Appendix 3

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

ATKINS
Member of the SNC-Lavalin Group

Agreement No. CE 46/2020 (CE) Term Consultancy for Site Formation and Infrastructure Works for Proposed Housing Developments in Zone 1 (2021-2024) - Feasibility Study (Task Order 4 – Shap Pat Heung Road)

Final Preliminary Traffic and Transport Impact Assessment for Shap Pat Heung Road (Rev.2)

(5210095-OR009-03)

March 2023

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1. Introduction

1.1. General

1.1.1. The Civil Engineering and Development Department (hereinafter called "CEDD") of the Government of the Hong Kong Special Administrative Region appointed Atkins China Limited (hereinafter called "Atkins"), under Agreement No. CE 46/2020 (CE), to provide professional services in respect of the Term Consultancy for Site Formation and Infrastructure Works for Proposed Housing Developments in Zone 1 (2021 - 2024) - Feasibility Study (hereinafter called "the Assignment").

1.1.2. Task Order 4 – Shap Pat Heung Road was issued to Atkins on 27h October 2021.

1.2. Background

1.2.1. The Government is committed to facilitating steady and continued land supply, not only for providing people with a place to live and work, but also for the developments of Hong Kong's commerce, industry, innovation and technology and various emerging sectors. In the short to medium term, the Government will continue to optimise the use of built-up land and its surrounding areas to meet the demand of the public for land for housing and other purposes.

1.2.2. Potential Sites are/would be identified for housing developments. The respective locations of the Site(s) would be provided by the DR throughout the course of the Assignment. Boundaries of the instructed Site(s) would be subject to review and determination from the findings of study(ies) and assessment(s) under this Assignment.

1.2.3. The demarcation of Zone 1 includes Yuen Long district, Tuen Mun district, Tsuen Wan district and Kwai Tsing district, while the study area of Task Order 4 – Shap Pat Heung Road is located at the south of the Yuen Long town centre and surrounded by nearby residential buildings including Atrium House, LA Grove and Park Signature.

1.2.4. The engineering feasibility study is carried out to determine the scope of the infrastructure works, and provide necessary engineering information to support the Section 16 Application for increasing the domestic plot ratio of the site at Shap Pat Heung Road near Lung Tin Tsuen, Yuen Long for the proposed public housing development.

1.3. Project Scope

1.3.1. Carry out necessary study(ies) and/or assessment(s) for the instructed Site(s) under Task Order(s) issued by the CEDD in order to ascertain the feasibility of the intensification of the Development(s) to a maximum domestic plot ratio of 6.5 and define the scope of the Project (Infrastructure) for the relevant parties to put forward the respective detailed designs.

1.3.2. This scope of study(ies) and technical assessment(s) of the instructed Site(s) include, but not limited to, the following principal works elements:

(a) Recommendation of optimum development schemes for the Development(s) and the required supporting facilities for the Development(s);

(b) Slope cutting and earth filling works as well as geotechnical works/structures (including slope/retaining wall upgrading works if necessary);

(c) Decontamination works, if any;

(d) Transport infrastructure works (including new road connecting to the Site(s), diversion/ upgrading of existing roads, flyovers, traffic improvement works, PTI/public transport laybys, pedestrian footpath, cycle track, footbridges/ subways and any other pedestrian and transport facilities etc. if necessary);

(e) Sewerage infrastructure works (including pumping station(s), treatment plants and reclaimed water (treated sewage effluent, grey water and harvested rainwater as applicable) treatment facilities if necessary);

(f) Drainage infrastructure works and necessary diversion works;

(g) Water supply infrastructure works and necessary diversion works;

(h) Environmental mitigation measures for the Development(s); and

(i) Other infrastructure works, such as utility works, electricity substation, etc., if any deemed to be necessary to support the Development(s).

1.4. Purpose of the Report

1.4.1. The Preliminary Traffic and Transport Impact Assessment (hereinafter called “the Report”) is prepared to present the methodology, assumptions and findings for the traffic impact assessment to justify the intensification of the Proposed Development to the domestic plot ratio of 6.5 in Shap Pat Heung Road, Yuen Long.

1.5. Structure of this Working Paper

1.5.1. Following this introductory chapter, there are 5 future chapters:

- **Section 2 - Proposed Developments**, describes the detail of the Proposed Development;
- **Section 3 - Existing Traffic Condition**, describes the road network and transport facilities in the vicinity;
- **Section 4 - Transport Modelling and Forecast**, describes the methodology of traffic forecasting;
- **Section 5 - Traffic and Transport Impact Assessment**, presents the results of the TTIA at the adopted design years, and recommends improvement measures to alleviate any foreseeable traffic problems; and
- **Section 6 - Summary and Conclusion**, summarizes the findings of the study and presents the conclusions accordingly

2. Proposed Development

2.1. Site Location

2.1.1. The Proposed Development at Shap Pat Heung is located about 1.1km at the south of the existing Long Ping MTR Station and about 1.5km at the southwest of. Yuen Long MTR Station. The study area is bounded by Park Signature to the south, Atrium House to the west, LA Grove to the east and Lung Tin Tsuen to the north.

2.2. Development Schedule

2.2.1. The Subject Site consists of about 0.71ha developable area and the current allowable development domestic plot ratio is 5.0. With the proposed increase of domestic plot ratio to 6.5, the site will be developed into public housing providing 910 nos. of flats with some social welfare facilities. The development parameters of the Proposed Development are presented in **Table 2.1**.

Table 2.1 Adopted Development Parameters

Development Type	Parameters	Target Intake Year
Public Housing Development(1)(2)	910 Flats / 2,457 Persons	2028/2029
Social Welfare Facilities(3)(4)	Centre of Home Care Services (HCS) for Frail Elderly Persons 96-place Residential Child Care Centre (RCCC)	2028/2029

Remarks:
(1) Flexibility would be allowed to change the housing type to cater for demand change between Public Rental Housing (PRH)/ Green Form Subsidised Home Ownership Scheme (GSH) and Other Subsidised Sale Flats (SSFs) subject to pro-rata adjustments of provision of ancillary facilities in accordance with the HKPSG.
(2) Subsidised Sale Flats (SSFs) is considered in this technical assessment as the worst case scenario.
(3) About 5% of domestic GFA had been set aside for the provision of social welfare facilities under the proposed housing development.
(4) The final list of social welfare facilities shall be subject to confirmation by user departments at later stage.

2.3. Design Year

2.3.1. In view of the population intake year of the housing site is 2028/2029, the proposed assessment year is adopted as year 2032 (i.e. population intake year plus four/three years).

2.4. Parking and Servicing Facilities Provision

2.4.1. Based on the scheme for 910 flats, the provision of parking and loading / unloading (L/UL) facilities of the Proposed Development will be made reference to the Hong Kong Planning Standard and Guideline (HKPSG) and the requirements by operational needs by end users. The proposed parking and L/UL facilities provision are summarized in **Table 2.2**. If there are any further updates in the flat number, the parking requirements will be further reviewed according to the HKPSG and agreed with Transport Department in the later stage.

Table 2.2 Proposed Parking and Loading / Unloading Facilities Provision

Parking and L/UL Facilities	HKPSG Standard	Required Provision (nos.)	Adopted Provision (nos.)
Public Housing (1)			
Car Parking	0.52 spaces per 4 - 7 flats excluding 1 person / 2 persons flats (Accessibility Adjustment Ratio: 1 outside 500m-radius of rail station)	68 – 119 (include 2 accessible parking spaces)	119 (include 2 accessible parking spaces)
Motorcycle Parking	1 space per 110 - 250 flats excluding 1 person / 2 persons flats	4 – 9	9
LGV & LB Parking	1 space per 260 flats excluding 1 person / 2 persons flats	4	4
Loading/Unloading (Domestic)(3)	2 " shared-use" L/UL bays per block and will be allowed for overnight parking	4	4
Visitor Car Parking	Up to 5 visitor spaces per block	0 – 10(include 1 - 2 accessible parking spaces)	10 (include 2 accessible parking spaces)
Bicycle Parking	1 bicycle parking space for every 15 flats with flat size smaller than 70m^2 where proper cycle tracks with direct connection to rail stations are accessible.	61	61
Social Welfare Facilities (2)			
LGV & Light Bus Parking (HCS)	Nil	Nil	1(2)
	Nil	Nil	1(2)
LGV & Light Bus Parking (RCCC)	Nil	Nil	

Remarks:
(1) The estimate of parking provisions is assumed no "One person/two persons" flats for the calculation of the overall parking provision of private car, motorcycle parking spaces and shared-use spaces for LGV and light bus (LB).
(2) The final list of social welfare facilities and the provision of parking spaces shall be subject to confirmation by user departments at later stage.
(3) The Loading/Unloading Bays could be used for overnight parking of Medium/Goods Vehicle and Coach.

2.4.2. HD had advised that the high-end of parking provision pursuant to the Hong Kong Planned Standard and Guideline (HKPSG) requirements will be adopted for the Subject Site.

2.5. Provision of Vehicular Access Arrangement

2.5.1. The site is surrounded by existing residential buildings. The only direct frontage is located at Shap Pat Heung Road. Hence, the development vehicular access is proposed at Shap Pat Heung Road.

2.5.2. The development traffic will reach Yuen Long Highway via Shap Pat Heung Interchange to the east, or via Yuen Long Tai Yuk Road, Castle Peak Road – Ping Shan, Long Tin Road and Tong Yan San Tsuen Interchange to the west.

2.5.3. The existing Shap Pat Heung Road is a single carriageway local road with 2 traffic lanes from Lam Hau Tsuen Road to Tai Tong Road, and a dual 2-lane carriageway primary distributor from Tai Tong Road to Shap Pat Heung Interchange. It serves the local developments and connects to Yuen Long Highway at its east end.

2.5.4. Castle Peak Road – Ping Shan between Long Tin Road and Yuen Long Tai Yuk Road is a dual rural trunk road running in an east-west direction with 2 traffic lanes on the eastbound and 1 traffic lane on the westbound carriageway. It is an east-west corridor operating in parallel with Yuen Long Highway to provide the east-west inter-district traffic movements in North West New Territories (NWNT). Besides, it is also a key public transport corridor in the area with serval franchised bus, green minibus (GMB), public light bus and light rail transit (LRT) routes.

2.5.5. Yuen Long Highway (Route 9) between Tong Yan San Tsuen Interchange and Shap Pat Heung Interchange is a dual 3-lane expressway running in an east-west direction servicing strategic traffic. Yuen Long Highway connects with Tsing Long Highway (Route 3) and Fanling Highway at its east and Kong Sham Western Highway (Route 10) and Tuen Mun Road at its west. It is a major strategic east-west traffic corridor to connect the Proposed Development to access urban areas and cross boundary control point to Mainland via Shenzhen Bay Crossing.

2.5.6. The proposed vehicular access will be via Shap Pat Heung Road. The existing Shap Pat Heung Road is a single carriageway approximately 10m wide and the existing clear width of the southern and northern footpaths are about 3.0m. The conceptual design of the new access arrangement within the Subject Site is shown in **Figure 5210095-TIA-1202**.

2.6. Provision of Public Transport Facilities

2.6.1. In view of the long walking distance (>1km) from the Subject Site to the Long Ping Station and Yuen Long MTR Stations, the anticipated public transport demand will utilize the existing nearby public transport services. The public transport demand of the Proposed Development will be discussed in **Section 5.4**.

3. Existing Traffic Condition

3.1. Area of Influence (AOI)

3.1.1. The AOI for this TTIA is shown in **Figure 5210095-TIA-1201**. The AOI covers the road network bounded by Long Tin Road to the West, Shap Pat Heung Interchange to the East, Yuen Long Highway to the South and Castle Peak Road – Ping Shan to the North.

3.2. Key Junctions

3.2.1. The key road links to be assessed are tabulated in **Table 3.1** and shown in **Figure 5210095-TIA-1301**.

Table 3.1 Identified Key Road Links

Index	Road Link
L1a	Tong Yan San Tsuen Interchange Slip Road (From Yuen Long Highway EB to Long Tin Road NB)
L1b	Tong Yan San Tsuen Interchange Slip Road (From Yuen Long Highway WB to Long Tin Road NB)
L1c	Tong Yan San Tsuen Interchange Slip Road (From Long Tin Road SB to Yuen Long Highway EB)
L1d	Tong Yan San Tsuen Interchange Slip Road (From Long Tin Road SB to Yuen Long Highway WB)
L2	Long Tin Road (section between Castle Peak Road & Tong Yan San Tsuen Int)
L3	Yuen Long Highway (section between Tin Shui Wai W Int & Tong Yan San Tsuen Int)
L4	Yuen Long Highway (section between Tong Yan San Tsuen Int & Shap Pat Heung Int)

3.2.2. The key junctions to be assessed are tabulated in **Table 3.2** and shown in **Figure 5210095-TIA-1301**.

Table 3.2 Identified Key Junctions

Index	Junction	Junction Type
J1	Shap Pat Heung Road / Yuen Long Tai Yuk Road	Priority
J2	Shap Pat Heung Road / Lam Hau Tsuen Road	Roundabout
J3	Town Park Road South / Lam Hau Tsuen Road	Signalised
J4	Shan Ha Road / Town Park Road North	Priority
J5	Shap Pat Heung Road / Kung Um Road & Kiu Hing Road	Signalised
J6	Shap Pat Heung Road / Tai Shu Ha Road West / Tai Shu Ha Road East	Priority
J7	Shap Pat Heung Road / Tai Tong Road	Signalised
J8	Shap Pat Heung Road / Fung Ki Road	Signalised
J9	Shap Pat Heung Road / Tai Kei Leng Road	Signalised
J10	Shap Pat Heung Interchange	Roundabout
J11	Yuen Long Tai Yuk Road / Ma Tin Road	Signalised
J12	Yuen Long Tai Yuk Road / Kau Yuk Road	Signalised
J13	Castle Peak Road – Ping Shan / Ma Miu Road	Signalised
J14	Castle Peak Road – Ping Shan / Long Tin Road	Signalised

Index	Junction	Junction Type
J15	Town Park Road North / Ma Tin Road	Priority
J16	Tong Yan San Tsuen Interchange / Long Hon Road & Shan Ha Road	Priority

3.3. Traffic Count Survey

3.3.1. Manual classified traffic count surveys were conducted at all key junctions and road links as tabulated in **Table 3.1** and **3.2** and shown in **Figure 5210095-TIA-1301** to identify the existing traffic flows during the peak hour periods from 07:30 to 10:00 hours and from 16:30 to 19:45 hours on typical weekdays, 02 and 07 December 2021.

3.3.2. The morning and evening peak hours were identified from 07:45 to 08:45 hours and from 17:15 to 18:15 hours respectively. The change of the observed traffic flow pattern is in-line with previous surveys conducted in the vicinity and previous Annual Traffic Census (ATC) data. The observed traffic flows are presented in **Figure 5210095-TIA-1302**.

3.4. Queue Length Survey

3.4.1. The recorded average queue lengths at the approach arms of the key junctions from the traffic surveys are presented in **Figure 5210095-TIA-1304 to 1307**.

3.4.2. Basically, the queuing conditions at the key junctions were manageable and were not tailback to upstream junctions at most of the time. There will be junction improvement works proposed by other development projects in Yuen Long area which will increase the junction capacities in future.

3.5. Existing Public Transport Services

3.5.1. Currently, there are several bus and green minibus services with servicing points along Shap Pat Heung Road. Moderate public transport routes are available within 400m from the Subject Site. The service details of the existing public transport services within the AOI are tabulated in **Table 3.3**.

Table 3.3 Existing Public Transport Services

Route No.	Destinations	Peak Headway (mins)
Franchised Bus		
53	Yuen Long (Yoho Mall) - Tsuen Wan (Nina Tower)	25-35
68A	Yuen Long (Long Ping) - Tsing Yi Station	12-25
68E	Yuen Long Park – Tsing Yi Station	20-30
68F *	Park Yoho – Yuen Long Park	30
68X	Hung Shui Kiu (Hung Fuk Estate) - Mong Kok (Park Avenue)	10-25
264R	Tin Yiu Bus Terminus – Tai Po Market Station	30
268B	Long Ping Station – Hung Hom (Hung Luen Road)	20-30
268C	Yuen Long Park – Kwun Tong Ferry	5-13

Route No.	Destinations	Peak Headway (mins)
268P #	Long Ping Station – Kwun Tong Ferry	-
268X	Hung Shui Kiu (Hung Fuk Estate) - Jordan (West Kowloon Station)	10-35
269D	Tin Shui Wai Station - Lek Yuen	5-15
276	Tin Tsz - Sheung Shui	15-25
276P	Tin Shui Wai Station - Sheung Shui	7-25
968	Yuen Long Park – Causeway Bay (Tin Hau)	-
B1	Tin Tsz – Lok Ma Chau Station	-
B2	Yuen Long Station - Shenzhen Bay Port	60
E36	Pat Heung Road – Airport (Ground Transportation Centre)	15-20
E36S	Ma Wang Road – Airport (Ground Transportation Centre)	-
K66	Long Ping – Tai Tong Wong Nai Tun Tsuen	9-12
K68 *	Yuen Long Industrial Estate – Yuen Long Park	12-13
N269 ^	Tin Tsz – Mei Foo	-
N30 ^	Yuen Long Station – Airport (Cheong Tat Road)	-
NA36 ^	Cathay Pacific City – Kam Sheung Road Station	-
GMB		
NT-31 *	Yuen Long (Hong King Street) - Tong Yan San Tsuen	6-10
NT-31A *	Tong Yan San Tsuen - Yeun Long Plaza	16
NT-32	Yuen Long Station (North) Public Transport Interchange - Tan Kwai Tsuen	10-15
NT-33	Yuen Long (Tai Fung Street) - Ha Pak Nai	20-30
NT-35	Yuen Long (Tai Fung Street) - Sha Kiu (Tsim Bei Tsui)	18-23
NT-39	Yuen Long (Fung Cheung Road) – Kung Um	5-8
NT-39A *	Yuen Long (Kau Yuk Road) – Kung Um Road	7-20
NT-604 *	Yuen Long (Fau Tsoi Street) – Shan Ha Tsuen	20
NT-609 *	Yuen Long Stadium – Pok Oi Hospital	6-15
NT-622 *	Hung Shui Kiu (Hung Yuen Road) - Long Ping Station	15-30

Remarks:
* Circular routes
# Peak period services
^ Overnight services

3.5.2. Apart from the above bus and green minibus services, light rail services of routes 610, 614, 615, 761P are available at both Fung Nin Road LRT Station and Shui Pin Wai LRT Station for the residents of the Proposed Development. The routes serve the passengers to/from Yuen Long, Tin Shui Wai and Tuen Mun areas while Yuen Long Station is the design interchange MTR station of Fung Nin Road LRT Station and Shui Pin Wai LRT Station.

3.5.3. The existing public transport services in the vicinity of the Proposed Development are shown in **Figure 5210095-TIA-1303**.

4. Transport Modelling and Forecast

4.1. Traffic Model Development Approach

4.1.1. A two-tier transport modelling approach will be adopted for the traffic impact assessment. The upper tier Strategic Transport Model (STM) using the in-house model would support the strategic transport planning analysis which provide the boundary conditions and zonal traffic growth information for the lower tier Local Area Traffic Model (LATM) using the Base District Traffic Model (BDTM). The LATM would evaluate the traffic implication and assist for formulating traffic improvement proposals to meet local transport demands.

4.2. Strategic Transport Model (STM)

4.2.1. The Consultant's In-house STM, in EMME platform, has the architecture of a conventional 4-stage transport model that involves the four stages of Income-Vehicle-Trip Generation stage, Integrated Trip Distribution stage / Modal Split stage and Assignment stage.

4.2.2. The In-house STM will be developed based on the travel characteristics data presented in Travel Characteristics Survey 2011 (TCS2011) and Survey on Goods Vehicle Trip Characteristics 2011 (GVTCS2011), in particular on the trip generation / attraction rates, modal split / distribution characteristics, Value of Time (VOT) and Vehicle Operating Costs (VOC). It is then the STM will be validated to the traffic and transport conditions as reported in relevant Monthly Traffic and Transport Digests 2021. With the validated STM with reference to year 2021 traffic survey, this model can be adopted for future traffic forecast with respect to the latest planning data of the 2019-based Territorial Population and Employment Data Matrix (TPEDM).

4.2.3. The STM will be adopted the modelling assumptions for future traffic and transport forecast such as the Gross Domestic Product (GDP) growth, vehicle fleet size, cross-boundary traffic and planning data in the future planning horizon years (i.e. 2032). The detailed modelling assumptions will be discussed in **Section 4.4**.

4.2.4. The base year STM was validated to year 2021 base year traffic flows across the relevant ATC screenlines for the daily, morning (AM) and evening (PM) peak periods. The validation targets for the road based STM are shown in **Table 4.1**. The screenlines relevant to the AOI of this TTIA are shown in **Figure 5210095-TIA-1401**.

Table 4.1 Validation Target for the Road-based Strategic Transport Model

Validation Parameter at Screenline	Mean Error (1)		80% Error (2)		Max Error (3)	
	1-way	2-way	1-way	2-way	1-way	2-way
Daily Total Vehicles	-	3%	-	8%	-	15%
Peak Hour Total Vehicles	10%	5%	15%	10%	30%	20%
Peak Hour Car	15%	10%	25%	15%	50%	30%
Peak Hour Taxi	15%	10%	25%	15%	50%	30%
Peak Hour Goods Vehicle (4)	15%	10%	25%	15%	50%	30%

Remarks: (1) "Mean Error" means that the average vehicles of screenlines, the base year and synthesized volume should be within the specified values.

(2) "80% Error" means that the across 80% of screenlines, the base year and synthesized volume should be within the specified values in bracket ( ).
(3) "Max Error" means that the maximum error of screenlines, the base year and synthesized volume should be within the specified values.
(4) Goods Vehicle include Light Van, Light Goods Vehicle, Medium Goods Vehicle, Heavy Goods Vehicle and Tractor Unit.

4.2.5. The results of the validation for the road-based traffic volumes are shown in are shown **Table 4.2**. Basically, the STM road-based traffic volumes at relevant screenline satisfy the target validation criteria.

Table 4.2 Summary of Strategic Transport Model Validation

Validation at Screenline	Mean Error (1)		80% Error (2)		Max Error (3)	
	1-way	2-way	1-way	2-way	1-way	2-way
Daily Total Vehicles	-	3%	-	81%	-	9%
AM Peak Total Vehicles	6%	4%	91%	86%	22%	13%
AM Peak Car	8%	4%	96%	93%	42%	23%
AM Peak Taxi	12%	10%	96%	85%	28%	20%
AM Peak Goods Vehicle (4)	7%	4%	91%	86%	48%	27%
PM Peak Total Vehicle	4%	3%	94%	85%	28%	16%
PM Peak Car	5%	4%	94%	88%	31%	25%
PM Peak Taxi	6%	5%	98%	96%	37%	17%
PM Peak Goods Vehicle (4)	5%	3%	96%	92%	38%	17%

Remarks: (1) "Mean Error" means that the average vehicles of screenlines, the base year and synthesized volume should be within the specified values stated in STM validation target.
(2) "80% Error" means that the across 80% of screenlines, the base year and synthesized volume should be within the specified values stated in STM validation target.
(3) "Max Error" means that the maximum error of screenlines, the base year and synthesized volume should be within the specified values stated in STM validation target.
(4) Goods Vehicle includes Light Van, Light Goods Vehicle, Medium Goods Vehicle, Heavy Goods Vehicle and Tractor Unit.

4.3. Local Area Traffic Model (LATM)

4.3.1. The LATM, in SATURN platform, has been developed based on the network and zoning structure of the 2015-based Base District Traffic Model (BDTM) under the model area of "New Territories West 1" (NTW1) obtained from TD. The LATM is an assignment model capable to consider detailed junction control, traffic queuing and delays for the forecast of the local are traffic demand. Since the LATM is required to simulate the local traffic movements within the AOI, the model network has been further refined and the zoning system has been further disaggregated to better replicate the detailed traffic movements within the AOI for the model validation and future traffic forecast as well as the formulation of the traffic improvement strategy.

4.3.2. The base year STM cordoned trip matrices will be extracted and further disaggregated into the LATM zoning system for initial inputs and validation for the base year LATM. The design year LATM matrices are developed by applying the traffic zonal growth and replacement of the strategic traffic movement (i.e. LATM External-to-External trips) obtained from the STM cordoned trip matrices. It is therefore the distribution of trips for the validated base year LATM trip matrices can be retained in the design year LATM and at the same time, generally following the growth trend of STM cordoned trip matrices to reflect the latest planning and

modelling assumptions as well as the pattern of the validated base year LATM Internal-to-Internal trips can be brought forward to the design year LATM to account for the local nature of LATM.

4.3.3. The planned infrastructure / road improvements have been incorporated to the LATM. Details of highway infrastructure and local road improvements will be presented in **Section 4.4**.

4.3.4. The LATM has served as a prima basis for facilitating traffic forecasts and assessments to be carried out under this Study. Hence, the 2021 base year LATM has to be rigorously validated against the obtained traffic data comprising junction flows and screenlines flows in peak hours. The screenlines for LATM is shown in **Figure 5210095-TIA-1402**

4.3.5. The LATM validation framework is the same as those for the BDTMs listed in **Table 4.3**. A combination of percentage difference and GEH statistics was adopted for assessing the level of accuracy of the model validation.

Table 4.3 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
Screenline Link Flows	85% within ±10% 100% within ±20%

4.3.6. A generally accepted validation criterion was to achieve ±10% for the screenlines and major links. However, recognising that percentage difference only assess relative error and were often misleading due to numbers of relatively small magnitude, the GEH statistic was primary employed to assess validation. GEH was a modified form of chi-square statistic defined as:

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

where V1 and V2 were the observed and modelled flows on a specific 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.

4.3.7. The validation summary for the LATM screenlines and junctions is shown in **Table 4.4** which shows that the model validation fulfil the target criteria.

Table 4.4 Summary of Local Area Traffic Model Validation

Validation Criteria	Validation Target	% of Link / Junction Flows within Criteria	
		AM Peak	PM Peak
Total Screenline Flows			
% of links within ±10%	100%	100%	100%
Screenline Link Flows			
% of links within ±10%	85%	90%	87%
% of links within ±20%	100%	100%	100%
All Count Locations – Screenline Link Flows			
% of link with GEH 5 or less	85%	97%	93%
% of link with GEH 10 or less	100%	100%	100%
All Count Locations – Junction Entry / Exit Flows			
% of link with GEH 5 or less	85%	91%	93%
% of link with GEH 10 or less	100%	100%	100%

4.3.8. The above results show that all the link and junction flows were satisfactorily validated in the AM and PM peak hours. It is considered that the validated LATM with the 2021 base year traffic conditions is robust and reliable for conducting future traffic projections and traffic forecast to facilitate this TTIA. The validation results are attached in **Appendix B**.

4.4. Modelling Assumptions

4.4.1. The traffic and transport modelling assumptions are summarized and described in the following sections.

Population and Employment Data

4.4.2. The design year model matrices are developed based on the updated matrices taking into account of the future population and employment data in 2019-based TPEDM.

Planned and Committed Developments

4.4.3. The planned and committed developments with tentative development schedules and implementation programmes in the vicinity of the Proposed Development have been considered for traffic forecasting. The list of the considered developments are summarized in **Table 4.5**.

Table 4.5 Planned and Committed Developments

Developments	Included in TPEDM 2019-based?	Remarks
Hung Shui Kiu (HSK) New Development Area (NDA)	Yes	Adopt TPEDM 2019-based Assumption
Yuen Long South (YLS) Development	Yes	Adopt TPEDM 2019-based Assumption
Tuen Mun Area 54 Development	Yes	Adopt TPEDM 2019-based Assumption
Housing Development at Wang Chau	Yes	Adopt TPEDM 2019-based Assumption

Developments	Included in TPEDM 2019-based?	Remarks
Housing Development at Long Bin	Yes	Adopt TPEDM 2019-based Assumption
Brownfield Site Rezoning at Ping Shan North	Yes	Adopt TPEDM 2019-based Assumption
Brownfield Site Rezoning at Sha Kong Wai North	Yes	Adopt TPEDM 2019-based Assumption
Brownfield Site Rezoning at Ping Kwai Road	Yes	Adopt TPEDM 2019-based Assumption
Brownfield Site Rezoning at Ping Shan South	Yes	Adopt TPEDM 2019-based Assumption
Brownfield Site Rezoning at Lam Tei North	Yes	Adopt TPEDM 2019-based Assumption
Brownfield Site Rezoning at Nai Wai	Yes	Adopt TPEDM 2019-based Assumption
Brownfield Site Rezoning at Shap Pat Heung	Yes	Adopt TPEDM 2019-based Assumption
Brownfield Site Rezoning at Tai Kei Leng	Yes	Adopt TPEDM 2019-based Assumption
Brownfield Site Rezoning at Kam Ho Road	Yes	Adopt TPEDM 2019-based Assumption
Proposed Land Exchange Application for Non-industrial Purposes Various Lots in Demarcation District No. 120 and adjoining Government Land off Lam Hi Road	Not Mentioned	Add on-top-of 2019-based TPEDM
Land Exchange Application for Proposed Residential Development at Kung Um Road, Lung Tin Tsuen	Not Mentioned	Add on-top-of 2019-based TPEDM-

Cross-boundary Traffic Forecast

4.4.4. The cross-boundary traffic forecasts provided by Planning Department on 21 May 2021 were adopted for traffic forecasting. As the data are classified as confidential information, the data are not presented in this report.

Gross Domestic Product Growth

4.4.5. The increase in Gross Domestic Product (GDP) were input to the STM for the derive of the future year household income, car availability and the value of time which were used to estimate the future traffic generation and modal split. The GDP growth forecast were adopted based on the information provided by Financial Secretary's Office (FSO) as shown in **Table 4.6**.

Table 4.6 Gross Domestic Product Growth

Forecast	Real GDP
Forecast	
2021 (1)	4.5%
Assumed trend growth (per annum)	

Forecast	Real GDP
2022-25 (4 years) (2)	3.3%
2026-33 (8 years) (3)	2.8%
2034-43 (10 years) (3)	2.6%

Remarks: *(1) The projected real GDP growth rate for 2021 is the mid-point of the range forecast of 3.5% to 5.5% as announced on 14 May 2021.*
(2) The assumed trend growth rates for 2022-25 are extracted from the 2021-22 Budget as announced in February 2021.
(3) The assumptions for years from 2026 onwards are subject to a large degree of uncertainty and to a certain extent judgmental. They are rendered merely as working assumptions for internal reference and can be subject to revisions from time to time. These working assumptions should not be taken as the economic forecasts by the Government.

Value of Time (VOT) and Vehicle Operating Cost (VOC)

4.4.6. The VOT and VOC adopted are based on the TCS 2011 and GVTCS 2011 with the adjustment to the 2021 prices according to the Composite Consumer Price Index (CPI).

4.4.7. The VOT for future years is assumed to growth at the one-third of the real GDP per capita growth rate while the VOC will remain constant in real terms.

Vehicle Fleet Size

4.4.8. The future vehicle fleet size for private vehicles (private cars and motorcycles) (PV) and goods vehicle (GV) were adopted by the mid-year fleet size provided by TD as shown in **Table 4.7**.

Table 4.7 Projected Vehicle Fleet Size at Mid-Year Private Vehicles

Year	Private Car and Motorcycle	Goods Vehicles
2021	651,000 (actual)	116,600 (actual)
2026	711,700	119,500
2031	782,000	122,600
2036	821,800	125,700

Notes: *Figures rounded to the nearest hundreds.*

Airport Usage

4.4.9. The air passenger (excluding transit passengers) and air cargo (excluding transhipment) forecasts for model development were estimated with reference to the latest information obtained from Airport Authority Hong Kong (AA). The assumed future airport usage adopted are shown in **Table 4.8**.

Table 4.8 Airport Usage Forecast

Year	Daily OD (Trips)	Daily OD Cargo (Tonnes)
2026	185,000	14,200
2031	215,000	17,200

Notes: *Daily traffic is calculated by the annual traffic divided by 365.*
Source: *MP2035 traffic forecast.*

Port Productivity and Port Backup / Open Storage Area

4.4.10. According to the Study on the Strategic Development Plan for Hong Kong Port 2030, it is forecasted that there is no imminent need to build a new port container terminal prior to 2030 provided that the existing port facilities enhanced as recommended. The total container throughput forecast would be approximately 31.5 million TEU in year 2030. The average growth rate from year 2015 to year 2030 was estimated as 1.5% per annum (p.a.). To project the container throughput forecast, the estimated growth rate of 1.5% p.a. was applied to year 2018. The assumed future container terminal throughput adopted are shown in **Table 4.9**.

Table 4.9 Container Throughput Assumptions in Hong Kong Port

Year	Container Throughput Assumptions (TEUs)
2026	22,076,000
2031	23,782,000
2036	25,620,000
2041	27,600,000

4.5. Rail and Road Network Assumptions

Rail Network

4.5.1. The railway network assumptions adopted in this Study are shown in **Table 4.10**.

Table 4.10 Railway Network Assumptions

By Year 2032 (in addition to year 2021)	
1	Shatin to Central Link - North-South Corridor (NSC)
2	Hung Shui Kiu Station
3	Tung Chung West Extension and Tung Chung East Station
4	Tuen Mun South Extension
5	Siu Ho Wan Station
6	Lok Ma Chau Spur Line Kwu Tung Station

Road Network

4.5.2. The road network assumptions adopted in this Study are shown in **Table 4.11**.

Table 4.11 Major Road Network Assumptions

Year 2032 (in addition to year 2021)		Configuration (1)
	Kowloon	
1	Road Improvement Works for South East Kowloon Development	S2 / D2 / D3 (2)
2	Widening of Gascoigne Road Flyover	D2
3	Central Kowloon Route and Trunk Road T2	D3 / D2 (2)
	New Territories	
4	Tseung Kwan O – Lam Tin Tunnel and Cross Bay Link	D2
5	Dualling of Hiram's Highway btn. Clear Water Bay Road & Marina Cove and Marine Cove & Sai Kung Town	D2
6	Widening of Castle Peak Road - Castle Peak Bay	D2
7	Widening of Lin Ma Hang Road btn. Ping Yuen River & Lin Ma Hang	S2

8	Widening of Fuk Hang Tsuen Road	S2
9	Improvements to Fan Kam Road	S2
10	Widening of Tai Po Road (existing remaining D2 Shatin section)	D3
11	Fanling Bypass Eastern Section and Western Section	D2 / S2 (2)
12	Po Shek Wu Road Flyover	S1
13	North-South Link	S2
14	Trunk Road T4	D2
15	Flyover from Kwai Tsing Interchange Upramp to Kwai Chung Road	S1
16	Upgrading of remaining sections of Kam Tin Road and Lam Kam Road	S2
17	Widening of Fanling Highway btn. Pak Shek Au Int. & Po Shek Wu Int.	D4
18	North Lantau Road P1	D1
19	Widening and addition of slip roads at Lung Fu Road / Tuen Mun Road / Wong Chu Road / Hoi Wing Road	S1

Remarks: (1) "S1" denotes single 1-lane carriageway; "S2" denotes single 2-lane carriageway; "D2" denotes dual 2-lane carriageway; "D3" denotes dual 3-lane carriageway; "D4" denotes dual 4-lane carriageway; and "D5" denotes dual 5-lane carriageway.

(2) The configuration of these proposed highways varies at different sections of the roads.

4.5.3. The locations of the local road network improvement proposals by YLS Development and Housing Development at Long Bin are listed as below and the gazette layout is enclosed in **Appendix C**.

- Shap Pat Heung Road / Kung Um Road & Kiu Hing Road
- Shap Pat Heung Interchange
- Tong Yan San Tsuen Interchange
- New Junction at Long Hon Road / Shan Ha Road

4.6. Toll Assumption

4.6.1. Future tolls are assumed to remain constant in real terms. For government tunnels with an existing that toll structure, the same flat toll structure will be remained for future design years. Prevailing concessionary tolls on Western Harbour Crossing and Tai Lam Tunnel are adopted. Toll assumptions in 2021 dollars for future year STM are shown in **Table 4.12**. The tolls presented are assumed to remain constant in real terms in all future design years.

Table 4.12 Toll Assumptions for Design Year

Tunnel	Vehicle Type											
	Motorcycle	Car	Taxi	Public Light Bus	Private Light Bus	Light Goods Vehicle	Medium Goods Vehicle	Heavy Goods Vehicle	Single-Decked Bus	Double-Decked Bus	Articulated Vehicle (1)	Each Additional Axle
Cross Harbour Tunnel	8	20	10	10	10	15	20	30	10	15	40	10
Eastern Harbour Crossing	13	25	25	38	38	38	50	75	50	75	100	25
Western Harbour Crossing	25	75	70	85	85	85	110	140	140	200	170	30

Tunnel	Vehicle Type											
	Motorcycle	Car	Taxi	Public Light Bus	Private Light Bus	Light Goods Vehicle	Medium Goods Vehicle	Heavy Goods Vehicle	Single-Decked Bus	Double-Decked Bus	Articulated Vehicle (1)	Each Additional Axle
Tate' s Cairn Tunnel	15	20	20	23	24	24	28	28	32	35	52	24
Tai Lam Tunnel	24	52	52	109	109	53	59	65	155	183	65	-
Aberdeen Tunnel	5											
Lion Rock Tunnel	8											
Shing Mun Tunnels	5											
Sha Tin Heights Tunnel / Eagle's Nest Tunnel / Tai Wai Tunnel	8											

Note: The toll level for Lantau Link, Tseung Kwan O Tunnel, Tseung Kwan O – Lam Tin Tunnel, Tune Mun-Chek Lap Kok Link, Route 11, Tuen Mun Bypass are assumed to be zero.

Remarks:
(1) Toll of articulated vehicle = toll rate for "Heavy Goods Vehicle" + toll rate for "Each Additional Axle".

4.7. Trip Generation

4.7.1. To estimate the traffic generation of the Proposed Development appropriate trip rates should be adopted. Reference has been made to the TPDM published by TD.

4.7.2. The adopted trip rates and estimated trip generation/ attraction demand of the Proposed Development and associated facilities during the morning and evening peak as summarized in **Table 4.13**.

Table 4.13 Traffic Generation of the Proposed Development

	Parameters	Trip Rates				Traffic Demand (pcu/hr)			
		AM		PM		AM		PM	
		Gen	Att	Gen	Att	Gen	Att	Gen	Att
Public Housing (Subsidised Housing: HOS / PSPS)	910 + 10% flats (1)	0.0622	0.0426	0.0297	0.0401	63	43	30	41
Social Welfare Facilities (2) (3)	-	-	-	-	-	10	10	10	10
					Sub-Total	**73**	**53**	**40**	**51**
					Grand Total	**126**		**91**	

Remarks:
(1) 10% variation for design flexibility is allowed in the population/flats for technical assessment. The actual nos. of population/flats will be subject to confirmation by the user department at later stage.
(2) It is anticipated the Social Welfare Facilities and kindergarten would mainly serve the Proposed Development and resident in the vicinity. The traffic demand is anticipated to be minimal. 10pcu/hr one-way is assumed for assessment purpose.
(3) The actual type of SWD facilities are subject to confirmation by user department at later stage.

4.7.3. As shown in **Table 4.13**, the Proposed Development would generate about 126 pcu/hr and 91 pcu/hr during the morning and evening peak hour periods respectively.

4.8. Assessment Scenarios

4.8.1. With the model development methodology and the modelling assumptions presented in the previous sections, the traffic models for this TTIA have been developed and model runs have been conducted for various assessment scenarios as follow:

a) Year 2021 Baseline Scenario;
b) Year 2032 Reference Scenario (i.e. without the Proposed Development);
c) Year 2032 Design Scenario (i.e. with the Proposed Development with Domestic Plot Ratio 6.5);

4.8.2. The traffic flows for the assessment scenarios a) to c) are shown in **Figures 5210095-TIA-1302**, **5210095-TIA-1403** and **5210095-TIA-1405** respectively.

4.8.3. The distribution of development traffic is shown in **Figure 5210095-TIA-1404** and the development traffic routes are shown in **Figure 5210095-TIA-1406**.

5. Traffic and Transport Impact Assessment

5.1. Methodology

Road Links Assessment

5.1.1. Road link capacity analysis were carried out in accordance with the procedures outlined in TPDM. The performance of road links are represented in terms of Volume/Capacity (V/C) ratio.

5.1.2. A V/C ratio equals to or less than 1.0 indicates that a road has sufficient capacity to cope with the volume of vehicular traffic under consideration and the resultant traffic will flow smoothly. A V/C ratio above 1.0 indicates the onset of congestion. A V/C ratio above 1.2 indicates more serious congestion with traffic speeds deteriorating progressively with further increase in traffic.

5.1.3. The key road links assessed are tabulated in **Table 5.1** and the locations are shown

Junctions Assessment

5.1.4. The performance of priority junctions / roundabouts are represented in terms of design flow/capacity (DFC) ratio while that of signalized junctions are represented in terms of reserve capacity (RC). The performance indicators are summarized below:

- DFC ≤ 0.75 / RC ≥ 25% – acceptable for new junctions
- DFC ≤ 0.85 / RC ≥ 15% – acceptable for existing junctions
- DFC > 1.0 / RC < 0% – not acceptable in general under “with development” Scenario

5.1.5. Problematic road links and junctions will be identified and mitigation measures will be proposed where practicable.

5.2. Road Link Assessment

5.2.1. The performance of the assessed road links for all the assessment scenarios are summarized in **Table 5.2**.

Table 5.1 Road Link Assessments

Index [2]	Road Link	Direction / Turning	Capacity (pcu/hr)	Flow / Volume to Capacity (V/C) Ratio [1]											
				2021 Baseline				2032 Reference				2032 Design			
				AM		PM		AM		PM		AM		PM	
				Flow (pcu/hr)	V/C Ratio	Flow (pcu/hr)	V/C Ratio	Flow (pcu/hr)	V/C Ratio	Flow (pcu/hr)	V/C Ratio	Flow (pcu/hr)	V/C Ratio	Flow (pcu/hr)	V/C Ratio
L1a	Tong Yan San Tsuen Interchange	EB→NB	1800	1,617	0.90	1,647	0.92	1,025	0.57	1,394	0.77	1,025	0.57	1,394	0.77
L1b		WB→NB	1800	1,298	0.72	1,298	0.72	1,395	0.78	1,395	0.78	1,395	0.78	1,395	0.78
L1c		SB→EB	1800	2,044	**1.14**	1,215	0.68	1,806	**1.00**	1,647	0.92	1,806	**1.00**	1,647	0.92
L1d		SB→WB	1800	1,274	0.71	1,327	0.74	912	0.51	823	0.46	912	0.51	823	0.46
L2	Long Tin Road	NB	3600/ 5400	3,582	**1.00**	3,860	**1.07**	3,327	0.62	4,035	0.75	3,327	0.62	4,035	0.75
		SB	5400	4,190	0.78	3,471	0.64	4,316	0.80	3,859	0.71	4,316	0.80	3,859	0.71
L3	Yuen Long Highway (section between TSWW Int. and TYST Int.)	EB	6100	5,776	0.95	4,843	0.79	6,622	**1.09**	6,765	**1.11**	6,638	**1.09**	6,780	**1.11**
		WB	6100	4,554	0.75	4,771	0.78	4,672	0.77	4,877	0.80	4,694	0.77	4,889	0.80
L4	Yuen Long Highway (section between TYST Int. & SPH Int.)	EB	6100	6,203	**1.02**	4,411	0.72	6,956	**1.14**	6,299	**1.03**	6,956	**1.14**	6,299	**1.03**
		WB	6100	4,578	0.75	5,160	0.85	5,130	0.84	5,633	0.92	5,130	0.84	5,633	0.92

Remarks: (1) Bold figure indicates V/C ratio of more than 1.0 which denotes overcapacity.
*(2) Refer to **Figure 5210095-TIA-1301***

5.2.2. As shown in **Table 5.1**, most of the assessed road links would operate with acceptable operation performance with V/C ratio less than 1.0 under all assessment scenarios except the slip road of Tong Yan San Tsuen Interchange (i.e. L1c), Long Tin Road Northbound (i.e. L2 NB) and Yuen Long Highway Eastbound (i.e. L3 EB and L4 EB). These road links would still operate with tolerable V/C ratios with values between 1.0 to 1.2 which indicates the onset of congestion.

5.2.3. In short, the traffic condition with / without the Proposed Development would be tolerable even up to the design year.

5.2.4. The traffic impact to Yuen Long Highway induced by the Proposed Development is relatively small compared to the Year 2032 Reference Scenario (i.e. less than no increment in v/c ratio). The impact to these road links would be mainly due to the cumulative traffic impact of other the planned / committed developments in the district.

5.2.5. There will be road improvement works by others including Yuen Long South Development, Widening of Yuen Long Highway and Route 11. The link capacities on the key road links will be increased to cater the future traffic demand.

5.3. Junction Assessments

5.3.1. The key junctions assessed are tabulated in **Table 5.2** and the locations are shown in **Figure 5210095-TIA-1301**. The calculation sheets are attached in **Appendix A**.

Table 5.2 Junctions Performance

No.(2)	Junction	Type	Reserve Capacity (RC) % / Design Flow/Capacity Ratio (DFC) (1)					
			2021 Baseline		2032 Reference		2032 Design	
			AM	PM	AM	PM	AM	PM
J1	Shap Pat Heung Road / Yuen Long Tai Yuk Road	Priority	0.82	0.84	0.79	0.82	0.80	0.83
J2	Shap Pat Heung Road / Lam Hau Tsuen Road	Round-about	0.30	0.15	0.32	0.18	0.33	0.18
J3	Town Park Road South / Lam Hau Tsuen Road	Signal	27%	58%	28%	55%	23%	50%
J4	Shan Ha Road / Town Park Road North	Priority	0.70	0.82	0.79	0.76	0.82	0.79
J5	Shap Pat Heung Road / Kung Um Road & Kiu Hing Road (4)	Signal	**-5%**	**-4%**	**12%** (4)	**12%** (4)	**12%**	**12%**
J6	Shap Pat Heung Road / Tai Shu Ha Road West / Tai Shu Ha Road East	Priority	0.38	0.53	0.56	0.52	0.58	0.53
J7	Shap Pat Heung Road / Tai Tong Road	Signal	22%	26%	21%	20%	16%	17%
J8	Shap Pat Heung Road / Fung Ki Road	Signal	51%	53%	48%	32%	44%	31%
J9	Shap Pat Heung Road / Tai Kei Leng Road	Signal	47%	47%	80%	57%	75%	55%
J10	Shap Pat Heung Interchange	Round-about	**0.91**	**0.91**	**0.89**	**0.89**	**0.90**	**0.90**
J11	Yuen Long Tai Yuk Road / Ma Tin Road	Signalised	22%	36%	27%	35%	27%	35%
J12	Yuen Long Tai Yuk Road / Kau Yuk Road	Signalised	33%	34%	42%	37%	42%	37%
J13	Castle Peak Road – Ping Shan / Ma Miu Road	Signalised	15%	32%	**10%**	28%	**10%**	28%
J14	Castle Peak Road – Ping Shan / Long Tin Road	Signalised	65%	82%	45%	64%	45%	64%
J15	Town Park Road North / Ma Tin Road	Priority	0.21	0.14	0.24	0.17	0.24	0.17
J16	Tong Yan San Tsuen Interchange / Long Hon Road & Shan Ha Road (3)	Priority	0.88	0.89	N/A	N/A	N/A	N/A

Remarks:

(1) Bold figure indicates RC of less than 15% or DFC of more than 0.85 which denotes marginal junction performance. RC of less than 0% or DFC of more than 1.0 denotes overcapacity.

*(2) Refer to **Figure 5210095-TIA-1301**.*

(3) Junction will be removed upon the completion of road improvement works under YLS Development

(4) Road improvement works proposed by YLS Development as mentioned in Section 4.5.3 would have been implemented in the design year (i.e. year 2032) and it is anticipated that certain development traffic would be conveyed via the proposed road improvement works. In this regard, the Proposed Development traffic with approved domestic plot ratio of 5.0 has been included in the 2032 Reference scenario.

5.3.2. As shown in **Table 5.2**, most of the key junctions would operate with satisfactory performance (i.e. RC ≥ 15% and DFC ≤ 0.85) under future year assessment scenarios except Shap Pat Heung Road / Kung Um Road & Kiu Hing Road (J5), Shap Pat Heung Interchange (J10) and Castle Peak Road – Ping Shan / Ma Miu Road (J13).

5.3.3. The purpose of this TTIA is to assess the traffic impact due to the intensification of the Proposed Development from a domestic plot ratio of 5.0 to a maximum domestic plot ratio of 6.5. The additional traffic induced by the intensification is minimal (i.e. 10pcu/hr). According to the above table, the impact to J5 and J10 is insignificant, which indicated that the traffic condition would be same / similar regardless of the intensification of domestic plot ratio to 6.5. Furthermore, for J5 and J10, the RC and DFC would be 12% and 0.90 respectively, which are considered tolerable.

5.3.4. For J13, it is anticipated that the development traffic of the Proposed Development to strategic links will not travel the junction. Hence, there will be no traffic impact due to the Proposed Development and no improvement scheme will be required under this project.

5.3.5. In short, the traffic condition with / without the Proposed Development would be tolerable even up to the design year.

5.4. Queue Length Assessments

5.4.1. In accordance with the Chapter 2.5 of TPDM Volume 4, queue length assessments have been conducted for the signalized junctions. The estimated average queue lengths for design year 2032 Reference and 2032 Design scenarios have been summarized in **Table 5.3**. The calculation sheets are attached in **Appendix D**.

Table 5.3 Summary of Estimated Average Queue Length

No.(1)	Junction	Arm	Length of Stacking Area (m)	Estimated Average Queue Length (m)					
				2021 Baseline		2032 Reference		2032 Design	
				AM	PM	AM	PM	AM	PM
J3	Town Park Road South / Lam Hau Tsuen Road	WB	35	28	25	30	25	31	26
		NB	95	47	20	37	25	40	27
		EB	>200	47	46	52	45	55	47
J5	Shap Pat Heung Road / Kung Um Road & Kiu Hing Road (2)	WB	185	112	104	49	51	50	52
		NB	75	126	117	51	62	52	62
		EB	>200	87	66	81	58	83	59
		SB	120	56	49	39	47	39	47
J7	Shap Pat Heung Road / Tai Tong Road	WB	>200	72	81	68	79	73	84
		NB	150	71	65	66	66	69	68
		EB	145	41	38	42	39	45	41
		SB	>200	69	73	75	75	77	76
J8	Shap Pat Heung Road / Fung Ki Road	WB	>200	41	47	42	45	44	47
		NB	20	8	5	7	6	7	6
		EB	>200	50	47	51	48	53	50
		SB	175	41	41	51	58	52	58
J9	Shap Pat Heung Road / Tai Kei Leng Road	WB	95	26	32	28	33	29	34
		NB	>200	75	31	36	41	37	42
		EB	>200	205	35	43	50	44	50
J11	Yuen Long Tai Yuk Road / Ma Tin Road	WB	95	21	24	20	23	20	23
		NB	200	39	38	40	36	40	36
		EB	170	37	32	38	32	38	32
		SB	>200	34	31	32	30	32	30
J12	Yuen Long Tai Yuk Road / Kau Yuk Road	WB	90	48	41	42	40	42	40
		NB	>200	54	45	50	44	50	44
		SB	125	49	36	40	30	40	30
J13	Castle Peak Road – Ping Shan / Ma Miu Road	WB	195	52	38	52	43	52	43
		NB	95	51	49	56	50	56	50
		EB	>200	42	42	62	51	62	51
		SB	95	53	46	54	42	54	42
J14	Castle Peak Road – Ping Shan / Long Tin Road	WB	>200	56	54	66	61	66	61
		EB	130	35	35	47	41	47	41
		SB	200	35	27	37	33	37	33

*Remarks: (1) Refer to **Figure 5210095-TIA-1301**.*
(2) Junction improvement works proposed by YLS Development as mentioned in Section 4.5.3 will implemented.

5.4.2. From **Table 5.3**, it shows that the impact to junction average queue length due to the Proposed Development would be insignificant by comparing to 2032 Design Case with the 2032 Reference Case.

5.4.3. As shown in the above table, the existing average queue length of J5 (about 120m) exceeds the stacking area (about 75m). The junction will be enhanced by junction improvement works proposed by YLS Development.

5.5. Construction Traffic Impact Assessment

5.5.1. No site formation works would be required for the Subject Site under this Study. Therefore, the construction traffic impact would be mainly due to the construction vehicles generated during the housing construction by HD. As advised by HD, for other previous projects in similar scale, the trip generation of construction vehicle will be about 5 to 6 trucks per hour, which would pose insignificant traffic impact to the nearby road network.

5.5.2. Furthermore, the construction traffic can be managed by avoiding entering / leaving the site during peak hour to minimise the traffic impact to the nearby road networks. In addition, the Contractor shall keep monitoring the traffic condition of near road network during the construction stage and traffic control measures will be implemented to avoid construction traffic via congested road sections or junctions of the area.

5.5.3. It is anticipated that there is sufficient area within the Subject Site to accommodate the construction vehicles during construction. Therefore, minimal traffic impact to the surrounding roads by queueing of construction vehicles outside the Subject Site is anticipated.

5.6. Proposed Traffic and Transport Arrangement

Estimated Public Transport Passenger Demand

5.6.1. In view of the considerably long walking distance (>500m) from the Subject Site to the nearest LRT Station, additional road-based feeder services (i.e. franchised bus and GMB) have been studied for the Proposed Development to cater for the anticipated public transport demand.

5.6.2. The provision of public transport facilities of the Proposed Development were determined making reference to population characteristics of Shap Pat Heung area (Building Group YL0004 and YL0006), presented in the 2016 mid-term Population Census results, the breakdown of Workers, Student and Non-student in the area is summarized in **Table 5.4**.

Table 5.4 Breakdown of Workers, Student and Non-student in the Areas

	Population	Resident Worker	Student	Non-student (1)
Shap Pat Heung (YL0004&YL0006) (2)	3,549	2,110	470	969
		59.5%	13.2%	27.3%
Proposed Development (TO4)	2,703(4)	1,607	358	738

Remarks:
(1) Housewife, Retire or others.
(2) Building groups YL0004 and YL0006 refer to La Grove and Park Signature Tower 1-6 respectively. Source of information is attached in **Appendix F**.
(3) Detailed breakdown from 2021 Population Census is not available. Hence, the assessment is based on 2016 mid-term Population Census results.
(4) 10% variation for design flexibility is allowed in the population/flats for technical assessment. The actual nos. of population/flats will be subject to confirmation by the user department at later stage.

5.6.3. With reference to TCS2011, the overall peak hours for mechanised trips on a weekday were found to be 08:00 – 09:00 a.m. in the morning and 06:00 – 07:00 p.m. in the evening, each accounting for about 12% of the daily trips made. In

view of a majority of students present during morning peak period, therefore, nominal 20% and 35% of Workers and Students respectively to be generated during morning peak hour is assumed for assessment purpose. The pedestrian generation by Transport Mode are summarized in **Table 5.5**.

Table 5.5 Pedestrian Generation by Transport Mode

Population Type	Pedestrian Trip (ped/hr) (1)	Development Pedestrian Trip by Transport Mode (ped/hr) (2)						
		MTR	Bus	PLB	Walk	School Bus	Others (3)	Total (4)
2016 Model Split of Shap Pat Heung (YL0004 & YL0006) (5)								
Worker	-	43%	30%	1%	2%	-	24%	100%
Student	-	27%	11%	3%	17%	35%	7%	100%
2016 Model Split of New Town (6) (7)								
Worker	-	44%	29%	6%	9%	-	12%	100%
Student	-	27%	16%	7%	33%	11%	6%	100%
2021 Model Split of New Town (6) (7)								
Worker	-	45%	27%	5%	9%	-	13%	100%
Student	-	33%	17%	5%	29%	10%	7%	100%
Adopted Model Split of The Proposed Development								
Worker	-	43%	30%	1%	2%	-	24%	100%
Student	-	27%	11%	3%	17%	35%	7%	100%
The Proposed Development								
Worker	321	137	97	4	7	-	76	321
Student	125	34	14	4	21	44	8	125
Total		**171**	**112**	**8**	**28**	**44**	**84**	**447**

Remarks:
(1) Assumed about 20% and 35% of Workers and Students respectively to be generated during morning peak hour making reference to TCS2011.Source of information is attached in **Appendix F**.
(2) Refer to the overall mode spilt of Shap Pat Heung area (YL0004 & YL0006) in the 2016 mid-term Population Census results.
(3) "Others" includes private cars, taxi and shuttle bus.
(4) The figures are rounded to nearest integer. The figures may not add up to the totals due to rounding.
(5) Source of information is attached in **Appendix F**.
(6) "New Town" includes Tseung Kwan O New Town, Tsuen Wan New Town, Tuen Mun New Town, Yuen Long New Town, Tin Shui Wai New Town, Fanling/ Sheung Shui New Town, Tai Po New Town, Sha Tin New Town, Ma On Shan New Town, Kwai Chung New Town, Tsing Yi New Town and North Lantau New Town.
(7) Source of information is attached in **Appendix F**.

5.6.4. The model split of New Town in 2021 Population Census has been considered and compared with the model split of New Town in 2016 Population Census. As shown in the above table, the difference between 2016 and 2021 results for New Town is small. Hence, 2016 Model Split of Shap Pat Heung has been adopted.

Railway Assessment

5.6.5. From **Table 5.5**, it is anticipated that about 159 passengers would be travelling by MTR. The carrying capacities of the Tuen Ma Line (TML) and additional demand and V/C ratio induced by the Proposed Development is summarized in **Table 5.6**.

Table 5.6 Estimated Additional Demand on Tuen Ma Line

No. of Train per hour per direction	28
Design Capacity per direction in 6 ppsm (1) (a)	70,000
Carrying Capacity per direction in 6 ppsm (1) (b)	58,800
Carrying Capacity per direction in 4 ppsm (1) [(b) * 71.2%] (c)	41,866
Passenger Demand from Proposed Developments (d)	171
Additional V/C Ratio in 6 ppsm [(d) / (b)]	+0.3%
Additional V/C Ratio in 4 ppsm [(d) / (c)]	+0.4%
Additional Passenger Demand per train	7

Remarks:
(1) Source of information is attached in **Appendix F**.

5.6.6. The additional demand on the future TML is about +0.3% to +0.4% only, which is equivalent to 7 passengers per train. It is anticipated that the additional demand is insignificant in comparison with the existing carrying capacity of TML. Moreover, MTR Corporation Limited will monitor the passenger flow and consider further enhancing the carrying capacity of TML by arranging short-haul trips to run between busy stations and acquitting more trains to cope with the passengers demands.

5.6.7. It is anticipated that the demand for Light Rail (LR) is minimal in view of long walking distance (i.e. >500m walking distance) from the Proposed Development to the nearest LR station. Existing public transport services in the vicinity of the Proposed Development have provided direct connection to urban area and Yuen Long MTR station. The traffic impact to LR system due to the Proposed Development would be negligible.

Public Transport Demand of the Proposed Development

5.6.8. From **Table 5.5**, the required public transport provision during morning peak hour is assessed and summarized in **Table 5.7**.

Table 5.7 Required Public Transport Provision during Morning Peak Hour

Public Transport Type	Capacity (passenger/ service)	Estimated Passenger Demand (1)	Required no. of Services (service/hr)
Bus (include MTR Feeder) (1)	120	283	3
PLB (2)	19	8	1

Note:
(1) Passenger demand of Bus including the estimated passenger trips by 'Bus' and 'MTR' in Table 5.5. It is assumed that MTR passenger will use Bus as Feeder service to MTR station.

5.6.9. As shown in **Table 5.7**, 3 nos. of bus and 1 no. of PLB during the AM peak hour would be required to cater for the additional public transport demand from the Proposed Development.

5.6.10. It is considered that the existing single bus layby on both sides of Shap Pat Heung Road can accommodate the additional bus and PLB demand from the Proposed Development. Also, based on the on-site observation of the existing usage of layby

as well as existing bus and PLB utilization, the current bus and PLB routes would have adequate spare capabilities to cater for the additional demand.

5.7. Pedestrian Walkway Analysis

5.7.1. The definition of the Level-of-service (LOS) for analysis of pedestrian walkway is elaborated in **Table 5.8** below.

Table 5.8 Definition of Level-of-service (LOS)

Level Of Service (LOS)	Flow Rate (ped/min/m)	Definition
A	≤ 16	Pedestrian freely select walking speed and conflicts between pedestrians are unlikely.
B	16 – 23	Pedestrians freely select walking speed and bypass other pedestrians in primarily one directional flow. Minor conflicts will occur where reverse direction or crossing movements exist, requiring slightly lowering mean pedestrian speeds and potential volumes.
C	23 – 33	Pedestrians are restricted in selecting walking speed and bypass other pedestrians. Conflicts are highly likely to occur where reverse direction or crossing movements exits, requiring frequent adjustment of speed and direction.
D	33 – 49	Most pedestrians would have their normal walking speed restricted and reduced. Multiple conflicts with other pedestrians will occur where pedestrians are involved in reverse-flow and crossing movements.
E	49 – 75	Virtually all pedestrians would have frequent adjustment of gait. At the lower range, forward progress would only be available their normal walking speeds restricted requiring to bypass slower-moving pedestrians. Extreme difficulties for pedestrian attempting reverse-flow and cross-flow movements.
F	> 75	All pedestrian walking speeds are extremely restricted and forward progress can only be made by shuffling. Frequent and unavoidable contact with other pedestrians will occur. Reserve or crossing movements would be virtually impossible.

5.7.2. The walkway is assessed based on the requirement stipulated in TPDM Vol. 2 Chapter 3.4 cl. 3.4.11.3:

"In view of the public expectation for a better walking environment, the upper end of LOS C(23 pedestrians/minute/m as stated in the HCM) is preferred. The Street Furniture & Greening Zone (SF&GZ) acts as a buffer between the Through Zone and the road and incorporates landscaping and a variety of street furniture."

5.7.3. It is expected that pedestrian demand generated by the Proposed Development will be using the nearest layby at Shap Pat Heung Road for commuting via buses / GMB. The westbound and eastbound footpaths at Shap Pat Heung Road adjacent to the Subject Site will be assessed.

5.7.4. The eastern footpath in between La Grove Tower 5 and the Proposed Development has been assessed to review the LOS performance for a scenario of a planned pedestrian access.

5.7.5. According to the pedestrian survey, the pedestrian flows during peak hours were relatively low.

5.7.6. The LOS analysis is summarized in **Table 5.9** for 2021 existing condition.

Table 5.9 LOS Analysis in Year 2021

Index (1)	Location	Clear Width (m)	Effective Width (m) (2)	2-way Pedestrian Flow (ped/hr)		Flow Rate (ped/min/m)		LOS	
				AM	PM	AM	PM	AM	PM
P1	EB Bus Stop outside Ma Tin Tsuen	3.8	1.8	197	67	1.8	0.6	A	A
P2	WB Bus Stop outside Subject Site	3.0	1.0	198	188	3.3	3.1	A	A
P3	Near La Grove Tower 5	1.5	0.5	231	153	7.7	5.1	A	A

Remarks:
(1) *Refer to **Figure 5210095-TIA-1202**.*
(2) Effective width is the width accounting the dead widths on both sides of the walkway, i.e. 0.5m on each side, and 1m bus stop queuing zones with reference to TPDM Vol.9 Chapter 2.7 cl. 2.7.14.7 if applicable.

5.7.7. From above table, it is found that all assessed footpaths have desirable LOS (i.e. “C” or above) in existing condition.

5.7.8. The future LOS analysis is summarized in **Table 5.10** for 2032 reference scenario. With decreasing trend of the population in the PDZ 179 of the 2019-based TPEDM from 2019 to 2036, the growth rate of 1% p.a. is adopted and applied to the 2021 pedestrian flows for the estimate of the 2032 pedestrian flows as a conservative approach.

Table 5.10 LOS Analysis of Year 2032 Reference Case

Index (1)	Location	Clear Width (m)	Effective Width (m) (2)	2-way Pedestrian Flow (ped/hr)		Flow Rate (ped/min/m)		LOS	
				AM	PM	AM	PM	AM	PM
P1	EB Bus Stop outside Ma Tin Tsuen	3.8	1.8	219	75	2.0	0.7	A	A
P2	WB Bus Stop outside Subject Site	3.0	1.0	220	209	3.7	3.5	A	A
P3	Near La Grove Tower 5	1.5 (3)	0.5	257	170	8.6	5.7	A	A

Remarks:
(1) *Refer to **Figure 5210095-TIA-1202**.*

(2) Effective width is the width accounting the dead widths on both sides of the walkway, i.e. 0.5m on each side, and 1m bus stop queuing zones with reference to TPDM Vol.9 Chapter 2.7 cl. 2.7.14.7 if applicable.
(3) Existing width is used for assessment purpose. The provision of the footpath width should be further reviewed by HD.

5.7.9. From above table, it is found that all assessed footpaths have desirable LOS (i.e. "C" or above) in 2032 reference scenario.

5.7.10. Future LOS analysis is summarized in **Table 5.11** for 2032 design scenario. The total passenger demand derived in **Table 5.7** is superimposed on top of Year 2032 reference pedestrian flows for all assessed footpaths as conservative assessment.

Table 5.11 LOS Analysis of Year 2032 Design Case

Index (1)	Location	Clear Width (m)	Effective Width (m) (2)	2-way Pedestrian Flow (ped/hr)		Flow Rate (ped/min/m)		LOS	
				AM	PM	AM	PM	AM	PM
P1	EB Bus Stop outside Ma Tin Tsuen	3.8	1.8	510	366	4.7	3.4	A	A
P2	WB Bus Stop outside Subject Site	3.0	1.0	511	500	8.5	8.3	A	A
P3	Near La Grove Tower 5	1.5 (3)	0.5	704	617	23.5	20.6	C	B

Remarks:
(1) *Refer to **Figure 5210095-TIA-1202**.*
(2) Effective width is the width accounting the dead widths on both sides of the walkway, i.e. 0.5m on each side, and 1m bus stop queuing zones with reference to TPDM Vol.9 Chapter 2.7 cl. 2.7.14.7 if applicable.
(3) Existing width is used for assessment purpose.

5.7.11. From above table, it is found that all assessed footpaths have desirable LOS (i.e. "C" or above) in 2032 design scenario.

5.7.12. Based on the LOS analysis results, the impact due to the Proposed Development on adjacent footpaths is insignificant.

6. Summary and Conclusions

6.1. Summary

6.1.1. Civil Engineering and Development Department appointed Atkins China Limited to undertake the Task Order No. 4 of Agreement No. CE 46/2020 (CE) Term Consultancy for Site Formation and Infrastructure Works for Proposed Housing Developments in Zone 1 – Feasibility Study.

6.1.2. The Subject Site consists of about 0.71ha developable area and the current allowable development domestic plot ratio is 5.0. With the proposed increase of domestic plot ratio to 6.5, the Proposed Development consists of public housing with 910 flats and social welfare facilities. The tentative intake year will be at 2028/2029.

6.1.3. The provision of parking and servicing facilities of the Proposed Development will be made reference to the Hong Kong Planning Standard and Guideline published by Planning Department. HD advised that the high-end of the parking provision will be adopted.

6.1.4. Vehicular access for the Proposed Development will be via Shap Pat Heung Road. The development traffic will reach the strategic road network of Yuen Long Highway via Shap Pat Heung Interchange to the east, or via Shan Ha Road and Tong Yan San Tsuen Interchange to the west.

6.1.5. A two-tier transport modelling approach, including the upper tier Strategic Transport Model and the lower tier Local Area Traffic Model, has been adopted for this study. Traffic and Transport Impact Assessment has been carried out for the design year 2032. The future road network has considered the proposed roadwork under Yuen Long South Development Stage 1 and Stage 2 Phase 1 which is anticipated to be completed and commissioned before the population intake of this development.

6.1.6. Road link assessments have been carried out in accordance with the procedures outlined in Transport Planning and Design Manual (TPDM). It was found that most of the road links would operate with Volume/Capacity (V/C) ratio less than 0.85; some road links would operate with operation performance with V/C ratio between 0.85 to 1.2 in the Year 2032. The traffic impact induced by the Proposed Development was found to be insignificant.

6.1.7. Junction assessments have been carried out in accordance with the procedures outlined in TPDM. The operational performance of most of the key junctions would operate with reserved capacities (RC) more than 15% or design flow/capacity ratio (DFC) less than 0.85 in the Year 2032. Amongst all, the junctions of Shap Pat Heung Road / Kung Um Road & Kiu Hing Road (J5), Shap Pat Heung Interchange (J10) and Castle Peak Road – Ping Shan / Ma Miu Road (J13) would operate with RC between 0% and 15% or DFC between 0.85 and 1.0 in the Year 2032. Based on the assessment results, the traffic impact induced by the Proposed Development is considered relatively insignificant. In short, the traffic condition with the Proposed Development would be tolerable in the design year.

6.1.8. Considering the minimal estimated construction traffic generation from the Proposed Development, it is anticipated that the construction traffic impact on adjacent road links and junctions would be insignificant.

6.1.9. The provision of public transport facilities of the Proposed Development were determined making reference to population characteristics as presented in the 2016 mid-term and 2021 Population Census results. It is anticipated that public transport demand from the Proposed Development would have negligible impact to the existing public transport facilities.

6.1.10. It is expected that pedestrian demand generated by the Proposed Development will be using the nearest layby at Shap Pat Heung Road for commuting via buses / GMB. The footpaths at Shap Pat Heung Road adjacent to the Subject Site have been assessed. Based on the LOS analysis results, the impact due to the Proposed Development on adjacent footpaths is insignificant.

6.2. Conclusions

6.2.1. Based on the above discussion, it is concluded that the proposed public housing development at Shap Pat Heung Road with domestic plot ratio 6.5 would not induce adverse traffic and transport impact on the surrounding road network upon in year 2032. Therefore, the Proposed Development is considered acceptable from traffic and transport point of view.

6.2.2. It is concluded that no road improvement works under this Subject Site (i.e. Shap Pat Heung Road Site) would be required to be carried out by CEDD.

Figures

LEGEND:

AREA OF INFLUENCE

PROPOSED HOUSING SITE DEVELOPMENT BOUNDARY(SUBJECT TO DETAILED SURVEY AND DESIGN)

SUBJECT SITE

CASTLE PEAK ROAD

POK OI INTERCHANGE

MA TIN ROAD

YUEN LONG TAI YUK ROAD

LONG TIN ROAD

TOWN PARK ROAD NORTH

SHAP PAT HEUNG ROAD

LAM YU ROAD

LAM HAU TSUEN ROAD

SHAN HA ROAD

TONG YAN SAN TSUEN INTERCHANGE

TIN SHUI WAI WEST INTERCHANGE

YUEN LONG HIGHWAY

KUNG UM ROAD / KIU HING ROAD

TAI SHU HA ROAD EAST / WEST

SHAP PAT HEUNG INTERCHANGE

TUNG KI ROAD

TAI TONG ROAD

Rev.	Date	Description	By	Chk'd	App'd
A	MAY 2022	RECEIVED COMMENTS INCORPORATED	PC	TL	PT
-	JAN 2022	FIRST ISSUE	PC	TL	PT

Drawing Status: FEASIBILITY STUDY

Suitability: -

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Member of the SNC-Lavalin Group

Client

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

土木工程處
CIVIL ENGINEERING OFFICE

Project Title

AGREEMENT NO. CE 46 / 2020(CE)
TERM CONSULTANCY FOR SITE FORMATION AND INFRASTRUCTURE WORKS FOR PROPOSED HOUSING DEVELOPMENTS IN ZONE 1 (2021-2024) - FEASIBILITY STUDY

TASK ORDER NO.4
SITE FORMATION AND INFRASTRUCTURE WORKS FOR PROPOSED PUBLIC HOUSING DEVELOPMENT AT SHAP PAT HEUNG ROAD, YUEN LONG

Drawing Title

AREA OF INFLUENCE AND LOCATION OF DEVELOPMENT SITE

Scale	Designed	Drawn	Checked	Authorised
N.T.S.	VAR	PC	TL	PT
Original Size	Date	Date	Date	Date
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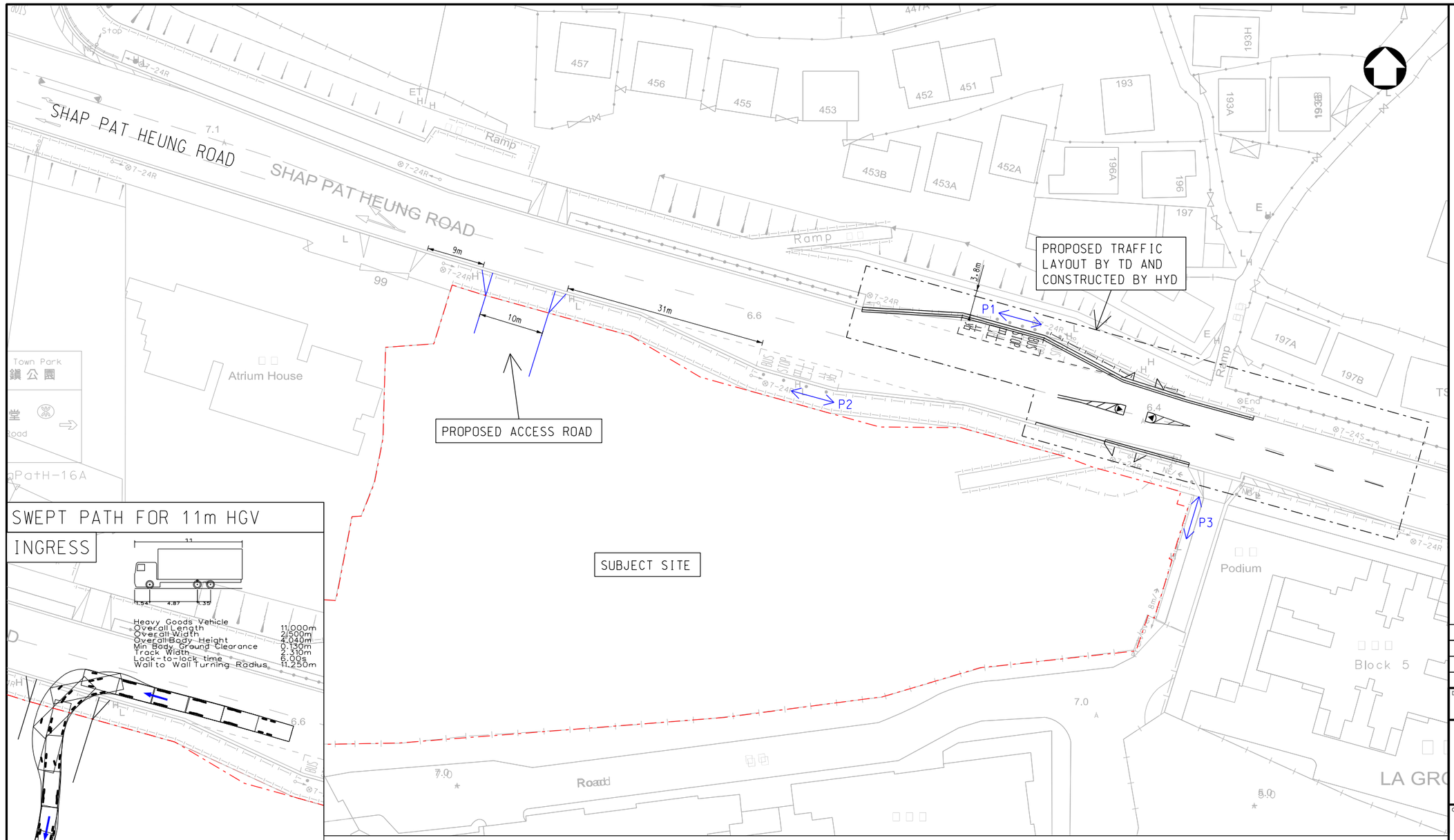
Drawing Number: 5210095-TIA-1201

Revision: A



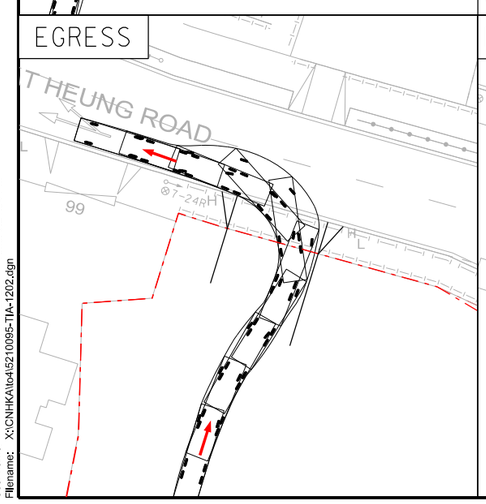
LEGEND:

- PROPOSED HOUSING SITE DEVELOPMENT BOUNDARY(SUBJECT TO DETAILED SURVEY AND DESIGN)
- PROPOSED TRAFFIC LAYOUT
- PROPOSED TRAFFIC LAYOUT (BY OTHERS)
- P1 — PEDESTRIAN COUNTING STATIONS

SWEPT PATH FOR 11m HGV

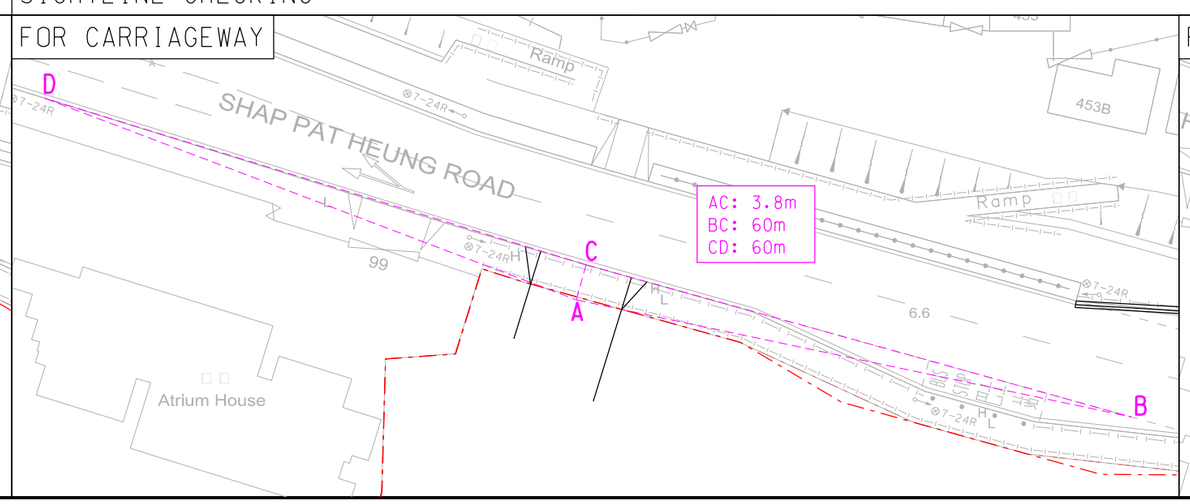
INGRESS

EGRESS

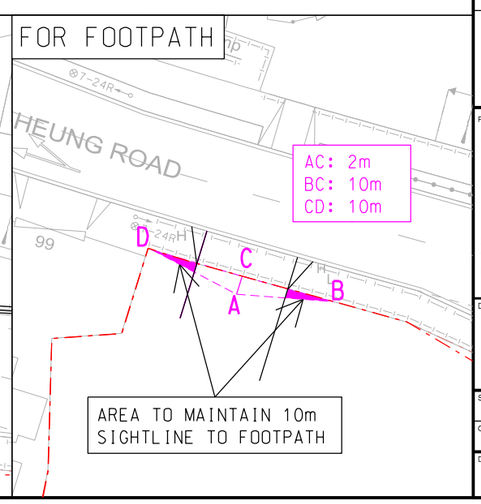


SIGHTLINE CHECKING

FOR CARRIAGEWAY



FOR FOOTPATH



Rev.	Date	Description	By	Chk'd	App'd
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A	MAY 2022	RECEIVED COMMENTS INCORPORATED	PC	TL	PT
-	JAN 2022	FIRST ISSUE	PC	TL	PT

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Suitability: -

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Civil Engineering and Development Department

土木工程處
CIVIL ENGINEERING OFFICE

Project Title

AGREEMENT NO. CE 46 / 2020(CE)
TERM CONSULTANCY FOR SITE FORMATION AND INFRASTRUCTURE WORKS FOR PROPOSED HOUSING DEVELOPMENTS IN ZONE 1 (2021-2024) - FEASIBILITY STUDY

TASK ORDER NO.4
SITE FORMATION AND INFRASTRUCTURE WORKS FOR PROPOSED PUBLIC HOUSING DEVELOPMENT AT SHAP PAT HEUNG ROAD, YUEN LONG

Drawing Title

PROPOSED ACCESS ARRANGEMENT AT SHAP PAT HEUNG ROAD

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Original Size: A3	Date: AUG 2022	Date: AUG 2022	Date: AUG 2022	Date: AUG 2022

Drawing Number: 5210095-TIA-1202

Revision: B

User name: LAUK4827 Date:07-Mar-23 Time: 8:21:54 PM
Filename: X:\CNHK\Ilo45210095-TIA-1202.dgn

LEGEND:

- AREA OF INFLUENCE
- PROPOSED HOUSING SITE DEVELOPMENT BOUNDARY (SUBJECT TO DETAILED SUYVEY AND DESIGN)
- J1 KEY JUNCTIONS
- L1 KEY ROAD LINKS

Rev.	Date	Description	By	Chk'd	App'd
A	MAY 2022	RECEIVED COMMENTS INCORPORATED	PC	TL	PT
-	JAN 2022	FIRST ISSUE	PC	TL	PT

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CIVIL ENGINEERING OFFICE

Project Title

AGREEMENT NO. CE 46 / 2020(CE)
TERM CONSULTANCY FOR SITE FORMATION AND INFRASTRUCTURE WORKS FOR PROPOSED HOUSING DEVELOPMENTS IN ZONE 1 (2021-2024) - FEASIBILITY STUDY

TASK ORDER NO.4
SITE FORMATION AND INFRASTRUCTURE WORKS FOR PROPOSED PUBLIC HOUSING DEVELOPMENT AT SHAP PAT HEUNG ROAD, YUEN LONG

Drawing Title

LOCATIONS OF KEY JUNCTIONS AND KEY ROAD LINKS

Scale	Designed	Drawn	Checked	Authorised
N.T.S.	VAR	PC	TL	PT
Original Size	Date	Date	Date	Date
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Drawing Number: 5210095-TIA-1301

Revision: A

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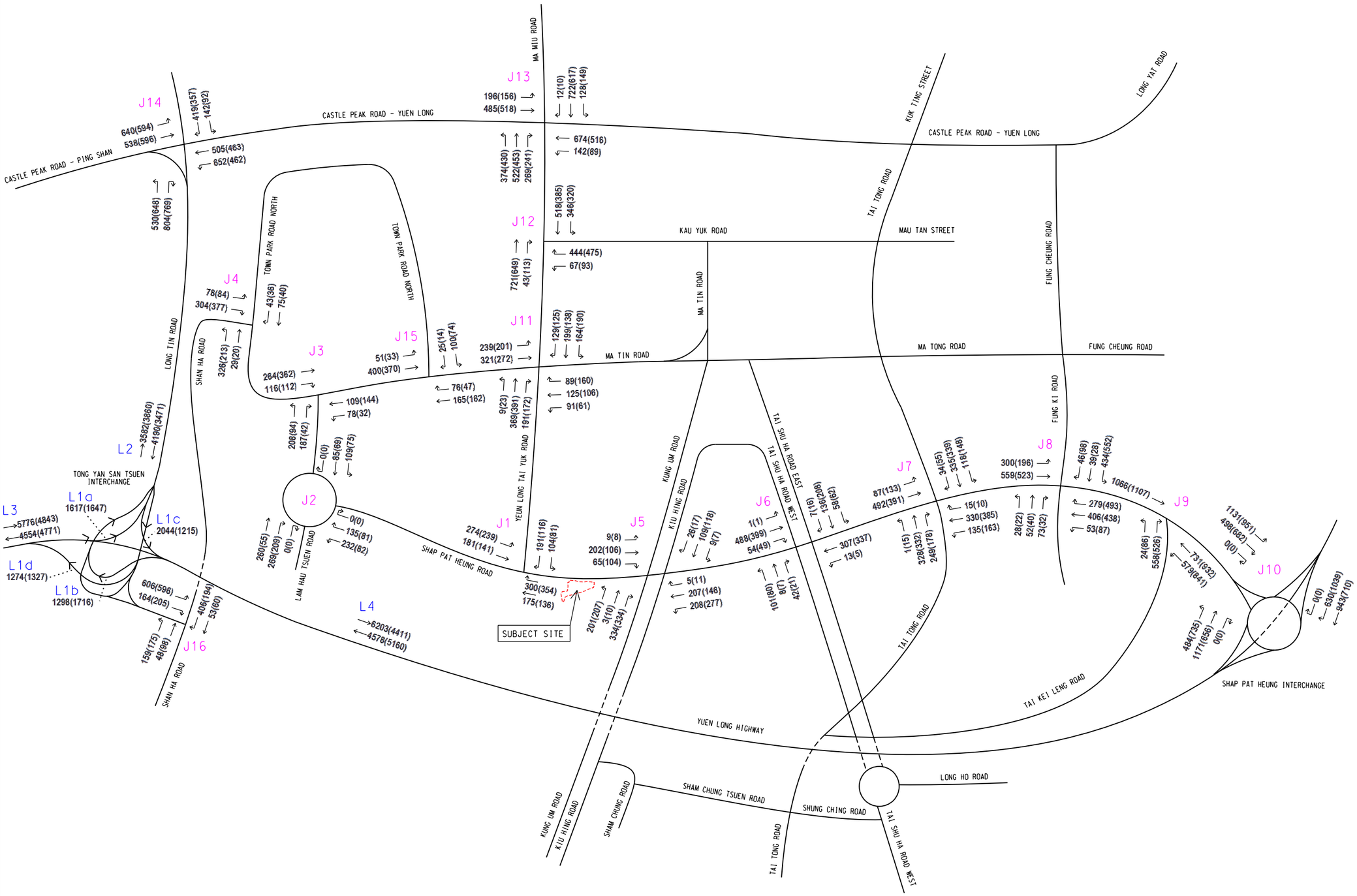

