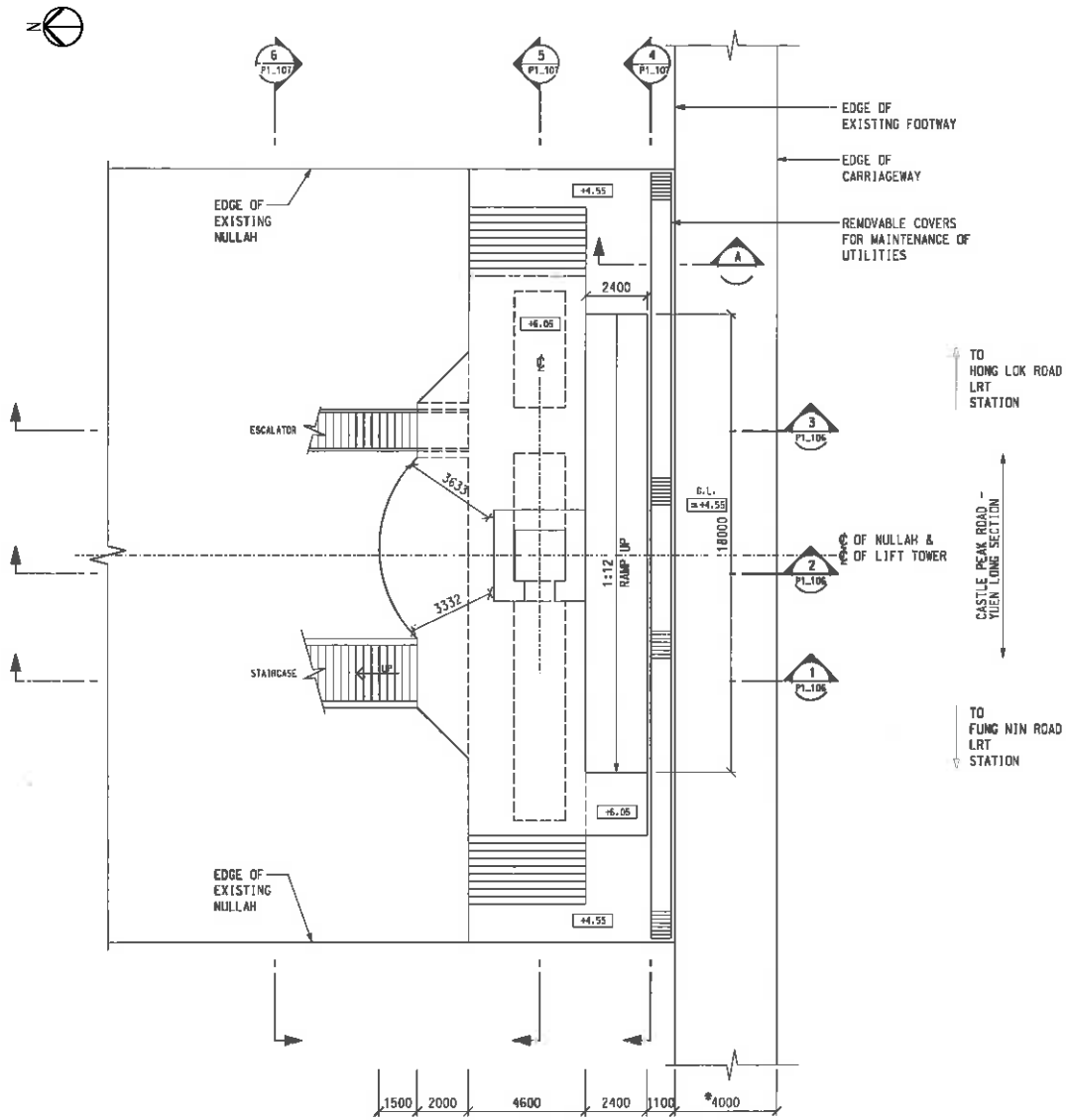
Drawing no. 218321/SK/P1/086 Rev. -

Drawn	Date	Checked	Approved
A.LIE	05/13	KYL	EC

Scale 1:2500 ON A3 Status FEASIBILITY STUDY

路政署 HIGHWAYS DEPARTMENT
主要工程管理處 MAJOR WORKS PROJECT MANAGEMENT OFFICE

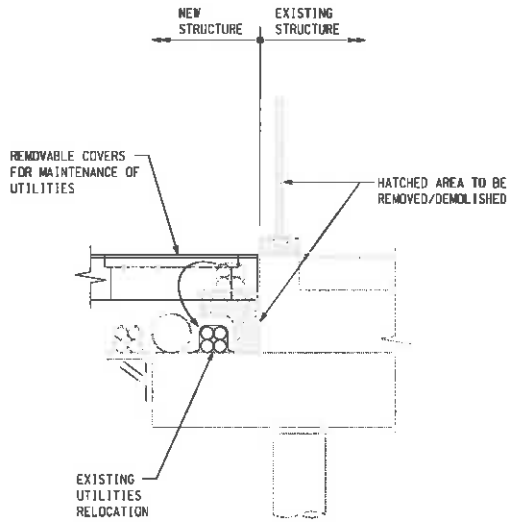
Printed by : 06/05/2013
Filename : J:\218321\Arup\Civil\Sketch\218321_SK_P1_086.dgn



PLAN AT GROUND LEVEL

MAJOR PEDESTRIAN INTERCHANGE

HAND RAIL NOT SHOWN FOR CLARITY
SCALE 1 : 200



SECTION A
NOT TO SCALE

NOTES
1. * APPROXIMATE WIDTH OF EXISTING FOOTWAY.

Rev	Description	By	Date
D	FORTH ISSUE	TYW	05/13
C	THIRD ISSUE	TYW	01/13
B	SECOND ISSUE	TYW	10/12
A	FIRST ISSUE	TYW	03/12

Consultant
ARUP

Project title
Agreement No. CE 4/2011 (HY)
Improvements to Pedestrian Environment in Yuen Long Town - Feasibility Study

Drawing title
PACKAGE 1 - DIRECT PEDESTRIAN CORRIDOR ALONG YUEN LONG NULLAH DETAILS (SHEET 1)

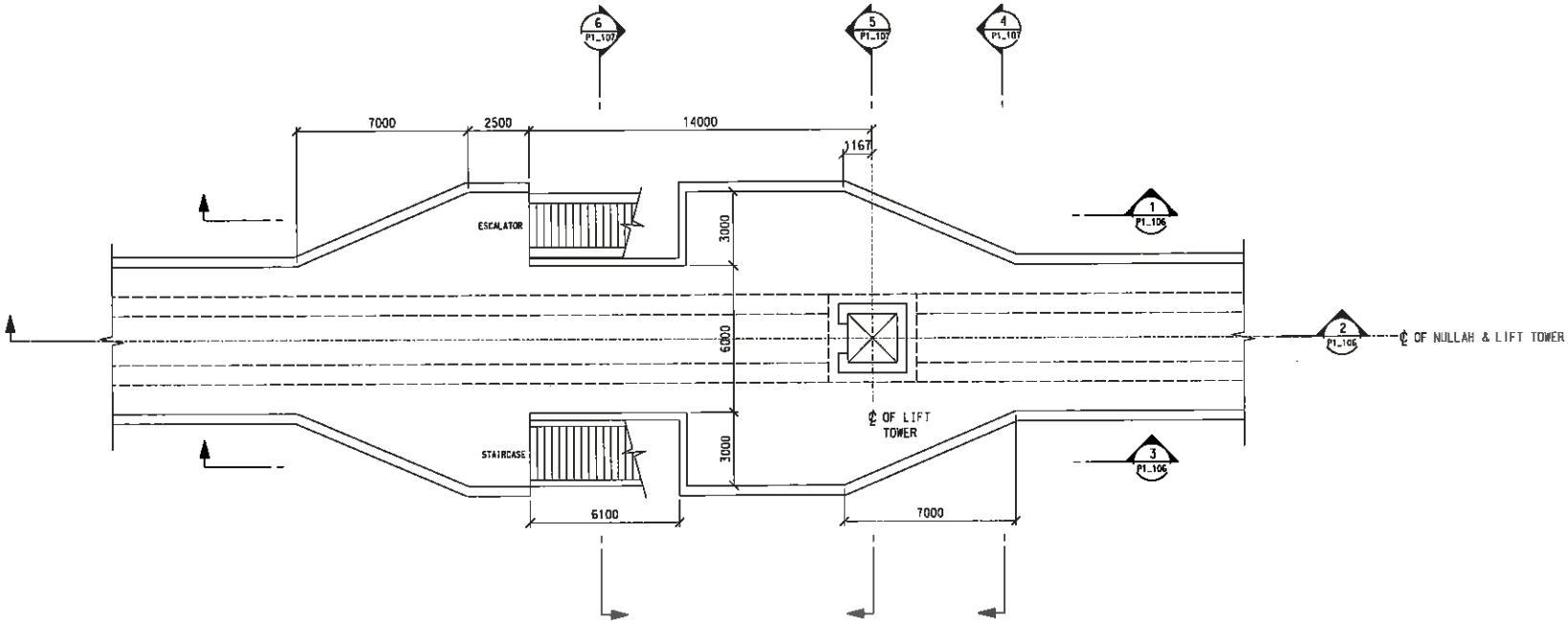
Drawing no. 218321/SK/P1/101 Rev. D

Drawn	Date	Checked	Approved
CSK	03/12	KTL	EC

Scale 1:200 ON A3 Status FEASIBILITY STUDY

HIGHWAYS DEPARTMENT
主要工程管理處
MAJOR WORKS PROJECT MANAGEMENT OFFICE

Printed by : 23/05/2013
Filename : J:\218321\Arup\Civil\Sketch\218321_SK_P1_101.dgn



PLAN AT DECK LEVEL

MAJOR PEDESTRIAN INTERCHANGE

HANDRAIL NOT SHOWN FOR CLARITY
SCALE 1 : 200

Rev	Description	By	Date
C	THIRD ISSUE	TYW	05/13
B	SECOND ISSUE	TYW	10/12
A	FIRST ISSUE	TYW	03/12

Consultant

ARUP

Project title

Agreement No. CE 4/2011 (HY)

Improvements to Pedestrian Environment in Yuen Long Town - Feasibility Study

Drawing title

PACKAGE 1 -
DIRECT PEDESTRIAN
CORRIDOR ALONG
YUEN LONG NULLAH
DETAILS (SHEET 2)

