

Appendix III

Revised Traffic Impact Assessment

**Proposed Rezoning from “Residential (Group B)1” Zone to
“Residential (Group B)4” Zone for Medium-Density Housing
Development to Include a Footpath for Public use at Various
Lots and Adjacent Government Land in DD130, Lam Tei,
Tuen Mun (Application no. Y/TM-LTYY/11)**

Traffic Impact Assessment

Final Report

October 2024

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Proposed Rezoning from “Residential (Group B)1” Zone to “Residential (Group B)4” Zone for Medium-Density Housing Development to Include a Footpath for Public use at Various Lots and Adjacent Government Land in DD130, Lam Tei, Tuen Mun (Application no. Y/TM-LTY/11)

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1.0 INTRODUCTION

Background

- 1.1 The subject site is located in D.D.130, Lam Tei, Tuen Mun (the “Subject Site”). At present, the Subject Site is unoccupied, and access to the Subject Site via an existing unnamed road which is connected to Ng Lau Road. The location of the Subject Site is shown in **Figure 1.1**.
- 1.2 A Section 12A planning application for the minor relaxation of the maximum plot ratio restriction to 2.5 for residential use at the Subject Site was approved by the Town Planning Board (TPB ref: Y/TM-LTY/9) on 24th September 2021 (the “Approved Scheme”). This Section 12A planning application is for minor relaxation of the maximum plot ratio restriction for residential use at the Subject Site from the approved 2.5 to 5.0 (the “Proposed Development”).
- 1.3 Against this background, CKM Asia Limited, a traffic and transportation planning consultancy firm, was commissioned by the Owner to conduct a traffic impact assessment in support of the Proposed Development. This report presents the findings and recommendations of the traffic impact assessment for the Proposed Development.

Structure of Report

- 1.4 The report is structured as follows:

Chapter One	- Gives the background of the project;
Chapter Two	- Describes the existing situation;
Chapter Three	- Presents the Proposed Development;
Chapter Four	- Describes the traffic impact analysis; and
Chapter Five	- Gives the overall conclusion.

2.0 EXISTING SITUATION

The Subject Site

- 2.1 The Subject Site is bounded by the Light Rail Transit (“LRT”) and the Tuen Ma Line to the East, and a nullah to the West. Access to the Subject Site is from the south and is via a bridge over the nullah. The Access Road is connected to Ng Lau Road.

The Road Network

- 2.2 Ng Lau Road is a single carriageway 2-lane 2-way local distributor which connects with the Lam Tei Interchange to the south and Castle Peak Road - Lam Tei underneath the Kong Sham Western Highway. It provides access to villages, e.g., San Hing Tsuen, Tuen Tsz Wai, and Tsing Chuen Wai.
- 2.3 Lam Tei Interchange connects Tsing Lun Road, Hong Po Road, Ng Lau Road, Castle Peak Road – Lam Tei, Yuen Long Highway and Tuen Mun Road. It is the main access for traffic accessing the Subject Site and strategic routes.

Existing Traffic Flows

- 2.4 To quantify the junction and road link flows in the vicinity of the Subject Site, manual classified counts were conducted at 0700 – 0900 and 1700 – 1900 on Tuesday, 18th April 2023, Wednesday, 19th April 2023 and Wednesday, 26th April 2023, and were re-conducted on Wednesday, 8th May 2024 at the junctions and road links listed in **Table 2.1**.

TABLE 2.1 SURVEYED JUNCTIONS AND ROAD LINKS

<u>Reference</u>	<u>Junction</u>
J1:	Unnamed Road/ Access Road
J2:	Ng Lau Road/ Unnamed Road
J3:	Ng Lau Road/ Lam Tei Interchange
J4:	Tsing Lun Road/ Hong Po Road/ Lam Tei Interchange
J5:	Lam Tei Interchange
J6:	Lam Tei Interchange/ Castle Peak Road – Lam Tei
J7:	Tsing Lun Road/ Tsz Tin Road
J8:	San Hing Road/ Ng Lau Road (Southern)
J9:	San Hing Road/ Ng Lau Road (Northern)
J10:	T-junction at San Hing Road
J11:	Ng Lau Road / Castle Peak Road – Lam Tei
J12:	Hong Po Road / Yan Tin Estate Access Road
<u>Reference</u>	<u>Road Link</u>
L1:	Castle Peak Road – Lam Tei
L2:	Castle Peak Road – Lingnan
L3:	Yuen Long Highway
L4:	Tuen Mun Road
L5:	San Hing Road
L6:	Ng Lau Road (north of J9)
L7:	Ng Lau Road (south of J2)
L8:	Lam Tei Interchange (between J3 and J5)
L9:	Tsing Lun Road

- 2.5 The locations of these junctions, road links and the area of influence (the “AOI”) are shown in **Figure 2.1** and the junction layouts are shown in **Figures 2.2 – 2.13** respectively.
- 2.6 The traffic counts are classified by vehicle type to enable traffic flows in passenger car units (“pcu”) to be calculated. The AM and PM peak hours identified from the surveys are found to be between 0800 – 0900 hours and 1700 – 1800 hours respectively. The existing AM and PM peak hour junction in pcu/hour and road link flows in veh/hr are presented in **Figures 2.14 – 2.15**.

Existing Junction Performance

- 2.7 The existing junction performance of the junctions are calculated based on the traffic flows obtained from the survey, and the analysis was undertaken using the methods outlined in Volume 2 of the Transport Planning and Design Manual (“TPDM”). The results are summarised in **Table 2.2** and the detailed calculations are found in **Appendix A**.

TABLE 2.2 EXISTING JUNCTION PERFORMANCE

Ref.	Junction	Type of Junction (Parameter)	AM Peak	PM Peak
J1	Unnamed Road/ Access Road	Priority (DFC)	0.000	0.000
J2	Ng Lau Road/ Unnamed Road	Priority (DFC)	0.033	0.032
J3	Ng Lau Road/ Lam Tei Interchange	Signal (RC)	91%	84%
J4	Tsing Lun Road/ Hong Po Road/ Lam Tei Interchange	RA (DFC)	0.545	0.591
J5	Lam Tei Interchange	RA (DFC)	0.522	0.489
J6	Lam Tei Interchange/ Castle Peak Road – Lam Tei	Signal (RC)	120%	215%
J7	Tsing Lun Road/ Tsz Tin Road	Signal (RC)	58%	92%
J8	San Hing Road/ Ng Lau Road (Southern)	Priority (DFC)	0.061	0.040
J9	San Hing Road/ Ng Lau Road (Northern)	Priority (DFC)	0.227	0.498
J10	T-junction at San Hing Road	Priority (DFC)	0.008	0.002
J11	Ng Lau Road / Castle Peak Road – Lam Tei	Signal (RC)	139%	132%
J12	Hong Po Road / Yan Tin Estate Access Road	Priority (DFC)	0.066	0.011

Note: RC – reserve capacity; DFC – design flow/capacity ratio, RA – Roundabout

- 2.8 The above results indicate that the surveyed junctions currently operate with capacities during the AM and PM peak hours.

Link Operational Performance

- 2.9 The link operational performance of the road links are calculated based on the existing traffic flows [obtained from the traffic survey](#), and the analysis was undertaken using the methods outlined in Volume 2 of the Transport Planning and Design Manual (“TPDM”). The results are summarised in **Table 2.3**.

TABLE 2.3 EXISTING LINK CAPACITY ASSESSMENT

Ref	Link		Adjusted Design Flow (veh/hr)		Traffic Demand (veh/hr)		V/C Ratio	
			AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
L1	Castle Peak Road – Lam Tei	NB	2,604 ⁽¹⁾	2,604 ⁽¹⁾	766	1,317	0.29	0.51
		SB	2,604 ⁽¹⁾	2,604 ⁽¹⁾	1,448	766	0.56	0.29
L2	Castle Peak Road – Lingnan	NB	2,800	2,800	417	452	0.15	0.16
		SB	2,800	2,800	672	472	0.24	0.17
L3	Yuen Long Highway	NB	4,700	4,700	3,759	3,181	0.80	0.68
		SB	4,700	4,700	3,642	3,988	0.77	0.85
L4	Tuen Mun Road	NB	4,700	4,700	4,108	4,219	0.87	0.90
		SB	4,700	4,700	4,404	3,961	0.94	0.84
L5	San Hing Road	2-way	800	800	46	31	0.06	0.04
L6	Ng Lau Road (north of J9)	2-way	744 ⁽¹⁾	800	218	345	0.29	0.43
L7	Ng Lau Road (south of J2)	2-way	800	800	252	373	0.32	0.47
L8	Lam Tei Interchange (between J3 and J5)	EB	2,800	2,800	1,055	713	0.38	0.25
		WB	2,800	2,800	1,108	1,199	0.40	0.43
L9	Tsing Lun Road	NB	1,900	1,900	519	409	0.27	0.22
		SB	1,900	1,900	825	735	0.43	0.39

NB – northbound SB – southbound EB – eastbound WB – westbound

⁽¹⁾ With reference to paragraph 2.4.1.2 and table 2.4.1.2, Chapter 2.4, Volume 2 of TPDM, the design flow is to be reduced when the expected proportion of heavy vehicles exceeds 15%. The table below presents the adjusted design flow based on the proportion of heavy vehicles (“HV%”).

Road Type	Design Flow (veh/hr)	Adjusted Design Flow (veh/hr)		
		0-15 HV%	15-20 HV%	20-25 HV%
		0% reduction	7% reduction	10% reduction
Expressway / trunk road (Dual 3 lanes – 11m-wide)	4,700	4,700	4,371	4,230
Primary Distributor (Dual 3 lanes – 7.3m-wide)	2,800	2,800	2,604	2,520
District Distributor (Single 4 lanes – 13.5m-wide)	1,900	1,900	1,767	1,710
Local Roads (Single 2 lanes)	800	800	744	720

2.10 The above results show that the assessed road links operate with sufficient capacity.

Public Transport Facilities

2.11 The Subject Site is located close to public transport services, including franchised buses and public light buses and these operate within 400 metres or some 8-minutes’ walk away. Details of these public transport services are presented in **Table 2.4**. The location and major pedestrian routes of these public transport services are shown in **Figure 2.16**.

TABLE 2.4 ROAD-BASED PUBLIC TRANSPORT SERVICES OPERATING CLOSE TO THE SUBJECT SITE

Route	Bus Stop	Destination	Routing	Frequency (min)
CTB 50	LTI	YTM	Tuen Mun (Ching Tin and Wo Tin) → Tsim Sha Tsui (Kowloon Station) ^(E)	20 - 30
			Tsim Sha Tsui (Kowloon Station) → Tuen Mun (Ching Tin and Wo Tin) ^(F)	20 - 35
CTB 55 ⁽¹⁾	LTI	Kln(E)	Tuen Mun (Ching Tin and Wo Tin) → Kwun Tong Ferry Pier ^(A)	7 per day
			Kwun Tong Ferry Pier → Tuen Mun (Ching Tin and Wo Tin) ^(B)	4 per day
CTB 56 ⁽¹⁾	LTI	N	Tuen Mun (Ching Tin and Wo Tin) → Sheung Shui (Tin Ping Estate) ^(G)	30
			Sheung Shui (Tin Ping Estate) → Tuen Mun (Ching Tin and Wo Tin) ^(G)	30

TABLE 2.4 ROAD-BASED PUBLIC TRANSPORT SERVICES OPERATING
CLOSE TO THE SUBJECT SITE (CONT'D)

Route	Bus Stop	Destination	Routing	Frequency (min)
CTB 56A ⁽¹⁾	LTI	N	Tuen Mun (Ching Tin and Wo Tin) → Queen’s Hill Fanling (via: Sheung Shui Station) ^(C)	15 - 30
			Queen’s Hill Fanling (via: Sheung Shui Station) → Tuen Mun (Ching Tin and Wo Tin) ^(C)	20 - 30
CTB 950 ⁽¹⁾	LTI	HKI	Tuen Mun (Ching Tin and Wo Tin) → Exhibition Centre Station ^(A)	2 per day
			Exhibition Centre Station → Tuen Mun (Ching Tin and Wo Tin) ^(B)	1 per day
CTB 955 ⁽¹⁾	LTI	HKI	Tuen Mun (Ching Tin and Wo Tin) → Sai Wan Ho ^(A)	1 per day
			Sai Wan Ho → Tuen Mun (Ching Tin and Wo Tin) ^(B)	1 per day
CTB B3A	LTI	BCP	Shan King Estate - Shenzhen Bay Port	30 - 60
CTB N50 ^(D)	LTI	YTM	Tuen Mun (Ching Tin and Wo Tin) - Tsim Sha Tsui (Kowloon Station)	4 per day
CTB N969 ^(D)	CPR	HKI	Tin Shui Wai Town Centre - Causeway Bay (Moreton Terrace)	20 - 45
KMB 53	CPR	NTW	Yoho Mall (Yuen Long) - Tsuen Wan (Nina Tower)	25 - 35
KMB 63X	CPR	YTM	Hung Shui Kiu (Hung Fuk Estate) - Jordan (West Kowloon Station)	12 - 30
KMB 67M	LTI	NTW	Tuen Mun (Siu Hong Court) - Kwai Fong Station	5 - 20
KMB 67X	LTI	Kln(W)	Tuen Mun (Siu Hong Court) - Mong Kok East Station	7 - 25
KMB 68A	CPR	NTW	Long Ping Estate - Tsing Yi Station	8 - 30
KMB 258A ⁽¹⁾	CPR	Kln(E)	Hung Shui Kiu (Hung Fuk Estate) → Lam Tin Station ^(A)	2 per day
KMB 258P ⁽²⁾	CPR	Kln(E)	Hung Shui Kiu (Hung Fuk Estate) - Lam Tin Station ^(C)	12 - 30
KMB 261P	CPR	N	Tuen Mun (Siu Hong Court) → Sheung Shui (Tin Ping) ^{(2)(A)}	2-3 per day
			Sheung Shui (Tin Ping) → Tuen Mun (Siu Hong Court) ^{(1)(B)}	1 per day
KMB 267X ⁽¹⁾	LTI	Kln(E)	Tuen Mun (Siu Hong Court) → Lam Tin Station ^(A)	2 per day
			Lam Tin Station → Tuen Mun (Siu Hong Court) ^(B)	2 per day
KMB 960A ⁽¹⁾	CPR	HKI	Central → Hung Shui Kiu (Hung Fuk Estate) ^(B)	1 per day
KMB 960C ⁽¹⁾	LTI	HKI	Tuen Mun (Fu Tai Estate) → Causeway Bay (Victoria Park) ^(A)	2 per day
			Causeway Bay (Victoria Park) → Tuen Mun (Fu Tai Estate) ^(B)	1 per day
KMB 960P	CPR	HKI	Hung Shui Kiu (Hung Yuen Road) → Causeway Bay (Victoria Park) ^(A)	10 - 35
			Causeway Bay (Victoria Park) → Hung Shui Kiu (Hung Yuen Road) ^{(1)(B)}	2 per day
KMB 960X ⁽¹⁾	CPR	HKI	Hung Shui Kiu (Hung Yuen Road) → Quarry Bay (King’s Road) ^(A)	9 per day
			Quarry Bay (King’s Road) → Hung Shui Kiu (Hung Yuen Road) ^(B)	10 per day
KMB N260 ^(D)	CPR	NTW	Tuen Mun Pier Head - Mei Foo	20 - 30
LWB A34	CPR	TCL	Hung Shui Kiu (Hung Yuen Road) - Airport (Ground Transportation Centre)	15 - 60
LWB E33P	LTI	TCL	Siu Hong Station (South) - Airport (Ground Transportation Centre)	12 - 45
LWB NA33 ^(D)	LTI	TCL	Tuen Mun (Fu Tai Estate) → Cathay Pacific City	4 per day
			Cathay Pacific City → Tuen Mun (Fu Tai Estate)	6 per day
LWB NA37 ^(D)	CPR	TCL	Tin Shui Wai Town Centre → Cathay Pacific City	5 per day
			Cathay Pacific City → Tin Shui Wai Town Centre	6 per day
NLB B2	CPR	BCP	Yuen Long MTR Station - Shenzhen Bay Port	20 - 30
GMB 42	LTI	NTW	Tsing Chuen Wai - Tuen Mun Town Centre	13 - 15
GMB 606S ^(D)	CPR	YTM	Yuen Long (Fung Cheung Rd) - Tsim Sha Tsui East	6 - 13

KMB – Kowloon Motor Bus

LWB – Long Win Bus

CTB – CityBus

GMB – Green Minibus

NLB – New Lantao Bus

CPR – Castle Peak Road – Lam Tei

LTI – Lam Tei Interchange

YTM – Yau Ma Tei/ Tsim Sha Tsui / Mong Kok

Kln(E) – Kowloon (East)

Kln(W) – Kowloon (West)

N – North

HKI – Hong Kong Island

BCP – Boundary Control Point

NTW – New Territories West

TCL – Tung Chung / Lantau Island

Note: ⁽¹⁾ Monday to Friday. (Except public holidays) ⁽²⁾ Monday to Saturday (Except public holidays)

^(A) AM peak only ^(B) PM peak only ^(C) AM and PM peak only ^(D) overnight service

^(E) AM service only ^(F) PM service only ^(G) daytime non-peak service

Survey on Road-based Public Transport Services Located in the Vicinity

Road-based Public Transport

2.12 Survey on road-based public transport services listed in **Table 2.4** was conducted during the AM and PM peak periods on Thursday, 18th January 2024 at the bus stops near the subject site.

2.13 The AM and PM peak hours identified from the surveys are found to be between 0715 – 0815 hours and 1830 – 1930 hours respectively. The survey locations are shown in **Figure 2.16**. The survey results are summarized in **Table 2.5** and the detailed information are shown in **Appendix B**.

TABLE 2.5 OCCUPANCY OF EXISTING ROAD-BASED PUBLIC TRANSPORT SERVICES OPERATING NEAR THE SUBJECT SITE

Direction	AM Peak			PM Peak		
	No. of Pass.		Occupancy [c] = [b]/[a]	No. of Pass.		Occupancy [f] = [e]/[d]
	Cap. [a]	Occ. [b]		Cap. [d]	Occ. [e]	
Outbound – To other districts	8,476	3,163	37%	2,236	767	34%
Inbound – From other districts	2,476	897	36%	5,356	1,823	34%

Pass. – Passenger Cap. – Capacity Occ. - Occupied

2.14 The above results indicate that the surveyed road-based public transport services currently operate with spare capacities during the AM and PM peak hours.

Rail-based Public Transport

2.15 Based on the information obtained from the Legislative Council, the operational performance for MTR Tuen Ma Line in 2023 is summarized in **Table 2.6**.

TABLE 2.6 OPERATIONAL PERFORMANCE OF MTR TUEN MA LINE

Item	Parameters
Maximum carrying capacity when train frequency is maximized [a]	70,000 passengers / hour
Existing carrying capacity [b]	58,800 passengers / hour ⁽¹⁾
Current Patronage [c]	35,700 passengers / hour
Current Loading [c]/[b] {Critical Link}	61% {Tsuen Wan West to Mei Foo}
Loading compared with maximum carrying capacity [c]/[a]	51%

Source: Reply Serial No. TLB162 for Question Serial No. 2402, Controlling Officer’s Reply, Examination of Estimates of Expenditure 2024-25. Finance Committee. Legislative Council. 18 April 2024.

<<https://www.tlb.gov.hk/eng/legislative/transport/special/land/TLB-2-e1.pdf>>

⁽¹⁾ According to the reply, existing train frequency has not yet increased to the maximum level as permitted by the signalling system.

2.16 **Table 2.6** shows that the MTR Tuen Ma Line operates at 61% of its current capacity, or 51% of its maximum carrying capacity during the peak hour.

Light Rail Transit (LRT) Transport

2.17 Survey on LRT transport services at Lam Tei LRT stops was conducted during the AM and PM peak periods on Thursday, 18th January 2024. The AM and PM peak hours identified from the surveys are found to be between 0715 – 0815 hours and 1830 – 1930 hours respectively. The survey results are summarized in **Table 2.7**.

TABLE 2.7 OPERATIONAL PERFORMANCE OF LRT SERVICES AT LAM TEI STOP

Direction	No. of Trips.			No. of Passenger		Occupancy [c] = [b]/[a]
	Single	Coupled-set	Total	Capacity ⁽¹⁾ [a]	Occupied [b]	
AM Peak Hour						
Yuen Long bound	13	10	23	6,600	3,290	50%
Tuen Mun bound	12	12	24	7,200	5,796	81%
PM Peak Hour						
Yuen Long bound	14	7	21	5,600	4,236	76%
Tuen Mun bound	12	10	22	6,400	3,092	48%

⁽¹⁾ Assumed capacity of 200 passengers per trip for single Light Rail Vehicle (LRV) and 400 passengers per trip for coupled-set LRV

2.18 **Table 2.7** shows that the surveyed LRT services at Lam Tei Stop currently operate with spare capacities during the AM and PM peak hours.

Existing Footpath Level-Of-Service

2.19 To quantify the existing pedestrian flows, pedestrian counts were conducted during the AM and PM peak periods on Thursday, 18th January 2024 at footpaths located in the vicinity of Proposed Development, and the observed peak hour pedestrian flows are shown in **Figure 2.17**.

2.20 The Level-Of-Service (“LOS”) of a pedestrian footpath depends on its width and number of pedestrians using the facility. Description of the LOS at walkway is obtained from Volume 6 of the TPDM and is presented in **Table 2.8**.

TABLE 2.8 DESCRIPTION OF PEDESTRIAN FOOTPATH LOS

LOS	Flow Rate (ped/min/m)	Description
A	≤ 16	Pedestrians basically move in desired paths without altering their movements in response to other pedestrians. Walking speeds are freely selected, and conflicts between pedestrians are unlikely.
B	16 – 23	Sufficient space is provided for pedestrians to freely select their walking speeds, to bypass other pedestrians and to avoid crossing conflicts with others. At this level, pedestrians begin to be aware of other pedestrians and to respond to their presence in the selection of walking paths.
C	23 – 33	Sufficient space is available to select normal walking speeds and to bypass other pedestrians primarily in unidirectional stream. Where reverse direction or crossing movement exist, minor conflicts will occur, and speed and volume will be somewhat lower.
D	33 – 49	Freedom to select individual walking speeds and bypass other pedestrians is restricted. Where crossing or reverse-flow movements exist, the probability of conflicts is high and its avoidance requires changes of speeds and position. The LOS provides reasonable fluid flow; however considerable friction and interactions between pedestrians are likely to occur.
E	49 – 75	Virtually, all pedestrians would have their normal walking speeds restricted. At the lower range of this LOS, forward movement is possible only by shuffling. Space is insufficient to pass over slower pedestrians. Cross- and reverse-movement are possible only with extreme difficulties. Design volumes approach the limit of walking capacity with resulting stoppages and interruptions to flow.
F	> 75	Walking speeds are severely restricted. Forward progress is made only by shuffling. There are frequent and unavoidable conflicts with other pedestrians. Cross- and reverse-movements are virtually impossible. Flow is sporadic and unstable. Space is more characteristics of queued pedestrians than of moving pedestrian streams.

Source: Volume 6 Chapter 10 of TPDM

2.21 The observed peak hour pedestrian flows LOS assessment is presented in **Table 2.9**.

TABLE 2.9 EXISTING LOS ASSESSMENT

Location	Clear Width ⁽¹⁾ [Effective Width] (m)	Peak Period	Flow (ped/ hour)	Flow rate (ped/min/m)	LOS
P1. Footpath on the footbridge connected to Ng Lau Road	2.0[1.0]	AM	150	2.5	A
		PM	99	1.7	A
P2. Footpath between Lam Tei LRT stop and bus stop at Castle Peak Road – Lam Tei	2.5[1.5]	AM	315	3.5	A
		PM	210	2.3	A
P3. Footbridge over Castle Peak Road – Lam Tei	2.5[1.5]	AM	216	2.4	A
		PM	105	1.2	A
P4. Southern Footpath of San Hing Road	1.5[0.5]	AM	45	1.5	A
		PM	30	1.0	A
P5. Eastern Footpath of Ng Lau Road	2.0[1.0]	AM	189	3.2	A
		PM	120	2.0	A

⁽¹⁾ The width excludes railing and obstructions.

2.22 The above results indicate that the surveyed footpaths currently operate with LOS A during the AM and PM peak. As stated in the TPDM, LOS A to C is considered as an acceptable level of service: “In general, LOS C is desirable for most design at streets with dominant ‘living’ pedestrian activities”.

3.0 THE PROPOSED DEVELOPMENT

Key Parameters

3.1 The Proposed Development key parameters are presented in **Table 3.1**.

TABLE 3.1 KEY PARAMETERS

Item		Proposed Development
Development Site Area		About 8,896 m ²
Domestic Plot Ratio		5.0
Domestic GFA		44,480 m ²
Flat Mix (GFA)	Flat Size ≤ 40m ²	1,110
	40m ² < Flat Size ≤ 70m ²	275
Total number of Flats		1,385

Provision of Internal Transport Facilities

3.2 The internal transport facilities for the Proposed Development are provided in accordance with the recommendations of the Hong Kong Planning Standards and Guidelines (“HKPSG”) and are presented in **Table 3.2**.

TABLE 3.2 PROVISION OF INTERNAL TRANSPORT FACILITIES FOR PROPOSED DEVELOPMENT

Facility	HKPSG Recommendation	Provision
Car Parking Space	<p>For Residents: Parking Requirement = GPS x R1 x R2 x R3 Global Parking Standard (GPS): 1 car parking space per 4 - 7 flats Demand Adjustment Ratio (R1): 0.5 for flat size ≤ 40 m² GFA 1.2 for flat size 40 – 70 m² GFA Accessibility Adjustment Ratio(R2): 1.0 outside 500m-radius of rail station Development Intensity Adjustment Ratio (R3): 1.0 for Plot Ratio 2.0 – 5.0</p> <p>For 1,100 flats with flat size less than 40 m² GFA Minimum: (1,110 / 7 x 0.5 x 1.0 x 1.0) = 79.3, say 80 nos. Maximum: (1,110 / 4 x 0.5 x 1.0 x 1.0) = 138.8, say 139 nos.</p> <p>For 275 flats with flat size 40 – 70 m² GFA Minimum: (275 / 7 x 1.2 x 1.0 x 1.0) = 47.2, say 48 nos. Maximum: (275 / 4 x 1.2 x 1.0 x 1.0) = 82.5, say 83 nos.</p> <p>Total Minimum = 80 + 48 = 128 nos. Maximum = 139 + 83 = 222 nos.</p>	<p>222 nos. @ 5.0m (L) x 2.5m (W) x 2.4m (H) = HKPSG maximum</p>
	<p>For Visitors: Visitor car parking for private residential developments with more than 75 units per block should be provided at 5 visitor spaces per block in addition to the recommendations, or as determined by the Authority.</p> <p>For 5 blocks: 5 x 5 nos. = 25 nos.</p>	
	<p>Total Car Parking Space: Minimum = 128 + 25 = 153 nos. Maximum = 222 + 25 = 247 nos. Note: For total no. of car parking space in lot = 151 – 250 nos., the Building (planning) regulation 72 require provision of 3 accessible car parking spaces</p>	<p>247 nos. (including 3 accessible car parking spaces)</p>

TABLE 3.2 PROVISION OF INTERNAL TRANSPORT FACILITIES FOR PROPOSED DEVELOPMENT (CONT'D)

Facility	HKPSG Recommendation	Provision
Motorcycle Parking Space	<p>For Residential Uses: TD Comment: 1 motorcycle parking space shall be provided for every 81 flats</p> <p>For 1,385 flats: $1,385 / 81 = 17.1$, say 18 nos.</p>	<p>18 nos. @ 2.4m (L) x 1.0m (W) x Min. 2.4m (H) = fulfil TD comment, OK</p>
Goods Vehicle Loading/ Unloading Bay	<p>For Residential Uses: Minimum of 1 loading / unloading bay for goods vehicles within the site for every 800 flats or part thereof, subject to a minimum of 1 bay for each housing block or as determined by the Authority.</p> <p>For 5 blocks, each block less than 800 flats: 5 no.</p>	<p>5 nos. @ 11.0m (L) x 3.5m (W) x Min. 4.7m (H) = HKPSG minimum, OK</p>
Bicycle Parking Spaces	<p>For Residential Uses: TD Comment: 1 space per 5 flats with flat size < 70m².</p> <p>$= 1,385 \div 5$ $= 277$ nos.</p>	<p>277 no. @ 1.8m (L) x 0.8m (W) x Min. 2.4m (H) = fulfil TD comment, OK</p>

3.3 **Table 3.2** shows that the internal transport facilities provided comply with the recommendations of the HKPSG. The master layout plan of the Proposed Development is shown in **Figure 3.1**.

Planned Road Works near the Proposed Development

3.4 The existing access road and unnamed road connecting the Proposed Development with Ng Lau Road is planned to be improved, to provide a 7.3m-wide road carriageway, a 2m-wide footpath and a 2m-wide cycle track (the “Planned Road Works”). The Planned Road Works to be implemented by the Owner as part of the Approved Scheme and is found in **Appendix C**.

Swept Path Analysis

3.5 The CAD-based swept path analysis programme, Autodesk Vehicle Tracking, was used to check the ease of manoeuvring of vehicles within the Proposed Development, and the swept path analysis drawings are found in **Appendix D**. Vehicles are found to have no manoeuvring problems.

4.0 TRAFFIC IMPACT

Design Year

- 4.1 The Proposed Development is expected to be completed in 2030, and the design year adopted for the traffic assessment is, whichever later of the 2: (i) at least 3 years after the planned completion of the development, i.e., 2033, or (ii) 5 years from the date of this application, i.e., 2028. Therefore, Year 2033 is adopted for junction capacity analysis.

Traffic Forecasting

- 4.2 Year 2033 peak hour traffic flows for the junction capacity analysis is produced (i) with reference to the 2019-based BDTM NTW1 (the “BDTM”); (ii) estimated growth from 2031 to 2033; (iii) expected traffic generation by the planned / committed developments in the vicinity; and (iv) expected traffic generation by the 2 cases, i.e., Approved Scheme and Proposed Development.

Modelling and Validation

- 4.3 The BDTM provides traffic forecasts for the years 2026 and 2031 and these have taken into account the planned developments, changes to the strategic road network, population growth, etc. Therefore, The BDTM is used as the basis to produce the traffic flow for this TIA.
- 4.4 The BDTM is validated, and the validation meets criteria found in the “BDTM Study”. Nevertheless, the traffic network and zone in the vicinity of the Proposed Development were further reviewed to ensure the traffic model is up-to-date and the modelled flow can be adopted. The modelling and validation methodology include, but not limited to, the following:
- The road links and junctions were checked and updated to ensure that any recent change in the existing road network is considered and missing road links or junction does not exist.
 - The schedules of public transport services such as franchised bus and green/red minibus were also checked to ensure that the updated routings and headway information are adopted.
 - The zone and centroid connectors were reviewed to ensure that the traffic zones generate/ attract traffic at appropriate locations.
 - The traffic flows produced by BDTM at the surveyed junctions were reviewed with reference to the observed traffic flows.
 - The validation methodology is same as that adopted in the BDTM. All count locations were reviewed and checked using the GEH statistic (a modified chi squared test to provide a statistic for both the magnitude of the difference and the percentage difference between modelled and observed flows). The GEH statistic is defined by:

$$\sqrt{\frac{(V_2 - V_1)^2}{\frac{1}{2}(V_2 + V_1)}}$$

where V_1 and V_2 are the observed and modelled flows.