LEGEND:

- J1 JUNCTION INDEX
- L1 ROAD LINK INDEX
- 100(100) → AM(PM) PEAK VEHICULAR TRAFFIC FLOW (PCU/HR)

Rev.	Date	Description	By	Chk'd	App'd
A	MAY 2022	RECEIVED COMMENTS INCORPORATED	PC	TL	PT
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CIVIL ENGINEERING OFFICE

Project Title
AGREEMENT NO. CE 46 / 2020(CE)
TERM CONSULTANCY FOR SITE FORMATION AND INFRASTRUCTURE WORKS FOR PROPOSED HOUSING DEVELOPMENTS IN ZONE 1 (2021-2024) - FEASIBILITY STUDY

TASK ORDER NO.4
SITE FORMATION AND INFRASTRUCTURE WORKS FOR PROPOSED PUBLIC HOUSING DEVELOPMENT AT SHAP PAT HEUNG ROAD, YUEN LONG

Drawing Title
YEAR 2021 OBSERVED TRAFFIC FLOWS

Scale	Designed	Drawn	Checked	Authorised
N.T.S.	VAR	PC	TL	PT
Original Size	Date	Date	Date	Date
A3	JAN 2022	JAN 2022	JAN 2022	JAN 2022

Drawing Number: 5210095-TIA-1302
Revision: A

BUS ROUTE NOS: 268B,269DT,276,276P, 53,E36,E36S,K65, N269,N30

BUS ROUTE NOS: 68A,68X,268C,268P, 268X,B1,B2

GMB ROUTE NOS: 622

BUS ROUTE NOS: 53,68A,68X,264R,268B, 268C,268P,268X,269D, 276,276P,A36,B1,B2, E36,K65,N269,N30,NA36

FUNG NIN ROAD LRT

CASTLE PEAK ROAD

GMB ROUTE NOS: 31,31A,32,33,35,622

SHUI PIN WAI LRT

BUS ROUTE NOS: K66,K68

BUS ROUTE NOS: K66

BUS ROUTE NOS: 53,68A,68X,264R,268B, 268C,268P,268X,269D, 276P,A36,B1,B2,E36, K65,N269,N30,NA36

GMB ROUTE NOS: 609

BUS ROUTE NOS: 68E,68F,268C,968,K68

BUS ROUTE NOS: 68E,68F,268C,968,K68

BUS ROUTE NOS: K68

BUS ROUTE NOS: K66

BUS ROUTE NO: K68

GMB ROUTE NOS: 604

YUEN LONG TAI YUK ROAD

LONG TIN ROAD

GMB ROUTE NOS: 604

BUS ROUTE NOS: K68

GMB ROUTE NOS: 604

BUS ROUTE NOS: 68E,68F,268C,968,K68

TOWN PARK ROAD NORTH

GMB ROUTE NOS: 39,39A

MA TIN ROAD

BUS ROUTE NOS: K66

BUS ROUTE NOS: 68E,68F,K68

GMB ROUTE NOS: 39,39A

BUS ROUTE NOS: 68E,68F,268C,968

YUEN LONG

SHAP PAT HEUNG ROAD

TONG YAN SAN TSUEN INTERCHANGE

BUS ROUTE NOS: 68E,68F

BUS ROUTE NOS: 68E,68F,268C,968

GMB ROUTE NOS: 39,39A

LAM TSUEN ROAD

LAM YU ROAD

GMB ROUTE NOS: 39,39A

GMB ROUTE NOS: 73

KUNG UM ROAD

KIU HING ROAD

TAI SHU HA ROAD EAST / WEST

BUS ROUTE NOS: K66

BUS ROUTE NOS: K66

BUS ROUTE NOS: K66

GMB ROUTE NOS: 39,39A

YUEN LONG HIGHWAY

BUS ROUTE NOS: K66

TAI KEI LENG ROAD

SHAP PAT HEUNG INTERCHANGE

SHAN HA ROAD

TAI TONG ROAD

FUNG KI ROAD

BUS ROUTE NOS: 68E,68F

BUS ROUTE NOS: 68E,68F,268C,968

BUS ROUTE NOS: 68E,68F

BUS ROUTE NOS: K66

BUS ROUTE NOS: K66

LEGEND:

- AREA OF INFLUENCE
- PROPOSED HOUSING SITE DEVELOPMENT BOUNDARY (SUBJECT TO DETAILED SURVEY AND DESIGN)
- BUS STOP / TERMINUS
- GREEN MINIBUS STOP / TERMINUS
- LRT STATION

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B	AUG 2022	UPDATED RUN-IN/OUT	PC	TL	PT
A	MAY 2022	RECEIVED COMMENTS INCORPORATED	PC	TL	PT
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Civil Engineering and Development Department

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CIVIL ENGINEERING OFFICE

Project Title

AGREEMENT NO. CE 46 / 2020(CE)
TERM CONSULTANCY FOR SITE FORMATION AND INFRASTRUCTURE WORKS FOR PROPOSED HOUSING DEVELOPMENTS IN ZONE 1 (2021-2024) - FEASIBILITY STUDY

TASK ORDER NO.4
SITE FORMATION AND INFRASTRUCTURE WORKS FOR PROPOSED PUBLIC HOUSING DEVELOPMENT AT SHAP PAT HEUNG ROAD, YUEN LONG

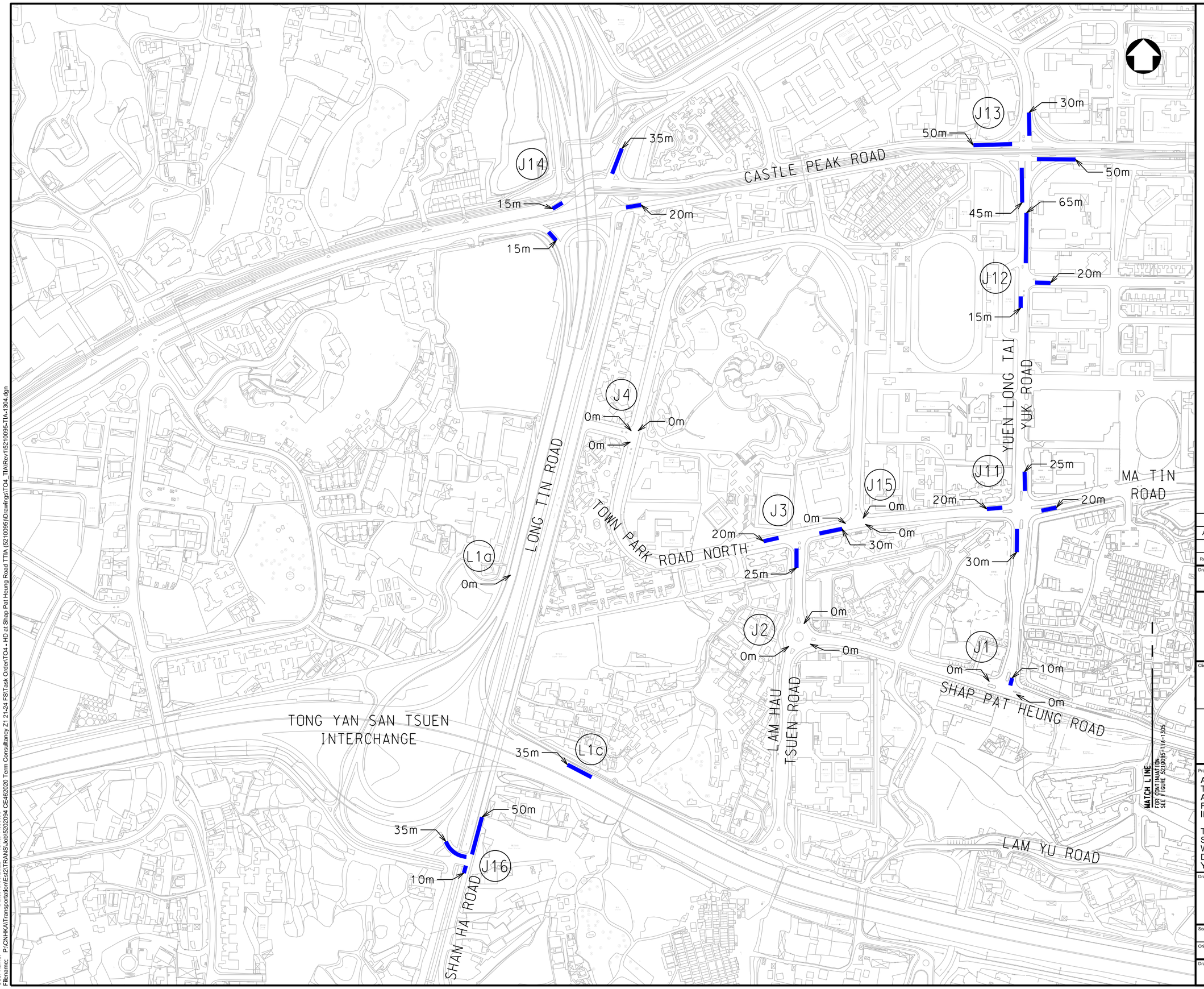
Drawing Title

EXISTING NEARBY PUBLIC TRANSPORT FACILITIES

Scale	Designed	Drawn	Checked	Authorised
N.T.S.	VAR	PC	TL	PT
Original Size	Date	Date	Date	Date
A3	JAN 2022	JAN 2022	JAN 2022	JAN 2022

Drawing Number: 5210095-TIA-1303

Revision: B



LEGEND:

AM PEAK AVERAGE QUEUE LENGTH (m)

Rev.	Date	Description	By	Chk'd	App'd
A	MAY 2022	RECEIVED COMMENTS INCORPORATED	PC	TL	PT

Drawing Status: FEASIBILITY STUDY

Suitability: -

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ATKINS
Member of the SNC-Lavalin Group

Client

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

土木工程處
CIVIL ENGINEERING OFFICE

Project Title

AGREEMENT NO. CE 46 / 2020(CE)
TERM CONSULTANCY FOR SITE FORMATION AND INFRASTRUCTURE WORKS FOR PROPOSED HOUSING DEVELOPMENTS IN ZONE 1 (2021-2024) - FEASIBILITY STUDY

TASK ORDER NO.4
SITE FORMATION AND INFRASTRUCTURE WORKS FOR PROPOSED PUBLIC HOUSING DEVELOPMENT AT SHAP PAT HEUNG ROAD, YUEN LONG

Drawing Title

OBSERVED AVERAGE QUEUE LENGTH - 2021 AM (PART 1 OF 2)

Scale	Designed	Drawn	Checked	Authorised
1:4500	PC	PC	TL	PT
Original Size: A3	Date: JAN 2022	Date: JAN 2022	Date: JAN 2022	Date: JAN 2022

Drawing Number: 5210095-TIA-1304

Revision: A

User name: CHAN1088 Date:19/05/2022 Time: 14:39:08
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LEGEND:

AM PEAK AVERAGE QUEUE LENGTH (m)

MA TIN ROAD

TAI TONG ROAD

FUNG KI ROAD

SHAP PAT HEUNG ROAD

KUNG UM ROAD / KIU HING ROAD

YUEN LONG HIGHWAY

TAI SHU HA ROAD EAST / WEST

TAI KEI LENG ROAD

SHAP PAT HEUNG INTERCHANGE

J5 75m 40m

J6 0m 50m

J7 80m 80m 15m 70m 50m 65m 65m 85m

J8 30m 55m 200m 45m

J9 70m 70m 35m 200m

J10 50m

MATCH LINE
FOR CONTINUATION
SEE FIGURE 5210095-TIA-1304

Rev.	Date	Description	By	Chk'd	App'd
A	MAY 2022	RECEIVED COMMENTS INCORPORATED	PC	TL	PT

Drawing Status: FEASIBILITY STUDY

Suitability: -

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Civil Engineering and Development Department

土木工程處
CIVIL ENGINEERING OFFICE

Project Title

AGREEMENT NO. CE 46 / 2020(CE)
TERM CONSULTANCY FOR SITE FORMATION AND INFRASTRUCTURE WORKS FOR PROPOSED HOUSING DEVELOPMENTS IN ZONE 1 (2021-2024) - FEASIBILITY STUDY

TASK ORDER NO.4
SITE FORMATION AND INFRASTRUCTURE WORKS FOR PROPOSED PUBLIC HOUSING DEVELOPMENT AT SHAP PAT HEUNG ROAD, YUEN LONG

Drawing Title

OBSERVED AVERAGE QUEUE LENGTH - 2021 AM (PART 2 OF 2)

Scale	Designed	Drawn	Checked	Authorised
1:4500	PC	PC	TL	PT
Original Size: A3	Date: JAN 2022	Date: JAN 2022	Date: JAN 2022	Date: JAN 2022

Drawing Number: 5210095-TIA-1305

Revision: A

User name: CHAN1088 Date:19/05/2022 Time: 14:39:17
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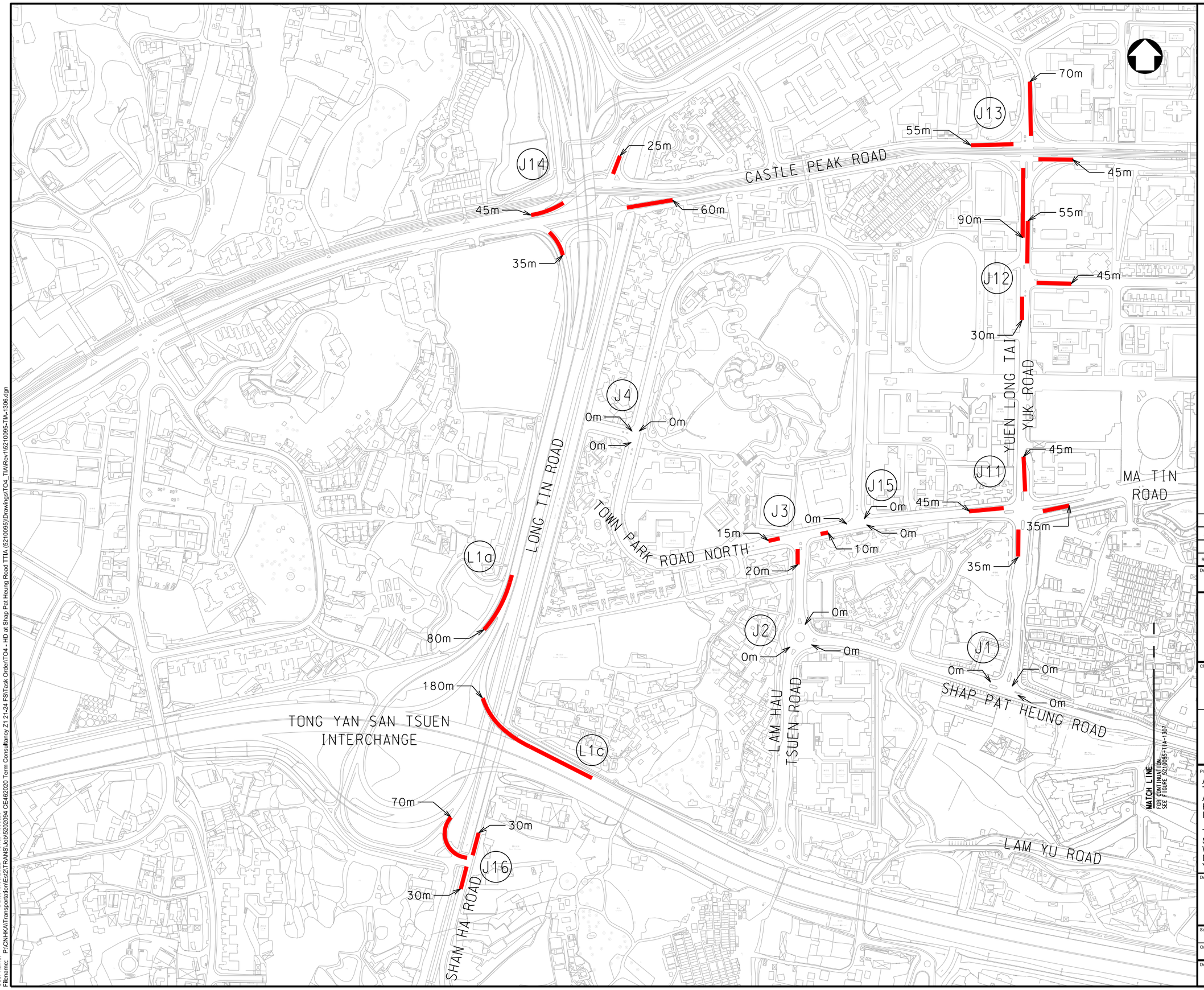

LEGEND:

PM PEAK AVERAGE QUEUE LENGTH (m)

Rev.	Date	Description	By	Chk'd	App'd
A	MAY 2022	RECEIVED COMMENTS INCORPORATED	PC	TL	PT

Drawing Status: FEASIBILITY STUDY

Suitability: -

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

土木工程處
CIVIL ENGINEERING OFFICE

Project Title

AGREEMENT NO. CE 46 / 2020(CE)
TERM CONSULTANCY FOR SITE FORMATION AND INFRASTRUCTURE WORKS FOR PROPOSED HOUSING DEVELOPMENTS IN ZONE 1 (2021-2024) - FEASIBILITY STUDY

TASK ORDER NO.4
SITE FORMATION AND INFRASTRUCTURE WORKS FOR PROPOSED PUBLIC HOUSING DEVELOPMENT AT SHAP PAT HEUNG ROAD, YUEN LONG

Drawing Title

OBSERVED AVERAGE QUEUE LENGTH - 2021 PM (PART 1 OF 2)

Scale	Designed	Drawn	Checked	Authorised
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Original Size: A3	Date: JAN 2022	Date: JAN 2022	Date: JAN 2022	Date: JAN 2022

Drawing Number: 5210095-TIA-1306

Revision: A

User name: CHAN1088 Date:19/05/2022 Time: 14:39:25
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MA TIN ROAD

TAI TONG ROAD

FUNG KI ROAD

J5

J6

J7

J8

J9

J10

50m

80m

0m

0m

0m

0m

60m

60m

60m

70m

5m

40m

45m

40m

50m

50m

70m

35m

120m

80m

80m

MATCH LINE
FOR CONTINUATION
SEE FIGURE 5210095-TIA-1306

SHAP PAT HEUNG ROAD

KUNG UM ROAD / KIU HING ROAD

YUEN LONG HIGHWAY

TAI SHU HA ROAD EAST / WEST

TAI KEI LENG ROAD

SHAP PAT HEUNG INTERCHANGE

LEGEND:

PM PEAK AVERAGE QUEUE LENGTH (m)

Rev.	Date	Description	By	Chk'd	App'd
A	MAY 2022	RECEIVED COMMENTS INCORPORATED	PC	TL	PT

Drawing Status: FEASIBILITY STUDY

Suitability: -

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Client

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

土木工程處
CIVIL ENGINEERING OFFICE

Project Title

AGREEMENT NO. CE 46 / 2020(CE)
TERM CONSULTANCY FOR SITE FORMATION AND INFRASTRUCTURE WORKS FOR PROPOSED HOUSING DEVELOPMENTS IN ZONE 1 (2021-2024) - FEASIBILITY STUDY

TASK ORDER NO.4
SITE FORMATION AND INFRASTRUCTURE WORKS FOR PROPOSED PUBLIC HOUSING DEVELOPMENT AT SHAP PAT HEUNG ROAD, YUEN LONG

Drawing Title

OBSERVED AVERAGE QUEUE LENGTH - 2021 PM (PART 2 OF 2)

Scale	Designed	Drawn	Checked	Authorised
1:4500	PC	PC	TL	PT
Original Size: A3	Date: JAN 2022	Date: JAN 2022	Date: JAN 2022	Date: JAN 2022

Drawing Number: 5210095-TIA-1307

Revision: A

User name: CHAN1088 Date:19/05/2022 Time: 14:39:33
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FANLING HIGHWAY
FANLING
SHA TAU KOK ROAD
LUNG SHAN TUNNEL
SAN TIN HIGHWAY
FAN KAM ROAD
SCREENLINE T-T
TING KOK ROAD
TIN SHUI WAI
YUEN LONG
LAM KAM ROAD
TAI PO
TOLO HIGHWAY
TAI PO ROAD
YUEN LONG HIGHWAY
SCREENLINE Y-Y
SCREENLINE S-S
ROUTE TWISK
TAI LAM TUNNEL
SCREENLINE R-R
TUEN MUN
TUEN MUN ROAD
SHA TIN
SHING MUN TUNNEL
TING KAU
CASTLE PEAK ROAD
TSING SHA HIGHWAY
LION ROCK TUNNEL
TATE'S CAIRN TUNNEL
TSING YI
TSING YI EXTERNAL CORDON
KOWLOON EXTERNAL CORDON
CLEAR WATER BAY ROAD
WEST KOWLOON HIGHWAY
KOWLOON
LANTAU ISLAND

Rev.	Date	Description	By	Chk'd	App'd
A	MAY 2022	RECEIVED COMMENTS INCORPORATED	PC	TL	PT
-	JAN 2022	FIRST ISSUED	PC	TL	PT

Drawing Status: FEASIBILITY STUDY
Suitability: -

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Civil Engineering and Development Department

土木工程處
CIVIL ENGINEERING OFFICE

Project Title
AGREEMENT NO. CE 46 / 2020(CE)
TERM CONSULTANCY FOR SITE FORMATION AND INFRASTRUCTURE WORKS FOR PROPOSED HOUSING DEVELOPMENTS IN ZONE 1 (2021-2024) - FEASIBILITY STUDY

TASK ORDER NO.4
SITE FORMATION AND INFRASTRUCTURE WORKS FOR PROPOSED PUBLIC HOUSING DEVELOPMENT AT SHAP PAT HEUNG ROAD, YUEN LONG

Drawing Title
SCREENLINES FOR STRATEGIC TRANSPORT MODEL

Scale	Designed	Drawn	Checked	Authorised
N.T.S.	VAR	PC	TL	PT
Original Size	Date	Date	Date	Date
A3	JAN 2022	JAN 2022	JAN 2022	JAN 2022

Drawing Number: 5210095-TIA-1401
Revision: A

User name: CHAN1088 Date: 19/05/2022 Time: 14:44:53
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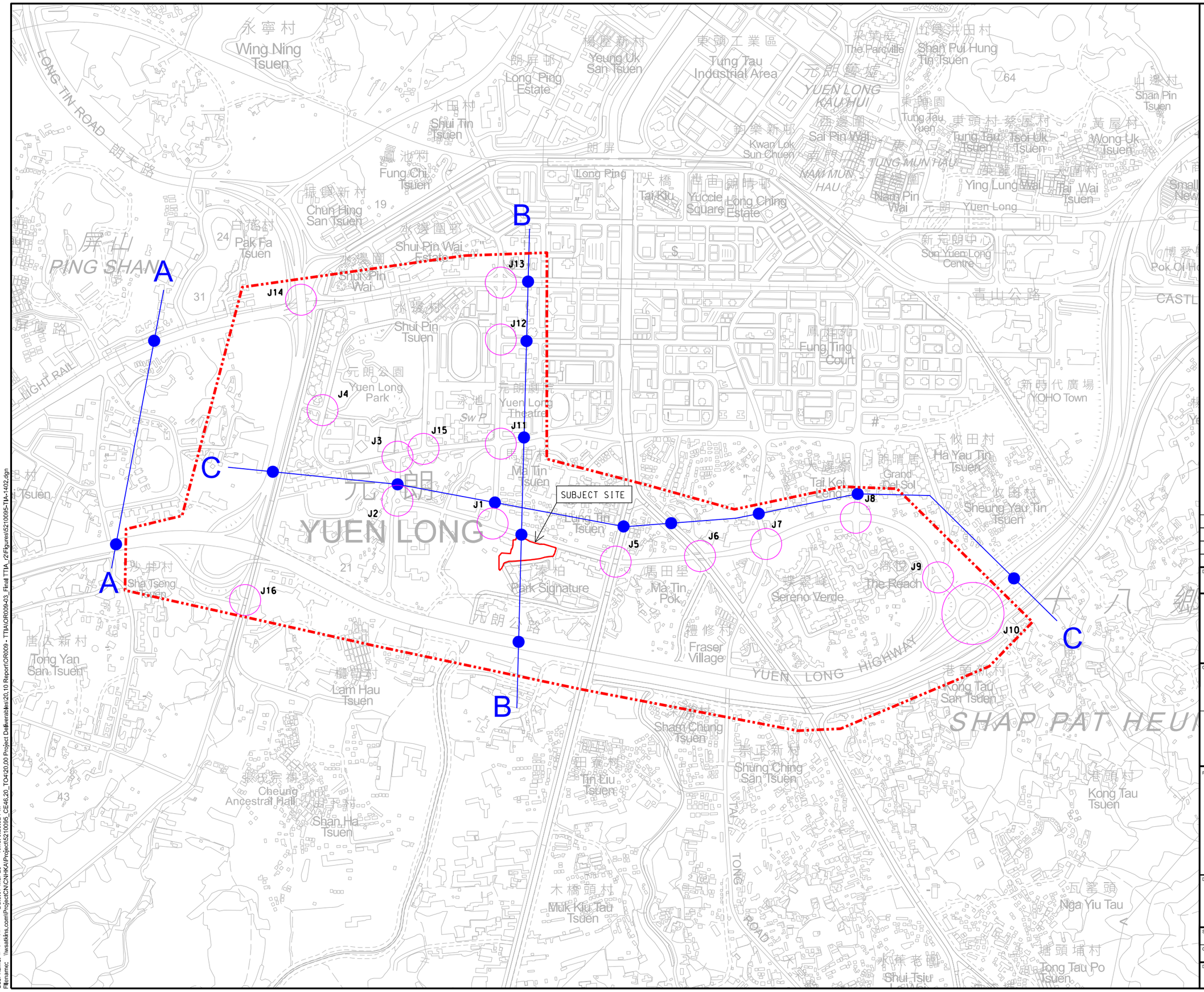

Rev.	Date	Description	By	Chk'd	App'd
A	MAY 2022	RECEIVED COMMENTS INCORPORATED	PC	TL	PT
-	JAN 2022	FIRST ISSUE	PC	TL	PT

Drawing Status: INVESTIGATION
Suitability: -

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Civil Engineering and Development Department

土木工程處
CIVIL ENGINEERING OFFICE

Project Title
AGREEMENT NO. CE 46 / 2020(CE)
TERM CONSULTANCY FOR SITE FORMATION AND INFRASTRUCTURE WORKS FOR PROPOSED HOUSING DEVELOPMENTS IN ZONE 1 (2021-2024) - FEASIBILITY STUDY

TASK ORDER NO.4
SITE FORMATION AND INFRASTRUCTURE WORKS FOR PROPOSED PUBLIC HOUSING DEVELOPMENT AT SHAP PAT HEUNG ROAD, YUEN LONG

Drawing Title
SCREENLINES FOR LOCAL AREA TRAFFIC MODEL

Scale	Designed	Drawn	Checked	Authorised
N.T.S.	VAR	PC	TL	PT
Original Size	Date	Date	Date	Date
A3	JAN 2022	JAN 2022	JAN 2022	JAN 2022

Drawing Number: 5210095-TIA-1402
Revision: A

User name: LAUK4827 Date:07-Mar-23 Time: 9:28:32 PM
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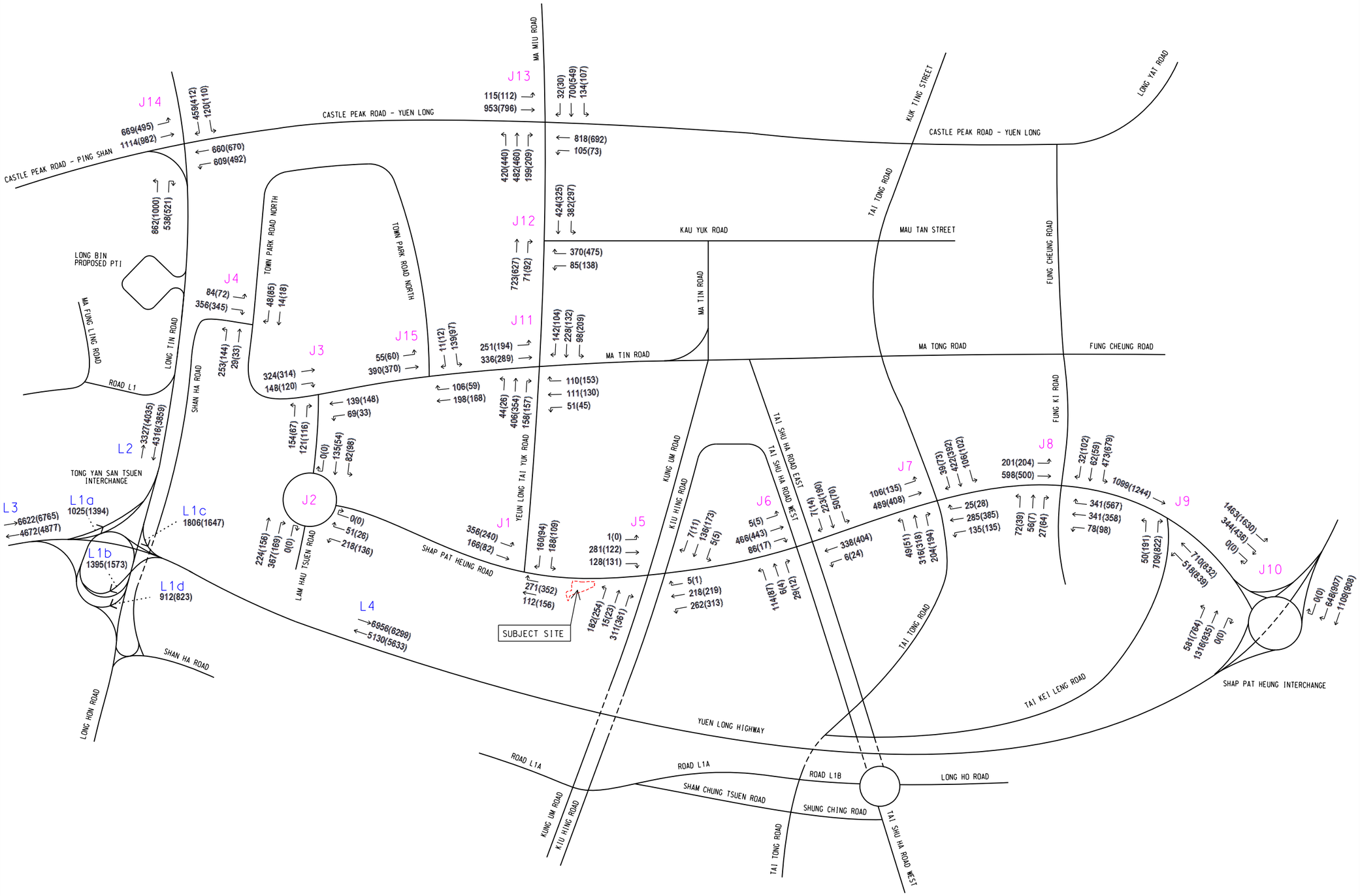

LEGEND:

J1	JUNCTION INDEX
L1	ROAD LINK INDEX
100(100) →	AM(PM) PEAK VEHICULAR TRAFFIC FLOW (PCU/HR)

Rev.	Date	Description	By	Chk'd	App'd
A	MAY 2022	RECEIVED COMMENTS INCOPORATED	PC	TL	PT
-	JAN 2022	FIRST ISSUE	PC	TL	PT

Drawing Status: FEASIBILITY STUDY

Suitability: -

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

土木工程處
CIVIL ENGINEERING OFFICE

Project Title:
AGREEMENT NO. CE 46 / 2020(CE)
TERM CONSULTANCY FOR SITE FORMATION AND INFRASTRUCTURE WORKS FOR PROPOSED HOUSING DEVELOPMENTS IN ZONE 1 (2021-2024) - FEASIBILITY STUDY

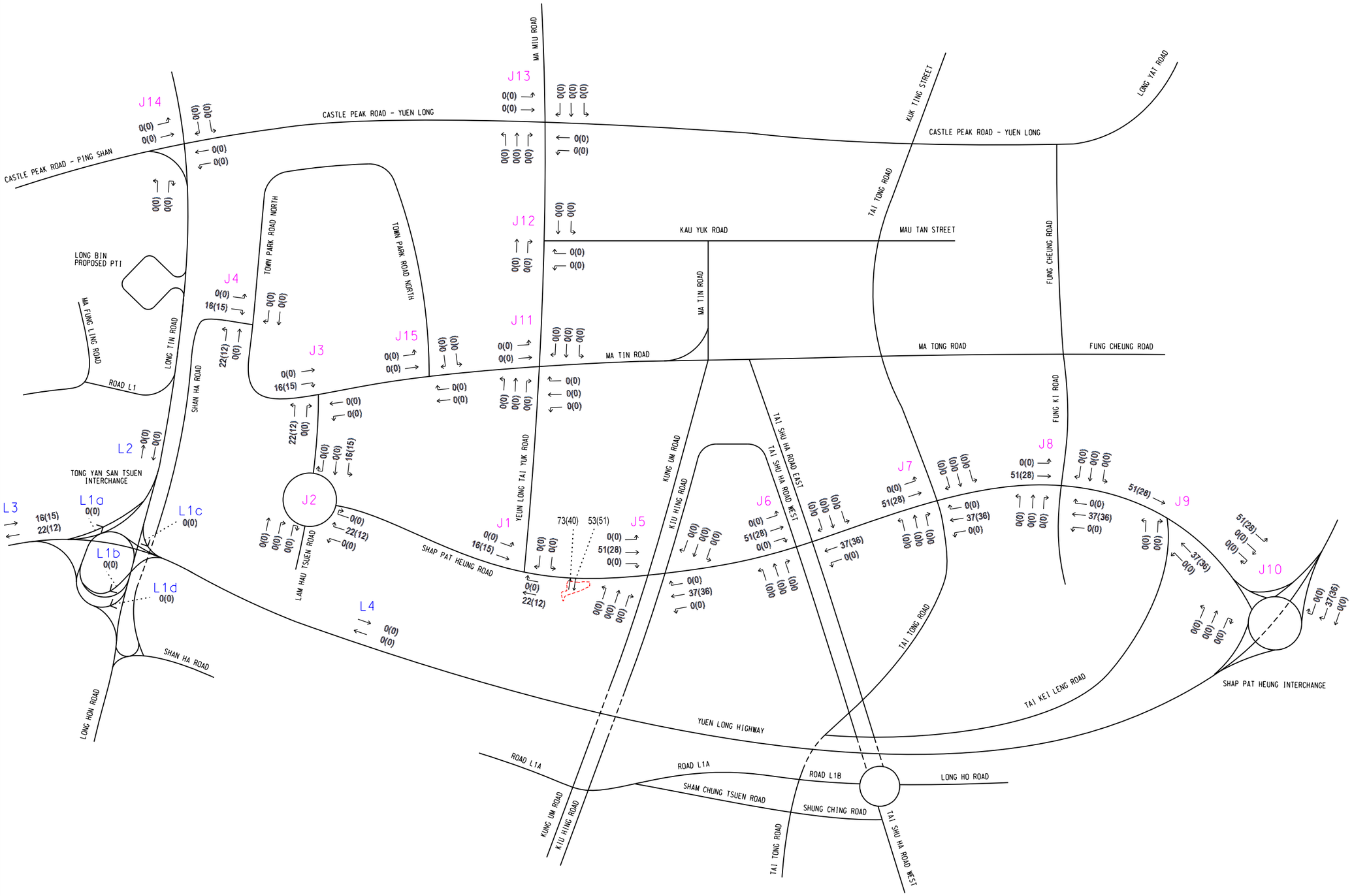
TASK ORDER NO.4
SITE FORMATION AND INFRASTRUCTURE WORKS FOR PROPOSED PUBLIC HOUSING DEVELOPMENT AT SHAP PAT HEUNG ROAD, YUEN LONG

Drawing Title:
YEAR 2032 REFERENCE TRAFFIC FLOWS

Scale	Designed	Drawn	Checked	Authorised
N.T.S.	VAR	PC	TL	PT
Original Size	Date	Date	Date	Date
A3	JAN 2022	JAN 2022	JAN 2022	JAN 2022

Drawing Number: 5210095-TIA-1403

Revision: A



LEGEND:

J1	JUNCTION INDEX
L1	ROAD LINK INDEX
100(100) →	AM(PM) PEAK VEHICULAR TRAFFIC FLOW (PCU/HR)

Rev.	Date	Description	By	Chk'd	App'd
A	MAY 2022	RECEIVED COMMENTS INCORPORATED	PC	TL	PT
-	JAN 2022	FIRST ISSUE	PC	TL	PT

Drawing Status: FEASIBILITY STUDY

Suitability: -

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Civil Engineering and Development Department

土木工程處
CIVIL ENGINEERING OFFICE

Project Title

AGREEMENT NO. CE 46 / 2020(CE)
TERM CONSULTANCY FOR SITE FORMATION AND INFRASTRUCTURE WORKS FOR PROPOSED HOUSING DEVELOPMENTS IN ZONE 1 (2021-2024) - FEASIBILITY STUDY

TASK ORDER NO.4
SITE FORMATION AND INFRASTRUCTURE WORKS FOR PROPOSED PUBLIC HOUSING DEVELOPMENT AT SHAP PAT HEUNG ROAD, YUEN LONG

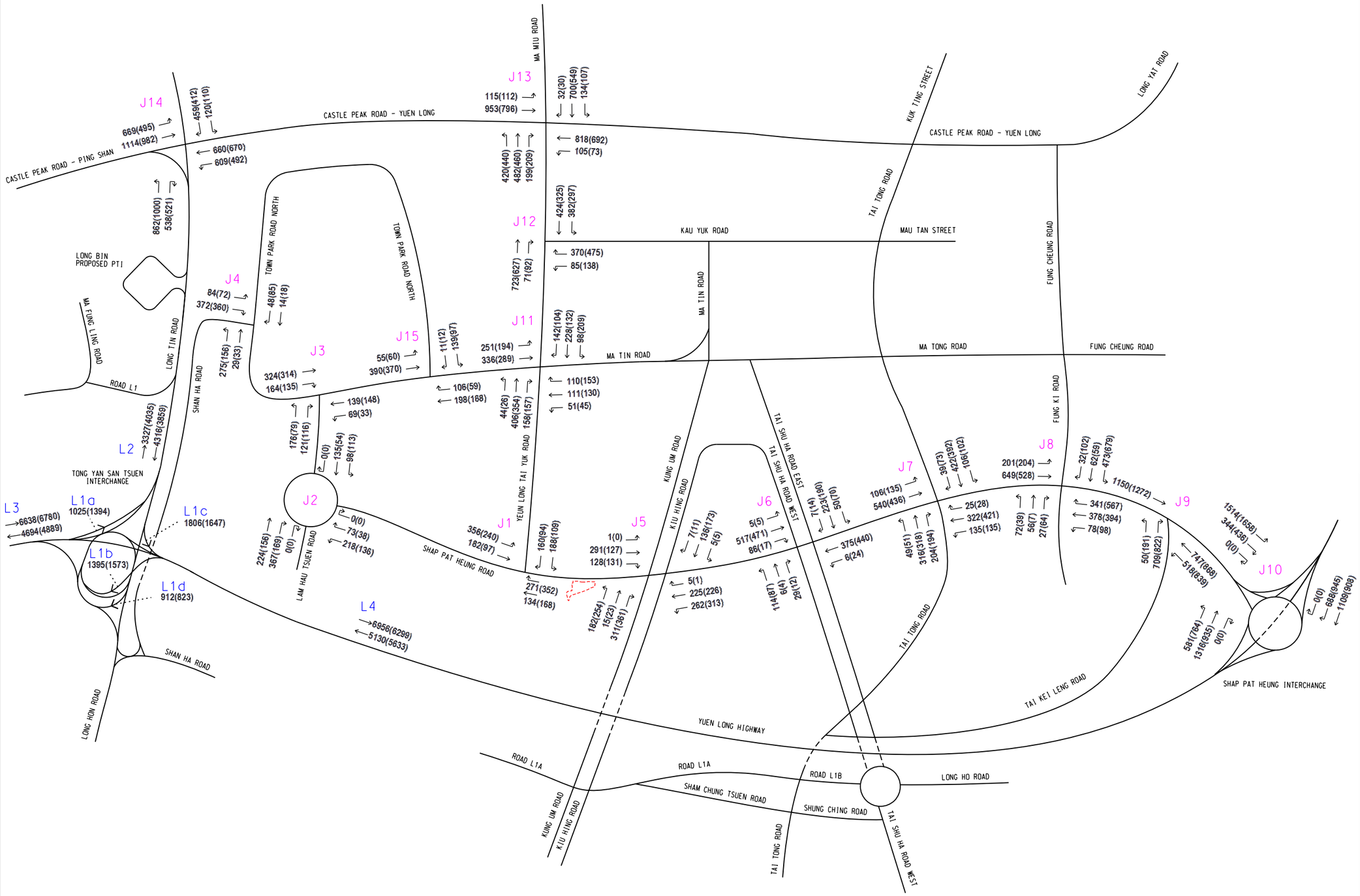
Drawing Title

DISTRIBUTION OF DEVELOPMENT TRAFFIC

Scale	Designed	Drawn	Checked	Authorised
N.T.S.	VAR	PC	TL	PT
Original Size	Date	Date	Date	Date
A3	JAN 2022	JAN 2022	JAN 2022	JAN 2022

Drawing Number: 5210095-TIA-1404

Revision: A



Rev.	Date	Description	By	Chk'd	App'd
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-	JAN 2022	FIRST ISSUE	PC	TL	PT

Drawing Status: FEASIBILITY STUDY
Suitability: -

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

土木工程處
CIVIL ENGINEERING OFFICE

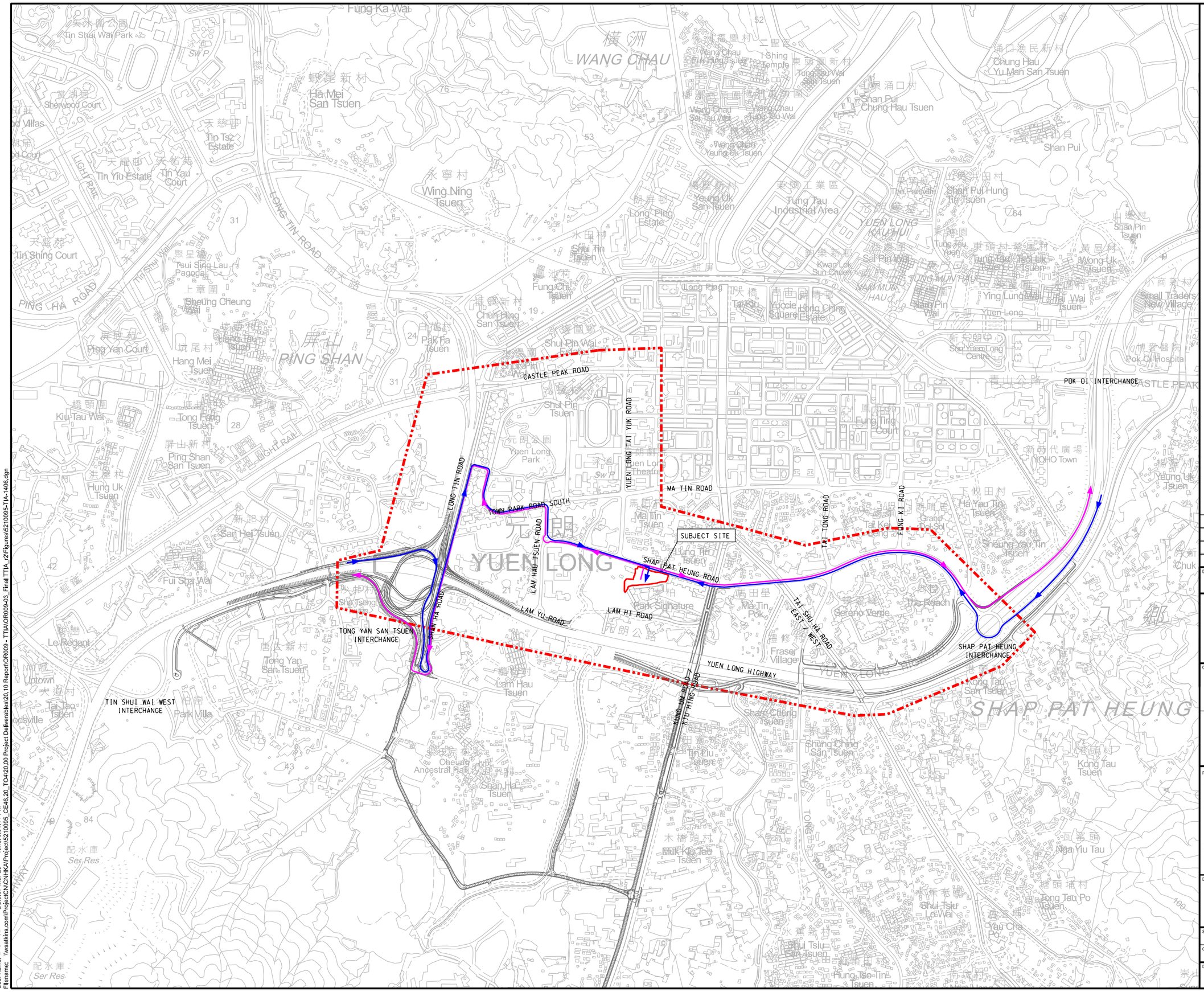
Project Title
AGREEMENT NO. CE 46 / 2020(CE)
TERM CONSULTANCY FOR SITE FORMATION AND INFRASTRUCTURE WORKS FOR PROPOSED HOUSING DEVELOPMENTS IN ZONE 1 (2021-2024) - FEASIBILITY STUDY

TASK ORDER NO.4
SITE FORMATION AND INFRASTRUCTURE WORKS FOR PROPOSED PUBLIC HOUSING DEVELOPMENT AT SHAP PAT HEUNG ROAD, YUEN LONG

Drawing Title
YEAR 2032 DESIGN TRAFFIC FLOWS

Scale	Designed	Drawn	Checked	Authorised
N.T.S.	VAR	PC	TL	PT
Original Size	Date	Date	Date	Date
A3	JAN 2022	JAN 2022	JAN 2022	JAN 2022

Drawing Number: 5210095-TIA-1405
Revision: A



LEGEND:

- AREA OF INFLUENCE
- PROPOSED HOUSING SITE DEVELOPMENT BOUNDARY (SUBJECT TO DETAILED SURVEY AND DESIGN)
- YUEN LONG SOUTH DEVELOPMENT
- PROPOSED VEHICULAR INGRESS ROUTING
- PROPOSED VEHICULAR EGRESS ROUTING

Rev.	Date	Description	By	Chk'd	App'd
A	MAY 2022	RECEIVED COMMENTS INCORPORATED	PC	TL	PT
-	JAN 2022	FIRST ISSUE	PC	TL	PT

Drawing Status: FEASIBILITY STUDY

Suitability: -

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Civil Engineering and Development Department

土木工程處
CIVIL ENGINEERING OFFICE

Project Title

AGREEMENT NO. CE 46 / 2020(CE)
TERM CONSULTANCY FOR SITE FORMATION AND INFRASTRUCTURE WORKS FOR PROPOSED HOUSING DEVELOPMENTS IN ZONE 1 (2021-2024) - FEASIBILITY STUDY

TASK ORDER NO.4
SITE FORMATION AND INFRASTRUCTURE WORKS FOR PROPOSED PUBLIC HOUSING DEVELOPMENT AT SHAP PAT HEUNG ROAD, YUEN LONG

Drawing Title

DEVELOPMENT TRAFFIC ROUTES

Scale	Designed	Drawn	Checked	Authorised
N.T.S.	VAR	PC	TL	PT
Original Size	Date	Date	Date	Date
A3	JAN 2022	JAN 2022	JAN 2022	JAN 2022

Drawing Number: 5210095-TIA-1406

Revision: A

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Appendix A

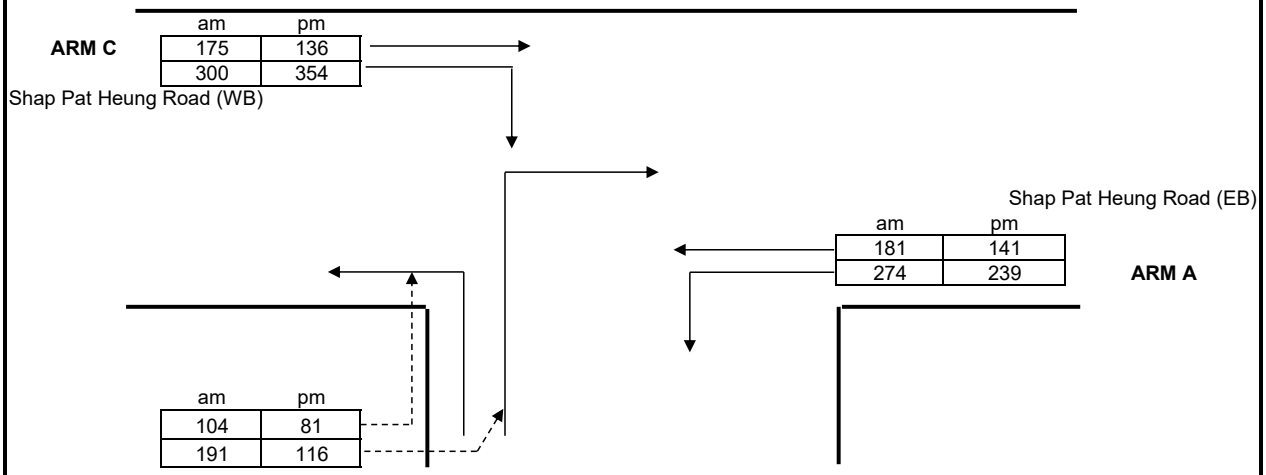
Junction Calculation Sheets

SIMPLIFIED PRIORITY JUNCTION CAPACITY CALCULATION

ATKINS
Member of the SNC-Lavalin Group

(Two Lanes Minor Arm B)

Job Title:	CE46/2020 TO4 Housing Development at Shap Pat Heung Road			
Junction:	J1 - Shap Pat Heung Road / Yuen Long Tai Yuk Road		Designed by:	PC
Scheme:	Existing		Checked by:	TL
Design Year:	2021	Job No.: 5210095	Date :	31/05/2022
ARM A:	Shap Pat Heung Road (EB)			
ARM B:	Yuen Long Tai Yuk Road (SB)			
ARM C:	Shap Pat Heung Road (WB)			



GEOMETRY					
Major road width	W	10.90	Lane widths	w(b-a)	0.00
Central Reserve width	Wcr	0.00		w(b-c)	7.00
Residual width	Wr(c-a)	3.00		w(c-b)	0.00
Visibilities	Vr(b-a)	85	Calculated	D	0.62
	Vl(b-a)	110		E	1.27
	Vr(b-c)	85		F	0.64
	Vr(c-b)	85		Y	0.62

ANALYSIS		AM PEAK	PM PEAK
TRAFFIC FLOWS	q(c-a)	175	136
	q(c-b)	300	354
	q(a-b)	274	239
	q(a-c)	181	141
	q(b-a)	191	116
	q(b-c)	104	81
	f	0.35	0.41
CAPACITIES	Q(b-a)	273	273
	Q(b-c)	865	881
	Q(c-b)	408	419
	Q(b-ac)	359	381
DFC's	b-a	0.70	0.43
	b-c	0.12	0.09
	c-b	0.735	0.845
	b-ac	0.821	0.517
Critical DFC		**0.82**	**0.84**

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) Capacity of combined streams

T.P.D.M.V.2.4
Appendix 1

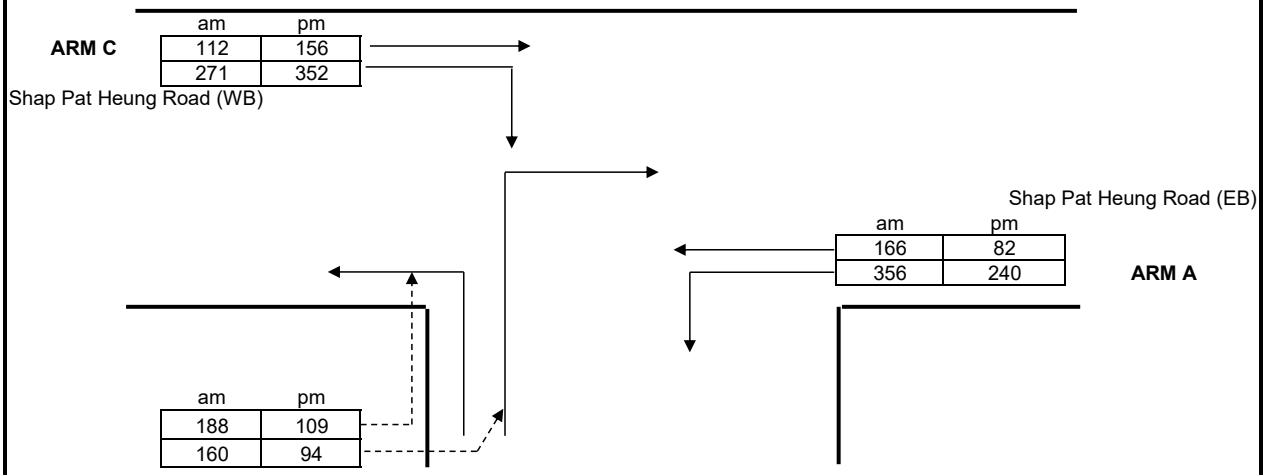
- In accordance with TPDM V2.4

SIMPLIFIED PRIORITY JUNCTION CAPACITY CALCULATION

ATKINS
Member of the SNC-Lavalin Group

(Two Lanes Minor Arm B)

Job Title:	CE46/2020 TO4 Housing Development at Shap Pat Heung Road			
Junction:	J1 - Shap Pat Heung Road / Yuen Long Tai Yuk Road		Designed by:	PC
Scheme:	Reference		Checked by:	TL
Design Year:	2032	Job No.: 5210095	Date :	31/05/2022
ARM A:	Shap Pat Heung Road (EB)			
ARM B:	Yuen Long Tai Yuk Road (SB)			
ARM C:	Shap Pat Heung Road (WB)			



GEOMETRY					
Major road width	W	10.90	Lane widths	w(b-a)	0.00
Central Reserve width	Wcr	0.00		w(b-c)	7.00
Residual width	Wr(c-a)	3.00		w(c-b)	0.00
Visibilities	Vr(b-a)	85	Calculated	D	0.62
	Vl(b-a)	110		E	1.27
	Vr(b-c)	85		F	0.64
	Vr(c-b)	85		Y	0.62

ANALYSIS		AM PEAK	PM PEAK
TRAFFIC FLOWS	q(c-a)	112	156
	q(c-b)	271	352
	q(a-b)	356	240
	q(a-c)	166	82
	q(b-a)	160	94
	q(b-c)	188	109
	f	0.54	0.54
CAPACITIES	Q(b-a)	282	280
	Q(b-c)	860	898
	Q(c-b)	399	427
	Q(b-ac)	442	444
DFC's	b-a	0.57	0.34
	b-c	0.22	0.12
	c-b	0.680	0.823
	b-ac	0.787	0.458
Critical DFC		**0.79**	**0.82**

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) Capacity of combined streams

T.P.D.M.V.2.4
Appendix 1

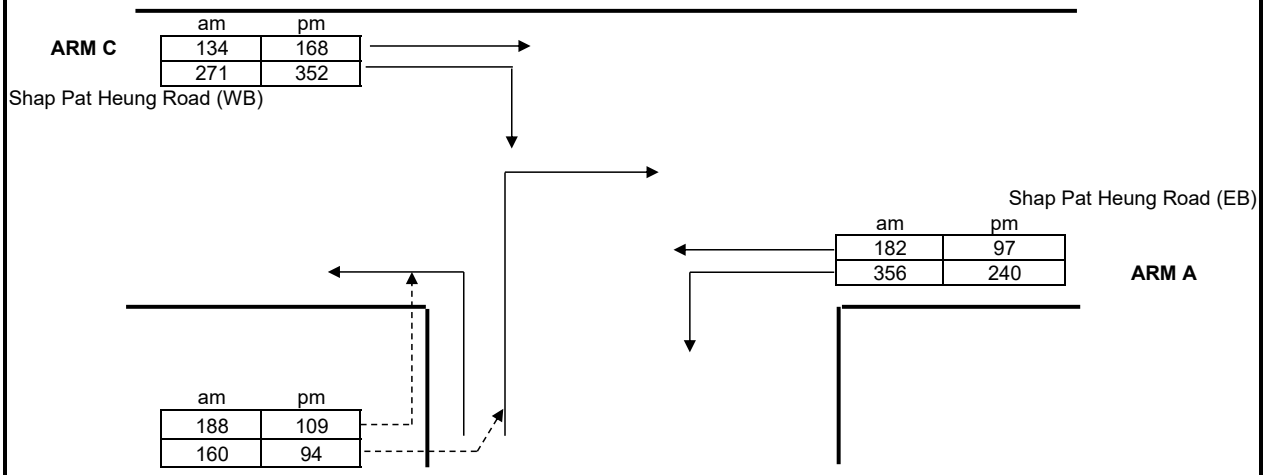
- In accordance with TPDM V2.4

SIMPLIFIED PRIORITY JUNCTION CAPACITY CALCULATION

ATKINS
Member of the SNC-Lavalin Group

(Two Lanes Minor Arm B)

Job Title:	CE46/2020 TO4 Housing Development at Shap Pat Heung Road			
Junction:	J1 - Shap Pat Heung Road / Yuen Long Tai Yuk Road		Designed by:	PC
Scheme:	Design		Checked by:	TL
Design Year:	2032	Job No.: 5210095	Date :	31/05/2022
ARM A:	Shap Pat Heung Road (EB)			
ARM B:	Yuen Long Tai Yuk Road (SB)			
ARM C:	Shap Pat Heung Road (WB)			



GEOMETRY					
Major road width	W	10.90	Lane widths	w(b-a)	0.00
Central Reserve width	Wcr	0.00		w(b-c)	7.00
Residual width	Wr(c-a)	3.00		w(c-b)	0.00
Visibilities	Vr(b-a)	85	Calculated	D	0.62
	Vl(b-a)	110		E	1.27
	Vr(b-c)	85		F	0.64
	Vr(c-b)	85		Y	0.62

ANALYSIS		AM PEAK	PM PEAK
TRAFFIC FLOWS	q(c-a)	134	168
	q(c-b)	271	352
	q(a-b)	356	240
	q(a-c)	182	97
	q(b-a)	160	94
	q(b-c)	188	109
	f	0.54	0.54
CAPACITIES	Q(b-a)	277	276
	Q(b-c)	855	893
	Q(c-b)	396	425
	Q(b-ac)	437	439
DFC's	b-a	0.58	0.34
	b-c	0.22	0.12
	c-b	0.684	0.828
	b-ac	0.797	0.462
Critical DFC		**0.80**	**0.83**

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) Capacity of combined streams

T.P.D.M.V.2.4
Appendix 1

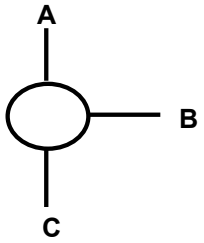
- In accordance with TPDM V2.4

SIMPLIFIED ROUNDABOUT CAPACITY CALCULATION

ATKINS
Member of the SNC-Lavalin Group

Job Title:	CE46/2020 TO4 Housing Development at Shap Pat Heung Road		
Junction:	J2 - Shap Pat Heung Road / Lam Hau Tsuen Road	Designed by:	PC
Scheme:	Existing	Checked by:	TL
Design Year: 2021	Job No.: 5210095	Date :	31/05/2022

ARM A: LAM HAU TSUEN ROAD SB
ARM B: SHAP PAT HEUNG ROAD WB
ARM C: LAM HAU TSUEN ROAD NB



GEOMETRY *

ARM	*v (m)*	*e (m)*	*L (m)*	*r (m)*	*D (m)*	*Phi*	*S*
A	5.30	8.00	9	60	35	5	0.48
B	5.10	7.70	8	60	35	5	0.52
C	3.20	7.80	16	30	35	5	0.46

AM FLOWS

from/to	*A*	*B*	*C*	*Circ*	*Entry*
A	0	109	85	269	194
B	135	0	232	85	367
C	260	269	0	135	529

Flow in pcu/hr

PM FLOWS

from/to	*A*	*B*	*C*	*Circ*	*Entry*
A	0	75	69	209	144
B	81	0	82	69	163
C	55	209	0	81	264

Flow in pcu/hr

CALCULATIONS *

ARM	K	X_2	M	F	t_D	f_c	Q_E(AM)	Q_E(PM)	DFC AM	DFC PM
A	1.12	6.68	0.08	2023	1.46	0.72	2049	2097	0.09	0.07
B	1.12	6.37	0.08	1931	1.46	0.70	2096	2108	0.18	0.08
C	1.10	5.60	0.08	1696	1.46	0.65	1773	1812	**0.30**	**0.15**

Crtical Arm:	**C**	**C**
DFC:	**0.30**	**0.15**

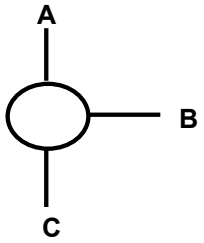
**- In accordance with TPDM V2.4 Appendix*

SIMPLIFIED ROUNDABOUT CAPACITY CALCULATION

ATKINS
Member of the SNC-Lavalin Group

Job Title:	CE46/2020 TO4 Housing Development at Shap Pat Heung Road		
Junction:	J2 - Shap Pat Heung Road / Lam Hau Tsuen Road	Designed by:	PC
Scheme:	Reference	Checked by:	TL
Design Year: 2032	Job No.: 5210095	Date :	31/05/2022

ARM A: LAM HAU TSUEN ROAD SB
ARM B: SHAP PAT HEUNG ROAD WB
ARM C: LAM HAU TSUEN ROAD NB



GEOMETRY *

ARM	*v (m)*	*e (m)*	*L (m)*	*r (m)*	*D (m)*	*Phi*	*S*
A	5.30	8.00	9	60	35	5	0.48
B	5.10	7.70	8	60	35	5	0.52
C	3.20	7.80	16	30	35	5	0.46

AM FLOWS

from/to	*A*	*B*	*C*	*Circ*	*Entry*
A	0	82	135	367	217
B	51	0	218	135	269
C	224	367	0	51	591

Flow in pcu/hr

PM FLOWS

from/to	*A*	*B*	*C*	*Circ*	*Entry*
A	0	98	54	169	152
B	26	0	136	54	162
C	156	169	0	26	325

Flow in pcu/hr

CALCULATIONS *

ARM	K	X_2	M	F	t_D	f_c	Q_E(AM)	Q_E(PM)	DFC AM	DFC PM
A	1.12	6.68	0.08	2023	1.46	0.72	1970	2129	0.11	0.07
B	1.12	6.37	0.08	1931	1.46	0.70	2056	2120	0.13	0.08
C	1.10	5.60	0.08	1696	1.46	0.65	1834	1852	**0.32**	**0.18**

Crtical Arm:	**C**	**C**
DFC:	**0.32**	**0.18**

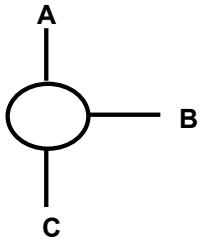
**- In accordance with TPDM V2.4 Appendix*

SIMPLIFIED ROUNDABOUT CAPACITY CALCULATION

ATKINS
Member of the SNC-Lavalin Group

Job Title:	CE46/2020 TO4 Housing Development at Shap Pat Heung Road		
Junction:	J2 - Shap Pat Heung Road / Lam Hau Tsuen Road	Designed by:	PC
Scheme:	Design	Checked by:	TL
Design Year: 2032	Job No.: 5210095	Date :	31/05/2022

ARM A: LAM HAU TSUEN ROAD SB
ARM B: SHAP PAT HEUNG ROAD WB
ARM C: LAM HAU TSUEN ROAD NB



GEOMETRY *

ARM	*v (m)*	*e (m)*	*L (m)*	*r (m)*	*D (m)*	*Phi*	*S*
A	5.30	8.00	9	60	35	5	0.48
B	5.10	7.70	8	60	35	5	0.52
C	3.20	7.80	16	30	35	5	0.46

AM FLOWS

from/to	*A*	*B*	*C*	*Circ*	*Entry*
A	0	98	135	367	233
B	73	0	218	135	291
C	224	367	0	73	591

Flow in pcu/hr

PM FLOWS

from/to	*A*	*B*	*C*	*Circ*	*Entry*
A	0	113	54	169	167
B	38	0	136	54	174
C	156	169	0	38	325

Flow in pcu/hr

CALCULATIONS *

ARM	K	X_2	M	F	t_D	f_c	Q_E(AM)	Q_E(PM)	DFC AM	DFC PM
A	1.12	6.68	0.08	2023	1.46	0.72	1970	2129	0.12	0.08
B	1.12	6.37	0.08	1931	1.46	0.70	2056	2120	0.14	0.08
C	1.10	5.60	0.08	1696	1.46	0.65	1818	1843	**0.33**	**0.18**

Crtical Arm:	**C**	**C**
DFC:	**0.33**	**0.18**

**- In accordance with TPDM V2.4 Appendix*

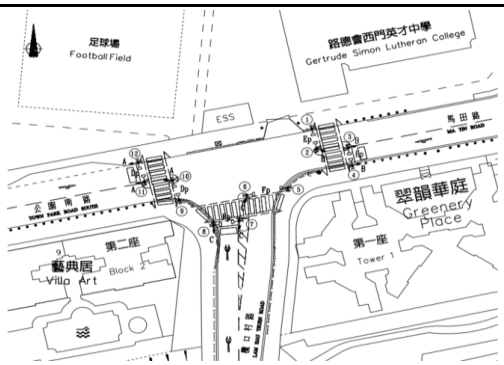
TRAFFIC SIGNAL CALCULATION SHEET

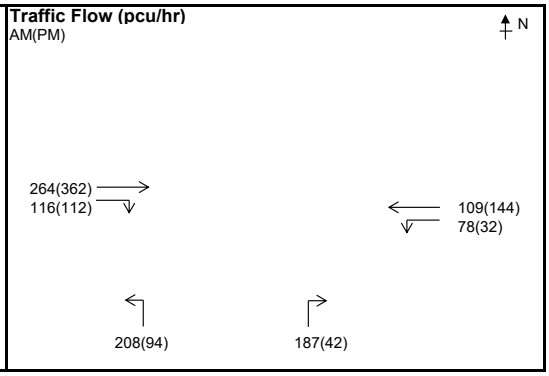
ATKINS
Member of the SNC-Lavalin Group

JOB NO. : 5210095

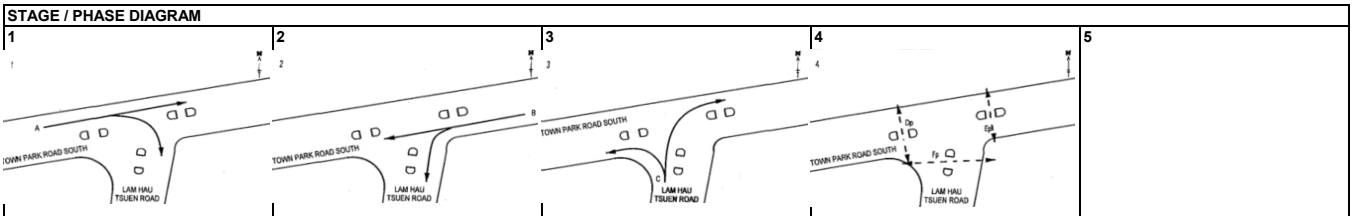
Junction : J3 - LAM HAU TSUEN ROAD/TOWN PARK ROAD SOUTH (YL112) Design Year: 2021

Scheme : Existing Designed by: PC Checked by: TL





STAGE / PHASE DIAGRAM



A+B+C+Fp	G=	IG=5	G=	IG=8	G=	IG=4	G=12	IG=10	G=	IG=
A+B+C+Fp	G=	IG=5	G=	IG=8	G=	IG=4	G=12	IG=10	G=	IG=

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
Town Park Road South EB														
A1	1	4.50	Y	N	15		380	31%	2005	**0.190**	474	24%	2015	**0.235**
Town Park Road South WB														
B2	2	3.50	Y	N	15		187	42%	1885	**0.099**	176	18%	1930	**0.091**
Lam Hau Tsuen Road NB														
C1	3	4.50	Y	N	15/20		395	53% / 47%	1900	**0.208**	136	69% / 31%	1890	**0.072**
Dp	3		5GM +	4FG =	9	sec								
Ep	3		5GM +	4FG =	9	sec								
Fp	3		12GM +	8FG =	20	sec								

Notes:

AM Peak	A+B+C+Fp	PM Peak	A+B+C+Fp
Sum of Critical *y* ***Y***	**0.497**	Sum of Critical *y* ***Y***	**0.398**
Lost Time ***L*** (sec)	36	Lost Time ***L*** (sec)	36
Cycle Time ***c*** (sec)	120	Cycle Time ***c*** (sec)	120
Practical *Y* ***Ypr***	0.630	Practical *Y* ***Ypr***	0.630
Reserve Capacity ***RC***	**27%**	Reserve Capacity ***RC***	**58%**

Date : 31/05/2022 Junction : J3 - LAM HAU TSUEN ROAD/TOWN PARK ROAD SOUTH

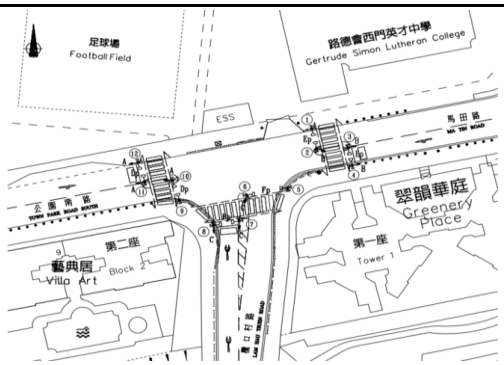
TRAFFIC SIGNAL CALCULATION SHEET

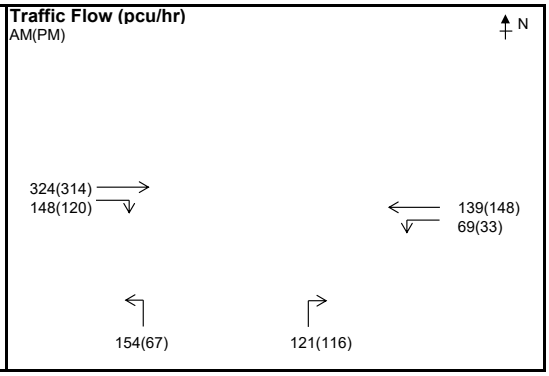
ATKINS
Member of the SNC-Lavalin Group

JOB NO. : 5210095

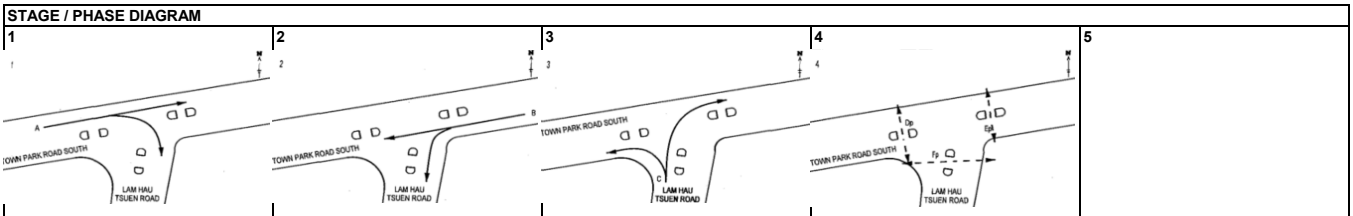
Junction : J3 - LAM HAU TSUEN ROAD/TOWN PARK ROAD SOUTH (YL112) Design Year: 2032

Scheme : Reference Designed by: PC Checked by: TL





STAGE / PHASE DIAGRAM



A+B+C+Fp	G=	IG=5	G=	IG=8	G=	IG=4	G=12	IG=10	G=	IG=	
A+B+C+Fp	G=	IG=5	G=	IG=8	G=	IG=4	G=12	IG=10	G=	IG=	

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
Town Park Road South EB														
A1	1	4.50	Y	N	15		472	31%	2000	**0.236**	434	28%	2010	**0.216**
Town Park Road South WB														
B2	2	3.50	Y	N	15		208	33%	1900	**0.109**	181	18%	1930	**0.094**
Lam Hau Tsuen Road NB														
C1	3	4.50	Y	N	15/20		275	56% / 44%	1895	**0.145**	183	37% / 63%	1905	**0.096**
Dp	3		5GM +	4FG =	9	sec								
Ep	3		5GM +	4FG =	9	sec								
Fp	3		12GM +	8FG =	20	sec								

Notes:

AM Peak	A+B+C+Fp	PM Peak	A+B+C+Fp
Sum of Critical *y* ***Y***	**0.491**	Sum of Critical *y* ***Y***	**0.406**
Lost Time ***L*** (sec)	36	Lost Time ***L*** (sec)	36
Cycle Time ***c*** (sec)	120	Cycle Time ***c*** (sec)	120
Practical *Y* ***Ypr***	0.630	Practical *Y* ***Ypr***	0.630
Reserve Capacity ***RC***	**28%**	Reserve Capacity ***RC***	**55%**

Date : 31/05/2022 Junction : J3 - LAM HAU TSUEN ROAD/TOWN PARK ROAD SOUTH

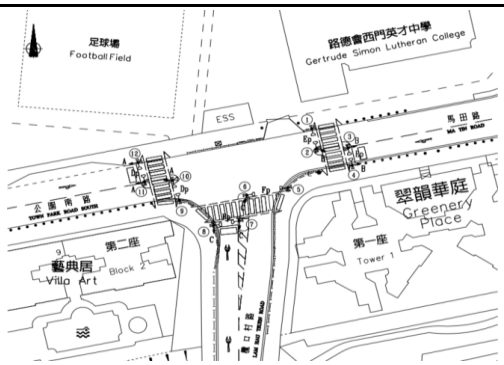
TRAFFIC SIGNAL CALCULATION SHEET

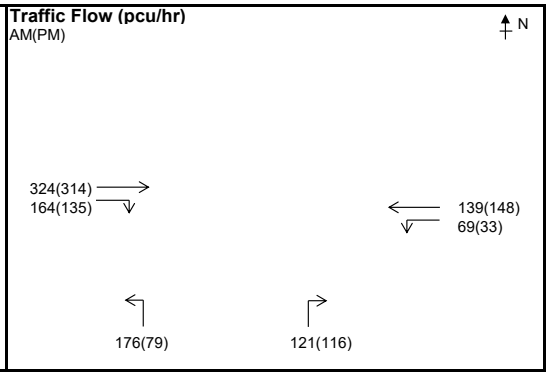
ATKINS
Member of the SNC-Lavalin Group

JOB NO. : 5210095

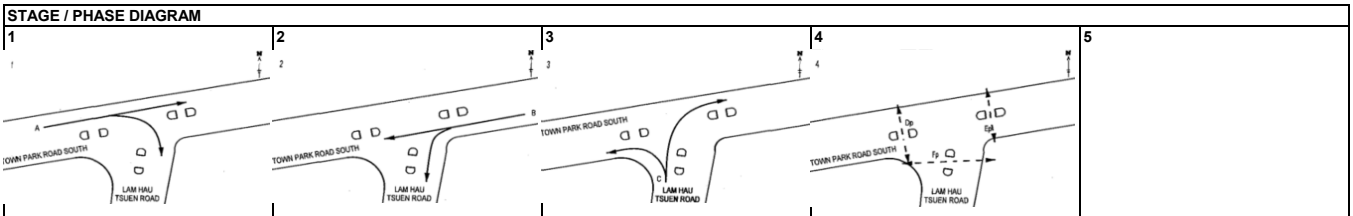
Junction : J3 - LAM HAU TSUEN ROAD/TOWN PARK ROAD SOUTH (YL112) Design Year: 2032

Scheme : Design Designed by: PC Checked by: TL





STAGE / PHASE DIAGRAM



A+B+C+Fp	G=	IG=5	G=	IG=8	G=	IG=4	G=12	IG=10	G=	IG=
A+B+C+Fp	G=	IG=5	G=	IG=8	G=	IG=4	G=12	IG=10	G=	IG=

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
Town Park Road South EB														
A1	1	4.50	Y	N	15		488	34%	2000	**0.244**	449	30%	2005	**0.224**
Town Park Road South WB														
B2	2	3.50	Y	N	15		208	33%	1900	**0.109**	181	18%	1930	**0.094**
Lam Hau Tsuen Road NB														
C1	3	4.50	Y	N	15/20		297	59% / 41%	1895	**0.157**	195	41% / 59%	1905	**0.102**
Dp	3		5GM +	4FG =	9	sec								
Ep	3		5GM +	4FG =	9	sec								
Fp	3		12GM +	8FG =	20	sec								

Notes:

AM Peak	A+B+C+Fp	PM Peak	A+B+C+Fp
Sum of Critical *y* ***Y***	**0.510**	Sum of Critical *y* ***Y***	**0.420**
Lost Time ***L*** (sec)	36	Lost Time ***L*** (sec)	36
Cycle Time ***c*** (sec)	120	Cycle Time ***c*** (sec)	120
Practical *Y* ***Ypr***	0.630	Practical *Y* ***Ypr***	0.630
Reserve Capacity ***RC***	**23%**	Reserve Capacity ***RC***	**50%**

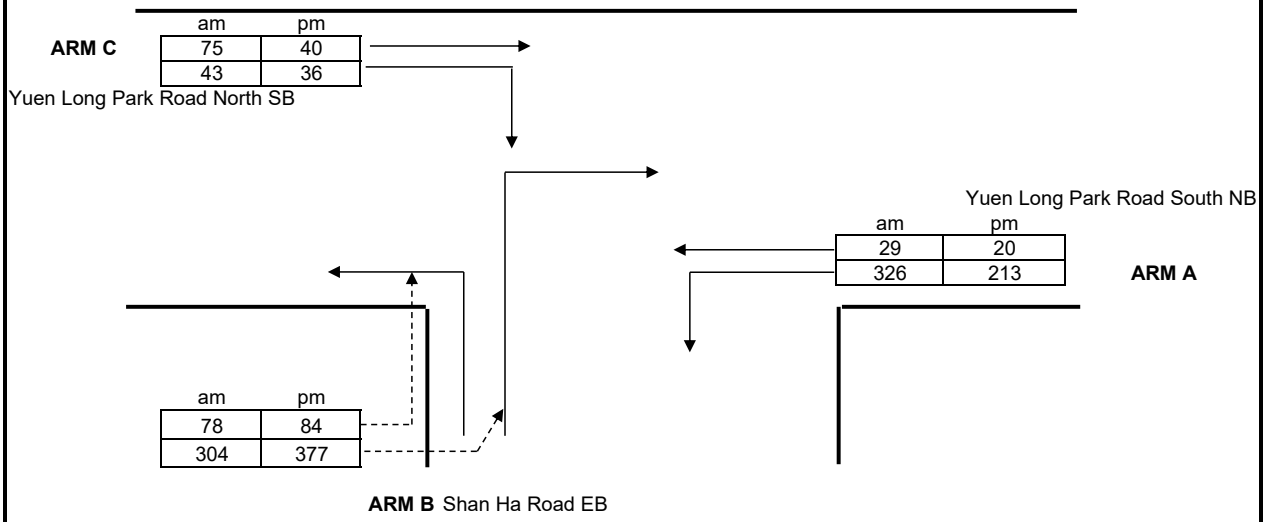
Date : 31/05/2022 Junction : J3 - LAM HAU TSUEN ROAD/TOWN PARK ROAD SOUTH

SIMPLIFIED PRIORITY JUNCTION CAPACITY CALCULATION

ATKINS
Member of the SNC-Lavalin Group

(Single Lane Minor Arm B)

Job Title:	CE46/2020 TO4 Housing Development at Shap Pat Heung Road		
Junction:	J4 - Shan Ha Road / Town Park Road North	Designed by:	PC
Scheme:	Existing	Checked by:	TL
Design Year:	2021 Job No.: 5210095	Date :	31/05/2022
ARM A:	Yuen Long Park Road South NB		
ARM B:	Shan Ha Road EB		
ARM C:	Yuen Long Park Road North SB		



GEOMETRY					
Major road width	W	9.80	Lane widths	w(b-a)	4.00
Central Reserve width	Wcr	0.00		w(b-c)	4.00
Residual width	Wr(c-a)	2.50		w(c-b)	4.40
Visibilities	Vr(b-a)	65	Calculated	D	0.92
	Vl(b-a)	45		E	0.98
	Vr(b-c)	65		F	1.00
	Vr(c-b)	45		Y	0.66

ANALYSIS		AM PEAK	PM PEAK
TRAFFIC FLOWS	q(c-a)	75	40
	q(c-b)	43	36
	q(a-b)	326	213
	q(a-c)	29	20
	q(b-a)	304	377
	q(b-c)	78	84
	f	0.20	0.18
CAPACITIES	Q(b-a)	518	537
	Q(b-c)	694	707
	Q(c-b)	658	688
	Q(b-ac)	546	561
DFC's	b-a	0.59	0.70
	b-c	0.11	0.12
	c-b	0.065	0.052
	b-ac	0.700	0.821
Critical DFC		**0.70**	**0.82**

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) Capacity of combined streams

T.P.D.M.V.2.4
Appendix 1

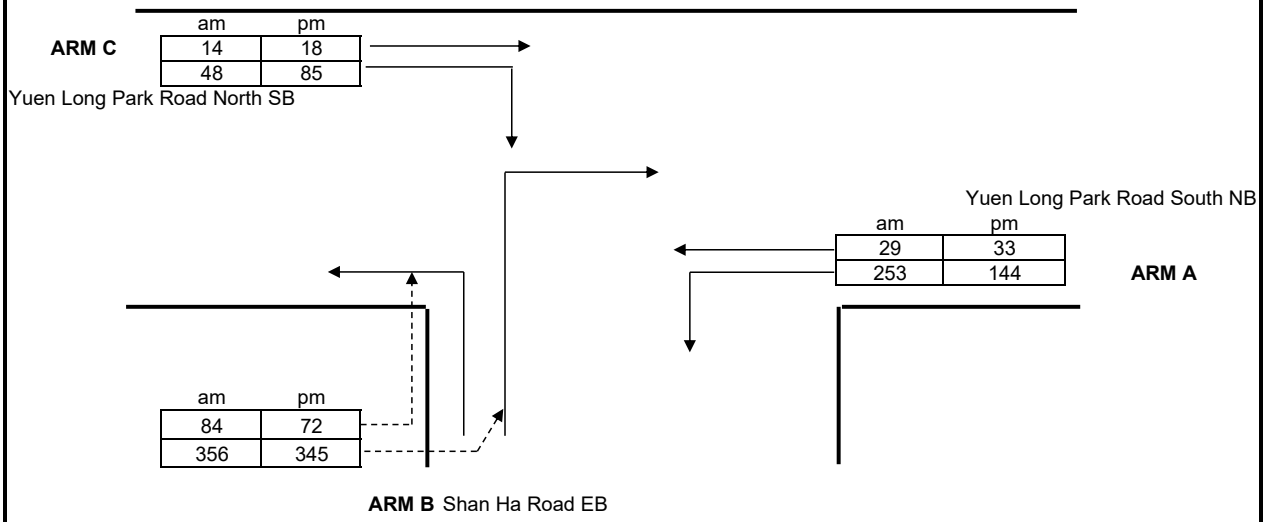
- In accordance with TPDM V2.4

SIMPLIFIED PRIORITY JUNCTION CAPACITY CALCULATION

ATKINS
Member of the SNC-Lavalin Group

(Single Lane Minor Arm B)

