立法會財務委員會
2017年6月2日的會議

781CL－東涌第 54 區公營房屋發展之基礎設施工程

補充資料

目的

立法會財務委員會於2017年6月2日審議上述工程計劃(見FCR(2017-18)5號文件)時，委員要求政府當局提交以下補充資料－

(a) 就東涌第 54 區的擬議發展而進行的交通影響評估報告正文全文；

(b) 東涌第53a區擬議酒店的發展規模、擬於該區設立的旅遊巴士停泊處和可供停泊的旅遊巴數目；

(c) 東涌第 54 區的公營房屋項目下，擬建單位將全為居者有其屋單位的原因；

(d) 便利長者和殘障人士使用連接東涌第 54 區和東涌第56區的行人過路設施的安排(逐項列出並以地圖標示)；及該些人士使用行人過路設施由東涌第54區前往東涌第56區所需的時間；

(e)(i) 當局就東涌第 54 區的公營房屋項目和鄰近建築物進行的微氣候研究報告；

(ii) 當局規劃東涌第56區的街市時所作的調查報告，認為位於東涌第 56 區的街市能滿足將來

東涌第54區人口對街市的需求；

(f) 當局規劃東涌第54區的單車停放處時，所沿用的《香港規劃標準與準則》內的相關準則的生效日期；

(g) 最接近東涌第54區的長者中心的位置及距離；以及

(h) 朱凱廸議員於2017年6月2日會議席上提交的信件內臚列的問題。

政府回應

2. 經諮詢相關政策局及部門後，現綜合回覆如下－

(a) **交通影響評估**

本工程計劃項目的交通檢討及評估報告(只有英文版本)載於附錄1。

(b) **東涌第53a區的發展項目**

根據地政總署提供的資料，東涌第53a區擬議酒店的總樓面面積約為56,700平方米，可提供約1,200個酒店房間。東涌第53a區的發展項目內將來沒有設置旅遊巴士停泊處。本工程計劃會在東涌第53a區北面設置旅遊巴停泊處，預計可提供10個旅遊巴泊車位。

(c) **東涌第54區擬建資助出售房屋的考慮**

正如其他公營房屋項目，香港房屋委員會（下稱「房委會」）在規劃東涌第54區時，考慮公營

房屋整體需求和供應、區內的需要、用地的發展限制、對環境、交通、空氣流通和景觀的影響、基礎設施容量等因素，並諮詢相關部門及機構，以及區議會及地區人士的意見後，房委會建議在東涌第 54 區興建資助出售房屋。

(d) **連接東涌第 54 區和第 56 區的行人過路設施**

來往東涌第 54 區與第 56 區的行人路線圖載於附錄 2。在東涌第 54 區資助出售房屋項目落成後，市民可沿著迎禧路及迎東路步行來往東涌第 54 區與第 56 區(迎東邨)，路徑長度約為 800 米至 950 米(即「路徑 1A/B」)。將來，在東涌新市鎮擴展計劃中 P1 路(迎禧路的延伸)建成後，市民亦可選擇步行「路徑 2A/B」，路徑長度約為 700 米至 850 米。土木工程拓展署會盡可能於東涌東第一批人口遷入時落成 P1 路。一般步行需時約十多分鐘，而各有關長者及殘障人士會按其活動能力而有所增加。

(e) **東涌第 54 區及第 56 區發展的相關技術研究**

(i) 東涌第 54 區公營房屋項目有關風環境的微氣候研究報告(只有英文版本，共五頁)，請參閱附錄 3。

(ii) 房委會在規劃新建屋邨時，會考慮擬建屋邨的規模、鄰近商場及零售設施的供應等因素，並會諮詢相關機構，如區議會的意見，制定屋邨的零售設施。同時亦會一併考慮個別公營房屋項目其他因素，例如在個別項目加入非住宅設施，而令住宅數目減少，增長建築期，及造成重大財政承擔等。有需要時，房委會亦會在規劃階段委託顧問進行零售設

施研究，為新建屋邨釐定合適的零售設施及同時考慮有關設施在營運和財政上的可行性及適切性等。

房委會基於上述各方面的考慮及聽取各方面的意見後，會於東涌第 56 區興建一個包括 40 個檔位的傳統濕街市，以滿足區內居民的購物需要。房委會於 2011 年在規劃東涌第 56 區時作出商業設施（包括街市）的可行性研究，當中以第 56 區及毗鄰的 55a 區和 55b 區(即現時已落成的東環和昇薈)作為主商圈，及鄰近的映灣園作為次商圈而得出共約三萬人口以作研究基礎。研究亦顯示，東涌第 54 區發展將有助提升東涌第 56 區街市營運和財政上的可行性。因此，以東涌第 56 區興建的街市提供街市服務給東涌第 54 區的居民屬適切。

(f) **單車停泊位**

房委會按現行《香港規劃標準與準則》內的相關準則在東涌第 54 區提供單車停泊位。該準則於 2006 年 12 月公佈。

(g) **現有地區長者中心**

現時服務東涌有關地區的長者中心包括位於逸東邨的鄰舍輔導會東涌綜合服務中心(為一間長者地區中心)和鄰舍輔導會東涌綜合服務中心東涌耆樂日間護理天地(為一間 20 位的長者日間護理中心)；以及位於富東邨的香港聖公會福利協會有限公司香港聖公會東涌綜合服務－消閒閣(為一間長者鄰舍中心)。

(h) 朱凱廸議員於2017年6月2日會議席上提交的信件，要求提供的補充資料如下：

（一）背景文件

本項目的交通檢討及評估報告(只有英文版本)載於附錄1。

（二）公屋與居屋

因應社會對公營房屋的需求甚為殷切，為善用土地資源，政府及房委會會在不同地區，積極物色適合發展公營房屋的土地，以回應市民的需求。公營房屋是公共租住房屋及資助出售單位的統稱，當中包括房委會及香港房屋協會(下稱「房協」)所興建的房屋。

鑑於香港當時的經濟及房地產市場的情況，政府於2002年將房屋政策重新定位，包括由2003年起停建居者有其屋計劃（下稱「居屋」）單位。政府在2011年公布復建居屋，以回應中低收入家庭自置居所的訴求。

根據政府在2014年12月公布的《長遠房屋策略》，其中兩個策略性方向為興建更多公共租住房屋(下稱「公屋」)單位，以及提供更多資助出售單位（包括居屋單位）。故此，政府在考慮公屋及資助出售單位供應的比例時，需要平衡基層市民對公屋的持續需求，以及中低收入家庭自置居所的願望這兩方面的訴求。事實上，資助出售單位亦提供機會讓經濟條件已獲改善的公屋租戶自置居所，從而騰出其公

屋予正在輪候公屋的人士，有助滿足公屋申請者的住屋需求。

在2007/08至2016/17年度，房委會及房協合共興建約136 700個公屋單位及9 100個資助出售單位。有關的按年興建量詳列於附錄4，並反映了上述房屋政策在過去多年的轉變。

正如其他公營房屋項目，房委會在規劃東涌第54區時，考慮公營房屋整體需求和供應、區內的需要、用地的發展限制、對環境、交通、空氣流通和景觀的影響、基礎設施容量等因素後，並諮詢相關部門及機構，以及區議會及地區人士的意見，房委會建議在東涌第54區興建資助出售單位。有關東涌的公共租住房屋及資助出售單位的數目，可參考附錄5。根據資料顯示，現時東涌區的資助出售房屋數目只佔該區總公營房屋數目約16%。

根據居屋的訂價準則，單位售價訂於市值的折扣水平，而有關折扣以申請者的負擔能力作為考慮。考慮負擔能力的基準，是至少有一半出售的單位，可讓居屋白表申請者入息上限的家庭（即兩人或以上家庭）在購樓後，其按揭供款與入息比例不超過40%。在每個居屋銷售計劃推出前，房委會會以當時最新的數據，按既定的負擔能力的基準計算折扣率以訂定單位的售價。在一般情況下，居屋單位會以市值的七折出售；若市值七折的售價未能符合負擔能力的基準，房委會會考慮給予更高的折扣。

（三）設施

（1）來往東涌第54區與第56區的行人路線圖載於附錄2。在東涌第54區資助出售房屋項目落成後，市民可沿著迎禧路及迎東路步行來往東涌第54區與第56區(迎東邨)，路徑長度約為800米至950米(即「路徑1A/B」)。將來，在東涌新市鎮擴展計劃中P1路(迎禧路的延伸)建成後，市民亦可選擇步行「路徑2A/B」，路徑長度約為700米至850米。土木工程拓展署會盡可能於東涌東第一批人口遷入時落成P1路。

（2）為方便居民購買基本日常所需，房委會在東涌第54區項目內會按地區需要，提供售賣新鮮糧油的地舖、外賣食店、便利店和其他一般的零售服務，以回應居民的日常需要。

（3）除了東涌第54區的設施外，東涌第56區公營房屋發展將提供街市及購物設施和社區設施，包括一所6個課室的幼稚園、一所綜合服務中心、一所100個宿位的安老院舍、一所50個宿位的嚴重弱智人士宿舍及一所50個名額的展能中心。

而鄰近亦設有不同的社區設施，詳細資料載於附錄6。

(4) 有關東涌公眾街市的跟進，政府已於2017年6月5日作書面回應(請參閱立法會 ESC116/16-17(02)號文件的第(三)3段)。以下是相關的回覆：

現時東涌新市鎮已設有街市及其他新鮮糧食零售店，包括在逸東邨及富東邨的濕貨街市。在施工中的東涌第56區及第39區的公共房屋發展項目內，亦將分別提供濕貨街市，該兩個公共房屋發展項目預計分別於2017年及2018年完成。香港房屋委員會在發展未來東涌東擴展區及西擴展區內的公營房屋發展項目時（包括東涌東第99區、100區、103區、109區、114區、117區、119區、122區及133區，以及東涌西第42區及46區），亦會視乎需要考慮是否設置街市或其他零售設施。根據《東涌擴展區分區計劃大綱圖》及《東涌市中心地區分區計劃大綱圖》，「街市」在「政府、機構及社區」及「住宅（甲類）」用途地帶屬經常准許用途。

政府在東涌東擴展區的東面初步物色到合適的地點興建具規模的公眾街市，有關選址鄰近擬興建的東涌東港鐵站，有助連接現時東涌港鐵站和擬興建的東涌西港鐵站，同時鄰近公共交通交匯處，使更多市民能容易到達，不但滿足新發展區居民的需要，並且可普遍照顧東涌地區市民的需要。相關的政策局和部門會在詳細

設計及落實東涌新市鎮擴展的階段緊密協調和推展這方面的工作。有關選址仍有待東涌新市鎮東擴展區詳細設計，現時未能標示具體位置。

（四）**交通**

運輸及房屋局已按照《鐵路發展策略2014》初步建議的落實時間，於2017年1月邀請香港鐵路有限公司就落實東涌西延線及東涌東站提交建議書，其後政府會對有關的建議書進行評估。按照既定程序，在敲定任何新鐵路方案前，政府會就方案的具體走線、車站位置、推展方式、成本估算、融資模式，以至實際推展時間表諮詢公眾，包括立法會及當區區議會。

運輸及房屋局
2017年6月

Civil Engineering and Development Department

Agreement No. CE 76/2014 (CE) Main Engineering Infrastructural Works for Housing Development in Area 54, Tung Chung - Investigation, Design and Construction

Revised Final Traffic Review and Assessment (2nd Issue)

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Contents

Drawings

1 Introduction

1.1 General

1.1.1 Ove Arup and Partners Hong Kong Limited (Arup) has been commissioned by the Civil Engineering and Development Department (CEDD) of Hong Kong Special Administrative Region (HKSAR) Government under Agreement No. CE 76/2014 (CE) on 12 May 2015 to provide consultancy services for the investigation, design and construction of Main Engineering Infrastructural Works for Housing Development in Area 54, Tung Chung (the Project), that is part of the Tung Chung Development project. The Assignment commenced on 13 May 2015 and is scheduled to complete in July 2020.

1.2 Project Background

1.2.1 Development of Tung Chung New Town forms an important part of the Government's Port and Airport Development Strategy, providing a community to support the Hong Kong International Airport at Chek Lap Kok. In 1992 the North Lantau Development Study (NLDS) was completed and a Tung Chung and Tai Ho Recommended Outline Development Plan was produced. The NLDS recommended the New Town to be developed in phases.

1.2.2 In mid 1996, the Government completed the Territorial Development Strategic Review (TDSR) which identified housing shortfall in the medium to long term. The TDSR also identified the North Lantau New Town as a strategic growth area, among other areas, to meet the territorial housing demand.

1.2.3 The Phases 1 and 2 engineering works of Tung Chung development were completed in 1997 and 2001 respectively. The reclamation works for Phase 3A of Tung Chung development commenced in March 1999 and were completed in April 2003. The associated infrastructure for Phase 3A shall be provided to tie in with the population intake of the developments. Referring to Outline Zoning Plan of Tung Chung Town Centre Area, Phase 3A includes Areas 51 to 56.

1.2.4 A housing development will be implemented in Area 54, Tung Chung.

1.2.5 The project under this Assignment is to provide supporting infrastructure works including, inter-alia, a public road (Road L3), drainage, sewerage and water supply system to support the Development and any other developments in the vicinity. An amenity area, including footpath and cycle track to the north of Ying Hei Road, is also included in this project to provide linkage between the Development and the public rental housing development in Tung Chung Area 56. The project also includes other upgrading works to existing sewers required to accommodate the need for the other developments to the north of Ying Hei Road. The layout plan of the site is shown in **Drawing No. 243474/TIA/001**.

1.3 Scope of Traffic Review and Assessment

1.3.1 [redacted] This report presents the findings of the TRA.

1.3.2 The objectives of the TRA are outlined [redacted] as follows:

a) The Consultants shall conduct a TRA to ascertain the road configuration of Road L3, a local distributor of 7.3m width single 2-way carriageway with cul-de-sac, and Road L3/Ying Hei Road junction to meet the traffic demand arising from the housing development in Area 54, the hotel development in Area 53a and any other developments in the vicinity. The requirements and methodology of the Assessment should be agreed with TD before its commencement.

b) The Consultants shall review the road layout and junction layout, propose traffic improvement measures and propose junction improvement works if necessary, to the satisfaction of the Authorities.

c) The Consultants shall propose pedestrian crossing facilities at the roads and junctions, including pedestrian grade separated walkways systems if necessary.

[redacted]

1.3.3 As per the Brief, the TRA Report includes:

a) An assessment with supporting calculations on the findings and recommendations;

b) An assessment and evaluation of the traffic impacts during the construction period;

c) Derivation of temporary traffic measures; in the light of the forecast situations at the various critical construction stages and phasing of traffic diversion/lane closures and construction access arrangements with particular reference to the identified interfacing projects;

d) Identification of interface problems with existing/imminent and proposed transportation, utilities and new development projects during the construction of the Project;

e) An implementation programme with administration procedures of all the temporary traffic measures for the various stages and phasing of the works, immediately prior to and during construction of the Project; and

f) Assessment findings, conclusions, recommendations and mechanisms for implementation of the various temporary traffic management schemes.

2 Project Description

2.1 Site Location and Planning Parameters of Areas 53a and 54

2.1.1 The subject site is located in Tung Chung, on the northern side of Lantau Island. The site consists of Area 54 and Road L3, both of which are located to the north of Yi Tung Road, as well as the proposed sewer upgrading works which are to be laid between Area 54 and the existing Tung Chung Sewage Pumping Station, south of the North Lantau Highway.

2.1.2 Road L3 is to be constructed as a continuation of Yi Tung Road and will become the northern leg of the existing junction of Tung Chung Waterfront Road, Ying Hei Road and Yi Tung Road.

2.1.3 The sites to be served by Road L3 include Area 53a to the west, and Area 54 to the east. Area 53a is set to house a 1,261 room hotel consisting of both four and five star facilities. The hotel complex will be accessed via a run-in near the southern extent of Area 53a's Road L3 boundary and exit manoeuvres will be catered for by a run-out towards the northern extent of the road boundary. The hotel will have a large drop-off / pick-up zone to cater for coaches and other vehicle manoeuvres, as well as an underground car park to cater for private car parking and the unloading/loading of goods vehicles (GV). The anticipated occupation date of Area 53a is in 1st quarter of Year 2019.

2.1.4 According to approved Outline Zoning Plan of Tung Chung Town Centre Area, residential development with maximum plot ratio of 5 under "R(A)" zoning is planned in Area 54. The programmed population intake is mid-2021.

2.2 Public Transport

2.2.1 Area 54 is approximately 900m from Tung Chung MTR station however, this is nearing the extent of a comfortable walking distance. To provide a more convenient public transport service, it is considered that the provision of bus services will be more practical to meet the demand generated by residents and hotel guests. Therefore, bus facilities will be considered in the design of Road L3.

Existing Public Transport Provision

2.2.2 The site's location in the undeveloped outskirts of the Tung Chung New Town means that direct access to existing public transport is very limited. This is largely because there has been no demand for public transport in the area surrounding the site.

2.2.3 The nearest MTR station is the Tung Chung Station which is a 900m walk from the south-western corner of Area 54.

2.2.4 The nearest public transport services are franchised bus services that travel along Man Tung Road. The closest bus stops where these services stop are approximately 500m from the site, via the pedestrian footpaths along Yi Tung Road.

2.2.5 Eastbound franchised bus services stop at the *Coastal Skyline, Man Tung Road* and *Caribbean Coast Phase 3* bus stops, both approximately 530m from Area 54 and westbound bus services stop at *Yi Tung Road* (on Man Tung Road). The details of these services are shown in the following table:

Table 2.1: Existing Franchised Bus Services eastbound on Man Tung Road

Route No.	Origin	Destination	Peak Headway (min.)/times of operation
NLB37	Tung Chung (Yat Tung Estate Public Transport Terminus)	Tung Chung (Yat Tung Estate Public Transport Terminus)	10
E11S	Tung Chung (Yat Tung Estate)	Tin Hau Station	Mon-Fri: 07:30, 07:45
E21A	Ho Man Tin (Oi Man Estate)	Tung Chung (Yat Tung Estate)	15
E21X	Tung Chung (Yat Tung Estate)	Hung Hom Station	Mon-Fri: 07:20, 07:40, 08:00 Sat: 07:30, 08:00
E22S	Tung Chung (Yat Tung Estate)	Tseung Kwan O (Po Lam)	Mon-Fri: 07:35
E31	Discovery Park	Tung Chung (Yat Tung)	10-15

Route No.	Origin	Destination	Peak Headway (min.)/times of operation
E34P	Tin Shui Wai Town Centre Bus Terminal	Tung Chung (Yat Tung)	Mon-Sat: 06:25
N21A	Tsim Sha Tsui (Star Ferry)	Airport (via Yat Tung Estate)	Daily: 00:10, 00:30, 00:50, 01:10
N31	Discovery Park	Airport (Ground Transportation Centre)	Every 30 minutes between 00:15 and 05:15 daily
S56	Tung Chung Station	Airport (Passenger Terminal Building)	15

2.2.6 The same level of bus service is present in the opposing direction however, the times of peak operation are reversed.

2.2.7 The bus services do not provide comprehensive territory-wide access however, it is noted that the NLB37 travels via the Tung Chung MTR Station, which allows for easy connection to the Territory-wide MTR Network.

2.2.8 It is noted that the aforementioned bus services also travel along Ying Hei Road which is adjacent to the site. If bus stops were available on Ying Hei Road, adjacent to the site, access to public transport would be significantly easier and there may be potential to establish additional services to provide more travel destination options for surrounding residents and hotel guests.

3 Design Assessment

3.1 Road L3

Junction Design

3.1.1 The Road L3, Tung Chung Waterfront Road, Yi Tung Road and Ying Hei Road junction will eventually serve vehicles travelling to and from the eastern section of Tung Chung New Town Extension (Tung Chung East or TCE) and therefore, needs to be designed to cater for future traffic volumes.

3.1.2 [redacted] a junction performance assessment was undertaken for the Tung Chung Waterfront Road, Road L3, Ying Hei Road and Yi Tung Road junction (J2). The results of this assessment are discussed in more detail in Section 4 however, using these results, it is determined that the junction can be configured as per **Drawing No. 243474/TIA/002**.

3.1.3 The junction performance assessment showed that the left-turn lane for eastbound vehicles on Tung Chung Waterfront Road turning left into Road L3, as shown on the preliminary designs for the junction, is not actually required. Therefore, the carriageway could be maintained with just two lanes. This would also minimise the distance required for pedestrians to cross the road.

3.1.4 A swept path analysis has been undertaken to show the tracking of a franchised bus from Road L3 to Ying Hei Road and from Waterfront Road to Road L3. This is shown in **Drawing No. 243474/TIA/003**.

3.1.5 [redacted] The adopted plan is shown in **Drawing No. 243474/TIA/004** and the corresponding franchised bus swept-path is shown in **Drawing No. 243474/TIA/005**. The junction performance assessment for this proposed layout is discussed in more detail in Section 4.

Carriageway

3.1.6 Road L3 will be classified as a Local Distributor Road and has therefore been designed as per Diagram 3.4.12.5 of volume 2 of TPDM. This comprises a 7.3m wide single carriageway with one traffic lane in each direction.

3.1.7 To account for the curvature in the road, the carriageway width has been widened as per Section 3.4.4 of volume of TPDM.

3.1.8 Footpaths are proposed for along both sides of Road L3 and will have a minimum width of 3.25m. This width widens adjacent to areas where pedestrians will tend to congregate, including adjacent to run-ins/outs, the nearby junction, as well as adjacent to the proposed on-street bus terminus.

Cul-de-sac

3.1.9 To cater for larger fire appliances, coaches, franchised buses and the majority of GV's, the cul-de-sac has been sized according to diagram 2.2.3.7 of volume 2 of TPDM. This requires a minimum kerb to kerb clearance of 27.5m.

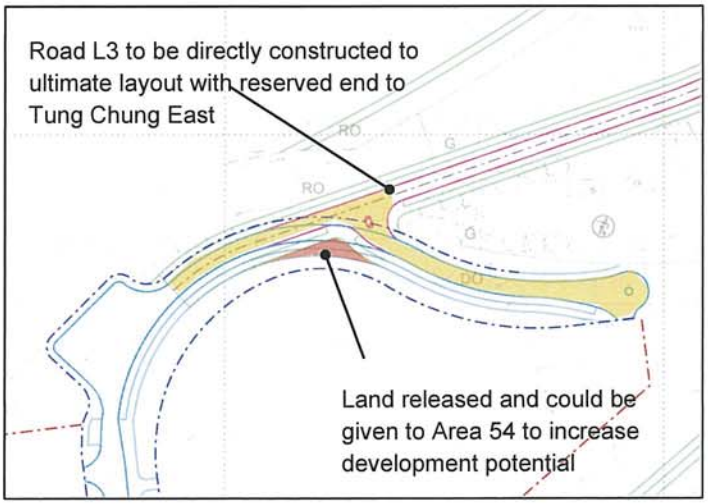
3.1.10 A swept path analysis has been undertaken to show the tracking of a franchised bus around the cul-de-sac. This is shown in **Drawing No. 243474/TIA/006.**

Design Interface with TCE

3.1.11 [redacted] In particular, Road L3 built under this Project will be further extended to the local road network in TCE. The traffic reviews under this Assignment will therefore duly consider the future traffic growth in TCE.

3.1.12 There is a possibility to minimise future 'double handling' by designing the end of Road L3 in a way to easily enable the future extension. This would adopt a '1-step approach' where a T-junction would be built to include the junction leg for the future TCE extension. This arrangement can also release land for Area 54 to increase its development potential or as amenity area. This concept is illustrated by the following figure:

Figure 3.1: 1-Step Approach

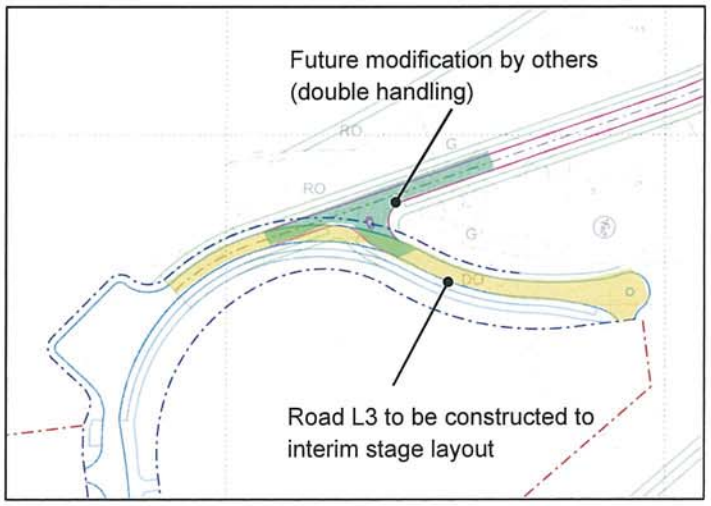


3.1.13 However, this layout would not be appropriate for long-term use and would be inconvenient for the potential public transport services using Road L3, which will be required to turn around at the end of Road L3.

3.1.14 Considering that the establishment and population intake of TCE is due to occur sometime after the establishment of Area 53a, Area 54 and the supporting infrastructure, it is recommended that a '2-step approach' is adopted for the formation of Road L3. This will involve constructing Road L3 with a smooth curve instead of the future junction.

3.1.15 This will eliminate the perceived inconvenience of an incomplete junction and enable public transport services and tour coaches to perform u-turn manoeuvres more easily than if they had to negotiate the possible junction mentioned above. This layout is illustrated in the figure below.

Figure 3.2: 2-Step Approach



Pedestrian Crossing Facilities

3.1.16 A study on the provision of a grade separated pedestrian and/or cycle corridor across the junction of Ying Hei Road, Yi Tung Road and proposed Road L3 has been carried out, which examined the need for a grade-separated road crossing for the upcoming phased development of Tung Chung town and remaining areas and recommended options for implementation if needed. [redacted]

3.2 Amenity Area Adjacent to Ying Hei Road

Footpath

3.2.1 The pedestrian footpath along the northern side of Ying Hei Road, between Road L3 and Yi Tung Road, will have a width of 4m [redacted] This includes 3.5m wide footpath plus a 0.5m frontage buffer.

Cycle Track

3.2.2 The cycle track connectivity in Tung Chung has already been planned under the Tung Chung Town Centre Layout Plan and the TCE. In the Tung Chung Town Centre Layout Plan, cycle tracks have been planned alongside Ying Hei Road and part of which is going to be implemented under this Assignment.

3.2.3 The proposed cycle track will run along the northern side of Ying Hei Road, between Road L3 and Yi Tung Road and will have a width of 4m [redacted]

3.3 Public Transport and Coach Facilities

Public Transport Lay-by

3.3.1 Consultation with TD established that the public transport lay-by located on the eastern side of Road L3 is to serve as an on-street bus terminus to serve the passenger demand generated / attracted by the nearby developments, including Area 53a and Area 54.

3.3.2 It is likely that the majority of the residents housed in Area 54 will rely on some form of mechanical transport to undertake their daily journeys and it is considered that a majority of these trips will be made by public transport modes. Given that the location of the site is beyond reasonable walking distance from the nearest MTR station, it is believed that road based public transport will serve as residents' ultimate or partial mode of transport to and from home.

3.3.3 Hence, provision of sufficient road-based public transport facilities will be required to serve the demand generated from the new development.

[redacted]

Although the morning and evening peak hour trip rate account for the same proportion of daily trips made, the morning peak hour trip rate accounts for a higher proportion of the trips made in one direction (i.e. home-to-work trips). For such reason, it is considered that the more critical situation of morning peak hour outbound flow will be used for design purpose.

Table 3.1: Area 54 Public Transport Trip Rate

Item	Figures
Mechanised trip rate per person	1.83[redacted]
Morning peak hour trip rate proportion	12%[redacted]
Morning peak hour directional split[(1)]	70% outbound : 30% inbound
Proportion of trips taken via public transport	88%[redacted]
Morning Peak Hour Outbound Public Transport Trip Rate per Person	0.135

[redacted]

3.3.4 The public transport trip rate shown above is applicable to all housing types and can therefore be applied to the housing development proposed for Area 54.

3.3.5 Given the lengthy and inconvenient walk to the nearest MTR station, and to provide a conservative approach to the facility provision assessment, it is assumed that 100% of the morning peak hour outbound public transport trips will be taken via bus services on Road L3.

3.3.6 With application of the above trip rate, the outbound morning peak hour public transport trips for the proposed housing site on Area 54 has been estimated using the population stated in the brief (12,000). This is summarized in **Table 3.2** below:

Table 3.2: Area 54 Public Transport Trips

Site	Proposed Population	Outbound Morning Peak Hour Public Transport Trips per Person	Outbound Morning Peak Hour Public Transport Trips
Area 54	12,000	0.135	1,620

3.3.7 Public transport trips generated by the proposed hotel on Area 53a will also need to be accommodated for by the adjacent on-street bus terminus. The following information has been used:

Table 3.3: Area 53a Public Transport Trip Rate

Item	Figures
2-way person-trip rate/room in AM peak[redacted]	0.71
Morning Peak Hour Directional Split[redacted]	70% outbound : 30% inbound
Proportion of trips taken via public transport	88%
Morning Peak Hour Outbound Public Transport Trip Rate per Room	0.44

[redacted]

3.3.8 With application of the above trip rate, the outbound morning peak hour public transport trips for the proposed hotel has been estimated. This is summarized in **Table 3.4** below:

Table 3.4: Area 53a Public Transport Trips

Site	Proposed Number of Rooms	Outbound Morning Peak Hour Public Transport Trips per Room	Outbound Morning Peak Hour Public Transport Trips
Area 53a	1,261	0.44	552

3.3.9 The following capacity of franchised buses has been used in the assessment of the public transport facility provision required for the proposed PTI terminus:

Table 3.5 Public Transport Mode Capacity

Public Transport Mode	Capacity per Vehicle
Double deck franchised bus (with 85% occupancy to account for unfilled buses)	110

3.3.10 Considering the above, an assessment on the overall required public transport provision has been undertaken and summarized in the following table:

Table 3.6: Overall Public Transport Provision

Site	Morning Peak Hour Outbound Public Transport Trips	Franchised Bus (FB)		
		Capacity	FB required per hour	Headway
Area 54 – Housing	1,620	110	15	4 min
Area 53a – Hotel	552	110	5	12 min
Total	2,172	110	20	3 min

3.3.11 To cater for this anticipated demand, it is considered that a lay-by to accommodate three franchised buses will be sufficient. This has been designed in accordance with TPDM requirements, specifically Diagram 2.5.4.2 of volume 9 of TPDM which requires 39m of straight kerb for three buses to stop against. This requirement has been satisfied with the provision of 42m of straight kerb, as well as 20m tapers.

3.3.12 As per the Public Bus Services Ordinance, the provision and maintenance of bus shelters is the responsibility of the franchised bus companies. Therefore, the design and provision of the necessary bus shelter/s should be undertaken by the relevant franchised bus company in later stages of the project. To accommodate this, it is proposed to provide a 5.5m wide footpath adjacent to the proposed on-street bus terminus. This width is significantly wider than the largest minimum footpath width as shown in Figure d of Diagram 2.6.3.1 of Volume 9 of TPDM (site with screen to rear with one end panel: 2.75m footpath width + 0.855m shelter width + 0.6m maintenance margin = 4.21m) and also exceeds the widest recommended footpath width in Table 3.4.11.1 of Volume 2 of TPDM. The proposed 5.5m width is therefore considered sufficient to cater for a bus shelter, as well as providing adequate width for free-flow pedestrian movements.

3.3.13 If in future, this footpath width is deemed too narrow, there is at least 8m of additional road reserve between the proposed footpath and the western boundary of Area 54. This spare width will likely be used for planting however, it could be reconfigured in future to provide more footpath width, if considered necessary.

Public Transport Interchange

3.3.14 [redacted] the public transport interchange (PTI) area north of Area 53a has been reserved for coach parking and this objective has been confirmed through consultation with TD.

3.3.15 TD also wishes to use this area for potential franchised bus layover requirements. It is therefore considered that TD will operate this facility to appropriately cater for the demand for both coach parking and franchised bus layover.

3.3.16 It is considered that a perpendicular coach parking configuration with maximum provision of parking space will best suit this location.

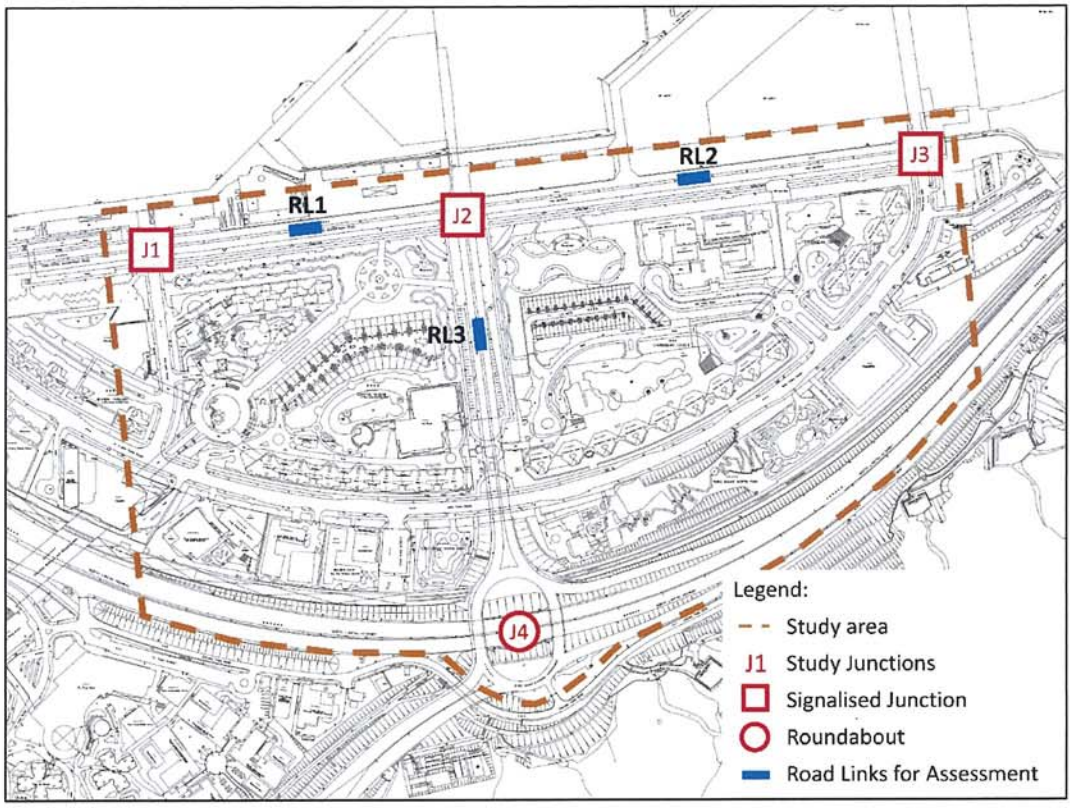
3.3.17 Using this approach, a conceptual layout has been devised to cater for ten coaches. The layout for this is shown in **Drawing No. 243474/TIA/007** and the associated swept path assessment is shown in **Drawing No. 243474/TIA/008**.

4 Traffic Assessment

4.1 Introduction

4.1.1 A traffic assessment has been undertaken for the area of influence (AOI) shown in the following figure:

Figure 4.1: Area of Influence



4.1.2 The junctions for assessment include:

J1 – Tung Chung Waterfront Road and Wai Tung Road

J2 – Tung Chung Waterfront Road, Road L3, Ying Hei Road and Yi Tung Road

J3 – Ying Hei Road, Ying Tung Road and Man Tung Road

J4 – Yi Tung Road, North Lantau Highway, Yu Tung Road and Tung Chung Eastern Interchange

4.1.3 The road links for assessment include:

RL1 – Tung Chung Waterfront Road

RL2 –Ying Hei Road

RL3 – Yi Tung Road

4.1.4 For traffic modelling purposes, the design years of 2026 and 2031 have been adopted. These design years have been determined as they are 5 and 10 years after the anticipated population intake of Area 54. The design year 2031 will also include the traffic effects generated by the remainder of the proposed Tung Chung East reclamation and development, including the extension of Road L3 into the Tung Chung East New Town area.

[redacted]

4.2 Traffic Generation and Attraction

4.2.1 As mentioned in Sections 2.1.3 and 2.1.4, Area 54 is proposed for a housing development with a maximum plot ratio of 5.

4.2.2 Traffic generation and attraction rates for this activity has been obtained from Annex D of the appendix of Volume 1 of the TPDM and are shown in the following table:

Table 4.1: Traffic Generation and Attraction Rates

Site	Activity	AM (pcu[1]/hr/flat or room)		PM (pcu/hr/flat or room)	
		Gen	Att	Gen	Att
Area 54	Housing Development	0.0432	0.0326	0.0237	0.0301

Notes:
[1] Passenger Car Unit

4.2.3 Applying these traffic generation and attraction rates to the proposed development results in the following levels of traffic:

Table 4.2: Traffic Generation and Attraction Volumes

Site	Number of Flats/Rooms	AM (pcu/hr)		PM (pcu/hr)	
		Gen	Att	Gen	Att
Area 54	3,200	138	104	76	96

4.3 Junction Assessment

4.3.1 The following table shows the existing (2015) junction performance for the junctions within the AOI.

Table 4.3: Existing Junction Performance (2015)

Junction	Type [2]	Cycle Time (sec)	Performance[1]	
			AM	PM
J1	S	62	>100%	>100%
J2	S	83	>100%	>100%
J3	S	80	>100%	>100%
J4	R	-	0.17	0.12

Notes:

[1] Figures shown represent 'Design Flow to Capacity' (DFC) for priority junctions and roundabouts and 'Reserve Capacity" (RC) for signal controlled junctions.

[2] P = Priority Junction; S = Signal Junction; and R = Roundabout

4.3.2 It can be seen that all the key junctions are currently performing extremely well.

4.3.3 The following table shows the junction performance for the year 2026 both without and with the development of Area 54. The reference case is when Area 54 is not developed and the design case is with the housing development.

Table 4.4: 2026 Junction Performance

Junction	Type [2]	Cycle Time (sec)	Reference Case Performance[1]		Design Case Performance[1]	
			AM	PM	AM	PM
J1	S	90	>100%	>100%	>100%	>100%
J2	S	120	>100%	99%	>100%	96%
J3	S	120	79%	>100%	79%	>100%
J4	R	-	0.31	0.28	0.32	0.28

Notes:

[1] Figures shown represent 'Design Flow to Capacity' (DFC) for priority junctions and roundabouts and 'Reserve Capacity" (RC) for signal controlled junctions.

[2] P = Priority Junction; S = Signal Junction; and R = Roundabout

4.3.4 2026 sees some degradation of performance during the AM peak however, all key junctions continue to operate with ample spare capacity.

4.3.5 The following table shows the junction performance for the reference and design cases in year 2031.

Table 4.5: 2031 Junction Performance

Junction	Type [1]	Cycle Time (sec)	Reference Case Performance[1]		Design Case Performance[1]	
			AM	PM	AM	PM
J1	S	120	18%	43%	16%	42%
J2	S	120	14%	12%	11%	10%

Junction	Type [1]	Cycle Time (sec)	Reference Case Performance[1]		Design Case Performance[1]	
			AM	PM	AM	PM
J3	S	120	28%	21%	27%	20%
J4	R	-	0.39	0.41	0.39	0.41

Notes:

[1] P = Priority Junction; S = Signal Junction; and R = Roundabout

[2] Figures shown represent 'Design Flow to Capacity' (DFC) for priority junctions and roundabouts and 'Reserve Capacity" (RC) for signal controlled junctions.

4.3.6 The above junction performance assessment shows that all the key junctions operate with appropriate reserve capacity for the design years.

4.3.7 In particular, it can be seen that the performance of J2 is of a satisfactory level to justify the removal of the previously proposed exclusive left turn lane into Road L3, [redacted] the corresponding junction performance is presented in the following table:

Table 4.6: 2026 & 2031 J2 Performance (with left turn lane)

Junction	Type [1]	Cycle Time (sec)	Reference Case Performance[1]		Design Case Performance[1]	
			AM	PM	AM	PM
2026 J2	S	120	>100%	>100%	>100%	>100%
2031 J2	S	120	16%	17%	13%	15%

Notes:

[1] P = Priority Junction; S = Signal Junction; and R = Roundabout

[2] Figures shown represent 'Design Flow to Capacity' (DFC) for priority junctions and roundabouts and 'Reserve Capacity" (RC) for signal controlled junctions.

4.3.8 It can be seen that the performance of J2 slightly improves with the inclusion of the dedicated left turn lane from Tung Chung Waterfront Road to Road L3 and therefore, its inclusion in the proposed layout design is acceptable.