- 4.5 The validation criteria adopted are found in **Table 4.1**.

TABLE 4.1 VALIDATION CRITERIA

Locations	Target
Traffic flows at all count locations	85% return a GEH statistic of 5 or less 100% return a GEH statistic of 10 or less

Estimated Traffic Growth Rate from 2031 to 2033

- 4.6 Reference is made to the: (i) the Annual Average Daily Traffic (“AADT”) of core stations located in the vicinity of the Proposed Development, which is found in the Annual Traffic Census, published by Transport Department, (ii) population and employment data for Tuen Mun from the “2019-based Territorial Population and Employment Data Matrix” (the “TPEDM”) prepared by Planning Department, and (iii) the Hong Kong Population Projection published by Census and Statistics Department.
- 4.7 Item (ii) has no population and employment data beyond year 2031, hence, there is no reference growth rate from 2031 to 2033. In addition, the major population growth near the Proposed Development, i.e., “Development at San Hing Road and Hong Po Road, Tuen Mun”, which will be completed in 2030 – 2033, have been taken included in the planned / committed developments, hence the traffic growth of the road network of concern is conservative.
- 4.8 The information of (i) and (iii) are presented in **Tables 4.2 and 4.3** respectively.

TABLE 4.2 AADT OF THE CORE STATIONS IN THE VICINITY OF THE SUBJECT SITE

Station	6213	5647	Overall
Road	Castle Peak Road - Hung Shui Kiu	Tsing Lun Road	–
From	Tin Ha Road	Tsing Chung Koon Road	–
To	Lam Tei Interchange	Lam Tei Interchange	–
2010	31,280	10,770	42,050
2011	30,910	10,050	40,960
2012	31,210	9,990*	41,200
2013	30,520	10,070*	40,590
2014	33,510	9,970*	43,480
2015	31,720	10,390	42,110
2016	33,490	11,490	44,980
2017	34,140	11,310*	45,450
2018	32,740	11,590*	44,330
2019 [#]	33,220	11,500*	44,720
2020 [#]	34,710	12,870	47,580
2021 [#]	34,800	13,870	48,670
2022 [#]	34,500	13,450*	47,950
Average Annual Growth (2010-2018)	0.57%	0.92%	0.66%

Note: * Estimated by Growth Factor

Excluded due to the impact of the public events in 2019 and COVID-19 pandemic in 2020 – 2022.

- 4.9 Reference is made to the “Hong Kong Population Projections 2022 – 2046” published by Census and Statistics Department and the information is presented in **Table 4.3**.

TABLE 4.3 HONG KONG POPULATION PROJECTIONS FROM CENSUS AND STATISTICS DEPARTMENT

Year	Population in Hong Kong (thousands)
2031	7,820.2
2033	7,903.6
Average Annual Growth (2031 – 2033)	0.53%

- 4.10 **Table 4.3** shows that the annual average traffic growth of 0.66%. **Table 4.3** shows that the annual population growth between 2031 – 2033 is 0.53%. To be conservative, the annual growth rate of 1% is adopted for 2031 – 2033.

Additional Planned/ Committed Developments near the Subject Site

- 4.11 The planned/ committed developments near the Subject Site not included in the BDTM but have been incorporated to produce the future year traffic flows are listed in **Table 4.4** and the locations are presented in **Figure 4.1**.

TABLE 4.4 THE ADDITIONAL PLANNED / COMMITTED DEVELOPMENTS NEAR THE SUBJECT SITE

Ref. No.	Development	Intake Year	Land Use	GFA (m ²)	No. of Flat (no.)	Average Flat Size (m ²)	No.
Tuen Mun Area 54⁽¹⁾							
A	Site 1 & 1A Wo Tin Estate	2022	PRH	–	4,232	–	–
			Retail	2,420	–	–	–
			SWF	1,060	–	–	–
			Kindergarten	–	–	–	1 no.
B	Site 2 Yan Tin Estate	2017	PRH	–	4,688	–	–
			Retail	4,250	–	–	–
			SWF	3,600	–	–	–
C	Site 3 & 4 (East) Ching Tin Estate	2022	PRH	–	5,183	–	–
			Retail	3,130	–	–	–
			SWF	1,810	–	–	–
			Kindergarten	–	–	–	1 no.
D	Site 3 & 4 (West) Novo Land	2025	Private Housing	–	4,600	–	–
			Retail	5,000	–	–	–
E	Site 4A (East and West) ⁽²⁾	2026	Light Public Housing	–	5,620	–	–
G	Site 4A (South)	2028	PRH	–	1,475	–	–
			Kindergarten	–	–	–	1 no.
H	Site 5	2028	SSF	–	1,020	–	–
			SWF	1,300	–	–	–
Development at San Hing Road and Hong Po Road, Tuen Mun⁽³⁾							
I	San Hing Road Site	2030	PRH / SSF	–	9,400	–	–
		-	Primary School	–	–	–	1 nos.
		2033	Kindergarten	–	–	–	2 nos.
		-	SWF	N/A	–	–	–
J	San Hing Road Site Extension	2030	PRH / SSF	–	1,500	–	–
		-	Retail	5,000 ⁽⁴⁾	–	–	–
		2033	Sport Centre	–	–	–	1 no.
K	Ho Pong Road Site	2030	PRH / SSF	–	9,500	–	–
		-	Retail	5,000 ⁽⁴⁾	–	–	–
		2033	Kindergarten	–	–	–	2 no.
		-	SWF	N/A	–	–	–

TABLE 4.4 THE ADDITIONAL PLANNED / COMMITTED DEVELOPMENTS NEAR THE SUBJECT SITE (CONT'D)

Ref. No.	Development	Intake Year	Land Use	GFA (m ²)	No. of Flat (no.)	Average Flat Size (m ²)	No.
Other Planning Applications Nearby⁽⁵⁾							
L	A/TM-LTY/ 426	2026	Private Housing	–	184	31	–
M	Y/TM-LTY/ 10	–	Private Housing	–	288	40	–
N	A/TM-LTY/ 301	–	NTEH ⁽³⁾	–	1	195	–
O	A/TM-LTY/ 335	–	NTEH ⁽³⁾	–	1	195	–
P	A/TM-LTY/ 336	–	NTEH ⁽³⁾	–	1	195	–
Q	A/TM-LTY/ 370	–	NTEH ⁽³⁾	–	1	195	–
R	A/TM-LTY/ 371	–	NTEH ⁽³⁾	–	1	195	–
S	A/TM-LTY/ 372	–	NTEH ⁽³⁾	–	1	195	–

PRH – Public Rental Housing SSF – Subsidised Sale Flats NTEH – New Territories Exempted House
SWF – Social Welfare Facilities

(1) extracted from TIA of Approved Planning Applications A/TM/500 and A/TM/583

(2) extracted from Legislative Council Panel on Housing discussion paper CB(1)1123/2023(02) on December 2023

(3) extracted from Tuen Mun District Council discussion paper TMDC 19/2023 on September 2023

(4) No information on area for retail uses is found in public domain, assumed 5,000 m² GFA of retail

(5) extracted from Planning Statement of Approved Planning Applications

Planned Road Improvement Works Nearby

4.12 The planned road improvement works at assessed junctions are presented below.

Development at San Hing Road and Hong Po Road

4.13 Some road improvement works are planned under various contracts by CEDD, and these are summarized in **Table 4.5**. The road improvement works are found in **Appendix E**.

TABLE 4.5 PLANNED ROAD IMPROVEMENT WORKS

Ref	Brief Description of the Improvement	Contract
J3	Provide 2 left-turn lanes at Ng Lau Road southbound	CE 39/2021 (CE)
	Provide 1 left-turn lane at Lam Tei Interchange eastbound	CE 39/2021 (CE)
J4	Provide exclusive left-turn lane from Hong Po Road southbound	CE 39/2021 (CE)
	Modify the entry lanes from Lam Tei Interchange westbound	CE 39/2021 (CE)
J6	Provide 2 right-turn lanes and 1 shared lane for right turn and straight ahead at Castle Peak Road – Lam Tei southbound	CE 39/2021 (CE)
J7	Provide a channelized island at Tsz Tin Road eastbound ()	CV/2019/04
J10	Widened to provide 2lane 2-way single carriageway at minor road	CE 39/2021 (CE)
J12	Provide signalised cross junction	CE 39/2021 (CE)

CE 39/2021 (CE) - Site Formation and Infrastructure Works for Public Housing Developments at San Hing Road and Hong Po Road, Tuen Mun and Choi Shun Street, Sheung Shui – Investigation, Design and Construction”

CV/2019/04 - Site Formation and Infrastructure Works near Tsz Tin Road and Hing Fu Street in Area 54, Tuen Mun

4.14 The improvement work described in **Table 4.5** will be completed gradually before 2030 – 2033, i.e., the intake of public housing of San Hing Road site, and San Hing Road site extension and Hong Po Road site (Note: These are items I, J and K in **Table 4.3**). These improvement works are adopted for the Year 2033 junction capacity analysis.

Hung Shiu Kiu New Development Area

4.15 Road improvement work is planned at Ng Lau Road / Castle Peak Road – Lam Tei (J11) under the “Hung Shui Kiu/Ha Tsuen New Development Area Package A Works for Second Phase Development - Design and Construction” (Agreement

No. CE 01/2020 (CE)) by Civil Engineering and Development Department (“CEDD”). The layout of road improvement at J11 is presented in **Appendix E**.

Net Increase in Traffic Generation between the Approved Scheme and the Proposed Development

- 4.16 To estimate the traffic generation of the Proposed Development, reference is made to the TPDM. However, the smallest flat size in the TPDM is 60m² GFA, which is substantially larger than the Proposed Development average flat size of only 32m² GFA. Hence, the estimated traffic generation is conservative, i.e., on the high-side. The adopted trip generation rates and the estimated AM and PM peak hour traffic generation are presented in **Table 4.6**.

TABLE 4.6 ADOPTED TRIP RATES AND TRAFFIC GENERATION FOR PROPOSED DEVELOPMENT

Proposed Development (1,385 flats with average flat about 32m ² GFA)	Parameter	AM Peak		PM Peak	
		Generation	Attraction	Generation	Attraction
Trip Rates: Residential Use with average 60m ² GFA	pcu/flat/hr	0.0718	0.0425	0.0286	0.0370
Traffic Generation	pcu/hr	<u>100</u>	<u>59</u>	<u>40</u>	<u>52</u>
		<u>159 (2-way)</u>		<u>92 (2-way)</u>	
	veh/hr ⁽¹⁾	<u>94</u>	<u>56</u>	<u>37</u>	<u>49</u>
		<u>150 (2-way)</u>		<u>86 (2-way)</u>	

⁽¹⁾ Converted from pcu/hr to veh/hr based on 90% private car/ taxi and 10% heavy goods vehicles

- 4.17 The traffic generation of Approved Scheme found in the approved traffic impact assessment is presented in **Table 4.7**.

TABLE 4.7 ADOPTED TRAFFIC GENERATION FOR APPROVED SCHEME

Approved Scheme	Parameter	AM Peak		PM Peak	
		Generation	Attraction	Generation	Attraction
Traffic Generation	pcu/hr	<u>37</u>	<u>22</u>	<u>18</u>	<u>23</u>
		<u>59 (2-way)</u>		<u>41 (2-way)</u>	
	veh/hr ⁽¹⁾	<u>35</u>	<u>21</u>	<u>17</u>	<u>22</u>
		<u>56 (2-way)</u>		<u>39 (2-way)</u>	

⁽¹⁾ Converted from pcu/hr to veh/hr based on 90% private car/ taxi and 10% heavy goods vehicles

- 4.18 The peak hour traffic generation of Approved Scheme and Proposed Development are shown in **Figures 4.2 – 4.3** respectively.

- 4.19 The net increase in traffic generation (in pcu/hr and veh/ hr) between the Approved Scheme and the Proposed Development is presented in **Tables 4.8 and 4.9**.

TABLE 4.8 NET INCREASE IN TRAFFIC GENERATION (PCU PER HOUR)

Scheme	Traffic Generation (pcu/ hr)			
	AM Peak		PM Peak	
	Generation	Attraction	Generation	Attraction
Proposed Development (from Table 4.6) [a]	100	59	40	52
Approved Scheme (from Table 4.7) [b]	37	22	18	23
Net Increase [a] – [b]:	+63	+37	+22	+29
	+100 (2-way)		+51 (2-way)	

TABLE 4.9 NET INCREASE IN TRAFFIC GENERATION (VEHICLE PER HOUR)

Scheme	Traffic Generation (veh/ hr)			
	AM Peak		PM Peak	
	Generation	Attraction	Generation	Attraction
Proposed Development (from Table 4.6) [a]	94	56	37	49
Approved Scheme (from Table 4.7) [b]	35	21	17	22
Net Increase [a] – [b]:	+59	+35	+20	+27
	+94 (2-way)		+47 (2-way)	

4.20 The Proposed Development is expected to generate 100 and 51 additional pcu / hour (2-way) in AM and PM peak respectively, or equivalent to 94 and 47 vehicles / hour (2-way).

Year 2033 Proposed Additional Bus Trips

4.21 It is expected that 4 additional bus trips are required to accommodate the road-based public transport demand of the Proposed Development in Year 2033. The year 2033 proposed additional bus trips are shown in **Figure 4.4**, and details of the additional bus trips are presented in **Paragraphs 5.13 – 5.19**.

Year 2033 Traffic Flows

4.22 Year 2033 traffic flows for the following cases are derived:

Year 2033 Without Proposed Development [A] = *Traffic flows derived with reference to 2031 NTW1 BDTM + estimated traffic growth between 2031 and 2033 + estimated traffic generation of the planned / committed developments after 2019*

Year 2033 With Approved Scheme [B] = *[A] + estimated traffic generation for Approved Scheme*

Year 2033 With Proposed Development [C] = *[B] + net increase in traffic generation by Proposed Development + Additional Bus Trips*

4.23 Year 2033 peak hour **junction flows and link flows** for the above three cases are shown in **Figures 4.5 – 4.8** respectively.

Year 2033 Junction Capacity Analysis

4.24 Year 2033 junction capacity analysis for the three cases are summarised in **Table 4.10** and detailed calculations are found in the **Appendix A**.

TABLE 4.10 YEAR 2033 JUNCTION PERFORMANCE

Ref	Junction	Type of Junction (Parameter)	2033 Without Proposed Development		2033 With Approved Scheme		2033 With Proposed Development	
			AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
J1	Unnamed Road/ Access Road	Priority (DFC)	0.055	0.049	0.057	0.050	0.059	0.051
J2	Ng Lau Road/ Unnamed Road	Priority (DFC)	0.052	0.046	0.125	0.081	0.250	0.124
J3	Ng Lau Road/ Lam Tei Interchange	Signal (RC)	35%	41%	32%	39%	28%	36%
J4	Tsing Lun Road/ Hong Po Road/ Lam Tei Interchange	RA (DFC)	0.741	0.702	0.748	0.709	0.762	0.719
J5	Lam Tei Interchange	RA (DFC)	0.812	0.706	0.824	0.716	0.847	0.777
J6	Lam Tei Interchange/ Castle Peak Road – Lam Tei	Signal (RC)	20%	46%	20%	45%	19%	44%
J7	Tsing Lun Road/ Tsz Tin Road	Signal (RC)	22%	56%	22%	56%	21%	56%
J8	San Hing Road/ Ng Lau Road (Southern)	Priority (DFC)	0.092	0.055	0.097	0.060	0.107	0.068
J9	San Hing Road/ Ng Lau Road (Northern)	Priority (DFC)	0.200	0.453	0.200	0.453	0.200	0.453
J10	T-junction at San Hing Road	Priority (DFC)	0.058	0.071	0.061	0.074	0.069	0.080
J11	Ng Lau Road / Castle Peak Road – Lam Tei	Signal (RC)	16%	15%	16%	15%	16%	15%
J12	San Hing Road / Hong Po Road	Signal (RC)	106%	164%	106%	164%	104%	163%

Note: RC – reserve capacity; RA – Roundabout, DFC – design flow/capacity ratio

4.25 Table 4.10 shows that the Proposed Development has negligible traffic impact to the road junctions analysed.

Year 2033 Link Performance

4.26 The 2033 link performances are assessed and results are shown in Table 4.11.

TABLE 4.11 YEAR 2033 LINK CAPACITY ASSESSMENT

Ref	Link	Adjusted Design Flow (veh/hr)	Year 2033 Traffic Demand (veh/hr)								Year 2033 V/C Ratio					
			Without Proposed Development		With Approved Scheme		With Proposed Development		Without Proposed Development		With Approved Scheme		With Proposed Development			
			AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak		
L1	Castle Peak Road – Lam Tei	NB	2,604 ⁽¹⁾	2,604 ⁽¹⁾	874	1,450	874	1,450	874	1,450	0.34	0.56	0.34	0.56	0.34	0.56
		SB	2,604 ⁽¹⁾	2,604 ⁽¹⁾	1,828	1,252	1,828	1,252	1,830	1,254	0.70	0.48	0.70	0.48	0.70	0.48
L2	Castle Peak Road – Lingnan	NB	2,800	2,800	538	619	539	620	541	622	0.19	0.22	0.19	0.22	0.19	0.22
		SB	2,800	2,800	863	589	865	590	868	591	0.31	0.21	0.31	0.21	0.31	0.21
L3	Yuen Long Highway	NB	4,700	4,700	5,023	4,737	5,037	4,744	5,064	4,753	1.07	1.01	1.07	1.01	1.08	1.01
		SB	4,700	4,700	5,179	5,272	5,188	5,281	5,201	5,292	1.10	1.12	1.10	1.12	1.11	1.13
L4	Tuen Mun Road	NB	4,700	4,700	5,439	5,831	5,447	5,839	5,459	5,847	1.16	1.24	1.16	1.24	1.16	1.24
		SB	4,700	4,700	6,233	5,629	6,246	5,635	6,266	5,642	1.33	1.20	1.33	1.20	1.33	1.20
L5	San Hing Road	2-way	800	800	175	81	183	86	196	92	0.22	0.10	0.23	0.11	0.25	0.12
L6	Ng Lau Road (north of J9)	2-way	744 ⁽¹⁾	800	254	375	254	375	254	375	0.34	0.47	0.34	0.47	0.34	0.47
L7	Ng Lau Road (south of J2)	2-way	800	800	409	442	456	474	535	514	0.51	0.55	0.57	0.59	0.67	0.64
L8	Lam Tei Interchange (between J3&J5)	EB	2,800	2,800	1,879	1,264	1,908	1,278	1,958	1,295	0.67	0.45	0.68	0.46	0.70	0.46
		WB	2,800	2,800	1,894	1,815	1,912	1,833	1,941	1,856	0.68	0.65	0.68	0.65	0.69	0.66
L9	Tsing Lun Road	NB	1,900	1,900	897	669	898	670	900	672	0.47	0.35	0.47	0.35	0.47	0.35
		SB	1,900	1,900	1,334	984	1,336	985	1,339	986	0.70	0.52	0.70	0.52	0.70	0.52

NB – northbound SB – southbound EB – eastbound WB – westbound

⁽²⁾ With reference to paragraph 2.4.1.2 and table 2.4.1.2, Chapter 2.4, Volume 2 of TPDM, the design flow is to be reduced when the expected proportion of heavy vehicles exceeds 15%. The table below presents the adjusted design flow based on the proportion of heavy vehicles (“HV%”).

Road Type	Design Flow (veh/hr)	Adjusted Design Flow (veh/hr)		
		0-15 HV%	15-20 HV%	20-25 HV%
		0% reduction	7% reduction	10% reduction
Expressway / trunk road (Dual 3 lanes – 11m-wide)	4,700	4,700	4,371	4,230
Primary Distributor (Dual 3 lanes – 7.3m-wide)	2,800	2,800	2,604	2,520
District Distributor (Single 4 lanes – 13.5m-wide)	1,900	1,900	1,767	1,710
Local Roads (Single 2 lanes)	800	800	744	720

- 4.27 The above results show that the assessed road links operate with sufficient capacity, except for Tuen Mun Road (L4), which operate with V/C ratios at 1.2 or above during the AM and PM peak hours in Year 2033. In view that there are negligible changes on the V/C ratios to L4 for cases without Proposed Development, with Approved Scheme and with Proposed Development, it can be concluded that the traffic generated by the Proposed Development is negligible.
- 4.28 As shown in LC paper no. CB(4)619/20-21(03) of Legislative Council Panel on Transport, the planned Route 11 would reduce v/c in Year 2036 from 1.2 to 1.0 at Tuen Mun Road (Siu Lam Section) in morning peak, which indicates the traffic congestion at Tuen Mun Road will be relieved by planned Route 11.
- 4.29 In addition to the above, other planned strategic road improvements, including, Tuen Mun Bypass and Yuen Long Highway (between Lam Tei and Tong Yan San Tsuen) are planned to be implemented. The traffic condition at L3 and L4 would be further improved by these planned strategic road improvements.
- 4.30 With the planned strategic road improvement works, both Yuen Long Highway (L3) and Tuen Mun Road (L4) are expected to operate with sufficient capacity.

5.0 IMPACT TO PUBLIC TRANSPORT SERVICES

Transport Mode of the Subject Site

- 5.1 The transport mode of the Subject Site is assessed with reference to “Travel Characteristic Survey 2011” (“TCS2011”), but adjusted to reflect the nearby public transport provisions. The public transport provisions near the subject site have the following characteristics:
- (1) Direct and comprehensive light rail services at Lam Tei LRT stops operating within 50m from the Subject Site, which serve as feeder services to MTR and within Tuen Mun, instead of GMB route 42 at Ng Lau Road.
 - (2) Comprehensive bus services is identified within 400m walking distance.
 - (3) There are no special purpose bus, tram and ferry nearby.
- 5.2 Based on the above public transport characteristics, special purposed bus, tram, ferry, and public light bus found in TCS2011 are converted to rail and bus mode on pro-rata basis. The modified transport mode adopted for the Proposed Development is compared with TCS2011 and is found in **Table 5.1**.

TABLE 5.1 MODIFIED TRANSPORT MODE FOR THE PROPOSED DEVELOPMENT

Transport Mode	TCS 2011	Modified Transport Mode adopted for the Proposed Development
Rail	30%	44%
Bus	27%	38%
Public Light Bus	13%	0%
Private Car	12%	12%
Special Purpose bus	9%	0%
Taxi	6%	6%
Tram	2%	0%
Ferry	1%	0%
Total	100%	100%

- 5.3 **Table 5.1** shows that 44% and 38% of mechanised trips from the Proposed Development would use MTR and bus respectively. For residents who use MTR, it is assumed that 100% would use the LRT service.

Estimated Peak Hour Mechanised Trip Generation of Proposed Development

- 5.4 The mechanised trip generation of the Approved Scheme and the Proposed Development is estimated with reference to TCS2011 and is presented in **Table 5.2**.

TABLE 5.2 ESTIMATED PEAK HOUR MECHANISED TRIP GENERATION OF THE PROPOSED DEVELOPMENT

Parameter	Calculation	Unit	Approved Scheme	Proposed Development
No. of Flats	A	flats	307	1,385
Average domestic household size in Tuen Mun ⁽¹⁾	B	persons/ flat	2.6	2.6
Population	C = B x A	persons	799	3,601
Average Daily Mechanised Trips ⁽²⁾	D	trips/ persons/ day	1.83	1.83
AM Peak hour factor of Daily Mechanised Trips ⁽³⁾	E	N/A	12%	12%
Estimated Peak Hour Mechanised Trip Generation	F = C x D x E	persons/ hr	176	791

⁽¹⁾ Extracted from Census and Statistic Department website

⁽²⁾ From Table 3.3, Travel Characteristics Survey 2011 Final Report

⁽³⁾ From Para. 3.3.7, Travel Characteristics Survey 2011 Final Report

Estimated AM Peak Hour Transport Demand

5.5 The AM peak hour transport demand of the Proposed Development is estimated based on the modified transport mode in Table 5.1, and are presented in Table 5.3.

TABLE 5.3 ESTIMATED PEAK HOUR TRANSPORT DEMAND

Transport Mode of Proposed Development		Ratio ⁽¹⁾	Estimated AM Peak Hour Transport Demand of Proposed Development (Passenger/hr)
Public Transport	Rail-based [a]	44%	348
	Road-based [b]	38%	301
	Sub-total [c] = [a] + [b]	82%	649
Private Car / Taxi [d]		18%	142
Total [e] = [c] + [d]		100%	791

⁽¹⁾ From Table 5.1

5.6 Table 5.3 shows that Proposed Development is expected to generate additional public transport demand of 791 passengers per hour (2-way) during AM peak hour.

Road-Based Public Transport Demand Generated

5.7 The road-based public transport demand generated by the Proposed Development is summarised in Table 5.4.

TABLE 5.4 ESTIMATED ROAD-BASED PUBLIC TRANSPORT DEMAND

Development	Road-based Public Transport Demand (persons / hour)			
	AM Peak		PM Peak	
	Generation ⁽¹⁾	Attraction ⁽¹⁾	Generation ⁽¹⁾	Attraction ⁽¹⁾
Proposed Development: 1,385 Flats	214	87	87	148
	301 (2-way)		235 (2-way)	

⁽¹⁾ Proportional to adopted peak hours pedestrian generation and attraction rates in Table 6.2.

5.8 Tables 5.4 shows that the Proposed Development is expected to generate road-based public transport demand of 301 and 235 passengers per hour (2-way) during AM and PM peak hours respectively.

Rail-Based Public Transport Demand Generated

5.9 The rail-based public transport demand generated by the Proposed Development are summarised in **Table 5.5**.

TABLE 5.5 ESTIMATED RAIL-BASED PUBLIC TRANSPORT DEMAND

Development	Rail-based Public Transport Demand (persons / hour)			
	AM Peak		PM Peak	
	Generation ⁽¹⁾	Attraction ⁽¹⁾	Generation ⁽¹⁾	Attraction ⁽¹⁾
Proposed Development: 1,385 Flats	247	101	100	172
	+ 348 (2-way)		+ 272 (2-way)	

⁽¹⁾ Proportional to adopted pedestrian generation and attraction rates in AM and PM peak

5.10 **Tables 5.5** shows that the Proposed Development is expected to generate rail-based public transport demand of 348 and 272 passengers per hour (2-way) during AM and PM peak hours respectively.

Impact to Road-based Public Transport Services

5.11 To assess the impact to road-based public transport, the followings assumptions are adopted:

1. All bus services provided in Year 2033 remain the same as the existing, i.e., observed from surveys conducted in 2024.
2. By Year 2033, all existing bus services will operate at **equilibrium**.

5.12 Based on above the assumptions, the followings paragraphs assess the additional bus services required in Year 2033 for the Proposed Development.

Additional Bus Trip for the Proposed Development

5.13 The additional bus trips for the Proposed Development in Year 2033 is estimated based on the AM peak hour generation of road-based public transport demand as and is summarised in **Table 5.6**.

TABLE 5.6 ADDITIONAL BUS TRIP FOR THE PROPOSED DEVELOPMENT

Parameter	Calculation	Value	Unit
AM peak hour generation of road-based public transport demand (from Table 5.5)	A	214	persons
Capacity per double-deck bus	B	120	persons
Design Utilization Rate during peak hour	C	75%	N/A
Additional Bus Trips	D = A / (B X C)	3	Trips

5.14 **Table 5.6** shows that **at least** 3 bus trips (7.5 pcu 2-way) are required to accommodate the road-based public transport demand for the Proposed Development.

Proposed Bus Route for the Additional Bus Trips

5.15 The population using bus as main mode in Tuen Mun is obtained from table B203 and C204 from the “Population Census 2021”, which is published by Census and Statistic Department, and is summarised in **Table 5.7**.

TABLE 5.7 POPULATION USING BUS AS MAIN MODE IN TUEN MUN

Place of Work / Study	Population using Bus as Main Mode in Tuen Mun (Percentage)		
	Working Population in Tuen Mun ⁽¹⁾	Student Population ⁽¹⁾	Overall [C] = [A] + [B]
Hong Kong Island	14,651 (24%)	1,067 (16%)	15,718 (23%)
Kowloon	20,684 (33%)	2,321 (35%)	23,005 (34%)
New Territories	26,309 (43%)	3,175 (49%)	29,484 (43%)

⁽¹⁾ Extracted from of Population Census 2021, Table B203 and C204: https://www.census2021.gov.hk/en/main_tables.html

- 5.16 The destination of bus routes with stops at Castle Peak Road – Lam Tei (“CPR”) and the Lam Tei Interchange (“LTI”) are presented in **Table 5.8**.

TABLE 5.8 COMPARISON ON DESTINATION OF BUS ROUTES BETWEEN BUS STOP AT CPR AND LTI

Bus Stop	Walking Distance (Time)	No. of Bus Routes at Destination							
		HKI	NTW	YTM	Kln(E)	Kln(W)	N	TCL	BCP
CPR	100 to 200 (2 - 4 mins)	4	3	2	2	0	1	2	1
LTI	350 to 400 (7 - 8 mins)	3	2	2	2	1	2	2	1

HKI – Hong Kong Island

NTW – New Territories West

YTM – Yau Ma Tei/Tsim Sha Tsui/Mong Kok

Kln(E) – Kowloon (East)

Kln(W) – Kowloon (West)

N – North

BCP – Boundary Control Point

TCL – Tung Chung / Lantau Island

- 5.17 **Table 5.8** shows that the bus stops at CPR which are located only 2 – 4 minutes’ walk away, has similar routes as the LTI stop, except for the routes to Kowloon West.

- 5.18 However, it is found that most of the bus routes at CPR are operated by KMB, and residents from the Proposed Development travelling to Kowloon West using these bus routes could change to other bus routes operated by KMB at the Tuen Mun Road interchange, e.g. KMB 59X, 60X and 67X. Therefore, it is concluded that all road-based public transport demand from the Proposed Development would use CPR, and negligible usage of LTI, due to its longer walking time.

- 5.19 Based on the proportion of working district of working population in Tuen Mun presented in **Table 5.7** and the findings from **Table 5.8**, the proposed bus route for the 4 additional bus trips are presented in **Table 5.9**, and bus route are shown in **Figure 5.1**.

TABLE 5.9 PROPOSED BUS ROUTE FOR THE ADDITIONAL BUS TRIPS

District	Proportion ⁽¹⁾	Additional Passenger Demand (passenger /hr) [a]	Additional Trips	Occupancy of Additional bus trip [b] = [a] / 120	Proposed Bus Route ⁽²⁾	
Hong Kong Island	23%	49	1	41%	KMB 960P	
Kowloon	34%	72	1	60%	KMB 63X	
New Territories	43%	93	47	1	39%	KMB 68A ⁽³⁾
			46	1	38%	KMB 261P ⁽³⁾
Total	100%	214	4	N/A	N/A	

(1) From Table 5.7

(2) Determined by the greatest occupancy in existing condition for clarity.