Job Title:	CE46/2020 TO4 Housing Development at Shap Pat Heung Road		
Junction:	J4 - Shan Ha Road / Town Park Road North	Designed by:	PC
Scheme:	Reference	Checked by:	TL
Design Year:	2032 Job No.: 5210095	Date :	31/05/2022
ARM A:	Yuen Long Park Road South NB		
ARM B:	Shan Ha Road EB		
ARM C:	Yuen Long Park Road North SB		



GEOMETRY					
Major road width	W	9.80	Lane widths	w(b-a)	4.00
Central Reserve width	Wcr	0.00		w(b-c)	4.00
Residual width	Wr(c-a)	2.50		w(c-b)	4.40
Visibilities	Vr(b-a)	65	Calculated	D	0.92
	Vl(b-a)	45		E	0.98
	Vr(b-c)	65		F	1.00
	Vr(c-b)	45		Y	0.66

ANALYSIS		AM PEAK	PM PEAK
TRAFFIC FLOWS	q(c-a)	14	18
	q(c-b)	48	85
	q(a-b)	253	144
	q(a-c)	29	33
	q(b-a)	356	345
	q(b-c)	84	72
	f	0.19	0.17
CAPACITIES	Q(b-a)	531	527
	Q(b-c)	701	710
	Q(c-b)	676	701
	Q(b-ac)	557	552
DFC's	b-a	0.67	0.65
	b-c	0.12	0.10
	c-b	0.071	0.121
	b-ac	0.790	0.756
Critical DFC		**0.79**	**0.76**

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) Capacity of combined streams

T.P.D.M.V.2.4
Appendix 1

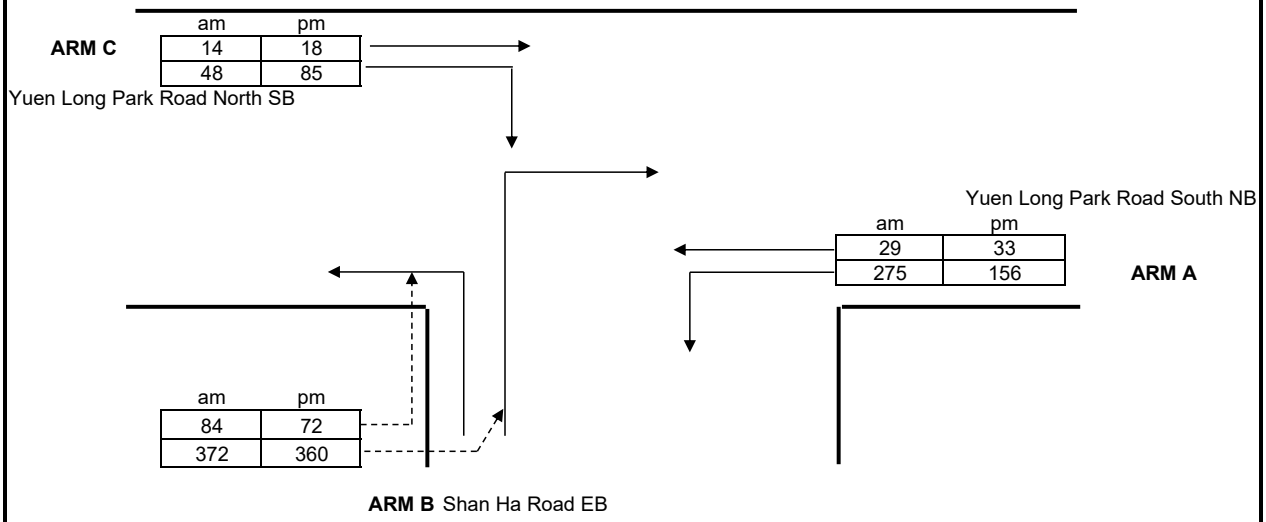
- In accordance with TPDM V2.4

SIMPLIFIED PRIORITY JUNCTION CAPACITY CALCULATION

ATKINS
Member of the SNC-Lavalin Group

(Single Lane Minor Arm B)

Job Title:	CE46/2020 TO4 Housing Development at Shap Pat Heung Road			
Junction:	J4 - Shan Ha Road / Town Park Road North		Designed by:	PC
Scheme:	Design		Checked by:	TL
Design Year:	2032	Job No.: 5210095	Date :	31/05/2022
ARM A:	Yuen Long Park Road South NB			
ARM B:	Shan Ha Road EB			
ARM C:	Yuen Long Park Road North SB			



GEOMETRY					
Major road width	W	9.80	Lane widths	w(b-a)	4.00
Central Reserve width	Wcr	0.00		w(b-c)	4.00
Residual width	Wr(c-a)	2.50		w(c-b)	4.40
Visibilities	Vr(b-a)	65	Calculated	D	0.92
	Vl(b-a)	45		E	0.98
	Vr(b-c)	65		F	1.00
	Vr(c-b)	45		Y	0.66

ANALYSIS		AM PEAK	PM PEAK
TRAFFIC FLOWS	q(c-a)	14	18
	q(c-b)	48	85
	q(a-b)	275	156
	q(a-c)	29	33
	q(b-a)	372	360
	q(b-c)	84	72
	f	0.18	0.17
CAPACITIES	Q(b-a)	529	526
	Q(b-c)	699	709
	Q(c-b)	671	698
	Q(b-ac)	554	550
DFC's	b-a	0.70	0.68
	b-c	0.12	0.10
	c-b	0.072	0.122
	b-ac	0.823	0.785
Critical DFC		**0.82**	**0.79**

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) Capacity of combined streams

T.P.D.M.V.2.4
Appendix 1

- In accordance with TPDM V2.4

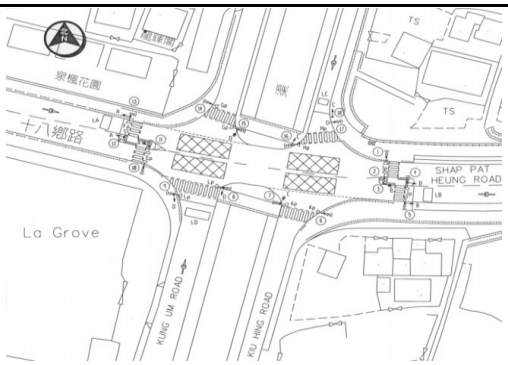
TRAFFIC SIGNAL CALCULATION SHEET

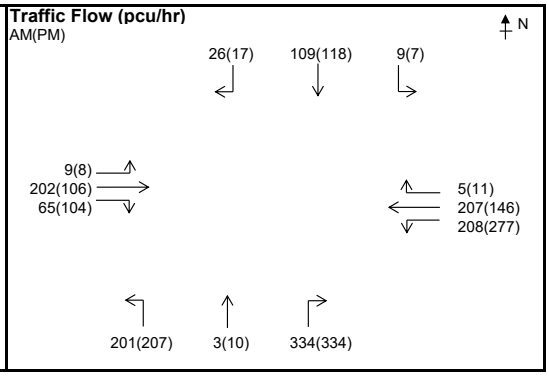
ATKINS
Member of the SNC-Lavalin Group

JOB NO. : 5210095

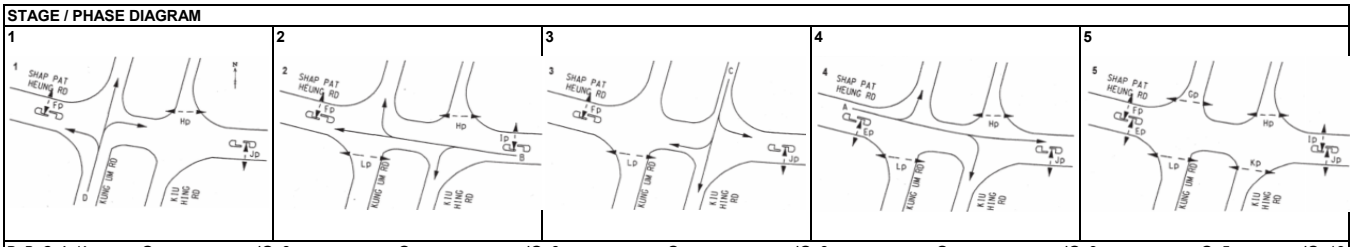
Junction : J5 - SHAP PAT HEUNG ROAD/KUNG UM ROAD/KIU HING ROAD (YL109) Design Year: 2021

Scheme : Existing Designed by: PC Checked by: TL





STAGE / PHASE DIAGRAM



D+B+C+A+Kp	G=	IG=8	G=	IG=6	G=	IG=8	G=	IG=9	G=5	IG=13	
D+B+C+A+Kp	G=	IG=8	G=	IG=6	G=	IG=8	G=	IG=9	G=5	IG=13	

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q*	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
Shap Pat Heung Road EB														
A1	4	4.10	Y	N	15/15		276	3% / 24%	1965	**0.140**	218	4% / 48%	1920	**0.114**
Shap Pat Heung Road WB														
B1	2	4.20	Y	N	20/15		420	50% / 1%	1960	**0.214**	434	64% / 3%	1935	**0.224**
Kung Um Road NB														
D1	1	4.60	Y	N	15/15		538	37% / 62%	1885	**0.285**	551	38% / 61%	1890	**0.292**
Kiu Hing Road SB														
C1	3	3.30	Y	N	20/15		144	6% / 18%	1900	**0.076**	142	5% / 12%	1915	**0.074**
Ep	4,5		5GM +	5FG =	10	sec								
Fp	1,2,3,5		5GM +	5FG =	10	sec								
Gp	5		5GM +	7FG =	12	sec								
Hp	1,2,4,5		5GM +	8FG =	13	sec								
Ip	2,5		5GM +	5FG =	10	sec								
Jp	1,3,4,5		5GM +	5FG =	10	sec								
Kp	5		5GM +	7FG =	12	sec								
Lp	2,3,4,5		5GM +	10FG =	15	sec								

Notes:

AM Peak	D+B+C+A+Kp	PM Peak	D+B+C+A+Kp
Sum of Critical *y* ***Y***	**0.716**	Sum of Critical *y* ***Y***	**0.704**
Lost Time ***L*** (sec)	45	Lost Time ***L*** (sec)	45
Cycle Time ***c*** (sec)	182	Cycle Time ***c*** (sec)	182
Practical *Y* ***Ypr***	0.677	Practical *Y* ***Ypr***	0.677
Reserve Capacity ***RC***	**-5%**	Reserve Capacity ***RC***	**-4%**

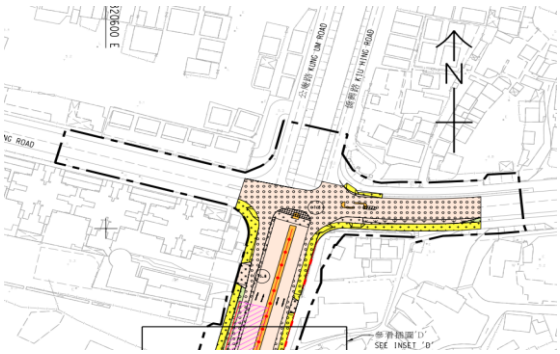
TRAFFIC SIGNAL CALCULATION SHEET

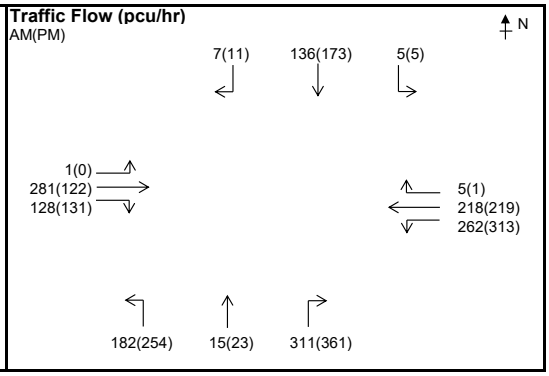
ATKINS
Member of the SNC-Lavalin Group

JOB NO. : 5210095

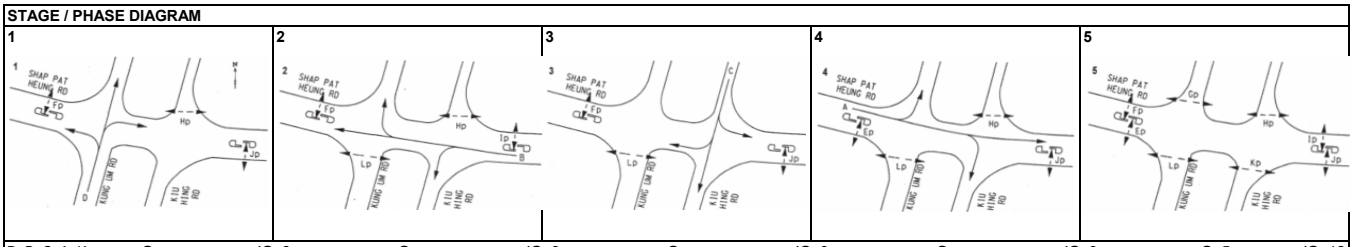
Junction : J5 - SHAP PAT HEUNG ROAD/KUNG UM ROAD/KIU HING ROAD (YL109) Design Year: 2032

Scheme : Reference (PR5.0) Designed by: PC Checked by: TL





STAGE / PHASE DIAGRAM



D+B+C+A+Kp	G=	IG=8	G=	IG=6	G=	IG=8	G=	IG=9	G=5	IG=12	
D+B+C+A+Kp	G=	IG=8	G=	IG=6	G=	IG=8	G=	IG=9	G=5	IG=12	

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q*	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
Shap Pat Heung Road EB														
A1	4	4.10	Y	N	15/15		410	0% / 31%	1965	**0.209**	253	0% / 52%	1925	**0.131**
Shap Pat Heung Road WB														
B1	2	3.50	Y	N	15		262	100%	1610	**0.163**	313	100%	1610	**0.194**
B2	2	3.50	N	N	15		223	2%	2100	0.106	220	0%	2105	0.105
Kung Um Road NB														
D1	1	3.50	Y	N	15		197	92%	1800	0.109	277	92%	1800	0.154
D2	1	3.50	N	N	20		311	100%	1960	**0.159**	361	100%	1960	**0.184**
Kiu Hing Road SB														
C1	3	3.30	Y	N	20/15		148	3% / 5%	1930	**0.077**	189	3% / 6%	1930	**0.098**
Ep	4,5		5GM +	5FG =	10	sec								
Fp	1,2,3,5		5GM +	5FG =	10	sec								
Gp	5		5GM +	7FG =	12	sec								
Hp	1,2,4,5		5GM +	8FG =	13	sec								
Ip	2,5		5GM +	5FG =	10	sec								
Jp	1,3,4,5		5GM +	7FG =	12	sec								
Kp	5		5GM +	10FG =	15	sec								
Lp	2,3,4,5		5GM +	10FG =	15	sec								

Notes:

AM Peak	D+B+C+A+Kp	PM Peak	D+B+C+A+Kp
Sum of Critical *y* ***Y***	**0.607**	Sum of Critical *y* ***Y***	**0.608**
Lost Time ***L*** (sec)	44	Lost Time ***L*** (sec)	44
Cycle Time ***c*** (sec)	182	Cycle Time ***c*** (sec)	182
Practical *Y* ***Ypr***	0.682	Practical *Y* ***Ypr***	0.682
Reserve Capacity ***RC***	**12%**	Reserve Capacity ***RC***	**12%**

Date : 31/05/2022 Junction : J5 - SHAP PAT HEUNG ROAD/KUNG UM ROAD/KIU HING ROAD

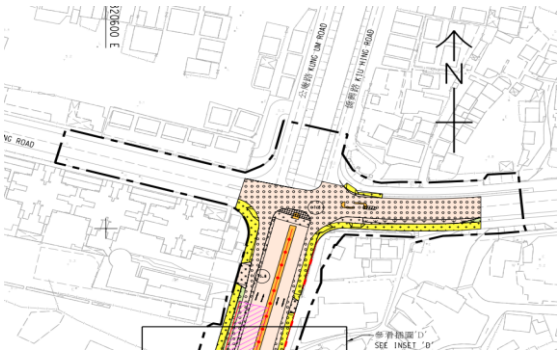
TRAFFIC SIGNAL CALCULATION SHEET

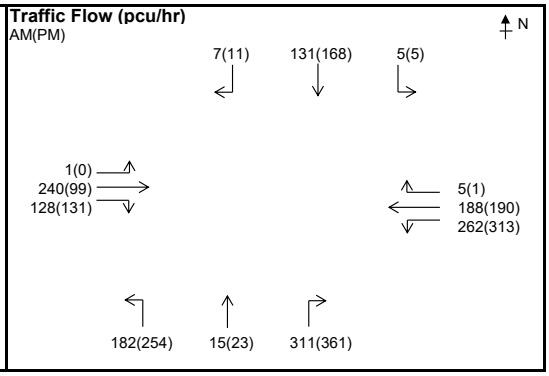
ATKINS
Member of the SNC-Lavalin Group

JOB NO. : 5210095

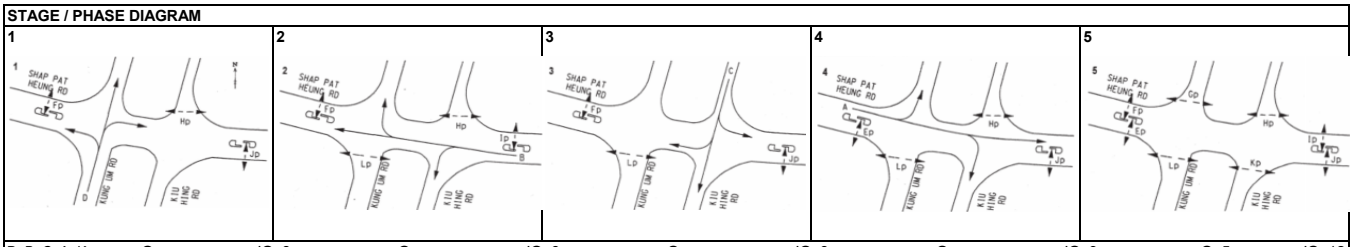
Junction : J5 - SHAP PAT HEUNG ROAD/KUNG UM ROAD/KIU HING ROAD (YL109) Design Year: 2032

Scheme : Reference (PR0) Designed by: PC Checked by: TL





STAGE / PHASE DIAGRAM



D+B+C+A+Kp	G=	IG=8	G=	IG=6	G=	IG=8	G=	IG=9	G=5	IG=12	
D+B+C+A+Kp	G=	IG=8	G=	IG=6	G=	IG=8	G=	IG=9	G=5	IG=12	

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q*	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
Shap Pat Heung Road EB														
A1	4	4.10	Y	N	15/15		369	0% / 35%	1950	**0.189**	230	0% / 57%	1910	**0.120**
Shap Pat Heung Road WB														
B1	2	3.50	Y	N	15		262	100%	1610	**0.163**	313	100%	1610	**0.194**
B2	2	3.50	N	N	15		193	3%	2100	0.092	191	1%	2105	0.091
Kung Um Road NB														
D1	1	3.50	Y	N	15		197	92%	1800	0.109	277	92%	1800	0.154
D2	1	3.50	N	N	20		311	100%	1960	**0.159**	361	100%	1960	**0.184**
Kiu Hing Road SB														
C1	3	3.30	Y	N	20/15		143	3% / 5%	1930	**0.074**	184	3% / 6%	1930	**0.095**
Ep	4,5		5GM +	5FG =	10	sec								
Fp	1,2,3,5		5GM +	5FG =	10	sec								
Gp	5		5GM +	7FG =	12	sec								
Hp	1,2,4,5		5GM +	8FG =	13	sec								
Ip	2,5		5GM +	5FG =	10	sec								
Jp	1,3,4,5		5GM +	7FG =	12	sec								
Kp	5		5GM +	10FG =	15	sec								
Lp	2,3,4,5		5GM +	10FG =	15	sec								

Notes:

AM Peak	D+B+C+A+Kp	PM Peak	D+B+C+A+Kp
Sum of Critical *y* ***Y***	**0.585**	Sum of Critical *y* ***Y***	**0.594**
Lost Time ***L*** (sec)	44	Lost Time ***L*** (sec)	44
Cycle Time ***c*** (sec)	182	Cycle Time ***c*** (sec)	182
Practical *Y* ***Ypr***	0.682	Practical *Y* ***Ypr***	0.682
Reserve Capacity ***RC***	**17%**	Reserve Capacity ***RC***	**15%**

Date : 31/05/2022 Junction : J5 - SHAP PAT HEUNG ROAD/KUNG UM ROAD/KIU HING ROAD

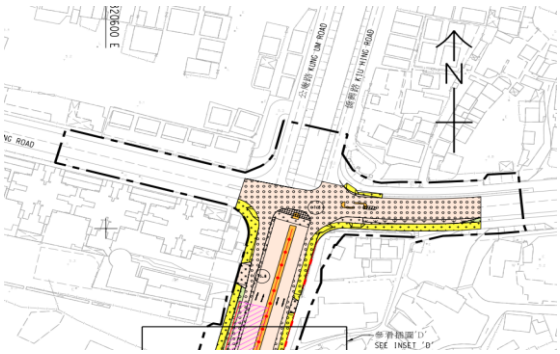
TRAFFIC SIGNAL CALCULATION SHEET

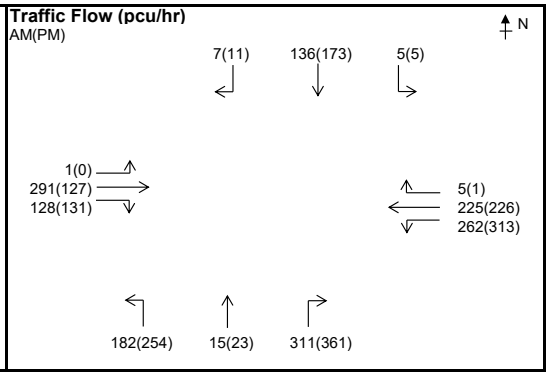
ATKINS
Member of the SNC-Lavalin Group

JOB NO. : 5210095

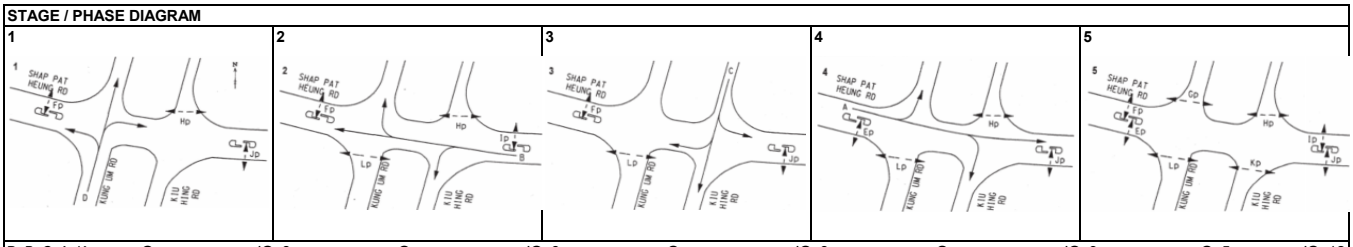
Junction : J5 - SHAP PAT HEUNG ROAD/KUNG UM ROAD/KIU HING ROAD (YL109) Design Year: 2032

Scheme : Design Designed by: PC Checked by: TL





STAGE / PHASE DIAGRAM



D+B+C+A+Kp	G=	IG=8	G=	IG=6	G=	IG=8	G=	IG=9	G=5	IG=12	
D+B+C+A+Kp	G=	IG=8	G=	IG=6	G=	IG=8	G=	IG=9	G=5	IG=12	

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q*	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
Shap Pat Heung Road EB														
A1	4	4.10	Y	N	15/15		420	0% / 30%	1965	**0.214**	258	0% / 51%	1925	**0.134**
Shap Pat Heung Road WB														
B1	2	3.50	Y	N	15		262	100%	1610	**0.163**	313	100%	1610	**0.194**
B2	2	3.50	N	N	15		230	2%	2100	0.110	227	0%	2105	0.108
Kung Um Road NB														
D1	1	3.50	Y	N	15		197	92%	1800	0.109	277	92%	1800	0.154
D2	1	3.50	N	N	20		311	100%	1960	**0.159**	361	100%	1960	**0.184**
Kiu Hing Road SB														
C1	3	3.30	Y	N	20/15		148	3% / 5%	1930	**0.077**	189	3% / 6%	1930	**0.098**
Ep	4,5		5GM +	5FG =	10	sec								
Fp	1,2,3,5		5GM +	5FG =	10	sec								
Gp	5		5GM +	7FG =	12	sec								
Hp	1,2,4,5		5GM +	8FG =	13	sec								
Ip	2,5		5GM +	5FG =	10	sec								
Jp	1,3,4,5		5GM +	7FG =	12	sec								
Kp	5		5GM +	10FG =	15	sec								
Lp	2,3,4,5		5GM +	10FG =	15	sec								

Notes:

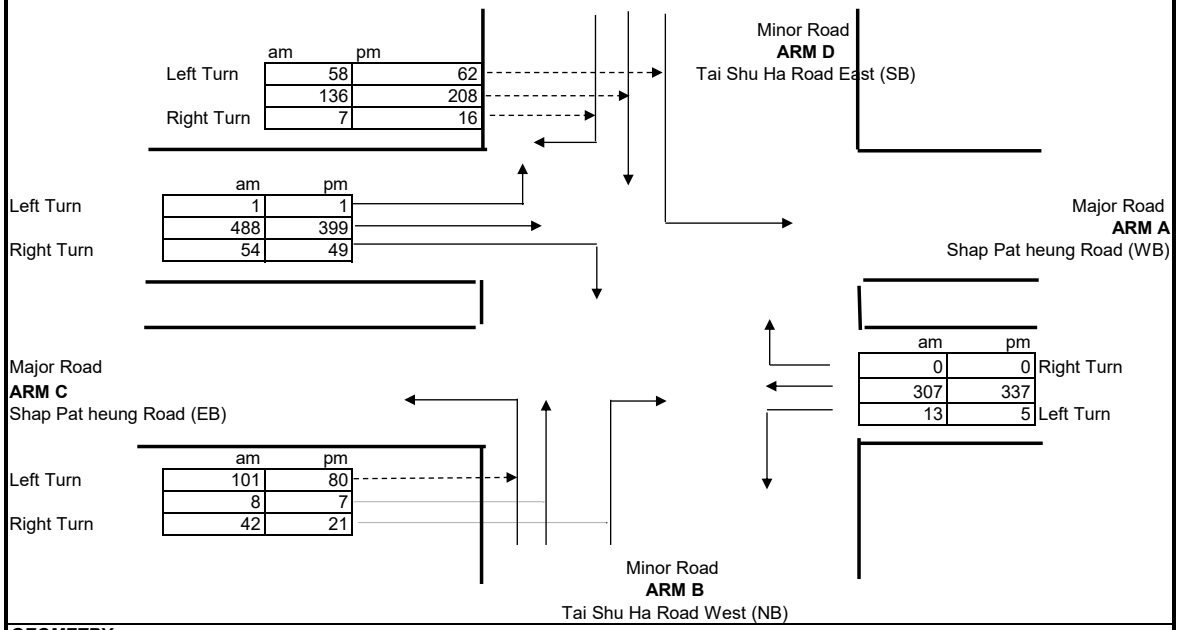
AM Peak	D+B+C+A+Kp	PM Peak	D+B+C+A+Kp
Sum of Critical *y* ***Y***	**0.612**	Sum of Critical *y* ***Y***	**0.611**
Lost Time ***L*** (sec)	44	Lost Time ***L*** (sec)	44
Cycle Time ***c*** (sec)	182	Cycle Time ***c*** (sec)	182
Practical *Y* ***Ypr***	0.682	Practical *Y* ***Ypr***	0.682
Reserve Capacity ***RC***	**12%**	Reserve Capacity ***RC***	**12%**

Date : 31/05/2022 Junction : J5 - SHAP PAT HEUNG ROAD/KUNG UM ROAD/KIU HING ROAD

Simplified Priority Junction Capacity Calculation

(Single Lane Minor Arm B)

Job Title:	CE46/2020 TO4 Housing Development at Shap Pat Heung Road				
Junction:	J6 - Shap Pat Heung Road / Tai Shu Ha Road West \ Tai Shu Ha Road East			Designed by:	PC
Scheme:	Existing			Checked by:	TL
Design Year:	2021	Job No.:	5210095	Date :	31/05/2022
ARM A:	Shap Pat heung Road (WB)	ARM C:	Shap Pat heung Road (EB)		
ARM B:	Tai Shu Ha Road West (NB)	ARM D:	Tai Shu Ha Road East (SB)		



GEOMETRY

Major road width		W	9.50	Residual width		Wr(c-a)	0.00
Central Reserve width		Wcr	0.00	Residual width		Wr(a-c)	0.00
Arm B				**Arm D**			
Lane widths		w(b-a)	5.40	Lane widths		w(d-c)	5.40
		w(b-c)	5.40			w(d-a)	5.40
		w(c-b)	0.00			w(a-d)	0.00
Visibilities	Vr(b-a) 108	D	1.07	Visibilities	Vr(d-c) 108	D	1.08
	Vl(b-a) 37	E	1.15		Vl(d-c) 47	E	1.15
	Vr(b-c) 108	F	0.60		Vr(d-a) 108	F	0.65
	Vr(c-b) 31	Y	0.67		Vr(a-d) 100	Y	0.67

ANALYSIS

Arm B		AM PEAK	PM PEAK	Arm D		AM PEAK	PM PEAK
TRAFFIC FLOWS	q(c-a)	488	399	TRAFFIC FLOWS	q(a-c)	307	337
	q(c-b)	54	49		q(a-d)	0	0
	q(a-b)	13	5		q(c-d)	1	1
	q(a-c)	307	337		q(c-a)	488	399
	q(b-a)	42	21		q(d-c)	7	16
	q(b-c)	101	80		q(d-a)	58	62
	q(b-d)	8	7		q(d-b)	136	208
	f	0.71	0.79		f	0.89	0.79
CAPACITIES	Q(b-a)	438	427	CAPACITIES	Q(d-c)	449	477
	Q(b-c)	770	763		Q(d-a)	721	746
	Q(c-b)	403	400		Q(a-d)	391	406
	Q(b-ac)	630	655		Q(d-ca)	676	668
	Q(b-d)left	490	500		Q(d-b)left	481	502
	Q(b-d)right	490	500		Q(d-b)right	481	502
	Q(c-a)	1559	1579		Q(a-c)	1800	1800
DFC's	b-ad	0.103	0.056	DFC's	d-c	0.155	0.234
	b-cd	0.140	0.112		d-a	0.224	0.297
	c-b	0.134	0.123		a-d	0.000	0.000
	b-acd	0.243	0.168		d-abc	0.379	0.531
	c-a	0.313	0.253		a-c	0.171	0.187
DFC		**0.31**	**0.25**	**DFC**		**0.38**	**0.53**

	AM PEAK	PM PEAK
Critical DFC	0.38	0.53

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) Capacity of combined streams

T.P.D.M.V.2.4
Appendix 1

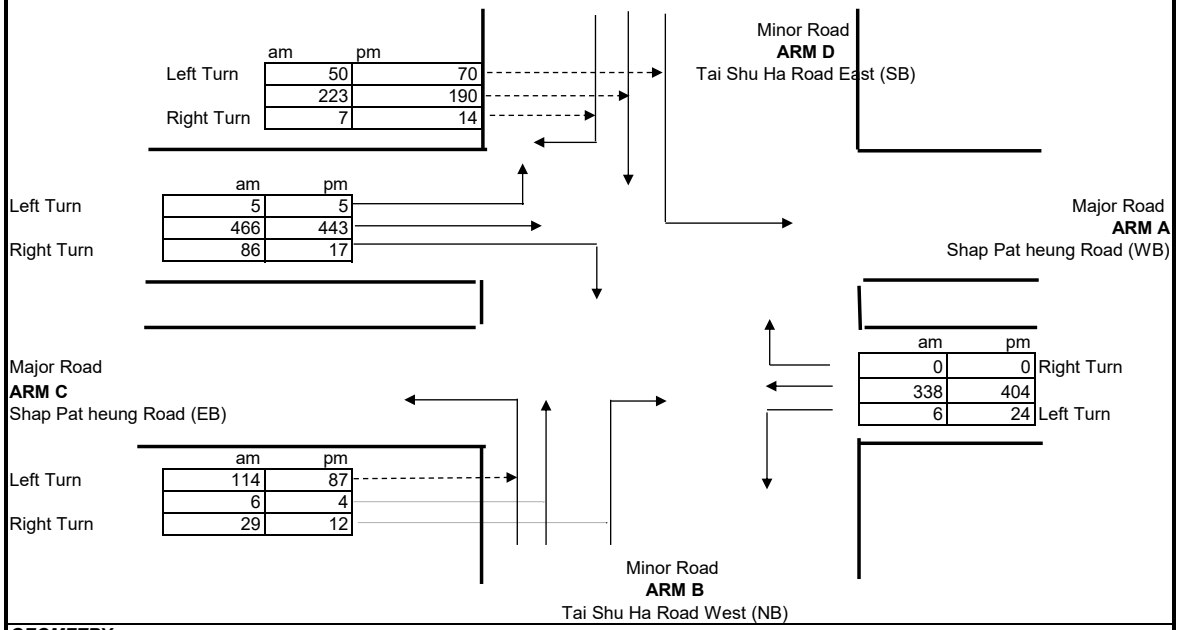
- In accordance with TPDM V2.4

Simplified Priority Junction Capacity Calculation

SNC·LAVALIN ATKINS Member of the SNC-Lavalin Group

(Single Lane Minor Arm B)

Job Title:	CE46/2020 TO4 Housing Development at Shap Pat Heung Road				
Junction:	J6 - Shap Pat Heung Road / Tai Shu Ha Road West \ Tai Shu Ha Road East			Designed by:	PC
Scheme:	Reference			Checked by:	TL
Design Year:	2032	Job No.:	5210095	Date :	31/05/2022
ARM A:	Shap Pat heung Road (WB)	ARM C:	Shap Pat heung Road (EB)		
ARM B:	Tai Shu Ha Road West (NB)	ARM D:	Tai Shu Ha Road East (SB)		



GEOMETRY

Major road width		W	9.50	Residual width		Wr(c-a)	0.00
Central Reserve width		Wcr	0.00	Residual width		Wr(a-c)	0.00
Arm B				**Arm D**			
Lane widths		w(b-a)	5.40	Lane widths		w(d-c)	5.40
		w(b-c)	5.40			w(d-a)	5.40
		w(c-b)	0.00			w(a-d)	0.00
Visibilities	Vr(b-a) 108	D	1.07	Visibilities	Vr(d-c) 108	D	1.08
	Vl(b-a) 37	E	1.15		Vl(d-c) 47	E	1.15
	Vr(b-c) 108	F	0.60		Vr(d-a) 108	F	0.65
	Vr(c-b) 31	Y	0.67		Vr(a-d) 100	Y	0.67

ANALYSIS

Arm B		AM PEAK	PM PEAK	Arm D		AM PEAK	PM PEAK
TRAFFIC FLOWS	q(c-a)	466	443	TRAFFIC FLOWS	q(a-c)	338	404
	q(c-b)	86	17		q(a-d)	0	0
	q(a-b)	6	24		q(c-d)	5	5
	q(a-c)	338	404		q(c-a)	466	443
	q(b-a)	29	12		q(d-c)	7	14
	q(b-c)	114	87		q(d-a)	50	70
	q(b-d)	6	4		q(d-b)	223	190
	f	0.80	0.88		f	0.88	0.83
CAPACITIES	Q(b-a)	402	415	CAPACITIES	Q(d-c)	439	463
	Q(b-c)	762	742		Q(d-a)	726	733
	Q(c-b)	399	387		Q(a-d)	387	406
	Q(b-ac)	645	677		Q(d-ca)	672	668
	Q(b-d)left	474	484		Q(d-b)left	474	484
	Q(b-d)right	474	484		Q(d-b)right	474	484
	Q(c-a)	1412	1721		Q(a-c)	1800	1800
DFC's	b-ad	0.078	0.033	DFC's	d-c	0.247	0.221
	b-cd	0.156	0.122		d-a	0.308	0.298
	c-b	0.215	0.044		a-d	0.000	0.000
	b-acd	0.234	0.154		d-abc	0.555	0.518
	c-a	0.330	0.257		a-c	0.188	0.224
DFC		**0.33**	**0.26**	**DFC**		**0.56**	**0.52**

	AM PEAK	PM PEAK
Critical DFC	0.56	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) Capacity of combined streams

T.P.D.M.V.2.4
Appendix 1

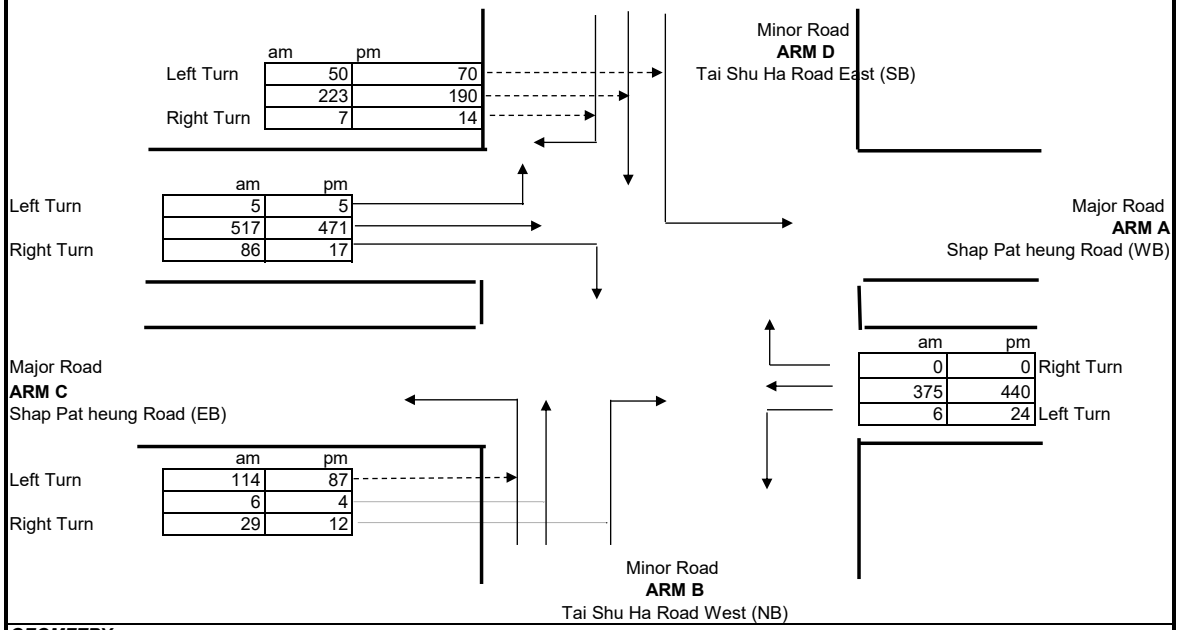
- In accordance with TPDM V2.4

Simplified Priority Junction Capacity Calculation

SNC·LAVALIN ATKINS Member of the SNC-Lavalin Group

(Single Lane Minor Arm B)

Job Title:	CE46/2020 TO4 Housing Development at Shap Pat Heung Road				
Junction:	J6 - Shap Pat Heung Road / Tai Shu Ha Road West \ Tai Shu Ha Road East			Designed by:	PC
Scheme:	Design			Checked by:	TL
Design Year:	2032	Job No.:	5210095	Date :	31/05/2022
ARM A:	Shap Pat heung Road (WB)	ARM C:	Shap Pat heung Road (EB)		
ARM B:	Tai Shu Ha Road West (NB)	ARM D:	Tai Shu Ha Road East (SB)		



GEOMETRY

Major road width		W	9.50	Residual width		Wr(c-a)	0.00
Central Reserve width		Wcr	0.00	Residual width		Wr(a-c)	0.00
Arm B				**Arm D**			
Lane widths		w(b-a)	5.40	Lane widths		w(d-c)	5.40
		w(b-c)	5.40			w(d-a)	5.40
		w(c-b)	0.00			w(a-d)	0.00
Visibilities	Vr(b-a) 108	D	1.07	Visibilities	Vr(d-c) 108	D	1.08
	Vl(b-a) 37	E	1.15		Vl(d-c) 47	E	1.15
	Vr(b-c) 108	F	0.60		Vr(d-a) 108	F	0.65
	Vr(c-b) 31	Y	0.67		Vr(a-d) 100	Y	0.67

ANALYSIS

Arm B		AM PEAK	PM PEAK	Arm D		AM PEAK	PM PEAK
TRAFFIC FLOWS	q(c-a)	517	471	TRAFFIC FLOWS	q(a-c)	375	440
	q(c-b)	86	17		q(a-d)	0	0
	q(a-b)	6	24		q(c-d)	5	5
	q(a-c)	375	440		q(c-a)	517	471
	q(b-a)	29	12		q(d-c)	7	14
	q(b-c)	114	87		q(d-a)	50	70
	q(b-d)	6	4		q(d-b)	223	190
	f	0.80	0.88		f	0.88	0.83
CAPACITIES	Q(b-a)	384	401	CAPACITIES	Q(d-c)	420	449
	Q(b-c)	752	731		Q(d-a)	712	725
	Q(c-b)	394	382		Q(a-d)	379	402
	Q(b-ac)	629	665		Q(d-ca)	656	658
	Q(b-d)left	456	470		Q(d-b)left	454	471
	Q(b-d)right	456	470		Q(d-b)right	454	471
	Q(c-a)	1407	1720		Q(a-c)	1800	1800
DFC's	b-ad	0.082	0.034	DFC's	d-c	0.258	0.227
	b-cd	0.159	0.123		d-a	0.320	0.305
	c-b	0.218	0.045		a-d	0.000	0.000
	b-acd	0.240	0.157		d-abc	0.578	0.531
	c-a	0.367	0.274		a-c	0.208	0.244
DFC		**0.37**	**0.27**	**DFC**		**0.58**	**0.53**

	AM PEAK	PM PEAK
Critical DFC	0.58	0.53

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) Capacity of combined streams

T.P.D.M.V.2.4
Appendix 1

- In accordance with TPDM V2.4

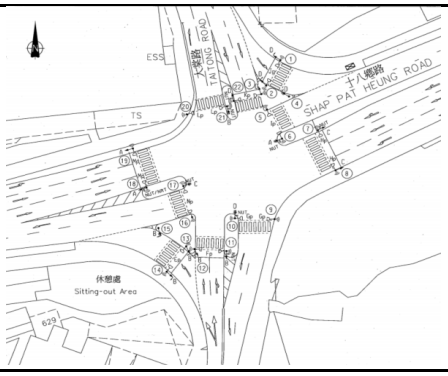
TRAFFIC SIGNAL CALCULATION SHEET

ATKINS
Member of the SNC-Lavalin Group

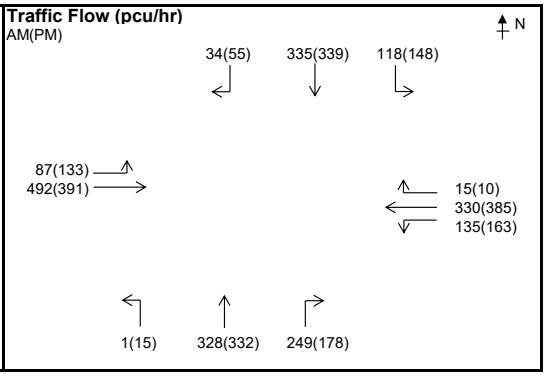
JOB NO. : 5210095

Junction : J7 - SHAP PAT HEUNG ROAD/TAI TONG ROAD (YL100) Design Year: 2021

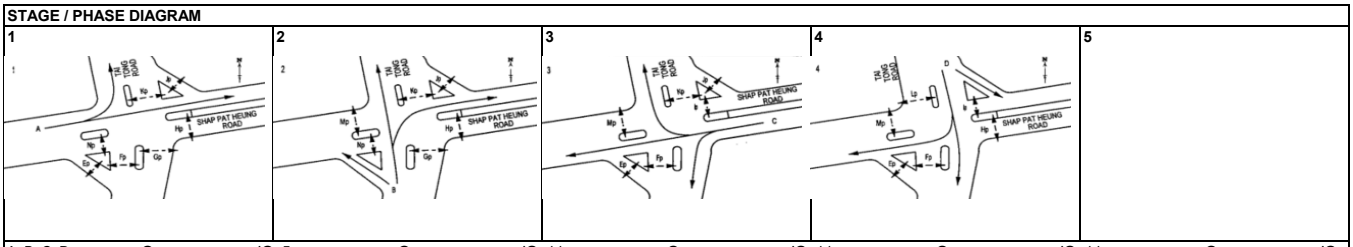
Scheme : Existing Designed by: PC Checked by: TL



Traffic Flow (pcu/hr)
AM(PM)



STAGE / PHASE DIAGRAM



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A+B+C+D	G=	IG=5	G=	IG=11	G=	IG=11	G=	IG=11	G=	IG=	

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
Shap Pat Heung Road EB														
A1	1	3.30	Y	N	13		87	100%	1745	0.050	133	100%	1745	0.076
A2	1	3.30	N	N			246		2085	**0.118**	196		2085	**0.094**
A3	1	3.30	N	N			246		2085	0.118	195		2085	0.094
Shap Pat Heung Road WB														
C1	3	3.60	Y	N	20		135	100%	1835	0.074	163	100%	1835	0.089
C2	3	3.90	N	N			176		2145	**0.082**	201		2145	**0.094**
C3	3	3.30	N	N	15		169	9%	2065	0.082	194	5%	2075	0.093
Tai Tong Road NB														
B1	2	3.60	Y	N	30		286	0%	1380	**0.207**	258	6%	1380	0.187
B2	2	3.60	N	N	25		292	85%	1410	0.207	267	67%	1425	**0.187**
Tai Tong Road SB														
D1	4	3.30	Y	N	25		233	51%	1890	**0.123**	259	57%	1880	**0.138**
D2	4	3.30	N	N	20		254	13%	2065	0.123	283	19%	2055	0.138
Ep	1,3,4		6GM +	6FG =	12	sec								
Fp	1,3,4		7GM +	7FG =	14	sec								
Gp	1,2		8GM +	8FG =	16	sec								
Hp	1,2,4		10GM +	10FG =	20	sec								
Ip	3,4		8GM +	8FG =	16	sec								
Jp	1,2,3		6GM +	8FG =	14	sec								
Kp	1,2,3		6GM +	6FG =	12	sec								
Lp	4		9GM +	6FG =	15	sec								
Mp	2,3,4		10GM +	6FG =	16	sec								
Np	1,2		6GM +	6FG =	12	sec								

Notes:

AM Peak	A+B+C+D	PM Peak	A+B+C+D
Sum of Critical *y* ***Y***	**0.531**	Sum of Critical *y* ***Y***	**0.513**
Lost Time ***L*** (sec)	34	Lost Time ***L*** (sec)	34
Cycle Time ***c*** (sec)	120	Cycle Time ***c*** (sec)	120
Practical *Y* ***Ypr***	0.645	Practical *Y* ***Ypr***	0.645
Reserve Capacity ***RC***	**22%**	Reserve Capacity ***RC***	**26%**

Date : 15/07/2022 Junction : J7 - SHAP PAT HEUNG ROAD/TAI TONG ROAD

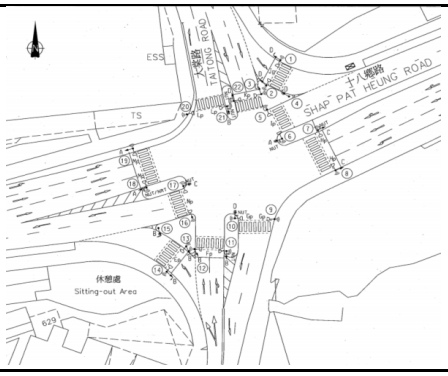
TRAFFIC SIGNAL CALCULATION SHEET

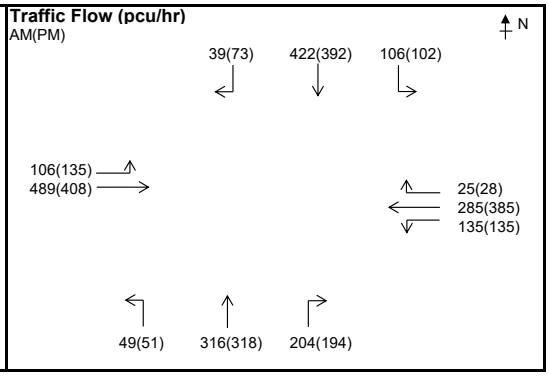
ATKINS
Member of the SNC-Lavalin Group

JOB NO. : 5210095

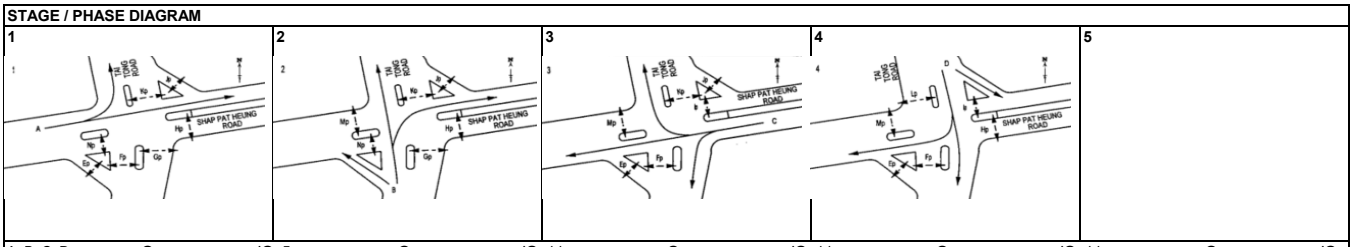
Junction : J7 - SHAP PAT HEUNG ROAD/TAI TONG ROAD (YL100) Design Year: 2032

Scheme : Reference Designed by: PC Checked by: TL





STAGE / PHASE DIAGRAM



A+B+C+D	G=	IG=5	G=	IG=11	G=	IG=11	G=	IG=11	G=	IG=	
A+B+C+D	G=	IG=5	G=	IG=11	G=	IG=11	G=	IG=11	G=	IG=	

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
Shap Pat Heung Road EB														
A1	1	3.30	Y	N	13		106	100%	1745	0.061	135	100%	1745	0.077
A2	1	3.30	N	N			245		2085	**0.118**	204		2085	**0.098**
A3	1	3.30	N	N			244		2085	0.117	204		2085	0.098
Shap Pat Heung Road WB														
C1	3	3.60	Y	N	20		135	100%	1835	0.074	135	100%	1835	0.074
C2	3	3.90	N	N			158		2145	0.074	211		2145	**0.098**
C3	3	3.30	N	N	15		152	16%	2050	**0.074**	202	14%	2055	0.098
Tai Tong Road NB														
B1	2	3.60	Y	N	30		266	7%	1280	**0.208**	262	8%	1280	0.205
B2	2	3.60	N	N	25		273	75%	1315	0.208	271	72%	1320	**0.205**
B3 Flare	2	3.60												
Tai Tong Road SB														
D1	4	3.30	Y	N	25		258	29%	1910	0.135	260	28%	1915	**0.136**
D2	4	3.30	N	N	20		279	14%	2065	**0.135**	277	26%	2045	0.135
D3 Flare	4	3.30												
Ep	1,3,4		6GM +	6FG =	12	sec								
Fp	1,3,4		7GM +	7FG =	14	sec								
Gp	1,2		8GM +	8FG =	16	sec								
Hp	1,2,4		10GM +	10FG =	20	sec								
Ip	3,4		8GM +	8FG =	16	sec								
Jp	1,2,3		6GM +	8FG =	14	sec								
Kp	1,2,3		6GM +	6FG =	12	sec								
Lp	4		9GM +	6FG =	15	sec								
Mp	2,3,4		10GM +	6FG =	16	sec								
Np	1,2		6GM +	6FG =	12	sec								

Notes:

AM Peak	A+B+C+D	PM Peak	A+B+C+D
Sum of Critical *y* ***Y***	**0.535**	Sum of Critical *y* ***Y***	**0.537**
Lost Time ***L*** (sec)	34	Lost Time ***L*** (sec)	34
Cycle Time ***c*** (sec)	120	Cycle Time ***c*** (sec)	120
Practical *Y* ***Ypr***	0.645	Practical *Y* ***Ypr***	0.645
Reserve Capacity ***RC***	**21%**	Reserve Capacity ***RC***	**20%**

Date : 15/07/2022 Junction : J7 - SHAP PAT HEUNG ROAD/TAI TONG ROAD

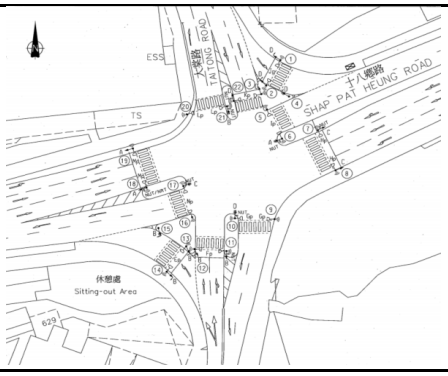
TRAFFIC SIGNAL CALCULATION SHEET

ATKINS
Member of the SNC-Lavalin Group

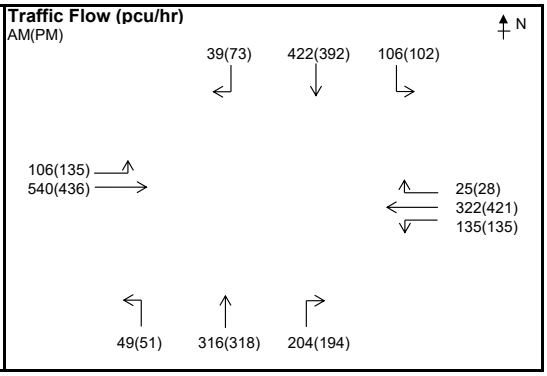
JOB NO. : 5210095

Junction : J7 - SHAP PAT HEUNG ROAD/TAI TONG ROAD (YL100) Design Year: 2032

Scheme : Design Designed by: PC Checked by: TL



Traffic Flow (pcu/hr)
AM(PM)



STAGE / PHASE DIAGRAM

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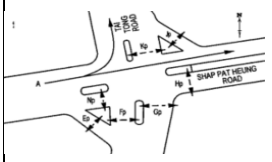
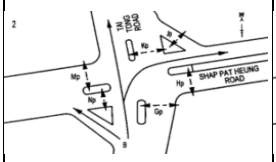
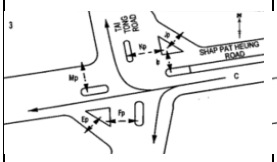
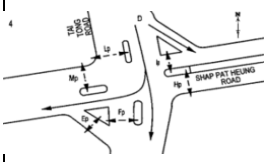
				
A+B+C+D G= IG=5	G= IG=11	G= IG=11	G= IG=11	G= IG=
A+B+C+D G= IG=5	G= IG=11	G= IG=11	G= IG=11	G= IG=

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
Shap Pat Heung Road EB														
A1	1	3.30	Y	N	13		106	100%	1745	0.061	135	100%	1745	0.077
A2	1	3.30	N	N			270		2085	**0.129**	218		2085	**0.105**
A3	1	3.30	N	N			270		2085	0.129	218		2085	0.105
Shap Pat Heung Road WB														
C1	3	3.60	Y	N	20		135	100%	1835	0.074	135	100%	1835	0.074
C2	3	3.90	N	N			177		2145	0.083	229		2145	0.107
C3	3	3.30	N	N	15		170	15%	2055	**0.083**	220	13%	2060	**0.107**
Tai Tong Road NB														
B1	2	3.60	Y	N	30		266	7%	1280	**0.208**	262	8%	1280	0.205
B2	2	3.60	N	N	25		273	75%	1315	0.208	271	72%	1320	**0.205**
B3 Flare	2	3.60												
Tai Tong Road SB														
D1	4	3.30	Y	N	25		258	29%	1910	0.135	260	28%	1915	**0.136**
D2	4	3.30	N	N	20		279	14%	2065	**0.135**	277	26%	2045	0.135
D3 Flare	4	3.30												
Ep	1,3,4		6GM +	6FG =	12	sec								
Fp	1,3,4		7GM +	7FG =	14	sec								
Gp	1,2		8GM +	8FG =	16	sec								
Hp	1,2,4		10GM +	10FG =	20	sec								
Ip	3,4		8GM +	8FG =	16	sec								
Jp	1,2,3		6GM +	8FG =	14	sec								
Kp	1,2,3		6GM +	6FG =	12	sec								
Lp	4		9GM +	6FG =	15	sec								
Mp	2,3,4		10GM +	6FG =	16	sec								
Np	1,2		6GM +	6FG =	12	sec								

Notes:

AM Peak	A+B+C+D	PM Peak	A+B+C+D
Sum of Critical *y* ***Y***	**0.555**	Sum of Critical *y* ***Y***	**0.552**
Lost Time ***L*** (sec)	34	Lost Time ***L*** (sec)	34
Cycle Time ***c*** (sec)	120	Cycle Time ***c*** (sec)	120
Practical *Y* ***Ypr***	0.645	Practical *Y* ***Ypr***	0.645
Reserve Capacity ***RC***	**16%**	Reserve Capacity ***RC***	**17%**

Date : 15/07/2022 Junction : J7 - SHAP PAT HEUNG ROAD/TAI TONG ROAD

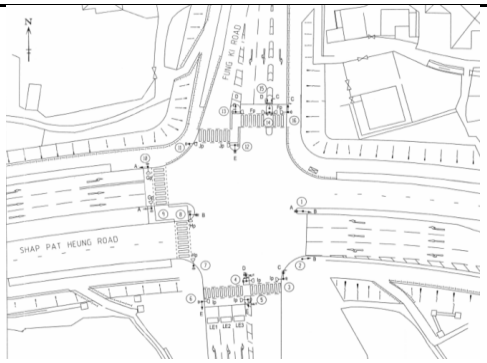
TRAFFIC SIGNAL CALCULATION SHEET

ATKINS
Member of the SNC-Lavalin Group

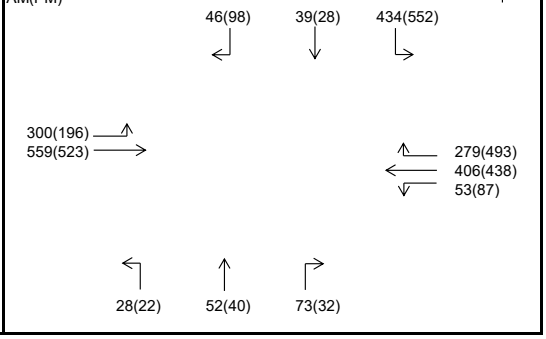
JOB NO. : 5210095

Junction : J8 - FUNG KI ROAD/SHAP PAT HEUNG ROAD/ACCESS ROAD (YL97) Design Year: 2021

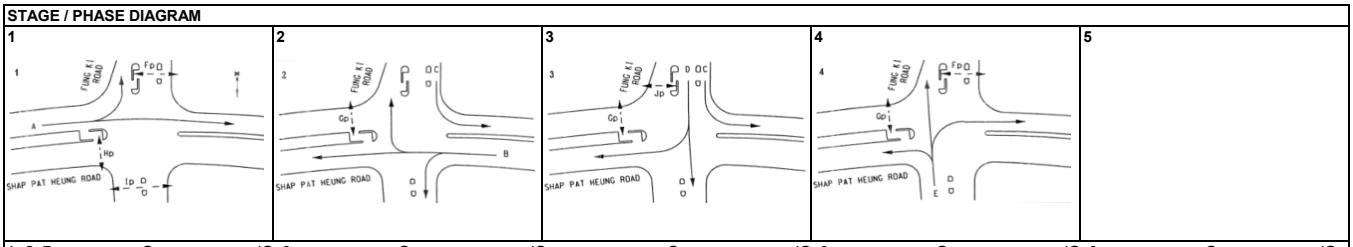
Scheme : Existing Designed by: PC Checked by: TL



Traffic Flow (pcu/hr)
AM(PM)



STAGE / PHASE DIAGRAM



A+C+E	G=	IG=6	G=	IG=	G=	IG=9	G=	IG=8	G=	IG=	
A+C+E	G=	IG=6	G=	IG=	G=	IG=9	G=7	IG=8	G=	IG=	

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
Shap Pat Heung Road EB														
A1	1	3.30	Y	N	10		300	100%	1690	**0.178**	196	100%	1690	0.116
A2	1	3.50	N	N			280		2105	0.133	262		2105	**0.124**
A3	1	3.50	N	N			279		2105	0.133	261		2105	0.124
Shap Pat Heung Road WB														
B1	2	3.00	Y	N	30		220	24%	1890	0.116	251	35%	1880	0.134
B2	2	3.00	N	N			239		2055	0.116	274		2055	0.133
B3	2	3.50	N	N	15		279	100%	1915	0.146	493	100%	1915	0.257
Access Road NB														
E1	4	3.30	Y	N	10		28	100%	845	0.033	22	100%	845	0.026
E2	4	3.50	N	N	25		64	19%	1040	**0.062**	40	0%	1055	0.038
E3	4	3.75	N	N	23		61	100%	1000	0.061	32	100%	1000	0.032
Fung Ki Road SB														
C1	2,3	3.30	Y	N	10		434	100%	1690	**0.257**	552	100%	1690	**0.327**
D1	3	3.50	N	N	25		44	11%	2090	0.021	64	56%	2035	0.031
D2	3	3.75	N	N	23		41	100%	1995	0.021	62	100%	1995	0.031
Fp	1,4		7GM +	10FG =	17	sec								
Gp	2,3,4		5GM +	10FG =	15	sec								
Hp	1		5GM +	9FG =	14	sec								
Ip	1		10GM +	9FG =	19	sec								
Jp	3		5GM +	8FG =	13	sec								

Notes:

AM Peak	A+C+E	PM Peak	A+C+E
Sum of Critical *y* ***Y***	**0.496**	Sum of Critical *y* ***Y***	**0.451**
Lost Time ***L*** (sec)	20	Lost Time ***L*** (sec)	28
Cycle Time ***c*** (sec)	120	Cycle Time ***c*** (sec)	120
Practical *Y* ***Ypr***	0.750	Practical *Y* ***Ypr***	0.690
Reserve Capacity ***RC***	**51%**	Reserve Capacity ***RC***	**53%**

Date : 15/07/2022 Junction : J8 - FUNG KI ROAD/SHAP PAT HEUNG ROAD/ACCESS ROAD

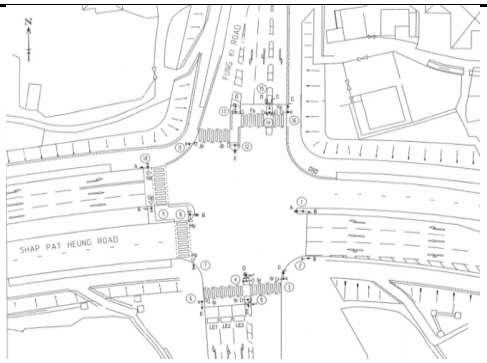
TRAFFIC SIGNAL CALCULATION SHEET

ATKINS
Member of the SNC-Lavalin Group

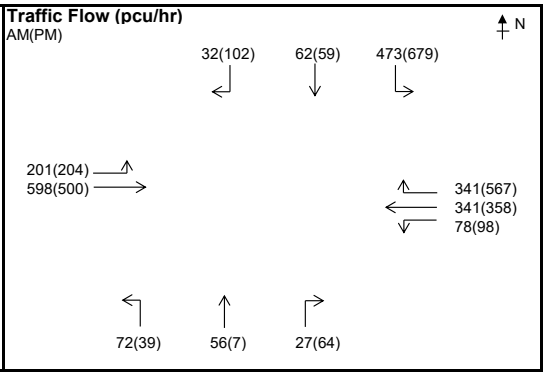
JOB NO. : 5210095

Junction : J8 - FUNG KI ROAD/SHAP PAT HEUNG ROAD/ACCESS ROAD (YL97) Design Year: 2032

Scheme : Reference Designed by: PC Checked by: TL



Traffic Flow (pcu/hr)
AM(PM)



STAGE / PHASE DIAGRAM

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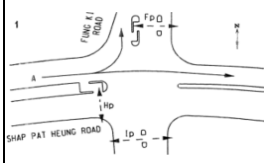
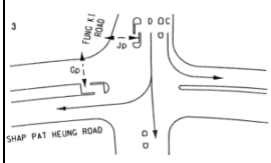
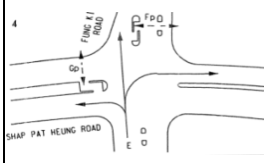
				

A+C+E	G=	IG=6	G=	IG=	G=	IG=9	G=	IG=8	G=	IG=
A+C+E	G=	IG=6	G=	IG=	G=	IG=9	G=	IG=8	G=	IG=

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
Shap Pat Heung Road EB														
A1	1	3.30	Y	N	10		201	100%	1690	0.119	204	100%	1690	**0.121**
A2	1	3.50	N	N			299		2105	**0.142**	250		2105	0.119
A3	1	3.50	N	N			299		2105	0.142	250		2105	0.119
Shap Pat Heung Road WB														
B1	2	3.00	Y	N	30		200	39%	1880	0.106	217	45%	1875	0.116
B2	2	3.00	N	N			219		2055	0.107	239		2055	0.116
B3	2	3.50	N	N	15		341	100%	1915	0.178	567	100%	1915	0.296
Access Road NB														
E1	4	3.30	Y	N	10		72	100%	845	**0.085**	39	100%	845	**0.046**
E2	4	3.50	N	N	25		56	0%	1055	0.053	36	81%	1005	0.036
E3	4	3.75	N	N	23		27	100%	1000	0.027	35	100%	1000	0.035
Fung Ki Road SB														
C1	2,3	3.30	Y	N	10		473	100%	1690	**0.280**	679	100%	1690	**0.402**
D1	3	3.50	N	N	25		62	0%	2105	0.029	82	28%	2070	0.040
D2	3	3.75	N	N	23		32	100%	1995	0.016	79	100%	1995	0.040
Fp	1,4		7GM +	10FG =	17	sec								
Gp	2,3,4		5GM +	10FG =	15	sec								
Hp	1		5GM +	9FG =	14	sec								
Ip	1		10GM +	9FG =	19	sec								
Jp	3		5GM +	8FG =	13	sec								

Notes:

AM Peak	A+C+E	PM Peak	A+C+E
Sum of Critical *y* ***Y***	**0.507**	Sum of Critical *y* ***Y***	**0.569**
Lost Time ***L*** (sec)	20	Lost Time ***L*** (sec)	20
Cycle Time ***c*** (sec)	120	Cycle Time ***c*** (sec)	120
Practical *Y* ***Ypr***	0.750	Practical *Y* ***Ypr***	0.750
Reserve Capacity ***RC***	**48%**	Reserve Capacity ***RC***	**32%**

Date : 15/07/2022 Junction : J8 - FUNG KI ROAD/SHAP PAT HEUNG ROAD/ACCESS ROAD

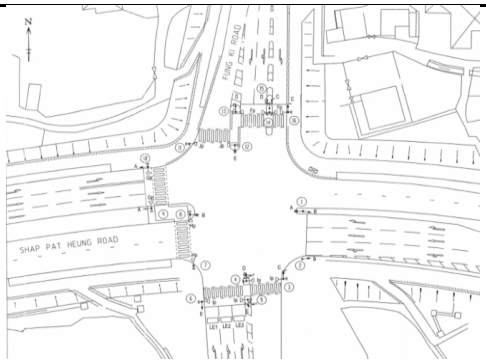
TRAFFIC SIGNAL CALCULATION SHEET

ATKINS
Member of the SNC-Lavalin Group

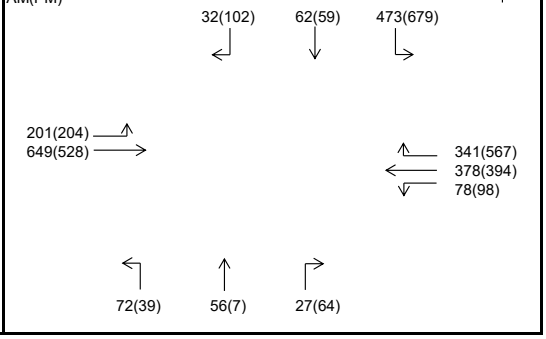
JOB NO. : 5210095

Junction : J8 - FUNG KI ROAD/SHAP PAT HEUNG ROAD/ACCESS ROAD (YL97) Design Year: 2032

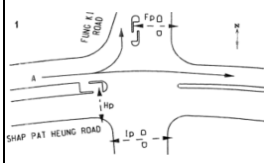
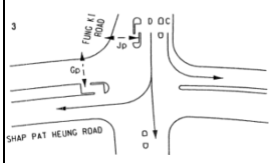
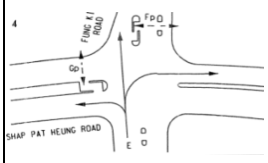
Scheme : Design Designed by: PC Checked by: TL



Traffic Flow (pcu/hr)
AM(PM)



STAGE / PHASE DIAGRAM

1	2	3	4	5
				

A+C+E	G=	IG=6	G=	IG=	G=	IG=9	G=	IG=8	G=	IG=
A+C+E	G=	IG=6	G=	IG=	G=	IG=9	G=	IG=8	G=	IG=

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
Shap Pat Heung Road EB														
A1	1	3.30	Y	N	10		201	100%	1690	0.119	204	100%	1690	0.121
A2	1	3.50	N	N			325		2105	**0.154**	264		2105	**0.125**
A3	1	3.50	N	N			324		2105	0.154	264		2105	0.125
Shap Pat Heung Road WB														
B1	2	3.00	Y	N	30		218	36%	1880	0.116	235	42%	1875	0.125
B2	2	3.00	N	N			238		2055	0.116	257		2055	0.125
B3	2	3.50	N	N	15		341	100%	1915	0.178	567	100%	1915	0.296
Access Road NB														
E1	4	3.30	Y	N	10		72	100%	845	**0.085**	39	100%	845	**0.046**
E2	4	3.50	N	N	25		56	0%	1055	0.053	36	81%	1005	0.036
E3	4	3.75	N	N	23		27	100%	1000	0.027	35	100%	1000	0.035
Fung Ki Road SB														
C1	2,3	3.30	Y	N	10		473	100%	1690	**0.280**	679	100%	1690	**0.402**
D1	3	3.50	N	N	25		62	0%	2105	0.029	82	28%	2070	0.040
D2	3	3.75	N	N	23		32	100%	1995	0.016	79	100%	1995	0.040
Fp	1,4		7GM +	10FG =	17	sec								
Gp	2,3,4		5GM +	10FG =	15	sec								
Hp	1		5GM +	9FG =	14	sec								
Ip	1		10GM +	9FG =	19	sec								
Jp	3		5GM +	8FG =	13	sec								

Notes:

AM Peak	A+C+E	PM Peak	A+C+E
Sum of Critical *y* ***Y***	**0.519**	Sum of Critical *y* ***Y***	**0.573**
Lost Time ***L*** (sec)	20	Lost Time ***L*** (sec)	20
Cycle Time ***c*** (sec)	120	Cycle Time ***c*** (sec)	120
Practical *Y* ***Ypr***	0.750	Practical *Y* ***Ypr***	0.750
Reserve Capacity ***RC***	**44%**	Reserve Capacity ***RC***	**31%**

Date : 15/07/2022 Junction : J8 - FUNG KI ROAD/SHAP PAT HEUNG ROAD/ACCESS ROAD

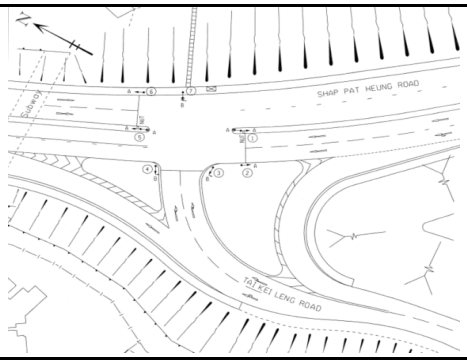
TRAFFIC SIGNAL CALCULATION SHEET

ATKINS
Member of the SNC-Lavalin Group

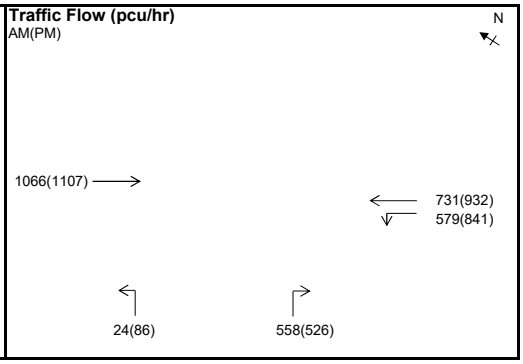
JOB NO. : 5210095

Junction : J9 - TAI KEI LENG ROAD/SHAP PAT HEUNG ROAD (YL84) Design Year: 2021

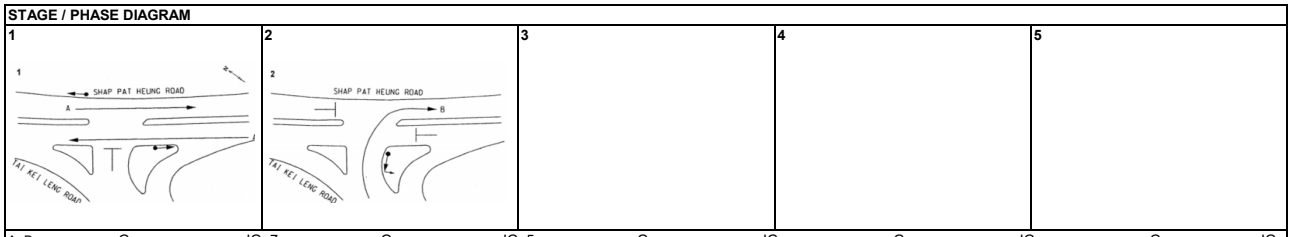
Scheme : Existing Designed by: PC Checked by: TL



Traffic Flow (pcu/hr)
AM(PM)



STAGE / PHASE DIAGRAM



A+B	G=	IG=7	G=	IG=5	G=	IG=	G=	IG=	G=	IG=	
A+B	G=	IG=7	G=	IG=5	G=	IG=	G=	IG=	G=	IG=	

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
Shap Pat Heung Road EB														
A1	1	4.00	Y	N			515		1410	**0.365**	535		1410	**0.379**
A2	1	4.00	N	N			551		1510	0.365	572		1510	0.379
Shap Pat Heung Road WB														
A3	1	4.00	Y	N			418		2015	0.207	533		2015	0.265
A4	1	4.00	N	N			313		1510	0.207	399		1510	0.264
Tai Kei Leng Road NB														
B1	2	4.00	Y	N	20		254	100%	1310	0.194	240	100%	1310	**0.183**
B2	2	4.00	N	N	15		304	100%	1565	**0.194**	286	100%	1565	0.183

Notes:

AM Peak	A+B	PM Peak	A+B
Sum of Critical *y* ***Y***	**0.559**	Sum of Critical *y* ***Y***	**0.563**
Lost Time ***L*** (sec)	10	Lost Time ***L*** (sec)	10
Cycle Time ***c*** (sec)	120	Cycle Time ***c*** (sec)	120
Practical *Y* ***Ypr***	0.825	Practical *Y* ***Ypr***	0.825
Reserve Capacity ***RC***	**47%**	Reserve Capacity ***RC***	**47%**

Date : 08/03/2023 Junction : J9 - TAI KEI LENG ROAD/SHAP PAT HEUNG ROAD

ATKINS CHINA LIMITED

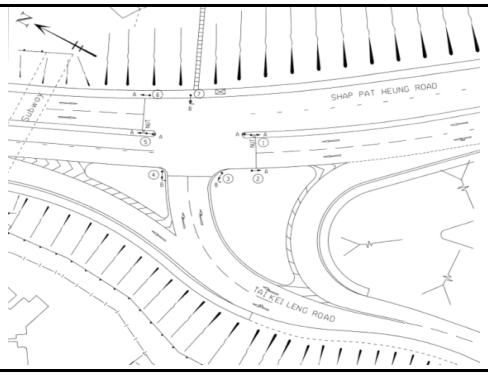
TRAFFIC SIGNAL CALCULATION SHEET

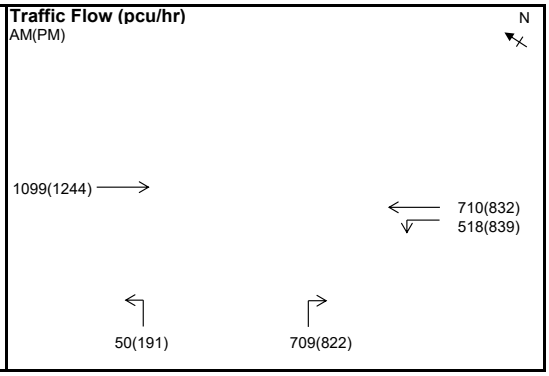
ATKINS
Member of the SNC-Lavalin Group

JOB NO. : 5210095

Junction : J9 - TAI KEI LENG ROAD/SHAP PAT HEUNG ROAD (YL84) Design Year: 2032

Scheme : Reference Designed by: PC Checked by: TL





STAGE / PHASE DIAGRAM

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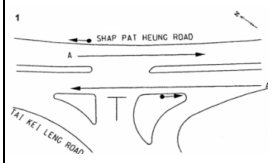
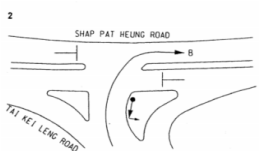
				
A+B G= IG=7	G= IG=5	G= IG=	G= IG=	G= IG=
A+B G= IG=7	G= IG=5	G= IG=	G= IG=	G= IG=

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
Shap Pat Heung Road EB														
A1	1	4.00	Y	N			531		2015	0.264	601		2015	0.298
A2	1	4.00	N	N			568		2155	**0.264**	643		2155	**0.298**
Shap Pat Heung Road WB														
A3	1	4.00	Y	N			406		2015	0.201	476		2015	0.236
A4	1	4.00	N	N			304		1510	0.201	356		1510	0.236
Tai Kei Leng Road NB														
B1	2	4.00	Y	N	20		328	100%	1685	**0.195**	380	100%	1685	**0.226**
B2	2	4.00	N	N	15		381	100%	1960	0.194	442	100%	1960	0.226

Notes:

AM Peak	A+B	PM Peak	A+B
Sum of Critical *y* ***Y***	**0.458**	Sum of Critical *y* ***Y***	**0.524**
Lost Time ***L*** (sec)	10	Lost Time ***L*** (sec)	10
Cycle Time ***c*** (sec)	120	Cycle Time ***c*** (sec)	120
Practical *Y* ***Ypr***	0.825	Practical *Y* ***Ypr***	0.825
Reserve Capacity ***RC***	**80%**	Reserve Capacity ***RC***	**57%**

Date : 15/07/2022 Junction : J9 - TAI KEI LENG ROAD/SHAP PAT HEUNG ROAD

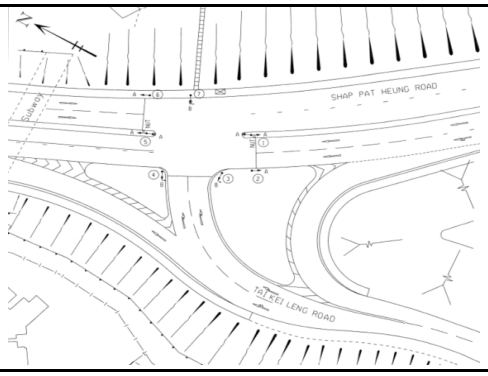
TRAFFIC SIGNAL CALCULATION SHEET

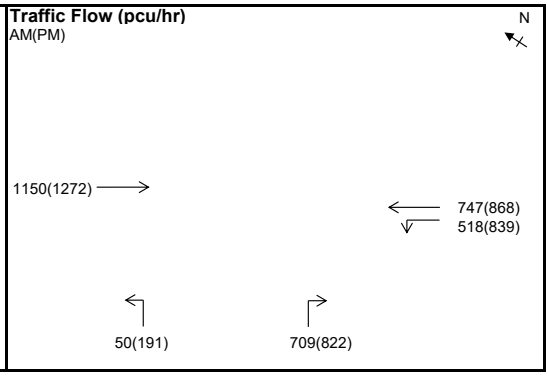
ATKINS
Member of the SNC-Lavalin Group

JOB NO. : 5210095

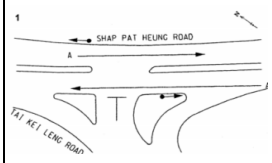
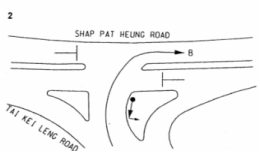
Junction : J9 - TAI KEI LENG ROAD/SHAP PAT HEUNG ROAD (YL84) Design Year: 2032

Scheme : Design Designed by: PC Checked by: TL





STAGE / PHASE DIAGRAM

1	2	3	4	5
				
A+B G= IG=7	G= IG=5	G= IG=	G= IG=	G= IG=
A+B G= IG=7	G= IG=5	G= IG=	G= IG=	G= IG=

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
Shap Pat Heung Road EB														
A1	1	4.00	Y	N			556		2015	**0.276**	615		2015	**0.305**
A2	1	4.00	N	N			594		2155	0.276	657		2155	0.305
Shap Pat Heung Road WB														
A3	1	4.00	Y	N			427		2015	0.212	496		2015	0.246
A4	1	4.00	N	N			320		1510	0.212	372		1510	0.246
Tai Kei Leng Road NB														
B1	2	4.00	Y	N	20		328	100%	1685	**0.195**	380	100%	1685	**0.226**
B2	2	4.00	N	N	15		381	100%	1960	0.194	442	100%	1960	0.226

Notes:

AM Peak	A+B	PM Peak	A+B
Sum of Critical *y* ***Y***	**0.471**	Sum of Critical *y* ***Y***	**0.531**
Lost Time ***L*** (sec)	10	Lost Time ***L*** (sec)	10
Cycle Time ***c*** (sec)	120	Cycle Time ***c*** (sec)	120
Practical *Y* ***Ypr***	0.825	Practical *Y* ***Ypr***	0.825
Reserve Capacity ***RC***	**75%**	Reserve Capacity ***RC***	**55%**

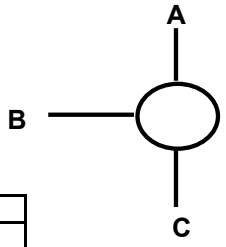
Date : 15/07/2022 Junction : J9 - TAI KEI LENG ROAD/SHAP PAT HEUNG ROAD

SIMPLIFIED ROUNDABOUT CAPACITY CALCULATION

ATKINS
Member of the SNC-Lavalin Group

Job Title:	CE46/2020 TO4 Housing Development at Shap Pat Heung Road		
Junction:	J10 - Shap Pat Heung Interchange	Designed by:	PC
Scheme:	Existing	Checked by:	TL
Design Year: 2021	Job No.: 5210095	Date :	31/05/2022

ARM A: YUEN LONG HIGHWAY SB
ARM B: SHAP PAT HEUNG ROAD EB
ARM C: YUEN LONG HIGHWAY NB



GEOMETRY *

ARM	*v (m)*	*e (m)*	*L (m)*	*r (m)*	*D (m)*	*Phi*	*S*
A	7.30	8.60	5	23	100	50	0.42
B	7.30	12.70	5	22	100	50	1.73
C	7.30	10.60	5	37	100	40	1.06

