Form No. S16-I
表格第 S16-I 號

APPLICATION FOR PERMISSION UNDER SECTION 16 OF THE TOWN PLANNING ORDINANCE (CAP.131)

根據《城市規劃條例》(第131章)第16條遞交的許可申請

2021年 8月 6日 收到。城市規劃委員會
此文件在 只會在收到所有必要的資料及文件後才正式確認收到
此日期。
- 6 AUG 2021
This document is received on . The Town Planning Board will formally acknowledge the date of receipt of the application only upon receipt of all the required information and documents.

Applicable to proposals not involving or not only involving:
適用於建議不涉及或不祇涉及:

(i) Construction of "New Territories Exempted House(s)";
興建「新界豁免管制屋宇」;

(ii) Temporary use/development of land and/or building not exceeding 3 years in rural areas; and
位於鄉郊地區土地上及/或建築物內進行為期不超過三年的臨時用途/發展;及

(iii) Renewal of permission for temporary use or development in rural areas
位於鄉郊地區的臨時用途或發展的許可續期

Applicant who would like to publish the notice of application in local newspapers to meet one of the Town Planning Board's requirements of taking reasonable steps to obtain consent of or give notification to the current land owner, please refer to the following link regarding publishing the notice in the designated newspapers: https://www.info.gov.hk/tpb/en/plan_application/apply.html

申請人如欲在本地報章刊登申請通知,以採取城市規劃委員會就取得現行土地擁有人的同意或通知現行土地擁有人所指定的其中一項合理步驟,請瀏覽以下網址有關在指定的報章刊登通知:
https://www.info.gov.hk/tpb/tc/plan_application/apply.html

General Note and Annotation for the Form
填寫表格的一般指引及註解

\# "Current land owner" means any person whose name is registered in the Land Registry as that of an owner of the land to which the application relates, as at 6 weeks before the application is made
「現行土地擁有人」指在提出申請前六星期,其姓名或名稱已在土地註冊處註冊為該申請所關乎的土地的擁有人的人

& Please attach documentary proof 請夾附證明文件

^ Please insert number where appropriate 請在適當地方註明編號

Please fill "NA" for inapplicable item 請在不適用的項目填寫「不適用」

Please use separate sheets if the space provided is insufficient 如所提供的空間不足,請另頁說明

Please insert a「✔」at the appropriate box 請在適當的方格內上加上「✔」號

For Official Use Only 請勿填寫此欄	Application No. 申請編號	A/TKO/125
	Date Received 收到日期	- 6 AUG 2021

1. The completed form and supporting documents (if any) should be sent to the Secretary, Town Planning Board (the Board), 15/F, North Point Government Offices, 333 Java Road, North Point, Hong Kong.
申請人須把填妥的申請表格及其他支持申請的文件 (倘有)，送交香港北角渣華道 333 號北角政府合署 15 樓城市規劃委員會(下稱「委員會」)秘書收。

2. Please read the "Guidance Notes" carefully before you fill in this form. The document can be downloaded from the Board's website at http://www.info.gov.hk/tpb/. It can also be obtained from the Secretariat of the Board at 15/F, North Point Government Offices, 333 Java Road, North Point, Hong Kong (Tel: 2231 4810 or 2231 4835), and the Planning Enquiry Counters of the Planning Department (Hotline: 2231 5000) (17/F, North Point Government Offices, 333 Java Road, North Point, Hong Kong and 14/F, Sha Tin Government Offices, 1 Sheung Wo Che Road, Sha Tin, New Territories).
請先細閱《申請須知》的資料單張，然後填寫此表格。該份文件可從委員會的網頁下載 (網址：http://www.info.gov.hk/tpb/)，亦可向委員會秘書處 (香港北角渣華道 333 號北角政府合署 15 樓 – 電話：2231 4810 或 2231 4835)及規劃署的規劃資料查詢處(熱線：2231 5000)(香港北角渣華道 333 號北角政府合署 17 樓及新界沙田上禾輋路 1 號沙田政府合署 14 樓)索取。

3. This form can be downloaded from the Board's website, and obtained from the Secretariat of the Board and the Planning Enquiry Counters of the Planning Department. The form should be typed or completed in block letters. The processing of the application may be refused if the required information or the required copies are incomplete.
此表格可從委員會的網頁下載，亦可向委員會秘書處及規劃署的規劃資料查詢處索取。申請人須以打印方式或以正楷填寫表格。如果申請人所提交的資料或文件副本不齊全，委員會可拒絕處理有關申請。

1. Name of Applicant 申請人姓名/名稱

(☐ Mr. 先生 / ☐ Mrs. 夫人 / ☐ Miss 小姐 / ☐ Ms. 女士 / ☐ Company 公司 / ☑ Organisation 機構)

Transport Department, Hong Kong Special Administrative Region

2. Name of Authorised Agent (if applicable) 獲授權代理人姓名/名稱（如適用）

(☐ Mr. 先生 / ☐ Mrs. 夫人 / ☐ Miss 小姐 / ☐ Ms. 女士 / ☑ Company 公司 / ☐ Organisation 機構)

PlanArch Consultants Ltd.

3. Application Site 申請地點

(a) Full address / location / demarcation district and lot number (if applicable) 詳細地址／地點／丈量約份及地段號碼（如適用）	Area 66, Tseung Kwan O
(b) Site area and/or gross floor area involved 涉及的地盤面積及／或總樓面面積	☑Site area 地盤面積 16,475 sq.m 平方米 ☑About 約 ☑Gross floor area 總樓面面積 Not more than 630 sq.m 平方米 ☐About 約
(c) Area of Government land included (if any) 所包括的政府土地面積（倘有）	16,475 sq.m 平方米 ☑About 約

(d) Name and number of the related statutory plan(s) 有關法定圖則的名稱及編號	Approved Tseung Kwan O Outline Zoning Plan No. S/TKO/28
(e) Land use zone(s) involved 涉及的土地用途地帶	"Open Space"
(f) Current use(s) 現時用途	Temporary Public Vehicle Park (If there are any Government, institution or community facilities, please illustrate on plan and specify the use and gross floor area) (如有任何政府、機構或社區設施，請在圖則上顯示，並註明用途及總樓面面積)

4. "Current Land Owner" of Application Site 申請地點的「現行土地擁有人」

The applicant 申請人 –

☐ is the sole "current land owner"#& (please proceed to Part 6 and attach documentary proof of ownership).
是唯一的「現行土地擁有人」#& (請繼續填寫第 6 部分，並夾附業權證明文件)。

☐ is one of the "current land owners"#& (please attach documentary proof of ownership).
是其中一名「現行土地擁有人」#& (請夾附業權證明文件)。

☐ is not a "current land owner"#.
並不是「現行土地擁有人」#。

☑ The application site is entirely on Government land (please proceed to Part 6).
申請地點完全位於政府土地上（請繼續填寫第 6 部分）。

5. Statement on Owner's Consent/Notification
就土地擁有人的同意/通知土地擁有人的陳述

(a) According to the record(s) of the Land Registry as at ..... (DD/MM/YYYY), this application involves a total of ..... "current land owner(s)"#.
根據土地註冊處截至 ..... 年 ..... 月 ..... 日的記錄，這宗申請共牽涉 ..... 名「現行土地擁有人」#。

(b) The applicant 申請人 –

☐ has obtained consent(s) of ..... "current land owner(s)"#.
已取得 ..... 名「現行土地擁有人」#的同意。

Details of consent of "current land owner(s)"# obtained 取得「現行土地擁有人」#同意的詳情		
No. of 'Current Land Owner(s)' 「現行土地擁有人」數目	Lot number/address of premises as shown in the record of the Land Registry where consent(s) has/have been obtained 根據土地註冊處記錄已獲得同意的地段號碼／處所地址	Date of consent obtained (DD/MM/YYYY) 取得同意的日期 (日/月/年)

(Please use separate sheets if the space of any box above is insufficient. 如上列任何方格的空間不足，請另頁說明)

☐ has notified ..... "current land owner(s)"#
已通知 ..... 名「現行土地擁有人」#。

Details of the "current land owner(s)"# notified 已獲通知「現行土地擁有人」#的詳細資料		
No. of 'Current Land Owner(s)' 「現行土地擁有人」數目	Lot number/address of premises as shown in the record of the Land Registry where notification(s) has/have been given 根據土地註冊處記錄已發出通知的地段號碼／處所地址	Date of notification given (DD/MM/YYYY) 通知日期(日/月/年)

(Please use separate sheets if the space of any box above is insufficient. 如上列任何方格的空間不足，請另頁說明)

☐ has taken reasonable steps to obtain consent of or give notification to owner(s):
已採取合理步驟以取得土地擁有人的同意或向該人發給通知。詳情如下：

Reasonable Steps to Obtain Consent of Owner(s) 取得土地擁有人的同意所採取的合理步驟

☐ sent request for consent to the "current land owner(s)" on _____ (DD/MM/YYYY)#&
於_____ (日/月/年)向每一名「現行土地擁有人」#郵遞要求同意書&

Reasonable Steps to Give Notification to Owner(s) 向土地擁有人發出通知所採取的合理步驟

☐ published notices in local newspapers on _____ (DD/MM/YYYY)&
於_____ (日/月/年)在指定報章就申請刊登一次通知&

☐ posted notice in a prominent position on or near application site/premises on _____ (DD/MM/YYYY)&
於_____ (日/月/年)在申請地點／申請處所或附近的顯明位置貼出關於該申請的通知&

☐ sent notice to relevant owners' corporation(s)/owners' committee(s)/mutual aid committee(s)/management office(s) or rural committee on _____ (DD/MM/YYYY)&
於_____ (日/月/年)把通知寄往相關的業主立案法團/業主委員會/互助委員會或管理處，或有關的鄉事委員會&

Others 其他

☐ others (please specify)
其他（請指明）

_____

_____

_____

_____

Note: May insert more than one「✔」.
Information should be provided on the basis of each and every lot (if applicable) and premises (if any) in respect of the application.
註: 可在多於一個方格內加上「✔」號
申請人須就申請涉及的每一地段（倘適用）及處所（倘有）分別提供資料

6. Type(s) of Application 申請類別

☐ Type (i) 第(i)類 Change of use within existing building or part thereof 更改現有建築物或其部分內的用途

☐ Type (ii) 第(ii)類 Diversion of stream / excavation of land / filling of land / filling of pond as required under Notes of Statutory Plan(s) 根據法定圖則《註釋》內所要求的河道改道／挖土／填土／填塘工程

☐ Type (iii) 第(iii)類 Public utility installation / Utility installation for private project 公用事業設施裝置/私人發展計劃的公用設施裝置

☐ Type (iv) 第(iv)類 Minor relaxation of stated development restriction(s) as provided under Notes of Statutory Plan(s) 略為放寬於法定圖則《註釋》內列明的發展限制

☑ Type (v) 第(v)類 Use / development other than (i) to (iii) above 上述的(i)至(iii)項以外的用途／發展

Note 1: May insert more than one「$」.
註 1： 可在多於一個方格內加上「$」號
Note 2: For Development involving columbarium use, please complete the table in the Appendix.
註 2： 如發展涉及靈灰安置所用途，請填妥於附件的表格。

(i) For Type (i) application 供第(i)類申請

(a) Total floor area involved 涉及的總樓面面積	sq.m 平方米		
(b) Proposed use(s)/development 擬議用途/發展	(If there are any Government, institution or community facilities, please illustrate on plan and specify the use and gross floor area) (如有任何政府、機構或社區設施，請在圖則上顯示，並註明用途及總樓面面積)		
(c) Number of storeys involved 涉及層數		Number of units involved 涉及單位數目	
(d) Proposed floor area 擬議樓面面積	Domestic part 住用部分 ..... sq.m 平方米	} About 約	
	Non-domestic part 非住用部分..... sq.m 平方米	} About 約	
	Total 總計 ..... sq.m 平方米	} About 約	

(e) Proposed uses of different floors (if applicable) 不同樓層的擬議用途(如適用) (Please use separate sheets if the space provided is insufficient) (如所提供的空間不足，請另頁說明)	Floor(s) 樓層	Current use(s) 現時用途	Proposed use(s) 擬議用途

(ii) *For Type (ii) application 供第(ii)類申請*

(a) Operation involved 涉及工程	☐ Diversion of stream 河道改道 ☐ Filling of pond 填塘 Area of filling 填塘面積 ..... sq.m 平方米 } About 約 Depth of filling 填塘深度 ..... m 米 } About 約 ☐ Filling of land 填土 Area of filling 填土面積 ..... sq.m 平方米 } About 約 Depth of filling 填土厚度 ..... m 米 } About 約 ☐ Excavation of land 挖土 Area of excavation 挖土面積 ..... sq.m 平方米 } About 約 Depth of excavation 挖土深度 ..... m 米 } About 約 (Please indicate on site plan the boundary of concerned land/pond(s), and particulars of stream diversion, the extent of filling of land/pond(s) and/or excavation of land) (請用圖則顯示有關土地／池塘界線，以及河道改道、填塘、填土及／或挖土的細節及/或範圍))
(b) Intended use/development 有意進行的用途／發展	

(iii) *For Type (iii) application 供第(iii)類申請*

(a) Nature and scale
性質及規模

☐ Public utility installation 公用事業設施裝置

☐ Utility installation for private project 私人發展計劃的公用設施裝置

Please specify the type and number of utility to be provided as well as the dimensions of each building/structure, where appropriate
請註明有關裝置的性質及數量，包括每座建築物/構築物(倘有)的長度、高度和闊度

Name/type of installation 裝置名稱／種類	Number of provision 數量	Dimension of each installation /building/structure (m) (LxWxH) 每個裝置／建築物／構築物的尺寸 (米) (長 x 闊 x 高)

(Please illustrate on plan the layout of the installation 請用圖則顯示裝置的布局)

(iv) *For Type (iv) application 供第(iv)類申請*

(a) Please specify the proposed minor relaxation of stated development restriction(s) and **also fill in the proposed use/development and development particulars in part (v) below** –
請列明擬議略為放寬的發展限制**並填妥於第(v)部分的擬議用途/發展及發展細節** –

☐ Plot ratio restriction 地積比率限制	From 由 ..... to 至 .....
☐ Gross floor area restriction 總樓面面積限制	From 由 .....sq. m 平方米 to 至 .....sq. m 平方米
☐ Site coverage restriction 上蓋面積限制	From 由 .....% to 至 ..... %
☐ Building height restriction 建築物高度限制	From 由 .....m 米 to 至 ..... m 米 From 由 ..... mPD 米 (主水平基準上) to 至 .....mPD 米 (主水平基準上) From 由 ..... storeys 層 to 至 ..... storeys 層
☐ Non-building area restriction 非建築用地限制	From 由 .....m to 至 ..... m
☐ Others (please specify) 其他（請註明）	.....

(v) *For Type (v) application 供第(v)類申請*

(a) Proposed use(s)/development 擬議用途/發展	Proposed Underground Public Vehicle Park (excluding container vehicle) (Please illustrate the details of the proposal on a layout plan 請用平面圖說明建議詳情)

(b) Development Schedule 發展細節表

Proposed gross floor area (GFA) 擬議總樓面面積	Not more than 630 sq.m 平方米	☐About 約
Proposed plot ratio 擬議地積比率	Not more than 0.04	☐About 約
Proposed site coverage 擬議上蓋面積	Not more than 4 %	☐About 約
Proposed no. of blocks 擬議座數	11	
Proposed no. of storeys of each block 每座建築物的擬議層數	Not more than 2 storeys 層 ☑ include 包括 2 storeys of basements 層地庫 ☐ exclude 不包括 ..... storeys of basements 層地庫	
Proposed building height of each block 每座建築物的擬議高度	..... mPD 米(主水平基準上)	☐About 約
	Not more than 6m above ground level ~~m 米~~	☐About 約

☐ ~~Domestic part 住用部分~~

GFA 總樓面面積 ..... sq. m 平方米 ☐About 約

number of Units 單位數目 .....

average unit size 單位平均面積 .....sq. m 平方米 ☐About 約

~~estimated number of residents 估計住客數目~~ .....

☑ Non-domestic part 非住用部分 GFA 總樓面面積

☐ eating place 食肆 ..... sq. m 平方米 ☐About 約

☐ hotel 酒店 ..... sq. m 平方米 ☐About 約
(please specify the number of rooms 請註明房間數目) .....

☐ office 辦公室 ..... sq. m 平方米 ☐About 約

☐ shop and services 商店及服務行業 ..... sq. m 平方米 ☐About 約

☐ Government, institution or community facilities 政府、機構或社區設施 (please specify the use(s) and concerned land area(s)/GFA(s) 請註明用途及有關的地面面積／總樓面面積)
.....
.....
.....

☑ other(s) 其他 (please specify the use(s) and concerned land area(s)/GFA(s) 請註明用途及有關的地面面積／總樓面面積)
Ancillary facilities of the proposed underground public vehicle park (excluding container vehicle)on ground level: Not more than 630sq.m

☑ Open space 休憩用地 (please specify land area(s) 請註明地面面積)

☐ private open space 私人休憩用地 ..... sq. m 平方米 ☐ Not less than 不少於

☑ public open space 公眾休憩用地 ...15,165.... sq. m 平方米 ☐ Not less than 不少於

(c) Use(s) of different floors (if applicable) 各樓層的用途 (如適用)

[Block number] [座數]	[Floor(s)] [層數]	[Proposed use(s)] [擬議用途]
.....	Ground level	Open space (town park), car ramp to the underground public vehicle park and ancillary facilities (staircase, lift, ventilation facilities, E&M rooms and flood gate) of the public vehicle park
.....	.....	.....
.....	.....	.....
.....	B1/F	Public vehicle park (excluding container vehicle)
.....	B2/F	Public vehicle park (excluding container vehicle)

(d) Proposed use(s) of uncovered area (if any) 露天地方（倘有）的擬議用途
Open Space (Town Park)
.....
.....
.....
.....

7. Anticipated Completion Time of the Development Proposal 擬議發展計劃的預計完成時間

Anticipated completion time (in month and year) of the development proposal (by phase (if any)) (e.g. June 2023)
擬議發展計劃預期完成的年份及月份 (分期 (倘有)) (例：2023 年 6 月)
(Separate anticipated completion times (in month and year) should be provided for the proposed public open space and Government, institution or community facilities (if any))
(申請人須就擬議的公眾休憩用地及政府、機構或社區設施 (倘有) 提供個別擬議完成的年份及月份)

2026

8. Vehicular Access Arrangement of the Development Proposal 擬議發展計劃的行車通道安排

Any vehicular access to the site/subject building? 是否有車路通往地盤／有關建築物？	Yes 是	☑ There is an existing access. (please indicate the street name, where appropriate) 有一條現有車路。(請註明車路名稱(如適用)) Po Yap Road ☐ There is a proposed access. (please illustrate on plan and specify the width) 有一條擬議車路。（請在圖則顯示，並註明車路的闊度）
	No 否	☐
Any provision of parking space for the proposed use(s)? 是否有為擬議用途提供停車位？	Yes 是	☑ (Please specify type(s) and number(s) and illustrate on plan) 請註明種類及數目並於圖則上顯示) Private Car Parking Spaces 私家車車位: 300 Motorcycle Parking Spaces 電單車車位: 30 Light Goods Vehicle Parking Spaces 輕型貨車泊車位: 40 Medium Goods Vehicle Parking Spaces 中型貨車泊車位: Heavy Goods Vehicle Parking Spaces 重型貨車泊車位: Others (Please Specify) 其他 (請列明): Coach Parking Space: 15 Light Bus Parking Spaces: 10
	No 否	☐
Any provision of loading/unloading space for the proposed use(s)? 是否有為擬議用途提供上落客貨車位？	Yes 是	☐ (Please specify type(s) and number(s) and illustrate on plan) 請註明種類及數目並於圖則上顯示) Taxi Spaces 的士車位: Coach Spaces 旅遊巴車位: Light Goods Vehicle Spaces 輕型貨車車位: Medium Goods Vehicle Spaces 中型貨車車位: Heavy Goods Vehicle Spaces 重型貨車車位: Others (Please Specify) 其他 (請列明):
	No 否	☑

9. Impacts of Development Proposal 擬議發展計劃的影響

If necessary, please use separate sheets to indicate the proposed measures to minimise possible adverse impacts or give justifications/reasons for not providing such measures.
如需要的話，請另頁表示可盡量減少可能出現不良影響的措施，否則請提供理據/理由。

Does the development proposal involve alteration of existing building? 擬議發展計劃是否包括現有建築物的改動?	Yes 是	☐ Please provide details 請提供詳情 ....
	No 否	☑
Does the development proposal involve the operation on the right? 擬議發展是否涉及右列的工程? (Note: where Type (ii) application is the subject of application, please skip this section. 註：如申請涉及第(ii)類申請，請跳至下一條問題。)	Yes 是	☐ (Please indicate on site plan the boundary of concerned land/pond(s), and particulars of stream diversion, the extent of filling of land/pond(s) and/or excavation of land) (請用地盤平面圖顯示有關土地／池塘界線，以及河道改道、填塘、填土及／或挖土的細節及/或範圍) ☐ Diversion of stream 河道改道 ☐ Filling of pond 填塘 Area of filling 填塘面積 ..... sq.m 平方米 } About 約 Depth of filling 填塘深度 ..... m 米 } About 約 ☐ Filling of land 填土 Area of filling 填土面積 ..... sq.m 平方米 } About 約 Depth of filling 填土厚度 ..... m 米 } About 約 ☐ Excavation of land 挖土 Area of excavation 挖土面積..... sq.m 平方米 } About 約 Depth of excavation 挖土深度 .....m 米 } About 約
	No 否	☑

Would the development proposal cause any adverse impacts? 擬議發展計劃會否造成不良影響？			
	On environment 對環境	Yes 會 ☐	No 不會 ☑
	On traffic 對交通	Yes 會 ☐	No 不會 ☑
	On water supply 對供水	Yes 會 ☐	No 不會 ☑
	On drainage 對排水	Yes 會 ☐	No 不會 ☑
	On slopes 對斜坡	Yes 會 ☐	No 不會 ☑
	Affected by slopes 受斜坡影響	Yes 會 ☐	No 不會 ☑
	Landscape Impact 構成景觀影響	Yes 會 ☐	No 不會 ☑
	Tree Felling 砍伐樹木	Yes 會 ☐	No 不會 ☑
	Visual Impact 構成視覺影響	Yes 會 ☐	No 不會 ☑
	Others (Please Specify) 其他 (請列明)	Yes 會 ☐	No 不會 ☑
	_____		
	_____		
	Please state measure(s) to minimise the impact(s). For tree felling, please state the number, diameter at breast height and species of the affected trees (if possible) 請註明盡量減少影響的措施。如涉及砍伐樹木，請說明受影響樹木的數目、及胸高度的樹幹直徑及品種(倘可) Please refer to the Planning Statement and Landscape Master Plan.		

10. Justifications 理由

The applicant is invited to provide justifications in support of the application. Use separate sheets if necessary.
現請申請人提供申請理由及支持其申請的資料。如有需要，請另頁說明。

Please refer to the Planning Statement.

11. Declaration 聲明

I hereby declare that the particulars given in this application are correct and true to the best of my knowledge and belief.
本人謹此聲明，本人就這宗申請提交的資料，據本人所知及所信，均屬真實無誤。

I hereby grant a permission to the Board to copy all the materials submitted in an application to the Board and/or to upload such materials to the Board's website for browsing and downloading by the public free-of-charge at the Board's discretion.
本人現准許委員會酌情將本人就此申請所提交的所有資料複製及/或上載至委員會網站，供公眾免費瀏覽或下載。

Signature 簽署 ..... } Applicant 申請人 / ☑ Authorised Agent 獲授權代理人

BETTY S.F. HO ..... Director .....

Name in Block Letters 姓名（請以正楷填寫） Position (if applicable) 職位 （如適用）

Professional Qualification(s) 專業資格
☐ Member 會員 / ☑ Fellow of 資深會員
☐ HKIP 香港規劃師學會 / ☐ HKIA 香港建築師學會 /
☐ HKIS 香港測量師學會 / ☐ HKIE 香港工程師學會 /
☐ HKILA 香港園境師學會/ ☐ HKIUD 香港城市設計學會 /
☐ RPP 註冊專業規劃師
Others 其他 .....

on behalf of 代表 PlanArch Consultants Ltd.

PLANARCH CONSULTANTS LTD

☑ Company 公司 / ☐ Organisation Name and ~~Chop~~ (if applicable) 機構名稱及蓋章（如適用）

Date 日期 29.7.2021 ..... (DD/MM/YYYY 日/月/年)

Remark 備註

The materials submitted in an application to the Board and the Board's decision on the application would be disclosed to the public. Such materials would also be uploaded to the Board's website for browsing and free downloading by the public where the Board considers appropriate.
委員會會向公眾披露申請人所遞交的申請資料和委員會對申請所作的決定。在委員會認為合適的情況下，有關申請資料亦會上載至委員會網頁供公眾免費瀏覽及下載。

Warning 警告

Any person who knowingly or wilfully makes any statement or furnish any information in connection with this application, which is false in any material particular, shall be liable to an offence under the Crimes Ordinance.
任何人在明知或故意的情況下，就這宗申請提出在任何要項上是虛假的陳述或資料，即屬違反《刑事罪行條例》。

Statement on Personal Data 個人資料的聲明

1. The personal data submitted to the Board in this application will be used by the Secretary of the Board and Government departments for the following purposes:
委員會就這宗申請所收到的個人資料會交給委員會秘書及政府部門，以根據《城市規劃條例》及相關的城市規劃委員會規劃指引的規定作以下用途：
   (a) the processing of this application which includes making available the name of the applicant for public inspection when making available this application for public inspection; and
   處理這宗申請，包括公布這宗申請供公眾查閱，同時公布申請人的姓名供公眾查閱；以及
   (b) facilitating communication between the applicant and the Secretary of the Board/Government departments.
   方便申請人與委員會秘書及政府部門之間進行聯絡。

2. The personal data provided by the applicant in this application may also be disclosed to other persons for the purposes mentioned in paragraph 1 above.
申請人就這宗申請提供的個人資料，或亦會向其他人士披露，以作上述第 1 段提及的用途。

3. An applicant has a right of access and correction with respect to his/her personal data as provided under the Personal Data (Privacy) Ordinance (Cap. 486). Request for personal data access and correction should be addressed to the Secretary of the Board at 15/F, North Point Government Offices, 333 Java Road, North Point, Hong Kong.
根據《個人資料(私隱)條例》(第 486 章)的規定，申請人有權查閱及更正其個人資料。如欲查閱及更正個人資料，應向委員會秘書提出有關要求，其地址為香港北角渣華道 333 號北角政府合署 15 樓。

For Developments involving Columbarium Use, please also complete the following:
如發展涉及靈灰安置所用途，請另外填妥以下資料:

Ash interment capacity 骨灰安放容量@

Maximum number of sets of ashes that may be interred in the niches
在龕位內最多可安放骨灰的數量 _____

Maximum number of sets of ashes that may be interred other than in niches
在非龕位的範圍內最多可安放骨灰的數量 _____

Total number of niches 龕位總數 _____

Total number of single niches
單人龕位總數 _____

Number of single niches (sold and occupied)
單人龕位數目 (已售並佔用) _____

Number of single niches (sold but unoccupied)
單人龕位數目 (已售但未佔用) _____

Number of single niches (residual for sale)
單人龕位數目 (待售) _____

Total number of double niches
雙人龕位總數 _____

Number of double niches (sold and fully occupied)
雙人龕位數目 (已售並全部佔用) _____

Number of double niches (sold and partially occupied)
雙人龕位數目 (已售並部分佔用) _____

Number of double niches (sold but unoccupied)
雙人龕位數目 (已售但未佔用) _____

Number of double niches (residual for sale)
雙人龕位數目 (待售) _____

Total no. of niches other than single or double niches (please specify type)
除單人及雙人龕位外的其他龕位總數 (請列明類別)

_____

Number. of niches (sold and fully occupied)
龕位數目 (已售並全部佔用) _____

Number of niches (sold and partially occupied)
龕位數目 (已售並部分佔用) _____

Number of niches (sold but unoccupied)
龕位數目 (已售但未佔用) _____

Number of niches (residual for sale)
龕位數目 (待售) _____

Proposed operating hours 擬議營運時間 _____

_____

@ Ash interment capacity in relation to a columbarium means –
就靈灰安置所而言，骨灰安放容量指：
- the maximum number of containers of ashes that may be interred in each niche in the columbarium;
每個龕位內可安放的骨灰容器的最高數目;
- the maximum number of sets of ashes that may be interred other than in niches in any area in the columbarium; and
在該靈灰安置所並非龕位的範圍內，總共最多可安放多少份骨灰；以及
- the total number of sets of ashes that may be interred in the columbarium.
在該骨灰安置所內，總共最多可安放多少份骨灰。

Gist of Application 申請摘要

(Please provide details in both English and Chinese as far as possible. This part will be circulated to relevant consultees, uploaded to the Town Planning Board's Website for browsing and free downloading by the public and deposited at the Planning Enquiry Counters of the Planning Department for general information.)
(請盡量以英文及中文填寫。此部分將會發送予相關諮詢人士、上載至城市規劃委員會網頁供公眾免費瀏覽及下載及存放於規劃署規劃資料查詢處以供一般參閱。)

Application No. 申請編號	(For Official Use Only) (請勿填寫此欄)
Location/address 位置／地址	Area 66, Tseung Kwan O
Site area 地盤面積	16,475 sq. m 平方米 ☑ About 約 (includes Government land of 包括政府土地 16,475 sq. m 平方米 ☑ About 約)
Plan 圖則	Approved Tseung Kwan O Outline Zoning Plan No. S/TKO/28
Zoning 地帶	"Open Space"
Applied use/ development 申請用途/發展	Proposed Underground Public Vehicle Park (excluding container vehicle)

(i) Gross floor area and/or plot ratio 總樓面面積及／或地積比率		sq.m 平方米	Plot Ratio 地積比率
	Domestic 住用	☐ About 約 ☐ Not more than 不多於	☐About 約 ☐Not more than 不多於
	Non-domestic 非住用	☐ About 約 630 ☑ Not more than 不多於	☐About 約 0.04 ☑Not more than 不多於
(ii) No. of block 幢數	Domestic 住用		
	Non-domestic 非住用	11	
	Composite 綜合用途		

(iii)	Building height/No. of storeys 建築物高度／層數	Domestic 住用	m 米 ☐ (Not more than 不多於)
			mPD 米(主水平基準上) ☐ (Not more than 不多於)
			Storeys(s) 層 ☐ (Not more than 不多於) (☐ *Include 包括* / ☐ *Exclude 不包括* ☐ *Carport 停車間* ☐ *Basement 地庫* ☐ *Refuge Floor 防火層* ☐ *Podium 平台*)
		Non-domestic 非住用	6m above ground level m 米 ☑ (Not more than 不多於)
			mPD 米(主水平基準上) ☐ (Not more than 不多於)
			2 Storeys(s) 層 ☑ (Not more than 不多於) (☑ *Include 包括* / ☐ *Exclude 不包括* ☐ *Carport 停車間* 2 ☑ *Basement 地庫* ☐ *Refuge Floor 防火層* ☐ *Podium 平台*)
		Composite 綜合用途	m 米 ☐ (Not more than 不多於)
			mPD 米(主水平基準上) ☐ (Not more than 不多於)
			Storeys(s) 層 ☐ (Not more than 不多於) (☐ *Include 包括* / ☐ *Exclude 不包括* ☐ *Carport 停車間* ☐ *Basement 地庫* ☐ *Refuge Floor 防火層* ☐ *Podium 平台*)
(iv)	Site coverage 上蓋面積		4 % ☑ About 約
(v)	No. of units 單位數目		
(vi)	Open space 休憩用地	Private 私人	~~sq.m 平方米~~ ☐ Not less than 不少於
		Public 公眾	15,165 sq.m 平方米 ☑ Not less than 不少於

(vii) No. of parking spaces and loading / unloading spaces 停車位及上落客貨車位數目	Total no. of vehicle parking spaces 停車位總數	395
	Private Car Parking Spaces 私家車車位	300
	Motorcycle Parking Spaces 電單車車位	30
	Light Goods Vehicle Parking Spaces 輕型貨車泊車位	40
	Medium Goods Vehicle Parking Spaces 中型貨車泊車位	
	Heavy Goods Vehicle Parking Spaces 重型貨車泊車位	
	Others (Please Specify) 其他 (請列明)	
	Coach Parking Spaces	15
	Light Bus Parking Spaces	10
	Total no. of vehicle loading/unloading bays/lay-bys 上落客貨車位／停車處總數	
	Taxi Spaces 的士車位	
	Coach Spaces 旅遊巴車位	
	Light Goods Vehicle Spaces 輕型貨車車位	
	Medium Goods Vehicle Spaces 中型貨車位	
	Heavy Goods Vehicle Spaces 重型貨車車位	
	Others (Please Specify) 其他 (請列明)	

Submitted Plans, Drawings and Documents 提交的圖則、繪圖及文件

	Chinese 中文	English 英文
Plans and Drawings 圖則及繪圖		
Master layout plan(s)/Layout plan(s) 總綱發展藍圖／布局設計圖	☐	☑
Block plan(s) 樓宇位置圖	☐	☐
Floor plan(s) 樓宇平面圖	☐	☑
Sectional plan(s) 截視圖	☐	☑
Elevation(s) 立視圖	☐	☐
Photomontage(s) showing the proposed development 顯示擬議發展的合成照片	☐	☑
Master landscape plan(s)/Landscape plan(s) 園境設計總圖／園境設計圖	☐	☑
Others (please specify) 其他（請註明）	☐	☐
Reports 報告書		
Planning Statement/Justifications 規劃綱領/理據	☐	☑
Environmental assessment (noise, air and/or water pollutions) 環境評估（噪音、空氣及／或水的污染）	☐	☑
Traffic impact assessment (on vehicles) 就車輛的交通影響評估	☐	☑
Traffic impact assessment (on pedestrians) 就行人的交通影響評估	☐	☐
Visual impact assessment 視覺影響評估	☐	☐
Landscape impact assessment 景觀影響評估	☐	☑
Tree Survey 樹木調查	☐	☑
Geotechnical impact assessment 土力影響評估	☐	☐
Drainage impact assessment 排水影響評估	☐	☑
Sewerage impact assessment 排污影響評估	☐	☑
Risk Assessment 風險評估	☐	☐
Others (please specify) 其他（請註明）	☐	☐

Note: May insert more than one「✔」. 註：可在多於一個方格內加上「✔」號

Note: The information in the Gist of Application above is provided by the applicant for easy reference of the general public. Under no circumstances will the Town Planning Board accept any liabilities for the use of the information nor any inaccuracies or discrepancies of the information provided. In case of doubt, reference should always be made to the submission of the applicant.

註： 上述申請摘要的資料是由申請人提供以方便市民大眾參考。對於所載資料在使用上的問題及文義上的歧異，城市規劃委員會概不負責。若有任何疑問，應查閱申請人提交的文件。

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Suite 1710, Concordia Plaza,
1 Science Museum Road,
Tsim Sha Tsui East,
Kowloon, Hong Kong.
Tel : (852) 2802-7203
Fax: (852) 2620-6022
E-mail: pac@planarch.com.hk

PlanArch Consultants Ltd.
建港規劃顧問有限公司

Our Ref.: pa/tko/2010620

Secretary
Town Planning Board
15/F., North Point Government Offices
No. 333, Java Road
North Point, Hong Kong
(Attn.: Mr Raymond KAN)

29 July 2021

Dear Sir,

S16 Application for Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O

On behalf of the applicant, Transport Department, we would like to apply to the Town Planning Board under S16 of the Town Planning Ordinance for proposed underground public vehicle park (excluding container vehicle) at the captioned site.

Attached please find the authorisation letter from the applicant, 5 duly signed application forms and 8 hardcopies of the planning statement with executive summary in support of this application for your consideration.

We should be grateful if you can let us have the Government comments on the captioned application for our necessary action.

Should you have any questions, please feel free to contact the undersigned.

Thank you for your kind attention.

Yours faithfully,
For and on behalf of
PlanArch Consultants Ltd.

Betty S. F. Ho
w/e.
c.c. client

RECEIVED
29 JUL 2021
Town Planning Board

CERTIFIED ISO 9001 UKAS 001

S16 Application for Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O

Transport Department
The Government of the Hong Kong Special Administrative Region

PlanArch Consultants Ltd.
HoWang SPB Ltd.
SCENIC Landscape Studio Limited
BeeXergy Consulting Limited

July 2021

Executive Summary

This planning statement is prepared in support of the S16 application to the Town Planning Board (TPB) for proposed underground public vehicle park (excluding container vehicles) underneath the town park in Area 66, Tseung Kwan O. The application site has an area of about 16,475m^2.

The application site is zoned "Open Space" on the approved Tseung Kwan O Outline Zoning Plan (OZP) No. S/TKO/28 gazetted on 18.6.2021. It will be developed into a town park to serve the community in the District. As the site works for the town park development has not yet commenced, the application site is temporarily available and used as a temporary open-air car park with 788 car parking spaces under short term tenancy. Upon the development of the open space, the site will no longer be available for using as a temporary public car park. After reviewing the need for vehicle parking facilities in Tseung Kwan O, the applicant, Transport Department, considers it appropriate to provide about 395 nos. of vehicle parking spaces in a 2-storey basement underneath the town park at the application site. According to the Notes of the OZP, "Public Vehicle Park (excluding container vehicles)" is a column 2 use which requires permission from the Town Planning Board.

The proposed underground public vehicle park is in line with the planning intention of the application site and it is compatible with the surrounding uses. By providing about 395 nos. of car parking spaces, the proposed development can partially cater for the considerable demand for car parking spaces, and alleviate the illegal parking in the area. Furthermore, it can optimise the use of scarce land resources to address the community needs by adopting "Single Site, Multiple Uses" model for both the open space and the underground public vehicle park (except container vehicles). While there are small and subtle ancillary facilities supporting the public vehicle park located on the ground level, they will be suitably located and well buffered by lush planting to ensure enjoyment of the visitors.

The proposed development complies with relevant regulations and guidelines, including TPB Guideline No. 8 on the criteria for underground development of car parking facilities beneath open space under S.16 planning application and Chapter 4 of the Hong Kong Planning Standards and Guidelines (HKPSG) on the design of open space. Moreover, according to the conducted technical assessments, the proposed underground vehicle park will not cause significant adverse traffic, environmental, drainage and sewerage impacts to the surrounding area.

In view of the above, we would be grateful that members of the Board and relevant Government departments will give favourable consideration to approve this application.

行政摘要

本計劃書旨在支持根據城市規劃條例第 16 條各擬議於將軍澳第 66 區的市鎮公園下作地下公眾停車場 (貨櫃車除外)。該地盤面積為約 16,475 平方米。

依據於 2021 年 6 月 18 日公布的將軍澳分區計劃大綱核准圖編號 S/TKO/28，申請地盤位於「休憩用地」地帶。該申請地盤將會發展成一個市鎮公園以滿足區內

市民需要。由於市鎮公園的建築工程尚未展開，該地盤暫時閒置並可透過短期租約形式用作臨時露天公眾停車場，提供約 788 個泊車位。當該處發展成休憩用地後，該地盤將不可再作臨時公眾停車場用途。經檢視將軍澳區內對泊車設施的需求，作為申請人的運輸署認為適合在申請地盤的市鎮公園底下發展一個兩層地下停車場，提供約 395 個泊車位。根據分區計劃大綱草圖的註釋，「公眾停車場 (貨櫃車除外) 」為第二欄用途，須獲城市規劃委員會（城規會）批准。

擬議的地下公眾停車場符合申請地盤的規劃意向，並與附近環境相容。擬議發展所提供的約 395 個泊車位能照顧區內市民對泊車位的需要，並紓緩區內違例泊車的情況。擬議用途採取了「一地多用」的發展模式，善用珍貴的土地資源，提供休憩用地及地下公眾停車場 (貨櫃車除外)的兩種用途，以照顧社區需要。擬議的公眾停車場不會對市鎮公園帶來不良影響。地面會有一些細小及不起眼的公眾停車場附屬設施，它們會被放在適當位置，並會有茂密的植物作緩衝之用，以確保市民能享受休憩空間。

擬議發展符合相關的規例和指引，包括城規會規劃指引編號 8 及香港規劃與標準第 4 章。另外，根據已進行的技術評估，擬議的地下公眾停車場不會為該區就交通、環境、渠務及排污帶來重大的負面影響。

依以上理據，敬希城規會委員及有關政府部門批准此申請。

Table of Contents

List of Appendices

1. INTRODUCTION

1.1 On behalf of Transport Department (TD), PlanArch Consultants Ltd. submits a S16 application to the Town Planning Board (TPB) for proposed underground public vehicle park (excluding container vehicles) in Area 66, Tseung Kwan O.

1.2 The application site has a site area of about 16,475m^2. It is zoned "Open Space" ("O") on the approved Tseung Kwan O Outline Zoning Plan (OZP) No. S/TKO/28 gazetted on 18.6.2021. The proposed development will use the underground space of a town park as a public vehicle park on B1/F and B2/F. According to the Notes of the OZP, "Park and Garden" use is always permitted within the "O" zone, and "Public Vehicle Park (excluding container vehicle)" is a Column 2 use which requires planning permission from the Town Planning Board (TPB).

1.3 At present, as the site works for the town park development has not yet commenced, the application site is temporarily available and used as a temporary public open-air car park with 788 nos. of car parking spaces under short term tenancy. Upon the development of the open space, the site will no longer be available for using as a temporary public car park. After reviewing the need for vehicle parking facilities in Tseung Kwan O, TD considers it appropriate to provide about 395 nos. of vehicle parking spaces in a 2-storey basement underneath the town park at the application site.

1.4 In support of the application, this planning statement sets out the site background, development proposal of the proposed underground vehicle park and gives justifications for the proposal. The structure of the planning statement is as follows:

Section 2: Site Context

Section 3: Development Proposal

Section 4: Planning Justifications

Section 5: Conclusion

2. SITE CONTEXT

2.1 Location

The application site is a piece of government land located in Area 66 south of Po Yap Road, Tseung Kwan O (**Plan 1**). It has an area of about 16,475m^2. The application site is bounded by Po Yap Street in the north and Chi Shin Street in the south (**Plan 2**).

2.2 Land Use Zoning and Planning Intention

The application site falls within the "Open Space" ("O") zone on the approved Tseung Kwan O Outline Zoning Plan (OZP) No. S/TKO/28 gazetted on 18.6.2021, where 'Park and Garden' is always permitted (**Plan 1**).

According to the Notes of the OZP, the planning intention for "O" zone is "*primarily for the provision of outdoor open-air public space for active and/or passive recreational uses serving the needs of local residents as well as the general public*".

According to the Explanatory Statement of the OZP, the application site is proposed for "*an open/green plaza serving as a recreational space for nearby residents and visitors and a buffer between MTR Tseung Kwan O Station and the future residential developments in Area 66*".

Moreover, "*[a] Central Avenue at Area 66* (i.e., the application site) *is proposed between the open/green plaza south of Po Yap Road and the town plaza which will form a major linkage between Town Centre North and the waterfront area. The proposed Central Avenue is intended primarily for the provision of a landscaped corridor in the form of open space, which would be flanked by retail development edges on both sides of the adjacent R(A) zones and landscaped to a high quality*".

The "Public Vehicle Park (excluding container vehicle)" use is a column 2 use which requires permission from the TPB.

2.3 Existing Land Use

The application site is currently a temporary public open-air car park providing 788 nos. of parking spaces (**Photo 1)**.

2.4 The Surrounding Area

The application site is located within a residential neighbourhood in Tseung Kwan O Town Centre South. It is surrounded by a number of high rise residential developments above 2 or 3 storeys of shopping podium. For example, The Wings, Park Central and The Grandoise to its immediate north across Po Yap Road, The Wings IIIA to its immediate west, and The Wings II and The Parkside to its immediate east (**Plan 1 and Photo 2**). Tseung Kwan O MTR Station is found to its immediate north

across Po Yap Road (**Photo 3**).

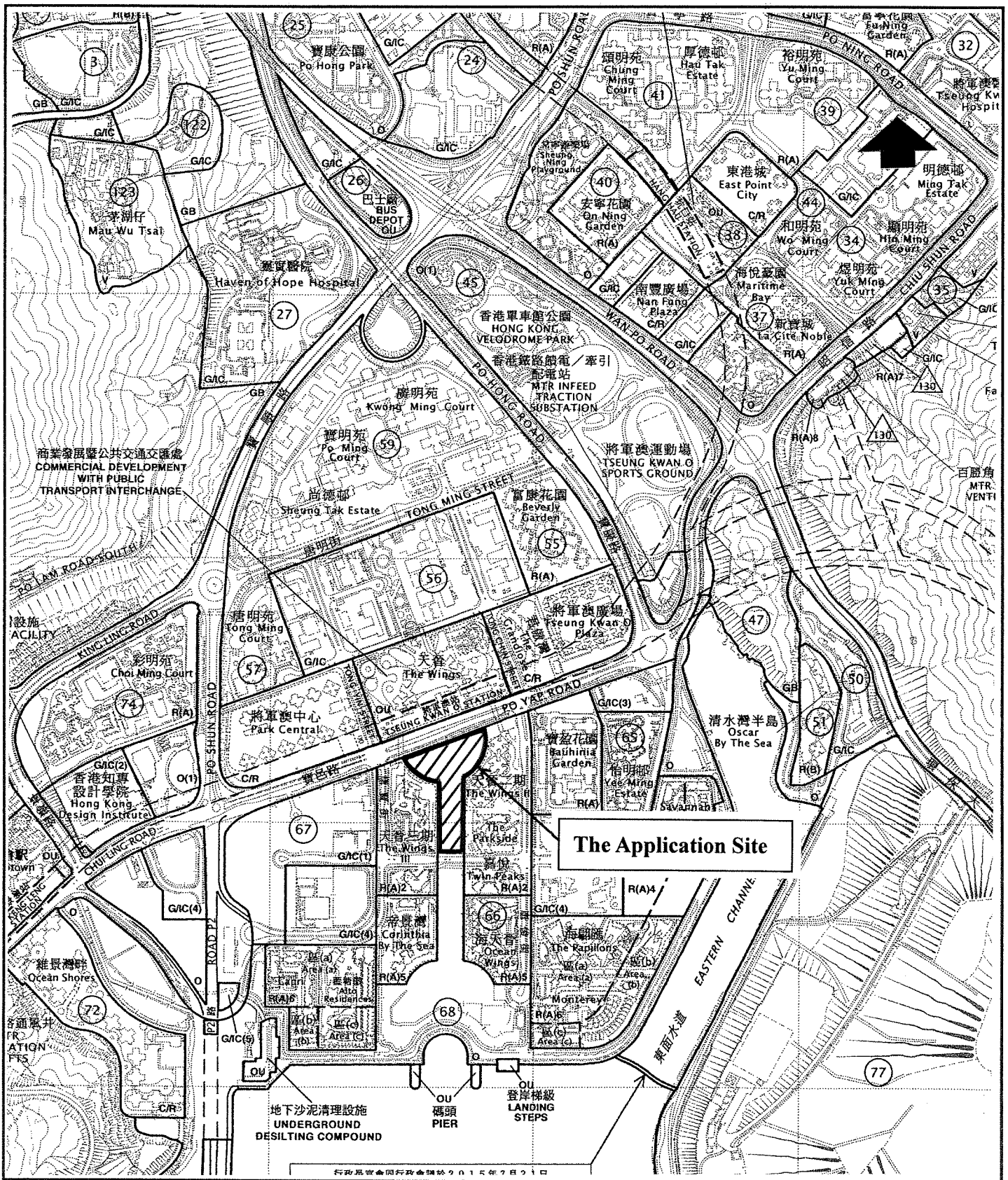
An area zoned "O" in Area 68, Tseung Kwan O is situated to the immediate south of the application site. It will link up a waterfront promenade (**Photo 4**). It is at present a piece of vacant government land. Together with the open space at the application site in Area 66, Tseung Kwan O, they will form the Town Park with a Central Avenue to connect to the waterfront promenade.

A large area zoned "Government, Institution or Community (1)" ("GIC(1)") and "GIC(4)" to the west of the application site is under construction , it will be developed to be a Civil Node with a cluster of government buildings, including Joint-user Government Office Building (JUB) and Joint-user Complex (JUC), and French International School. Several schools, including Deborah English Kindergarten, Tseung Kwan O Methodist Primary School and Evangal College, are located to the farther east of the application site buffered by residential developments (**Photo 5**).

2.5 Site Accessibility

The application site abuts Po Yap Road in the north and Chi Shin Street in the south. Existing access to the application site is made from Chi Shin Street. However, the access to the proposed underground vehicle park will be made from Po Yap Road in the north (**Plan 3 and Photo 6**).

The site is well served by public transportation. It is in close proximity to the Tseung Kwan O MTR Station and Tseung Kwan O Station Public Transport Interchange to its immediate north across Po Yap Street (**Photo 3**).



Plan Extracted from Tseung Kwan O Outline Zoning Plan NO. S/TKO/28 approved on 1.6.2021

Location Plan

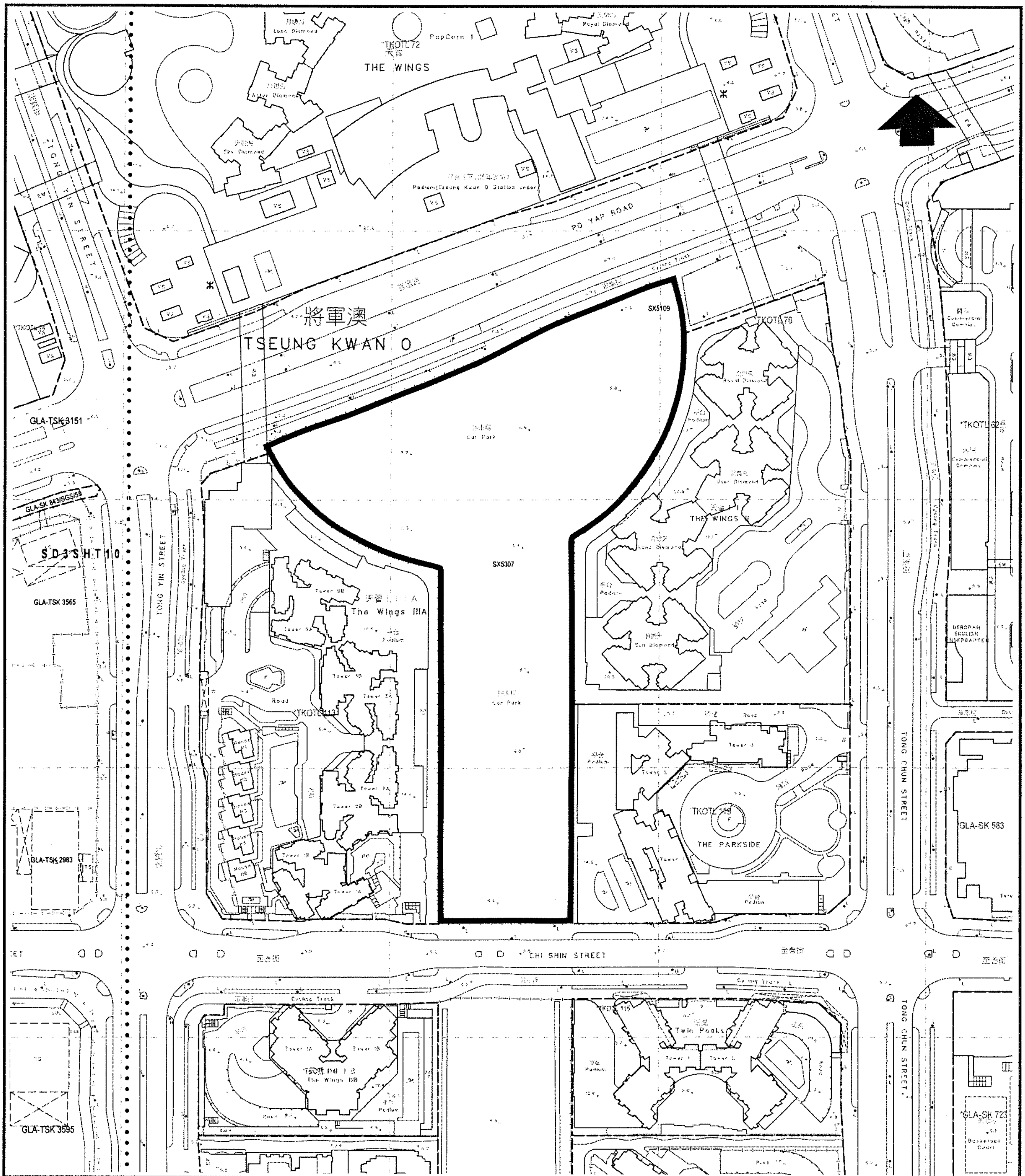
Proposed Underground Public Vehicle Park (Excluding Container Vehicle) under Town Park in Area 66, Tseung Kwan O

0 100 200 300 400 500 METRES

Plan 1

PlanArch Consultants Ltd.

Revision: Date: 5.7.2021



Legend

The Application Site

Base Plan Extracted from Lot Index Plan No. ags_S00000065472_0001, Reference No. 11-NE-25B, 12-NW-21A , 11-NE-25D and 12-NW-21C Prepared by Land Information Centre on 25.1.2021

Site Plan

Proposed Underground Public Vehicle Park (Excluding Container Vehicle) in Town Park in Area 66, Tseung Kwan O

0 20 40 60 80 100 METRES

Plan 2

PlanArch Consultants Ltd.

Revision: Date: 26.1.2021

Photo 1
The application site is currently a temporary public car park which accommodates 788 nos. of parking spaces.

Photo 2
It is surrounded by a number of high rise residential developments above 2 to 3 storeys of shopping podiums.

Photo 3
Tseung Kwan O MTR Station is found to the immediate north of the application site across Po Yap Road.

Photo 4
Area 68, Tseung Kwan O situated to the immediate south of the application site will be developed into a town park.

Photo 5
The large area zoned "GIC(1)" and "GIC(4)" to the west of the application site is under construction and will be developed to be a Civil Node with a cluster of government buildings and a proposed French International School.

Photo 6
Access to the proposed underground vehicle park will be made from Po Yap Street.

3. DEVELOPMENT PROPOSAL

3.1 Proposed Underground Public Vehicle Park

It is intended to develop a public vehicle park underneath the open space on B1/F and B2/F at the application site (**Plans 3 to 6**). Reference is made to the TPB Guideline PG No. 8 (TPB PG No. 8) which sets out the main planning criteria for underground development of car parking facilities beneath open space under S.16 planning application, and the proposed development conforms with the listed criteria.

The proposed 2-storey underground vehicle park will provide about 395 nos. of parking spaces, including 300 nos. for private cars, 30 nos. for motorcycles, 40 nos. for light good vehicles, 15 nos. for coaches and 10 nos. for light buses (**Plans 4 to 6**). According to the Joint Practice Notes (JPN) No. 4 adopted by Buildings Department (BD), Lands Department (LandsD) and Planning Department (PlanD), the gross floor area (GFA) of the underground public vehicle park is non-accountable. The access to the vehicle park will be made from Po Yap Road via an ingress/egress at the northwest of the application site.

A total of 11 structures which support and are ancillary to the underground public vehicle park are proposed on ground level. An electrical and mechanical (E&M) structure will be provided to accommodate the air ventilation facilities for the underground car park, with exhaust facing north, as well as electricity generation room. The other 10 structures are staircases and lifts linking to the basement vehicle park (**Plan 3**). They will have a GFA of not more than 630m^2, a plot ratio of not more than 0.4 and a site coverage of not more than 4% of the application site. Having considered the required space and headroom for E&M facilities/ air ventilation facilities, the maximum building height of the E&M structure will be not more than 6m, and the maximum building height of the staircases/ lifts will be not more than 4.5m.

The development parameters of the development proposal is shown below:

Site Area	About 16,475m^2
GFA	Ground level: Not more than 630m^2
	B1/F: Not more than 13,000m^2 (exempted) [1]
	B2/F: Not more than 13,000m^2 (exempted) [1]
Plot Ratio	Not more than 0.0.4
Site Coverage	Not more than 4%
No. of Structures	11
Building Height (above ground level)	E&M structure (No. 1 on **Plan 3**): Not more than 6 m Staircases/ Lifts (Nos. 2 to 11 on **Plan 3**): Not more than 4.5m

Floors	**Uses**
Ground Level	Open space (town park), entrance/ ramp to the basement public vehicle park and ancillary facilities of the public vehicle park
B1/F	Public vehicle park
B2/F	Public vehicle park
Number of Parking Space	395 Private Car 300 Motorcycle 30 Light Goods Vehicle 40 Coach 15 Light Bus 10

[1] The GFA for underground public carpark are exempted from GFA calculation according to JPN No. 4.

3.2 Demand for Public Vehicle Park

As the site works for the town park development has not yet commenced, the application site was temporarily available and used at present as a temporary public vehicle park for 788 nos. of parking spaces under short term tenancy to temporarily alleviate the shortage of parking spaces in Tseung Kwan O south. Upon the development of the open space, the site will no longer be available for using as a temporary public car park.

The proposed development is expected to begin construction in 2023, and the short term tenancy agreement for the existing open-air temporary vehicle park is expected to be terminated by then for the development.

While TD has been investigating different means to address the parking demand in the area, the shortage in parking spaces can be addressed through a number of planned developments, including the JUB in the Area 67, Tseung Kwan O which will provide over 300 nos. of parking spaces and is scheduled for completion in 2025. TD will also explore to accommodate the local parking demand in the public vehicle parks in the Town Park in Area 66, Tseung Kwan O and the planned JUC in Area 67, Tseung Kwan O. The proposed development at the application site will provide about 395 nos. of parking spaces at the two basement levels beneath the open space. Further basement construction is not desirable as it is cost ineffective and will delay the implementation programme of the open space at the site. TD will explore measures to address the parking needs in the district during the construction period as far as practicable.

3.3 Road Improvement Work Associated with the Public Vehicle Park

Under the proposed development, an improvement scheme for the junction of Po Yap Road/ Tong Yin Street is designed in order to improve its performance and ensure only minimal traffic impact will be caused. The proposed scheme includes adoption of staggered pedestrian crossings on each approach arm with road widening and modification of road markings for vehicle turning in signalized junctions. Please refer to Figure 5.5 in the TIA report (**Appendix I**) for the proposed scheme.

The existing straight crossing will be modified into staggered pedestrian crossings to improve junction performance. Existing central divider at the western entry arm along Po Yap Road will be modified for road widening and transforming the existing three entry lanes to total four entry lanes. Road markings on the entry arms at the north, west, and south will be modified accordingly. Traffic signals and street furniture will be re-provided accordingly. The method of control will be modified to take into account the staggered pedestrian crossing arrangement to improve the junction performance.

According to the TIA (**Appendix I**), with the implementation of the proposed modification scheme to improve the performance of the junction of Po Yap Road/ Tong Yin Street, all the concerned road junctions will be operated satisfactorily. The local and strategic road network will not be disturbed by the proposed public vehicle park. As a result, the proposed public vehicle park will not generate adverse traffic impact to the area.

Please refer to **Appendix I** for the TIA report.

3.4 Design and Landscaping on Ground Level

It should be noted that the town park is not a subject of the application. Nonetheless, the initial design concept of the open space are proposed. The design concept of the proposed town park is “Different Form of the Water” and it tallies with that of the Town Park in Area 68, Tseung Kwan O, as an integrated design and development. At the northern part of the town park in the application site, a round-shaped piazza for Tai Chi practice or other activities is proposed. Two areas of extensive lawns located in the middle part of the town park, to provide abundant space for the visitors to freely enjoy leisure activities such as picnic (**Plan 3**).

There are several small and subtle structures for staircases/lifts, E&M/ ventilation facilities ancillary to the basement vehicle park scattered in suitable areas of the extensive open space. The structures will be well-buffered by lush vegetation and designed with landscaping elements such as climbers to enhance their visual integrity with the open space and surrounding uses.

Tall trees will be planted to separate the vehicular ingress/egress to the underground vehicle park from the adjacent residential developments. The landscaping can enhance the visual quality and mitigate potential adverse environmental impacts to the nearby residential neighbourhoods.

Please refer to **Appendix II** for the Landscape Master Plan.

3.5 Tree Preservation Proposal

A total of 7 existing trees are identified at the northern and north eastern boundaries of the application site. All of them are common exotic species, including 6 nos. of *Leucaena leucocephala (銀合歡)* and 1 no. of *Aleurites moluccana (石栗).* Since these trees will be affected by the construction works and are not good candidates for transplantation owing to a range of factors, they are recommended to be felled. A total of 14 good quality heavy standard trees will be newly planted in at-grade planters, resulting in a compensatory planting ratio (by number) of 2:1.

Please refer to **Appendix II** for the Landscape Master Plan.

3.6 Environmental Mitigation Measures

Appropriate environmental mitigation measures will be implemented to ensure the proposed development will not create adverse noise, drainage and sewerage impacts to the surrounding area. Please refer to **Appendix III** for the Preliminary Environmental Review.

Air Quality

According to the conducted air quality impact assessment, the proposed underground vehicle park is expected to generate insignificant impact on the air quality in the area. Its impact on air quality will be further minimised by due implementation of mitigation measures during both construction and operation stages. No adverse impact on air quality of the surrounding area from the proposed development is anticipated.

On the other hand, sufficient buffer distance will be provided in between the proposed town park and major roads nearby in accordance with recommendations of Hong Kong Planning Standards and Guidelines (HKPSG)'s *Chapter 9 on Environment* to ensure the open space users will not be subject to unsatisfactory air quality.

Noise

During the construction stage, proper measures such noise barriers and enclosures will be adopted and no adverse noise impact will be caused. During the operation stage, most of the E&M facilities which are potential noise sources will be put underground and thus no noise impact is envisaged, and the ventilation facilities and E&M rooms on

ground level will be designed with proper noise mitigation measures. The noise impact of vehicles using the public vehicle park will be insignificant. With the proper design and implementation of the mitigation measures, the predicted noise impact generated by the proposed development will comply with relevant noise criteria. The proposed development will not result in any adverse noise impact to the surrounding environment.

Water Quality

During the construction, appropriate water pollution control measures including sedimentation tank and adoption of chemical toilet will be implemented on site to handle the construction site runoff and wastewater generated from construction activities properly and to prevent water pollution.

During the operation of the proposed development, proper drainage and sewerage measures will be adopted to properly handle to site runoff and wastewater and thus guarantee the water quality.

No adverse impact on water quality from the proposed development during construction stage and operation period is anticipated.

Waste Management

It is anticipated that most of the waste will be generated during the construction stages, including construction and demolition (C&D) materials, packaging materials and chemical waste; while operation stage will likely result in a small amount of general refuse.

All wastes will be properly handled and recycled in accordance with relevant waste management regulations and guidelines. Practice of avoiding, minimising and recycling waste will be adopted to be in line with Government's position on waste minimisation. According to the conducted PER, with the implementation of good waste management practices, no adverse environmental impact is anticipated to arise from the storage, handling, transportation and disposal of wastes.

3.7 Drainage Facilities

Referring to the Drainage Impact Assessment (DIA) report (**Appendix IV**), two existing public u-channels are found at the north and south of the application site respectively, where the surface runoff of the future open space will be discharged. The application site is not a flooding black spot, the existing drainage system is adequate to handle the stormwater discharged from the application site. A flood gate will be installed at the entrance of the public vehicle park in order to avoid flooding within the underground area.

The proposed development will not affect the runoff load to the existing drainage system,

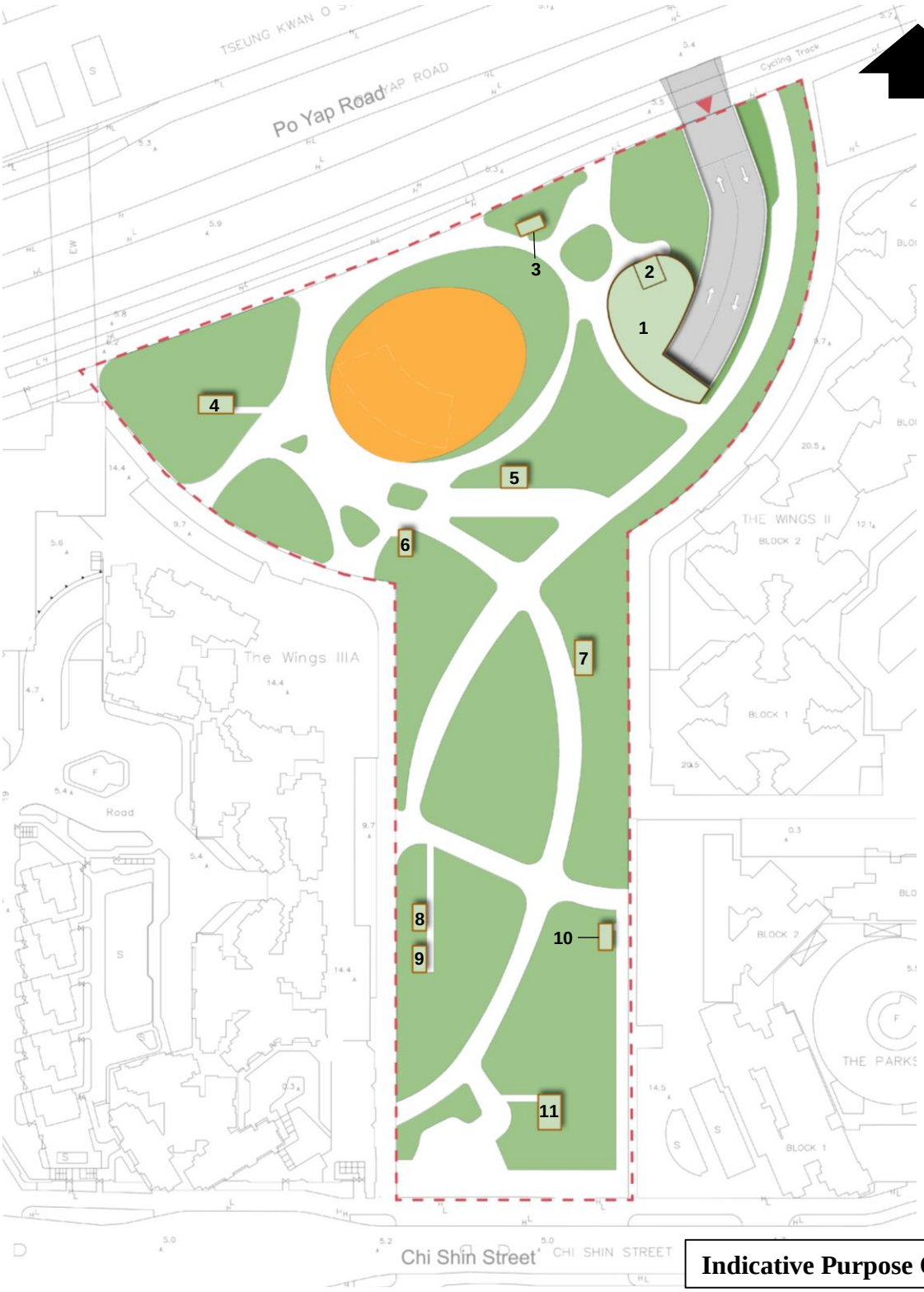
and will not increase in the flooding susceptibility of the adjacent areas. Therefore, the proposed development will not result in any adverse impact to the drainage system in the area.

Please refer to **Appendix IV** for the DIA report.

3.8 Sewerage Facilities

For the proposed development, the main source of sewage will be the wastewater for flushing and cleaning. The amount is expected minimal due to the limited number of staff. The proposed sewage facilities will be connected to the existing public sewer near the application site. As the sewage generated by the proposed development will be of insignificant amount, the public sewer will have sufficient capacity to contain the sewage load, and no adverse sewage impact will be caused by the proposed development.

Please refer to **Appendix V** for the Sewerage Impact Assessment (SIA).



Indicative Purpose Only

Legend

- Application Site
- Landscaping Area
- Piazza
- Car Ramp
- 1 E&M Facilities
- 2 - 11 Staircases / Lifts

Layout Plan for Ground Level

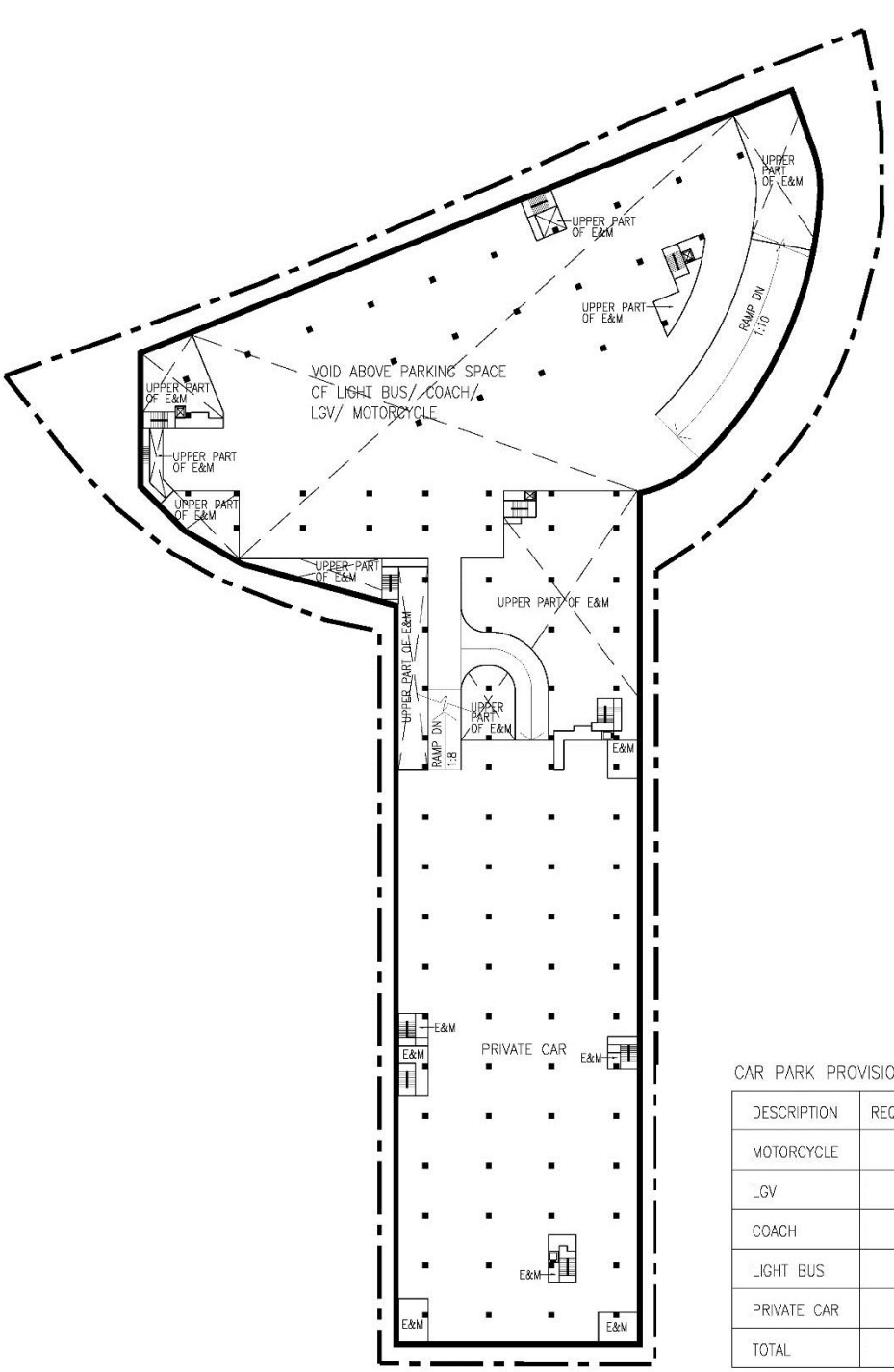
Proposed Underground Public Vehicle Park
(Excluding Container Vehicle)
in Town Park
in Area 66, Tseung Kwan O

0 10 20 30 40 50 METRES

Plan 3

PlanArch Consultants Ltd.

Revision: Date: 12.7.2021



CAR PARK PROVISION SUMMARY TABLE

DESCRIPTION	REQUIREMENT	PROVISION B1/F	PROVISION B2/F
MOTORCYCLE	30		30
LGV	40		40
COACH	15		15
LIGHT BUS	10		10
PRIVATE CAR	300	148+2(A)	147+3(A)
TOTAL	395	395	

Indicative Purpose Only

Legend

Application Site

Floor Boundary

Basement Level 1 Layout Plan

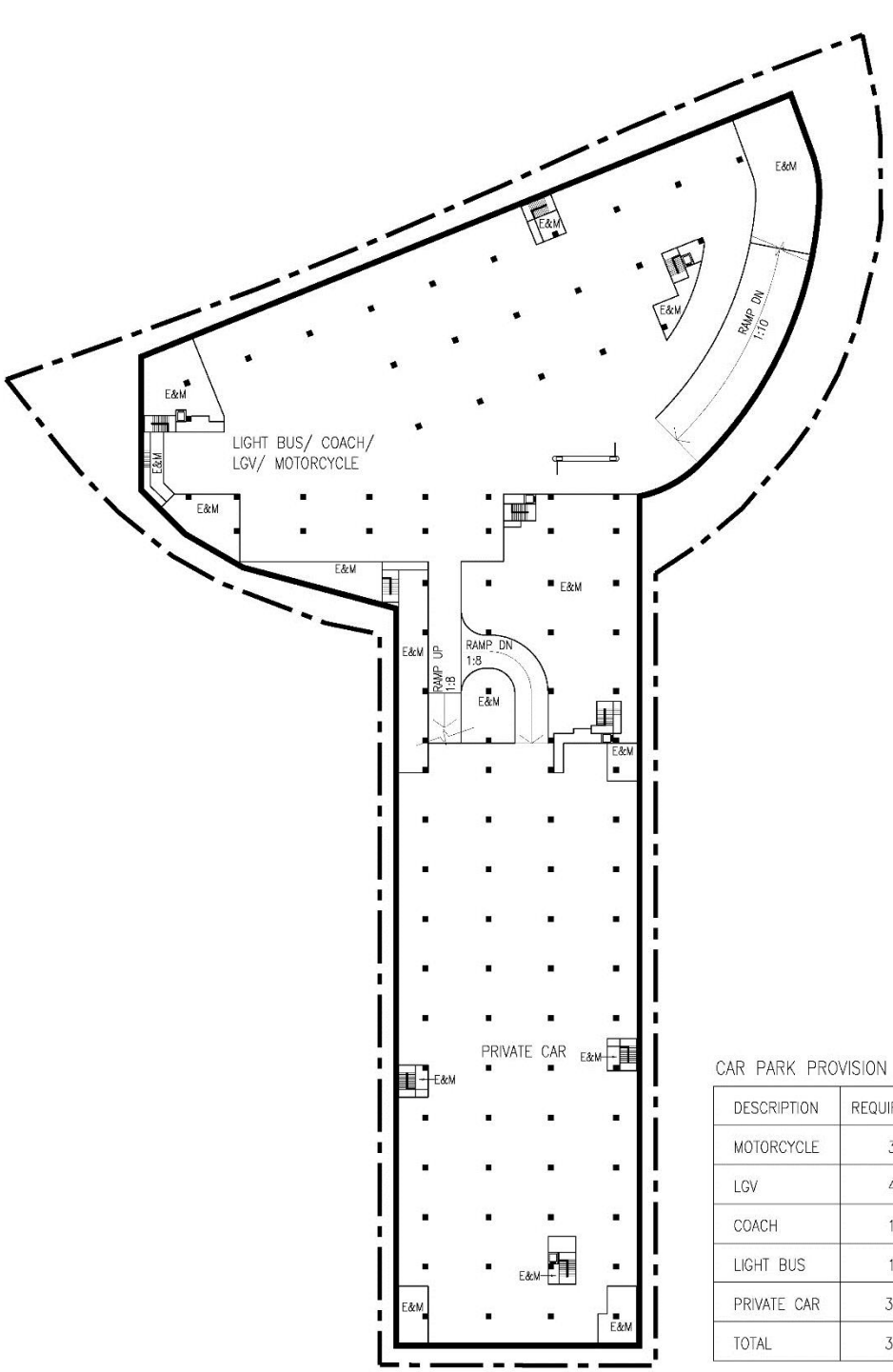
Proposed Underground Public Vehicle Park
(Excluding Container Vehicle)
in Town Park
in Area 66, Tseung Kwan O

0 10 20 30 40 50 METRES

Plan 4

PlanArch Consultants Ltd.

Revision: Date: 12.7.2021



CAR PARK PROVISION SUMMARY TABLE

DESCRIPTION	REQUIREMENT	PROVISION B1/F	PROVISION B2/F
MOTORCYCLE	30		30
LGV	40		40
COACH	15		15
LIGHT BUS	10		10
PRIVATE CAR	300	148+2(A)	147+3(A)
TOTAL	395	395	

Indicative Purpose Only

Legend

Application Site

Floor Boundary

Basement Level 2 Layout Plan

Proposed Underground Public Vehicle Park
(Excluding Container Vehicle)
in Town Park
in Area 66, Tseung Kwan O

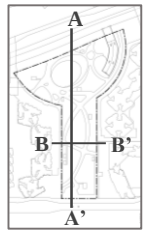
0 10 20 30 40 50 METRES

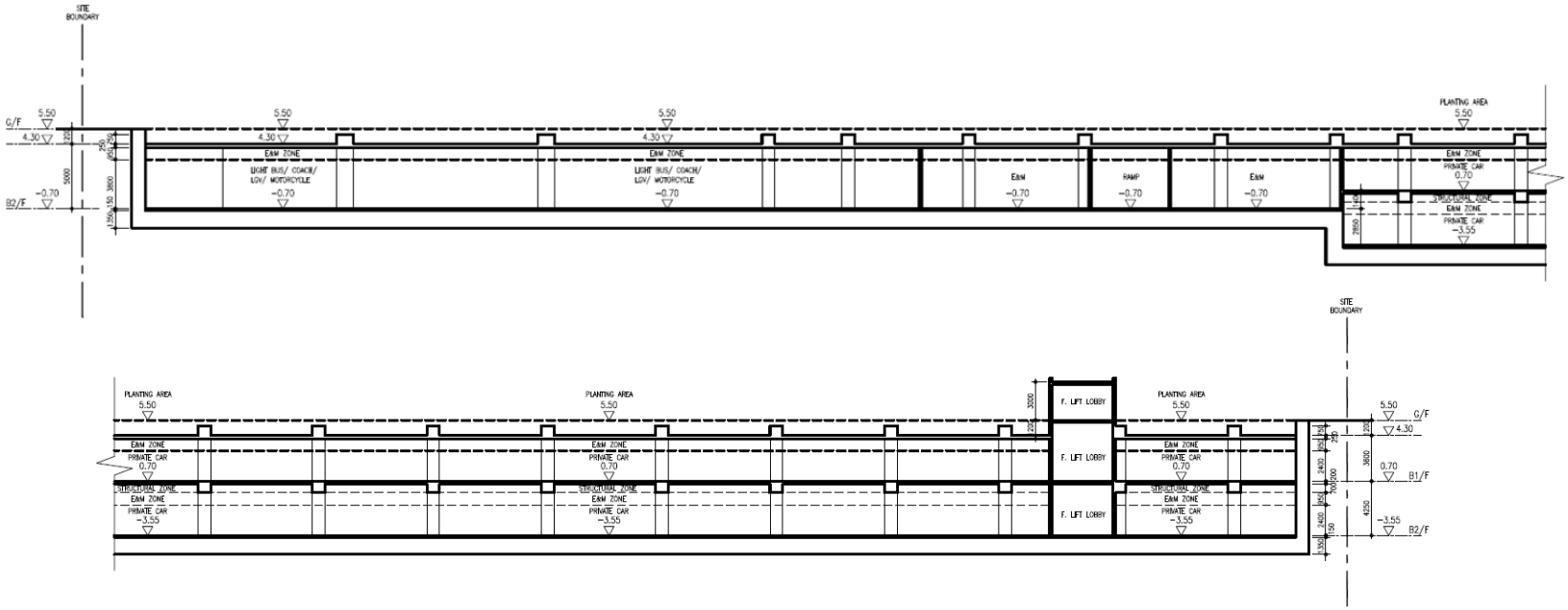
Plan 5

PlanArch Consultants Ltd.

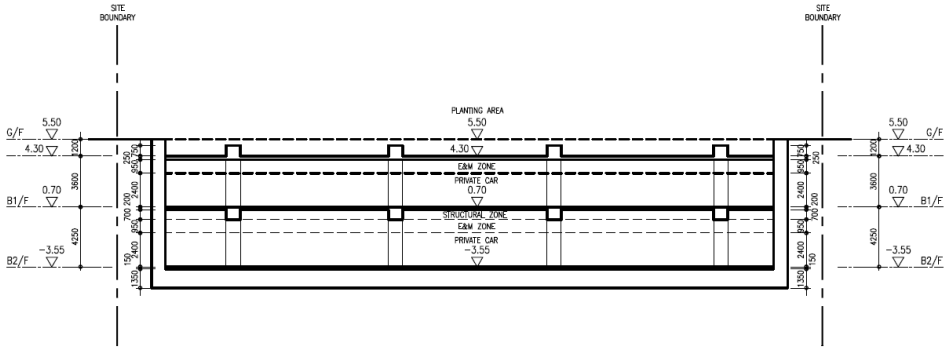
Revision: Date: 12.7.2021

Section A





Section B



Indicative Purpose Only

Schematic Sections

Proposed Underground Public Vehicle Park (Excluding Container Vehicle) in Town Park in Area 66, Tseung Kwan O

Plan 6

PlanArch Consultants Ltd.

Revision: Date: 12.7.2021

4. PLANNING JUSTIFICATIONS

4.1 The Proposed Development Is In Line with Planning Intention

The proposed underground public vehicle park in town park is in line with the planning intention stated in the OZP for "O" zone, which is primarily for the provision of outdoor open-air public space for active and/or passive recreational uses serving the needs of local residents as well as the general public.

The development proposal utilises the underground space beneath the open space to provide car parking spaces for the nearby residents and visitors. The area zoned "O" in Area 66, Tseung Kwan O will be duly implemented. Only an area of not more than 630m^2 for a few necessary and ancillary structures will be provided on the ground level. These facilities will only take up approximately 4% of the open space, and will be well designed to ensure integration with the open space. The proposed underground vehicle park will not bring any adverse impact to the open space users, the local residents and the surrounding environment. It is in line with the planning intention of the application site.

4.2 Meeting the Car Parking Demand in the Area

Referring to the preliminary findings of the survey and assessment of the parking demand conducted by TD in 2018, it reported that there was a considerable shortage of parking spaces in the area[1]. According to the result of the conducted parking survey in TIA (**Appendix I**), the utilisation rate of two existing temporary car parks, one at the application site and one at Chui Shin Street nearby, were considerably high. Their utilisation rates at night time reached about 80% and over 90% respectively. The average utilistion rate of the nearby public off-street car parks was also over 80% at night time. Meanwhile, the number of illegal parking vehicles on nearby roads was over 250.

It is noticed that the existing temporary car park with 788 nos. of parking spaces will be terminated because upon the development of the town park, the site will no longer be available for using as a temporary public car park. Developing public vehicle park underneath the town park is a feasible and desirable solution to provide parking spaces to accommodate the huge demand on parking facilities in the area. It can alleviate the illegal on-street parking, and hence traffic congestion.

4.3 Optimise Scarce Land Resources by Adopting "Single Site, Multiple Uses" Model

In the Policy Address 2019, the Chief Executive stated that the Government will pursue the adoption of "Single Site, Multiple Uses" model when developing "Government, Institution or Community" (GIC) sites in order to make optimal use of limited land

[1] Sai Kung District Council. (2019). Proposed Town Park cum Underground Public Vehicle Park in Area 66, Tseung Kwan O. Retrieved from https://www.districtcouncils.gov.hk/sk/doc/2016_2019/en/dc_meetings_doc/16361/SK_2019_041_EN.pdf (Last Accessed on 20.1.2021).

resources. The development of a public vehicle park underneath the town park is in line with this initiative by utilising the underground space of the open space for accommodating the car parking demand in the area. This will optimise the use of the scarce land resources to cater for the community needs.

4.4 The Proposed Development is Compatible with the Surrounding Uses

The proposed underground vehicle park beneath town park is compatible with the surrounding uses which are dominantly residential and GIC uses. The proposed open space on ground level can provide a recreational space for the users to enjoy a wide range of recreational and leisure activities. The town park at the application site, together with the open space in Area 68, Tseung Kwan O, will also provide a "Central Avenue", to enhance the accessibility of the waterfront promenade.

The proposed underground vehicle park will not cause negative visual impacts to the surroundings. With proper mitigation measures, the vehicle park will not result in any disturbance to the nearby residents and town park users. The overall development is therefore compatible with the surrounding uses.

4.5 Compliance with Town Planning Board Guideline No. 8

The proposed underground vehicle park meets the main planning criteria set out in the TPB PG No. 8 for underground development of car parking facilities beneath open space under S.16 planning application:

Main Planning Criteria	Compliance with Main Planning Criteria by the Proposed Development
(a) The scale and extent of the proposed underground development should be compatible with both the characteristics of the surrounding sites and the broad land use intention of the area from a wider planning viewpoint.	It is in line with the planning intention of the subject site and considered compatible with the characteristics of the surrounding sites and the broad land use intention of the area.
(b) The proposed development should not exceed 6 levels below ground.	The proposed underground vehicle park only has 2 storeys basement levels.
(c) The proposed development should not impose any adverse planning and development constraints on other surface and sub-surface land uses.	With proper design and mitigation measures, it will not cause any adverse planning and development constraints on surrounding land uses.
(d) Staircases, vehicular access points, ventilation shafts, glazed roofs, and ancillary structures associated with the proposed development that emerge above ground should be sensitively integrated with the existing and planned land uses.	The vehicle access point and staircase/ lift shaft and ventilation facilities will take form of small and subtle aboveground structures. They will be scattered in the town park with dense vegetation as buffer. They will be integrated with the surrounding environment.
(e) The proposed development should demonstrate that there is sufficient consumer demand for the proposed commercial/car parking facility, taking due consideration of both the existing and planned developments in	According to TD's survey[1], there is considerable demand for car parking facilities in the area, and the proposed development may partially address such demand.

Main Planning Criteria	Compliance with Main Planning Criteria by the Proposed Development
the area.	
(f) The proposed development should not have any adverse impact upon the business activities of neighbouring developments.	The proposed development will not impose any negative impact to the surrounding uses, including the business activities. Instead, it may encourage the community to use the town park and support the business operations nearby.
(g) The proposed development should not have any adverse effect upon the local and strategic road network in terms of capacity, safety and circulation.	The TIA demonstrates that the proposed use will not have any adverse impact on the local and strategic road network in terms of capacity, safety and circulation.
(h) The proposed development schemes should not have an adverse effect upon the surrounding environment either during construction or after completion.	With proper mitigation measures, the adverse environmental, drainage, sewerage and traffic effects on the surrounding environment either during construction or after completion are not envisaged.
(i) The proposed development should also satisfy fire protection, emergency evacuation and other hazard control requirements administered by the relevant authorities.	Appropriate hazard control measures including fire protection and emergency evacuation will be duly implemented to the satisfaction of relevant authorities.

[1] Sai Kung District Council (2019). Proposed Town Park cum Underground Public Vehicle Park in Area 66, Tseung Kwan O. Retrieved from https://www.districtcouncils.gov.hk/sk/doc/2016_2019/en/dc_meetings_doc/16361/SK_2019_041_EN.pdf (Last accessed on 20.1.2021)

4.6 Insignificant Traffic Impact

Proper design will be adopted and smooth management of the proposed underground vehicle park will be practiced to ensure no vehicle queuing back or reversing onto/from public road.

According to the conducted TIA (**Appendix I**), with implementation of proposed junction improvement scheme, all the concerned junctions will be operated satisfactorily and the traffic of local and strategic road network will not be disturbed. The proposed development is thus technically feasible from traffic engineering point of view and insignificant traffic impact is envisaged.

4.7 Provision of Car Parking Facilities During Construction Period

The existing open-air temporary vehicle park under short term tenancy is expected to be closed in 2023 for the development of open space. The proposed underground public vehicle park could provide about 395 nos. of parking spaces, and is expected to be completed in 2026. Over 300 nos. of parking spaces will be provided at the Joint-user Government Office Building in the Area 67, Tseung Kwan O in 2025, and TD will explore other measures to address the parking needs in the district during the construction period of the open space and the underground public vehicle park as far as practicable.

4.8 Alleviate the Traffic Congestion in Local and Regional Road Network by Providing Park-and-Ride Facilities

The HKPSG's *Chapter 8 on Internal Transport Facilities* states that *'[i]t is Government's policy to encourage the development of "park-and-ride" and "kiss-and-ride" facilities at suitably located rail stations and public transport interchanges with a view to encouraging public transport ridership. Such locations would normally be outside the busy urban areas and close to major transport routes providing good access to the intended catchment areas'*. The proposed vehicle park is proximate to the Tseung Kwan O MTR Station and Tseung Kwan O Station Public Transport Interchange (**Photo 3**). It can facilitate the drivers to "park-and-ride", and hence to encourage public transport ridership and alleviate the traffic congestion of the local and regional road network. The proposed development is therefore in line with the government policy and planning intention of public vehicle parks as stated in the HKPSG.

4.9 Design of Town Park is In Line with the Hong Kong Planning Standards and Guidelines

The proposed town park will be easily accessible. It will provide space and facilities for the users to conduct both active and passive activities. The active recreation facilities will be buffered by sufficient distance and dense vegetation from the nearby residents and thus the potential disturbance will be minimised. The site coverage of the ancillary facilities of the proposed development on ground level is not more than 3.2%, which is significantly lower than 10% as allowed in the HKPSG Chapter 4. The proposed development therefore complies with the requirements for the planning and design of district open space in the HKPSG.

4.10 Enhance the Visual and Landscaping Quality of the Application Site

The small and subtle structures for staircases/lifts, ventilation facilities and E&M rooms ancillary to the basement vehicle park will be scattered in suitable areas of the extensive open space. Their building height of the E&M structure and staircases/lifts will not be more than 6 metres and 4.5 metres respectively, and they will be well-buffered by lush vegetation and designed with landscaping elements such as climbers to enhance their visual integrity with the open space and surrounding uses. As shown in the Figures 12.2 and 12.3 of the Landscape Master Plan (**Appendix II**), the proposed structures are invisible to the pedestrians across Po Yap Road.

Tall trees will be planted to separate the vehicular ingress/egress to the underground vehicle park from the adjacent residential developments. The landscaping can enhance the visual quality and mitigate potential adverse environmental impacts to the nearby residential neighbourhoods.

The proposed town park with desirable design and abundant green features will significantly uplift the visual and landscaping quality of the application site by adopting

a desirable design for the open space.

4.11 No Adverse Environmental Impact

The Preliminary Environmental Review in **Appendix II** demonstrated that the proposed development will not cause any undesirable impacts on air quality, noise, water quality and waste management to the area with the implementation of proper measures.

The air quality and noise impact brought by the proposed development is considered insignificant. They will be further minimised with due implementation of mitigation measures during both construction and operation stages. In addition, comprehensive drainage and sewerage facilities will be provided to avoid unfavourable impacts on the drainage system and water quality. Furthermore, all wastes will be properly treated in accordance with relevant waste management regulations and guidelines. As a result, no adverse environmental will be resulted from the proposed development.

4.12 No Adverse Drainage and Sewerage Impact

Both sewerage and drainage impacts of the proposed underground vehicle park were assessed in the DIA and SIA in **Appendices IV and V**. The assessments show that the impacts resulted from the proposed development is minimal on both sewerage and drainage aspects. The capacity of the existing public drainage and sewerage system will be sufficient to cater for the proposed development. Therefore, the proposed development will not result in any adverse environmental impact on the surrounding from both drainage and sewerage point of view.

4.13 Approval of the Application Will Not Set an Undesirable Precedent

Since the proposed development can utilise the underground space of the town park to cater for the huge demand on parking facilities and it will not cause any unfavourable impact to the surrounding area, approval of this planning application will not set an undesirable precedent for similar applications.

5. CONCLUSION

The applicant intends to develop a 2-storey underground public vehicle park (excluding container vehicles) beneath a town park to partially cater for the considerable demand for car parking space in the area. By providing about 395 nos. of public car parking spaces, the proposed development can alleviate the illegal parking and traffic congestion in the area. It further optimises the use of scarce land resources to address the community needs.

The proposed development is in line with the planning intention of the application site and it is compatible with the surrounding uses. It also complies with relevant regulations and guidelines. According to the conducted technical assessments, the proposed underground vehicle park will not cause any adverse traffic, environmental, drainage and sewerage impacts to the surrounding area. The design of the town park on ground level can greatly enhance the landscape and visual amenity of the site.

In view of the above, members of the Town Planning Board are respectfully requested to give favourable consideration to the application.

Appendix I
Traffic Impact Assessment

Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O

Traffic Impact Assessment Report
July 2021

HWSPB 何黃
Traffic & Transportation Consultants

Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O

Traffic Impact Assessment Report

July 2021

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LIST OF ABBREVIATIONS

AOI	-	Area of Influence
BDTM	-	Base District Traffic Models
CKR	-	Central Kowloon Route
DFC	-	Design Flow / Capacity
EB	-	Eastbound
EVA	-	Emergency Vehicular Access
GV	-	Goods Vehicle
HWSPB	-	Ho Wang SPB Limited
LATM	-	Local Area Traffic Model
NB	-	Northbound
PJ	-	Priority Junction
PRLB	-	Private Light Bus
PVP	-	Public Vehicle Park
RA	-	Roundabout
RC	-	Reserve Capacity
SB	-	Southbound
SJ	-	Signalised Junction
STT	-	Short Term Tenancy
TD	-	Transport Department
TIA	-	Traffic Impact Assessment
TKO	-	Tseung Kwan O
TKO-LT	-	Tseung Kwan O - Lam Tin
TPEDM	-	Territorial Population and Employment Data Matrix
WB	-	Westbound

1. Introduction

1.1 Background

1.1.1 Transport Department (TD) intended to process the application for permission under Section 16 of the Town Planning Ordinance for the implementation of this proposed development of underground public vehicle park (PVP) (excluding container vehicle) in town park in Area 66, Tseung Kwan O (TKO).

1.1.2 Ho Wang SPB Ltd. (hereinafter as "HWSPB") is commissioned as the traffic consultant to conduct a traffic impact assessment (TIA) study for this S16 Planning Application.

1.2 Study Objectives

1.2.1 The objectives of this TIA study are as follows:

(a) Study the existing traffic conditions in the vicinity of the site;

(b) Conduct public car park study to demonstrate the existing car parking provision of the neighbourhood is capable to cope with the changes in provision caused by the proposed development;

(c) Conduct Short Term Tenancy (STT) Parking survey to record the day-time and night-time utilisation rates;

(d) Conduct Midnight Illegal on-street parking survey to identify the no. of illegal parked vehicles within the study area;

(e) Study the future transport plans in the area;

(f) Conduct vehicle traffic surveys to record the existing traffic conditions during AM and PM peak periods within the study area;

(g) Review the existing traffic and transport facilities in the vicinity of the development site including the capacities of critical junctions;

(h) Estimate the PVP traffic generation and attraction; and preparation of traffic forecast based on the latest available 2016-Based TPEDM from Planning Department's website and 2015-Based BDTM from Transport Department for various design scenarios; and

(i) Review the likely traffic impacts generated by the proposed PVP during operation phase within the study area under various design scenarios and develop traffic improvement schemes to mitigate any adverse impact; if necessary.

1.3 Structure of the Report

1.3.1 Following this introductory chapter describes the background and study objective, this TIA report focuses on the presentation and elaboration of the following key areas:

Chapter 2 - describes the proposed PVP, vehicular access arrangements and the proposed internal transport facilities provisions;

Chapter 3 - describes the baseline traffic surveys and the existing 2020 traffic conditions and junction performance in the AOI;

Chapter 4 - describes the traffic modelling assumptions and future traffic conditions;

Chapter 5 - describes the estimation of PVP traffic generations and the traffic impacts of the PVP within the study area;

Chapter 6 - summarises and concludes this TIA study findings.

2. The Proposed Development

2.1 Proposed Town Park and Public Vehicle Park

2.1.1 This proposed development will comprise of the following facilities:

Town Park at Area 66

- A landscaped garden with features
- A landscaped central pedestrian avenue connecting the waterfront to the Tseung Kwan O MTR Station
- A covered piazza for Tai Chi
- Fitness stations suitable for people of different ages including the elderly

Public Vehicle Park (PVP)

- An underground PVP to accommodate 395 parking spaces for various vehicles (i.e. 40 light goods vehicles, 10 light buses, 15 coaches, 300 private cars and 30 motorcycles together with PVP ancillary facilities for accommodating 3 car park operators)

2.2 Vehicular and EVA Access Arrangement

2.2.1 The vehicular access to this public vehicle park is via Po Yap Road.

2.2.2 The ingress/egress vehicles to the site will be operated via a left-in/left-out traffic arrangement as shown in **Figure 2.1**.

2.2.3 An EVA will also be provided within the site for fire-engine in case of emergency.

3. Existing Traffic Conditions

3.1 Area of Influence

3.1.1 The proposed Town Park and PVP is located at south of Tseung Kwan O Town Centre in TKO Area 66.

3.1.2 The site is surrounded by Po Yap Road to the north and Chi Shin Street to the south.

3.1.3 Chi Shin Street, Tong Yin Street and Tong Chun Street are connecting with Tseung Kwan O Town Centre in the south and Tseung Kwan O Town Centre in the north.

3.1.4 Po Yap Road plays an important role in connecting Tiu Keng Leng, Tseung Kwan O Town Centre and Wan Po Road.

3.1.5 Regarding to the future development in Tseung Kwan O Area, a future Tseung Kwan O-Lam Tin (TKO-LT) Tunnel provides an alternative connection to Tseung Kwan O and Kowloon. Part of the existing traffic between Tseung Kwan O and Eastern Harbour Crossing can travel via TKO-LT Tunnel without travelling through Tseung Kwan O Road and Lei Yue Mun Road.

3.1.6 The PVP development traffic can travel through TKO Tunnel, TKO-LT Tunnel to access the urban areas. The development traffic can also travel via Chiu Shun Road to TKO and Sai Kung areas.

3.1.7 The Area of Influence (AOI) has covered all the major junctions in Tseung Kwan O Town Centre as Shown in **Figure 3.1**.

3.1.8 The Key junctions for the traffic impact assessments are summarised in **Table 3.1**.

Table 3.1 – Key Junctions for Traffic Impact Assessment

No.	Location	Junction Type
J1	Wan Po Road / Chiu Shun Road / Po Yap Road	Roundabout
J2	Po Yap Road / Po Hong Road / Chi Shin Street	Roundabout
J3	Tong Chun Street / Chi Shin Street	Signalised
J4	Tong Yin Street / Chi Shin Street	Signalised
J5	Po Yap Road / Tong Yin Street	Signalised
J6	Po Yap Road / Po Shun Road / Chui Ling Road / Future Road P2	Signalised
J7	Po Shun Road / Tong Ming Street / King Ling Road	Roundabout
J8	Po Yap Road / Tong Chun Street	Signalised
J9	Po Hong Road / Tong Ming Street	Signalised
J10	Tong Yin Street / Tong Ming Street	Priority
J11	Tong Yin Street / Tong Tak Street	Signalised
J12	Tong Tak Street / Tong Chun Street	Signalised
J13	Tong Ming Street / Tong Chun Street	Signalised

3.2 Traffic Count Surveys

3.2.1 A traffic count survey was conducted at the 13 key junctions (shown in **Table 3.1)** during 0730~0930 and 1700~1900 for AM and PM peak hour periods on 27 and 28 October 2020, which are normal weekdays when classes were scheduled in normal situation and government public services resumed back to normal.

3.3 Existing Traffic Conditions

3.3.1 The 2020 base year traffic flows for the 13 key junctions are shown in **Figure 3.2**. The AM and PM peak hours within AOI are 0745~0845 and 1730~1830 respectively.

3.3.2 The performance of a signalised junction (SJ) is indicated by its reserve capacity (RC). An existing signalised road junction with a RC greater than 15% represents that the junction is operating satisfactorily.

3.3.3 The performance of priority junction (PJ) and roundabout (RA) is indicated by its design flow to capacity (DFC) ratio. The junction will be operating in desirable conditions with DFC equal to or less than 0.85.

3.3.4 The junction capacity assessments during the worst AM and PM peak hours have been assessed and the results of the junction performance are summarised in **Table 3.2**.

Table 3.2 – 2020 Base Year Junction Performance

No.	Location	Type	RC/DFC	
			AM	PM
J1	Wan Po Road / Chiu Shun Road / Po Yap Road	RA	0.77	0.56
J2	Po Yap Road / Po Hong Road / Chi Shin Street	RA	0.43	0.37
J3	Tong Chun Street / Chi Shin Street	SJ	53%	>100%
J4	Tong Yin Street / Chi Shin Street	SJ	84%	>100%
J5	Po Yap Road / Tong Yin Street	SJ	75%	>100%
J6	Po Yap Road / Po Shun Road / Chui Ling Road	SJ	66%	>100%
J7	Po Shun Road / Tong Ming Street / King Ling Road	RA	0.4	0.31
J8	Po Yap Road / Tong Chun Street	SJ	55%	74%
J9	Po Hong Road / Tong Ming Street	SJ	89%	>100%
J10	Tong Yin Street / Tong Ming Street	PJ	0.54	0.36
J11	Tong Yin Street / Tong Tak Street	SJ	95%	>100%
J12	Tong Tak Street / Tong Chun Street	SJ	42%	46%
J13	Tong Ming Street / Tong Chun Street	SJ	>100%	>100%

3.3.5 The junction assessment results show that all of the 13 key junctions are operating satisfactorily in both AM and PM peak hour periods.

3.4 Existing Public Transport Facilities

3.4.1 This site is well served by public transport facilities including franchised buses, GMBs and Tseung Kwan O MTR Station which are located within a 500m walking distance from the site.

3.4.2 The details of the franchised buses/GMB within a 500m catchment area from the site are summarised in **Table 3.3** and **Table 3.4** respectively.

Table 3.3 – Existing Franchised Bus Services in the Vicinity

Route No.	Destination	
91R	Clear Water Bay	Tseung Kwan O (Choi Ming)
93M	Tseung Kwan O (Choi Ming)	Po Lam
290	Tseung Kwan O (Choi Ming)	Tsuen Wan West Station
290A	Tseung Kwan O (Choi Ming)	Tsuen Wan West Station
290B	Tseung Kwan O Industrial Estate	Tsuen Wan West Station
290X	Lohas Park Station	Tsuen Wan West Station
296A	Sheung Tak	Ngau Tau Kok Station
296C	Sheung Tak	Cheung Sha Wan (Hoi Ying Estate)
296D	Sheung Tak	Kowloon Station
296M	Hong Sing Garden	Hang Hau Station
296P	Sheung Tak	Mong Kok
694	Tiu Keng Leng Station	Siu Sai Wan Estate
792M	Tseung Kwan O Station	Sai Kung

Table 3.3 – Existing Franchised Bus Services in the Vicinity – Cont'd

Route No.	Destination	
796C	Oscar by the Sea	So Uk Estate
796E	Tseung Kwan O Industrial Estate	So Uk Estate
796P	Lohas Park	Tsim Sha Tsui (East)
796S	Tseung Kwan O Station	Ngau Tau Kok Station
796X	Tseung Kwan O Industrial Estate/Tseung Kwan O Station	Tsim Sha Tsui (East)
797M	Tseung Kwan O Station	Tseung Kwan O Industrial Estate
798	Tiu Keng Leng Station	Fo Tan (Chun Yeung Estate)
798B	Lohas Park	Sha Tin Station
A29P	Tseung Kwan O Station	Airport
E22A	Tseung Kwan O (Hong Sing Garden)	AsiaWorld-Expo
E22C	Tiu Keng Leng Station	Aircraft Maintenance Area
E22S	Tseung Kwan O (Po Lam)	Tung Chung (Mun Ting Estate)
N29	Tseung Kwan O (Hong Sing Garden)	Tung Chung Station
N290	Tsuen Wan West Station	Lohas Park Station
N293	Sheung Tak	Mong Kok East Station
N691	Tiu Keng Leng	Central (Macau Ferry)
N796	Lohas Park / Tseung Kwan O Station	Tsim Sha Tsui

Table 3.4 – Existing GMB Services in the Vicinity

Route No.	Destination	
103M	Clear Water Bay	Tseung Kwan O Station
107	Haven of Hope Hospital	Po Lam
108A	Choi Ming	Tseung Kwan o Hospital
110	Tiu Keng Leng Station	Kowloon City
110A	Tiu Keng Leng Station	Kowloon Bay
112S	Tseung Kwan O Station	Tseung Kwan O Industrial Estate
114A	Tseung Kwan O Station	Ocean Wings
114B	Tiu Keng Leng Station	Alto Residences

3.4.3 Public can easily access to the town park via walking and/or by these nearby convenient public transport services.

3.4.4 The locations of the nearby public transport facilities are shown in **Figure 3.3**.

3.5 Existing Parking Demands

3.5.1 The purpose of this car park study is to demonstrate that whether the car parking provision of the neighbourhood is capable to cope with the changes in provision due to this project.

3.5.2 The scope of car park study includes the STT, off-street parking sites and mid-night illegal on-street parking within the agreed 500m radius from site with Transport Department.

Public Off-street Car Parks Survey

3.5.3 The off-street car park located within a 500m radius from the site with public parking spaces is shown in **Figure 3.4**.

3.5.4 An off-street public car parks survey was conducted on Friday 1 May 2021 during 0000 ~ 0300.

3.5.5 The results of the survey show that there are a total of 50 car parking spaces provided at the public off-street car park. A total of 4 nos. of un-occupied parking spaces were recorded during the survey period.

Short Term Tenancy Car Park Survey (STT no. SX 5109 at Po Yap Road and STT no. SX 5148 at Chui Shin Street)

3.5.6 The purpose of this survey is to record the parking inventories and the number of occupied parking spaces.

3.5.7 A carpark survey at the 2 STT car parks was undertaken during the daytime (6:00 am to 10:00 pm) and night-time (0:00 am to 4:00 am) periods on Thursday 26 November 2020 and Tuesday 15 December 2020 respectively.

3.5.8 The results of the STT car parks survey during the surveyed periods are summarised in **Table 3.5**.

Table 3.5 – Utilisation Rate of Two Surveyed STT Car Parks

Period	STT (SX 5109)				STT (SX 5148)			
	Total Parking Spaces	Total Occupied Parking Spaces	Total Unoccupied Parking Spaces	% of Parking Spaces Occupied	Total Parking Spaces	Total Occupied Parking Spaces	Total Unoccupied Parking Spaces	% of Parking Spaces Occupied
06:00-07:00	788	583	205	**74%**	265	236	29	89%
07:00-08:00		523	265	66%		189	76	71%
08:00-09:00		486	302	62%		157	108	59%
09:00-10:00		469	319	60%		172	93	65%
10:00-11:00		478	310	61%		188	77	71%
11:00-12:00		475	313	60%		204	61	77%
12:00-13:00		472	316	60%		158	107	60%
13:00-14:00		482	306	61%		153	112	58%
14:00-15:00		414	374	53%		169	96	64%
15:00-16:00		443	345	56%		178	87	67%
16:00-17:00		459	329	58%		207	58	78%
17:00-18:00		439	349	56%		195	70	74%
18:00-19:00		481	307	61%		222	43	84%
19:00-20:00		467	321	59%		236	29	89%
20:00-21:00		536	252	68%		245	20	92%
21:00-22:00		535	253	68%		250	15	**94%**
00:00-01:00	788	614	174	78%	265	243	22	**92%**
01:00-02:00		622	166	**79%**		245	20	**92%**
02:00-03:00		621	167	**79%**		245	20	**92%**
03:00-04:00		622	166	**79%**		245	20	**92%**

3.5.9 The peak occupancies for the two surveyed STT car parks were observed during midnight period.

3.5.10 The details of the hourly parking utilisation rates and the charge rates for each vehicle type for the two surveyed STT car parks are summarised in **Appendix A**.

On-street Legal and Illegal Parking Survey

3.5.11 The on-street parking spaces designated for motorcycle, goods vehicle (GV) and coach parking are presented in **Table 3.6**.

Table 3.6 – Existing Inventory of On-Street Parking Spaces

Road Name	From	To	Direction	Inventory Number		
				MC	GV	Coach
Tong Yin Lane	Tong Yin Street	Cul-de-Sac	EB	0	0	3(1)
Tong Yin Street	Tong Tak Street	Tong Ming Street	NB/SB	0	0	6(1)
Chi Sin Street	Po Yap Road	Tong Chun Street	SB	5(2)	0	0
Tong Chun Street	Chi Sin Street	Cul-de-Sac	NB/SB	0	6(1)	0
Total:				5	6	9

Remarks:
(1) Overnight 8:00pm to 7:00am parking space
(2) 24 hours parking spaces for motorcycle (Free of charge)

3.5.12 An on-street illegal parking survey within a 500m radius from the site was also conducted at midnight on Saturday 12 December 2020 during 0000~0400 hours. The locations for each surveyed road section are shown in **Figure 3.5**.

3.5.13 The observed on-street illegal parked vehicles (i.e. car, goods vehicle (GV) and coach/private light bus (PRLB)) are presented in **Table 3.7**.

Table 3.7 – Observed Illegal Parked Vehicles (Car, Goods Vehicle and Coach/PRLB)

No.	Road Name	From	To	Direction(1)	Number of Illegal Parked Vehicles		
					Car	GV	Coach/PRLB
1	Po Yap Road	Wan Po Road	Po Hong Road	EB	0	0	0
2	Po Yap Road	Chi Shin Street	Tong Chun Street	EB	0	0	0
3	Po Yap Road	Tong Chun Street	Tong Yin Street	EB	9	12	0
4	Po Yap Road	Tong Yin Street	Chui Shin Street	EB	0	0	0
5	Chui Ling Road	Chui Shin Street	Chui Shin Street	EB	0	0	0
6	Chui Shin Street	Chui Ling Road	Chui Ling Road	WB	8	7	1
7	Chui Ling Road	Chui Shin Street	Po Shun Road	WB	0	0	0
8	Po Yap Road	Po Shun Road	Tong Yin Street	WB	0	0	0
9	Po Yap Road	Tong Yin Street	Tong Chun Street	NB/SB	10	3	1
10	Po Yap Road	Tong Chun Street	Po Hong Road	NB/SB	0	0	0
11	Po Yap Road	Po Hong Road	Wan Po Road	EB	0	0	0
12	Po Hong Road	Po Yap Road	Tong Ming Street	WB	0	0	0
13	Tong Ming Street	Po Hong Road	Tong Chun Street	EB/WB	0	0	0

Table 3.7 – Observed Illegal Parked Vehicles (Car, Goods Vehicle and Coach/PRLB) – Cont'd

No.	Road Name	From	To	Direction(1)	Number of Illegal Parked Vehicles		
					Car	GV	Coach/PRLB
14	Tong Ming Street	Tong Chun Street	Tong Yin Street	EB/WB	4	3	0
15	Tong Ming Street	Tong Yin Street	Po Shun Road	EB/WB	0	0	0
16	Po Shun Road	Tong Ming Street	Po Yap Road	EB/WB	0	0	0
17	Po Shun Road	Po Yap Road	King Ling Road	EB/WB	8	10	1
18	Tong Ming Street	Po Shun Road	Po Hong Road	WB	2	2	0
19	Po Hong Road	Tong Ming Street	Po Yap Road	NB	0	5	0
20	Chi Shin Street	Po Yap Road	Tong Chun Street	EB/WB	11	3	1
21	Tong Chun Street	Chi Shin Street	Cul de sac	EB/WB	24	1	0
22	Tong Chun Street	Cul de sac	Chi Shin Street	NB/SB	7	0	0
23	Chi Shin Street	Tong Chun Street	Tong Yin Street	NB/SB	2	0	0
24	Tong Yin Street	Chi Shin Street	Cul de sac	NB	16	0	0
25	Tong Yin Street	Cul de sac	Chi Shin Street	WB	3	1	0
26	Chi Shin Street	Tong Yin Street	Cul de sac	SB	13	11	0
27	Chi Shin Street	Tong Yin Street	Tong Chun Street	EB	6	0	0
28	Chi Shin Street	Tong Chun Street	Po Yap Road	EB	2	2	0
29	Tong Chun Street	Po Yap Road	Chi Shin Street	NB/SB	7	2	0
30	Tong Chun Street	Chi Shin Street	Po Yap Road	EB/WB	1	0	0
31	Tong Yin Street	Po Yap Road	Chi Shin Street	EB/WB	2	0	0
32	Tong Yin Street	Chi Shin Street	Po Yap Road	NB/SB	1	2	0
33	Tong Yin Street	Tong Tak Street	Po Yap Road	SB	0	0	0
34	Tong Yin Street	Po Yap Road	Tong Tak Street	SB	0	0	0
35	Tong Tak Street	Tong Yin Street	Cul de sac	SB	9	0	0
36	Tong Yin Street	Tong Tak Street	Tong Ming Street	SB	5	4	0
37	Tong Yin Lane	Tong Yin Street	Cul de sac	WB	8	13	0
38	Tong Yin Street	Tong Ming Street	Tong Tak Street	NB/SB	3	3	1
39	Tong Tak Street	Tong Yin Street	Tong Chun Street	NB/SB	0	0	0
40	Tong Chun Street	Tong Tak Street	Tong Ming Street	NB/SB	0	0	0
41	Tong Chun Street	Tong Ming Street	Tong Tak Street	EB	0	0	0
42	Tong Tak Street	Tong Chun Street	Cul de sac	EB	4	1	0
43	Tong Chun Street	Tong Tak Street	Po Yap Road	EB/WB	0	0	0
Total					**165**	**85**	**5**

Remark:
(1) NB: Northbound; SB: Southbound; EB: Eastbound and WB: Westbound

3.5.14 A total of 255 illegal parked vehicles were observed during the mid-night surveyed period.

3.5.15 The details of the on-street illegal vehicle parking are summarised in **Appendix B**.

3.5.16 The Transport Department will explore measures to address the parking needs in the district during construction period of the proposed PVP as far as practicable.

4. Transport Modelling and Forecasts

4.1 Traffic Impact Assessment Scenarios

4.1.1 According to requirement of the studies, the design year and various testing scenarios for this TIA study are summarised in **Table 4.1**.

Table 4.1 – TIA Design Year and Scenarios

Design Year	Scenario	Proposed PVP	CKR and Road T2
2026	Reference	Without	With
2026	Design	With	With
2029	Reference	Without	With
2029	Design	With	With
Sensitivity Test			
2026	Reference	Without	Without
2026	Design	With	Without

4.2 Traffic Model Development

4.2.1 According to Clause 5.2.11 in the Technical Brief, local TIA was conducted using the Local Area Traffic Model (LATM) developed based on the Transport Department's latest 2015-based NTE2 Base District Traffic Models (BDTM). The traffic behaviour at junctions including junction delays, traffic queues and platoon effects are taken into account in a combined traffic simulation and assignment process. The LATM serves as a design tool for developing traffic forecasts for traffic impact assessments to be carried out under this Assignment. The LATM was used to produce the AM and PM peak traffic flows within the AOI.

4.2.2 As advised by Planning Department, Territorial Population and Employment Data Matrix (TPEDM) is primarily for government departments undertaking projects for strategic, sub-regional or district planning purposes. In consideration of the local traffic impact induced by the proposed development, the LATM will be adopted as the traffic model for this Assignment in accordance with the Technical Brief.

4.2.3 The AOI located in Tseung Kwan O is covered by BDTM NTE2. The LATM was developed based on BDTM NTE2. Upon refinement on the traffic zones and road network in BDTM, LATM for 2020 base year was validated based on 2020 base year traffic flows to ensure the forecasting strength of the LATM.

4.2.4 The LATM validation framework is the same as those for the BDTMs listed in **Table 4.2**. A combination of percentage difference and GEH statistics was adopted for assessing the level of accuracy of the model validation.

Table 4.2 – Validation Guidelines for LATM

Validation Criteria	Validation Target
Total Screenline Flows	100% within ±10%
All Count Locations	GEH 5 or less on 85% of links GEH 10 or less on 100% of links
Local distributors and roads of higher classes in the hierarchy and at the intersections of these roads	
Screenline Link Flows	85% within ±10% 100% within ±20%

4.2.5 A generally accepted validation criterion was to achieve ±10% for the screenlines and major links. However, recognising that percentage difference only assesses relative error and were often misleading due to numbers of relatively small magnitude, the GEH statistic was primary employed to assess validation. GEH was defined below:

$$GEH = \sqrt{\frac{(V_2 - V_1)^2}{0.5 \times (V_1 + V_2)}}$$

where V1 and V2 were the observed and modelled flows on a specific link. It was used in order to reflect the difference based on the total volume on a link. If percentages alone were examined then there was a risk of very large percentage differences in small flow volumes appearing important when they were not. Use of the GEH statistic would remove this risk by reducing the significance of relatively large percentage differences between two small numbers.

4.2.6 The LATM validation results for AM and PM peaks on the entry and exit arms of all key junctions are summarised in **Appendix C**. 85% of entry and exit arms of key junctions have GEH error of 5 or less and 100% of entry and exit arms have GEH error of 10 or less so all the criteria regarding the GEH error are satisfied. The results indicate that the base year LATM satisfactorily replicates the base year observed traffic flows so the LATM is robust to carry out traffic forecast.

4.2.7 To update the BDTM in 2026, any adjustments made in the validation process have been carried forward for the 2026 BDTM. For projection of traffic flows to 2029 design years, appropriate growth factors have been derived from the existing public accessible source and apply to the 2026 BDTM. Additional traffic trips from planned/committed developments to be completed before the design year have been added to derive design year matrices. The road networks of 2026 and 2029 have been updated by incorporating the relevant infrastructure within the AOI accordingly.

4.2.8 As TPEDM is primarily for government departments undertaking projects for strategic, sub-regional or district planning purposes, this local TIA reviewed several public accessible sources for derivation of growth factor to update the matrix from year 2026 to 2029. The growth factors from various sources are shown in **Table 4.3**.

Table 4.3 – Growth Factors Information

Information	District	Annual Growth Rates	
		2021/2025-2026	2026-2028
Projections of Population Distribution 2019-2028 by Planning Department	Sai Kung	1.1% [(a)] / 0.5% [(b)]	1.9%
2016 – based Territorial Population and Employment Data Matrix by Planning Department	Tseung Kwan O	0.8% [(a) (c)] / 0.6% [(a) (d)]	-
2015-based Base District Traffic Model Assigned Trips	NTE2	1.5% [(a)]	-
Adopted Growth Rate		2025-2026: 0.5%	2026-2028: 1.9%

Note:
(a) annual growth rate from 2021 to 2026
(b) annual growth rate from 2025 to 2026
(c) population growth rate
(d) employment growth rate

4.2.9 As shown in **Table 4.3**, Projections of Population Distribution shows that the annual growth rate for 2026 to 2028 is 1.9%. In a conservative approach, it is assumed a nominal growth for 2028 to 2029. Hence, the derivation of 2029 design year matrix will adopt a 1.9% annual growth from 2026 design year matrix.

4.2.10 The design year infrastructure assumption includes the proposed Route 6 which formed by Central Kowloon Route (CKR), Trunk Road T2 and Tseung Kwan O – Lam Tin Tunnel (TKO-LTT) and Cross Bay Link. This infrastructure assumption is in line with the 2026 BDTM by TD. To conduct sensitivity test of without Trunk Road T2, reference has been made to Legislative Council Paper "PWSC(2018-19)45" regarding Trunk Road T2. The Trunk Road T2 and the Cha Kwo Ling Tunnel forms the middle section of Route 6 connecting CKR to the west and TKO-LTT to the east. With the completion of Trunk Road T2, the usage of TKO-LTT will be increased by 30%. The sensitivity test will base on this assumption to update the cordon flows at Tseung Kwan O Tunnel and TKO-LTT to reflect the traffic distribution under without Trunk Road T2 scenario.

4.3 Vehicle Trip Generation

4.3.1 As no trip generation rates related to carpark in TPDM, trip generation surveys have been conducted for the estimation of trip generation from proposed PVP during AM and PM peak hours.

4.3.2 Considering the proposed location of PVP, vehicle trip generation surveys have been conducted in the nearby Short Term Tenancy (STT) carpark and existing STT carpark in TKO area 66, (STT5148 and STT5109).

4.3.3 Before the start of survey, numbers of parked vehicle by vehicle type have been recorded. Numbers of entering vehicle and leaving vehicle have been recorded by vehicle type during the peak hours. The trip rate surveys results have been summarised in **Table 4.4** and adopted trip rate have been summarised in **Table 4.5**.

4.3.4 For conservative approach, it is assumed the proposed PVP is fully occupied and the trip rates are based on parked vehicle. The highest trip rate is adopted amongst the results from STT5148 and STT5109.

Table 4.4 – Trip Rate Result in STT5148 and STT5109

Vehicle Type	STT5148				STT5109			
	Trip Rate (pcu/hr/parked vehicle)				Trip Rate (pcu/hr/parked vehicle)			
	Generation		Attraction		Generation		Attraction	
	AM	PM	AM	PM	AM	PM	AM	PM
PC[(1)]	0.0932	0.1194	0.0763	0.1194	0.1114	0.0657	0.0470	0.1200
MC	-	-	-	-	0.1154	0.2500	0.1154	0.5000
LGV	-	0.7500	-	-	0.6346	0.2778	0.1731	0.6111
Coach	-	-	-	-	-	-	-	-
LB	-	-	-	-	-	-	-	1.0000

[(1)] including Private Car, Taxi and Van-type LGV

Table 4.5 – Adopted Trip Rate for Proposed PVP

Vehicle Type	Adopted			
	Trip Rate (pcu/hr/parked vehicle)			
	Generation		Attraction	
	AM	PM	AM	PM
PC [(1)]	0.1114	0.1194	0.0763	0.1200
MC	0.1154	0.2500	0.1154	0.5000
LGV	0.6346	0.7500	0.1731	0.6111
Coach[(2)]	0.2224	0.8890	1.0000	1.0000
LB[(2)]	0.1334	0.5334	0.6000	1.0000

(1) including Private Car, Taxi and Van-type LGV
(2) Since there is no coach and LB currently using the existing STT parking site, the trip rate for the LB and coach adopted HWSPB's in-house data in the STT parking site in Kwai Chung.

4.3.5 According to the parking provision stated in the Brief and the adopted trip rate as shown in **Table 4.5**, the trip generation and attraction for proposed PVP are summarised in **Table 4.6**.

Table 4.6 – Trip Generation and Attraction for Proposed PVP

Vehicle Type	Provision in Proposed PVP	Proposed PVP			
		Generation (pcu/hr)		Attraction (pcu/hr)	
		AM	PM	AM	PM
PC[(1)]	300	33	36	23	36
MC	30	3	8	3	15
LGV	40	25	30	7	24
Coach	15	3	13	15	15
LB	10	1	5	6	10
Total	**395**	**65**	**92**	**54**	**100**

(1) including Private Car, Taxi and Van-type LGV

4.4 Redistribution of Car Park Traffic

4.4.1 Since the number of private car parking spaces in the proposed PVP will be less than the existing STT car park as shown in **Table 4.7**, some car park traffic will be redistributed to the adjacent car parks.

Table 4.7 – Difference in Provision Between Proposed PVP and Existing STT

Vehicle Type	No. of Provision		Difference [c] = [a] – [b]
	Proposed PVP [a]	Existing STT Car Park STT5109 [b]	
PC[(1)]	300	742	-442
MC	30	24	6
LGV	40	22	18
Coach	15	-	15
LB	10	-	10

[(1)] including Private Car, Taxi and Van-type LGV

4.4.2 There will be two public vehicle parks in the vicinity including Joint-user Building (JUB) and Joint-user Complex (JUC) in Area 67. Both JUB and JUC with provision of PVP to cater the parking demand in future. Therefore, the junction performance is assessed by assuming that the parking demand is to be absorbed by PVPs in Area 66 (this project), JUB and JUC in Area 67.

4.4.3 For conservative approach, it is assumed the existing STT carpark in TKO area 66 is fully occupied. As shown in **Table 4.7**, the number of private car parking spaces will be reduced by 442. The affected number of trips will be estimated based on the number of vehicles parking space and adopted trip rates shown in **Table 4.5**. The additional numbers of trips to/from adjacent car park are summarised in **Table 4.8**.

Table 4.8 – Number of Trips To/From Adjacent Car Park

Vehicle Type	Reduction in Provision	Adopted Trip Rate (pcu/hr/parked vehicle)				No. of Trip (pcu/hr)			
		Generation		Attraction		Generation		Attraction	
		AM	PM	AM	PM	AM	PM	AM	PM
PC [(1)]	442	0.1114	0.1194	0.0763	0.1200	49	53	34	53

[(1)] including Private Car, Taxi and Van-type LGV

4.5 Major Developments in the Vicinity of the Proposed PVP

4.5.1 In additional to the proposed PVP, other major developments in Tseung Kwan O are also included for this study.

4.5.2 A list of other planned / committed developments in the vicinity is shown in **Table 4.9**.

Table 4.9 – Planned and Committed Developments in the Vicinity

No.	Location	Type	Development Parameter	Construction Period	Assumed/ Tentative Completion Year	Traffic Generation AM(PM)	Traffic Attraction AM(PM)
1	West of Yau Yue Wan Village	Public Housing	2,700 Flats	2023~2027	2027	170(80)	120(110)
2	Northwest of Ying Yip Road	Public Housing	1,730 Flats	2023~2027	2027	110(50)	75(70)
3	East of Hong Kong Movie City	Public Housing	3,140 Flats	2023~2027	2027	200(95)	140(130)
4	Chiu Shun Road	Public Housing	564 Flats	2020~2024	2024	40(20)	25(25)
5	Wan Po Road, Area 85, Tseung Kwan O, New Territories	Data Centre	67,584~ 112,640 m^2 GFA	-	2022	6(13)	13(6)
6	LOHAS Park Remaining Phase	Private Housing	2,273 Flats	-	-	163(65)	97(84)
7	LOHAS Park Phase XII		2,000 Flats	-	2026	144(57)	85(74)
8	LOHAS Park Phase XI		1,850 Flats	-	2025	133(53)	74(68)
9	LOHAS Park Phase X		1,170 Flats	-	2022	84(33)	50(43)
10	LOHAS Park Phase IXC Ocean Marini		503 Flats	2018~2022	2022	36(14)	21(19)
11	LOHAS Park Phase IXB Grand Marini		503 Flats	2018~2022	2022	36(14)	21(19)
12	LOHAS Park Phase IXA Marini		647 Flats	2018~2022	2021	46(19)	27(24)
13	LOHAS Park Phase VIII Sea to Sky		1,422 Flats	2018~2021	2021	102(41)	60(53)
14	LOHAS Park Phase VIIB Grand Montara		504 Flats	-	2021	36(14)	21(19)
15	LOHAS Park Phase VIIA Montara		616 Flats	-	2021	44(18)	26(23)
16	LOHAS Park Phase VI LP6		2,392 Flats	2017~2020	2020	172(68)	102(89)
17	LOHAS Park Phase VA Malibu		1,600 Flats	2017~2020	2020	115(46)	68(59)
18	LOHAS Park Phase IVB Wings At Sea II		1,132 Flats	-	2018	81(32)	48(42)
19	LOHAS Park Phase IVA Wings At Sea		1,041 Flats	-	2018	75(30)	44(39)
20	LOHAS Park Phase III Hemera		1,678 Flats	-	2014	120(48)	71(62)
21	LOHAS Park Phase IIC La Splendeur		1,168 Flats	-	2012	84(33)	50(43)
22	LOHAS Park Phase IIB Le Prime		1,416 Flats	-	2011	102(40)	60(52)
23	LOHAS Park Phase IIA Le Prestige		1,688 Flats	-	2010	121(48)	72(62)
24	LOHAS Park Phase I The Capitol		2,097 Flats	-	2008	151(60)	89(78)
	The LOHAS (Retail)		44,500m^2 GFA			103(109)	138(159)
25	48 Chui Ling Road	Subsidised Housing	330 Flats	2017~2020	2020	21(10)	14(13)
26	Joint-user Government Office Building and Immigration Headquarters in Area 67, Tseung Kwan O	G/IC	194,200 m^2 GFA	2020-2025	2025	331(305)	476(228)
27	MTR Pak Shing Kok Ventilation Building at Chiu Shun Road	Private Housing	432 Flats	2021~2029	2029	51(51)	29(29)
28	Shek Kok Road in Area 85, Tseung Kwan O	Private Housing	1,369 Flats	-	2026	138(55)	80(75)
29	Government Laboratory in Area 85	G/IC	20,000 m^2 NOFA	-	2026	20(20)	20(20)

No.	Location	Type	Development Parameter	Construction Period	Assumed/ Tentative Completion Year	Traffic Generation AM(PM)	Traffic Attraction AM(PM)
30	Rank and File Quarters Units for Fire Services Department in Area 106, Tseung Kwan O	G/IC	648 Flats 38,530 m^2 Total Floor Area	-	2026	47(19)	28(24)
31	Departmental Quarters for Fire Services Department with Fire Station and Ambulance Depot in Area 72, Tseung Kwan O	G/IC	132 Flats 6,340 m^2 Non-domestic GFA	2021-2024	2024	9(4)	6(5)
32	Departmental Quarter for Customs & Excise Department	G/IC	306 Flats 19,722 m^2 Non-domestic GFA	-	2026	22(9)	13(11)
33	First Stage of Tseung Kwan O Desalination Plant, Area 137	Industrial	8-hectare	-	2023	Included in 2015-based BDTM	
34	Proposed Ancillary Building of Cross Bay Link	Office	-	-	2022	15(15)	15(15)
35	Proposed Chinese Medicine Hospital, Wan Po Road/ Pak Shing Kok Road	G/IC	400 beds	-	2024/2025	124(174)	156(104)
36	Proposed Government Chinese Medicine Testing Centre, Area 78	G/IC	Site area 17,200 m^2	-	2024	22(39)	39(22)
37	Joint-user Complex in Area 67	G/IC	6,000 m^2 Site Area	-	2026	15(15)	15(15)

Note:
Items 1 to 4: SKDC(M) Document No. 150/19. Development parameter for item 4 from planning brief by Planning Department.
Item 5: Land sales record 2018/2019. The completion year is estimated based on the existing data centre from land sales record to completion last for 4 years.
Item 6: The Remaining Package is estimated by subtracting the total number of completed/planned residential units in LOHAS Park (23,427 residential units) from the total residential units in the Approved Scheme (25,700 residential units) under Planning Application No. A/TKO/98-1 (Available at: https://www1.ozp.tpb.gov.hk/gist/apply/en_tc/A_TKO_98-1_TC.pdf).
Items 10 to 12 and 14 to 17: squarefoot.com.hk [accessed 29 May 2020]
Item 13: Sales Brochure of Phase VIII of LOHAS Park (Sea to Sky) dated 27.5.2020 (Available at: https://www.seatosky.hk/filemanager/pdf/STSSB_CoverP88.pdf).
Item 14: Outline Zoning Plan from Town Planning Board. Application No.: A/TKO/99-1.
Item 25: Sales Brochure of Mount Verdant dated 11.10.2017 (Available at: http://www.mountverdant.hkhs.com/en/#Sales-Brochure).
Item 26: Planning Application No. A/TKO/99-1 (Available at: https://www1.ozp.tpb.gov.hk/gist/apply/en_tc/A_TKO_99-1_TC.pdf). The construction year is available at https://www.legco.gov.hk/yr19-20/english/fc/pwsc/papers/p20-05e.pdf
Item 27: Rural and New Town Planning Committee Paper No. 2/20 (Available at: https://www.info.gov.hk/tpb/en/papers/RNTPC/648-rntpc_2-20.pdf).
Item 28: Planning Application No. A/TKO/107-1 (Available at: https://www1.ozp.tpb.gov.hk/gist/apply/en_tc/A_TKO_107-1_TC.pdf).
Item 29: SKDC(M) Document No. 95/18 (Available at: https://www.districtcouncils.gov.hk/sk/doc/2016_2019/tc/dc_meetings_doc/14297/SK_2018_095_TC.pdf).
Item 30: Planning Application No. A/TKO/105-1 (Available at: https://www1.ozp.tpb.gov.hk/gos/download.aspx?type=apply&caseno=A/TKO/105-1&lang=0).
Item 31: Planning Application No. A/TKO/120 (Available at: https://www1.ozp.tpb.gov.hk/gist/apply/en_tc/A_TKO_120_TC.pdf). RNTPC agreed to defer a decision on the application on 6.3.2020. The construction year is available at https://www.districtcouncils.gov.hk/sk/doc/2020_2023/en/dc_meetings_doc/18053/SK_2020_147_EN.pdf
Item 33: https://www.wsd.gov.hk/en/core-businesses/major-infrastructure-projects/tko-desalination-plant/index.html ; https://www.legco.gov.hk/yr17-18/english/panels/dev/papers/dev20180424cb1-825-4-e.pdf
According to Appendix P of the 2015-based BDTM report, the trips of planned development is included in 2015-based BDTM.
Item 34: https://www.cedd.gov.hk/eng/our-projects/major-projects/index-id-72.html; A nominal traffic of 15pcu/hr is assumed.
Item 35: https://www.fhb.gov.hk/en/chinese_medicine/about_cmh/index.html ; https://www.fhb.gov.hk/download/press_and_publications/otherinfo/160115_chinese_medicine_hospital/e_invitation.pdf
Item 36: https://www.legco.gov.hk/yr19-20/english/panels/hs/hs_dcm/papers/hs_dcm20200608cb2-1142-3-e.pdf; https://www.legco.gov.hk/yr20-21/english/panels/hs/papers/hs20210409cb4-707-5-e.pdf

Item 37: https://www.districtcouncils.gov.hk/sk/doc/2020_2023/en/dc_meetings_doc/18052/SK_2020_085_EN.pdf; Since the site is mainly for municipal, medical and welfare facilities, it is expected to induce minimal trips during the peak hours and assumed a nominal trip of 15 pcu/hr.

5. Design Year Traffic Conditions

5.1 Operation Traffic Impact Assessment

5.1.1 Based on the design year traffic flows at key junctions, the performances of the 13 key junctions during peak hours are assessed and shown in **Table 5.1**.

5.1.2 The 2026 and 2029 design year traffic flows for reference and design are shown in **Figures 5.1** to **5.4**.

5.1.3 According to the information from CEDD, road improvement works are proposed under Contract No. NE/2017/02 for J5 and J6. The junction assessments considered the proposed improvement works by CEDD.

Table 5.1 – Design Year Junction Performance

No.	Location	Type	2026				2029			
			Reference		Design		Reference		Design	
			AM	PM	AM	PM	AM	PM	AM	PM
J1	Wan Po Road / Chiu Shun Road / Po Yap Road	RA	0.82	0.58	0.80	0.58	0.85	0.64	0.84	0.64
J2	Po Yap Road / Po Hong Road /Chi Shin Street	RA	0.48	0.43	0.49	0.45	0.49	0.45	0.50	0.47
J3	Tong Chun Street / Chi Shin Street	SJ	31%	41%	34%	42%	22%	34%	25%	35%
J4	Tong Yin Street / Chi Shin Street	SJ	18%	32%	16%	41%	17%	23%	15%	30%
J5	Po Yap Road / Tong Yin Street	SJ	19%	14%	15%	7%	15%	9%	10%	4%
J6	Po Yap Road / Po Shun Road / Chui Ling Road	SJ	30%	47%	29%	44%	23%	42%	21%	39%
J7	Po Shun Road / Tong Ming Street	RA	0.56	0.51	0.59	0.51	0.62	0.54	0.62	0.54
J8	Po Yap Road / Tong Chun Street	SJ	27%	56%	24%	51%	22%	48%	19%	44%
J9	Po Hong Road / Tong Ming Street	SJ	82%	99%	82%	99%	76%	88%	76%	88%
J10	Tong Yin Street / Tong Ming Street	PJ	0.66	0.47	0.72	0.55	0.68	0.49	0.74	0.57
J11	Tong Yin Street / Tong Tak Street	SJ	24%	62%	19%	49%	24%	56%	19%	44%
J12	Tong Tak Street / Tong Chun Street	SJ	29%	31%	29%	31%	22%	23%	22%	23%
J13	Tong Ming Street / Tong Chun Street	SJ	96%	100%	96%	100%	89%	92%	89%	92%

5.1.4 Since additional car park traffic will be induced to adjacent car park, junctions in the vicinity of adjacent car parks will be affected. Performances of junctions (J1), (J3) and (J4) will be improved due to the relocation of vehicular access of existing STT car park to Po Yap Road for proposed PVP.

5.1.5 Based on the assessment results shown above, J5 will operate at below satisfactory level in design years.

5.1.6 Improvement scheme for (J5) have been designed in signalised junctions with staggered pedestrian crossing on the southern arm and western arm at Tong Yin Street and Po Yap Road respectively to improve the junction performance. Traffic signals and street furniture will need to be reprovided accordingly. The method of control will be modified to take into account the staggered pedestrian crossing arrangement to improve the junction performance as shown in **Appendix C**. The improvement scheme for (J5) is shown in **Figure 5.5**. The result of J5 performance under the proposed improvement scheme is shown in **Table 5.2**.

Table 5.2 –Design Year Junction Performance with Improvement Schemes

No.	Location	Type	2026 Design				2029 Design			
			Without Improvement		With Improvement		Without Improvement		With Improvement	
			AM	PM	AM	PM	AM	PM	AM	PM
J5	Po Yap Road / Tong Yin Street	SJ	14%	7%	33%	30%	10%	4%	28%	26%

5.2 Sensitivity Test

5.2.1 Sensitivity test is required to investigate the implications on Programme of Trunk Road T2 and Central Kowloon Route (CKR) as stated in **Table 4.1.** The major road infrastructure projects under construction in Kowloon East areas are the Trunk Road T2 and CKR which are targeted for commissioning by 2026 and 2025 respectively.

5.2.2 Possible programme slippage in the commissioning years of these projects may affect the traffic connectivity between TKO and Kowloon West. Thus, sensitivity review has been conducted on the potential traffic impact.

5.2.3 According to the PWSC Paper (2018-19)45 for Trunk Road T2 and Cha Kwo Ling Tunnel Project, the usage of the TKO-LT Tunnel would be increased by 30% upon the completion of the whole Route 6.

5.2.4 The results of sensitivity test and traffic flows (with and without CKR / T2) and shown in **Table 5.3** and the corresponding traffic flows are shown in **Figure 5.6** to **5.7**.

Table 5.3 – Sensitivity Test Result

No.	Location	Type	2026							
			With CKR / T2				Without CKR / T2			
			Reference		Design		Reference		Design	
			AM	PM	AM	PM	AM	PM	AM	PM
J1	Wan Po Road / Chiu Shun Road / Po Yap Road	RA	0.82	0.58	0.80	0.58	0.88	0.60	0.87	0.59
J2	Po Yap Road / Po Hong Road / Chi Shin Street	RA	0.48	0.43	0.49	0.45	0.49	0.43	0.50	0.45
J3	Tong Chun Street / Chi Shin Street	SJ	31%	41%	34%	42%	25%	36%	27%	37%
J4	Tong Yin Street / Chi Shin Street	SJ	18%	32%	16%	41%	24%	37%	21%	46%
J5[(1)]	Po Yap Road / Tong Yin Street	SJ	19%	14%	15% (33%)	7% (30%)	29%	22%	23% (43%)	11% (35%)
J6	Po Yap Road / Po Shun Road / Chui Ling Road	SJ	30%	47%	29%	44%	36%	56%	35%	53%
J7	Po Shun Road / Tong Ming Street	RA	0.56	0.51	0.59	0.51	0.59	0.56	0.59	0.56
J8	Po Yap Road / Tong Chun Street	SJ	27%	56%	24%	51%	30%	58%	27%	53%
J9	Po Hong Road / Tong Ming Street	SJ	82%	99%	82%	99%	72%	>100%	72%	113%
J10	Tong Yin Street / Tong Ming Street	PJ	0.66	0.47	0.72	0.55	0.64	0.52	0.70	0.60
J11	Tong Yin Street / Tong Tak Street	SJ	24%	62%	19%	49%	26%	58%	21%	46%
J12	Tong Tak Street / Tong Chun Street	SJ	29%	31%	29%	31%	27%	31%	27%	31%
J13	Tong Ming Street / Tong Chun Street	SJ	96%	100%	96%	100%	93%	105%	93%	105%

Note: Junction performance with improvement schemes have been shown in parentheses.

5.2.5 Most of the junctions could operate at satisfactory level except (J5) and (J1) in Reference scenario. In consideration of additional traffic flows to use TKO Tunnel under without CKR/T2 scenario, additional traffic will travel via Po Yap Road to Wan Po Road.

5.2.6 In Design scenario, (J1) could operate at satisfactory level due to the changes of vehicular access location from Chi Shin Street at existing STT in TKO area 66 to Po Yap Road for proposed PVP.

5.2.7 Since the design of vehicular access of proposed PVP design is left-turn/left-out enhancement at Po Yap Road, it will be more convenient for the development traffic to travel via Po Yap Road, Po Shun Road to Tseung Kwan O Tunnel.

5.3 Construction Traffic Impact Assessment

5.3.1 The details of the construction traffic volume like cut and fill etc. arising from the excavation works will be determined at the next stage of the study as there are no Contractor and Quantity Surveyor on-board at this Planning stage.

5.3.2 A preliminary Construction Traffic Impact Assessment has been conducted assuming there will be 20 nos. of construction vehicles (one-way/hour) (i.e. 50pcu/hour) to/from the site. The construction traffic would access to the nearest South East New Territories (SENT) Landfill. The results of Construction Traffic Impact are summarised in **Table 5.4**.

Table 5.4 - Design Year Junction Performance for Construction Stage

No.	Location	Type	2026			
			Reference		Construction Stage	
			AM	PM	AM	PM
J1	Wan Po Road / Chiu Shun Road / Po Yap Road	RA	0.88	0.60	0.91	0.62
J2	Po Yap Road / Po Hong Road /Chi Shin Street	RA	0.49	0.43	0.50	0.45
J3	Tong Chun Street / Chi Shin Street	SJ	25%	36%	18%	28%
J4	Tong Yin Street / Chi Shin Street	SJ	24%	37%	24%	37%
J5	Po Yap Road / Tong Yin Street	SJ	29%	22%	29%	22%
J6	Po Yap Road / Po Shun Road / Chui Ling Road	SJ	36%	56%	36%	56%
J7	Po Shun Road / Tong Ming Street	RA	0.59	0.56	0.59	0.56
J8	Po Yap Road / Tong Chun Street	SJ	30%	58%	27%	54%
J9	Po Hong Road / Tong Ming Street	SJ	72%	113%	72%	113%
J10	Tong Yin Street / Tong Ming Street	PJ	0.64	0.52	0.70	0.60
J11	Tong Yin Street / Tong Tak Street	SJ	26%	58%	26%	58%
J12	Tong Tak Street / Tong Chun Street	SJ	27%	31%	27%	31%
J13	Tong Ming Street / Tong Chun Street	SJ	93%	105%	93%	105%

5.3.3 The results of junction assessment during construction stage shown that (J1) will operate beyond satisfactorily level with DFC 0.85. Subject to the detailed construction traffic impact assessment to be carried out during the construction stage, the construction traffic can be restricted to non-peak hours in weekday and the exact hours for construction traffic generation can also be determined in the construction stage once the detailed construction-related information is available.

6. Summary and Conclusions

6.1 Summary

6.1.1 Transport Department intended to process the application for permission under Section 16 of the Town Planning Ordinance for the implementation of this proposed development of underground public vehicle park (PVP)(excluding container vehicle) in town park in Area 66, Tseung Kwan O (TKO).

6.1.2 This proposed development will comprise of an underground Public Vehicle Park to accommodate 395 parking spaces for various vehicles. The ingress/egress vehicles to the site will be operated via a left-in/left-out traffic arrangement at Po Yap Road.

6.1.3 The PVP development traffic can travel through TKO Tunnel, TKO-LT Tunnel to access the urban areas. The development traffic can also travel via Chiu Shun Road to TKO and Sai Kung areas.

6.1.4 This site is well served by public transport facilities including franchised buses, GMBs and Tseung Kwan O MTR Station which are located within a 500m walking distance from the site.

6.1.5 Parking analysis shows that the parking demand for private car, van-type LGV and coach (and Light Bus) can be absorbed by existing available parking spaces in the vicinity during the construction period.

6.1.6 For conservative approach, it is assumed the proposed PVP is fully occupied and the trip rates are based on parked vehicle. Since the number of parking spaces in the proposed PVP will be less than the existing STT car park, some car park traffic will be redistributed to the adjacent car parks.

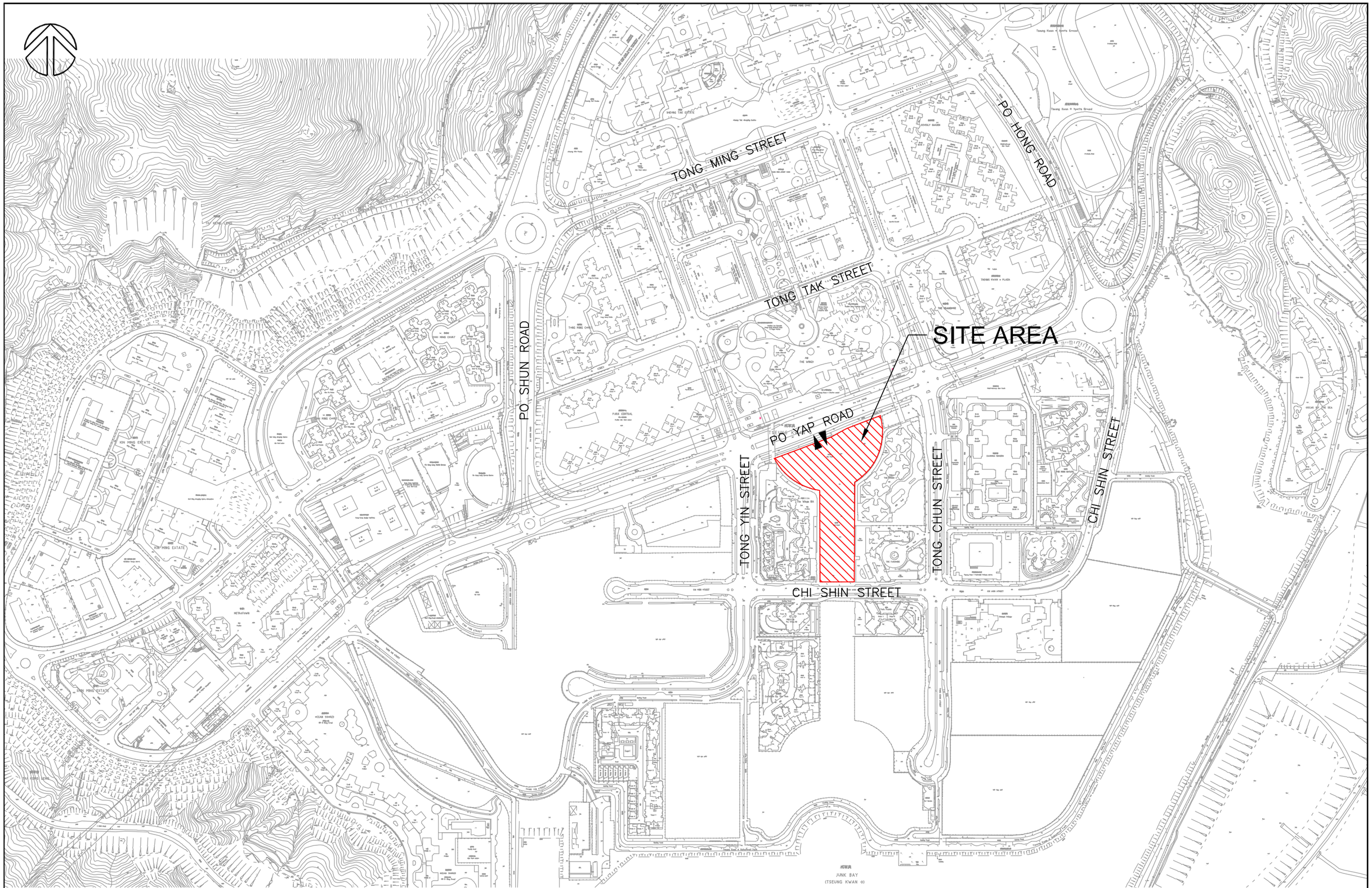
6.1.7 Since additional car park traffic will be induced to adjacent car park, junctions in the vicinity of adjacent car parks will be affected. Junctions (J1), (J3) and (J4) will be improved due to the relocation of vehicular access of existing STT car park to Po Yap Road for proposed PVP. Based on the junction assessment results, modification scheme for J5 has been proposed to improve the junction performance. With the proposed junction modifications, all junctions will be operating satisfactorily in design years.

6.1.8 A sensitivity test has been conducted for the scenario of possible programme slippage in commissioning years of Trunk Road T2 and CKR. In consideration of additional traffic flows to use TKO Tunnel under without CKR/T2 scenario, additional traffic will travel via Po Yap Road to Wan Po Road. In design scenario, (J1) could operate at satisfactory level due to the changes of vehicular access location from Chi Shin Street at existing STT in TKO area 66 to Po Yap Road for proposed PVP.

6.2 Conclusion

6.2.1 The results of this assessment show that the proposed PVP and Town Park in TKO Area in 66 would generate minimal traffic impact and it is technically feasible from traffic engineering point of view at this stage.

FIGURES



HWSPB 何黃 Traffic & Transportation Consultants Ho Wang SPB Limited	Project Title: PROPOSED UNDERGROUND PUBLIC VEHICLE PARK (EXCLUDING CONTAINER VEHICLE) IN TOWN PARK IN AREA 66, TSEUNG KWAN O	Scale: 1 : 5000	Date: MAR 2021	Figure No.: 2.1
	Figure Title: SITE LOCATION	Project No.: J1598	CAD Ref.: J1598/TIA1/F21/2021-03-15	Rev.: –

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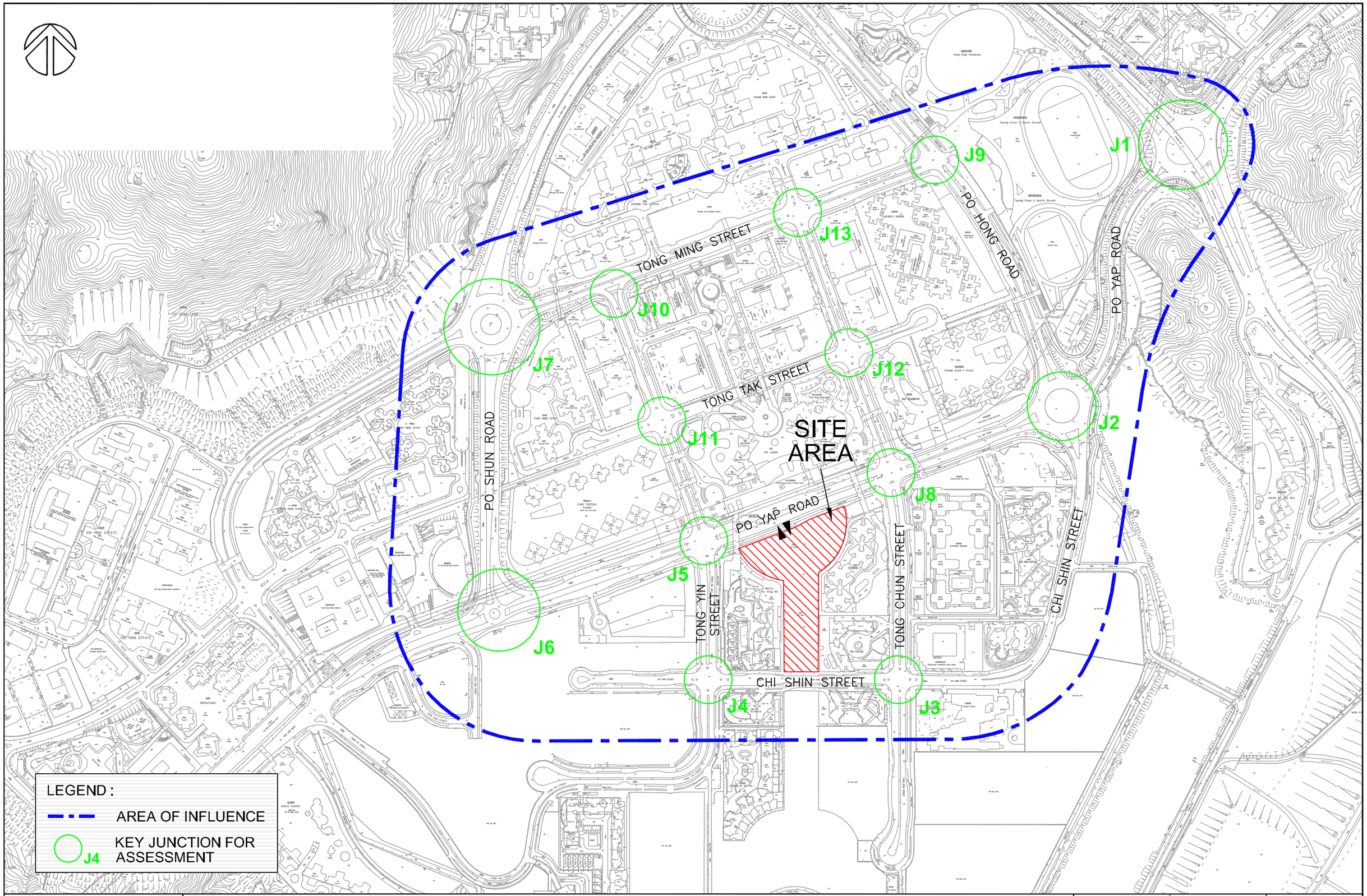

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Project Title: PROPOSED UNDERGROUND PUBLIC VEHICLE PARK (EXCLUDING CONTAINER VEHICLE) IN TOWN PARK IN AREA 66, TSEUNG KWAN O	Scale: 1 : 5000	Date: MAR 2021	Figure No.: 3.1
Figure Title: AREA OF INFLUENCE	Project No.: J1598	CAD Ref.: J1598/TIA1/F31/2021-03-15	Rev.: –

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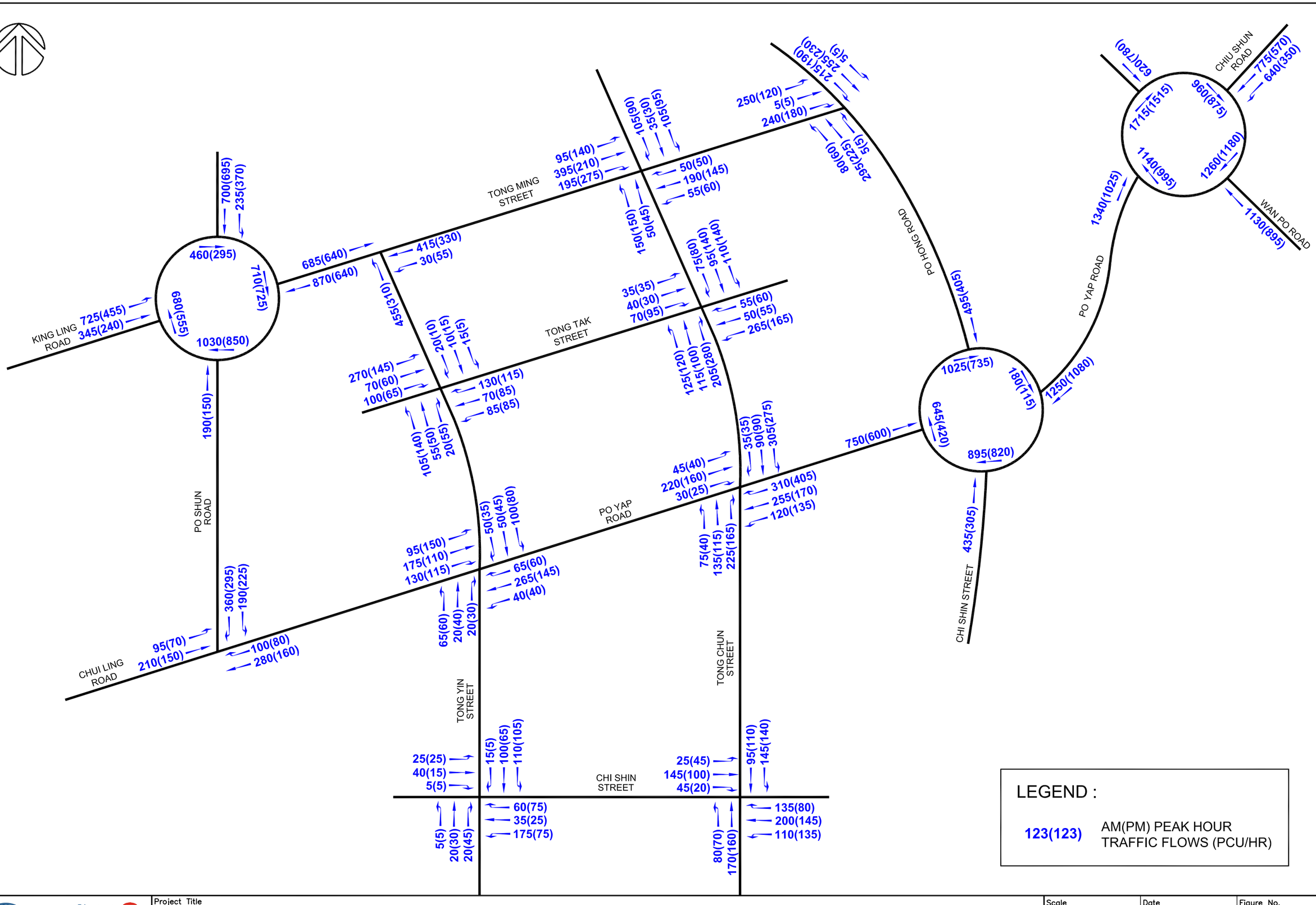

LEGEND :

123(123) AM(PM) PEAK HOUR TRAFFIC FLOWS (PCU/HR)

HWSPB 何黃 Traffic & Transportation Consultants Ho Wang SPB Limited	Project Title: PROPOSED UNDERGROUND PUBLIC VEHICLE PARK (EXCLUDING CONTAINER VEHICLE) IN TOWN PARK IN AREA 66, TSEUNG KWAN O	Scale: N. T. S.	Date: MAR 2021	Figure No.: 3.2
	Figure Title: 2020 BASE YEAR TRAFFIC FLOWS	Project No.: J1598	CAD Ref.: J1598/TIA1/F32/2021-03-15	Rev.: –

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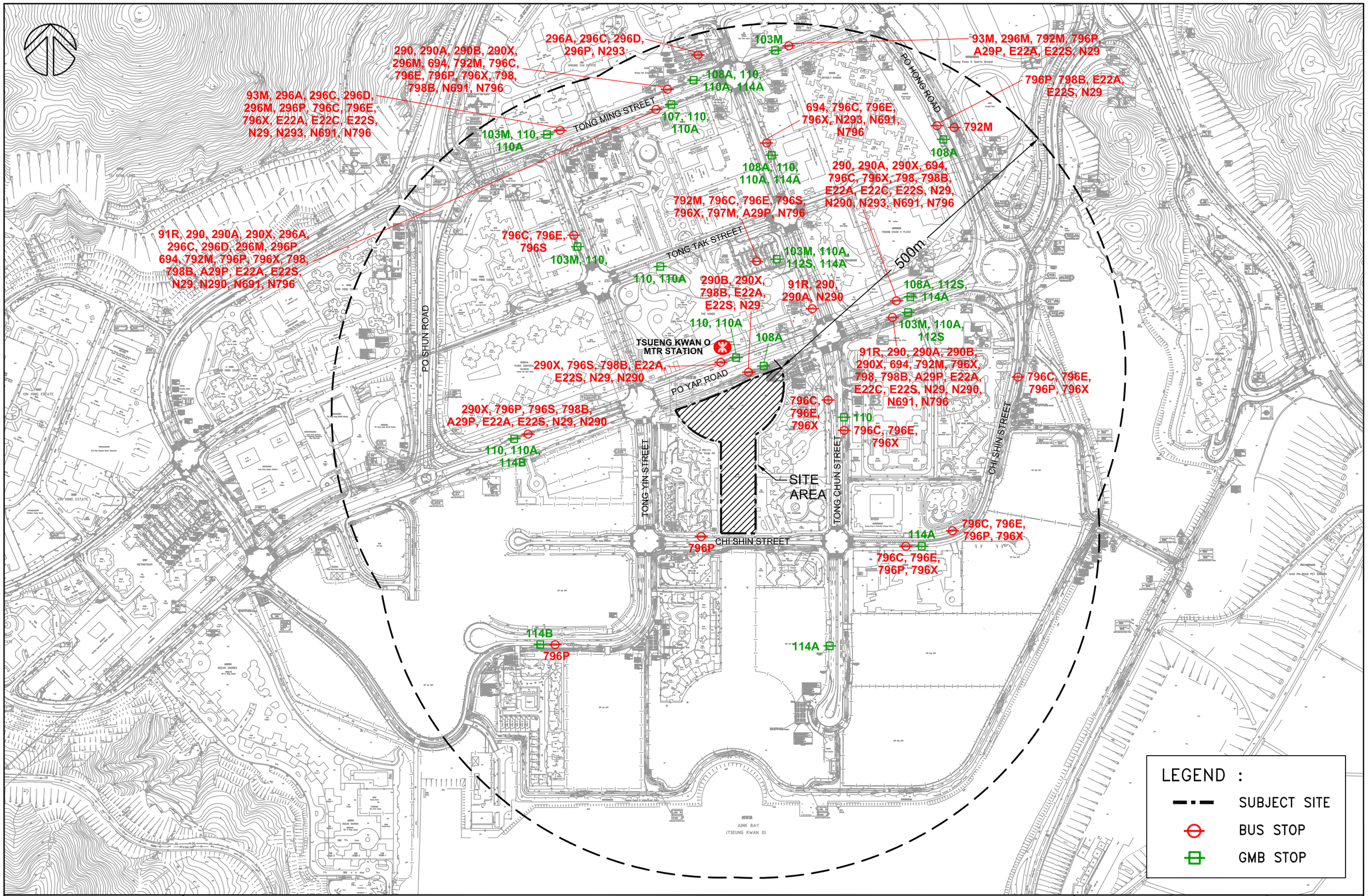

HWSPB 何黃 Traffic & Transportation Consultants Ho Wang SPB Limited	Project Title: PROPOSED UNDERGROUND PUBLIC VEHICLE PARK (EXCLUDING CONTAINER VEHICLE) IN TOWN PARK IN AREA 66, TSEUNG KWAN O	Scale: 1 : 5000	Date: MAR 2021	Figure No.: 3.3
	Figure Title: PUBLIC TRANSPORT FACILITIES IN THE VICINITY OF THE SITE	Project No.: J1598	CAD Ref.: J1598/TIA1/F33/2021-03-26	Rev.: –

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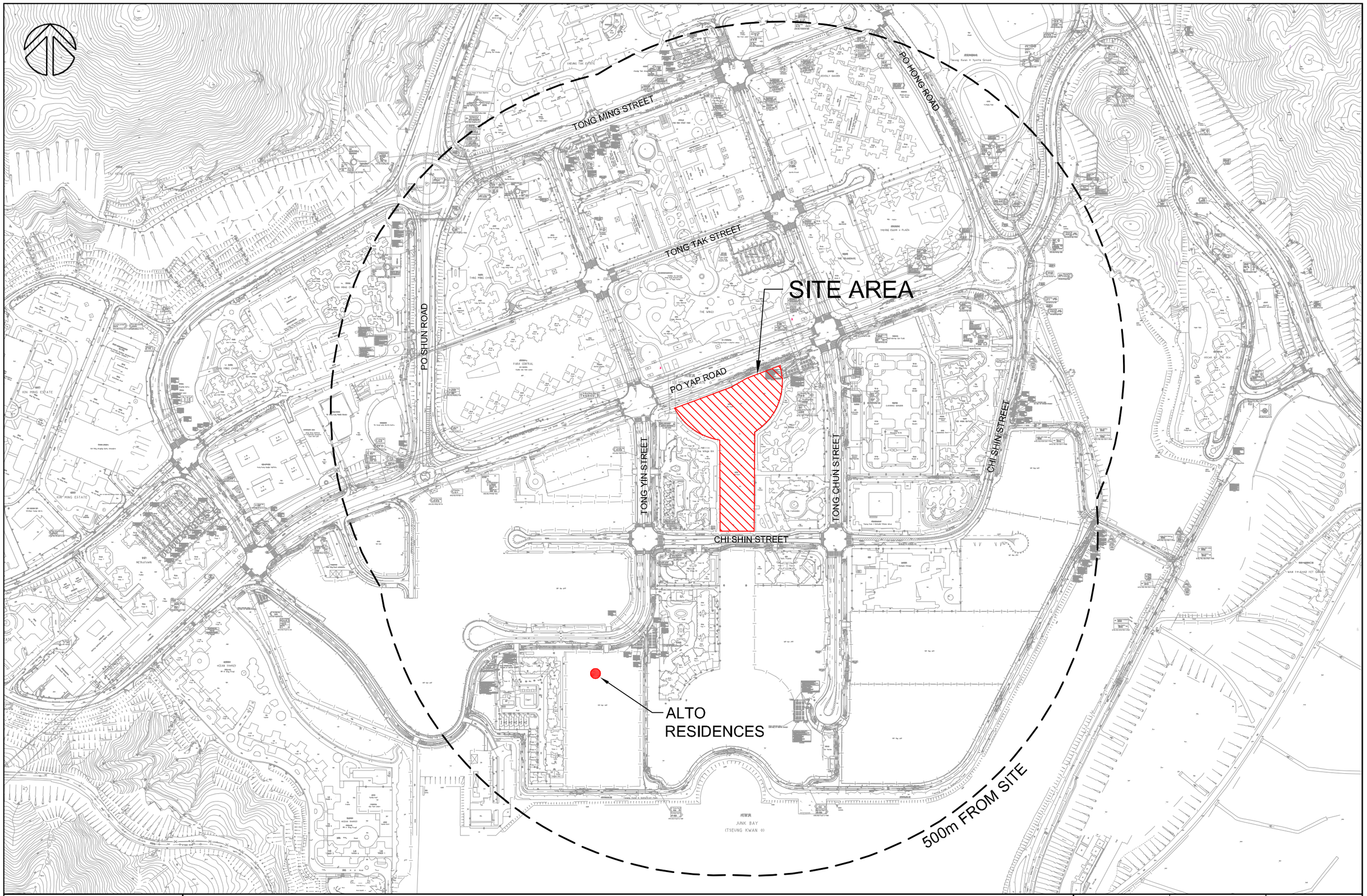

HWSPB 何黃
Traffic & Transportation Consultants
Ho Wang SPB Limited

Project Title: PROPOSED UNDERGROUND PUBLIC VEHICLE PARK (EXCLUDING CONTAINER VEHICLE) IN TOWN PARK IN AREA 66, TSEUNG KWAN O	Scale: 1 : 5000	Date: MAY 2021	Figure No.: 3.4
Figure Title: EXISTING PUBLIC OFF-STREET CAR PARKING LOCATION	Project No.: J1598	CAD Ref.: J1598/TIA1/F34B/2021-07-26	Rev.: B

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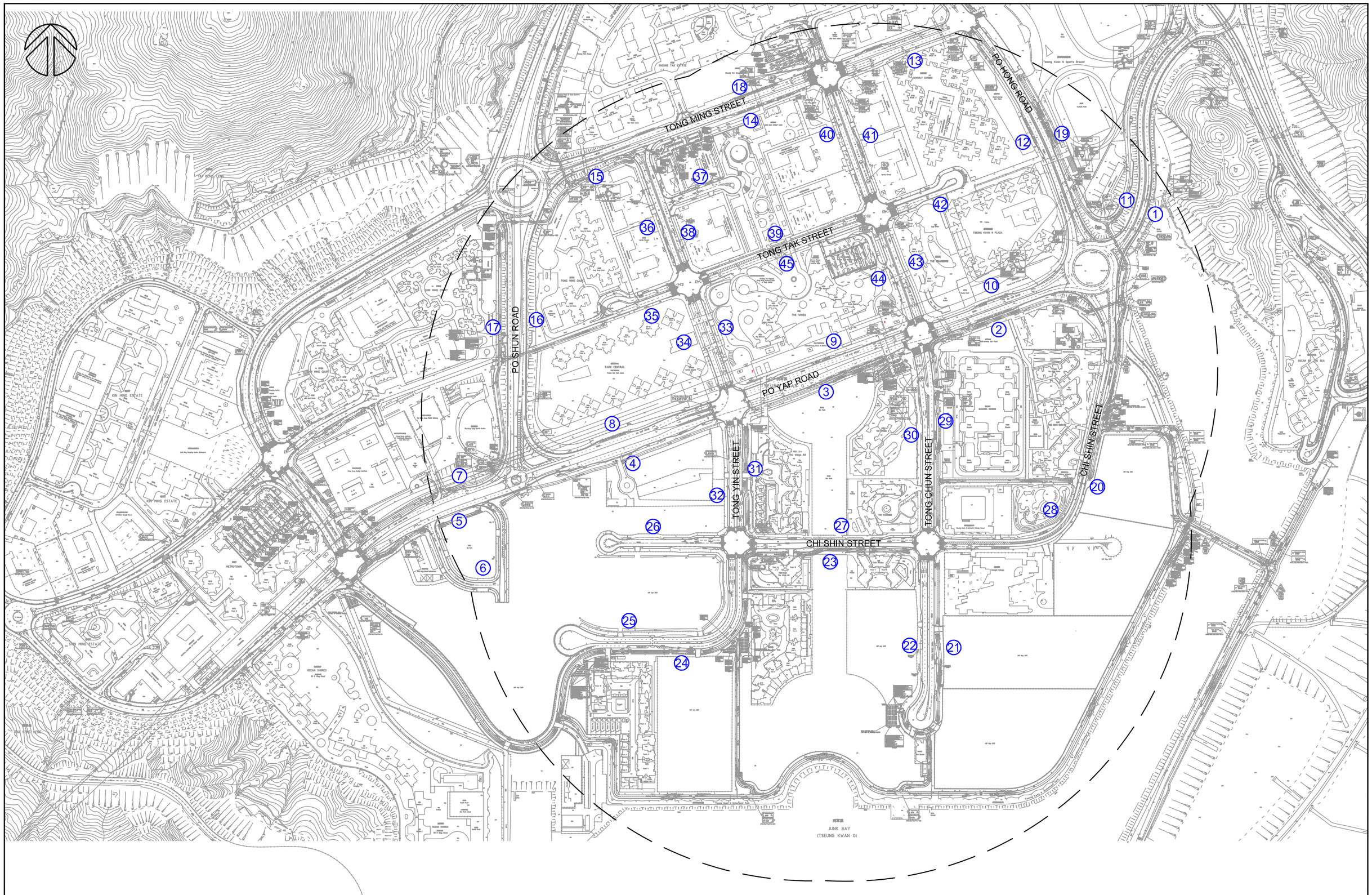

HWSPB 何黃 Traffic & Transportation Consultants Ho Wang SPB Limited	Project Title: PROPOSED UNDERGROUND PUBLIC VEHICLE PARK (EXCLUDING CONTAINER VEHICLE) IN TOWN PARK IN AREA 66, TSEUNG KWAN O	Scale: 1 : 5000	Date: MAR 2021	Figure No.: 3.5
	Figure Title: INDEX OF ROAD SECTIONS FOR ON-STREET ILLEGAL PARKING SURVEY	Project No.: J1598	CAD Ref.: J1598/TIA1/F35/2021-03-15	Rev.: -

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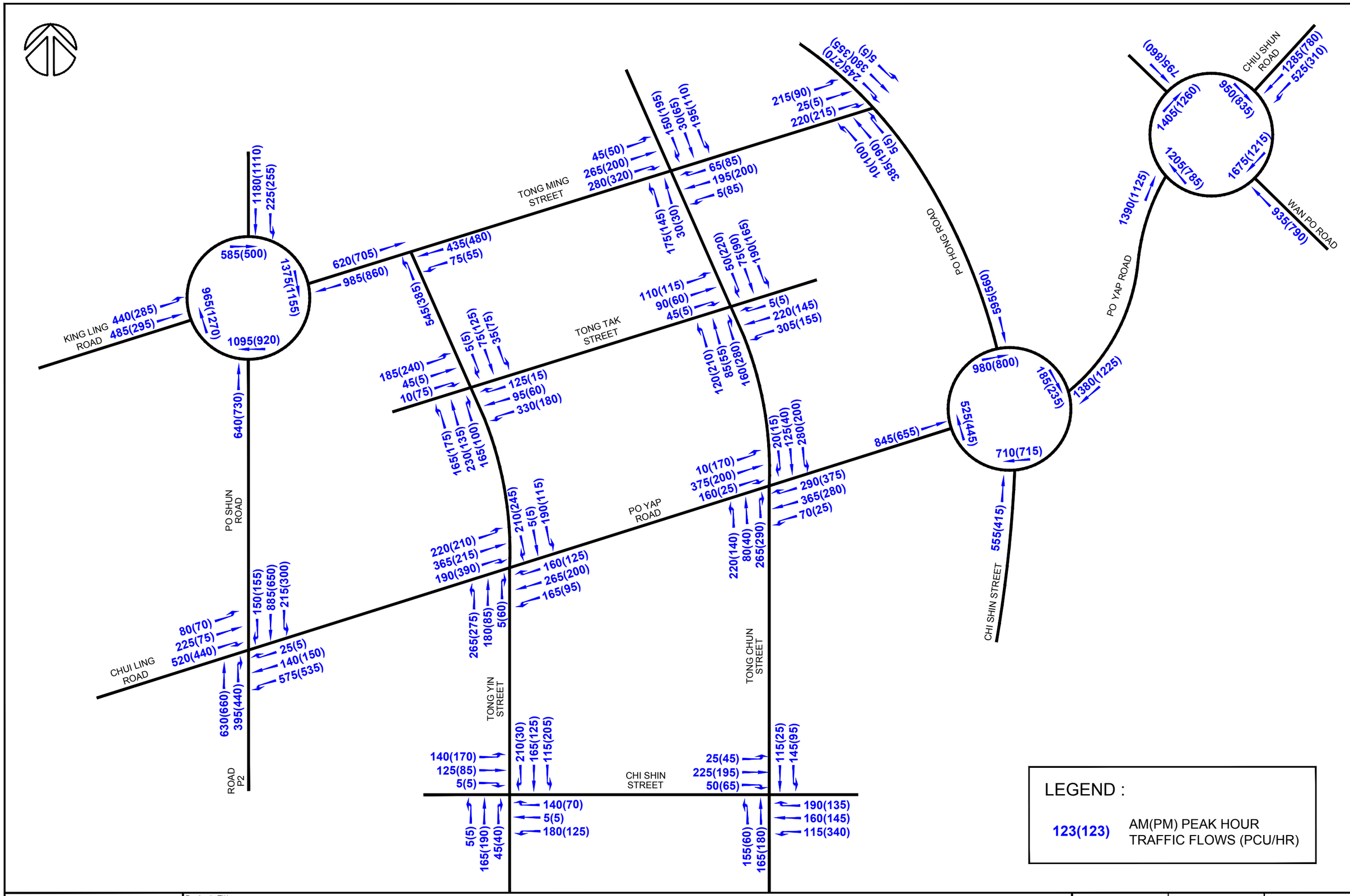
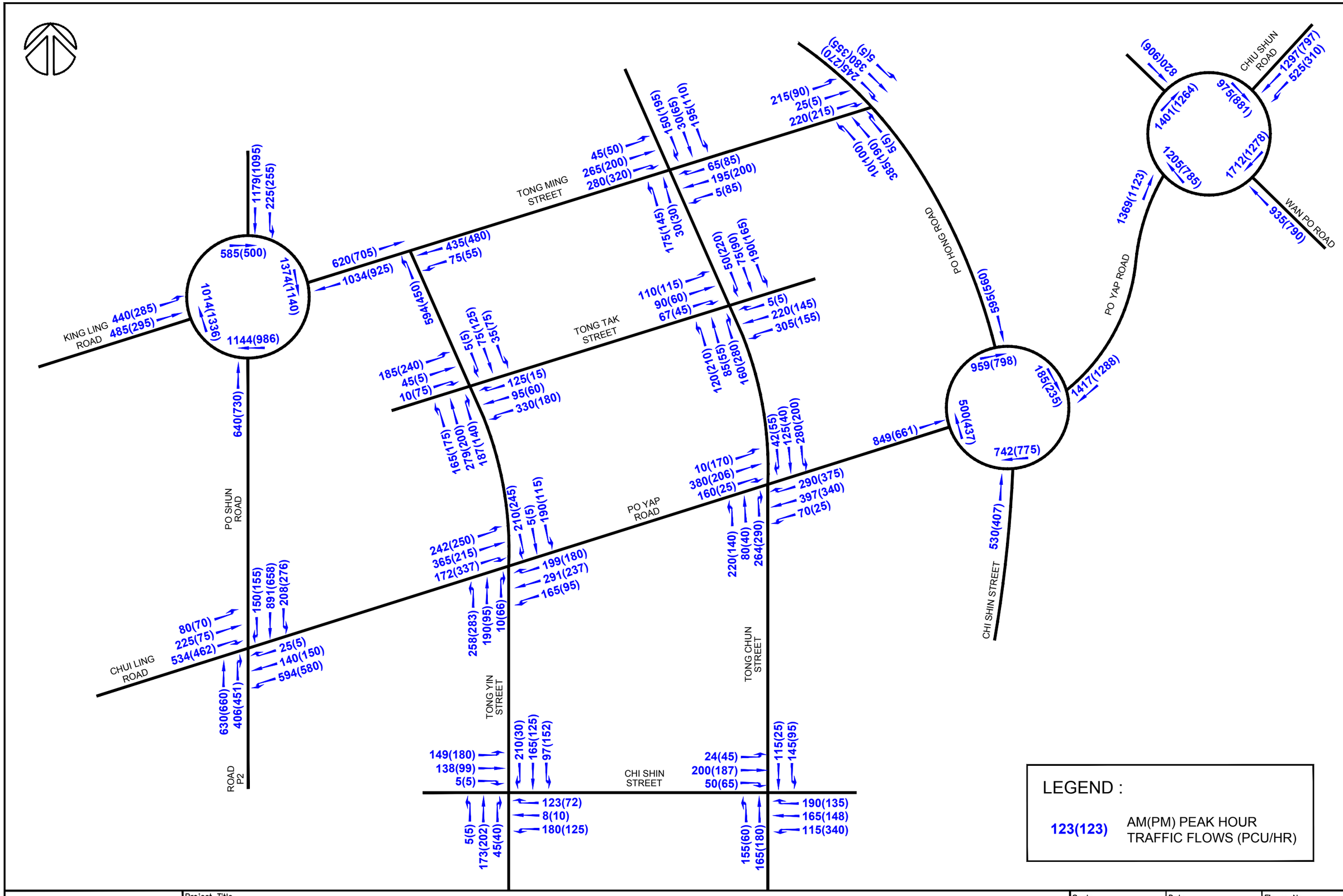


LEGEND :

123(123) AM(PM) PEAK HOUR TRAFFIC FLOWS (PCU/HR)

HWSPB
Traffic & Transportation Consultants
Ho Wang SPB Limited

Project Title: PROPOSED UNDERGROUND PUBLIC VEHICLE PARK (EXCLUDING CONTAINER VEHICLE) IN TOWN PARK IN AREA 66, TSEUNG KWAN O	Scale: N. T. S.	Date: MAY 2021	Figure No.: 5.1	
Figure Title: 2026 REFERENCE TRAFFIC FLOWS (WITH CKR/T2)	Project No.: J1598	CAD Ref.: J1598/FLOWS/INDEX/2020-10-19	Rev.: A	



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123(123) AM(PM) PEAK HOUR TRAFFIC FLOWS (PCU/HR)

HWSPB
Traffic & Transportation Consultants
Ho Wang SPB Limited

Project Title: PROPOSED UNDERGROUND PUBLIC VEHICLE PARK (EXCLUDING CONTAINER VEHICLE) IN TOWN PARK IN AREA 66, TSEUNG KWAN O	Scale: N. T. S.	Date: MAY 2021	Figure No.: 5.2
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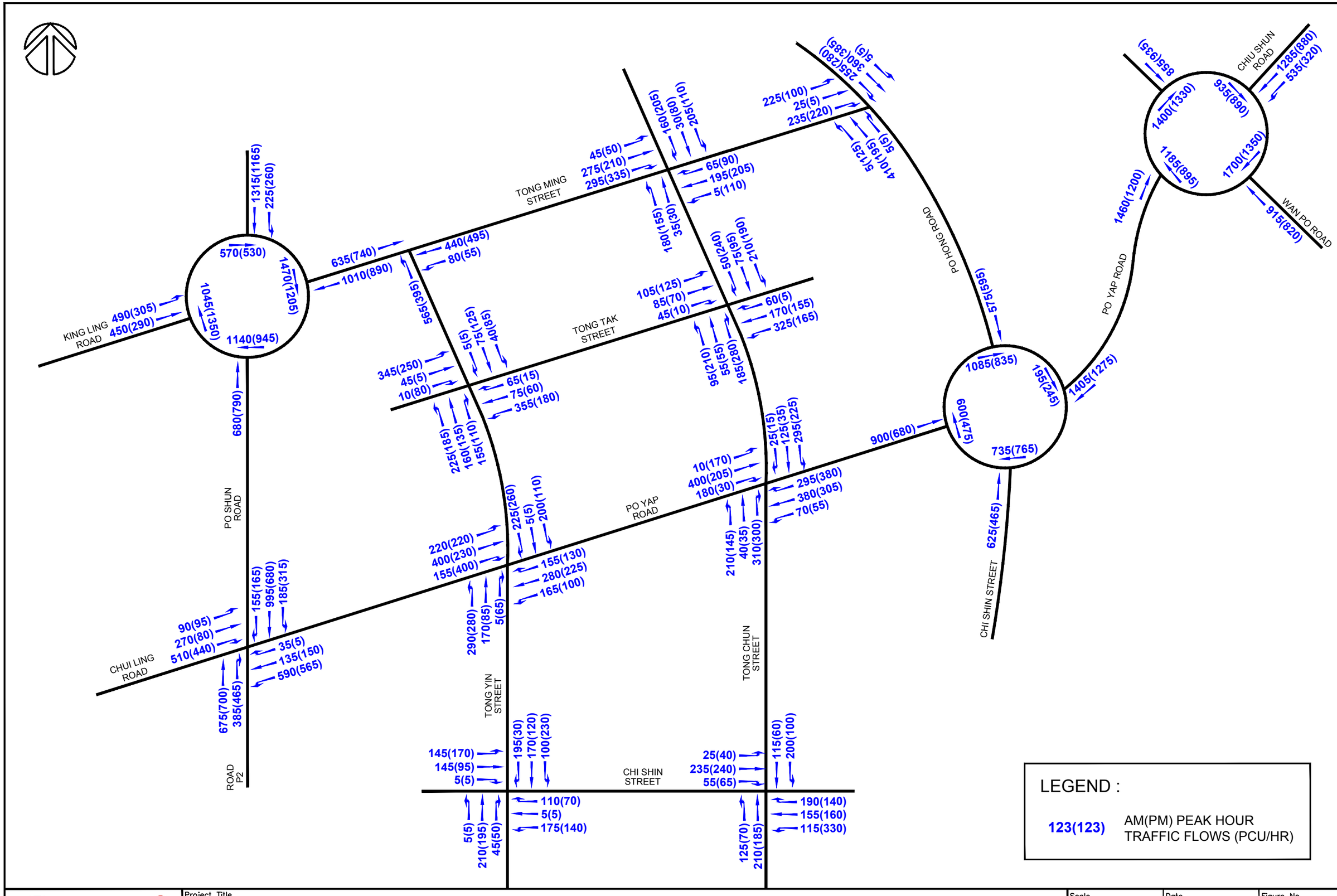

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HWSPB Traffic & Transportation Consultants Ho Wang SPB Limited	Project Title: PROPOSED UNDERGROUND PUBLIC VEHICLE PARK (EXCLUDING CONTAINER VEHICLE) IN TOWN PARK IN AREA 66, TSEUNG KWAN O	Scale: N. T. S.	Date: MAY 2021	Figure No.: 5.3
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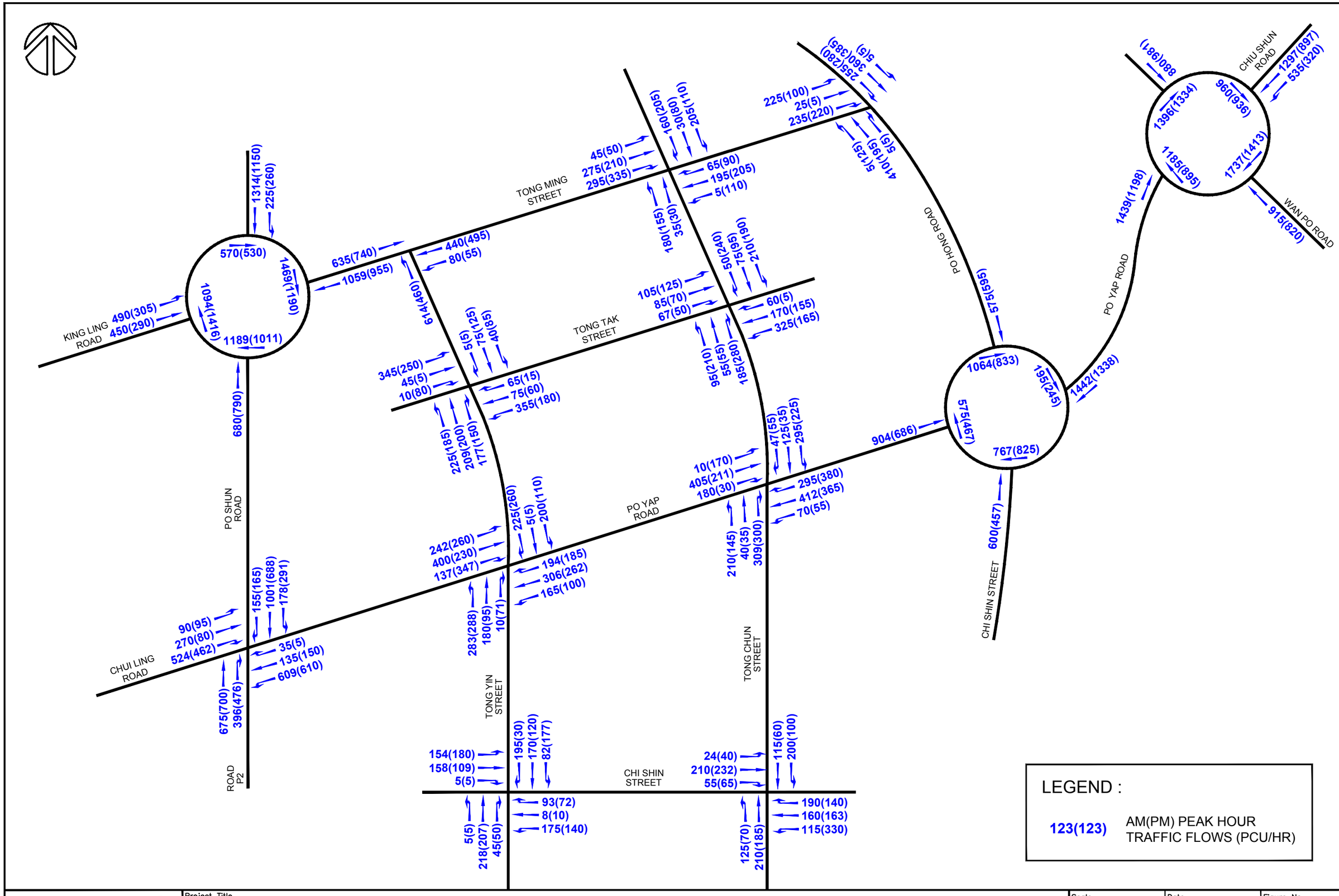

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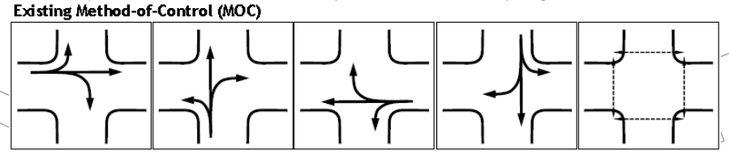
123(123) AM(PM) PEAK HOUR TRAFFIC FLOWS (PCU/HR)

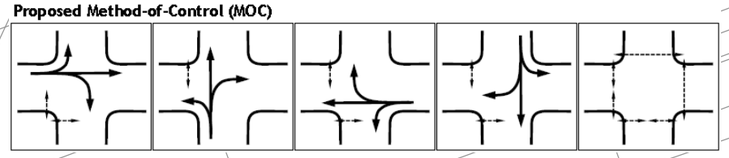
HWSPB
Traffic & Transportation Consultants
Ho Wang SPB Limited

Project Title: PROPOSED UNDERGROUND PUBLIC VEHICLE PARK (EXCLUDING CONTAINER VEHICLE) IN TOWN PARK IN AREA 66, TSEUNG KWAN O		Scale: N. T. S.	Date: MAY 2021	Figure No.: 5.4
Figure Title: 2029 DESIGN TRAFFIC FLOWS		Project No.: J1598	CAD Ref.: J1598/FLOWS/INDEX/2020-10-19	Rev.: A

Existing Method-of-Control (MOC)



Proposed Method-of-Control (MOC)



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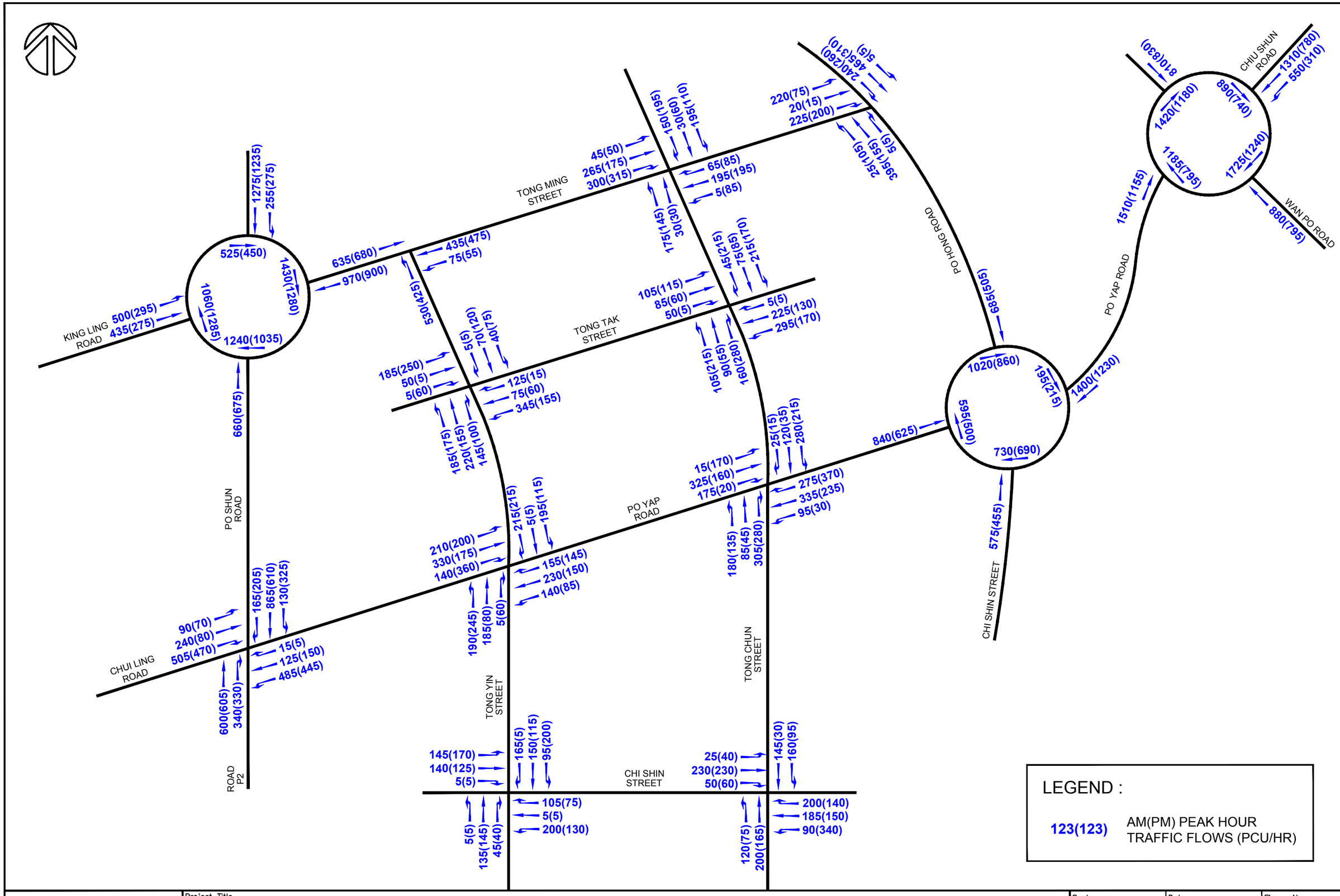
Traffic & Transportation Consultants
Ho Wang SPB Limited

Project Title: PROPOSED UNDERGROUND PUBLIC VEHICLE PARK (EXCLUDING CONTAINER VEHICLE) IN TOWN PARK IN AREA 66, TSEUNG KWAN O	Scale: 1 : 500	Date: MAY 2021	Figure No.: 5.5
Figure Title: PROPOSED JUNCTION IMPROVEMENT SCHEME FOR JUNCTION OF PO YAP ROAD/TONG YIN STREET (J5)	Project No.: J1598	CAD Ref.: J1598/TIA1/F55B/2021-05-25	Rev.: B



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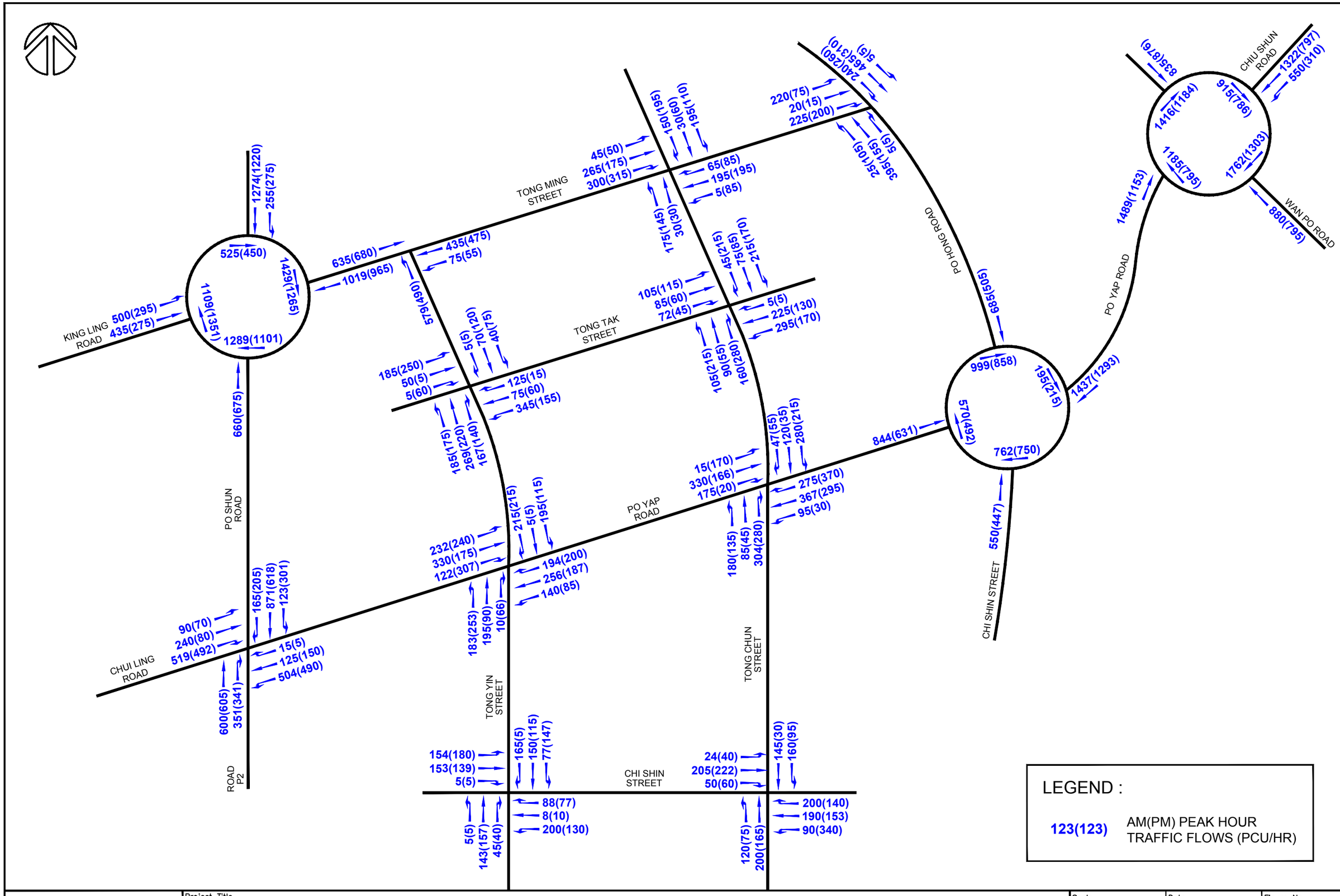
123(123) AM(PM) PEAK HOUR TRAFFIC FLOWS (PCU/HR)

HWSPB Traffic & Transportation Consultants Ho Wang SPB Limited	Project Title: PROPOSED UNDERGROUND PUBLIC VEHICLE PARK (EXCLUDING CONTAINER VEHICLE) IN TOWN PARK IN AREA 66, TSEUNG KWAN O	Scale: N. T. S.	Date: MAY 2021	Figure No.: 5.6
	Figure Title: 2026 REFERENCE TRAFFIC FLOWS (WITHOUT CKR/T2)	Project No.: J1598	CAD Ref.: J1598/FLOWS/INDEX/2020-10-19	Rev.: A



LEGEND :

123(123) AM(PM) PEAK HOUR TRAFFIC FLOWS (PCU/HR)

HWSPB Traffic & Transportation Consultants Ho Wang SPB Limited	Project Title: PROPOSED UNDERGROUND PUBLIC VEHICLE PARK (EXCLUDING CONTAINER VEHICLE) IN TOWN PARK IN AREA 66, TSEUNG KWAN O	Scale: N. T. S.	Date: MAY 2021	Figure No.: 5.7
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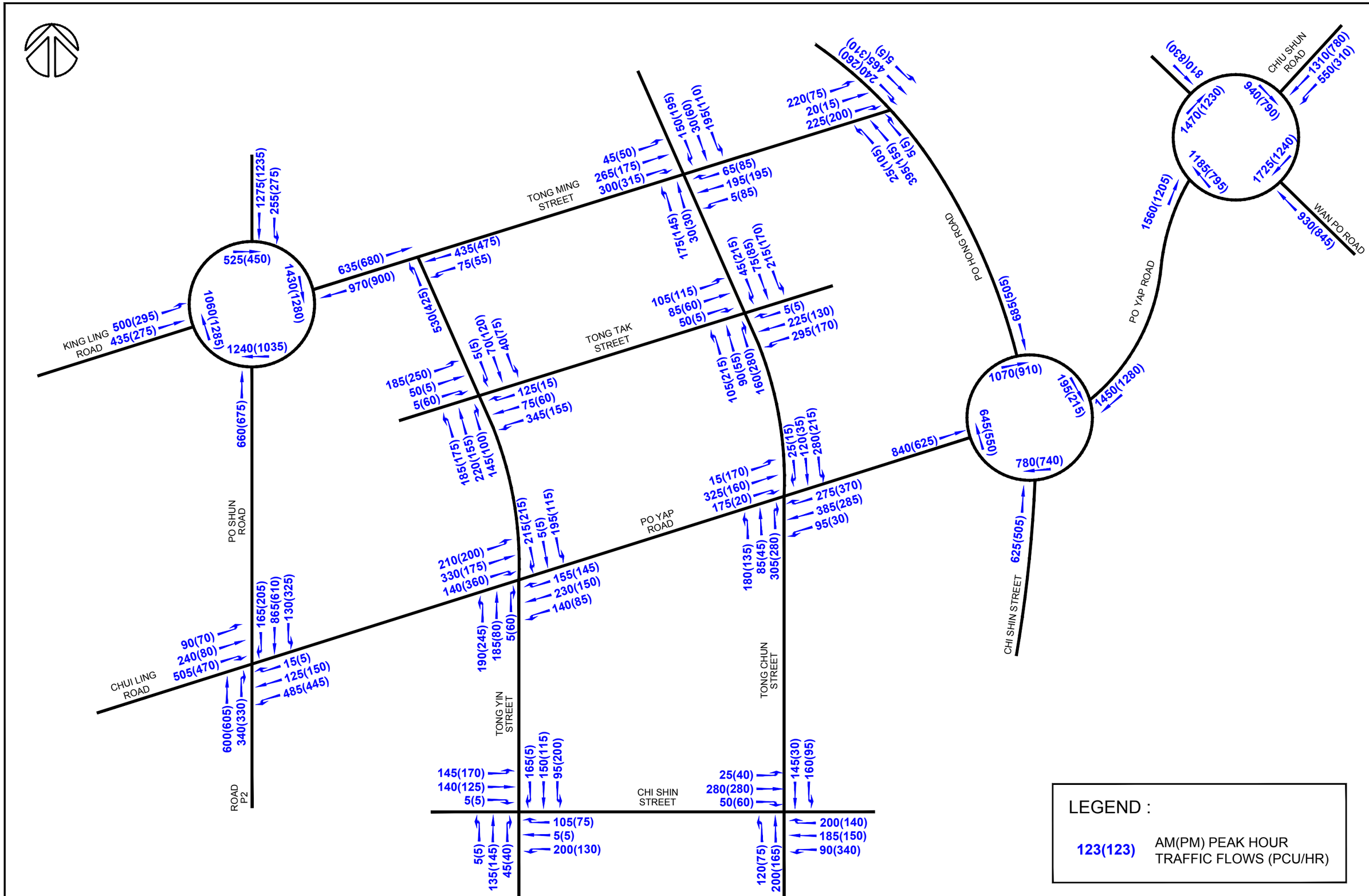

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123(123) AM(PM) PEAK HOUR TRAFFIC FLOWS (PCU/HR)

HWSPB Traffic & Transportation Consultants Ho Wang SPB Limited	Project Title: PROPOSED UNDERGROUND PUBLIC VEHICLE PARK (EXCLUDING CONTAINER VEHICLE) IN TOWN PARK IN AREA 66, TSEUNG KWAN O	Scale: N. T. S.	Date: MAY 2021	Figure No.: 5.8
	Figure Title: 2026 DESIGN TRAFFIC FLOWS (CONSTRUCTION STAGE)	Project No.: J1598	CAD Ref.: J1598/FLOWS/INDEX/2020-10-19	Rev.: A

APPENDIX A
Parking Utilisation Rate and Parking Charges for STT Parking Sites

Hourly Parking Utilization Rate for STT Parking Site SX 5109 at Daytime

Date: 26/11/2020
Address: Chi Shin Street, Area 66, Tseung Kwan O

Vehicle Type	C / NFB	FB	MGV / HGV	LGV (Non-Van Type)	LGV (Van Type)	PC	Taxi	CT			PLB	PRLB	MC	Total	Remark
								with Trailer	without Trailer	Trailer only					
Parking Space	-	-	-	22	742			-	-	-	-	-	24	788	LGV+PRLB

Period	Maximum No. of Parked Vehicles													
	C / NFB	FB	MGV / HGV	LGV (Non-Van Type)	LGV (Van Type)	PC	Taxi	CT			PLB	PRLB	MC	Total
								with Trailer	without Trailer	Trailer only				
06:00-07:00				8	51	493						12	19	583
07:00-08:00				7	44	451						2	19	523
08:00-09:00				5	35	423						5	18	486
09:00-10:00				7	34	407						6	15	469
10:00-11:00				12	37	410						5	14	478
11:00-12:00				10	36	411						4	14	475
12:00-13:00				8	37	410	1					4	12	472
13:00-14:00				11	38	415						4	14	482
14:00-15:00				9	34	353						6	12	414
15:00-16:00			1	7	35	373						11	16	443
16:00-17:00			1	5	40	392						6	15	459
17:00-18:00				12	35	370						12	10	439
18:00-19:00				8	53	400						6	14	481
19:00-20:00				9	51	385						11	11	467
20:00-21:00			1	8	69	429	1					11	17	536
21:00-22:00			3	6	60	435	1					10	20	535

Notes:
C / NFB = Coach / Non-franchised Bus
HGV = Heavy Goods Vehicle
MGV = Medium Goods Vehicle
LGV = Light Goods Vehicle
CT = Container Truck
PLB = Public Light Bus
PRLB = Private Light Bus
MC = Motor Cycle

Hourly Parking Utilization Rate for STT Parking Site SX 5109 at Nightime

Date: 15/12/2020
Address: Chi Shin Street, Area 66, Tseung Kwan O

Vehicle Type	C / NFB	FB	MGV / HGV	LGV (Non-Van Type)	LGV (Van Type)	PC	Taxi	CT			PLB	PRLB	MC	Total	Remark
								with Trailer	without Trailer	Trailer only					
Parking Space	-	-	-	22	742			-	-	-	-	-	24	788	LGV+PRLB

Period	Maximum No. of Parked Vehicles													
	C / NFB	FB	MGV / HGV	LGV (Non-Van Type)	LGV (Van Type)	PC	Taxi	CT			PLB	PRLB	MC	Total
								with Trailer	without Trailer	Trailer only				
00:00-01:00				9	57	516	4					9	19	614
01:00-02:00				9	57	523	4					9	20	622
02:00-03:00				9	56	523	4					9	20	621
03:00-04:00				9	56	524	4					9	20	622

Notes:
C / NFB = Coach / Non-franchised Bus
HGV = Heavy Goods Vehicle
MGV = Medium Goods Vehicle
LGV = Light Goods Vehicle
CT = Container Truck
PLB = Public Light Bus
PRLB = Private Light Bus
MC = Motor Cycle

Parking Charge for STT Parking Site SX 5109

Vehicle Type	Period	C / NFB	FB	MGV / HGV (over 5.5 tonnes)	LGV (Non- Van Type)	LGV (Van Type)	PC	Taxi	CT			PLB	PRLB	MC
									with Trailer	without Trailer	Trailer only			
Monthly Charge					HK$3,800	HK$2,800	HK$2,800						HK$3,800	HK$400
Hourly Charge					HK$18	HK$16	HK$16						HK$18	HK$16
Daytime Charge	08:00~18:00				HK$100	HK$90	HK$90						HK$100	HK$90
Nighttime Charge	18:00~08:00				HK$100	HK$90	HK$90						HK$100	HK$90
Whole Day Charge					HK$200	HK$180	HK$180						HK$200	HK$180

Notes:

C / NFB = Coach / Non-franchised Bus
HGV = Heavy Goods Vehicle
MGV = Medium Goods Vehicle
LGV = Light Goods Vehicle
CT = Container Truck
PLB = Public Light Bus
PRLB = Private Light Bus
MC = Motor Cycle

Hourly Parking Utilization Rate for STT Parking Site SX 5148 at Daytime

Date: 26/11/2020
Address: Chui Shin Street, Area 72, Tseung Kwan O

Vehicle Type	C / NFB	FB	MGV / HGV	LGV (Non-Van Type)	LGV (Van Type)	PC	Taxi	CT			PLB	PRLB	MC	Total
								with Trailer	without Trailer	Trailer only				
Parking Space	-	-	-	-	260			-	-	-	-	-	5	265

Period	Maximum No. of Parked Vehicles													
	C / NFB	FB	MGV / HGV	LGV (Non-Van Type)	LGV (Van Type)	PC	Taxi	CT			PLB	PRLB	MC	Total
								with Trailer	without Trailer	Trailer only				
06:00-07:00					8	225	1						2	236
07:00-08:00					6	181							2	189
08:00-09:00					5	151							1	157
09:00-10:00					6	165							1	172
10:00-11:00					3	184							1	188
11:00-12:00					1	202							1	204
12:00-13:00						158								158
13:00-14:00						153								153
14:00-15:00						169								169
15:00-16:00					2	174							2	178
16:00-17:00					2	203							2	207
17:00-18:00					3	189	1						2	195
18:00-19:00					6	213	1						2	222
19:00-20:00					6	227	1						2	236
20:00-21:00					6	236	1						2	245
21:00-22:00					6	241	1						2	250

Notes:
C / NFB = Coach / Non-franchised Bus
HGV = Heavy Goods Vehicle
MGV = Medium Goods Vehicle
LGV = Light Goods Vehicle
CT = Container Truck
PLB = Public Light Bus
PRLB = Private Light Bus
MC = Motor Cycle

Hourly Parking Utilization Rate for STT Parking Site SX 5148 at Nightime

Date: 15/12/2020
Address: Chui Shin Street, Area 72, Tseung Kwan O

Vehicle Type	C / NFB	FB	MGV / HGV	LGV (Non-Van Type)	LGV (Van Type)	PC	Taxi	CT			PLB	PRLB	MC	Total
								with Trailer	without Trailer	Trailer only				
Parking Space	-	-	-	-	260			-	-	-	-	-	5	265

Period	Maximum No. of Parked Vehicles													
	C / NFB	FB	MGV / HGV	LGV (Non-Van Type)	LGV (Van Type)	PC	Taxi	CT			PLB	PRLB	MC	Total
								with Trailer	without Trailer	Trailer only				
00:00-01:00					6	234	1						2	243
01:00-02:00					6	236	1						2	245
02:00-03:00					6	236	1						2	245
03:00-04:00					6	236	1						2	245

Notes:
C / NFB = Coach / Non-franchised Bus
HGV = Heavy Goods Vehicle
MGV = Medium Goods Vehicle
LGV = Light Goods Vehicle
CT = Container Truck
PLB = Public Light Bus
PRLB = Private Light Bus
MC = Motor Cycle

Parking Charge for STT Parking Site SX 5148

Vehicle Type	Period	C / NFB	FB	MGV / HGV (over 5.5 tonnes)	LGV (Non- Van Type)	LGV (Van Type)	PC	Taxi	CT			PLB	PRLB	MC
									with Trailer	without Trailer	Trailer only			
Monthly Charge		HK$6,000				HK$2,400	HK$2,600						HK$3,600	HK$500
Hourly Charge						HK$12	HK$12							HK$6
Daytime Charge	08:00~18:00					HK$50	HK$50							HK$20
Nighttime Charge	18:00~08:00					HK$75	HK$75							HK$20
Whole Day Charge						N/A	N/A							N/A

Notes:

C / NFB = Coach / Non-franchised Bus
HGV = Heavy Goods Vehicle
MGV = Medium Goods Vehicle
LGV = Light Goods Vehicle
CT = Container Truck
PLB = Public Light Bus
PRLB = Private Light Bus
MC = Motor Cycle

APPENDIX B
Midnight Illegal On-street Parking Survey Results

Midnight Illegal On-street Parking Survey Results conducted on 12/12/2020

No.	Road/Street	Between		Direction	No. of illegal parking													
					Coach / NFB	Franchised Bus	MGV / HGV	LGV (Non-van Type)	LGV (Van Type)	Private Car	Taxi	Container			Public Light Bus	Private Light Bus	Motor Cycle	Total
												with trailer	without trailer	trailer only				
1	Po Yap Road	Wan Po Road	Po Hong Road	WB														0
2	Po Yap Road	Chi Shin Street	Tong Chun Street	WB														0
3	Po Yap Road	Tong Chun Street	Tong Yin Street	WB			8	1	1	9		1	1					21
4	Po Yap Road	Tong Yin Street	Chui Shin Street	WB														0
5	Chui Ling Road	Chui Shin Street	Chui Shin Street	WB														0
6	Chui Shin Street	Chui Ling Road	Chui Ling Road	SB/NB			5	2		8						1		16
7	Chui Ling Road	Chui Shin Street	Po Shun Road	EB														0
8	Po Yap Road	Po Shun Road	Tong Yin Street	EB														0
9	Po Yap Road	Tong Yin Street	Tong Chun Street	EB	1		1		2	9	1							14
10	Po Yap Road	Tong Chun Street	Po Hong Road	EB														0
11	Po Yap Road	Po Hong Road	Wan Po Road	EB														0
12	Po Hong Road	Po Yap Road	Tong Ming Street	NB														0
13	Tong Ming Street	Po Hong Road	Tong Chun Street	WB														0
14	Tong Ming Street	Tong Chun Street	Tong Yin Street	WB			2	1		4								7
15	Tong Ming Street	Tong Yin Street	Po Shun Road	WB														0
16	Po Shun Road	Tong Ming Street	Po Yap Road	SB														0
17	Po Shun Road	Po Yap Road	King Ling Road	NB	1		3	2	4	8			1					19
18	Tong Ming Street	Po Shun Road	Po Hong Road	EB			1	1		2								4
19	Po Hong Road	Tong Ming Street	Po Yap Road	SB			2	2	1									5
20	Chi Shin Street	Po Yap Road	Tong Chun Street	SB				1	1	11			1			1		15
21	Tong Chun Street	Chi Shin Street	Cul de sac	SB					1	22	2							25
22	Tong Chun Street	Cul de sac	Chi Shin Street	NB						6	1							7
23	Chi Shin Street	Tong Chun Street	Tong Yin Street	WB						2								2
24	Tong Yin Street	Chi Shin Street	Cul de sac	WB						15	1							16
25	Tong Yin Street	Cul de sac	Chi Shin Street	EB			1			3								4
26	Chi Shin Street	Tong Yin Street	Cul de sac	EB/WB			3	4	2	12	1	2						24
27	Chi Shin Street	Tong Yin Street	Tong Chun Street	EB						6								6
28	Chi Shin Street	Tong Chun Street	Po Yap Road	EB				2		2								4
29	Tong Chun Street	Po Yap Road	Chi Shin Street	SB			1		1	5	2							9
30	Tong Chun Street	Chi Shin Street	Po Yap Road	NB						1								1
31	Tong Yin Street	Po Yap Road	Chi Shin Street	SB						2								2
32	Tong Yin Street	Chi Shin Street	Po Yap Road	NB			1			1		1						3
33	Tong Yin Street	Tong Tak Street	Po Yap Road	SB														0
34	Tong Yin Street	Po Yap Road	Tong Tak Street	NB														0
35	Tong Tak Street	Tong Yin Street	Cul de sac	EB/WB						8	1							9
36	Tong Yin Street	Tong Tak Street	Tong Ming Street	NB			3	1		3	2							9
37	Tong Yin Lane	Tong Yin Street	Cul de sac	EB/WB			1	7	5	8								21
38	Tong Yin Street	Tong Ming Street	Tong Tak Street	SB			1	2		3						1		7
39	Tong Tak Street	Tong Yin Street	Tong Chun Street	EB														0
40	Tong Chun Street	Tong Tak Street	Tong Ming Street	NB														0
41	Tong Chun Street	Tong Ming Street	Tong Tak Street	SB														0
42	Tong Tak Street	Tong Chun Street	Cul de sac	EB/WB					1	3	1							5
43	Tong Chun Street	Tong Tak Street	Po Yap Road	SB														0
Total					**2**	**0**	**33**	**26**	**19**	**153**	**12**	**4**	**3**	**0**	**0**	**3**	**0**	**255**

APPENDIX C
Model Validation Summary

Model Validation Summary

Arm	Road	Direction	AM			PM		
			Observed Flows	Modelled Flows	GEH	Observed Flows	Modelled Flows	GEH
Entry	Wan Po Road	NB	619	639	1	782	794	0
Exit	Wan Po Road	SB	765	722	2	509	461	2
Entry	Po Yap Road	EB	1341	1235	3	1027	955	2
Exit	Po Yap Road	WB	1250	1168	2	1078	1018	2
Entry	Wan Po Road	NB	1132	1032	3	895	902	0
Exit	Wan Po Road	SB	476	434	2	265	372	***6***
Entry	Chiu Shun Road	EB	1411	1510	3	921	911	0
Exit	Chiu Shun Road	WB	1375	1317	2	1423	1381	1
Entry	Po Hong Road	NB	497	505	0	408	391	1
Exit	Po Hong Road	SB	373	356	1	286	270	1
Entry	Po Yap Road	EB	752	701	2	603	547	2
Exit	Po Yap Road	WB	684	651	1	708	688	1
Entry	Chi Shin Street	NB	434	421	1	306	292	1
Exit	Chi Shin Street	SB	535	553	1	373	335	2
Entry	Po Yap Road	EB	1250	1168	2	1078	1018	2
Exit	Po Yap Road	WB	1341	1235	3	1027	955	2
Entry	Tong Chun Street	NB	240	207	2	248	311	4
Exit	Tong Chun Street	SB	325	336	1	287	303	1
Entry	Chi Shin Street	EB	214	236	1	169	228	4
Exit	Chi Shin Street	WB	278	213	4	213	225	1
Entry	Tong Chun Street	NB	247	230	1	231	222	1
Exit	Tong Chun Street	SB	250	285	2	267	293	2
Entry	Chi Shin Street	EB	444	448	0	360	362	0
Exit	Chi Shin Street	WB	291	269	1	241	284	3
Entry	Tong Yin Street	NB	223	283	4	175	199	2
Exit	Tong Yin Street	SB	103	63	4	129	121	1
Entry	Chi Shin Street	EB	65	68	0	41	41	0
Exit	Chi Shin Street	WB	50	50	0	34	34	0
Entry	Tong Yin Street	NB	40	40	0	79	79	0
Exit	Tong Yin Street	SB	280	298	1	142	132	1
Entry	Chi Shin Street	EB	273	188	***6***	172	159	1
Exit	Chi Shin Street	WB	169	168	0	163	192	2
Entry	Tong Yin Street	NB	199	199	0	167	180	1
Exit	Tong Yin Street	SB	180	202	2	251	297	3
Entry	Po Yap Road	EB	404	382	1	375	428	3
Exit	Po Yap Road	WB	379	324	3	239	274	2
Entry	Tong Yin Street	NB	103	63	4	129	121	1
Exit	Tong Yin Street	SB	220	169	4	200	192	1
Entry	Po Yap Road	EB	365	465	5	242	240	0
Exit	Po Yap Road	WB	293	413	***6***	221	206	1
Entry	Po Shun Road	NB	551	439	***5***	518	483	2

Arm	Road	Direction	AM			PM		
			Observed Flows	Modelled Flows	GEH	Observed Flows	Modelled Flows	GEH
Exit	Po Shun Road	SB	191	138	4	148	119	3
Entry	Chui Ling Road	EB	304	312	0	220	240	1
Exit	Chui Ling Road	WB	641	555	4	456	449	0
Entry	Po Yap Road	EB	379	324	3	239	274	2
Exit	Po Yap Road	WB	211	188	2	151	123	2
Entry	Po Shun Road	NB	934	906	1	1069	1102	1
Exit	Po Shun Road	SB	1287	1358	2	956	964	0
Entry	King Ling Road	EB	1067	1093	1	697	658	2
Exit	King Ling Road	WB	540	550	0	440	442	0
Entry	Po Shun Road	NB	191	138	4	148	119	3
Exit	Po Shun Road	SB	551	439	***5***	518	483	2
Entry	Tong Ming Street	EB	872	831	1	640	675	1
Exit	Tong Ming Street	WB	687	621	3	639	665	1
Entry	Tong Chun Street	NB	430	388	2	402	386	1
Exit	Tong Chun Street	SB	486	440	2	556	555	0
Entry	Po Yap Road	EB	293	413	***6***	221	206	1
Exit	Po Yap Road	WB	365	465	5	242	240	0
Entry	Tong Chun Street	NB	436	537	5	318	370	3
Exit	Tong Chun Street	SB	240	280	3	248	254	0
Entry	Po Yap Road	EB	684	651	1	708	688	1
Exit	Po Yap Road	WB	752	701	2	603	547	2
Entry	Po Hong Road	NB	471	478	0	422	397	1
Exit	Po Hong Road	SB	546	508	2	342	310	2
Entry	Tong Ming Street	EB	493	483	0	296	288	0
Exit	Tong Ming Street	WB	294	267	2	253	247	0
Entry	Po Hong Road	NB	373	356	1	286	270	1
Exit	Po Hong Road	SB	497	505	0	408	391	1
Entry	Tong Ming Street	EB	687	621	3	639	665	1
Exit	Tong Ming Street	WB	872	831	1	640	675	1
Entry	Tong Yin Street	NB	455	501	2	311	343	2
Exit	Tong Yin Street	SB	29	30	0	54	48	1
Entry	Tong Ming Street	EB	447	360	4	383	380	0
Exit	Tong Ming Street	WB	687	621	3	639	665	1
Entry	Tong Yin Street	NB	44	51	1	29	30	0
Exit	Tong Yin Street	SB	455	501	2	311	343	2
Entry	Tong Tak Street	EB	443	419	1	272	267	0
Exit	Tong Tak Street	WB	256	247	1	267	247	1

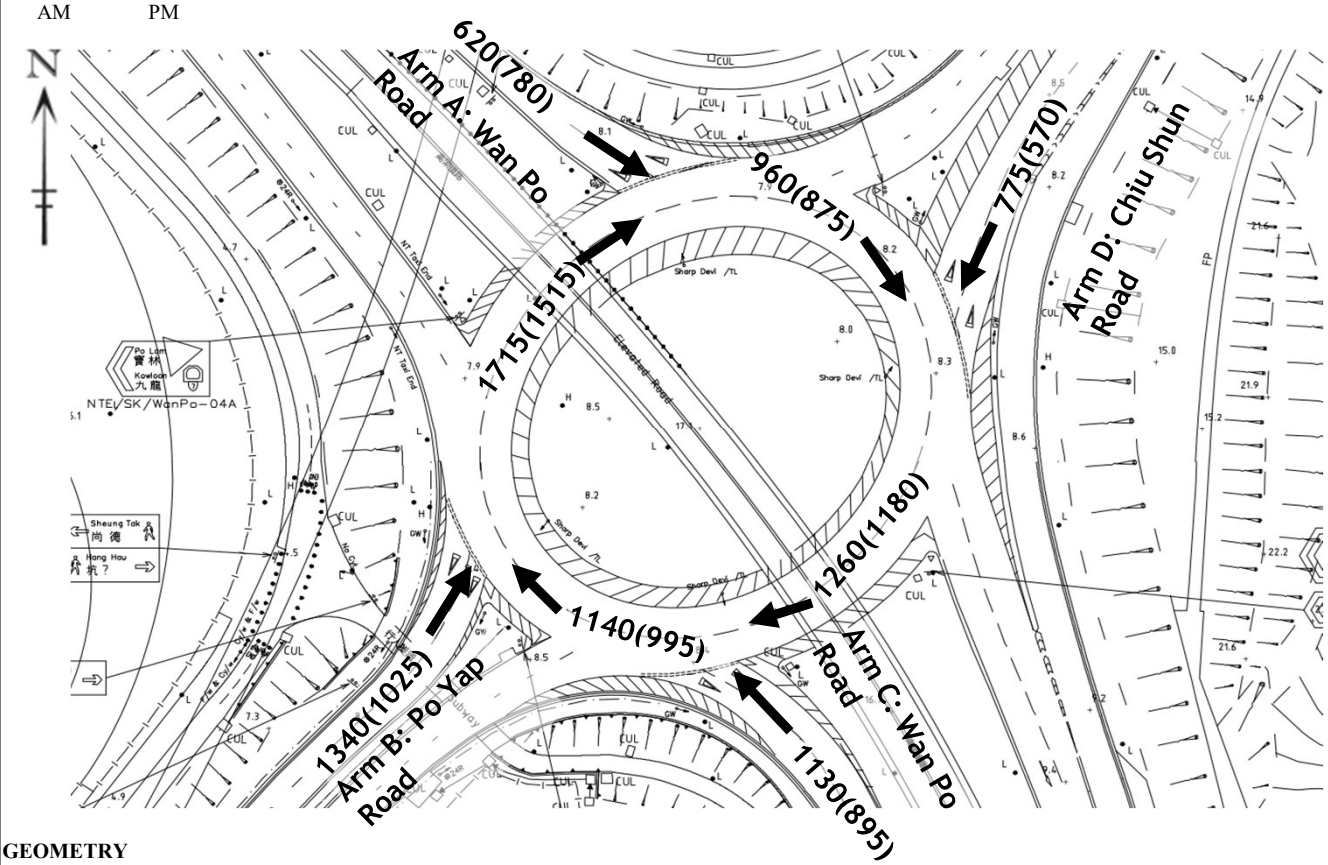
Arm	Road	Direction	AM			PM		
			Observed Flows	Modelled Flows	GEH	Observed Flows	Modelled Flows	GEH
Entry	Tong Yin Street	NB	180	202	2	251	297	3
Exit	Tong Yin Street	SB	199	199	0	167	180	1
Entry	Tong Tak Street	EB	287	188	***6***	284	241	3
Exit	Tong Tak Street	WB	105	67	4	122	70	***5***
Entry	Tong Chun Street	NB	283	292	1	361	381	1
Exit	Tong Chun Street	SB	202	143	4	195	184	1
Entry	Tong Tak Street	EB	105	67	4	122	70	***5***
Exit	Tong Tak Street	WB	287	188	***6***	284	241	3
Entry	Tong Chun Street	NB	486	440	2	556	555	0
Exit	Tong Chun Street	SB	430	388	2	402	386	1
Entry	Tong Tak Street	EB	369	320	3	280	451	***9***
Exit	Tong Tak Street	WB	360	385	1	452	444	0
Entry	Sheung Tak Estate Access	NB	243	252	1	214	249	2
Exit	Sheung Tak Estate Access	SB	194	147	4	236	222	1
Entry	Tong Ming Street	EB	683	621	2	623	592	1
Exit	Tong Ming Street	WB	305	360	3	289	380	5
Entry	Tong Chun Street	NB	202	143	4	195	184	1
Exit	Tong Chun Street	SB	283	292	1	361	381	1
Entry	Tong Ming Street	EB	294	267	2	253	247	0
Exit	Tong Ming Street	WB	499	483	1	306	288	1

APPENDIX D
Junction Calculation Sheet

Simplified Roundabout Capacity Calculation

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O				
Junction:	J1 Wan Po Road / Chiu Shun Road / Po Yap Road			Ref. No.:	J1_RA_2020
Scheme:	2020 Obs			Ref. No.:	
Year:	2020	Job No.:	J1598	Rev.:	-

AM PM



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	5.00	9.00	20	40	76	20	0.32
B	7.00	7.50	10	50	86	20	0.08
C	8.00	8.00	5	40	76	20	0.00
D	8.00	10.00	10	70	86	25	0.32

CALCULATIONS

							Q_E		DFC	
ARM	K	X_2	M	F	t_D	f_c	AM	PM	AM	PM
A	1.06	7.44	4.95	2254	1.08	0.57	1359	1479	0.46	0.53
B	1.06	7.43	13.46	2252	1.03	0.54	1741	1824	0.77	0.56
C	1.06	8.00	4.95	2424	1.08	0.59	1778	1828	0.64	0.49
D	1.05	9.22	13.46	2794	1.03	0.62	2315	2371	0.33	0.24

Critical Arm:	**B**	**B**
DFC:	**0.77**	**0.56**
	AM	**PM**

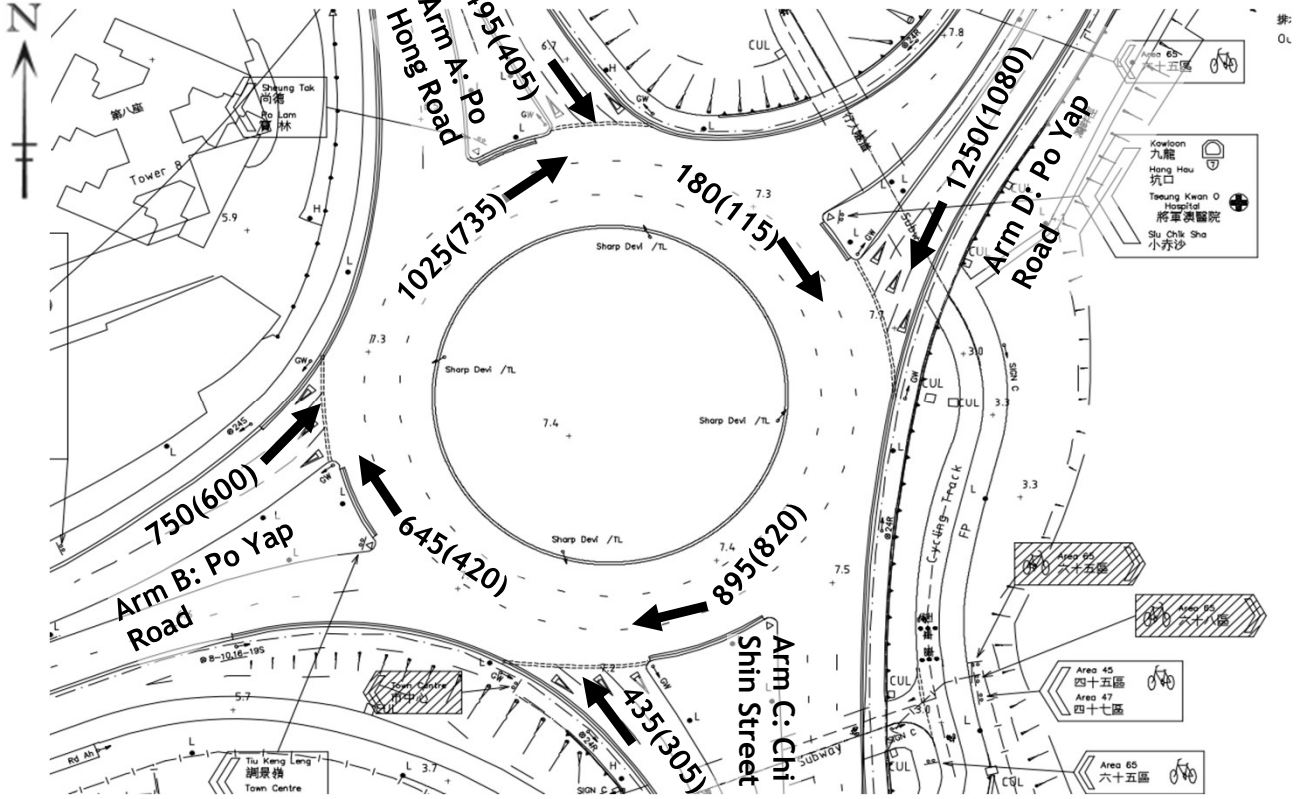
- In accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

Simplified Roundabout Capacity Calculation

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O				
Junction:	J2 Po Yap Road / Chi Shin Street / Po Hong Road			Ref. No.:	J2_RA_2020
Scheme:	2020 Obs			Ref. No.:	
Year:	2020	Job No.:	J1598	Rev.:	-

AM PM



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	7.00	11.00	20	25	80	25	0.32
B	7.00	11.00	15	60	80	30	0.43
C	7.00	12.00	10	50	80	25	0.80
D	7.00	11.00	20	90	80	25	0.32

CALCULATIONS

ARM	K	X_2	M	F	t_D	f_c	Q_E AM	Q_E PM	DFC AM	DFC PM
A	1.03	9.44	7.39	2860	1.06	0.64	2261	2453	0.22	0.17
B	1.03	9.16	7.39	2775	1.06	0.63	2446	2592	0.31	0.23
C	1.05	8.92	7.39	2704	1.06	0.62	2249	2298	0.19	0.13
D	1.06	9.44	7.39	2860	1.06	0.64	2896	2940	0.43	0.37

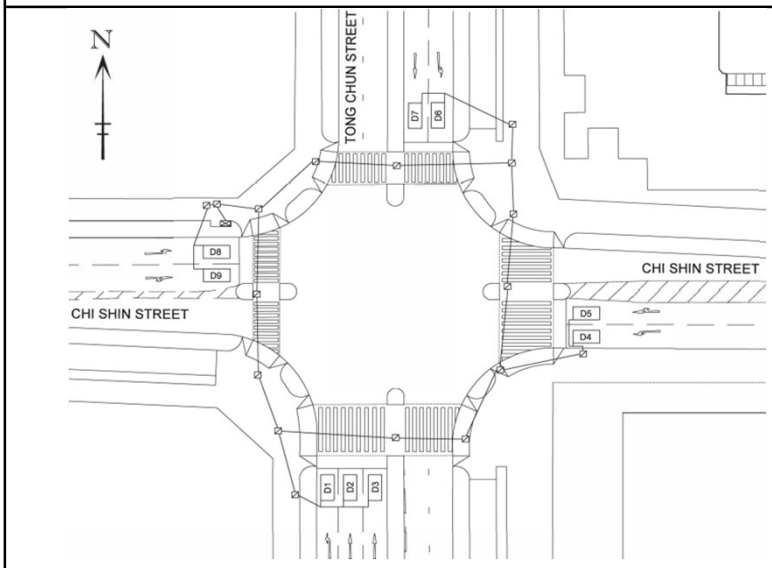
Critical Arm:	**D**	**D**
DFC:	**0.43**	**0.37**
	AM	**PM**

- In accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

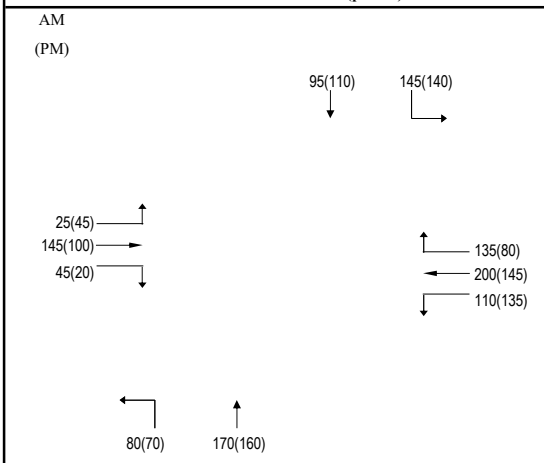
Traffic Signal Junction Calculation Sheet

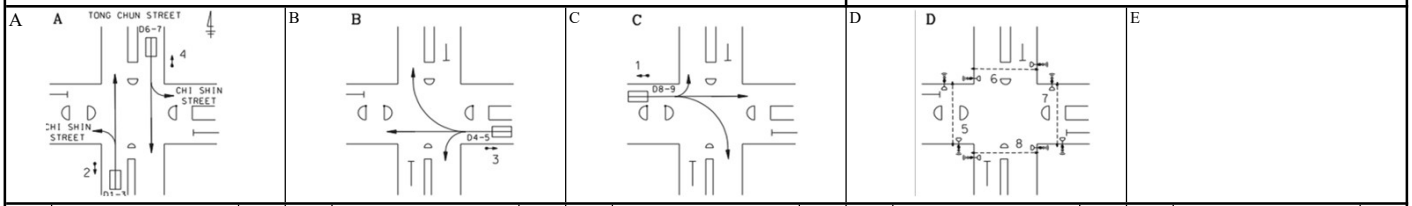
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O		
Junction:	J3 Chi Shin Street / Tong Chun Street	Ref. No.:	J3_SJ_2020
Scheme:	2020 Obs	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		5	2		5	2		3	9	22	1			
2		5	2		5	2		3	7	20	0			
2		5	2		5	2		3	5	18	1			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	C	1	4.10	1		17			0.86	100	1595	25	0.016		45	0.028	
1B	C	1	4.20				23			24 / 17	2140/2150	190	0.089	1	120	0.056	1
2A	A	1	3.10	1		19				100	1785	80	0.045		70	0.039	
2B	A	2	3.65								4240	170	0.040		160	0.038	
3A	B	1	3.50				25			40 / 36	2055/2060	335	0.163	1	225	0.109	1
3B	B	1	3.70	1		17				100	1825	110	0.060		135	0.074	
4A	A	1	3.60	1		17				100	1815	145	0.080	1	140	0.077	1
4B	A	1	3.60								2115	95	0.045		110	0.052	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	D		10	10	8	18				
6P	D		10	10	8	18				
7P	D		11	11	9	20				
8P	D		12	12	10	22		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

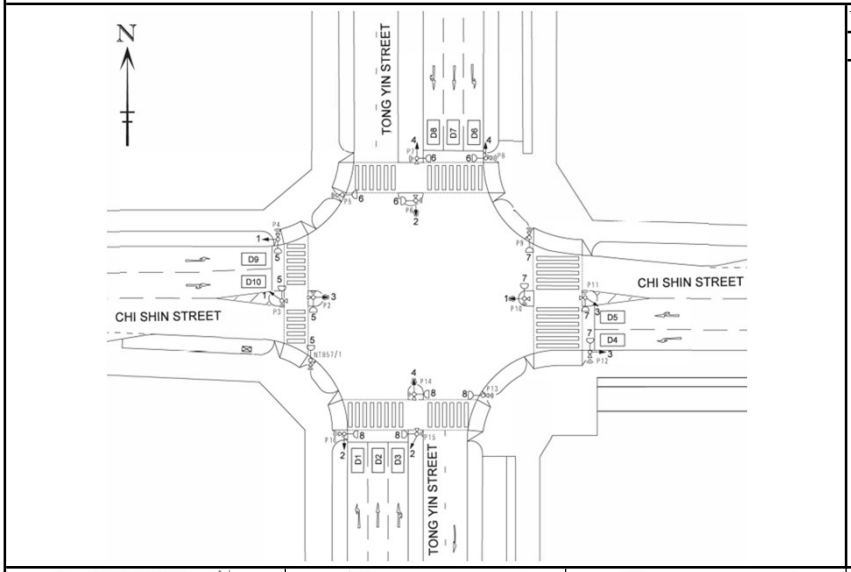
Check Critical Phase	4,3,1,8P	4,3,1,7P	4,3,1,6P	4,3,1,8P	4,3,1,7P	4,3,1,6P
Sum of y values, Y	0.332	0.332	0.332	0.242	0.242	0.242
Lost time, L	48	43	40	48	43	40
Cycle Time, C	110	110	110	110	110	110
Practical Y, Y_{pr}	0.507	0.548	0.573	0.507	0.548	0.573
Reserve Capacity, R.C. (%)	53%	65%	73%	109%	126%	136%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J3_SJ_2020

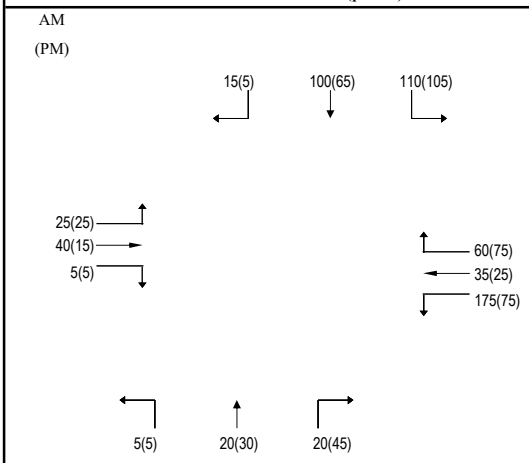
Traffic Signal Junction Calculation Sheet

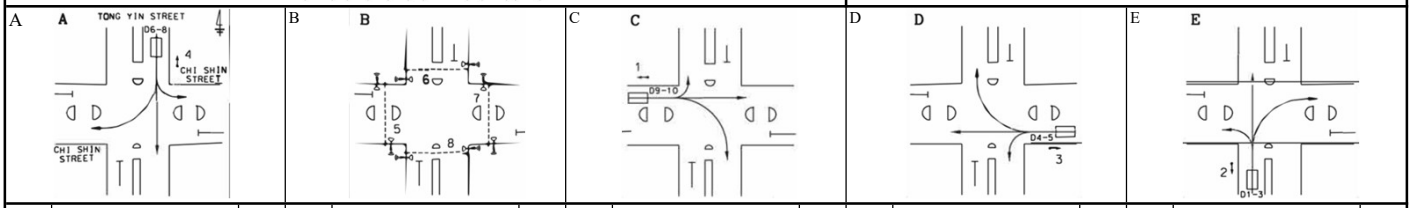
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O		
Junction:	J4 Chi Shin Street / Tong Yin Street	Ref. No.:	J4_SJ_2020
Scheme:	2020 Obs	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		5	5	21	0	2	5	5	2		6	2	5	5
2		5	7	18	1	2	5	5	2		6	2	5	5
2		5	1	22	0	2	5	5	2		6	2	5	5

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	C	1	3.60	1		17				100	1815	25	0.014		25	0.014	1
1B	C	1	3.60				23			11 / 25	2100/2080	45	0.021	1	20	0.010	
2A	E	1	3.30	1		17			0.86	100	1530	5	0.003		5	0.003	
2B	E	1	3.30								2085	20	0.010		30	0.014	
2C	E	1	3.30				25			100	1965	20	0.010	1	45	0.023	1
3A	D	1	3.40	1		17				100	1795	175	0.097	1	75	0.042	
3B	D	1	3.90				36			63 / 75	2090/2080	95	0.045		100	0.048	1
4A	A	1	3.30	1		17				100	1785	110	0.062	1	105	0.059	1
4B	A	1	3.30								2085	58	0.028		35	0.017	
4C	A	1	3.30				23			26 / 14	2050/2065	57	0.028		35	0.017	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	B		10	10	8	18				
6P	B		13	13	9	22				
7P	B		9	9	7	16				
8P	B		12	12	9	21		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

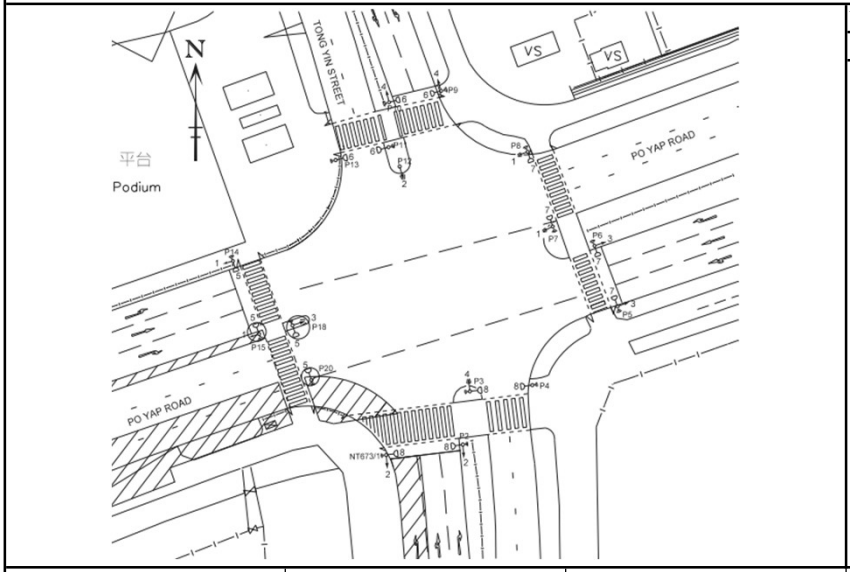
Check Critical Phase	4,8P,1,3,2	4,5P,1,3,2	4,6P,1,3,2	4,8P,1,3,2	4,5P,1,3,2	4,6P,1,3,2
Sum of y values, Y	0.191	0.191	0.191	0.144	0.144	0.144
Lost time, L	61	61	58	61	61	58
Cycle Time, C	100	100	100	110	110	110
Practical Y, Y_{pr}	0.351	0.351	0.378	0.401	0.401	0.425
Reserve Capacity, R.C. (%)	84%	84%	98%	179%	179%	196%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J4_SJ_2020

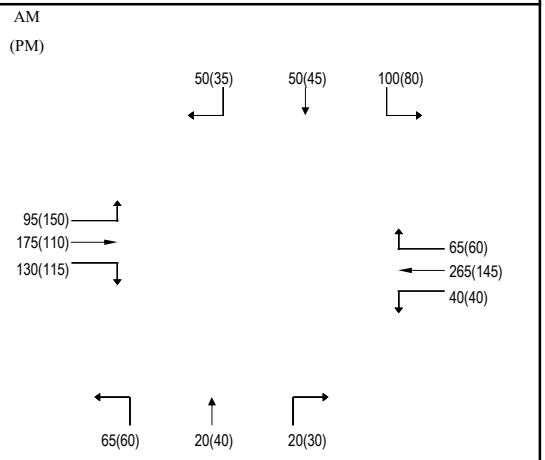
Traffic Signal Junction Calculation Sheet

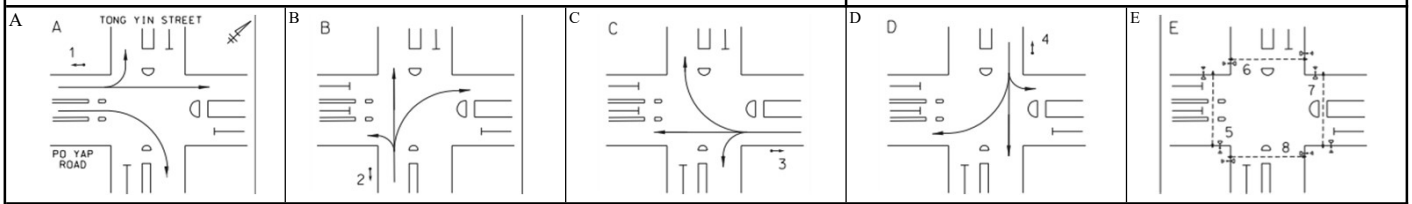
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O		
Junction:	J5 Po Yap Road / Tong Yin Street	Ref. No.:	J5_SJ_2020
Scheme:	2020 Obs	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		5	2	5 / 0		5	2		5	2		3	8	34		0	
2		5	2			5	2		5	2		3	10	27		1	
2		5	2			5	2		5	2		3	6	25		0	

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.30	1		18				100	1795	95	0.053		150	0.084	1
1B	A	1	3.70								2125	175	0.082	1	110	0.052	
1C	A	1	4.00				33			100	2060	130	0.063		115	0.056	
2A	B	1	4.10			17					1990	44	0.022	1	51	0.025	
2B	B	1	3.60	1		17				52 / 19	1890/1940	41	0.022		49	0.025	1
2C	B	1	3.20				38			100	1995	20	0.010		30	0.015	
3A	C	1	3.40	1		23				27 / 45	1920/1900	146	0.076	1	88	0.046	
3B	C	1	3.30								2085	159	0.076		97	0.046	1
3C	C	1	3.50				28			100	2000	65	0.033		60	0.030	
4A	D	1	3.60	1		17				100	1815	100	0.055	1	80	0.044	1
4B	D	1	3.60				32			50 / 44	2065/2070	100	0.048		80	0.039	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	E		16	16	11	27				
6P	E		11	11	8	19				
7P	E		15	15	10	25				
8P	E		19	19	15	34		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

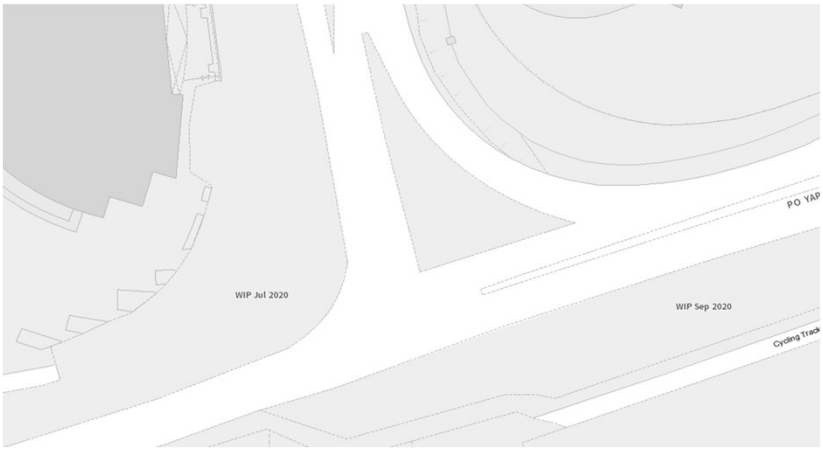
Check Critical Phase	1,2,3,4,8P	1,2,3,4,5P	1,2,3,4,7P	1,2,3,4,8P	1,2,3,4,5P	1,2,3,4,7P
Sum of y values, Y	0.236	0.236	0.236	0.200	0.200	0.200
Lost time, L	69	60	53	64	60	53
Cycle Time, C	127	127	127	124	124	124
Practical Y, Y_{pr}	0.411	0.475	0.524	0.435	0.465	0.515
Reserve Capacity, R.C. (%)	75%	102%	123%	118%	133%	158%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J5_SJ_2020

Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O		
Junction:	J6 Po Yap Road / Po Shun Road / Chui Ling Road	Ref. No.:	J6_SJ_2020
Scheme:	2020 Obs	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)

AM
(PM)

360(295)
190(225)
95(70)
210(150)
100(80)
280(160)

A	B	C	D	E
1.	2.	3.		