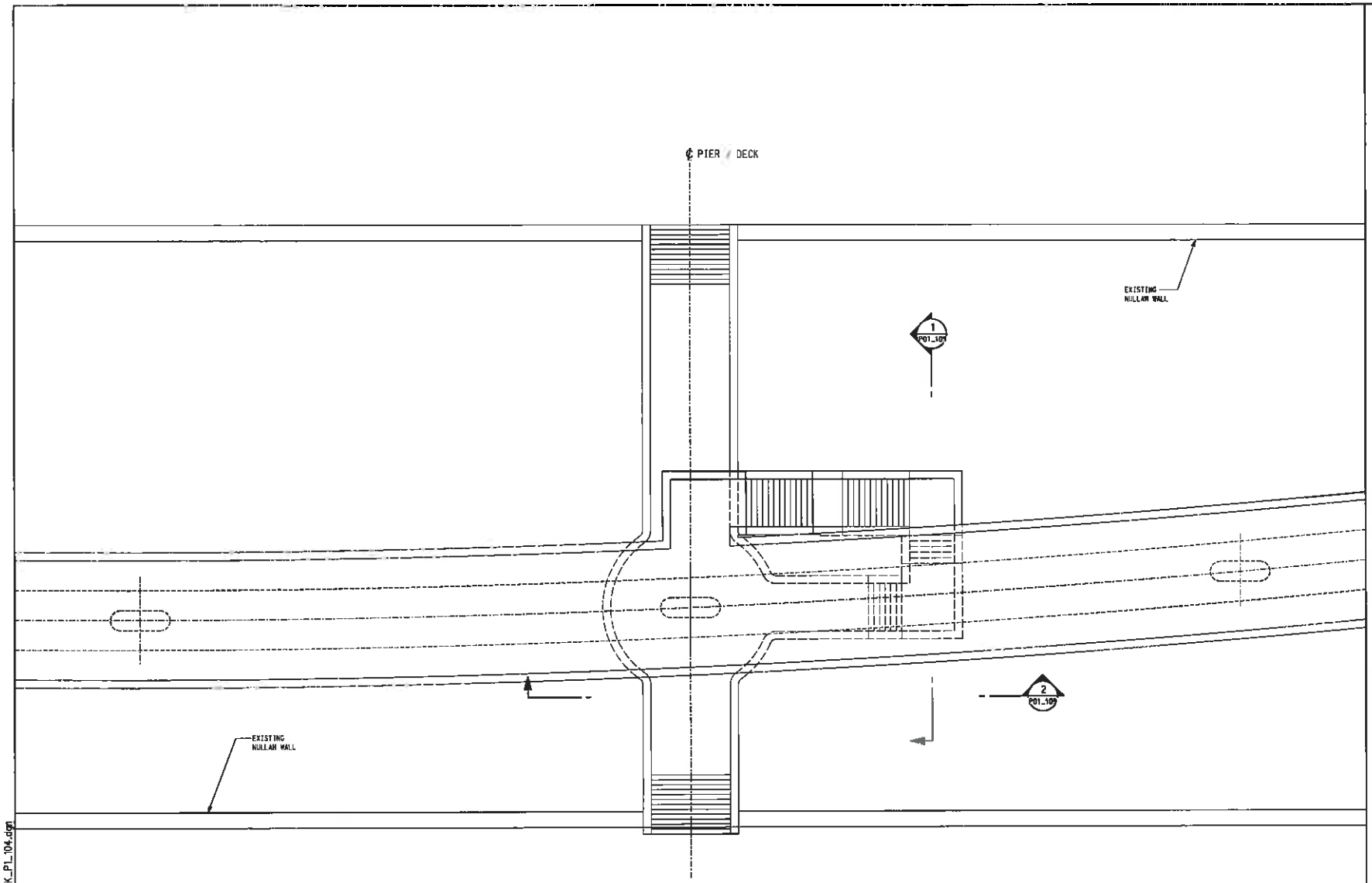
Drawing no. 218321/SK/P1/102 Rev. C

Drawn	Date	Checked	Approved
CSK	03/12	KYL	EC

Scale 1:200 ON A3 Status FEASIBILITY STUDY

HIGHWAYS DEPARTMENT
主要工程管理處
MAJOR WORKS PROJECT MANAGEMENT OFFICE

Printed by : 23/05/2013
Filename : J:\218321\Arup\Civil\Sketch\218321_SK_P1_102.dgn



INTERMEDIATE PLATFORM B/W YLONR AND CPRYL

SCALE 1 : 200

Rev	Description	By	Date
B	SECOND ISSUE	TYW	11/12
A	FIRST ISSUE	TYW	03/12

Consultant

ARUP

Project title

Agreement No. CE 4/2011 (HY)

Improvements to Pedestrian Environment in Yuen Long Town - Feasibility Study

Drawing title

PACKAGE 1 - DIRECT PEDESTRIAN CORRIDOR ALONG YUEN LONG NULLAH DETAILS (SHEET 3)

Drawing no. 218321/SK/P1/104 Rev. B

Drawn	Date	Checked	Approved
CSK	03/12	KTL	EC

Scale 1:200 ON A3 Status FEASIBILITY STUDY

路政署 HIGHWAYS DEPARTMENT
主要工程管理辦事處 MAJOR WORKS PROJECT MANAGEMENT OFFICE

Printed by : 12/12/2012
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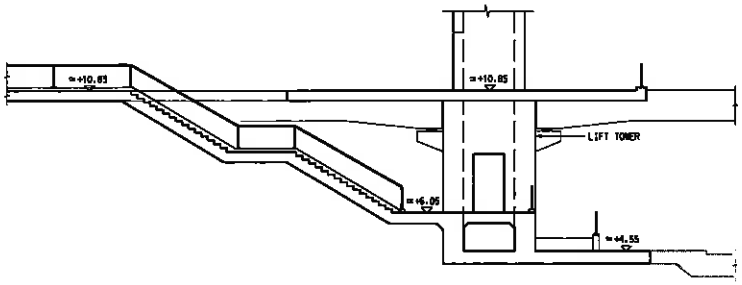
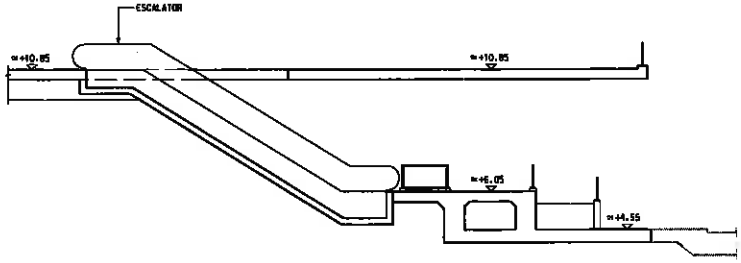
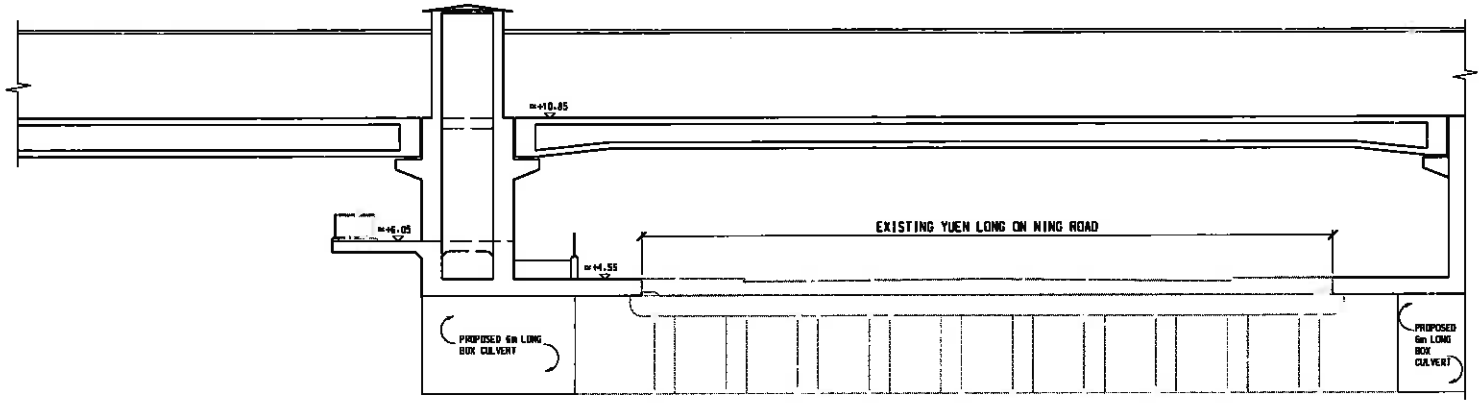


SECTION 1
SCALE 1 : 200 P1-101



SECTION 3
SCALE 1 : 200 P1-101



SECTION 2
SCALE 1 : 200 P1-101

Rev	Description	By	Date
F	SECTION UPDATED	TYW	08/13
E	LIFT EXIT REVISED	TYW	05/13
D	DETAILS UPDATE	TYW	12/12
C	DIMENSIONS ADDED	TYW	12/12
B	SECOND ISSUE	TYW	10/12
A	FIRST ISSUE	TYW	03/12

Consultant

ARUP

Project title

Agreement No. CE 4/2011 (HY)

Improvements to Pedestrian Environment in Yuen Long Town - Feasibility Study

Drawing title

PACKAGE 1 - DIRECT PEDESTRIAN CORRIDOR ALONG YUEN LONG NULLAH DETAILS (SHEET 4)

Drawing no. 218321/SK/P1/106 Rev. F

Drawn	Date	Checked	Approved
CSK	12/12	KYL	EC

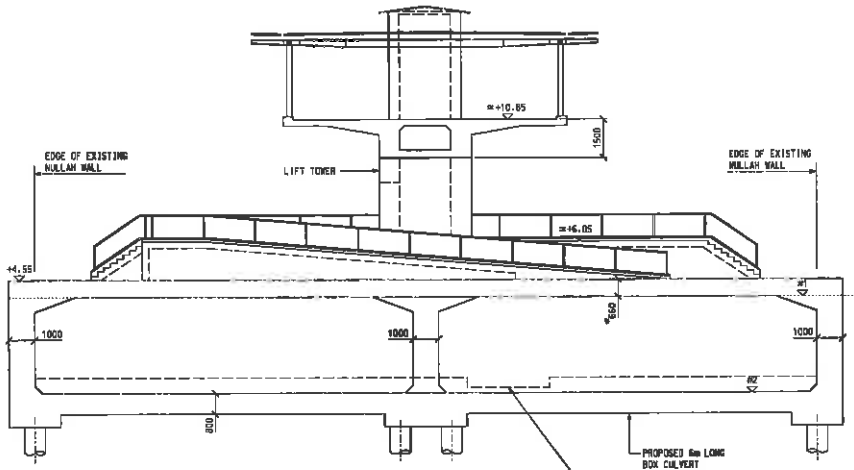
Scale 1:200 ON A3 Status FEASIBILITY STUDY

路政署 HIGHWAYS DEPARTMENT
主要工程管理處 MAJOR WORKS PROJECT MANAGEMENT OFFICE

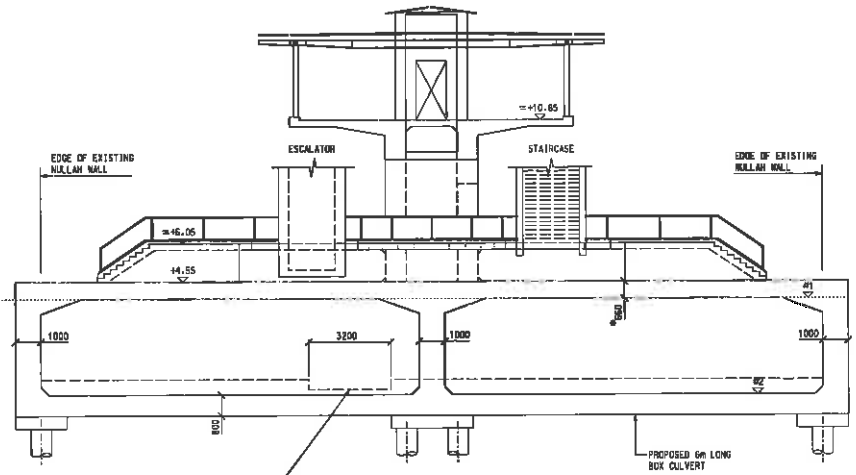
Printed by : $DATE$
Filename : $FILE$

NOTE:

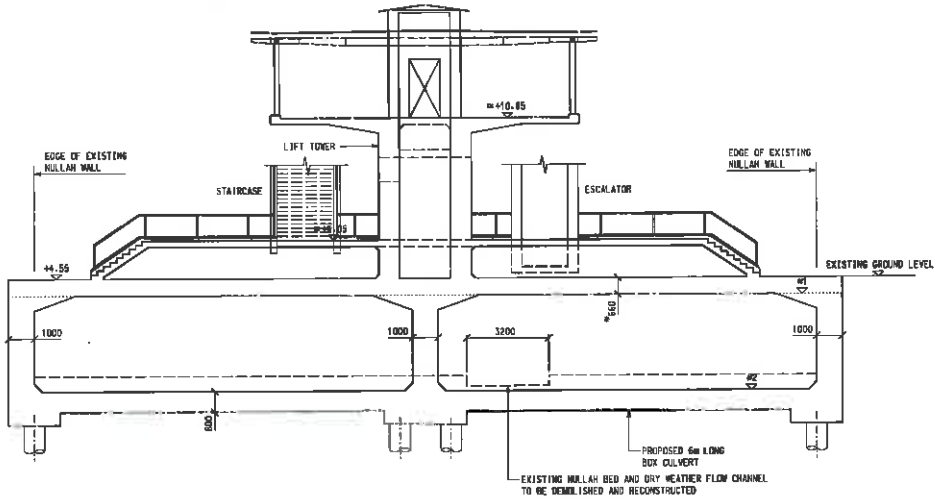
1. THE SOFFIT LEVEL #1 OF TOP SLAB SHALL NOT BE LOWER THAN THE SOFFIT LEVEL OF THE SLAB OF EXISTING VEHICULAR BRIDGE.
2. THE TOP LEVEL #2 OF BOTTOM SLAB SHALL BE 200mm BELOW THE DRY WEATHER FLOW CHANNEL.
3. EXACT DIMENSIONS SHALL BE VERIFIED ON SITE IN CONSTRUCTION STAGE.