AM FLOWS

from/to	*A*	*B*	*C*	*Circ*	*Entry*
A	0	630	943	498	1,573
B	1,131	0	498	1,171	1,629
C	1,171	484	0	630	1,655

Flow in pcu/hr

PM FLOWS

from/to	*A*	*B*	*C*	*Circ*	*Entry*
A	0	1,039	710	682	1,749
B	951	0	682	656	1,633
C	656	735	0	1,039	1,391

Flow in pcu/hr

CALCULATIONS *

ARM	K	X_2	M	F	t_D	f_c	Q_E(AM)	Q_E(PM)	DFC AM	DFC PM
A	0.94	8.01	54.60	2427	1.01	0.55	2017	1922	0.78	**0.91**
B	0.94	8.51	54.60	2579	1.01	0.57	1785	2060	**0.91**	0.79
C	0.99	8.36	54.60	2533	1.01	0.57	2150	1921	0.77	0.72

Crtical Arm:	**B**	**A**
DFC:	**0.91**	**0.91**

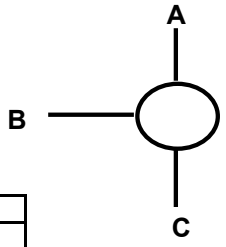
**- In accordance with TPDM V2.4 Appendix*

SIMPLIFIED ROUNDABOUT CAPACITY CALCULATION

ATKINS
Member of the SNC-Lavalin Group

Job Title:	CE46/2020 TO4 Housing Development at Shap Pat Heung Road		
Junction:	J10 - Shap Pat Heung Interchange	Designed by:	PC
Scheme:	Reference	Checked by:	TL
Design Year: 2032	Job No.: 5210095	Date :	31/05/2022

ARM A: YUEN LONG HIGHWAY SB
ARM B: SHAP PAT HEUNG ROAD EB
ARM C: YUEN LONG HIGHWAY NB



GEOMETRY *

ARM	*v (m)*	*e (m)*	*L (m)*	*r (m)*	*D (m)*	*Phi*	*S*
A	7.30	8.60	5	23	100	50	0.42
B	7.30	12.70	5	22	100	50	1.73
C	7.30	10.60	5	37	100	40	1.06

AM FLOWS

from/to	*A*	*B*	*C*	*Circ*	*Entry*
A	0	648	1,109	344	1,757
B	728	0	344	1,316	1,072
C	1,316	581	0	648	1,897

Flow in pcu/hr

PM FLOWS

from/to	*A*	*B*	*C*	*Circ*	*Entry*
A	0	907	908	436	1,815
B	815	0	436	935	1,251
C	935	764	0	907	1,699

Flow in pcu/hr

CALCULATIONS *

ARM	K	X_2	M	F	t_D	f_c	Q_E(AM)	Q_E(PM)	DFC AM	DFC PM
A	0.94	8.01	54.60	2427	1.01	0.55	2096	2049	0.84	**0.89**
B	0.94	8.51	54.60	2579	1.01	0.57	1707	1911	0.63	0.65
C	0.99	8.36	54.60	2533	1.01	0.57	2140	1995	**0.89**	0.85

Crtical Arm:	**C**	**A**
DFC:	**0.89**	**0.89**

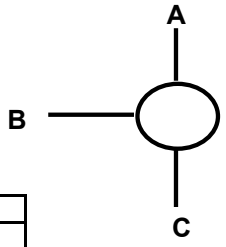
**- In accordance with TPDM V2.4 Appendix*

SIMPLIFIED ROUNDABOUT CAPACITY CALCULATION

ATKINS
Member of the SNC-Lavalin Group

Job Title:	CE46/2020 TO4 Housing Development at Shap Pat Heung Road		
Junction:	J10 - Shap Pat Heung Interchange	Designed by:	PC
Scheme:	Design	Checked by:	TL
Design Year: 2032	Job No.: 5210095	Date :	31/05/2022

ARM A: YUEN LONG HIGHWAY SB
ARM B: SHAP PAT HEUNG ROAD EB
ARM C: YUEN LONG HIGHWAY NB



GEOMETRY *

ARM	*v (m)*	*e (m)*	*L (m)*	*r (m)*	*D (m)*	*Phi*	*S*
A	7.30	8.60	5	23	100	50	0.42
B	7.30	12.70	5	22	100	50	1.73
C	7.30	10.60	5	37	100	40	1.06

AM FLOWS

from/to	*A*	*B*	*C*	*Circ*	*Entry*
A	0	688	1,109	344	1,794
B	758	0	344	1,316	1,098
C	1,316	581	0	685	1,897

Flow in pcu/hr

PM FLOWS

from/to	*A*	*B*	*C*	*Circ*	*Entry*
A	0	945	908	436	1,851
B	830	0	436	935	1,264
C	935	764	0	943	1,699

Flow in pcu/hr

CALCULATIONS *

ARM	K	X_2	M	F	t_D	f_c	Q_E(AM)	Q_E(PM)	DFC AM	DFC PM
A	0.94	8.01	54.60	2427	1.01	0.55	2096	2049	0.86	**0.90**
B	0.94	8.51	54.60	2579	1.01	0.57	1707	1911	0.64	0.66
C	0.99	8.36	54.60	2533	1.01	0.57	2119	1975	**0.90**	0.86

Crtical Arm:	**C**	**A**
DFC:	**0.90**	**0.90**

**- In accordance with TPDM V2.4 Appendix*

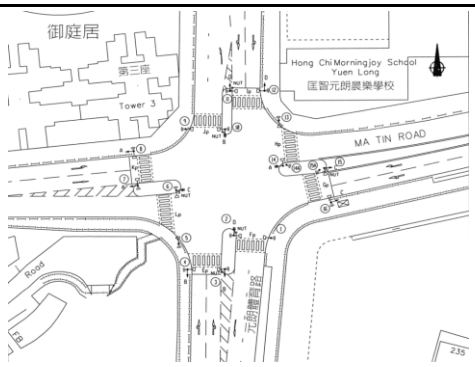
TRAFFIC SIGNAL CALCULATION SHEET

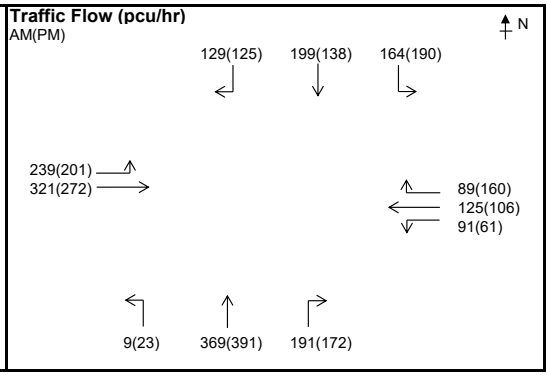
ATKINS
Member of the SNC-Lavalin Group

JOB NO. : 5210095

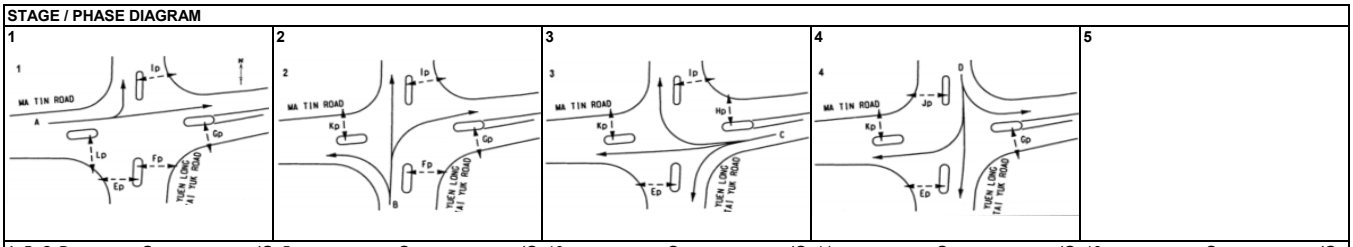
Junction : J11 - YUEN LONG TAI YUK ROAD/MA TIN ROAD (YL101) Design Year: 2021

Scheme : Existing Designed by: PC Checked by: TL





STAGE / PHASE DIAGRAM



A+B+C+D	G=	IG=5	G=	IG=10	G=	IG=11	G=	IG=10	G=	IG=	
A+B+C+D	G=	IG=5	G=	IG=10	G=	IG=11	G=	IG=10	G=	IG=	

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
Ma Tin Road EB														
A1	1	3.60	Y	N	10		239	100%	1715	0.139	201	100%	1715	0.117
A2	1	3.60	N	N			321		2115	**0.152**	272		2115	**0.129**
Ma Tin Road WB														
C1	3	3.00	Y	N	15		216	42%	1840	**0.117**	167	37%	1850	**0.090**
C2	3	3.00	N	N	15		89	100%	1870	0.048	160	100%	1870	0.086
Yuen Long Tai Yuk Road NB														
B1	2	3.60	Y	N	15		281	3%	1970	0.143	288	8%	1960	0.147
B2	2	3.60	N	N	20		288	66%	2015	**0.143**	298	58%	2025	**0.147**
Yuen Long Tai Yuk Road SB														
D1	4	3.60	Y	N	10		231	71%	1785	**0.129**	210	90%	1740	**0.121**
D2	4	3.40	N	N	20		261	49%	2020	0.129	243	51%	2015	0.121
Ep	1,3,4		5GM +	8FG =	13	sec								
Fp	2		5GM +	7FG =	12	sec								
Gp	1,2,4		5GM +	7FG =	12	sec								
Hp	3		5GM +	8FG =	13	sec								
Ip	1,2,3		5GM +	8FG =	13	sec								
Jp	4		5GM +	7FG =	12	sec								
Kp	2,3,4		5GM +	7FG =	12	sec								
Lp	1		5GM +	11FG =	16	sec								

Notes:

AM Peak	A+B+C+D	PM Peak	A+B+C+D
Sum of Critical *y* ***Y***	**0.542**	Sum of Critical *y* ***Y***	**0.487**
Lost Time ***L*** (sec)	32	Lost Time ***L*** (sec)	32
Cycle Time ***c*** (sec)	120	Cycle Time ***c*** (sec)	120
Practical *Y* ***Ypr***	0.660	Practical *Y* ***Ypr***	0.660
Reserve Capacity ***RC***	**22%**	Reserve Capacity ***RC***	**36%**

Date : 15/07/2022 Junction : J11 - YUEN LONG TAI YUK ROAD/MA TIN ROAD

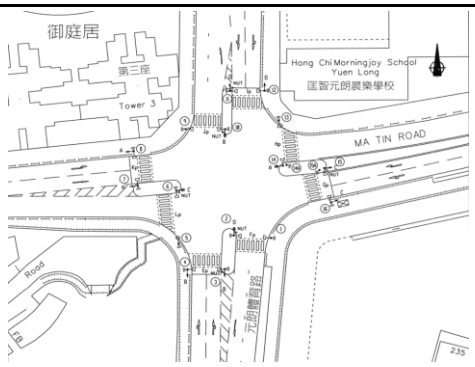
TRAFFIC SIGNAL CALCULATION SHEET

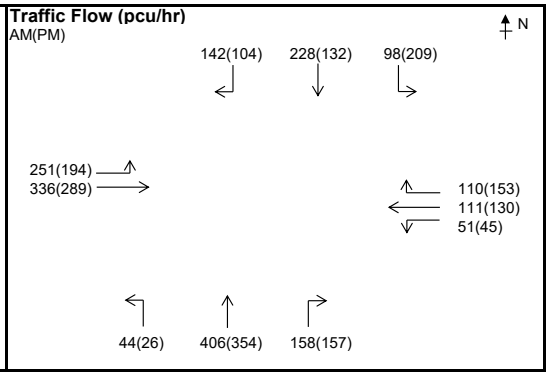
ATKINS
Member of the SNC-Lavalin Group

JOB NO. : 5210095

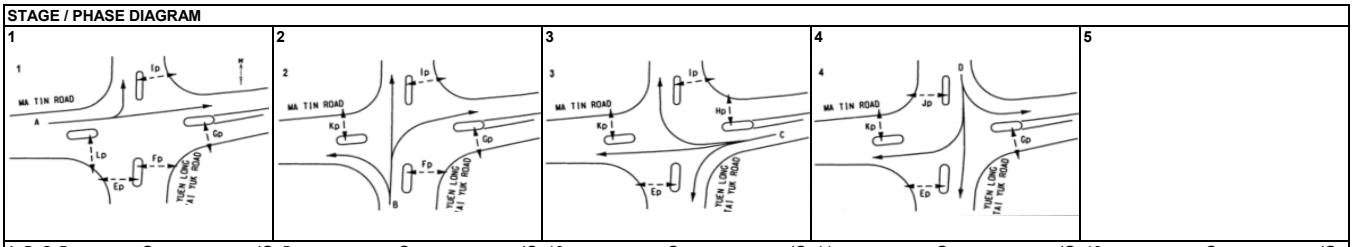
Junction : J11 - YUEN LONG TAI YUK ROAD/MA TIN ROAD (YL101) Design Year: 2032

Scheme : Reference Designed by: PC Checked by: TL





STAGE / PHASE DIAGRAM



A+B+C+D	G=	IG=5	G=	IG=10	G=	IG=11	G=	IG=10	G=	IG=	
A+B+C+D	G=	IG=5	G=	IG=10	G=	IG=11	G=	IG=10	G=	IG=	

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
Ma Tin Road EB														
A1	1	3.60	Y	N	10		251	100%	1715	0.146	194	100%	1715	0.113
A2	1	3.60	N	N			336		2115	**0.159**	289		2115	**0.137**
Ma Tin Road WB														
C1	3	3.00	Y	N	15		162	31%	1855	**0.087**	175	26%	1865	**0.094**
C2	3	3.00	N	N	15		110	100%	1870	0.059	153	100%	1870	0.082
Yuen Long Tai Yuk Road NB														
B1	2	3.60	Y	N	15		297	15%	1945	0.153	264	10%	1955	**0.135**
B2	2	3.60	N	N	20		311	51%	2035	**0.153**	273	58%	2030	0.134
Yuen Long Tai Yuk Road SB														
D1	4	3.60	Y	N	10		225	44%	1855	**0.121**	209	100%	1715	**0.122**
D2	4	3.40	N	N	20		243	58%	2005	0.121	236	44%	2030	0.116
Ep	1,3,4		5GM +	8FG =	13	sec								
Fp	2		5GM +	7FG =	12	sec								
Gp	1,2,4		5GM +	7FG =	12	sec								
Hp	3		5GM +	8FG =	13	sec								
Ip	1,2,3		5GM +	8FG =	13	sec								
Jp	4		5GM +	7FG =	12	sec								
Kp	2,3,4		5GM +	7FG =	12	sec								
Lp	1		5GM +	11FG =	16	sec								

Notes:

AM Peak	A+B+C+D	PM Peak	A+B+C+D
Sum of Critical *y* ***Y***	**0.520**	Sum of Critical *y* ***Y***	**0.487**
Lost Time ***L*** (sec)	32	Lost Time ***L*** (sec)	32
Cycle Time ***c*** (sec)	120	Cycle Time ***c*** (sec)	120
Practical *Y* ***Ypr***	0.660	Practical *Y* ***Ypr***	0.660
Reserve Capacity ***RC***	**27%**	Reserve Capacity ***RC***	**35%**

Date : 15/07/2022 Junction : J11 - YUEN LONG TAI YUK ROAD/MA TIN ROAD

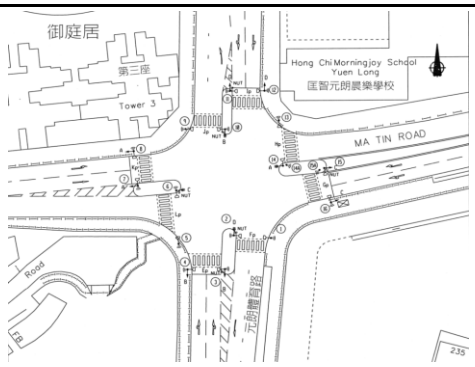
TRAFFIC SIGNAL CALCULATION SHEET

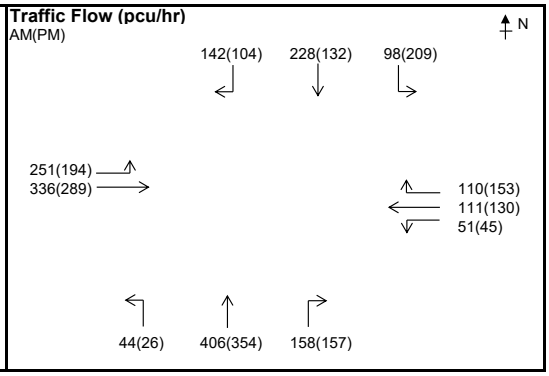
ATKINS
Member of the SNC-Lavalin Group

JOB NO. : 5210095

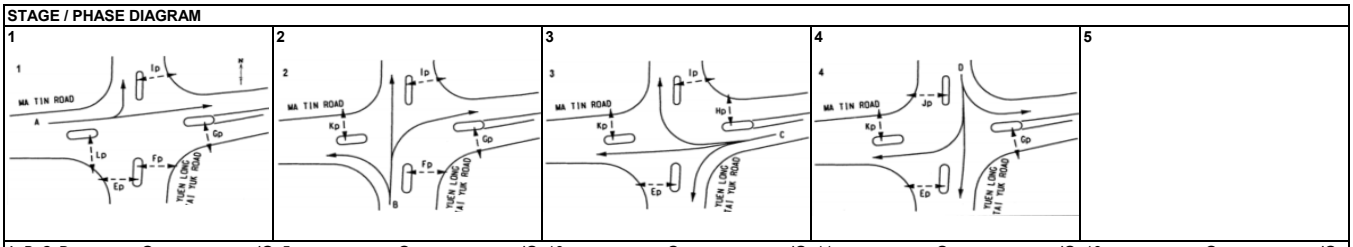
Junction : J11 - YUEN LONG TAI YUK ROAD/MA TIN ROAD (YL101) Design Year: 2032

Scheme : Design Designed by: PC Checked by: TL





STAGE / PHASE DIAGRAM



A+B+C+D	G=	IG=5	G=	IG=10	G=	IG=11	G=	IG=10	G=	IG=
A+B+C+D	G=	IG=5	G=	IG=10	G=	IG=11	G=	IG=10	G=	IG=

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
Ma Tin Road EB														
A1	1	3.60	Y	N	10		251	100%	1715	0.146	194	100%	1715	0.113
A2	1	3.60	N	N			336		2115	**0.159**	289		2115	**0.137**
Ma Tin Road WB														
C1	3	3.00	Y	N	15		162	31%	1855	**0.087**	175	26%	1865	**0.094**
C2	3	3.00	N	N	15		110	100%	1870	0.059	153	100%	1870	0.082
Yuen Long Tai Yuk Road NB														
B1	2	3.60	Y	N	15		297	15%	1945	0.153	264	10%	1955	**0.135**
B2	2	3.60	N	N	20		311	51%	2035	**0.153**	273	58%	2030	0.134
Yuen Long Tai Yuk Road SB														
D1	4	3.60	Y	N	10		225	44%	1855	**0.121**	209	100%	1715	**0.122**
D2	4	3.40	N	N	20		243	58%	2005	0.121	236	44%	2030	0.116
Ep	1,3,4		5GM +	8FG =	13	sec								
Fp	2		5GM +	7FG =	12	sec								
Gp	1,2,4		5GM +	7FG =	12	sec								
Hp	3		5GM +	8FG =	13	sec								
Ip	1,2,3		5GM +	8FG =	13	sec								
Jp	4		5GM +	7FG =	12	sec								
Kp	2,3,4		5GM +	7FG =	12	sec								
Lp	1		5GM +	11FG =	16	sec								

Notes:

AM Peak	A+B+C+D	PM Peak	A+B+C+D
Sum of Critical *y* ***Y***	**0.520**	Sum of Critical *y* ***Y***	**0.487**
Lost Time ***L*** (sec)	32	Lost Time ***L*** (sec)	32
Cycle Time ***c*** (sec)	120	Cycle Time ***c*** (sec)	120
Practical *Y* ***Ypr***	0.660	Practical *Y* ***Ypr***	0.660
Reserve Capacity ***RC***	**27%**	Reserve Capacity ***RC***	**35%**

Date : 15/07/2022 Junction : J11 - YUEN LONG TAI YUK ROAD/MA TIN ROAD

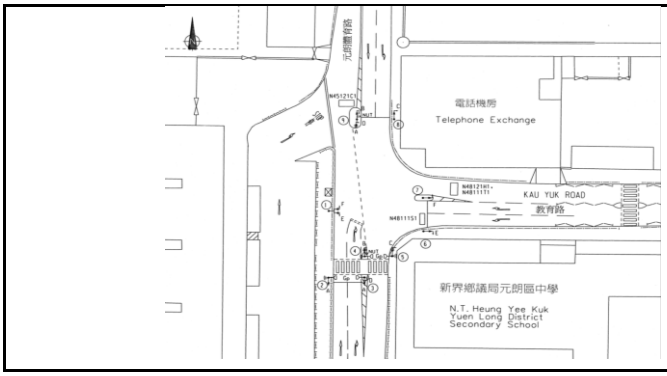
TRAFFIC SIGNAL CALCULATION SHEET

ATKINS
Member of the SNC-Lavalin Group

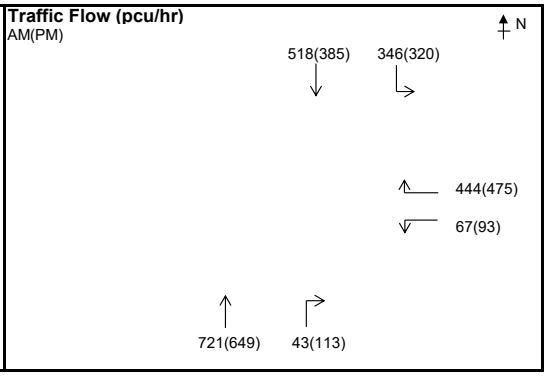
JOB NO. : 5210095

Junction : J12 - YUEN LONG TAI YUK ROAD/KAU YUK ROAD (YL51) Design Year: 2021

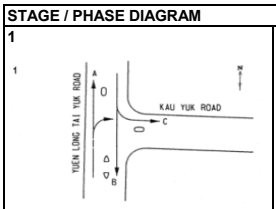
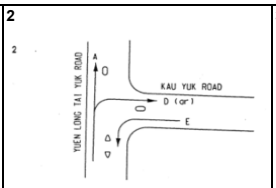
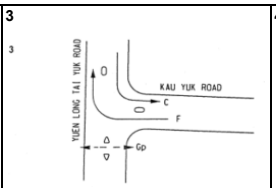
Scheme : Existing Designed by: PC Checked by: TL



Traffic Flow (pcu/hr)
AM(PM)



STAGE / PHASE DIAGRAM

1	2	3	4	5
				

A+F	G=	IG=7	G=	IG=	G=	IG=7	G=	IG=	G=	IG=
A+F	G=	IG=7	G=	IG=	G=	IG=7	G=	IG=	G=	IG=

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
Yuen Long Tai Yuk Road NB														
A1	1,2	3.20	Y	N			721		1935	**0.373**	649		1935	**0.335**
D1	2	3.20	N	N	15		43	100%	1885	0.023	113	100%	1885	0.060
Yuen Long Tai Yuk Road SB														
C1	1,3	3.30	Y	N	15		346	100%	1770	0.195	320	100%	1770	0.181
B1	1	3.30	N	N			518		2085	0.248	385		2085	0.185
Kau Yuk Road WB														
E1	2	3.00	Y	N	10		67	100%	1665	0.040	93	100%	1665	0.056
F1	3	3.00	N	N	15		444	100%	1870	**0.237**	475	100%	1870	**0.254**
Gp	3		10GM +	6FG =	16	sec								

Notes:

AM Peak	A+F	PM Peak	A+F
Sum of Critical *y* ***Y***	**0.610**	Sum of Critical *y* ***Y***	**0.589**
Lost Time ***L*** (sec)	12	Lost Time ***L*** (sec)	12
Cycle Time ***c*** (sec)	120	Cycle Time ***c*** (sec)	100
Practical *Y* ***Ypr***	0.810	Practical *Y* ***Ypr***	0.792
Reserve Capacity ***RC***	**33%**	Reserve Capacity ***RC***	**34%**

Date : 15/07/2022 Junction : J12 - YUEN LONG TAI YUK ROAD/KAU YUK ROAD

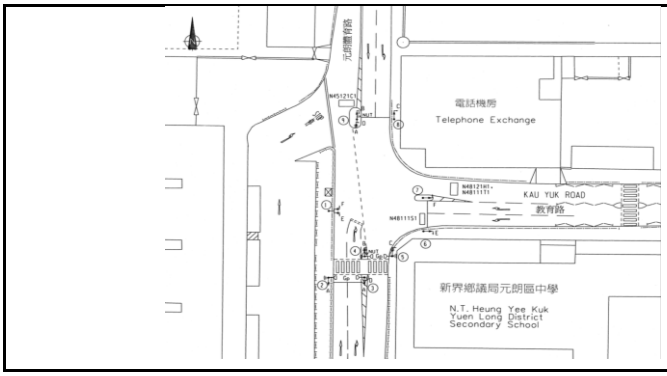
TRAFFIC SIGNAL CALCULATION SHEET

ATKINS
Member of the SNC-Lavalin Group

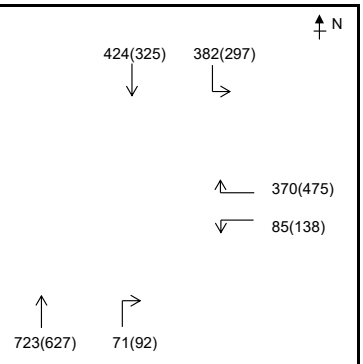
JOB NO. : 5210095

Junction : J12 - YUEN LONG TAI YUK ROAD/KAU YUK ROAD (YL51) Design Year: 2032

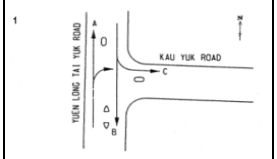
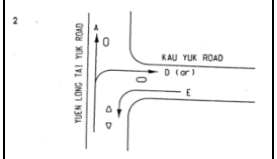
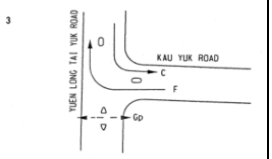
Scheme : Reference Designed by: PC Checked by: TL



Traffic Flow (pcu/hr)
AM(PM)



STAGE / PHASE DIAGRAM

1	2	3	4	5
				

A+F	G=	IG=7	G=	IG=	G=	IG=7	G=	IG=	G=	IG=
A+F	G=	IG=7	G=	IG=	G=	IG=7	G=	IG=	G=	IG=

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
Yuen Long Tai Yuk Road NB														
A1	1,2	3.20	Y	N			723		1935	**0.374**	627		1935	**0.324**
D1	2	3.20	N	N	15		71	100%	1885	0.038	92	100%	1885	0.049
Yuen Long Tai Yuk Road SB														
C1	1,3	3.30	Y	N	15		382	100%	1770	0.216	297	100%	1770	0.168
B1	1	3.30	N	N			424		2085	0.203	325		2085	0.156
Kau Yuk Road WB														
E1	2	3.00	Y	N	10		85	100%	1665	0.051	138	100%	1665	0.083
F1	3	3.00	N	N	15		370	100%	1870	**0.198**	475	100%	1870	**0.254**
Gp	3		10GM +	6FG =	16	sec								

Notes:

AM Peak	A+F	PM Peak	A+F
Sum of Critical *y* ***Y***	**0.572**	Sum of Critical *y* ***Y***	**0.578**
Lost Time ***L*** (sec)	12	Lost Time ***L*** (sec)	12
Cycle Time ***c*** (sec)	120	Cycle Time ***c*** (sec)	100
Practical *Y* ***Ypr***	0.810	Practical *Y* ***Ypr***	0.792
Reserve Capacity ***RC***	**42%**	Reserve Capacity ***RC***	**37%**

Date : 15/07/2022 Junction : J12 - YUEN LONG TAI YUK ROAD/KAU YUK ROAD

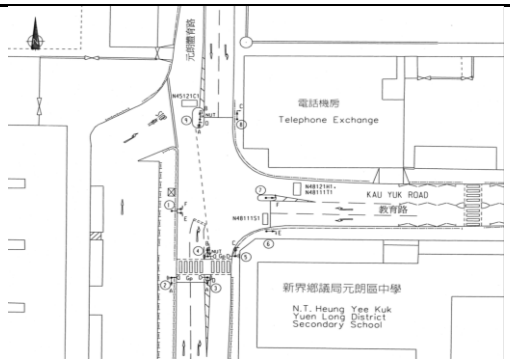
TRAFFIC SIGNAL CALCULATION SHEET

ATKINS
Member of the SNC-Lavalin Group

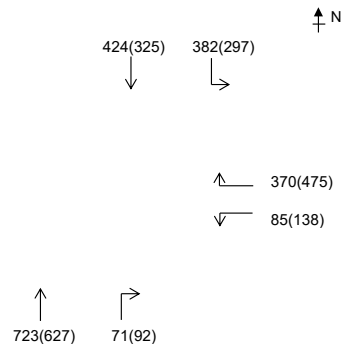
JOB NO. : 5210095

Junction : J12 - YUEN LONG TAI YUK ROAD/KAU YUK ROAD (YL51) Design Year: 2032

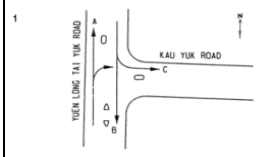
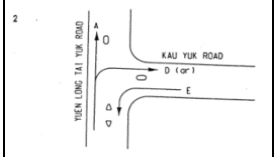
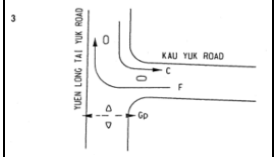
Scheme : Design Designed by: PC Checked by: TL



Traffic Flow (pcu/hr)
AM(PM)



STAGE / PHASE DIAGRAM

1	2	3	4	5
				

A+F	G=	IG=7	G=	IG=	G=	IG=7	G=	IG=	G=	IG=
A+F	G=	IG=7	G=	IG=	G=	IG=7	G=	IG=	G=	IG=

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
Yuen Long Tai Yuk Road NB														
A1	1,2	3.20	Y	N			723		1935	**0.374**	627		1935	**0.324**
D1	2	3.20	N	N	15		71	100%	1885	0.038	92	100%	1885	0.049
Yuen Long Tai Yuk Road SB														
C1	1,3	3.30	Y	N	15		382	100%	1770	0.216	297	100%	1770	0.168
B1	1	3.30	N	N			424		2085	0.203	325		2085	0.156
Kau Yuk Road WB														
E1	2	3.00	Y	N	10		85	100%	1665	0.051	138	100%	1665	0.083
F1	3	3.00	N	N	15		370	100%	1870	**0.198**	475	100%	1870	**0.254**
Gp	3		10GM +	6FG =	16	sec								

Notes:	AM Peak	A+F	PM Peak	A+F
	Sum of Critical *y* ***Y***	**0.572**	Sum of Critical *y* ***Y***	**0.578**
	Lost Time ***L*** (sec)	12	Lost Time ***L*** (sec)	12
	Cycle Time ***c*** (sec)	120	Cycle Time ***c*** (sec)	100
	Practical *Y* ***Ypr***	0.810	Practical *Y* ***Ypr***	0.792
	Reserve Capacity ***RC***	**42%**	Reserve Capacity ***RC***	**37%**

Date : 15/07/2022 Junction : J12 - YUEN LONG TAI YUK ROAD/KAU YUK ROAD

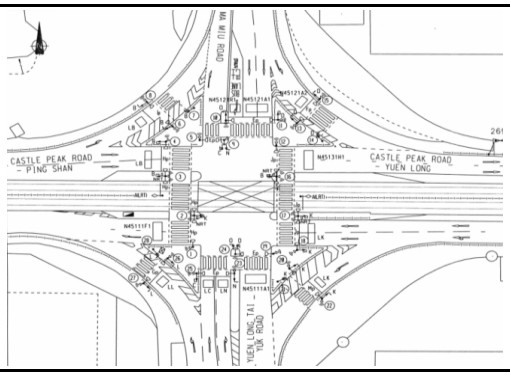
TRAFFIC SIGNAL CALCULATION SHEET

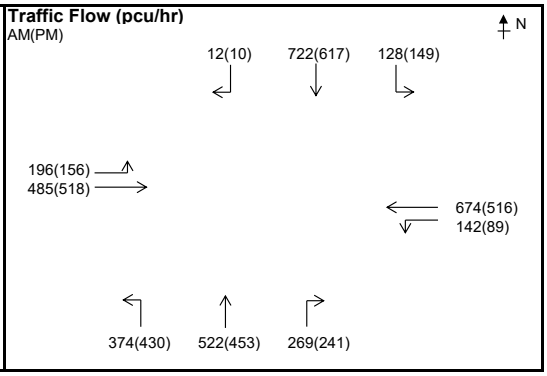
ATKINS
Member of the SNC-Lavalin Group

JOB NO. : 5210095

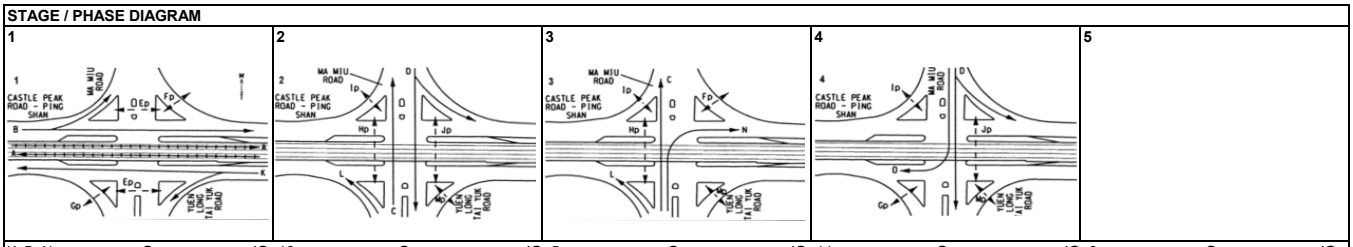
Junction : J13 - YUEN LONG TAI YUK ROAD/CASTLE PEAK ROAD - PING SHAN (MJ16) Design Year: 2021

Scheme : Existing Designed by: PC Checked by: TL





STAGE / PHASE DIAGRAM



K+D+N	G=	IG=13	G=	IG=5	G=	IG=11	G=	IG=9	G=	IG=	
B+D+N	G=	IG=13	G=	IG=5	G=	IG=11	G=	IG=9	G=	IG=	

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
Castle Peak Road - Yuen Long EB														
B1	1	3.20	Y	N	45		325	60%	1895	0.172	323	48%	1905	**0.170**
B2	1	3.20	N	N			356		2075	0.172	351		2075	0.169
Castle Peak Road - Yuen Long WB														
K1	1	3.40	Y	N	40		391	36%	1930	0.203	290	31%	1935	0.150
K2	1	3.40	N	N			425		2095	**0.203**	315		2095	0.150
Yuen Long Tai Yuk Road NB														
L1	2,3	3.30	Y	N	40		374	100%	1875	0.199	430	100%	1875	0.229
C1	2,3	3.50	N	N			522		2105	0.248	453		2105	0.215
N1	3	4.60	N	N	12		269	100%	1970	**0.137**	241	100%	1970	**0.122**
Ma Miu Road SB														
D1	2,4	3.20	Y	N	45		408	31%	1915	**0.213**	367	41%	1910	0.192
D2	2,4	3.20	N	N			442		2075	0.213	399		2075	**0.192**
O1	4	3.40	N	N	10		12	100%	1820	0.007	10	100%	1820	0.005
A	1	(LRT)	6GM +	6FG =	12	sec								
Ep	1		8GM +	9FG =	17	sec								
Fp	1,3		5GM +	5FG =	10	sec								
Gp	1,4		5GM +	5FG =	10	sec								
Hp	2,3		15GM +	8FG =	23	sec								
Ip	2,3,4		5GM +	5FG =	10	sec								
Jp	2,4		17GM +	8FG =	25	sec								
Mp	2,3,4		10GM +	6FG =	16	sec								

Notes:

AM Peak	K+D+N	PM Peak	B+D+N
Sum of Critical *y* ***Y***	**0.552**	Sum of Critical *y* ***Y***	**0.484**
Lost Time ***L*** (sec)	35	Lost Time ***L*** (sec)	35
Cycle Time ***c*** (sec)	120	Cycle Time ***c*** (sec)	120
Practical *Y* ***Ypr***	0.638	Practical *Y* ***Ypr***	0.638
Reserve Capacity ***RC***	**15%**	Reserve Capacity ***RC***	**32%**

Date : 31/05/2022 Junction : J13 - YUEN LONG TAI YUK ROAD/CASTLE PEAK ROAD - PING SHAN

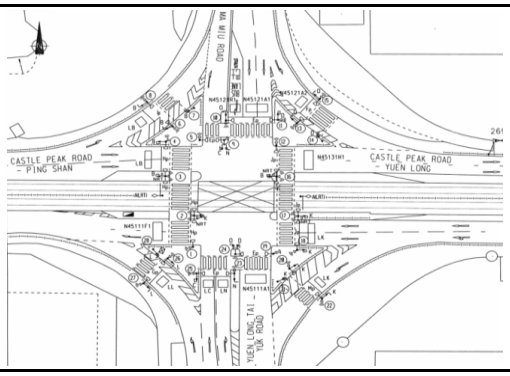
TRAFFIC SIGNAL CALCULATION SHEET

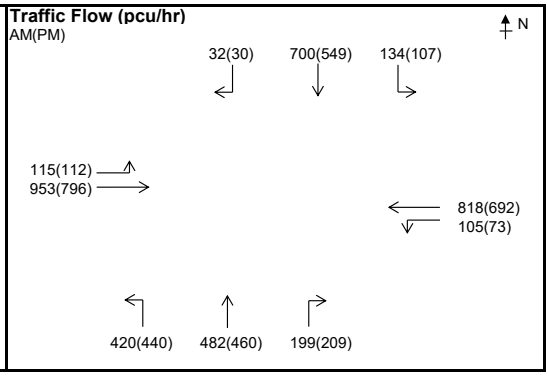
ATKINS
Member of the SNC-Lavalin Group

JOB NO. : 5210095

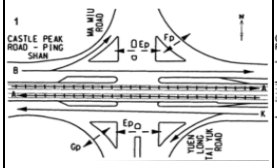
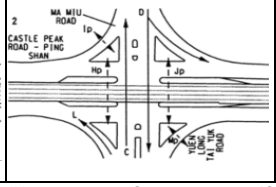
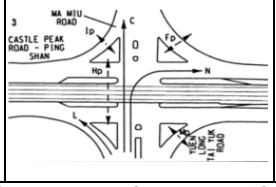
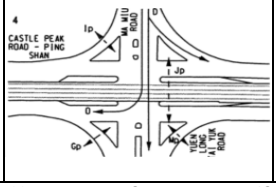
Junction : J13 - YUEN LONG TAI YUK ROAD/CASTLE PEAK ROAD - PING SHAN (MJ16) Design Year: 2032

Scheme : Reference Designed by: PC Checked by: TL





STAGE / PHASE DIAGRAM

1	2	3	4	5
				

B+D+N	G=	IG=13	G=	IG=5	G=	IG=11	G=	IG=9	G=	IG=
B+D+N	G=	IG=13	G=	IG=5	G=	IG=11	G=	IG=9	G=	IG=

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
Castle Peak Road - Yuen Long EB														
B1	1	3.20	Y	N	45		513	22%	1920	0.267	436	26%	1920	0.227
B2	1	3.20	N	N			555		2075	**0.267**	472		2075	**0.227**
Castle Peak Road - Yuen Long WB														
K1	1	3.40	Y	N	40		444	24%	1940	0.229	368	20%	1940	0.190
K2	1	3.40	N	N			479		2095	0.229	397		2095	0.189
Yuen Long Tai Yuk Road NB														
L1	2,3	3.30	Y	N	40		420	100%	1875	0.224	440	100%	1875	0.235
C1	2,3	3.50	N	N			482		2105	0.229	460		2105	0.219
N1	3	4.60	N	N	12		199	100%	1970	**0.101**	209	100%	1970	**0.106**
Ma Miu Road SB														
D1	2,4	3.20	Y	N	45		400	34%	1915	0.209	315	34%	1915	**0.164**
D2	2,4	3.20	N	N			434		2075	**0.209**	341		2075	0.164
O1	4	3.40	N	N	10		32	100%	1820	0.018	30	100%	1820	0.016
A	1	(LRT)	6GM +	6FG =	12	sec								
Ep	1		8GM +	9FG =	17	sec								
Fp	1,3		5GM +	5FG =	10	sec								
Gp	1,4		5GM +	5FG =	10	sec								
Hp	2,3		15GM +	8FG =	23	sec								
Ip	2,3,4		5GM +	5FG =	10	sec								
Jp	2,4		17GM +	8FG =	25	sec								
Mp	2,3,4		10GM +	6FG =	16	sec								

Notes:

AM Peak	B+D+N	PM Peak	B+D+N
Sum of Critical *y* ***Y***	**0.578**	Sum of Critical *y* ***Y***	**0.498**
Lost Time ***L*** (sec)	35	Lost Time ***L*** (sec)	35
Cycle Time ***c*** (sec)	120	Cycle Time ***c*** (sec)	120
Practical *Y* ***Ypr***	0.638	Practical *Y* ***Ypr***	0.638
Reserve Capacity ***RC***	**10%**	Reserve Capacity ***RC***	**28%**

Date : 31/05/2022 Junction : J13 - YUEN LONG TAI YUK ROAD/CASTLE PEAK ROAD - PING SHAN

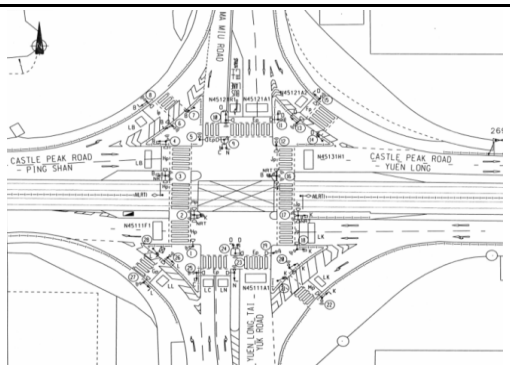
TRAFFIC SIGNAL CALCULATION SHEET

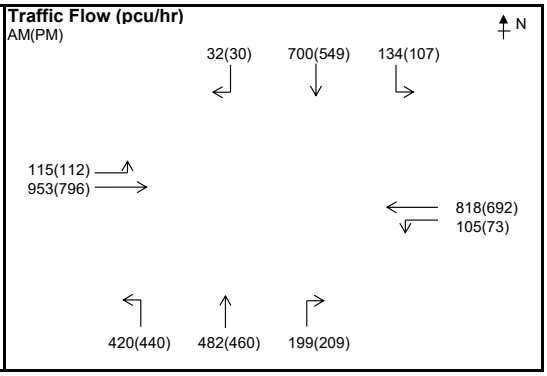
ATKINS
Member of the SNC-Lavalin Group

JOB NO. : 5210095

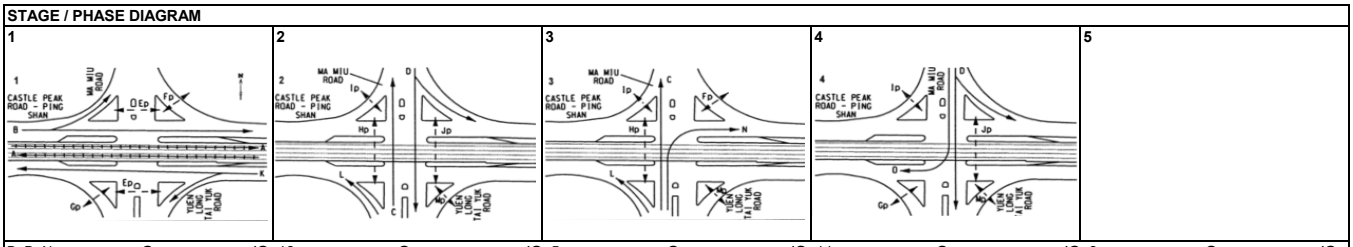
Junction : J13 - YUEN LONG TAI YUK ROAD/CASTLE PEAK ROAD - PING SHAN (MJ16) Design Year: 2032

Scheme : Design Designed by: PC Checked by: TL





STAGE / PHASE DIAGRAM



B+D+N	G=	IG=13	G=	IG=5	G=	IG=11	G=	IG=9	G=	IG=	
B+D+N	G=	IG=13	G=	IG=5	G=	IG=11	G=	IG=9	G=	IG=	

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
Castle Peak Road - Yuen Long EB														
B1	1	3.20	Y	N	45		513	22%	1920	0.267	436	26%	1920	0.227
B2	1	3.20	N	N			555		2075	**0.267**	472		2075	**0.227**
Castle Peak Road - Yuen Long WB														
K1	1	3.40	Y	N	40		444	24%	1940	0.229	368	20%	1940	0.190
K2	1	3.40	N	N			479		2095	0.229	397		2095	0.189
Yuen Long Tai Yuk Road NB														
L1	2,3	3.30	Y	N	40		420	100%	1875	0.224	440	100%	1875	0.235
C1	2,3	3.50	N	N			482		2105	0.229	460		2105	0.219
N1	3	4.60	N	N	12		199	100%	1970	**0.101**	209	100%	1970	**0.106**
Ma Miu Road SB														
D1	2,4	3.20	Y	N	45		400	34%	1915	0.209	315	34%	1915	**0.164**
D2	2,4	3.20	N	N			434		2075	**0.209**	341		2075	0.164
O1	4	3.40	N	N	10		32	100%	1820	0.018	30	100%	1820	0.016
A	1	(LRT)	6GM +	6FG =	12	sec								
Ep	1		8GM +	9FG =	17	sec								
Fp	1,3		5GM +	5FG =	10	sec								
Gp	1,4		5GM +	5FG =	10	sec								
Hp	2,3		15GM +	8FG =	23	sec								
Ip	2,3,4		5GM +	5FG =	10	sec								
Jp	2,4		17GM +	8FG =	25	sec								
Mp	2,3,4		10GM +	6FG =	16	sec								

Notes:

AM Peak	B+D+N	PM Peak	B+D+N
Sum of Critical *y* ***Y***	**0.578**	Sum of Critical *y* ***Y***	**0.498**
Lost Time ***L*** (sec)	35	Lost Time ***L*** (sec)	35
Cycle Time ***c*** (sec)	120	Cycle Time ***c*** (sec)	120
Practical *Y* ***Ypr***	0.638	Practical *Y* ***Ypr***	0.638
Reserve Capacity ***RC***	**10%**	Reserve Capacity ***RC***	**28%**

Date : 31/05/2022 Junction : J13 - YUEN LONG TAI YUK ROAD/CASTLE PEAK ROAD - PING SHAN

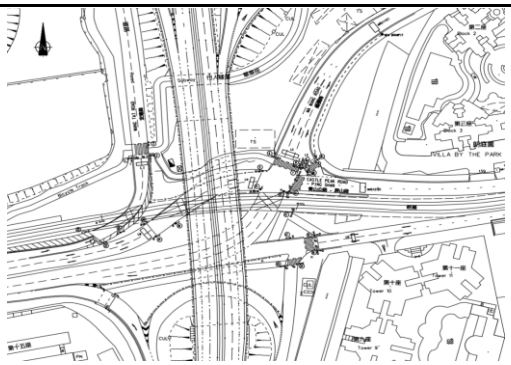
TRAFFIC SIGNAL CALCULATION SHEET

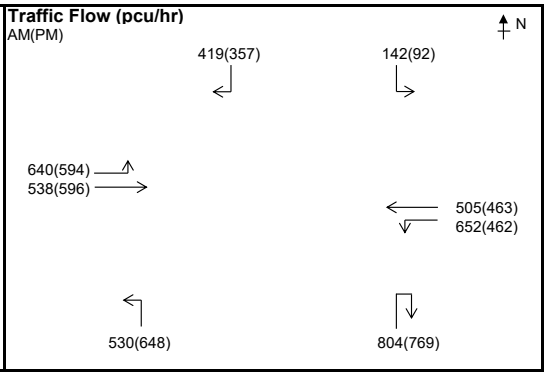
ATKINS
Member of the SNC-Lavalin Group

JOB NO. : 5210095

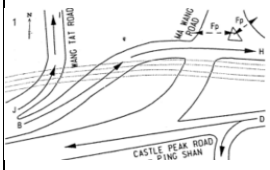
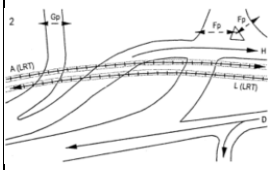
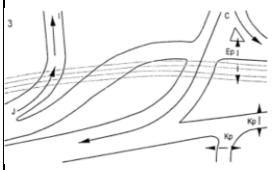
Junction : J14 - MA WANG ROAD/CASTLE PEAK ROAD - PING SHAN (MJ15) Design Year: 2021

Scheme : Existing Designed by: PC Checked by: TL





STAGE / PHASE DIAGRAM

1	2	3	4	5
				

D+C	G=	IG=	G=	IG=12	G=	IG=6	G=	IG=	G=	IG=
J+A(LRT)	G=	IG=7	G=18	IG=19	G=	IG=	G=	IG=	G=	IG=

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
Castle Peak Road EB														
J1	1,3	5.00	Y	N	26		640	100%	2000	0.320	594	100%	2000	**0.297**
B1	1	3.50	Y	N			260		1965	0.132	288		1965	0.147
B2	1	3.50	N	N			278		2105	0.132	308		2105	0.146
H1	1,2	3.50	Y	N			260		1965	0.132	288		1965	0.147
H2	1,2	3.50	N	N			278		2105	0.132	308		2105	0.146
I1	1,3	3.50	Y	N			640		1965	0.326	594		1965	0.302
Castle Peak Road WB														
D1	1,2	3.30	Y	N	15		652	100%	1770	**0.368**	462	100%	1770	0.261
D2	1,2	3.30	N	N			505		2085	0.242	463		2085	0.222
Ma Wang Road SB														
C1	3	3.30	Y	N	20/55		174	82% / 18%	1825	0.095	140	66% / 34%	1835	0.076
C2	3	3.30	N	N	50		194	100%	2025	**0.096**	155	100%	2025	0.077
C3	3	3.30	N	N	50		193	100%	2025	0.095	154	100%	2025	0.076
A(LRT)	2	#	7GM +	7FG =	14	sec								
Ep	3		10GM +	9FG =	19	sec								
Fp	1,2		5GM +	10FG =	15	sec								
Gp	2		5GM +	6FG =	11	sec								
Kp	3		5GM +	9FG =	14	sec								
L(LRT)	2	#	7GM +	7FG =	14	sec								

Notes:
LRT I/G time by observation is adopted for phase A & L(LRT)
Averaged cycle time by observation is adopted.

AM Peak	D+C	PM Peak	J+A(LRT)
Sum of Critical *y* ***Y***	**0.464**	Sum of Critical *y* ***Y***	**0.297**
Lost Time ***L*** (sec)	16	Lost Time ***L*** (sec)	43
Cycle Time ***c*** (sec)	108	Cycle Time ***c*** (sec)	108
Practical *Y* ***Ypr***	0.767	Practical *Y* ***Ypr***	0.542
Reserve Capacity ***RC***	**65%**	Reserve Capacity ***RC***	**82%**

Date : 31/05/2022 Junction : J14 - MA WANG ROAD/CASTLE PEAK ROAD - PING SHAN

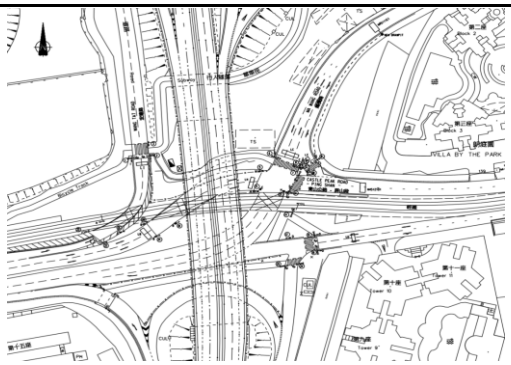
TRAFFIC SIGNAL CALCULATION SHEET

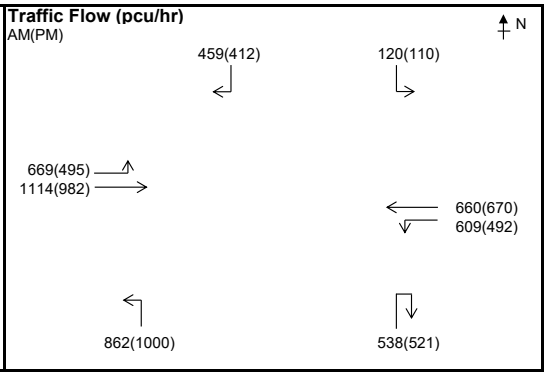
ATKINS
Member of the SNC-Lavalin Group

JOB NO. : 5210095

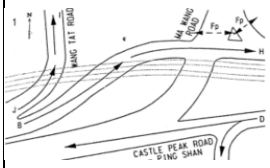
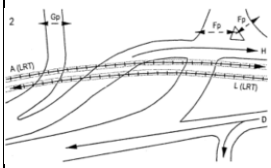
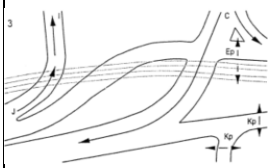
Junction : J14 - MA WANG ROAD/CASTLE PEAK ROAD - PING SHAN (MJ15) Design Year: 2032

Scheme : Reference Designed by: PC Checked by: TL





STAGE / PHASE DIAGRAM

1	2	3	4	5
				

B+A(LRT)+C	G=	IG=7	G=18	IG=20	G=	IG=0	G=	IG=	G=	IG=
B+A(LRT)+C	G=	IG=7	G=18	IG=20	G=	IG=0	G=	IG=	G=	IG=

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
Castle Peak Road EB														
J1	1,3	5.00	Y	N	26		669	100%	2000	0.335	495	100%	2000	0.248
B1	1	3.50	Y	N			538		1965	**0.274**	474		1965	0.241
B2	1	3.50	N	N			576		2105	0.274	508		2105	**0.241**
H1	1,2	3.50	Y	N			538		1965	0.274	474		1965	0.241
H2	1,2	3.50	N	N			576		2105	0.274	508		2105	0.241
I1	1,3	3.50	Y	N			669		1965	0.340	495		1965	0.252
Castle Peak Road WB														
D1	1,2	3.30	Y	N	15		609	100%	1770	0.344	535	92%	1780	0.301
D2	1,2	3.30	N	N			660		2085	0.317	627		2085	0.301
Ma Wang Road SB														
C1	3	3.30	Y	N	20/55		181	66% / 34%	1835	**0.099**	163	67% / 33%	1835	0.089
C2	3	3.30	N	N	50		199	100%	2025	0.098	180	100%	2025	**0.089**
C3	3	3.30	N	N	50		199	100%	2025	0.098	179	100%	2025	0.088
A(LRT)	2	#	7GM +	7FG =	14	sec								
Ep	3		10GM +	9FG =	19	sec								
Fp	1,2		5GM +	10FG =	15	sec								
Gp	2		5GM +	6FG =	11	sec								
Kp	3		5GM +	9FG =	14	sec								
L(LRT)	2	#	7GM +	7FG =	14	sec								

Notes:
LRT I/G time by observation is adopted for phase A & L(LRT)
Averaged cycle time by observation is adopted.

AM Peak	B+A(LRT)+C	PM Peak	B+A(LRT)+C
Sum of Critical *y* ***Y***	**0.372**	Sum of Critical *y* ***Y***	**0.330**
Lost Time ***L*** (sec)	43	Lost Time ***L*** (sec)	43
Cycle Time ***c*** (sec)	108	Cycle Time ***c*** (sec)	108
Practical *Y* ***Ypr***	0.542	Practical *Y* ***Ypr***	0.542
Reserve Capacity ***RC***	**45%**	Reserve Capacity ***RC***	**64%**

Date : 31/05/2022 Junction : J14 - MA WANG ROAD/CASTLE PEAK ROAD - PING SHAN

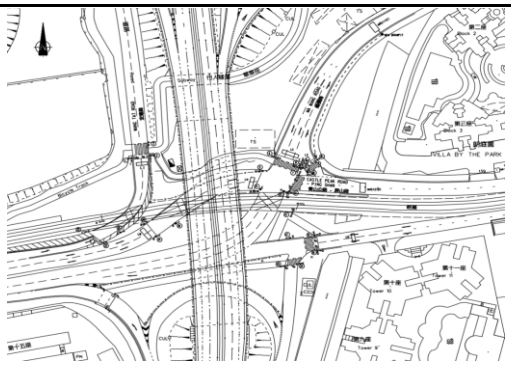
TRAFFIC SIGNAL CALCULATION SHEET

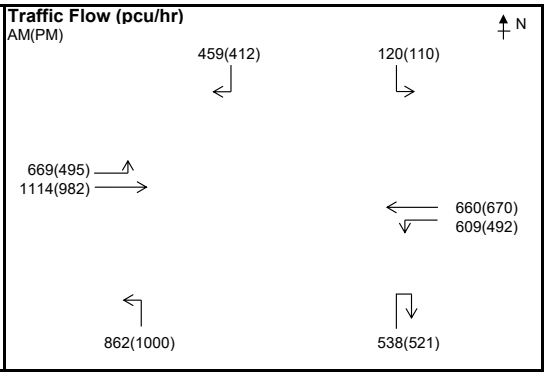
ATKINS
Member of the SNC-Lavalin Group

JOB NO. : 5210095

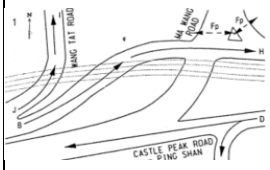
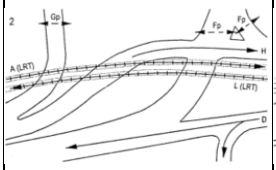
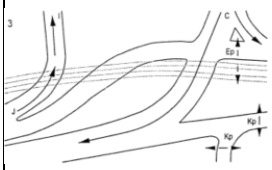
Junction : J14 - MA WANG ROAD/CASTLE PEAK ROAD - PING SHAN (MJ15) Design Year: 2032

Scheme : Design Designed by: PC Checked by: TL





STAGE / PHASE DIAGRAM

1	2	3	4	5
				

B+A(LRT)+C	G=	IG=7	G=18	IG=20	G=	IG=0	G=	IG=	G=	IG=
B+A(LRT)+C	G=	IG=7	G=18	IG=20	G=	IG=0	G=	IG=	G=	IG=

Capacity Calculations

Phase	Stage	Lane Width (m) *w*	Nearside lane? (Y/N)	Opposed turn? (Y/N)	Radius for turning (m) *r*	Gradient in % *g*	AM Peak Design Flow *q* (pcu/hr)	AM Peak Proportion turning (%) *f*	AM Peak Saturation flow *S* (pcu/hr)	AM Peak Flow factor *y*	PM Peak Design Flow *q* (pcu/hr)	PM Peak Proportion turning (%) *f*	PM Peak Saturation flow *S* (pcu/hr)	PM Peak Flow factor *y*
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H1	1,2	3.50	Y	N			538		1965	0.274	474		1965	0.241
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C2	3	3.30	N	N	50		199	100%	2025	0.098	180	100%	2025	**0.089**
C3	3	3.30	N	N	50		199	100%	2025	0.098	179	100%	2025	0.088
A(LRT)	2	#	7GM +	7FG =	14	sec								
Ep	3		10GM +	9FG =	19	sec								
Fp	1,2		5GM +	10FG =	15	sec								
Gp	2		5GM +	6FG =	11	sec								
Kp	3		5GM +	9FG =	14	sec								
L(LRT)	2	#	7GM +	7FG =	14	sec								

Notes:
LRT I/G time by observation is adopted for phase A & L(LRT)
Averaged cycle time by observation is adopted.

AM Peak	B+A(LRT)+C	PM Peak	B+A(LRT)+C
Sum of Critical *y* ***Y***	**0.372**	Sum of Critical *y* ***Y***	**0.330**
Lost Time ***L*** (sec)	43	Lost Time ***L*** (sec)	43
Cycle Time ***c*** (sec)	108	Cycle Time ***c*** (sec)	108
Practical *Y* ***Ypr***	0.542	Practical *Y* ***Ypr***	0.542
Reserve Capacity ***RC***	**45%**	Reserve Capacity ***RC***	**64%**

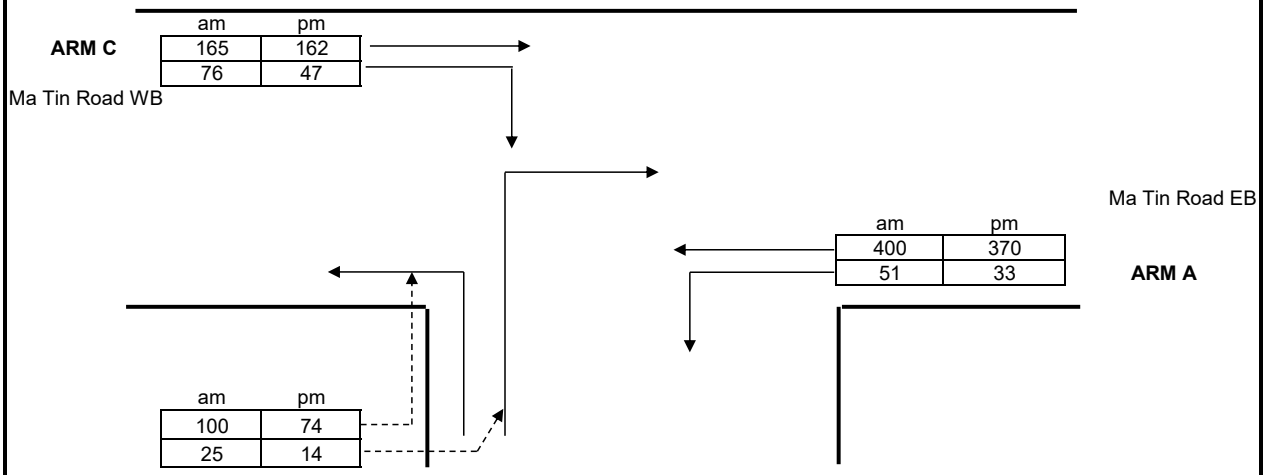
Date : 31/05/2022 Junction : J14 - MA WANG ROAD/CASTLE PEAK ROAD - PING SHAN

SIMPLIFIED PRIORITY JUNCTION CAPACITY CALCULATION

ATKINS
Member of the SNC-Lavalin Group

(Single Lane Minor Arm B)

Job Title:	CE46/2020 TO4 Housing Development at Shap Pat Heung Road		
Junction:	J15 - Town Park Road North / Ma Tin Road	Designed by:	PC
Scheme:	Existing	Checked by:	TL
Design Year: 2021	Job No.: 5210095	Date :	31/05/2022
ARM A:	Ma Tin Road EB		
ARM B:	Town Park Road North SB		
ARM C:	Ma Tin Road WB		



GEOMETRY					
Major road width	W	8.95	Lane widths	w(b-a)	4.70
Central Reserve width	Wcr	0.00		w(b-c)	4.50
Residual width	Wr(c-a)	2.50		w(c-b)	4.50
Visibilities	Vr(b-a)	65	Calculated	D	0.98
	Vl(b-a)	50		E	1.03
	Vr(b-c)	65		F	1.03
	Vr(c-b)	65		Y	0.69

ANALYSIS		AM PEAK	PM PEAK
TRAFFIC FLOWS	q(c-a)	165	162
	q(c-b)	76	47
	q(a-b)	51	33
	q(a-c)	400	370
	q(b-a)	25	14
	q(b-c)	100	74
	f	0.80	0.84
CAPACITIES	Q(b-a)	459	479
	Q(b-c)	656	666
	Q(c-b)	648	661
	Q(b-ac)	604	627
DFC's	b-a	0.05	0.03
	b-c	0.15	0.11
	c-b	0.117	0.071
	b-ac	0.207	0.140
Critical DFC		**0.21**	**0.14**

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) Capacity of combined streams

T.P.D.M.V.2.4
Appendix 1

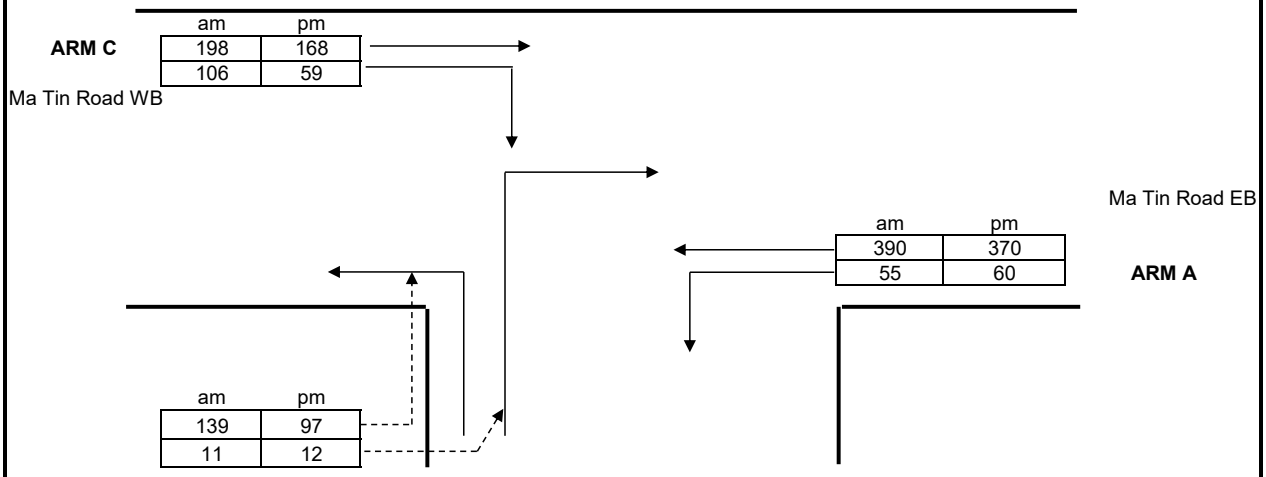
- In accordance with TPDM V2.4

SIMPLIFIED PRIORITY JUNCTION CAPACITY CALCULATION

ATKINS
Member of the SNC-Lavalin Group

(Single Lane Minor Arm B)

Job Title:	CE46/2020 TO4 Housing Development at Shap Pat Heung Road			
Junction:	J15 - Town Park Road North / Ma Tin Road		Designed by:	PC
Scheme:	Reference		Checked by:	TL
Design Year:	2032	Job No.: 5210095	Date :	31/05/2022
ARM A:	Ma Tin Road EB			
ARM B:	Town Park Road North SB			
ARM C:	Ma Tin Road WB			



GEOMETRY					
Major road width	W	8.95	Lane widths	w(b-a)	4.70
Central Reserve width	Wcr	0.00		w(b-c)	4.50
Residual width	Wr(c-a)	2.50		w(c-b)	4.50
Visibilities	Vr(b-a)	65	Calculated	D	0.98
	Vl(b-a)	50		E	1.03
	Vr(b-c)	65		F	1.03
	Vr(c-b)	65		Y	0.69

ANALYSIS		AM PEAK	PM PEAK
TRAFFIC FLOWS	q(c-a)	198	168
	q(c-b)	106	59
	q(a-b)	55	60
	q(a-c)	390	370
	q(b-a)	11	12
	q(b-c)	139	97
	f	0.93	0.89
CAPACITIES	Q(b-a)	446	471
	Q(b-c)	658	663
	Q(c-b)	650	654
	Q(b-ac)	636	635
DFC's	b-a	0.02	0.03
	b-c	0.21	0.15
	c-b	0.163	0.090
	b-ac	0.236	0.172
Critical DFC		**0.24**	**0.17**

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) Capacity of combined streams

T.P.D.M.V.2.4
Appendix 1

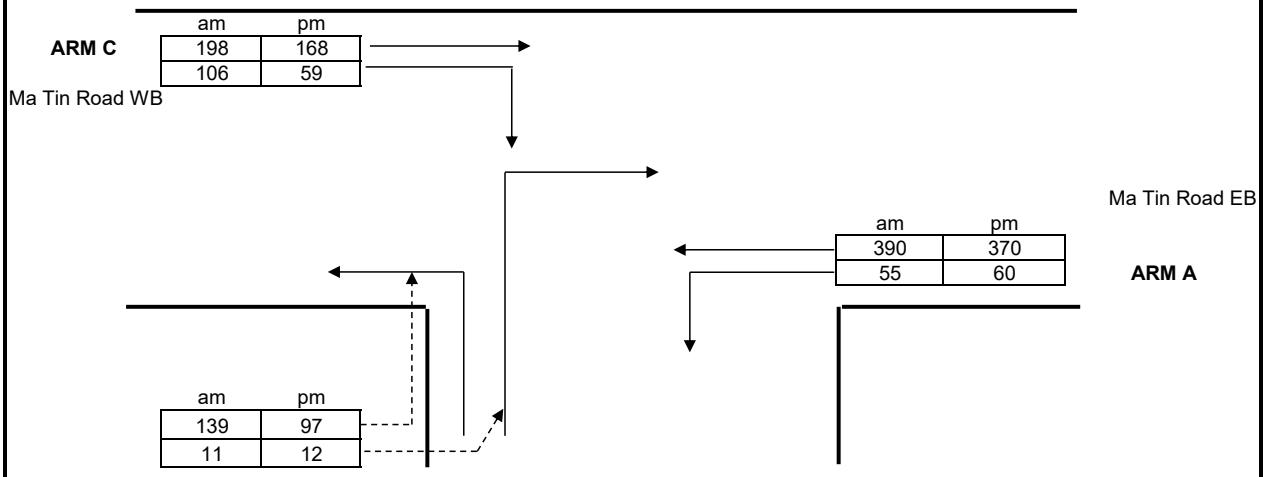
- In accordance with TPDM V2.4

SIMPLIFIED PRIORITY JUNCTION CAPACITY CALCULATION

ATKINS
Member of the SNC-Lavalin Group

(Single Lane Minor Arm B)

Job Title:	CE46/2020 TO4 Housing Development at Shap Pat Heung Road			
Junction:	J15 - Town Park Road North / Ma Tin Road		Designed by:	PC
Scheme:	Design		Checked by:	TL
Design Year:	2032	Job No.: 5210095	Date :	31/05/2022
ARM A:	Ma Tin Road EB			
ARM B:	Town Park Road North SB			
ARM C:	Ma Tin Road WB			



GEOMETRY					
Major road width	W	8.95	Lane widths	w(b-a)	4.70
Central Reserve width	Wcr	0.00		w(b-c)	4.50
Residual width	Wr(c-a)	2.50		w(c-b)	4.50
Visibilities	Vr(b-a)	65	Calculated	D	0.98
	Vl(b-a)	50		E	1.03
	Vr(b-c)	65		F	1.03
	Vr(c-b)	65		Y	0.69

ANALYSIS		AM PEAK	PM PEAK
TRAFFIC FLOWS	q(c-a)	198	168
	q(c-b)	106	59
	q(a-b)	55	60
	q(a-c)	390	370
	q(b-a)	11	12
	q(b-c)	139	97
	f	0.93	0.89
CAPACITIES	Q(b-a)	446	471
	Q(b-c)	658	663
	Q(c-b)	650	654
	Q(b-ac)	636	635
DFC's	b-a	0.02	0.03
	b-c	0.21	0.15
	c-b	0.163	0.090
	b-ac	0.236	0.172
Critical DFC		**0.24**	**0.17**

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) Capacity of combined streams

T.P.D.M.V.2.4
Appendix 1

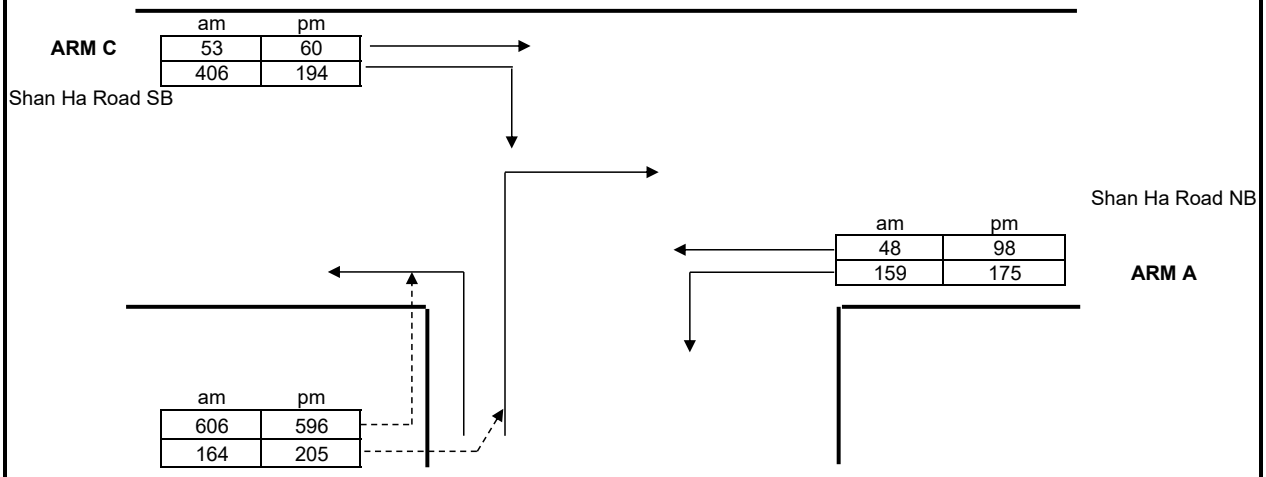
- In accordance with TPDM V2.4

SIMPLIFIED PRIORITY JUNCTION CAPACITY CALCULATION

ATKINS
Member of the SNC-Lavalin Group

(Single Lane Minor Arm B)

Job Title:	CE46/2020 TO4 Housing Development at Shap Pat Heung Road			
Junction:	J16 - Tong Yan San Tsuen Interchange / Long Hon Road & Sh		Designed by:	PC
Scheme:	Existing		Checked by:	TL
Design Year:	2021	Job No.: 5210095	Date :	31/05/2022
ARM A:	Shan Ha Road NB			
ARM B:	Tong Yan San Tsuen Int. EB			
ARM C:	Shan Ha Road SB			



GEOMETRY					
Major road width	W	7.05	Lane widths	w(b-a)	4.00
Central Reserve width	Wcr	0.00		w(b-c)	4.00
Residual width	Wr(c-a)	2.50		w(c-b)	3.30
Visibilities	Vr(b-a)	45	Calculated	D	0.89
	Vl(b-a)	28		E	0.96
	Vr(b-c)	45		F	0.89
	Vr(c-b)	36		Y	0.76

ANALYSIS		AM PEAK	PM PEAK
TRAFFIC FLOWS	q(c-a)	53	60
	q(c-b)	406	194
	q(a-b)	159	175
	q(a-c)	48	98
	q(b-a)	164	205
	q(b-c)	606	596
	f	0.79	0.74
CAPACITIES	Q(b-a)	382	441
	Q(b-c)	688	673
	Q(c-b)	615	599
DFC's	b-a	0.43	0.46
	b-c	0.88	0.89
	c-b	0.660	0.324
Critical DFC		**0.88**	**0.89**

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) Capacity of combined streams

T.P.D.M.V.2.4
Appendix 1

- In accordance with TPDM V2.4

Appendix B

Validation Results

Appendix B - Validations Results

Screenline Validation Results

Screenline	Bound	Road	AM				PM			
			obs	mod	m/o	GEH	obs	mod	m/o	GEH
A	WB	CPR-PS	1454	1362	0.94	2.5	1468	1415	0.96	1.4
A	EB	CPR-PS	1178	1243	1.06	1.9	1190	1198	1.01	0.2
A	WB	YLHY	4554	4504	0.99	0.7	4771	4490	0.94	4.1
A	EB	YLHY	5776	6000	1.04	2.9	4843	5049	1.04	2.9
B	WB	CPR-YK	816	779	0.95	1.3	605	521	0.86	3.5
B	EB	CPR-YK	882	903	1.02	0.7	908	919	1.01	0.4
B	WB	KYR	511	556	1.09	1.9	568	611	1.08	1.8
B	EB	KYR	389	392	1.01	0.2	433	426	0.98	0.3
B	WB	MTR	305	278	0.91	1.6	327	293	0.90	1.9
B	EB	MTR	676	644	0.95	1.2	634	597	0.94	1.5
B	WB	SPHR	475	507	1.07	1.4	490	515	1.05	1.1
B	EB	SPHR	285	329	1.15	2.5	222	181	0.82	2.9
B	WB	YLHW	4578	4461	0.97	1.7	5160	4817	0.93	4.9
B	EB	YLHW	6203	6252	1.01	0.6	4411	4510	1.02	1.5
C	NB	LTR	3582	3289	0.92	5.0	3860	3595	0.93	4.3
C	SB	LTR	4190	3864	0.92	5.1	3471	3167	0.91	5.3
C	NB	LHTR	395	360	0.91	1.8	136	130	0.96	0.5
C	SB	LHTR	194	195	1.01	0.1	144	125	0.87	1.6
C	NB	TYR	574	549	0.96	1.1	593	594	1.00	0.0
C	SB	TYR	295	267	0.91	1.7	197	177	0.90	1.5
C	NB	KUR	17	16	0.94	0.2	29	26	0.90	0.6
C	SB	KHR	144	130	0.90	1.2	142	149	1.05	0.6
C	NB	TSHRW	9	10	1.11	0.3	8	8	1.00	0.0
C	SB	TSHRE	201	175	0.87	1.9	286	267	0.93	1.1
C	NB	TTR	430	402	0.93	1.4	475	403	0.85	3.4
C	SB	TTR	487	474	0.97	0.6	542	527	0.97	0.6
C	NB	FKR	631	587	0.93	1.8	729	759	1.04	1.1
C	SB	FKR	519	561	1.08	1.8	678	708	1.04	1.1
C	NB	YLHY	6652	6706	1.01	0.7	4627	5034	1.09	5.9
C	SB	YLHY	4710	4590	0.97	1.8	5517	5191	0.94	4.5

Junction Validation Results

Junction	Bound	Road	AM				PM			
			obs	mod	m/o	GEH	obs	mod	m/o	GEH
J1	Entry	SPHR (W)	455	529	1.16	3.3	380	354	0.93	1.4
	Exit	SPHR (W)	366	425	1.16	3.0	252	265	1.05	0.8
	Entry	SPHR (E)	475	507	1.07	1.4	490	515	1.05	1.1
	Exit	SPHR (E)	285	329	1.15	2.5	222	181	0.82	2.9
	Entry	TYR (S)	295	267	0.91	1.7	197	171	0.87	1.9
	Exit	TYR (S)	574	549	0.96	1.1	593	594	1.00	0.0
J2	Entry	MTR (W)	560	532	0.95	1.2	473	444	0.94	1.4
	Exit	MTR (W)	263	275	1.05	0.7	254	273	1.07	1.2
	Entry	MTR (E)	305	278	0.91	1.6	327	291	0.89	2.0
	Exit	MTR (E)	676	644	0.95	1.2	634	597	0.94	1.5
	Entry	TYR (N)	492	512	1.04	0.9	453	466	1.03	0.6
	Exit	TYR (N)	697	686	0.98	0.4	752	754	1.00	0.1
	Entry	TYR (S)	569	549	0.96	0.8	586	594	1.01	0.3
	Exit	TYR (S)	290	266	0.92	1.4	199	171	0.86	2.1
J3	Entry	TYR (N)	1165	1217	1.04	1.5	705	749	1.06	1.6
	Exit	TYR (N)	864	904	1.05	1.3	1124	1206	1.07	2.4
	Entry	TYR (S)	764	765	1.00	0.0	762	770	1.01	0.3
	Exit	TYR (S)	585	616	1.05	1.3	478	498	1.04	0.9
	Entry	KYR (E)	511	556	1.09	1.9	568	611	1.08	1.8
	Exit	KYR (E)	389	392	1.01	0.2	433	426	0.98	0.3
J4	Entry	MMR (N)	718	683	0.95	1.3	776	803	1.03	1.0
	Exit	MMR (N)	862	939	1.09	2.6	609	634	1.04	1.0
	Entry	MMR (S)	1165	1226	1.05	1.8	1124	1207	1.07	2.4
	Exit	MMR (S)	864	904	1.05	1.3	706	749	1.06	1.6
	Entry	CPR (W)	681	674	0.99	0.3	674	678	1.01	0.2
	Exit	CPR (W)	1060	1128	1.06	2.1	956	907	0.95	1.6
	Entry	CPR (E)	816	779	0.95	1.3	605	521	0.86	3.5
	Exit	CPR (E)	882	903	1.02	0.7	908	919	1.01	0.4
J5	Entry	SPHR (W)	276	330	1.20	3.1	218	181	0.83	2.6
	Exit	SPHR (W)	434	475	1.09	1.9	370	400	1.08	1.5
	Entry	SPHR (E)	420	489	1.16	3.2	434	469	1.08	1.6
	Exit	SPHR (E)	545	623	1.14	3.2	447	431	0.96	0.8
	Entry	KHR (N)	144	130	0.90	1.2	142	149	1.05	0.6
	Exit	KUR (N)	17	6	0.35	3.2	29	17	0.59	2.5
	Entry	KUR (S)	538	537	1.00	0.0	551	564	1.02	0.6
	Exit	KHR (N)	382	382	1.00	0.0	499	515	1.03	0.7