2		3	2		3	2		3						

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A ↲	A	1	3.30				20			100	1940	360	0.186	1	295	0.152	1
2A ↑→	B	1	3.30	1		15				31 / 32	1885	305	0.162	1	220	0.117	1
3A ←	C	1	3.30	1							1945	280	0.144	1	160	0.082	1
3B ↰	C	1	3.30				20			100	1940	100	0.052		80	0.041	

Critical Ped. Phase	Stage	Width Across	Min. GM	Min. FGM	Lost Time	Note	Crit.	Note	Crit.

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%

In accordance with TPDM - Volume 4.2.4

Check Critical Phase	1,2,3			1,2,3		
Sum of y values, Y	0.491			0.351		
Lost time, L	12			12		
Cycle Time, C	127			124		
Practical Y, Y_{pr}	0.815			0.813		
Reserve Capacity, R.C. (%)	66%			132%		

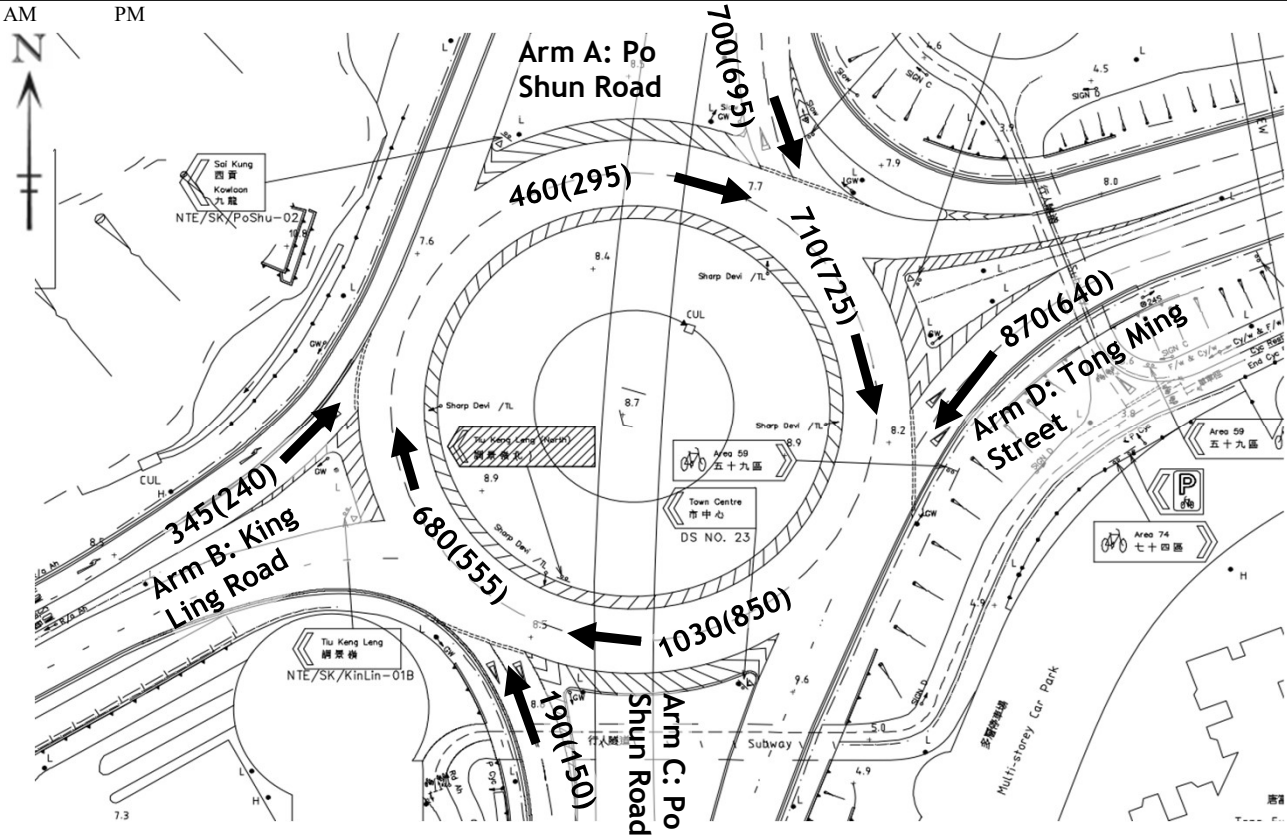
Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J6_SJ_2020

Simplified Roundabout Capacity Calculation

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O				
Junction:	J7 Po Shun Road / Tong Ming Street / King Ling Road			Ref. No.:	J7_RA_2020
Scheme:	2020 Obs			Ref. No.:	
Year:	2020	Job No.:	J1598	Rev.:	-

AM PM



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	7.00	8.00	14.5	20	81.2	20	0.11
B	2.70	4.60	31.9	55.2	81.2	18	0.10
C	7.10	7.40	11.7	23	81.2	10	0.04
D	7.40	8.40	27.5	60	81.2	29	0.06

CALCULATIONS

ARM	K	X_2	M	F	t_D	f_c	Q_E AM	Q_E PM	DFC AM	DFC PM
A	1.03	7.82	8.33	2369	1.05	0.57	2181	2278	0.32	0.31
B	1.07	4.30	8.33	1302	1.05	0.41	1096	1152	0.31	0.21
C	1.08	7.38	8.33	2235	1.05	0.55	1798	1904	0.11	0.08
D	1.04	8.30	8.33	2514	1.05	0.59	2171	2162	0.40	0.30

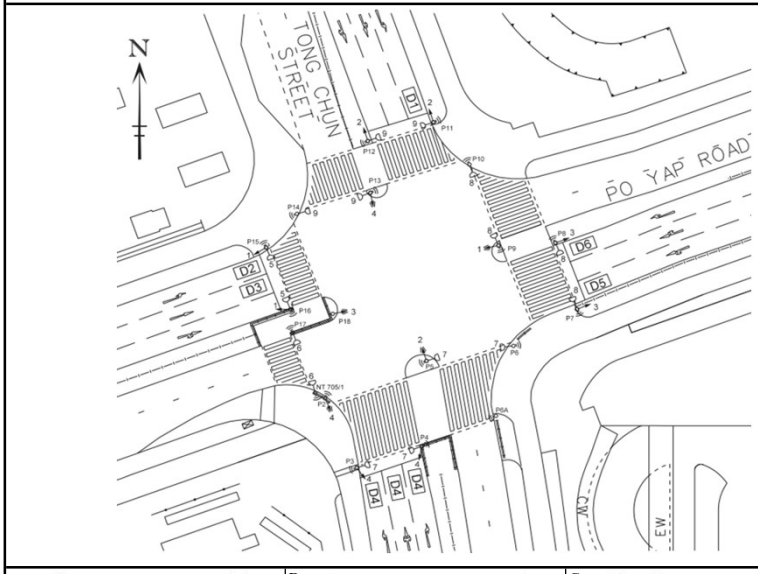
	AM	PM
Critical Arm:	**D**	**A**
DFC:	**0.40**	**0.31**
	AM	**PM**

- In accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

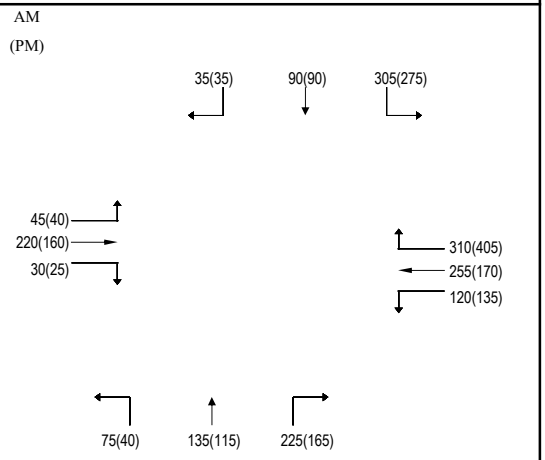
Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O		
Junction:	J8 Po Yap Road / Tong Chun Street	Ref. No.:	J8_SJ_2020
Scheme:	2020 Obs	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)



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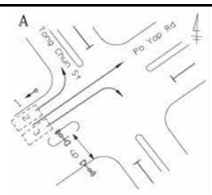

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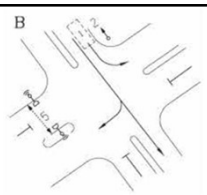

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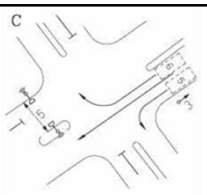

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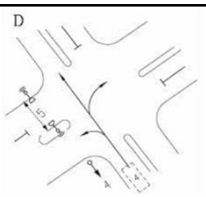

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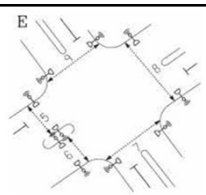

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2		5	2		5	2		6	2		6	4	16	0
2		5	2		5	2		6	2		6	0	16	0

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.30	1		17				100	1785	45	0.025		40	0.022	
1B	A	1	3.30								2085	126	0.060	1	93	0.045	1
1C	A	1	3.30				20			24 / 27	2050/2045	124	0.060		92	0.045	
2A	B	1	3.40	1		17					1795	147	0.082		133	0.074	
2B	B	1	3.40			17				100	1925	158	0.082	1	142	0.074	1
2C	B	1	3.50				26			28	2070	125	0.060		125	0.060	
3A	C	1	3.30	1		17				55 / 60	1855/1850	217	0.117		227	0.122	
3B	C	1	3.40				20			34 / 68	2045/1995	239	0.117		244	0.123	
3C	C	1	3.40				20				1950	228	0.117	1	239	0.123	1
4A	D	1	3.60	1		16					1805	75	0.042		40	0.022	
4B	D	1	3.50			16	26			27 / 20	2075/2080	184	0.089		143	0.069	1
4C	D	1	3.50				26				1990	176	0.089	1	137	0.069	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	BCDE		5	5	11	16				
6P	E		5	5	7	12				
7P	E		5	5	11	16				
8P	E		5	5	11	16		1		1
9P	E		5	5	11	16				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	1,2,3,4,8P	1,2,3,4,9P	1,2,3,4,7P	1,2,3,4,8P	1,2,3,4,9P	1,2,3,4,7P
Sum of y values, Y	0.348	0.348	0.348	0.310	0.310	0.310
Lost time, L	50	46	42	50	46	42
Cycle Time, C	125	125	125	125	125	125
Practical Y, Y_{pr}	0.540	0.569	0.598	0.540	0.569	0.598
Reserve Capacity, R.C. (%)	55%	63%	72%	74%	83%	93%

Calculated by:	Date: 五月-2021	Checked by:

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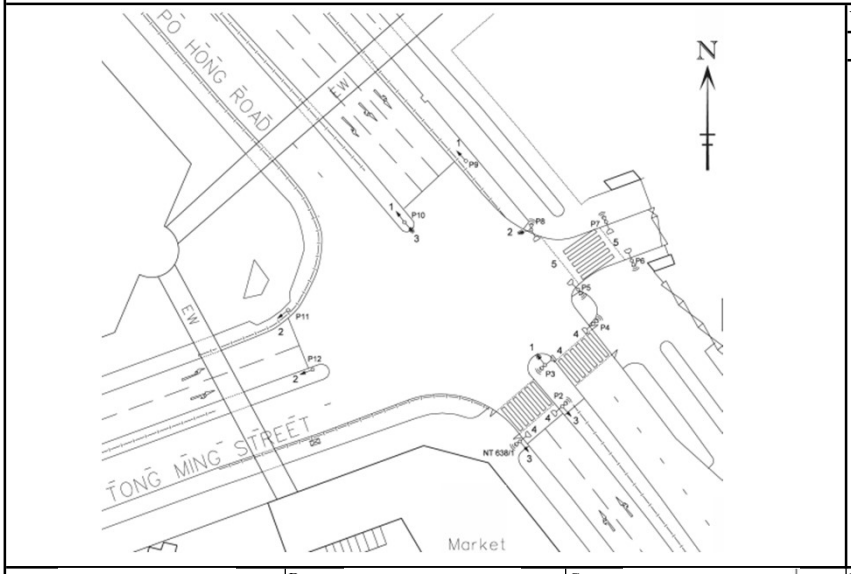
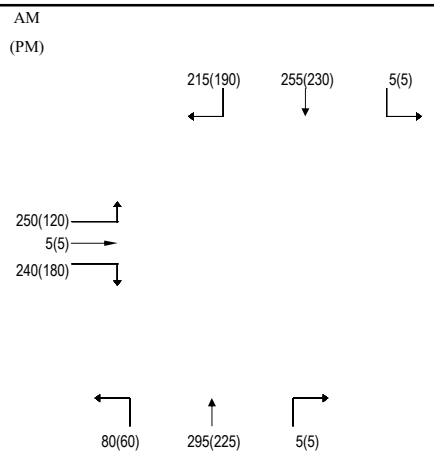
Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O		
Junction:	J9 Po Hong Road / Tong Ming Street	Ref. No.:	J9_SJ_2020
Scheme:	2020 Obs	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)



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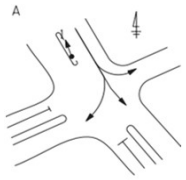

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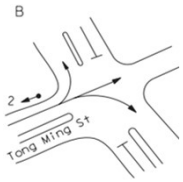

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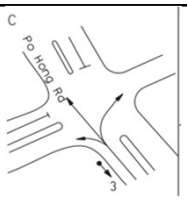

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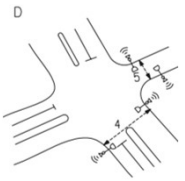

E

2		3	3		3	4		3	7	16	0			
2		3	3		3	4		3	2	20	0			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.40	1		15				3 / 4	1950	154	0.079		138	0.071	
1B	A	1	3.40				21			35 / 33	2045	162	0.079		145	0.071	1
1C	A	1	3.90				21				2000	159	0.079	1	142	0.071	
2A	B	1	3.70	1		16				100	1815	250	0.138	1	120	0.066	
2B	B	1	3.60				32			98 / 97	2020/2025	245	0.121		185	0.091	1
3A	C	1	3.50	1		17				45 / 44	1890	179	0.095	1	137	0.072	1
3B	C	1	3.70				11			2 / 3	2120/2115	201	0.095		153	0.072	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
4P	D		11	11	9	20				
5P	D		5	5	11	16		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

	AM Peak			PM Peak		
Check Critical Phase	1,2,3,5P	1,2,3,4P		1,2,3,5P	1,2,3,4P	
Sum of y values, Y	0.312	0.312		0.235	0.235	
Lost time, L	38	37		38	37	
Cycle Time, C	110	110		105	105	
Practical Y, Y_{pr}	0.589	0.597		0.574	0.583	
Reserve Capacity, R.C. (%)	89%	92%		145%	148%	

Calculated by:	Date: 五月-2021	Checked by:

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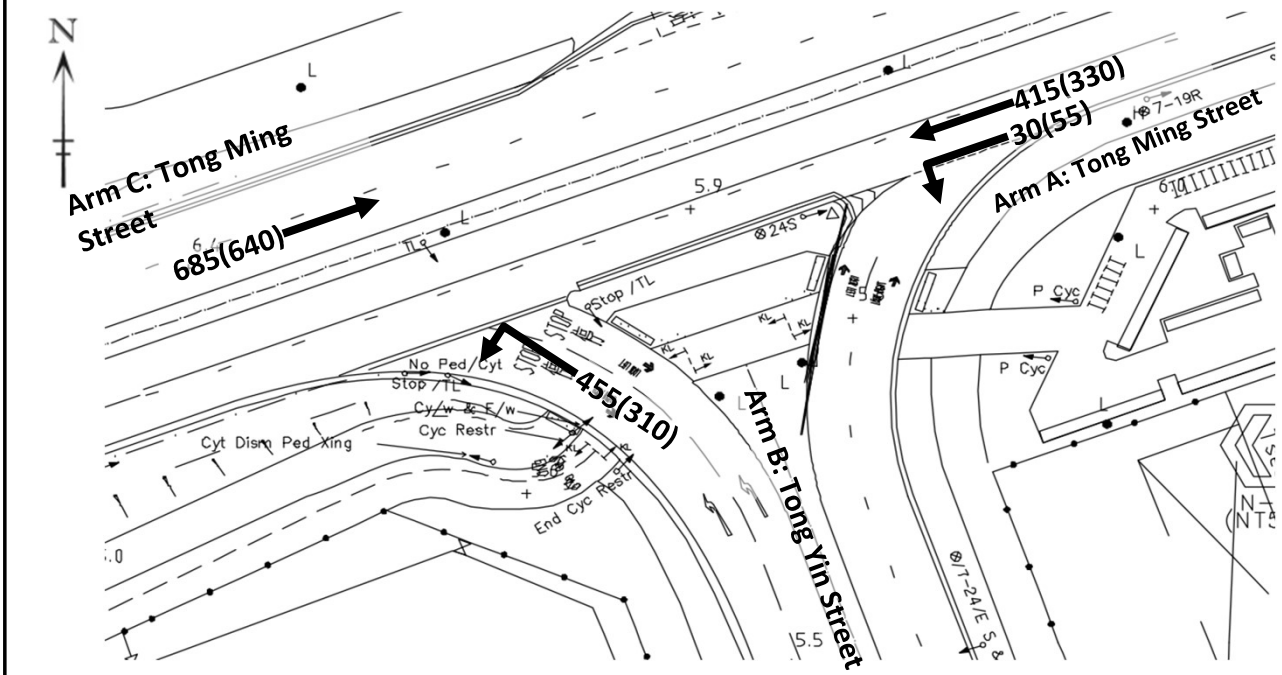
Simplified Priority Junction Capacity Calculation Sheet

Job Title	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O				
Junction	J10 Tong Yin Street/Tong Ming Street			Ref No.:	J10_PJ_2020
Scheme	2020 Obs			Ref No.:	
Year	2020	Job. No.:	J1598	Rev.:	

AM(PM)



Geometry					
Major road width	**W**	7.4	**Lane widths**	w(b-a)	0.00
Central Reserve width	W_{cr}	0		w(b-c)	7.80
2 Lane Minor Arm (Y/N)		Y		w(c-b)	0.00
Visibilities	$V_{r(B-A)}$	0	**Calculated**	D	0.53
	$V_{l(B-A)}$	0		E	1.34
	$V_{r(B-C)}$	80		F	0.59
	$V_{r(C-B)}$	0		Y	0.74

Analysis			**Peak Hour**	
			AM	PM
Traffic Flows	$q_{(C-A)}$		685	640
	$q_{(C-B)}$		0	0
	$q_{(A-B)}$		30	55
	$q_{(A-C)}$		415	330
	$q_{(B-A)}$		0	0
	$q_{(B-C)}$		455	310
Proportion of minor traffic left-turn	**f**		1.00	1.00
		Factor		
Capacities	$Q_{(B-A)}$	1	210	225
	$Q_{(B-C)}$	1	843	871
	$Q_{(C-B)}$	1	366	375
	$Q_{(B-AC)}$	1	0	0
DFC	**B-A**		0.00	0.00
	B-C		0.54	0.36
	C-B		0.00	0.00
	B-AC		0.00	0.00
Worst DFC			**0.54**	**0.36**

Where Vl and Vr are visibility distances to the left or right of the respective streams

D = (1+0.094(w(b-a)-3.65))(1+0.0009(Vr(b-a)-120))(1+0.0006(Vl(b-a)-150))

E = (1+0.094(w(b-c)-3.65))(1+0.0009(Vr(b-c)-120))

F = (1+0.094(w(c-b)-3.65))(1+0.0009(Vr(c-b)-120))

Y = 1-0.0345W

f = proportion of minor traffic turning left

Q (b-ac) = Q(b-c)*Q(b-a)/(1-f)*Q(b-c)+f*Q(b-a)

T.P.D.M.V.2.4

Appendix 1

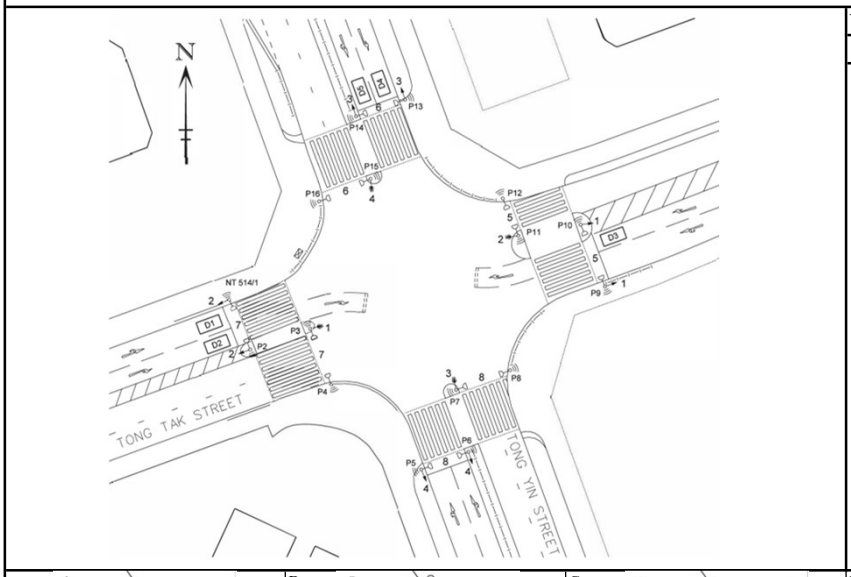
Capacity of combined streams

- in accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

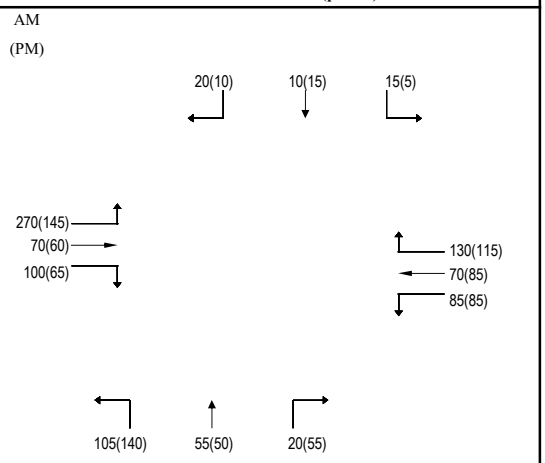
Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O		
Junction:	J11 Tong Yin Street/Tong Tak Street	Ref. No.:	J11_SJ_2020
Scheme:	2020 Obs	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)



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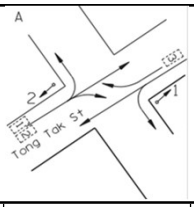

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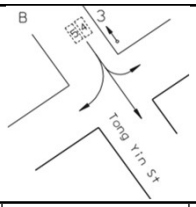

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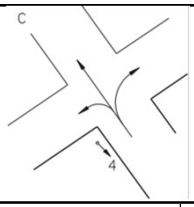

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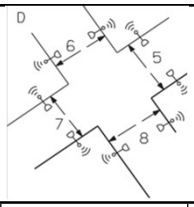


E

2		5	2	5	6	2		3	11	22	1			
2		5	2	5	6	2		3	7	20	1			
2		5	2	5	6	2		3	8	19	0			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	4.30	1		17				55 / 50	1950/1960	155	0.079		170	0.087	
1B	A	1	3.20		1		24			100	1735	130	0.075		115	0.066	
2A	A	1	3.70	1		16				79 / 71	1845/1860	340	0.184	1	205	0.110	1
2B	A	1	3.20		1		24			100	1735	100	0.058		65	0.037	
3A	B	1	3.80	1		18				100	1840	15	0.008		5	0.003	
3B	B	1	3.20				25			67 / 40	1995/2025	30	0.015	1	25	0.012	1
4A	C	1	4.00	1		13				100	1805	105	0.058	1	140	0.078	1
4B	C	1	3.00				24			27 / 52	2020/1990	75	0.037		105	0.053	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	D		12	12	10	22		1		1
6P	D		9	9	10	19				
7P	D		10	10	10	20				
8P	D		10	10	10	20				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

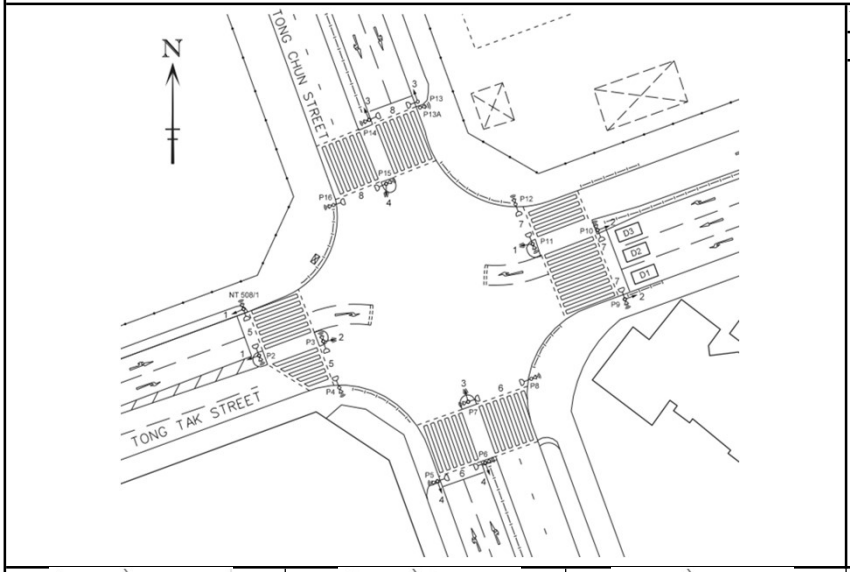
Check Critical Phase	2,3,4,5P	2,3,4,7P	2,3,4,6P	2,3,4,5P	2,3,4,7P	2,3,4,6P
Sum of y values, Y	0.257	0.257	0.257	0.200	0.200	0.200
Lost time, L	56	50	49	56	50	49
Cycle Time, C	127	127	127	124	124	124
Practical Y, Y_{pr}	0.503	0.546	0.553	0.494	0.537	0.544
Reserve Capacity, R.C. (%)	95%	112%	115%	147%	168%	172%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J11_SJ_2020

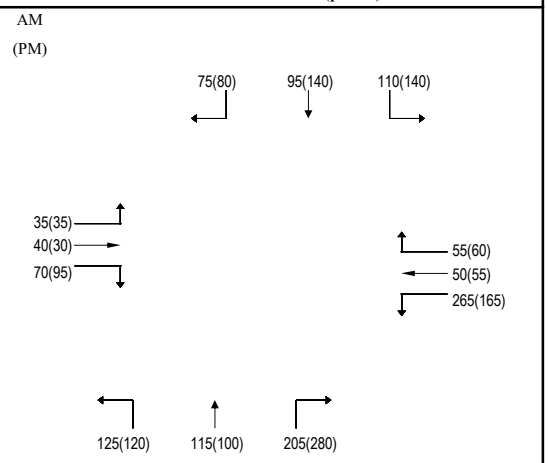
Traffic Signal Junction Calculation Sheet

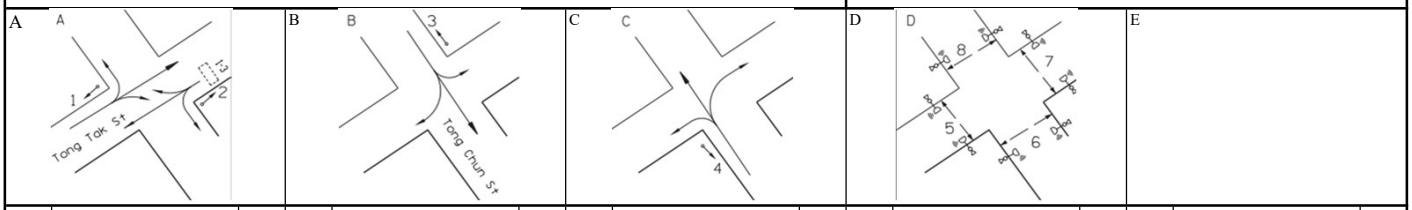
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O		
Junction:	J12 Tong Tak Street/Tong Chun Street	Ref. No.:	J12_SJ_2020
Scheme:	2020 Obs	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		11	2		5	2		4	10	25	2			
2		11	2		5	2		4	7	18	2			
2		11	2		5	2		4	7	18	0			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.60	1		15				47 / 54	1885/1875	75	0.040		65	0.035	
1B	A	1	3.20		1		29			100	1755	70	0.040		95	0.054	
2A	A	1	4.00	1		17				100	1850	265	0.143	1	165	0.089	1
2B	A	1	3.50								2105	50	0.024		55	0.026	
2C	A	1	3.70		1		24			100	1785	55	0.031		60	0.034	
3A	B	1	3.60	1		17				84 / 83	1840	131	0.071		168	0.091	
3B	B	1	4.00				24			50 / 42	2090/2100	149	0.071	1	192	0.091	1
4A	C	1	3.60	1		18				58 / 55	1885/1890	216	0.114	1	220	0.116	
4B	C	1	3.60				24			89 / 100	2005/1990	229	0.114		280	0.141	1

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	D		9	9	9	18				
6P	D		10	10	10	20				
7P	D		12	12	13	25		1		1
8P	D		9	9	9	18				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%

In accordance with TPDM - Volume 4.2.4

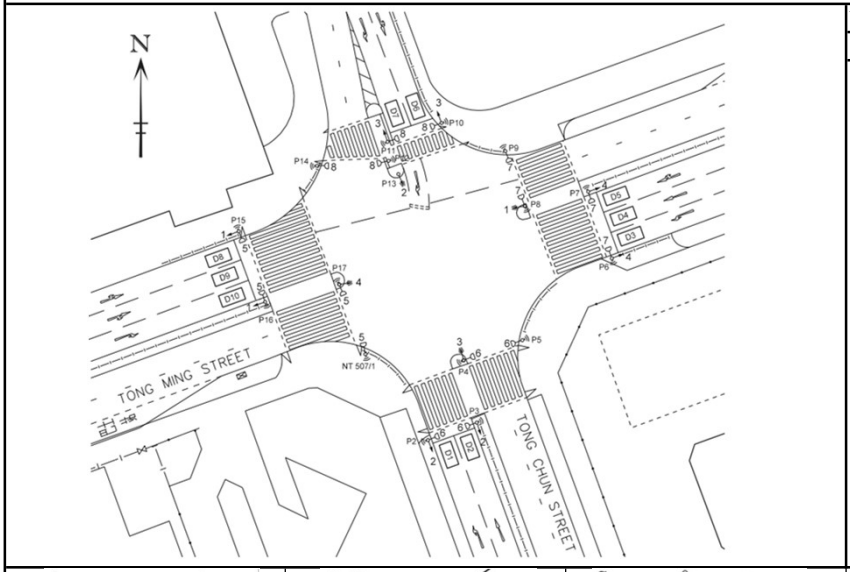
Check Critical Phase	2,3,4,7P	2,3,4,5P	2,3,4,8P	2,3,4,7P	2,3,4,5P	2,3,4,8P
Sum of y values, Y	0.329	0.329	0.329	0.321	0.321	0.321
Lost time, L	60	50	48	60	50	48
Cycle Time, C	125	125	125	125	125	125
Practical Y, Y_{pr}	0.468	0.540	0.554	0.468	0.540	0.554
Reserve Capacity, R.C. (%)	42%	64%	69%	46%	68%	73%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J12_SJ_2020

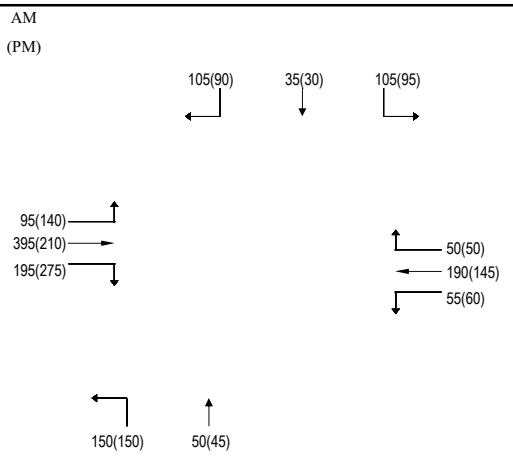
Traffic Signal Junction Calculation Sheet

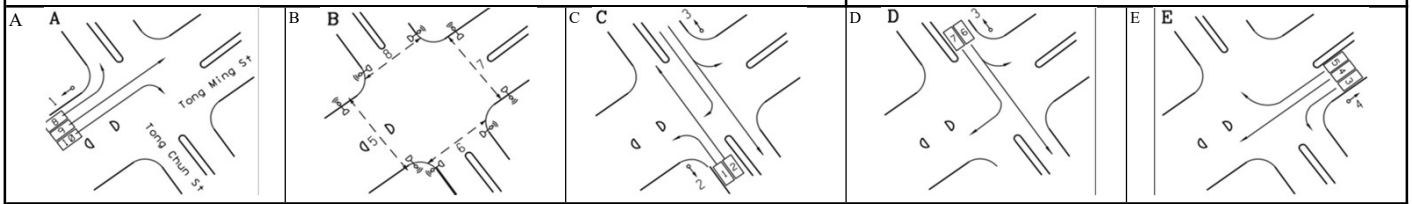
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O		
Junction:	J13 Tong Ming Street/Tong Chun Street	Ref. No.:	J13_SJ_2020
Scheme:	2020 Obs	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		3	9	22		0	2					3	3			6	
2		3	11	18		1	2					3	3			6	
2		3	6	22		1	2					3	3			6	

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.50	1		20				41 / 71	1905/1865	233	0.122	1	197	0.106	
1B	A	1	3.50				24			0 / 30	2105/2065	257	0.122		218	0.106	1
1C	A	1	3.50				24				1980	195	0.098		209	0.106	
2A	C	1	3.60	1		17				100	1815	150	0.083		150	0.083	
2B	C	1	3.70								2125	50	0.024		45	0.021	
3A	CD	1	3.20	1		17				75 / 76	1815	140	0.077	1	125	0.069	1
3B	CD	1	3.40		1		15			100	1695	105	0.062		90	0.053	
4A	E	1	3.50	1		17				100	1805	55	0.030		60	0.033	
4B	E	1	3.50								2105	122	0.058	1	99	0.047	
4C	E	1	3.50				23			42 / 52	2050/2035	118	0.058		96	0.047	1

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	B		14	14	12	26				
6P	B		10	10	8	18				
7P	B		12	12	10	22		1		1
8P	B		12	12	10	22				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	1,7P,3,4	1,6P,3,4	1,8P,3,4	1,7P,3,4	1,6P,3,4	1,8P,3,4
Sum of y values, Y	0.257	0.257	0.257	0.222	0.222	0.222
Lost time, L	47	46	45	47	46	45
Cycle Time, C	125	125	125	125	125	125
Practical Y, Y_{pr}	0.562	0.569	0.576	0.562	0.569	0.576
Reserve Capacity, R.C. (%)	118%	121%	124%	153%	156%	160%

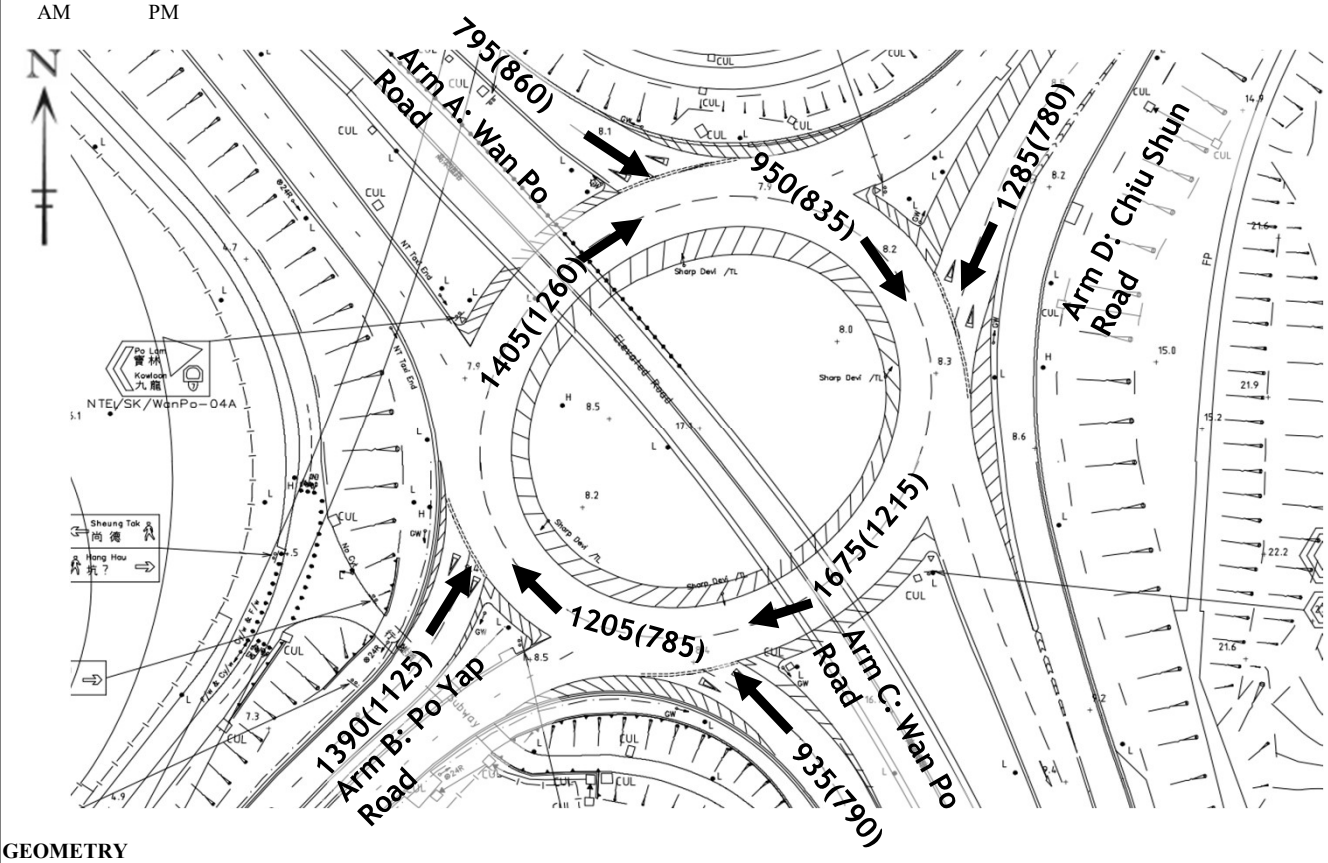
Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J13_SJ_2020

Simplified Roundabout Capacity Calculation

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O				
Junction:	J1 Wan Po Road / Chiu Shun Road / Po Yap Road			Ref. No.:	J1_RA_2026B_ref_
Scheme:	2026 Ref (with CKR / T2)			Ref. No.:	
Year:	2020	Job No.:	J1598	Rev.:	-

AM PM



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	5.00	9.00	20	40	76	20	0.32
B	7.00	7.50	10	50	86	20	0.08
C	8.00	8.00	5	40	76	20	0.00
D	8.00	10.00	10	70	86	25	0.32

CALCULATIONS

ARM	K	X_2	M	F	t_D	f_c	Q_E AM	Q_E PM	DFC AM	DFC PM
A	1.06	7.44	4.95	2254	1.08	0.57	1545	1632	0.51	0.53
B	1.06	7.43	13.46	2252	1.03	0.54	1703	1945	0.82	0.58
C	1.06	8.00	4.95	2424	1.08	0.59	1517	1806	0.62	0.44
D	1.05	9.22	13.46	2794	1.03	0.62	2322	2397	0.55	0.33
								Critical Arm:	**B**	**B**
								DFC:	**0.82**	**0.58**
									AM	**PM**

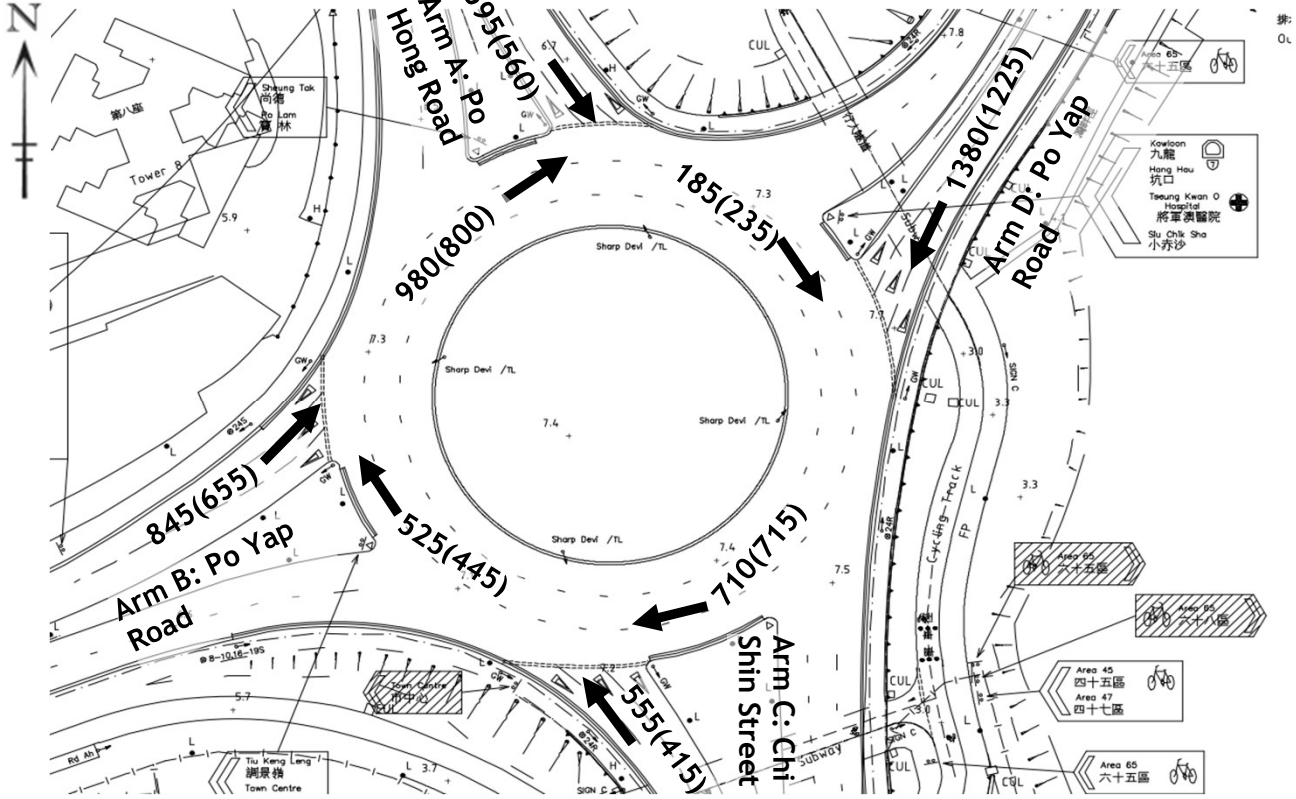
- In accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

Simplified Roundabout Capacity Calculation

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O				
Junction:	J2 Po Yap Road / Chi Shin Street / Po Hong Road			Ref. No.:	J2_RA_2026B_ref_
Scheme:	2026 Ref (with CKR / T2)			Ref. No.:	
Year:	2020	Job No.:	J1598	Rev.:	-

AM PM



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	7.00	11.00	20	25	80	25	0.32
B	7.00	11.00	15	60	80	30	0.43
C	7.00	12.00	10	50	80	25	0.80
D	7.00	11.00	20	90	80	25	0.32

CALCULATIONS

							Q_E		DFC	
ARM	K	X_2	M	F	t_D	f_c	AM	PM	AM	PM
A	1.03	9.44	7.39	2860	1.06	0.64	2291	2410	0.26	0.23
B	1.03	9.16	7.39	2775	1.06	0.63	2524	2576	0.33	0.25
C	1.05	8.92	7.39	2704	1.06	0.62	2369	2366	0.23	0.18
D	1.06	9.44	7.39	2860	1.06	0.64	2893	2859	0.48	0.43

Critical Arm:	**D**	**D**
DFC:	**0.48**	**0.43**
	AM	**PM**

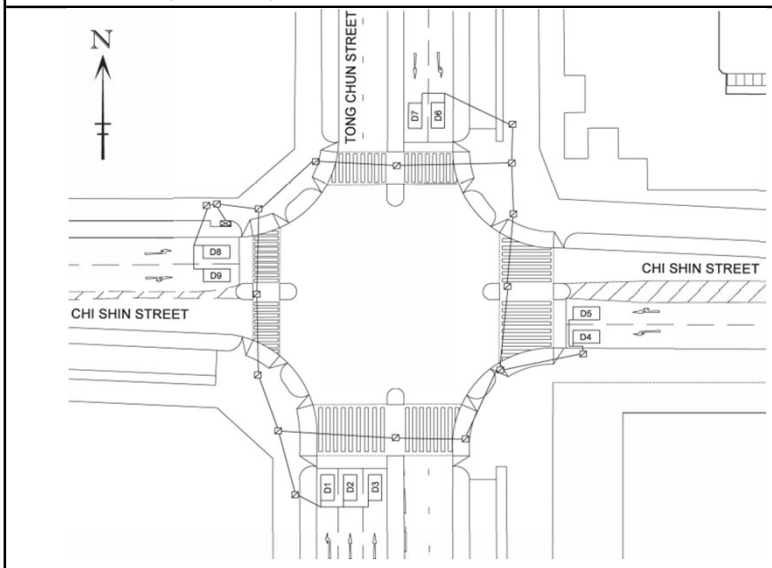
- In accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:	

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J2_RA_2026B_ref_

Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O		
Junction:	J3 Chi Shin Street / Tong Chun Street	Ref. No.:	J3_SJ_2026B
Scheme:	2026 Ref (with CKR / T2)	Ref. No.:	

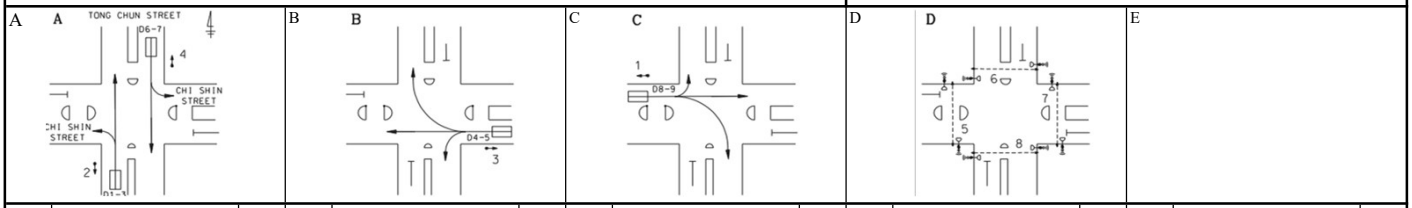


Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)

AM
(PM)

115(25) 145(95)
25(45) 225(195) 50(65)
190(135) 160(145) 115(340)
155(60) 165(180)



2		5	2		5	2		3	9	22	1			
2		5	2		5	2		3	7	20	0			
2		5	2		5	2		3	5	18	1			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	C	1	4.10	1		17			0.86	100	1595	25	0.016		45	0.028	
1B	C	1	4.20				23			18 / 25	2150/2140	275	0.128	1	260	0.121	1
2A	A	1	3.10	1		19				100	1785	155	0.087	1	60	0.034	
2B	A	2	3.65								4240	165	0.039		180	0.042	
3A	B	1	3.50				25			54 / 48	2040/2045	350	0.172	1	280	0.137	
3B	B	1	3.70	1		17				100	1825	115	0.063		340	0.186	1
4A	A	1	3.60	1		17				100	1815	145	0.080		95	0.052	1
4B	A	1	3.60								2115	115	0.054		25	0.012	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	D		10	10	8	18				
6P	D		10	10	8	18				
7P	D		11	11	9	20				
8P	D		12	12	10	22		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%

In accordance with TPDM - Volume 4.2.4

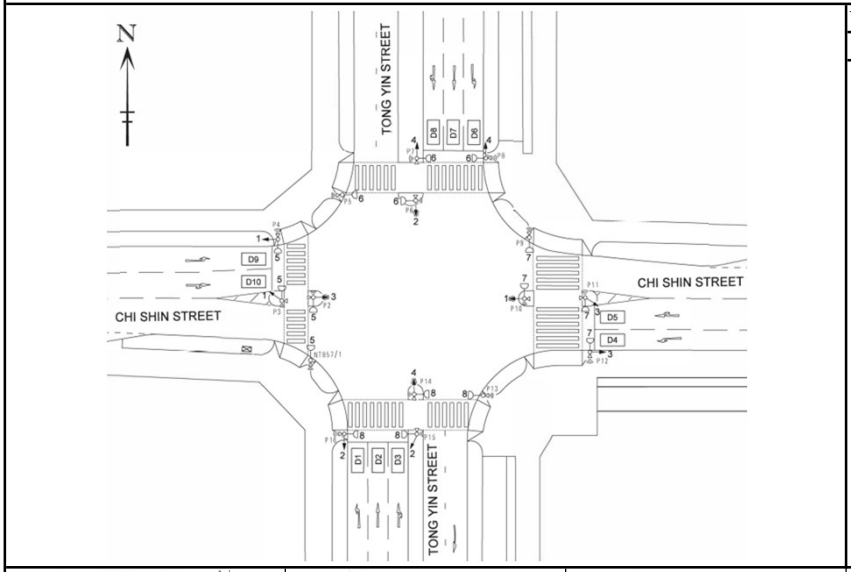
Check Critical Phase	2,3,1,8P	2,3,1,7P	2,3,1,6P	2,3,1,8P	2,3,1,7P	2,3,1,6P
Sum of y values, Y	0.386	0.386	0.386	0.360	0.360	0.360
Lost time, L	48	43	40	48	43	40
Cycle Time, C	110	110	110	110	110	110
Practical Y, Y_{pr}	0.507	0.548	0.573	0.507	0.548	0.573
Reserve Capacity, R.C. (%)	31%	42%	48%	41%	52%	59%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J3_SJ_2026B_ref_

Traffic Signal Junction Calculation Sheet

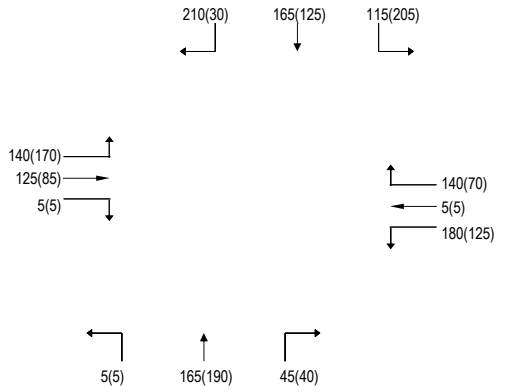
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O		
Junction:	J4 Chi Shin Street / Tong Yin Street	Ref. No.:	J4_SJ_2026B
Scheme:	2026 Ref (with CKR / T2)	Ref. No.:	

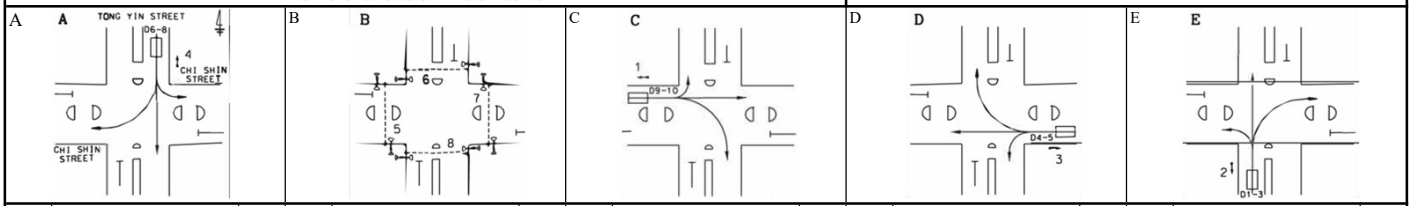


Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)

AM
(PM)





2		5	5	21	0	2	5	5	2		6	2		5
2		5	7	18	1	2	5	5	2		6	2		5
2		5	1	22	0	2	5	5	2		6	2		5

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	C	1	3.60	1		17				100	1815	140	0.077	1	170	0.094	1
1B	C	1	3.60				23			4 / 6	2110/2105	130	0.062		90	0.043	
2A	E	1	3.30	1		17			0.86	100	1530	5	0.003		5	0.003	
2B	E	1	3.30								2085	106	0.051		116	0.056	
2C	E	1	3.30				25			43 / 35	2030/2040	104	0.051	1	114	0.056	1
3A	D	1	3.40	1		17				100	1795	180	0.100	1	125	0.070	1
3B	D	1	3.90				36			97 / 93	2060/2065	145	0.070		75	0.036	
4A	A	1	3.30	1		17				100	1785	115	0.064		205	0.115	1
4B	A	1	3.30								2085	165	0.079		78	0.038	
4C	A	1	3.30				23			100 / 39	1955/2035	210	0.107	1	77	0.038	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	B		10	10	8	18				
6P	B		13	13	9	22				
7P	B		9	9	7	16				
8P	B		12	12	9	21		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

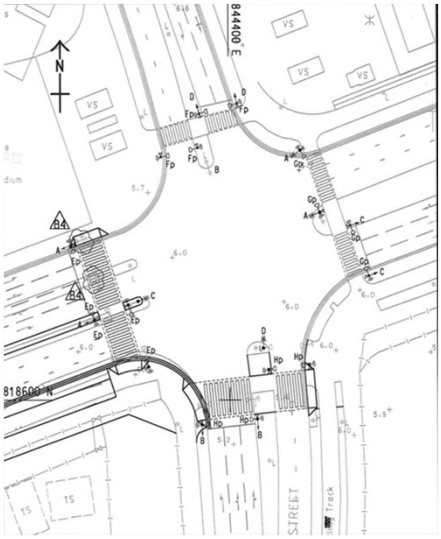
Check Critical Phase	4,8P,1,3,2	4,5P,1,3,2	4,6P,1,3,2	4,8P,1,3,2	4,5P,1,3,2	4,6P,1,3,2
Sum of y values, Y	0.336	0.336	0.336	0.334	0.334	0.334
Lost time, L	56	56	53	56	56	53
Cycle Time, C	100	100	100	110	110	110
Practical Y, Y_{pr}	0.396	0.396	0.423	0.442	0.442	0.466
Reserve Capacity, R.C. (%)	18%	18%	26%	32%	32%	40%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J4_SJ_2026B_ref_

Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O		
Junction:	J5 Po Yap Road / Tong Yin Street	Ref. No.:	J5_SJ_2026B
Scheme:	2026 Ref (with CKR / T2)	Ref. No.:	

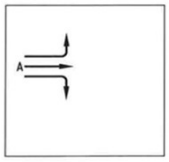
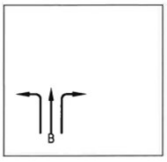
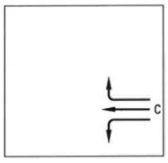
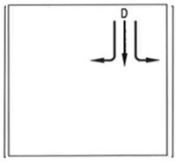
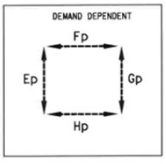


Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)

AM
(PM)

210(245) 5(5) 190(115)
220(210) 365(215) 190(390)
160(125) 265(200) 165(95)
265(275) 180(85) 5(60)

A	B	C	D	E
				
STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5
2 3	2 5	2 3	2 3	13 28 0
2 3	2 5	2 3	2 3	11 27 1
2 3	2 5	2 3	2 3	6 25 0

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.80	1		15					1815	180	0.099		192	0.106	
1B	A	1	3.40			15				20 / 8	2055/2080	203	0.099		219	0.106	
1C	A	1	3.50				20			3 / 93	2100/1965	208	0.099	1	208	0.106	1
1D	A	1	3.80	1			20				1855	184	0.099		196	0.106	
2A	B	1	3.70			15					1930	148	0.077		140	0.073	1
2B	B	1	3.70			15				78 / 96	1970/1940	151	0.077	1	141	0.072	
2C	B	1	3.70	1			20			3 / 43	1980/1925	151	0.077		139	0.072	
3A	C	1	3.20			15				85 / 68	1910/1940	193	0.101	1	139	0.072	1
3B	C	1	3.30	1							1945	196	0.101		139	0.072	
3C	C	1	3.50				20			80 / 88	1985/1975	201	0.101		141	0.072	
4A	D	1	3.70	1		15	20			97 / 97	1810/1820	195	0.108	1	175	0.096	1
4B	D	1	3.70				20				1975	210	0.106		190	0.096	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	E		14	14	13	27				
6P	E		11	11	8	19				
7P	E		15	15	10	25				
8P	E		16	16	12	28		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	1,2,3,4,8P	1,2,3,4,5P	1,2,3,4,7P	1,2,3,4,8P	1,2,3,4,5P	1,2,3,4,7P
Sum of y values, Y	0.384	0.384	0.384	0.346	0.346	0.346
Lost time, L	59	57	49	59	57	49
Cycle Time, C	120	120	120	105	105	105
Practical Y, Y_{pr}	0.458	0.473	0.533	0.394	0.411	0.480
Reserve Capacity, R.C. (%)	19%	23%	39%	14%	19%	39%

Calculated by:	Date: 五月-2021	Checked by:

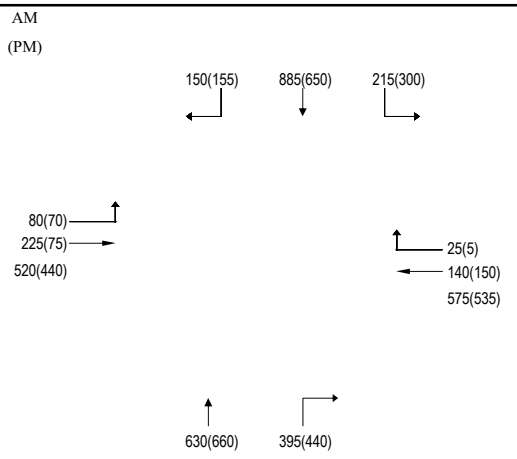
Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J5_SJ_2026B_ref_

Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O		
Junction:	J6 Po Yap Road / Po Shun Road / Chui Ling Road / Future Road P2	Ref. No.:	J6_SJ_2026B
Scheme:	2026 Ref (with CKR / T2)	Ref. No.:	

Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)



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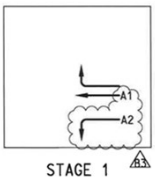

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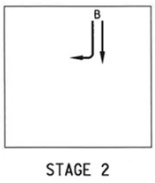

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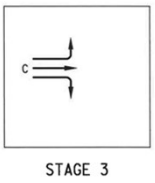

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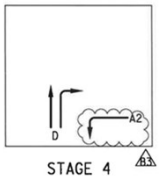


E

2		3	2		5	2		3	2		3			
		3	2		5	2		3			2			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A ←	A	1	3.50								2105	140	0.067	1	150	0.071	1
1B ↰	A	1	3.70				20			100	1975	25	0.013		5	0.003	
2A ↓	AD	2	3.50	1		15				100	3700	575	0.155		535	0.145	
3A ↓	B	2	3.65	1							4100	885	0.216	1	650	0.159	1
3B ↓	B	1	3.60				20			100	1965	150	0.076		155	0.079	
4A ↑→	C	1	3.60	1		15				30 / 48	1920/1885	271	0.141		145	0.077	
4B ↓→	C	1	3.30				20			88 / 100	1955/1940	276	0.141	1	219	0.113	
4C ↓	C	1	3.60				20				1965	278	0.141		221	0.113	1
5A ↑	D	1	3.70	1							1985	336	0.169	1	361	0.182	
5B ↑→	D	1	3.70				20			17 / 21	2100/2090	355	0.169		380	0.182	1
5C →	D	1	3.70				20				1975	334	0.169	1	359	0.182	

Critical Ped. Phase	Stage	Width Across	Min. GM	Min. FGM	Lost Time	Note	Crit.	Note	Crit.

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	1,3,4,5	2,3,4		1,3,4,5	2,3,4	
Sum of y values, Y	0.593	0.513		0.524	0.416	
Lost time, L	18	14		18	14	
Cycle Time, C	127	217		124	214	
Practical Y, Y_{pr}	0.772	0.842		0.769	0.841	
Reserve Capacity, R.C. (%)	30%	64%		47%	102%	

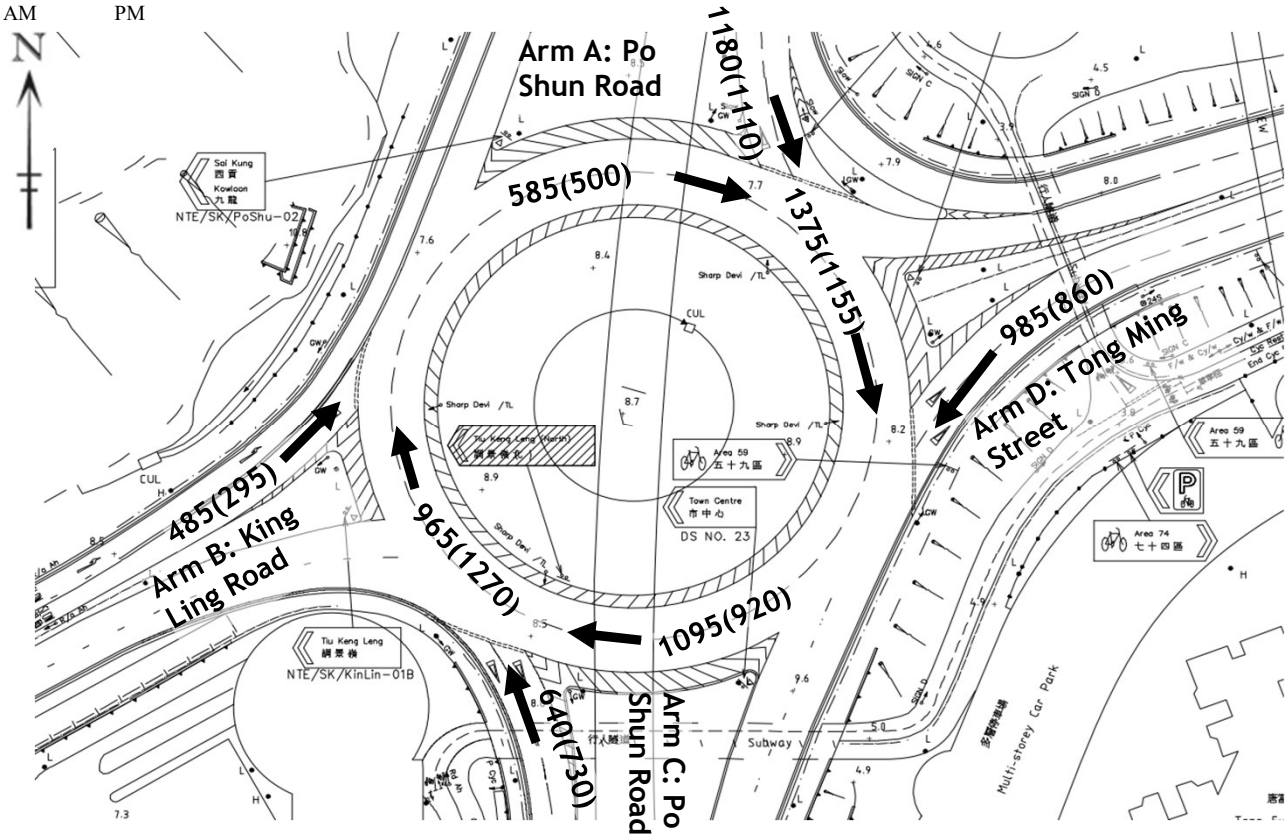
Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J6_SJ_2026B_ref_

Simplified Roundabout Capacity Calculation

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O				
Junction:	J7 Po Shun Road / Tong Ming Street / King Ling Road			Ref. No.:	J7_RA_2026B_ref_
Scheme:	2026 Ref (with CKR / T2)			Ref. No.:	
Year:	2020	Job No.:	J1598	Rev.:	-

AM PM



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	7.00	8.00	14.5	20	81.2	20	0.11
B	2.70	4.60	31.9	55.2	81.2	18	0.10
C	7.10	7.40	11.7	23	81.2	10	0.04
D	7.40	8.40	27.5	60	81.2	29	0.06

CALCULATIONS

							Q_E		DFC	
ARM	K	X_2	M	F	t_D	f_c	AM	PM	AM	PM
A	1.03	7.82	8.33	2369	1.05	0.57	2108	2158	0.56	0.51
B	1.07	4.30	8.33	1302	1.05	0.41	971	836	0.50	0.35
C	1.08	7.38	8.33	2235	1.05	0.55	1760	1863	0.36	0.39
D	1.04	8.30	8.33	2514	1.05	0.59	1766	1900	0.56	0.45

Critical Arm:	**A**	**A**
DFC:	**0.56**	**0.51**
	AM	**PM**

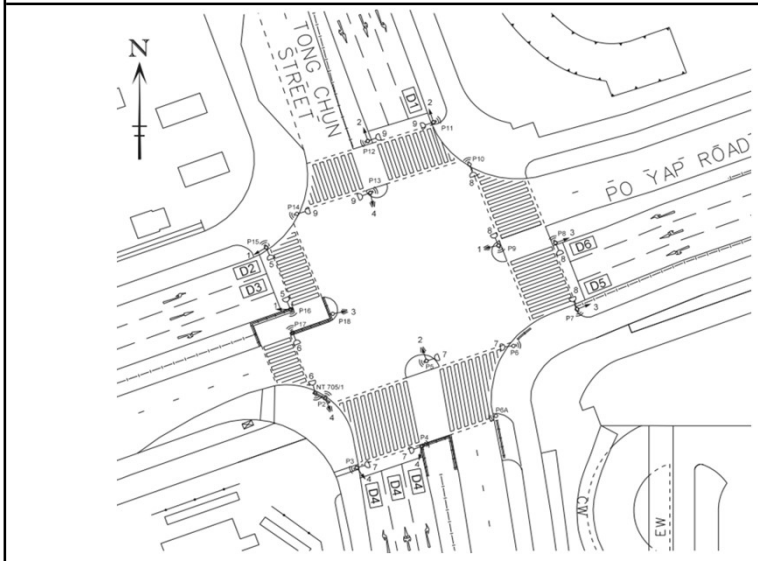
- In accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J7_RA_2026B_ref_

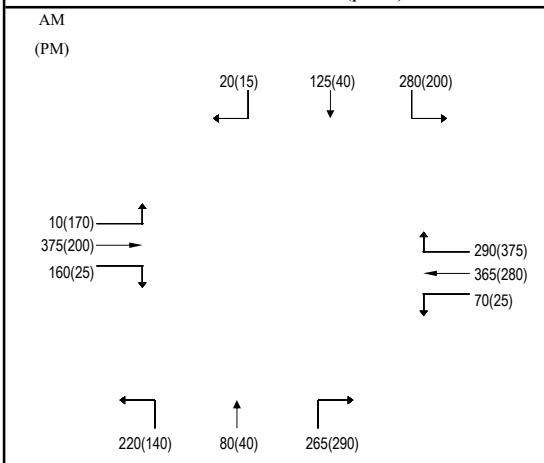
Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O		
Junction:	J8 Po Yap Road / Tong Chun Street	Ref. No.:	J8_SJ_2026B
Scheme:	2026 Ref (with CKR / T2)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)



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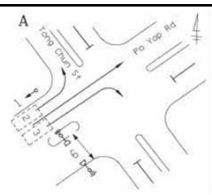

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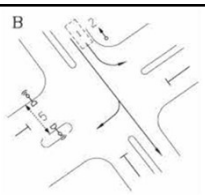

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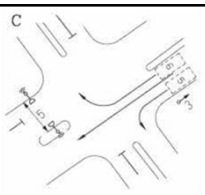

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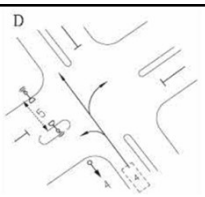

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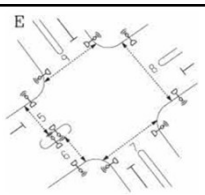


2		5	2		5	2		6	2		6	8	16	0
2		5	2		5	2		6	2		6	4	16	0
2		5	2		5	2		6	2		6	0	16	0

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.30	1		17				100	1785	10	0.006		170	0.095	1
1B	A	1	3.30								2085	274	0.131	1	113	0.054	
1C	A	1	3.30				20			61 / 22	1995/2050	262	0.131		112	0.054	
2A	B	1	3.40	1		17					1795	135	0.075		97	0.054	
2B	B	1	3.40			17				100	1925	145	0.075	1	103	0.054	1
2C	B	1	3.50				26			14 / 27	2090/2070	145	0.069		55	0.027	
3A	C	1	3.30	1		17				30 / 11	1895/1925	232	0.123		223	0.116	1
3B	C	1	3.40				20			20 / 65	2065/2000	253	0.123		231	0.116	
3C	C	1	3.40				20				1950	239	0.123	1	226	0.116	
4A	D	1	3.60	1		16					1805	175	0.097	1	140	0.078	
4B	D	1	3.50			16	26			59 / 76	2020/2015	196	0.097		166	0.082	1
4C	D	1	3.50				26				1990	193	0.097	1	164	0.082	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	BCDE		5	5	11	16				
6P	E		5	5	7	12				
7P	E		5	5	11	16				
8P	E		5	5	11	16		1		1
9P	E		5	5	11	16				

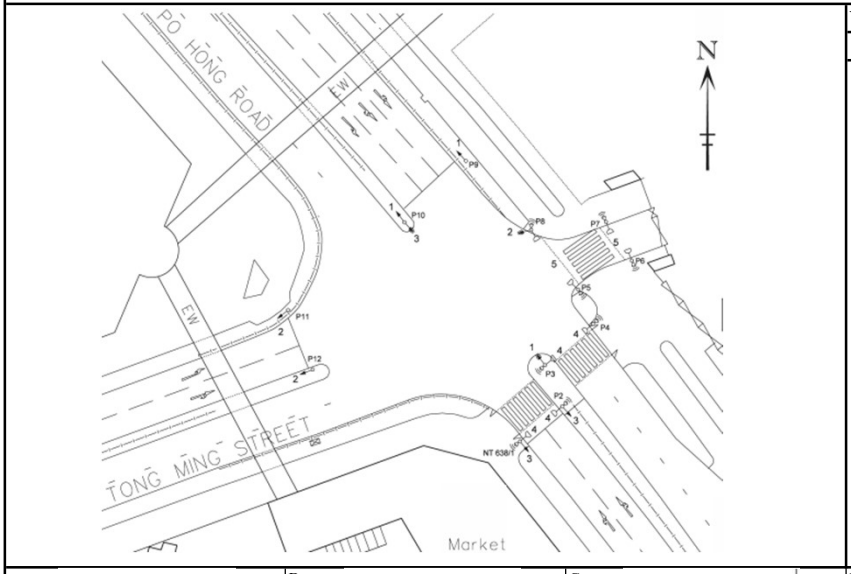
Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	1,2,3,4,8P	1,2,3,4,9P	1,2,3,4,7P	1,2,3,4,8P	1,2,3,4,9P	1,2,3,4,7P
Sum of y values, Y	0.426	0.426	0.426	0.347	0.347	0.347
Lost time, L	50	46	42	50	46	42
Cycle Time, C	125	125	125	125	125	125
Practical Y, Y_{pr}	0.540	0.569	0.598	0.540	0.569	0.598
Reserve Capacity, R.C. (%)	27%	33%	40%	56%	64%	72%

Calculated by:	Date: 五月-2021	Checked by:

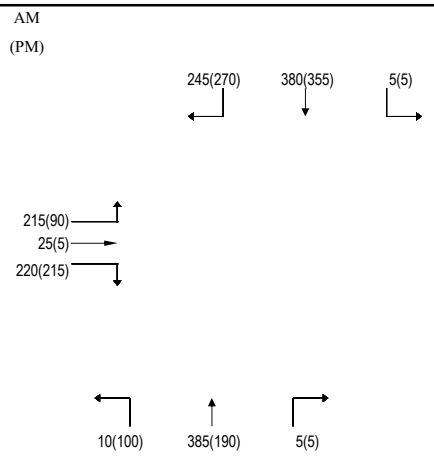
Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O		
Junction:	J9 Po Hong Road / Tong Ming Street	Ref. No.:	J9_SJ_2026B
Scheme:	2026 Ref (with CKR / T2)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)



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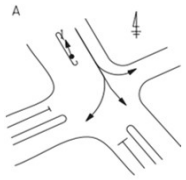

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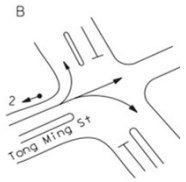

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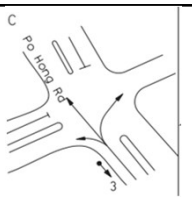

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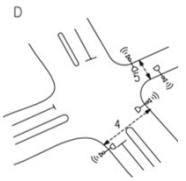

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2		3	3		3	4		3	7	16	0			
2		3	3		3	4		3	2	20	0			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.40	1		15				2 / 2	1950	204	0.105		205	0.105	1
1B	A	1	3.40				21			16 / 28	2070/2055	217	0.105	1	216	0.105	
1C	A	1	3.90				21				2000	209	0.105		210	0.105	
2A	B	1	3.70	1		16				100	1815	215	0.118		90	0.050	
2B	B	1	3.60				32			90 / 98	2030/2020	245	0.121	1	220	0.109	1
3A	C	1	3.50	1		17				5 / 73	1955/1845	192	0.098	1	137	0.075	1
3B	C	1	3.70				11			2 / 3	2120/2115	208	0.098		158	0.074	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
4P	D		11	11	9	20				
5P	D		5	5	11	16		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

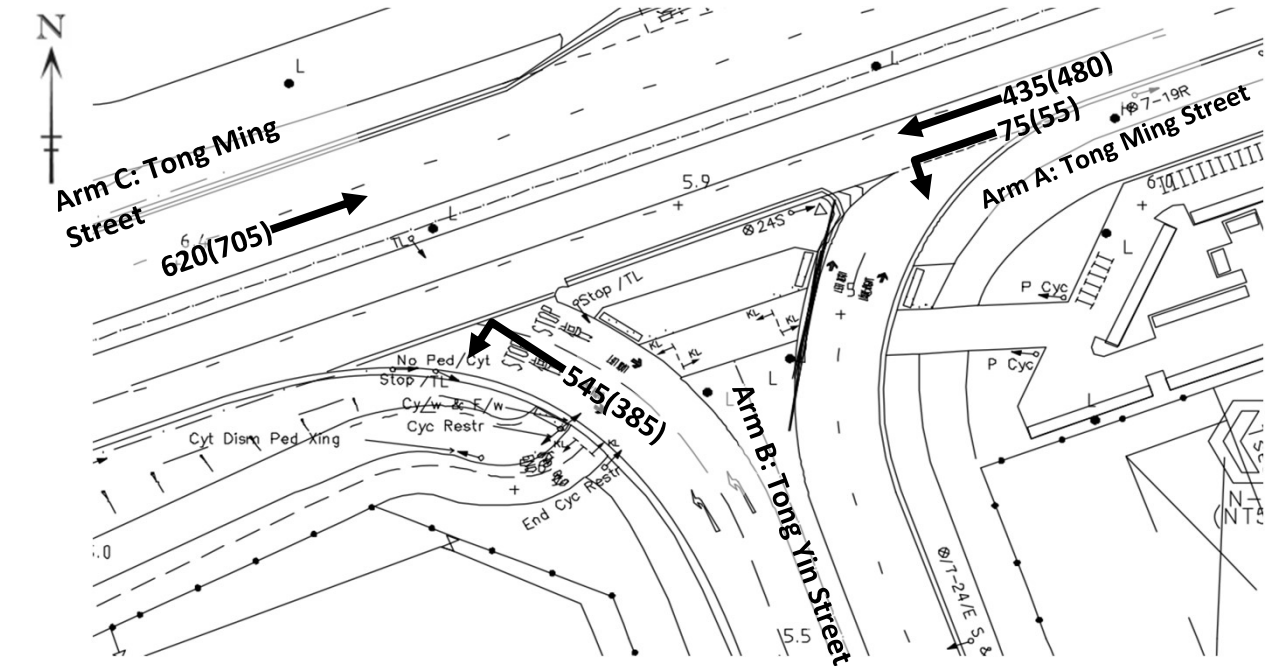
	AM Peak			PM Peak		
Check Critical Phase	1,2,3,5P	1,2,3,4P		1,2,3,5P	1,2,3,4P	
Sum of y values, Y	0.324	0.324		0.288	0.288	
Lost time, L	38	37		38	37	
Cycle Time, C	110	110		105	105	
Practical Y, Y_{pr}	0.589	0.597		0.574	0.583	
Reserve Capacity, R.C. (%)	82%	85%		99%	102%	

Calculated by:	Date: 五月-2021	Checked by:

Simplified Priority Junction Capacity Calculation Sheet

Job Title	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O			
Junction	J10 Tong Yin Street/Tong Ming Street		Ref No.:	J10_PJ_2026B_
Scheme	2026 Ref (with CKR / T2)		Ref No.:	
Year	2020	Job. No.: J1598	Rev.:	

AM(PM)



Geometry					
Major road width	**W**	7.4	**Lane widths**	w(b-a)	0.00
Central Reserve width	W_{cr}	0		w(b-c)	7.80
2 Lane Minor Arm (Y/N)		Y		w(c-b)	0.00
Visibilities	$V_{r(B-A)}$	0	**Calculated**	D	0.53
	$V_{l(B-A)}$	0		E	1.34
	$V_{r(B-C)}$	80		F	0.59
	$V_{r(C-B)}$	0		Y	0.74

Analysis			**Peak Hour**	
			AM	PM
Traffic Flows	$q_{(C-A)}$		620	705
	$q_{(C-B)}$		0	0
	$q_{(A-B)}$		75	55
	$q_{(A-C)}$		435	480
	$q_{(B-A)}$		0	0
	$q_{(B-C)}$		545	385
Proportion of minor traffic left-turn	**f**		1.00	1.00
		Factor		
Capacities	$Q_{(B-A)}$	1	211	198
	$Q_{(B-C)}$	1	830	816
	$Q_{(C-B)}$	1	356	352
	$Q_{(B-AC)}$	1	0	0
DFC	**B-A**		0.00	0.00
	B-C		0.66	0.47
	C-B		0.00	0.00
	B-AC		0.00	0.00
Worst DFC			**0.66**	**0.47**

Where Vl and Vr are visibility distances to the left or right of the respective streams

D = (1+0.094(w(b-a)-3.65))(1+0.0009(Vr(b-a)-120))(1+0.0006(Vl(b-a)-150))

E = (1+0.094(w(b-c)-3.65))(1+0.0009(Vr(b-c)-120))

F = (1+0.094(w(c-b)-3.65))(1+0.0009(Vr(c-b)-120))

Y = 1-0.0345W

f = proportion of minor traffic turning left

Q (b-ac) = Q(b-c)*Q(b-a)/(1-f)*Q(b-c)+f*Q(b-a)

T.P.D.M.V.2.4

Appendix 1

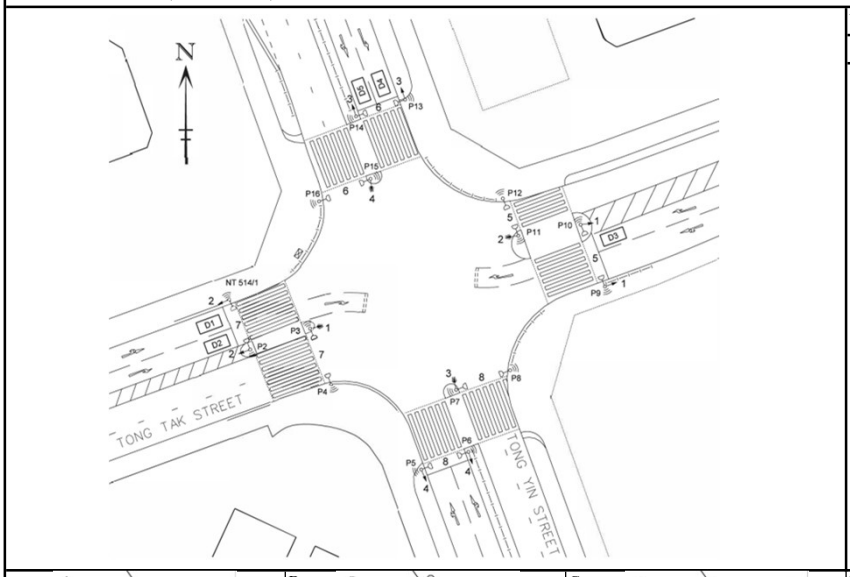
Capacity of combined streams

- in accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

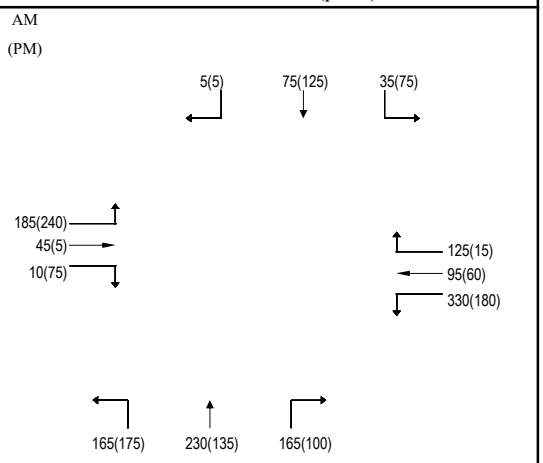
Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O		
Junction:	J11 Tong Yin Street/Tong Tak Street	Ref. No.:	J11_SJ_2026
Scheme:	2026 Ref (with CKR / T2)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)



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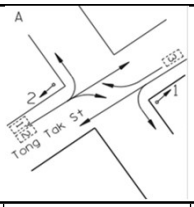

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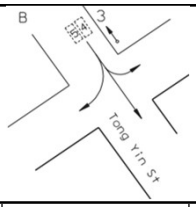

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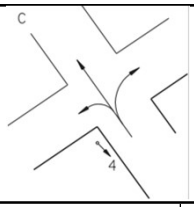

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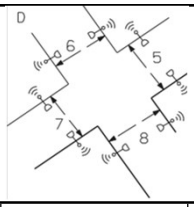

E

2		5	2	5	6	2		3	11	22	1			
2		5	2	5	6	2		3	7	20	1			
2		5	2	5	6	2		3	8	19	0			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	4.30	1		17				78 / 75	1915/1920	425	0.222	1	240	0.125	
1B	A	1	3.20		1		24			100	1735	125	0.072		15	0.009	
2A	A	1	3.70	1		16				80 / 98	1845/1820	230	0.125		245	0.135	1
2B	A	1	3.20		1		24			100	1735	10	0.006		75	0.043	
3A	B	1	3.80	1		18				100	1840	35	0.019		75	0.041	
3B	B	1	3.20				25			6 / 4	2065/2070	80	0.039	1	130	0.063	1
4A	C	1	4.00	1		13				60 / 89	1885/1825	273	0.145		196	0.107	1
4B	C	1	3.00				24			57 / 47	1985/1995	287	0.145	1	214	0.107	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	D		12	12	10	22		1		1
6P	D		9	9	10	19				
7P	D		10	10	10	20				
8P	D		10	10	10	20				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	1,3,4,5P	1,3,4,7P	1,3,4,6P	1,3,4,5P	1,3,4,7P	1,3,4,6P
Sum of y values, Y	0.405	0.405	0.405	0.305	0.305	0.305
Lost time, L	56	50	49	56	50	49
Cycle Time, C	127	127	127	124	124	124
Practical Y, Y_{pr}	0.503	0.546	0.553	0.494	0.537	0.544
Reserve Capacity, R.C. (%)	24%	35%	36%	62%	76%	79%

Calculated by:	Date: 五月-2021	Checked by:

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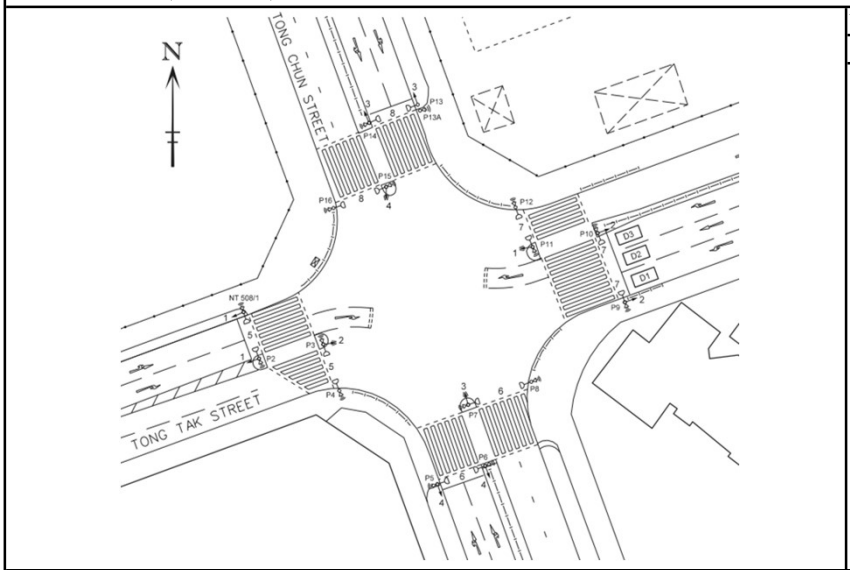
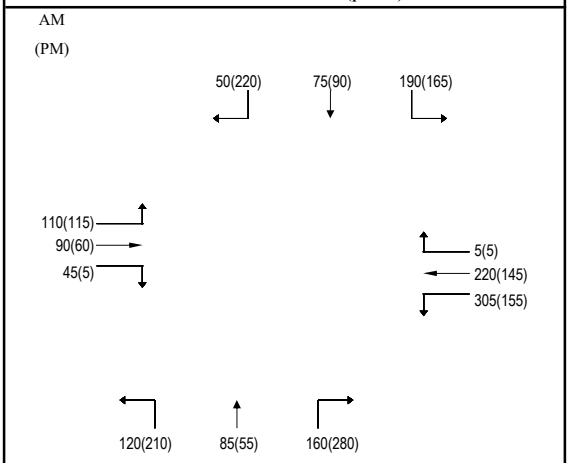
Traffic Signal Junction Calculation Sheet

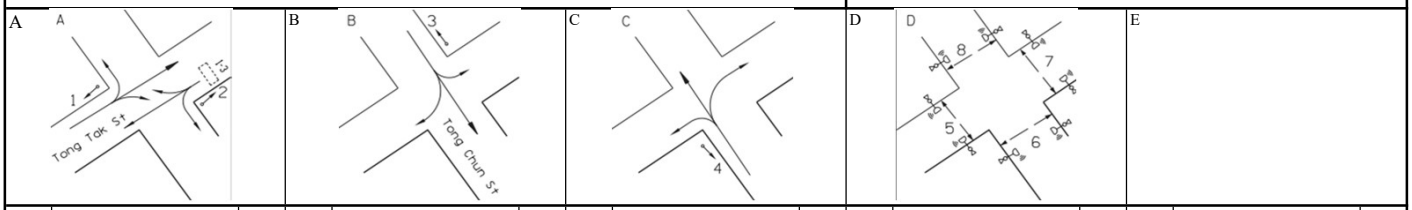
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O		
Junction:	J12 Tong Tak Street/Tong Chun Street	Ref. No.:	J12_SJ_2026
Scheme:	2026 Ref (with CKR / T2)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





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2		11	2		5	2		4	7	18	2			
2		11	2		5	2		4	7	18	0			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.60	1		15				55 / 66	1870/1855	200	0.107		175	0.094	1
1B	A	1	3.20		1		29			100	1755	45	0.026		5	0.003	
2A	A	1	4.00	1		17				100	1850	305	0.165	1	155	0.084	
2B	A	1	3.50								2105	220	0.105		145	0.069	
2C	A	1	3.70		1		24			100	1785	5	0.003		5	0.003	
3A	B	1	3.60	1		17				100 / 73	1815/1855	190	0.105	1	226	0.122	
3B	B	1	4.00				24			40 / 88	2100/2040	125	0.060		249	0.122	1
4A	C	1	3.60	1		18				68 / 80	1870/1850	176	0.094		263	0.142	1
4B	C	1	3.60				24			85 / 99	2010/1990	189	0.094	1	282	0.142	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	D		9	9	9	18				
6P	D		10	10	10	20				
7P	D		12	12	13	25		1		1
8P	D		9	9	9	18				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

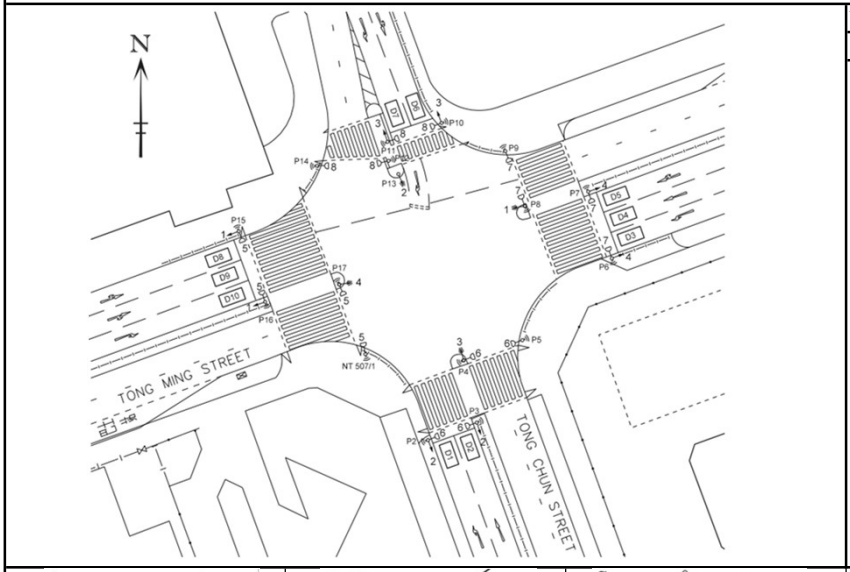
Check Critical Phase	2,3,4,7P	2,3,4,5P	2,3,4,8P	2,3,4,7P	2,3,4,5P	2,3,4,8P
Sum of y values, Y	0.364	0.364	0.364	0.358	0.358	0.358
Lost time, L	60	50	48	60	50	48
Cycle Time, C	125	125	125	125	125	125
Practical Y, Y_{pr}	0.468	0.540	0.554	0.468	0.540	0.554
Reserve Capacity, R.C. (%)	29%	49%	52%	31%	51%	55%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J12_SJ_2026B_ref_

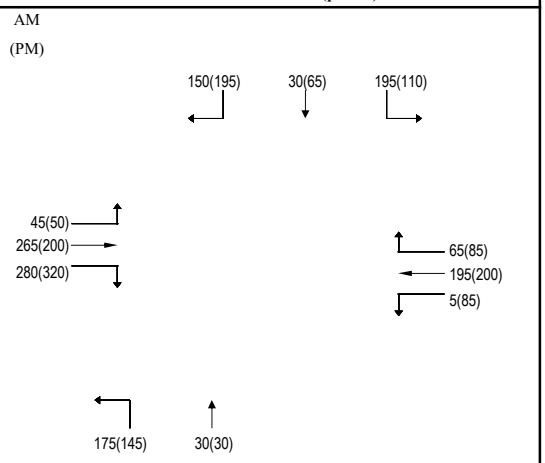
Traffic Signal Junction Calculation Sheet

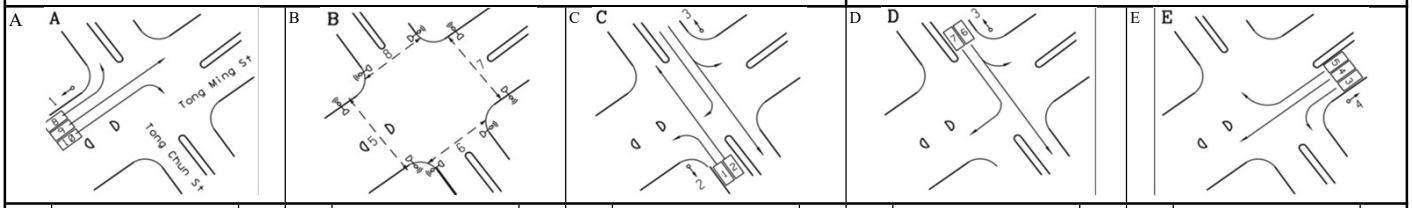
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O		
Junction:	J13 Tong Ming Street/Tong Chun Street	Ref. No.:	J13_SJ_2026
Scheme:	2026 Ref (with CKR / T2)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		3	9	22	0	2					3	3		6
2		3	11	18	1	2					3	3		6
2		3	6	22	1	2					3	3		6

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.50	1		20				24 / 27	1930/1925	191	0.099		185	0.096	1
1B	A	1	3.50				24			41 / 67	2050/2020	203	0.099	1	194	0.096	
1C	A	1	3.50				24				1980	196	0.099		190	0.096	
2A	C	1	3.60	1		17				100	1815	175	0.096		145	0.080	
2B	C	1	3.70								2125	30	0.014		30	0.014	
3A	CD	1	3.20	1		17				87 / 63	1800/1835	225	0.125	1	175	0.095	
3B	CD	1	3.40		1		15			100	1695	150	0.088		195	0.115	1
4A	E	1	3.50	1		17				100	1805	5	0.003		85	0.047	
4B	E	1	3.50								2105	132	0.063		145	0.069	1
4C	E	1	3.50				23			51 / 61	2035/2025	128	0.063	1	140	0.069	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	B		14	14	12	26				
6P	B		10	10	8	18				
7P	B		12	12	10	22		1		1
8P	B		12	12	10	22				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	1,7P,3,4	1,6P,3,4	1,8P,3,4	1,7P,3,4	1,6P,3,4	1,8P,3,4
Sum of y values, Y	0.287	0.287	0.287	0.280	0.280	0.280
Lost time, L	47	46	45	47	46	45
Cycle Time, C	125	125	125	125	125	125
Practical Y, Y_{pr}	0.562	0.569	0.576	0.562	0.569	0.576
Reserve Capacity, R.C. (%)	96%	98%	101%	100%	103%	106%

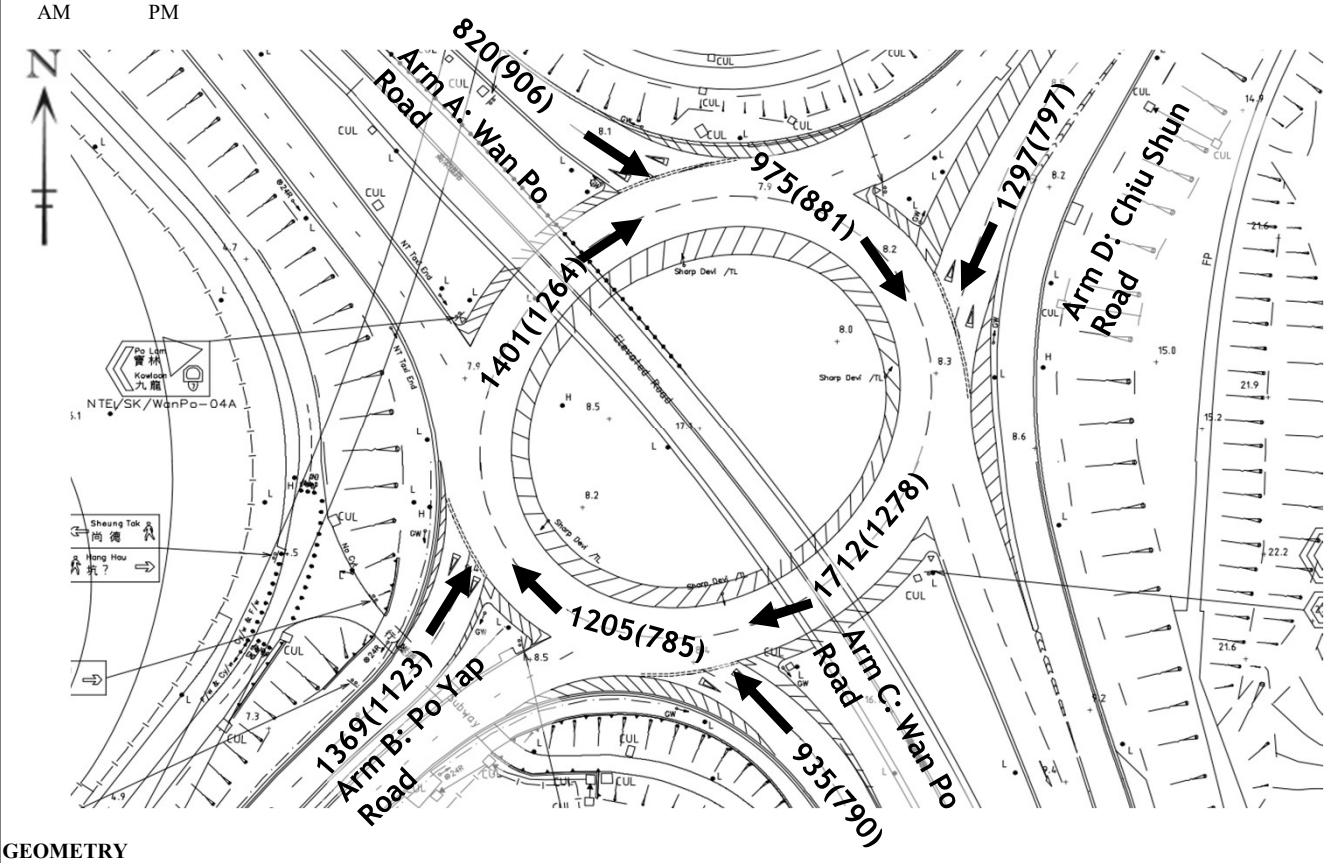
Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J13_SJ_2026B_ref_

Simplified Roundabout Capacity Calculation

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O				
Junction:	J1 Wan Po Road / Chiu Shun Road / Po Yap Road			Ref. No.:	J1_RA_2026_des_
Scheme:	2026 Des (with CKR / T2)			Ref. No.:	
Year:	2020	Job No.:	J1598	Rev.:	-

AM PM



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	5.00	9.00	20	40	76	20	0.32
B	7.00	7.50	10	50	86	20	0.08
C	8.00	8.00	5	40	76	20	0.00
D	8.00	10.00	10	70	86	25	0.32

CALCULATIONS

ARM	K	X_2	M	F	t_D	f_c	Q_E AM	Q_E PM	DFC AM	DFC PM
A	1.06	7.44	4.95	2254	1.08	0.57	1547	1629	0.53	0.56
B	1.06	7.43	13.46	2252	1.03	0.54	1703	1945	0.80	0.58
C	1.06	8.00	4.95	2424	1.08	0.59	1494	1766	0.63	0.45
D	1.05	9.22	13.46	2794	1.03	0.62	2306	2367	0.56	0.34

Critical Arm:	**B**	**B**
DFC:	**0.80**	**0.58**
	AM	**PM**

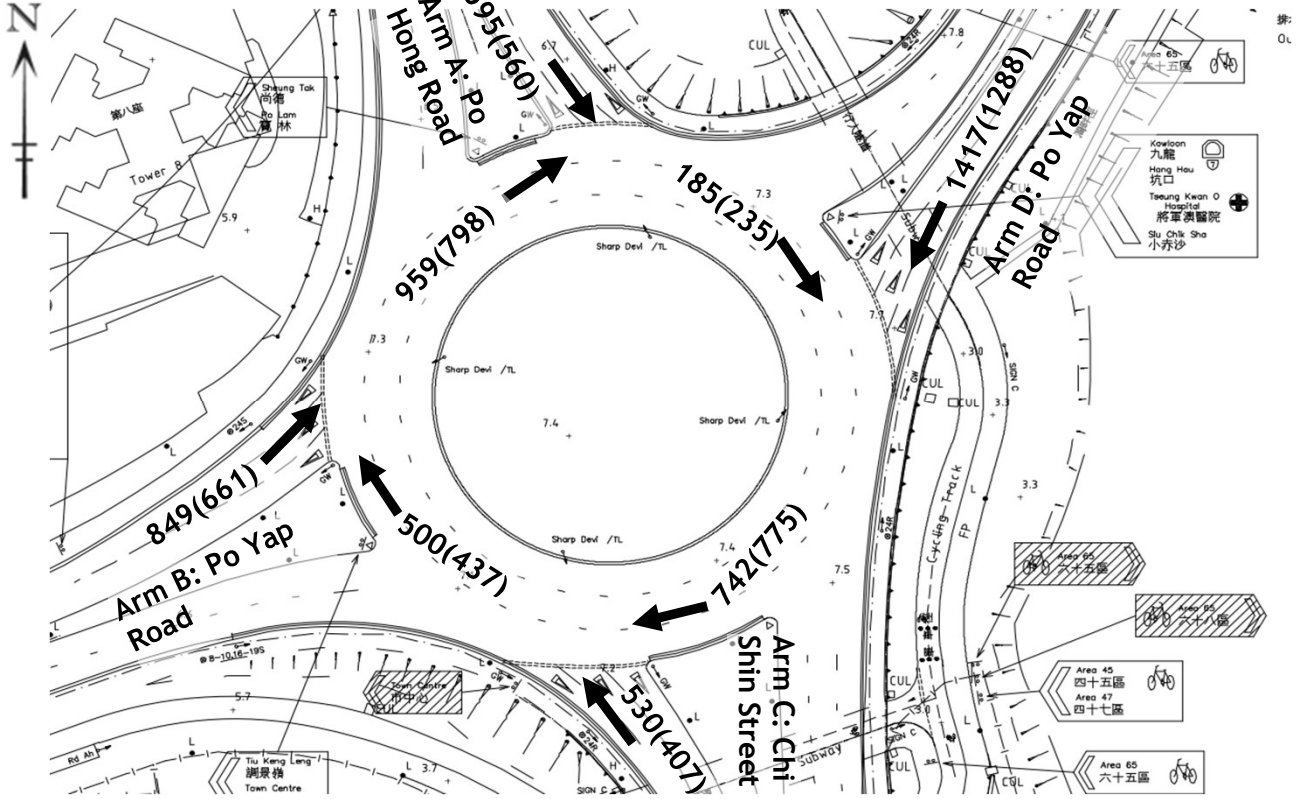
- In accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

Simplified Roundabout Capacity Calculation

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O				
Junction:	J2 Po Yap Road / Chi Shin Street / Po Hong Road			Ref. No.:	J2_RA_2026_des_
Scheme:	2026 Des (with CKR / T2)			Ref. No.:	
Year:	2020	Job No.:	J1598	Rev.:	-

AM PM



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	7.00	11.00	20	25	80	25	0.32
B	7.00	11.00	15	60	80	30	0.43
C	7.00	12.00	10	50	80	25	0.80
D	7.00	11.00	20	90	80	25	0.32

CALCULATIONS

ARM	K	X_2	M	F	t_D	f_c	Q_E AM	Q_E PM	DFC AM	DFC PM
A	1.03	9.44	7.39	2860	1.06	0.64	2305	2411	0.26	0.23
B	1.03	9.16	7.39	2775	1.06	0.63	2540	2581	0.33	0.26
C	1.05	8.92	7.39	2704	1.06	0.62	2349	2327	0.23	0.17
D	1.06	9.44	7.39	2860	1.06	0.64	2893	2859	0.49	0.45

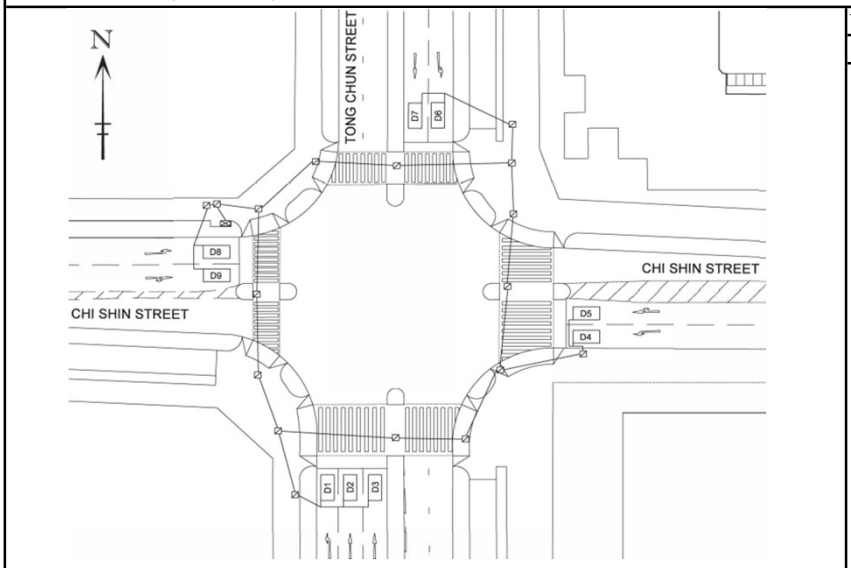
Critical Arm:	**D**	**D**
DFC:	**0.49**	**0.45**
	AM	**PM**

- In accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O		
Junction:	J3 Chi Shin Street / Tong Chun Street	Ref. No.:	J3_SJ_2026_
Scheme:	2026 Des (with CKR / T2)	Ref. No.:	

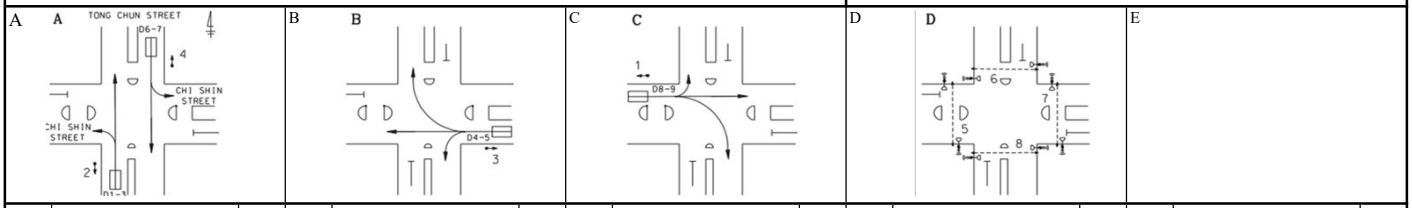


Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)

AM
(PM)

115(25) 145(95)
24(45) 200(187) 50(65)
190(135) 165(148) 115(340)
155(60) 165(180)



2		5	2		5	2		3	9	22	1
2		5	2		5	2		3	7	20	0
2		5	2		5	2		3	5	18	1

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	C	1	4.10	1		17			0.86	100	1595	24	0.015		45	0.028	
1B	C	1	4.20				23			20 / 26	2145/2140	250	0.117	1	252	0.118	1
2A	A	1	3.10	1		19				100	1785	155	0.087	1	60	0.034	
2B	A	2	3.65								4240	165	0.039		180	0.042	
3A	B	1	3.50				25			54 / 48	2040/2045	355	0.174	1	283	0.138	
3B	B	1	3.70	1		17				100	1825	115	0.063		340	0.186	1
4A	A	1	3.60	1		17				100	1815	145	0.080		95	0.052	1
4B	A	1	3.60								2115	115	0.054		25	0.012	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	D		10	10	8	18				
6P	D		10	10	8	18				
7P	D		11	11	9	20				
8P	D		12	12	10	22		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

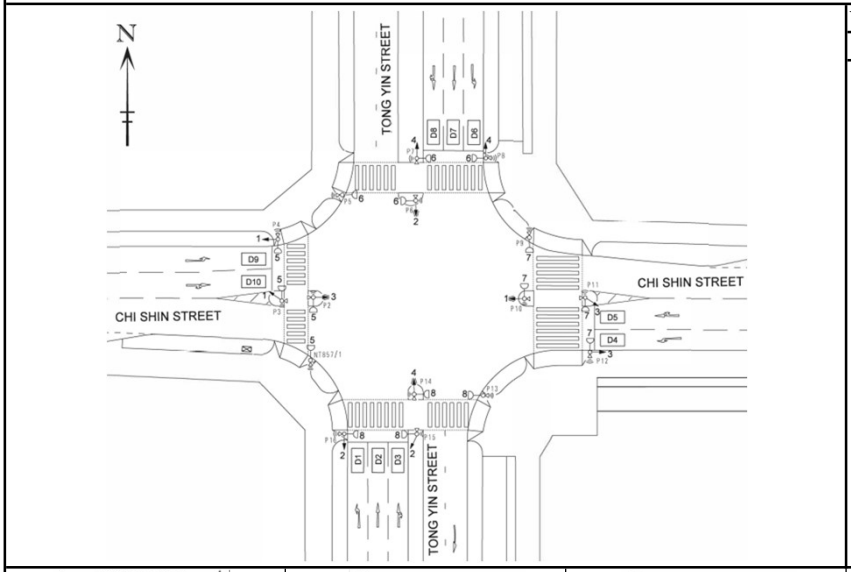
Check Critical Phase	2,3,1,8P	2,3,1,7P	2,3,1,6P	2,3,1,8P	2,3,1,7P	2,3,1,6P
Sum of y values, Y	0.377	0.377	0.377	0.356	0.356	0.356
Lost time, L	48	43	40	48	43	40
Cycle Time, C	110	110	110	110	110	110
Practical Y, Y_{pr}	0.507	0.548	0.573	0.507	0.548	0.573
Reserve Capacity, R.C. (%)	34%	45%	52%	42%	54%	61%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J3_SJ_2026_des_

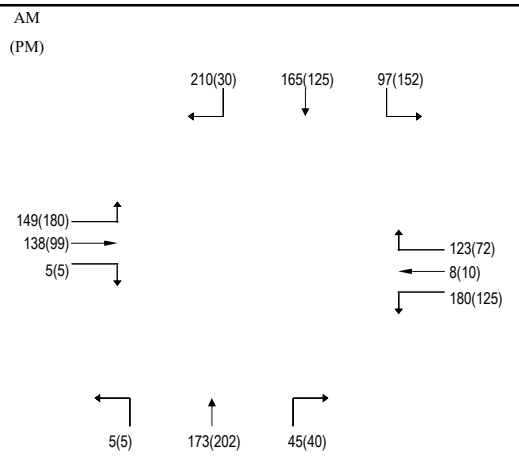
Traffic Signal Junction Calculation Sheet

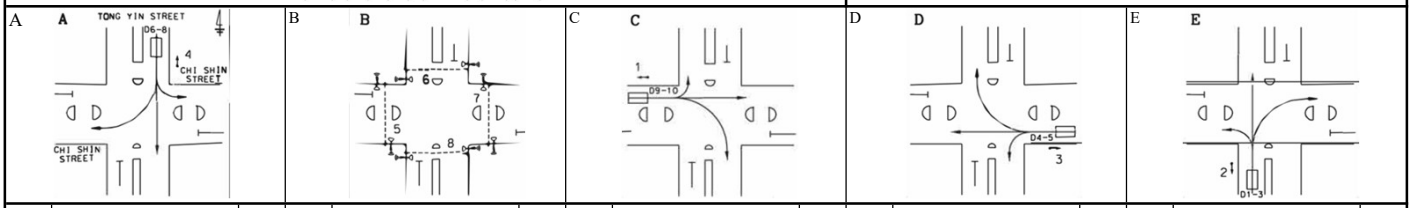
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O		
Junction:	J4 Chi Shin Street / Tong Yin Street	Ref. No.:	J4_SJ_2026_
Scheme:	2026 Des (with CKR / T2)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





A	2		5	B	5	21	0	C	2	5	5	D	2		6	E	2		5
	2		5		7	18	1		2	5	5		2		6		2		5
	2		5		1	22	0		2	5	5		2		6		2		5

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	C	1	3.60	1		17				100	1815	149	0.082	1	180	0.099	1
1B	C	1	3.60				23			3 / 5	2110	143	0.068		104	0.049	
2A	E	1	3.30	1		17			0.86	100	1530	5	0.003		5	0.003	
2B	E	1	3.30								2085	110	0.053	1	122	0.059	1
2C	E	1	3.30				25			42 / 33	2035/2045	108	0.053		120	0.059	
3A	D	1	3.40	1		17				100	1795	180	0.100	1	125	0.070	1
3B	D	1	3.90				36			94 / 88	2065/2070	131	0.063		82	0.040	
4A	A	1	3.30	1		17				100	1785	97	0.054		152	0.085	1
4B	A	1	3.30								2085	165	0.079		78	0.038	
4C	A	1	3.30				23			100 / 39	1955/2035	210	0.107	1	77	0.038	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	B		10	10	8	18				
6P	B		13	13	9	22				
7P	B		9	9	7	16				
8P	B		12	12	9	21		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

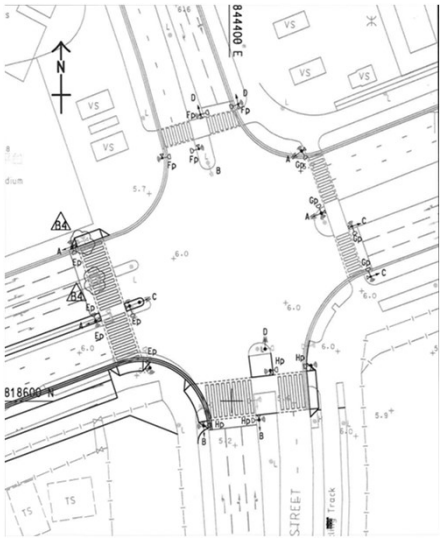
Check Critical Phase	4,8P,1,3,2	4,5P,1,3,2	4,6P,1,3,2	4,8P,1,3,2	4,5P,1,3,2	4,6P,1,3,2
Sum of y values, Y	0.343	0.343	0.343	0.313	0.313	0.313
Lost time, L	56	56	53	56	56	53
Cycle Time, C	100	100	100	110	110	110
Practical Y, Y_{pr}	0.396	0.396	0.423	0.442	0.442	0.466
Reserve Capacity, R.C. (%)	16%	16%	23%	41%	41%	49%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J4_SJ_2026_des_

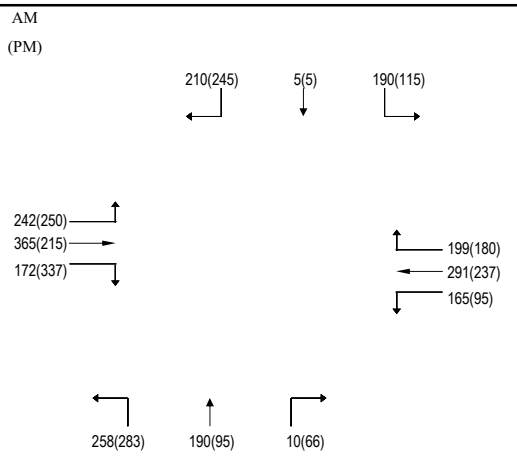
Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O		
Junction:	J5 Po Yap Road / Tong Yin Street	Ref. No.:	J5_SJ_2026_
Scheme:	2026 Des (with CKR / T2)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)



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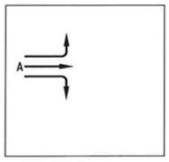
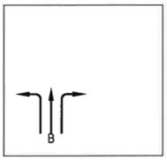


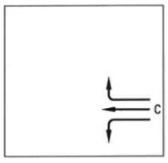
STAGE 1

B



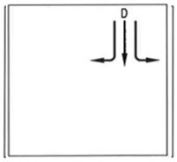
STAGE 2

C



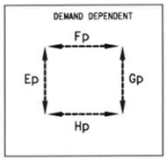
STAGE 3

D



STAGE 4

E



STAGE 5

2		3	2		5	2		3	2		3	13	28	0
2		3	2		5	2		3	2		3	11	27	1
2		3	2		5	2		3	2		3	6	25	0

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.80	1		15					1815	185	0.102	1	189	0.104	
1B	A	1	3.40			15				28 / 29	2040/2035	208	0.102		212	0.104	
1C	A	1	3.50				20			0 / 69	2105/2000	214	0.102	1	208	0.104	1
1D	A	1	3.80	1			20				1855	172	0.093		193	0.104	
2A	B	1	3.70			15					1930	150	0.078		148	0.077	
2B	B	1	3.70			15				70 / 91	1985/1950	154	0.078	1	149	0.077	
2C	B	1	3.70	1			20			7 / 45	1975/1920	154	0.078		147	0.077	1
3A	C	1	3.20			15				76 / 57	1930/1965	216	0.112		167	0.085	
3B	C	1	3.30	1							1945	218	0.112		165	0.085	
3C	C	1	3.50				20			90 / 100	1970/1960	221	0.112	1	180	0.092	1
4A	D	1	3.70	1		15	20			97 / 97	1810/1820	195	0.108	1	175	0.096	1
4B	D	1	3.70				20				1975	210	0.106		190	0.096	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	E		14	14	13	27				
6P	E		11	11	8	19				
7P	E		15	15	10	25				
8P	E		16	16	12	28		1		1

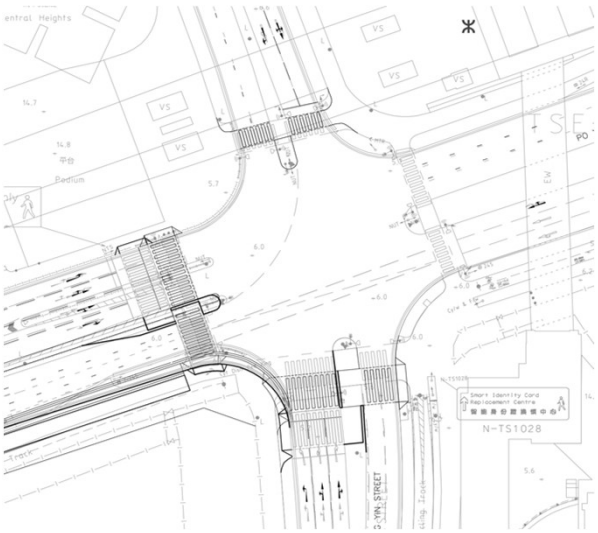
Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	1,2,3,4,8P	1,2,3,4,5P	1,2,3,4,7P	1,2,3,4,8P	1,2,3,4,5P	1,2,3,4,7P
Sum of y values, Y	0.400	0.400	0.400	0.369	0.369	0.369
Lost time, L	59	57	49	59	57	49
Cycle Time, C	120	120	120	105	105	105
Practical Y, Y_{pr}	0.458	0.473	0.533	0.394	0.411	0.480
Reserve Capacity, R.C. (%)	15%	18%	33%	7%	12%	30%

Calculated by:	Date: 五月-2021	Checked by:

Traffic Signal Junction Calculation Sheet

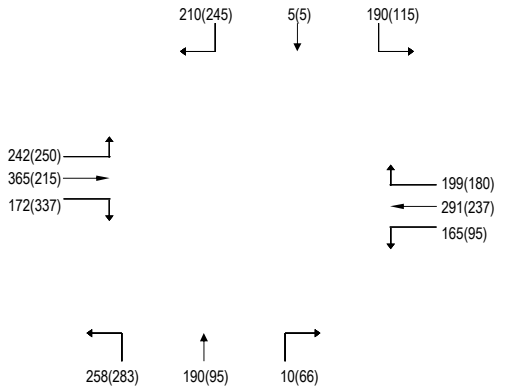
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O
Junction:	J5 Po Yap Road / Tong Yin Street (with improvement scheme)
Ref. No.:	J5_SJ_2026_
Scheme:	2026 Des (with CKR / T2)
Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)

AM
(PM)



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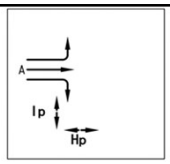
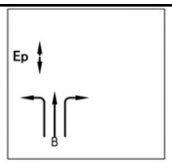


STAGE 1

2		3

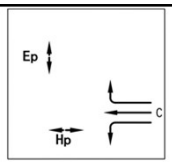
B



STAGE 2

2		5

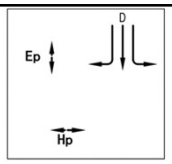
C



STAGE 3

2		3

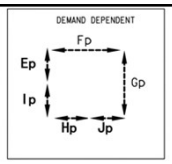
D



STAGE 4

2		3

E



STAGE 5

6	25	0

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.80	1		15					1815	185	0.102	1	189	0.104	
1B	A	1	3.40			15				28 / 29	2040/2035	208	0.102		212	0.104	
1C	A	1	3.50				20			0 / 69	2105/2000	214	0.102	1	208	0.104	1
1D	A	1	3.80	1			20				1855	172	0.093		193	0.104	
2A	B	1	3.70			15					1930	150	0.078		148	0.077	
2B	B	1	3.70			15				70 / 91	1985/1950	154	0.078	1	149	0.077	
2C	B	1	3.70	1			20			7 / 45	1975/1920	154	0.078		147	0.077	1
3A	C	1	3.20			15				76 / 57	1930/1965	216	0.112		167	0.085	
3B	C	1	3.30	1							1945	218	0.112		165	0.085	
3C	C	1	3.50				20			90 / 100	1970/1960	221	0.112	1	180	0.092	1
4A	D	1	3.70	1		15	20			97 / 97	1810/1820	195	0.108	1	175	0.096	1
4B	D	1	3.70				20				1975	210	0.106		190	0.096	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	BCDE		5	5	13	18				
6P	E		11	11	8	19				
7P	E		15	15	10	25		1		1
8P	ACDE		5	5	12	17				
9P	AE		5	5	9	14				
10P	E		5	5	6	11				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%

In accordance with TPDM - Volume 4.2.4

	AM Peak			PM Peak		
Check Critical Phase	1,2,3,4,7P			1,2,3,4,7P		
Sum of y values, Y	0.400			0.369		
Lost time, L	49			49		
Cycle Time, C	120			105		
Practical Y, Y_{pr}	0.533			0.480		
Reserve Capacity, R.C. (%)	33%			30%		

Calculated by:	Date: 五月-2021	Checked by:

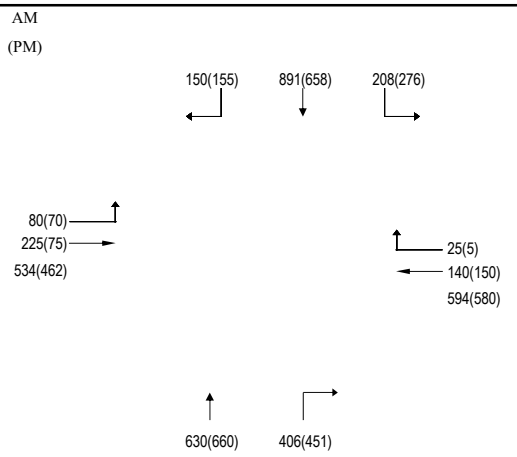
Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J5_SJ_2026_des_hv_impro

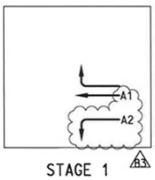
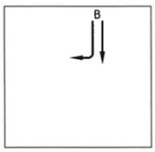
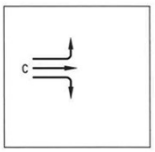
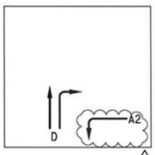
Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J6 Po Yap Road / Po Shun Road / Chui Ling Road / Future Road P2	Ref. No.:	J6_SJ_2026_
Scheme:	2026 Des (with CKR / T2)	Ref. No.:	

Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)



A	B	C	D	E
				
STAGE 1	STAGE 2	STAGE 3	STAGE 4	

2		3	2		5	2		3	2		3			
		3	2		5	2		3			2			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A ←	A	1	3.50								2105	140	0.067	1	150	0.071	1
1B ↰	A	1	3.70				20			100	1975	25	0.013		5	0.003	
2A ↓	AD	2	3.50	1		15				100	3700	594	0.161		580	0.157	
3A ↓	B	2	3.65	1							4100	891	0.217	1	658	0.160	1
3B ↓	B	1	3.60				20			100	1965	150	0.076		155	0.079	
4A ↑→	C	1	3.60	1		15				29 / 48	1920/1885	276	0.144		145	0.077	
4B ↑→	C	1	3.30				20			90 / 100	1955/1940	281	0.144		229	0.118	
4C ↓	C	1	3.60				20				1965	282	0.144	1	233	0.118	1
5A ↑	D	1	3.70	1							1985	340	0.171		365	0.184	1
5B ↑→	D	1	3.70				20			19 / 23	2095/2090	358	0.171	1	384	0.184	
5C →	D	1	3.70				20				1975	338	0.171		363	0.184	1

Critical Ped. Phase	Stage	Width Across	Min. GM	Min. FGM	Lost Time	Note	Crit.	Note	Crit.

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	1,3,4,5	2,3,4		1,3,4,5	2,3,4	
Sum of y values, Y	0.599	0.522		0.534	0.436	
Lost time, L	18	14		18	14	
Cycle Time, C	127	217		124	214	
Practical Y, Y_{pr}	0.772	0.842		0.769	0.841	
Reserve Capacity, R.C. (%)	29%	61%		44%	93%	

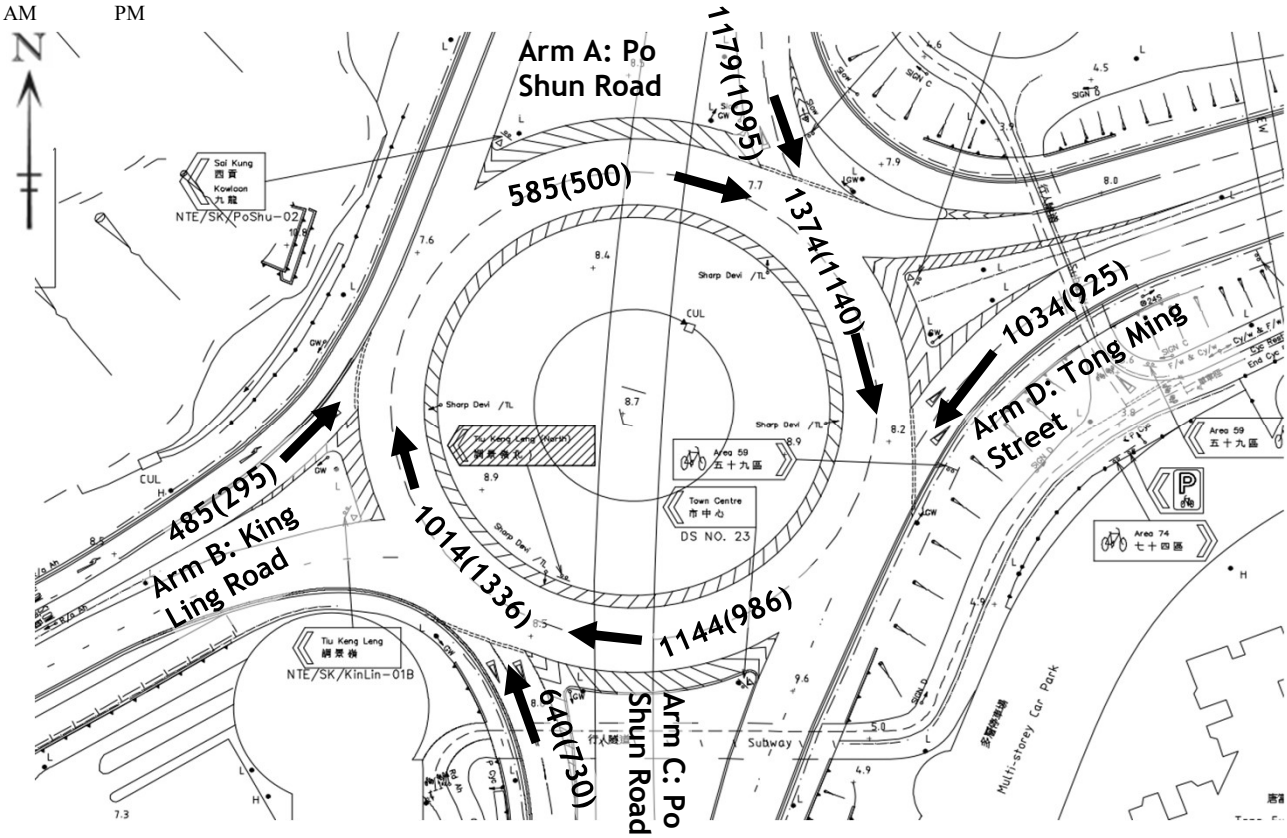
Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J6_SJ_2026_des_

Simplified Roundabout Capacity Calculation

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O				
Junction:	J7 Po Shun Road / Tong Ming Street / King Ling Road			Ref. No.:	J7_RA_2026_des_
Scheme:	2026 Des (with CKR / T2)			Ref. No.:	
Year:	2020	Job No.:	J1598	Rev.:	-

AM PM



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	7.00	8.00	14.5	20	81.2	20	0.11
B	2.70	4.60	31.9	55.2	81.2	18	0.10
C	7.10	7.40	11.7	23	81.2	10	0.04
D	7.40	8.40	27.5	60	81.2	29	0.06

CALCULATIONS

							Q_E		DFC	
ARM	K	X_2	M	F	t_D	f_c	AM	PM	AM	PM
A	1.03	7.82	8.33	2369	1.05	0.57	2108	2158	0.56	0.51
B	1.07	4.30	8.33	1302	1.05	0.41	949	807	0.51	0.37
C	1.08	7.38	8.33	2235	1.05	0.55	1731	1824	0.37	0.40
D	1.04	8.30	8.33	2514	1.05	0.59	1767	1909	0.59	0.48

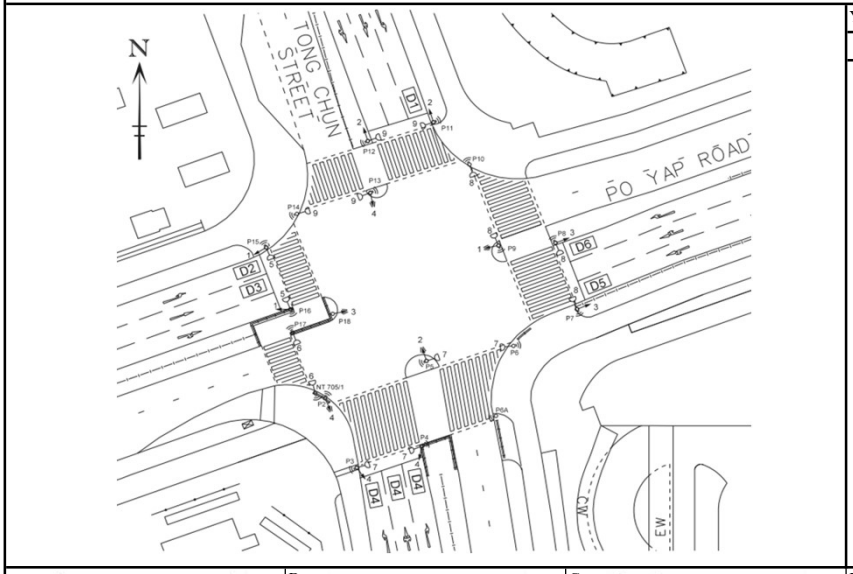
Critical Arm:	**D**	**A**
DFC:	**0.59**	**0.51**
	AM	**PM**

- In accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

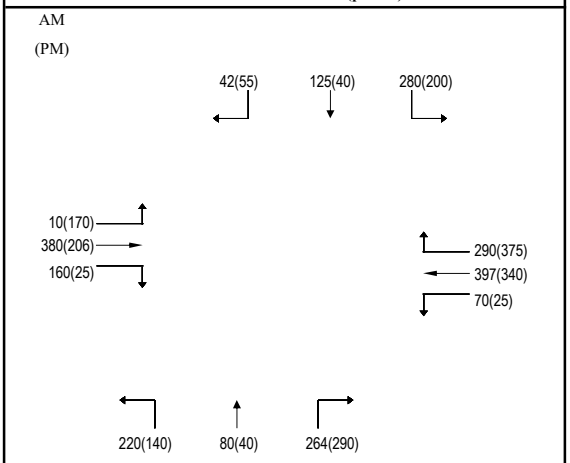
Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J8 Po Yap Road / Tong Chun Street	Ref. No.:	J8_SJ_2026_
Scheme:	2026 Des (with CKR / T2)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)



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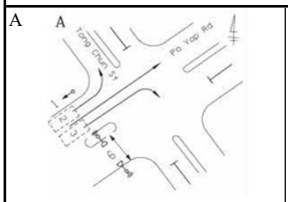

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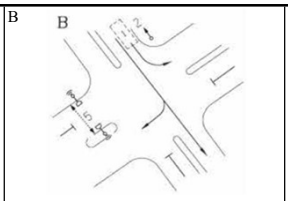

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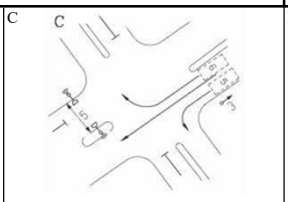

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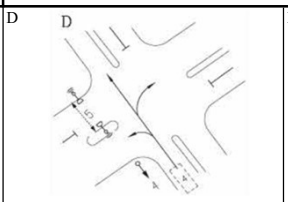

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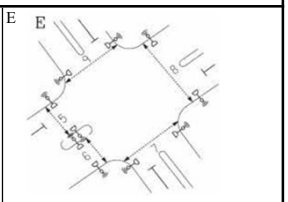

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2		5	2		5	2		6	2		6	4	16	0
2		5	2		5	2		6	2		6	0	16	0

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.30	1		17				100	1785	10	0.006		170	0.095	1
1B	A	1	3.30								2085	276	0.132	1	116	0.056	
1C	A	1	3.30				20			61 / 22	1995/2050	264	0.132		115	0.056	
2A	B	1	3.40	1		17					1795	138	0.077	1	97	0.054	
2B	B	1	3.40			17				95 / 100	1935/1925	149	0.077		103	0.054	1
2C	B	1	3.50				26			26 / 58	2075/2035	160	0.077		95	0.047	
3A	C	1	3.30	1		17				29 / 10	1895/1925	243	0.128	1	242	0.126	1
3B	C	1	3.40				20			15 / 51	2070/2015	265	0.128		253	0.126	
3C	C	1	3.40				20				1950	249	0.128		245	0.126	
4A	D	1	3.60	1		16					1805	175	0.097	1	140	0.078	
4B	D	1	3.50			16	26			59 / 76	2020/2015	196	0.097		166	0.082	1
4C	D	1	3.50				26				1990	193	0.097	1	164	0.082	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	BCDE		5	5	11	16				
6P	E		5	5	7	12				
7P	E		5	5	11	16				
8P	E		5	5	11	16		1		1
9P	E		5	5	11	16				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%

In accordance with TPDM - Volume 4.2.4

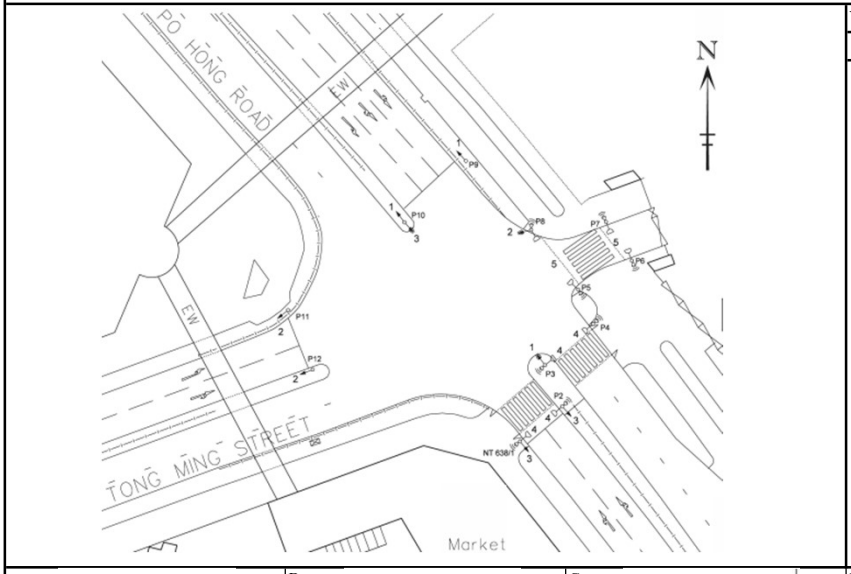
Check Critical Phase	1,2,3,4,8P	1,2,3,4,9P	1,2,3,4,7P	1,2,3,4,8P	1,2,3,4,9P	1,2,3,4,7P
Sum of y values, Y	0.434	0.434	0.434	0.357	0.357	0.357
Lost time, L	50	46	42	50	46	42
Cycle Time, C	125	125	125	125	125	125
Practical Y, Y_{pr}	0.540	0.569	0.598	0.540	0.569	0.598
Reserve Capacity, R.C. (%)	24%	31%	38%	51%	59%	67%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J8_SJ_2026_des_

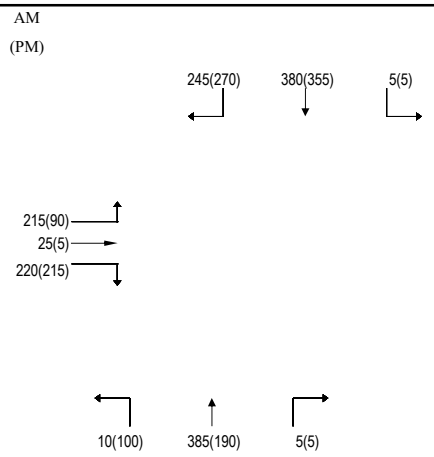
Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J9 Po Hong Road / Tong Ming Street	Ref. No.:	J9_SJ_2026_
Scheme:	2026 Des (with CKR / T2)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)



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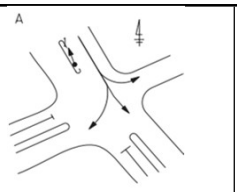

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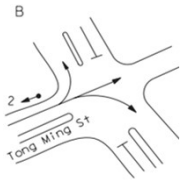

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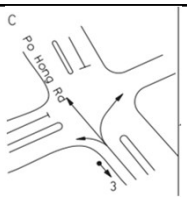

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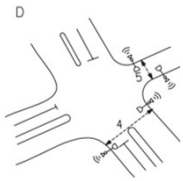


E

2		3	3		3	4		3	7	16	0			
2		3	3		3	4		3	2	20	0			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.40	1		15				2 / 2	1950	204	0.105		205	0.105	1
1B	A	1	3.40				21			16 / 28	2070/2055	217	0.105	1	216	0.105	
1C	A	1	3.90				21				2000	209	0.105		210	0.105	
2A	B	1	3.70	1		16				100	1815	215	0.118		90	0.050	
2B	B	1	3.60				32			90 / 98	2030/2020	245	0.121	1	220	0.109	1
3A	C	1	3.50	1		17				5 / 73	1955/1845	192	0.098	1	137	0.075	1
3B	C	1	3.70				11			2 / 3	2120/2115	208	0.098		158	0.074	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
4P	D		11	11	9	20				
5P	D		5	5	11	16		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

	AM Peak			PM Peak		
Check Critical Phase	1,2,3,5P	1,2,3,4P		1,2,3,5P	1,2,3,4P	
Sum of y values, Y	0.324	0.324		0.288	0.288	
Lost time, L	38	37		38	37	
Cycle Time, C	110	110		105	105	
Practical Y, Y_{pr}	0.589	0.597		0.574	0.583	
Reserve Capacity, R.C. (%)	82%	85%		99%	102%	

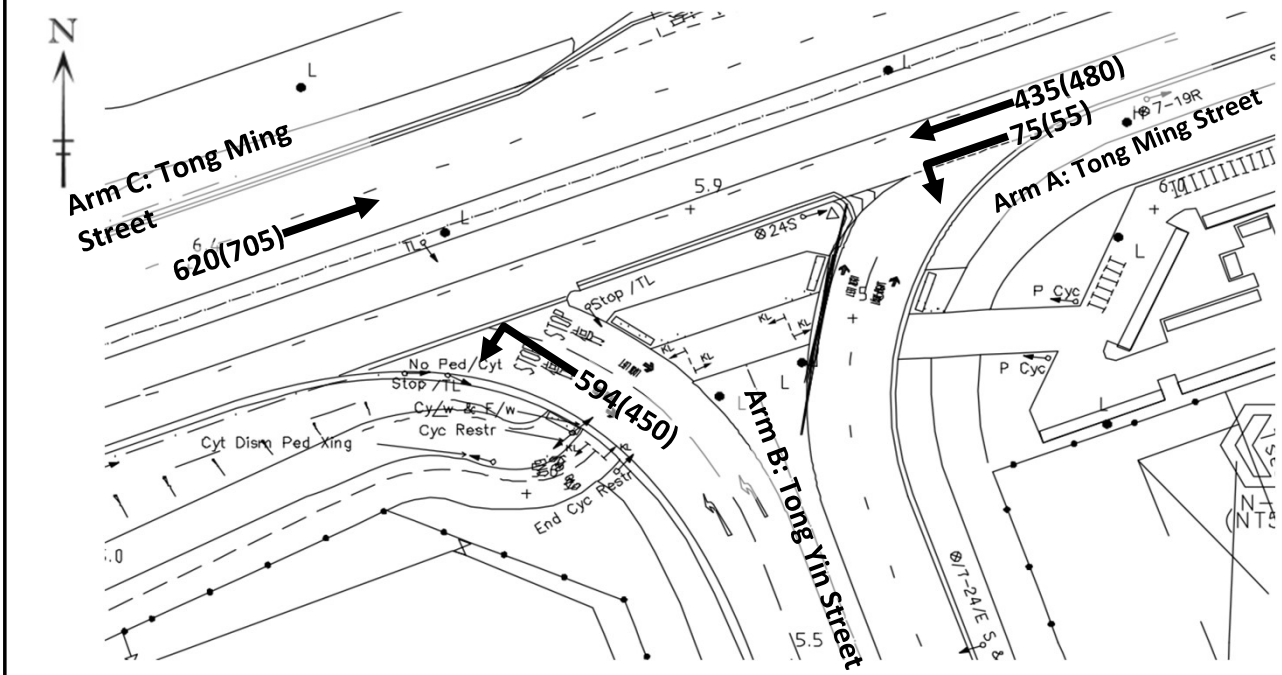
Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J9_SJ_2026_des_

Simplified Priority Junction Capacity Calculation Sheet

Job Title	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O			
Junction	J10 Tong Yin Street/Tong Ming Street		Ref No.:	J10_PJ_2026_d
Scheme	2026 Des (with CKR / T2)		Ref No.:	
Year	2020	Job. No.: J1598	Rev.:	

AM(PM)



Geometry					
Major road width	**W**	7.4	**Lane widths**	w(b-a)	0.00
Central Reserve width	**W_{cr}**	0		w(b-c)	7.80
2 Lane Minor Arm (Y/N)		Y		w(c-b)	0.00
Visibilities	**$V_{r(B-A)}$**	0	**Calculated**	D	0.53
	$V_{l(B-A)}$	0		E	1.34
	$V_{r(B-C)}$	80		F	0.59
	$V_{r(C-B)}$	0		Y	0.74

Analysis			**Peak Hour**	
			AM	PM
Traffic Flows	**$q_{(C-A)}$**		620	705
	$q_{(C-B)}$		0	0
	$q_{(A-B)}$		75	55
	$q_{(A-C)}$		435	480
	$q_{(B-A)}$		0	0
	$q_{(B-C)}$		594	450
Proportion of minor traffic left-turn	**f**		1.00	1.00
		Factor		
Capacities	**$Q_{(B-A)}$**	1	211	198
	$Q_{(B-C)}$	1	830	816
	$Q_{(C-B)}$	1	356	352
	$Q_{(B-AC)}$	1	0	0
DFC	**B-A**		0.00	0.00
	B-C		0.72	0.55
	C-B		0.00	0.00
	B-AC		0.00	0.00
Worst DFC			**0.72**	**0.55**

Where Vl and Vr are visibility distances to the left or right of the respective streams

D = (1+0.094(w(b-a)-3.65))(1+0.0009(Vr(b-a)-120))(1+0.0006(Vl(b-a)-150))

E = (1+0.094(w(b-c)-3.65))(1+0.0009(Vr(b-c)-120))

F = (1+0.094(w(c-b)-3.65))(1+0.0009(Vr(c-b)-120))

Y = 1-0.0345W

f = proportion of minor traffic turning left

Q (b-ac) = Q(b-c)*Q(b-a)/(1-f)*Q(b-c)+f*Q(b-a)

T.P.D.M.V.2.4

Appendix 1

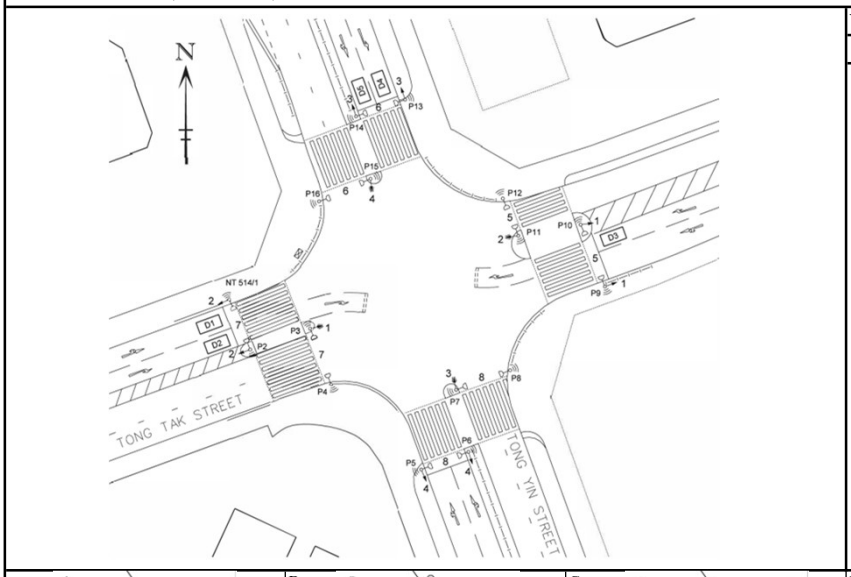
Capacity of combined streams

- in accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

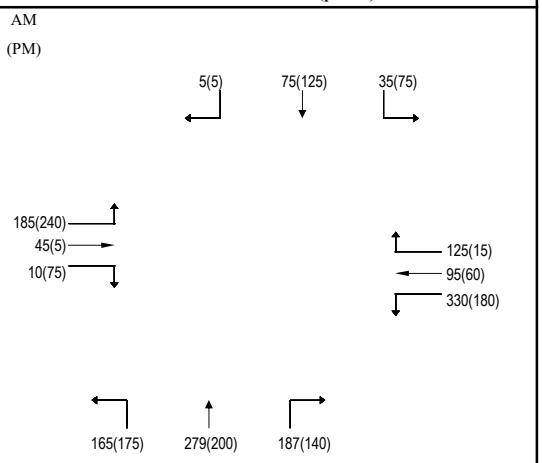
Traffic Signal Junction Calculation Sheet

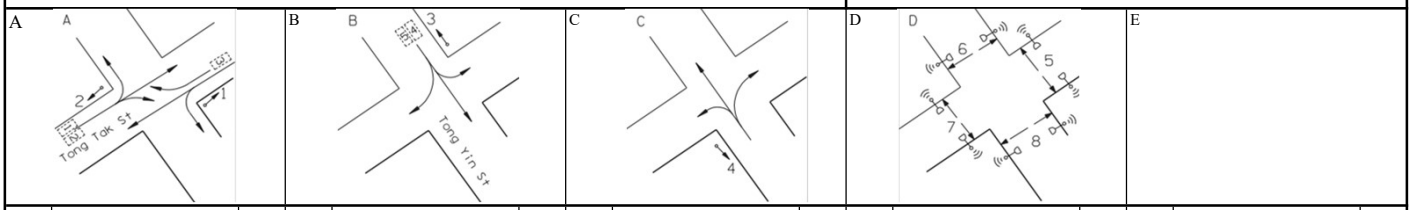
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J11 Tong Yin Street/Tong Tak Street	Ref. No.:	J11_SJ_2026
Scheme:	2026 Des (with CKR / T2)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		5	2	5	6	2		3	11	22	1			
2		5	2	5	6	2		3	7	20	1			
2		5	2	5	6	2		3	8	19	0			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	4.30	1		17				78 / 75	1915/1920	425	0.222	1	240	0.125	
1B	A	1	3.20		1		24			100	1735	125	0.072		15	0.009	
2A	A	1	3.70	1		16				80 / 98	1845/1820	230	0.125		245	0.135	1
2B	A	1	3.20		1		24			100	1735	10	0.006		75	0.043	
3A	B	1	3.80	1		18				100	1840	35	0.019		75	0.041	
3B	B	1	3.20				25			6 / 4	2065/2070	80	0.039	1	130	0.063	1
4A	C	1	4.00	1		13				53 / 70	1900/1865	309	0.162		249	0.134	
4B	C	1	3.00				24			58 / 53	1985/1990	322	0.162	1	266	0.134	1

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	D		12	12	10	22		1		1
6P	D		9	9	10	19				
7P	D		10	10	10	20				
8P	D		10	10	10	20				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

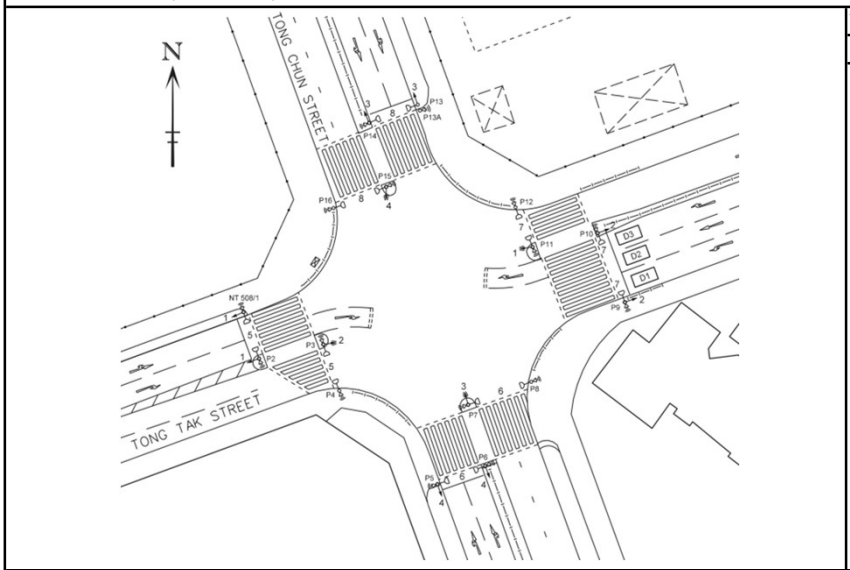
Check Critical Phase	1,3,4,5P	1,3,4,7P	1,3,4,6P	1,3,4,5P	1,3,4,7P	1,3,4,6P
Sum of y values, Y	0.423	0.423	0.423	0.331	0.331	0.331
Lost time, L	56	50	49	56	50	49
Cycle Time, C	127	127	127	124	124	124
Practical Y, Y_{pr}	0.503	0.546	0.553	0.494	0.537	0.544
Reserve Capacity, R.C. (%)	19%	29%	31%	49%	62%	64%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J11_SJ_2026_des_

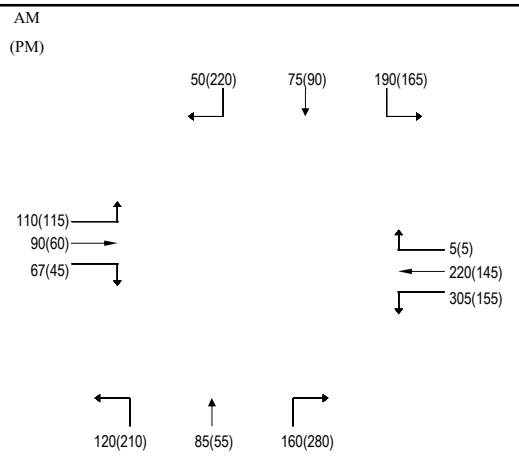
Traffic Signal Junction Calculation Sheet

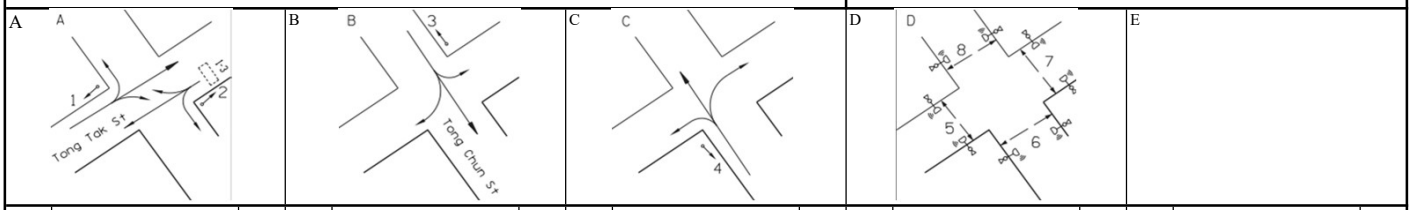
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J12 Tong Tak Street/Tong Chun Street	Ref. No.:	J12_SJ_2026
Scheme:	2026 Des (with CKR / T2)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





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2		11	2		5	2		4	7	18	2			
2		11	2		5	2		4	7	18	0			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.60	1		15				55 / 66	1870/1855	200	0.107		175	0.094	1
1B	A	1	3.20		1		29			100	1755	67	0.038		45	0.026	
2A	A	1	4.00	1		17				100	1850	305	0.165	1	155	0.084	
2B	A	1	3.50								2105	220	0.105		145	0.069	
2C	A	1	3.70		1		24			100	1785	5	0.003		5	0.003	
3A	B	1	3.60	1		17				100 / 73	1815/1855	190	0.105	1	226	0.122	
3B	B	1	4.00				24			40 / 88	2100/2040	125	0.060		249	0.122	1
4A	C	1	3.60	1		18				68 / 80	1870/1850	176	0.094		263	0.142	1
4B	C	1	3.60				24			85 / 99	2010/1990	189	0.094	1	282	0.142	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	D		9	9	9	18				
6P	D		10	10	10	20				
7P	D		12	12	13	25		1		1
8P	D		9	9	9	18				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%

In accordance with TPDM - Volume 4.2.4

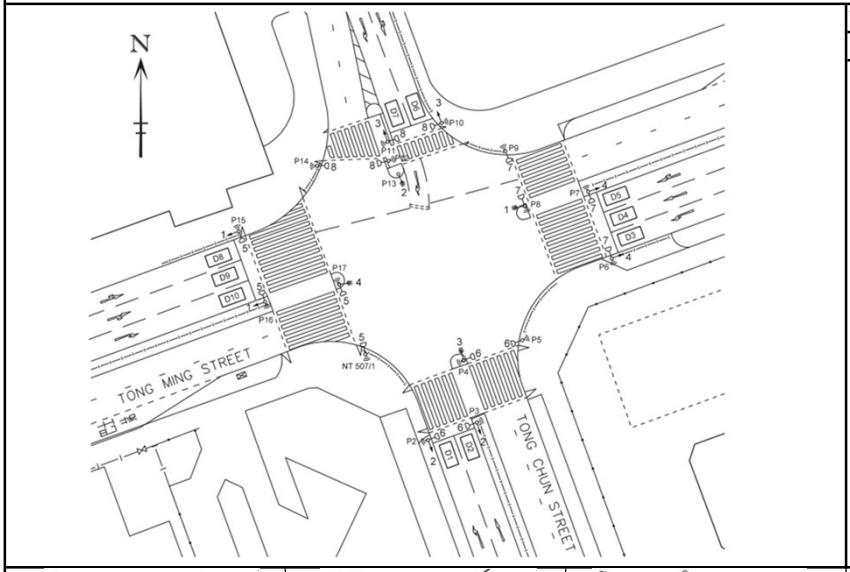
Check Critical Phase	2,3,4,7P	2,3,4,5P	2,3,4,8P	2,3,4,7P	2,3,4,5P	2,3,4,8P
Sum of y values, Y	0.364	0.364	0.364	0.358	0.358	0.358
Lost time, L	60	50	48	60	50	48
Cycle Time, C	125	125	125	125	125	125
Practical Y, Y_{pr}	0.468	0.540	0.554	0.468	0.540	0.554
Reserve Capacity, R.C. (%)	29%	49%	52%	31%	51%	55%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J12_SJ_2026_des_

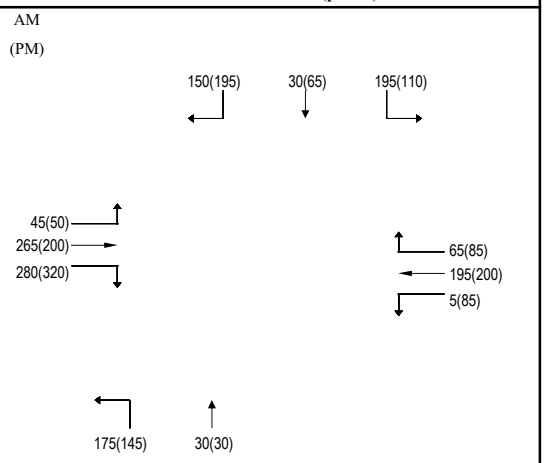
Traffic Signal Junction Calculation Sheet

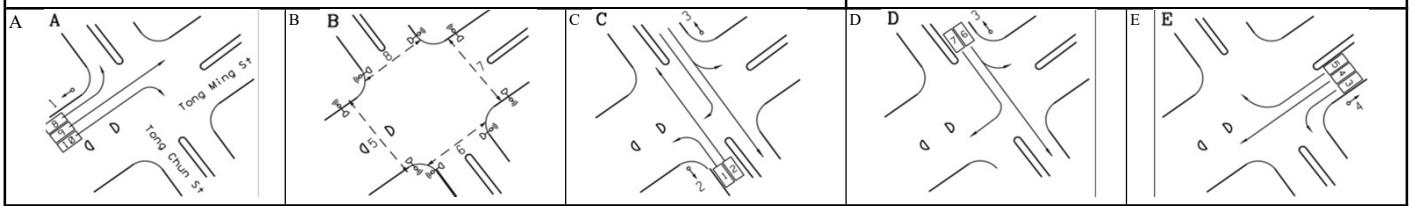
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J13 Tong Ming Street/Tong Chun Street	Ref. No.:	J13_SJ_2026
Scheme:	2026 Des (with CKR / T2)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		3	9	22	0	2					3	3		6
2		3	11	18	1	2					3	3		6
2		3	6	22	1	2					3	3		6

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.50	1		20				24 / 27	1930/1925	191	0.099		185	0.096	1
1B	A	1	3.50				24			41 / 67	2050/2020	203	0.099	1	194	0.096	
1C	A	1	3.50				24				1980	196	0.099		190	0.096	
2A	C	1	3.60	1		17				100	1815	175	0.096		145	0.080	
2B	C	1	3.70								2125	30	0.014		30	0.014	
3A	CD	1	3.20	1		17				87 / 63	1800/1835	225	0.125	1	175	0.095	
3B	CD	1	3.40		1		15			100	1695	150	0.088		195	0.115	1
4A	E	1	3.50	1		17				100	1805	5	0.003		85	0.047	
4B	E	1	3.50								2105	132	0.063		145	0.069	1
4C	E	1	3.50				23			51 / 61	2035/2025	128	0.063	1	140	0.069	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	B		14	14	12	26				
6P	B		10	10	8	18				
7P	B		12	12	10	22		1		1
8P	B		12	12	10	22				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

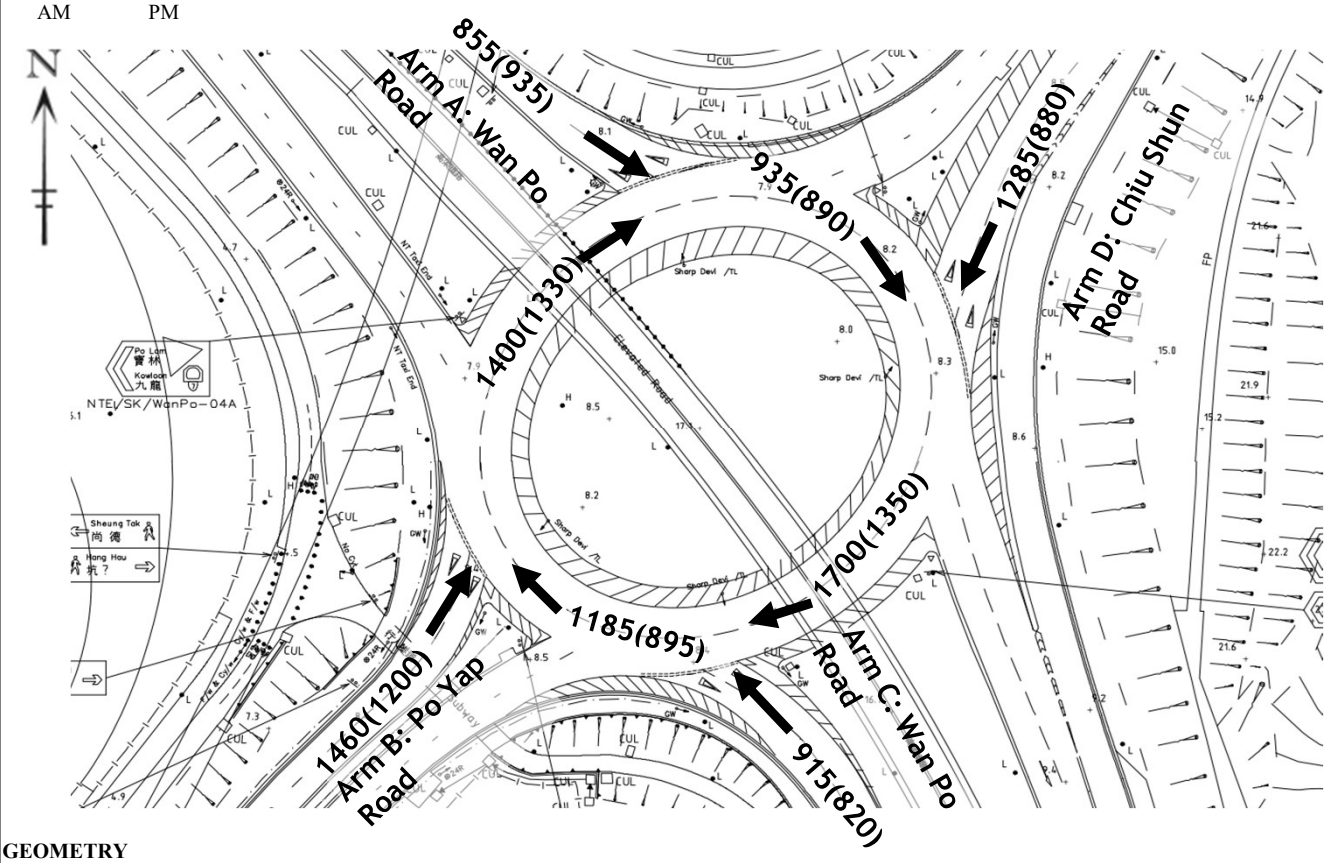
	AM Peak			PM Peak		
Check Critical Phase	1,7P,3,4	1,6P,3,4	1,8P,3,4	1,7P,3,4	1,6P,3,4	1,8P,3,4
Sum of y values, Y	0.287	0.287	0.287	0.280	0.280	0.280
Lost time, L	47	46	45	47	46	45
Cycle Time, C	125	125	125	125	125	125
Practical Y, Y_{pr}	0.562	0.569	0.576	0.562	0.569	0.576
Reserve Capacity, R.C. (%)	96%	98%	101%	100%	103%	106%

Calculated by:	Date: 五月-2021	Checked by:

Simplified Roundabout Capacity Calculation

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O				
Junction:	J1 Wan Po Road / Chiu Shun Road / Po Yap Road			Ref. No.:	J1_RA_2029_ref_
Scheme:	2029 Ref			Ref. No.:	
Year:	2020	Job No.:	J1598	Rev.:	-

AM PM



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	5.00	9.00	20	40	76	20	0.32
B	7.00	7.50	10	50	86	20	0.08
C	8.00	8.00	5	40	76	20	0.00
D	8.00	10.00	10	70	86	25	0.32

CALCULATIONS

ARM	K	X_2	M	F	t_D	f_c	Q_E AM	Q_E PM	DFC AM	DFC PM
A	1.06	7.44	4.95	2254	1.08	0.57	1548	1590	0.55	0.59
B	1.06	7.43	13.46	2252	1.03	0.54	1715	1881	0.85	0.64
C	1.06	8.00	4.95	2424	1.08	0.59	1502	1721	0.61	0.48
D	1.05	9.22	13.46	2794	1.03	0.62	2332	2361	0.55	0.37

Critical Arm:	**B**	**B**
DFC:	**0.85**	**0.64**
	AM	**PM**

- In accordance with TPDM V2.4

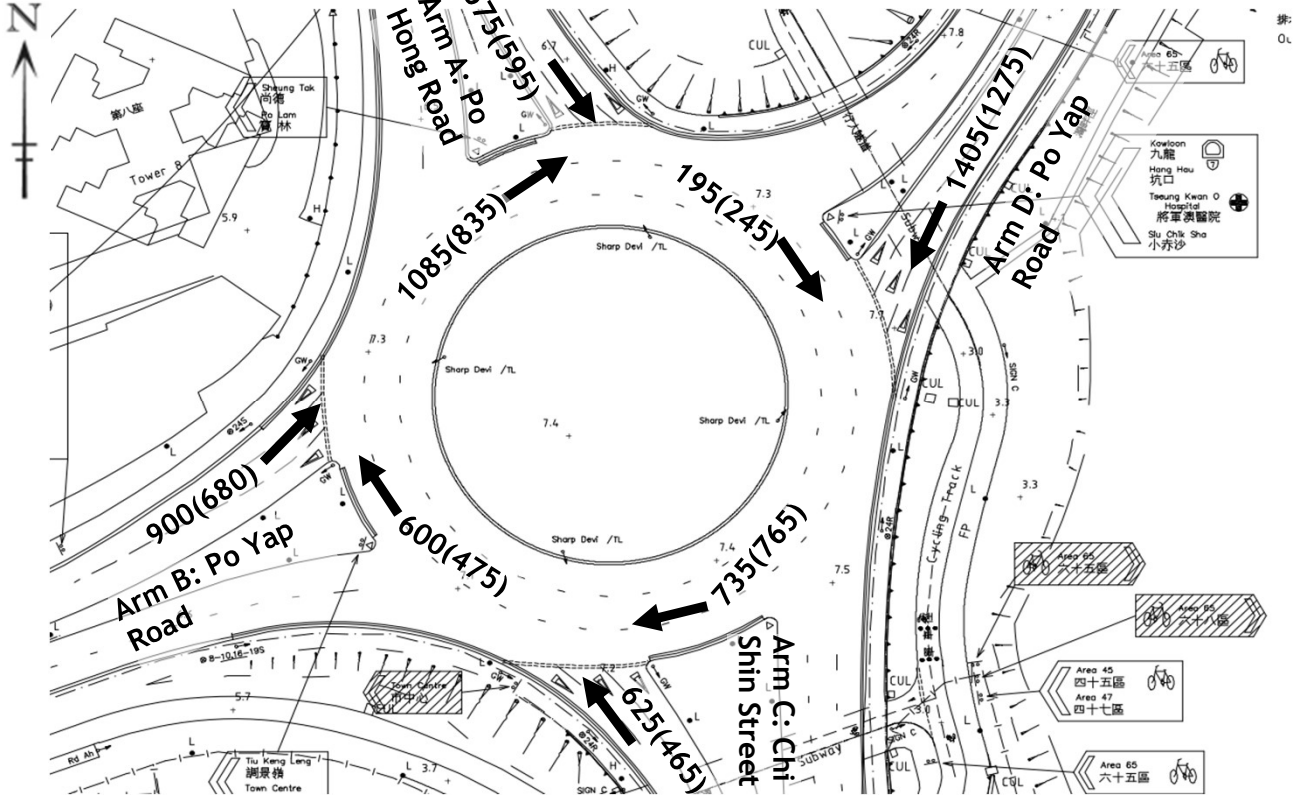
Calculated by:	Date: 五月-21	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J1_RA_2029_ref_

Simplified Roundabout Capacity Calculation

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O				
Junction:	J2 Po Yap Road / Chi Shin Street / Po Hong Road			Ref. No.:	J2_RA_2029_ref_
Scheme:	2029 Ref			Ref. No.:	
Year:	2020	Job No.:	J1598	Rev.:	-

AM PM



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	7.00	11.00	20	25	80	25	0.32
B	7.00	11.00	15	60	80	30	0.43
C	7.00	12.00	10	50	80	25	0.80
D	7.00	11.00	20	90	80	25	0.32

CALCULATIONS

ARM	K	X_2	M	F	t_D	f_c	Q_E AM	Q_E PM	DFC AM	DFC PM
A	1.03	9.44	7.39	2860	1.06	0.64	2221	2387	0.26	0.25
B	1.03	9.16	7.39	2775	1.06	0.63	2475	2556	0.36	0.27
C	1.05	8.92	7.39	2704	1.06	0.62	2353	2334	0.27	0.20
D	1.06	9.44	7.39	2860	1.06	0.64	2886	2852	0.49	0.45

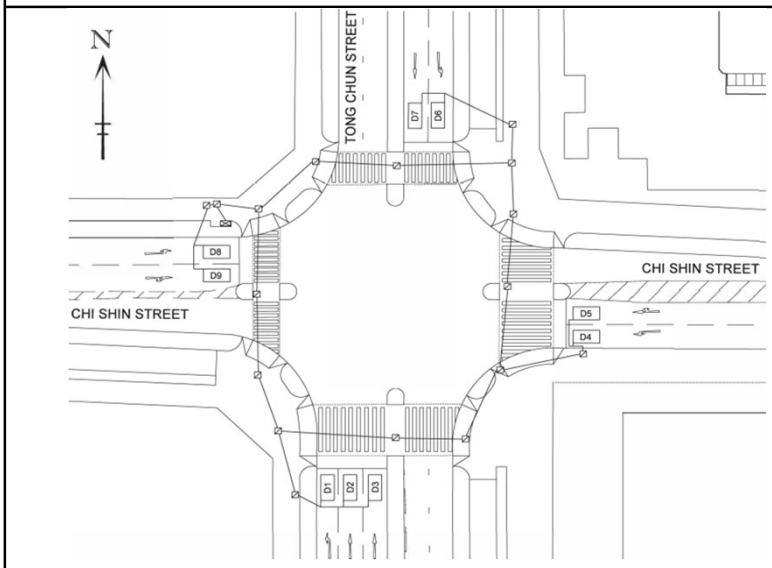
Critical Arm:	**D**	**D**
DFC:	**0.49**	**0.45**
	AM	**PM**

- In accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

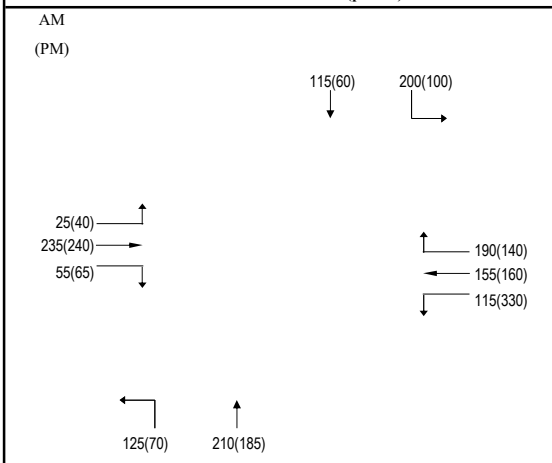
Traffic Signal Junction Calculation Sheet

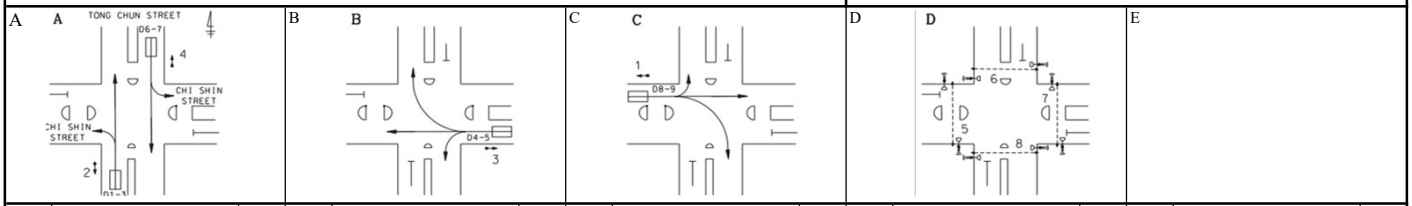
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J3 Chi Shin Street / Tong Chun Street	Ref. No.:	J3_SJ_2029_
Scheme:	2029 Ref	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		5	2		5	2		3	9	22	1			
2		5	2		5	2		3	7	20	0			
2		5	2		5	2		3	5	18	1			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	C	1	4.10	1		17			0.86	100	1595	25	0.016		40	0.025	
1B	C	1	4.20				23			19 / 21	2150/2145	290	0.135	1	305	0.142	1
2A	A	1	3.10	1		19				100	1785	125	0.070		70	0.039	
2B	A	2	3.65								4240	210	0.050		185	0.044	
3A	B	1	3.50				25			55 / 47	2040/2050	345	0.169	1	300	0.146	
3B	B	1	3.70	1		17				100	1825	115	0.063		330	0.181	1
4A	A	1	3.60	1		17				100	1815	200	0.110	1	100	0.055	1
4B	A	1	3.60								2115	115	0.054		60	0.028	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	D		10	10	8	18				
6P	D		10	10	8	18				
7P	D		11	11	9	20				
8P	D		12	12	10	22		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	4,3,1,8P	4,3,1,7P	4,3,1,6P	4,3,1,8P	4,3,1,7P	4,3,1,6P
Sum of y values, Y	0.414	0.414	0.414	0.378	0.378	0.378
Lost time, L	48	43	40	48	43	40
Cycle Time, C	110	110	110	110	110	110
Practical Y, Y_{pr}	0.507	0.548	0.573	0.507	0.548	0.573
Reserve Capacity, R.C. (%)	22%	32%	38%	34%	45%	51%

Calculated by:	Date: 五月-2021	Checked by:

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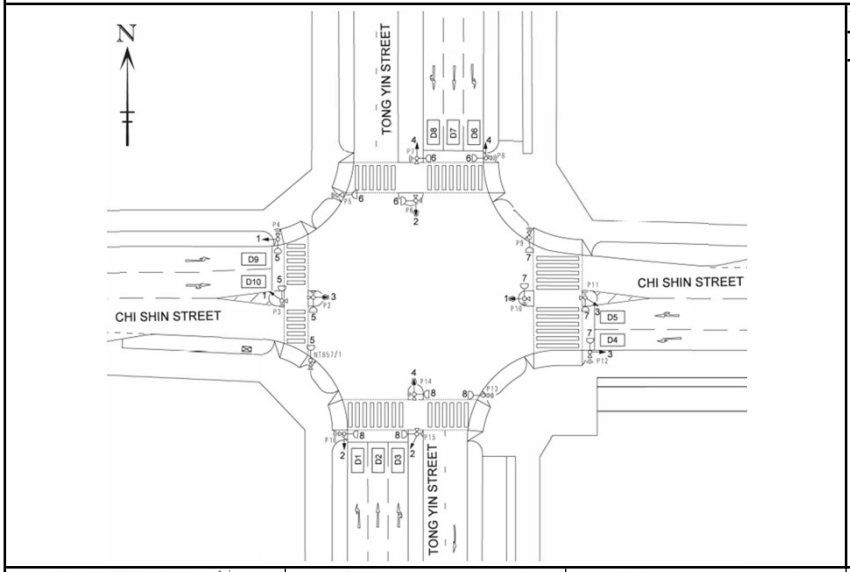
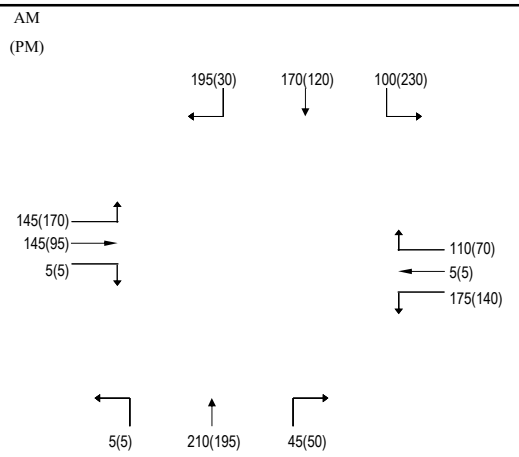
Traffic Signal Junction Calculation Sheet

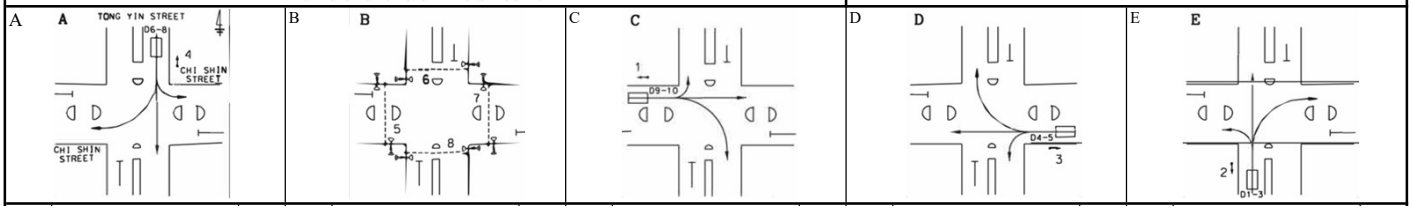
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O
Junction:	J4 Chi Shin Street / Tong Yin Street
Ref. No.:	J4_SJ_2029_
Scheme:	2029 Ref
Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		5	5	21	0	2	5	5	2		6	2		5
2		5	7	18	1	2	5	5	2		6	2		5
2		5	1	22	0	2	5	5	2		6	2		5

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	C	1	3.60	1		17				100	1815	145	0.080	1	170	0.094	1
1B	C	1	3.60				23			3 / 5	2110	150	0.071		100	0.047	
2A	E	1	3.30	1		17			0.86	100	1530	5	0.003		5	0.003	
2B	E	1	3.30								2085	129	0.062		124	0.059	1
2C	E	1	3.30				25			36 / 41	2040/2035	126	0.062	1	121	0.059	
3A	D	1	3.40	1		17				100	1795	175	0.097	1	140	0.078	1
3B	D	1	3.90				36			96 / 93	2065	115	0.056		75	0.036	
4A	A	1	3.30	1		17				100	1785	100	0.056		230	0.129	1
4B	A	1	3.30								2085	170	0.082		76	0.036	
4C	A	1	3.30				23			100 / 41	1955/2030	195	0.100	1	74	0.036	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	B		10	10	8	18				
6P	B		13	13	9	22				
7P	B		9	9	7	16				
8P	B		12	12	9	21		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	4,8P,1,3,2	4,5P,1,3,2	4,6P,1,3,2	4,8P,1,3,2	4,5P,1,3,2	4,6P,1,3,2
Sum of y values, Y	0.339	0.339	0.339	0.360	0.360	0.360
Lost time, L	56	56	53	56	56	53
Cycle Time, C	100	100	100	110	110	110
Practical Y, Y_{pr}	0.396	0.396	0.423	0.442	0.442	0.466
Reserve Capacity, R.C. (%)	17%	17%	25%	23%	23%	30%

Calculated by:	Date: 五月-2021	Checked by:

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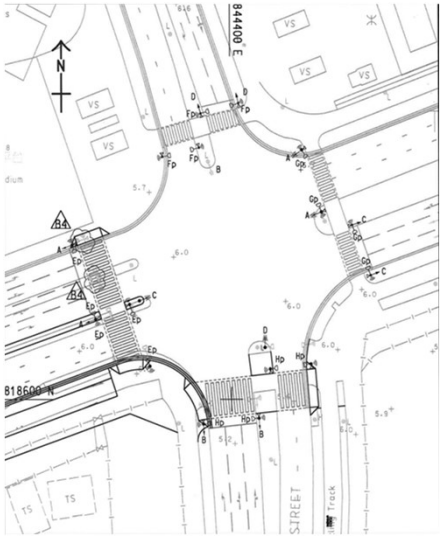
Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J5 Po Yap Road / Tong Yin Street	Ref. No.:	J5_SJ_2029_
Scheme:	2029 Ref	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)

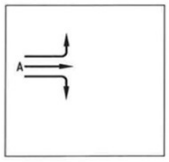
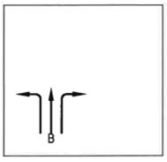
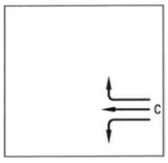
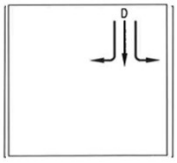
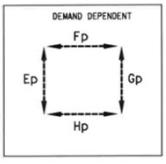
AM
(PM)

225(260) 5(5) 200(110)

220(220)
400(230)
155(400)

155(130)
280(225)
165(100)

290(280) 170(85) 5(65)

A	B	C	D	E
				
STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5
2 3	2 5	2 3	2 3	13 28 0
2 3	2 5	2 3	2 3	11 27 1
2 3	2 5	2 3	2 3	6 25 0

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.80	1		15					1815	188	0.104	1	200	0.110	
1B	A	1	3.40			15				15 / 9	2065/2075	214	0.104		229	0.110	
1C	A	1	3.50				20			0 / 90	2105/1970	218	0.104	1	217	0.110	1
1D	A	1	3.80	1			20				1855	155	0.084		204	0.110	
2A	B	1	3.70			15					1930	153	0.079		143	0.074	
2B	B	1	3.70			15				88 / 95	1950/1940	155	0.079	1	144	0.074	1
2C	B	1	3.70	1			20			3 / 46	1980/1920	157	0.079		143	0.074	
3A	C	1	3.20			15				84 / 66	1915/1945	196	0.103		151	0.078	1
3B	C	1	3.30	1							1945	199	0.103		151	0.078	
3C	C	1	3.50				20			76 / 85	1990/1980	204	0.103	1	153	0.077	
4A	D	1	3.70	1		15	20			98 / 97	1810/1825	206	0.114		180	0.099	
4B	D	1	3.70				20				1975	224	0.114	1	195	0.099	1

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	E		14	14	13	27				
6P	E		11	11	8	19				
7P	E		15	15	10	25				
8P	E		16	16	12	28		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	1,2,3,4,8P	1,2,3,4,5P	1,2,3,4,7P	1,2,3,4,8P	1,2,3,4,5P	1,2,3,4,7P
Sum of y values, Y	0.399	0.399	0.399	0.361	0.361	0.361
Lost time, L	59	57	49	59	57	49
Cycle Time, C	120	120	120	105	105	105
Practical Y, Y_{pr}	0.458	0.473	0.533	0.394	0.411	0.480
Reserve Capacity, R.C. (%)	15%	18%	33%	9%	14%	33%

Calculated by:	Date: 五月-2021	Checked by:

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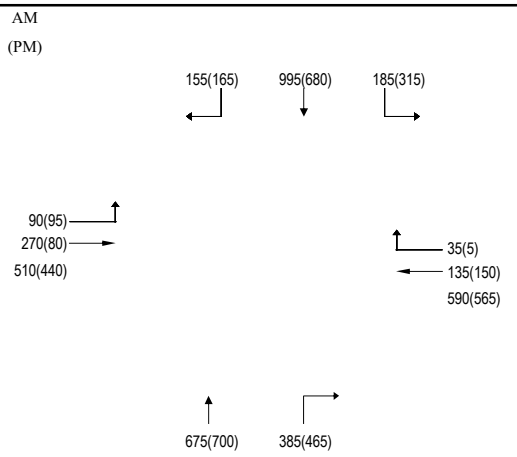
Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J6 Po Yap Road / Po Shun Road / Chui Ling Road / Future Road P2	Ref. No.:	J6_SJ_2029_
Scheme:	2029 Ref	Ref. No.:	

Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)



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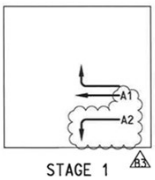	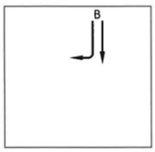	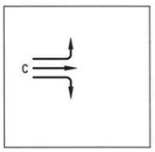	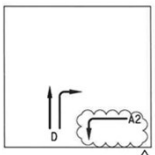	
STAGE 1	STAGE 2	STAGE 3	STAGE 4	

2		3	2		5	2		3	2		3			
		3	2		5	2		3			2			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A ←	A	1	3.50								2105	135	0.064	1	150	0.071	1
1B ↰	A	1	3.70				20			100	1975	35	0.018		5	0.003	
2A ↓	AD	2	3.50	1		15				100	3700	590	0.159		565	0.153	
3A ↓	B	2	3.65	1							4100	995	0.243	1	680	0.166	1
3B ↓	B	1	3.60				20			100	1965	155	0.079		165	0.084	
4A ↑→	C	1	3.60	1		15				32 / 54	1915/1875	284	0.149		175	0.093	
4B ↓→	C	1	3.30				20			74 / 100	1975/1940	293	0.149		219	0.113	
4C ↓	C	1	3.60				20				1965	292	0.149	1	221	0.113	1
5A ↑	D	1	3.70	1							1985	347	0.175	1	382	0.192	
5B ↑→	D	1	3.70				20			11 / 21	2110/2090	368	0.175		403	0.193	1
5C →	D	1	3.70				20				1975	345	0.175	1	380	0.192	

Critical Ped. Phase	Stage	Width Across	Min. GM	Min. FGM	Lost Time	Note	Crit.	Note	Crit.