4.3.9 The full set of junction performance assessments has been included in **Appendix A**.

4.4 Road Link Assessment

4.4.1 Capacity assessments have been undertaken for the road link assessment.

4.4.2 The following table shows the existing (2015) road link performance:

Table 4.7: Existing Road Link Performance (2015)

Link	Direction	Capacity (pcu)	2015 Traffic Flow in PCU/hr and Performance (V/C Ratio)	
			AM	PM
RL1	EB	3,050	140 (0.05)	100 (0.03)
	WB	3,050	130 (0.04)	90 (0.03)
RL2	EB	3,050	350 (0.11)	180 (0.06)
	WB	3,050	250 (0.08)	150 (0.05)
RL3	EB	3,050	330 (0.11)	190 (0.06)
	WB	3,050	250 (0.08)	170 (0.06)

4.4.3 The following table shows the road link performance for the reference and design cases for year 2026.

Table 4.8: 2026 Road Link Performance

Link	Direction	Capacity (pcu)	2026 Traffic Flow in PCU/hr and Performance (V/C Ratio)			
			Reference Case		Design Case	
			AM	PM	AM	PM
RL1	EB	3,050	90 (0.03)	240 (0.08)	90 (0.03)	250 (0.08)
	WB	3,050	180 (0.06)	90 (0.03)	190 (0.06)	90 (0.03)
RL2	EB	3,050	430 (0.14)	510 (0.17)	430 (0.14)	510 (0.17)
	WB	3,050	450 (0.15)	350 (0.11)	450 (0.15)	350 (0.11)
RL3	EB	3,050	380 (0.12)	380 (0.12)	380 (0.12)	380 (0.12)
	WB	3,050	330 (0.11)	310 (0.1)	340 (0.11)	320 (0.1)

4.4.4 The following table shows the road link performance for the reference and design cases for year 2031.

Table 4.9: 2031 Road Link Performance

Link	Direction	Capacity (pcu)	2031 Traffic Flow in PCU/hr and Performance (V/C Ratio)			
			Reference Case		Design Case	
			AM	PM	AM	PM
RL1	EB	3,050	400 (0.13)	540 (0.18)	400 (0.13)	550 (0.18)
	WB	3,050	580 (0.19)	510 (0.17)	600 (0.2)	520 (0.17)
RL2	EB	3,050	800 (0.26)	850 (0.28)	810 (0.27)	860 (0.28)
	WB	3,050	900 (0.3)	870 (0.29)	900 (0.3)	880 (0.29)
RL3	EB	3,050	560 (0.18)	660 (0.22)	570 (0.19)	680 (0.22)
	WB	3,050	620 (0.2)	540 (0.18)	630 (0.21)	550 (0.18)

4.4.5 As can be seen by the road link assessment results in the preceding tables, all road links perform well within their capacities, even with the establishment of Area 54.

5 Pedestrian Assessment

5.1 Introduction

5.1.1 Footpaths are proposed for along both sides of Road L3 and will have a minimum width of 3.25m. In regards to the capacity of proposed footpath, 'Level of Service' and "volume to capacity ratio (V/C)" assessment have been undertaken.

Level of Service (LOS)

5.1.2 'Level of Service' (LOS) analysis of the existing pedestrian facilities was carried out based on the definitions presented in the Highways Capacity Manual 2000. This follows the approach currently being recommended by Transport Department. In general, LOS C and D are typical values and LOS A and B would provide a very good LOS. At a LOS of A, pedestrians basically move in desired paths without altering their movements in response to other pedestrians. Walking speeds are freely selected and conflicts between pedestrians are unlikely. At a LOS of B, pedestrians would continue to freely select their own walking speed, can bypass slower pedestrians, and avoid crossing conflicts with others. At a LOS of C, pedestrians are restricted in selecting walking speed and in bypassing other pedestrians. A LOS of D would represent a further deterioration of the pedestrian movements but would still provide reasonable fluid flow. At a LOS of E or lower, it was determined that mitigation measures or improvement schemes should be considered to achieve a LOS of C or better. For the purposes of this pedestrian impact assessment, a LOS of C or above would be considered acceptable while a LOS of D would be marginally acceptable. **Table 5.1** shows the various LOS 'quantified' in terms of pedestrian flow rates.

Table 5.1 Level of Service (LOS) for Walkway

LOS	Flow rate (ped/min/m)	Description
A	<= 16	Pedestrians move in desired paths. Walking speeds are freely selected and conflicts between pedestrians are unlikely.
B	16 - 23	Sufficient space is provided for pedestrians to freely select walking speeds, to bypass other pedestrians and to avoid crossing conflicts with others. Pedestrians become aware of other pedestrians.
C	23 - 33	Sufficient space is available to select normal walking speeds and to bypass other pedestrians in unidirectional stream. Minor conflicts will occur in reverse direction or crossing movements.
D	33 - 49	Freedom to select individual walking speeds and bypass other pedestrians is restricted. Probability of conflicts is high in crossing or reverse-flow movements. LOS provides reasonable fluid flow, however, friction and interactions between pedestrians are likely to occur.

LOS	Flow rate (ped/min/m)	Description
E	49 - 75	All pedestrians would have normal walking speeds restricted. Space is insufficient to pass over slower pedestrians. Cross and reverse movements are possible only with extreme difficulties. Design volumes approach the limit of walking capacity.
F	> 75	Walking speeds are severely restricted. Forward progress is made by shuffling. Cross and reverse movements are virtually impossible. Space is more characteristic of queued pedestrians than of moving pedestrian streams.

5.2 Design Pedestrian Flows

5.2.1

[redacted] The trip rates and the estimated pedestrian trips are tabulated in **Table 5.2** and **Table 5.3** for Area 54 and Area 53a respectively.

Table 5.2: Area 54 Public Housing site Pedestrian Trip Rate

Item	Figures
Mechanised trip rate per person	1.83[redacted]
Morning peak hour trip rate proportion	12%[redacted]
Population	12,000
Proportion of trips	Public Transport: 88% Others: 12%
Morning Peak Hour 2-way pedestrian flow	Public transport: ~2,320ped/hr Others: ~315 ped/hr

[redacted]

Table 5.3: Area 53a Hotel Development Pedestrian Trip Rate

Item	Figures
2-way person-trip rate/ room in AM peak[redacted]	0.71
No. of room	1,261
Proportion of trips	Public Transport: 88% Others: 12%
Morning Peak Hour 2-way pedestrian flow	Public transport: ~790ped/hr Others: ~105 ped/hr

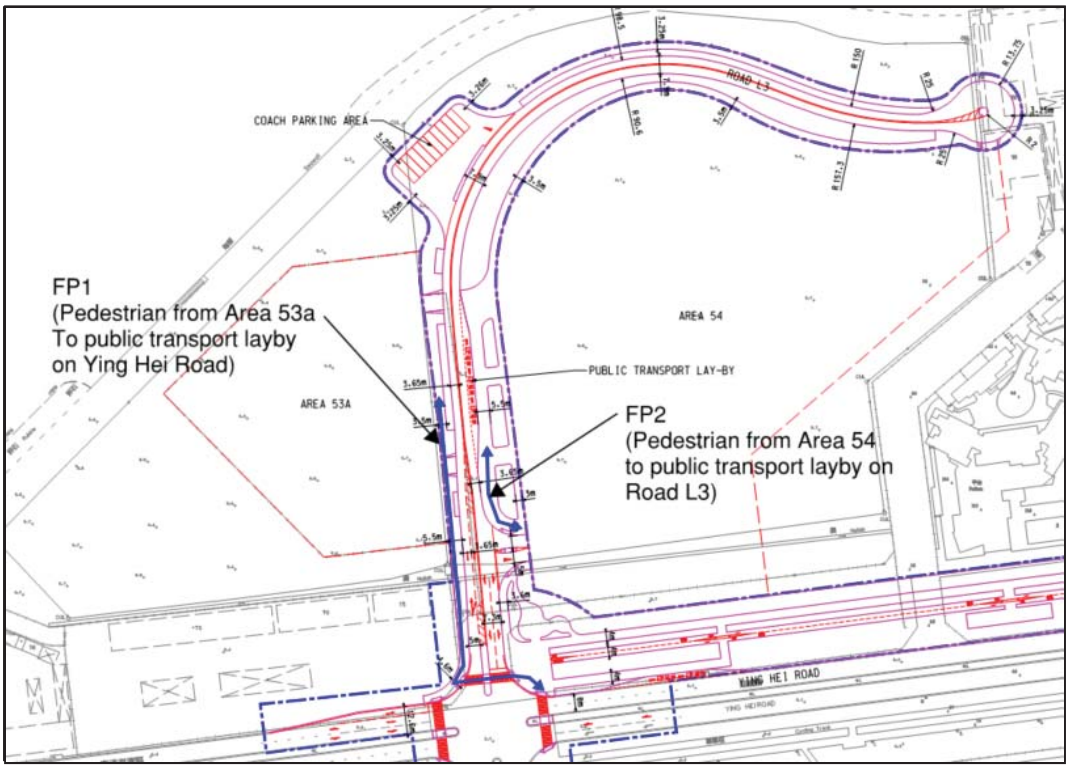
[redacted]

5.2.2 As shown above, the proposed developments would induce some 2,320 and 790 pedestrians per hour of public transport trips during AM peak for Area 54 and 53a respectively. It is assumed the rest of the induced pedestrian will take other transport mode which the pick-up they will board/ alight inside Area 54 and 53a site and will not impose pedestrian loading to the proposed Road L3. Therefore, public transport trips are adopted in pedestrian assessment for proposed Road L3.

5.3 Future Pedestrian Condition

5.3.1 Considering the site-related trips as described, a forecast LOS and V/C assessment has been undertaken at the selected locations as shown in below **Diagram 5.1**.

Figure 5.1: Assessed Footpath and Predicted Pedestrian Route



5.3.2 As shown in **Figure 5.1**, it is anticipated that the pedestrian from Area 53a will take FP1 to the proposed public transport layby on Ying Hei Road, and that Area 54 will take FP2 from the estate access to the proposed public transport layby on Road L3.

5.3.3 To derive the pedestrian flow per 5-minute, a peak factor of 1.2 was applied to the peak hour pedestrian flow to reflect the peak 5-minute in the peak hour. The LOS and V/C ratio assessment results of pedestrian footpaths under all scenarios are shown in **Tables 5.1**.

Table 5.1: Pedestrian Facilities Assessment (Critical AM Peak)

Location (1)	Physical Width (m)	Capacity (ppm/m) (2)	Pedestrian Demand (pph)	Pedestrian Demand with 1.2 peak factor (pph)	Flow Rate (ppm/m) (3)	LOS	V/C Ratio
FP1	3.5	50	790	948	6	A	0.09
FP2	4	50	2,320	2,784	15	A	0.23

Notes:
(1) Refer to **Figure 5.1** for the location of the assessed pedestrian facilities.
(2) Refer to TPDM Vol. 2 Ch. 3 Table 3.7.7.1 for capacity of walkway/ staircase.
(3) Computed based on effective width, by assuming 0.5m lateral clearance on both sides.

5.3.4 As shown, the proposed pedestrian facilities would operate with ample capacity in term of LOS and V/C ratio.

5.3.5 In conclusion, the assessed pedestrian facilities would be adequate to cater for the pedestrian demand generated from the proposed developments.

6 Construction Traffic Impact Assessment

6.1 Introduction

6.1.1 It is anticipated that construction of the proposed infrastructural works will take place between 2017 and 2020. The works that have the potential to impact on the existing road network are the proposed sewer line connecting the site and the existing Tung Chung Sewage Pumping Station, and the connection of Road L3 to the junction of Tung Chung Waterfront Road, Yi Tung Road and Ying Hei Road.

6.1.2 The detailed construction methodology is unknown at this early stage and therefore, the exact assessment scenarios cannot be guaranteed to match with how the construction works are actually carried out.

6.1.3 For this assessment, it is considered that the main construction of Road L3 and Area 54 enabling works will take place after the proposed sewer has been laid in the vicinity of the site. This will decrease the effect of the potential traffic lane closures around the junction of Tung Chung Waterfront Road, Yi Tung Road and Ying Hei Road.

6.2 Sewer Construction

6.2.1 It is proposed to construct the sewer pipeline using a combination of open trench and trenchless (e.g. pipe jacking) methods. The use of these two methods helps to attain a cost-effective approach whilst also minimising any adverse construction effects in critical locations, such as in the proximity highly trafficked roads.

6.2.2 The laying of the sewer will impact on the existing road network in three distinct locations:

1. Where the sewer crosses through the Tung Chung Waterfront Road, Yi Tung Road and Ying Hei Road junction, and continues down Yi Tung Road.
2. Where the sewer crosses and travels along Man Tung Road.
3. Where the sewer crosses Cheung Tung Road.

6.2.3 A temporary traffic management scheme will be required to divert traffic away from these construction areas. Given that the sewer will be constructed progressively, only small sections of road will need to be closed at a time.

6.2.4 To provide a conservative approach, 2019 traffic volumes have been used for the assessment of the different TTM stages.

6.2.5 A preliminary TTM plan has been formulated as per the following steps, which are illustrated in **Drawing Nos. 243474/TTM/001 to 243474/TTM/005**:

1. **Crossing the Tung Chung Waterfront Road, Yi Tung Road and Ying Hei Road junction, and travelling down Yi Tung Road.**

   a. **Closure of the northern eastbound lane on Tung Chung Waterfront Road and Ying Hei Road.** This will reduce the eastbound carriageway on Tung Chung Waterfront Road from two lanes to one, meaning all turning manoeuvres from this location will need to occur from the southern eastbound lane. The receiving capacity of Ying Hei Road will also be reduced from two lanes to one. The existing temporary access to Road L3 and the adjacent construction sites will be reduced in width however, entry and exit manoeuvres will still be possible during this stage.

   b. **Closure of the central lanes on Ying Hei Road**. This stage will see the closure of the southern eastbound lane and the northern westbound lane on Ying Hei Road. This reduces both the receiving and contributing capacity of the Ying Hei Road leg of the associated junction.

   c. **Closure of the southern eastbound lane on Ying Hei Road and the eastern southbound lane on Yi Tung Road.** All traffic movements from Ying Hei Road will be required to be undertaken from the northern westbound lane. The location of the sewer in this phase means that left turning manoeuvres from Ying Hei Road into Yi Tung Road are impossible. This section of work should be scheduled to be undertaken overnight to minimise the inconvenience to motorists. For when this work is being undertaken, a detour route is possible by undertaken a u-turn adjacent to the Tung Chung Ferry Pier.

Junction performance analyses were carried out for the above scenarios and the results presented in the following table indicate that the junction will perform satisfactorily during the sewer construction.

Table 6.1: Junction Performance during Implementation of TTM – Step 1a to 1c

Stage	Performance [1]	
	AM	PM
1a	>50%	>50%
1b	>50%	>50%
1c	>50%	>50%

Note:
[1] Figures shown represent "Reserve Capacity" (RC) for the signal controlled junctions.

d. **Closure of the northern section of the eastern southbound lane on Yi Tung Road.** This will reduce the southbound capacity from two lanes to one; the western southbound lane.

e. **Closure of the southern section of the eastern southbound lane on Yi Tung Road.** This will reduce the southbound capacity from two lanes to one; the western southbound lane.

Both steps 1d and 1e will reduce the southbound capacity of Yi Tung Road, which is classified as a Local Distributor Road. The following assessment shows that one lane will be sufficient to accommodate the anticipated traffic.

Table 6.2: Yi Tung Road TTM Assessment

2019 southbound traffic on Yi Tung Road		Scenario	Capacity (pcu)	Volume to Capacity Ratio
AM	270 pcu/hr	2 lanes (normal operation)	3,050	0.09
		1 lane (TTM in place)	900	0.30
PM	190 pcu/hr	2 lanes (normal operation)	3,050	0.06
		1 lane (TTM in place)	900	0.21

2. **Traversing Man Tung Road.**

a. **Closure of the two eastbound lanes on Man Tung Road.** This will enable the sewer to be laid under the northern half of the carriageway by reducing the number of traffic lanes in each direction from two to one, allowing traffic to continue to flow.

b. **Closure of the eastern section of two central lanes on Man Tung Road.** This will enable the sewer to be laid along the middle of Man Tung Road. It is noted that the section of sewer below the Yi Tung Road over-bridge will be laid by pipe jacking method as the clearance between Man Tung Road and the Yi Tung Road over-bridge is insufficient for excavators to safely operate. This stage will see the narrowing of both the east and westbound directions from two to one lane and the pipe-jacking will enable the existing pedestrian crossing island to be retained for pedestrian use during construction.

c. **Closure of the western section of two central lanes on Man Tung Road.** This will enable the sewer to be laid along the middle of Man Tung Road and will reduce the east and westbound directions from two to one lane.

d. **Closure of the two westbound lanes on Man Tung Road.** This will enable the sewer to be laid under the southern half of the carriageway by reducing the number of traffic lanes in each direction from two to one, allowing traffic to continue to flow. Access to the Man Tung Road car park will be able to be maintained during this stage with appropriate TTM staging.

The TTM scenarios required to enable the sewer to traverse Man Tung Road will at times, reduce traffic in both directions from two to one lane. The following assessment shows that the proposed TTM will be sufficient to accommodate the anticipated traffic.

Table 6.3: Man Tung Road TTM Assessment

Peak Period	Direction	2019 Traffic	Capacity of normal operation (V/C)	Capacity of TTM operation (V/C)
AM	EB	26 pcu/hr	2,350 (0.01)	1,025 (0.03)
	WB	26 pcu/hr	2,350 (0.01)	1,025 (0.03)
PM	EB	21 pcu/hr	2,350 (0.01)	1,025 (0.02)
	WB	25 pcu/hr	2,350 (0.01)	1,025 (0.02)

3. **Traversing Cheung Tung Road.**

a. **Closure of the northern lane on Cheung Tung Road.** This will enable the sewer to be laid under the northern half of the carriageway and will require one-way-at-a-time traffic control given that the two-way, two-lane carriageway will be reduced to just one lane. This can be controlled by either traffic lights or pointsman.

b. **Closure of the southern lane on Cheung Tung Road.** This will enable the sewer to be laid under the southern half of the carriageway and as with 3a, will require one-way-at-a-time traffic control.

c. **Closure of the southern lane on Cheung Tung Road and the eastern half of the Tung Chung Sewage Pumping Station access.** This will enable the sewer to be laid under the eastern half of the Tung Chung Sewage Pumping Station access and will require one-way-at-a-time traffic control along Cheung Tung Road.

d. **Closure of the southern lane on Cheung Tung Road and the western half of the Tung Chung Sewage Pumping Station access.** This will enable the sewer to be laid under the western half of the Tung Chung Sewage Pumping Station access and will require one-way-at-a-time traffic control along Cheung Tung Road.

To obtain traffic flows along Cheung Tung Road for 2019 (during construction), a nominal annual growth rate of 0.5% was applied to 2013 surveyed traffic flows. A performance assessment was undertaken for the possible one-way-at-a-time signalisation of Cheung Tung Road, which is presented in the table below:

Table 6.4: Performance assessment of Cheung Tung Road TTM

Direction	2019 Traffic (peak hour PCU – 10:00am-11:00am)	Cycle Time (sec)	Inter-green Time (sec)	Performance (1)
Eastbound	247	60	15(2)	>50%
Westbound	218			

Notes:
(1) Figures shown represent "Reserve Capacity" (RC) for the signal controlled junctions.
(2) Inter-green time calculated using a 30km/h driving speed past the approximately 100m narrowing of the carriageway.

As can be seen from the table above, the one-way-at-a-time signalisation of Cheung Tung Road will operate with more than 50% spare capacity when controlled with a 60 second cycle time. It is therefore considered that the TTM required for Cheung Tung Road will operate with satisfactory performance.

6.3 Road L3 and Area 54

6.3.1

Vehicular access to the sites currently being accessed via the temporary Road L3 layout will be required to be maintained throughout the construction of the infrastructural works.

6.3.2 To allow for the construction of the interface between Road L3 and the existing intersection, it is proposed to establish a temporary access to the east of the proposed Road L3 intersection point, off Ying Hei Road.

6.3.3 Given that Ying Hei Road is a dual carriageway, it will only be practical for this access to serve as an entrance point because if vehicles were required to exit in this location, they would be subject to a very lengthy and inconvenient detour to get back to Yi Tung Road.

6.3.4 Therefore, it is considered that the junction upgrade construction should be undertaken in stages to allow for vehicles to exit directly into the junction at all times. This could be achieved by constructing half of the Road L3 carriageway at a time and moving the exiting traffic accordingly.

6.3.5 This access methodology is shown in the following figure.

Figure 6.1: Road L3 construction to enable constant access

7 Summary and Conclusions

7.1.1 The Traffic Review and Assessment indicates that the establishment of Road L3 can be easily accommodated in the existing and proposed road network.

7.1.2 The public transport requirement generated by sites Area 54 and Area 53a will be able to be catered for by the proposed on-street bus terminus. This bus terminus will allow for three franchised buses to stop and the adjacent footpath is adequate to accommodate a shelter and provides sufficient manoeuvring width for pedestrians.

7.1.3 The coach parking area has been designed to accommodate the loading/unloading and layover of ten coaches.

7.1.4 The traffic assessment indicates that all junctions and road links will operate satisfactorily with the advent of Road L3 and the adjacent housing and hotel developments.

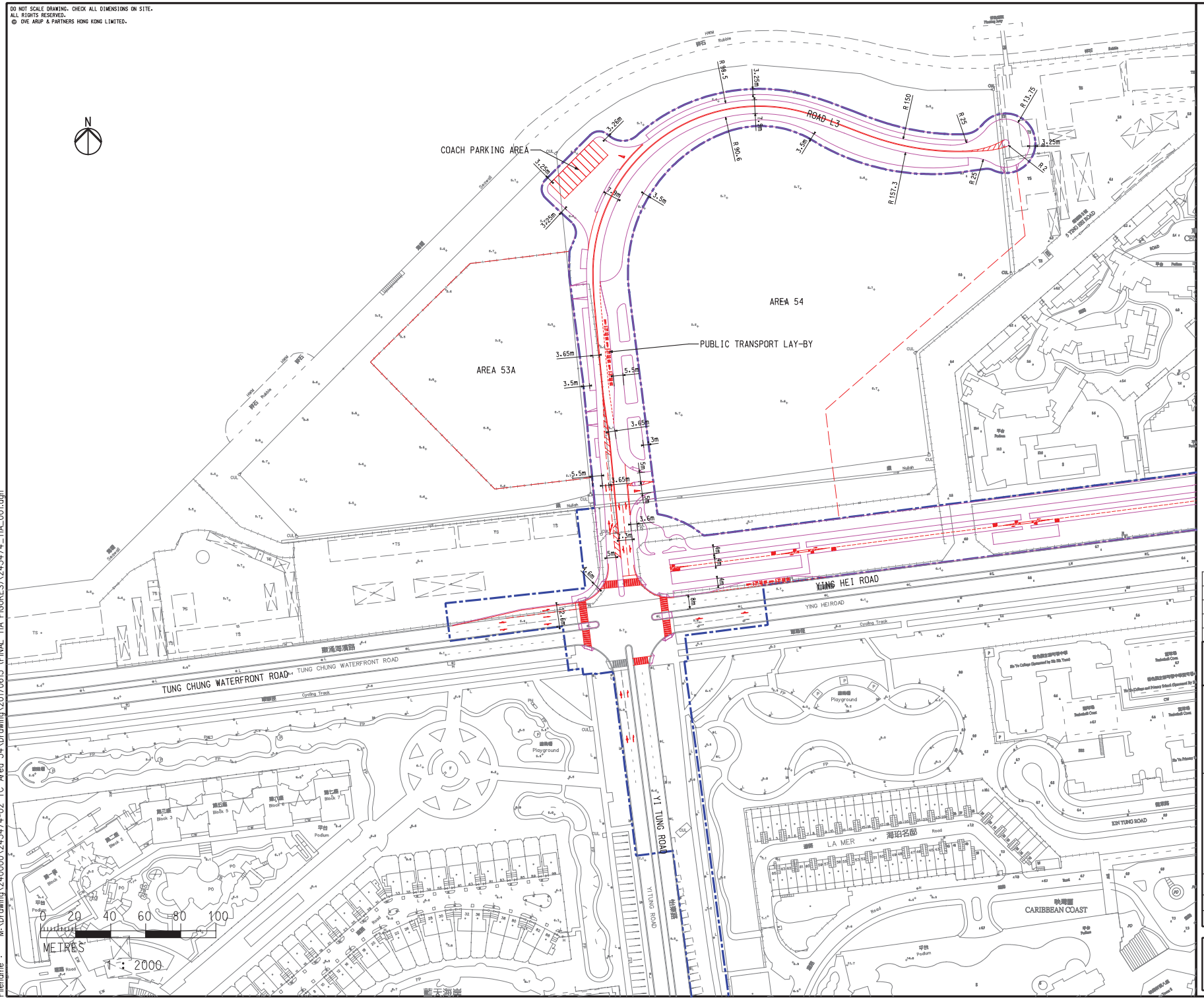
7.1.5 It was found that the Road L3, Tung Chung Waterfront Road, Yi Tung Road and Ying Hei Road junction (J2) operates acceptably without a dedicated left turn lane from Tung Chung Waterfront Road to Road L3. Nonetheless, as per TD's request, this has been included in the proposed junction layout.

7.1.6 The assessed pedestrian facilities would be adequate to cater for the pedestrian demand generated from the proposed developments.

7.1.7 The TTM scheme required for the construction of the proposed sewer has been devised so as to minimise the effect on the existing road network. This can be rolled out in stages to help mitigate any adverse traffic effects.

7.1.8 It is therefore concluded that the establishment of the required infrastructural works required for Area 54 and Road L3 will not cause adverse traffic impacts to the surrounding road network.

Drawings



SITE BOUNDARY
EXISTING FEATURES
PROPOSED WORKS

Rev	Description	By	Date

Consultant

ARUP

Contract No. and Title

Agreement No. CE 76/2014 (CE)
Main Engineering Infrastructural Works for Housing Development in Area 54, Tung Chung – Investigation, Design and Construction

Drawing title

SITE PLAN

Drawing no.		Rev.
243474/TIA/001		–
Drawn: WSTW	Date: 08/15	Checked: —	Approved: —
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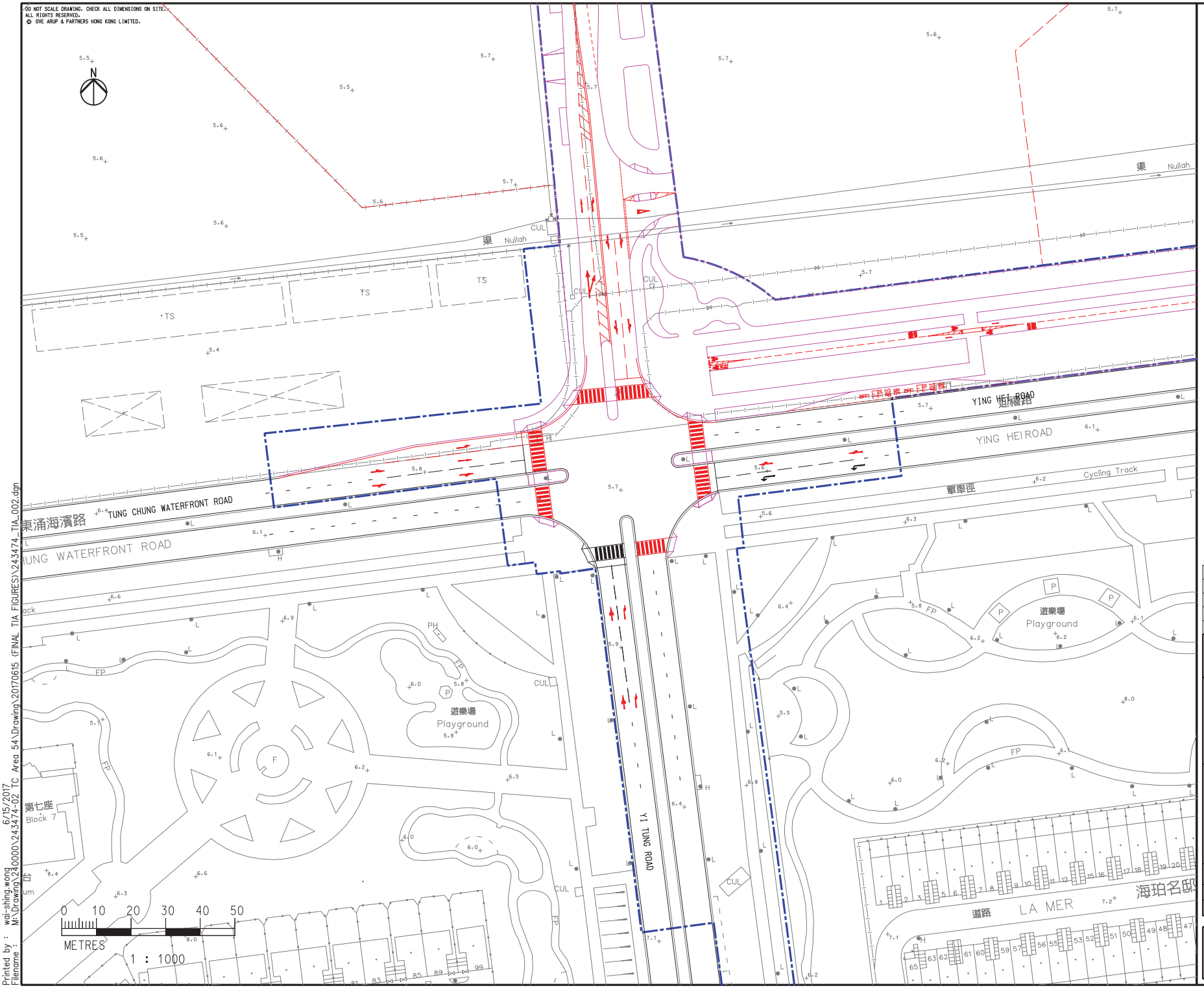

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Rev	Description	By	Date

Consultant
ARUP

Contract No. and Title
Agreement No. CE 76/2014 (CE)
Main Engineering Infrastructural Works for Housing Development in Area 54, Tung Chung – Investigation, Design and Construction

Drawing title
JUNCTION DESIGN

Drawing no.	Rev.
243474/TIA/002	–

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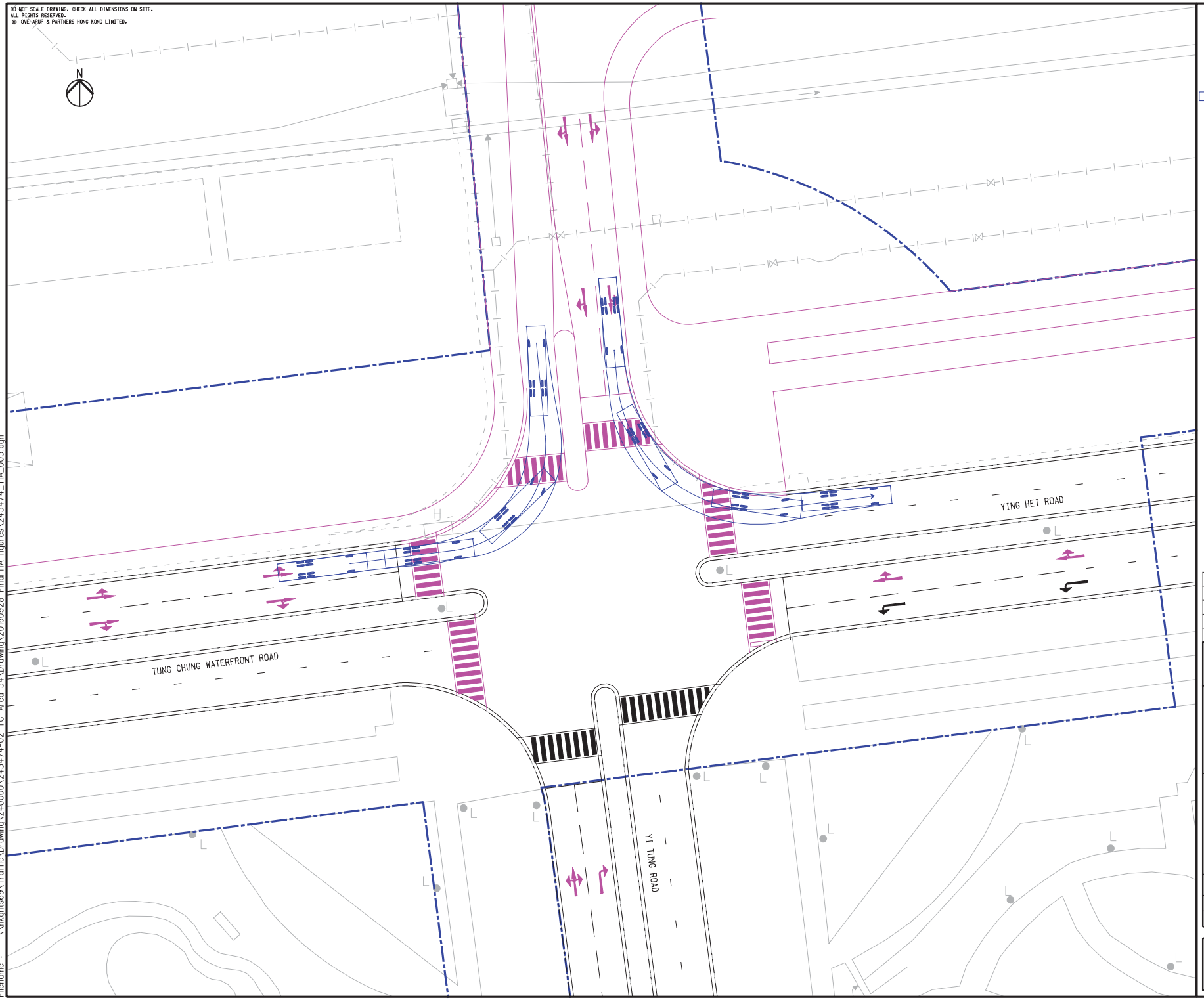

SITE BOUNDARY
EXISTING FEATURES
PROPOSED WORKS
12.8m LONG BUS

Rev	Description	By	Date

Consultant
ARUP

Contract No. and Title
Agreement No. CE 76/2014 (CE)
Main Engineering Infrastructural Works for Housing Development in Area 54, Tung Chung – Investigation, Design and Construction

Drawing title
FRANCHISED BUS
SWEPT PATH
AT JUNCTION

Drawing no.	Rev.
243474/TIA/003	–

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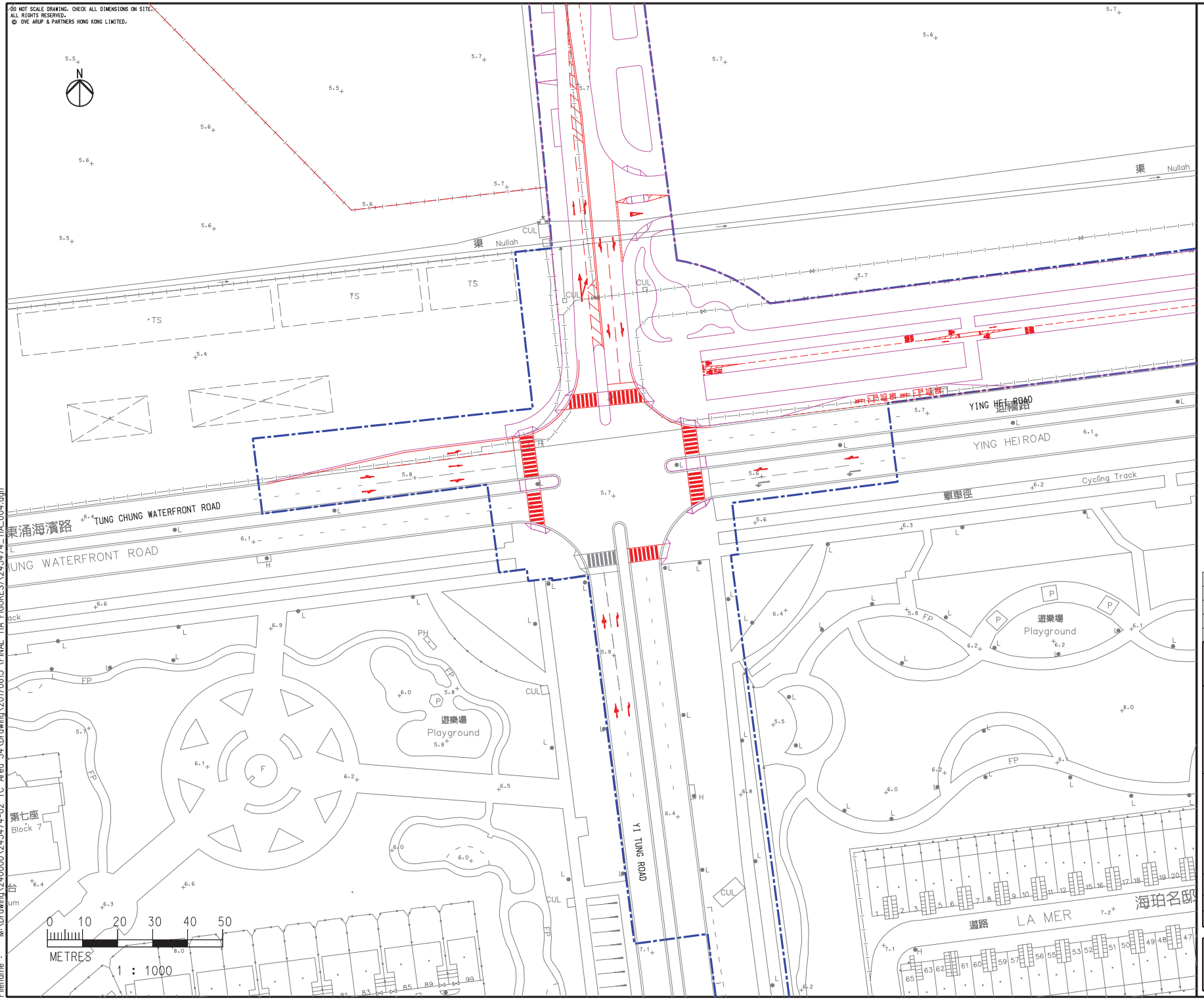

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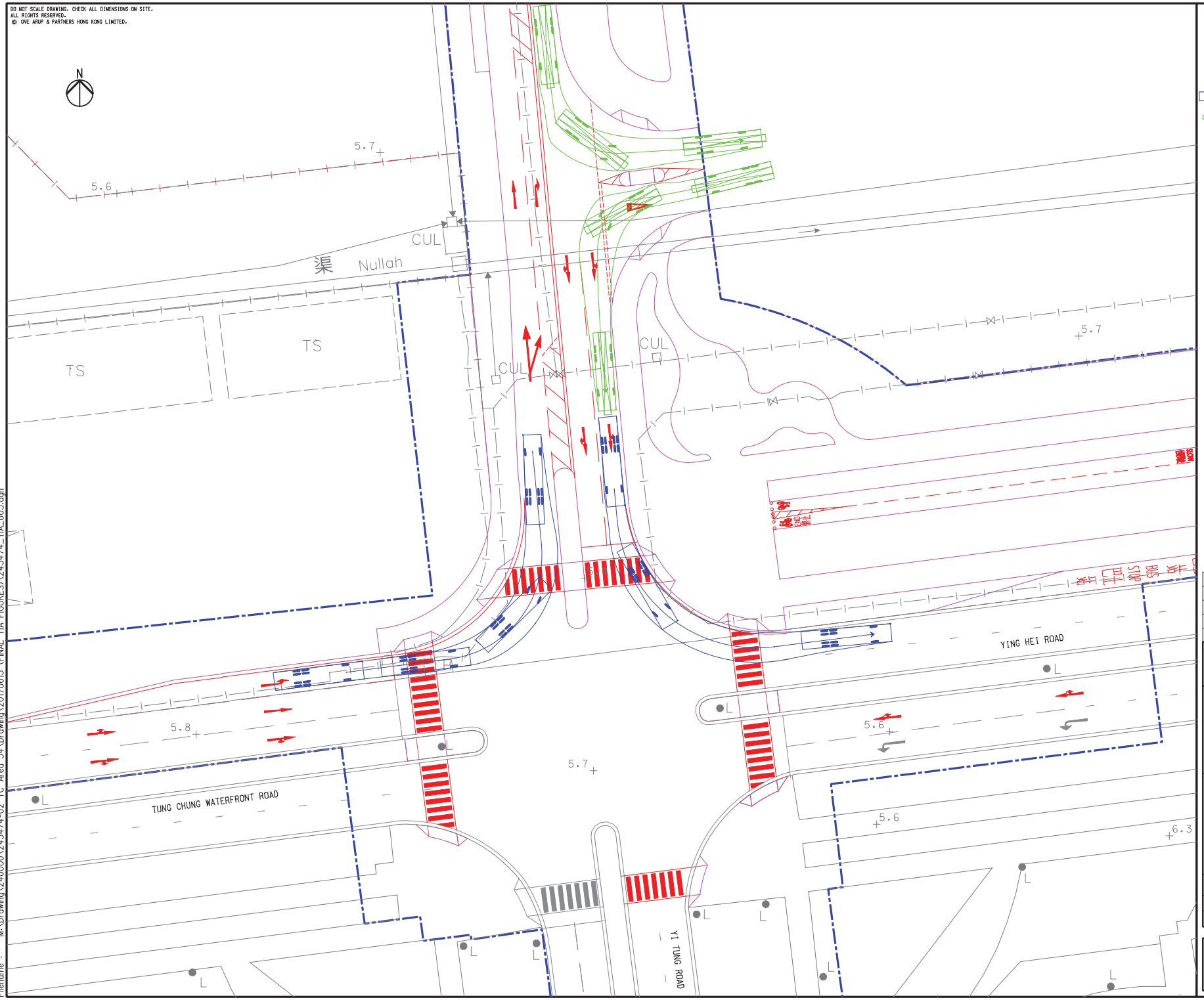

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Agreement No. CE 76/2014 (CE)

Main Engineering Infrastructural Works for Housing Development in Area 54, Tung Chung – Investigation, Design and Construction