SECTION 4
SCALE 1 : 200 P1-101



SECTION 6
SCALE 1 : 200 P1-101



SECTION 5
SCALE 1 : 200 P1-101

Rev	Description	By	Date
D	LIFT EXIT REVISED	TYW	05/13
C	DIMENSIONS ADDED	TYW	12/12
B	SECOND ISSUE	TYW	10/12
A	FIRST ISSUE	TYW	03/12

Consultant
ARUP

Project title
Agreement No. CE 4/2011 (HY)
Improvements to Pedestrian Environment in Yuen Long Town - Feasibility Study

Drawing title
PACKAGE 1 -
DIRECT PEDESTRIAN
CORRIDOR ALONG
YUEN LONG NULLAH
DETAILS (SHEET 5)

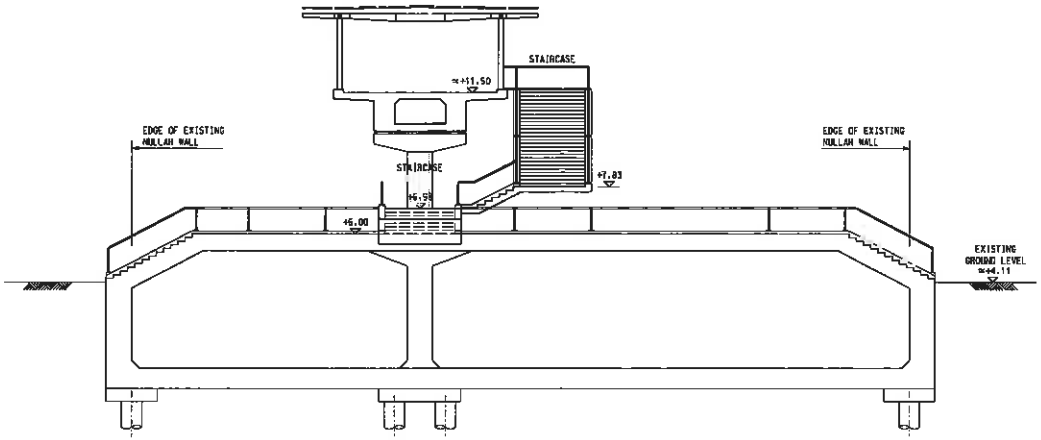
Drawing no. 218321/SK/P1/107 Rev. D

Drawn	Date	Checked	Approved
CSK	12/12	KYL	EC

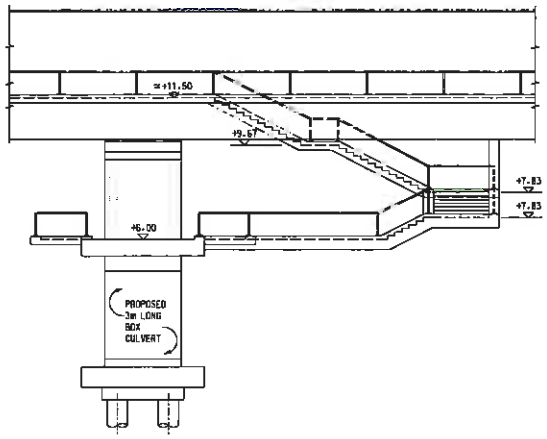
Scale 1:200 ON A3 Status FEASIBILITY STUDY

政府 HIGHWAYS DEPARTMENT
主要工程管理處 MAJOR WORKS PROJECT MANAGEMENT OFFICE

Printed by : 23/05/2013
Filename : J:\218321\Arup\Civil\Sketch\218321_SK_P1_107.dgn



SECTION 1 (P1-104)
SCALE 1 : 200



SECTION 2 (P01-104)
SCALE 1 : 200

Rev	Description	By	Date
B	SECOND ISSUE	TYW	11/12
A	FIRST ISSUE	TYW	03/12

Consultant

ARUP

Project title

Agreement No. CE 4/2011 (HY)

Improvements to Pedestrian Environment in Yuen Long Town - Feasibility Study

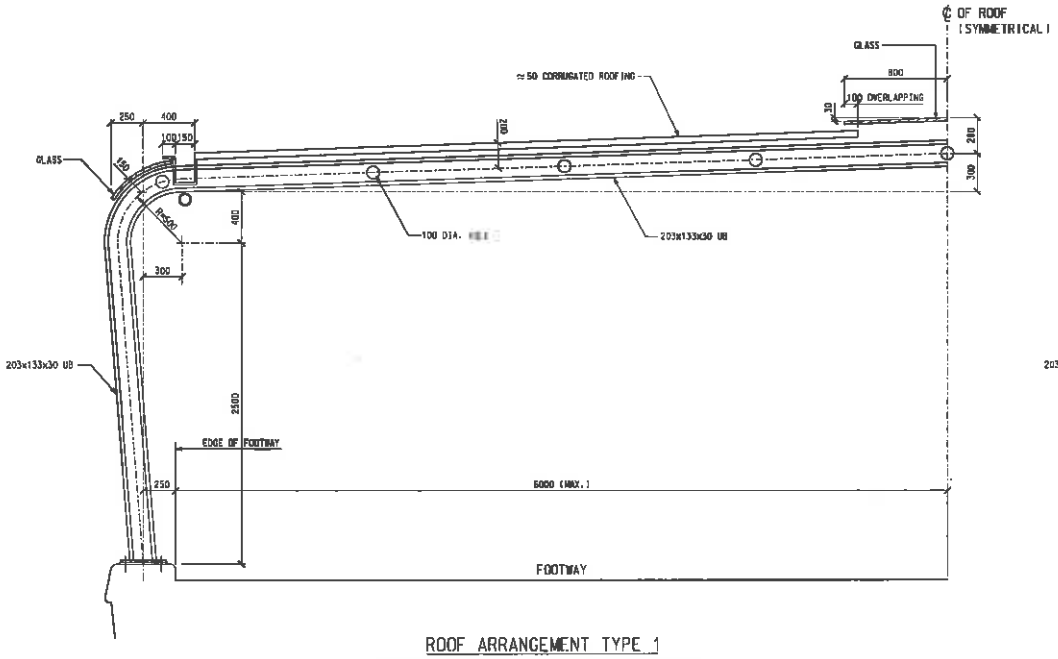
Drawing title

PACKAGE 1 - DIRECT PEDESTRIAN CORRIDOR ALONG YUEN LONG NULLAH DETAILS (SHEET 6)

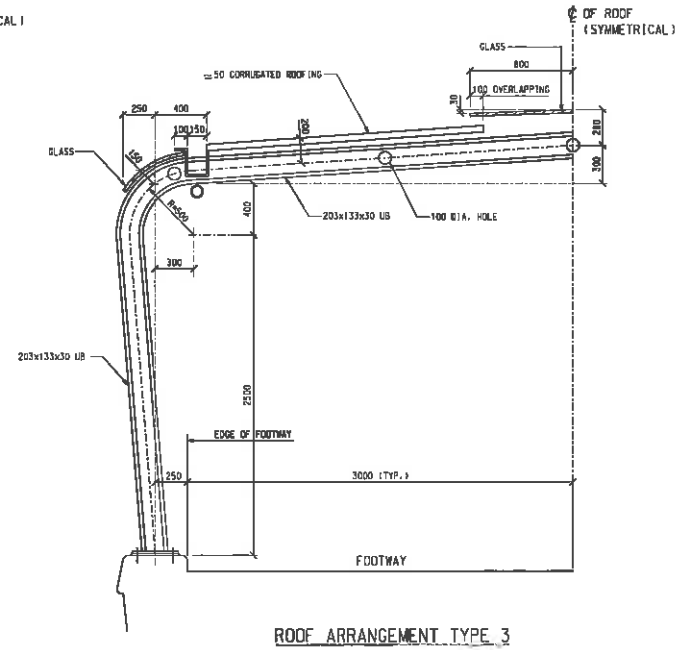
Drawing no.			Rev.
218321/SK/P1/109			B
Drawn CSK	Date 03/12	Checked KYL	Approved EC
Scale 1:200 ON A3		Status FEASIBILITY STUDY	

路政署 HIGHWAYS DEPARTMENT
主要工程管理處 MAJOR WORKS PROJECT MANAGEMENT OFFICE

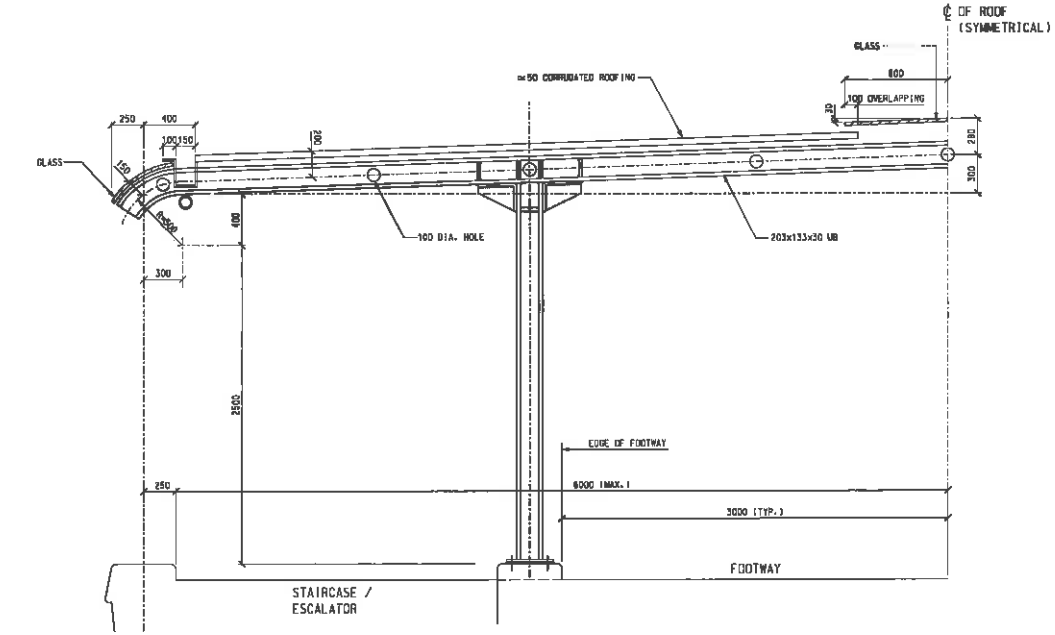
Printed by : 31/12/2012
Filename : J:\218321\Arup\Civil\Sketch\218321_SK_P1_109.dgn



ROOF ARRANGEMENT TYPE 1
(AT MAJOR PEDESTRIAN INTERCHANGE)



ROOF ARRANGEMENT TYPE 3
(TYPICAL)



ROOF ARRANGEMENT TYPE 2
(AT MAJOR PEDESTRIAN INTERCHANGE)

Rev	Description	By	Date
A	FIRST ISSUE	TYW	03/12

Consultant

ARUP

Project title

Agreement No. CE 4/2011 (HY)