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr}/Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	1,3,4,5	2,3,4		1,3,4,5	2,3,4	
Sum of y values, Y	0.630	0.551		0.542	0.431	
Lost time, L	18	14		18	14	
Cycle Time, C	127	217		124	214	
Practical Y, Y_{pr}	0.772	0.842		0.769	0.841	
Reserve Capacity, R.C. (%)	23%	53%		42%	95%	

Calculated by:	Date: 五月-2021	Checked by:

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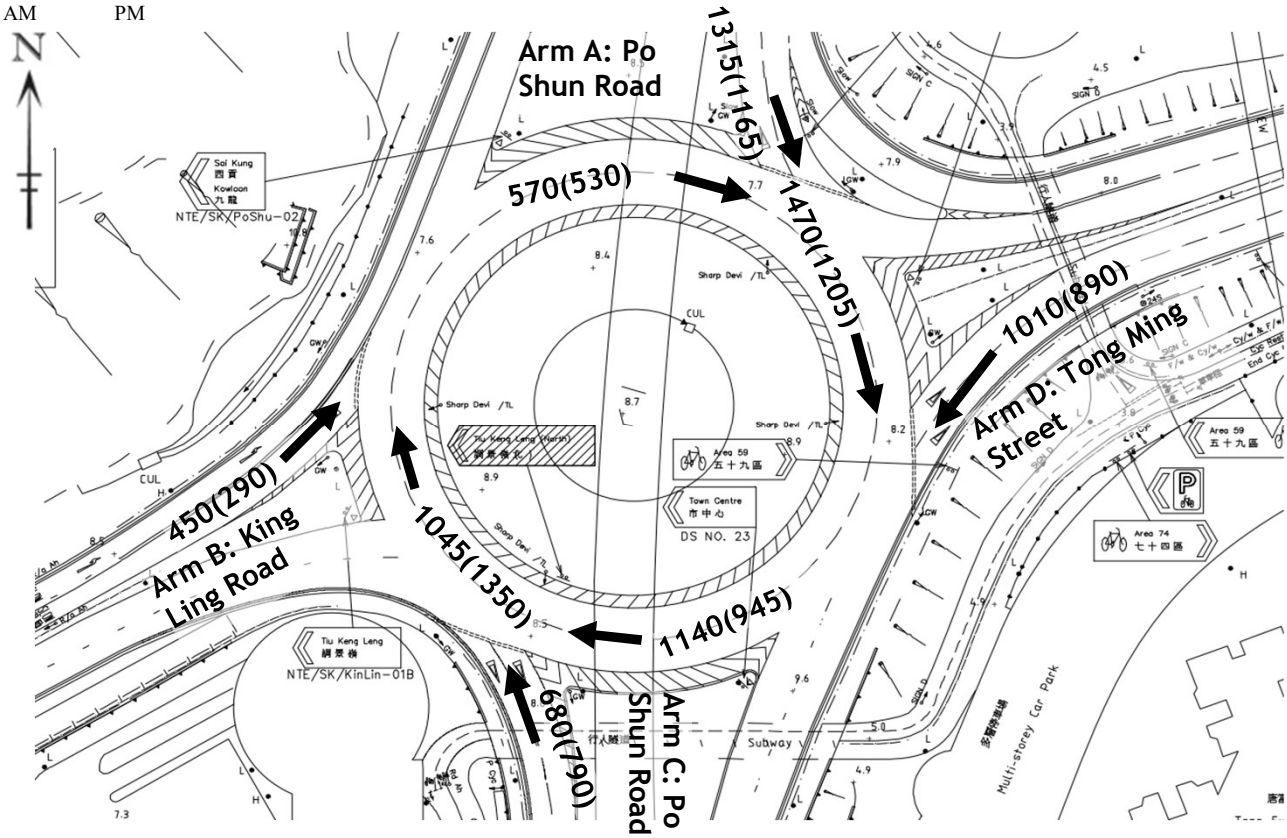
Simplified Roundabout Capacity Calculation

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O				
Junction:	J7 Po Shun Road / Tong Ming Street / King Ling Road			Ref. No.:	J7_RA_2029_ref_
Scheme:	2029 Ref			Ref. No.:	
Year:	2020	Job No.:	J1598	Rev.:	-

AM PM



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	7.00	8.00	14.5	20	81.2	20	0.11
B	2.70	4.60	31.9	55.2	81.2	18	0.10
C	7.10	7.40	11.7	23	81.2	10	0.04
D	7.40	8.40	27.5	60	81.2	29	0.06

CALCULATIONS

ARM	K	X_2	M	F	t_D	f_c	Q_E AM	Q_E PM	DFC AM	DFC PM
A	1.03	7.82	8.33	2369	1.05	0.57	2117	2140	0.62	0.54
B	1.07	4.30	8.33	1302	1.05	0.41	935	801	0.48	0.36
C	1.08	7.38	8.33	2235	1.05	0.55	1733	1848	0.39	0.43
D	1.04	8.30	8.33	2514	1.05	0.59	1708	1870	0.59	0.48

	AM	PM
Critical Arm:	**A**	**A**
DFC:	**0.62**	**0.54**
	AM	**PM**

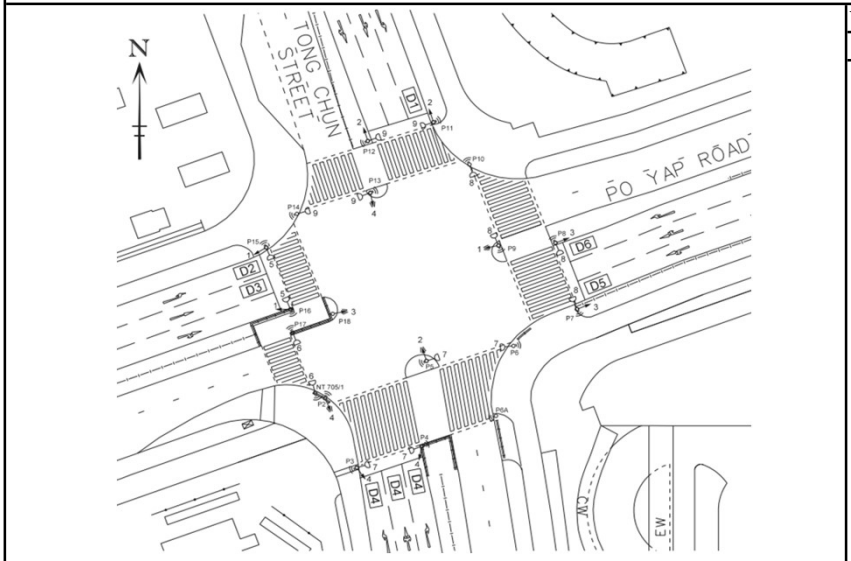
- In accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J7_RA_2029_ref_

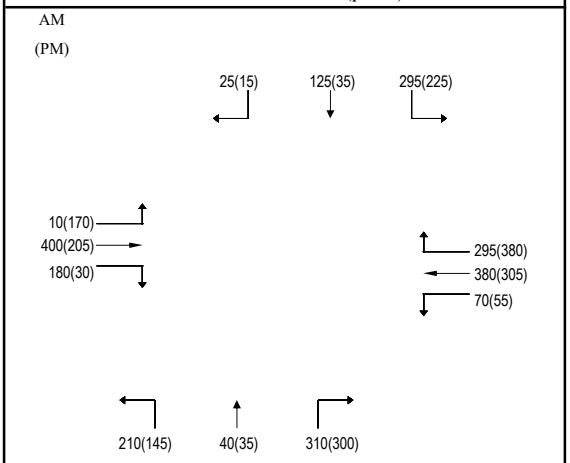
Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J8 Po Yap Road / Tong Chun Street	Ref. No.:	J8_SJ_2029_
Scheme:	2029 Ref	Ref. No.:	



Year: 2020	Job No.: J1598	Rev.: -

Peak Hour Traffic Flows (pcu/hr)



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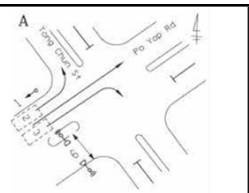
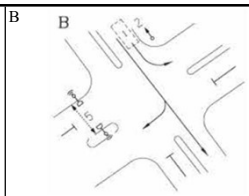


2		5	2		5	2		6	2		6	8	16	0
2		5	2		5	2		6	2		6	4	16	0
2		5	2		5	2		6	2		6	0	16	0

B



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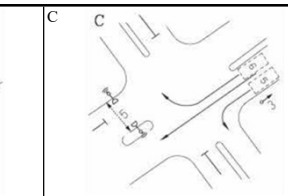

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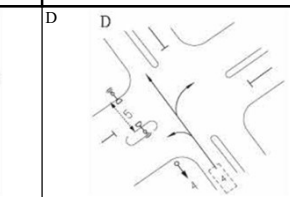

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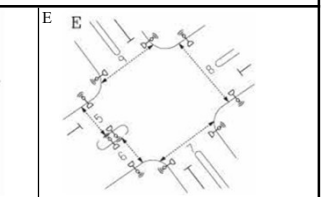


Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.30	1		17				100	1785	10	0.006		170	0.095	1
1B	A	1	3.30								2085	297	0.142		119	0.057	
1C	A	1	3.30				20			64 / 26	1990/2045	283	0.142	1	116	0.057	
2A	B	1	3.40	1		17					1795	142	0.079		109	0.060	
2B	B	1	3.40			17				100	1925	153	0.079	1	116	0.060	1
2C	B	1	3.50				26			17 / 30	2085/2070	150	0.072		50	0.024	
3A	C	1	3.30	1		17				29 / 23	1895/1905	239	0.126	1	240	0.126	1
3B	C	1	3.40				20			19 / 53	2065/2015	260	0.126		254	0.126	
3C	C	1	3.40				20				1950	246	0.126		246	0.126	
4A	D	1	3.60	1		16					1805	174	0.097		145	0.080	
4B	D	1	3.50			16	26			79 / 79	2000/2015	193	0.097	1	168	0.084	
4C	D	1	3.50				26				1990	192	0.097		167	0.084	1

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	BCDE		5	5	11	16				
6P	E		5	5	7	12				
7P	E		5	5	11	16				
8P	E		5	5	11	16		1		1
9P	E		5	5	11	16				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

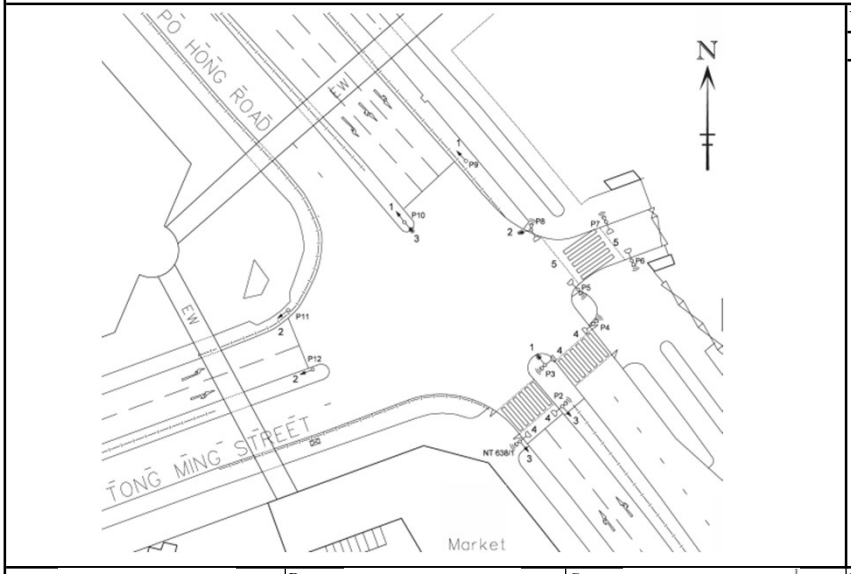
Check Critical Phase	1,2,3,4,8P	1,2,3,4,9P	1,2,3,4,7P	1,2,3,4,8P	1,2,3,4,9P	1,2,3,4,7P
Sum of y values, Y	0.444	0.444	0.444	0.366	0.366	0.366
Lost time, L	50	46	42	50	46	42
Cycle Time, C	125	125	125	125	125	125
Practical Y, Y_{pr}	0.540	0.569	0.598	0.540	0.569	0.598
Reserve Capacity, R.C. (%)	22%	28%	34%	48%	56%	63%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J8_SJ_2029_ref_

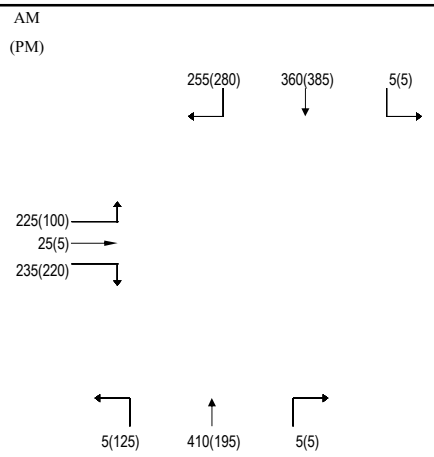
Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J9 Po Hong Road / Tong Ming Street	Ref. No.:	J9_SJ_2029_
Scheme:	2029 Ref	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)



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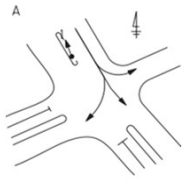

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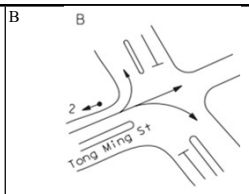

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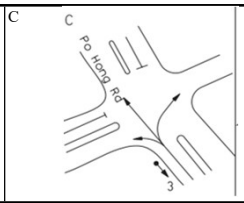

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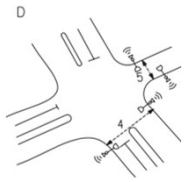

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2		3	3		3	4		3	7	16	0			
2		3	3		3	4		3	2	20	0			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.40	1		15				2 / 2	1950	201	0.103		217	0.112	1
1B	A	1	3.40				21			23 / 25	2060	213	0.103	1	230	0.111	
1C	A	1	3.90				21				2000	206	0.103		223	0.111	
2A	B	1	3.70	1		16				100	1815	225	0.124		100	0.055	
2B	B	1	3.60				32			90 / 98	2030/2020	260	0.128	1	225	0.111	1
3A	C	1	3.50	1		17				2 / 83	1960/1830	202	0.103	1	151	0.082	
3B	C	1	3.70				11			2 / 3	2120/2115	218	0.103		174	0.082	1

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
4P	D		11	11	9	20				
5P	D		5	5	11	16		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

	AM Peak			PM Peak		
Check Critical Phase	1,2,3,5P	1,2,3,4P		1,2,3,5P	1,2,3,4P	
Sum of y values, Y	0.334	0.334		0.305	0.305	
Lost time, L	38	37		38	37	
Cycle Time, C	110	110		105	105	
Practical Y, Y_{pr}	0.589	0.597		0.574	0.583	
Reserve Capacity, R.C. (%)	76%	79%		88%	91%	

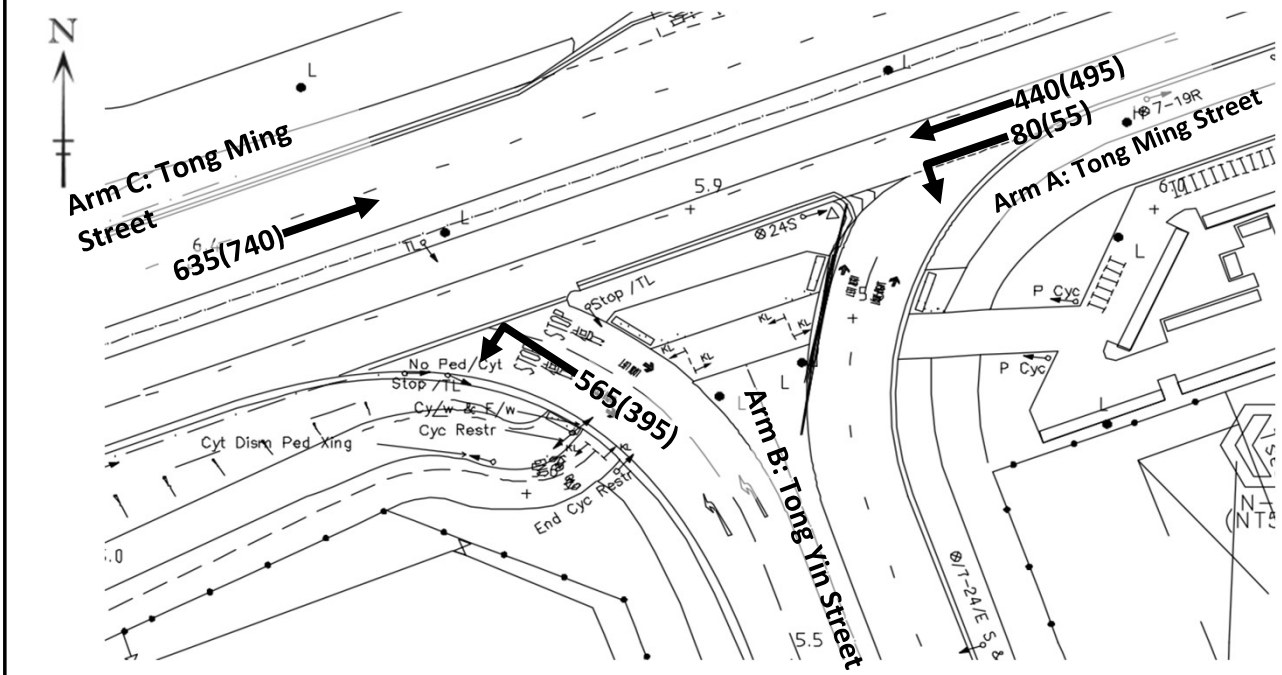
Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J9_SJ_2029_ref_

Simplified Priority Junction Capacity Calculation Sheet

Job Title	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O			
Junction	J10 Tong Yin Street/Tong Ming Street		Ref No.:	J10_PJ_2029_re
Scheme	2029 Ref		Ref No.:	
Year	2020	Job. No.: J1598	Rev.:	

AM(PM)



Geometry					
Major road width	**W**	7.4	**Lane widths**	w(b-a)	0.00
Central Reserve width	W_{cr}	0		w(b-c)	7.80
2 Lane Minor Arm (Y/N)		Y		w(c-b)	0.00
Visibilities	$V_{r(B-A)}$	0	**Calculated**	D	0.53
	$V_{l(B-A)}$	0		E	1.34
	$V_{r(B-C)}$	80		F	0.59
	$V_{r(C-B)}$	0		Y	0.74

Analysis			**Peak Hour**	
			AM	PM
Traffic Flows	$q_{(C-A)}$		635	740
	$q_{(C-B)}$		0	0
	$q_{(A-B)}$		80	55
	$q_{(A-C)}$		440	495
	$q_{(B-A)}$		0	0
	$q_{(B-C)}$		565	395
Proportion of minor traffic left-turn	**f**		1.00	1.00
		Factor		
Capacities	$Q_{(B-A)}$	1	208	192
	$Q_{(B-C)}$	1	827	811
	$Q_{(C-B)}$	1	354	349
	$Q_{(B-AC)}$	1	0	0
DFC	**B-A**		0.00	0.00
	B-C		0.68	0.49
	C-B		0.00	0.00
	B-AC		0.00	0.00
Worst DFC			**0.68**	**0.49**

Where Vl and Vr are visibility distances to the left or right of the respective streams

D = (1+0.094(w(b-a)-3.65))(1+0.0009(Vr(b-a)-120))(1+0.0006(Vl(b-a)-150))

E = (1+0.094(w(b-c)-3.65))(1+0.0009(Vr(b-c)-120))

F = (1+0.094(w(c-b)-3.65))(1+0.0009(Vr(c-b)-120))

Y = 1-0.0345W

f = proportion of minor traffic turning left

Q (b-ac) = Q(b-c)*Q(b-a)/(1-f)*Q(b-c)+f*Q(b-a)

T.P.D.M.V.2.4

Appendix 1

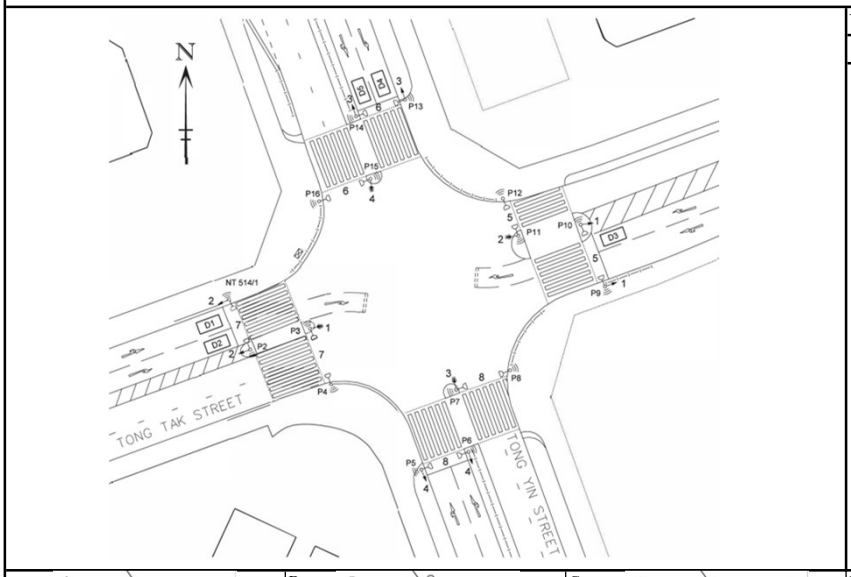
Capacity of combined streams

- in accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

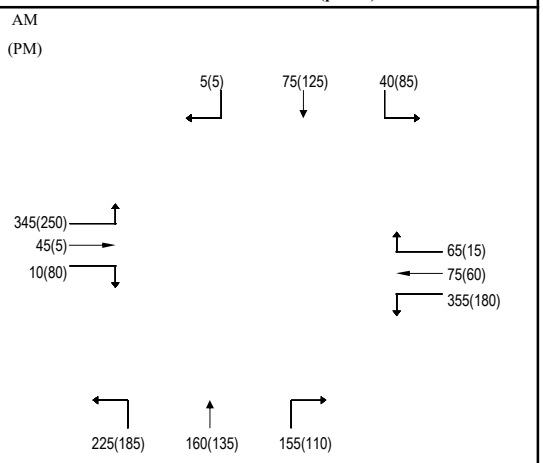
Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J11 Tong Yin Street/Tong Tak Street	Ref. No.:	J11_SJ_2029
Scheme:	2029 Ref	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)



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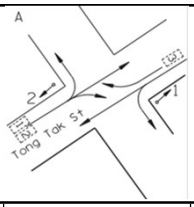

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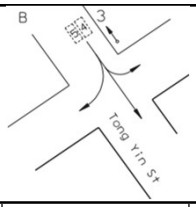

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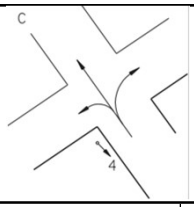

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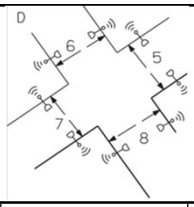


E

2		5	2	5	6	2		3	11	22	1			
2		5	2	5	6	2		3	7	20	1			
2		5	2	5	6	2		3	8	19	0			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	4.30	1		17				83 / 75	1905/1920	430	0.226	1	240	0.125	
1B	A	1	3.20		1		24			100	1735	65	0.037		15	0.009	
2A	A	1	3.70	1		16				88 / 98	1835/1820	390	0.213		255	0.140	1
2B	A	1	3.20		1		24			100	1735	10	0.006		80	0.046	
3A	B	1	3.80	1		18				100	1840	40	0.022		85	0.046	
3B	B	1	3.20				25			6 / 4	2065/2070	80	0.039	1	130	0.063	1
4A	C	1	4.00	1		13				87 / 90	1830/1825	259	0.142	1	206	0.113	1
4B	C	1	3.00				24			55 / 49	1985/1995	281	0.142		224	0.113	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	D		12	12	10	22		1		1
6P	D		9	9	10	19				
7P	D		10	10	10	20				
8P	D		10	10	10	20				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

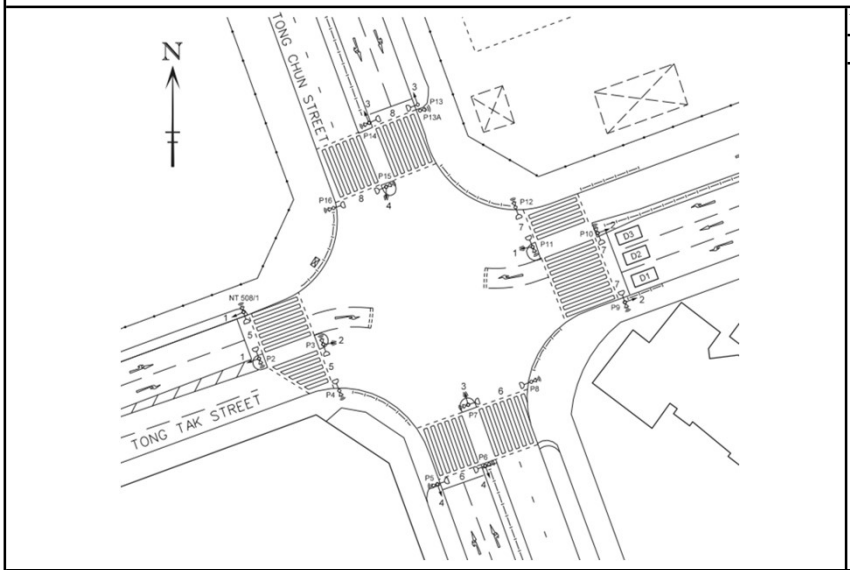
Check Critical Phase	1,3,4,5P	1,3,4,7P	1,3,4,6P	1,3,4,5P	1,3,4,7P	1,3,4,6P
Sum of y values, Y	0.406	0.406	0.406	0.316	0.316	0.316
Lost time, L	56	50	49	56	50	49
Cycle Time, C	127	127	127	124	124	124
Practical Y, Y_{pr}	0.503	0.546	0.553	0.494	0.537	0.544
Reserve Capacity, R.C. (%)	24%	34%	36%	56%	70%	73%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J11_SJ_2029_ref_

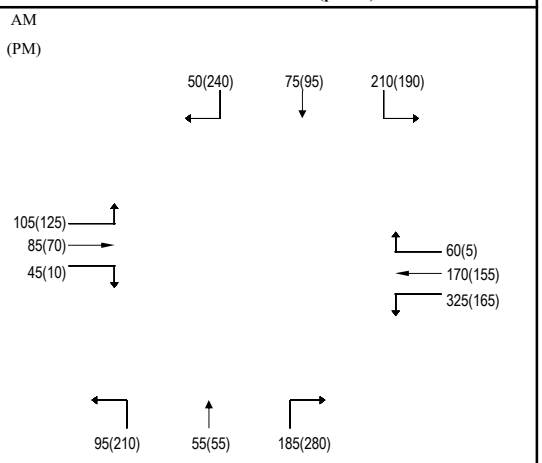
Traffic Signal Junction Calculation Sheet

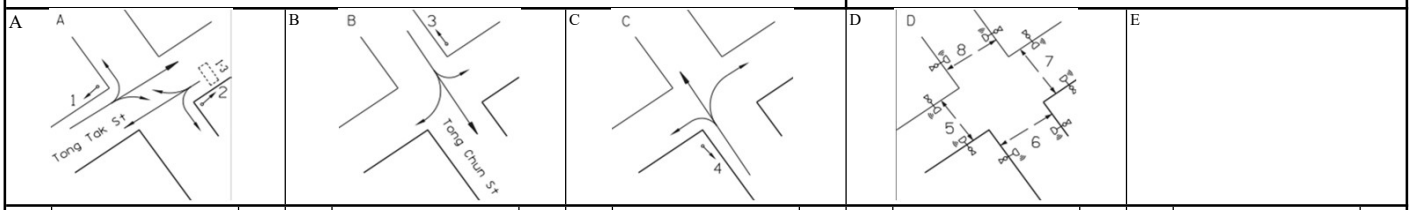
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J12 Tong Tak Street/Tong Chun Street	Ref. No.:	J12_SJ_2029
Scheme:	2029 Ref	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		11	2		5	2		4	10	25	2						
2		11	2		5	2		4	7	18	2						
2		11	2		5	2		4	7	18	0						

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.60	1		15				55 / 64	1870/1855	190	0.102		195	0.105	1
1B	A	1	3.20		1		29			100	1755	45	0.026		10	0.006	
2A	A	1	4.00	1		17				100	1850	325	0.176	1	165	0.089	
2B	A	1	3.50								2105	170	0.081		155	0.074	
2C	A	1	3.70		1		24			100	1785	60	0.034		5	0.003	
3A	B	1	3.60	1		17				100 / 76	1815/1850	210	0.116	1	249	0.135	1
3B	B	1	4.00				24			40 / 87	2100/2045	125	0.060		276	0.135	
4A	C	1	3.60	1		18				63 / 80	1875/1850	150	0.080		263	0.142	1
4B	C	1	3.60				24			100 / 99	1990	185	0.093	1	282	0.142	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	D		9	9	9	18				
6P	D		10	10	10	20				
7P	D		12	12	13	25		1		1
8P	D		9	9	9	18				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr}/Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

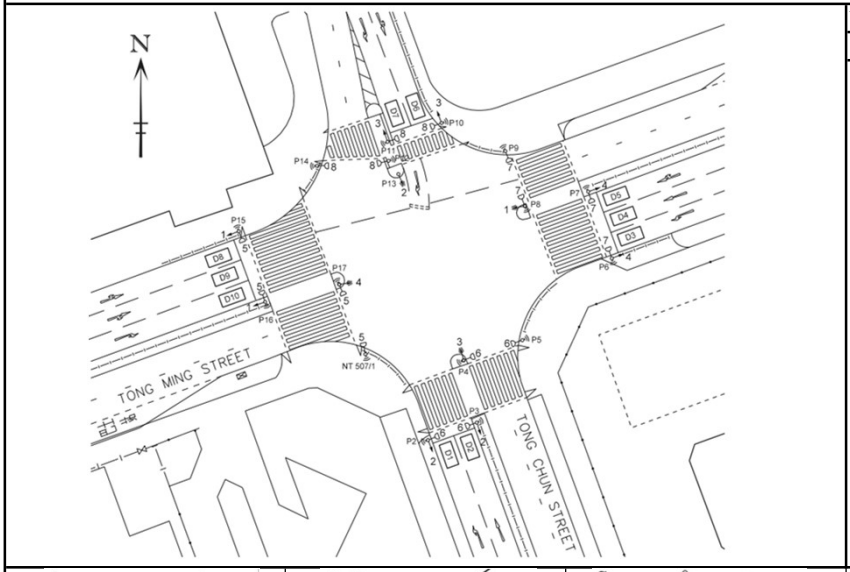
Check Critical Phase	2,3,4,7P	2,3,4,5P	2,3,4,8P	2,3,4,7P	2,3,4,5P	2,3,4,8P
Sum of y values, Y	0.384	0.384	0.384	0.382	0.382	0.382
Lost time, L	60	50	48	60	50	48
Cycle Time, C	125	125	125	125	125	125
Practical Y, Y_{pr}	0.468	0.540	0.554	0.468	0.540	0.554
Reserve Capacity, R.C. (%)	22%	40%	44%	23%	41%	45%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J12_SJ_2029_ref_

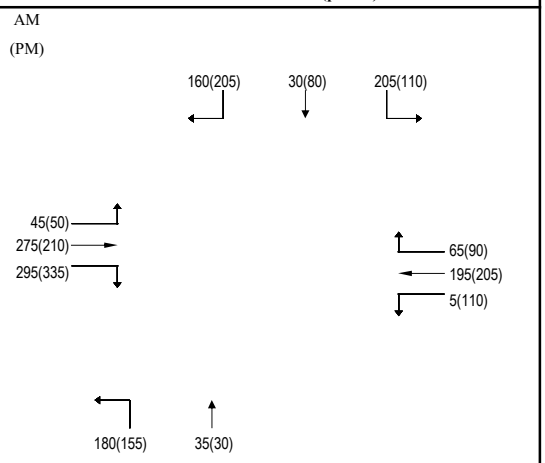
Traffic Signal Junction Calculation Sheet

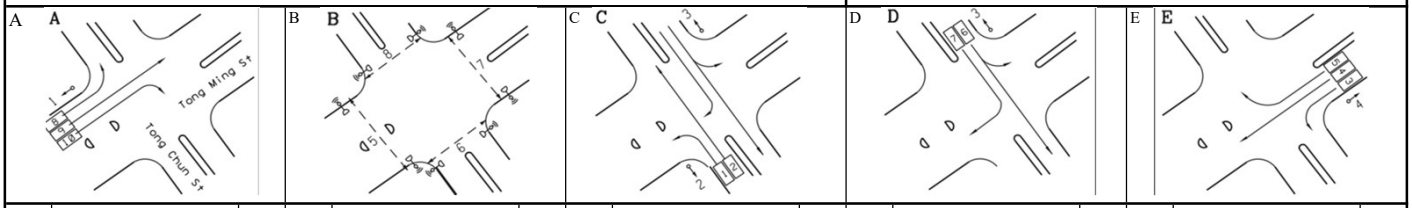
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J13 Tong Ming Street/Tong Chun Street	Ref. No.:	J13_SJ_2029
Scheme:	2029 Ref	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		3	9	22	0	2					3	3		6
2		3	11	18	1	2					3	3		6
2		3	6	22	1	2					3	3		6

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.50	1		20				23 / 26	1930	199	0.103	1	193	0.100	
1B	A	1	3.50				24			43 / 67	2050/2020	211	0.103		203	0.100	1
1C	A	1	3.50				24				1980	204	0.103		199	0.100	
2A	C	1	3.60	1		17				100	1815	180	0.099		155	0.085	
2B	C	1	3.70								2125	35	0.016		30	0.014	
3A	CD	1	3.20	1		17				87 / 58	1795/1840	235	0.131	1	190	0.103	
3B	CD	1	3.40		1		15			100	1695	160	0.094		205	0.121	1
4A	E	1	3.50	1		17				100	1805	5	0.003		110	0.061	
4B	E	1	3.50								2105	132	0.063		150	0.071	1
4C	E	1	3.50				23			51 / 62	2035/2025	128	0.063	1	145	0.071	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	B		14	14	12	26				
6P	B		10	10	8	18				
7P	B		12	12	10	22		1		1
8P	B		12	12	10	22				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	1,7P,3,4	1,6P,3,4	1,8P,3,4	1,7P,3,4	1,6P,3,4	1,8P,3,4
Sum of y values, Y	0.297	0.297	0.297	0.293	0.293	0.293
Lost time, L	47	46	45	47	46	45
Cycle Time, C	125	125	125	125	125	125
Practical Y, Y_{pr}	0.562	0.569	0.576	0.562	0.569	0.576
Reserve Capacity, R.C. (%)	89%	91%	94%	92%	94%	97%

Calculated by:	Date: 五月-2021	Checked by:

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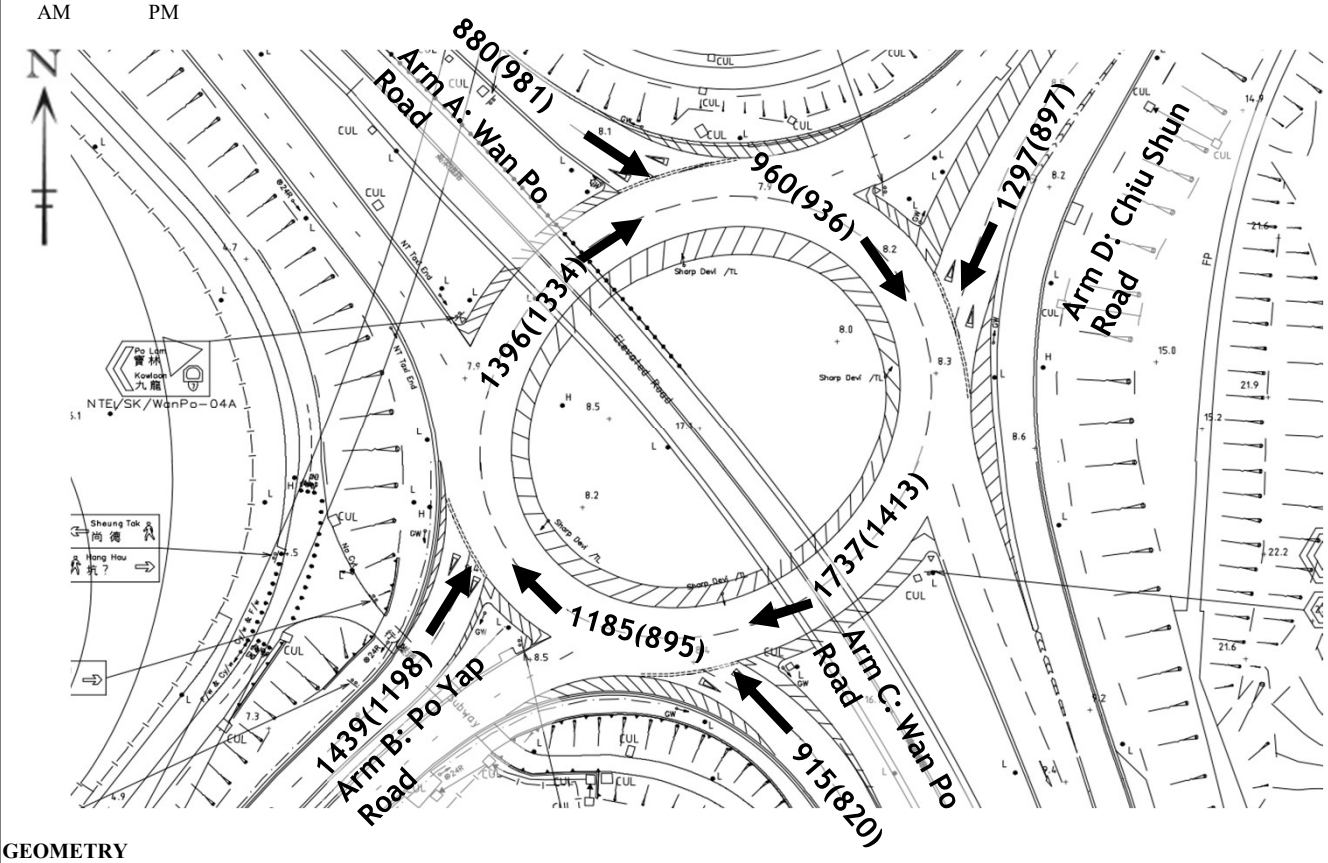
Simplified Roundabout Capacity Calculation

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O				
Junction:	J1 Wan Po Road / Chiu Shun Road / Po Yap Road			Ref. No.:	J1_RA_2029_des_
Scheme:	2029 Des			Ref. No.:	
Year:	2020	Job No.:	J1598	Rev.:	-

AM PM



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	5.00	9.00	20	40	76	20	0.32
B	7.00	7.50	10	50	86	20	0.08
C	8.00	8.00	5	40	76	20	0.00
D	8.00	10.00	10	70	86	25	0.32

CALCULATIONS

ARM	K	X_2	M	F	t_D	f_c	Q_E AM	Q_E PM	DFC AM	DFC PM
A	1.06	7.44	4.95	2254	1.08	0.57	1550	1587	0.57	0.62
B	1.06	7.43	13.46	2252	1.03	0.54	1715	1881	0.84	0.64
C	1.06	8.00	4.95	2424	1.08	0.59	1479	1682	0.62	0.49
D	1.05	9.22	13.46	2794	1.03	0.62	2315	2331	0.56	0.38

Critical Arm:	**B**	**B**
DFC:	**0.84**	**0.64**
	AM	**PM**

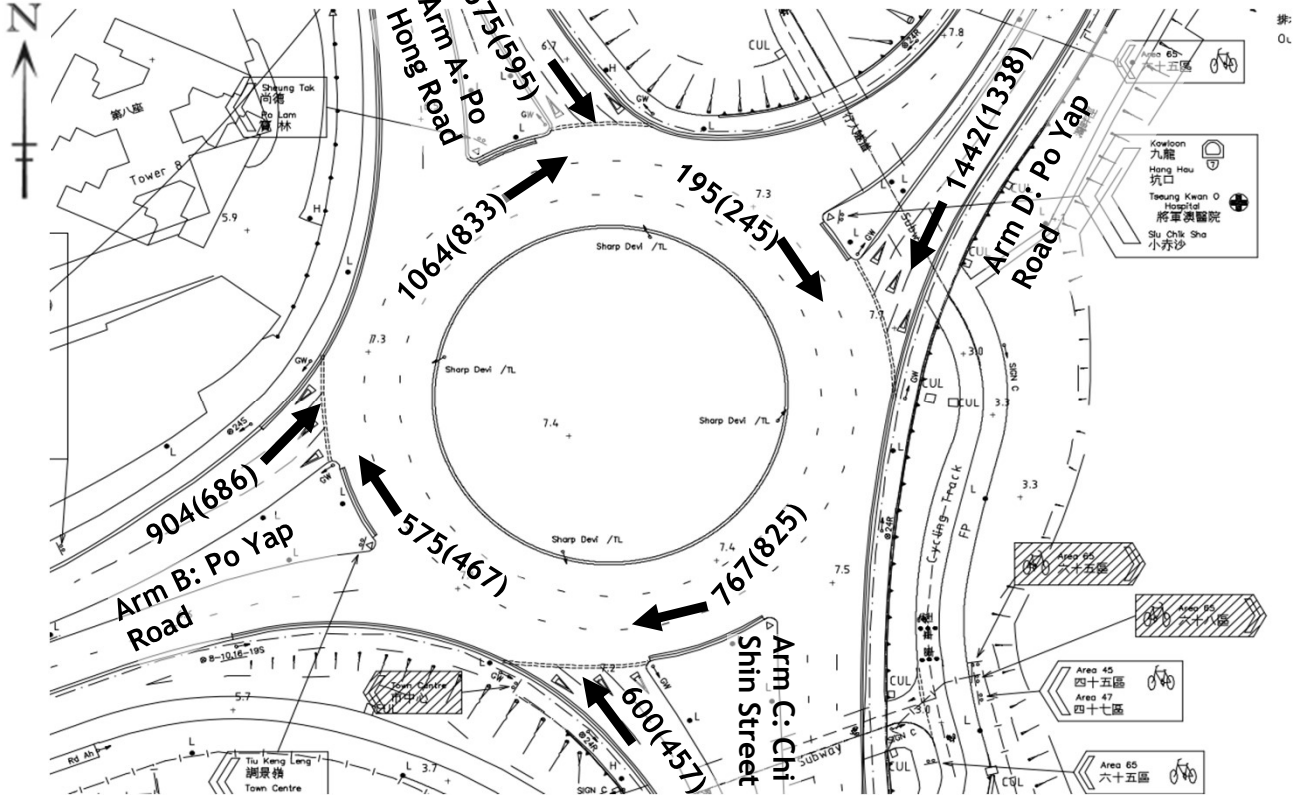
- In accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

Simplified Roundabout Capacity Calculation

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O				
Junction:	J2 Po Yap Road / Chi Shin Street / Po Hong Road			Ref. No.:	J2_RA_2029_des_
Scheme:	2029 Des			Ref. No.:	
Year:	2020	Job No.:	J1598	Rev.:	-

AM PM



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	7.00	11.00	20	25	80	25	0.32
B	7.00	11.00	15	60	80	30	0.43
C	7.00	12.00	10	50	80	25	0.80
D	7.00	11.00	20	90	80	25	0.32

CALCULATIONS

ARM	K	X_2	M	F	t_D	f_c	Q_E AM	Q_E PM	DFC AM	DFC PM
A	1.03	9.44	7.39	2860	1.06	0.64	2235	2388	0.26	0.25
B	1.03	9.16	7.39	2775	1.06	0.63	2491	2562	0.36	0.27
C	1.05	8.92	7.39	2704	1.06	0.62	2332	2295	0.26	0.20
D	1.06	9.44	7.39	2860	1.06	0.64	2886	2852	0.50	0.47

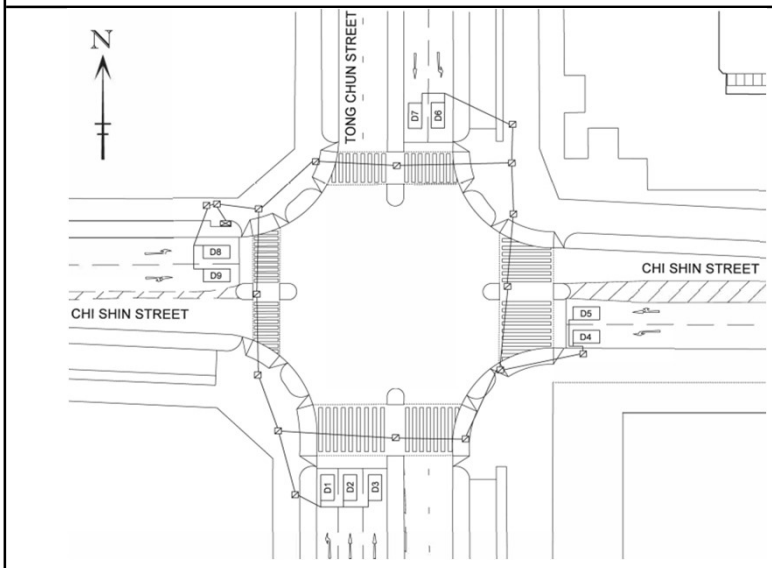
Critical Arm:	**D**	**D**
DFC:	**0.50**	**0.47**
	AM	**PM**

- In accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

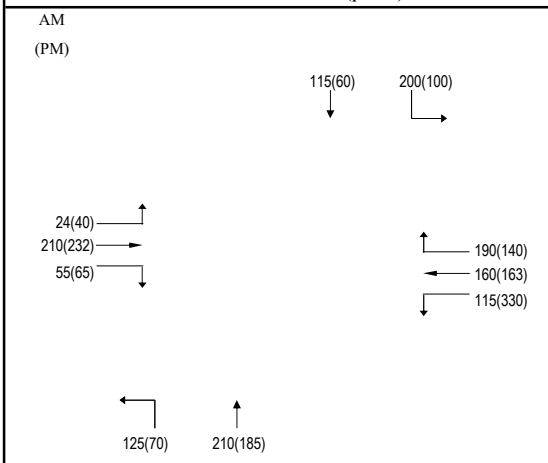
Traffic Signal Junction Calculation Sheet

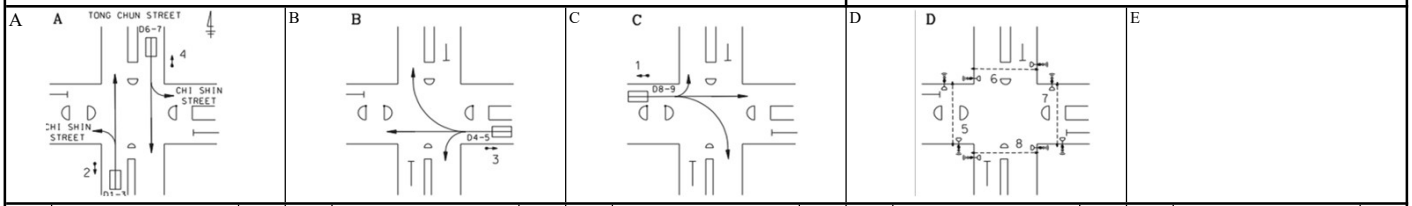
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J3 Chi Shin Street / Tong Chun Street	Ref. No.:	J3_SJ_2029_
Scheme:	2029 Des	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		5	2		5	2		3	9	22	1			
2		5	2		5	2		3	7	20	0			
2		5	2		5	2		3	5	18	1			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	C	1	4.10	1		17			0.86	100	1595	24	0.015		40	0.025	
1B	C	1	4.20				23			21 / 22	2145	265	0.124	1	297	0.138	1
2A	A	1	3.10	1		19				100	1785	125	0.070		70	0.039	
2B	A	2	3.65								4240	210	0.050		185	0.044	
3A	B	1	3.50				25			54 / 46	2040/2050	350	0.172	1	303	0.148	
3B	B	1	3.70	1		17				100	1825	115	0.063		330	0.181	1
4A	A	1	3.60	1		17				100	1815	200	0.110	1	100	0.055	1
4B	A	1	3.60								2115	115	0.054		60	0.028	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	D		10	10	8	18				
6P	D		10	10	8	18				
7P	D		11	11	9	20				
8P	D		12	12	10	22		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

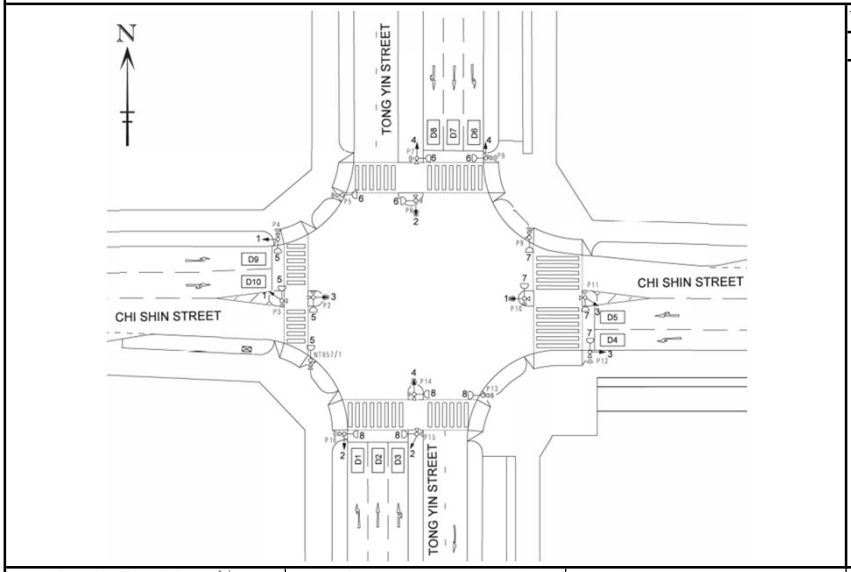
Check Critical Phase	4,3,1,8P	4,3,1,7P	4,3,1,6P	4,3,1,8P	4,3,1,7P	4,3,1,6P
Sum of y values, Y	0.405	0.405	0.405	0.374	0.374	0.374
Lost time, L	48	43	40	48	43	40
Cycle Time, C	110	110	110	110	110	110
Practical Y, Y_{pr}	0.507	0.548	0.573	0.507	0.548	0.573
Reserve Capacity, R.C. (%)	25%	35%	41%	35%	46%	53%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J3_SJ_2029_des_

Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J4 Chi Shin Street / Tong Yin Street	Ref. No.:	J4_SJ_2029_
Scheme:	2029 Des	Ref. No.:	

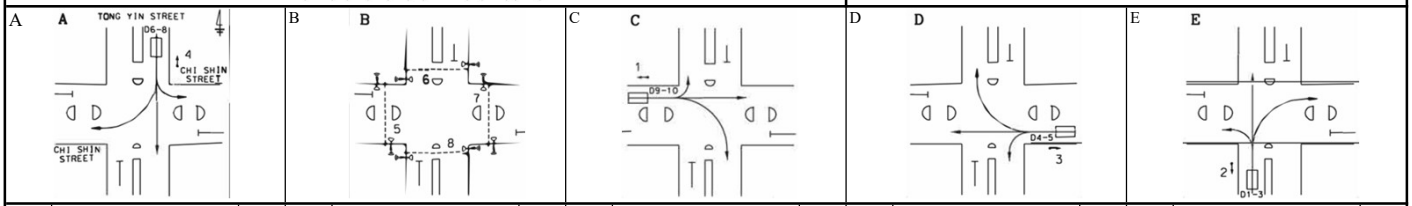


Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)

AM
(PM)

195(30) 170(120) 82(177)
154(180)
158(109)
5(5)
93(72)
8(10)
175(140)
5(5) 218(207) 45(50)



2		5	5	21	0	2	5	5	2		6	2		5
2		5	7	18	1	2	5	5	2		6	2		5
2		5	1	22	0	2	5	5	2		6	2		5

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	C	1	3.60	1		17				100	1815	154	0.085	1	180	0.099	1
1B	C	1	3.60				23			3 / 4	2110	163	0.077		114	0.054	
2A	E	1	3.30	1		17			0.86	100	1530	5	0.003		5	0.003	
2B	E	1	3.30								2085	133	0.064	1	130	0.062	
2C	E	1	3.30				25			35 / 39	2045/2035	130	0.064		127	0.062	1
3A	D	1	3.40	1		17				100	1795	175	0.097	1	140	0.078	1
3B	D	1	3.90				36			92 / 88	2065/2070	101	0.049		82	0.040	
4A	A	1	3.30	1		17				100	1785	82	0.046		177	0.099	1
4B	A	1	3.30								2085	170	0.082		76	0.036	
4C	A	1	3.30				23			100 / 41	1955/2030	195	0.100	1	74	0.036	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	B		10	10	8	18				
6P	B		13	13	9	22				
7P	B		9	9	7	16				
8P	B		12	12	9	21		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

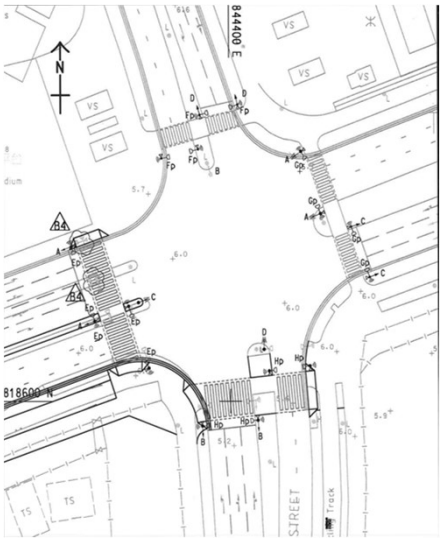
Check Critical Phase	4,8P,1,3,2	4,5P,1,3,2	4,6P,1,3,2	4,8P,1,3,2	4,5P,1,3,2	4,6P,1,3,2
Sum of y values, Y	0.346	0.346	0.346	0.339	0.339	0.339
Lost time, L	56	56	53	56	56	53
Cycle Time, C	100	100	100	110	110	110
Practical Y, Y_{pr}	0.396	0.396	0.423	0.442	0.442	0.466
Reserve Capacity, R.C. (%)	15%	15%	22%	30%	30%	38%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J4_SJ_2029_des_

Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J5 Po Yap Road / Tong Yin Street	Ref. No.:	J5_SJ_2029_
Scheme:	2029 Des	Ref. No.:	

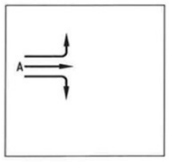
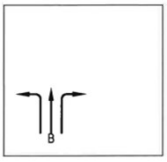
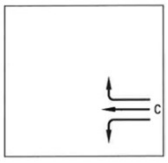
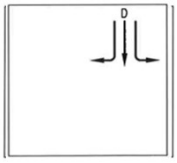
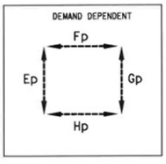


Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)

AM
(PM)

225(260) 5(5) 200(110)
242(260)
400(230)
137(347)
194(185)
306(262)
165(100)
283(288) 180(95) 10(71)

A	B	C	D	E
				
STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5

2		3	2		5	2		3	2		3	13	28	0
2		3	2		5	2		3	2		3	11	27	1
2		3	2		5	2		3	2		3	6	25	0

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.80	1		15					1815	195	0.108		197	0.109	
1B	A	1	3.40			15				21 / 28	2050/2035	221	0.108	1	221	0.109	1
1C	A	1	3.50				20			0 / 67	2105/2005	226	0.108		218	0.109	
1D	A	1	3.80	1			20				1855	137	0.074		201	0.109	
2A	B	1	3.70			15					1930	155	0.081		151	0.078	
2B	B	1	3.70			15				81 / 90	1965/1950	158	0.081	1	153	0.078	
2C	B	1	3.70	1			20			6 / 47	1975/1915	159	0.081		150	0.078	1
3A	C	1	3.20			15				75 / 55	1930/1965	219	0.114		182	0.093	
3B	C	1	3.30	1							1945	221	0.114		180	0.093	
3C	C	1	3.50				20			86 / 100	1975/1960	225	0.114	1	185	0.094	1
4A	D	1	3.70	1		15	20			98 / 97	1810/1825	206	0.114		180	0.099	
4B	D	1	3.70				20				1975	224	0.114	1	195	0.099	1

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	E		14	14	13	27				
6P	E		11	11	8	19				
7P	E		15	15	10	25				
8P	E		16	16	12	28		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%

In accordance with TPDM - Volume 4.2.4

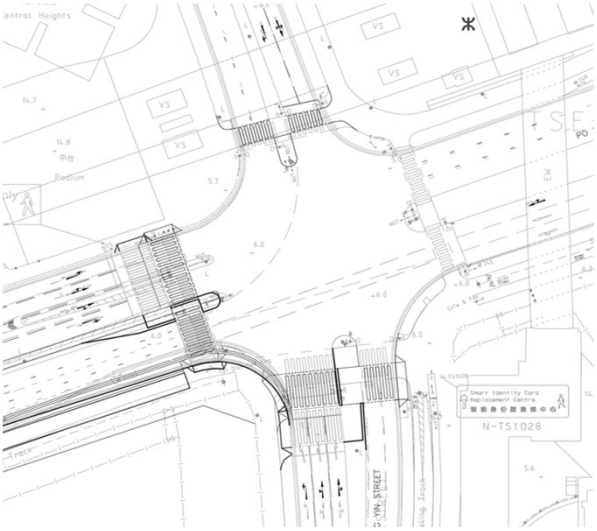
Check Critical Phase	1,2,3,4,8P	1,2,3,4,5P	1,2,3,4,7P	1,2,3,4,8P	1,2,3,4,5P	1,2,3,4,7P
Sum of y values, Y	0.416	0.416	0.416	0.380	0.380	0.380
Lost time, L	59	57	49	59	57	49
Cycle Time, C	120	120	120	105	105	105
Practical Y, Y_{pr}	0.458	0.473	0.533	0.394	0.411	0.480
Reserve Capacity, R.C. (%)	10%	14%	28%	4%	8%	26%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J5_SJ_2029_des_no_impro

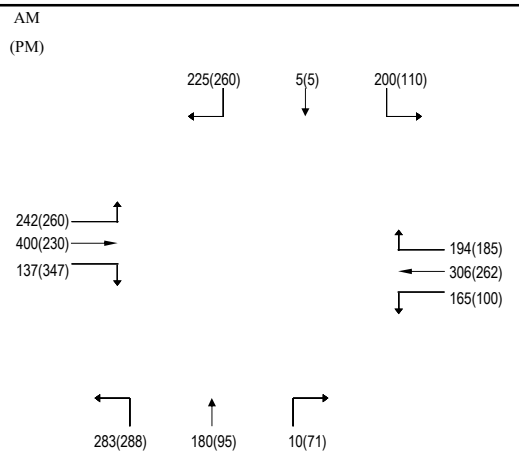
Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J5 Po Yap Road / Tong Yin Street (with improvement scheme)	Ref. No.:	J5_SJ_2029_
Scheme:	2029 Des	Ref. No.:	

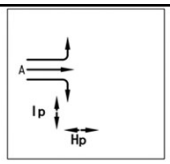


Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)

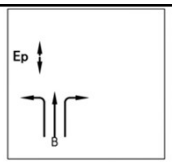


A



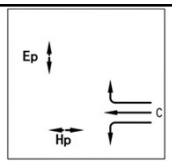
STAGE 1

B



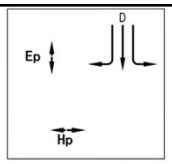
STAGE 2

C



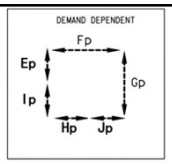
STAGE 3

D



STAGE 4

E



STAGE 5

2		3	2		5	2		3	2		3	6	25	0

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.80	1		15					1815	195	0.108		197	0.109	
1B	A	1	3.40			15				21 / 28	2050/2035	221	0.108	1	221	0.109	1
1C	A	1	3.50				20			0 / 67	2105/2005	226	0.108		218	0.109	
1D	A	1	3.80	1			20				1855	137	0.074		201	0.109	
2A	B	1	3.70			15					1930	155	0.081		151	0.078	
2B	B	1	3.70			15				81 / 90	1965/1950	158	0.081	1	153	0.078	
2C	B	1	3.70	1			20			6 / 47	1975/1915	159	0.081		150	0.078	1
3A	C	1	3.20			15				75 / 55	1930/1965	219	0.114		182	0.093	
3B	C	1	3.30	1							1945	221	0.114		180	0.093	
3C	C	1	3.50				20			86 / 100	1975/1960	225	0.114	1	185	0.094	1
4A	D	1	3.70	1		15	20			98 / 97	1810/1825	206	0.114		180	0.099	
4B	D	1	3.70				20				1975	224	0.114	1	195	0.099	1

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	BCDE		5	5	13	18				
6P	E		11	11	8	19				
7P	E		15	15	10	25		1		1
8P	ACDE		5	5	12	17				
9P	AE		5	5	9	14				
10P	E		5	5	6	11				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%

In accordance with TPDM - Volume 4.2.4

	AM Peak			PM Peak		
Check Critical Phase	1,2,3,4,7P			1,2,3,4,7P		
Sum of y values, Y	0.416			0.380		
Lost time, L	49			49		
Cycle Time, C	120			105		
Practical Y, Y_{pr}	0.533			0.480		
Reserve Capacity, R.C. (%)	28%			26%		

Calculated by:	Date: 五月-2021	Checked by:

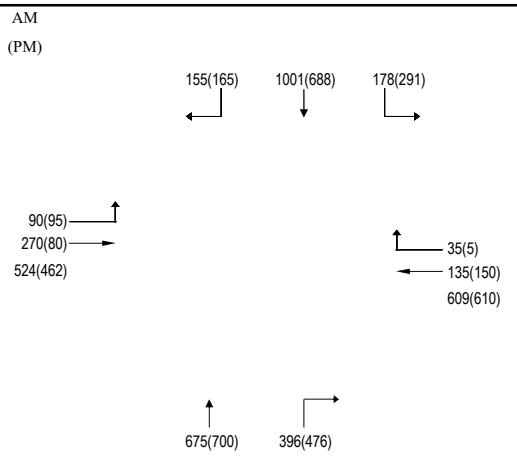
Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J5_SJ_2029_des_hv_impro

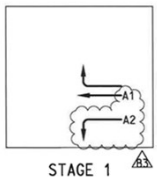
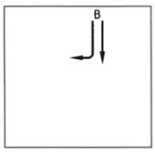
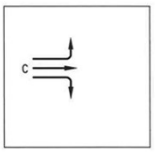
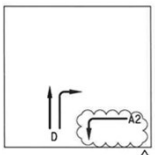
Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J6 Po Yap Road / Po Shun Road / Chui Ling Road / Future Road P2	Ref. No.:	J6_SJ_2029_
Scheme:	2029 Des	Ref. No.:	

Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)



A	B	C	D	E
				
STAGE 1	STAGE 2	STAGE 3	STAGE 4	

2		3	2		5	2		3	2		3			
		3	2		5	2		3			2			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A ←	A	1	3.50								2105	135	0.064	1	150	0.071	1
1B ↰	A	1	3.70				20			100	1975	35	0.018		5	0.003	
2A ↓	AD	2	3.50	1		15				100	3700	609	0.165		610	0.165	
3A ↓	B	2	3.65	1							4100	1001	0.244	1	688	0.168	1
3B ↓	B	1	3.60				20			100	1965	155	0.079		165	0.084	
4A ↑→	C	1	3.60	1		15				31 / 54	1915/1875	289	0.151		175	0.093	
4B ↓→	C	1	3.30				20			76 / 100	1970/1940	298	0.151	1	229	0.118	
4C ↓	C	1	3.60				20				1965	297	0.151		233	0.118	1
5A ↑	D	1	3.70	1							1985	351	0.177	1	386	0.194	1
5B ↑→	D	1	3.70				20			13 / 23	2105/2090	372	0.177		406	0.194	
5C ↑→	D	1	3.70				20				1975	349	0.177	1	384	0.194	1

Critical Ped. Phase	Stage	Width Across	Min. GM	Min. FGM	Lost Time	Note	Crit.	Note	Crit.

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr}/Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	1,3,4,5	2,3,4		1,3,4,5	2,3,4	
Sum of y values, Y	0.636	0.560		0.552	0.451	
Lost time, L	18	14		18	14	
Cycle Time, C	127	217		124	214	
Practical Y, Y_{pr}	0.772	0.842		0.769	0.841	
Reserve Capacity, R.C. (%)	21%	50%		39%	87%	

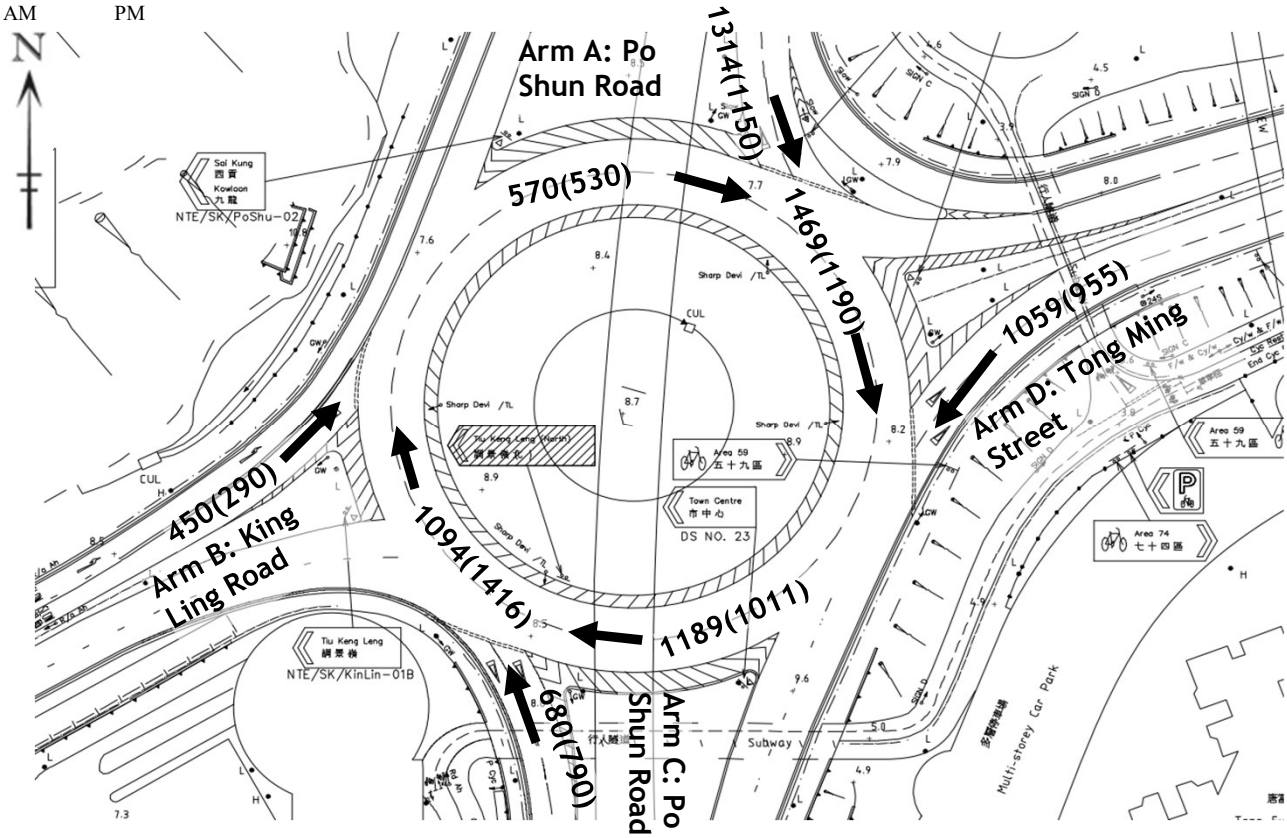
Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J6_SJ_2029_des_

Simplified Roundabout Capacity Calculation

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O				
Junction:	J7 Po Shun Road / Tong Ming Street / King Ling Road			Ref. No.:	J7_RA_2029_des_
Scheme:	2029 Des			Ref. No.:	
Year:	2020	Job No.:	J1598	Rev.:	-

AM PM



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	7.00	8.00	14.5	20	81.2	20	0.11
B	2.70	4.60	31.9	55.2	81.2	18	0.10
C	7.10	7.40	11.7	23	81.2	10	0.04
D	7.40	8.40	27.5	60	81.2	29	0.06

CALCULATIONS

ARM	K	X_2	M	F	t_D	f_c	Q_E AM	Q_E PM	DFC AM	DFC PM
A	1.03	7.82	8.33	2369	1.05	0.57	2117	2140	0.62	0.54
B	1.07	4.30	8.33	1302	1.05	0.41	914	772	0.49	0.38
C	1.08	7.38	8.33	2235	1.05	0.55	1704	1809	0.40	0.44
D	1.04	8.30	8.33	2514	1.05	0.59	1709	1879	0.62	0.51

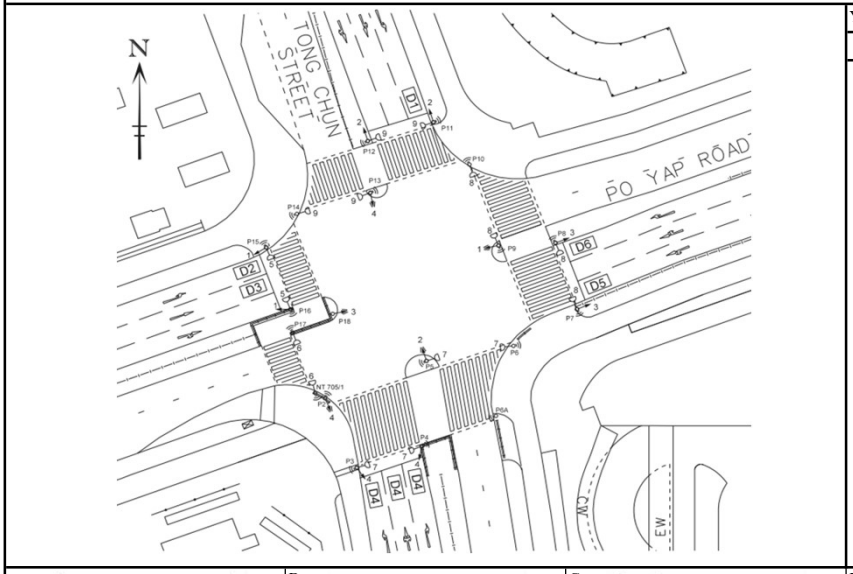
	AM	PM
Critical Arm:	**A**	**A**
DFC:	**0.62**	**0.54**
	AM	**PM**

- In accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

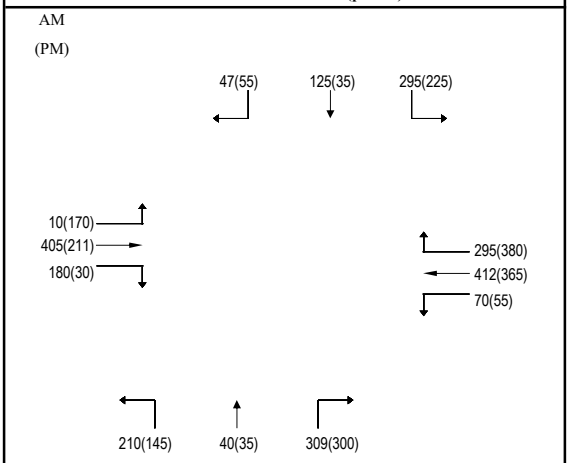
Traffic Signal Junction Calculation Sheet

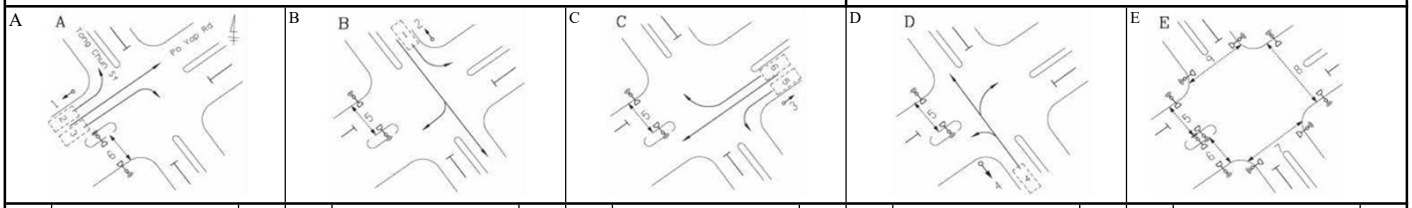
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J8 Po Yap Road / Tong Chun Street	Ref. No.:	J8_SJ_2029_
Scheme:	2029 Des	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		5	2		5	2		6	2		6	8	16	0
2		5	2		5	2		6	2		6	4	16	0
2		5	2		5	2		6	2		6	0	16	0

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.30	1		17				100	1785	10	0.006		170	0.095	1
1B	A	1	3.30								2085	299	0.144		122	0.058	
1C	A	1	3.30				20			63 / 25	1990/2045	286	0.144	1	119	0.058	
2A	B	1	3.40	1		17					1795	145	0.081		109	0.060	
2B	B	1	3.40			17				97 / 100	1930/1925	156	0.081		116	0.060	1
2C	B	1	3.50				26			28 / 61	2070/2035	167	0.081	1	90	0.044	
3A	C	1	3.30	1		17				28 / 21	1900/1910	249	0.131		259	0.136	
3B	C	1	3.40				20			14 / 42	2075/2030	272	0.131		276	0.136	1
3C	C	1	3.40				20				1950	256	0.131	1	265	0.136	
4A	D	1	3.60	1		16					1805	174	0.096		145	0.080	
4B	D	1	3.50			16	26			79 / 79	2000/2015	193	0.096	1	168	0.084	
4C	D	1	3.50				26				1990	192	0.096		167	0.084	1

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	BCDE		5	5	11	16				
6P	E		5	5	7	12				
7P	E		5	5	11	16				
8P	E		5	5	11	16		1		1
9P	E		5	5	11	16				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	1,2,3,4,8P	1,2,3,4,9P	1,2,3,4,7P	1,2,3,4,8P	1,2,3,4,9P	1,2,3,4,7P
Sum of y values, Y	0.452	0.452	0.452	0.375	0.375	0.375
Lost time, L	50	46	42	50	46	42
Cycle Time, C	125	125	125	125	125	125
Practical Y, Y_{pr}	0.540	0.569	0.598	0.540	0.569	0.598
Reserve Capacity, R.C. (%)	19%	26%	32%	44%	52%	59%

Calculated by:	Date: 五月-2021	Checked by:

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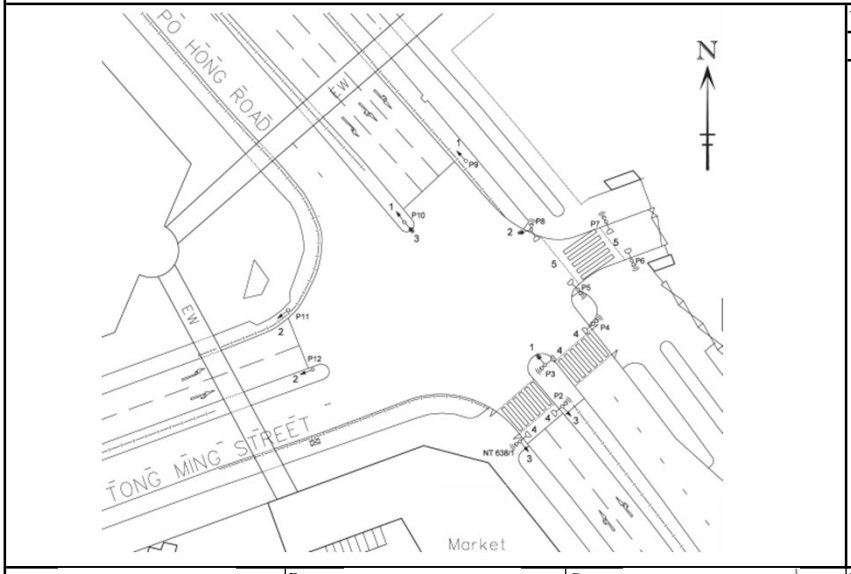
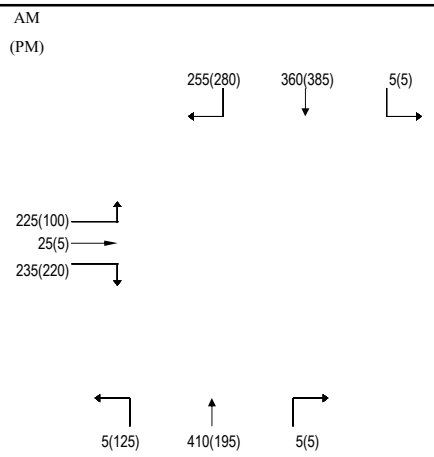
Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J9 Po Hong Road / Tong Ming Street	Ref. No.:	J9_SJ_2029_
Scheme:	2029 Des	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)



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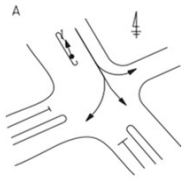

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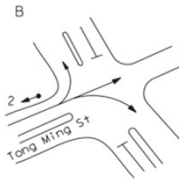

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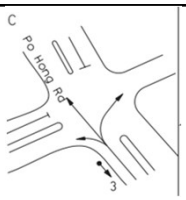

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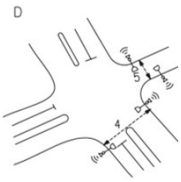

E

2		3	3		3	4		3	7	16	0			
2		3	3		3	4		3	2	20	0			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.40	1		15				2 / 2	1950	201	0.103		217	0.112	1
1B	A	1	3.40				21			23 / 25	2060	213	0.103	1	230	0.111	
1C	A	1	3.90				21				2000	206	0.103		223	0.111	
2A	B	1	3.70	1		16				100	1815	225	0.124		100	0.055	
2B	B	1	3.60				32			90 / 98	2030/2020	260	0.128	1	225	0.111	1
3A	C	1	3.50	1		17				2 / 83	1960/1830	202	0.103	1	151	0.082	
3B	C	1	3.70				11			2 / 3	2120/2115	218	0.103		174	0.082	1

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
4P	D		11	11	9	20				
5P	D		5	5	11	16		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

	AM Peak			PM Peak		
Check Critical Phase	1,2,3,5P	1,2,3,4P		1,2,3,5P	1,2,3,4P	
Sum of y values, Y	0.334	0.334		0.305	0.305	
Lost time, L	38	37		38	37	
Cycle Time, C	110	110		105	105	
Practical Y, Y_{pr}	0.589	0.597		0.574	0.583	
Reserve Capacity, R.C. (%)	76%	79%		88%	91%	

Calculated by:	Date: 五月-2021	Checked by:

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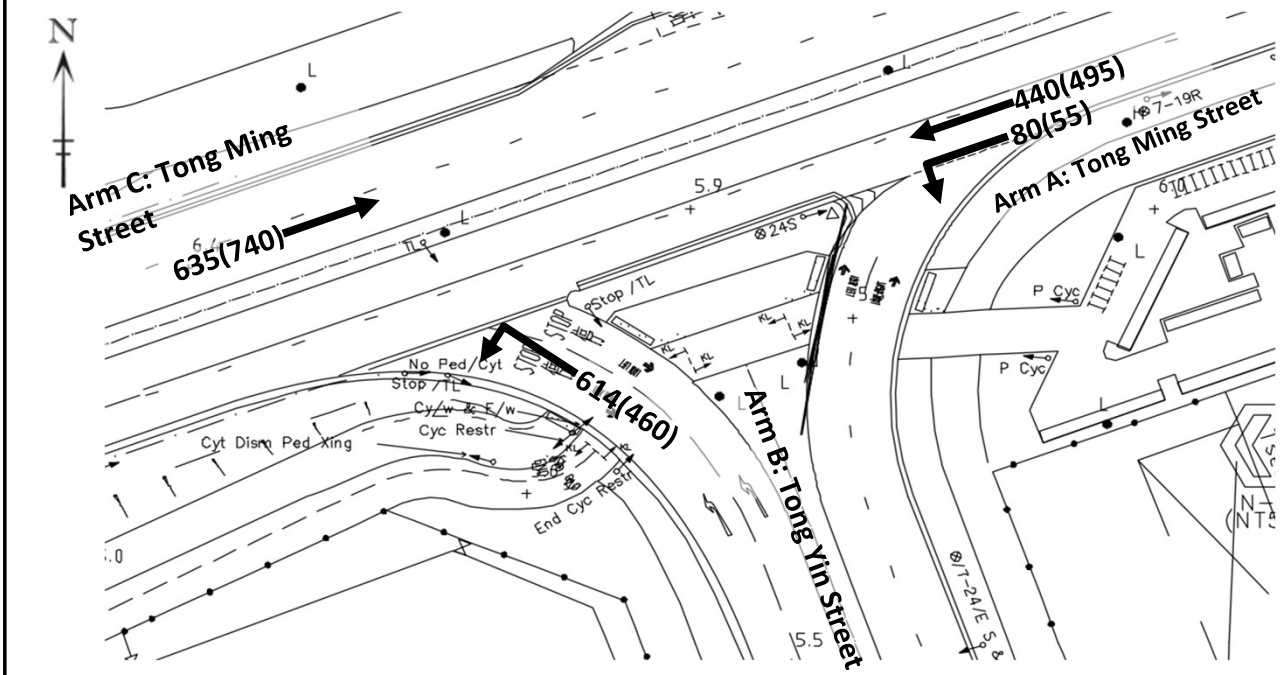
Simplified Priority Junction Capacity Calculation Sheet

Job Title	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O			
Junction	J10 Tong Yin Street/Tong Ming Street		Ref No.:	J10_PJ_2029_d
Scheme	2029 Des		Ref No.:	
Year	2020	Job. No.: J1598	Rev.:	

AM(PM)



Geometry					
Major road width	**W**	7.4	**Lane widths**	w(b-a)	0.00
Central Reserve width	W_{cr}	0		w(b-c)	7.80
2 Lane Minor Arm (Y/N)		Y		w(c-b)	0.00
Visibilities	$V_{r(B-A)}$	0	**Calculated**	D	0.53
	$V_{l(B-A)}$	0		E	1.34
	$V_{r(B-C)}$	80		F	0.59
	$V_{r(C-B)}$	0		Y	0.74

Analysis			**Peak Hour**	
			AM	PM
Traffic Flows	$q_{(C-A)}$		635	740
	$q_{(C-B)}$		0	0
	$q_{(A-B)}$		80	55
	$q_{(A-C)}$		440	495
	$q_{(B-A)}$		0	0
	$q_{(B-C)}$		614	460
Proportion of minor traffic left-turn	**f**		1.00	1.00
		Factor		
Capacities	$Q_{(B-A)}$	1	208	192
	$Q_{(B-C)}$	1	827	811
	$Q_{(C-B)}$	1	354	349
	$Q_{(B-AC)}$	1	0	0
DFC	**B-A**		0.00	0.00
	B-C		0.74	0.57
	C-B		0.00	0.00
	B-AC		0.00	0.00
Worst DFC			**0.74**	**0.57**

Where Vl and Vr are visibility distances to the left or right of the respective streams

D = (1+0.094(w(b-a)-3.65))(1+0.0009(Vr(b-a)-120))(1+0.0006(Vl(b-a)-150))

E = (1+0.094(w(b-c)-3.65))(1+0.0009(Vr(b-c)-120))

F = (1+0.094(w(c-b)-3.65))(1+0.0009(Vr(c-b)-120))

Y = 1-0.0345W

f = proportion of minor traffic turning left

Q (b-ac) = Q(b-c)*Q(b-a)/(1-f)*Q(b-c)+f*Q(b-a)

T.P.D.M.V.2.4

Appendix 1

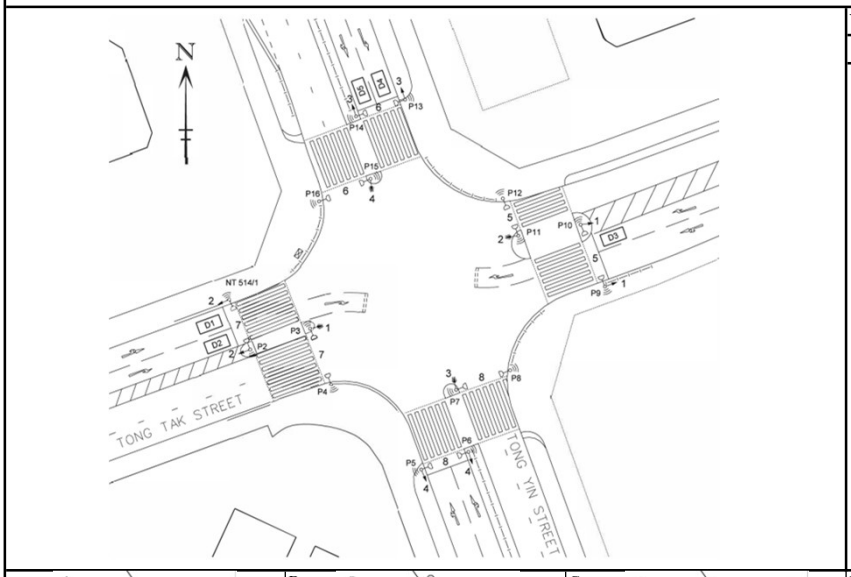
Capacity of combined streams

- in accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

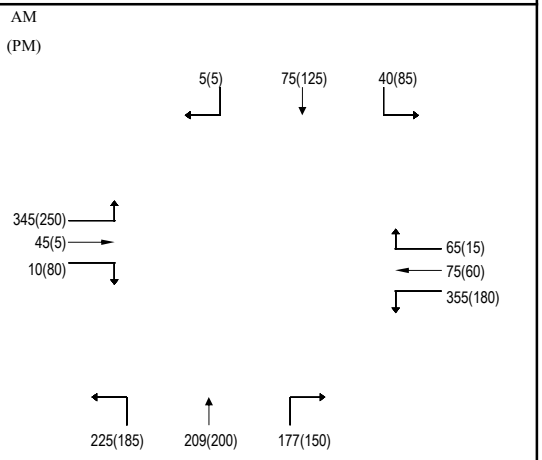
Traffic Signal Junction Calculation Sheet

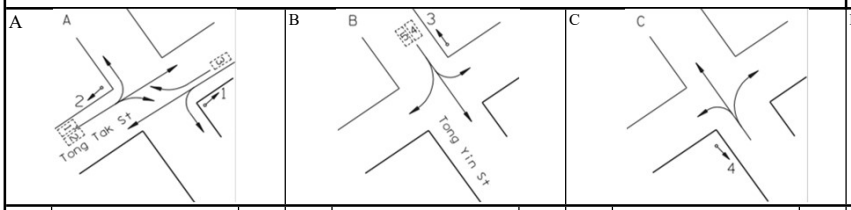
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J11 Tong Yin Street/Tong Tak Street	Ref. No.:	J11_SJ_2029
Scheme:	2029 Des	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		5	2	5	6	2		3	11	22	1			
2		5	2	5	6	2		3	7	20	1			
2		5	2	5	6	2		3	8	19	0			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	4.30	1		17				83 / 75	1905/1920	430	0.226	1	240	0.125	
1B	A	1	3.20		1		24			100	1735	65	0.037		15	0.009	
2A	A	1	3.70	1		16				88 / 98	1835/1820	390	0.213		255	0.140	1
2B	A	1	3.20		1		24			100	1735	10	0.006		80	0.046	
3A	B	1	3.80	1		18				100	1840	40	0.022		85	0.046	
3B	B	1	3.20				25			6 / 4	2065/2070	80	0.039	1	130	0.063	1
4A	C	1	4.00	1		13				76 / 72	1850/1860	295	0.159	1	259	0.139	1
4B	C	1	3.00				24			56 / 54	1985/1990	316	0.159		276	0.139	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	D		12	12	10	22		1		1
6P	D		9	9	10	19				
7P	D		10	10	10	20				
8P	D		10	10	10	20				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

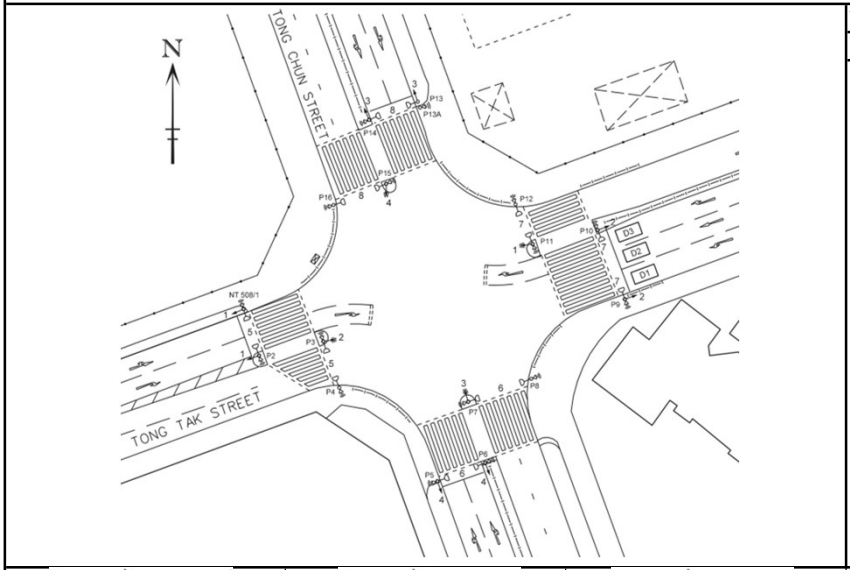
Check Critical Phase	1,3,4,5P	1,3,4,7P	1,3,4,6P	1,3,4,5P	1,3,4,7P	1,3,4,6P
Sum of y values, Y	0.424	0.424	0.424	0.342	0.342	0.342
Lost time, L	56	50	49	56	50	49
Cycle Time, C	127	127	127	124	124	124
Practical Y, Y_{pr}	0.503	0.546	0.553	0.494	0.537	0.544
Reserve Capacity, R.C. (%)	19%	29%	30%	44%	57%	59%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J11_SJ_2029_des_

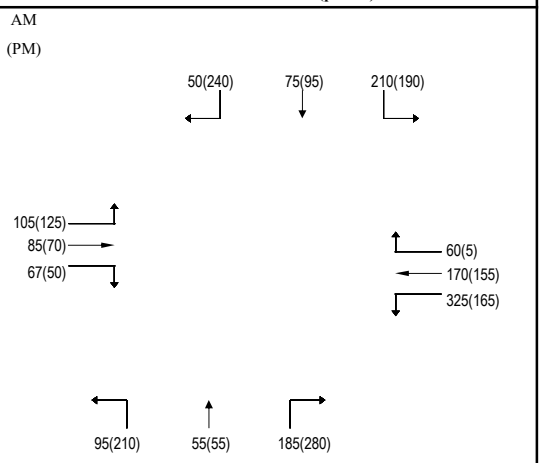
Traffic Signal Junction Calculation Sheet

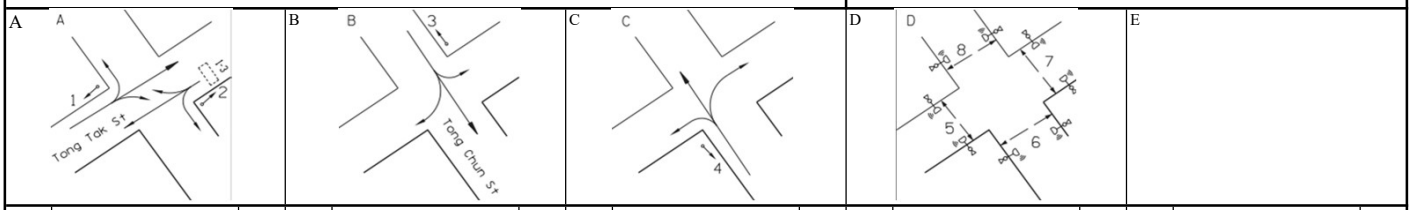
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J12 Tong Tak Street/Tong Chun Street	Ref. No.:	J12_SJ_2029
Scheme:	2029 Des	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		11	2		5	2		4	10	25	2						
2		11	2		5	2		4	7	18	2						
2		11	2		5	2		4	7	18	0						

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.60	1		15				55 / 64	1870/1855	190	0.102		195	0.105	1
1B	A	1	3.20		1		29			100	1755	67	0.038		50	0.028	
2A	A	1	4.00	1		17				100	1850	325	0.176	1	165	0.089	
2B	A	1	3.50								2105	170	0.081		155	0.074	
2C	A	1	3.70		1		24			100	1785	60	0.034		5	0.003	
3A	B	1	3.60	1		17				100 / 76	1815/1850	210	0.116	1	249	0.135	1
3B	B	1	4.00				24			40 / 87	2100/2045	125	0.060		276	0.135	
4A	C	1	3.60	1		18				63 / 80	1875/1850	150	0.080		263	0.142	1
4B	C	1	3.60				24			100 / 99	1990	185	0.093	1	282	0.142	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	D		9	9	9	18				
6P	D		10	10	10	20				
7P	D		12	12	13	25		1		1
8P	D		9	9	9	18				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr}/Y - 1) x 100%

In accordance with TPDM - Volume 4.2.4

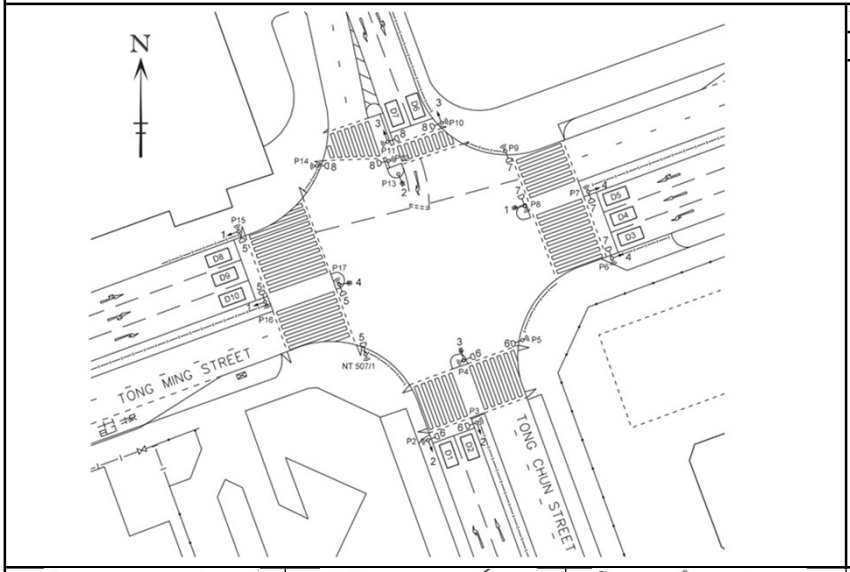
Check Critical Phase	2,3,4,7P	2,3,4,5P	2,3,4,8P	2,3,4,7P	2,3,4,5P	2,3,4,8P
Sum of y values, Y	0.384	0.384	0.384	0.382	0.382	0.382
Lost time, L	60	50	48	60	50	48
Cycle Time, C	125	125	125	125	125	125
Practical Y, Y_{pr}	0.468	0.540	0.554	0.468	0.540	0.554
Reserve Capacity, R.C. (%)	22%	40%	44%	23%	41%	45%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J12_SJ_2029_des_

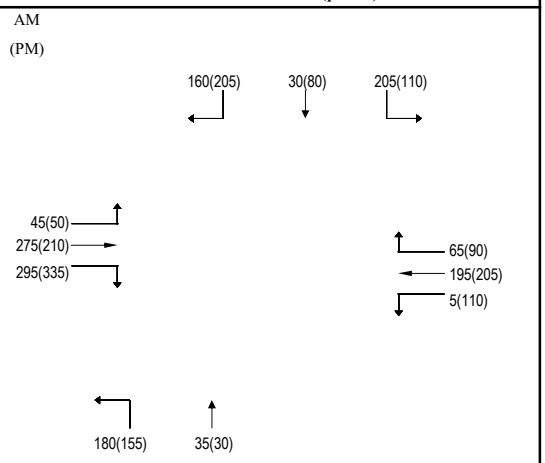
Traffic Signal Junction Calculation Sheet

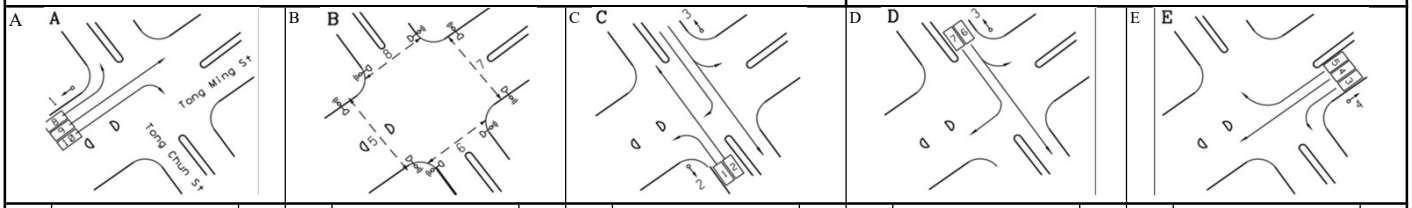
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J13 Tong Ming Street/Tong Chun Street	Ref. No.:	J13_SJ_2029
Scheme:	2029 Des	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		3	9	22	0	2					3	3		6
2		3	11	18	1	2					3	3		6
2		3	6	22	1	2					3	3		6

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.50	1		20				23 / 26	1930	199	0.103	1	193	0.100	
1B	A	1	3.50				24			43 / 67	2050/2020	211	0.103		203	0.100	1
1C	A	1	3.50				24				1980	204	0.103		199	0.100	
2A	C	1	3.60	1		17				100	1815	180	0.099		155	0.085	
2B	C	1	3.70								2125	35	0.016		30	0.014	
3A	CD	1	3.20	1		17				87 / 58	1795/1840	235	0.131	1	190	0.103	
3B	CD	1	3.40		1		15			100	1695	160	0.094		205	0.121	1
4A	E	1	3.50	1		17				100	1805	5	0.003		110	0.061	
4B	E	1	3.50								2105	132	0.063		150	0.071	1
4C	E	1	3.50				23			51 / 62	2035/2025	128	0.063	1	145	0.071	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	B		14	14	12	26				
6P	B		10	10	8	18				
7P	B		12	12	10	22		1		1
8P	B		12	12	10	22				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

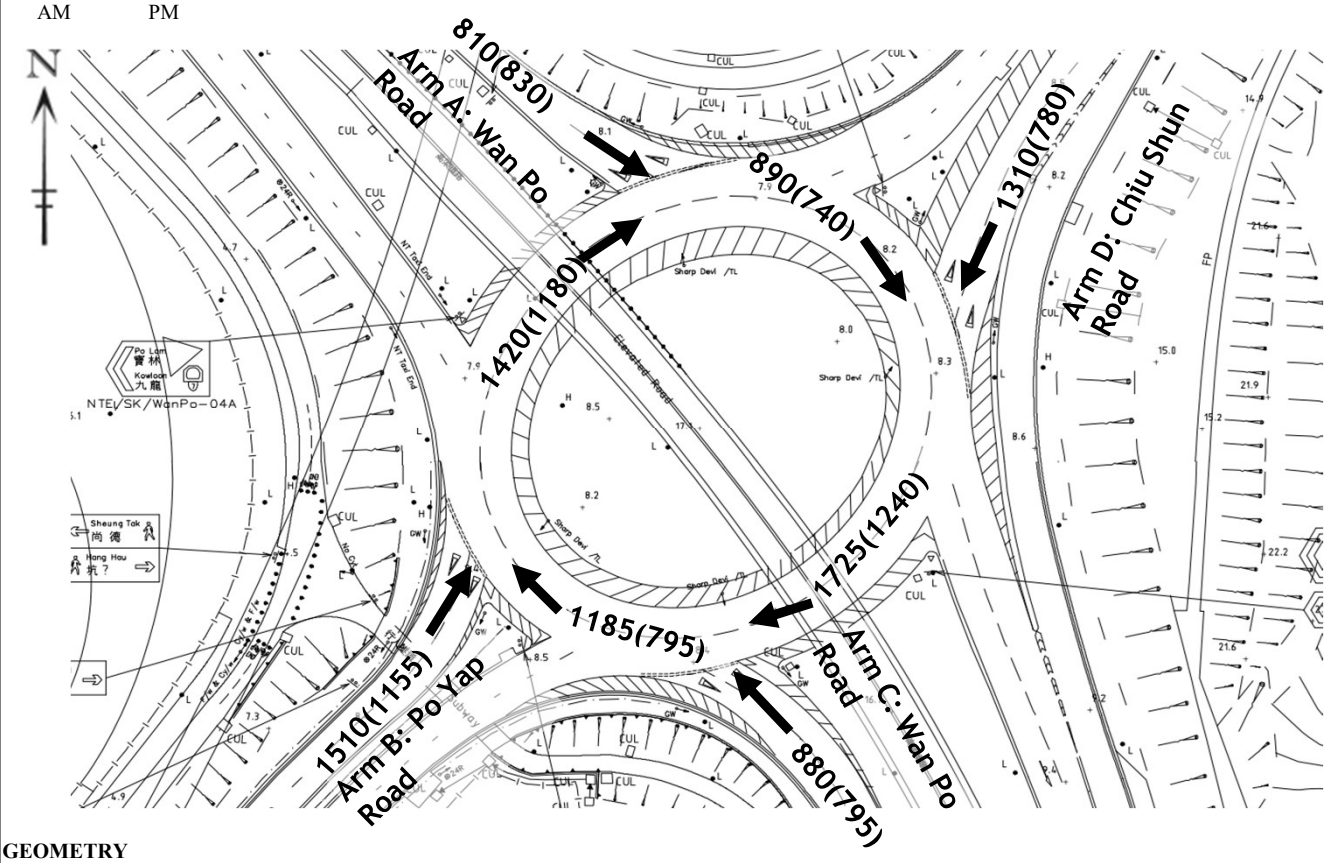
	AM Peak			PM Peak		
Check Critical Phase	1,7P,3,4	1,6P,3,4	1,8P,3,4	1,7P,3,4	1,6P,3,4	1,8P,3,4
Sum of y values, Y	0.297	0.297	0.297	0.293	0.293	0.293
Lost time, L	47	46	45	47	46	45
Cycle Time, C	125	125	125	125	125	125
Practical Y, Y_{pr}	0.562	0.569	0.576	0.562	0.569	0.576
Reserve Capacity, R.C. (%)	89%	91%	94%	92%	94%	97%

Calculated by:	Date: 五月-2021	Checked by:

Simplified Roundabout Capacity Calculation

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O				
Junction:	J1 Wan Po Road / Chiu Shun Road / Po Yap Road			Ref. No.:	J1_RA_2026_ref2_
Scheme:	2026 Ref (without CKR/T2)			Ref. No.:	
Year:	2020	Job No.:	J1598	Rev.:	-

AM PM



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	5.00	9.00	20	40	76	20	0.32
B	7.00	7.50	10	50	86	20	0.08
C	8.00	8.00	5	40	76	20	0.00
D	8.00	10.00	10	70	86	25	0.32

CALCULATIONS

							Q_E		DFC	
ARM	K	X_2	M	F	t_D	f_c	AM	PM	AM	PM
A	1.06	7.44	4.95	2254	1.08	0.57	1536	1680	0.53	0.49
B	1.06	7.43	13.46	2252	1.03	0.54	1715	1939	0.88	0.60
C	1.06	8.00	4.95	2424	1.08	0.59	1486	1790	0.59	0.44
D	1.05	9.22	13.46	2794	1.03	0.62	2361	2458	0.55	0.32

Critical Arm:	**B**	**B**
DFC:	**0.88**	**0.60**
	AM	**PM**

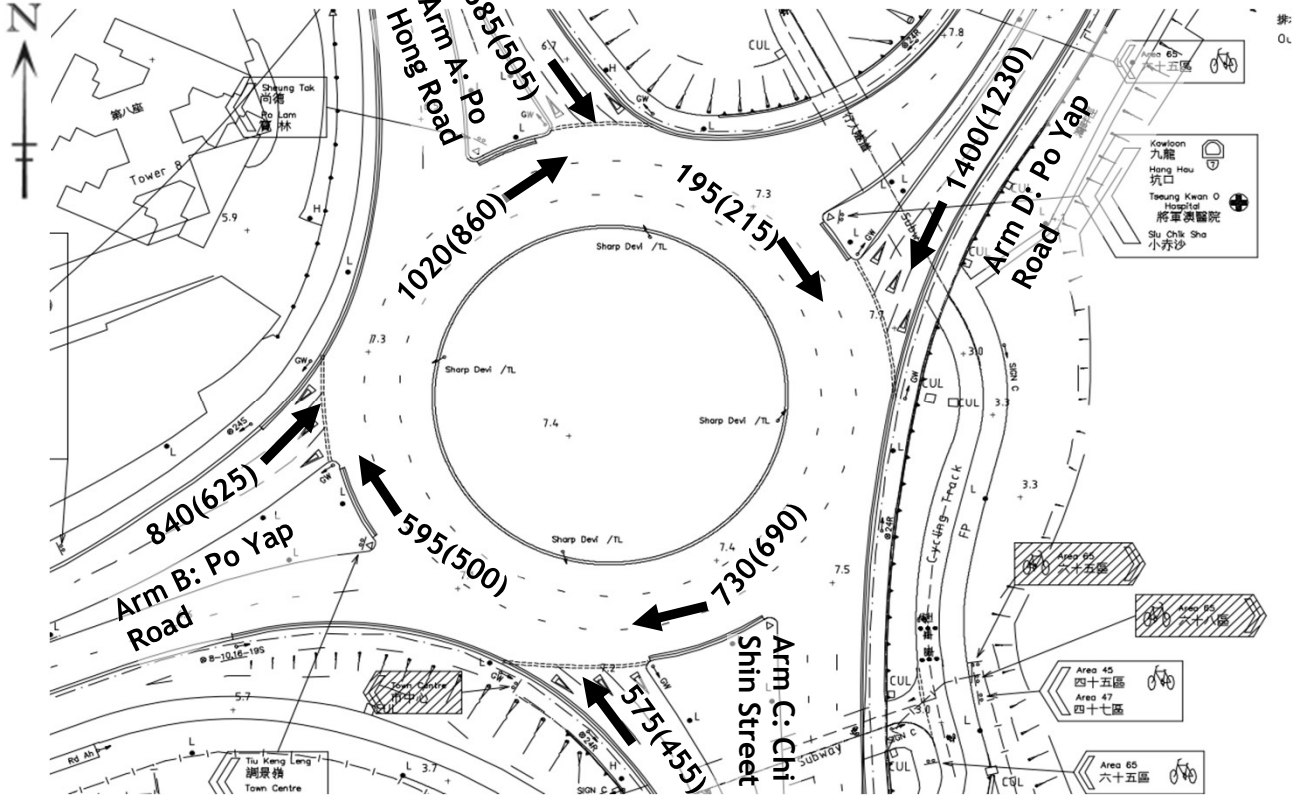
- In accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

Simplified Roundabout Capacity Calculation

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O				
Junction:	J2 Po Yap Road / Chi Shin Street / Po Hong Road			Ref. No.:	J2_RA_2026_ref2_
Scheme:	2026 Ref (without CKR/T2)			Ref. No.:	
Year:	2020	Job No.:	J1598	Rev.:	-

AM PM



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	7.00	11.00	20	25	80	25	0.32
B	7.00	11.00	15	60	80	30	0.43
C	7.00	12.00	10	50	80	25	0.80
D	7.00	11.00	20	90	80	25	0.32

CALCULATIONS

							Q_E		DFC	
ARM	K	X_2	M	F	t_D	f_c	AM	PM	AM	PM
A	1.03	9.44	7.39	2860	1.06	0.64	2264	2370	0.30	0.21
B	1.03	9.16	7.39	2775	1.06	0.63	2478	2540	0.34	0.25
C	1.05	8.92	7.39	2704	1.06	0.62	2356	2382	0.24	0.19
D	1.06	9.44	7.39	2860	1.06	0.64	2886	2873	0.49	0.43

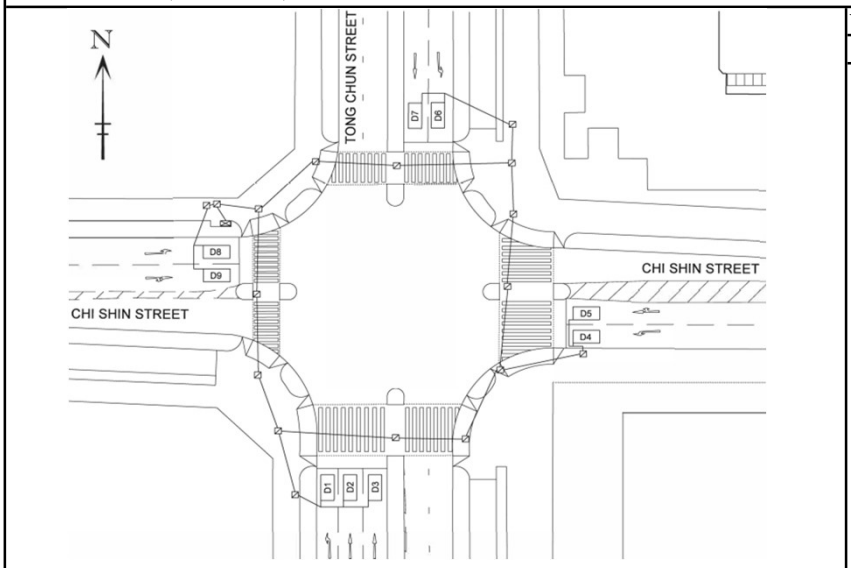
Critical Arm:	**D**	**D**
DFC:	**0.49**	**0.43**
	AM	**PM**

- In accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

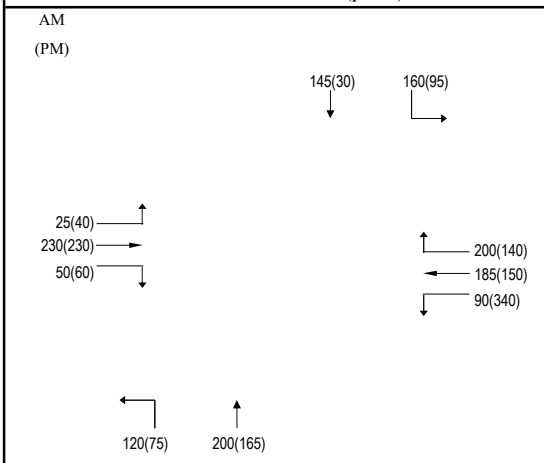
Traffic Signal Junction Calculation Sheet

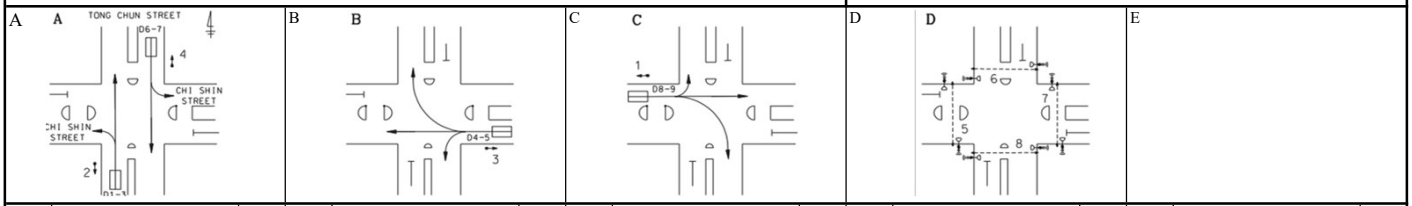
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J3 Chi Shin Street / Tong Chun Street	Ref. No.:	J3_SJ_2026_
Scheme:	2026 Ref (without CKR/T2)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		5	2		5	2		3	9	22	1			
2		5	2		5	2		3	7	20	0			
2		5	2		5	2		3	5	18	1			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	C	1	4.10	1		17			0.86	100	1595	25	0.016		40	0.025	
1B	C	1	4.20				23			18 / 21	2150/2145	280	0.130	1	290	0.135	1
2A	A	1	3.10	1		19				100	1785	120	0.067		75	0.042	
2B	A	2	3.65								4240	200	0.047		165	0.039	
3A	B	1	3.50				25			52 / 48	2040/2045	385	0.189	1	290	0.142	
3B	B	1	3.70	1		17				100	1825	90	0.049		340	0.186	1
4A	A	1	3.60	1		17				100	1815	160	0.088	1	95	0.052	1
4B	A	1	3.60								2115	145	0.069		30	0.014	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	D		10	10	8	18				
6P	D		10	10	8	18				
7P	D		11	11	9	20				
8P	D		12	12	10	22		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

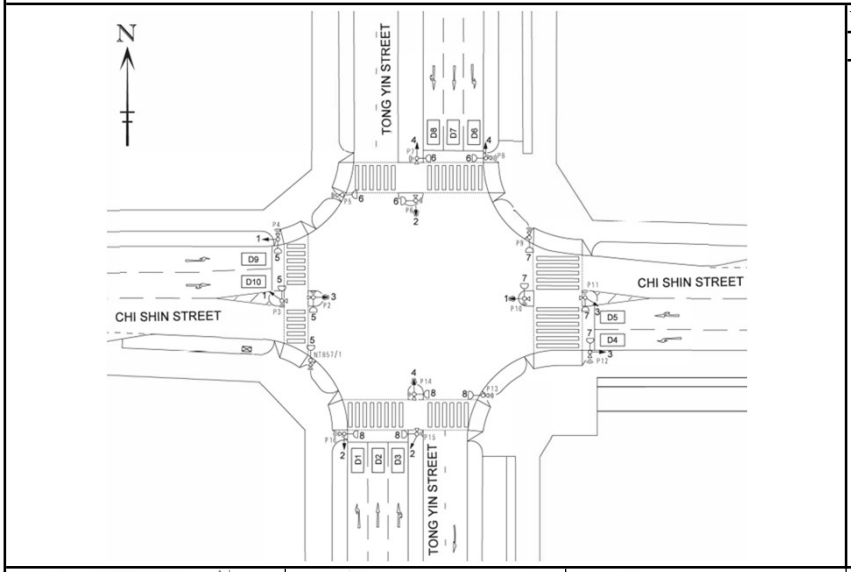
Check Critical Phase	4,3,1,8P	4,3,1,7P	4,3,1,6P	4,3,1,8P	4,3,1,7P	4,3,1,6P
Sum of y values, Y	0.407	0.407	0.407	0.374	0.374	0.374
Lost time, L	48	43	40	48	43	40
Cycle Time, C	110	110	110	110	110	110
Practical Y, Y_{pr}	0.507	0.548	0.573	0.507	0.548	0.573
Reserve Capacity, R.C. (%)	25%	35%	41%	36%	47%	53%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J3_SJ_2026_ref2_

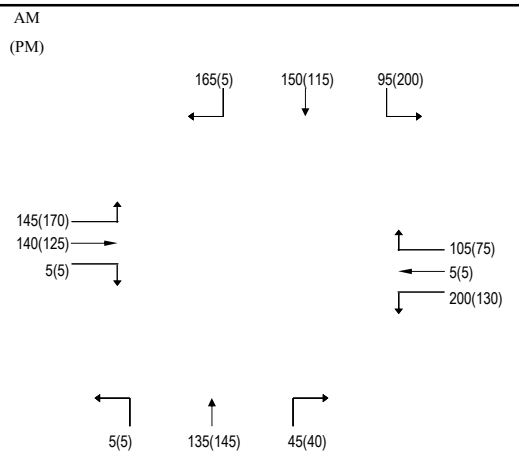
Traffic Signal Junction Calculation Sheet

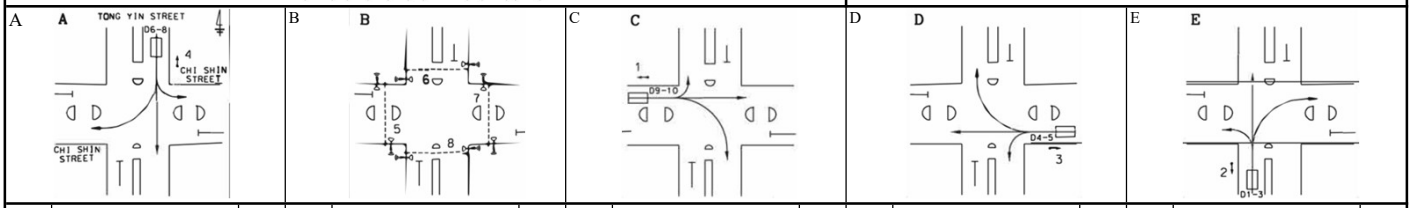
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O
Junction:	J4 Chi Shin Street / Tong Yin Street
Ref. No.:	J4_SJ_2026_
Scheme:	2026 Ref (without CKR/T2)
Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		5	5	21	0	2	5	5	2		6	2		5
2		5	7	18	1	2	5	5	2		6	2		5
2		5	1	22	0	2	5	5	2		6	2		5

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	C	1	3.60	1		17				100	1815	145	0.080	1	170	0.094	1
1B	C	1	3.60				23			3 / 4	2110	145	0.069		130	0.062	
2A	E	1	3.30	1		17			0.86	100	1530	5	0.003		5	0.003	
2B	E	1	3.30								2085	91	0.044	1	94	0.045	
2C	E	1	3.30				25			51 / 44	2025/2030	89	0.044		91	0.045	1
3A	D	1	3.40	1		17				100	1795	200	0.111	1	130	0.072	1
3B	D	1	3.90				36			95 / 94	2065	110	0.053		80	0.039	
4A	A	1	3.30	1		17				100	1785	95	0.053		200	0.112	1
4B	A	1	3.30								2085	150	0.072		60	0.029	
4C	A	1	3.30				23			100 / 8	1955/2075	165	0.084	1	60	0.029	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	B		10	10	8	18				
6P	B		13	13	9	22				
7P	B		9	9	7	16				
8P	B		12	12	9	21		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

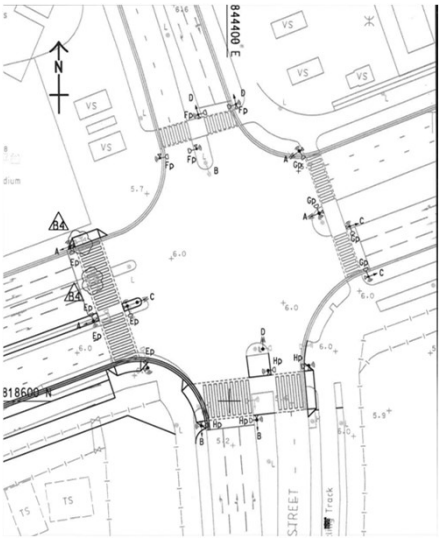
Check Critical Phase	4,8P,1,3,2	4,5P,1,3,2	4,6P,1,3,2	4,8P,1,3,2	4,5P,1,3,2	4,6P,1,3,2
Sum of y values, Y	0.320	0.320	0.320	0.323	0.323	0.323
Lost time, L	56	56	53	56	56	53
Cycle Time, C	100	100	100	110	110	110
Practical Y, Y_{pr}	0.396	0.396	0.423	0.442	0.442	0.466
Reserve Capacity, R.C. (%)	24%	24%	32%	37%	37%	44%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J4_SJ_2026_ref2_

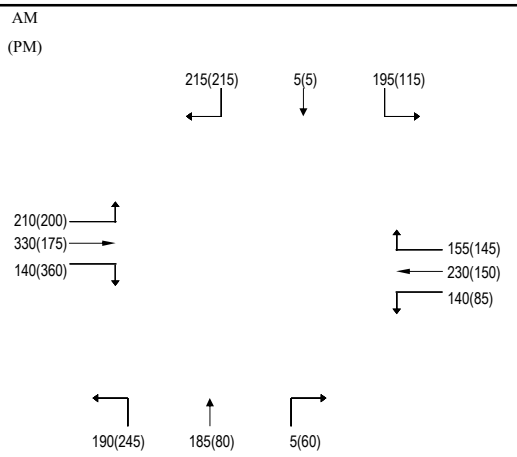
Traffic Signal Junction Calculation Sheet

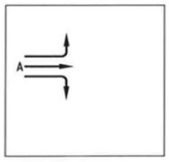
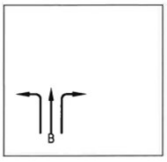
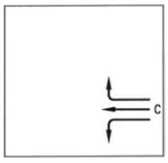
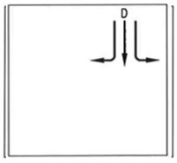
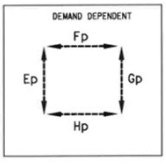
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J5 Po Yap Road / Tong Yin Street	Ref. No.:	J5_SJ_2026_
Scheme:	2026 Ref (without CKR / T2)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)



A	B	C	D	E
				
STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5
2 3	2 5	2 3	2 3	13 28 0
2 3	2 5	2 3	2 3	11 27 1
2 3	2 5	2 3	2 3	6 25 0

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.80	1		15					1815	164	0.091	1	173	0.095	
1B	A	1	3.40			15				25 / 14	2045/2065	185	0.091		197	0.096	1
1C	A	1	3.50				20			0 / 98	2105/1960	191	0.091	1	187	0.096	
1D	A	1	3.80	1			20				1855	140	0.075		177	0.095	
2A	B	1	3.70			15					1930	124	0.064		128	0.066	
2B	B	1	3.70			15				51 / 90	2020/1950	130	0.064	1	129	0.066	
2C	B	1	3.70	1			20			4 / 47	1980/1915	127	0.064		127	0.066	1
3A	C	1	3.20			15				81 / 73	1920/1935	173	0.090		117	0.061	
3B	C	1	3.30	1							1945	175	0.090		118	0.061	
3C	C	1	3.50				20			87 / 100	1975/1960	178	0.090	1	145	0.074	1
4A	D	1	3.70	1		15	20			98 / 97	1810/1820	200	0.110	1	161	0.088	1
4B	D	1	3.70				20				1975	215	0.109		174	0.088	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	E		14	14	13	27				
6P	E		11	11	8	19				
7P	E		15	15	10	25				
8P	E		16	16	12	28		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	1,2,3,4,8P	1,2,3,4,5P	1,2,3,4,7P	1,2,3,4,8P	1,2,3,4,5P	1,2,3,4,7P
Sum of y values, Y	0.355	0.355	0.355	0.324	0.324	0.324
Lost time, L	59	57	49	59	57	49
Cycle Time, C	120	120	120	105	105	105
Practical Y, Y_{pr}	0.458	0.473	0.533	0.394	0.411	0.480
Reserve Capacity, R.C. (%)	29%	33%	50%	22%	27%	48%

Calculated by:	Date: 五月-2021	Checked by:

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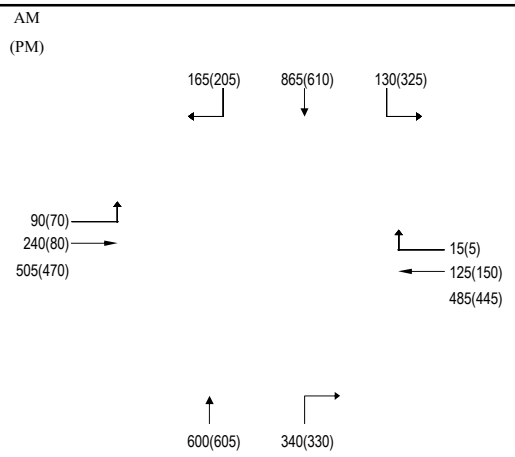
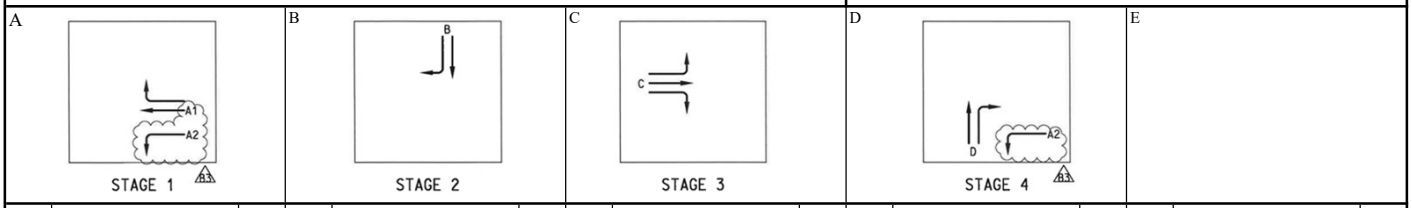
Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J6 Po Yap Road / Po Shun Road / Chui Ling Road / Future Road P2	Ref. No.:	J6_SJ_2026_
Scheme:	2026 Ref (without CKR/T2)	Ref. No.:	

Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		3	2		5	2		3	2		3
		3	2		5	2		3			2

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A ←	A	1	3.50								2105	125	0.059	1	150	0.071	1
1B ↰	A	1	3.70				20			100	1975	15	0.008		5	0.003	
2A ↓	AD	2	3.50	1		15				100	3700	485	0.131		445	0.120	
3A ↓	B	2	3.65	1							4100	865	0.211	1	610	0.149	1
3B ↓	B	1	3.60				20			100	1965	165	0.084		205	0.104	
4A ↑→	C	1	3.60	1		15				33 / 47	1910/1885	273	0.143		150	0.080	
4B ↑→	C	1	3.30				20			80 / 100	1965/1940	281	0.143	1	233	0.120	
4C →	C	1	3.60				20				1965	281	0.143		237	0.120	1
5A ↑	D	1	3.70	1							1985	307	0.155	1	306	0.154	
5B ↑→	D	1	3.70				20			10 / 8	2110	327	0.155		325	0.154	1
5C →	D	1	3.70				20				1975	306	0.155	1	304	0.154	

Critical Ped. Phase	Stage	Width Across	Min. GM	Min. FGM	Lost Time	Note	Crit.	Note	Crit.

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	1,3,4,5	2,3,4		1,3,4,5	2,3,4	
Sum of y values, Y	0.568	0.485		0.495	0.389	
Lost time, L	18	14		18	14	
Cycle Time, C	127	217		124	214	
Practical Y, Y_{pr}	0.772	0.842		0.769	0.841	
Reserve Capacity, R.C. (%)	36%	74%		56%	116%	

Calculated by:	Date: 五月-2021	Checked by:

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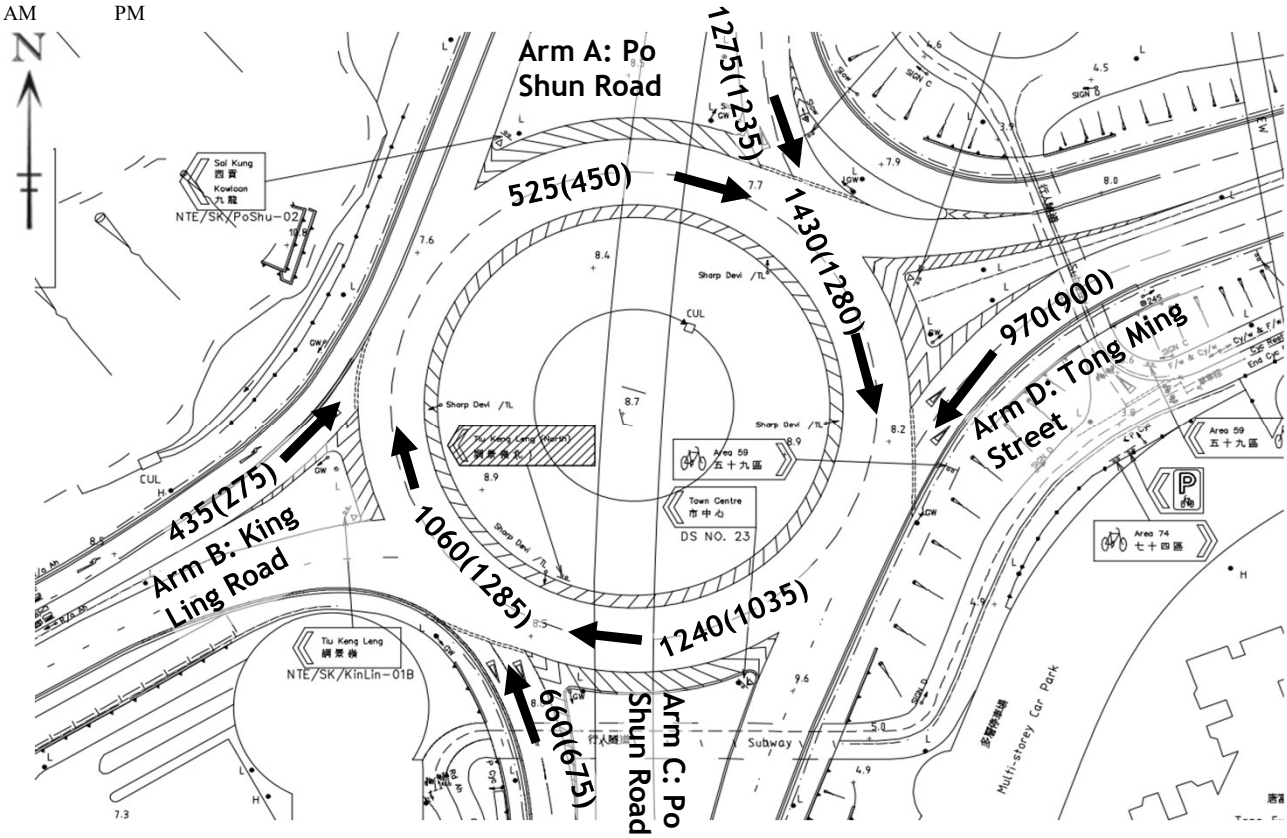
Simplified Roundabout Capacity Calculation

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O				
Junction:	J7 Po Shun Road / Tong Ming Street / King Ling Road			Ref. No.:	J7_RA_2026_ref2_
Scheme:	2026 Ref (without CKR/T2)			Ref. No.:	
Year:	2020	Job No.:	J1598	Rev.:	-

AM PM



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	7.00	8.00	14.5	20	81.2	20	0.11
B	2.70	4.60	31.9	55.2	81.2	18	0.10
C	7.10	7.40	11.7	23	81.2	10	0.04
D	7.40	8.40	27.5	60	81.2	29	0.06

CALCULATIONS

							Q_E		DFC	
ARM	K	X_2	M	F	t_D	f_c	AM	PM	AM	PM
A	1.03	7.82	8.33	2369	1.05	0.57	2143	2187	0.59	0.56
B	1.07	4.30	8.33	1302	1.05	0.41	929	829	0.47	0.33
C	1.08	7.38	8.33	2235	1.05	0.55	1674	1795	0.39	0.38
D	1.04	8.30	8.33	2514	1.05	0.59	1733	1824	0.56	0.49

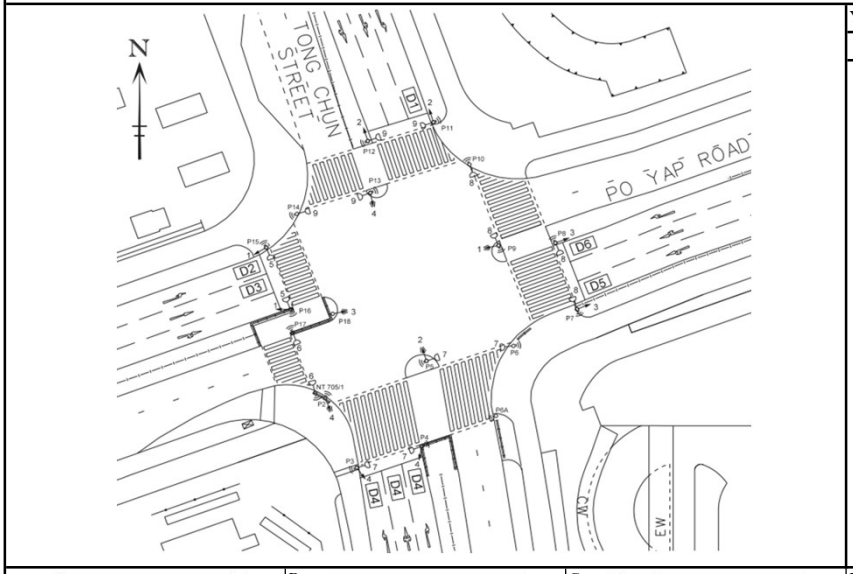
Critical Arm:	**A**	**A**
DFC:	**0.59**	**0.56**
	AM	**PM**

- In accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

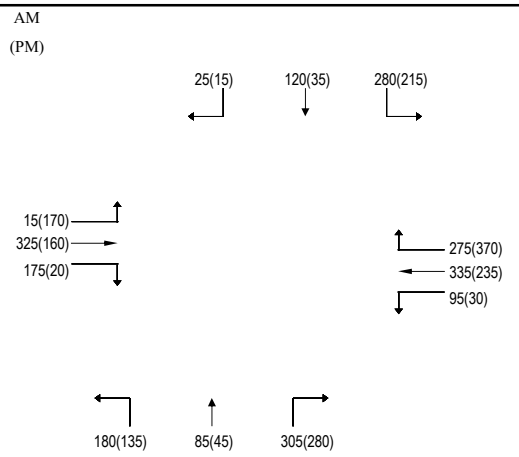
Traffic Signal Junction Calculation Sheet

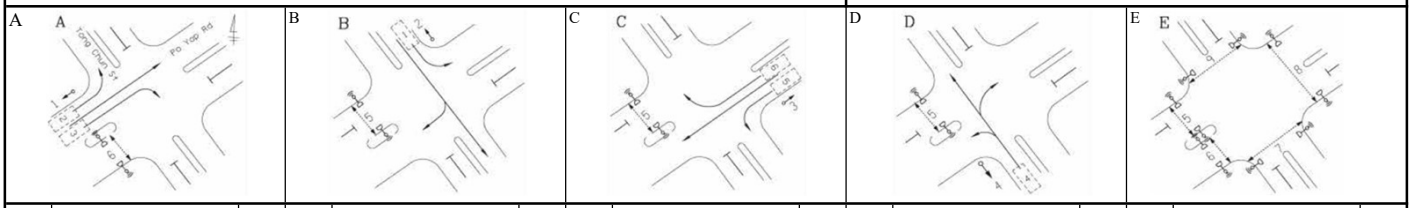
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O
Junction:	J8 Po Yap Road / Tong Chun Street
Ref. No.:	J8_SJ_2026_
Scheme:	2026 Ref (without CKR/T2)
Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





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2		5	2		5	2		6	2		6	4	16	0
2		5	2		5	2		6	2		6	0	16	0

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.30	1		17				100	1785	15	0.008		170	0.095	1
1B	A	1	3.30								2085	257	0.123	1	91	0.044	
1C	A	1	3.30				20			72 / 22	1980/2050	243	0.123		89	0.044	
2A	B	1	3.40	1		17					1795	135	0.075		104	0.058	
2B	B	1	3.40			17				100	1925	145	0.075	1	111	0.058	1
2C	B	1	3.50				26			17 / 30	2085/2070	145	0.070		50	0.024	
3A	C	1	3.30	1		17				42 / 14	1875/1920	224	0.120		208	0.108	1
3B	C	1	3.40				20			17 / 74	2070/1985	247	0.120		215	0.108	
3C	C	1	3.40				20				1950	233	0.120	1	211	0.108	
4A	D	1	3.60	1		16					1805	176	0.098		135	0.075	
4B	D	1	3.50			16	26			57 / 73	2035/2020	199	0.098	1	164	0.081	1
4C	D	1	3.50				26				1990	195	0.098		161	0.081	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	BCDE		5	5	11	16				
6P	E		5	5	7	12				
7P	E		5	5	11	16				
8P	E		5	5	11	16		1		1
9P	E		5	5	11	16				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	1,2,3,4,8P	1,2,3,4,9P	1,2,3,4,7P	1,2,3,4,8P	1,2,3,4,9P	1,2,3,4,7P
Sum of y values, Y	0.416	0.416	0.416	0.343	0.343	0.343
Lost time, L	50	46	42	50	46	42
Cycle Time, C	125	125	125	125	125	125
Practical Y, Y_{pr}	0.540	0.569	0.598	0.540	0.569	0.598
Reserve Capacity, R.C. (%)	30%	37%	44%	58%	66%	74%

Calculated by:	Date: 五月-2021	Checked by:

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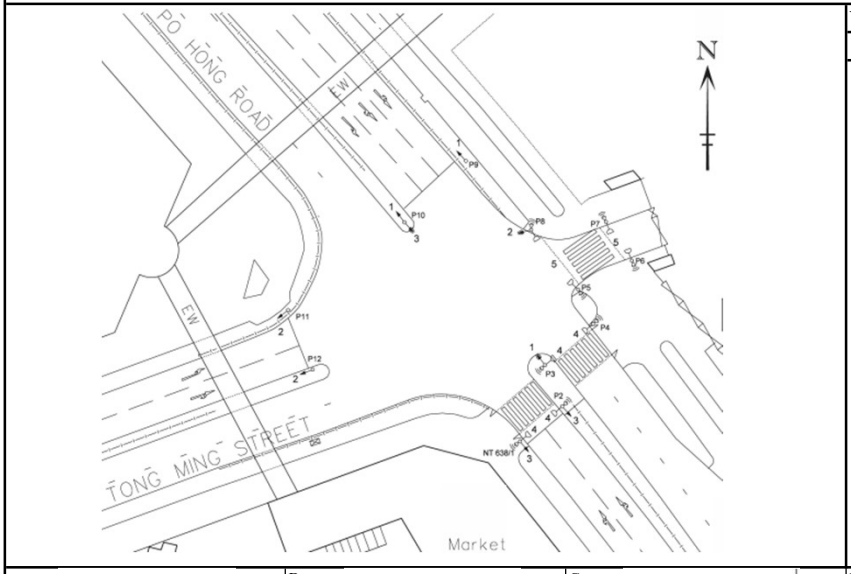
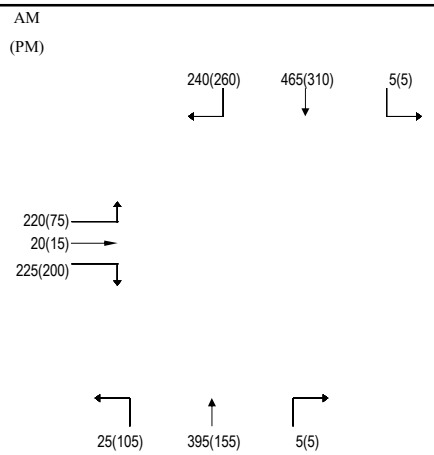
Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O
Junction:	J9 Po Hong Road / Tong Ming Street
Ref. No.:	J9_SJ_2026_
Scheme:	2026 Ref (without CKR/T2)
Ref. No.:	

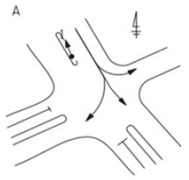


Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)



A



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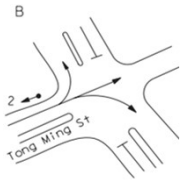

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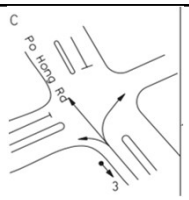

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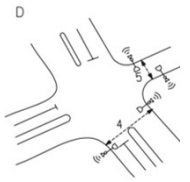

E

2		3	3		3	4		3	7	16	0			
2		3	3		3	4		3	2	20	0			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.40	1		15				2 / 3	1950	229	0.118		187	0.096	
1B	A	1	3.40				21			2 / 35	2090/2045	246	0.118	1	196	0.096	
1C	A	1	3.90				21				2000	235	0.117		192	0.096	1
2A	B	1	3.70	1		16				100	1815	220	0.121	1	75	0.041	
2B	B	1	3.60				32			92 / 93	2030/2025	245	0.121		215	0.106	1
3A	C	1	3.50	1		17				12 / 85	1945/1825	203	0.105	1	123	0.067	1
3B	C	1	3.70				11			2 / 4	2120/2115	222	0.105		142	0.067	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
4P	D		11	11	9	20				
5P	D		5	5	11	16		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

	AM Peak			PM Peak		
Check Critical Phase	1,2,3,5P	1,2,3,4P		1,2,3,5P	1,2,3,4P	
Sum of y values, Y	0.343	0.343		0.269	0.269	
Lost time, L	38	37		38	37	
Cycle Time, C	110	110		105	105	
Practical Y, Y_{pr}	0.589	0.597		0.574	0.583	
Reserve Capacity, R.C. (%)	72%	74%		113%	116%	

Calculated by:	Date: 五月-2021	Checked by:

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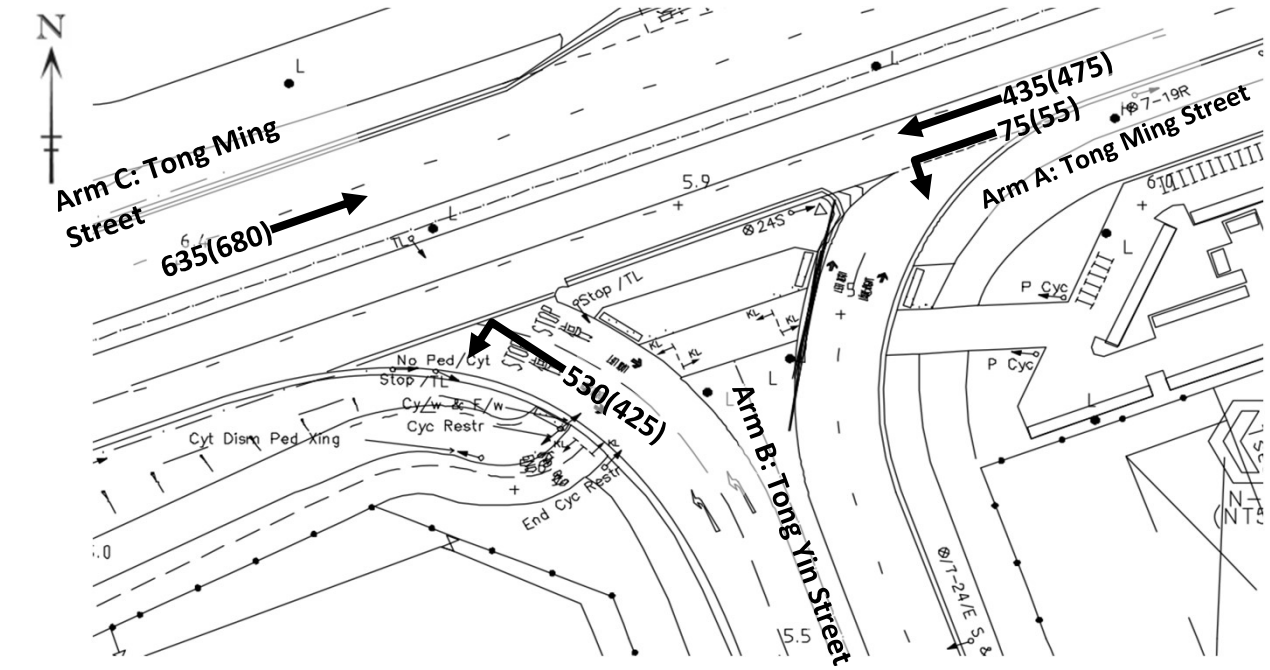
Simplified Priority Junction Capacity Calculation Sheet

Job Title	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O			
Junction	J10 Tong Yin Street/Tong Ming Street		Ref No.:	J10_PJ_2026_re
Scheme	2026 Ref (without CKR/T2)		Ref No.:	
Year	2020	Job. No.: J1598	Rev.:	

AM(PM)



Geometry					
Major road width	**W**	7.4	**Lane widths**	w(b-a)	0.00
Central Reserve width	W_{cr}	0		w(b-c)	7.80
2 Lane Minor Arm (Y/N)		Y		w(c-b)	0.00
Visibilities	$V_{r(B-A)}$	0	**Calculated**	D	0.53
	$V_{l(B-A)}$	0		E	1.34
	$V_{r(B-C)}$	80		F	0.59
	$V_{r(C-B)}$	0		Y	0.74

Analysis			**Peak Hour**	
			AM	PM
Traffic Flows	$q_{(C-A)}$		635	680
	$q_{(C-B)}$		0	0
	$q_{(A-B)}$		75	55
	$q_{(A-C)}$		435	475
	$q_{(B-A)}$		0	0
	$q_{(B-C)}$		530	425
Proportion of minor traffic left-turn	**f**		1.00	1.00
		Factor		
Capacities	$Q_{(B-A)}$	1	209	201
	$Q_{(B-C)}$	1	830	818
	$Q_{(C-B)}$	1	356	352
	$Q_{(B-AC)}$	1	0	0
DFC	**B-A**		0.00	0.00
	B-C		0.64	0.52
	C-B		0.00	0.00
	B-AC		0.00	0.00
Worst DFC			**0.64**	**0.52**

Where Vl and Vr are visibility distances to the left or right of the respective streams

D = (1+0.094(w(b-a)-3.65))(1+0.0009(Vr(b-a)-120))(1+0.0006(Vl(b-a)-150))

E = (1+0.094(w(b-c)-3.65))(1+0.0009(Vr(b-c)-120))

F = (1+0.094(w(c-b)-3.65))(1+0.0009(Vr(c-b)-120))

Y = 1-0.0345W

f = proportion of minor traffic turning left

Q (b-ac) = Q(b-c)*Q(b-a)/(1-f)*Q(b-c)+f*Q(b-a)

T.P.D.M.V.2.4

Appendix 1

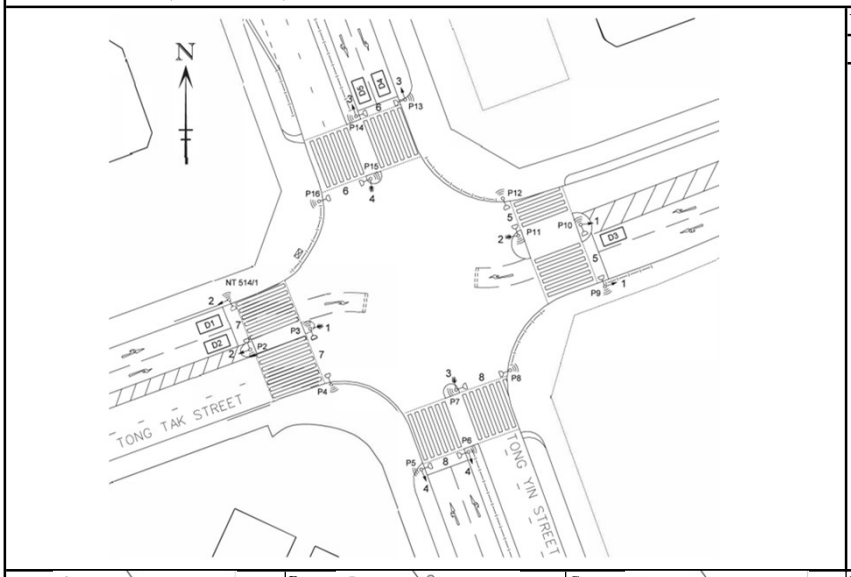
Capacity of combined streams
- in accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J10_PJ_2026_ref2_

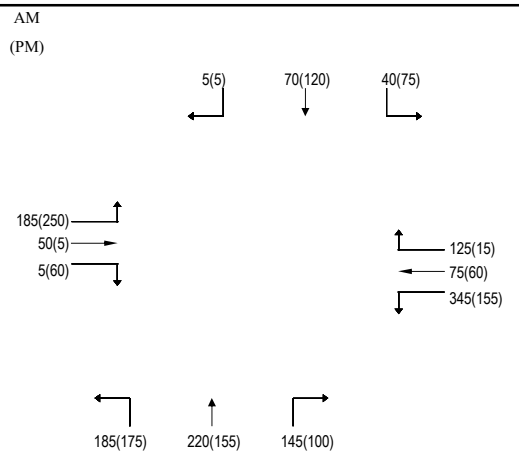
Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J11 Tong Yin Street/Tong Tak Street	Ref. No.:	J11_SJ_2026
Scheme:	2026 Ref (without CKR/T2)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)



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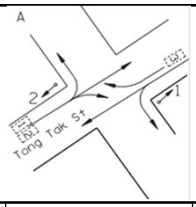

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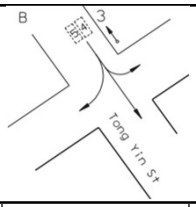

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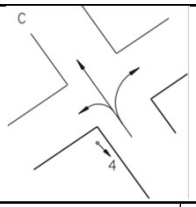

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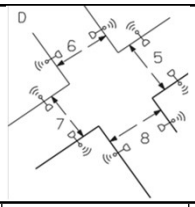


E

2		5	2	5	6	2		3	11	22	1			
2		5	2	5	6	2		3	7	20	1			
2		5	2	5	6	2		3	8	19	0			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	4.30	1		17				82 / 72	1905/1925	420	0.220	1	215	0.112	
1B	A	1	3.20		1		24			100	1735	125	0.072		15	0.009	
2A	A	1	3.70	1		16				79 / 98	1850/1820	235	0.127		255	0.140	1
2B	A	1	3.20		1		24			100	1735	5	0.003		60	0.035	
3A	B	1	3.80	1		18				100	1840	40	0.022		75	0.041	
3B	B	1	3.20				25			7 / 4	2065/2070	75	0.036	1	125	0.060	1
4A	C	1	4.00	1		13				70 / 85	1865/1835	266	0.143		206	0.112	1
4B	C	1	3.00				24			51 / 45	1990/2000	284	0.143	1	224	0.112	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	D		12	12	10	22		1		1
6P	D		9	9	10	19				
7P	D		10	10	10	20				
8P	D		10	10	10	20				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

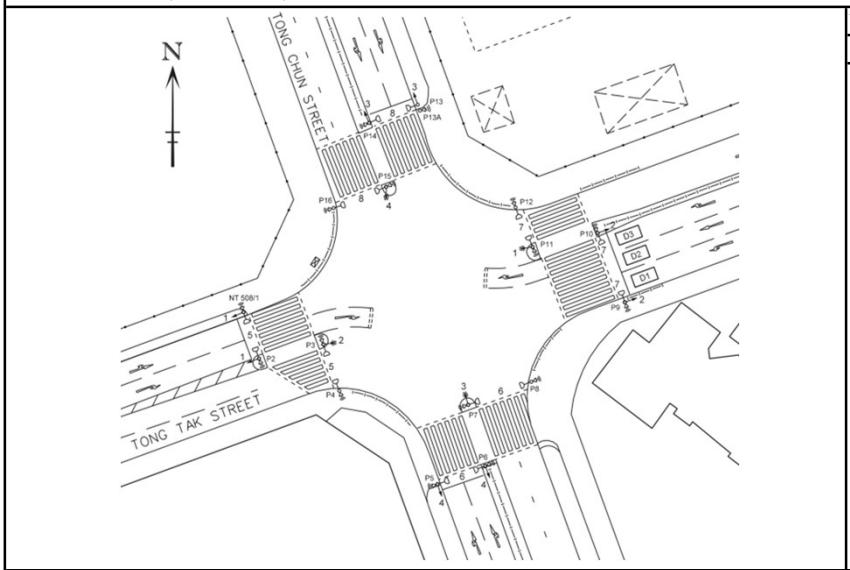
Check Critical Phase	1,3,4,5P	1,3,4,7P	1,3,4,6P	1,3,4,5P	1,3,4,7P	1,3,4,6P
Sum of y values, Y	0.400	0.400	0.400	0.313	0.313	0.313
Lost time, L	56	50	49	56	50	49
Cycle Time, C	127	127	127	124	124	124
Practical Y, Y_{pr}	0.503	0.546	0.553	0.494	0.537	0.544
Reserve Capacity, R.C. (%)	26%	37%	38%	58%	72%	74%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J11_SJ_2026_ref2_

Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J12 Tong Tak Street/Tong Chun Street	Ref. No.:	J12_SJ_2026
Scheme:	2026 Ref (without CKR/T2)	Ref. No.:	

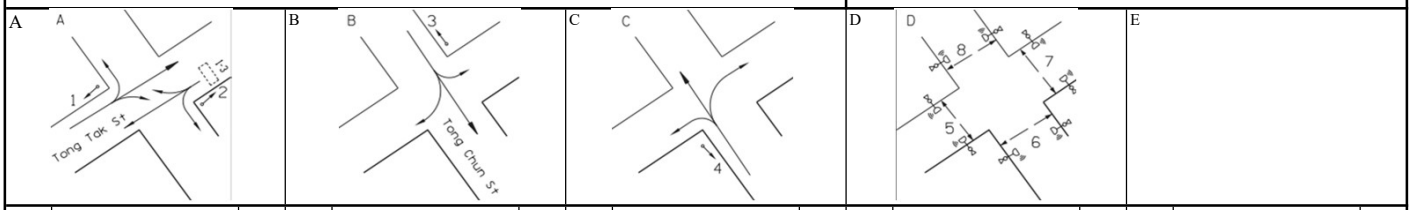


Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)

AM
(PM)

45(215) 75(85) 215(170)
105(115) 85(60) 50(5)
5(5) 225(130) 295(170)
105(215) 90(55) 160(280)



2		11	2		5	2		4	10	25	2						
2		11	2		5	2		4	7	18	2						
2		11	2		5	2		4	7	18	0						

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.60	1		15				55 / 66	1870/1855	190	0.102		175	0.094	1
1B	A	1	3.20		1		29			100	1755	50	0.028		5	0.003	
2A	A	1	4.00	1		17				100	1850	295	0.159	1	170	0.092	
2B	A	1	3.50								2105	225	0.107		130	0.062	
2C	A	1	3.70		1		24			100	1785	5	0.003		5	0.003	
3A	B	1	3.60	1		17				100 / 76	1815/1850	215	0.118	1	223	0.121	1
3B	B	1	4.00				24			38 / 87	2105/2045	120	0.057		247	0.121	
4A	C	1	3.60	1		18				61 / 81	1880/1850	172	0.091		265	0.143	1
4B	C	1	3.60				24			87 / 98	2005/1995	183	0.091	1	285	0.143	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	D		9	9	9	18				
6P	D		10	10	10	20				
7P	D		12	12	13	25		1		1
8P	D		9	9	9	18				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr}/Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

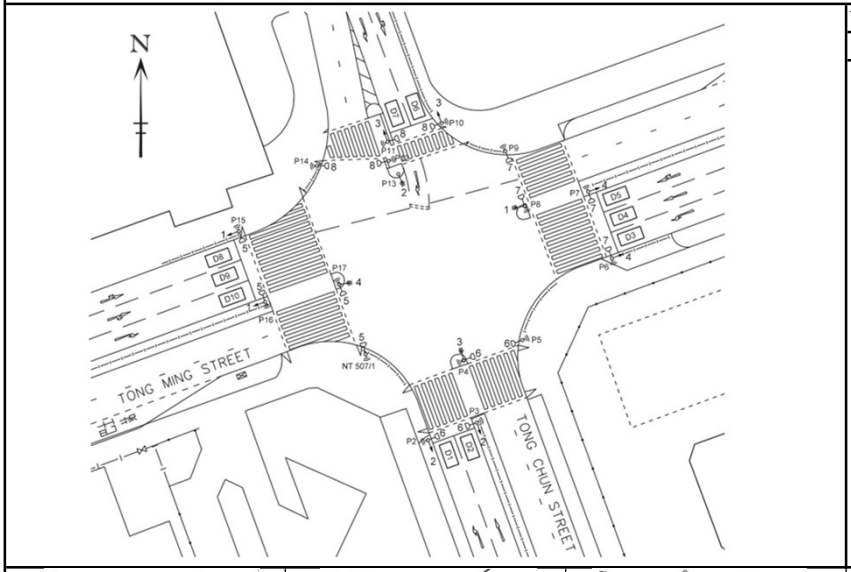
Check Critical Phase	2,3,4,7P	2,3,4,5P	2,3,4,8P	2,3,4,7P	2,3,4,5P	2,3,4,8P
Sum of y values, Y	0.369	0.369	0.369	0.358	0.358	0.358
Lost time, L	60	50	48	60	50	48
Cycle Time, C	125	125	125	125	125	125
Practical Y, Y_{pr}	0.468	0.540	0.554	0.468	0.540	0.554
Reserve Capacity, R.C. (%)	27%	46%	50%	31%	51%	55%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J12_SJ_2026_ref2_

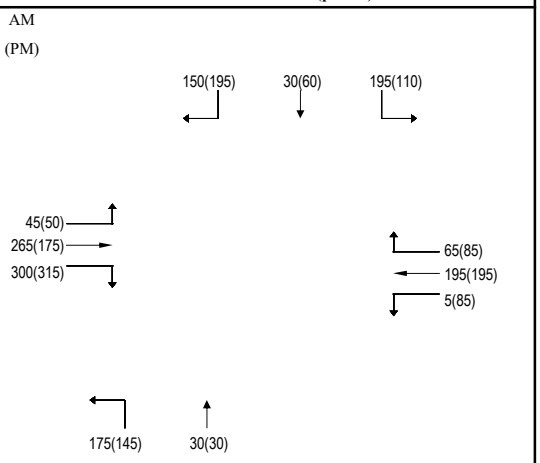
Traffic Signal Junction Calculation Sheet

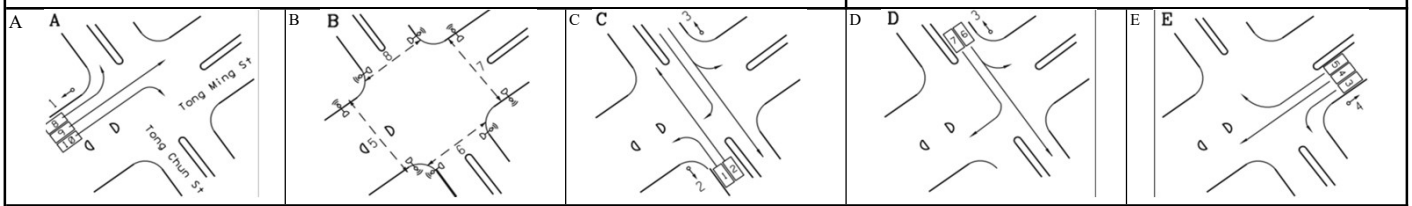
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J13 Tong Ming Street/Tong Chun Street	Ref. No.:	J13_SJ_2026
Scheme:	2026 Ref (without CKR/T2)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		3	9	22	0	2					3	3		6
2		3	11	18	1	2					3	3		6
2		3	6	22	1	2					3	3		6

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.50	1		20				23 / 28	1930/1925	198	0.102	1	176	0.091	
1B	A	1	3.50				24			46 / 73	2045/2015	209	0.102		184	0.091	
1C	A	1	3.50				24				1980	203	0.102		181	0.091	1
2A	C	1	3.60	1		17				100	1815	175	0.096		145	0.080	
2B	C	1	3.70								2125	30	0.014		30	0.014	
3A	CD	1	3.20	1		17				87 / 65	1800/1830	225	0.125	1	170	0.093	
3B	CD	1	3.40		1		15			100	1695	150	0.088		195	0.115	1
4A	E	1	3.50	1		17				100	1805	5	0.003		85	0.047	
4B	E	1	3.50								2105	132	0.063		143	0.068	1
4C	E	1	3.50				23			51 / 62	2035/2025	128	0.063	1	137	0.068	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	B		14	14	12	26				
6P	B		10	10	8	18				
7P	B		12	12	10	22		1		1
8P	B		12	12	10	22				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	1,7P,3,4	1,6P,3,4	1,8P,3,4	1,7P,3,4	1,6P,3,4	1,8P,3,4
Sum of y values, Y	0.290	0.290	0.290	0.274	0.274	0.274
Lost time, L	47	46	45	47	46	45
Cycle Time, C	125	125	125	125	125	125
Practical Y, Y_{pr}	0.562	0.569	0.576	0.562	0.569	0.576
Reserve Capacity, R.C. (%)	93%	96%	98%	105%	107%	110%

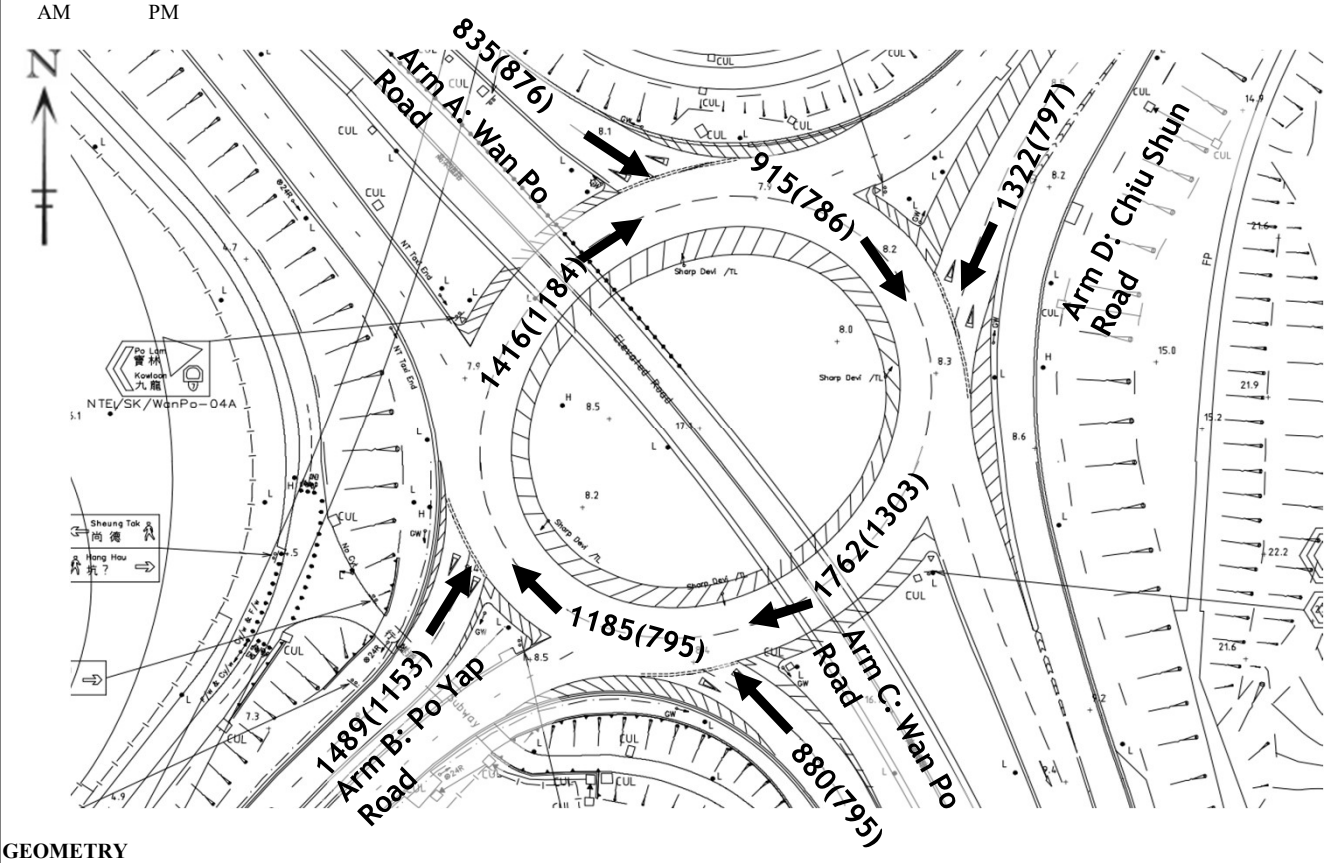
Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J13_SJ_2026_ref2_

Simplified Roundabout Capacity Calculation

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O				
Junction:	J1 Wan Po Road / Chiu Shun Road / Po Yap Road			Ref. No.:	J1_RA_2026_des2_
Scheme:	2026 Des (without CKR/T2)			Ref. No.:	
Year:	2020	Job No.:	J1598	Rev.:	-

AM PM



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	5.00	9.00	20	40	76	20	0.32
B	7.00	7.50	10	50	86	20	0.08
C	8.00	8.00	5	40	76	20	0.00
D	8.00	10.00	10	70	86	25	0.32

CALCULATIONS

ARM	K	X_2	M	F	t_D	f_c	Q_E AM	Q_E PM	DFC AM	DFC PM
A	1.06	7.44	4.95	2254	1.08	0.57	1538	1677	0.54	0.52
B	1.06	7.43	13.46	2252	1.03	0.54	1715	1939	0.87	0.59
C	1.06	8.00	4.95	2424	1.08	0.59	1463	1751	0.60	0.45
D	1.05	9.22	13.46	2794	1.03	0.62	2345	2429	0.56	0.33

Critical Arm:	**B**	**B**
DFC:	**0.87**	**0.59**
	AM	**PM**

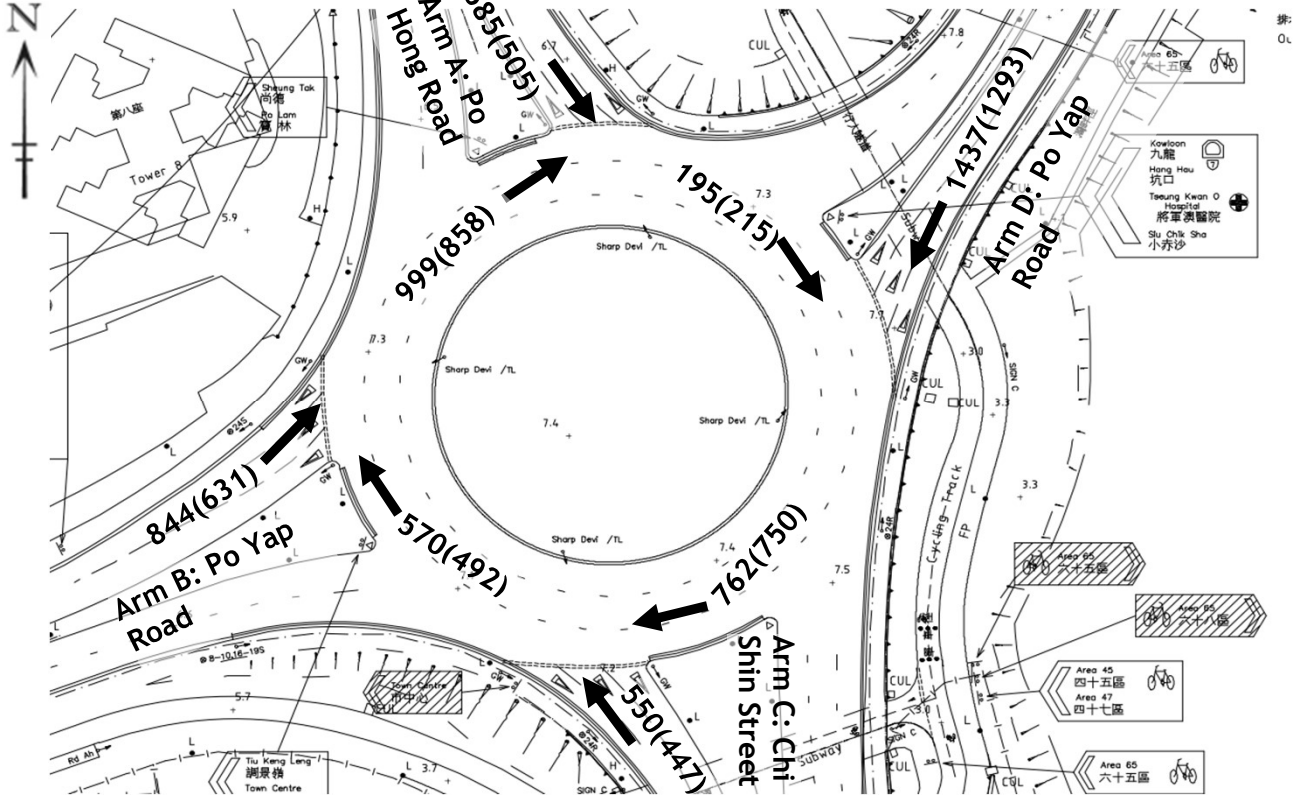
- In accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

Simplified Roundabout Capacity Calculation

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O				
Junction:	J2 Po Yap Road / Chi Shin Street / Po Hong Road			Ref. No.:	J2_RA_2026_des2_
Scheme:	2026 Des (without CKR/T2)			Ref. No.:	
Year:	2020	Job No.:	J1598	Rev.:	-

AM PM



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	7.00	11.00	20	25	80	25	0.32
B	7.00	11.00	15	60	80	30	0.43
C	7.00	12.00	10	50	80	25	0.80
D	7.00	11.00	20	90	80	25	0.32

CALCULATIONS

ARM	K	X_2	M	F	t_D	f_c	Q_E AM	Q_E PM	DFC AM	DFC PM
A	1.03	9.44	7.39	2860	1.06	0.64	2278	2371	0.30	0.21
B	1.03	9.16	7.39	2775	1.06	0.63	2495	2545	0.34	0.25
C	1.05	8.92	7.39	2704	1.06	0.62	2336	2344	0.24	0.19
D	1.06	9.44	7.39	2860	1.06	0.64	2886	2873	0.50	0.45

Critical Arm:	**D**	**D**
DFC:	**0.50**	**0.45**
	AM	**PM**

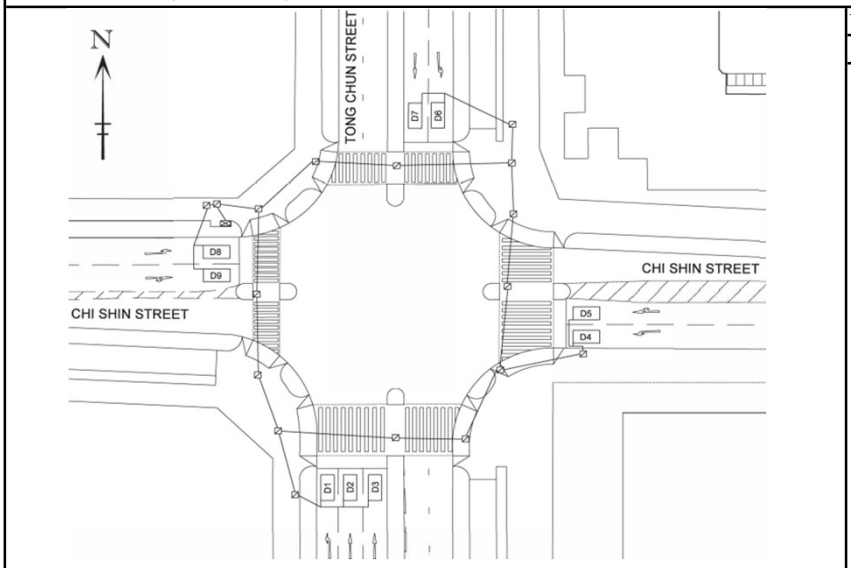
- In accordance with TPDM V2.4

Calculated by:	Date:	五月-21	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J2_RA_2026_des2_

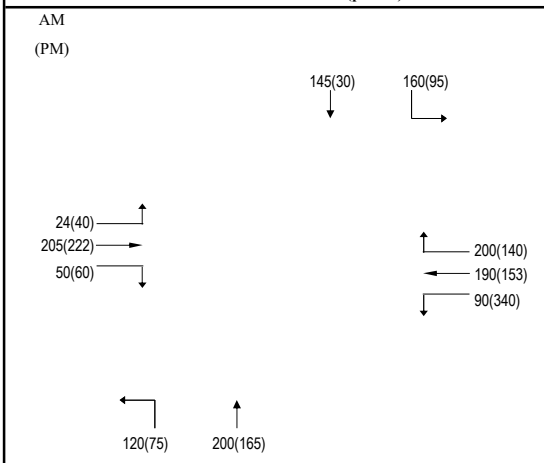
Traffic Signal Junction Calculation Sheet

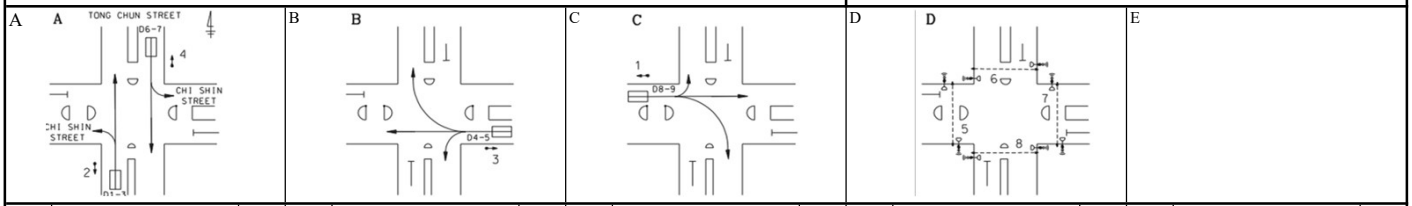
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J3 Chi Shin Street / Tong Chun Street	Ref. No.:	J3_SJ_2026_
Scheme:	2026 Des (without CKR/T2)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		5	2		5	2		3	9	22	1			
2		5	2		5	2		3	7	20	0			
2		5	2		5	2		3	5	18	1			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	C	1	4.10	1		17			0.86	100	1595	24	0.015		40	0.025	
1B	C	1	4.20				23			20 / 21	2150/2145	255	0.119	1	282	0.131	1
2A	A	1	3.10	1		19				100	1785	120	0.067		75	0.042	
2B	A	2	3.65								4240	200	0.047		165	0.039	
3A	B	1	3.50				25			51 / 48	2040/2045	390	0.191	1	293	0.143	
3B	B	1	3.70	1		17				100	1825	90	0.049		340	0.186	1
4A	A	1	3.60	1		17				100	1815	160	0.088	1	95	0.052	1
4B	A	1	3.60								2115	145	0.069		30	0.014	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	D		10	10	8	18				
6P	D		10	10	8	18				
7P	D		11	11	9	20				
8P	D		12	12	10	22		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

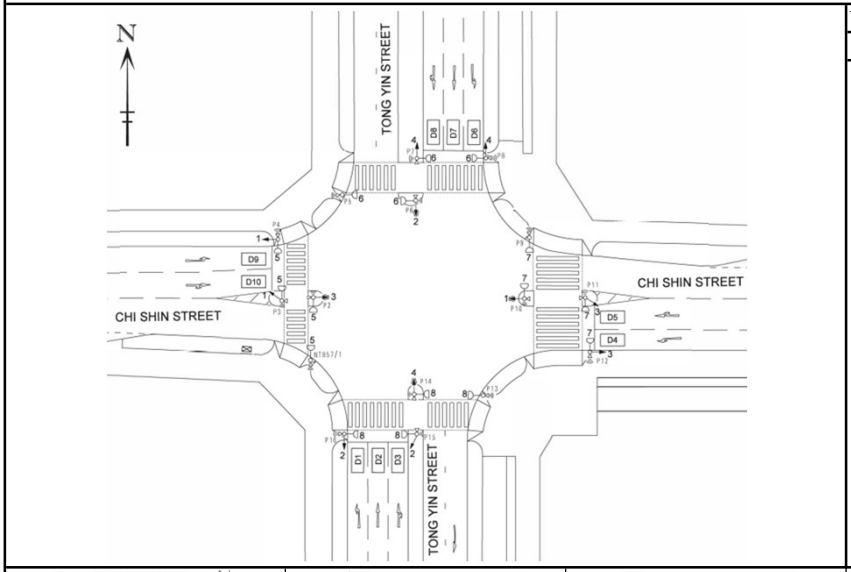
Check Critical Phase	4,3,1,8P	4,3,1,7P	4,3,1,6P	4,3,1,8P	4,3,1,7P	4,3,1,6P
Sum of y values, Y	0.398	0.398	0.398	0.370	0.370	0.370
Lost time, L	48	43	40	48	43	40
Cycle Time, C	110	110	110	110	110	110
Practical Y, Y_{pr}	0.507	0.548	0.573	0.507	0.548	0.573
Reserve Capacity, R.C. (%)	27%	38%	44%	37%	48%	55%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J3_SJ_2026_des2_

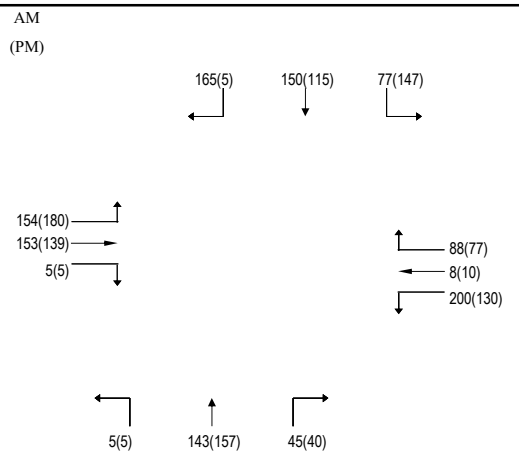
Traffic Signal Junction Calculation Sheet

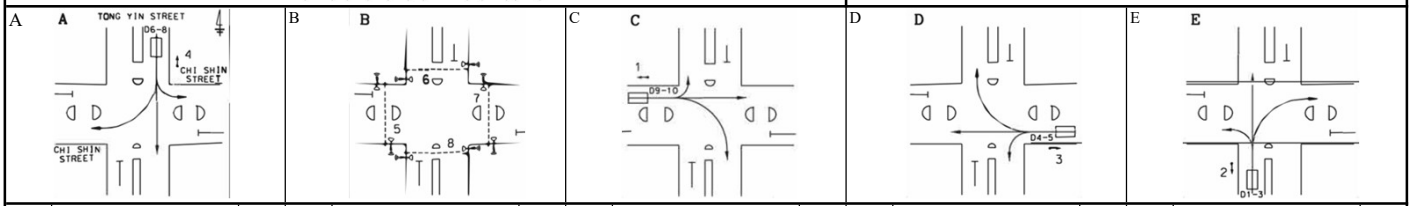
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O
Junction:	J4 Chi Shin Street / Tong Yin Street
Ref. No.:	J4_SJ_2026_
Scheme:	2026 Des (without CKR/T2)
Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		5	5	21	0	2	5	5	2		6	2		5
2		5	7	18	1	2	5	5	2		6	2		5
2		5	1	22	0	2	5	5	2		6	2		5

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	C	1	3.60	1		17				100	1815	154	0.085	1	180	0.099	1
1B	C	1	3.60				23			3 / 3	2110	158	0.075		144	0.068	
2A	E	1	3.30	1		17			0.86	100	1530	5	0.003		5	0.003	
2B	E	1	3.30								2085	95	0.046		100	0.048	1
2C	E	1	3.30				25			49 / 41	2025/2035	93	0.046	1	97	0.048	
3A	D	1	3.40	1		17				100	1795	200	0.111	1	130	0.072	1
3B	D	1	3.90				36			92 / 89	2065/2070	96	0.046		87	0.042	
4A	A	1	3.30	1		17				100	1785	77	0.043		147	0.082	1
4B	A	1	3.30								2085	150	0.072		60	0.029	
4C	A	1	3.30				23			100 / 8	1955/2075	165	0.084	1	60	0.029	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	B		10	10	8	18				
6P	B		13	13	9	22				
7P	B		9	9	7	16				
8P	B		12	12	9	21		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

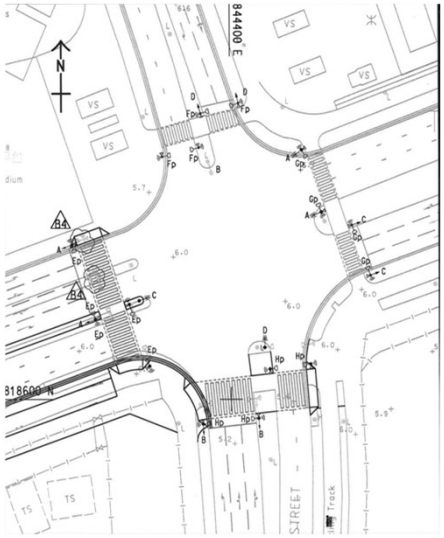
Check Critical Phase	4,8P,1,3,2	4,5P,1,3,2	4,6P,1,3,2	4,8P,1,3,2	4,5P,1,3,2	4,6P,1,3,2
Sum of y values, Y	0.326	0.326	0.326	0.302	0.302	0.302
Lost time, L	56	56	53	56	56	53
Cycle Time, C	100	100	100	110	110	110
Practical Y, Y_{pr}	0.396	0.396	0.423	0.442	0.442	0.466
Reserve Capacity, R.C. (%)	21%	21%	30%	46%	46%	55%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J4_SJ_2026_des2_

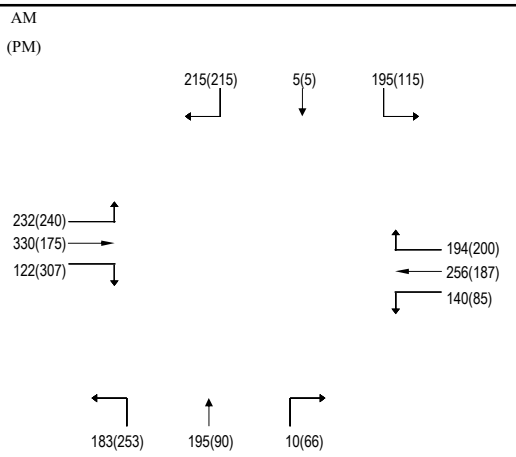
Traffic Signal Junction Calculation Sheet

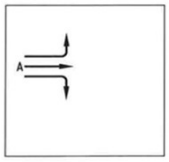
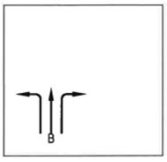
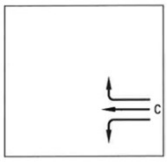
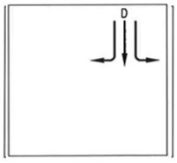
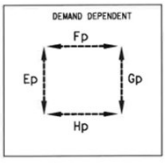
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O
Junction:	J5 Po Yap Road / Tong Yin Street
Ref. No.:	J5_SJ_2026_
Scheme:	2026 Des (without CKR / T2)
Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)



A	B	C	D	E
				
STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5
2 3	2 5	2 3	2 3	13 28 0
2 3	2 5	2 3	2 3	11 27 1
2 3	2 5	2 3	2 3	6 25 0

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.80	1		15					1815	171	0.094		170	0.094	
1B	A	1	3.40			15				32 / 37	2030/2020	192	0.094	1	190	0.094	1
1C	A	1	3.50				20			0 / 71	2105/2000	199	0.094		188	0.094	
1D	A	1	3.80	1			20				1855	122	0.066		174	0.094	
2A	B	1	3.70			15					1930	126	0.065	1	136	0.070	1
2B	B	1	3.70			15				43 / 85	2040/1960	133	0.065		138	0.070	
2C	B	1	3.70	1			20			8 / 49	1975/1915	129	0.065		135	0.070	
3A	C	1	3.20			15				72 / 62	1935/1955	196	0.101	1	136	0.070	
3B	C	1	3.30	1							1945	196	0.101		136	0.070	
3C	C	1	3.50				20			98 / 100	1960	198	0.101		200	0.102	1
4A	D	1	3.70	1		15	20			98 / 97	1810/1820	200	0.110	1	161	0.088	1
4B	D	1	3.70				20				1975	215	0.109		174	0.088	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	E		14	14	13	27				
6P	E		11	11	8	19				
7P	E		15	15	10	25				
8P	E		16	16	12	28		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

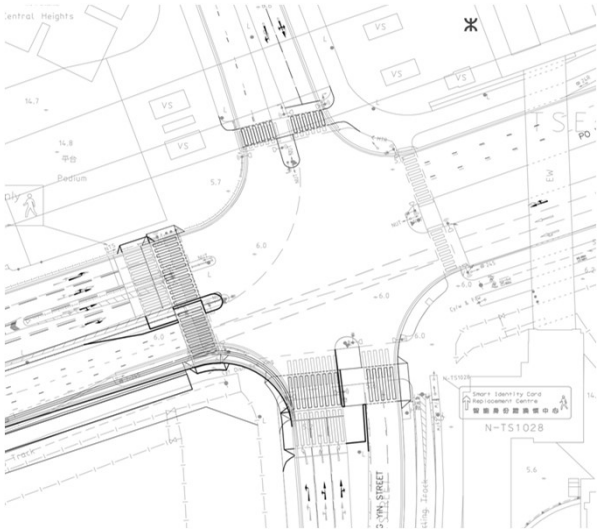
Check Critical Phase	1,2,3,4,8P	1,2,3,4,5P	1,2,3,4,7P	1,2,3,4,8P	1,2,3,4,5P	1,2,3,4,7P
Sum of y values, Y	0.371	0.371	0.371	0.355	0.355	0.355
Lost time, L	59	57	49	59	57	49
Cycle Time, C	120	120	120	105	105	105
Practical Y, Y_{pr}	0.458	0.473	0.533	0.394	0.411	0.480
Reserve Capacity, R.C. (%)	23%	27%	43%	11%	16%	35%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J5_SJ_2026_des2_no_impro

Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O
Junction:	J5 Po Yap Road / Tong Yin Street (with improvement scheme)
Ref. No.:	J5_SJ_2026_
Scheme:	2026 Des (without CKR / T2)
Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)

AM
(PM)

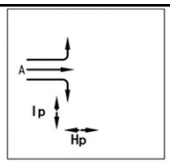
215(215) 5(5) 195(115)

232(240)
330(175)
122(307)

194(200)
256(187)
140(85)

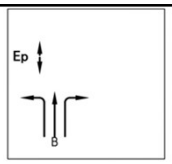
183(253) 195(90) 10(66)

A



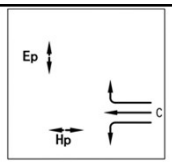
STAGE 1

B



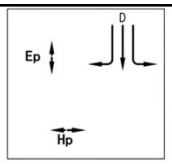
STAGE 2

C



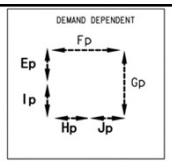
STAGE 3

D



STAGE 4

E



STAGE 5

2		3	2		5	2		3	2		3	6	25	0

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.80	1		15					1815	171	0.094		170	0.094	
1B	A	1	3.40			15				32 / 37	2030/2020	192	0.094	1	190	0.094	1
1C	A	1	3.50				20			0 / 71	2105/2000	199	0.094		188	0.094	
1D	A	1	3.80	1			20				1855	122	0.066		174	0.094	
2A	B	1	3.70			15					1930	126	0.065	1	136	0.070	1
2B	B	1	3.70			15				43 / 85	2040/1960	133	0.065		138	0.070	
2C	B	1	3.70	1			20			8 / 49	1975/1915	129	0.065		135	0.070	
3A	C	1	3.20			15				72 / 62	1935/1955	196	0.101	1	136	0.070	
3B	C	1	3.30	1							1945	196	0.101		136	0.070	
3C	C	1	3.50				20			98 / 100	1960	198	0.101		200	0.102	1
4A	D	1	3.70	1		15	20			98 / 97	1810/1820	200	0.110	1	161	0.088	1
4B	D	1	3.70				20				1975	215	0.109		174	0.088	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	BCDE		5	5	13	18				
6P	E		11	11	8	19				
7P	E		15	15	10	25		1		1
8P	ACDE		5	5	12	17				
9P	AE		5	5	9	14				
10P	E		5	5	6	11				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

	AM Peak			PM Peak		
Check Critical Phase	1,2,3,4,7P			1,2,3,4,7P		
Sum of y values, Y	0.371			0.355		
Lost time, L	49			49		
Cycle Time, C	120			105		
Practical Y, Y_{pr}	0.533			0.480		
Reserve Capacity, R.C. (%)	43%			35%		

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J5_SJ_2026_des2_hv_impro

Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J6 Po Yap Road / Po Shun Road / Chui Ling Road / Future Road P2	Ref. No.:	J6_SJ_2026_
Scheme:	2026 Des (without CKR/T2)	Ref. No.:	

Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)

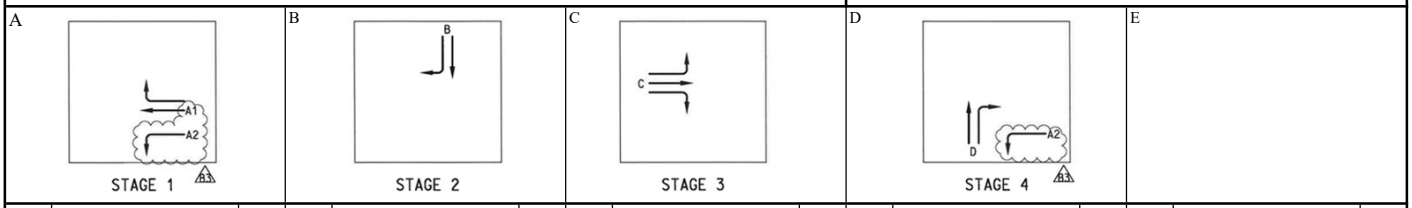
AM
(PM)

165(205) 871(618) 123(301)

90(70)
240(80)
519(492)

15(5)
125(150)
504(490)

600(605) 351(341)



2		3	2		5	2		3	2		3
		3	2		5	2		3			2

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A ←	A	1	3.50								2105	125	0.059	1	150	0.071	1
1B ↰	A	1	3.70				20			100	1975	15	0.008		5	0.003	
2A ↓	AD	2	3.50	1		15				100	3700	504	0.136		490	0.132	
3A ↓	B	2	3.65	1							4100	871	0.212	1	618	0.151	1
3B ↓	B	1	3.60				20			100	1965	165	0.084		205	0.104	
4A ↑→	C	1	3.60	1		15				32 / 47	1915/1885	278	0.145		150	0.080	
4B ↑→	C	1	3.30				20			82 / 100	1965/1940	285	0.145		244	0.126	
4C →	C	1	3.60				20				1965	286	0.145	1	248	0.126	1
5A ↑	D	1	3.70	1							1985	311	0.157		309	0.156	1
5B ↑→	D	1	3.70				20			13 / 10	2105/2110	330	0.157	1	329	0.156	
5C →	D	1	3.70				20				1975	310	0.157		308	0.156	1

Critical Ped. Phase	Stage	Width Across	Min. GM	Min. FGM	Lost Time	Note	Crit.	Note	Crit.

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	1,3,4,5	2,3,4		1,3,4,5	2,3,4	
Sum of y values, Y	0.574	0.494		0.504	0.409	
Lost time, L	18	14		18	14	
Cycle Time, C	127	217		124	214	
Practical Y, Y_{pr}	0.772	0.842		0.769	0.841	
Reserve Capacity, R.C. (%)	35%	70%		53%	106%	

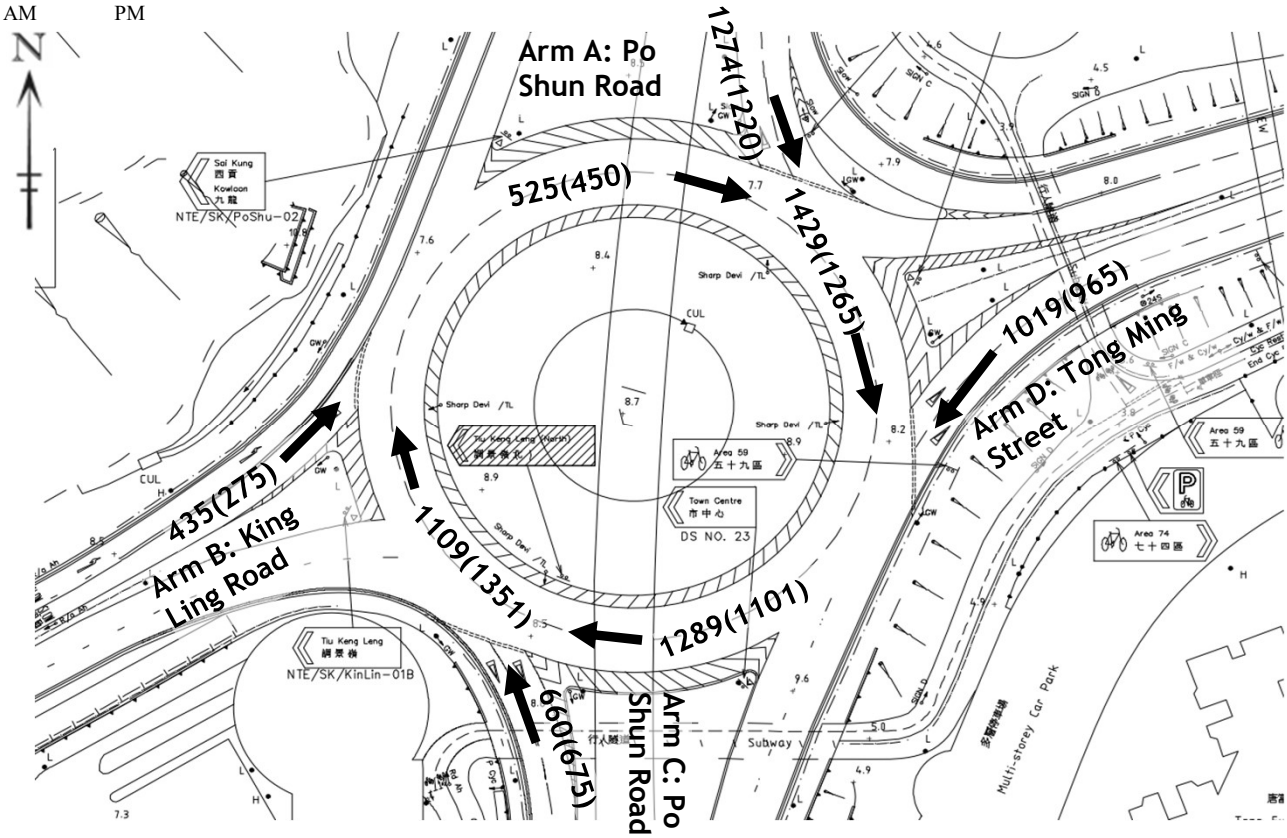
Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J6_SJ_2026_des2_

Simplified Roundabout Capacity Calculation

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O				
Junction:	J7 Po Shun Road / Tong Ming Street / King Ling Road			Ref. No.:	J7_RA_2026_des2_
Scheme:	2026 Des (without CKR/T2)			Ref. No.:	
Year:	2020	Job No.:	J1598	Rev.:	-

AM PM



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	7.00	8.00	14.5	20	81.2	20	0.11
B	2.70	4.60	31.9	55.2	81.2	18	0.10
C	7.10	7.40	11.7	23	81.2	10	0.04
D	7.40	8.40	27.5	60	81.2	29	0.06

CALCULATIONS

ARM	K	X_2	M	F	t_D	f_c	Q_E AM	Q_E PM	DFC AM	DFC PM
A	1.03	7.82	8.33	2369	1.05	0.57	2143	2187	0.59	0.56
B	1.07	4.30	8.33	1302	1.05	0.41	907	800	0.48	0.34
C	1.08	7.38	8.33	2235	1.05	0.55	1645	1756	0.40	0.38
D	1.04	8.30	8.33	2514	1.05	0.59	1733	1833	0.59	0.53

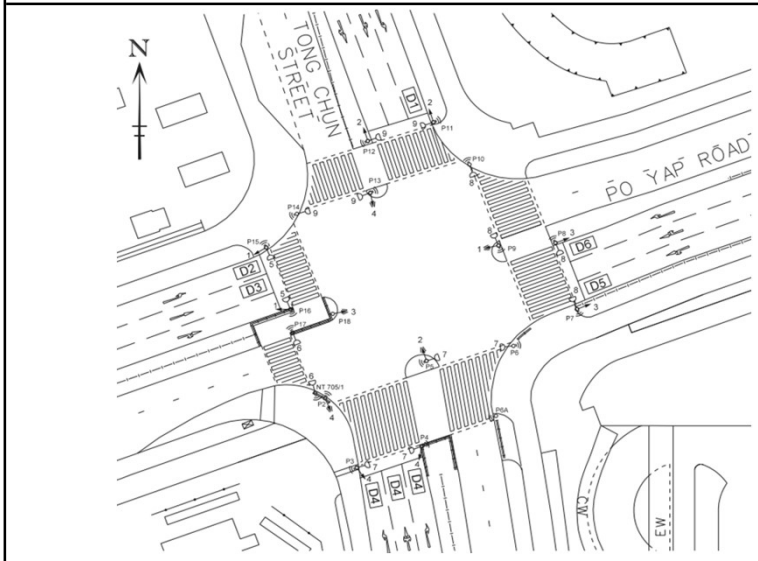
	AM	PM
Critical Arm:	**A**	**A**
DFC:	**0.59**	**0.56**
	AM	**PM**

- In accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O
Junction:	J8 Po Yap Road / Tong Chun Street — Ref. No.: J8_SJ_2026_
Scheme:	2026 Des (without CKR/T2) — Ref. No.:

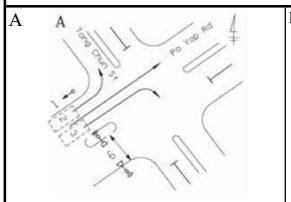


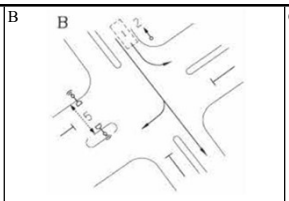
Year:	2020	Job No.:	J1598	Rev.:	-

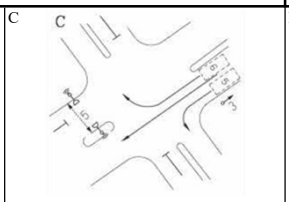
Peak Hour Traffic Flows (pcu/hr)

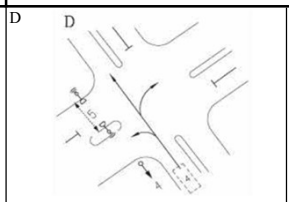
AM
(PM)

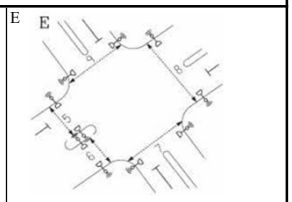
47(55) 120(35) 280(215)
15(170) 330(166) 175(20)
275(370) 367(295) 95(30)
180(135) 85(45) 304(280)

A 

B 

C 

D 

E 

2		5	2		5	2		6	2		6	8	16	0
2		5	2		5	2		6	2		6	4	16	0
2		5	2		5	2		6	2		6	0	16	0

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.30	1		17				100	1785	15	0.008		170	0.095	1
1B	A	1	3.30								2085	259	0.124	1	94	0.045	
1C	A	1	3.30				20			71 / 22	1980/2050	246	0.124		92	0.045	
2A	B	1	3.40	1		17					1795	138	0.077	1	104	0.058	
2B	B	1	3.40			17				95 / 100	1935/1925	149	0.077		111	0.058	1
2C	B	1	3.50				26			29 / 61	2070/2035	160	0.077		90	0.044	
3A	C	1	3.30	1		17				41 / 13	1880/1925	234	0.125		227	0.118	
3B	C	1	3.40				20			12 / 59	2075/2005	259	0.125	1	237	0.118	1
3C	C	1	3.40				20				1950	243	0.125		231	0.118	
4A	D	1	3.60	1		16					1805	176	0.098		135	0.075	
4B	D	1	3.50			16	26			57 / 73	2035/2020	199	0.098	1	164	0.081	1
4C	D	1	3.50				26				1990	194	0.098		161	0.081	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	BCDE		5	5	11	16				
6P	E		5	5	7	12				
7P	E		5	5	11	16				
8P	E		5	5	11	16		1		1
9P	E		5	5	11	16				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

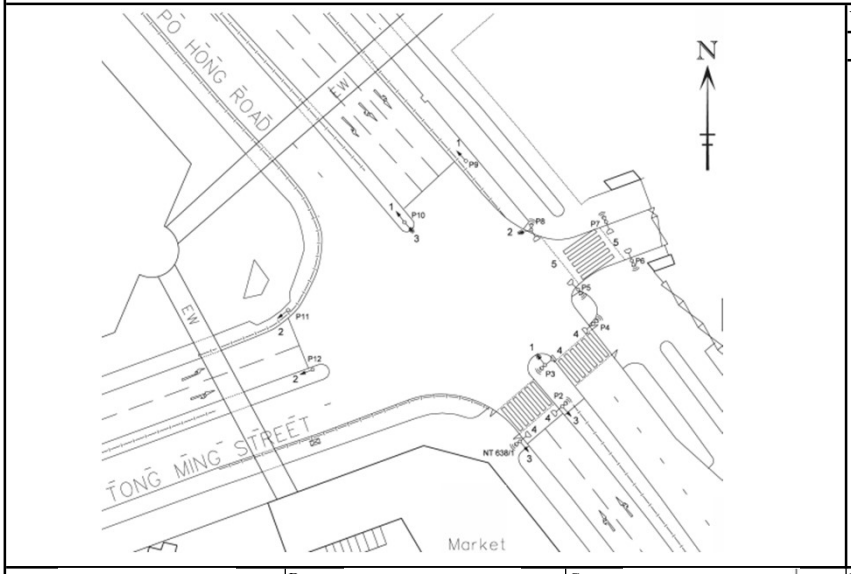
Check Critical Phase	1,2,3,4,8P	1,2,3,4,9P	1,2,3,4,7P	1,2,3,4,8P	1,2,3,4,9P	1,2,3,4,7P
Sum of y values, Y	0.424	0.424	0.424	0.352	0.352	0.352
Lost time, L	50	46	42	50	46	42
Cycle Time, C	125	125	125	125	125	125
Practical Y, Y_{pr}	0.540	0.569	0.598	0.540	0.569	0.598
Reserve Capacity, R.C. (%)	27%	34%	41%	53%	61%	70%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J8_SJ_2026_des2_

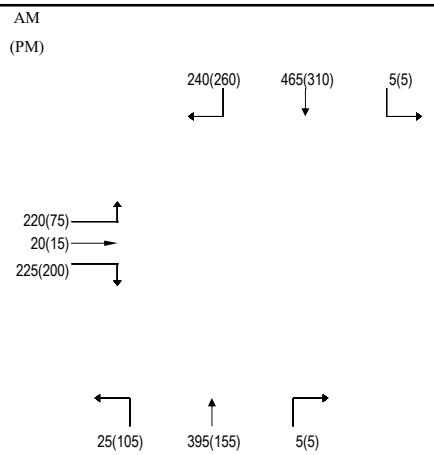
Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O
Junction:	J9 Po Hong Road / Tong Ming Street
Ref. No.:	J9_SJ_2026_
Scheme:	2026 Des (without CKR/T2)
Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)



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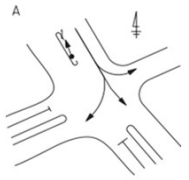

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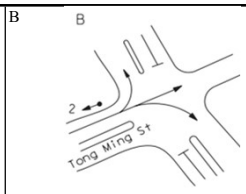

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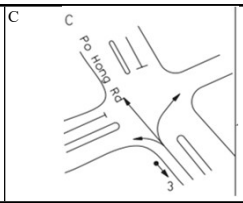

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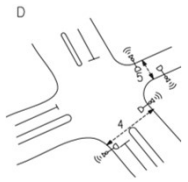


E

2		3	3		3	4		3	7	16	0			
2		3	3		3	4		3	2	20	0			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.40	1		15				2 / 3	1950	229	0.118		187	0.096	
1B	A	1	3.40				21			2 / 35	2090/2045	246	0.118	1	196	0.096	
1C	A	1	3.90				21				2000	235	0.117		192	0.096	1
2A	B	1	3.70	1		16				100	1815	220	0.121	1	75	0.041	
2B	B	1	3.60				32			92 / 93	2030/2025	245	0.121		215	0.106	1
3A	C	1	3.50	1		17				12 / 85	1945/1825	203	0.105	1	123	0.067	1
3B	C	1	3.70				11			2 / 4	2120/2115	222	0.105		142	0.067	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
4P	D		11	11	9	20				
5P	D		5	5	11	16		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

	AM Peak			PM Peak		
Check Critical Phase	1,2,3,5P	1,2,3,4P		1,2,3,5P	1,2,3,4P	
Sum of y values, Y	0.343	0.343		0.269	0.269	
Lost time, L	38	37		38	37	
Cycle Time, C	110	110		105	105	
Practical Y, Y_{pr}	0.589	0.597		0.574	0.583	
Reserve Capacity, R.C. (%)	72%	74%		113%	116%	

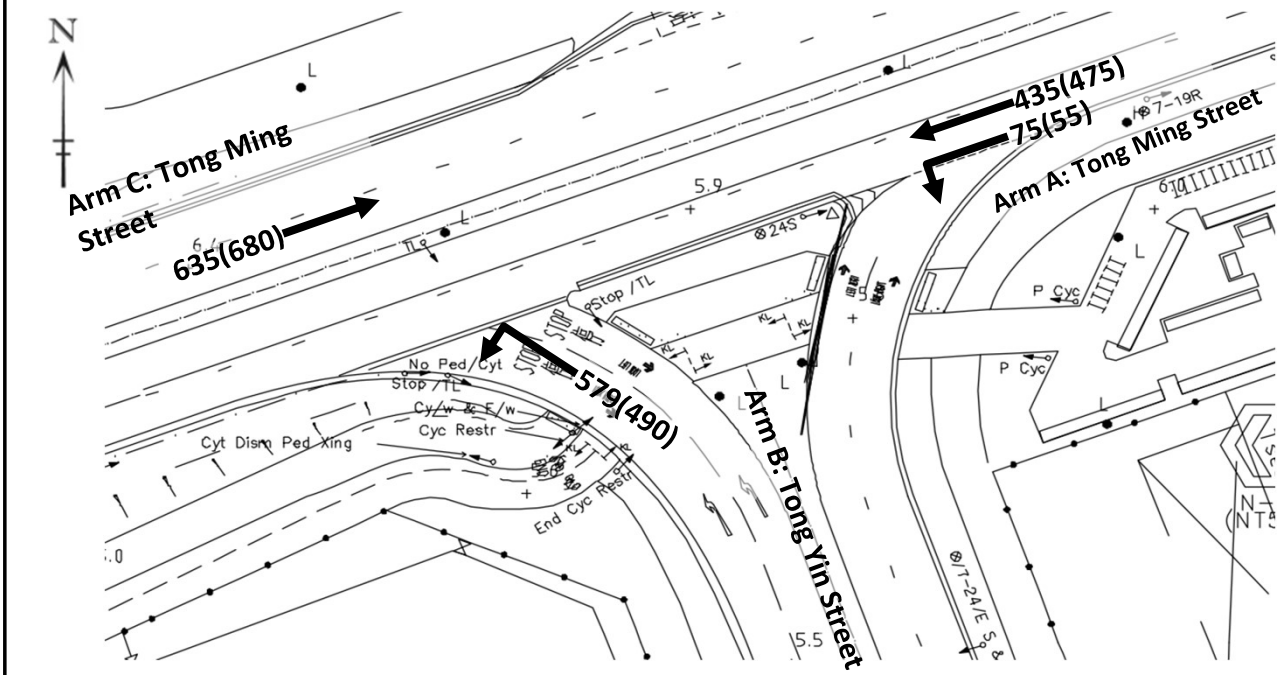
Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J9_SJ_2026_des2_

Simplified Priority Junction Capacity Calculation Sheet

Job Title	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O			
Junction	J10 Tong Yin Street/Tong Ming Street		Ref No.:	J10_PJ_2026_d
Scheme	2026 Des (without CKR/T2)		Ref No.:	
Year	2020	Job. No.: J1598	Rev.:	

AM(PM)



Geometry					
Major road width	**W**	7.4	**Lane widths**	w(b-a)	0.00
Central Reserve width	W_{cr}	0		w(b-c)	7.80
2 Lane Minor Arm (Y/N)		Y		w(c-b)	0.00
Visibilities	$V_{r(B-A)}$	0	**Calculated**	D	0.53
	$V_{l(B-A)}$	0		E	1.34
	$V_{r(B-C)}$	80		F	0.59
	$V_{r(C-B)}$	0		Y	0.74

Analysis			**Peak Hour**	
			AM	PM
Traffic Flows	$q_{(C-A)}$		635	680
	$q_{(C-B)}$		0	0
	$q_{(A-B)}$		75	55
	$q_{(A-C)}$		435	475
	$q_{(B-A)}$		0	0
	$q_{(B-C)}$		579	490
Proportion of minor traffic left-turn	**f**		1.00	1.00
		Factor		
Capacities	$Q_{(B-A)}$	1	209	201
	$Q_{(B-C)}$	1	830	818
	$Q_{(C-B)}$	1	356	352
	$Q_{(B-AC)}$	1	0	0
DFC	**B-A**		0.00	0.00
	B-C		0.70	0.60
	C-B		0.00	0.00
	B-AC		0.00	0.00
Worst DFC			**0.70**	**0.60**

Where Vl and Vr are visibility distances to the left or right of the respective streams

D = (1+0.094(w(b-a)-3.65))(1+0.0009(Vr(b-a)-120))(1+0.0006(Vl(b-a)-150))

E = (1+0.094(w(b-c)-3.65))(1+0.0009(Vr(b-c)-120))

F = (1+0.094(w(c-b)-3.65))(1+0.0009(Vr(c-b)-120))

Y = 1-0.0345W

f = proportion of minor traffic turning left

Q (b-ac) = Q(b-c)*Q(b-a)/(1-f)*Q(b-c)+f*Q(b-a)

T.P.D.M.V.2.4

Appendix 1

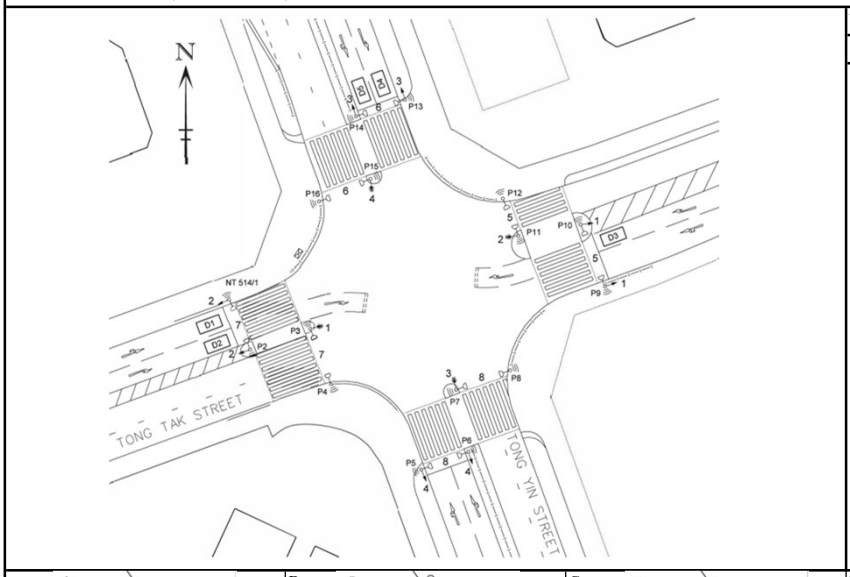
Capacity of combined streams

- in accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

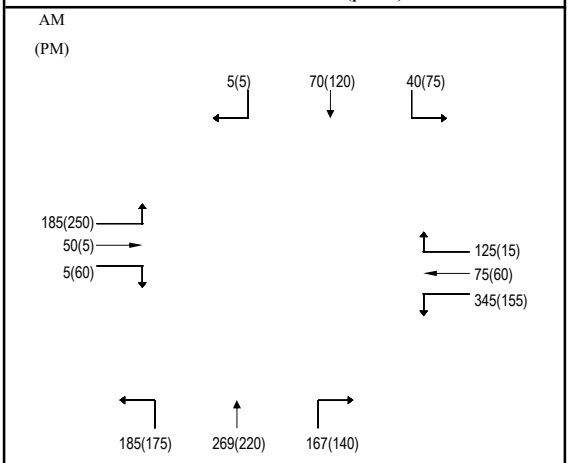
Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J11 Tong Yin Street/Tong Tak Street	Ref. No.:	J11_SJ_2026
Scheme:	2026 Des (without CKR/T2)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)



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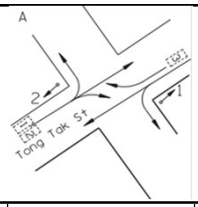

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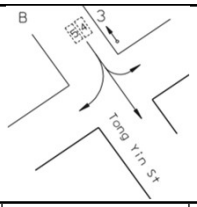

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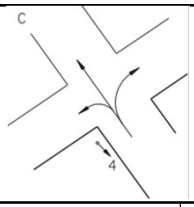

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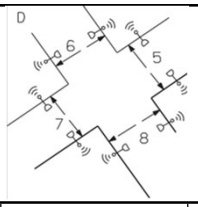


E

2		5	2	5	6	2		3	11	22	1			
2		5	2	5	6	2		3	7	20	1			
2		5	2	5	6	2		3	8	19	0			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	4.30	1		17				82 / 72	1905/1925	420	0.220	1	215	0.112	
1B	A	1	3.20		1		24			100	1735	125	0.072		15	0.009	
2A	A	1	3.70	1		16				79 / 98	1850/1820	235	0.127		255	0.140	1
2B	A	1	3.20		1		24			100	1735	5	0.003		60	0.035	
3A	B	1	3.80	1		18				100	1840	40	0.022		75	0.041	
3B	B	1	3.20				25			7 / 4	2065/2070	75	0.036	1	125	0.060	1
4A	C	1	4.00	1		13				61 / 68	1880/1870	302	0.161	1	259	0.139	
4B	C	1	3.00				24			52 / 51	1990	319	0.160		276	0.139	1

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	D		12	12	10	22		1		1
6P	D		9	9	10	19				
7P	D		10	10	10	20				
8P	D		10	10	10	20				

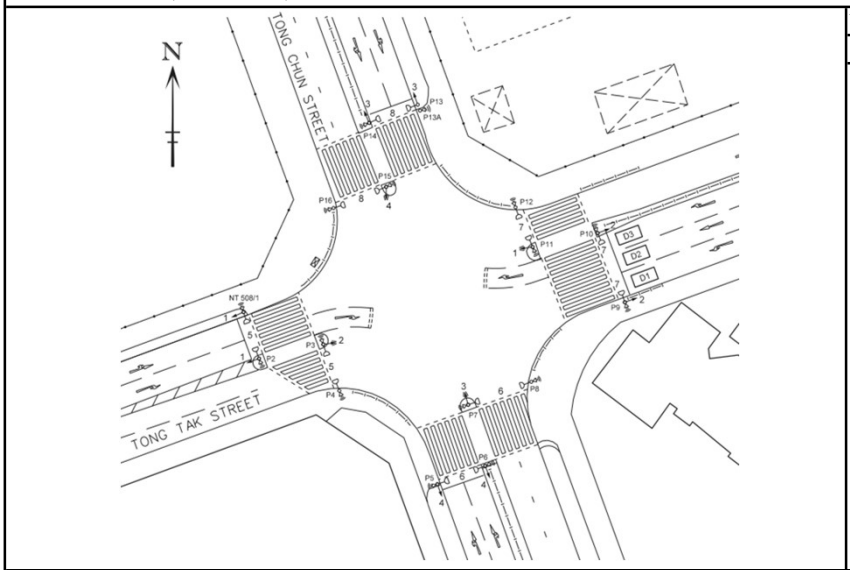
Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	1,3,4,5P	1,3,4,7P	1,3,4,6P	1,3,4,5P	1,3,4,7P	1,3,4,6P
Sum of y values, Y	0.417	0.417	0.417	0.339	0.339	0.339
Lost time, L	56	50	49	56	50	49
Cycle Time, C	127	127	127	124	124	124
Practical Y, Y_{pr}	0.503	0.546	0.553	0.494	0.537	0.544
Reserve Capacity, R.C. (%)	21%	31%	32%	46%	58%	60%

Calculated by:	Date: 五月-2021	Checked by:

Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J12 Tong Tak Street/Tong Chun Street	Ref. No.:	J12_SJ_2026
Scheme:	2026 Des (without CKR/T2)	Ref. No.:	

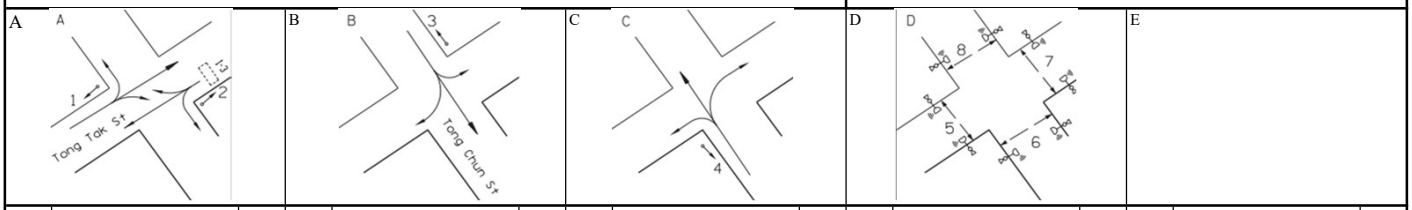


Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)

AM
(PM)

45(215) 75(85) 215(170)
105(115) 85(60) 72(45)
5(5) 225(130) 295(170)
105(215) 90(55) 160(280)



2		11	2		5	2		4	10	25	2			
2		11	2		5	2		4	7	18	2			
2		11	2		5	2		4	7	18	0			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.60	1		15				55 / 66	1870/1855	190	0.102		175	0.094	1
1B	A	1	3.20		1		29			100	1755	72	0.041		45	0.026	
2A	A	1	4.00	1		17				100	1850	295	0.159	1	170	0.092	
2B	A	1	3.50								2105	225	0.107		130	0.062	
2C	A	1	3.70		1		24			100	1785	5	0.003		5	0.003	
3A	B	1	3.60	1		17				100 / 76	1815/1850	215	0.118	1	223	0.121	1
3B	B	1	4.00				24			38 / 87	2105/2045	120	0.057		247	0.121	
4A	C	1	3.60	1		18				61 / 81	1880/1850	172	0.091		265	0.143	1
4B	C	1	3.60				24			87 / 98	2005/1995	183	0.091	1	285	0.143	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	D		9	9	9	18				
6P	D		10	10	10	20				
7P	D		12	12	13	25		1		1
8P	D		9	9	9	18				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr}/Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

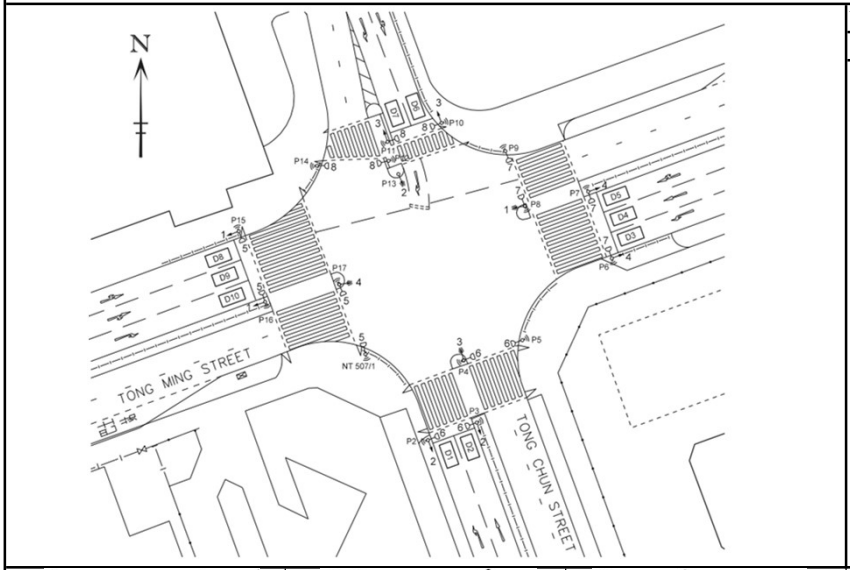
Check Critical Phase	2,3,4,7P	2,3,4,5P	2,3,4,8P	2,3,4,7P	2,3,4,5P	2,3,4,8P
Sum of y values, Y	0.369	0.369	0.369	0.358	0.358	0.358
Lost time, L	60	50	48	60	50	48
Cycle Time, C	125	125	125	125	125	125
Practical Y, Y_{pr}	0.468	0.540	0.554	0.468	0.540	0.554
Reserve Capacity, R.C. (%)	27%	46%	50%	31%	51%	55%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J12_SJ_2026_des2_

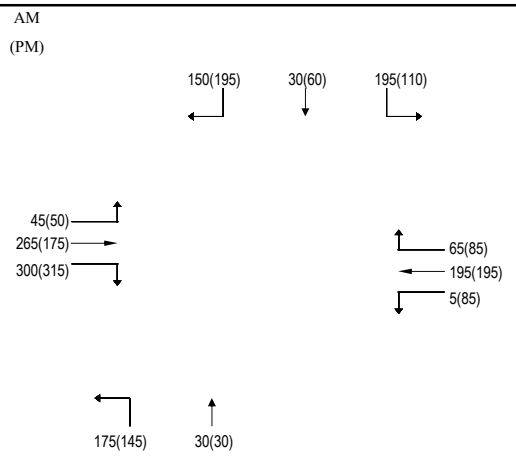
Traffic Signal Junction Calculation Sheet

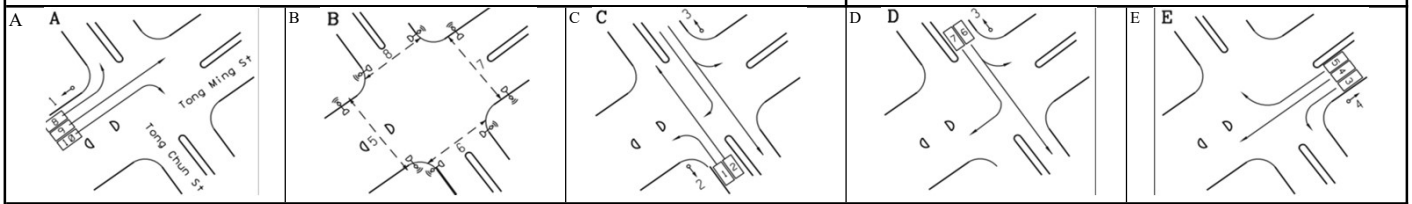
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J13 Tong Ming Street/Tong Chun Street	Ref. No.:	J13_SJ_2026
Scheme:	2026 Des (without CKR/T2)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		3	9	22	0	2					3	3		6
2		3	11	18	1	2					3	3		6
2		3	6	22	1	2					3	3		6

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.50	1		20				23 / 28	1930/1925	198	0.102	1	176	0.091	
1B	A	1	3.50				24			46 / 73	2045/2015	209	0.102		184	0.091	
1C	A	1	3.50				24				1980	203	0.102		181	0.091	1
2A	C	1	3.60	1		17				100	1815	175	0.096		145	0.080	
2B	C	1	3.70								2125	30	0.014		30	0.014	
3A	CD	1	3.20	1		17				87 / 65	1800/1830	225	0.125	1	170	0.093	
3B	CD	1	3.40		1		15			100	1695	150	0.088		195	0.115	1
4A	E	1	3.50	1		17				100	1805	5	0.003		85	0.047	
4B	E	1	3.50								2105	132	0.063		143	0.068	1
4C	E	1	3.50				23			51 / 62	2035/2025	128	0.063	1	137	0.068	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	B		14	14	12	26				
6P	B		10	10	8	18				
7P	B		12	12	10	22		1		1
8P	B		12	12	10	22				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	1,7P,3,4	1,6P,3,4	1,8P,3,4	1,7P,3,4	1,6P,3,4	1,8P,3,4
Sum of y values, Y	0.290	0.290	0.290	0.274	0.274	0.274
Lost time, L	47	46	45	47	46	45
Cycle Time, C	125	125	125	125	125	125
Practical Y, Y_{pr}	0.562	0.569	0.576	0.562	0.569	0.576
Reserve Capacity, R.C. (%)	93%	96%	98%	105%	107%	110%

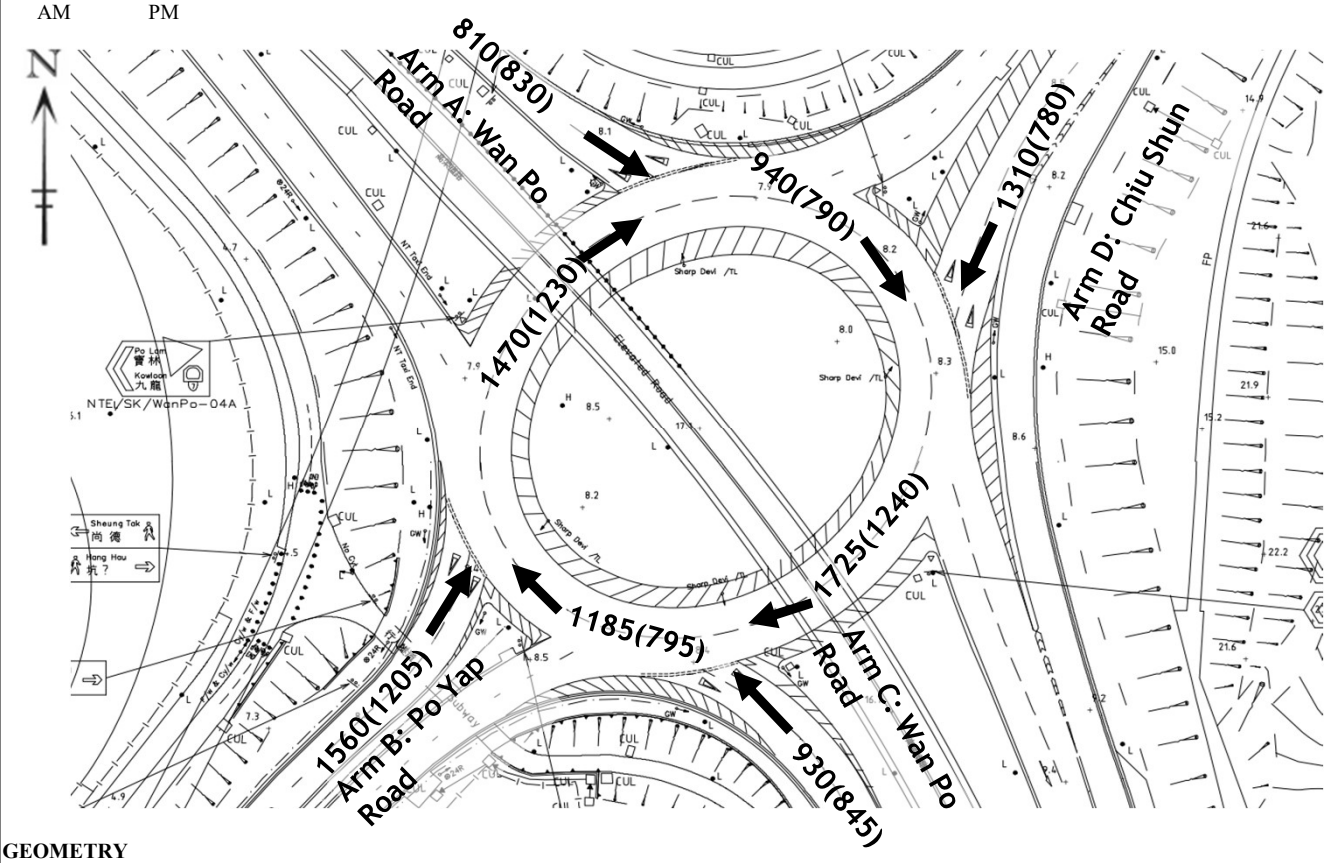
Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J13_SJ_2026_des2_

Simplified Roundabout Capacity Calculation

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O				
Junction:	J1 Wan Po Road / Chiu Shun Road / Po Yap Road			Ref. No.:	J1_RA_2026_desCTIA_
Scheme:	2026 Des (Construction Stage)			Ref. No.:	
Year:	2020	Job No.:	J1598	Rev.:	-

AM PM



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	5.00	9.00	20	40	76	20	0.32
B	7.00	7.50	10	50	86	20	0.08
C	8.00	8.00	5	40	76	20	0.00
D	8.00	10.00	10	70	86	25	0.32

CALCULATIONS

ARM	K	X_2	M	F	t_D	f_c	Q_E AM	Q_E PM	DFC AM	DFC PM
A	1.06	7.44	4.95	2254	1.08	0.57	1506	1650	0.54	0.50
B	1.06	7.43	13.46	2252	1.03	0.54	1715	1939	0.91	0.62
C	1.06	8.00	4.95	2424	1.08	0.59	1486	1790	0.63	0.47
D	1.05	9.22	13.46	2794	1.03	0.62	2328	2426	0.56	0.32

Critical Arm:	**B**	**B**
DFC:	**0.91**	**0.62**
	AM	**PM**

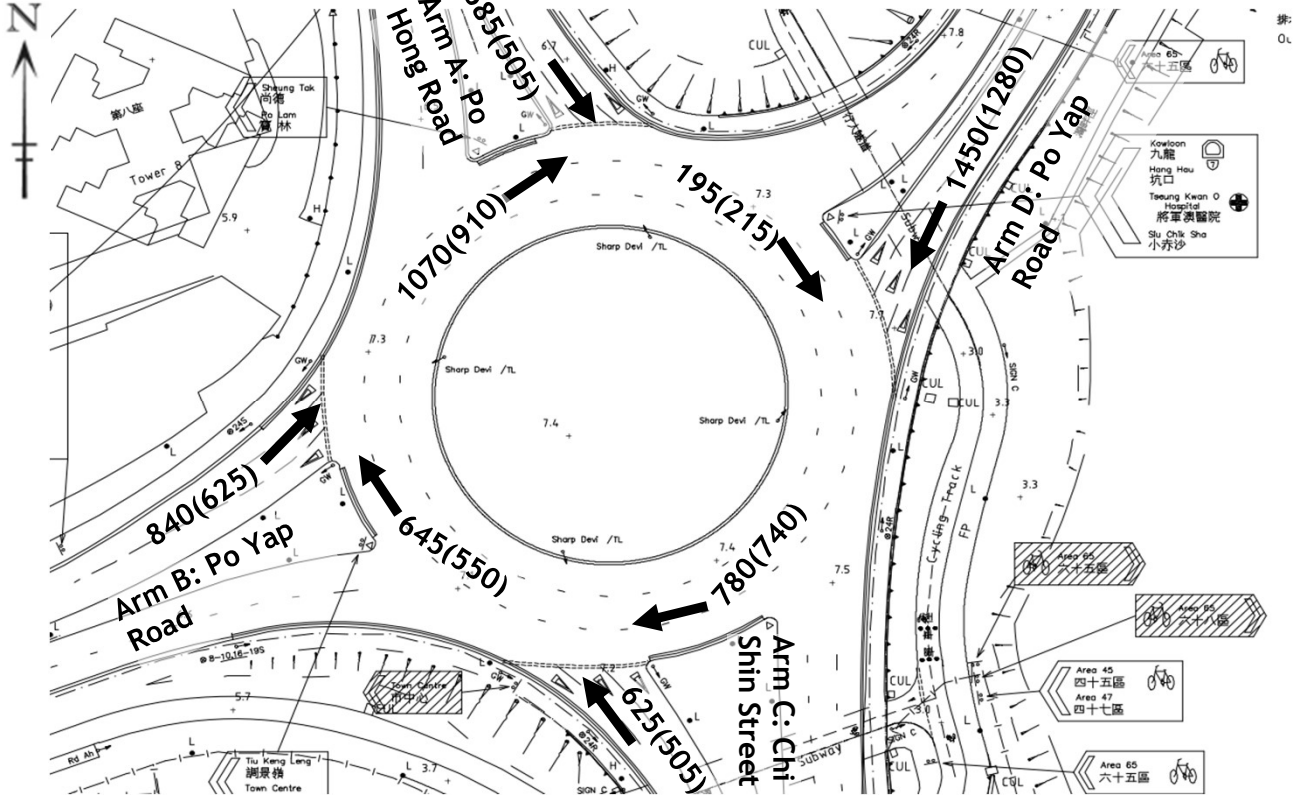
- In accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

Simplified Roundabout Capacity Calculation

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O				
Junction:	J2 Po Yap Road / Chi Shin Street / Po Hong Road			Ref. No.:	J2_RA_2026_desCTIA_
Scheme:	2026 Des (Construction Stage)			Ref. No.:	
Year:	2020	Job No.:	J1598	Rev.:	-

AM PM



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	7.00	11.00	20	25	80	25	0.32
B	7.00	11.00	15	60	80	30	0.43
C	7.00	12.00	10	50	80	25	0.80
D	7.00	11.00	20	90	80	25	0.32

CALCULATIONS

ARM	K	X_2	M	F	t_D	f_c	Q_E AM	Q_E PM	DFC AM	DFC PM
A	1.03	9.44	7.39	2860	1.06	0.64	2231	2337	0.31	0.22
B	1.03	9.16	7.39	2775	1.06	0.63	2446	2508	0.34	0.25
C	1.05	8.92	7.39	2704	1.06	0.62	2324	2350	0.27	0.21
D	1.06	9.44	7.39	2860	1.06	0.64	2886	2873	0.50	0.45

Critical Arm:	**D**	**D**
DFC:	**0.50**	**0.45**
	AM	**PM**

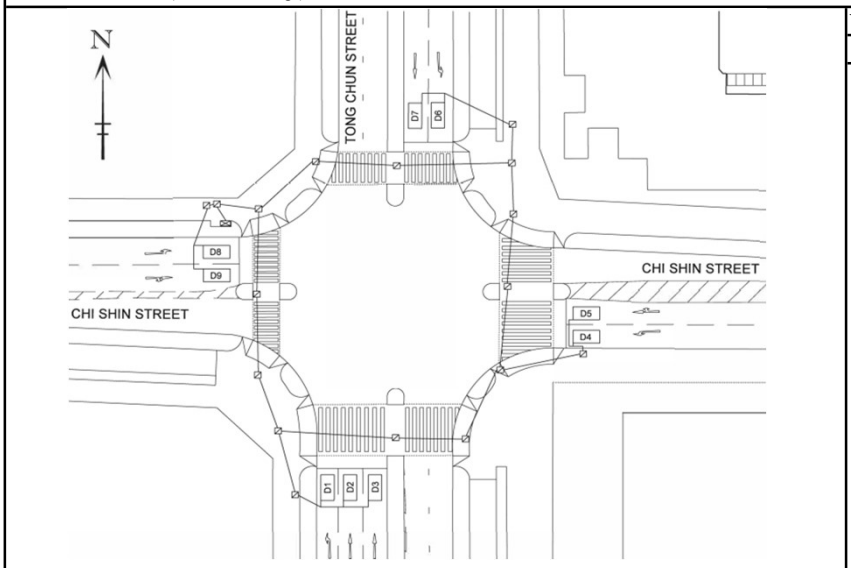
- In accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J2_RA_2026_desCTIA_

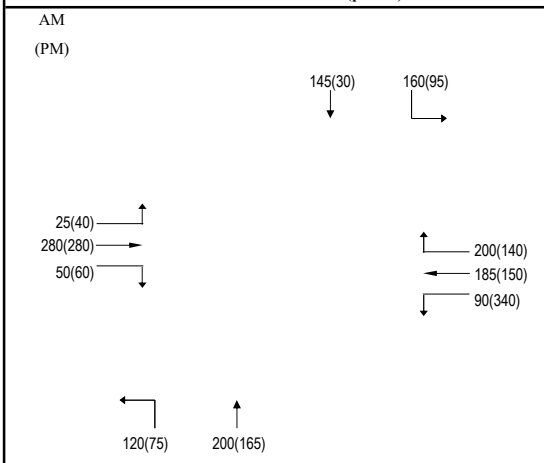
Traffic Signal Junction Calculation Sheet

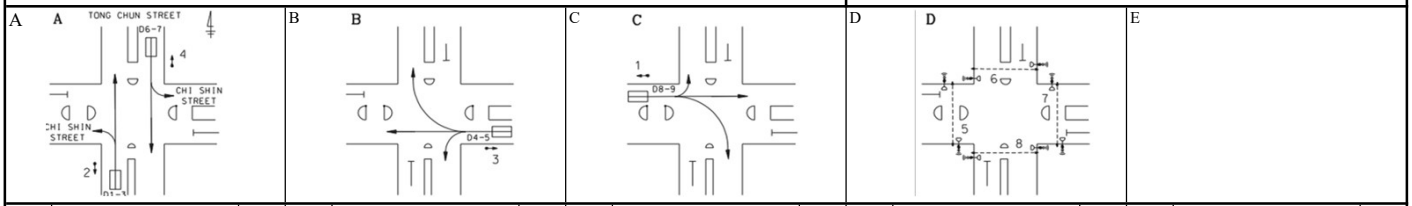
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J3 Chi Shin Street / Tong Chun Street	Ref. No.:	J3_SJ_2026_
Scheme:	2026 Des (Construction Stage)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		5	2		5	2		3	9	22	1			
2		5	2		5	2		3	7	20	0			
2		5	2		5	2		3	5	18	1			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	C	1	4.10	1		17			0.86	100	1595	25	0.016		40	0.025	
1B	C	1	4.20				23			15 / 18	2155/2150	330	0.153	1	340	0.158	1
2A	A	1	3.10	1		19				100	1785	120	0.067		75	0.042	
2B	A	2	3.65								4240	200	0.047		165	0.039	
3A	B	1	3.50				25			52 / 48	2040/2045	385	0.189	1	290	0.142	
3B	B	1	3.70	1		17				100	1825	90	0.049		340	0.186	1
4A	A	1	3.60	1		17				100	1815	160	0.088	1	95	0.052	1
4B	A	1	3.60								2115	145	0.069		30	0.014	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	D		10	10	8	18				
6P	D		10	10	8	18				
7P	D		11	11	9	20				
8P	D		12	12	10	22		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

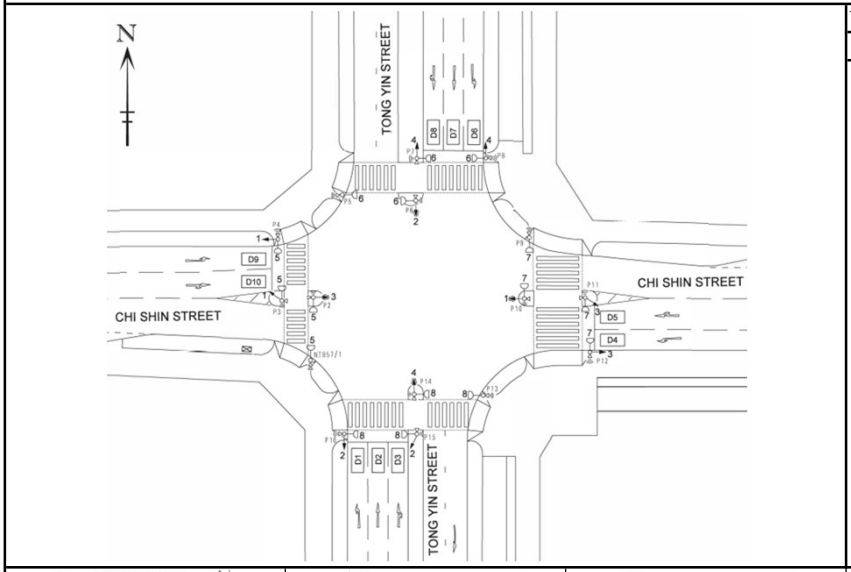
Check Critical Phase	4,3,1,8P	4,3,1,7P	4,3,1,6P	4,3,1,8P	4,3,1,7P	4,3,1,6P
Sum of y values, Y	0.430	0.430	0.430	0.397	0.397	0.397
Lost time, L	48	43	40	48	43	40
Cycle Time, C	110	110	110	110	110	110
Practical Y, Y_{pr}	0.507	0.548	0.573	0.507	0.548	0.573
Reserve Capacity, R.C. (%)	18%	27%	33%	28%	38%	44%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J3_SJ_2026_desCTIA_

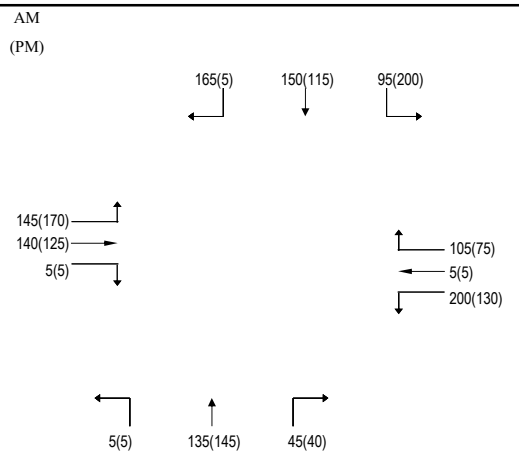
Traffic Signal Junction Calculation Sheet

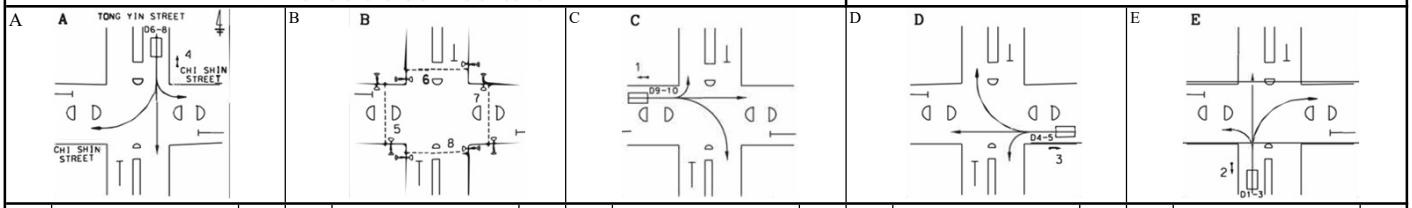
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O
Junction:	J4 Chi Shin Street / Tong Yin Street
Ref. No.:	J4_SJ_2026_
Scheme:	2026 Des (Construction Stage)
Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		5	5	21	0	2	5	5	2		6	2		5
2		5	7	18	1	2	5	5	2		6	2		5
2		5	1	22	0	2	5	5	2		6	2		5

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	C	1	3.60	1		17				100	1815	145	0.080	1	170	0.094	1
1B	C	1	3.60				23			3 / 4	2110	145	0.069		130	0.062	
2A	E	1	3.30	1		17			0.86	100	1530	5	0.003		5	0.003	
2B	E	1	3.30								2085	91	0.044	1	94	0.045	
2C	E	1	3.30				25			51 / 44	2025/2030	89	0.044		91	0.045	1
3A	D	1	3.40	1		17				100	1795	200	0.111	1	130	0.072	1
3B	D	1	3.90				36			95 / 94	2065	110	0.053		80	0.039	
4A	A	1	3.30	1		17				100	1785	95	0.053		200	0.112	1
4B	A	1	3.30								2085	150	0.072		60	0.029	
4C	A	1	3.30				23			100 / 8	1955/2075	165	0.084	1	60	0.029	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	B		10	10	8	18				
6P	B		13	13	9	22				
7P	B		9	9	7	16				
8P	B		12	12	9	21		1		1

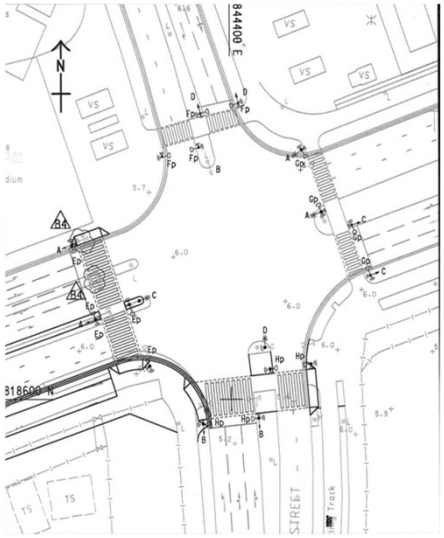
Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	4,8P,1,3,2	4,5P,1,3,2	4,6P,1,3,2	4,8P,1,3,2	4,5P,1,3,2	4,6P,1,3,2
Sum of y values, Y	0.320	0.320	0.320	0.323	0.323	0.323
Lost time, L	56	56	53	56	56	53
Cycle Time, C	100	100	100	110	110	110
Practical Y, Y_{pr}	0.396	0.396	0.423	0.442	0.442	0.466
Reserve Capacity, R.C. (%)	24%	24%	32%	37%	37%	44%

Calculated by:	Date: 五月-2021	Checked by:

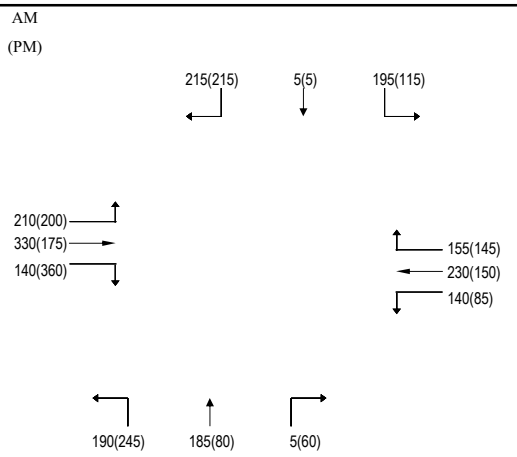
Traffic Signal Junction Calculation Sheet

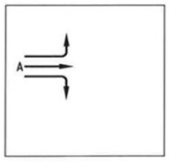
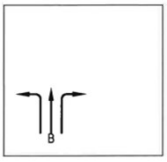
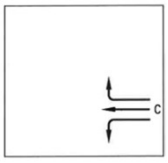
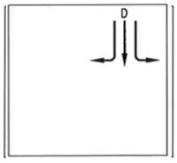
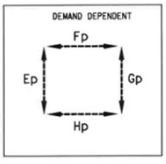
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O
Junction:	J5 Po Yap Road / Tong Yin Street
Ref. No.:	J5_SJ_2026_
Scheme:	2026 Des (without CKR / T2)
Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)



A	B	C	D	E
				
STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5
2 3	2 5	2 3	2 3	13 28 0
2 3	2 5	2 3	2 3	11 27 1
2 3	2 5	2 3	2 3	6 25 0

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.80	1		15					1815	164	0.091	1	173	0.095	
1B	A	1	3.40			15				25 / 14	2045/2065	185	0.091		197	0.096	1
1C	A	1	3.50				20			0 / 98	2105/1960	191	0.091	1	187	0.096	
1D	A	1	3.80	1			20				1855	140	0.075		177	0.095	
2A	B	1	3.70			15					1930	124	0.064		128	0.066	
2B	B	1	3.70			15				51 / 90	2020/1950	130	0.064	1	129	0.066	
2C	B	1	3.70	1			20			4 / 47	1980/1915	127	0.064		127	0.066	1
3A	C	1	3.20			15				81 / 73	1920/1935	173	0.090		117	0.061	
3B	C	1	3.30	1							1945	175	0.090		118	0.061	
3C	C	1	3.50				20			87 / 100	1975/1960	178	0.090	1	145	0.074	1
4A	D	1	3.70	1		15	20			98 / 97	1810/1820	200	0.110	1	161	0.088	1
4B	D	1	3.70				20				1975	215	0.109		174	0.088	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	E		14	14	13	27				
6P	E		11	11	8	19				
7P	E		15	15	10	25				
8P	E		16	16	12	28		1		1

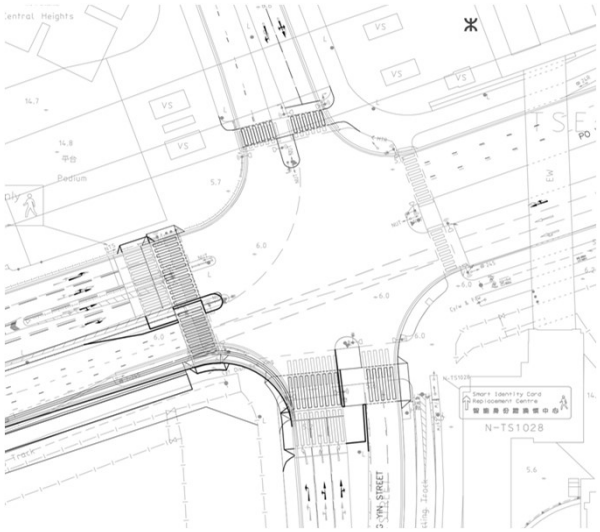
Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	1,2,3,4,8P	1,2,3,4,5P	1,2,3,4,7P	1,2,3,4,8P	1,2,3,4,5P	1,2,3,4,7P
Sum of y values, Y	0.355	0.355	0.355	0.324	0.324	0.324
Lost time, L	59	57	49	59	57	49
Cycle Time, C	120	120	120	105	105	105
Practical Y, Y_{pr}	0.458	0.473	0.533	0.394	0.411	0.480
Reserve Capacity, R.C. (%)	29%	33%	50%	22%	27%	48%

Calculated by:	Date: 五月-2021	Checked by:

Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O
Junction:	J5 Po Yap Road / Tong Yin Street (with improvement scheme)
Ref. No.:	J5_SJ_2026_
Scheme:	2026 Des (without CKR / T2)
Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)

AM
(PM)

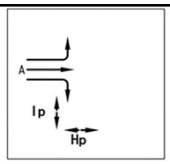
215(215) 5(5) 195(115)

210(200)
330(175)
140(360)

155(145)
230(150)
140(85)

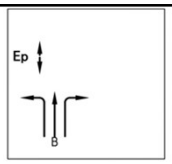
190(245) 185(80) 5(60)

A



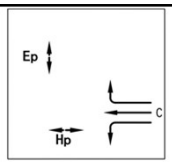
STAGE 1

B



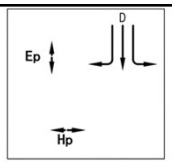
STAGE 2

C



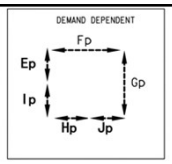
STAGE 3

D



STAGE 4

E



STAGE 5

2		3	2		5	2		3	2		3	6	25	0					

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.80	1		15					1815	164	0.091	1	173	0.095	
1B	A	1	3.40			15				25 / 14	2045/2065	185	0.091		197	0.096	1
1C	A	1	3.50				20			0 / 98	2105/1960	191	0.091	1	187	0.096	
1D	A	1	3.80	1			20				1855	140	0.075		177	0.095	
2A	B	1	3.70			15					1930	124	0.064		128	0.066	
2B	B	1	3.70			15				51 / 90	2020/1950	130	0.064	1	129	0.066	
2C	B	1	3.70	1			20			4 / 47	1980/1915	127	0.064		127	0.066	1
3A	C	1	3.20			15				81 / 73	1920/1935	173	0.090		117	0.061	
3B	C	1	3.30	1							1945	175	0.090		118	0.061	
3C	C	1	3.50				20			87 / 100	1975/1960	178	0.090	1	145	0.074	1
4A	D	1	3.70	1		15	20			98 / 97	1810/1820	200	0.110	1	161	0.088	1
4B	D	1	3.70				20				1975	215	0.109		174	0.088	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	BCDE		5	5	13	18				
6P	E		11	11	8	19				
7P	E		15	15	10	25		1		1
8P	ACDE		5	5	12	17				
9P	AE		5	5	9	14				
10P	E		5	5	6	11				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	1,2,3,4,7P			1,2,3,4,7P		
Sum of y values, Y	0.355			0.324		
Lost time, L	49			49		
Cycle Time, C	120			105		
Practical Y, Y_{pr}	0.533			0.480		
Reserve Capacity, R.C. (%)	50%			48%		

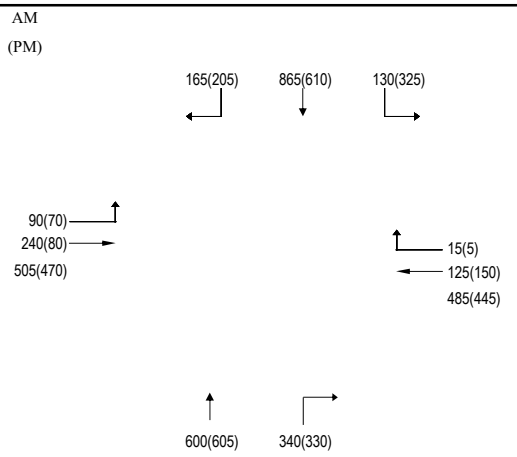
Calculated by:	Date: 五月-2021	Checked by:

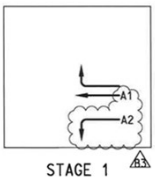
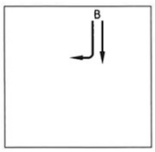
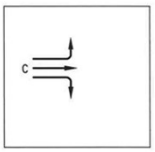
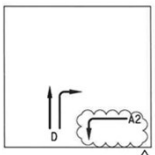
Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J6 Po Yap Road / Po Shun Road / Chui Ling Road / Future Road P2	Ref. No.:	J6_SJ_2026_
Scheme:	2026 Des (Construction Stage)	Ref. No.:	

Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)



A	B	C	D	E
				
STAGE 1	STAGE 2	STAGE 3	STAGE 4	

2		3	2		5	2		3	2		3			
		3	2		5	2		3			2			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A ←	A	1	3.50								2105	125	0.059	1	150	0.071	1
1B ↰	A	1	3.70				20			100	1975	15	0.008		5	0.003	
2A ↓	AD	2	3.50	1		15				100	3700	485	0.131		445	0.120	
3A ↓	B	2	3.65	1							4100	865	0.211	1	610	0.149	1
3B ↓	B	1	3.60				20			100	1965	165	0.084		205	0.104	
4A ↑→	C	1	3.60	1		15				33 / 47	1910/1885	273	0.143		150	0.080	
4B →↓	C	1	3.30				20			80 / 100	1965/1940	281	0.143	1	233	0.120	
4C →↓	C	1	3.60				20				1965	281	0.143		237	0.120	1
5A ↑	D	1	3.70	1							1985	307	0.155	1	306	0.154	
5B ↑→	D	1	3.70				20			10 / 8	2110	327	0.155		325	0.154	1
5C ↑→	D	1	3.70				20				1975	306	0.155	1	304	0.154	

Critical Ped. Phase	Stage	Width Across	Min. GM	Min. FGM	Lost Time	Note	Crit.	Note	Crit.