(3) 2 buses to be provide services for New Territories West and New Territories East respectively

2033 Rail-Based Public Transport Occupancies

5.20 As presented in Table 5.5, the demand on rail-based public transport services, i.e. MTR Tuen Ma Line, associated with the Proposed Development is no more than 247 passengers during the peak hours. As presented in Table 2.5, the MTR Tuen Ma Line has a maximum carrying capacity of 70,000 passenger / hour. Hence, the additional passenger demand is only 0.4% of the maximum carrying capacity [Calculation: $247 \div 70,000 = 0.4\%$], which is negligible on the MTR Tuen Ma Line.

Annual Public Transport Demand Growth Rate between 2024 – 2033

5.21 To establish the local public transport demand growth rate from 2024 to 2033, reference is made to several sources of information including:

- 2024 – 2031: 2019 - based TPEDM
- 2031 – 2033: “Hong Kong Population Projections” from the Census and Statistics Department

5.22 Between 2024 and 2029, reference is made to the population and employment growth of Tuen Mun in the TPDEM, and population projections are presented in Table 5.10.

TABLE 5.10 TUEN MUN NEW TOWN POPULATION PROJECTIONS

Year	Population [a]	Employment [b]	Overall [c] = [a] + [b]
2019	476,500	130,800	607,300
2031	606,850	150,750	757,600
Average Annual Growth 2019 to 2031	2.0%	1.2%	1.9%

5.23 Table 5.10 shows that the average annual population growth in the Tuen Mun between 2019 and 2031 is 1.9%.

5.24 Beyond 2031, reference is made to the “Hong Kong Population Projections” from the Census and Statistics Department, which is presented in Table 5.11.

TABLE 5.11 HONG KONG POPULATION PROJECTIONS FROM CENSUS AND STATISTICS DEPARTMENT

Year	Hong Kong Resident Population ('000)
2031	7,820.2
2033	7,903.6
Average Annual Growth 2031 to 2033	0.53%

5.25 **Table 5.11** shows that the average annual population growth in Hong Kong between 2031 – 2033 is 0.53%.

5.26 Based on the above, the annual growth factors adopted are 1.9% from 2024 to 2031, and 1.0% from 2031 to 2033 for conservative approach.

2033 LRT Service Occupancies

5.27 Based on survey result shown in **Table 2.7**, the year 2033 performance of LRT services at Lam Tei Stop were derived as follows:

2033 without Proposed Development [A] = *2024 observed performance of LRT services at Lam Tei Stop + adopted public transport demand growth demand growth from 2024 to 2033*

2033 with Proposed Development [B] = *[A] + rail-based public transport demand due to Proposed Development (from Table 5.5)*

5.28 Year 2033 performances of LRT services at Lam Tei Stop are presented in **Table 5.12**.

TABLE 5.12 YEAR 2033 PERFORMANCE OF LRT SERVICES AT LAM TEI STOP

Direction	No. of Passenger			Occupancy [c]=[b]/[a]	
	Capacity ⁽¹⁾ [a]	Year 2033 Occupied [b]		Without Proposed Development	With Proposed Development
		Without Proposed Development	With Proposed Development		
AM Peak					
Yuen Long bound	6,600	3,829	3,866	58%	59%
Tuen Mun bound	7,200	6,746	6,956	94%	97%
PM Peak					
Yuen Long bound	5,600	4,930	5,050	88%	90%
Tuen Mun bound	6,400	3,599	3,651	56%	57%

5.29 **Table 5.12** shows that the year 2033 LRT services at Lam Tei Stop would operate with limited capacities during the AM and PM peak hours. If necessary, 2 LRT trips operating with single LRV could be converted to coupled-set LRV, thus giving additional capacity of 400, which could accommodate the additional rail-based public transport demand generated by the Proposed Development.

Review on Public Transport Facilities

5.30 Public Transport Facilities are reviewed and presented in below paragraphs.

Additional Queuing/Waiting Demand due to the Proposed Development

5.31 The estimated additional queuing/waiting related to the Proposed Development

at each bus stop / LRT station is presented in **Table 5.13**.

TABLE 5.13 ADDITIONAL QUEUING / WAITING DEMAND RELATED TO THE PROPOSED DEVELOPMENT

Bus Stop / LRT Stop		Boarding Demand (No. of Passenger) (from Table 5.9) [a]	No. of Trips (including additional bus trips in Table 5.9) [b]	Average Queuing / Waiting Passenger (No. of Passenger) [c] = [a] / [b]
CPR – Southbound	KMB 960P	49	7	7
	KMB 63X	72	6	12
	KMB 68A	47	4	12
	<i>Sub-total</i>	<i>168</i>	<i>17</i>	<i>31</i>
CPR – Northbound	KMB 261P	46	2	23
LTI – Westbound		0	2	0
LTI – Eastbound		0	0	0
Lam Tei LRT Stop – Yuen Long bound		38	23	2
Lam Tei LRT Stop – Tuen Mun bound		210	24	9

5.32 **Table 5.13** shows that the estimated additional average queuing /waiting passenger at CPR southbound and CPR northbound bus stops are 31 and 23 passengers respectively and no additional average queuing /waiting passenger at LTI bus stops.

Utilisation of Passenger Waiting/Queuing Areas at Bus Stops / LRT Platforms

5.33 Survey on passenger waiting/queuing areas at bus stops / LRT platforms was conducted during the AM and PM peak periods on Thursday, 8th May 2024, and the peak hours identified from the surveys is found to be between 0715 – 0815 hours. Based on this survey, the year 2033 maximum number of passenger waiting/queuing at the Bus Stops / LRT platforms were derived as follows:

2033 without Proposed Development [A] = *2024 observed maximum queue + adopted passenger demand growth from 2024 to 2033*

2033 with Proposed Development [B] = *[A] + average queuing / waiting passenger due to Proposed Development (from **Table 5.13**)*

5.34 Utilisations of passenger waiting/queuing area at the bus stops / LRT platforms for existing, 2033 cases without and with Proposed Development are presented in **Table 5.14**.

TABLE 5.14 UTILISATIONS OF PASSENGER WAITING / QUEUING AREA AT BUS STOPS AND LRT PLATFORMS

Bus Stop / LRT Platform	Queuing/ Waiting Capacity		Existing		Year 2033 Without Proposed Development		Year 2033 With Proposed Development	
	Area (m ²)	Pass ⁽¹⁾ [a]	Max Queue [b]	Util [c] = [b] / [a]	Max Queue [d]	Util [e] = [d] / [a]	Max Queue [f]	Util [g] = [f] / [a]
CPR – Southbound	38	132	38	29%	45	34%	76	58%
CPR – Northbound	20	69	10	14%	12	17%	35	51%
LTI – Westbound	8	28	8	29%	10	36%	10	36%
LTI – Eastbound	8	28	0	0%	0	0%	0	0%
Lam Tei LRT Stop – Yuen Long bound	30 ⁽²⁾	104	16	15%	19	18%	21	20%
Lam Tei LRT Stop – Tuen Mun bound	96 ⁽²⁾⁽³⁾	333	84	25%	98	29%	107	32%

Pass – Passenger

Max – Maximum

Util - Utilisation

⁽¹⁾ Refer to Volume 9, Chapter 2.7, TPDM, standing capacity of 5 passengers per 1.44m² is adopted.

⁽²⁾ Deducted minimum of 1.1m walkways from doors of light rail vehicles to the exit of the platforms and utilities on the platforms, e.g. shelter, seats, ticket vending machines and Octopus card readers.

⁽³⁾ Included the expansion of Lam Tei LRT Tuen Mun bound platform

5.35 **Table 5.14** shows that the assessed bus stops /LRT platforms would have sufficient passenger waiting/queuing areas for the case of year 2033 with the Proposed Development.

Length of the Laybys for Bus Stops

5.36 The assessment on length of the laybys at the Castle Peak Road – Lam Tei bus stops and Lam Tei Interchange bus stops for the year 2033 without and with Proposed Development are presented in **Table 5.15**.

TABLE 5.15 ASSESSMENT ON LENGTH OF THE LAYBYS FOR BUS STOPS

Bus Stop	Number of Bus Could Stop (Length) [c]	Average Dwell Time (minute) [a]		Number of Bus Arrival for Boarding /Alighting [b]				Utilisation of Bus Stop Layby [d] = [a]x[b] / ([c]x60 minutes)			
				2033 Without Proposed Development ⁽¹⁾		2033 With Proposed Development ⁽²⁾		2033 Without Proposed Development		2033 With Proposed Development	
				AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
CPR – Southbound	2 (26m)	1.6	0.9	35	10	39	14	47%	8%	53%	11%
CPR – Northbound	1 (13m)	1.2	1.3	10	21	14	25	20%	47%	28%	55%
LTI – Westbound	1 (13m)	0.5	0.5	3	4	3	4	3%	3%	3%	3%
LTI – Eastbound	1 (13m)	0.7	0.5	7	2	7	2	8%	2%	8%	2%

⁽¹⁾ Refer to Paragraph 5.11, all bus services provided in Year 2033 remain the same as observed from surveys conducted in 2024

⁽²⁾ The 4 additional bus trips related to the Proposed Development are included in Year 2033 with Proposed Development scenario.

5.37 **Table 5.15** shows that:

- CPR southbound bus stop layby: The utilisation increases from 47% to 53%, and from 8% to 11% in the AM and PM peak respectively.
- CPR northbound bus stop layby: The utilisation increases from 20% to 28%, and from 47 to 55% in the AM and PM peak respectively.
- LTI bus stop westbound and eastbound laybys: No impact from the Proposed Development.

Proposed Improvement on the Length of the CPR Bus Laybys

5.38 **Figure 5.2** shows the proposed improvement for the CPR bus laybys, which include the following:

- CPR southbound bus stop – Extend the existing 26m-long bus layby to 42m (14m x 3) to accommodate 3 12.8m-long bus boarding /alighting at the same time
- CPR northbound bus stop - Extend the existing 13m-long bus layby to 28m (14m x 2) to accommodate 2 12.8m-long bus boarding /alighting at the same time

The assessment on length of the laybys for bus stops at the Castle Peak Road – Lam Tei bus stops taking into consideration the proposed improvement, are summarized in **Table 5.16**.

TABLE 5.16 ASSESSMENT ON LENGTH OF THE LAYBYS FOR BUS STOPS WITH PROPOSED IMPROVEMENT

Bus Stop	Number of Bus Could Stop (Length) [c]	Average Dwell Time (minute) [a]		Number of Bus Arrival for Boarding /Alighting ⁽¹⁾ [b]		Utilisation of Bus Stop Layby [d] = [a]x[b] / ([c]x60 minutes)	
		AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
CPR – Southbound	3 (42m)	1.6	0.9	39	14	35%	7%
CPR – Northbound	2 (28m)	1.2	1.3	14	25	14%	28%

⁽¹⁾ The 4 additional bus trips related to the Proposed Development are included in Year 2033 with Proposed Development scenario.

5.39 **Table 5.16** shows that the laybys would have sufficient capacity for bus boarding / alighting for Year 2033 with the Proposed Development and after implementation of the proposed improvement on CPR bus stop laybys.

Justification on Not Providing Shuttle Bus Service for the Proposed Development

5.40 The assessment on the impact of public transport concluded that the public transport provisions in the vicinity of the Proposed Development are sufficient to accommodate the passenger demand due to the Proposed Development by providing 4 additional bus services. Hence, provision of shuttle bus services for the Proposed Development is not required.

6.0 PEDESTRIAN IMPACT

2033 Pedestrian Flow Forecasting

- 6.1 2033 peak hour pedestrian flows are produced by estimating (i) the pedestrian growth from 2024 to 2033; and (ii) expected pedestrian generated by the Proposed Development and planned / committed developments in the vicinity.

Annual Pedestrian Growth Rate between 2024 – 2033

- 6.2 Growth rates of 1.9% per annum from 2024 to 2031, and 1% per annum for the period from 2031 to 2033, are adopted, and references to these are found in Paragraphs 5.20 – 5.26.

Peak Hour Pedestrian Generated by Planned / Committed Developments in the Vicinity

- 6.3 Peak hour pedestrian generated by planned / committed developments in the vicinity as presented in Table 4.3 is included in the Year 2033 pedestrian flow.

Adopted Pedestrian Generation Rate

- 6.4 Pedestrian generation survey was conducted at 0700 – 0900 and 1800 – 2000 hours on Thursday, 12th September 2024 at developments found near the Proposed Development. The AM and PM peak hours identified from the surveys are found to be between 0715 – 0815 hours and 1830 – 1930 hours respectively. The pedestrian generation and pedestrian generation rates is shown in Table 6.1.

TABLE 6.1 PEDESTRIAN GENERATION AND PEDESTRIAN GENERATION RATES

Surveyed Developments (Number of Flat)	AM Peak		PM Peak	
	Generation	Attraction	Generation	Attraction
Pedestrian Generation (Ped / hr)				
Novoland (3,282) ⁽¹⁾	1,491	568	542	1,346
Ching Tin Estate (5,183)	3,214	1,436	1,270	2,379
Yan Tin Estate (4,688)	3,085	1,262	1,248	2,143
Pedestrian Generation Rate (Ped / hr / flat)				
Novoland (3,282) ⁽¹⁾	0.4543	0.1731	0.1651	0.4101
Ching Tin Estate (5,183)	0.6201	0.2771	0.2450	0.459
Yan Tin Estate (4,688)	0.6581	0.2692	0.2662	0.4571
Adopted Pedestrian Generation Rate (% 2-way)	0.6581 (71%)	0.2692 (29%)	0.2662 (37%)	0.4571 (63%)
	0.9273 (2-way)		0.7233 (2-way)	

GEN – Generation ATT – Attraction

⁽¹⁾ As of the time of survey, only phases 1 and 2 of the development are occupied.

- 6.5 Table 6.1 shows that the adopted AM and PM peak hour pedestrian generation rate are 0.9273 and 0.7233 ped/flat/hour (2-way).

Peak hour Pedestrian Generation of the Proposed Development

- 6.6 Based on the adopted pedestrian generation rates shown in Table 6.1, the peak hour pedestrian generation of the Proposed Development are calculated and are presented in Table 6.2.

TABLE 6.2 PEDESTRIAN GENERATION OF PROPOSED DEVELOPMENT

Item	Pedestrian Generation (Ped/ hour)			
	AM Peak		PM Peak	
	Generation	Attraction	Generation	Attraction
The Proposed Development (1,385 Flats)	911	373	369	633
	1,284 (2-way)		1,002 (2-way)	

6.7 **Tables 6.2** shows that Proposed Development would generate 1,284 and 1,002 persons (2-way) during AM and PM peak hour respectively.

Year 2033 Pedestrian Flows

6.8 Year 2033 pedestrian flows are produced with reference to (i) the observed 2024 pedestrian flows, (ii) annual pedestrian growth rate between 2024 – 2033, (iii) expected pedestrian generation due to the planned / committed developments between 2024 – 2033 and the Subject Site.

6.9 Year 2033 pedestrian flows for the footpath analysis were derived as follows:

2033 without Proposed Development [A] = 2024 observed pedestrian flows + Adopted pedestrian growth from 2024 to 2033 + estimated pedestrian due to the planned / committed developments

2033 with Proposed Development [B] = [A] + pedestrian generation due to Proposed Development

Year 2033 LOS Analysis

6.10 Year 2033 peak hour pedestrian flows for the **two** cases are estimated and presented in **Figure 6.1** and the corresponding LOS assessment is presented in **Table 6.3**.

TABLE 6.3 YEAR 2033 LOS ASSESSMENT

Location	Clear Width ⁽¹⁾ [Effective Width] (m)	Peak Period	2033 without Proposed Development			2033 with Proposed Development		
			Flow	Flow rate	LOS	Flow	Flow rate	LOS
P1. Footpath on the footbridge accessing to Ng Lau Road	2.0[1.0]	AM	327	5.5	A	456	7.6	A
		PM	235	3.9	A	336	5.6	A
P2. Footpath between Lam Tei LRT stop and bus stop at Castle Peak Road – Lam Tei	2.5[1.5]	AM	443	4.9	A	700	7.8	A
		PM	305	3.4	A	1,007	11.2	A
P3. Footbridge over Castle Peak Road – Lam Tei	2.5[1.5]	AM	328	3.6	A	1,227	13.6	A
		PM	183	2.0	A	384	4.3	A
P4. Southern Footpath of San Hing Road	2.5[1.5]	AM	129	1.4	A	194	2.2	A
		PM	95	1.1	A	146	1.6	A
P5. Eastern Footpath of Ng Lau Road	2.0[1.0]	AM	296	4.9	A	361	6.0	A
		PM	200	3.3	A	251	4.2	A

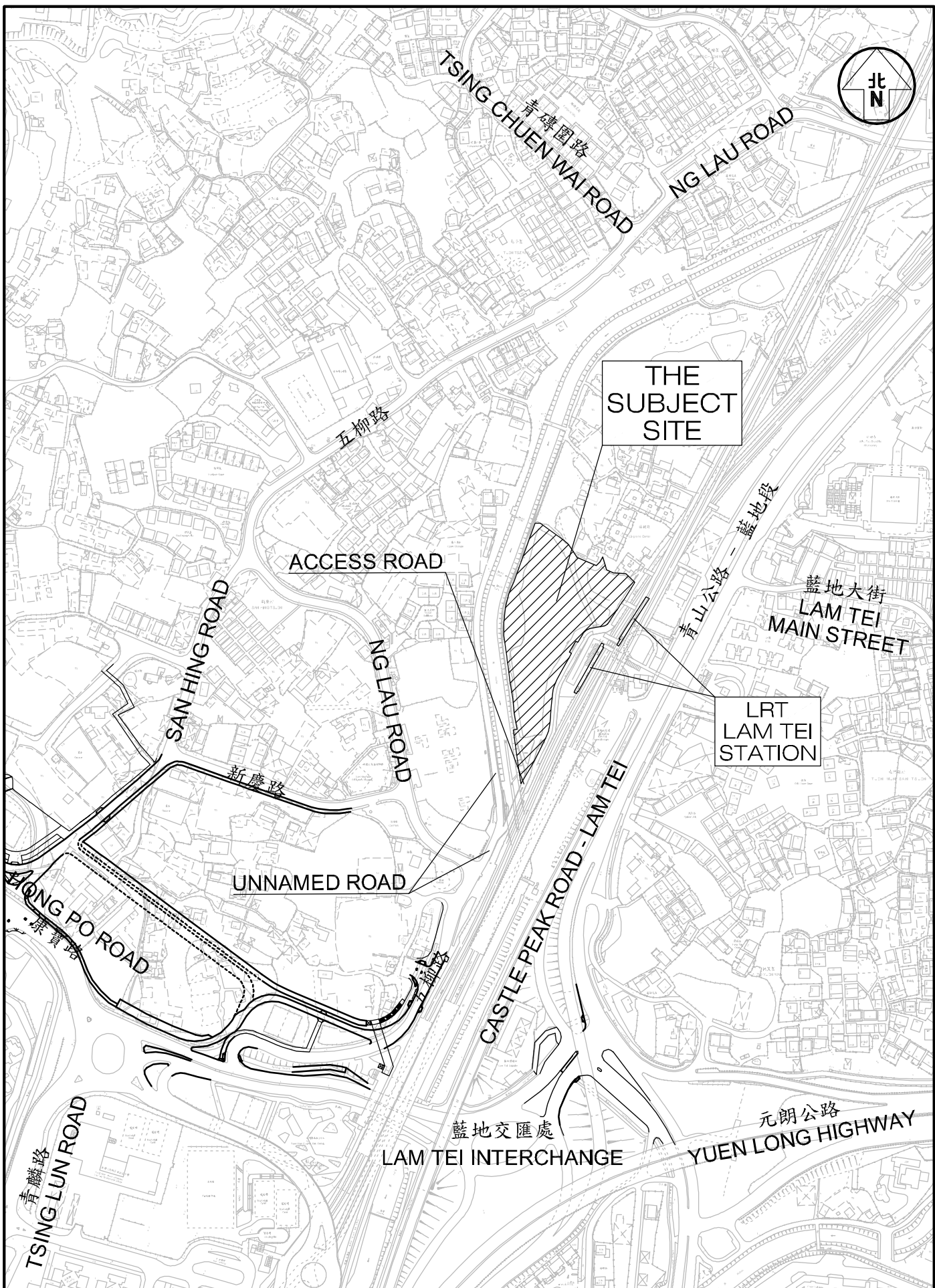
Note: Flows in pedestrian / hour flow rates in pedestrian / hour / meter

⁽¹⁾ The width excludes railing and obstructions.

6.11 **Table 6.3** shows that the assessed footpaths operate with LOS A, i.e., have sufficient capacity to accommodate the expected pedestrian growth and pedestrian generated due to Proposed Development.

7.0 SUMMARY

- 7.1 The Subject Site is located in D.D.130, Lam Tei, Tuen Mun. At present, the Subject Site is unoccupied, and access to the Subject Site is via an existing unnamed road which is connected to Ng Lau Road.
- 7.2 Manual classified counts were conducted at junctions and road links which are located in the vicinity in order to establish the existing traffic flows during AM Peak and PM peak hours.
- 7.3 The internal transport facilities provided comply with recommendations of the HKPSG and comments from Transport Department.
- 7.4 Year 2033 peak hour traffic flows for the junction capacity analysis is produced (i) with reference to the BDTM; (ii) estimated growth from 2031 to 2033; (iii) expected traffic generation by the planned / committed developments in the vicinity; and (iv) expected traffic generation by the 2 cases, i.e., Approved Scheme and Proposed Development.
- 7.5 Compared to the Approved Scheme, the Proposed Development will generate only 100 and 51 additional pcu (2-way) in AM peak and PM peak respectively. In addition, 4 nos. of bus trips are proposed to accommodate the road-based public transport demand of the Proposed Development.
- 7.6 The assessment of the nearby public transport services found that the Proposed Development has negligible impact. The assessment of footpaths found that the Proposed Development has negligible impact.
- 7.7 Based on the finding on review of public transport facilities, improvement on the CPR bus stop laybys is proposed, i.e., extend the existing 26m-long bus layby to 42m at CPR southbound bus stop and the existing 13m-long bus layby to 28m at CPR northbound bus stop.
- 7.8 This TIA concluded that the Proposed Development has no adverse traffic impact and the Proposed Development is acceptable from traffic engineering terms.



Project Title PROPOSED REZONING FROM "RESIDENTIAL (GROUP B)1" ZONE TO "RESIDENTIAL (GROUP B)4" ZONE FOR MEDIUM-DENSITY HOUSING DEVELOPMENT TO INCLUDE A FOOTPATH FOR PUBLIC USE AT VARIOUS LOTS AND ADJACENT GOVERNMENT LAND IN DD130, LAM TEI, TUEN MUN (APPLICATION NO. Y/TM-LTTY/11)

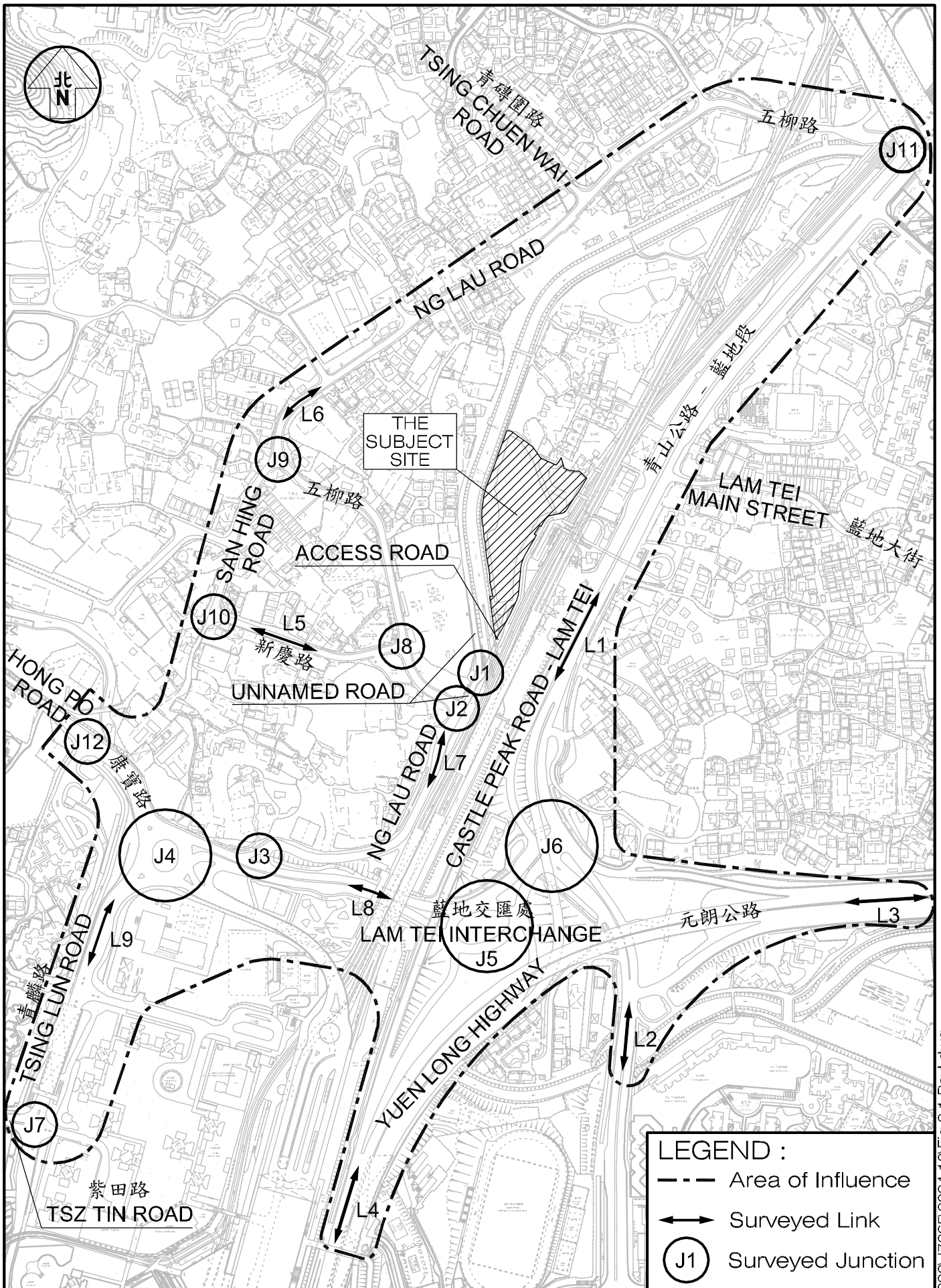
Figure Title

LOCATION OF THE SUBJECT SITE

Job No. J7265	Figure No. 1.1	Scale in A4 1 : 4,000
Designed by L K W	Drawn by S C Y	Checked by K C
	Revision I	Date 04 OCT 2024

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LEGEND :

- Area of Influence
- ↔ Surveyed Link
- (J1) Surveyed Junction

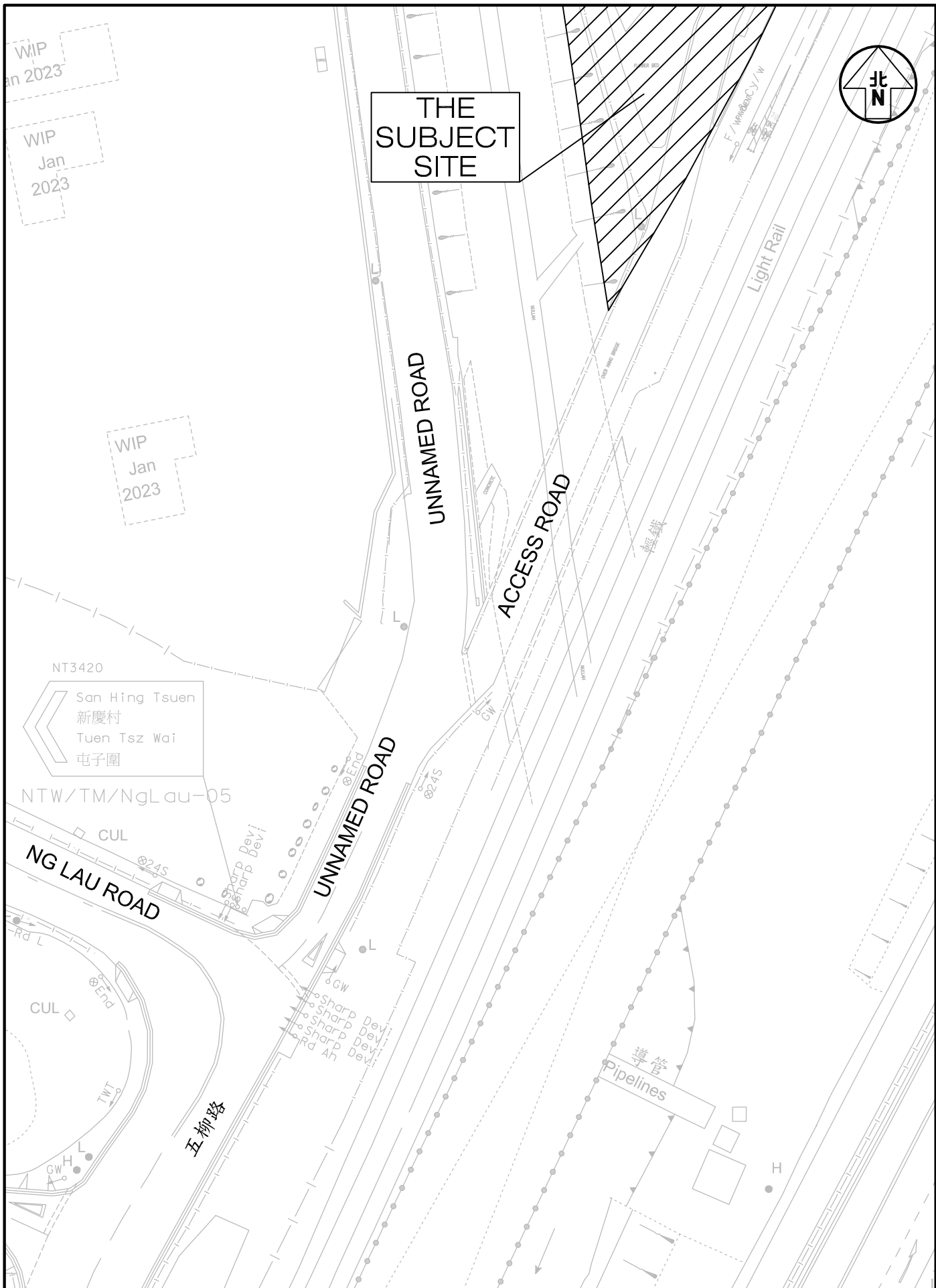
Project Title PROPOSED REZONING FROM "RESIDENTIAL (GROUP B)1" ZONE TO "RESIDENTIAL (GROUP B)4" ZONE FOR MEDIUM-DENSITY HOUSING DEVELOPMENT TO INCLUDE A FOOTPATH FOR PUBLIC USE AT VARIOUS LOTS AND ADJACENT GOVERNMENT LAND IN DD130, LAM TEI, TUEN MUN (APPLICATION NO. Y/TM-LTTY/11)