Appendix B - Validations Results

J6	Entry	SPHR (W)	543	622	1.15	3.3	449	431	0.96	0.9
	Exit	SPHR (W)	415	504	1.21	4.2	433	469	1.08	1.7
	Entry	SPHR (E)	320	397	1.24	4.1	342	277	0.81	3.7
	Exit	SPHR (E)	588	500	0.85	3.8	482	443	0.92	1.8
	Entry	TSHRE (N)	201	175	0.87	1.9	286	267	0.93	1.1
	Exit	TSHRW (N)	9	5	0.56	1.5	8	5	0.63	1.2
	Entry	TSHRW (S)	151	157	1.04	0.5	108	213	1.97	8.3
	Exit	TSHRE (S)	203	342	1.68	8.4	262	271	1.03	0.6
J7	Entry	TTR (N)	487	474	0.97	0.6	542	477	0.88	2.9
	Exit	TTR (N)	430	402	0.93	1.4	475	403	0.85	3.4
	Entry	TTR (S)	578	587	1.02	0.4	525	602	1.15	3.2
	Exit	TTR (S)	470	467	0.99	0.1	502	501	1.00	0.0
	Entry	SPHR (W)	579	638	1.10	2.4	524	519	0.99	0.2
	Exit	SPHR (W)	365	442	1.21	3.8	455	457	1.00	0.1
	Entry	SPHR (E)	480	429	0.89	2.4	558	456	0.82	4.5
	Exit	SPHR (E)	859	817	0.95	1.5	717	693	0.97	0.9
J8	Entry	FKR (N)	519	361	0.70	7.5	678	758	1.12	3.0
	Exit	FKR (N)	631	587	0.93	1.8	729	759	1.04	1.1
	Entry	AccessRd (S)	153	154	1.01	0.1	94	99	1.05	0.5
	Exit	AccessRd (S)	92	84	0.91	0.9	115	115	1.00	0.0
	Entry	SPHR (W)	859	817	0.95	1.5	719	694	0.97	0.9
	Exit	SPHR (W)	480	430	0.90	2.3	558	456	0.82	4.5
	Entry	SPHR (E)	738	827	1.12	3.2	1018	969	0.95	1.6
	Exit	SPHR (E)	1066	1058	0.99	0.2	1107	1190	1.07	2.4
J9	Entry	SPHR (W)	1066	1057	0.99	0.3	1107	1190	1.07	2.4
	Exit	SPHR (W)	755	826	1.09	2.5	1018	968	0.95	1.6
	Entry	SPHR (E)	1310	1377	1.05	1.8	1773	1806	1.02	0.8
	Exit	SPHR (E)	1624	1703	1.05	1.9	1633	1956	1.20	7.6
	Entry	TKLR (S)	582	679	1.17	3.9	612	822	1.34	7.8
	Exit	TKLR (S)	579	584	1.01	0.2	841	894	1.06	1.8
J10	Entry	MWR (N)	561	539	0.96	0.9	449	437	0.97	0.6
	Exit	LTR (N)	640	645	1.01	0.2	594	631	1.06	1.5
	Entry	LTR (S)	1334	1038	0.78	8.6	1417	1177	0.83	6.7
	Exit	LTR (S)	1456	1273	0.87	5.0	1231	1047	0.85	5.5
	Entry	CPR (W)	1178	1243	1.06	1.9	1190	1198	1.01	0.2
	Exit	CPR (W)	1454	1362	0.94	2.5	1468	1415	0.96	1.4
	Entry	CPR (E)	1157	1128	0.97	0.9	925	907	0.98	0.6
	Exit	CPR (E)	680	668	0.98	0.5	688	626	0.91	2.4
J11	Entry	SPHR (W)	1629	1703	1.05	1.8	1633	1956	1.20	7.6
	Exit	SPHR (W)	1310	1378	1.05	1.9	1773	1805	1.02	0.8
	Entry	YLHY (N)	1573	1570	1.00	0.1	1749	1553	0.89	4.8
	Exit	YLHY (N)	2104	2444	1.16	7.1	1607	1829	1.14	5.4
	Entry	YLHY (S)	1655	1990	1.20	7.8	1391	1305	0.94	2.3
	Exit	YLHY (S)	1441	1441	1.00	0.0	1392	1180	0.85	5.9
J12	Entry	SHR (N)	459	468	1.02	0.4	254	292	1.15	2.3
	Exit	SHR (N)	654	672	1.03	0.7	694	702	1.01	0.3
	Entry	SHR (S)	207	266	1.29	3.8	273	288	1.05	0.9
	Exit	SHR (S)	217	341	1.57	7.4	265	315	1.19	2.9
	Entry	TYSTIC (W)	770	809	1.05	1.4	801	811	1.01	0.4
	Exit	TYSTIC (W)	565	530	0.94	1.5	369	374	1.01	0.3
J13	Entry	TPRN (N)	118	57	0.48	6.5	76	81	1.07	0.6
	Exit	TPRN (N)	107	139	1.30	2.9	104	95	0.91	0.9
	Entry	TPRN (S)	355	442	1.25	4.4	233	192	0.82	2.8
	Exit	TPRN (S)	379	359	0.95	1.0	417	371	0.89	2.3
	Entry	SHR (W)	382	454	1.19	3.5	461	416	0.90	2.1
	Exit	SHR (W)	369	455	1.23	4.2	249	223	0.90	1.7
J14	Entry	LHTR (N)	194	195	1.01	0.1	144	125	0.87	1.6
	Exit	LHTR (N)	395	360	0.91	1.8	136	130	0.96	0.5
	Entry	LHTR (S)	529	467	0.88	2.8	264	260	0.98	0.2
	Exit	LHTR (S)	317	277	0.87	2.3	151	156	1.03	0.4
	Entry	SPHR (E)	367	427	1.16	3.0	163	171	1.05	0.6
	Exit	SPHR (E)	378	452	1.20	3.6	284	270	0.95	0.8
J15	Entry	TPRS (W)	380	456	1.20	3.7	474	407	0.86	3.2
	Exit	TPRS (W)	317	437	1.38	6.2	238	229	0.96	0.6
	Entry	TPRS (E)	187	107	0.57	6.6	176	165	0.94	0.8
	Exit	TPRS (E)	451	290	0.64	8.4	404	349	0.86	2.8
	Entry	LHTR (S)	395	359	0.91	1.9	136	131	0.96	0.4
	Exit	LHTR (S)	194	195	1.01	0.1	144	125	0.87	1.6
J16	Entry	TPRN (N)	88	100	1.14	1.2	88	100	1.14	1.2
	Exit	TPRN (N)	80	103	1.29	2.4	80	103	1.29	2.4
	Entry	TPRS (W)	403	348	0.86	2.8	403	348	0.86	2.8
	Exit	TPRS (W)	176	165	0.94	0.8	176	165	0.94	0.8
	Entry	TPRS (E)	209	236	1.13	1.8	209	236	1.13	1.8
	Exit	TPRS (E)	444	416	0.94	1.4	444	416	0.94	1.4

Appendix C

Planned / Committed Road Network and Junction Modification

道路(工程、使用及補償)條例(第370章)
ROADS (WORKS, USE AND COMPENSATION) ORDINANCE (CHAPTER 370)

工務計劃項目第B810CL號
元朗朗邊公營房屋發展之工地平整及基礎設施工程
道路工程

ROAD WORKS UNDER PWP ITEM NO. B810CL
SITE FORMATION AND INFRASTRUCTURE WORKS FOR PUBLIC HOUSING DEVELOPMENTS AT LONG BIN, YUEN LONG

圖則編號 PLAN NO.	頁次 SHEET NO.	圖則名稱 PLAN TITLE
261044/GZ/001	二張之第一張 SHEET 1 OF 2	根據<<道路(工程、使用及補償)條例>>(第370章)而在憲報公布之圖則 PLAN FOR GAZETTING UNDER ROADS (WORKS, USE AND COMPENSATION) ORDINANCE (CHAPTER 370)
261044/GZ/002	二張之第二張 SHEET 2 OF 2	

批簽
ENDORSED BY

Original Signed

黎以德 JOSEPH Y T LAI

運輸及房屋局常任秘書長(運輸)
PERMANENT SECRETARY FOR TRANSPORT AND HOUSING (TRANSPORT)

16 DEC 2019
日期
DATE

批准
APPROVED BY

陳偉杰 THOMAS W K CHAN

總工程師/房屋工程2
CHIEF ENGINEER / HOUSING PROJECTS 2
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

11 DEC 2019
日期
DATE

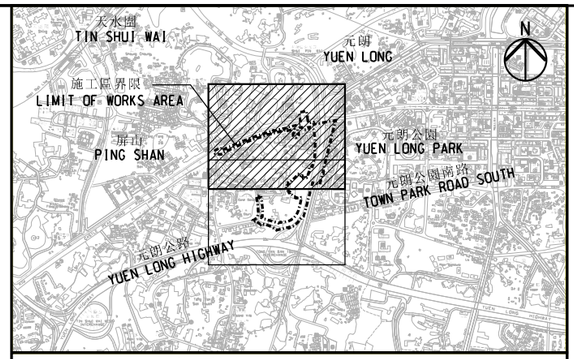
土木工程拓展署
土木工程處
房屋工程2部
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
CIVIL ENGINEERING OFFICE
HOUSING PROJECTS 2 DIVISION

J:\261044\ARUP\Gazette\261044_GZ_RD-COVER.dgn

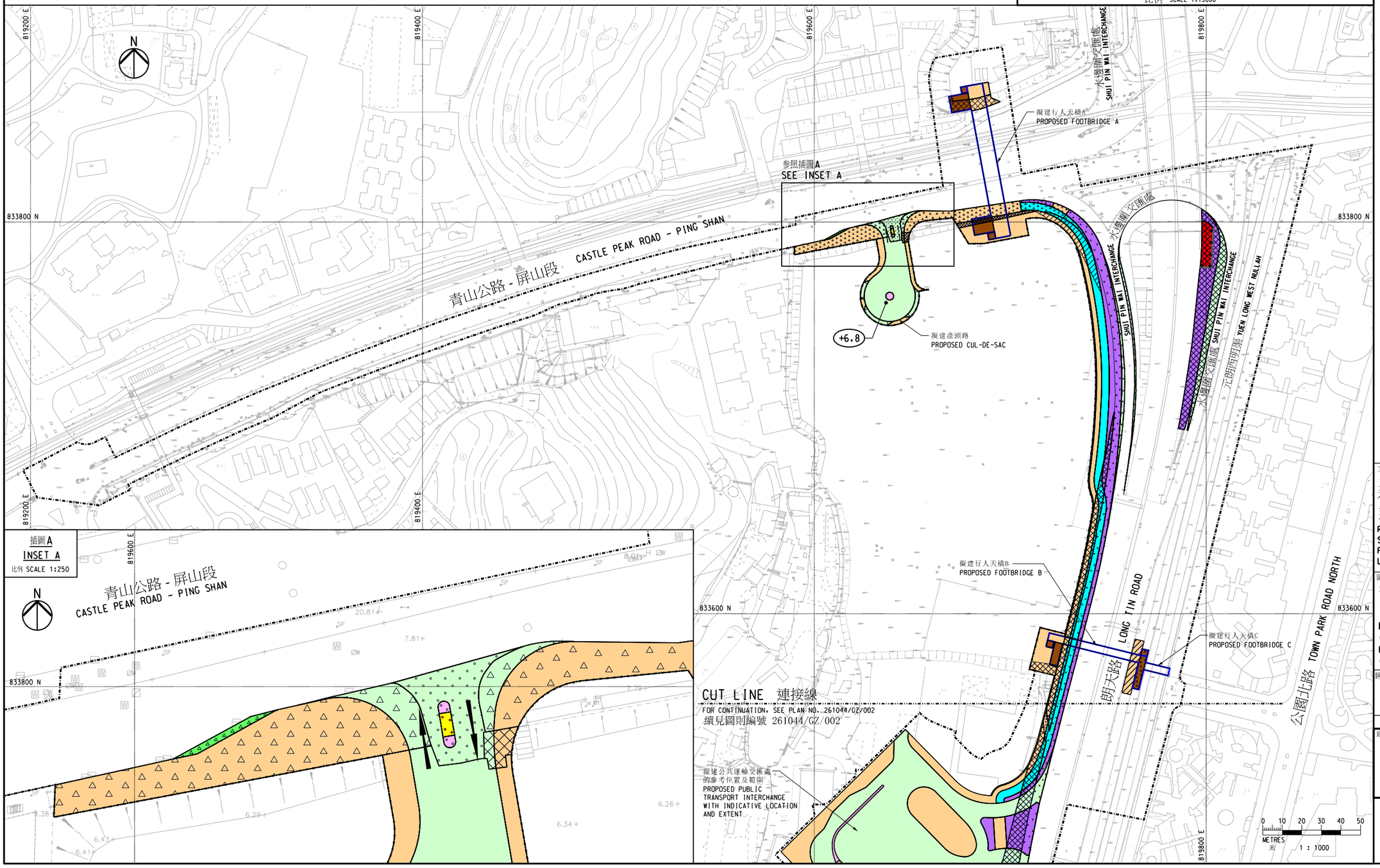
圖例:

LEGEND:

- 施工區界限 LIMIT OF WORKS AREA
- 擬建行車道 PROPOSED CARRIAGEWAY
- 擬建行人路 PROPOSED FOOTPATH
- 擬建中央分隔帶 / 安全島 PROPOSED CENTRAL MEDIAN / TRAFFIC ISLAND
- 擬建行車出口 PROPOSED VEHICULAR INGRESS AND EGRESS
- 擬建行人天橋 PROPOSED FOOTBRIDGE
- 擬建升降機塔連附連樓梯 PROPOSED LIFT TOWER WITH ASSOCIATED STAIRCASE
- 擬建美化市容地帶 PROPOSED AMENITY AREA
- 擬建單車徑 PROPOSED CYCLE TRACK
- 擬建行人過路處 PROPOSED PEDESTRIAN CROSSING
- 擬建停車灣 PROPOSED LAY-BY
- 現有斜坡將拆卸並改建為行車道 EXISTING SLOPE TO BE DEMOLISHED AND CONVERTED INTO CARRIAGEWAY
- 現有斜坡將拆卸並改建為行人路 EXISTING SLOPE TO BE DEMOLISHED AND CONVERTED INTO FOOTPATH
- 現有斜坡將拆卸並改建為升降機塔連附連樓梯 EXISTING SLOPE TO BE DEMOLISHED AND CONVERTED INTO LIFT TOWER WITH ASSOCIATED STAIRCASE
- 現有斜坡將拆卸並改建為美化市容地帶 EXISTING SLOPE TO BE DEMOLISHED AND CONVERTED INTO AMENITY AREA
- 現有斜坡將拆卸並改建為單車徑 EXISTING SLOPE TO BE DEMOLISHED AND CONVERTED INTO CYCLE TRACK
- 現有行車道將永久封閉並改建為中央分隔帶/安全島 EXISTING CARRIAGEWAY TO BE PERMANENTLY CLOSED AND CONVERTED INTO CENTRAL MEDIAN / TRAFFIC ISLAND
- 現有行車道將永久封閉並改建為行人過路處 EXISTING CARRIAGEWAY TO BE PERMANENTLY CLOSED AND CONVERTED INTO PEDESTRIAN CROSSING
- 現有行車道將永久封閉並改建為行車道 EXISTING FOOTPATH TO BE PERMANENTLY CLOSED AND CONVERTED INTO CARRIAGEWAY
- 現有行人路將永久封閉並改建為中央分隔帶/安全島 EXISTING FOOTPATH TO BE PERMANENTLY CLOSED AND CONVERTED INTO CENTRAL MEDIAN / TRAFFIC ISLAND
- 現有行人路將永久封閉並改建為升降機塔連附連樓梯 EXISTING FOOTPATH TO BE PERMANENTLY CLOSED AND CONVERTED INTO LIFT TOWER WITH ASSOCIATED STAIRCASE
- 現有行人路將永久封閉並改建為美化市容地帶 EXISTING FOOTPATH TO BE PERMANENTLY CLOSED AND CONVERTED INTO AMENITY AREA
- 現有行人路將永久封閉並改建為單車徑 EXISTING FOOTPATH TO BE PERMANENTLY CLOSED AND CONVERTED INTO CYCLE TRACK
- 現有行人路將永久封閉並改建為行人過路處 EXISTING FOOTPATH TO BE PERMANENTLY CLOSED AND CONVERTED INTO PEDESTRIAN CROSSING
- 現有行人路將永久封閉並改建為停車灣 EXISTING FOOTPATH TO BE PERMANENTLY CLOSED AND CONVERTED INTO LAY-BY
- 現有美化市容地帶將永久封閉並改建為行車道 EXISTING AMENITY AREA TO BE PERMANENTLY CLOSED AND CONVERTED INTO CARRIAGEWAY
- 現有美化市容地帶將永久封閉並改建為行人路 EXISTING AMENITY AREA TO BE PERMANENTLY CLOSED AND CONVERTED INTO FOOTPATH
- 現有美化市容地帶將永久封閉並改建為單車徑 EXISTING AMENITY AREA TO BE PERMANENTLY CLOSED AND CONVERTED INTO CYCLE TRACK
- 現有單車徑將永久封閉並改建為行車道 EXISTING CYCLE TRACK TO BE PERMANENTLY CLOSED AND CONVERTED INTO CARRIAGEWAY
- 現有單車徑將永久封閉並改建為美化市容地帶 EXISTING CYCLE TRACK TO BE PERMANENTLY CLOSED AND CONVERTED INTO AMENITY AREA
- 現有行車道將暫時封閉及重建 EXISTING CARRIAGEWAY TO BE TEMPORARILY CLOSED AND RECONSTRUCTED
- 現有行人路將暫時封閉及重建 EXISTING FOOTPATH TO BE TEMPORARILY CLOSED AND RECONSTRUCTED
- 現有單車徑將暫時封閉及重建 EXISTING CYCLE TRACK TO BE TEMPORARILY CLOSED AND RECONSTRUCTED
- 現有斜坡將被重建 EXISTING SLOPE TO BE RECONSTRUCTED
- 擬建護土牆 PROPOSED RETAINING WALL
- NB
- +6.5 建議水平(約數) PROPOSED LEVEL (APPROXIMATELY)
- 行車線 (每一箭咀代表一條行車線) TRAFFIC LANE (ONE ARROW REPRESENTS ONE LANE)



位置圖 LOCATION PLAN
比例 SCALE 1:15000



插圖A
INSET A
比例 SCALE 1:250

註釋:

NOTES:

1. 除在其他方面指定外,所有量度以米為單位。
   ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED.
2. 所有水平均為約數,以米為單位,並在香港主水平基準上。
   ALL LEVELS ARE APPROXIMATE VALUES AND IN METRES ABOVE HONG KONG PRINCIPAL DATUM.
3. 如有需要,施工區界限內部分現有行車道,行人路,中央分隔帶/安全島,美化市容地帶和單車徑或會分階段暫時封閉。
   SECTIONS OF THE EXISTING CARRIAGEWAYS, FOOTPATHS, CENTRAL MEDIANS/TRAFFIC ISLANDS, AMENITY AREAS AND CYCLE TRACKS WITHIN THE LIMIT OF WORKS AREA MAY BE TEMPORARILY CLOSED IN PHASES AS AND WHEN REQUIRED.

工程名稱 PROJECT TITLE

工務計劃項目第B810CL號
元朗朗邊公營房屋發展之工地平整及基礎設施工程
道路工程

ROAD WORKS UNDER PWP ITEM NO.B810CL
SITE FORMATION AND INFRASTRUCTURE WORKS FOR PUBLIC HOUSING DEVELOPMENTS AT LONG BIN, YUEN LONG

圖則名稱 PLAN TITLE

根據《道路(工程、使用及補償)條例》(第370章)而在憲報公布的圖則
(二張之第一張)

PLAN FOR GAZETTING UNDER ROADS (WORKS, USE AND COMPENSATION) ORDINANCE (CHAPTER 370) (SHEET 1 OF 2)

圖則編號 PLAN NO.	比例 SCALE
261044/GZ/001	1:1000

辦事處 OFFICE

房屋工程2部
HOUSING PROJECTS 2 DIVISION
土木工程處
CIVIL ENGINEERING OFFICE

土木工程拓展署
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

圖例:
LEGEND:

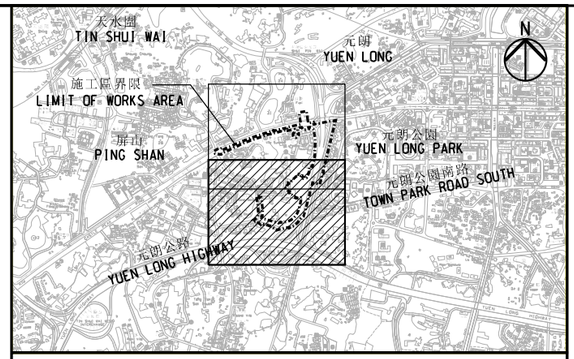
施工區界限
LIMIT OF WORKS AREA
擬建行車道
PROPOSED CARRIAGEWAY
擬建行人路
PROPOSED FOOTPATH
擬建中央分隔帶 / 安全島
PROPOSED CENTRAL MEDIAN / TRAFFIC ISLAND
擬建行車出入口
PROPOSED VEHICULAR INGRESS AND EGRESS
擬建行人天橋
PROPOSED FOOTBRIDGE
擬建升降機塔連附連樓梯
PROPOSED LIFT TOWER WITH ASSOCIATED STAIRCASE
擬建美化市容地帶
PROPOSED AMENITY AREA
擬建單車徑
PROPOSED CYCLE TRACK

擬建行人過路處
PROPOSED PEDESTRIAN CROSSING
擬建停車灣
PROPOSED LAY-BY
現有斜坡將拆卸並改建為行車道
EXISTING SLOPE TO BE DEMOLISHED AND CONVERTED INTO CARRIAGEWAY
現有斜坡將拆卸並改建為行人路
EXISTING SLOPE TO BE DEMOLISHED AND CONVERTED INTO FOOTPATH
現有斜坡將拆卸並改建為升降機塔連附連樓梯
EXISTING SLOPE TO BE DEMOLISHED AND CONVERTED INTO LIFT TOWER WITH ASSOCIATED STAIRCASE
現有斜坡將拆卸並改建為美化市容地帶
EXISTING SLOPE TO BE DEMOLISHED AND CONVERTED INTO AMENITY AREA
現有斜坡將拆卸並改建為單車徑
EXISTING SLOPE TO BE DEMOLISHED AND CONVERTED INTO CYCLE TRACK
現有行車道將永久封閉並改建為中央分隔帶/安全島
EXISTING CARRIAGEWAY TO BE PERMANENTLY CLOSED AND CONVERTED INTO CENTRAL MEDIAN / TRAFFIC ISLAND

現有行車道將永久封閉並改建為行人過路處
EXISTING CARRIAGEWAY TO BE PERMANENTLY CLOSED AND CONVERTED INTO PEDESTRIAN CROSSING
現有行車道將永久封閉並改建為行車道
EXISTING FOOTPATH TO BE PERMANENTLY CLOSED AND CONVERTED INTO CARRIAGEWAY
現有行人路將永久封閉並改建為中央分隔帶/安全島
EXISTING FOOTPATH TO BE PERMANENTLY CLOSED AND CONVERTED INTO CENTRAL MEDIAN / TRAFFIC ISLAND
現有行人路將永久封閉並改建為升降機塔連附連樓梯
EXISTING FOOTPATH TO BE PERMANENTLY CLOSED AND CONVERTED INTO LIFT TOWER WITH ASSOCIATED STAIRCASE
現有行人路將永久封閉並改建為美化市容地帶
EXISTING FOOTPATH TO BE PERMANENTLY CLOSED AND CONVERTED INTO AMENITY AREA
現有行人路將永久封閉並改建為單車徑
EXISTING FOOTPATH TO BE PERMANENTLY CLOSED AND CONVERTED INTO CYCLE TRACK
現有行人路將永久封閉並改建為行人過路處
EXISTING FOOTPATH TO BE PERMANENTLY CLOSED AND CONVERTED INTO PEDESTRIAN CROSSING

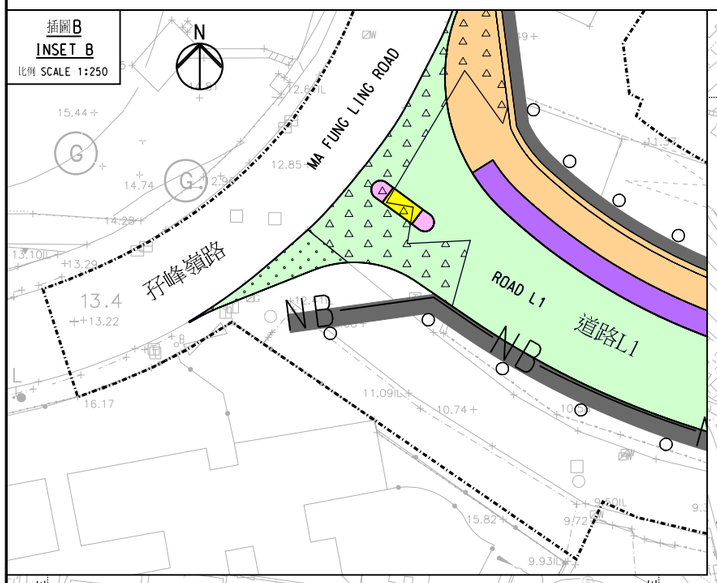
現有行人路將永久封閉並改建為停車灣
EXISTING FOOTPATH TO BE PERMANENTLY CLOSED AND CONVERTED INTO LAY-BY
現有美化市容地帶將永久封閉並改建為行車道
EXISTING AMENITY AREA TO BE PERMANENTLY CLOSED AND CONVERTED INTO CARRIAGEWAY
現有美化市容地帶將永久封閉並改建為行人路
EXISTING AMENITY AREA TO BE PERMANENTLY CLOSED AND CONVERTED INTO FOOTPATH
現有美化市容地帶將永久封閉並改建為單車徑
EXISTING AMENITY AREA TO BE PERMANENTLY CLOSED AND CONVERTED INTO CYCLE TRACK
現有單車徑將永久封閉並改建為行車道
EXISTING CYCLE TRACK TO BE PERMANENTLY CLOSED AND CONVERTED INTO CARRIAGEWAY
現有單車徑將永久封閉並改建為美化市容地帶
EXISTING CYCLE TRACK TO BE PERMANENTLY CLOSED AND CONVERTED INTO AMENITY AREA
現有行車道將暫時封閉及重建
EXISTING CARRIAGEWAY TO BE TEMPORARILY CLOSED AND RECONSTRUCTED
現有行人路將暫時封閉及重建
EXISTING FOOTPATH TO BE TEMPORARILY CLOSED AND RECONSTRUCTED

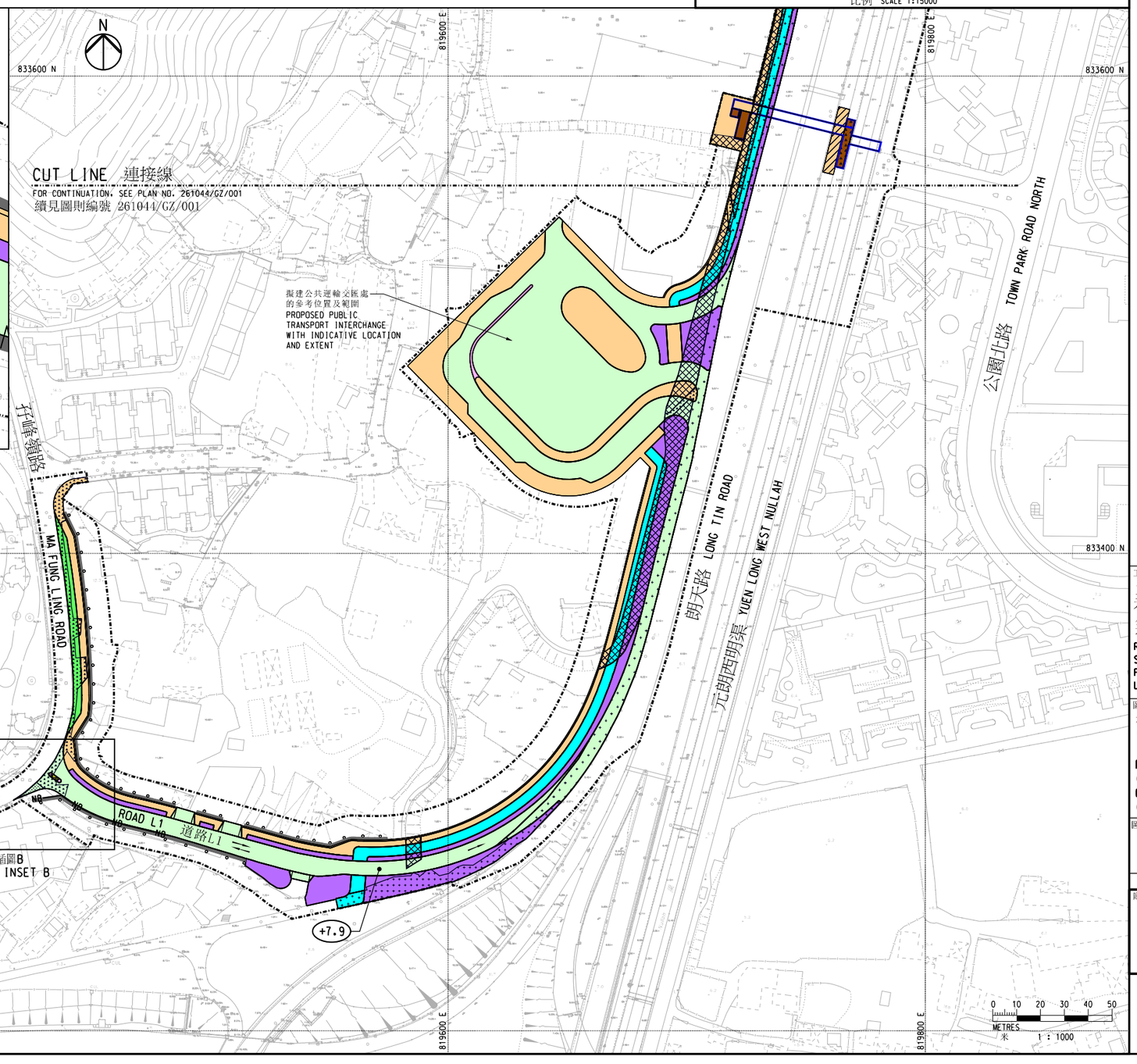
現有單車徑將暫時封閉及重建
EXISTING CYCLE TRACK TO BE TEMPORARILY CLOSED AND RECONSTRUCTED
現有斜坡將被重建
EXISTING SLOPE TO BE RECONSTRUCTED
擬建護土牆
PROPOSED RETAINING WALL
擬建隔音屏障
PROPOSED NOISE BARRIER
建議水平(約數)
PROPOSED LEVEL (APPROXIMATELY)
行車線
(每一箭咀代表一條行車線)
TRAFFIC LANE
(ONE ARROW REPRESENTS ONE LANE)



位置圖 LOCATION PLAN
比例 SCALE 1:15000

插圖B
INSET B
比例 SCALE 1:250





註釋:
NOTES:

1. 除在其他方面指定外,所有量度以米為單位。
ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED.
2. 所有水平均為約數,以米為單位,並在香港主水平基準上。
ALL LEVELS ARE APPROXIMATE VALUES AND IN METRES ABOVE HONG KONG PRINCIPAL DATUM.
3. 如有需要,施工區界限內部分現有行車道,行人路,中央分隔帶/安全島,美化市容地帶和單車徑或會分階段暫時封閉。
SECTIONS OF THE EXISTING CARRIAGEWAYS, FOOTPATHS, CENTRAL MEDIANS/TRAFFIC ISLANDS, AMENITY AREAS AND CYCLE TRACKS WITHIN THE LIMIT OF WORKS AREA MAY BE TEMPORARILY CLOSED IN PHASES AS AND WHEN REQUIRED.

工程名稱 PROJECT TITLE
工務計劃項目第B810CL號
元朗朗邊公營房屋發展之工地平整及基礎設施工程
道路工程
ROAD WORKS UNDER PWP ITEM NO.B810CL SITE FORMATION AND INFRASTRUCTURE WORKS FOR PUBLIC HOUSING DEVELOPMENTS AT LONG BIN, YUEN LONG

圖則名稱 PLAN TITLE
根據《道路(工程、使用及補償)條例》(第370章)而在憲報公布的圖則
(二張之第二張)
PLAN FOR GAZETTING UNDER ROADS (WORKS, USE AND COMPENSATION) ORDINANCE (CHAPTER 370) (SHEET 2 OF 2)

圖則編號 PLAN NO. 261044/GZ/002
比例 SCALE 1:1000

辦事處 OFFICE
房屋工程2部
HOUSING PROJECTS 2 DIVISION
土木工程處
CIVIL ENGINEERING OFFICE

土木工程拓展署
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

道路（工程、使用及補償）條例（第370章）
ROADS (WORKS , USE AND COMPENSATION) ORDINANCE (CHAPTER 370)

工務計劃項目第7817CL號及第7827CL號（部分）
元朗南發展
第一階段工程及第二階段工程第一期的道路工程

PWP ITEM NOS. 7817CL AND 7827CL (PART)
ROAD WORKS UNDER YUEN LONG SOUTH DEVELOPMENT
STAGE 1 WORKS AND STAGE 2 WORKS, PHASE 1

圖則編號 PLAN NO.	頁次 SHEET NO.	圖則名稱 PLAN TITLE
60566218/GAZ/100	索引圖 KEY PLAN	
60566218/GAZ/LEGEND	圖例 LEGEND	
60566218/GAZ/101	十二張之第一張 SHEET 1 OF 12	
60566218/GAZ/102	十二張之第二張 SHEET 2 OF 12	
60566218/GAZ/103	十二張之第三張 SHEET 3 OF 12	
60566218/GAZ/104	十二張之第四張 SHEET 4 OF 12	
60566218/GAZ/105	十二張之第五張 SHEET 5 OF 12	
60566218/GAZ/106	十二張之第六張 SHEET 6 OF 12	
60566218/GAZ/107	十二張之第七張 SHEET 7 OF 12	
60566218/GAZ/108	十二張之第八張 SHEET 8 OF 12	
60566218/GAZ/109	十二張之第九張 SHEET 9 OF 12	
60566218/GAZ/110	十二張之第十張 SHEET 10 OF 12	
60566218/GAZ/111	十二張之第十一張 SHEET 11 OF 12	
60566218/GAZ/112	十二張之第十二張 SHEET 12 OF 12	

根據《道路（工程、使用及補償）條例》（第370章）而在憲報公布之圖則

PLANS FOR GAZETTING UNDER ROADS (WORKS, USE AND COMPENSATION) ORDINANCE (CHAPTER 370)

批註
ENDORSED BY

陳美寶 CHAN Mable

運輸及房屋局常任秘書長（運輸）
PERMANENT SECRETARY FOR TRANSPORT AND HOUSING (TRANSPORT)

日期 DATE

核准
APPROVED BY

林志強 DESMOND CK LAM

土木工程拓展署總工程師/西1
CHIEF ENGINEER / WEST 1
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

日期 DATE

819000 E
820000 E
821000 E
833000 N
832000 N
831000 N
N

屏山新村
PING SHAN SAN TSUEN

新起村
SAN HEI TSUEN

唐人新村
TONG YAN SAN TSUEN

欖口村
LAM HAU TSUEN

山下村
SHAN HA TSUEN

元朗公路
YUEN LONG HIGHWAY

馬田壆
MA TIN POK

元朗公路十八鄉交匯處
YUEN LONG HIGHWAY 元朗公路
SHAP PAT HEUNG INTERCHANGE 十八鄉交匯處

崇正新村
SHUNG CHING SAN TSUEN

田寮村
TIN LIU TSUEN

木橋頭村
MUK KIU TAU TSUEN

白沙村
PAK SHA TSUEN

黃泥墩村
WONG NAI TUN TSUEN

大棠村
TAI TONG TSUEN

十二張之第一張
SHEET 1 OF 12
60566218/GAZ/101

十二張之第二張
SHEET 2 OF 12
60566218/GAZ/102

十二張之第三張
SHEET 3 OF 12
60566218/GAZ/103

十二張之第四張
SHEET 4 OF 12
60566218/GAZ/104

十二張之第五張
SHEET 5 OF 12
60566218/GAZ/105

十二張之第六張
SHEET 6 OF 12
60566218/GAZ/106

十二張之第七張
SHEET 7 OF 12
60566218/GAZ/107

十二張之第八張
SHEET 8 OF 12
60566218/GAZ/108

十二張之第九張
SHEET 9 OF 12
60566218/GAZ/109

十二張之第十張
SHEET 10 OF 12
60566218/GAZ/110

十二張之第十一張
SHEET 11 OF 12
60566218/GAZ/111

十二張之第十二張
SHEET 12 OF 12
60566218/GAZ/112

插圖 'C'
INSET 'C'

註釋:
NOTES:

1. 除在其他方面指定外，所有量度以米為單位。
   ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SPECIFIED.
2. 所有水平均為約數，以米為單位，並在香港主水平基準以上。
   ALL LEVELS ARE APPROXIMATE VALUES AND IN METRES ABOVE HONG KONG PRINCIPAL DATUM.
3. 如有需要，施工區界限內之部分現有行車道、行人路、單車徑、美化市容地帶、中央分隔帶/安全島/交通島及路旁帶的部分路段/範圍或其部分或會分階段暫時封閉。
   SECTIONS OF THE EXISTING CARRIAGEWAYS, FOOTPATHS, CYCLE TRACKS, AMENITY AREAS, CENTRAL RESERVES/REFUGE ISLANDS/TRAFFIC ISLANDS AND VERGES OR PARTS THEREOF WITHIN THE LIMIT OF WORKS AREA MAY BE TEMPORARILY CLOSED IN PHASES AS AND WHEN REQUIRED.
4. 如有需要，斜坡穩固工程或會在施工區界限之內進行。
   SLOPE STABILIZATION WORKS MAY BE CARRIED OUT WITHIN THE LIMIT OF WORKS AREA AS AND WHEN REQUIRED.

圖例:
LEGEND:

施工區界限
LIMIT OF WORKS AREA

工程名稱 PROJECT TITLE
工務計劃項目第 7817CL 號及
第 7827CL 號（部分）
元朗南發展第一階段工程
及第二階段工程第一期的道路工程

PWP ITEM NOS. 7817CL AND 7827CL (PART)
ROAD WORKS UNDER
YUEN LONG SOUTH DEVELOPMENT STAGE 1
WORKS AND STAGE 2 WORKS, PHASE 1

圖則名稱 PLAN TITLE
根據<<道路(工程、使用及補償)條例>>
(第370章)而在憲報公布之圖則
PLANS FOR GAZETTING UNDER ROADS (WORKS, USE AND COMPENSATION) ORDINANCE (CHAPTER 370)

索引圖 KEY PLAN

圖則編號 PLAN NO.
60566218/GAZ/100

比例 SCALE
A1 1 : 6000

辦事處 OFFICE
西拓展處
WEST DEVELOPMENT OFFICE

CEDD
土木工程拓展署
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

圖例:
LEGEND:

施工區界限
LIMIT OF WORKS AREA

擬建地面行車道
PROPOSED AT-GRADE CARRIAGEWAY

擬建高架行車道
PROPOSED ELEVATED CARRIAGEWAY

擬建隧道
PROPOSED UNDERPASS

擬建行人路
PROPOSED FOOTPATH

擬建行人隧道
PROPOSED PEDESTRIAN SUBWAY

擬建單車徑
PROPOSED CYCLE TRACK

擬建單車徑暨行人隧道
PROPOSED CYCLE TRACK CUM
PEDESTRIAN SUBWAY

擬建單車停放處
PROPOSED CYCLE PARKING PLACE

擬建車輛進出口通道
PROPOSED RUN-IN/RUN-OUT

擬建行人過路處
PROPOSED PEDESTRIAN CROSSING

擬建中央分隔帶/安全島/交通島
PROPOSED CENTRAL
RESERVE/REFUGE ISLAND / TRAFFIC ISLAND

擬建美化市容地帶
PROPOSED AMENITY AREA

擬建路旁帶
PROPOSED VERGE

現有地面/高架行車道將永久封閉並改建為行人路
EXISTING AT-GRADE/ELEVATED CARRIAGEWAY TO BE PERMANENTLY
CLOSED AND CONVERTED INTO FOOTPATH

現有地面/高架行車道將永久封閉並改建為單車徑
EXISTING AT-GRADE/ELEVATED CARRIAGEWAY TO BE PERMANENTLY
CLOSED AND CONVERTED INTO CYCLE TRACK

現有地面/高架行車道將永久封閉並改建為單車停放處
EXISTING AT-GRADE/ELEVATED CARRIAGEWAY TO BE PERMANENTLY
CLOSED AND CONVERTED INTO CYCLE PARKING PLACE

現有地面/高架行車道將永久封閉並改建為
中央分隔帶/安全島/交通島
EXISTING AT-GRADE/ELEVATED CARRIAGEWAY TO BE
PERMANENTLY CLOSED AND CONVERTED
INTO CENTRAL RESERVE / REFUGE ISLAND / TRAFFIC ISLAND

現有地面/高架行車道將永久封閉並改建為美化市容地帶
EXISTING AT-GRADE/ELEVATED CARRIAGEWAY TO BE PERMANENTLY
CLOSED AND CONVERTED INTO AMENITY AREA

現有地面/高架行車道將永久封閉並改建為路旁帶
EXISTING AT-GRADE/ELEVATED CARRIAGEWAY TO BE PERMANENTLY
CLOSED AND CONVERTED INTO VERGE

現有行人路將永久封閉並改建為地面行車道
EXISTING FOOTPATH TO BE PERMANENTLY CLOSED
AND CONVERTED INTO AT-GRADE CARRIAGEWAY

現有行人路將永久封閉並改建為單車徑
EXISTING FOOTPATH TO BE PERMANENTLY
CLOSED AND CONVERTED INTO CYCLE TRACK

現有行人路將永久封閉並改建為單車停放處
EXISTING FOOTPATH TO BE PERMANENTLY
CLOSED AND CONVERTED INTO CYCLE PARKING PLACE

現有行人路將永久封閉並改建為
中央分隔帶/安全島/交通島
EXISTING FOOTPATH TO BE
PERMANENTLY CLOSED AND CONVERTED
INTO CENTRAL RESERVE / REFUGE ISLAND / TRAFFIC ISLAND

現有行人路將永久封閉並改建為美化市容地帶
EXISTING FOOTPATH TO BE PERMANENTLY
CLOSED AND CONVERTED INTO AMENITY AREA

現有通道將永久封閉並改建為地面行車道
EXISTING ACCESS TO BE PERMANENTLY CLOSED
AND CONVERTED INTO AT-GRADE CARRIAGEWAY

現有通道將永久封閉並改建為行人路
EXISTING ACCESS TO BE PERMANENTLY
CLOSED AND CONVERTED INTO FOOTPATH

現有通道將永久封閉並改建為單車徑
EXISTING ACCESS TO BE PERMANENTLY
CLOSED AND CONVERTED INTO CYCLE TRACK

現有通道將永久封閉並改建為單車停放處
EXISTING ACCESS TO BE PERMANENTLY
CLOSED AND CONVERTED INTO CYCLE PARKING PLACE

現有通道將永久封閉並改建為中央
分隔帶/安全島/交通島
EXISTING ACCESS TO BE PERMANENTLY
CLOSED AND CONVERTED INTO CENTRAL
RESERVE / REFUGE ISLAND / TRAFFIC ISLAND

現有通道將永久封閉並改建為美化市容地帶
EXISTING ACCESS TO BE PERMANENTLY CLOSED
AND CONVERTED INTO AMENITY AREA

現有單車徑將永久封閉並改建為地面行車道
EXISTING CYCLE TRACK TO BE
PERMANENTLY CLOSED AND CONVERTED
INTO AT-GRADE CARRIAGEWAY

現有單車徑將永久封閉並改建為行人路
EXISTING CYCLE TRACK TO BE PERMANENTLY
CLOSED AND CONVERTED INTO FOOTPATH

現有單車徑將永久封閉並改建為美化市容地帶
EXISTING CYCLE TRACK TO BE PERMANENTLY
CLOSED AND CONVERTED INTO AMENITY AREA

現有中央分隔帶/安全島/交通島將永久封閉並
改建為地面行車道
EXISTING CENTRAL RESERVE / REFUGE ISLAND /
TRAFFIC ISLAND TO BE PERMANENTLY CLOSED AND
CONVERTED INTO AT-GRADE CARRIAGEWAY

現有美化市容地帶將永久封閉並改建為
地面行車道
EXISTING AMENITY AREA TO BE PERMANENTLY
CLOSED AND CONVERTED INTO AT-GRADE
CARRIAGEWAY

現有美化市容地帶將永久封閉並改建為行人路
EXISTING AMENITY AREA TO BE PERMANENTLY
CLOSED AND CONVERTED INTO FOOTPATH

現有路旁帶將永久封閉並改建為地面行車道
EXISTING VERGE TO BE PERMANENTLY CLOSED
AND CONVERTED INTO AT-GRADE CARRIAGEWAY

現有路旁帶將永久封閉並改建為行人路
EXISTING VERGE TO BE PERMANENTLY
CLOSED AND CONVERTED INTO FOOTPATH

現有路旁帶將永久封閉並改建為單車徑
EXISTING VERGE TO BE PERMANENTLY
CLOSED AND CONVERTED INTO CYCLE TRACK

現有路旁帶將永久封閉並改建為
中央分隔帶/安全島/交通島
EXISTING VERGE TO BE PERMANENTLY
CLOSED AND CONVERTED INTO CENTRAL
RESERVE / REFUGE ISLAND / TRAFFIC ISLAND

現有路旁帶將永久封閉並改建為美化市容地帶
EXISTING VERGE TO BE PERMANENTLY
CLOSED AND CONVERTED INTO AMENITY AREA

現有斜坡將拆卸並改建為地面行車道
EXISTING SLOPE TO BE DEMOLISHED
AND CONVERTED INTO AT-GRADE CARRIAGEWAY

現有斜坡將拆卸並改建為行人路
EXISTING SLOPE TO BE DEMOLISHED
AND CONVERTED INTO FOOTPATH

現有斜坡將拆卸並改建為單車徑
EXISTING SLOPE TO BE DEMOLISHED
AND CONVERTED INTO CYCLE TRACK

現有斜坡將拆卸並改建為
中央分隔帶/安全島/交通島
EXISTING SLOPE TO BE DEMOLISHED AND
CONVERTED INTO CENTRAL RESERVE /
REFUGE ISLAND / TRAFFIC ISLAND

現有斜坡將拆卸並改建為美化市容地帶
EXISTING SLOPE TO BE DEMOLISHED
AND CONVERTED INTO AMENITY AREA

現有行人天橋將永久封閉並改建為地面行車道
EXISTING FOOTBRIDGE TO BE PERMANENTLY CLOSED
AND CONVERTED INTO AT-GRADE CARRIAGEWAY

現有行人天橋將永久封閉並改建為行人路
EXISTING FOOTBRIDGE TO BE PERMANENTLY
CLOSED AND CONVERTED INTO FOOTPATH

現有地面/高架行車道將永久封閉並拆卸
EXISTING AT-GRADE/ELEVATED CARRIAGEWAY TO BE
PERMANENTLY CLOSED AND DEMOLISHED

現有行人路將永久封閉並拆卸
EXISTING FOOTPATH TO BE
PERMANENTLY CLOSED AND DEMOLISHED

現有通道將永久封閉並拆卸
EXISTING ACCESS TO BE
PERMANENTLY CLOSED AND DEMOLISHED

現有單車徑將永久封閉並拆卸
EXISTING CYCLE TRACK TO BE
PERMANENTLY CLOSED AND DEMOLISHED

現有中央分隔帶/安全島/交通島將永久封閉並拆卸
EXISTING CENTRAL RESERVE / REFUGE ISLAND /
TRAFFIC ISLAND TO BE PERMANENTLY CLOSED
AND DEMOLISHED

現有路旁帶將永久封閉並拆卸
EXISTING VERGE TO BE PERMANENTLY
CLOSED AND DEMOLISHED

現有行人天橋將永久封閉並拆卸
EXISTING FOOTBRIDGE TO BE PERMANENTLY
CLOSED AND DEMOLISHED

現有地面/高架行車道將暫時封閉並重建
EXISTING AT-GRADE/ELEVATED CARRIAGEWAY TO BE
TEMPORARILY CLOSED AND RECONSTRUCTED

現有行人路將暫時封閉並重建
EXISTING FOOTPATH TO BE TEMPORARILY
CLOSED AND RECONSTRUCTED

現有單車徑將暫時封閉並重建
EXISTING CYCLE TRACK TO BE
TEMPORARILY CLOSED AND RECONSTRUCTED

現有中央分隔帶/安全島/交通島將暫時封閉並重建
EXISTING CENTRAL RESERVE / REFUGE ISLAND / TRAFFIC ISLAND
TO BE TEMPORARILY CLOSED AND RECONSTRUCTED

現有美化市容地帶將暫時封閉並重建
EXISTING AMENITY AREA TO BE TEMPORARILY
CLOSED AND RECONSTRUCTED

現有路旁帶將暫時封閉並重建
EXISTING VERGE TO BE TEMPORARILY
CLOSED AND RECONSTRUCTED

現有行人天橋將暫時封閉並重建
EXISTING FOOTBRIDGE TO BE TEMPORARILY
CLOSED AND RECONSTRUCTED

現有車輛進出口通道將暫時封閉並重建
EXISTING RUN-IN/RUN-OUT TO BE TEMPORARILY
CLOSED AND RECONSTRUCTED

擬建擋土牆
PROPOSED RETAINING WALL

擬建斜坡
PROPOSED SLOPE

現有斜坡將拆卸
EXISTING SLOPE TO BE DEMOLISHED

擬建懸臂式隔音屏障
PROPOSED CANTILEVER NOISE BARRIER

擬建直立式隔音屏障
PROPOSED VERTICAL NOISE BARRIER

擬建半密封式隔音屏障
PROPOSED SEMI-ENCLOSURE NOISE BARRIER

擬建全密封式隔音屏障
PROPOSED FULL-ENCLOSURE NOISE BARRIER

正在興建中的隔音屏障(正由其他工程項目
建造)將予取代
NOISE BARRIER BEING CONSTRUCTED UNDER
OTHER PROJECT TO BE REPLACED

由其他工程項目興建中的懸臂式隔音屏障
CANTILEVER NOISE BARRIER UNDER
CONSTRUCTION BY OTHER PROJECT

由其他工程項目興建中的直立式隔音屏障
VERTICAL NOISE BARRIER UNDER
CONSTRUCTION BY OTHER PROJECT

行車線(每一箭嘴表示一條行車線)
TRAFFIC LANE
(ONE ARROW REPRESENTS ONE LANE)

+8.62
行人路/隧道/地面/高架行車道
之建議路面水平(約數)
PROPOSED ROAD LEVEL OF FOOTPATH/
UNDERPASS/AT-GRADE/ELEVATED
CARRIAGEWAY (APPROXIMATE)

註釋:
NOTES:

1. 除在其他方面指定外，所有量度以米為單位。
   ALL DIMENSIONS ARE IN METRES UNLESS
   OTHERWISE SPECIFIED.
2. 所有水平均為約數，以米為單位，並在香港主水平基準
   以上。
   ALL LEVELS ARE APPROXIMATE VALUES AND IN METRES
   ABOVE HONG KONG PRINCIPAL DATUM.
3. 如有需要，施工區界限內之部分現有行車道、行人路、
   單車徑、美化市容地帶、中央分隔帶/安全島/交通島及路旁
   帶的部分路段/範圍或其部分或會分階段暫時封閉。
   SECTIONS OF THE EXISTING CARRIAGEWAYS, FOOTPATHS,
   CYCLE TRACKS, AMENITY AREAS, CENTRAL RESERVES/REFUGE
   ISLANDS/TRAFFIC ISLANDS AND VERGES OR PARTS THEREOF
   WITHIN THE LIMIT OF WORKS AREA MAY BE TEMPORARILY
   CLOSED IN PHASES AS AND WHEN REQUIRED.
4. 如有需要，斜坡穩固工程或會在施工區界限之內進行。
   SLOPE STABILIZATION WORKS MAY BE CARRIED OUT WITHIN
   THE LIMIT OF WORKS AREA AS AND WHEN REQUIRED.

工程名稱 PROJECT TITLE
工務計劃項目第 7817CL 號及
第 7827CL 號(部分)
元朗南發展第一階段工程
及第二階段工程第一期的道路工程

PWP ITEM NOS. 7817CL AND 7827CL (PART)
ROAD WORKS UNDER
YUEN LONG SOUTH DEVELOPMENT STAGE 1
WORKS AND STAGE 2 WORKS, PHASE 1

圖則名稱 PLAN TITLE
根據<<道路(工程、使用及補償)條例>>
(第370章)而在憲報公布之圖則
PLANS FOR GAZETTING UNDER ROADS
(WORKS, USE AND COMPENSATION)
ORDINANCE (CHAPTER 370)

圖則編號 PLAN NO. 60566218/GAZ/LEGEND
比例 SCALE A1 1 : 1000

辦事處 OFFICE
西拓展處
WEST DEVELOPMENT OFFICE

CEDD 土木工程拓展署
CIVIL ENGINEERING AND
DEVELOPMENT DEPARTMENT

818800 E

819000 E

819200 E

833200 N

833000 N

832800 N

N

元朗公路 YUEN LONG HIGHWAY

唐泰路
TONG TAI ROAD

唐人新村路 TONG YAN SAN TSUEN ROAD

沙井路 SHA TSENG ROAD

CUT LINE A – A 連接線 A-A
PLAN NO. 60566218/GAZ/103
圖則編號

註釋:
NOTES:

1. 除在其他方面指定外，所有量度以米為單位。
   ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SPECIFIED.
2. 所有水平均為約數，以米為單位，並在香港主水平基準以上。
   ALL LEVELS ARE APPROXIMATE VALUES AND IN METRES ABOVE HONG KONG PRINCIPAL DATUM.
3. 如有需要，施工區界限內之部分現有行車道、行人路、單車徑、美化市容地帶、中央分隔帶/安全島/交通島及路旁帶的部分路段/範圍或其部分或會分階段暫時封閉。
   SECTIONS OF THE EXISTING CARRIAGEWAYS, FOOTPATHS, CYCLE TRACKS, AMENITY AREAS, CENTRAL RESERVES/REFUGE ISLANDS/TRAFFIC ISLANDS AND VERGES OR PARTS THEREOF WITHIN THE LIMIT OF WORKS AREA MAY BE TEMPORARILY CLOSED IN PHASES AS AND WHEN REQUIRED.
4. 如有需要，斜坡穩固工程或會在施工區界限之內進行。
   SLOPE STABILIZATION WORKS MAY BE CARRIED OUT WITHIN THE LIMIT OF WORKS AREA AS AND WHEN REQUIRED.

工程名稱 PROJECT TITLE
工務計劃項目第 7817CL 號及
第 7827CL 號（部分）
元朗南發展第一階段工程
及第二階段工程第一期的道路工程

PWP ITEM NOS. 7817CL AND 7827CL (PART)
ROAD WORKS UNDER
YUEN LONG SOUTH DEVELOPMENT STAGE 1
WORKS AND STAGE 2 WORKS, PHASE 1

圖則名稱 PLAN TITLE
根據<<道路(工程、使用及補償)條例>>
(第370章)而在憲報公布之圖則
PLANS FOR GAZETTING UNDER ROADS
(WORKS, USE AND COMPENSATION)
ORDINANCE (CHAPTER 370)

十二張之第一張
SHEET 1 OF 12

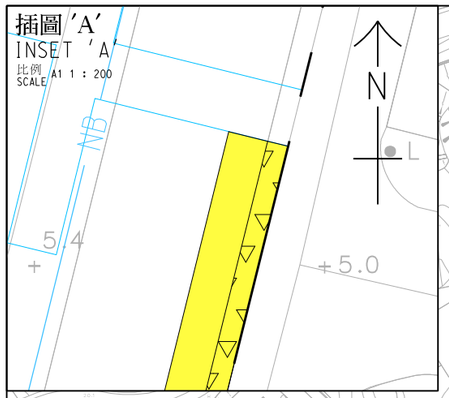
圖則編號 PLAN NO. 60566218/GAZ/101

比例 SCALE A1 1 : 1000

辦事處 OFFICE
西拓展處
WEST DEVELOPMENT OFFICE

CEDD
土木工程拓展署
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

插圖 'A'
INSET 'A'
比例 SCALE A1 1 : 200



819600 E

3 008618 E

由工務計劃項目第6832TH號-朗天路加建
隔音屏障工程興建中的直立式隔音屏障
(只供提示用途)
VERTICAL NOISE BARRIER UNDER CONSTRUCTION BY PWP ITEM NO. 6832TH - RETROFITTING OF NOISE BARRIERS ON LONG TIN ROAD (FOR INDICATIVE PURPOSE ONLY)

朗天路 LONG TIN ROAD

公園北路 TOWN PARK ROAD NORTH

由工務計劃項目第B810CL號-元朗朗邊工
營房屋發展之工地平整及基礎設施工程
將會興建的行人天橋
(只供提示用途)
FOOTBRIDGE TO BE CONSTRUCTED UNDER PWP ITEM NO. B810CL-SITE FORMATION AND INFRASTRUCTURE WORKS FOR PUBLIC HOUSING DEVELOPMENT AT LONG BIN, YUEN LONG (FOR INDICATIVE PURPOSE ONLY)

833600 N

參看插圖 'A'
SEE INSET 'A'

朗天路
LONG TIN ROAD

由工務計劃項目第B810CL號-元朗朗邊工
營房屋發展之工地平整及基礎設施工程
將會興建的公共運輸交匯處
(只供提示用途)
PUBLIC TRANSPORT INTERCHANGE TO BE CONSTRUCTED UNDER PWP ITEM NO. B810CL-SITE FORMATION AND INFRASTRUCTURE WORKS FOR PUBLIC HOUSING DEVELOPMENT AT LONG BIN, YUEN LONG (FOR INDICATIVE PURPOSE ONLY)

由工務計劃項目第6832TH號-朗天路加建
隔音屏障工程興建中的懸臂式隔音屏障
(只供提示用途)
CANTILEVER NOISE BARRIER UNDER CONSTRUCTION BY PWP ITEM NO. 6832TH - RETROFITTING OF NOISE BARRIERS ON LONG TIN ROAD (FOR INDICATIVE PURPOSE ONLY)

833400 N

由工務計劃項目第B810CL號-元朗朗邊工
營房屋發展之工地平整及基礎設施工程
將會興建的行車道、單車徑及行人路
(只供提示用途)
CARRIAGEWAY, CYCLE TRACK AND FOOTPATH TO BE CONSTRUCTED UNDER PWP ITEM NO. B810CL-SITE FORMATION AND INFRASTRUCTURE WORKS FOR PUBLIC HOUSING DEVELOPMENT AT LONG BIN, YUEN LONG (FOR INDICATIVE PURPOSE ONLY)

山下路 SHAN HA ROAD

由工務計劃項目第6832TH號-朗天路加建隔音屏障
工程興建中的懸臂式隔音屏障將予取代
CANTILEVER NOISE BARRIER BEING CONSTRUCTED UNDER PWP ITEM NO. 6832TH - RETROFITTING OF NOISE BARRIERS ON LONG TIN ROAD TO BE REPLACED

現有橫跨元朗西明渠的行人天橋
EXISTING FOOTBRIDGE ACROSS YUEN LONG WEST NULLAH

孖峰嶺路
MA FUNG LING ROAD

CUT LINE B - B 連接線 B - B
PLAN NO. 60566218/GAZ/103
圖則編號 60566218/GAZ/103

註釋:
NOTES:

1. 除在其他方面指定外，所有量度以米為單位。
   ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SPECIFIED.
2. 所有水平均為約數，以米為單位，並在香港主水平基準以上。
   ALL LEVELS ARE APPROXIMATE VALUES AND IN METRES ABOVE HONG KONG PRINCIPAL DATUM.
3. 如有需要，施工區界限內之部分現有行車道、行人路、單車徑、美化市容地帶、中央分隔帶/安全島/交通島及路旁帶的部分路段/範圍或其部分或會分階段暫時封閉。
   SECTIONS OF THE EXISTING CARRIAGEWAYS, FOOTPATHS, CYCLE TRACKS, AMENITY AREAS, CENTRAL RESERVES/REFUGE ISLANDS/TRAFFIC ISLANDS AND VERGES OR PARTS THEREOF WITHIN THE LIMIT OF WORKS AREA MAY BE TEMPORARILY CLOSED IN PHASES AS AND WHEN REQUIRED.
4. 如有需要，斜坡穩固工程或會在施工區界限之內進行。
   SLOPE STABILIZATION WORKS MAY BE CARRIED OUT WITHIN THE LIMIT OF WORKS AREA AS AND WHEN REQUIRED.

工程名稱 PROJECT TITLE
工務計劃項目第 7817CL 號及
第 7827CL 號（部分）
元朗南發展第一階段工程
及第二階段工程第一期的道路工程

PWP ITEM NOS. 7817CL AND 7827CL (PART)
ROAD WORKS UNDER
YUEN LONG SOUTH DEVELOPMENT STAGE 1 WORKS AND STAGE 2 WORKS, PHASE 1

圖則名稱 PLAN TITLE
根據<<道路(工程、使用及補償)條例>>
(第370章)而在憲報公布之圖則
PLANS FOR GAZETTING UNDER ROADS (WORKS, USE AND COMPENSATION) ORDINANCE (CHAPTER 370)
十二張之第二張 SHEET 2 OF 12

圖則編號 PLAN NO. 60566218/GAZ/102
比例 SCALE A1 1 : 1000

辦事處 OFFICE
西拓展處
WEST DEVELOPMENT OFFICE

CEDD 土木工程拓展署
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

819400 E

819800 E

819950 E

833200 N

833000 N

832800 N

CUT LINE B - B 連接線 B - B
PLAN NO. 60566218/GAZ/102
圖則編號 60566218/GAZ/102

現有橫跨元朗西明渠的行人天橋
EXISTING FOOTBRIDGE ACROSS YUEN LONG WEST NULLAH

唐人新村交匯處
TONG YAN SAN TSUEN INTERCHANGE

元朗公路 YUEN LONG HIGHWAY

CUT LINE N - N 連接線 N - N
PLAN NO. 60566218/GAZ/106
圖則編號 60566218/GAZ/106

參看插圖 'B'
SEE INSET 'B'

山下路
SHAN HA ROAD

沙井路 SHA TSENG ROAD

CUT LINE A - A 連接線 A - A
PLAN NO. 60566218/GAZ/101
圖則編號 60566218/GAZ/101

朗漢路
LONG HON ROAD

現有橫跨元朗西明渠的行人天橋
EXISTING FOOTBRIDGE ACROSS YUEN LONG WEST NULLAH

山下路 SHAN HA ROAD

CUT LINE C - C 連接線 C - C
PLAN NO. 60566218/GAZ/104
圖則編號 60566218/GAZ/104

插圖 'B'
INSET 'B'
比例 SCALE A1 1 : 250

註釋:
NOTES:

1. 除在其他方面指定外，所有量度以米為單位。
   ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SPECIFIED.
2. 所有水平均為約數，以米為單位，並在香港主水平基準以上。
   ALL LEVELS ARE APPROXIMATE VALUES AND IN METRES ABOVE HONG KONG PRINCIPAL DATUM.
3. 如有需要，施工區界限內之部分現有行車道、行人路、單車徑、美化市容地帶、中央分隔帶/安全島/交通島及路旁帶的部分路段/範圍或其部分或會分階段暫時封閉。
   SECTIONS OF THE EXISTING CARRIAGEWAYS, FOOTPATHS, CYCLE TRACKS, AMENITY AREAS, CENTRAL RESERVES/REFUGE ISLANDS/TRAFFIC ISLANDS AND VERGES OR PARTS THEREOF WITHIN THE LIMIT OF WORKS AREA MAY BE TEMPORARILY CLOSED IN PHASES AS AND WHEN REQUIRED.
4. 如有需要，斜坡穩固工程或會在施工區界限之內進行。
   SLOPE STABILIZATION WORKS MAY BE CARRIED OUT WITHIN THE LIMIT OF WORKS AREA AS AND WHEN REQUIRED.

工程名稱 PROJECT TITLE
工務計劃項目第 7817CL 號及
第 7827CL 號（部分）
元朗南發展第一階段工程
及第二階段工程第一期的道路工程

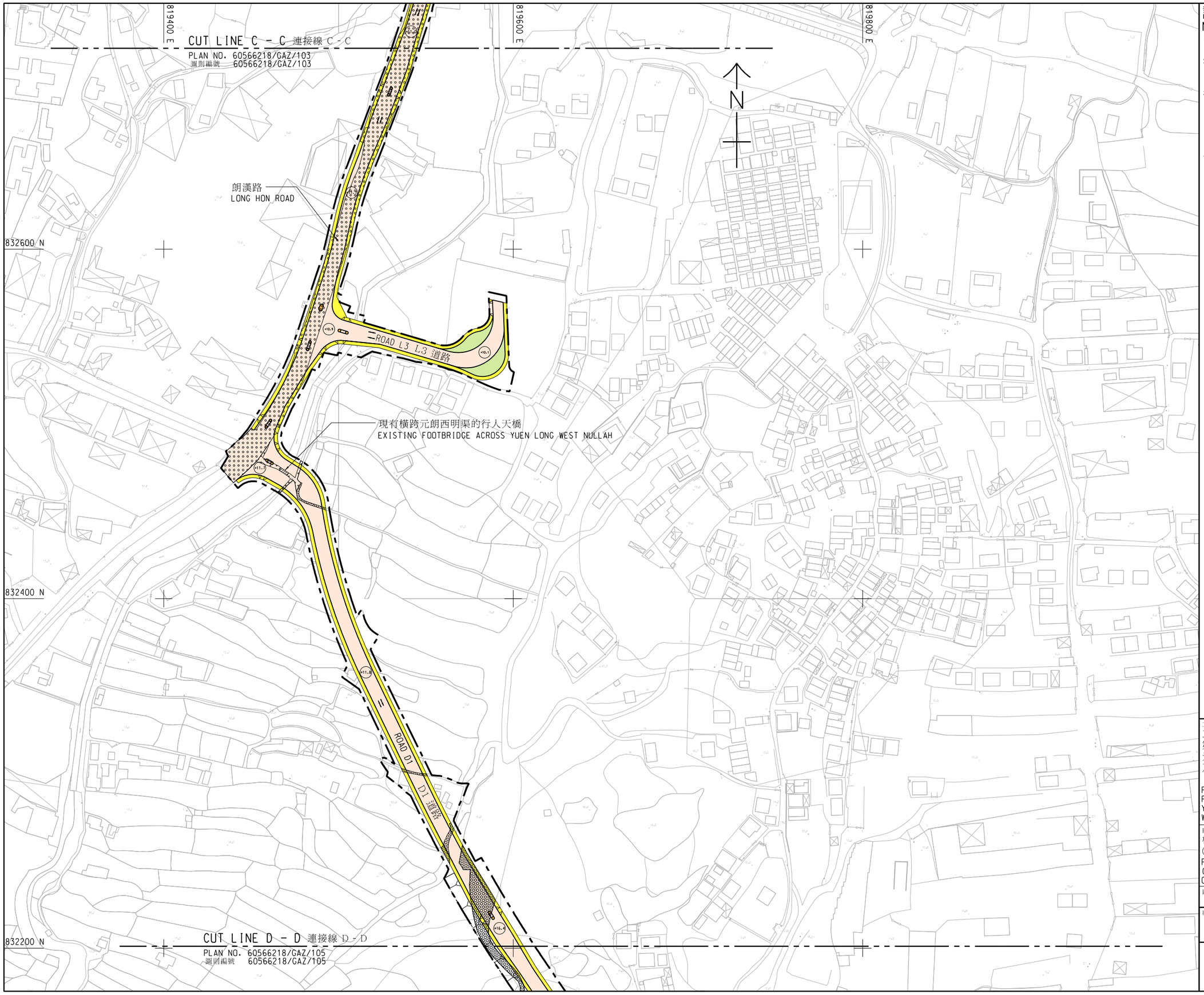
PWP ITEM NOS. 7817CL AND 7827CL (PART)
ROAD WORKS UNDER
YUEN LONG SOUTH DEVELOPMENT STAGE 1
WORKS AND STAGE 2 WORKS, PHASE 1

圖則名稱 PLAN TITLE
根據<<道路(工程、使用及補償)條例>>
(第370章)而在憲報公布之圖則
PLANS FOR GAZETTING UNDER ROADS
(WORKS, USE AND COMPENSATION) ORDINANCE (CHAPTER 370)
十二張之第三張 SHEET 3 OF 12

圖則編號 PLAN NO. 60566218/GAZ/103
比例 SCALE A1 1 : 1000

辦事處 OFFICE
西拓展處
WEST DEVELOPMENT OFFICE

土木工程拓展署
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT



註釋: NOTES:

1. 除在其他方面指定外，所有量度以米為單位。
   ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SPECIFIED.
2. 所有水平均為約數，以米為單位，並在香港主水平基準以上。
   ALL LEVELS ARE APPROXIMATE VALUES AND IN METRES ABOVE HONG KONG PRINCIPAL DATUM.
3. 如有需要，施工區界限內之部分現有行車道、行人路、單車徑、美化市容地帶、中央分隔帶/安全島/交通島及路旁帶的部分路段/範圍或其部分或會分階段暫時封閉。
   SECTIONS OF THE EXISTING CARRIAGEWAYS, FOOTPATHS, CYCLE TRACKS, AMENITY AREAS, CENTRAL RESERVES/REFUGE ISLANDS/TRAFFIC ISLANDS AND VERGES OR PARTS THEREOF WITHIN THE LIMIT OF WORKS AREA MAY BE TEMPORARILY CLOSED IN PHASES AS AND WHEN REQUIRED.
4. 如有需要，斜坡穩固工程或會在施工區界限之內進行。
   SLOPE STABILIZATION WORKS MAY BE CARRIED OUT WITHIN THE LIMIT OF WORKS AREA AS AND WHEN REQUIRED.

工程名稱 PROJECT TITLE

工務計劃項目第 7817CL 號及
第 7827CL 號（部分）
元朗南發展第一階段工程
及第二階段工程第一期的道路工程

PWP ITEM NOS. 7817CL AND 7827CL (PART)
ROAD WORKS UNDER
YUEN LONG SOUTH DEVELOPMENT STAGE 1
WORKS AND STAGE 2 WORKS, PHASE 1

圖則名稱 PLAN TITLE

根據<<道路(工程、使用及補償)條例>>
(第370章)而在憲報公布之圖則
PLANS FOR GAZETTING UNDER ROADS
(WORKS, USE AND COMPENSATION)
ORDINANCE (CHAPTER 370)

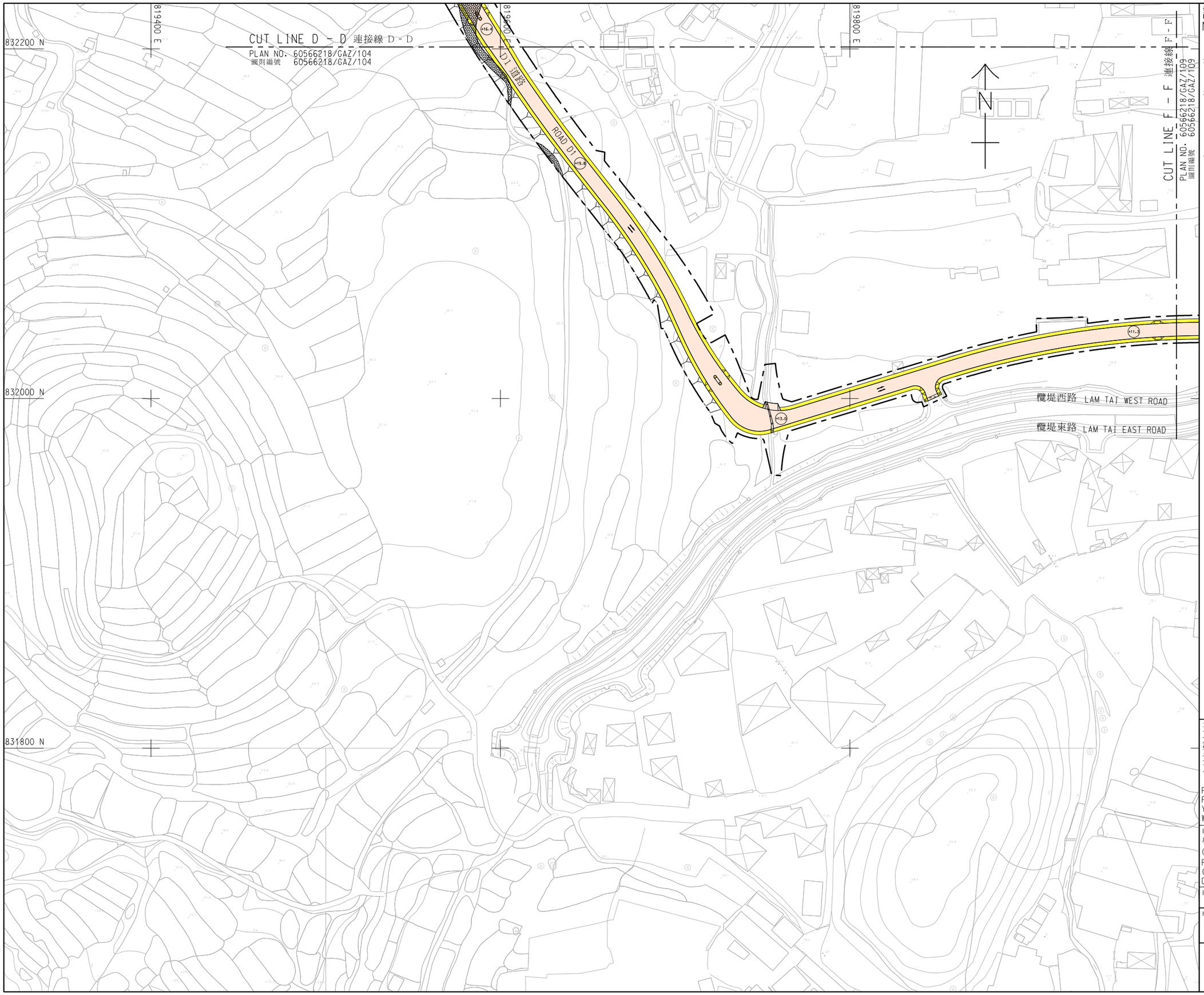
十二張之第四張 SHEET 4 OF 12

圖則編號 PLAN NO. 60566218/GAZ/104

比例 SCALE A1 1 : 1000

辦事處 OFFICE
西拓展處
WEST DEVELOPMENT OFFICE

土木工程拓展署
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT



註釋:
NOTES:

1. 除在其他方面指定外，所有量度以米為單位。
   ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SPECIFIED.
2. 所有水平均為約數，以米為單位，並在香港主水平基準以上。
   ALL LEVELS ARE APPROXIMATE VALUES AND IN METRES ABOVE HONG KONG PRINCIPAL DATUM.
3. 如有需要，施工區界限內之部分現有行車道、行人路、單車徑、美化市容地帶、中央分隔帶/安全島/交通島及路旁帶的部分路段/範圍或其部分或會分階段暫時封閉。
   SECTIONS OF THE EXISTING CARRIAGEWAYS, FOOTPATHS, CYCLE TRACKS, AMENITY AREAS, CENTRAL RESERVES/REFUGE ISLANDS/TRAFFIC ISLANDS AND VERGES OR PARTS THEREOF WITHIN THE LIMIT OF WORKS AREA MAY BE TEMPORARILY CLOSED IN PHASES AS AND WHEN REQUIRED.
4. 如有需要，斜坡穩固工程或會在施工區界限之內進行。
   SLOPE STABILIZATION WORKS MAY BE CARRIED OUT WITHIN THE LIMIT OF WORKS AREA AS AND WHEN REQUIRED.

工程名稱 PROJECT TITLE
工務計劃項目第 7817CL 號及
第 7827CL 號（部分）
元朗南發展第一階段工程
及第二階段工程第一期的道路工程

PWP ITEM NOS. 7817CL AND 7827CL (PART)
ROAD WORKS UNDER
YUEN LONG SOUTH DEVELOPMENT STAGE 1
WORKS AND STAGE 2 WORKS, PHASE 1

圖則名稱 PLAN TITLE
根據<<道路(工程、使用及補償)條例>>
(第370章)而在憲報公布之圖則
PLANS FOR GAZETTING UNDER ROADS
(WORKS, USE AND COMPENSATION)
ORDINANCE (CHAPTER 370)

十二張之第五張
SHEET 5 OF 12

圖則編號 PLAN NO.
60566218/GAZ/105

比例 SCALE
A1 1 : 1000

辦事處 OFFICE
西拓展處
WEST DEVELOPMENT OFFICE

土木工程拓展署
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

插圖'C'
INSET 'C'

插圖'D'
INSET 'D'
比例 SCALE A1 1 : 500

插圖'E'
INSET 'E'
比例 SCALE A1 1 : 500

CUT LINE N - N 連接線 N - N
PLAN NO. 60566218/GAZ/103
圖則編號 60566218/GAZ/103

CUT LINE M - M 連接線 M - M
PLAN NO. 60566218/GAZ/106
圖則編號 60566218/GAZ/106

CUT LINE K - K 連接線 K - K
PLAN NO. 60566218/GAZ/107
圖則編號 60566218/GAZ/107

CUT LINE L - L 連接線 L - L
PLAN NO. 60566218/GAZ/108
圖則編號 60566218/GAZ/108

820000 E
820400 E
820600 E
820200 E
832900 N
832700 N

欖裕路 LAM YU ROAD
欖喜路 LAM HI ROAD
欖堤東路 LAM TAI EAST ROAD
欖堤西路 LAM TAI WEST ROAD
元朗公路 YUEN LONG HIGHWAY
十八鄉路 SHAP PAT HEUNG ROAD
公廁路 KUNG UM ROAD
僑興路 KIU HING ROAD
深涌路 SHAM CHUNG ROAD
天龍村 TIN LUNG TSUEN

參看插圖'D' SEE INSET 'D'
參看插圖'E' SEE INSET 'E'
參看插圖'F' SEE INSET 'F'

L1A 道路 ROAD L1A

N

註釋: NOTES:

1. 除在其他方面指定外，所有量度以米為單位。
   ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SPECIFIED.
2. 所有水平均為約數，以米為單位，並在香港主水平基準以上。
   ALL LEVELS ARE APPROXIMATE VALUES AND IN METRES ABOVE HONG KONG PRINCIPAL DATUM.
3. 如有需要，施工區界限內之部分現有行車道、行人路、單車徑、美化市容地帶、中央分隔帶/安全島/交通島及路旁帶的部分路段/範圍或其部分或會分階段暫時封閉。
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   SLOPE STABILIZATION WORKS MAY BE CARRIED OUT WITHIN THE LIMIT OF WORKS AREA AS AND WHEN REQUIRED.

工程名稱 PROJECT TITLE
工務計劃項目第 7817CL 號及
第 7827CL 號（部分）
元朗南發展第一階段工程
及第二階段工程第一期的道路工程

PWP ITEM NOS. 7817CL AND 7827CL (PART)
ROAD WORKS UNDER
YUEN LONG SOUTH DEVELOPMENT STAGE 1
WORKS AND STAGE 2 WORKS, PHASE 1

圖則名稱 PLAN TITLE
根據<<道路(工程、使用及補償)條例>>
(第370章)而在憲報公布之圖則
PLANS FOR GAZETTING UNDER ROADS
(WORKS, USE AND COMPENSATION)
ORDINANCE (CHAPTER 370)

圖則編號 PLAN NO. 60566218/GAZ/106
比例 SCALE A1 1 : 1000

辦事處 OFFICE
西拓展處
WEST DEVELOPMENT OFFICE

土木工程拓展署
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

819800 E

820100 E

832900 N

832700 N

CUT LINE K - K 連接線 K - K

PLAN NO. 60566218/GAZ/106
圖則編號 60566218/GAZ/106

十八鄉路
SHAP PAT HEUNG ROAD

N

插圖'F'
INSET 'F'
比例 SCALE A1 1 : 500

參看插圖'F'
SEE INSET 'F'

L1A 道路
ROAD L1A

深浦村路 SHAM CHUNG TSUEN ROAD

深浦路
SHAM CHUNG ROAD

大旗嶺路
TAI KEI LENG ROAD

大旗嶺路 TAI KEI LENG ROAD

大欖下西路 TAI SHU HA ROAD WEST

元朗公路 YUEN LONG HIGHWAY

L1B 道路
ROAD L1B

崇正路 SHUNG CHING ROAD

大榮路 TAI TONG ROAD

註釋:
NOTES:

1. 除在其他方面指定外，所有量度以米為單位。
   ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SPECIFIED.
2. 所有水平均為約數，以米為單位，並在香港主水平基準以上。
   ALL LEVELS ARE APPROXIMATE VALUES AND IN METRES ABOVE HONG KONG PRINCIPAL DATUM.
3. 如有需要，施工區界限內之部分現有行車道、行人路、單車徑、美化市容地帶、中央分隔帶/安全島/交通島及路旁帶的部分路段/範圍或其部分或會分階段暫時封閉。
   SECTIONS OF THE EXISTING CARRIAGEWAYS, FOOTPATHS, CYCLE TRACKS, AMENITY AREAS, CENTRAL RESERVES/REFUGE ISLANDS/TRAFFIC ISLANDS AND VERGES OR PARTS THEREOF WITHIN THE LIMIT OF WORKS AREA MAY BE TEMPORARILY CLOSED IN PHASES AS AND WHEN REQUIRED.
4. 如有需要，斜坡穩固工程或會在施工區界限之內進行。
   SLOPE STABILIZATION WORKS MAY BE CARRIED OUT WITHIN THE LIMIT OF WORKS AREA AS AND WHEN REQUIRED.

工程名稱 PROJECT TITLE
工務計劃項目第 7817CL 號及
第 7827CL 號（部分）
元朗南發展第一階段工程
及第二階段工程第一期的道路工程

PWP ITEM NOS. 7817CL AND 7827CL (PART)
ROAD WORKS UNDER
YUEN LONG SOUTH DEVELOPMENT STAGE 1
WORKS AND STAGE 2 WORKS, PHASE 1

圖則名稱 PLAN TITLE
根據<<道路(工程、使用及補償)條例>>
(第370章)而在憲報公布之圖則
PLANS FOR GAZETTING UNDER ROADS
(WORKS, USE AND COMPENSATION)
ORDINANCE (CHAPTER 370)

十二張之第七張
SHEET 7 OF 12

圖則編號 PLAN NO. 60566218/GAZ/107

比例 SCALE A1 1 : 1000

辦事處 OFFICE
西拓展處
WEST DEVELOPMENT OFFICE

CEDD 土木工程拓展署
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

插圖'G'
INSET 'G'
比例 SCALE A1 1 : 500

CUT LINE L - L 連接線 L - L
PLAN NO. 60566218/GAZ/106
圖則編號 60566218/GAZ/106

參看插圖'G'
SEE INSET 'G'

L1A 道路 ROAD L1A

820400 E

820600 E

LAM TAI WEST ROAD 欖逸西路

欖堤東路
LAM TAI EAST ROAD

公庵路
KUNG UM ROAD

LIU HING ROAD 僚興路

N

L2 道路 ROAD L2

832300 N

CUT LINE G - G 連接線 G - G
PLAN NO. 60566218/GAZ/109
圖則編號 60566218/GAZ/109

註釋:
NOTES:

1. 除在其他方面指定外，所有量度以米為單位。
   ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SPECIFIED.
2. 所有水平均為約數，以米為單位，並在香港主水平基準以上。
   ALL LEVELS ARE APPROXIMATE VALUES AND IN METRES ABOVE HONG KONG PRINCIPAL DATUM.
3. 如有需要，施工區界限內之部分現有行車道、行人路、單車徑、美化市容地帶、中央分隔帶/安全島/交通島及路旁帶的部分路段/範圍或其部分或會分階段暫時封閉。
   SECTIONS OF THE EXISTING CARRIAGEWAYS, FOOTPATHS, CYCLE TRACKS, AMENITY AREAS, CENTRAL RESERVES/REFUGE ISLANDS/TRAFFIC ISLANDS AND VERGES OR PARTS THEREOF WITHIN THE LIMIT OF WORKS AREA MAY BE TEMPORARILY CLOSED IN PHASES AS AND WHEN REQUIRED.
4. 如有需要，斜坡穩固工程或會在施工區界限之內進行。
   SLOPE STABILIZATION WORKS MAY BE CARRIED OUT WITHIN THE LIMIT OF WORKS AREA AS AND WHEN REQUIRED.

工程名稱 PROJECT TITLE
工務計劃項目第 7817CL 號及
第 7827CL 號（部分）
元朗南發展第一階段工程
及第二階段工程第一期的道路工程

PWP ITEM NOS. 7817CL AND 7827CL (PART)
ROAD WORKS UNDER
YUEN LONG SOUTH DEVELOPMENT STAGE 1
WORKS AND STAGE 2 WORKS, PHASE 1

圖則名稱 PLAN TITLE
根據<<道路(工程、使用及補償)條例>>
(第370章)而在憲報公布之圖則
PLANS FOR GAZETTING UNDER ROADS
(WORKS, USE AND COMPENSATION)
ORDINANCE (CHAPTER 370)

十二張之第八張
SHEET 8 OF 12

圖則編號 PLAN NO. 60566218/GAZ/108

比例 SCALE A1 1 : 1000

辦事處 OFFICE
西拓展處
WEST DEVELOPMENT OFFICE

CEDD 土木工程拓展署
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

820000 E
820200 E
820400 E
820600 E
832000 N
831800 N

CUT LINE G - G 連接線 G - G
PLAN NO. 60566218/GAZ/108
圖則編號 60566218/GAZ/108

CUT LINE F - F 連接線 F - F
PLAN NO. 60566218/GAZ/105
圖則編號 60566218/GAZ/105

CUT LINE H - H 連接線 H - H
PLAN NO. 60566218/GAZ/110
圖則編號 60566218/GAZ/110

N

欖堤西路 LAM TAI WEST ROAD
欖堤東路 LAM TAI EAST ROAD
ROAD D2
道路D2
公庵路
KUNG UM ROAD
橋興路 KIU HING ROAD
+10.6
+11.2

註釋:
NOTES:

1. 除在其他方面指定外，所有量度以米為單位。
   ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SPECIFIED.
2. 所有水平均為約數，以米為單位，並在香港主水平基準以上。
   ALL LEVELS ARE APPROXIMATE VALUES AND IN METRES ABOVE HONG KONG PRINCIPAL DATUM.
3. 如有需要，施工區界限內之部分現有行車道、行人路、單車徑、美化市容地帶、中央分隔帶/安全島/交通島及路旁帶的部分路段/範圍或其部分或會分階段暫時封閉。
   SECTIONS OF THE EXISTING CARRIAGEWAYS, FOOTPATHS, CYCLE TRACKS, AMENITY AREAS, CENTRAL RESERVES/REFUGE ISLANDS/TRAFFIC ISLANDS AND VERGES OR PARTS THEREOF WITHIN THE LIMIT OF WORKS AREA MAY BE TEMPORARILY CLOSED IN PHASES AS AND WHEN REQUIRED.
4. 如有需要，斜坡穩固工程或會在施工區界限之內進行。
   SLOPE STABILIZATION WORKS MAY BE CARRIED OUT WITHIN THE LIMIT OF WORKS AREA AS AND WHEN REQUIRED.