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	1,3,4,5	2,3,4		1,3,4,5	2,3,4	
Sum of y values, Y	0.568	0.485		0.495	0.389	
Lost time, L	18	14		18	14	
Cycle Time, C	127	217		124	214	
Practical Y, Y_{pr}	0.772	0.842		0.769	0.841	
Reserve Capacity, R.C. (%)	36%	74%		56%	116%	

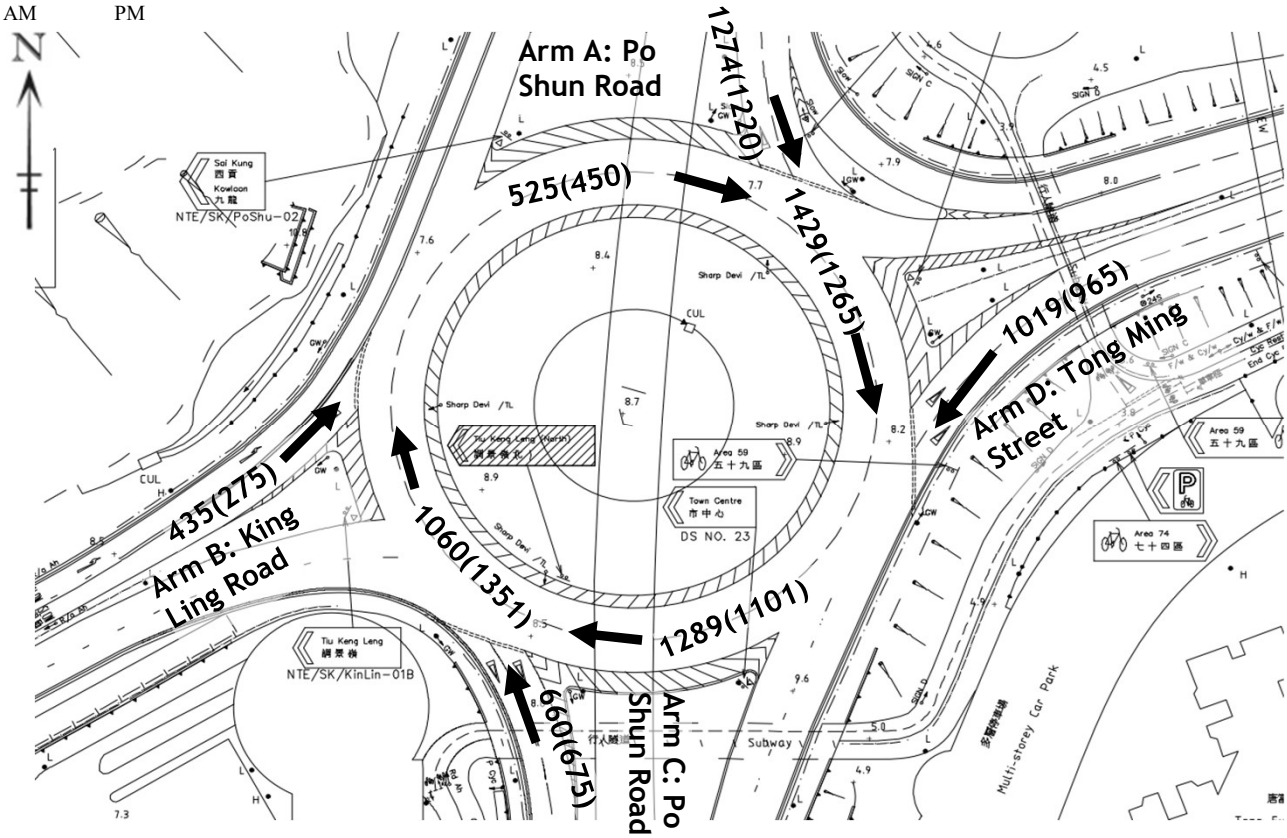
Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J6_SJ_2026_desCTIA_

Simplified Roundabout Capacity Calculation

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O				
Junction:	J7 Po Shun Road / Tong Ming Street / King Ling Road			Ref. No.:	J7_RA_2026_desCTIA_
Scheme:	2026 Des (Construction Stage)			Ref. No.:	
Year:	2020	Job No.:	J1598	Rev.:	-

AM PM



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	7.00	8.00	14.5	20	81.2	20	0.11
B	2.70	4.60	31.9	55.2	81.2	18	0.10
C	7.10	7.40	11.7	23	81.2	10	0.04
D	7.40	8.40	27.5	60	81.2	29	0.06

CALCULATIONS

ARM	K	X_2	M	F	t_D	f_c	Q_E AM	Q_E PM	DFC AM	DFC PM
A	1.03	7.82	8.33	2369	1.05	0.57	2143	2187	0.59	0.56
B	1.07	4.30	8.33	1302	1.05	0.41	929	800	0.47	0.34
C	1.08	7.38	8.33	2235	1.05	0.55	1645	1756	0.40	0.38
D	1.04	8.30	8.33	2514	1.05	0.59	1733	1833	0.59	0.53

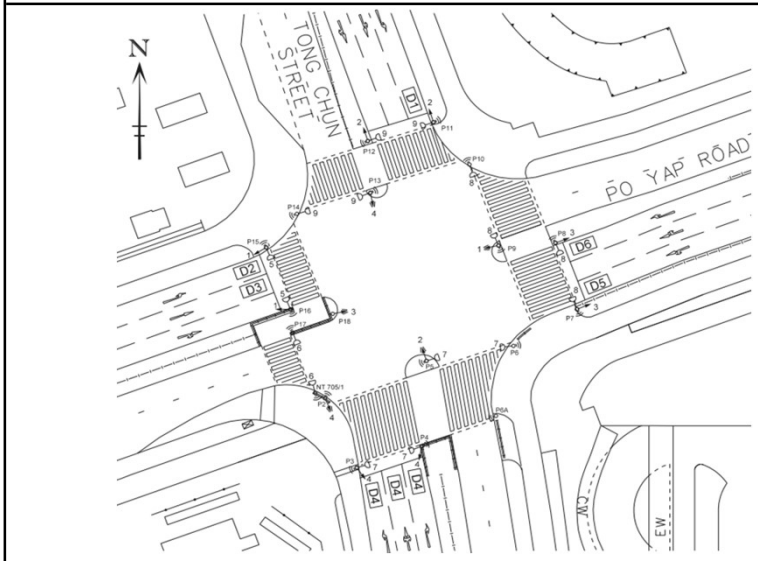
	AM	PM
Critical Arm:	**A**	**A**
DFC:	**0.59**	**0.56**

- In accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

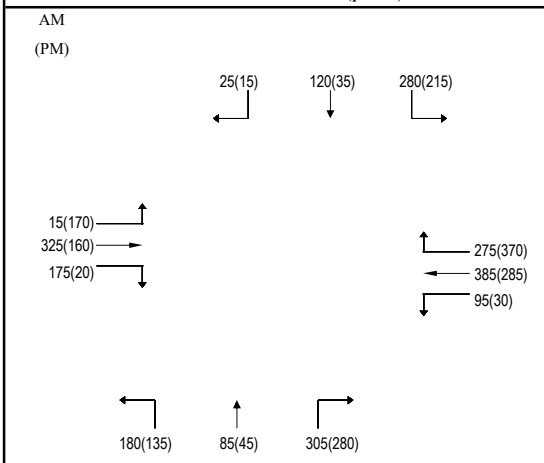
Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J8 Po Yap Road / Tong Chun Street	Ref. No.:	J8_SJ_2026_
Scheme:	2026 Des (Construction Stage)	Ref. No.:	

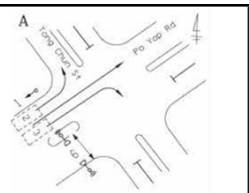


Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)



A



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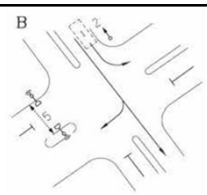

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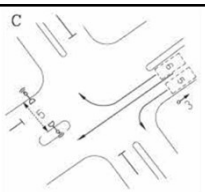

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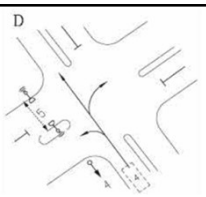

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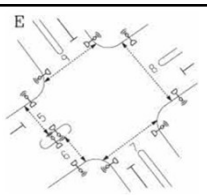


2		5	2		5	2		6	2		6	8	16	0
2		5	2		5	2		6	2		6	4	16	0
2		5	2		5	2		6	2		6	0	16	0

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.30	1		17				100	1785	15	0.008		170	0.095	1
1B	A	1	3.30								2085	257	0.123	1	91	0.044	
1C	A	1	3.30				20			72 / 22	1980/2050	243	0.123		89	0.044	
2A	B	1	3.40	1		17					1795	135	0.075		104	0.058	
2B	B	1	3.40			17				100	1925	145	0.075	1	111	0.058	1
2C	B	1	3.50				26			17 / 30	2085/2070	145	0.070		50	0.024	
3A	C	1	3.30	1		17				40 / 13	1880/1920	240	0.128		224	0.117	1
3B	C	1	3.40				20			10 / 61	2080/2005	266	0.128		234	0.116	
3C	C	1	3.40				20				1950	249	0.128	1	227	0.117	
4A	D	1	3.60	1		16					1805	176	0.098		135	0.075	
4B	D	1	3.50			16	26			57 / 73	2035/2020	199	0.098	1	164	0.081	1
4C	D	1	3.50				26				1990	195	0.098		161	0.081	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	BCDE		5	5	11	16				
6P	E		5	5	7	12				
7P	E		5	5	11	16				
8P	E		5	5	11	16		1		1
9P	E		5	5	11	16				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

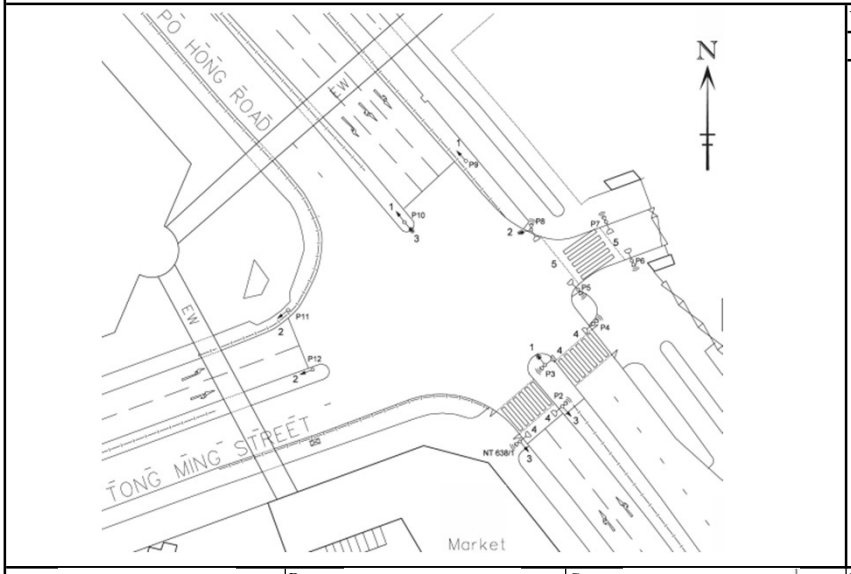
Check Critical Phase	1,2,3,4,8P	1,2,3,4,9P	1,2,3,4,7P	1,2,3,4,8P	1,2,3,4,9P	1,2,3,4,7P
Sum of y values, Y	0.424	0.424	0.424	0.351	0.351	0.351
Lost time, L	50	46	42	50	46	42
Cycle Time, C	125	125	125	125	125	125
Practical Y, Y_{pr}	0.540	0.569	0.598	0.540	0.569	0.598
Reserve Capacity, R.C. (%)	27%	34%	41%	54%	62%	70%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J8_SJ_2026_desCTIA_

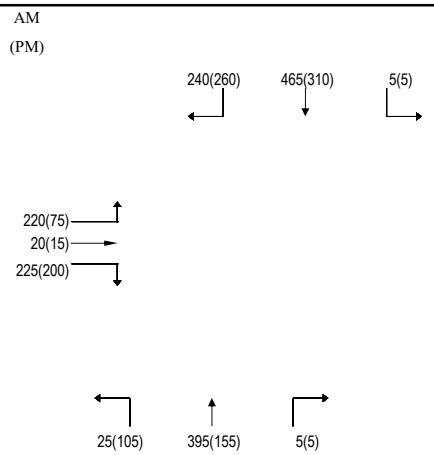
Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J9 Po Hong Road / Tong Ming Street	Ref. No.:	J9_SJ_2026_
Scheme:	2026 Des (Construction Stage)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)



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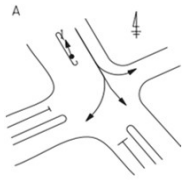

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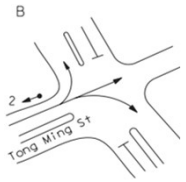

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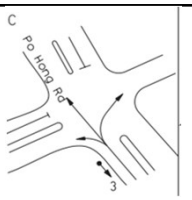

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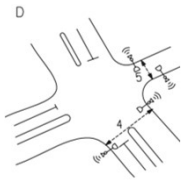


E

2		3	3		3	4		3	7	16	0			
2		3	3		3	4		3	2	20	0			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.40	1		15				2 / 3	1950	229	0.118		187	0.096	
1B	A	1	3.40				21			2 / 35	2090/2045	246	0.118	1	196	0.096	
1C	A	1	3.90				21				2000	235	0.117		192	0.096	1
2A	B	1	3.70	1		16				100	1815	220	0.121	1	75	0.041	
2B	B	1	3.60				32			92 / 93	2030/2025	245	0.121		215	0.106	1
3A	C	1	3.50	1		17				12 / 85	1945/1825	203	0.105	1	123	0.067	1
3B	C	1	3.70				11			2 / 4	2120/2115	222	0.105		142	0.067	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
4P	D		11	11	9	20				
5P	D		5	5	11	16		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

	AM Peak			PM Peak		
Check Critical Phase	1,2,3,5P	1,2,3,4P		1,2,3,5P	1,2,3,4P	
Sum of y values, Y	0.343	0.343		0.269	0.269	
Lost time, L	38	37		38	37	
Cycle Time, C	110	110		105	105	
Practical Y, Y_{pr}	0.589	0.597		0.574	0.583	
Reserve Capacity, R.C. (%)	72%	74%		113%	116%	

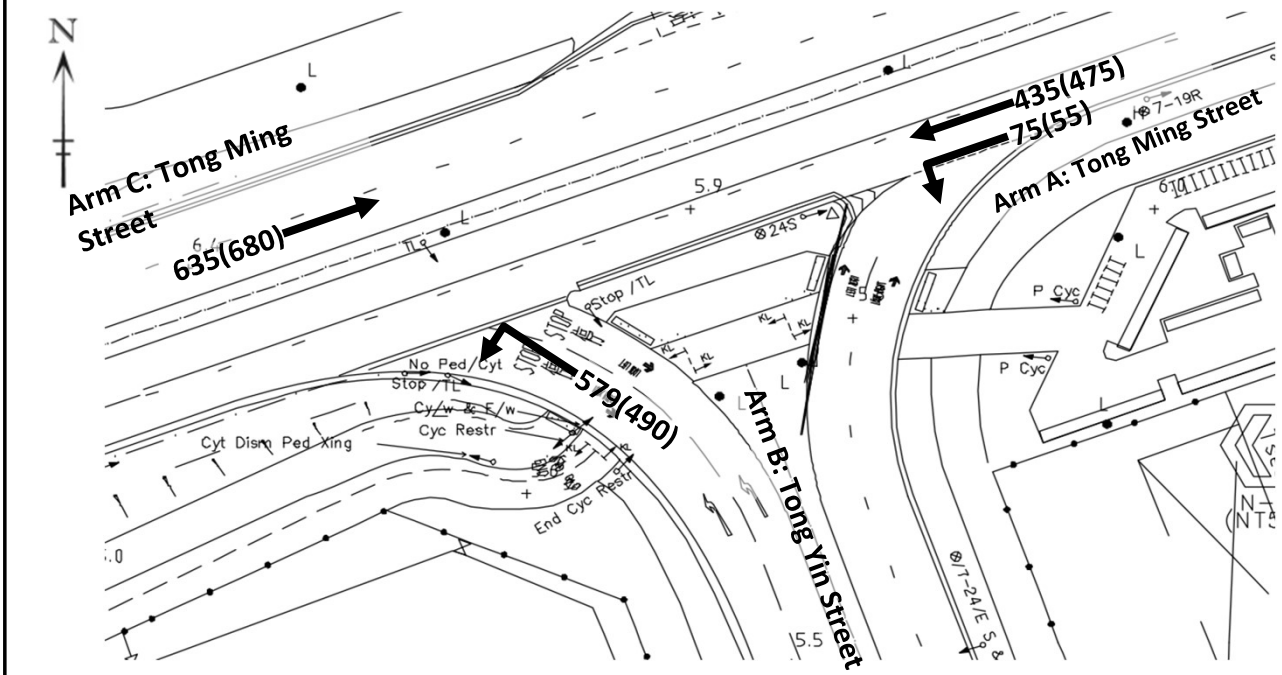
Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J9_SJ_2026_desCTIA_

Simplified Priority Junction Capacity Calculation Sheet

Job Title	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O			
Junction	J10 Tong Yin Street/Tong Ming Street		Ref No.:	J10_PJ_2026_d
Scheme	2026 Des (Construction Stage)		Ref No.:	
Year	2020	Job. No.: J1598	Rev.:	

AM(PM)



Geometry					
Major road width	**W**	7.4	**Lane widths**	w(b-a)	0.00
Central Reserve width	W_{cr}	0		w(b-c)	7.80
2 Lane Minor Arm (Y/N)		Y		w(c-b)	0.00
Visibilities	$V_{r(B-A)}$	0	**Calculated**	D	0.53
	$V_{l(B-A)}$	0		E	1.34
	$V_{r(B-C)}$	80		F	0.59
	$V_{r(C-B)}$	0		Y	0.74

Analysis			**Peak Hour**	
			AM	PM
Traffic Flows	$q_{(C-A)}$		635	680
	$q_{(C-B)}$		0	0
	$q_{(A-B)}$		75	55
	$q_{(A-C)}$		435	475
	$q_{(B-A)}$		0	0
	$q_{(B-C)}$		579	490
Proportion of minor traffic left-turn	**f**		1.00	1.00
		Factor		
Capacities	$Q_{(B-A)}$	1	209	201
	$Q_{(B-C)}$	1	830	818
	$Q_{(C-B)}$	1	356	352
	$Q_{(B-AC)}$	1	0	0
DFC	**B-A**		0.00	0.00
	B-C		0.70	0.60
	C-B		0.00	0.00
	B-AC		0.00	0.00
Worst DFC			**0.70**	**0.60**

Where Vl and Vr are visibility distances to the left or right of the respective streams

D = (1+0.094(w(b-a)-3.65))(1+0.0009(Vr(b-a)-120))(1+0.0006(Vl(b-a)-150))

E = (1+0.094(w(b-c)-3.65))(1+0.0009(Vr(b-c)-120))

F = (1+0.094(w(c-b)-3.65))(1+0.0009(Vr(c-b)-120))

Y = 1-0.0345W

f = proportion of minor traffic turning left

Q (b-ac) = Q(b-c)*Q(b-a)/(1-f)*Q(b-c)+f*Q(b-a)

T.P.D.M.V.2.4

Appendix 1

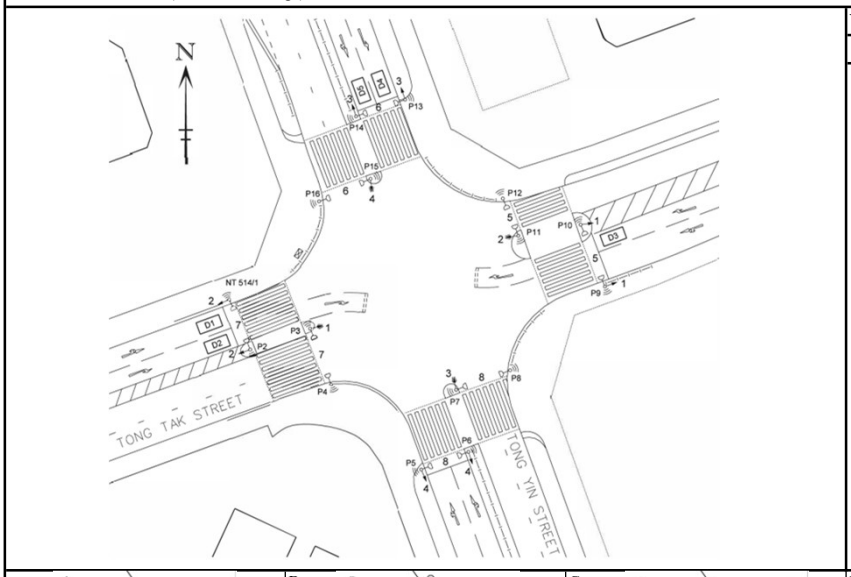
Capacity of combined streams

- in accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

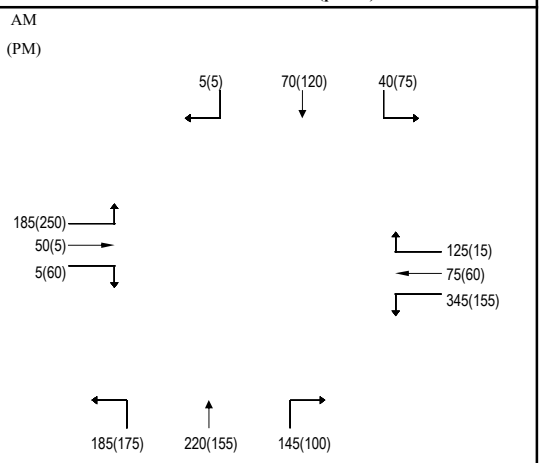
Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J11 Tong Yin Street/Tong Tak Street	Ref. No.:	J11_SJ_2026
Scheme:	2026 Des (Construction Stage)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)



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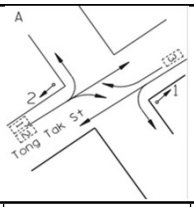

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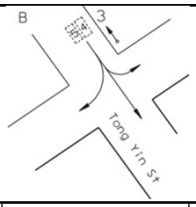

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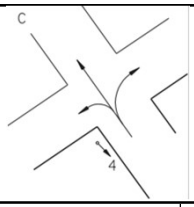

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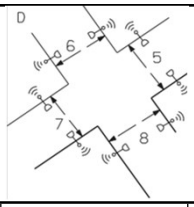

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2		5	2	5	6	2		3	11	22	1			
2		5	2	5	6	2		3	7	20	1			
2		5	2	5	6	2		3	8	19	0			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	4.30	1		17				82 / 72	1905/1925	420	0.220	1	215	0.112	
1B	A	1	3.20		1		24			100	1735	125	0.072		15	0.009	
2A	A	1	3.70	1		16				79 / 98	1850/1820	235	0.127		255	0.140	1
2B	A	1	3.20		1		24			100	1735	5	0.003		60	0.035	
3A	B	1	3.80	1		18				100	1840	40	0.022		75	0.041	
3B	B	1	3.20				25			7 / 4	2065/2070	75	0.036	1	125	0.060	1
4A	C	1	4.00	1		13				70 / 85	1865/1835	266	0.143		206	0.112	1
4B	C	1	3.00				24			51 / 45	1990/2000	284	0.143	1	224	0.112	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	D		12	12	10	22		1		1
6P	D		9	9	10	19				
7P	D		10	10	10	20				
8P	D		10	10	10	20				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr}/Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

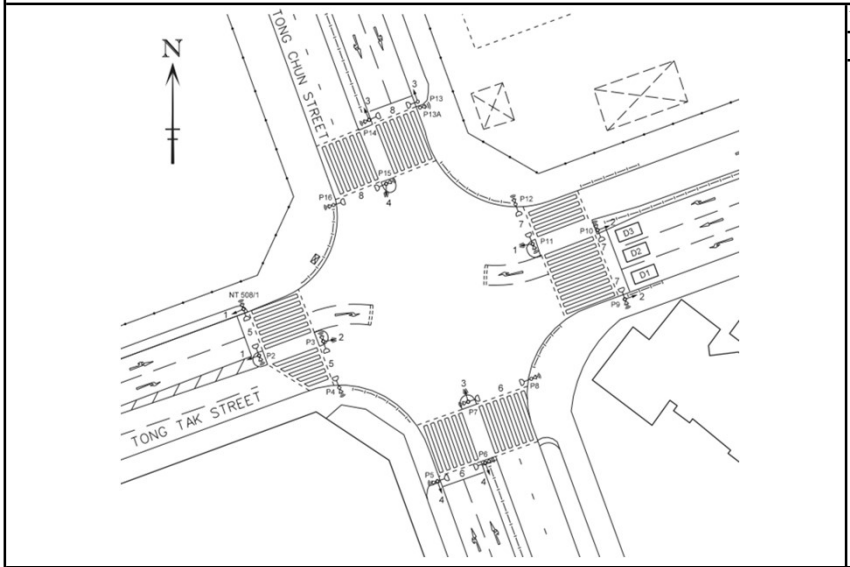
Check Critical Phase	1,3,4,5P	1,3,4,7P	1,3,4,6P	1,3,4,5P	1,3,4,7P	1,3,4,6P
Sum of y values, Y	0.400	0.400	0.400	0.313	0.313	0.313
Lost time, L	56	50	49	56	50	49
Cycle Time, C	127	127	127	124	124	124
Practical Y, Y_{pr}	0.503	0.546	0.553	0.494	0.537	0.544
Reserve Capacity, R.C. (%)	26%	37%	38%	58%	72%	74%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J11_SJ_2026_desCTIA_

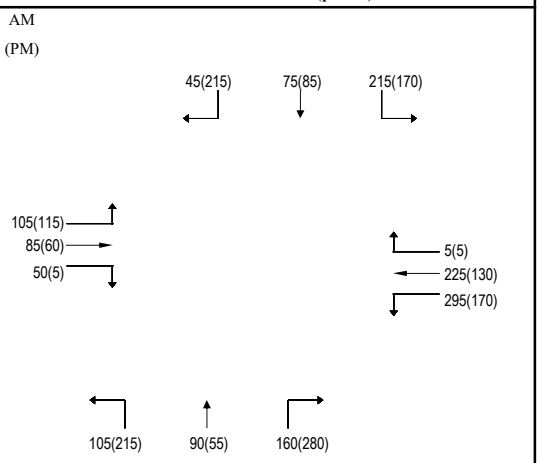
Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J12 Tong Tak Street/Tong Chun Street	Ref. No.:	J12_SJ_2026
Scheme:	2026 Des (Construction Stage)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)



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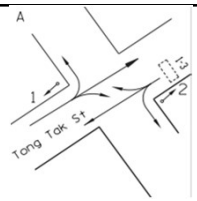

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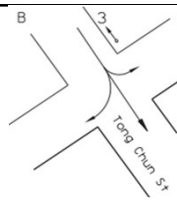

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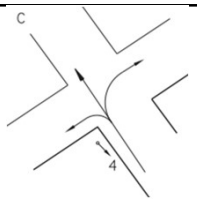

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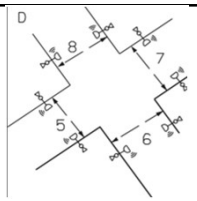


E

2		11	2		5	2		4	10	25	2			
2		11	2		5	2		4	7	18	2			
2		11	2		5	2		4	7	18	0			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.60	1		15				55 / 66	1870/1855	190	0.102		175	0.094	1
1B	A	1	3.20		1		29			100	1755	50	0.028		5	0.003	
2A	A	1	4.00	1		17				100	1850	295	0.159	1	170	0.092	
2B	A	1	3.50								2105	225	0.107		130	0.062	
2C	A	1	3.70		1		24			100	1785	5	0.003		5	0.003	
3A	B	1	3.60	1		17				100 / 76	1815/1850	215	0.118	1	223	0.121	1
3B	B	1	4.00				24			38 / 87	2105/2045	120	0.057		247	0.121	
4A	C	1	3.60	1		18				61 / 81	1880/1850	172	0.091		265	0.143	1
4B	C	1	3.60				24			87 / 98	2005/1995	183	0.091	1	285	0.143	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	D		9	9	9	18				
6P	D		10	10	10	20				
7P	D		12	12	13	25		1		1
8P	D		9	9	9	18				

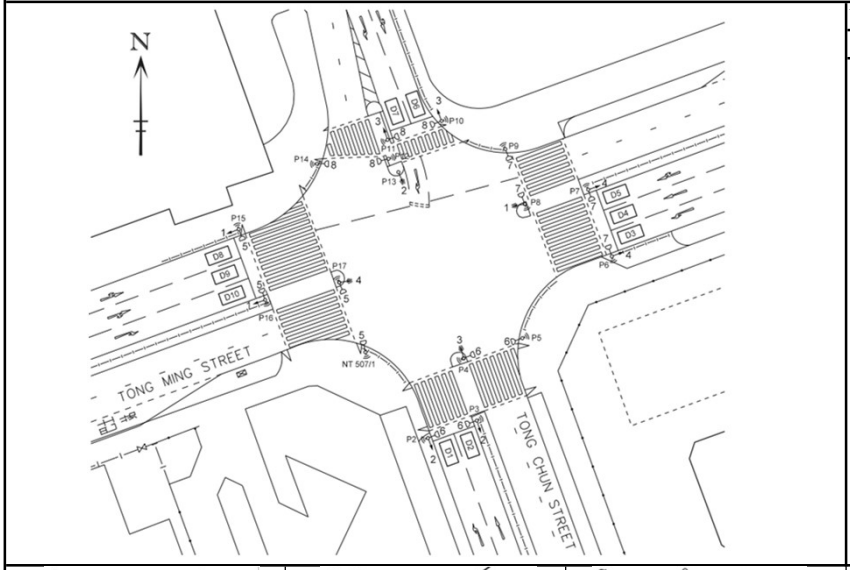
Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	2,3,4,7P	2,3,4,5P	2,3,4,8P	2,3,4,7P	2,3,4,5P	2,3,4,8P
Sum of y values, Y	0.369	0.369	0.369	0.358	0.358	0.358
Lost time, L	60	50	48	60	50	48
Cycle Time, C	125	125	125	125	125	125
Practical Y, Y_{pr}	0.468	0.540	0.554	0.468	0.540	0.554
Reserve Capacity, R.C. (%)	27%	46%	50%	31%	51%	55%

Calculated by:	Date: 五月-2021	Checked by:

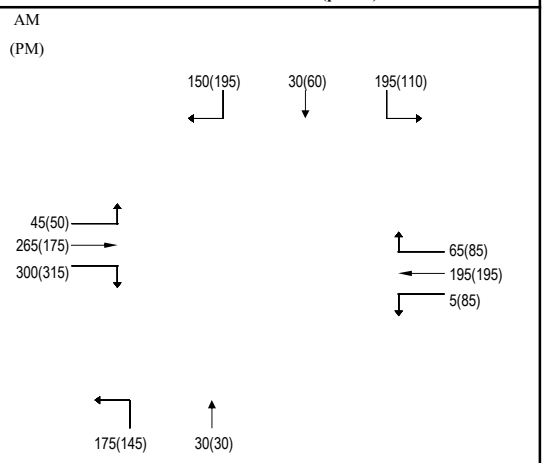
Traffic Signal Junction Calculation Sheet

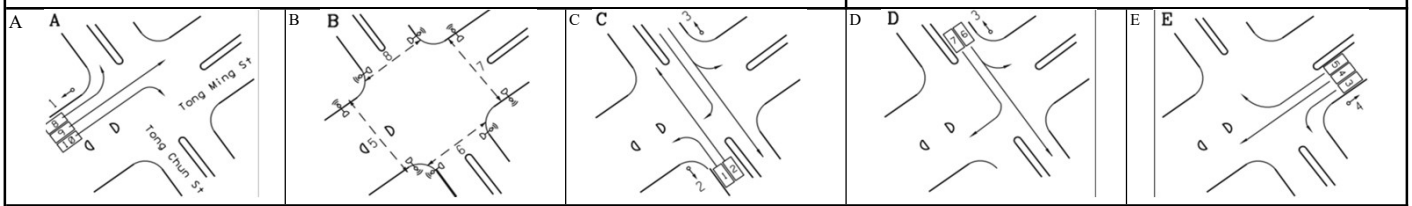
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J13 Tong Ming Street/Tong Chun Street	Ref. No.:	J13_SJ_2026
Scheme:	2026 Des (Construction Stage)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		3	9	22		0	2					3	3			6	
2		3	11	18		1	2					3	3			6	
2		3	6	22		1	2					3	3			6	

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.50	1		20				23 / 28	1930/1925	198	0.102	1	176	0.091	
1B	A	1	3.50				24			46 / 73	2045/2015	209	0.102		184	0.091	
1C	A	1	3.50				24				1980	203	0.102		181	0.091	1
2A	C	1	3.60	1		17				100	1815	175	0.096		145	0.080	
2B	C	1	3.70								2125	30	0.014		30	0.014	
3A	CD	1	3.20	1		17				87 / 65	1800/1830	225	0.125	1	170	0.093	
3B	CD	1	3.40		1		15			100	1695	150	0.088		195	0.115	1
4A	E	1	3.50	1		17				100	1805	5	0.003		85	0.047	
4B	E	1	3.50								2105	132	0.063		143	0.068	1
4C	E	1	3.50				23			51 / 62	2035/2025	128	0.063	1	137	0.068	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	B		14	14	12	26				
6P	B		10	10	8	18				
7P	B		12	12	10	22		1		1
8P	B		12	12	10	22				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

	AM Peak			PM Peak		
Check Critical Phase	1,7P,3,4	1,6P,3,4	1,8P,3,4	1,7P,3,4	1,6P,3,4	1,8P,3,4
Sum of y values, Y	0.290	0.290	0.290	0.274	0.274	0.274
Lost time, L	47	46	45	47	46	45
Cycle Time, C	125	125	125	125	125	125
Practical Y, Y_{pr}	0.562	0.569	0.576	0.562	0.569	0.576
Reserve Capacity, R.C. (%)	93%	96%	98%	105%	107%	110%

Calculated by:	Date: 五月-2021	Checked by:

Appendix II
Landscape Master Plan

Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O

Landscape Master Plan

13th July 2021

Prepared By:

SCENIC Landscape Studio Limited

Project Title	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O
Report Title	**Landscape Master Plan**

Revision	Date	Complied by:	Checked by:	Approved by:	Description
-	20210210	Winza Choi	John Charters	Chris Foot	Draft to Client
A	20210315	Winza Choi	John Charters	Chris Foot	Draft to Client
B	20210316	Winza Choi	John Charters	Chris Foot	Draft to Client
C	20210712	Winza Choi	John Charters	Chris Foot	Draft to Client
D	20210713	Winza Choi	John Charters	Chris Foot	Draft to Client

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Tables

Figures

Annexes

1.0 Introduction

1.1 SCENIC Landscape Studio Limited have been commissioned to prepare the Landscape Master Plan for the Section 16 Planning Application under Town Planning Ordinance for the proposed underground public vehicle park (excluding container vehicles) in Area 66, Tseung Kwan O (hereafter referred to as the Application Site).

1.2 The Application Site is zoned "Open Space" ("O") on the approved Tseung Kwan O Outline Zoning Plan (OZP) No. S/TKO/28 gazetted on 18th June 2020 as part of the future Town Park. It should be noted that the town park is not a subject of the application. The proposed development will use the underground space of the proposed town park as a public vehicle park on B1/F and B2/F. According to the Notes of the OZP, "Park and Garden" use is always permitted within the "O" zone, and "Public Vehicle Park (excluding container vehicle)" is a Column 2 use which requires planning permission from the Town Planning Board (TPB).

1.3 This report seeks to present the landscape design proposal. It will outline the landscape design objectives and landscape treatment for each component of the proposed Application Site. This report has been prepared in accordance with Buildings Department, Lands Department and Planning Department Joint Practice Note No. 3 concerning the Re-engineering of Approval Process for Land and Building Developments and adheres to the requirements of Buildings Department Practice Notes PNAP APP-152 Sustainable Building Design Guidelines for the calculation of the green coverage.

1.4 The Landscape Master Plan is presented as **Figure 4.1** and a series of perspectives as **Figure 12.1** to **12.3**.

2.0 Existing Site Description

2.1 The Application Site with a site area of about 16,475m^2, has a north – south orientation with an upturned semi-circular form at the northern portion; and is located to the south of Po Yap Road and to the north of Chin Shin Street and is bounded by The Wings II (Towers 1, 3 and 5) and The Parkside (Towers 1 and 2) developments to the east and The Wings IIIA (Towers 1, 2, 3 and 5) development to the west.

2.2 The Application Site is used as a temporary open-air car park with 788 nos. car parking spaces set out on a concrete surface.

2.3 Generally the Application Site is free of existing trees with the exception of 7 nos. trees located along the north and north eastern boundaries. These trees are include the naturally colonised weed species *Leucaena leucocephala* and one larger specimen *Sterculia lanceolata*.

2.4 An area zoned "O" in Area 68 is situated to the immediate south of the Application Site. Area 68 is currently vacant government land. Together with the open space at the Application Site in Area 66, Tseung Kwan O, it will form the Town Park with a Central Avenue to connect with the proposed waterfront promenade to the south.

2.5 Existing vehicular access to the Application Site is available from Chi Shin Street. However, the access to the proposed underground vehicle park will be made from Po Yap Road in the north. Pedestrian access is currently provided to the car park from a number of locations located along the eastern and western boundaries of the Application Site.

2.6 **Figure 2.1** shows the existing landscape resources within the immediate vicinity of the Application Site. **Figures 2.2** to **2.3** show the site context and landscape resources.

3.0 Description of the Proposed Development

3.1 The Proposed Scheme consists of an open space above underground car parking with the proposed provision of 395 nos. vehicle parking spaces in a 2-storey basement underneath the town park. The car parking will be located on the B1/F and B2/F and will include 300 nos. spaces for private cars, 30 nos. for motorcycles, 40 nos. for light good vehicles, 15 nos. for coaches and 10 nos. spaces for light buses, Vehicular access to the vehicle park will be made from Po Yap Road via an ingress / egress ramp (covering an area of not more than 680 m^2) at the north western corner of the Application Site.

3.2 The Proposed Scheme includes a number of above ground structures which support and are ancillary to the underground public vehicle park. These structures include staircases and lifts linking to the basement vehicle park and electrical and mechanical (E&M) facilities at the public vehicle park entrance. The proposed structures will have maximum building height of around 6m. In total the structures will have a plot ratio of not more than 0.04 and a site coverage of not more than 4% of the Application Site.

3.3 Although the proposed Town Park is not a subject of the application a preliminary design concept is proposed for the open space to demonstrate its future character. The design concept for the proposed Town Park centres on a theme of a "Different Form of Water" and it forms an extension of the design for Area 68.

3.4 The project brief calls for the following facilities:

- **S.1**: A landscaped park with a central avenue with unique features linking the Tseung Kwan O MTR station to the seafront. The avenue should have landmark feature unique to Tseung Kwan O. A piazza suitable for public gatherings and local community events.
- **S2**: Landscaped seating areas, arbours, rain shelters and pavilions. Extensive planting of heavy standard flowering trees and shrubs with different flowering periods. Flowering trees on both sides of the central avenue without compromising the connectivity between the avenue and the surrounding residential developments.
- **S3**: A fitness comer with:
  (a) Modem equipment suitable for use by all ages, with shelters as appropriate; and
  (b) Seats with backrests, armrests and shelters.
  LCSD should be consulted on the choice of fitness equipment, safety matting, layout plan and safety margin etc; and all requirements should follow the latest guidelines of LCSD.

4.0 Treatment of Existing Trees

Existing Trees

4.1 A total of 7 nos. of existing trees are located at the northern and north eastern boundaries of the Application Site growing along the existing boundary fence. The majority of the existing trees are the naturally colonised but exotic weed species *Leucaena leucocephala* and one larger specimen of the exotic *Aleurites moluccana*. **Annex I** contains the tree survey information.

4.2 Table 4.1 below lists the tree species surveyed and their relative abundance and describes their conservation value (native or exotic).

Table 4.1 Existing Tree Species Summary

Botanical Name	Chinese Name	No. of Trees within App Site	Native (N) Exotic (E)	Status in Hong Kong
Aleurites moluccana	石栗	1	**E**	Common
Leucaena leucocephala	銀合歡	6	**E**	Common
Total		**7**		

4.3 No rare or protected tree species (based on Forests and Countryside Ordinance, Cap. 96) or Champion Trees (identified in the book 'Champion Trees in Urban Hong Kong') were found to exist on site. There are also no trees surveyed which meet the requirements for a potential Old and Valuable Trees (OVT) (DEVB TCW No. 5/2020 Registration of Old and Valuable Trees).

Tree Recommendations

4.4 The proposed development footprint will extend across the whole Application Site and so the existing trees located along the northern and north eastern boundaries will be affected by the works. Table 4.2 provides a summary of the recommendations for the treatment of the existing trees.

Table 4.2 Summary of Tree Recommendations

Recommendation	Number of Trees	% Trees
Trees within the Site		
Trees to be retained	0	0%
Trees to be transplanted	0	0%
Trees to be felled	7	100%
Total number of trees	**7**	

4.5 The 7 nos. of the existing trees will be affected by these construction works and are not good candidates for transplantation owing to a range of factors including their species, form, condition, proximity to other trees, predicted survival rate and their contribution to the future landscape character and amenity of the development. In addition the trees are growing in close proximity to the existing fence structure and the edging for the hard paved areas and so it is unlikely that a viable rootball can be prepared and lifted.

New Tree Planting

4.6 Table 4.3 below provides a summary of the new tree planting proposals for the area within the Application Site boundary which fulfils the compensatory planting ratio requirement.

Table 4.3: Compensatory Planting Ratios

Compensatory Metrics	Statistic / Ratio	Tree Size / Girth
Number of felled trees	7	
Aggregated total DBH of felled trees	1.213m	(Aggregated Girth: 1.213m)
Number of new trees	14	Heavy Standard (DBH: 100mm)
Total aggregated DBH of new trees	1.40m	(Aggregated Girth: 4.396m)
Compensatory Planting Ratio (by DBH) (DBH of newly planted trees : DBH of trees felled)	1.15 : 1 (1.40 : 1.213)	
Compensatory Planting Ratio (by number) (Number of newly planted trees : number of trees felled)	2 : 1 (14 : 1)	

4.7 A summary of the preliminary new tree planting proposals is provided in table 4.4 below.

Table 4.4: Preliminary New Tree Planting Proposals

Botanical Name	Chinese Name	Stock Size	Spacing (mm)
Tree Species			
Terminalia mantaly	小葉欖仁	Heavy Standard	As shown

4.8 In order to compensate for the loss of trees within site some 14 nos. of good quality heavy standard trees will be planted in at-grade planters. This represents a compensatory ratio of 1.15:1 in terms of tree DBH loss (i.e. total DBH of compensatory trees : total DBH loss due to tree felling) and 2:1 in terms of tree numbers (i.e. number of new trees planted : trees felled. It should be noted that this represents a small of the overall tree planting proposal.

5.0 Landscape Design Proposal

5.1 The design underpinning the Indicative Landscape Plan for the development scheme, presented as **Figure 4.1**, is to integrate the proposals within their future landscape and visual context; provide a synthesis between the proposed underground car parking including its proposed above ground structures and its landscape setting and provide high quality open space for the use of the local community.

5.2 The design concept for the proposed Town Park centres on a theme of a "Different Form of Water" and is an extension of the design for Area 68. This design concept is evident in the overall layout of the landscape with the northern portion of the open space being formed by numerous small stream course in the 'watershed' coming together to form two main 'streams' flowing south to the Area 68 landscape. In this way the landscape design represents the different states of water in the course of a river from its source in the uplands, the upper

course to a series of tributaries in the middle course and the slower flowing meanders and delta in the lower course (Area 68).

5.3 The shapes of the planting areas and hard landscape features have also been designed to resemble the form of the water course eroding its landscape context and the transport of pebbles in a stream causing them to collide and rub against one another and the stream bed, with the resulting abrasion producing the familiar smooth and rounded shape of river rocks.

5.4 The Proposed Scheme has been designed around a hierarchy of space from large central open spaces to more intimate spaces at the edge of the Application Site. Tree planting along the eastern western peripheries of the park provides a visual and spatial buffer for local communities establishing a human scale whilst also ensuring permeability for pedestrians. The programme for the space is largely passive with more active activities being located to the north maximising the distance from the residential areas. The active facilities for the future Town Park are located within Area 68.

5.5 The landscape design proposal is described in terms of the main design objectives, followed by a description of the key landscape components, and finally the landscape elements including the proposed hard and soft landscape, which form the palette of materials.

6.0 Landscape Design Objectives

6.1 The design objectives for the Master Landscape Plan are to:

- Create a distinctive landscape which responds to the existing urban context, the car parking scheme proposals and the future needs of the park users;
- Integrate the proposed car parking scheme including its proposed above ground structures from a landscape and visual perspective with the existing and planned landscape context;
- Provide visual integration in views of the proposed above ground structures from the surroundings and provide vegetation screening and softening of the built-form in closer low-level views;
- Provide a quality, sustainable and accessible open space environment for the enjoyment of the future recreational users of the park;
- Provide recreational spaces;
- Maximise opportunities for greening measures utilising tree and shrub planting, lawn and trailing plants within the new landscape area;
- Planting to demonstrate seasonal effects with flowering tree and shrub species and changes in foliage marking the changing of the seasons; and
- Create accessible communal space within the confines of the Application Site which is pedestrian-friendly and generously landscaped.

7.0 Open Space Proposal

7.1 The design of the open space is based on the objective of providing high quality passive recreational facilities and features with adequate open space for the future recreational users of the Town Park (combined with Area 68) in accordance with Chapters 4 and 5 of the Hong Kong Planning Standard and Guidelines ("HKPSG").

7.2 The Proposed Scheme includes some 15,165 m^2 of Public Open Space.

7.3 The provision of public open space is illustrated on **Figure 7.1**.

8.0 Green Coverage

8.1 The green coverage for the Application Site has been designed as far as possible in accordance with Chapters 4 of the HKPSG in that "As a general guideline for designing public open space…. For passive open space, 70% of the land should be used for soft landscaping, out of which 60% should be used for planting trees". However the design intent has been subject to adjustment based on practical circumstances including the use of the Application Site for underground car parking, the requirements for the associated above ground structures, the vehicle access ramp; the north – south orientated Emergency Vehicular Access (EVA); and the requirements for pedestrian access.

8.2 Given the considerations described above and with a total site area of 16,475 m^2 the site coverage of greening shall be approximately 9,872 m^2 (60%) all located within the Primary Zone.

8.3 **Figure 8.1** shows the location and extent of the green coverage.

9.0 Landscape Design Components

9.1 The following description seeks to establish some general principles that are important in realising the landscape design as part of the general mitigation for the Proposed Development and ensure its feasibility whilst also providing a high quality Public Open Space (POS). As such the design of the landscape will evolve during the detailed design stage and this will be reflected in a future Landscape Master Plan Submission. **Figure 4.1**shows the Indicative Landscape Plan for the Proposed Scheme; and **Figures 12.1** to **12.3** perspectives showing the proposed character of the landscape.

9.2 The key landscape design components are described below.

Park Entrances

9.3 The landscape design should legible to the first-time visitor and the design of the arrival landscape with its distinctive paving aims and signage to aid orientation and wayfinding. The access into the Application Site defines the character of the Town Park and would be designed to provide an attractive entry experience which is also sensitive to the existing landscape context of the site. The Indicative Landscape Plan (**Figure 4.1**) demonstrates the design approach to this area.

Neighbourhood Connections

9.4 The landscape of the future Town Park should be permeable and easily accessible for the adjacent community. This is achieved through a series of pedestrian Neighbourhood Connections on the eastern and western sides of the Park providing convenient footpaths at regular intervals. The location of these connections is shown on **Figure 4.1**.

Crescent Avenue

9.5 Located at the north eastern corner of the Application Site the Crescent Avenue provides a tree lined secondary pedestrian route into the heart of the Park. Large shade trees provide for the thermal comfort while also contributing to the landscape buffer at the periphery of the Park and also screening views of the proposed vehicular ramp to the underground car parking. The alignment is lined by shaded seating. The Indicative Landscape Plan (**Figure 4.1**) demonstrates the design approach to this area.

Piazza

9.6 The Piazza is located in the northern portion of the Park which could potentially accommodate some 50 nos people in the central space and approximately 80 nos. people on the seating terraces to the west, south west and south. It is designed as a public space suitable for public gatherings and local community events and is easily accessible from residential areas to the north of the Town Park and those to the east and west. Tree and shrub planting to the north, north east and east provide a backdrop to activities and a buffer against the vehicular activity on Po Yap Road. The Indicative Landscape Plan (**Figure 4.1**) shows the configuration of the landscape for this area and **Figure 12.1** provides a perspective of the space.

Grand Lawn / Events Lawn

9.7 The Grand Lawn / Events situated in the southern portion of the Park is designed as flexible / multi-purpose space allowing visitors to engage in impromptu activities such as enjoying a family gathering / picnic. The space is surrounded by shade trees providing a comfortable environment during the summer months. The lawn is area is mounded to allow for slightly elevated view north and south. Two shade / rain structures also provide for more formal seating environment. The lawn also offers the opportunity for the placement of artworks.

Fitness Corner

9.8 Located to the north west of the Application Site the Fitness Corner provides a range of modern equipment for all age groups overlooked by two pavilions for parental supervision or a place to rest and interact with fellow fitness participants. The equipment will be designed to cater for all levels of ability whilst also providing opportunities for social interaction. LCSD will be consulted on the choice of fitness equipment, safety matting, layout plan and safety margin etc; and all requirements will follow the LCSD's latest guidelines and experience from other venues. The Fitness Corner is located approximately 20m from the edge of Po Yap Road and enclosed by a buffer of tree and shrub planting.

Tai Chi Garden

9.9 The Park will feature a dedicated, meditative outdoor space for the exercise of the practice of Tai Chi in the northern portion of the Application Site. The garden is enclosed by tree and shrub planting to the north and offers a more open vista to the south. The lawn area is slightly mounded to provide elevated views over the surrounding area and a pavilion creates the opportunity to meet fellow practitioners and a place to rest after exercise.

Recreational Lawn

9.10 The Recreational Lawn provides naturalistic space for practitioners located in the northern portion of the Application Site surrounded by a combination of tree and shrub planting. Similar to the Tai Chi Garden the Recreational Lawn provides a slightly elevated platform with a pavilion as a place to meet fellow devotees and a place to relax.

Colour Garden

9.11 The Colour Garden, located in the north west corner of the Application Site, is envisaged as a communal, multi-purpose space based on an exploration of colour theory expressed through the use of colourful planting. The selection of plant species will be designed to have seasonal effect with both the foliage and flowers changing throughout the year.

Scented Trail

9.12 The Scented Trail located in the south west portion of the Application Site will include plant species designed to create distinctive scent throughout the seasons and throughout the day and evening. Although the principle of designing for all the senses will be employed throughout the landscape this area will include species known for their attractive smells.

Butterfly Walk

9.13 The Butterfly Walk will be located to the north of the Grand Lawn / Events Lawn will include foliage plant species favoured by caterpillars and nectar producing flowers to attract the adult butterflies. The design of the walk will build on the experience gathered in similar projects throughout Hong Kong. **Annex II** provides a list of potential species.

Boundary Landscape

9.14 The eastern and western peripheries of the Application Site will be lined by landscape buffer areas designed to provide a sense of privacy for adjacent residents. These boundary areas will feature a combination of tree and shrub planting. **Figure 4.1** shows the location of these boundary landscapes and sections in **Figures 5.1** to **5.5** illustrate its effectiveness.

10.0 Landscape Design Elements

Soft Landscape Design Approach

10.1 The basis for the proposed planting scheme is to provide a green and comfortable environment for future recreational users of the Town Park. Flowering shrubs in addition to the use of hard landscape treatments would be used to emphasise the character of each of the landscape spaces described above. The spaces will be characterised by the use of shrub and groundcover species selected to provide a lush landscaped area whilst responding to the character of the urban landscape that embraces it.

10.2 The planting design will contribute to the overall character of the proposed development providing colour throughout the year with seasonal variations providing an evolving tableau. This will be achieved through the selection of species with an interesting form, colour and texture of their foliage and through the use of flowering species to provide architectural highlights.

10.3 The species listed in Table 10.1 will form the basis of the planting design proposals.

Table 10.1: Planting Species

Botanical Name	Chinese Name	Size (mm)	Spacing (mm)
Trees			
Bauhinia variegata	宮粉羊蹄甲	Heavy Standard	As shown
Callistemon viminalis	串錢柳	Heavy Standard	As shown
Cassia fistula	豬腸	Heavy Standard	As shown
Cinnamomum burmanii	陰香	Heavy Standard	As shown
Elaeocarpus hainanensis	水石榕	Heavy Standard	As shown
Hibiscus tiliaceus	黃槿	Heavy Standard	As shown
Jacaranda mimosifolia	藍花楹	Heavy Standard	As shown
Plumeria spp.	雞蛋花	Heavy Standard	As shown
Metasequoia glyptostroboides	水杉	Heavy Standard	As shown
Michelia champaca	黃蘭	Heavy Standard	As shown
Salix babylonica	垂柳	Heavy Standard	As shown
Sapium sebiferum	烏桕	Heavy Standard	As shown
Tabebuia rosea	粉花風鈴木	Heavy Standard	As shown
Terminalia mantaly	小葉欖仁	Heavy Standard	As shown

Botanical Name	Chinese Name	Size (mm)	Spacing (mm)
Shrub Species			
Brunfeisia calycina	大鴛鴦茉莉	300 (h) x 300 (s)	250
Caesalpinia pulcherrima	金鳳花	300 (h) x 300 (s)	250
Camellia sasanqua 'Pink Snow'	茶梅	300 (h) x 300 (s)	250
Clerodendrum myricoides 'Ugandense'	藍蝴蝶	300 (h) x 300 (s)	250
Dichroa febrifuga	常山	300 (h) x 300 (s)	250
Duranta repens 'Golden Leaves'	金露花	300 (h) x 300 (s)	250
Ficus microcarpa 'Crassifolia'	細葉榕	1200 (h) x 500 (s)	400
Ficus microcarpa 'Golden Leaves'	黃葉榕	500 (h) x 500 (s)	400
Hibiscus rosa sinensis	朱槿(大紅花)	500 (h) x 500 (s)	400
Ixora coccinea 'Sunkist'	橙紅龍船花	250 (h) x 250 (s)	200
Murraya paniculata	九里香	300 (h) x 300 (s)	250
Schefflera arboricola	矮鴨腳木	600 (h) x 600 (s)	500
Tabernaemontana divaricata 'Flore Pleno'	狗牙花	300 (h) x 300 (s)	250
Small Shrub Species			
Plimbago auriculata	藍雪花	250 (h) x 200 (s)	250
Blechnum orientale	烏毛蕨	250 (h) x 200 (s)	250
Cuphea hyssopifolia	細葉萼距花	250 (h) x 200 (s)	250
Dietes bicolor	雙色非洲鳶尾	250 (h) x 200 (s)	250
Lantana montevidensis	馬纓丹	250 (h) x 200 (s)	250
Nephrolepis exaltata	腎蕨	250 (h) x 200 (s)	250
Ground Cover			
Asparagus densiflorus 'Sprengeri'	非洲天門冬	300 (h) x 300 (s)	250
Catharanthus roseus	長春花	250 (h) x 200 (s)	250
Cuphea hyssopifolia	細葉萼距花	250 (h) x 300 (s)	250
Hymenocallis americana	水鬼蕉	300 (h) x 500 (s)	400
Iris spp.	鳶尾	150 (h) x 150 (s)	100
Lantana montevidensis	馬纓丹	300 (h) x 300 (s)	250
Nephrolepis exaltata	腎蕨	250 (h) x 400 (s)	400
Ophiopogon japonicus	麥冬	250 (h) x 300 (s)	200
Philodendron selloum	春羽	700 (h) x 700 (s)	500
Phyllanthus myrtifolius	瘤腺葉下珠	250 (h) x 250 (s)	250
Scindapsus aureus	黃金葛	250 (h) x 200 (s)	250
Spathiphyllum floribundum	白鶴芋	250 (h) x 200 (s)	250
Syngonium podophyllum	合果芋	250 (h) x 200 (s)	250
Bamboo			

Botanical Name	Chinese Name	Size (mm)	Spacing (mm)
Bambusa textilis	青皮竹	2000-3000 (h) (3 culms per clump)	250
Pseudosasa japonica	矢竹	1000-2000 (h) (3 culms per clump)	250
Climbing and Trailing Plants			
Bauhinia glauca	粉葉羊蹄甲	3 shoots per plant. Each shoot 1000mm long	250
Bougainvillea sp. 'Mary Palmer'	勒杜鵑		250
Ficus pumila	忍冬(金銀花)		250
Lonicera japonica	金銀花		250
Parthenocissus dalzielii	爬牆虎		250
Petrea volubilis	藍花藤		250
Trachelospermum jasminoides	絡石		250
Quisqualis indica (red)	使君子 (紅)		250
Lawn			
Axonopus compressus	地毯草	Turves	

Note: *The plant species listed above provide an indication of the future character of the proposed landscape areas however the design will be subject to further review during the detailed design stage of the project.*

Soil Depth for Planting Areas

10.4 In order to ensure that the planting proposals are feasible, it is proposed that an adequate planting medium be incorporated into the design of the soft landscape areas. All planting areas allow a minimum soil depth of 1200mm for trees, and 600mm and 300mm respectively facilitating the planting of shrub and lawn areas. Although the planter will largely all be on structure they will be sunken to provide a seamless integration between the surrounding landscape and that of the Park and provide a more naturalistic landscape within the Park.

Irrigation and Drainage

10.5 The proposed irrigation system will utilise a manual system with lockable water points at 40m centres throughout the entire site. The proposed source of water supply will be subject to final approval from the Water Services Department.

10.6 Sub-soil drainage shall be provided for all planting areas on structure with planter drains provided within all planter bays and weep holes between adjoining planters. The planter drains will drain into collection pipes aligned with columns. Cellular drainage layers shall be provided at the base and sides of these planters.

Feature Paving

10.7 The paving will be an important element of the landscape design both in terms of its aesthetic appearance and in terms of producing a hardwearing landscape for usage by the future users. The design will follow the material selection and paving design established for Area 66, Tseung Kwan O. The design of the proposed paving will highlight entrance areas and major pedestrian routes through the site providing a hierarchy for pedestrian movement and help to define the spatial configuration of the landscape. It would be constructed of quality materials in feature patterns creating a distinct identity for each of the key landscape zones responding to the design concepts and function of each. Colour changes within the patterns

would be used to break the linearity of the spaces and establish a theme across the proposed Town Park.

10.8 Non-slip paving materials will be utilised throughout the site and the proposed finishes and materials are summarized below:

- Plaza paving, major pathways, pedestrian corridors and feature pathways: Combination of subtle shades of natural granite.
- Feature gardens: Combination of natural granite and recycled plastic timber decking.
- Fitness Corner: Combination of safety matt and natural granite.
- Colour Garden: Combination of concrete pavers and natural granite.

Special Needs for Persons with Disabilities and the Elderly

10.9 All landscape areas will cater for multiple use needs including people with impaired ability and access for the disabled in accordance with Building Department's Design Manual on 'Barrier Free Access (DMBFA), 2008' and Transport Department (TD)'s Transport Planning and Design Manual.

10.10 The landscape design considers the requirements of Chapter 6 of the DMBFA for the use of elderly visitors to the Park whereby the landscape has been designed without steps, thresholds, small ramps or kerbs, wherever possible. Where changes in level are unavoidable handrails or grab bars will be provided. Steps and staircases should be designed with wider treads and lower risers. Floor surfaces will comply with Division 4. Slip-resistant floor finishes and avoids the use of shiny and reflective floors such as marble, glazed tiles and the like. Open jointed pavers or aeration paver blocks with uneven or very rough surface will be avoided at external open spaces.

10.11 Other measures will include the Provision of the following facilities should be considered to cater for the special needs of persons with disabilities and elderly people including shaded planting areas for walking and sitting; adequate lighting; emergency phones; handicapped facilities; visual-free walking areas; ramps with handrails in preference to steps; and car or bus dropping-off points near to venues.

Lighting

10.12 The lighting design concept for the landscaped areas should be designed to contribute to the quality of the development in nocturnal views providing an aesthetically pleasing landscape through the highlighting of landscape elements. All of the landscape areas will be provided with sufficient illumination to meet the required lighting standards, particularly for the entrance areas and pedestrian access paths. The lighting concept will include three types of lighting which are as follows:

- Amenity lighting highlighting feature specimen shrubs, walls, sculptures and planting through the use of spotlights and up-lighting which are of suitable direction and intensity so that they enhance the night-time landscape ambience without affecting external areas;
- Area lighting involving the use of low-level lighting sources such as lighting bollards and recessed wall lights for sitting areas and main landscape spaces designed to avoid glare / light spillage to adjacent properties; and
- General safety lighting with the minimum lux level which will last between midnight and early morning.

Site Furniture

10.13 The landscape design would include the provision of site furniture including seating, which in addition to its function attributes would also contribute to the perceived quality of the landscape. Seating will incorporate backrests, armrests and where possible shelters.

Safety Requirements

10.14 All outdoor facilities will be designed, constructed and operated in full compliance with relevant safety standards and guidelines.

11.0 Landscape Management and Maintenance

11.1 All of the open space within the Application Boundary would be constructed as part of a Design and Build contract administered by the Architectural Services Department (ArchSD). Upon completion of the construction works, a 12-month Defects Liability Period (DLP) will be implemented applying to the hard landscape whereby the specialist contractor will be responsible for the maintenance during this first year

11.2 Similarly the softworks contractor will be responsible for a 12-month Establishment Period (EP) for the planting after practical completion. This allows a period of time for proper establishment of the plants and the replacement of any losses. **Table 11.1** (overleaf) provides the maintenance schedule for the soft landscape.

11.3 At the end of the 12-month DLP / EP, the landscape will be handed over to LCSD whom will be responsible for its management and maintenance.

Table 11.1 Landscape Maintenance Schedule

Item	Maintenance Operation	Frequency	J	F	M	A	M	J	J	A	S	O	N	D
1.1	Watering	280 days												
1.2	Litter Collection	Daily												
1.3	Weed Control	16/ year												
1.4	Pruning of Shrubs	As required												
1.5	Pruning of Trees	As required												
1.6	Fertiliser Application	Twice/year												
1.7	Top-up Mulch	Twice/year												
1.8	Pest Control	As required												
1.9	Replacement planting - Permanent planters	As required												
1.10	Tree Support Inspection/ Adjustment	Once/month	1	1	1	1	1	1	1	1	1	1		
1.11	Checking After Exceptional Weather	As required												
1.12	Grass Cutting	14 times												
1.13	Periodic Inspection by User and Horticultural Maintenance Contractor is recommended	Four/year				1		1		1			1	
1.14	Tree Risk Assessment in accordance with DEVB methodology will be undertaken at an appropriate time of year	Once/year				1								

Landscape Figures

LEGEND

- Application Site Boundary
- 500m Study Area

Landscape Resources

- LR1 Road Development
- LR2 Pedestrian Footpath / Footbridge
- LR3 Commercial Development
- LR4 Low-Rise Residential Development
- LR5 High-Rise Residential Development
- LR6 Government, Institution or Community
- LR7 Plantation
- LR8 Open Space
- LR9 Mixed Woodland
- LR10 Sea
- LR11 Carpark
- LR12 Infrastructure
- LR13 Vacant Land

FIGURE TITLE

Section 16 Planning Application for Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O

Landscape Context

SCALE	A.S.	DATE	FEB 2021
CHECKED	CJF	DRAWN	BC, BK

FIGURE NO. Figure 2.1 REV -

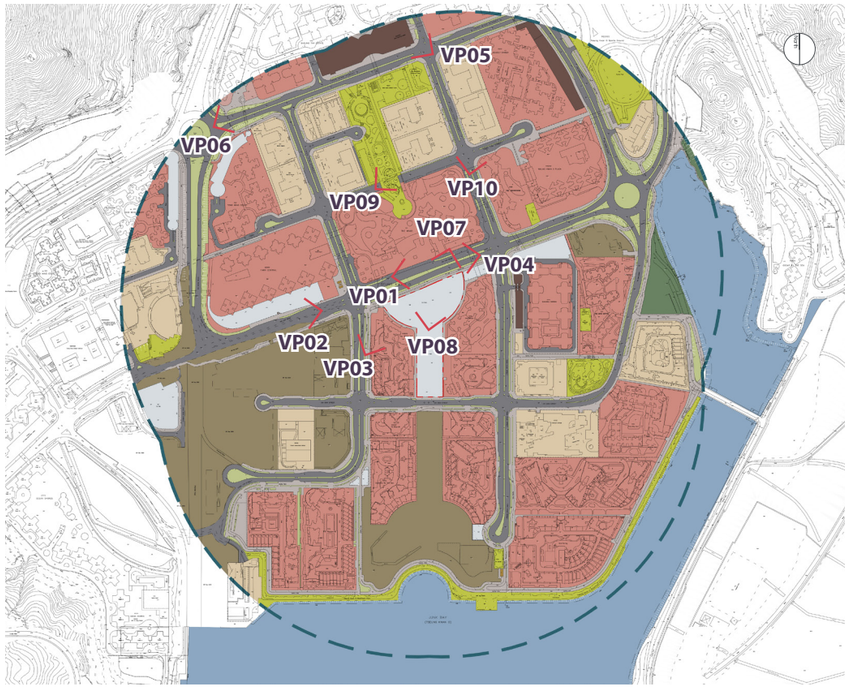
SCENIC Landscape Studio Limited
LANDSCAPE ARCHITECTURE, LANDSCAPE PLANNING & ASSESSMENT
12/F So Hong Commercial Building, 41-47 Jervois Street, Sheung Wan, Hong Kong
Telephone: 2468 2422
Facsimile: 3016 2422
Website: scenic@studioscenic.com

VP01: LR1 Road Development

VP02: LR1 Road Development

VP03 LR2 Pedestrian / Footbridge

VP04: LR2 Pedestrian / Footbridge



VP05: LR3 Commercial Development

VP06: LR4 Low-Rise Residential Development

VP07: LR5 High-Rise Residential Development

VP08: LR5 High-rise Residential Development

VP09: LR5 High-rise Residential Development

VP10: LR6 Government, Institution or Community

LEGEND

- Application Site Boundary
- 500m Study Area
- VP08 Viewpoints

Landscape Resources

- LR1 Road Development
- LR2 Pedestrian Footpath / Footbridge
- LR3 Commercial Development
- LR4 Low-Rise Residential Development
- LR5 High-Rise Residential Development
- LR6 Government, Institution or Community
- LR7 Plantation
- LR8 Open Space
- LR9 Mixed Woodland
- LR10 Sea
- LR11 Carpark
- LR12 Infrastructure
- LR13 Vacant Land

FIGURE TITLE

Section 16 Planning Application for Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O

Photographic Record of Existing Landscape Resource

SCALE	A.S.	DATE	FEB 2021
CHECKED	CJF	DRAWN	BC, BK
FIGURE NO.	Figure 2.2	REV	-

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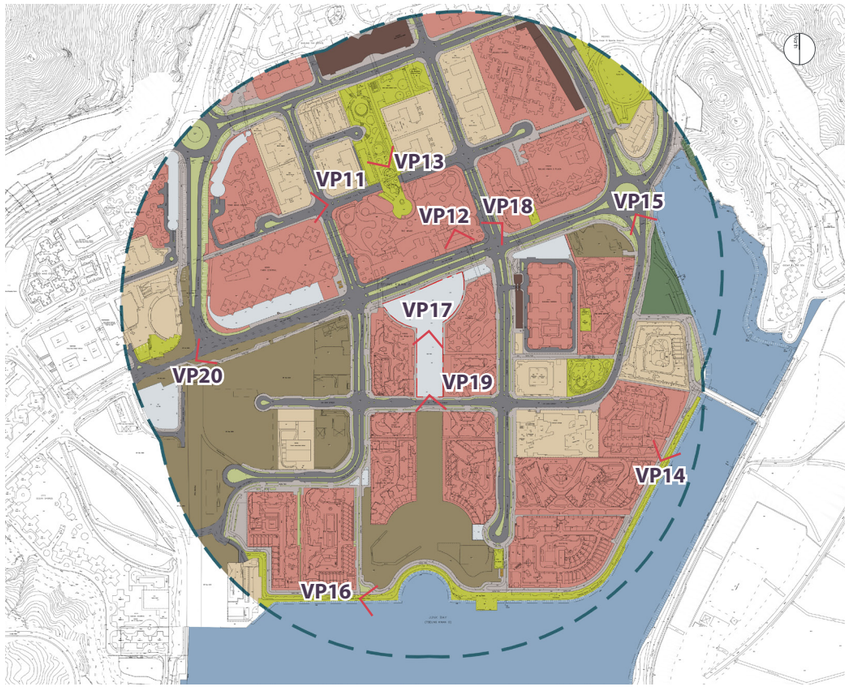
Website: scenic@studioscenic.com

VP11: LR6 Government, Institution or Community

VP12: LR7 Plantation

VP13: LR8 Open Space

VP14: LR8 Open Space



VP15: LR9 Mixed Woodland

VP16: LR10 Sea

VP17: LR11 Carpark

VP18: LR12 Infrastructure

VP19: LR13 Vacant Land

VP20: LR13 Vacant Land

LEGEND

- Application Site Boundary
- 500m Study Area
- VP08 Viewpoints

Landscape Resources

- LR1 Road Development
- LR2 Pedestrian Footpath / Footbridge
- LR3 Commercial Development
- LR4 Low-Rise Residential Development
- LR5 High-Rise Residential Development
- LR6 Government, Institution or Community
- LR7 Plantation
- LR8 Open Space
- LR9 Mixed Woodland
- LR10 Sea
- LR11 Carpark
- LR12 Infrastructure
- LR13 Vacant Land

FIGURE TITLE

Section 16 Planning Application for Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O

Photographic Record of Existing Landscape Context

SCALE	A.S.	DATE	FEB 2021
CHECKED	CJF	DRAWN	BC, BK
FIGURE NO.	Figure 2.3	REV	-

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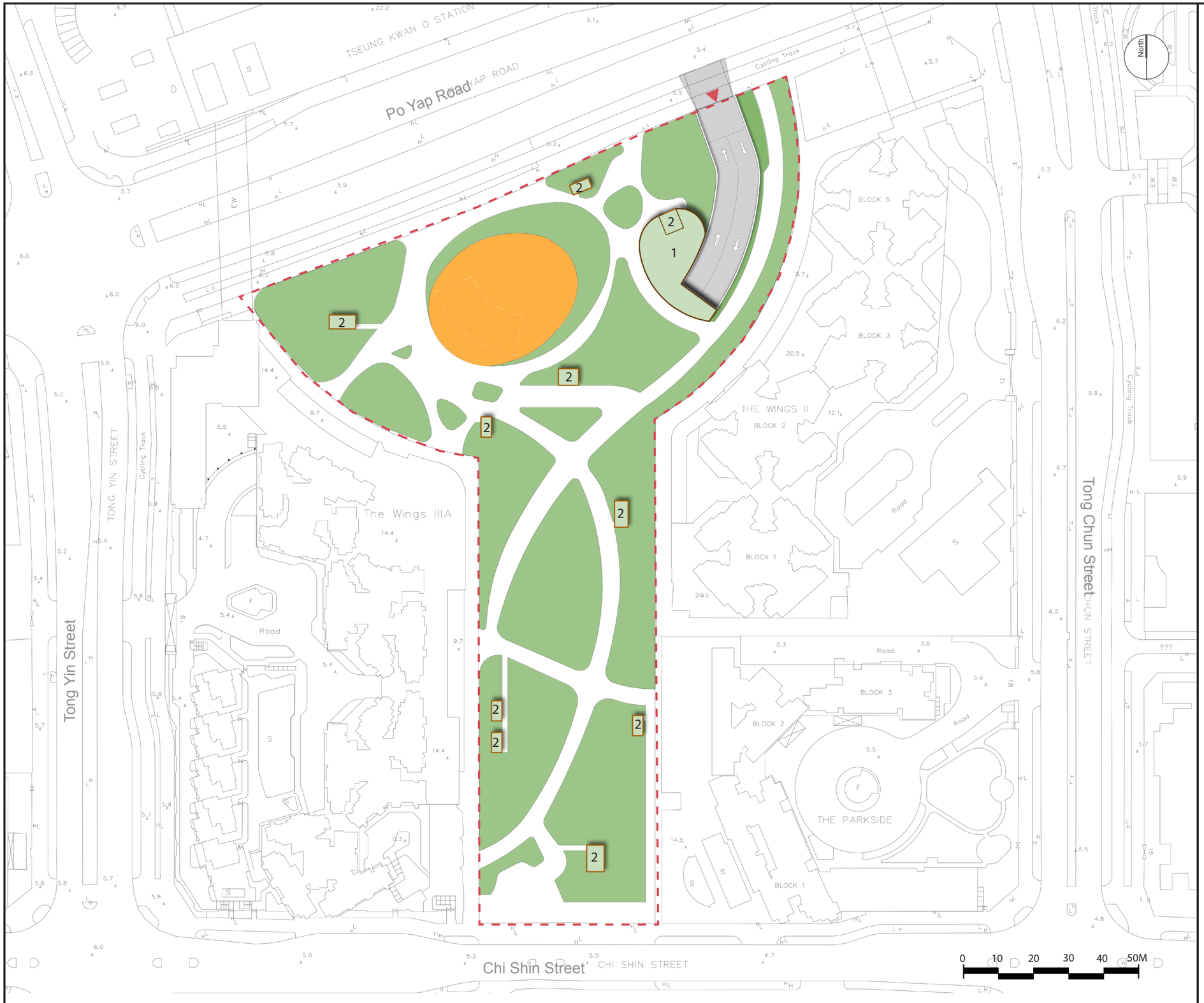

LEGEND

- Application Site Boundary
- Proposed Landscape Area
- 1 — Proposed E&M Structure
- 2 — Proposed Lift / Staircase
- Proposed Piazza
- Proposed Entrance / Ramp to the Basement Public Vehicle Park

FIGURE TITLE

Section 16 Planning Application for Proposed Underground Public Vehicle Park
(excluding container vehicle) in Town Park in Area 66, Tseung Kwan O

Indicative Landscape Plan

SCALE	A.S.	DATE	JUL 2021
CHECKED	CJF	DRAWN	BC, BK
FIGURE NO.	Figure 4.1	REV	B

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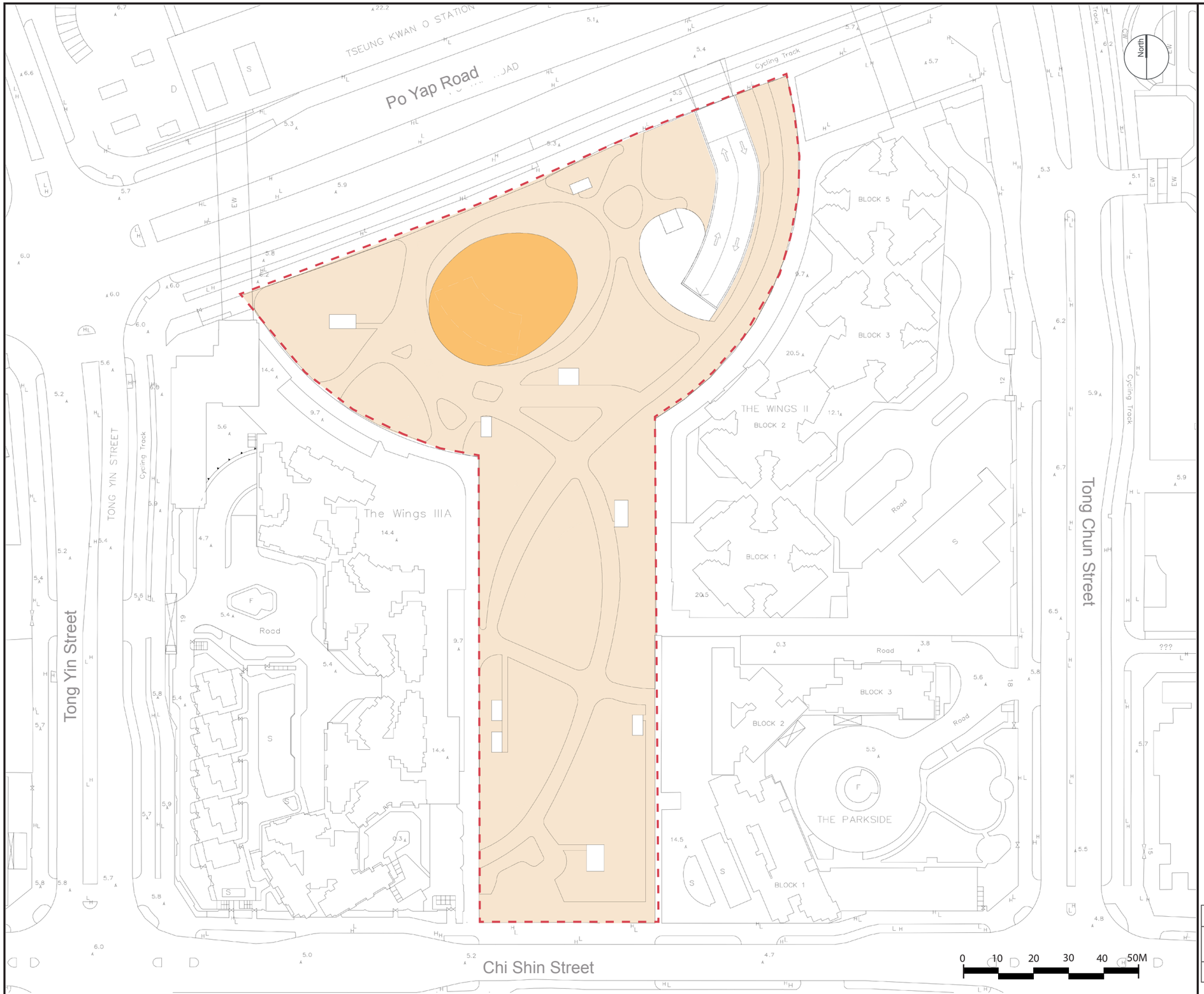

LEGEND

- Application Site Boundary
- Proposed Architectural Scheme
- xx.xx Proposed Levels
- Public Open Space
- Proposed Piazza

Open Space	
Type of Open Space	Approx. Area
Total Public Open Space	15,165 sqm

FIGURE TITLE

Section 16 Planning Application for Proposed Underground Public Vehicle Park
(excluding container vehicle) in Town Park in Area 66, Tseung Kwan O

Open Space Proposal

SCALE	A.S.	DATE	JUL 2021
CHECKED	CJF	DRAWN	BK
FIGURE NO.	Figure 7.1	REV	A

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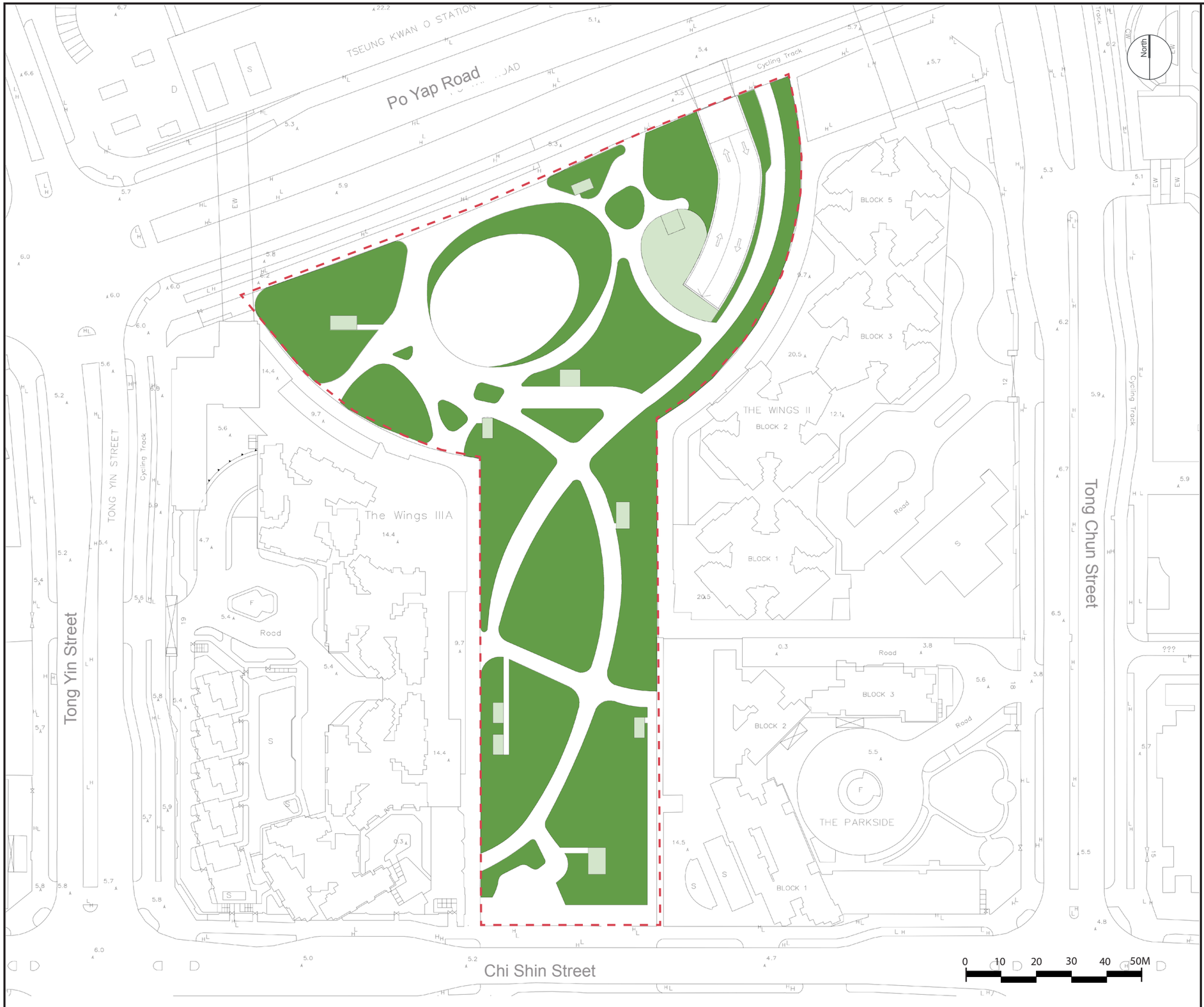

LEGEND

- Application Site Boundary
- Proposed Architectural Scheme
- xx.xx — Proposed Levels
- Green Coverage at Primary Zone
- Extensive Green Roof at Primary Zone

Green Coverage	
Type of Green Coverage	Approx. Area
Green Coverage (Primary Zone)	9,872 sqm

FIGURE TITLE

Section 16 Planning Application for Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O

Green Coverage

SCALE	A.S.	DATE	JUL 2021
CHECKED	CJF	DRAWN	BK

FIGURE NO. Figure 8.1 — REV A

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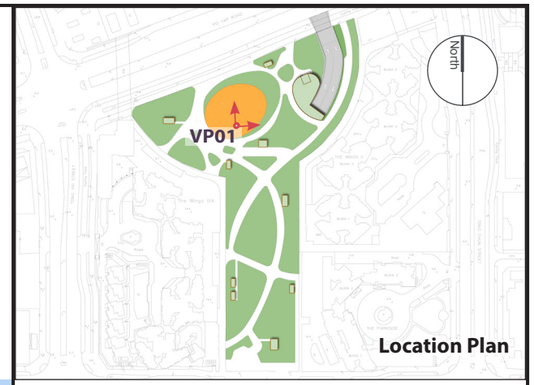
View looking east from the proposed Terraced Seating overlooking the Open-Air Piazza



LEGEND

Viewpoint

FIGURE TITLE

Section 16 Planning Application for Proposed Underground Public Vehicle Park
(excluding container vehicle) in Town Park in Area 66, Tseung Kwan O

Landscape Perspective

SCALE	A.S.	DATE	JUL 2021
CHECKED	CJF	DRAWN	BC

FIGURE NO. Figure 12.1 REV A

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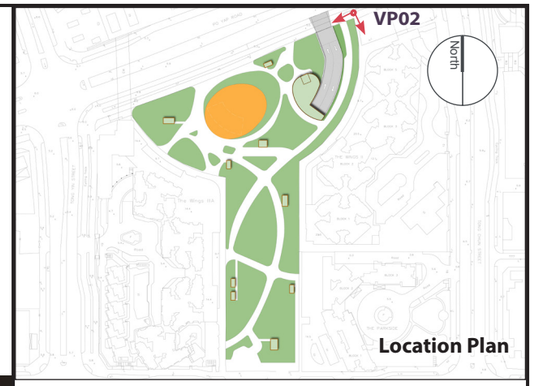
View looking south east from the MTR Entrance on Po Yip Road towards the Area 66



LEGEND

Viewpoint

FIGURE TITLE

Section 16 Planning Application for Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O

Landscape Perspective

SCALE	A.S.	DATE	JUL 2021
CHECKED	CJF	DRAWN	BC
FIGURE NO.	Figure 12.2	REV	A

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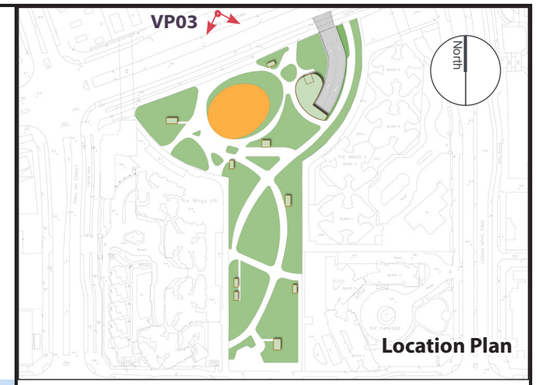
View looking south from Po Yip Road towards Area 66



LEGEND

Viewpoint

FIGURE TITLE

Section 16 Planning Application for Proposed Underground Public Vehicle Park
(excluding container vehicle) in Town Park in Area 66, Tseung Kwan O

Landscape Perspective

SCALE	A.S.	DATE	JUL 2021
CHECKED	CJF	DRAWN	BC
FIGURE NO.	Figure 12.3	REV	A

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Website: scenic@studioscenic.com

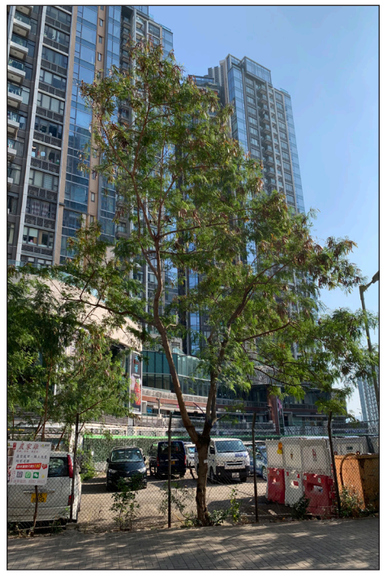
Annexes

Annex I

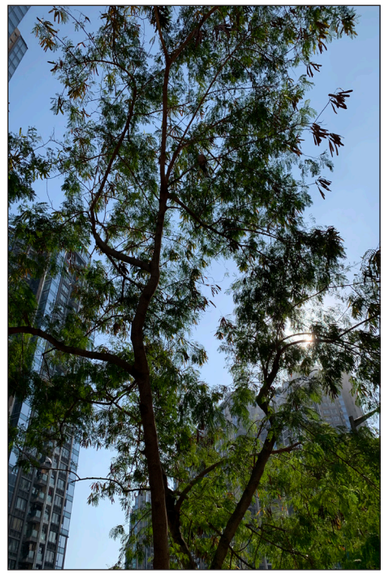
Tree Survey, Recommendations and
New Tree Planting Plan

Tree Survey Data		
Tree No.		T009
Botanical Name		*Leucaena leucocephala*
Chinese Name		銀合歡
Survey Size (m)	DBH*	0.200
	Height	8
	Spread	6
Form		Fair
Health Condition		Fair
Structural Condition		Fair
Amenity Value		Fair
Suitability for Transplanting		Low
Conservation Status		Nil
Location		Flat
Soil Level at Base of Tree		+5.73mPD
Proposed Treatment		Fell
Remarks		Growing on fence line

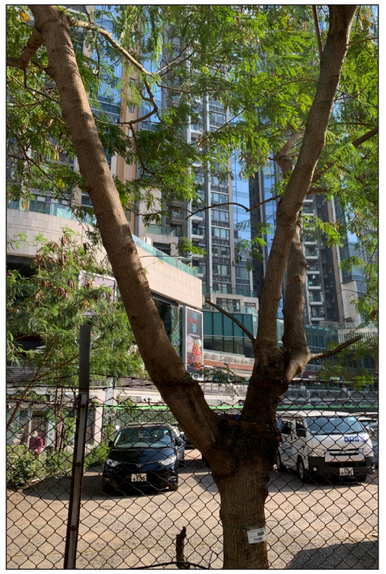
Note: DBH* measurement in accordance with AFCD NCPN No.02 (June 2006)



T009 *Leucaena leucocephala*
Photograph showing overall form of the tree



T009 *Leucaena leucocephala*
Photograph showing the canopy of the tree



T009 *Leucaena leucocephala*
Photograph showing the upper part of the stem or trunk

T009 *Leucaena leucocephala*
Photograph showing the base of the stem or trunk

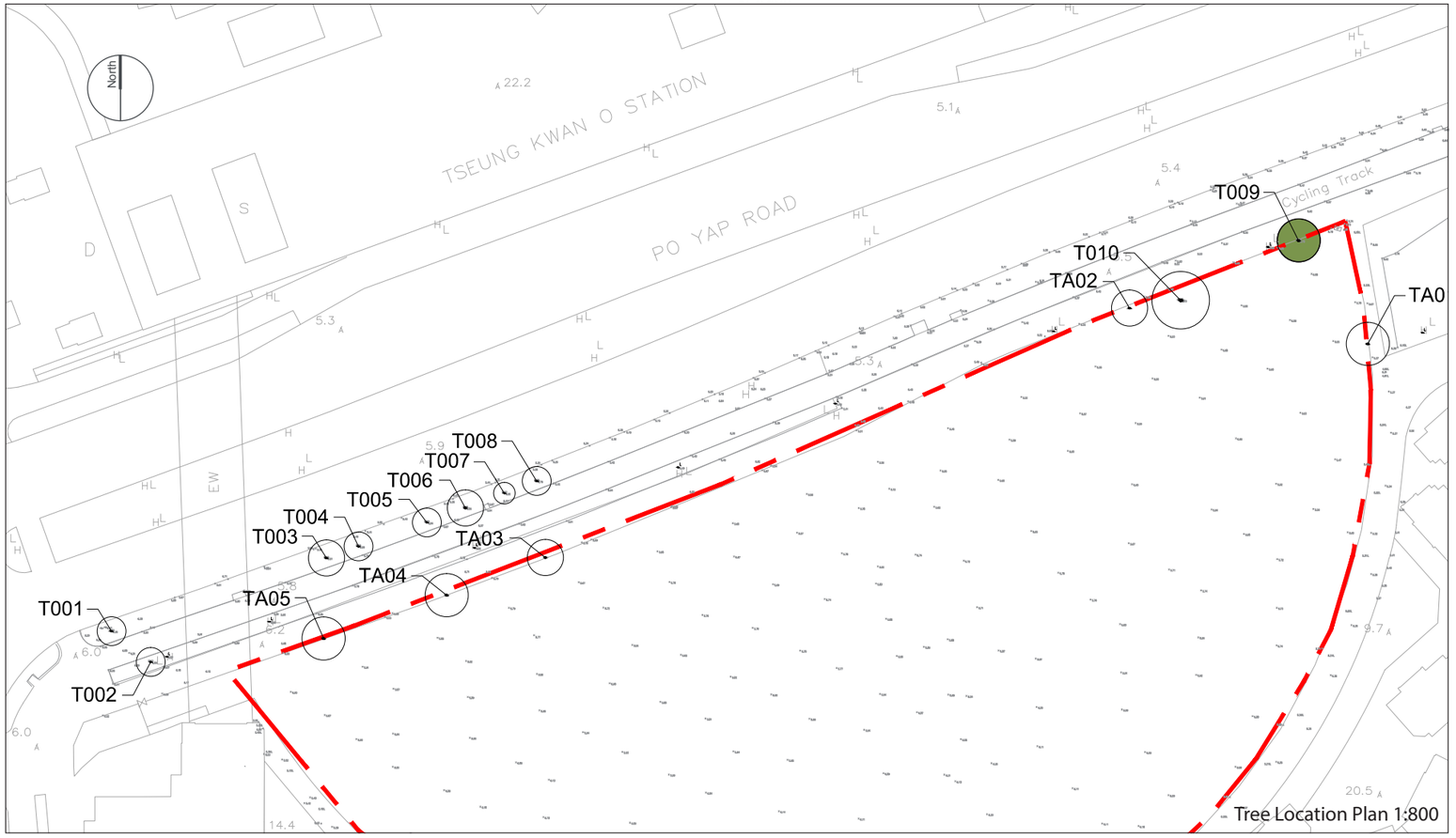


FIGURE TITLE	Section 16 Planning Application for Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O **Tree Survey and Location Plan**		
SCALE	As Shown	DATE	FEB 2021
CHECKED	CJF	DRAWN	BK
FIGURE NO.	Annex 1.1	REV	-

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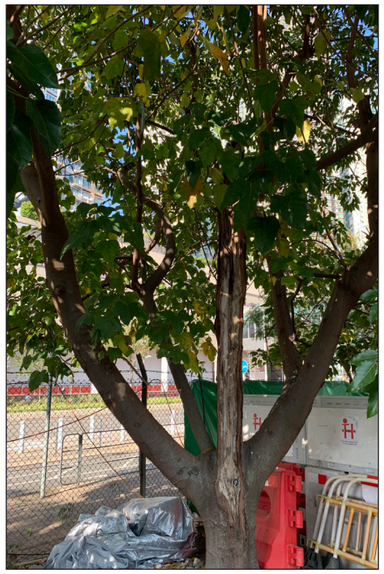
Website: scenic@studioscenic.com

Tree Survey Data		
Tree No.		T010
Botanical Name		*Aleurites moluccana*
Chinese Name		石栗
Survey Size (m)	DBH*	√ ((0.233)² + (0.120)² + (0.220)² + (0.300)²) = √0.2057 = 0.45
	Height	9
	Spread	4
Form		Fair
Health Condition		Fair
Structural Condition		Fair
Amenity Value		Fair
Suitability for Transplanting		Low
Conservation Status		Nil
Location		Flat
Soil Level at Base of Tree		+29.3mPD
Proposed Treatment		Fell
Remarks		Damaged central leader, spilintered break with large area of exposed cambian layer, sap wood and heart wood. Exposed area likely to form a pathway for pathogens and future source of decay.

Note: DBH* measurement in accordance with AFCD NCPN No.02 (June 2006)

T010 *Sterculia lanceolata verrhoa*
Photograph showing overall form of the tree

T010 *Sterculia lanceolata verrhoa*
Photograph showing the canopy of the tree



T010 *Sterculia lanceolata verrhoa*
Photograph showing the upper part of the stem or trunk

T1010 *Sterculia lanceolata verrhoa*
Photograph showing the base of the stem or trunk

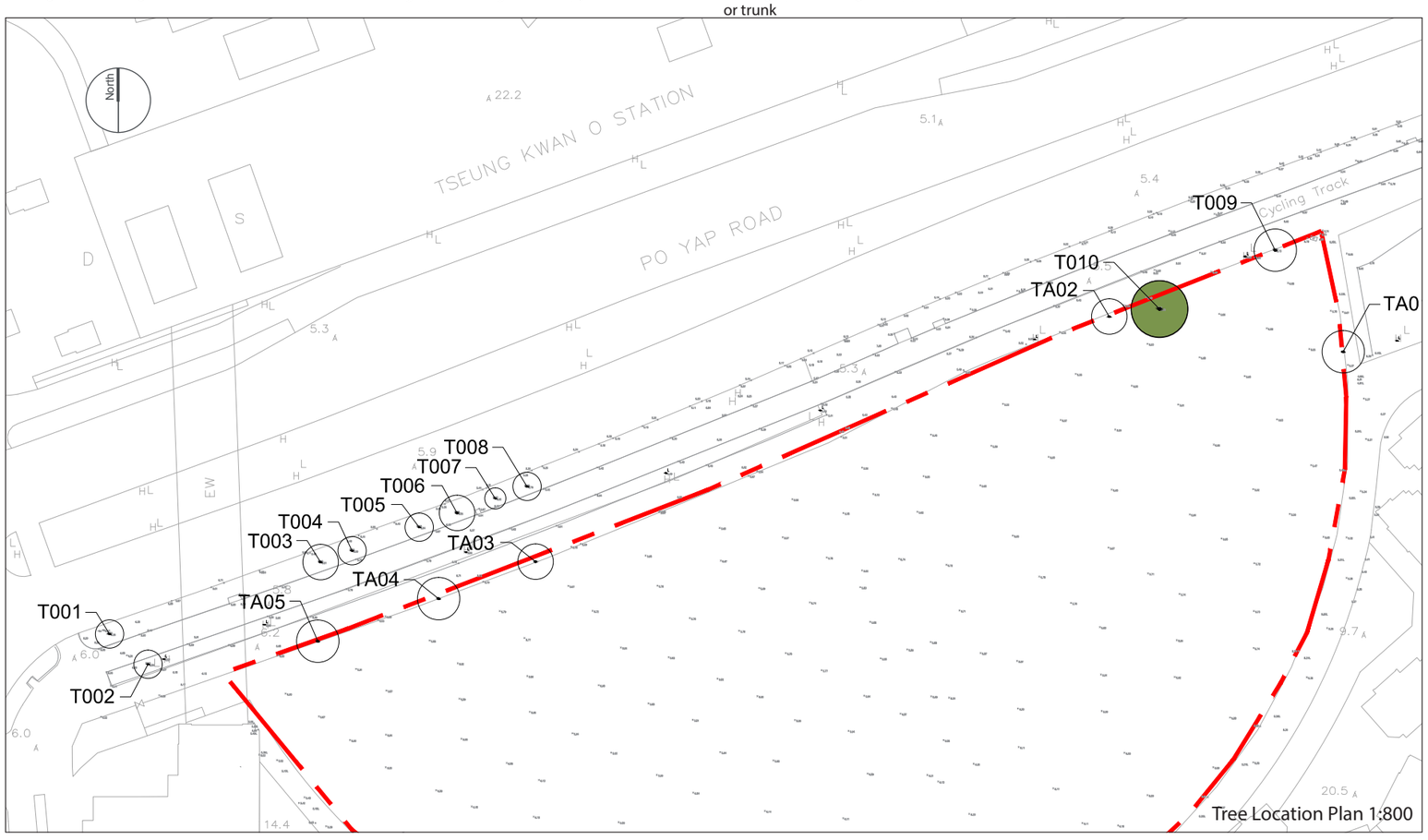


FIGURE TITLE

Section 16 Planning Application for Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O

Tree Survey and Location Plan

SCALE	As Shown	DATE	FEB 2021
CHECKED	CJF	DRAWN	BK
FIGURE NO.	Annex 1.2	REV	-

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Website: scenic@studioscenic.com

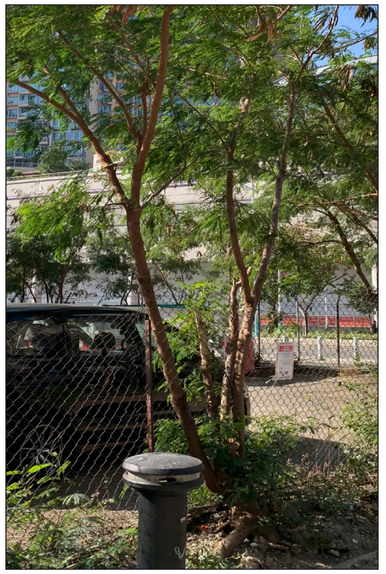
Tree Survey Data		
Tree No.		TA01
Botanical Name		*Leucaena leucocephala*
Chinese Name		銀合歡
Survey Size (m)	DBH*	$\sqrt{((0.070)^2 + (0.085)^2 + (0.050)^2 + (0.055)^2)}$ $= \sqrt{0.0176}$ 0.133m
	Height	7
	Spread	4
Form		Fair
Health Condition		Fair
Structural Condition		Fair
Amenity Value		Fair
Suitability for Transplanting		Low
Conservation Status		Nil
Location		Flat
Soil Level at Base of Tree		+5.00mPD
Proposed Treatment		Fell
Remarks		Multi-stem form sprouting from low cut (coppiced)

Note: DBH* measurement in accordance with AFCD NCPN No.02 (June 2006)

TA01 *Leucaena leucocephala*
Photograph showing overall form of the tree

TA01 *Leucaena leucocephala*
Photograph showing the canopy of the tree

TA01 *Leucaena leucocephala*
Photograph showing the upper part of the stem or trunk



TA01 *Leucaena leucocephala*
Photograph showing the base of the stem or trunk

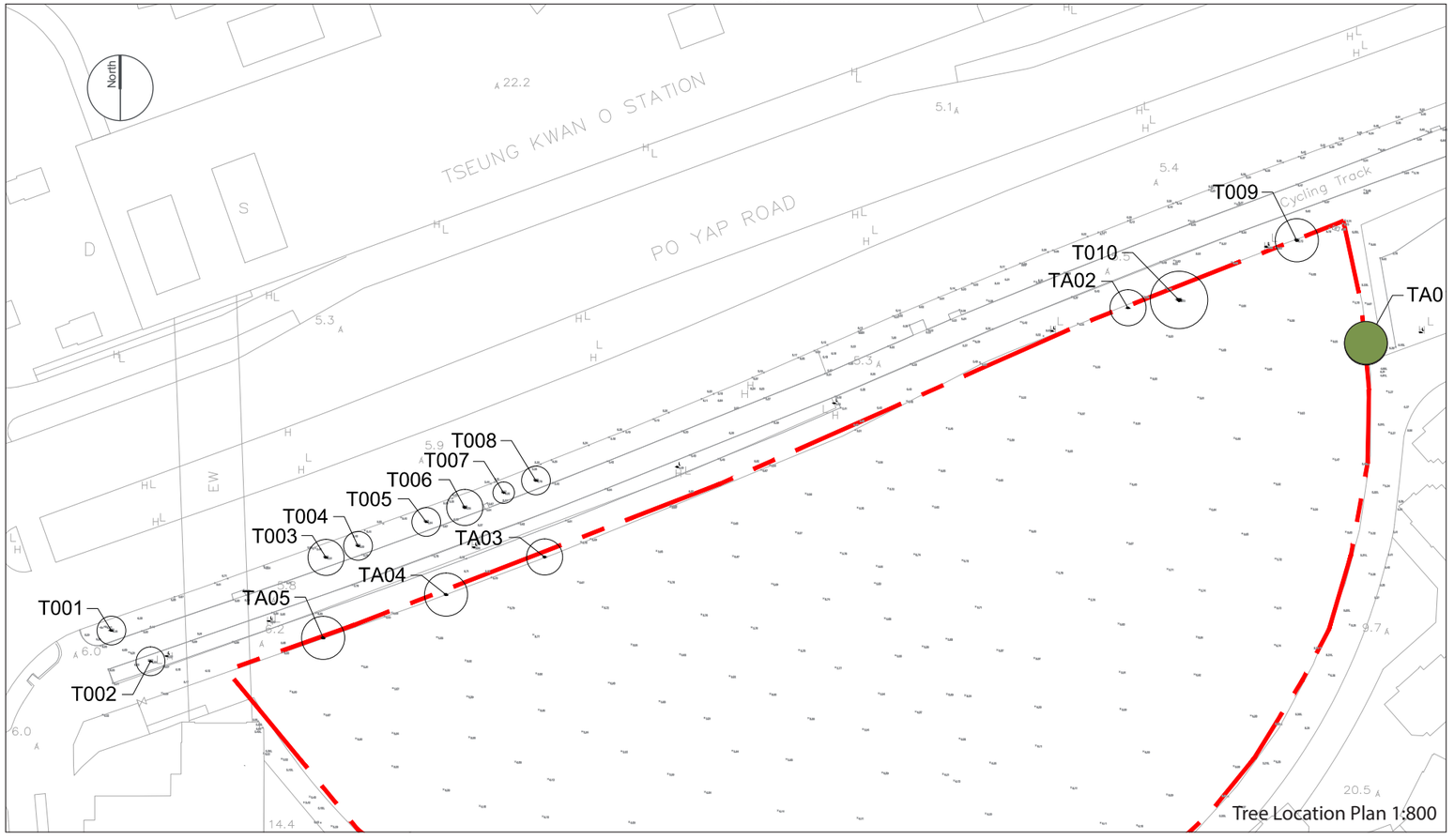


FIGURE TITLE

Section 16 Planning Application for Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O

Tree Survey and Location Plan

SCALE	As Shown	DATE	~~FEB~~ 2020
CHECKED	CJF	DRAWN	BK
FIGURE NO.	Annex 1.3	REV	-

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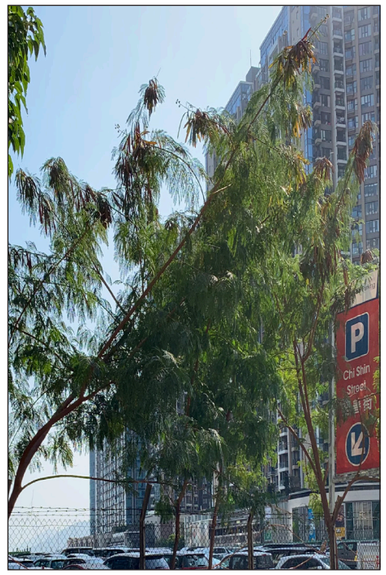
Tree Survey Data		
Tree No.		TA02
Botanical Name		*Leucaena leucocephala*
Chinese Name		銀合歡
Survey Size (m)	DBH*	0.100
	Height	6
	Spread	4
Form		Fair
Health Condition		Fair
Structural Condition		Fair
Amenity Value		Fair
Suitability for Transplanting		Low
Conservation Status		Nil
Location		Flat
Soil Level at Base of Tree		+5.00mPD
Proposed Treatment		Fell
Remarks		Multi-stem form sprouting from low cut (coppiced)

Note: DBH* measurement in accordance with AFCD NCPN No.02 (June 2006)

TA02 *Leucaena leucocephala*
Photograph showing overall form of the tree



TA02 *Leucaena leucocephala*
Photograph showing the canopy of the tree

TA02 *Leucaena leucocephala*
Photograph showing the upper part of the stem or trunk

TA02 *Leucaena leucocephala*
Photograph showing the base of the stem or trunk

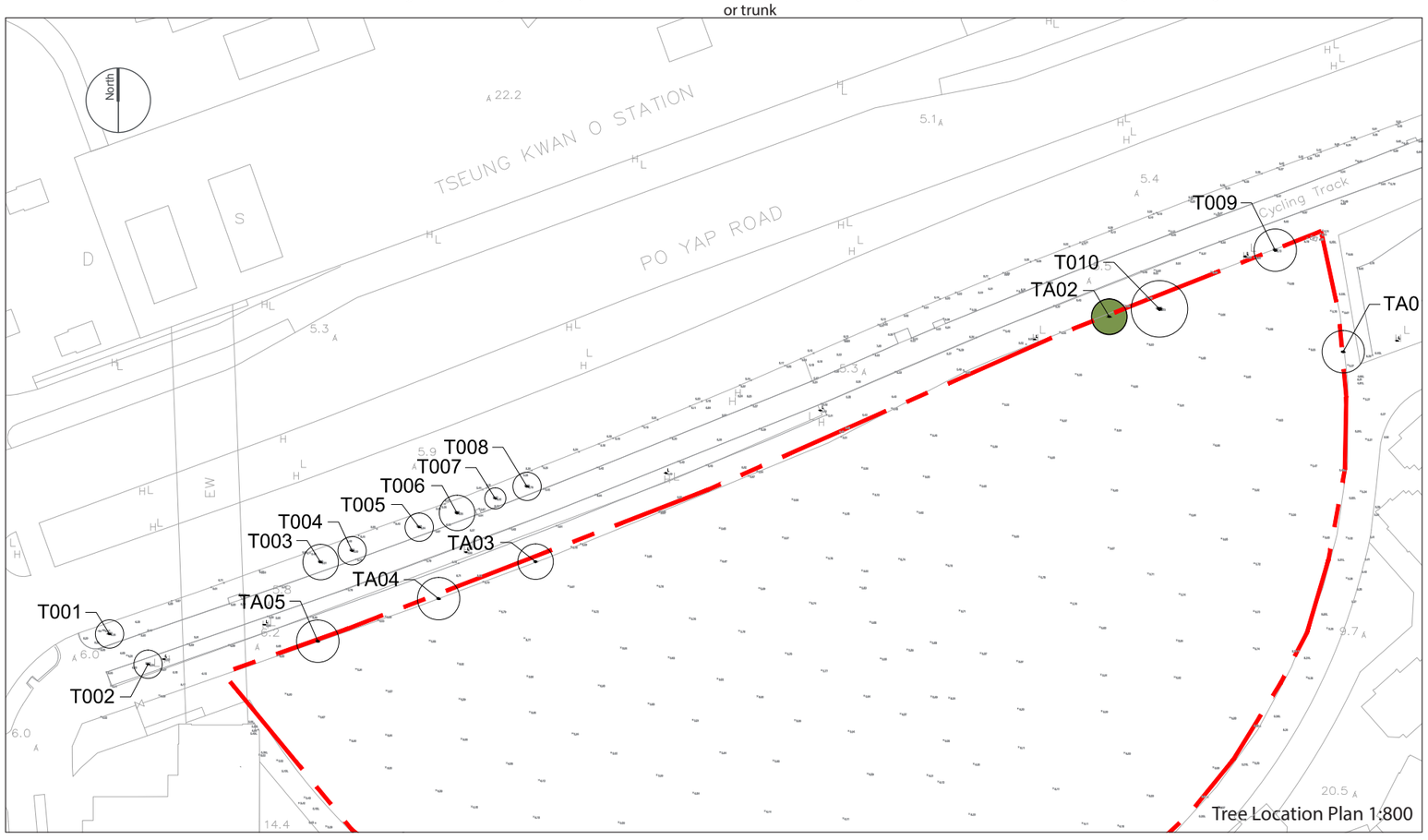


FIGURE TITLE

Section 16 Planning Application for Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O

Tree Survey and Location Plan

SCALE	N.T.S.	DATE	FEB 2021
CHECKED	CJF	DRAWN	BK
FIGURE NO.	Annex 1.4	REV	-

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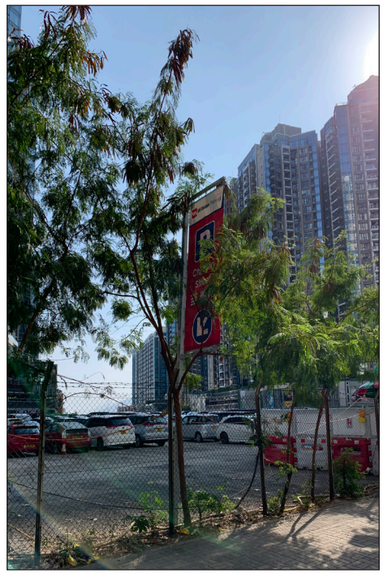
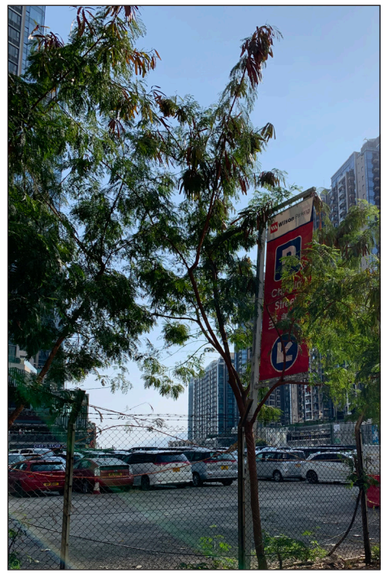
Website: scenic@studioscenic.com

Tree Survey Data		
Tree No.		TA03
Botanical Name		*Leucaena leucocephala*
Chinese Name		銀合歡
Survey Size (m)	DBH*	0.100
	Height	5
	Spread	4
Form		Fair
Health Condition		Fair
Structural Condition		Fair
Amenity Value		Fair
Suitability for Transplanting		Low
Conservation Status		Nil
Location		Flat
Soil Level at Base of Tree		+5.00mPD
Proposed Treatment		Fell
Remarks		Multi-stem form sprouting from low cut (coppiced)

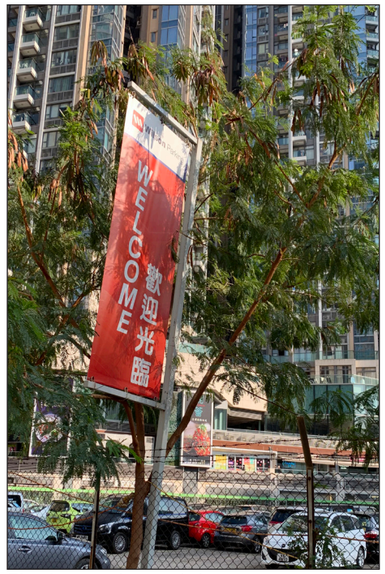
Note: DBH* measurement in accordance with AFCD NCPN No.02 (June 2006)



TA03 *Leucaena leucocephala*
Photograph showing overall form of the tree

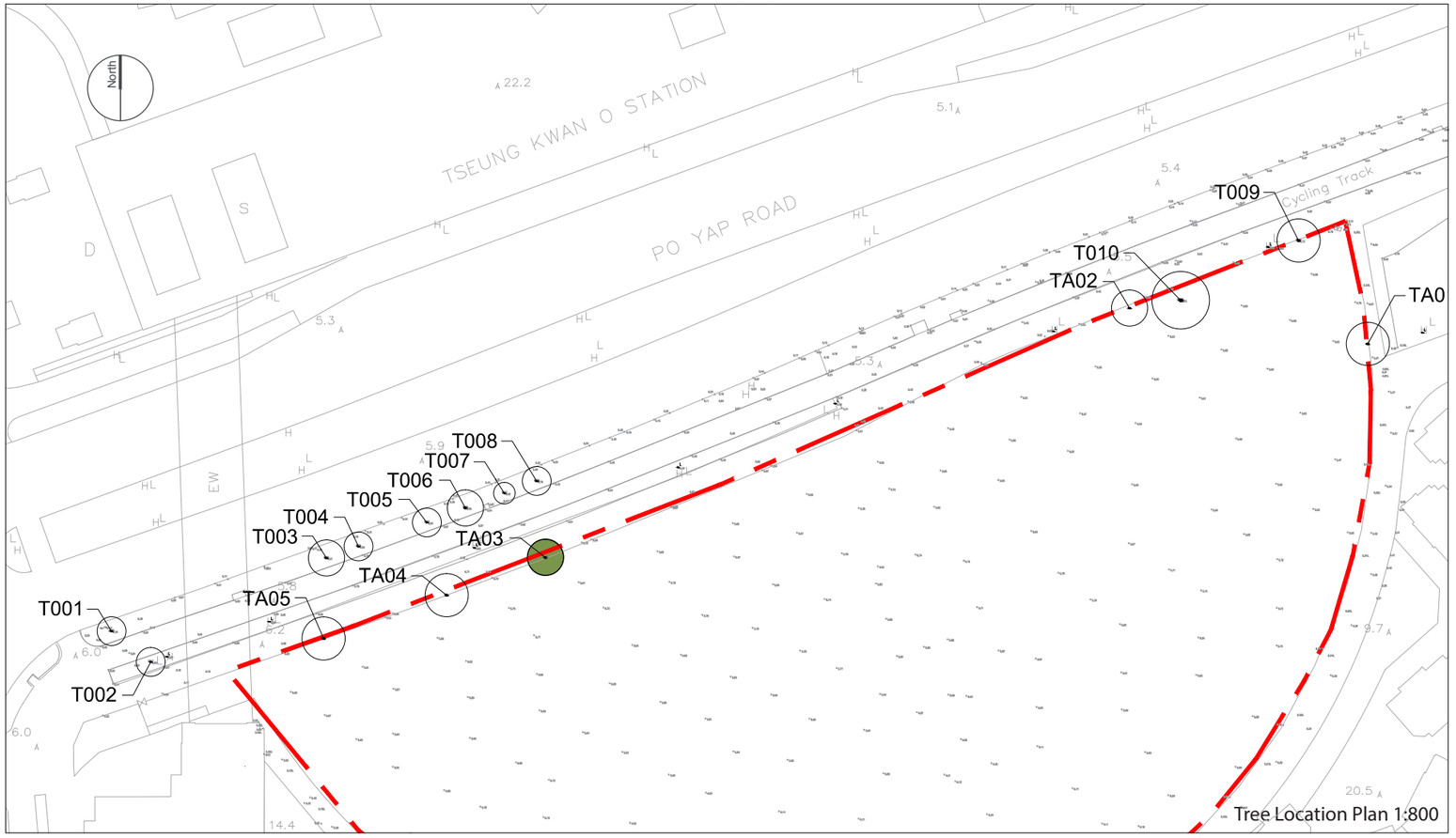


TA03 *Leucaena leucocephala*
Photograph showing the canopy of the tree



TA01 *Leucaena leucocephala*
Photograph showing the upper part of the stem or trunk

TA03 *Leucaena leucocephala*
Photograph showing the base of the stem or trunk



Tree Location Plan 1:800

FIGURE TITLE	Section 16 Planning Application for Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O **Tree Survey and Location Plan**	SCALE	N.T.S.	DATE FEB 2021
		CHECKED	CJF	DRAWN BK
		FIGURE NO.	Annex 1.5	REV -

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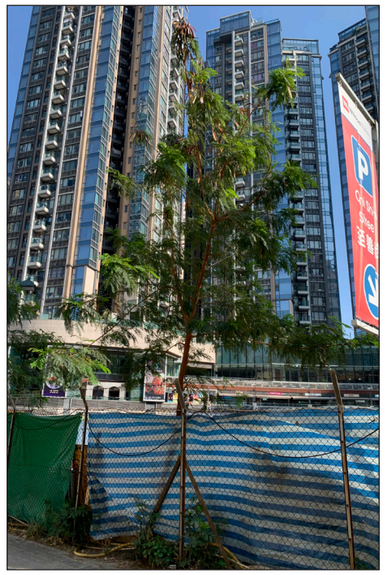
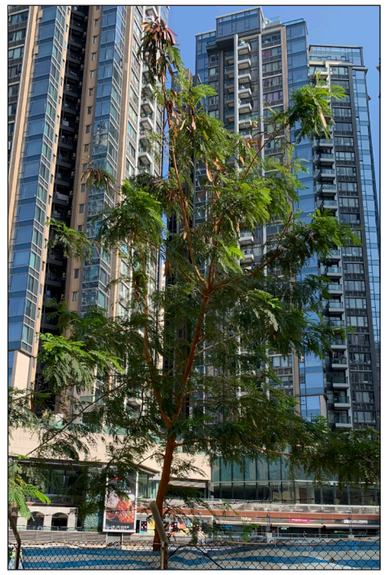
Telephone: 2468 2422
Facsimile: 3016 2422
Website: scenic@studioscenic.com

Tree Survey Data		
Tree No.		TA04
Botanical Name		*Leucaena leucocephala*
Chinese Name		銀合歡
Survey Size (m)	DBH*	0.095
	Height	4
	Spread	3
Form		Fair
Health Condition		Fair
Structural Condition		Fair
Amenity Value		Fair
Suitability for Transplanting		Low
Conservation Status		Nil
Location		Flat
Soil Level at Base of Tree		+5.00mPD
Proposed Treatment		Fell
Remarks		Multi-stem form sprouting from low cut (coppiced)

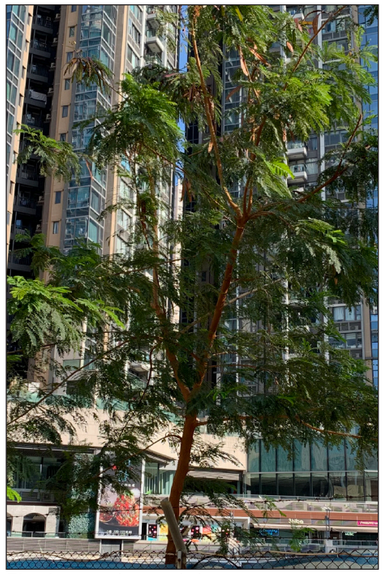
Note: DBH* measurement in accordance with AFCD NCPN No.02 (June 2006)



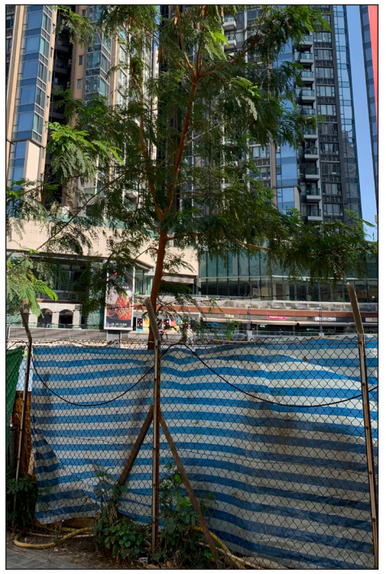
TA04 *Leucaena leucocephala*
Photograph showing overall form of the tree



TA04 *Leucaena leucocephala*
Photograph showing the canopy of the tree



TA04 *Leucaena leucocephala*
Photograph showing the upper part of the stem or trunk



TA04 *Leucaena leucocephala*
Photograph showing the base of the stem or trunk

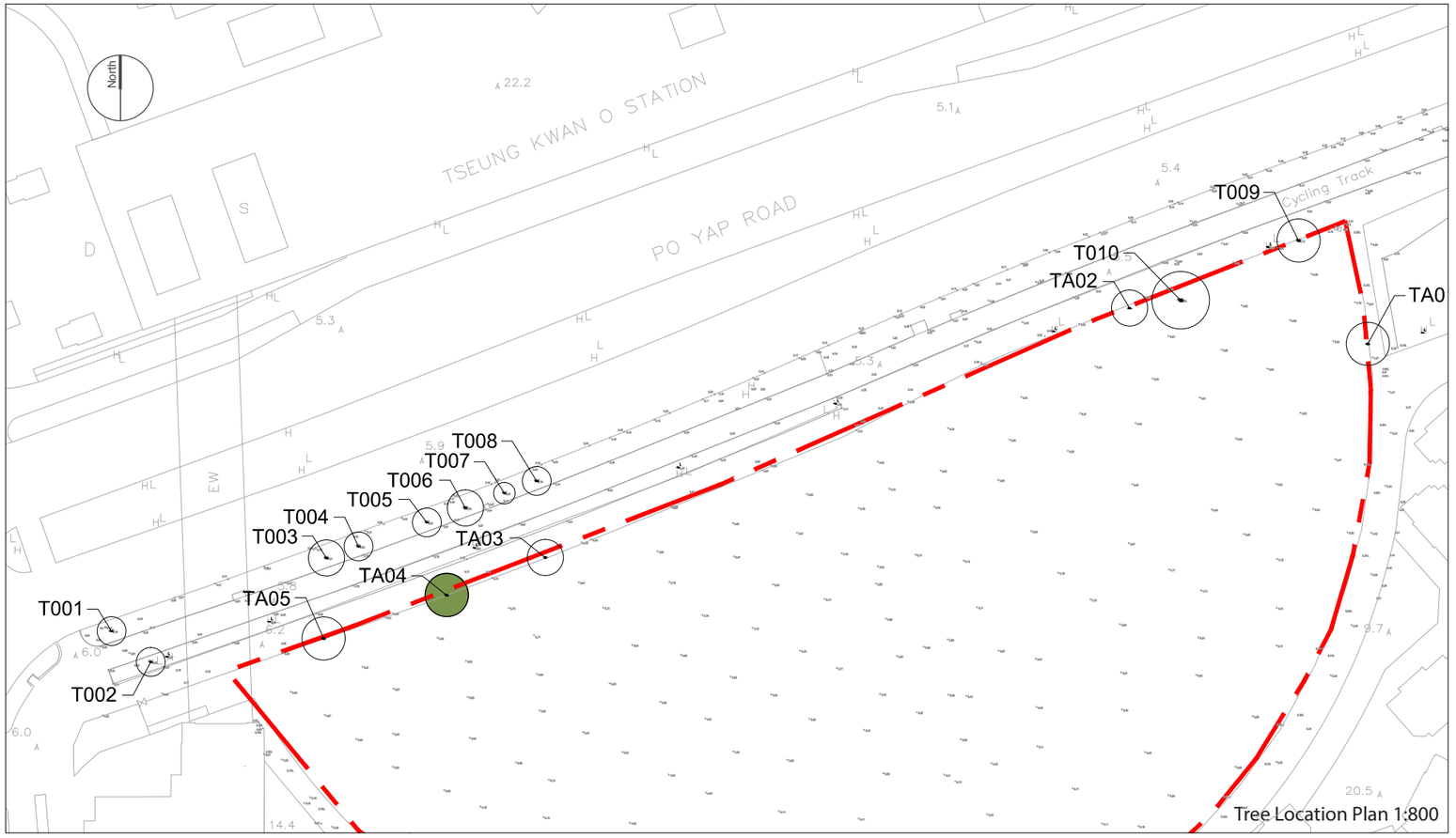


FIGURE TITLE

Section 16 Planning Application for Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O

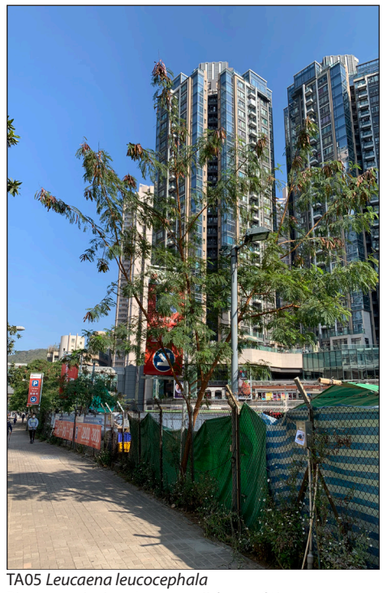
Tree Survey and Location Plan

SCALE	N.T.S.	DATE	FEB 2021
CHECKED	CJF	DRAWN	BK
FIGURE NO.	Annex 1.6	REV	-

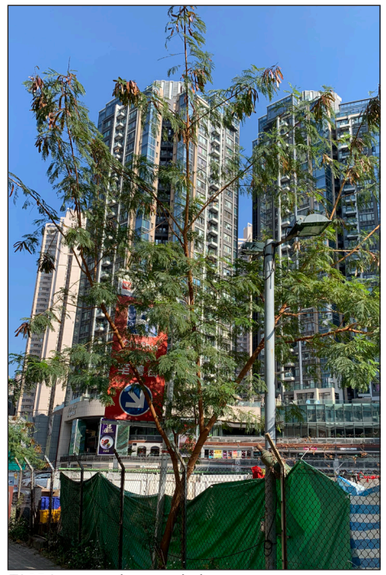
SCENIC Landscape Studio Limited
LANDSCAPE ARCHITECTURE, LANDSCAPE PLANNING & ASSESSMENT
12/F So Hong Commercial Building, 41-47 Jervois Street, Sheung Wan, Hong Kong
Telephone: 2468 2422
Facsimile: 3016 2422
Website: scenic@studioscenic.com

Tree Survey Data		
Tree No.		TA05
Botanical Name		*Leucaena leucocephala*
Chinese Name		銀合歡
Survey Size (m)	DBH*	0.135
	Height	5
	Spread	4
Form		Fair
Health Condition		Fair
Structural Condition		Fair
Amenity Value		Fair
Suitability for Transplanting		Low
Conservation Status		Nil
Location		Flat
Soil Level at Base of Tree		+5.00mPD
Proposed Treatment		Fell
Remarks		Multi-stem form sprouting from low cut (coppiced)

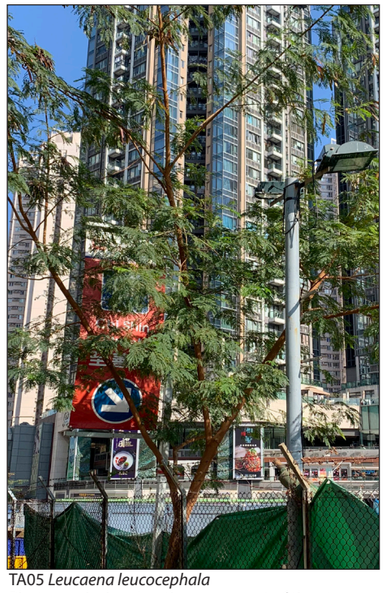
Note: DBH* measurement in accordance with AFCD NCPN No.02 (June 2006)



TA05 *Leucaena leucocephala*
Photograph showing overall form of the tree



TA05 *Leucaena leucocephala*
Photograph showing the canopy of the tree



TA05 *Leucaena leucocephala*
Photograph showing the upper part of the stem or trunk

TA05 *Leucaena leucocephala*
Photograph showing the base of the stem or trunk

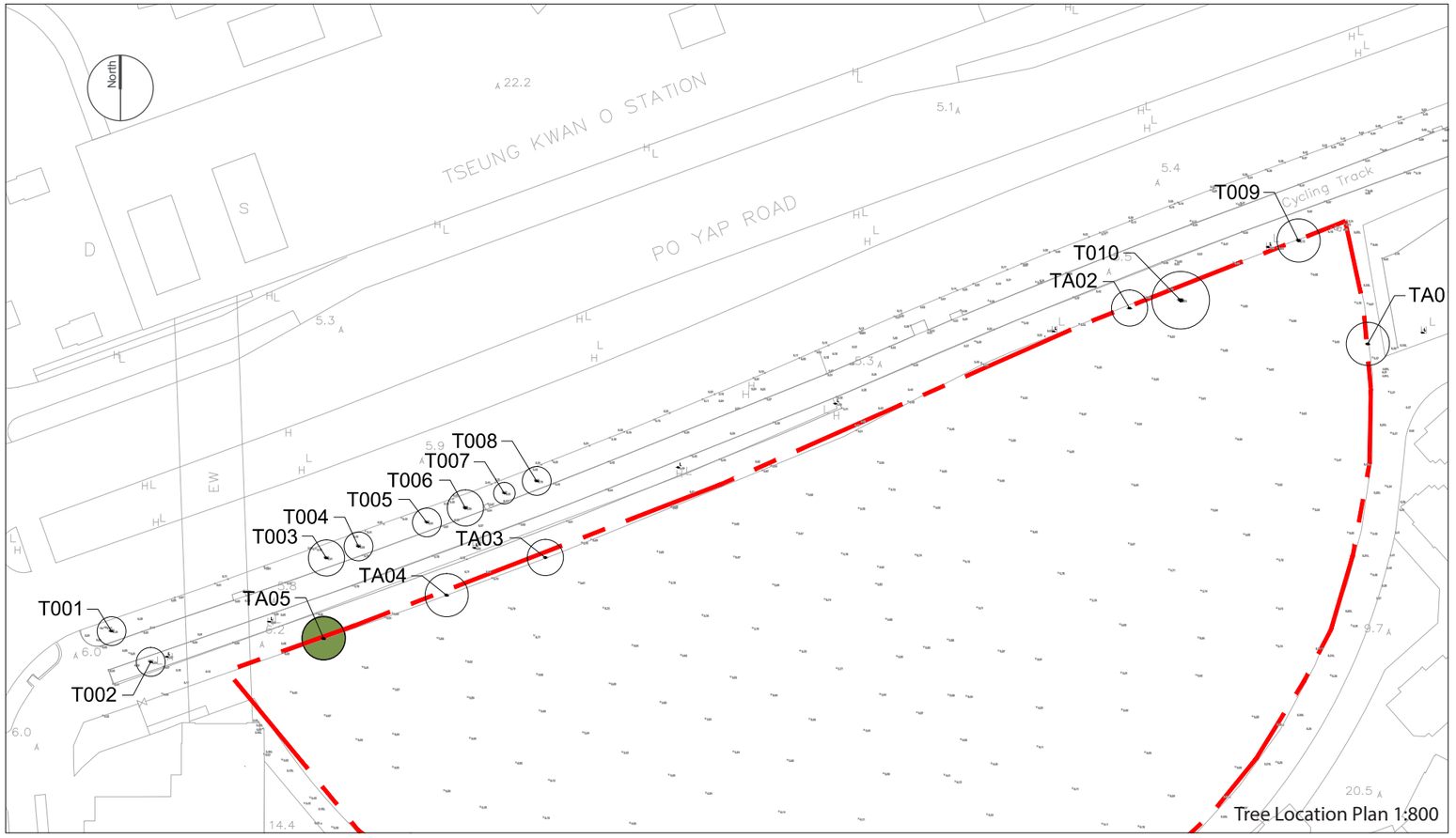


FIGURE TITLE

Section 16 Planning Application for Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O

Tree Survey and Location Plan

SCALE	N.T.S.	DATE	FEB 2021
CHECKED	CJF	DRAWN	BK
FIGURE NO.	Annex 1.7	REV	-

SCENIC Landscape Studio Limited
LANDSCAPE ARCHITECTURE, LANDSCAPE PLANNING & ASSESSMENT
12/F So Hong Commercial Building, 41-47 Jervois Street, Sheung Wan, Hong Kong
Telephone: 2468 2422
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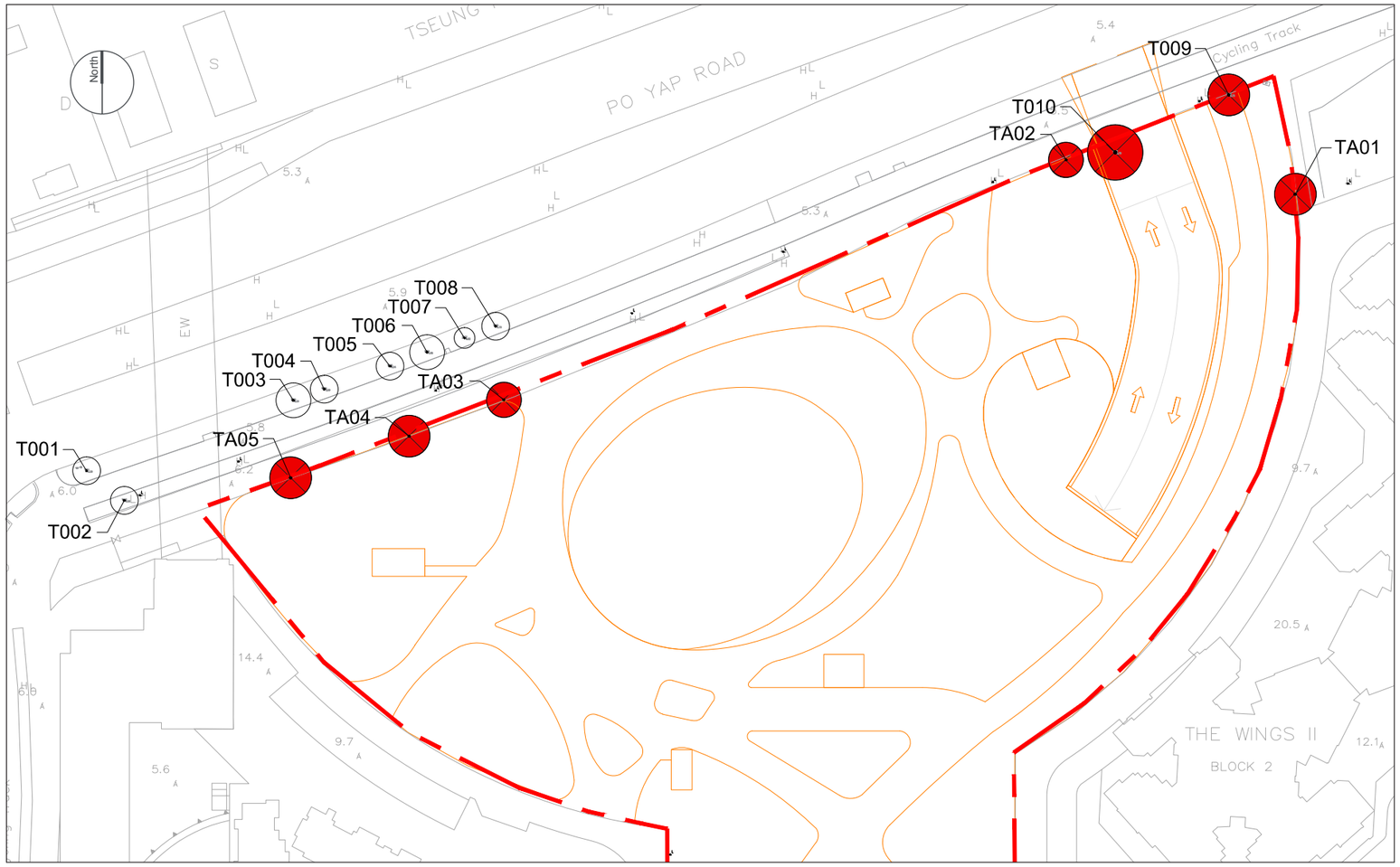
Website: scenic@studioscenic.com

Tree Recommendation Data		
Trees to be felled	T009, T010, TA01, TA02, TA03, TA04, TA05	(Total DBH) 1.213 m



Trees to be felled

Tree Recommendation Plan (G/F)

FIGURE TITLE

Section 16 Planning Application for Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O

Tree Recommendation Plan

SCALE	As Shown	DATE	JUL 2021
CHECKED	CJF	DRAWN	BK
FIGURE NO.	Annex 1.8	REV	A

SCENIC Landscape Studio Limited
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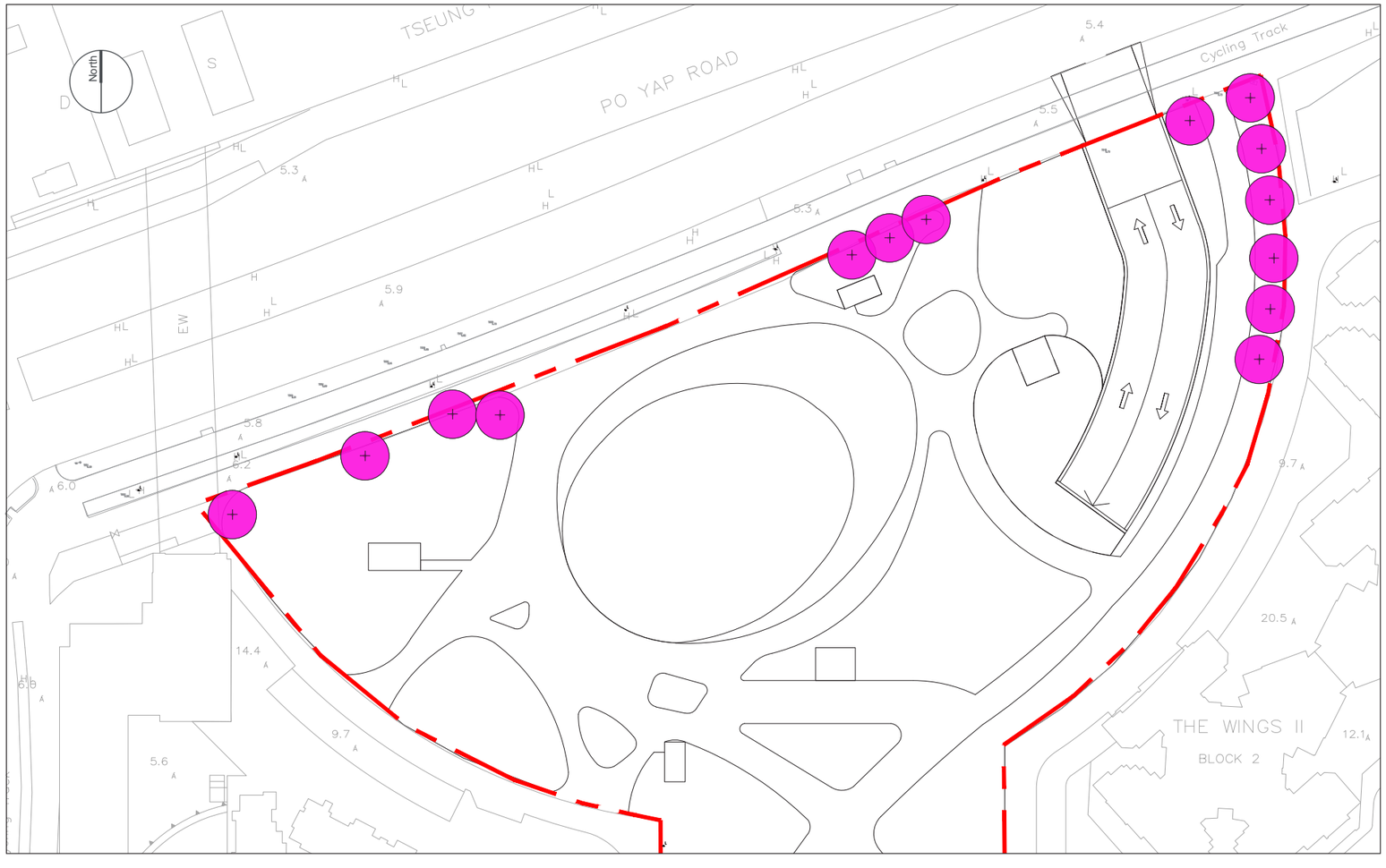
Telephone: 2468 2422
Facsimile: 3016 2422
Website: scenic@studioscenic.com

Compensatory Planting Ratios	Statistic / Ratio	Tree Size / Girth
Compensation for tree felling within the Application Site		
Number of felled trees	7	
Aggregated total DBH of felled trees	1.213m	(Aggregate girth: 3,809mm)
Number of new trees (within the Application Site)	14	Heavy Standard Tree (DBH: 100mm)
Total aggregated DBH of new trees	1.4m	(Aggregate girth: 4,396mm)
Compensatory Planting Ratio (DBH of new trees : DBH of trees felled)	1.15 : 1 (1.4 : 1.213)	
Compensatory Planting Ratio (Number of new trees : Number of trees felled)	2 : 1 14 : 7	

Heavy standard:

- A sturdy, straight stem with stem height from the root collar to the lowest branch between 1800 mm and 2400 mm above the soil level;
- Total height above soil level between 3500 mm and 5000 mm;
- Stem diameter measured at a point 1300mm above the root collar shall be over 75 mm to 145 mm;
- A well-balanced branching head, or a well-defined straight and upright leader with branches growing out from the stem with good symmetry, and a minimum length of 800 mm;
- A rootball not less than 750 mm in diameter and 400 mm in depth;
- Grown in a container not less than 750 mm in diameter and 600 mm deep; and
- Free from any kind of pest, fungi, disease and parasitic plants.



New Tree Planting Plan (G/F Plan) 1:800

FIGURE TITLE

Section 16 Planning Application for Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O

New Tree Planting Plan

SCALE	A.S.	DATE	JUL 2021
CHECKED	CJF	DRAWN	BK
FIGURE NO.	Annex 1.9	REV	A

SCENIC Landscape Studio Limited
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Annex II

Planting Species for the
proposed Butterfly Walk

Botanical Name	Chinese Name
Butterfly Food Plants	
Microstegium ciliatum	剛莠竹
Miscanthus sinensis	芒
Asclepias curassavica	馬利筋
Citrus reticulata	柑橘
Fortunella japonica	金柑
Zanthoxylum nitidum	兩面針
Clausena lansium	黃皮
Fortunella hindsii	山橘
Millettia nitida	亮葉崖豆藤
Setaria palmifolia	棕葉狗尾草
Tetradium glabrifolium	楝葉吳茱萸
Toddalia asiatica	飛龍掌血
Zanthoxylum ailanthoides	椿葉花椒
Alternanthera philoxeroides	空心莧
Atalantia buxifolia	酒餅簕
Barleria cristata	假杜鵑
Canavalia maritima	海刀豆
Celtis sinensis	朴樹
Cinnamomum camphora	樟
Citrus limonia	黎檬
Citrus maxima	柚
Citrus sinensis	甜橙
Cratoxylum cochinchinense	黃牛木
Desmodium sequax	長波葉山螞蝗
Desmos chinensis	假鷹爪
Ficus microcarpa	榕樹
Glycosmis parviflora	小花山小橘
Gonostegia hirta	糯米團

Botanical Name	Chinese Name
Hiptage benghalensis	風箏果
Hygrophila salicifolia	水蓑衣
Leersia hexandra	李氏禾
Magnolia grandiflora	荷花玉蘭
Michelia figo	含笑
Michelia x alba	白蘭
Oryza sativa	稻
Pisum sativum	豌豆
Pueraria lobata	葛
Toxocarpus wightianus	弓果藤
Uvaria macrophylla	紫玉盤
Ventilago leiocarpa	翼核果
Zanthoxylum myriacanthum	大葉臭花椒
Zanthoxylum scandens	花椒簕
Hedychium coronarium	薑花
Illigera celebica	寬藥青藤
Aristolochia tagala	印度馬兜鈴
Oryza sativa	稻
Pisum sativum	豌豆
Pueraria lobata	葛
Toxocarpus wightianus	弓果藤
Uvaria macrophylla	紫玉盤
Ventilago leiocarpa	翼核果
Zanthoxylum myriacanthum	大葉臭花椒
Zanthoxylum scandens	花椒簕
Hedychium coronarium	薑花
Illigera celebica	寬藥青藤
Aristolochia tagala	印度馬兜鈴

Appendix III
Preliminary Environmental Review

Contract No: CPM302_8/20
Planning Consultancy Services for the Proposed Underground Public Vehicle Park (excluding container vehicle) under Town Park in Area 66, Tseung Kwan O

Preliminary Environmental Review

20 July 2021

Prepared by:

BeeXergy Consulting Limited (BXG)

Phone: (852) 3568-4701

Address: Unit 2001-05, APEC Plaza,
49 Hoi Yuen Road, Kwun Tong,
Kowloon, Hong Kong

Email: info@beexergy.com

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1. Introduction

1.1 Project Background

Location of the Project Site

1.1.1 The location of the project site is given in **Figure 1**.

1.1.2 The project site is located between Po Yap Road and Chi Shin Street. It is surrounded by residential units namely the Wings. Phase 1 of the Wings is located at northern side, while Phase 2 located at eastern side, and Phase 3A located at western side. At southern side other residential units are located. Shopping malls are also located within the residential areas. A MTR Station, Tseung Kwan O Station, is also located at the northern side of the project site.

1.1.3 The site is currently zoned as "Open Space" ("O"). Surrounding areas are classified as "Residential (Group A)", "Commercial/Residential", and "Other Specified Uses".

Major Roads and Traffic Conditions within Proximity of the Project Site

1.1.4 Referring to Annual Traffic Census 2019, traffic data of the roads within proximity of the Project Site is shown in **Table 1.1**.

Table 1.1: Traffic Data of the Roads within Proximity of the Project Site

Counting Station No.	Road Type	Cover Section	From	To	AADT (2019)
5307	LD	Tong Chun Street	Tong Ming Street	End	6,740
5513	LD	Tong Yin Street	Tong Ming Street	Tong Tak Street	5,190
5713	DD	Po Yap Road	Po Shun Road	Wan Po Road	5,460

Note: LD - Local Distributor, roads within districts linking developments to the district distributor
DD - District Distributor, links districts to the primary distributor

Details of the Application and the Proposed Project

1.1.5 The project includes provision of an Underground Public Vehicle Park under Town Park in Area 66, Tseung Kwan O, which comprises of the following facilities:

a) Public Vehicle Park (PVP)

(i) An underground PVP to accommodate 395 parking spaces of various including light goods vehicles, light buses, coach, private cars and motorcycles.

b) Town Park at Area 66

(i) A landscaped garden with features that will be unique to the Project and will therefore promote a district identity for Tseung Kwan O;

(ii) A landscaped central pedestrian avenue connecting the waterfront to the Tseung Kwan O MTR station;

(iii) A covered piazza with capacity of about 50 people to practice Tai Chi; and

(iv) Fitness stations suitable for people of different ages, including the elderly.

1.1.6 The site is currently zoned as “Open Space” (“O”) on the approved Tseung Kwan O Outline Zoning Plan (OZP) no. S/TKO/28.

1.2 Purpose of this Report

1.2.1 The purpose of this report is to evaluate and discuss the potential environmental impact to the environment generated by this project during construction and operation phase.

2. Air Quality

2.1 Environmental Legislation, Standards and Guidelines

2.1.1 The relevant legislations, standards and guidelines applicable to the present study for the assessment of air quality impacts include:

a) Air Pollution Ordinance (APCO) (Cap 311) and sub-regulations;
b) Air Pollution Control (Construction Dust) Regulation (CAP 311R);
c) Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation (CAP 311Z);
d) Hong Kong Planning Standards And Guidelines (HKPSG), Chapter 9; and
e) Professional Persons Environmental Consultative Committee Practice Notes (ProPECCPNs), PN 2/96 – Control of Air Pollution in Car Parks.

2.1.2 The APCO (Cap.311) provides the power for controlling air pollutants from a variety of stationary and mobile sources and encompasses a number of Air Quality Objectives (AQOs).

2.1.3 According to EPD's Practice Note, "ProPECC PN 2/96 Control of Air Pollution in Car Parks", to provide adequate protection of the public health, the air quality inside car parks should be kept within the following concentration limits:

Table 2.1: Concentration Limits of the Air Quality inside Car Parks

Air Pollutants	Maximum Concentration		
	Averaging Time	Micrograms Per Cubic Metre (μg/m^3)	Parts Per Million (ppm)
(a) Carbon monoxide (CO)	5 minutes	115,000	100
(b) Nitrogen dioxide (NO2)	5 minutes	1,800	1

Note: All limits are expressed as at reference conditions of 298 K and 101.325 kPa.

2.2 Air Quality Impact Assessment

Construction Phase

2.2.1 During construction phase, air quality impact would be generated by the emission from the following activities / equipment:

a) exhaust of the Powered Mechanical Equipment (PME);
b) fugitive dust emission due to exposed earth and/or stockpiles;
c) fugitive dust emission during excavation and/or earth movement;
d) fugitive dust emission during cement mixing on site; and
e) fugitive dust emission during vehicles movement.

2.2.2 As machinery used in the construction works will be controlled under APCO on non-road mobile machinery emission (CAP 311Z), all Non-Road Mobile Machinery (NRMM) used on site shall be registered and possess proper label. As such these NRMM shall not anticipated to generate excessive air pollutants.

2.2.3 Construction dust will be governed by the APCO (CAP 311R). All relevant mitigation measures under the CAP 311R shall be implemented during the construction phase. Specific mitigation measures are discussed as follows:

a) The construction site shall be watered regularly to avoid fugitive dust emission from exposed earth and stockpile.
b) Contractor shall minimize the stockpile stored on site and if unavoidable, the stockpile shall be covered by tarpaulin or watered to minimize the dust emission.
c) Dusty works, e.g. mixing of cement, shall be avoided as far as possible. If such works are not avoidable, these works shall be conducted in an area shielded at 3 sides to minimize the dust generation by wind blow.
d) Before leaving a construction site, every vehicle should be washed to remove dusty materials from its body and wheels. Where a vehicle leaving a construction site is carrying a load of dusty materials, the load should be covered entirely by clean impervious sheeting to ensure that the dusty materials do not leak from the vehicle.

2.2.4 Hence, the following mitigation measures, and other relevant mitigation measures, shall be implemented during construction phase:

a) All NRMM used in the site shall be registered under the CAP 311Z;
b) Exposed earth and stockpiles shall be watered regularly to minimize the dust emission;
c) Contractor shall minimize the amount of stockpile stored on site;
d) Dusty works, e.g. mixing of cement, shall be conducted in an area shielded at 3 sides;
e) Vehicles should be washed before leaving a construction site; and
f) Dusty materials should be covered entirely during conveyance.

2.2.5 By proper implementation of relevant mitigation measures under the APC (Construction Dust) Regulation (CAP 311R) and other regulations during construction phase, significant dust emissions and air pollutions would not be anticipated.

Operational Phase

2.2.6 The Project is an underground parking lot beneath a town park. Only vehicles travel and human activities are anticipated within the site.

2.2.7 The PVP provides 395 parking spaces for the public, as such vehicles operating within the PVP is anticipated to be the main source of the pollutants. Air pollutants generated by vehicles will be extracted from the parking lot and discharged on ground level.

2.2.8 The vehicles access the PVP via Po Yap Road. During operational phase the number of vehicles operating concurrently within the PVP is anticipated to be small. As reported in the Traffic Impact Assessment (TIA) Report, the surveyed conducted in late October 2020 showed that the peak hour traffic flows at Po Yap Road are 665pcu/hr and 470pcu/hr for AM peak hours and PM peak hours respectively.

2.2.9 The TIA predicted that the trip generation of proposed PVP are 67pcu/hr and 92pcu/hr for AM and PM respectively. As such, compared to the existing scenario, about 10.2% and 19.6% of increase in traffic is anticipated for AM and PM respectively. The traffic generated by the project are summarized in **Table 2.2**. As such, the number of vehicles operating within the project is considered as insignificant compared to the nearby road. As such the PVP would not generate significant air pollution source compared to the nearby roads.

Table 2.2: Traffic Generated by the Project

Surveyed Traffic Flow at Po Yap Road in Late October 2020, pcu/hr		Predicted Trip Generation of this project, pcu/hr		Percentage of Increase	
AM	**PM**	**AM**	**PM**	**AM**	**PM**
665	470	67	92	10.2%	19.6%

2.2.10 To comply with the requirement stipulated in ProPECC PN 2/96, the underground PVP will be equipped with ventilation system providing sufficient dilution of the pollutants emitted from vehicles. Extracted air would contain higher level of pollutant including Carbon Monoxide and Nitrogen Dioxide compared to the ambient air, posing potential air quality impact to the nearby ASRs.

2.2.11 Expert evaluation on the wind availability for the surrounding area had been conducted. According to the Regional Atmospheric Modelling System (RAMS) wind data of the Project Site, NNE, ENE and E winds contribute to 13.0%, 18.9% and 17.3% of the annual wind frequency respectively while E, S, SSW and SW winds contribute to 9.7%, 12.3%, 13.9% and 12.4% of the summer wind frequency respectively. Hence, NNE, ENE and E winds are identified as the annual prevailing wind direction while E, S, SSW and SW winds are identified as the summer prevailing wind direction for the Project Site.

2.2.12 Under the annual condition, the wind comes from the foothill of Pak Shing Kok located around 600m east from the project site. The incoming ENE and E wind is expected to reach the project site via the major wind paths of Po Yap Road and Chi Shin Street. Besides, the mid-level ENE and E wind is expected to penetrate the residential buildings of Bauhinia Garden and Yee Ming Estate via the existing building gaps. Also, a portion of ENE and E wind is expected to penetrate the Savannah, the Yee Ming Park and Tseung Kwan O Methodist Primary School to reach the Project Site.

2.2.13 Under the summer condition, the SSW wind comes from Junk Bay. The sea breeze would enter the Project Site freely through the >40m-wide breezeway between Corinthia By The Sea and Ocean Wings. A portion of summer prevailing wind from SSW and SW would also reach the northern part of the Project Site via the existing air path of Po Yap Road.

2.2.14 The project is a town park at ground level, which is an open space with few structures obstructing the wind flow through the project site during operational phase. As such, the exhaust from the car park discharged into the area can be carried away by the wind. No accumulation of the pollutants will be anticipated.

2.2.15 Existing air quality can be referenced to the nearby air quality monitoring station (AQMS) by EPD. The closest AQMS is located at Tseung Kwan O Sports Centre, 9 Wan Lung Road which is about 1.2km north of the project site. The historic monitoring data of year 2018 to 2020 are shown in **Table 2.3.**

Table 2.3: Historic Monitoring Data from the Nearest AQMS

Air pollutant	Year	Concentration of the air pollutant (μg/m^3)			No. of exceedances
		Minimum	Maximum	Average	
CO	2018	20	2130	643.1	0
	2019	140	2170	538.2	0
	2020	310	1670	621.2	0
NO2	2018	1	167	28.5	0
	2019	2	218	29.2	3
	2020	2	207	22.9	1

Note: The averaging time of the data is 1-hour.

2.2.16 The air quality of Tseung Kwan O district is in accordance with the requirement of the AQO. The concentration of air pollutant related to car park is far below the level specified in the AQO, as such it is anticipated minor increment of traffic would not affect the compliance.

Car Park Design Considerations

2.2.17 To meet the air quality guidelines stated in **Table 2.1**, good ventilation is of paramount importance. The ventilation provided has to be able to provide sufficient dilution of the CO and NO2 emitted from vehicles during peak hours as well as under the worst foreseeable operating conditions, such as queuing of vehicles within the car park. Other factors to be considered in designing ventilation systems for car parks are listed below:

a) The supply and exhaust openings for the ventilation system should be distributed to ensure:

- even dilution and removal of air pollutants from all parts of the car park; and
- no possibility of any obstruction to the airflow due to debris and the like. Particular attention should be paid to ensure the fresh air intakes and exhaust outlets will be free from blockage, short circuiting, interaction with other systems and down wash due to winds.

b) Sufficient standby units should be provided to meet the air quality guidelines during maintenance periods or in the event of the breakdown of the normal units.

c) Separate fresh air supply should be provided to areas that are occupied regularly such as lift lobbies, pay booths and car cleaning services bay. For the main car park area, care should be taken to ensure that fresh air is under positive pressure and is supplied without contamination of the vitiated air of the car park or the ventilation exhaust.

d) Exhaust air should be discharged to the atmosphere in such a manner and at such a location as not to cause a nuisance to occupants in the building or of neighbouring buildings, or to the public.

Monitoring and Control

2.2.18 To ensure the air quality guidelines can always be met, the levels of CO in a car park should be monitored continuously and the measurement results linked up automatically through a tamper-proof device with the control of the ventilation system. The monitoring

and control scheme will be designed according to the Appendix attached in PN 2/96. Detail design will be discussed in the next stage.

2.2.19 With aforementioned considerations in car park design and monitoring system, there will be no negative air quality impact resulted from the proposed underground public vehicle park to the area, no mitigation measure is required during the operation stage.

2.2.20 In addition, Adoption of measures or installations, as such filtering system, can be explored to further improve the air quality.

Air Quality Impact to the Project

2.2.21 Desktop review showed that within 300m from the project site, there are majority residential area with shopping centres. These operations included restaurants and retails.

2.2.22 Site inspection had been conducted on 21 October 2020 to verify the desktop findings. Only kitchen exhausts from restaurants were found within 300m range from the project site area. No industrial chimney was found within 300m area in the site survey. The air quality impact from the surrounding to the Project is anticipated to be insignificant.

2.2.23 The major road segments within proximity of the project site are identified. Respective distance between the road segments and the project boundary are listed in **Table 2.4**.

Table 2.4: Identified Road within Proximity of the Project Site

Road Name	Type of Road [A]	Distance from Open Space within the Project Site, m	HKPSG Recommended Buffer Distance, m
Po Yap Road	District Distributor	13	10
Chi Shin Street	Local Distributor	10	5
Tong Yin Street	Local Distributor	43	5
Tong Chun Street	Local Distributor	75	5

Note:
A: Types of road had been made referenced to “Annual Traffic Census 2019” and confirmation from the project Traffic Consultant on 15 May 2021.

2.2.24 Table 3.1 of Chapter 9 in the HKPSG gave a summary of recommended buffer distances for different land uses. The park is classified as open space with active and passive recreation uses, as such it recommends that the project shall maintain a buffer distance for 5m from a local distributor and for 10m from a district distributor.

2.2.25 As shown **Table 2.4**, the buffer distances between the Project site and nearby road segments meet the requirement of minimum buffer distance between the active open space and the roads.

2.3 Conclusion

2.3.1 During construction phase, the pollution would be controlled by respective regulations and no excessive impact would be anticipated.

2.3.2 During operational phase, the project site will not generate significant air pollution due to its operation nature. As such, no air quality concern is anticipated for the project.

2.3.3 Consider the potential air quality impact during construction phase shall be properly mitigated, and no operational phase air quality concern, no air quality issue for the Project is anticipated.

3. Noise Impact

3.1 Environmental Legislation, Standards and Guidelines

Construction Phase

3.1.1 Control over the generation of construction noise in Hong Kong is governed by the Noise Control Ordinance (NCO). The NCO is to provide statutory controls for carrying out construction work using Powered Mechanical Equipment (PME) and prescribed construction works during the restricted hours. Technical Memoranda (TMs) under the NCO and appropriate Practice Notes provide guidelines to the assessment of noise from the construction phase. The appropriate Practice Notes and Technical Memoranda (TMs) applicable to the control of noise from construction activities of the Project are:

a) Professional Persons Environmental Consultative Committee Practice Notes (ProPECC PN);

- PN 1/93 Noise from Construction Activities - Statutory; and
- PN 2/93 Noise from Construction Activities - Non-statutory.

b) TM on Noise from Construction Work other than Percussive Piling (GW-TM);
c) Technical Memorandum On Noise from Construction Work in Designated Areas (DA-TM); and
d) Technical Memorandum on Noise from Percussive Piling (PP-TM).

3.1.2 These TMs prescribe the maximum permitted noise levels for the use of PME and certain construction activities and processes, according to the type of equipment or activity, the perceived noise climate of the area, and the working hours of equipment operation and usage.

3.1.3 As this project locates within the Designated Areas. Construction noise during restricted hours will also be governed by the DA-TM.

3.1.4 According to the proposed construction methodology, percussive piling is not required for the Project. Therefore, the Technical Memorandum on Noise from Percussive Piling is not applicable to the Project. However, should the contractor adopted the use of percussive piling for the construction works, relevant requirement and restrictions stipulated in the PP-TM should be followed.

Operational Phase

3.1.5 For operational phase, the appropriate planning requirements and the Technical Memorandum issued under the NCO are in place to control the operational noise. The appropriate planning requirements and Technical Memorandum applicable to the control of noise from operation of the Project are:

a) Technical Memorandum For the Assessment of Noise from Places Other Than Domestic Premises, Public Places or Construction Sites (IND-TM); and
b) Hong Kong Planning Standards And Guidelines, Chapter 9.

3.2 Identification of Noise Sensitive Receivers (NSRs) and Allocation of Area Sensitive Ratings (ASR)

3.2.1 The project will include a M&E room at ground level. As such fixed plant noise would be generated at the M&E room and hence fixed plant noise assessment during operational phase had been conducted for the project. **Figure 3** showed the location of the M&E room.

3.2.2 NSRs within 300m range from the project boundary are mainly residential premises and educational institutions. Representative NSRs had been identified within close proximity of the project site include residential premises located at the eastern and western of the project site. **Figure 2** shows the location of the NSRs and the details are summarized in **Table 3.1**:

Table 3.1: Identified Noise Sensitive Receivers (NSR)

NSR	Name	Horizontal Distance from M&E Room, m	Area Sensitive Ratings (ASR)
NSR 1	Royal Diamond (The Wings II)	31	B
NSR 2	Star Diamond (The Wings II)	36	B
NSR 3	Luna Diamond (The Wings II)	31	B
NSR 4	Sun Diamond (The Wings II)	70	B
NSR 5	Tower 1 & 1A (The Parkside)	140	B
NSR 6	Tower 2 & 2A (The Parkside)	104	B
NSR 7	Tower 3 (The Parkside)	115	B
NSR 8	Tower 1A & 1B (The Wings IIIA)	189	B
NSR 9	Tower 2A & 2B (The Wings IIIA)	138	B
NSR 10	Tower 3A & 3B (The Wings IIIA)	109	B
NSR 11	Tower 5A & 5B (The Wings IIIA)	101	B
NSR 12	House 1 (The Wings IIIA)	169	B
NSR 13	House 2 (The Wings IIIA)	175	B
NSR 14	House 3 (The Wings IIIA)	185	B
NSR 15	House 5 (The Wings IIIA)	194	B
NSR 16	House 6 (The Wings IIIA)	203	B

3.2.3 For fixed noise sources impact assessment, the Acceptable Noise Levels (ANLs) for the Noise Sensitive Receivers (NSRs) are determined with consideration of the Area Sensitivity Rating (ASR) which is defined in the Technical Memorandum for the Assessment of Noise from Places other than Domestic Premises, Public Places or Construction Sites (IND-TM) issued under the NCO.

3.2.4 The ASR depends on the type of area and the degree of impact that Influencing Factors (IFs) have on the NSRs as illustrated in **Table 3.2** below. Industrial area, major road or the area within the boundary of Hong Kong International Airport shall be considered to be an IF. Regardless of the ASR adopted in the fixed noise sources impact assessment, the Noise Control Authority will assess the fixed noise sources and/ or take enforcement

action, if necessary, based on the NCO, the relevant TMs and the contemporary conditions / situations.

Table 3.2: Area Sensitivity Rating

Type of Area Containing NSR	Degree to which NSR is affected by IF		
	Not Affected[(c)]	Indirectly Affected[(d)]	Directly Affected[(e)]
(i) Rural area, including country parks[(a)] or village type developments	A	B	B
(ii) Low density residential area consisting of low-rise or isolated high-rise developments	A	B	C
(iii) Urban area[(b)]	B	C	C
(iv) Area other than those above	B	B	C

Source: IND-TM, Table 1 – Area Sensitivity Rating

Definitions:

(a) "Country park" means an area that is designated as a country park pursuant to section 14 of the Country Parks Ordinance.

(b) "Urban area" means an area of high density, diverse development including a mixture of such elements as industrial activities, major trade or commercial activities and residential premises.

(c) "Not Affected" means that the NSR is at such a location that noise generated by the IF is not noticeable at the NSR.

(d) "Indirectly Affected" means that the NSR is at such a location that noise generated by the IF, whilst noticeable at the NSR, is not a dominant feature of the noise climate of the NSR.

(e) "Directly Affected" means that the NSR is at such a location that noise generated by the IF is readily noticeable at the NSR and is a dominant feature of the noise climate of the NSR.

3.2.5 As shown in **Table 1.1**, AADT of Po Yap Road, Tong Chun Street and Tong Yi Street in 2019 are 5,460, 6,740 and 5,190 respectively which are less than 30,000 AADT as stipulated in the IND-TM. As such road traffic is not considered as an IF to the NSRs surround the Project.

3.2.6 Although Tseung Kwan O Station is located at the northern side of the Project, the respective railway segment is underground. Thus, noise generated from the railway is contained and no observable railway noise is anticipated. As such railway traffic is not considered as an IF to the NSRs surround the Project.

3.2.7 As such, NSR 1-16 are located within an urban area with no IF. Hence the ASR for the identified NSRs are designated as "B".

3.2.8 The project is not identified as an NSR during operational phase since there is no noise sensitive receivers within the project site.

3.2.9 Fixed noise is controlled under the NCO and shall comply with the ANLs laid down in the Table 2 of the IND-TM. For a given ASR, the ANL, in dB(A), is given in **Table 3.3** below.

Table 3.3: Acceptable Noise Level for Fixed Noise Sources

Time Period	Area Sensitivity Rating		
	A	B	C
Day-time (0700 to 1900 hours)	60	65	70
Evening (1900 to 2300 hours)			
Night-time (2300 to 0700 hours)	50	55	60

Source: IND-TM, Table 2 - Acceptable Noise Levels
Note:
(i) The above standards apply to uses which rely on opened windows for ventilation.
(ii) The above standards should be viewed as the maximum permissible noise levels assessed at 1m from the external facade.

3.2.10 As stipulated in Section 4.2.13 of HKPSG, the noise standards for the planning fixed noise source are either 5 dB(A) below the appropriate ANL as stipulated in the IND-TM, or the prevailing background noise levels (for quiet area with level 5 dB(A) below the ANL). Consider the NSRs are located within an urban area without an IF, it is not anticipated to have background noise lower than 5dB(A) of the ANL, the ANL-5dB(A) is adopted for the project, i.e. 60dB(A) during Day-time and Evening, and 50dB(A) during Night-Time.

3.3 Construction Phase Noise Impact Assessment

Identification of Source of Impact

3.3.1 Construction noise generated by the use of Powered Mechanical Equipment (PME) necessary for the construction works during non-restricted hours shall be governed by ProPECC PN 1/93 and PN 2/93. The construction works shall also follow the respective TMs.

3.3.2 A daytime standard of $L_{eq(30min)}$ 75dB(A) stipulated in Annex 5 of the Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM) shall be used as the criterion for all residential NSRs. Construction activities within the project include Ground Level Works, Excavation for Underground Car Park, and Underground and At-Grade Structure. Corresponding PME will be used for different construction activities. PME that anticipated to be adopted during the construction works and their sound power levels (SWL) are listed in **Table 3.4**. Engineering design for the construction works had not been conducted at this stage of the project, as such the PME inventory had been made reference to similar construction activities proposed under Kai Tak Development project EIA.

Table 3.4: PME inventory

PME	Unit	Sound Power Level, dB(A)*
Ground Level Works		
Crane, mobile/barge mounted (diesel)	1	112
Concrete lorry mixer	1	109
Poker, vibratory, hand-held	1	113
Bar bender and cutter (electric)	2	90
Air compressor, air flow > 10m3/min and <= 30m3/min	2	102

PME	Unit	Sound Power Level, dB(A)*
Excavation for Underground Car Park		
Excavator/loader, wheeled/tracked	2	112
Dump truck	2	117
Generator, standard	1	108
Underground and At-Grade Structure		
Crane, mobile/barge mounted (diesel)	1	112
Generator, standard	1	108
Concrete lorry mixer	3	109
Concrete pump, stationary/lorry mounted	1	109
Bar bender and cutter (electric)	1	90
Poker, vibratory, hand-held	3	113

Note: * SWL refer to Table 3 - Sound Power Levels for Items of Powered Mechanical Equipment (PME) of GW-TM.

3.3.3 NSR 4 is the closest NSR to the notional source position with a notional source distance of 27.3m. As such construction noise impact assessment had been conducted at NSR 4 only, such that if the construction noise impact generated by the construction works to NSR 4 is within 75dB, it is anticipated construction noise impact to other NSRs, which are farther from the notional source position compared to NSR 4, would also below 75dB(A).

3.3.4 According to the result from preliminary construction noise assessment, the estimated construction noise impact at NSR 4 under unmitigated scenario exceeded 75dB(A). Detail calculations are given in **Appendix 2**.

3.3.5 To reduce the construction noise impact, mitigation measures, including the use of mobile and fixed noise barriers, good site practice including avoid use of multiple PME and use quieter construction methods, will be adopted as far as practical. After implementation of mobile and fixed noise barriers, and use of Quality Powered Mechanical Equipment (QPME), no exceedance is anticipated at NSR 4. Detail calculations are given in **Appendix 3**.

3.3.6 During detailed design stage, upon a construction works schedule and plant inventory had been proposed, the construction works schedule should be reviewed to minimise the number of the PME used in the project site, and avoid them operating simultaneously to minimise the construction noise impact to the nearby NSRs. Also, during excavation for the PVP, decking can be installed to contain construction noise generated by the PME underground, minimizing the construction noise impact generated to the nearby NSRs. Should boulders was identified underground, use of quiet rock breaking methods, e.g. chemical blasting, drill and break, etc, will also reduce the construction noise impact to the nearby NSRs. These further mitigation measures shall be considered during detail design stage.

3.3.7 During restricted hours, construction noise will be governed by Noise Control Ordinance (NCO) and the contractor shall apply for a Construction Noise Permit (CNP) for any works to be carried out during the restricted hours. If successful, the construction noise

during restricted hours will be governed by the respective regulations stipulated in the CNP and would be controlled to avoid any significant impact to the NSRs.

3.4 Operational Phase Noise Impact Assessment on Noise Impact to Surrounding NSRs

Identification of Source of Noise Impact during Operational Phase

3.4.1 Noise impact generated by the Project during the operational phase includes the fixed plant noise sources including the operation of ventilation equipment and building services equipment and traffic noise due to operation of vehicles entering and leaving the PVP.

3.4.2 The project will include a M&E room at ground level. As such fixed plant noise would be generated at the M&E room.

Fixed Plant Noise Criteria

3.4.3 As discussed in **Section 3.2.7**, the ASR of the identified NSRs is B, according to HKPSG, 5dB(A) below the appropriate Acceptable Noise Levels had been adopted as the fixed plant noise criteria.

3.4.4 As such, the fixed plant noise criteria for the NSRs are given in **Table 3.5**:

Table 3.5: Fixed Plant Noise Criteria for the Identified NSRs

NSR	Area Sensitive Ratings (ASR)	Horizontal Distance from M&E room , m	Acceptable Noise Level (ANL-5), dB(A)	
			Daytime and Evening Time	Night-time
NSR 1	B	31	60	50
NSR 2	B	36	60	50
NSR 3	B	31	60	50
NSR 4	B	70	60	50
NSR 5	B	140	60	50
NSR 6	B	104	60	50
NSR 7	B	115	60	50
NSR 8	B	189	60	50
NSR 9	B	138	60	50
NSR 10	B	109	60	50
NSR 11	B	101	60	50
NSR 12	B	169	60	50
NSR 13	B	175	60	50
NSR 14	B	185	60	50
NSR 15	B	194	60	50
NSR 16	B	203	60	50

Note: In any event, the ASRs and the ANLs adopted in this report are only indicative and they are used for assessment only. It should be noted that noise from fixed noise sources is controlled under section 13 of the Noise Control Ordinance. Therefore, the ASRs and ANLs determined in this report shall not prejudice the Noise Control Authority's discretion to determine noise impact due to fixed noise sources on the basis of prevailing legislation and practices being in force, and taking account of contemporary conditions/ situations of adjoining land uses. The assessment of noise impacts due to fixed noise sources in this report shall not bind the Noise Control Authority in the context of law enforcement against any of the noise from fixed noise sources being assessed.

Fixed Plant Noise Assessment

3.4.5 Ventilation equipment and other building services equipment are anticipated to be operating all the time including night-time period. Fixed plant noise generated by ventilation equipment will be emitted through the ventilation louvers, which is anticipated to be at the M&E room located at ground level. The location of the M&E room is shown in **Figure 1**.

3.4.6 Other building services equipment, including the water pumps for drainage and sewage, and the machine room for elevators, will be operating within dedicated underground plant room. Hence the operational noise generated by these building services equipment would be contained underground.

3.4.7 Consider the building services equipment would not generate significant fixed plant noise during operational phase, assessment of the fixed plant noise would be for the allowable noise level generated at the ventilation louver.

3.4.8 As the fixed plant noise criteria is more stringent during night-time, assessment had been conducted for night-time scenario for conservative approach.

3.4.9 Currently the detailed design on the M&E equipment has not been conducted and as such the Sound Power Level (SWL) of the equipment and the location of the ventilation louver cannot be confirmed yet.

3.4.10 During night-time period, fixed plant noise will be generated at the ventilation louver. Backward calculation had been conducted to determine the allowable fixed plant noise level generated at the ventilation louvers using the distance from the M&E room for worst case scenario. The predicted maximum allowable SWL at the ventilation louver is given in **Table 3.6**. Relevant calculation has been given in **Appendix 1**.

Table 3.6: Maximum Allowable SWL at the Ventilation Louver

NSR	Horizontal Distance from M&E room, m	Distance Attenuation and façade Correction, -20log D -8 +3	Noise Criteria (ANL-5), dB(A)	Total Sound Power Level Generated at Source, dB(A)
			Night time	Night time
NSR 1	31	-34.9	50	84.9
NSR 2	36	-36.1	50	86.1
NSR 3	31	-34.8	50	84.8
NSR 4	70	-41.9	50	91.9
NSR 5	140	-47.9	50	97.9
NSR 6	104	-45.3	50	95.3
NSR 7	115	-46.2	50	96.2
NSR 8	189	-50.5	50	100.5
NSR 9	138	-47.8	50	97.8
NSR 10	109	-45.8	50	95.8
NSR 11	101	-45.1	50	95.1
NSR 12	169	-49.5	50	99.5

NSR	Horizontal Distance from M&E room, m	Distance Attenuation and façade Correction, -20log D -8 +3	Noise Criteria (ANL-5), dB(A)	Total Sound Power Level Generated at Source, dB(A)
			Night time	Night time
NSR 13	175	-49.9	50	99.9
NSR 14	185	-50.4	50	100.4
NSR 15	194	-50.8	50	100.8
NSR 16	203	-51.2	50	101.2

Tonality Correction

3.4.11 As the scale of tonality and impulsiveness would be affected by the specific ventilation equipment which is not confirmed at this stage, the predicted maximum allowable SWL has not include correction due to tonality and / or other corrections. These corrections, will be assessed during detail design stage when the type of ventilation equipment had been confirmed. Should the procured ventilation equipment showed tonality and / or other issues and would exceed the maximum allowable SWL after corrections applied, additional mitigation measures including noise mufflers and barriers should be used. As such the ventilation louvers should allow enough space for these mitigation measures when necessary.

3.4.12 To ensure the fixed plant noise impact to the nearby NSRs would not exceed the noise criteria of ANL-5dB(A), the SWL at the M&E room during Night-time period shall not exceeding 84.8dB(A) for worst case scenario. As the actual noise impact would vary with the direction of the louver and the SWL of the ventilation equipment, further review will be conducted in later stage to ensure the fixed plant noise impact to the nearby NSRs would be acceptable.

Traffic Noise Impact Assessment

3.4.13 395 vehicle parking spaces are provided by the project, as such vehicles operating within the PVP is anticipated to be the part of the noise impact.

3.4.14 As noise generated by vehicles operating within the PVP underground would be contained and would not generate significant noise impact. As such vehicles operating at the entrance is considered as the main noise impact of the PVP.

3.4.15 The vehicles access the PVP via Po Yap Road. During operational phase, the number of vehicles operating concurrently within the PVP is anticipated to be small. As reported in the Traffic Impact Assessment (TIA) Report, the surveyed conducted in late October 2020 showed that the peak hour traffic flows at Po Yap Road are 665pcu/hr and 470pcu/hr for AM peak hours and PM peak hours respectively.

3.4.16 The TIA predicted that the trip generation of proposed PVP are 67pcu/hr and 92pcu/hr for AM and PM respectively. As such, compared to the existing scenario, about 10.2% and 19.6% of increase in traffic is anticipated for AM and PM respectively. The traffic generated by the project are summarized in **Table 2.2**. As such, the number of vehicles operating within the project is considered as insignificant compared to the nearby road.

3.4.17 The increment of total flow after project completion is 19.6% according to the Traffic Impact Assessment (TIA) Report. By using the CRTN equation given as follows, the increment of the traffic would generate additional traffic noise of 0.78dB. The increment of operational traffic noise would not exceed 1.0dB(A) and is therefore anticipated to be insignificant.

$$Basic\ noise\ level\ L_{10}(1-hour) = 42.2 + 10Log_{10}Q \quad dB(A)$$

3.4.18 As such the PVP would not generate significant noise impact compared to the nearby roads.

3.5 Operational Phase Noise Impact Assessment on Noise Impact to the Project

3.5.1 As there is no noise sensitive receiver within the project site, no noise impact to the project is identified.

3.6 Conclusion

3.6.1 During construction phase, noise generated by construction works would be controlled by the relevant ProPECC Note and NCO, excessive noise impact would not be anticipated.

3.6.2 During operational phase, by controlling the fixed plant noise generated at the ventilation louver with respect reference to the allowable SWL, and traffic noise generated by the vehicles using the PVP is anticipated to be insignificant, excessive noise impact during operational phase is also not anticipated.

3.6.3 Consider the noise impact during construction phase and operational phase can be properly controlled, it is anticipated that no significant residual noise impact would be generated by the Project.

4. Water Quality Impact

4.1 Site Situation and Identification of Impact

4.1.1 During construction phase, sewage generated from construction works, workforce and site runoff would be the major water quality impact.

4.1.2 During operation phase, sewage generated by the public and staff, and rainwater drainage would be the major water quality impact.

4.2 Construction Phase Water Quality Impact

Environmental Legislation, Standards and Guidelines

4.2.1 The relevant legislation, standards and guidelines applicable to the present study for the assessment of water quality impacts include:

a) Water Pollution Control Ordinance (WPCO) (Cap. 358);
b) Hong Kong Planning Standards and Guidelines (HKPSG); and
c) Practice Note for Professional Persons on Construction Site Drainage (ProPECC PN 1/94)

Identification of Source of Impact

4.2.2 During construction phase, works including concrete breaking and excavation are anticipated for removal of the existing concrete paving and creation of footing for the project. Wastewater may be generated due to groundwater seepage.

4.2.3 Also, site runoff may occur during rainstorm which would wash additional sediment into the existing drainage system.

4.2.4 General refuse including sewage generated by workforce is also a source of water quality impact.

Water Quality Impact Assessment

4.2.5 Water discharge license shall be applied under the WPCO by the contractor before commencement of construction works to allow wastewater to be discharged properly. Groundwater, if any, shall be properly treated before discharging into the designated discharge point under the discharge license.

4.2.6 Site runoff would be controlled by proper site drainage system. Contractor shall construct a perimeter U-channel or an impermeable bund around the site to ensure the site runoff to be properly collected for treatment. Sedimentation tank shall also be provided for treatment of all wastewater, including underground water, before disposal into the dedicated discharge point. The site drainage design shall follow the ProPECC PN 1/94.

4.2.7 Sewage generated by work force shall be collected using chemical toilet. The chemical toilet, if any, shall be cleaned properly to avoid building up of smell nuisance.

4.2.8 Should both mitigation measures being properly implemented by the contractor, no adverse water quality impact is anticipated.

4.3 Sewage Impact Assessment during Operational Phase

4.3.1 The project will provide toilets for the staff stationed in the PVP. The sewage collected will be discharged to the public sewerage system via the existing manholes.

4.3.2 Impact on the public sewerage system had been assessed and submitted in another report, “Sewage Impact Assessment” (SIA). The assessment concluded that the applicant would not be significant due to the small amount of sewage collected by the project.

4.4 Drainage Impact Assessment during Operational Phase

4.4.1 The stormwater collected by the project during operational phase will be discharged to the public drainage channel via the existing manholes.

4.4.2 Impact on drainage loading had been assessed and submitted in another report, “Drainage Impact Assessment” (DIA). The assessment concluded that the local flow pattern of stormwater would not be significantly affected by the project and the existing drainage system would have sufficient capacity to divert the stormwater.

4.5 Conclusion

4.5.1 During construction phase, should site runoff and wastewater generated be properly contained within the site by use of perimeter U-channel and treated before discharge, and sewage generated by workforce be collected by chemical toilet, no adverse water quality impact is anticipated.

4.5.2 Further to the SIA and DIA submitted under separate cover, the water quality impact to the environment from the Project is anticipated to be minimal.

5. Waste Management Implications

5.1 Environmental Legislation, Standards and Guidelines

5.1.1 The relevant legislation and associated guidance notes related to the study and assessment of waste management implications include:

a) Waste Disposal Ordinance (WDO) (Cap. 354) and subsidiary Regulations;
b) Land (Miscellaneous Provisions) Ordinance (Cap. 28); and
c) Public Health and Municipal Service Ordinance (Cap. 132) - Public Cleansing and Prevention of Nuisances Regulation.

5.1.2 Under the Waste Disposal Ordinance, some of the regulations are relevant to the Project, including:

a) Waste Disposal (Chemical Waste) (General) Regulation (Cap. 354C); and
b) Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N).

5.1.3 Waste generated by the project will include construction and demolition materials (C&D Material), general refuse, and chemical waste generated during construction phase, and general refuse, during operational phase.

5.2 Waste Implication Assessment

Construction Phase

5.2.1 During construction phase, waste generation will mainly due to the construction and demolition materials (C&D materials) generated during demolition of existing pavement and excavation, packaging materials and potential chemical waste if maintenance of the PME are conducted on site.

5.2.2 For waste amount estimation, there are 2 storeys need to be excavated as the PVP. The area of PVP area is about 13,300m^2 for B1 and B2 level. The PVP is divided into two major sections: Light Bus / Coach / LGV / Motorcycle parking lot (Section A) and , Private Car parking lot (Section B). For section A, the total height including floor slab, ceiling and footings is about 7.55m high with total area of about 4,800m^2. For section B, the total height for B1 and B2 including floor slab, ceiling and footings is 10.4m high with total area of about 8,500m^2. Hence the excavation for the PVP will generate about 114,000m^3 of C&D Materials. These materials would be delivered to the fill bank for reuse by other projects.

5.2.3 For general refuse generated from onsite workforce, the disposal rate of commercial & industrial waste per capita is 0.6kg/person/day according to the waste statistics (2019). It is expected to have 20 staff on site during construction. As such, general refuse generated from onsite workforce will be 12kg/day.

5.2.4 These wastes shall be disposed of under respective regulations. Inert C&D materials shall be disposed of at public fill reception facilities for reuse, while non-inert C&D materials shall be sorted and recycled as far as possible before disposed of at landfill.

5.2.5 General refuse generated by work forces during the construction phase shall be collected properly. Contractor shall provide enough rubbish bins with lids on site, and collected waste shall be collected by waste collectors regularly.

5.2.6 Chemical waste generated shall be collected by licensed chemical waste collector. Contractor shall be registered as a Chemical Waste Producer and all chemical waste shall be stored according to the legislation requirement.

5.2.7 Contractor should adopt the Waste Management Hierarchy, where the following options shall be preferred in the following order:

a) Avoidance;
b) Reduction of Wastes;
c) Reuse; then
d) Recycle

5.2.8 Contractor should ensure excessive materials had been minimized to avoid the generation of waste as far as possible. If waste is generated, contractor should review if the waste can be reused or recycled before disposed of at the landfill site.

5.2.9 Recyclable materials may include metal from the existing buildings, plastic from packaging materials, and paper from packaging materials. Other recyclable materials shall also be identified and recycler shall be arranged to collect the materials.

Operational Phase

5.2.10 During operational phase, it is expected to have 5 staff to operate the proposed project. For general refuse generated from onsite workforce, the disposal rate of commercial & industrial waste per capita is 0.6kg/person/day according to the waste statistics (2019). As such, general refuse generated from onsite workforce will be 3kg/day.

5.2.11 General refuse generated by the public and onsite workforce shall be collected with public rubbish bins and delivered to a refuse storage and material recovery chamber and stored in enclosed containers to prevent windblown, vermin, water pollution and visual impact. At least daily collection should be arranged by the waste collector.

5.2.12 Other types of waste are not anticipated so no other refuse disposal arrangement is anticipated.

5.3 Conclusion

5.3.1 As such, consider the waste generated by the project would be handled properly in accordance to the respective legislation, adverse impact caused by the waste generated by the project is not anticipated.

6. Conclusion

6.1 Environmental Impact

6.1.1 The following environmental impact potentially generated by this Project has been discussed:

a) Air Quality;
b) Noise;
c) Water Quality; and
d) Waste Management

6.1.2 As discussed in respective sections, environmental impact generated by this Project during both construction and operational phase would be minimal.

Figures

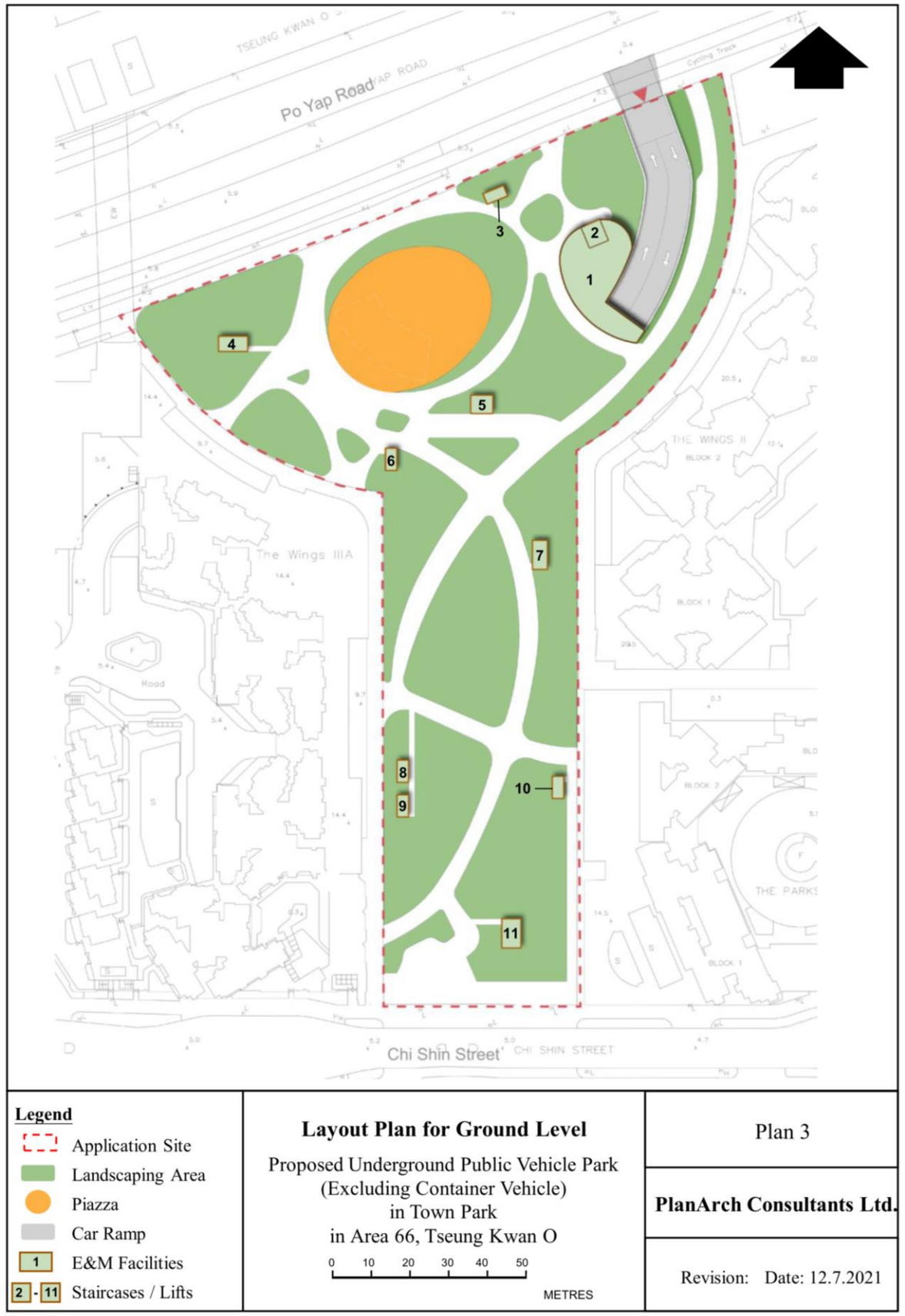

Figure 1: The Location of the Project Site

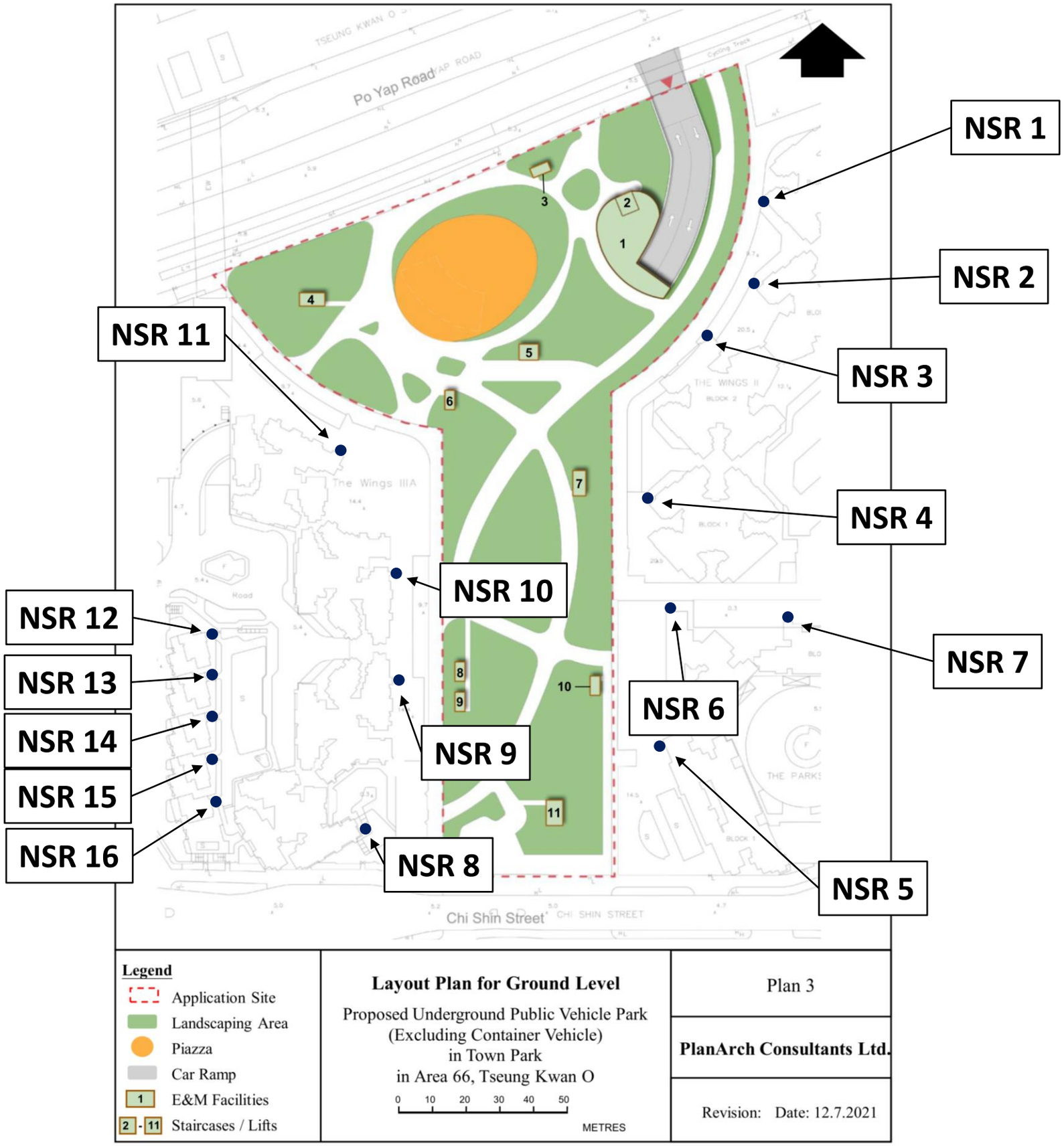

Figure 2: The Location of the Noise Sensitive Receivers

Appendix 1
Maximum Allowable SWL at the Ventilation Louver

Appendix 1

Maximum Allowable SWL at the Ventilation Louver

NSR	Name	Area Sensitive Ratings (ASR)	ANL - 5, dB(A) (A)		Distance from Fixed Plant Boundary at Ground Level, m (B)	Distance Attenuation, dB(A) (C) = -20 log(B) -8 +3	Allowable SWL, dB(A) (A) - (C)	
			Daytime	Nighttime			Daytime	Nighttime
NSR 1	Royal Diamond (The Wings II)	B	60	50	31	-34.9	94.9	84.9
NSR 2	Star Diamond (The Wings II)	B	60	50	36	-36.1	96.1	86.1
NSR 3	Luna Diamond (The Wings II)	B	60	50	31	-34.8	94.8	84.8
NSR 4	Sun Diamond (The Wings II)	B	60	50	70	-41.9	101.9	91.9
NSR 5	Tower 1 & 1A (The Parkside)	B	60	50	140	-47.9	107.9	97.9
NSR 6	Tower 2 & 2A (The Parkside)	B	60	50	104	-45.3	105.3	95.3
NSR 7	Tower 3 (The Parkside)	B	60	50	115	-46.2	106.2	96.2
NSR 8	Tower 1A & 1B (The Wings IIIA)	B	60	50	189	-50.5	110.5	100.5
NSR 9	Tower 2A & 2B (The Wings IIIA)	B	60	50	138	-47.8	107.8	97.8
NSR 10	Tower 3A & 3B (The Wings IIIA)	B	60	50	109	-45.8	105.8	95.8
NSR 11	Tower 5A & 5B (The Wings IIIA)	B	60	50	101	-45.1	105.1	95.1
NSR 12	House 1 (The Wings IIIA)	B	60	50	169	-49.5	109.5	99.5
NSR 13	House 2 (The Wings IIIA)	B	60	50	175	-49.9	109.9	99.9
NSR 14	House 3 (The Wings IIIA)	B	60	50	185	-50.4	110.4	100.4
NSR 15	House 5 (The Wings IIIA)	B	60	50	194	-50.8	110.8	100.8
NSR 16	House 6 (The Wings IIIA)	B	60	50	203	-51.2	111.2	101.2

Appendix 2
Preliminary Construction Noise Assessment - Unmitigated Scenario

Appendix 2

Preliminary Construction Noise Assessment - Unmitigated Scenario

Construction Noise Impact at NSR 4 - Sun Diamond (The Wings II)

PME	Quantity	TM Ref	SWL, dB(A)	Utilisation Rate	Mitigation Measure	Barrier Correction, dB(A)	Sub-total SWL, dB(A)	Slant Distance from the Nearest NSR	Façade Correction, dB(A)	SPL at NSR, dB(A)
Ground Level Works										
Crane, mobile/barge mounted (diesel)	1	CNP 048	112	65%	-	0	110.1			
Concrete lorry mixer	1	CNP 044	109	80%	-	0	108.0			
Poker, vibratory, hand-held	1	CNP 170	113	70%	-	0	111.5			
Bar bender and cutter (electric)	2	CNP 021	90	100%	-	0	93.0			
Air compressor, air flow > 10m3/min and <= 30m3/min	2	CNP 002	102	100%	-	0	105.0			
						Total SWL	**115.3**	**27.3**	**3.0**	**82**
Excavation for Underground Car Park										
Excavator/loader, wheeled/tracked	2	CNP 081	112	65%	-	0	113.1			
Dump truck	2	CNP 067	117	65%	-	0	118.1			
Generator, standard	1	CNP 101	108	100%	-	0	108.0			
						Total SWL	**119.6**	**27.3**	**3.0**	**86**
Underground and At-Grade Structure										
Crane, mobile/barge mounted (diesel)	1	CNP 048	112	30%	-	0	106.8			
Generator, standard	1	CNP 101	108	100%	-	0	108.0			
Concrete lorry mixer	3	CNP 044	109	100%	-	0	113.8			
Concrete pump, stationary/lorry mounted	1	CNP 047	109	100%	-	0	109.0			
Bar bender and cutter (electric)	1	CNP 021	90	100%	-	0	90.0			
Poker, vibratory, hand-held	3	CNP 170	113	70%	-	0	116.2			
						Total SWL	**119.3**	**27.3**	**3.0**	**86**

Appendix 3
Preliminary Construction Noise Assessment - Mitigated Scenario

Appendix 3

Preliminary Construction Noise Assessment - Mitigated Scenario

Construction Noise Impact at NSR 4 - Sun Diamond (The Wings II)

PME	Quantity	TM Ref	SWL, dB(A)	Utilisation Rate	Mitigation Measure	Barrier Correction, dB(A)	Sub-total SWL, dB(A)	Slant Distance from the Nearest NSR	Façade Correction, dB(A)	SPL at NSR, dB(A)
Ground Level Works										
Crane, mobile, Brand: SUNWARD, Model: SWTC 10	1	EPD-10029	103	65%	Movable Noise Barrier	-5	96.1			
Concrete lorry mixer	1	CNP 044	109	80%	Movable Noise Barrier	-5	103.0			
Poker, vibratory, hand-held	1	CNP 170	113	70%	Movable Noise Barrier	-5	106.5			
Bar bender and cutter (electric)	2	CNP 021	90	100%	Movable Noise Barrier	-5	88.0			
Air compressor, air flow > 10m3/min and <= 30m3/min	2	CNP 002	102	100%	Movable Noise Barrier	-5	100.0			
						Total SWL	**109.0**	**27.3**	**3.0**	**75**
Excavation for Underground Car Park										
Excavator, wheeled/tracked, Brand: SUMITOMO, Model: SH360HD-6	2	EPD-10841	105	65%	Movable Noise Barrier	-5	101.1			
Dump truck	2	CNP 067	117	65%	Fixed Noise Barrier	-10	108.1			
Generator, super silenced, 70 dB(A) at 7 m	1	CNP 103	95	100%	Movable Noise Barrier	-5	90.0			
						Total SWL	**109.0**	**27.3**	**3.0**	**75**
Underground and At-Grade Structure										
Crane, mobile, Brand: SUNWARD, Model: SWTC 10	1	EPD-10029	103	30%	Movable Noise Barrier	-5	92.8			
Generator, super silenced, 70 dB(A) at 7 m	1	CNP 103	95	100%	Movable Noise Barrier	-5	90.0			
Concrete lorry mixer	3	CNP 044	109	100%	Fixed Noise Barrier	-10	103.8			
Concrete pump, stationary/lorry mounted	1	CNP 047	109	100%	Fixed Noise Barrier	-10	99.0			
Bar bender and cutter (electric)	1	CNP 021	90	100%	Movable Noise Barrier	-5	85.0			
Poker, vibratory, hand-held	3	CNP 170	113	70%	Fixed Noise Barrier	-10	106.2			
						Total SWL	**108.9**	**27.3**	**3.0**	**75**

Appendix IV
Drainage Impact Assessment

Contract No: CPM302_8/20
Planning Consultancy Services for the Proposed Underground Public Vehicle Park (excluding container vehicle) under Town Park in Area 66, Tseung Kwan O

Drainage Impact Assessment

20 July 2021

Prepared by:

BeeXergy Consulting Limited (BXG)

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Kowloon, Hong Kong

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1. Introduction

1.1 Project Background

Location of the Project Site

1.1.1 The location of the project site is given in **Figure 1**.

1.1.2 The project site is located between Po Yap Road and Chi Shin Street. It is surrounded by residential units namely the Wings. Phase 1 of the Wings is located at northern side, while Phase 2 located at eastern side, and Phase 3A located at western side. At southern side other residential units are located. Shopping malls are also located within the residential areas. A MTR Station, Tseung Kwan O Station, is also located at the northern side of the project site.

1.1.3 The site is currently zoned as “Open Space” (“O”). Surrounding areas are classified as “Residential (Group A)”, “Commercial/Residential”, and “Other Specified Uses”.

Details of the Application and the Proposed Project

1.1.4 The project includes provision of an Underground Public Vehicle Park under Town Park in Area 66, Tseung Kwan O, which comprises of the following facilities:

a) Public Vehicle Park (PVP)

(i) An underground PVP to accommodate 395 parking spaces of various including light goods vehicles, light buses, coach, private cars and motorcycles; and

b) Town Park at Area 66

(i) A landscaped garden with features that will be unique to the Project and will therefore promote a district identity for Tseung Kwan O;

(ii) A landscaped central pedestrian avenue connecting the waterfront to the Tseung Kwan O MTR station;

(iii) A covered piazza with capacity of about 50 people to practice Tai Chi; and

(iv) Fitness stations suitable for people of different ages, including the elderly.

1.1.5 The site is currently zoned as “Open Space” (“O”) on the approved Tseung Kwan O Outline Zoning Plan (OZP) no. S/TKO/28.

1.2 Purpose of this Report

1.2.1 The purpose of this report is to evaluate and discuss the potential impact to the drainage system due to implementation of this project.

2. Project Description and Surrounding Environment

2.1.1 The Project site is semi-circular at the northern side and rectangular at the southern side, located between Po Yap Road and Chi Shin Street. The project site area is about 16,475m^2.

2.1.2 The Project is anticipated to provide 2 storeys of underground parking lot beneath a town park on ground level.

2.1.3 The Project Site located in a well-developed urban area and is served by the public storm drain. The area is mainly residential areas with shopping malls, that will also provide catering services.

3. Drainage Impact Assessment

3.1 Relevant Guidelines and Classification of the Project Site

3.1.1 This Drainage Impact Assessment has been carried out in accordance to the guidelines given as follows:

a) Technical Note to Prepare a Drainage Submission (the TN);

b) Drainage Services Department: Advice Note No.1, Application of the Drainage Impact Assessment Process to Private Sector Projects (the Note1); and

c) Stormwater Drainage Manual Planning, Design and Management (Fifth Edition, January 2018) (the Manual).

3.1.2 Further to the TN, as the project site area is about 16,475m^2, which is larger than 1ha, the site is classified as a Complicated Site. Drainage Impact Assessment will be carried out in accordance with the standards set out in the Manual.

3.2 Design Standard

Design Return Period

3.2.1 Design return period is taken as 200 years and 50 years for trunk and branch drains respectively. In this regard, trunk drains refer to pipe or box culverts with equivalent diameter equal to or greater than 1.8m.

Runoff Estimation

3.2.2 Rational method stated in Section 7.5 of the Manual is used to estimate the runoff from the Site. The equations are repeated as below:

a) Peak Runoff:

$$Q_p = 0.278 i \sum_{j=1}^{m} C_j A_j$$

Where:

Qp = peak runoff in m3/s

C = runoff coefficient

i = rainfall intensity in mm/hr

A = catchment area in km2

Fixed runoff coefficients of 0.95 and 0.35 are adopted for paved area and unpaved area respectively.

b) Intensity-Duration-Frequency Relationship:

$$i = \frac{\mathrm{a}}{(t_d + b)^c}$$

Where:

td = duration in minutes (td ≤ 240), and

a, b, c = storm constants given in **Table 3.1**.

Table 3.1: Storm Constants for Different Return Periods*

Return Period T (Years)	10	50	200
a	471.9	451.3	429.5
b	3.02	2.46	2.05
c	0.397	0.337	0.295

Note: * Storm Constants are according to from Table 3a of Stormwater Drainage Manual (fifth edition, Jan 2018).

c) Time of Concentration:

$$t_0 = \frac{0.14465L}{H^{0.2}A^{0.1}}$$

Where:

t_0 = time of concentration of a natural catchment in minutes

A = catchment area in m2

H = average slope (m per 100m)

L = distance in m

3.2.3 Time of concentration of 5 minutes had been adopted for estimation of runoff.

3.3 Existing Drainage Condition

3.3.1 The Project site is semi-circular at the northern side and rectangular at the southern side, located between Po Yap Road and Chi Shin Street. The project site area is about 16,475m^2. The project site is proposed to be developed into an underground PVP underneath a town park.

3.3.2 Currently the site is being used as an open space parking lot. The site boundary connecting The Wings Phase II to the east and Phase IIIa to the west are bounded by a fence with impermeable footings. As such stormwater collected within the site will be discharge to the public stormwater drain via 2 U-channels located at the northern and southern entrance.

3.3.3 There is a catchpit (SCH4006401) located at northern side of the site, and 2 tapping points (STH4003380 and STH4003381) located at the southern side of the site. The U-channels are proposed to be connect to these connections. **Figure 2** shows the location of the connection interface.

3.3.4 Sub-catchments for the existing site are also given in **Figure 2**. The highest point of the current site is near the area where the semi-circular section joins with the rectangular area at 6.5mPD. As such stormwater would flow from the high-ground towards north and south and collected by the 2 U-channels.

3.3.5 Existing site is paved by bitumen and concrete. For conservative approach, existing condition is considered as fully paved by bitumen, hence site Runoff Coefficient (C) of 0.70 had been adopted for the calculation.

3.3.6 The existing catchment and respective runoff estimation are therefore given in **Table 3.2**. Detailed calculation had been given in **Appendix 1**.

Table 3.2: Sub-Catchment and Runoff Estimation for Existing Scenario

Catchment	Area, m2	Percentage of Paved area	Discharge into:	Runoff, m3/s 50 Year
S-A	9692.2	100%	525mm storm drain outfall	0.4324
S-B	6782.8	100%	675mm storm drain outfall	0.3026

3.4 Changes to The Drainage Characteristics and Potential Drainage Impacts Which Might Arise From The Proposed Project

Potential Changes due to the Project

3.4.1 The project will establish a public town park which is trapezoid at the northern side and two rectangles at the southern side. To fully utilise the available catchpit and tapping points, sub-catchment for the project are revised and given in **Figure 3**.

3.4.2 Sub-catchment area will be designed to reduce the drainage impact to the surrounding drainage by distributing the stormwater drain loading evenly to the 3 existing drainage pipes. The stormwater flow will be divided and collected by the at-grade structures (planters and water features, roadside kerb etc) and surface channel and discharged into the catchpit and tapping points.

3.4.3 Compared to the existing temporary cark park which is paved by bitumen with certain degree of permeability, the town park is considered fully paved as the site will become impermeable due to the presence of the PVP. Hence the stormwater discharged into the public drainage system will be increased as the site Runoff Coefficient would be increased from 0.70 to 0.95.

3.4.4 The sub-catchments and respective runoff estimation after implementation of the project are therefore given in **Table 3.3**. Detailed calculation had been given in **Appendix 2**.

Table 3.3: Sub-Catchment and Runoff Estimation for Existing Scenario

Catchment	Area, m^2	Percentage of Paved area	Discharge into:	Runoff, m^3/s 50 Year
S-1	4415.0	100%	525mm storm drain outfall	0.2673
S-2	5452.0	100%	675mm storm drain outfall	0.3301
S-3	6608.0	100%	675mm storm drain outfall	0.4001

3.5 Drainage Condition After Project Completion

Concurrent Project in Close Proximity to The Proposed Project

3.5.1 'Town Park in Area 68' project undertaken by ArchSD is located at the southern side of the proposed project. According to the latest drainage plan from the project office of Town Park Area 68, the stormwater drain will be designed to fit into box culvert, manhole number SSH4006591 and SMH4079760 respectively. As one of the catchment, SMH-C-T, discharges into SMH4079760, that also receives the stormwater from Catchment S-2, the drainage loads from stormwater collected in SMH-C-T is included for calculating the percentage of full capacity under the peak flow of the proposed project.

3.5.2 The discharge characteristic of Catchment SMH-C-T is given in **Table 3.4** as follows:

Table 3.4: Sub-Catchment and Runoff Estimation for Town Park in Area 68

Catchment	Area, m^2	Downstream Manhole	Discharge into:	Runoff, m^3/s 50 Year
SMH-C-T	7290	DSD Manhole SMH SMH4079760	900mm storm drain outfall	0.5224

The Catchment Area Arrangement for the Proposed Project

3.5.3 Sub-catchment within the project site after project are shown in **Figure 3**. The stormwater will be divided and collected by the at-grade structures (planters and water features, roadside kerb etc) and surface channel and discharged into the catchpit and tapping points.

3.5.4 Compared to the existing scenario, where the stormwater discharged to the public drainage system after the project completion will be increased. As such the pipe capacity for nearby drainage pipes for project completion scenario had been evaluated.

3.5.5 To evenly distribute the stormwater load for the nearby drainage pipes, stormwater from catchment S-1 will be fed into SCH4006401, S-2 will be fed into STH4003380 and S-3 will be fed into STH4003381 respectively. As such pipe number SWD4061303, SWD4061298, SWD4095360, SWD4095363, SWD4095546, and SWD4095547 are included for evaluation.

3.5.6 For pipe SWD4095360, the upward invert level was not available. As such the slope of the pipe had been considered the same as the downstream pipe, SWD4095363.

3.5.7 Catchment area for the surface runoff nearby the site have been indicated in **Figure 4**. **Table 3.5** shows the pipe capacity calculation for project completion scenario. Detailed calculation had been given in **Appendix 3**.

Table 3.5: Pipe Capacity Calculation for Project Completion Scenario

Segment	Upstream Manhole	Downstream Manhole	Full Pipe Capacity (l/s)	% of Full Capacity under the Peak Flow of the Proposed Project	Catchment Area
Northern Section					
SWD4061303	SCH4006401	SMH4052910	534.498	50.02%	S-1
SWD4061298	SMH4052910	SMH4052906	567.007	79.72%	S-1, A
Southern Section - Westward					
SWD4095360[3]	STH4003381	SMH4079760	491.221	67.20%	S-2
SWD4095363	SMH4079760	SMH4079837	2248.649	42.46%	S-2, B, D, SMH-C-T

Segment	Upstream Manhole	Downstream Manhole	Full Pipe Capacity (l/s)	% of Full Capacity under the Peak Flow of the Proposed Project	Catchment Area
Southern Section - Eastward					
SWD4095546	STH4003381	SMH4079835	689.881	58.00%	S-3
SWD4095547	SMH4079835	SMH4079837	685.453	66.63%	S-3, C

3.5.8 **Table 3.5** shows the percentage of full capacity for the relevant segment under the peak flow of the proposed project is within the satisfaction criteria. As such, after implementation of the project, the drainage load of the proposed project would not exceed the capacity of the nearby drainage system.

4. Site Flooding Susceptibility and Mitigation Measures

4.1.1 The project site is located at the urban area of Tseung Kwan O. The area is near the seashore and majority of the drainage channels discharge directly into the sea.

4.1.2 Tseung Kwan O South is identified as an overtopping wave spot. During the passage of tropical cyclones, waves approaching shores may surpass the coping level of seawall forming “overtopping wave”. The rise in sea level by storm surge during passage of tropical cyclone results in easier seawater inundation at coastal areas due to overtopping waves.

4.1.3 A flood gate will be installed at the entrance of the PVP in order to avoid inundated seawater entering the PVP. The flood gate will block inundated seawater from entering the project site from street level.

4.1.4 Detailed design of the flood gate will be conducted and finalised in later stage of the project. At later stage where specification of the flood gate is to be confirmed for procurement procedure, project proponent should employ competent professionals to evaluate the specifications and requirement for the flood gate to ensure sufficient protection will be provided to the PVP.

5. Maintenance Responsibility

5.1 Maintenance Responsibility

5.1.1 The project is anticipated to be handover to respective departments. The town park will be operated by the Leisure and Cultural Services Department while the PVP will be operated by the Transport Department.

5.1.2 The future operators will be responsible for the maintenance of the drainage system of the respective portion of the project.

6. Conclusion

6.1.1 Consider the location is not a flooding black spot, the existing drainage system is adequate to handle the stormwater discharge for the area.

6.1.2 After the completion of the project, the sub-catchment are designed to distribute the stormwater collected onsite and evenly distribute to the 3 discharge points to ensure the drainage capacity of the storm drains are not exceeded.

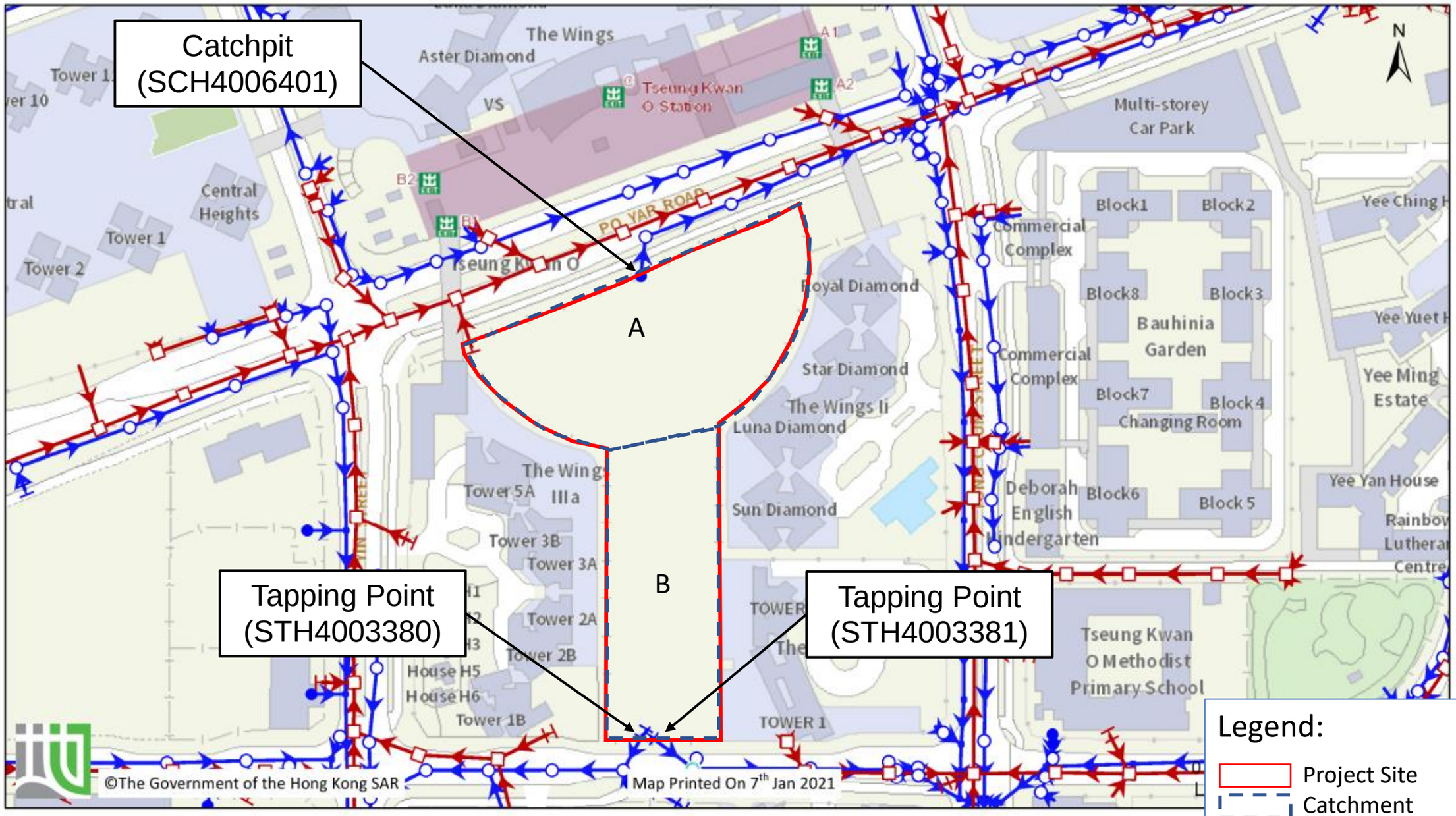
6.1.3 As such, the drainage system after the implementation of the project will not be adversely affected.