Job No. J7265	Figure No. 2.1	Scale in A4 1 : 5,000
Designed by L K W	Drawn by S C Y	Checked by K C
	Revision I	Date 04 OCT 2024

Figure Title
LOCATION OF SURVEYED JUNCTIONS

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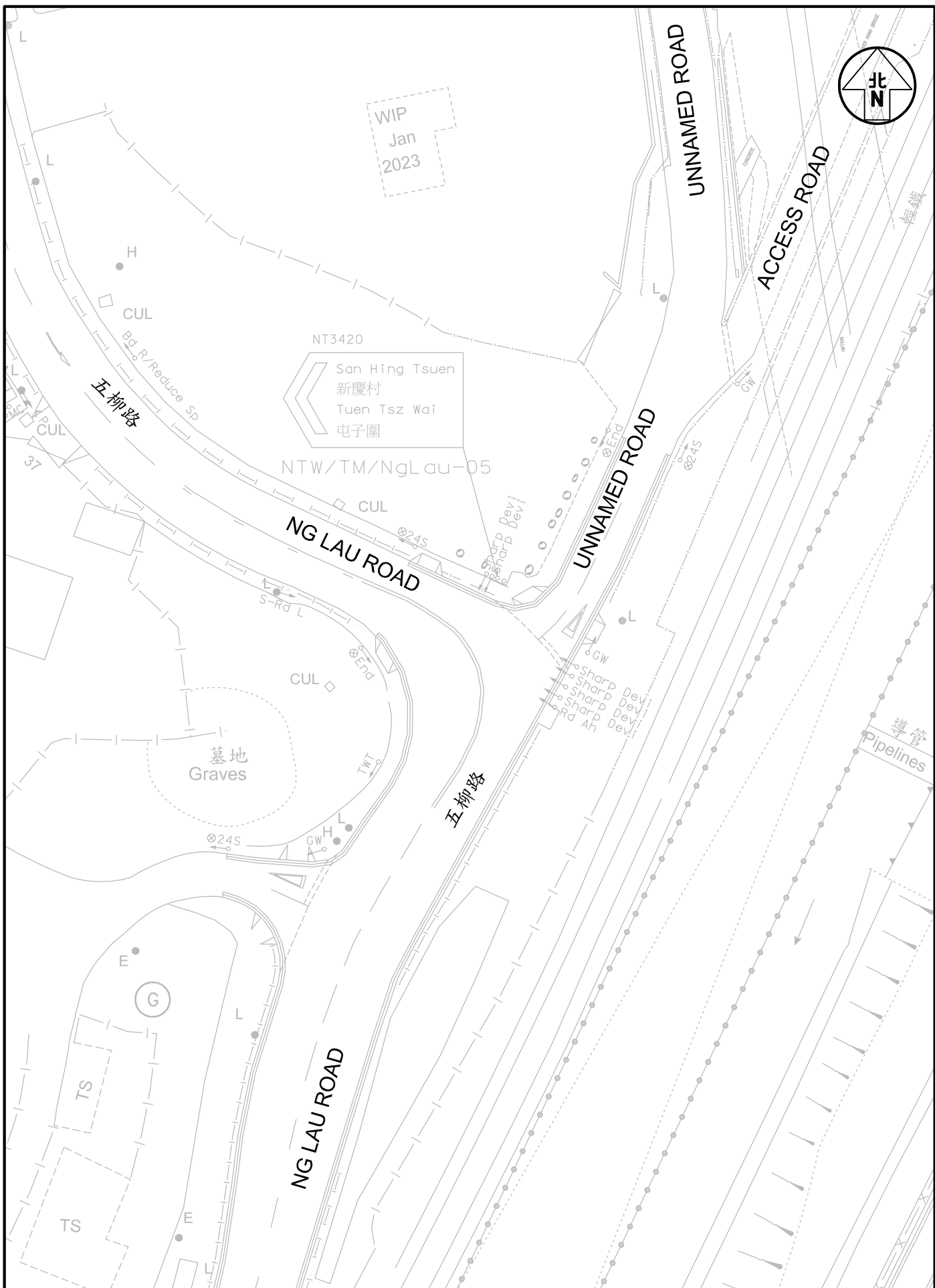
Project Title PROPOSED REZONING FROM "RESIDENTIAL (GROUP B)1" ZONE TO "RESIDENTIAL (GROUP B)4" ZONE FOR MEDIUM-DENSITY HOUSING DEVELOPMENT TO INCLUDE A FOOTPATH FOR PUBLIC USE AT VARIOUS LOTS AND ADJACENT GOVERNMENT LAND IN DD130, LAM TEI, TUEN MUN (APPLICATION NO. Y/TM-LTY/11)

Figure Title **LAYOUT OF JUNCTION OF UNNAMED ROAD / ACCESS ROAD**

Job No. J7265	Figure No. 2.2	Scale in A4 1 : 500	
Designed by L K W	Drawn by W S W	Checked by K C	Revision G
		Date 20 FEB 2024	

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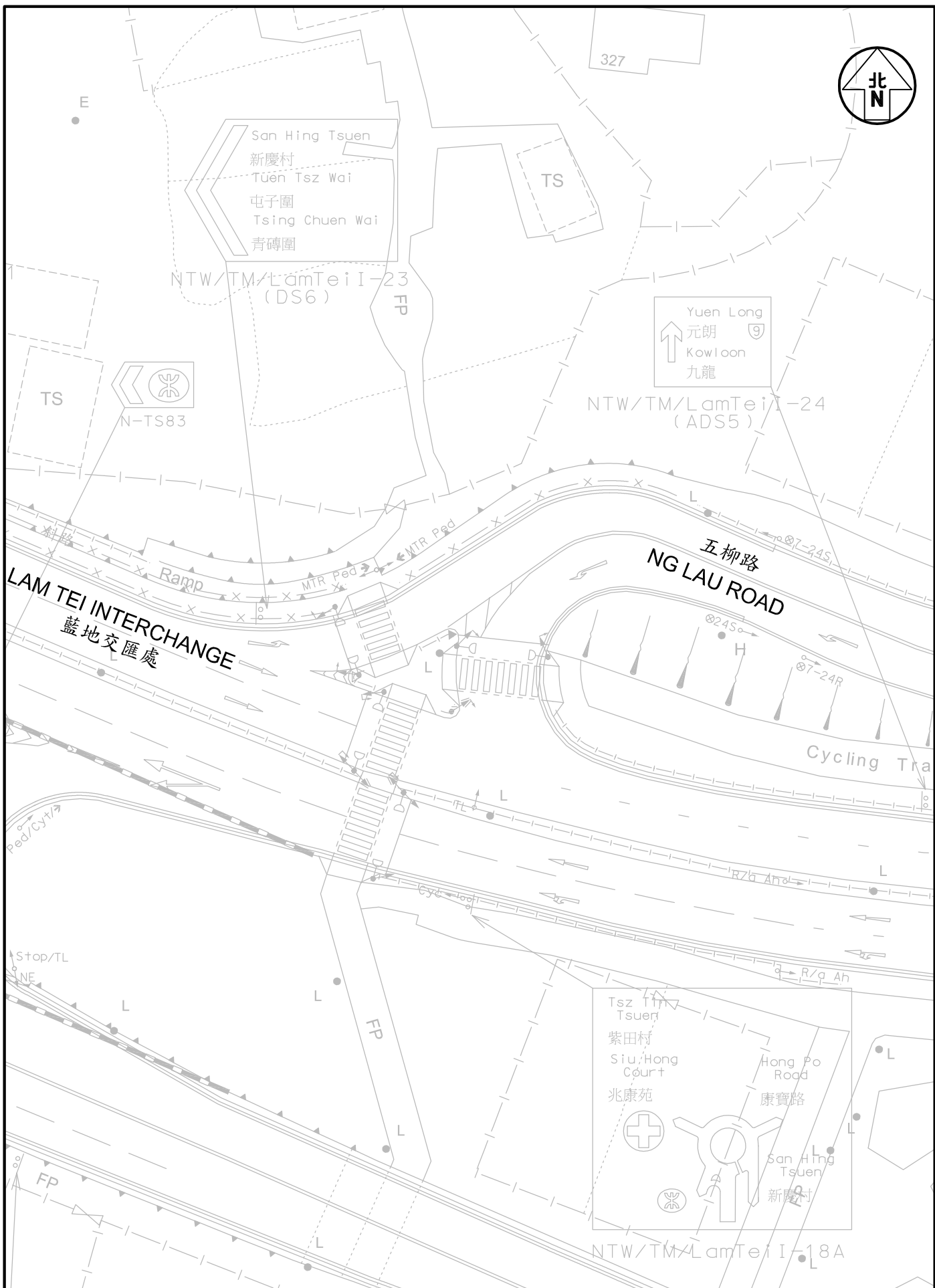
Project Title PROPOSED REZONING FROM "RESIDENTIAL (GROUP B)1" ZONE TO "RESIDENTIAL (GROUP B)4" ZONE FOR MEDIUM-DENSITY HOUSING DEVELOPMENT TO INCLUDE A FOOTPATH FOR PUBLIC USE AT VARIOUS LOTS AND ADJACENT GOVERNMENT LAND IN DD130, LAM TEI, TUEN MUN (APPLICATION NO. Y/TM-LTY/11)

Job No. J7265	Figure No. 2.3	Scale in A4 1 : 500	
Designed by L K W	Drawn by W S W	Checked by K C	Revision G
		Date 20 FEB 2024	

Figure Title
**LAYOUT OF JUNCTION OF
NG LAU ROAD / UNNAMED ROAD**

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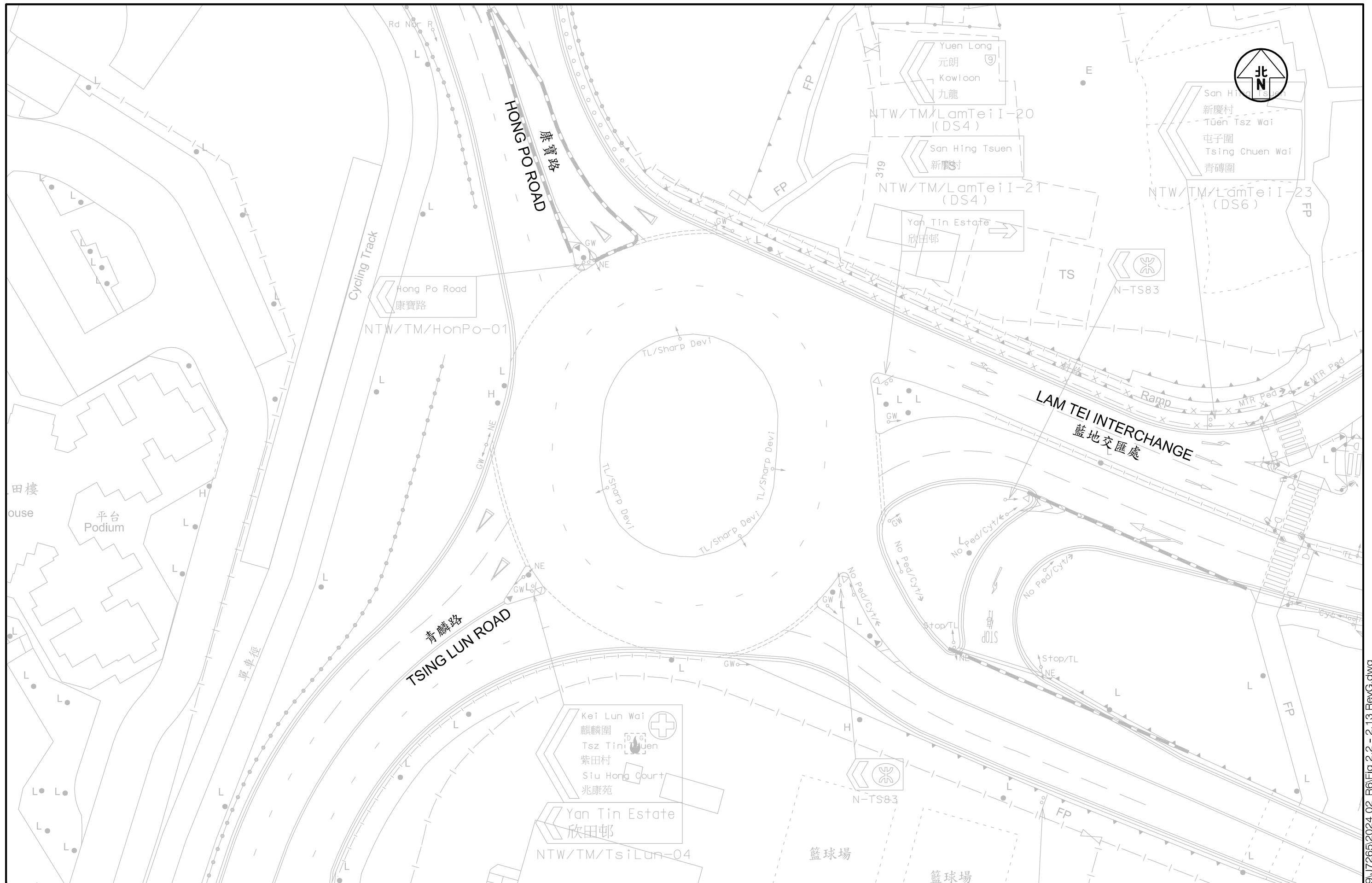
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Figure Title **LAYOUT OF JUNCTION OF NG LAU ROAD / LAM TEI INTERCHANGE**

Job No. J7265	Figure No. 2.4	Scale in A4 1 : 500
Designed by L K W	Drawn by W S W	Checked by K C
		Revision G
		Date 20 FEB 2024

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Project Title PROPOSED REZONING FROM "RESIDENTIAL (GROUP B)1" ZONE TO "RESIDENTIAL (GROUP B)4" ZONE FOR MEDIUM-DENSITY HOUSING DEVELOPMENT TO INCLUDE A FOOTPATH FOR PUBLIC USE AT VARIOUS LOTS AND ADJACENT GOVERNMENT LAND IN DD130, LAM TEI, TUEN MUN (APPLICATION NO. Y/TM-LTY/11) J7265

Figure No. 2.5
 Revision G

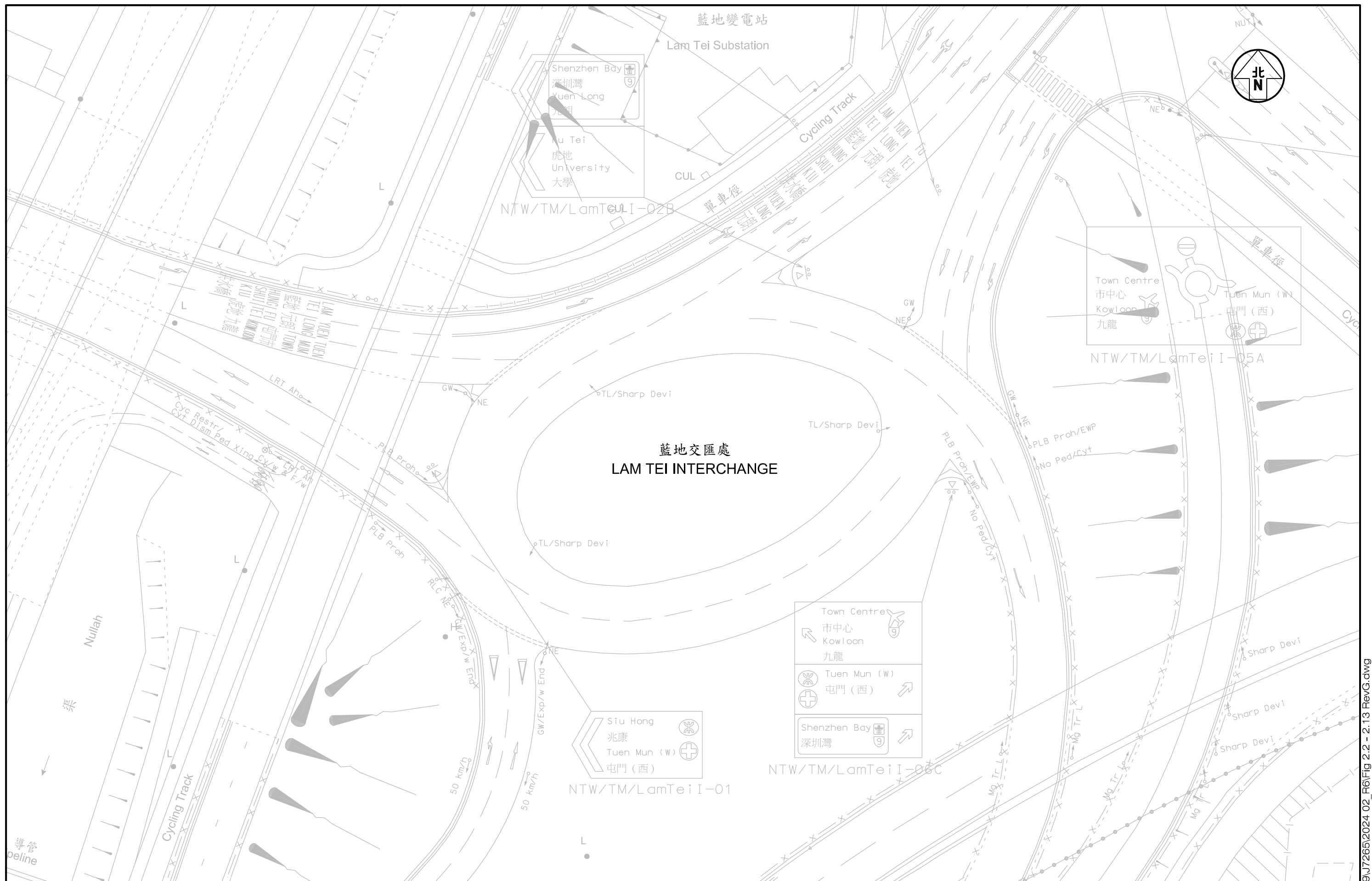
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Figure Title **LAYOUT OF JUNCTION OF TSING LUN ROAD / HONG PO ROAD / LAM TEI INTERCHANGE**

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 Drawn by W S W
 Checked by K C
 Scale in A3 1 : 500
 Date 20 FEB 2024

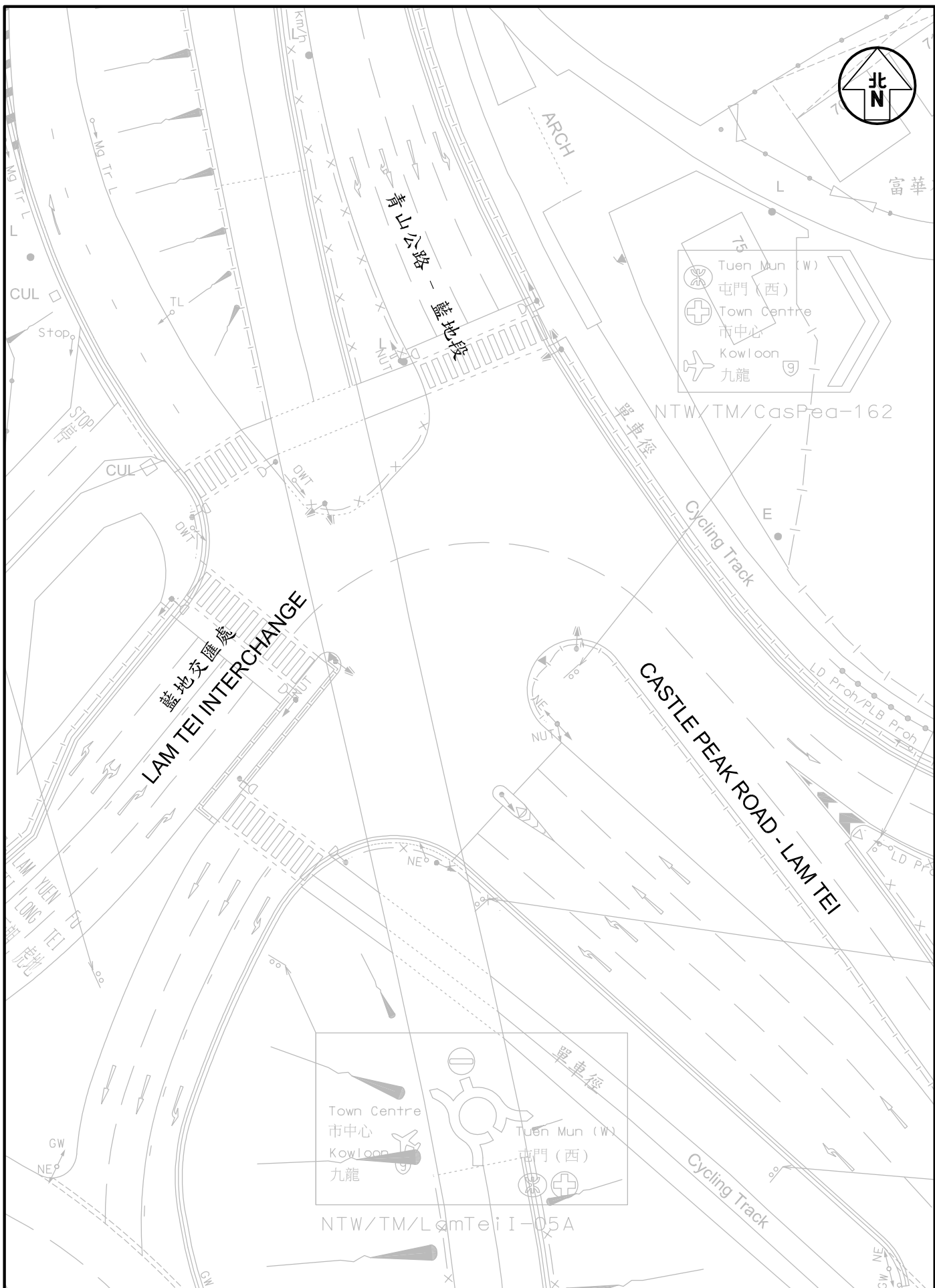
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Project Title	PROPOSED REZONING FROM "RESIDENTIAL (GROUP B)1" ZONE TO "RESIDENTIAL (GROUP B)4" ZONE FOR MEDIUM-DENSITY HOUSING DEVELOPMENT TO INCLUDE A FOOTPATH FOR PUBLIC USE AT VARIOUS LOTS AND ADJACENT GOVERNMENT LAND IN DD130, LAM TEI, TUEN MUN (APPLICATION NO. Y/TM-LTY/11)	Figure No.	2.6	Revision	G	CKM Asia Limited Traffic and Transportation Planning Consultants 21st Floor, Methodist House, 36 Hennessy Road Wan Chai, Hong Kong Tel : (852) 2520 5990 Fax : (852) 2528 6343 Email : mail@ckmasia.com.hk		
Figure Title	LAYOUT OF JUNCTION OF LAM TEI INTERCHANGE	Designed by	L K W	Drawn by	W S W		Checked by	K C
		Scale in A3	1 : 500	Date	20 FEB 2024			

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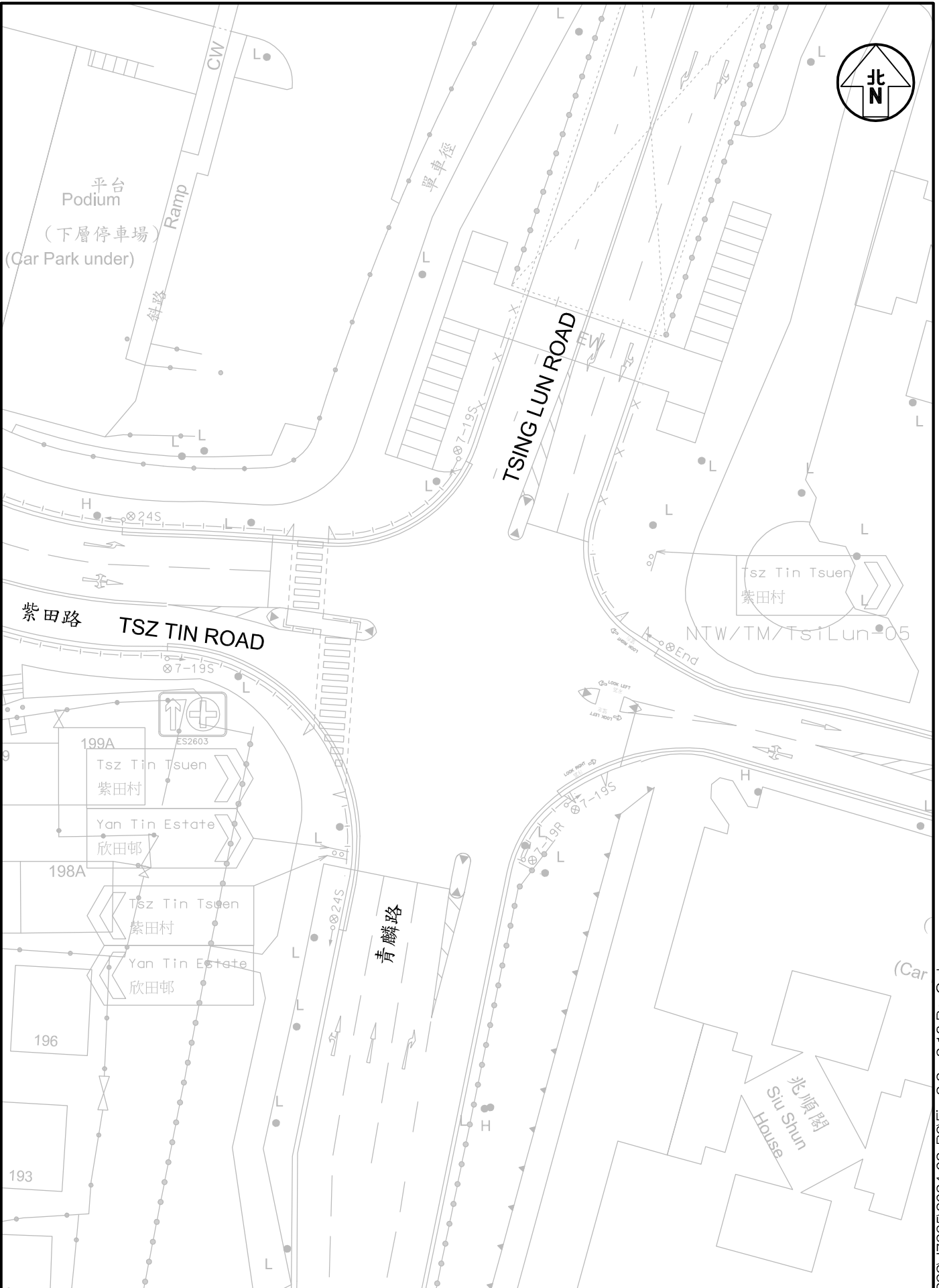
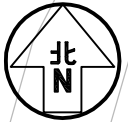
Project Title PROPOSED REZONING FROM "RESIDENTIAL (GROUP B)1" ZONE TO "RESIDENTIAL (GROUP B)4" ZONE FOR MEDIUM-DENSITY HOUSING DEVELOPMENT TO INCLUDE A FOOTPATH FOR PUBLIC USE AT VARIOUS LOTS AND ADJACENT GOVERNMENT LAND IN DD130, LAM TEI, TUEN MUN (APPLICATION NO. Y/TM-LTTY/11)

Job No. J7265	Figure No. 2.7	Scale in A4 1 : 500
Designed by L K W	Drawn by W S W	Checked by K C
	Revision G	Date 20 FEB 2024

Figure Title
**LAYOUT OF JUNCTION OF
LAM TEI INTERCHANGE / CASTLE PEAK ROAD - LAM TEI**

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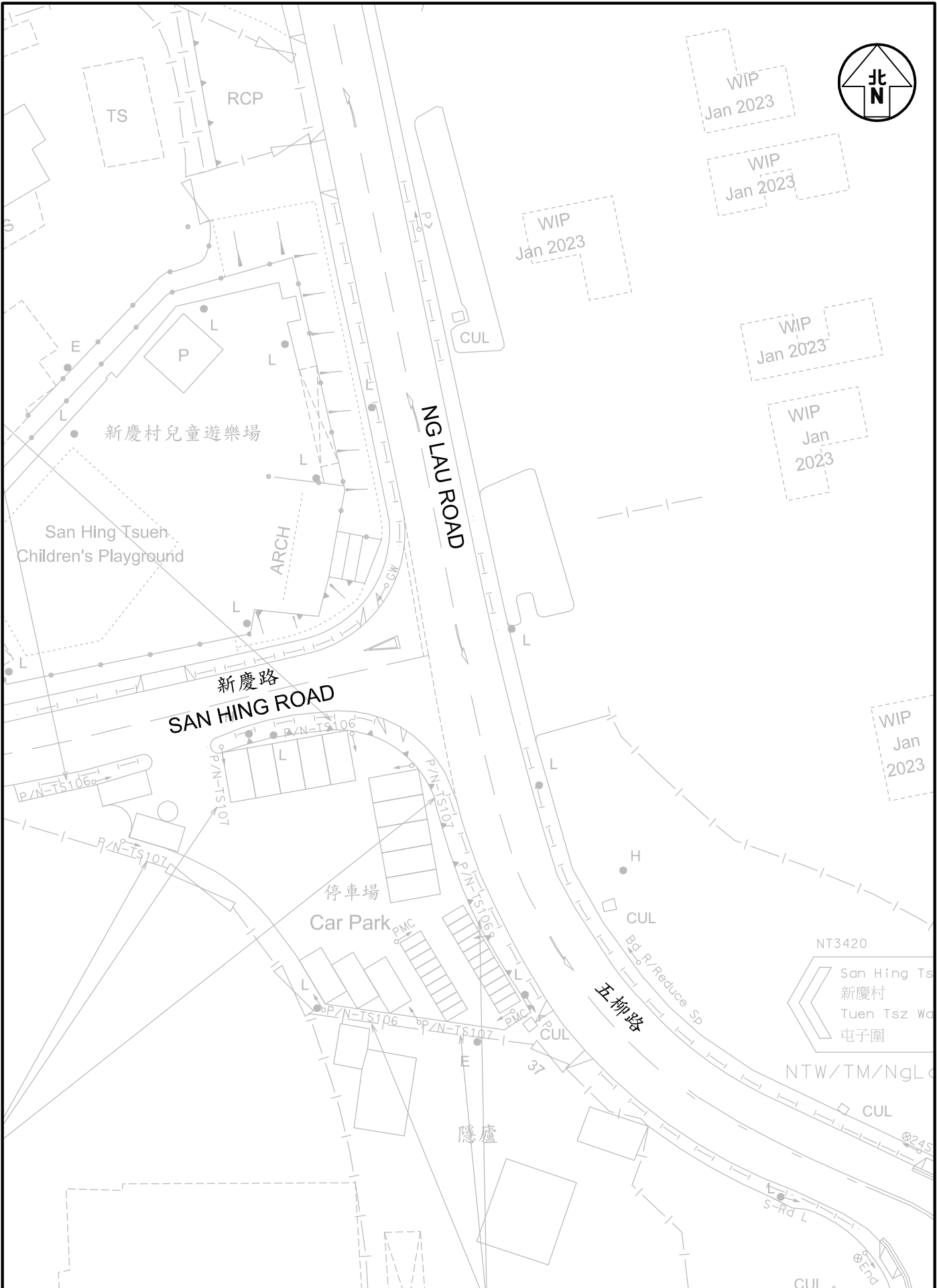
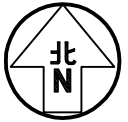
Project Title PROPOSED REZONING FROM "RESIDENTIAL (GROUP B)1" ZONE TO "RESIDENTIAL (GROUP B)4" ZONE FOR MEDIUM-DENSITY HOUSING DEVELOPMENT TO INCLUDE A FOOTPATH FOR PUBLIC USE AT VARIOUS LOTS AND ADJACENT GOVERNMENT LAND IN DD130, LAM TEI, TUEN MUN (APPLICATION NO. Y/TM-LTY/11)