Improvements to Pedestrian Environment in Yuen Long Town - Feasibility Study

Drawing title

PACKAGE 1 -
DIRECT PEDESTRIAN
CORRIDOR ALONG
YUEN LONG NULLAH
ROOFING DETAILS

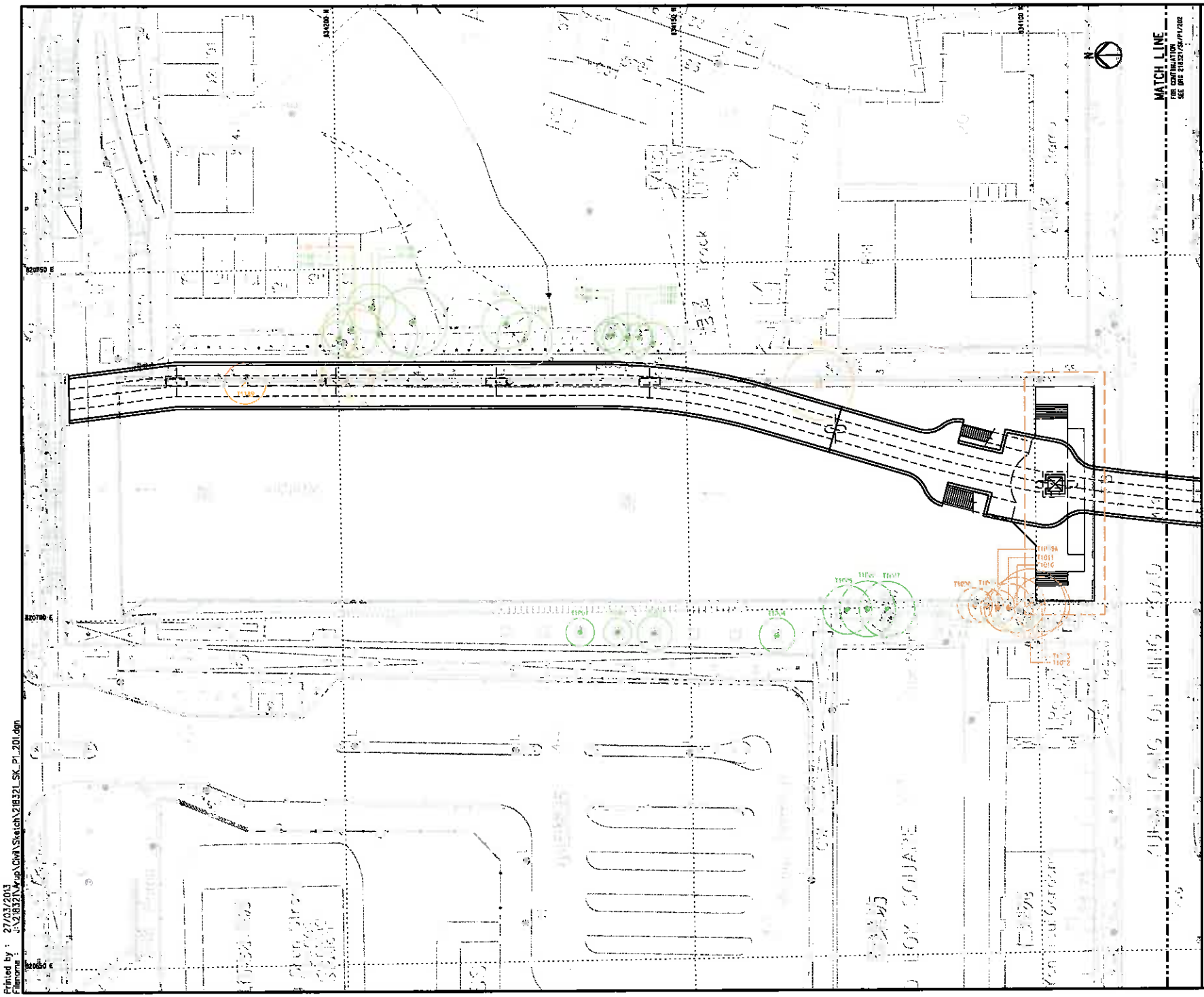
Drawing no. 218321/SK/P1/110 Rev. A

Drawn	Date	Checked	Approved
CSK	03/12	KVL	EC

Scale 1:40 ON A3 Status FEASIBILITY STUDY

路政署
HIGHWAYS DEPARTMENT
主要工程管理處
MAJOR WORKS PROJECT MANAGEMENT OFFICE

Printed by : 3/12/2012
Filename : J:\218321\Arup\Civil\Sketch\218321_SK_P1_110.dgn



LEGEND:

- TREES PROPOSED TO BE RETAINED
- TREES PROPOSED TO BE TRANSPLANTED
- TREES PROPOSED TO BE FELLED
- TEMPORARY WORKS BOUNDARY OF PEDESTRIAN INTERCHANGE AND INTERMEDIATE LANDING FACILITY

Rev	Description	By	Date
C	GENERAL UPDATE	TYW	03/13
B	FOOTBRIDGE EXTENT UPDATE	TYW	11/12
A	FIRST ISSUE	TYW	04/12

Consultant

ARUP

Project title

Agreement No. CE 4/2011 (HY)

Improvements to Pedestrian Environment in Yuen Long Town - Feasibility Study

Drawing title

PACKAGE 1
TREE SURVEY PLAN
(SHEET 1 OF 5)

Drawing no. 218321/SK/P1/201 Rev. C

Drawn	Date	Checked	Approved
CW	04/12	KYL	EC

Scale 1:500 ON A3 Status FEASIBILITY STUDY

路政署
HIGHWAYS DEPARTMENT
主要工程管理處
MAJOR WORKS PROJECT MANAGEMENT OFFICE

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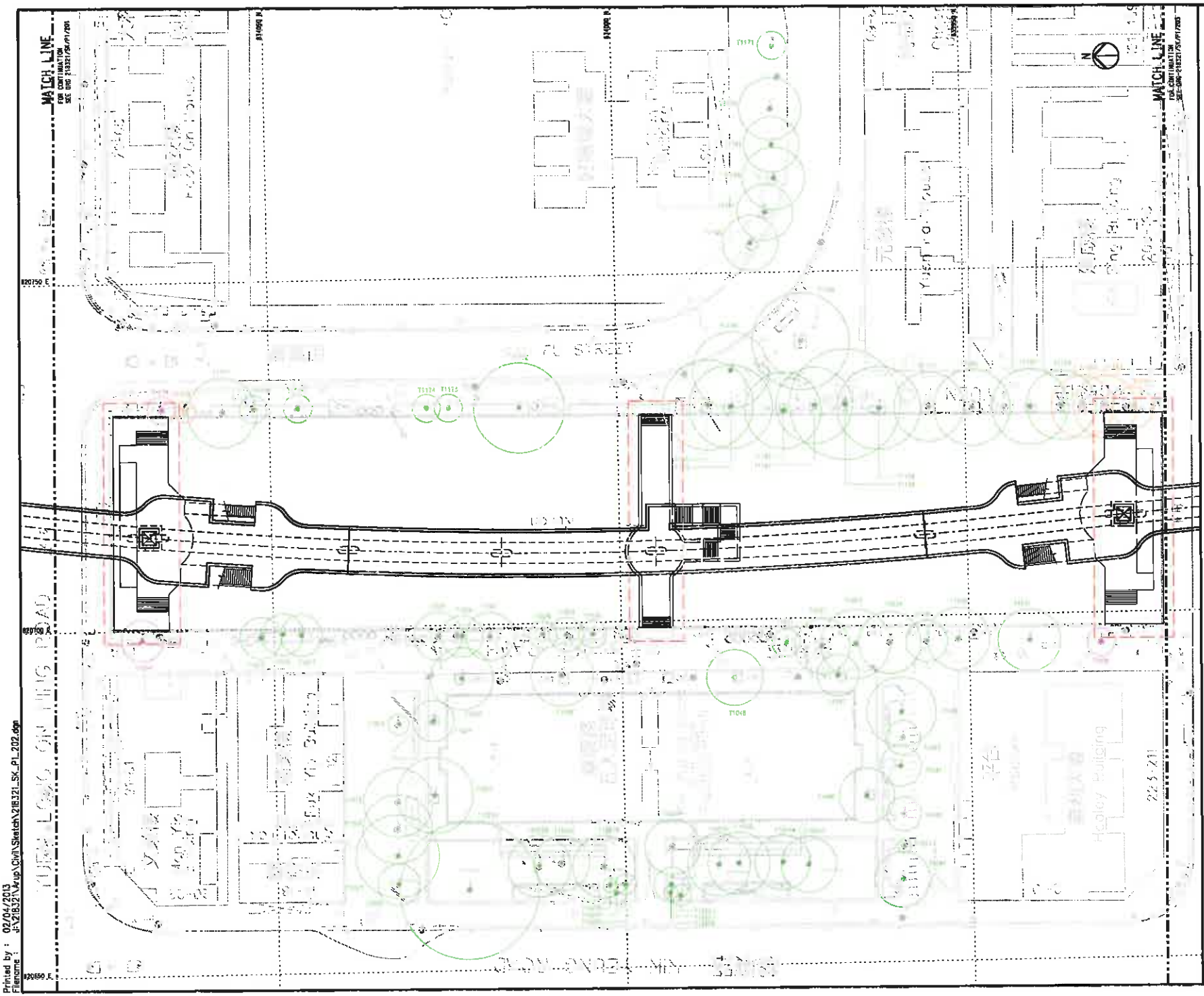

LEGEND:

- TREES PROPOSED TO BE RETAINED
- TREES PROPOSED TO BE TRANSPLANTED
- TREES PROPOSED TO BE FELLED
- TEMPORARY WORKS BOUNDARY OF PEDESTRIAN INTERCHANGE AND INTERMEDIATE LANDING FACILITY

Rev	Description	By	Date
C	GENERAL UPDATE	TYW	03/13
B	FOOTBRIDGE EXTENT UPDATE	TYW	11/12
A	FIRST ISSUE	TYW	04/12

Consultant: ARUP

Project title: Agreement No. CE 4/2011 (HY)
Improvements to Pedestrian Environment in Yuen Long Town - Feasibility Study

Drawing title: PACKAGE 1
TREE SURVEY PLAN
(SHEET 2 OF 5)

Drawing no. 218321/SK/P1/202 Rev. C

Drawn	Date	Checked	Approved
CK	04/12	EYL	EC

Scale: 1:500 ON A3 Status: FEASIBILITY STUDY

路政署 HIGHWAYS DEPARTMENT
土木工程拓展署 MAJOR WORKS PROJECT MANAGEMENT OFFICE

Printed by : 02/04/2013
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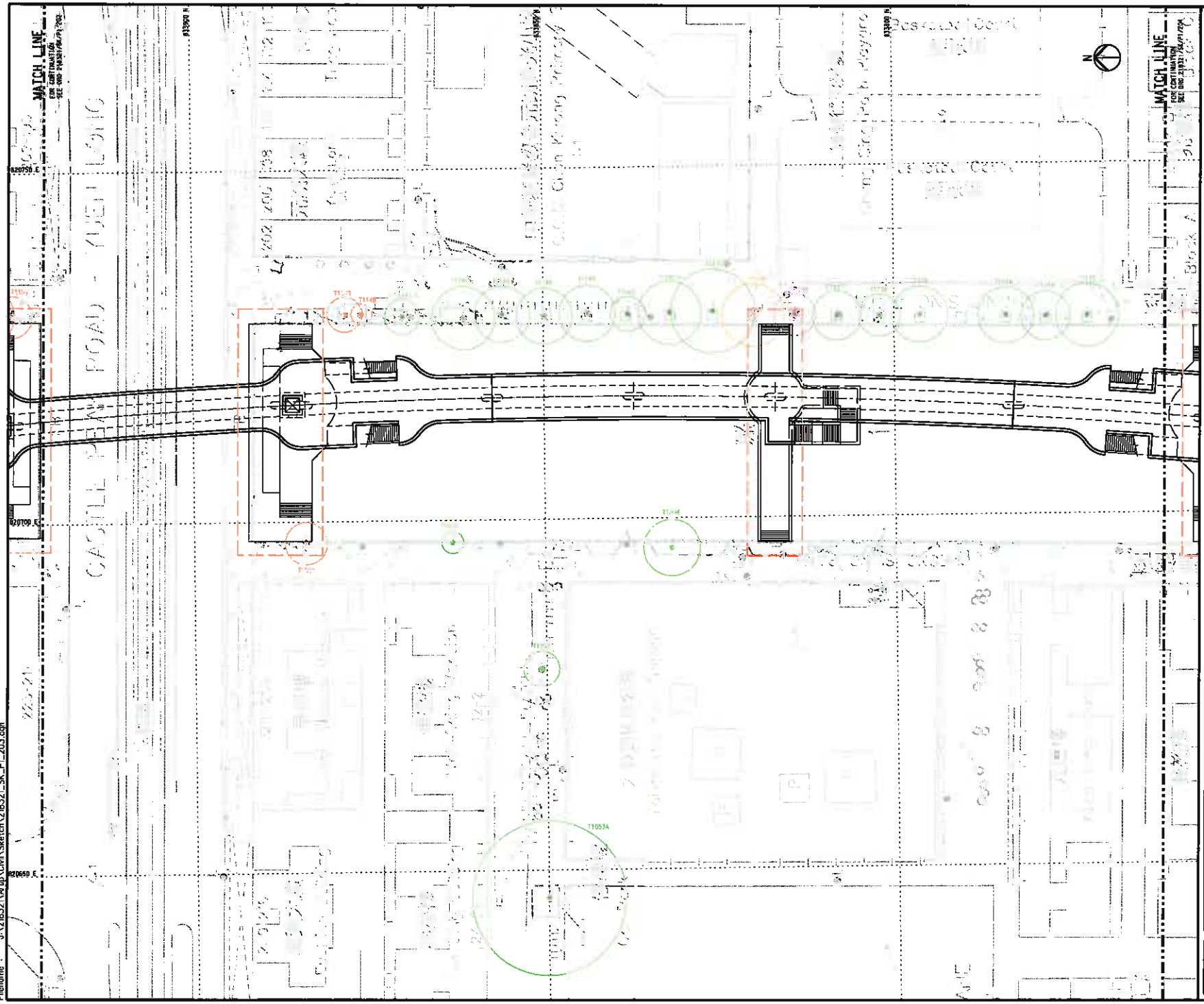