Figures:

Figure 1: The Location of the Project Site

GEOINFO MAP
地理資訊地圖

Go to map: https://www.map.gov.hk/gm/geo:22.3063,114.2604?z=2257



Powered by GeoInfo Map: https://www.map.gov.hk

Note: The use of this map is subject to the Terms and Conditions and the IP Rights Notice of GeoInfo Map.

Figure 2: Location of the Connection Interface and the Catchment of the Project Site Under Existing Scenario

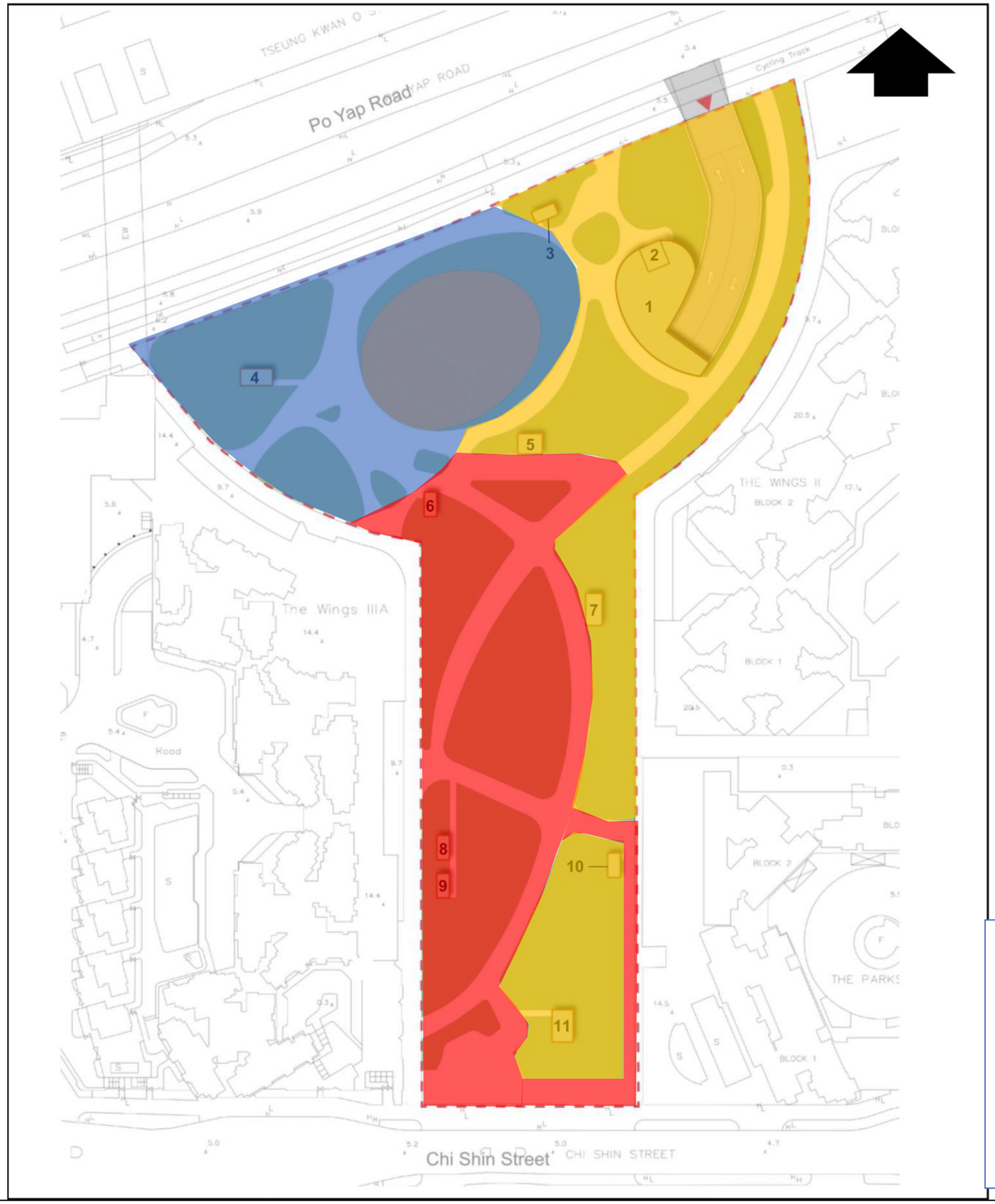


Figure 3: Refined Sub-Catchment for the Project

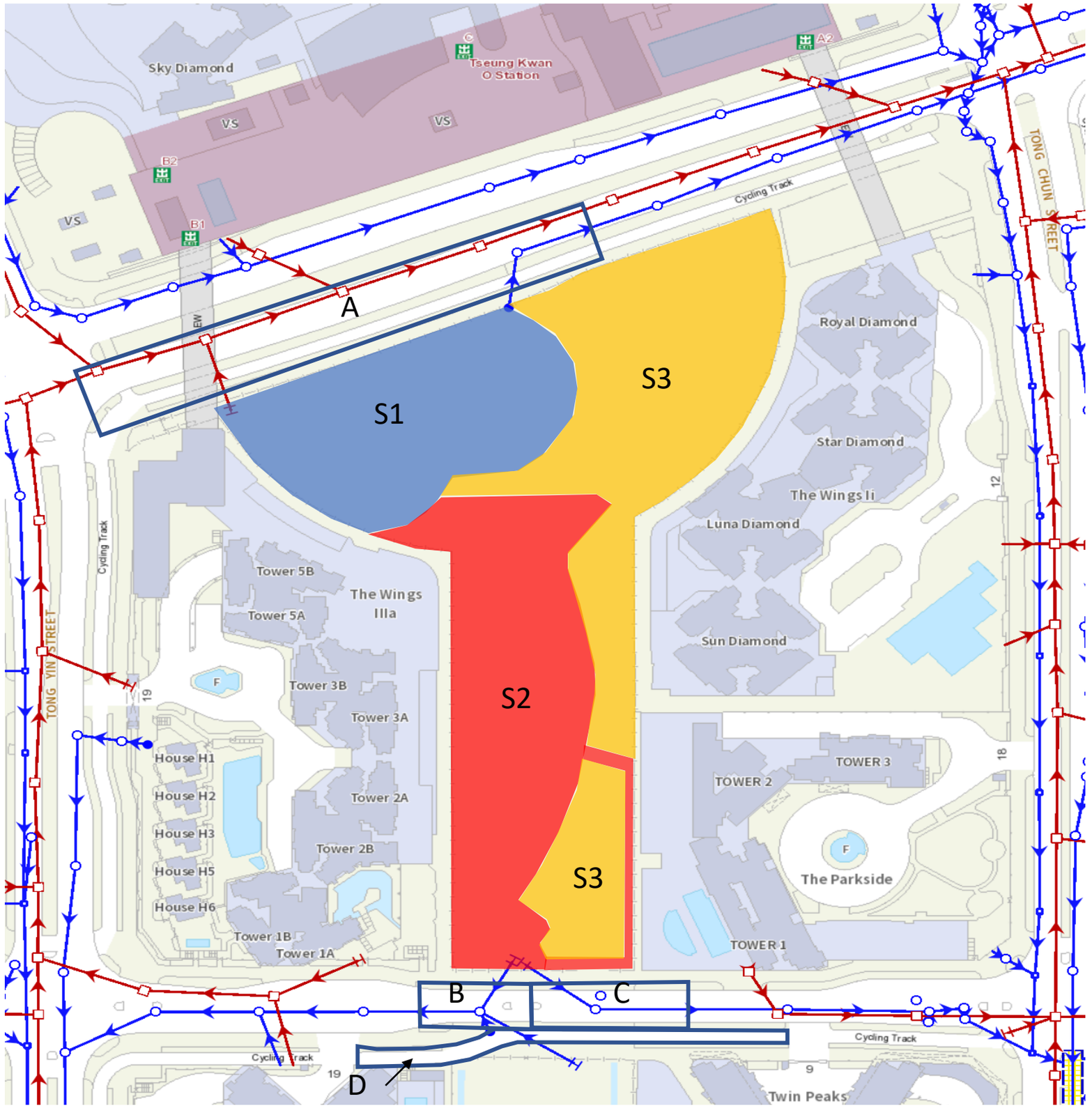


Figure 4a: Catchment Area for the Surface Runoff Nearby the Site

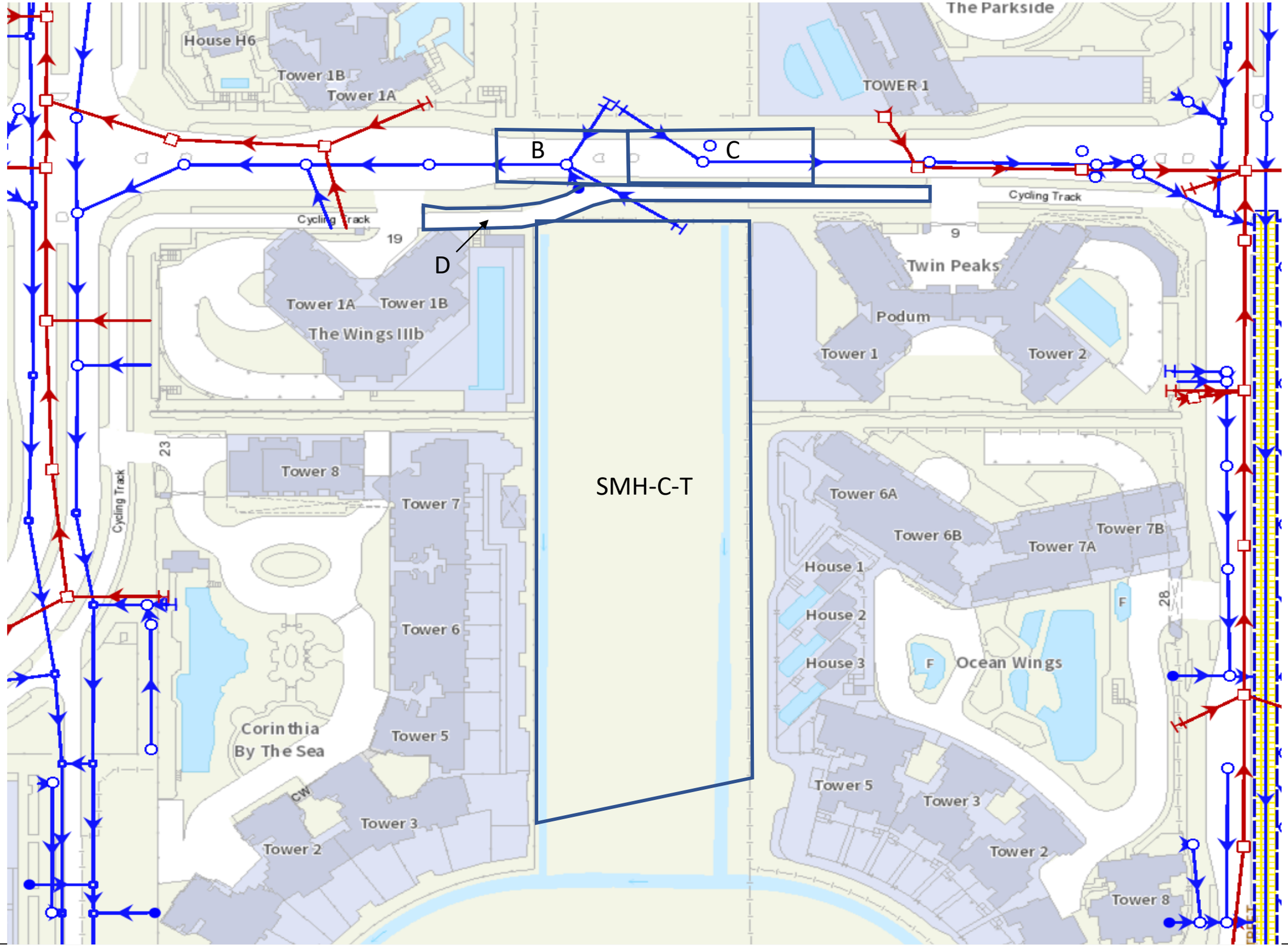


Figure 4b: Catchment Area for the Surface Runoff Nearby the Site

Appendix 1:
Catchment Runoff Estimation for Existing Condition

Appendix 1:
Catchment Runoff Estimation for Existing Site

Intensity Calculation:

Intensity-Duration-Frequency Relation:

$$i = \frac{a}{(t_d + b)^c}$$

Constants	Value
Return Period T	**50 Years**
a	451.3
b	2.46
c	0.337
t_d	5 min

i 229.3 mm/hr

Runoff Estimation:

Rational Method

$$Q_p = 0.278 i \sum_{j=1}^{m} C_j A_j$$

Catchment	Site Area, m2	Percentage of Paved area	Fixed runoff coefficients		Discharge into:	Runoff, m^3/s
			Paved	Unpaved		50 Year
Project Site						
S-A	9692.2	100%	0.7	0.35	525mm storm drain outfall	0.4324
S-B	6782.8	100%			675mm storm drain outfall	0.3026
Total:	**16475.0**					

Appendix 2:
Catchment Runoff Estimation for Site after Project Implementation

Appendix 2:
Catchment Runoff Estimation after Project Implementation

Intensity Calculation:

Intensity-Duration-Frequency Relation:

$$i = \frac{a}{(t_d + b)^c}$$

Constants	Value
Return Period T	**50 Years**
a	451.3
b	2.46
c	0.337
t_d	5 min

i 229.3 mm/hr

Runoff Estimation:

Rational Method

$$Q_p = 0.278 i \sum_{j=1}^{m} C_j A_j$$

Catchment	Site Area, m2	Percentage of Paved area	Fixed runoff coefficients		Discharge into:	Runoff, m^3/s
			Paved	Unpaved		50 Year
Project Site						
S-1	4415.0	100%	0.95	0.35	525mm storm drain outfall	0.2673
S-2	5452.0	100%			675mm storm drain outfall	0.3301
S-3	6608.0	100%			675mm storm drain outfall	0.4001
Total:	**16475.0**					
Street Level Stormwater						
A	3050.0	100%	0.95	0.35	900mm storm drain outfall	0.1847
B	600.0	100%			1200mm storm drain outfall	0.0363
C	935.0	100%			675mm storm drain outfall	0.0566
D	1090.0	100%			1200mm storm drain outfall	0.0660
Total:	**5675.0**					
Area 68 Stormwater						
SMH-C-T	--	--	--	--	1200mm storm drain outfall	0.5224

Appendix 3:
Pipe Capacity Calculation

Appendix 3
Pipe Capacity Calculation

Segment	Upstream Manhole	Downstream Manhole	Upstream Invert Level (mPD)	Downstream Invert Level (mPD)	Length (m)	Diameter (mm)	Diameter (m)	Area (m^2)	Hydraulic Radius (m)	Slope	Kinematic Viscosity (m2/s)	Hydraulic Pipeline Roughness (m) [1]	Full Capacity Velocity (m/s)	Full Capacity (l/s)	% of Full Capacity under the Peak Flow of the Proposed Project	Catchment Area
Northern Section																
SWD4061303	SCH4006401	SMH4052910	3.90	3.59	16.5	525	0.525	0.216	0.13125	0.019	1.140E-06	0.0030	2.469	534.498	50.02%	S-1
SWD4061298	SMH4052910	SMH4052906	2.63	2.57	40.0	900	0.900	0.636	0.22500	0.002	1.140E-06	0.0060	0.891	567.007	79.72%	S-1, A
Southern Section - Westward																
SWD4095360[2]	STH4003381	SMH4079760	N/A	2.60	18.5	675	0.675	0.358	0.16875	0.004	1.140E-06	0.0030	1.373	491.221	67.20%	S-2
SWD4095363	SMH4079760	SMH4079837	2.08	1.95	31.0	1200	1.200	1.131	0.30000	0.004	1.140E-06	0.0030	1.988	2248.649	42.46%	S-2, B, D, SMH-C-T
Southern Section - Eastward																
SWD4095546	STH4003381	SMH4079835	2.29	2.10	23.0	675	0.675	0.358	0.16875	0.008	1.140E-06	0.0030	1.928	689.881	58.00%	S-3
SWD4095547	SMH4079835	SMH4079837	2.10	1.68	51.5	675	0.675	0.358	0.16875	0.008	1.140E-06	0.0030	1.915	685.453	66.63%	S-3, C

NOTE:

[1] For the existing pipe, the roughness coefficient for slimed concrete sewer under poor condition is adopted; the ks values are 3mm for velocities greater than 1.2m/s, otherwise 6mm.

[2] Upstream invert level for SWD4095360 was not available. Assumption that the slope of the section is the same as the downstream section SWD4095363 was made.

Appendix V
Sewerage Impact Assessment

Contract No: CPM302_8/20
Planning Consultancy Services for the Proposed Underground Public Vehicle Park (excluding container vehicle) under Town Park in Area 66, Tseung Kwan O

Sewerage Impact Assessment Report

20 July 2021

Prepared by:

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1.1 Project Background

Location of the Project Site

1.1.1 The location of the project site is given in **Figure 1**.

1.1.2 The project site is located between Po Yap Road and Chi Shin Street. It is surrounded by residential units namely the Wings. Phase 1 of the Wings is located at northern side, while Phase 2 located at eastern side, and Phase 3A located at western side. At southern side other residential units are located. Shopping malls are also located within the residential areas. A MTR Station, Tseung Kwan O Station, is also located at the northern side of the project site.

1.1.3 The site is currently zoned as "Open Space" ("O"). Surrounding areas are classified as "Residential (Group A)", "Commercial/Residential", and "Other Specified Uses".

Details of the Application and the Proposed Project

1.1.4 The project includes provision of an Underground Public Vehicle Park under Town Park in Area 66, Tseung Kwan O, which comprises of the following facilities:

a) Public Vehicle Park (PVP)

(i) An underground PVP to accommodate 395 parking spaces of various including light goods vehicles, light buses, coach, private cars and motorcycles; and

b) Town Park at Area 66

(i) A landscaped garden with features that will be unique to the Project and will therefore promote a district identity for Tseung Kwan O;

(ii) A landscaped central pedestrian avenue connecting the waterfront to the Tseung Kwan O MTR station;

(iii) A covered piazza with capacity of about 50 people to practice Tai Chi; and

(iv) Fitness stations suitable for people of different ages, including the elderly.

1.1.5 The site is currently zoned as "Open Space" ("O") on the approved Tseung Kwan O Outline Zoning Plan (OZP) no. S/TKO/28.

1.2 Purpose of this Report

1.2.1 The purpose of this report is to evaluate and discuss the potential impact to the public sewer system due to implementation of this project.

2. Project Description and Surrounding Environment

2.1.1 The Project site is semi-circular at the northern side and rectangular at the southern side, located between Po Yap Road and Chi Shin Street. The project site area is about 16,475m^2.

2.1.2 The Project is anticipated to provide 2 storeys of underground parking lot beneath a town park on ground level.

2.1.3 The Project Site located in a well-developed urban area and is served by the public sewerage systems. The area is mainly residential areas with shopping malls, that will also provide catering services.

3. Sewage Impact Assessment

3.1.1 The existing sewerage system layout within the proximity of the site is shown in **Figure 2**. Existing public sewer tapping point (FTH4002584) is located at the northwestern of the project site, connecting to a public manhole (FMH4039899) located at Po Yap Road.

3.1.2 The sewage load and anticipated capacity of the public sewer during the operational phase of the project is reviewed in this report. Sewage loading from the project is anticipated to be insignificant.

3.2 Sewage Discharge Estimation

3.2.1 The Project is 2 storeys of underground parking lot beneath a town park on ground level. The project will provide toilet for staff use only, no public toilet will be provided at the park area.

3.2.2 It is anticipated that a total of 5 staff will be on duty for each shift.

3.2.3 The daily averaged flow generated from the Project is calculated to be 1.68m^3/day and the peak flow is 0.16l/s with peaking factor of 8. A catchment inflow factor of 1.20 for Tseung Kwan O is incorporated in the calculation. The detailed calculation is shown in **Appendix 1**.

3.3 Proposal of Sewerage System

3.3.1 The sewage discharge from the project is proposed to be directly connected to the tapping point FTH4002584. No additional manhole or piping will be required.

3.3.2 Consider the low quantity of sewage generated by the project, the potential occupancy of the capacity of the downstream pipes had been calculated. The proportion of peak flow to full capacity of each section of pipes are summarized in **Table 3.1**. The detailed calculation is given in **Appendix 2.**

Table 3.1: Proportion of Peak Flow to Full Capacity

Segment	Upstream Manhole	Downstream Manhole	Full Pipe Capacity (l/s)	% of Full Capacity under the Peak Flow of the Proposed Project
Existing Pipes				
FWD4044456	FTH4002584	FMH4039899	810.128	0.0192%
FWD4044443	FMH4039899	FMH4039910	1979.168	0.0079%

4. Conclusion

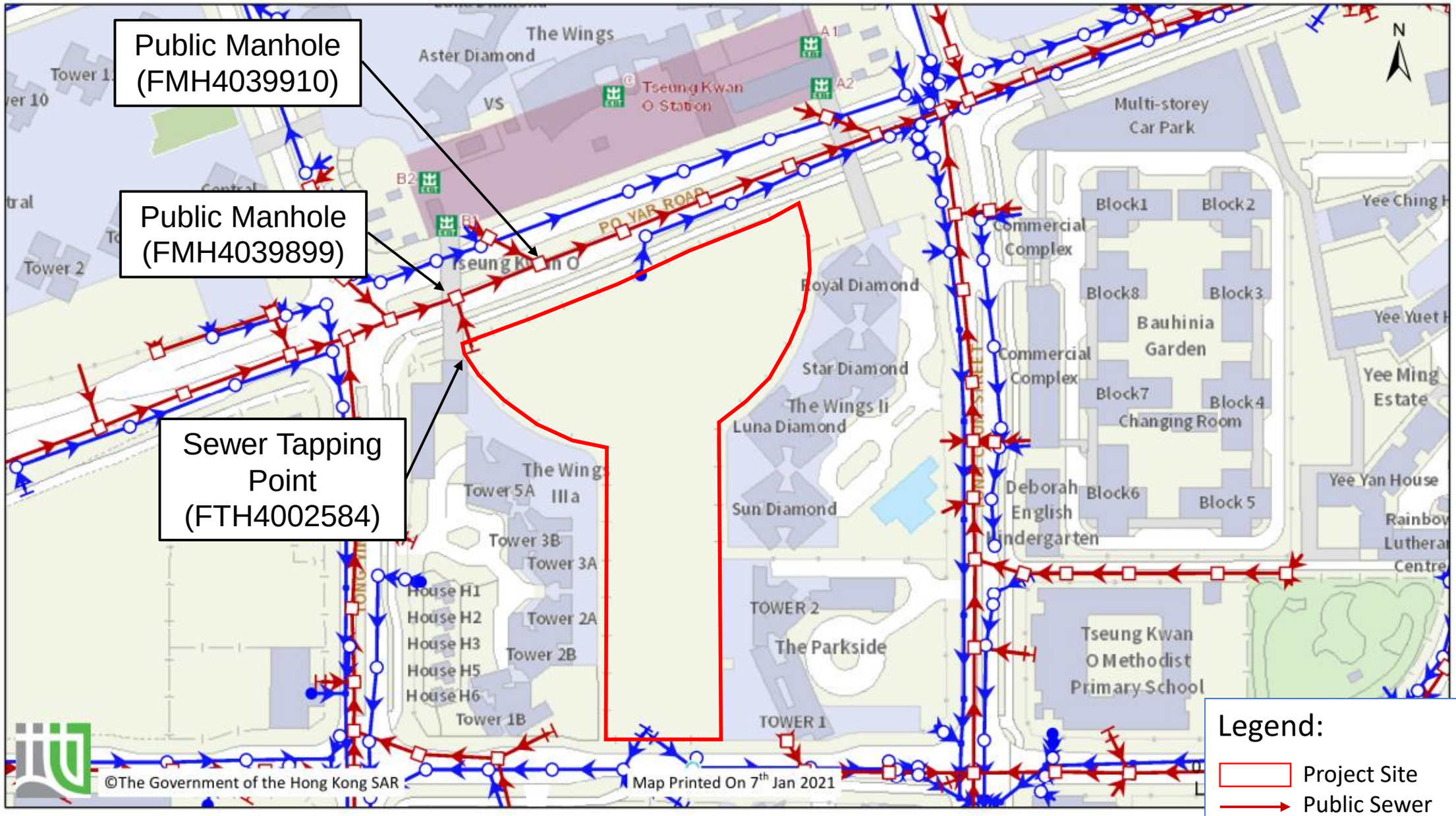
4.1.1 The sewage load during operational phase of the project had been calculated and concluded that the added sewage would occupy at maximum 0.0192% of the existing public sewerage pipe capacity. The sewage generated by the project will contribute to insignificant amount of sewage and hence the public sewer will have sufficient capacity to contain the sewage load during the operational phase of the project.

Figures

Figure 1: The Location of the Project Site

GEOINFO MAP
地理資訊地圖

Go to map: https://www.map.gov.hk/gm/geo:22.3063,114.2604?z=2257



Powered by GeoInfo Map: https://www.map.gov.hk

Note: The use of this map is subject to the Terms and Conditions and the IP Rights Notice of GeoInfo Map.

Figure 2: Existing Sewerage System Layout

Appendix 1: Flow Estimation for the Project

Appendix 1
Flow Estimation for the Project

Table 1 Estimation of Non-residential Population

Non-residential Use	UFA (m2)	No. of Employee [1]
Public Park	16475	0
Underground Carpark	23000	5

Note:

1 No public toilet is provided.
The number of staff for the operation of the carpark will be 5 persons per shift.

Table 2 Calculation of Sewage Flow

Occupant Type	Unit Flow Factors [1] (m3/day/person)	No. of Occupants	Average Dry Weather Flow (m^3/day) [2]	Contributing population	Peak Flow (L/s) [3]
Carpark	0.28	5	1.68	-	-
		Total	1.68	7.00	0.16

Note:

1 EPD's Guidelines for Estimating Sewage Flows for Infrastructure Planning defining sewage flow parameter.
2 Average Dry Weather Flow = Unit Flow Factors x No. of Occupants x Catchment Inflow Factor
The Catchment Inflow Factor for Tseung Kwan O is 1.20.
3 As the contributing population is smaller than 1,000, Peaking Factor of 8 is used for sewers including stormwater allowance.

Appendix 2: Pipe Capacity Calculation

Appendix 2
Pipe Capacity Calculation

Segment	Upstream Manhole	Downstream Manhole	Upstream Invert Level (mPD)	Downstream Invert Level (mPD)	Length (m)	Diameter (mm)	Diameter (m)	Area (m²)	Hydraulic Radius (m)	Slope	Kinematic Viscosity (m2/s)	Hydraulic Pipeline Roughness (m) [1]	Full Capacity Velocity (m/s)	Full Capacity (l/s)	% of Full Capacity under the Peak Flow of the Proposed Project
Existing Pipes															
FWD4044456	FTH4002584	FMH4039899	1.73	1.58	23.0	750	0.750	0.442	0.18750	0.007	1.140E-06	0.0030	1.834	810.128	0.0192%
FWD4044443	FMH4039899	FMH4039910	1.13	1.00	40.0	1200	1.200	1.131	0.30000	0.003	1.140E-06	0.0030	1.750	1979.168	0.0079%

NOTE:

[1] For the existing pipe, the roughness coefficient for slimed concrete sewer under poor condition is adopted; the ks values are 3mm for velocities greater than 1.2m/s, otherwise 6mm.

[2] With predicted peak flow of 0.156l/s, the predicted flow will occupy at maximum 0.019% of existing pipe capacity (Segment FWD4044456), with full capacity of 810.128l/s.

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PlanArch Consultants Ltd.
建港規劃顧問有限公司

TPB Ref.: A/TKO/125
Our Ref.: pa/tko/2010620

By Hand

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2021 NOV -5 A 11:40
TOWN PLANNING BOARD

Secretary
Town Planning Board
15/F., North Point Government Offices
No. 333, Java Road
North Point, Hong Kong
(Attn.: Mr Raymond KAN)

3 November 2021

Dear Sir,

S16 Application for Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O

We refer to the captioned S.16 application submitted on 29 July 2021. Subsequent departmental comments received from TD, EPD, DSD, UD&L and HAD, as well as public comments are noted.

In response to the departmental comments, enclosed please find eight copies of the response to departmental comments for your consideration. Revised DIA (Appendix A), revised SIA (Appendix B), revised PER (Appendix C), photo reference in response to comments from UD&L(UD) (Appendix D), and revised TIA report (Appendix E).

For clarity, please note that the following technical reports will be replaced by the revised version in the submission:

Previous submission dated 29.7.2021 to be replaced	Revised technical report in current submission
Appendix I: Traffic Impact Assessment	Appendix E: Revised Traffic Impact Assessment
Appendix III: Preliminary Environmental Review	Appendix C: Revised Preliminary Environmental Review
Appendix IV: Drainage Impact Assessment	Appendix A: Revised Drainage Impact Assessment
Appendix V: Sewerage Impact Assessment	Appendix B: Revised Sewerage Impact Assessment

We would also like to clarify that the last sentence in the second paragraph in Section 3.1 of the submitted planning statement should read:

"The access to the vehicular park will be made from Po Yap Road via an ingress/egress at the

northeast of the application site."

Regarding the public comments on the captioned application, we would like to provide the following clarifications for your consideration.

Construction Programme

The Town Park involves two parts falling within Area 66 and Area 68. Comparing with providing a town park only, the construction period is inevitably longer with the underground structure. Nevertheless, the part of the Town Park in Area 68 will be constructed without delay. The proposed underground public vehicle park (PVP) is desirable considering the genuine demand for public parking spaces in Area 66. The proposed underground PVP and the Town Park above in Area 66 will be completed in one phase and Architectural Services Department is the responsible party for the construction of the proposed underground PVP and the Town Park above in Area 66. The construction cost is similar to other public works projects.

Design and Landscaping of the Town Park

As the Town park is always permitted in "Open Space" zone, it is not a subject of the application. As the project will be procured by "design & build contract", detailed design of the Town Park will be carried out by the contractor's designer after contract is awarded. Nevertheless, development parameters, including greeneries, as approved in the S.16 application, will be incorporated into tender documents for contractor's designer to carry out detailed design. In addition, the design theme of the town park in Area 66 will be the same as Area 68 as committed to SKDC.

Structures and Structural Stability

For the above-ground structures, as shown in Plan 3 – Layout Plan for Ground Level in the submitted planning statement, 11 above-ground structures are very small, consisting either E&M facilities (Structure No.1) or stairhood or overrun for lifts connecting the underground carpark and the street level (Structures Nos. 2 -11). They are essential to the proposed underground PVP, and the design of these 11 above ground structures are optimized to minimize the space required above ground. The 2-storey underground PVP will be constructed by excavation and will not affect structural stability of surrounding developments.

Number of Car Parking Spaces

Design of the underground PVP is different from an open-air carpark since there are specifications to be complied with under the current building regulations and for fire safety purposes, such as the manoeuvring space for vehicles at each floor, and space for E&M facilities and fire services installations etc. Hence, the number of car parking spaces in the proposed scheme is less than that in the existing open-air carpark.

Pedestrian Safety

The proposed run-in/out design complies with the requirements in TPDM and HKPSG, which has considered the safety of pedestrians and drivers. Nevertheless, additional pedestrian safety measures at the ingress/egress of the proposed underground carpark (such as signage, visual or sound alert system etc.), will be considered in detailed design stage.

To conclude, the proposed underground PVP is an optimized design studied and prepared by the applicant with careful consideration on site context and constraints, and balance the provision of car parking space demand and road capacity, as well as the need and programme for the development of the town park to meet community needs.

The above information serves as a response to comments of relevant Government Departments under the Section 5(c) of the TPB Guideline No. 32, and we would like to seek an exemption from publication and recounting requirement. In case you decide that the above information is accepted but not exempted from publication and recounting requirement, we would like to proceed with the application with the further information.

Should you have any questions, please feel free to contact the undersigned.

Thank you for your kind attention.

Yours faithfully,
For and on behalf of
PlanArch Consultants Ltd.

Betty S. F. Ho
w/e.
c.c. Client
Mr. Anthony Cheung DPO/SKIs Email: amkcheung@pland.gov.hk

S16 Application for Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O (A/TKO/125)

Response to Departmental Comments

Transport Department
The Government of the Hong Kong Special Administrative Region

PlanArch Consultants Ltd.
HoWang SPB Ltd.
SCENIC Landscape Studio Limited
BeeXergy Consulting Limited

November 2021

	Comment	Response
1.	**Drainage Services Department (DSD)**	
a.	**Appendix IV- Drainage Impact Assessment** Section 3.5.2 - For clarity and completeness, pipe size should be shown in Table 3.4. Details of pipe(s) and manhole(s) mentioned in Table 3.4 should be clearly indicated in drawing / plan. (Figure 4a) as appropriate.	Noted. Table 3.4 is revised and details of pipe(s) and manhole(s) mentioned in Table 3.4 are reflected in Figure 5b and Appendix 3 in the revised DIA report at **Appendix A**.
b.	Section 3.5.5 - The downstream manholes and pipe numbers as mentioned in this section to receive the flaw from catchments S-1, S-2 and S-3 should be clearly indicated in drawing/plan. Besides existing scenario, a drainage connection plan should be provided for future scenario.	The downstream manholes and pipes mentioned in Section 3.5.7 are indicated in Figure 5a-c in the revised DIA report at **Appendix A**. Location of the connection interface and the catchment of the project site after project implementation are shown in Figure 5a-c in the revised DIA report at **Appendix A**.
c.	Section 3.5.7 - A column should be added to indicate the size of pipes in Table3.5. Details of pipe(s) and manhole(s) mentioned in Table 3.5 should be clearly indicated in drawing / plan as appropriate.	Noted. Table 3.5 is revised and details of pipe(s) and manhole(s) mentioned in Table 3.5 are shown in Figure 5a-c in the revised DIA report at **Appendix A.**
d.	Appendix 2 Runoff Estimation for Site after Project Implementation - Calculation should also take into climate change considerations with reference to Section 6.8 and Table 28 of DSD's Stormwater Drainage Manual (fifth edition) (SDM). Climate change consideration should be mentioned in the text section of the report	Noted. Relevant discussion is included in Section 3.4.4. and calculation in Appendix 2 in the revised DIA report at **Appendix A** is also updated by taking climate change considerations with reference to Section 6.8 and Table 28 of DSD's Stormwater Drainage Manual (fifth edition) into consideration.

	Comment	Response
	and increase % rainfall due to climate change should be included in the calculation table (add column if necessary) in Appendix 2.	
e.	Appendix 3 Pipe capacity calculation - a column should be added in the table to show 'Peak Flow inside the Pipe (l/s). The column with heading 'Full Capacity' should be amended to 'Full capacity of pipe'.	'Peak Flow inside the Pipe (l/s)' is added to Appendix 3. 'Full Capacity' has been renamed to 'Full capacity of pipe'. Please refer to the revised DIA report at **Appendix A**.
f.	Appendix 3 - The effect of sedimentation should be considered according to Section 9.3 of SDM and indicated in the results table in Appendix 3.	The effect of sedimentation is considered. Relevant calculation in Appendix 3 has been updated. Please refer to the revised DIA report at **Appendix A**.
g.	A RtoC able should be submitted to address our comments, and indicate the revised content (e.g. using yellow highlight) of the DIA report in the reply.	Noted.
h.	**Appendix V — Sewerage Impact Assessment** 'The Sewerage Impact Assessment (SIA) for the planning application needs to meet the full satisfaction of Environmental Protection Department (EPD), the planning authority of sewerage infrastructure. DSD's comments on the STA are subject to views and agreement of EPD.	Noted. The report was submitted to EPD and their no comment response was received.
i.	Appendix 1 - Please clarify the total number of staff per day, or state the number of shifts per day.	For each shift a total of 14 staff will be on duty for town park operation and 3 staff will be on duty for underground parking lot operation. A total 2 shifts and 3 shifts per day for town park and underground parking lot operation respectively.

Comment		Response
		The total number of staff per day or state the number of shifts per day have been state in Appendix 1 and Section 3.2.2 in the revised SIA report at **Appendix B**.
j.	A sewerage connection plan should be provided.	Noted. Details of sewerage connection are indicated in Figure 3 in the revised SIA at **Appendix B**.
2.	**Environmental Protection Department (EPD)**	
a.	SIA We have no comment on subject application from sewerage planning perspective.	Noted and thanks.
	Preliminary Environmental Review	
b.	Air Quality S.2.2 – Please list representative ASRs in the assessment area in a table, and include a map for indicating their locations.	Representative ASRs in the assessment area have been listed in Table 2.2. The locations of the air sensitive receiver are shown in Figure 2. Please refer to the revised PER at **Appendix C**.
c.	S.2.2.4 – ASR "The Wings" is located at close proximity to the project boundary, i.e. less than 10m. Please consider implementing enhanced emission control measures to minimize the construction dust impact, such as adopting site hoarding at sufficient height, locating the haul road away from the ASR, and avoiding dusty works or placing stockpiles near the ASR, etc.	Noted. Mitigation measures such as adopting site hoarding at 2.4m and locating the haul road away from the ASR are proposed to minimize the construction dust impact. Please refer to Section 2.3.4 in the revised PER at **Appendix C**.

Comment		Response
d.	S.2.2.8 – Please quote relevant section/table of the TIA for the peak hour traffic flow information for easy referencing.	Discussion had been made reference to the comparison of number of parking space of proposed PVP and existing open space carpark. The section has been updated, please refer to Sections 2.3.8 and 2.3.9 in the revised PER at **Appendix C**.
e.	S.2.2.9 – Please quote relevant section/table of the TIA for the predicted trip generation information for easy referencing.	Discussion had been made reference to the comparison of number of parking space of proposed PVP and existing open space carpark. The section has been updated, please refer to Sections 2.3.8 and 2.3.9 in the revised PER at **Appendix C**.
f.	S.2.2.9 – Please provide information and confirm whether the road capacity at the concerned roads nearby can absorb the additional traffic generated by the project.	Noted. According to Section 5.2 of the TIA, the junctions evaluated could operate at satisfactory level due to the changes of vehicular access location from Chi Shin Street at existing short term tenancy in TKO area 66 to Po Yap Road for proposed PVP. As such, the road capacity at the concerned roads nearby are capable to absorb the additional traffic generated by the project, hence no air quality issue due traffic emission during congestion is anticipated. Please refer to Section 2.3.10 in the revised PER at **Appendix C**.
g.	S.2.2.15 – The AQMS monitoring data should be a baseline condition of the air pollutants concentration in the district concerned. Relevant air pollutants as specified in the AQOs should be presented in their respective averaging time concentration, i.e. the concentrations of the	Relevant air pollutants as specified in the AQOs have been presented in **Table 2.4** in their respective averaging time concentration according to the 4th 10-min SO2, the 4th 24-hr SO2, the 10th 24-hr PM10, annual PM10, the 10th 24-hr PM2.5, annual PM2.5, the 19th

	Comment	Response
	4th 10-min SO2, the 4th 24-hr SO2, the 10th 24-hr PM10, annual PM10, the 10th 24-hr PM2.5, annual PM2.5, the 19th 1-hr NO2, annual NO2, the 10th 8-hr Ozone, the max. 1-hr CO, and the max. 8-hr CO. The concentration limit of the prevailing AQOs for respective pollutants should also be provided for benchmarking.	1-hr NO2, annual NO2, the 10th 8-hr Ozone, the max. 1-hr CO, and the max. 8-hr CO. The concentration limit of the prevailing AQOs for respective pollutants has been provided for benchmarking. Please refer to the revised PER at **Appendix C** for details.
h.	S.2.2.16 – There is no relevant information in the report to conclude that "The concentration of air pollutant related to car park is far below the level specified in the AQO". Please provide justification or revise the statement.	Compared with the current open air parking lot, the proposed carpark will be underground and there will be less car parking spaces hence it is expected the air quality will be better than the current scenario. In addition, **Table 2.4** shows the concentration of CO and NO2 in Tseung Kwan O district is far below the level specified in the AQO. As the major source of CO and NO2 would be the traffic, and the number of vehicles operating within the project area would be reduced after the implementation of the project as discussed in Section 2.3.9, exceedance of AQO during the operational phase would not be anticipated. Please refer to Section 2.3.18 in the revised PER at **Appendix C**.
i.	S.2.2.17 – Please clarify that the design/operation consideration as	Noted. The contractor to-be-commissioned shall implement all

	Comment	Response
	listed in this section will be implemented.	mitigation measures proposed in this PER. Such consideration is included in Section 1.2.2 in the revised PER at **Appendix C**.
j.	S.2.2.17(d) – Please indicate the location of the exhaust outlet of the ventilation system in relevant figure. The exhaust outlet should be located as far as possible from nearby air sensitive uses to avoid causing air nuisance.	Noted. The location of the E&M facilities and exhaust outlet is shown in Figure 2. To minimize air nuisance to the nearby ASRs, the exhaust outlet of the ventilation system will be located at the E&M facilities near the entrance of the PVP, and facing north towards the Po Yap Road. Please refer to Section 2.3.19 in the revised PER at **Appendix C**.
k.	S.2.2.23 – Please provide TD's confirmation on the road type of the concerned roads especially for Chi Shin Street which is not mentioned in the ATC.	With reference to e-mail correspondence with Transport Department, the concerned roads especially Chi Shin Street is confirmed to be Local Distributor (LD). The e-mail correspondence with TD is provided in Appendix 1 of the revised PER at **Appendix C**.
l.	S.2.2.25 – Please include a figure to indicate the measurement of shortest distances between the open space within the project site and the respective roads.	Noted. The shortest distances between the open space within the project site and the respective roads have been shown in **Figure 3** in the revised PER at **Appendix C**.

	Comment	Response
m.	Noise S.3.4.18 – The consultant does not address our previous comments on the pre-submission for the same proposed underground PVP in this draft PER. The statement of "the PVP would not generate significant noise impact compared to the nearby roads" is not justifiable, given the ingress/egress of the PVP is in very close proximity (some 20 meters only) to NSR1 to NSR3. As stipulated in Clause 4.2.15 of Chapter 9 of HKPSG, "Where opportunity arises and having due regard to the operational requirements, the site of facilities such as bus depots, lorry parks or petrol stations etc, should take into account the potential locations of ingress/egress and the consequent noise disturbances due to traffic routings, particularly during sensitive hours...", and given now the proposed ingress/egress of the PVP is in very close proximity to NSR1 to NSR3 and designed as a steep ramp with 1:10 gradient, the consultant shall address the potential noise disturbances due to vehicles moving in and out of the PVP such as the frequent start and stop of vehicles on the steep ramp and propose effective mitigation measures such as enclosure for such noise disturbances. Alternatively, the consultant shall consider alternative location(s) for the ingress/egress of the PVP which is farther away from the nearby NSRs.	Potential noise level at Ingress/Egress point had been assessed. Reference noise level had been obtained from a car park in TKO and predicted noise level at the nearest NSR had been calculated. As noise generated by vehicles operating within the PVP underground would be contained, it would not generate significant noise impact. As such vehicles operating at the entrance is considered as the main noise impact of the PVP. Please refer to Section 3.4.16 to 3.4.23 in the revised PER at **Appendix C**.
n.	S.3.2.10 – The statement "Consider the NSRs are located within an urban area without an IF, it is not anticipated to have background	Noise measurement was conducted on 18 June 2021. Respective noise monitoring results had been provided in the report. Please refer

	Comment	Response
	noise lower than 5dB(A) of the ANL, the ANL-5dB(A) is adopted for the project" is not justifiable without conducting the background noise measurement. As such, please conduct the background noise level measurement in L90 (1 hour) for fixed noise assessment as stipulated in HKPSG and review the noise criteria to be adopted for the fixed noise sources assessment. The methodology, timing, exact location and measurement setup (preferably to be illustrated via photos taken if any), measurement conditions (e.g. free field or near a façade), sound measuring equipment and calibrations done, the corresponding noise descriptor as well as the measured background noise data shall be supplemented.	to Sections 3.2.11 to 3.2.13 on Background Noise Level in revised PER at **Appendix C**. Location of the noise monitoring points are added in **Figure 4**, together with **Figure 5** to show the setup of the noise measurement equipment. Calibration certificate of sound measuring equipment are presented in **Appendix 7.** Please refer to the revised PER at **Appendix C** for the above-mentioned information.
o.	S.3.3.1 – Please state the construction year and completion year of proposed underground public vehicle park (PVP). In addition, please provide the construction programme of proposed underground public vehicle park.	The construction year of the project will start from 2023. The construction period is anticipated to be 3 years, as such the completion year is expected to be 2026. Please refer to Section 3.3.5 in the revised PER at **Appendix C**.
p.	S.3.3.2 – Please refer to ProPECC 2/93 instead of EIAO-TM for the daytime construction standard of this proposed underground public vehicle park and revise relevant sections of the report accordingly. The consultant shall clarify why there is no breaker/ excavator mounted breaker for the ground level works for underground PVP. The proposed PME inventory shall be reviewed and confirmed by the project engineer to be practicable for the proposed construction	Noted. ProPECC 2/93 was considered for the daytime construction standard of this proposed underground public vehicle park and revise relevant sections of the report, and breaker has been added to the PME inventory. The reference inventory has been reviewed by the project team and deemed to be feasible and practical for this project. In case there is

Comment		Response
	programme.	discrepancy during the construction phase, the contractor shall resubmit the noise assessment with the updated PME inventory. Please refer to Section 3.3.3 in the revised PER at **Appendix C**.
q.	S.3.3.3 – Please show the geographical center, notional source position and notional source distance in the drawing. In addition, please revise "… would also below 75dB(A)" to read as "… would be also below 75dB(A)".	Noted. The geographical center, notional source position and notional source distance have been shown in Figure 6 in the revised PER at **Appendix C**. The sentence on the anticipated noise impact is revised accordingly and please refer to Section 3.3.4 in the revised PER at **Appendix C**.
r.	Table 3.6 in S.3.4.10 and Appendix 1 – The horizontal distances between proposed M&E room to NSRs 2 and 3 measured on Figure 2 are shorter than the distances used for fixed plant noise measurement. Please check and revise. The calculation of fixed plant noise assessment shall be revised accordingly.	The exhaust louver of the proposed E&M facilities is clarified to be facing the north and indicated on plan in Figure 2. The horizontal distance between proposed E&M facilities to NSRs have been reviewed. Relevant calculations had been revised accordingly in Table 3.7 in Section 3.4.10 and Appendix 4 in the revised PER.
s.	S.3.4.11 – The consultant shall either apply tonality correction for the fixed plant noise assessment or commit to adopt the tonality-free ventilation equipment at this stage. In addition, please state that the maximum allowable sound power level of ventilation louver would be specified in the tender specification to ensure that the operational noise impact complies with the relevant noise criteria.	Noted. Tonality correction of 3dB(A) had been included in this stage for conservative assessment. However, mitigation measures including using tonality-free equipment or special designed noise muffler can be adopted in the later stage. Discussion had been included in Section 3.4.12 and 3.4.13 in the revised PER at **Appendix C**.

	Comment	Response
		Section 3.4.14 is added to the revised PER to state that the maximum allowable sound power level of ventilation louver should be specified in the tender specification to ensure that the operational noise impact complies with the relevant noise criteria.
t.	S.3.4.15 – Supporting document from the Transport Department (TD) shall be provided to substantiate the adopted methodology for traffic forecast.	Data obtained are extracted from the submitted Traffic Impact Assessment, and the methodology of which was agreed by TD.
u.	Appendix 3 – The proposed mitigation measure i.e. fixed noise barrier for dump truck and concrete lorry mixer seems infeasible. Please check and revise.	Mitigation measures for construction noise have been reviewed and revised. Details are shown in Appendix 3 in the revised PER.
v.	S.3.1 – of Supporting Planning Statement – Please revise the typo "northwest" to read as "northeast".	Noted and please refer to the clarification in the covering letter.
w.	Waste Management S.5.2.2 – (a) Please clarify how the amount of C&D materials is estimated. (b) Please clarify whether the C&D materials would be delivered to the public fill reception facilities or not. (c) Regarding the 114,000 m^3 of C&D materials to be generated, please clarify whether the estimated amount represents the inert portion of C&D materials only or not. If affirmative, please also estimate the amount of non-inert C&D wastes to be generated from the project.	(a) The method in estimating the amount of C&D materials has been provided in Section 5.2.2 and Table 5.1. (b) The inert C&D materials shall be delivered to the public fill reception facilities. Relative clarification is stated in Section 5.2.7. (c) The amount of non-inert portion of C&D wastes to be generated from the project has been estimated. Detail of estimation is stated in Section 5.2.4.

	Comment	Response
	(d) Please review whether a Construction & Demolition Material Management Plan should be prepared or not. If affirmative, please state the relevant requirement in the PER.	(d) C&DMMP should be prepared as the project would generates more than 50,000 m3 of C&D material including rock. Relevant requirement is stated in Section 5.2.3. Please refer to the revised PER at **Appendix C** for the above-mentioned revised sections and tables.
x.	S.5.2.5 and 5.2.11 – Please consider providing recycling bins at the site and collect recyclables separately.	Noted. Recycling bins will be provided, and recyclables will be collected separately. Please refer to Section 5.2.9 in the revised PER at **Appendix C**.
3.	**Urban Design Section, Urban Design and Landscape Unit, Planning Department (UD&L, PlanD) (Comments received on 24.8.2021)**	
a.	While it is noted that the town park is not a subject of the application and the applicant has proposed the initial design concept of the open space, it is not sure if the proposed design and greeneries will be implemented accordingly by LCSD. Subsequently, we are uncertain if the potential visual impact of the proposed structures would be well-buffered by the proposed greeneries as claimed by the applicant. Moreover, the proposed landscaping elements such as climbers cannot be seen from the photomontages. Thus, the applicant should submit additional visual materials to especially illustrate the car ramp, E&M facilities and staircases / lifts from a close low-level view to show the visual integration with the surroundings.	Town park is always permitted in "O" zone, as such it is not a subject of the application. As the project will be procured by "design & build contract", detailed design of the Town Park will be carried out by the contractor's designer after contract is awarded. Nevertheless, development parameters, including greeneries, as approved in the S16 application will be incorporated into tender documents for contractor's designer to carry out detailed design. In addition, the design theme of the town park in Area 66 will be the same as Area 68 as committed to SKDC. The following measures will be implemented in the detailed design

Comment		Response
		by ArchSD: • The proposed structures will adopt low-profile earth tone colours; • Climbers will be provided along the external walls of the proposed structures; and • Standard trees and shrubs will be provided around / near the structures to well-integrate with the environment. Please refer to the attached reference photos on the proposed landscape / visual treatment **(Appendix D)**.
4.	**Transport Department (TD)**	
a.	Section 3.2.1 - Please review whether the statement "..., which are normal weekdays when classes were scheduled in normal situation..." is factually correct. Also justification, such as provision of survey' results, for determination of AM and PM peak hours is still outstanding.	The base year data has been cross-checked with HWSPB's in-house survey data conducted in 2017 at junctions J1, J7 and J9. The peak hour traffic growths between the 2017 survey data and 2020 survey data were about 3.8% and 4.4% respectively. According to the ATC data from 2015 to 2019, the annual growth rate was about 3.1% and 3.7% during 2015~2019 and 2017~2019 respectively. Therefore, the 2020 survey results are considered in-line with the trend growth.
b.	Table 3.3 and 3.4 — Please find Annex 1 my markups on the table and revise accordingly.	Noted. The text has been revised accordingly. Please refer to the revised TIA report at **Appendix E**.
c.	Section 3.4 — Please revise "existing public transport facilities" as "existing public transport services".	Noted. The text has been revised accordingly. Please refer to the revised TIA report at **Appendix E**.

Comment		Response
d.	Section 3.5 — Please clarify the purpose of this section. Is it an update of the parking demand assessment in SKDC(M) paper no. 41/19 on 5 March 2021 (see Footnote 1)? If affirmative, a conclusion should be drawn at the end of this section. Otherwise, please review the necessity of this section.	Noted and Section 3.5 has been removed.
e.	Section 3.5.16 — The existing STT parking site in Area 66 is expected to be closed in 2023. Please identify the responsible party to advise the measures on how to address the parking needs in the district during construction period of this project.	
f.	Section 3.5.4 — As there is only one off-street public car park within the surveyed area, please revise "public car parks" as "public car park".	
g.	Section 3.5.5 —There shall be parking spaces for motorcycles in the public car park. Please include the survey result in this section.	
h.	Section 4.2.10 and Section 5.2.3 - Please liaise with CEDD to confirm whether the statement "... the usage of TKO-LTT will be increased by 30%..." is still valid.	Noted. It is confirmed by CEDD that the 30% increase to TKO-LTT upon completion of Route 6 stated in the LegCo paper "PWSC(2018-19)45" is still valid.
i.	Section 4.4.3 — There is a difference (-442 PCs) in PC provision between the proposed PVP and the existing STT parking site, and additional trips are estimated for these PCs. Please clarify how the additional trips are considered in this TIA.	Although there will be a reduction of 442 car parking spaces at the application site, two public vehicle parks in the vicinity will be provided, including Joint-user Building (JUB) and Joint-user Complex (JUC) in Area 67. Both JUB and JUC with provision of PVP to cater the parking demand in future.

Comment		Response
		Therefore, the junction performance is assessed by assuming that the parking demand is to be absorbed by PVPs in Area 66 (this project), JUB and JUC in Area 67.
j.	Section 5.1.3 — Please advise the tentative completion date of the improvement works at J5 and J6 under Contract No. NE/2017/02.	As advised by CEDD, the tentative completion of Contract No. NE/2017/02 will be in 2022.
k.	Section 5.1.6 - CEDD is implementing TTA at J5 — Po Yap Road/Tong Yin Street. Please liaise with CEDD on the feasibility of the proposed junction improvement scheme. Please also identify the party responsible for design and construction of the improvement scheme and advise whether the works could be completed in advance to tie in the commissioning if this project. The findings shall be reflected in this TIA report.	CEDD is carrying out the junction improvement works under Contract No. NE/2017/02, and the tentative completion time is 2022. Since the construction for the proposed underground car park is tentatively scheduled in 2023, the proposed the junction improvement proposed in the TIA report will be undertaken by our project – proposed underground public vehicle park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O.
l.	Section 5.3.2 and Table 5.4 — Please elaborate in the report the reason why choosing 2026 as design year for the junction performance assessment for construction stage.	Since the construction period will last for few years and the completion year of the proposed PVP is in 2026, the highest background traffic flows will normally appear in the last year of construction. Therefore, it is conservative to assess the construction traffic impact just before the operation of the proposed PVP in the same year.
m.	Section 5.3.3 — Construction TIA should be carried out prior to the commencement of construction works instead of during construction stage. Please revise.	Noted. Section 5.3.3 is revised as follows: “The results of junction assessment during construction stage shown that (J1) will operate beyond satisfactorily level with DFC 0.85. Subject to the detailed construction traffic impact assessment to be carried out prior to the commencement of construction works, the

Comment		Response
		construction traffic can be restricted to non-peak hours in weekday and the exact hours for construction traffic generation can also be determined in the construction stage once the detailed construction-related information is available." Please refer to the revised TIA report at **Appendix E**.
n.	Section 6.1.5 — Please review if the summary is still valid.	Noted. The summary is revised. Please refer to the revised TIA report at Appendix E.
o.	A plan showing the pedestrian connectivity route should be included in this TIA.	Noted. Pedestrian route is shown in Figure 2.1. Please refer to the revised TIA report at **Appendix E**.

Appendix A

Revised Drainage Impact Assessment

Contract No: CPM302_8/20
Planning Consultancy Services for the Proposed Underground Public Vehicle Park (excluding container vehicle) under Town Park in Area 66, Tseung Kwan O

Drainage Impact Assessment

2 November 2021

Prepared by:

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Figure:

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1. Introduction

1.1 Project Background

Location of the Project Site

1.1.1 The location of the project site is given in **Figure 1**.

1.1.2 The project site is located between Po Yap Road and Chi Shin Street. It is surrounded by residential units namely the Wings. Phase 1 of the Wings is located at northern side, while Phase 2 located at eastern side, and Phase 3A located at western side. At southern side other residential units are located. Shopping malls are also located within the residential areas. A MTR Station, Tseung Kwan O Station, is also located at the northern side of the project site.

1.1.3 The site is currently zoned as “Open Space” (“O”). Surrounding areas are classified as “Residential (Group A)”, “Commercial/Residential”, and “Other Specified Uses”.

Details of the Application and the Proposed Project

1.1.4 The project includes provision of an Underground Public Vehicle Park under Town Park in Area 66, Tseung Kwan O, which comprises of the following facilities:

a) Public Vehicle Park (PVP)

(i) An underground PVP to accommodate 395 parking spaces of various including light goods vehicles, light buses, coach, private cars and motorcycles; and

b) Town Park at Area 66

(i) A landscaped garden with features that will be unique to the Project and will therefore promote a district identity for Tseung Kwan O;

(ii) A landscaped central pedestrian avenue connecting the waterfront to the Tseung Kwan O MTR station;

(iii) A covered piazza with capacity of about 50 people to practice Tai Chi; and

(iv) Fitness stations suitable for people of different ages, including the elderly.

1.1.5 The site is currently zoned as “Open Space” (“O”) on the approved Tseung Kwan O Outline Zoning Plan (OZP) no. S/TKO/28.

1.2 Purpose of this Report

1.2.1 The purpose of this report is to evaluate and discuss the potential impact to the drainage system due to implementation of this project.

2. Project Description and Surrounding Environment

2.1.1 The Project site is semi-circular at the northern side and rectangular at the southern side, located between Po Yap Road and Chi Shin Street. The project site area is about 16,475m^2.

2.1.2 The Project is anticipated to provide 2 storeys of underground parking lot beneath a town park on ground level.

2.1.3 The Project Site located in a well-developed urban area and is served by the public storm drain. The area is mainly residential areas with shopping malls, that will also provide catering services.

3. Drainage Impact Assessment

3.1 Relevant Guidelines and Classification of the Project Site

3.1.1 This Drainage Impact Assessment has been carried out in accordance to the guidelines given as follows:

a) Technical Note to Prepare a Drainage Submission (the TN);

b) Drainage Services Department: Advice Note No.1, Application of the Drainage Impact Assessment Process to Private Sector Projects (the Note1); and

c) Stormwater Drainage Manual Planning, Design and Management (Fifth Edition, January 2018) (the Manual).

3.1.2 Further to the TN, as the project site area is about 16,475m^2, which is larger than 1ha, the site is classified as a Complicated Site. Drainage Impact Assessment will be carried out in accordance with the standards set out in the Manual.

3.2 Design Standard

Design Return Period

3.2.1 Design return period is taken as 200 years and 50 years for trunk and branch drains respectively. In this regard, trunk drains refer to pipe or box culverts with equivalent diameter equal to or greater than 1.8m.

Runoff Estimation

3.2.2 Rational method stated in Section 7.5 of the Manual is used to estimate the runoff from the Site. The equations are repeated as below:

a) Peak Runoff:

$$Q_p = 0.278 i \sum_{j=1}^{m} C_j A_j$$

Where:

Qp = peak runoff in m3/s

C = runoff coefficient

i = rainfall intensity in mm/hr

A = catchment area in km2

Fixed runoff coefficients of 0.95 and 0.35 are adopted for paved area and unpaved area respectively.

b) Intensity-Duration-Frequency Relationship:

$$i = \frac{\mathrm{a}}{(t_d + b)^c}$$

Where:

td = duration in minutes (td ≤ 240), and

a, b, c = storm constants given in **Table 3.1**.

Table 3.1: Storm Constants for Different Return Periods*

Return Period T (Years)	10	50	200
a	471.9	451.3	429.5
b	3.02	2.46	2.05
c	0.397	0.337	0.295

Note: * Storm Constants are according to from Table 3a of Stormwater Drainage Manual (fifth edition, Jan 2018).

c) Time of Concentration:

$$t_0 = \frac{0.14465L}{H^{0.2}A^{0.1}}$$

Where:

t_0 = time of concentration of a natural catchment in minutes

A = catchment area in m2

H = average slope (m per 100m)

L = distance in m

3.2.3 Time of concentration of 5 minutes had been adopted for estimation of runoff.

3.3 Existing Drainage Condition

3.3.1 The Project site is semi-circular at the northern side and rectangular at the southern side, located between Po Yap Road and Chi Shin Street. The project site area is about 16,475m^2. The project site is proposed to be developed into an underground PVP underneath a town park.

3.3.2 Currently the site is being used as an open space parking lot. The site boundary connecting The Wings Phase II to the east and Phase IIIa to the west are bounded by a fence with impermeable footings. As such stormwater collected within the site will be discharge to the public stormwater drain via 2 U-channels located at the northern and southern entrance.

3.3.3 There is a catchpit (SCH4006401) located at northern side of the site, and 2 tapping points (STH4003380 and STH4003381) located at the southern side of the site. The U-channels are proposed to be connect to these connections. **Figure 2** shows the location of the connection interface.

3.3.4 Sub-catchments for the existing site are also given in **Figure 2**. The highest point of the current site is near the area where the semi-circular section joins with the rectangular area at 6.5mPD. As such stormwater would flow from the high-ground towards north and south and collected by the 2 U-channels.

3.3.5 Existing site is paved by bitumen and concrete. For conservative approach, existing condition is considered as fully paved by bitumen, hence site Runoff Coefficient (C) of 0.70 had been adopted for the calculation.

3.3.6 The existing catchment and respective runoff estimation are therefore given in **Table 3.2**. Detailed calculation had been given in **Appendix 1**.

Table 3.2: Sub-Catchment and Runoff Estimation for Existing Scenario

Catchment	Area, m2	Percentage of Paved area	Discharge into	Runoff, m3/s 50 Year
S-A	9692.2	100%	525mm storm drain outfall	0.4324
S-B	6782.8	100%	675mm storm drain outfall	0.3026

3.4 Changes to The Drainage Characteristics and Potential Drainage Impacts Which Might Arise From The Proposed Project

Potential Changes due to the Project

3.4.1 The project will establish a public town park which is trapezoid at the northern side and rectangular at the southern side. Sub-catchment for the project are revised and given in **Figure 3**.

3.4.2 Sub-catchment area will be designed to reduce the drainage impact to the surrounding drainage by distributing the stormwater drain loading evenly to the 3 existing drainage pipes. The stormwater flow will be divided and collected by the at-grade structures (planters and water features, roadside kerb etc) and surface channel and discharged into the sand traps.

3.4.3 Compared to the existing temporary cark park which is paved by bitumen with certain degree of permeability, the town park is considered fully paved as the site will become impermeable due to the presence of the PVP. Hence the stormwater discharged into the public drainage system will be increased as the site Runoff Coefficient would be increased from 0.70 to 0.95.

3.4.4 To consider the effect of climate change in the drainage design, the runoff coefficient will be increased by 10.4% with reference to Section 6.8 and Table 28 of the Manual as the projection year of the project is scheduled within mid 21st century.

3.4.5 The sub-catchments and respective runoff estimation after implementation of the project are therefore given in **Table 3.3**. Detailed calculation had been given in **Appendix 2**.

Table 3.3: Sub-Catchment and Runoff Estimation for Existing Scenario

Catchment	Area, m^2	Percentage of Paved area	Discharge into:	Runoff, m^3/s 50 Year
S-1	4415.0	100%	900mm storm drain outfall	0.2951
S-2	5452.0	100%	675mm storm drain outfall	0.3645
S-3	6608.0	100%	675mm storm drain outfall	0.4417

3.5 Drainage Condition After Project Completion

Existing Catchment Areas Outside Project Boundary

3.5.1 Catchment area outside the project boundary is given in **Figure 4**. Stormwater collected in street level area will be discharged to existing public drainage system nearby the site.

Concurrent Project in Close Proximity to The Proposed Project

3.5.2 'Town Park in Area 68' project undertaken by ArchSD is located at the southern side of the proposed project. According to the latest drainage plan from the project office of Town Park Area 68, the stormwater drain will be designed to fit into box culvert, manhole number SSH4006591 and SMH4079760 respectively. As one of the catchment, SMH-C-T, discharges into SMH4079760, that also receives the stormwater from Catchment S-2, the drainage loads from stormwater collected in SMH-C-T is included for calculating the percentage of full capacity under the peak flow of the proposed project.

3.5.3 The discharge characteristic of Catchment SMH-C-T is given in **Table 3.4** as follows:

Table 3.4: Sub-Catchment and Runoff Estimation for Town Park in Area 68

Catchment	Area, m^2	Upstream Manhole	Downstream Manhole	Segment	Pipe size (mm)	Runoff, m^3/s 50 Year
SMH-C-T	7290	SMH-C-T	SMH4079760	SWD4095361	1050	0.5767

The Catchment Area Arrangement for the Proposed Project

3.5.4 Sub-catchment within the project site after project are shown in **Figure 3**. The stormwater will be divided and collected by the at-grade structures (planters and water features, roadside kerb etc) and surface channel and discharged into the sand traps.

3.5.5 Compared to the existing scenario, where the stormwater discharged to the public drainage system after the project completion will be increased. As such the pipe capacity for nearby drainage pipes for project completion scenario had been evaluated.

3.5.6 Stormwater from Catchment S-1 cannot be fed into the existing Catchpit SCH4006401 which subsequently discharge into the 900mm pipe SWD4061298. The capacity of SWD4061298 was not enough to handle all stormwater collected in Catchment S-1 and Catchment A under a 1 in 50 years rainstorm.

3.5.7 As such, to evenly distribute the stormwater load for the nearby drainage pipes, stormwater from catchment S-1 will be fed into manhole SMH4052906 through a new sand trap (SWST-01) and pipe (NSWD-01), Tapping Point STH4003380 and STH4003381 will be upgrade to become sand traps for the stormwater discharged from S-2 and S-3 respectively. As such pipe number SWD4061299, SWD4095360, SWD4095363, SWD4095546, and SWD4095547 are included for evaluation.

3.5.8 For pipe SWD4095360, the upward invert level was not available. As such the slope of the pipe had been considered the same as the downstream pipe, SWD4095363.

3.5.9 Catchment area and location of the connection interface of drainage nearby the site for each sub-catchment within project area after project implementation have been indicated in **Figure 5**. Dimensions of the pipes and manholes are also given in **Figure 5**. **Table 3.5** shows the pipe capacity calculation for project completion scenario. Detailed calculation had been given in **Appendix 3**.

Table 3.5: Pipe Capacity Calculation for Project Completion Scenario

Segment	Upstream Manhole	Downstream Manhole	Pipe Size (mm)	Full Capacity of Pipe (l/s)	% of Full Capacity under the Peak Flow of the Proposed Project	Catchment Area
Northern Section						
NSWD-01	SWST-01	SMH4052906	600	466.140	63.31%	S-1
SWD4061299	SMH4052906	SMH4052907	900	764.885	68.43%	S-1, A, B
Southern Section - Westward						
SWD4095360	STH4003380	SMH4079760	675	442.099	82.44%	S-2
SWD4095363	SMH4079760	SMH4079837	1200	2023.784	52.09%	S-2, C, E, SMH-C-T
Southern Section - Eastward						
SWD4095546	STH4003381	SMH4079835	675	620.892	71.14%	S-3
SWD4095547	SMH4079835	SMH4079837	675	616.908	81.74%	S-3, D

3.5.10 **Table 3.5** shows the percentage of full capacity for the relevant segment under the peak flow of the proposed project is within the satisfaction criteria. As such, after implementation of the project, the drainage load of the proposed project would not exceed the capacity of the nearby drainage system.

4. Site Flooding Susceptibility and Mitigation Measures

4.1.1 The project site is located at the urban area of Tseung Kwan O. The area is near the seashore and majority of the drainage channels discharge directly into the sea.

4.1.2 Tseung Kwan O South is identified as an overtopping wave spot. During the passage of tropical cyclones, waves approaching shores may surpass the coping level of seawall forming “overtopping wave”. The rise in sea level by storm surge during passage of tropical cyclone results in easier seawater inundation at coastal areas due to overtopping waves.

4.1.3 A flood gate will be installed at the entrance of the PVP in order to avoid inundated seawater entering the PVP. The flood gate will block inundated seawater from entering the project site from street level.

4.1.4 Detailed design of the flood gate will be conducted and finalised in later stage of the project. At later stage where specification of the flood gate is to be confirmed for procurement procedure, project proponent should employ competent professionals to evaluate the specifications and requirement for the flood gate to ensure sufficient protection will be provided to the PVP.

5. Maintenance Responsibility

5.1 Maintenance Responsibility

5.1.1 The project is anticipated to be handover to respective departments. The town park will be operated by the Leisure and Cultural Services Department while the PVP will be operated by the Transport Department.

5.1.2 The future operators will be responsible for the maintenance of the drainage system of the respective portion of the project.

6. Conclusion

6.1.1 Consider the location is not a flooding black spot, the existing drainage system is adequate to handle the stormwater discharge for the area.

6.1.2 After the completion of the project, the sub-catchment are designed to distribute the stormwater collected onsite and evenly distribute to the 3 discharge points to ensure the drainage capacity of the storm drains are not exceeded.

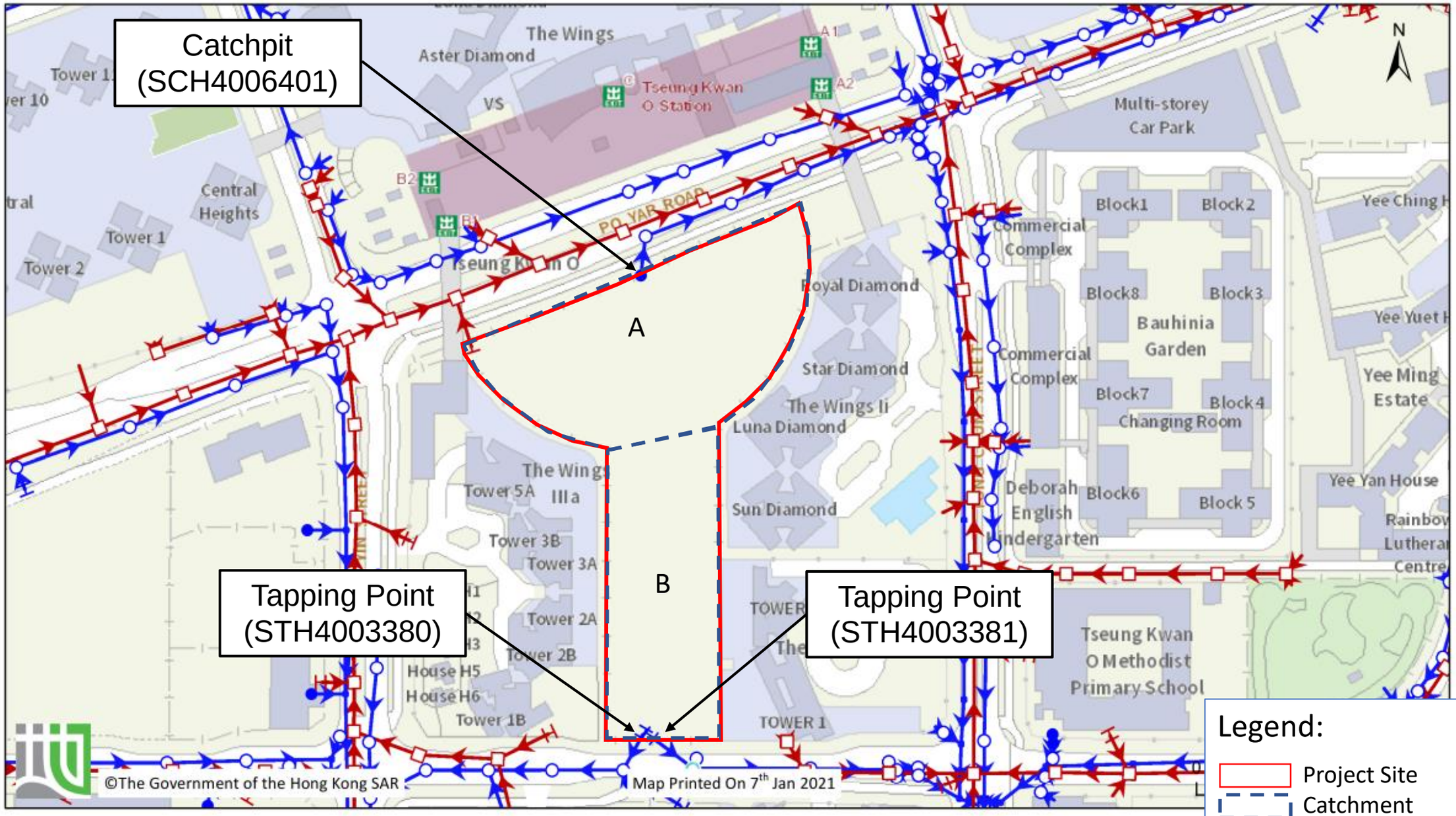
6.1.3 As such, the drainage system after the implementation of the project will not be adversely affected.

Figures:

Figure 1: The Location of the Project Site

GEOINFO MAP
地理資訊地圖

Go to map: https://www.map.gov.hk/gm/geo:22.3063,114.2604?z=2257



Powered by GeoInfo Map: https://www.map.gov.hk

Note: The use of this map is subject to the Terms and Conditions and the IP Rights Notice of GeoInfo Map.

Figure 2: Location of the Connection Interface and the Catchment of the Project Site Under Existing Scenario

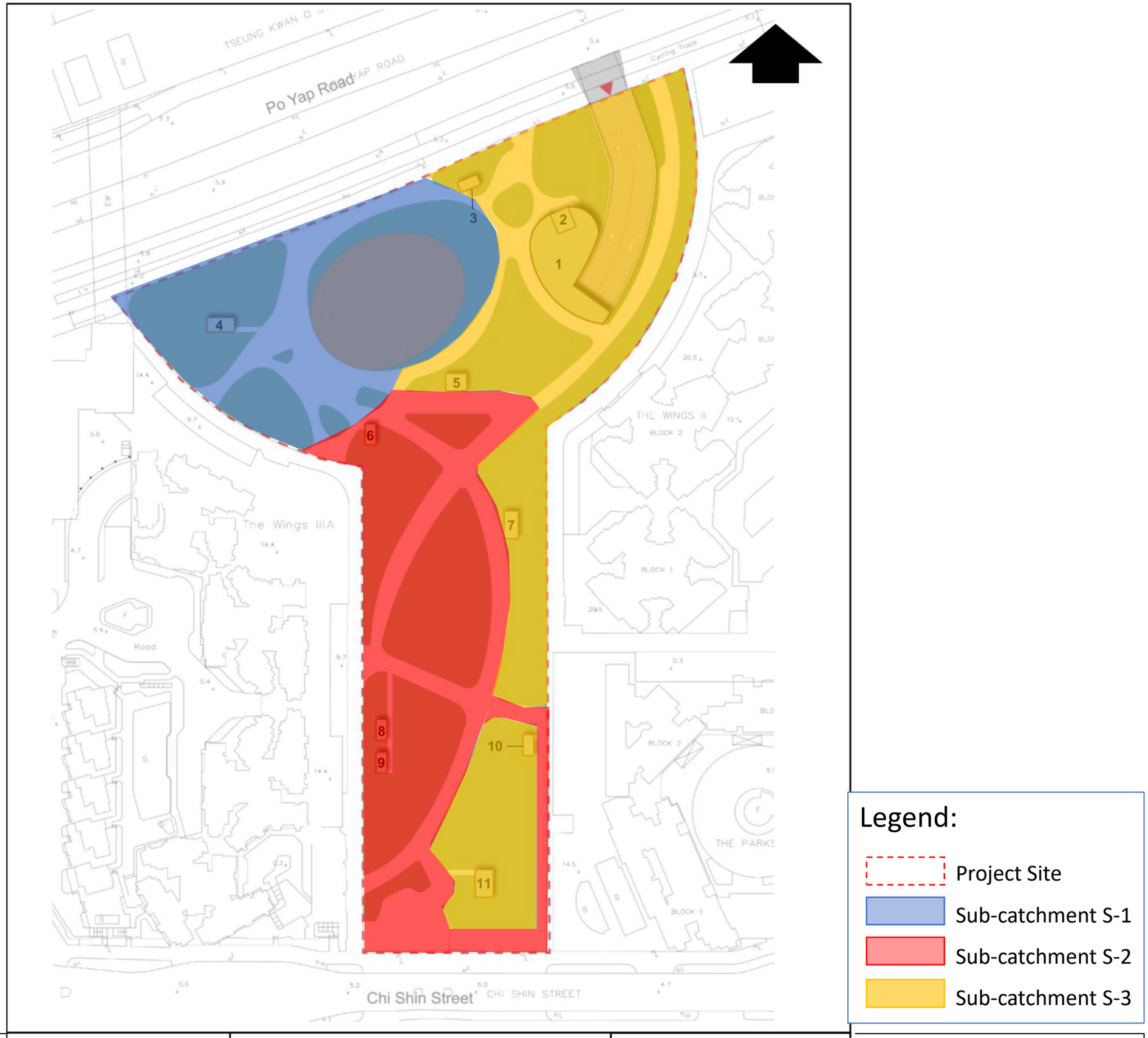


Figure 3: Refined Sub-Catchment for the Project

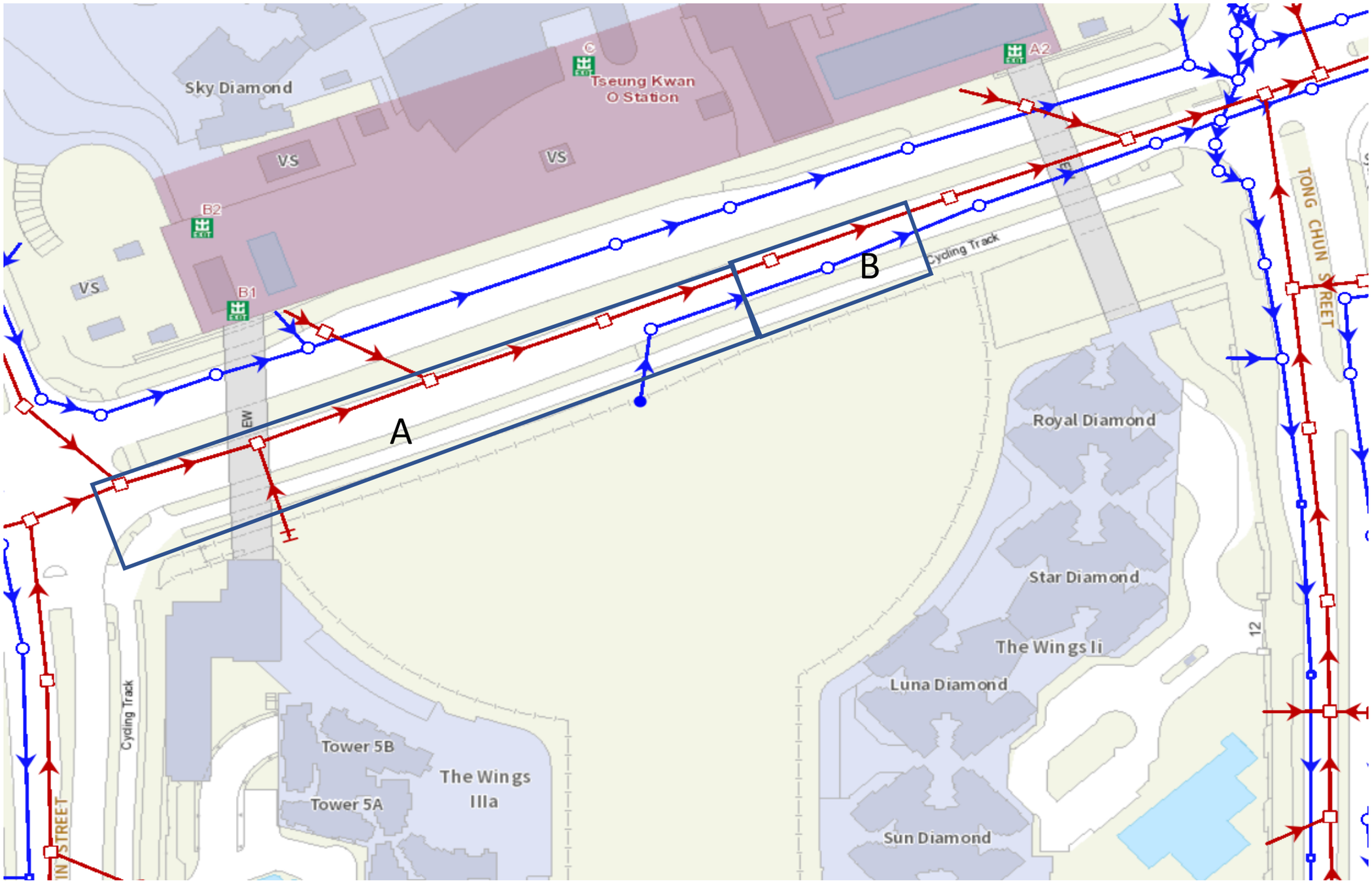


Figure 4a: Catchment Area outside the Project Boundary (Northern Side)

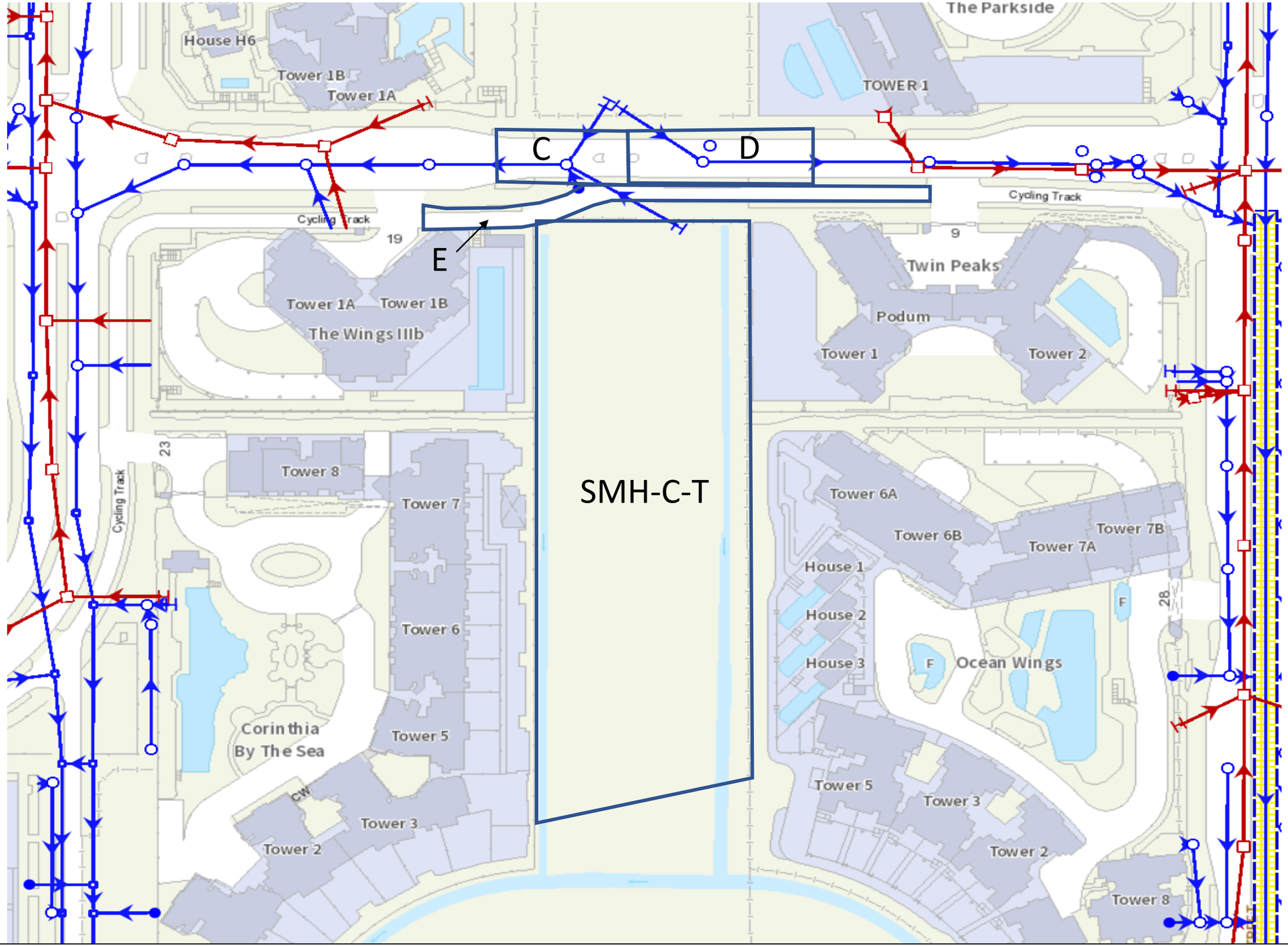


Figure 4b: Catchment Area outside the Project Boundary (Southern Side)

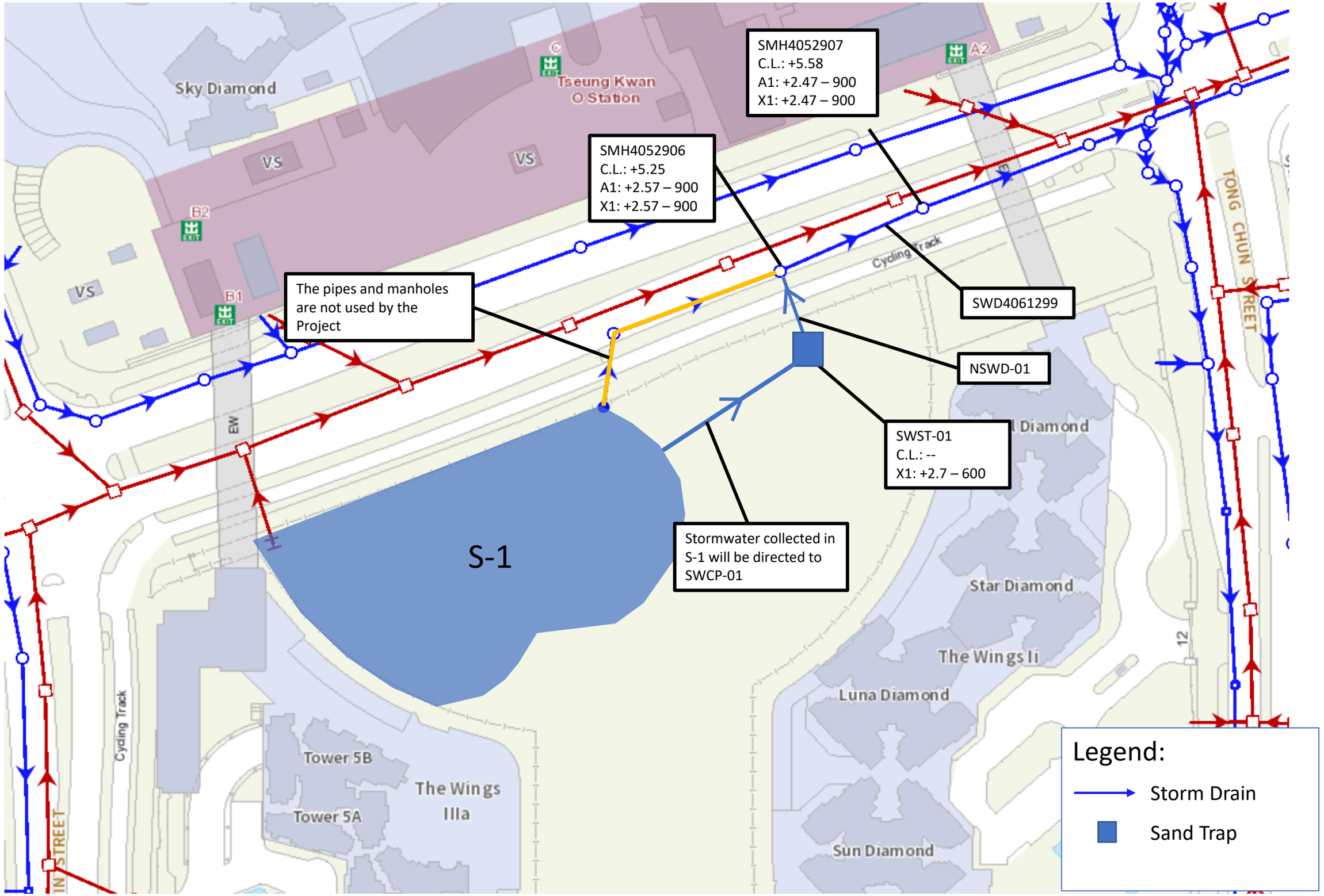


Figure 5a: Location of the Connection Interface and the Catchment of the Project Site after Project Implementation

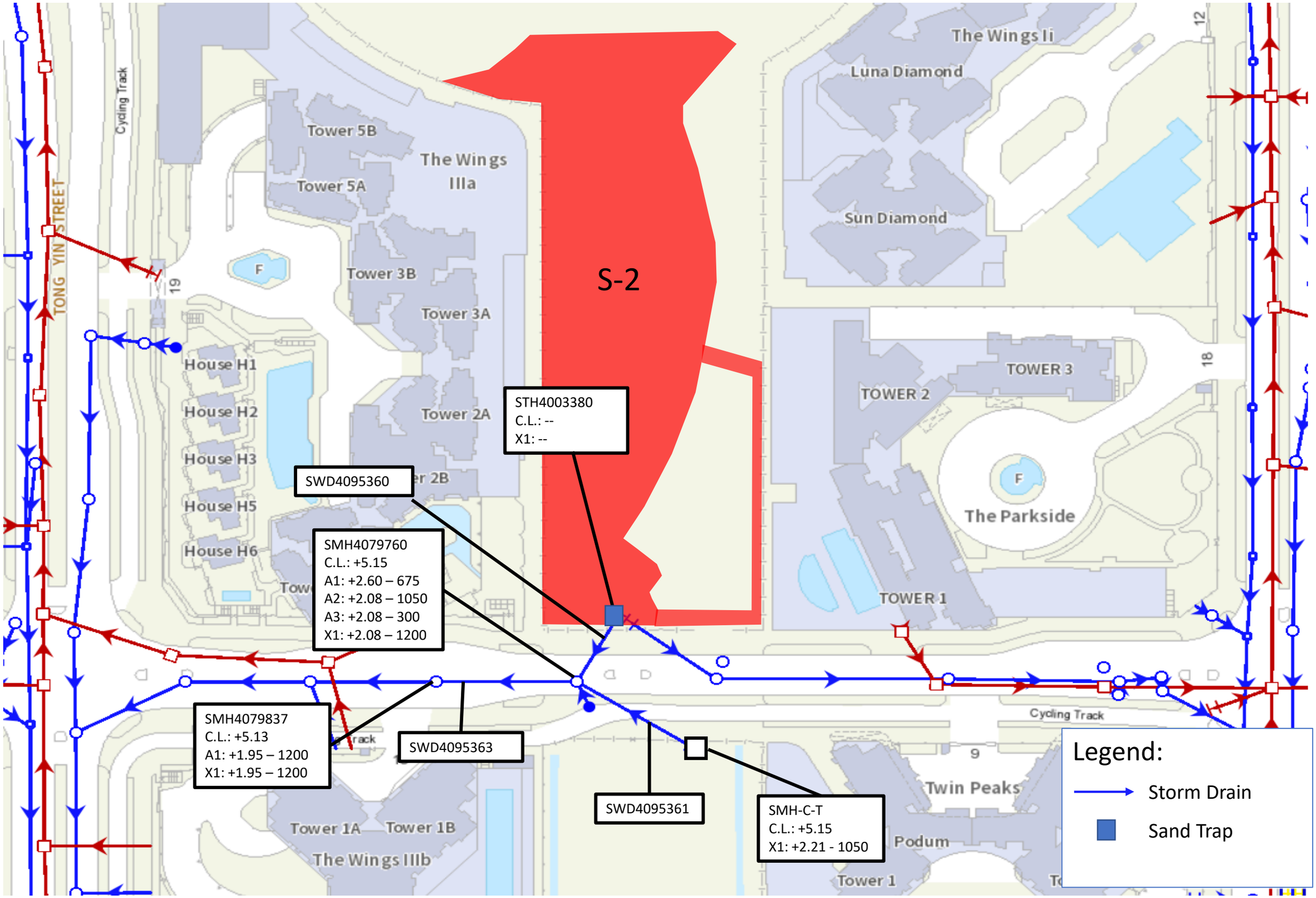


Figure 5b: Location of the Connection Interface and the Catchment of the Project Site after Project Implementation

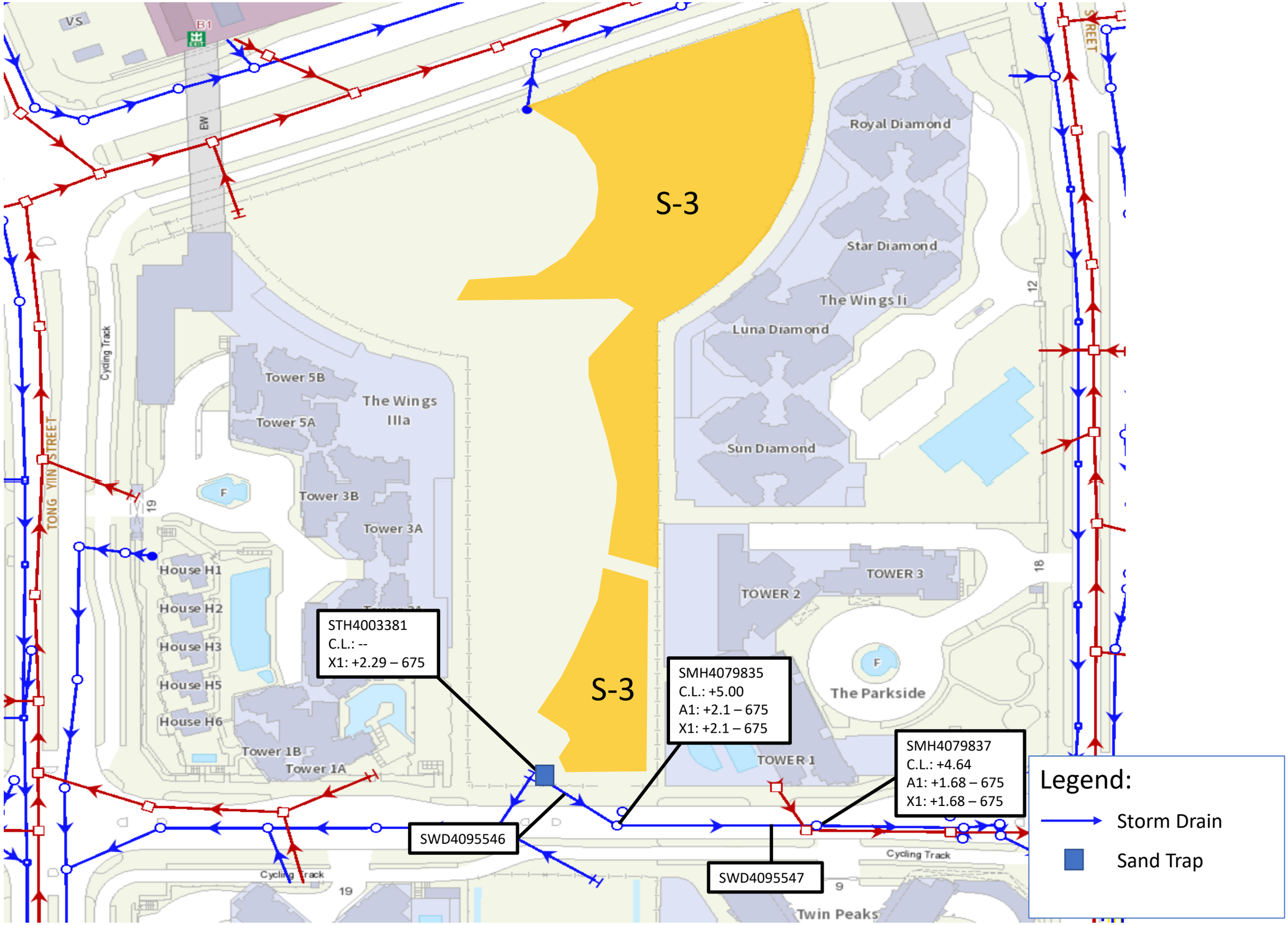


Figure 5c: Location of the Connection Interface and the Catchment of the Project Site after Project Implementation

Appendix 1:
Catchment Runoff Estimation for Existing Condition

Appendix 1:
Catchment Runoff Estimation for Existing Site

Intensity Calculation:

Intensity-Duration-Frequency Relation:

$$i = \frac{a}{(t_d + b)^c}$$

Constants	Value
Return Period T	**50 Years**
a	451.3
b	2.46
c	0.337
t_d	5 min

i 229.3 mm/hr

Runoff Estimation:

Rational Method

$$Q_p = 0.278 i \sum_{j=1}^{m} C_j A_j$$

Catchment	Site Area, m2	Percentage of Paved area	Fixed runoff coefficients		Discharge into	Runoff, m^3/s
			Paved	Unpaved		50 Year
Project Site						
S-A	9692.2	100%	0.7	0.35	525mm storm drain outfall	0.4324
S-B	6782.8	100%			675mm storm drain outfall	0.3026
Total:	**16475.0**					

Appendix 2:
Catchment Runoff Estimation for Site after Project Implementation

Appendix 2:
Catchment Runoff Estimation after Project Implementation

Intensity Calculation:

Intensity-Duration-Frequency Relation:

$$i = \frac{a}{(t_d + b)^c}$$

Constants	Value
Return Period T	**50 Years**
a	451.3
b	2.46
c	0.337
t_d	5 min

i 229.3 mm/hr

Runoff Estimation:

Rational Method

$$Q_p = 0.278 i \sum_{j=1}^{m} C_j A_j$$

Catchment	Site Area, m2	Percentage of Paved area	Fixed runoff coefficients		Rainfall Increase due to Climate Change	Discharge into	Runoff, m^3/s
			Paved	Unpaved			50 Year
Project Site							
S-1	4415.0	100%	0.95	0.35	10.40%	525mm storm drain outfall	0.2951
S-2	5452.0	100%				675mm storm drain outfall	0.3645
S-3	6608.0	100%				675mm storm drain outfall	0.4417
Total:	**16475.0**						
Street Level Stormwater							
A	3050.0	100%	0.95	0.35	10.40%	900mm storm drain outfall	0.2039
B	365.0	100%				900mm storm drain outfall	0.0244
C	600.0	100%				1200mm storm drain outfall	0.0401
D	935.0	100%				675mm storm drain outfall	0.0625
E	1090.0	100%				1200mm storm drain outfall	0.0729
Total:	**6040.0**						
Area 68 Stormwater							
SMH-C-T	--	--	--	--	10.40%	1200mm storm drain outfall	0.5767

Appendix 3:
Pipe Capacity Calculation

Appendix 3
Pipe Capacity Calculation

Segment	Upstream Manhole	Downstream Manhole	Upstream Invert Level (mPD)	Downstream Invert Level (mPD)	Length (m)	Diameter (mm)	Diameter (m)	Area (m^2)	Hydraulic Radius (m)	Slope	Kinematic Viscosity (m2/s)	Hydraulic Pipeline Roughness (m) [1]	Full Capacity Velocity (m/s)	Full Capacity of Pipe (l/s) [2]	Peak Flow inside the Pipe (l/s)	% of Full Capacity under the Peak Flow of the Proposed Project	Catchment Area
Northern Section																	
NSWD-01	SWST-01	SMH4052906	2.70	2.57	12.0	600	0.600	0.283	0.15000	0.011	1.140E-06	0.0060	1.832	466.140	295.135	63.31%	S-1
SWD4061299[3]	SMH4052906	SMH4052907	2.57	2.47	36.5	900	0.900	0.636	0.22500	0.003	1.140E-06	0.0030	1.336	764.885	523.422	68.43%	S-1, A, B
Southern Section - Westward																	
SWD4095360[4]	STH4003380	SMH4079760	N/A	2.60	18.5	675	0.675	0.358	0.16875	0.004	1.140E-06	0.0030	1.373	442.099	364.456	82.44%	S-2
SWD4095363	SMH4079760	SMH4079837	2.08	1.95	31.0	1200	1.200	1.131	0.30000	0.004	1.140E-06	0.0030	1.988	2023.784	1054.160	52.09%	S-2, C, E, SMH-C-T
Southern Section - Eastward																	
SWD4095546	STH4003381	SMH4079835	2.29	2.10	23.0	675	0.675	0.358	0.16875	0.008	1.140E-06	0.0030	1.928	620.892	441.733	71.14%	S-3
SWD4095547	SMH4079835	SMH4079837	2.10	1.68	51.5	675	0.675	0.358	0.16875	0.008	1.140E-06	0.0030	1.915	616.908	504.236	81.74%	S-3, D

NOTE:

[1] For the existing pipe, the roughness coefficient for slimed concrete sewer under poor condition is adopted; the ks values are 3mm for velocities greater than 1.2m/s, otherwise 6mm.

[2] 10% reduction in flow area is adopted according to effect of sedimentation according to Section 9.3 of SDM

[3] Stormdrain pipe SWD4061298 located upstream does not have enough capacity to handle the stormwater from Catchment S-1. As such the stormwater collected by S-1 will be discharged directly to Manhole SMH4052906

[4] Upstream invert level for SWD4095360 was not available. Assumption that the slope of the section is the same as the downstream section SWD4095363 was made.

Appendix B

Revised Sewerage Impact Assessment

Contract No: CPM302_8/20
Planning Consultancy Services for the Proposed Underground Public Vehicle Park (excluding container vehicle) under Town Park in Area 66, Tseung Kwan O

Sewerage Impact Assessment Report

2 September 2021

Prepared by:

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1. Introduction

1.1 Project Background

Location of the Project Site

1.1.1 The location of the project site is given in **Figure 1**.

1.1.2 The project site is located between Po Yap Road and Chi Shin Street. It is surrounded by residential units namely the Wings. Phase 1 of the Wings is located at northern side, while Phase 2 located at eastern side, and Phase 3A located at western side. At southern side other residential units are located. Shopping malls are also located within the residential areas. A MTR Station, Tseung Kwan O Station, is also located at the northern side of the project site.

1.1.3 The site is currently zoned as “Open Space” (“O”). Surrounding areas are classified as “Residential (Group A)”, “Commercial/Residential”, and “Other Specified Uses”.

Details of the Application and the Proposed Project

1.1.4 The project includes provision of an Underground Public Vehicle Park under Town Park in Area 66, Tseung Kwan O, which comprises of the following facilities:

a) Public Vehicle Park (PVP)

(i) An underground PVP to accommodate 395 parking spaces of various including light goods vehicles, light buses, coach, private cars and motorcycles; and

b) Town Park at Area 66

(i) A landscaped garden with features that will be unique to the Project and will therefore promote a district identity for Tseung Kwan O;

(ii) A landscaped central pedestrian avenue connecting the waterfront to the Tseung Kwan O MTR station;

(iii) A covered piazza with capacity of about 50 people to practice Tai Chi; and

(iv) Fitness stations suitable for people of different ages, including the elderly.

1.1.5 The site is currently zoned as “Open Space” (“O”) on the approved Tseung Kwan O Outline Zoning Plan (OZP) no. S/TKO/28.

1.2 Purpose of this Report

1.2.1 The purpose of this report is to evaluate and discuss the potential impact to the public sewer system due to implementation of this project.

2. Project Description and Surrounding Environment

2.1.1 The Project site is semi-circular at the northern side and rectangular at the southern side, located between Po Yap Road and Chi Shin Street. The project site area is about 16,475m^2.

2.1.2 The Project is anticipated to provide 2 storeys of underground parking lot beneath a town park on ground level.

2.1.3 The Project Site located in a well-developed urban area and is served by the public sewerage systems. The area is mainly residential areas with shopping malls, that will also provide catering services.

3. Sewage Impact Assessment

3.1.1 The existing sewerage system layout within the proximity of the site is shown in **Figure 2**. Existing public sewer tapping point (FTH4002584) is located at the northwestern of the project site, connecting to a public manhole (FMH4039899) located at Po Yap Road.

3.1.2 The sewage load and anticipated capacity of the public sewer during the operational phase of the project is reviewed in this report. Sewage loading from the project is anticipated to be insignificant.

3.2 Sewage Discharge Estimation

3.2.1 The Project is 2 storeys of underground parking lot beneath a town park on ground level. The project will provide toilet for staff use only, no public toilet will be provided at the park area.

3.2.2 It is anticipated that for each shift a total of 14 staff will be on duty for town park operation and 3 staff will be on duty for underground parking lot operation. There is total 2 shifts and 3 shifts per day for town park and underground parking lot operation respectively.

3.2.3 The daily averaged flow generated from the Project is calculated to be 12.4m^3/day and the peak flow is 1.15l/s with peaking factor of 8. A catchment inflow factor of 1.20 for Tseung Kwan O is incorporated in the calculation. The detailed calculation is shown in **Appendix 1**.

3.3 Proposal of Sewerage System

3.3.1 The sewage discharge from the project is proposed to be directly connected to the tapping point FTH4002584. No additional manhole or piping will be required. The sewerage connection plan is shown in **Figure 3**.

3.3.2 Consider the low quantity of sewage generated by the project, the potential occupancy of the capacity of the downstream pipes had been calculated. The proportion of peak flow to full capacity of each section of pipes are summarized in **Table 3.1**. The detailed calculation is given in **Appendix 2.**

Table 3.1: Proportion of Peak Flow to Full Capacity

Segment	Upstream Manhole	Downstream Manhole	Full Pipe Capacity (l/s)	% of Full Capacity under the Peak Flow of the Proposed Project
Existing Pipes				
FWD4044456	FTH4002584	FMH4039899	810.128	0.1421%
FWD4044443	FMH4039899	FMH4039910	1979.168	0.0582%

4. Conclusion

4.1.1 The sewage load during operational phase of the project had been calculated and concluded that the added sewage would occupy at maximum 0.1421% of the existing public sewerage pipe capacity. The sewage generated by the project will contribute to insignificant amount of sewage and hence the public sewer will have sufficient capacity to contain the sewage load during the operational phase of the project.

Figures

Figure 1: The Location of the Project Site

GEOINFO MAP
地理資訊地圖

Go to map: https://www.map.gov.hk/gm/geo:22.3063,114.2604?z=2257

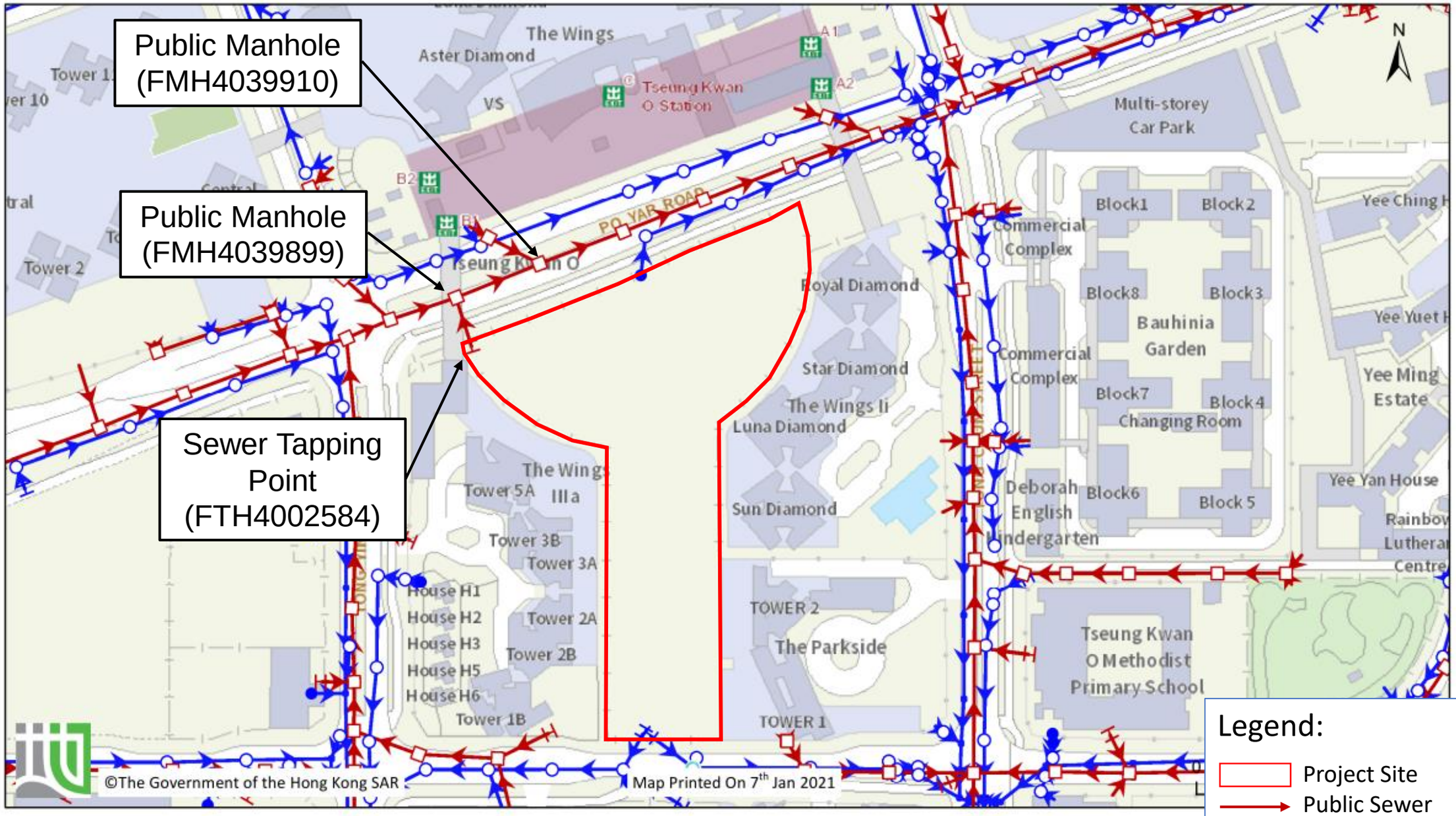

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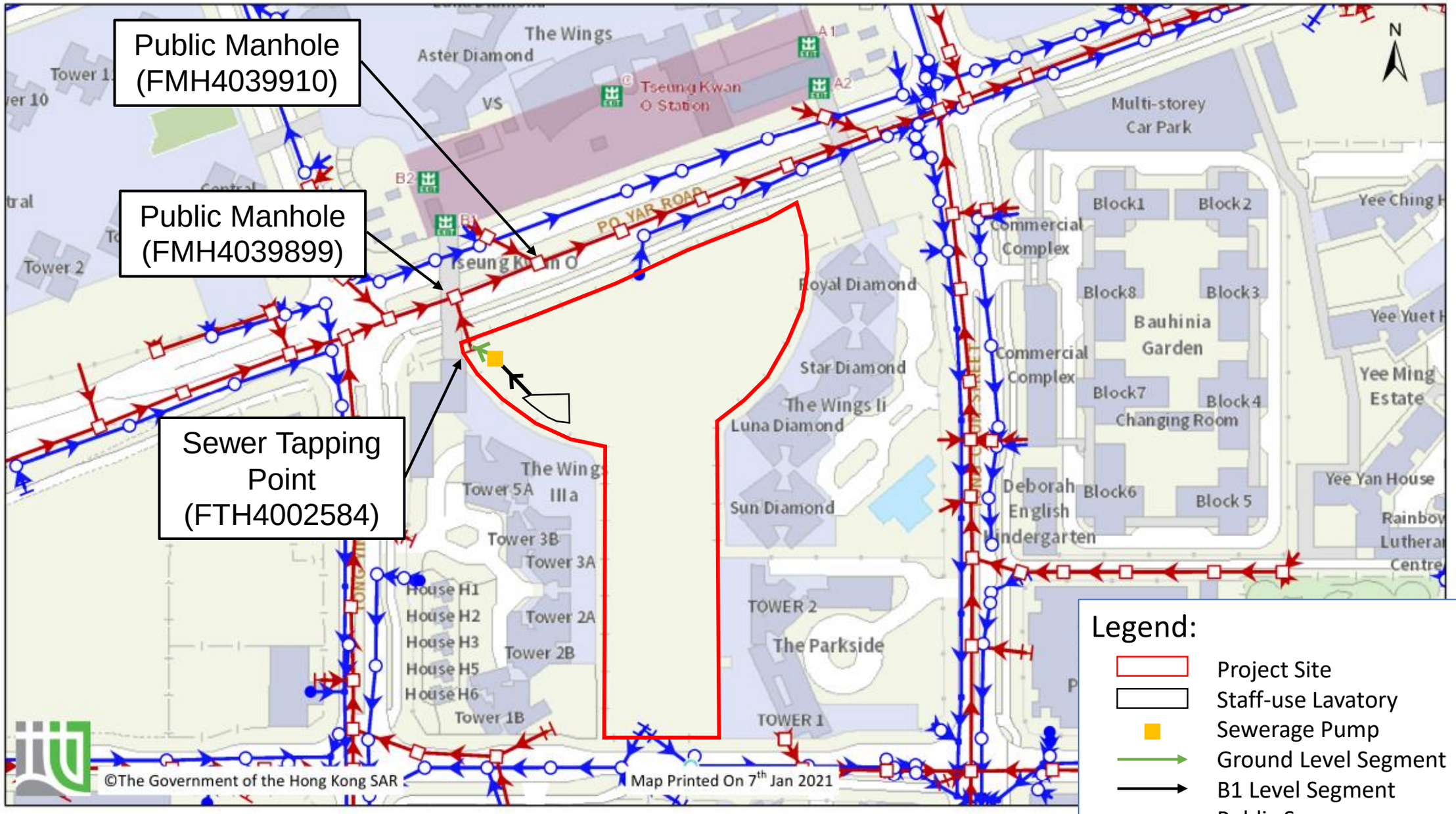
Figure 2: Existing Sewerage System Layout

GEOINFO MAP
地理資訊地圖

Go to map: https://www.map.gov.hk/gm/geo:22.3063,114.2604?z=2257



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Note: The use of this map is subject to the Terms and Conditions and the IP Rights Notice of GeoInfo Map.

Figure 3: Sewerage System Layout after Project Implementation

Appendix 1: Flow Estimation for the Project

Appendix 1
Flow Estimation for the Project

Table 1 Calculation of Sewage Flow

Operation Type	Unit Flow Factors [1] (m3/day/person)	No. of Employee [2]	Average Dry Weather Flow (m^3/day) [3]	Contributing population	Peak Flow (L/s) [4]
Public Park	0.28	28	9.41		
Underground Carpark	0.28	9	3.02	-	-
		Total	12.43	47.00	1.15

Note:

1 EPD's Guidelines for Estimating Sewage Flows for Infrastructure Planning defining sewage flow parameter.
2 For each shift a total of 14 staff will be on duty for town park operation and 3 staff will be on duty for underground carpark operation.
There is total 2 shifts and 3 shifts per day for town park and underground carpark operation respectively.
3 Average Dry Weather Flow = Unit Flow Factors x No. of Occupants x Catchment Inflow Factor
The Catchment Inflow Factor for Tseung Kwan O is 1.20.
4 As the contributing population is smaller than 1,000, Peaking Factor of 8 is used for sewers including stormwater allowance.

Appendix 2: Pipe Capacity Calculation

Appendix 2
Pipe Capacity Calculation

Segment	Upstream Manhole	Downstream Manhole	Upstream Invert Level (mPD)	Downstream Invert Level (mPD)	Length (m)	Diameter (mm)	Diameter (m)	Area (m^2)	Hydraulic Radius (m)	Slope	Kinematic Viscosity (m2/s)	Hydraulic Pipeline Roughness (m) [1]	Full Capacity Velocity (m/s)	Full Capacity (l/s)	% of Full Capacity under the Peak Flow of the Proposed Project
Existing Pipes															
FWD4044456	FTH4002584	FMH4039899	1.73	1.58	23.0	750	0.750	0.442	0.18750	0.007	1.140E-06	0.0030	1.834	810.128	0.1421%
FWD4044443	FMH4039899	FMH4039910	1.13	1.00	40.0	1200	1.200	1.131	0.30000	0.003	1.140E-06	0.0030	1.750	1979.168	0.0582%

NOTE:

[1] For the existing pipe, the roughness coefficient for slimed concrete sewer under poor condition is adopted; the ks values are 3mm for velocities greater than 1.2m/s, otherwise 6mm.

[2] With predicted peak flow of 1.151l/s, the predicted flow will occupy at maximum 0.142% of existing pipe capacity (Segment FWD4044456), with full capacity of 810.128l/s.

Appendix C

Revised Preliminary Environmental Review

Contract No: CPM302_8/20
Planning Consultancy Services for the Proposed Underground Public Vehicle Park (excluding container vehicle) under Town Park in Area 66, Tseung Kwan O

Preliminary Environmental Review

2 November 2021

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1.1 Project Background

Location of the Project Site

1.1.1 The location of the project site is given in **Figure 1**.

1.1.2 The project site is located between Po Yap Road and Chi Shin Street. It is surrounded by residential units namely the Wings. Phase 1 of the Wings is located at northern side, while Phase 2 located at eastern side, and Phase 3A located at western side. At southern side other residential units are located. Shopping malls are also located within the residential areas. A MTR Station, Tseung Kwan O Station, is also located at the northern side of the project site.

1.1.3 The site is currently zoned as "Open Space" ("O"). Surrounding areas are classified as "Residential (Group A)", "Commercial/Residential", and "Other Specified Uses".

Major Roads and Traffic Conditions within Proximity of the Project Site

1.1.4 Referring to Annual Traffic Census (ATC) 2019, traffic data of the roads within proximity of the Project Site is shown in **Table 1.1**.

Table 1.1: Traffic Data of the Roads within Proximity of the Project Site

Counting Station No.	Road Type	Cover Section	From	To	AADT (2019)
5307	LD	Tong Chun Street	Tong Ming Street	End	6,740
5513	LD	Tong Yin Street	Tong Ming Street	Tong Tak Street	5,190
5713	DD	Po Yap Road	Po Shun Road	Wan Po Road	5,460

Note: LD - Local Distributor, roads within districts linking developments to the district distributor
DD - District Distributor, links districts to the primary distributor

Details of the Application and the Proposed Project

1.1.5 The project includes provision of an Underground Public Vehicle Park under Town Park in Area 66, Tseung Kwan O, which comprises of the following facilities:

a) Public Vehicle Park (PVP)

(i) An underground PVP to accommodate 395 parking spaces of various including light goods vehicles, light buses, coach, private cars and motorcycles.

b) Town Park at Area 66

(i) A landscaped garden with features that will be unique to the Project and will therefore promote a district identity for Tseung Kwan O;

(ii) A landscaped central pedestrian avenue connecting the waterfront to the Tseung Kwan O MTR station;

(iii) A covered piazza with capacity of about 50 people to practice Tai Chi; and

(iv) Fitness stations suitable for people of different ages, including the elderly.

1.1.6 The site is currently zoned as “Open Space” (“O”) on the approved Tseung Kwan O Outline Zoning Plan (OZP) no. S/TKO/28.

1.2 Purpose of this Report

1.2.1 The purpose of this report is to evaluate and discuss the potential environmental impact to the environment generated by this project during construction and operation phase.

1.2.2 During the construction phase, the contractor to-be-commissioned shall implement all mitigation measures proposed in this PER in construction phase.

2. Air Quality

2.1 Environmental Legislation, Standards and Guidelines

2.1.1 The relevant legislations, standards and guidelines applicable to the present study for the assessment of air quality impacts include:

a) Air Pollution Ordinance (APCO) (Cap 311) and sub-regulations;
b) Air Pollution Control (Construction Dust) Regulation (CAP 311R);
c) Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation (CAP 311Z);
d) Hong Kong Planning Standards And Guidelines (HKPSG), Chapter 9; and
e) Professional Persons Environmental Consultative Committee Practice Notes (ProPECCPNs), PN 2/96 – Control of Air Pollution in Car Parks.

2.1.2 The APCO (Cap.311) provides the power for controlling air pollutants from a variety of stationary and mobile sources and encompasses a number of Air Quality Objectives (AQOs).

2.1.3 According to EPD's Practice Note, "ProPECC PN 2/96 Control of Air Pollution in Car Parks", to provide adequate protection of the public health, the air quality inside car parks should be kept within the following concentration limits:

Table 2.1: Concentration Limits of the Air Quality inside Car Parks

Air Pollutants	Maximum Concentration		
	Averaging Time	Micrograms Per Cubic Metre ($\mu g/m^3$)	Parts Per Million (ppm)
(a) Carbon monoxide (CO)	5 minutes	115,000	100
(b) Nitrogen dioxide (NO2)	5 minutes	1,800	1

Note: All limits are expressed as at reference conditions of 298 K and 101.325 kPa.

2.2 Identification of Air Sensitive Receivers (ASRs)

2.2.1 The project will include a E&M room at ground level. Exhaust outlet of the ventilation system will be located at the northern of façade of the ground level E&M facilities for minimizing the potential air quality impact to the ASRs nearby. **Figure 2** indicated the location of the E&M room and exhaust outlet.

2.2.2 ASRs within 500m range from the project boundary are mainly residential premises, shopping centres and educational institutions. Representative ASRs had been identified within close proximity of the project site include residential premises and shopping centres located at the northern, eastern and western of the project site. **Figure 2** shows the location of the ASRs and the details are summarized in **Table 2.2**:

Table 2.2: Identified Air Sensitive Receivers (ASR)

ASR	Name	Horizontal Distance from the Exhaust Outlet of the E&M Room, m
ASR 1	Sky Diamond (The Wings)	149
ASR 2	Aster Diamond (The Wings)	155
ASR 3	PopCorn	80
ASR 4	Star Diamond (The Wings)	143

ASR	Name	Horizontal Distance from the Exhaust Outlet of the E&M Room, m
ASR 5	Royal Diamond (The Wings)	130
ASR 6	Royal Diamond (The Wings II)	41
ASR 7	Popwalk 1	40
ASR 8	Star Diamond (The Wings II)	48
ASR 9	Luna Diamond (The Wings II)	50
ASR 10	Sun Diamond (The Wings II)	98
ASR 11	Tower 1 & 1A (The Parkside)	174
ASR 12	The Parkside	129
ASR 13	Tower 2 & 2A (The Parkside)	133
ASR 14	Tower 3 (The Parkside)	144
ASR 15	Tower 1A & 1B (The Wings IIIA)	220
ASR 16	Tower 2A & 2B (The Wings IIIA)	170
ASR 17	Tower 3A & 3B (The Wings IIIA)	141
ASR 18	Popwalk 2	101
ASR 19	Tower 5A & 5B (The Wings IIIA)	122
ASR 20	House 1 (The Wings IIIA)	193
ASR 21	House 2 (The Wings IIIA)	203
ASR 22	House 3 (The Wings IIIA)	212
ASR 23	House 5 (The Wings IIIA)	223
ASR 24	House 6 (The Wings IIIA)	234

2.3 Air Quality Impact Assessment

Construction Phase

2.3.1 During construction phase, air quality impact would be generated by the emission from the following activities / equipment:

a) exhaust of the Powered Mechanical Equipment (PME);
b) fugitive dust emission due to exposed earth and/or stockpiles;
c) fugitive dust emission during excavation and/or earth movement;
d) fugitive dust emission during cement mixing on site; and
e) fugitive dust emission during vehicles movement.

2.3.2 As machinery used in the construction works will be controlled under APCO on non-road mobile machinery emission (CAP 311Z), all Non-Road Mobile Machinery (NRMM) used on site shall be registered and possess proper label. As such these NRMM shall not anticipated to generate excessive air pollutants.

2.3.3 Construction dust will be governed by the APCO (CAP 311R). All relevant mitigation measures under the CAP 311R shall be implemented during the construction phase. Specific mitigation measures are discussed as follows:

a) The construction site shall be watered regularly to avoid fugitive dust emission from exposed earth and stockpile.

b) Contractor shall minimize the stockpile stored on site and if unavoidable, the stockpile shall be covered by tarpaulin or watered to minimize the dust emission.
c) Dusty works, e.g. mixing of cement, shall be avoided as far as possible. If such works are not avoidable, these works shall be conducted in an area shielded at 3 sides to minimize the dust generation by wind blow.
d) Before leaving a construction site, every vehicle should be washed to remove dusty materials from its body and wheels. Where a vehicle leaving a construction site is carrying a load of dusty materials, the load should be covered entirely by clean impervious sheeting to ensure that the dusty materials do not leak from the vehicle.

2.3.4 Hence, the following mitigation measures, and other relevant mitigation measures, shall be implemented during construction phase:

a) All NRMM used in the site shall be registered under the CAP 311Z;
b) Exposed earth and stockpiles shall be watered regularly to minimize the dust emission;
c) Contractor shall minimize the amount of stockpile stored on site;
d) Dusty works, e.g. mixing of cement, shall be conducted in an area shielded at 3 sides;
e) Vehicles should be washed before leaving a construction site;
f) Dusty materials should be covered entirely during conveyance;
g) Site hoarding at 2.4m should be adopted; and
h) Haul road should be located away from the ASRs and be watered once for every working hour to minimize the dust impact to the ASRs.

2.3.5 By proper implementation of relevant mitigation measures under the APC (Construction Dust) Regulation (CAP 311R) and other regulations during construction phase, significant dust emissions and air pollutions would not be anticipated.

Operational Phase

2.3.6 The Project is an underground parking lot beneath a town park. Only vehicles travel and human activities are anticipated within the site.

2.3.7 The PVP provides 395 parking spaces for the public, as such vehicles operating within the PVP is anticipated to be the main source of the pollutants. Air pollutants generated by vehicles will be extracted from the parking lot and discharged on ground level.

2.3.8 As reported in the Traffic Impact Assessment (TIA) Report submitted in separate cover for this application, the surveyed conducted in late October 2020 showed that the existing open space carpark offers 788 parking space for private cars, motorcycles and light goods vehicles, significantly more than the 395 parking spaces offers in the proposed PVP. Detailed comparison of the parking space provision is given in **Table 2.3**.

Table 2.3: Difference in Provision of Parking Space Between Proposed PVP and Existing Open Space Carpark

Vehicle Type	No. of Provision		Difference
	Proposed PVP [a]	Existing STT Car Park [b]	[c] = [a] – [b]
Private Cars (1)	300	742	-442
Motor Cycle	30	24	6
Light Goods Vehicle	40	22	18

Vehicle Type	No. of Provision		Difference
	Proposed PVP [a]	Existing STT Car Park [b]	[c] = [a] – [b]
Coach	15	-	15
Light Bus	10	-	10

2.3.9 As the number of vehicles operating within the project area would be reduced after the implementation of the project, the associated air quality impact during operational phase would be reduced.

2.3.10 According to Section 5.2 of the TIA, the junctions evaluated could operate at satisfactory level due to the changes of vehicular access location from Chi Shin Street at existing short term tenancy in TKO area 66 to Po Yap Road for proposed PVP. As such, the road capacity at the concerned roads nearby are capable to absorb the additional traffic generated by the project, hence no air quality issue due traffic emission during congestion is anticipated.

2.3.11 To comply with the requirement stipulated in ProPECC PN 2/96, the underground PVP will be equipped with ventilation system providing sufficient dilution of the pollutants emitted from vehicles. Extracted air would contain higher level of pollutant including Carbon Monoxide and Nitrogen Dioxide compared to the ambient air, posing potential air quality impact to the nearby ASRs.

2.3.12 Expert evaluation on the wind availability for the surrounding area had been conducted. According to the Regional Atmospheric Modelling System (RAMS) wind data of the Project Site, NNE, ENE and E winds contribute to 13.0%, 18.9% and 17.3% of the annual wind frequency respectively while E, S, SSW and SW winds contribute to 9.7%, 12.3%, 13.9% and 12.4% of the summer wind frequency respectively. Hence, NNE, ENE and E winds are identified as the annual prevailing wind direction while E, S, SSW and SW winds are identified as the summer prevailing wind direction for the Project Site.

2.3.13 Under the annual condition, the wind comes from the foothill of Pak Shing Kok located around 600m east from the project site. The incoming ENE and E wind is expected to reach the project site via the major wind paths of Po Yap Road and Chi Shin Street. Besides, the mid-level ENE and E wind is expected to penetrate the residential buildings of Bauhinia Garden and Yee Ming Estate via the existing building gaps. Also, a portion of ENE and E wind is expected to penetrate the Savannah, the Yee Ming Park and Tseung Kwan O Methodist Primary School to reach the Project Site.

2.3.14 Under the summer condition, the SSW wind comes from Junk Bay. The sea breeze would enter the Project Site freely through the >40m-wide breezeway between Corinthia By The Sea and Ocean Wings. A portion of summer prevailing wind from SSW and SW would also reach the northern part of the Project Site via the existing air path of Po Yap Road.

2.3.15 The project is a town park at ground level, which is an open space with few structures obstructing the wind flow through the project site during operational phase. As such, the exhaust from the car park discharged into the area can be carried away by the wind. No accumulation of the pollutants will be anticipated.

2.3.16 Existing air quality can be referenced to the nearby air quality monitoring station (AQMS) by EPD. The closest AQMS is located at Tseung Kwan O Sports Centre, 9 Wan Lung Road which is about 1.2km north of the project site. The historic monitoring data of year 2018 to 2020 are shown in **Table 2.4.**

*Table 2.4: Historic Monitoring Data from the Nearest AQMS**

Pollutant	Averaging time	Concentration limit (μg/m³)	Number of exceedances allowed		2018		2019		2020	
					Concentration (μg/m³)	No. of exceedance	Concentration (μg/m³)	No. of exceedance	Concentration (μg/m³)	No. of exceedance
SO_2	10-minute	500	3	4th Highest Level	38	0	25	0	18	0
	24-hour	125	3		11	0	12	0	7	0
PM_{10}	24-hour	100	9	10th Highest Level	53	0	60	0	52	0
	Annual	50	Not applicable	Annual	28	0	29	0	24	0
$PM_{2.5}$	24-hour	75	9	10th Highest Level	32	0	38	0	29	0
	Annual	35	Not applicable	Annual	15	0	17	0	12	0
NO_2	1-hour	200	18	19th Highest Level	135	0	155	0	136	1
	Annual	40	Not applicable	Annual	28	0	29	0	23	0
Ozone	8-hour	160	9	10th Highest Level	**169**	**15**	**185**	**33**	158	7
CO	1-hour	30000	0	Max.	2130	0	2170	0	1670	0
	8-hour	10000	0		1838	0	1935	0	1411	0

Note:

* Data refers to the Air Quality Report from EPD.
(https://www.aqhi.gov.hk/en/download/air-quality-reportse469.html?showall=&start=1)
Number in **Bold Underline** denotes parameter exceeded the Air Quality Objectives

2.3.17 The air quality of Tseung Kwan O district is largely in accordance with the requirement of the AQO.

2.3.18 The main air pollutants would be generated from a car park are CO and NO_2. **Table 2.4** shows the concentration of CO and NO_2 in Tseung Kwan O district is far below the level specified in the AQO. The number of vehicles operating within the project area would be reduced after the implementation of the project as discussed in **Section 2.3.9**, as such it is anticipated that the project would not has significant impact to the air quality and cause non-compliance of the AQO.

Car Park Design Considerations

2.3.19 To meet the air quality guidelines stated in **Table 2.1**, good ventilation is of paramount importance. The ventilation provided has to be able to provide sufficient dilution of the CO and NO2 emitted from vehicles during peak hours as well as under the worst foreseeable operating conditions, such as queuing of vehicles within the car park. Other factors to be considered in designing ventilation systems for car parks are listed below:

a) The supply and exhaust openings for the ventilation system should be distributed to ensure:

- even dilution and removal of air pollutants from all parts of the car park; and
- no possibility of any obstruction to the airflow due to debris and the like. Particular attention should be paid to ensure the fresh air intakes and exhaust outlets will be free from blockage, short circuiting, interaction with other systems and down wash due to winds.

b) Sufficient standby units should be provided to meet the air quality guidelines during maintenance periods or in the event of the breakdown of the normal units.

c) Separate fresh air supply should be provided to areas that are occupied regularly such as lift lobbies, pay booths and car cleaning services bay. For the main car park area, care should be taken to ensure that fresh air is under positive pressure and is supplied without contamination of the vitiated air of the car park or the ventilation exhaust.

d) Exhaust air should be discharged to the atmosphere in such a manner and at such a location as not to cause a nuisance to occupants in the building or of neighbouring buildings, or to the public. To minimize air nuisance to the nearby ASRs the exhaust outlet of the ventilation system will be located at the E&M facilities near the entrance of the PVP, and facing north towards the Po Yap Road. **Figure 2** shows the location of the E&M room and exhaust outlet.

Monitoring and Control

2.3.20 To ensure the air quality guidelines can always be met, the levels of NO_2 and CO in a car park should be monitored continuously and the measurement results linked up automatically through a tamper-proof device with the control of the ventilation system. The monitoring and control scheme will be designed according to the Appendix attached in PN 2/96. Detail design will be discussed in the next stage.

2.3.21 With aforementioned considerations in car park design and monitoring system, there will be no negative air quality impact resulted from the proposed underground public vehicle park to the area, no mitigation measure is required during the operation stage.

2.3.22 In addition, adoption of measures or installations, as such filtering system, can be explored to further improve the air quality.

Air Quality Impact to the Project

2.3.23 Desktop review showed that within 300m from the project site, there are majority residential area with shopping centres. These operations included restaurants and retails.

2.3.24 Site inspection had been conducted on 21 October 2020 to verify the desktop findings. Only kitchen exhausts from restaurants were found within 300m range from the project site area. No industrial chimney was found within 300m area in the site survey. The air quality impact from the surrounding to the Project is anticipated to be insignificant.

2.3.25 The major road segments within proximity of the project site are identified. Type of the roads identified were referenced from the ATC. For Chi Shin Street which is not mentioned in the ATC, Transport Department (TD) had been consulted and TD confirmed that Chi Shin Street is a Local Distributor. The correspondence is given in **Appendix 1**. Respective distance between the road segments and the project boundary are listed in **Table 2.5** and shown in **Figure 3**.

Table 2.5: Identified Road within Proximity of the Project Site

Road Name	Type of Road [A]	Distance from Open Space within the Project Site, m	HKPSG Recommended Buffer Distance, m
Po Yap Road	District Distributor	12	10
Chi Shin Street	Local Distributor	7	5
Tong Yin Street	Local Distributor	38	5
Tong Chun Street	Local Distributor	68	5

Note:
A: Types of road had been made referenced to “Annual Traffic Census 2019” and confirmation from Transport Department on 10 September 2021.

2.3.26 Table 3.1 of Chapter 9 in the HKPSG gave a summary of recommended buffer distances for different land uses. The park is classified as open space with active and passive recreation uses, as such it recommends that the project shall maintain a buffer distance for 5m from a local distributor and for 10m from a district distributor.

2.3.27 As shown **Table 2.5**, the buffer distances between the Project site and nearby road segments meet the requirement of minimum buffer distance between the active open space and the roads.

2.4 Conclusion

2.4.1 During construction phase, the pollution would be controlled by respective regulations and no excessive impact would be anticipated.

2.4.2 During operational phase, the project site will not generate significant air pollution due to its operation nature. As such, no air quality concern is anticipated for the project.

2.4.3 Consider the potential air quality impact during construction phase shall be properly mitigated, and no operational phase air quality concern, no air quality issue for the Project is anticipated.

3. Noise Impact

3.1 Environmental Legislation, Standards and Guidelines

Construction Phase

3.1.1 Control over the generation of construction noise in Hong Kong is governed by the Noise Control Ordinance (NCO). The NCO is to provide statutory controls for carrying out construction work using Powered Mechanical Equipment (PME) and prescribed construction works during the restricted hours. Technical Memoranda (TMs) under the NCO and appropriate Practice Notes provide guidelines to the assessment of noise from the construction phase. The appropriate Practice Notes and Technical Memoranda (TMs) applicable to the control of noise from construction activities of the Project are:

a) Professional Persons Environmental Consultative Committee Practice Notes (ProPECC PN);

- PN 1/93 Noise from Construction Activities - Statutory; and
- PN 2/93 Noise from Construction Activities - Non-statutory.

b) TM on Noise from Construction Work other than Percussive Piling (GW-TM);
c) Technical Memorandum On Noise from Construction Work in Designated Areas (DA-TM); and
d) Technical Memorandum on Noise from Percussive Piling (PP-TM).

3.1.2 These TMs prescribe the maximum permitted noise levels for the use of PME and certain construction activities and processes, according to the type of equipment or activity, the perceived noise climate of the area, and the working hours of equipment operation and usage.

3.1.3 As this project locates within the Designated Areas. Construction noise during restricted hours will also be governed by the DA-TM.

3.1.4 According to the proposed construction methodology, percussive piling is not required for the Project. Therefore, the Technical Memorandum on Noise from Percussive Piling is not applicable to the Project. However, should the contractor adopted the use of percussive piling for the construction works, relevant requirement and restrictions stipulated in the PP-TM should be followed.

Operational Phase

3.1.5 For operational phase, the appropriate planning requirements and the Technical Memorandum issued under the NCO are in place to control the operational noise. The appropriate planning requirements and Technical Memorandum applicable to the control of noise from operation of the Project are:

a) Technical Memorandum For the Assessment of Noise from Places Other Than Domestic Premises, Public Places or Construction Sites (IND-TM); and
b) Hong Kong Planning Standards And Guidelines, Chapter 9.

3.2 Identification of Noise Sensitive Receivers (NSRs) and Allocation of Area Sensitive Ratings (ASR)

3.2.1 The project will include a E&M room at ground level. As such fixed plant noise would be generated at the exhaust outlet of the E&M room and hence fixed plant noise assessment during operational phase had been conducted for the project. **Figure 4** indicated the location of the E&M room and exhaust outlet.

3.2.2 NSRs within 300m range from the project boundary are mainly residential premises and educational institutions. Representative NSRs had been identified within close proximity of the project site include residential premises located at the eastern and western of the project site. **Figure 4** shows the location of the NSRs and the details are summarized in **Table 3.1**:

Table 3.1: Identified Noise Sensitive Receivers (NSR)

NSR	Name	Horizontal Distance from the Exhaust Outlet of the E&M Room, m	Area Sensitive Ratings (ASR)
NSR 1	Sky Diamond (The Wings)	149	B
NSR 2	Aster Diamond (The Wings)	155	B
NSR 3	Star Diamond (The Wings)	143	B
NSR 4	Royal Diamond (The Wings)	130	B
NSR 5	Royal Diamond (The Wings II)	41	B
NSR 6	Star Diamond (The Wings II)	48	B
NSR 7	Luna Diamond (The Wings II)	50	B
NSR 8	Sun Diamond (The Wings II)	98	B
NSR 9	Tower 1 & 1A (The Parkside)	174	B
NSR 10	Tower 2 & 2A (The Parkside)	133	B
NSR 11	Tower 3 (The Parkside)	144	B
NSR 12	Tower 1A & 1B (The Wings IIIA)	220	B
NSR 13	Tower 2A & 2B (The Wings IIIA)	170	B
NSR 14	Tower 3A & 3B (The Wings IIIA)	141	B
NSR 15	Tower 5A & 5B (The Wings IIIA)	122	B
NSR 16	House 1 (The Wings IIIA)	193	B
NSR 17	House 2 (The Wings IIIA)	203	B
NSR 18	House 3 (The Wings IIIA)	212	B
NSR 19	House 5 (The Wings IIIA)	223	B
NSR 20	House 6 (The Wings IIIA)	234	B

3.2.3 For fixed noise sources impact assessment, the Acceptable Noise Levels (ANLs) for the Noise Sensitive Receivers (NSRs) are determined with consideration of the Area Sensitivity Rating (ASR) which is defined in the Technical Memorandum for the Assessment of Noise from Places other than Domestic Premises, Public Places or Construction Sites (IND-TM) issued under the NCO.

3.2.4 The ASR depends on the type of area and the degree of impact that Influencing Factors (IFs) have on the NSRs as illustrated in **Table 3.2** below. Industrial area, major road or the area within the boundary of Hong Kong International Airport shall be considered to be an IF. Regardless of the ASR adopted in the fixed noise sources impact assessment, the Noise Control Authority will assess the fixed noise sources and/ or take enforcement action, if necessary, based on the NCO, the relevant TMs and the contemporary conditions / situations.

Table 3.2: Area Sensitivity Rating

Type of Area Containing NSR	Degree to which NSR is affected by IF		
	Not Affected[(c)]	Indirectly Affected[(d)]	Directly Affected[(e)]
(i) Rural area, including country parks[(a)] or village type developments	A	B	B
(ii) Low density residential area consisting of low-rise or isolated high-rise developments	A	B	C
(iii) Urban area[(b)]	B	C	C
(iv) Area other than those above	B	B	C

Source: IND-TM, Table 1 – Area Sensitivity Rating
Definitions:
(a) "Country park" means an area that is designated as a country park pursuant to section 14 of the Country Parks Ordinance.
(b) "Urban area" means an area of high density, diverse development including a mixture of such elements as industrial activities, major trade or commercial activities and residential premises.
(c) "Not Affected" means that the NSR is at such a location that noise generated by the IF is not noticeable at the NSR.
(d) "Indirectly Affected" means that the NSR is at such a location that noise generated by the IF, whilst noticeable at the NSR, is not a dominant feature of the noise climate of the NSR.
(e) "Directly Affected" means that the NSR is at such a location that noise generated by the IF is readily noticeable at the NSR and is a dominant feature of the noise climate of the NSR.

3.2.5 As shown in **Table 1.1**, AADT of Po Yap Road, Tong Chun Street and Tong Yi Street in 2019 are 5,460, 6,740 and 5,190 respectively which are less than 30,000 AADT as stipulated in the IND-TM. As such road traffic is not considered as an IF to the NSRs surround the Project.

3.2.6 Although Tseung Kwan O Station is located at the northern side of the Project, the respective railway segment is underground. Thus, noise generated from the railway is contained and no observable railway noise is anticipated. As such railway traffic is not considered as an IF to the NSRs surround the Project.

3.2.7 As such, NSR 1-16 are located within an urban area with no IF. Hence the ASR for the identified NSRs are designated as "B".

3.2.8 The project is not identified as an NSR during operational phase since there is no noise sensitive receivers within the project site.

3.2.9 Fixed noise is controlled under the NCO and shall comply with the ANLs laid down in the Table 2 of the IND-TM. For a given ASR, the ANL, in dB(A), is given in **Table 3.3** below.

Table 3.3: Acceptable Noise Level for Fixed Noise Sources

Time Period	Area Sensitivity Rating		
	A	B	C
Day-time (0700 to 1900 hours)	60	65	70
Evening (1900 to 2300 hours)			
Night-time (2300 to 0700 hours)	50	55	60

Source: IND-TM, Table 2 - Acceptable Noise Levels
Note:
(i) The above standards apply to uses which rely on opened windows for ventilation.
(ii) The above standards should be viewed as the maximum permissible noise levels assessed at 1m from the external facade.

3.2.10 As stipulated in Section 4.2.13 of HKPSG, the noise standards for the planning fixed noise source are either 5 dB(A) below the appropriate ANL as stipulated in the IND-TM, or the prevailing background noise levels (for quiet area with level 5 dB(A) below the ANL).

Background Noise Level

3.2.11 Noise monitoring to identify the background noise level had been conducted on 18 June 2021. 2 noise monitoring locations had been identified at the north and south side of the project site. The monitoring locations are listed in **Table 3.4** and the locations are given in **Figure 4**. Photos taken during the monitoring was given in **Figure 5**.

Table 3.4: Identified Monitoring Location

NSR	Location	Measurement Conditions	Monitoring Time	Background Noise Level, L90, dB(A)
OM 1	South of Project Site facing Chi Shin Street	Free-field	05:01-06:01	55.7
			10:20-11:20	61.7
OM 2	North of Project Site facing Po Yap Road	Free-field	05:01-06:01	53.9
			10:00-11:00	64.6

NOTE:
Monitoring period was limited to 1 hour due to occasional rains.

3.2.12 L90 had been recorded for the background noise level and are given in **Table 3.4**. the monitoring locations are free-field as such 3dB(A) façade correction had been added to the monitoring results.

3.2.13 The background noise level at the monitoring locations ranged from 53.9dB(A) to 55.7dB(A) during night time period and 61.7dB(A) to 64.6dB(A) during daytime period. As the background noise level were above the respective ANL for NSRs with an ASR of B, ANL-5dB(A) will be used as the noise criterial during the operational phase.

3.3 Construction Phase Noise Impact Assessment

Identification of Source of Impact

3.3.1 Construction noise generated by the use of Powered Mechanical Equipment (PME) necessary for the construction works during non-restricted hours shall be governed by ProPECC PN 1/93 and PN 2/93. The construction works shall also follow the respective TMs.

3.3.2 The construction year of the project will start from 2023. The construction period is anticipated to be 3 years, as such the completion year is expected to be 2026.

3.3.3 A daytime standard of $L_{eq(30min)}$ 75dB(A) stipulated in PN 2/93 shall be used as the criterion for all residential NSRs. Construction activities within the project include Ground Level Works, Excavation for Underground Car Park, and Underground and At-Grade Structure. Corresponding PME will be used for different construction activities. PME that anticipated to be adopted during the construction works and their sound power levels (SWL) are listed in **Table 3.5**. Engineering design for the construction works had not been conducted at this stage of the project, as such the PME inventory had been made reference to similar construction activities proposed under Kai Tak Development project EIA.

Table 3.5: PME Inventory

PME	Unit	Sound Power Level, dB(A)*
Site Preparation Works		
Lorry, with crane/grab, 5.5 tonne < gross vehicle weight ≦ 38 tonne	2	105
Air compressor, air flow > 10m3/min and <= 30m3/min	2	102
Breaker, mini-robot mounted	2	115
Excavation for Underground Car Park		
Excavator, wheeled/tracked, Brand: SUMITOMO, Model: SH360HD-6	2	105
Dump truck, 5.5 tonne < gross vehicle weight ≦ 38 tonne	2	105
Generator, super silenced, 70 dB(A) at 7 m	1	95
Underground and At-Grade Structure - Formworks		
Crane, mobile, Brand: SUNWARD, Model: SWTC 10	1	103
Generator, super silenced, 70 dB(A) at 7 m	1	95
Bar bender and cutter (electric)	1	90
Underground and At-Grade Structure - Concreting Works		
Concrete lorry mixer	1	109
Concrete pump, stationary/lorry mounted	1	109
Poker, vibratory, hand-held	3	113

Note: * SWL refer to Table 3 - Sound Power Levels for Items of Powered Mechanical Equipment (PME) of GW-TM.

3.3.4 The construction site would be divided into two work areas as shown in **Figure 6**. NSR 7 and NSR 14 are the closest NSRs to the notional source positions for respective work area with a notional source distance of 39.8m and 33.7m as shown in **Figure 6**. As such construction noise impact assessment had been conducted at NSR 7 and NSR 14, such that if the construction noise impact generated by the construction works to NSR 7 and NSR 14 are within 75dB, it is anticipated construction noise impact to other NSRs, which are farther from the notional source position compared to NSR 7 and NSR 14, would be also below 75dB(A).

3.3.5 The construction year of the project will start from 2023. The construction period is anticipated to be 3 years, as such the completion year is expected to be 2026.

3.3.6 The preliminary construction noise assessment takes into account the cumulative noise impact from construction works from both work areas. According to the result from preliminary construction noise assessment, the estimated construction noise impact at NSR 7 and NSR 14 under unmitigated scenario exceeded 75dB(A). Detail calculations are given in **Appendix 2**.

3.3.7 To reduce the construction noise impact, mitigation measures listed below are adopted:

a) use of mobile and fixed noise barriers;
b) good site practice including avoid use of multiple PME and use quieter construction methods;
c) implementation of mobile and fixed noise barriers; and
d) use of Quality Powered Mechanical Equipment (QPME).

3.3.8 After implementing the mitigation measures listed above, no exceedance is anticipated at NSR 7 and NSR 14. Detail calculations are given in **Appendix 3**.

3.3.9 During detailed design stage, the engineering design team to-be-commissioned should review and update the plant inventory and the construction works schedule proposed in this report. Contractor to-be-commissioned should further reviewed to minimise the number of the PME used in the project site, and avoid them operating simultaneously to minimise the construction noise impact to the nearby NSRs.

3.3.10 Additional mitigation measures, including utilising decking to contain construction noise generated by the PME underground during excavation for the PVP so as to minimize the construction noise impact generated to the nearby NSRs, or other innovative mitigation measures, should be considered. Should boulders was identified underground, use of quiet rock breaking methods, e.g. chemical blasting, drill and break, etc, will also reduce the construction noise impact to the nearby NSRs. These further mitigation measures shall be considered during detail design stage.

3.3.11 During restricted hours, construction noise will be governed by Noise Control Ordinance (NCO) and the contractor shall apply for a Construction Noise Permit (CNP) for any works to be carried out during the restricted hours. If successful, the construction noise during restricted hours will be governed by the respective regulations stipulated in the CNP and would be controlled to avoid any significant impact to the NSRs.

3.4 Operational Phase Noise Impact Assessment on Noise Impact to Surrounding NSRs

Identification of Source of Noise Impact during Operational Phase

3.4.1 Noise impact generated by the Project during the operational phase includes the fixed plant noise sources including the operation of ventilation equipment and building services equipment and traffic noise due to operation of vehicles entering and leaving the PVP.

3.4.2 The project will include a E&M room at ground level. As such fixed plant noise would be generated at the E&M room.

Fixed Plant Noise Criteria

3.4.3 As discussed in **Section 3.2.7**, the ASR of the identified NSRs is B, according to HKPSG, 5dB(A) below the appropriate Acceptable Noise Levels had been adopted as the fixed plant noise criteria.

3.4.4 As such, the fixed plant noise criteria for the NSRs are given in **Table 3.6**:

Table 3.6: Fixed Plant Noise Criteria for the Identified NSRs

NSR	Area Sensitive Ratings (ASR)	Horizontal Distance from the Exhaust Outlet of the E&M Room, m	Acceptable Noise Level (ANL-5), dB(A)	
			Daytime and Evening Time	Night-time
NSR 1	B	149	60	50
NSR 2	B	155	60	50
NSR 3	B	143	60	50
NSR 4	B	130	60	50
NSR 5	B	41	60	50
NSR 6	B	48	60	50
NSR 7	B	50	60	50
NSR 8	B	98	60	50
NSR 9	B	174	60	50
NSR 10	B	133	60	50
NSR 11	B	144	60	50
NSR 12	B	220	60	50
NSR 13	B	170	60	50
NSR 14	B	141	60	50
NSR 15	B	122	60	50
NSR 16	B	193	60	50
NSR 17	B	203	60	50
NSR 18	B	212	60	50
NSR 19	B	223	60	50
NSR 20	B	234	60	50

Note: In any event, the ASRs and the ANLs adopted in this report are only indicative and they are used for assessment only. It should be noted that noise from fixed noise sources is controlled under section 13 of the Noise Control Ordinance. Therefore, the ASRs and ANLs determined in this report shall not prejudice the Noise Control Authority's discretion to determine noise impact due to fixed noise sources on the basis of prevailing legislation and practices being in force, and taking account of contemporary conditions/ situations of adjoining land uses. The assessment of noise impacts due to fixed noise sources in this report shall not bind the Noise Control Authority in the context of law enforcement against any of the noise from fixed noise sources being assessed.

Fixed Plant Noise Assessment

3.4.5 Ventilation equipment and other building services equipment are anticipated to be operating all the time including night-time period. Fixed plant noise generated by ventilation equipment will be emitted through the ventilation louvers, which is anticipated to be at the E&M room located at ground level. The location of the E&M room is shown in **Figure 4**.

3.4.6 Other building services equipment, including the water pumps for drainage and sewage, and the machine room for elevators, will be operating within dedicated underground plant room. Hence the operational noise generated by these building services equipment would be contained underground.

3.4.7 Consider the building services equipment would not generate significant fixed plant noise during operational phase, assessment of the fixed plant noise would be for the allowable noise level generated at the ventilation louver.

3.4.8 As the fixed plant noise criteria is more stringent during night-time, assessment had been conducted for night-time scenario for conservative approach.

3.4.9 Currently the detailed design on the E&M equipment has not been conducted and as such the Sound Power Level (SWL) of the equipment and the location of the ventilation louver cannot be confirmed yet.

3.4.10 During night-time period, fixed plant noise will be generated at the ventilation louver. Backward calculation had been conducted to determine the allowable fixed plant noise level generated at the ventilation louvers. The predicted maximum allowable SWL at the ventilation louver is given in **Table 3.7**. Relevant calculation has been given in **Appendix 4**.

Table 3.7: Maximum Allowable SWL at the Ventilation Louver

NSR	Horizontal Distance from the Exhaust Outlet of the E&M Room, m	Distance Attenuation and façade Correction, -20log D -8 +3	Noise Criteria (ANL-5), dB(A)	Allowable Sound Power Level Generated at Source, dB(A)
			Night time	Night time
NSR 1	149	-48.5	50	98.5
NSR 2	155	-48.8	50	98.8
NSR 3	143	-48.1	50	98.1
NSR 4	130	-47.3	50	97.3
NSR 5	41	-37.3	50	87.3
NSR 6	48	-38.6	50	88.6
NSR 7	50	-39.0	50	89.0
NSR 8	98	-44.8	50	94.8
NSR 9	174	-49.8	50	99.8
NSR 10	133	-47.5	50	97.5
NSR 11	144	-48.2	50	98.2
NSR 12	220	-51.8	50	101.8
NSR 13	170	-49.6	50	99.6
NSR 14	141	-48.0	50	98.0
NSR 15	122	-46.7	50	96.7
NSR 16	193	-50.7	50	100.7
NSR 17	203	-51.1	50	101.1

NSR	Horizontal Distance from the Exhaust Outlet of the E&M Room, m	Distance Attenuation and façade Correction, -20log D -8 +3	Noise Criteria (ANL-5), dB(A)	Allowable Sound Power Level Generated at Source, dB(A)
			Night time	Night time
NSR 18	212	-51.5	50	101.5
NSR 19	223	-52.0	50	102.0
NSR 20	234	-52.4	50	102.4
Maximum Allowable Sound Power Level Generated at Source, dB(A)				87.3
Maximum Allowable Sound Power Level Generated at Source with 3dB(A) Tonality Correction, dB(A)				84.3

3.4.11 As NSR 5 is located closest to the exhaust outlet of the PVP, the SWL at the exhaust outlet should not exceed 87.3dB(A) during the night time period if the fixed plant at PVP is to comply with the fixed plant noise of ANL-5dB(A).

Tonality Correction

3.4.12 Ventilation equipment often observed to have tonality issue. As such during planning stage the ventilation equipment is assumed to have tonality issue, and tonality correction will be applied to the allowable SWL of the ventilation equipment.

3.4.13 For conservative approach, 3dB(A) of tonality correction is applied for the equipment. As such the maximum allowable SWL of the ventilation equipment for the PVP will be further reduced. Hence, to ensure the fixed plant noise impact to the nearby NSRs would not exceed the noise criteria of ANL-5dB(A), the SWL at the E&M room during night time period shall not exceeding 84.3dB(A) for worst case scenario to ensure the operational noise impact should comply with the relevant noise criteria.

3.4.14 Tonality can either be alleviated using tonality-free ventilation equipment, or special designed noise muffler. These mitigation measures may be adopted during detailed design stage and as such the maximum allowable sound power level of ventilation louver should be specified in the tender specification to ensure that the operational noise impact complies with the relevant noise criteria.

3.4.15 As the actual noise impact would vary with the direction of the louver and the SWL of the ventilation equipment, further review should be conducted in later stage to ensure the fixed plant noise impact to the nearby NSRs would be acceptable.

Ingress / Egress Noise Impact Assessment

3.4.16 395 vehicle parking spaces are provided by the project, as such vehicles operating within the PVP is anticipated to be the part of the noise impact.

3.4.17 As noise generated by vehicles operating within the PVP underground would be contained and would not generate significant noise impact. As such vehicles operating at the entrance is considered as the main noise impact of the PVP.

3.4.18 Noise measurement has been conducted at the entrance of TKO Spot Car Park A, a similar sized carpark near the PVP for estimating the ingress / egress noise would be

generated by the PVP. The summary of measurement data recorded are given in **Table 3.8**. Details of the measurement and photos taken during the noise monitoring are given in **Appendix 5**.

Table 3.8: Noise Measurement at TKO Spot Car Park

Location	Date	Time	Distance from the Center of Vehicle Entrance, m	Leq, dB(A)	L10, dB(A)	L90, dB(A)
TKO Spot Car Park	18 June 2021	9:07am – 9:37am	4	62.9	65.9	57.6

3.4.19 During the measurement at TKO Spot Car Park A, a total of 59 vehicles entering and leaving the carpark was recorded within the 30 minutes measurement period. The vehicles were private cars. As private car has a pcu of 1, the traffic entering and leaving the carpark would be equivalent to 59pcu/30mins, or 108pcu/hr.

3.4.20 The prediction of the trip generation of the proposed PVP according to the Table 4.6 of the TIA submitted in separate cover for the application are 65pcu/hr and 92pcu/hr for AM and PM respectively. Considering the worst case scenario, 92pcu/hr of traffic during the PM peak hours would similar to the traffic flow at TKO Car Park A and hence the noise generated at the entrance of the PVP would therefore considered to be similar.

3.4.21 As such, the noise generated by the ingress/egress traffic at the entrance of the PVP is 61.4dB(A) at a measurement distance of 4m. As such SWL of the vehicle entrance of PVP due to ingress / egress traffic is calculated to be 81.4dB(A).

3.4.22 The nearest NSR from the entrance of the PVP is NSR 5 with separation distance of 41m. As such, operational noise impact at NSR 5 due to the noise generated at the entrance due to ingress / egress traffic is predicted to be 44.2dB(A). Detailed calculation had been given in **Appendix 5**.

3.4.23 Regarding the operational noise generated by the ingress/egress traffic as a fixed noise source, the operational noise impact at NSR 5 due to the noise generated at the entrance should comply with the noise criteria of ANL-5dB(A) as discussed in **Section 3.4.4** and **Table 3.6**. As the predicted operation noise level generated at the NSR is 44.2dB(A) which is below 50dB(A),the night-time ANL-5dB(A), noise impact due to ingress / egress of traffic at the entrance of the PVP would be acceptable.

<u>Road Traffic Noise Impact Assessment</u>

3.4.24 The prediction of the trip generation of the proposed PVP according to the Table 4.6 of the TIA submitted in separate cover for the application are 65pcu/hr and 92pcu/hr for AM and PM respectively. As such, compared to the existing scenario, about 9.8% and 19.6% of increase in traffic is anticipated for AM and PM peak hours respectively.

3.4.25 The maximum increment of total flow after project completion is 19.6% according to the TIA Report. By using the CRTN equation given as follows, the increment of the traffic would generate additional traffic noise of 0.78dB(A).

$$Basic\ noise\ level\ L_{10}(1-hour) = 42.2 + 10Log_{10}Q \quad dB(A)$$

3.4.26 Noise measurement has been conducted on 18 June 2021 at OM1 and OM2 during AM and PM peak hour respectively. The summary of measurement data recorded are given in **Table 3.9.** Details of the measurement and photos taken during the noise monitoring are given in **Appendix 6**.

Table 3.9: Road Traffic Noise Measurement at OM1 and OM2

Location	Date	Time	Distance from Centre of Road, m	L10, dB(A)
OM1	18 June 2021	7:30am – 8:30am	9	70.4
		5:30pm – 6:30pm	9	71.2
OM2		7:45am – 8:45am	12	71.4
		5:30pm – 6:30pm	12	70.6

3.4.27 Distance attenuation and façade correction have been included to estimate the road traffic noise impact at the nearest NSRs of Po Tap Road and Chi Shin Street. Road traffic noise impact at NSRs under existing scenario has been given in **Table 3.10.** Location of the nearest NSRs and distance from the aforementioned segments are given in **Figure 7**. It should be noted that NSR A is currently already exposed under traffic noise impact ($L_{10\ 1hour}$) of above 70dB(A).

3.4.28 For conservative approach, 0.78dB(A) will be added for estimating the road traffic noise impact at NSRs after project completion during AM and PM period. The noise impact at the NSR A and NSR B after project completion due to road traffic is given in **Table 3.10**.

Table 3.10: Road Traffic Noise Impact at the nearest NSRs

Location	Measured Noise Level, dB(A)	Distance between Centre of Road and NSR, m	Road Traffic Noise Impact at NSR, dB(A)	
			Existing	After project completion
NSR A	70.4	15	70.7	71.5
	71.2	15	71.5	72.3
NSR B	71.4	53	67.4	68.2
	70.6	53	66.6	67.4

3.4.29 Under the existing scenario, road traffic noise impact at NSR A is 70.7dB(A) and 71.5dB(A) for AM and PM peak hour respectively, which exceeded 70dB(A), the noise standard of road traffic noise of HKPSG. As the increment of traffic noise due to the increased traffic attracted by the PVP is below 1dB(A), this insignificant increment of operational traffic noise would not lead to a significant road traffic noise impact to the NSR nearby.

3.4.30 Under the existing scenario, road traffic noise impact at NSR B is 67.4dB(A) and 66.6dB(A) for AM and PM peak hour respectively, which is comply with the standard the noise standard of road traffic noise of HKPSG. Road traffic noise impact at NSR after project completion will be also comply with the standard the noise standard of road traffic noise of HKPSG. As such, significant road traffic noise impact is not anticipated due to the increment of traffic flow.

3.4.31 As such the PVP would not generate significant noise impact compared to the nearby roads.

3.5 Operational Phase Noise Impact Assessment on Noise Impact to the Project

3.5.1 As there is no noise sensitive receiver within the project site, no noise impact to the project is identified.

3.6 Conclusion

3.6.1 During construction phase, noise generated by construction works would be controlled by the relevant ProPECC Note and NCO. With mitigation measures implemented, excessive noise impact at the NSRs would not be anticipated.

3.6.2 During operational phase, operational noise impact generated by the fixed plant noise at the ventilation louver, ingress / egress noise, and traffic noise had been evaluated. The operational noise generated by the fixed plant will be controlled by ensuring the ventilation equipment would not generate noise level above the allowable SWL developed. The noise generated by ingress /egress are considered to be acceptable. Traffic noise impact at the NSRs at Chi Shin Road already exceeded the traffic noise criteria of 70dB(A), but the noise increment would not exceed 1dB(A) and as such the traffic noise impact is considered insignificant. Excessive noise impact during operational phase is also not anticipated.

3.6.3 Consider the noise impact during construction phase and operational phase can be properly controlled, it is anticipated that no significant residual noise impact would be generated by the Project.

4. Water Quality Impact

4.1 Site Situation and Identification of Impact

4.1.1 During construction phase, sewage generated from construction works, workforce and site runoff would be the major water quality impact.

4.1.2 During operation phase, sewage generated by the public and staff, and rainwater drainage would be the major water quality impact.

4.2 Construction Phase Water Quality Impact

Environmental Legislation, Standards and Guidelines

4.2.1 The relevant legislation, standards and guidelines applicable to the present study for the assessment of water quality impacts include:

a) Water Pollution Control Ordinance (WPCO) (Cap. 358);
b) Hong Kong Planning Standards and Guidelines (HKPSG); and
c) Practice Note for Professional Persons on Construction Site Drainage (ProPECC PN 1/94)

Identification of Source of Impact

4.2.2 During construction phase, works including concrete breaking and excavation are anticipated for removal of the existing concrete paving and creation of footing for the project. Wastewater may be generated due to groundwater seepage.

4.2.3 Also, site runoff may occur during rainstorm which would wash additional sediment into the existing drainage system.

4.2.4 General refuse including sewage generated by workforce is also a source of water quality impact.

Water Quality Impact Assessment

4.2.5 Water discharge license shall be applied under the WPCO by the contractor before commencement of construction works to allow wastewater to be discharged properly. Groundwater, if any, shall be properly treated before discharging into the designated discharge point under the discharge license.

4.2.6 Site runoff would be controlled by proper site drainage system. Contractor shall construct a perimeter U-channel or an impermeable bund around the site to ensure the site runoff to be properly collected for treatment. Sedimentation tank shall also be provided for treatment of all wastewater, including underground water, before disposal into the dedicated discharge point. The site drainage design shall follow the ProPECC PN 1/94.

4.2.7 Sewage generated by work force shall be collected using chemical toilet. The chemical toilet, if any, shall be cleaned properly to avoid building up of smell nuisance.

4.2.8 Should both mitigation measures being properly implemented by the contractor, no adverse water quality impact is anticipated.

4.3 Sewage Impact Assessment during Operational Phase

4.3.1 The project will provide toilets for the staff stationed in the PVP. The sewage collected will be discharged to the public sewerage system via the existing manholes.

4.3.2 Impact on the public sewerage system had been assessed and submitted in another report, “Sewage Impact Assessment” (SIA). The assessment concluded that the applicant would not be significant due to the small amount of sewage collected by the project.

4.4 Drainage Impact Assessment during Operational Phase

4.4.1 The stormwater collected by the project during operational phase will be discharged to the public drainage channel via the existing manholes.

4.4.2 Impact on drainage loading had been assessed and submitted in another report, “Drainage Impact Assessment” (DIA). The assessment concluded that the local flow pattern of stormwater would not be significantly affected by the project and the existing drainage system would have sufficient capacity to divert the stormwater.

4.5 Conclusion

4.5.1 During construction phase, should site runoff and wastewater generated be properly contained within the site by use of perimeter U-channel and treated before discharge, and sewage generated by workforce be collected by chemical toilet, no adverse water quality impact is anticipated.

4.5.2 Further to the SIA and DIA submitted under separate cover, the water quality impact to the environment from the Project is anticipated to be minimal.

5. Waste Management Implications

5.1 Environmental Legislation, Standards and Guidelines

5.1.1 The relevant legislation and associated guidance notes related to the study and assessment of waste management implications include:

a) Waste Disposal Ordinance (WDO) (Cap. 354) and subsidiary Regulations;
b) Land (Miscellaneous Provisions) Ordinance (Cap. 28);
c) Public Health and Municipal Service Ordinance (Cap. 132) - Public Cleansing and Prevention of Nuisances Regulation; and
d) Project Administration Handbook for Civil Engineering Works.

5.1.2 Under the Waste Disposal Ordinance, some of the regulations are relevant to the Project, including:

a) Waste Disposal (Chemical Waste) (General) Regulation (Cap. 354C); and
b) Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N).

5.1.3 Waste generated by the project will include construction and demolition materials (C&D Material), general refuse, and chemical waste generated during construction phase, and general refuse, during operational phase.

5.2 Waste Implication Assessment

Construction Phase

5.2.1 During construction phase, waste generation will mainly due to the construction and demolition materials (C&D materials) generated during demolition of existing pavement and excavation, packaging materials and potential chemical waste if maintenance of the PME are conducted on site.

5.2.2 For waste amount estimation, there are 2 storeys need to be excavated as the PVP. The area of PVP area is about 13,300m^2 for B1 and B2 level. The PVP is divided into two major sections: Light Bus / Coach / LGV / Motorcycle parking lot (Section A) and , Private Car parking lot (Section B). For section A, the total height including floor slab, ceiling and footings is about 7.55m high with total area of about 8,500m^2. For section B, the total height for B1 and B2 including floor slab, ceiling and footings is 10.4m high with total area of about 4,800m^2. Hence the excavation for the PVP will generate about 114,000m^3 of inert portion of C&D materials as shown in **Table 5.1**. These materials would be delivered to the fill bank for reuse by other projects

5.2.3 Regarding over 50,000m^3 of C&D materials are anticipated to be generated, a Construction & Demolition Material Management Plan (C&DMMP) should be prepared to enhance the management of C&D material including rock, and to minimize its generation at source. C&DMMP should be prepared in accordance with Chapter 4 Clause 4.1.3 of Project Administration Handbook for Civil Engineering Works.

Table 5.1: The Amount of Inert C&D Materials

Section	Dimension of the proposed PVP		Amount of Inert C&D Materials, m^3
	Area	Height	
A	8,500	7.55	64,175
B	4,800	10.4	49,920
		Total	114,095

5.2.4 It is anticipated that at most 30m^3 of non-inert portion of C&D materials would be generated within the project period. Non-inert C&D materials such as packaging waste, plastic pipe and plastic container are anticipated to be generated and be disposed of at landfills as other domestic wastes. Other non-inert C&D materials such as paper, iron bar and oil tank, etc are anticipated to be recycled and reused by other projects.

5.2.5 For general refuse generated from onsite workforce, the disposal rate of commercial & industrial waste per capita is 0.6kg/person/day according to the waste statistics (2019). It is expected to have 20 staff on site during construction. As such, general refuse generated from onsite workforce will be 12kg/day.

5.2.6 Chemical waste is anticipated to be generated due to PME maintenance only. It is estimated that the amount of the chemical waste generated per month will not exceed 100L.

5.2.7 These wastes shall be disposed of under respective regulations. Inert C&D materials shall be disposed of at public fill reception facilities for reuse, while non-inert C&D materials shall be sorted and recycled as far as possible before disposed of at landfill.

5.2.8 General refuse generated by work forces during the construction phase shall be collected properly. Contractor shall provide enough rubbish bins with lids on site, and collected waste shall be collected by waste collectors regularly.

5.2.9 Recycling bins will be provided at the site and recyclables will be collected separately and regularly.

5.2.10 Chemical waste generated shall be collected by licensed chemical waste collector. Contractor shall be registered as a Chemical Waste Producer and all chemical waste shall be stored according to the legislation requirement.

5.2.11 Contractor should adopt the Waste Management Hierarchy, where the following options shall be preferred in the following order:

a) Avoidance;
b) Reduction of Wastes;
c) Reuse; then
d) Recycle

5.2.12 Contractor should ensure excessive materials had been minimized to avoid the generation of waste as far as possible. If waste is generated, contractor should review if the waste can be reused or recycled before disposed of at the landfill site.

5.2.13 Recyclable materials may include metal from the existing buildings, plastic from packaging materials, and paper from packaging materials. Other recyclable materials shall also be identified and recycler shall be arranged to collect the materials.

Operational Phase

5.2.14 During operational phase, it is expected to have 5 staff to operate the proposed project. For general refuse generated from onsite workforce, the disposal rate of commercial & industrial waste per capita is 0.6kg/person/day according to the waste statistics (2019). As such, general refuse generated from onsite workforce will be 3kg/day.

5.2.15 General refuse generated by the public and onsite workforce shall be collected with public rubbish bins and delivered to a refuse storage and material recovery chamber and stored in enclosed containers to prevent windblown, vermin, water pollution and visual impact. At least daily collection should be arranged by the waste collector.

5.2.16 Recycling bins will be provided at the site and recyclables will be collected separately and regularly.

5.2.17 Other types of waste are not anticipated so no other refuse disposal arrangement is anticipated.

5.3 Conclusion

5.3.1 As such, consider the waste generated by the project would be handled properly in accordance to the respective legislation, adverse impact caused by the waste generated by the project is not anticipated.

6. Conclusion

6.1 Environmental Impact

6.1.1 The following environmental impact potentially generated by this Project has been discussed:

a) Air Quality;
b) Noise;
c) Water Quality; and
d) Waste Management

6.1.2 As discussed in respective sections, environmental impact generated by this Project during both construction and operational phase would be minimal.

Figures

Figure 1: The Location of the Project Site

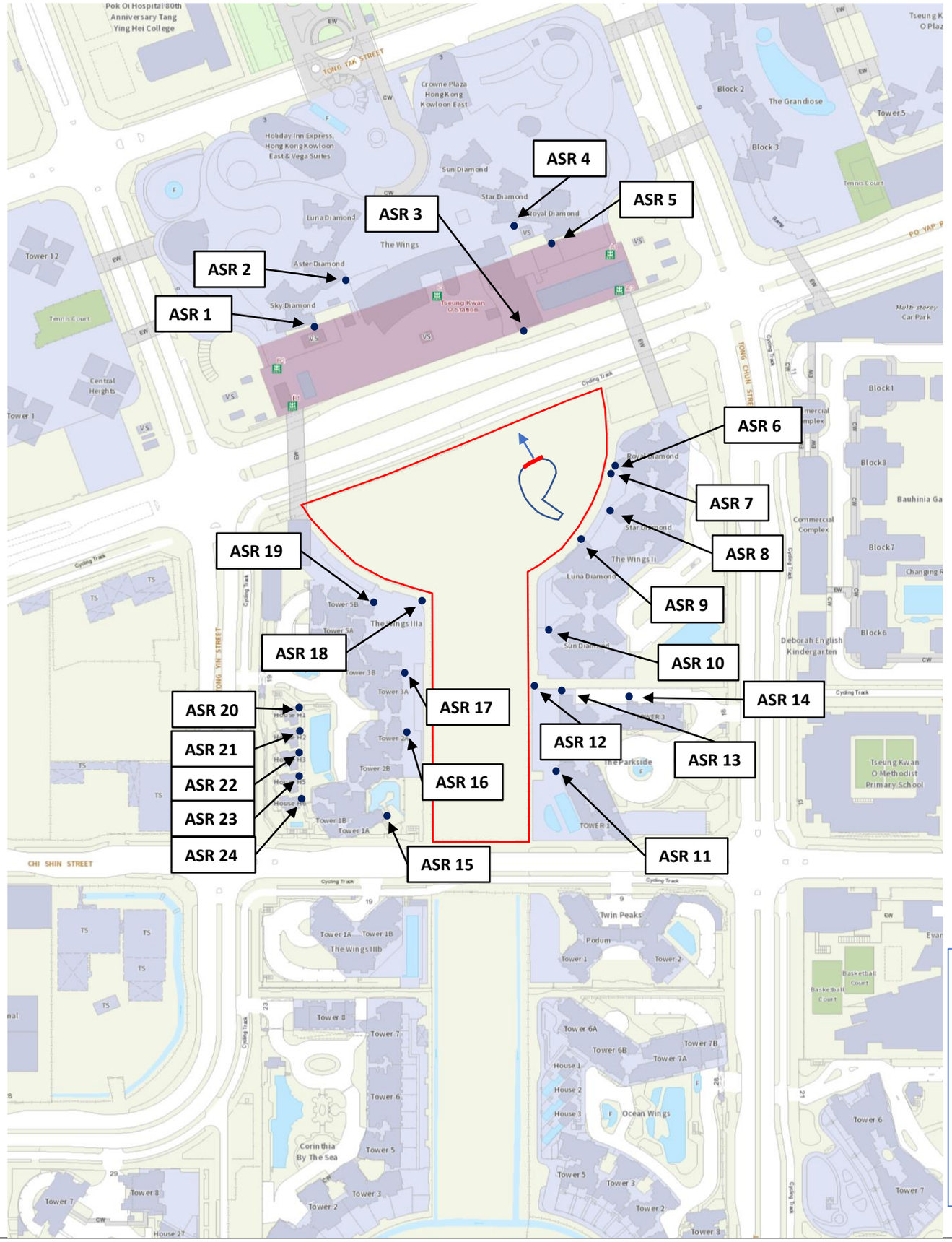


Figure 2: The Location of the Air Sensitive Receivers

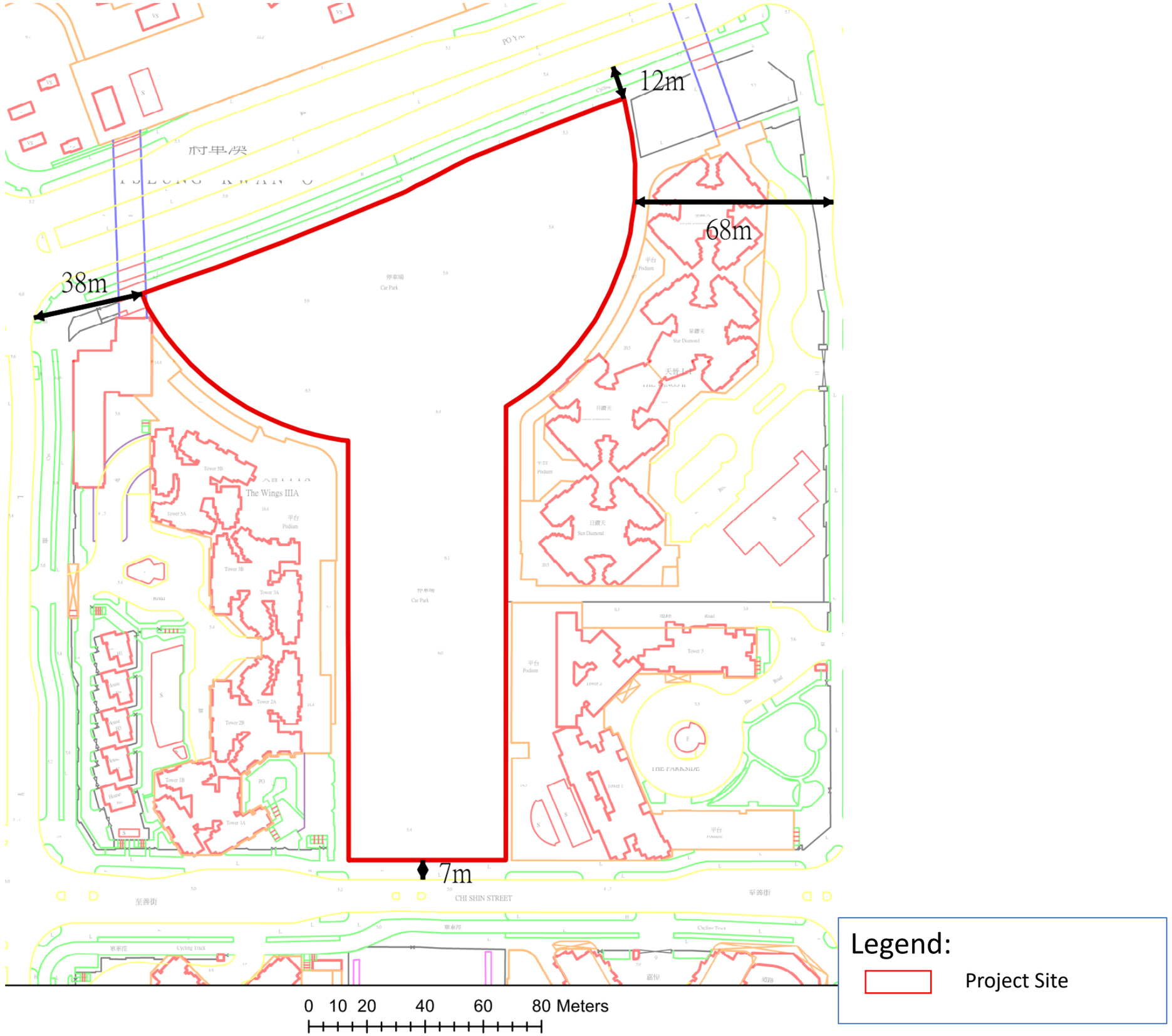


Figure 3: Distance Between Road Segments and the Project Boundary

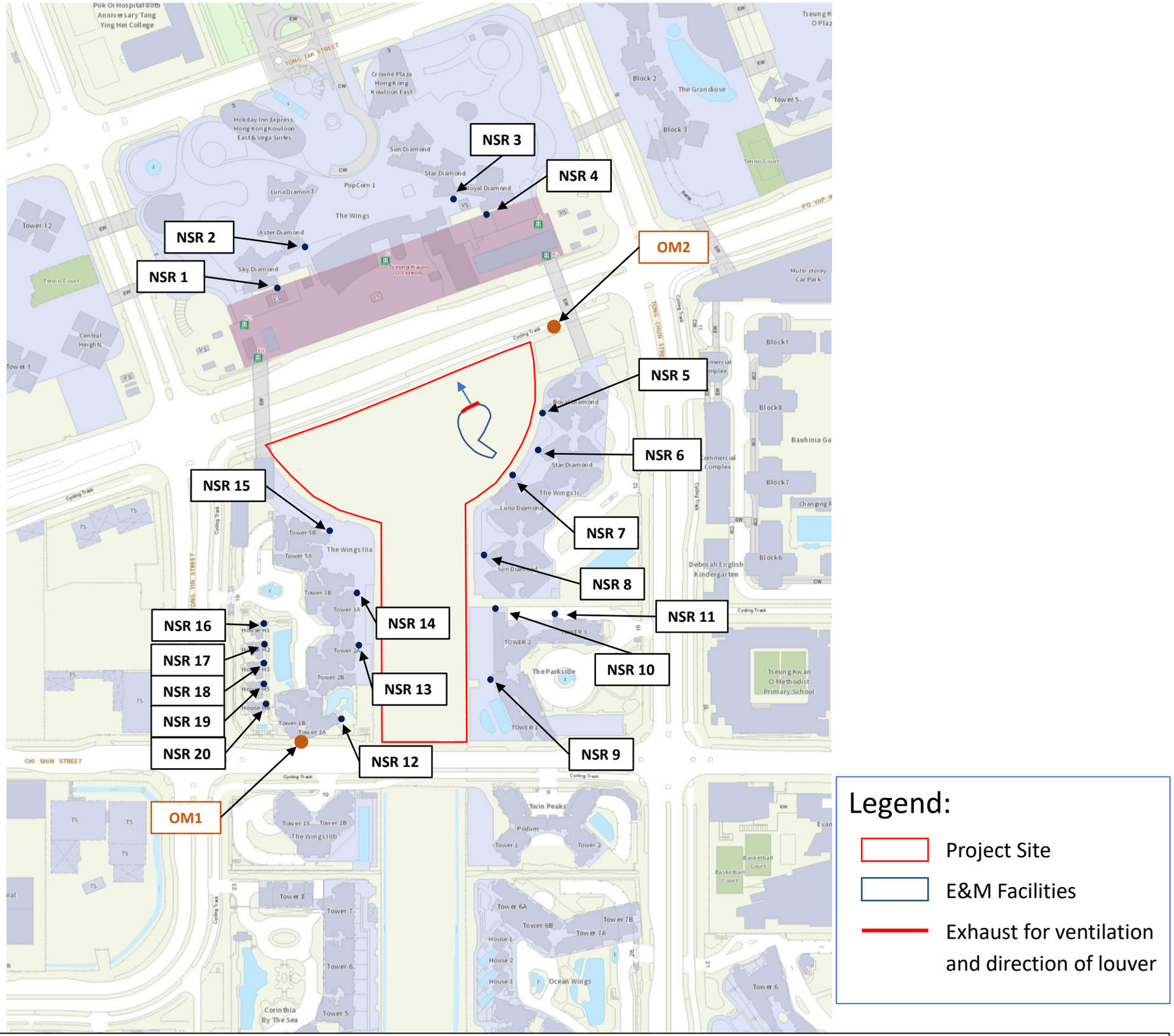


Figure 4: The Location of the Noise Sensitive Receivers and Monitoring Locations

At OM1

At OM2

Figure 5: Photos of Noise Measurement at OM1 and OM2

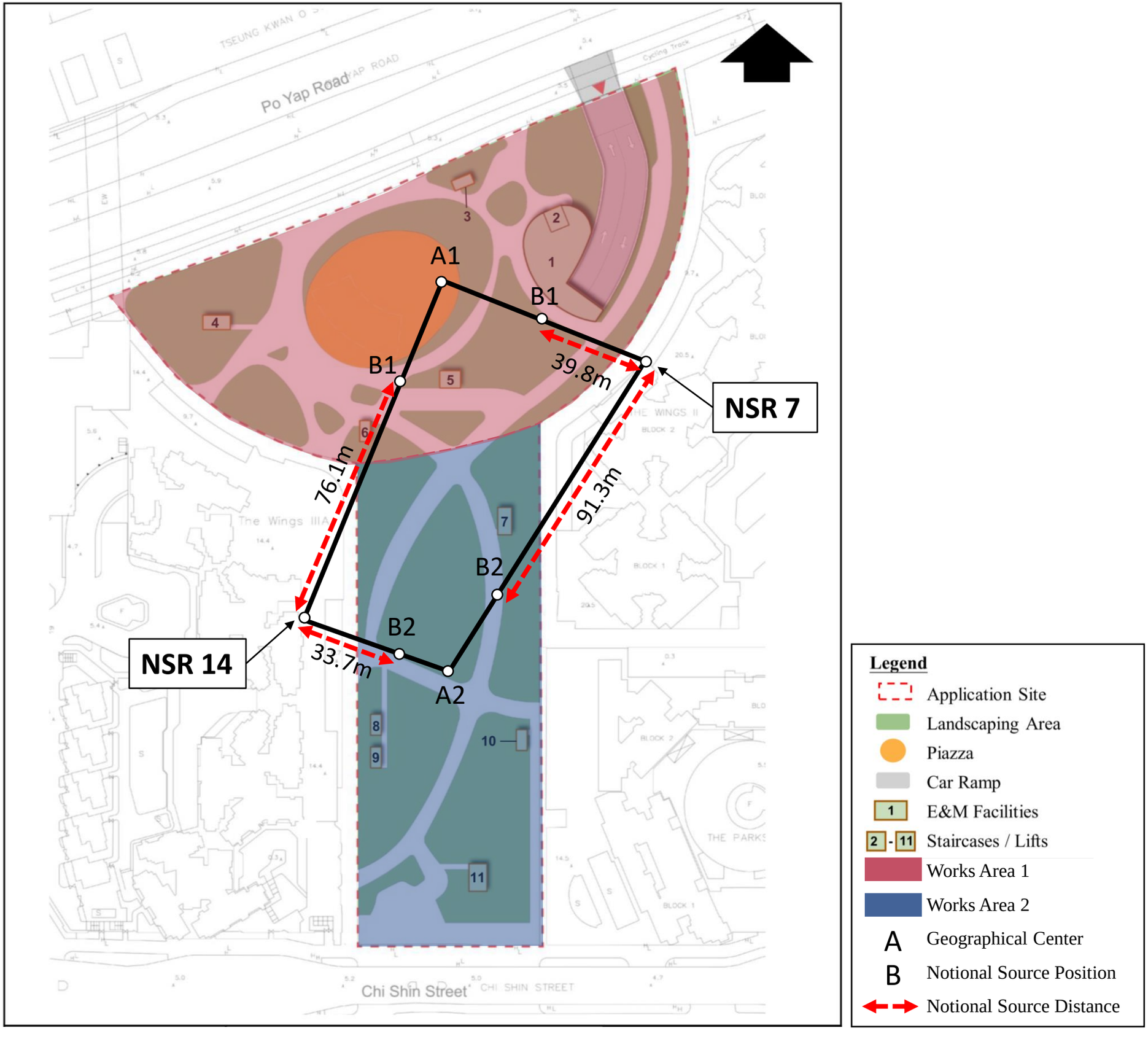


Figure 6: The Location of the Notional Source

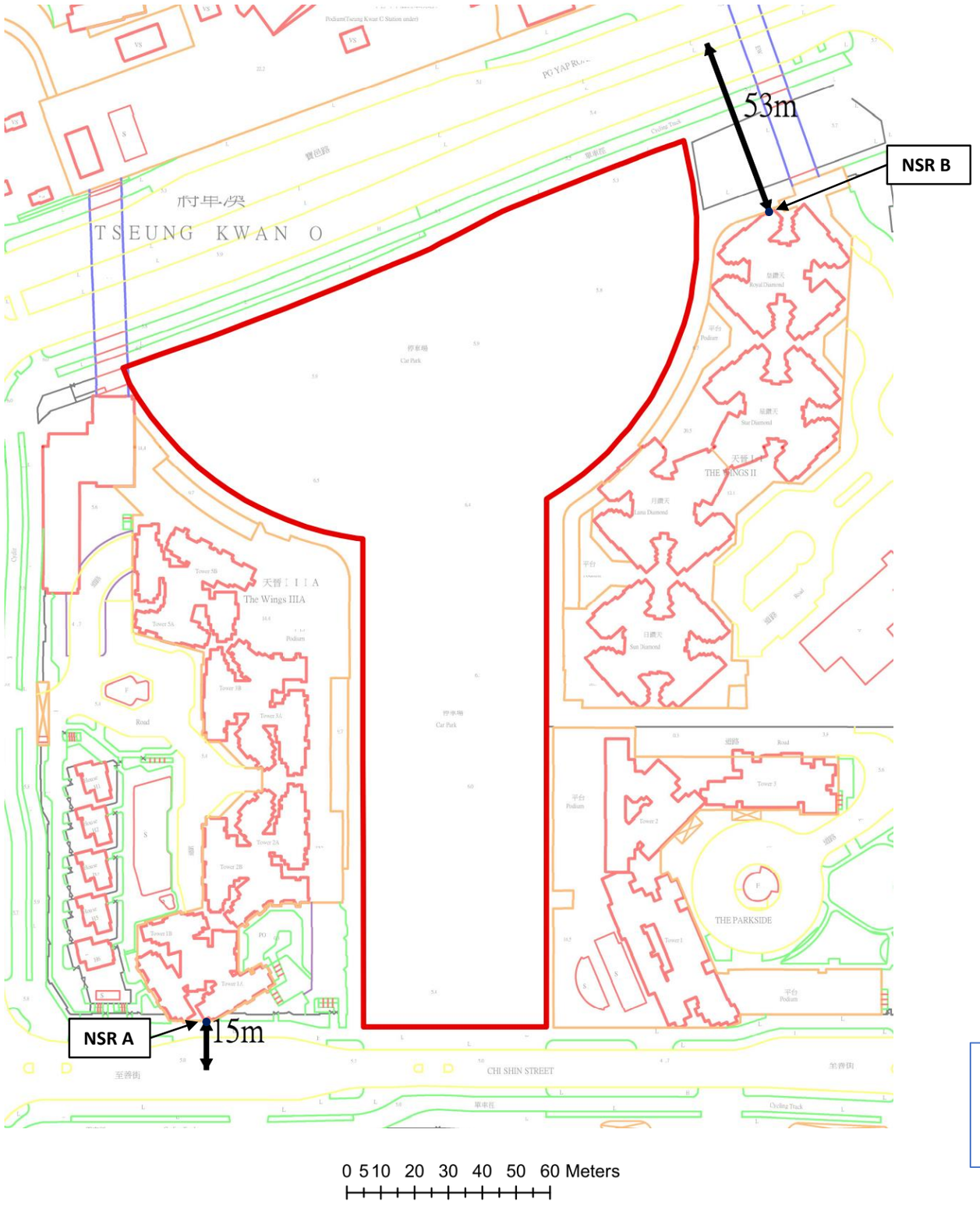


Figure 7: Location of the Nearest NSRs to the Segments

Appendix 1
Confirmation on Road Type of Chi Shin Street

From:	Kit Shing LAU
To:	Ho Wang SPB
Cc:	chenz@archsd.gov.hk; curtis.chan@beexergy.com; pac@planarch.com.hk; "Chi Wai KO"; "HWSPB - Tinson Leung "; "HWSPB - Tommy Lam"; "HWSPB - Wallace Soh"
Subject:	RE: Planning Consultancy Services for Town Park with Public Vehicle Park in Area 66, Tseung Kwan O (Programme No.: 27TP) - J1598-Email-16
Date:	10 September 2021 15:50:27

Dear Tinson,

I refer to your email below and have no comments on your interpretation of the road type for Chi Shin Street.

Regards,

Jason LAU
E/SD1, TE/NTE, TD
Tel: 2399 2796
Fax: 2381 3799

From: "Ho Wang SPB" <info@howangspb.com>
To: "'Kit Shing LAU'" <kitshinglau@td.gov.hk>
Cc: "'Chi Wai KO'" <stephenko@td.gov.hk>, <chenz@archsd.gov.hk>, <curtis.chan@beexergy.com>, "'Planarch'" <pac@planarch.com.hk>, "'HWSPB - Tinson Leung '" <tinsonleung@howangspb.com>, "'HWSPB - Wallace Soh'" <wallacesoh@howangspb.com>, "'HWSPB - Tommy Lam'" <tommylam@howangspb.com>
Date: 09/09/2021 06:06 PM
Subject: RE: Planning Consultancy Services for Town Park with Public Vehicle Park in Area 66, Tseung Kwan O (Programme No.: 27TP) - J1598-Email-16

9 September 2021
Our reference: J1598-Email-16-0921

To: Kit Shing LAU (kitshinglau@td.gov.hk)
c.c.: PlanArch – Ms Betty Ho (pac@planarch.com.hk)
Mr Curtis Chan (Curtis.chan@beexergy.com)
ArchSD – Mr Alfred Chen (chenz@archsd.gov.hk)
Chi Wai KO (stephenko@td.gov.hk)

Contract No. CPM302_8/20
Planning Consultancy Services for Town Park with Public Vehicle Park in Area 66, Tseung Kwan O (Programme No.: 27TP)
Road Type of Chi Shin Street

Dear Mr. Lau,

According to Annual Traffic Census (ATC), Po Yap Road section between Po Shun Road and Wan Po Road is a District Distributor (DD). The concerned Chi Shin Street is connecting Po Yap Road and the developments in Tseung Kwan O South. According to TPDM Chapter 3.2.2.4, Local Distributors (LD) are roads within Districts linking developments to the District Distributor Roads. The existing Chi Shin Street is considered as a Local Distributor from our viewpoint.

Kindly contact the undersigned or our Mr Wallace Soh should you have any queries.

Best Regards,

Tinson Leung
Deputy Executive Director

Ho Wang SPB Limited
5 Floor, So Hong Commercial Building
41-47 Jervois Street
Sheung Wan
Hong Kong
T: 2865 0090 F: 2866 4332

JW/TL/WS/TA/my

Appendix 2

Preliminary Construction Noise Assessment - Unmitigated Scenario

Appendix 2

Preliminary Construction Noise Assessment - Unmitigated Scenario

Construction Noise Impact at NSR 7 - Luna Diamond (The Wings II)

PME	Quantity	TM Ref	SWL, dB(A)	Utilisation Rate	Mitigation Measure	Barrier Correction, dB(A)	Sub-total SWL, dB(A)	Horizontal Distance from the Nearest NSR	Façade Correction, dB(A)	SPL at NSR, dB(A)
Site Preparation Works - Works Area 1										
Lorry, with crane/grab, 5.5 tonne < gross vehicle weight ≦ 38 tonne	1	PME-44	105	50%	--	0	102.0			
Air compressor, air flow > 10m3/min and <= 30m3/min	1	CNP 002	102	100%	--	0	102.0			
Breaker, mini-robot mounted	1	PME-6	115	70%	--	0	113.5			
						Total SWL	**114.0**	**39.8**	**3.0**	**77**
Site Preparation Works - Works Area 2										
Lorry, with crane/grab, 5.5 tonne < gross vehicle weight ≦ 38 tonne	1	PME-44	105	50%	--	0	102.0			
Air compressor, air flow > 10m3/min and <= 30m3/min	1	CNP 002	102	100%	--	0	102.0			
Breaker, mini-robot mounted	1	PME-6	115	70%	--	0	113.5			
						Total SWL	**114.0**	**91.3**	**3.0**	**70**
									Total SPL at NSR due to Site Preparation Works, dB(A)	**77.8**
Excavation for Underground Car Park										
Excavator, wheeled/tracked, Brand: SUMITOMO, Model: SH360HD-6	2	EPD-10841	105	70%	--	0	106.5			
Dump truck, 5.5 tonne < gross vehicle weight ≦ 38 tonne	2	PME-46	105	50%	--	0	105.0			
Generator, super silenced, 70 dB(A) at 7 m	1	CNP 103	95	100%	--	0	95.0			
						Total SWL	**109.0**	**39.8**	**3.0**	**72**
Underground and At-Grade Structure - Formworks										
Crane, mobile, Brand: SUNWARD, Model: SWTC 10	1	EPD-10029	103	30%	--	0	97.8			
Generator, super silenced, 70 dB(A) at 7 m	1	CNP 103	95	100%	--	0	95.0			
Bar bender and cutter (electric)	1	CNP 021	90	50%	--	0	87.0			
						Total SWL	**99.8**	**39.8**	**3.0**	**63**
Underground and At-Grade Structure - Concreting Works										
Concrete lorry mixer	1	CNP 044	109	100%	--	0	109.0			
Concrete pump, stationary/lorry mounted	1	CNP 047	109	100%	--	0	109.0			
Poker, vibratory, hand-held	3	CNP 170	113	70%	--	0	116.2			
						Total SWL	**117.6**	**39.8**	**3.0**	**81**

Construction Noise Impact at NSR 14 - Tower 3A & 3B (The Wings IIIA)

PME	Quantity	TM Ref	SWL, dB(A)	Utilisation Rate	Mitigation Measure	Barrier Correction, dB(A)	Sub-total SWL, dB(A)	Horizontal Distance from the Nearest NSR	Façade Correction, dB(A)	SPL at NSR, dB(A)
Site Preparation Works - Works Area 1										
Lorry, with crane/grab, 5.5 tonne < gross vehicle weight ≦ 38 tonne	1	PME-44	105	50%	--	0	102.0			
Air compressor, air flow > 10m3/min and <= 30m3/min	1	CNP 002	102	100%	--	0	102.0			
Breaker, mini-robot mounted	1	PME-6	115	70%	--	0	113.5			
						Total SWL	**114.0**	**76.1**	**3.0**	**71**
Site Preparation Works - Works Area 2										
Lorry, with crane/grab, 5.5 tonne < gross vehicle weight ≦ 38 tonne	1	PME-44	105	50%	--	0	102.0			
Air compressor, air flow > 10m3/min and <= 30m3/min	1	CNP 002	102	100%	--	0	102.0			
Breaker, mini-robot mounted	1	PME-6	115	70%	--	0	113.5			
						Total SWL	**114.0**	**33.7**	**3.0**	**78**
									Total SPL at NSR due to Site Preparation Works, dB(A)	**79.3**
Excavation for Underground Car Park										
Excavator, wheeled/tracked, Brand: SUMITOMO, Model: SH360HD-6	2	EPD-10841	105	70%	--	0	106.5			
Dump truck, 5.5 tonne < gross vehicle weight ≦ 38 tonne	2	PME-46	105	50%	--	0	105.0			
Generator, super silenced, 70 dB(A) at 7 m	1	CNP 103	95	100%	--	0	95.0			
						Total SWL	**109.0**	**33.7**	**3.0**	**73**
Underground and At-Grade Structure - Formworks										
Crane, mobile, Brand: SUNWARD, Model: SWTC 10	1	EPD-10029	103	30%	--	0	97.8			
Generator, super silenced, 70 dB(A) at 7 m	1	CNP 103	95	100%	--	0	95.0			
Bar bender and cutter (electric)	1	CNP 021	90	50%	--	0	87.0			
						Total SWL	**99.8**	**33.7**	**3.0**	**64**
Underground and At-Grade Structure - Concreting Works										
Concrete lorry mixer	1	CNP 044	109	100%	--	0	109.0			
Concrete pump, stationary/lorry mounted	1	CNP 047	109	100%	--	0	109.0			
Poker, vibratory, hand-held	3	CNP 170	113	70%	--	0	116.2			
						Total SWL	**117.6**	**33.7**	**3.0**	**82**

Appendix 3
Preliminary Construction Noise Assessment - Mitigated Scenario

Appendix 3

Preliminary Construction Noise Assessment - Mitigated Scenario

Construction Noise Impact at NSR 7 - Luna Diamond (The Wings II)

PME	Quantity	TM Ref	SWL, dB(A)	Utilisation Rate	Mitigation Measure	Barrier Correction, dB(A)	Sub-total SWL, dB(A)	Horizontal Distance from the Nearest NSR	Façade Correction, dB(A)	SPL at NSR, dB(A)
Site Preparation Works - Works Area 1										
Lorry, with crane/grab, 5.5 tonne < gross vehicle weight ≦ 38 tonne	1	PME-44	105	50%	Movable Noise Barrier	-5	97.0			
Air compressor, air flow > 10m3/min and <= 30m3/min	1	CNP 002	102	100%	Movable Noise Barrier	-5	97.0			
Breaker, mini-robot mounted	1	PME-6	115	70%	Movable Noise Barrier	-5	108.5			
						Total SWL	**109.0**	**39.8**	**3.0**	**72**
Site Preparation Works - Works Area 2										
Lorry, with crane/grab, 5.5 tonne < gross vehicle weight ≦ 38 tonne	1	PME-44	105	50%	Movable Noise Barrier	-5	97.0			
Air compressor, air flow > 10m3/min and <= 30m3/min	1	CNP 002	102	100%	Movable Noise Barrier	-5	97.0			
Breaker, mini-robot mounted	1	PME-6	115	70%	Movable Noise Barrier	-5	108.5			
						Total SWL	**109.0**	**91.3**	**3.0**	**65**
									Total SPL at NSR due to Site Preparation Works, dB(A)	**72.8**
Excavation for Underground Car Park										
Excavator, wheeled/tracked, Brand: SUMITOMO, Model: SH360HD-6	2	EPD-10841	105	70%	--	0	106.5			
Dump truck, 5.5 tonne < gross vehicle weight ≦ 38 tonne	2	PME-46	105	50%	--	0	105.0			
Generator, super silenced, 70 dB(A) at 7 m	1	CNP 103	95	100%	--	0	95.0			
						Total SWL	**109.0**	**39.8**	**3.0**	**72**
Underground and At-Grade Structure - Formworks										
Crane, mobile, Brand: SUNWARD, Model: SWTC 10	1	EPD-10029	103	30%	--	0	97.8			
Generator, super silenced, 70 dB(A) at 7 m	1	CNP 103	95	100%	--	0	95.0			
Bar bender and cutter (electric)	1	CNP 021	90	50%	--	0	87.0			
						Total SWL	**99.8**	**39.8**	**3.0**	**63**
Underground and At-Grade Structure - Concreting Works										
Concrete lorry mixer	1	CNP 044	109	100%	Movable Noise Barrier	-5	104.0			
Concrete pump, stationary/lorry mounted	1	CNP 047	109	100%	Movable Noise Barrier	-5	104.0			
Poker, vibratory, hand-held	3	CNP 170	113	70%	Fixed Noise Barrier	-10	106.2			
						Total SWL	**109.6**	**39.8**	**3.0**	**73**

Construction Noise Impact at NSR 14 - Tower 3A & 3B (The Wings IIIA)

PME	Quantity	TM Ref	SWL, dB(A)	Utilisation Rate	Mitigation Measure	Barrier Correction, dB(A)	Sub-total SWL, dB(A)	Horizontal Distance from the Nearest NSR	Façade Correction, dB(A)	SPL at NSR, dB(A)
Site Preparation Works - Works Area 1										
Lorry, with crane/grab, 5.5 tonne < gross vehicle weight ≦ 38 tonne	1	PME-44	105	50%	Movable Noise Barrier	-5	97.0			
Air compressor, air flow > 10m3/min and <= 30m3/min	1	CNP 002	102	100%	Movable Noise Barrier	-5	97.0			
Breaker, mini-robot mounted	1	PME-6	115	70%	Movable Noise Barrier	-5	108.5			
						Total SWL	**109.0**	**76.1**	**3.0**	**66**
Site Preparation Works - Works Area 2										
Lorry, with crane/grab, 5.5 tonne < gross vehicle weight ≦ 38 tonne	1	PME-44	105	50%	Movable Noise Barrier	-5	97.0			
Air compressor, air flow > 10m3/min and <= 30m3/min	1	CNP 002	102	100%	Movable Noise Barrier	-5	97.0			
Breaker, mini-robot mounted	1	PME-6	115	70%	Movable Noise Barrier	-5	108.5			
						Total SWL	**109.0**	**33.7**	**3.0**	**73**
									Total SPL at NSR due to Site Preparation Works, dB(A)	**74.3**
Excavation for Underground Car Park										
Excavator, wheeled/tracked, Brand: SUMITOMO, Model: SH360HD-6	2	EPD-10841	105	70%	--	0	106.5			
Dump truck, 5.5 tonne < gross vehicle weight ≦ 38 tonne	2	PME-46	105	50%	--	0	105.0			
Generator, super silenced, 70 dB(A) at 7 m	1	CNP 103	95	100%	--	0	95.0			
						Total SWL	**109.0**	**33.7**	**3.0**	**73**
Underground and At-Grade Structure - Formworks										
Crane, mobile, Brand: SUNWARD, Model: SWTC 10	1	EPD-10029	103	30%	--	0	97.8			
Generator, super silenced, 70 dB(A) at 7 m	1	CNP 103	95	100%	--	0	95.0			
Bar bender and cutter (electric)	1	CNP 021	90	50%	--	0	87.0			
						Total SWL	**99.8**	**33.7**	**3.0**	**64**
Underground and At-Grade Structure - Concreting Works										
Concrete lorry mixer	1	CNP 044	109	100%	Movable Noise Barrier	-5	104.0			
Concrete pump, stationary/lorry mounted	1	CNP 047	109	100%	Movable Noise Barrier	-5	104.0			
Poker, vibratory, hand-held	3	CNP 170	113	70%	Fixed Noise Barrier	-10	106.2			
						Total SWL	**109.6**	**33.7**	**3.0**	**74**

Appendix 4
Maximum Allowable SWL at the Ventilation Louver

Appendix 4

Maximum Allowable SWL at the Ventilation Louver

NSR	Name	Area Sensitive Ratings (ASR)	ANL - 5, dB(A) (A)		Distance from the Exhaust Outlet at Ground Level E&M Room, m (B)	Distance Attenuation, dB(A) (C) = -20 log(B) -8 +3	Allowable SWL, dB(A) (A) - (C)	
			Daytime	Nighttime			Daytime	Nighttime
NSR 1	Sky Diamond (The Wings)	B	60	50	149	-48.5	108.5	98.5
NSR 2	Aster Diamond (The Wings)	B	60	50	155	-48.8	108.8	98.8
NSR 3	Star Diamond (The Wings)	B	60	50	143	-48.1	108.1	98.1
NSR 4	Royal Diamond (The Wings)	B	60	50	130	-47.3	107.3	97.3
NSR 5	Royal Diamond (The Wings II)	B	60	50	41	-37.3	97.3	87.3
NSR 6	Star Diamond (The Wings II)	B	60	50	48	-38.6	98.6	88.6
NSR 7	Luna Diamond (The Wings II)	B	60	50	50	-39.0	99.0	89.0
NSR 8	Sun Diamond (The Wings II)	B	60	50	98	-44.8	104.8	94.8
NSR 9	Tower 1 & 1A (The Parkside)	B	60	50	174	-49.8	109.8	99.8
NSR 10	Tower 2 & 2A (The Parkside)	B	60	50	133	-47.5	107.5	97.5
NSR 11	Tower 3 (The Parkside)	B	60	50	144	-48.2	108.2	98.2
NSR 12	Tower 1A & 1B (The Wings IIIA)	B	60	50	220	-51.8	111.8	101.8
NSR 13	Tower 2A & 2B (The Wings IIIA)	B	60	50	170	-49.6	109.6	99.6
NSR 14	Tower 3A & 3B (The Wings IIIA)	B	60	50	141	-48.0	108.0	98.0
NSR 15	Tower 5A & 5B (The Wings IIIA)	B	60	50	122	-46.7	106.7	96.7
NSR 16	House 1 (The Wings IIIA)	B	60	50	193	-50.7	110.7	100.7
NSR 17	House 2 (The Wings IIIA)	B	60	50	203	-51.1	111.1	101.1
NSR 18	House 3 (The Wings IIIA)	B	60	50	212	-51.5	111.5	101.5
NSR 19	House 5 (The Wings IIIA)	B	60	50	223	-52.0	112.0	102.0
NSR 20	House 6 (The Wings IIIA)	B	60	50	234	-52.4	112.4	102.4

Appendix 5
Ingress / Egress Noise Impact Assessment

Appendix 5

Ingress / Egress Noise Impact Assessment

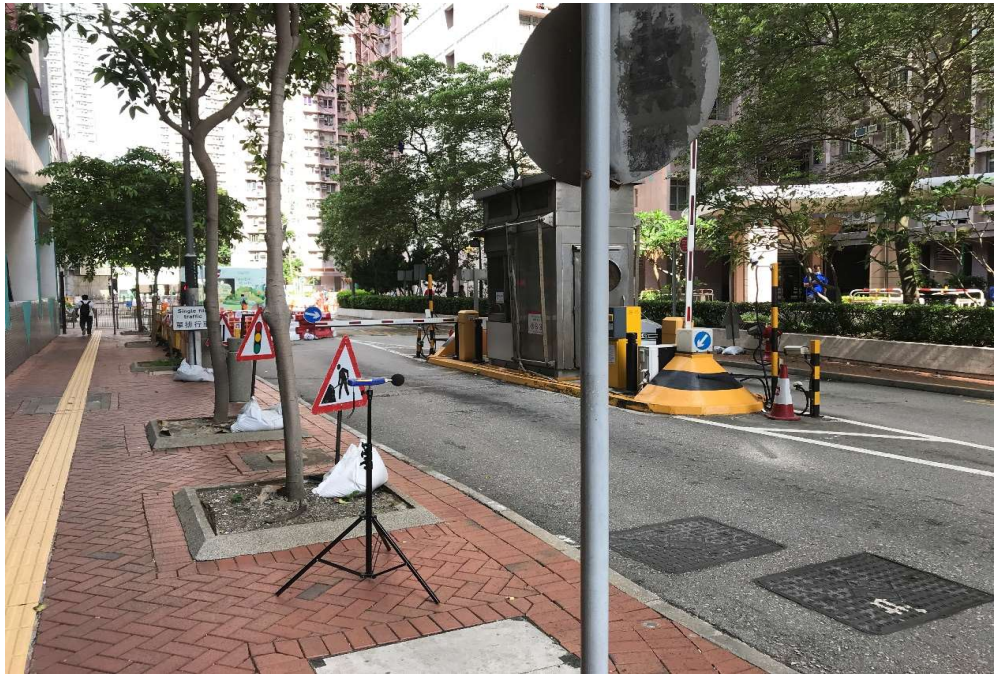
Noise Measurement Results at Entrance of TKO Spot Car Park A

Location	Date	Time	Measurement Condition	Distance from Centre of Road, m (D)	Vehicle Enters and Leaves the Carpark	Leq, dB(A)	L10, dB(A)	L90, dB(A)
TKO Spot Car Park	18 Jun 2021	9:07am – 9:37am	Free-Field	4	59	62.9	65.9	57.6

Sound Power Level of Ingress / Egress of TKO Spot Car Park A, and Predicted Noise Impact at NSR 5 - Royal Diamond (The Wings II)

Measured Noise Level, dB(A)	Background Noise Level, dB(A)	Noise due to Ingress / Egress Traffic	Distance Attenuation, - 20 log (D) - 8, dB(A)	Sound Power Level of Ingress / Egress Traffic, dB(A)	Distance between the Entrance of PVP and NSR 5, m	Distance Attenuation, dB(A)	Façade Correction, dB(A)	Noise Impact at NSR 5, dB(A)
62.9	57.6	61.4	-20.0	81.4	41.0	-40.3	3.0	44.2

Photo Taken during Measurement



Appendix 6
Road Traffic Noise Assessment

Appendix 6

Road Traffic Noise Assessment

Noise Measurement Results at OM1

Location	Date	Time	Measurement Condition	Distance from Centre of Road, m (D)	L10, dB(A)
OM1	18 Jun 2021	7:30am – 8:30am	Free-Field	9	70.4
OM1	18 Jun 2021	5:30pm – 6:30pm	Free-Field	9	71.2

Road Traffic Noise Impact at NSR A - Tower 1A & 1B (The Wings IIIA)

Period	Measured Noise Level, dB(A)	Distance from Centre of Road, m (D)	Distance between Centre of Road and NSR A, m	Distance Attenuation, dB(A)	Façade Correction, dB(A)	Road Traffic Noise Impact at NSR A, dB(A)	Road Traffic Noise Impact at NSR A after project completion, dB(A)
AM (Peak Hour)	70.4	9.0	15.0	-2.2	2.5	70.7	71.5
PM (Peak Hour)	71.2	9.0	15.0	-2.2	2.5	71.5	72.3

Photo Taken during Measurement

Noise Measurement Results at OM2

Location	Date	Time	Measurement Condition	Distance from Centre of Road, m (D)	L10, dB(A)
OM2	18 Jun 2021	7:45am – 8:45am	Free-Field	12	71.4
OM2	18 Jun 2021	5:30pm – 6:30pm	Free-Field	12	70.6

Road Traffic Noise Impact at NSR B - Royal Diamond (The Wings II)

Period	Measured Noise Level, dB(A)	Distance from Centre of Road, m (D)	Distance between Centre of Road and NSR B, m	Distance Attenuation, dB(A)	Façade Correction, dB(A)	Road Traffic Noise Impact at NSR B, dB(A)	Road Traffic Noise Impact at NSR B after project completion, dB(A)
AM (Peak Hour)	71.4	12.0	53.0	-6.5	2.5	67.4	68.2
PM (Peak Hour)	70.6	12.0	53.0	-6.5	2.5	66.6	67.4

Photo Taken during Measurement

Appendix 7
Calibration Certificate for Sound Level Meter and Calibrator

Hong Kong Calibration Ltd.
香 港 校 正 有限公司

Calibration Certificate

Certificate No. 104111 Page 1 of 2 Pages

Customer : Beexergy Consulting Limited

Address : Unit 2001-05, Apec Plaza, 49 Hoi Yuen Road, Kwun Tong, Kowloon, Hong Kong

Order No. : Q11504 **Date of receipt :** 30-Apr-21

Item Tested

Description : Acoustic Calibrator
Manufacturer : Svantek **I.D.** : 217598
Model : SV35A **Serial No.** : 58708

Test Conditions

Date of Test : 12-May-21 **Supply Voltage** : --
Ambient Temperature : (23 ± 3)°C **Relative Humidity :** (50 ± 25) %

Test Specifications

Calibration check.
Ref. Document/Procedure: F21, Z02, IEC 60942.

Test Results

All results were within the IEC 60942 Class 1 specifications.
The results are shown in the attached page(s).

Test equipment used:

Equipment No.	Description	Cert. No.	Traceable to
S014	Spectrum Analyzer	005018	NIM-PRC & SCL-HKSAR
S240	Sound Level Calibrator	003053	NIM-PRC & SCL-HKSAR
S041	Universal Counter	101743	SCL-HKSAR
S206	Sound Level Meter	007031	SCL-HKSAR

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI), or by reference to a natural constant.
The test results apply to the above Unit-Under-Test only

Calibrated by : Elva Chong

Approved by : Kin Wong

Date: 12-May-21

This Certificate is issued by:
Hong Kong Calibration Ltd.
Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street,Kwai Chung, NT,Hong Kong.
Tel: 2425 8801 Fax: 2425 8646

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Calibration Certificate

Results :

1. Generated Sound Pressure Level

UUT Nominal Value (dB)	Measured Value (dB)	IEC 60942 Class 1 Spec.
94.0	94.1	± 0.4 dB
114.0	114.1	

Uncertainty : ± 0.2 dB

2. Short-term Level Fluctuation : 0.0 dB
IEC 60942 Class 1 Spec. : ± 0.1 dB
Uncertainty : ± 0.01 dB

3. Frequency

UUT Nominal Value (kHz)	Measured Value (kHz)	IEC 60942 Class 1 Spec.
1	1.000	± 1 %

Uncertainty : $\pm 3.6 \times 10^{-6}$

4. Total Distortion : < 0.3%
IEC 60942 Class 1 Spec. : < 4 %
Uncertainty : ± 2.3 % of reading

Remark : 1. UUT : Unit-Under-Test
2. The uncertainty claimed is for a confidence probability of not less than 95%.
3. Atmospheric Pressure : 996hPa.

---------- END ----------

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Hong Kong Calibration Ltd.
香 港 校 正 有限公司

Calibration Certificate

Certificate No. **011566** Page 1 of 4 Pages

Customer : Beexergy Consulting Limited

Address : Unit 2001-05, Apec Plaza, 49 Hoi Yuen Road, Kwun Tong, Kowloon, Hong Kong

Order No. : Q04316 **Date of receipt :** 17-Nov-20

Item Tested

Description : Sound Level Meter
Manufacturer : Cirrus **I.D.** : --
Model : CR:171B **Serial No.** : G071909

Test Conditions

Date of Test : 25-Nov-20 **Supply Voltage** : --
Ambient Temperature : (23 ± 3)°C **Relative Humidity :** (50 ± 25) %

Test Specifications

Calibration check.
Ref. Document/Procudure: Z01, IEC 61672, IEC 61260.

Test Results

All results were within the IEC 61672 class 1 or IEC 61260 Class 1 specification. (where applicable)
The results are shown in the attached page(s).

Main Test equipment used:

Equipment No.	Description	Cert. No.	Traceable to
S017	Multi-Function Generator	C190926	SCL-HKSAR
S240	Sound Level Calibrator	003053	NIM-PRC & SCL-HKSAR

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI), or by reference to a natural constant.
The test results apply to the above Unit-Under-Test only

Calibrated by : Elva Chong

Approved by : Kin Wong

Date: 25-Nov-20

This Certificate is issued by:
Hong Kong Calibration Ltd.
Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street,Kwai Chung, NT,Hong Kong.
Tel: 2425 8801 Fax: 2425 8646

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Calibration Certificate

Results :

Acoustical signal test

1. **Self-generated noise:** 19.7dBA

2. **Reference Sound Pressure Level**

UUT Setting				Applied Value (dB)	UUT Reading (dB)
Range (dB)	Frequency Weighting	Time Weighting	Octave Filter		
20-140	A	F	OFF	94.0	94.0
		S	OFF		94.0
	C	F	OFF		94.0
	Z	F	OFF		94.0
	A	F	OFF	114.0	114.0
		S	OFF		114.0
	C	F	OFF		114.0
	Z	F	OFF		114.0

IEC 61672 Type 1 Spec. : ± 1.1 dB
Uncertainty : ± 0.1 dB

Electrical signal tests

3. **Frequency weightings** (A weighting)

Frequency	Attenuation (dB)	IEC 61672 Type 1 Spec.
31.5 Hz	-39.2	- 39.4 dB, ± 2 dB
63 Hz	-25.9	- 26.2 dB, ± 1.5 dB
125 Hz	-15.9	- 16.1 dB, ± 1.5 dB
250 Hz	-8.4	- 8.6 dB, ± 1 dB
500 Hz	-3.1	- 3.2 dB, ± 1.4 dB
1 kHz	0.0 (Ref)	0 dB, ± 1.1 dB
2 kHz	+1.1	+ 1.2 dB, ± 1.6 dB
4 kHz	+0.7	+ 1.0 dB, ± 1.6 dB
8 kHz	-1.6	- 1.1 dB, + 2.1 dB ~ -3.1 dB
16 kHz	-6.4	- 6.6 dB, + 3.5 dB ~ - 17.0 dB

Uncertainty : ± 0.1 dB

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Calibration Certificate

4. Frequency & Time weightings at 1 kHz

4.1 Frequency Weighting (Fast)

UUT Setting	Applied Value (dB)	UUT Reading (dB)	Difference (dB)	IEC 61672 Type 1 Spec.
A	94.0	94.0 (Ref.)	- -	± 0.4 dB
C	94.0	94.0	0.0	
Z	94.0	94.0	0.0	

4.2 Time Weighting (A-weighted)

UUT Setting	Applied Value (dB)	UUT Reading (dB)	Difference (dB)	IEC 61672 Type 1 Spec.
Fast	94.0	94.0 (Ref.)	- -	± 0.3 dB
Slow	94.0	94.0	0.0	
Time-averaging	94.0	94.0	0.0	

Uncertainty : ± 0.1 dB

5. Filter Characteristics

5.1 1/1 – Octave Filter

Frequency	Attenuation (dB)	IEC 61260 Class 1 Spec. (dB)
125 Hz	-61.0	< - 61
250 Hz	-56.2	< - 42
500 Hz	-52.2	< - 17.5
707 Hz	-3.3	- 2 ~ - 5
1 kHz (Ref)	--	--
1.414 kHz	-3.8	- 2 ~ - 5
2 kHz	-64.5	< - 17.5
4 kHz	-69.4	< - 42
8 kHz	-68.8	< - 61

Uncertainty : ± 0.25 dB

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Calibration Certificate

5.2 1/3 – Octave Filter

Frequency	Attenuation (dB)	IEC 61260 Class 1 Spec.(dB)
326 Hz	-65.6	< - 61
530 Hz	-55.1	< - 42
772 Hz	-28.8	< - 17.5
891 Hz	-3.3	+ 0.3 ~ - 5.0
1 kHz (Ref)	--	--
1.122 kHz	-3.7	+ 0.3 ~ - 5.0
1.296 kHz	-27.9	< - 17.5
1.887 kHz	-66.3	< - 42
3.070 kHz	-74.3	< - 61

Uncertainty : ± 0.25 dB

Remarks : 1. UUT : Unit-Under-Test
2. The uncertainty claimed is for a confidence probability of not less than 95%.
3. Atmospheric Pressure : 1 009hPa.
4. Preamplifier model : MV200F, S/N :5332F
5. Microphone model: MK224 , S/N : 608035B
6. Power Supply Check: OK
7. Firmware : V2.4.1569 (1529)
8. The UUT was adjusted with the laboratory's sound calibrator at the reference sound pressure level before the calibration.