Drawing title

SWEPT PATH
AT JUNCTION

Drawing no.	Rev.
243474/TIA/005	–

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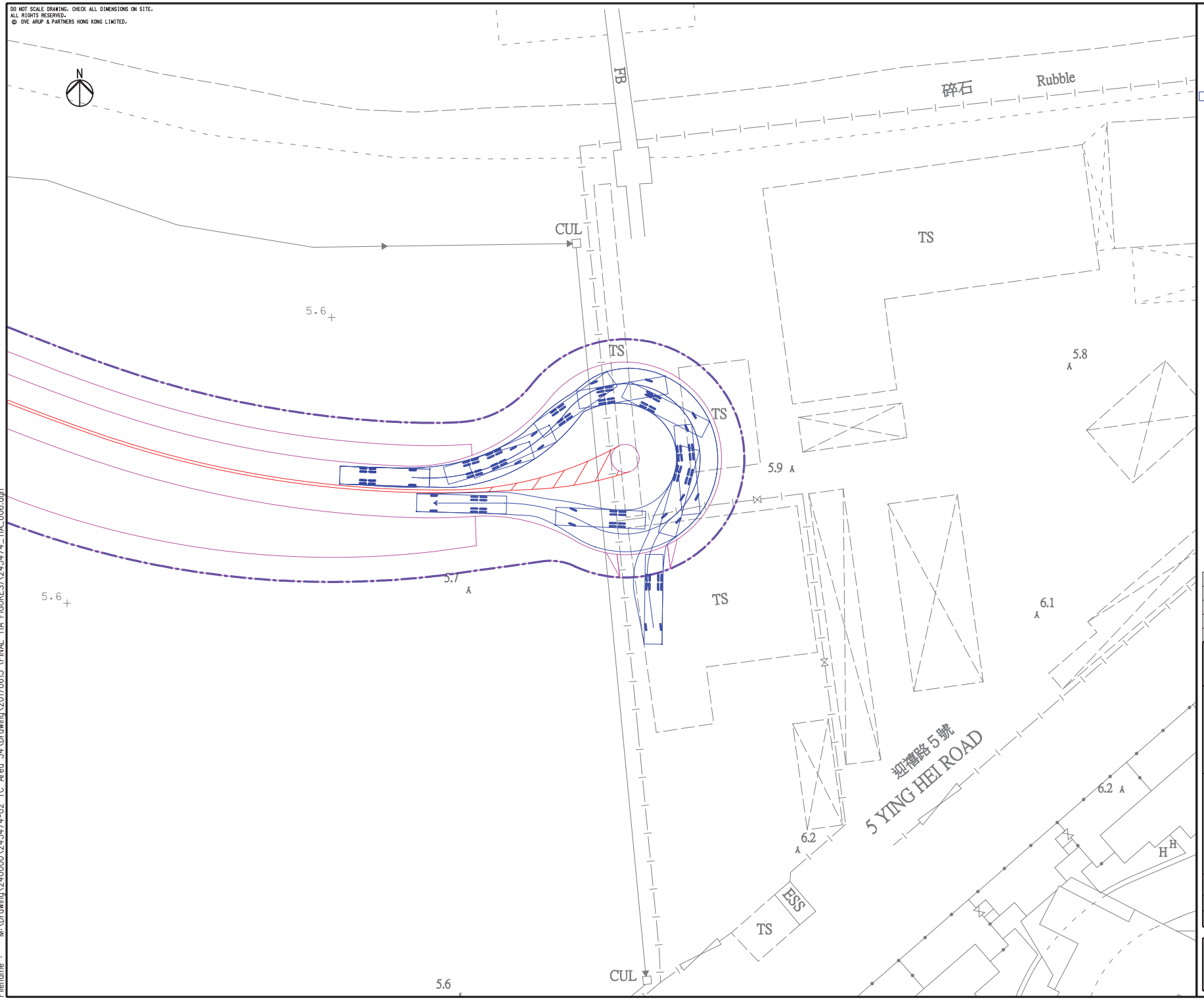

SITE BOUNDARY
EXISTING FEATURES
PROPOSED WORKS
12.8m LONG BUS

Rev	Description	By	Date

Consultant
ARUP

Contract No. and Title
Agreement No. CE 76/2014 (CE)
Main Engineering Infrastructural Works for Housing Development in Area 54, Tung Chung – Investigation, Design and Construction

Drawing title
FRANCHISED BUS
SWEPT PATH
AT CUL-DE-SAC

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243474/TIA/006	–

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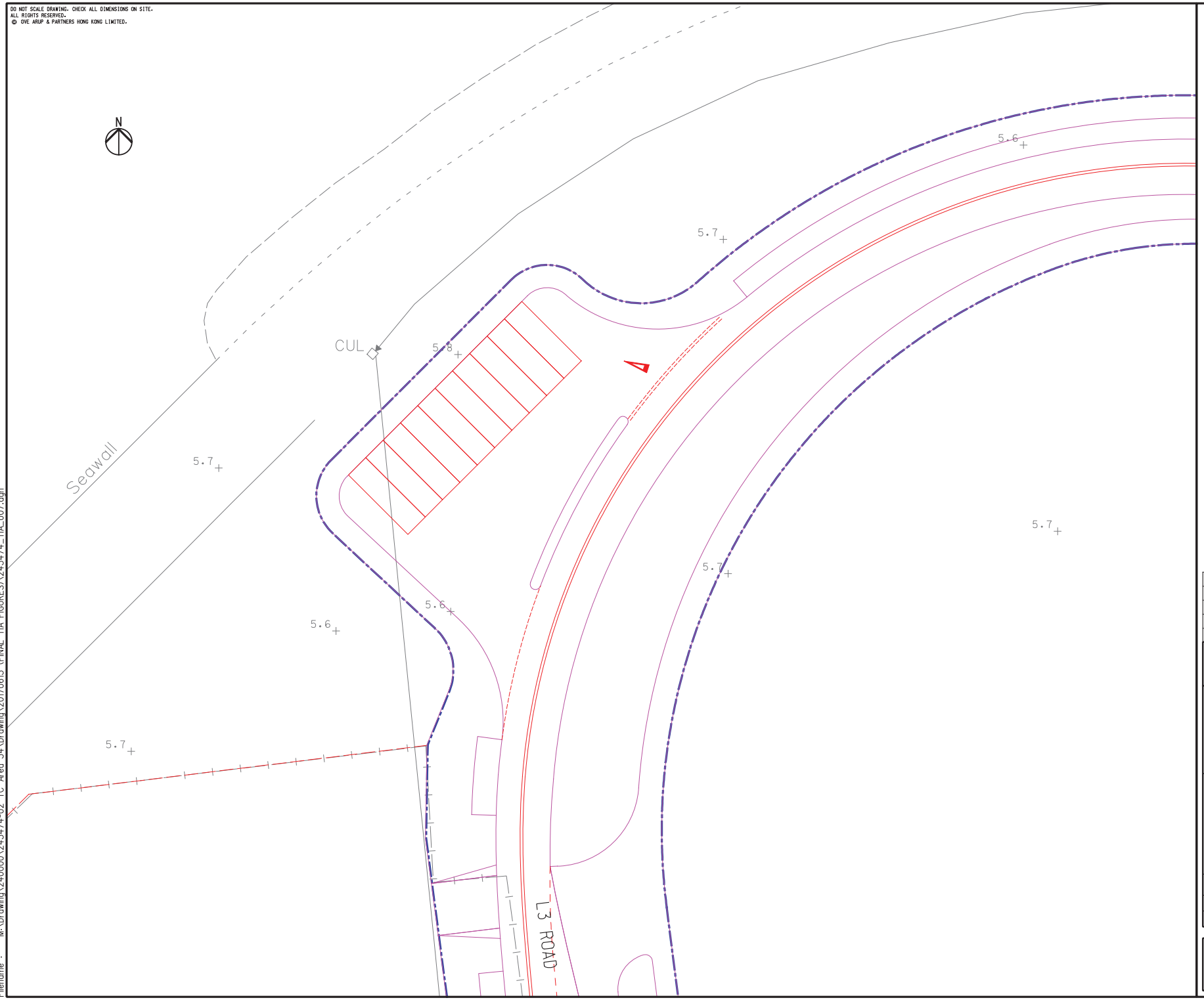

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Contract No. and Title

Agreement No. CE 76/2014 (CE)

Main Engineering Infrastructural Works for Housing Development in Area 54, Tung Chung – Investigation, Design and Construction

Drawing title

COACH PARKING AREA

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243474/TIA/007	–

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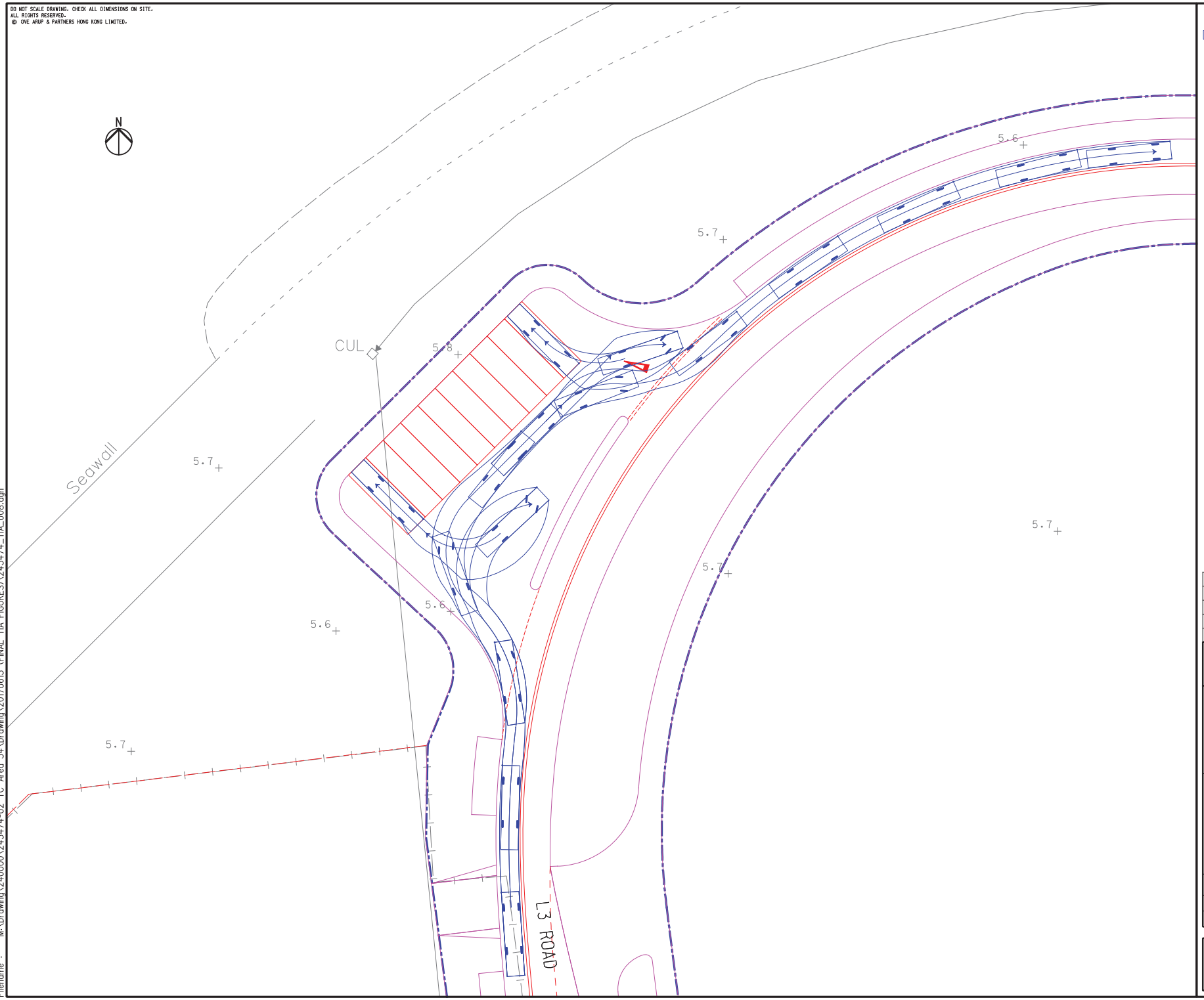

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Contract No. and Title

Agreement No. CE 76/2014 (CE)

Main Engineering Infrastructural Works for Housing Development in Area 54, Tung Chung – Investigation, Design and Construction

Drawing title

COACH PARKING AREA SWEPT PATH ANALYSIS

Drawing no.	Rev.
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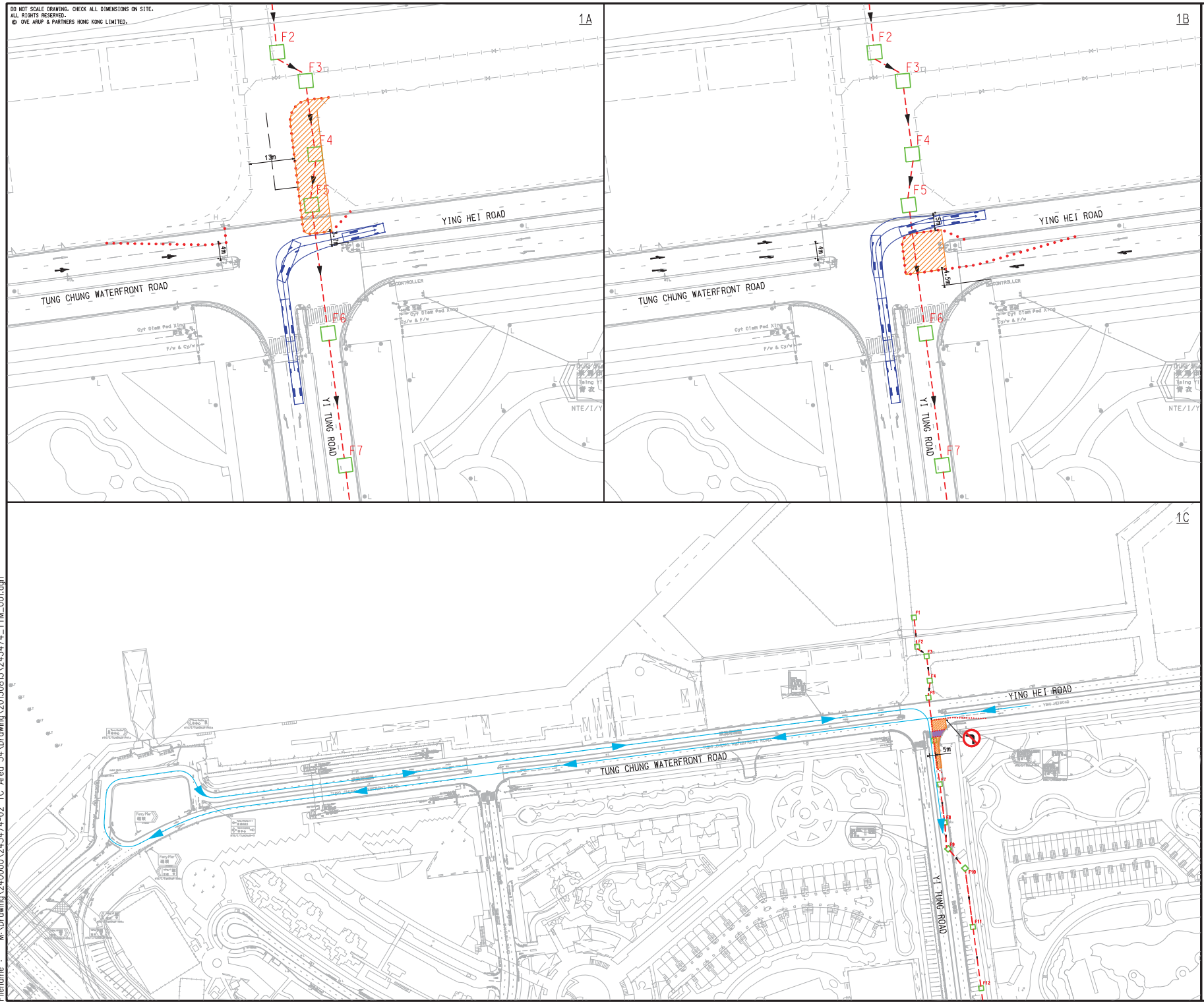

LEGEND:

- WORKS AREA
- DECKING AREA
- TRAFFIC SIGN
- TRAFFIC CONES
- ALTERNATIVE ROUTE
- 12m LONG COACH

Rev	Description	By	Date

Consultant

ARUP

Contract No. and Title:

Agreement No. CE 76/2014 (CE)

Main Engineering Infrastructural Works for Housing Development in Area 54, Tung Chung – Investigation, Design and Construction

Drawing title

TTM FOR SEWER:
STAGE 1A - 1C

Drawing no.	Rev.
243474/TTM/001	–

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LW	08/15	—	—

Scale: 1:500 @A1

Status: PRELIMINARY

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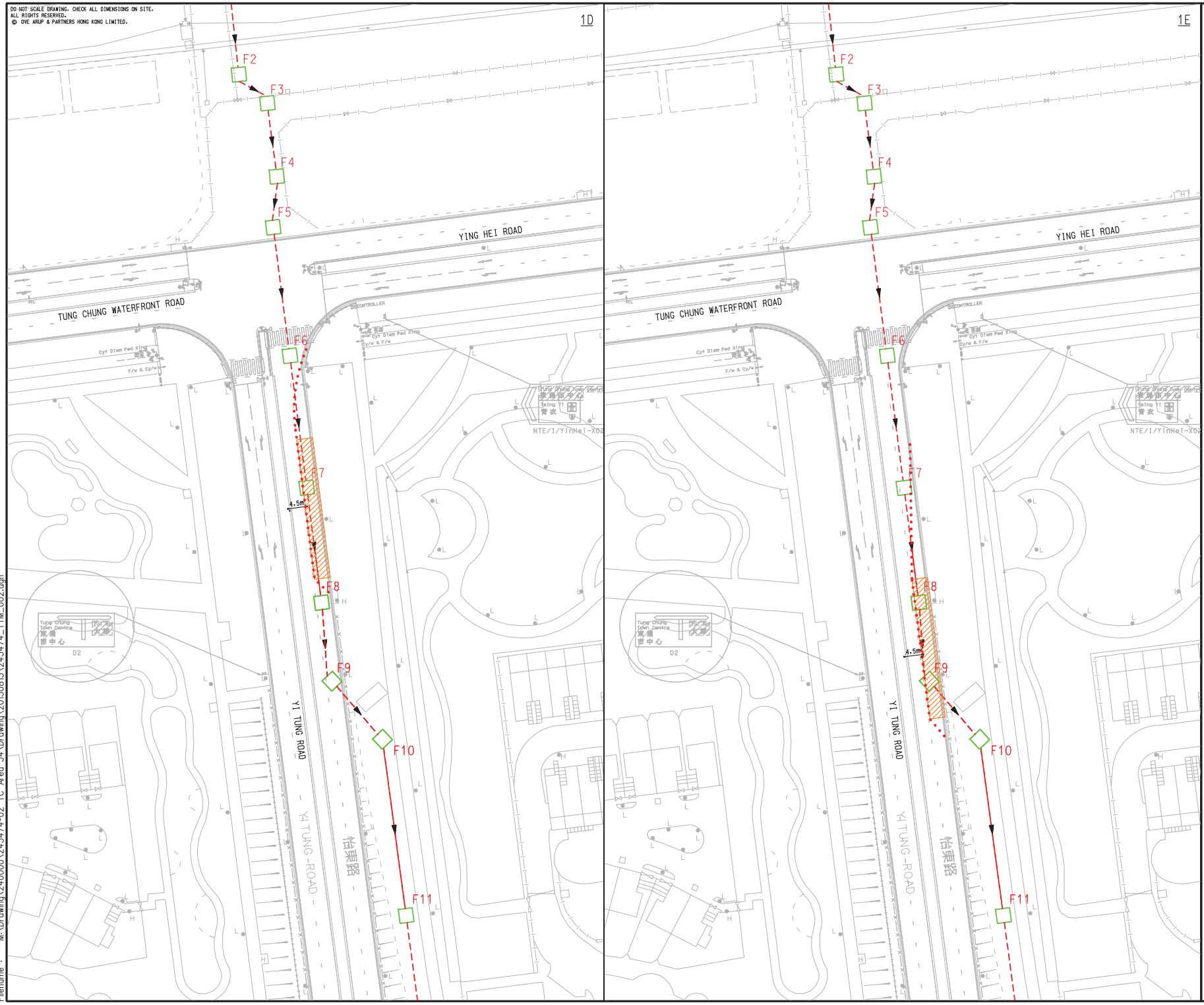

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- WORKS AREA
- TRAFFIC CONES

Rev	Description	By	Date

Consultant

ARUP

Contract No. and Title:

Agreement No. CE 76/2014 (CE)

Main Engineering Infrastructural Works for Housing Development in Area 54, Tung Chung – Investigation, Design and Construction

Drawing title

TTM FOR SEWER:
STAGE 1D - 1E

Drawing no.	Rev.
243474/TTM/002	–

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LW	08/15	—	—

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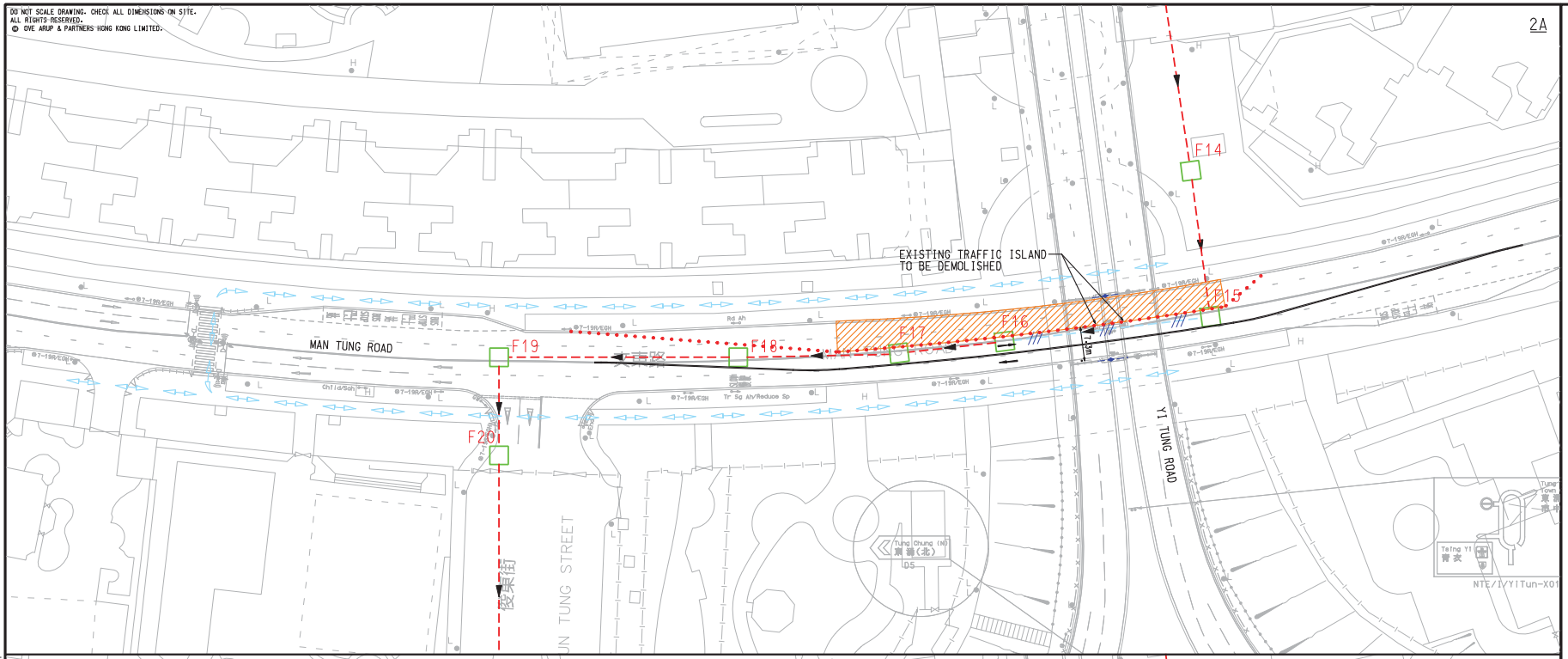

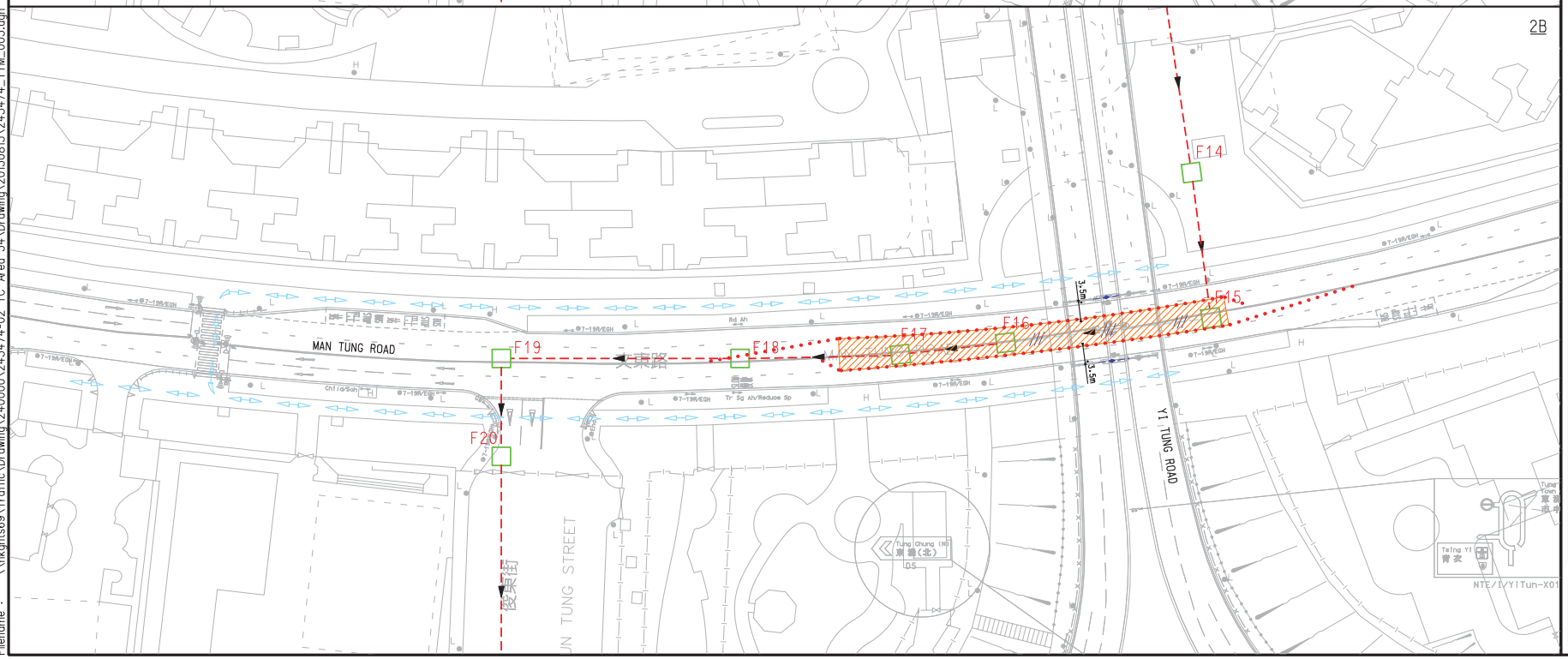

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- WORKS AREA
- TRAFFIC CONES
- PEDESTRIAN ROUTE
- TRENCHLESS CONSTRUCTION OF PROPOSED SEWER

Rev	Description	By	Date

Consultant

ARUP

Contract No. and Title:

Agreement No. CE 76/2014 (CE)

Main Engineering Infrastructural Works for Housing Development in Area 54, Tung Chung – Investigation, Design and Construction

Drawing title

TTM FOR SEWER:
STAGE 2A – 2B

Drawing no.	Rev.
243474/TTM/003	–

Drawn	Date	Checked	Approved
LW	08/15	—	—

Scale	Status
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CEDD 土木工程拓展署 Civil Engineering and Development Department

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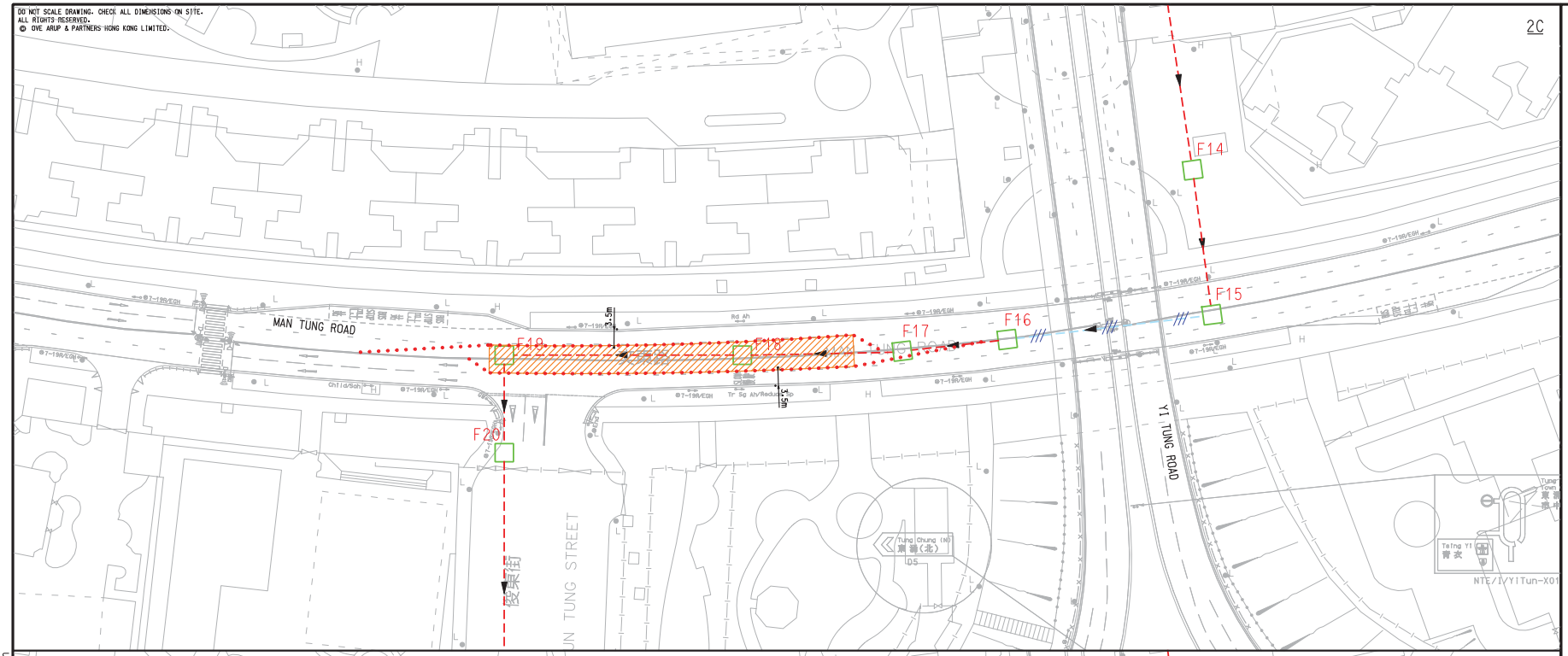

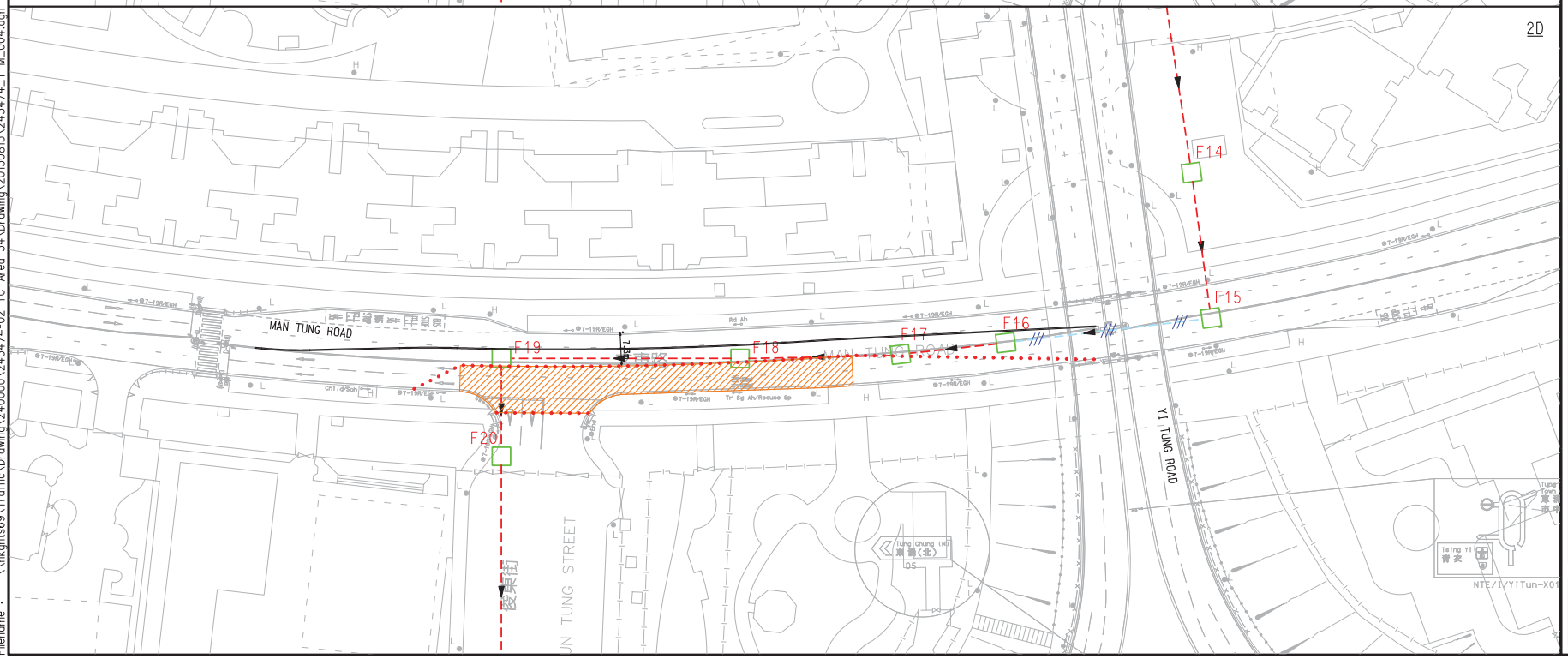

LEGEND:

- WORKS AREA
- TRAFFIC CONES
- TRENCHLESS CONSTRUCTION OF PROPOSED SEWER

Rev	Description	By	Date

Consultant

ARUP

Contract No. and Title:

Agreement No. CE 76/2014 (CE)

Main Engineering Infrastructural Works for Housing Development in Area 54, Tung Chung – Investigation, Design and Construction

Drawing title

TTM FOR SEWER:
STAGE 2C - 2D

Drawing no.	Rev.
243474/TTM/004	–

Drawn	Date	Checked	Approved
LW	08/15	—	—

Scale	Status
1:500 @A1	PRELIMINARY

CEDD 土木工程拓展署 Civil Engineering and Development Department

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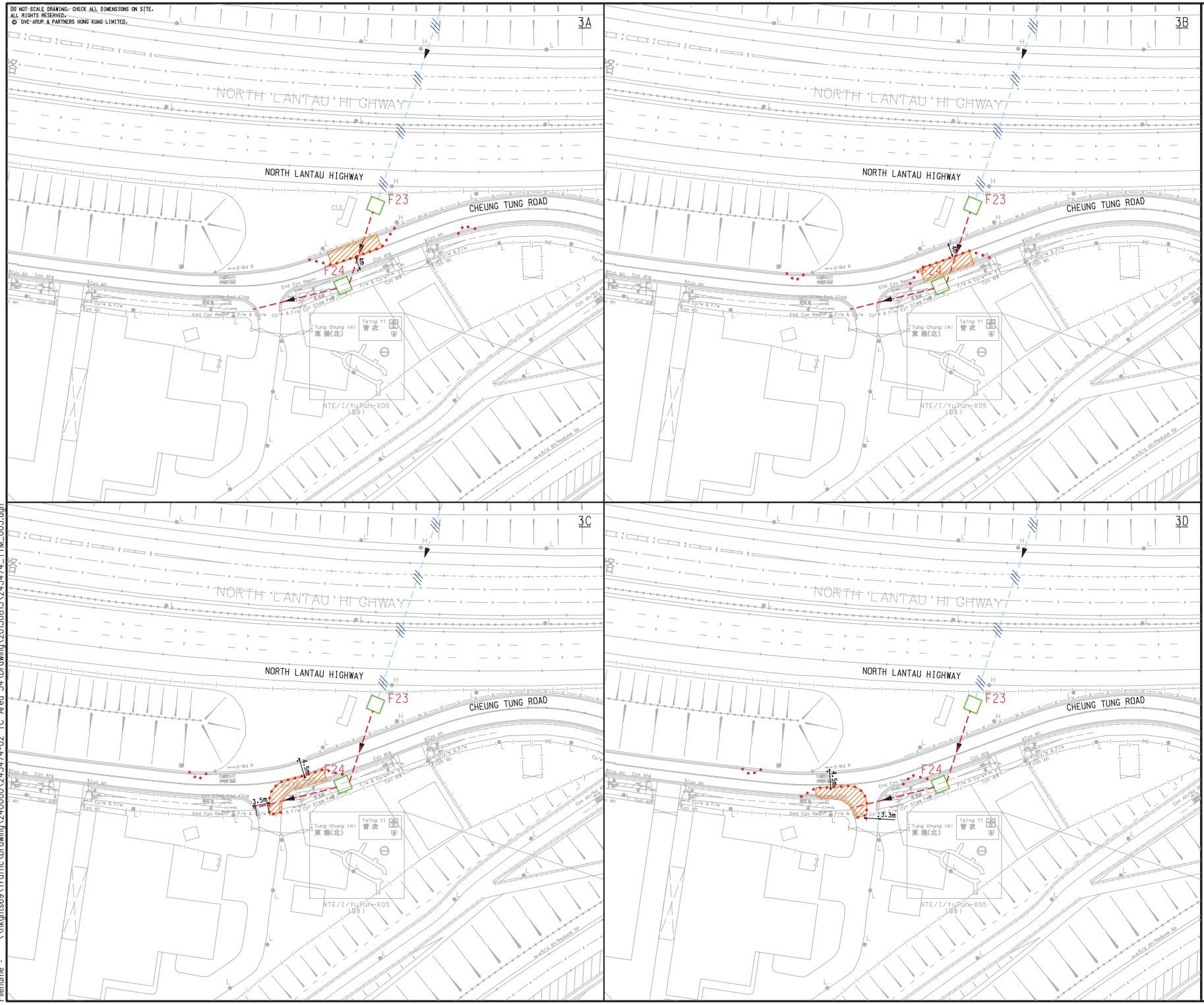


LEGEND:

- WORKS AREA
- TRAFFIC CONES
- TRENCHLESS CONSTRUCTION OF PROPOSED SEWER

Rev	Description	By	Date

Consultant

ARUP

Contract No. and Title:

Agreement No. CE 76/2014 (CE)

Main Engineering Infrastructural Works for Housing Development in Area 54, Tung Chung – Investigation, Design and Construction

Drawing title

TTM FOR SEWER:
STAGE 3A - 3D

Drawing no.	Rev.
243474/TTM/005	–

Drawn	Date	Checked	Approved
LW	08/15	—	—

Scale	Status
1:500 @A1	PRELIMINARY

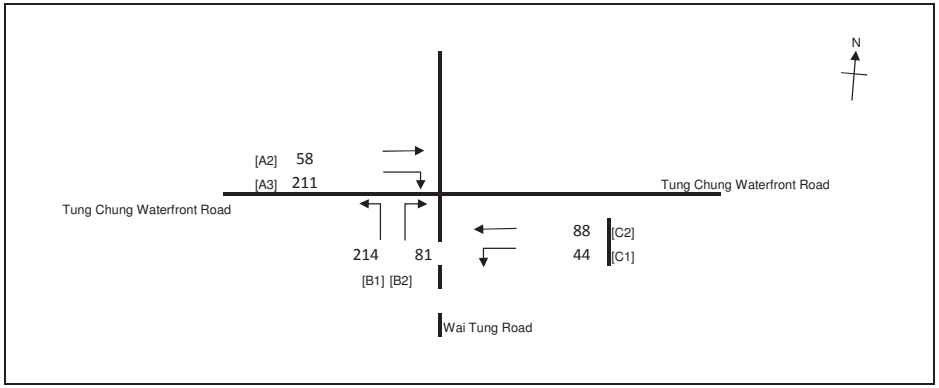
CEDD 土木工程拓展署 Civil Engineering and Development Department

Printed by : 10/22/2015
Filename : \\hkgnts69\Traffic\Drawing\240000\243474-02 TC Area 54\Drawing\20150813\243474_TTM_005.dgn