工程名稱 PROJECT TITLE
工務計劃項目第 7817CL 號及
第 7827CL 號（部分）
元朗南發展第一階段工程
及第二階段工程第一期的道路工程

PWP ITEM NOS. 7817CL AND 7827CL (PART)
ROAD WORKS UNDER
YUEN LONG SOUTH DEVELOPMENT STAGE 1
WORKS AND STAGE 2 WORKS, PHASE 1

圖則名稱 PLAN TITLE
根據<<道路(工程、使用及補償)條例>>
(第370章)而在憲報公布之圖則
PLANS FOR GAZETTING UNDER ROADS
(WORKS, USE AND COMPENSATION) ORDINANCE (CHAPTER 370)
SHEET 9 OF 12 十二張之第九張

圖則編號 PLAN NO. 60566218/GAZ/109
比例 SCALE A1 1 : 1000

辦事處 OFFICE
西拓展處
WEST DEVELOPMENT OFFICE

土木工程拓展署
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

820200 E

820400 E

820600 E

CUT LINE H - H 連接線 H - H

PLAN NO. 60566218/GAZ/109
圖則編號 60566218/GAZ/109

公庵路
KUNG UM ROAD

KIU HING ROAD
僑興路

N

831600 N

831400 N

831200 N

CUT LINE J - J 連接線 J - J

PLAN NO. 60566218/GAZ/111
圖則編號 60566218/GAZ/111

註釋:
NOTES:

1. 除在其他方面指定外，所有量度以米為單位。
   ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SPECIFIED.
2. 所有水平均為約數，以米為單位，並在香港主水平基準以上。
   ALL LEVELS ARE APPROXIMATE VALUES AND IN METRES ABOVE HONG KONG PRINCIPAL DATUM.
3. 如有需要，施工區界限內之部分現有行車道、行人路、單車徑、美化市容地帶、中央分隔帶/安全島/交通島及路旁帶的部分路段/範圍或其部分或會分階段暫時封閉。
   SECTIONS OF THE EXISTING CARRIAGEWAYS, FOOTPATHS, CYCLE TRACKS, AMENITY AREAS, CENTRAL RESERVES/REFUGE ISLANDS/TRAFFIC ISLANDS AND VERGES OR PARTS THEREOF WITHIN THE LIMIT OF WORKS AREA MAY BE TEMPORARILY CLOSED IN PHASES AS AND WHEN REQUIRED.
4. 如有需要，斜坡穩固工程或會在施工區界限之內進行。
   SLOPE STABILIZATION WORKS MAY BE CARRIED OUT WITHIN THE LIMIT OF WORKS AREA AS AND WHEN REQUIRED.

工程名稱 PROJECT TITLE
工務計劃項目第 7817CL 號及
第 7827CL 號（部分）
元朗南發展第一階段工程
及第二階段工程第一期的道路工程

PWP ITEM NOS. 7817CL AND 7827CL (PART)
ROAD WORKS UNDER
YUEN LONG SOUTH DEVELOPMENT STAGE 1
WORKS AND STAGE 2 WORKS, PHASE 1

圖則名稱 PLAN TITLE
根據<<道路(工程、使用及補償)條例>>
(第370章)而在憲報公布之圖則
PLANS FOR GAZETTING UNDER ROADS
(WORKS, USE AND COMPENSATION)
ORDINANCE (CHAPTER 370)

圖則編號 PLAN NO.
60566218/GAZ/110

比例 SCALE
At 1 : 1000

辦事處 OFFICE
西拓展處
WEST DEVELOPMENT OFFICE

土木工程拓展署
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

CUT LINE J - J 連接線 J - J

PLAN NO. 60566218/GAZ/110
圖則編號 60566218/GAZ/110

820200 E
820400 E
820600 E
831000 N
830800 N

N

公庵路 KUNG UM ROAD
巴沙山路 PAK SHA SHAN ROAD
黃泥墩村路 WONG NAI TUN TSUEN ROAD
僑興路 KIU HING ROAD
水蕉新村路
SHUI TSIU SAN TSUEN ROAD

參看插圖 'H'
SEE INSET 'H'

插圖 'H'
INSET 'H'
比例 SCALE A1 1 : 250

820200 E
831050 N
+14.8
+15.4 E
15.6

註釋:
NOTES:

1. 除在其他方面指定外，所有量度以米為單位。
   ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SPECIFIED.
2. 所有水平均為約數，以米為單位，並在香港主水平基準以上。
   ALL LEVELS ARE APPROXIMATE VALUES AND IN METRES ABOVE HONG KONG PRINCIPAL DATUM.
3. 如有需要，施工區界限內之部分現有行車道、行人路、單車徑、美化市容地帶、中央分隔帶/安全島/交通島及路旁帶的部分路段/範圍或其部分或會分階段暫時封閉。
   SECTIONS OF THE EXISTING CARRIAGEWAYS, FOOTPATHS, CYCLE TRACKS, AMENITY AREAS, CENTRAL RESERVES/REFUGE ISLANDS/TRAFFIC ISLANDS AND VERGES OR PARTS THEREOF WITHIN THE LIMIT OF WORKS AREA MAY BE TEMPORARILY CLOSED IN PHASES AS AND WHEN REQUIRED.
4. 如有需要，斜坡穩固工程或會在施工區界限之內進行。
   SLOPE STABILIZATION WORKS MAY BE CARRIED OUT WITHIN THE LIMIT OF WORKS AREA AS AND WHEN REQUIRED.

工程名稱 PROJECT TITLE
工務計劃項目第 7817CL 號及
第 7827CL 號（部分）
元朗南發展第一階段工程
及第二階段工程第一期的道路工程

PWP ITEM NOS. 7817CL AND 7827CL (PART)
ROAD WORKS UNDER
YUEN LONG SOUTH DEVELOPMENT STAGE 1
WORKS AND STAGE 2 WORKS, PHASE 1

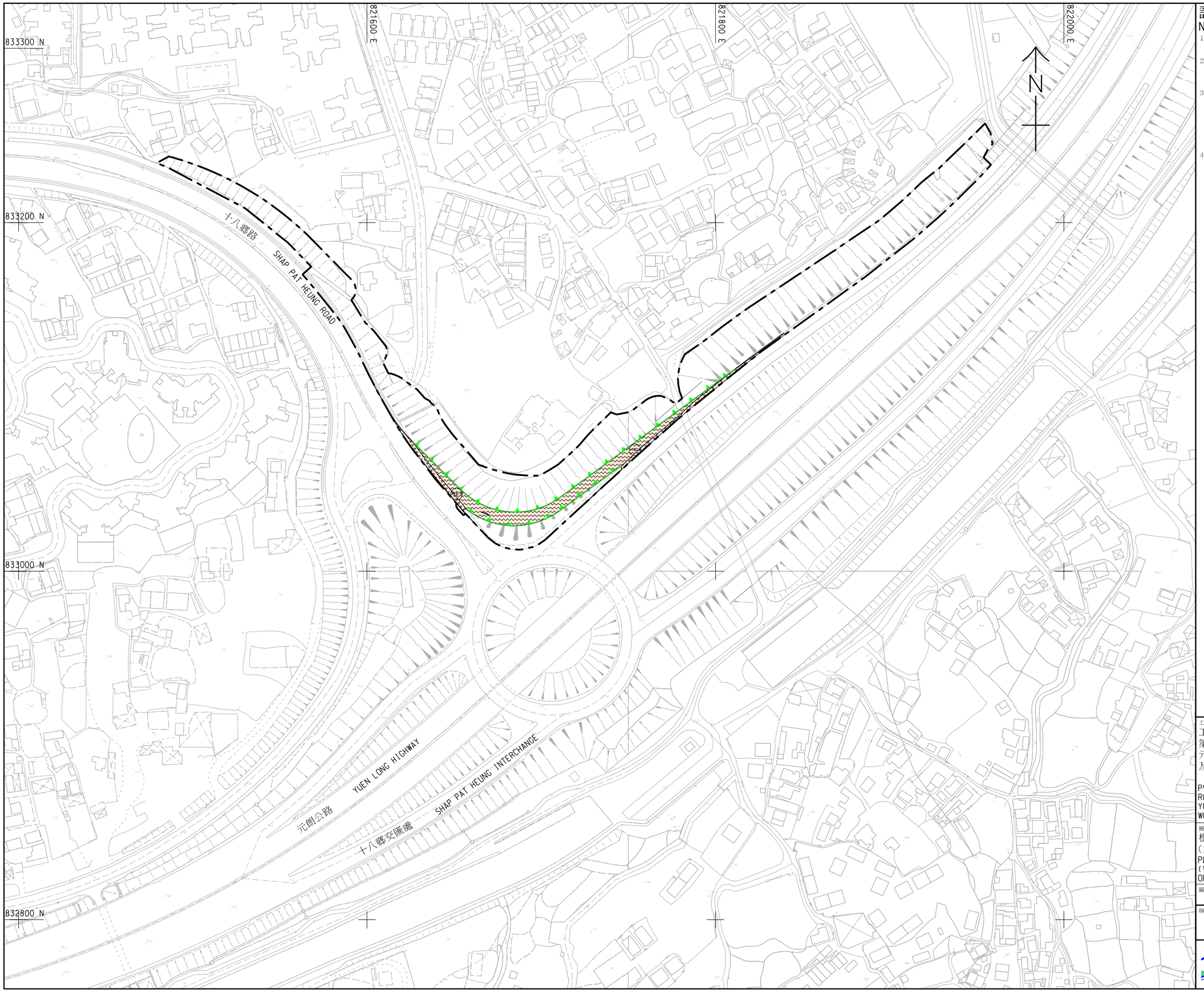
圖則名稱 PLAN TITLE
根據<<道路(工程、使用及補償)條例>>
(第370章)而在憲報公布之圖則
PLANS FOR GAZETTING UNDER ROADS
(WORKS, USE AND COMPENSATION)
ORDINANCE (CHAPTER 370)

十二張之第十一張
SHEET 11 OF 12

圖則編號 PLAN NO. 60566218/GAZ/111
比例 SCALE A1 1 : 1000

辦事處 OFFICE
西拓展處
WEST DEVELOPMENT OFFICE

土木工程拓展署
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT



註釋:
NOTES:

1. 除在其他方面指定外，所有量度以米為單位。
   ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SPECIFIED.
2. 所有水平均為約數，以米為單位，並在香港主水平基準以上。
   ALL LEVELS ARE APPROXIMATE VALUES AND IN METRES ABOVE HONG KONG PRINCIPAL DATUM.
3. 如有需要，施工區界限內之部分現有行車道、行人路、單車徑、美化市容地帶、中央分隔帶/安全島/交通島及路旁帶的部分路段/範圍或其部分或會分階段暫時封閉。
   SECTIONS OF THE EXISTING CARRIAGEWAYS, FOOTPATHS, CYCLE TRACKS, AMENITY AREAS, CENTRAL RESERVES/REFUGE ISLANDS/TRAFFIC ISLANDS AND VERGES OR PARTS THEREOF WITHIN THE LIMIT OF WORKS AREA MAY BE TEMPORARILY CLOSED IN PHASES AS AND WHEN REQUIRED.
4. 如有需要，斜坡穩固工程或會在施工區界限之內進行。
   SLOPE STABILIZATION WORKS MAY BE CARRIED OUT WITHIN THE LIMIT OF WORKS AREA AS AND WHEN REQUIRED.

工程名稱 PROJECT TITLE
工務計劃項目第 7817CL 號及
第 7827CL 號（部分）
元朗南發展第一階段工程
及第二階段工程第一期的道路工程

PWP ITEM NOS. 7817CL AND 7827CL (PART)
ROAD WORKS UNDER
YUEN LONG SOUTH DEVELOPMENT STAGE 1
WORKS AND STAGE 2 WORKS, PHASE 1

圖則名稱 PLAN TITLE
根據<<道路(工程、使用及補償)條例>>
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圖則編號 PLAN NO.
60566218/GAZ/112

比例 SCALE
A1 1 : 1000

聯事處 OFFICE
西拓展處
WEST DEVELOPMENT OFFICE

土木工程拓展署
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

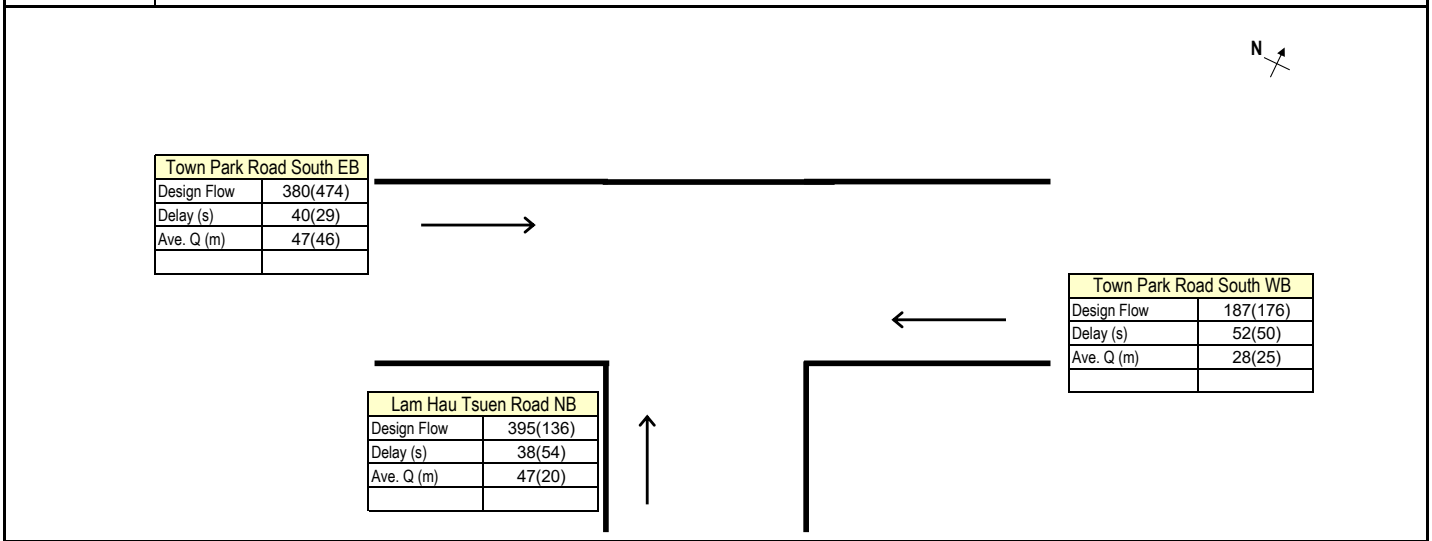
Appendix D

Queue Length Calculation Sheets

QUEUE LENGTH CALCULATION [SIGNALIZED JUNCTION]

ATKINS
Member of the SNC-Lavalin Group

Job Title:	CE46/2020 TO4 Housing Development at Shap Pat Heung Road	Job No.:	5210095		
Junction:	J3 - LAM HAU TSUEN ROAD/TOWN PARK ROAD SOUTH (YL112)	Ref. No.:			
Scheme:	Existing	Design year:	2021		
		Designed by:	PC	Checked by:	TL
Arm A:	Town Park Road South WB				
Arm B:	Lam Hau Tsuen Road NB				
Arm C:	Town Park Road South EB				



GREEN TIME, CYCLE TIME AND FLOWS DATA

		AM					PM				
	Number of Lanes, n	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p
Town Park Rd (S) WB	1	17	120	187	1885	1.2	19	120	176	1930	1.2
LamHau Tsuen Rd NB	1	35	120	395	1900	1.2	15	120	136	1890	1.2
Town Park Rd (S) EB	1	32	120	380	2005	1.2	50	120	474	2015	1.2

AM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
Town Park Rd (S) WB	103	0.14	0.71	5.2			52		27	28	28
LamHau Tsuen Rd NB	85	0.29	0.71	11.0			38		47	47	47
Town Park Rd (S) EB	88	0.27	0.71	10.6			40		46	47	47

PM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
Town Park Rd (S) WB	101	0.16	0.57	4.9			50	25	25	25	25
LamHau Tsuen Rd NB	105	0.13	0.57	3.8			54	20	20	20	20
Town Park Rd (S) EB	70	0.41	0.57	13.2			29	42	46	46	46

RESULT SUMMARY

			AM Average Queue Length (m)		PM Average Queue Length (m)
Arm A:	Town Park Road South WB		**28**		**25**
Arm B:	Lam Hau Tsuen Road NB		**47**		**20**
Arm C:	Town Park Road South EB		**47**		**46**

Effective Red, r = c-g
Effective Green Ratio, L = g/c
Degree of Saturation, X = q/(SL) Max. Queue (1 in 100) adopted.
Average Arrival Rate, M = qc/3600p
Maximum Queue Length = 6 * Maximum Queue/n
Estimated Delay, d = c(1-L)²/2(1-LX) + 3600pX²/2q(1-X) - 0.65(c/(q/3600p)²)^(1/3)*X^(2+5L) OR by Akcelik's time-dependent expression if X>X'
Average Queue Length, L1 = 6q(r/2+d)/3600pn OR L2 = 6qr/3600pn whichever the greater, OR L3 (Akcelik's time-dependent expression, if X>X')

In accordance with TPDM - Volume 4.2.5.2

** Note: The probability of maximum queue exceeding the critical value are 5% & 1% for 1 in 20 & 1 in 100 cases respectively (TPDM V.4.2. Table 2.5.2.4 & 2.5.2.5)*

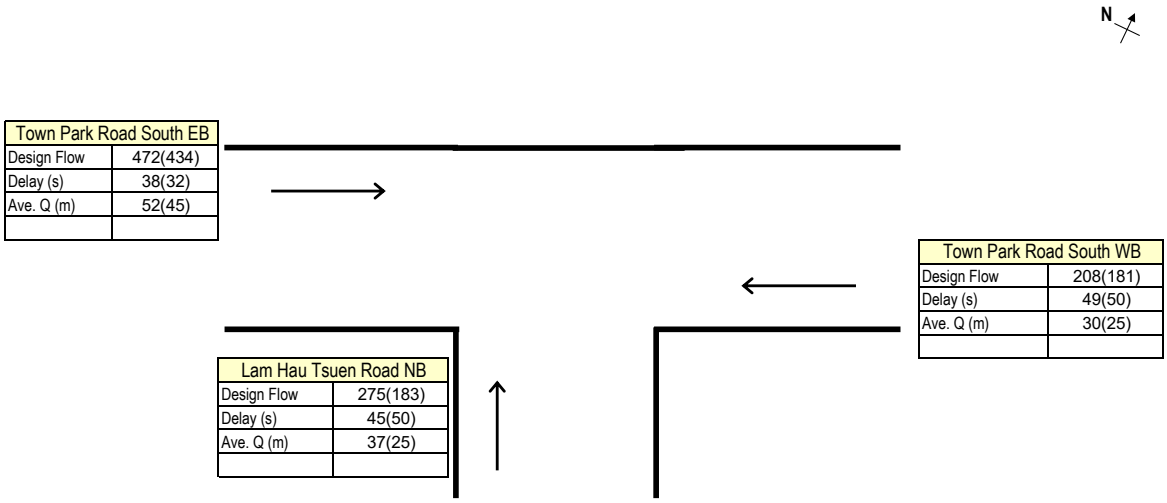
Date: 31/05/2022

* Remarks

QUEUE LENGTH CALCULATION [SIGNALIZED JUNCTION]

ATKINS
Member of the SNC-Lavalin Group

Job Title:	CE46/2020 TO4 Housing Development at Shap Pat Heung Road	Job No.:	5210095		
Junction:	J3 - LAM HAU TSUEN ROAD/TOWN PARK ROAD SOUTH (YL112)	Ref. No.:			
Scheme:	Reference	Design year:	2032		
		Designed by:	PC	Checked by:	TL
Arm A:	Town Park Road South WB				
Arm B:	Lam Hau Tsuen Road NB				
Arm C:	Town Park Road South EB				



GREEN TIME, CYCLE TIME AND FLOWS DATA

		AM					PM				
	Number of Lanes, n	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p
Town Park Rd (S) WB	1	19	120	208	1900	1.2	19	120	181	1930	1.2
LamHau Tsuen Rd NB	1	25	120	275	1895	1.2	20	120	183	1905	1.2
Town Park Rd (S) EB	1	40	120	472	2000	1.2	45	120	434	2010	1.2

AM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
Town Park Rd (S) WB	101	0.16	0.70	5.8			49		29	30	30
LamHau Tsuen Rd NB	95	0.21	0.70	7.6			45		36	37	37
Town Park Rd (S) EB	80	0.34	0.70	13.1			38	51	52	52	52

PM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
Town Park Rd (S) WB	101	0.16	0.58	5.0			50	25	25	25	25
LamHau Tsuen Rd NB	100	0.17	0.58	5.1			50	25	25	25	25
Town Park Rd (S) EB	75	0.37	0.58	12.1			32	42	45	45	45

RESULT SUMMARY

		AM Average Queue Length (m)	PM Average Queue Length (m)
Arm A:	Town Park Road South WB	**30**	**25**
Arm B:	Lam Hau Tsuen Road NB	**37**	**25**
Arm C:	Town Park Road South EB	**52**	**45**

Effective Red, r = c-g
Effective Green Ratio, L = g/c
Degree of Saturation, X = q/(SL) Max. Queue (1 in 100) adopted.
Average Arrival Rate, M = qc/3600p
Maximum Queue Length = 6 * Maximum Queue/n
Estimated Delay, d = c(1-L)²/2(1-LX) + 3600pX²/2q(1-X) - 0.65(c/(q/3600p)²)^(1/3)*X^(2+5L) OR by Akcelik's time-dependent expression if X>X'
Average Queue Length, L1 = 6q(r/2+d)/3600pn OR L2 = 6qr/3600pn whichever the greater, OR L3 (Akcelik's time-dependent expression, if X>X')

In accordance with TPDM - Volume 4.2.5.2

** Note: The probability of maximum queue exceeding the critical value are 5% & 1% for 1 in 20 & 1 in 100 cases respectively (TPDM V.4.2. Table 2.5.2.4 & 2.5.2.5)*

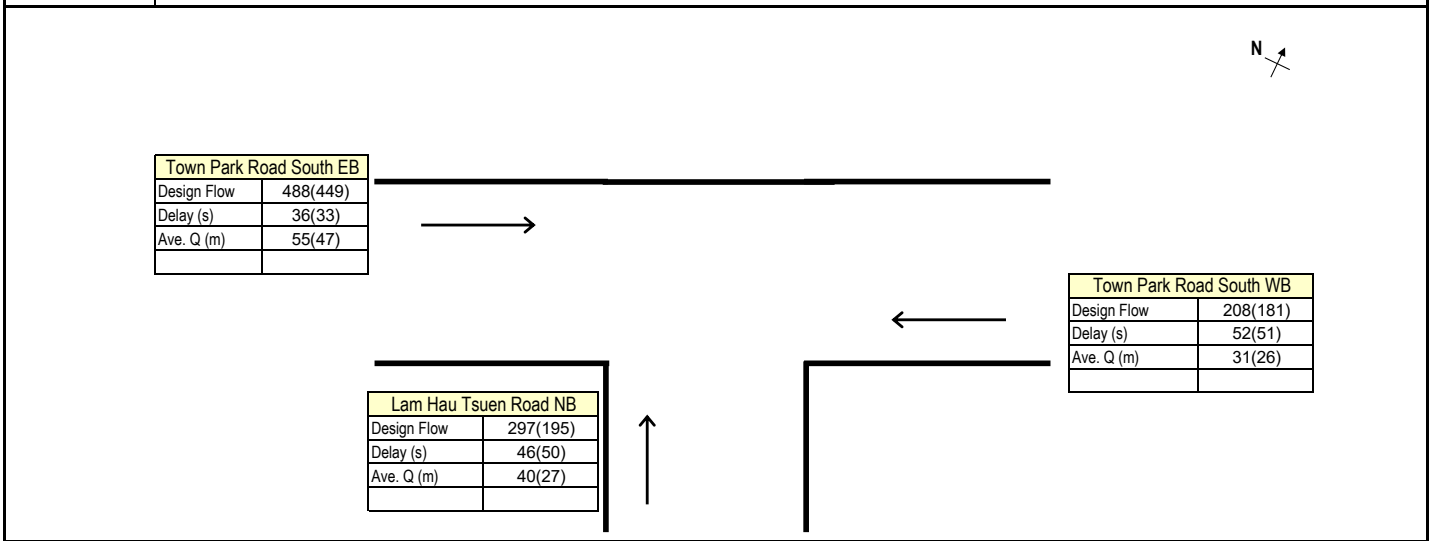
Date: 31/05/2022

* Remarks

QUEUE LENGTH CALCULATION [SIGNALIZED JUNCTION]

ATKINS
Member of the SNC-Lavalin Group

Job Title:	CE46/2020 TO4 Housing Development at Shap Pat Heung Road	Job No.:	5210095		
Junction:	J3 - LAM HAU TSUEN ROAD/TOWN PARK ROAD SOUTH (YL112)	Ref. No.:			
Scheme:	Design	Design year:	2032		
		Designed by:	PC	Checked by:	TL
Arm A:	Town Park Road South WB				
Arm B:	Lam Hau Tsuen Road NB				
Arm C:	Town Park Road South EB				



GREEN TIME, CYCLE TIME AND FLOWS DATA

		AM					PM				
	Number of Lanes, n	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p
Town Park Rd (S) WB	1	18	120	208	1900	1.2	19	120	181	1930	1.2
LamHau Tsuen Rd NB	1	26	120	297	1895	1.2	20	120	195	1905	1.2
Town Park Rd (S) EB	1	40	120	488	2000	1.2	45	120	449	2005	1.2

AM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
Town Park Rd (S) WB	102	0.15	0.73	5.8			52		29	31	31
LamHau Tsuen Rd NB	94	0.22	0.73	8.3			46		39	40	40
Town Park Rd (S) EB	80	0.33	0.73	13.6			36		54	55	55

PM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
Town Park Rd (S) WB	101	0.16	0.60	5.0			51	26	25	25	26
LamHau Tsuen Rd NB	100	0.17	0.60	5.4			50	27	27	27	27
Town Park Rd (S) EB	75	0.37	0.60	12.5			33	44	47	47	47

RESULT SUMMARY

		AM Average Queue Length (m)	PM Average Queue Length (m)
Arm A:	Town Park Road South WB	**31**	**26**
Arm B:	Lam Hau Tsuen Road NB	**40**	**27**
Arm C:	Town Park Road South EB	**55**	**47**

Effective Red, r = c-g
Effective Green Ratio, L = g/c
Degree of Saturation, X = q/(SL) Max. Queue (1 in 100) adopted.
Average Arrival Rate, M = qc/3600p
Maximum Queue Length = 6 * Maximum Queue/n
Estimated Delay, d = c(1-L)²/2(1-LX) + 3600pX²/2q(1-X) - 0.65(c/(q/3600p)²)^(1/3)*X^(2+5L) OR by Akcelik's time-dependent expression if X>X'
Average Queue Length, L1 = 6q(r/2+d)/3600pn OR L2 = 6qr/3600pn whichever the greater, OR L3 (Akcelik's time-dependent expression, if X>X')

In accordance with TPDM - Volume 4.2.5.2

** Note: The probability of maximum queue exceeding the critical value are 5% & 1% for 1 in 20 & 1 in 100 cases respectively (TPDM V.4.2. Table 2.5.2.4 & 2.5.2.5)*

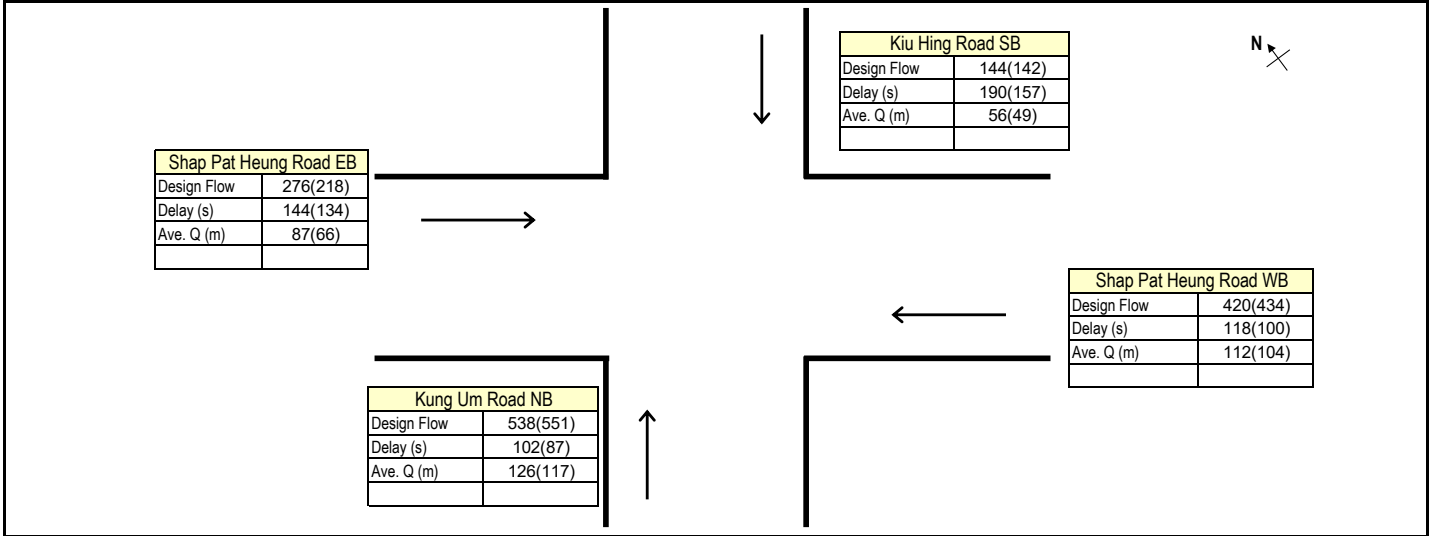
Date: 31/05/2022

* Remarks

QUEUE LENGTH CALCULATION [SIGNALIZED JUNCTION]

ATKINS
Member of the SNC-Lavalin Group

Job Title:	CE46/2020 TO4 Housing Development at Shap Pat Heung Road	Job No.:	5210095		
Junction:	J5 - SHAP PAT HEUNG ROAD/KUNG UM ROAD/KIU HING ROAD (YL109)	Ref. No.:			
Scheme:	Existing	Design year:	2021		
		Designed by:	PC	Checked by:	TL
Arm A:	Shap Pat Heung Road WB				
Arm B:	Kung Um Road NB				
Arm C:	Shap Pat Heung Road EB				
Arm D:	Kiu Hing Road SB				



GREEN TIME, CYCLE TIME AND FLOWS DATA

		AM					PM				
	Number of Lanes, n	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p
SPH Road WB	1	41	182	420	1960	1.2	44	182	434	1935	1.2
Kung Um Road NB	1	55	182	538	1885	1.2	57	182	551	1890	1.2
SPH Road EB	1	27	182	276	1965	1.2	22	182	218	1920	1.2
Kiu Hing Road SB	1	15	182	144	1900	1.2	14	182	142	1915	1.2

AM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
SPH Road WB	141	0.23	0.95	17.7			118		82	112	112
Kung Um Road NB	127	0.30	0.95	22.7			102		95	126	126
SPH Road EB	155	0.15	0.95	11.6			144		59	87	87
Kiu Hing Road SB	167	0.08	0.95	6.1			190		33	56	56

PM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
SPH Road WB	138	0.24	0.93	18.3			100		83	104	104
Kung Um Road NB	125	0.31	0.93	23.2			87		96	117	117
SPH Road EB	160	0.12	0.93	9.2			134		48	66	66
Kiu Hing Road SB	168	0.08	0.93	6.0			157		33	49	49

RESULT SUMMARY

			AM Average Queue Length (m)		PM Average Queue Length (m)
Arm A:	Shap Pat Heung Road WB		**112**		**104**
Arm B:	Kung Um Road NB		**126**		**117**
Arm C:	Shap Pat Heung Road EB		**87**		**66**
Arm D:	Kiu Hing Road SB		**56**		**49**

Effective Red, r = c-g
Effective Green Ratio, L = g/c
Degree of Saturation, X = q/(SL) Max. Queue (1 in 100) adopted.
Average Arrival Rate, M = qc/3600p
Maximum Queue Length = 6 * Maximum Queue/n
Estimated Delay, d = c(1-L)²/2(1-LX) + 3600pX²/2q(1-X) - 0.65(c/(q/3600p)²)^(1/3)*X^(2+5L) OR by Akcelik's time-dependent expression if X>X'
Average Queue Length, L1 = 6q(r/2+d)/3600pn OR L2 = 6qr/3600pn whichever the greater, OR L3 (Akcelik's time-dependent expression, if X>X')

In accordance with TPDM - Volume 4.2.5.2

** Note: The probability of maximum queue exceeding the critical value are 5% & 1% for 1 in 20 & 1 in 100 cases respectively (TPDM V.4.2. Table 2.5.2.4 & 2.5.2.5)*

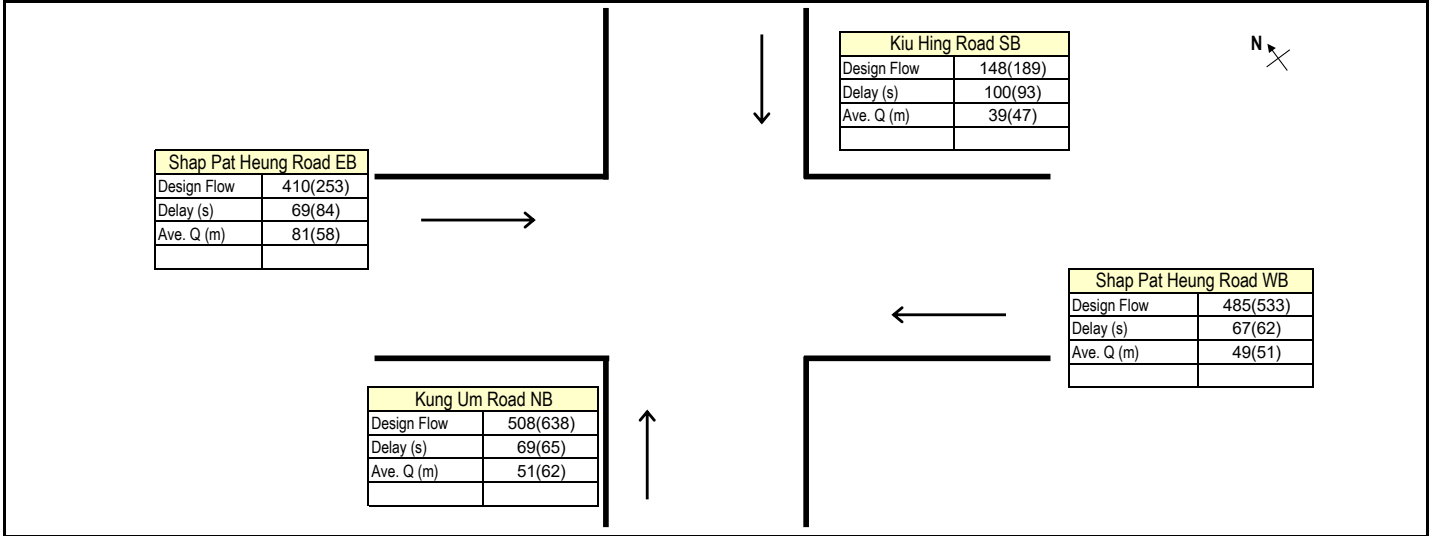
Date: 31/05/2022

* Remarks

QUEUE LENGTH CALCULATION [SIGNALIZED JUNCTION]

ATKINS
Member of the SNC-Lavalin Group

Job Title:	CE46/2020 TO4 Housing Development at Shap Pat Heung Road	Job No.:	5210095		
Junction:	J5 - SHAP PAT HEUNG ROAD/KUNG UM ROAD/KIU HING ROAD (YL109)	Ref. No.:			
Scheme:	Reference	Design year:	2032		
		Designed by:	PC	Checked by:	TL
Arm A:	Shap Pat Heung Road WB				
Arm B:	Kung Um Road NB				
Arm C:	Shap Pat Heung Road EB				
Arm D:	Kiu Hing Road SB				



GREEN TIME, CYCLE TIME AND FLOWS DATA

		AM					PM				
	Number of Lanes, n	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p
SPH Road WB	2	37	182	485	3710	1.2	44	182	533	3715	1.2
Kung Um Road NB	2	36	182	508	3760	1.2	42	182	638	3760	1.2
SPH Road EB	1	47	182	410	1965	1.2	30	182	253	1925	1.2
Kiu Hing Road SB	1	17	182	148	1930	1.2	22	182	189	1930	1.2

AM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
SPH Road WB	145	0.20	0.64	20.4			67	47	49	49	49
Kung Um Road NB	146	0.20	0.68	21.4			69	50	51	51	51
SPH Road EB	135	0.26	0.80	17.3			69		77	81	81
Kiu Hing Road SB	165	0.10	0.80	6.2			100		34	39	39

PM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
SPH Road WB	138	0.24	0.59	22.5			62	48	51	51	51
Kung Um Road NB	140	0.23	0.74	26.9			65		62	62	62
SPH Road EB	152	0.16	0.80	10.7			84		53	58	58
Kiu Hing Road SB	160	0.12	0.80	8.0			93		42	47	47

RESULT SUMMARY

			AM Average Queue Length (m)		PM Average Queue Length (m)
Arm A:	Shap Pat Heung Road WB		**49**		**51**
Arm B:	Kung Um Road NB		**51**		**62**
Arm C:	Shap Pat Heung Road EB		**81**		**58**
Arm D:	Kiu Hing Road SB		**39**		**47**

Effective Red, r = c-g
Effective Green Ratio, L = g/c
Degree of Saturation, X = q/(SL)
Average Arrival Rate, M = qc/3600p
Maximum Queue Length = 6 * Maximum Queue/n
Estimated Delay, d = c(1-L)²/2(1-LX) + 3600pX²/2q(1-X) - 0.65(c/(q/3600p)²)^(1/3)*X^(2+5L) OR by Akcelik's time-dependent expression if X>X'
Average Queue Length, L1 = 6q(r/2+d)/3600pn OR L2 = 6qr/3600pn whichever the greater, OR L3 (Akcelik's time-dependent expression, if X>X')

Max. Queue (1 in 100) adopted.

In accordance with TPDM - Volume 4.2.5.2

** Note: The probability of maximum queue exceeding the critical value are 5% & 1% for 1 in 20 & 1 in 100 cases respectively (TPDM V.4.2. Table 2.5.2.4 & 2.5.2.5)*

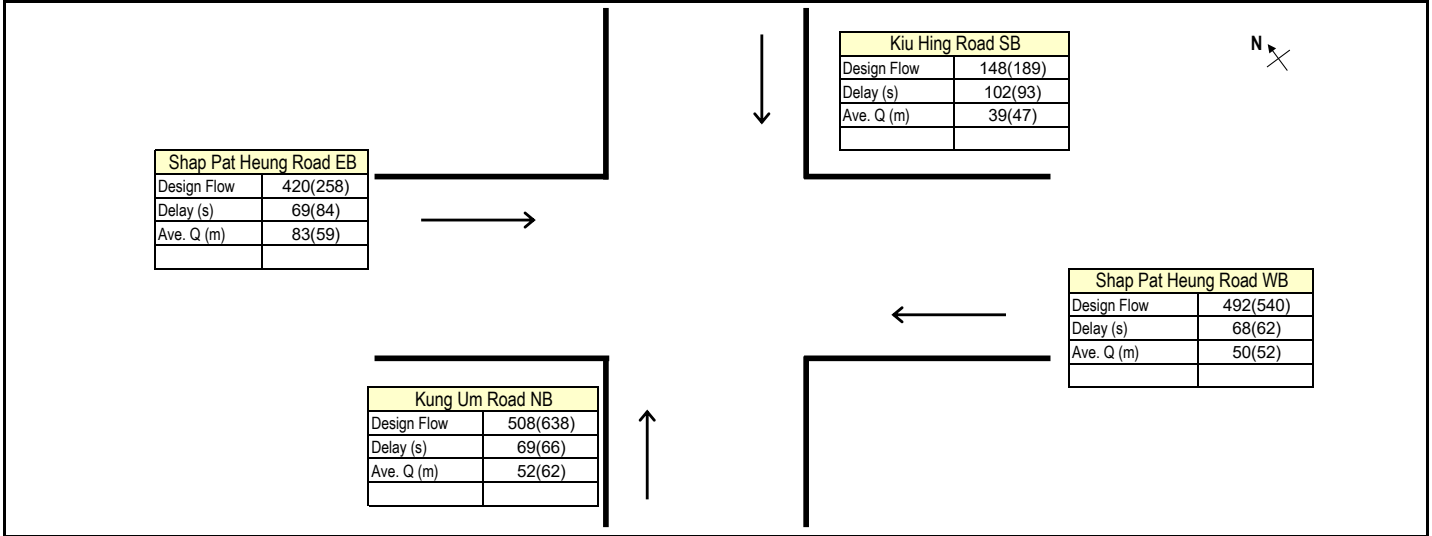
Date: 31/05/2022

* Remarks

QUEUE LENGTH CALCULATION [SIGNALIZED JUNCTION]

ATKINS
Member of the SNC-Lavalin Group

Job Title:	CE46/2020 TO4 Housing Development at Shap Pat Heung Road	Job No.:	5210095		
Junction:	J5 - SHAP PAT HEUNG ROAD/KUNG UM ROAD/KIU HING ROAD (YL109)	Ref. No.:			
Scheme:	Design	Design year:	2032		
		Designed by:	PC	Checked by:	TL
Arm A:	Shap Pat Heung Road WB				
Arm B:	Kung Um Road NB				
Arm C:	Shap Pat Heung Road EB				
Arm D:	Kiu Hing Road SB				



GREEN TIME, CYCLE TIME AND FLOWS DATA

		AM					PM				
	Number of Lanes, n	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p
SPH Road WB	2	37	182	492	3710	1.2	44	182	540	3715	1.2
Kung Um Road NB	2	36	182	508	3760	1.2	42	182	638	3760	1.2
SPH Road EB	1	48	182	420	1965	1.2	30	182	258	1925	1.2
Kiu Hing Road SB	1	17	182	148	1930	1.2	22	182	189	1930	1.2

AM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
SPH Road WB	145	0.20	0.66	20.7			68	48	50	50	50
Kung Um Road NB	146	0.20	0.69	21.4			69	50	52	52	52
SPH Road EB	134	0.26	0.81	17.7			69		78	83	83
Kiu Hing Road SB	165	0.10	0.81	6.2			102		34	39	39

PM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
SPH Road WB	138	0.24	0.60	22.8			62	49	52	52	52
Kung Um Road NB	140	0.23	0.74	26.9			66		62	62	62
SPH Road EB	152	0.17	0.81	10.9			84		54	59	59
Kiu Hing Road SB	160	0.12	0.81	8.0			93		42	47	47

RESULT SUMMARY

			AM Average Queue Length (m)		PM Average Queue Length (m)
Arm A:	Shap Pat Heung Road WB		**50**		**52**
Arm B:	Kung Um Road NB		**52**		**62**
Arm C:	Shap Pat Heung Road EB		**83**		**59**
Arm D:	Kiu Hing Road SB		**39**		**47**

Effective Red, r = c-g
Effective Green Ratio, L = g/c
Degree of Saturation, X = q/(SL)
Average Arrival Rate, M = qc/3600p
Maximum Queue Length = 6 * Maximum Queue/n
Estimated Delay, d = c(1-L)²/2(1-LX) + 3600pX²/2q(1-X) - 0.65(c/(q/3600p)²)^(1/3)*X^(2+5L) OR by Akcelik's time-dependent expression if X>X'
Average Queue Length, L1 = 6q(r/2+d)/3600pn OR L2 = 6qr/3600pn whichever the greater, OR L3 (Akcelik's time-dependent expression, if X>X')

Max. Queue (1 in 100) adopted.

In accordance with TPDM - Volume 4.2.5.2

** Note: The probability of maximum queue exceeding the critical value are 5% & 1% for 1 in 20 & 1 in 100 cases respectively (TPDM V.4.2. Table 2.5.2.4 & 2.5.2.5)*

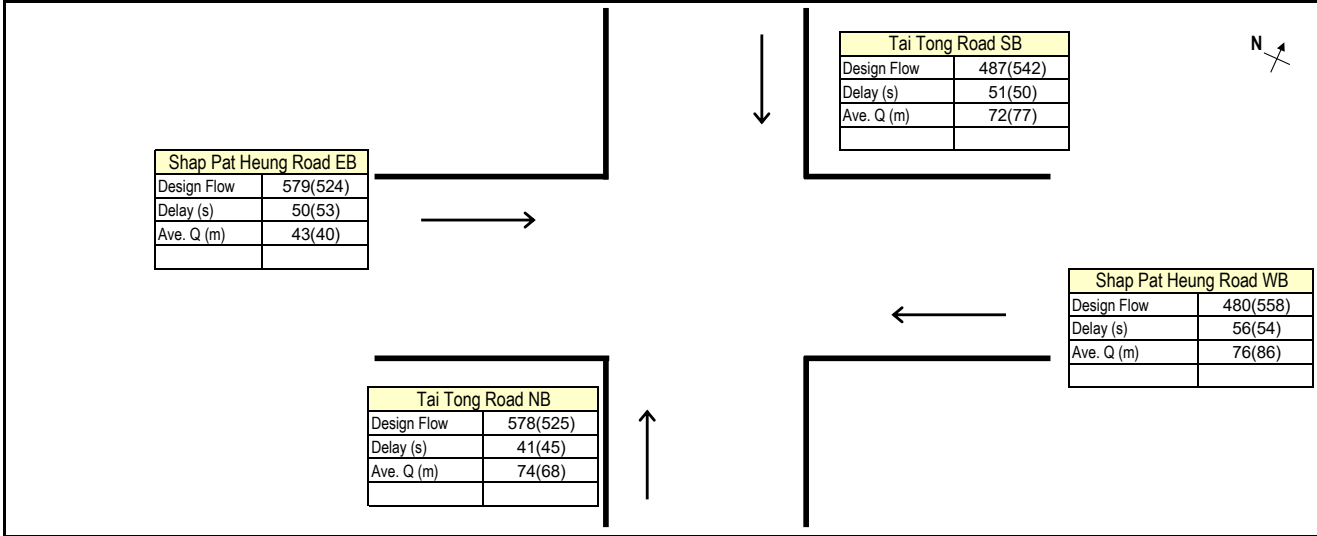
Date: 31/05/2022

* Remarks

QUEUE LENGTH CALCULATION [SIGNALIZED JUNCTION]

ATKINS
Member of the SNC-Lavalin Group

Job Title:	CE46/2020 TO4 Housing Development at Shap Pat Heung Road	Job No.:	5210095		
Junction:	J7 - SHAP PAT HEUNG ROAD/TAI TONG ROAD (YL100)	Ref. No.:			
Scheme:	Existing	Design year:	2021		
		Designed by:	PC	Checked by:	TL
Arm A:	Shap Pat Heung Road WB				
Arm B:	Tai Tong Road NB				
Arm C:	Shap Pat Heung Road EB				
Arm D:	Tai Tong Road SB				



GREEN TIME, CYCLE TIME AND FLOWS DATA

		AM					PM				
	Number of Lanes, n	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p
SPH Road WB	1	15	128	480	6045	1.2	17	128	558	6055	1.2
Tai Tong Road NB	1	37	128	578	2790	1.2	34	128	525	2805	1.2
SPH Road EB	2	21	128	579	5915	1.2	17	128	524	5915	1.2
Tai Tong Road SB	1	22	128	487	3955	1.2	25	128	542	3935	1.2

AM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
SPH Road WB	113	0.11	0.70	14.2			56	75	76	76	76
Tai Tong Road NB	91	0.29	0.72	17.1			41		73	74	74
SPH Road EB	107	0.16	0.60	17.2			50	42	43	43	43
Tai Tong Road SB	106	0.17	0.72	14.4			51		72	72	72

PM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
SPH Road WB	111	0.13	0.69	16.5			54	85	86	86	86
Tai Tong Road NB	94	0.27	0.70	15.6			45	67	68	68	68
SPH Road EB	111	0.13	0.66	15.5			53	40	40	40	40
Tai Tong Road SB	103	0.20	0.70	16.1			50	76	77	77	77

RESULT SUMMARY

			AM Average Queue Length (m)		PM Average Queue Length (m)
Arm A:	Shap Pat Heung Road WB		**76**		**86**
Arm B:	Tai Tong Road NB		**74**		**68**
Arm C:	Shap Pat Heung Road EB		**43**		**40**
Arm D:	Tai Tong Road SB		**72**		**77**

Effective Red, r = c-g
Effective Green Ratio, L = g/c
Degree of Saturation, X = q/(SL) Max. Queue (1 in 100) adopted.
Average Arrival Rate, M = qc/3600p
Maximum Queue Length = 6 * Maximum Queue/n
Estimated Delay, d = c(1-L)²/2(1-LX) + 3600pX²/2q(1-X) - 0.65(c/(q/3600p)²)^(1/3)*X^(2+5L) OR by Akcelik's time-dependent expression if X>X'
Average Queue Length, L1 = 6q(r/2+d)/3600pn OR L2 = 6qr/3600pn whichever the greater, OR L3 (Akcelik's time-dependent expression, if X>X')

In accordance with TPDM - Volume 4.2.5.2

** Note: The probability of maximum queue exceeding the critical value are 5% & 1% for 1 in 20 & 1 in 100 cases respectively (TPDM V.4.2. Table 2.5.2.4 & 2.5.2.5)*

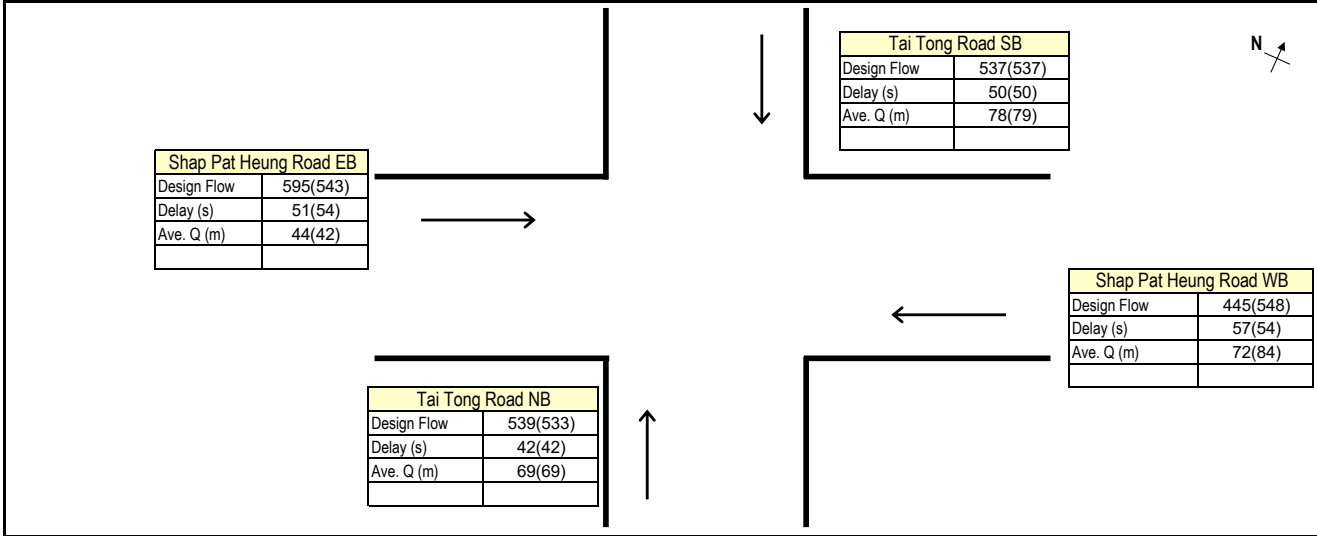
Date: 15/07/2022

* Remarks

QUEUE LENGTH CALCULATION [SIGNALIZED JUNCTION]

ATKINS
Member of the SNC-Lavalin Group

Job Title:	CE46/2020 TO4 Housing Development at Shap Pat Heung Road	Job No.:	5210095		
Junction:	J7 - SHAP PAT HEUNG ROAD/TAI TONG ROAD (YL100)	Ref. No.:			
Scheme:	Reference	Design year:	2032		
		Designed by:	PC	Checked by:	TL
Arm A:	Shap Pat Heung Road WB				
Arm B:	Tai Tong Road NB				
Arm C:	Shap Pat Heung Road EB				
Arm D:	Tai Tong Road SB				



GREEN TIME, CYCLE TIME AND FLOWS DATA

		AM					PM				
	Number of Lanes, n	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p
SPH Road WB	1	13	128	445	6030	1.2	17	128	548	6035	1.2
Tai Tong Road NB	1	37	128	539	2595	1.2	36	128	533	2600	1.2
SPH Road EB	2	21	128	595	5915	1.2	17	128	543	5915	1.2
Tai Tong Road SB	1	24	128	537	3975	1.2	24	128	537	3960	1.2

AM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
SPH Road WB	115	0.10	0.72	13.2			57		71	72	72
Tai Tong Road NB	91	0.29	0.73	16.0			42		68	69	69
SPH Road EB	107	0.16	0.62	17.6			51	43	44	44	44
Tai Tong Road SB	104	0.19	0.73	15.9			50		78	78	78

PM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
SPH Road WB	111	0.13	0.68	16.2			54	83	84	84	84
Tai Tong Road NB	92	0.28	0.73	15.8			42		68	69	69
SPH Road EB	111	0.13	0.69	16.1			54	41	42	42	42
Tai Tong Road SB	104	0.19	0.73	15.9			50		78	79	79

RESULT SUMMARY

			AM Average Queue Length (m)		PM Average Queue Length (m)
Arm A:	Shap Pat Heung Road WB		**72**		**84**
Arm B:	Tai Tong Road NB		**69**		**69**
Arm C:	Shap Pat Heung Road EB		**44**		**42**
Arm D:	Tai Tong Road SB		**78**		**79**

Effective Red, r = c-g
Effective Green Ratio, L = g/c
Degree of Saturation, X = q/(SL) Max. Queue (1 in 100) adopted.
Average Arrival Rate, M = qc/3600p
Maximum Queue Length = 6 * Maximum Queue/n
Estimated Delay, d = c(1-L)²/2(1-LX) + 3600pX²/2q(1-X) - 0.65(c/(q/3600p)²)^(1/3)*X^(2+5L) OR by Akcelik's time-dependent expression if X>X'
Average Queue Length, L1 = 6q(r/2+d)/3600pn OR L2 = 6qr/3600pn whichever the greater, OR L3 (Akcelik's time-dependent expression, if X>X')

In accordance with TPDM - Volume 4.2.5.2

** Note: The probability of maximum queue exceeding the critical value are 5% & 1% for 1 in 20 & 1 in 100 cases respectively (TPDM V.4.2. Table 2.5.2.4 & 2.5.2.5)*

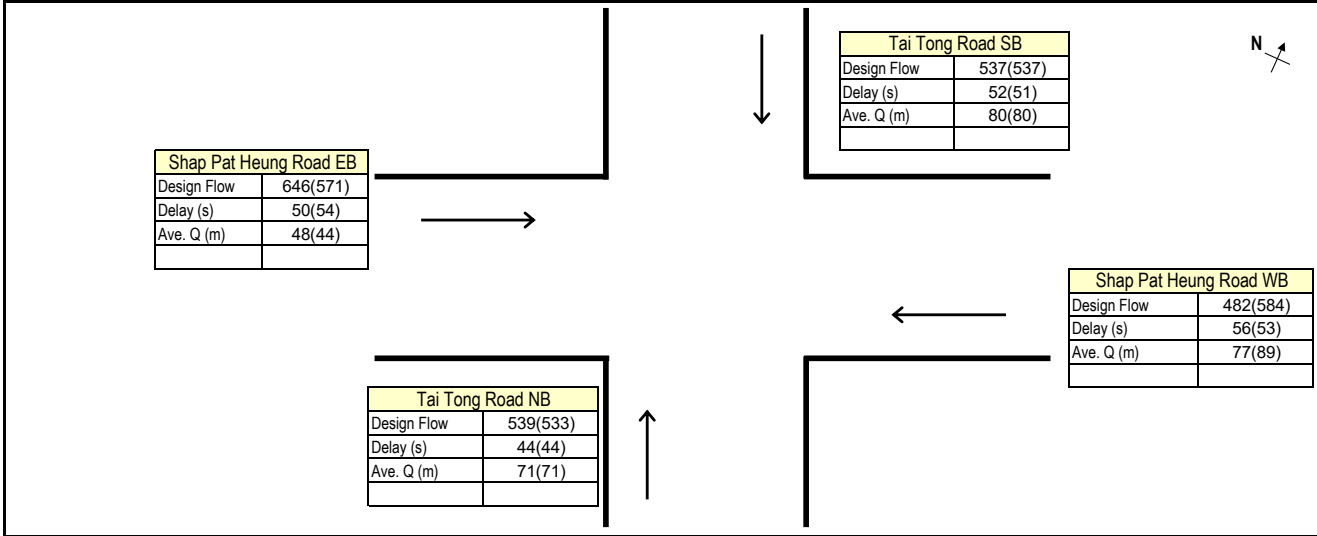
Date: 15/07/2022

* Remarks

QUEUE LENGTH CALCULATION [SIGNALIZED JUNCTION]

ATKINS
Member of the SNC-Lavalin Group

Job Title:	CE46/2020 TO4 Housing Development at Shap Pat Heung Road	Job No.:	5210095		
Junction:	J7 - SHAP PAT HEUNG ROAD/TAI TONG ROAD (YL100)	Ref. No.:			
Scheme:	Design	Design year:	2032		
		Designed by:	PC	Checked by:	TL
Arm A:	Shap Pat Heung Road WB				
Arm B:	Tai Tong Road NB				
Arm C:	Shap Pat Heung Road EB				
Arm D:	Tai Tong Road SB				



GREEN TIME, CYCLE TIME AND FLOWS DATA

		AM					PM				
	Number of Lanes, n	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p
SPH Road WB	1	14	128	482	6035	1.2	18	128	584	6040	1.2
Tai Tong Road NB	1	35	128	539	2595	1.2	35	128	533	2600	1.2
SPH Road EB	2	22	128	646	5915	1.2	18	128	571	5915	1.2
Tai Tong Road SB	1	23	128	537	3975	1.2	23	128	537	3960	1.2

AM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
SPH Road WB	114	0.11	0.73	14.3			56		76	77	77
Tai Tong Road NB	93	0.27	0.76	16.0			44		69	71	71
SPH Road EB	106	0.17	0.64	19.1			50	46	48	48	48
Tai Tong Road SB	105	0.18	0.76	15.9			52		78	80	80

PM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
SPH Road WB	110	0.14	0.68	17.3			53	88	89	89	89
Tai Tong Road NB	93	0.27	0.75	15.8			44		69	71	71
SPH Road EB	110	0.14	0.69	16.9			54	43	44	44	44
Tai Tong Road SB	105	0.18	0.75	15.9			51		78	80	80

RESULT SUMMARY

			AM Average Queue Length (m)		PM Average Queue Length (m)
Arm A:	Shap Pat Heung Road WB		**77**		**89**
Arm B:	Tai Tong Road NB		**71**		**71**
Arm C:	Shap Pat Heung Road EB		**48**		**44**
Arm D:	Tai Tong Road SB		**80**		**80**

Effective Red, r = c-g
Effective Green Ratio, L = g/c
Degree of Saturation, X = q/(SL) Max. Queue (1 in 100) adopted.
Average Arrival Rate, M = qc/3600p
Maximum Queue Length = 6 * Maximum Queue/n
Estimated Delay, d = c(1-L)²/2(1-LX) + 3600pX²/2q(1-X) - 0.65(c/(q/3600p)²)^(1/3)*X^(2+5L) OR by Akcelik's time-dependent expression if X>X'
Average Queue Length, L1 = 6q(r/2+d)/3600pn OR L2 = 6qr/3600pn whichever the greater, OR L3 (Akcelik's time-dependent expression, if X>X')

In accordance with TPDM - Volume 4.2.5.2

** Note: The probability of maximum queue exceeding the critical value are 5% & 1% for 1 in 20 & 1 in 100 cases respectively (TPDM V.4.2. Table 2.5.2.4 & 2.5.2.5)*

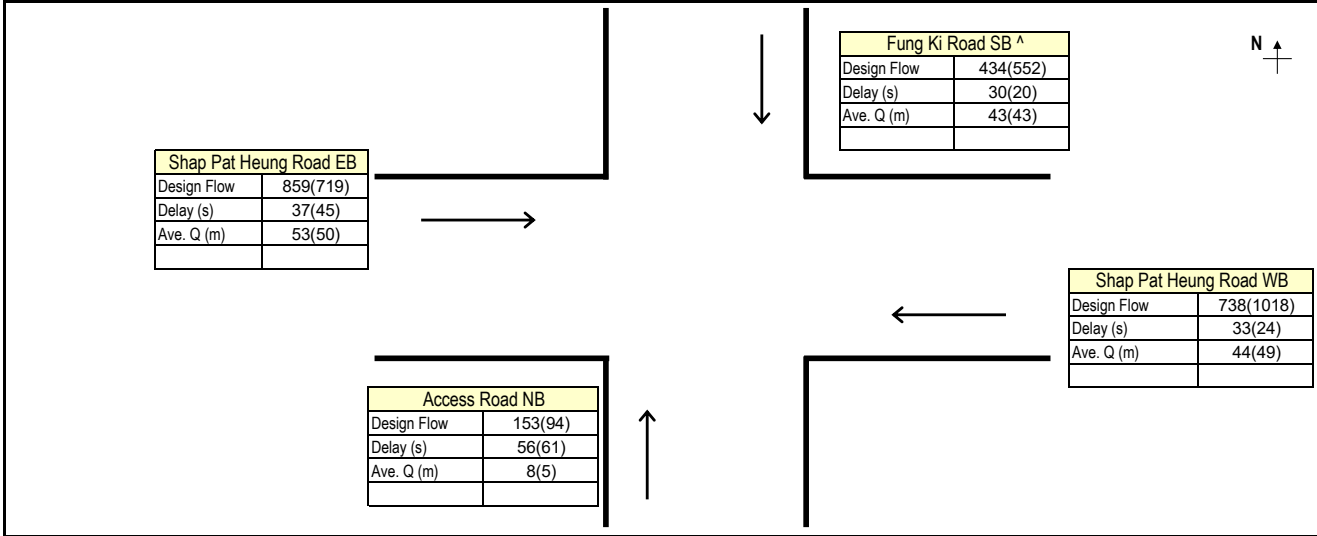
Date: 15/07/2022

* Remarks

QUEUE LENGTH CALCULATION [SIGNALIZED JUNCTION]

ATKINS
Member of the SNC-Lavalin Group

Job Title:	CE46/2020 TO4 Housing Development at Shap Pat Heung Road	Job No.:	5210095		
Junction:	J8 - FUNG KI ROAD/SHAP PAT HEUNG ROAD/ACCESS ROAD (YL97)	Ref. No.:			
Scheme:	Existing	Design year:	2021		
		Designed by:	PC	Checked by:	TL
Arm A:	Shap Pat Heung Road WB				
Arm B:	Access Road NB				
Arm C:	Shap Pat Heung Road EB				
Arm D:	Fung Ki Road SB ^				



GREEN TIME, CYCLE TIME AND FLOWS DATA

		AM					PM				
	Number of Lanes, n	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p
SPH Road WB	2	43	128	738	5860	1.2	58	128	1018	5850	1.2
Access Road NB	3	13	128	153	2885	1.2	8	128	94	2900	1.2
SPH Road EB	2	39	128	859	5900	1.2	27	128	719	5900	1.2
Fung Ki Road SB ^	1	56	128	434	1690	1.2	72	128	552	1690	1.2

AM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
SPH Road WB	85	0.33	0.38	21.9			33	39	44	44	44
Access Road NB	115	0.10	0.51	4.5			56	8	8	8	8
SPH Road EB	89	0.30	0.48	25.5			37	49	53	53	53
Fung Ki Road SB ^	72	0.44	0.59	12.9			30	40	43	43	43

PM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
SPH Road WB	70	0.45	0.38	30.2			24	41	49	49	49
Access Road NB	120	0.07	0.50	2.8			61	5	5	5	5
SPH Road EB	101	0.21	0.57	21.3			45	48	50	50	50
Fung Ki Road SB ^	56	0.56	0.58	16.4			20	37	43	43	43

RESULT SUMMARY

			AM Average Queue Length (m)		PM Average Queue Length (m)
Arm A:	Shap Pat Heung Road WB		**44**		**49**
Arm B:	Access Road NB		**8**		**5**
Arm C:	Shap Pat Heung Road EB		**53**		**50**
Arm D:	Fung Ki Road SB ^		**43**		**43**

Effective Red, r = c-g
Effective Green Ratio, L = g/c
Degree of Saturation, X = q/(SL) Max. Queue (1 in 100) adopted.
Average Arrival Rate, M = qc/3600p
Maximum Queue Length = 6 * Maximum Queue/n
Estimated Delay, d = c(1-L)²/2(1-LX) + 3600pX²/2q(1-X) - 0.65(c/(q/3600p)²)^(1/3)*X^(2+5L) OR by Akcelik's time-dependent expression if X>X'
Average Queue Length, L1 = 6q(r/2+d)/3600pn OR L2 = 6qr/3600pn whichever the greater, OR L3 (Akcelik's time-dependent expression, if X>X')

In accordance with TPDM - Volume 4.2.5.2

** Note: The probability of maximum queue exceeding the critical value are 5% & 1% for 1 in 20 & 1 in 100 cases respectively (TPDM V.4.2. Table 2.5.2.4 & 2.5.2.5)*

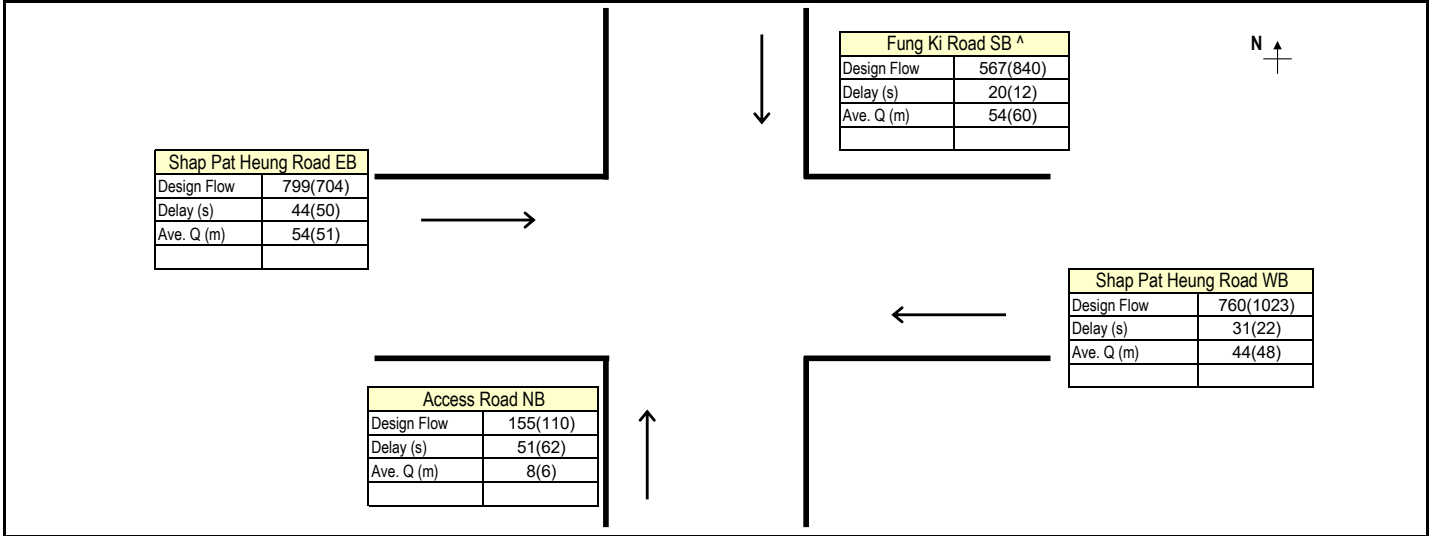
Date: 15/07/2022

* Remarks ^ Queue length for left turn movement is more significant. Queue length for the left turn movement is shown.

QUEUE LENGTH CALCULATION [SIGNALIZED JUNCTION]

ATKINS
Member of the SNC-Lavalin Group

Job Title:	CE46/2020 TO4 Housing Development at Shap Pat Heung Road	Job No.:	5210095		
Junction:	J8 - FUNG KI ROAD/SHAP PAT HEUNG ROAD/ACCESS ROAD (YL97)	Ref. No.:			
Scheme:	Reference	Design year:	2032		
		Designed by:	PC	Checked by:	TL
Arm A:	Shap Pat Heung Road WB				
Arm B:	Access Road NB				
Arm C:	Shap Pat Heung Road EB				
Arm D:	Fung Ki Road SB ^				



GREEN TIME, CYCLE TIME AND FLOWS DATA

		AM					PM				
	Number of Lanes, n	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p
SPH Road WB	2	45	128	760	5850	1.2	61	128	1023	5845	1.2
Access Road NB	3	18	128	155	2900	1.2	9	128	110	2850	1.2
SPH Road EB	2	30	128	799	5900	1.2	23	128	704	5900	1.2
Fung Ki Road SB ^	1	60	128	567	5790	1.2	76	128	840	5755	1.2

AM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
SPH Road WB	83	0.35	0.37	22.5			31	38	44	44	44
Access Road NB	110	0.14	0.38	4.6			51	8	8	8	8
SPH Road EB	98	0.24	0.57	23.7			44	51	54	54	54
Fung Ki Road SB ^	68	0.47	0.21	16.8			20	43	54	54	54

PM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
SPH Road WB	67	0.48	0.37	30.3			22	39	48	48	48
Access Road NB	119	0.07	0.56	3.3			62	6	6	6	6
SPH Road EB	105	0.18	0.67	20.9			50	50	51	51	51
Fung Ki Road SB ^	52	0.60	0.24	24.9			12	45	60	60	60

RESULT SUMMARY

			AM Average Queue Length (m)		PM Average Queue Length (m)
Arm A:	Shap Pat Heung Road WB		**44**		**48**
Arm B:	Access Road NB		**8**		**6**
Arm C:	Shap Pat Heung Road EB		**54**		**51**
Arm D:	Fung Ki Road SB ^		**54**		**60**

Effective Red, r = c-g
Effective Green Ratio, L = g/c
Degree of Saturation, X = q/(SL) Max. Queue (1 in 100) adopted.
Average Arrival Rate, M = qc/3600p
Maximum Queue Length = 6 * Maximum Queue/n
Estimated Delay, d = c(1-L)²/2(1-LX) + 3600pX²/2q(1-X) - 0.65(c/(q/3600p)²)^(1/3)*X^(2+5L) OR by Akcelik's time-dependent expression if X>X'
Average Queue Length, L1 = 6q(r/2+d)/3600pn OR L2 = 6qr/3600pn whichever the greater, OR L3 (Akcelik's time-dependent expression, if X>X')

In accordance with TPDM - Volume 4.2.5.2

** Note: The probability of maximum queue exceeding the critical value are 5% & 1% for 1 in 20 & 1 in 100 cases respectively (TPDM V.4.2. Table 2.5.2.4 & 2.5.2.5)*

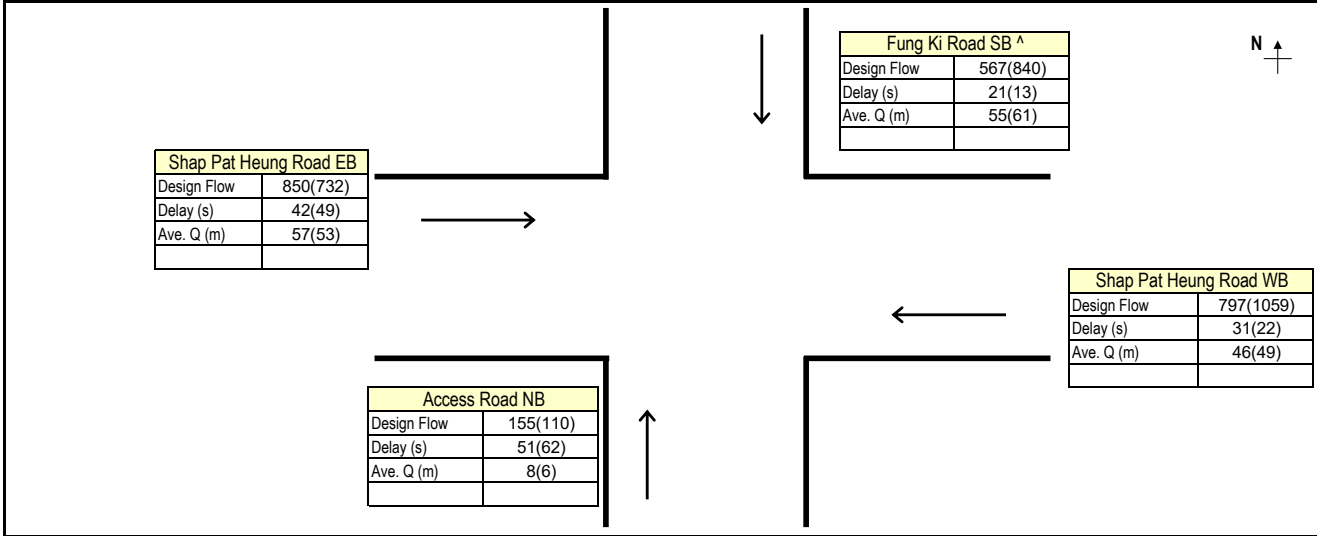
Date: 15/07/2022

* Remarks ^ Queue length for left turn movement is more significant. Queue length for the left turn movement is shown.

QUEUE LENGTH CALCULATION [SIGNALIZED JUNCTION]

ATKINS
Member of the SNC-Lavalin Group

Job Title:	CE46/2020 TO4 Housing Development at Shap Pat Heung Road	Job No.:	5210095		
Junction:	J8 - FUNG KI ROAD/SHAP PAT HEUNG ROAD/ACCESS ROAD (YL97)	Ref. No.:			
Scheme:	Design	Design year:	2032		
		Designed by:	PC	Checked by:	TL
Arm A:	Shap Pat Heung Road WB				
Arm B:	Access Road NB				
Arm C:	Shap Pat Heung Road EB				
Arm D:	Fung Ki Road SB ^				



GREEN TIME, CYCLE TIME AND FLOWS DATA

		AM					PM				
	Number of Lanes, n	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p
SPH Road WB	2	45	128	797	5850	1.2	61	128	1059	5845	1.2
Access Road NB	3	18	128	155	2900	1.2	9	128	110	2850	1.2
SPH Road EB	2	32	128	850	5900	1.2	24	128	732	5900	1.2
Fung Ki Road SB ^	1	58	128	567	5790	1.2	76	128	840	5755	1.2

AM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
SPH Road WB	83	0.35	0.39	23.6			31	40	46	46	46
Access Road NB	110	0.14	0.39	4.6			51	8	8	8	8
SPH Road EB	96	0.25	0.57	25.2			42	53	57	57	57
Fung Ki Road SB ^	70	0.45	0.22	16.8			21	44	55	55	55

PM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
SPH Road WB	67	0.48	0.38	31.4			22	41	49	49	49
Access Road NB	119	0.07	0.57	3.3			62	6	6	6	6
SPH Road EB	104	0.18	0.67	21.7			49	52	53	53	53
Fung Ki Road SB ^	52	0.59	0.25	24.9			13	45	61	61	61

RESULT SUMMARY

			AM Average Queue Length (m)		PM Average Queue Length (m)
Arm A:	Shap Pat Heung Road WB		**46**		**49**
Arm B:	Access Road NB		**8**		**6**
Arm C:	Shap Pat Heung Road EB		**57**		**53**
Arm D:	Fung Ki Road SB ^		**55**		**61**

Effective Red, r = c-g
Effective Green Ratio, L = g/c
Degree of Saturation, X = q/(SL) Max. Queue (1 in 100) adopted.
Average Arrival Rate, M = qc/3600p
Maximum Queue Length = 6 * Maximum Queue/n
Estimated Delay, d = c(1-L)²/2(1-LX) + 3600pX²/2q(1-X) - 0.65(c/(q/3600p)²)^(1/3)*X^(2+5L) OR by Akcelik's time-dependent expression if X>X'
Average Queue Length, L1 = 6q(r/2+d)/3600pn OR L2 = 6qr/3600pn whichever the greater, OR L3 (Akcelik's time-dependent expression, if X>X')

In accordance with TPDM - Volume 4.2.5.2

** Note: The probability of maximum queue exceeding the critical value are 5% & 1% for 1 in 20 & 1 in 100 cases respectively (TPDM V.4.2. Table 2.5.2.4 & 2.5.2.5)*

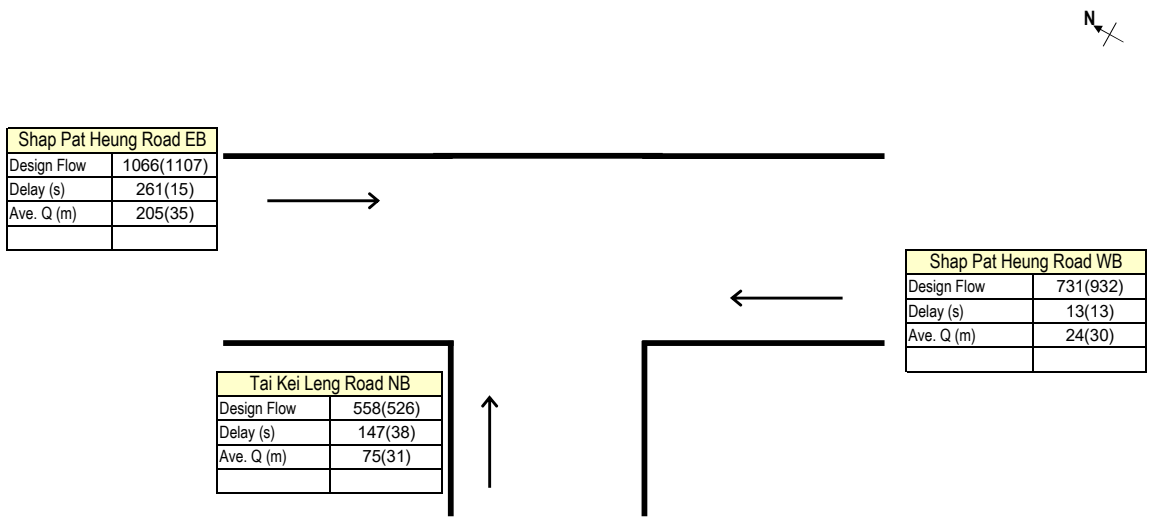
Date: 15/07/2022

* Remarks ^ Queue length for left turn movement is more significant. Queue length for the left turn movement is shown.

QUEUE LENGTH CALCULATION [SIGNALIZED JUNCTION]

ATKINS
Member of the SNC-Lavalin Group

Job Title:	CE46/2020 TO4 Housing Development at Shap Pat Heung Road	Job No.:	5210095		
Junction:	J9 - TAI KEI LENG ROAD/SHAP PAT HEUNG ROAD (YL84)	Ref. No.:			
Scheme:	Existing	Design year:	2021		
		Designed by:	PC	Checked by:	TL
Arm A:	Shap Pat Heung Road WB				
Arm B:	Tai Kei Leng Road NB				
Arm C:	Shap Pat Heung Road EB				



GREEN TIME, CYCLE TIME AND FLOWS DATA

		AM					PM				
	Number of Lanes, n	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p
SPH Road WB	2	72	120	731	3525	1.2	74	120	932	3525	1.2
Tai Kei Leng Road NB	2	23^	120	558	2875	1.2	36	120	526	2875	1.2
SPH Road EB	2	39^	120	1066	2920	1.2	74	120	1107	2920	1.2

AM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
SPH Road WB	48	0.60	0.35	20.3			13	19	24	24	24
Tai Kei Leng Road NB	97	0.19	1.02	15.5			147		38	75	75
SPH Road EB	81	0.33	1.11	29.6			261		60	205	205

PM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
SPH Road WB	46	0.62	0.43	25.9			13	23	30	30	30
Tai Kei Leng Road NB	84	0.30	0.61	14.6			38	29	31	31	31
SPH Road EB	46	0.62	0.61	30.8			15	29	35	35	35

RESULT SUMMARY

			AM Average Queue Length (m)		PM Average Queue Length (m)
Arm A:	Shap Pat Heung Road WB		**24**		**30**
Arm B:	Tai Kei Leng Road NB		**75**		**31**
Arm C:	Shap Pat Heung Road EB		**205**		**35**

Effective Red, r = c-g
Effective Green Ratio, L = g/c
Degree of Saturation, X = q/(SL)
Average Arrival Rate, M = qc/3600p
Maximum Queue Length = 6 * Maximum Queue/n
Estimated Delay, d = c(1-L)²/2(1-LX) + 3600pX²/2q(1-X) - 0.65(c/(q/3600p)²)^(1/3)*X^(2+5L) OR by Akcelik's time-dependent expression if X>X'
Average Queue Length, L1 = 6q(r/2+d)/3600pn OR L2 = 6qr/3600pn whichever the greater, OR L3 (Akcelik's time-dependent expression, if X>X')

Max. Queue (1 in 100) adopted.

In accordance with TPDM - Volume 4.2.5.2

** Note: The probability of maximum queue exceeding the critical value are 5% & 1% for 1 in 20 & 1 in 100 cases respectively (TPDM V.4.2. Table 2.5.2.4 & 2.5.2.5)*

Date: 08/03/2023

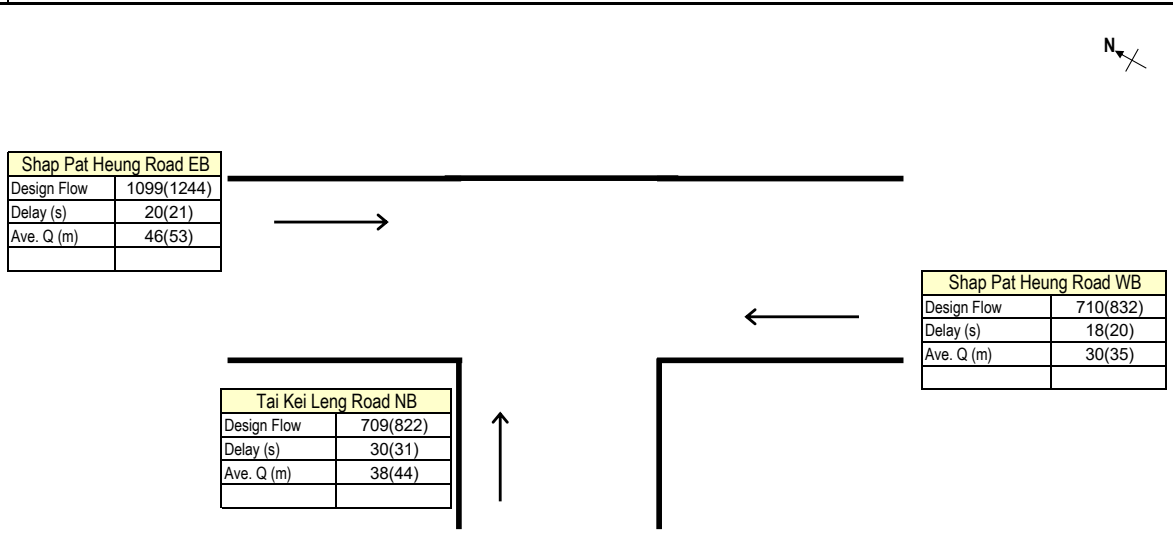
* Remarks

^ Reduced effective green time based on site observation

QUEUE LENGTH CALCULATION [SIGNALIZED JUNCTION]

ATKINS
Member of the SNC-Lavalin Group

Job Title:	CE46/2020 TO4 Housing Development at Shap Pat Heung Road	Job No.:	5210095		
Junction:	J9 - TAI KEI LENG ROAD/SHAP PAT HEUNG ROAD (YL84)	Ref. No.:			
Scheme:	Reference	Design year:	2032		
		Designed by:	PC	Checked by:	TL
Arm A:	Shap Pat Heung Road WB				
Arm B:	Tai Kei Leng Road NB				
Arm C:	Shap Pat Heung Road EB				



GREEN TIME, CYCLE TIME AND FLOWS DATA

		AM					PM				
	Number of Lanes, n	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p
SPH Road WB	2	68	128	710	3525	1.2	67	128	832	3525	1.2
Tai Kei Leng Road NB	2	50	128	709	3645	1.2	51	128	822	3645	1.2
SPH Road EB	2	68	128	1099	4170	1.2	67	128	1244	4170	1.2

AM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
SPH Road WB	60	0.53	0.38	21.0			18	24	30	30	30
Tai Kei Leng Road NB	78	0.39	0.50	21.0			30	34	38	38	38
SPH Road EB	60	0.53	0.50	32.6			20	38	46	46	46

PM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
SPH Road WB	61	0.53	0.45	24.7			20	29	35	35	35
Tai Kei Leng Road NB	77	0.40	0.57	24.4			31	40	44	44	44
SPH Road EB	61	0.53	0.57	36.9			21	45	53	53	53

RESULT SUMMARY

		AM Average Queue Length (m)	PM Average Queue Length (m)
Arm A:	Shap Pat Heung Road WB	**30**	**35**
Arm B:	Tai Kei Leng Road NB	**38**	**44**
Arm C:	Shap Pat Heung Road EB	**46**	**53**

Effective Red, r = c-g
Effective Green Ratio, L = g/c
Degree of Saturation, X = q/(SL)
Average Arrival Rate, M = qc/3600p
Maximum Queue Length = 6 * Maximum Queue/n
Estimated Delay, d = c(1-L)²/2(1-LX) + 3600pX²/2q(1-X) - 0.65(c/(q/3600p)²)^(1/3)*X^(2+5L) OR by Akcelik's time-dependent expression if X>X'
Average Queue Length, L1 = 6q(r/2+d)/3600pn OR L2 = 6qr/3600pn whichever the greater, OR L3 (Akcelik's time-dependent expression, if X>X')

Max. Queue (1 in 100) adopted.