LEGEND:

- TG14 — TREES PROPOSED TO BE RETAINED
- TREES PROPOSED TO BE TRANSPLANTED
- TG15 — TREES PROPOSED TO BE FELLED
- TEMPORARY WORKS BOUNDARY OF PEDESTRIAN INTERCHANGE AND INTERMEDIATE LANDING FACILITY

Rev	Description	By	Date
C	GENERAL UPDATE	TYW	03/13
B	FOOTBRIDGE EXTENT UPDATE	TYW	11/12
A	FIRST ISSUE	TYW	04/12

Consultant

ARUP

Project title

Agreement No. CE 4/2011 (HY)

Improvements to Pedestrian Environment in Yuen Long Town - Feasibility Study

Drawing title

PACKAGE 1
TREE SURVEY PLAN
(SHEET 3 OF 5)

Drawing no. 218321/SK/P1/203 Rev. C

Drawn	Date	Checked	Approved
CN	04/12	KYL	EC

Scale 1:500 ON A3 Status FEASIBILITY STUDY

路政署
HIGHWAYS DEPARTMENT
主要工程管理處
MAJOR WORKS PROJECT MANAGEMENT OFFICE

Printed by : 02/04/2013
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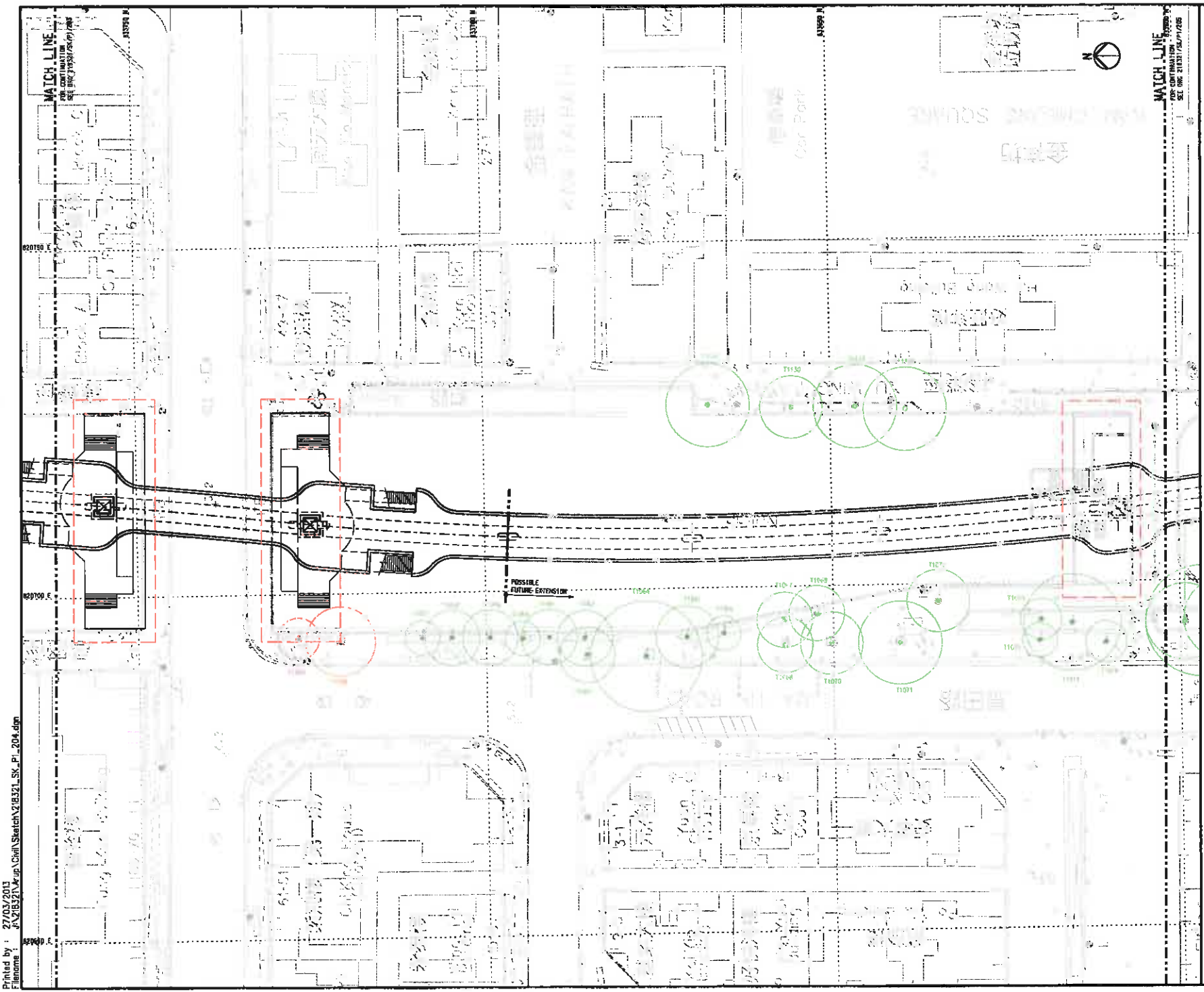

LEGEND:

T034 ●	TREES PROPOSED TO BE RETAINED
▲	TREES PROPOSED TO BE TRANSPLANTED
○	TREES PROPOSED TO BE FELLED
▭	TEMPORARY WORKS BOUNDARY OF PEDESTRIAN INTERCHANGE AND INTERMEDIATE LANDING FACILITY

Rev	Description	By	Date
C	GENERAL UPDATE	TYW	03/13
B	FOOTBRIDGE EXTENT UPDATE	TYW	11/12
A	FIRST ISSUE	TYW	04/12

Consultant
ARUP

Project title
Agreement No. CE 4/2011 (HY)
Improvements to Pedestrian Environment in Yuen Long Town - Feasibility Study

Drawing title
PACKAGE 1
TREE SURVEY PLAN
(SHEET 4 OF 5)

Drawing no. 218321/SK/P1/204
Rev. C

Drawn	Date	Checked	Approved
CH	04/12	KYL	EC

Scale 1:500 ON A3
Status FEASIBILITY STUDY

路政署
HIGHWAYS DEPARTMENT
主要工程管理處
MAJOR WORKS PROJECT MANAGEMENT OFFICE

Printed by : 27/03/2013
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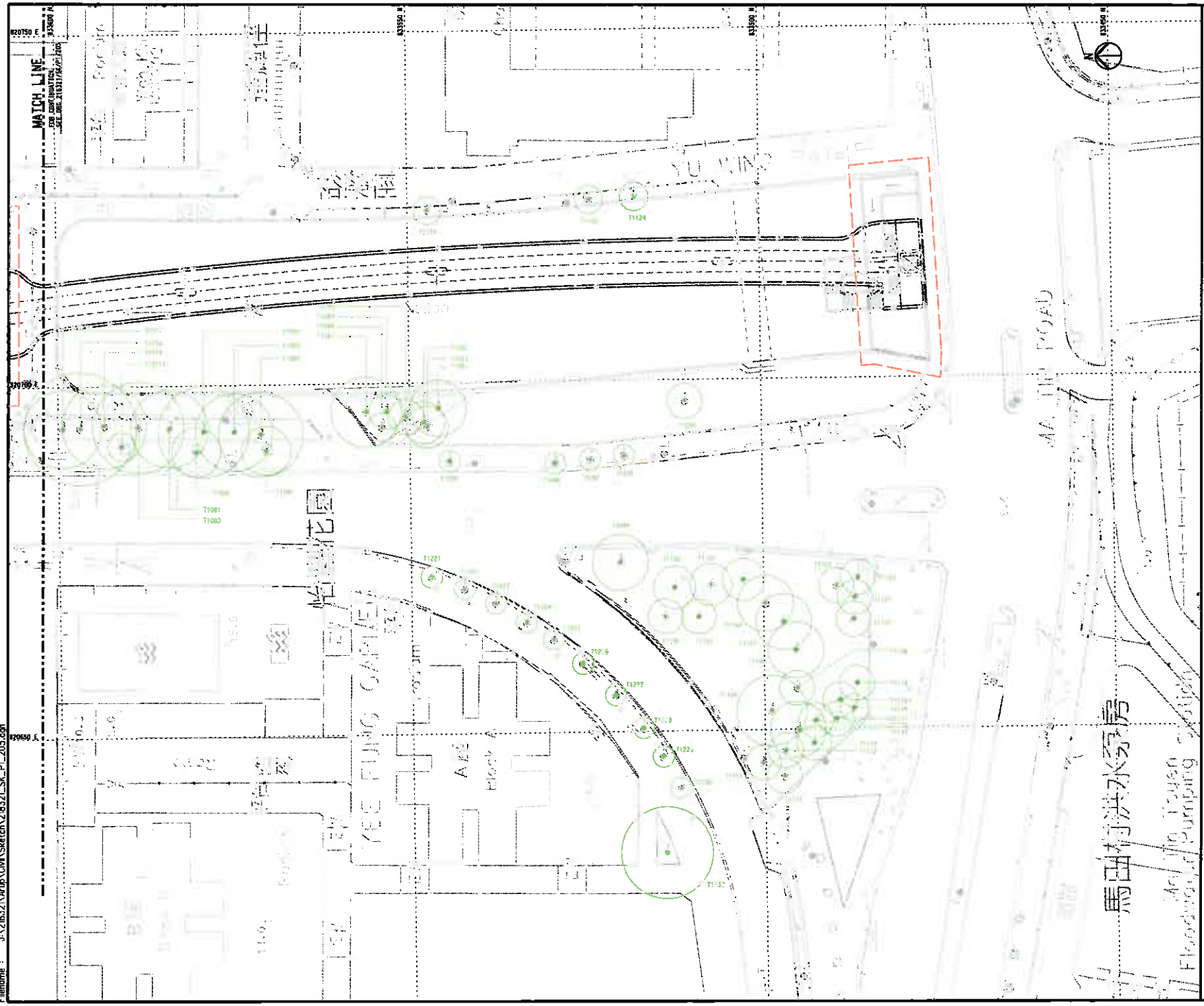

LEGEND:

- T017 TREES PROPOSED TO BE RETAINED
- T017 TREES PROPOSED TO BE TRANSPLANTED
- T015 TREES PROPOSED TO BE FELLED
- TEMPORARY WORKS BOUNDARY OF PEDESTRIAN INTERCHANGE AND INTERMEDIATE LANDING FACILITY

Rev	Description	By	Date
C	GENERAL UPDATE	TYW	03/13
B	FOOTBRIDGE EXTENT UPDATE	TYW	11/12
A	FIRST ISSUE	TYW	04/12

Consultant

ARUP

Project title

Agreement No. CE 4/2011 (HY)

Improvements to Pedestrian Environment in Yuen Long Town - Feasibility Study

Drawing title

PACKAGE 1 - (OPTION E)
TREE SURVEY PLAN
(SHEET 5 OF 5)