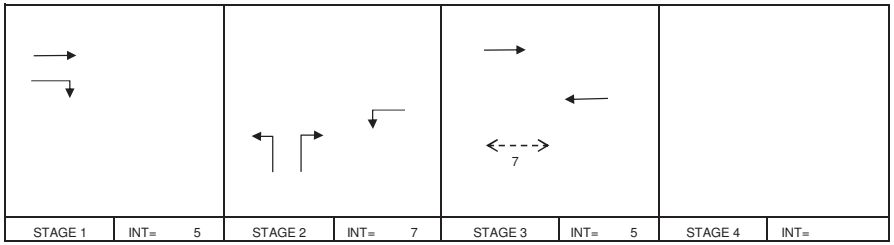
Appendix A

Junction Performance Calculations

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO:	
Tung Chung Waterfront Road / Wai Tung Road	2015 AM	DATE : 13-Oct-15	FILENAME :



No. of stages per cycle	N =	3	
No. of stage using for calculation	N =	3	
Cycle time	C =	62	sec
Sum(y)	Y =	0.225	
Loss time	L =	25	sec
Total Flow	=	695.6524	pcu
Co = (1.5*L+5)/(1-Y)	=	54.8	sec
Cm = L/(1-Y)	=	32.3	sec
Yult	=	0.713	
R.C.ult = (Yult-Y)/Y*100%	=	216.7	%
Cp = 0.9*L/(0.9-Y)	=	33.3	sec
Ymax = 1-L/C	=	0.597	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	138.7	%



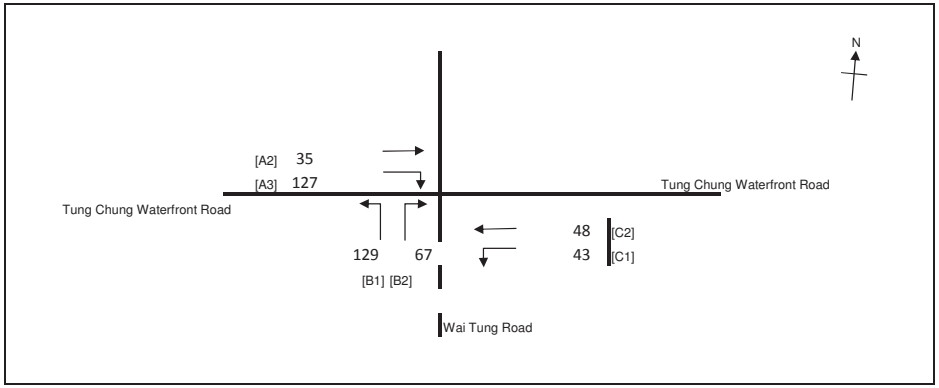
STAGE 1	INT= 5	STAGE 2	INT= 7	STAGE 3	INT= 5	STAGE 4	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
7	13	6	2	14	6	2	14	OK

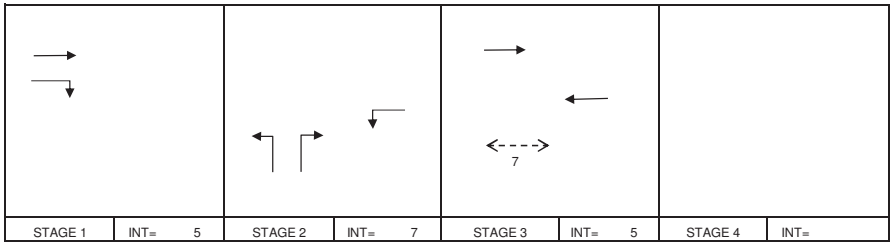
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				14				
A2	1,3	3.50	A	1			N	1965		58		58	0.00	1965			1965	0.029			5	35	0.052	3
A3	1	3.50	B	1	30			2105			211	211	1.00	2005			2005	0.105	0.105		17	17	0.377	16
B1	2	3.50	D	1	15		N	1965	139			139	1.00	1786			1786	0.078	0.078		13	13	0.377	11
B1.B2	2	3.50	D	1	30			2105	75		81	156	1.00	2005			2005	0.078			13	13	0.377	13
C1	2	3.50	E	1	15		N	1965	44			44	1.00	1786			1786	0.024			4	13	0.118	4
C2	3	3.50	C	1				2105		88		88	0.00	2105			2105	0.042	0.042	11	7	18	0.145	6

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO:	
Tung Chung Waterfront Road / Wai Tung Road	2015 PM	DATE : 13-Oct-15	FILENAME :



No. of stages per cycle	N =	3	
No. of stage using for calculation	N =	3	
Cycle time	C =	62	sec
Sum(y)	Y =	0.138	
Loss time	L =	26	sec
Total Flow	=	448.2192	pcu
Co = (1.5*L+5)/(1-Y)	=	51.0	sec
Cm = L/(1-Y)	=	30.1	sec
Yult	=	0.705	
R.C.ult = (Yult-Y)/Y*100%	=	412.3	%
Cp = 0.9*L/(0.9-Y)	=	30.7	sec
Ymax = 1-L/C	=	0.581	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	279.8	%



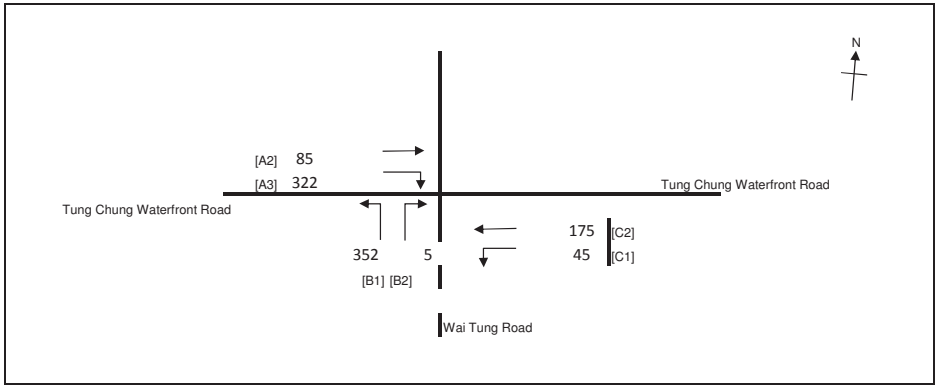
STAGE 1	INT= 5	STAGE 2	INT= 7	STAGE 3	INT= 5	STAGE 4	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
7	13	6	2	14	7	2	14	OK

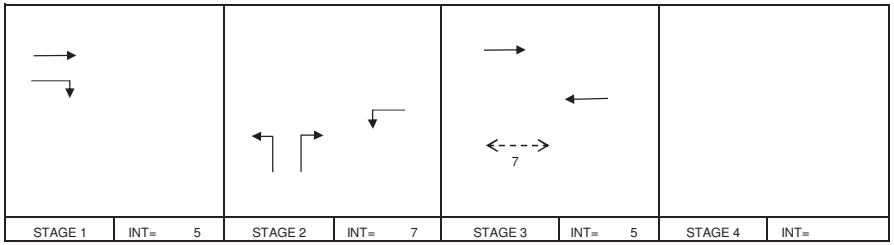
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				14				
A2	1,3	3.50	A	1			N	1965		35		35	0.00	1965			1965	0.018			5	35	0.032	2
A3	1	3.50	B	1	30			2105			127	127	1.00	2005			2005	0.063	0.063		17	17	0.237	10
B1	2	3.50	D	1	15		N	1965	92			92	1.00	1786			1786	0.052	0.052		13	13	0.237	7
B1.B2	2	3.50	D	1	30			2105	37		67	104	1.00	2005			2005	0.052			14	13	0.238	8
C1	2	3.50	E	1	15		N	1965	43			43	1.00	1786			1786	0.024			6	13	0.110	3
C2	3	3.50	C	1				2105		48		48	0.00	2105			2105	0.023	0.023	12	6	18	0.077	3

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO:	
Tung Chung Waterfront Road / Wai Tung Road	2026 AM Reference Case	DATE : 13-Oct-15	FILENAME :



No. of stages per cycle	N =	3	
No. of stage using for calculation	N =	3	
Cycle time	C =	90	sec
Sum(y)	Y =	0.338	
Loss time	L =	14	sec
Total Flow	=	984.0501	pcu
Co = (1.5*L+5)/(1-Y)	=	39.3	sec
Cm = L/(1-Y)	=	21.1	sec
Yult	=	0.795	
R.C.ult = (Yult-Y)/Y*100%	=	135.2	%
Cp = 0.9*L/(0.9-Y)	=	22.4	sec
Ymax = 1-L/C	=	0.844	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	124.8	%



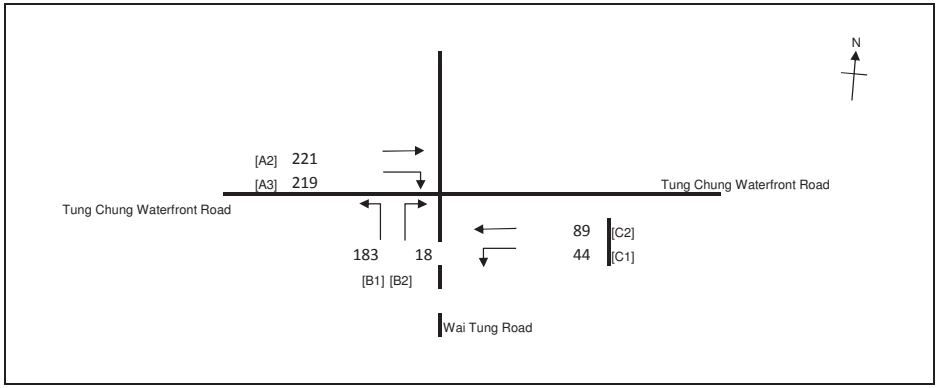
STAGE 1	INT= 5	STAGE 2	INT= 7	STAGE 3	INT= 5	STAGE 4	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
7	13	6	2	14	7	2	14	OK

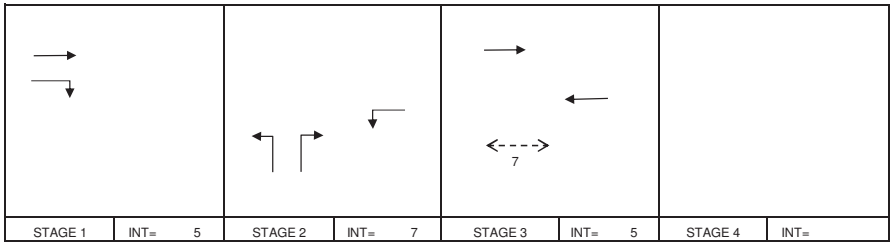
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				14				
A2	1,3	3.50	A	1			N	1965		85		85	0.00	1965			1965	0.043			10	55	0.071	5
A3	1	3.50	B	1	30			2105			322	322	1.00	2005			2005	0.161	0.161		36	36	0.400	29
B1	2	3.50	D	1	15		N	1965	168			168	1.00	1786			1786	0.094	0.094		21	21	0.400	19
B1.B2	2	3.50	D	1	30			2105	184		5	189	1.00	2005			2005	0.094			21	21	0.401	22
C1	2	3.50	E	1	15		N	1965	45			45	1.00	1786			1786	0.025			6	21	0.107	5
C2	3	3.50	C	1				2105		175		175	0.00	2105			2105	0.083	0.083	0	19	19	0.400	21

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO:	
Tung Chung Waterfront Road / Wai Tung Road	2026 PM Reference Case	DATE : 13-Oct-15	FILENAME :



No. of stages per cycle	N =	3	
No. of stage using for calculation	N =	3	
Cycle time	C =	90	sec
Sum(y)	Y =	0.205	
Loss time	L =	17	sec
Total Flow	=	774.0024	pcu
Co = (1.5*L+5)/(1-Y)	=	38.4	sec
Cm = L/(1-Y)	=	21.4	sec
Yult	=	0.773	
R.C.ult = (Yult-Y)/Y*100%	=	277.4	%
Cp = 0.9*L/(0.9-Y)	=	22.0	sec
Ymax = 1-L/C	=	0.811	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	256.6	%



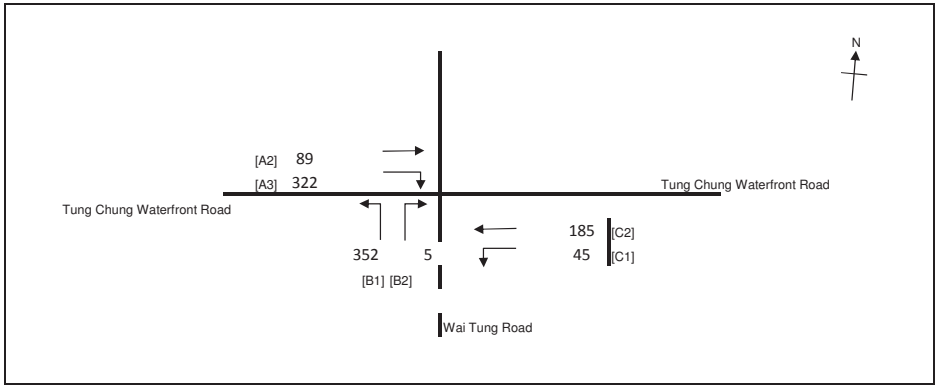
STAGE 1	INT= 5	STAGE 2	INT= 7	STAGE 3	INT= 5	STAGE 4	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
7	13	6	2	14	7	2	14	OK

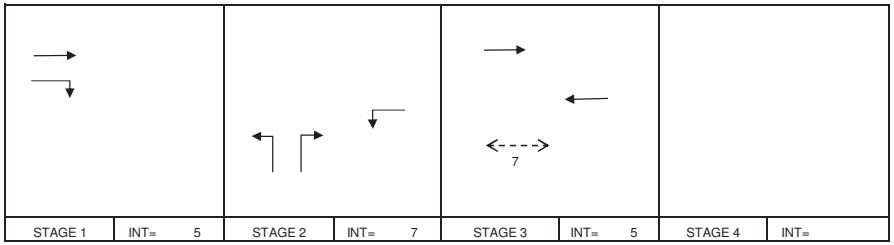
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				14				
A2	1,3	3.50	A	1			N	1965		221		221	0.00	1965			1965	0.112			40	57	0.177	12
A3	1	3.50	B	1	30			2105			219	219	1.00	2005			2005	0.109	0.109		39	39	0.252	19
B1	2	3.50	D	1	15		N	1965	95			95	1.00	1786			1786	0.053	0.053		19	19	0.252	11
B1.B2	2	3.50	D	1	30			2105	88		18	106	1.00	2005			2005	0.053			19	19	0.251	13
C1	2	3.50	E	1	15		N	1965	44			44	1.00	1786			1786	0.025			9	19	0.117	5
C2	3	3.50	C	1				2105		89		89	0.00	2105			2105	0.042	0.042	3	15	18	0.210	11

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO:	
Tung Chung Waterfront Road / Wai Tung Road	2026 AM Design Case	DATE : 13-Oct-15	FILENAME :



No. of stages per cycle	N =	3	
No. of stage using for calculation	N =	3	
Cycle time	C =	90	sec
Sum(y)	Y =	0.343	
Loss time	L =	14	sec
Total Flow	=	998.0501	pcu
Co = (1.5*L+5)/(1-Y)	=	39.6	sec
Cm = L/(1-Y)	=	21.3	sec
Yult	=	0.795	
R.C.ult = (Yult-Y)/Y*100%	=	131.9	%
Cp = 0.9*L/(0.9-Y)	=	22.6	sec
Ymax = 1-L/C	=	0.844	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	121.7	%



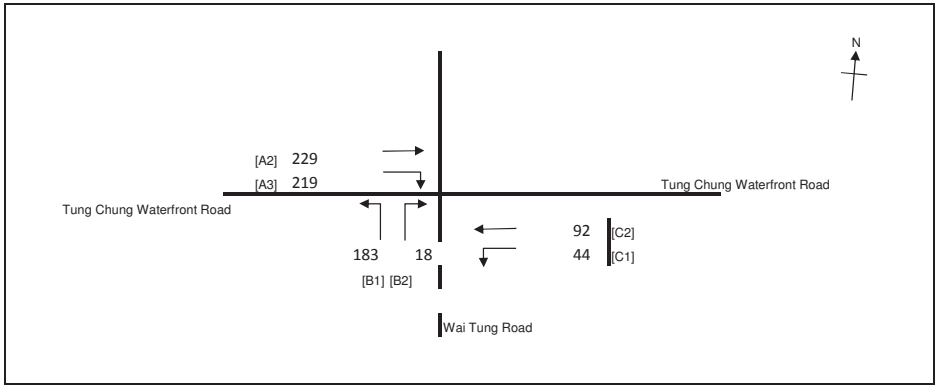
STAGE 1	INT= 5	STAGE 2	INT= 7	STAGE 3	INT= 5	STAGE 4	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
7	13	6	2	14	8	2	14	OK

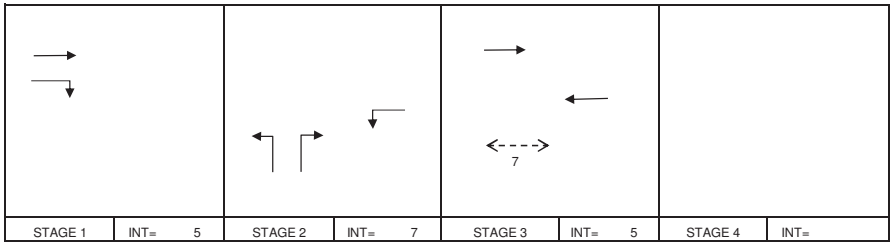
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				14				
A2	1,3	3.50	A	1			N	1965		89		89	0.00	1965			1965	0.045			10	55	0.074	5
A3	1	3.50	B	1	30			2105			322	322	1.00	2005			2005	0.161	0.161		36	36	0.406	29
B1	2	3.50	D	1	15		N	1965	168			168	1.00	1786			1786	0.094	0.094		21	21	0.406	19
B1.B2	2	3.50	D	1	30			2105	184		5	189	1.00	2005			2005	0.094			21	21	0.407	22
C1	2	3.50	E	1	15		N	1965	45			45	1.00	1786			1786	0.025			6	21	0.109	5
C2	3	3.50	C	1				2105		185		185	0.00	2105			2105	0.088	0.088	0	19	19	0.406	22

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO:	
Tung Chung Waterfront Road / Wai Tung Road	2026 PM Design Case	DATE : 13-Oct-15	FILENAME :



No. of stages per cycle	N =	3
No. of stage using for calculation	N =	3
Cycle time	C =	90 sec
Sum(y)	Y =	0.206
Loss time	L =	16 sec
Total Flow	=	785.0024 pcu
Co = (1.5*L+5)/(1-Y)	=	36.5 sec
Cm = L/(1-Y)	=	20.2 sec
Yult	=	0.780
R.C.ult = (Yult-Y)/Y*100%	=	278.4 %
Cp = 0.9*L/(0.9-Y)	=	20.8 sec
Ymax = 1-L/C	=	0.822
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	259.0 %



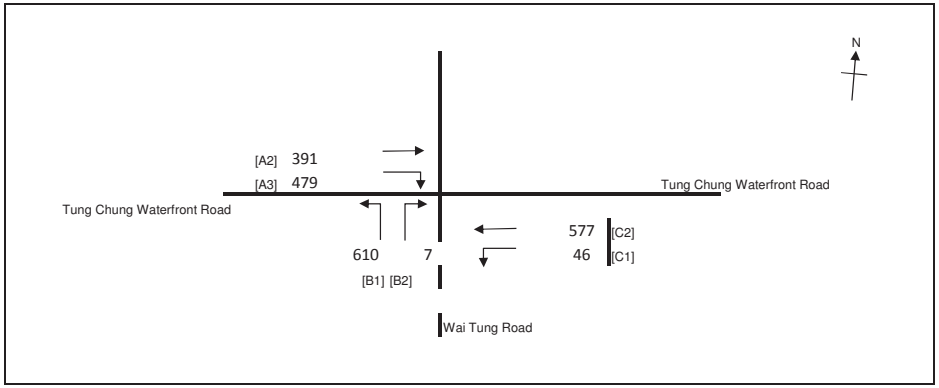
STAGE 1	INT= 5	STAGE 2	INT= 7	STAGE 3	INT= 5	STAGE 4	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
7	13	6	2	14	6	2	14	OK

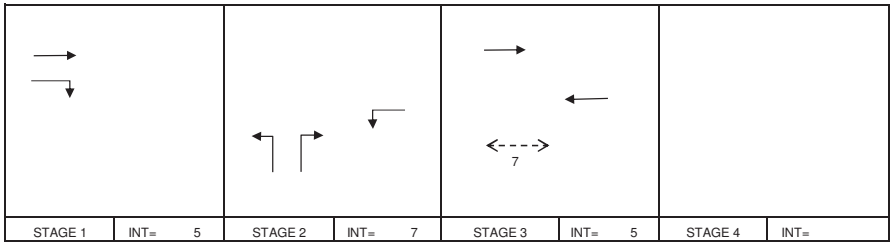
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				14				
A2	1,3	3.50	A	1			N	1965		229		229	0.00	1965			1965	0.117			42	57	0.184	13
A3	1	3.50	B	1	30			2105			219	219	1.00	2005			2005	0.109	0.109		39	39	0.251	19
B1	2	3.50	D	1	15		N	1965	95			95	1.00	1786			1786	0.053	0.053		19	19	0.251	11
B1.B2	2	3.50	D	1	30			2105	88		18	106	1.00	2005			2005	0.053			19	19	0.249	13
C1	2	3.50	E	1	15		N	1965	44			44	1.00	1786			1786	0.025			9	19	0.116	5
C2	3	3.50	C	1				2105		92		92	0.00	2105			2105	0.044	0.044	2	16	18	0.222	11

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO:	
Tung Chung Waterfront Road / Wai Tung Road	2031 AM Reference Case	DATE : 13-Oct-15	FILENAME :



No. of stages per cycle	N =	3
No. of stage using for calculation	N =	3
Cycle time	C =	120 sec
Sum(y)	Y =	0.676
Loss time	L =	14 sec
Total Flow	=	2109.897 pcu
Co = (1.5*L+5)/(1-Y)	=	80.2 sec
Cm = L/(1-Y)	=	43.2 sec
Yult	=	0.795
R.C.ult = (Yult-Y)/Y*100%	=	17.6 %
Cp = 0.9*L/(0.9-Y)	=	56.2 sec
Ymax = 1-L/C	=	0.883
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	17.6 %



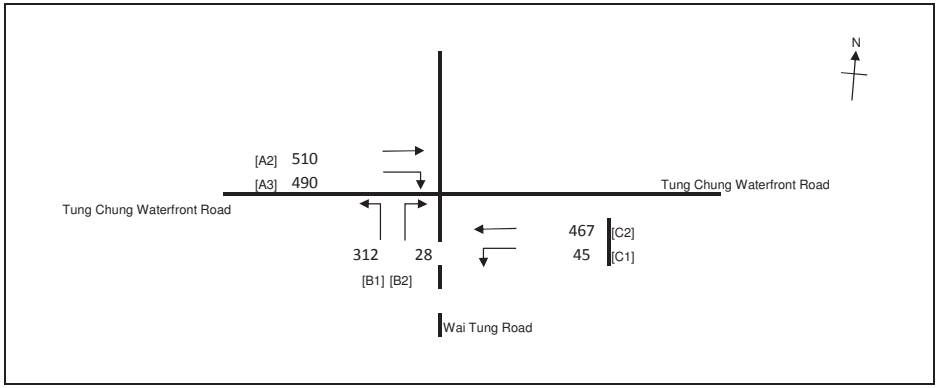
STAGE 1	INT= 5	STAGE 2	INT= 7	STAGE 3	INT= 5	STAGE 4	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
7	13	6	2	14	32	2	14	OK

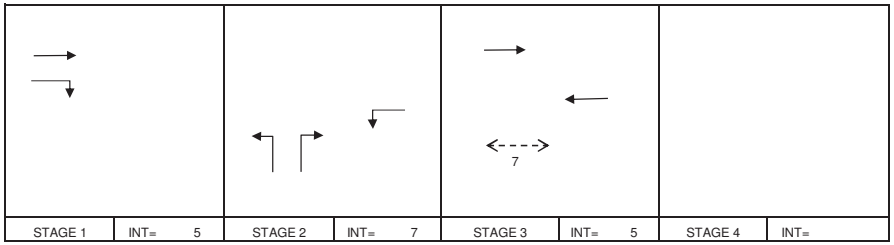
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				14				
A2	1,3	3.50	A	1			N	1965		391		391	0.00	1965			1965	0.199			31	80	0.297	26
A3	1	3.50	B	1	30			2105			479	479	1.00	2005			2005	0.239	0.239		37	37	0.765	66
B1	2	3.50	D	1	15		N	1965	291			291	1.00	1786			1786	0.163	0.163		26	26	0.765	46
B1.B2	2	3.50	D	1	30			2105	319		7	326	1.00	2005			2005	0.163			26	26	0.764	51
C1	2	3.50	E	1	15		N	1965	46			46	1.00	1786			1786	0.026			4	26	0.121	7
C2	3	3.50	C	1				2105		577		577	0.00	2105			2105	0.274	0.274	0	43	43	0.765	74

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO:	
Tung Chung Waterfront Road / Wai Tung Road	2031 PM Reference Case	DATE : 13-Oct-15	FILENAME :



No. of stages per cycle	N =	3
No. of stage using for calculation	N =	3
Cycle time	C =	120 sec
Sum(y)	Y =	0.556
Loss time	L =	14 sec
Total Flow	=	1851.83 pcu
Co = (1.5*L+5)/(1-Y)	=	58.6 sec
Cm = L/(1-Y)	=	31.5 sec
Yult	=	0.795
R.C.ult = (Yult-Y)/Y*100%	=	43.0 %
Cp = 0.9*L/(0.9-Y)	=	36.6 sec
Ymax = 1-L/C	=	0.883
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	43.0 %



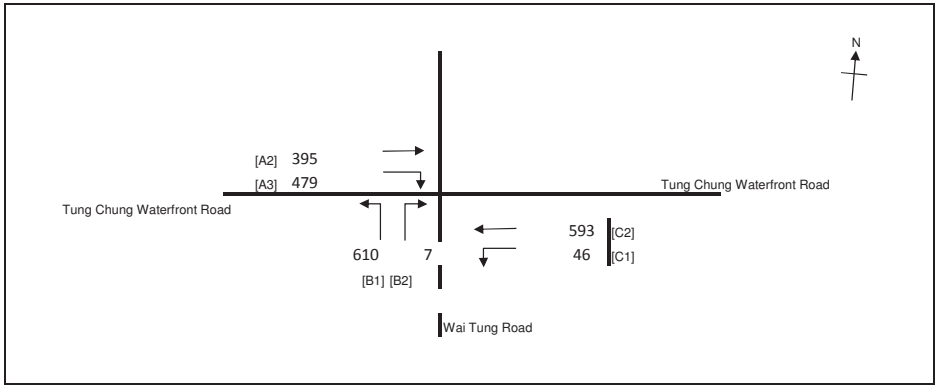
STAGE 1	INT= 5	STAGE 2	INT= 7	STAGE 3	INT= 5	STAGE 4	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
7	13	6	2	14	31	2	14	OK

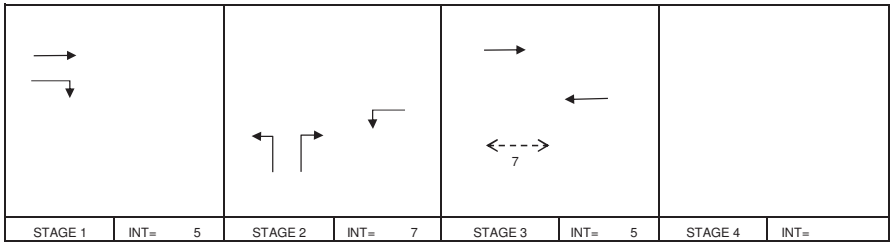
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				14				
A2	1,3	3.50	A	1			N	1965		510		510	0.00	1965			1965	0.260			49	89	0.350	26
A3	1	3.50	B	1	30			2105			490	490	1.00	2005			2005	0.244	0.244		47	47	0.629	60
B1	2	3.50	D	1	15		N	1965	160			160	1.00	1786			1786	0.090	0.090		17	17	0.629	27
B1.B2	2	3.50	D	1	30			2105	152		28	180	1.00	2005			2005	0.090			17	17	0.631	31
C1	2	3.50	E	1	15		N	1965	45			45	1.00	1786			1786	0.025			5	17	0.176	8
C2	3	3.50	C	1				2105		467		467	0.00	2105			2105	0.222	0.222	0	42	42	0.629	60

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO:	
Tung Chung Waterfront Road / Wai Tung Road	2031 AM Design Case	DATE : 13-Oct-15	FILENAME :



No. of stages per cycle	N =	3
No. of stage using for calculation	N =	3
Cycle time	C =	120 sec
Sum(y)	Y =	0.684
Loss time	L =	14 sec
Total Flow	=	2129.897 pcu
Co = (1.5*L+5)/(1-Y)	=	82.2 sec
Cm = L/(1-Y)	=	44.2 sec
Yult	=	0.795
R.C.ult = (Yult-Y)/Y*100%	=	16.3 %
Cp = 0.9*L/(0.9-Y)	=	58.2 sec
Ymax = 1-L/C	=	0.883
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	16.3 %



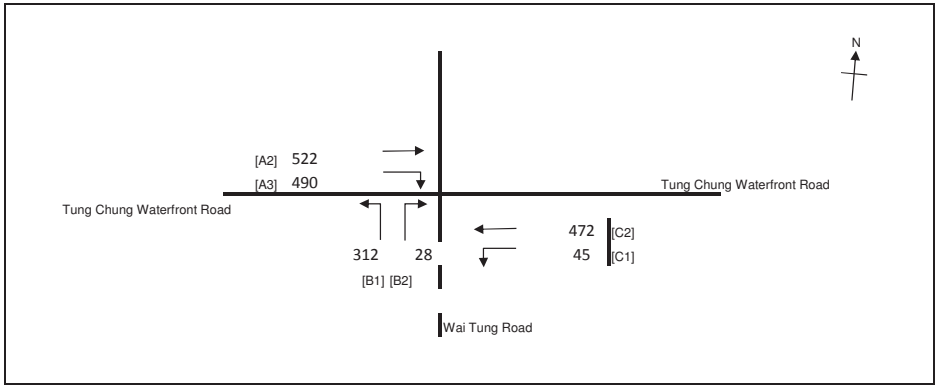
STAGE 1	INT= 5	STAGE 2	INT= 7	STAGE 3	INT= 5	STAGE 4	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
7	13	6	2	14	32	2	14	OK

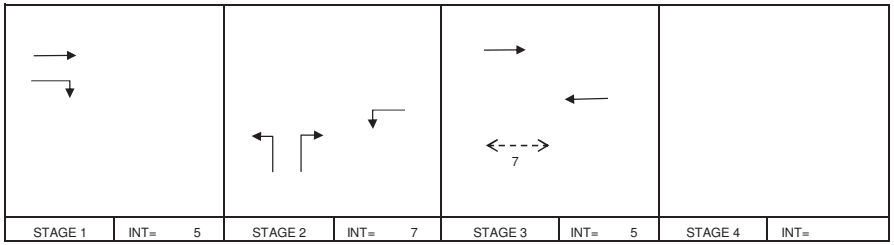
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				14				
A2	1,3	3.50	A	1			N	1965		395		395	0.00	1965			1965	0.201			31	81	0.299	26
A3	1	3.50	B	1	30			2105			479	479	1.00	2005			2005	0.239	0.239		37	37	0.774	66
B1	2	3.50	D	1	15		N	1965	291			291	1.00	1786			1786	0.163	0.163		25	25	0.774	46
B1.B2	2	3.50	D	1	30			2105	319		7	326	1.00	2005			2005	0.163			25	25	0.772	51
C1	2	3.50	E	1	15		N	1965	46			46	1.00	1786			1786	0.026			4	25	0.122	7
C2	3	3.50	C	1				2105		593		593	0.00	2105			2105	0.282	0.282	0	44	44	0.774	75

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO:	
Tung Chung Waterfront Road / Wai Tung Road	2031 PM Design Case	DATE : 13-Oct-15	FILENAME :



No. of stages per cycle	N =	3
No. of stage using for calculation	N =	3
Cycle time	C =	120 sec
Sum(y)	Y =	0.558
Loss time	L =	14 sec
Total Flow	=	1868.83 pcu
Co = (1.5*L+5)/(1-Y)	=	58.9 sec
Cm = L/(1-Y)	=	31.7 sec
Yult	=	0.795
R.C.ult = (Yult-Y)/Y*100%	=	42.4 %
Cp = 0.9*L/(0.9-Y)	=	36.9 sec
Ymax = 1-L/C	=	0.883
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	42.4 %



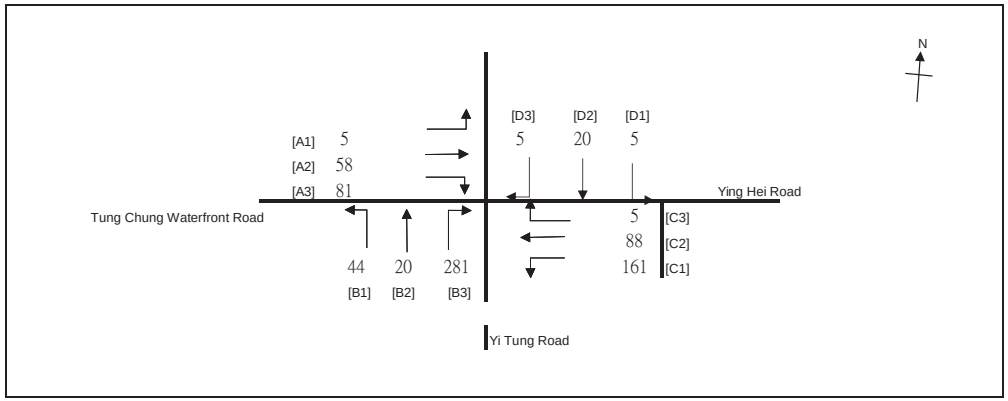
STAGE 1	INT= 5	STAGE 2	INT= 7	STAGE 3	INT= 5	STAGE 4	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
7	13	6	2	14	31	2	14	OK

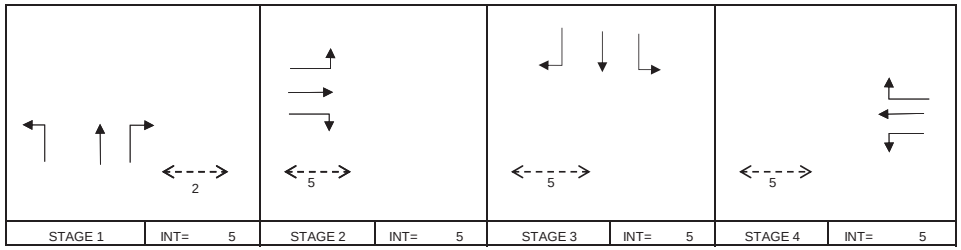
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				14				
A2	1,3	3.50	A	1			N	1965		522		522	0.00	1965			1965	0.266			50	89	0.358	27
A3	1	3.50	B	1	30			2105			490	490	1.00	2005			2005	0.244	0.244		46	46	0.632	60
B1	2	3.50	D	1	15		N	1965	160			160	1.00	1786			1786	0.090	0.090		17	17	0.632	27
B1.B2	2	3.50	D	1	30			2105	152		28	180	1.00	2005			2005	0.090			17	17	0.634	31
C1	2	3.50	E	1	15		N	1965	45			45	1.00	1786			1786	0.025			5	17	0.177	8
C2	3	3.50	C	1				2105		472		472	0.00	2105			2105	0.224	0.224	0	43	43	0.632	61

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO:	
Tung Chung Waterfront Road / Yi Tung Road	2015_AM	DATE : 20-Oct-16	FILENAME :



No. of stages per cycle	N =	3	
No. of stage using for calculation	N =	4	
Cycle time	C =	83	sec
Sum(y)	Y =	0.237	
Loss time	L =	21	sec
Total Flow	=	772.8916	pcu
Co = (1.5*L+5)/(1-Y)	=	47.8	sec
Cm = L/(1-Y)	=	27.5	sec
Yult	=	0.743	
R.C.ult = (Yult-Y)/Y*100%	=	213.1	%
Cp = 0.9*L/(0.9-Y)	=	28.5	sec
Ymax = 1-L/C	=	0.747	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	183.5	%



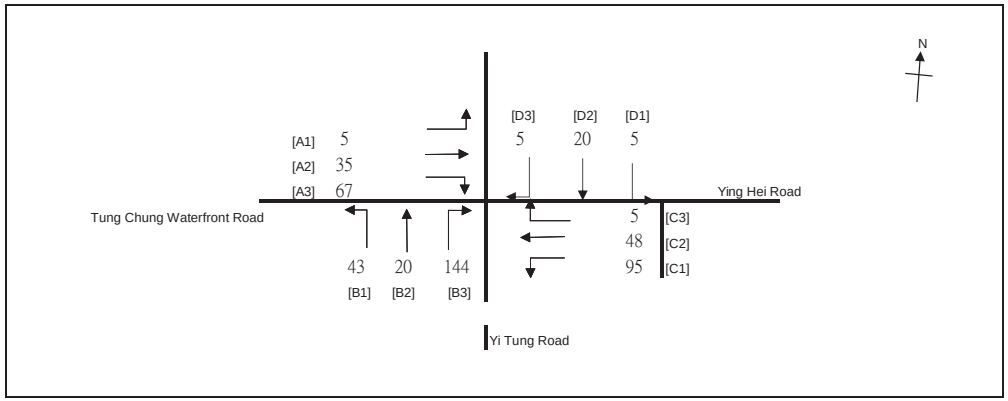
STAGE 1	INT= 5	STAGE 2	INT= 5	STAGE 3	INT= 5	STAGE 4	INT= 5

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
2	8	5	6	7	6	6	7	OK
5	8	5	2	7	46	2	7	OK

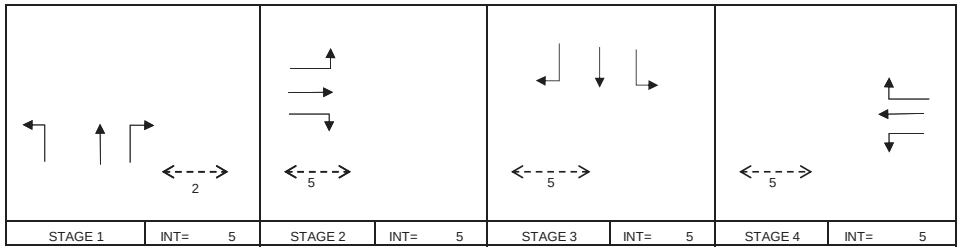
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				16				
A1,A2	2	3.50		1	15		N	1965	5	58		63	0.08	1950			1950	0.032	0.040	4	8	15	0.184	7
A2,A3	2	3.50		1	30			2105		0	81	81	1.00	2005			2005	0.040			11	15	0.230	9
B1,B2,B3	1	3.50		1	15		N	1965	44	20	99	163	0.88	1807			1807	0.090	0.091		24	24	0.315	16
B3	1	3.50		1	30			2105			182	182	1.00	2005			2005	0.091			24	24	0.317	18
C1	4	3.50		1	15		N	1965	161			161	1.00	1786			1786	0.090	0.090		24	24	0.317	16
C2,C3	4	3.50		1	30			2105		88	5	93	0.05	2099			2099	0.044			12	24	0.156	9
D1,D2,D3	3	3.50		1	15		N	1965	5	20	5	30	0.33	1902			1902	0.016	0.016	1	4	5	0.256	4

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO:	
Tung Chung Waterfront Road / Yi Tung Road	2015_PM	DATE : 20-Oct-16	FILENPME :



No. of stages per cycle	N =	3	
No. of stage using for calculation	N =	4	
Cycle time	C =	83	sec
Sum(y)	Y =	0.157	
Loss time	L =	16	sec
Total Flow	=	491.994	pcu
Co = (1.5*L+5)/(1-Y)	=	34.4	sec
Cm = L/(1-Y)	=	19.0	sec
Yult	=	0.780	
R.C.ult = (Yult-Y)/Y*100%	=	396.4	%
Cp = 0.9*L/(0.9-Y)	=	19.4	sec
Ymax = 1-L/C	=	0.807	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	362.4	%



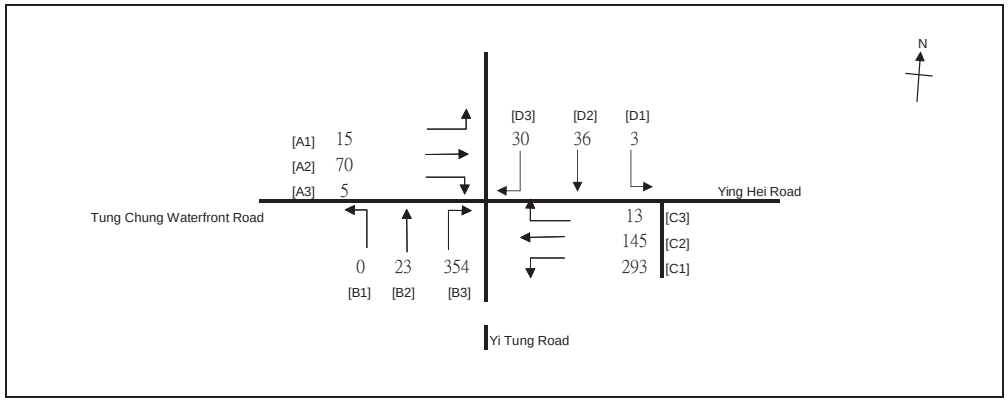
STAGE 1	INT= 5	STAGE 2	INT= 5	STAGE 3	INT= 5	STAGE 4	INT= 5