Figure Title **LAYOUT OF JUNCTION OF TSING LUN ROAD / TSZ TIN ROAD**

Job No. J7265	Figure No. 2.8	Scale in A4 1 : 500
Designed by L K W	Drawn by W S W	Checked by K C
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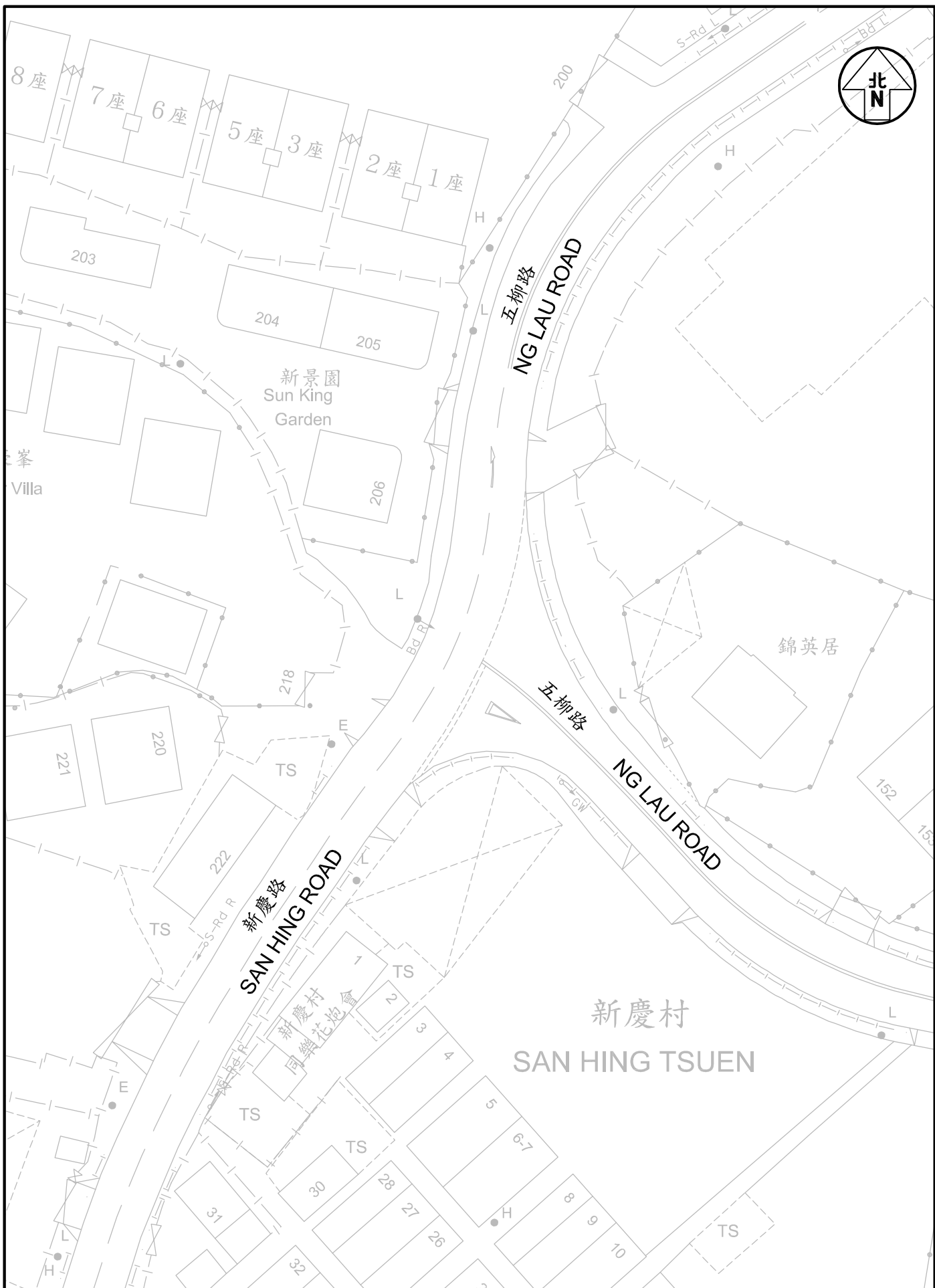
Project Title PROPOSED REZONING FROM "RESIDENTIAL (GROUP B)1" ZONE TO "RESIDENTIAL (GROUP B)4" ZONE FOR MEDIUM-DENSITY HOUSING DEVELOPMENT TO INCLUDE A FOOTPATH FOR PUBLIC USE AT VARIOUS LOTS AND ADJACENT GOVERNMENT LAND IN DD130, LAM TEI, TUEN MUN (APPLICATION NO. Y/TM-LTTY/11)

Job No. J7265	Figure No. 2.9	Scale in A4 1 : 500	
Designed by L K W	Drawn by W S W	Checked by K C	Revision G
		Date 20 FEB 2024	

Figure Title
**LAYOUT OF JUNCTION OF
SAN HING ROAD / NG LAU ROAD (SOUTHERN)**

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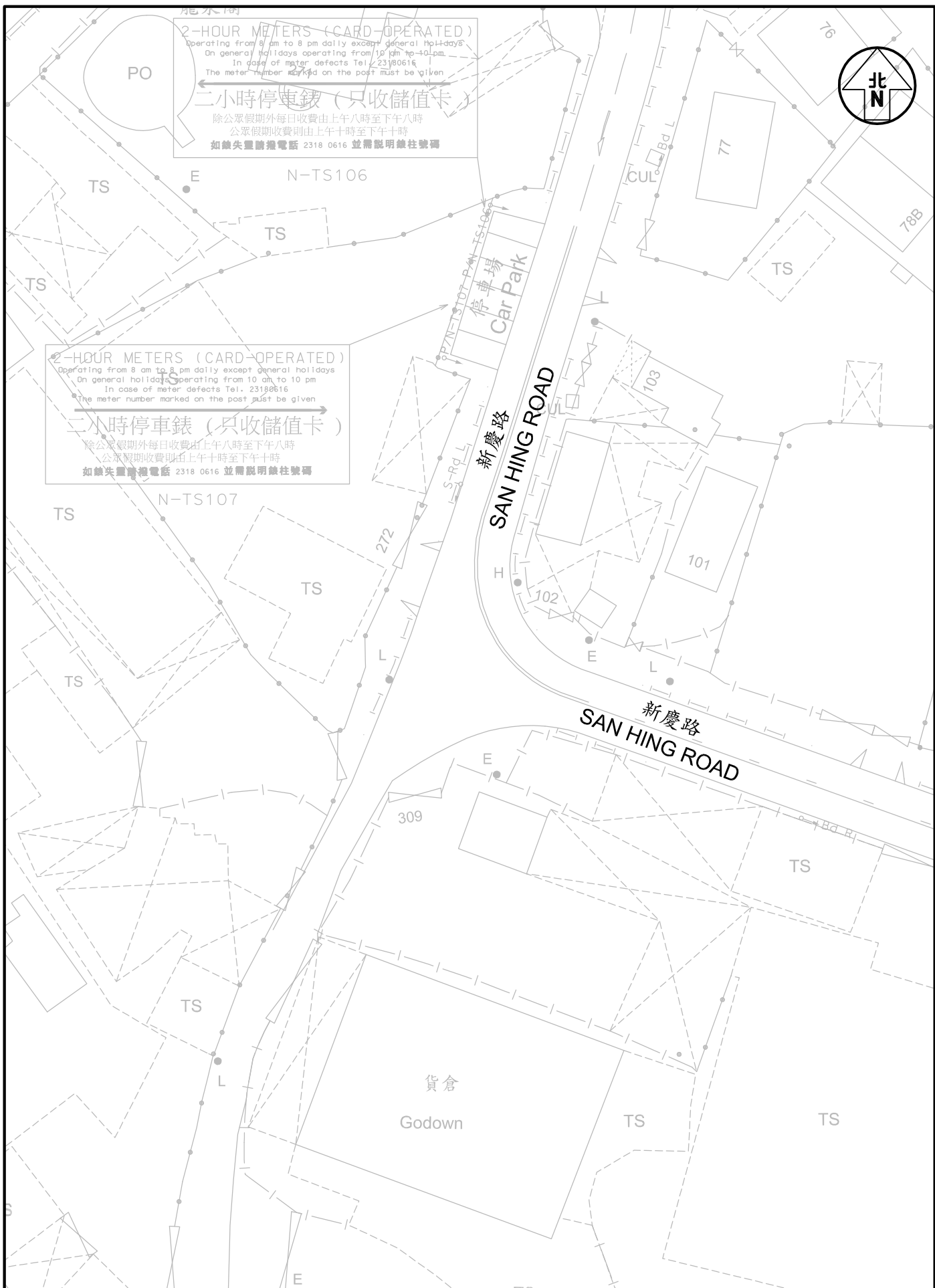
Project Title PROPOSED REZONING FROM "RESIDENTIAL (GROUP B)1" ZONE TO "RESIDENTIAL (GROUP B)4" ZONE FOR MEDIUM-DENSITY HOUSING DEVELOPMENT TO INCLUDE A FOOTPATH FOR PUBLIC USE AT VARIOUS LOTS AND ADJACENT GOVERNMENT LAND IN DD130, LAM TEI, TUEN MUN (APPLICATION NO. Y/TM-LTY/11)

Job No. J7265	Figure No. 2.10	Scale in A4 1 : 500	
Designed by L K W	Drawn by W S W	Checked by K C	Revision G
		Date 20 FEB 2024	

Figure Title
**LAYOUT OF JUNCTION OF
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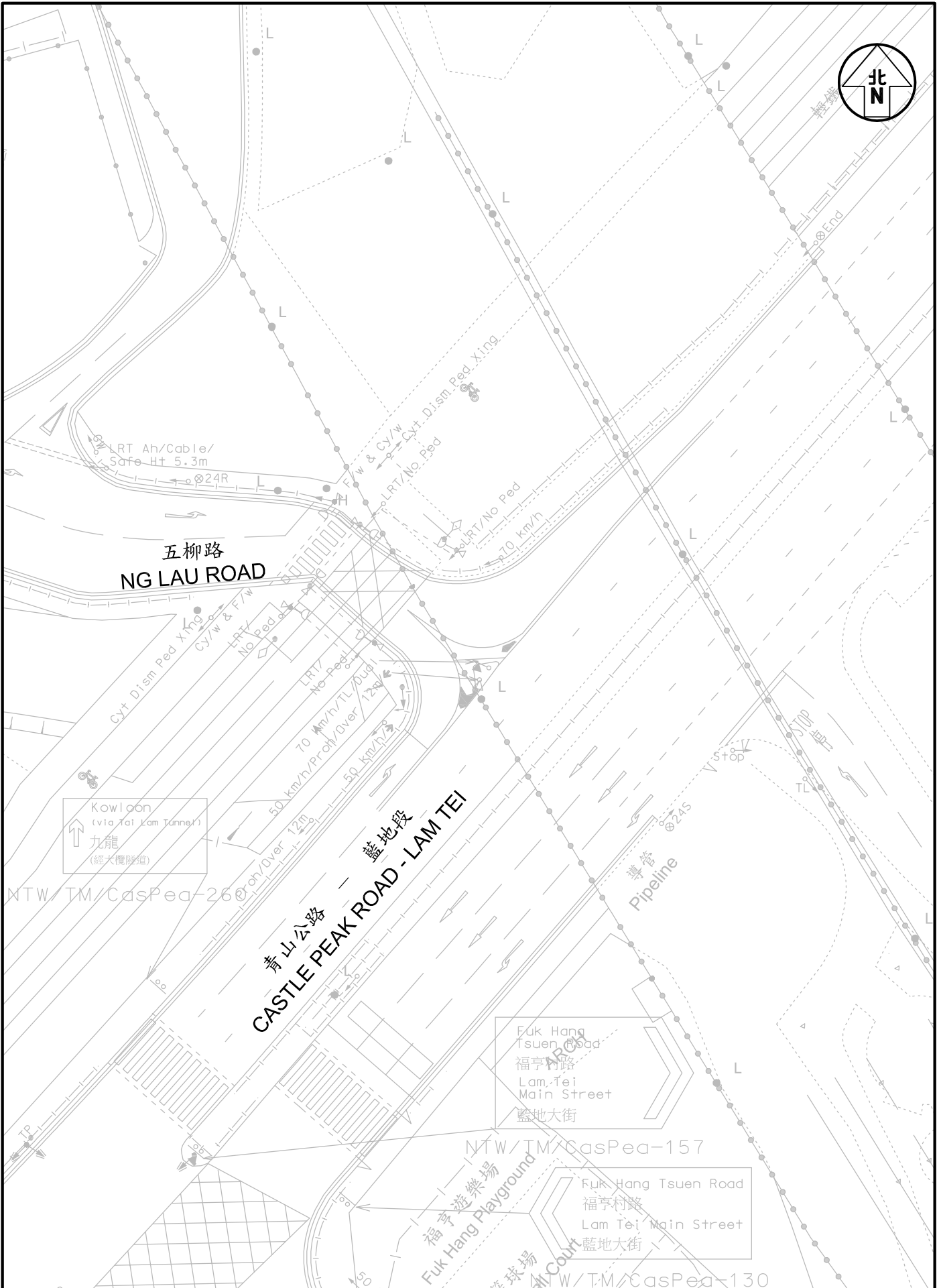
Project Title **PROPOSED REZONING FROM "RESIDENTIAL (GROUP B)1" ZONE TO "RESIDENTIAL (GROUP B)4" ZONE FOR MEDIUM-DENSITY HOUSING DEVELOPMENT TO INCLUDE A FOOTPATH FOR PUBLIC USE AT VARIOUS LOTS AND ADJACENT GOVERNMENT LAND IN DD130, LAM TEI, TUEN MUN (APPLICATION NO. Y/TM-LTY/11)**

Job No. J7265	Figure No. 2.11	Scale in A4 1 : 500	
Designed by L K W	Drawn by W S W	Checked by K C	Revision G
		Date 20 FEB 2024	

Figure Title
LAYOUT OF JUNCTION OF T-JUNCTION AT SAN HING ROAD

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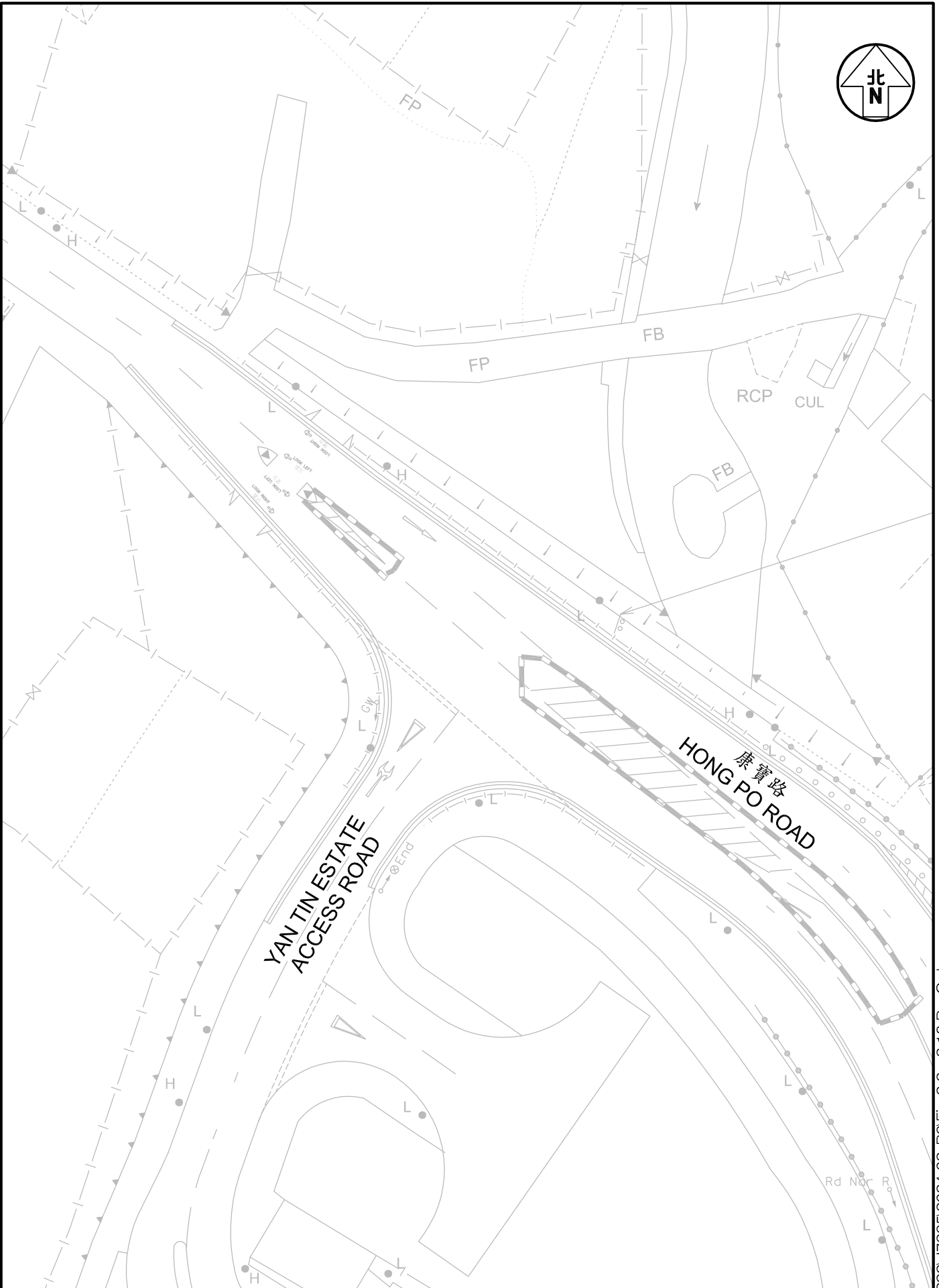
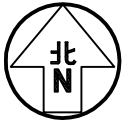


Job No. J7265	Figure No. 2.12	Scale in A4 1 : 500	
Designed by L K W	Drawn by W S W	Checked by K C	Revision G
		Date 20 FEB 2024	

Figure Title
LAYOUT OF JUNCTION OF NG LAU ROAD / CASTLE PEAK ROAD - LAM TEI

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Job No. J7265	Figure No. 2.13	Scale in A4 1 : 500	
Designed by L K W	Drawn by W S W	Checked by K C	Revision G
		Date 20 FEB 2024	

Figure Title
**LAYOUT OF JUNCTION OF
HONG PO ROAD / YAN TIN ESTATE ACCESS ROAD**

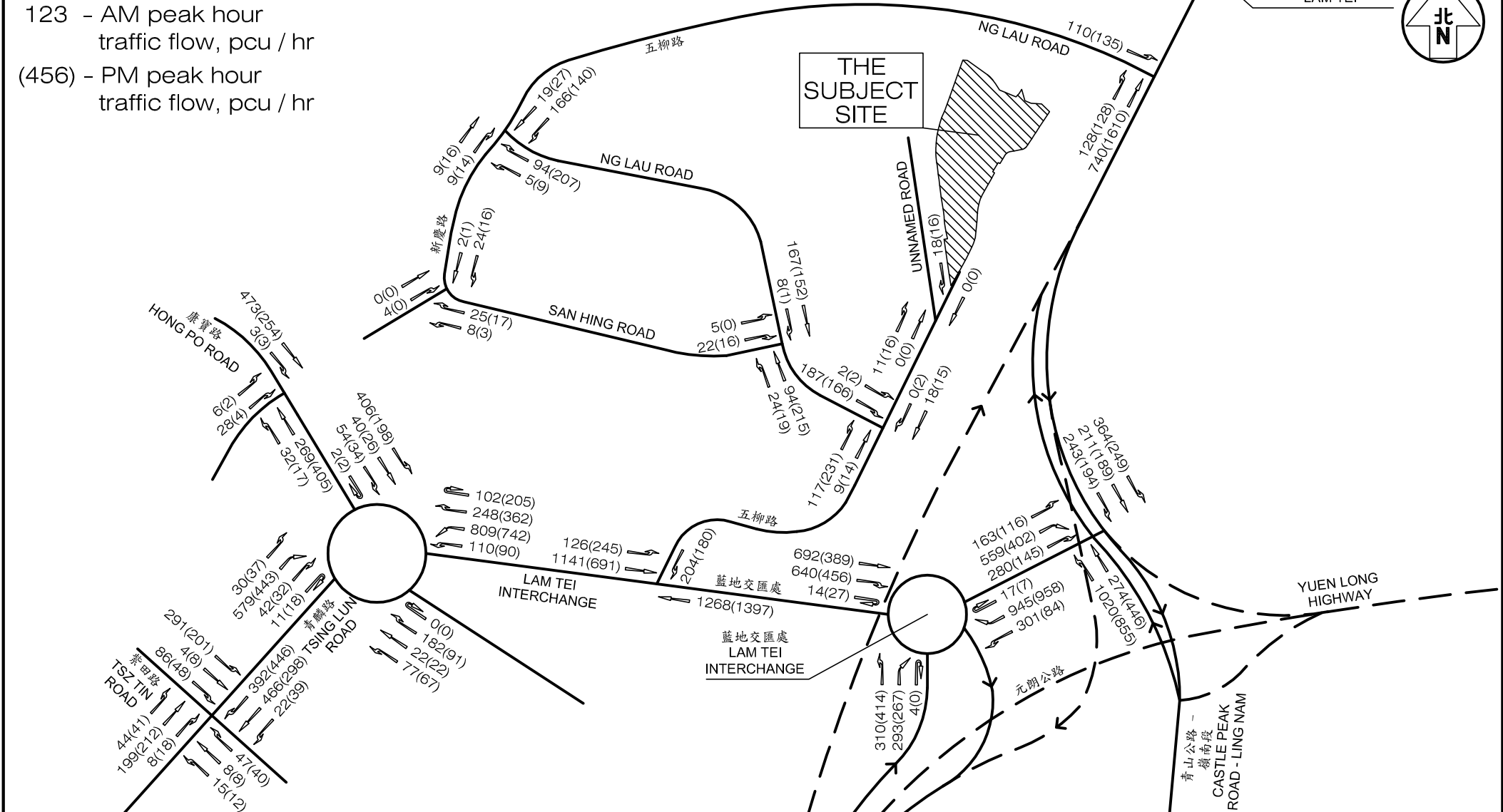
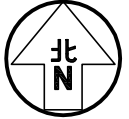
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LEGEND :

- 123 - AM peak hour traffic flow, pcu / hr
- (456) - PM peak hour traffic flow, pcu / hr

青山公路 - 藍地段
CASTLE PEAK ROAD - LAM TEI



Project Title **PROPOSED REZONING FROM "RESIDENTIAL (GROUP B)1" ZONE TO "RESIDENTIAL (GROUP B)4" ZONE FOR MEDIUM-DENSITY HOUSING DEVELOPMENT TO INCLUDE A FOOTPATH FOR PUBLIC USE AT VARIOUS LOTS AND ADJACENT GOVERNMENT LAND IN DD130, LAM TEI, TUEN MUN (APPLICATION NO. Y/TM-LTTY/11)**

Figure No. **J7265**
Revision **1**

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Figure Title **EXISTING PEAK HOUR JUNCTION FLOWS**

Designed by **L K W**
Drawn by **S C Y**
Checked by **K C**
Scale in A4 **N.T.S.**
Date **04 OCT 2024**

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L6 Ng Lau Road (North of J9) (2-Way)		L1 Castle Peak Road - Lam Tei (NB)		L1 Castle Peak Road - Lam Tei (SB)	
Existing Condition		Existing Condition		Existing Condition	
AM	PM	AM	PM	AM	PM
218	345	766	1,317	1,448	766
744	800	2,604	2,604	2,604	2,604
0.29	0.43	0.29	0.51	0.56	0.29

L5 San Hing Road (2-Way)	
Existing Condition	
AM	PM
46	31
800	800
0.06	0.04

L7 Ng Lau Road (South of J2) (2-Way)	
Existing Condition	
AM	PM
252	373
800	800
0.32	0.47

L8 Lam Tei Interchange (Between J3 and J5) EB	
Existing Condition	
AM	PM
1,055	713
2,800	2,800
0.38	0.25

L8 Lam Tei Interchange (Between J3 and J5) WB	
Existing Condition	
AM	PM
1,108	1,199
2,800	2,800
0.40	0.43

L9 Tsing Lun Road (NB)	
Existing Condition	
AM	PM
519	409
1,900	1,900
0.27	0.22

L9 Tsing Lun Road (SB)	
Existing Condition	
AM	PM
825	735
1,900	1,900
0.43	0.39

LEGEND :

Area of Influence

Road Section Label

L1 Castle Peak Road - Lam Tei (NB)		Scenario
AM	PM	
766	1,317	Peak Period
2,604	2,604	Peak Hour Traffic Flow (veh/hr)
0.29	0.51	Adjusted Design Flow (veh/hr)
		V/C Ratio

L4 Tuen Mun Road (NB)		L4 Tuen Mun Road (SB)	
Existing Condition		Existing Condition	
AM	PM	AM	PM
4,108	4,219	4,404	3,961
4,700	4,700	4,700	4,700
0.87	0.90	0.94	0.84



Project Title **PROPOSED REZONING FROM "RESIDENTIAL (GROUP B)1" ZONE TO "RESIDENTIAL (GROUP B)4" ZONE FOR MEDIUM-DENSITY HOUSING DEVELOPMENT TO INCLUDE A FOOTPATH FOR PUBLIC USE AT VARIOUS LOTS AND ADJACENT GOVERNMENT LAND IN DD130, LAM TEI, TUEN MUN (APPLICATION NO. Y/TM-LTY/11)** J7265

Figure No. **2.15** Revision **1**

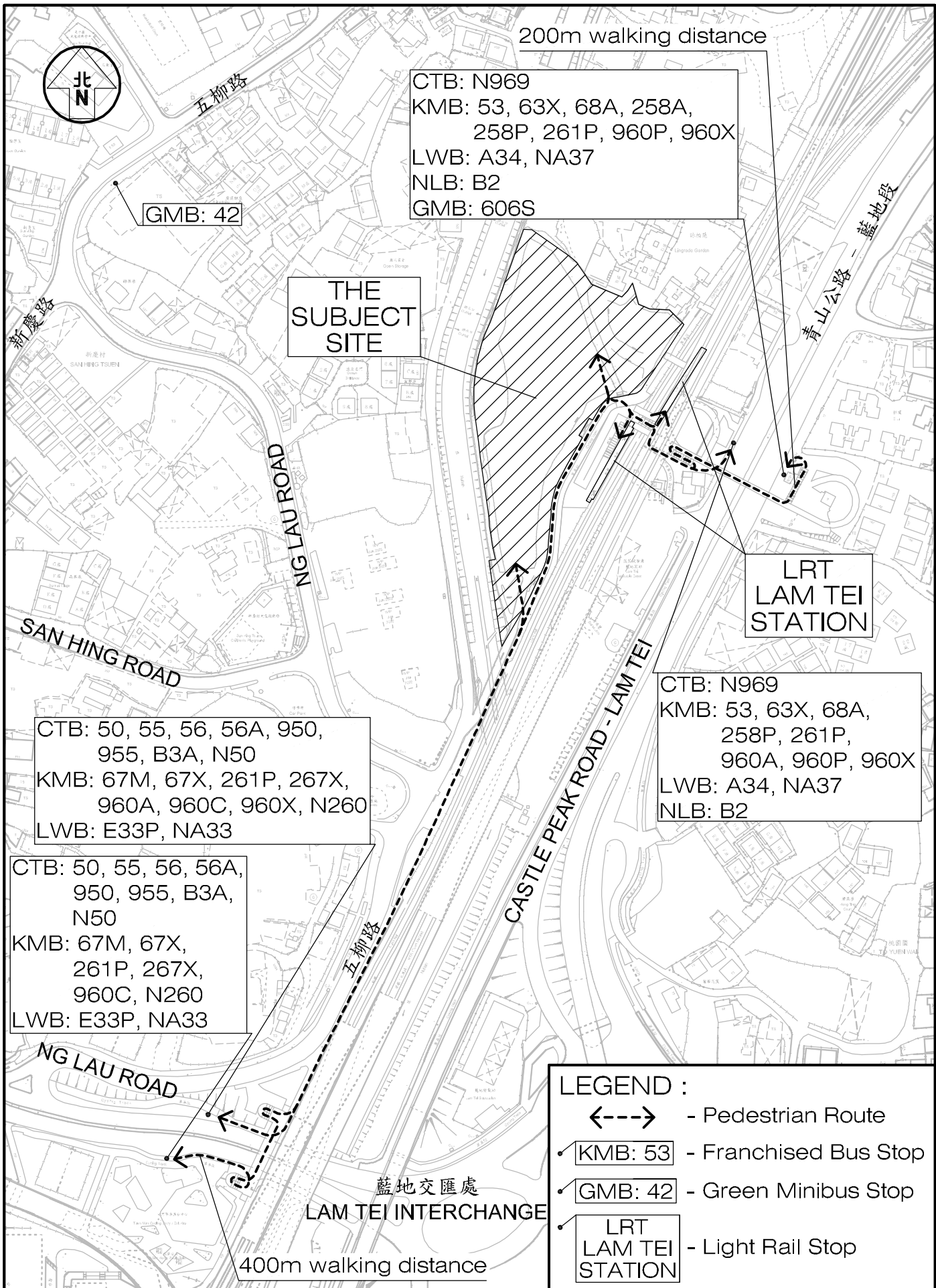
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Traffic and Transportation Planning Consultants

Figure Title **EXISTING PEAK HOUR LINK FLOWS**

Designed by **K K Y** Drawn by **S C Y** Checked by **K C**
Scale in A3 **1 : 5,000** Date **04 OCT 2024**

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Project Title PROPOSED REZONING FROM "RESIDENTIAL (GROUP B)1" ZONE TO "RESIDENTIAL (GROUP B)4" ZONE FOR MEDIUM-DENSITY HOUSING DEVELOPMENT TO INCLUDE A FOOTPATH FOR PUBLIC USE AT VARIOUS LOTS AND ADJACENT GOVERNMENT LAND IN DD130, LAM TEI, TUEN MUN (APPLICATION NO. Y/TM-LTY/11)