---------- END ----------

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Appendix D

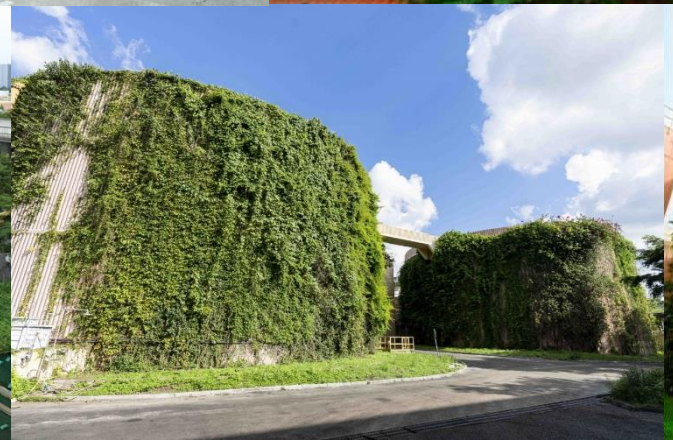
Reference Photos of the Proposed Mitigation Measures on the Proposed Landscape/ Visual Treatment

PLAP043 Town Park in Area 66, TKO

Reference photos of the proposed mitigation measures

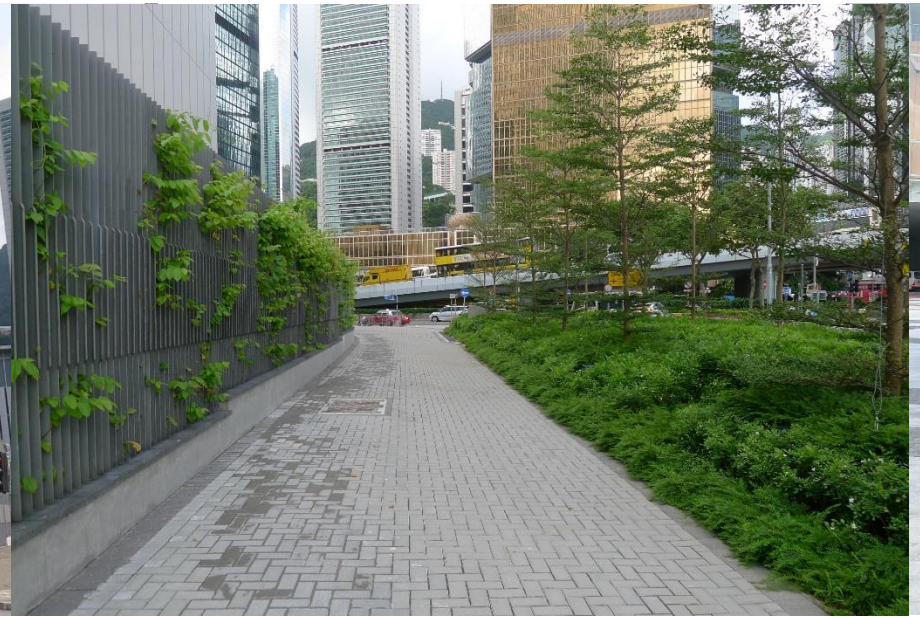
- Greening of the Park Structure
- Climbing and Trailing Plants

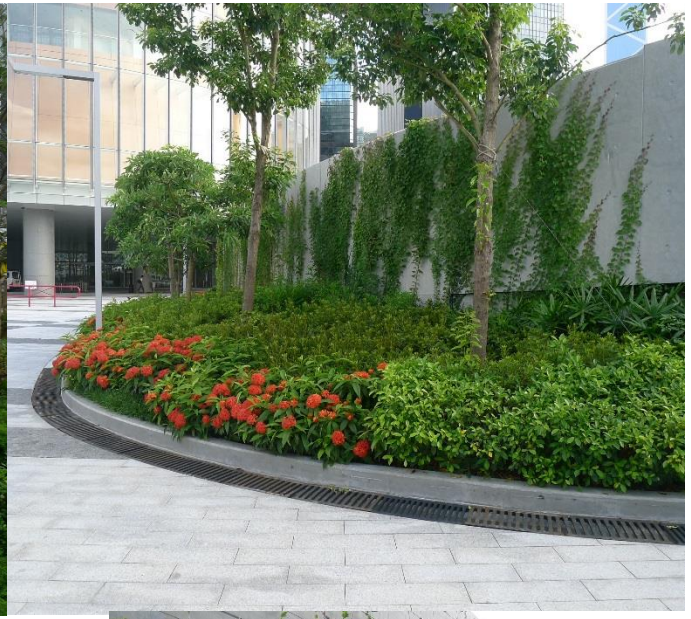
Climbers on Building Structure – Shatin STW



20210825 PLAP043 Reference Photo

Climbers on Building Structure – Tamar Park



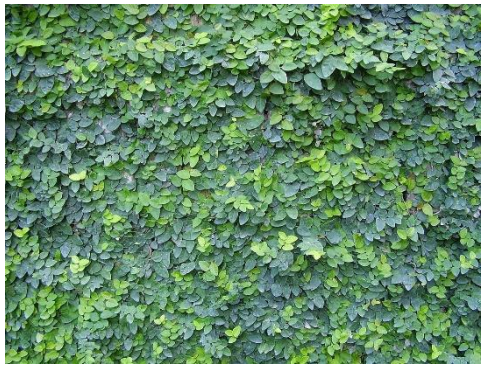


20210825 PLAP043 Reference Photo

Climbing and Trailing Plants


Bauhinia glauca (粉葉羊蹄甲)
Foliage: evergreen
Flowering time: April to June


Bougainvillea sp. (勒杜鵑)
Foliage: evergreen
Flowering time: Spring and Winter




Ficus pumila (薜荔)
Foliage: evergreen
Flowering time: April-December


Lonicera japonica (忍冬(金銀花))
Foliage: semi-deciduous
Flowering time: April

Climber (using trellis)

Climber (self clinging)

20210825 PLAP043 Reference Photo

Climbing and Trailing Plants

Parthenocissus tricuspidata (爬牆虎)
Foliage: deciduous
Flowering time: May to July

Petrea volubilis (藍花藤)
Foliage: evergreen
Flowering time: June to August

Trachelospermum jasminoides (絡石)
Foliage: evergreen
Flowering time: Feb-Jun

Quisqualis indica (red) (使君子 (紅))
Foliage: semi-deciduous
Flowering time: Summer

Climber (using trellis)

Climber (self clinging)

20210825 PLAP043 Reference Photo

Appendix E

Revised Traffic Impact Assessment

Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O

Traffic Impact Assessment Report
October 2021

HWSPB 何黃
Traffic & Transportation Consultants

Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O

Traffic Impact Assessment Report

October 2021

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LIST OF FIGURES

LIST OF APPENDICES

LIST OF ABBREVIATIONS

AOI	-	Area of Influence
BDTM	-	Base District Traffic Models
CKR	-	Central Kowloon Route
DFC	-	Design Flow / Capacity
EB	-	Eastbound
EVA	-	Emergency Vehicular Access
GV	-	Goods Vehicle
HWSPB	-	Ho Wang SPB Limited
LATM	-	Local Area Traffic Model
NB	-	Northbound
PTI	-	Public Transport Interchange
PJ	-	Priority Junction
PRLB	-	Private Light Bus
PVP	-	Public Vehicle Park
RA	-	Roundabout
RC	-	Reserve Capacity
SB	-	Southbound
SJ	-	Signalised Junction
STT	-	Short Term Tenancy
TD	-	Transport Department
TIA	-	Traffic Impact Assessment
TKO	-	Tseung Kwan O
TKO-LT	-	Tseung Kwan O - Lam Tin
TPEDM	-	Territorial Population and Employment Data Matrix
WB	-	Westbound

1. Introduction

1.1 Background

1.1.1 Transport Department (TD) intended to process the application for permission under Section 16 of the Town Planning Ordinance for the implementation of this proposed development of underground public vehicle park (PVP) (excluding container vehicle) in town park in Area 66, Tseung Kwan O (TKO).

1.1.2 Ho Wang SPB Ltd. (hereinafter as "HWSPB") is commissioned as the traffic consultant to conduct a traffic impact assessment (TIA) study for this S16 Planning Application.

1.2 Study Objectives

1.2.1 The objectives of this TIA study are as follows:

(a) Study the existing traffic conditions in the vicinity of the site;

(b) Conduct public car park study to demonstrate the existing car parking provision of the neighbourhood is capable to cope with the changes in provision caused by the proposed development;

(c) Conduct Short Term Tenancy (STT) Parking survey to record the day-time and night-time utilisation rates;

(d) Conduct Midnight Illegal on-street parking survey to identify the no. of illegal parked vehicles within the study area;

(e) Study the future transport plans in the area;

(f) Conduct vehicle traffic surveys to record the existing traffic conditions during AM and PM peak periods within the study area;

(g) Review the existing traffic and transport facilities in the vicinity of the development site including the capacities of critical junctions;

(h) Estimate the PVP traffic generation and attraction; and preparation of traffic forecast based on the latest available 2016-Based TPEDM from Planning Department's website and 2015-Based BDTM from Transport Department for various design scenarios; and

(i) Review the likely traffic impacts generated by the proposed PVP during operation phase within the study area under various design scenarios and develop traffic improvement schemes to mitigate any adverse impact; if necessary.

1.3 Structure of the Report

1.3.1 Following this introductory chapter describes the background and study objective, this TIA report focuses on the presentation and elaboration of the following key areas:

Chapter 2 - describes the proposed PVP, vehicular access arrangements and the proposed internal transport facilities provisions;

Chapter 3 - describes the baseline traffic surveys and the existing 2020 traffic conditions and junction performance in the AOI;

Chapter 4 - describes the traffic modelling assumptions and future traffic conditions;

Chapter 5 - describes the estimation of PVP traffic generations and the traffic impacts of the PVP within the study area;

Chapter 6 - summarises and concludes this TIA study findings.

2. The Proposed Development

2.1 Proposed Town Park and Public Vehicle Park

2.1.1 This proposed development will comprise of the following facilities:

Town Park at Area 66

- A landscaped garden with features
- A landscaped central pedestrian avenue connecting the waterfront to the Tseung Kwan O MTR Station
- A covered piazza for Tai Chi
- Fitness stations suitable for people of different ages including the elderly

Public Vehicle Park (PVP)

- An underground PVP to accommodate 395 parking spaces for various vehicles (i.e. 40 light goods vehicles, 10 light buses, 15 coaches, 300 private cars and 30 motorcycles together with PVP ancillary facilities for accommodating 3 car park operators)

2.2 Vehicular and EVA Access Arrangement

2.2.1 The vehicular access to this public vehicle park is via Po Yap Road.

2.2.2 The ingress/egress vehicles to the site will be operated via a left-in/left-out traffic arrangement as shown in **Figure 2.1**.

2.2.3 An EVA will also be provided within the site for fire-engine in case of emergency.

3. Existing Traffic Conditions

3.1 Area of Influence

3.1.1 The proposed Town Park and PVP is located at south of Tseung Kwan O Town Centre in TKO Area 66.

3.1.2 The site is surrounded by Po Yap Road to the north and Chi Shin Street to the south.

3.1.3 Chi Shin Street, Tong Yin Street and Tong Chun Street are connecting with Tseung Kwan O Town Centre in the south and Tseung Kwan O Town Centre in the north.

3.1.4 Po Yap Road plays an important role in connecting Tiu Keng Leng, Tseung Kwan O Town Centre and Wan Po Road.

3.1.5 Regarding to the future development in Tseung Kwan O Area, a future Tseung Kwan O-Lam Tin (TKO-LT) Tunnel provides an alternative connection to Tseung Kwan O and Kowloon. Part of the existing traffic between Tseung Kwan O and Eastern Harbour Crossing can travel via TKO-LT Tunnel without travelling through Tseung Kwan O Road and Lei Yue Mun Road.

3.1.6 The PVP development traffic can travel through TKO Tunnel, TKO-LT Tunnel to access the urban areas. The development traffic can also travel via Chiu Shun Road to TKO and Sai Kung areas.

3.1.7 The Area of Influence (AOI) has covered all the major junctions in Tseung Kwan O Town Centre as Shown in **Figure 3.1**.

3.1.8 The Key junctions for the traffic impact assessments are summarised in **Table 3.1**.

Table 3.1 – Key Junctions for Traffic Impact Assessment

No.	Location	Junction Type
J1	Wan Po Road / Chiu Shun Road / Po Yap Road	Roundabout
J2	Po Yap Road / Po Hong Road / Chi Shin Street	Roundabout
J3	Tong Chun Street / Chi Shin Street	Signalised
J4	Tong Yin Street / Chi Shin Street	Signalised
J5	Po Yap Road / Tong Yin Street	Signalised
J6	Po Yap Road / Po Shun Road / Chui Ling Road / Future Road P2	Signalised
J7	Po Shun Road / Tong Ming Street / King Ling Road	Roundabout
J8	Po Yap Road / Tong Chun Street	Signalised
J9	Po Hong Road / Tong Ming Street	Signalised
J10	Tong Yin Street / Tong Ming Street	Priority
J11	Tong Yin Street / Tong Tak Street	Signalised
J12	Tong Tak Street / Tong Chun Street	Signalised
J13	Tong Ming Street / Tong Chun Street	Signalised

3.2 Traffic Count Surveys

3.2.1 A traffic count survey was conducted at the 13 key junctions (shown in **Table 3.1)** during 0730~0930 and 1700~1900 for AM and PM peak hour periods on 27 and 28 October 2020. The base year data has been cross-checked with HWSPB's in-house survey data conducted in 2017 at junctions J1, J7 and J9. The peak hour traffic growths between the 2017 survey data and 2020 survey data were about 3.8% and 4.4% respectively. According to the ATC data from 2015 to 2019, the annual growth rate was about 3.1% and 3.7% during 2015~2019 and 2017~2019 respectively. Therefore, the 2020 survey results are considered in-line with the trend growth.

3.3 Existing Traffic Conditions

3.3.1 The 2020 base year traffic flows for the 13 key junctions are shown in **Figure 3.2**. The AM and PM peak hours within AOI are 0745~0845 and 1730~1830 respectively.

3.3.2 The performance of a signalised junction (SJ) is indicated by its reserve capacity (RC). An existing signalised road junction with a RC greater than 15% represents that the junction is operating satisfactorily.

3.3.3 The performance of priority junction (PJ) and roundabout (RA) is indicated by its design flow to capacity (DFC) ratio. The junction will be operating in desirable conditions with DFC equal to or less than 0.85.

3.3.4 The junction capacity assessments during the worst AM and PM peak hours have been assessed and the results of the junction performance are summarised in **Table 3.2**.

Table 3.2 – 2020 Base Year Junction Performance

No.	Location	Type	RC/DFC	
			AM	PM
J1	Wan Po Road / Chiu Shun Road / Po Yap Road	RA	0.77	0.56
J2	Po Yap Road / Po Hong Road / Chi Shin Street	RA	0.43	0.37
J3	Tong Chun Street / Chi Shin Street	SJ	53%	>100%
J4	Tong Yin Street / Chi Shin Street	SJ	84%	>100%
J5	Po Yap Road / Tong Yin Street	SJ	75%	>100%
J6	Po Yap Road / Po Shun Road / Chui Ling Road	SJ	66%	>100%
J7	Po Shun Road / Tong Ming Street / King Ling Road	RA	0.4	0.31
J8	Po Yap Road / Tong Chun Street	SJ	55%	74%
J9	Po Hong Road / Tong Ming Street	SJ	89%	>100%
J10	Tong Yin Street / Tong Ming Street	PJ	0.54	0.36
J11	Tong Yin Street / Tong Tak Street	SJ	95%	>100%
J12	Tong Tak Street / Tong Chun Street	SJ	42%	46%
J13	Tong Ming Street / Tong Chun Street	SJ	>100%	>100%

3.3.5 The junction assessment results show that all of the 13 key junctions are operating satisfactorily in both AM and PM peak hour periods.

3.4 Existing Public Transport Services

3.4.1 This site is well served by public transport facilities including franchised buses, GMBs and Tseung Kwan O MTR Station which are located within a 500m walking distance from the site.

3.4.2 The details of the franchised buses/GMB within a 500m catchment area from the site are summarised in **Table 3.3** and **Table 3.4** respectively.

Table 3.3 – Existing Franchised Bus Services in the Vicinity

Route No.	Destination	
91R	Clear Water Bay	Choi Ming
93M	Choi Ming PTI	Po Lam
290	Choi Ming PTI	Tsuen Wan West Station PTI
290A	Choi Ming PTI	Tsuen Wan West Station PTI
290B	Tseung Kwan O Industrial Estate	Tsuen Wan West Station PTI
290X	Lohas Park Station PTI	Tsuen Wan West Station PTI
296A	Sheung Tak	Ngau Tau Kok Station
296C	Sheung Tak	Cheung Sha Wan (Hoi Ying Estate)
296D	Sheung Tak	Kowloon Station
296M	Hong Sing Garden	Hang Hau Station
296P	Sheung Tak	Lai Chi Kok Station
694	Tiu Keng Leng Station PTI	Siu Sai Wan
792M	Tseung Kwan O Station PTI	Sai Kung

Table 3.3 – Existing Franchised Bus Services in the Vicinity – Cont'd

Route No.	Destination	
796C	Oscar by the Sea	So Uk
796E	Tseung Kwan O Industrial Estate	So Uk
796P	Lohas Park Station PTI	Tsim Sha Tsui East
796S	Tseung Kwan O Station PTI	Ngau Tau Kok Station
796X	Tseung Kwan O Industrial Estate	Tsim Sha Tsui East [Note: Tseung Kwan O Station PTI – Tsim Sha Tsui East is a special departure for 796X]
797M	Tseung Kwan O Station PTI	Tseung Kwan O Industrial Estate
798	Tiu Keng Leng Station PTI	Fo Tan (Chun Yeung Estate)
798B	Lohas Park Station PTI	Sha Tin Station / Sha Tin Town Centre
A29P	Tseung Kwan O Station PTI	Airport
E22A	Tseung Kwan O (Hong Sing Garden)	AsiaWorld-Expo Bus Terminus
E22C	Tseung Kwan O (Tiu Keng Leng Station PTI)	Airport (Aircraft Maintenance Area)
E22S	Tseung Kwan O (Po Lam)	Tung Chung (Mun Ting Estate)
N29	Tseung Kwan O (Hong Sing Garden)	Tung Chung Station Bus Terminus
N290	Tsuen Wan West Station PTI	Lohas Park Station PTI
N293	Sheung Tak	Mong Kok East Station
N691	Tiu Keng Leng	Central (HK – Macau Ferry Terminal)
N796	Tseung Kwan O Station PTI	Lohas Park (Wan Po Road)

(Note: Tsim Sha Tsui East (Chatham Road) – Lohas Park (Wan Po Road) and Tseung Kwan O Station PTI – Mong Kok (circular) are special departures of N796).

Table 3.4 – Existing GMB Services in the Vicinity

Route No.	Destination	
103M	Clear Water Bay	Tseung Kwan O Station PTI
107	Haven of Hope Hospital	Po Lam PTI
108A	Choi Ming PTI	Hang Hau (North)
110	Tiu Keng Leng Station PTI	Kowloon City
110A	Tiu Keng Leng Station PTI	Kowloon Bay (Kai Cheung Road)
112S	Tseung Kwan O Station PTI	Tseung Kwan O Industrial Estate
114A	Tseung Kwan O Station PTI	Ocean Wings
114B	Tiu Keng Leng Station PTI	Alto Residences

3.4.3 Public can easily access to the town park via walking and/or by these nearby convenient public transport services.

3.4.4 The locations of the nearby public transport facilities are shown in **Figure 3.3**.

4. Transport Modelling and Forecasts

4.1 Traffic Impact Assessment Scenarios

4.1.1 According to requirement of the studies, the design year and various testing scenarios for this TIA study are summarised in **Table 4.1**.

Table 4.1 – TIA Design Year and Scenarios

Design Year	Scenario	Proposed PVP	CKR and Road T2
2026	Reference	Without	With
2026	Design	With	With
2029	Reference	Without	With
2029	Design	With	With
Sensitivity Test			
2026	Reference	Without	Without
2026	Design	With	Without

4.2 Traffic Model Development

4.2.1 According to Clause 5.2.11 in the Technical Brief, local TIA was conducted using the Local Area Traffic Model (LATM) developed based on the Transport Department's latest 2015-based NTE2 Base District Traffic Models (BDTM). The traffic behaviour at junctions including junction delays, traffic queues and platoon effects are taken into account in a combined traffic simulation and assignment process. The LATM serves as a design tool for developing traffic forecasts for traffic impact assessments to be carried out under this Assignment. The LATM was used to produce the AM and PM peak traffic flows within the AOI.

4.2.2 As advised by Planning Department, Territorial Population and Employment Data Matrix (TPEDM) is primarily for government departments undertaking projects for strategic, sub-regional or district planning purposes. In consideration of the local traffic impact induced by the proposed development, the LATM will be adopted as the traffic model for this Assignment in accordance with the Technical Brief.

4.2.3 The AOI located in Tseung Kwan O is covered by BDTM NTE2. The LATM was developed based on BDTM NTE2. Upon refinement on the traffic zones and road network in BDTM, LATM for 2020 base year was validated based on 2020 base year traffic flows to ensure the forecasting strength of the LATM.

4.2.4 The LATM validation framework is the same as those for the BDTMs listed in **Table 4.2**. A combination of percentage difference and GEH statistics was adopted for assessing the level of accuracy of the model validation.

Table 4.2 – Validation Guidelines for LATM

Validation Criteria	Validation Target
Total Screenline Flows	100% within ±10%
All Count Locations	GEH 5 or less on 85% of links GEH 10 or less on 100% of links
Local distributors and roads of higher classes in the hierarchy and at the intersections of these roads	
Screenline Link Flows	85% within ±10% 100% within ±20%

4.2.5 A generally accepted validation criterion was to achieve ±10% for the screenlines and major links. However, recognising that percentage difference only assesses relative error and were often misleading due to numbers of relatively small magnitude, the GEH statistic was primary employed to assess validation. GEH was defined below:

$$GEH = \sqrt{\frac{(V_2 - V_1)^2}{0.5 \times (V_1 + V_2)}}$$

where V1 and V2 were the observed and modelled flows on a specific link. It was used in order to reflect the difference based on the total volume on a link. If percentages alone were examined then there was a risk of very large percentage differences in small flow volumes appearing important when they were not. Use of the GEH statistic would remove this risk by reducing the significance of relatively large percentage differences between two small numbers.

4.2.6 The LATM validation results for AM and PM peaks on the entry and exit arms of all key junctions are summarised in **Appendix A**. 85% of entry and exit arms of key junctions have GEH error of 5 or less and 100% of entry and exit arms have GEH error of 10 or less so all the criteria regarding the GEH error are satisfied. The results indicate that the base year LATM satisfactorily replicates the base year observed traffic flows so the LATM is robust to carry out traffic forecast.

4.2.7 To update the BDTM in 2026, any adjustments made in the validation process have been carried forward for the 2026 BDTM. For projection of traffic flows to 2029 design years, appropriate growth factors have been derived from the existing public accessible source and apply to the 2026 BDTM. Additional traffic trips from planned/committed developments to be completed before the design year have been added to derive design year matrices. The road networks of 2026 and 2029 have been updated by incorporating the relevant infrastructure within the AOI accordingly.

4.2.8 As TPEDM is primarily for government departments undertaking projects for strategic, sub-regional or district planning purposes, this local TIA reviewed several public accessible sources for derivation of growth factor to update the matrix from year 2026 to 2029. The growth factors from various sources are shown in **Table 4.3**.

Table 4.3 – Growth Factors Information

Information	District	Annual Growth Rates	
		2021/2025-2026	2026-2028
Projections of Population Distribution 2019-2028 by Planning Department	Sai Kung	1.1% [(a)] / 0.5% [(b)]	1.9%
2016 – based Territorial Population and Employment Data Matrix by Planning Department	Tseung Kwan O	0.8% [(a) (c)] / 0.6% [(a) (d)]	-
2015-based Base District Traffic Model Assigned Trips	NTE2	1.5% [(a)]	-
Adopted Growth Rate		2025-2026: 0.5%	2026-2028: 1.9%

Note:
(a) annual growth rate from 2021 to 2026
(b) annual growth rate from 2025 to 2026
(c) population growth rate
(d) employment growth rate

4.2.9 As shown in **Table 4.3**, Projections of Population Distribution shows that the annual growth rate for 2026 to 2028 is 1.9%. In a conservative approach, it is assumed a nominal growth for 2028 to 2029. Hence, the derivation of 2029 design year matrix will adopt a 1.9% annual growth from 2026 design year matrix.

4.2.10 The design year infrastructure assumption includes the proposed Route 6 which formed by Central Kowloon Route (CKR), Trunk Road T2 and Tseung Kwan O – Lam Tin Tunnel (TKO-LTT) and Cross Bay Link. This infrastructure assumption is in line with the 2026 BDTM by TD. To conduct sensitivity test of without Trunk Road T2, reference has been made to Legislative Council Paper "PWSC(2018-19)45" regarding Trunk Road T2. The Trunk Road T2 and the Cha Kwo Ling Tunnel forms the middle section of Route 6 connecting CKR to the west and TKO-LTT to the east. With the completion of Trunk Road T2, the usage of TKO-LTT will be increased by 30%. The sensitivity test will base on this assumption to update the cordon flows at Tseung Kwan O Tunnel and TKO-LTT to reflect the traffic distribution under without Trunk Road T2 scenario.

4.3 Vehicle Trip Generation

4.3.1 As no trip generation rates related to carpark in TPDM, trip generation surveys have been conducted for the estimation of trip generation from proposed PVP during AM and PM peak hours.

4.3.2 Considering the proposed location of PVP, vehicle trip generation surveys have been conducted in the nearby Short Term Tenancy (STT) carpark and existing STT carpark in TKO area 66, (STT5148 and STT5109).

4.3.3 Before the start of survey, numbers of parked vehicle by vehicle type have been recorded. Numbers of entering vehicle and leaving vehicle have been recorded by vehicle type during the peak hours. The trip rate surveys results have been summarised in **Table 4.4** and adopted trip rate have been summarised in **Table 4.5**.

4.3.4 For conservative approach, it is assumed the proposed PVP is fully occupied and the trip rates are based on parked vehicle. The highest trip rate is adopted amongst the results from STT5148 and STT5109.

Table 4.4 – Trip Rate Result in STT5148 and STT5109

Vehicle Type	STT5148				STT5109			
	Trip Rate (pcu/hr/parked vehicle)				Trip Rate (pcu/hr/parked vehicle)			
	Generation		Attraction		Generation		Attraction	
	AM	PM	AM	PM	AM	PM	AM	PM
PC[(1)]	0.0932	0.1194	0.0763	0.1194	0.1114	0.0657	0.0470	0.1200
MC	-	-	-	-	0.1154	0.2500	0.1154	0.5000
LGV	-	0.7500	-	-	0.6346	0.2778	0.1731	0.6111
Coach	-	-	-	-	-	-	-	-
LB	-	-	-	-	-	-	-	1.0000

(1) including Private Car, Taxi and Van-type LGV

Table 4.5 – Adopted Trip Rate for Proposed PVP

Vehicle Type	Adopted			
	Trip Rate (pcu/hr/parked vehicle)			
	Generation		Attraction	
	AM	PM	AM	PM
PC [(1)]	0.1114	0.1194	0.0763	0.1200
MC	0.1154	0.2500	0.1154	0.5000
LGV	0.6346	0.7500	0.1731	0.6111
Coach[(2)]	0.2224	0.8890	1.0000	1.0000
LB[(2)]	0.1334	0.5334	0.6000	1.0000

(1) including Private Car, Taxi and Van-type LGV
(2) Since there is no coach and LB currently using the existing STT parking site, the trip rate for the LB and coach adopted HWSPB's in-house data in the STT parking site in Kwai Chung.

4.3.5 According to the parking provision stated in the Brief and the adopted trip rate as shown in **Table 4.5**, the trip generation and attraction for proposed PVP are summarised in **Table 4.6**.

Table 4.6 – Trip Generation and Attraction for Proposed PVP

Vehicle Type	Provision in Proposed PVP	Proposed PVP			
		Generation (pcu/hr)		Attraction (pcu/hr)	
		AM	PM	AM	PM
PC[(1)]	300	33	36	23	36
MC	30	3	8	3	15
LGV	40	25	30	7	24
Coach	15	3	13	15	15
LB	10	1	5	6	10
Total	**395**	**65**	**92**	**54**	**100**

(1) including Private Car, Taxi and Van-type LGV

4.4 Redistribution of Car Park Traffic

4.4.1 Since the number of private car parking spaces in the proposed PVP will be less than the existing STT car park as shown in **Table 4.7**, some car park traffic will be redistributed to the adjacent car parks.

Table 4.7 – Difference in Provision Between Proposed PVP and Existing STT

Vehicle Type	No. of Provision		Difference [c] = [a] – [b]
	Proposed PVP [a]	Existing STT Car Park STT5109 [b]	
PC[(1)]	300	742	-442
MC	30	24	6
LGV	40	22	18
Coach	15	-	15
LB	10	-	10

[(1)] including Private Car, Taxi and Van-type LGV

4.4.2 There will be two public vehicle parks in the vicinity including Joint-user Building (JUB) and Joint-user Complex (JUC) in Area 67. Both JUB and JUC with provision of PVP to cater the parking demand in future. Therefore, the junction performance is assessed by assuming that the parking demand is to be absorbed by PVPs in Area 66 (this project), JUB and JUC in Area 67.

4.4.3 For conservative approach, it is assumed the existing STT carpark in TKO area 66 is fully occupied. As shown in **Table 4.7**, the number of private car parking spaces will be reduced by 442. The affected number of trips will be estimated based on the number of vehicles parking space and adopted trip rates shown in **Table 4.5**. The additional numbers of trips to/from adjacent car park are summarised in **Table 4.8**.

Table 4.8 – Number of Trips To/From Adjacent Car Park

Vehicle Type	Reduction in Provision	Adopted Trip Rate (pcu/hr/parked vehicle)				No. of Trip (pcu/hr)			
		Generation		Attraction		Generation		Attraction	
		AM	PM	AM	PM	AM	PM	AM	PM
PC [(1)]	442	0.1114	0.1194	0.0763	0.1200	49	53	34	53

[(1)] including Private Car, Taxi and Van-type LGV

4.5 Major Developments in the Vicinity of the Proposed PVP

4.5.1 In additional to the proposed PVP, other major developments in Tseung Kwan O are also included for this study.

4.5.2 A list of other planned / committed developments in the vicinity is shown in **Table 4.9**.

Table 4.9 – Planned and Committed Developments in the Vicinity

No.	Location	Type	Development Parameter	Construction Period	Assumed/ Tentative Completion Year	Traffic Generation AM(PM)	Traffic Attraction AM(PM)
1	West of Yau Yue Wan Village	Public Housing	2,700 Flats	2023~2027	2027	170(80)	120(110)
2	Northwest of Ying Yip Road	Public Housing	1,730 Flats	2023~2027	2027	110(50)	75(70)
3	East of Hong Kong Movie City	Public Housing	3,140 Flats	2023~2027	2027	200(95)	140(130)
4	Chiu Shun Road	Public Housing	564 Flats	2020~2024	2024	40(20)	25(25)
5	Wan Po Road, Area 85, Tseung Kwan O, New Territories	Data Centre	67,584~ 112,640 m^2 GFA	-	2022	6(13)	13(6)
6	LOHAS Park Remaining Phase	Private Housing	2,273 Flats	-	-	163(65)	97(84)
7	LOHAS Park Phase XII		2,000 Flats	-	2026	144(57)	85(74)
8	LOHAS Park Phase XI		1,850 Flats	-	2025	133(53)	74(68)
9	LOHAS Park Phase X		1,170 Flats	-	2022	84(33)	50(43)
10	LOHAS Park Phase IXC Ocean Marini		503 Flats	2018~2022	2022	36(14)	21(19)
11	LOHAS Park Phase IXB Grand Marini		503 Flats	2018~2022	2022	36(14)	21(19)
12	LOHAS Park Phase IXA Marini		647 Flats	2018~2022	2021	46(19)	27(24)
13	LOHAS Park Phase VIII Sea to Sky		1,422 Flats	2018~2021	2021	102(41)	60(53)
14	LOHAS Park Phase VIIB Grand Montara		504 Flats	-	2021	36(14)	21(19)
15	LOHAS Park Phase VIIA Montara		616 Flats	-	2021	44(18)	26(23)
16	LOHAS Park Phase VI LP6		2,392 Flats	2017~2020	2020	172(68)	102(89)
17	LOHAS Park Phase VA Malibu		1,600 Flats	2017~2020	2020	115(46)	68(59)
18	LOHAS Park Phase IVB Wings At Sea II		1,132 Flats	-	2018	81(32)	48(42)
19	LOHAS Park Phase IVA Wings At Sea		1,041 Flats	-	2018	75(30)	44(39)
20	LOHAS Park Phase III Hemera		1,678 Flats	-	2014	120(48)	71(62)
21	LOHAS Park Phase IIC La Splendeur		1,168 Flats	-	2012	84(33)	50(43)
22	LOHAS Park Phase IIB Le Prime		1,416 Flats	-	2011	102(40)	60(52)
23	LOHAS Park Phase IIA Le Prestige		1,688 Flats	-	2010	121(48)	72(62)
24	LOHAS Park Phase I The Capitol		2,097 Flats	-	2008	151(60)	89(78)
	The LOHAS (Retail)		44,500m^2 GFA			103(109)	138(159)
25	48 Chui Ling Road	Subsidised Housing	330 Flats	2017~2020	2020	21(10)	14(13)
26	Joint-user Government Office Building and Immigration Headquarters in Area 67, Tseung Kwan O	G/IC	194,200 m^2 GFA	2020-2025	2025	331(305)	476(228)
27	MTR Pak Shing Kok Ventilation Building at Chiu Shun Road	Private Housing	432 Flats	2021~2029	2029	51(51)	29(29)
28	Shek Kok Road in Area 85, Tseung Kwan O	Private Housing	1,369 Flats	-	2026	138(55)	80(75)
29	Government Laboratory in Area 85	G/IC	20,000 m^2 NOFA	-	2026	20(20)	20(20)

No.	Location	Type	Development Parameter	Construction Period	Assumed/ Tentative Completion Year	Traffic Generation AM(PM)	Traffic Attraction AM(PM)
30	Rank and File Quarters Units for Fire Services Department in Area 106, Tseung Kwan O	G/IC	648 Flats 38,530 m^2 Total Floor Area	-	2026	47(19)	28(24)
31	Departmental Quarters for Fire Services Department with Fire Station and Ambulance Depot in Area 72, Tseung Kwan O	G/IC	132 Flats 6,340 m^2 Non-domestic GFA	2021-2024	2024	9(4)	6(5)
32	Departmental Quarter for Customs & Excise Department	G/IC	306 Flats 19,722 m^2 Non-domestic GFA	-	2026	22(9)	13(11)
33	First Stage of Tseung Kwan O Desalination Plant, Area 137	Industrial	8-hectare	-	2023	Included in 2015-based BDTM	
34	Proposed Ancillary Building of Cross Bay Link	Office	-	-	2022	15(15)	15(15)
35	Proposed Chinese Medicine Hospital, Wan Po Road/ Pak Shing Kok Road	G/IC	400 beds	-	2024/2025	124(174)	156(104)
36	Proposed Government Chinese Medicine Testing Centre, Area 78	G/IC	Site area 17,200 m^2	-	2024	22(39)	39(22)
37	Joint-user Complex in Area 67	G/IC	6,000 m^2 Site Area	-	2026	15(15)	15(15)

Note:
Items 1 to 4: SKDC(M) Document No. 150/19. Development parameter for item 4 from planning brief by Planning Department.
Item 5: Land sales record 2018/2019. The completion year is estimated based on the existing data centre from land sales record to completion last for 4 years.
Item 6: The Remaining Package is estimated by subtracting the total number of completed/planned residential units in LOHAS Park (23,427 residential units) from the total residential units in the Approved Scheme (25,700 residential units) under Planning Application No. A/TKO/98-1 (Available at: https://www1.ozp.tpb.gov.hk/gist/apply/en_tc/A_TKO_98-1_TC.pdf).
Items 10 to 12 and 14 to 17: squarefoot.com.hk [accessed 29 May 2020]
Item 13: Sales Brochure of Phase VIII of LOHAS Park (Sea to Sky) dated 27.5.2020 (Available at: https://www.seatosky.hk/filemanager/pdf/STSSB_CoverP88.pdf).
Item 14: Outline Zoning Plan from Town Planning Board. Application No.: A/TKO/99-1.
Item 25: Sales Brochure of Mount Verdant dated 11.10.2017 (Available at: http://www.mountverdant.hkhs.com/en/#Sales-Brochure).
Item 26: Planning Application No. A/TKO/99-1 (Available at: https://www1.ozp.tpb.gov.hk/gist/apply/en_tc/A_TKO_99-1_TC.pdf). The construction year is available at https://www.legco.gov.hk/yr19-20/english/fc/pwsc/papers/p20-05e.pdf
Item 27: Rural and New Town Planning Committee Paper No. 2/20 (Available at: https://www.info.gov.hk/tpb/en/papers/RNTPC/648-rntpc_2-20.pdf).
Item 28: Planning Application No. A/TKO/107-1 (Available at: https://www1.ozp.tpb.gov.hk/gist/apply/en_tc/A_TKO_107-1_TC.pdf).
Item 29: SKDC(M) Document No. 95/18 (Available at: https://www.districtcouncils.gov.hk/sk/doc/2016_2019/tc/dc_meetings_doc/14297/SK_2018_095_TC.pdf).
Item 30: Planning Application No. A/TKO/105-1 (Available at: https://www1.ozp.tpb.gov.hk/gos/download.aspx?type=apply&caseno=A/TKO/105-1&lang=0).
Item 31: Planning Application No. A/TKO/120 (Available at: https://www1.ozp.tpb.gov.hk/gist/apply/en_tc/A_TKO_120_TC.pdf). RNTPC agreed to defer a decision on the application on 6.3.2020. The construction year is available at https://www.districtcouncils.gov.hk/sk/doc/2020_2023/en/dc_meetings_doc/18053/SK_2020_147_EN.pdf
Item 33: https://www.wsd.gov.hk/en/core-businesses/major-infrastructure-projects/tko-desalination-plant/index.html ; https://www.legco.gov.hk/yr17-18/english/panels/dev/papers/dev20180424cb1-825-4-e.pdf
According to Appendix P of the 2015-based BDTM report, the trips of planned development is included in 2015-based BDTM.
Item 34: https://www.cedd.gov.hk/eng/our-projects/major-projects/index-id-72.html; A nominal traffic of 15pcu/hr is assumed.
Item 35: https://www.fhb.gov.hk/en/chinese_medicine/about_cmh/index.html ; https://www.fhb.gov.hk/download/press_and_publications/otherinfo/160115_chinese_medicine_hospital/e_invitation.pdf
Item 36: https://www.legco.gov.hk/yr19-20/english/panels/hs/hs_dcm/papers/hs_dcm20200608cb2-1142-3-e.pdf; https://www.legco.gov.hk/yr20-21/english/panels/hs/papers/hs20210409cb4-707-5-e.pdf

Item 37: https://www.districtcouncils.gov.hk/sk/doc/2020_2023/en/dc_meetings_doc/18052/SK_2020_085_EN.pdf; Since the site is mainly for municipal, medical and welfare facilities, it is expected to induce minimal trips during the peak hours and assumed a nominal trip of 15 pcu/hr.

5. Design Year Traffic Conditions

5.1 Operation Traffic Impact Assessment

5.1.1 Based on the design year traffic flows at key junctions, the performances of the 13 key junctions during peak hours are assessed and shown in **Table 5.1**.

5.1.2 The 2026 and 2029 design year traffic flows for reference and design are shown in **Figures 5.1** to **5.4**.

5.1.3 According to the information from CEDD, road improvement works are proposed under Contract No. NE/2017/02 for J5 and J6. The junction assessments considered the proposed improvement works by CEDD.

Table 5.1 – Design Year Junction Performance

No.	Location	Type	2026				2029			
			Reference		Design		Reference		Design	
			AM	PM	AM	PM	AM	PM	AM	PM
J1	Wan Po Road / Chiu Shun Road / Po Yap Road	RA	0.82	0.58	0.80	0.58	0.85	0.64	0.84	0.64
J2	Po Yap Road / Po Hong Road /Chi Shin Street	RA	0.48	0.43	0.49	0.45	0.49	0.45	0.50	0.47
J3	Tong Chun Street / Chi Shin Street	SJ	31%	41%	34%	42%	22%	34%	25%	35%
J4	Tong Yin Street / Chi Shin Street	SJ	18%	32%	16%	41%	17%	23%	15%	30%
J5	Po Yap Road / Tong Yin Street	SJ	19%	14%	15%	7%	15%	9%	10%	4%
J6	Po Yap Road / Po Shun Road / Chui Ling Road	SJ	30%	47%	29%	44%	23%	42%	21%	39%
J7	Po Shun Road / Tong Ming Street	RA	0.56	0.51	0.59	0.51	0.62	0.54	0.62	0.54
J8	Po Yap Road / Tong Chun Street	SJ	27%	56%	24%	51%	22%	48%	19%	44%
J9	Po Hong Road / Tong Ming Street	SJ	82%	99%	82%	99%	76%	88%	76%	88%
J10	Tong Yin Street / Tong Ming Street	PJ	0.66	0.47	0.72	0.55	0.68	0.49	0.74	0.57
J11	Tong Yin Street / Tong Tak Street	SJ	24%	62%	19%	49%	24%	56%	19%	44%
J12	Tong Tak Street / Tong Chun Street	SJ	29%	31%	29%	31%	22%	23%	22%	23%
J13	Tong Ming Street / Tong Chun Street	SJ	96%	100%	96%	100%	89%	92%	89%	92%

5.1.4 Since additional car park traffic will be induced to adjacent car park, junctions in the vicinity of adjacent car parks will be affected. Performances of junctions (J1), and (J3) will be improved due to the relocation of vehicular access of existing STT car park to Po Yap Road for proposed PVP.

5.1.5 Based on the assessment results shown above, J5 will operate at below satisfactory level in design years.

5.1.6 Improvement scheme for (J5) have been designed in signalised junctions with staggered pedestrian crossing on the southern arm and western arm at Tong Yin Street and Po Yap Road respectively to improve the junction performance. Traffic signals and street furniture will need to be reprovided accordingly. The method of control will be modified to take into account the staggered pedestrian crossing arrangement to improve the junction performance as shown in **Appendix B**. The improvement scheme for (J5) is shown in **Figure 5.5**. The result of J5 performance under the proposed improvement scheme is shown in **Table 5.2**.

Table 5.2 –Design Year Junction Performance with Improvement Schemes

No.	Location	Type	2026 Design				2029 Design			
			Without Improvement		With Improvement		Without Improvement		With Improvement	
			AM	PM	AM	PM	AM	PM	AM	PM
J5	Po Yap Road / Tong Yin Street	SJ	14%	7%	33%	30%	10%	4%	28%	26%

5.2 Sensitivity Test

5.2.1 Sensitivity test is required to investigate the implications on Programme of Trunk Road T2 and Central Kowloon Route (CKR) as stated in **Table 4.1.** The major road infrastructure projects under construction in Kowloon East areas are the Trunk Road T2 and CKR which are targeted for commissioning by 2026 and 2025 respectively.

5.2.2 Possible programme slippage in the commissioning years of these projects may affect the traffic connectivity between TKO and Kowloon West. Thus, sensitivity review has been conducted on the potential traffic impact.

5.2.3 According to the PWSC Paper (2018-19)45 for Trunk Road T2 and Cha Kwo Ling Tunnel Project, the usage of the TKO-LT Tunnel would be increased by 30% upon the completion of the whole Route 6.

5.2.4 The results of sensitivity test and traffic flows (with and without CKR / T2) and shown in **Table 5.3** and the corresponding traffic flows are shown in **Figure 5.6** to **5.7**.

Table 5.3 – Sensitivity Test Result

No.	Location	Type	2026							
			With CKR / T2				Without CKR / T2			
			Reference		Design		Reference		Design	
			AM	PM	AM	PM	AM	PM	AM	PM
J1	Wan Po Road / Chiu Shun Road / Po Yap Road	RA	0.82	0.58	0.80	0.58	0.88	0.60	0.87	0.59
J2	Po Yap Road / Po Hong Road / Chi Shin Street	RA	0.48	0.43	0.49	0.45	0.49	0.43	0.50	0.45
J3	Tong Chun Street / Chi Shin Street	SJ	31%	41%	34%	42%	25%	36%	27%	37%
J4	Tong Yin Street / Chi Shin Street	SJ	18%	32%	16%	41%	24%	37%	21%	46%
J5[(1)]	Po Yap Road / Tong Yin Street	SJ	19%	14%	15% (33%)	7% (30%)	29%	22%	23% (43%)	11% (35%)
J6	Po Yap Road / Po Shun Road / Chui Ling Road	SJ	30%	47%	29%	44%	36%	56%	35%	53%
J7	Po Shun Road / Tong Ming Street	RA	0.56	0.51	0.59	0.51	0.59	0.56	0.59	0.56
J8	Po Yap Road / Tong Chun Street	SJ	27%	56%	24%	51%	30%	58%	27%	53%
J9	Po Hong Road / Tong Ming Street	SJ	82%	99%	82%	99%	72%	>100%	72%	113%
J10	Tong Yin Street / Tong Ming Street	PJ	0.66	0.47	0.72	0.55	0.64	0.52	0.70	0.60
J11	Tong Yin Street / Tong Tak Street	SJ	24%	62%	19%	49%	26%	58%	21%	46%
J12	Tong Tak Street / Tong Chun Street	SJ	29%	31%	29%	31%	27%	31%	27%	31%
J13	Tong Ming Street / Tong Chun Street	SJ	96%	100%	96%	100%	93%	105%	93%	105%

Note: Junction performance with improvement schemes have been shown in parentheses.

5.2.5 Most of the junctions could operate at satisfactory level except (J5) and (J1) in Reference scenario. In consideration of additional traffic flows to use TKO Tunnel under without CKR/T2 scenario, additional traffic will travel via Po Yap Road to Wan Po Road.

5.2.6 In Design scenario, (J1) could operate at satisfactory level due to the changes of vehicular access location from Chi Shin Street at existing STT in TKO area 66 to Po Yap Road for proposed PVP.

5.2.7 Since the design of vehicular access of proposed PVP design is left-turn/left-out enhancement at Po Yap Road, it will be more convenient for the development traffic to travel via Po Yap Road, Po Shun Road to Tseung Kwan O Tunnel.

5.3 Construction Traffic Impact Assessment

5.3.1 The details of the construction traffic volume like cut and fill etc. arising from the excavation works will be determined at the next stage of the study as there are no Contractor and Quantity Surveyor on-board at this Planning stage.

5.3.2 A preliminary Construction Traffic Impact Assessment has been conducted assuming there will be 20 nos. of construction vehicles (one-way/hour) (i.e. 50pcu/hour) to/from the site. The construction traffic would access to the nearest South East New Territories (SENT) Landfill. The results of Construction Traffic Impact are summarised in **Table 5.4**.

Table 5.4 - Design Year Junction Performance for Construction Stage

No.	Location	Type	2026			
			Reference		Construction Stage	
			AM	PM	AM	PM
J1	Wan Po Road / Chiu Shun Road / Po Yap Road	RA	0.88	0.60	0.91	0.62
J2	Po Yap Road / Po Hong Road /Chi Shin Street	RA	0.49	0.43	0.50	0.45
J3	Tong Chun Street / Chi Shin Street	SJ	25%	36%	18%	28%
J4	Tong Yin Street / Chi Shin Street	SJ	24%	37%	24%	37%
J5	Po Yap Road / Tong Yin Street	SJ	29%	22%	29%	22%
J6	Po Yap Road / Po Shun Road / Chui Ling Road	SJ	36%	56%	36%	56%
J7	Po Shun Road / Tong Ming Street	RA	0.59	0.56	0.59	0.56
J8	Po Yap Road / Tong Chun Street	SJ	30%	58%	27%	54%
J9	Po Hong Road / Tong Ming Street	SJ	72%	113%	72%	113%
J10	Tong Yin Street / Tong Ming Street	PJ	0.64	0.52	0.70	0.60
J11	Tong Yin Street / Tong Tak Street	SJ	26%	58%	26%	58%
J12	Tong Tak Street / Tong Chun Street	SJ	27%	31%	27%	31%
J13	Tong Ming Street / Tong Chun Street	SJ	93%	105%	93%	105%

5.3.3 The results of junction assessment during construction stage shown that (J1) will operate beyond satisfactorily level with DFC 0.85. Subject to the detailed construction traffic impact assessment to be carried out prior to the commencement of construction works, the construction traffic can be restricted to non-peak hours in weekday and the exact hours for construction traffic generation can also be determined in the construction stage once the detailed construction-related information is available.

6. Summary and Conclusions

6.1 Summary

6.1.1 Transport Department intended to process the application for permission under Section 16 of the Town Planning Ordinance for the implementation of this proposed development of underground public vehicle park (PVP)(excluding container vehicle) in town park in Area 66, Tseung Kwan O (TKO).

6.1.2 This proposed development will comprise of an underground Public Vehicle Park to accommodate 395 parking spaces for various vehicles. The ingress/egress vehicles to the site will be operated via a left-in/left-out traffic arrangement at Po Yap Road.

6.1.3 The PVP development traffic can travel through TKO Tunnel, TKO-LT Tunnel to access the urban areas. The development traffic can also travel via Chiu Shun Road to TKO and Sai Kung areas.

6.1.4 This site is well served by public transport facilities including franchised buses, GMBs and Tseung Kwan O MTR Station which are located within a 500m walking distance from the site.

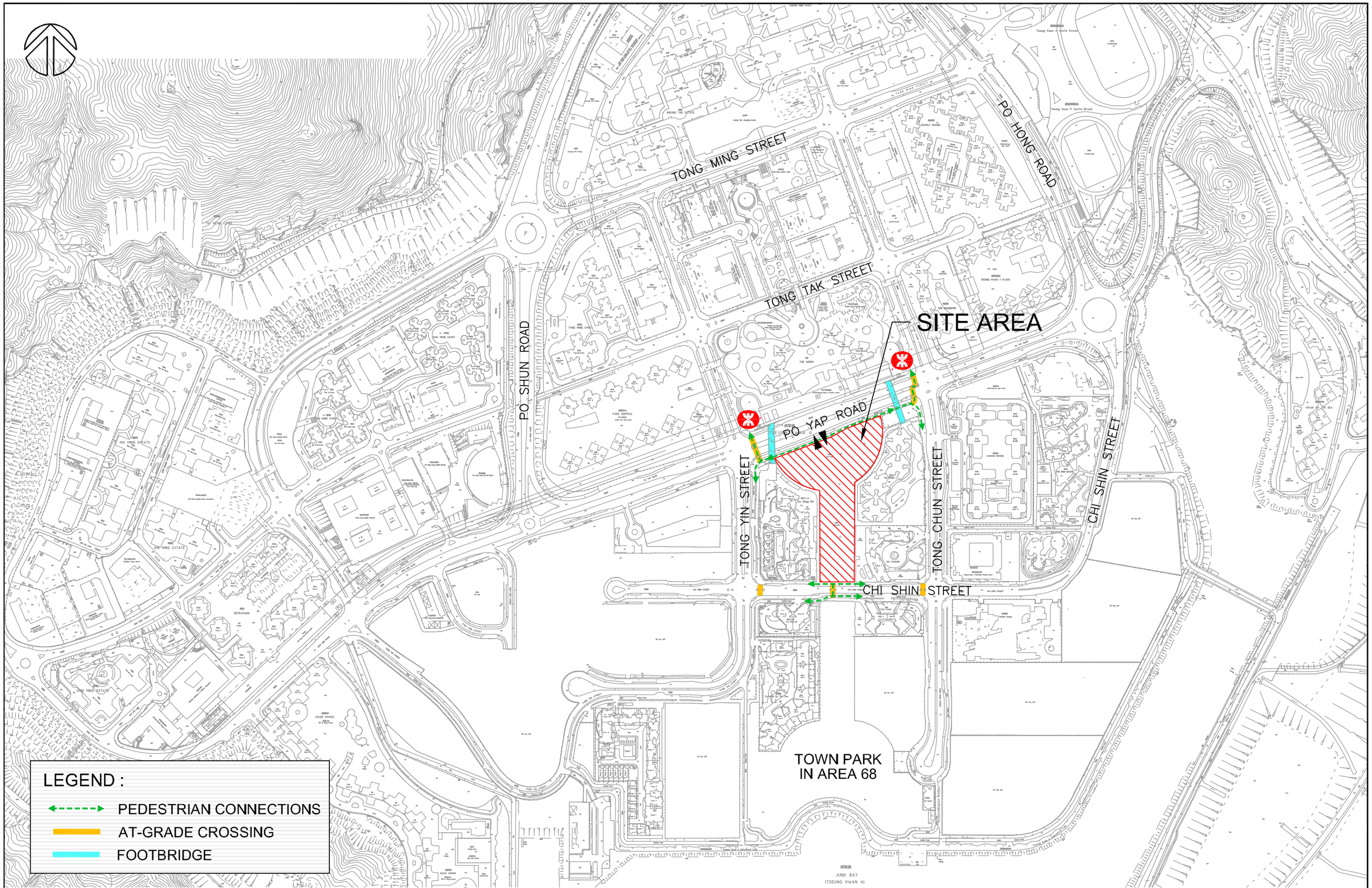
6.1.5 For conservative approach, it is assumed the proposed PVP is fully occupied and the trip rates are based on parked vehicle. Since the number of parking spaces in the proposed PVP will be less than the existing STT car park, some car park traffic will be redistributed to the adjacent car parks.

6.1.6 Since additional car park traffic will be induced to adjacent car park, junctions in the vicinity of adjacent car parks will be affected. Performances of junctions (J1), and (J3) will be improved due to the relocation of vehicular access of existing STT car park to Po Yap Road for proposed PVP. Based on the junction assessment results, modification scheme for J5 has been proposed to improve the junction performance. With the proposed junction modifications, all junctions will be operating satisfactorily in design years.

6.2 Conclusion

6.2.1 The results of this assessment show that the proposed PVP and Town Park in TKO Area in 66 would generate minimal traffic impact and it is technically feasible from traffic engineering point of view at this stage.

FIGURES



HWSPB 何黃
Traffic & Transportation Consultants
Ho Wang SPB Limited

Project Title: PROPOSED UNDERGROUND PUBLIC VEHICLE PARK (EXCLUDING CONTAINER VEHICLE) IN TOWN PARK IN AREA 66, TSEUNG KWAN O	Scale: 1 : 5000	Date: MAR 2021	Figure No.: 2.1
Figure Title: SITE LOCATION	Project No.: J1598	CAD Ref.: J1598/TIA1/F21/2021-10-11	Rev.: –

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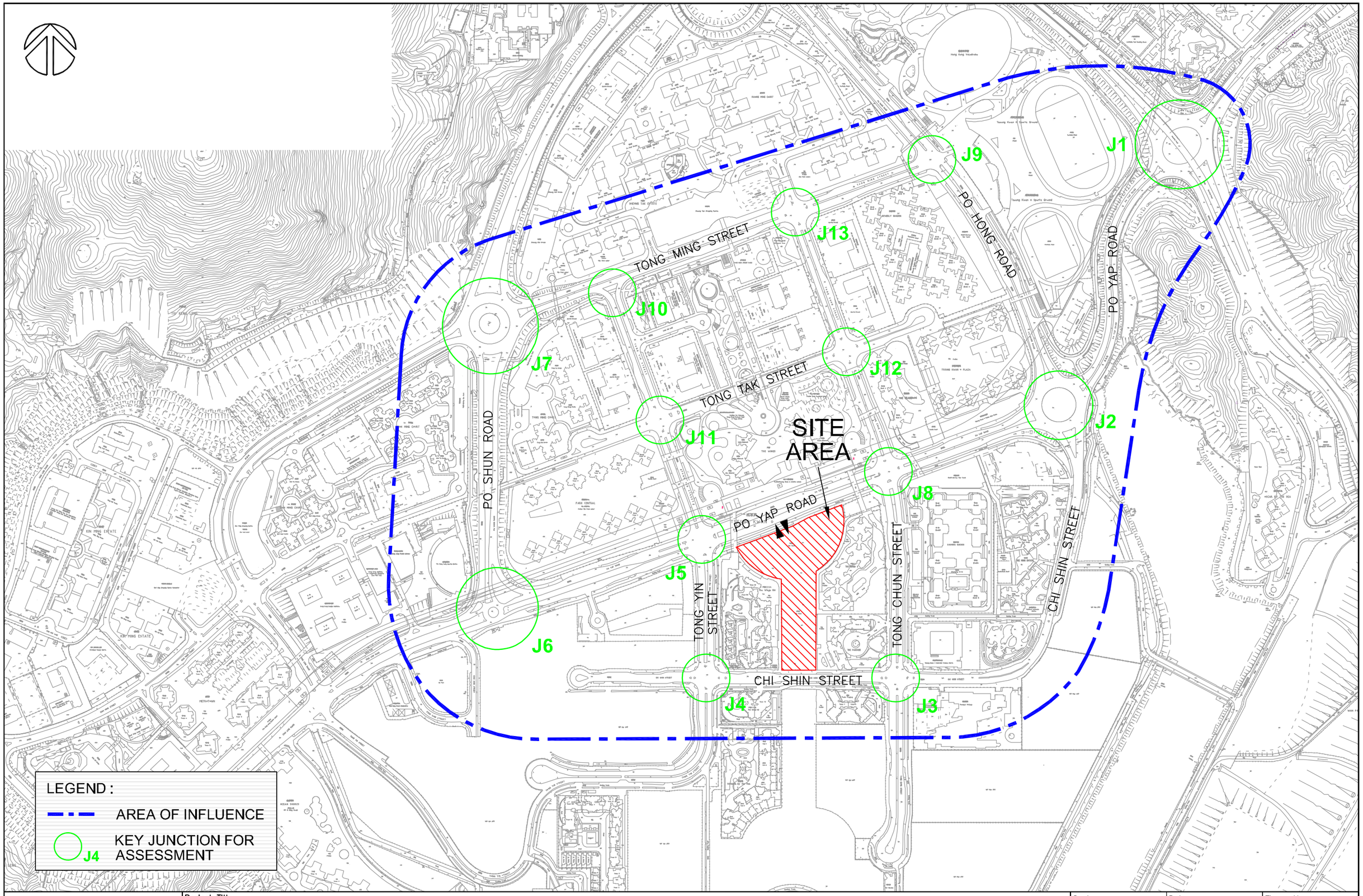

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Traffic & Transportation Consultants
Ho Wang SPB Limited

Project Title: PROPOSED UNDERGROUND PUBLIC VEHICLE PARK (EXCLUDING CONTAINER VEHICLE) IN TOWN PARK IN AREA 66, TSEUNG KWAN O	Scale: 1 : 5000	Date: MAR 2021	Figure No.: 3.1
Figure Title: AREA OF INFLUENCE	Project No.: J1598	CAD Ref.: J1598/TIA1/F31/2021-03-15	Rev.: –

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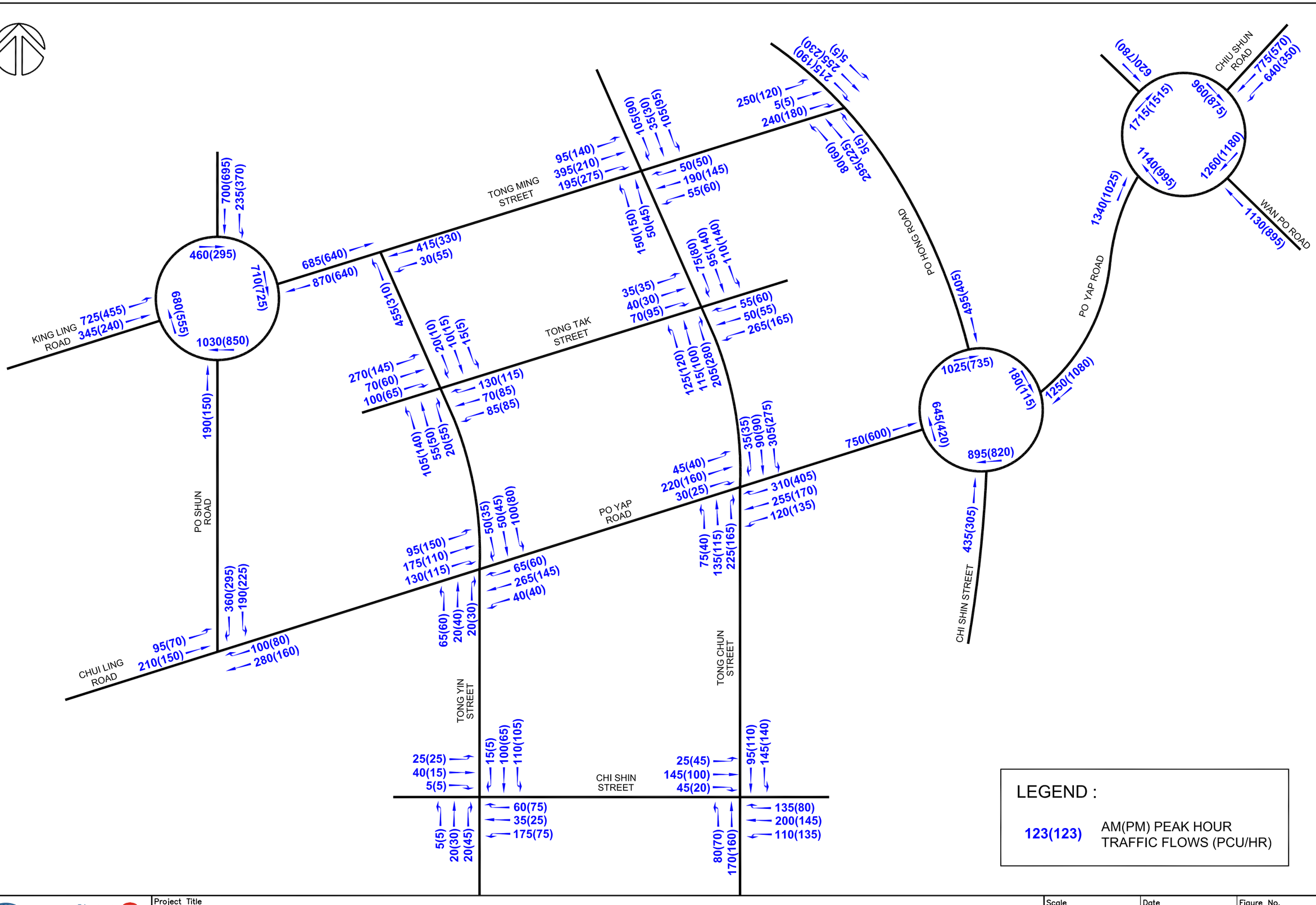

LEGEND :

123(123) AM(PM) PEAK HOUR TRAFFIC FLOWS (PCU/HR)

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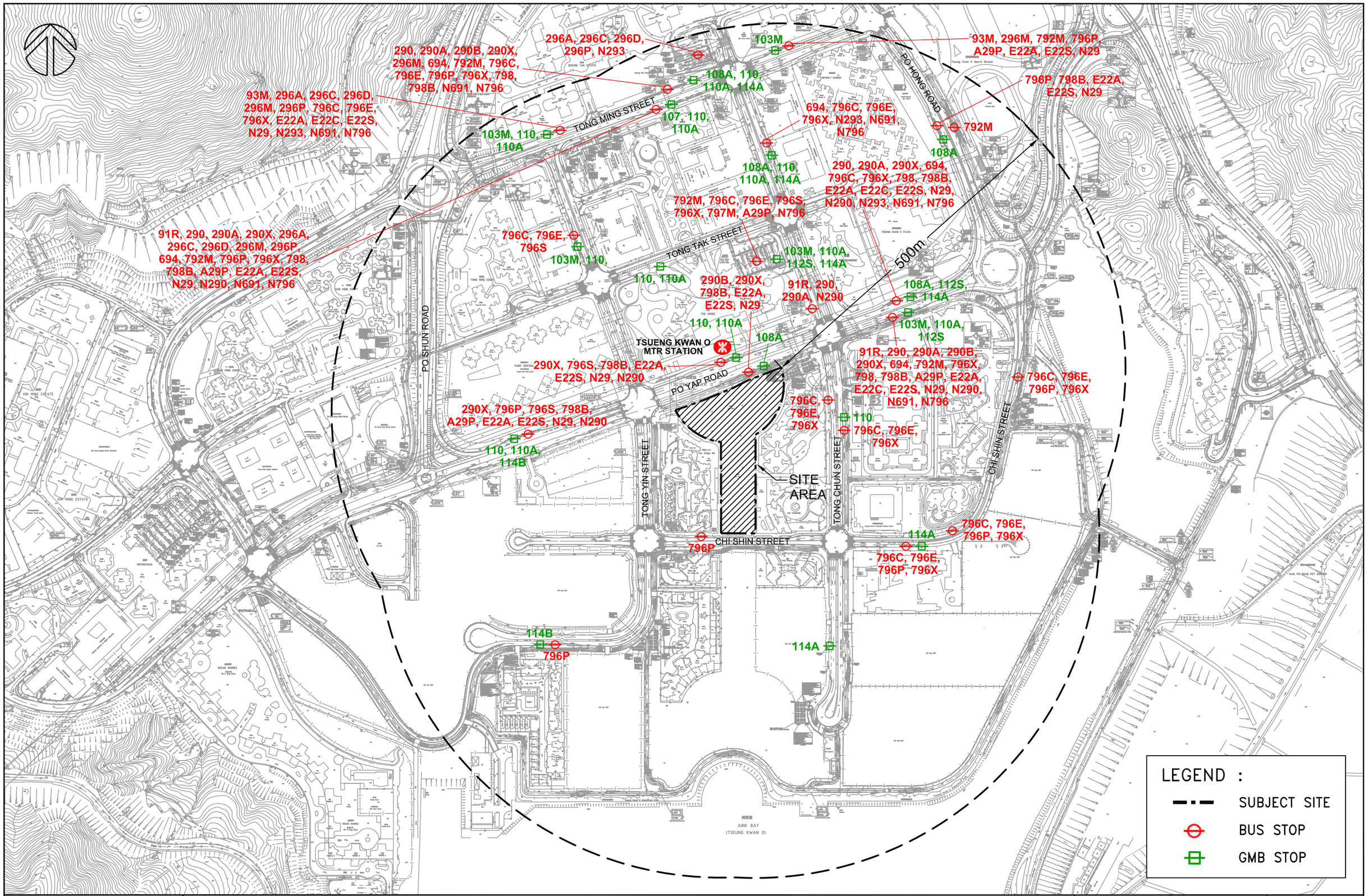

HWSPB 何黃 Traffic & Transportation Consultants Ho Wang SPB Limited	Project Title: PROPOSED UNDERGROUND PUBLIC VEHICLE PARK (EXCLUDING CONTAINER VEHICLE) IN TOWN PARK IN AREA 66, TSEUNG KWAN O	Scale: 1 : 5000	Date: MAR 2021	Figure No.: 3.3
	Figure Title: PUBLIC TRANSPORT FACILITIES IN THE VICINITY OF THE SITE	Project No.: J1598	CAD Ref.: J1598/TIA1/F33/2021-03-26	Rev.: –

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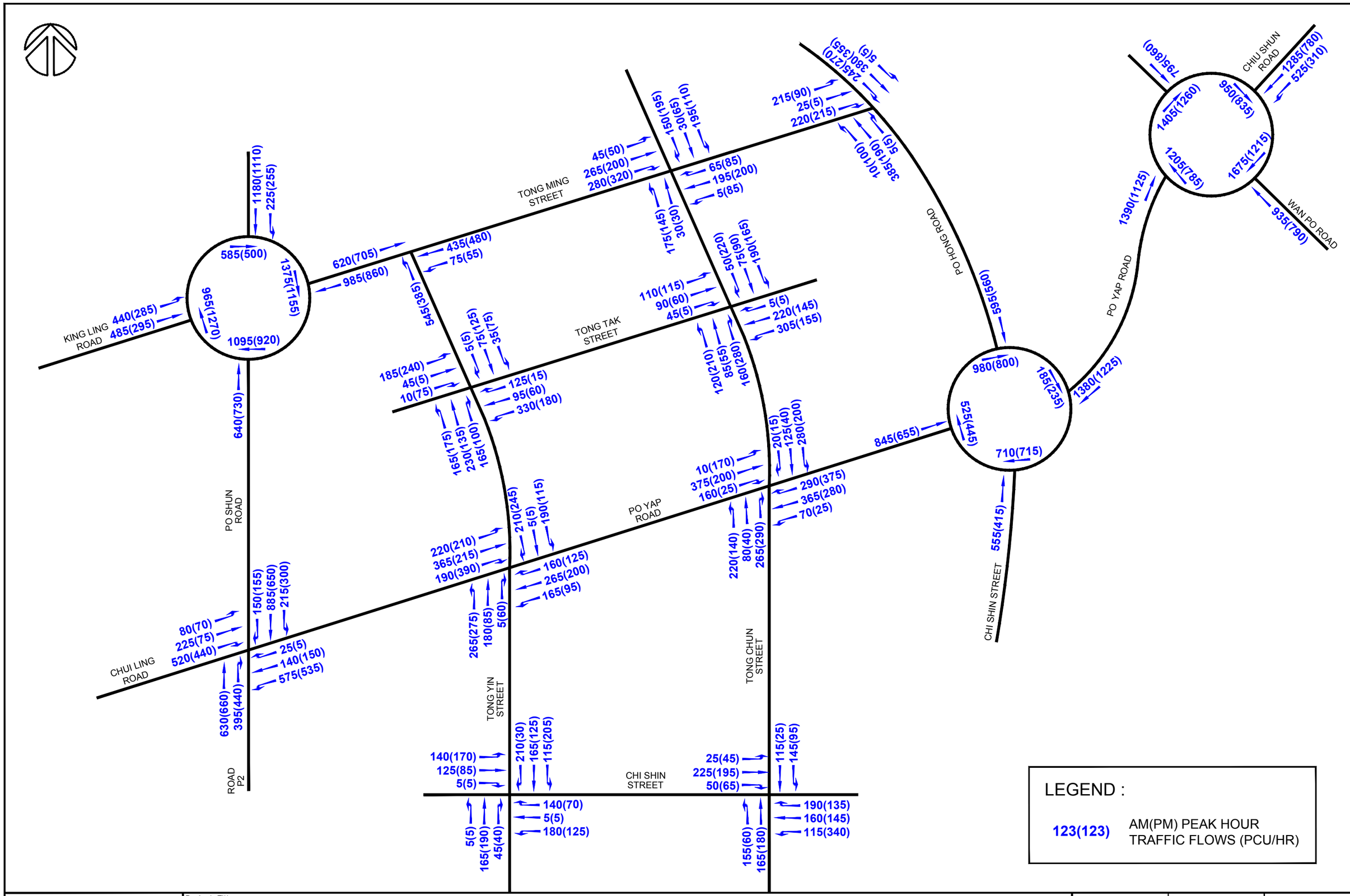

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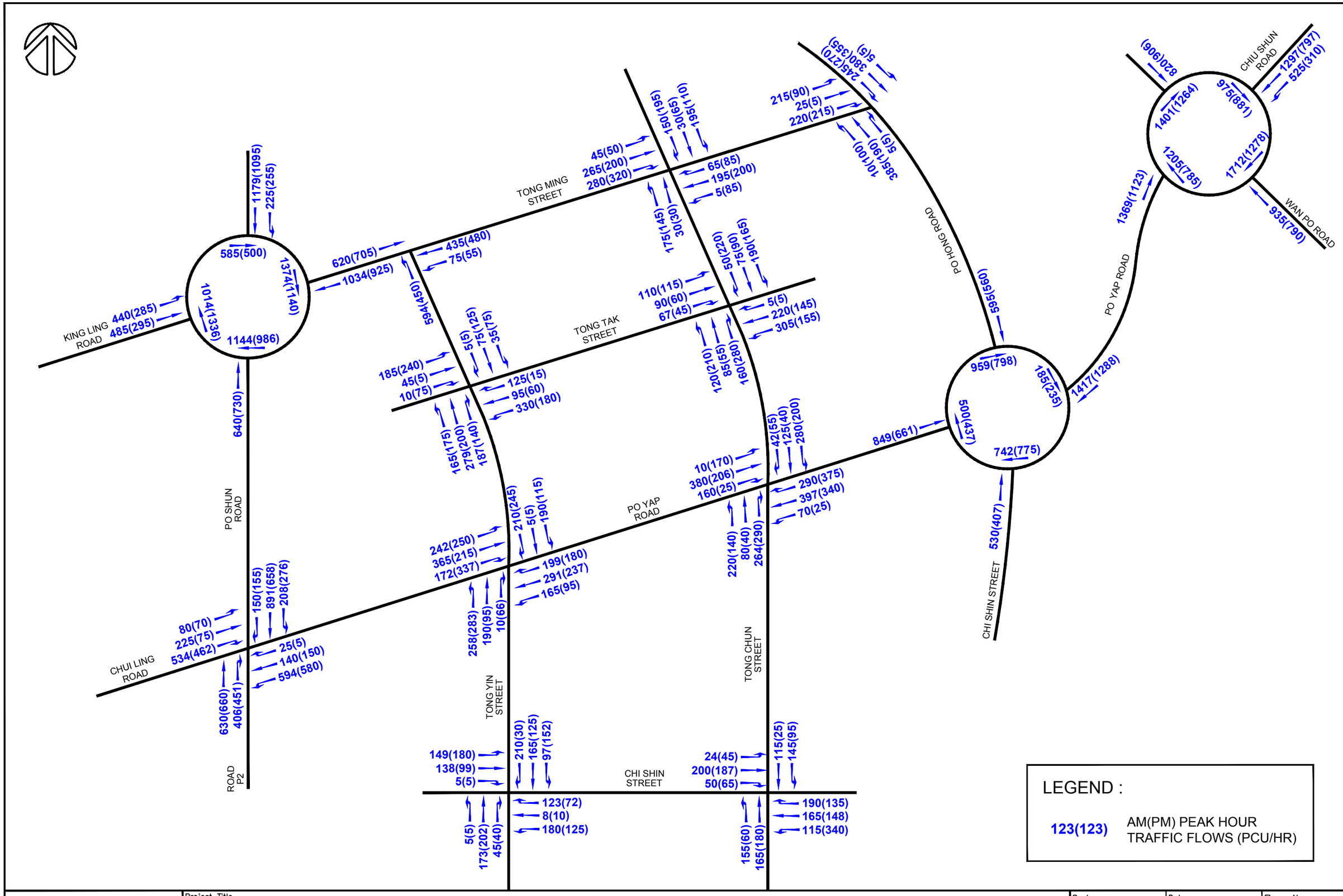

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123(123) AM(PM) PEAK HOUR TRAFFIC FLOWS (PCU/HR)

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Project Title: PROPOSED UNDERGROUND PUBLIC VEHICLE PARK (EXCLUDING CONTAINER VEHICLE) IN TOWN PARK IN AREA 66, TSEUNG KWAN O		Scale: N. T. S.	Date: MAY 2021	Figure No.: 5.2
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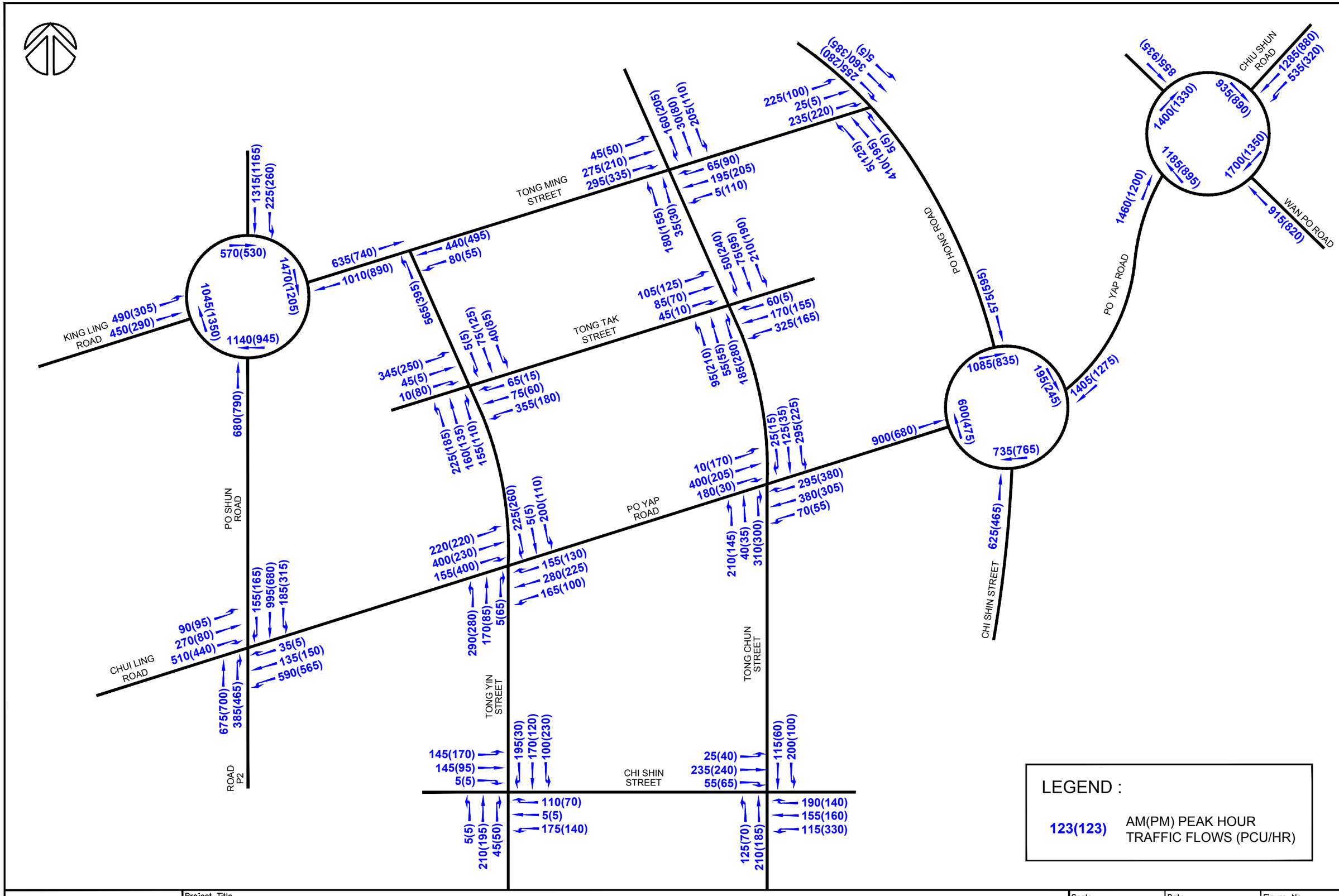

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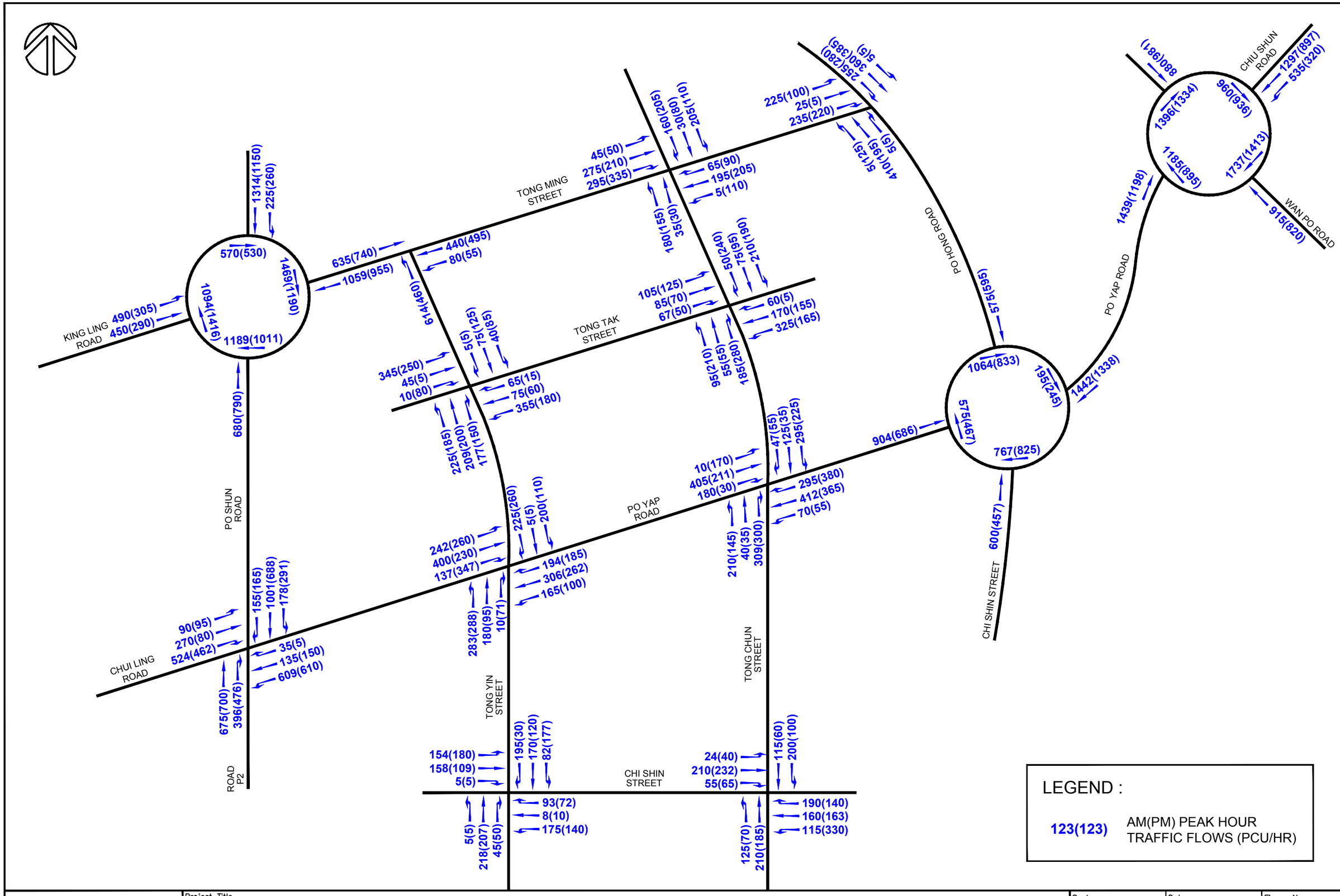

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123(123) AM(PM) PEAK HOUR TRAFFIC FLOWS (PCU/HR)

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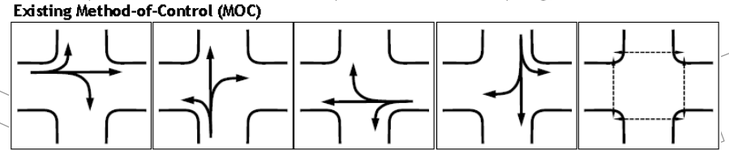
Project Title: PROPOSED UNDERGROUND PUBLIC VEHICLE PARK (EXCLUDING CONTAINER VEHICLE) IN TOWN PARK IN AREA 66, TSEUNG KWAN O	Scale: N. T. S.	Date: MAY 2021	Figure No.: 5.4
Figure Title: 2029 DESIGN TRAFFIC FLOWS	Project No.: J1598	CAD Ref.: J1598/FLOWS/INDEX/2020-10-19	Rev.: A

Existing Method-of-Control (MOC)



Proposed Method-of-Control (MOC)

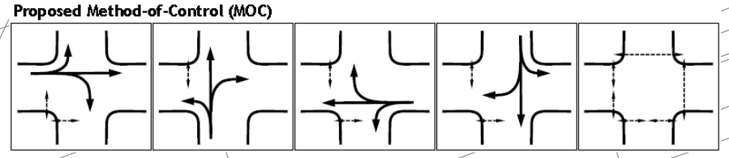


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	Figure Title: PROPOSED JUNCTION IMPROVEMENT SCHEME FOR JUNCTION OF PO YAP ROAD/TONG YIN STREET (J5)	Project No.: J1598	CAD Ref.: J1598/TIA1/F55B/2021-05-25	Rev.: B

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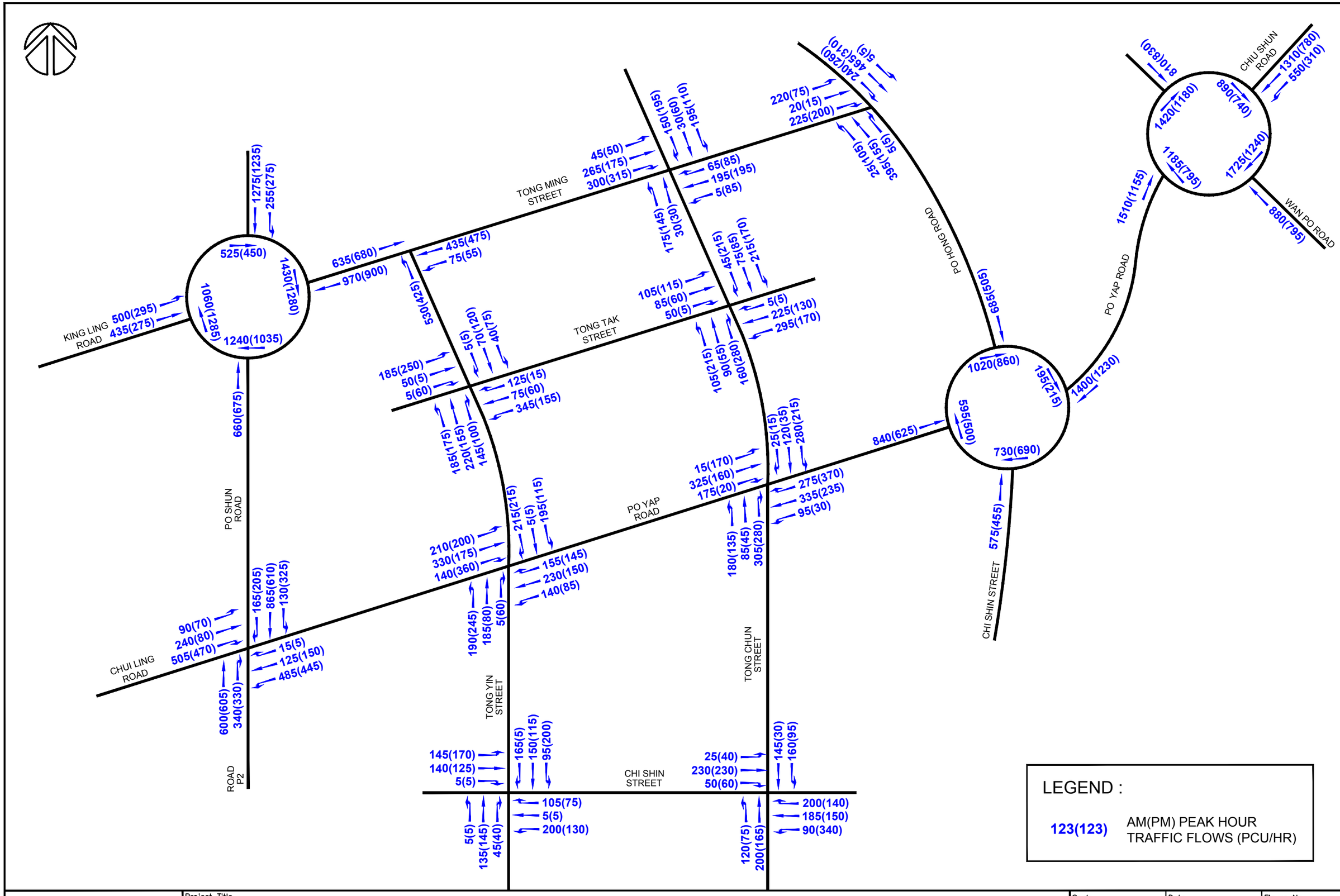

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123(123) AM(PM) PEAK HOUR TRAFFIC FLOWS (PCU/HR)

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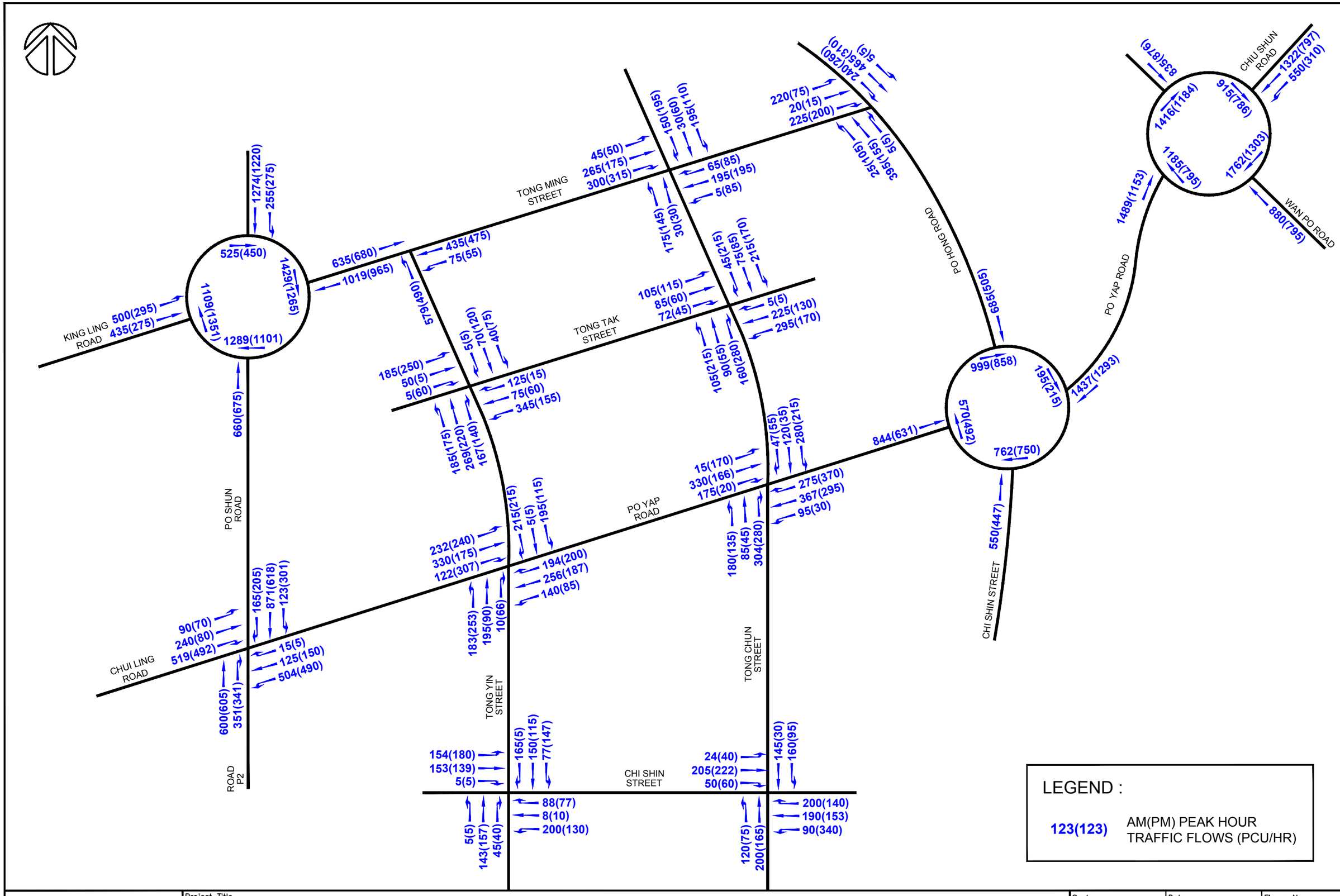
Project Title: PROPOSED UNDERGROUND PUBLIC VEHICLE PARK (EXCLUDING CONTAINER VEHICLE) IN TOWN PARK IN AREA 66, TSEUNG KWAN O	Scale: N. T. S.	Date: MAY 2021	Figure No.: 5.6
Figure Title: 2026 REFERENCE TRAFFIC FLOWS (WITHOUT CKR/T2)	Project No.: J1598	CAD Ref.: J1598/FLOWS/INDEX/2020-10-19	Rev.: A



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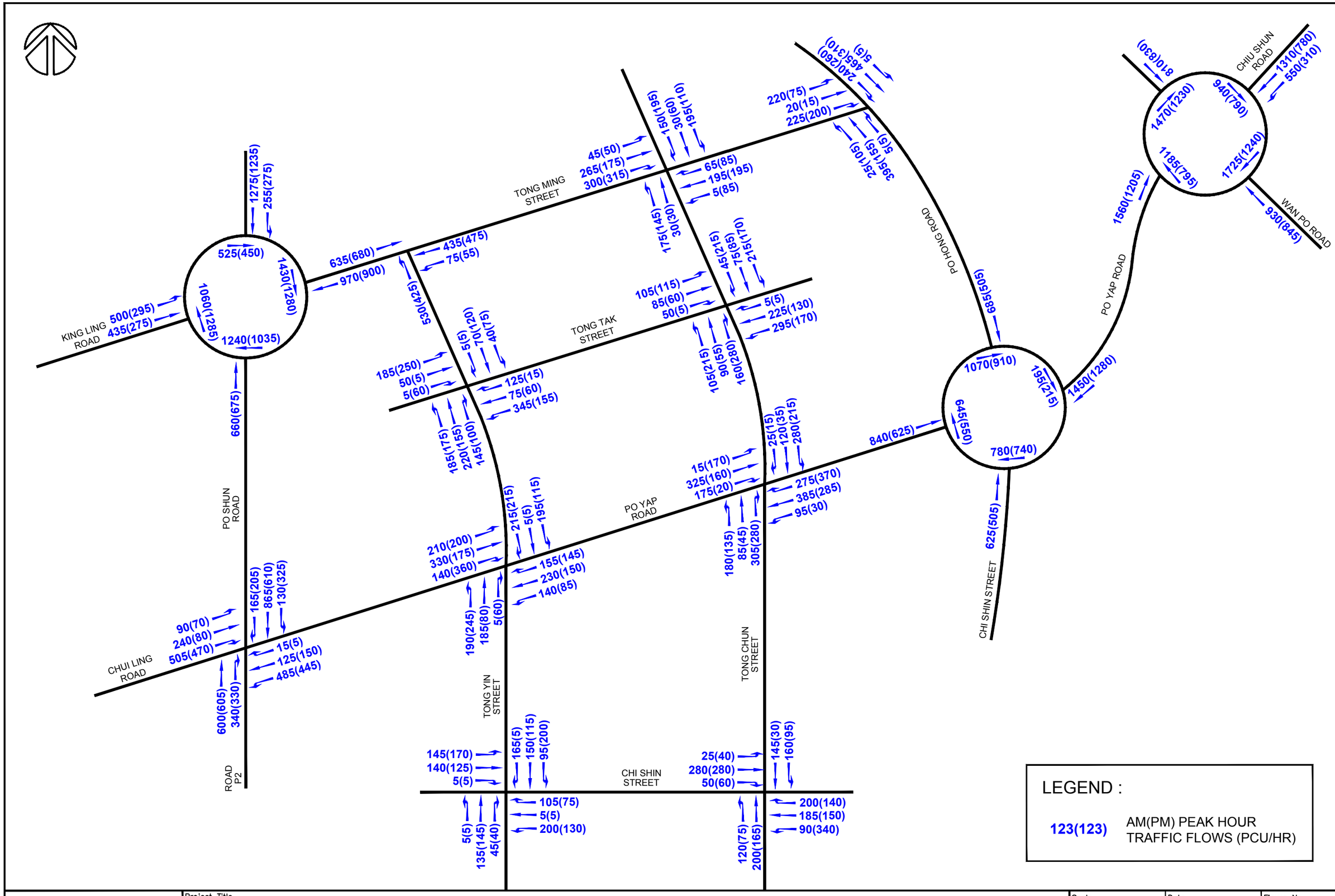

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	Figure Title: 2026 DESIGN TRAFFIC FLOWS (CONSTRUCTION STAGE)	Project No.: J1598	CAD Ref.: J1598/FLOWS/INDEX/2020-10-19	Rev.: A

APPENDIX A
Model Validation Summary

Model Validation Summary

Arm	Road	Direction	AM			PM		
			Observed Flows	Modelled Flows	GEH	Observed Flows	Modelled Flows	GEH
Entry	Wan Po Road	NB	619	639	1	782	794	0
Exit	Wan Po Road	SB	765	722	2	509	461	2
Entry	Po Yap Road	EB	1341	1235	3	1027	955	2
Exit	Po Yap Road	WB	1250	1168	2	1078	1018	2
Entry	Wan Po Road	NB	1132	1032	3	895	902	0
Exit	Wan Po Road	SB	476	434	2	265	372	***6***
Entry	Chiu Shun Road	EB	1411	1510	3	921	911	0
Exit	Chiu Shun Road	WB	1375	1317	2	1423	1381	1
Entry	Po Hong Road	NB	497	505	0	408	391	1
Exit	Po Hong Road	SB	373	356	1	286	270	1
Entry	Po Yap Road	EB	752	701	2	603	547	2
Exit	Po Yap Road	WB	684	651	1	708	688	1
Entry	Chi Shin Street	NB	434	421	1	306	292	1
Exit	Chi Shin Street	SB	535	553	1	373	335	2
Entry	Po Yap Road	EB	1250	1168	2	1078	1018	2
Exit	Po Yap Road	WB	1341	1235	3	1027	955	2
Entry	Tong Chun Street	NB	240	207	2	248	311	4
Exit	Tong Chun Street	SB	325	336	1	287	303	1
Entry	Chi Shin Street	EB	214	236	1	169	228	4
Exit	Chi Shin Street	WB	278	213	4	213	225	1
Entry	Tong Chun Street	NB	247	230	1	231	222	1
Exit	Tong Chun Street	SB	250	285	2	267	293	2
Entry	Chi Shin Street	EB	444	448	0	360	362	0
Exit	Chi Shin Street	WB	291	269	1	241	284	3
Entry	Tong Yin Street	NB	223	283	4	175	199	2
Exit	Tong Yin Street	SB	103	63	4	129	121	1
Entry	Chi Shin Street	EB	65	68	0	41	41	0
Exit	Chi Shin Street	WB	50	50	0	34	34	0
Entry	Tong Yin Street	NB	40	40	0	79	79	0
Exit	Tong Yin Street	SB	280	298	1	142	132	1
Entry	Chi Shin Street	EB	273	188	***6***	172	159	1
Exit	Chi Shin Street	WB	169	168	0	163	192	2
Entry	Tong Yin Street	NB	199	199	0	167	180	1
Exit	Tong Yin Street	SB	180	202	2	251	297	3
Entry	Po Yap Road	EB	404	382	1	375	428	3
Exit	Po Yap Road	WB	379	324	3	239	274	2
Entry	Tong Yin Street	NB	103	63	4	129	121	1
Exit	Tong Yin Street	SB	220	169	4	200	192	1
Entry	Po Yap Road	EB	365	465	5	242	240	0
Exit	Po Yap Road	WB	293	413	***6***	221	206	1
Entry	Po Shun Road	NB	551	439	***5***	518	483	2

Arm	Road	Direction	AM			PM		
			Observed Flows	Modelled Flows	GEH	Observed Flows	Modelled Flows	GEH
Exit	Po Shun Road	SB	191	138	4	148	119	3
Entry	Chui Ling Road	EB	304	312	0	220	240	1
Exit	Chui Ling Road	WB	641	555	4	456	449	0
Entry	Po Yap Road	EB	379	324	3	239	274	2
Exit	Po Yap Road	WB	211	188	2	151	123	2
Entry	Po Shun Road	NB	934	906	1	1069	1102	1
Exit	Po Shun Road	SB	1287	1358	2	956	964	0
Entry	King Ling Road	EB	1067	1093	1	697	658	2
Exit	King Ling Road	WB	540	550	0	440	442	0
Entry	Po Shun Road	NB	191	138	4	148	119	3
Exit	Po Shun Road	SB	551	439	***5***	518	483	2
Entry	Tong Ming Street	EB	872	831	1	640	675	1
Exit	Tong Ming Street	WB	687	621	3	639	665	1
Entry	Tong Chun Street	NB	430	388	2	402	386	1
Exit	Tong Chun Street	SB	486	440	2	556	555	0
Entry	Po Yap Road	EB	293	413	***6***	221	206	1
Exit	Po Yap Road	WB	365	465	5	242	240	0
Entry	Tong Chun Street	NB	436	537	5	318	370	3
Exit	Tong Chun Street	SB	240	280	3	248	254	0
Entry	Po Yap Road	EB	684	651	1	708	688	1
Exit	Po Yap Road	WB	752	701	2	603	547	2
Entry	Po Hong Road	NB	471	478	0	422	397	1
Exit	Po Hong Road	SB	546	508	2	342	310	2
Entry	Tong Ming Street	EB	493	483	0	296	288	0
Exit	Tong Ming Street	WB	294	267	2	253	247	0
Entry	Po Hong Road	NB	373	356	1	286	270	1
Exit	Po Hong Road	SB	497	505	0	408	391	1
Entry	Tong Ming Street	EB	687	621	3	639	665	1
Exit	Tong Ming Street	WB	872	831	1	640	675	1
Entry	Tong Yin Street	NB	455	501	2	311	343	2
Exit	Tong Yin Street	SB	29	30	0	54	48	1
Entry	Tong Ming Street	EB	447	360	4	383	380	0
Exit	Tong Ming Street	WB	687	621	3	639	665	1
Entry	Tong Yin Street	NB	44	51	1	29	30	0
Exit	Tong Yin Street	SB	455	501	2	311	343	2
Entry	Tong Tak Street	EB	443	419	1	272	267	0
Exit	Tong Tak Street	WB	256	247	1	267	247	1

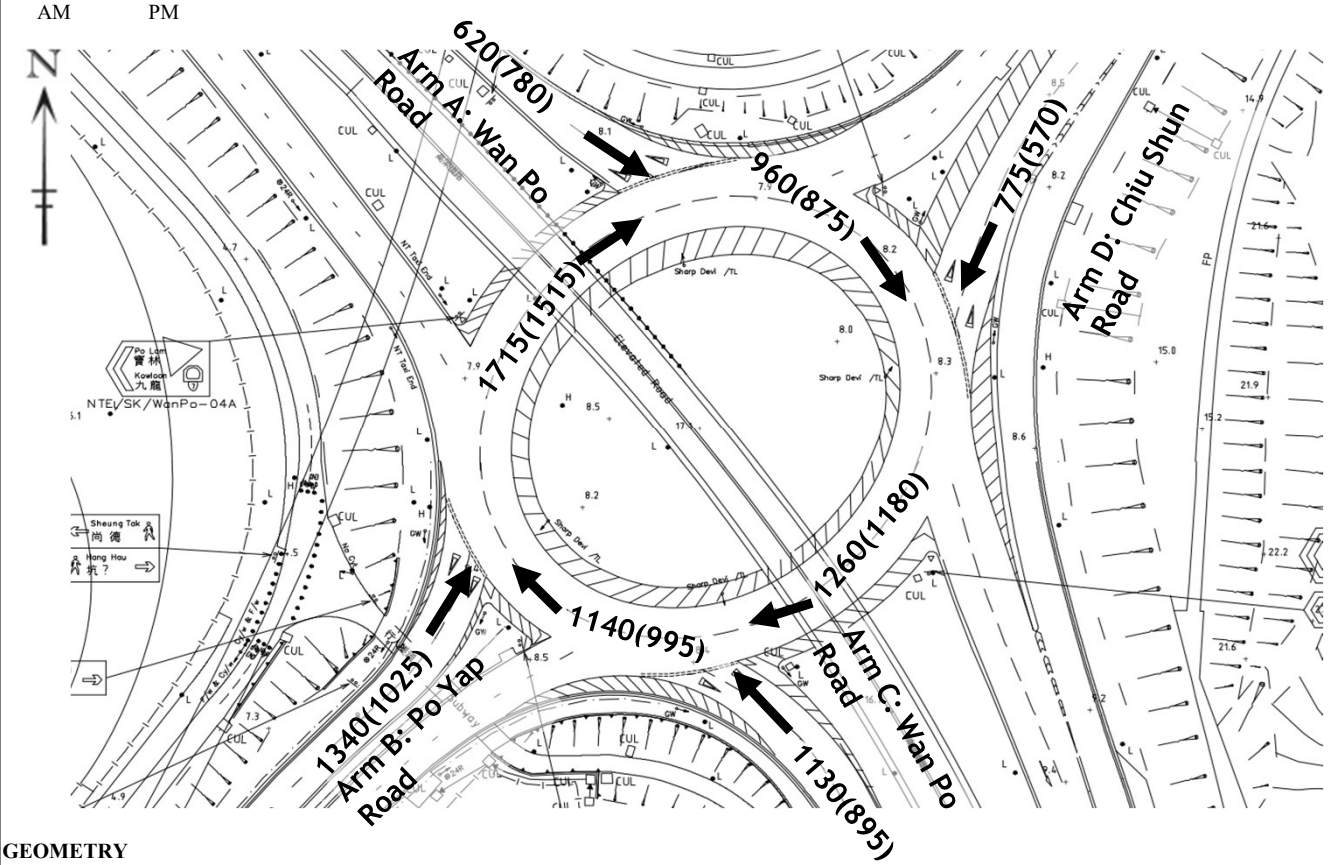
Arm	Road	Direction	AM			PM		
			Observed Flows	Modelled Flows	GEH	Observed Flows	Modelled Flows	GEH
Entry	Tong Yin Street	NB	180	202	2	251	297	3
Exit	Tong Yin Street	SB	199	199	0	167	180	1
Entry	Tong Tak Street	EB	287	188	***6***	284	241	3
Exit	Tong Tak Street	WB	105	67	4	122	70	***5***
Entry	Tong Chun Street	NB	283	292	1	361	381	1
Exit	Tong Chun Street	SB	202	143	4	195	184	1
Entry	Tong Tak Street	EB	105	67	4	122	70	***5***
Exit	Tong Tak Street	WB	287	188	***6***	284	241	3
Entry	Tong Chun Street	NB	486	440	2	556	555	0
Exit	Tong Chun Street	SB	430	388	2	402	386	1
Entry	Tong Tak Street	EB	369	320	3	280	451	***9***
Exit	Tong Tak Street	WB	360	385	1	452	444	0
Entry	Sheung Tak Estate Access	NB	243	252	1	214	249	2
Exit	Sheung Tak Estate Access	SB	194	147	4	236	222	1
Entry	Tong Ming Street	EB	683	621	2	623	592	1
Exit	Tong Ming Street	WB	305	360	3	289	380	5
Entry	Tong Chun Street	NB	202	143	4	195	184	1
Exit	Tong Chun Street	SB	283	292	1	361	381	1
Entry	Tong Ming Street	EB	294	267	2	253	247	0
Exit	Tong Ming Street	WB	499	483	1	306	288	1

APPENDIX B
Junction Calculation Sheet

Simplified Roundabout Capacity Calculation

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O				
Junction:	J1 Wan Po Road / Chiu Shun Road / Po Yap Road			Ref. No.:	J1_RA_2020
Scheme:	2020 Obs			Ref. No.:	
Year:	2020	Job No.:	J1598	Rev.:	-

AM PM



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	5.00	9.00	20	40	76	20	0.32
B	7.00	7.50	10	50	86	20	0.08
C	8.00	8.00	5	40	76	20	0.00
D	8.00	10.00	10	70	86	25	0.32

CALCULATIONS

ARM	K	X_2	M	F	t_D	f_c	Q_E AM	Q_E PM	DFC AM	DFC PM
A	1.06	7.44	4.95	2254	1.08	0.57	1359	1479	0.46	0.53
B	1.06	7.43	13.46	2252	1.03	0.54	1741	1824	0.77	0.56
C	1.06	8.00	4.95	2424	1.08	0.59	1778	1828	0.64	0.49
D	1.05	9.22	13.46	2794	1.03	0.62	2315	2371	0.33	0.24

Critical Arm:	**B**	**B**
DFC:	**0.77**	**0.56**
	AM	**PM**

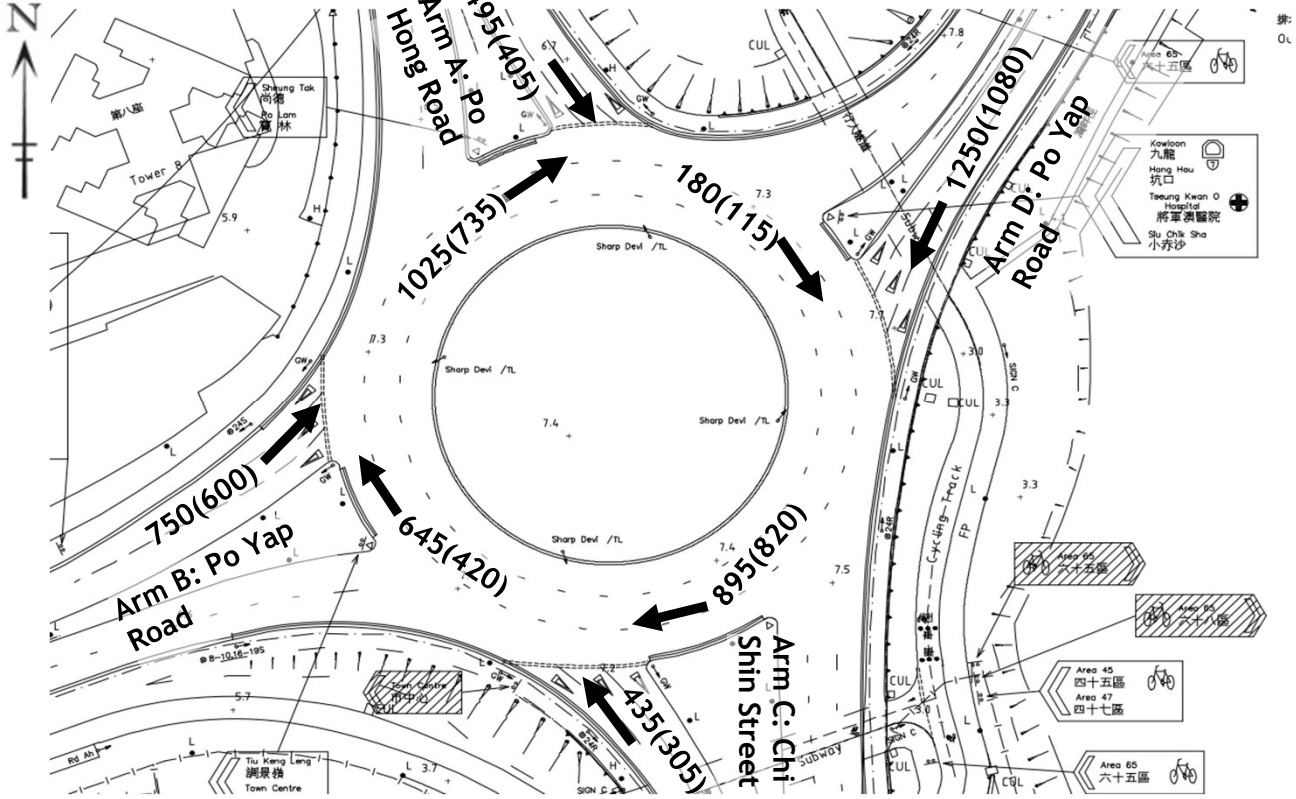
- In accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

Simplified Roundabout Capacity Calculation

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O				
Junction:	J2 Po Yap Road / Chi Shin Street / Po Hong Road			Ref. No.:	J2_RA_2020
Scheme:	2020 Obs			Ref. No.:	
Year:	2020	Job No.:	J1598	Rev.:	-

AM PM



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	7.00	11.00	20	25	80	25	0.32
B	7.00	11.00	15	60	80	30	0.43
C	7.00	12.00	10	50	80	25	0.80
D	7.00	11.00	20	90	80	25	0.32

CALCULATIONS

							Q_E		DFC	
ARM	K	X_2	M	F	t_D	f_c	AM	PM	AM	PM
A	1.03	9.44	7.39	2860	1.06	0.64	2261	2453	0.22	0.17
B	1.03	9.16	7.39	2775	1.06	0.63	2446	2592	0.31	0.23
C	1.05	8.92	7.39	2704	1.06	0.62	2249	2298	0.19	0.13
D	1.06	9.44	7.39	2860	1.06	0.64	2896	2940	0.43	0.37

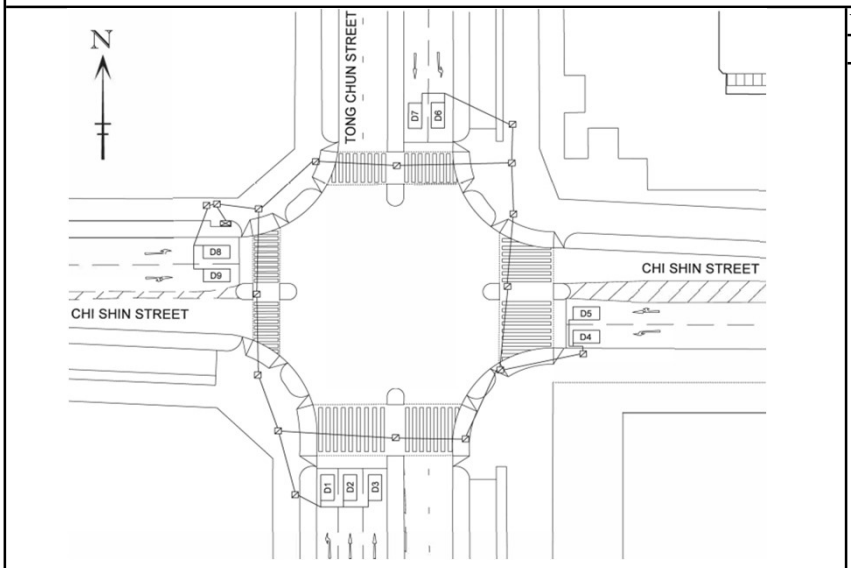
Critical Arm:	**D**	**D**
DFC:	**0.43**	**0.37**
	AM	**PM**

- In accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

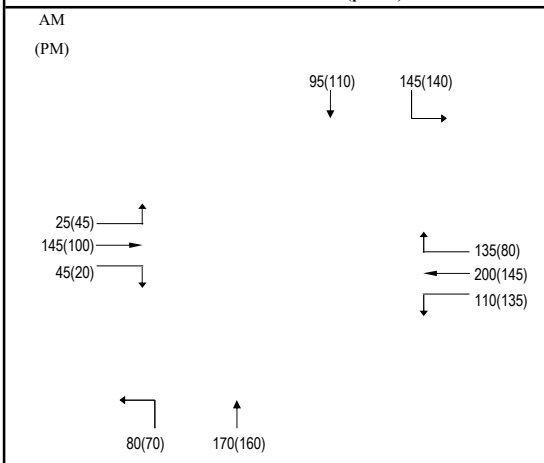
Traffic Signal Junction Calculation Sheet

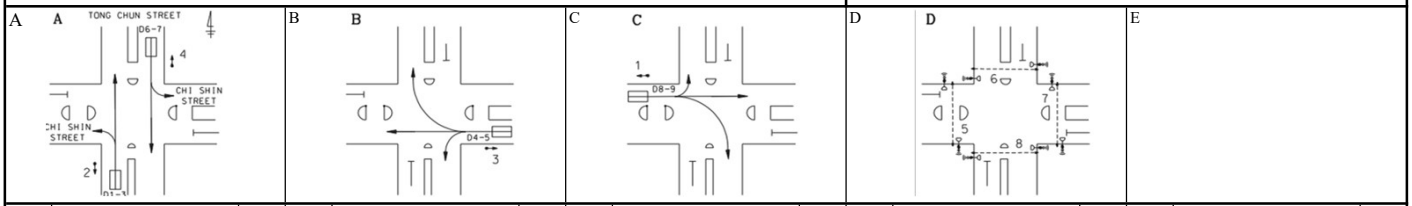
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O		
Junction:	J3 Chi Shin Street / Tong Chun Street	Ref. No.:	J3_SJ_2020
Scheme:	2020 Obs	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		5	2		5	2		3	9	22	1			
2		5	2		5	2		3	7	20	0			
2		5	2		5	2		3	5	18	1			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	C	1	4.10	1		17			0.86	100	1595	25	0.016		45	0.028	
1B	C	1	4.20				23			24 / 17	2140/2150	190	0.089	1	120	0.056	1
2A	A	1	3.10	1		19				100	1785	80	0.045		70	0.039	
2B	A	2	3.65								4240	170	0.040		160	0.038	
3A	B	1	3.50				25			40 / 36	2055/2060	335	0.163	1	225	0.109	1
3B	B	1	3.70	1		17				100	1825	110	0.060		135	0.074	
4A	A	1	3.60	1		17				100	1815	145	0.080	1	140	0.077	1
4B	A	1	3.60								2115	95	0.045		110	0.052	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	D		10	10	8	18				
6P	D		10	10	8	18				
7P	D		11	11	9	20				
8P	D		12	12	10	22		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

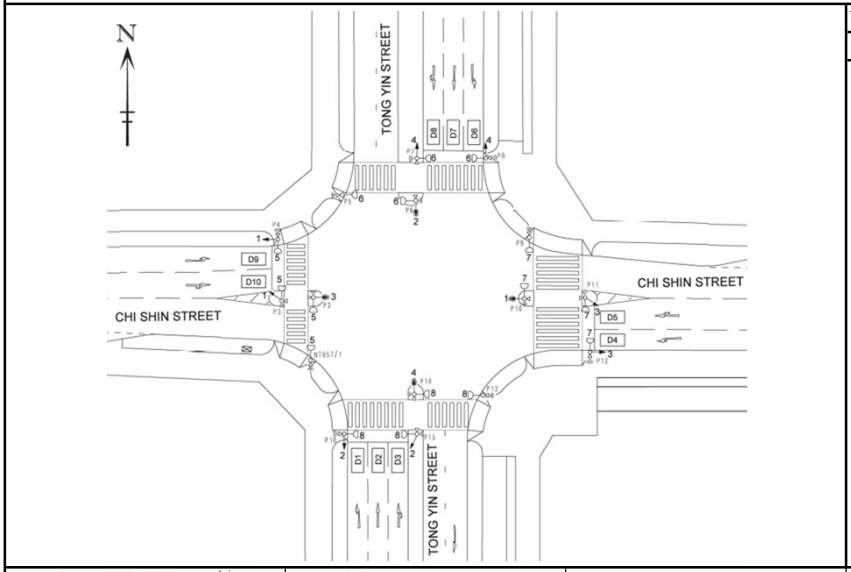
Check Critical Phase	4,3,1,8P	4,3,1,7P	4,3,1,6P	4,3,1,8P	4,3,1,7P	4,3,1,6P
Sum of y values, Y	0.332	0.332	0.332	0.242	0.242	0.242
Lost time, L	48	43	40	48	43	40
Cycle Time, C	110	110	110	110	110	110
Practical Y, Y_{pr}	0.507	0.548	0.573	0.507	0.548	0.573
Reserve Capacity, R.C. (%)	53%	65%	73%	109%	126%	136%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J3_SJ_2020

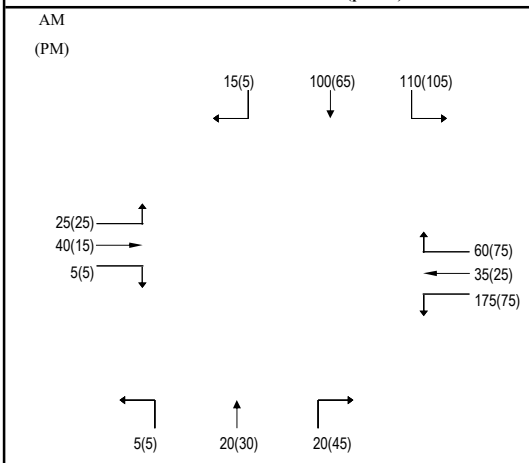
Traffic Signal Junction Calculation Sheet

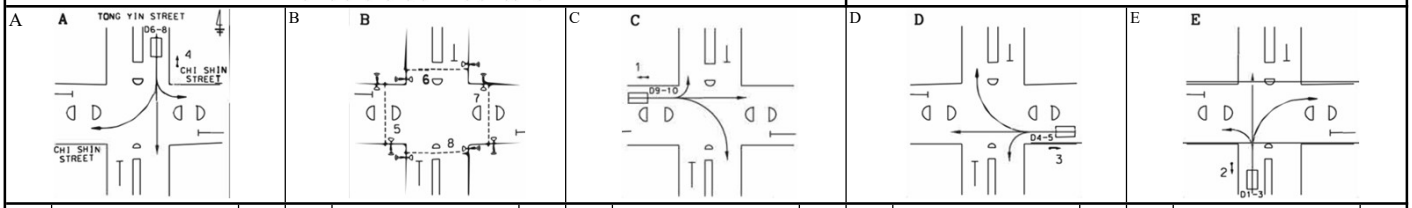
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O		
Junction:	J4 Chi Shin Street / Tong Yin Street	Ref. No.:	J4_SJ_2020
Scheme:	2020 Obs	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





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2		5	7	18	1	2	5	5	2		6	2	5	5
2		5	1	22	0	2	5	5	2		6	2	5	5

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	C	1	3.60	1		17				100	1815	25	0.014		25	0.014	1
1B	C	1	3.60				23			11 / 25	2100/2080	45	0.021	1	20	0.010	
2A	E	1	3.30	1		17			0.86	100	1530	5	0.003		5	0.003	
2B	E	1	3.30								2085	20	0.010		30	0.014	
2C	E	1	3.30				25			100	1965	20	0.010	1	45	0.023	1
3A	D	1	3.40	1		17				100	1795	175	0.097	1	75	0.042	
3B	D	1	3.90				36			63 / 75	2090/2080	95	0.045		100	0.048	1
4A	A	1	3.30	1		17				100	1785	110	0.062	1	105	0.059	1
4B	A	1	3.30								2085	58	0.028		35	0.017	
4C	A	1	3.30				23			26 / 14	2050/2065	57	0.028		35	0.017	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	B		10	10	8	18				
6P	B		13	13	9	22				
7P	B		9	9	7	16				
8P	B		12	12	9	21		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

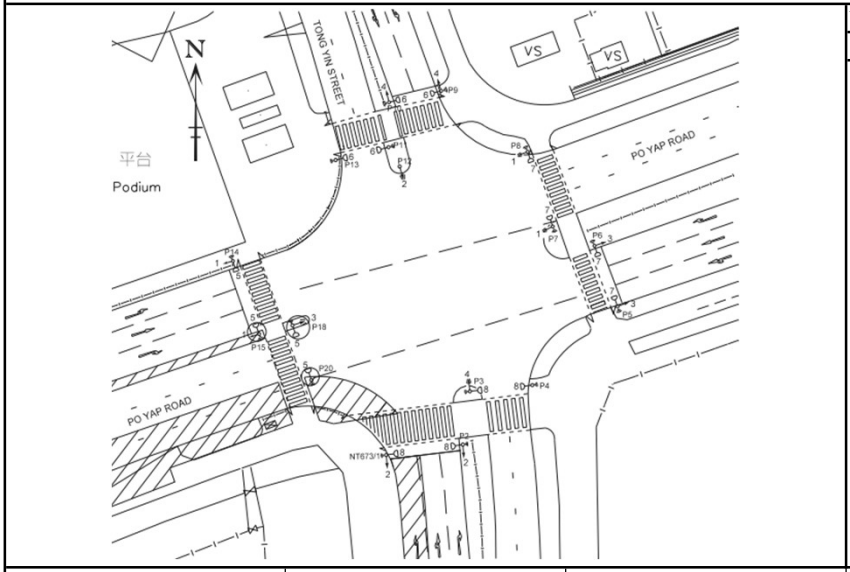
Check Critical Phase	4,8P,1,3,2	4,5P,1,3,2	4,6P,1,3,2	4,8P,1,3,2	4,5P,1,3,2	4,6P,1,3,2
Sum of y values, Y	0.191	0.191	0.191	0.144	0.144	0.144
Lost time, L	61	61	58	61	61	58
Cycle Time, C	100	100	100	110	110	110
Practical Y, Y_{pr}	0.351	0.351	0.378	0.401	0.401	0.425
Reserve Capacity, R.C. (%)	84%	84%	98%	179%	179%	196%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J4_SJ_2020

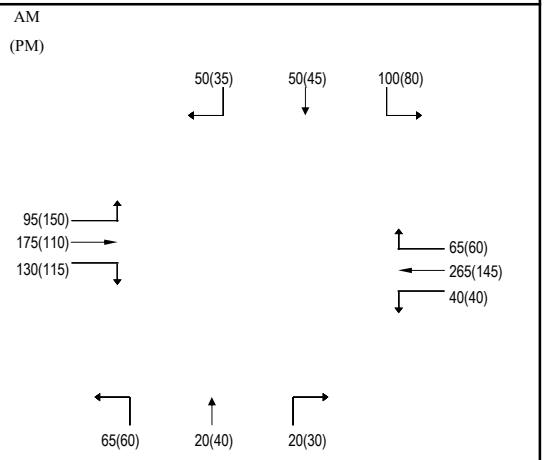
Traffic Signal Junction Calculation Sheet

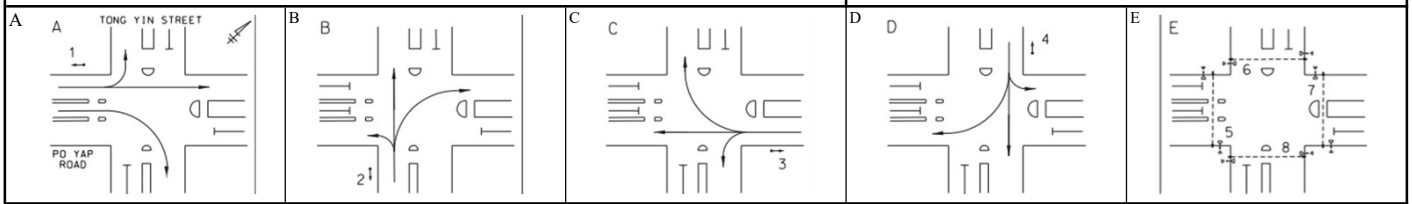
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O		
Junction:	J5 Po Yap Road / Tong Yin Street	Ref. No.:	J5_SJ_2020
Scheme:	2020 Obs	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





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2		5	2			5	2		5	2		3	10	27		1	
2		5	2			5	2		5	2		3	6	25		0	

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.30	1		18				100	1795	95	0.053		150	0.084	1
1B	A	1	3.70								2125	175	0.082	1	110	0.052	
1C	A	1	4.00				33			100	2060	130	0.063		115	0.056	
2A	B	1	4.10			17					1990	44	0.022	1	51	0.025	
2B	B	1	3.60	1		17				52 / 19	1890/1940	41	0.022		49	0.025	1
2C	B	1	3.20				38			100	1995	20	0.010		30	0.015	
3A	C	1	3.40	1		23				27 / 45	1920/1900	146	0.076	1	88	0.046	
3B	C	1	3.30								2085	159	0.076		97	0.046	1
3C	C	1	3.50				28			100	2000	65	0.033		60	0.030	
4A	D	1	3.60	1		17				100	1815	100	0.055	1	80	0.044	1
4B	D	1	3.60				32			50 / 44	2065/2070	100	0.048		80	0.039	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	E		16	16	11	27				
6P	E		11	11	8	19				
7P	E		15	15	10	25				
8P	E		19	19	15	34		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	1,2,3,4,8P	1,2,3,4,5P	1,2,3,4,7P	1,2,3,4,8P	1,2,3,4,5P	1,2,3,4,7P
Sum of y values, Y	0.236	0.236	0.236	0.200	0.200	0.200
Lost time, L	69	60	53	64	60	53
Cycle Time, C	127	127	127	124	124	124
Practical Y, Y_{pr}	0.411	0.475	0.524	0.435	0.465	0.515
Reserve Capacity, R.C. (%)	75%	102%	123%	118%	133%	158%

Calculated by:	Date: 五月-2021	Checked by:

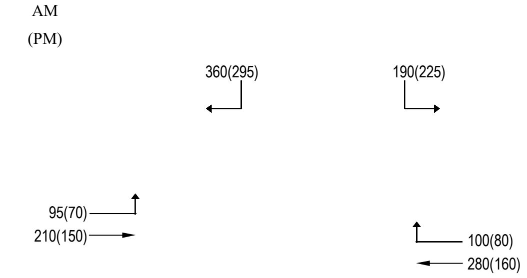
Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J5_SJ_2020

Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O		
Junction:	J6 Po Yap Road / Po Shun Road / Chui Ling Road	Ref. No.:	J6_SJ_2020
Scheme:	2020 Obs	Ref. No.:	

Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)



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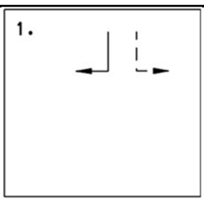

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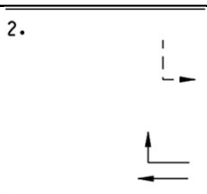

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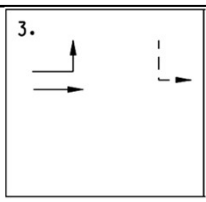


D

E

2		3	2		3	2		3

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.30				20			100	1940	360	0.186	1	295	0.152	1
2A	B	1	3.30	1		15				31 / 32	1885	305	0.162	1	220	0.117	1
3A	C	1	3.30	1							1945	280	0.144	1	160	0.082	1
3B	C	1	3.30				20			100	1940	100	0.052		80	0.041	

Critical Ped. Phase	Stage	Width Across	Min. GM	Min. FGM	Lost Time	Note	Crit.	Note	Crit.

Nearside Lane: 1940 + 100 x (W - 3.25)
Other Lanes: 2080 + 100 x (W - 3.25)
Gradient & Radius: -42 x (gradient in %)
Opposed Traffic -230
Turning Proportion: x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}): 0.9 x (1 - L/C)
Reserve Capacity (RC): (Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4

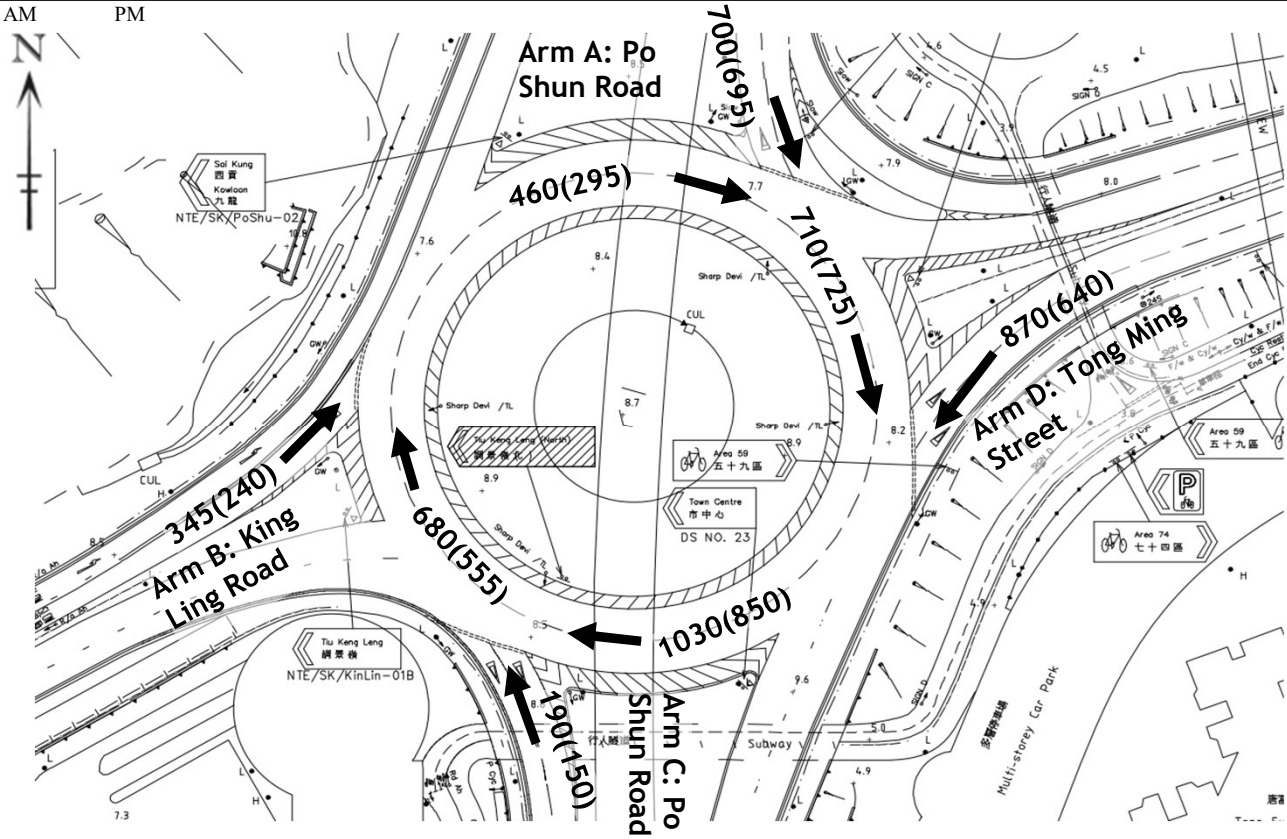
	AM			PM		
Check Critical Phase	1,2,3			1,2,3		
Sum of y values, Y	0.491			0.351		
Lost time, L	12			12		
Cycle Time, C	127			124		
Practical Y, Y_{pr}	0.815			0.813		
Reserve Capacity, R.C. (%)	66%			132%		

Calculated by:	Date: 五月-2021	Checked by:

Simplified Roundabout Capacity Calculation

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O				
Junction:	J7 Po Shun Road / Tong Ming Street / King Ling Road			Ref. No.:	J7_RA_2020
Scheme:	2020 Obs			Ref. No.:	
Year:	2020	Job No.:	J1598	Rev.:	-

AM PM



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	7.00	8.00	14.5	20	81.2	20	0.11
B	2.70	4.60	31.9	55.2	81.2	18	0.10
C	7.10	7.40	11.7	23	81.2	10	0.04
D	7.40	8.40	27.5	60	81.2	29	0.06

CALCULATIONS

ARM	K	X_2	M	F	t_D	f_c	Q_E AM	Q_E PM	DFC AM	DFC PM
A	1.03	7.82	8.33	2369	1.05	0.57	2181	2278	0.32	0.31
B	1.07	4.30	8.33	1302	1.05	0.41	1096	1152	0.31	0.21
C	1.08	7.38	8.33	2235	1.05	0.55	1798	1904	0.11	0.08
D	1.04	8.30	8.33	2514	1.05	0.59	2171	2162	0.40	0.30

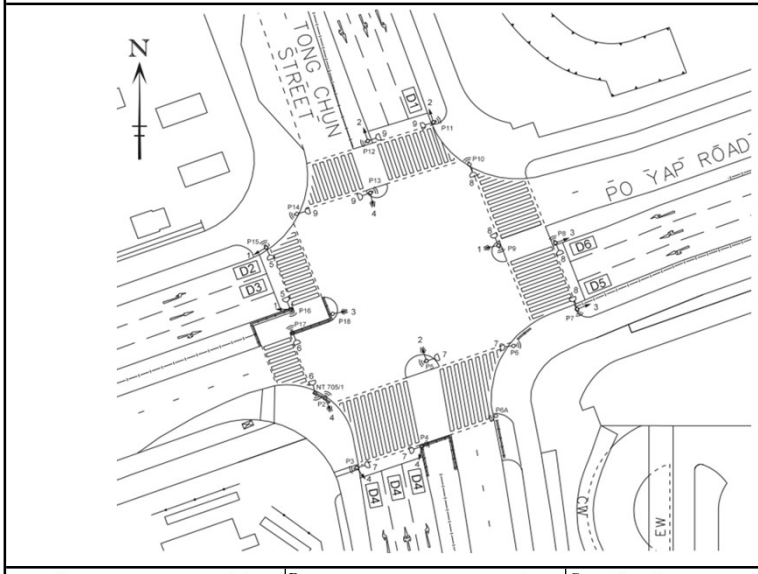
Critical Arm:	**D**	**A**
DFC:	**0.40**	**0.31**
	AM	**PM**

- In accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

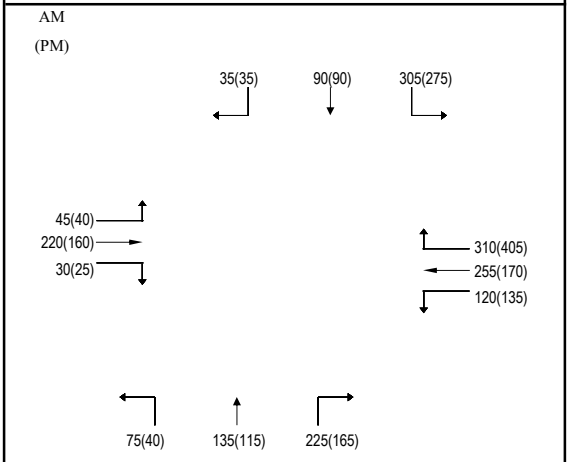
Traffic Signal Junction Calculation Sheet

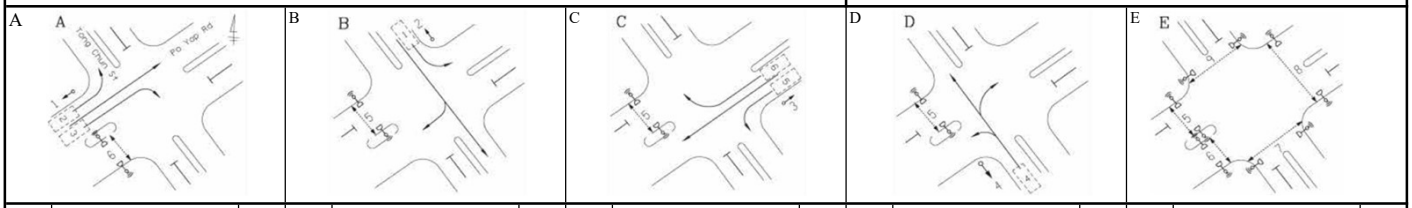
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O		
Junction:	J8 Po Yap Road / Tong Chun Street	Ref. No.:	J8_SJ_2020
Scheme:	2020 Obs	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		5	2		5	2		6	2		6	8	16	0
2		5	2		5	2		6	2		6	4	16	0
2		5	2		5	2		6	2		6	0	16	0

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.30	1		17				100	1785	45	0.025		40	0.022	
1B	A	1	3.30								2085	126	0.060	1	93	0.045	1
1C	A	1	3.30				20			24 / 27	2050/2045	124	0.060		92	0.045	
2A	B	1	3.40	1		17					1795	147	0.082		133	0.074	
2B	B	1	3.40			17				100	1925	158	0.082	1	142	0.074	1
2C	B	1	3.50				26			28	2070	125	0.060		125	0.060	
3A	C	1	3.30	1		17				55 / 60	1855/1850	217	0.117		227	0.122	
3B	C	1	3.40				20			34 / 68	2045/1995	239	0.117		244	0.123	
3C	C	1	3.40				20				1950	228	0.117	1	239	0.123	1
4A	D	1	3.60	1		16					1805	75	0.042		40	0.022	
4B	D	1	3.50			16	26			27 / 20	2075/2080	184	0.089		143	0.069	1
4C	D	1	3.50				26				1990	176	0.089	1	137	0.069	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	BCDE		5	5	11	16				
6P	E		5	5	7	12				
7P	E		5	5	11	16				
8P	E		5	5	11	16		1		1
9P	E		5	5	11	16				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	1,2,3,4,8P	1,2,3,4,9P	1,2,3,4,7P	1,2,3,4,8P	1,2,3,4,9P	1,2,3,4,7P
Sum of y values, Y	0.348	0.348	0.348	0.310	0.310	0.310
Lost time, L	50	46	42	50	46	42
Cycle Time, C	125	125	125	125	125	125
Practical Y, Y_{pr}	0.540	0.569	0.598	0.540	0.569	0.598
Reserve Capacity, R.C. (%)	55%	63%	72%	74%	83%	93%

Calculated by:	Date: 五月-2021	Checked by:

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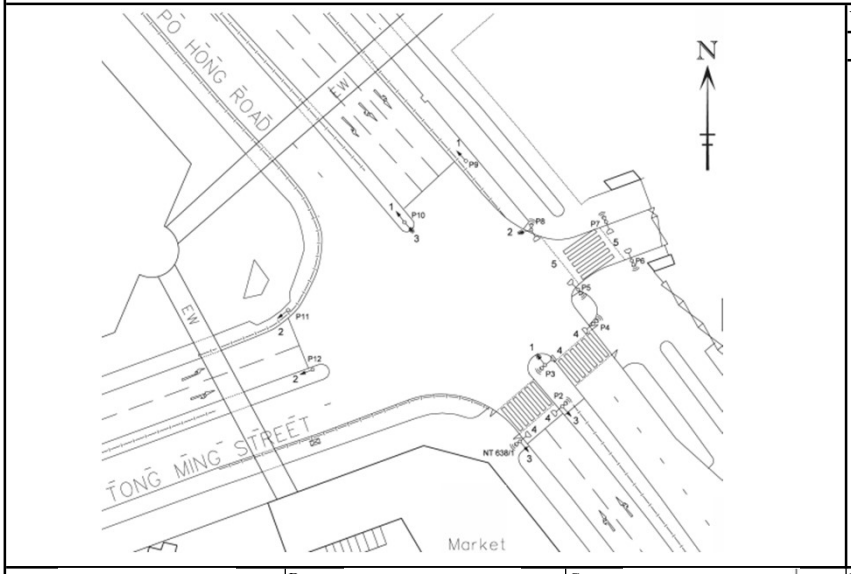
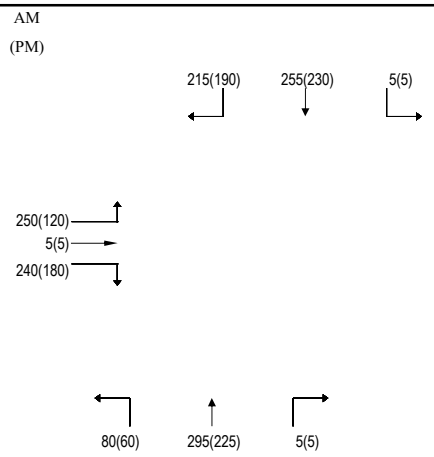
Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O		
Junction:	J9 Po Hong Road / Tong Ming Street	Ref. No.:	J9_SJ_2020
Scheme:	2020 Obs	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)



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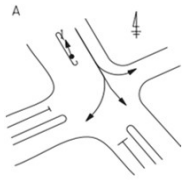

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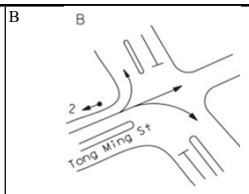

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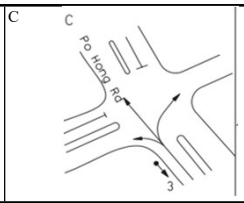

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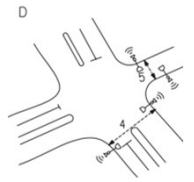

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2		3	3		3	4		3	7	16	0			
2		3	3		3	4		3	2	20	0			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.40	1		15				3 / 4	1950	154	0.079		138	0.071	
1B	A	1	3.40				21			35 / 33	2045	162	0.079		145	0.071	1
1C	A	1	3.90				21				2000	159	0.079	1	142	0.071	
2A	B	1	3.70	1		16				100	1815	250	0.138	1	120	0.066	
2B	B	1	3.60				32			98 / 97	2020/2025	245	0.121		185	0.091	1
3A	C	1	3.50	1		17				45 / 44	1890	179	0.095	1	137	0.072	1
3B	C	1	3.70				11			2 / 3	2120/2115	201	0.095		153	0.072	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
4P	D		11	11	9	20				
5P	D		5	5	11	16		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

	AM Peak			PM Peak		
Check Critical Phase	1,2,3,5P	1,2,3,4P		1,2,3,5P	1,2,3,4P	
Sum of y values, Y	0.312	0.312		0.235	0.235	
Lost time, L	38	37		38	37	
Cycle Time, C	110	110		105	105	
Practical Y, Y_{pr}	0.589	0.597		0.574	0.583	
Reserve Capacity, R.C. (%)	89%	92%		145%	148%	

Calculated by:	Date: 五月-2021	Checked by:

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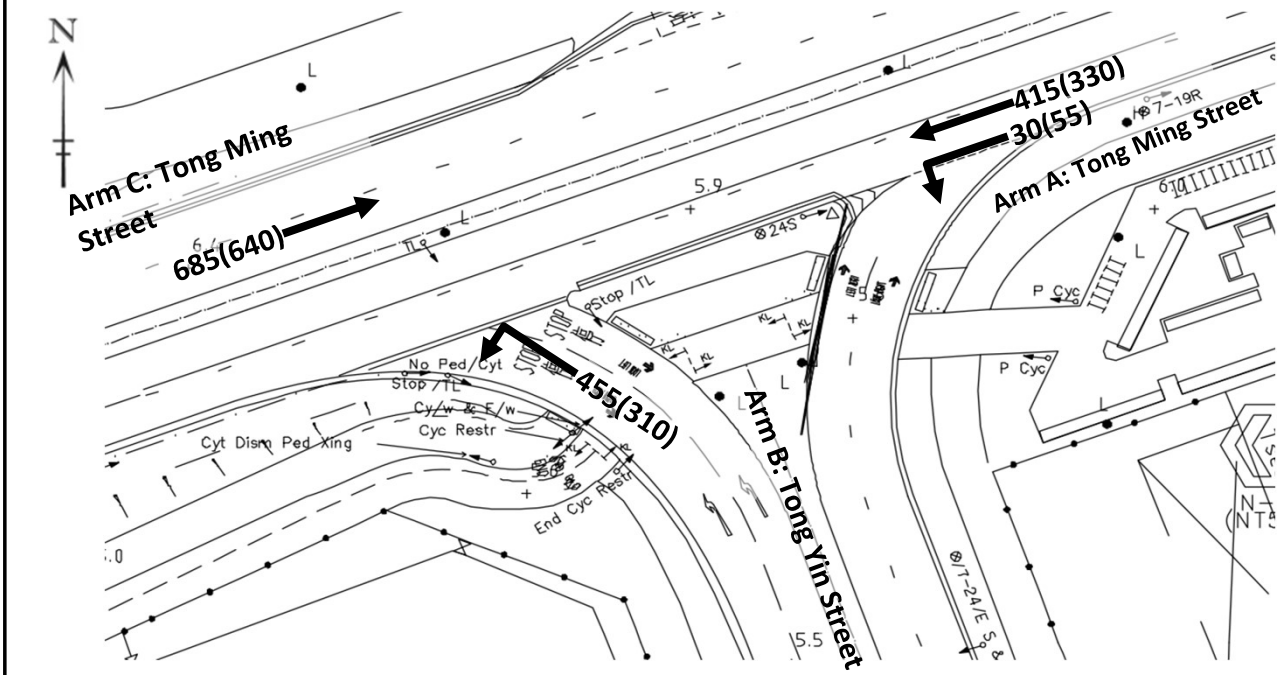
Simplified Priority Junction Capacity Calculation Sheet

Job Title	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O				
Junction	J10 Tong Yin Street/Tong Ming Street			Ref No.:	J10_PJ_2020
Scheme	2020 Obs			Ref No.:	
Year	2020	Job. No.:	J1598	Rev.:	

AM(PM)



Geometry					
Major road width	**W**	7.4	**Lane widths**	w(b-a)	0.00
Central Reserve width	W_{cr}	0		w(b-c)	7.80
2 Lane Minor Arm (Y/N)		Y		w(c-b)	0.00
Visibilities	$V_{r(B-A)}$	0	**Calculated**	D	0.53
	$V_{l(B-A)}$	0		E	1.34
	$V_{r(B-C)}$	80		F	0.59
	$V_{r(C-B)}$	0		Y	0.74

Analysis			**Peak Hour**	
			AM	PM
Traffic Flows	$q_{(C-A)}$		685	640
	$q_{(C-B)}$		0	0
	$q_{(A-B)}$		30	55
	$q_{(A-C)}$		415	330
	$q_{(B-A)}$		0	0
	$q_{(B-C)}$		455	310
Proportion of minor traffic left-turn	**f**		1.00	1.00
		Factor		
Capacities	$Q_{(B-A)}$	1	210	225
	$Q_{(B-C)}$	1	843	871
	$Q_{(C-B)}$	1	366	375
	$Q_{(B-AC)}$	1	0	0
DFC	**B-A**		0.00	0.00
	B-C		0.54	0.36
	C-B		0.00	0.00
	B-AC		0.00	0.00
Worst DFC			**0.54**	**0.36**

Where Vl and Vr are visibility distances to the left or right of the respective streams

D = (1+0.094(w(b-a)-3.65))(1+0.0009(Vr(b-a)-120))(1+0.0006(Vl(b-a)-150))

E = (1+0.094(w(b-c)-3.65))(1+0.0009(Vr(b-c)-120))

F = (1+0.094(w(c-b)-3.65))(1+0.0009(Vr(c-b)-120))

Y = 1-0.0345W

f = proportion of minor traffic turning left

Q (b-ac) = Q(b-c)*Q(b-a)/(1-f)*Q(b-c)+f*Q(b-a)

T.P.D.M.V.2.4

Appendix 1

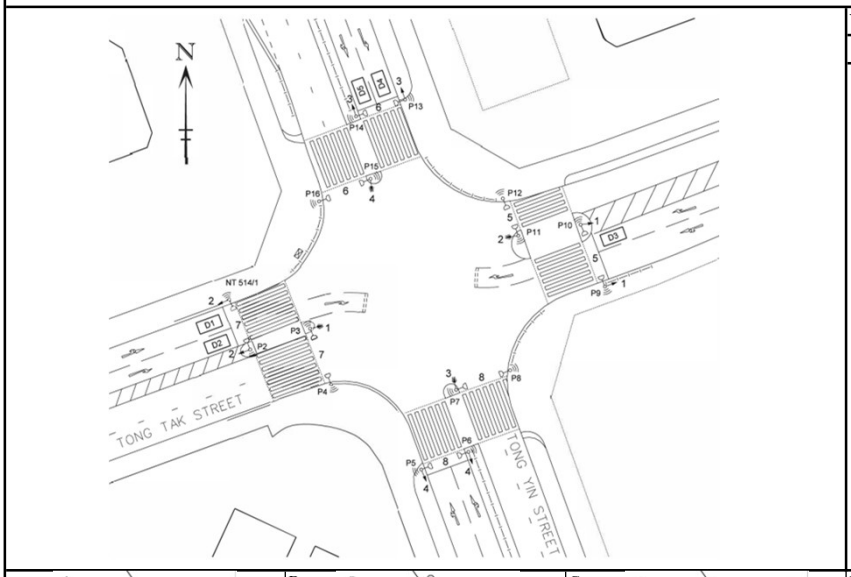
Capacity of combined streams

- in accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

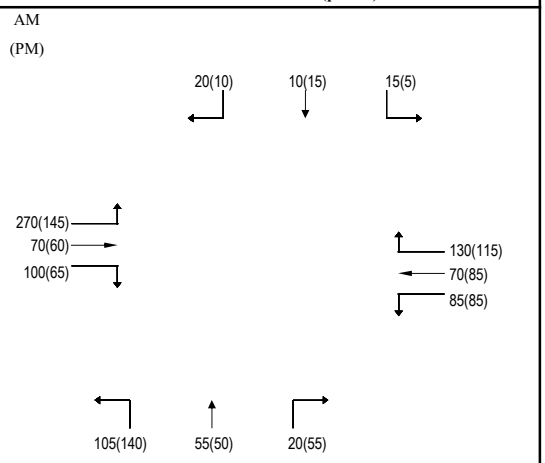
Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O		
Junction:	J11 Tong Yin Street/Tong Tak Street	Ref. No.:	J11_SJ_2020
Scheme:	2020 Obs	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)



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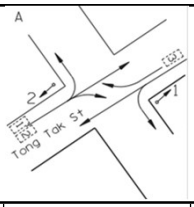

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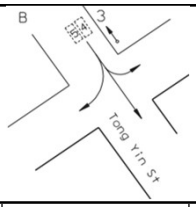

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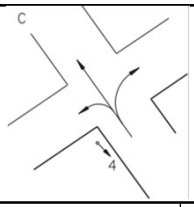

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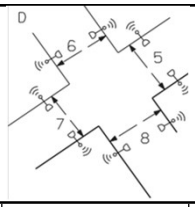

E

2		5	2	5	6	2		3	11	22	1			
2		5	2	5	6	2		3	7	20	1			
2		5	2	5	6	2		3	8	19	0			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	4.30	1		17				55 / 50	1950/1960	155	0.079		170	0.087	
1B	A	1	3.20		1		24			100	1735	130	0.075		115	0.066	
2A	A	1	3.70	1		16				79 / 71	1845/1860	340	0.184	1	205	0.110	1
2B	A	1	3.20		1		24			100	1735	100	0.058		65	0.037	
3A	B	1	3.80	1		18				100	1840	15	0.008		5	0.003	
3B	B	1	3.20				25			67 / 40	1995/2025	30	0.015	1	25	0.012	1
4A	C	1	4.00	1		13				100	1805	105	0.058	1	140	0.078	1
4B	C	1	3.00				24			27 / 52	2020/1990	75	0.037		105	0.053	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	D		12	12	10	22		1		1
6P	D		9	9	10	19				
7P	D		10	10	10	20				
8P	D		10	10	10	20				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

	AM Peak			PM Peak		
Check Critical Phase	2,3,4,5P	2,3,4,7P	2,3,4,6P	2,3,4,5P	2,3,4,7P	2,3,4,6P
Sum of y values, Y	0.257	0.257	0.257	0.200	0.200	0.200
Lost time, L	56	50	49	56	50	49
Cycle Time, C	127	127	127	124	124	124
Practical Y, Y_{pr}	0.503	0.546	0.553	0.494	0.537	0.544
Reserve Capacity, R.C. (%)	95%	112%	115%	147%	168%	172%

Calculated by:	Date: 五月-2021	Checked by:

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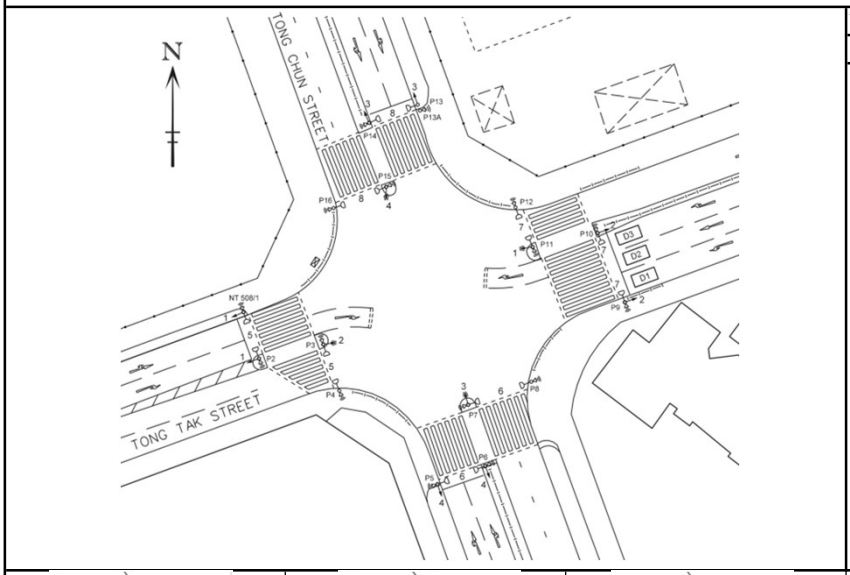
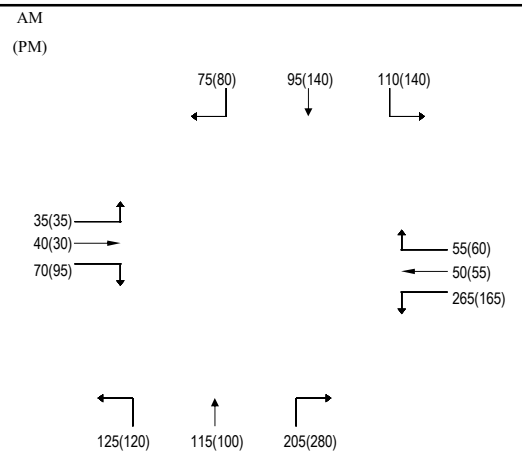
Traffic Signal Junction Calculation Sheet

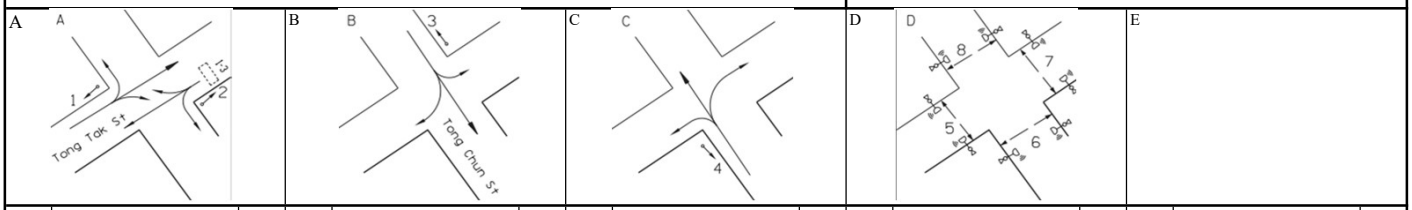
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O		
Junction:	J12 Tong Tak Street/Tong Chun Street	Ref. No.:	J12_SJ_2020
Scheme:	2020 Obs	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		11	2		5	2		4	10	25	2			
2		11	2		5	2		4	7	18	2			
2		11	2		5	2		4	7	18	0			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.60	1		15				47 / 54	1885/1875	75	0.040		65	0.035	
1B	A	1	3.20		1		29			100	1755	70	0.040		95	0.054	
2A	A	1	4.00	1		17				100	1850	265	0.143	1	165	0.089	1
2B	A	1	3.50								2105	50	0.024		55	0.026	
2C	A	1	3.70		1		24			100	1785	55	0.031		60	0.034	
3A	B	1	3.60	1		17				84 / 83	1840	131	0.071		168	0.091	
3B	B	1	4.00				24			50 / 42	2090/2100	149	0.071	1	192	0.091	1
4A	C	1	3.60	1		18				58 / 55	1885/1890	216	0.114	1	220	0.116	
4B	C	1	3.60				24			89 / 100	2005/1990	229	0.114		280	0.141	1

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	D		9	9	9	18				
6P	D		10	10	10	20				
7P	D		12	12	13	25		1		1
8P	D		9	9	9	18				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%

In accordance with TPDM - Volume 4.2.4

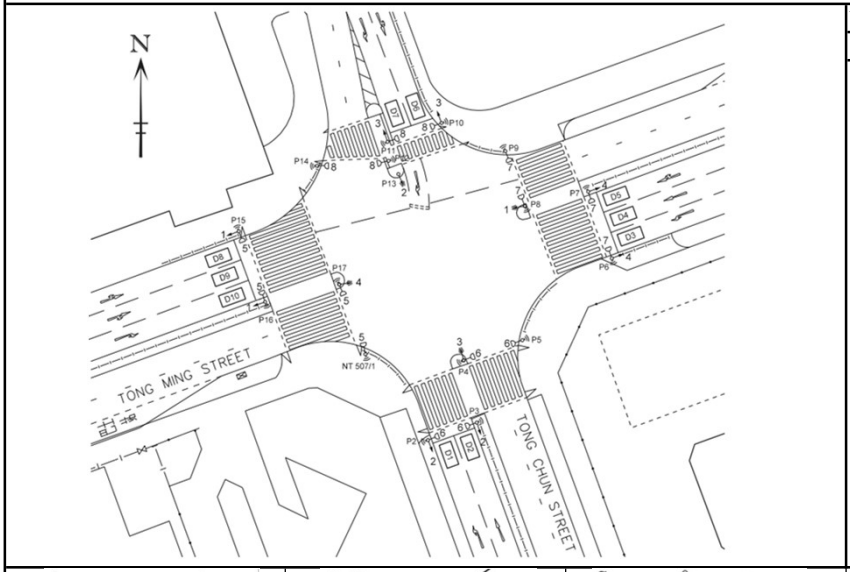
Check Critical Phase	2,3,4,7P	2,3,4,5P	2,3,4,8P	2,3,4,7P	2,3,4,5P	2,3,4,8P
Sum of y values, Y	0.329	0.329	0.329	0.321	0.321	0.321
Lost time, L	60	50	48	60	50	48
Cycle Time, C	125	125	125	125	125	125
Practical Y, Y_{pr}	0.468	0.540	0.554	0.468	0.540	0.554
Reserve Capacity, R.C. (%)	42%	64%	69%	46%	68%	73%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J12_SJ_2020

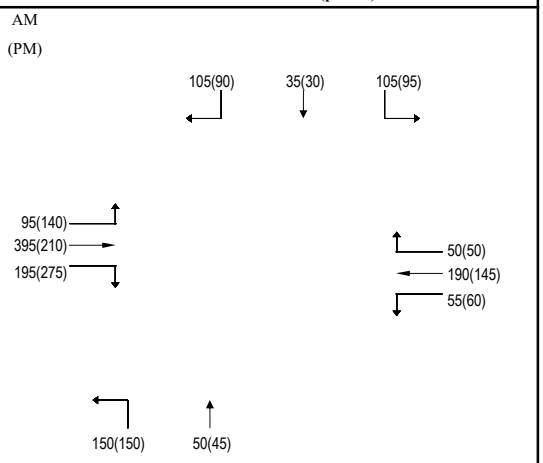
Traffic Signal Junction Calculation Sheet

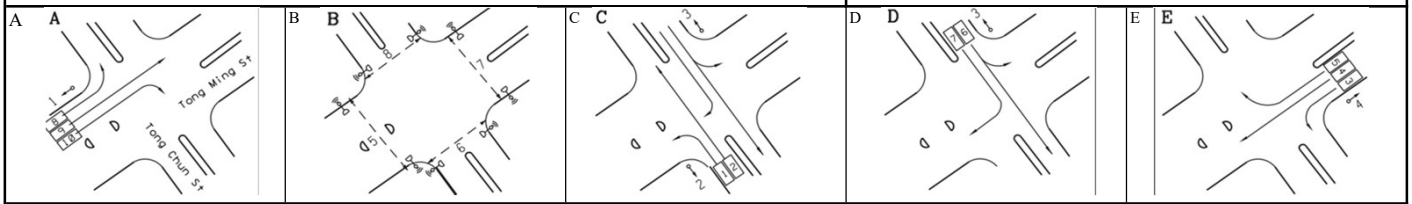
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O		
Junction:	J13 Tong Ming Street/Tong Chun Street	Ref. No.:	J13_SJ_2020
Scheme:	2020 Obs	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		3	9	22		0	2					3	3			6	
2		3	11	18		1	2					3	3			6	
2		3	6	22		1	2					3	3			6	

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.50	1		20				41 / 71	1905/1865	233	0.122	1	197	0.106	
1B	A	1	3.50				24			0 / 30	2105/2065	257	0.122		218	0.106	1
1C	A	1	3.50				24				1980	195	0.098		209	0.106	
2A	C	1	3.60	1		17				100	1815	150	0.083		150	0.083	
2B	C	1	3.70								2125	50	0.024		45	0.021	
3A	CD	1	3.20	1		17				75 / 76	1815	140	0.077	1	125	0.069	1
3B	CD	1	3.40		1		15			100	1695	105	0.062		90	0.053	
4A	E	1	3.50	1		17				100	1805	55	0.030		60	0.033	
4B	E	1	3.50								2105	122	0.058	1	99	0.047	
4C	E	1	3.50				23			42 / 52	2050/2035	118	0.058		96	0.047	1

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	B		14	14	12	26				
6P	B		10	10	8	18				
7P	B		12	12	10	22		1		1
8P	B		12	12	10	22				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	1,7P,3,4	1,6P,3,4	1,8P,3,4	1,7P,3,4	1,6P,3,4	1,8P,3,4
Sum of y values, Y	0.257	0.257	0.257	0.222	0.222	0.222
Lost time, L	47	46	45	47	46	45
Cycle Time, C	125	125	125	125	125	125
Practical Y, Y_{pr}	0.562	0.569	0.576	0.562	0.569	0.576
Reserve Capacity, R.C. (%)	118%	121%	124%	153%	156%	160%

Calculated by:	Date: 五月-2021	Checked by:

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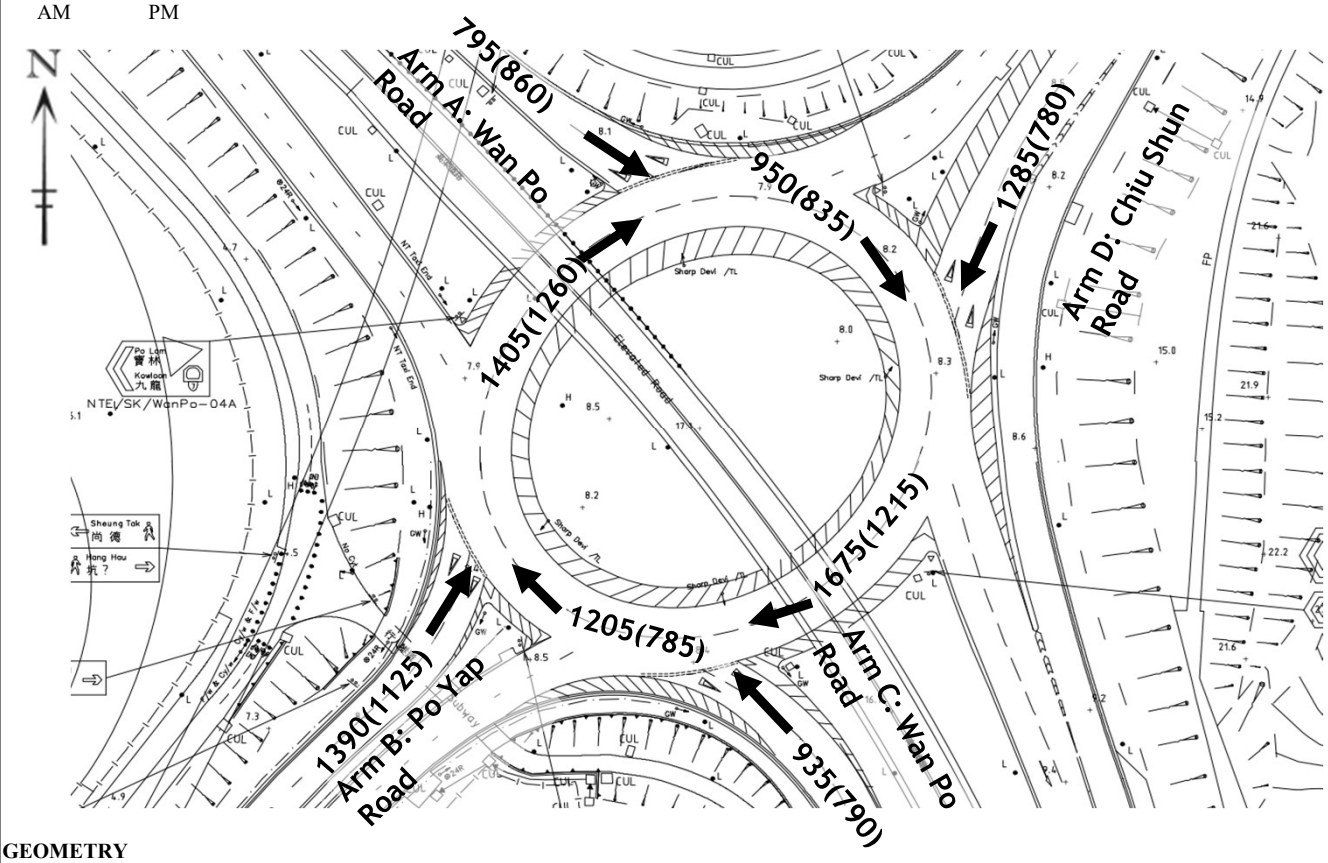
Simplified Roundabout Capacity Calculation

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O				
Junction:	J1 Wan Po Road / Chiu Shun Road / Po Yap Road			Ref. No.:	J1_RA_2026B_ref_
Scheme:	2026 Ref (with CKR / T2)			Ref. No.:	
Year:	2020	Job No.:	J1598	Rev.:	-

AM PM



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	5.00	9.00	20	40	76	20	0.32
B	7.00	7.50	10	50	86	20	0.08
C	8.00	8.00	5	40	76	20	0.00
D	8.00	10.00	10	70	86	25	0.32

CALCULATIONS

ARM	K	X_2	M	F	t_D	f_c	Q_E AM	Q_E PM	DFC AM	DFC PM
A	1.06	7.44	4.95	2254	1.08	0.57	1545	1632	0.51	0.53
B	1.06	7.43	13.46	2252	1.03	0.54	1703	1945	0.82	0.58
C	1.06	8.00	4.95	2424	1.08	0.59	1517	1806	0.62	0.44
D	1.05	9.22	13.46	2794	1.03	0.62	2322	2397	0.55	0.33

Critical Arm:	**B**	**B**
DFC:	**0.82**	**0.58**
	AM	**PM**

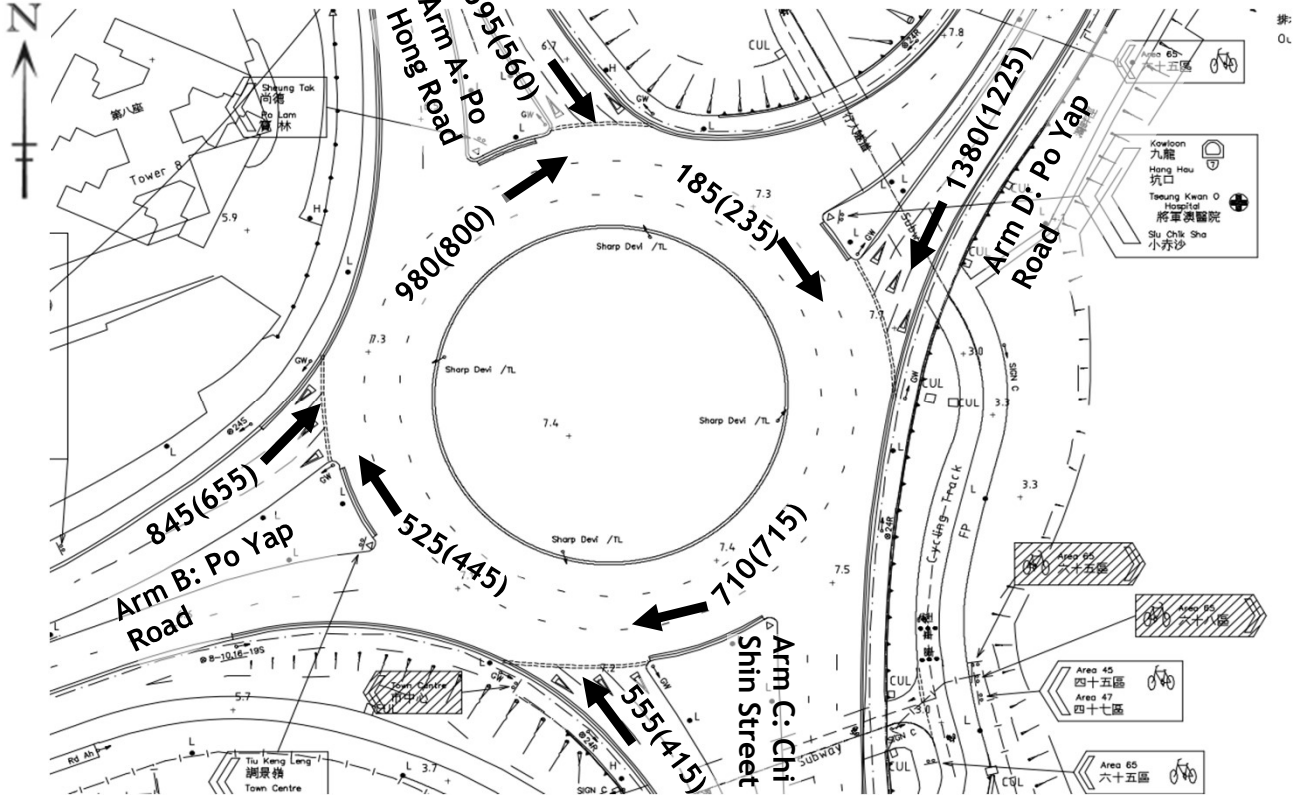
- In accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

Simplified Roundabout Capacity Calculation

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O				
Junction:	J2 Po Yap Road / Chi Shin Street / Po Hong Road			Ref. No.:	J2_RA_2026B_ref_
Scheme:	2026 Ref (with CKR / T2)			Ref. No.:	
Year:	2020	Job No.:	J1598	Rev.:	-

AM PM



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	7.00	11.00	20	25	80	25	0.32
B	7.00	11.00	15	60	80	30	0.43
C	7.00	12.00	10	50	80	25	0.80
D	7.00	11.00	20	90	80	25	0.32

CALCULATIONS

ARM	K	X_2	M	F	t_D	f_c	Q_E AM	Q_E PM	DFC AM	DFC PM
A	1.03	9.44	7.39	2860	1.06	0.64	2291	2410	0.26	0.23
B	1.03	9.16	7.39	2775	1.06	0.63	2524	2576	0.33	0.25
C	1.05	8.92	7.39	2704	1.06	0.62	2369	2366	0.23	0.18
D	1.06	9.44	7.39	2860	1.06	0.64	2893	2859	0.48	0.43

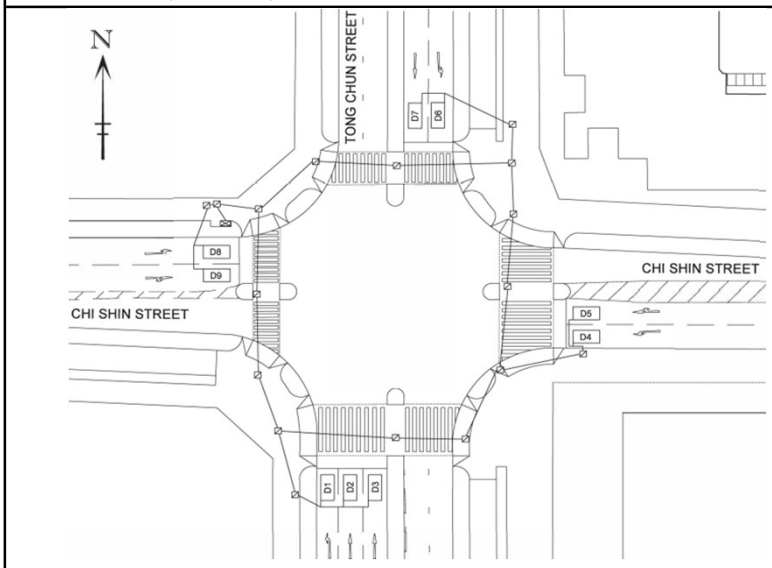
Critical Arm:	**D**	**D**
DFC:	**0.48**	**0.43**
	AM	**PM**

- In accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O		
Junction:	J3 Chi Shin Street / Tong Chun Street	Ref. No.:	J3_SJ_2026B
Scheme:	2026 Ref (with CKR / T2)	Ref. No.:	

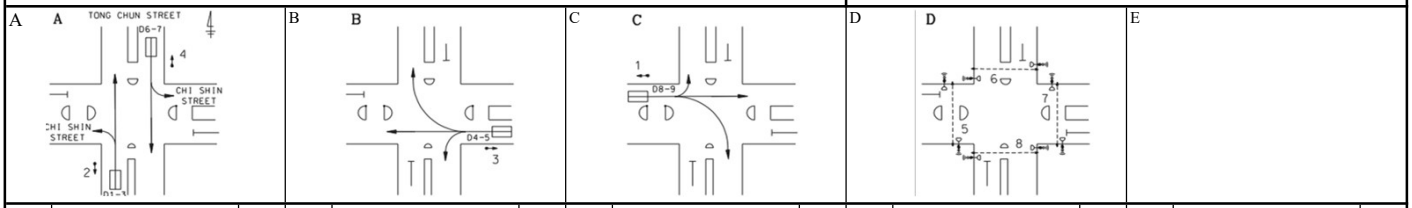


Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)

AM
(PM)

115(25) 145(95)
25(45) 225(195) 50(65)
190(135) 160(145) 115(340)
155(60) 165(180)



2		5	2		5	2		3	9	22	1			
2		5	2		5	2		3	7	20	0			
2		5	2		5	2		3	5	18	1			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	C	1	4.10	1		17			0.86	100	1595	25	0.016		45	0.028	
1B	C	1	4.20				23			18 / 25	2150/2140	275	0.128	1	260	0.121	1
2A	A	1	3.10	1		19				100	1785	155	0.087	1	60	0.034	
2B	A	2	3.65								4240	165	0.039		180	0.042	
3A	B	1	3.50				25			54 / 48	2040/2045	350	0.172	1	280	0.137	
3B	B	1	3.70	1		17				100	1825	115	0.063		340	0.186	1
4A	A	1	3.60	1		17				100	1815	145	0.080		95	0.052	1
4B	A	1	3.60								2115	115	0.054		25	0.012	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	D		10	10	8	18				
6P	D		10	10	8	18				
7P	D		11	11	9	20				
8P	D		12	12	10	22		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	2,3,1,8P	2,3,1,7P	2,3,1,6P	2,3,1,8P	2,3,1,7P	2,3,1,6P
Sum of y values, Y	0.386	0.386	0.386	0.360	0.360	0.360
Lost time, L	48	43	40	48	43	40
Cycle Time, C	110	110	110	110	110	110
Practical Y, Y_{pr}	0.507	0.548	0.573	0.507	0.548	0.573
Reserve Capacity, R.C. (%)	31%	42%	48%	41%	52%	59%

Calculated by:	Date: 五月-2021	Checked by:

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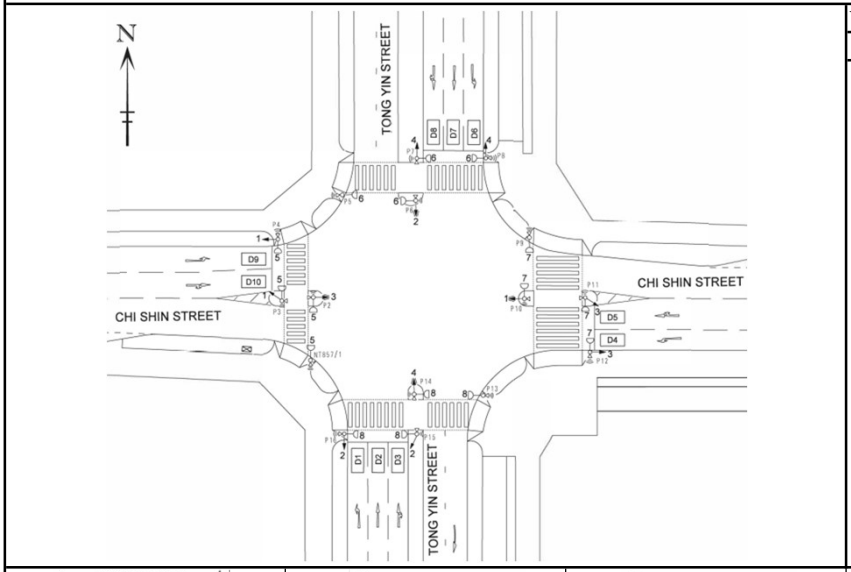
Traffic Signal Junction Calculation Sheet

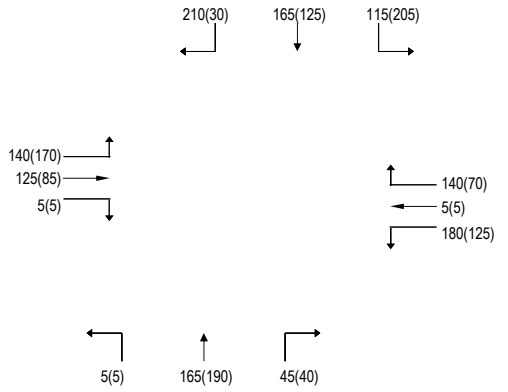
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O		
Junction:	J4 Chi Shin Street / Tong Yin Street	Ref. No.:	J4_SJ_2026B
Scheme:	2026 Ref (with CKR / T2)	Ref. No.:	

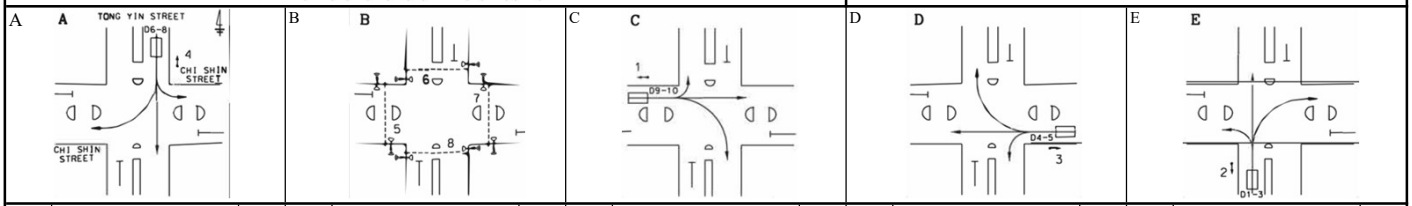


Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)

AM
(PM)





2		5	5	21	0	2	5	5	2		6	2		5
2		5	7	18	1	2	5	5	2		6	2		5
2		5	1	22	0	2	5	5	2		6	2		5

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	C	1	3.60	1		17				100	1815	140	0.077	1	170	0.094	1
1B	C	1	3.60				23			4 / 6	2110/2105	130	0.062		90	0.043	
2A	E	1	3.30	1		17			0.86	100	1530	5	0.003		5	0.003	
2B	E	1	3.30								2085	106	0.051		116	0.056	
2C	E	1	3.30				25			43 / 35	2030/2040	104	0.051	1	114	0.056	1
3A	D	1	3.40	1		17				100	1795	180	0.100	1	125	0.070	1
3B	D	1	3.90				36			97 / 93	2060/2065	145	0.070		75	0.036	
4A	A	1	3.30	1		17				100	1785	115	0.064		205	0.115	1
4B	A	1	3.30								2085	165	0.079		78	0.038	
4C	A	1	3.30				23			100 / 39	1955/2035	210	0.107	1	77	0.038	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	B		10	10	8	18				
6P	B		13	13	9	22				
7P	B		9	9	7	16				
8P	B		12	12	9	21		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	4,8P,1,3,2	4,5P,1,3,2	4,6P,1,3,2	4,8P,1,3,2	4,5P,1,3,2	4,6P,1,3,2
Sum of y values, Y	0.336	0.336	0.336	0.334	0.334	0.334
Lost time, L	56	56	53	56	56	53
Cycle Time, C	100	100	100	110	110	110
Practical Y, Y_{pr}	0.396	0.396	0.423	0.442	0.442	0.466
Reserve Capacity, R.C. (%)	18%	18%	26%	32%	32%	40%

Calculated by:	Date: 五月-2021	Checked by:

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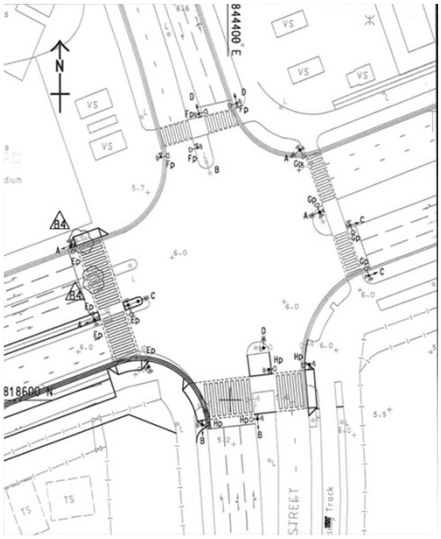
Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O		
Junction:	J5 Po Yap Road / Tong Yin Street	Ref. No.:	J5_SJ_2026B
Scheme:	2026 Ref (with CKR / T2)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)

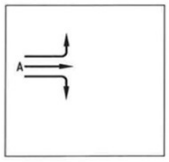
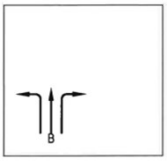
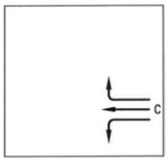
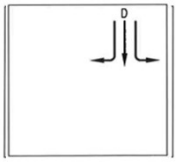
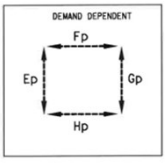
AM
(PM)

210(245) 5(5) 190(115)

220(210)
365(215)
190(390)

160(125)
265(200)
165(95)

265(275) 180(85) 5(60)

A	B	C	D	E
				
STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5
2 3	2 5	2 3	2 3	13 28 0
2 3	2 5	2 3	2 3	11 27 1
2 3	2 5	2 3	2 3	6 25 0

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.80	1		15					1815	180	0.099		192	0.106	
1B	A	1	3.40			15				20 / 8	2055/2080	203	0.099		219	0.106	
1C	A	1	3.50				20			3 / 93	2100/1965	208	0.099	1	208	0.106	1
1D	A	1	3.80	1			20				1855	184	0.099		196	0.106	
2A	B	1	3.70			15					1930	148	0.077		140	0.073	1
2B	B	1	3.70			15				78 / 96	1970/1940	151	0.077	1	141	0.072	
2C	B	1	3.70	1			20			3 / 43	1980/1925	151	0.077		139	0.072	
3A	C	1	3.20			15				85 / 68	1910/1940	193	0.101	1	139	0.072	1
3B	C	1	3.30	1							1945	196	0.101		139	0.072	
3C	C	1	3.50				20			80 / 88	1985/1975	201	0.101		141	0.072	
4A	D	1	3.70	1		15	20			97 / 97	1810/1820	195	0.108	1	175	0.096	1
4B	D	1	3.70				20				1975	210	0.106		190	0.096	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	E		14	14	13	27				
6P	E		11	11	8	19				
7P	E		15	15	10	25				
8P	E		16	16	12	28		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr}/Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	1,2,3,4,8P	1,2,3,4,5P	1,2,3,4,7P	1,2,3,4,8P	1,2,3,4,5P	1,2,3,4,7P
Sum of y values, Y	0.384	0.384	0.384	0.346	0.346	0.346
Lost time, L	59	57	49	59	57	49
Cycle Time, C	120	120	120	105	105	105
Practical Y, Y_{pr}	0.458	0.473	0.533	0.394	0.411	0.480
Reserve Capacity, R.C. (%)	19%	23%	39%	14%	19%	39%

Calculated by:	Date: 五月-2021	Checked by:

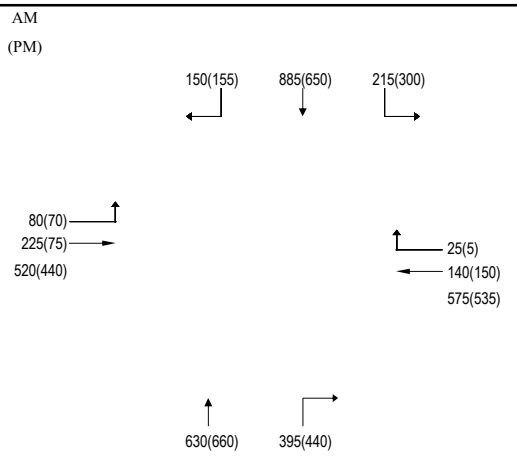
Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J5_SJ_2026B_ref_

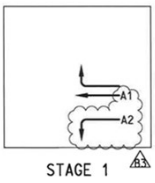
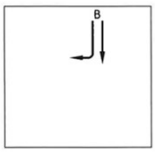
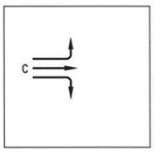
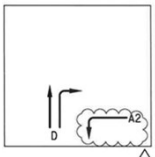
Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O		
Junction:	J6 Po Yap Road / Po Shun Road / Chui Ling Road / Future Road P2	Ref. No.:	J6_SJ_2026B
Scheme:	2026 Ref (with CKR / T2)	Ref. No.:	

Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)



A	B	C	D	E
				
STAGE 1	STAGE 2	STAGE 3	STAGE 4	

2		3	2		5	2		3	2		3			
		3	2		5	2		3			2			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A ←	A	1	3.50								2105	140	0.067	1	150	0.071	1
1B ↰	A	1	3.70				20			100	1975	25	0.013		5	0.003	
2A ↓	AD	2	3.50	1		15				100	3700	575	0.155		535	0.145	
3A ↓	B	2	3.65	1							4100	885	0.216	1	650	0.159	1
3B ↓	B	1	3.60				20			100	1965	150	0.076		155	0.079	
4A ↑→	C	1	3.60	1		15				30 / 48	1920/1885	271	0.141		145	0.077	
4B ↓→	C	1	3.30				20			88 / 100	1955/1940	276	0.141	1	219	0.113	
4C ↓	C	1	3.60				20				1965	278	0.141		221	0.113	1
5A ↑	D	1	3.70	1							1985	336	0.169	1	361	0.182	
5B ↑→	D	1	3.70				20			17 / 21	2100/2090	355	0.169		380	0.182	1
5C ↑→	D	1	3.70				20				1975	334	0.169	1	359	0.182	

Critical Ped. Phase	Stage	Width Across	Min. GM	Min. FGM	Lost Time	Note	Crit.	Note	Crit.

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	1,3,4,5	2,3,4		1,3,4,5	2,3,4	
Sum of y values, Y	0.593	0.513		0.524	0.416	
Lost time, L	18	14		18	14	
Cycle Time, C	127	217		124	214	
Practical Y, Y_{pr}	0.772	0.842		0.769	0.841	
Reserve Capacity, R.C. (%)	30%	64%		47%	102%	

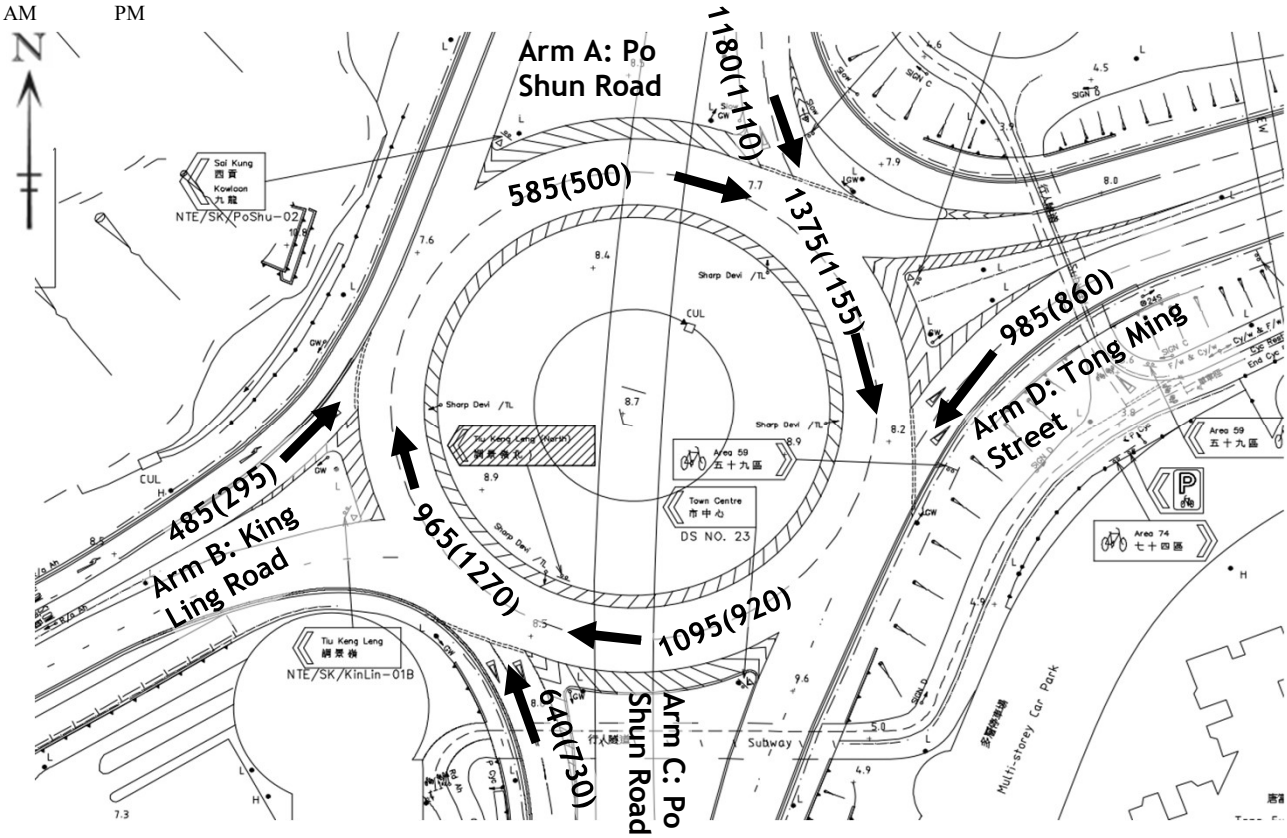
Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J6_SJ_2026B_ref_

Simplified Roundabout Capacity Calculation

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O				
Junction:	J7 Po Shun Road / Tong Ming Street / King Ling Road			Ref. No.:	J7_RA_2026B_ref_
Scheme:	2026 Ref (with CKR / T2)			Ref. No.:	
Year:	2020	Job No.:	J1598	Rev.:	-

AM PM



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	7.00	8.00	14.5	20	81.2	20	0.11
B	2.70	4.60	31.9	55.2	81.2	18	0.10
C	7.10	7.40	11.7	23	81.2	10	0.04
D	7.40	8.40	27.5	60	81.2	29	0.06

CALCULATIONS

							Q_E		DFC	
ARM	K	X_2	M	F	t_D	f_c	AM	PM	AM	PM
A	1.03	7.82	8.33	2369	1.05	0.57	2108	2158	0.56	0.51
B	1.07	4.30	8.33	1302	1.05	0.41	971	836	0.50	0.35
C	1.08	7.38	8.33	2235	1.05	0.55	1760	1863	0.36	0.39
D	1.04	8.30	8.33	2514	1.05	0.59	1766	1900	0.56	0.45

Critical Arm:	**A**	**A**
DFC:	**0.56**	**0.51**
	AM	**PM**

- In accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

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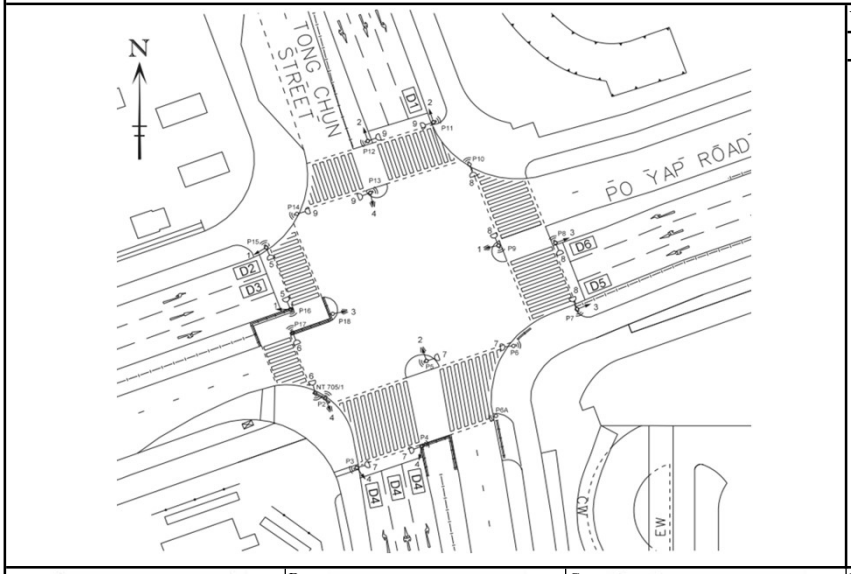
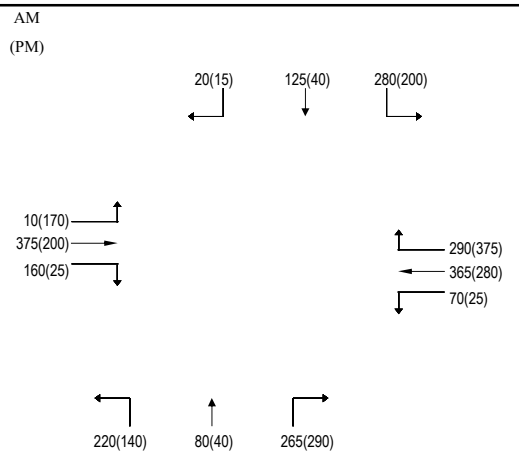
Traffic Signal Junction Calculation Sheet

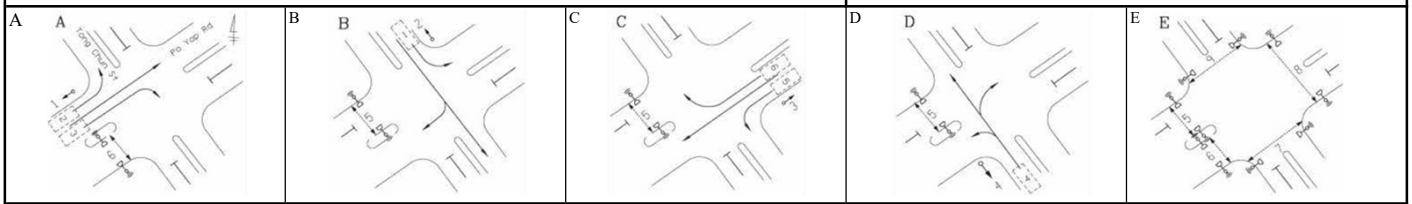
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O		
Junction:	J8 Po Yap Road / Tong Chun Street	Ref. No.:	J8_SJ_2026B
Scheme:	2026 Ref (with CKR / T2)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		5	2		5	2		6	2		6	8	16	0
2		5	2		5	2		6	2		6	4	16	0
2		5	2		5	2		6	2		6	0	16	0

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.30	1		17				100	1785	10	0.006		170	0.095	1
1B	A	1	3.30								2085	274	0.131	1	113	0.054	
1C	A	1	3.30				20			61 / 22	1995/2050	262	0.131		112	0.054	
2A	B	1	3.40	1		17					1795	135	0.075		97	0.054	
2B	B	1	3.40			17				100	1925	145	0.075	1	103	0.054	1
2C	B	1	3.50				26			14 / 27	2090/2070	145	0.069		55	0.027	
3A	C	1	3.30	1		17				30 / 11	1895/1925	232	0.123		223	0.116	1
3B	C	1	3.40				20			20 / 65	2065/2000	253	0.123		231	0.116	
3C	C	1	3.40				20				1950	239	0.123	1	226	0.116	
4A	D	1	3.60	1		16					1805	175	0.097	1	140	0.078	
4B	D	1	3.50			16	26			59 / 76	2020/2015	196	0.097		166	0.082	1
4C	D	1	3.50				26				1990	193	0.097	1	164	0.082	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	BCDE		5	5	11	16				
6P	E		5	5	7	12				
7P	E		5	5	11	16				
8P	E		5	5	11	16		1		1
9P	E		5	5	11	16				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	1,2,3,4,8P	1,2,3,4,9P	1,2,3,4,7P	1,2,3,4,8P	1,2,3,4,9P	1,2,3,4,7P
Sum of y values, Y	0.426	0.426	0.426	0.347	0.347	0.347
Lost time, L	50	46	42	50	46	42
Cycle Time, C	125	125	125	125	125	125
Practical Y, Y_{pr}	0.540	0.569	0.598	0.540	0.569	0.598
Reserve Capacity, R.C. (%)	27%	33%	40%	56%	64%	72%

Calculated by:	Date: 五月-2021	Checked by:

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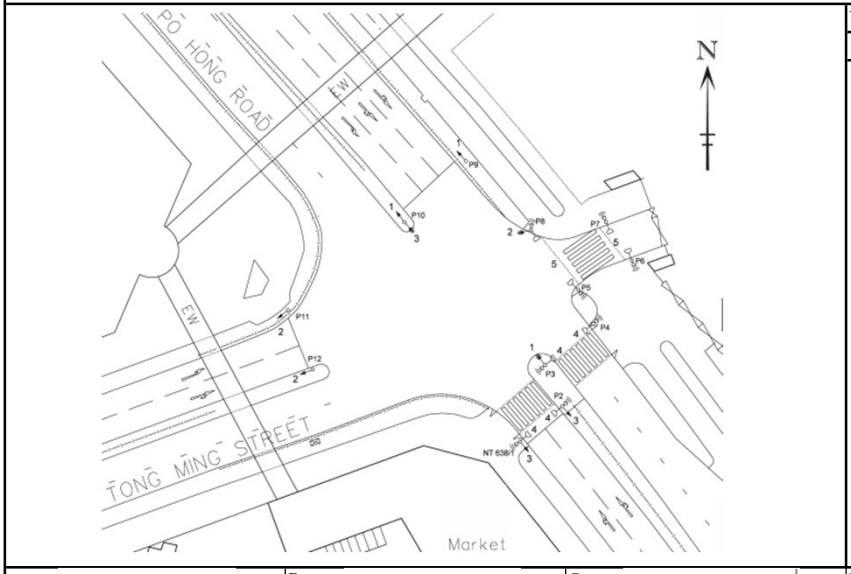
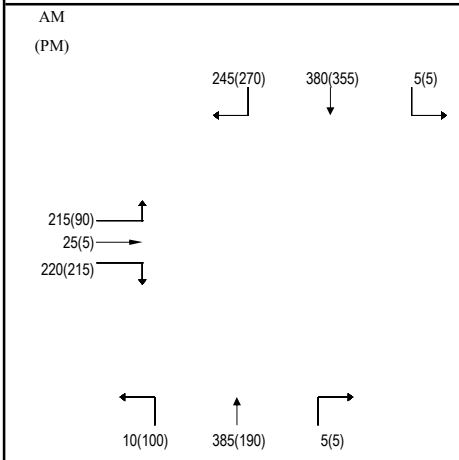
Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O		
Junction:	J9 Po Hong Road / Tong Ming Street	Ref. No.:	J9_SJ_2026B
Scheme:	2026 Ref (with CKR / T2)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)



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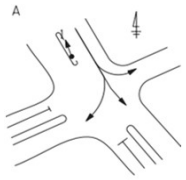

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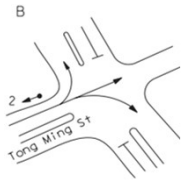

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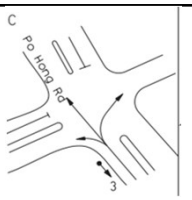

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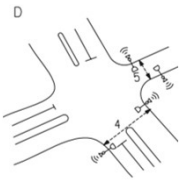


E

2		3	3		3	4		3	7	16	0			
2		3	3		3	4		3	2	20	0			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.40	1		15				2 / 2	1950	204	0.105		205	0.105	1
1B	A	1	3.40				21			16 / 28	2070/2055	217	0.105	1	216	0.105	
1C	A	1	3.90				21				2000	209	0.105		210	0.105	
2A	B	1	3.70	1		16				100	1815	215	0.118		90	0.050	
2B	B	1	3.60				32			90 / 98	2030/2020	245	0.121	1	220	0.109	1
3A	C	1	3.50	1		17				5 / 73	1955/1845	192	0.098	1	137	0.075	1
3B	C	1	3.70				11			2 / 3	2120/2115	208	0.098		158	0.074	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
4P	D		11	11	9	20				
5P	D		5	5	11	16		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%

In accordance with TPDM - Volume 4.2.4

	AM Peak			PM Peak		
Check Critical Phase	1,2,3,5P	1,2,3,4P		1,2,3,5P	1,2,3,4P	
Sum of y values, Y	0.324	0.324		0.288	0.288	
Lost time, L	38	37		38	37	
Cycle Time, C	110	110		105	105	
Practical Y, Y_{pr}	0.589	0.597		0.574	0.583	
Reserve Capacity, R.C. (%)	82%	85%		99%	102%	

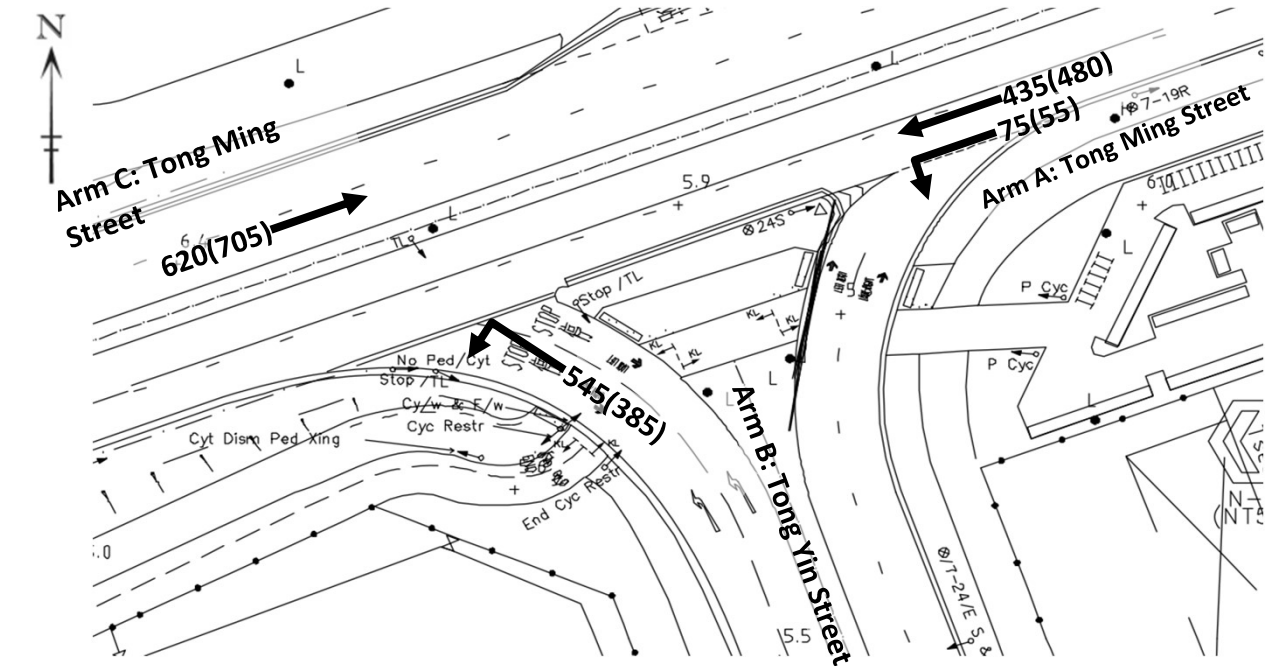
Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J9_SJ_2026B_ref_

Simplified Priority Junction Capacity Calculation Sheet

Job Title	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O			
Junction	J10 Tong Yin Street/Tong Ming Street		Ref No.:	J10_PJ_2026B_
Scheme	2026 Ref (with CKR / T2)		Ref No.:	
Year	2020	Job. No.: J1598	Rev.:	

AM(PM)



Geometry					
Major road width	**W**	7.4	**Lane widths**	w(b-a)	0.00
Central Reserve width	W_{cr}	0		w(b-c)	7.80
2 Lane Minor Arm (Y/N)		Y		w(c-b)	0.00
Visibilities	$V_{r(B-A)}$	0	**Calculated**	D	0.53
	$V_{l(B-A)}$	0		E	1.34
	$V_{r(B-C)}$	80		F	0.59
	$V_{r(C-B)}$	0		Y	0.74

Analysis			**Peak Hour**	
			AM	PM
Traffic Flows	$q_{(C-A)}$		620	705
	$q_{(C-B)}$		0	0
	$q_{(A-B)}$		75	55
	$q_{(A-C)}$		435	480
	$q_{(B-A)}$		0	0
	$q_{(B-C)}$		545	385
Proportion of minor traffic left-turn	**f**		1.00	1.00
		Factor		
Capacities	$Q_{(B-A)}$	1	211	198
	$Q_{(B-C)}$	1	830	816
	$Q_{(C-B)}$	1	356	352
	$Q_{(B-AC)}$	1	0	0
DFC	**B-A**		0.00	0.00
	B-C		0.66	0.47
	C-B		0.00	0.00
	B-AC		0.00	0.00
Worst DFC			**0.66**	**0.47**

Where Vl and Vr are visibility distances to the left or right of the respective streams

D = (1+0.094(w(b-a)-3.65))(1+0.0009(Vr(b-a)-120))(1+0.0006(Vl(b-a)-150))

E = (1+0.094(w(b-c)-3.65))(1+0.0009(Vr(b-c)-120))

F = (1+0.094(w(c-b)-3.65))(1+0.0009(Vr(c-b)-120))

Y = 1-0.0345W

f = proportion of minor traffic turning left

Q (b-ac) = Q(b-c)*Q(b-a)/(1-f)*Q(b-c)+f*Q(b-a)

T.P.D.M.V.2.4

Appendix 1

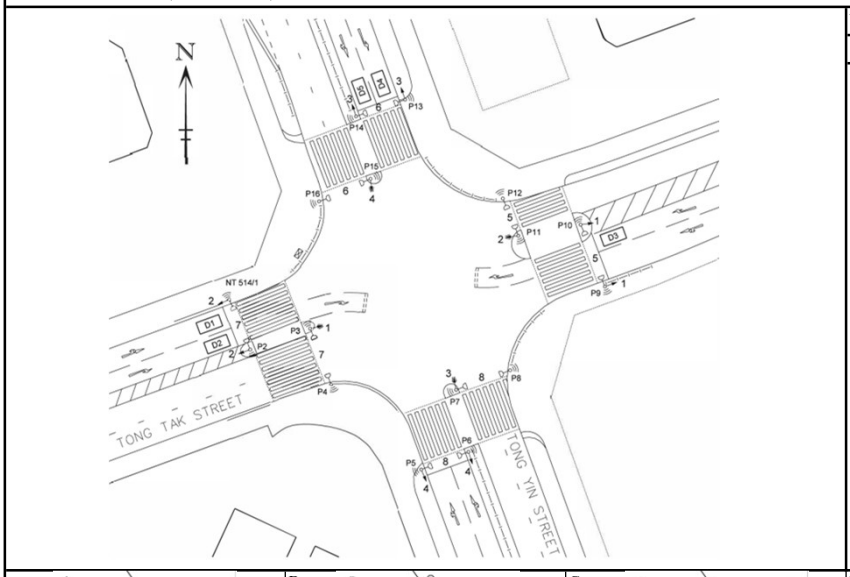
Capacity of combined streams

- in accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

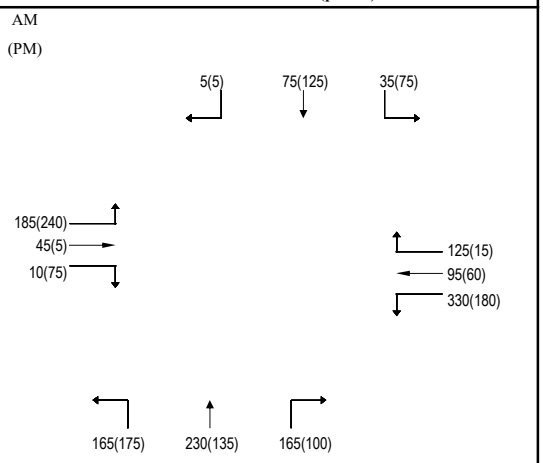
Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O		
Junction:	J11 Tong Yin Street/Tong Tak Street	Ref. No.:	J11_SJ_2026
Scheme:	2026 Ref (with CKR / T2)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)



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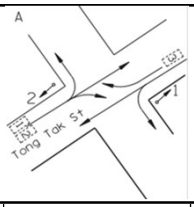

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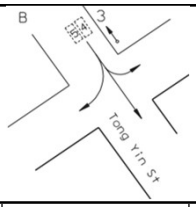

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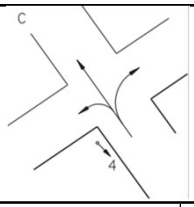

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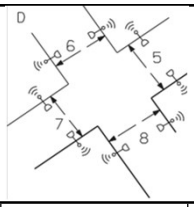


E

2		5	2	5	6	2		3	11	22	1			
2		5	2	5	6	2		3	7	20	1			
2		5	2	5	6	2		3	8	19	0			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	4.30	1		17				78 / 75	1915/1920	425	0.222	1	240	0.125	
1B	A	1	3.20		1		24			100	1735	125	0.072		15	0.009	
2A	A	1	3.70	1		16				80 / 98	1845/1820	230	0.125		245	0.135	1
2B	A	1	3.20		1		24			100	1735	10	0.006		75	0.043	
3A	B	1	3.80	1		18				100	1840	35	0.019		75	0.041	
3B	B	1	3.20				25			6 / 4	2065/2070	80	0.039	1	130	0.063	1
4A	C	1	4.00	1		13				60 / 89	1885/1825	273	0.145		196	0.107	1
4B	C	1	3.00				24			57 / 47	1985/1995	287	0.145	1	214	0.107	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	D		12	12	10	22		1		1
6P	D		9	9	10	19				
7P	D		10	10	10	20				
8P	D		10	10	10	20				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

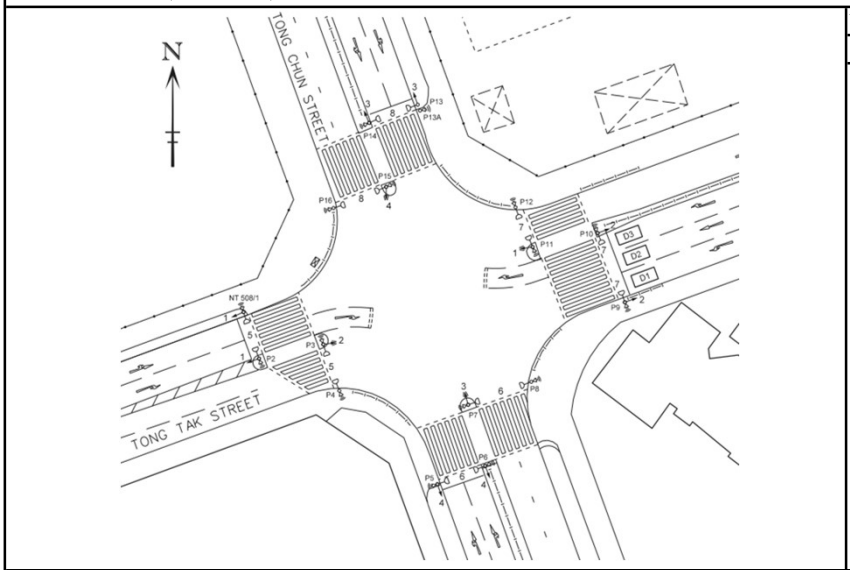
Check Critical Phase	1,3,4,5P	1,3,4,7P	1,3,4,6P	1,3,4,5P	1,3,4,7P	1,3,4,6P
Sum of y values, Y	0.405	0.405	0.405	0.305	0.305	0.305
Lost time, L	56	50	49	56	50	49
Cycle Time, C	127	127	127	124	124	124
Practical Y, Y_{pr}	0.503	0.546	0.553	0.494	0.537	0.544
Reserve Capacity, R.C. (%)	24%	35%	36%	62%	76%	79%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J11_SJ_2026B_ref_

Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O		
Junction:	J12 Tong Tak Street/Tong Chun Street	Ref. No.:	J12_SJ_2026
Scheme:	2026 Ref (with CKR / T2)	Ref. No.:	

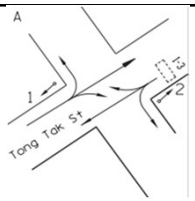


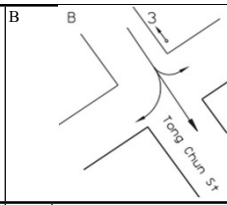
Year:	2020	Job No.:	J1598	Rev.:	-

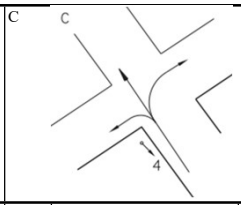
Peak Hour Traffic Flows (pcu/hr)

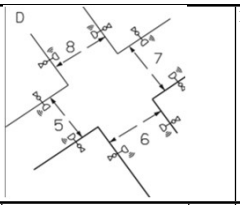
AM
(PM)

50(220) 75(90) 190(165)
110(115) 90(60) 45(5)
5(5) 220(145) 305(155)
120(210) 85(55) 160(280)









E

A	2		11	B	2		5	C	2		4	D	10	25	2	E	
	2		11		2		5		2		4		7	18	2		
	2		11		2		5		2		4		7	18	0		

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.60	1		15				55 / 66	1870/1855	200	0.107		175	0.094	1
1B	A	1	3.20		1		29			100	1755	45	0.026		5	0.003	
2A	A	1	4.00	1		17				100	1850	305	0.165	1	155	0.084	
2B	A	1	3.50								2105	220	0.105		145	0.069	
2C	A	1	3.70		1		24			100	1785	5	0.003		5	0.003	
3A	B	1	3.60	1		17				100 / 73	1815/1855	190	0.105	1	226	0.122	
3B	B	1	4.00				24			40 / 88	2100/2040	125	0.060		249	0.122	1
4A	C	1	3.60	1		18				68 / 80	1870/1850	176	0.094		263	0.142	1
4B	C	1	3.60				24			85 / 99	2010/1990	189	0.094	1	282	0.142	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	D		9	9	9	18				
6P	D		10	10	10	20				
7P	D		12	12	13	25		1		1
8P	D		9	9	9	18				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%

In accordance with TPDM - Volume 4.2.4

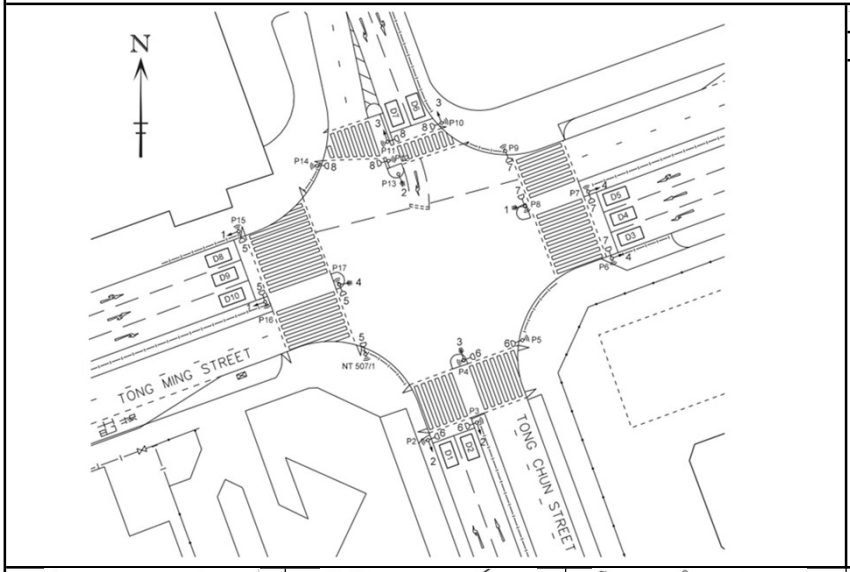
Check Critical Phase	2,3,4,7P	2,3,4,5P	2,3,4,8P	2,3,4,7P	2,3,4,5P	2,3,4,8P
Sum of y values, Y	0.364	0.364	0.364	0.358	0.358	0.358
Lost time, L	60	50	48	60	50	48
Cycle Time, C	125	125	125	125	125	125
Practical Y, Y_{pr}	0.468	0.540	0.554	0.468	0.540	0.554
Reserve Capacity, R.C. (%)	29%	49%	52%	31%	51%	55%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J12_SJ_2026B_ref_

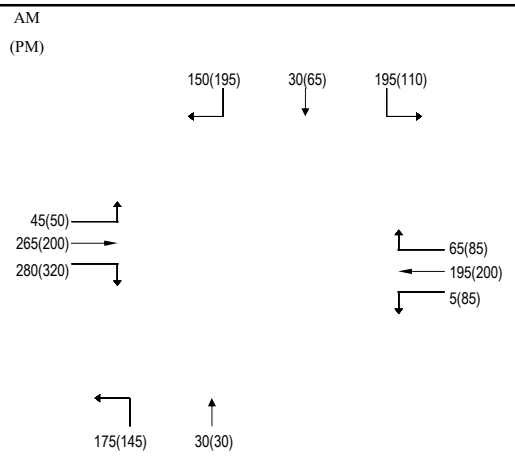
Traffic Signal Junction Calculation Sheet

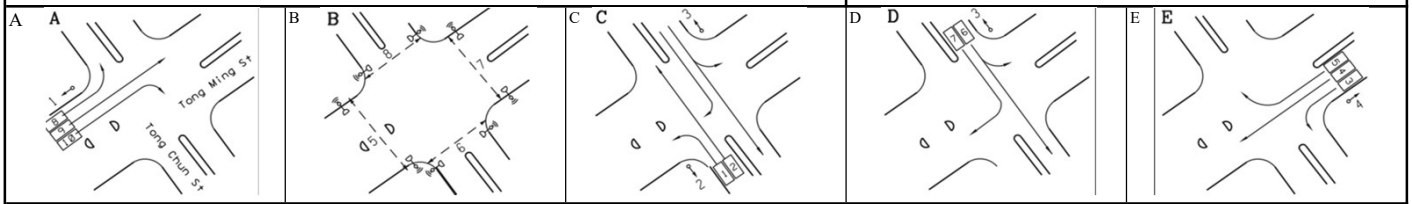
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O		
Junction:	J13 Tong Ming Street/Tong Chun Street	Ref. No.:	J13_SJ_2026
Scheme:	2026 Ref (with CKR / T2)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		3	9	22	0	2					3	3		6
2		3	11	18	1	2					3	3		6
2		3	6	22	1	2					3	3		6

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.50	1		20				24 / 27	1930/1925	191	0.099		185	0.096	1
1B	A	1	3.50				24			41 / 67	2050/2020	203	0.099	1	194	0.096	
1C	A	1	3.50				24				1980	196	0.099		190	0.096	
2A	C	1	3.60	1		17				100	1815	175	0.096		145	0.080	
2B	C	1	3.70								2125	30	0.014		30	0.014	
3A	CD	1	3.20	1		17				87 / 63	1800/1835	225	0.125	1	175	0.095	
3B	CD	1	3.40		1		15			100	1695	150	0.088		195	0.115	1
4A	E	1	3.50	1		17				100	1805	5	0.003		85	0.047	
4B	E	1	3.50								2105	132	0.063		145	0.069	1
4C	E	1	3.50				23			51 / 61	2035/2025	128	0.063	1	140	0.069	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	B		14	14	12	26				
6P	B		10	10	8	18				
7P	B		12	12	10	22		1		1
8P	B		12	12	10	22				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	1,7P,3,4	1,6P,3,4	1,8P,3,4	1,7P,3,4	1,6P,3,4	1,8P,3,4
Sum of y values, Y	0.287	0.287	0.287	0.280	0.280	0.280
Lost time, L	47	46	45	47	46	45
Cycle Time, C	125	125	125	125	125	125
Practical Y, Y_{pr}	0.562	0.569	0.576	0.562	0.569	0.576
Reserve Capacity, R.C. (%)	96%	98%	101%	100%	103%	106%

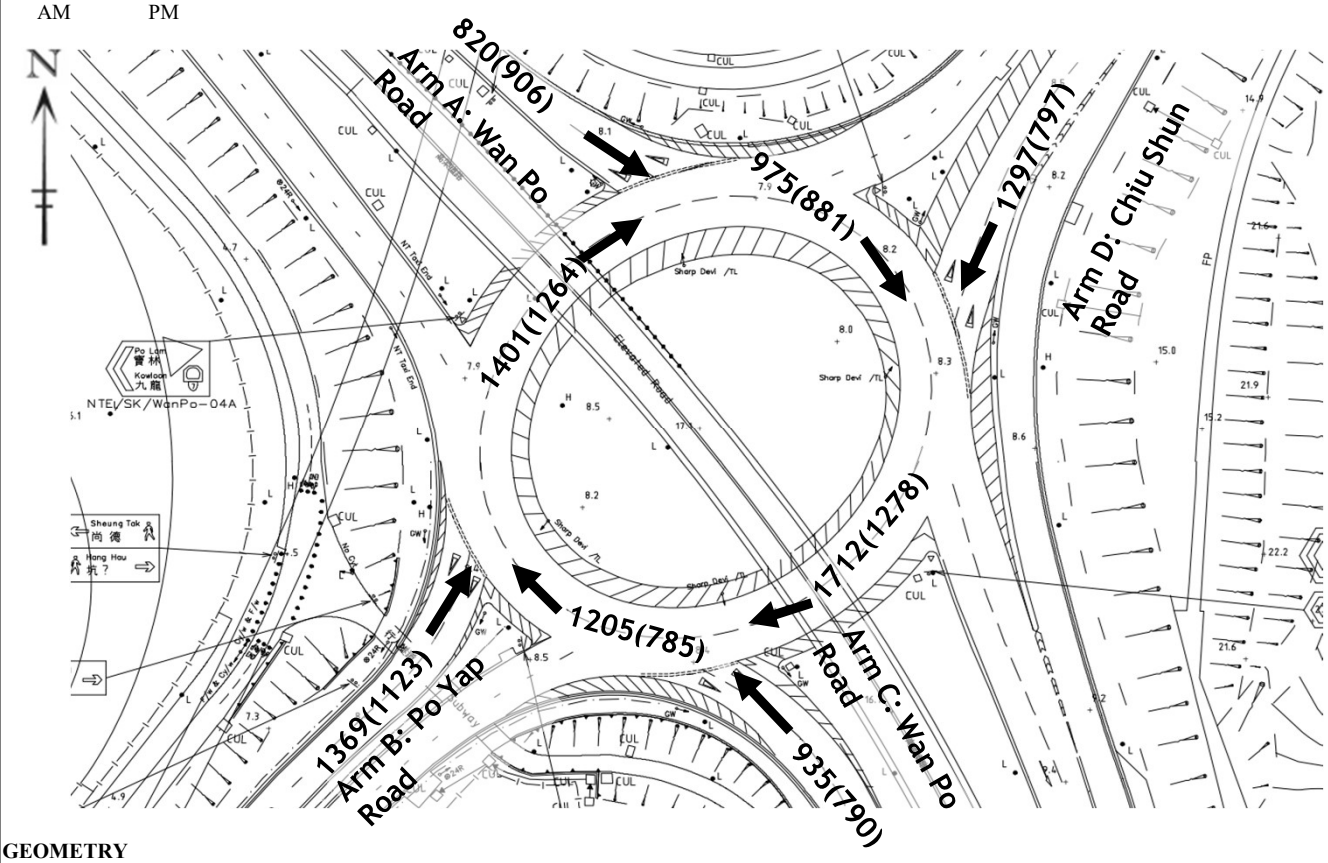
Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J13_SJ_2026B_ref_

Simplified Roundabout Capacity Calculation

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O				
Junction:	J1 Wan Po Road / Chiu Shun Road / Po Yap Road			Ref. No.:	J1_RA_2026_des_
Scheme:	2026 Des (with CKR / T2)			Ref. No.:	
Year:	2020	Job No.:	J1598	Rev.:	-

AM PM



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	5.00	9.00	20	40	76	20	0.32
B	7.00	7.50	10	50	86	20	0.08
C	8.00	8.00	5	40	76	20	0.00
D	8.00	10.00	10	70	86	25	0.32

CALCULATIONS

ARM	K	X_2	M	F	t_D	f_c	Q_E AM	Q_E PM	DFC AM	DFC PM
A	1.06	7.44	4.95	2254	1.08	0.57	1547	1629	0.53	0.56
B	1.06	7.43	13.46	2252	1.03	0.54	1703	1945	0.80	0.58
C	1.06	8.00	4.95	2424	1.08	0.59	1494	1766	0.63	0.45
D	1.05	9.22	13.46	2794	1.03	0.62	2306	2367	0.56	0.34

Critical Arm:	**B**	**B**
DFC:	**0.80**	**0.58**
	AM	**PM**

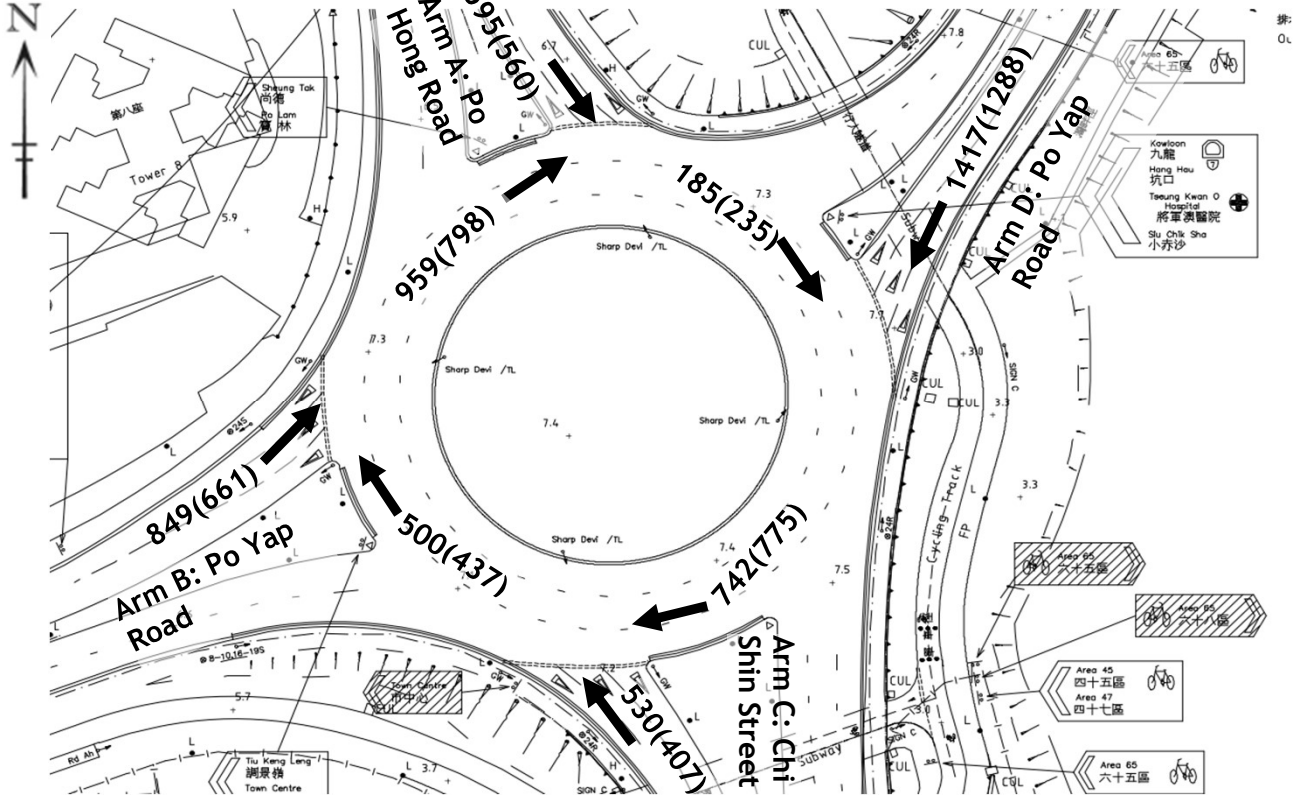
- In accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

Simplified Roundabout Capacity Calculation

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O				
Junction:	J2 Po Yap Road / Chi Shin Street / Po Hong Road			Ref. No.:	J2_RA_2026_des_
Scheme:	2026 Des (with CKR / T2)			Ref. No.:	
Year:	2020	Job No.:	J1598	Rev.:	-

AM PM



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	7.00	11.00	20	25	80	25	0.32
B	7.00	11.00	15	60	80	30	0.43
C	7.00	12.00	10	50	80	25	0.80
D	7.00	11.00	20	90	80	25	0.32

CALCULATIONS

ARM	K	X_2	M	F	t_D	f_c	Q_E AM	Q_E PM	DFC AM	DFC PM
A	1.03	9.44	7.39	2860	1.06	0.64	2305	2411	0.26	0.23
B	1.03	9.16	7.39	2775	1.06	0.63	2540	2581	0.33	0.26
C	1.05	8.92	7.39	2704	1.06	0.62	2349	2327	0.23	0.17
D	1.06	9.44	7.39	2860	1.06	0.64	2893	2859	0.49	0.45

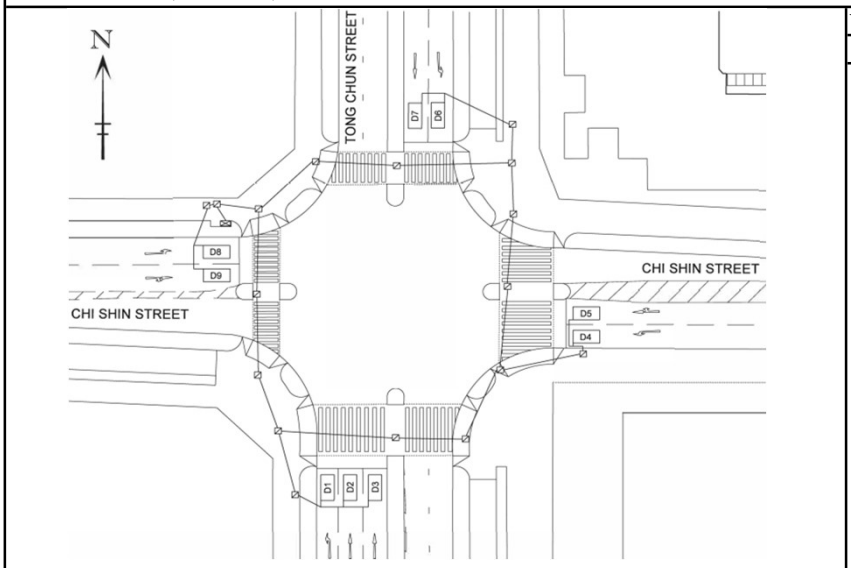
Critical Arm:	**D**	**D**
DFC:	**0.49**	**0.45**
	AM	**PM**

- In accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

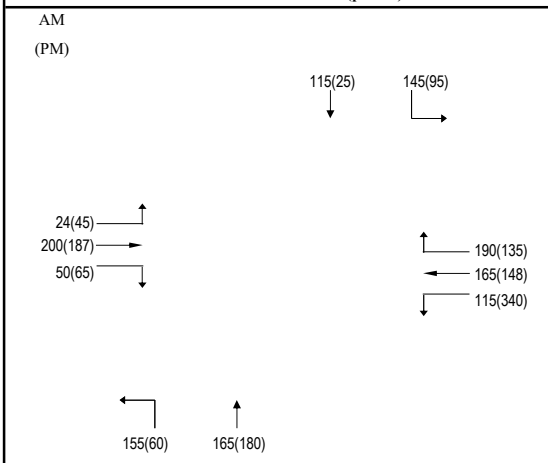
Traffic Signal Junction Calculation Sheet

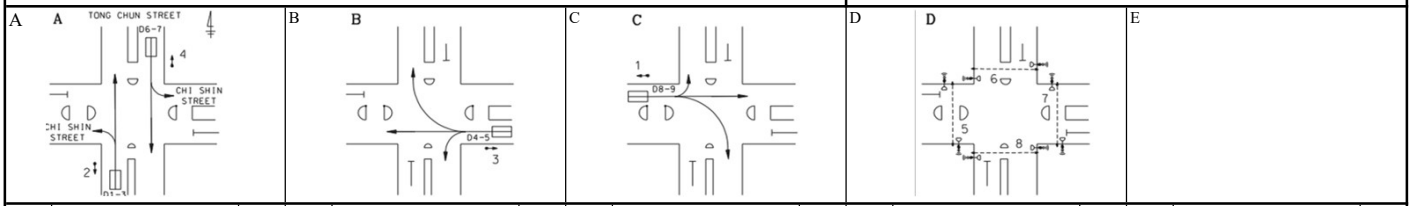
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O		
Junction:	J3 Chi Shin Street / Tong Chun Street	Ref. No.:	J3_SJ_2026_
Scheme:	2026 Des (with CKR / T2)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		5	2		5	2		3	9	22	1
2		5	2		5	2		3	7	20	0
2		5	2		5	2		3	5	18	1

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	C	1	4.10	1		17			0.86	100	1595	24	0.015		45	0.028	
1B	C	1	4.20				23			20 / 26	2145/2140	250	0.117	1	252	0.118	1
2A	A	1	3.10	1		19				100	1785	155	0.087	1	60	0.034	
2B	A	2	3.65								4240	165	0.039		180	0.042	
3A	B	1	3.50				25			54 / 48	2040/2045	355	0.174	1	283	0.138	
3B	B	1	3.70	1		17				100	1825	115	0.063		340	0.186	1
4A	A	1	3.60	1		17				100	1815	145	0.080		95	0.052	1
4B	A	1	3.60								2115	115	0.054		25	0.012	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	D		10	10	8	18				
6P	D		10	10	8	18				
7P	D		11	11	9	20				
8P	D		12	12	10	22		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

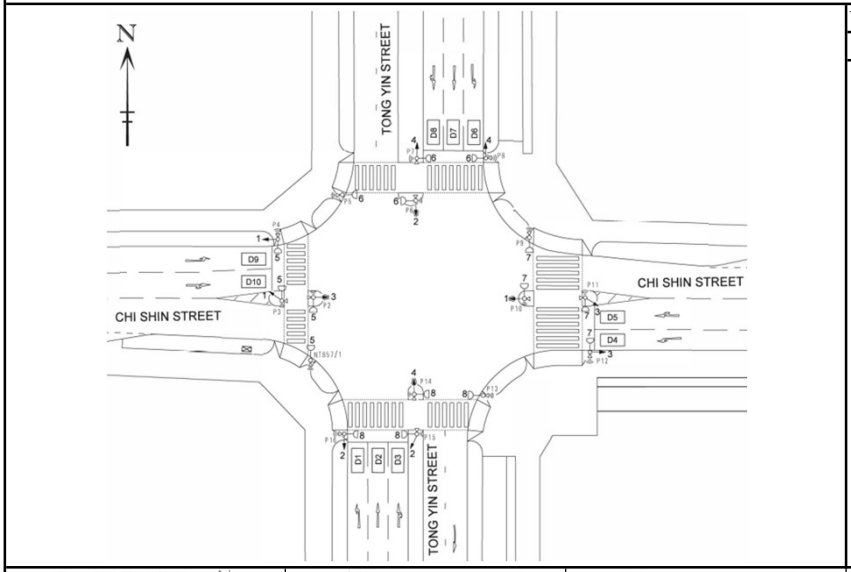
Check Critical Phase	2,3,1,8P	2,3,1,7P	2,3,1,6P	2,3,1,8P	2,3,1,7P	2,3,1,6P
Sum of y values, Y	0.377	0.377	0.377	0.356	0.356	0.356
Lost time, L	48	43	40	48	43	40
Cycle Time, C	110	110	110	110	110	110
Practical Y, Y_{pr}	0.507	0.548	0.573	0.507	0.548	0.573
Reserve Capacity, R.C. (%)	34%	45%	52%	42%	54%	61%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J3_SJ_2026_des_

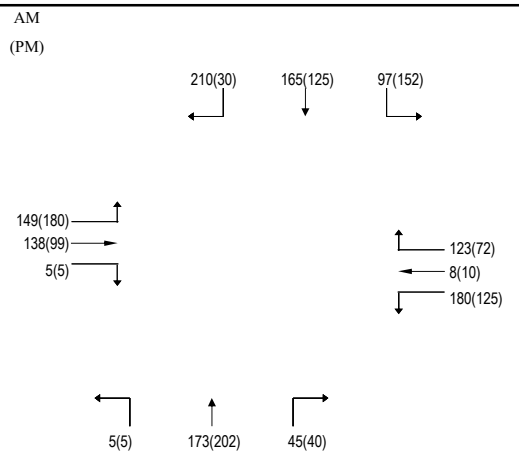
Traffic Signal Junction Calculation Sheet

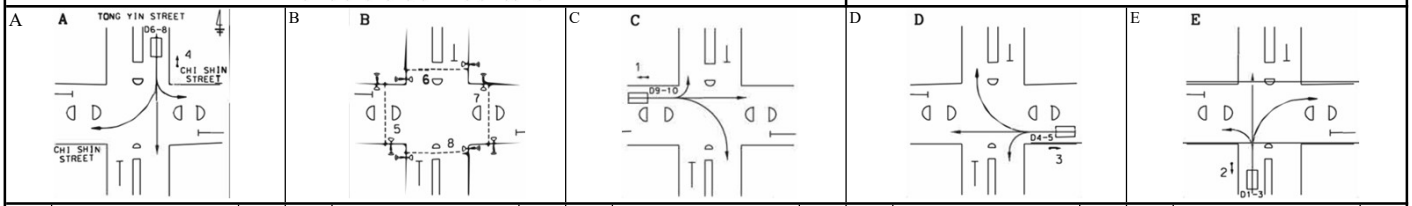
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O		
Junction:	J4 Chi Shin Street / Tong Yin Street	Ref. No.:	J4_SJ_2026_
Scheme:	2026 Des (with CKR / T2)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





A	2		5	B	5	21	0	C	2	5	5	D	2		6	E	2		5
	2		5		7	18	1		2	5	5		2		6		2		5
	2		5		1	22	0		2	5	5		2		6		2		5

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	C	1	3.60	1		17				100	1815	149	0.082	1	180	0.099	1
1B	C	1	3.60				23			3 / 5	2110	143	0.068		104	0.049	
2A	E	1	3.30	1		17			0.86	100	1530	5	0.003		5	0.003	
2B	E	1	3.30								2085	110	0.053	1	122	0.059	1
2C	E	1	3.30				25			42 / 33	2035/2045	108	0.053		120	0.059	
3A	D	1	3.40	1		17				100	1795	180	0.100	1	125	0.070	1
3B	D	1	3.90				36			94 / 88	2065/2070	131	0.063		82	0.040	
4A	A	1	3.30	1		17				100	1785	97	0.054		152	0.085	1
4B	A	1	3.30								2085	165	0.079		78	0.038	
4C	A	1	3.30				23			100 / 39	1955/2035	210	0.107	1	77	0.038	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	B		10	10	8	18				
6P	B		13	13	9	22				
7P	B		9	9	7	16				
8P	B		12	12	9	21		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

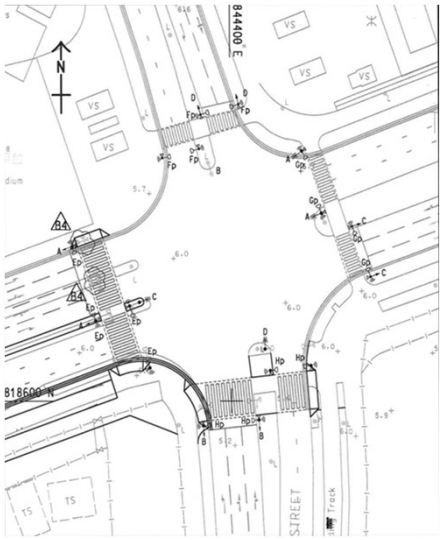
Check Critical Phase	4,8P,1,3,2	4,5P,1,3,2	4,6P,1,3,2	4,8P,1,3,2	4,5P,1,3,2	4,6P,1,3,2
Sum of y values, Y	0.343	0.343	0.343	0.313	0.313	0.313
Lost time, L	56	56	53	56	56	53
Cycle Time, C	100	100	100	110	110	110
Practical Y, Y_{pr}	0.396	0.396	0.423	0.442	0.442	0.466
Reserve Capacity, R.C. (%)	16%	16%	23%	41%	41%	49%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J4_SJ_2026_des_

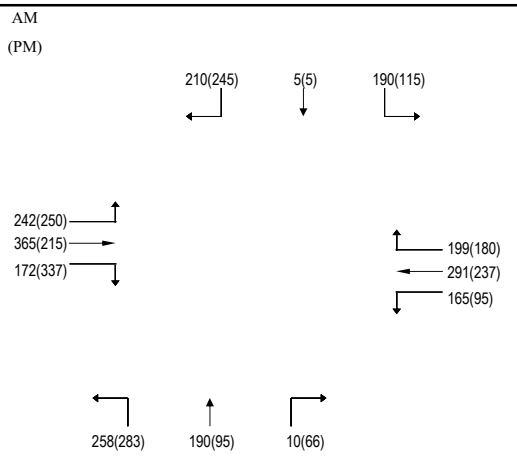
Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66 Tseung Kwan O		
Junction:	J5 Po Yap Road / Tong Yin Street	Ref. No.:	J5_SJ_2026_
Scheme:	2026 Des (with CKR / T2)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)



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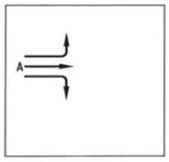
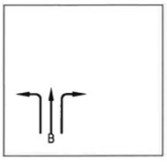


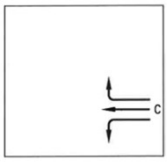
STAGE 1

B



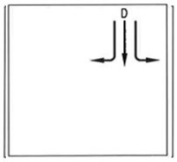
STAGE 2

C



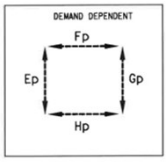
STAGE 3

D



STAGE 4

E



STAGE 5

2		3	2		5	2		3	2		3	13	28	0
2		3	2		5	2		3	2		3	11	27	1
2		3	2		5	2		3	2		3	6	25	0

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.80	1		15					1815	185	0.102	1	189	0.104	
1B	A	1	3.40			15				28 / 29	2040/2035	208	0.102		212	0.104	
1C	A	1	3.50				20			0 / 69	2105/2000	214	0.102	1	208	0.104	1
1D	A	1	3.80	1			20				1855	172	0.093		193	0.104	
2A	B	1	3.70			15					1930	150	0.078		148	0.077	
2B	B	1	3.70			15				70 / 91	1985/1950	154	0.078	1	149	0.077	
2C	B	1	3.70	1			20			7 / 45	1975/1920	154	0.078		147	0.077	1
3A	C	1	3.20			15				76 / 57	1930/1965	216	0.112		167	0.085	
3B	C	1	3.30	1							1945	218	0.112		165	0.085	
3C	C	1	3.50				20			90 / 100	1970/1960	221	0.112	1	180	0.092	1
4A	D	1	3.70	1		15	20			97 / 97	1810/1820	195	0.108	1	175	0.096	1
4B	D	1	3.70				20				1975	210	0.106		190	0.096	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	E		14	14	13	27				
6P	E		11	11	8	19				
7P	E		15	15	10	25				
8P	E		16	16	12	28		1		1

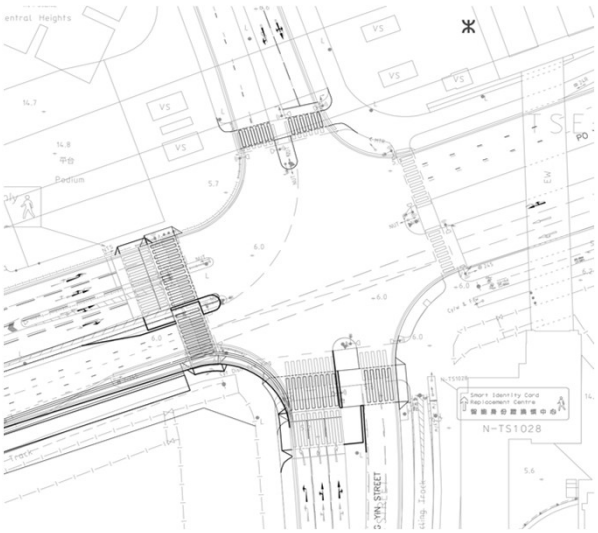
Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	1,2,3,4,8P	1,2,3,4,5P	1,2,3,4,7P	1,2,3,4,8P	1,2,3,4,5P	1,2,3,4,7P
Sum of y values, Y	0.400	0.400	0.400	0.369	0.369	0.369
Lost time, L	59	57	49	59	57	49
Cycle Time, C	120	120	120	105	105	105
Practical Y, Y_{pr}	0.458	0.473	0.533	0.394	0.411	0.480
Reserve Capacity, R.C. (%)	15%	18%	33%	7%	12%	30%

Calculated by:	Date: 五月-2021	Checked by:

Traffic Signal Junction Calculation Sheet

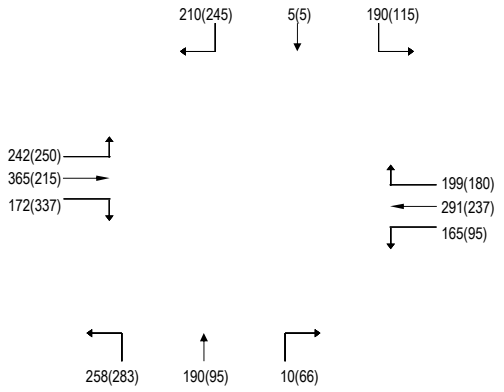
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O
Junction:	J5 Po Yap Road / Tong Yin Street (with improvement scheme)
Ref. No.:	J5_SJ_2026_
Scheme:	2026 Des (with CKR / T2)
Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)

AM
(PM)



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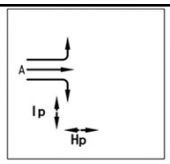
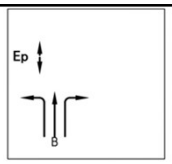


STAGE 1

2		3

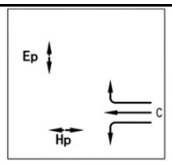
B



STAGE 2

2		5

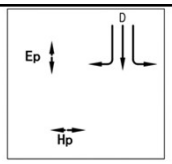
C



STAGE 3

2		3

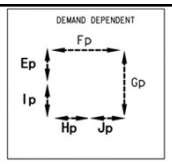
D



STAGE 4

2		3

E



STAGE 5

6	25	0

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.80	1		15					1815	185	0.102	1	189	0.104	
1B	A	1	3.40			15				28 / 29	2040/2035	208	0.102		212	0.104	
1C	A	1	3.50				20			0 / 69	2105/2000	214	0.102	1	208	0.104	1
1D	A	1	3.80	1			20				1855	172	0.093		193	0.104	
2A	B	1	3.70			15					1930	150	0.078		148	0.077	
2B	B	1	3.70			15				70 / 91	1985/1950	154	0.078	1	149	0.077	
2C	B	1	3.70	1			20			7 / 45	1975/1920	154	0.078		147	0.077	1
3A	C	1	3.20			15				76 / 57	1930/1965	216	0.112		167	0.085	
3B	C	1	3.30	1							1945	218	0.112		165	0.085	
3C	C	1	3.50				20			90 / 100	1970/1960	221	0.112	1	180	0.092	1
4A	D	1	3.70	1		15	20			97 / 97	1810/1820	195	0.108	1	175	0.096	1
4B	D	1	3.70				20				1975	210	0.106		190	0.096	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	BCDE		5	5	13	18				
6P	E		11	11	8	19				
7P	E		15	15	10	25		1		1
8P	ACDE		5	5	12	17				
9P	AE		5	5	9	14				
10P	E		5	5	6	11				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%

In accordance with TPDM - Volume 4.2.4

	AM Peak			PM Peak		
Check Critical Phase	1,2,3,4,7P			1,2,3,4,7P		
Sum of y values, Y	0.400			0.369		
Lost time, L	49			49		
Cycle Time, C	120			105		
Practical Y, Y_{pr}	0.533			0.480		
Reserve Capacity, R.C. (%)	33%			30%		

Calculated by:	Date: 五月-2021	Checked by:

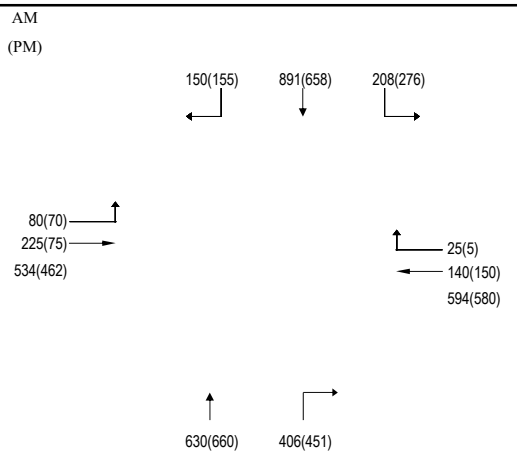
Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J5_SJ_2026_des_hv_impro

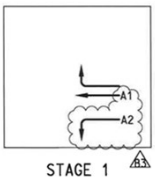
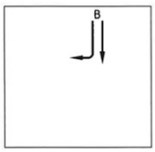
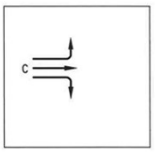
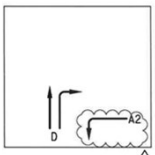
Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J6 Po Yap Road / Po Shun Road / Chui Ling Road / Future Road P2	Ref. No.:	J6_SJ_2026_
Scheme:	2026 Des (with CKR / T2)	Ref. No.:	

Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)



A	B	C	D	E
				
STAGE 1	STAGE 2	STAGE 3	STAGE 4	

2		3	2		5	2		3	2		3			
		3	2		5	2		3			2			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A ←	A	1	3.50								2105	140	0.067	1	150	0.071	1
1B ↰	A	1	3.70				20			100	1975	25	0.013		5	0.003	
2A ↓	AD	2	3.50	1		15				100	3700	594	0.161		580	0.157	
3A ↓	B	2	3.65	1							4100	891	0.217	1	658	0.160	1
3B ↓	B	1	3.60				20			100	1965	150	0.076		155	0.079	
4A ↑→	C	1	3.60	1		15				29 / 48	1920/1885	276	0.144		145	0.077	
4B ↑→	C	1	3.30				20			90 / 100	1955/1940	281	0.144		229	0.118	
4C ↓	C	1	3.60				20				1965	282	0.144	1	233	0.118	1
5A ↑	D	1	3.70	1							1985	340	0.171		365	0.184	1
5B ↑→	D	1	3.70				20			19 / 23	2095/2090	358	0.171	1	384	0.184	
5C ↓	D	1	3.70				20				1975	338	0.171		363	0.184	1

Critical Ped. Phase	Stage	Width Across	Min. GM	Min. FGM	Lost Time	Note	Crit.	Note	Crit.