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
2	8	5	6	7	5	6	7	OK
5	8	5	2	7	47	2	7	OK

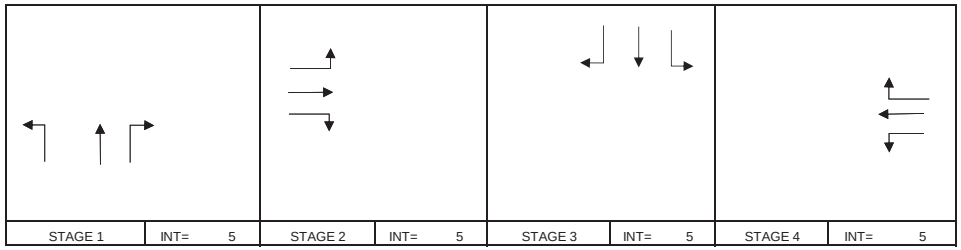
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				16				
A1,A2	2	3.50		1	15		N	1965	5	35		40	0.13	1941			1941	0.021	0.034		9	14	0.119	5
A2,A3	2	3.50		1	30			2105		0	67	67	0.99	2005			2005	0.034			14	14	0.195	8
B1,B2,B3	1	3.50		1	15		N	1965	43	20	35	98	0.80	1820			1820	0.054	0.054		23	23	0.192	10
B3	1	3.50		1	30			2105			109	109	1.00	2005			2005	0.054			23	23	0.195	11
C1	4	3.50		1	15		N	1965	95			95	1.00	1786			1786	0.053	0.053		23	23	0.195	10
C2,C3	4	3.50		1	30			2105		48	5	53	0.09	2095			2095	0.025			11	23	0.092	5
D1,D2,D3	3	3.50		1	15		N	1965	5	20	5	30	0.33	1902			1902	0.016	0.016		7	7	0.195	4

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO:	
Tung Chung Waterfront Road / Yi Tung Road	2026_AM_reference	DATE : 20-Oct-16	FILENAME :



No. of stages per cycle	N =	3
No. of stage using for calculation	N =	4
Cycle time	C =	120 sec
Sum(y)	Y =	0.304
Loss time	L =	34 sec
Total Flow	=	987.42 pcu
Co = (1.5*L+5)/(1-Y)	=	80.5 sec
Cm = L/(1-Y)	=	48.9 sec
Yult	=	0.645
R.C.ult = (Yult-Y)/Y*100%	=	112.1 %
Cp = 0.9*L/(0.9-Y)	=	51.4 sec
Ymax = 1-L/C	=	0.717
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	112.1 %



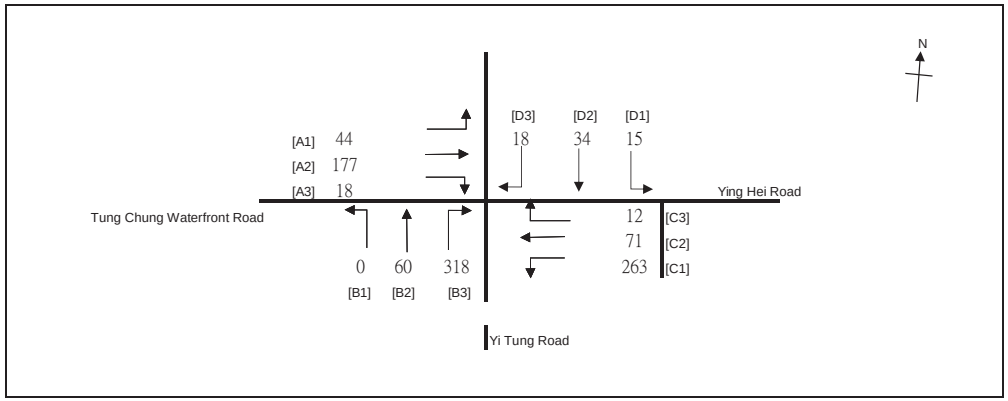
STAGE 1	INT= 5	STAGE 2	INT= 5	STAGE 3	INT= 5	STAGE 4	INT= 5

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
	8	7	2	9				

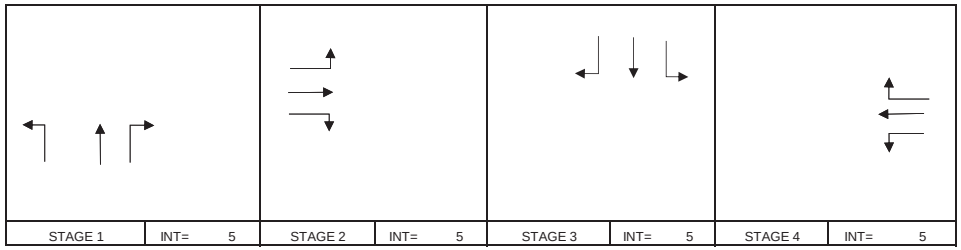
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				16				
A1,A2	2	3.50		1	15		N	1965	15	27		42	0.36	1897			1897	0.022	0.023		6	6	0.416	8
A2,A3	2	3.50		1	30			2105		43	5	47	0.10	2095			2095	0.023			6	6	0.424	9
B1,B2,B3	1	3.50		1	15		N	1965	0	23	156	179	0.87	1808			1808	0.099	0.099		28	28	0.424	27
B3	1	3.50		1	30			2105			198	198	1.00	2005			2005	0.099			28	28	0.424	30
C1	4	3.50		1	15		N	1965	293			293	1.00	1786			1786	0.164	0.164		46	46	0.424	36
C2,C3	4	3.50		1	30			2105		145	13	159	0.08	2096			2096	0.076			21	46	0.196	19
D1,D2	3	3.50		1	15		N	1965	3	33		36	0.09	1948			1948	0.019	0.019		5	5	0.424	7
D2,D3	3	3.50		1	15		N	1965		3	30	33	0.91	1801			1801	0.018			5	5	0.415	6
ped all red	5																			18				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO:	
Tung Chung Waterfront Road / Yi Tung Road	2026_PM_reference	DATE : 20-Oct-16	FILENPME :



No. of stages per cycle	N =	3
No. of stage using for calculation	N =	4
Cycle time	C =	120 sec
Sum(y)	Y =	0.324
Loss time	L =	34 sec
Total Flow	=	1030.56 pcu
Co = (1.5*L+5)/(1-Y)	=	82.8 sec
Cm = L/(1-Y)	=	50.3 sec
Yult	=	0.645
R.C.ult = (Yult-Y)/Y*100%	=	99.0 %
Cp = 0.9*L/(0.9-Y)	=	53.1 sec
Ymax = 1-L/C	=	0.717
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	99.0 %



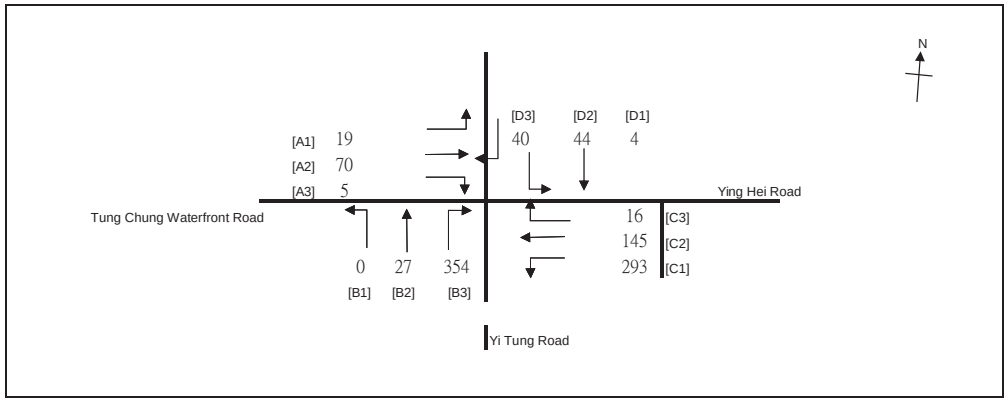
STAGE 1	INT= 5	STAGE 2	INT= 5	STAGE 3	INT= 5	STAGE 4	INT= 5

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
	8	7	2	9				

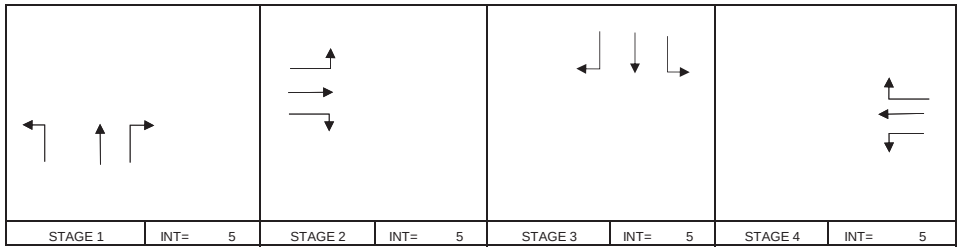
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				16				
A1,A2	2	3.50		1	15		N	1965	44	69		113	0.39	1891			1891	0.060	0.060		16	16	0.450	20
A2,A3	2	3.50		1	30			2105		108	18	126	0.14	2090			2090	0.060			16	16	0.452	22
B1,B2,B3	1	3.50		1	15		N	1965	0	60	121	181	0.67	1842			1842	0.098	0.098		26	26	0.451	28
B3	1	3.50		1	30			2105			197	197	1.00	2005			2005	0.098			26	26	0.452	31
C1	4	3.50		1	15		N	1965	263			263	1.00	1786			1786	0.147	0.147		39	39	0.452	35
C2,C3	4	3.50		1	30			2105		71	12	83	0.15	2090			2090	0.040			11	39	0.122	11
D1,D2	3	3.50		1	15		N	1965	15	19		34	0.45	1881			1881	0.018	0.018		5	5	0.452	7
D2,D3	3	3.50		1	15		N	1965		15	18	33	0.55	1862			1862	0.018			5	5	0.442	6
ped all red	5																			18				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO:	
Tung Chung Waterfront Road / Yi Tung Road	2026_AM_design	DATE : 20-Oct-16	FILENAME :



No. of stages per cycle	N =	3
No. of stage using for calculation	N =	4
Cycle time	C =	120 sec
Sum(y)	Y =	0.311
Loss time	L =	34 sec
Total Flow	=	1017.42 pcu
Co = (1.5*L+5)/(1-Y)	=	81.3 sec
Cm = L/(1-Y)	=	49.4 sec
Yult	=	0.645
R.C.ult = (Yult-Y)/Y*100%	=	107.1 %
Cp = 0.9*L/(0.9-Y)	=	52.0 sec
Ymax = 1-L/C	=	0.717
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	107.1 %



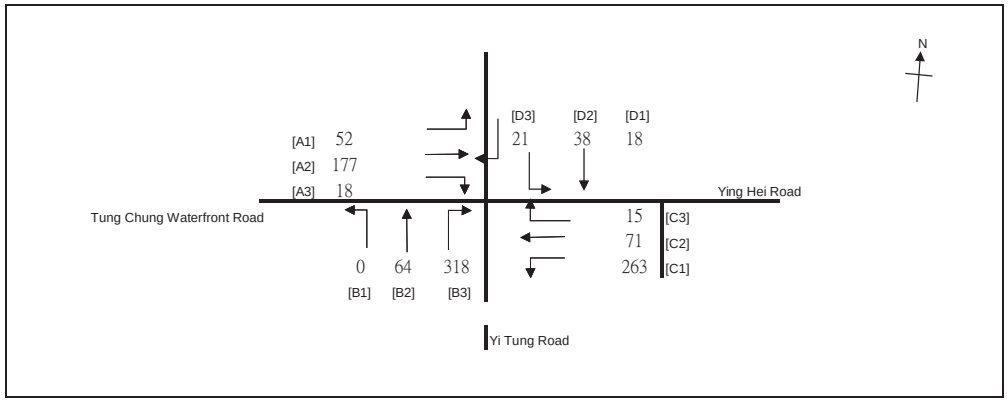
STAGE 1	INT= 5	STAGE 2	INT= 5	STAGE 3	INT= 5	STAGE 4	INT= 5

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
	8	7	2	9				

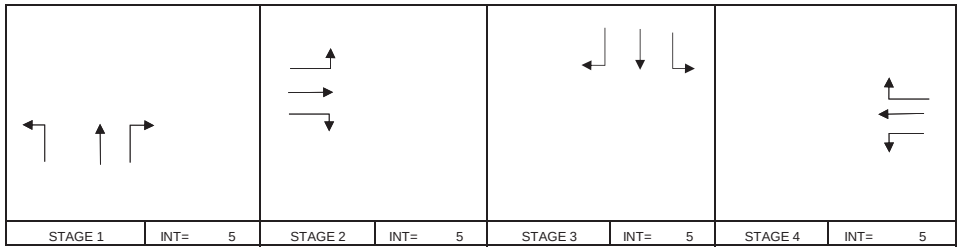
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				16				
A1,A2	2	3.50		1	15		N	1965	19	26		45	0.42	1885			1885	0.024	0.024		7	7	0.435	9
A2,A3	2	3.50		1	30			2105		44	5	48	0.10	2095			2095	0.023			6	7	0.420	9
B1,B2,B3	1	3.50		1	15		N	1965	0	27	154	181	0.85	1811			1811	0.100	0.100		28	28	0.435	28
B3	1	3.50		1	30			2105			200	200	1.00	2005			2005	0.100			28	28	0.435	31
C1	4	3.50		1	15		N	1965	293			293	1.00	1786			1786	0.164	0.164		45	45	0.435	36
C2,C3	4	3.50		1	30			2105		145	16	162	0.10	2094			2094	0.077			21	45	0.205	20
D1,D2	3	3.50		1	15		N	1965	4	42		46	0.09	1947			1947	0.024	0.024		7	7	0.435	9
D2,D3	3	3.50		1	15		N	1965		2	40	42	0.95	1794			1794	0.023			6	7	0.426	8
ped all red	5																			18				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO:	
Tung Chung Waterfront Road / Yi Tung Road	2026_PM_design	DATE : 20-Oct-16	FILENPME :



No. of stages per cycle	N =	3	
No. of stage using for calculation	N =	4	
Cycle time	C =	120	sec
Sum(y)	Y =	0.330	
Loss time	L =	34	sec
Total Flow	=	1055.56	pcu
Co = (1.5*L+5)/(1-Y)	=	83.6	sec
Cm = L/(1-Y)	=	50.7	sec
Yult	=	0.645	
R.C.ult = (Yult-Y)/Y*100%	=	95.5	%
Cp = 0.9*L/(0.9-Y)	=	53.7	sec
Ymax = 1-L/C	=	0.717	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	95.5	%



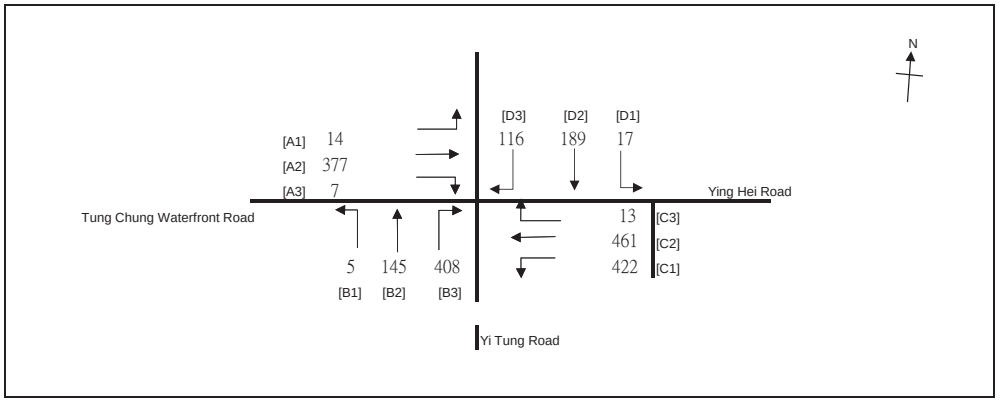
STAGE 1	INT= 5	STAGE 2	INT= 5	STAGE 3	INT= 5	STAGE 4	INT= 5

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
	8	7	2	9				

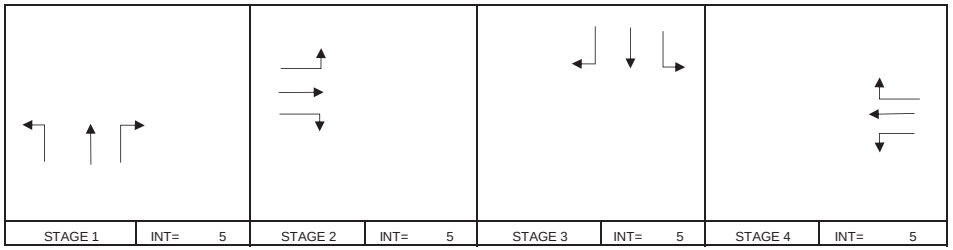
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				16				
A1,A2	2	3.50		1	15		N	1965	52	65		117	0.45	1881			1881	0.062	0.062		16	16	0.460	20
A2,A3	2	3.50		1	30			2105		112	18	130	0.14	2091			2091	0.062			16	16	0.459	22
B1,B2,B3	1	3.50		1	15		N	1965	0	64	119	183	0.65	1845			1845	0.099	0.099		26	26	0.459	29
B3	1	3.50		1	30			2105			199	199	1.00	2005			2005	0.099			26	26	0.460	31
C1	4	3.50		1	15		N	1965	263			263	1.00	1786			1786	0.147	0.147		38	38	0.460	36
C2,C3	4	3.50		1	30			2105		71	15	86	0.18	2087			2087	0.041			11	38	0.129	12
D1,D2	3	3.50		1	15		N	1965	18	21		39	0.47	1878			1878	0.021	0.021		5	5	0.460	8
D2,D3	3	3.50		1	15		N	1965		17	21	38	0.56	1861			1861	0.021			5	5	0.451	7
ped all red	5																			18				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO:	
Tung Chung Waterfront Road / Yi Tung Road	2031_AM_reference	DATE : 20-Oct-16	FILENAME :



No. of stages per cycle	N =	3
No. of stage using for calculation	N =	4
Cycle time	C =	120 sec
Sum(y)	Y =	0.564
Loss time	L =	34 sec
Total Flow	=	2174.97 pcu
Co = (1.5*L+5)/(1-Y)	=	128.5 sec
Cm = L/(1-Y)	=	78.0 sec
Yult	=	0.645
R.C.ult = (Yult-Y)/Y*100%	=	14.3 %
Cp = 0.9*L/(0.9-Y)	=	91.1 sec
Ymax = 1-L/C	=	0.717
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	14.3 %



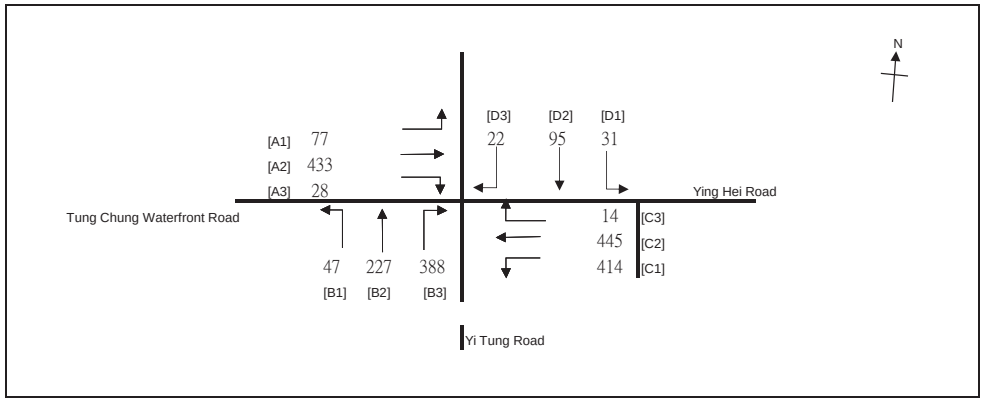
STAGE 1	INT= 5	STAGE 2	INT= 5	STAGE 3	INT= 5	STAGE 4	INT= 5

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
	8	7	2	9				

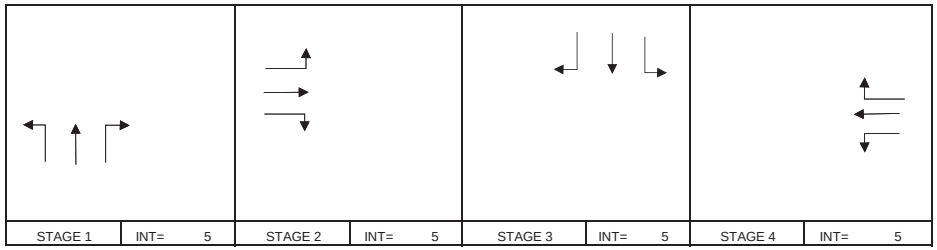
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				16				
A1,A2	2	3.50		1	15		N	1965	14	178		192	0.07	1951			1951	0.098	0.098		15	15	0.787	34
A2,A3	2	3.50		1	30			2105		199	7	207	0.04	2101			2101	0.098			15	15	0.787	36
B1,B2,B3	1	3.50		1	15		N	1965	5	145	120	270	0.46	1878			1878	0.144	0.144		22	22	0.787	44
B3	1	3.50		1	30			2105			288	288	1.00	2005			2005	0.144			22	22	0.786	47
C1	4	3.50		1	15		N	1965	422			422	1.00	1786			1786	0.236	0.236		36	36	0.787	59
C2,C3	4	3.50		1	30			2105		461	13	474	0.03	2102			2102	0.225			34	36	0.751	66
D1,D2	3	3.50		1	15		N	1965	17	149		166	0.10	1945			1945	0.085	0.085		13	13	0.787	30
D2,D3	3	3.50		1	15		N	1965		40	116	156	0.75	1828			1828	0.085			13	13	0.789	28
ped all red	5																			18				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO:	
Tung Chung Waterfront Road / Yi Tung Road	2031_PM_reference	DATE : 20-Oct-16	FILENAME :



No. of stages per cycle	N =	3
No. of stage using for calculation	N =	4
Cycle time	C =	120 sec
Sum(y)	Y =	0.575
Loss time	L =	34 sec
Total Flow	=	2221.45 pcu
Co = (1.5*L+5)/(1-Y)	=	131.8 sec
Cm = L/(1-Y)	=	80.0 sec
Yult	=	0.645
R.C.ult = (Yult-Y)/Y*100%	=	12.2 %
Cp = 0.9*L/(0.9-Y)	=	94.2 sec
Ymax = 1-L/C	=	0.717
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	12.2 %



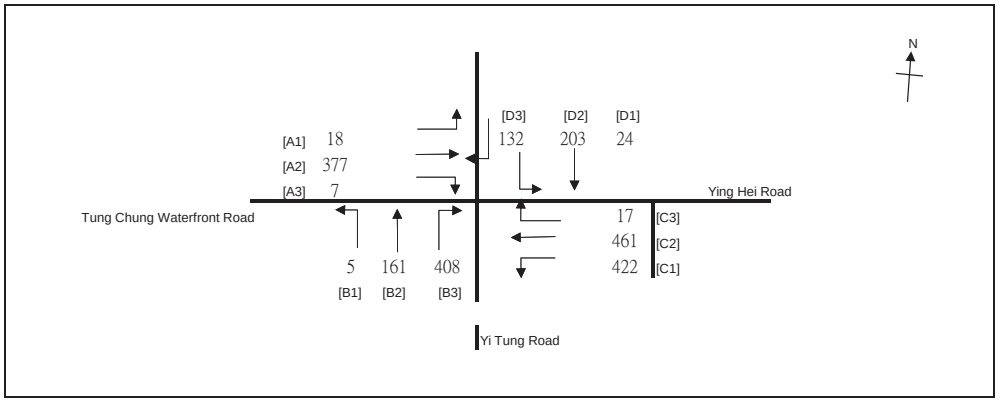
STAGE 1	INT= 5	STAGE 2	INT= 5	STAGE 3	INT= 5	STAGE 4	INT= 5

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
	8	7	2	9				

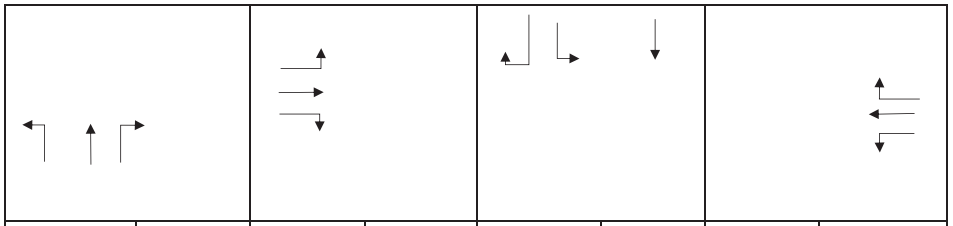
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				16				
A1,A2	2	3.50		1	15		N	1965	77	179		256	0.30	1907			1907	0.134	0.134		20	20	0.802	43
A2,A3	2	3.50		1	30			2105		254	28	281	0.10	2095			2095	0.134			20	20	0.802	47
B1,B2,B3	1	3.50		1	15		N	1965	47	227	49	323	0.30	1908			1908	0.169	0.169		25	25	0.802	51
B3	1	3.50		1	30			2105			339	339	1.00	2005			2005	0.169			25	25	0.801	53
C1	4	3.50		1	15		N	1965	414			414	1.00	1786			1786	0.232	0.232		35	35	0.802	59
C2,C3	4	3.50		1	30			2105		445	14	459	0.03	2102			2102	0.218			33	35	0.755	65
D1,D2	3	3.50		1	15		N	1965	31	43		74	0.42	1886			1886	0.039	0.039		6	6	0.802	14
D2,D3	3	3.50		1	15		N	1965		52	22	75	0.30	1908			1908	0.039			6	6	0.798	14
ped all red	5																			18				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO:	
Tung Chung Waterfront Road / Yi Tung Road	2031_AM_design	DATE : 20-Oct-16	FILENAME :



No. of stages per cycle	N =	3
No. of stage using for calculation	N =	4
Cycle time	C =	120 sec
Sum(y)	Y =	0.579
Loss time	L =	34 sec
Total Flow	=	2235.97 pcu
Co = (1.5*L+5)/(1-Y)	=	133.1 sec
Cm = L/(1-Y)	=	80.8 sec
Yult	=	0.645
R.C.ult = (Yult-Y)/Y*100%	=	11.4 %
Cp = 0.9*L/(0.9-Y)	=	95.4 sec
Ymax = 1-L/C	=	0.717
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	11.4 %



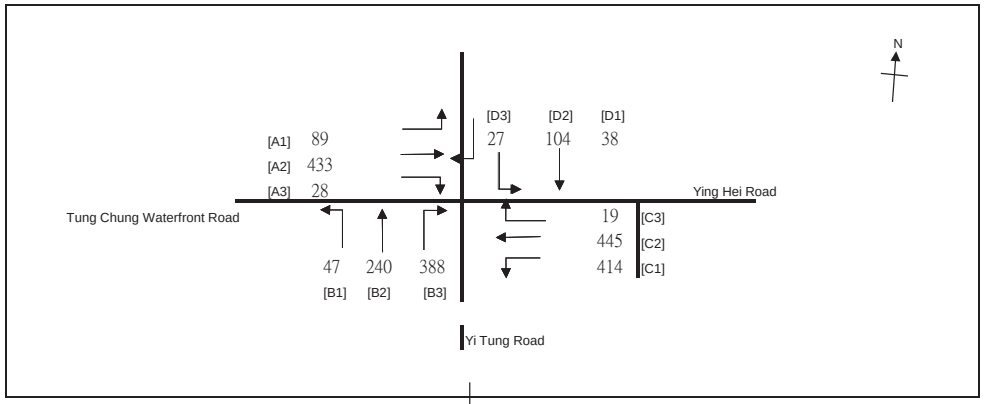
STAGE 1	INT= 5	STAGE 2	INT= 5	STAGE 3	INT= 5	STAGE 4	INT= 5

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
	8	7	2	9				

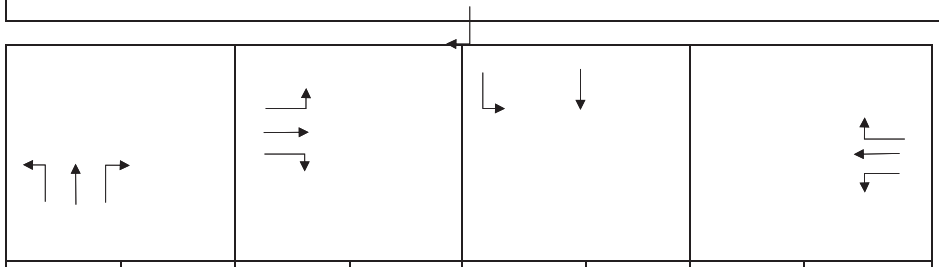
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				16				
A1,A2	2	3.50		1	15		N	1965	18	175		193	0.09	1947			1947	0.099	0.100		15	15	0.803	34
A2,A3	2	3.50		1	30			2105		202	7	210	0.04	2101			2101	0.100			15	15	0.808	37
B1,B2,B3	1	3.50		1	15		N	1965	5	161	112	278	0.42	1886			1886	0.148	0.148		22	22	0.808	45
B3	1	3.50		1	30			2105			296	296	1.00	2005			2005	0.148			22	22	0.808	48
C1	4	3.50		1	15		N	1965	422			422	1.00	1786			1786	0.236	0.236		35	35	0.808	60
C2,C3	4	3.50		1	30			2105		461	17	478	0.04	2101			2101	0.227			34	35	0.777	68
D1,D2	3	3.50		1	15		N	1965	24	161		185	0.13	1940			1940	0.095	0.095		14	14	0.808	33
D2,D3	3	3.50		1	15		N	1965		42	132	174	0.76	1826			1826	0.095			14	14	0.809	31
ped all red	5																			18				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO:	
Tung Chung Waterfront Road / Yi Tung Road	2031_PM_design	DATE : 20-Oct-16	FILENAME :



No. of stages per cycle	N =	3
No. of stage using for calculation	N =	4
Cycle time	C =	120 sec
Sum(y)	Y =	0.587
Loss time	L =	34 sec
Total Flow	=	2272.45 pcu
Co = (1.5*L+5)/(1-Y)	=	135.6 sec
Cm = L/(1-Y)	=	82.3 sec
Yult	=	0.645
R.C.ult = (Yult-Y)/Y*100%	=	9.9 %
Cp = 0.9*L/(0.9-Y)	=	97.8 sec
Ymax = 1-L/C	=	0.717
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	9.9 %



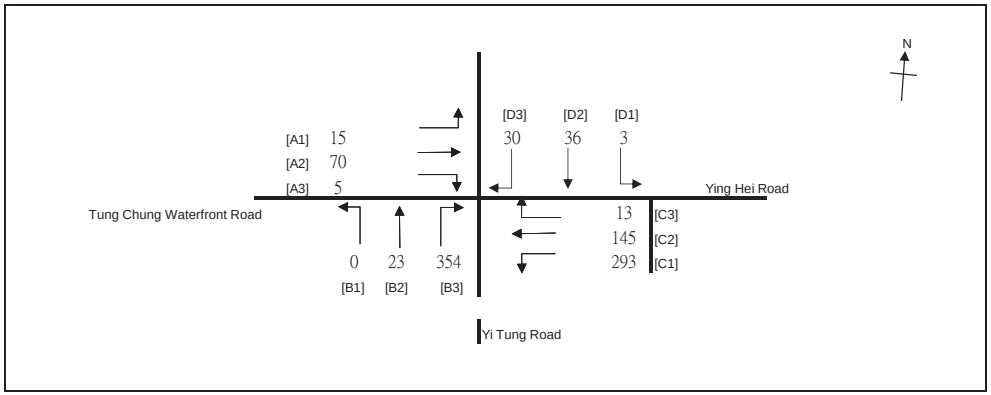
STAGE 1	INT= 5	STAGE 2	INT= 5	STAGE 3	INT= 5	STAGE 4	INT= 5

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
	8	7	2	9				

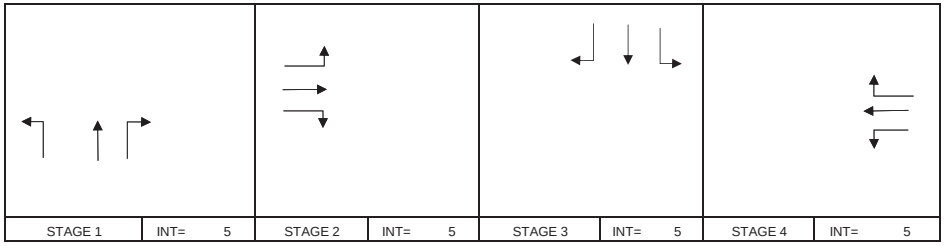
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				16				
A1,A2	2	3.50		1	15		N	1965	89	172		261	0.34	1900			1900	0.138	0.138		20	20	0.819	44
A2,A3	2	3.50		1	30			2105		261	28	288	0.10	2095			2095	0.138			20	20	0.819	48
B1,B2,B3	1	3.50		1	15		N	1965	47	240	42	329	0.27	1913			1913	0.172	0.173		25	25	0.817	52
B3	1	3.50		1	30			2105			346	346	1.00	2005			2005	0.173			25	25	0.819	55
C1	4	3.50		1	15		N	1965	414			414	1.00	1786			1786	0.232	0.232		34	34	0.819	59
C2,C3	4	3.50		1	30			2105		445	19	464	0.04	2101			2101	0.221			32	34	0.780	66
D1,D2	3	3.50		1	15		N	1965	38	46		84	0.45	1880			1880	0.045	0.045		7	7	0.819	16
D2,D3	3	3.50		1	15		N	1965		58	27	86	0.32	1904			1904	0.045			7	7	0.823	16
ped all red	5																			18				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO:	
Tung Chung Waterfront Road / Yi Tung Road Proposed Layout	2026_AM_reference_leftturn	DATE : 20-Oct-16	FILENAME :



No. of stages per cycle	N =	3	
No. of stage using for calculation	N =	4	
Cycle time	C =	120	sec
Sum(y)	Y =	0.299	
Loss time	L =	34	sec
Total Flow	=	987.42	pcu
Co = (1.5*L+5)/(1-Y)	=	79.9	sec
Cm = L/(1-Y)	=	48.5	sec
Yult	=	0.645	
R.C.ult = (Yult-Y)/Y*100%	=	115.4	%
Cp = 0.9*L/(0.9-Y)	=	50.9	sec
Ymax = 1-L/C	=	0.717	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	115.4	%



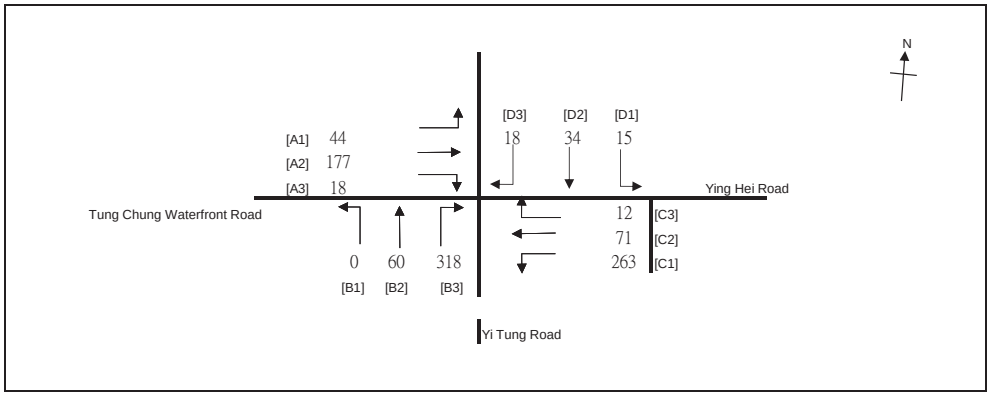
STAGE 1	INT= 5	STAGE 2	INT= 5	STAGE 3	INT= 5	STAGE 4	INT= 5

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
	8	7	2	9				

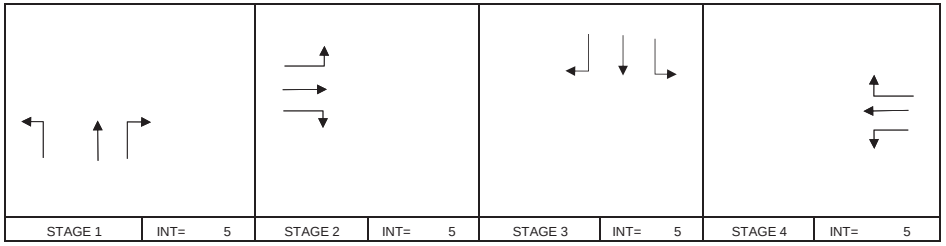
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				16				
A1	2	3.50		1	15		N	1965	15			15	1.00	1786			1786	0.008	0.018		2	5	0.197	3
A2	2	3.50		1				2105		37		37	0.00	2105			2105	0.018			5	5	0.411	7
A2,A3	2	3.50		1	30			2105		33	5	37	0.13	2092			2092	0.018			5	5	0.418	7
B1,B2,B3	1	3.50		1	15		N	1965	0	23	156	179	0.87	1808			1808	0.099	0.099		28	28	0.418	27
B3	1	3.50		1	30			2105			198	198	1.00	2005			2005	0.099			28	28	0.417	30
C1	4	3.50		1	15		N	1965	293			293	1.00	1786			1786	0.164	0.164		47	47	0.418	36
C2,C3	4	3.50		1	30			2105		145	13	159	0.08	2096			2096	0.076			22	47	0.193	19
D1,D2	3	3.50		1	15		N	1965	3	33		36	0.09	1948			1948	0.019	0.019		5	5	0.418	7
D2,D3	3	3.50		1	15		N	1965		3	30	33	0.91	1801			1801	0.018			5	5	0.408	6
ped all red	5																			18				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO:	
Tung Chung Waterfront Road / Yi Tung Road Proposed Layout	2026_PM_reference_leftturn	DATE : 20-Oct-16	FILENPME :



No. of stages per cycle	N =	3		
No. of stage using for calculation	N =	4		
Cycle time	C =	120	sec	
Sum(y)	Y =	0.310		
Loss time	L =	34	sec	
Total Flow	=	1030.56	pcu	
Co = (1.5*L+5)/(1-Y)	=	81.2	sec	
Cm = L/(1-Y)	=	49.3	sec	
Yult	=	0.645		
R.C.ult = (Yult-Y)/Y*100%	=	107.8	%	
Cp = 0.9*L/(0.9-Y)	=	51.9	sec	
Ymax = 1-L/C	=	0.717		
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	107.8	%	



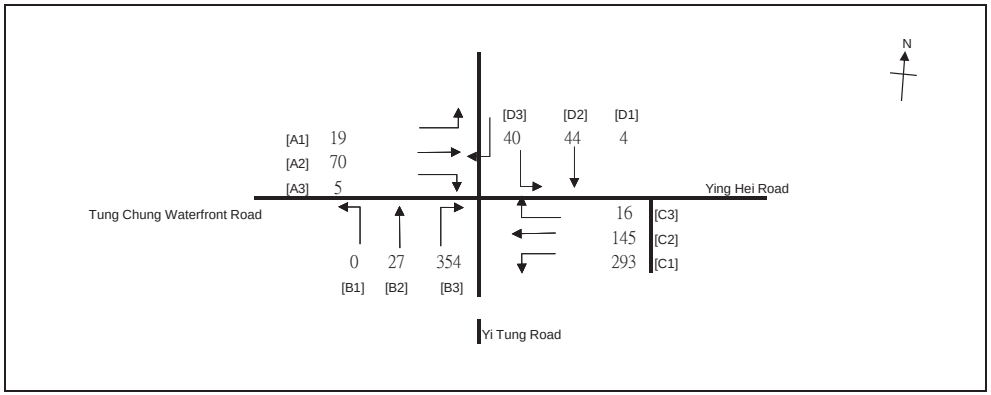
STAGE 1	INT= 5	STAGE 2	INT= 5	STAGE 3	INT= 5	STAGE 4	INT= 5

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
	8	7	2	9				

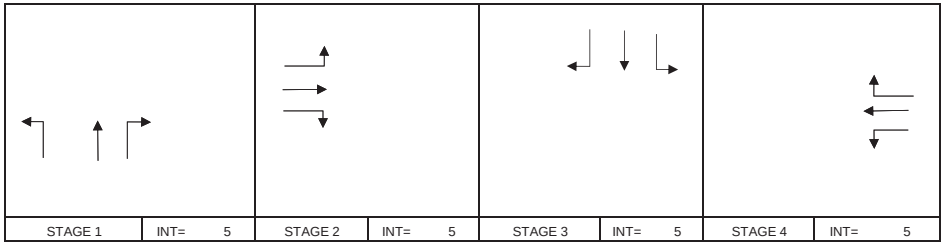
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				16				
A1	2	3.50		1	15		N	1965	44			44	1.00	1786			1786	0.025	0.047		7	13	0.230	8
A2	2	3.50		1				2105		98		98	0.00	2105			2105	0.047			13	13	0.433	17
A2,A3	2	3.50		1	30			2105		79	18	97	0.19	2086			2086	0.046			13	13	0.432	17
B1,B2,B3	1	3.50		1	15		N	1965	0	60	121	181	0.67	1842			1842	0.098	0.098		27	27	0.432	28
B3	1	3.50		1	30			2105			197	197	1.00	2005			2005	0.098			27	27	0.433	30
C1	4	3.50		1	15		N	1965	263			263	1.00	1786			1786	0.147	0.147		41	41	0.433	35
C2,C3	4	3.50		1	30			2105		71	12	83	0.15	2090			2090	0.040			11	41	0.117	11
D1,D2	3	3.50		1	15		N	1965	15	19		34	0.45	1881			1881	0.018	0.018		5	5	0.433	7
D2,D3	3	3.50		1	15		N	1965		15	18	33	0.55	1862			1862	0.018			5	5	0.423	6
ped all red	5																			18				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO:	
Tung Chung Waterfront Road / Yi Tung Road Proposed Layout	2026_AM_design_leftturn	DATE : 20-Oct-16	FILENAME :