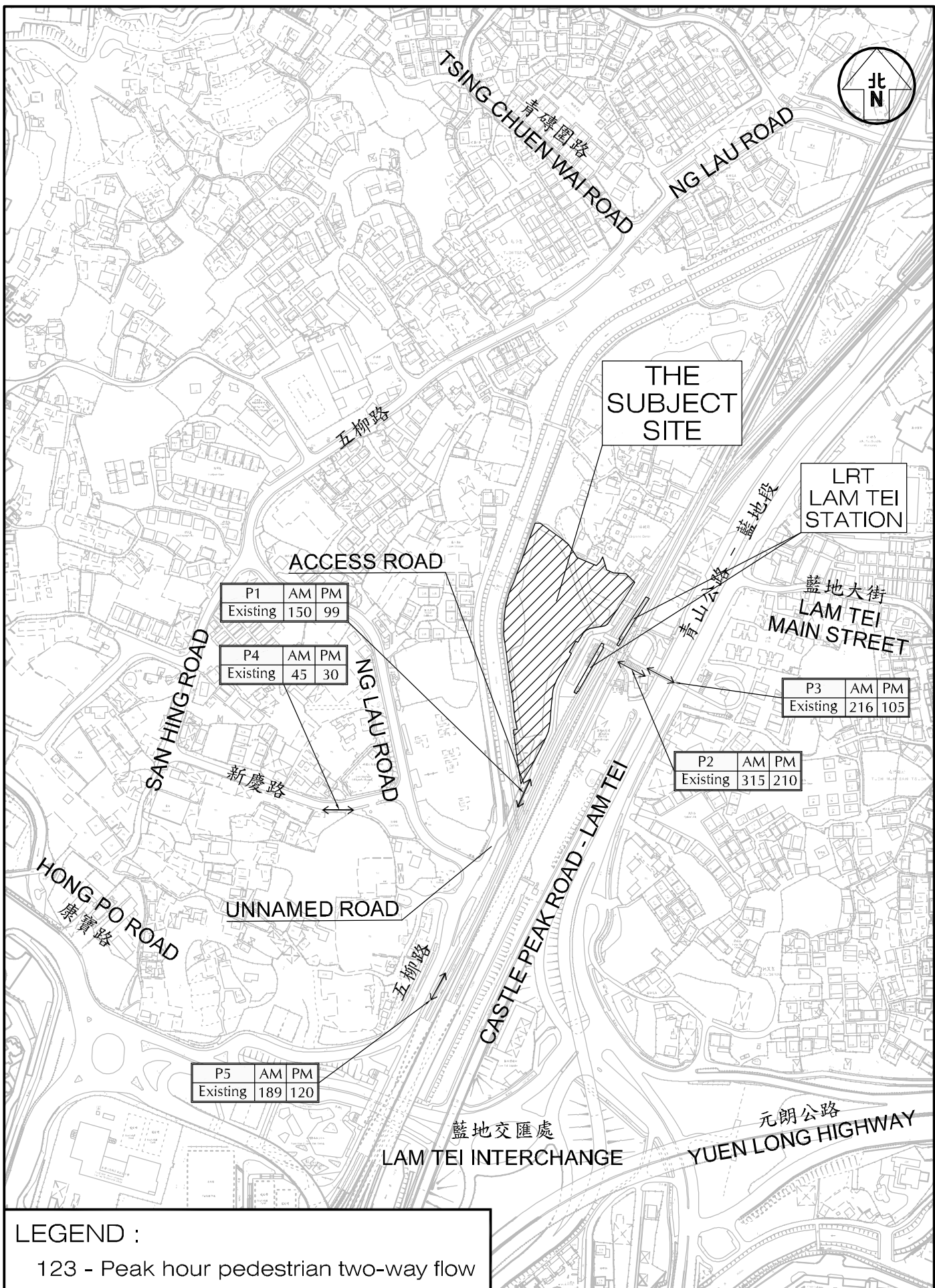
Figure Title

ROAD-BASED PUBLIC TRANSPORT SERVICES OPERATING CLOSE TO THE SUBJECT SITE

Job No. J7265	Figure No. 2.16	Scale in A4 1 : 2,500
Designed by L K W	Drawn by S C Y	Checked by K C
	Revision I	Date 04 OCT 2024

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LEGEND :
 123 - Peak hour pedestrian two-way flow

Project Title PROPOSED REZONING FROM "RESIDENTIAL (GROUP B)1" ZONE TO "RESIDENTIAL (GROUP B)4" ZONE FOR MEDIUM-DENSITY HOUSING DEVELOPMENT TO INCLUDE A FOOTPATH FOR PUBLIC USE AT VARIOUS LOTS AND ADJACENT GOVERNMENT LAND IN DD130, LAM TEI, TUEN MUN (APPLICATION NO. Y/TM-LTY/11)

Figure Title

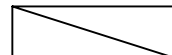
EXISTING PEAK HOUR PEDESTRIAN FLOWS

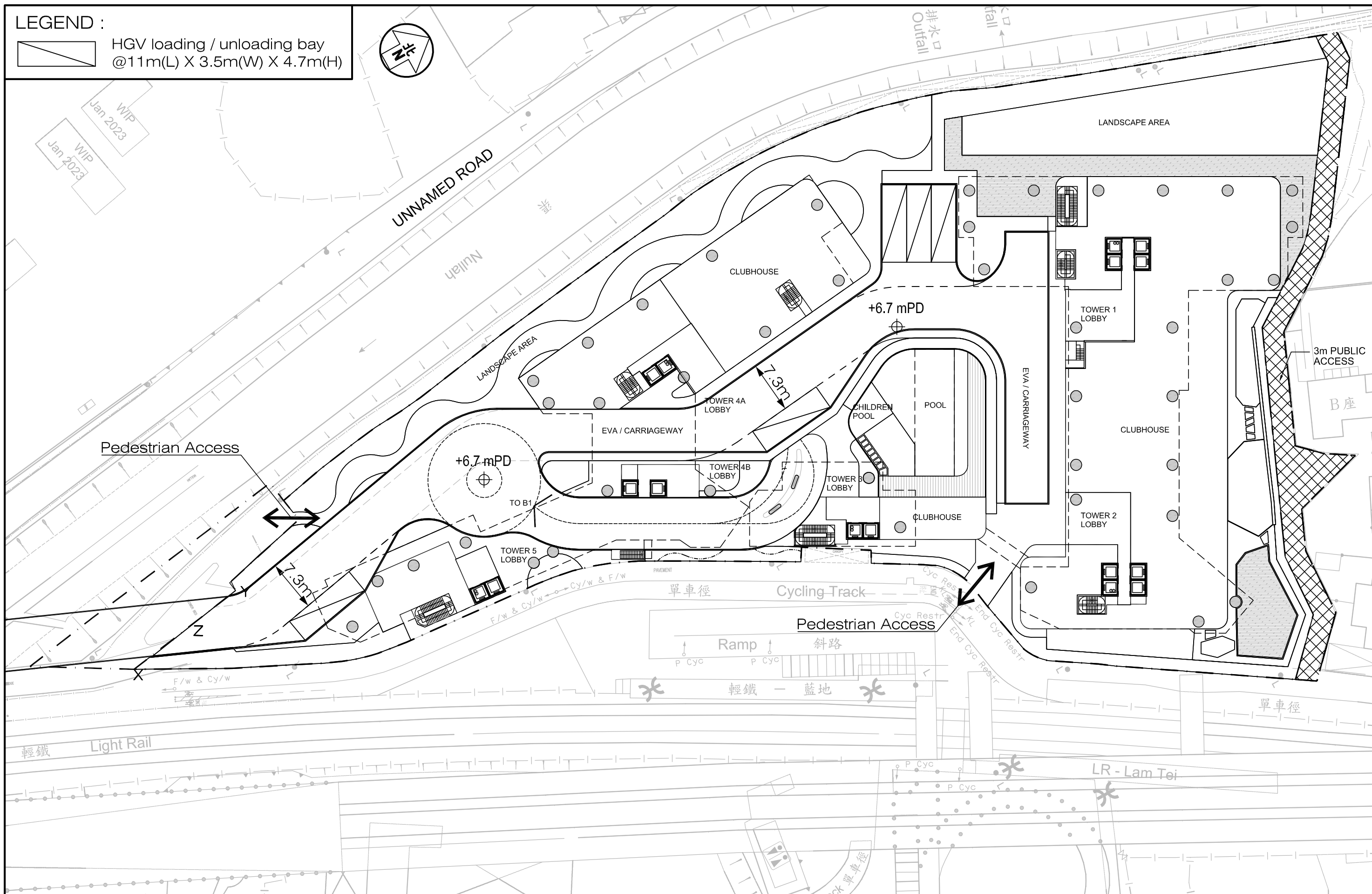
Job No. J7265	Figure No. 2.17	Scale in A4 1 : 4,000	
Designed by K K Y	Drawn by S C Y	Checked by K C	Revision I
Date 04 OCT 2024			

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T:\JOB\J7265-2024-10\Fig 2.17 Rev1.dwg

LEGEND :

 HGV loading / unloading bay
@11m(L) X 3.5m(W) X 4.7m(H)



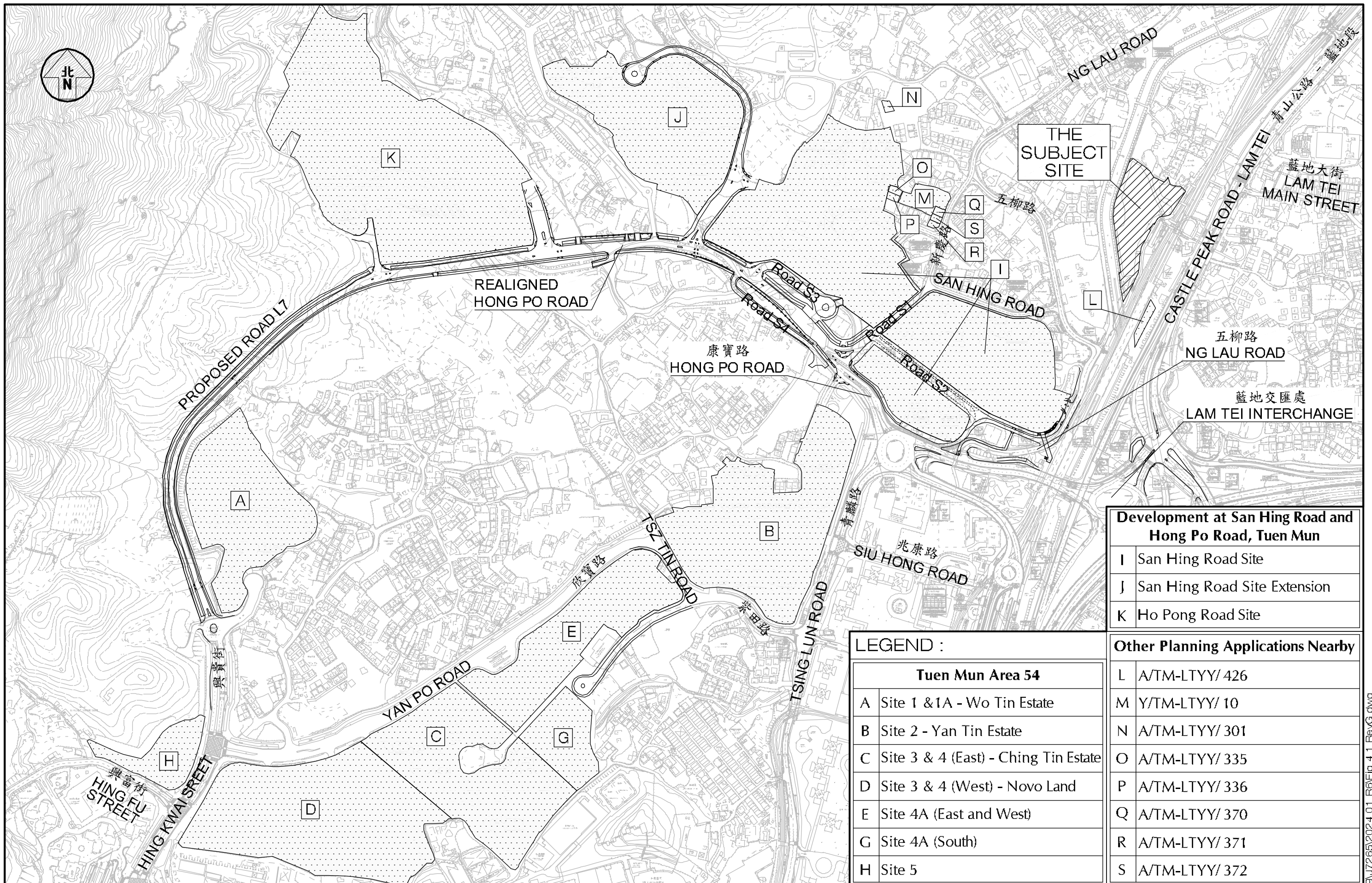
Project Title PROPOSED REZONING FROM "RESIDENTIAL (GROUP B)1" ZONE TO "RESIDENTIAL (GROUP B)4" ZONE FOR MEDIUM-DENSITY HOUSING DEVELOPMENT TO INCLUDE A FOOTPATH FOR PUBLIC USE AT VARIOUS LOTS AND ADJACENT GOVERNMENT LAND IN DD130, LAM TEI, TUEN MUN (APPLICATION NO. Y/TM-LTY/11)

Figure Title **MASTER LAYOUT PLAN**

Figure No.	3.1	Revision	G
Designed by	L K W	Drawn by	W S W
Checked by	K C	Date	20 FEB 2024
Scale in A3	1 : 500		

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Development at San Hing Road and Hong Po Road, Tuen Mun

I	San Hing Road Site
J	San Hing Road Site Extension
K	Ho Pong Road Site

Other Planning Applications Nearby

L	A/TM-LTYT/ 426
M	Y/TM-LTYT/ 10
N	A/TM-LTYT/ 301
O	A/TM-LTYT/ 335
P	A/TM-LTYT/ 336
Q	A/TM-LTYT/ 370
R	A/TM-LTYT/ 371
S	A/TM-LTYT/ 372

LEGEND :

Tuen Mun Area 54	
A	Site 1 & 1A - Wo Tin Estate
B	Site 2 - Yan Tin Estate
C	Site 3 & 4 (East) - Ching Tin Estate
D	Site 3 & 4 (West) - Novo Land
E	Site 4A (East and West)
G	Site 4A (South)
H	Site 5

Project Title PROPOSED REZONING FROM "RESIDENTIAL (GROUP B)1" ZONE TO "RESIDENTIAL (GROUP B)4" ZONE FOR MEDIUM-DENSITY HOUSING DEVELOPMENT TO INCLUDE A FOOTPATH FOR PUBLIC USE AT VARIOUS LOTS AND ADJACENT GOVERNMENT LAND IN DD130, LAM TEI, TUEN MUN (APPLICATION NO. Y/TM-LTYT/11) J7265

Figure No. 4.1

Revision G CKM Asia Limited
Traffic and Transportation Planning Consultants

Figure Title THE MAJOR ADDITIONAL PLANNED / COMMITTED DEVELOPMENTS NEAR THE SUBJECT SITE

Designed by L K W
Drawn by W S W
Checked by K C
Scale in A3 1 : 5,000
Date 20 FEB 2024

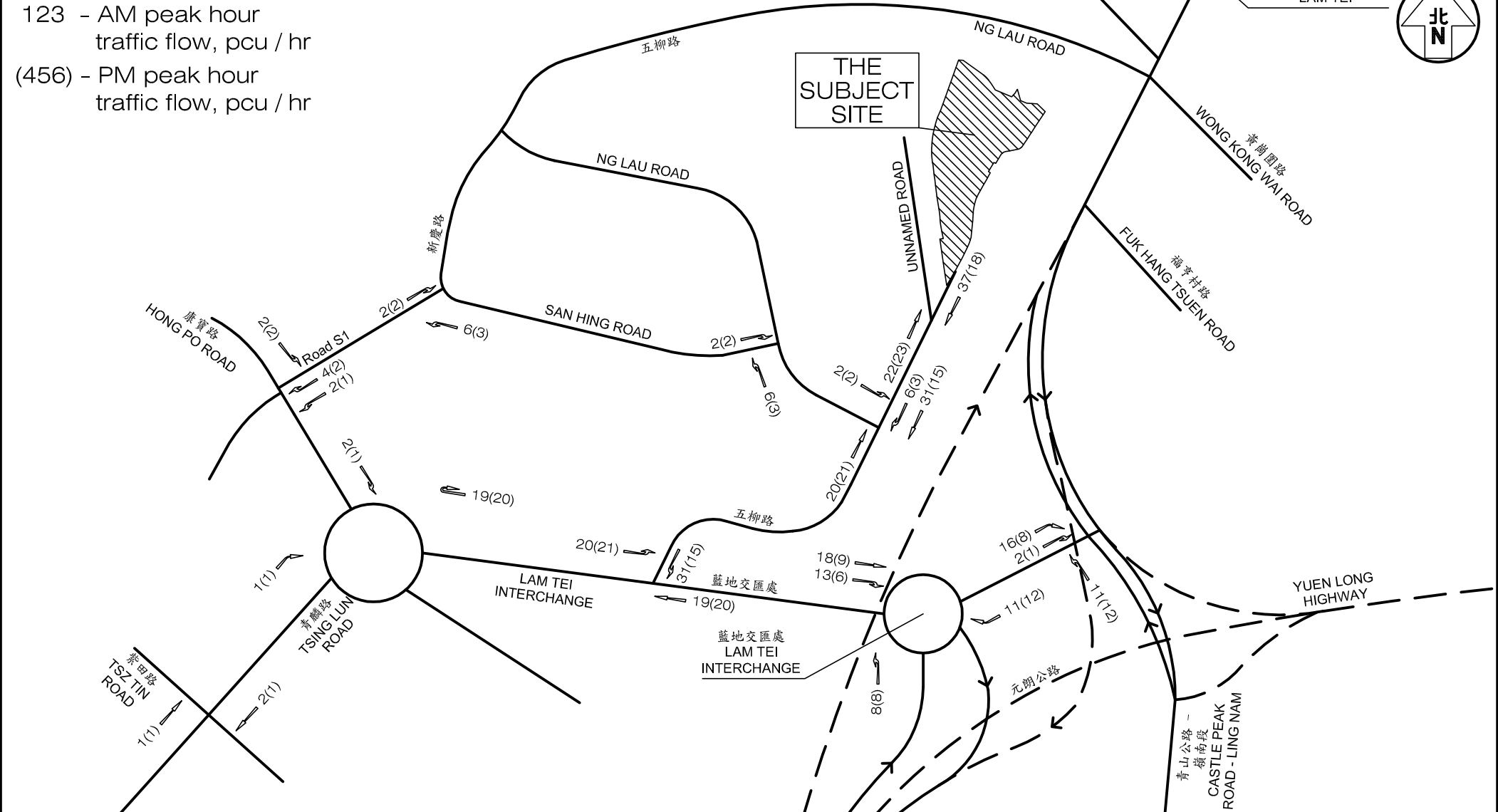
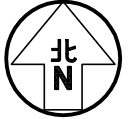
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LEGEND :

- 123 - AM peak hour traffic flow, pcu / hr
- (456) - PM peak hour traffic flow, pcu / hr

青山公路 - 藍地段
CASTLE PEAK ROAD - LAM TEI



Project Title **PROPOSED REZONING FROM "RESIDENTIAL (GROUP B)1" ZONE TO "RESIDENTIAL (GROUP B)4" ZONE FOR MEDIUM-DENSITY HOUSING DEVELOPMENT TO INCLUDE A FOOTPATH FOR PUBLIC USE AT VARIOUS LOTS AND ADJACENT GOVERNMENT LAND IN DD130, LAM TEI, TUEN MUN (APPLICATION NO. Y/TM-LTY/11)**

Figure No. **4.2**

Revision **I**

CKM Asia Limited

Figure Title **TRAFFIC GENERATION OF APPROVED SCHEME**

Designed by **L K W**

Drawn by **S C Y**

Checked by **K C**

Scale in A4 **N.T.S.**

Date **04 OCT 2024**

Traffic and Transportation Planning Consultants

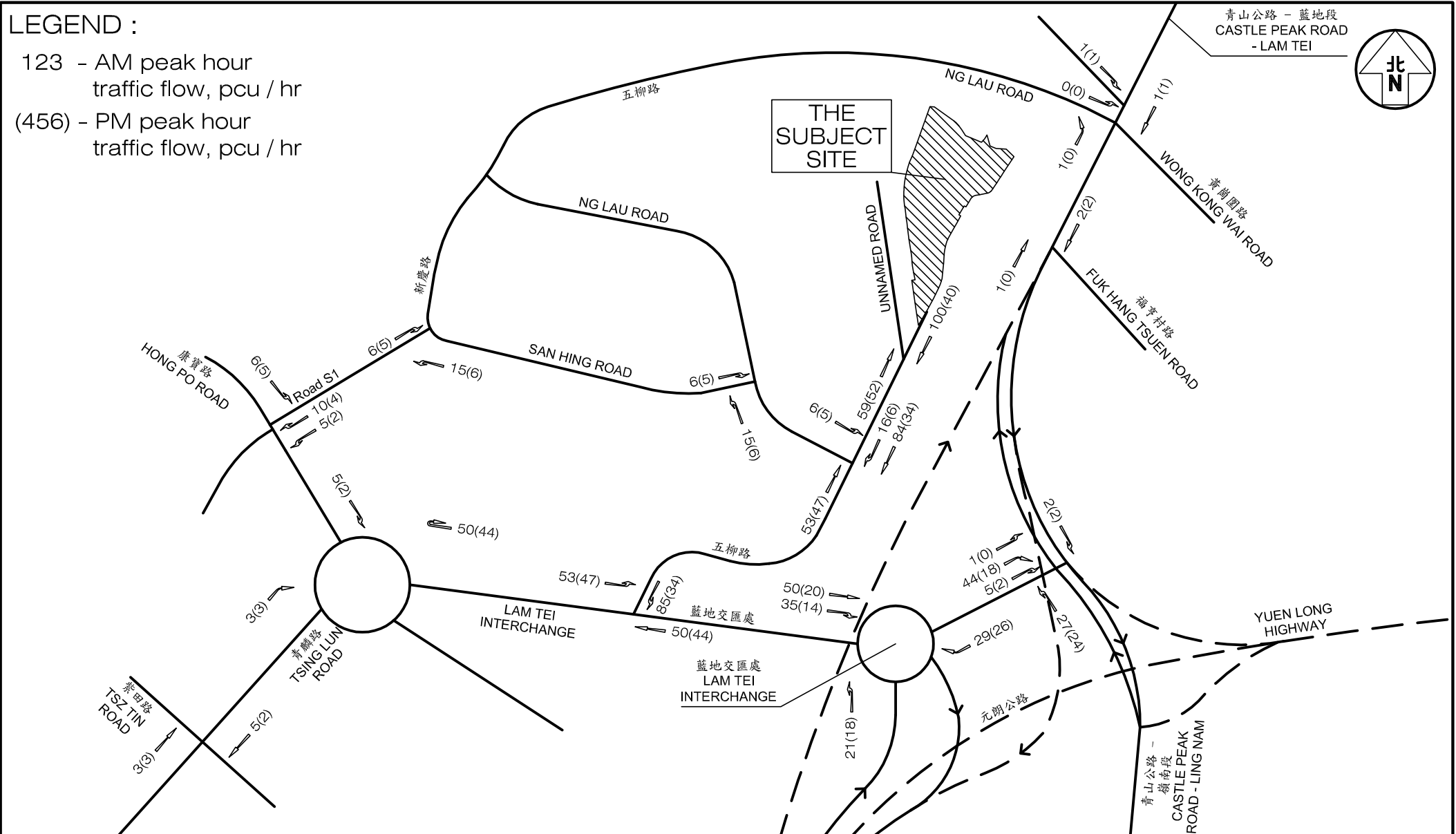
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LEGEND :

- 123 - AM peak hour traffic flow, pcu / hr
- (456) - PM peak hour traffic flow, pcu / hr



Project Title **PROPOSED REZONING FROM "RESIDENTIAL (GROUP B)1" ZONE TO "RESIDENTIAL (GROUP B)4" ZONE FOR MEDIUM-DENSITY HOUSING DEVELOPMENT TO INCLUDE A FOOTPATH FOR PUBLIC USE AT VARIOUS LOTS AND ADJACENT GOVERNMENT LAND IN DD130, LAM TEI, TUEN MUN (APPLICATION NO. Y/TM-LTY/11)**

Figure No. **4.3**

Revision **I**

CKM Asia Limited

Figure Title **TRAFFIC GENERATION OF PROPOSED DEVELOPMENT**

Designed by **L K W**

Drawn by **S C Y**

Checked by **K C**

Scale in A4 **N.T.S.**

Date **04 OCT 2024**

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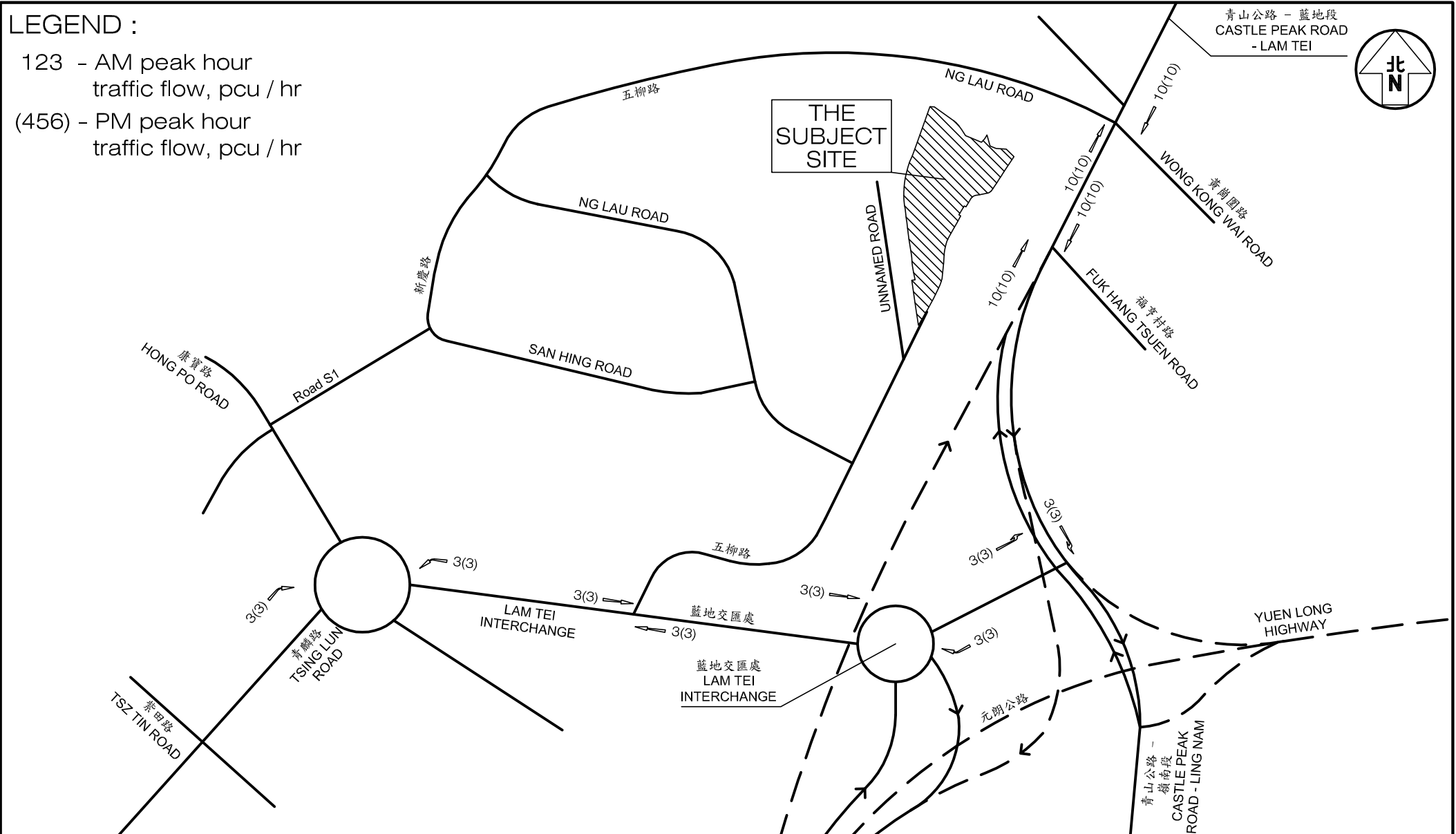
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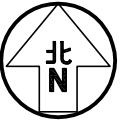
T:\JOB\J260-J7299\J7265\2024-10\Fig 4.3 Revi.dwg

LEGEND :

- 123 - AM peak hour traffic flow, pcu / hr
- (456) - PM peak hour traffic flow, pcu / hr



青山公路 - 藍地段
CASTLE PEAK ROAD
- LAM TEI



Project Title PROPOSED REZONING FROM "RESIDENTIAL (GROUP B)1" ZONE TO "RESIDENTIAL (GROUP B)4" ZONE FOR MEDIUM-DENSITY HOUSING DEVELOPMENT TO INCLUDE A FOOTPATH FOR PUBLIC USE AT VARIOUS LOTS AND ADJACENT GOVERNMENT LAND IN DD130, LAM TEI, TUEN MUN (APPLICATION NO. Y/TM-LTTY/11) J7265

Figure No. 4.4
Revision I

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Traffic and Transportation Planning Consultants

Figure Title
YEAR 2033 PROPOSED ADDITIONAL BUS TRIPS

Designed by L K W
Drawn by S C Y
Checked by K C
Scale in A4 N.T.S.
Date 04 OCT 2024