Drawing no. 218321/SK/P1/205 Rev. C

Drawn	Date	Checked	Approved
CN	04/12	KYL	EC

Scale 1:500 ON A3 Status FEASIBILITY STUDY

路政署
HIGHWAYS DEPARTMENT
主要工程管理處
MAJOR WORKS PROJECT MANAGEMENT OFFICE

Printed by : 27/03/2013
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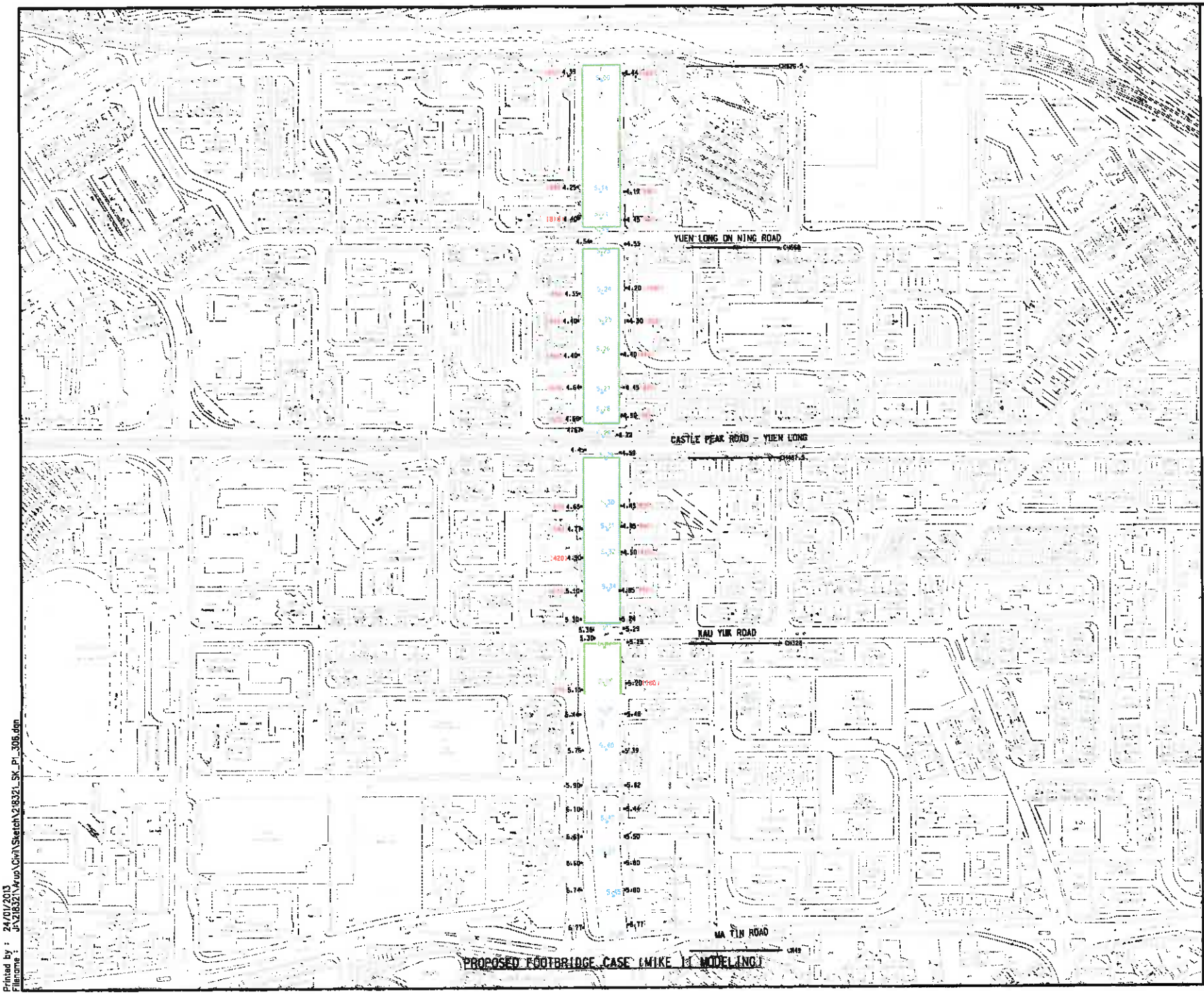


LEGEND:

- PROPOSED PARAPET WALL
- 4.35 EXISTING GROUND LEVEL
- 5.18 MAX. WATER LEVEL (HIGHER OF 50 YR + 500mm FREEBOARD OR 200 YR)
- MINIMUM HEIGHT OF PARAPET WALL
- CH669 MIKE 11 MODEL CHAINAGE

Rev	Description	By	Date
C	TITLE UPDATE	TYW	01/13
B	DETAILS UPDATE	TYW	12/12
A	FIRST ISSUE	TYW	11/12

Consultant

ARUP

Project title

Agreement No. CE 4/2011 (HY)

Improvements to Pedestrian Environment in Yuen Long Town - Feasibility Study

Drawing title

PACKAGE 1
EXTENT AND HEIGHT OF PARAPET WALL

Drawing no. 218321/SK/P1/306 Rev. C

Drawn	Date	Checked	Approved
CN	12/12	KYL	EC

Scale 1:3000 ON A3 Status FEASIBILITY STUDY

路政署 HIGHWAYS DEPARTMENT
主要工程管理處 MAJOR WORKS PROJECT MANAGEMENT OFFICE

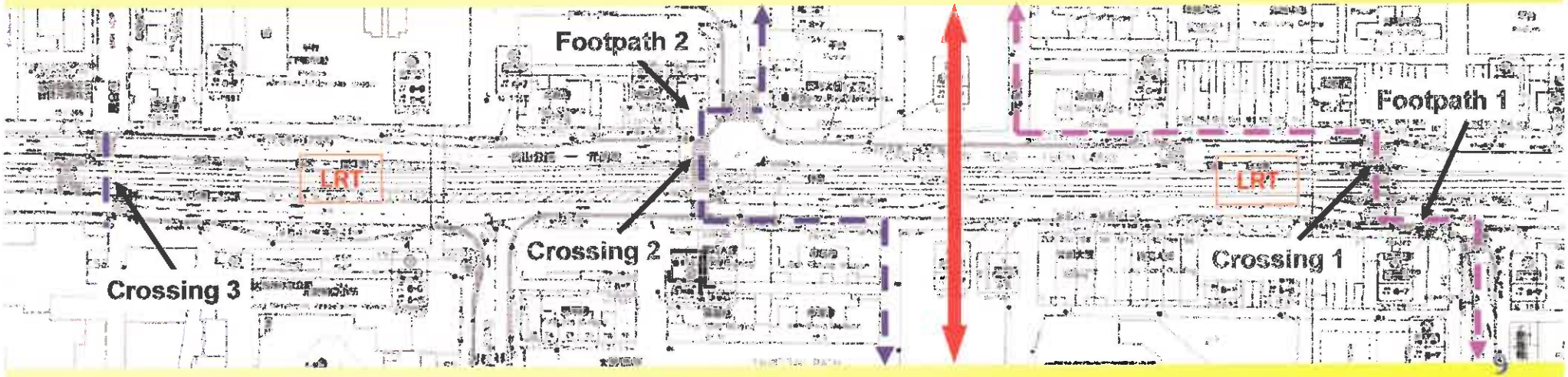
Printed by : 24/01/2013
Filename : J:\218321\Arup\Civil\Sketch\218321_SK_P1_306.dgn

Appendix B

Existing and Forecast LOS at Pedestrian Crossings and Critical Footways

Existing and Forecast Pedestrian Flows

		Crossing 1	Crossing 2	New footbridge	Footpath 1	Footpath 2
		Peak hour pedestrian flows (ped/hour) (LOS in bracket)				
Existing Conditions		7,930 (E)	4,170 (E)	-	7,630 (E)	5,000 (C)
Year 2026	No footbridge	9,600 (F)	5,050 (E)	-	9,240 (F)	6,050 (D)
	Continuous footbridge (LP Station to CPR)	4,800 (D)	2,525 (D)	10,700 (C)	4,620 (D)	3,025 (C)
	Footbridge across CPR only	6,720 (E)	3,540 (E)	4,400 (A)	6,470 (E)	4,240 (C)