No. of stages per cycle	N =	3
No. of stage using for calculation	N =	4
Cycle time	C =	120 sec
Sum(y)	Y =	0.305
Loss time	L =	34 sec
Total Flow	=	1017.42 pcu
Co = (1.5*L+5)/(1-Y)	=	80.6 sec
Cm = L/(1-Y)	=	49.0 sec
Yult	=	0.645
R.C.ult = (Yult-Y)/Y*100%	=	111.1 %
Cp = 0.9*L/(0.9-Y)	=	51.5 sec
Ymax = 1-L/C	=	0.717
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	111.1 %



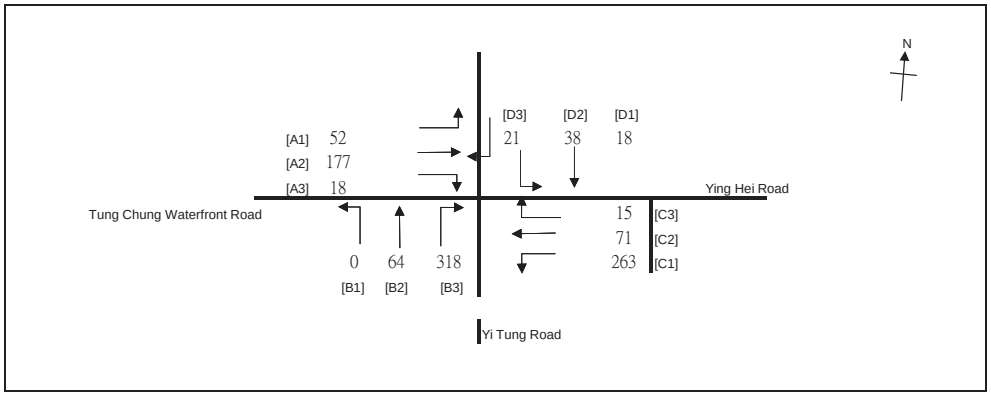
STAGE 1	INT= 5	STAGE 2	INT= 5	STAGE 3	INT= 5	STAGE 4	INT= 5

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
	8	7	2	9				

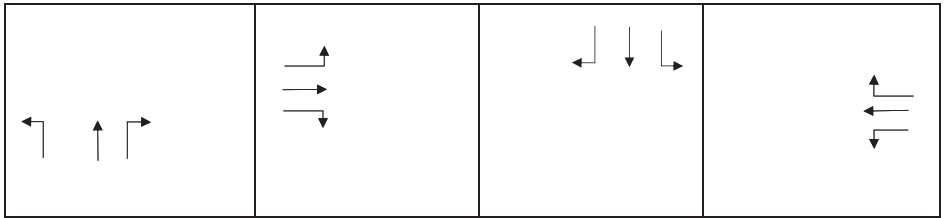
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				16				
A1	2	3.50		1	15		N	1965	19			19	1.00	1786			1786	0.011	0.018		3	5	0.254	4
A2	2	3.50		1				2105		37		37	0.00	2105			2105	0.018			5	5	0.419	7
A2,A3	2	3.50		1	30			2105		33	5	37	0.13	2092			2092	0.018			5	5	0.426	7
B1,B2,B3	1	3.50		1	15		N	1965	0	27	154	181	0.85	1811			1811	0.100	0.100		28	28	0.426	28
B3	1	3.50		1	30			2105			200	200	1.00	2005			2005	0.100			28	28	0.426	31
C1	4	3.50		1	15		N	1965	293			293	1.00	1786			1786	0.164	0.164		46	46	0.426	36
C2,C3	4	3.50		1	30			2105		145	16	162	0.10	2094			2094	0.077			22	46	0.201	20
D1,D2	3	3.50		1	15		N	1965	4	42		46	0.09	1947			1947	0.024	0.024		7	7	0.426	9
D2,D3	3	3.50		1	15		N	1965		2	40	42	0.95	1794			1794	0.023			7	7	0.418	8
ped all red	5																			18				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO:	
Tung Chung Waterfront Road / Yi Tung Road Proposed Layout	2026_PM_design_leftturn	DATE : 20-Oct-16	FILENPME :



No. of stages per cycle	N =	3	
No. of stage using for calculation	N =	4	
Cycle time	C =	120	sec
Sum(y)	Y =	0.314	
Loss time	L =	34	sec
Total Flow	=	1055.56	pcu
Co = (1.5*L+5)/(1-Y)	=	81.7	sec
Cm = L/(1-Y)	=	49.6	sec
Yult	=	0.645	
R.C.ult = (Yult-Y)/Y*100%	=	105.3	%
Cp = 0.9*L/(0.9-Y)	=	52.2	sec
Ymax = 1-L/C	=	0.717	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	105.3	%



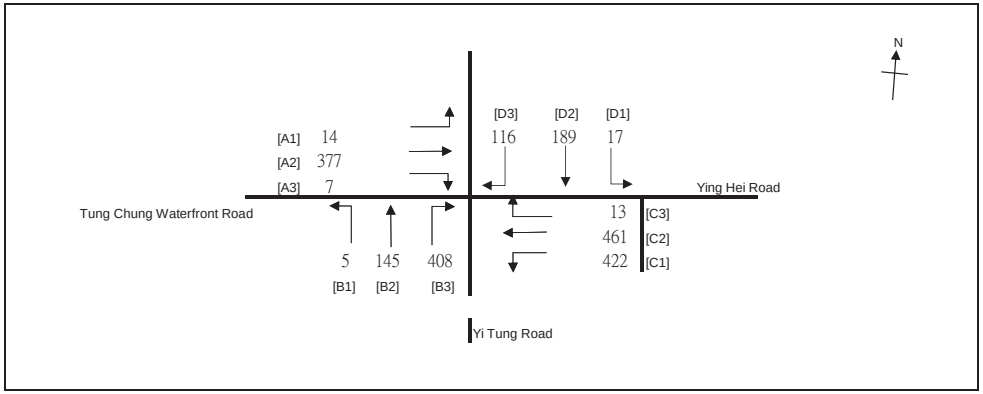
STAGE 1	INT= 5	STAGE 2	INT= 5	STAGE 3	INT= 5	STAGE 4	INT= 5

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
	8	7	2	9				

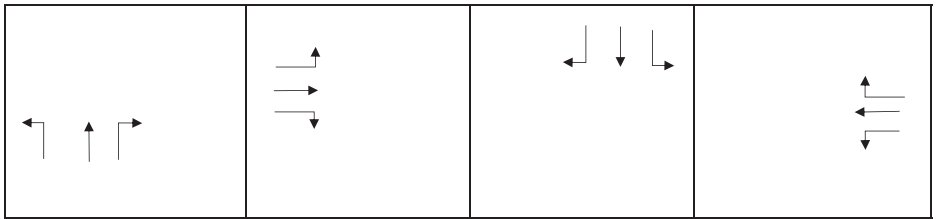
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				16				
A1	2	3.50		1	15		N	1965	52			52	1.00	1786			1786	0.029	0.047		8	13	0.275	9
A2	2	3.50		1				2105		98		98	0.00	2105			2105	0.047			13	13	0.438	18
A2,A3	2	3.50		1	30			2105		79	18	97	0.19	2086			2086	0.046			13	13	0.437	17
B1,B2,B3	1	3.50		1	15		N	1965	0	64	119	183	0.65	1845			1845	0.099	0.099		27	27	0.437	28
B3	1	3.50		1	30			2105			199	199	1.00	2005			2005	0.099			27	27	0.438	31
C1	4	3.50		1	15		N	1965	263			263	1.00	1786			1786	0.147	0.147		40	40	0.438	35
C2,C3	4	3.50		1	30			2105		71	15	86	0.18	2087			2087	0.041			11	40	0.123	11
D1,D2	3	3.50		1	15		N	1965	18	21		39	0.47	1878			1878	0.021	0.021		6	6	0.438	7
D2,D3	3	3.50		1	15		N	1965		17	21	38	0.56	1861			1861	0.021			6	6	0.429	7
ped all red	5																			18				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO:	
Tung Chung Waterfront Road / Yi Tung Road Proposed Layout	2031_AM_reference_leftturn	DATE : 20-Oct-16	FILENAME :



No. of stages per cycle	N =	3
No. of stage using for calculation	N =	4
Cycle time	C =	120 sec
Sum(y)	Y =	0.557
Loss time	L =	34 sec
Total Flow	=	2174.97 pcu
Co = (1.5*L+5)/(1-Y)	=	126.5 sec
Cm = L/(1-Y)	=	76.8 sec
Yult	=	0.645
R.C.ult = (Yult-Y)/Y*100%	=	15.7 %
Cp = 0.9*L/(0.9-Y)	=	89.3 sec
Ymax = 1-L/C	=	0.717
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	15.7 %



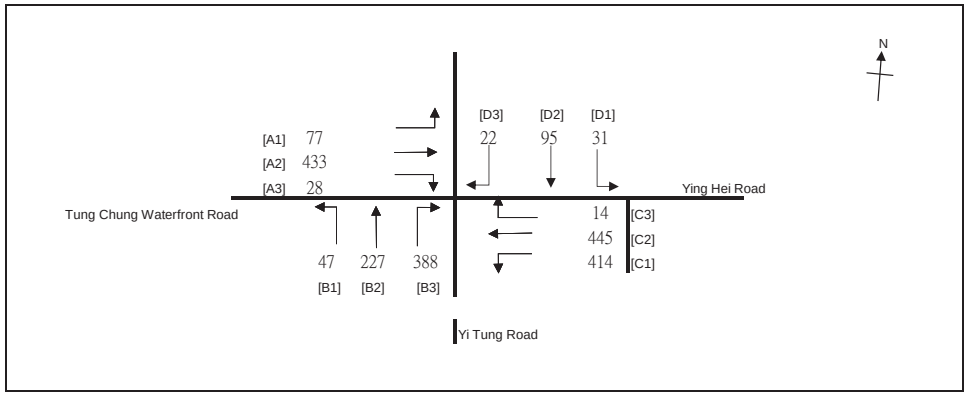
STAGE 1	INT= 5	STAGE 2	INT= 5	STAGE 3	INT= 5	STAGE 4	INT= 5

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
	8	7	2	9				

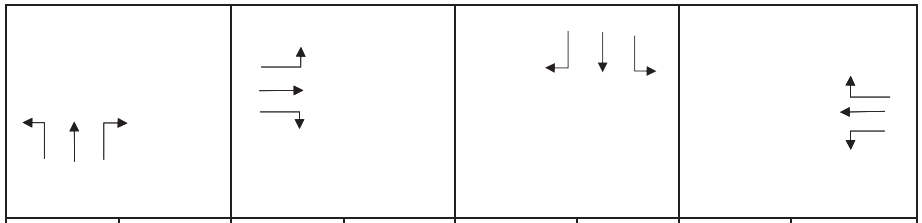
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				16				
A1	2	3.50		1	15		N	1965	14			14	1.00	1786			1786	0.008	0.092		1	14	0.067	2
A2	2	3.50		1				2105		193		193	0.00	2105			2105	0.092			14	14	0.778	34
A2,A3	2	3.50		1	30			2105		184	7	192	0.04	2101			2101	0.091			14	14	0.774	34
B1,B2,B3	1	3.50		1	15		N	1965	5	145	120	270	0.46	1878			1878	0.144	0.144		22	22	0.778	44
B3	1	3.50		1	30			2105			288	288	1.00	2005			2005	0.144			22	22	0.776	47
C1	4	3.50		1	15		N	1965	422			422	1.00	1786			1786	0.236	0.236		36	36	0.778	59
C2,C3	4	3.50		1	30			2105		461	13	474	0.03	2102			2102	0.225			35	36	0.742	66
D1,D2	3	3.50		1	15		N	1965	17	149		166	0.10	1945			1945	0.085	0.085		13	13	0.778	30
D2,D3	3	3.50		1	15		N	1965		40	116	156	0.75	1828			1828	0.085			13	13	0.779	28
ped all red	5																			18				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO:	
Tung Chung Waterfront Road / Yi Tung Road Proposed Layout	2031_PM_reference_leftturn	DATE : 20-Oct-16	FILENAME :



No. of stages per cycle	N =	3
No. of stage using for calculation	N =	4
Cycle time	C =	120 sec
Sum(y)	Y =	0.550
Loss time	L =	34 sec
Total Flow	=	2221.45 pcu
Co = (1.5*L+5)/(1-Y)	=	124.5 sec
Cm = L/(1-Y)	=	75.6 sec
Yult	=	0.645
R.C.ult = (Yult-Y)/Y*100%	=	17.2 %
Cp = 0.9*L/(0.9-Y)	=	87.5 sec
Ymax = 1-L/C	=	0.717
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	17.2 %



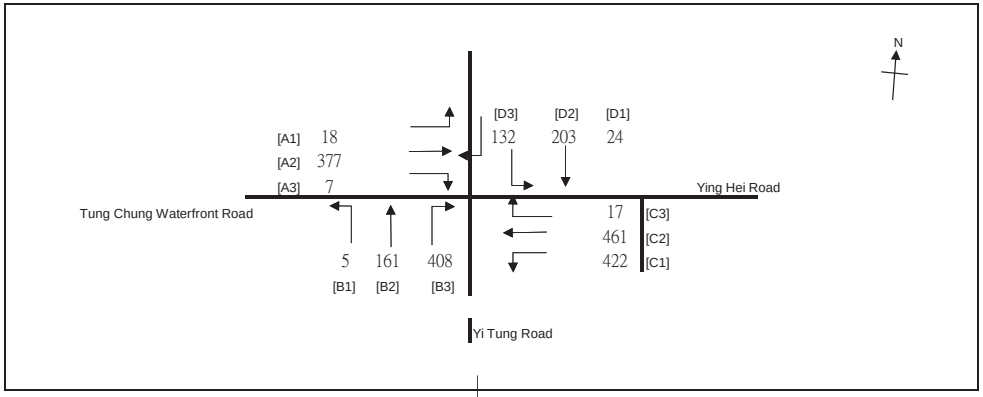
STAGE 1	INT= 5	STAGE 2	INT= 5	STAGE 3	INT= 5	STAGE 4	INT= 5

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
	8	7	2	9				

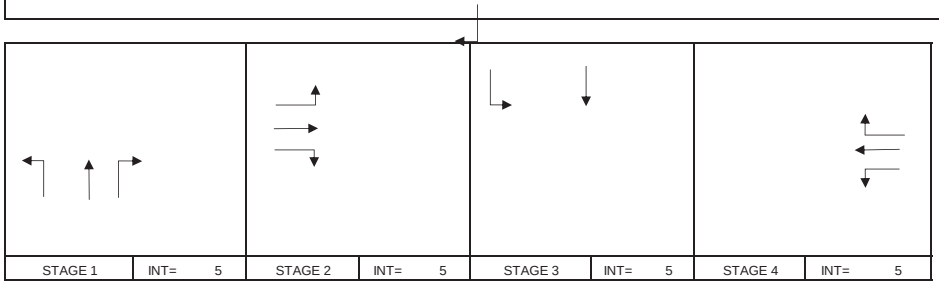
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				16				
A1	2	3.50		1	15		N	1965	77			77	1.00	1786			1786	0.043	0.110		7	17	0.303	13
A2	2	3.50		1				2105		231		231	0.00	2105			2105	0.110			17	17	0.768	40
A2,A3	2	3.50		1	30			2105		202	28	229	0.12	2092			2092	0.109			17	17	0.766	39
B1,B2,B3	1	3.50		1	15		N	1965	47	227	49	323	0.30	1908			1908	0.169	0.169		26	26	0.768	50
B3	1	3.50		1	30			2105			339	339	1.00	2005			2005	0.169			26	26	0.766	53
C1	4	3.50		1	15		N	1965	414			414	1.00	1786			1786	0.232	0.232		36	36	0.768	58
C2,C3	4	3.50		1	30			2105		445	14	459	0.03	2102			2102	0.218			34	36	0.723	64
D1,D2	3	3.50		1	15		N	1965	31	43		74	0.42	1886			1886	0.039	0.039		6	6	0.768	14
D2,D3	3	3.50		1	15		N	1965		52	22	75	0.30	1908			1908	0.039			6	6	0.764	14
ped all re	5																			18				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO:	
Tung Chung Waterfront Road / Yi Tung Road Proposed Layout	2031_AM_design_leftturn	DATE : 20-Oct-16	FILENAME :



No. of stages per cycle	N =	3
No. of stage using for calculation	N =	4
Cycle time	C =	120 sec
Sum(y)	Y =	0.571
Loss time	L =	34 sec
Total Flow	=	2235.97 pcu
Co = (1.5*L+5)/(1-Y)	=	130.6 sec
Cm = L/(1-Y)	=	79.3 sec
Yult	=	0.645
R.C.ult = (Yult-Y)/Y*100%	=	12.9 %
Cp = 0.9*L/(0.9-Y)	=	93.0 sec
Ymax = 1-L/C	=	0.717
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	12.9 %



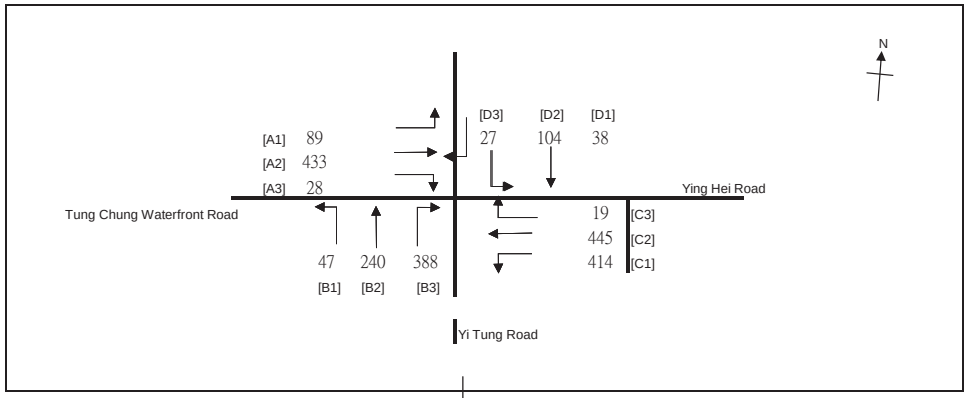
STAGE 1	INT= 5	STAGE 2	INT= 5	STAGE 3	INT= 5	STAGE 4	INT= 5

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
	8	7	2	9				

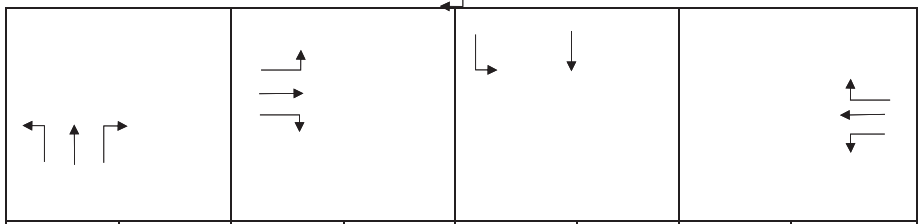
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				16				
A1	2	3.50		1	15		N	1965	18			18	1.00	1786			1786	0.010	0.092		2	14	0.088	3
A2	2	3.50		1				2105		193		193	0.00	2105			2105	0.092			14	14	0.797	34
A2,A3	2	3.50		1	30			2105		184	7	192	0.04	2101			2101	0.091			14	14	0.793	34
B1,B2,B3	1	3.50		1	15		N	1965	5	161	112	278	0.42	1886			1886	0.148	0.148		22	22	0.796	45
B3	1	3.50		1	30			2105			296	296	1.00	2005			2005	0.148			22	22	0.797	48
C1	4	3.50		1	15		N	1965	422			422	1.00	1786			1786	0.236	0.236		36	36	0.797	59
C2,C3	4	3.50		1	30			2105		461	17	478	0.04	2101			2101	0.227			34	36	0.766	67
D1,D2	3	3.50		1	15		N	1965	24	161		185	0.13	1940			1940	0.095	0.095		14	14	0.797	33
D2,D3	3	3.50		1	15		N	1965		42	132	174	0.76	1826			1826	0.095			14	14	0.798	31
ped all red	5																			18				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO:	
Tung Chung Waterfront Road / Yi Tung Road Proposed Layout	2031_PM_design_leftturn	DATE : 20-Oct-16	FILENAME :



No. of stages per cycle	N =	3
No. of stage using for calculation	N =	4
Cycle time	C =	120 sec
Sum(y)	Y =	0.559
Loss time	L =	34 sec
Total Flow	=	2272.45 pcu
Co = (1.5*L+5)/(1-Y)	=	127.0 sec
Cm = L/(1-Y)	=	77.1 sec
Yult	=	0.645
R.C.ult = (Yult-Y)/Y*100%	=	15.4 %
Cp = 0.9*L/(0.9-Y)	=	89.8 sec
Ymax = 1-L/C	=	0.717
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	15.4 %



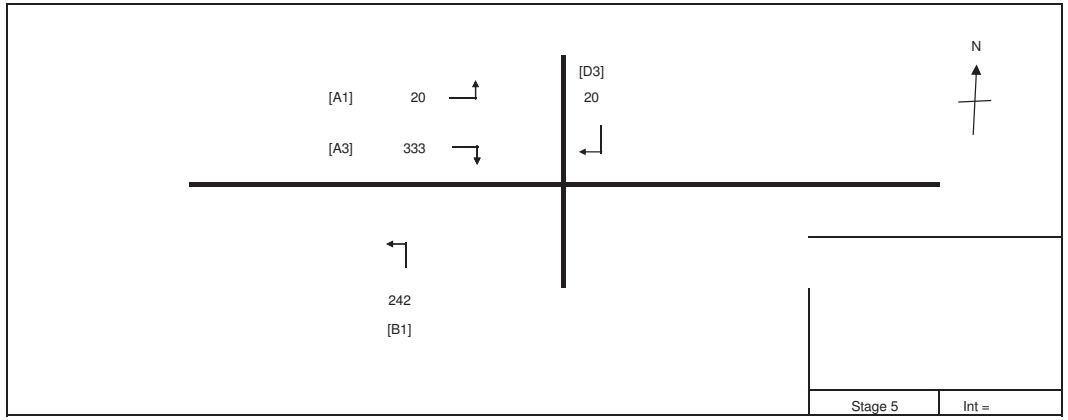
STAGE 1	INT= 5	STAGE 2	INT= 5	STAGE 3	INT= 5	STAGE 4	INT= 5

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
	8	7	2	9				

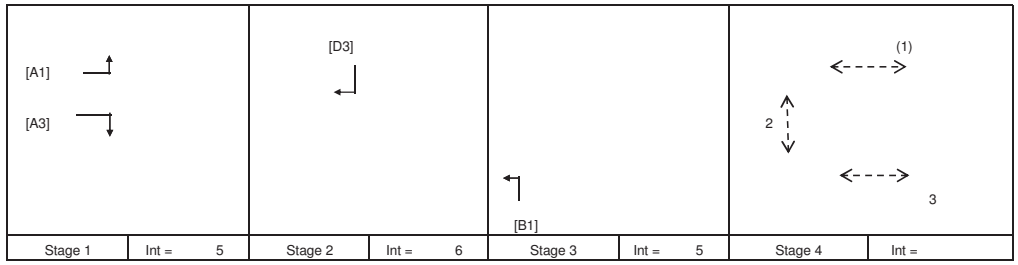
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				16				
A1	2	3.50		1	15		N	1965	89			89	1.00	1786			1786	0.050	0.110		8	17	0.356	15
A2	2	3.50		1				2105		231		231	0.00	2105			2105	0.110			17	17	0.780	40
A2,A3	2	3.50		1	30			2105		202	28	229	0.12	2092			2092	0.109			17	17	0.778	39
B1,B2,B3	1	3.50		1	15		N	1965	47	240	42	329	0.27	1913			1913	0.172	0.173		26	27	0.778	51
B3	1	3.50		1	30			2105			346	346	1.00	2005			2005	0.173			27	27	0.780	54
C1	4	3.50		1	15		N	1965	414			414	1.00	1786			1786	0.232	0.232		36	36	0.780	58
C2,C3	4	3.50		1	30			2105		445	19	464	0.04	2101			2101	0.221			34	36	0.743	65
D1,D2	3	3.50		1	15		N	1965	38	46		84	0.45	1880			1880	0.045	0.045		7	7	0.780	16
D2,D3	3	3.50		1	15		N	1965		58	27	86	0.32	1904			1904	0.045			7	7	0.784	16
ped all re	5																			18				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO:	SCENARIO: RS3-ConceptF-TCS
Ying Tung Road / Man Tung Road / Ying Hei Road	2015 AM	DATE : 00-Jan-00	FILENAM_lTung_Chung_Signals_Assessment.xlsx



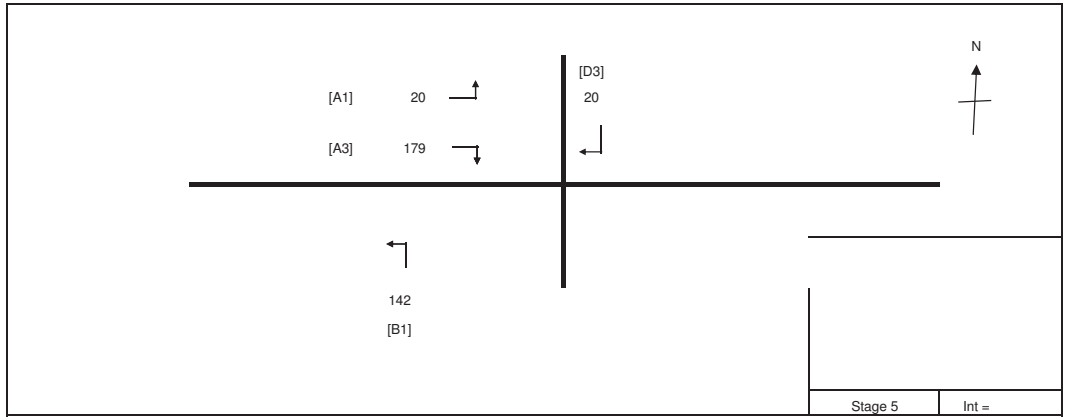
No. of stages per cycle		N =	4
No. of stage using for calculation		N =	4
Cycle time		C =	80 sec
Sum(y)		Y =	0.241
Loss time		L =	29 sec
Total Flow		=	615.228 pcu
Co	= (1.5*L+5)/(1-Y)	=	63.9 sec
Cm	= L/(1-Y)	=	38.2 sec
Yult		=	0.683
R.C.ult	= (Yult-Y)/Y*100%	=	182.7 %
Cp	= 0.9*L/(0.9-Y)	=	39.6 sec
Ymax	= 1-L/C	=	0.638
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	137.7 %



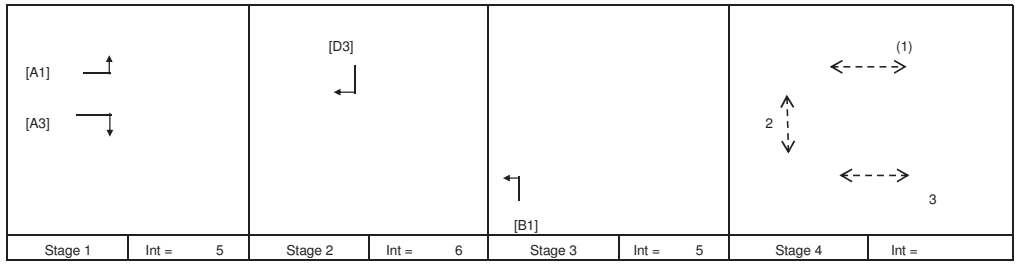
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Delay
1	7	6	5	5	6	5	5	OK
2	7	6	5	5	6	5	5	OK
3	7	6	5	5	6	5	5	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				13				
A1	1	3.50		1	15		N	1965	20			20	1.00	1786			1786	0.011	0.166		2	35	0.026	2
A3	1	3.50		1	30			2105			333	333	1.00	2005			2005	0.166			35	35	0.379	25
D3	2	3.50		1	30			2105			20	20	1.00	2005			2005	0.010	0.010		2	2	0.379	3
B1	3	3.50		2	15		N	4070	242			242	1.00	3700			3700	0.066	0.066		14	14	0.379	13
																	Stage 4: Pedestrian Phase			16				

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO:	SCENARIO: RS3-ConceptF-TCS
Ying Tung Road / Man Tung Road / Ying Hei Road	2015 PM	DATE : 00-Jan-00	FILENPM_lTung_Chung_Signals_Assessment.xlsx



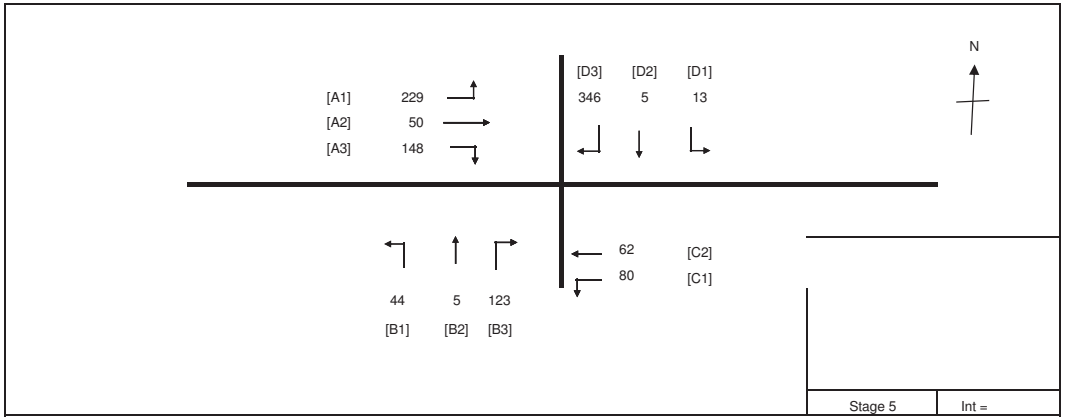
No. of stages per cycle		N =	4
No. of stage using for calculation		N =	4
Cycle time		C =	80 sec
Sum(y)		Y =	0.138
Loss time		L =	29 sec
Total Flow		=	361.4603 pcu
Co	= (1.5*L+5)/(1-Y)	=	56.3 sec
Cm	= L/(1-Y)	=	33.6 sec
Yult		=	0.683
R.C.ult	= (Yult-Y)/Y*100%	=	395.0 %
Cp	= 0.9*L/(0.9-Y)	=	34.2 sec
Ymax	= 1-L/C	=	0.638
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	316.1 %



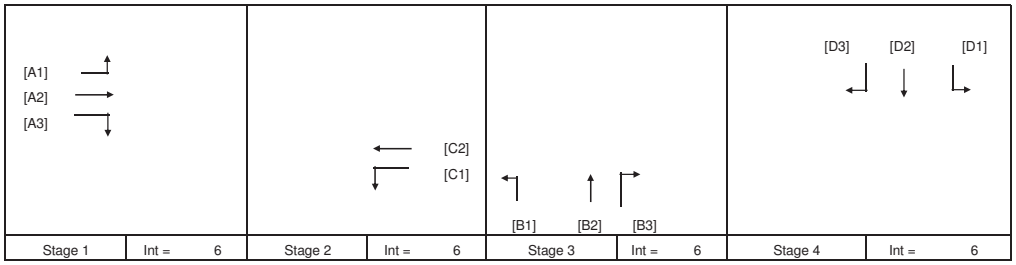
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Delay
1	7	6	5	5	6	5	5	OK
2	7	6	5	5	6	5	5	OK
3	7	6	5	5	6	5	5	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				13				
A1	1	3.50		1	15		N	1965	20			20	1.00	1786			1786	0.011	0.090		4	33	0.027	2
A3	1	3.50		1	30			2105			179	179	1.00	2005			2005	0.090			33	33	0.216	14
D3	2	3.50		1	30			2105			20	20	1.00	2005			2005	0.010	0.010		4	4	0.216	3
B1	3	3.50		2	15		N	4070	142			142	1.00	3700			3700	0.038	0.038		14	14	0.216	8
																	Stage 4: Pedestrian Phase			16				

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO:	SCENARIO: RS3-ConceptF-TCS
Ying Tung Road / Man Tung Road / Ying Hei Road	2026 AM Reference Case	DATE : 00-Jan-00	FILENAME Tung_Chung_Signals_Assessment.xlsx



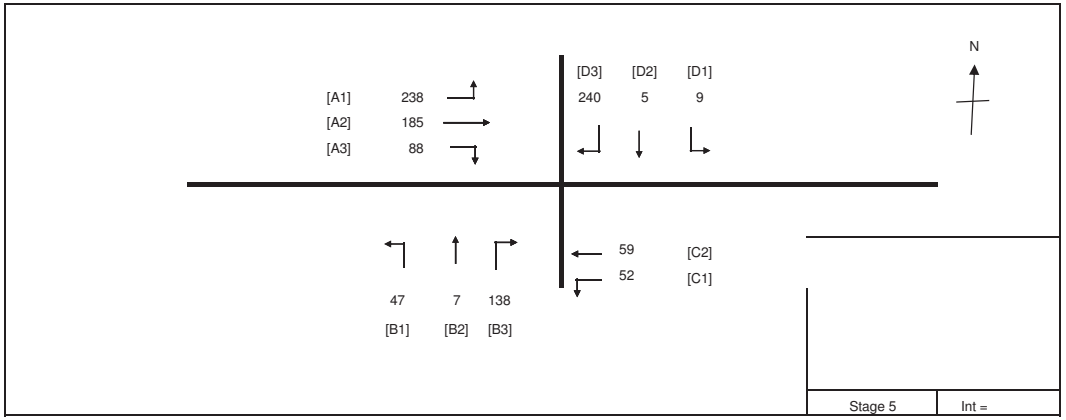
No. of stages per cycle	N =	4	
No. of stage using for calculation	N =	4	
Cycle time	C =	120	sec
Sum(y)	Y =	0.407	
Loss time	L =	23	sec
Total Flow	=	1105.08	pcu
Co = (1.5*L+5)/(1-Y)	=	66.6	sec
Cm = L/(1-Y)	=	38.8	sec
Yult	=	0.728	
R.C.ult = (Yult-Y)/Y*100%	=	78.9	%
Cp = 0.9*L/(0.9-Y)	=	42.0	sec
Ymax = 1-L/C	=	0.808	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	78.9	%



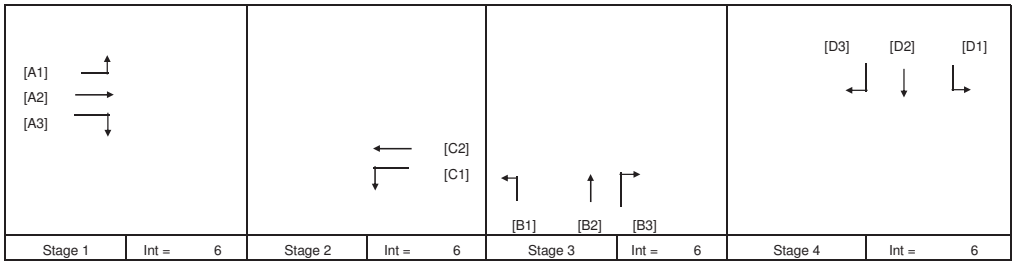
Pedestrian Phase	Width (m)	Green Time Required (s) SG		FG	Green Time Provided (s) SG	Dealay	FG	Delay
2	8	5	6	7	7	6	7	OK
3	8	5	6	7	25	6	7	OK
4	8	5	6	7	30	6	7	OK
5	8	5	2	7	53	2	7	OK
7	8	5	6	7	6	6	7	OK
8	8	5	6	7	23	6	7	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				20				
B1, B2	3	3.50		1	15		N	1965	44	5		49	0.90	1803			1803	0.027	0.061		6	15	0.222	9
B3	3	3.50		1	30			2105			123	123	1.00	2005			2005	0.061			15	15	0.503	22
D1,D2	4	3.50		1	15		N	1965	13	5		18	0.73	1831			1831	0.010	0.172		2	2	0.503	4
D2,D3	4	3.50		1	30			2105		0	346	346	1.00	2005			2005	0.172			41	41	0.503	45
A1,A2	1	3.50		1	15		N	1965	229	0		229	1.00	1786			1786	0.128	0.128		31	31	0.503	34
A2,A3	1	3.50		1	30			2105		50	148	198	0.75	2029			2029	0.098			23	23	0.503	32
C1, C2	2	3.50		1	15		N	1965	80	0		80	1.00	1786			1786	0.045	0.045	3	11	14	0.393	14
C2	2	3.50		1	30			2105		62	0	62	0.00	2105			2105	0.029			7	14	0.258	11

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO:	SCENARIO: RS3-ConceptF-TCS
Ying Tung Road / Man Tung Road / Ying Hei Road	2026 PM Reference Case	DATE : 00-Jan-00	FILENPMETung_Chung_Signals_Assessment.xlsx



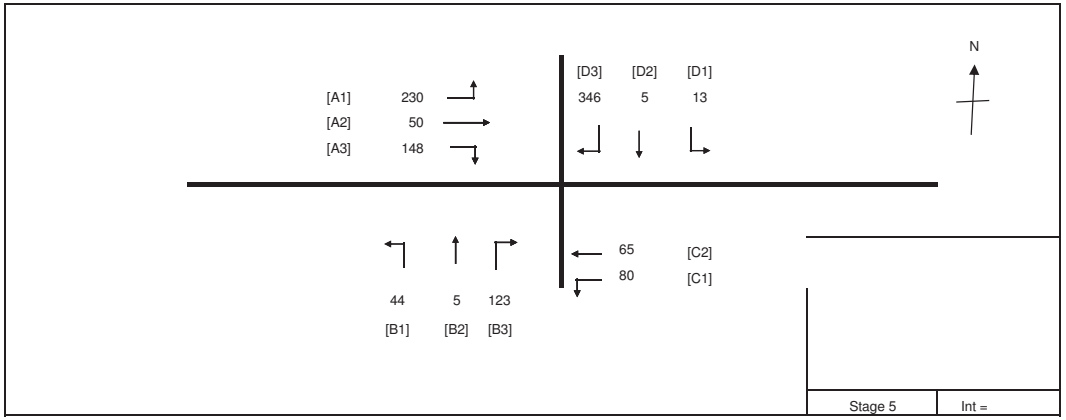
No. of stages per cycle	N =	4
No. of stage using for calculation	N =	4
Cycle time	C =	120 sec
Sum(y)	Y =	0.351
Loss time	L =	26 sec
Total Flow	=	1068.18 pcu
Co = (1.5*L+5)/(1-Y)	=	67.8 sec
Cm = L/(1-Y)	=	40.1 sec
Yult	=	0.705
R.C.ult = (Yult-Y)/Y*100%	=	100.9 %
Cp = 0.9*L/(0.9-Y)	=	42.6 sec
Ymax = 1-L/C	=	0.783
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	100.9 %



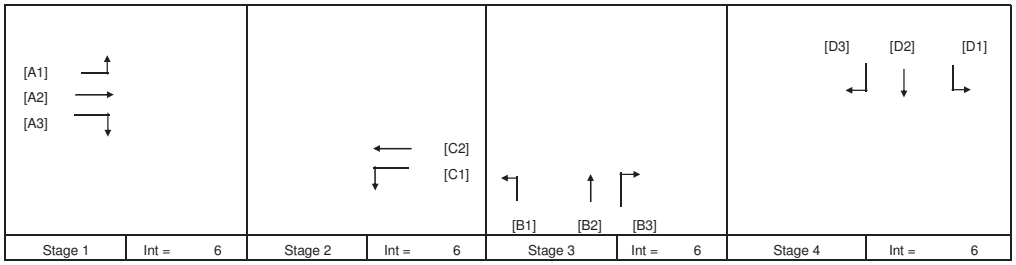
Pedestrian Phase	Width (m)	Green Time Required (s) SG		FG	Green Time Provided (s) SG	Dealay	FG	Delay
2	8	5	6	7	10	6	7	OK
3	8	5	6	7	29	6	7	OK
4	8	5	6	7	35	6	7	OK
5	8	5	2	7	58	2	7	OK
7	8	5	6	7	6	6	7	OK
8	8	5	6	7	28	6	7	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				20				
B1, B2	3	3.50		1	15		N	1965	47	7		54	0.87	1808			1808	0.030	0.069		8	18	0.194	9
B3	3	3.50		1	30			2105			138	138	1.00	2005			2005	0.069			18	18	0.448	23
D1,D2	4	3.50		1	15		N	1965	9	5		14	0.65	1844			1844	0.008	0.120		2	2	0.448	3
D2,D3	4	3.50		1	30			2105		0	240	240	1.00	2005			2005	0.120			32	32	0.448	35
A1,A2	1	3.50		1	15		N	1965	238	0		238	1.00	1786			1786	0.133	0.133		36	36	0.448	33
A2,A3	1	3.50		1	30			2105		185	88	272	0.32	2072			2072	0.131			35	35	0.448	38
C1, C2	2	3.50		1	15		N	1965	52	0		52	1.00	1786			1786	0.029	0.029	6	8	14	0.253	9
C2	2	3.50		1	30			2105		59	0	59	0.00	2105			2105	0.028			8	14	0.245	11