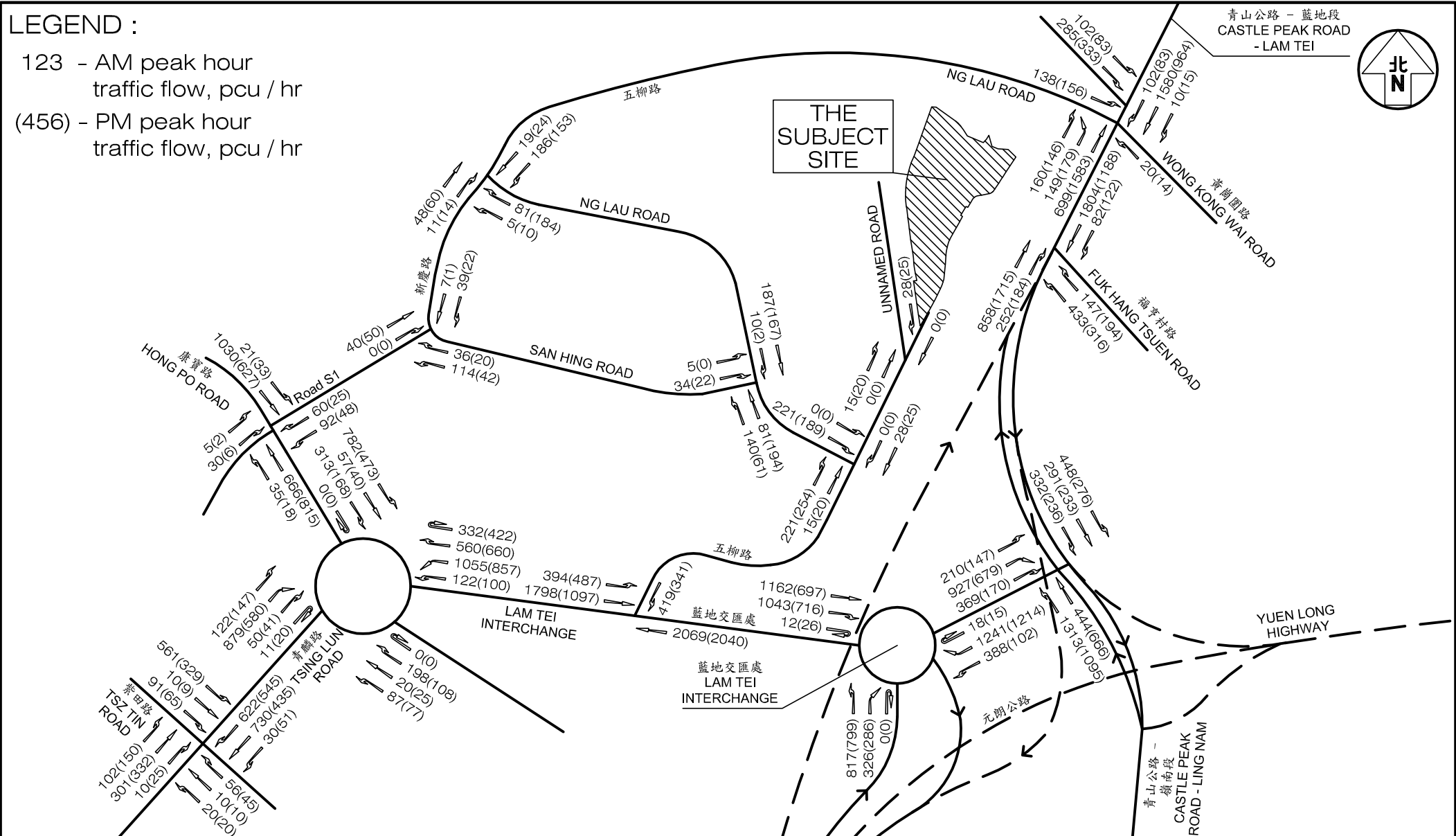
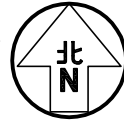
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Email : mail@ckmasia.com.hk

T:\JOB\J7265-J7299\J7265\2024-10\Fig 4.4 Rev1.dwg

LEGEND :

123 - AM peak hour
traffic flow, pcu / hr

(456) - PM peak hour
traffic flow, pcu / hr



Project Title **PROPOSED REZONING FROM "RESIDENTIAL (GROUP B)1" ZONE TO "RESIDENTIAL (GROUP B)4" ZONE FOR MEDIUM-DENSITY HOUSING DEVELOPMENT TO INCLUDE A FOOTPATH FOR PUBLIC USE AT VARIOUS LOTS AND ADJACENT GOVERNMENT LAND IN DD130, LAM TEI, TUEN MUN (APPLICATION NO. Y/TM-LTTY/11)**

Figure No. **4.5**

J7265

Revision **I**

CKM Asia Limited

Figure Title **YEAR 2033 PEAK HOUR JUNCTION FLOWS WITHOUT PROPOSED DEVELOPMENT**

Designed by **L K W**

Drawn by **S C Y**

Checked by **K C**

Scale in A4 **N.T.S.**

Date **04 OCT 2024**

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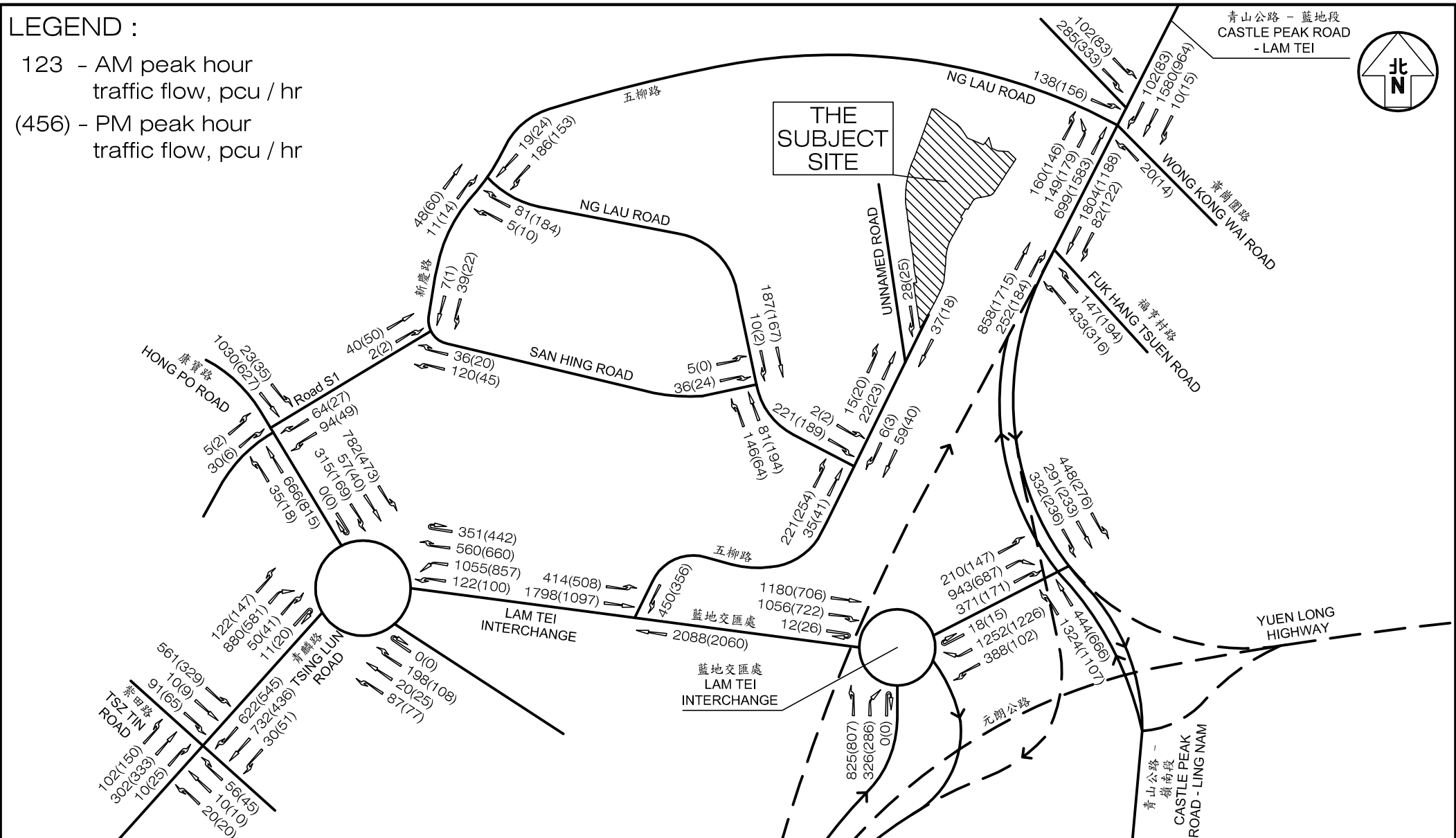
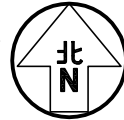
Email : mail@ckmasia.com.hk

T:\JOB\J7260-J7299\J7265\2024-10\Fig 4.5 Revi.dwg

LEGEND :

123 - AM peak hour
traffic flow, pcu / hr

(456) - PM peak hour
traffic flow, pcu / hr



Project Title **PROPOSED REZONING FROM "RESIDENTIAL (GROUP B)1" ZONE TO "RESIDENTIAL (GROUP B)4" ZONE FOR MEDIUM-DENSITY HOUSING DEVELOPMENT TO INCLUDE A FOOTPATH FOR PUBLIC USE AT VARIOUS LOTS AND ADJACENT GOVERNMENT LAND IN DD130, LAM TEI, TUEN MUN (APPLICATION NO. Y/TM-LTTY/11)**

Figure No. **4.6**

Revision **I**

CKM Asia Limited

Figure Title **YEAR 2033 PEAK HOUR JUNCTION FLOWS WITH APPROVED SCHEME**

Designed by **L K W**

Drawn by **S C Y**

Checked by **K C**

Scale in A4 **N.T.S.**

Date **04 OCT 2024**

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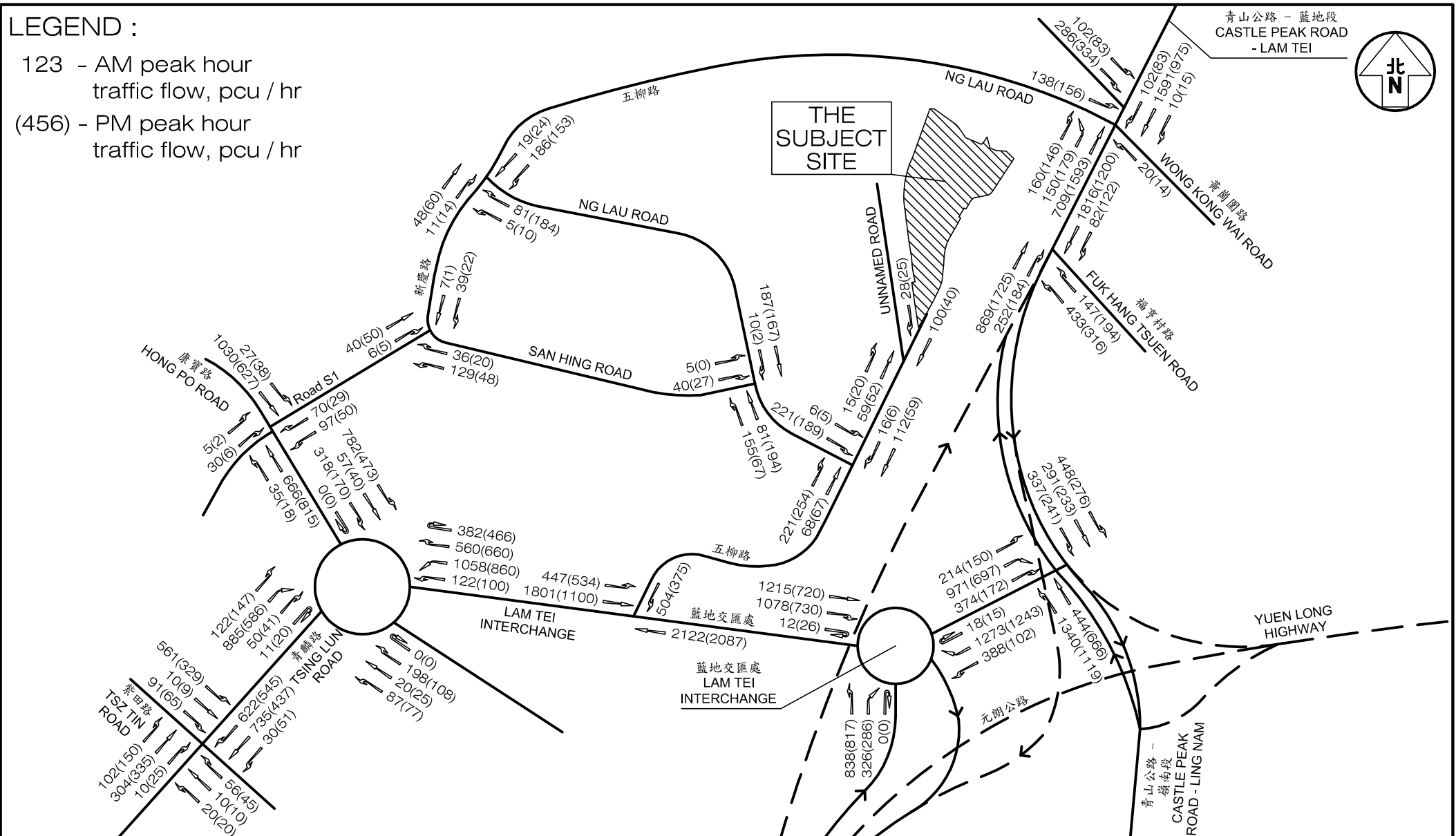
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Email : mail@ckmasia.com.hk

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LEGEND :

- 123 - AM peak hour traffic flow, pcu / hr
- (456) - PM peak hour traffic flow, pcu / hr



Project Title **PROPOSED REZONING FROM "RESIDENTIAL (GROUP B)1" ZONE TO "RESIDENTIAL (GROUP B)4" ZONE FOR MEDIUM-DENSITY HOUSING DEVELOPMENT TO INCLUDE A FOOTPATH FOR PUBLIC USE AT VARIOUS LOTS AND ADJACENT GOVERNMENT LAND IN DD130, LAM TEI, TUEN MUN (APPLICATION NO. Y/TM-LTTY/11)**

Figure No. **4.7**
 Revision **I**
 J7265

CKM Asia Limited
 Traffic and Transportation Planning Consultants

Figure Title **YEAR 2033 PEAK HOUR JUNCTION FLOWS WITH PROPOSED DEVELOPMENT**

Designed by **L K W**
 Drawn by **S C Y**
 Checked by **K C**
 Scale in A4 **N.T.S.**
 Date **04 OCT 2024**

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L6 Ng Lau Road (North of J9) (2-Way)						L1 Castle Peak Road - Lam Tei (NB)						L1 Castle Peak Road - Lam Tei (SB)					
Without Proposed Development		With Approved Scheme		With Proposed Development		Without Proposed Development		With Approved Scheme		With Proposed Development		Without Proposed Development		With Approved Scheme		With Proposed Development	
AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
254	375	254	375	254	375	874	1,450	874	1,450	874	1,450	1,828	1,252	1,828	1,252	1,830	1,254
744	800	744	800	744	800	2,604	2,604	2,604	2,604	2,604	2,604	2,604	2,604	2,604	2,604	2,604	2,604
0.34	0.47	0.34	0.47	0.34	0.47	0.34	0.56	0.34	0.56	0.34	0.56	0.70	0.48	0.70	0.48	0.70	0.48

L5 San Hing Road (2-way)					
Without Proposed Development		With Approved Scheme		With Proposed Development	
AM	PM	AM	PM	AM	PM
175	81	183	86	196	92
800	800	800	800	800	800
0.22	0.10	0.23	0.11	0.25	0.12

L7 Ng Lau Road (South of J2) (2-Way)					
Without Proposed Development		With Approved Scheme		With Proposed Development	
AM	PM	AM	PM	AM	PM
409	442	456	474	535	514
800	800	800	800	800	800
0.51	0.55	0.57	0.59	0.67	0.64

L8 Lam Tei Interchange (Between J3 and J5) EB					
Without Proposed Development		With Approved Scheme		With Proposed Development	
AM	PM	AM	PM	AM	PM
1,879	1,264	1,908	1,278	1,958	1,295
2,800	2,800	2,800	2,800	2,800	2,800
0.67	0.45	0.68	0.46	0.70	0.46

L8 Lam Tei Interchange (Between J3 and J5) WB					
Without Proposed Development		With Approved Scheme		With Proposed Development	
AM	PM	AM	PM	AM	PM
1,894	1,815	1,912	1,833	1,941	1,856
2,800	2,800	2,800	2,800	2,800	2,800
0.68	0.65	0.68	0.65	0.69	0.66

L9 Tsing Lun Road (NB)					
Without Proposed Development		With Approved Scheme		With Proposed Development	
AM	PM	AM	PM	AM	PM
897	669	898	670	900	672
1,900	1,900	1,900	1,900	1,900	1,900
0.47	0.35	0.47	0.35	0.47	0.35

L9 Tsing Lun Road (SB)					
Without Proposed Development		With Approved Scheme		With Proposed Development	
AM	PM	AM	PM	AM	PM
1,334	984	1,336	985	1,339	986
1,900	1,900	1,900	1,900	1,900	1,900
0.70	0.52	0.70	0.52	0.70	0.52

L3 Yuen Long Highway (NB)					
Without Proposed Development		With Approved Scheme		With Proposed Development	
AM	PM	AM	PM	AM	PM
5,023	4,737	5,037	4,744	5,064	4,753
4,700	4,700	4,700	4,700	4,700	4,700
1.07	1.01	1.07	1.01	1.08	1.01

L3 Yuen Long Highway (SB)					
Without Proposed Development		With Approved Scheme		With Proposed Development	
AM	PM	AM	PM	AM	PM
5,179	5,272	5,188	5,281	5,201	5,292
4,700	4,700	4,700	4,700	4,700	4,700
1.10	1.12	1.10	1.12	1.11	1.13

L2 Castle Peak Road - Lingnan (NB)					
Without Proposed Development		With Approved Scheme		With Proposed Development	
AM	PM	AM	PM	AM	PM
538	619	539	620	541	622
2,800	2,800	2,800	2,800	2,800	2,800
0.19	0.22	0.19	0.22	0.19	0.22

L2 Castle Peak Road - Lingnan (SB)					
Without Proposed Development		With Approved Scheme		With Proposed Development	
AM	PM	AM	PM	AM	PM
863	589	865	590	868	591
2,800	2,800	2,800	2,800	2,800	2,800
0.31	0.21	0.31	0.21	0.31	0.21

L4 Tuen Mun Road (NB)					
Without Proposed Development		With Approved Scheme		With Proposed Development	
AM	PM	AM	PM	AM	PM
5,439	5,831	5,447	5,839	5,459	5,847
4,700	4,700	4,700	4,700	4,700	4,700
1.16	1.24	1.16	1.24	1.16	1.24

L4 Tuen Mun Road (SB)					
Without Proposed Development		With Approved Scheme		With Proposed Development	
AM	PM	AM	PM	AM	PM
6,233	5,629	6,246	5,635	6,266	5,642
4,700	4,700	4,700	4,700	4,700	4,700
1.33	1.20	1.33	1.20	1.33	1.20

LEGEND :

Area of Influence

Road Section Label

L1 Castle Peak Road - Lam Tei (NB)					
Without Proposed Development		With Approved Scheme		With Proposed Development	
AM	PM	AM	PM	AM	PM
866	1,436	866	1,436	866	1,436
2,604	2,604	2,604	2,604	2,604	2,604
0.33	0.55	0.33	0.55	0.33	0.55

Scenario

Peak Period

Peak Hour Traffic Flow (veh/hr)

Adjusted Design Flow (veh/hr)

V/C Ratio

Project Title **PROPOSED REZONING FROM "RESIDENTIAL (GROUP B)1" ZONE TO "RESIDENTIAL (GROUP B)4" ZONE FOR MEDIUM-DENSITY HOUSING DEVELOPMENT TO INCLUDE A FOOTPATH FOR PUBLIC USE AT VARIOUS LOTS AND ADJACENT GOVERNMENT LAND IN DD130, LAM TEI, TUEN MUN (APPLICATION NO. Y/TM-LTTY/11)** J7265

Figure No. **4.8** Revision |

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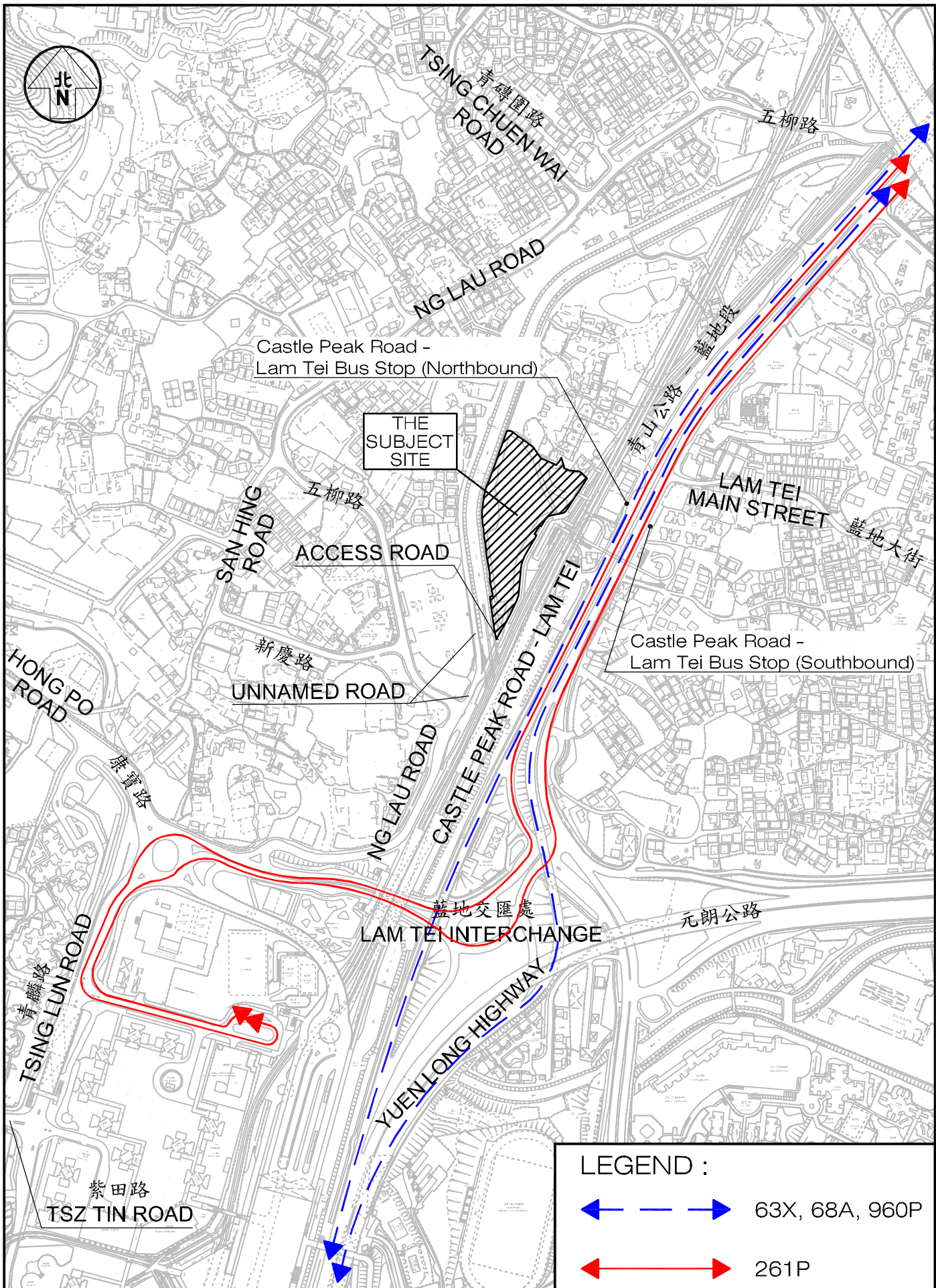
Figure Title **YEAR 2033 PEAK HOUR LINK FLOWS**

Designed by **K K Y** Drawn by **S C Y** Checked by **K C**

Scale in A3 **1 : 5,000** Date **04 OCT 2024**

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LEGEND :

← — — — → 63X, 68A, 960P
← — — — → 261P

Project Title PROPOSED REZONING FROM "RESIDENTIAL (GROUP B)1" ZONE TO "RESIDENTIAL (GROUP B)4" ZONE FOR MEDIUM-DENSITY HOUSING DEVELOPMENT TO INCLUDE A FOOTPATH FOR PUBLIC USE AT VARIOUS LOTS AND ADJACENT GOVERNMENT LAND IN DD130, LAM TEI, TUEN MUN (APPLICATION NO. Y/TM-LTTY/11)

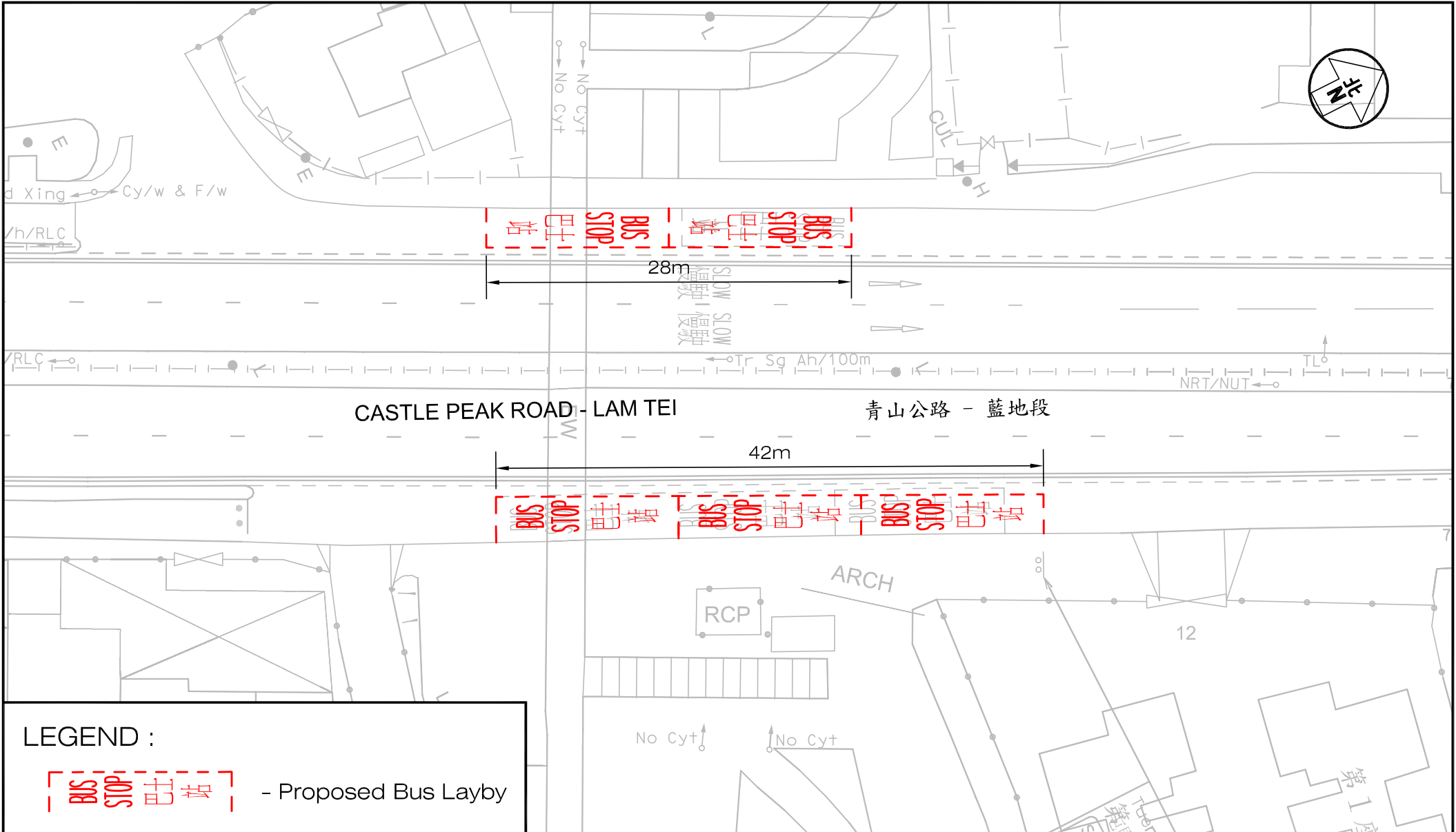
Figure Title

ADDITIONAL BUS TRIP IN YEAR 2033

Job No. J7265	Figure No. 5.1	Scale in A4 1 : 5,000
Designed by K K Y	Drawn by S C Y	Checked by K C
	Revision I	Date 04 OCT 2024

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T:\JOB\J7265\2024.10\Fig 5.1 Rev1.dwg



LEGEND :

BUS STOP 巴士站 - Proposed Bus Layby

Project Title PROPOSED REZONING FROM "RESIDENTIAL (GROUP B)1" ZONE TO "RESIDENTIAL (GROUP B)4" ZONE FOR MEDIUM-DENSITY HOUSING DEVELOPMENT TO INCLUDE A FOOTPATH FOR PUBLIC USE AT VARIOUS LOTS AND ADJACENT GOVERNMENT LAND IN DD130, LAM TEI, TUEN MUN (APPLICATION NO. Y/TM-LTY/11)

Figure No. **5.2**
Revision **I**

CKM Asia Limited
Traffic and Transportation Planning Consultants

Figure Title
PROPOSED IMPROVEMENT OF ON LENGTH OF THE CPR BUS STOPS LAYBYS

Designed by **KKY**
Drawn by **SCY**
Checked by **KC**

Scale in A4
1 : 400

Date
04 OCT 2024

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TSING CHUEN WAI ROAD
青磚圍路
NG LAU ROAD

五柳路

THE
SUBJECT
SITE

LRT
LAM TEI
STATION

P1	AM	PM
without Proposed Development	327	235
with Proposed Development	456	336

P4	AM	PM
without Proposed Development	129	95
with Proposed Development	194	146

P3	AM	PM
without Proposed Development	328	183
with Proposed Development	1227	384

P2	AM	PM
without Proposed Development	443	305
with Proposed Development	700	1007

P5	AM	PM
without Proposed Development	296	200
with Proposed Development	361	251

SAN HING
ROAD
新慶路

NG LAU ROAD

ACCESS ROAD
UNNAMED ROAD

HONG PO ROAD
康實路

CASTLE PEAK ROAD - LAM TEI

藍地大街
LAM TEI
MAIN STREET

藍地交匯處
LAM TEI INTERCHANGE

元朗公路
YUEN LONG HIGHWAY

LEGEND :
123 - Peak hour pedestrian two-way flow

Project Title PROPOSED REZONING FROM "RESIDENTIAL (GROUP B)1" ZONE TO "RESIDENTIAL (GROUP B)4" ZONE FOR MEDIUM-DENSITY HOUSING DEVELOPMENT TO INCLUDE A FOOTPATH FOR PUBLIC USE AT VARIOUS LOTS AND ADJACENT GOVERNMENT LAND IN DD130, LAM TEI, TUEN MUN (APPLICATION NO. Y/TM-LTY/11)

Figure Title
YEAR 2033 PEAK HOUR PEDESTRIAN FLOWS

Job No. J7265	Figure No. 6.1	Scale in A4 1 : 4,000
Designed by K K Y	Drawn by S C Y	Checked by K C
	Revision I	Date 04 OCT 2024