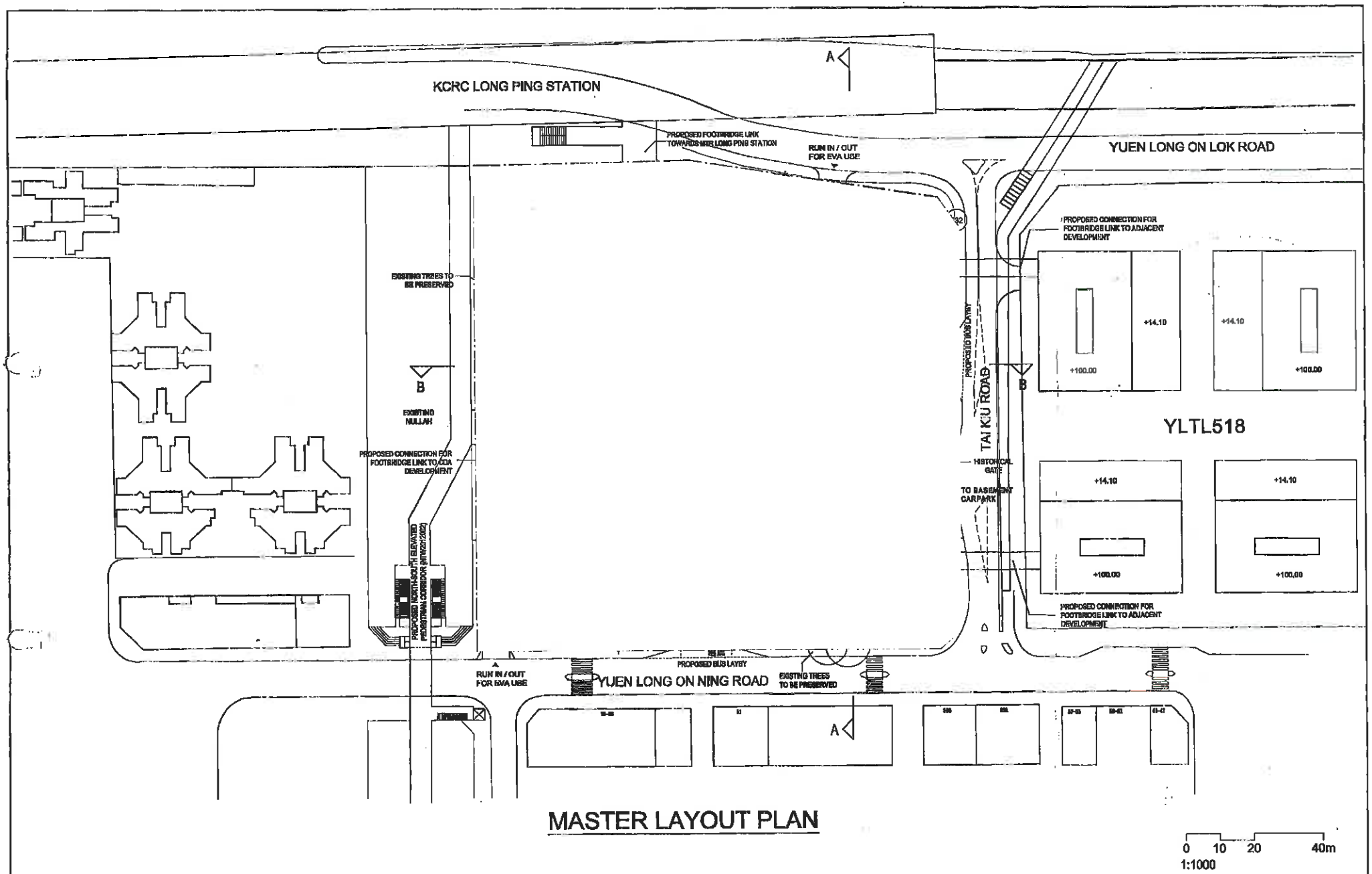
Appendix E

Photomontages


麵 家
雪糕雪糕
麻辣鍋子
奶茶汽水

Appendix F

Layout of Proposed Tai Kiu Development

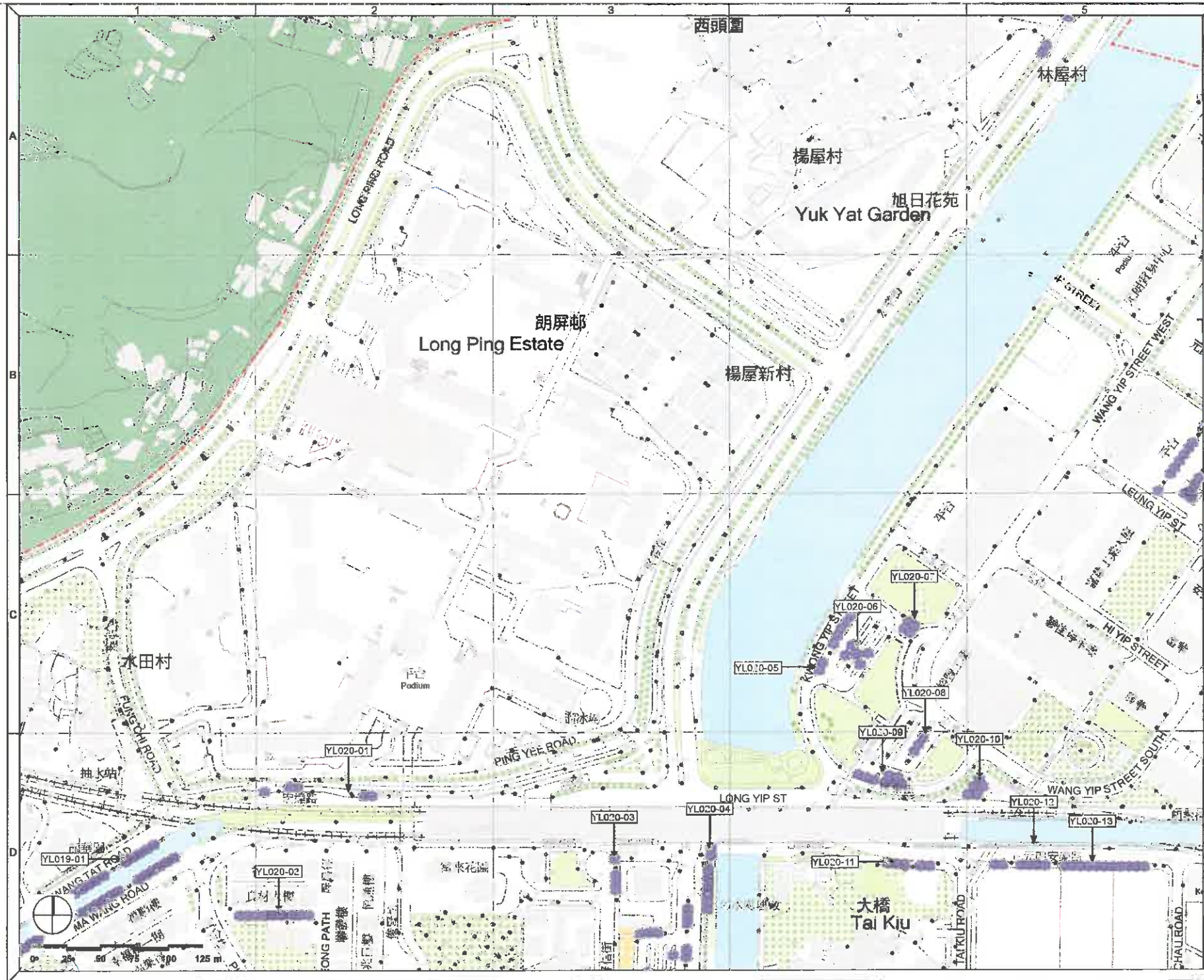


MASTER LAYOUT PLAN

Client/Owner:	Project:	Drawing Title:	Notes:	Scale:	Date:
梁少光建築師事務所有限公司 Christopher Leung & Associates Ltd. Architects & Designers Hong Kong Tel: 26247626 Fax: 26726646 Email: info@clarch.com	PROPOSED CDA DEVELOPMENT AT TAI KIU, YUEN LONG, N.T.	MASTER LAYOUT PLAN	THIS IS A DIAGRAMMATIC LAYOUT SHOWING THE PLANNING DESIGN INTEND ONLY. LAYOUT AND BOUNDARIES OF DIFFERENT USES ARE SUBJECT TO DESIGN DEVELOPMENT.	1:1000	APRIL 2012
				Job No.	Dwg. No. 1106/MLP/A101

Appendix G

Conceptual YL GMP Planting Plan



Legend

Focus Area

EXISTING

Planting Area (EPA)

Tree Group

Lawn

Vertical Greening

Water Body

Existing Movable Planters

Weed Tree, Leucaena leucocephala

EPA without Trees

EPA with Trees

Trees in Paving

Tree in Poor Condition (Potential Replant)

Old and Valuable Tree

Important Tree (Potential OVT)

PROPOSED

Vertical Greening

Planting Area (Replanting of EPA)

Planting Area

Lawn

Tree

NOTE:
1. The proposed greening measures are subject to detail design, followed by consultation with relevant departments and stakeholders before implementation.

NO.	DATE	DESCRIPTION	CHECKED	APPROVED
-	13.01.13	SUBMISSION OF DRAFT WORKING PAPER ON CONCEPTUAL GMP	AWG	JBERRY

DO NOT SCALE FROM THIS DRAWING

CLIENT: CEDD

CONSULTANTS: Hyder

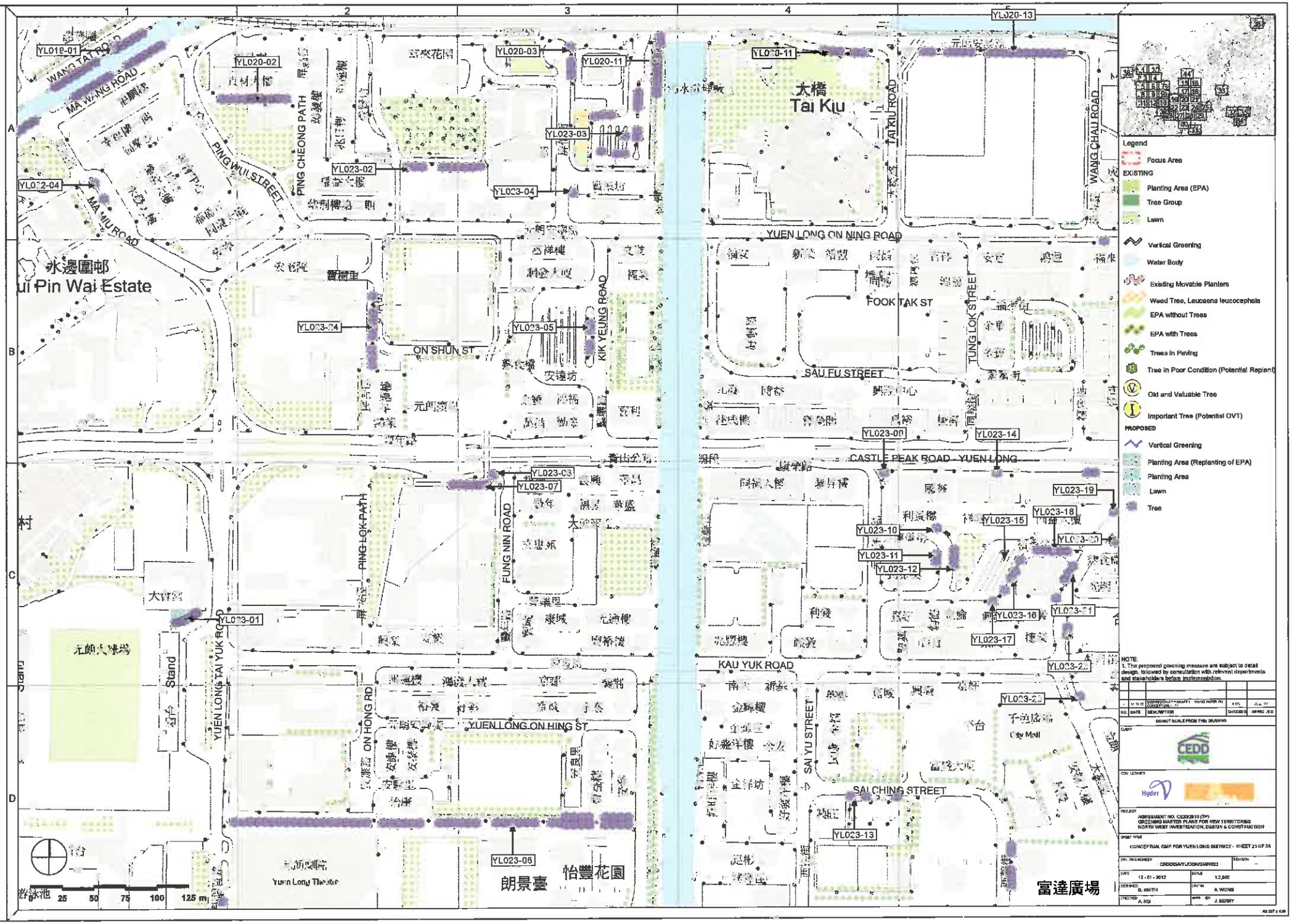
PROJECT: AGREEMENT NO. CE29/2010 (TP)
GREENING MASTER PLANS FOR NEW TERRITORIES
NORTH WEST INVESTIGATION, DESIGN & CONSTRUCTION