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO:	SCENARIO: RS3-ConceptF-TCS
Ying Tung Road / Man Tung Road / Ying Hei Road	2026 AM Design Case	DATE : 00-Jan-00	FILENAME Tung_Chung_Signals_Assessment.xlsx



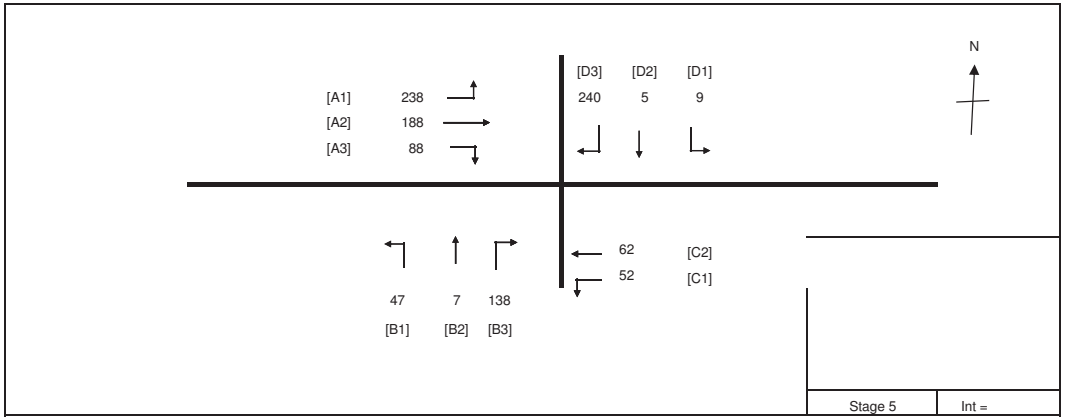
No. of stages per cycle	N =	4	
No. of stage using for calculation	N =	4	
Cycle time	C =	120	sec
Sum(y)	Y =	0.407	
Loss time	L =	23	sec
Total Flow	=	1109.08	pcu
Co = (1.5*L+5)/(1-Y)	=	66.6	sec
Cm = L/(1-Y)	=	38.8	sec
Yult	=	0.728	
R.C.ult = (Yult-Y)/Y*100%	=	78.6	%
Cp = 0.9*L/(0.9-Y)	=	42.0	sec
Ymax = 1-L/C	=	0.808	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	78.6	%



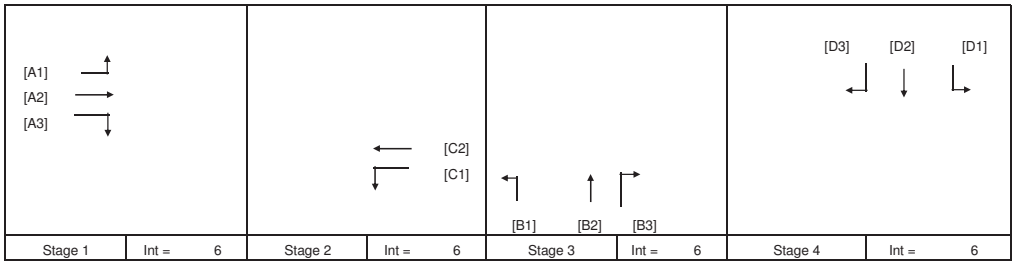
Pedestrian Phase	Width (m)	Green Time Required (s) SG		FG	Green Time Provided (s) SG	Dealay	FG	Delay
2	8	5	6	7	7	6	7	OK
3	8	5	6	7	25	6	7	OK
4	8	5	6	7	30	6	7	OK
5	8	5	2	7	53	2	7	OK
7	8	5	6	7	6	6	7	OK
8	8	5	6	7	23	6	7	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				20				
B1, B2	3	3.50		1	15		N	1965	44	5		49	0.90	1803			1803	0.027	0.061		6	15	0.223	9
B3	3	3.50		1	30			2105			123	123	1.00	2005			2005	0.061			15	15	0.504	22
D1,D2	4	3.50		1	15		N	1965	13	5		18	0.73	1831			1831	0.010	0.172		2	2	0.504	4
D2,D3	4	3.50		1	30			2105		0	346	346	1.00	2005			2005	0.172			41	41	0.504	45
A1,A2	1	3.50		1	15		N	1965	230	0		230	1.00	1786			1786	0.129	0.129		31	31	0.504	34
A2,A3	1	3.50		1	30			2105		50	148	198	0.75	2029			2029	0.098			23	23	0.504	32
C1, C2	2	3.50		1	15		N	1965	80	0		80	1.00	1786			1786	0.045	0.045	3	11	14	0.393	14
C2	2	3.50		1	30			2105		65	0	65	0.00	2105			2105	0.031			7	14	0.271	11

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO:	SCENARIO: RS3-ConceptF-TCS
Ying Tung Road / Man Tung Road / Ying Hei Road	2026 PM Design Case	DATE : 00-Jan-00	FILENPMETung_Chung_Signals_Assessment.xlsx



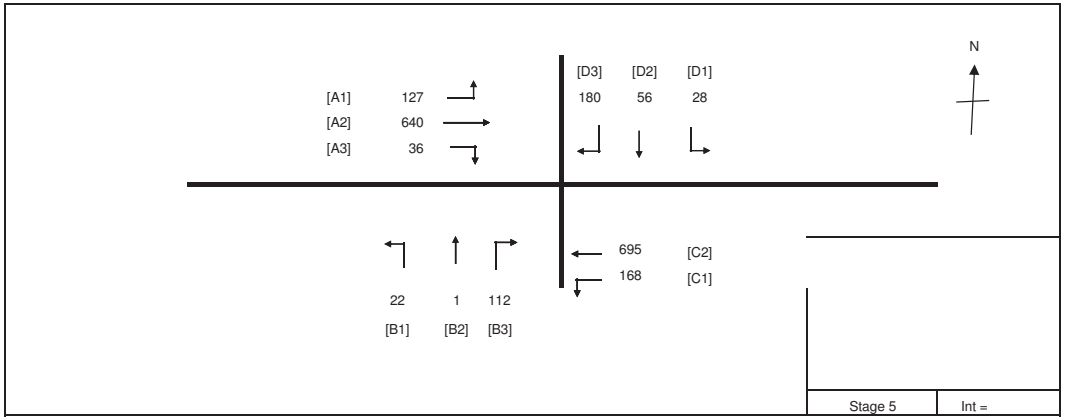
No. of stages per cycle	N =	4	
No. of stage using for calculation	N =	4	
Cycle time	C =	120	sec
Sum(y)	Y =	0.351	
Loss time	L =	25	sec
Total Flow	=	1074.18	pcu
Co = (1.5*L+5)/(1-Y)	=	65.5	sec
Cm = L/(1-Y)	=	38.5	sec
Yult	=	0.713	
R.C.ult = (Yult-Y)/Y*100%	=	102.8	%
Cp = 0.9*L/(0.9-Y)	=	41.0	sec
Ymax = 1-L/C	=	0.792	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	102.8	%



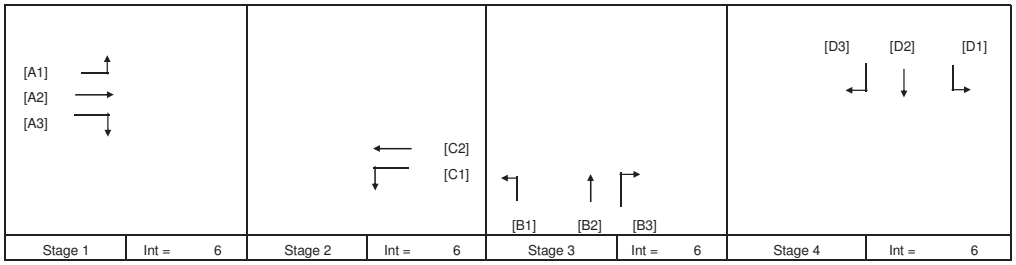
Pedestrian Phase	Width (m)	Green Time Required (s) SG		FG	Green Time Provided (s) SG	Dealay	FG	Delay
2	8	5	6	7	11	6	7	OK
3	8	5	6	7	29	6	7	OK
4	8	5	6	7	35	6	7	OK
5	8	5	2	7	57	2	7	OK
7	8	5	6	7	5	6	7	OK
8	8	5	6	7	28	6	7	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				20				
B1, B2	3	3.50		1	15		N	1965	47	7		54	0.87	1808			1808	0.030	0.069		8	19	0.192	9
B3	3	3.50		1	30			2105			138	138	1.00	2005			2005	0.069			19	19	0.444	23
D1,D2	4	3.50		1	15		N	1965	9	5		14	0.65	1844			1844	0.008	0.120		2	2	0.444	3
D2,D3	4	3.50		1	30			2105		0	240	240	1.00	2005			2005	0.120			32	32	0.444	35
A1,A2	1	3.50		1	15		N	1965	238	0		238	1.00	1786			1786	0.133	0.133		36	36	0.444	33
A2,A3	1	3.50		1	30			2105		188	88	275	0.32	2072			2072	0.133			36	36	0.444	39
C1, C2	2	3.50		1	15		N	1965	52	0		52	1.00	1786			1786	0.029	0.030	5	8	13	0.269	9
C2	2	3.50		1	30			2105		62	0	62	0.00	2105			2105	0.030			8	13	0.273	11

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO:	SCENARIO: RS3-ConceptF-TCS
Ying Tung Road / Man Tung Road / Ying Hei Road	2031 AM Reference Case	DATE : 00-Jan-00	FILENAME Tung_Chung_Signals_Assessment.xlsx



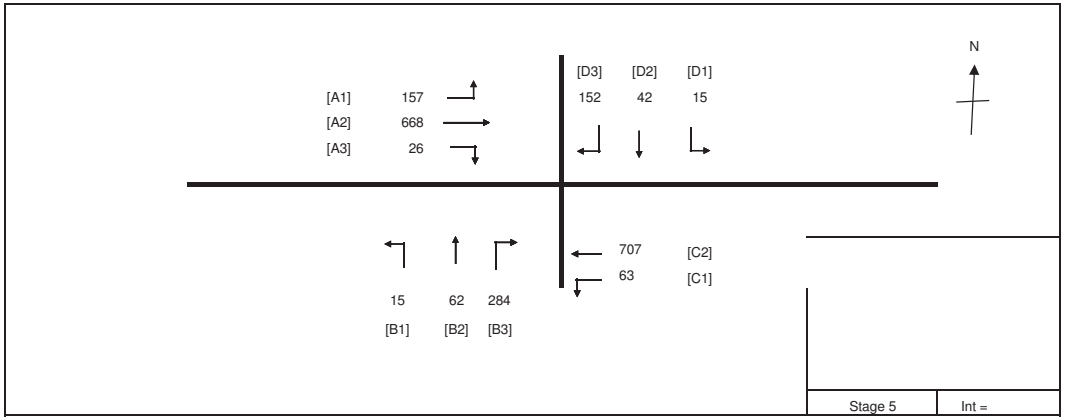
No. of stages per cycle	N =	4	
No. of stage using for calculation	N =	4	
Cycle time	C =	120	sec
Sum(y)	Y =	0.562	
Loss time	L =	24	sec
Total Flow	=	2063.2	pcu
Co = (1.5*L+5)/(1-Y)	=	93.7	sec
Cm = L/(1-Y)	=	54.8	sec
Yult	=	0.720	
R.C.ult = (Yult-Y)/Y*100%	=	28.0	%
Cp = 0.9*L/(0.9-Y)	=	64.0	sec
Ymax = 1-L/C	=	0.800	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	28.0	%



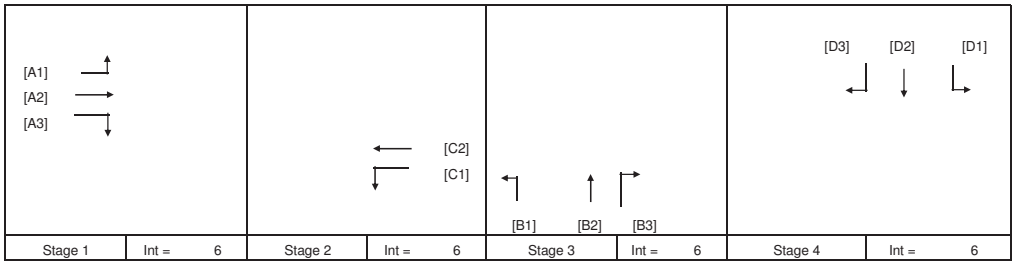
Pedestrian Phase	Width (m)	Green Time Required (s) SG		FG	Green Time Provided (s) SG	Dealay	FG	Delay
2	8	5	6	7	6	6	7	OK
3	8	5	6	7	47	6	7	OK
4	8	5	6	7	39	6	7	OK
5	8	5	2	7	85	2	7	OK
7	8	5	6	7	29	6	7	OK
8	8	5	6	7	26	6	7	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				20				
B1, B2	3	3.50		1	15		N	1965	22	1		23	0.97	1792			1792	0.013	0.056	4	2	14	0.112	4
B3	3	3.50		1	30			2105			112	112	1.00	2005			2005	0.056			10	14	0.495	20
D1,D2	4	3.50		1	15		N	1965	28	56		84	0.33	1902			1902	0.044	0.090		8	8	0.703	16
D2,D3	4	3.50		1	30			2105		0	180	180	1.00	2005			2005	0.090			15	15	0.703	31
A1,A2	1	3.50		1	15		N	1965	127	255		382	0.33	1902			1902	0.201	0.201		34	34	0.703	55
A2,A3	1	3.50		1	30			2105		385	36	421	0.08	2096			2096	0.201			34	34	0.703	60
C1, C2	2	3.50		1	15		N	1965	168	240		408	0.41	1887			1887	0.216	0.216		37	37	0.703	56
C2	2	3.50		1	30			2105		455	0	455	0.00	2105			2105	0.216			37	37	0.703	63

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO:	SCENARIO: RS3-ConceptF-TCS
Ying Tung Road / Man Tung Road / Ying Hei Road	2031 PM Reference Case	DATE : 00-Jan-00	FILENAME Tung_Chung_Signals_Assessment.xlsx



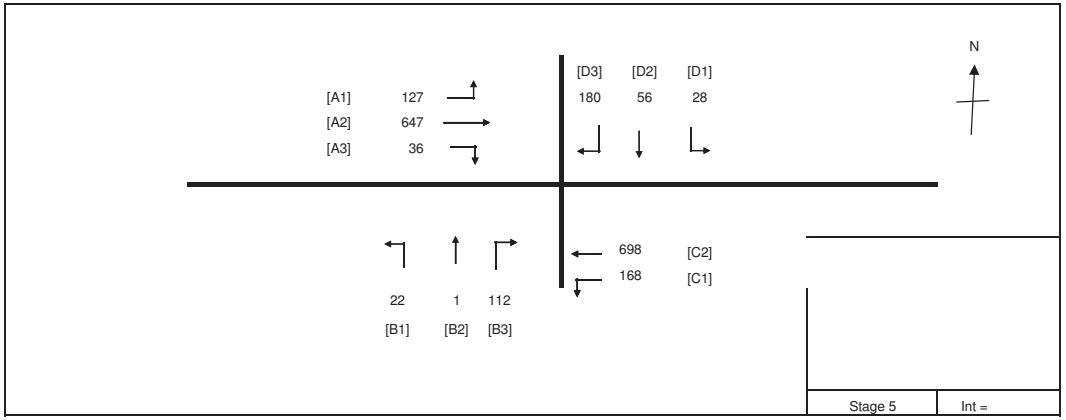
No. of stages per cycle	N =	4
No. of stage using for calculation	N =	4
Cycle time	C =	120 sec
Sum(y)	Y =	0.622
Loss time	L =	20 sec
Total Flow	=	2191.85 pcu
Co = (1.5*L+5)/(1-Y)	=	92.6 sec
Cm = L/(1-Y)	=	52.9 sec
Yult	=	0.750
R.C.ult = (Yult-Y)/Y*100%	=	20.6 %
Cp = 0.9*L/(0.9-Y)	=	64.8 sec
Ymax = 1-L/C	=	0.833
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	20.6 %



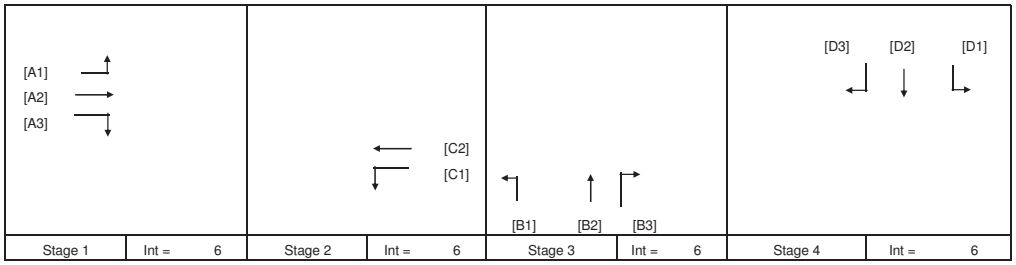
Pedestrian Phase	Width (m)	Green Time Required (s) SG		FG	Green Time Provided (s) SG	Dealay	FG	Delay
2	8	5	6	7	15	6	7	OK
3	8	5	6	7	50	6	7	OK
4	8	5	6	7	36	6	7	OK
5	8	5	2	7	76	2	7	OK
7	8	5	6	7	23	6	7	OK
8	8	5	6	7	26	6	7	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				20				
B1, B2	3	3.50		1	15		N	1965	15	62		77	0.20	1927			1927	0.040	0.142		6	23	0.211	13
B3	3	3.50		1	30			2105			284	284	1.00	2005			2005	0.142			23	23	0.746	46
D1,D2	4	3.50		1	15		N	1965	15	42		57	0.26	1915			1915	0.030	0.076		5	5	0.746	11
D2,D3	4	3.50		1	30			2105		0	152	152	1.00	2005			2005	0.076			12	12	0.746	27
A1,A2	1	3.50		1	15		N	1965	157	246		403	0.39	1891			1891	0.213	0.214		34	34	0.745	58
A2,A3	1	3.50		1	30			2105		422	26	448	0.06	2099			2099	0.214			34	34	0.746	64
C1, C2	2	3.50		1	15		N	1965	63	305		368	0.17	1932			1932	0.191	0.191		31	31	0.746	55
C2	2	3.50		1	30			2105		402	0	402	0.00	2105			2105	0.191			31	31	0.746	60

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO:	SCENARIO: RS3-ConceptF-TCS
Ying Tung Road / Man Tung Road / Ying Hei Road	2031 AM Design Case	DATE : 00-Jan-00	FILENAME Tung_Chung_Signals_Assessment.xlsx



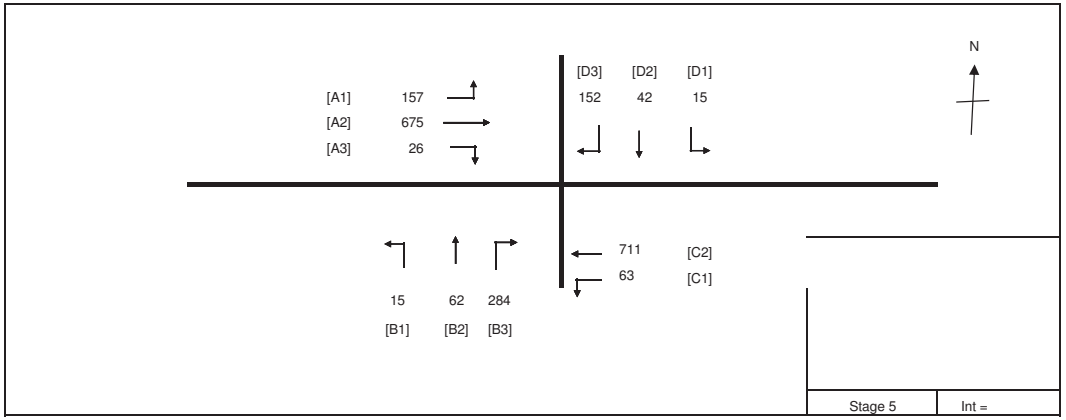
No. of stages per cycle	N =	4	
No. of stage using for calculation	N =	4	
Cycle time	C =	120	sec
Sum(y)	Y =	0.565	
Loss time	L =	24	sec
Total Flow	=	2073.2	pcu
Co = (1.5*L+5)/(1-Y)	=	94.3	sec
Cm = L/(1-Y)	=	55.2	sec
Yult	=	0.720	
R.C.ult = (Yult-Y)/Y*100%	=	27.4	%
Cp = 0.9*L/(0.9-Y)	=	64.5	sec
Ymax = 1-L/C	=	0.800	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	27.4	%



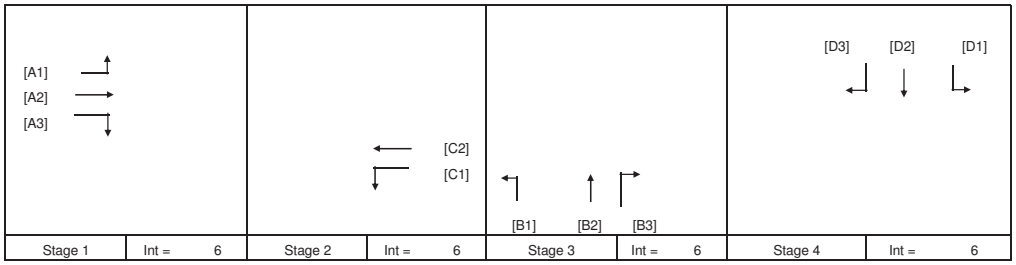
Pedestrian Phase	Width (m)	Green Time Required (s) SG		FG	Green Time Provided (s) SG	Dealay	FG	Delay
2	8	5	6	7	5	6	7	OK
3	8	5	6	7	47	6	7	OK
4	8	5	6	7	39	6	7	OK
5	8	5	2	7	85	2	7	OK
7	8	5	6	7	29	6	7	OK
8	8	5	6	7	26	6	7	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				20				
B1, B2	3	3.50		1	15		N	1965	22	1		23	0.97	1792			1792	0.013	0.056	4	2	13	0.113	4
B3	3	3.50		1	30			2105			112	112	1.00	2005			2005	0.056			9	13	0.497	20
D1,D2	4	3.50		1	15		N	1965	28	56		84	0.33	1902			1902	0.044	0.090		7	7	0.707	16
D2,D3	4	3.50		1	30			2105		0	180	180	1.00	2005			2005	0.090			15	15	0.707	31
A1,A2	1	3.50		1	15		N	1965	127	259		386	0.33	1903			1903	0.203	0.203		34	34	0.707	55
A2,A3	1	3.50		1	30			2105		388	36	424	0.08	2096			2096	0.202			34	34	0.707	60
C1, C2	2	3.50		1	15		N	1965	168	242		410	0.41	1888			1888	0.217	0.217		37	37	0.707	57
C2	2	3.50		1	30			2105		456	0	456	0.00	2105			2105	0.217			37	37	0.705	63

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO:	SCENARIO: RS3-ConceptF-TCS
Ying Tung Road / Man Tung Road / Ying Hei Road	2031 PM Design Case	DATE : 00-Jan-00	FILENAME Tung_Chung_Signals_Assessment.xlsx



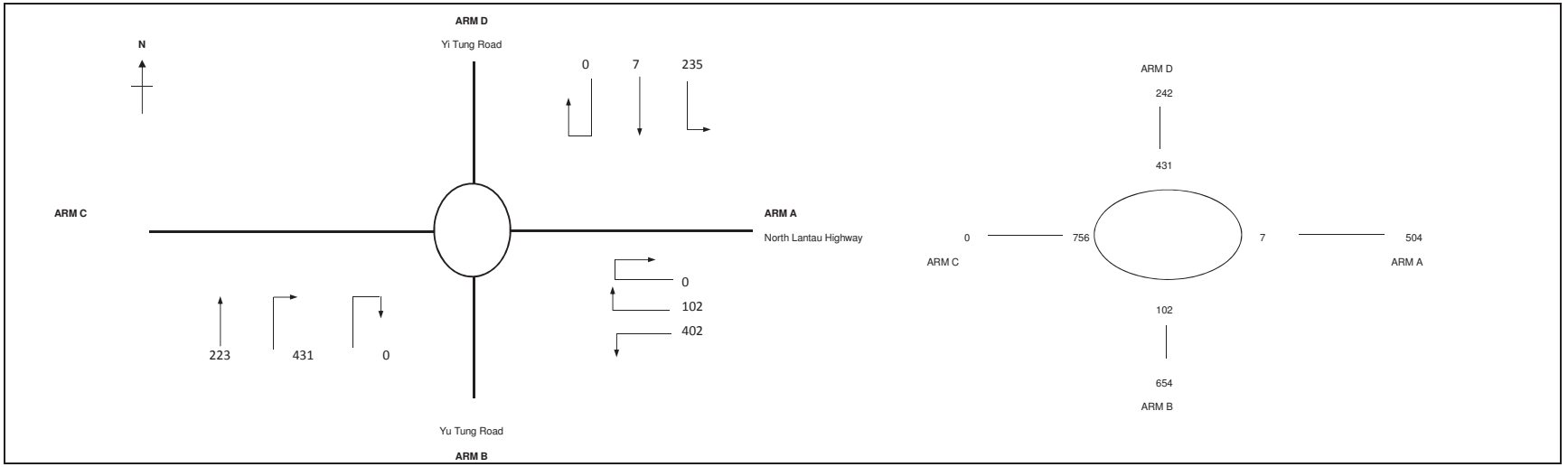
No. of stages per cycle	N =	4
No. of stage using for calculation	N =	4
Cycle time	C =	120 sec
Sum(y)	Y =	0.625
Loss time	L =	20 sec
Total Flow	=	2202.85 pcu
Co = (1.5*L+5)/(1-Y)	=	93.2 sec
Cm = L/(1-Y)	=	53.3 sec
Yult	=	0.750
R.C.ult = (Yult-Y)/Y*100%	=	20.1 %
Cp = 0.9*L/(0.9-Y)	=	65.4 sec
Ymax = 1-L/C	=	0.833
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	20.1 %



Pedestrian Phase	Width (m)	Green Time Required (s) SG		FG	Green Time Provided (s) SG	Dealay	FG	Delay
2	8	5	6	7	15	6	7	OK
3	8	5	6	7	50	6	7	OK
4	8	5	6	7	36	6	7	OK
5	8	5	2	7	76	2	7	OK
7	8	5	6	7	23	6	7	OK
8	8	5	6	7	26	6	7	OK

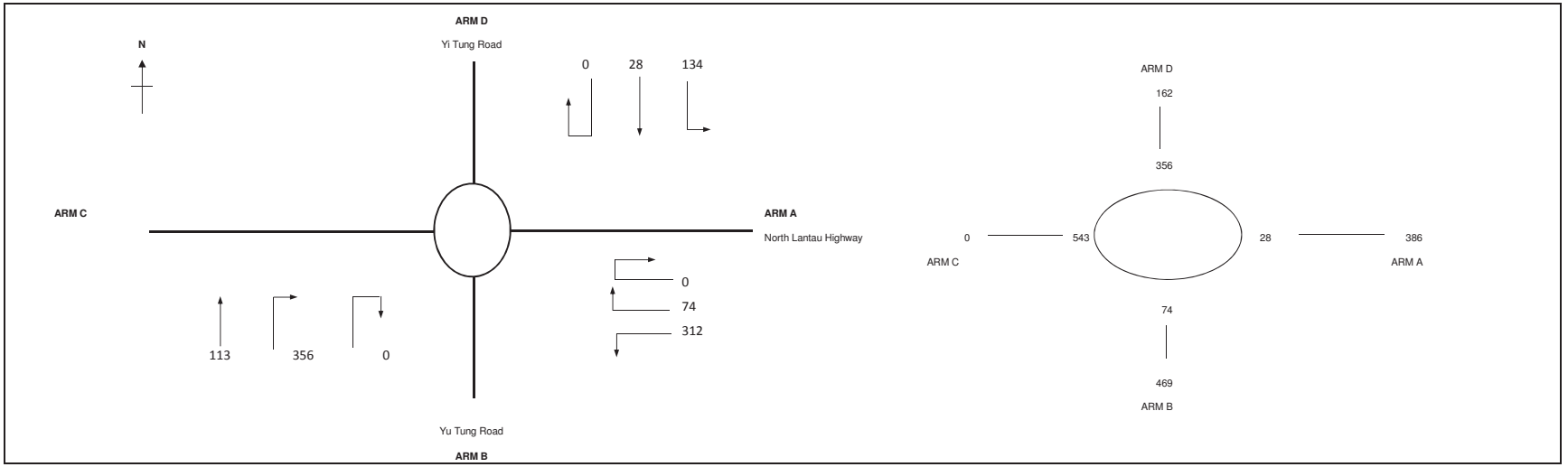
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	m Left pcu/h	m Straight pcu/h	m Right pcu/h	Total FLow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradien %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				20				
B1, B2	3	3.50		1	15		N	1965	15	62		77	0.20	1927			1927	0.040	0.142		6	23	0.212	13
B3	3	3.50		1	30			2105			284	284	1.00	2005			2005	0.142			23	23	0.750	46
D1,D2	4	3.50		1	15		N	1965	15	42		57	0.26	1915			1915	0.030	0.076		5	5	0.750	11
D2,D3	4	3.50		1	30			2105		0	152	152	1.00	2005			2005	0.076			12	12	0.750	27
A1,A2	1	3.50		1	15		N	1965	157	250		407	0.39	1892			1892	0.215	0.215		34	34	0.750	58
A2,A3	1	3.50		1	30			2105		425	26	451	0.06	2099			2099	0.215			34	34	0.750	64
C1, C2	2	3.50		1	15		N	1965	63	307		370	0.17	1932			1932	0.192	0.192		31	31	0.749	55
C2	2	3.50		1	30			2105		404	0	404	0.00	2105			2105	0.192			31	31	0.750	60

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
		Project No.	
Tung Chung Eastern interchange	2015 AM Existing	DATE 13-Oct-15	FILENAME



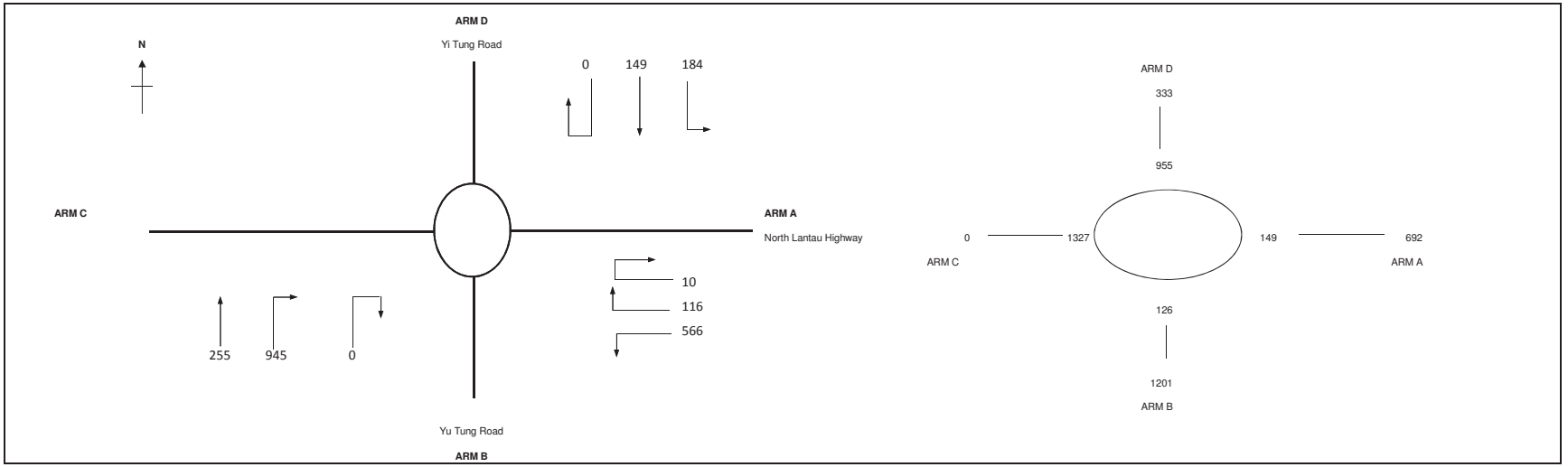
ARM			A	B	D			
INPUT PARAMETERS:								
V	=	Approach half width (m)	7.00	7.00	7.00			
E	=	Entry width (m)	14.00	15.00	14.00			
L	=	Effective length of flare (m)	40.00	70.00	30.00			
R	=	Entry radius (m)	80.00	40.00	60.00			
D	=	Inscribed circle diameter (m)	110.00	110.00	110.00			
A	=	Entry angle (degree)	35.00	40.00	35.00			
Q	=	Entry flow (pcu/h)	504	654	242			
Qc	=	Circulating flow across entry (pcu/h)	7	102	431			
OUTPUT PARAMETERS:								
S	=	Sharpness of flare = 1.6(E-V)/L	0.28	0.18	0.37			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.02	0.99	1.02			
X2	=	V + ((E-V)/(1+2S))	11.49	12.86	11.01			
M	=	EXP((D-60)/10)	148.41	148.41	148.41			
F	=	303*X2	3481	3896	3335			
Td	=	1+(0.5/(1+M))	1.00	1.00	1.00			
Fc	=	0.21*Td(1+0.2*X2)	0.69	0.75	0.67			
Qe	=	K(F-Fc*Qc)	3543	3780	3091	**Total In Sum =**	**1400**	**PCU**
DFC	=	Design flow/Capacity = Q/Qe	0.14	0.17	0.08	**DFC of Critical Approach =**	**0.17**	

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
		Project No.	
Tung Chung Eastern interchange	2015 PM Existing	DATE 13-Oct-15	FILENAME



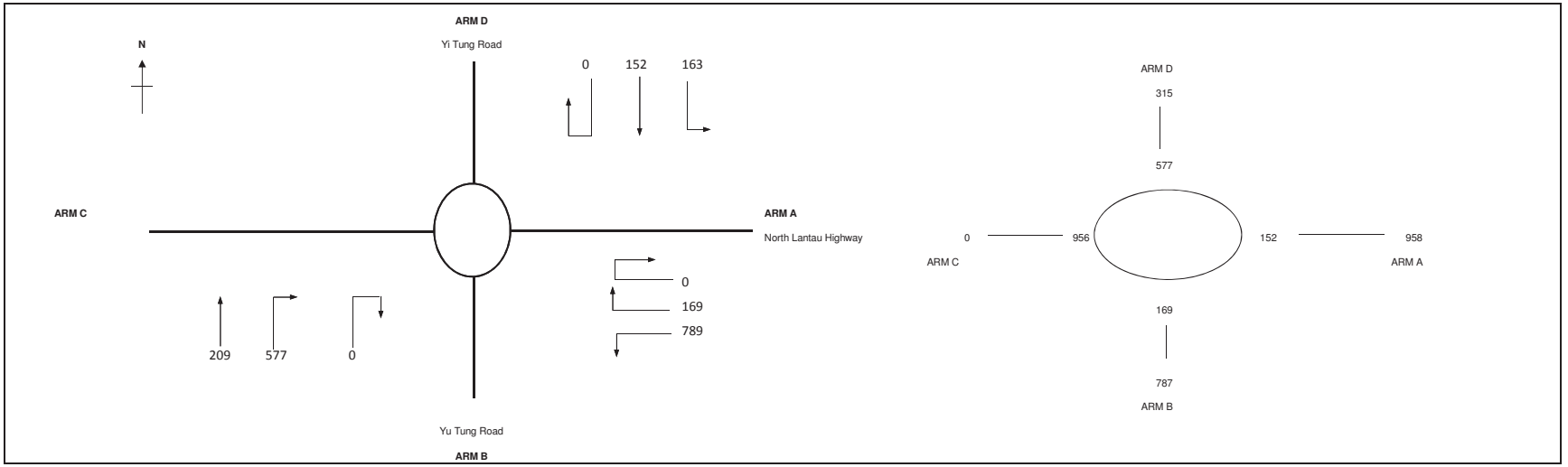
ARM			A	B	D			
INPUT PARAMETERS:								
V	=	Approach half width (m)	7.00	7.00	7.00			
E	=	Entry width (m)	14.00	15.00	14.00			
L	=	Effective length of flare (m)	40.00	70.00	30.00			
R	=	Entry radius (m)	80.00	40.00	60.00			
D	=	Inscribed circle diameter (m)	110.00	110.00	110.00			
A	=	Entry angle (degree)	35.00	40.00	35.00			
Q	=	Entry flow (pcu/h)	386	469	162			
Qc	=	Circulating flow across entry (pcu/h)	28	74	356			
OUTPUT PARAMETERS:								
S	=	Sharpness of flare = 1.6(E-V)/L	0.28	0.18	0.37			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.02	0.99	1.02			
X2	=	V + ((E-V)/(1+2S))	11.49	12.86	11.01			
M	=	EXP((D-60)/10)	148.41	148.41	148.41			
F	=	303*X2	3481	3896	3335			
Td	=	1+(0.5/(1+M))	1.00	1.00	1.00			
Fc	=	0.21*Td(1+0.2*X2)	0.69	0.75	0.67			
Qe	=	K(F-Fc*Qc)	3528	3801	3142	**Total In Sum =**	**1017**	**PCU**
DFC	=	Design flow/Capacity = Q/Qe	0.11	0.12	0.05	**DFC of Critical Approach =**	**0.12**	

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION				
			Project No.		
Tung Chung Eastern interchange	2026 AM	Reference Case	DATE	13-Oct-15	FILENAME



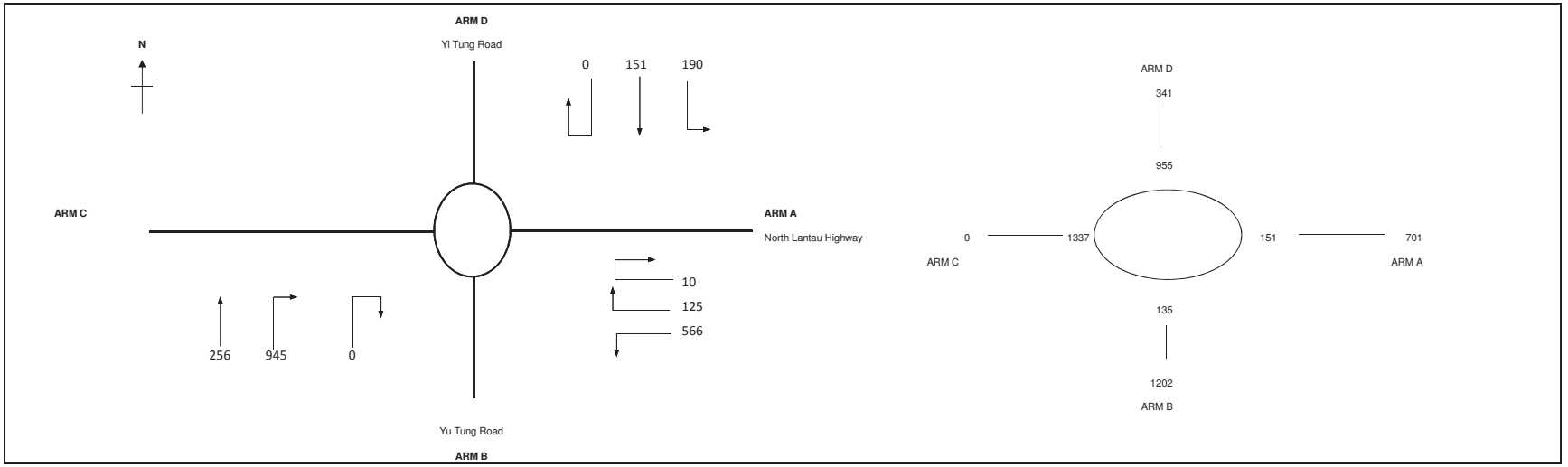
ARM			A	B	D			
INPUT PARAMETERS:								
V	=	Approach half width (m)	7.00	7.00	7.00			
E	=	Entry width (m)	14.00	15.00	14.00			
L	=	Effective length of flare (m)	40.00	70.00	30.00			
R	=	Entry radius (m)	80.00	40.00	60.00			
D	=	Inscribed circle diameter (m)	110.00	110.00	110.00			
A	=	Entry angle (degree)	35.00	40.00	35.00			
Q	=	Entry flow (pcu/h)	692	1201	333			
Qc	=	Circulating flow across entry (pcu/h)	149	126	955			
OUTPUT PARAMETERS:								
S	=	Sharpness of flare = 1.6(E-V)/L	0.28	0.18	0.37			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.02	0.99	1.02			
X2	=	V + ((E-V)/(1+2S))	11.49	12.86	11.01			
M	=	EXP((D-60)/10)	148.41	148.41	148.41			
F	=	303*X2	3481	3896	3335			
Td	=	1+(0.5/(1+M))	1.00	1.00	1.00			
Fc	=	0.21*Td(1+0.2*X2)	0.69	0.75	0.67			
Qe	=	K(F-Fc*Qc)	3442	3762	2732	**Total In Sum =**	**2226**	**PCU**
DFC	=	Design flow/Capacity = Q/Qe	0.20	0.32	0.12	**DFC of Critical Approach =**	**0.32**	