In accordance with TPDM - Volume 4.2.5.2

** Note: The probability of maximum queue exceeding the critical value are 5% & 1% for 1 in 20 & 1 in 100 cases respectively (TPDM V.4.2. Table 2.5.2.4 & 2.5.2.5)*

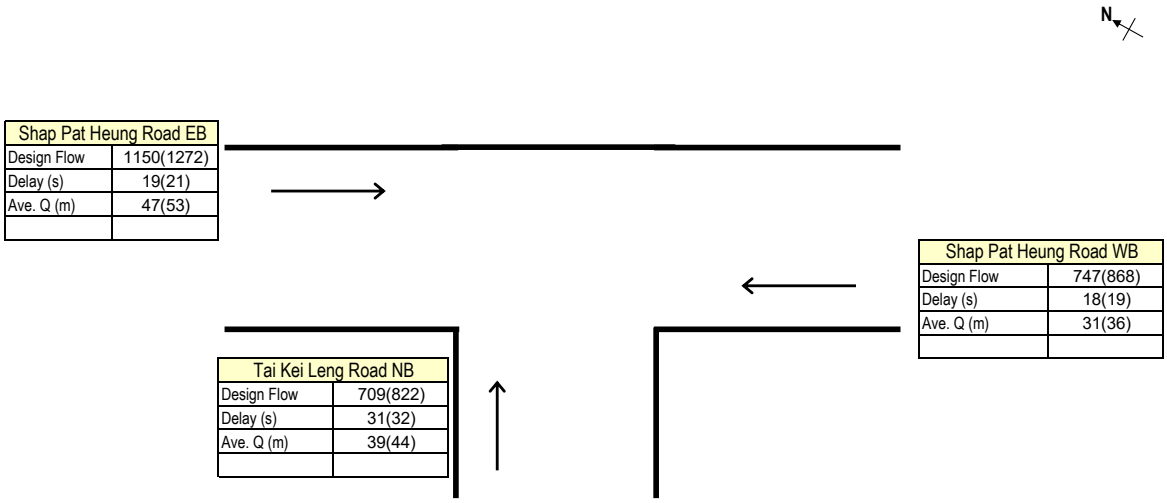
Date: 15/07/2022

* Remarks

QUEUE LENGTH CALCULATION [SIGNALIZED JUNCTION]

ATKINS
Member of the SNC-Lavalin Group

Job Title:	CE46/2020 TO4 Housing Development at Shap Pat Heung Road	Job No.:	5210095		
Junction:	J9 - TAI KEI LENG ROAD/SHAP PAT HEUNG ROAD (YL84)	Ref. No.:			
Scheme:	Design	Design year:	2032		
		Designed by:	PC	Checked by:	TL
Arm A:	Shap Pat Heung Road WB				
Arm B:	Tai Kei Leng Road NB				
Arm C:	Shap Pat Heung Road EB				



GREEN TIME, CYCLE TIME AND FLOWS DATA

		AM					PM				
	Number of Lanes, n	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p
SPH Road WB	2	69	128	747	3525	1.2	68	128	868	3525	1.2
Tai Kei Leng Road NB	2	49	128	709	3645	1.2	50	128	822	3645	1.2
SPH Road EB	2	69	128	1150	4170	1.2	68	128	1272	4170	1.2

AM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
SPH Road WB	59	0.54	0.39	22.1			18	24	31	31	31
Tai Kei Leng Road NB	79	0.38	0.51	21.0			31	35	39	39	39
SPH Road EB	59	0.54	0.51	34.1			19	39	47	47	47

PM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
SPH Road WB	60	0.53	0.46	25.7			19	30	36	36	36
Tai Kei Leng Road NB	78	0.39	0.58	24.4			32	40	44	44	44
SPH Road EB	60	0.53	0.58	37.7			21	45	53	53	53

RESULT SUMMARY

			AM Average Queue Length (m)		PM Average Queue Length (m)
Arm A:	Shap Pat Heung Road WB		**31**		**36**
Arm B:	Tai Kei Leng Road NB		**39**		**44**
Arm C:	Shap Pat Heung Road EB		**47**		**53**

Effective Red, r = c-g
Effective Green Ratio, L = g/c
Degree of Saturation, X = q/(SL)
Average Arrival Rate, M = qc/3600p
Maximum Queue Length = 6 * Maximum Queue/n
Estimated Delay, d = c(1-L)²/2(1-LX) + 3600pX²/2q(1-X) - 0.65(c/(q/3600p)²)^(1/3)*X^(2+5L) OR by Akcelik's time-dependent expression if X>X'
Average Queue Length, L1 = 6q(r/2+d)/3600pn OR L2 = 6qr/3600pn whichever the greater, OR L3 (Akcelik's time-dependent expression, if X>X')

Max. Queue (1 in 100) adopted.

In accordance with TPDM - Volume 4.2.5.2

** Note: The probability of maximum queue exceeding the critical value are 5% & 1% for 1 in 20 & 1 in 100 cases respectively (TPDM V.4.2. Table 2.5.2.4 & 2.5.2.5)*

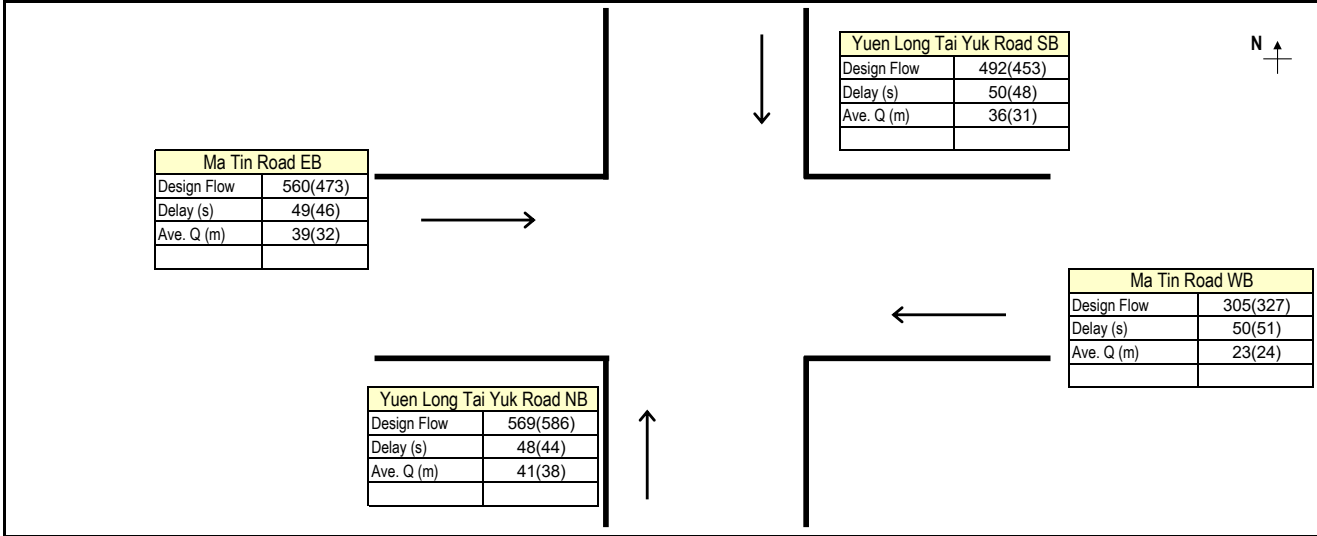
Date: 15/07/2022

* Remarks

QUEUE LENGTH CALCULATION [SIGNALIZED JUNCTION]

ATKINS
Member of the SNC-Lavalin Group

Job Title:	CE46/2020 TO4 Housing Development at Shap Pat Heung Road	Job No.:	5210095		
Junction:	J11 - YUEN LONG TAI YUK ROAD/MA TIN ROAD (YL101)	Ref. No.:			
Scheme:	Existing	Design year:	2021		
		Designed by:	PC	Checked by:	TL
Arm A:	Ma Tin Road WB				
Arm B:	Yuen Long Tai Yuk Road NB				
Arm C:	Ma Tin Road EB				
Arm D:	Yuen Long Tai Yuk Road SB				



GREEN TIME, CYCLE TIME AND FLOWS DATA

		AM					PM				
	Number of Lanes, n	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p
Ma Tin Road WB	2	21	128	305	3710	1.2	16	120	327	3720	1.2
YL Tai Yuk Road NB	2	25	128	569	3985	1.2	27	120	586	3985	1.2
Ma Tin Road EB	2	27	128	560	3830	1.2	23	120	473	3830	1.2
YL Tai Yuk Road SB	2	23	128	492	3805	1.2	22	120	453	3755	1.2

AM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
Ma Tin Road WB	107	0.16	0.51	9.0			50	22	23	23	23
YL Tai Yuk Road NB	103	0.20	0.72	16.9			48		41	41	41
Ma Tin Road EB	101	0.21	0.70	16.6			49	39	39	39	39
YL Tai Yuk Road SB	105	0.18	0.72	14.6			50		36	36	36

PM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
Ma Tin Road WB	104	0.14	0.65	9.1			51	23	24	24	24
YL Tai Yuk Road NB	93	0.22	0.66	16.3			44	37	38	38	38
Ma Tin Road EB	97	0.19	0.64	13.1			46	31	32	32	32
YL Tai Yuk Road SB	98	0.18	0.66	12.6			48	30	31	31	31

RESULT SUMMARY

			AM Average Queue Length (m)		PM Average Queue Length (m)
Arm A:	Ma Tin Road WB		**23**		**24**
Arm B:	Yuen Long Tai Yuk Road NB		**41**		**38**
Arm C:	Ma Tin Road EB		**39**		**32**
Arm D:	Yuen Long Tai Yuk Road SB		**36**		**31**

Effective Red, r = c-g
Effective Green Ratio, L = g/c
Degree of Saturation, X = q/(SL) Max. Queue (1 in 100) adopted.
Average Arrival Rate, M = qc/3600p
Maximum Queue Length = 6 * Maximum Queue/n
Estimated Delay, d = c(1-L)²/2(1-LX) + 3600pX²/2q(1-X) - 0.65(c/(q/3600p)²)^(1/3)*X^(2+5L) OR by Akcelik's time-dependent expression if X>X'
Average Queue Length, L1 = 6q(r/2+d)/3600pn OR L2 = 6qr/3600pn whichever the greater, OR L3 (Akcelik's time-dependent expression, if X>X')

In accordance with TPDM - Volume 4.2.5.2

** Note: The probability of maximum queue exceeding the critical value are 5% & 1% for 1 in 20 & 1 in 100 cases respectively (TPDM V.4.2. Table 2.5.2.4 & 2.5.2.5)*

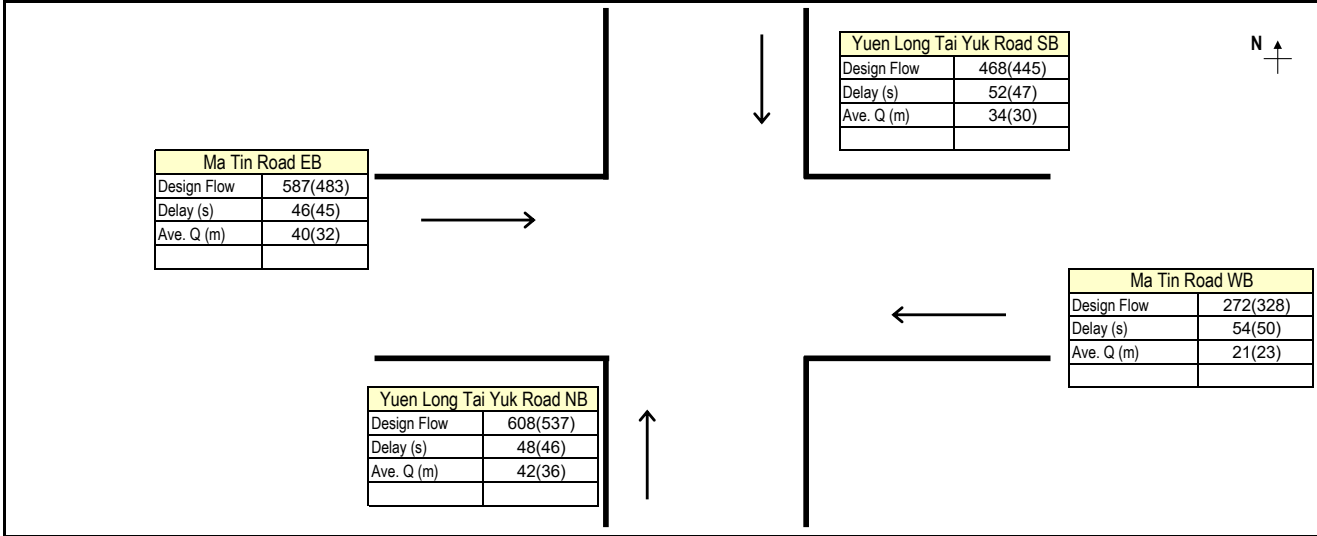
Date: 15/07/2022

* Remarks

QUEUE LENGTH CALCULATION [SIGNALIZED JUNCTION]

ATKINS
Member of the SNC-Lavalin Group

Job Title:	CE46/2020 TO4 Housing Development at Shap Pat Heung Road	Job No.:	5210095		
Junction:	J11 - YUEN LONG TAI YUK ROAD/MA TIN ROAD (YL101)	Ref. No.:			
Scheme:	Reference	Design year:	2032		
		Designed by:	PC	Checked by:	TL
Arm A:	Ma Tin Road WB				
Arm B:	Yuen Long Tai Yuk Road NB				
Arm C:	Ma Tin Road EB				
Arm D:	Yuen Long Tai Yuk Road SB				



GREEN TIME, CYCLE TIME AND FLOWS DATA

		AM					PM				
	Number of Lanes, n	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p
Ma Tin Road WB	2	16	128	272	3725	1.2	17	120	328	3735	1.2
YL Tai Yuk Road NB	2	28	128	608	3980	1.2	24	120	537	3985	1.2
Ma Tin Road EB	2	29	128	587	3830	1.2	25	120	483	3830	1.2
YL Tai Yuk Road SB	2	22	128	468	3860	1.2	22	120	445	3745	1.2

AM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
Ma Tin Road WB	112	0.13	0.58	8.1			54	21	21	21	21
YL Tai Yuk Road NB	100	0.22	0.69	18.0			48	41	42	42	42
Ma Tin Road EB	99	0.23	0.67	17.4			46	39	40	40	40
YL Tai Yuk Road SB	106	0.17	0.69	13.9			52	34	34	34	34

PM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
Ma Tin Road WB	103	0.14	0.62	9.1			50	23	23	23	23
YL Tai Yuk Road NB	96	0.20	0.66	14.9			46	35	36	36	36
Ma Tin Road EB	95	0.21	0.61	13.4			45	31	32	32	32
YL Tai Yuk Road SB	98	0.18	0.65	12.4			47	30	30	30	30

RESULT SUMMARY

			AM Average Queue Length (m)		PM Average Queue Length (m)
Arm A:	Ma Tin Road WB		**21**		**23**
Arm B:	Yuen Long Tai Yuk Road NB		**42**		**36**
Arm C:	Ma Tin Road EB		**40**		**32**
Arm D:	Yuen Long Tai Yuk Road SB		**34**		**30**

Effective Red, r = c-g
Effective Green Ratio, L = g/c
Degree of Saturation, X = q/(SL) Max. Queue (1 in 100) adopted.
Average Arrival Rate, M = qc/3600p
Maximum Queue Length = 6 * Maximum Queue/n
Estimated Delay, d = c(1-L)²/2(1-LX) + 3600pX²/2q(1-X) - 0.65(c/(q/3600p)²)^(1/3)*X^(2+5L) OR by Akcelik's time-dependent expression if X>X'
Average Queue Length, L1 = 6q(r/2+d)/3600pn OR L2 = 6qr/3600pn whichever the greater, OR L3 (Akcelik's time-dependent expression, if X>X')

In accordance with TPDM - Volume 4.2.5.2

** Note: The probability of maximum queue exceeding the critical value are 5% & 1% for 1 in 20 & 1 in 100 cases respectively (TPDM V.4.2. Table 2.5.2.4 & 2.5.2.5)*

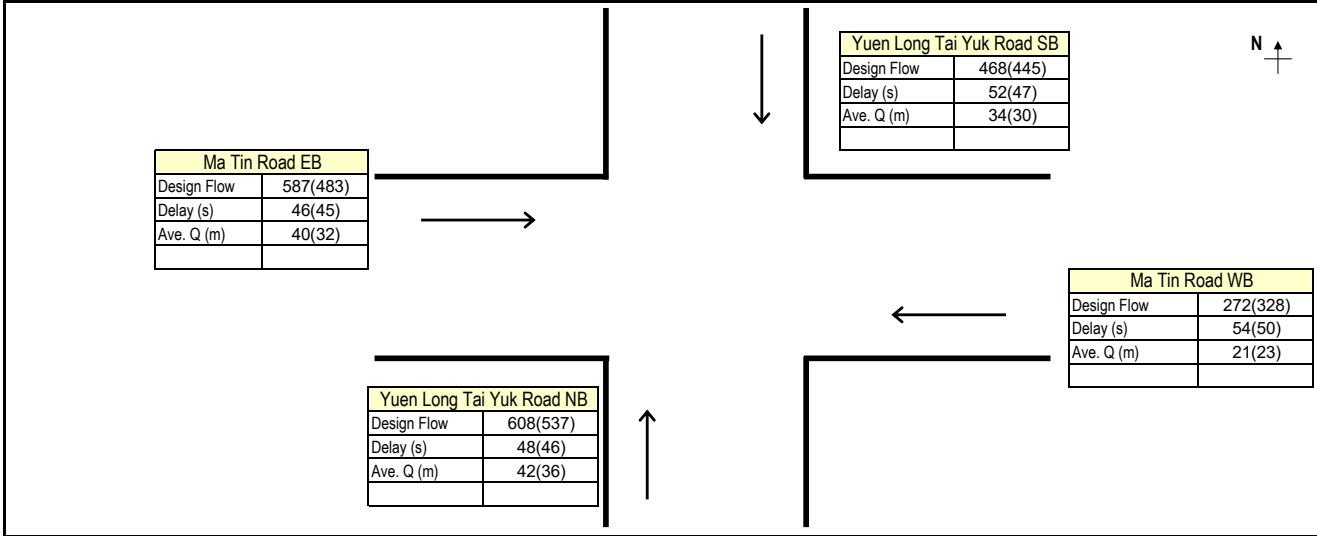
Date: 15/07/2022

* Remarks

QUEUE LENGTH CALCULATION [SIGNALIZED JUNCTION]

ATKINS
Member of the SNC-Lavalin Group

Job Title:	CE46/2020 TO4 Housing Development at Shap Pat Heung Road	Job No.:	5210095		
Junction:	J11 - YUEN LONG TAI YUK ROAD/MA TIN ROAD (YL101)	Ref. No.:			
Scheme:	Design	Design year:	2032		
		Designed by:	PC	Checked by:	TL
Arm A:	Ma Tin Road WB				
Arm B:	Yuen Long Tai Yuk Road NB				
Arm C:	Ma Tin Road EB				
Arm D:	Yuen Long Tai Yuk Road SB				



GREEN TIME, CYCLE TIME AND FLOWS DATA

		AM					PM				
	Number of Lanes, n	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p
Ma Tin Road WB	2	16	128	272	3725	1.2	17	120	328	3735	1.2
YL Tai Yuk Road NB	2	28	128	608	3980	1.2	24	120	537	3985	1.2
Ma Tin Road EB	2	29	128	587	3830	1.2	25	120	483	3830	1.2
YL Tai Yuk Road SB	2	22	128	468	3860	1.2	22	120	445	3745	1.2

AM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
Ma Tin Road WB	112	0.13	0.58	8.1			54	21	21	21	21
YL Tai Yuk Road NB	100	0.22	0.69	18.0			48	41	42	42	42
Ma Tin Road EB	99	0.23	0.67	17.4			46	39	40	40	40
YL Tai Yuk Road SB	106	0.17	0.69	13.9			52	34	34	34	34

PM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
Ma Tin Road WB	103	0.14	0.62	9.1			50	23	23	23	23
YL Tai Yuk Road NB	96	0.20	0.66	14.9			46	35	36	36	36
Ma Tin Road EB	95	0.21	0.61	13.4			45	31	32	32	32
YL Tai Yuk Road SB	98	0.18	0.65	12.4			47	30	30	30	30

RESULT SUMMARY

			AM Average Queue Length (m)		PM Average Queue Length (m)
Arm A:	Ma Tin Road WB		**21**		**23**
Arm B:	Yuen Long Tai Yuk Road NB		**42**		**36**
Arm C:	Ma Tin Road EB		**40**		**32**
Arm D:	Yuen Long Tai Yuk Road SB		**34**		**30**

Effective Red, r = c-g
Effective Green Ratio, L = g/c
Degree of Saturation, X = q/(SL) Max. Queue (1 in 100) adopted.
Average Arrival Rate, M = qc/3600p
Maximum Queue Length = 6 * Maximum Queue/n
Estimated Delay, d = c(1-L)²/2(1-LX) + 3600pX²/2q(1-X) - 0.65(c/(q/3600p)²)^(1/3)*X^(2+5L) OR by Akcelik's time-dependent expression if X>X'
Average Queue Length, L1 = 6q(r/2+d)/3600pn OR L2 = 6qr/3600pn whichever the greater, OR L3 (Akcelik's time-dependent expression, if X>X')

In accordance with TPDM - Volume 4.2.5.2

** Note: The probability of maximum queue exceeding the critical value are 5% & 1% for 1 in 20 & 1 in 100 cases respectively (TPDM V.4.2. Table 2.5.2.4 & 2.5.2.5)*

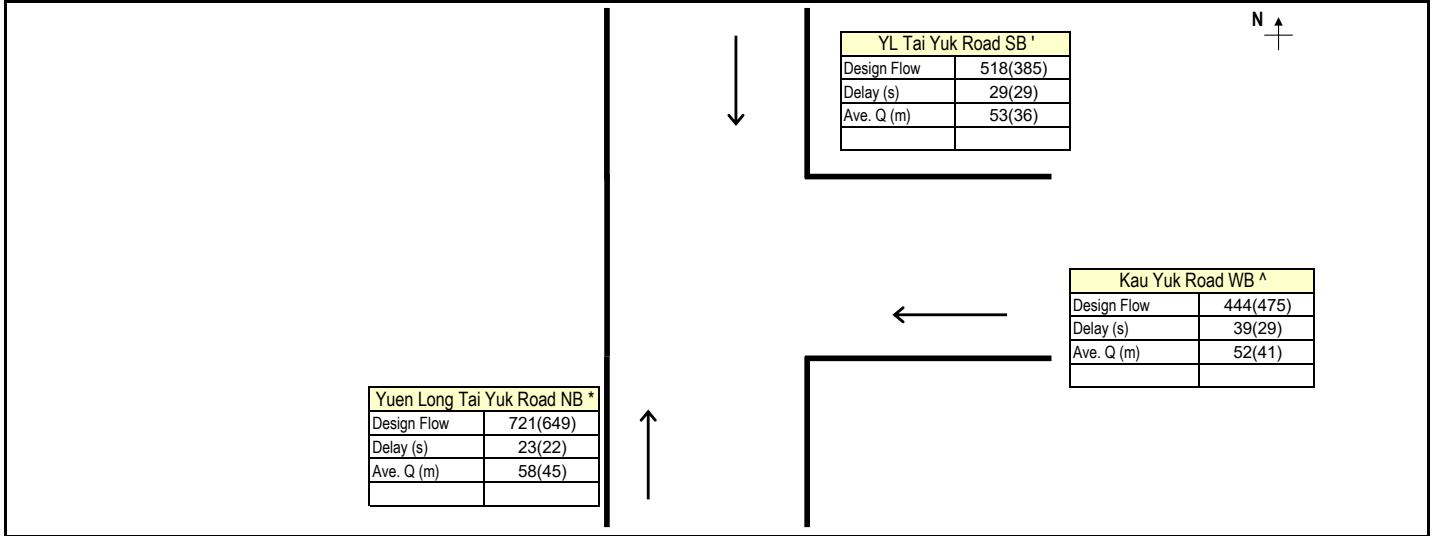
Date: 15/07/2022

* Remarks

QUEUE LENGTH CALCULATION [SIGNALIZED JUNCTION]

ATKINS
Member of the SNC-Lavalin Group

Job Title:	CE46/2020 TO4 Housing Development at Shap Pat Heung Road	Job No.:	5210095		
Junction:	J12 - YUEN LONG TAI YUK ROAD/KAU YUK ROAD (YL51)	Ref. No.:			
Scheme:	Existing	Design year:	2021		
		Designed by:	PC	Checked by:	TL
Arm A:	Kau Yuk Road WB ^				
Arm B:	Yuen Long Tai Yuk Road NB *				
Arm C:	YL Tai Yuk Road SB '				



GREEN TIME, CYCLE TIME AND FLOWS DATA

		AM					PM				
	Number of Lanes, n	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p
Kau Yuk Road WB ^	1	46	130	444	1870	1.2	38	100	475	1870	1.2
YL Tai Yuk Road NB *	1	72	130	721	1935	1.2	50	100	649	1935	1.2
Tai Yuk Road SB '	1	57	130	518	2085	1.2	33	100	385	2085	1.2

AM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
Kau Yuk Road WB ^	84	0.35	0.67	13.4			39	50	52	52	52
YL Tai Yuk Road NB *	58	0.55	0.67	21.7			23	52	58	58	58
Tai Yuk Road SB '	73	0.44	0.57	15.6			29	47	53	53	53

PM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
Kau Yuk Road WB ^	62	0.38	0.67	11.0			29	40	41	41	41
YL Tai Yuk Road NB *	50	0.50	0.67	15.0			22	42	45	45	45
Tai Yuk Road SB '	67	0.33	0.55	8.9			29	34	36	36	36

RESULT SUMMARY

		AM Average Queue Length (m)	PM Average Queue Length (m)
Arm A:	Kau Yuk Road WB ^	**52**	**41**
Arm B:	Yuen Long Tai Yuk Road NB *	**58**	**45**
Arm C:	YL Tai Yuk Road SB '	**53**	**36**

Effective Red, r = c-g
Effective Green Ratio, L = g/c
Degree of Saturation, X = q/(SL) Max. Queue (1 in 100) adopted.
Average Arrival Rate, M = qc/3600p
Maximum Queue Length = 6 * Maximum Queue/n
Estimated Delay, d = c(1-L)²/2(1-LX) + 3600pX²/2q(1-X) - 0.65(c/(q/3600p)²)^(1/3)*X^(2+5L) OR by Akcelik's time-dependent expression if X>X'
Average Queue Length, L1 = 6q(r/2+d)/3600pn OR L2 = 6qr/3600pn whichever the greater, OR L3 (Akcelik's time-dependent expression, if X>X')

In accordance with TPDM - Volume 4.2.5.2

** Note: The probability of maximum queue exceeding the critical value are 5% & 1% for 1 in 20 & 1 in 100 cases respectively (TPDM V.4.2. Table 2.5.2.4 & 2.5.2.5)*

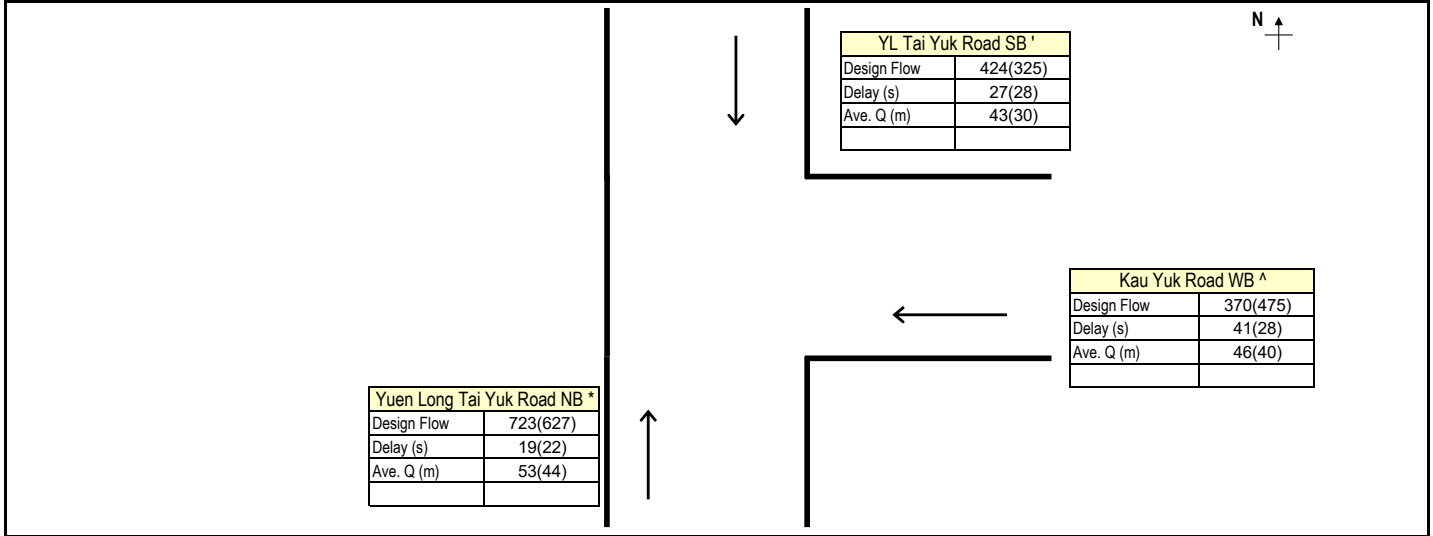
Date: 15/07/2022

* Remarks
^ Queue length for right turn movement is more significant. Queue length for the right turn movement is shown.
* Queue length for straight through movement is more significant. Queue length for the straight through movement is shown.
' Queue length for straight through movement is more significant. Queue length for the straight through movement is shown.

QUEUE LENGTH CALCULATION [SIGNALIZED JUNCTION]

ATKINS
Member of the SNC-Lavalin Group

Job Title:	CE46/2020 TO4 Housing Development at Shap Pat Heung Road	Job No.:	5210095		
Junction:	J12 - YUEN LONG TAI YUK ROAD/KAU YUK ROAD (YL51)	Ref. No.:			
Scheme:	Reference	Design year:	2032		
		Designed by:	PC	Checked by:	TL
Arm A:	Kau Yuk Road WB ^				
Arm B:	Yuen Long Tai Yuk Road NB *				
Arm C:	YL Tai Yuk Road SB '				



GREEN TIME, CYCLE TIME AND FLOWS DATA

		AM					PM				
	Number of Lanes, n	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p
Kau Yuk Road WB ^	1	41	130	370	1870	1.2	39	100	475	1870	1.2
YL Tai Yuk Road NB *	1	77	130	723	1935	1.2	49	100	627	1935	1.2
Tai Yuk Road SB '	1	57	130	424	2085	1.2	33	100	325	2085	1.2

AM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
Kau Yuk Road WB ^	89	0.31	0.63	11.1			41	44	46	46	46
YL Tai Yuk Road NB *	53	0.59	0.63	21.8			19	46	53	53	53
Tai Yuk Road SB '	73	0.44	0.46	12.8			27	38	43	43	43

PM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
Kau Yuk Road WB ^	61	0.39	0.66	11.0			28	39	40	40	40
YL Tai Yuk Road NB *	51	0.49	0.66	14.5			22	41	44	44	44
Tai Yuk Road SB '	67	0.33	0.47	7.5			28	28	30	30	30

RESULT SUMMARY

			AM Average Queue Length (m)		PM Average Queue Length (m)
Arm A:	Kau Yuk Road WB ^		**46**		**40**
Arm B:	Yuen Long Tai Yuk Road NB *		**53**		**44**
Arm C:	YL Tai Yuk Road SB '		**43**		**30**

Effective Red, r = c-g
Effective Green Ratio, L = g/c
Degree of Saturation, X = q/(SL) Max. Queue (1 in 100) adopted.
Average Arrival Rate, M = qc/3600p
Maximum Queue Length = 6 * Maximum Queue/n
Estimated Delay, d = c(1-L)²/2(1-LX) + 3600pX²/2q(1-X) - 0.65(c/(q/3600p)²)^(1/3)*X^(2+5L) OR by Akcelik's time-dependent expression if X>X'
Average Queue Length, L1 = 6q(r/2+d)/3600pn OR L2 = 6qr/3600pn whichever the greater, OR L3 (Akcelik's time-dependent expression, if X>X')

In accordance with TPDM - Volume 4.2.5.2

** Note: The probability of maximum queue exceeding the critical value are 5% & 1% for 1 in 20 & 1 in 100 cases respectively (TPDM V.4.2. Table 2.5.2.4 & 2.5.2.5)*

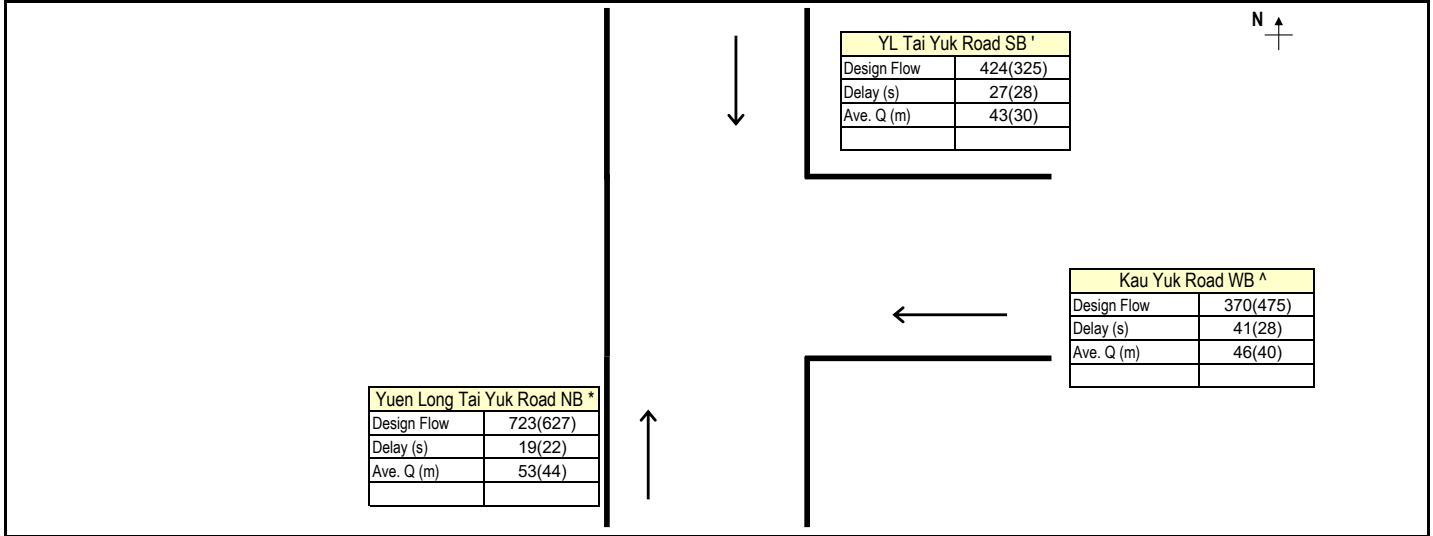
Date: 15/07/2022

* Remarks
^ Queue length for right turn movement is more significant. Queue length for the right turn movement is shown.
* Queue length for straight through movement is more significant. Queue length for the straight through movement is shown.
' Queue length for straight through movement is more significant. Queue length for the straight through movement is shown.

QUEUE LENGTH CALCULATION [SIGNALIZED JUNCTION]

ATKINS
Member of the SNC-Lavalin Group

Job Title:	CE46/2020 TO4 Housing Development at Shap Pat Heung Road	Job No.:	5210095		
Junction:	J12 - YUEN LONG TAI YUK ROAD/KAU YUK ROAD (YL51)	Ref. No.:			
Scheme:	Design	Design year:	2032		
		Designed by:	PC	Checked by:	TL
Arm A:	Kau Yuk Road WB ^				
Arm B:	Yuen Long Tai Yuk Road NB *				
Arm C:	YL Tai Yuk Road SB '				



GREEN TIME, CYCLE TIME AND FLOWS DATA

		AM					PM				
	Number of Lanes, n	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p
Kau Yuk Road WB ^	1	41	130	370	1870	1.2	39	100	475	1870	1.2
YL Tai Yuk Road NB *	1	77	130	723	1935	1.2	49	100	627	1935	1.2
Tai Yuk Road SB '	1	57	130	424	2085	1.2	33	100	325	2085	1.2

AM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
Kau Yuk Road WB ^	89	0.31	0.63	11.1			41	44	46	46	46
YL Tai Yuk Road NB *	53	0.59	0.63	21.8			19	46	53	53	53
Tai Yuk Road SB '	73	0.44	0.46	12.8			27	38	43	43	43

PM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
Kau Yuk Road WB ^	61	0.39	0.66	11.0			28	39	40	40	40
YL Tai Yuk Road NB *	51	0.49	0.66	14.5			22	41	44	44	44
Tai Yuk Road SB '	67	0.33	0.47	7.5			28	28	30	30	30

RESULT SUMMARY

		AM Average Queue Length (m)	PM Average Queue Length (m)
Arm A:	Kau Yuk Road WB ^	**46**	**40**
Arm B:	Yuen Long Tai Yuk Road NB *	**53**	**44**
Arm C:	YL Tai Yuk Road SB '	**43**	**30**

Effective Red, r = c-g
Effective Green Ratio, L = g/c
Degree of Saturation, X = q/(SL) Max. Queue (1 in 100) adopted.
Average Arrival Rate, M = qc/3600p
Maximum Queue Length = 6 * Maximum Queue/n
Estimated Delay, d = c(1-L)²/2(1-LX) + 3600pX²/2q(1-X) - 0.65(c/(q/3600p)²)^(1/3)*X^(2+5L) OR by Akcelik's time-dependent expression if X>X'
Average Queue Length, L1 = 6q(r/2+d)/3600pn OR L2 = 6qr/3600pn whichever the greater, OR L3 (Akcelik's time-dependent expression, if X>X')

In accordance with TPDM - Volume 4.2.5.2

** Note: The probability of maximum queue exceeding the critical value are 5% & 1% for 1 in 20 & 1 in 100 cases respectively (TPDM V.4.2. Table 2.5.2.4 & 2.5.2.5)*

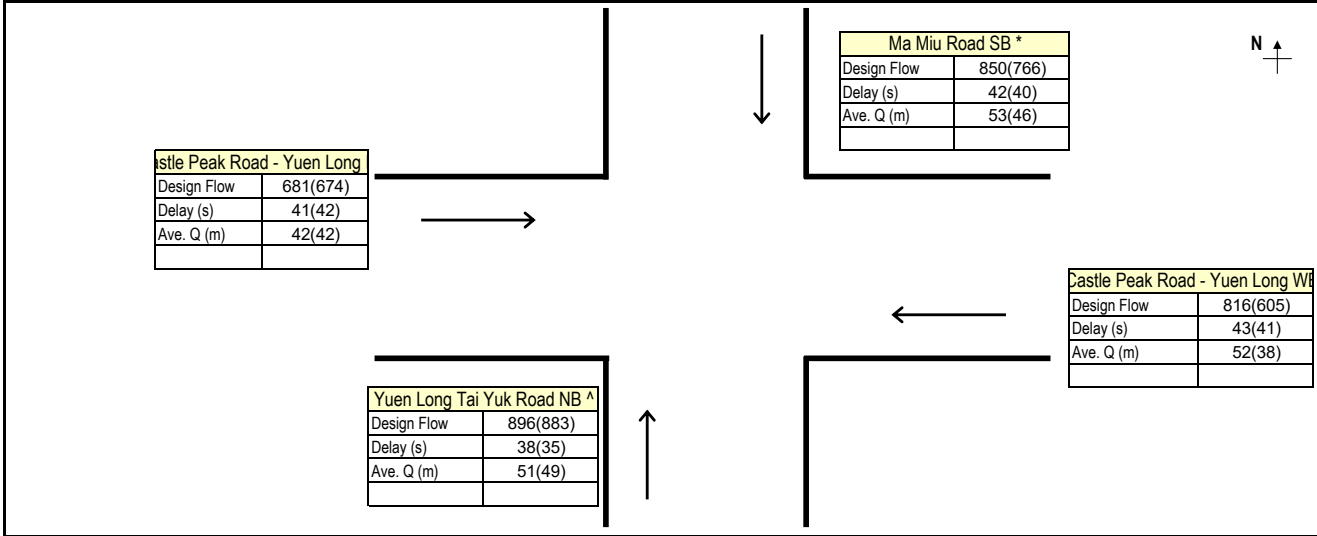
Date: 15/07/2022

* Remarks
^ Queue length for right turn movement is more significant. Queue length for the right turn movement is shown.
* Queue length for straight through movement is more significant. Queue length for the straight through movement is shown.
' Queue length for straight through movement is more significant. Queue length for the straight through movement is shown.

QUEUE LENGTH CALCULATION [SIGNALIZED JUNCTION]

ATKINS
Member of the SNC-Lavalin Group

Job Title:	CE46/2020 TO4 Housing Development at Shap Pat Heung Road	Job No.:	5210095		
Junction:	J13 - YUEN LONG TAI YUK ROAD/CASTLE PEAK ROAD - PING SHAN (MJ16)	Ref. No.:			
Scheme:	Existing	Design year:	2021		
		Designed by:	PC	Checked by:	TL
Arm A:	Castle Peak Road - Yuen Long WB				
Arm B:	Yuen Long Tai Yuk Road NB ^				
Arm C:	Castle Peak Road - Yuen Long EB				
Arm D:	Ma Miu Road SB *				



GREEN TIME, CYCLE TIME AND FLOWS DATA

		AM					PM				
	Number of Lanes, n	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p
Castle Peak Road WB	2	31	120	816	4025	1.2	30	120	605	4030	1.2
YL Tai Yuk Road NB ^	2	38	120	896	3980	1.2	40	120	883	3980	1.2
Castle Peak Road EB	2	31	120	681	3970	1.2	30	120	674	3980	1.2
Ma Miu Road SB *	2	33	120	850	3990	1.2	34	120	766	3985	1.2

AM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
Castle Peak Road WB	89	0.26	0.78	22.7			43		50	52	52
YL Tai Yuk Road NB ^	82	0.32	0.71	24.9			38	49	51	51	51
Castle Peak Road EB	89	0.26	0.66	18.9			41	40	42	42	42
Ma Miu Road SB *	87	0.27	0.78	23.6			42		51	53	53

PM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
Castle Peak Road WB	90	0.25	0.61	16.8			41	36	38	38	38
YL Tai Yuk Road NB ^	80	0.34	0.66	24.5			35	46	49	49	49
Castle Peak Road EB	90	0.25	0.68	18.7			42	41	42	42	42
Ma Miu Road SB *	86	0.28	0.68	21.3			40	44	46	46	46

RESULT SUMMARY

			AM Average Queue Length (m)		PM Average Queue Length (m)
Arm A:	Castle Peak Road - Yuen Long WB		**52**		**38**
Arm B:	Yuen Long Tai Yuk Road NB ^		**51**		**49**
Arm C:	Castle Peak Road - Yuen Long EB		**42**		**42**
Arm D:	Ma Miu Road SB *		**53**		**46**

Effective Red, r = c-g
Effective Green Ratio, L = g/c
Degree of Saturation, X = q/(SL) Max. Queue (1 in 100) adopted.
Average Arrival Rate, M = qc/3600p
Maximum Queue Length = 6 * Maximum Queue/n
Estimated Delay, d = c(1-L)²/2(1-LX) + 3600pX²/2q(1-X) - 0.65(c/(q/3600p)²)^(1/3)*X^(2+5L) OR by Akcelik's time-dependent expression if X>X'
Average Queue Length, L1 = 6q(r/2+d)/3600pn OR L2 = 6qr/3600pn whichever the greater, OR L3 (Akcelik's time-dependent expression, if X>X')

In accordance with TPDM - Volume 4.2.5.2

** Note: The probability of maximum queue exceeding the critical value are 5% & 1% for 1 in 20 & 1 in 100 cases respectively (TPDM V.4.2. Table 2.5.2.4 & 2.5.2.5)*

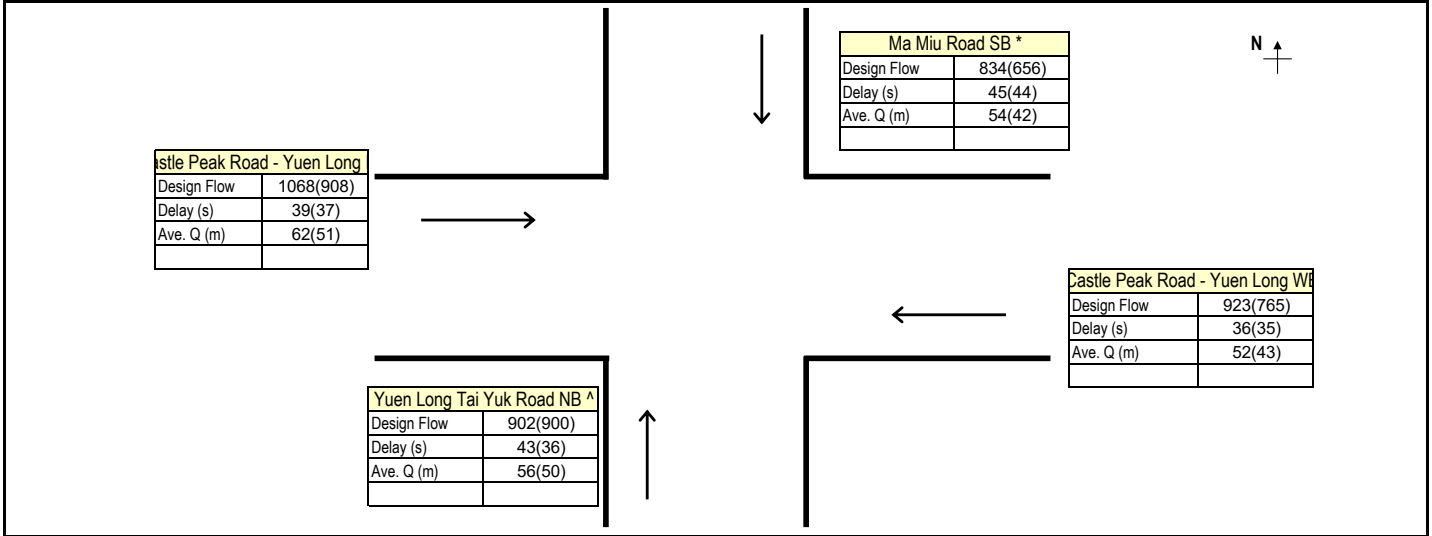
Date: 31/05/2022

* Remarks ^ Queue length for left turn and straight through movements is more significant. Queue length for the left turn and straight through movements is shown.
* Queue length of the exclusive bus lane is less significant. The exclusive bus lane has been excluded.

QUEUE LENGTH CALCULATION [SIGNALIZED JUNCTION]

ATKINS
Member of the SNC-Lavalin Group

Job Title:	CE46/2020 TO4 Housing Development at Shap Pat Heung Road	Job No.:	5210095		
Junction:	J13 - YUEN LONG TAI YUK ROAD/CASTLE PEAK ROAD - PING SHAN (MJ16)	Ref. No.:			
Scheme:	Reference	Design year:	2032		
		Designed by:	PC	Checked by:	TL
Arm A:	Castle Peak Road - Yuen Long WB				
Arm B:	Yuen Long Tai Yuk Road NB ^				
Arm C:	Castle Peak Road - Yuen Long EB				
Arm D:	Ma Miu Road SB *				



GREEN TIME, CYCLE TIME AND FLOWS DATA

		AM					PM				
	Number of Lanes, n	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p
Castle Peak Road WB	2	39	120	923	4035	1.2	39	120	765	4035	1.2
YL Tai Yuk Road NB ^	2	34	120	902	3980	1.2	40	120	900	3980	1.2
Castle Peak Road EB	2	39	120	1068	3995	1.2	39	120	908	3995	1.2
Ma Miu Road SB *	2	31	120	834	3990	1.2	28	120	656	3990	1.2

AM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
Castle Peak Road WB	81	0.33	0.70	25.6			36	49	52	52	52
YL Tai Yuk Road NB ^	86	0.28	0.81	25.1			43		54	56	56
Castle Peak Road EB	81	0.33	0.82	29.7			39		60	62	62
Ma Miu Road SB *	89	0.26	0.81	23.2			45		52	54	54

PM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
Castle Peak Road WB	81	0.32	0.59	21.3			35	40	43	43	43
YL Tai Yuk Road NB ^	80	0.33	0.68	25.0			36	47	50	50	50
Castle Peak Road EB	81	0.32	0.70	25.2			37	49	51	51	51
Ma Miu Road SB *	92	0.23	0.70	18.2			44	41	42	42	42

RESULT SUMMARY

			AM Average Queue Length (m)		PM Average Queue Length (m)
Arm A:	Castle Peak Road - Yuen Long WB		**52**		**43**
Arm B:	Yuen Long Tai Yuk Road NB ^		**56**		**50**
Arm C:	Castle Peak Road - Yuen Long EB		**62**		**51**
Arm D:	Ma Miu Road SB *		**54**		**42**

Effective Red, r = c-g
Effective Green Ratio, L = g/c
Degree of Saturation, X = q/(SL) Max. Queue (1 in 100) adopted.
Average Arrival Rate, M = qc/3600p
Maximum Queue Length = 6 * Maximum Queue/n
Estimated Delay, d = c(1-L)²/2(1-LX) + 3600pX²/2q(1-X) - 0.65(c/(q/3600p)²)^(1/3)*X^(2+5L) OR by Akcelik's time-dependent expression if X>X'
Average Queue Length, L1 = 6q(r/2+d)/3600pn OR L2 = 6qr/3600pn whichever the greater, OR L3 (Akcelik's time-dependent expression, if X>X')

In accordance with TPDM - Volume 4.2.5.2

** Note: The probability of maximum queue exceeding the critical value are 5% & 1% for 1 in 20 & 1 in 100 cases respectively (TPDM V.4.2. Table 2.5.2.4 & 2.5.2.5)*

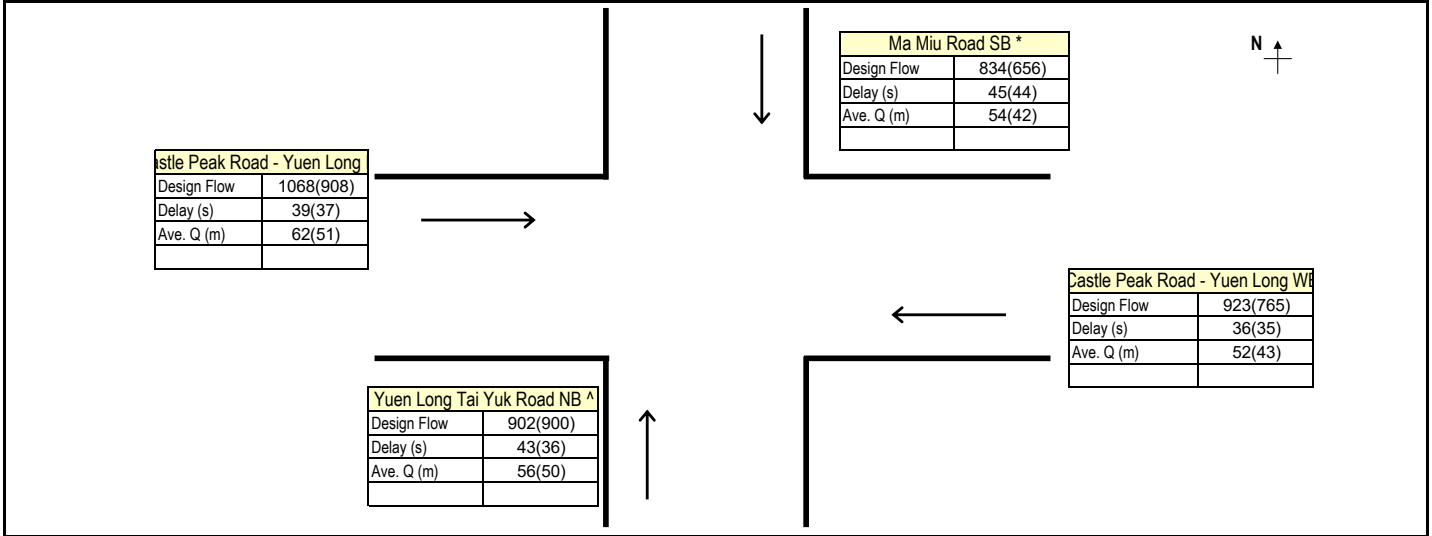
Date: 31/05/2022

* Remarks ^ Queue length for left turn and straight through movements is more significant. Queue length for the left turn and straight through movements is shown.
* Queue length of the exclusive bus lane is less significant. The exclusive bus lane has been excluded.

QUEUE LENGTH CALCULATION [SIGNALIZED JUNCTION]

ATKINS
Member of the SNC-Lavalin Group

Job Title:	CE46/2020 TO4 Housing Development at Shap Pat Heung Road	Job No.:	5210095		
Junction:	J13 - YUEN LONG TAI YUK ROAD/CASTLE PEAK ROAD - PING SHAN (MJ16)	Ref. No.:			
Scheme:	Design	Design year:	2032		
		Designed by:	PC	Checked by:	TL
Arm A:	Castle Peak Road - Yuen Long WB				
Arm B:	Yuen Long Tai Yuk Road NB ^				
Arm C:	Castle Peak Road - Yuen Long EB				
Arm D:	Ma Miu Road SB *				



GREEN TIME, CYCLE TIME AND FLOWS DATA

		AM					PM				
	Number of Lanes, n	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p
Castle Peak Road WB	2	39	120	923	4035	1.2	39	120	765	4035	1.2
YL Tai Yuk Road NB ^	2	34	120	902	3980	1.2	40	120	900	3980	1.2
Castle Peak Road EB	2	39	120	1068	3995	1.2	39	120	908	3995	1.2
Ma Miu Road SB *	2	31	120	834	3990	1.2	28	120	656	3990	1.2

AM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
Castle Peak Road WB	81	0.33	0.70	25.6			36	49	52	52	52
YL Tai Yuk Road NB ^	86	0.28	0.81	25.1			43		54	56	56
Castle Peak Road EB	81	0.33	0.82	29.7			39		60	62	62
Ma Miu Road SB *	89	0.26	0.81	23.2			45		52	54	54

PM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
Castle Peak Road WB	81	0.32	0.59	21.3			35	40	43	43	43
YL Tai Yuk Road NB ^	80	0.33	0.68	25.0			36	47	50	50	50
Castle Peak Road EB	81	0.32	0.70	25.2			37	49	51	51	51
Ma Miu Road SB *	92	0.23	0.70	18.2			44	41	42	42	42

RESULT SUMMARY

			AM Average Queue Length (m)		PM Average Queue Length (m)
Arm A:	Castle Peak Road - Yuen Long WB		**52**		**43**
Arm B:	Yuen Long Tai Yuk Road NB ^		**56**		**50**
Arm C:	Castle Peak Road - Yuen Long EB		**62**		**51**
Arm D:	Ma Miu Road SB *		**54**		**42**

Effective Red, r = c-g
Effective Green Ratio, L = g/c
Degree of Saturation, X = q/(SL) Max. Queue (1 in 100) adopted.
Average Arrival Rate, M = qc/3600p
Maximum Queue Length = 6 * Maximum Queue/n
Estimated Delay, d = c(1-L)²/2(1-LX) + 3600pX²/2q(1-X) - 0.65(c/(q/3600p)²)^(1/3)*X^(2+5L) OR by Akcelik's time-dependent expression if X>X'
Average Queue Length, L1 = 6q(r/2+d)/3600pn OR L2 = 6qr/3600pn whichever the greater, OR L3 (Akcelik's time-dependent expression, if X>X')

In accordance with TPDM - Volume 4.2.5.2

** Note: The probability of maximum queue exceeding the critical value are 5% & 1% for 1 in 20 & 1 in 100 cases respectively (TPDM V.4.2. Table 2.5.2.4 & 2.5.2.5)*

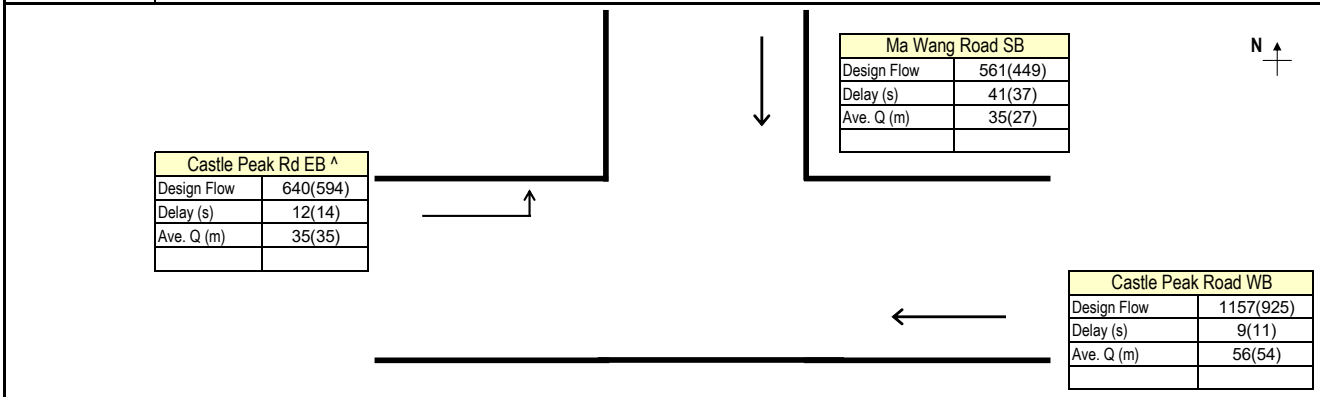
Date: 31/05/2022

* Remarks ^ Queue length for left turn and straight through movements is more significant. Queue length for the left turn and straight through movements is shown.
* Queue length of the exclusive bus lane is less significant. The exclusive bus lane has been excluded.

QUEUE LENGTH CALCULATION [SIGNALIZED JUNCTION]

ATKINS
Member of the SNC-Lavalin Group

Job Title:	CE46/2020 TO4 Housing Development at Shap Pat Heung Road	Job No.:	5210095		
Junction:	J14 - MA WANG ROAD/CASTLE PEAK ROAD - PING SHAN (MJ15)	Ref. No.:			
Scheme:	Existing	Design year:	2021		
		Designed by:	PC	Checked by:	TL
Arm A:	Castle Peak Road WB				
Arm B:	Castle Peak Rd EB ^				
Arm C:	Ma Wang Road SB				



GREEN TIME, CYCLE TIME AND FLOWS DATA

		AM					PM				
	Number of Lanes, n	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p
Castle Peak Road WB	1	73	108	1157	3855	1.2	66	108	925	3855	1.2
Castle Peak Rd EB ^	1	69	108	640	2000	1.2	65	108	594	2000	1.2
Ma Wang Road SB	2	19	108	561	5875	1.2	22	108	449	5885	1.2

AM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
Castle Peak Road WB	35	0.68	0.44	28.9			9	42	56	56	56
Castle Peak Rd EB ^	39	0.64	0.50	16.0			12	28	35	35	35
Ma Wang Road SB	89	0.18	0.54	14.0			41	33	35	35	35

PM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
Castle Peak Road WB	42	0.61	0.39	23.1			11	42	54	54	54
Castle Peak Rd EB ^	43	0.60	0.49	14.9			14	29	35	35	35
Ma Wang Road SB	86	0.21	0.37	11.2			37	25	27	27	27

RESULT SUMMARY

			AM Average Queue Length (m)		PM Average Queue Length (m)
Arm A:	Castle Peak Road WB		**56**		**54**
Arm B:	Castle Peak Rd EB ^		**35**		**35**
Arm C:	Ma Wang Road SB		**35**		**27**

Effective Red, r = c-g
Effective Green Ratio, L = g/c
Degree of Saturation, X = q/(SL) Max. Queue (1 in 100) adopted.
Average Arrival Rate, M = qc/3600p
Maximum Queue Length = 6 * Maximum Queue/n
Estimated Delay, d = c(1-L)²/2(1-LX) + 3600pX²/2q(1-X) - 0.65(c/(q/3600p)²)^(1/3)*X^(2+5L) OR by Akcelik's time-dependent expression if X>X'
Average Queue Length, L1 = 6q(r/2+d)/3600pn OR L2 = 6qr/3600pn whichever the greater, OR L3 (Akcelik's time-dependent expression, if X>X')

In accordance with TPDM - Volume 4.2.5.2

** Note: The probability of maximum queue exceeding the critical value are 5% & 1% for 1 in 20 & 1 in 100 cases respectively (TPDM V.4.2. Table 2.5.2.4 & 2.5.2.5)*

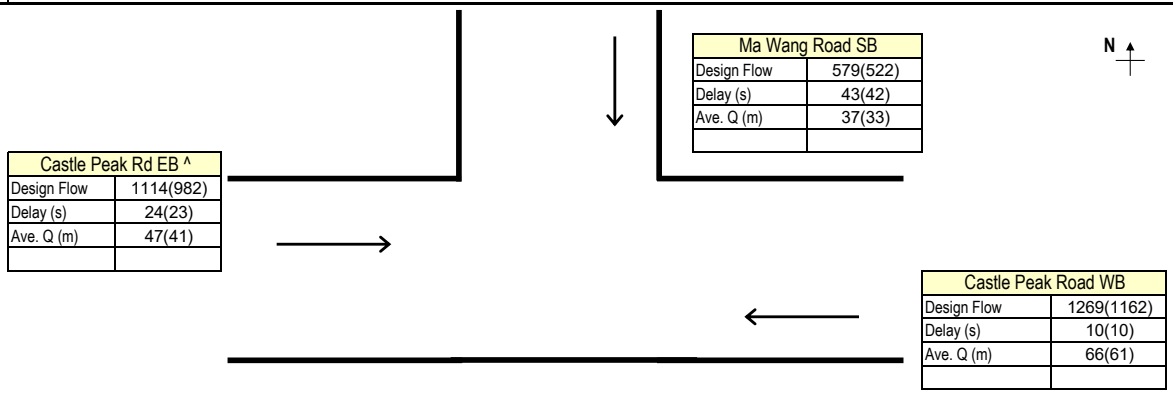
Date: 31/05/2022

* Remarks ^ Queue length for left turn movement is more significant. Queue length for the left turn movement is shown.

QUEUE LENGTH CALCULATION [SIGNALIZED JUNCTION]

ATKINS
Member of the SNC-Lavalin Group

Job Title:	CE46/2020 TO4 Housing Development at Shap Pat Heung Road	Job No.:	5210095		
Junction:	J14 - MA WANG ROAD/CASTLE PEAK ROAD - PING SHAN (MJ15)	Ref. No.:			
Scheme:	Reference	Design year:	2032		
		Designed by:	PC	Checked by:	TL
Arm A:	Castle Peak Road WB				
Arm B:	Castle Peak Rd EB ^				
Arm C:	Ma Wang Road SB				



GREEN TIME, CYCLE TIME AND FLOWS DATA

		AM					PM				
	Number of Lanes, n	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p
Castle Peak Road WB	1	71	108	1269	3855	1.2	71	108	1162	3865	1.2
Castle Peak Rd EB ^	2	48	108	1114	4070	1.2	48	108	982	4070	1.2
Ma Wang Road SB	2	17	108	579	5885	1.2	17	108	522	5885	1.2

AM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
Castle Peak Road WB	37	0.66	0.50	31.7			10	51	66	66	66
Castle Peak Rd EB ^	60	0.44	0.62	27.9			24	42	47	47	47
Ma Wang Road SB	91	0.16	0.62	14.5			43	36	37	37	37

PM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
Castle Peak Road WB	37	0.65	0.46	29.1			10	46	61	61	61
Castle Peak Rd EB ^	60	0.44	0.55	24.6			23	36	41	41	41
Ma Wang Road SB	91	0.16	0.55	13.1			42	32	33	33	33

RESULT SUMMARY

		AM Average Queue Length (m)	PM Average Queue Length (m)
Arm A:	Castle Peak Road WB	**66**	**61**
Arm B:	Castle Peak Rd EB ^	**47**	**41**
Arm C:	Ma Wang Road SB	**37**	**33**

Effective Red, r = c-g
Effective Green Ratio, L = g/c
Degree of Saturation, X = q/(SL)
Average Arrival Rate, M = qc/3600p
Maximum Queue Length = 6 * Maximum Queue/n
Estimated Delay, d = c(1-L)²/2(1-LX) + 3600pX²/2q(1-X) - 0.65(c/(q/3600p)²)^(1/3)*X^(2+5L) OR by Akcelik's time-dependent expression if X>X'
Average Queue Length, L1 = 6q(r/2+d)/3600pn OR L2 = 6qr/3600pn whichever the greater, OR L3 (Akcelik's time-dependent expression, if X>X')

Max. Queue (1 in 100) adopted.

In accordance with TPDM - Volume 4.2.5.2

** Note: The probability of maximum queue exceeding the critical value are 5% & 1% for 1 in 20 & 1 in 100 cases respectively (TPDM V.4.2. Table 2.5.2.4 & 2.5.2.5)*

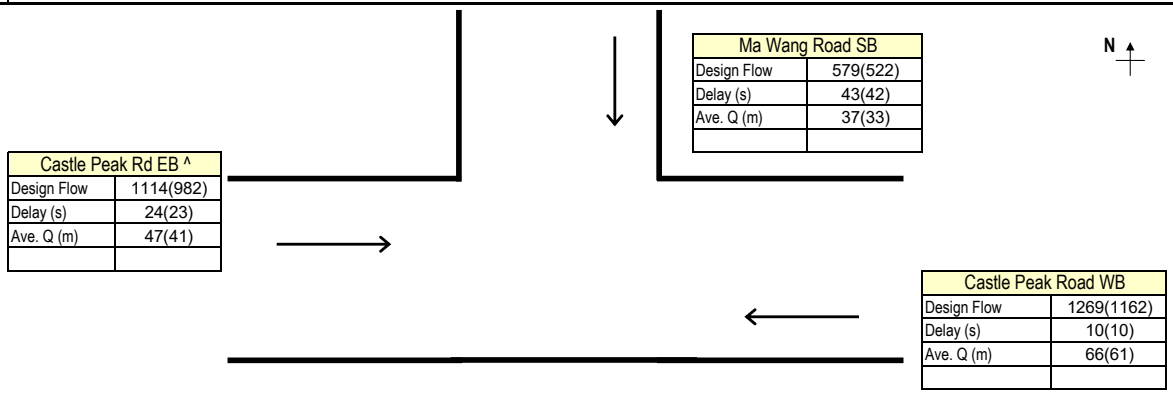
Date: 31/05/2022

* Remarks ^ Queue length for straight through turn movement is more significant. Queue length for the straight through movement is shown.

QUEUE LENGTH CALCULATION [SIGNALIZED JUNCTION]

ATKINS
Member of the SNC-Lavalin Group

Job Title:	CE46/2020 TO4 Housing Development at Shap Pat Heung Road	Job No.:	5210095		
Junction:	J14 - MA WANG ROAD/CASTLE PEAK ROAD - PING SHAN (MJ15)	Ref. No.:			
Scheme:	Design	Design year:	2032		
		Designed by:	PC	Checked by:	TL
Arm A:	Castle Peak Road WB				
Arm B:	Castle Peak Rd EB ^				
Arm C:	Ma Wang Road SB				



GREEN TIME, CYCLE TIME AND FLOWS DATA

		AM					PM				
	Number of Lanes, n	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p	Effective Green, g (sec)	Cycle Time, c (sec)	Design Flow, q (pcu/hr)	Saturation Flow, S (pcu/hr)	PCU Factor, p
Castle Peak Road WB	1	71	108	1269	3855	1.2	71	108	1162	3865	1.2
CPR EB (LT)	2	48	108	1114	4070	1.2	48	108	982	4070	1.2
CPR EB (ST)	2	17	108	579	5885	1.2	17	108	522	5885	1.2

AM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
Castle Peak Road WB	37	0.66	0.50	31.7			10	51	66	66	66
CPR EB (LT)	60	0.44	0.62	27.9			24	42	47	47	47
CPR EB (ST)	91	0.16	0.62	14.5			43	36	37	37	37

PM PEAK QUEUE LENGTH CALCULATION

	Effective Red, r (sec)	Effective Green Ratio, L	Degree of Saturation, X	Average Arrival Rate, M (veh/cycle)			Estimated Delay, d(sec)	Average Queue Length, L1 (m)	Average Queue Length, L2 (m)	Average Queue Length, L3 (m)	Average Queue Length (m)
Castle Peak Road WB	37	0.65	0.46	29.1			10	46	61	61	61
CPR EB (LT)	60	0.44	0.55	24.6			23	36	41	41	41
CPR EB (ST)	91	0.16	0.55	13.1			42	32	33	33	33

RESULT SUMMARY

		AM Average Queue Length (m)	PM Average Queue Length (m)
Arm A:	Castle Peak Road WB	**66**	**61**
Arm B:	Castle Peak Rd EB ^	**47**	**41**
Arm C:	Ma Wang Road SB	**37**	**33**

Effective Red, r = c-g
Effective Green Ratio, L = g/c
Degree of Saturation, X = q/(SL)
Average Arrival Rate, M = qc/3600p
Maximum Queue Length = 6 * Maximum Queue/n
Estimated Delay, d = c(1-L)²/2(1-LX) + 3600pX²/2q(1-X) - 0.65(c/(q/3600p)²)^(1/3)*X^(2+5L) OR by Akcelik's time-dependent expression if X>X'
Average Queue Length, L1 = 6q(r/2+d)/3600pn OR L2 = 6qr/3600pn whichever the greater, OR L3 (Akcelik's time-dependent expression, if X>X')

Max. Queue (1 in 100) adopted.

In accordance with TPDM - Volume 4.2.5.2

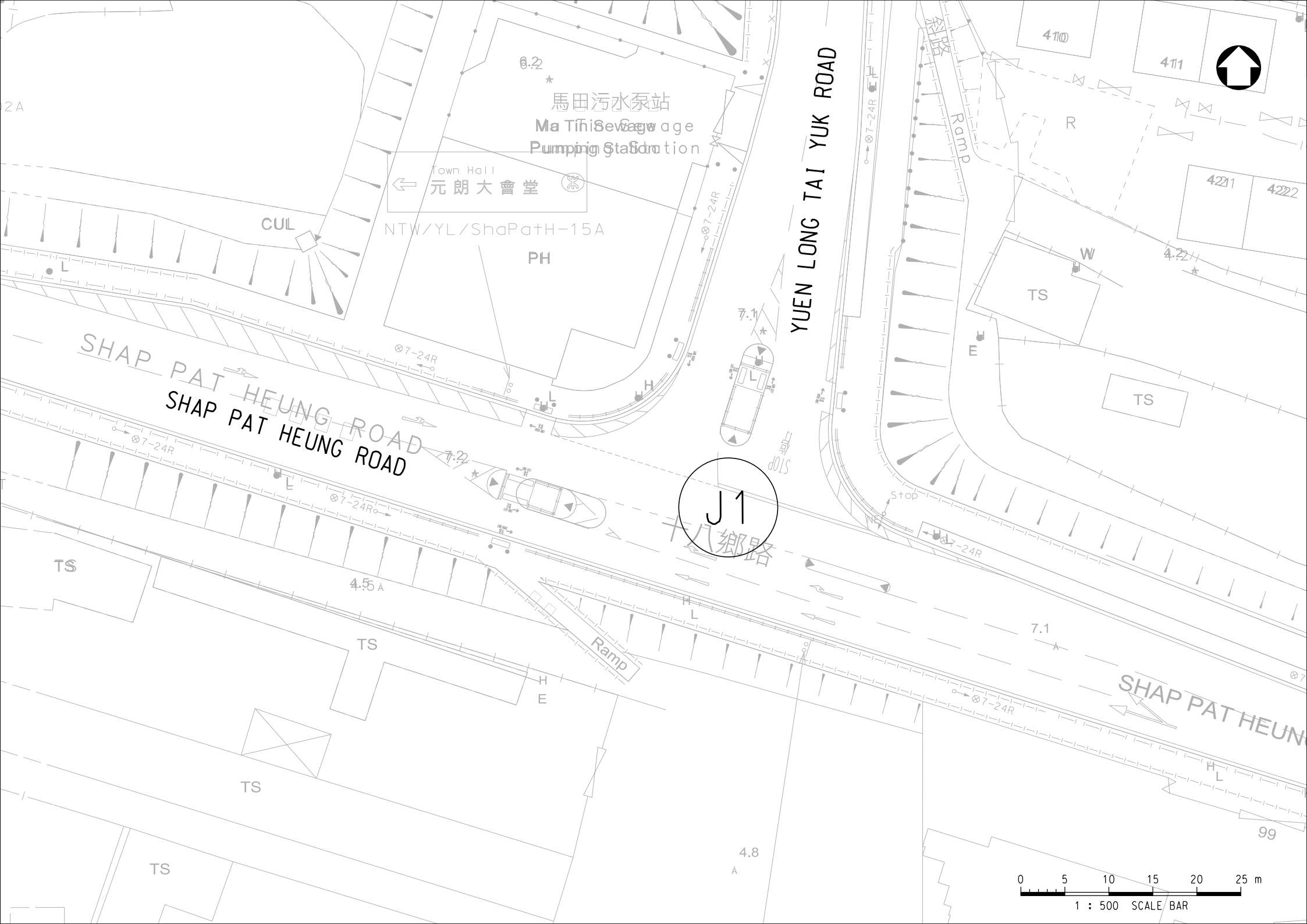
** Note: The probability of maximum queue exceeding the critical value are 5% & 1% for 1 in 20 & 1 in 100 cases respectively (TPDM V.4.2. Table 2.5.2.4 & 2.5.2.5)*

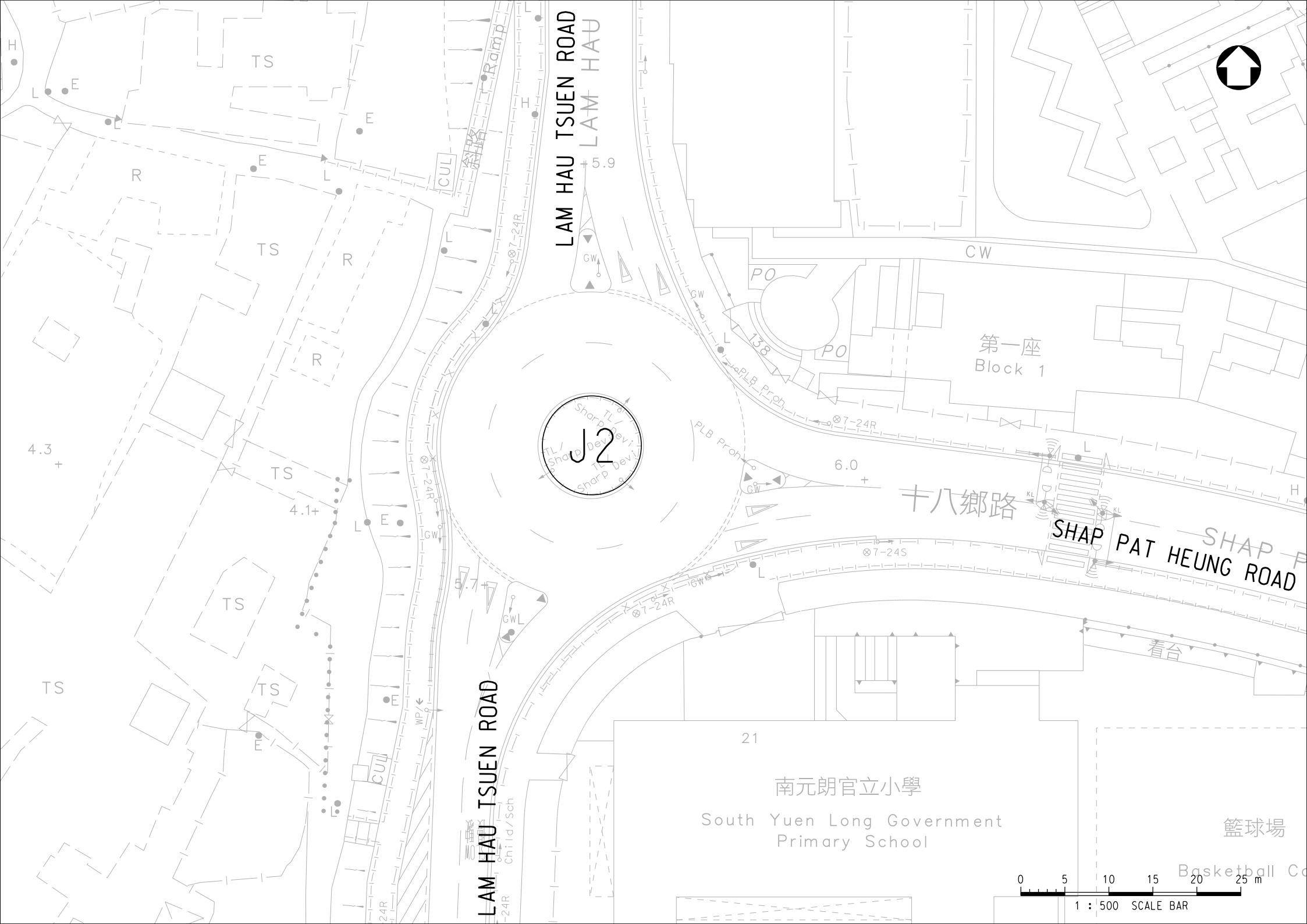
Date: 31/05/2022

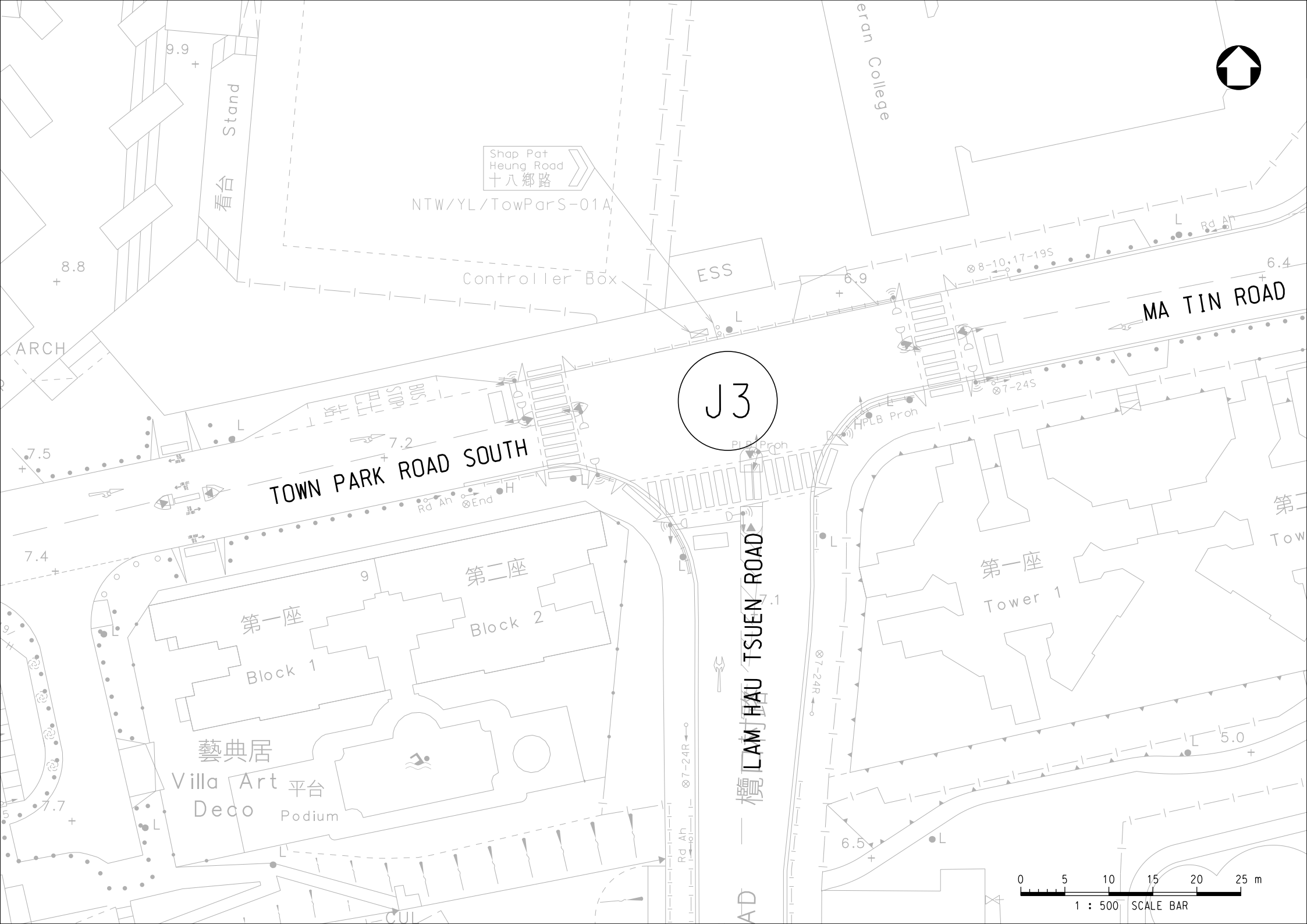
* Remarks ^ Queue length for straight through turn movement is more significant. Queue length for the straight through movement is shown.