SHEET TITLE: CONCEPTUAL GMP FOR YUEN LONG DISTRICT - SHEET 20 OF 38

DRAWING NAME: CEDD0AAYLCONGMPR020 | REVISION: -

DATE	13 - 01 - 2012	SCALE	1:2,500
DRAWN	M. SMITH	CHECKED	A. WONG
CHECKED	A. NG	APPROVED	J. BERRY

A3 297 x 420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YL020-02
YL020-03
YL020-11
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YL023-02
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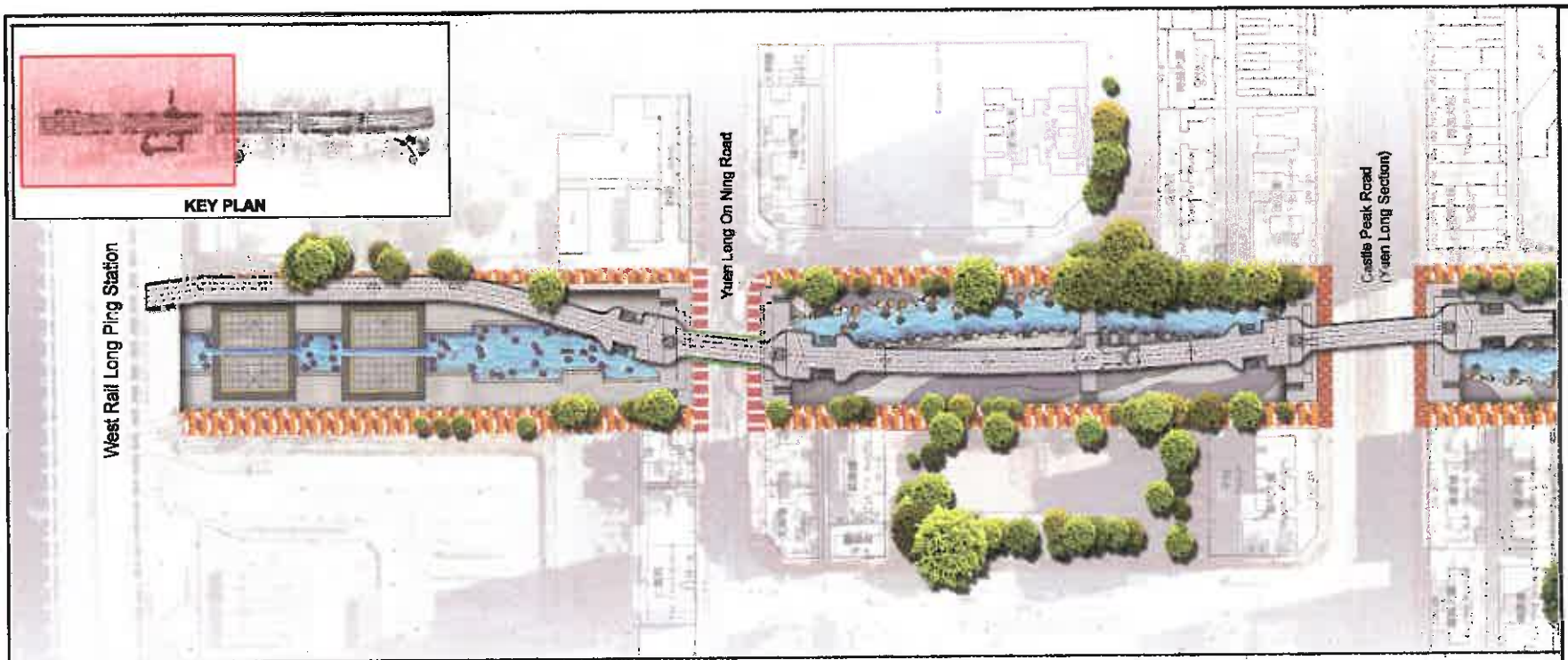
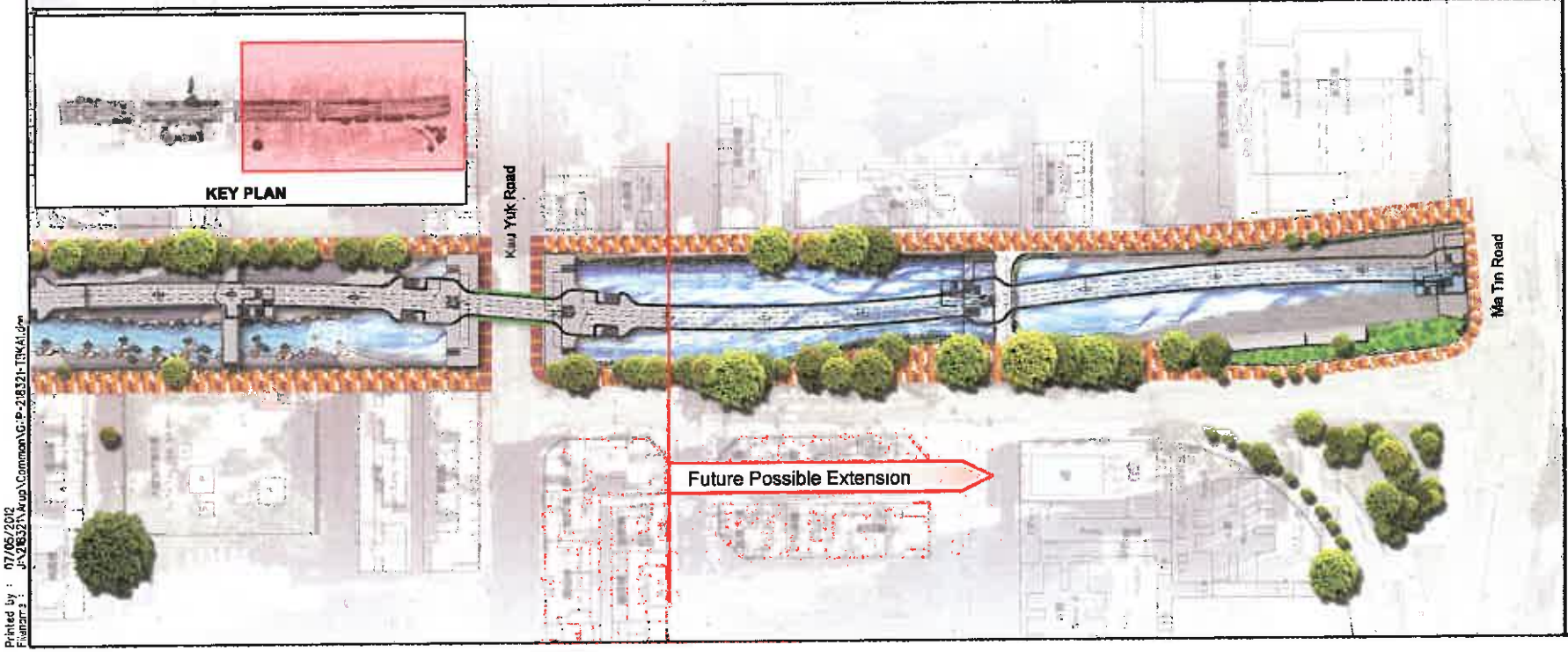
YL023-10
YL023-11
YL023-12
YL023-13
YL023-14
YL023-15
YL023-16
YL023-17
YL023-18
YL023-19
WANG TAT ROAD
MA WANG ROAD
PING CHEONG PATH
PING WUI STREET
MA WIU ROAD
水邊圍邨
ui Pin Wai Estate
ON SHUN ST
KIK YEUNG ROAD
太橋
Tai Kiu
TAI KIU ROAD
WANG CHAU ROAD
YUEN LONG ON NING ROAD
FOOK TAK ST
TUNG LOK STREET
SAU FU STREET
CASTLE PEAK ROAD - YUEN LONG
PING LOK PATH
FUNG NIN ROAD
KAU YUK ROAD
YUEN LONG TAI YUK ROAD
YUEN LONG ON HING ST
ON HONG RD
SAI YU STREET
SAI CHING STREET
City Mall
Yuen Long Theatre
朗景臺
怡豐花園
富達廣場
Legend
Focus Area
EXISTING
Planting Area (EPA)
Tree Group
Lawn
Vertical Greening
Water Body
Existing Movable Planters
Weed Tree, Leucaena leucocephala
EPA without Trees
EPA with Trees
Trees in Paving
Tree in Poor Condition (Potential Replant)
Old and Valuable Tree
Important Tree (Potential OVT)
PROPOSED
Vertical Greening
Planting Area (Replanting of EPA)
Planting Area
Lawn
Tree
NOTE:
1. The proposed greening measure are subject to detail design, followed by consultation with relevant departments and stakeholders before implementation.
DO NOT SCALE FROM THIS DRAWING
CEDD
Hyder
AGREEMENT NO. CE20/2010 (TP)
GREENING MASTER PLANS FOR NEW TERRITORIES
NORTH WEST INVESTIGATION, DESIGN & CONSTRUCTION
CONCEPTUAL GMP FOR YUEN LONG DISTRICT - SHEET 23 OF 35
CE/DDS/A/YL/CON/GMP/023
13 - 01 - 2012
1:2,500
B. SMITH
A. WONG
A. NG
J. BERRY
0 25 50 75 100 125 m

Appendix H

Master Landscape and Paving Plan





PROPOSED NEW PAVING

EXISTING TREES

PROPOSED SHRUBS ON EXISTING FOOTWAY

PROPOSED SHRUBS ON FOOTBRIDGE

Rev	Description	By	Date
B	PAVING EXTENT UPDATE	-	03 / 13
A	PAVING EXTENT UPDATE	-	02 / 13

Consultant

ARUP

Project title

Agreement No. CE 4/2011 (HY)

Improvements to Pedestrian Environment in Yuen Long Town - Feasibility Study

Drawing title

MASTER PAVING AND LANDSCAPE PLAN

Drawing no.	Rev.
FIGURE 1	B

Drawn	Date	Checked	Approved
ST	08/05/12	EL	KYL

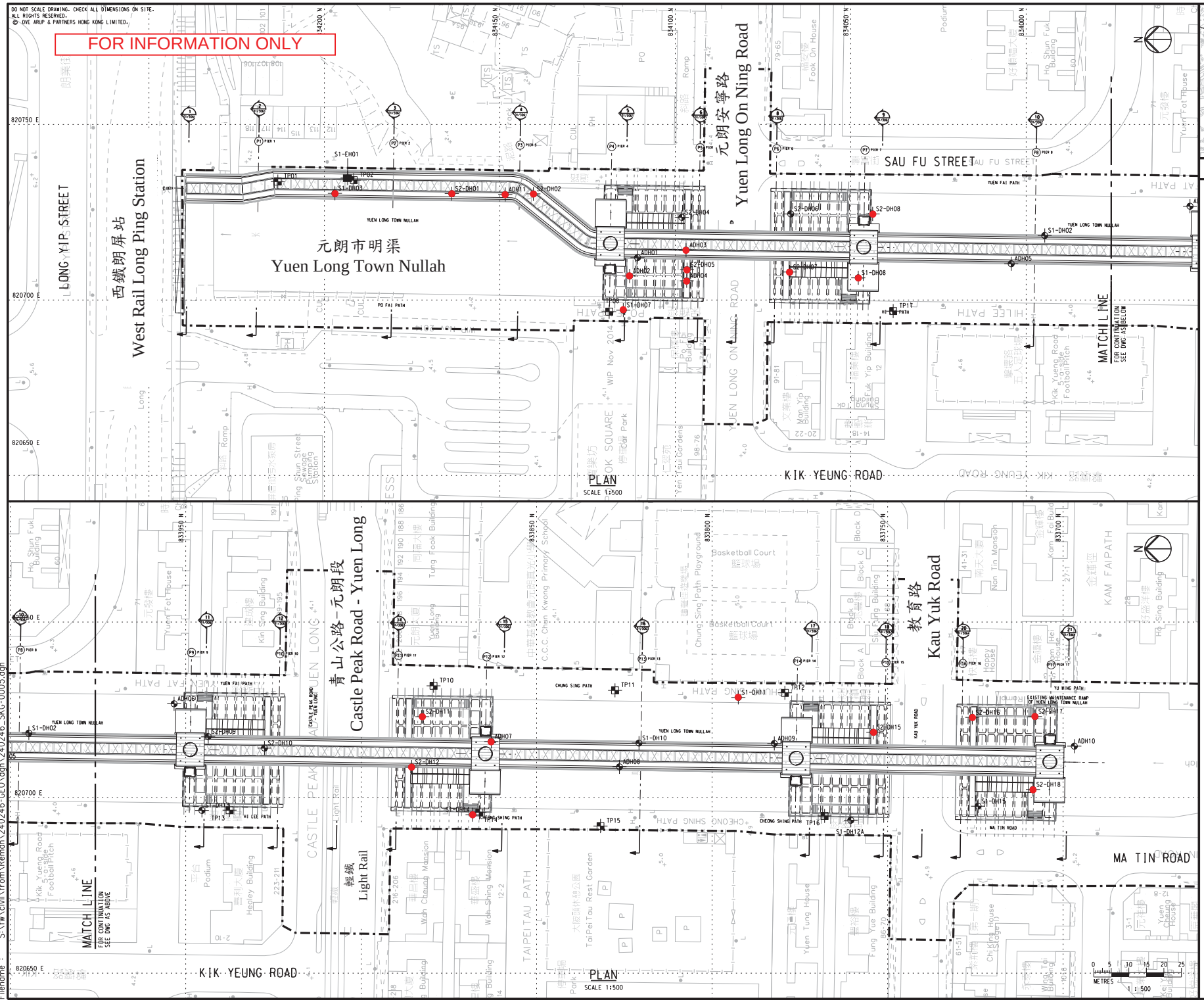
Scale: NTS

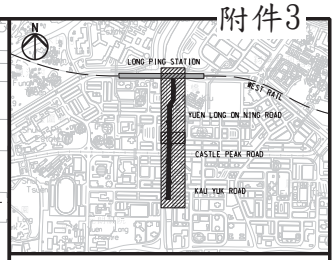
Status:

政府
HIGHWAYS DEPARTMENT
主要工程管理處
MAJOR WORKS PROJECT MANAGEMENT OFFICE

Printed by : 07/05/2012
Filename : J:\283321\Arup\Common\G:\P-218321-TIKAI.dwg

附件3





LOCATION PLAN

LEGEND

- WORKS LIMIT
- S1-DH02 PROJECT SPECIFIC BOREHOLE
- TP01 PROJECT SPECIFIC TRIAL PIT
- S1-DH02 PROJECT SPECIFIC BOREHOLE WITH CAVITY
- ENVIRONMENTAL SAMPLING LOCATION

Project title

Elevated Pedestrian Corridor in Yuen Long Town connecting with Long Ping Station

Drawing title

GROUND INVESTIGATION PLAN

Drawing no.		Rev.
HMW6182TB-SK0042		
Drawn	Date	Checked	Approved
Scale 1:500 @ A1	Status	

路政署
HIGHWAYS DEPARTMENT
主要工程管理處
MAJOR WORKS PROJECT MANAGEMENT OFFICE

Printed by : 5/21/2018
Filename : S:\fw\civil\from\Reman\240246-GEO\dgn\240246_SKG-0005.dgn