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION				
			Project No.		
Tung Chung Eastern interchange	2026 PM	Reference Case	DATE	13-Oct-15	FILENPME



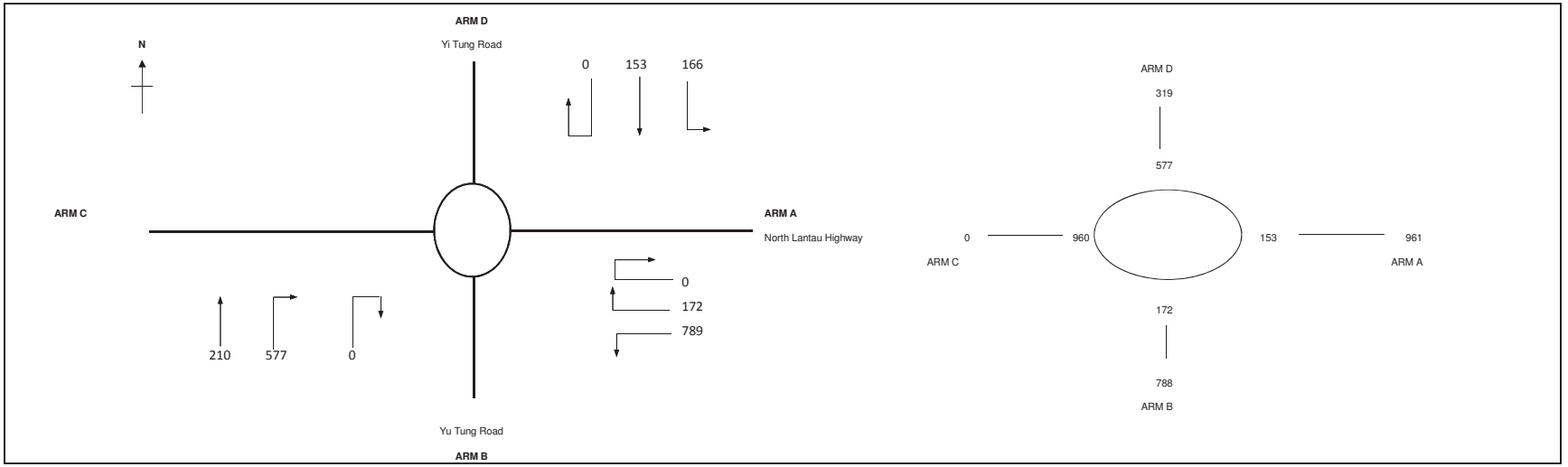
ARM			A	B	D			
INPUT PARPMETERS:								
V	=	Approach half width (m)	7.00	7.00	7.00			
E	=	Entry width (m)	14.00	15.00	14.00			
L	=	Effective length of flare (m)	40.00	70.00	30.00			
R	=	Entry radius (m)	80.00	40.00	60.00			
D	=	Inscribed circle diPMeter (m)	110.00	110.00	110.00			
A	=	Entry angle (degree)	35.00	40.00	35.00			
Q	=	Entry flow (pcu/h)	958	787	315			
Qc	=	Circulating flow across entry (pcu/h)	152	169	577			
OUTPUT PARPMETERS:								
S	=	Sharpness of flare = 1.6(E-V)/L	0.28	0.18	0.37			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.02	0.99	1.02			
X2	=	V + ((E-V)/(1+2S))	11.49	12.86	11.01			
M	=	EXP((D-60)/10)	148.41	148.41	148.41			
F	=	303*X2	3481	3896	3335			
Td	=	1+(0.5/(1+M))	1.00	1.00	1.00			
Fc	=	0.21*Td(1+0.2*X2)	0.69	0.75	0.67			
Qe	=	K(F-Fc*Qc)	3441	3730	2991	**Total In Sum =**	**2060**	**PCU**
DFC	=	Design flow/Capacity = Q/Qe	0.28	0.21	0.11	**DFC of Critical Approach =**	**0.28**	

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION			
			Project No.	
Tung Chung Eastern interchange	2026 AM	Design Case	DATE 13-Oct-15	FILENAME



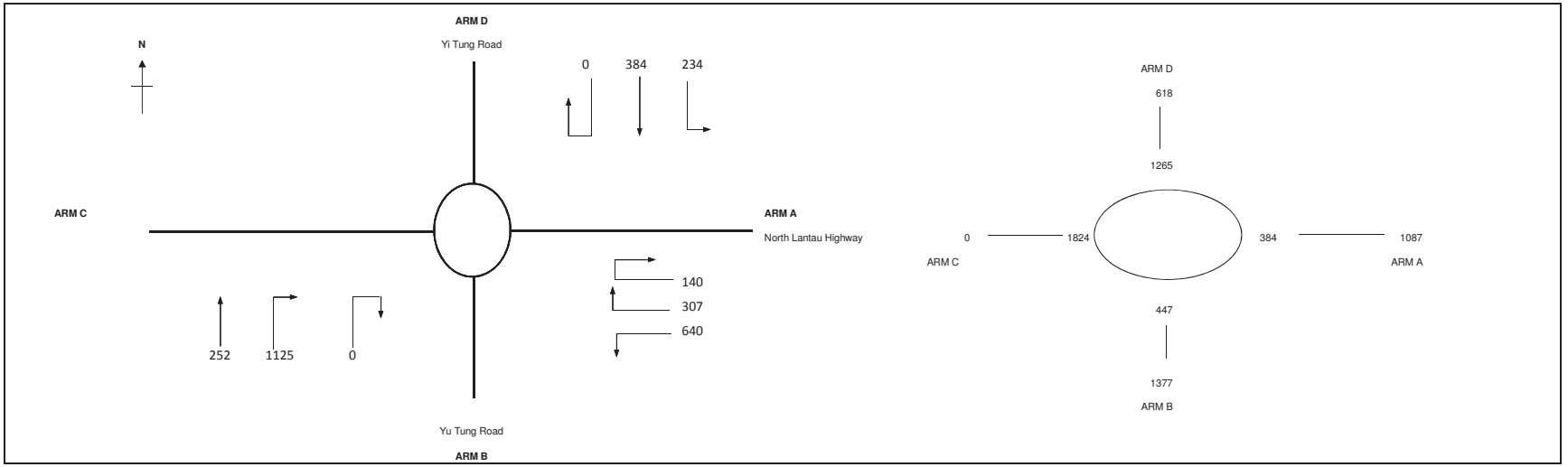
ARM			A	B	D			
INPUT PARAMETERS:								
V	=	Approach half width (m)	7.00	7.00	7.00			
E	=	Entry width (m)	14.00	15.00	14.00			
L	=	Effective length of flare (m)	40.00	70.00	30.00			
R	=	Entry radius (m)	80.00	40.00	60.00			
D	=	Inscribed circle diameter (m)	110.00	110.00	110.00			
A	=	Entry angle (degree)	35.00	40.00	35.00			
Q	=	Entry flow (pcu/h)	701	1202	341			
Qc	=	Circulating flow across entry (pcu/h)	151	135	955			
OUTPUT PARAMETERS:								
S	=	Sharpness of flare = 1.6(E-V)/L	0.28	0.18	0.37			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.02	0.99	1.02			
X2	=	V + ((E-V)/(1+2S))	11.49	12.86	11.01			
M	=	EXP((D-60)/10)	148.41	148.41	148.41			
F	=	303*X2	3481	3896	3335			
Td	=	1+(0.5/(1+M))	1.00	1.00	1.00			
Fc	=	0.21*Td(1+0.2*X2)	0.69	0.75	0.67			
Qe	=	K(F-Fc*Qc)	3441	3755	2732	**Total In Sum =**	**2244**	**PCU**
DFC	=	Design flow/Capacity = Q/Qe	0.20	0.32	0.12	**DFC of Critical Approach =**	**0.32**	

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION				
			Project No.		
Tung Chung Eastern interchange	2026 PM	Design Case	DATE	13-Oct-15	FILENPME



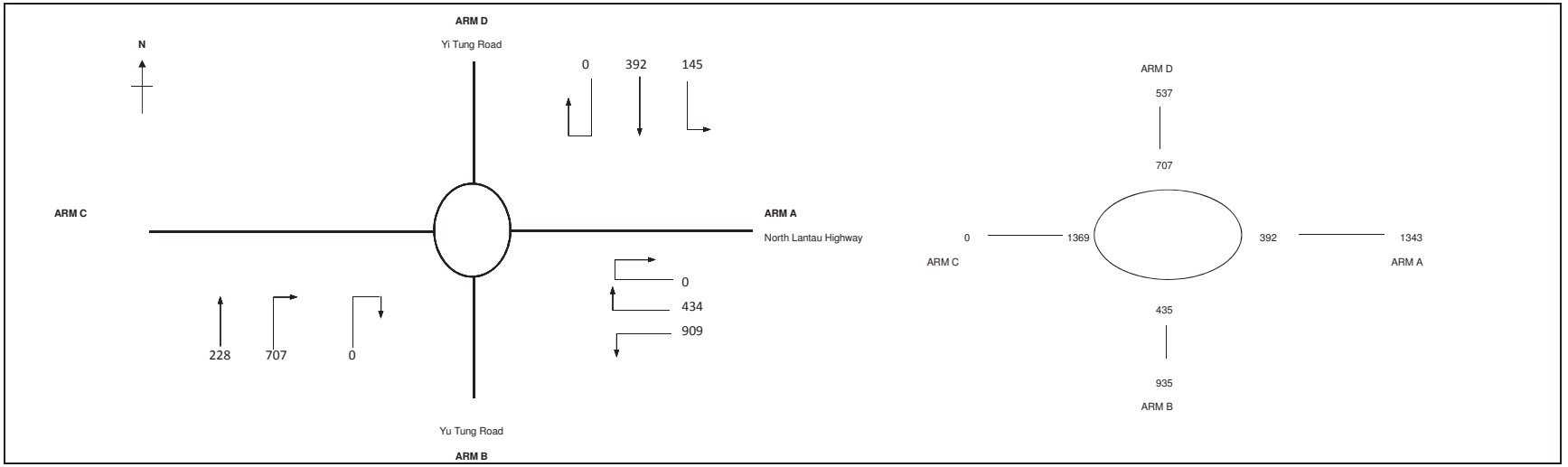
ARM			A	B	D			
INPUT PARPMETERS:								
V	=	Approach half width (m)	7.00	7.00	7.00			
E	=	Entry width (m)	14.00	15.00	14.00			
L	=	Effective length of flare (m)	40.00	70.00	30.00			
R	=	Entry radius (m)	80.00	40.00	60.00			
D	=	Inscribed circle diPMeter (m)	110.00	110.00	110.00			
A	=	Entry angle (degree)	35.00	40.00	35.00			
Q	=	Entry flow (pcu/h)	961	788	319			
Qc	=	Circulating flow across entry (pcu/h)	153	172	577			
OUTPUT PARPMETERS:								
S	=	Sharpness of flare = 1.6(E-V)/L	0.28	0.18	0.37			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.02	0.99	1.02			
X2	=	V + ((E-V)/(1+2S))	11.49	12.86	11.01			
M	=	EXP((D-60)/10)	148.41	148.41	148.41			
F	=	303*X2	3481	3896	3335			
Td	=	1+(0.5/(1+M))	1.00	1.00	1.00			
Fc	=	0.21*Td(1+0.2*X2)	0.69	0.75	0.67			
Qe	=	K(F-Fc*Qc)	3440	3728	2991	**Total In Sum =**	**2068**	**PCU**
DFC	=	Design flow/Capacity = Q/Qe	0.28	0.21	0.11	**DFC of Critical Approach =**	**0.28**	

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION				
			Project No.		
Tung Chung Eastern interchange	2031 AM	Reference Case	DATE	13-Oct-15	FILENAME



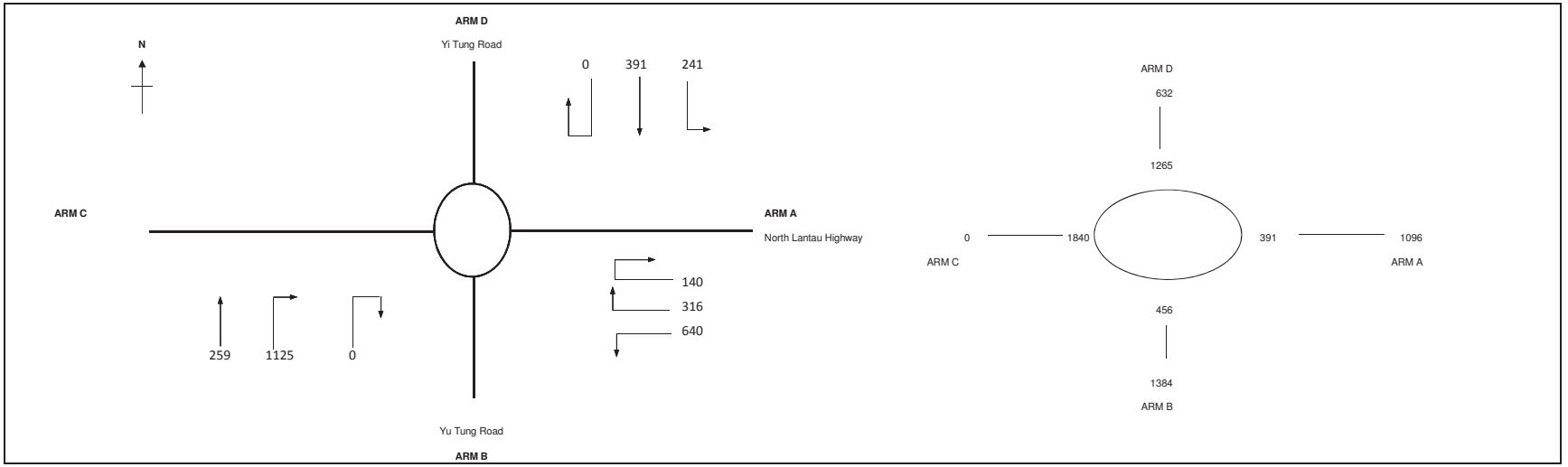
ARM			A	B	D			
INPUT PARAMETERS:								
V	=	Approach half width (m)	7.00	7.00	7.00			
E	=	Entry width (m)	14.00	15.00	14.00			
L	=	Effective length of flare (m)	40.00	70.00	30.00			
R	=	Entry radius (m)	80.00	40.00	60.00			
D	=	Inscribed circle diameter (m)	110.00	110.00	110.00			
A	=	Entry angle (degree)	35.00	40.00	35.00			
Q	=	Entry flow (pcu/h)	1087	1377	618			
Qc	=	Circulating flow across entry (pcu/h)	384	447	1265			
OUTPUT PARAMETERS:								
S	=	Sharpness of flare = 1.6(E-V)/L	0.28	0.18	0.37			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.02	0.99	1.02			
X2	=	V + ((E-V)/(1+2S))	11.49	12.86	11.01			
M	=	EXP((D-60)/10)	148.41	148.41	148.41			
F	=	303*X2	3481	3896	3335			
Td	=	1+(0.5/(1+M))	1.00	1.00	1.00			
Fc	=	0.21*Td(1+0.2*X2)	0.69	0.75	0.67			
Qe	=	K(F-Fc*Qc)	3276	3523	2520	**Total In Sum =**	**3082**	**PCU**
DFC	=	Design flow/Capacity = Q/Qe	0.33	0.39	0.25	**DFC of Critical Approach =**	**0.39**	

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION				
			Project No.		
Tung Chung Eastern interchange	2031 PM	Reference Case	DATE	13-Oct-15	FILENAME



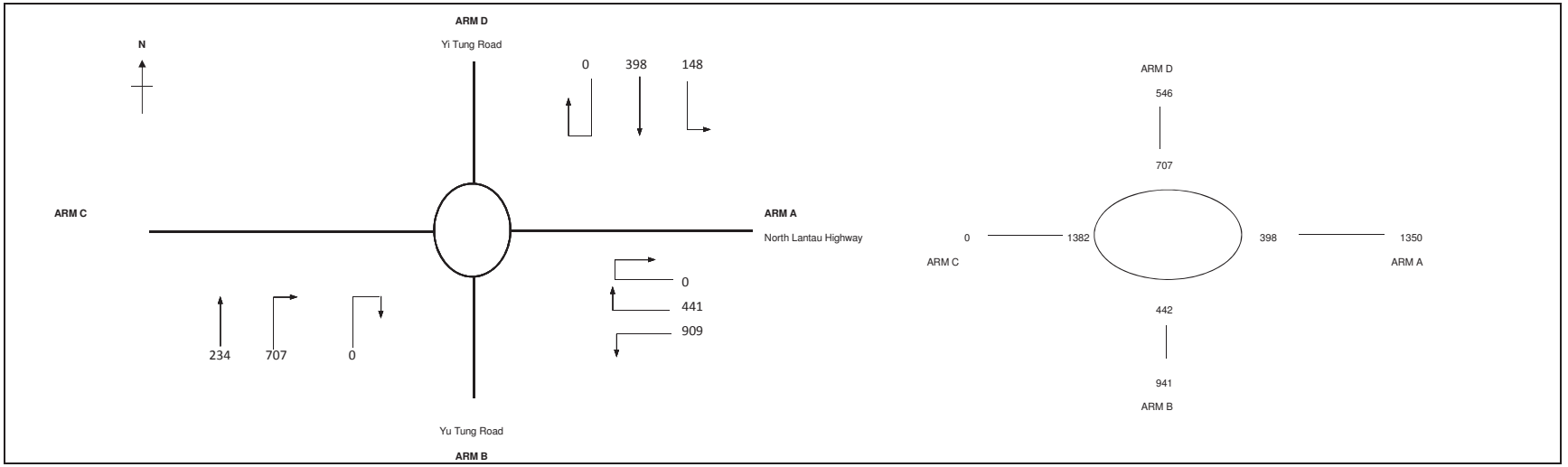
ARM			A	B	D			
INPUT PARAMETERS:								
V	=	Approach half width (m)	7.00	7.00	7.00			
E	=	Entry width (m)	14.00	15.00	14.00			
L	=	Effective length of flare (m)	40.00	70.00	30.00			
R	=	Entry radius (m)	80.00	40.00	60.00			
D	=	Inscribed circle diameter (m)	110.00	110.00	110.00			
A	=	Entry angle (degree)	35.00	40.00	35.00			
Q	=	Entry flow (pcu/h)	1343	935	537			
Qc	=	Circulating flow across entry (pcu/h)	392	435	707			
OUTPUT PARAMETERS:								
S	=	Sharpness of flare = 1.6(E-V)/L	0.28	0.18	0.37			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.02	0.99	1.02			
X2	=	V + ((E-V)/(1+2S))	11.49	12.86	11.01			
M	=	EXP((D-60)/10)	148.41	148.41	148.41			
F	=	303*X2	3481	3896	3335			
Td	=	1+(0.5/(1+M))	1.00	1.00	1.00			
Fc	=	0.21*Td(1+0.2*X2)	0.69	0.75	0.67			
Qe	=	K(F-Fc*Qc)	3270	3532	2902	**Total In Sum =**	**2815**	**PCU**
DFC	=	Design flow/Capacity = Q/Qe	0.41	0.26	0.19	**DFC of Critical Approach =**	**0.41**	

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION				
			Project No.		
Tung Chung Eastern interchange	2031 AM	Design Case	DATE	13-Oct-15	FILENAME



ARM			A	B	D			
INPUT PARAMETERS:								
V	=	Approach half width (m)	7.00	7.00	7.00			
E	=	Entry width (m)	14.00	15.00	14.00			
L	=	Effective length of flare (m)	40.00	70.00	30.00			
R	=	Entry radius (m)	80.00	40.00	60.00			
D	=	Inscribed circle diameter (m)	110.00	110.00	110.00			
A	=	Entry angle (degree)	35.00	40.00	35.00			
Q	=	Entry flow (pcu/h)	1096	1384	632			
Qc	=	Circulating flow across entry (pcu/h)	391	456	1265			
OUTPUT PARAMETERS:								
S	=	Sharpness of flare = 1.6(E-V)/L	0.28	0.18	0.37			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.02	0.99	1.02			
X2	=	V + ((E-V)/(1+2S))	11.49	12.86	11.01			
M	=	EXP((D-60)/10)	148.41	148.41	148.41			
F	=	303*X2	3481	3896	3335			
Td	=	1+(0.5/(1+M))	1.00	1.00	1.00			
Fc	=	0.21*Td(1+0.2*X2)	0.69	0.75	0.67			
Qe	=	K(F-Fc*Qc)	3271	3516	2520	**Total In Sum =**	**3112**	**PCU**
DFC	=	Design flow/Capacity = Q/Qe	0.34	0.39	0.25	**DFC of Critical Approach =**	**0.39**	

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION				
			Project No.		
Tung Chung Eastern interchange	2031 PM	Design Case	DATE	13-Oct-15	FILENAME



ARM			A	B	D			
INPUT PARAMETERS:								
V	=	Approach half width (m)	7.00	7.00	7.00			
E	=	Entry width (m)	14.00	15.00	14.00			
L	=	Effective length of flare (m)	40.00	70.00	30.00			
R	=	Entry radius (m)	80.00	40.00	60.00			
D	=	Inscribed circle diameter (m)	110.00	110.00	110.00			
A	=	Entry angle (degree)	35.00	40.00	35.00			
Q	=	Entry flow (pcu/h)	1350	941	546			
Qc	=	Circulating flow across entry (pcu/h)	398	442	707			
OUTPUT PARAMETERS:								
S	=	Sharpness of flare = 1.6(E-V)/L	0.28	0.18	0.37			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.02	0.99	1.02			
X2	=	V + ((E-V)/(1+2S))	11.49	12.86	11.01			
M	=	EXP((D-60)/10)	148.41	148.41	148.41			
F	=	303*X2	3481	3896	3335			
Td	=	1+(0.5/(1+M))	1.00	1.00	1.00			
Fc	=	0.21*Td(1+0.2*X2)	0.69	0.75	0.67			
Qe	=	K(F-Fc*Qc)	3266	3527	2902	**Total In Sum =**	**2837**	**PCU**
DFC	=	Design flow/Capacity = Q/Qe	0.41	0.27	0.19	**DFC of Critical Approach =**	**0.41**	

N

圖例 LEGEND

東涌第56區迎東邨街市位置
WET MARKET LOCATION OF
YING TUNG ESTATE, TUNG CHUNG AREA 56

未來填海區
FUTURE RECLAMATION AREA

路徑 1A/B (約800米至950米)
ROUTE 1A/B (Approx. 800m to 950m)

路徑 2A/B (約700米至850米)
ROUTE 2A/B (Approx. 700m to 850m)

擬建路L3
ROAD L3

東涌第54區
公營房屋發展
TUNG CHUNG AREA 54
PUBLIC HOUSING
DEVELOPMENT

東涌第55a區
TUNG CHUNG
AREA 55a

東涌第55b區
TUNG CHUNG
AREA 55b

東涌第56區 (迎東邨)
TUNG CHUNG AREA 56
(YING TUNG ESTATE)

TUNG CHUNG AREA 53a
(HOTEL DEVELOPMENT)

出口 A
EXIT A

出口 B
EXIT B

(東環)
(CENTURY LINK)

(昇薈)
(THE VISIONARY)

迎禧路
YING HEI ROAD

Cycling Track

東涌海濱路
TUNG CHUNG WATERFRONT ROAD

怡東路
YI TUNG ROAD

可譽中學
HO YU COLLEGE

Ho Yu Primary School
(Sponsored by Sik Sik Yuen)

映灣園
CARIBBEAN COAST

水藍・天岸
LE BLEU

藍天海岸
COASTAL SKYLINE

文東路
MAN TUNG ROAD

東涌北公園
TUNG CHUNG NORTH PARK

北大嶼山公路
NORTH LANTAU EXPWAY

DRAWING TITLE

LOCATION PLAN

NOT TO SCALE

房 屋 署
HOUSING DEPARTMENT

2. OUTDOOR WIND ENVIRONMENT

2.1 Introduction

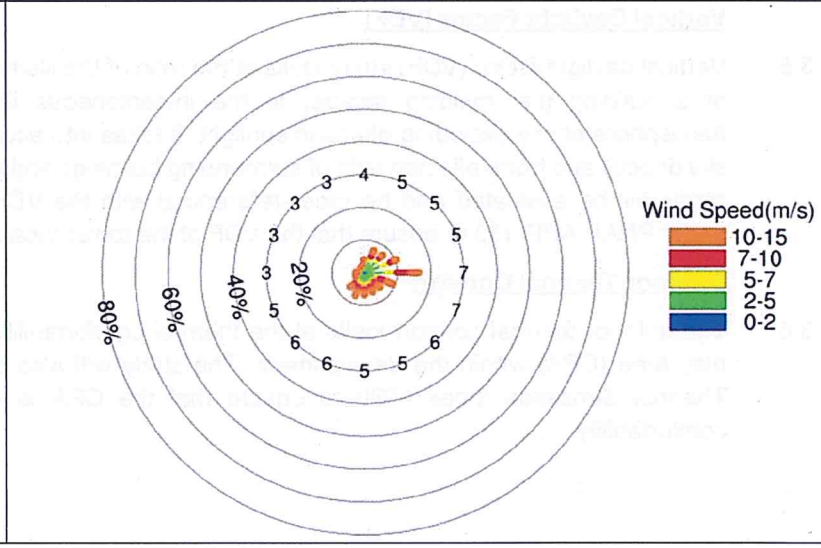
2.1.1 The outdoor wind environment is determined by the wind amplification study. The wind amplification study analyses whether the pedestrian areas of the nearby vicinity will be subject to excessive wind velocities caused by amplification due to the proposed site layout design and/or building design.

2.1.2 The study is conducted using Computational Fluid Dynamics (CFD) studies and measured in terms of wind velocities (m/s). CFD is a branch of fluid mechanics that uses numerical analysis and algorithms to solve and analyse problems that involve fluid flows. Computers are used to perform the calculations required to simulate the interaction of liquids and gases with surfaces defined by boundary conditions

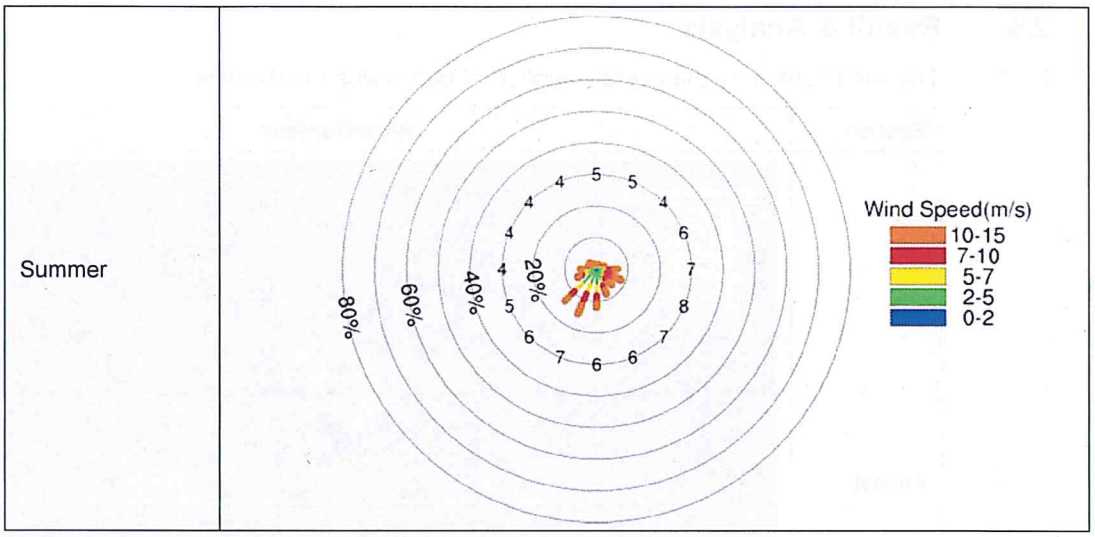
2.1.3 The vicinity area as mentioned in Section 1.2.1 of this report have been identified as the sampling locations. The wind velocities of these developments' pedestrian area have been assessed to ensure that the proposed development will not dramatically affect the wind environment of the surrounding neighbourhood.

2.2 Wind Condition

2.2.1 The wind conditions of the development can best be illustrated by the wind rose. The wind rose is a graphical illustration of how wind speed and direction are typically distributed at a particular location. The annual and summer wind rose of the proposed development retrieved from Planning Department's Site Wind Availability System[2] is indicated below.

Season	Wind Rose Diagram
Annual	

[2] Planning Department. "Site Wind Availability System"
http://www.pland.gov.hk/pland_en/info_serv/site_wind/site_wind/index.html



2.2.2 As indicated in the wind rose above, the E wind direction will be the annual prevailing wind direction, whilst SSW will be the summer prevailing wind direction.

2.2.3 However, given the unencumbered wind corridor located south of the site that runs along east and west of the Tung Chung North neighbourhood, it is expected that the wind speed from the direction of highest wind probability (East in this case) will not be substantially reduced. Thus, ENE (the wind with second highest probability) is used instead to analyse whether the development will affect the overall wind profile of the neighbourhood.

2.3 Pedestrian Comfort

2.3.1 The pedestrian comfortability can be determined by the Beaufort Scale. The Beaufort Scale is an empirical measure that relates wind speed to observe conditions at sea or land. For the purpose of this study, it is divided into nine (9) distinctive levels indicated below.

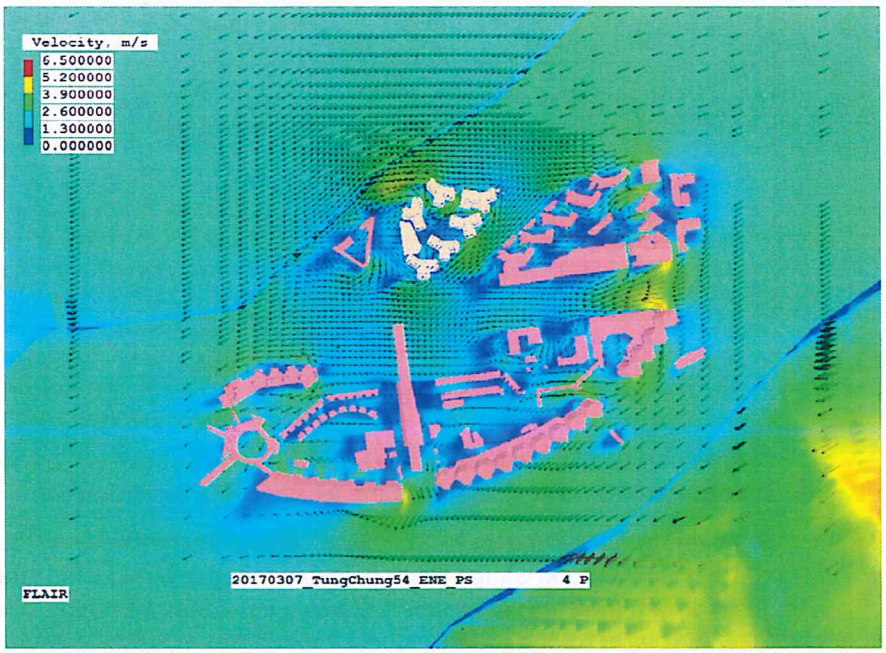
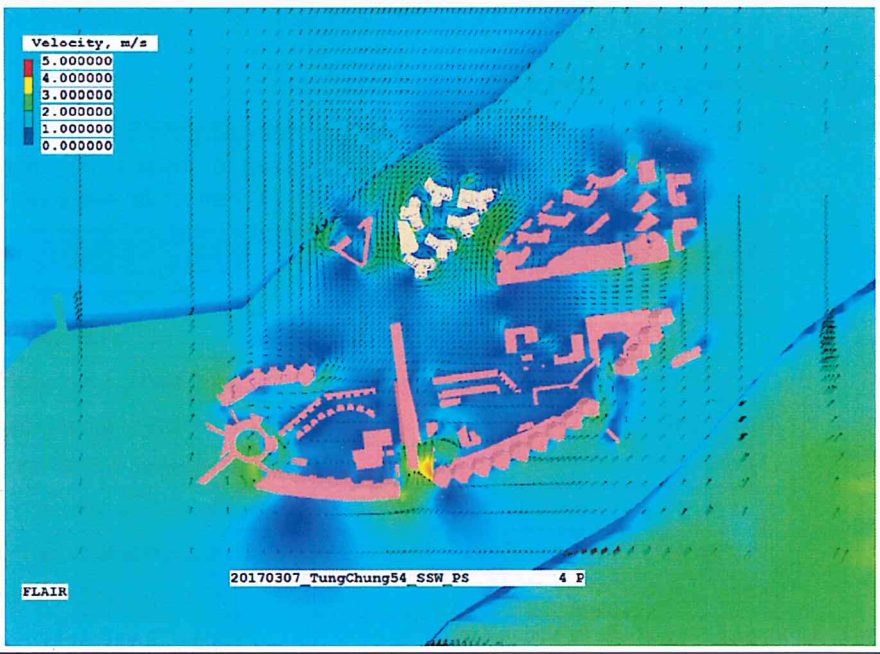
Wind Speed (m/s)	Effect
0 – 1.5	No noticeable wind
1.6 – 3.3	Wind felt on face
3.4 – 5.4	Hair disturbed, clothing flaps
5.5 – 7.9	Raises dust, dry soil and loose paper, hair blown
8.0 – 10.7	Force felt on body, limit of agreeable wind
10.8 – 13.8	Umbrellas use difficult, difficult to walk steadily
13.9 – 17.1	Inconvenience felt when walking
17.2 – 20.7	Generally impedes progress
20.8 – 24.4	People blown over by gusts

2.3.2 According to Frank H. Durgin's research (Pedestrian level wind criteria using the equivalent average, 1997)[3], wind amplification at pedestrian level constitutes a wind velocities greater than 4m/s. In other words, wind speed below 4m/s is therefore considered as optimal for pedestrian comfort.

[3] Pedestrian level wind criteria using the equivalent average - Frank H. Durgin 1997.

2.4 Result & Analysis

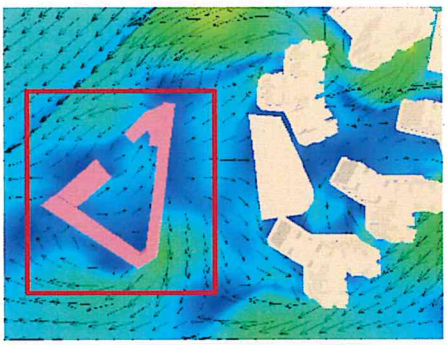
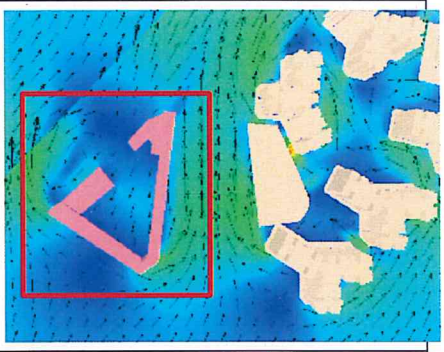
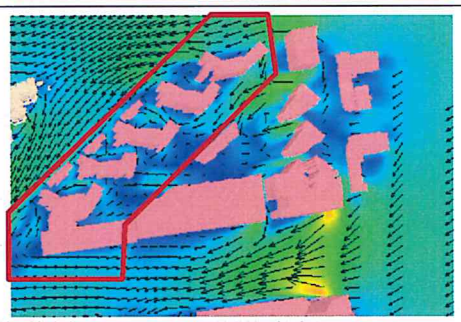
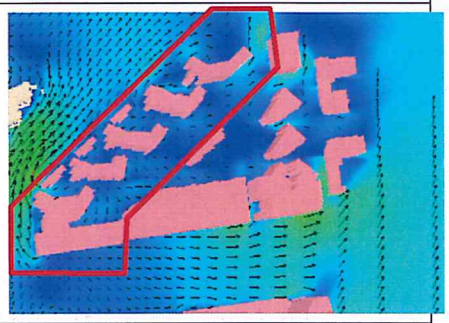
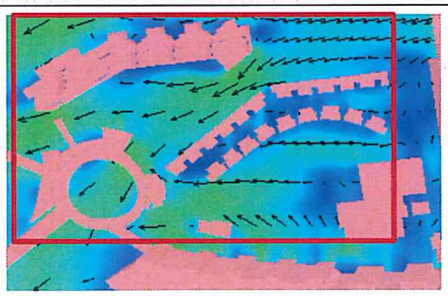
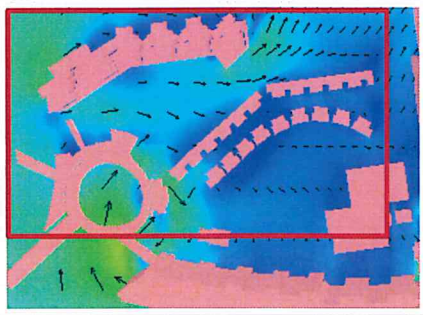
2.4.1 The wind contour of the overall neighbourhood is illustrated below.

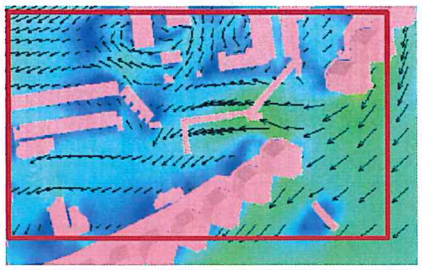
Season	Wind Contour
Annual	
Summer	

2.4.2 The wind speed to each individual sampling location is listed below.

Sampling Location	Season	Average Wind Speed at Pedestrian Level (m/s)	Wind Speed Considered as Pedestrian Comfortable?
Proposed Hotel at Tung Chung 53A	Annual	1.28	Yes
	Summer	1.09	Yes
Century Link	Annual	1.63	Yes
	Summer	1.01	Yes
Coastal Skyline	Annual	1.44	Yes
	Summer	0.51	Yes
Caribbean Coast	Annual	1.34	Yes
	Summer	0.85	Yes

2.4.3 The detailed wind contour of each individual sampling location is illustrated below.

Sampling Location	Wind Contour	
	Annual Season	Summer Season
Proposed Hotel at Tung Chung 53A		
Century Link		
Coastal Skyline		

Caribbean Coast		

2.4.4 Based on the above analysis, the pedestrian wind velocity ranges from 1.28 to 1.63 m/s and 0.51 to 1.09 m/s for the annual and summer wind conditions respectively. Both conditions are below 4 m/s. As such, the pedestrian area of the surrounding neighbourhood will not subject to excessive wind velocities as a result of the proposed development.

附錄4

過去十年公營房屋建屋量

年份	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17
出租單位										
房委會[1]	13 726	19 050	15 389	13 672	11 186	13 114	14 057	9 938	14 264	11 276
房協[2]	872	0	0	0	0	0	0	0	0	140
合計出租單位數目	14 598	19 050	15 389	13 672	11 186	13 114	14 057	9 938	14 264	11 416
出售單位[3][4]										
房委會[5]	1 386	1 624	370	1 110	0	0	0	0	0	3 017
房協[6]	576	0	0	0	0	0	0	0	988	0
合計出售單位數目	1 962	1 624	370	1 110	0	0	0	0	988	3 017

1 房委會租住房屋建屋量包括公屋、中轉房屋單位，和由居屋轉作公屋項目的單位。由公屋轉作出售用途的可租可買計劃／重建置業計劃的單位則不包括在內。

2 房協租住房屋建屋量包括租住房屋和長者安居樂計劃的單位。長者安居樂計劃的單位以長期租約推出，並需申請人繳付一筆租住權費。

3 政府於 2002 年將房屋政策重新定位。就那些於 2002 年至 2004 年期間落成、並於 2007 年起才分批發售的居屋／私人機構參建居屋計劃（私人參建居屋）／住宅發售計劃的單位而言，上表所指的「年份」為其首次推售時間。

4 數字不包括市區重建局於 2015/16 年度一次性提供的 322 個資助出售單位。

5 房委會的資助出售單位建屋量包括居屋、私人參建居屋、可租可買計劃／重建置業計劃和綠表置居先導計劃（綠置居）的單位。

6 房協資助出售房屋單位的建屋量包括住宅發售計劃、夾心階層住屋計劃和資助出售房屋項目的單位。

附錄 5

東涌的公共租住房屋及資助出售房屋的數目

	出租單位	出售單位
已入伙	13,643	2,640
興建中	7,446	1,226
合共 (佔總單位數目的百分比)	21,089 (84.5%)	3,866 (15.5%) (不包括東涌第54區資助出售單位)

鄰近東涌第 54 區及第 56 區的社區設施包括：

- 4 間小學（1 間位於健東路近映灣園，1 間位於文東路近東涌市政大樓及 2 間位於富東邨）；
- 4 間中學（1 間位於健東路近映灣園，1 間位於文東路近東涌市政大樓及 2 間位於富東邨）；
- 1 所東涌社區會堂（位於東涌市政大樓）；
- 1 所東涌公共圖書館（位於東涌市政大樓）；
- 1 間體育館（位於東涌市政大樓）；
- 1 個東涌游泳池（位於達東路，近東涌纜車站）；
- 1 所綜合服務中心（位於富東邨，服務對象包括幼兒、兒童、青少年、成人、長者及家庭）；
- 2 間安老院舍（分別位於東涌市政大樓及富東邨）；
- 東涌健康中心（位於富東街，近富東邨，包括 1 間牙科診所、1 間長者健康中心、1 間母嬰健康院及 1 間胸肺科診所）；
- 1 個大型購物商場（東薈城）；以及
- 1 個街市（位於富東邨）。