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr}/Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	1,3,4,5	2,3,4		1,3,4,5	2,3,4	
Sum of y values, Y	0.599	0.522		0.534	0.436	
Lost time, L	18	14		18	14	
Cycle Time, C	127	217		124	214	
Practical Y, Y_{pr}	0.772	0.842		0.769	0.841	
Reserve Capacity, R.C. (%)	29%	61%		44%	93%	

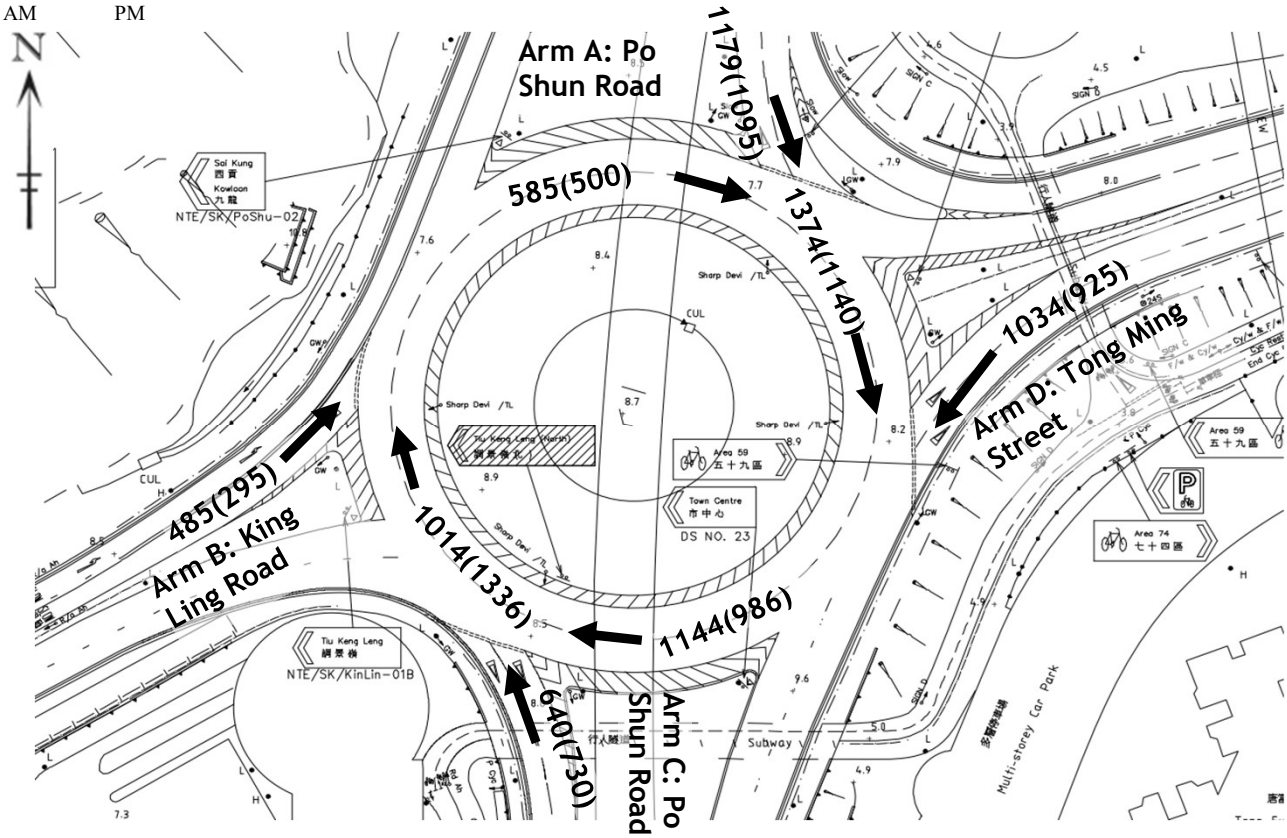
Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J6_SJ_2026_des_

Simplified Roundabout Capacity Calculation

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O				
Junction:	J7 Po Shun Road / Tong Ming Street / King Ling Road			Ref. No.:	J7_RA_2026_des_
Scheme:	2026 Des (with CKR / T2)			Ref. No.:	
Year:	2020	Job No.:	J1598	Rev.:	-

AM PM



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	7.00	8.00	14.5	20	81.2	20	0.11
B	2.70	4.60	31.9	55.2	81.2	18	0.10
C	7.10	7.40	11.7	23	81.2	10	0.04
D	7.40	8.40	27.5	60	81.2	29	0.06

CALCULATIONS

							Q_E		DFC	
ARM	K	X_2	M	F	t_D	f_c	AM	PM	AM	PM
A	1.03	7.82	8.33	2369	1.05	0.57	2108	2158	0.56	0.51
B	1.07	4.30	8.33	1302	1.05	0.41	949	807	0.51	0.37
C	1.08	7.38	8.33	2235	1.05	0.55	1731	1824	0.37	0.40
D	1.04	8.30	8.33	2514	1.05	0.59	1767	1909	0.59	0.48

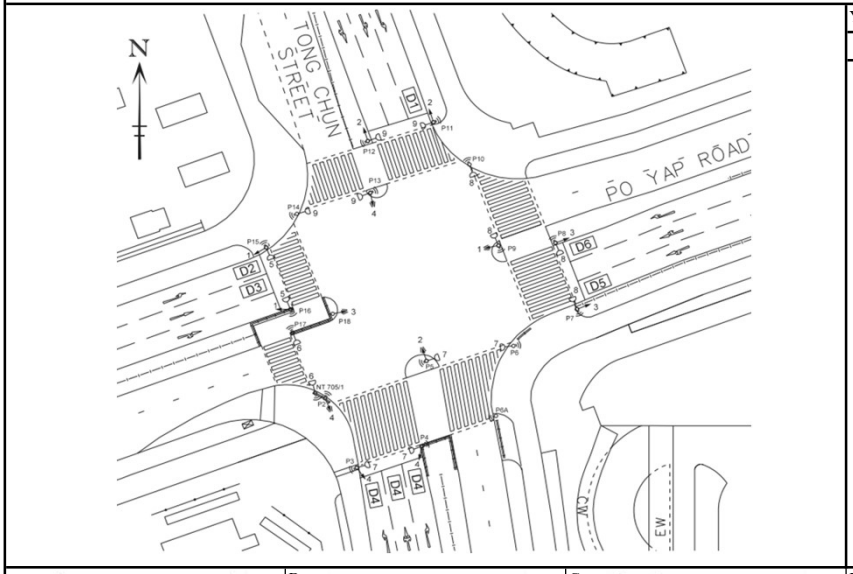
Critical Arm:	**D**	**A**
DFC:	**0.59**	**0.51**
	AM	**PM**

- In accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

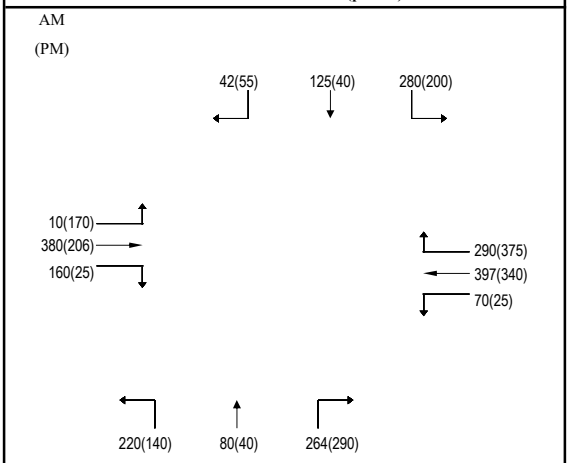
Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J8 Po Yap Road / Tong Chun Street	Ref. No.:	J8_SJ_2026_
Scheme:	2026 Des (with CKR / T2)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)



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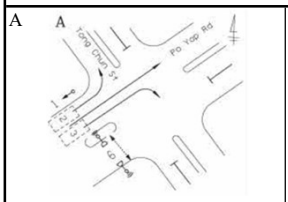

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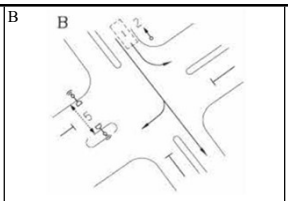

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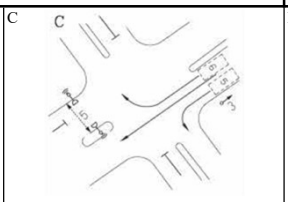
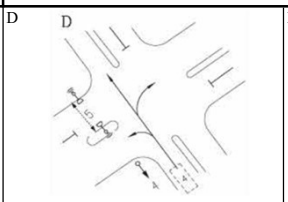


D



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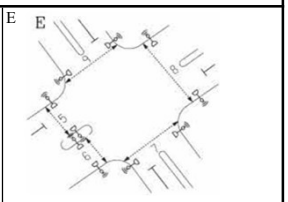

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2		5	2		5	2		6	2		6	0	16	0

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.30	1		17				100	1785	10	0.006		170	0.095	1
1B	A	1	3.30								2085	276	0.132	1	116	0.056	
1C	A	1	3.30				20			61 / 22	1995/2050	264	0.132		115	0.056	
2A	B	1	3.40	1		17					1795	138	0.077	1	97	0.054	
2B	B	1	3.40			17				95 / 100	1935/1925	149	0.077		103	0.054	1
2C	B	1	3.50				26			26 / 58	2075/2035	160	0.077		95	0.047	
3A	C	1	3.30	1		17				29 / 10	1895/1925	243	0.128	1	242	0.126	1
3B	C	1	3.40				20			15 / 51	2070/2015	265	0.128		253	0.126	
3C	C	1	3.40				20				1950	249	0.128		245	0.126	
4A	D	1	3.60	1		16					1805	175	0.097	1	140	0.078	
4B	D	1	3.50			16	26			59 / 76	2020/2015	196	0.097		166	0.082	1
4C	D	1	3.50				26				1990	193	0.097	1	164	0.082	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	BCDE		5	5	11	16				
6P	E		5	5	7	12				
7P	E		5	5	11	16				
8P	E		5	5	11	16		1		1
9P	E		5	5	11	16				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

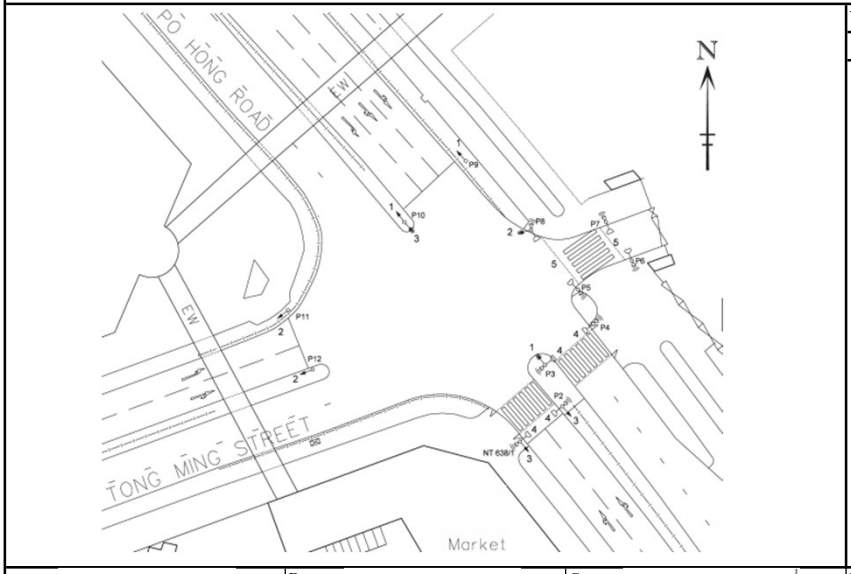
Check Critical Phase	1,2,3,4,8P	1,2,3,4,9P	1,2,3,4,7P	1,2,3,4,8P	1,2,3,4,9P	1,2,3,4,7P
Sum of y values, Y	0.434	0.434	0.434	0.357	0.357	0.357
Lost time, L	50	46	42	50	46	42
Cycle Time, C	125	125	125	125	125	125
Practical Y, Y_{pr}	0.540	0.569	0.598	0.540	0.569	0.598
Reserve Capacity, R.C. (%)	24%	31%	38%	51%	59%	67%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J8_SJ_2026_des_

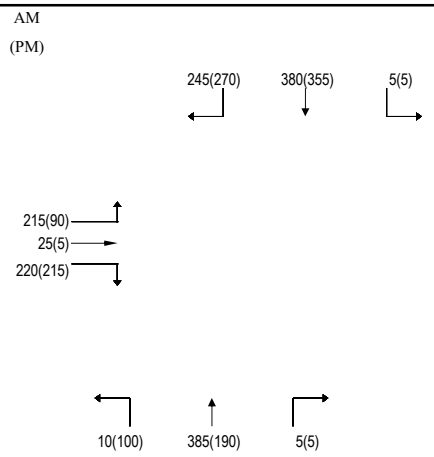
Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O
Junction:	J9 Po Hong Road / Tong Ming Street
Ref. No.:	J9_SJ_2026_
Scheme:	2026 Des (with CKR / T2)
Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)



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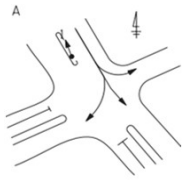

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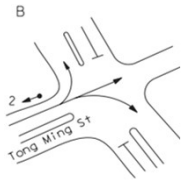

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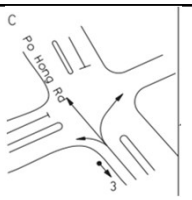

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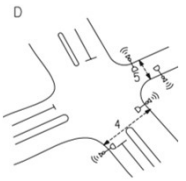

E

2		3	3		3	4		3	7	16	0			
2		3	3		3	4		3	2	20	0			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.40	1		15				2 / 2	1950	204	0.105		205	0.105	1
1B	A	1	3.40				21			16 / 28	2070/2055	217	0.105	1	216	0.105	
1C	A	1	3.90				21				2000	209	0.105		210	0.105	
2A	B	1	3.70	1		16				100	1815	215	0.118		90	0.050	
2B	B	1	3.60				32			90 / 98	2030/2020	245	0.121	1	220	0.109	1
3A	C	1	3.50	1		17				5 / 73	1955/1845	192	0.098	1	137	0.075	1
3B	C	1	3.70				11			2 / 3	2120/2115	208	0.098		158	0.074	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
4P	D		11	11	9	20				
5P	D		5	5	11	16		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

	AM Peak			PM Peak		
Check Critical Phase	1,2,3,5P	1,2,3,4P		1,2,3,5P	1,2,3,4P	
Sum of y values, Y	0.324	0.324		0.288	0.288	
Lost time, L	38	37		38	37	
Cycle Time, C	110	110		105	105	
Practical Y, Y_{pr}	0.589	0.597		0.574	0.583	
Reserve Capacity, R.C. (%)	82%	85%		99%	102%	

Calculated by:	Date: 五月-2021	Checked by:

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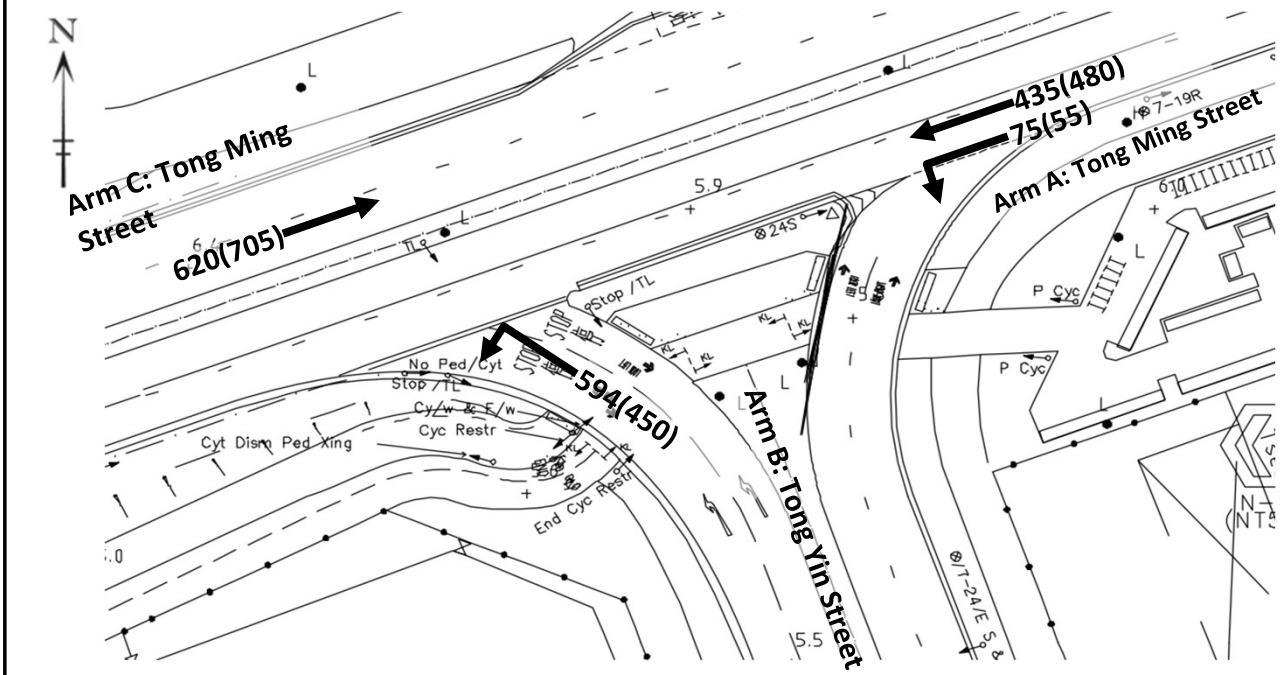
Simplified Priority Junction Capacity Calculation Sheet

Job Title	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O			
Junction	J10 Tong Yin Street/Tong Ming Street		Ref No.:	J10_PJ_2026_d
Scheme	2026 Des (with CKR / T2)		Ref No.:	
Year	2020	Job. No.: J1598	Rev.:	

AM(PM)



Geometry					
Major road width	**W**	7.4	**Lane widths**	w(b-a)	0.00
Central Reserve width	W_{cr}	0		w(b-c)	7.80
2 Lane Minor Arm (Y/N)		Y		w(c-b)	0.00
Visibilities	$V_{r(B-A)}$	0	**Calculated**	D	0.53
	$V_{l(B-A)}$	0		E	1.34
	$V_{r(B-C)}$	80		F	0.59
	$V_{r(C-B)}$	0		Y	0.74

Analysis			**Peak Hour**	
			AM	PM
Traffic Flows	$q_{(C-A)}$		620	705
	$q_{(C-B)}$		0	0
	$q_{(A-B)}$		75	55
	$q_{(A-C)}$		435	480
	$q_{(B-A)}$		0	0
	$q_{(B-C)}$		594	450
Proportion of minor traffic left-turn	**f**		1.00	1.00
		Factor		
Capacities	$Q_{(B-A)}$	1	211	198
	$Q_{(B-C)}$	1	830	816
	$Q_{(C-B)}$	1	356	352
	$Q_{(B-AC)}$	1	0	0
DFC	**B-A**		0.00	0.00
	B-C		0.72	0.55
	C-B		0.00	0.00
	B-AC		0.00	0.00
Worst DFC			**0.72**	**0.55**

Where Vl and Vr are visibility distances to the left or right of the respective streams

D = (1+0.094(w(b-a)-3.65))(1+0.0009(Vr(b-a)-120))(1+0.0006(Vl(b-a)-150))

E = (1+0.094(w(b-c)-3.65))(1+0.0009(Vr(b-c)-120))

F = (1+0.094(w(c-b)-3.65))(1+0.0009(Vr(c-b)-120))

Y = 1-0.0345W

f = proportion of minor traffic turning left

Q (b-ac) = Q(b-c)*Q(b-a)/(1-f)*Q(b-c)+f*Q(b-a)

T.P.D.M.V.2.4

Appendix 1

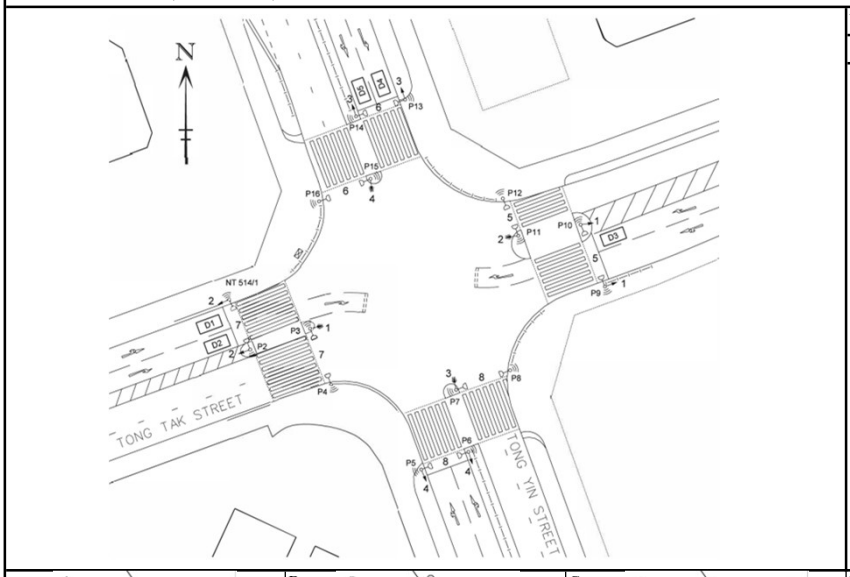
Capacity of combined streams

- in accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

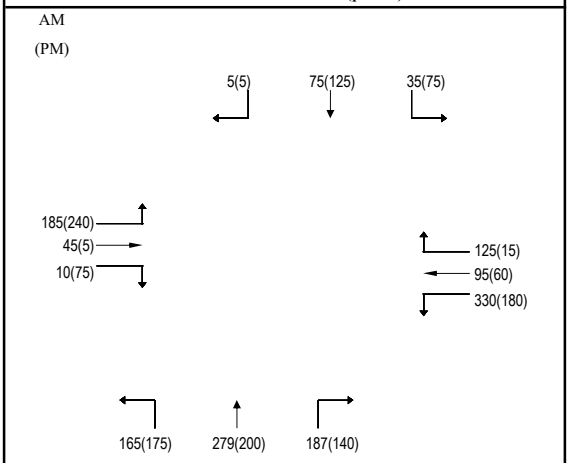
Traffic Signal Junction Calculation Sheet

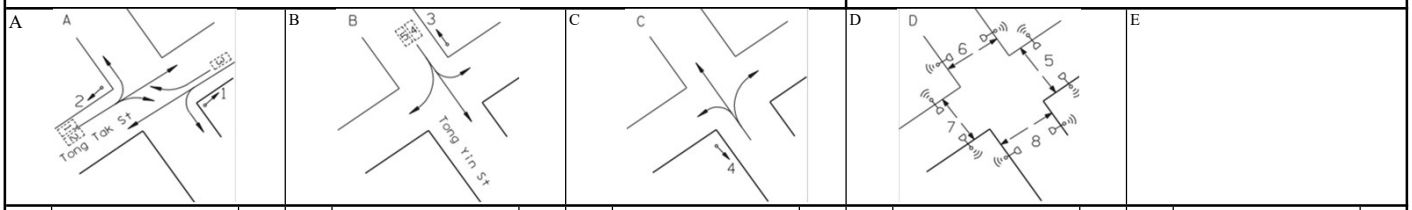
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J11 Tong Yin Street/Tong Tak Street	Ref. No.:	J11_SJ_2026
Scheme:	2026 Des (with CKR / T2)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		5	2	5	6	2		3	11	22	1			
2		5	2	5	6	2		3	7	20	1			
2		5	2	5	6	2		3	8	19	0			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	4.30	1		17				78 / 75	1915/1920	425	0.222	1	240	0.125	
1B	A	1	3.20		1		24			100	1735	125	0.072		15	0.009	
2A	A	1	3.70	1		16				80 / 98	1845/1820	230	0.125		245	0.135	1
2B	A	1	3.20		1		24			100	1735	10	0.006		75	0.043	
3A	B	1	3.80	1		18				100	1840	35	0.019		75	0.041	
3B	B	1	3.20				25			6 / 4	2065/2070	80	0.039	1	130	0.063	1
4A	C	1	4.00	1		13				53 / 70	1900/1865	309	0.162		249	0.134	
4B	C	1	3.00				24			58 / 53	1985/1990	322	0.162	1	266	0.134	1

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	D		12	12	10	22		1		1
6P	D		9	9	10	19				
7P	D		10	10	10	20				
8P	D		10	10	10	20				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

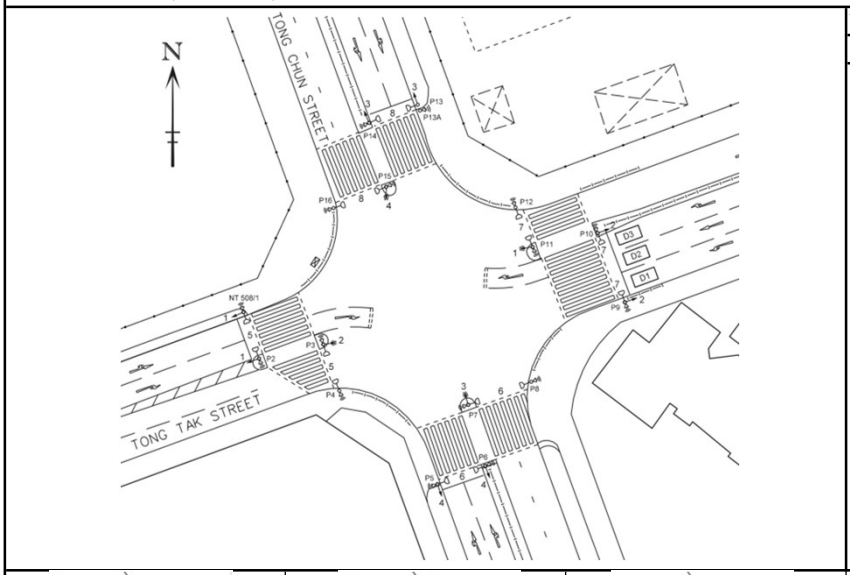
Check Critical Phase	1,3,4,5P	1,3,4,7P	1,3,4,6P	1,3,4,5P	1,3,4,7P	1,3,4,6P
Sum of y values, Y	0.423	0.423	0.423	0.331	0.331	0.331
Lost time, L	56	50	49	56	50	49
Cycle Time, C	127	127	127	124	124	124
Practical Y, Y_{pr}	0.503	0.546	0.553	0.494	0.537	0.544
Reserve Capacity, R.C. (%)	19%	29%	31%	49%	62%	64%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J11_SJ_2026_des_

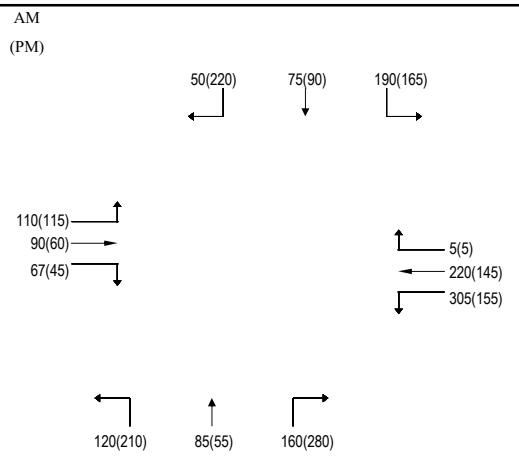
Traffic Signal Junction Calculation Sheet

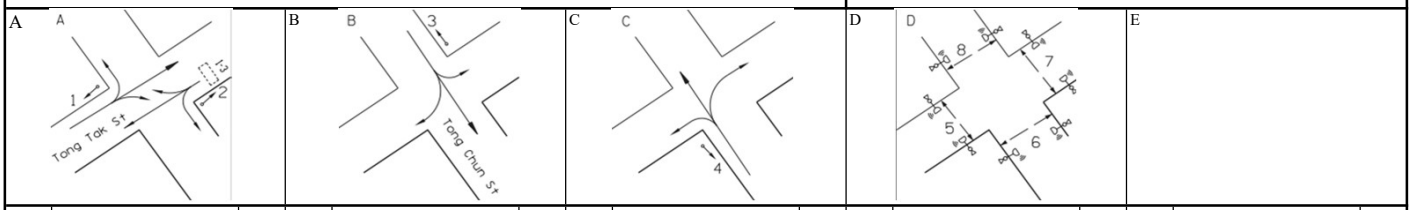
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J12 Tong Tak Street/Tong Chun Street	Ref. No.:	J12_SJ_2026
Scheme:	2026 Des (with CKR / T2)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		11	2		5	2		4	10	25	2			
2		11	2		5	2		4	7	18	2			
2		11	2		5	2		4	7	18	0			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.60	1		15				55 / 66	1870/1855	200	0.107		175	0.094	1
1B	A	1	3.20		1		29			100	1755	67	0.038		45	0.026	
2A	A	1	4.00	1		17				100	1850	305	0.165	1	155	0.084	
2B	A	1	3.50								2105	220	0.105		145	0.069	
2C	A	1	3.70		1		24			100	1785	5	0.003		5	0.003	
3A	B	1	3.60	1		17				100 / 73	1815/1855	190	0.105	1	226	0.122	
3B	B	1	4.00				24			40 / 88	2100/2040	125	0.060		249	0.122	1
4A	C	1	3.60	1		18				68 / 80	1870/1850	176	0.094		263	0.142	1
4B	C	1	3.60				24			85 / 99	2010/1990	189	0.094	1	282	0.142	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	D		9	9	9	18				
6P	D		10	10	10	20				
7P	D		12	12	13	25		1		1
8P	D		9	9	9	18				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	2,3,4,7P	2,3,4,5P	2,3,4,8P	2,3,4,7P	2,3,4,5P	2,3,4,8P
Sum of y values, Y	0.364	0.364	0.364	0.358	0.358	0.358
Lost time, L	60	50	48	60	50	48
Cycle Time, C	125	125	125	125	125	125
Practical Y, Y_{pr}	0.468	0.540	0.554	0.468	0.540	0.554
Reserve Capacity, R.C. (%)	29%	49%	52%	31%	51%	55%

Calculated by:	Date: 五月-2021	Checked by:

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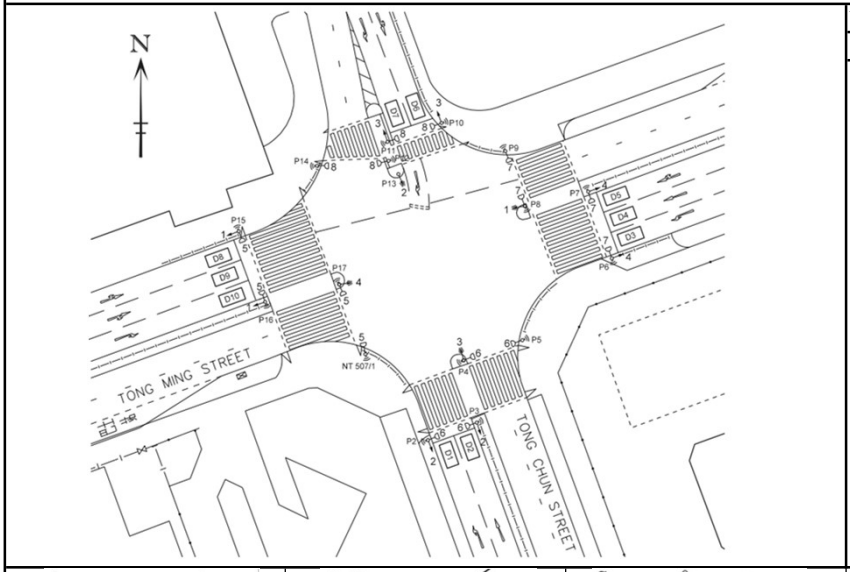
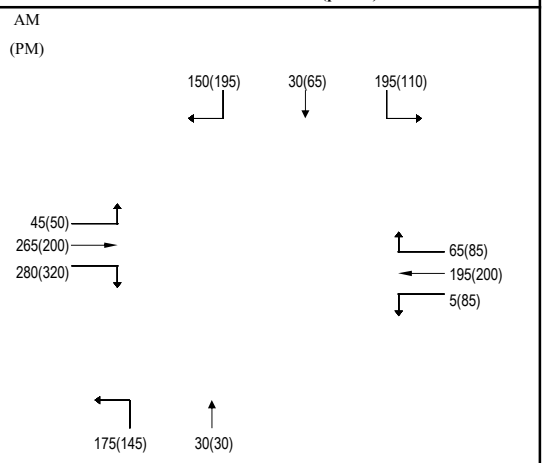
Traffic Signal Junction Calculation Sheet

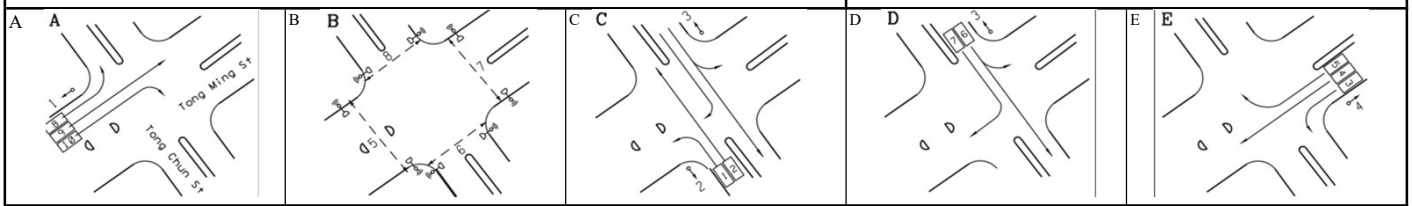
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J13 Tong Ming Street/Tong Chun Street	Ref. No.:	J13_SJ_2026
Scheme:	2026 Des (with CKR / T2)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		3	9	22	0	2					3	3		6
2		3	11	18	1	2					3	3		6
2		3	6	22	1	2					3	3		6

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.50	1		20				24 / 27	1930/1925	191	0.099		185	0.096	1
1B	A	1	3.50				24			41 / 67	2050/2020	203	0.099	1	194	0.096	
1C	A	1	3.50				24				1980	196	0.099		190	0.096	
2A	C	1	3.60	1		17				100	1815	175	0.096		145	0.080	
2B	C	1	3.70								2125	30	0.014		30	0.014	
3A	CD	1	3.20	1		17				87 / 63	1800/1835	225	0.125	1	175	0.095	
3B	CD	1	3.40		1		15			100	1695	150	0.088		195	0.115	1
4A	E	1	3.50	1		17				100	1805	5	0.003		85	0.047	
4B	E	1	3.50								2105	132	0.063		145	0.069	1
4C	E	1	3.50				23			51 / 61	2035/2025	128	0.063	1	140	0.069	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	B		14	14	12	26				
6P	B		10	10	8	18				
7P	B		12	12	10	22		1		1
8P	B		12	12	10	22				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

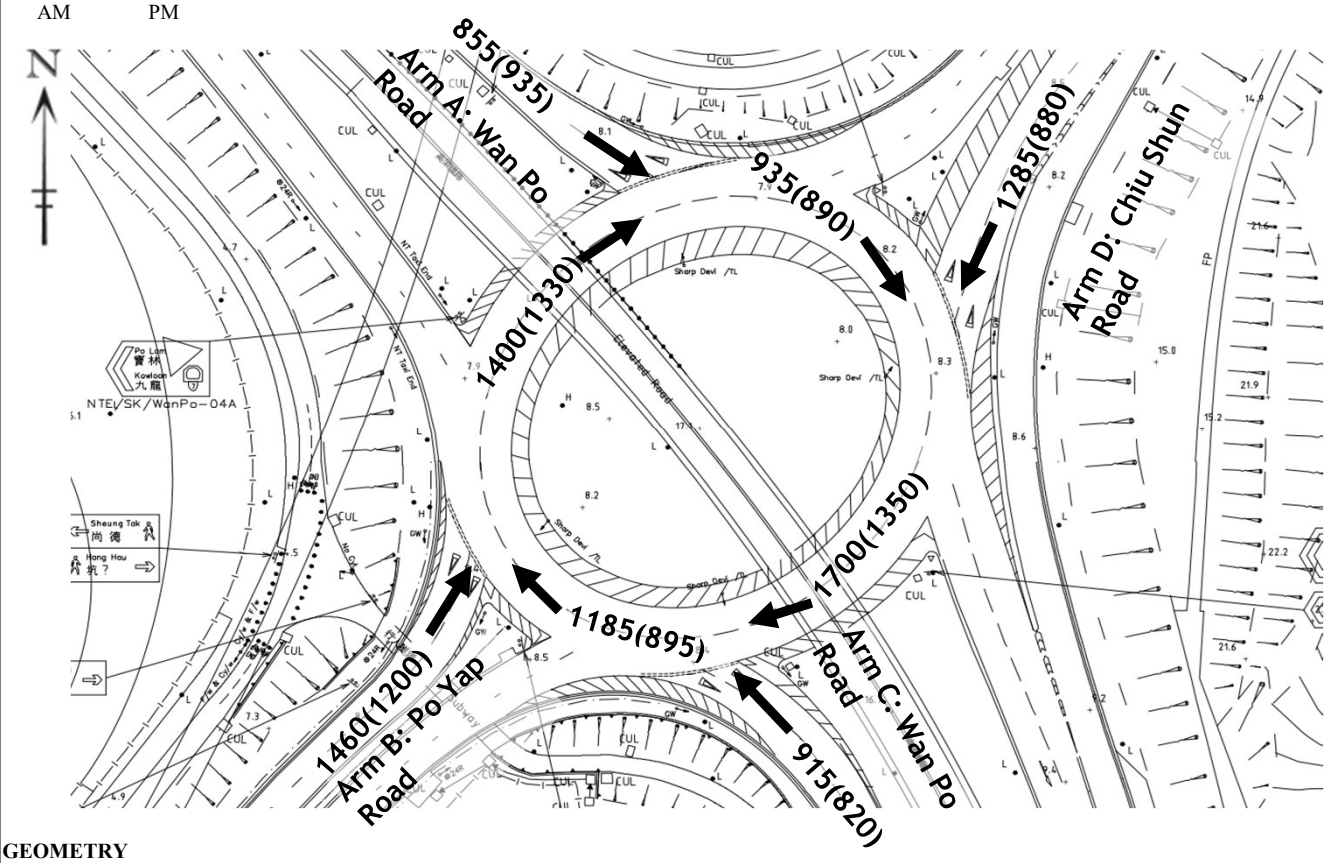
	AM Peak			PM Peak		
Check Critical Phase	1,7P,3,4	1,6P,3,4	1,8P,3,4	1,7P,3,4	1,6P,3,4	1,8P,3,4
Sum of y values, Y	0.287	0.287	0.287	0.280	0.280	0.280
Lost time, L	47	46	45	47	46	45
Cycle Time, C	125	125	125	125	125	125
Practical Y, Y_{pr}	0.562	0.569	0.576	0.562	0.569	0.576
Reserve Capacity, R.C. (%)	96%	98%	101%	100%	103%	106%

Calculated by:	Date: 五月-2021	Checked by:

Simplified Roundabout Capacity Calculation

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O				
Junction:	J1 Wan Po Road / Chiu Shun Road / Po Yap Road			Ref. No.:	J1_RA_2029_ref_
Scheme:	2029 Ref			Ref. No.:	
Year:	2020	Job No.:	J1598	Rev.:	-

AM PM



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	5.00	9.00	20	40	76	20	0.32
B	7.00	7.50	10	50	86	20	0.08
C	8.00	8.00	5	40	76	20	0.00
D	8.00	10.00	10	70	86	25	0.32

CALCULATIONS

ARM	K	X_2	M	F	t_D	f_c	Q_E AM	Q_E PM	DFC AM	DFC PM
A	1.06	7.44	4.95	2254	1.08	0.57	1548	1590	0.55	0.59
B	1.06	7.43	13.46	2252	1.03	0.54	1715	1881	0.85	0.64
C	1.06	8.00	4.95	2424	1.08	0.59	1502	1721	0.61	0.48
D	1.05	9.22	13.46	2794	1.03	0.62	2332	2361	0.55	0.37

Critical Arm:	**B**	**B**
DFC:	**0.85**	**0.64**
	AM	**PM**

- In accordance with TPDM V2.4

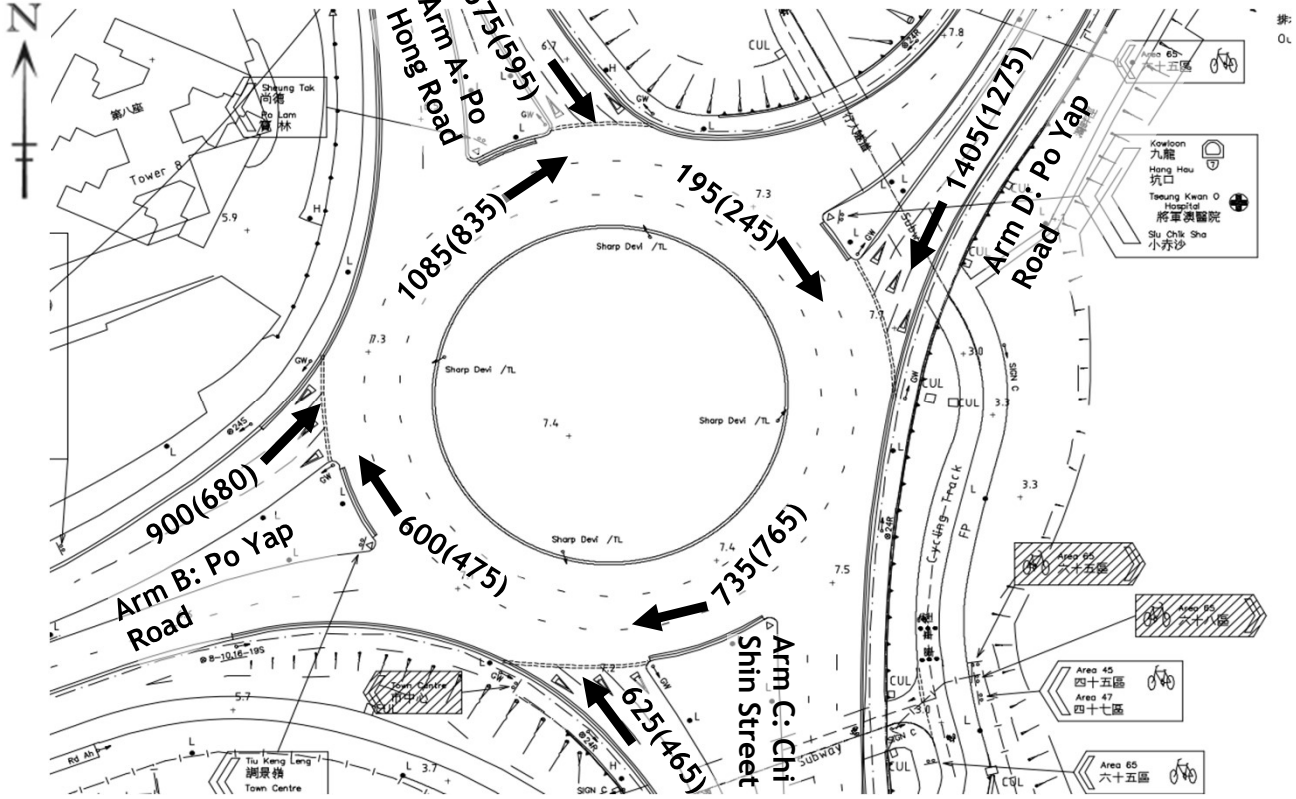
Calculated by:	Date: 五月-21	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J1_RA_2029_ref_

Simplified Roundabout Capacity Calculation

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O				
Junction:	J2 Po Yap Road / Chi Shin Street / Po Hong Road			Ref. No.:	J2_RA_2029_ref_
Scheme:	2029 Ref			Ref. No.:	
Year:	2020	Job No.:	J1598	Rev.:	-

AM PM



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	7.00	11.00	20	25	80	25	0.32
B	7.00	11.00	15	60	80	30	0.43
C	7.00	12.00	10	50	80	25	0.80
D	7.00	11.00	20	90	80	25	0.32

CALCULATIONS

ARM	K	X_2	M	F	t_D	f_c	Q_E AM	Q_E PM	DFC AM	DFC PM
A	1.03	9.44	7.39	2860	1.06	0.64	2221	2387	0.26	0.25
B	1.03	9.16	7.39	2775	1.06	0.63	2475	2556	0.36	0.27
C	1.05	8.92	7.39	2704	1.06	0.62	2353	2334	0.27	0.20
D	1.06	9.44	7.39	2860	1.06	0.64	2886	2852	0.49	0.45

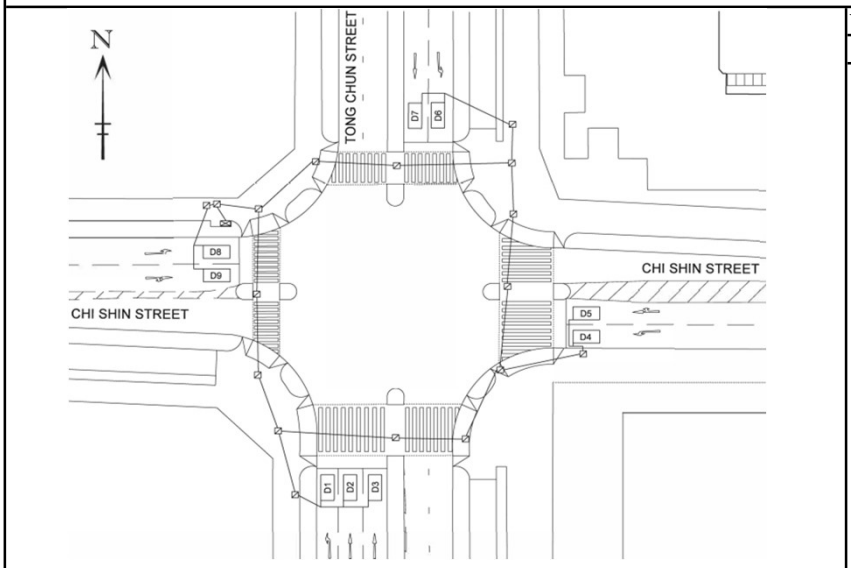
	AM	PM
Critical Arm:	**D**	**D**
DFC:	**0.49**	**0.45**
	AM	**PM**

- In accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

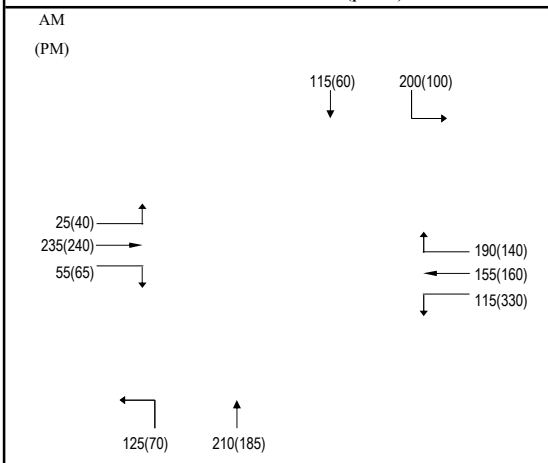
Traffic Signal Junction Calculation Sheet

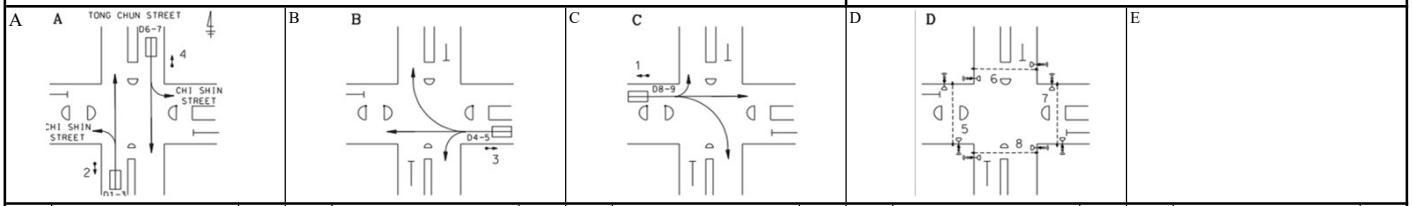
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J3 Chi Shin Street / Tong Chun Street	Ref. No.:	J3_SJ_2029_
Scheme:	2029 Ref	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		5	2		5	2		3	9	22	1			
2		5	2		5	2		3	7	20	0			
2		5	2		5	2		3	5	18	1			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	C	1	4.10	1		17			0.86	100	1595	25	0.016		40	0.025	
1B	C	1	4.20				23			19 / 21	2150/2145	290	0.135	1	305	0.142	1
2A	A	1	3.10	1		19				100	1785	125	0.070		70	0.039	
2B	A	2	3.65								4240	210	0.050		185	0.044	
3A	B	1	3.50				25			55 / 47	2040/2050	345	0.169	1	300	0.146	
3B	B	1	3.70	1		17				100	1825	115	0.063		330	0.181	1
4A	A	1	3.60	1		17				100	1815	200	0.110	1	100	0.055	1
4B	A	1	3.60								2115	115	0.054		60	0.028	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	D		10	10	8	18				
6P	D		10	10	8	18				
7P	D		11	11	9	20				
8P	D		12	12	10	22		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

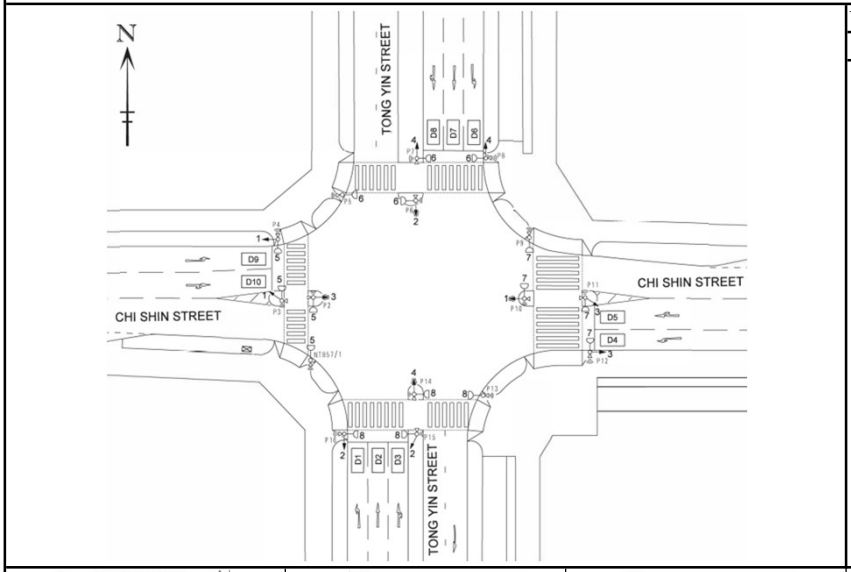
Check Critical Phase	4,3,1,8P	4,3,1,7P	4,3,1,6P	4,3,1,8P	4,3,1,7P	4,3,1,6P
Sum of y values, Y	0.414	0.414	0.414	0.378	0.378	0.378
Lost time, L	48	43	40	48	43	40
Cycle Time, C	110	110	110	110	110	110
Practical Y, Y_{pr}	0.507	0.548	0.573	0.507	0.548	0.573
Reserve Capacity, R.C. (%)	22%	32%	38%	34%	45%	51%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J3_SJ_2029_ref_

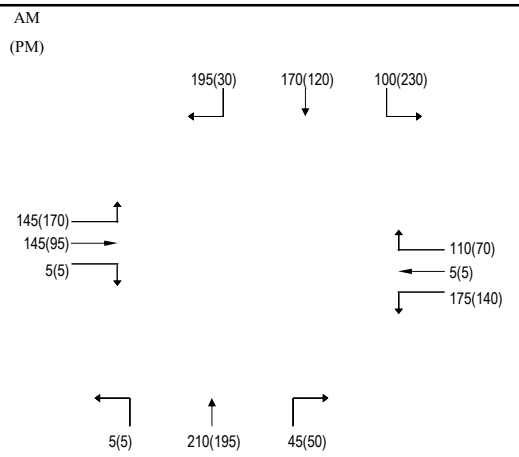
Traffic Signal Junction Calculation Sheet

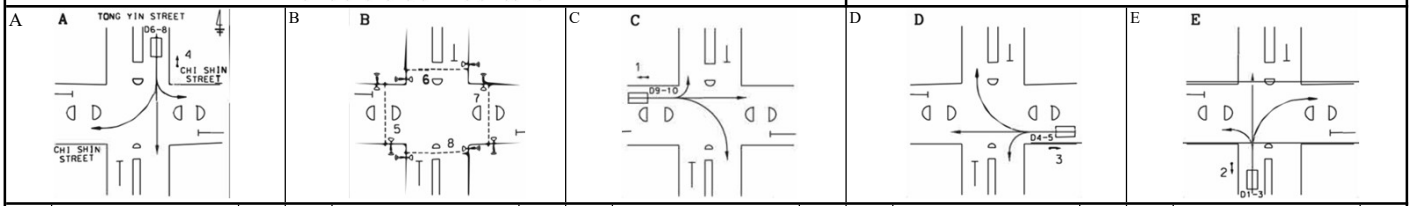
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J4 Chi Shin Street / Tong Yin Street	Ref. No.:	J4_SJ_2029_
Scheme:	2029 Ref	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		5	5	21	0	2	5	5	2		6	2		5
2		5	7	18	1	2	5	5	2		6	2		5
2		5	1	22	0	2	5	5	2		6	2		5

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	C	1	3.60	1		17				100	1815	145	0.080	1	170	0.094	1
1B	C	1	3.60				23			3 / 5	2110	150	0.071		100	0.047	
2A	E	1	3.30	1		17			0.86	100	1530	5	0.003		5	0.003	
2B	E	1	3.30								2085	129	0.062		124	0.059	1
2C	E	1	3.30				25			36 / 41	2040/2035	126	0.062	1	121	0.059	
3A	D	1	3.40	1		17				100	1795	175	0.097	1	140	0.078	1
3B	D	1	3.90				36			96 / 93	2065	115	0.056		75	0.036	
4A	A	1	3.30	1		17				100	1785	100	0.056		230	0.129	1
4B	A	1	3.30								2085	170	0.082		76	0.036	
4C	A	1	3.30				23			100 / 41	1955/2030	195	0.100	1	74	0.036	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	B		10	10	8	18				
6P	B		13	13	9	22				
7P	B		9	9	7	16				
8P	B		12	12	9	21		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

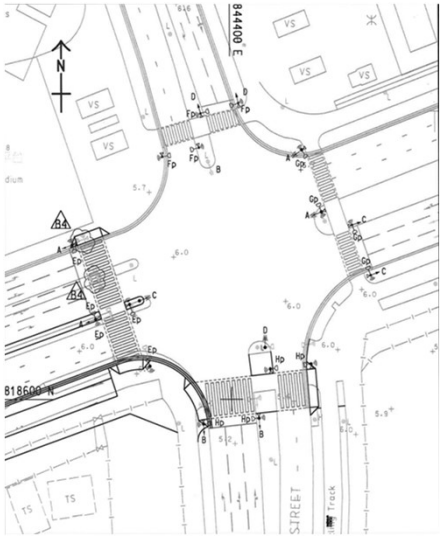
Check Critical Phase	4,8P,1,3,2	4,5P,1,3,2	4,6P,1,3,2	4,8P,1,3,2	4,5P,1,3,2	4,6P,1,3,2
Sum of y values, Y	0.339	0.339	0.339	0.360	0.360	0.360
Lost time, L	56	56	53	56	56	53
Cycle Time, C	100	100	100	110	110	110
Practical Y, Y_{pr}	0.396	0.396	0.423	0.442	0.442	0.466
Reserve Capacity, R.C. (%)	17%	17%	25%	23%	23%	30%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J4_SJ_2029_ref_

Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J5 Po Yap Road / Tong Yin Street	Ref. No.:	J5_SJ_2029_
Scheme:	2029 Ref	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)

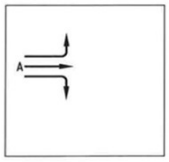
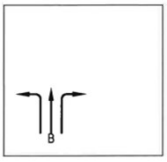
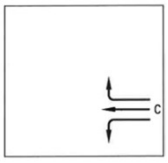
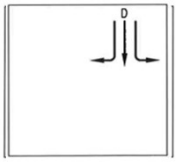
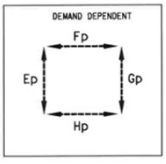
AM
(PM)

225(260) 5(5) 200(110)

220(220)
400(230)
155(400)

155(130)
280(225)
165(100)

290(280) 170(85) 5(65)

A	B	C	D	E
				
STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5
2 3	2 5	2 3	2 3	13 28 0
2 3	2 5	2 3	2 3	11 27 1
2 3	2 5	2 3	2 3	6 25 0

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.80	1		15					1815	188	0.104	1	200	0.110	
1B	A	1	3.40			15				15 / 9	2065/2075	214	0.104		229	0.110	
1C	A	1	3.50				20			0 / 90	2105/1970	218	0.104	1	217	0.110	1
1D	A	1	3.80	1			20				1855	155	0.084		204	0.110	
2A	B	1	3.70			15					1930	153	0.079		143	0.074	
2B	B	1	3.70			15				88 / 95	1950/1940	155	0.079	1	144	0.074	1
2C	B	1	3.70	1			20			3 / 46	1980/1920	157	0.079		143	0.074	
3A	C	1	3.20			15				84 / 66	1915/1945	196	0.103		151	0.078	1
3B	C	1	3.30	1							1945	199	0.103		151	0.078	
3C	C	1	3.50				20			76 / 85	1990/1980	204	0.103	1	153	0.077	
4A	D	1	3.70	1		15	20			98 / 97	1810/1825	206	0.114		180	0.099	
4B	D	1	3.70				20				1975	224	0.114	1	195	0.099	1

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	E		14	14	13	27				
6P	E		11	11	8	19				
7P	E		15	15	10	25				
8P	E		16	16	12	28		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	1,2,3,4,8P	1,2,3,4,5P	1,2,3,4,7P	1,2,3,4,8P	1,2,3,4,5P	1,2,3,4,7P
Sum of y values, Y	0.399	0.399	0.399	0.361	0.361	0.361
Lost time, L	59	57	49	59	57	49
Cycle Time, C	120	120	120	105	105	105
Practical Y, Y_{pr}	0.458	0.473	0.533	0.394	0.411	0.480
Reserve Capacity, R.C. (%)	15%	18%	33%	9%	14%	33%

Calculated by:	Date: 五月-2021	Checked by:

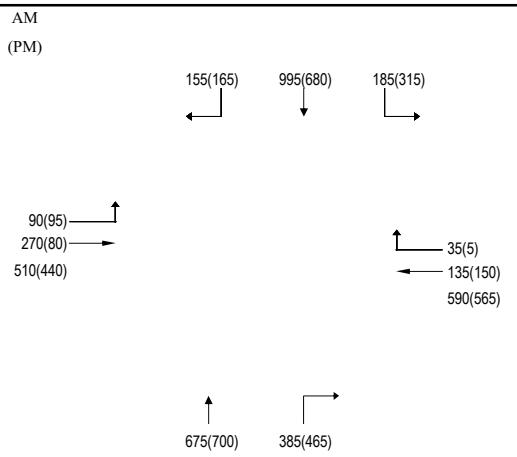
Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J5_SJ_2029_ref_

Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J6 Po Yap Road / Po Shun Road / Chui Ling Road / Future Road P2	Ref. No.:	J6_SJ_2029_
Scheme:	2029 Ref	Ref. No.:	

Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)



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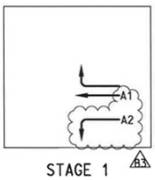

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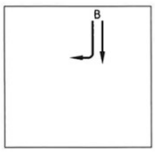

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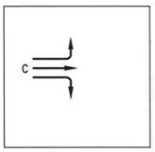

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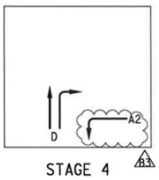


E

2		3	2		5	2		3	2		3			
		3	2		5	2		3			2			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A ←	A	1	3.50								2105	135	0.064	1	150	0.071	1
1B ↰	A	1	3.70				20			100	1975	35	0.018		5	0.003	
2A ↓	AD	2	3.50	1		15				100	3700	590	0.159		565	0.153	
3A ↓	B	2	3.65	1							4100	995	0.243	1	680	0.166	1
3B ↓	B	1	3.60				20			100	1965	155	0.079		165	0.084	
4A ↑→	C	1	3.60	1		15				32 / 54	1915/1875	284	0.149		175	0.093	
4B ↓→	C	1	3.30				20			74 / 100	1975/1940	293	0.149		219	0.113	
4C ↓	C	1	3.60				20				1965	292	0.149	1	221	0.113	1
5A ↑	D	1	3.70	1							1985	347	0.175	1	382	0.192	
5B ↑→	D	1	3.70				20			11 / 21	2110/2090	368	0.175		403	0.193	1
5C →	D	1	3.70				20				1975	345	0.175	1	380	0.192	

Critical Ped. Phase	Stage	Width Across	Min. GM	Min. FGM	Lost Time	Note	Crit.	Note	Crit.

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	1,3,4,5	2,3,4		1,3,4,5	2,3,4	
Sum of y values, Y	0.630	0.551		0.542	0.431	
Lost time, L	18	14		18	14	
Cycle Time, C	127	217		124	214	
Practical Y, Y_{pr}	0.772	0.842		0.769	0.841	
Reserve Capacity, R.C. (%)	23%	53%		42%	95%	

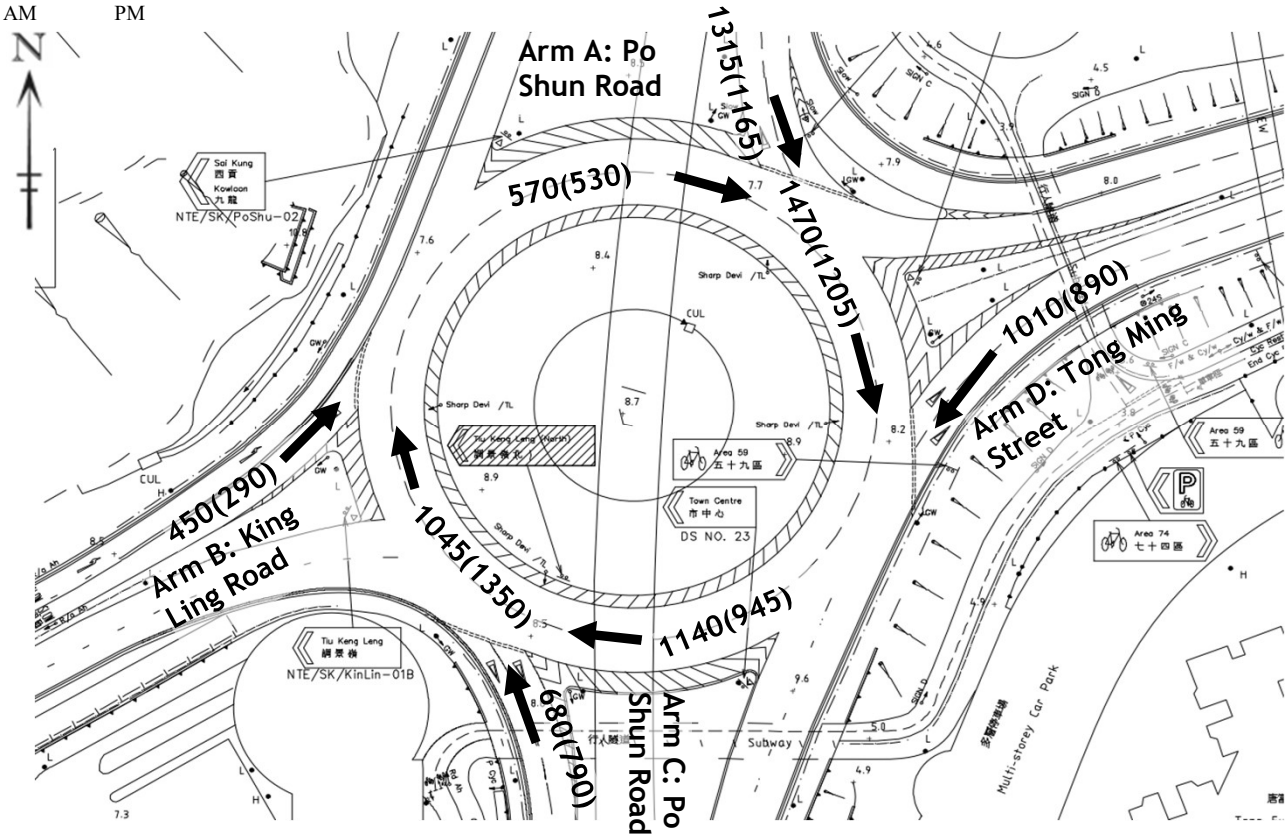
Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J6_SJ_2029_ref_

Simplified Roundabout Capacity Calculation

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O				
Junction:	J7 Po Shun Road / Tong Ming Street / King Ling Road			Ref. No.:	J7_RA_2029_ref_
Scheme:	2029 Ref			Ref. No.:	
Year:	2020	Job No.:	J1598	Rev.:	-

AM PM



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	7.00	8.00	14.5	20	81.2	20	0.11
B	2.70	4.60	31.9	55.2	81.2	18	0.10
C	7.10	7.40	11.7	23	81.2	10	0.04
D	7.40	8.40	27.5	60	81.2	29	0.06

CALCULATIONS

							Q_E		DFC	
ARM	K	X_2	M	F	t_D	f_c	AM	PM	AM	PM
A	1.03	7.82	8.33	2369	1.05	0.57	2117	2140	0.62	0.54
B	1.07	4.30	8.33	1302	1.05	0.41	935	801	0.48	0.36
C	1.08	7.38	8.33	2235	1.05	0.55	1733	1848	0.39	0.43
D	1.04	8.30	8.33	2514	1.05	0.59	1708	1870	0.59	0.48

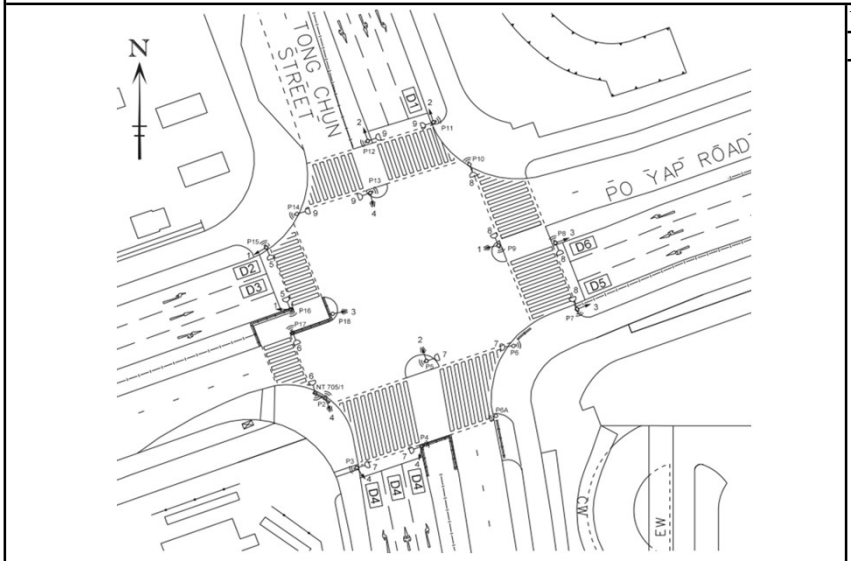
Critical Arm:	**A**	**A**
DFC:	**0.62**	**0.54**
	AM	**PM**

- In accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

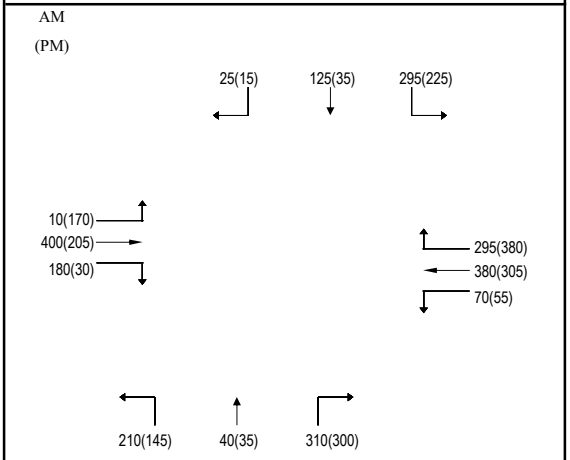
Traffic Signal Junction Calculation Sheet

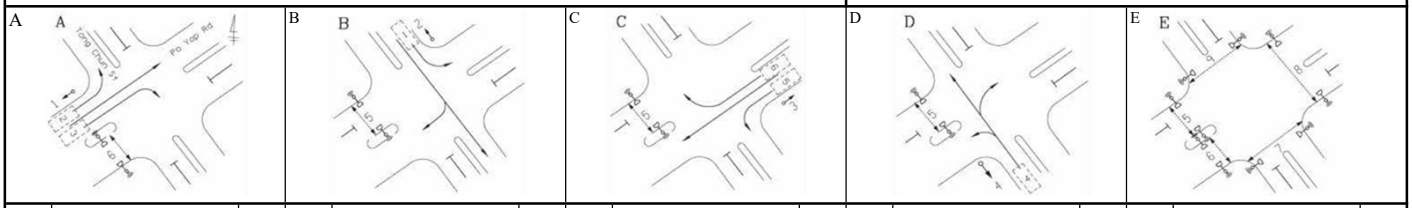
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J8 Po Yap Road / Tong Chun Street	Ref. No.:	J8_SJ_2029_
Scheme:	2029 Ref	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





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2		5	2		5	2		6	2		6	4	16	0
2		5	2		5	2		6	2		6	0	16	0

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.30	1		17				100	1785	10	0.006		170	0.095	1
1B	A	1	3.30								2085	297	0.142		119	0.057	
1C	A	1	3.30				20			64 / 26	1990/2045	283	0.142	1	116	0.057	
2A	B	1	3.40	1		17					1795	142	0.079		109	0.060	
2B	B	1	3.40			17				100	1925	153	0.079	1	116	0.060	1
2C	B	1	3.50				26			17 / 30	2085/2070	150	0.072		50	0.024	
3A	C	1	3.30	1		17				29 / 23	1895/1905	239	0.126	1	240	0.126	1
3B	C	1	3.40				20			19 / 53	2065/2015	260	0.126		254	0.126	
3C	C	1	3.40				20				1950	246	0.126		246	0.126	
4A	D	1	3.60	1		16					1805	174	0.097		145	0.080	
4B	D	1	3.50			16	26			79 / 79	2000/2015	193	0.097	1	168	0.084	
4C	D	1	3.50				26				1990	192	0.097		167	0.084	1

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	BCDE		5	5	11	16				
6P	E		5	5	7	12				
7P	E		5	5	11	16				
8P	E		5	5	11	16		1		1
9P	E		5	5	11	16				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

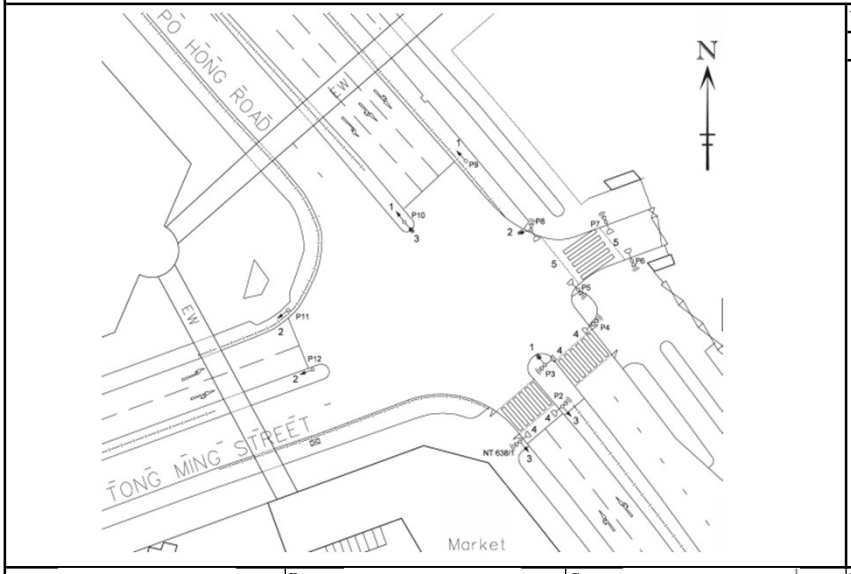
Check Critical Phase	1,2,3,4,8P	1,2,3,4,9P	1,2,3,4,7P	1,2,3,4,8P	1,2,3,4,9P	1,2,3,4,7P
Sum of y values, Y	0.444	0.444	0.444	0.366	0.366	0.366
Lost time, L	50	46	42	50	46	42
Cycle Time, C	125	125	125	125	125	125
Practical Y, Y_{pr}	0.540	0.569	0.598	0.540	0.569	0.598
Reserve Capacity, R.C. (%)	22%	28%	34%	48%	56%	63%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J8_SJ_2029_ref_

Traffic Signal Junction Calculation Sheet

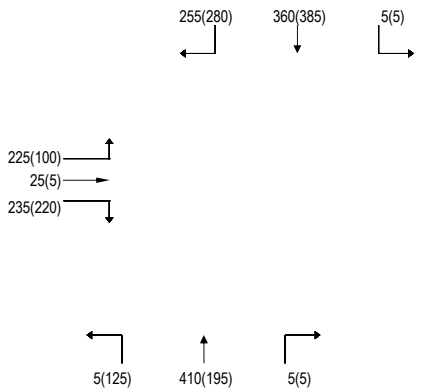
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J9 Po Hong Road / Tong Ming Street	Ref. No.:	J9_SJ_2029_
Scheme:	2029 Ref	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)

AM
(PM)



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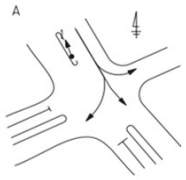

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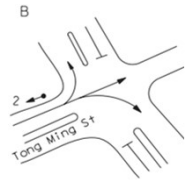
2		3	3		3	4		3	2	20	0			

B



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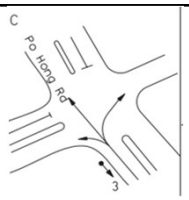

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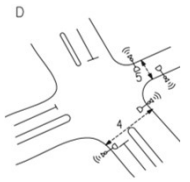

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Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.40	1		15				2 / 2	1950	201	0.103		217	0.112	1
1B	A	1	3.40				21			23 / 25	2060	213	0.103	1	230	0.111	
1C	A	1	3.90				21				2000	206	0.103		223	0.111	
2A	B	1	3.70	1		16				100	1815	225	0.124		100	0.055	
2B	B	1	3.60				32			90 / 98	2030/2020	260	0.128	1	225	0.111	1
3A	C	1	3.50	1		17				2 / 83	1960/1830	202	0.103	1	151	0.082	
3B	C	1	3.70				11			2 / 3	2120/2115	218	0.103		174	0.082	1

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
4P	D		11	11	9	20				
5P	D		5	5	11	16		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	1,2,3,5P	1,2,3,4P		1,2,3,5P	1,2,3,4P	
Sum of y values, Y	0.334	0.334		0.305	0.305	
Lost time, L	38	37		38	37	
Cycle Time, C	110	110		105	105	
Practical Y, Y_{pr}	0.589	0.597		0.574	0.583	
Reserve Capacity, R.C. (%)	76%	79%		88%	91%	

Calculated by:	Date: 五月-2021	Checked by:

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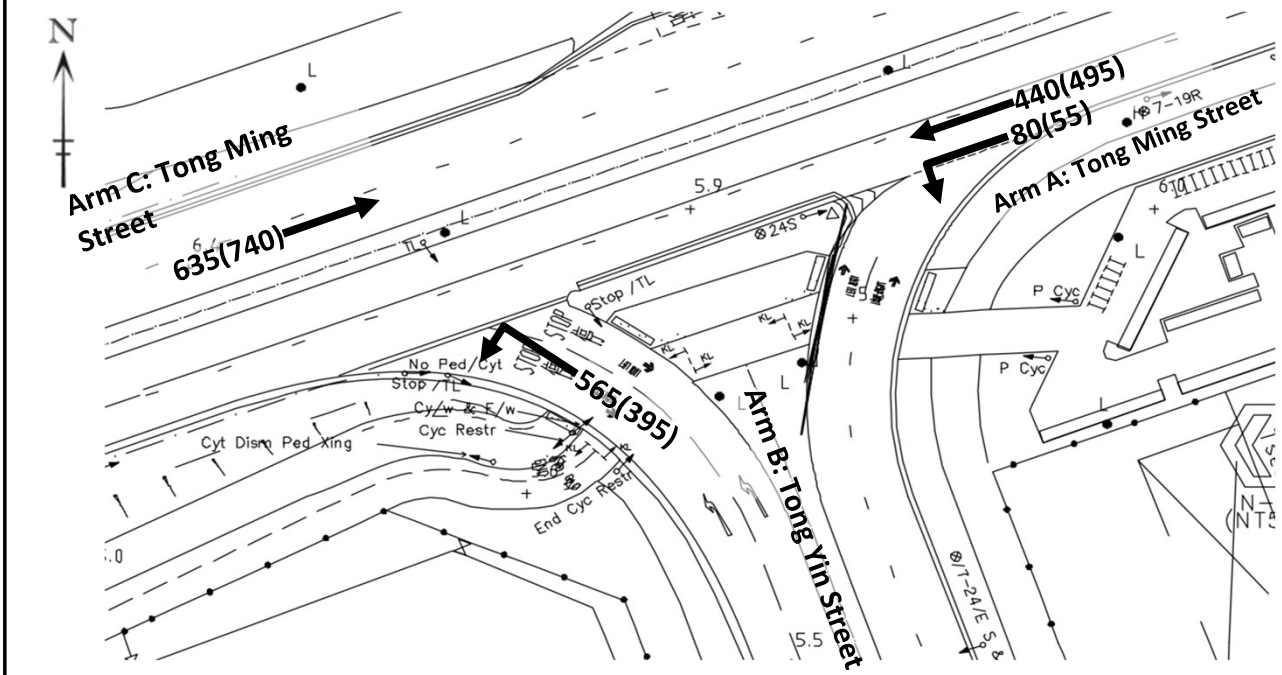
Simplified Priority Junction Capacity Calculation Sheet

Job Title	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O			
Junction	J10 Tong Yin Street/Tong Ming Street		Ref No.:	J10_PJ_2029_re
Scheme	2029 Ref		Ref No.:	
Year	2020	Job. No.: J1598	Rev.:	

AM(PM)



Geometry					
Major road width	**W**	7.4	**Lane widths**	w(b-a)	0.00
Central Reserve width	W_{cr}	0		w(b-c)	7.80
2 Lane Minor Arm (Y/N)		Y		w(c-b)	0.00
Visibilities	$V_{r(B-A)}$	0	**Calculated**	D	0.53
	$V_{l(B-A)}$	0		E	1.34
	$V_{r(B-C)}$	80		F	0.59
	$V_{r(C-B)}$	0		Y	0.74

Analysis			**Peak Hour**	
			AM	PM
Traffic Flows	$q_{(C-A)}$		635	740
	$q_{(C-B)}$		0	0
	$q_{(A-B)}$		80	55
	$q_{(A-C)}$		440	495
	$q_{(B-A)}$		0	0
	$q_{(B-C)}$		565	395
Proportion of minor traffic left-turn	**f**		1.00	1.00
		Factor		
Capacities	$Q_{(B-A)}$	1	208	192
	$Q_{(B-C)}$	1	827	811
	$Q_{(C-B)}$	1	354	349
	$Q_{(B-AC)}$	1	0	0
DFC	**B-A**		0.00	0.00
	B-C		0.68	0.49
	C-B		0.00	0.00
	B-AC		0.00	0.00
Worst DFC			**0.68**	**0.49**

Where Vl and Vr are visibility distances to the left or right of the respective streams

D = (1+0.094(w(b-a)-3.65))(1+0.0009(Vr(b-a)-120))(1+0.0006(Vl(b-a)-150))

E = (1+0.094(w(b-c)-3.65))(1+0.0009(Vr(b-c)-120))

F = (1+0.094(w(c-b)-3.65))(1+0.0009(Vr(c-b)-120))

Y = 1-0.0345W

f = proportion of minor traffic turning left

Q (b-ac) = Q(b-c)*Q(b-a)/(1-f)*Q(b-c)+f*Q(b-a)

T.P.D.M.V.2.4

Appendix 1

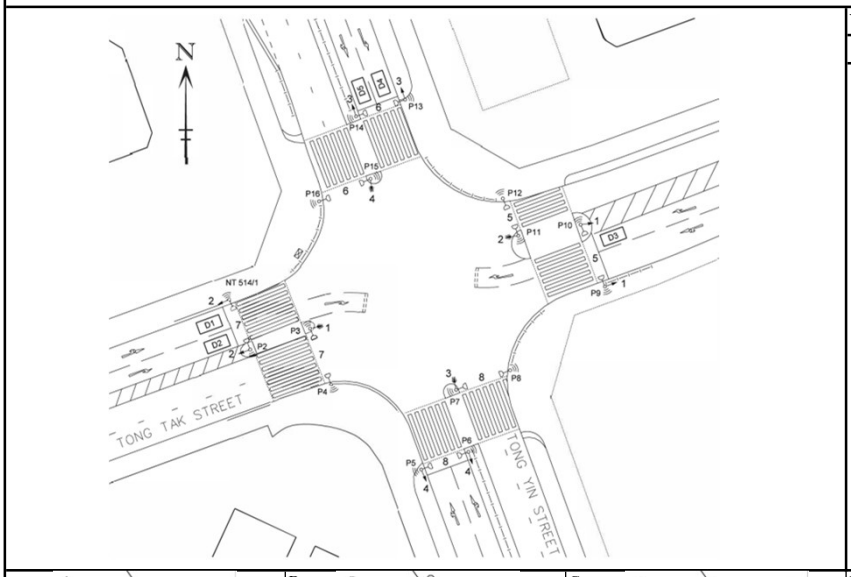
Capacity of combined streams

- in accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

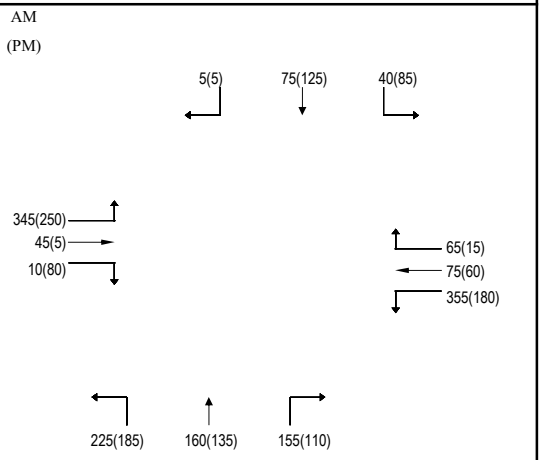
Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J11 Tong Yin Street/Tong Tak Street	Ref. No.:	J11_SJ_2029
Scheme:	2029 Ref	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)



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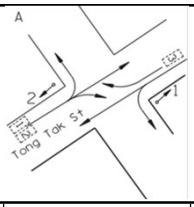

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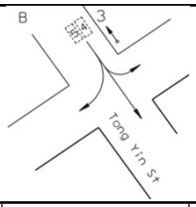

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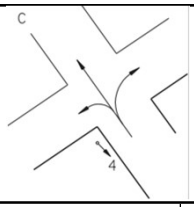

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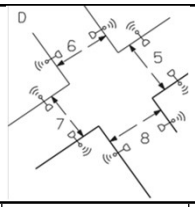


E

2		5	2	5	6	2		3	11	22	1			
2		5	2	5	6	2		3	7	20	1			
2		5	2	5	6	2		3	8	19	0			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	4.30	1		17				83 / 75	1905/1920	430	0.226	1	240	0.125	
1B	A	1	3.20		1		24			100	1735	65	0.037		15	0.009	
2A	A	1	3.70	1		16				88 / 98	1835/1820	390	0.213		255	0.140	1
2B	A	1	3.20		1		24			100	1735	10	0.006		80	0.046	
3A	B	1	3.80	1		18				100	1840	40	0.022		85	0.046	
3B	B	1	3.20				25			6 / 4	2065/2070	80	0.039	1	130	0.063	1
4A	C	1	4.00	1		13				87 / 90	1830/1825	259	0.142	1	206	0.113	1
4B	C	1	3.00				24			55 / 49	1985/1995	281	0.142		224	0.113	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	D		12	12	10	22		1		1
6P	D		9	9	10	19				
7P	D		10	10	10	20				
8P	D		10	10	10	20				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

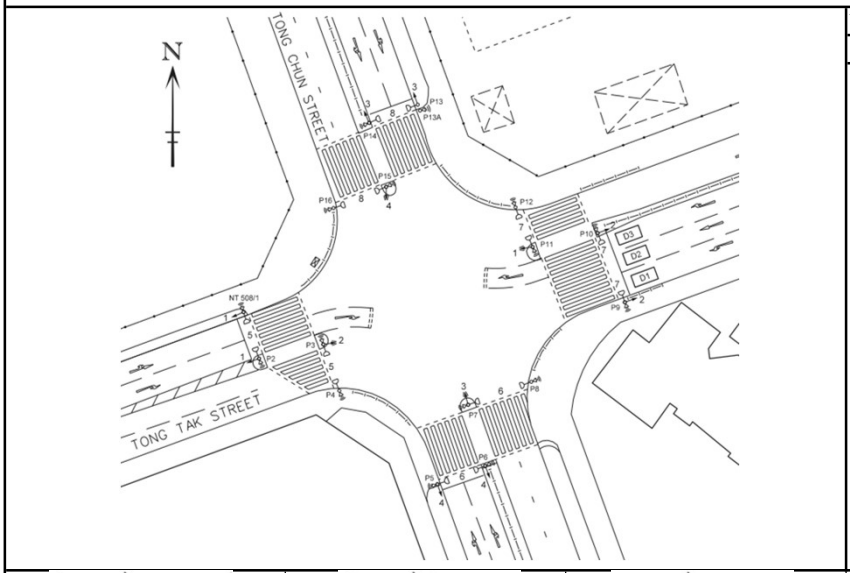
Check Critical Phase	1,3,4,5P	1,3,4,7P	1,3,4,6P	1,3,4,5P	1,3,4,7P	1,3,4,6P
Sum of y values, Y	0.406	0.406	0.406	0.316	0.316	0.316
Lost time, L	56	50	49	56	50	49
Cycle Time, C	127	127	127	124	124	124
Practical Y, Y_{pr}	0.503	0.546	0.553	0.494	0.537	0.544
Reserve Capacity, R.C. (%)	24%	34%	36%	56%	70%	73%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J11_SJ_2029_ref_

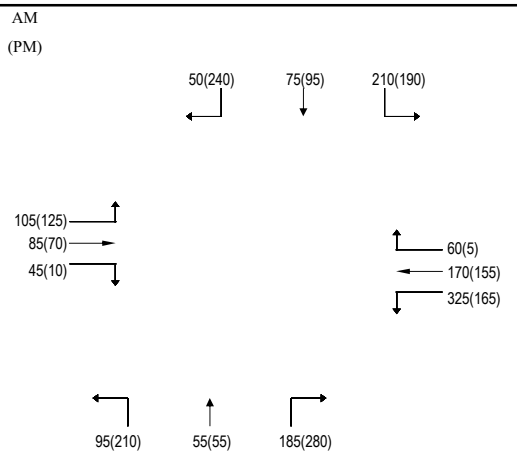
Traffic Signal Junction Calculation Sheet

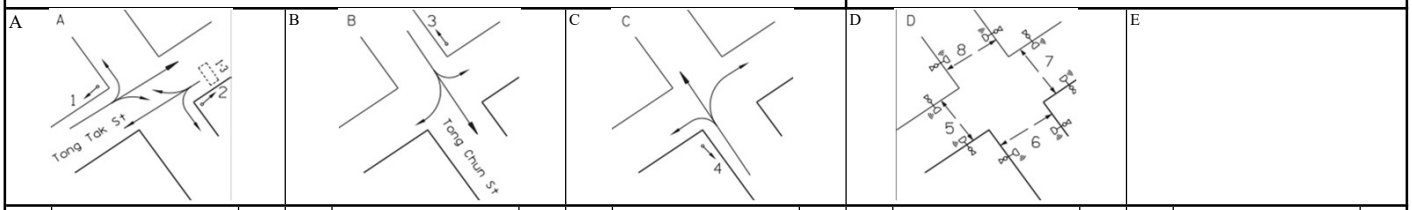
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J12 Tong Tak Street/Tong Chun Street	Ref. No.:	J12_SJ_2029
Scheme:	2029 Ref	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		11	2		5	2		4	10	25	2						
2		11	2		5	2		4	7	18	2						
2		11	2		5	2		4	7	18	0						

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.60	1		15				55 / 64	1870/1855	190	0.102		195	0.105	1
1B	A	1	3.20		1		29			100	1755	45	0.026		10	0.006	
2A	A	1	4.00	1		17				100	1850	325	0.176	1	165	0.089	
2B	A	1	3.50								2105	170	0.081		155	0.074	
2C	A	1	3.70		1		24			100	1785	60	0.034		5	0.003	
3A	B	1	3.60	1		17				100 / 76	1815/1850	210	0.116	1	249	0.135	1
3B	B	1	4.00				24			40 / 87	2100/2045	125	0.060		276	0.135	
4A	C	1	3.60	1		18				63 / 80	1875/1850	150	0.080		263	0.142	1
4B	C	1	3.60				24			100 / 99	1990	185	0.093	1	282	0.142	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	D		9	9	9	18				
6P	D		10	10	10	20				
7P	D		12	12	13	25		1		1
8P	D		9	9	9	18				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

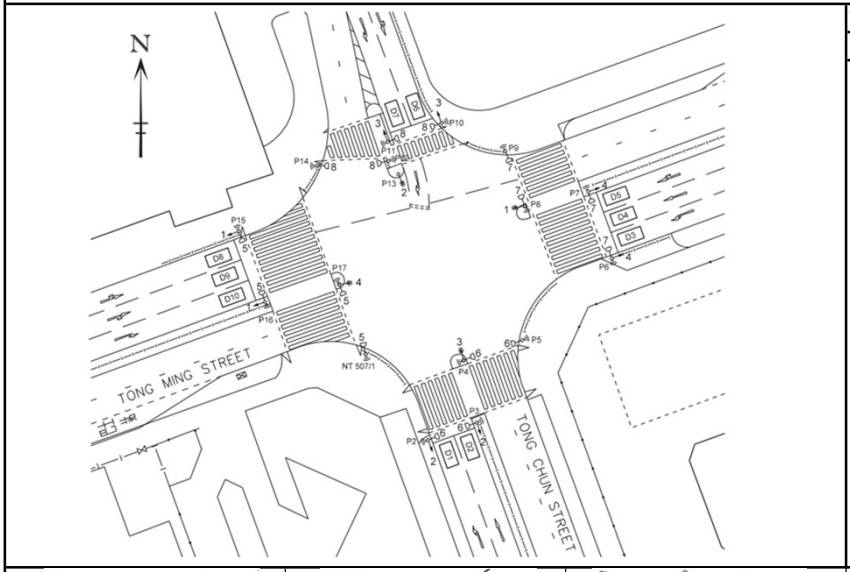
Check Critical Phase	2,3,4,7P	2,3,4,5P	2,3,4,8P	2,3,4,7P	2,3,4,5P	2,3,4,8P
Sum of y values, Y	0.384	0.384	0.384	0.382	0.382	0.382
Lost time, L	60	50	48	60	50	48
Cycle Time, C	125	125	125	125	125	125
Practical Y, Y_{pr}	0.468	0.540	0.554	0.468	0.540	0.554
Reserve Capacity, R.C. (%)	22%	40%	44%	23%	41%	45%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J12_SJ_2029_ref_

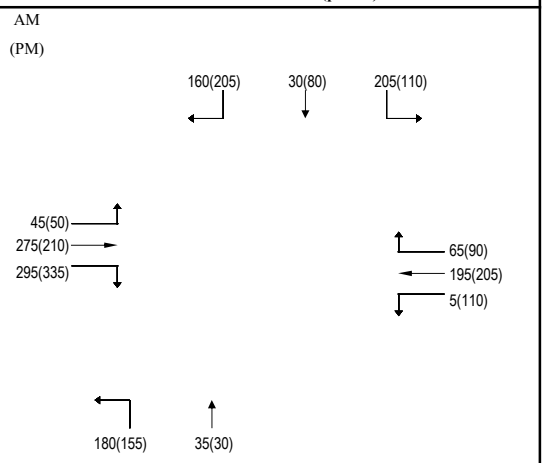
Traffic Signal Junction Calculation Sheet

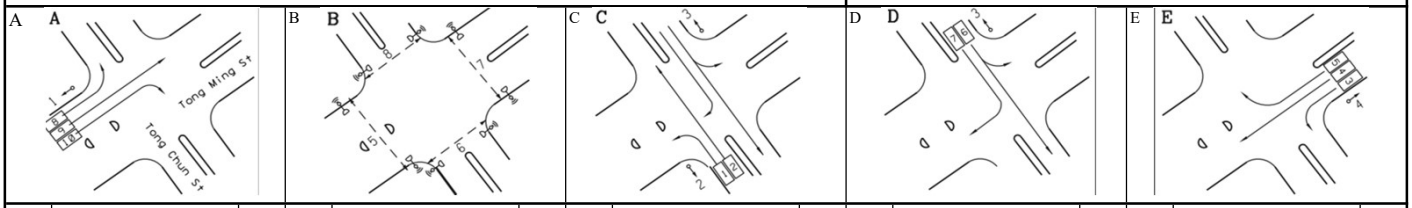
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J13 Tong Ming Street/Tong Chun Street	Ref. No.:	J13_SJ_2029
Scheme:	2029 Ref	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		3	9	22		0	2					3	3			6	
2		3	11	18		1	2					3	3			6	
2		3	6	22		1	2					3	3			6	

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.50	1		20				23 / 26	1930	199	0.103	1	193	0.100	
1B	A	1	3.50				24			43 / 67	2050/2020	211	0.103		203	0.100	1
1C	A	1	3.50				24				1980	204	0.103		199	0.100	
2A	C	1	3.60	1		17				100	1815	180	0.099		155	0.085	
2B	C	1	3.70								2125	35	0.016		30	0.014	
3A	CD	1	3.20	1		17				87 / 58	1795/1840	235	0.131	1	190	0.103	
3B	CD	1	3.40		1		15			100	1695	160	0.094		205	0.121	1
4A	E	1	3.50	1		17				100	1805	5	0.003		110	0.061	
4B	E	1	3.50								2105	132	0.063		150	0.071	1
4C	E	1	3.50				23			51 / 62	2035/2025	128	0.063	1	145	0.071	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	B		14	14	12	26				
6P	B		10	10	8	18				
7P	B		12	12	10	22		1		1
8P	B		12	12	10	22				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	1,7P,3,4	1,6P,3,4	1,8P,3,4	1,7P,3,4	1,6P,3,4	1,8P,3,4
Sum of y values, Y	0.297	0.297	0.297	0.293	0.293	0.293
Lost time, L	47	46	45	47	46	45
Cycle Time, C	125	125	125	125	125	125
Practical Y, Y_{pr}	0.562	0.569	0.576	0.562	0.569	0.576
Reserve Capacity, R.C. (%)	89%	91%	94%	92%	94%	97%

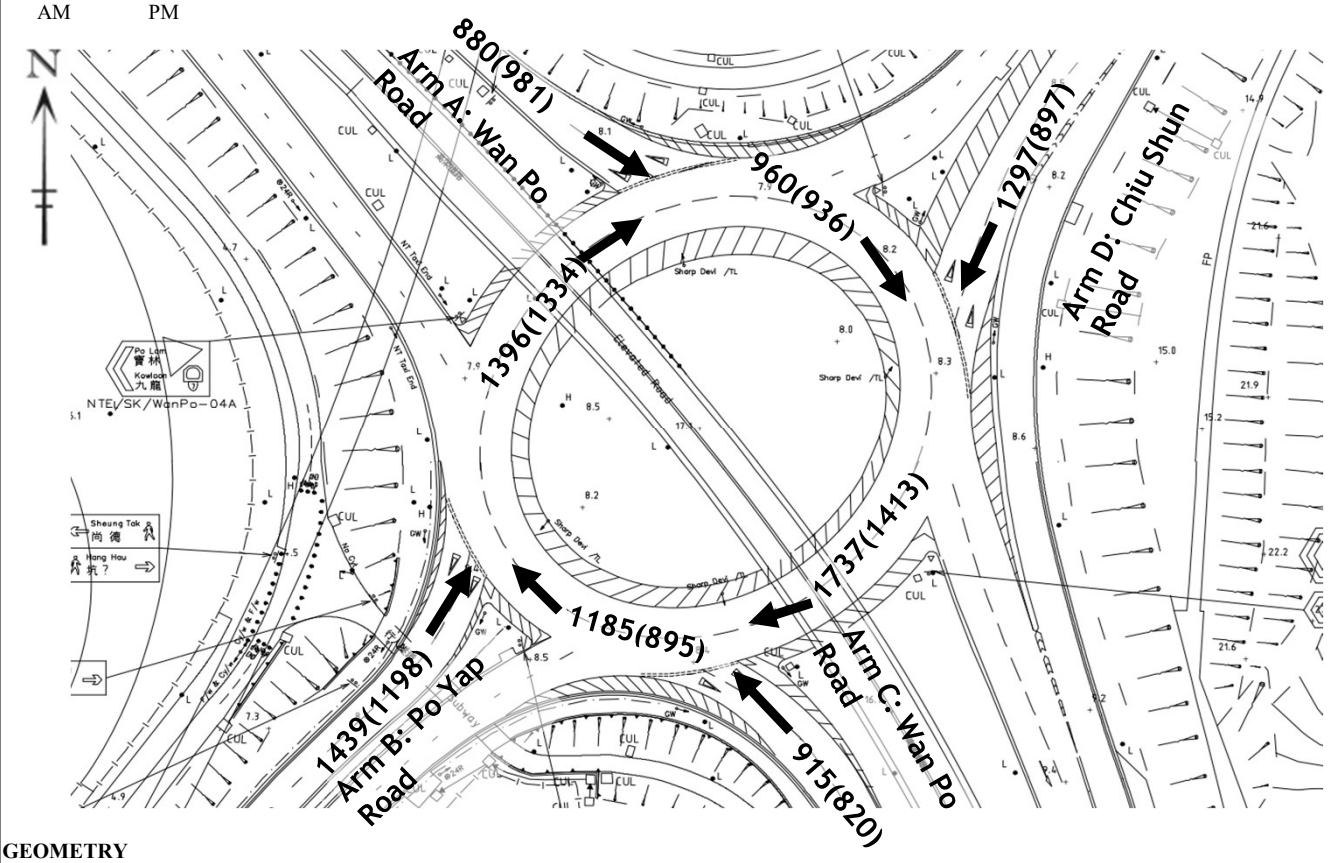
Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J13_SJ_2029_ref_

Simplified Roundabout Capacity Calculation

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O				
Junction:	J1 Wan Po Road / Chiu Shun Road / Po Yap Road			Ref. No.:	J1_RA_2029_des_
Scheme:	2029 Des			Ref. No.:	
Year:	2020	Job No.:	J1598	Rev.:	-

AM PM



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	5.00	9.00	20	40	76	20	0.32
B	7.00	7.50	10	50	86	20	0.08
C	8.00	8.00	5	40	76	20	0.00
D	8.00	10.00	10	70	86	25	0.32

CALCULATIONS

ARM	K	X_2	M	F	t_D	f_c	Q_E AM	Q_E PM	DFC AM	DFC PM
A	1.06	7.44	4.95	2254	1.08	0.57	1550	1587	0.57	0.62
B	1.06	7.43	13.46	2252	1.03	0.54	1715	1881	0.84	0.64
C	1.06	8.00	4.95	2424	1.08	0.59	1479	1682	0.62	0.49
D	1.05	9.22	13.46	2794	1.03	0.62	2315	2331	0.56	0.38

Critical Arm:	**B**	**B**
DFC:	**0.84**	**0.64**
	AM	**PM**

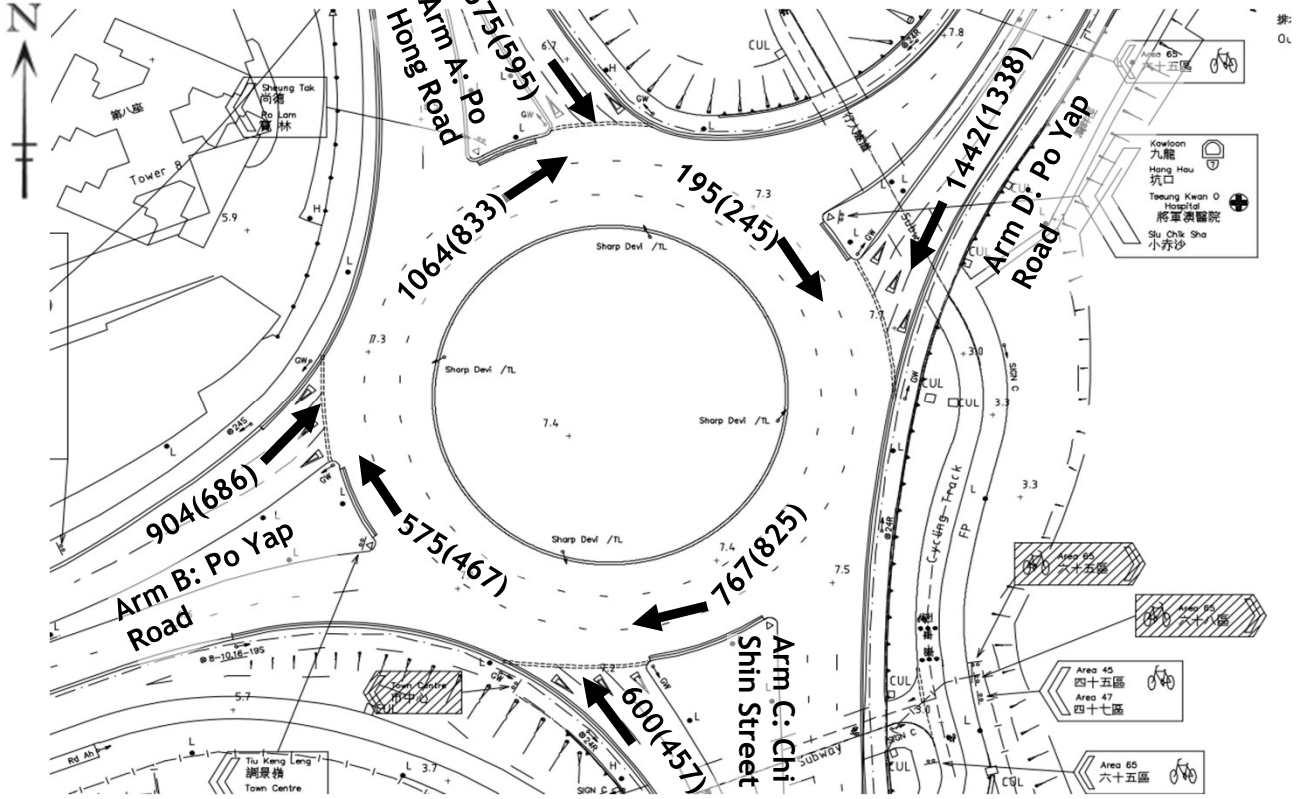
- In accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

Simplified Roundabout Capacity Calculation

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O				
Junction:	J2 Po Yap Road / Chi Shin Street / Po Hong Road			Ref. No.:	J2_RA_2029_des_
Scheme:	2029 Des			Ref. No.:	
Year:	2020	Job No.:	J1598	Rev.:	-

AM PM



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	7.00	11.00	20	25	80	25	0.32
B	7.00	11.00	15	60	80	30	0.43
C	7.00	12.00	10	50	80	25	0.80
D	7.00	11.00	20	90	80	25	0.32

CALCULATIONS

ARM	K	X_2	M	F	t_D	f_c	Q_E AM	Q_E PM	DFC AM	DFC PM
A	1.03	9.44	7.39	2860	1.06	0.64	2235	2388	0.26	0.25
B	1.03	9.16	7.39	2775	1.06	0.63	2491	2562	0.36	0.27
C	1.05	8.92	7.39	2704	1.06	0.62	2332	2295	0.26	0.20
D	1.06	9.44	7.39	2860	1.06	0.64	2886	2852	0.50	0.47

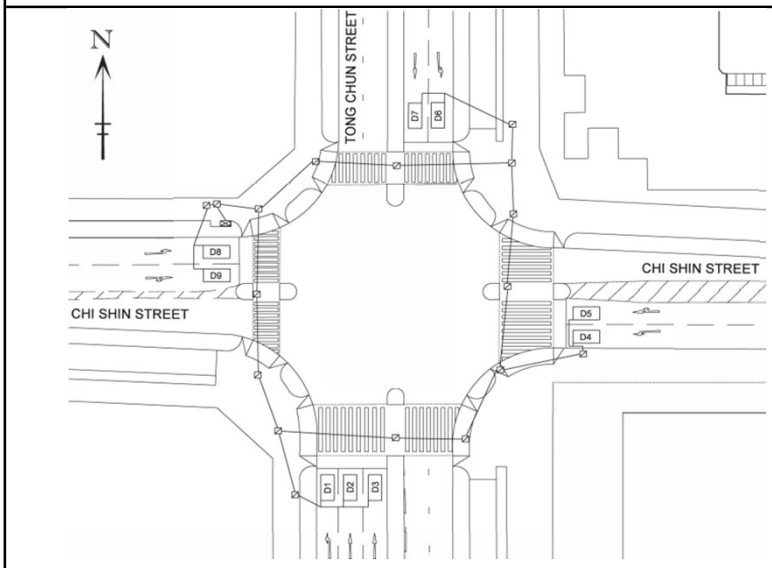
Critical Arm:	**D**	**D**
DFC:	**0.50**	**0.47**
	AM	**PM**

- In accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

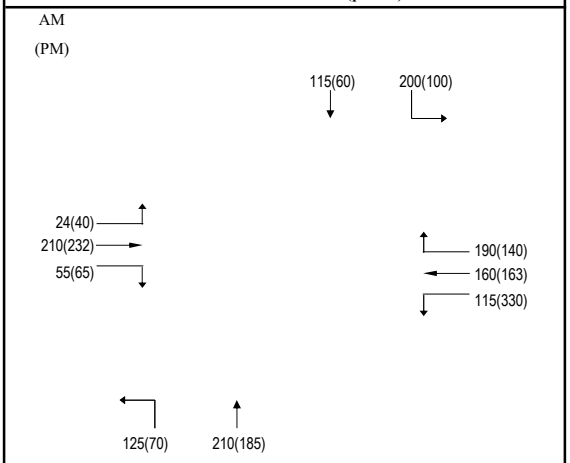
Traffic Signal Junction Calculation Sheet

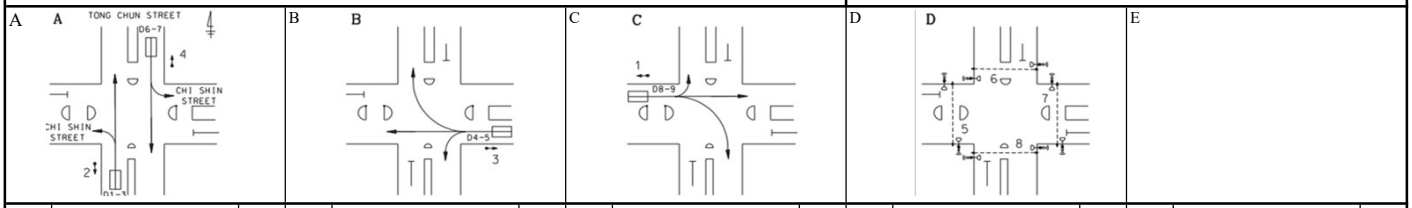
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J3 Chi Shin Street / Tong Chun Street	Ref. No.:	J3_SJ_2029_
Scheme:	2029 Des	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		5	2		5	2		3	9	22	1			
2		5	2		5	2		3	7	20	0			
2		5	2		5	2		3	5	18	1			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	C	1	4.10	1		17			0.86	100	1595	24	0.015		40	0.025	
1B	C	1	4.20				23			21 / 22	2145	265	0.124	1	297	0.138	1
2A	A	1	3.10	1		19				100	1785	125	0.070		70	0.039	
2B	A	2	3.65								4240	210	0.050		185	0.044	
3A	B	1	3.50				25			54 / 46	2040/2050	350	0.172	1	303	0.148	
3B	B	1	3.70	1		17				100	1825	115	0.063		330	0.181	1
4A	A	1	3.60	1		17				100	1815	200	0.110	1	100	0.055	1
4B	A	1	3.60								2115	115	0.054		60	0.028	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	D		10	10	8	18				
6P	D		10	10	8	18				
7P	D		11	11	9	20				
8P	D		12	12	10	22		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

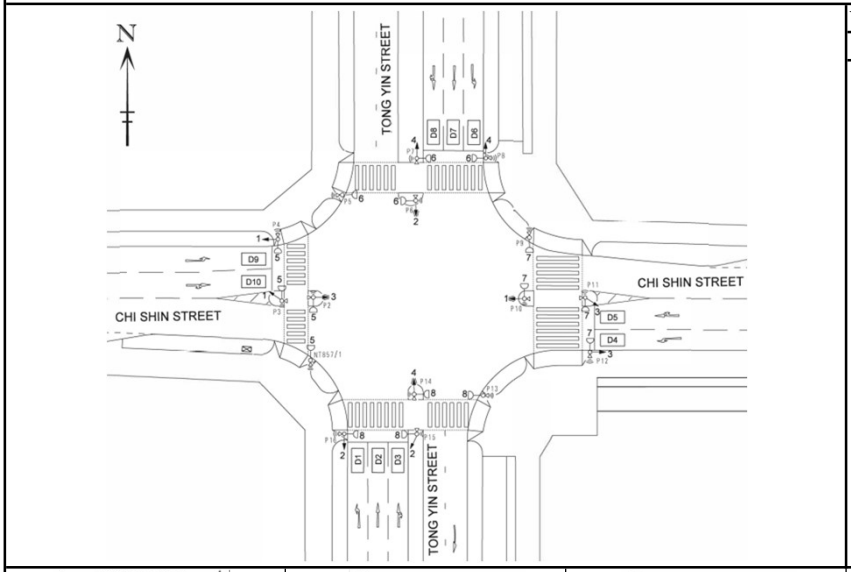
Check Critical Phase	4,3,1,8P	4,3,1,7P	4,3,1,6P	4,3,1,8P	4,3,1,7P	4,3,1,6P
Sum of y values, Y	0.405	0.405	0.405	0.374	0.374	0.374
Lost time, L	48	43	40	48	43	40
Cycle Time, C	110	110	110	110	110	110
Practical Y, Y_{pr}	0.507	0.548	0.573	0.507	0.548	0.573
Reserve Capacity, R.C. (%)	25%	35%	41%	35%	46%	53%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J3_SJ_2029_des_

Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J4 Chi Shin Street / Tong Yin Street	Ref. No.:	J4_SJ_2029_
Scheme:	2029 Des	Ref. No.:	

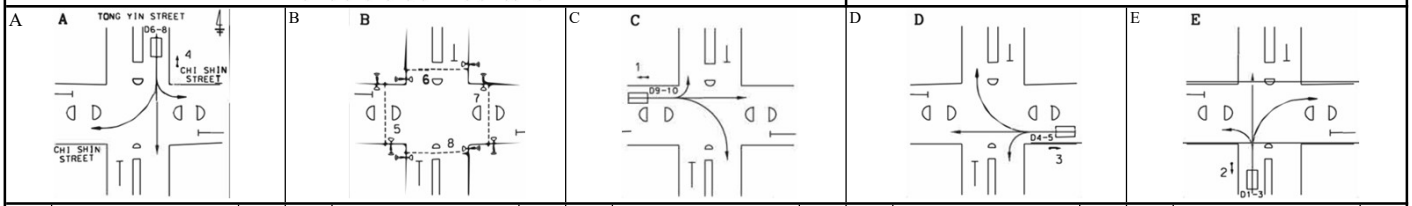


Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)

AM
(PM)

195(30) 170(120) 82(177)
154(180)
158(109)
5(5)
93(72)
8(10)
175(140)
5(5) 218(207) 45(50)



2		5	5	21	0	2	5	5	2		6	2		5
2		5	7	18	1	2	5	5	2		6	2		5
2		5	1	22	0	2	5	5	2		6	2		5

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	C	1	3.60	1		17				100	1815	154	0.085	1	180	0.099	1
1B	C	1	3.60				23			3 / 4	2110	163	0.077		114	0.054	
2A	E	1	3.30	1		17			0.86	100	1530	5	0.003		5	0.003	
2B	E	1	3.30								2085	133	0.064	1	130	0.062	
2C	E	1	3.30				25			35 / 39	2045/2035	130	0.064		127	0.062	1
3A	D	1	3.40	1		17				100	1795	175	0.097	1	140	0.078	1
3B	D	1	3.90				36			92 / 88	2065/2070	101	0.049		82	0.040	
4A	A	1	3.30	1		17				100	1785	82	0.046		177	0.099	1
4B	A	1	3.30								2085	170	0.082		76	0.036	
4C	A	1	3.30				23			100 / 41	1955/2030	195	0.100	1	74	0.036	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	B		10	10	8	18				
6P	B		13	13	9	22				
7P	B		9	9	7	16				
8P	B		12	12	9	21		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

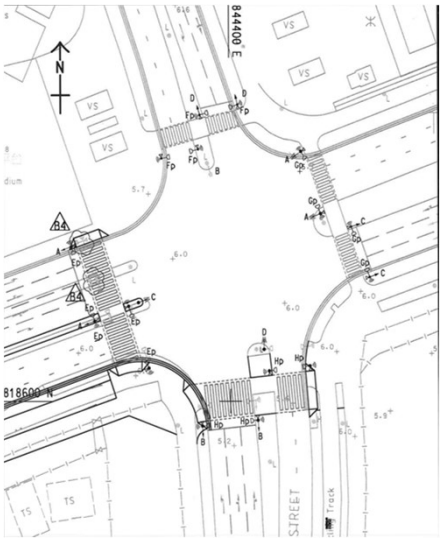
Check Critical Phase	4,8P,1,3,2	4,5P,1,3,2	4,6P,1,3,2	4,8P,1,3,2	4,5P,1,3,2	4,6P,1,3,2
Sum of y values, Y	0.346	0.346	0.346	0.339	0.339	0.339
Lost time, L	56	56	53	56	56	53
Cycle Time, C	100	100	100	110	110	110
Practical Y, Y_{pr}	0.396	0.396	0.423	0.442	0.442	0.466
Reserve Capacity, R.C. (%)	15%	15%	22%	30%	30%	38%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J4_SJ_2029_des_

Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J5 Po Yap Road / Tong Yin Street	Ref. No.:	J5_SJ_2029_
Scheme:	2029 Des	Ref. No.:	



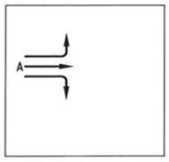
Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)

AM
(PM)

225(260) 5(5) 200(110)
242(260)
400(230)
137(347)
194(185)
306(262)
165(100)
283(288) 180(95) 10(71)

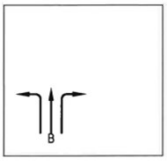
A



STAGE 1

2		3
2		3
2		3

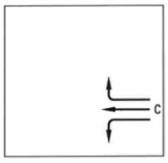
B



STAGE 2

2		5
2		5
2		5

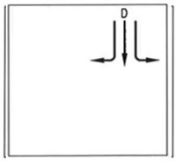
C



STAGE 3

2		3
2		3
2		3

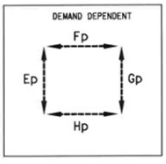
D



STAGE 4

2		3
2		3
2		3

E



STAGE 5

13	28	0
11	27	1
6	25	0

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.80	1		15					1815	195	0.108		197	0.109	
1B	A	1	3.40			15				21 / 28	2050/2035	221	0.108	1	221	0.109	1
1C	A	1	3.50				20			0 / 67	2105/2005	226	0.108		218	0.109	
1D	A	1	3.80	1			20				1855	137	0.074		201	0.109	
2A	B	1	3.70			15					1930	155	0.081		151	0.078	
2B	B	1	3.70			15				81 / 90	1965/1950	158	0.081	1	153	0.078	
2C	B	1	3.70	1			20			6 / 47	1975/1915	159	0.081		150	0.078	1
3A	C	1	3.20			15				75 / 55	1930/1965	219	0.114		182	0.093	
3B	C	1	3.30	1							1945	221	0.114		180	0.093	
3C	C	1	3.50				20			86 / 100	1975/1960	225	0.114	1	185	0.094	1
4A	D	1	3.70	1		15	20			98 / 97	1810/1825	206	0.114		180	0.099	
4B	D	1	3.70				20				1975	224	0.114	1	195	0.099	1

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	E		14	14	13	27				
6P	E		11	11	8	19				
7P	E		15	15	10	25				
8P	E		16	16	12	28		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%

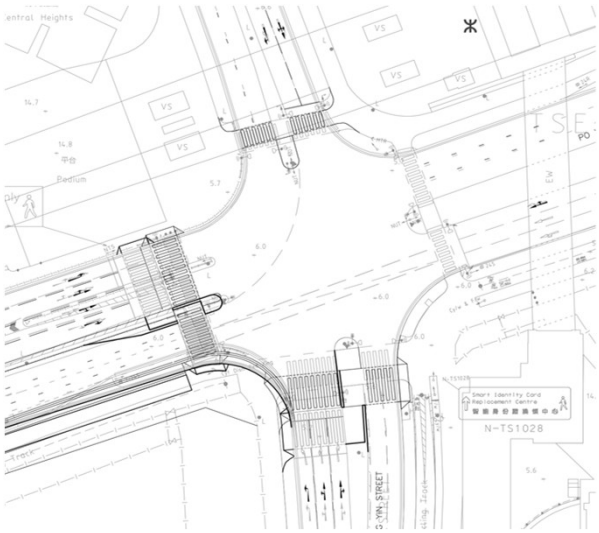
In accordance with TPDM - Volume 4.2.4

Check Critical Phase	1,2,3,4,8P	1,2,3,4,5P	1,2,3,4,7P	1,2,3,4,8P	1,2,3,4,5P	1,2,3,4,7P
Sum of y values, Y	0.416	0.416	0.416	0.380	0.380	0.380
Lost time, L	59	57	49	59	57	49
Cycle Time, C	120	120	120	105	105	105
Practical Y, Y_{pr}	0.458	0.473	0.533	0.394	0.411	0.480
Reserve Capacity, R.C. (%)	10%	14%	28%	4%	8%	26%

Calculated by:	Date: 五月-2021	Checked by:

Traffic Signal Junction Calculation Sheet

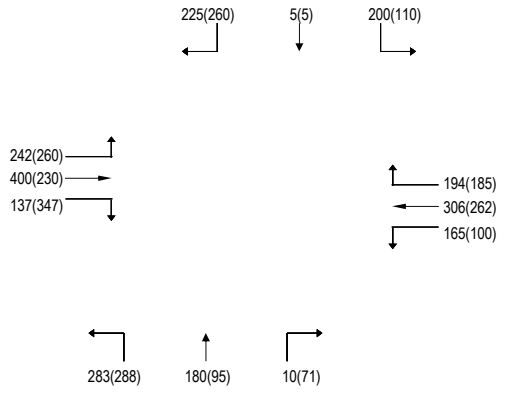
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O
Junction:	J5 Po Yap Road / Tong Yin Street (with improvement scheme)
Ref. No.:	J5_SJ_2029_
Scheme:	2029 Des
Ref. No.:	



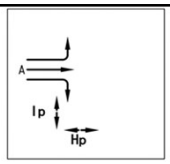
Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)

AM
(PM)



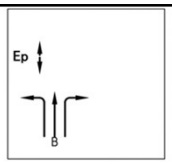
A



STAGE 1

2		3

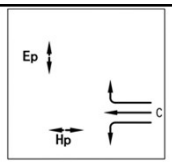
B



STAGE 2

2		5

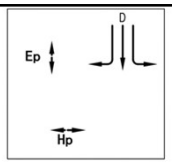
C



STAGE 3

2		3

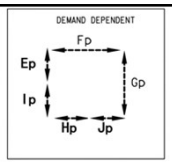
D



STAGE 4

2		3

E



STAGE 5

6	25	0

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.80	1		15					1815	195	0.108		197	0.109	
1B	A	1	3.40			15				21 / 28	2050/2035	221	0.108	1	221	0.109	1
1C	A	1	3.50				20			0 / 67	2105/2005	226	0.108		218	0.109	
1D	A	1	3.80	1			20				1855	137	0.074		201	0.109	
2A	B	1	3.70			15					1930	155	0.081		151	0.078	
2B	B	1	3.70			15				81 / 90	1965/1950	158	0.081	1	153	0.078	
2C	B	1	3.70	1			20			6 / 47	1975/1915	159	0.081		150	0.078	1
3A	C	1	3.20			15				75 / 55	1930/1965	219	0.114		182	0.093	
3B	C	1	3.30	1							1945	221	0.114		180	0.093	
3C	C	1	3.50				20			86 / 100	1975/1960	225	0.114	1	185	0.094	1
4A	D	1	3.70	1		15	20			98 / 97	1810/1825	206	0.114		180	0.099	
4B	D	1	3.70				20				1975	224	0.114	1	195	0.099	1

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	BCDE		5	5	13	18				
6P	E		11	11	8	19				
7P	E		15	15	10	25		1		1
8P	ACDE		5	5	12	17				
9P	AE		5	5	9	14				
10P	E		5	5	6	11				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%

In accordance with TPDM - Volume 4.2.4

	AM Peak			PM Peak		
Check Critical Phase	1,2,3,4,7P			1,2,3,4,7P		
Sum of y values, Y	0.416			0.380		
Lost time, L	49			49		
Cycle Time, C	120			105		
Practical Y, Y_{pr}	0.533			0.480		
Reserve Capacity, R.C. (%)	28%			26%		

Calculated by:	Date: 五月-2021	Checked by:

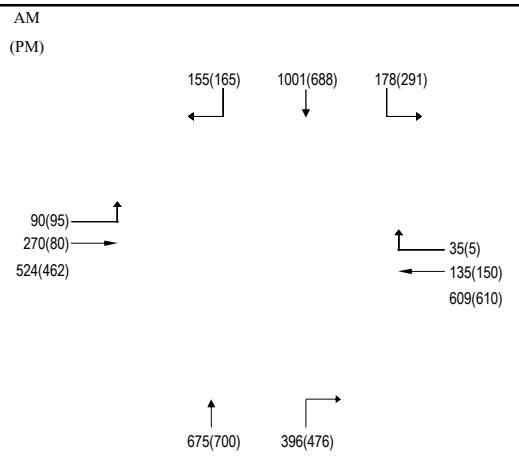
Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J5_SJ_2029_des_hv_impro

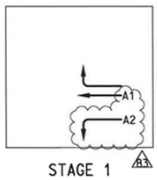
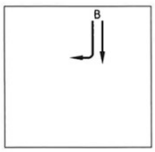
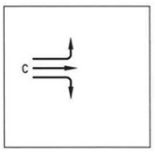
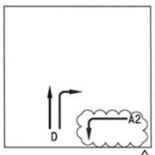
Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J6 Po Yap Road / Po Shun Road / Chui Ling Road / Future Road P2	Ref. No.:	J6_SJ_2029_
Scheme:	2029 Des	Ref. No.:	

Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)



A	B	C	D	E
				
STAGE 1	STAGE 2	STAGE 3	STAGE 4	

2		3	2		5	2		3	2		3			
		3	2		5	2		3			2			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A ←	A	1	3.50								2105	135	0.064	1	150	0.071	1
1B ↰	A	1	3.70				20			100	1975	35	0.018		5	0.003	
2A ↓	AD	2	3.50	1		15				100	3700	609	0.165		610	0.165	
3A ↓	B	2	3.65	1							4100	1001	0.244	1	688	0.168	1
3B ↓	B	1	3.60				20			100	1965	155	0.079		165	0.084	
4A ↑→	C	1	3.60	1		15				31 / 54	1915/1875	289	0.151		175	0.093	
4B ↓→	C	1	3.30				20			76 / 100	1970/1940	298	0.151	1	229	0.118	
4C ↓	C	1	3.60				20				1965	297	0.151		233	0.118	1
5A ↑	D	1	3.70	1							1985	351	0.177	1	386	0.194	1
5B ↑→	D	1	3.70				20			13 / 23	2105/2090	372	0.177		406	0.194	
5C ↑→	D	1	3.70				20				1975	349	0.177	1	384	0.194	1

Critical Ped. Phase	Stage	Width Across	Min. GM	Min. FGM	Lost Time	Note	Crit.	Note	Crit.

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	1,3,4,5	2,3,4		1,3,4,5	2,3,4	
Sum of y values, Y	0.636	0.560		0.552	0.451	
Lost time, L	18	14		18	14	
Cycle Time, C	127	217		124	214	
Practical Y, Y_{pr}	0.772	0.842		0.769	0.841	
Reserve Capacity, R.C. (%)	21%	50%		39%	87%	

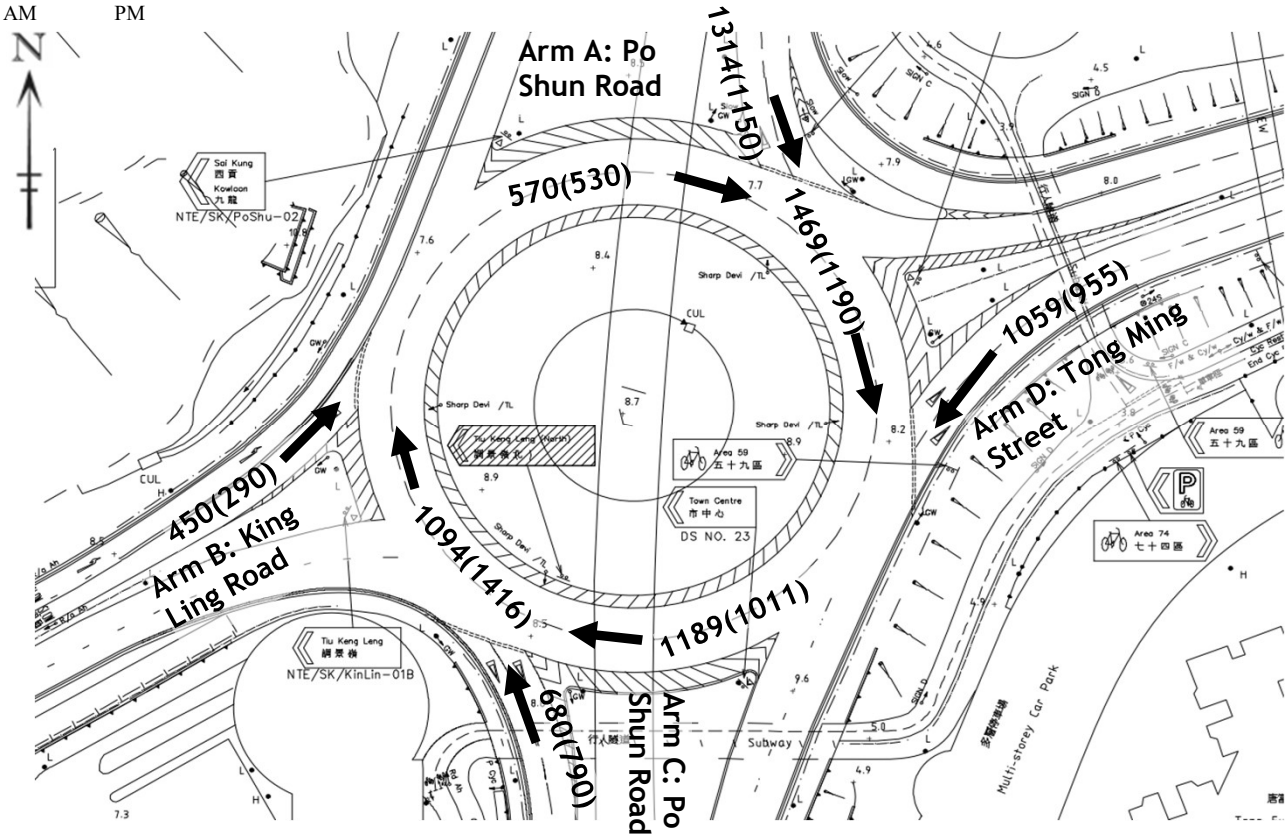
Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J6_SJ_2029_des_

Simplified Roundabout Capacity Calculation

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O				
Junction:	J7 Po Shun Road / Tong Ming Street / King Ling Road			Ref. No.:	J7_RA_2029_des_
Scheme:	2029 Des			Ref. No.:	
Year:	2020	Job No.:	J1598	Rev.:	-

AM PM



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	7.00	8.00	14.5	20	81.2	20	0.11
B	2.70	4.60	31.9	55.2	81.2	18	0.10
C	7.10	7.40	11.7	23	81.2	10	0.04
D	7.40	8.40	27.5	60	81.2	29	0.06

CALCULATIONS

ARM	K	X_2	M	F	t_D	f_c	Q_E AM	Q_E PM	DFC AM	DFC PM
A	1.03	7.82	8.33	2369	1.05	0.57	2117	2140	0.62	0.54
B	1.07	4.30	8.33	1302	1.05	0.41	914	772	0.49	0.38
C	1.08	7.38	8.33	2235	1.05	0.55	1704	1809	0.40	0.44
D	1.04	8.30	8.33	2514	1.05	0.59	1709	1879	0.62	0.51

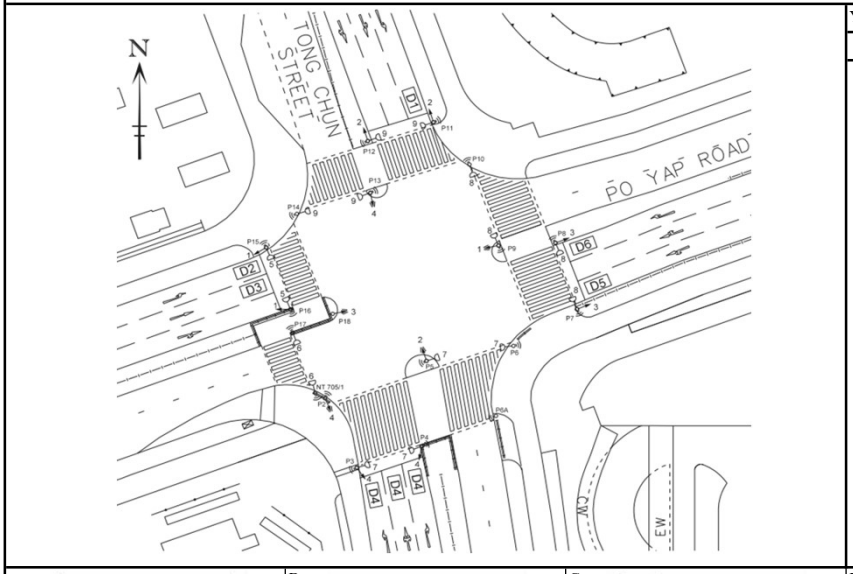
Critical Arm:	**A**	**A**
DFC:	**0.62**	**0.54**
	AM	**PM**

- In accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

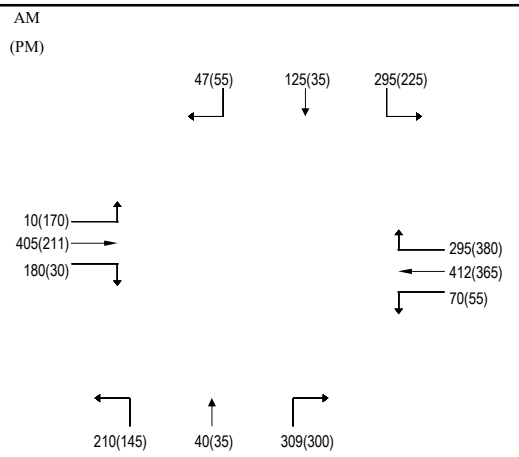
Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J8 Po Yap Road / Tong Chun Street	Ref. No.:	J8_SJ_2029_
Scheme:	2029 Des	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)



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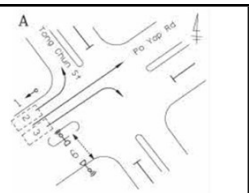

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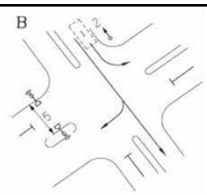

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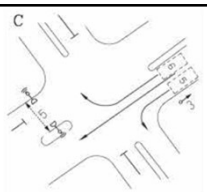

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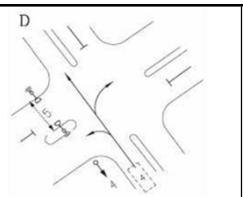

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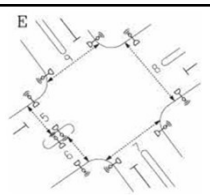


2		5	2		5	2		6	2		6	8	16	0
2		5	2		5	2		6	2		6	4	16	0
2		5	2		5	2		6	2		6	0	16	0

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.30	1		17				100	1785	10	0.006		170	0.095	1
1B	A	1	3.30								2085	299	0.144		122	0.058	
1C	A	1	3.30				20			63 / 25	1990/2045	286	0.144	1	119	0.058	
2A	B	1	3.40	1		17					1795	145	0.081		109	0.060	
2B	B	1	3.40			17				97 / 100	1930/1925	156	0.081		116	0.060	1
2C	B	1	3.50				26			28 / 61	2070/2035	167	0.081	1	90	0.044	
3A	C	1	3.30	1		17				28 / 21	1900/1910	249	0.131		259	0.136	
3B	C	1	3.40				20			14 / 42	2075/2030	272	0.131		276	0.136	1
3C	C	1	3.40				20				1950	256	0.131	1	265	0.136	
4A	D	1	3.60	1		16					1805	174	0.096		145	0.080	
4B	D	1	3.50			16	26			79 / 79	2000/2015	193	0.096	1	168	0.084	
4C	D	1	3.50				26				1990	192	0.096		167	0.084	1

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	BCDE		5	5	11	16				
6P	E		5	5	7	12				
7P	E		5	5	11	16				
8P	E		5	5	11	16		1		1
9P	E		5	5	11	16				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

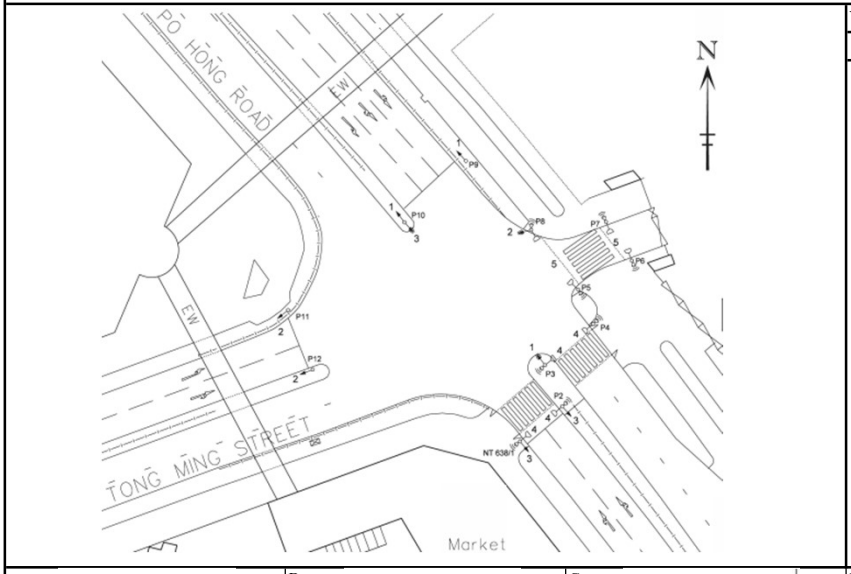
Check Critical Phase	1,2,3,4,8P	1,2,3,4,9P	1,2,3,4,7P	1,2,3,4,8P	1,2,3,4,9P	1,2,3,4,7P
Sum of y values, Y	0.452	0.452	0.452	0.375	0.375	0.375
Lost time, L	50	46	42	50	46	42
Cycle Time, C	125	125	125	125	125	125
Practical Y, Y_{pr}	0.540	0.569	0.598	0.540	0.569	0.598
Reserve Capacity, R.C. (%)	19%	26%	32%	44%	52%	59%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J8_SJ_2029_des_

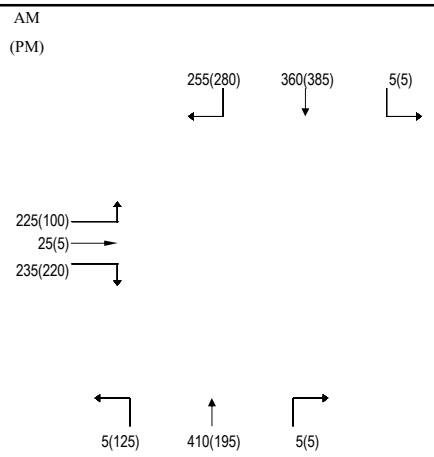
Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O
Junction:	J9 Po Hong Road / Tong Ming Street
Ref. No.:	J9_SJ_2029_
Scheme:	2029 Des
Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)



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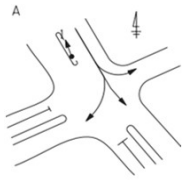

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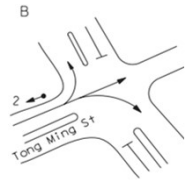
B



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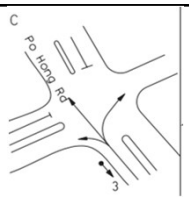

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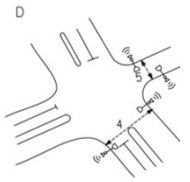

E

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.40	1		15				2 / 2	1950	201	0.103		217	0.112	1
1B	A	1	3.40				21			23 / 25	2060	213	0.103	1	230	0.111	
1C	A	1	3.90				21				2000	206	0.103		223	0.111	
2A	B	1	3.70	1		16				100	1815	225	0.124		100	0.055	
2B	B	1	3.60				32			90 / 98	2030/2020	260	0.128	1	225	0.111	1
3A	C	1	3.50	1		17				2 / 83	1960/1830	202	0.103	1	151	0.082	
3B	C	1	3.70				11			2 / 3	2120/2115	218	0.103		174	0.082	1

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
4P	D		11	11	9	20				
5P	D		5	5	11	16		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

	AM Peak			PM Peak		
Check Critical Phase	1,2,3,5P	1,2,3,4P		1,2,3,5P	1,2,3,4P	
Sum of y values, Y	0.334	0.334		0.305	0.305	
Lost time, L	38	37		38	37	
Cycle Time, C	110	110		105	105	
Practical Y, Y_{pr}	0.589	0.597		0.574	0.583	
Reserve Capacity, R.C. (%)	76%	79%		88%	91%	

Calculated by:	Date: 五月-2021	Checked by:

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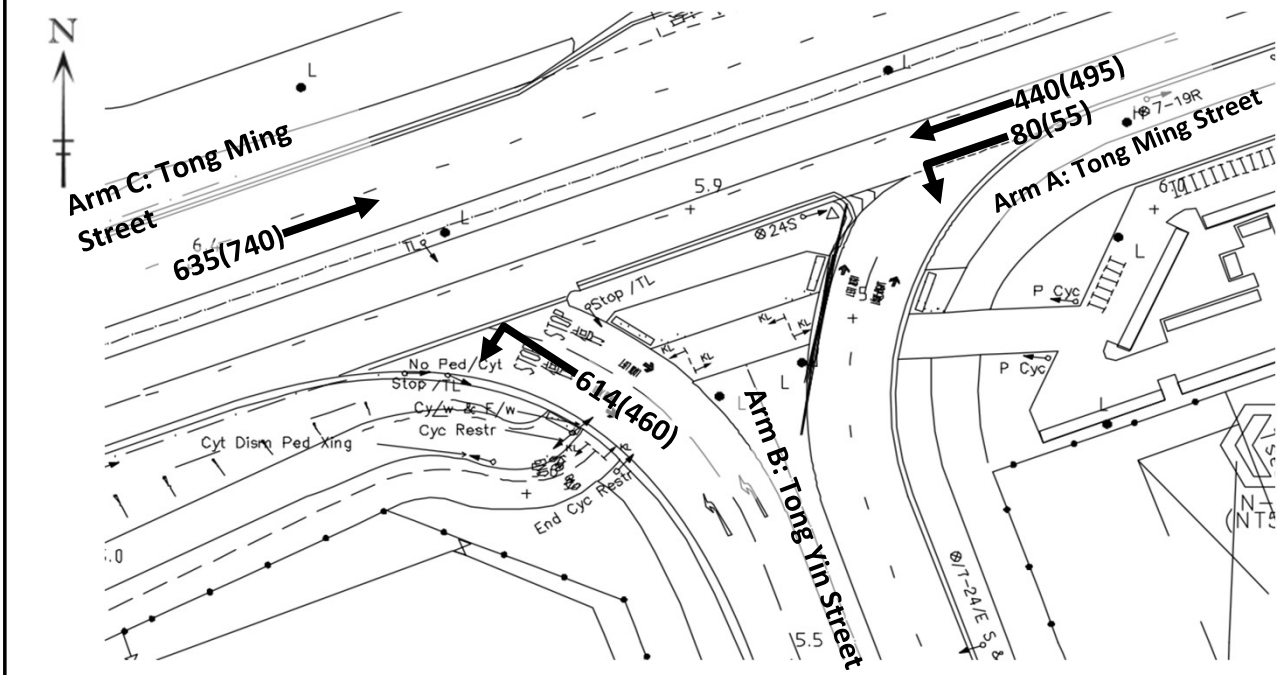
Simplified Priority Junction Capacity Calculation Sheet

Job Title	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O			
Junction	J10 Tong Yin Street/Tong Ming Street		Ref No.:	J10_PJ_2029_de
Scheme	2029 Des		Ref No.:	
Year	2020	Job. No.: J1598	Rev.:	

AM(PM)



Geometry					
Major road width	**W**	7.4	**Lane widths**	w(b-a)	0.00
Central Reserve width	**W_{cr}**	0		w(b-c)	7.80
2 Lane Minor Arm (Y/N)		Y		w(c-b)	0.00
Visibilities	**$V_{r(B-A)}$**	0	**Calculated**	D	0.53
	$V_{l(B-A)}$	0		E	1.34
	$V_{r(B-C)}$	80		F	0.59
	$V_{r(C-B)}$	0		Y	0.74

Analysis			**Peak Hour**	
			AM	PM
Traffic Flows	**$q_{(C-A)}$**		635	740
	$q_{(C-B)}$		0	0
	$q_{(A-B)}$		80	55
	$q_{(A-C)}$		440	495
	$q_{(B-A)}$		0	0
	$q_{(B-C)}$		614	460
Proportion of minor traffic left-turn	**f**		1.00	1.00
		Factor		
Capacities	**$Q_{(B-A)}$**	1	208	192
	$Q_{(B-C)}$	1	827	811
	$Q_{(C-B)}$	1	354	349
	$Q_{(B-AC)}$	1	0	0
DFC	**B-A**		0.00	0.00
	B-C		0.74	0.57
	C-B		0.00	0.00
	B-AC		0.00	0.00
Worst DFC			**0.74**	**0.57**

Where Vl and Vr are visibility distances to the left or right of the respective streams

D = (1+0.094(w(b-a)-3.65))(1+0.0009(Vr(b-a)-120))(1+0.0006(Vl(b-a)-150))

E = (1+0.094(w(b-c)-3.65))(1+0.0009(Vr(b-c)-120))

F = (1+0.094(w(c-b)-3.65))(1+0.0009(Vr(c-b)-120))

Y = 1-0.0345W

f = proportion of minor traffic turning left

Q (b-ac) = Q(b-c)*Q(b-a)/(1-f)*Q(b-c)+f*Q(b-a)

T.P.D.M.V.2.4

Appendix 1

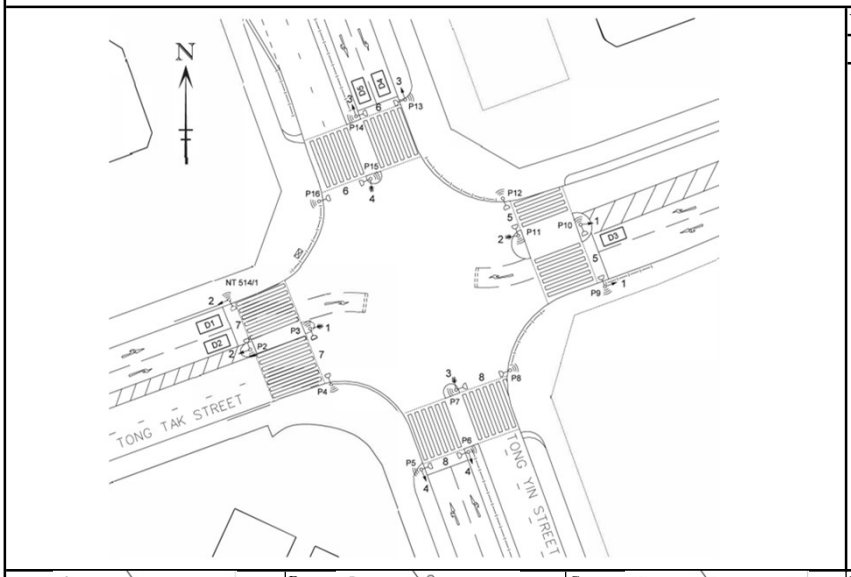
Capacity of combined streams

- in accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

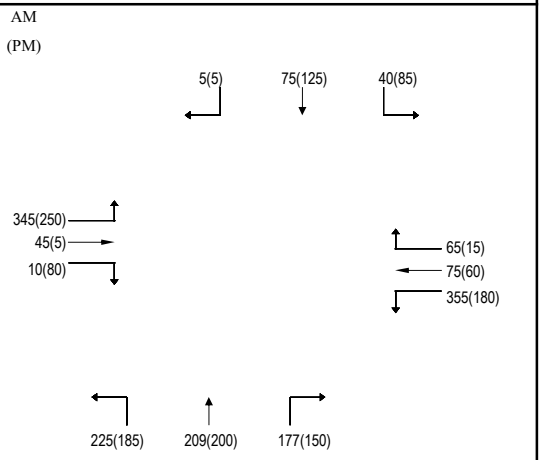
Traffic Signal Junction Calculation Sheet

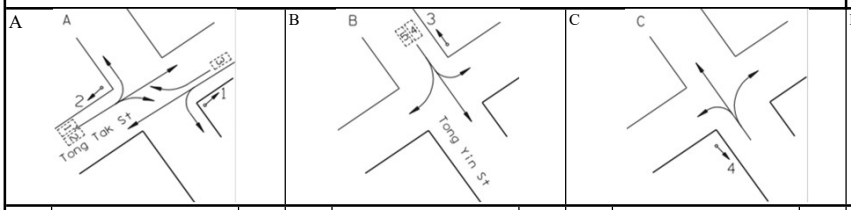
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J11 Tong Yin Street/Tong Tak Street	Ref. No.:	J11_SJ_2029
Scheme:	2029 Des	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		5	2	5	6	2		3	11	22	1			
2		5	2	5	6	2		3	7	20	1			
2		5	2	5	6	2		3	8	19	0			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	4.30	1		17				83 / 75	1905/1920	430	0.226	1	240	0.125	
1B	A	1	3.20		1		24			100	1735	65	0.037		15	0.009	
2A	A	1	3.70	1		16				88 / 98	1835/1820	390	0.213		255	0.140	1
2B	A	1	3.20		1		24			100	1735	10	0.006		80	0.046	
3A	B	1	3.80	1		18				100	1840	40	0.022		85	0.046	
3B	B	1	3.20				25			6 / 4	2065/2070	80	0.039	1	130	0.063	1
4A	C	1	4.00	1		13				76 / 72	1850/1860	295	0.159	1	259	0.139	1
4B	C	1	3.00				24			56 / 54	1985/1990	316	0.159		276	0.139	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	D		12	12	10	22		1		1
6P	D		9	9	10	19				
7P	D		10	10	10	20				
8P	D		10	10	10	20				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

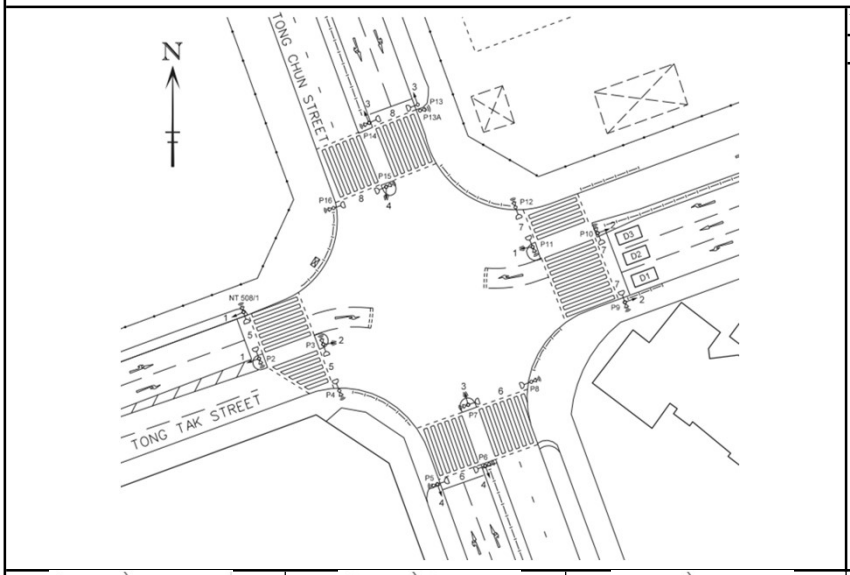
Check Critical Phase	1,3,4,5P	1,3,4,7P	1,3,4,6P	1,3,4,5P	1,3,4,7P	1,3,4,6P
Sum of y values, Y	0.424	0.424	0.424	0.342	0.342	0.342
Lost time, L	56	50	49	56	50	49
Cycle Time, C	127	127	127	124	124	124
Practical Y, Y_{pr}	0.503	0.546	0.553	0.494	0.537	0.544
Reserve Capacity, R.C. (%)	19%	29%	30%	44%	57%	59%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J11_SJ_2029_des_

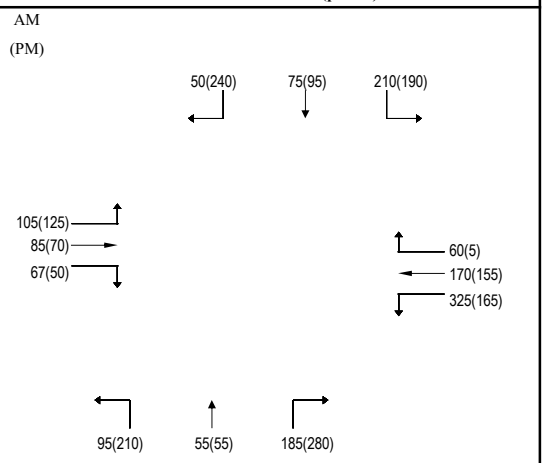
Traffic Signal Junction Calculation Sheet

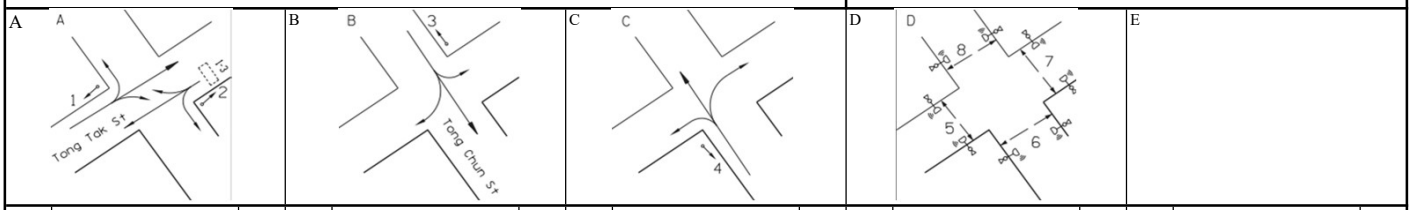
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J12 Tong Tak Street/Tong Chun Street	Ref. No.:	J12_SJ_2029
Scheme:	2029 Des	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		11	2		5	2		4	10	25	2						
2		11	2		5	2		4	7	18	2						
2		11	2		5	2		4	7	18	0						

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.60	1		15				55 / 64	1870/1855	190	0.102		195	0.105	1
1B	A	1	3.20		1		29			100	1755	67	0.038		50	0.028	
2A	A	1	4.00	1		17				100	1850	325	0.176	1	165	0.089	
2B	A	1	3.50								2105	170	0.081		155	0.074	
2C	A	1	3.70		1		24			100	1785	60	0.034		5	0.003	
3A	B	1	3.60	1		17				100 / 76	1815/1850	210	0.116	1	249	0.135	1
3B	B	1	4.00				24			40 / 87	2100/2045	125	0.060		276	0.135	
4A	C	1	3.60	1		18				63 / 80	1875/1850	150	0.080		263	0.142	1
4B	C	1	3.60				24			100 / 99	1990	185	0.093	1	282	0.142	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	D		9	9	9	18				
6P	D		10	10	10	20				
7P	D		12	12	13	25		1		1
8P	D		9	9	9	18				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr}/Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

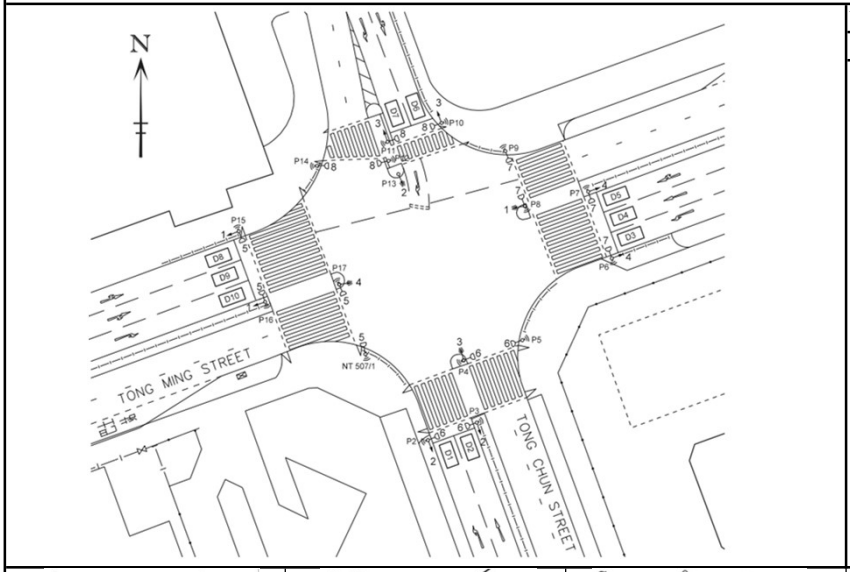
Check Critical Phase	2,3,4,7P	2,3,4,5P	2,3,4,8P	2,3,4,7P	2,3,4,5P	2,3,4,8P
Sum of y values, Y	0.384	0.384	0.384	0.382	0.382	0.382
Lost time, L	60	50	48	60	50	48
Cycle Time, C	125	125	125	125	125	125
Practical Y, Y_{pr}	0.468	0.540	0.554	0.468	0.540	0.554
Reserve Capacity, R.C. (%)	22%	40%	44%	23%	41%	45%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J12_SJ_2029_des_

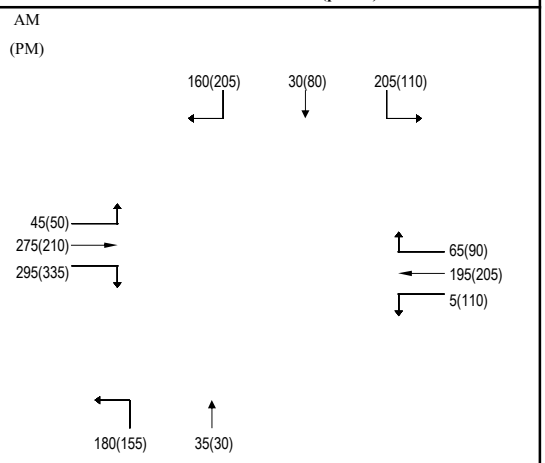
Traffic Signal Junction Calculation Sheet

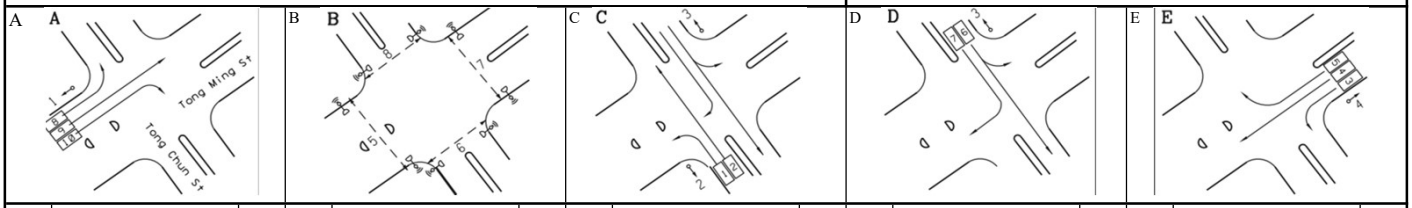
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J13 Tong Ming Street/Tong Chun Street	Ref. No.:	J13_SJ_2029
Scheme:	2029 Des	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		3	9	22	0	2					3	3		6
2		3	11	18	1	2					3	3		6
2		3	6	22	1	2					3	3		6

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.50	1		20				23 / 26	1930	199	0.103	1	193	0.100	
1B	A	1	3.50				24			43 / 67	2050/2020	211	0.103		203	0.100	1
1C	A	1	3.50				24				1980	204	0.103		199	0.100	
2A	C	1	3.60	1		17				100	1815	180	0.099		155	0.085	
2B	C	1	3.70								2125	35	0.016		30	0.014	
3A	CD	1	3.20	1		17				87 / 58	1795/1840	235	0.131	1	190	0.103	
3B	CD	1	3.40		1		15			100	1695	160	0.094		205	0.121	1
4A	E	1	3.50	1		17				100	1805	5	0.003		110	0.061	
4B	E	1	3.50								2105	132	0.063		150	0.071	1
4C	E	1	3.50				23			51 / 62	2035/2025	128	0.063	1	145	0.071	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	B		14	14	12	26				
6P	B		10	10	8	18				
7P	B		12	12	10	22		1		1
8P	B		12	12	10	22				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

	AM Peak			PM Peak		
Check Critical Phase	1,7P,3,4	1,6P,3,4	1,8P,3,4	1,7P,3,4	1,6P,3,4	1,8P,3,4
Sum of y values, Y	0.297	0.297	0.297	0.293	0.293	0.293
Lost time, L	47	46	45	47	46	45
Cycle Time, C	125	125	125	125	125	125
Practical Y, Y_{pr}	0.562	0.569	0.576	0.562	0.569	0.576
Reserve Capacity, R.C. (%)	89%	91%	94%	92%	94%	97%

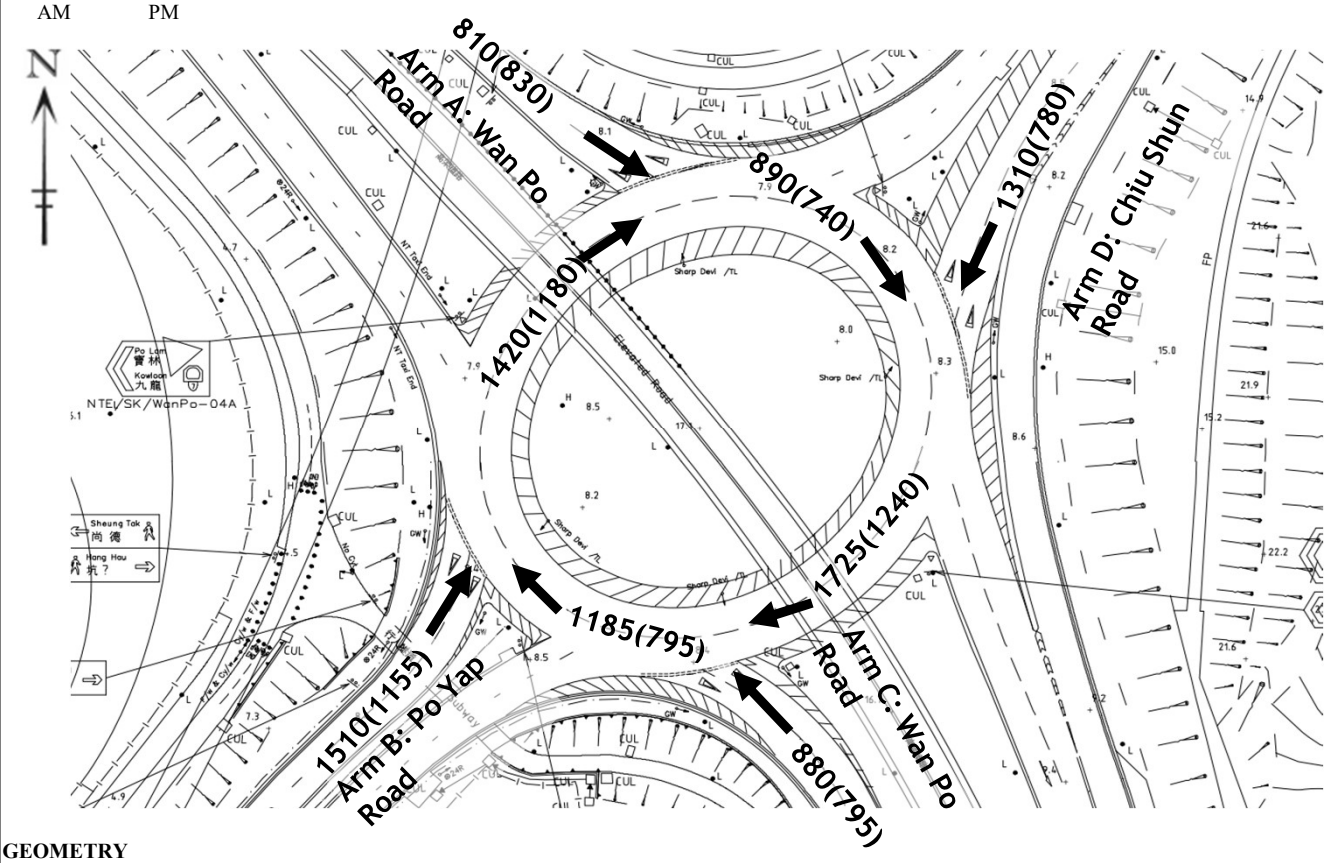
Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J13_SJ_2029_des_

Simplified Roundabout Capacity Calculation

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O				
Junction:	J1 Wan Po Road / Chiu Shun Road / Po Yap Road			Ref. No.:	J1_RA_2026_ref2_
Scheme:	2026 Ref (without CKR/T2)			Ref. No.:	
Year:	2020	Job No.:	J1598	Rev.:	-

AM PM



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	5.00	9.00	20	40	76	20	0.32
B	7.00	7.50	10	50	86	20	0.08
C	8.00	8.00	5	40	76	20	0.00
D	8.00	10.00	10	70	86	25	0.32

CALCULATIONS

ARM	K	X_2	M	F	t_D	f_c	Q_E AM	Q_E PM	DFC AM	DFC PM
A	1.06	7.44	4.95	2254	1.08	0.57	1536	1680	0.53	0.49
B	1.06	7.43	13.46	2252	1.03	0.54	1715	1939	0.88	0.60
C	1.06	8.00	4.95	2424	1.08	0.59	1486	1790	0.59	0.44
D	1.05	9.22	13.46	2794	1.03	0.62	2361	2458	0.55	0.32

Critical Arm:	**B**	**B**
DFC:	**0.88**	**0.60**
	AM	**PM**

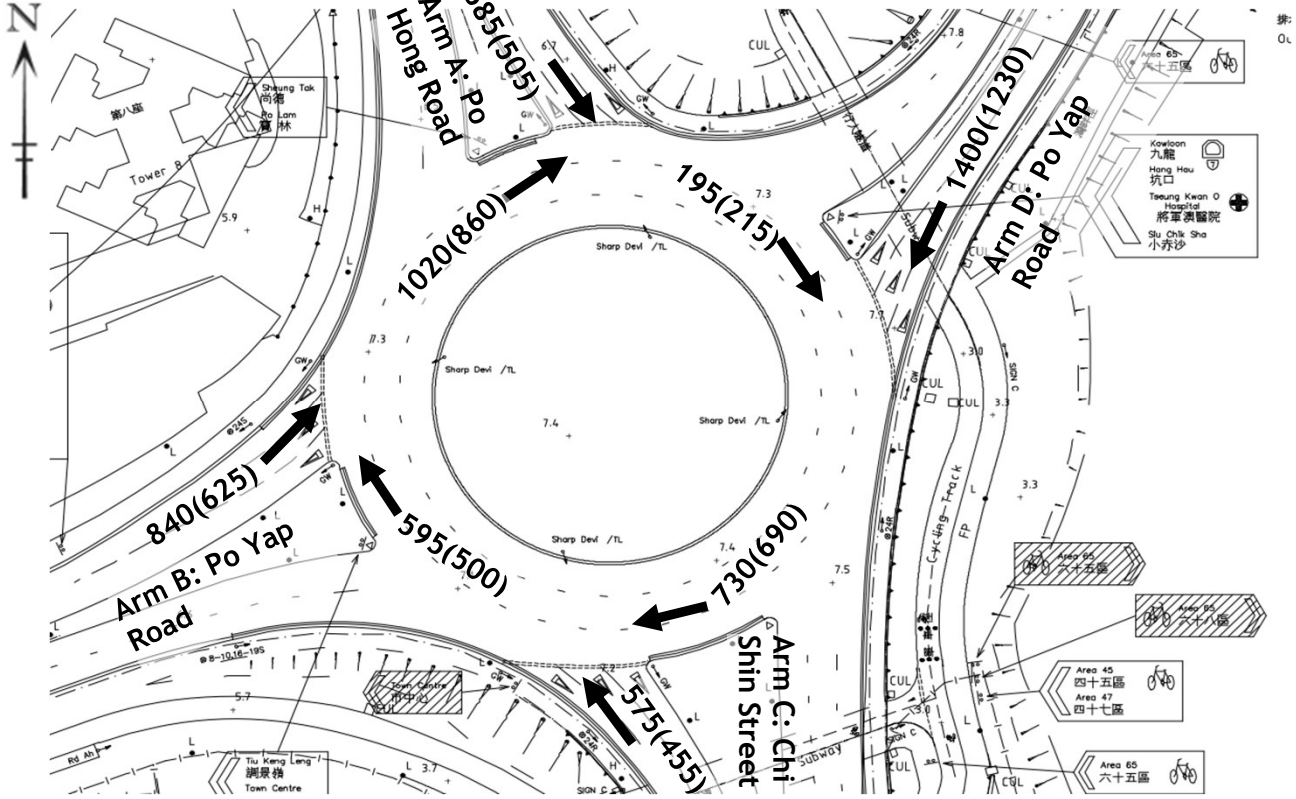
- In accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

Simplified Roundabout Capacity Calculation

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O				
Junction:	J2 Po Yap Road / Chi Shin Street / Po Hong Road			Ref. No.:	J2_RA_2026_ref2_
Scheme:	2026 Ref (without CKR/T2)			Ref. No.:	
Year:	2020	Job No.:	J1598	Rev.:	-

AM PM



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	7.00	11.00	20	25	80	25	0.32
B	7.00	11.00	15	60	80	30	0.43
C	7.00	12.00	10	50	80	25	0.80
D	7.00	11.00	20	90	80	25	0.32

CALCULATIONS

							Q_E		DFC	
ARM	K	X_2	M	F	t_D	f_c	AM	PM	AM	PM
A	1.03	9.44	7.39	2860	1.06	0.64	2264	2370	0.30	0.21
B	1.03	9.16	7.39	2775	1.06	0.63	2478	2540	0.34	0.25
C	1.05	8.92	7.39	2704	1.06	0.62	2356	2382	0.24	0.19
D	1.06	9.44	7.39	2860	1.06	0.64	2886	2873	0.49	0.43

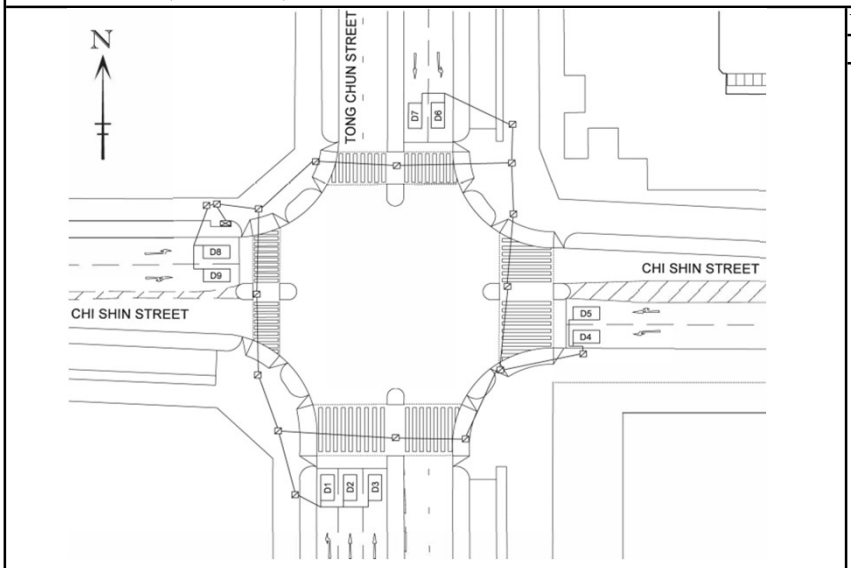
Critical Arm:	**D**	**D**
DFC:	**0.49**	**0.43**
	AM	**PM**

- In accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

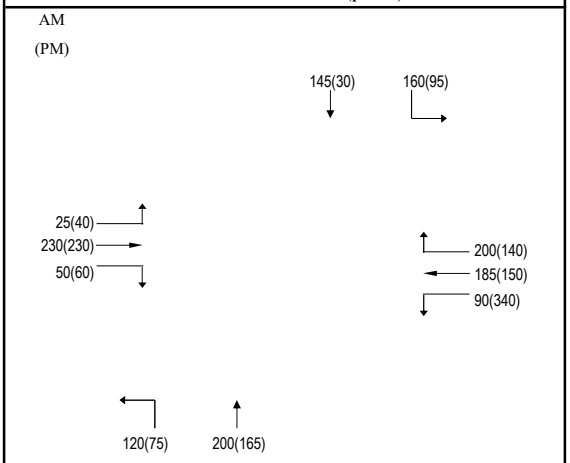
Traffic Signal Junction Calculation Sheet

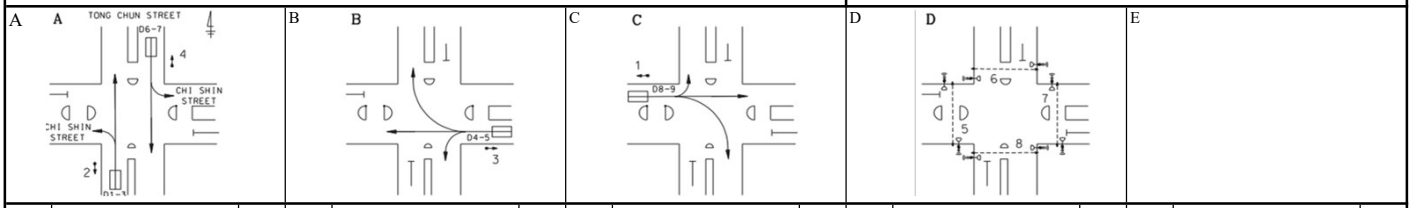
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J3 Chi Shin Street / Tong Chun Street	Ref. No.:	J3_SJ_2026_
Scheme:	2026 Ref (without CKR/T2)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		5	2		5	2		3	9	22	1			
2		5	2		5	2		3	7	20	0			
2		5	2		5	2		3	5	18	1			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	C	1	4.10	1		17			0.86	100	1595	25	0.016		40	0.025	
1B	C	1	4.20				23			18 / 21	2150/2145	280	0.130	1	290	0.135	1
2A	A	1	3.10	1		19				100	1785	120	0.067		75	0.042	
2B	A	2	3.65								4240	200	0.047		165	0.039	
3A	B	1	3.50				25			52 / 48	2040/2045	385	0.189	1	290	0.142	
3B	B	1	3.70	1		17				100	1825	90	0.049		340	0.186	1
4A	A	1	3.60	1		17				100	1815	160	0.088	1	95	0.052	1
4B	A	1	3.60								2115	145	0.069		30	0.014	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	D		10	10	8	18				
6P	D		10	10	8	18				
7P	D		11	11	9	20				
8P	D		12	12	10	22		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	4,3,1,8P	4,3,1,7P	4,3,1,6P	4,3,1,8P	4,3,1,7P	4,3,1,6P
Sum of y values, Y	0.407	0.407	0.407	0.374	0.374	0.374
Lost time, L	48	43	40	48	43	40
Cycle Time, C	110	110	110	110	110	110
Practical Y, Y_{pr}	0.507	0.548	0.573	0.507	0.548	0.573
Reserve Capacity, R.C. (%)	25%	35%	41%	36%	47%	53%

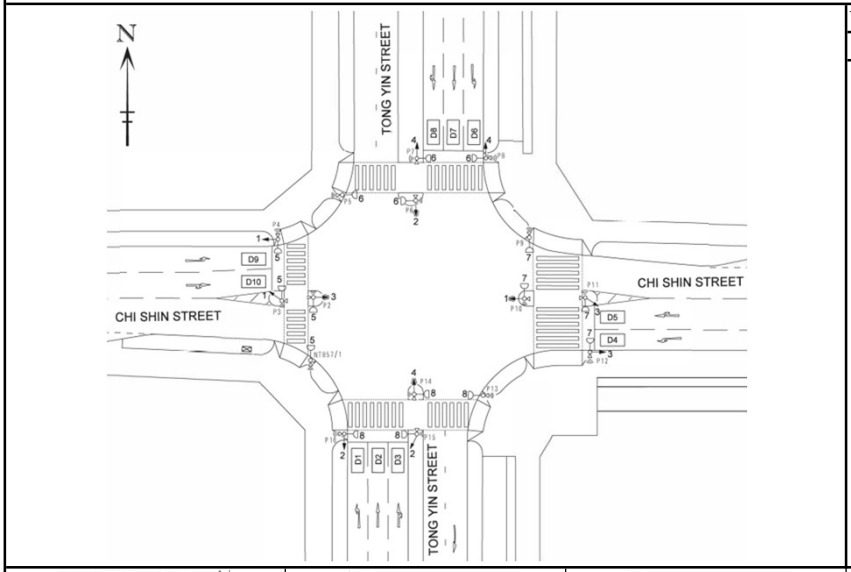
Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J3_SJ_2026_ref2_

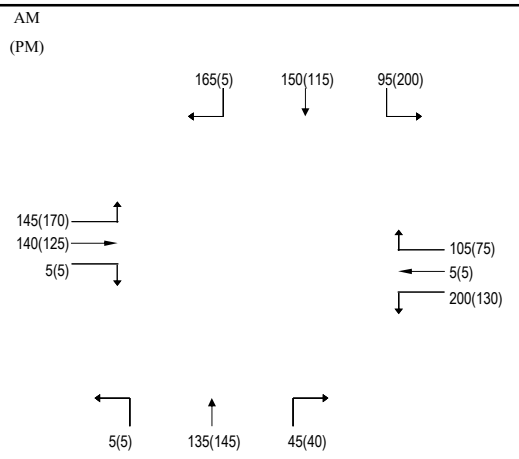
Traffic Signal Junction Calculation Sheet

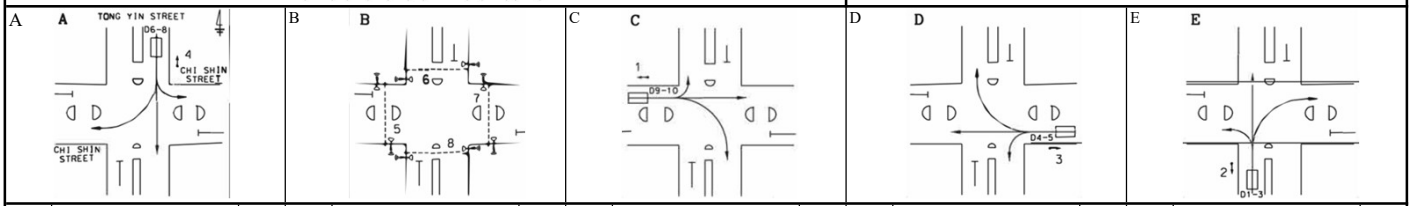
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O
Junction:	J4 Chi Shin Street / Tong Yin Street
Ref. No.:	J4_SJ_2026_
Scheme:	2026 Ref (without CKR/T2)
Ref. No.:	

Year:	2020	Job No.:	J1598	Rev.:	-



Peak Hour Traffic Flows (pcu/hr)





2		5	5	21	0	2	5	5	2		6	2		5
2		5	7	18	1	2	5	5	2		6	2		5
2		5	1	22	0	2	5	5	2		6	2		5

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	C	1	3.60	1		17				100	1815	145	0.080	1	170	0.094	1
1B	C	1	3.60				23			3 / 4	2110	145	0.069		130	0.062	
2A	E	1	3.30	1		17			0.86	100	1530	5	0.003		5	0.003	
2B	E	1	3.30								2085	91	0.044	1	94	0.045	
2C	E	1	3.30				25			51 / 44	2025/2030	89	0.044		91	0.045	1
3A	D	1	3.40	1		17				100	1795	200	0.111	1	130	0.072	1
3B	D	1	3.90				36			95 / 94	2065	110	0.053		80	0.039	
4A	A	1	3.30	1		17				100	1785	95	0.053		200	0.112	1
4B	A	1	3.30								2085	150	0.072		60	0.029	
4C	A	1	3.30				23			100 / 8	1955/2075	165	0.084	1	60	0.029	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	B		10	10	8	18				
6P	B		13	13	9	22				
7P	B		9	9	7	16				
8P	B		12	12	9	21		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

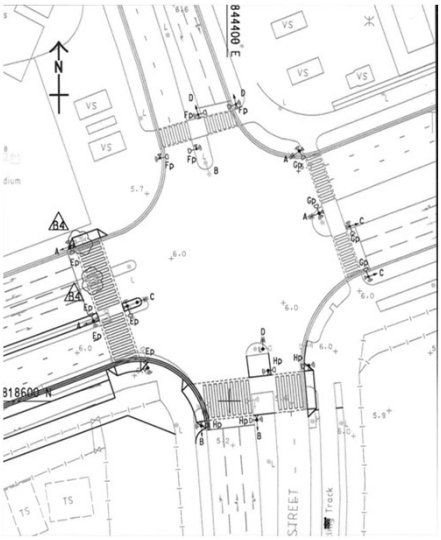
Check Critical Phase	4,8P,1,3,2	4,5P,1,3,2	4,6P,1,3,2	4,8P,1,3,2	4,5P,1,3,2	4,6P,1,3,2
Sum of y values, Y	0.320	0.320	0.320	0.323	0.323	0.323
Lost time, L	56	56	53	56	56	53
Cycle Time, C	100	100	100	110	110	110
Practical Y, Y_{pr}	0.396	0.396	0.423	0.442	0.442	0.466
Reserve Capacity, R.C. (%)	24%	24%	32%	37%	37%	44%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J4_SJ_2026_ref2_

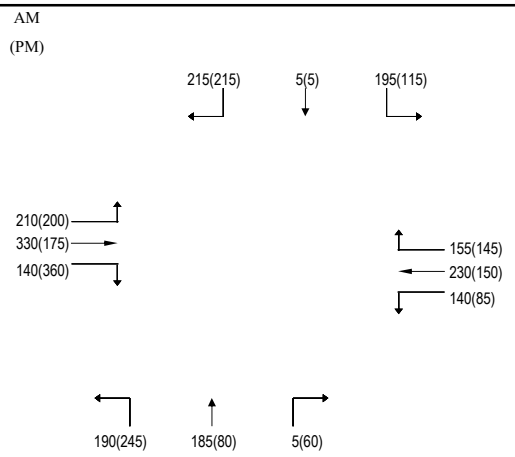
Traffic Signal Junction Calculation Sheet

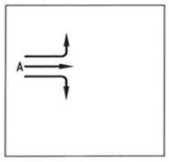
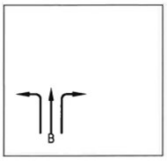
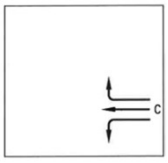
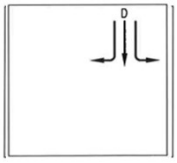
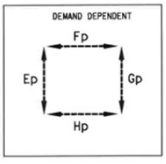
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J5 Po Yap Road / Tong Yin Street	Ref. No.:	J5_SJ_2026_
Scheme:	2026 Ref (without CKR / T2)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)



A	B	C	D	E
				
STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5
2 3	2 5	2 3	2 3	13 28 0
2 3	2 5	2 3	2 3	11 27 1
2 3	2 5	2 3	2 3	6 25 0

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.80	1		15					1815	164	0.091	1	173	0.095	
1B	A	1	3.40			15				25 / 14	2045/2065	185	0.091		197	0.096	1
1C	A	1	3.50				20			0 / 98	2105/1960	191	0.091	1	187	0.096	
1D	A	1	3.80	1			20				1855	140	0.075		177	0.095	
2A	B	1	3.70			15					1930	124	0.064		128	0.066	
2B	B	1	3.70			15				51 / 90	2020/1950	130	0.064	1	129	0.066	
2C	B	1	3.70	1			20			4 / 47	1980/1915	127	0.064		127	0.066	1
3A	C	1	3.20			15				81 / 73	1920/1935	173	0.090		117	0.061	
3B	C	1	3.30	1							1945	175	0.090		118	0.061	
3C	C	1	3.50				20			87 / 100	1975/1960	178	0.090	1	145	0.074	1
4A	D	1	3.70	1		15	20			98 / 97	1810/1820	200	0.110	1	161	0.088	1
4B	D	1	3.70				20				1975	215	0.109		174	0.088	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	E		14	14	13	27				
6P	E		11	11	8	19				
7P	E		15	15	10	25				
8P	E		16	16	12	28		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	1,2,3,4,8P	1,2,3,4,5P	1,2,3,4,7P	1,2,3,4,8P	1,2,3,4,5P	1,2,3,4,7P
Sum of y values, Y	0.355	0.355	0.355	0.324	0.324	0.324
Lost time, L	59	57	49	59	57	49
Cycle Time, C	120	120	120	105	105	105
Practical Y, Y_{pr}	0.458	0.473	0.533	0.394	0.411	0.480
Reserve Capacity, R.C. (%)	29%	33%	50%	22%	27%	48%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J5_SJ_2026_ref2_

Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J6 Po Yap Road / Po Shun Road / Chui Ling Road / Future Road P2	Ref. No.:	J6_SJ_2026_
Scheme:	2026 Ref (without CKR/T2)	Ref. No.:	

Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)

AM
(PM)

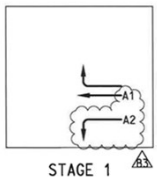
165(205) 865(610) 130(325)

90(70)
240(80)
505(470)

15(5)
125(150)
485(445)

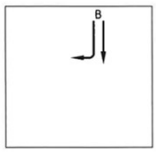
600(605) 340(330)

A



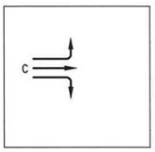
STAGE 1

B



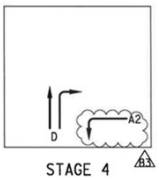
STAGE 2

C



STAGE 3

D



STAGE 4

E

2		3	2		5	2		3	2		3
		3	2		5	2		3			2

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A ←	A	1	3.50								2105	125	0.059	1	150	0.071	1
1B ↰	A	1	3.70				20			100	1975	15	0.008		5	0.003	
2A ↓	AD	2	3.50	1		15				100	3700	485	0.131		445	0.120	
3A ↓	B	2	3.65	1							4100	865	0.211	1	610	0.149	1
3B ↓	B	1	3.60				20			100	1965	165	0.084		205	0.104	
4A ↑→	C	1	3.60	1		15				33 / 47	1910/1885	273	0.143		150	0.080	
4B →↓	C	1	3.30				20			80 / 100	1965/1940	281	0.143	1	233	0.120	
4C →↓	C	1	3.60				20				1965	281	0.143		237	0.120	1
5A ↑	D	1	3.70	1							1985	307	0.155	1	306	0.154	
5B ↑→	D	1	3.70				20			10 / 8	2110	327	0.155		325	0.154	1
5C ↑→	D	1	3.70				20				1975	306	0.155	1	304	0.154	

Critical Ped. Phase	Stage	Width Across	Min. GM	Min. FGM	Lost Time	Note	Crit.	Note	Crit.