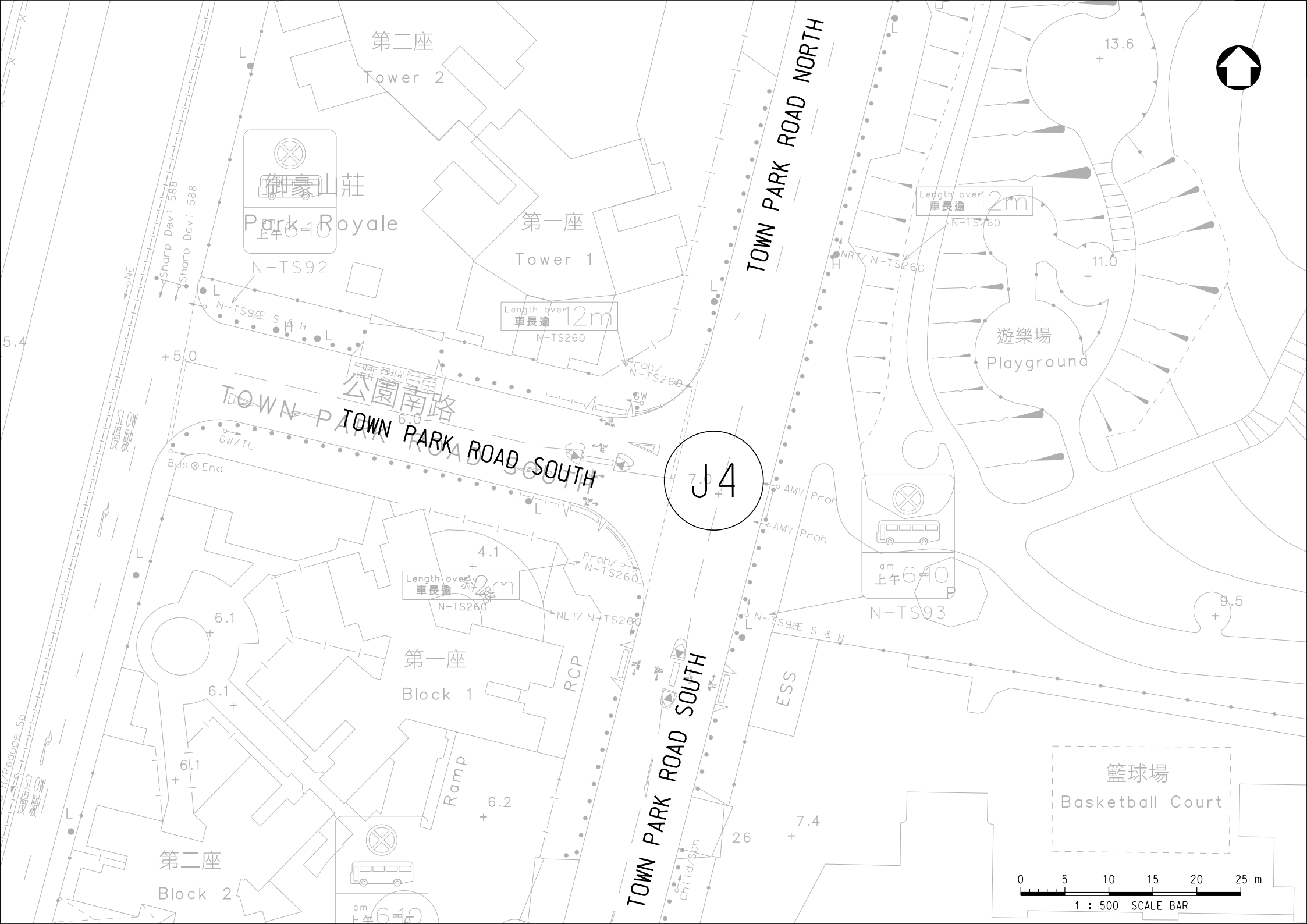
Appendix E

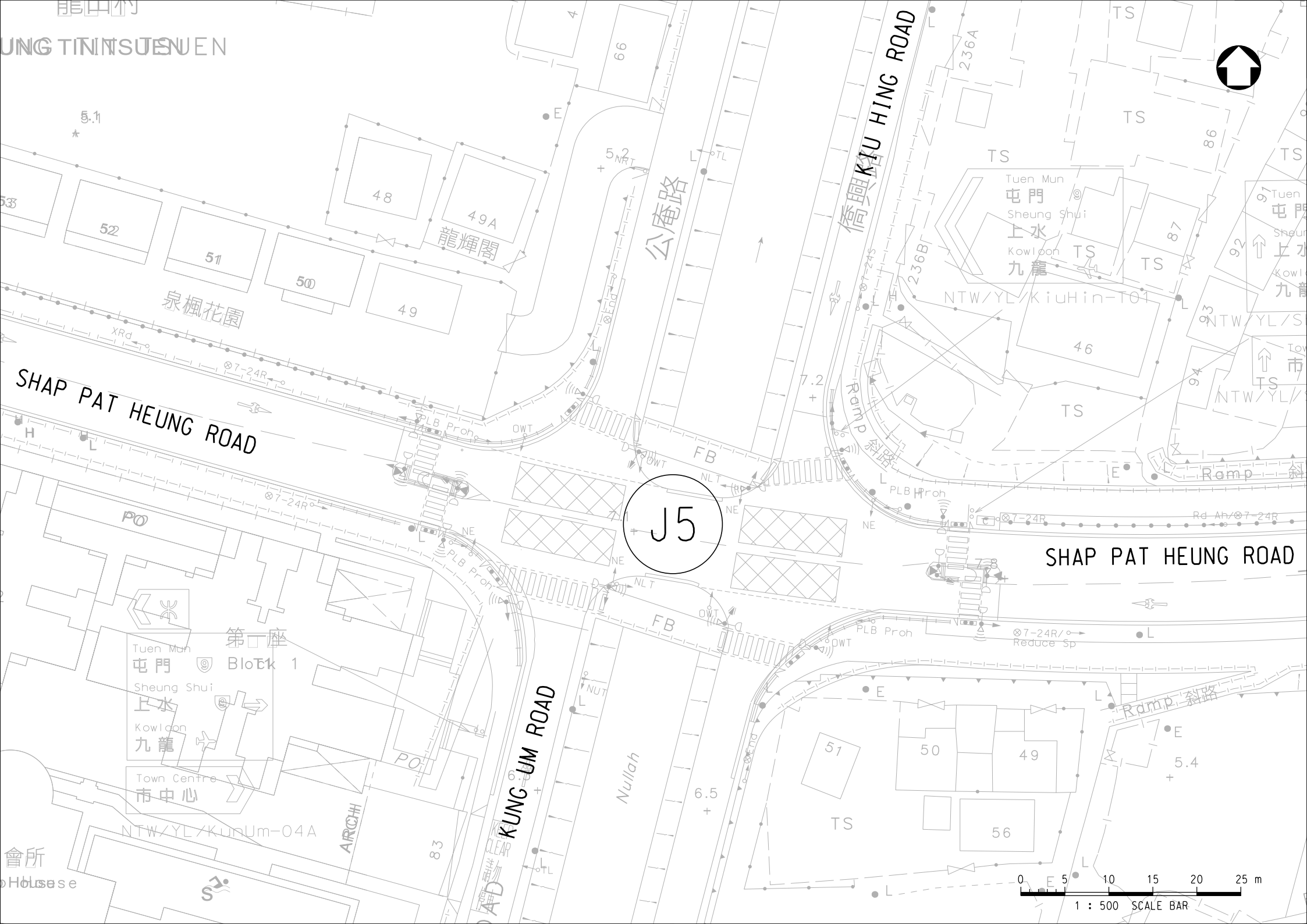
Existing Junction Layout Plan

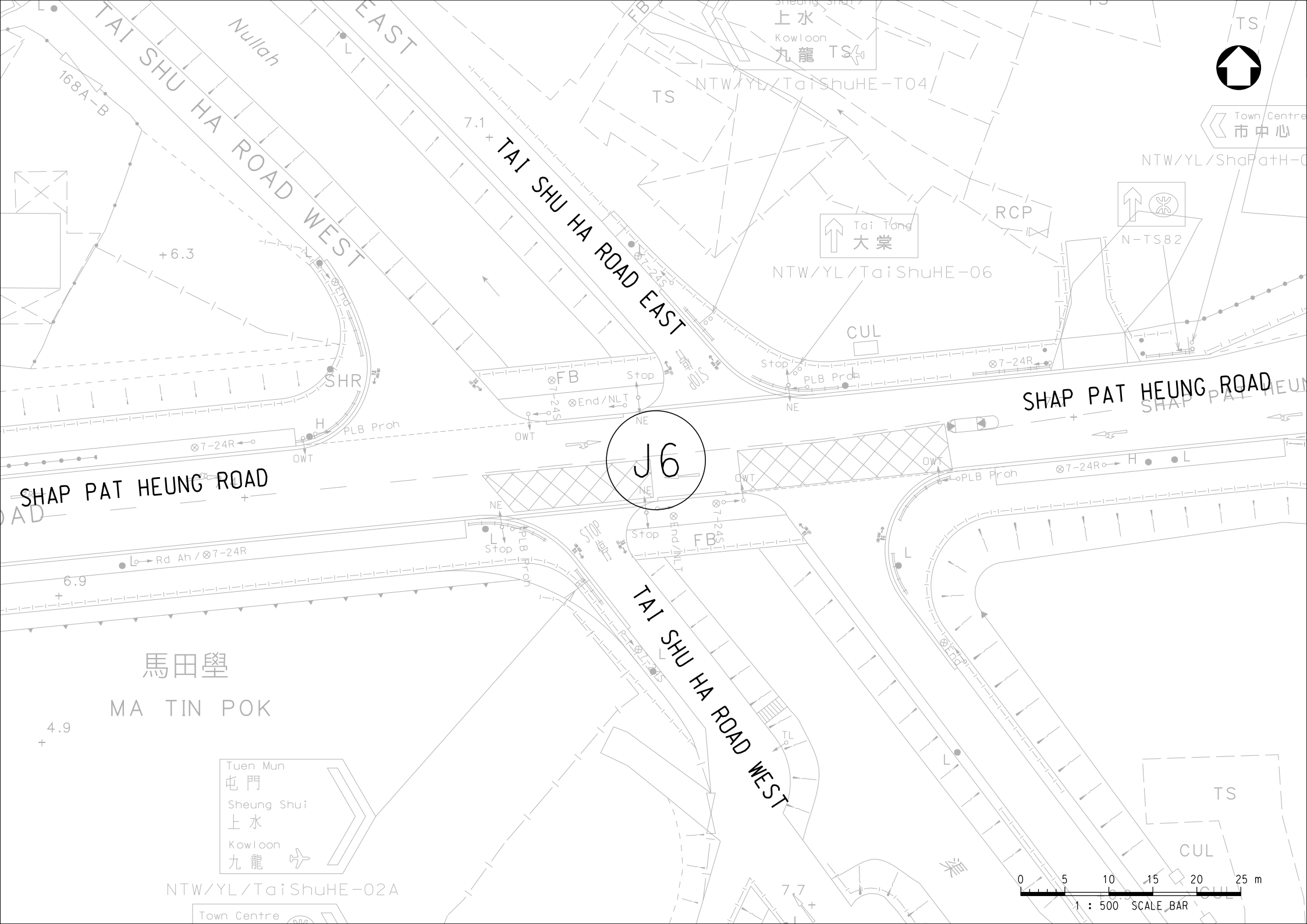

YUEN LONG TAI YUK ROAD
SHAP PAT HEUNG ROAD
SHAP PAT HEUNG ROAD
十八鄉路
馬田污水泵站
Ma Tin Sewage Pumping Station
Town Hall
元朗大會堂
NTW/YL/ShaPatH-15A
PH
CUL
J1
Ramp
Ramp
Stop
TS
TS
TS
TS
TS
6.2
7.1
7.2
4.5
4.8
7.1
4.22
99
0 5 10 15 20 25 m
1 : 500 SCALE BAR

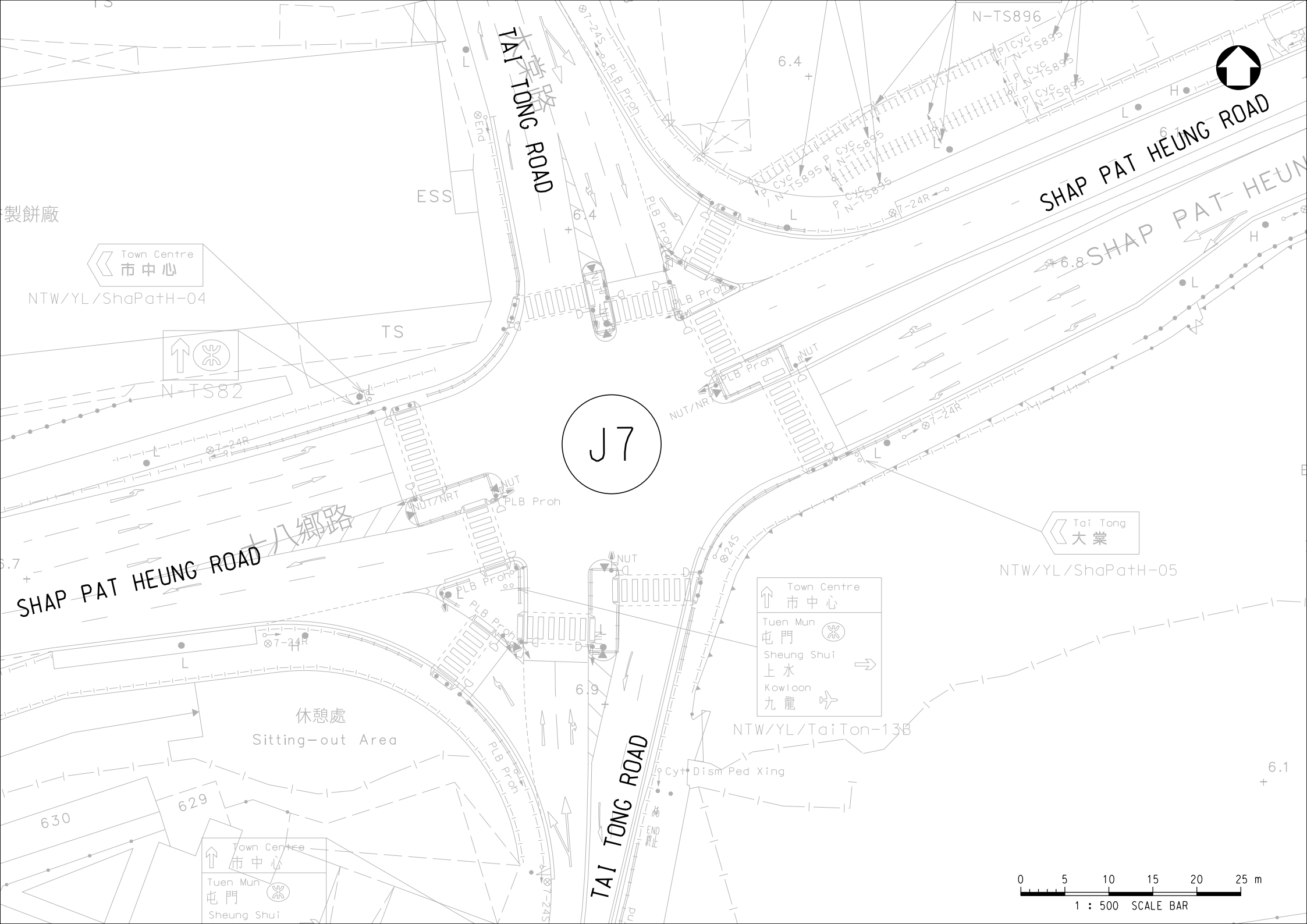

LAM HAU TSUEN ROAD
LAM HAU
LAM HAU TSUEN ROAD
SHAP PAT HEUNG ROAD
十八鄉路
第一座
Block 1
南元朗官立小學
South Yuen Long Government Primary School
籃球場
看台
J2
Ramp
斜路
PLB Prom
CW
GW
PO
TS
R
CUL
Child/Sch
+5.9
6.0
4.3
4.1+
3.7+
⊗7-24R
⊗7-24S
0 5 10 15 20 25 m
1 : 500 SCALE BAR

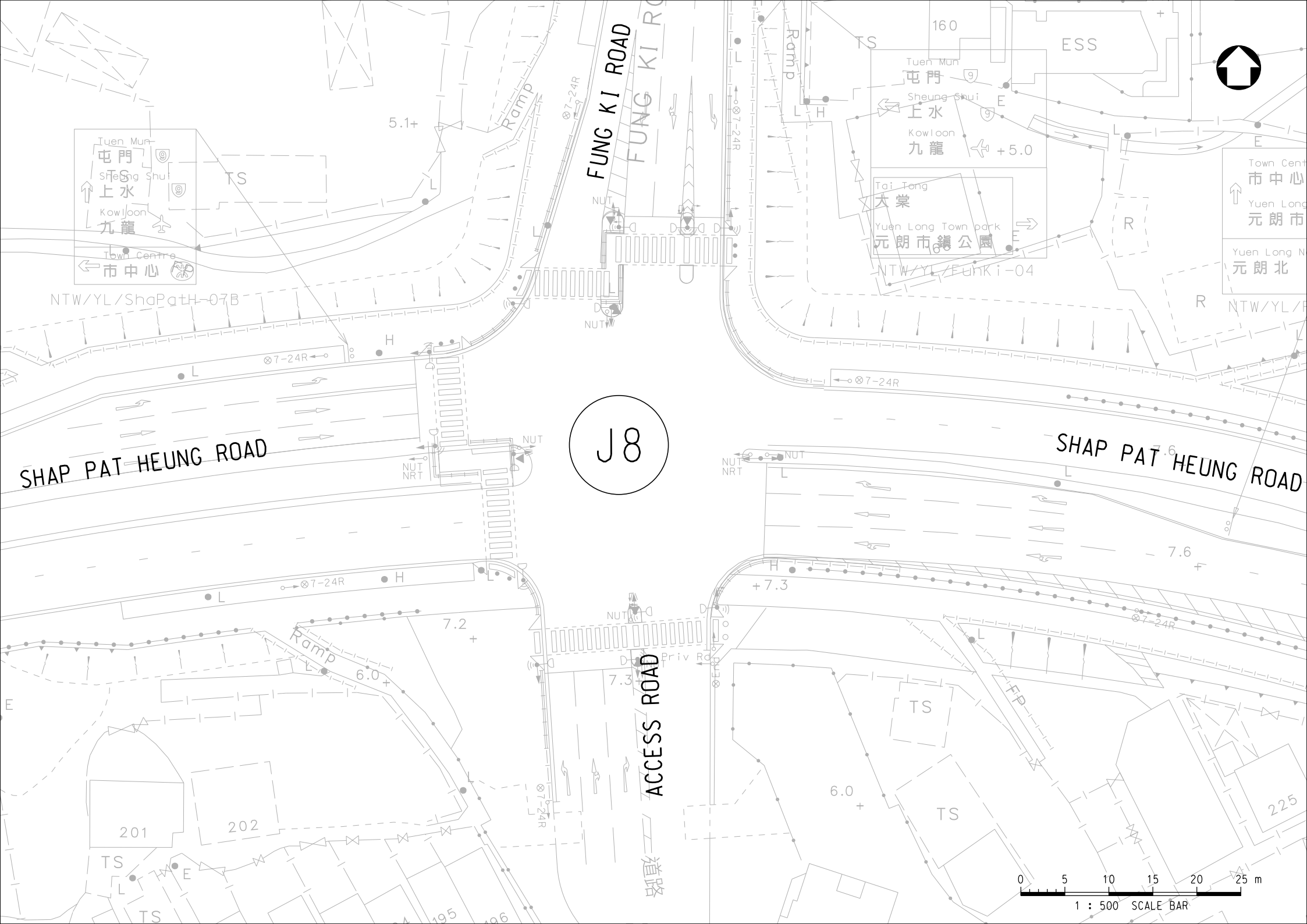

J3
TOWN PARK ROAD SOUTH
MA TIN ROAD
LAM HAU TSUEN ROAD
Shap Pat Heung Road
十八鄉路
NTW/YL/TowParS-01A
Controller Box
ESS
看台 Stand
第一座 Block 1
第二座 Block 2
第一座 Tower 1
藝典居 Villa Deco
平台 Podium
0 5 10 15 20 25 m
1 : 500 SCALE BAR


第二座
Tower 2
御豪山莊
Park Royale
N-TS92
第一座
Tower 1
TOWN PARK ROAD NORTH
遊樂場
Playground
公園南路
TOWN PARK ROAD SOUTH
J4
第一座
Block 1
第二座
Block 2
N-TS93
籃球場
Basketball Court
RCP
ESS
Ramp
Sharp Devi 588
Bus ⊗ End
Length over 車長逾 12m
N-TS260
NRT/ N-TS260
Prohi/ N-TS260
NLT/ N-TS260
AMV Proh
N-TS9/E S & H
am 上午 6:10
0 5 10 15 20 25 m
1 : 500 SCALE BAR

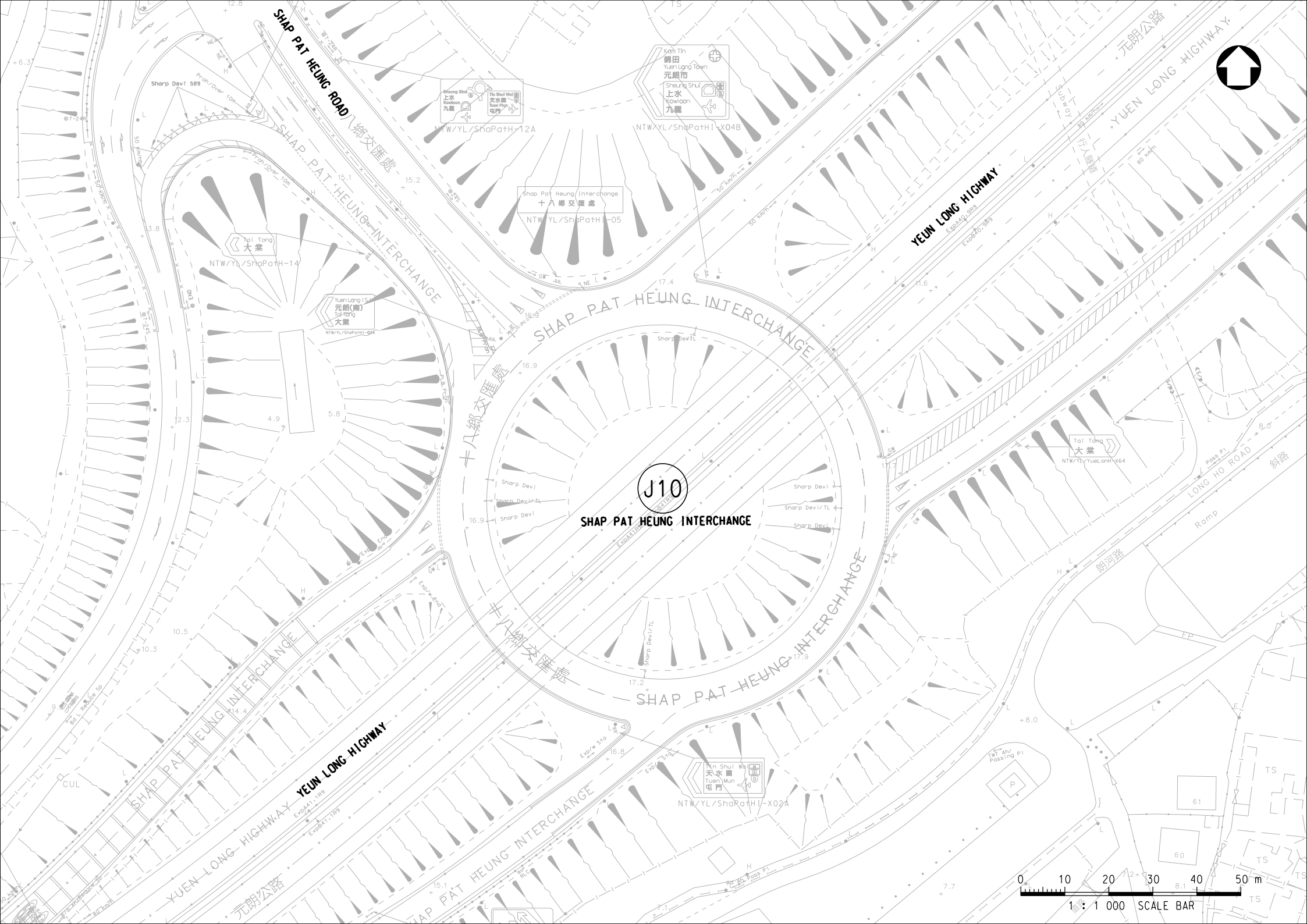

SHAP PAT HEUNG ROAD
KUNG UM ROAD
公俺路
倚興街 KIU HING ROAD
龍輝閣
泉楓花園
J5
Tuen Mun
屯門
Sheung Shui
上水
Kowloon
九龍
Town Centre
市中心
第一座
Block 1
Ramp 斜路
Nullah
NTW/YL/KiuHin-T01
NTW/YL/KunUm-04A
SHAP PAT HEUNG ROAD
0 5 10 15 20 25 m
1 : 500 SCALE BAR

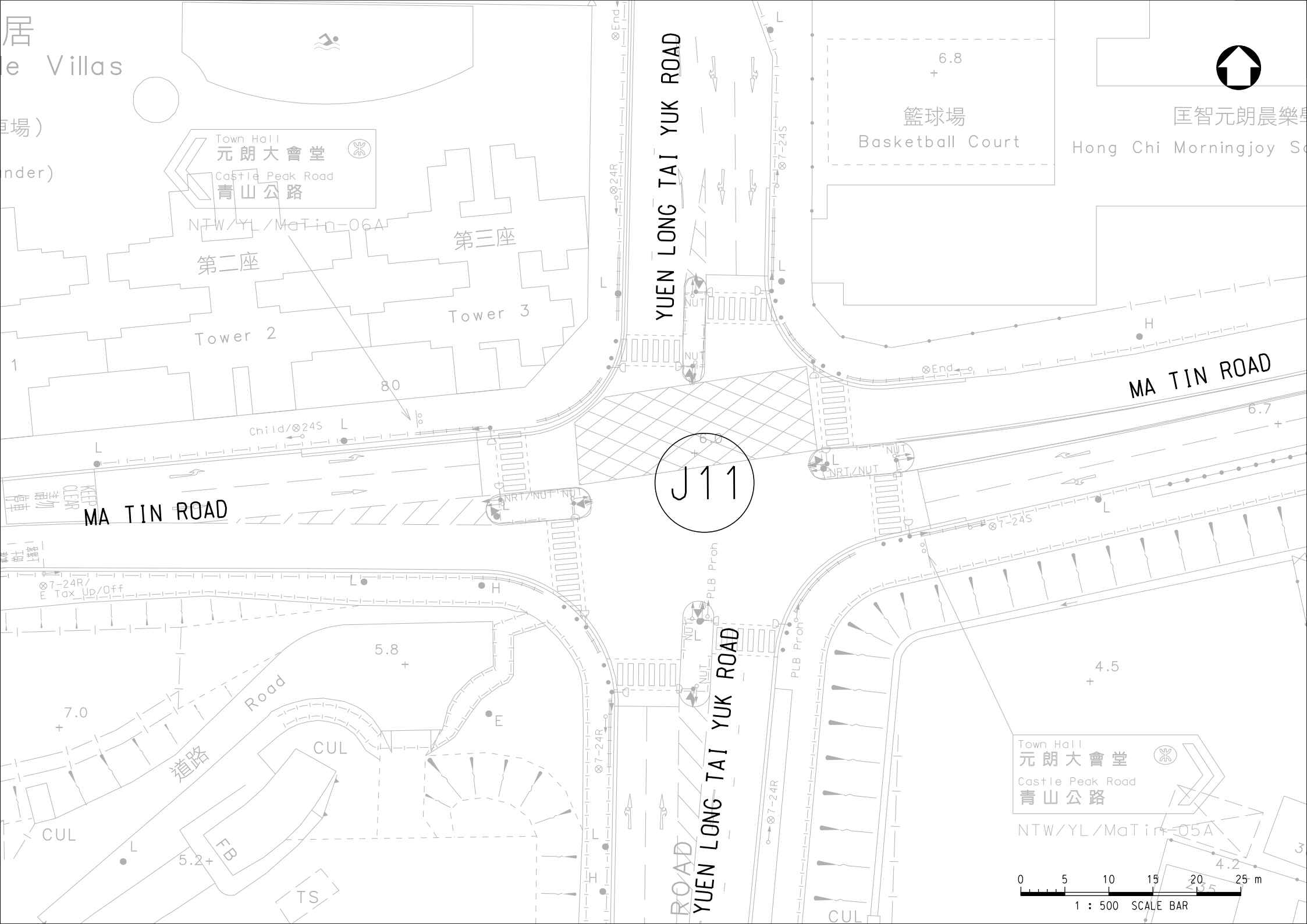

TAI SHU HA ROAD WEST
Nullah
TAI SHU HA ROAD EAST
SHAP PAT HEUNG ROAD
SHAP PAT HEUNG ROAD
J6
TAI SHU HA ROAD WEST
馬田壆
MA TIN POK
Tai Tong
大棠
NTW/YL/TaiShuHE-06
NTW/YL/TaiShuHE-T04
NTW/YL/TaiShuHE-02A
Tuen Mun
屯門
Sheung Shui
上水
Kowloon
九龍
Town Centre
市中心
N-TS82
RCP
CUL
SHR
FB
PLB Proh
OWT
NE
Stop
TS
TL
168A-B
6.9
4.9
7.1
7.7
0
5
10
15
20
25 m
1 : 500 SCALE BAR

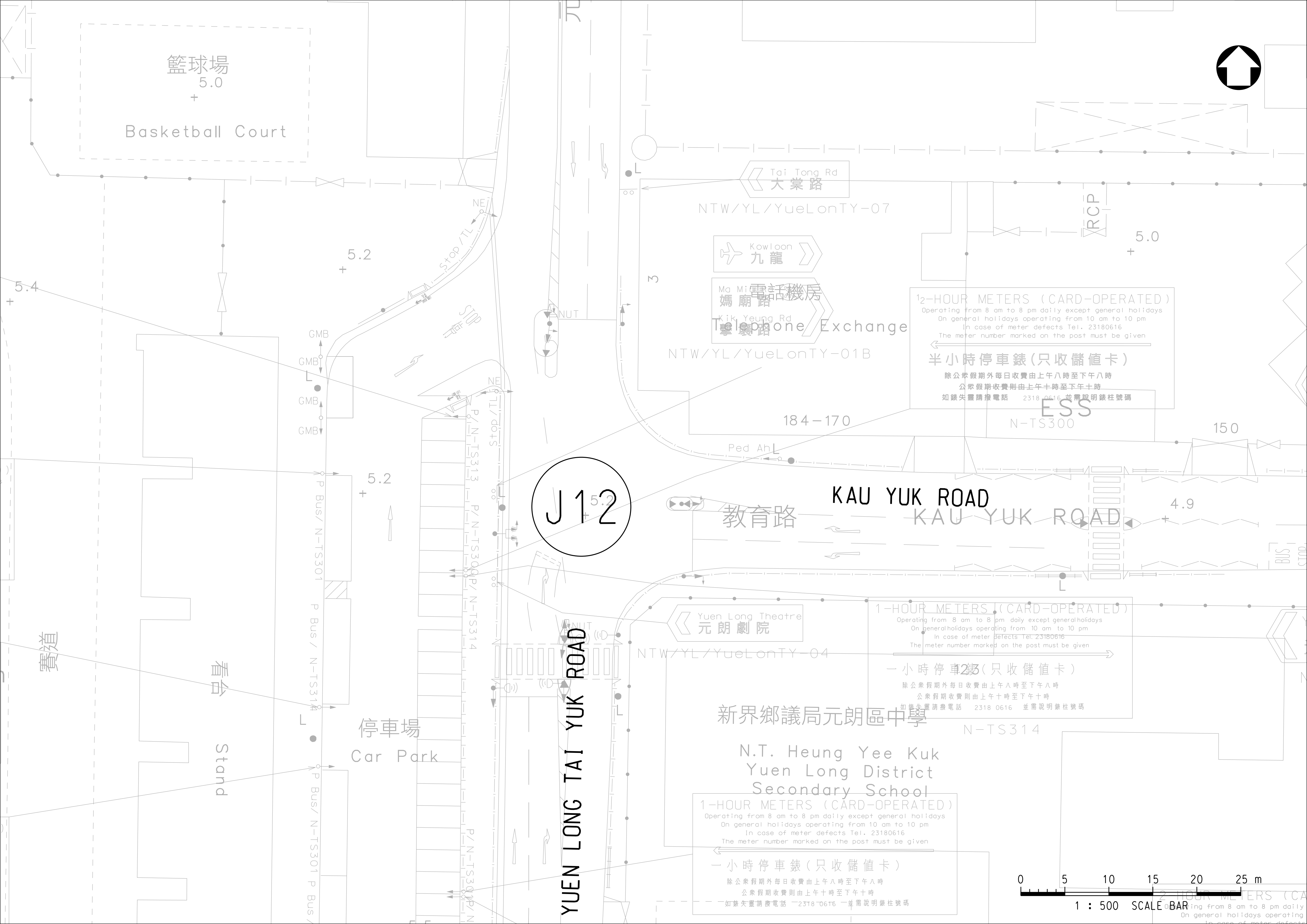

J7
TAI TONG ROAD
大埔路
SHAP PAT HEUNG ROAD
十八鄉路
Town Centre
市中心
NTW/YL/ShaPatH-04
Tai Tong
大棠
NTW/YL/ShaPatH-05
Tuen Mun
屯門
Sheung Shui
上水
Kowloon
九龍
NTW/YL/TaiTon-13B
休憩處
Sitting-out Area
N-TS82
N-TS896
N-TS895
ESS
TS
PLB Proh
NUT/NRT
Cyt Dism Ped Xing
0 5 10 15 20 25 m
1 : 500 SCALE BAR

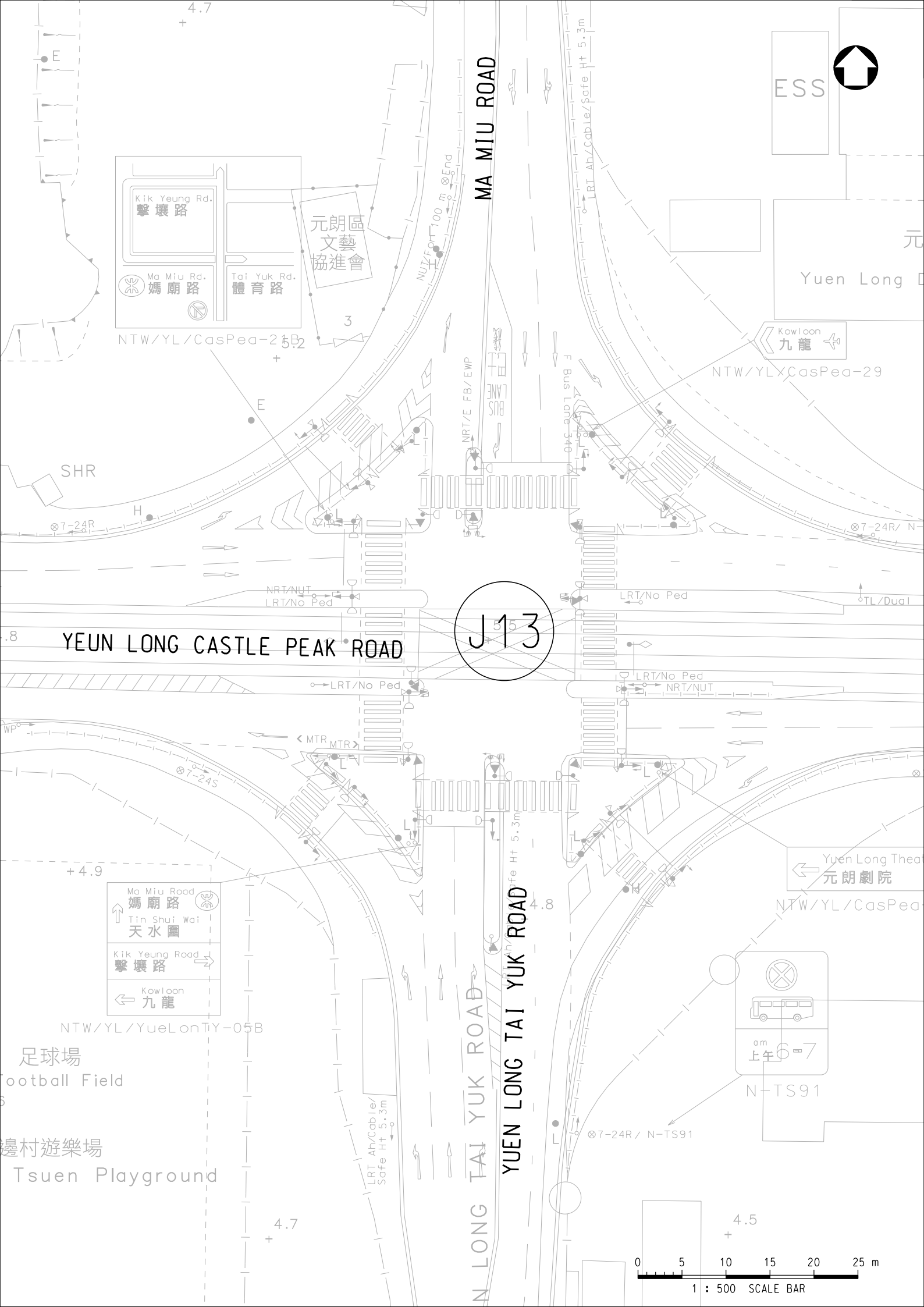

J8
SHAP PAT HEUNG ROAD
SHAP PAT HEUNG ROAD
FUNG KI ROAD
ACCESS ROAD
Tuen Mun
屯門
Sheung Shui
上水
Kowloon
九龍
Town Centre
市中心
Tai Tong
大棠
Yuen Long Town park
元朗市鎮公園
Ramp
NTW/YL/ShaPatH-07B
NTW/YL/FunKi-04
0 5 10 15 20 25 m
1 : 500 SCALE BAR

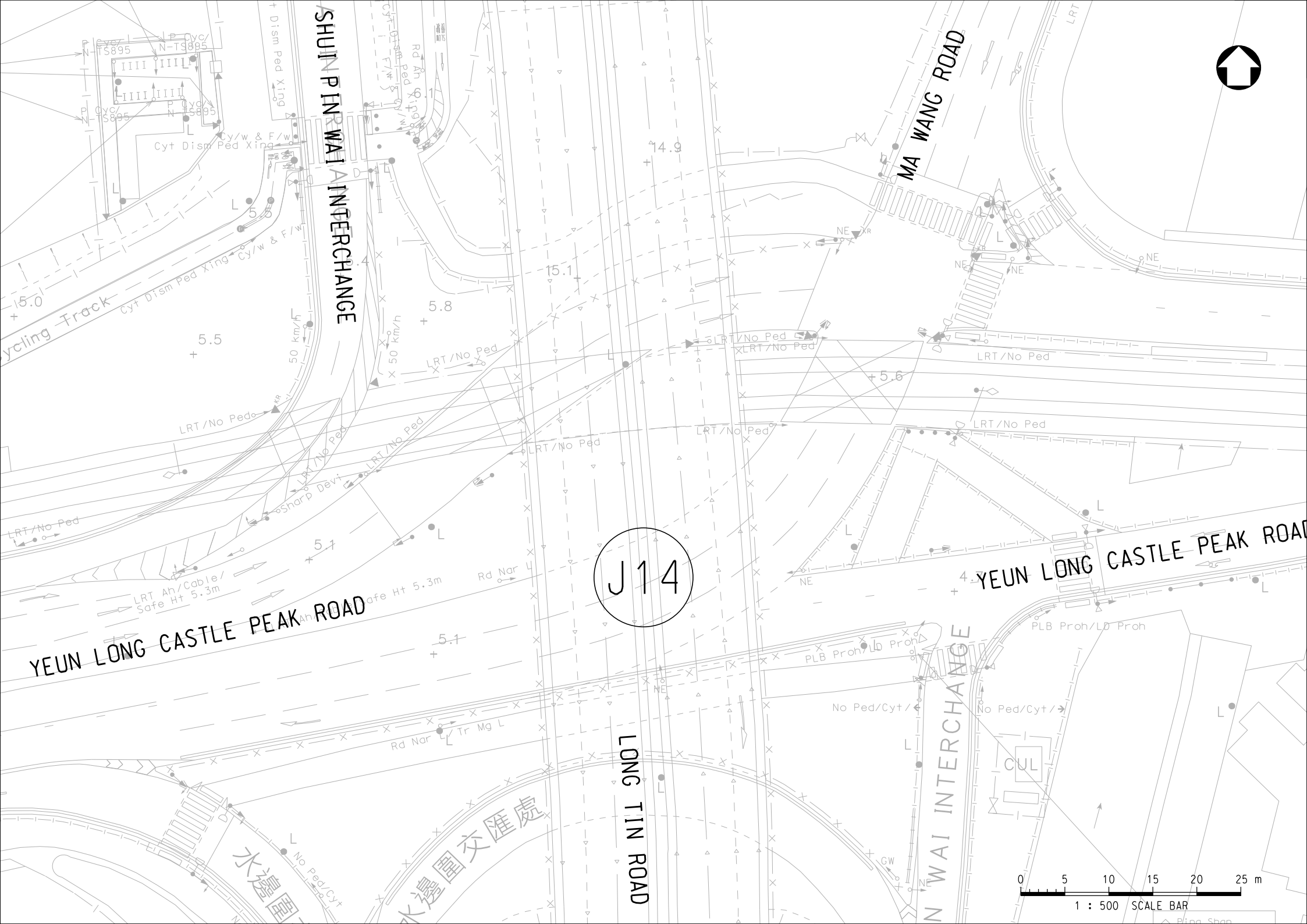

SHAP PAT HEUNG ROAD
SHAP PAT HEUNG INTERCHANGE
TAI KEI LENG ROAD
SHAP PAT HEUNG
J9
12.8
行人隧道
Subway
Town Centre
市中心
Tai Tong
大棠
Sheung Shui
上水
Kowloon
九龍
Tin Shui Wai
天水圍
Tuen Mun
屯門
NTW/YL/ShaPatH-11
NTW/YL/ShaPatH-13
NTW/YL/ShaPatH-12A
第六座
Tower 6
平台
Podium
十八鄉交匯處
Sharp Devi 589
Proh/Over 10m
TS
0 5 10 15 20 25 m
1 : 500 SCALE BAR

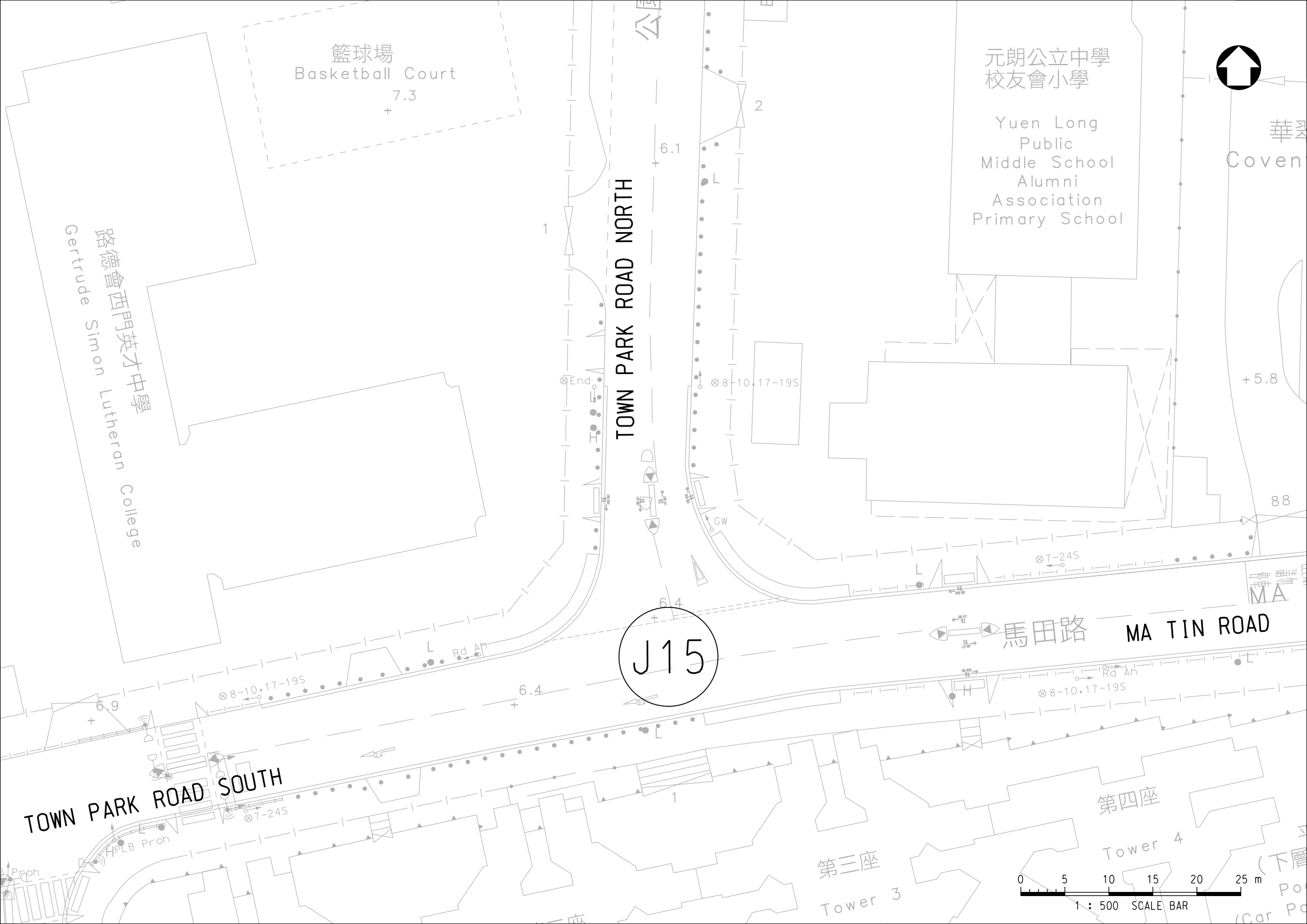

SHAP PAT HEUNG ROAD
八鄉交匯處
SHAP PAT HEUNG INTERCHANGE
YEUN LONG HIGHWAY
元朗公路
J10
SHAP PAT HEUNG INTERCHANGE
Shap Pat Heung Interchange
十八鄉交匯處
NTW/YL/ShaPatH-12A
NTW/YL/ShaPatH-X04B
NTW/YL/ShaPatH-05
NTW/YL/ShaPatH-14
NTW/YL/YueLonH-X64
NTW/YL/ShaPatH-X02A
Kam Tin
錦田
Yuen Long Town
元朗市
Sheung Shui
上水
Kowloon
九龍
Tai Tong
大業
Tin Shui Wai
天水圍
Tuen Mun
屯門
LONG HO ROAD
朗河路
Ramp
0 10 20 30 40 50 m
1 : 1 000 SCALE BAR

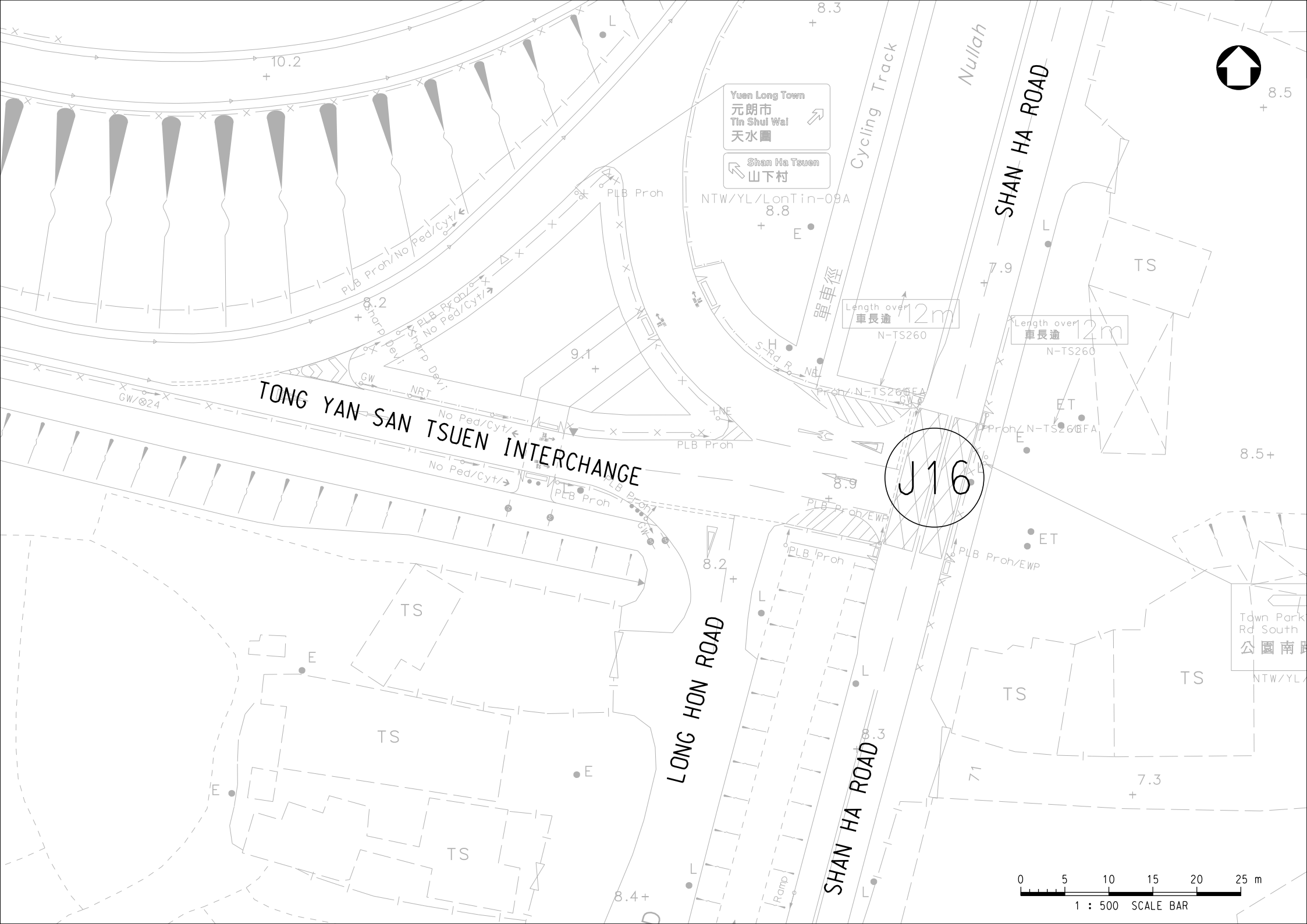

YUEN LONG TAI YUK ROAD
MA TIN ROAD
J11
Town Hall
元朗大會堂
Castle Peak Road
青山公路
NTW/YL/MaTin-06A
NTW/YL/MaTin-05A
第二座
第三座
Tower 2
Tower 3
籃球場
Basketball Court
Hong Chi Morningjoy
匡智元朗晨樂
Child/⊗24S
⊗7-24R/
E Tax Up/Off
⊗7-24R
⊗7-24S
⊗24R
⊗End
NRT/NUT
NUT
PLB Pron
道路
Road
CUL
FB
TS
0 5 10 15 20 25 m
1 : 500 SCALE BAR


J12
KAU YUK ROAD
YUEN LONG TAI YUK ROAD
教育路
KAU YUK ROAD
籃球場
Basketball Court
停車場
Car Park
看台
Stand
電話機房
Telephone Exchange
新界鄉議局元朗區中學
N.T. Heung Yee Kuk
Yuen Long District
Secondary School
Tai Tong Rd
大棠路
NTW/YL/YueLonTY-07
Kowloon
九龍
NTW/YL/YueLonTY-01B
Yuen Long Theatre
元朗劇院
NTW/YL/YueLonTY-04
½-HOUR METERS (CARD-OPERATED)
Operating from 8 am to 8 pm daily except general holidays
On general holidays operating from 10 am to 10 pm
In case of meter defects Tel. 23180616
The meter number marked on the post must be given
半小時停車錶(只收儲值卡)
1-HOUR METERS (CARD-OPERATED)
一小時停車錶(只收儲值卡)
ESS
N-TS300
N-TS314
184-170
150
123
5.0
5.2
5.4
4.9
0 5 10 15 20 25 m
1 : 500 SCALE BAR


MA MIU ROAD
YEUN LONG CASTLE PEAK ROAD
J13
YUEN LONG TAI YUK ROAD
LONG TAI YUK ROAD
Kik Yeung Rd.
擊壤路
Ma Miu Rd.
媽廟路
Tai Yuk Rd.
體育路
元朗區文藝協進會
NTW/YL/CasPea-21B
NTW/YL/CasPea-29
Kowloon
九龍
Ma Miu Road
媽廟路
Tin Shui Wai
天水圍
Kik Yeung Road
擊壤路
Kowloon
九龍
NTW/YL/YueLonTY-05B
Yuen Long Theat
元朗劇院
NTW/YL/CasPea
N-TS91
足球場
Football Field
邊村遊樂場
Tsuen Playground
ESS
Yuen Long D
NRT/E FB/EWP
BUS LANE
F BUS Lane 340
NRT/NUT
LRT/No Ped
TL/Dual
MTR
LRT An/Cable/Safe Ht 5.3m
NUFFort 100 m
SHR
7-24R
7-24S
7-24R/ N-TS91
4.7
4.8
4.9
4.5
0 5 10 15 20 25 m
1 : 500 SCALE BAR


SHUI PIN WAI INTERCHANGE
MA WANG ROAD
YEUN LONG CASTLE PEAK ROAD
YEUN LONG CASTLE PEAK ROAD
J14
LONG TIN ROAD
N WAI INTERCHANGE
水邊圍交匯處
LRT/No Ped
Cyt Dism Ped Xing
Cy/w & F/w
PLB Proh/LD Proh
No Ped/Cyt
CUL
0 5 10 15 20 25 m
1 : 500 SCALE BAR


籃球場
Basketball Court
7.3
元朗公立中學
校友會小學
Yuen Long
Public
Middle School
Alumni
Association
Primary School
路德會西門英才中學
Gertrude Simon Lutheran College
TOWN PARK ROAD NORTH
TOWN PARK ROAD SOUTH
馬田路 MA TIN ROAD
J15
6.1
6.4
6.9
+5.8
88
第四座
Tower 4
第三座
Tower 3
0 5 10 15 20 25 m
1 : 500 SCALE BAR

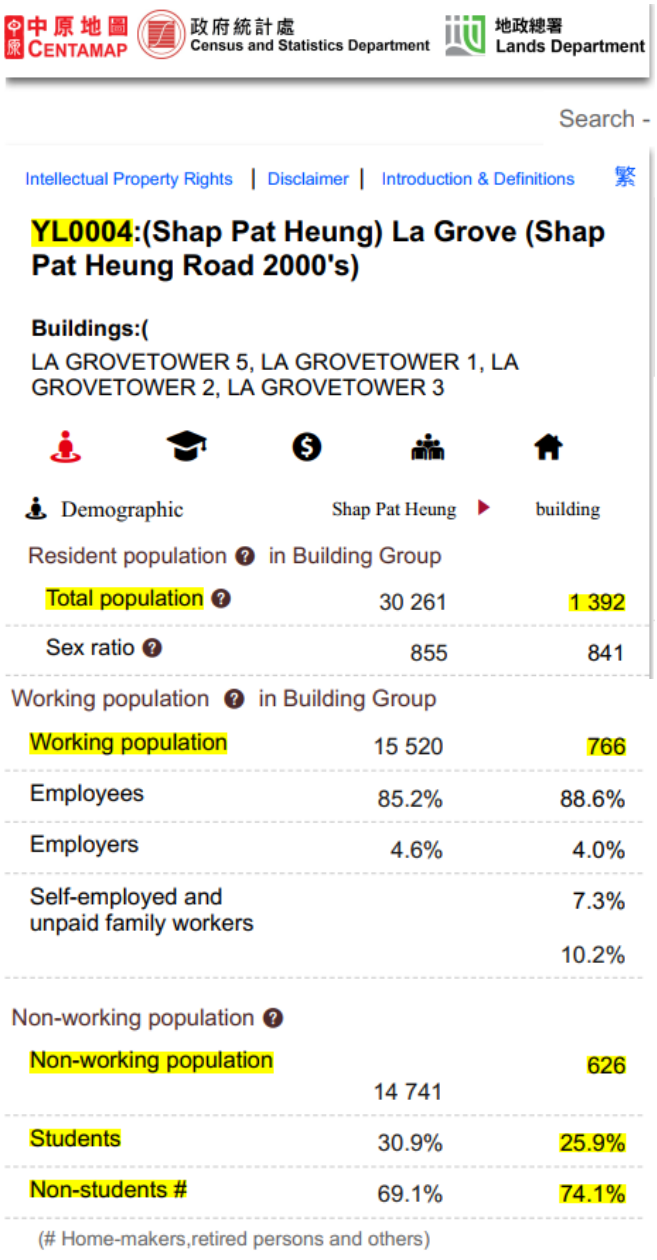

TONG YAN SAN TSUEN INTERCHANGE
J16
LONG HON ROAD
SHAN HA ROAD
SHAN HA ROAD
Nullah
Cycling Track
單車徑
Yuen Long Town
元朗市
Tin Shui Wai
天水圍
Shan Ha Tsuen
山下村
NTW/YL/LonTin-09A
Length over 12m
車長逾
N-TS260
PLB Proh
PLB Proh/No Ped/Cyt/
PLB Proh/EWP
No Ped/Cyt/
Sharp Devi
GW
NRT
NE
TS
ET
Ramp
Town Park Rd South
公園南路
0 5 10 15 20 25 m
1 : 500 SCALE BAR

Appendix F

Sources of Information

2016 Population Census – Breakdown of Population by Building Group YL0004

Link	http://census.centamap.com/hong-kong/Yuen%20Long/CHMA/Shap-Pat-Heung/building-group(Shap%20Pat%20Heung)%20La%20Grove%20(Shap%20Pat%20Heung%20Road%202000's)?field=t_pop&sort=default&detailcode=YL0004



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YL0004:(Shap Pat Heung) La Grove (Shap Pat Heung Road 2000's)

Buildings:(

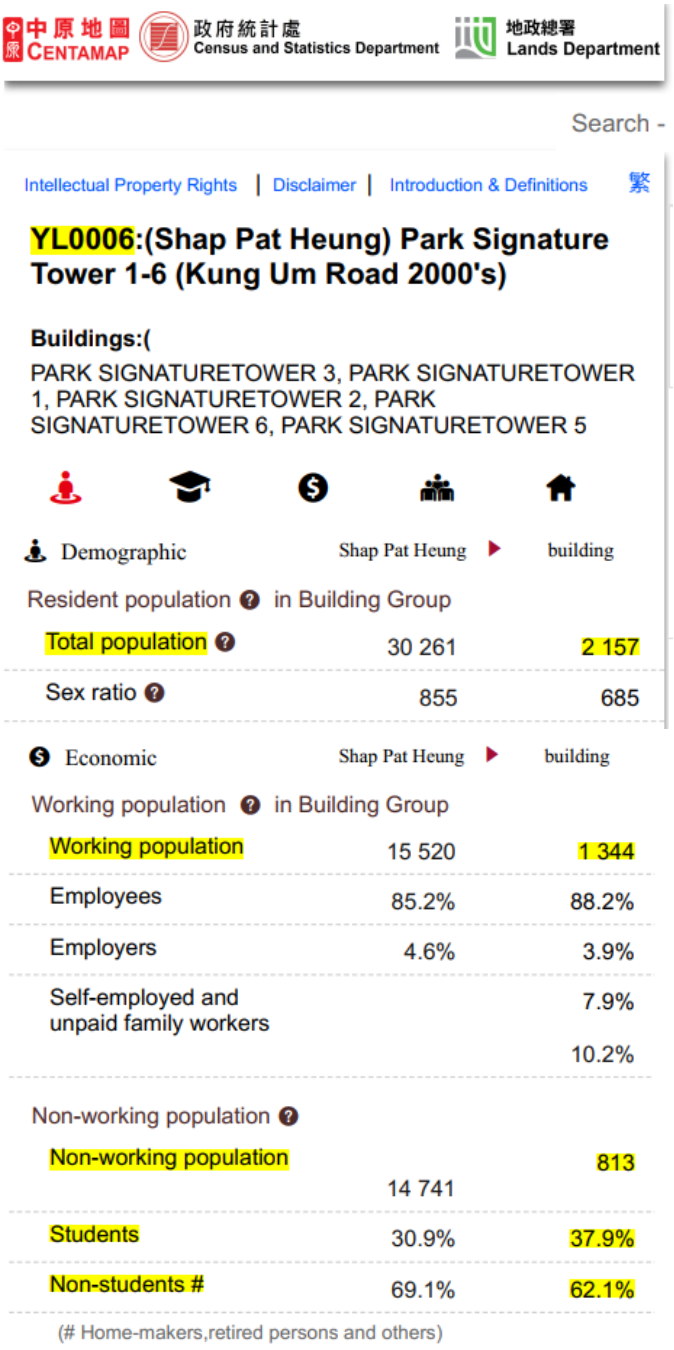
LA GROVETOWER 5, LA GROVETOWER 1, LA GROVETOWER 2, LA GROVETOWER 3

Demographic	Shap Pat Heung	building
Resident population in Building Group		
Total population	30 261	1 392
Sex ratio	855	841
Working population in Building Group		
Working population	15 520	766
Employees	85.2%	88.6%
Employers	4.6%	4.0%
Self-employed and unpaid family workers		7.3%
		10.2%
Non-working population		
Non-working population	14 741	626
Students	30.9%	25.9%
Non-students #	69.1%	74.1%

(# Home-makers,retired persons and others)

2016 Population Census – Breakdown of Population by Building Group YL0006

Link	http://census.centamap.com/hong-kong/Yuen%20Long/CHMA/Shap-Pat-Heung/building-group(Shap%20Pat%20Heung)%20Park%20Signature%20Tower%201-6%20(Kung%20Um%20Road%202000's)?field=t_pop&sort=default&detailcode=YL0006



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YL0006:(Shap Pat Heung) Park Signature Tower 1-6 (Kung Um Road 2000's)

Buildings:(

PARK SIGNATURETOWER 3, PARK SIGNATURETOWER 1, PARK SIGNATURETOWER 2, PARK SIGNATURETOWER 6, PARK SIGNATURETOWER 5

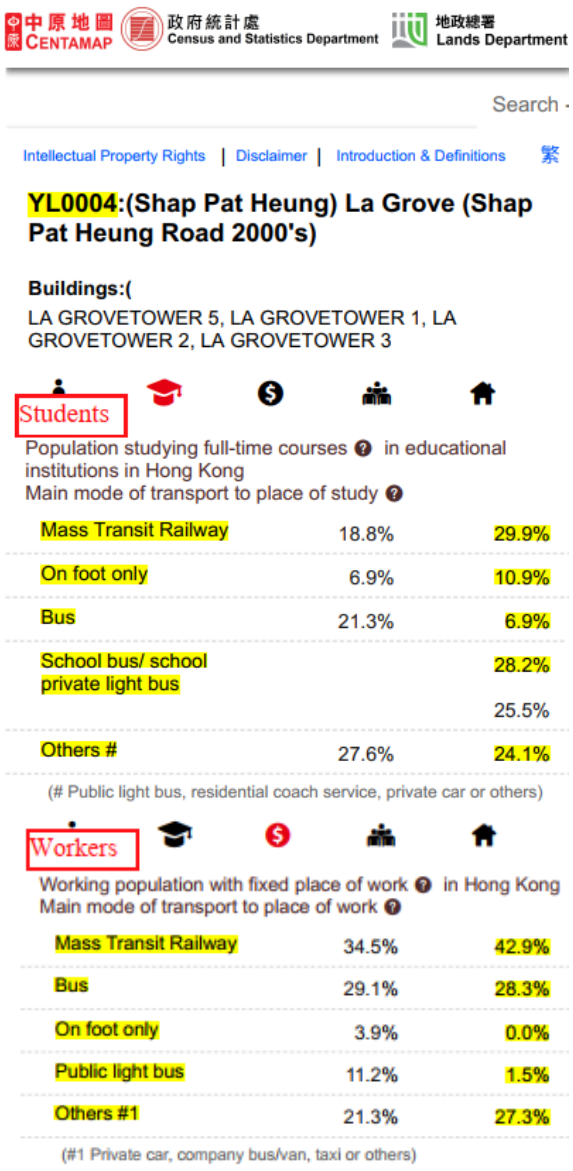
Demographic	Shap Pat Heung	building
Resident population in Building Group		
Total population	30 261	2 157
Sex ratio	855	685

Economic	Shap Pat Heung	building
Working population in Building Group		
Working population	15 520	1 344
Employees	85.2%	88.2%
Employers	4.6%	3.9%
Self-employed and unpaid family workers		7.9%
		10.2%
Non-working population		
Non-working population	14 741	813
Students	30.9%	37.9%
Non-students #	69.1%	62.1%

(# Home-makers,retired persons and others)

2016 Population Census – Mode of Transport by Building Group YL0004

Link	http://census.centamap.com/hong-kong/Yuen%20Long/CHMA/Shap-Pat-Heung/building-group(Shap%20Pat%20Heung)%20La%20Grove%20(Shap%20Pat%20Heung%20Road%202000's)?field=t_pop&sort=default&detailcode=YL0004



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YL0004:(Shap Pat Heung) La Grove (Shap Pat Heung Road 2000's)

Buildings:(

LA GROVETOWER 5, LA GROVETOWER 1, LA GROVETOWER 2, LA GROVETOWER 3

Students

Population studying full-time courses in educational institutions in Hong Kong
Main mode of transport to place of study

Mass Transit Railway	18.8%	29.9%
On foot only	6.9%	10.9%
Bus	21.3%	6.9%
School bus/ school private light bus		28.2%
		25.5%
Others #	27.6%	24.1%

(# Public light bus, residential coach service, private car or others)

Workers

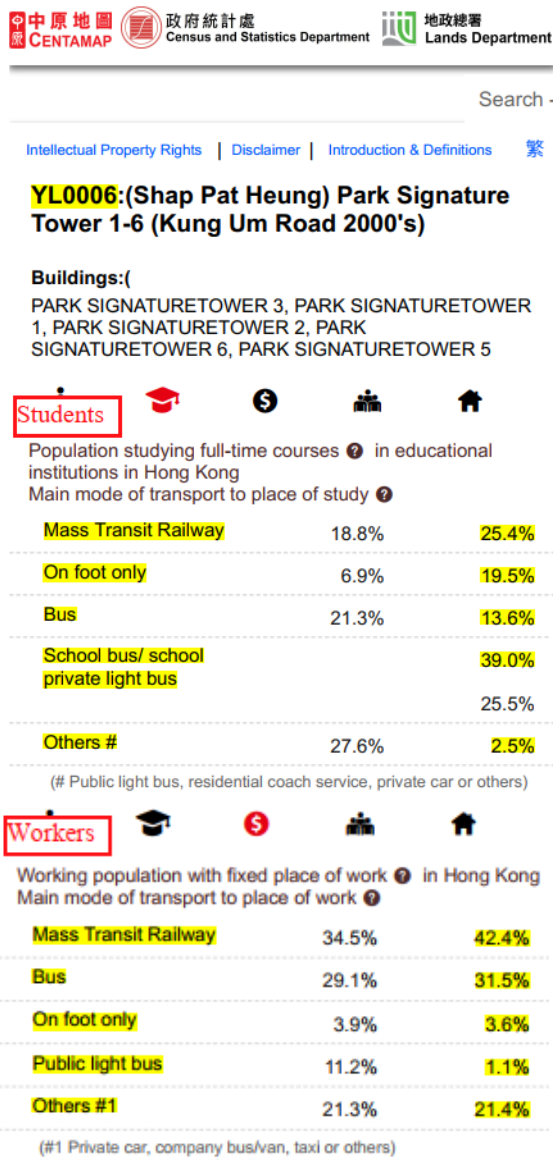
Working population with fixed place of work in Hong Kong
Main mode of transport to place of work

Mass Transit Railway	34.5%	42.9%
Bus	29.1%	28.3%
On foot only	3.9%	0.0%
Public light bus	11.2%	1.5%
Others #1	21.3%	27.3%

(#1 Private car, company bus/van, taxi or others)

2016 Population Census – Mode of Transport by Building Group YL0006

Link	http://census.centamap.com/hong-kong/Yuen%20Long/CHMA/Shap-Pat-Heung/building-group(Shap%20Pat%20Heung)%20La%20Grove%20(Shap%20Pat%20Heung%20Road%202000's)?field=t_pop&sort=default&detailcode=YL0004



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YL0006:(Shap Pat Heung) Park Signature Tower 1-6 (Kung Um Road 2000's)

Buildings:(

PARK SIGNATURETOWER 3, PARK SIGNATURETOWER 1, PARK SIGNATURETOWER 2, PARK SIGNATURETOWER 6, PARK SIGNATURETOWER 5

Students

Population studying full-time courses in educational institutions in Hong Kong
Main mode of transport to place of study

Mass Transit Railway	18.8%	25.4%
On foot only	6.9%	19.5%
Bus	21.3%	13.6%
School bus/ school private light bus		39.0%
		25.5%
Others #	27.6%	2.5%

(# Public light bus, residential coach service, private car or others)

Workers

Working population with fixed place of work in Hong Kong
Main mode of transport to place of work

Mass Transit Railway	34.5%	42.4%
Bus	29.1%	31.5%
On foot only	3.9%	3.6%
Public light bus	11.2%	1.1%
Others #1	21.3%	21.4%

(#1 Private car, company bus/van, taxi or others)

2016 Population Census – Mode of Transport by New Towns (Students)

Link	https://www.bycensus2016.gov.hk/en/bc-mt.html

B112 Persons Attending Full-time Courses in Educational Institutions in Hong Kong by Place of Study, Year and Main Mode of Transport to Place of Study — B. Education — 2017/07/04

Persons Attending Full-time Courses in Educational Institutions in Hong Kong by Place of Study, Year and Main Mode of Transport to Place of Study

Download More

Year		Persons Attending Full-time Courses in Educational Institutions in Hong Kong[1] Number of Persons 2016											
Main Mode of Transport to Place of Study		On foot only	Mass Transit Railway (Local line)[2]	Bus[3]	School bus[4]	Public light bus[5]	Private car/ Passenger van	Mass Transit Railway (Light Rail)	Residential coach service	Taxi	Ferry/ Vessel[6]	Others[8]	Total
Place of Study - 3 Groups	Place of Study - 22 Groups												
Hong Kong Island	Central and Western	8 615	19 820	7 590	7 808	2 231	2 360	-	134	419	441	351	49 769
	Wan Chai	3 777	10 631	9 427	11 723	1 100	2 510	-	253	343	514	1 180	41 458
	Eastern	17 246	21 000	12 968	10 282	3 299	2 249	-	261	436	657	1 704	70 122
	Southern	5 280	1 706	8 722	10 522	2 808	3 411	-	288	187	320	286	33 530
Kowloon	Yau Tsim Mong	16 818	35 056	11 881	4 168	3 926	2 479	-	158	511	196	170	75 365
	Sham Shui Po	19 429	37 155	11 388	9 266	4 089	2 801	-	235	393	167	107	85 010
	Kowloon City	19 021	26 494	23 353	23 766	7 076	9 520	-	525	936	161	114	110 966
	Wong Tai Sin	18 632	4 958	8 905	6 292	5 706	1 485	-	190	298	-	19	46 485
	Kwun Tong	26 823	16 828	12 774	9 875	8 294	1 432	-	230	303	27	211	76 797
New Territories	Tseung Kwan O New Town	15 521	19 588	4 768	5 462	2 747	1 444	-	114	121	102	133	50 000
	Tsuen Wan New Town	11 879	2 482	5 644	3 006	4 588	864	-	604	104	74	26	29 271
	Tuen Mun New Town	24 775	5 798	7 177	4 604	946	2 752	20 904	158	292	9	124	67 539
	Yuen Long New Town	7 824	1 596	3 191	4 458	1 654	2 685	3 843	433	113	2	373	26 172
	Tin Shui Wai New Town	17 427	2 036	2 319	2 076	490	1 121	10 475	259	69	-	148	36 420
	Fanling/ Sheung Shui New Town	14 973	3 426	7 732	4 067	3 358	1 730	-	316	160	24	692	36 478
	Tai Po New Town	12 921	9 753	6 601	6 832	3 413	2 937	-	523	310	5	356	43 651
	Sha Tin New Town	17 451	33 262	17 761	10 892	5 858	4 163	-	950	249	102	638	91 326
	Ma On Shan New Town	7 404	4 829	2 772	2 730	1 276	1 152	-	116	93	25	122	20 519
	Kwai Chung New Town	18 482	7 313	9 679	3 810	5 166	499	-	364	173	69	15	45 570
	Tsing Yi New Town	5 762	4 068	6 170	2 615	1 678	259	-	200	56	76	77	20 961
	North Lantau New Town	5 017	355	2 403	511	54	45	-	175	-	63	233	8 856
	Other areas in the New Territories	6 119	5 820	5 290	3 285	2 582	1 397	1 466	558	105	480	816	27 918
Total	*Total*	301 196	273 974	188 535	148 050	72 319	49 295	36 688	7 044	5 671	3 516	7 895	1 094 183

2016 Population Census – Mode of Transport by New Towns (Workers)

Link	https://www.bycensus2016.gov.hk/en/bc-mt.html

C109 Working Population with Fixed Place of Work in Hong Kong by Main Mode of Transport to Place of Work, Year and Area of Residence C. Economic 2017/02/27

Working Population with Fixed Place of Work in Hong Kong by Main Mode of Transport to Place of Work, Year and Area of Residence

Download

Year	2016									
Area of Residence	Hong Kong Island		Kowloon		New Towns		Other Areas in the New Territories and Marine		Total	
	Working Population with Fixed Place of Work in Hong Kong		Working Population with Fixed Place of Work in Hong Kong		Working Population with Fixed Place of Work in Hong Kong		Working Population with Fixed Place of Work in Hong Kong		Working Population with Fixed Place of Work in Hong Kong	
	Number of Persons	Percentage	Number of Persons	Percentage	Number of Persons	Percentage	Number of Persons	Percentage	Number of Persons	Percentage
Main Mode of Transport to Place of Work										
Mass Transit Railway (Local line)[1]	183 462	6.4	396 945	13.9	547 112	19.1	36 638	1.3	**1 164 157**	**40.7**
Bus[2]	148 163	5.2	220 391	7.7	389 874	13.6	23 734	0.8	**782 162**	**27.4**
On foot only	58 745	2.1	99 581	3.5	119 541	4.2	8 648	0.3	**286 515**	**10.0**
Public light bus[3]	29 587	1.0	73 044	2.6	76 781	2.7	12 437	0.4	**191 849**	**6.7**
Private car/ Passenger van	38 582	1.3	39 033	1.4	82 130	2.9	26 225	0.9	**185 970**	**6.5**
Company bus/ van	10 544	0.4	19 092	0.7	36 773	1.3	1 877	0.1	**68 286**	**2.4**
Mass Transit Railway (Light Rail)	-	-	-	-	49 277	1.7	3 245	0.1	**52 522**	**1.8**
Taxi	12 999	0.5	11 788	0.4	9 170	0.3	1 052	[4]	**35 009**	**1.2**
Residential coach service	3 914	0.1	3 492	0.1	17 691	0.6	3 023	0.1	**28 120**	**1.0**
Ferry/ Vessel	2 894	0.1	3 573	0.1	1 659	0.1	14 803	0.5	**22 929**	**0.8**
Others	16 603	0.6	5 472	0.2	15 347	0.5	3 404	0.1	**40 826**	**1.4**
Total	**505 493**	**17.7**	**872 411**	**30.5**	**1 345 355**	**47.1**	**135 086**	**4.7**	**2 858 345**	**100.0**

2021 Population Census – Mode of Transport by New Towns (Students)

Link	https://www.census2021.gov.hk/en/main_tables.html

B105 Persons Attending Full-time Courses in Educational Institutions in Hong Kong by Main Mode of Transport to Place of Study, Year and Area of Residence 2022/02/28

Persons Attending Full-time Courses in Educational Institutions in Hong Kong by Main Mode of Transport to Place of Study, Year and Area of Residence

Download ▾ ✕ Close

Year	2021									
Area of Residence	Hong Kong Island		Kowloon		New Towns		Other Areas in the New Territories and Marine		Total	
	Persons Attending Full-time Courses in Educational Institutions in Hong Kong (1)		Persons Attending Full-time Courses in Educational Institutions in Hong Kong (1)		Persons Attending Full-time Courses in Educational Institutions in Hong Kong (1)		Persons Attending Full-time Courses in Educational Institutions in Hong Kong (1)		Persons Attending Full-time Courses in Educational Institutions in Hong Kong (1)	
	Number of Persons	Percentage	Number of Persons	Percentage	Number of Persons	Percentage	Number of Persons	Percentage	Number of Persons	Percentage
Main Mode of Transport to Place of Study										
On foot only	32 379	3.0	91 137	8.6	149 116	14.0	8 547	0.8	**281 179**	**26.4**
Mass Transit Railway (Local line) (2)	35 392	3.3	94 773	8.9	139 661	13.1	11 197	1.1	**281 023**	**26.4**
Bus (3)	29 976	2.8	64 900	6.1	85 594	8.0	10 852	1.0	**191 322**	**18.0**
School bus (4)	28 744	2.7	36 271	3.4	53 752	5.1	7 339	0.7	**126 106**	**11.9**
Public light bus (5)	7 805	0.7	23 740	2.2	24 975	2.3	7 157	0.7	**63 677**	**6.0**
Private car/ Passenger van	12 968	1.2	13 093	1.2	25 335	2.4	12 090	1.1	**63 486**	**6.0**
Mass Transit Railway (Light Rail)	--	--	--	--	30 492	2.9	1 864	0.2	**32 356**	**3.0**
Residential coach service	604	0.1	1 677	0.2	4 629	0.4	954	0.1	**7 864**	**0.7**
Taxi	1 834	0.2	2 411	0.2	1 911	0.2	283	§	**6 439**	**0.6**
Ferry/ Vessel	138	§	241	§	358	§	2 352	0.2	**3 089**	**0.3**
Others	2 938	0.3	828	0.1	1 947	0.2	1 288	0.1	**7 001**	**0.7**
Total	**152 778**	**14.4**	**329 071**	**30.9**	**517 770**	**48.7**	**63 923**	**6.0**	**1 063 542**	**100.0**

2021 Population Census – Mode of Transport by New Towns (Workers)

Link	https://www.census2021.gov.hk/en/main_tables.html

C109 Working Population with Fixed Place of Work in Hong Kong by Main Mode of Transport to Place of Work, Year and Area of Residence 2022/02/28

Working Population with Fixed Place of Work in Hong Kong by Main Mode of Transport to Place of Work, Year and Area of Residence

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Year	2021									
Area of Residence	Hong Kong Island		Kowloon		New Towns		Other Areas in the New Territories and Marine		Total	
	Working Population with Fixed Place of Work in Hong Kong		Working Population with Fixed Place of Work in Hong Kong		Working Population with Fixed Place of Work in Hong Kong		Working Population with Fixed Place of Work in Hong Kong		Working Population with Fixed Place of Work in Hong Kong	
	Number of Persons	Percentage	Number of Persons	Percentage	Number of Persons	Percentage	Number of Persons	Percentage	Number of Persons	Percentage
Main Mode of Transport to Place of Work										
Mass Transit Railway (Local line) (1)	185 069	7.0	380 249	14.[illegible]	541 708	20.4	43 074	1.6	**1 150 100**	**43.2**
Bus (2)	105 337	4.0	180 617	6.[illegible]	354 022	13.3	23 709	0.9	**663 685**	**25.0**
On foot only	54 750	2.1	94 759	3.[illegible]	121 173	4.6	8 311	0.3	**278 993**	**10.5**
Private car/ Passenger van	35 559	1.3	37 574	1.[illegible]	88 202	3.3	28 556	1.1	**189 891**	**7.1**
Public light bus (3)	21 510	0.8	48 989	1.[illegible]	63 819	2.4	14 901	0.6	**149 219**	**5.6**
Company bus/ van	8 765	0.3	15 431	0.[illegible]	36 826	1.4	2 011	0.1	**63 033**	**2.4**
Mass Transit Railway (Light Rail)	--	--	--	-	44 255	1.7	1 621	0.1	**45 876**	**1.7**
Taxi	15 641	0.6	10 667	0.[illegible]	10 613	0.4	936	§	**37 857**	**1.4**
Residential coach service	2 860	0.1	3 324	0.[illegible]	14 092	0.5	2 041	0.1	**22 317**	**0.8**
Ferry/ Vessel	2 420	0.1	2 651	0.[illegible]	2 349	0.1	13 655	0.5	**21 075**	**0.8**
Others	12 299	0.5	4 812	0.[illegible]	17 338	0.7	3 063	0.1	**37 512**	**1.4**
Total	**444 210**	**16.7**	**779 073**	**29.[illegible]**	**1 294 397**	**48.7**	**141 878**	**5.3**	**2 659 558**	**100.0**

TCS 2011 – Figure 3.3 (Proportion of Daily Mechanised Trips)

Link	https://www.census2021.gov.hk/en/main_tables.html

TCS 2011 Figure 3.3

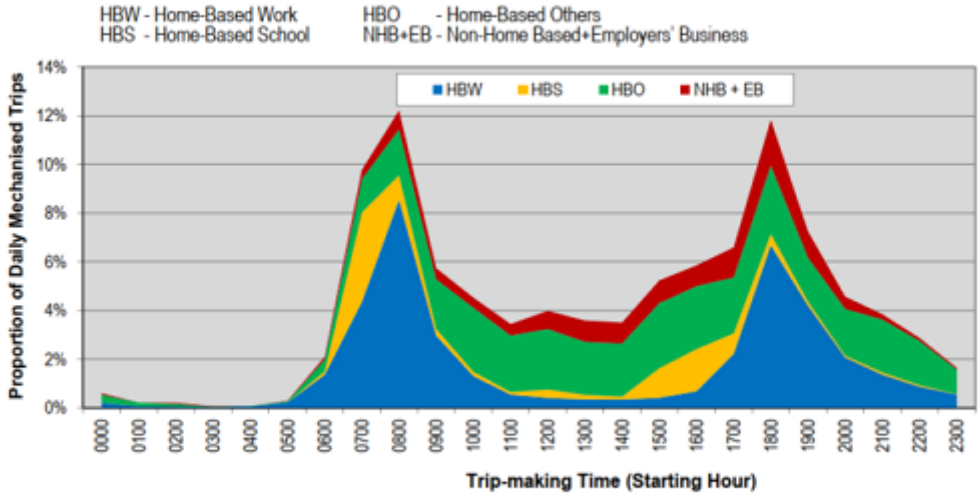

Figure 3.3 : Hourly Profiles of Mechanised Trips

Proportion of Daily Mechanised Trips extracted from Figure 3.3

Period	HBW	HBS	HBO	NHB+EB
0000-0559	2%	0%	2%	2%
0600-0659	3%	0%	1%	1%
0700-0759	11%	35%	4%	3%
0800-0859	20%	9%	5%	6%
0900-0959	7%	3%	5%	4%
1000-1159	5%	3%	13%	11%
1200-1359	2%	5%	13%	15%
1400-1559	2%	12%	13%	17%
1600-1659	2%	16%	7%	9%
1700-1759	6%	8%	6%	10%
1800-1859	17%	4%	8%	12%
1900-1959	10%	2%	5%	6%
2000-2159	9%	2%	11%	3%
2200-2359	4%	1%	7%	1%
Daily	100%	100%	100%	100%

2021 Statistics for the Heavy Rail System

Link	https://www.legco.gov.hk/yr2022/english/fc/fc/w_q/thb-t-e.pdf

Annex

2021 Statistics for the Heavy Rail System
(the busiest one hour in the morning per direction for critical links) (Note 1)

		East Rail Line	Tuen Ma Line	Tseung Kwan O Line	Island Line	South Island Line	Kwun Tong Line	Tsuen Wan Line	Disneyland Resort Line	Tracks sharing at some sections	
										Tung Chung Line (Note 2)	Airport Express (Note 2 and 3)
1.	Design capacity (6 ppsm) (a)	NA (Note 4)	70 000	85 000	85 000	27 000	85 000	85 000	10 800	66 000	10 000
2.	Maximum carrying capacity when train frequency is maximized (6 ppsm) (b)	NA (Note 4)	70 000	67 600	80 000	27 000	71 400	75 000	9 600	45 000	4 800
3.	Existing carrying capacity (6 ppsm) (c)	73 300	58 800	67 600	80 000	16 800	71 400	75 000	4 300	42 500	3 200
4.	Difference between (a) and (b) (Note 5)	NA	0	17 400	5 000	0	13 600	10 000	1 200	21 000	5 200
5.	Difference between (b) and (c) (Note 6)	NA	11 200	0	0	10 200	0	0	5 300	2 500	1 600
6.	Current patronage (d)	30 100	36 100	43 300	47 800	9 200	40 000	52 200	1 700	23 600	800