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	1,3,4,5	2,3,4		1,3,4,5	2,3,4	
Sum of y values, Y	0.568	0.485		0.495	0.389	
Lost time, L	18	14		18	14	
Cycle Time, C	127	217		124	214	
Practical Y, Y_{pr}	0.772	0.842		0.769	0.841	
Reserve Capacity, R.C. (%)	36%	74%		56%	116%	

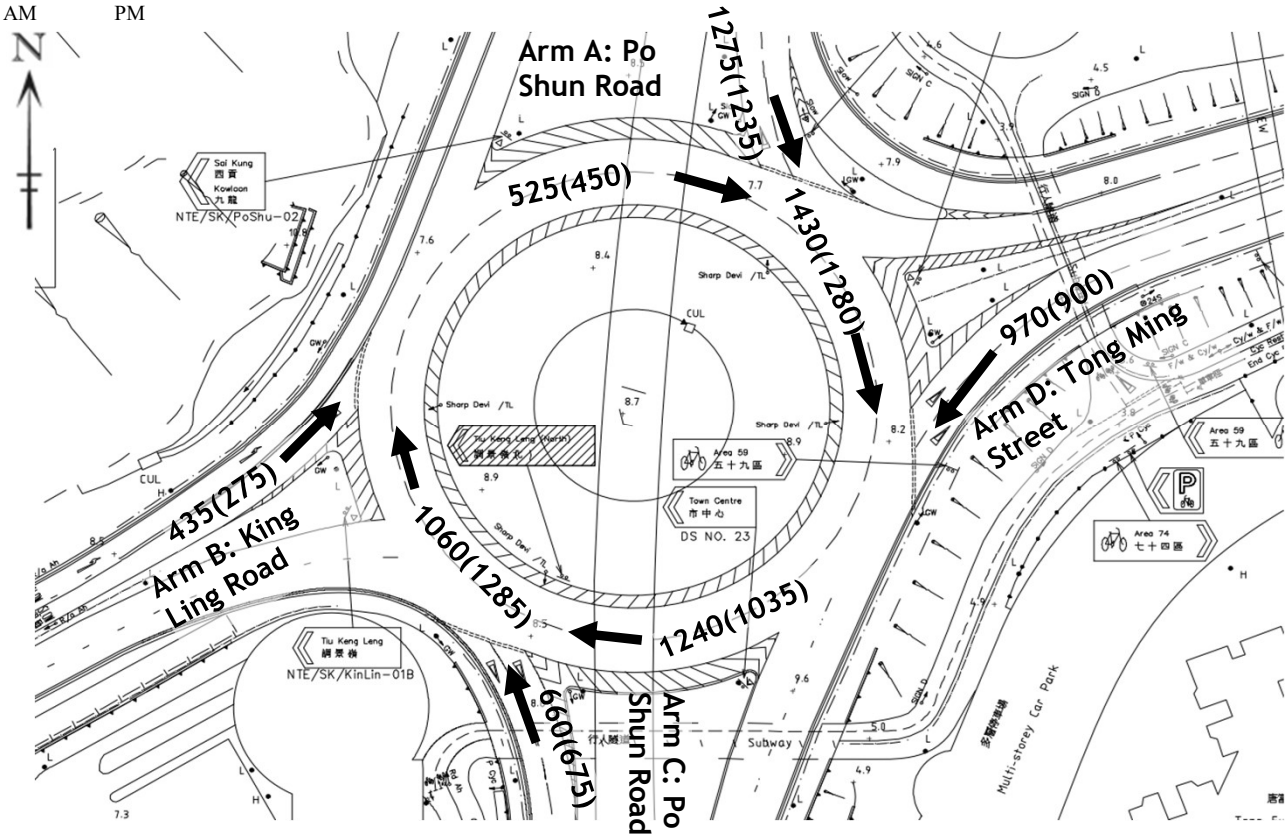
Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J6_SJ_2026_ref2_

Simplified Roundabout Capacity Calculation

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O				
Junction:	J7 Po Shun Road / Tong Ming Street / King Ling Road			Ref. No.:	J7_RA_2026_ref2_
Scheme:	2026 Ref (without CKR/T2)			Ref. No.:	
Year:	2020	Job No.:	J1598	Rev.:	-

AM PM



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	7.00	8.00	14.5	20	81.2	20	0.11
B	2.70	4.60	31.9	55.2	81.2	18	0.10
C	7.10	7.40	11.7	23	81.2	10	0.04
D	7.40	8.40	27.5	60	81.2	29	0.06

CALCULATIONS

ARM	K	X_2	M	F	t_D	f_c	Q_E AM	Q_E PM	DFC AM	DFC PM
A	1.03	7.82	8.33	2369	1.05	0.57	2143	2187	0.59	0.56
B	1.07	4.30	8.33	1302	1.05	0.41	929	829	0.47	0.33
C	1.08	7.38	8.33	2235	1.05	0.55	1674	1795	0.39	0.38
D	1.04	8.30	8.33	2514	1.05	0.59	1733	1824	0.56	0.49

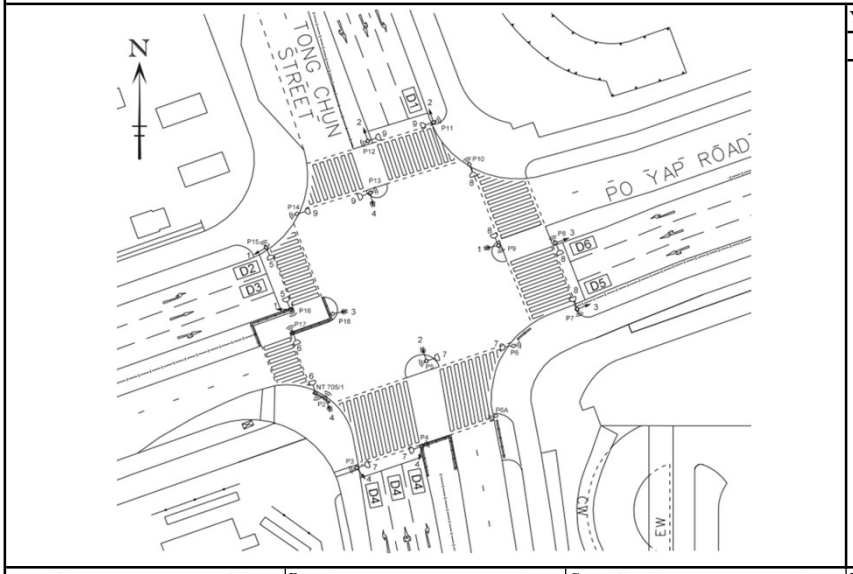
	AM	PM
Critical Arm:	**A**	**A**
DFC:	**0.59**	**0.56**
	AM	**PM**

- In accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

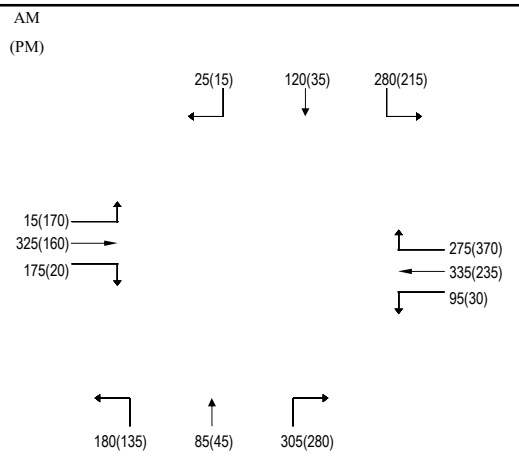
Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O
Junction:	J8 Po Yap Road / Tong Chun Street
Ref. No.:	J8_SJ_2026_
Scheme:	2026 Ref (without CKR/T2)
Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)



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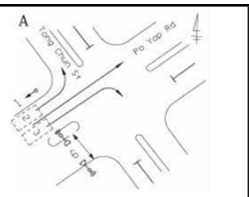

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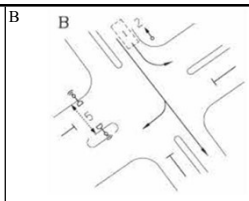
2		5	2		5	2		6	2		6	4	16	0
2		5	2		5	2		6	2		6	0	16	0

B



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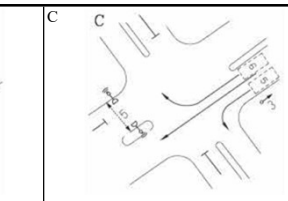

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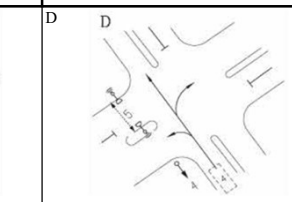

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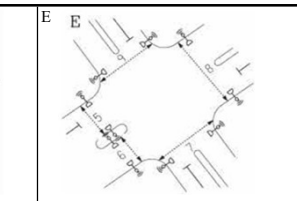


Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.30	1		17				100	1785	15	0.008		170	0.095	1
1B	A	1	3.30								2085	257	0.123	1	91	0.044	
1C	A	1	3.30				20			72 / 22	1980/2050	243	0.123		89	0.044	
2A	B	1	3.40	1		17					1795	135	0.075		104	0.058	
2B	B	1	3.40			17				100	1925	145	0.075	1	111	0.058	1
2C	B	1	3.50				26			17 / 30	2085/2070	145	0.070		50	0.024	
3A	C	1	3.30	1		17				42 / 14	1875/1920	224	0.120		208	0.108	1
3B	C	1	3.40				20			17 / 74	2070/1985	247	0.120		215	0.108	
3C	C	1	3.40				20				1950	233	0.120	1	211	0.108	
4A	D	1	3.60	1		16					1805	176	0.098		135	0.075	
4B	D	1	3.50			16	26			57 / 73	2035/2020	199	0.098	1	164	0.081	1
4C	D	1	3.50				26				1990	195	0.098		161	0.081	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	BCDE		5	5	11	16				
6P	E		5	5	7	12				
7P	E		5	5	11	16				
8P	E		5	5	11	16		1		1
9P	E		5	5	11	16				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

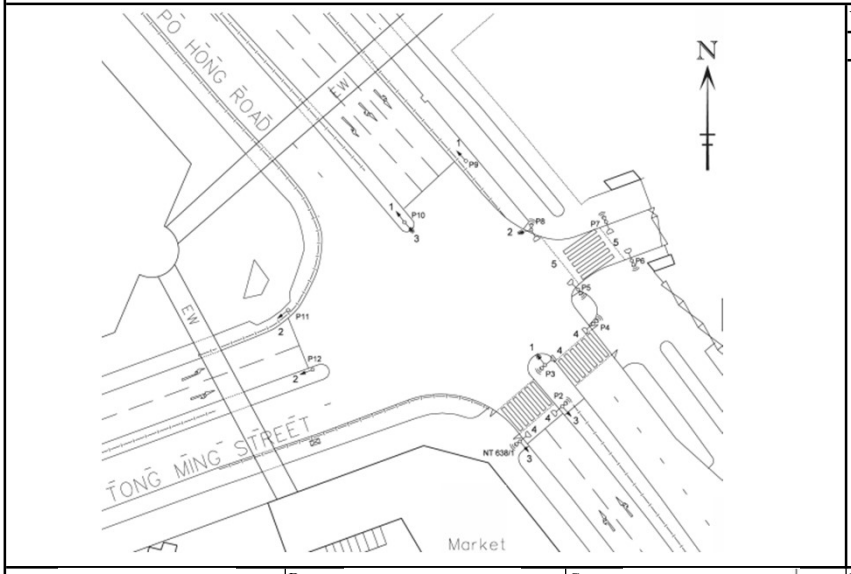
Check Critical Phase	1,2,3,4,8P	1,2,3,4,9P	1,2,3,4,7P	1,2,3,4,8P	1,2,3,4,9P	1,2,3,4,7P
Sum of y values, Y	0.416	0.416	0.416	0.343	0.343	0.343
Lost time, L	50	46	42	50	46	42
Cycle Time, C	125	125	125	125	125	125
Practical Y, Y_{pr}	0.540	0.569	0.598	0.540	0.569	0.598
Reserve Capacity, R.C. (%)	30%	37%	44%	58%	66%	74%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J8_SJ_2026_ref2_

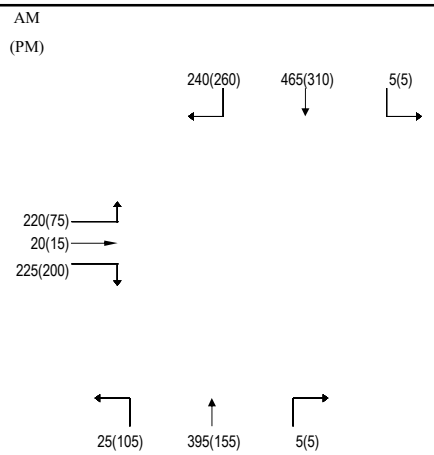
Traffic Signal Junction Calculation Sheet

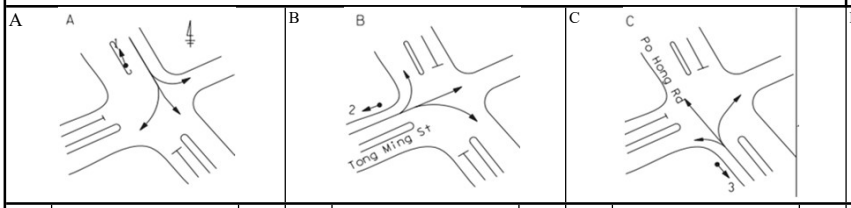
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O
Junction:	J9 Po Hong Road / Tong Ming Street
Ref. No.:	J9_SJ_2026_
Scheme:	2026 Ref (without CKR/T2)
Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





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2		3	3		3	4		3	2	20	0			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.40	1		15				2 / 3	1950	229	0.118		187	0.096	
1B	A	1	3.40				21			2 / 35	2090/2045	246	0.118	1	196	0.096	
1C	A	1	3.90				21				2000	235	0.117		192	0.096	1
2A	B	1	3.70	1		16				100	1815	220	0.121	1	75	0.041	
2B	B	1	3.60				32			92 / 93	2030/2025	245	0.121		215	0.106	1
3A	C	1	3.50	1		17				12 / 85	1945/1825	203	0.105	1	123	0.067	1
3B	C	1	3.70				11			2 / 4	2120/2115	222	0.105		142	0.067	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
4P	D		11	11	9	20				
5P	D		5	5	11	16		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	1,2,3,5P	1,2,3,4P		1,2,3,5P	1,2,3,4P	
Sum of y values, Y	0.343	0.343		0.269	0.269	
Lost time, L	38	37		38	37	
Cycle Time, C	110	110		105	105	
Practical Y, Y_{pr}	0.589	0.597		0.574	0.583	
Reserve Capacity, R.C. (%)	72%	74%		113%	116%	

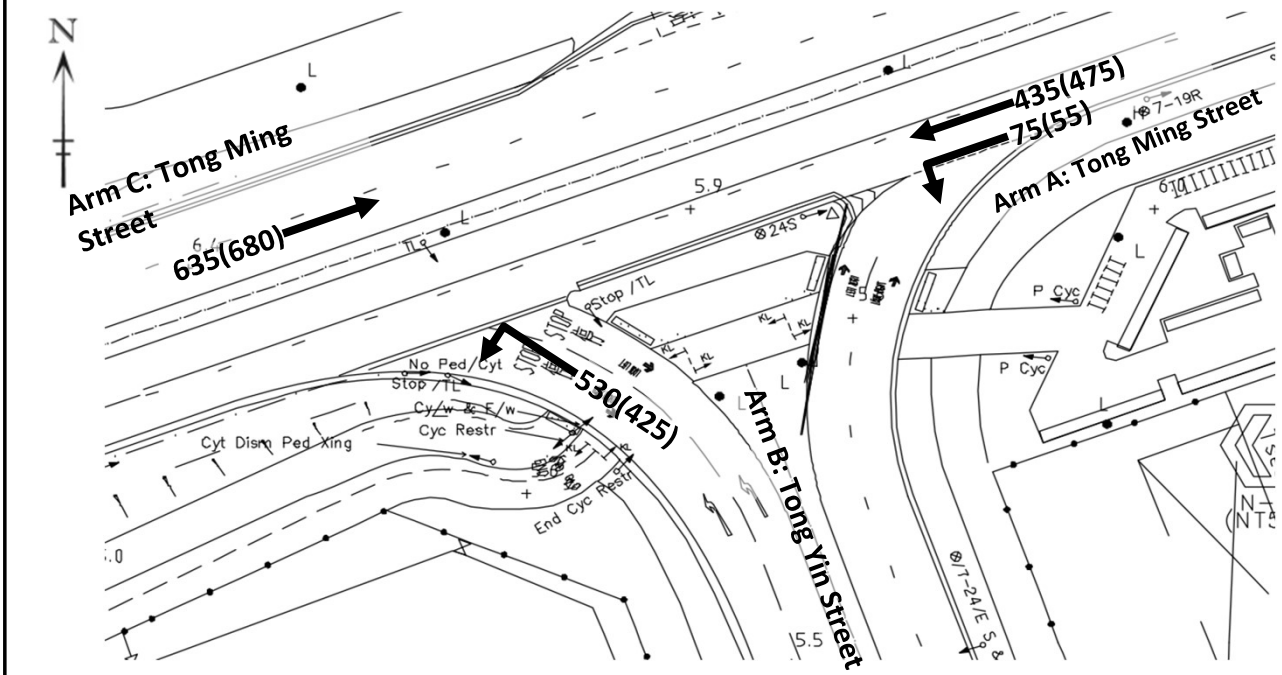
Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J9_SJ_2026_ref2_

Simplified Priority Junction Capacity Calculation Sheet

Job Title	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O			
Junction	J10 Tong Yin Street/Tong Ming Street		Ref No.:	J10_PJ_2026_re
Scheme	2026 Ref (without CKR/T2)		Ref No.:	
Year	2020	Job. No.: J1598	Rev.:	

AM(PM)



Geometry					
Major road width	**W**	7.4	**Lane widths**	w(b-a)	0.00
Central Reserve width	W_{cr}	0		w(b-c)	7.80
2 Lane Minor Arm (Y/N)		Y		w(c-b)	0.00
Visibilities	$V_{r(B-A)}$	0	**Calculated**	D	0.53
	$V_{l(B-A)}$	0		E	1.34
	$V_{r(B-C)}$	80		F	0.59
	$V_{r(C-B)}$	0		Y	0.74

Analysis			**Peak Hour**	
			AM	PM
Traffic Flows	$q_{(C-A)}$		635	680
	$q_{(C-B)}$		0	0
	$q_{(A-B)}$		75	55
	$q_{(A-C)}$		435	475
	$q_{(B-A)}$		0	0
	$q_{(B-C)}$		530	425
Proportion of minor traffic left-turn	**f**		1.00	1.00
		Factor		
Capacities	$Q_{(B-A)}$	1	209	201
	$Q_{(B-C)}$	1	830	818
	$Q_{(C-B)}$	1	356	352
	$Q_{(B-AC)}$	1	0	0
DFC	**B-A**		0.00	0.00
	B-C		0.64	0.52
	C-B		0.00	0.00
	B-AC		0.00	0.00
Worst DFC			**0.64**	**0.52**

Where Vl and Vr are visibility distances to the left or right of the respective streams

D = (1+0.094(w(b-a)-3.65))(1+0.0009(Vr(b-a)-120))(1+0.0006(Vl(b-a)-150))

E = (1+0.094(w(b-c)-3.65))(1+0.0009(Vr(b-c)-120))

F = (1+0.094(w(c-b)-3.65))(1+0.0009(Vr(c-b)-120))

Y = 1-0.0345W

f = proportion of minor traffic turning left

Q (b-ac) = Q(b-c)*Q(b-a)/(1-f)*Q(b-c)+f*Q(b-a)

T.P.D.M.V.2.4

Appendix 1

Capacity of combined streams

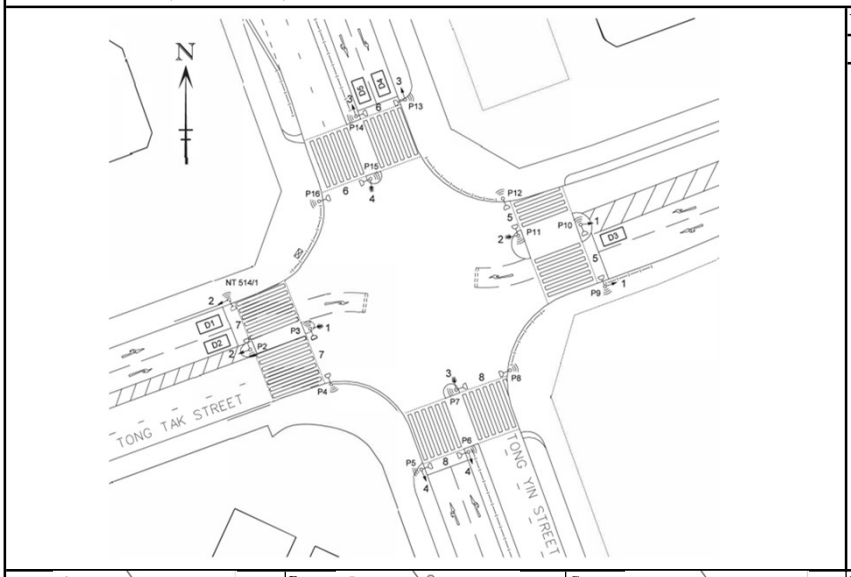
- in accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J10_PJ_2026_ref2_

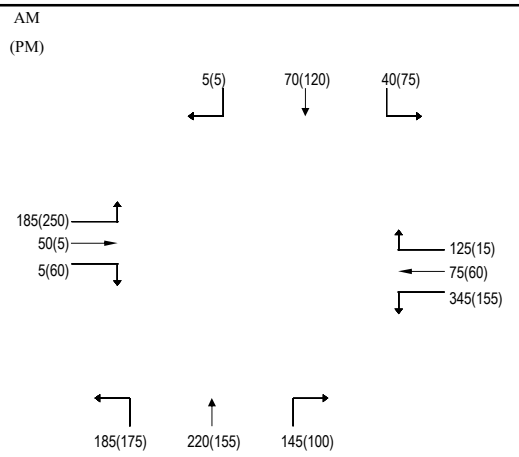
Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J11 Tong Yin Street/Tong Tak Street	Ref. No.:	J11_SJ_2026
Scheme:	2026 Ref (without CKR/T2)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)



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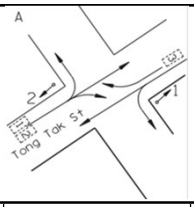

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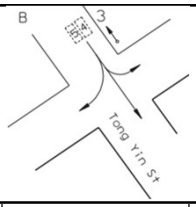

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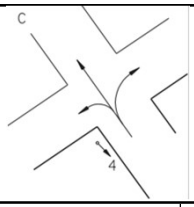

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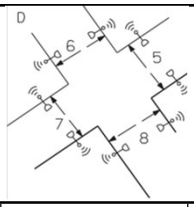


E

2		5	2	5	6	2		3	11	22	1			
2		5	2	5	6	2		3	7	20	1			
2		5	2	5	6	2		3	8	19	0			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	4.30	1		17				82 / 72	1905/1925	420	0.220	1	215	0.112	
1B	A	1	3.20		1		24			100	1735	125	0.072		15	0.009	
2A	A	1	3.70	1		16				79 / 98	1850/1820	235	0.127		255	0.140	1
2B	A	1	3.20		1		24			100	1735	5	0.003		60	0.035	
3A	B	1	3.80	1		18				100	1840	40	0.022		75	0.041	
3B	B	1	3.20				25			7 / 4	2065/2070	75	0.036	1	125	0.060	1
4A	C	1	4.00	1		13				70 / 85	1865/1835	266	0.143		206	0.112	1
4B	C	1	3.00				24			51 / 45	1990/2000	284	0.143	1	224	0.112	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	D		12	12	10	22		1		1
6P	D		9	9	10	19				
7P	D		10	10	10	20				
8P	D		10	10	10	20				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%

In accordance with TPDM - Volume 4.2.4

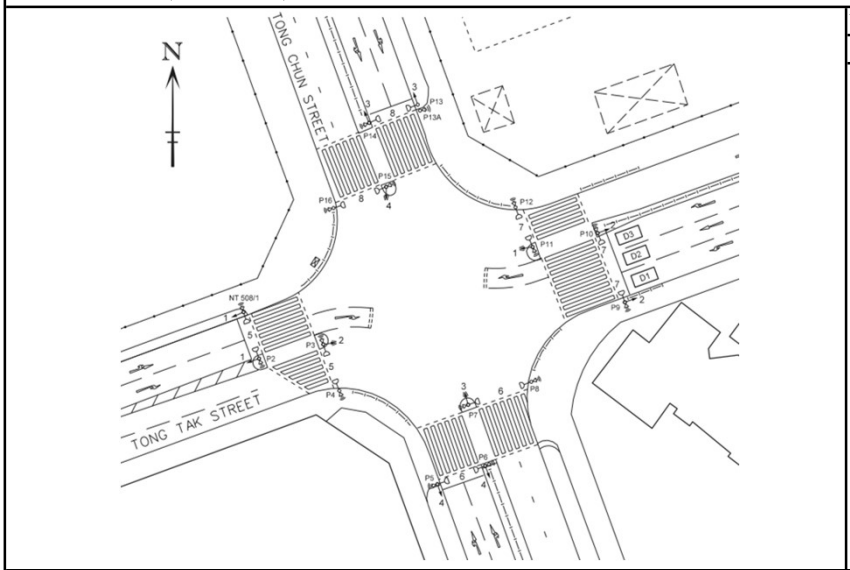
Check Critical Phase	1,3,4,5P	1,3,4,7P	1,3,4,6P	1,3,4,5P	1,3,4,7P	1,3,4,6P
Sum of y values, Y	0.400	0.400	0.400	0.313	0.313	0.313
Lost time, L	56	50	49	56	50	49
Cycle Time, C	127	127	127	124	124	124
Practical Y, Y_{pr}	0.503	0.546	0.553	0.494	0.537	0.544
Reserve Capacity, R.C. (%)	26%	37%	38%	58%	72%	74%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J11_SJ_2026_ref2_

Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J12 Tong Tak Street/Tong Chun Street	Ref. No.:	J12_SJ_2026
Scheme:	2026 Ref (without CKR/T2)	Ref. No.:	

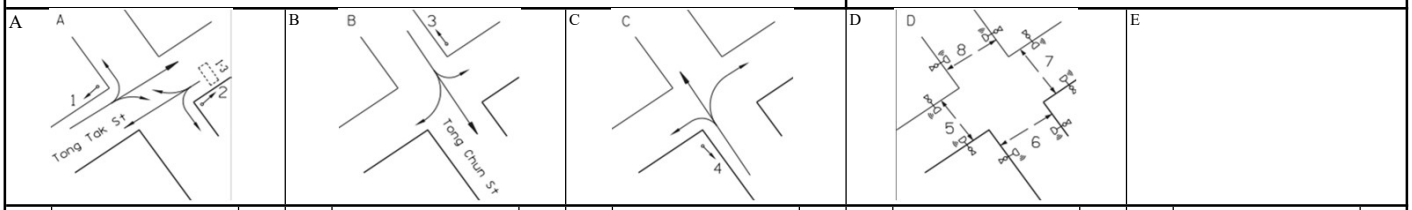


Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)

AM
(PM)

45(215) 75(85) 215(170)
105(115) 85(60) 50(5)
5(5) 225(130) 295(170)
105(215) 90(55) 160(280)



2		11	2		5	2		4	10	25	2						
2		11	2		5	2		4	7	18	2						
2		11	2		5	2		4	7	18	0						

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.60	1		15				55 / 66	1870/1855	190	0.102		175	0.094	1
1B	A	1	3.20		1		29			100	1755	50	0.028		5	0.003	
2A	A	1	4.00	1		17				100	1850	295	0.159	1	170	0.092	
2B	A	1	3.50								2105	225	0.107		130	0.062	
2C	A	1	3.70		1		24			100	1785	5	0.003		5	0.003	
3A	B	1	3.60	1		17				100 / 76	1815/1850	215	0.118	1	223	0.121	1
3B	B	1	4.00				24			38 / 87	2105/2045	120	0.057		247	0.121	
4A	C	1	3.60	1		18				61 / 81	1880/1850	172	0.091		265	0.143	1
4B	C	1	3.60				24			87 / 98	2005/1995	183	0.091	1	285	0.143	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	D		9	9	9	18				
6P	D		10	10	10	20				
7P	D		12	12	13	25		1		1
8P	D		9	9	9	18				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr}/Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

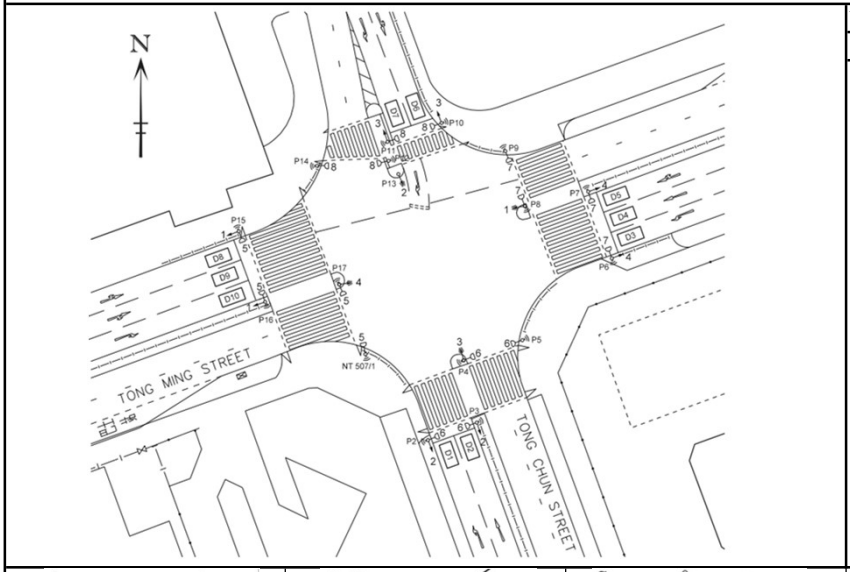
Check Critical Phase	2,3,4,7P	2,3,4,5P	2,3,4,8P	2,3,4,7P	2,3,4,5P	2,3,4,8P
Sum of y values, Y	0.369	0.369	0.369	0.358	0.358	0.358
Lost time, L	60	50	48	60	50	48
Cycle Time, C	125	125	125	125	125	125
Practical Y, Y_{pr}	0.468	0.540	0.554	0.468	0.540	0.554
Reserve Capacity, R.C. (%)	27%	46%	50%	31%	51%	55%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J12_SJ_2026_ref2_

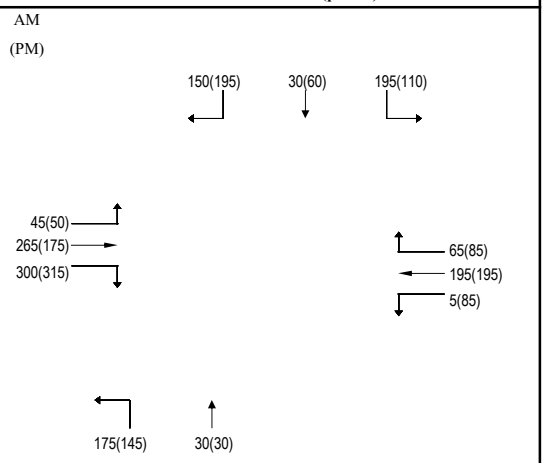
Traffic Signal Junction Calculation Sheet

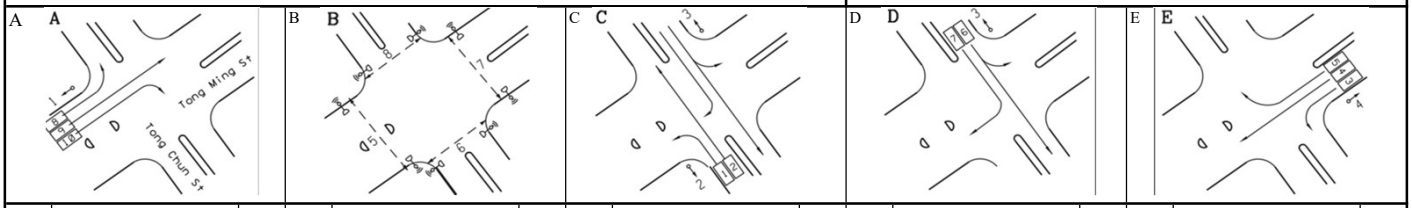
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J13 Tong Ming Street/Tong Chun Street	Ref. No.:	J13_SJ_2026
Scheme:	2026 Ref (without CKR/T2)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		3	9	22	0	2					3	3		6
2		3	11	18	1	2					3	3		6
2		3	6	22	1	2					3	3		6

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.50	1		20				23 / 28	1930/1925	198	0.102	1	176	0.091	
1B	A	1	3.50				24			46 / 73	2045/2015	209	0.102		184	0.091	
1C	A	1	3.50				24				1980	203	0.102		181	0.091	1
2A	C	1	3.60	1		17				100	1815	175	0.096		145	0.080	
2B	C	1	3.70								2125	30	0.014		30	0.014	
3A	CD	1	3.20	1		17				87 / 65	1800/1830	225	0.125	1	170	0.093	
3B	CD	1	3.40		1		15			100	1695	150	0.088		195	0.115	1
4A	E	1	3.50	1		17				100	1805	5	0.003		85	0.047	
4B	E	1	3.50								2105	132	0.063		143	0.068	1
4C	E	1	3.50				23			51 / 62	2035/2025	128	0.063	1	137	0.068	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	B		14	14	12	26				
6P	B		10	10	8	18				
7P	B		12	12	10	22		1		1
8P	B		12	12	10	22				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	1,7P,3,4	1,6P,3,4	1,8P,3,4	1,7P,3,4	1,6P,3,4	1,8P,3,4
Sum of y values, Y	0.290	0.290	0.290	0.274	0.274	0.274
Lost time, L	47	46	45	47	46	45
Cycle Time, C	125	125	125	125	125	125
Practical Y, Y_{pr}	0.562	0.569	0.576	0.562	0.569	0.576
Reserve Capacity, R.C. (%)	93%	96%	98%	105%	107%	110%

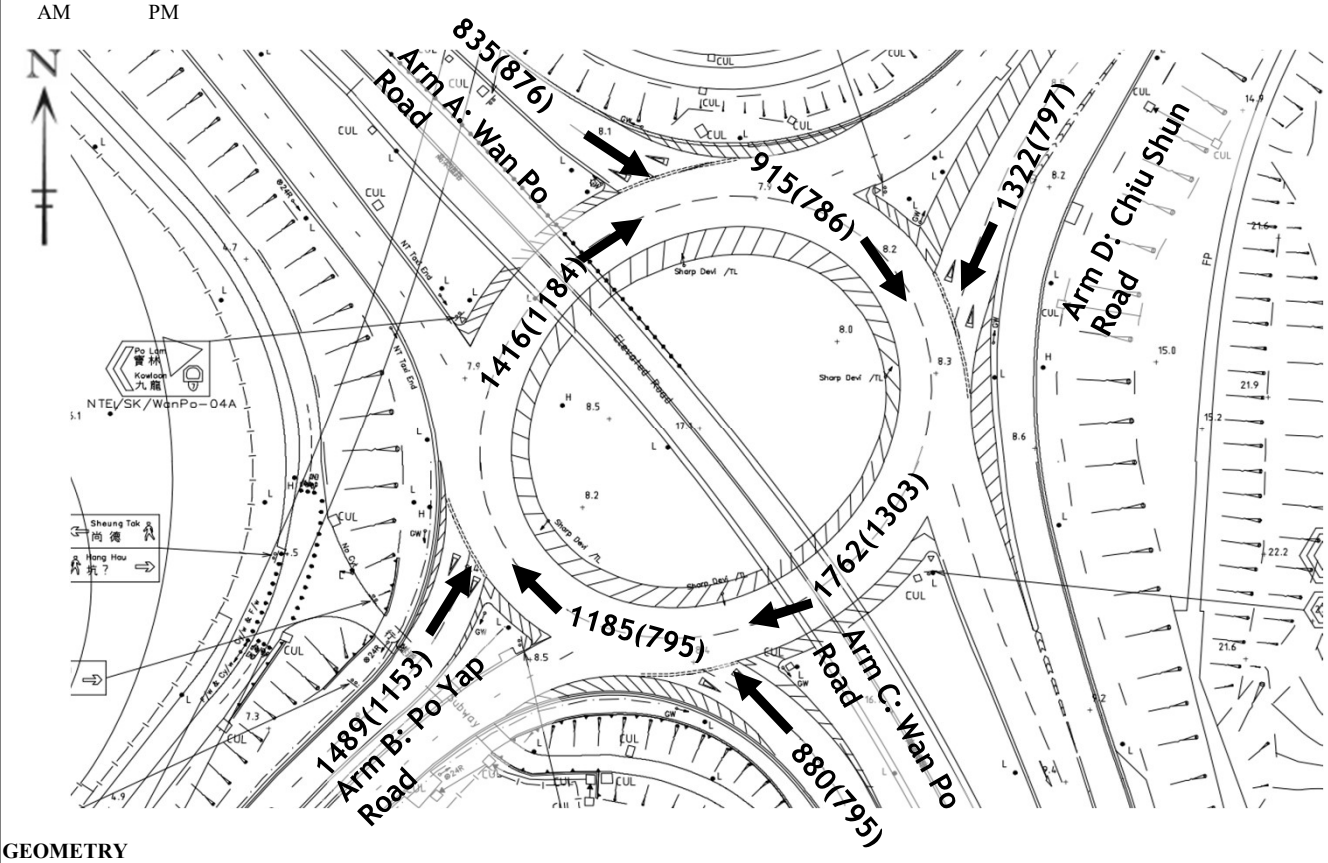
Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J13_SJ_2026_ref2_

Simplified Roundabout Capacity Calculation

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O				
Junction:	J1 Wan Po Road / Chiu Shun Road / Po Yap Road			Ref. No.:	J1_RA_2026_des2_
Scheme:	2026 Des (without CKR/T2)			Ref. No.:	
Year:	2020	Job No.:	J1598	Rev.:	-

AM PM



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	5.00	9.00	20	40	76	20	0.32
B	7.00	7.50	10	50	86	20	0.08
C	8.00	8.00	5	40	76	20	0.00
D	8.00	10.00	10	70	86	25	0.32

CALCULATIONS

ARM	K	X_2	M	F	t_D	f_c	Q_E AM	Q_E PM	DFC AM	DFC PM
A	1.06	7.44	4.95	2254	1.08	0.57	1538	1677	0.54	0.52
B	1.06	7.43	13.46	2252	1.03	0.54	1715	1939	0.87	0.59
C	1.06	8.00	4.95	2424	1.08	0.59	1463	1751	0.60	0.45
D	1.05	9.22	13.46	2794	1.03	0.62	2345	2429	0.56	0.33

Critical Arm:	**B**	**B**
DFC:	**0.87**	**0.59**
	AM	**PM**

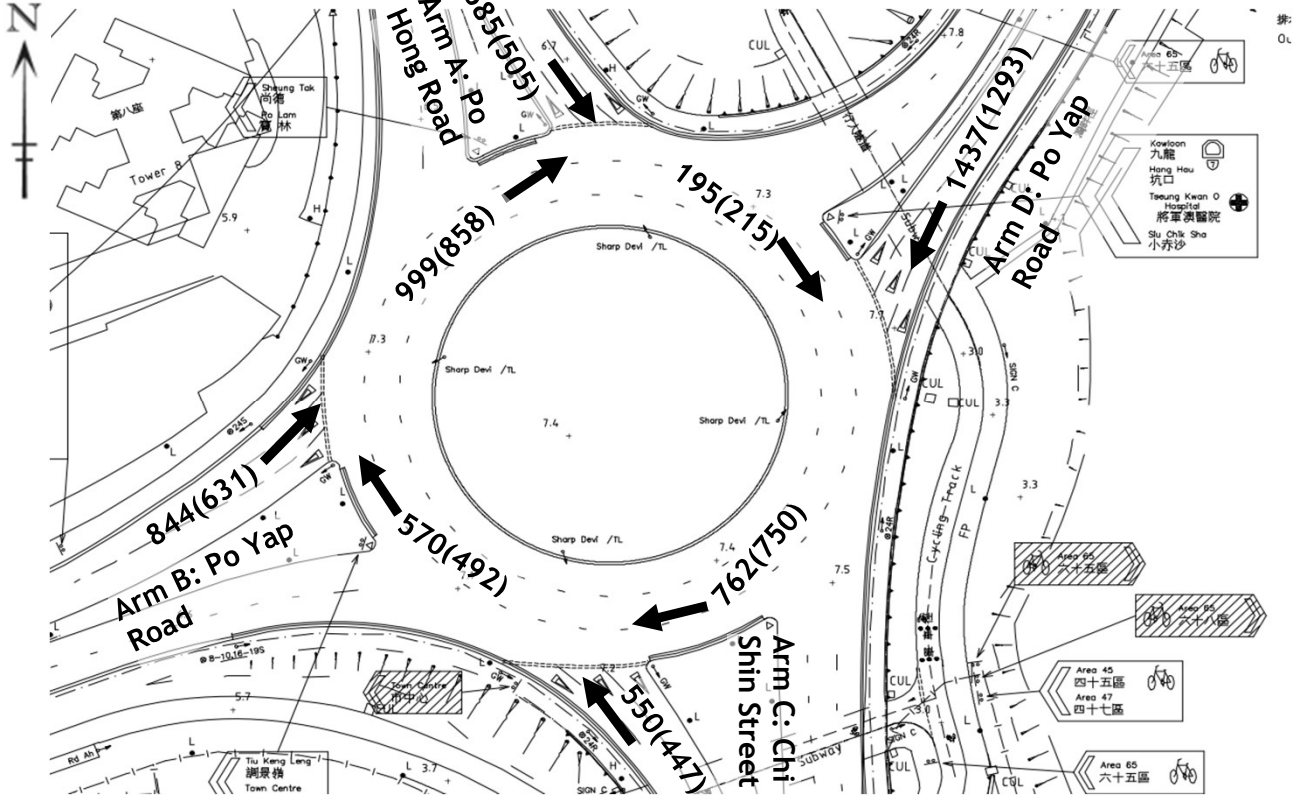
- In accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

Simplified Roundabout Capacity Calculation

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O				
Junction:	J2 Po Yap Road / Chi Shin Street / Po Hong Road			Ref. No.:	J2_RA_2026_des2_
Scheme:	2026 Des (without CKR/T2)			Ref. No.:	
Year:	2020	Job No.:	J1598	Rev.:	-

AM PM



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	7.00	11.00	20	25	80	25	0.32
B	7.00	11.00	15	60	80	30	0.43
C	7.00	12.00	10	50	80	25	0.80
D	7.00	11.00	20	90	80	25	0.32

CALCULATIONS

ARM	K	X_2	M	F	t_D	f_c	Q_E AM	Q_E PM	DFC AM	DFC PM
A	1.03	9.44	7.39	2860	1.06	0.64	2278	2371	0.30	0.21
B	1.03	9.16	7.39	2775	1.06	0.63	2495	2545	0.34	0.25
C	1.05	8.92	7.39	2704	1.06	0.62	2336	2344	0.24	0.19
D	1.06	9.44	7.39	2860	1.06	0.64	2886	2873	0.50	0.45

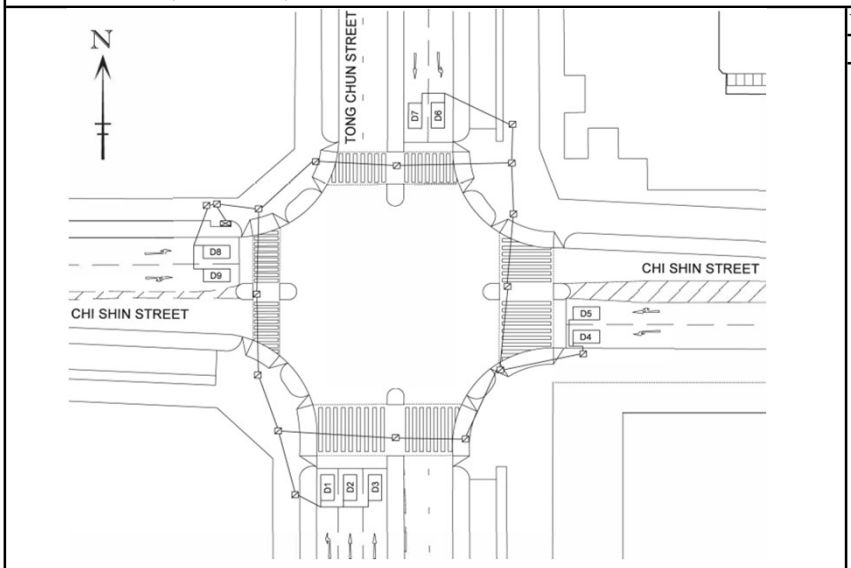
Critical Arm:	**D**	**D**
DFC:	**0.50**	**0.45**
	AM	**PM**

- In accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

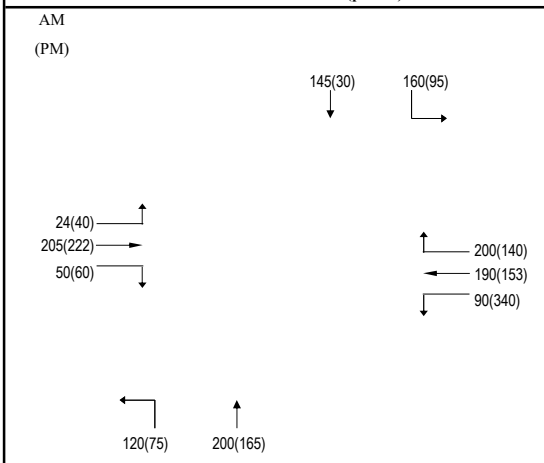
Traffic Signal Junction Calculation Sheet

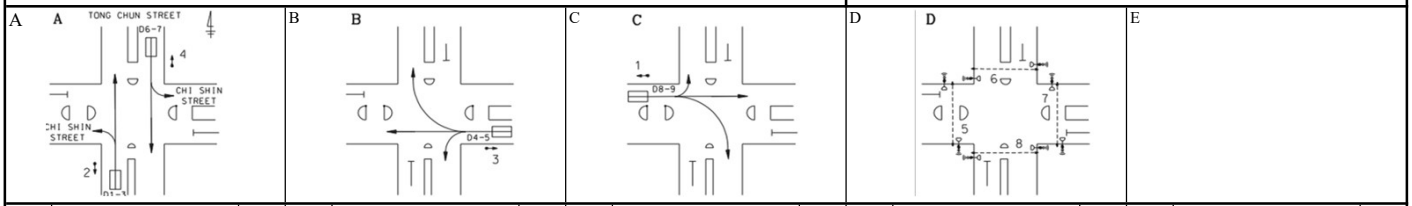
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J3 Chi Shin Street / Tong Chun Street	Ref. No.:	J3_SJ_2026_
Scheme:	2026 Des (without CKR/T2)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		5	2		5	2		3	9	22	1			
2		5	2		5	2		3	7	20	0			
2		5	2		5	2		3	5	18	1			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	C	1	4.10	1		17			0.86	100	1595	24	0.015		40	0.025	
1B	C	1	4.20				23			20 / 21	2150/2145	255	0.119	1	282	0.131	1
2A	A	1	3.10	1		19				100	1785	120	0.067		75	0.042	
2B	A	2	3.65								4240	200	0.047		165	0.039	
3A	B	1	3.50				25			51 / 48	2040/2045	390	0.191	1	293	0.143	
3B	B	1	3.70	1		17				100	1825	90	0.049		340	0.186	1
4A	A	1	3.60	1		17				100	1815	160	0.088	1	95	0.052	1
4B	A	1	3.60								2115	145	0.069		30	0.014	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	D		10	10	8	18				
6P	D		10	10	8	18				
7P	D		11	11	9	20				
8P	D		12	12	10	22		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

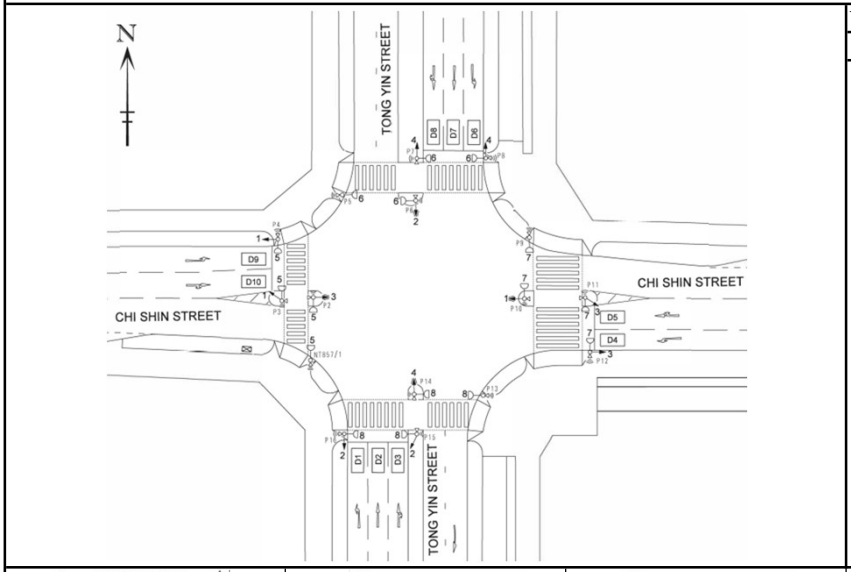
Check Critical Phase	4,3,1,8P	4,3,1,7P	4,3,1,6P	4,3,1,8P	4,3,1,7P	4,3,1,6P
Sum of y values, Y	0.398	0.398	0.398	0.370	0.370	0.370
Lost time, L	48	43	40	48	43	40
Cycle Time, C	110	110	110	110	110	110
Practical Y, Y_{pr}	0.507	0.548	0.573	0.507	0.548	0.573
Reserve Capacity, R.C. (%)	27%	38%	44%	37%	48%	55%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J3_SJ_2026_des2_

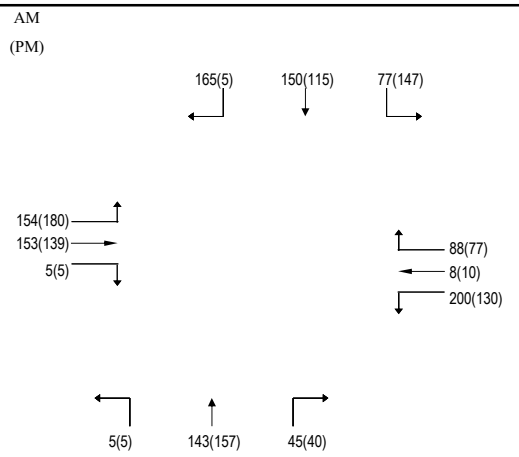
Traffic Signal Junction Calculation Sheet

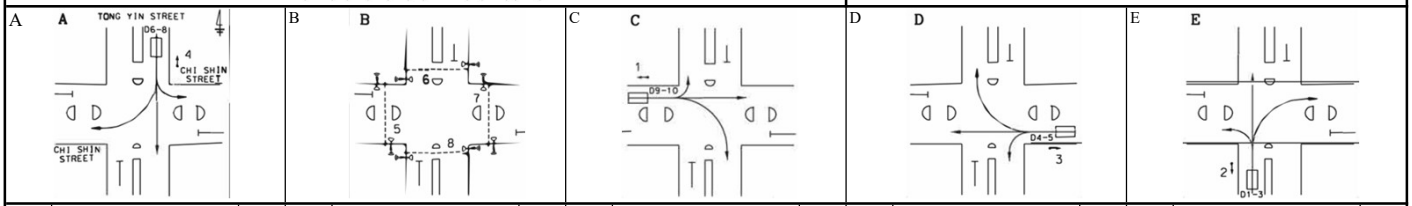
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O
Junction:	J4 Chi Shin Street / Tong Yin Street
Ref. No.:	J4_SJ_2026_
Scheme:	2026 Des (without CKR/T2)
Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		5	5	21	0	2	5	5	2		6	2		5
2		5	7	18	1	2	5	5	2		6	2		5
2		5	1	22	0	2	5	5	2		6	2		5

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	C	1	3.60	1		17				100	1815	154	0.085	1	180	0.099	1
1B	C	1	3.60				23			3 / 3	2110	158	0.075		144	0.068	
2A	E	1	3.30	1		17			0.86	100	1530	5	0.003		5	0.003	
2B	E	1	3.30								2085	95	0.046		100	0.048	1
2C	E	1	3.30				25			49 / 41	2025/2035	93	0.046	1	97	0.048	
3A	D	1	3.40	1		17				100	1795	200	0.111	1	130	0.072	1
3B	D	1	3.90				36			92 / 89	2065/2070	96	0.046		87	0.042	
4A	A	1	3.30	1		17				100	1785	77	0.043		147	0.082	1
4B	A	1	3.30								2085	150	0.072		60	0.029	
4C	A	1	3.30				23			100 / 8	1955/2075	165	0.084	1	60	0.029	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	B		10	10	8	18				
6P	B		13	13	9	22				
7P	B		9	9	7	16				
8P	B		12	12	9	21		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

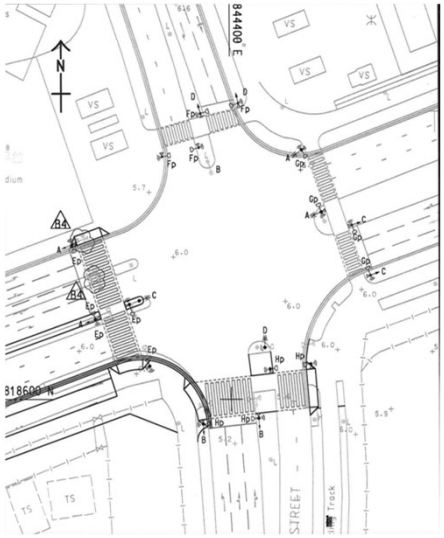
Check Critical Phase	4,8P,1,3,2	4,5P,1,3,2	4,6P,1,3,2	4,8P,1,3,2	4,5P,1,3,2	4,6P,1,3,2
Sum of y values, Y	0.326	0.326	0.326	0.302	0.302	0.302
Lost time, L	56	56	53	56	56	53
Cycle Time, C	100	100	100	110	110	110
Practical Y, Y_{pr}	0.396	0.396	0.423	0.442	0.442	0.466
Reserve Capacity, R.C. (%)	21%	21%	30%	46%	46%	55%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J4_SJ_2026_des2_

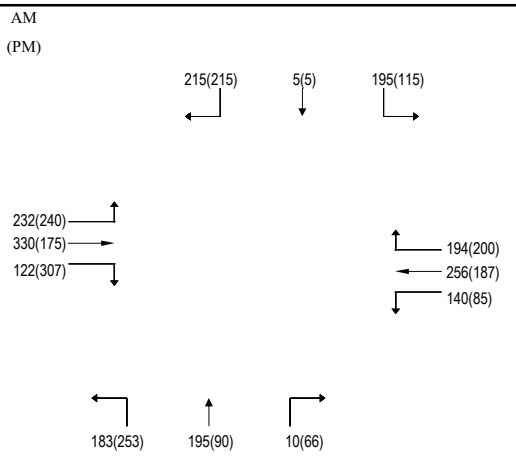
Traffic Signal Junction Calculation Sheet

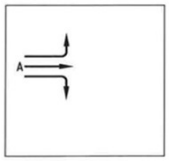
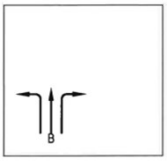
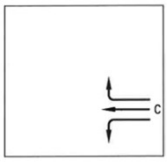
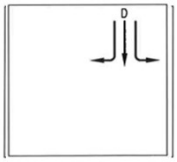
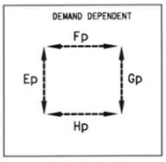
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J5 Po Yap Road / Tong Yin Street	Ref. No.:	J5_SJ_2026_
Scheme:	2026 Des (without CKR / T2)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)



A	B	C	D	E
				
STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5
2 3	2 5	2 3	2 3	13 28 0
2 3	2 5	2 3	2 3	11 27 1
2 3	2 5	2 3	2 3	6 25 0

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.80	1		15					1815	171	0.094		170	0.094	
1B	A	1	3.40			15				32 / 37	2030/2020	192	0.094	1	190	0.094	1
1C	A	1	3.50				20			0 / 71	2105/2000	199	0.094		188	0.094	
1D	A	1	3.80	1			20				1855	122	0.066		174	0.094	
2A	B	1	3.70			15					1930	126	0.065	1	136	0.070	1
2B	B	1	3.70			15				43 / 85	2040/1960	133	0.065		138	0.070	
2C	B	1	3.70	1			20			8 / 49	1975/1915	129	0.065		135	0.070	
3A	C	1	3.20			15				72 / 62	1935/1955	196	0.101	1	136	0.070	
3B	C	1	3.30	1							1945	196	0.101		136	0.070	
3C	C	1	3.50				20			98 / 100	1960	198	0.101		200	0.102	1
4A	D	1	3.70	1		15	20			98 / 97	1810/1820	200	0.110	1	161	0.088	1
4B	D	1	3.70				20				1975	215	0.109		174	0.088	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	E		14	14	13	27				
6P	E		11	11	8	19				
7P	E		15	15	10	25				
8P	E		16	16	12	28		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

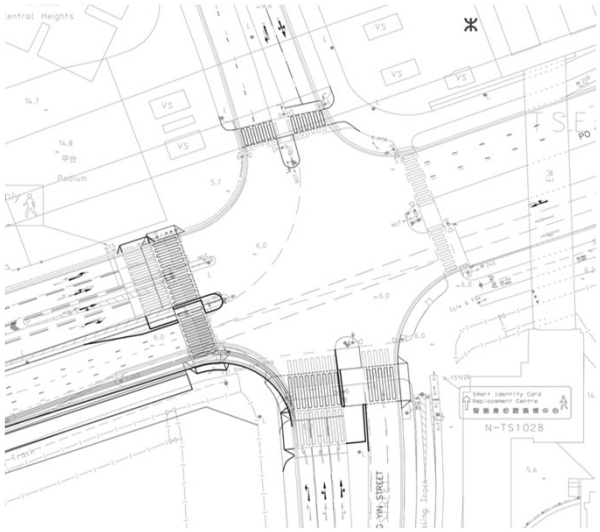
Check Critical Phase	1,2,3,4,8P	1,2,3,4,5P	1,2,3,4,7P	1,2,3,4,8P	1,2,3,4,5P	1,2,3,4,7P
Sum of y values, Y	0.371	0.371	0.371	0.355	0.355	0.355
Lost time, L	59	57	49	59	57	49
Cycle Time, C	120	120	120	105	105	105
Practical Y, Y_{pr}	0.458	0.473	0.533	0.394	0.411	0.480
Reserve Capacity, R.C. (%)	23%	27%	43%	11%	16%	35%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J5_SJ_2026_des2_no_impro

Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O
Junction:	J5 Po Yap Road / Tong Yin Street (with improvement scheme)
Ref. No.:	J5_SJ_2026_
Scheme:	2026 Des (without CKR / T2)
Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)

AM
(PM)

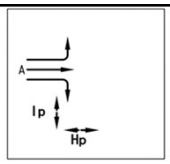
215(215) 5(5) 195(115)

232(240)
330(175)
122(307)

194(200)
256(187)
140(85)

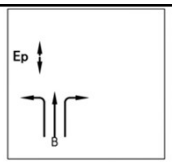
183(253) 195(90) 10(66)

A



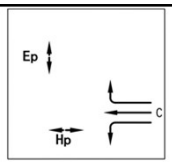
STAGE 1

B



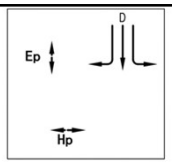
STAGE 2

C



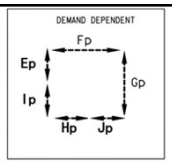
STAGE 3

D



STAGE 4

E



STAGE 5

2		3	2		5	2		3	2		3	6	25	0

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.80	1		15					1815	171	0.094		170	0.094	
1B	A	1	3.40			15				32 / 37	2030/2020	192	0.094	1	190	0.094	1
1C	A	1	3.50				20			0 / 71	2105/2000	199	0.094		188	0.094	
1D	A	1	3.80	1			20				1855	122	0.066		174	0.094	
2A	B	1	3.70			15					1930	126	0.065	1	136	0.070	1
2B	B	1	3.70			15				43 / 85	2040/1960	133	0.065		138	0.070	
2C	B	1	3.70	1			20			8 / 49	1975/1915	129	0.065		135	0.070	
3A	C	1	3.20			15				72 / 62	1935/1955	196	0.101	1	136	0.070	
3B	C	1	3.30	1							1945	196	0.101		136	0.070	
3C	C	1	3.50				20			98 / 100	1960	198	0.101		200	0.102	1
4A	D	1	3.70	1		15	20			98 / 97	1810/1820	200	0.110	1	161	0.088	1
4B	D	1	3.70				20				1975	215	0.109		174	0.088	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	BCDE		5	5	13	18				
6P	E		11	11	8	19				
7P	E		15	15	10	25		1		1
8P	ACDE		5	5	12	17				
9P	AE		5	5	9	14				
10P	E		5	5	6	11				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

	AM Peak			PM Peak		
Check Critical Phase	1,2,3,4,7P			1,2,3,4,7P		
Sum of y values, Y	0.371			0.355		
Lost time, L	49			49		
Cycle Time, C	120			105		
Practical Y, Y_{pr}	0.533			0.480		
Reserve Capacity, R.C. (%)	43%			35%		

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J5_SJ_2026_des2_hv_impro

Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J6 Po Yap Road / Po Shun Road / Chui Ling Road / Future Road P2	Ref. No.:	J6_SJ_2026_
Scheme:	2026 Des (without CKR/T2)	Ref. No.:	

Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)

AM
(PM)

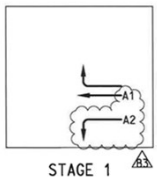
165(205) 871(618) 123(301)

90(70)
240(80)
519(492)

15(5)
125(150)
504(490)

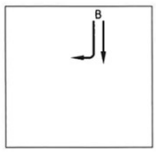
600(605) 351(341)

A



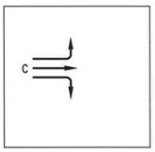
STAGE 1

B



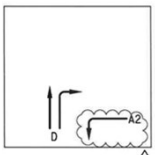
STAGE 2

C



STAGE 3

D



STAGE 4

E

2		3	2		5	2		3	2		3			
		3	2		5	2		3			2			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A ←	A	1	3.50								2105	125	0.059	1	150	0.071	1
1B ↰	A	1	3.70				20			100	1975	15	0.008		5	0.003	
2A ↓	AD	2	3.50	1		15				100	3700	504	0.136		490	0.132	
3A ↓	B	2	3.65	1							4100	871	0.212	1	618	0.151	1
3B ↓	B	1	3.60				20			100	1965	165	0.084		205	0.104	
4A ↑→	C	1	3.60	1		15				32 / 47	1915/1885	278	0.145		150	0.080	
4B →↓	C	1	3.30				20			82 / 100	1965/1940	285	0.145		244	0.126	
4C ↓	C	1	3.60				20				1965	286	0.145	1	248	0.126	1
5A ↑	D	1	3.70	1							1985	311	0.157		309	0.156	1
5B ↑→	D	1	3.70				20			13 / 10	2105/2110	330	0.157	1	329	0.156	
5C ↑→	D	1	3.70				20				1975	310	0.157		308	0.156	1

Critical Ped. Phase	Stage	Width Across	Min. GM	Min. FGM	Lost Time	Note	Crit.	Note	Crit.

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%

In accordance with TPDM - Volume 4.2.4

Check Critical Phase	1,3,4,5	2,3,4		1,3,4,5	2,3,4	
Sum of y values, Y	0.574	0.494		0.504	0.409	
Lost time, L	18	14		18	14	
Cycle Time, C	127	217		124	214	
Practical Y, Y_{pr}	0.772	0.842		0.769	0.841	
Reserve Capacity, R.C. (%)	35%	70%		53%	106%	

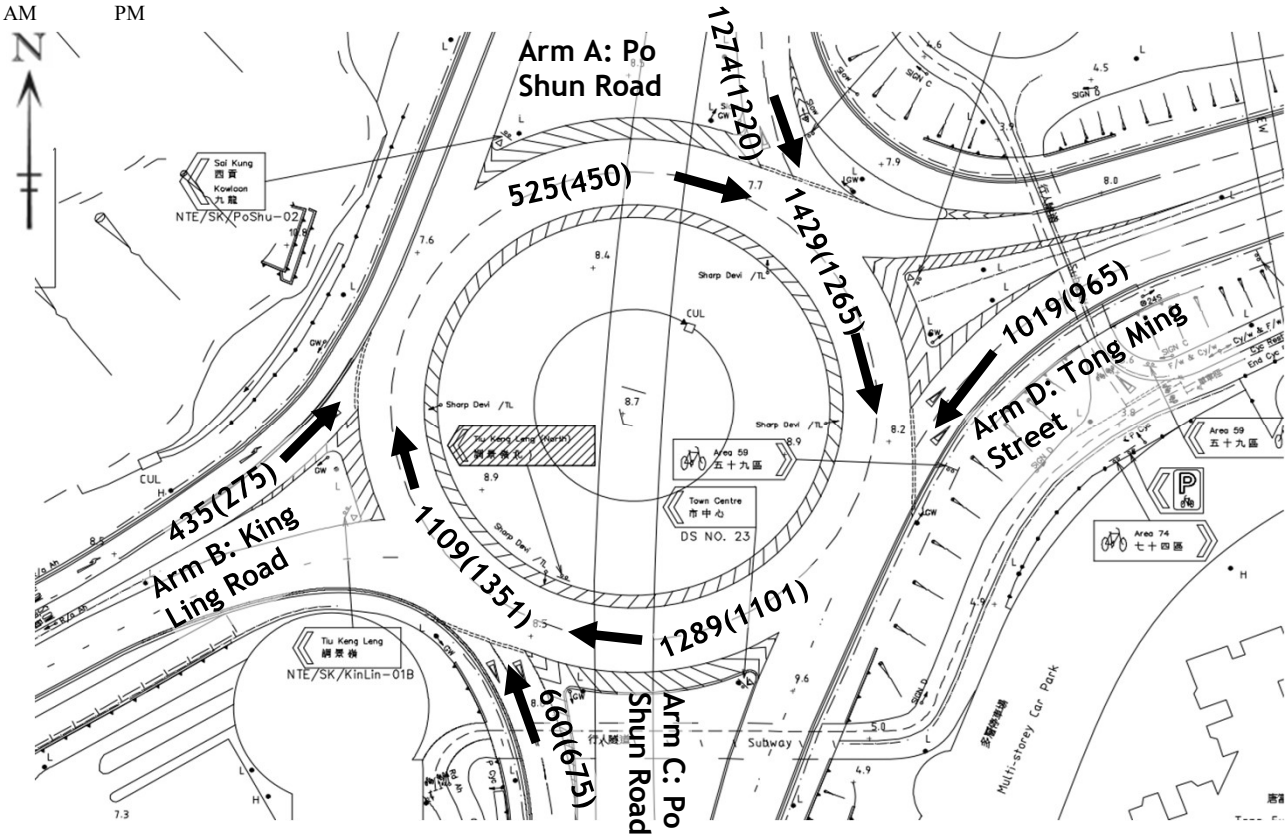
Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J6_SJ_2026_des2_

Simplified Roundabout Capacity Calculation

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O				
Junction:	J7 Po Shun Road / Tong Ming Street / King Ling Road			Ref. No.:	J7_RA_2026_des2_
Scheme:	2026 Des (without CKR/T2)			Ref. No.:	
Year:	2020	Job No.:	J1598	Rev.:	-

AM PM



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	7.00	8.00	14.5	20	81.2	20	0.11
B	2.70	4.60	31.9	55.2	81.2	18	0.10
C	7.10	7.40	11.7	23	81.2	10	0.04
D	7.40	8.40	27.5	60	81.2	29	0.06

CALCULATIONS

ARM	K	X_2	M	F	t_D	f_c	Q_E AM	Q_E PM	DFC AM	DFC PM
A	1.03	7.82	8.33	2369	1.05	0.57	2143	2187	0.59	0.56
B	1.07	4.30	8.33	1302	1.05	0.41	907	800	0.48	0.34
C	1.08	7.38	8.33	2235	1.05	0.55	1645	1756	0.40	0.38
D	1.04	8.30	8.33	2514	1.05	0.59	1733	1833	0.59	0.53

	AM	PM
Critical Arm:	**A**	**A**
DFC:	**0.59**	**0.56**
	AM	**PM**

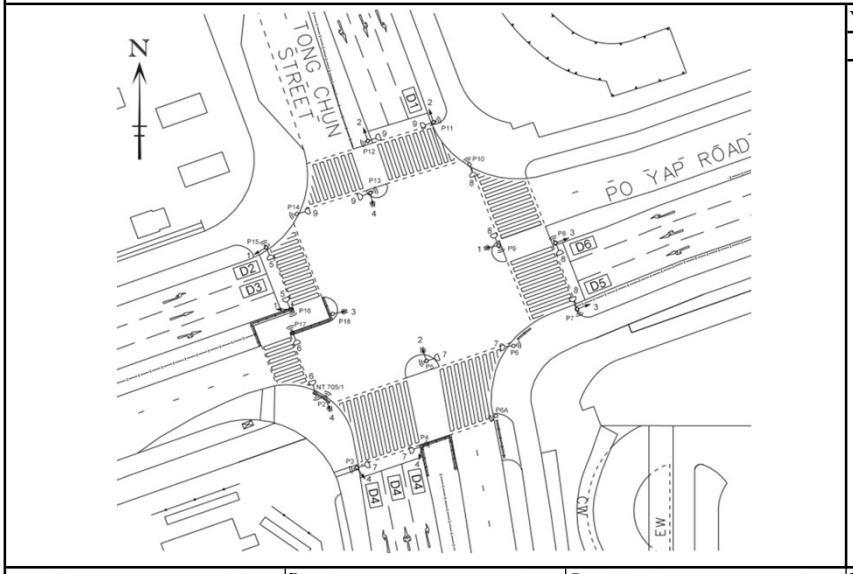
- In accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J7_RA_2026_des2_

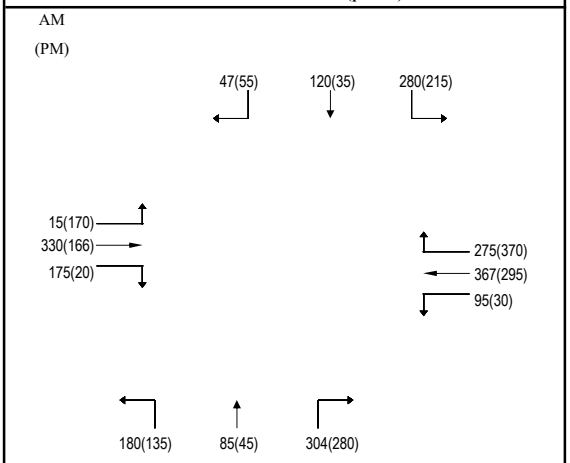
Traffic Signal Junction Calculation Sheet

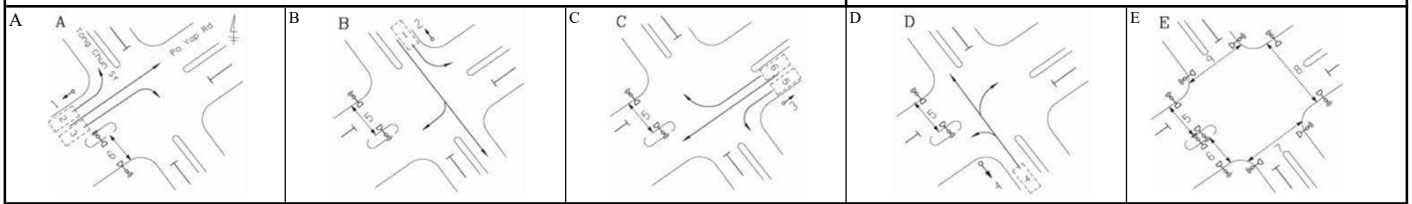
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J8 Po Yap Road / Tong Chun Street	Ref. No.:	J8_SJ_2026_
Scheme:	2026 Des (without CKR/T2)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





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2		5	2		5	2		6	2	6	4	16	0
2		5	2		5	2		6	2	6	0	16	0

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.30	1		17				100	1785	15	0.008		170	0.095	1
1B	A	1	3.30								2085	259	0.124	1	94	0.045	
1C	A	1	3.30				20			71 / 22	1980/2050	246	0.124		92	0.045	
2A	B	1	3.40	1		17					1795	138	0.077	1	104	0.058	
2B	B	1	3.40			17				95 / 100	1935/1925	149	0.077		111	0.058	1
2C	B	1	3.50				26			29 / 61	2070/2035	160	0.077		90	0.044	
3A	C	1	3.30	1		17				41 / 13	1880/1925	234	0.125		227	0.118	
3B	C	1	3.40				20			12 / 59	2075/2005	259	0.125	1	237	0.118	1
3C	C	1	3.40				20				1950	243	0.125		231	0.118	
4A	D	1	3.60	1		16					1805	176	0.098		135	0.075	
4B	D	1	3.50			16	26			57 / 73	2035/2020	199	0.098	1	164	0.081	1
4C	D	1	3.50				26				1990	194	0.098		161	0.081	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	BCDE		5	5	11	16				
6P	E		5	5	7	12				
7P	E		5	5	11	16				
8P	E		5	5	11	16		1		1
9P	E		5	5	11	16				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

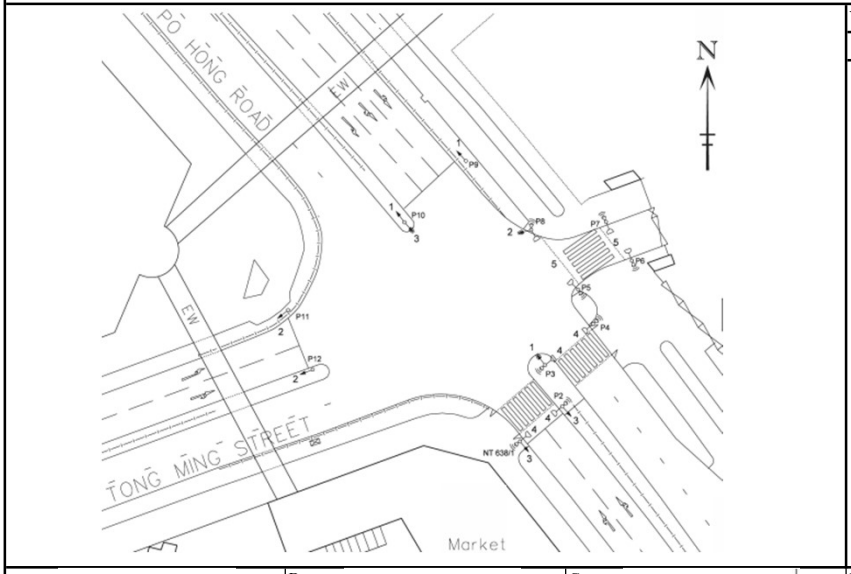
Check Critical Phase	1,2,3,4,8P	1,2,3,4,9P	1,2,3,4,7P	1,2,3,4,8P	1,2,3,4,9P	1,2,3,4,7P
Sum of y values, Y	0.424	0.424	0.424	0.352	0.352	0.352
Lost time, L	50	46	42	50	46	42
Cycle Time, C	125	125	125	125	125	125
Practical Y, Y_{pr}	0.540	0.569	0.598	0.540	0.569	0.598
Reserve Capacity, R.C. (%)	27%	34%	41%	53%	61%	70%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J8_SJ_2026_des2_

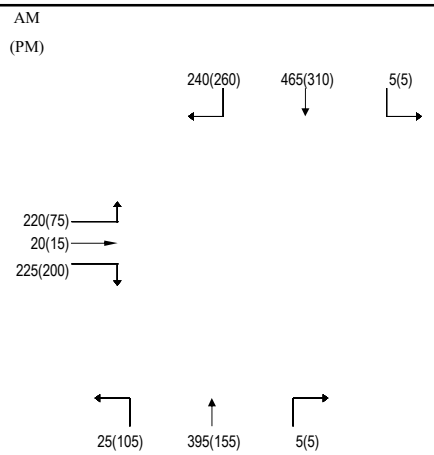
Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J9 Po Hong Road / Tong Ming Street	Ref. No.:	J9_SJ_2026_
Scheme:	2026 Des (without CKR/T2)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)



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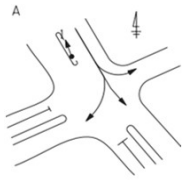

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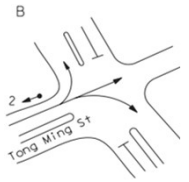

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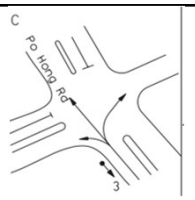

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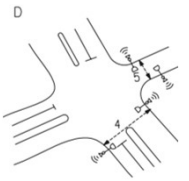


E

2		3	3		3	4		3	7	16	0			
2		3	3		3	4		3	2	20	0			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.40	1		15				2 / 3	1950	229	0.118		187	0.096	
1B	A	1	3.40				21			2 / 35	2090/2045	246	0.118	1	196	0.096	
1C	A	1	3.90				21				2000	235	0.117		192	0.096	1
2A	B	1	3.70	1		16				100	1815	220	0.121	1	75	0.041	
2B	B	1	3.60				32			92 / 93	2030/2025	245	0.121		215	0.106	1
3A	C	1	3.50	1		17				12 / 85	1945/1825	203	0.105	1	123	0.067	1
3B	C	1	3.70				11			2 / 4	2120/2115	222	0.105		142	0.067	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
4P	D		11	11	9	20				
5P	D		5	5	11	16		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

	AM Peak			PM Peak		
Check Critical Phase	1,2,3,5P	1,2,3,4P		1,2,3,5P	1,2,3,4P	
Sum of y values, Y	0.343	0.343		0.269	0.269	
Lost time, L	38	37		38	37	
Cycle Time, C	110	110		105	105	
Practical Y, Y_{pr}	0.589	0.597		0.574	0.583	
Reserve Capacity, R.C. (%)	72%	74%		113%	116%	

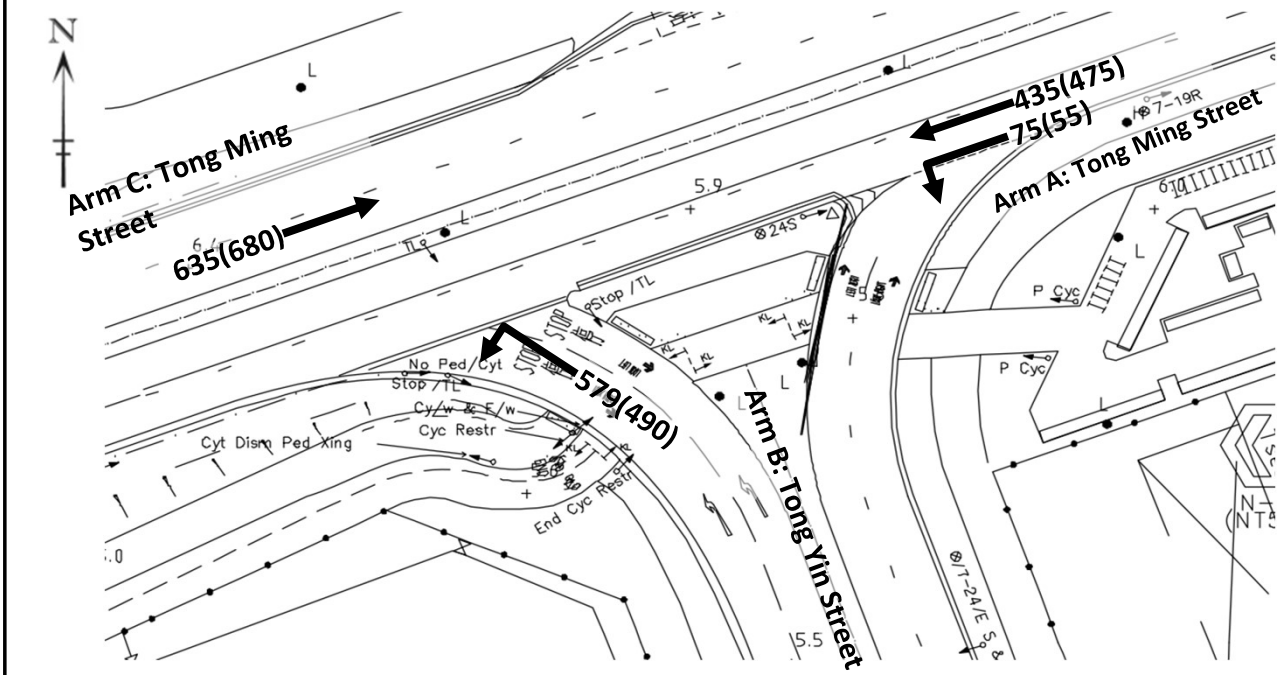
Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J9_SJ_2026_des2_

Simplified Priority Junction Capacity Calculation Sheet

Job Title	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O			
Junction	J10 Tong Yin Street/Tong Ming Street		Ref No.:	J10_PJ_2026_d
Scheme	2026 Des (without CKR/T2)		Ref No.:	
Year	2020	Job. No.: J1598	Rev.:	

AM(PM)



Geometry					
Major road width	**W**	7.4	**Lane widths**	w(b-a)	0.00
Central Reserve width	W_{cr}	0		w(b-c)	7.80
2 Lane Minor Arm (Y/N)		Y		w(c-b)	0.00
Visibilities	$V_{r(B-A)}$	0	**Calculated**	D	0.53
	$V_{l(B-A)}$	0		E	1.34
	$V_{r(B-C)}$	80		F	0.59
	$V_{r(C-B)}$	0		Y	0.74

Analysis			**Peak Hour**	
			AM	PM
Traffic Flows	$q_{(C-A)}$		635	680
	$q_{(C-B)}$		0	0
	$q_{(A-B)}$		75	55
	$q_{(A-C)}$		435	475
	$q_{(B-A)}$		0	0
	$q_{(B-C)}$		579	490
Proportion of minor traffic left-turn	**f**		1.00	1.00
		Factor		
Capacities	$Q_{(B-A)}$	1	209	201
	$Q_{(B-C)}$	1	830	818
	$Q_{(C-B)}$	1	356	352
	$Q_{(B-AC)}$	1	0	0
DFC	**B-A**		0.00	0.00
	B-C		0.70	0.60
	C-B		0.00	0.00
	B-AC		0.00	0.00
Worst DFC			**0.70**	**0.60**

Where Vl and Vr are visibility distances to the left or right of the respective streams

D = (1+0.094(w(b-a)-3.65))(1+0.0009(Vr(b-a)-120))(1+0.0006(Vl(b-a)-150))

E = (1+0.094(w(b-c)-3.65))(1+0.0009(Vr(b-c)-120))

F = (1+0.094(w(c-b)-3.65))(1+0.0009(Vr(c-b)-120))

Y = 1-0.0345W

f = proportion of minor traffic turning left

Q (b-ac) = Q(b-c)*Q(b-a)/(1-f)*Q(b-c)+f*Q(b-a)

T.P.D.M.V.2.4

Appendix 1

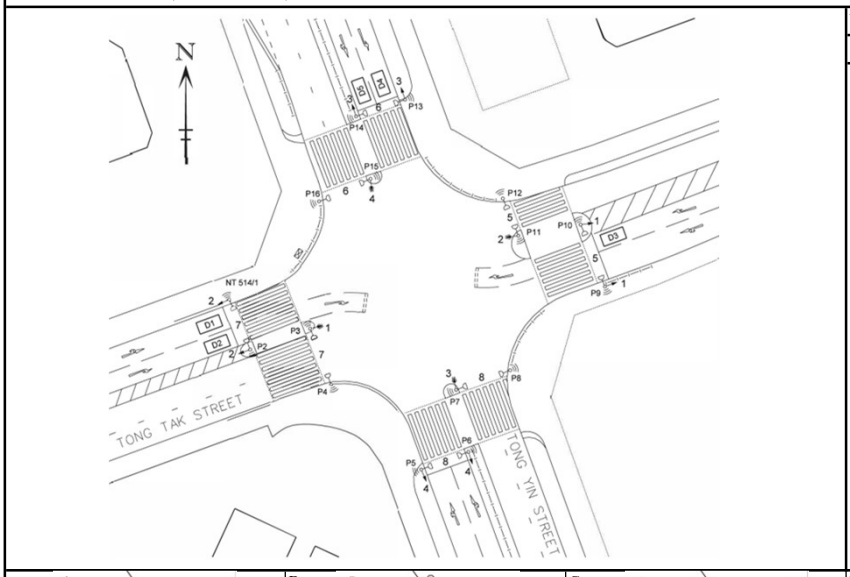
Capacity of combined streams

- in accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

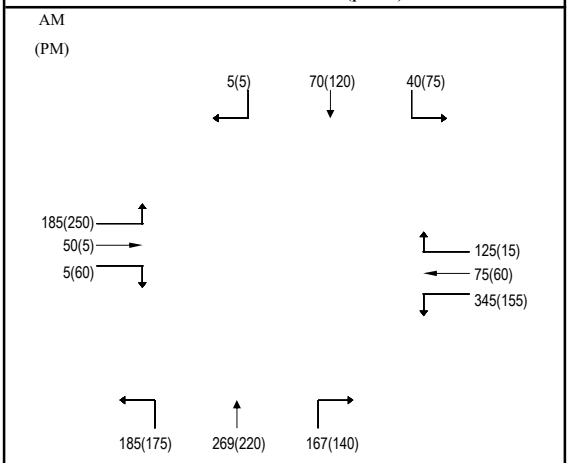
Traffic Signal Junction Calculation Sheet

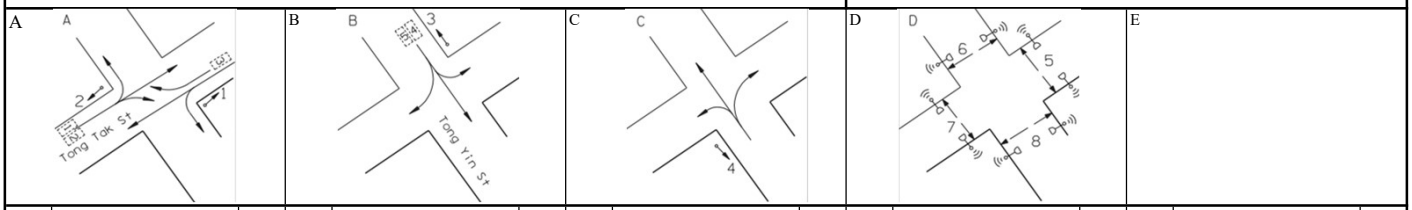
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J11 Tong Yin Street/Tong Tak Street	Ref. No.:	J11_SJ_2026
Scheme:	2026 Des (without CKR/T2)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		5	2	5	6	2		3	11	22	1			
2		5	2	5	6	2		3	7	20	1			
2		5	2	5	6	2		3	8	19	0			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	4.30	1		17				82 / 72	1905/1925	420	0.220	1	215	0.112	
1B	A	1	3.20		1		24			100	1735	125	0.072		15	0.009	
2A	A	1	3.70	1		16				79 / 98	1850/1820	235	0.127		255	0.140	1
2B	A	1	3.20		1		24			100	1735	5	0.003		60	0.035	
3A	B	1	3.80	1		18				100	1840	40	0.022		75	0.041	
3B	B	1	3.20				25			7 / 4	2065/2070	75	0.036	1	125	0.060	1
4A	C	1	4.00	1		13				61 / 68	1880/1870	302	0.161	1	259	0.139	
4B	C	1	3.00				24			52 / 51	1990	319	0.160		276	0.139	1

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	D		12	12	10	22		1		1
6P	D		9	9	10	19				
7P	D		10	10	10	20				
8P	D		10	10	10	20				

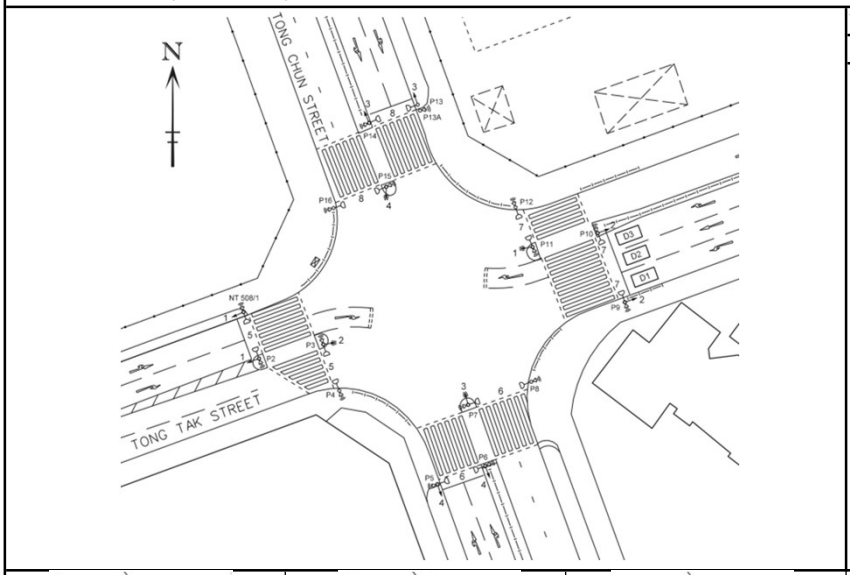
Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	1,3,4,5P	1,3,4,7P	1,3,4,6P	1,3,4,5P	1,3,4,7P	1,3,4,6P
Sum of y values, Y	0.417	0.417	0.417	0.339	0.339	0.339
Lost time, L	56	50	49	56	50	49
Cycle Time, C	127	127	127	124	124	124
Practical Y, Y_{pr}	0.503	0.546	0.553	0.494	0.537	0.544
Reserve Capacity, R.C. (%)	21%	31%	32%	46%	58%	60%

Calculated by:	Date: 五月-2021	Checked by:

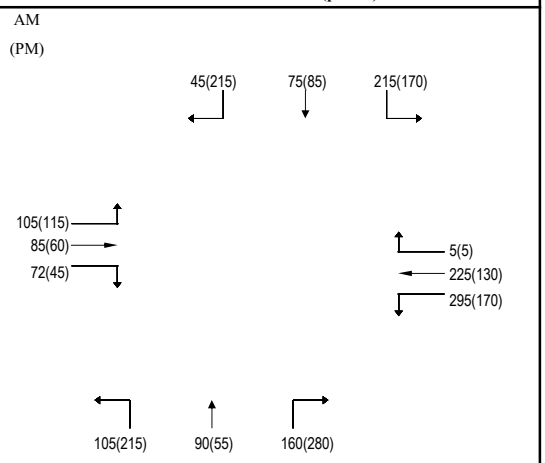
Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J12 Tong Tak Street/Tong Chun Street	Ref. No.:	J12_SJ_2026
Scheme:	2026 Des (without CKR/T2)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)



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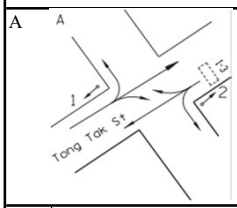

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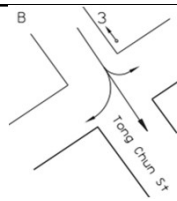

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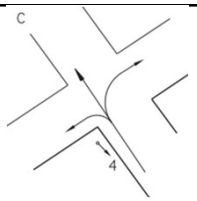

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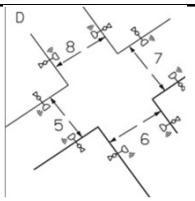


E

2		11	2		5	2		4	10	25	2			
2		11	2		5	2		4	7	18	2			
2		11	2		5	2		4	7	18	0			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.60	1		15				55 / 66	1870/1855	190	0.102		175	0.094	1
1B	A	1	3.20		1		29			100	1755	72	0.041		45	0.026	
2A	A	1	4.00	1		17				100	1850	295	0.159	1	170	0.092	
2B	A	1	3.50								2105	225	0.107		130	0.062	
2C	A	1	3.70		1		24			100	1785	5	0.003		5	0.003	
3A	B	1	3.60	1		17				100 / 76	1815/1850	215	0.118	1	223	0.121	1
3B	B	1	4.00				24			38 / 87	2105/2045	120	0.057		247	0.121	
4A	C	1	3.60	1		18				61 / 81	1880/1850	172	0.091		265	0.143	1
4B	C	1	3.60				24			87 / 98	2005/1995	183	0.091	1	285	0.143	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	D		9	9	9	18				
6P	D		10	10	10	20				
7P	D		12	12	13	25		1		1
8P	D		9	9	9	18				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%

In accordance with TPDM - Volume 4.2.4

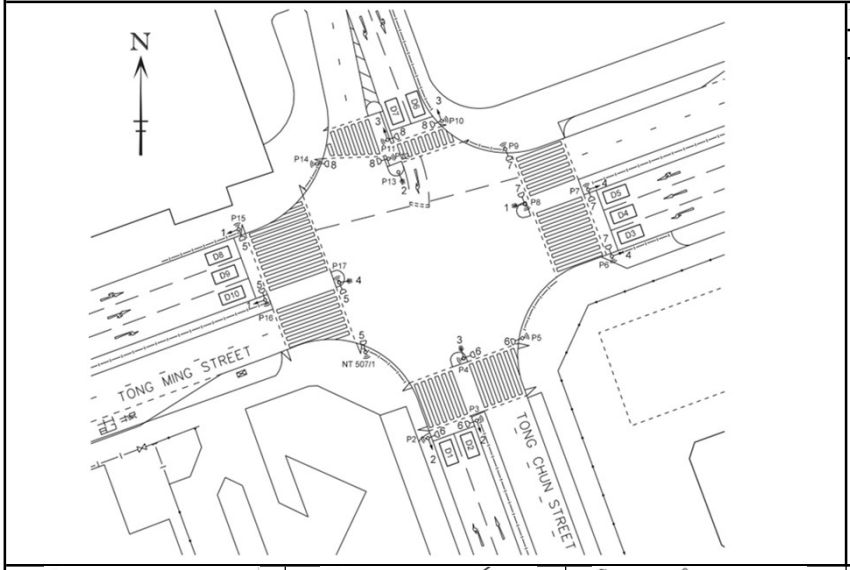
Check Critical Phase	2,3,4,7P	2,3,4,5P	2,3,4,8P	2,3,4,7P	2,3,4,5P	2,3,4,8P
Sum of y values, Y	0.369	0.369	0.369	0.358	0.358	0.358
Lost time, L	60	50	48	60	50	48
Cycle Time, C	125	125	125	125	125	125
Practical Y, Y_{pr}	0.468	0.540	0.554	0.468	0.540	0.554
Reserve Capacity, R.C. (%)	27%	46%	50%	31%	51%	55%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J12_SJ_2026_des2_

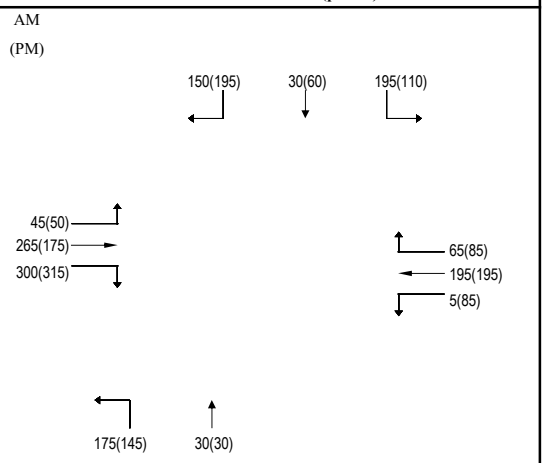
Traffic Signal Junction Calculation Sheet

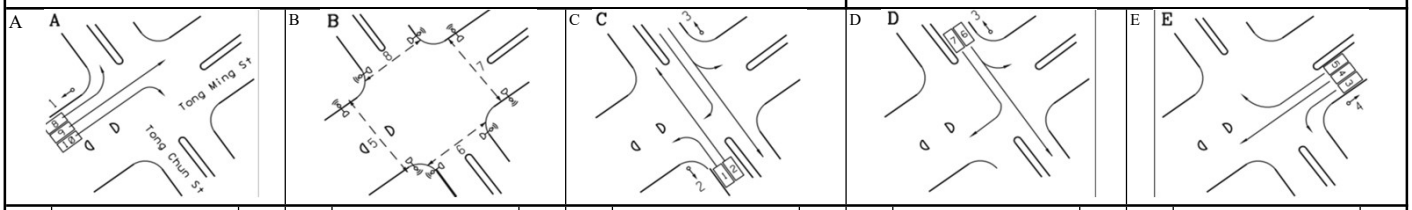
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J13 Tong Ming Street/Tong Chun Street	Ref. No.:	J13_SJ_2026
Scheme:	2026 Des (without CKR/T2)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		3	9	22	0	2					3	3		6
2		3	11	18	1	2					3	3		6
2		3	6	22	1	2					3	3		6

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.50	1		20				23 / 28	1930/1925	198	0.102	1	176	0.091	
1B	A	1	3.50				24			46 / 73	2045/2015	209	0.102		184	0.091	
1C	A	1	3.50				24				1980	203	0.102		181	0.091	1
2A	C	1	3.60	1		17				100	1815	175	0.096		145	0.080	
2B	C	1	3.70								2125	30	0.014		30	0.014	
3A	CD	1	3.20	1		17				87 / 65	1800/1830	225	0.125	1	170	0.093	
3B	CD	1	3.40		1		15			100	1695	150	0.088		195	0.115	1
4A	E	1	3.50	1		17				100	1805	5	0.003		85	0.047	
4B	E	1	3.50								2105	132	0.063		143	0.068	1
4C	E	1	3.50				23			51 / 62	2035/2025	128	0.063	1	137	0.068	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	B		14	14	12	26				
6P	B		10	10	8	18				
7P	B		12	12	10	22		1		1
8P	B		12	12	10	22				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	1,7P,3,4	1,6P,3,4	1,8P,3,4	1,7P,3,4	1,6P,3,4	1,8P,3,4
Sum of y values, Y	0.290	0.290	0.290	0.274	0.274	0.274
Lost time, L	47	46	45	47	46	45
Cycle Time, C	125	125	125	125	125	125
Practical Y, Y_{pr}	0.562	0.569	0.576	0.562	0.569	0.576
Reserve Capacity, R.C. (%)	93%	96%	98%	105%	107%	110%

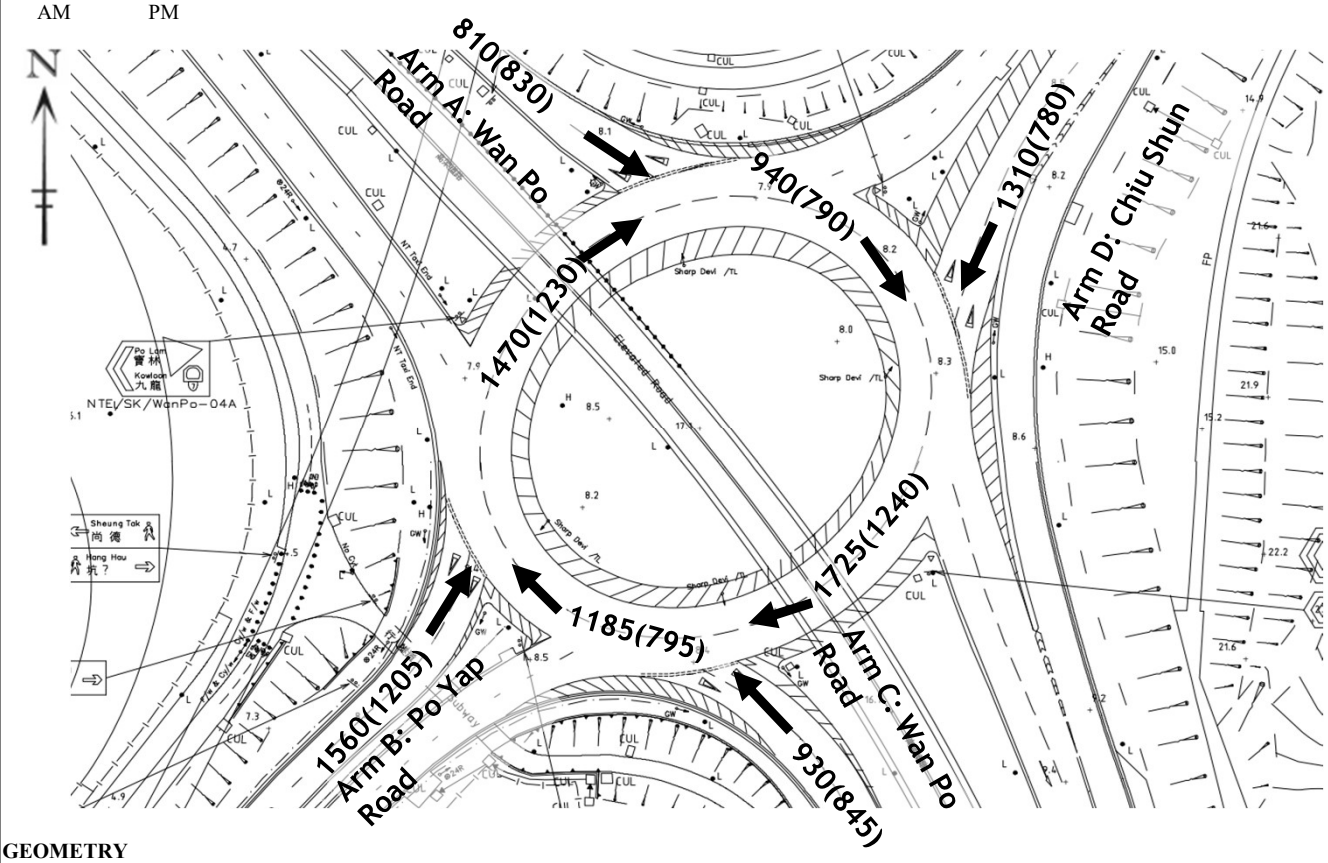
Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J13_SJ_2026_des2_

Simplified Roundabout Capacity Calculation

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O				
Junction:	J1 Wan Po Road / Chiu Shun Road / Po Yap Road			Ref. No.:	J1_RA_2026_desCTIA_
Scheme:	2026 Des (Construction Stage)			Ref. No.:	
Year:	2020	Job No.:	J1598	Rev.:	-

AM PM



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	5.00	9.00	20	40	76	20	0.32
B	7.00	7.50	10	50	86	20	0.08
C	8.00	8.00	5	40	76	20	0.00
D	8.00	10.00	10	70	86	25	0.32

CALCULATIONS

ARM	K	X_2	M	F	t_D	f_c	Q_E AM	Q_E PM	DFC AM	DFC PM
A	1.06	7.44	4.95	2254	1.08	0.57	1506	1650	0.54	0.50
B	1.06	7.43	13.46	2252	1.03	0.54	1715	1939	0.91	0.62
C	1.06	8.00	4.95	2424	1.08	0.59	1486	1790	0.63	0.47
D	1.05	9.22	13.46	2794	1.03	0.62	2328	2426	0.56	0.32

Critical Arm:	**B**	**B**
DFC:	**0.91**	**0.62**
	AM	**PM**

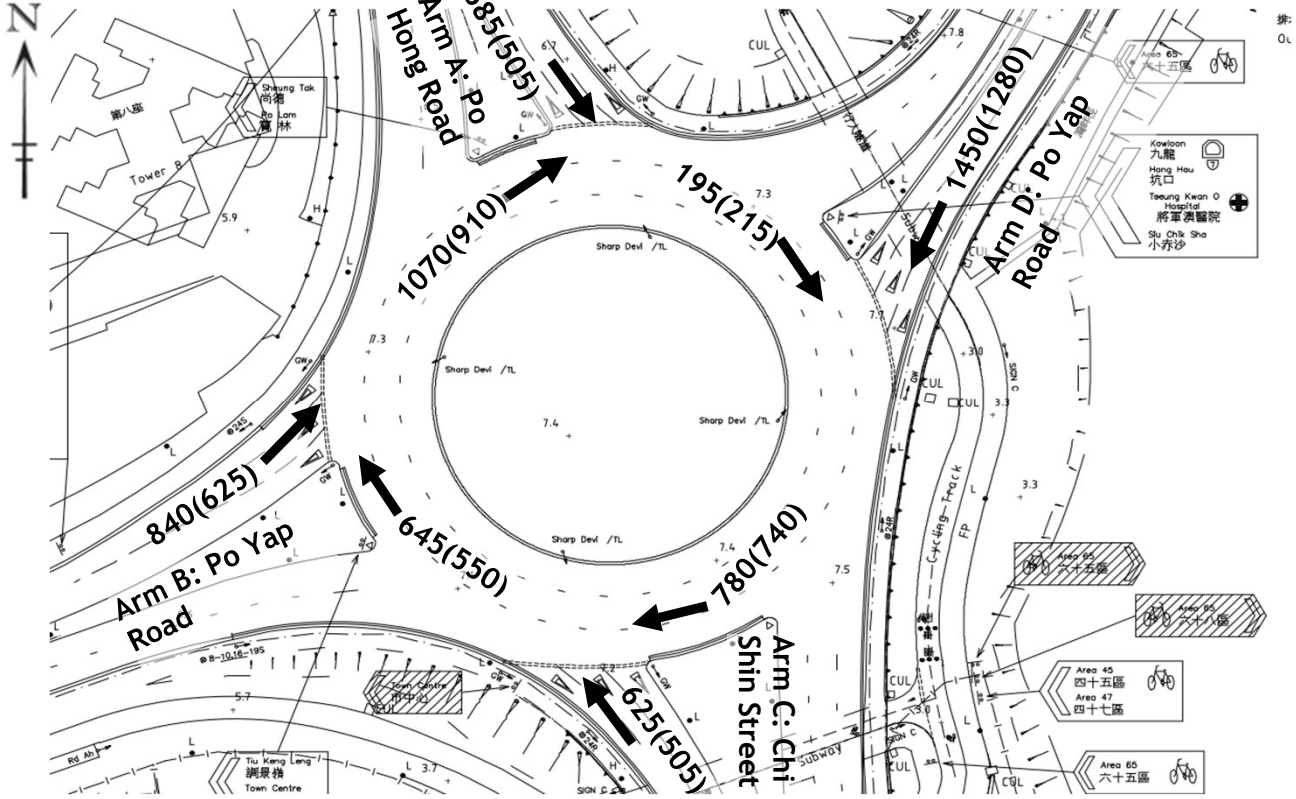
- In accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

Simplified Roundabout Capacity Calculation

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O				
Junction:	J2 Po Yap Road / Chi Shin Street / Po Hong Road			Ref. No.:	J2_RA_2026_desCTIA_
Scheme:	2026 Des (Construction Stage)			Ref. No.:	
Year:	2020	Job No.:	J1598	Rev.:	-

AM PM



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	7.00	11.00	20	25	80	25	0.32
B	7.00	11.00	15	60	80	30	0.43
C	7.00	12.00	10	50	80	25	0.80
D	7.00	11.00	20	90	80	25	0.32

CALCULATIONS

ARM	K	X_2	M	F	t_D	f_c	Q_E AM	Q_E PM	DFC AM	DFC PM
A	1.03	9.44	7.39	2860	1.06	0.64	2231	2337	0.31	0.22
B	1.03	9.16	7.39	2775	1.06	0.63	2446	2508	0.34	0.25
C	1.05	8.92	7.39	2704	1.06	0.62	2324	2350	0.27	0.21
D	1.06	9.44	7.39	2860	1.06	0.64	2886	2873	0.50	0.45

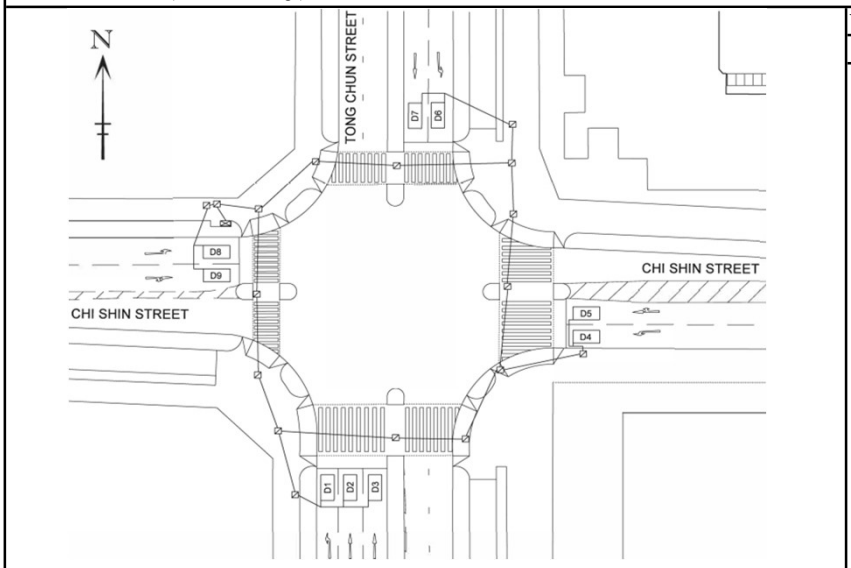
Critical Arm:	**D**	**D**
DFC:	**0.50**	**0.45**
	AM	**PM**

- In accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

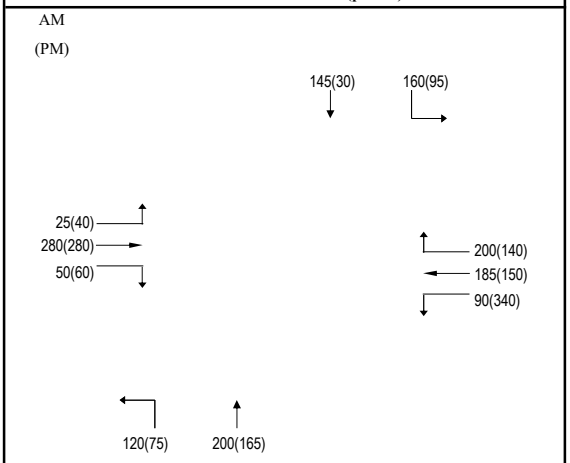
Traffic Signal Junction Calculation Sheet

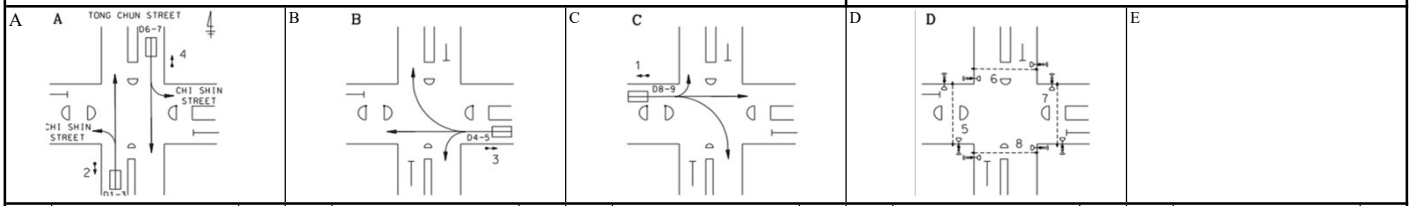
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J3 Chi Shin Street / Tong Chun Street	Ref. No.:	J3_SJ_2026_
Scheme:	2026 Des (Construction Stage)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		5	2		5	2		3	9	22	1			
2		5	2		5	2		3	7	20	0			
2		5	2		5	2		3	5	18	1			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	C	1	4.10	1		17			0.86	100	1595	25	0.016		40	0.025	
1B	C	1	4.20				23			15 / 18	2155/2150	330	0.153	1	340	0.158	1
2A	A	1	3.10	1		19				100	1785	120	0.067		75	0.042	
2B	A	2	3.65								4240	200	0.047		165	0.039	
3A	B	1	3.50				25			52 / 48	2040/2045	385	0.189	1	290	0.142	
3B	B	1	3.70	1		17				100	1825	90	0.049		340	0.186	1
4A	A	1	3.60	1		17				100	1815	160	0.088	1	95	0.052	1
4B	A	1	3.60								2115	145	0.069		30	0.014	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	D		10	10	8	18				
6P	D		10	10	8	18				
7P	D		11	11	9	20				
8P	D		12	12	10	22		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

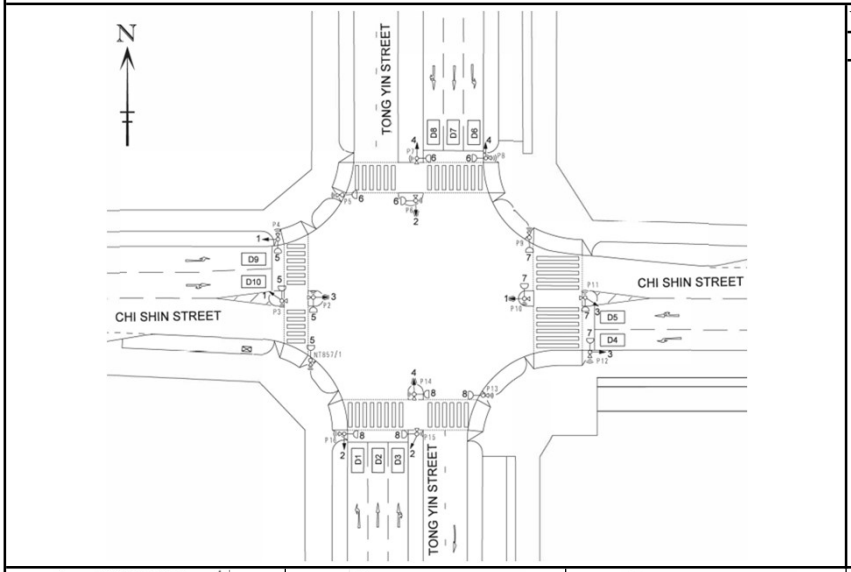
Check Critical Phase	4,3,1,8P	4,3,1,7P	4,3,1,6P	4,3,1,8P	4,3,1,7P	4,3,1,6P
Sum of y values, Y	0.430	0.430	0.430	0.397	0.397	0.397
Lost time, L	48	43	40	48	43	40
Cycle Time, C	110	110	110	110	110	110
Practical Y, Y_{pr}	0.507	0.548	0.573	0.507	0.548	0.573
Reserve Capacity, R.C. (%)	18%	27%	33%	28%	38%	44%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J3_SJ_2026_desCTIA_

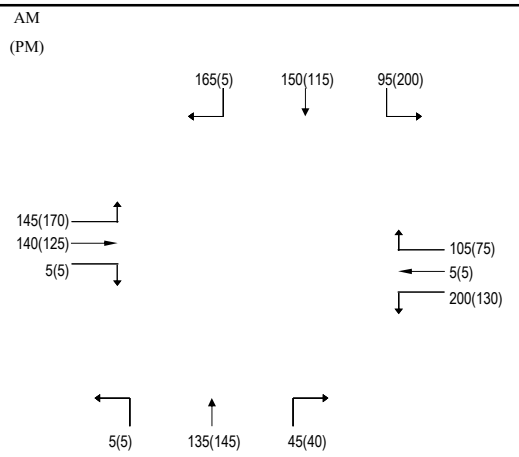
Traffic Signal Junction Calculation Sheet

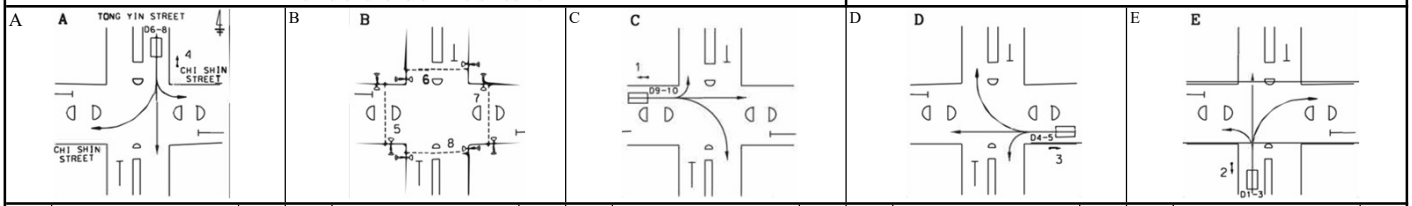
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O
Junction:	J4 Chi Shin Street / Tong Yin Street
Ref. No.:	J4_SJ_2026_
Scheme:	2026 Des (Construction Stage)
Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		5	5	21	0	2	5	5	2		6	2		5
2		5	7	18	1	2	5	5	2		6	2		5
2		5	1	22	0	2	5	5	2		6	2		5

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	C	1	3.60	1		17				100	1815	145	0.080	1	170	0.094	1
1B	C	1	3.60				23			3 / 4	2110	145	0.069		130	0.062	
2A	E	1	3.30	1		17			0.86	100	1530	5	0.003		5	0.003	
2B	E	1	3.30								2085	91	0.044	1	94	0.045	
2C	E	1	3.30				25			51 / 44	2025/2030	89	0.044		91	0.045	1
3A	D	1	3.40	1		17				100	1795	200	0.111	1	130	0.072	1
3B	D	1	3.90				36			95 / 94	2065	110	0.053		80	0.039	
4A	A	1	3.30	1		17				100	1785	95	0.053		200	0.112	1
4B	A	1	3.30								2085	150	0.072		60	0.029	
4C	A	1	3.30				23			100 / 8	1955/2075	165	0.084	1	60	0.029	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	B		10	10	8	18				
6P	B		13	13	9	22				
7P	B		9	9	7	16				
8P	B		12	12	9	21		1		1

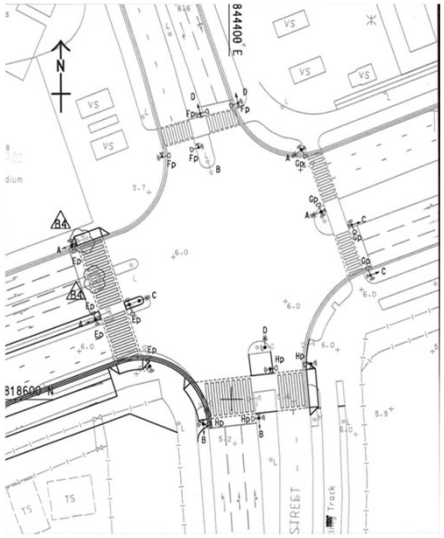
Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	4,8P,1,3,2	4,5P,1,3,2	4,6P,1,3,2	4,8P,1,3,2	4,5P,1,3,2	4,6P,1,3,2
Sum of y values, Y	0.320	0.320	0.320	0.323	0.323	0.323
Lost time, L	56	56	53	56	56	53
Cycle Time, C	100	100	100	110	110	110
Practical Y, Y_{pr}	0.396	0.396	0.423	0.442	0.442	0.466
Reserve Capacity, R.C. (%)	24%	24%	32%	37%	37%	44%

Calculated by:	Date: 五月-2021	Checked by:

Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O
Junction:	J5 Po Yap Road / Tong Yin Street
Ref. No.:	J5_SJ_2026_
Scheme:	2026 Des (without CKR / T2)
Ref. No.:	

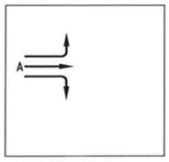
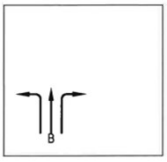
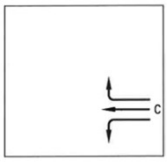
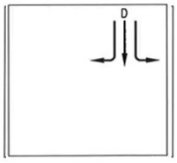
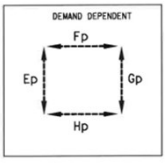


Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)

AM
(PM)

215(215) 5(5) 195(115)
210(200)
330(175)
140(360)
155(145)
230(150)
140(85)
190(245) 185(80) 5(60)

A	B	C	D	E
				
STAGE 1	STAGE 2	STAGE 3	STAGE 4	STAGE 5
2 3	2 5	2 3	2 3	13 28 0
2 3	2 5	2 3	2 3	11 27 1
2 3	2 5	2 3	2 3	6 25 0

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.80	1		15					1815	164	0.091	1	173	0.095	
1B	A	1	3.40			15				25 / 14	2045/2065	185	0.091		197	0.096	1
1C	A	1	3.50				20			0 / 98	2105/1960	191	0.091	1	187	0.096	
1D	A	1	3.80	1			20				1855	140	0.075		177	0.095	
2A	B	1	3.70			15					1930	124	0.064		128	0.066	
2B	B	1	3.70			15				51 / 90	2020/1950	130	0.064	1	129	0.066	
2C	B	1	3.70	1			20			4 / 47	1980/1915	127	0.064		127	0.066	1
3A	C	1	3.20			15				81 / 73	1920/1935	173	0.090		117	0.061	
3B	C	1	3.30	1							1945	175	0.090		118	0.061	
3C	C	1	3.50				20			87 / 100	1975/1960	178	0.090	1	145	0.074	1
4A	D	1	3.70	1		15	20			98 / 97	1810/1820	200	0.110	1	161	0.088	1
4B	D	1	3.70				20				1975	215	0.109		174	0.088	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	E		14	14	13	27				
6P	E		11	11	8	19				
7P	E		15	15	10	25				
8P	E		16	16	12	28		1		1

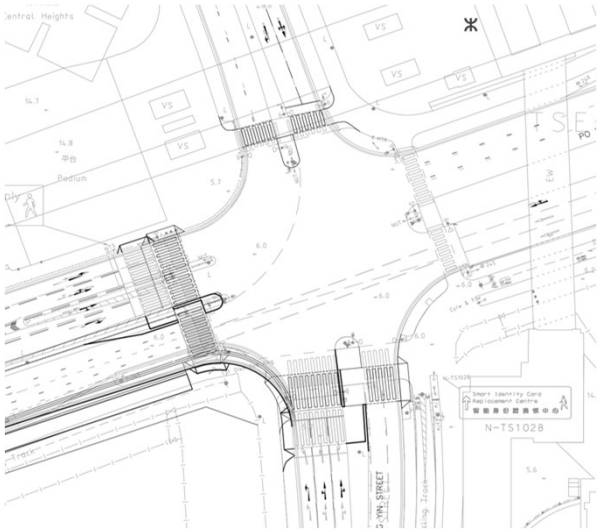
Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	1,2,3,4,8P	1,2,3,4,5P	1,2,3,4,7P	1,2,3,4,8P	1,2,3,4,5P	1,2,3,4,7P
Sum of y values, Y	0.355	0.355	0.355	0.324	0.324	0.324
Lost time, L	59	57	49	59	57	49
Cycle Time, C	120	120	120	105	105	105
Practical Y, Y_{pr}	0.458	0.473	0.533	0.394	0.411	0.480
Reserve Capacity, R.C. (%)	29%	33%	50%	22%	27%	48%

Calculated by:	Date: 五月-2021	Checked by:

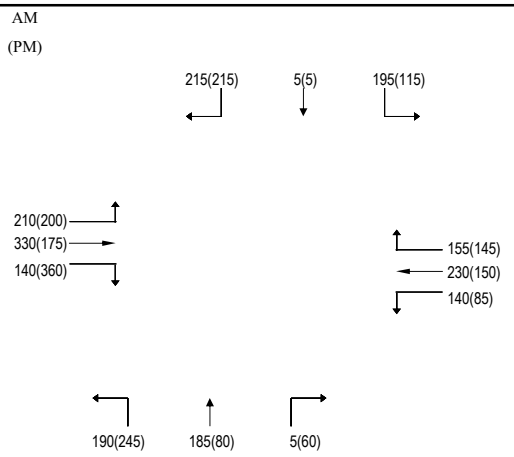
Traffic Signal Junction Calculation Sheet

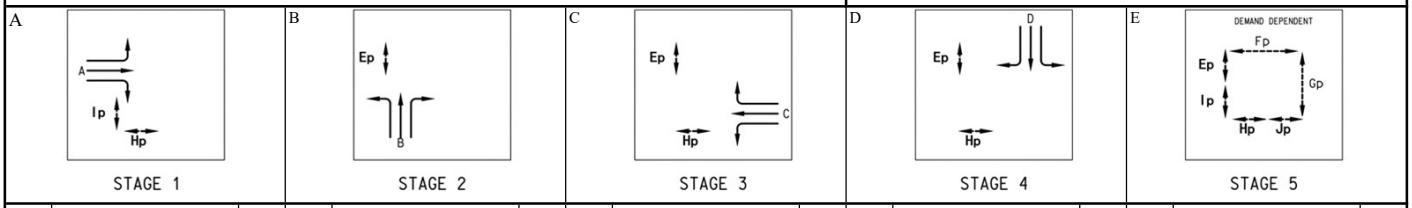
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J5 Po Yap Road / Tong Yin Street (with improvement scheme)	Ref. No.:	J5_SJ_2026_
Scheme:	2026 Des (without CKR / T2)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		3	2		5	2		3	2		3	6	25	0

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.80	1		15					1815	164	0.091	1	173	0.095	
1B	A	1	3.40			15				25 / 14	2045/2065	185	0.091		197	0.096	1
1C	A	1	3.50				20			0 / 98	2105/1960	191	0.091	1	187	0.096	
1D	A	1	3.80	1			20				1855	140	0.075		177	0.095	
2A	B	1	3.70			15					1930	124	0.064		128	0.066	
2B	B	1	3.70			15				51 / 90	2020/1950	130	0.064	1	129	0.066	
2C	B	1	3.70	1			20			4 / 47	1980/1915	127	0.064		127	0.066	1
3A	C	1	3.20			15				81 / 73	1920/1935	173	0.090		117	0.061	
3B	C	1	3.30	1							1945	175	0.090		118	0.061	
3C	C	1	3.50				20			87 / 100	1975/1960	178	0.090	1	145	0.074	1
4A	D	1	3.70	1		15	20			98 / 97	1810/1820	200	0.110	1	161	0.088	1
4B	D	1	3.70				20				1975	215	0.109		174	0.088	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	BCDE		5	5	13	18				
6P	E		11	11	8	19				
7P	E		15	15	10	25		1		1
8P	ACDE		5	5	12	17				
9P	AE		5	5	9	14				
10P	E		5	5	6	11				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	1,2,3,4,7P			1,2,3,4,7P		
Sum of y values, Y	0.355			0.324		
Lost time, L	49			49		
Cycle Time, C	120			105		
Practical Y, Y_{pr}	0.533			0.480		
Reserve Capacity, R.C. (%)	50%			48%		

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J5_SJ_2026_desCTIA_hv_impro

Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J6 Po Yap Road / Po Shun Road / Chui Ling Road / Future Road P2	Ref. No.:	J6_SJ_2026_
Scheme:	2026 Des (Construction Stage)	Ref. No.:	

Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)

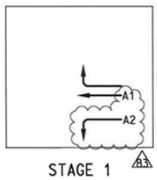
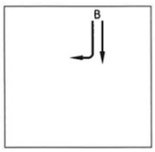
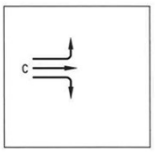
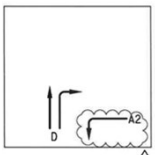
AM
(PM)

165(205) 865(610) 130(325)

90(70)
240(80)
505(470)

15(5)
125(150)
485(445)

600(605) 340(330)

A	B	C	D	E
				
STAGE 1	STAGE 2	STAGE 3	STAGE 4	

2		3	2		5	2		3	2		3			
		3	2		5	2		3			2			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A ←	A	1	3.50								2105	125	0.059	1	150	0.071	1
1B ↰	A	1	3.70				20			100	1975	15	0.008		5	0.003	
2A ↓	AD	2	3.50	1		15				100	3700	485	0.131		445	0.120	
3A ↓	B	2	3.65	1							4100	865	0.211	1	610	0.149	1
3B ↓	B	1	3.60				20			100	1965	165	0.084		205	0.104	
4A ↑→	C	1	3.60	1		15				33 / 47	1910/1885	273	0.143		150	0.080	
4B →↓	C	1	3.30				20			80 / 100	1965/1940	281	0.143	1	233	0.120	
4C →↓	C	1	3.60				20				1965	281	0.143		237	0.120	1
5A ↑	D	1	3.70	1							1985	307	0.155	1	306	0.154	
5B ↑→	D	1	3.70				20			10 / 8	2110	327	0.155		325	0.154	1
5C ↑→	D	1	3.70				20				1975	306	0.155	1	304	0.154	

Critical Ped. Phase	Stage	Width Across	Min. GM	Min. FGM	Lost Time	Note	Crit.	Note	Crit.

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	1,3,4,5	2,3,4		1,3,4,5	2,3,4	
Sum of y values, Y	0.568	0.485		0.495	0.389	
Lost time, L	18	14		18	14	
Cycle Time, C	127	217		124	214	
Practical Y, Y_{pr}	0.772	0.842		0.769	0.841	
Reserve Capacity, R.C. (%)	36%	74%		56%	116%	

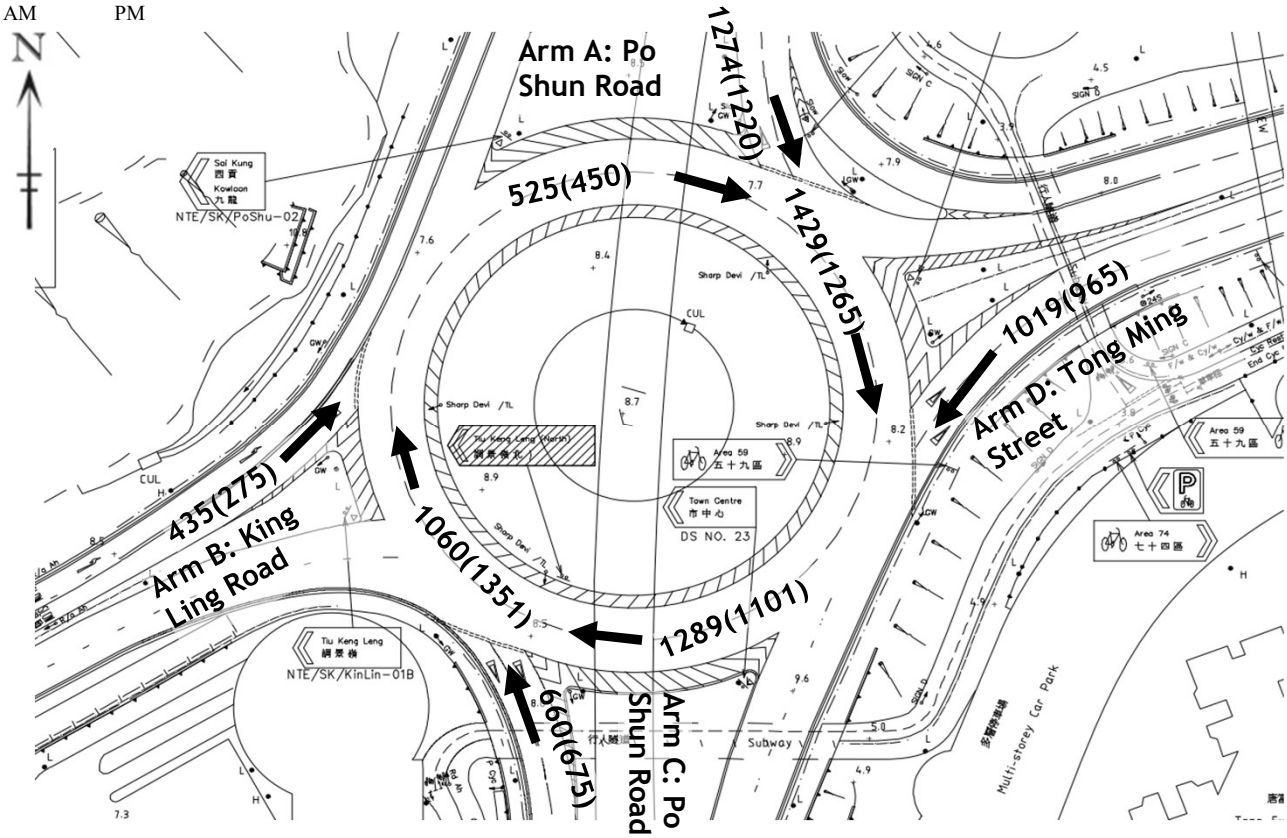
Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J6_SJ_2026_desCTIA_

Simplified Roundabout Capacity Calculation

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O				
Junction:	J7 Po Shun Road / Tong Ming Street / King Ling Road			Ref. No.:	J7_RA_2026_desCTIA_
Scheme:	2026 Des (Construction Stage)			Ref. No.:	
Year:	2020	Job No.:	J1598	Rev.:	-

AM PM



GEOMETRY

ARM	v	e	L	r	D	Phi	S
A	7.00	8.00	14.5	20	81.2	20	0.11
B	2.70	4.60	31.9	55.2	81.2	18	0.10
C	7.10	7.40	11.7	23	81.2	10	0.04
D	7.40	8.40	27.5	60	81.2	29	0.06

CALCULATIONS

							Q_E		DFC	
ARM	K	X_2	M	F	t_D	f_c	AM	PM	AM	PM
A	1.03	7.82	8.33	2369	1.05	0.57	2143	2187	0.59	0.56
B	1.07	4.30	8.33	1302	1.05	0.41	929	800	0.47	0.34
C	1.08	7.38	8.33	2235	1.05	0.55	1645	1756	0.40	0.38
D	1.04	8.30	8.33	2514	1.05	0.59	1733	1833	0.59	0.53

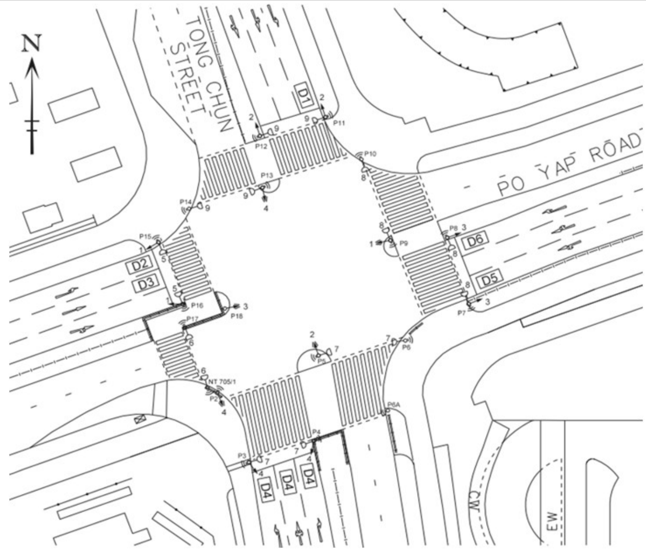
Critical Arm:	**A**	**A**
DFC:	**0.59**	**0.56**
	AM	**PM**

- In accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

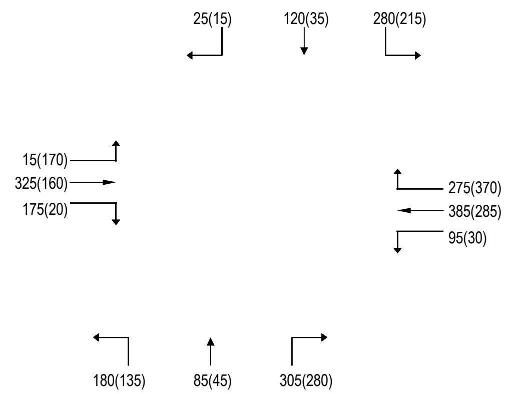
Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J8 Po Yap Road / Tong Chun Street	Ref. No.:	J8_SJ_2026_
Scheme:	2026 Des (Construction Stage)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)



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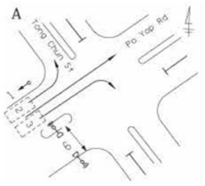

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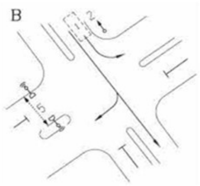

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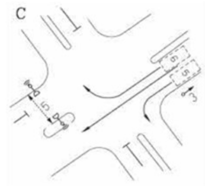

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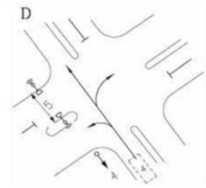

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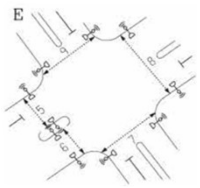

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2		5	2		5	2		6	2		6	4	16	0
2		5	2		5	2		6	2		6	0	16	0

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.30	1		17				100	1785	15	0.008		170	0.095	1
1B	A	1	3.30								2085	257	0.123	1	91	0.044	
1C	A	1	3.30				20			72 / 22	1980/2050	243	0.123		89	0.044	
2A	B	1	3.40	1		17					1795	135	0.075		104	0.058	
2B	B	1	3.40			17				100	1925	145	0.075	1	111	0.058	1
2C	B	1	3.50				26			17 / 30	2085/2070	145	0.070		50	0.024	
3A	C	1	3.30	1		17				40 / 13	1880/1920	240	0.128		224	0.117	1
3B	C	1	3.40				20			10 / 61	2080/2005	266	0.128		234	0.116	
3C	C	1	3.40				20				1950	249	0.128	1	227	0.117	
4A	D	1	3.60	1		16					1805	176	0.098		135	0.075	
4B	D	1	3.50			16	26			57 / 73	2035/2020	199	0.098	1	164	0.081	1
4C	D	1	3.50				26				1990	195	0.098		161	0.081	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	BCDE		5	5	11	16				
6P	E		5	5	7	12				
7P	E		5	5	11	16				
8P	E		5	5	11	16		1		1
9P	E		5	5	11	16				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%

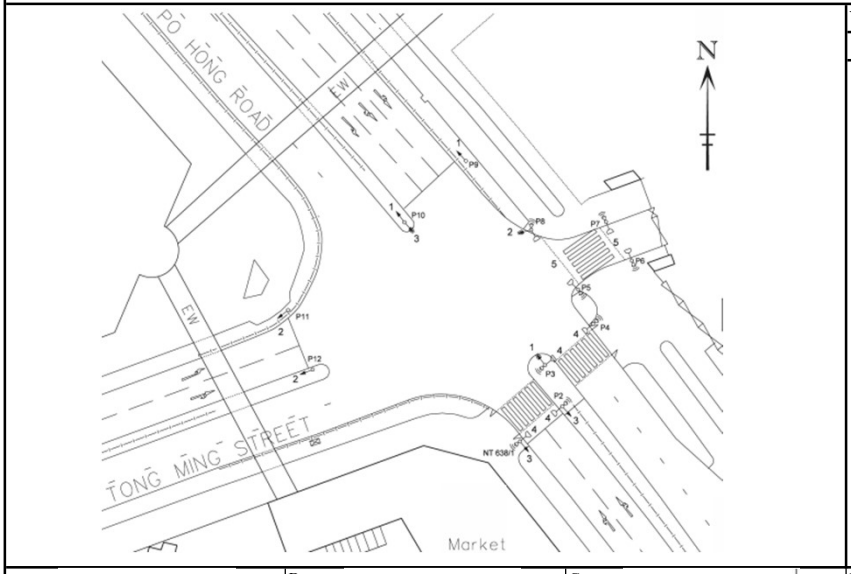
In accordance with TPDM - Volume 4.2.4

Check Critical Phase	1,2,3,4,8P	1,2,3,4,9P	1,2,3,4,7P	1,2,3,4,8P	1,2,3,4,9P	1,2,3,4,7P
Sum of y values, Y	0.424	0.424	0.424	0.351	0.351	0.351
Lost time, L	50	46	42	50	46	42
Cycle Time, C	125	125	125	125	125	125
Practical Y, Y_{pr}	0.540	0.569	0.598	0.540	0.569	0.598
Reserve Capacity, R.C. (%)	27%	34%	41%	54%	62%	70%

Calculated by:	Date: 五月-2021	Checked by:

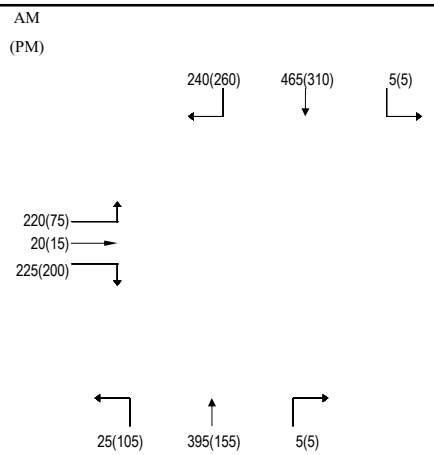
Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J9 Po Hong Road / Tong Ming Street	Ref. No.:	J9_SJ_2026_
Scheme:	2026 Des (Construction Stage)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)



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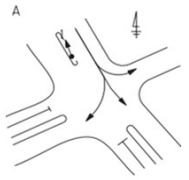

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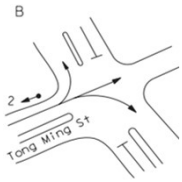

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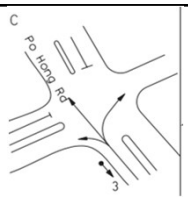

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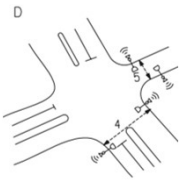


E

2		3	3		3	4		3	7	16	0			
2		3	3		3	4		3	2	20	0			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.40	1		15				2 / 3	1950	229	0.118		187	0.096	
1B	A	1	3.40				21			2 / 35	2090/2045	246	0.118	1	196	0.096	
1C	A	1	3.90				21				2000	235	0.117		192	0.096	1
2A	B	1	3.70	1		16				100	1815	220	0.121	1	75	0.041	
2B	B	1	3.60				32			92 / 93	2030/2025	245	0.121		215	0.106	1
3A	C	1	3.50	1		17				12 / 85	1945/1825	203	0.105	1	123	0.067	1
3B	C	1	3.70				11			2 / 4	2120/2115	222	0.105		142	0.067	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
4P	D		11	11	9	20				
5P	D		5	5	11	16		1		1

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

	AM Peak			PM Peak		
Check Critical Phase	1,2,3,5P	1,2,3,4P		1,2,3,5P	1,2,3,4P	
Sum of y values, Y	0.343	0.343		0.269	0.269	
Lost time, L	38	37		38	37	
Cycle Time, C	110	110		105	105	
Practical Y, Y_{pr}	0.589	0.597		0.574	0.583	
Reserve Capacity, R.C. (%)	72%	74%		113%	116%	

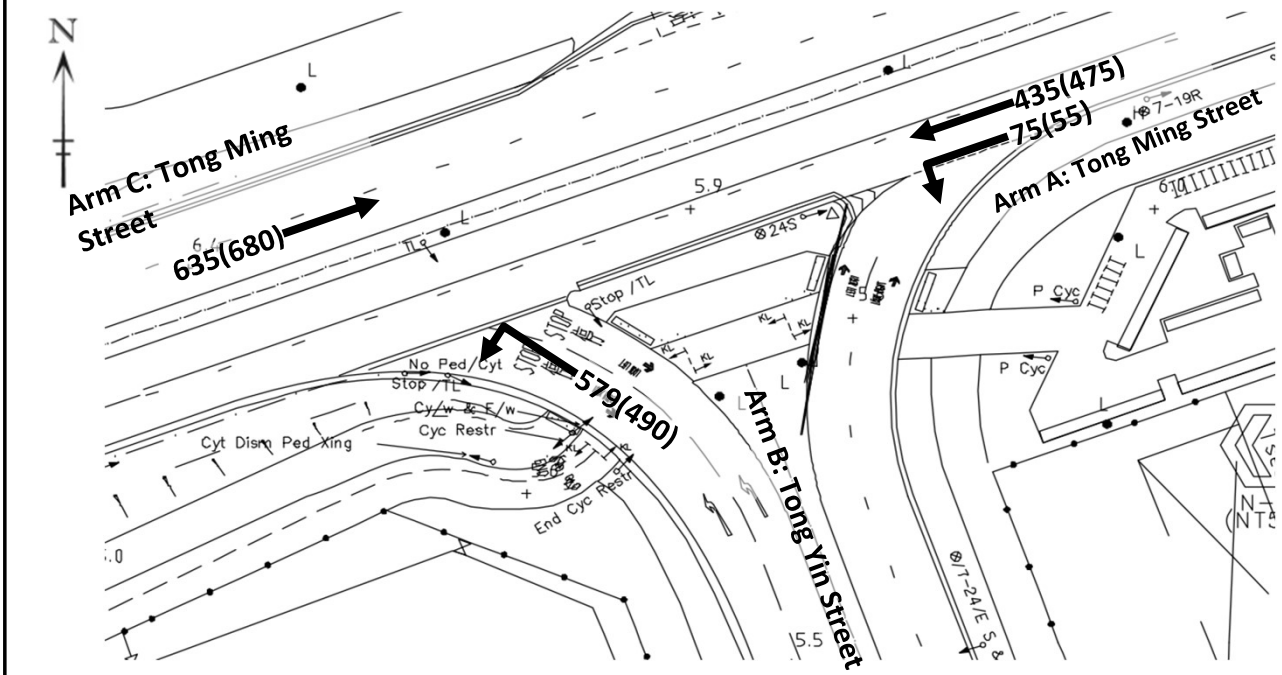
Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J9_SJ_2026_desCTIA_

Simplified Priority Junction Capacity Calculation Sheet

Job Title	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O			
Junction	J10 Tong Yin Street/Tong Ming Street		Ref No.:	J10_PJ_2026_d
Scheme	2026 Des (Construction Stage)		Ref No.:	
Year	2020	Job. No.: J1598	Rev.:	

AM(PM)



Geometry					
Major road width	**W**	7.4	**Lane widths**	w(b-a)	0.00
Central Reserve width	W_{cr}	0		w(b-c)	7.80
2 Lane Minor Arm (Y/N)		Y		w(c-b)	0.00
Visibilities	$V_{r(B-A)}$	0	**Calculated**	D	0.53
	$V_{l(B-A)}$	0		E	1.34
	$V_{r(B-C)}$	80		F	0.59
	$V_{r(C-B)}$	0		Y	0.74

Analysis			**Peak Hour**	
			AM	PM
Traffic Flows	$q_{(C-A)}$		635	680
	$q_{(C-B)}$		0	0
	$q_{(A-B)}$		75	55
	$q_{(A-C)}$		435	475
	$q_{(B-A)}$		0	0
	$q_{(B-C)}$		579	490
Proportion of minor traffic left-turn	**f**		1.00	1.00
		Factor		
Capacities	$Q_{(B-A)}$	1	209	201
	$Q_{(B-C)}$	1	830	818
	$Q_{(C-B)}$	1	356	352
	$Q_{(B-AC)}$	1	0	0
DFC	**B-A**		0.00	0.00
	B-C		0.70	0.60
	C-B		0.00	0.00
	B-AC		0.00	0.00
Worst DFC			**0.70**	**0.60**

Where Vl and Vr are visibility distances to the left or right of the respective streams

D = (1+0.094(w(b-a)-3.65))(1+0.0009(Vr(b-a)-120))(1+0.0006(Vl(b-a)-150))

E = (1+0.094(w(b-c)-3.65))(1+0.0009(Vr(b-c)-120))

F = (1+0.094(w(c-b)-3.65))(1+0.0009(Vr(c-b)-120))

Y = 1-0.0345W

f = proportion of minor traffic turning left

Q (b-ac) = Q(b-c)*Q(b-a)/(1-f)*Q(b-c)+f*Q(b-a)

T.P.D.M.V.2.4

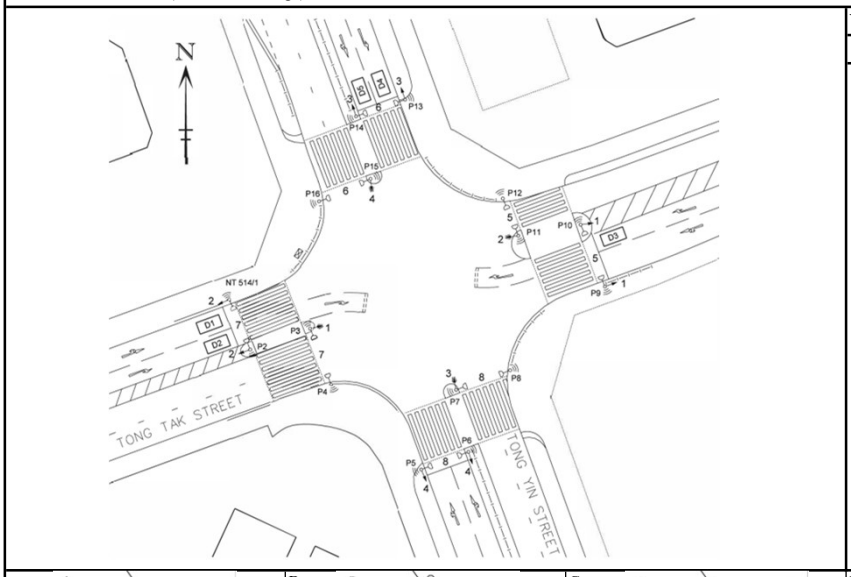
Appendix 1

Capacity of combined streams
- in accordance with TPDM V2.4

Calculated by:	Date: 五月-21	Checked by:

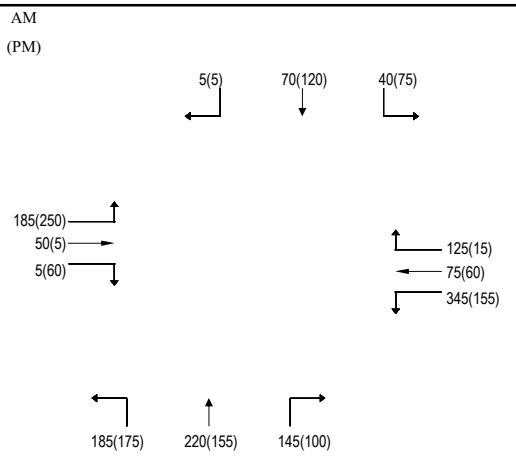
Traffic Signal Junction Calculation Sheet

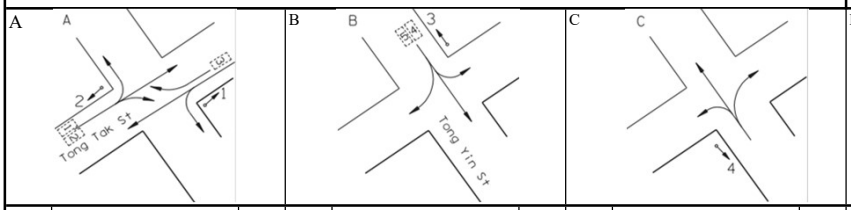
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J11 Tong Yin Street/Tong Tak Street	Ref. No.:	J11_SJ_2026
Scheme:	2026 Des (Construction Stage)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





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2		5	2	5	6	2		3	7	20	1			
2		5	2	5	6	2		3	8	19	0			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	4.30	1		17				82 / 72	1905/1925	420	0.220	1	215	0.112	
1B	A	1	3.20		1		24			100	1735	125	0.072		15	0.009	
2A	A	1	3.70	1		16				79 / 98	1850/1820	235	0.127		255	0.140	1
2B	A	1	3.20		1		24			100	1735	5	0.003		60	0.035	
3A	B	1	3.80	1		18				100	1840	40	0.022		75	0.041	
3B	B	1	3.20				25			7 / 4	2065/2070	75	0.036	1	125	0.060	1
4A	C	1	4.00	1		13				70 / 85	1865/1835	266	0.143		206	0.112	1
4B	C	1	3.00				24			51 / 45	1990/2000	284	0.143	1	224	0.112	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	D		12	12	10	22		1		1
6P	D		9	9	10	19				
7P	D		10	10	10	20				
8P	D		10	10	10	20				

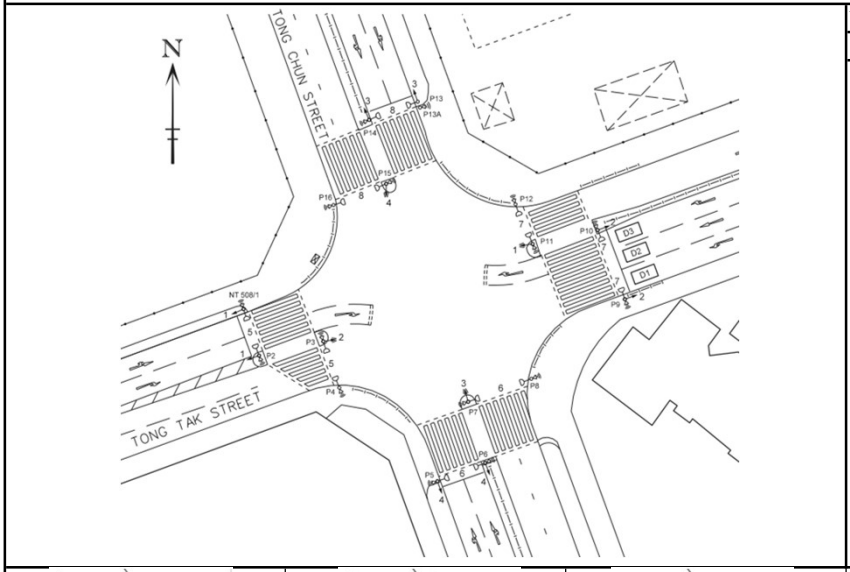
Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	1,3,4,5P	1,3,4,7P	1,3,4,6P	1,3,4,5P	1,3,4,7P	1,3,4,6P
Sum of y values, Y	0.400	0.400	0.400	0.313	0.313	0.313
Lost time, L	56	50	49	56	50	49
Cycle Time, C	127	127	127	124	124	124
Practical Y, Y_{pr}	0.503	0.546	0.553	0.494	0.537	0.544
Reserve Capacity, R.C. (%)	26%	37%	38%	58%	72%	74%

Calculated by:	Date: 五月-2021	Checked by:

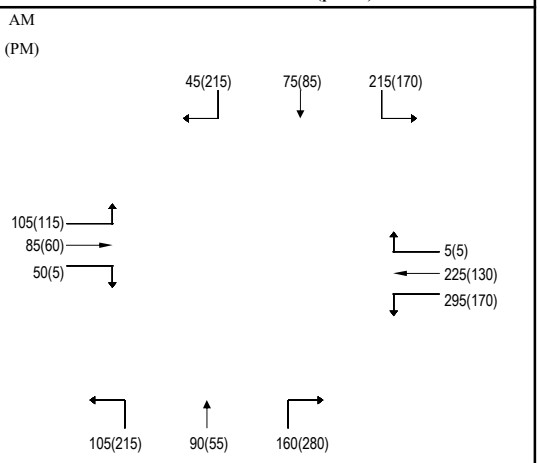
Traffic Signal Junction Calculation Sheet

Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J12 Tong Tak Street/Tong Chun Street	Ref. No.:	J12_SJ_2026
Scheme:	2026 Des (Construction Stage)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)



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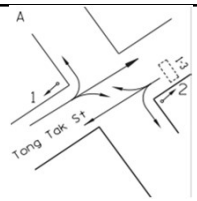

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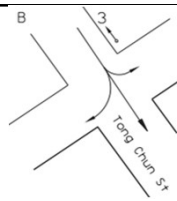

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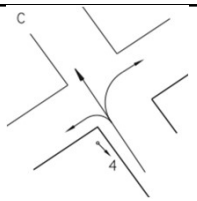

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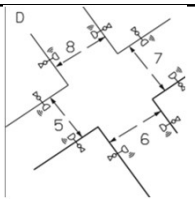

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2		11	2		5	2		4	10	25	2			
2		11	2		5	2		4	7	18	2			
2		11	2		5	2		4	7	18	0			

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.60	1		15				55 / 66	1870/1855	190	0.102		175	0.094	1
1B	A	1	3.20		1		29			100	1755	50	0.028		5	0.003	
2A	A	1	4.00	1		17				100	1850	295	0.159	1	170	0.092	
2B	A	1	3.50								2105	225	0.107		130	0.062	
2C	A	1	3.70		1		24			100	1785	5	0.003		5	0.003	
3A	B	1	3.60	1		17				100 / 76	1815/1850	215	0.118	1	223	0.121	1
3B	B	1	4.00				24			38 / 87	2105/2045	120	0.057		247	0.121	
4A	C	1	3.60	1		18				61 / 81	1880/1850	172	0.091		265	0.143	1
4B	C	1	3.60				24			87 / 98	2005/1995	183	0.091	1	285	0.143	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	D		9	9	9	18				
6P	D		10	10	10	20				
7P	D		12	12	13	25		1		1
8P	D		9	9	9	18				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

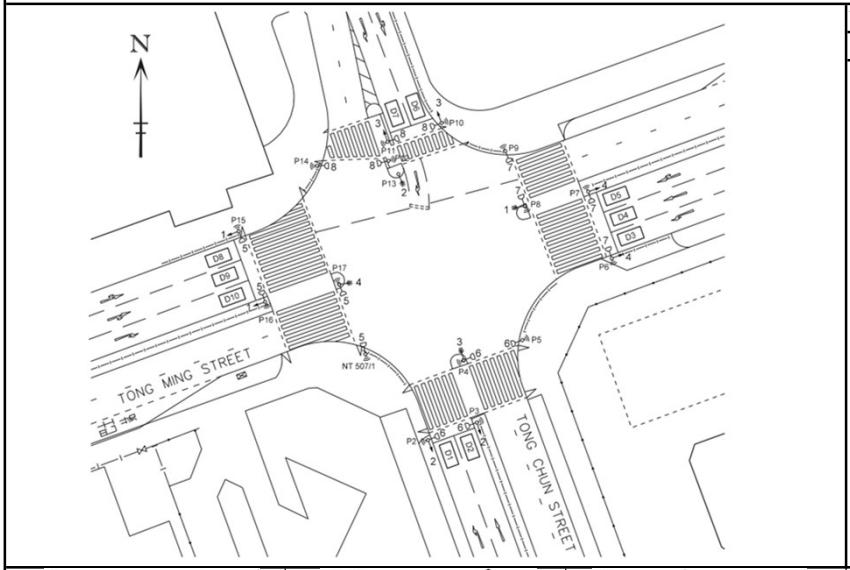
Check Critical Phase	2,3,4,7P	2,3,4,5P	2,3,4,8P	2,3,4,7P	2,3,4,5P	2,3,4,8P
Sum of y values, Y	0.369	0.369	0.369	0.358	0.358	0.358
Lost time, L	60	50	48	60	50	48
Cycle Time, C	125	125	125	125	125	125
Practical Y, Y_{pr}	0.468	0.540	0.554	0.468	0.540	0.554
Reserve Capacity, R.C. (%)	27%	46%	50%	31%	51%	55%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J12_SJ_2026_desCTIA_

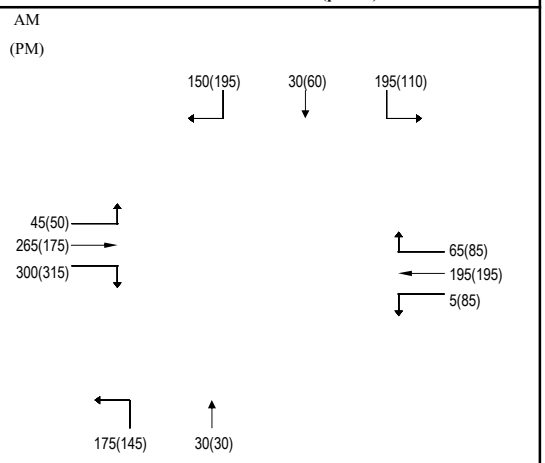
Traffic Signal Junction Calculation Sheet

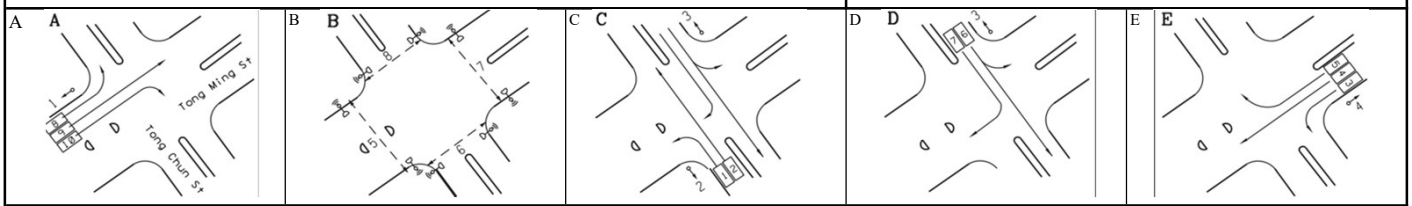
Job Title:	Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O		
Junction:	J13 Tong Ming Street/Tong Chun Street	Ref. No.:	J13_SJ_2026
Scheme:	2026 Des (Construction Stage)	Ref. No.:	



Year:	2020	Job No.:	J1598	Rev.:	-

Peak Hour Traffic Flows (pcu/hr)





2		3	9	22		0	2					3	3			6	
2		3	11	18		1	2					3	3			6	
2		3	6	22		1	2					3	3			6	

Approach / Phase	Stage	Lane No.	Wide (m)	No. Near	No. Oppo	Rad. L(m)	Rad. R(m)	Grad. (%)	Site Fact.	Turning Pro. (f)	Saturation Flow (pcu/hr)	AM Peak Flow	AM Peak y	AM Peak Crit.	PM Peak Flow	PM Peak y	PM Peak Crit.
1A	A	1	3.50	1		20				23 / 28	1930/1925	198	0.102	1	176	0.091	
1B	A	1	3.50				24			46 / 73	2045/2015	209	0.102		184	0.091	
1C	A	1	3.50				24				1980	203	0.102		181	0.091	1
2A	C	1	3.60	1		17				100	1815	175	0.096		145	0.080	
2B	C	1	3.70								2125	30	0.014		30	0.014	
3A	CD	1	3.20	1		17				87 / 65	1800/1830	225	0.125	1	170	0.093	
3B	CD	1	3.40		1		15			100	1695	150	0.088		195	0.115	1
4A	E	1	3.50	1		17				100	1805	5	0.003		85	0.047	
4B	E	1	3.50								2105	132	0.063		143	0.068	1
4C	E	1	3.50				23			51 / 62	2035/2025	128	0.063	1	137	0.068	

Critical Ped. Phase	Stage	Width Across	Min. GM		Min. FGM	Lost Time	Note	Crit.	Note	Crit.
5P	B		14	14	12	26				
6P	B		10	10	8	18				
7P	B		12	12	10	22		1		1
8P	B		12	12	10	22				

Nearside Lane:	1940 + 100 x (W - 3.25)
Other Lanes:	2080 + 100 x (W - 3.25)
Gradient & Radius:	-42 x (gradient in %)
Opposed Traffic	-230
Turning Proportion:	x 1 / (1 + 1.5 f /R)
Practical Y (Y_{pr}):	0.9 x (1 - L/C)
Reserve Capacity (RC):	(Y_{pr} /Y - 1) x 100%
In accordance with TPDM - Volume 4.2.4	

Check Critical Phase	1,7P,3,4	1,6P,3,4	1,8P,3,4	1,7P,3,4	1,6P,3,4	1,8P,3,4
Sum of y values, Y	0.290	0.290	0.290	0.274	0.274	0.274
Lost time, L	47	46	45	47	46	45
Cycle Time, C	125	125	125	125	125	125
Practical Y, Y_{pr}	0.562	0.569	0.576	0.562	0.569	0.576
Reserve Capacity, R.C. (%)	93%	96%	98%	105%	107%	110%

Calculated by:	Date: 五月-2021	Checked by:

Y:\Job\J1598_P5595_TKO Area 66 CP_TL_WS\04-Working\04D-Flows\[J1598-junction_assessment-20210518.xlsm]J13_SJ_2026_desCTIA_

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PlanArch Consultants Ltd.
建港規劃顧問有限公司

RECEIVED
2021 DEC 20 A 10: 13
TOWN PLANNING BOARD

TPB Ref.: A/TKO/125
Our Ref.: pa/tko/2010620

By Hand and Email

Secretary
Town Planning Board
15/F., North Point Government Offices
No. 333, Java Road
North Point, Hong Kong
(Attn.: Mr. Raymond KAN)

17 November 2021

Dear Sir,

S16 Application for Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O

We refer to the captioned S.16 application submitted on 29 July 2021. Subsequent departmental comments received from the Environmental Protection Department (EPD) and enquiry from the Planning Department (PlanD).

In response to EPD's comments, enclosed please find eight copies of the response to departmental comments for your consideration.

Regarding PlanD's enquiry, we would like to provide the following clarifications for your consideration:

Public Consultation

Public views on the proposed underground PVP have been sought and properly addressed. The Transport Department (TD), Leisure and Cultural Services Department, Architectural Services Department and Sai Kung District Office have jointly organised a public consultation/ forum on 11.12.2018 to collect the views of various residential developments in Tseung Kwan O. A total of 51 participants, including District Council (DC) members, members of the Tseung Kwan O (South) Area Committee and resident's representatives

town planning • land development • public engagement • project management

attended the meeting. In response to the request of the resident's representatives after the meeting, TD arranged another meeting with the representatives of 11 residential developments on 2.1.2019 to further discuss the PVP proposal. Subsequently, TD has reported to and consulted the SKDC on 24.1.2019, 5.3.2019 and 4.5.2021, on the public views, the proposal and its planning intension. Major concerns on the environmental and traffic impact were well-addressed by the technical assessments and no adverse impact is anticipated.

Management and Maintenance

The proposed PVP together with the planned Public Open Space (POS) at Area 66 will be developed jointly. The POS will be handed over to the Leisure and Cultural Services Department (LCSD) for management and maintenance. Both PVP and POS will open to the public 24 hours daily upon completion.

The application and construction of the PVP, and commenting on Traffic Impact Assessment (TIA)/ discharging approval condition on the design and provision of PVP are under purview by two individual divisions of TD. Parking project task force of Strategic Studies Division, Planning Branch, TD is responsible for the application and construction of the PVP, while Housing and Planning Section of Traffic Engineering (NTE) Division, NT Regional Office, TD is responsible to comment on the Traffic Impact Assessment (TIA)/ discharging approval condition on the design and provision of PVP upon receipt of design circulation from the PlanD/ Town Planning Board.

Parking Demand in Tseung Kwan O

In view of the parking demand in Tsueng Kwan O, the TD considered it appropriate to provide about 395 nos. of vehicle parking spaces at the application site after reviewing the need for vehicle parking facilities in the district. The shortage of car parking spaces can be addressed by the planned developments including the Joint-user Government Office Building (JUB) with over 300 nos. of parking spaces which was targeted to complete in 2025. Due to security reason, no PVP will be provided at the Immigration Headquarters. Public car park will also be provided at the planned Joint-user Complex (JUC) at Area 67 which is currently under study and the no. of public carpark provision is under review. In addition, the applicant will liaise with the Lands Department to identify any potential site(s) as far as practicable for providing temporary car park(s) during the construction stage of the Project. Thus, the parking needs in the district will be addressed.

Design of Underground PVP

With the need to accommodate all 395 nos. of vehicle parking spaces, 2 basement floors for PVP are proposed within the application site. The underground PVP with currently proposed development parameters is an optimized design with careful consideration on the cost-effectiveness, site constraints and balancing the car parking space demand and road capacity, as well as to meet the community needs for PVP and open space in appropriate development programme timeframe.

The number of car parking space in the proposed scheme is less than the existing open-air STT carpark due to the difference in design of a permanent underground PVP from an open-air STT carpark. Design of permanent underground PVP should comply with prevailing statutory regulations and standards. For example, space should be allowed for construction of staircases, lifts, E&M plant rooms, ramps to access the underground PVP, etc.

Electric vehicle charging facilities will be provided in the proposed PVP in compliance to the prevailing requirements and guidelines.

The application of Automated Parking System ("APS") in the project "Town Park with Public Vehicle Park in Area 66, Tseung Kwan O" had been considered and the findings are as follows:

a) APS for commercial vehicles is not yet available in the market; and

b) Current underground PVP design layout could well accommodate required numbers of commercial and non-commercial vehicles.

We thus consider that it would be a suitable solution to adopt conventional carpark in the Project. Please note that the application of APS in PVP is not a mandatory requirement and should be assessed case by case based on its merits and demerits.

Town Park in Area 66 and Area 68

We would like to clarify that the site coverage of the proposed development with 11 nos. of structures for the underground PVP will have no more than 4%. Nevertheless, this does not include the requirement for noise mitigation measures for the vehicular ramp, which will be examined at detail design stage.

As the project will be procured by "design & build contract", detailed design of the Town Park will be carried out by the contractor's designer after contract is awarded. Public consultation on the design of Town Park will be further carried out. Thus, design of the Town Park and Site Coverage for Town Park facilities will be finalized in detailed design stage.

Regarding Town Park in Area 68 situated to the immediate south of the application site, the project "Town Park in Area 68, Tseung Kwan O" is expected to commence in early 2022 for target completion in about two and a half years.

The above information serves as a response to comments of relevant Government Departments under the Section 5(c) of the TPB Guideline No. 32, and we would like to seek an exemption from publication and recounting requirement. In case you decide that the above information is accepted but not exempted from publication and recounting requirement, we would like to proceed with the application with the further information.

Should you have any questions, please feel free to contact the undersigned.

Thank you for your kind attention.

Yours faithfully,
For and on behalf of
PlanArch Consultants Ltd.

Betty S. F. Ho
w/e.
c.c. Client

Mr. Anthony Cheung	DPO/SKIs	Email: amkcheung@pland.gov.hk
Mr. Tommy Chan	DPO/SKIs	Email: tcychan@pland.gov.hk

S16 Application for Proposed Underground Public Vehicle Park (excluding container vehicle) in Town Park in Area 66, Tseung Kwan O (A/TKO/125)

Response to Departmental Comments

Transport Department
The Government of the Hong Kong Special Administrative Region

PlanArch Consultants Ltd.
HoWang SPB Ltd.
SCENIC Landscape Studio Limited
BeeXergy Consulting Limited

December 2021

	Comments	Responses
A	**Environmental Protection Department (Comments received on 7.12.2021)**	
a.	**SIA** We have no comment from sewerage planning perspective	Noted.
b.	**PER** Air Quality We have no comment from air quality perspective.	Noted.
c.	Noise (General Comments) As we have previously commented, give a) the proximity of the nearby NSRs with direct line-of-sight to the ingress/egress/ramp; b) steep gradient (1:10) of the ramp; and c) the need for frequent start/stop of heavy vehicles including coaches, light buses and light goods vehicles entering/leaving the underground vehicle park, the noise nuisance from the ingress/egress/ramp would be a concern and we suggested that effective mitigation measures such as enclosure above the ramp should be proposed. There are major defects in the approach adopted in S.3.4.16-S.3.4.23 which attempted to address the noise from ingress/egress/ramp. Noise at the entrance of a car park (with private car only) with no steep ramp was measured and argue that noise from the proposed ingress/egress/ramp is acceptable. The	The proposed development under the current planning application is only a schematic design. Upon approval of the S16 application, detail design will be carried out and an updated noise impact assessment will be submitted to the satisfaction of the EPD to fulfill the approval condition. Semi-enclosure cover will be erected along the ramp at the ingress/egress to mitigate noise nuisance to nearby NSRs (i.e. Royal Diamond, Star Diamond and Luna Diamond of The Wings II). This will ensure no direct line-of-sight between the proposed ingress/egress/ramp and nearby NSRs in accordance with S.4.2.14 and S.4.2.15 of HKPSG Chapter 9.

	Comments	Responses
	point regarding heavy vehicles and ramp are not taken into account, not to mention that those heavy vehicles (e.g. coaches) in the proposed PVP would likely need to depart during early morning (i.e. need to go up the ramp in early morning causing noise nuisance). Noise nuisance from the ingress/egress/ramp should be addressed in accordance with S.4.2.14 and S.4.2.15 of HKPSG Chapter 9. Effective mitigation measures (e.g. semi-enclosure such that there is no direct line-of-sight between the proposed ingree/egress/ramp and nearby NSRs namely Royal Diamond, Star Diamond and Luna Diamond of the Wings II) should be proposed.	
d.	<u>Noise (Technical Comments)</u> R-t-C item (t) – the consultant did not address our comment. Please provide the TD's endorsement on the methodology of traffic forecast.	
e.	S.3.4.19 and S.3.4.24 to S.3.4.25 – Please provide the percentage of heavy vehicle and veh/hr instead of pcu/hr for the road traffic noise impact assessment. The calculation of basic noise level should take into account the correction of percentage of heavy vehicle.	
f.	In addition, please remove redundant sections from S.3.4.26 to S.3.4.28 since the assessment in S.3.4.25 has shown the increase in traffic noise levels would be below dB(A).	Redundant sections from S.3.4.26 to S.3.4.28 have been removed. Please refer to the revised pages of PER (**Appendix I**).

	Comments	Responses
g.	S.3.4.22 – The separation distance between the entrance of the PVP and NSR should be less than 41m. Please use a drawing to label the separation distance.	Separation distance between the entrance of the PVP and NSR 5 has been indicated in Figure 7 (**Appendix I**).
h.	Noise (Textual Comments) Figure 4 – Please provide the legends for noise sensitive receivers and noise monitoring stations.	Legends for noise sensitive receivers and noise monitoring stations have been provided in Figure 4 (**Appendix I**).
i.	Appendix 4 – Please revise the column name "distance attenuation" to read as "distance attenuation and façade correction".	Noted. Respective column name has been revised. Please refer to the revised pages of PER (**Appendix I**).
j.	Water Quality S.4.4 – Please seek for comments from DSD on issues related to drainage impact assessment.	Noted. DSD had no further comments for the submitted DIA.
k.	Waste Management We have no comment from waste management perspective.	Noted.

Tables:

Figure:

Appendix:

generated by the PVP. The summary of measurement data recorded are given in **Table 3.8**. Details of the measurement and photos taken during the noise monitoring are given in **Appendix 5**.

Table 3.8: Noise Measurement at TKO Spot Car Park

Location	Date	Time	Distance from the Center of Vehicle Entrance, m	Leq, dB(A)	L10, dB(A)	L90, dB(A)
TKO Spot Car Park	18 June 2021	9:07am – 9:37am	4	62.9	65.9	57.6

3.4.19 During the measurement at TKO Spot Car Park A, a total of 59 vehicles entering and leaving the carpark was recorded within the 30 minutes measurement period. The vehicles were private cars. As private car has a pcu of 1, the traffic entering and leaving the carpark would be equivalent to 59pcu/30mins, or 108pcu/hr.

3.4.20 The prediction of the trip generation of the proposed PVP according to the Table 4.6 of the TIA submitted in separate cover for the application are 67pcu/hr and 92pcu/hr for AM and PM respectively. Considering the worst case scenario, 92pcu/hr of traffic during the PM peak hours would similar to the traffic flow at TKO Car Park A and hence the noise generated at the entrance of the PVP would therefore considered to be similar.

3.4.21 As such, the noise generated by the ingress/egress traffic at the entrance of the PVP is 61.4dB(A) at a measurement distance of 4m. As such SWL of the vehicle entrance of PVP due to ingress / egress traffic is calculated to be 81.4dB(A).

3.4.22 The nearest NSR from the entrance of the PVP is NSR 5 with separation distance of 41m as shown in **Figure 7**. As such, operational noise impact at NSR 5 due to the noise generated at the entrance due to ingress / egress traffic is predicted to be 44.2dB(A). Detailed calculation had been given in **Appendix 5**.

3.4.23 Regarding the operational noise generated by the ingress/egress traffic as a fixed noise source, the operational noise impact at NSR 5 due to the noise generated at the entrance should comply with the noise criteria of ANL-5dB(A) as discussed in **Section 3.4.4** and **Table 3.6**. As the predicted operation noise level generated at the NSR is 44.2dB(A) which is below 50dB(A),the night-time ANL-5dB(A), noise impact due to ingress / egress of traffic at the entrance of the PVP would be acceptable.

Road Traffic Noise Impact Assessment

3.4.24 The prediction of the trip generation of the proposed PVP according to the Table 4.6 of the TIA submitted in separate cover for the application are 67pcu/hr and 92pcu/hr for AM and PM respectively. As such, compared to the existing scenario, about 9.8% and 19.6% of increase in traffic is anticipated for AM and PM peak hours respectively.

3.4.25 The maximum increment of total flow after project completion is 19.6% according to the TIA Report. By using the CRTN equation given as follows, the increment of the traffic would generate additional traffic noise of 0.78dB(A).

$$Basic\ noise\ level\ L_{10}(1-hour) = 42.2 + 10Log_{10}Q \quad dB(A)$$

3.4.26 Under the existing scenario, road traffic noise impact at NSR A is 70.7dB(A) and 71.5dB(A) for AM and PM peak hour respectively, which exceeded 70dB(A), the noise standard of road traffic noise of HKPSG. Details of the measurement and photos taken during the noise monitoring are given in **Appendix 6**. As the increment of traffic noise due to the increased traffic attracted by the PVP is below 1dB(A), this insignificant increment of operational traffic noise would not lead to a significant road traffic noise impact to the NSR nearby.

3.4.27 Under the existing scenario, road traffic noise impact at NSR B is 67.4dB(A) and 66.6dB(A) for AM and PM peak hour respectively, which is comply with the standard the noise standard of road traffic noise of HKPSG. Details of the measurement and photos taken during the noise monitoring are given in **Appendix 6**. Road traffic noise impact at NSR after project completion will be also comply with the standard the noise standard of road traffic noise of HKPSG. As such, significant road traffic noise impact is not anticipated due to the increment of traffic flow.

3.4.28 As such the PVP would not generate significant noise impact compared to the nearby roads.

3.5 Operational Phase Noise Impact Assessment on Noise Impact to the Project

3.5.1 As there is no noise sensitive receiver within the project site, no noise impact to the project is identified.

3.6 Conclusion

3.6.1 During construction phase, noise generated by construction works would be controlled by the relevant ProPECC Note and NCO. With the mitigation measures implemented, excessive noise impact at the NSRs would not be anticipated.

3.6.2 During operational phase, operational noise impact generated by the fixed plant noise at the ventilation louver, ingress / egress noise, and traffic noise had been evaluated. The operational noise generated by the fixed plant will be controlled by ensuring the ventilation equipment would not generate noise level above the allowable SWL developed. The noise generated by ingress /egress are considered to be acceptable. Traffic noise impact at the NSRs at Chi Shin Road already exceeded the traffic noise criteria of 70dB(A), but the noise increment would not exceed 1dB(A) and as such the traffic noise impact is considered insignificant. Excessive noise impact during operational phase is also not anticipated. Semi-enclosure cover will be erected along the ramp at the ingress/ egress to mitigate noise nuisance to nearby NSRs (i.e. Royal Diamond, Star Diamond and Luna Diamond of The Wings II).

3.6.3 Consider the noise impact during construction phase and operational phase can be properly controlled, it is anticipated that no significant residual noise impact would be generated by the Project.

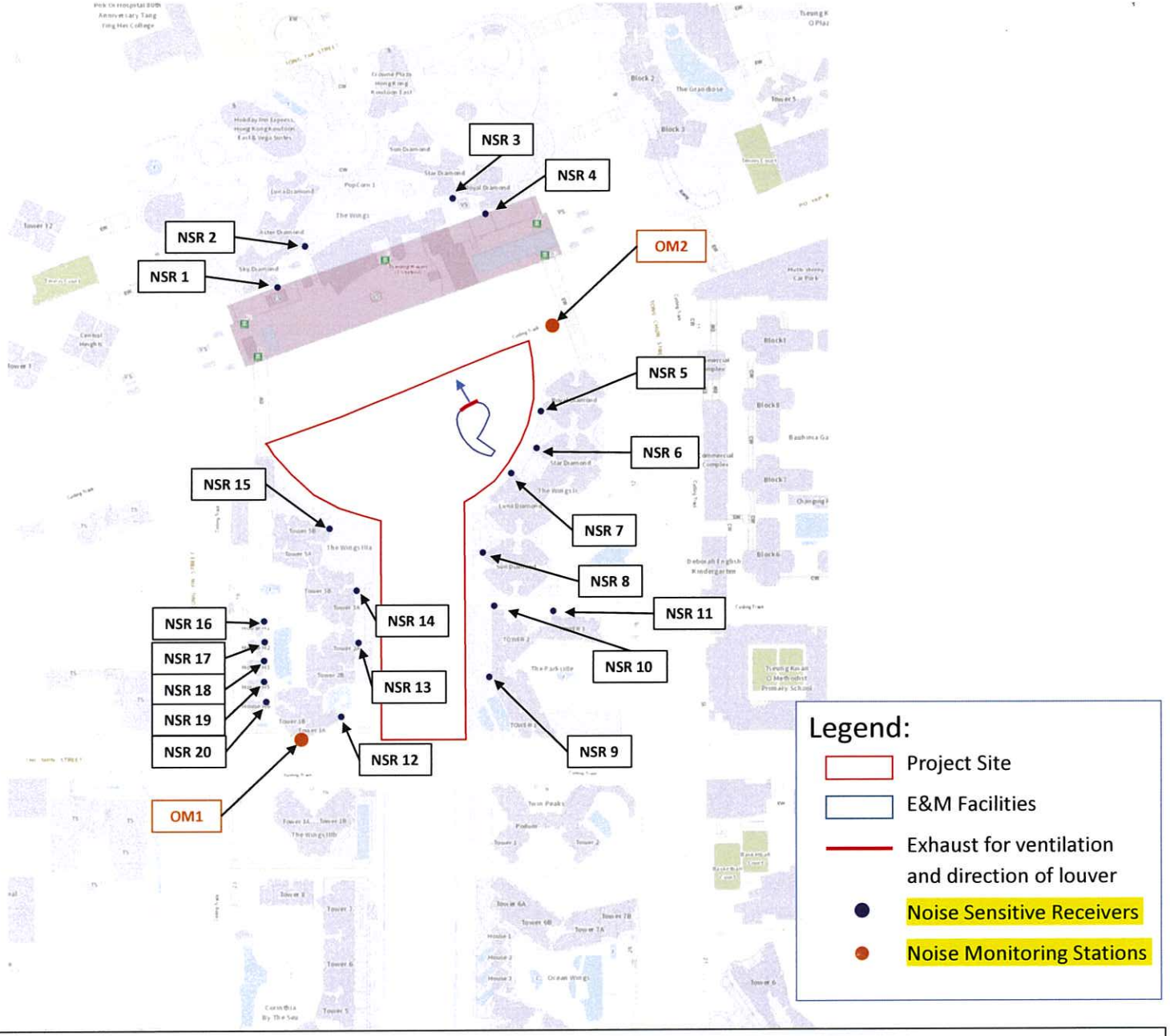

Figure 4: The Location of the Noise Sensitive Receivers and Monitoring Locations

Figure 7: Distance Between NSR 5 and the Entrance of PVP

Appendix 4

Maximum Allowable SWL at the Ventilation Louver

NSR	Name	Area Sensitive Ratings (ASR)	ANL - 5, dB(A) (A)		Distance from the Exhaust Outlet at Ground Level E&M Room, m (B)	Distance Attenuation and Façade Correction, dB(A) (C) = -20 log(B) -8 +3	Allowable SWL, dB(A) (A) - (C)	
			Daytime	Nighttime			Daytime	Nighttime
NSR 1	Sky Diamond (The Wings)	B	60	50	149	-48.5	108.5	98.5
NSR 2	Aster Diamond (The Wings)	B	60	50	155	-48.8	108.8	98.8
NSR 3	Star Diamond (The Wings)	B	60	50	143	-48.1	108.1	98.1
NSR 4	Royal Diamond (The Wings)	B	60	50	130	-47.3	107.3	97.3
NSR 5	Royal Diamond (The Wings II)	B	60	50	41	-37.3	97.3	87.3
NSR 6	Star Diamond (The Wings II)	B	60	50	48	-38.6	98.6	88.6
NSR 7	Luna Diamond (The Wings II)	B	60	50	50	-39.0	99.0	89.0
NSR 8	Sun Diamond (The Wings II)	B	60	50	98	-44.8	104.8	94.8
NSR 9	Tower 1 & 1A (The Parkside)	B	60	50	174	-49.8	109.8	99.8
NSR 10	Tower 2 & 2A (The Parkside)	B	60	50	133	-47.5	107.5	97.5
NSR 11	Tower 3 (The Parkside)	B	60	50	144	-48.2	108.2	98.2
NSR 12	Tower 1A & 1B (The Wings IIIA)	B	60	50	220	-51.8	111.8	101.8
NSR 13	Tower 2A & 2B (The Wings IIIA)	B	60	50	170	-49.6	109.6	99.6
NSR 14	Tower 3A & 3B (The Wings IIIA)	B	60	50	141	-48.0	108.0	98.0
NSR 15	Tower 5A & 5B (The Wings IIIA)	B	60	50	122	-46.7	106.7	96.7
NSR 16	House 1 (The Wings IIIA)	B	60	50	193	-50.7	110.7	100.7
NSR 17	House 2 (The Wings IIIA)	B	60	50	203	-51.1	111.1	101.1
NSR 18	House 3 (The Wings IIIA)	B	60	50	212	-51.5	111.5	101.5
NSR 19	House 5 (The Wings IIIA)	B	60	50	223	-52.0	112.0	102.0
NSR 20	House 6 (The Wings IIIA)	B	60	50	234	-52.4	112.4	102.4

就規劃申請/覆核提出意見 Making Comment on Planning Application / Review

參考編號 **Reference Number:**	210826-210321-46404
提交限期 **Deadline for submission:**	03/09/2021 5-40
提交日期及時間 **Date and time of submission:**	26/08/2021 21:03:21
有關的規劃申請編號 **The application no. to which the comment relates:**	A/TKO/125
「提意見人」姓名/名稱 **Name of person making this comment:**	先生 Mr. Mr. Au

意見詳情
Details of the Comment :

Being one of the residents in the immediate vicinity, I fully support the subject application based on the following reasons:

1. there is still having serious shortage of car parking spaces in the immediate vicinity causing the high carparking licence fee
2. during the weekend, numerous of outsiders spending time at the waterfront promenade and the shopping centres, nearly all of the parking spaces available are full and causing a long waiting queue congesting the road, it demonstrates that the existing public vehicle parking spaces cannot meet the need
3. though there is an existing a large scale of temporary open car park available, it is not for the long term use
4. from my observation, the said temporary open car park are having over 80%-90% parking rate in the weekdays
5. there are many illegal parkings during the daily nighttime
6. the underground car parking spaces will not cause any adverse visual impact

However, I strongly request the proposal to address

1. the future air pollution problem to be caused, and
2. how to divert the traffic flow not causing any traffic congestion when the vehicles are in and out to the future underground public vehicle park.

致：
城市規劃委員會秘書
香港北角渣華道 333 號
北角政府合署 15 樓

0161

強烈反對於將軍澳第 66 區的政府土地興建地下停車場
(有關的規劃申請編號：A/TKO/125)

本人於將軍澳區居住了 2 年，一直期待著第 66 區的市鎮公園盡快落成。據悉，早年將軍澳區居民已多次向相關政府部門反映反對於 66 區興建地下停車場，要求一併發展第 66 區及 68 區市鎮公園，但反對聲音一直被漠視，工程一拖再拖，以致第 66 及 68 區市鎮公園最終須分期發展，而第 68 區的工程，亦有望於今年年底峻工。惟本人近日獲悉城市規劃委員會正就第 66 區擬議地下公眾停車場進行公眾諮詢，故特致函表達多年來的不滿及作出反對。

本人反對興建地下停車場的原因如下：

- 大型車輛於排隊進入車場時，會引致交通擠塞及產生噪音，影響鄰近居民；
- 第 66 區附近有多間學校，大量重型車輛出入會對學童構成危險；
- 興建地下停車場會造成環境污染問題；
- 公眾停車場造價昂貴，每個車位平均造價為$250 多萬元，浪費公帑；
- 本區各屋苑及商場已有足夠公眾停車位，實在沒有興建地下停車場的需要：
- 本區市民主要以公共交通工具代步，對停車位需求偏低。

現誠希 貴會正視居民的實際訴求，避免因興建地下停車場而破壞市鎮公園日後落成後的優美環境及拖慢興建市鎮公園的工程進度。

24/8/2021

RECEIVED
31 AUG 2021
Town Planning Board

致：
城市規劃委員會秘書
香港北角渣華道33號
北角政府合署15樓

0257

RECEIVED
31 AUG 2021
Town Planning Board

強烈反對於將軍澳第66區的政府土地興建地下停車場

（有關的規劃申請編號：A/TK0/125）

本人於將軍澳區居住了十多年，一直期待著第66區的市鎮公園盡快落成。據悉，早年將軍澳區居民已多次向相关政府部門反映反對於66區興建地下停車場，要求一併發展第66區及68區市鎮公園，但反對聲音一直被漠視，工程一拖再拖，以致第66及68區市鎮公園最終分期發展，即第68區的工程，亦有望於今年年底動工。惟本人近日獲悉城市規劃委員會正就第66區擬議地下公眾停車場進行公眾諮詢，故特致函表達多年來的不滿及作出反對。

本人反對興建地下停車場的四個主要原因：

(1) 停車場會有校巴及貨車車位，故相信於清晨時份出車時，產生噪音，影響鄰近居民

(2) 車輛由非隧道進入停車場時，可能會引致交通擠塞。

(3) 第66區附近有多間學校，大量重型車輛出入會对学童構成危險。

(4) 興建地下停車場會造成環境污染問題。

現誠希 貴會正視居民的實際訴求，避免因興建地下停車場而破壞市鎮公園日後落成後的優美環境及拖慢興建市鎮公園的工程進度。

一名將軍澳南居民謹啟

二零二一年八月二十八日。

致城市規劃委員會秘書：
專人送遞或郵遞:香港北角渣華道 333 號北角政府合署 15 樓
傳真 ：2877 0245 或 2522 8426
電郵: tpbpd@pland.gov.hk

0289

To : Secretary, Town Planning Board
By hand or post : 15/F, North Point Government Offices, 333 Java Road, North Point, Hong Kong
By Fax : 2877 0245 or 2522 8426
By e-mail : tpbpd@pland.gov.hk

有關的規劃申請編號 **The application no. to which the comment relates**
A/TKO/125

意見詳情 (如有需要，請另頁說明)
Details of the Comment (use separate sheet if necessary)

請參考附件

「提意見人」姓名/名稱 Name of person/company making this comment 天晉工業主委員會

簽署 Signature _____ 日期 Date 1-9-2021

天晉II業主委員會
THE WINGS
The Wings II Owners' Committee

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- 2 SEP 2021
Town Planning Board

意見詳情：

0289

天晉 II 業主委員會向全體業戶諮詢意見後，強烈反對於 66 區興建地下公眾停車場，認為運輸署多年來仍然漠視當區居民的反對，堅持於 66 區興建地下公眾停車場實於理不合，當中理據如下：

1. 本區各屋苑及商場已有足夠公眾停車位，晚間的空置率甚高，而運輸署一直迴避有關事實。
2. 地下公眾停車場造價極度昂貴（根據運輸署早年資料，初步估計工程費用達十億元，即每個車位平均造價為$250 多萬元），浪費公帑。
3. 本區市民主要以公共交通工具代步，停車位的需求只屬少數人的利益。
4. 地下公眾停車場排放的污染物（如汽車廢氣）將對市鎮公園造成環境污染，嚴重影響使用者的健康。
5. 於地下公眾停車場建造期間，會對周邊造成空氣及噪音污染，嚴重影響附近居民健康，特別是天晉 II 居民。
6. 現時的臨時停車場主要停泊大量「搵食車」（包括公司私家車），若不興建地下公眾停車場，車主自然不會停泊在此。
7. 現時唐俊街違泊問題嚴重，但事實上鄰近的屋苑、商場及臨時停車場尚有空位，所以違泊問題的成因不是停車位不足，而是違泊車主不願支付停車場費用。事實上，警方應加強執法打擊違例泊車問題，運輸署亦不應以違例泊車為由，堅持於 66 區興建地下公眾停車場，拖延 66 區市鎮公園的興建，違反民意。

如 貴會最終仍漠視居民反對，堅持批准興建地下公眾停車場， 貴會應先要求運輸署向現時臨時停車場使用者進行問卷調查，以掌握使用者的背景及使用原因(包括月租形式的車輛數目及車主居住地區等)，從而了解於 66 區興建地下公眾停車場是否必需，另可考慮增加 67 區停車位的數量，避免再浪費公帑於 66 區興建地下公眾停車場及拖延 66 區市鎮公園的興建。本會亦強烈反對停車場出入口興建於接近天晉 II 對開公眾單車場位置，認為應保留停車場出入口位置於至善街，以免嚴重影響天晉 II 居民的日常生活及居住環境。此外，即使停車場出入口按建議設於寶邑路，亦應設於市鎮公園的中央位置及取消現有的巴士站，以騰出足夠等候區域，避免排隊等候進入停車場之車輛堵塞寶邑路與唐俊街交界，造成交通擠塞及對道路使用者構成危險。

事實上，「一地多用」原則或可應用於其他地區，但絕非天晉 II 所在的 66 區。本苑已有足夠停車位供天晉 II 業戶使用，於 66 區興建地下公眾停車場對天晉 II 業戶來說，有百害而無一利。再者，現時臨時停車場的使用者，估計部份是非本區、甚至非將軍澳區的居民，故此不應鼓勵他們駕駛私家車輛停泊於此，而應善用公共交通工具。

總結，請 貴會尊重居民意見，拒絕批准於 66 區興建地下公眾停車場，讓可帶來健康生活環境的市鎮公園盡快興建。

☐ Urgent ☐ Return receipt ☐ Sign ☐ Encrypt ☐ Mark Subject Restricted ☐ Expand personal&public groups

The Parkside - Comments on Planning Application relates A/TKO/125
31/08/2021 21:59

0290

From: The Parkside <theparkside@hpml.com.hk>
To: "tpbpd@pland.gov.hk" <tpbpd@pland.gov.hk>
Cc: "ceo@ceo.gov.hk" <ceo@ceo.gov.hk>, "skdcadm@skdc.had.gov.hk" <skdcadm@skdc.had.gov.hk>, "hydenquiry@1823.gov.hk" <hydenquiry@1823.gov.hk>, "hydcomplaint@1823.gov.hk" <hydcomplaint@1823.gov.hk>, "enquiries@lcsd.gov.hk" <enquiries@lcsd.gov.hk>, "hadgen@had.gov.hk" <hadgen@had.gov.hk>, "dosk@had.gov.hk" <dosk@had.gov.hk>, "ally_nl_chow@had.gov.hk" <ally_nl_chow@had.gov.hk>
FileRef:

Dear Sir,

We, act for and on behalf of The Owners' Committee of The Parkside, would like to submit our objection relates to the planning application A/TKO/125. Enclosed please find the comments and letter for your information.

Regards,
The Parkside Customer Service Center
Tel: 3620 3008

檔案索引：PSE/L21/264

城市規劃委員會秘書處
香港北角渣華道 333 號
北角政府合署 15 樓

致: 城市規劃委員會

<u>強烈反對將軍澳66區用地增設地下停車場</u>

- 2018年4月17日區議會已一致通過按原計劃發展「將軍澳第66及68區地區休憩用地」，不提供地下停車場，而且區議會亦通過一動議「**要求政府儘快興建將軍澳中央公園（即「將軍澳第66及68區市鎮公園」工程計劃），不容任何拖延**」。根據會議記錄，康文署代表亦已「備悉委員會通過支持將軍澳第 66 及 68 區地區休憩用地發展的方案甲」及會「積極跟進是項工程」。

- 運輸署在未提充分理據,收集區內可用車位數據及漠視民意的基礎下,卻在2018年11月6日區議會上再建議把「將軍澳第66及68區市鎮公園」工程計劃分拆為兩個工務工程計劃，發展將軍澳第66區為附設地下停車場的市鎮公園。漠視民意,公然違反程序公義!

- 中央大道公園作為通風廊和市肺，目的是為整個社區帶來新鮮空氣。停車場的設置，大量車流令致癌毒氣混入空氣中，污染整個社區。地下停車場將車輛跨區引入將軍澳市中心和市鎮公園。這是本末倒置的規劃!空氣、嘈音污染, 將會損害將軍澳南區市民健康!

- 將軍澳地鐵站近在咫尺，只有一街之遙。政府應鼓勵市民使用公共運輸交通出行，減少碳排放對社區造成的污染。

- 中央大道公園附近,是純住宅區,主要是住宅民居及學校,更有多間幼稚園。社區附近更設有多條單車徑, 原規劃是一個綠色社區。現卻引進大型貨車, 旅遊巴士進出，勢將對居民造成長期滋擾及影響空氣質素!

- 中央大道公園周邊低密度住宅屋苑已入伙多年(4-7年不等!) ,中央公園落成的時間更被拖延多年。運輸署在毫無事實理據之下強行加建天價地下停車場，再拖慢已經通過的中央公園規劃。

- 將軍澳南從來不缺車位 - 附近私人屋苑、領匯車場,各商場經常有總共接近1000個空置泊車位(開放給公眾)。所有空置泊車位，基本上已可以容納66區臨時停車場所泊的汽車！

- 事實上附近領展商場仍有大量車位, 因大廈公契問題或是政府法例所限而未能釋放於市場自由使用，長期空置。 政府應對症下藥，善用資源。再建新車位, 並辨解這是一地多用，實際是浪費土地（原有車位）, 浪費資源!

- 運輸署辯說「區內存在泊車位短缺的問題」, 這是混淆視聽的說法! 事實上在2017年3月13日西貢區議會將藍隧道、跨灣路、新政府大樓工作小組會議記錄第31段運輸署蕭麗明女士明確指出「**位於將軍澳南2019年落成的藍塘傲會提供50個公眾私家車泊位，而將軍澳南的零售商場亦將提供800個公眾私家車泊車位，數目接近現時至善街及翠善街的短期租約公眾停車場所提供的私家車泊車位數目。**」

- 運輸署所指的車輛泊位短缺,是根據道路旁有非法泊車而推斷。這兩者沒有必然關係,與是否車位短缺無關。違泊罰款遠較每月要付出的停車場租金便宜，因此車主心存僥倖。正確應對之道是執法部門嚴格執法 ，杜絕違泊。

- 再者加上現時規劃, 在67區擬建的將軍澳政府合署將提供合計逾 300 個公眾泊車位。或者旁邊擬建的政府街市，政府可考慮擴大停車場部份給予更多公眾人士可使用，從而取代66區興建地下停車場的計劃。

- 地下停車場興建工程有機會造成嚴重沉降,尤其將軍澳南為填海地,對公園附近屋苑樓宇結構恐有嚴重影響。

我們與附近屋苑居民多年來一直從不同渠道向政府不同部門反映意見 ---- 反對於66區公園用地興建地下停車場。懇請貴　委員會切勿浪費公帑 ,撤回在66區建地下停車場規劃! 盡快興建一個社區需要的公園, 還居民一個綠化安居環境!

290

林志偉 謹啟
The Parkside 業委會主席
2021年8月30日

副本行政長官辦
致：公室
西貢區議會
路政署
康樂及文化事務署
民政事務總署
西貢民政事務署

附件：
一 “反對將軍澳66區中央大道、市鎮廣場興建地下停車場”聯署聲明信
二 2019年1月2日聯邨會議內容摘要
三 致香港申訴專員公署聯署投訴信
四 “有關The Parkside 居民反對將軍澳66區增設地下停車場的意見”信件
五 The Parkside “強烈反對將軍澳66區用地增設地

下停車場”
信件

290

2021.08.31_Comments on Planning Application.pdf附件四 - PS 反映居民對66區建地下停車場意見.pdf

附件一 - 澳南屋苑聯名信.pdf附件二- 2019年1月2日會議紀錄.pdf附件三 - 致香港申訴專員公署聯署投訴信.pdf

附件五 - 強烈反對將軍澳66區用地增設地下停車場.pdf

致：
城市規劃委員會秘書
香港北角渣華道 333 號
北角政府合署 15 樓

0375

強烈反對於將軍澳第 66 區的政府土地興建地下停車場
(有關的規劃申請編號：A/TKO/125)

本人於將軍澳區居住了多年，一直期待著第 66 區的市鎮公園盡快落成。據悉，早年將軍澳區居民已多次向相關政府部門反映反對於 66 區興建地下停車場，要求一併發展第 66 區及 68 區市鎮公園，但反對聲音一直被漠視，工程一拖再拖，以致第 66 及 68 區市鎮公園最終須分期發展，而第 68 區的工程，亦有望於今年年底峻工。惟本人近日獲悉城市規劃委員會正就第 66 區擬議地下公眾停車場進行公眾諮詢，故特致函表達多年來的不滿及作出反對。

本人反對興建地下停車場的原因包括：

1. 因地下停車場將會有校巴／貨車車位，故相信會於清晨出車時，產生噪音，影響鄰近居民；
2. 第 66 區附近有多間學校，大量重型車輛出入會對學童構成危險；
3. 車輛於排隊進入車場時，可能會引致交通擠塞；
4. 於興建地下停車場時，工程或會影響鄰近屋苑結構。(因公園旁便是屋苑，恐怕如興建沙中線時一樣，令土瓜灣之樓宇出現裂紋)；
5. 興建地下停車場會造成環境污染問題；
6. 公眾停車場造價昂貴，每個車位平均造價為$250 多萬元，浪費公帑；
7. 本區各屋苑及商場已有足夠公眾停車位，實在沒有興建地下停車場的需要；
8. 本區市民主要以公共交通工具代步，對停車位需求偏低。

現誠希　貴會正視居民的實際訴求，避免因興建地下停車場而破壞市鎮公園日後落成後的優美環境及拖慢興建市鎮公園的工程進度。

將軍澳南居民謹啟

二零二一年八月29日

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-2 SEP 2021
Town Planning Board

致:

香港北角渣華道 333 號北角政府合署 15 樓

城市規劃委員會主席

0451

甯漢豪女士:

促請貴會盡快展開將軍澳第 66 區市鎮公園工程（申請編號 A/TKO/125）

本會是將軍澳區內的團體，多年來一直關注將軍澳地區的規劃和發展。

將軍澳人口將突破 50 萬，身邊的環境與我們生活息息相關，休憩空間及泊車設施需求犹見殷切。

根據《將軍澳分區計劃核准圖》的規劃，將軍澳市中心南部第 66 及 68 區一幅大型地區休憩用地（即位於寶邑路與至善街之間、現時為臨時停車場的土地，以及帝景灣及嘉悅之間的土地），主要用作規劃發展為市鎮廣場及中央大道，除了可打造一條優質園景綠化走廊連接市中心北部和海旁地區，亦可提供康樂設施供居民使用。二十年過去了， 將軍澳南各項建設均已即將完成！各項配套發展完善，環境優美宜居，實在是將軍澳居民之福祉。唯獨是 66、68 區遲遲未動工興建。

區議會 2016 年有關主要工程的進度報告文件顯示，市鎮廣場及中央大道暫定 2018 年動工，暫定 2021 年竣工。但至 2017 年政府推出的施政報告內，表示計劃大量增加體育及康樂設施，並擬於未來五年在全港 18 區內計劃增建或重建 26 個體育及康樂設施的項目，當中也把將軍澳市鎮廣場及中央大道納入計劃，也因此在同年的區議會文件中，有關項目由暫定 2018 年動工變成「計劃在未來五年內展開有關工程」。後來，於 2018 年在有關該閒置土地的短期租約諮詢，建議把將軍澳第 66 區的土地在建市鎮廣場及中央大道之前，用作臨時收費停車場。在過去三年間，臨時收費停車場也演變成爛地臨時停車場，雜亂無章停泊的車輛，車輛進出所引起的沙塵和發出擾民之噪音，為社區、

住戶、商戶及顧客造成環境污染。

451

本會也時常收到居民投反映：臨時停車場日以繼夜長期製造廢氣，對商戶及顧客的健康造成影響影，他們表示極之期望有關當局盡快落實有關工程，還居民一個健康舒適的生活環境。

有見及此，本會特函 貴會：加強與相關政府部門溝通，建議按「一地多用」原則在將軍澳第66區休憩用地興建地面休憩設施，地下空間則建停車場善用土地資源，盡快落實發展市鎮公園後續項目。加快展開將軍澳66區興建市鎮公園項目，盡早落實興建市鎮公園，綠化環境，並照顧區內市民對休憩及泊車設施的需求，為區內居民提供一個既健康又舒適優美的社區環境。

將軍澳發展關注會

副主席：何志釗

敬上

2021年8月27日

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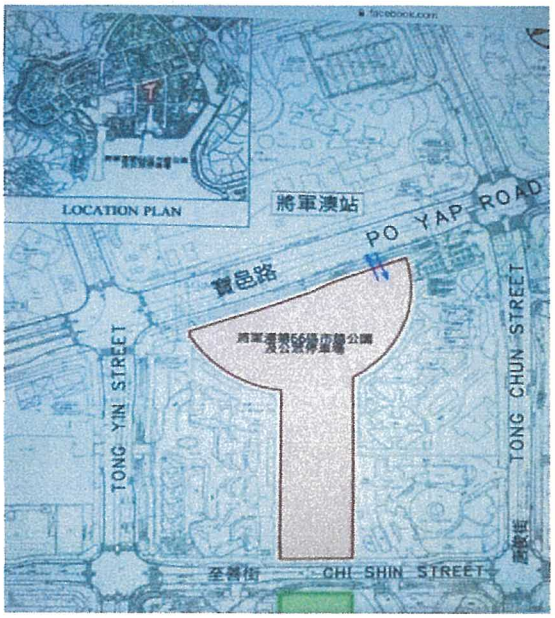
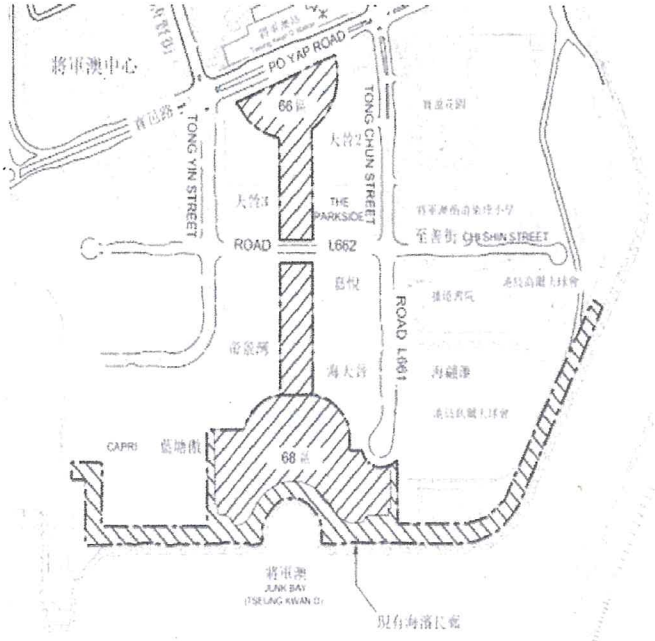
Town Planning Board

右圖為規劃將軍澳市中心南部第 66 區休憩場地 。



左圖為將軍澳市中心南部第 66 區現時為臨時停車場。



左圖為將軍澳第 66 區及第 68 區用地位置，運輸署建議在第 66 區增設地下停車場。

致:

香港北角渣華道 333 號北角政府合署 15 樓

城市規劃委員會主席

甯漢豪女士:

0452

有關：將軍澳第 66 區的政府土地用途及發展意見 （申請編號：A/TKO/125 ）

本會是將軍澳區內的團體，多年來一直關注將軍澳地區的規劃和發展。

《將軍澳分區計劃核准圖》早年已規劃之將軍澳市中心南部第 66 區之大型地區休憩用地(即位於天晉 2、天晉 3A 之間現時為臨時停車場的土地)工程之開展事宜。作為區內持份者之一，現特函予城規會，促請 貴會與相關政府部門加快展開將軍澳 66 區興建市鎮公園項目，從而為市民及區內各持份者提供舒適的休憩設施。

將軍澳人口將突破 50 萬，休憩空間及泊車設施需求同見殷切。事實上，將軍澳南發展計劃早於 2000 年展開，規劃為高密度住宅區。 二十年過去了， 將軍澳南各項建設均已完成、即將完成！各項配套發展完善，環境優美宜居，實在是將軍澳居民之福祉。唯獨是 66、68 區遲遲未動工興建。

根據《將軍澳分區計劃核准圖》的規劃，將軍澳市中心南部第 66 及 68 區一幅大型地區休憩用地（即位於寶邑路與至善街之間、現時為臨時停車場的土地，以及帝景灣及嘉悅之間的土地），主要用作規劃發展為市鎮廣場及中央大道，除了可打造一條優質園景綠化走廊連接市中心北部和海旁地區，亦可提供康樂設施供居民使用。區議會 2016 年有關主要工程的進度報告文件顯示，市鎮廣場及中央大道暫定 2018 年動工，暫定 2021 年竣工。但至 2017 年政府推出的施政報告內，表示計劃大量增加體育及康樂設施，並擬於未來五年在全港 18 區內計劃增建或重建 26 個體育及康樂設施的項目，當中也把將軍澳市鎮廣場及中央大道納入計劃，也因此在同年的區議會文件中，有關項目由暫定 2018 年動工變成「計劃在未來五年內展開有關工程」。

後來，於2018年在有關該閒置土地的短期租約諮詢，建議把將軍澳第66區的土地在建市鎮廣場及中央大道之前，用作臨時收費停車場。在過去三年間， 將軍澳第66區現時設置的爛地臨時停車場停泊車輛雜亂無章，而且每當車輛進出臨時停車場時，均會牽起地面的沙塵和發出擾民之噪音，該現象令社區環境大打折扣，對附近居民生活造成困擾。本會亦屢次接獲商戶及顧客反映有關情況，投訴臨時停車場日以繼夜長期製造廢氣，對商戶及顧客的健康造成影響影，他們表示極之期望有關當局盡快落實有關工程，還居民一個健康舒適的生活環境。

本會特函 貴會：透過加強與政府相關部門的溝通，加快實行將軍澳第66區興建市鎮公園項目，以盡快為區內居民及各持份者提供一個既健康又舒適之社區環境。

本會及居民共同期盼：

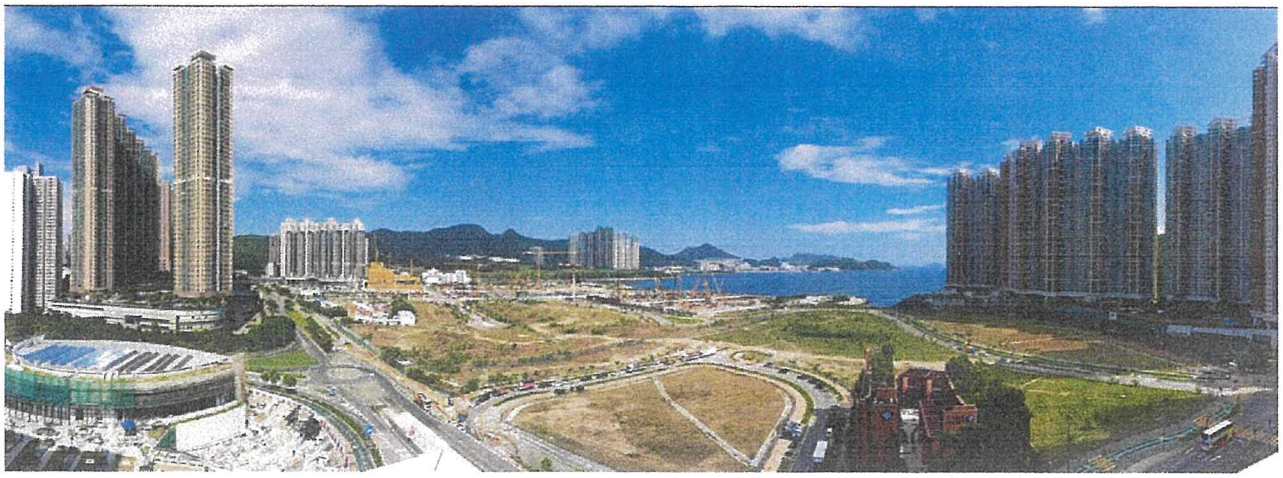
- 有關工程盡動工，打造將軍澳地區的地標性中央公園。
- 興建地下停車場。
- 66、68區工程同時進行，以減少工程對居民的影響。

西貢區監察議會聯線

主席：陳廣輝

謹上

2021年8月27日

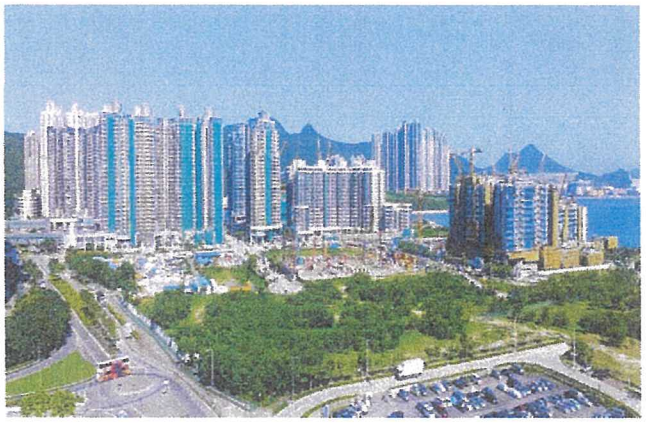


將軍澳南全景（2014 年）

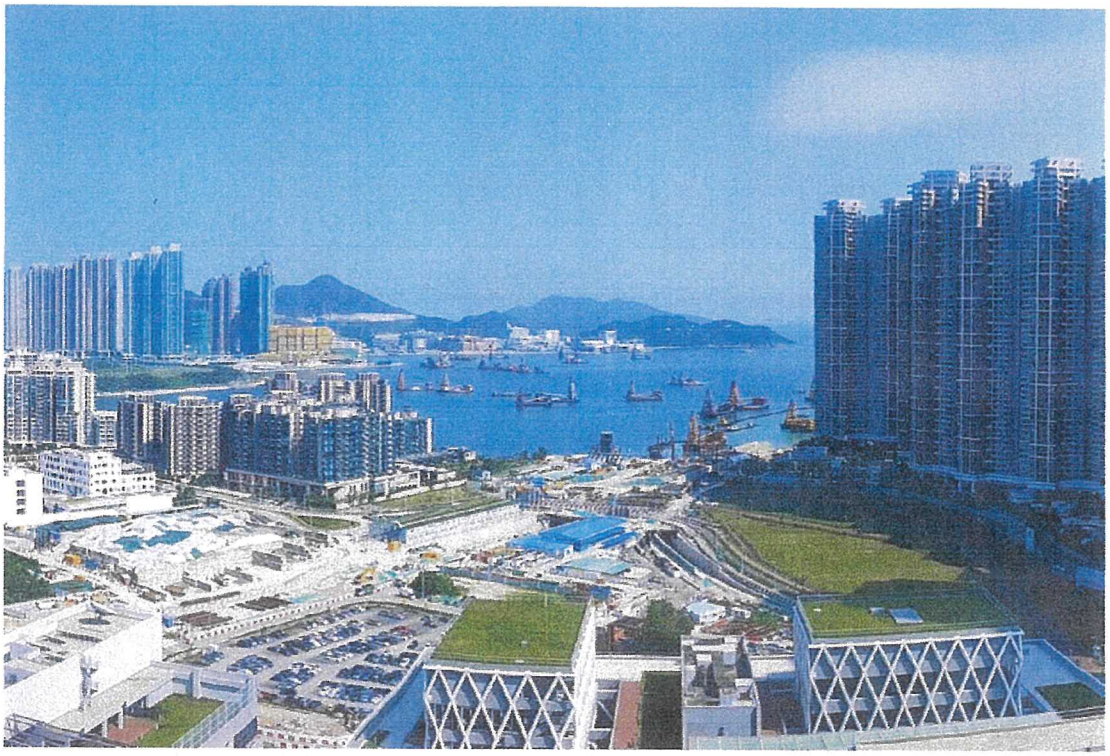
將軍澳南全景（2015 年）

將軍澳南全景（2010 年）

將軍澳南全景（2018 年）



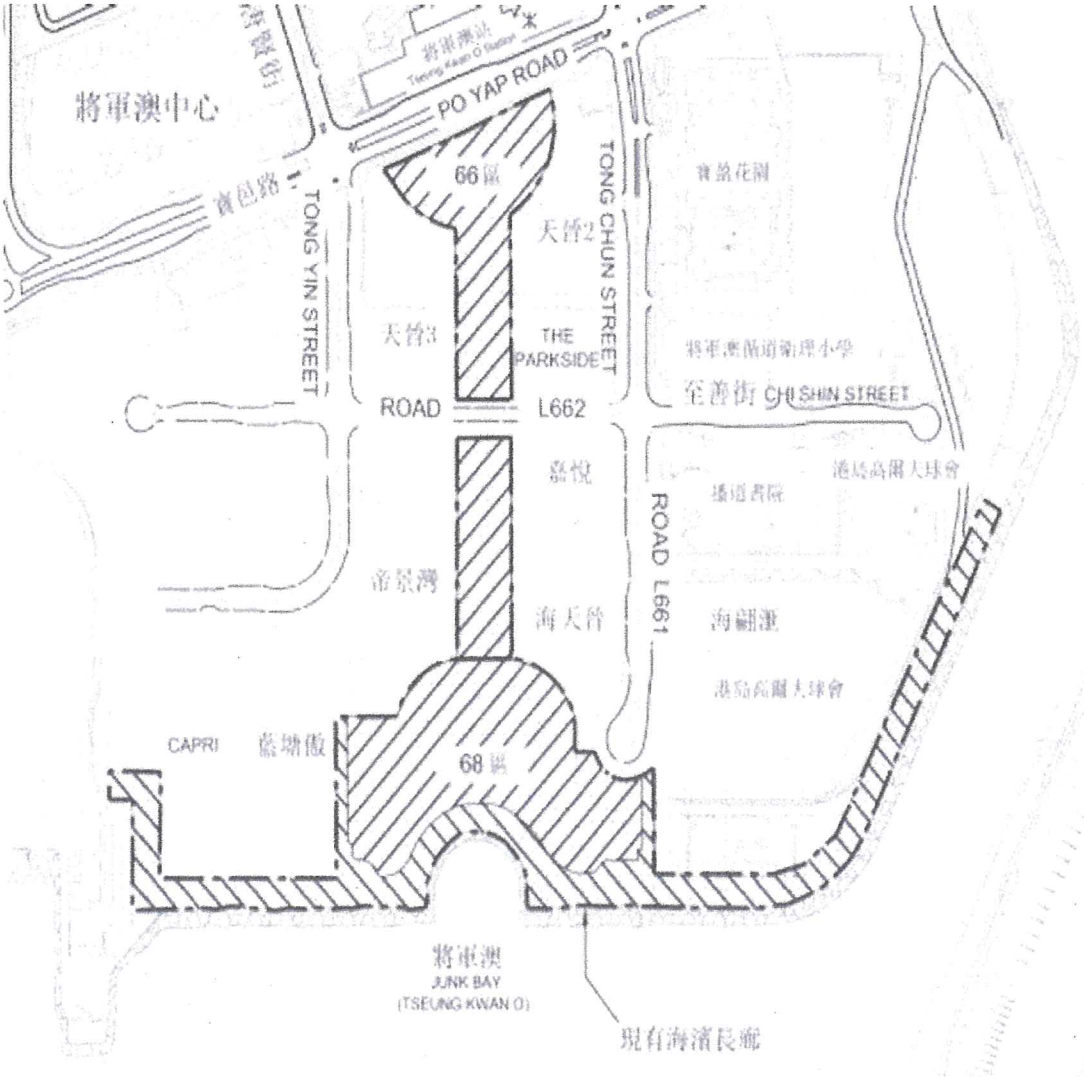
將軍澳南全景（2016 年）



將軍澳南全景（2019 年）

將軍澳南中央大道現時仍是停車場

將軍澳市中心南部第 66 區現時為臨時停車場



將軍澳第 66 區及第 68 區用地位置，運輸署建議在第 66 區增設地下停車場

就規劃申請/覆核提出意見 Making Comment on Planning Application / Review

參考編號
Reference Number: 210903-094949-29165

0472

提交限期
Deadline for submission: 03/09/2021

提交日期及時間
Date and time of submission: 03/09/2021 09:49:49

有關的規劃申請編號
The application no. to which the comment relates: A/TKO/125

「提意見人」姓名/名稱
Name of person making this comment: 天晉IIIA業主委員會

意見詳情
Details of the Comment :

天晉IIIA業主委員會於2021年8月13日收到「規劃署」來函(檔號: TPB/A/TKO/125)，通知「城規會」現正邀請公眾就將軍澳第66區增設地下停車場的規劃申請提供意見。承接敝會於2019年1月21日發出的信件(信件編號: TW3A/OC/2019/OUT/002)，現重申將軍澳第66及68區市鎮公園之工程計劃原於2018年4月17日西貢區議會大會中一致通過採用「康文署」提出的方案甲(即66及68區市鎮公園同時發展，不設地下停車場)，我們終於樂見66及68區市鎮公園的建成可期。可是，「運輸署」於2018年11月6日區議會上再提出把將軍澳第66及68區市鎮公園之工程計劃，分拆兩個工務計劃發展(只於66區市鎮公園增設地下停車場)。我們天晉IIIA作為將軍澳第66區的重要持份者，對於政府部門出爾反爾，罔顧程序公義，導致興建第66及68區市鎮公園之工程一拖再拖，實在使人遺憾。

我們已就市鎮公園的規劃再次於2021年5月7日進行了問卷調查，直接向住戶了解對有關項目的意見。根據本屋苑居民的問卷調查結果，超過99%的住戶贊成在將軍澳66區興建市鎮公園，但對於在市鎮公園加建地下停車場，有約65%住戶不贊成。如因加建地下停車場，而令市鎮公園要延後才能完工，更有約80%住戶不贊成加建地下停車場。

我們反對「城規會」建議於66區市鎮公園發展地下停車場，理由如下：

1.敝會得悉2011年「康文署」啟動休憩公園程序至今已有10年之久，所以66及68 區休憩公園工程啟動刻不容緩。絕對不能接受66及 68 區休憩公園有任何延誤。按運輸署在2018年11月6日的建議將軍澳第66區市鎮公園增設地下停車場，公園興建又再拖延，而且所有程序須要重來一次，土地規劃要重新審批，能否可以獲得財政撥款也是未知之數？休憩公園的落成變相遙遙無期，故要求切實執行2017年施政報告中提出的「體育及康樂設施五年計劃」內的「將軍澳第66及68區市鎮公園」能於2022年或之前展開、並完成有關工程及開放有關公園。

2.敝會反對於66區興建地下停車場，除對周邊屋苑構成嚴重空氣污染及噪音滋擾外，還有很多不確定因素的影響(例如停車場抽氣系統的排風口位置、汽車流量的安排等)，同時，停車場內的停車位，設置在民居附近十分不恰當，加上政府的長遠策略並無鼓勵市民使用私家車輛，鼓勵市民乘搭公共集體交通運輸系統。附近有幼稚園、小學、中學、國際學校及屋苑商場內的補習社林立，對學童安全隱患構成極大危險。

3.敝會調查將軍澳南私人屋苑供外來訪客使用的停車位(如天晉II、天晉IIIA、天晉IIIB、海天晉、The Parkside、嘉悅、帝景灣、藍塘傲、Capri及海翩匯等等)，現時粗略估計有3至4百個，區內其它商場仍有大量空缺車位，而使用率亦偏低，所以在66區興建地下停車場沒有實質必要。

4.我們的居民不反對在將軍澳興建地下停車場，居民建議西貢區議會可就將軍澳地下停車場的選址另覓適合的地方興建。興建後的中央海濱公園，我們居民認為可以成為將軍澳市中心一個地標，作為一個地區性的景點，為全港市民帶來特色設施，例如：櫻花花海或花巷／親子互動野餐區／將軍澳歷史發展展覽館／導賞團等等，這是我們的建議。

有見及此，歸納以上各項、本會強烈反對於66區興建地下停車場，建議在將軍澳其他地

區研究興建地下停車場位置，並要求按原先計劃盡快興建66及68區休憩公園。本會深信閣下一定明白將軍澳南居民的想法和感受，希望特區政府根據程序，按照原計劃施政，促請「城規會」撤回於將軍澳第66區市鎮公園發展地下停車場的建議，馬上興建66及68區休憩公園，實為將軍澳南居民之福祉。

⇒ A/TKO/125

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回覆: 將軍澳第66區的政府土地意見提交
10/09/2021 17:52

474

From: skisdp/PLAND/HKSARG
To: thewings3A@kaishing.com.hk
Cc: Tom CK YIP/PLAND/HKSARG@PLAND, Richard Yee Lin SIU/PLAND/HKSARG@PLAND, WH HO/PLAND/HKSARG@PLAND, Ryan Chi Kin HO/PLAND/HKSARG@PLAND

胡小姐：

關於天晉IIIA業主委員會於9月3日就題述事宜致規劃署署長的信件，城市規劃委員會秘書處亦已收到相關的信件，有關信件將會納入規劃申請編號A/TKO/125的公眾意見，連同其他公眾意見一併提交城市規劃委員會考慮。

謝謝你對該規劃申請的關注。

規劃署
西貢及離島規劃處

From: The Wings 3A Management Services Office <thewings3A@kaishing.com.hk>
To: "imkchung@pland.gov.hk" <imkchung@pland.gov.hk>
Date: 03/09/2021 16:37
Subject: Re: 將軍澳第66區的政府土地意見提交

致規劃署署長 鍾文傑先生：
本屋苑天晉IIIA業主委員會就將軍澳66區的政府用地提出意見，隨電郵附上相關信函。正本將經郵寄至貴 署。
如有任何問題，可電郵或致電2351 8100與處職員聯絡，謝謝。
天晉3A服務處
胡喜宜小姐謹啟
Tel. 23518100 Fax: 23518108

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THE WINGS 天晉 III

THE WINGS IIIA Owners' Committee 天晉 IIIA 業主委員會
c/o The Management Services Office, B1/F. Clubhouse, No. 19, Tong Yin Street, Tseung Kwan O, N.T.
將軍澳唐賢街 19 號會所 B1 層服務處轉交 TEL 電話：2351-8100 FAX 傳真：2351-8108

信件編號.: TW3A/OC/2021/OUT/001

敬啟者：

有關： 反對將軍澳第 66 區地區休憩用地增設地下停車場

敝會於 2021 年 8 月 13 日收到「規劃署」來函(檔號: TPB/A/TKO/125)，通知「城規會」現正邀請公眾就將軍澳第 66 區增設地下停車場的規劃申請提供意見。承接敝會於 2019 年 1 月 21 日發出的信件(信件編號: TW3A/OC/2019/OUT/002)，現重申將軍澳第 66 及 68 區市鎮公園之工程計劃原於 2018 年 4 月 17 日西貢區議會大會中一致通過採用「康文署」提出的方案甲(即 66 及 68 區市鎮公園同時發展，不設地下停車場)，我們終於樂見 66 及 68 區市鎮公園的建成可期。可是，「運輸署」於 2018 年 11 月 6 日區議會上再提出把將軍澳第 66 及 68 區市鎮公園之工程計劃，分拆兩個工務計劃發展(只於 66 區市鎮公園增設地下停車場)。我們天晉 IIIA 作為將軍澳第 66 區的重要持份者，對於政府部門出爾反爾，罔顧程序公義，導致興建第 66 及 68 區市鎮公園之工程一拖再拖，實在使人遺憾。

我們已就市鎮公園的規劃再次於 2021 年 5 月 7 日進行了問卷調查，直接向住戶了解對有關項目的意見。根據本屋苑居民的問卷調查結果，超過 99%的住戶贊成在將軍澳 66 區興建市鎮公園，但對於在市鎮公園加建地下停車場，有約 65%住戶不贊成。如因加建地下停車場，而令市鎮公園要延後才能完工，更有約 80%住戶不贊成加建地下停車場。

我們反對「城規會」建議於 66 區市鎮公園發展地下停車場，理由如下：

1. 敝會得悉 2011 年「康文署」啟動**休憩公園程序**至今已有 10 年之久，所以 66 及 68 區**休憩公園工程啟動刻不容緩**。絕對**不能接受** 66 及 68 區**休憩公園有任何延誤**。按運輸署在 2018 年 11 月 6 日的建議將軍澳第 66 區市鎮公園增設地下停車場，公園興建又再拖延，而且所有程序須要重來一次，土地規劃要重新審批，能否可以獲得財政撥款也是未知之數？休憩公園的落成變相遙遙無期，故要求**切實執行** 2017 年施政報告中提出的「體育及康樂設施五年計劃」內的「將軍澳第 66 及 68 區市鎮公園」能於 2022 年或之前展開、並完成有關工程及開放有關公園。

2. 敝會**反對於 66 區興建地下停車場**，除對周邊屋苑構成嚴重空氣污染及噪音滋擾外，還有很多不確定因素的影響(例如停車場抽氣系統的排風口位置、汽車流量的安排等)，同時，停車場內的停車位，設置在民居附近十分不恰當，加上政府的長遠策略並無鼓勵市民使用私家車輛，鼓勵市民乘搭公共集體交通運輸系統。**附近有幼稚園、小學、中學、國際學校及屋苑商場內的補習社**林立，**對學童安全隱患構成極大危險**。

3. 敝會調查將軍澳南私人屋苑供外來訪客使用的停車位(如天晉 II、天晉 IIIA、天晉 IIIB、海天晉、The Parkside、嘉悅、帝景灣、藍塘傲、Capri 及海翩匯等等)，現時粗略估計有 3 至 4 百個，區內其它商場仍有**大量空缺車位**，而**使用率亦偏低**，**所以在 66 區興建地下停車場沒有實質必要**。興建地下停車場費用不菲，每個車位成本可能動輒過百萬，車位租金收費理應與成本掛鉤，假如收取高昂租金，加上同區有數百個屋苑訪客停車位及大量商場空缺車位，我們相信該地下停車場的使用率會偏低，或會造成浪費公帑。

.../Cont'd2

THE WINGS 天晉 IIIA
THE WINGS IIIA Owners' Committee 天晉 IIIA 業主委員會
c/o The Management Services Office, B1/F. Clubhouse, No. 19, Tong Yin Street, Tseung Kwan O, N.T.
將軍澳唐賢街 19 號會所 B1 層服務處轉交 TEL 電話：2351-8100 FAX 傳真：2351-8108

信件編號.: TW3A/OC/2021/OUT/001

4. 我們的居民不反對在將軍澳興建地下停車場，居民建議西貢區議會可就將軍澳地下停車場的選址另覓適合的地方興建，當中可考慮在調景嶺維景灣畔對出的 72 區興建地下停車場，該位置相對遠離民居，對居民的影響較少，加上該位置亦鄰近連接將軍澳-藍田隧道的 P2 路，即使有大型車輛出入均合適。

5. 興建後的中央海濱公園，我們居民認為可以成為將軍澳市中心一個地標，作為一個地區性的景點，為全港市民帶來特色設施，例如：櫻花花海或花巷／親子互動野餐區／將軍澳歷史發展展覽館／導賞團等等，這是我們的建議。

有見及此，歸納以上各項、**本會強烈反對於 66 區興建地下停車場**，建議在將軍澳其他地區研究興建地下停車場位置，並要求按原先計劃**盡快興建 66 及 68 區休憩公園**。本會深信 閣下一定明白將軍澳南居民的想法和感受，希望特區政府根據程序，按照原計劃施政，促請「城規會」撤回於將軍澳第 66 區市鎮公園發展地下停車場的建議，馬上興建 66 及 68 區休憩公園，實為將軍澳南居民之福祉。

順祝 工作順利、身心康泰！

此致
香港北角渣華道 333 號
北角政府合署 17 樓
規劃署
規劃署署長
鍾文傑先生

天晉 IIIA 第二屆業主委員會
主席 何金榮先生

天晉 IIIA 第二屆業主委員會
司庫 黃德盛先生

天晉 IIIA 第二屆業主委員會
委員 冼易先生

天晉 IIIA 第二屆業主委員會
委員 李曦先生

天晉 IIIA 第二屆業主委員會
委員 馮漢昌先生

天晉 IIIA 第二屆業主委員會
委員 張石開先生

天晉 IIIA 第二屆業主委員會
委員 陳著長先生

2021 年 9 月 3 日

附件: 圖表

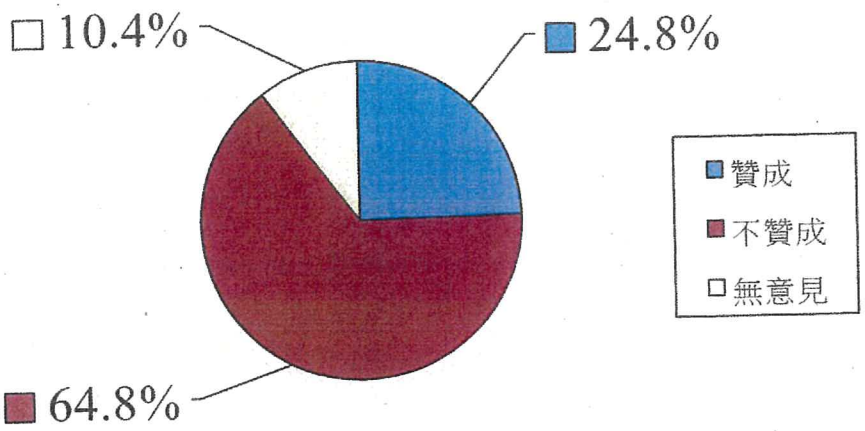
THE WINGS IIIA Owners' Committee 天晉 IIIA 業主委員會
c/o The Management Services Office, B1/F. Clubhouse, No. 19, Tong Yin Street, Tseung Kwan O, N.T.
將軍澳唐賢街 19 號會所 B1 層服務處轉交 TEL 電話：2351-8100 FAX 傳真：2351-8108

信件編號.: TW3A/OC/2021/OUT/001

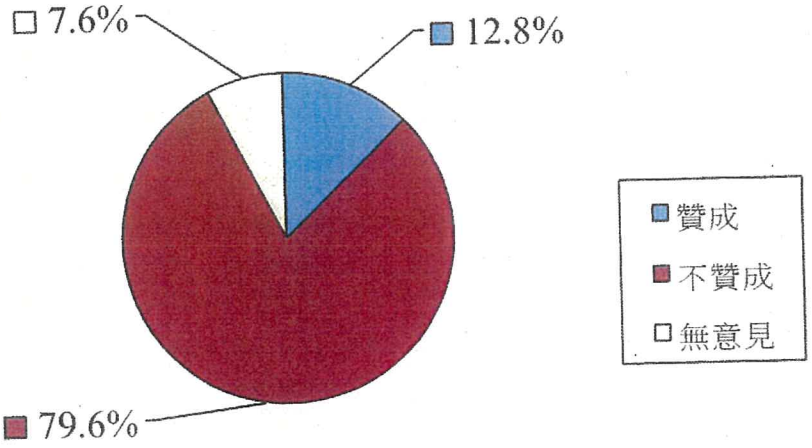
屋苑居民問卷調查

本屋苑就將軍澳第 66 區市鎮公園及公眾停車場的工程計劃事宜作出諮詢，於 2021 年 5 月 7 日至 5 月 14 日收到居民遞交有關意見調查文件共 250 份，有關結果分析如下:

你贊成於第66區中央大道公園加建地下停車場嗎?



如果要於第66區加建地下停車場，但興建中央大道公園的整體工程延後才能完工，你會贊成加建地下停車場嗎?



致城市規劃委員會秘書：
專人送遞或郵遞:香港北角渣華道 333 號北角政府合署 15 樓
傳真 ：2877 0245 或 2522 8426
電郵: tpbpd@pland.gov.hk

0477

To : Secretary, Town Planning Board
By hand or post : 15/F, North Point Government Offices, 333 Java Road, North Point, Hong Kong
By Fax : 2877 0245 or 2522 8426
By e-mail : tpbpd@pland.gov.hk

有關的規劃申請編號 **The application no. to which the comment relates**
A/TKO/125

意見詳情 (如有需要，請另頁說明)
Details of the Comment (use separate sheet if necessary)

天晉IIIB服務處為此項建議查詢住戶的建議，共收到43個意見，
附上附件以供參考。

「提意見人」姓名/名稱 Name of person/company making this comment Basil Wong
Kai Shing Management Services Limited

簽署 Signature ______ 日期 Date ______

THE WINGS IIIB MANAGEMENT SERVICES OFFICE 天晉IIIB服務處

RECEIVED
- 2 SEP 2021
Town Planning Board

天晉IIIB - 住戶對第66區政府土地建地下公眾停車場意見

	意見詳情 / Details of the Comment	意見詳情 / Details of the Comment
1	支持 / Agree	
2	支持 / Agree	長期不夠車位
3	支持 / Agree	希望工程能盡快展開，並對取消臨時停車場所產生的短期車位短缺有適當配套。
4	支持 / Agree	
5	支持 / Agree	
6	支持 / Agree	
7	支持 / Agree	
8	支持 / Agree	Get the Park built ASAP~!
9	支持 / Agree	Please allow basement linked passengerway from TKO MTR station to both gardens
10	支持 / Agree	car park entrance run-in/out located at Po Yap Road, in case the car park is full, road length of Po Yap Road
11	支持 / Agree	
12	支持 / Agree	
13	支持 / Agree	其實車位真係短缺 所以支持興建停車場
14	支持 / Agree	
15	支持 / Agree	
16	支持 / Agree	
17	支持 / Agree	興建公園應該盡快開始
18	支持 / Agree	
19	支持 / Agree	
20	支持 / Agree	The underground car should be green and sustainable. It must not affect the residents' living and health.
21	支持 / Agree	
22	支持 / Agree	建議停車場每個車位增設電動車充電設施
23	支持 / Agree	希望增加更多停車空間, 據網上消息現在擬建的停車位不到原來露天停車場的一半.
24	支持 / Agree	必須善用土地資源，開發地底用途作停車場，解決區內車位嚴重不足問題
25	反對 / Disagree	
26	反對 / Disagree	
27	反對 / Disagree	We need town park only. No public vehicle park anymore.
28	反對 / Disagree	
29	反對 / Disagree	
30	反對 / Disagree	1. Unnecessary delay of the development of the land. 2. Increase pollutant in the area due to additional vehicle in the area. 3. Current carpark at the lot is only temporary and does not justify to the increase need of carpark space. There are existing multi-stories carparks in the area. 4. Concerns of security of the underground carpark to the surrounding area. 5. Increased noise level to the area at day and night time due to increase of car. 6. The underground carpark will be prone to flooding as it happened a few years back with typhoon that flooded all the underground carpark in that area. 7. Availability of MTR and central bus terminal nearby for access to the area, conflict with the government policy to promote use of public transport. Therefore need for additional carpark is not justified
31	反對 / Disagree	The proposal would increase the construction period of the town park and hence delay the commissioning of the town park which is highly undesirable.
32	反對 / Disagree	
33	反對 / Disagree	將軍澳現時非法泊車問題並非因為缺乏車位，而是執法問題。 舉例說明，現時天晉三B外面不時有非法泊車，就算戶外停車場在對面，車主為了慳--、兩小時泊車費，也懶停在停車場，而停在街邊。日後政府大樓落成，已提供一定車位數量供應，是否要犧牲居民環境需要，一定建停車場，延遲原來公園建設呢？
34	反對 / Disagree	附近的每個屋苑、商場都有時租停車場, 請統計一下數目, 應足以應付泊車需要, 祇是那些違泊司機貪圖方便, 隨意亂泊. 建幾多停車場都不能解決這些違泊行為, 請不要浪費納稅人的金錢.
35	反對 / Disagree	太多車出入,容易導致小孩發生意外,附近太多幼稚園,造成空氣聲音污染
36	反對 / Disagree	噪音污染、空氣污染、影響周邊樓宇地基
37	反對 / Disagree	
38	反對 / Disagree	應在調景嶺起
39	反對 / Disagree	The underground parking should include Zone 68 to solve the long term parking problem in Tseung K
40	反對 / Disagree	
41	反對 / Disagree	
42	沒有意見 / No Comment	
43	沒有意見 / No Comment	

Advisory Clauses

(a) to note the comments of the Chief Highway Engineer/New Territories East, Highways Department that that the applicant shall be responsible for carrying out any road improvement works contingent upon the development (e.g. proposed improvement scheme for junction of Po Yap Road/Tong Yin Street as presented in the Traffic Impact Assessment report);

(b) to note the comments of the Chief Town Planner/Urban Design and Landscape, Planning Department that approval of the application by the Town Planning Board does not imply approval of the tree works such as pruning, transplanting and/or felling under the lease. The applicant should approach relevant authority/ government department(s) direct to obtain necessary approval on tree works;

(c) to note the comments of the Director of Leisure and Cultural Services that the applicant should provide trees with sufficient space for better establishment and healthy growth up to their maturity. Also, suitable distance between the base of the tree and surrounding shrubs should also be provided. The applicant should also observe the Proper Planting Practices promulgated by the Greening, Landscape and Tree Management Section of Development Bureau;

(d) to note the comments of the Director of Fire Services that detailed fire services requirements will be formulated upon receipt of formal submission of general building plans. The Emergency Vehicular Access provision in the site shall comply with the standard as stipulated in Section 6, Part D of the Code of Practice for Fire Safety in Buildings 2011 under the Building (Planning) Regulation 41D which is administered by the Buildings Department;

(e) to note the comments of the Chief Engineer/Construction, Water Supplies Department (WSD) that for provision of water supply to the development, the applicant may need to extend his/her inside services to the nearest suitable government water mains for connection. The applicant shall resolve any land matter (such as private lots) associated with the provision of water supply and shall be responsible for the construction, operation and maintenance of the inside services within the private lots to WSD's standards; and

(f) to note the comments of the Director of Electrical and Mechanical Services that in the interests of public safety and ensuring the continuity of electricity supply, the parties concerned with planning, designing, organizing, supervising and conducting any activity near the underground cable or overhead line under the application should approach the electricity supplier (i.e. CLP Power) for the requisition of cable plans (and overhead line alignment drawings, where applicable) to find out whether there is any underground cable and/or overhead line within and/or in the vicinity of the site. The applicant should also observe the Electricity Supply Lines (Protection) Regulation and the "Code of Practice on Working near Electricity Supply Lines" established under the Regulation when carrying out works in the vicinity of the electricity supply lines.