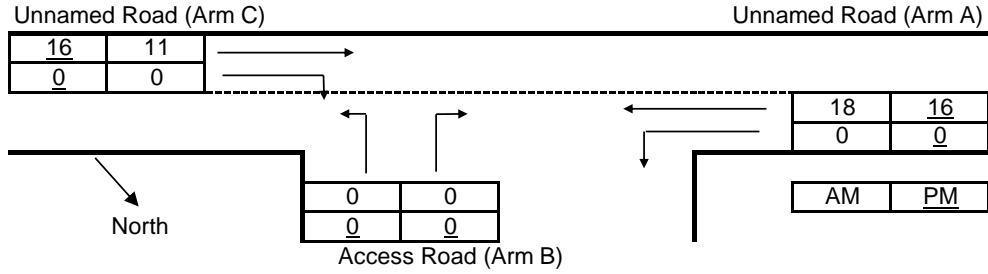
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Appendix A – Junction Capacity Analysis

Priority Junction Analysis

Junction: Unnamed Road / Access Road
 Design Year: 2023 Job Number: J7265 Date: 03 Oct 2024
 Scenario: Existing Condition P. 1



The predictive equations of capacity of movement are:

$$Q-BA = D[627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB)]$$

$$Q-BC = E[745 - Y(0.364q-AC + 0.144q-AB)]$$

$$Q-CB = F[745 - 0.364Y(q-AC + q-AB)]$$

The geometric parameters represented by D, E, F are:

$$D = [1 + 0.094(w-BA - 3.65)][1 + 0.0009(V-rBA - 120)][1 + 0.0006(V-lBA - 150)]$$

$$E = [1 + 0.094(w-BC - 3.65)][1 + 0.0009(V-rBC - 120)]$$

$$F = [1 + 0.094(w-CB - 3.65)][1 + 0.0009(V-rCB - 120)]$$

where $Y = 1 - 0.0345W$

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-lBA, etc = visibility to the left for waiting vehicles in stream BA, etc

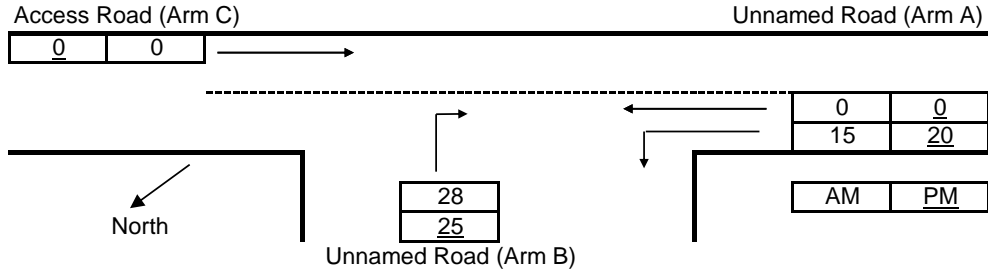
Geometry :	Input	Input	Input	Calculated				
	W	5.70	V-rBA	100	w-BA	2.05	D	0.8093
	W-CR	0.00	V-lBA	100	w-BC	2.05	E	0.8343
			V-rBC	100	w-CB	2.70	F	0.8943
			V-lCB	100			Y	0.8034

Analysis :	c		Capacity, pci		AM	PM
Traffic Flows, pcu/hr	AM	PM	Q-BA	Q-BC	AM	PM
q-CA	11	16	502	617	501	618
q-CB	0	0	662	502	662	501
q-AB	0	0				
q-AC	18	16				
q-BA	0	0				
q-BC	0	0				
f	0.000	0.000				

Ratio-of-flow to Capacity	AM	PM
B-A	0.000	0.000
B-C	0.000	0.000
C-B	0.000	0.000
B-AC	0.000	0.000

Priority Junction Analysis

Junction:	Unnamed Road / Access Road		
Design Year:	2033	Job Number: J7265	Date: 03 Oct 2024
Scenario:	Without Development		P. 2



The predictive equations of capacity of movement are:

$$Q-BA = D[627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB)]$$

$$Q-BC = E[745 - Y(0.364q-AC + 0.144q-AB)]$$

$$Q-CB = F[745 - 0.364Y(q-AC + q-AB)]$$

The geometric parameters represented by D, E, F are:

$$D = [1 + 0.094(w-BA - 3.65)][1 + 0.0009(V-rBA - 120)][1 + 0.0006(V-IBA - 150)]$$

$$E = [1 + 0.094(w-BC - 3.65)][1 + 0.0009(V-rBC - 120)]$$

$$F = [1 + 0.094(w-CB - 3.65)][1 + 0.0009(V-rCB - 120)]$$

where $Y = 1 - 0.0345W$

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-IBA, etc = visibility to the left for waiting vehicles in stream BA, etc

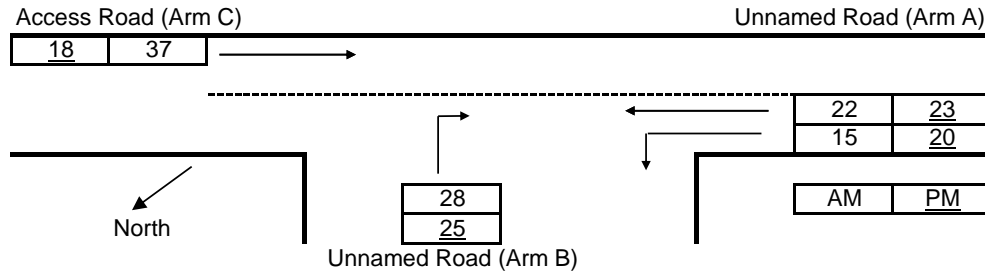
Geometry :	Input	Input	Input	Calculated				
	W	6.90	V-rBA	60	w-BA	4.70	D	0.8093
	W-CR	0.00	V-IBA	90	w-BC	0.00	E	0.8343
			V-rBC	0.00	w-CB	0.00	F	0.8943
			V-rCB	55			Y	0.8034

Analysis :	Traffic Flows, pcu/hr		Capacity, pcu/hr	
	AM	PM	AM	PM
q-CA	0	0	Q-BA	506
q-CB	0	0	Q-BC	620
q-AB	15	20	Q-CB	662
q-AC	0	0	Q-BAC	506
q-BA	28	25		
q-BC	0	0		
f	0.000	0.000		

Ratio-of-flow to Capacity	AM	PM
B-A	0.055	0.049
B-C	0.000	0.000
C-B	0.000	0.000
B-AC	0.055	0.049

Priority Junction Analysis

Junction: Unnamed Road / Access Road
 Design Year: 2033 Job Number: J7265 Date: 03 Oct 2024
 Scenario: With Approved Scheme P. 3



The predictive equations of capacity of movement are:

$$Q\text{-BA} = D[627 + 14W\text{-CR} - Y(0.364q\text{-AC} + 0.144q\text{-AB} + 0.229q\text{-CA} + 0.52q\text{-CB})]$$

$$Q\text{-BC} = E[745 - Y(0.364q\text{-AC} + 0.144q\text{-AB})]$$

$$Q\text{-CB} = F[745 - 0.364Y(q\text{-AC} + q\text{-AB})]$$

The geometric parameters represented by D, E, F are:

$$D = [1 + 0.094(w\text{-BA} - 3.65)][1 + 0.0009(V\text{-rBA} - 120)][1 + 0.0006(V\text{-IBA} - 150)]$$

$$E = [1 + 0.094(w\text{-BC} - 3.65)][1 + 0.0009(V\text{-rBC} - 120)]$$

$$F = [1 + 0.094(w\text{-CB} - 3.65)][1 + 0.0009(V\text{-rCB} - 120)]$$

where $Y = 1 - 0.0345W$

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-IBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input	Input	Input	Calculated	
W	6.90	V-rBA	60	D	0.8093
W-CR	0.00	V-IBA	90	E	0.8343
		V-rBC	0.00	F	0.8943
		V-rCB	55	Y	0.8034

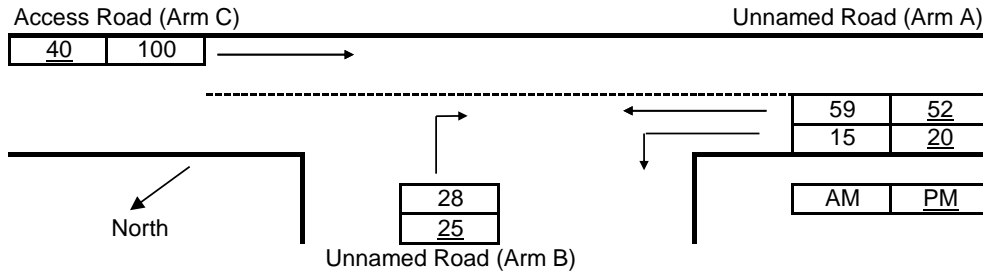
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr	AM	PM
q-CA	37	18	Q-BA	495	497
q-CB	0	0	Q-BC	615	614
q-AB	15	20	Q-CB	657	655
q-AC	22	23	Q-BAC	495	497
q-BA	28	25			
q-BC	0	0			
f	0.000	0.000			

Ratio-of-flow to Capacity	AM	PM
B-A	0.057	0.050
B-C	0.000	0.000
C-B	0.000	0.000
B-AC	0.057	0.050

Priority Junction Analysis

Junction:	Unnamed Road / Access Road		
Design Year:	2033	Job Number:	J7265
		Date:	03 Oct 2024
Scenario:	With Proposed Scheme		P. 4



The predictive equations of capacity of movement are:

$$Q-BA = D[627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB)]$$

$$Q-BC = E[745 - Y(0.364q-AC + 0.144q-AB)]$$

$$Q-CB = F[745 - 0.364Y(q-AC + q-AB)]$$

The geometric parameters represented by D, E, F are:

$$D = [1 + 0.094(w-BA - 3.65)][1 + 0.0009(V-rBA - 120)][1 + 0.0006(V-lBA - 150)]$$

$$E = [1 + 0.094(w-BC - 3.65)][1 + 0.0009(V-rBC - 120)]$$

$$F = [1 + 0.094(w-CB - 3.65)][1 + 0.0009(V-rCB - 120)]$$

where $Y = 1 - 0.0345W$

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-lBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input	Input	Input	Calculated
	W	6.90	V-rBA	60
	W-CR	0.00	V-lBA	90
			V-rBC	0.00
			V-lBC	55
			w-BA	4.70
			w-BC	0.00
			w-CB	0.00
			D	0.8093
			E	0.8343
			F	0.8943
			Y	0.8034

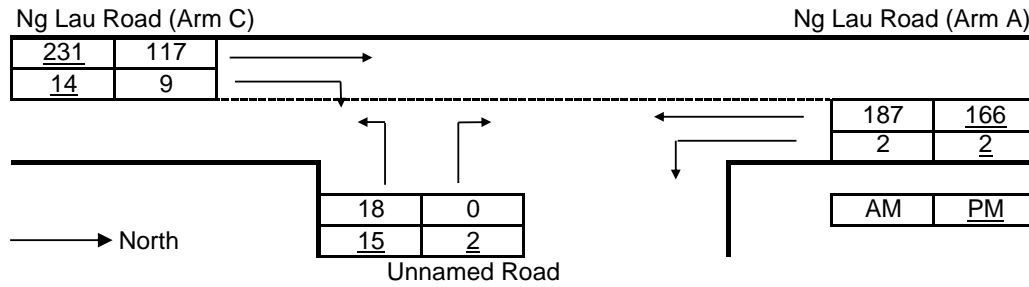
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr	AM	PM
q-CA	100	40	Q-BA	477	487
q-CB	0	0	Q-BC	606	607
q-AB	15	20	Q-CB	647	647
q-AC	59	52	Q-BAC	477	487
q-BA	28	25			
q-BC	0	0			
f	0.000	0.000			

Ratio-of-flow to Capacity	AM	PM
B-A	0.059	0.051
B-C	0.000	0.000
C-B	0.000	0.000
B-AC	0.059	0.051

Priority Junction Analysis

Junction:	Ng Lau Road / Unnamed Road		
Design Year:	2023	Job Number:	J7265
Scenario:	Existing Condition	Date:	03 Oct 2024
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The predictive equations of capacity of movement are:

$$Q\text{-BA} = D[627 + 14W\text{-CR} - Y(0.364q\text{-AC} + 0.144q\text{-AB} + 0.229q\text{-CA} + 0.52q\text{-CB})]$$

$$Q\text{-BC} = E[745 - Y(0.364q\text{-AC} + 0.144q\text{-AB})]$$

$$Q\text{-CB} = F[745 - 0.364Y(q\text{-AC} + q\text{-AB})]$$

The geometric parameters represented by D, E, F are:

$$D = [1 + 0.094(w\text{-BA} - 3.65)][1 + 0.0009(V\text{-rBA} - 120)][1 + 0.0006(V\text{-IBA} - 150)]$$

$$E = [1 + 0.094(w\text{-BC} - 3.65)][1 + 0.0009(V\text{-rBC} - 120)]$$

$$F = [1 + 0.094(w\text{-CB} - 3.65)][1 + 0.0009(V\text{-rCB} - 120)]$$

where $Y = 1 - 0.0345W$

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-IBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input		Input		Input		Calculated	
	W	8.65	V-rBA	30	w-BA	2.05	D	0.7574
	W-CR	0.00	V-IBA	100	w-BC	2.05	E	0.7808
			V-rBC	30	w-CB	4.70	F	1.0394
			V-rCB	60			Y	0.7016

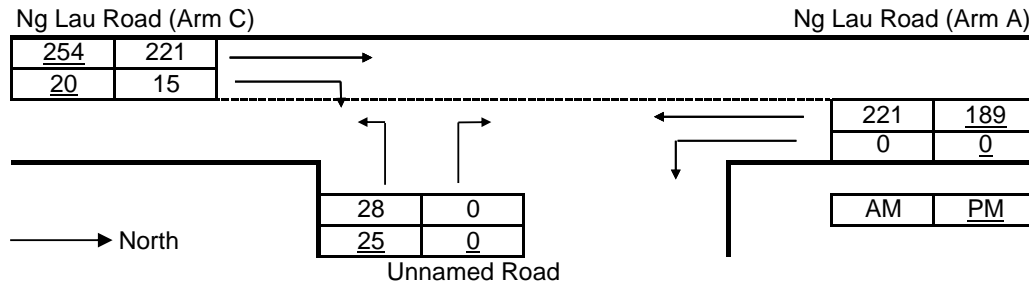
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr		AM	PM
q-CA	117	231	Q-BA		422	411
q-CB	9	14	Q-BC		544	548
q-AB	2	2	Q-CB		724	730
q-AC	187	166	Q-BAC		544	528
q-BA	0	2				
q-BC	18	15				
f	1.000	0.882				

Ratio-of-flow to Capacity	AM	PM
B-A	0.000	0.005
B-C	0.033	0.027
C-B	0.012	0.019
B-AC	0.033	0.032

Priority Junction Analysis

Junction:	Ng Lau Road / Unnamed Road		
Design Year:	2033	Job Number:	J7265
Scenario:	Without Development	Date:	03 Oct 2024
			P. 6



The predictive equations of capacity of movement are:

$$Q\text{-BA} = D[627 + 14W\text{-CR} - Y(0.364q\text{-AC} + 0.144q\text{-AB} + 0.229q\text{-CA} + 0.52q\text{-CB})]$$

$$Q\text{-BC} = E[745 - Y(0.364q\text{-AC} + 0.144q\text{-AB})]$$

$$Q\text{-CB} = F[745 - 0.364Y(q\text{-AC} + q\text{-AB})]$$

The geometric parameters represented by D, E, F are:

$$D = [1 + 0.094(w\text{-BA} - 3.65)][1 + 0.0009(V\text{-rBA} - 120)][1 + 0.0006(V\text{-IBA} - 150)]$$

$$E = [1 + 0.094(w\text{-BC} - 3.65)][1 + 0.0009(V\text{-rBC} - 120)]$$

$$F = [1 + 0.094(w\text{-CB} - 3.65)][1 + 0.0009(V\text{-rCB} - 120)]$$

where $Y = 1 - 0.0345W$

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-IBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input		Input		Input		Calculated	
	W	7.50	V-rBA	20	w-BA	2.05	D	0.7574
	W-CR	0.00	V-IBA	90	w-BC	2.05	E	0.7808
			V-rBC	20	w-CB	4.70	F	1.0394
			V-rCB	25			Y	0.7016

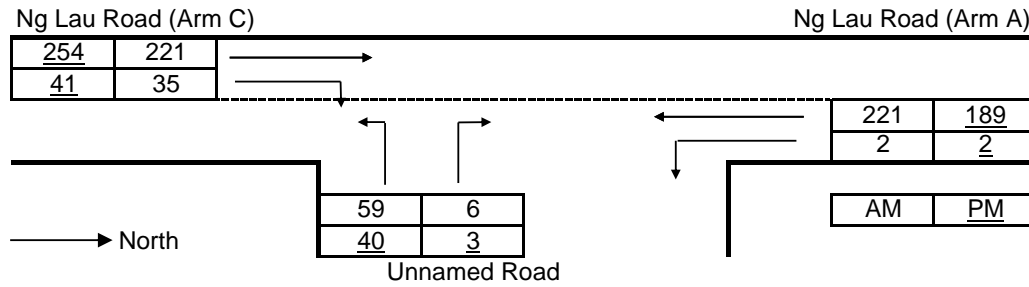
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr	AM	PM
q-CA	221	254	Q-BA	401	402
q-CB	15	20	Q-BC	538	544
q-AB	0	0	Q-CB	716	724
q-AC	221	189	Q-BAC	538	544
q-BA	0	0			
q-BC	28	25			
f	1.000	1.000			

Ratio-of-flow to Capacity	AM	PM
B-A	0.000	0.000
B-C	0.052	0.046
C-B	0.021	0.028
B-AC	0.052	0.046

Priority Junction Analysis

Junction:	Ng Lau Road / Unnamed Road		
Design Year:	2033	Job Number:	J7265
Scenario:	With Approved Scheme	Date:	03 Oct 2024
			P. 7



The predictive equations of capacity of movement are:

$$Q\text{-BA} = D[627 + 14W\text{-CR} - Y(0.364q\text{-AC} + 0.144q\text{-AB} + 0.229q\text{-CA} + 0.52q\text{-CB})]$$

$$Q\text{-BC} = E[745 - Y(0.364q\text{-AC} + 0.144q\text{-AB})]$$

$$Q\text{-CB} = F[745 - 0.364Y(q\text{-AC} + q\text{-AB})]$$

The geometric parameters represented by D, E, F are:

$$D = [1 + 0.094(w\text{-BA} - 3.65)][1 + 0.0009(V\text{-rBA} - 120)][1 + 0.0006(V\text{-IBA} - 150)]$$

$$E = [1 + 0.094(w\text{-BC} - 3.65)][1 + 0.0009(V\text{-rBC} - 120)]$$

$$F = [1 + 0.094(w\text{-CB} - 3.65)][1 + 0.0009(V\text{-rCB} - 120)]$$

where $Y = 1 - 0.0345W$

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-IBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input		Input		Input		Calculated	
	W	7.50	V-rBA	20	w-BA	2.05	D	0.7574
	W-CR	0.00	V-IBA	90	w-BC	2.05	E	0.7808
			V-rBC	20	w-CB	4.70	F	1.0394
			V-rCB	25			Y	0.7016

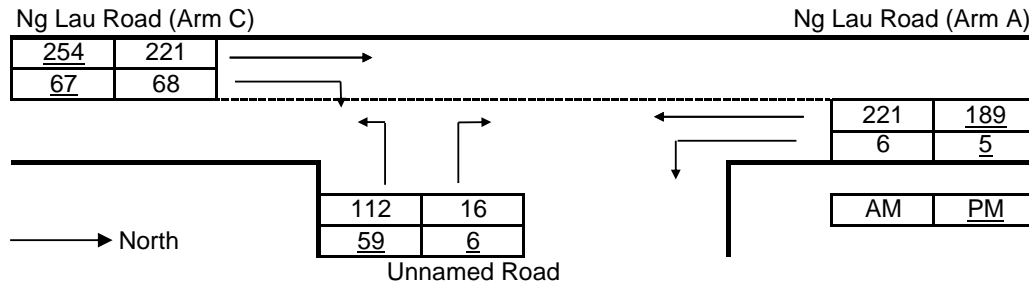
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr		AM	PM
q-CA	221	254	Q-BA		395	396
q-CB	35	41	Q-BC		537	544
q-AB	2	2	Q-CB		715	724
q-AC	221	189	Q-BAC		520	530
q-BA	6	3				
q-BC	59	40				
f	0.908	0.930				

Ratio-of-flow to Capacity	AM	PM
B-A	0.015	0.008
B-C	0.110	0.074
C-B	0.049	0.057
B-AC	0.125	0.081

Priority Junction Analysis

Junction:	Ng Lau Road / Unnamed Road		
Design Year:	2033	Job Number:	J7265
Scenario:	With Proposed Scheme	Date:	03 Oct 2024
			P. 8



The predictive equations of capacity of movement are:

$$Q-BA = D[627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB)]$$

$$Q-BC = E[745 - Y(0.364q-AC + 0.144q-AB)]$$

$$Q-CB = F[745 - 0.364Y(q-AC + q-AB)]$$

The geometric parameters represented by D, E, F are:

$$D = [1 + 0.094(w-BA - 3.65)][1 + 0.0009(V-rBA - 120)][1 + 0.0006(V-IBA - 150)]$$

$$E = [1 + 0.094(w-BC - 3.65)][1 + 0.0009(V-rBC - 120)]$$

$$F = [1 + 0.094(w-CB - 3.65)][1 + 0.0009(V-rCB - 120)]$$

where $Y = 1 - 0.0345W$

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-IBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input		Input		Input		Calculated	
	W	7.50	V-rBA	20	w-BA	2.05	D	0.7574
	W-CR	0.00	V-IBA	90	w-BC	2.05	E	0.7808
			V-rBC	20	w-CB	4.70	F	1.0394
			V-rCB	25			Y	0.7016

Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr		AM	PM
q-CA	221	254	Q-BA		386	389
q-CB	68	67	Q-BC		537	544
q-AB	6	5	Q-CB		714	723
q-AC	221	189	Q-BAC		512	524
q-BA	16	6				
q-BC	112	59				
f	0.875	0.908				

Ratio-of-flow to Capacity	AM	PM
B-A	0.041	0.015
B-C	0.209	0.109
C-B	0.095	0.093
B-AC	0.250	0.124

Junction: <u>Ng Lau Road / Lam Tei Interchange</u>											Job Number: <u>J7265</u>																								
Scenario: <u>Existing Condition</u>											P. <u>9</u>																								
Design Year: <u>2023</u>				Designed By: _____				Checked By: _____				Date: <u>03 Oct 2024</u>																							
Approach	Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	Turning %	Sat. Flow (pcu/hr)	AM Peak			Critical y	Turning %	Sat. Flow (pcu/hr)	PM Peak																					
								Flow (pcu/hr)	y value	Critical y				Flow (pcu/hr)	y value	Critical y																			
Lam Tei Interchange EB	SA+LT	A1	1	3.65	30.0		21	1959	609	0.311	0.311	55	1927	446	0.231																				
	SA	A2	1	3.65				2120	658	0.310			2120	490	0.231																				
Lam Tei Interchange WB	SA+LT	A3	1	3.65	15.0		0	1980	613	0.310		0	1980	676	0.341	0.341																			
	SA	A4	1	3.65				2120	656	0.309			2120	723	0.341																				
Ng Lau Road SB	LT	B1	2	4.00	12.0		100	1791	204	0.114	0.114	100	1791	180	0.100	0.100																			
pedestrian phase		C _(P)	1			min crossing time =	8	sec GM +	8	sec FGM =	16	sec																							
		D _(P)	2			min crossing time =	8	sec GM +	9	sec FGM =	17	sec																							
AM Traffic Flow (pcu/hr)											PM Traffic Flow (pcu/hr)					Note:																			
																$S = 1940 + 100 (W-3.25)$ $S = 2080 + 100 (W-3.25)$ $SM = S / (1 + 1.5 f/r)$ $SM = (S - 230) / (1 + 1.5 f/r)$																			
											<table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2"></th> <th>AM Peak</th> <th>PM Peak</th> </tr> <tr> <th>1 + 2</th> <th>1 + 2</th> </tr> </thead> <tbody> <tr> <td>Sum y</td> <td>0.425</td> <td>0.442</td> </tr> <tr> <td>L (s)</td> <td>8</td> <td>8</td> </tr> <tr> <td>C (s)</td> <td>82</td> <td>82</td> </tr> <tr> <td>practical y</td> <td>0.812</td> <td>0.812</td> </tr> <tr> <td>R.C. (%)</td> <td>91%</td> <td>84%</td> </tr> </tbody> </table>						AM Peak	PM Peak	1 + 2	1 + 2	Sum y	0.425	0.442	L (s)	8	8	C (s)	82	82	practical y	0.812	0.812	R.C. (%)	91%	84%
	AM Peak	PM Peak																																	
	1 + 2	1 + 2																																	
Sum y	0.425	0.442																																	
L (s)	8	8																																	
C (s)	82	82																																	
practical y	0.812	0.812																																	
R.C. (%)	91%	84%																																	
1											2					3					4					5									
AM		G =	I/G =	5	G =	I/G =	5	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =	G =																			
PM		G =	I/G =	5	G =	I/G =	5	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =	G =																			

Junction: <u>Ng Lau Road / Lam Tei Interchange</u>										Job Number: <u>J7265</u>																								
Scenario: <u>Without Development</u>										P. 10																								
Design Year: <u>2033</u>			Designed By: _____			Checked By: _____			Date: <u>03 Oct 2024</u>																									
Approach	Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	Turning %	AM Peak				PM Peak																							
							Sat. Flow (pcu/hr)	Flow (pcu/hr)	y value	Critical y	Turning %	Sat. Flow (pcu/hr)	Flow (pcu/hr)	y value	Critical y																			
Lam Tei Interchange EB	SA	A2	1	4.00			2155	899	0.417			2155	549	0.255																				
	SA	A3	1	4.00			2155	899	0.417			2155	548	0.254																				
Lam Tei Interchange WB	SA+LT	B1	1	4.00	15.0	0	2015	1000	0.496	0.496	0	2015	986	0.489	0.489																			
	SA	B2	1	4.00			2155	1069	0.496			2155	1054	0.489																				
Ng Lau Road SB	LT	C1	2	5.50	10.0	100	1883	201	0.107	0.107	100	1883	163	0.087	0.087																			
	LT	C2	2	5.00	15.0	100	2050	218	0.106		100	2050	178	0.087																				
pedestrian phase		D _(P)	1			min crossing time =	5	sec GM +	13	sec FGM =	18	sec																						
		E _(P)	2			min crossing time =	10	sec GM +	12	sec FGM =	22	sec																						
AM Traffic Flow (pcu/hr)						PM Traffic Flow (pcu/hr)								Note: S = 1940 + 100 (W-3.25) S = 2080 + 100 (W-3.25) SM = S / (1 + 1.5 f/r) SM = (S - 230) / (1 + 1.5 f/r)																				
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1		2		3		4		5																										
AM	G =	I/G = 5	G =	I/G = 5	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =	G =																			
	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =	G =																			
PM	G =	I/G = 5	G =	I/G = 5	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =	G =																			
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Junction: <u>Ng Lau Road / Lam Tei Interchange</u>											Job Number: <u>J7265</u>																																				
Scenario: <u>With Approved Scheme</u>											P. 11																																				
Design Year: <u>2033</u>			Designed By: _____				Checked By: _____				Date: <u>03 Oct 2024</u>																																				
Approach	Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	Turning %	AM Peak				PM Peak																																				
							Sat. Flow (pcu/hr)	Flow (pcu/hr)	y value	Critical y	Turning %	Sat. Flow (pcu/hr)	Flow (pcu/hr)	y value	Critical y																																
Lam Tei Interchange EB	SA	A2	1	4.00			2155	899	0.417			2155	549	0.255																																	
	SA	A3	1	4.00			2155	899	0.417			2155	548	0.254																																	
Lam Tei Interchange WB	SA+LT	B1	1	4.00	15.0		0	2015	1009	0.501	0.501	0	2015	995	0.494																																
	SA	B2	1	4.00				2155	1079	0.501			2155	1065	0.494																																
Ng Lau Road SB	LT	C1	2	5.50	10.0		100	1883	215	0.114	0.114	100	1883	170	0.090																																
	LT	C2	2	5.00	15.0		100	2050	235	0.115		100	2050	186	0.091																																
pedestrian phase			D _(P)	1	min crossing time =		5	sec GM +		13	sec FGM =		18	sec																																	
			E _(P)	2	min crossing time =		10	sec GM +		12	sec FGM =		22	sec																																	
AM Traffic Flow (pcu/hr)			PM Traffic Flow (pcu/hr)			S = 1940 + 100 (W-3.25) S = 2080 + 100 (W-3.25) SM = S / (1 + 1.5 f/r) SM = (S - 230) / (1 + 1.5 f/r)				Note:																																					
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1		2		3		4		5																																							
AM	G =	I/G = 5	G =	I/G = 5	G =	I/G =	G =	I/G =	G =																																						
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PM	G =	I/G = 5	G =	I/G = 5	G =	I/G =	G =	I/G =	G =																																						
	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =	G =																																						

Junction: <u>Ng Lau Road / Lam Tei Interchange</u>										Job Number: <u>J7265</u>																								
Scenario: <u>With Proposed Scheme</u>										P. 12																								
Design Year: <u>2033</u>			Designed By: _____			Checked By: _____			Date: <u>03 Oct 2024</u>																									
Approach	Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	Turning %	AM Peak				PM Peak																							
							Sat. Flow (pcu/hr)	Flow (pcu/hr)	y value	Critical y	Turning %	Sat. Flow (pcu/hr)	Flow (pcu/hr)	y value	Critical y																			
Lam Tei Interchange EB	SA	A2	1	4.00			2155	901	0.418			2155	550	0.255																				
	SA	A3	1	4.00			2155	900	0.418			2155	550	0.255																				
Lam Tei Interchange WB	SA+LT	B1	1	4.00	15.0	0	2015	1025	0.509	0.509	0	2015	1008	0.500	0.500																			
	SA	B2	1	4.00			2155	1097	0.509			2155	1079	0.501																				
Ng Lau Road SB	LT	C1	2	5.50	10.0	100	1883	241	0.128	0.128	100	1883	180	0.096	0.096																			
	LT	C2	2	5.00	15.0	100	2050	263	0.128		100	2050	195	0.095																				
pedestrian phase		D _(P)	1			min crossing time =	5	sec GM +	13	sec FGM =	18	sec																						
		E _(P)	2			min crossing time =	10	sec GM +	12	sec FGM =	22	sec																						
AM Traffic Flow (pcu/hr)						PM Traffic Flow (pcu/hr)								Note: S = 1940 + 100 (W-3.25) S = 2080 + 100 (W-3.25) SM = S / (1 + 1.5 f/r) SM = (S - 230) / (1 + 1.5 f/r)																				
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1			2			3			4			5																						
AM	G =	I/G = 5	G =	I/G = 5	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =																				
	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =																				
PM	G =	I/G = 5	G =	I/G = 5	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =																				
	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =																				

Roundabout Analysis

Location Tsing Lun Road / Hong Po Road / Lam Tei Interchange

Scenario Existing Condition

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Design Year 2023

Job Number J7265

Date 03 October 2024

AM Peak

Arm	To A	To B	To C	To D	To E	To F	To G	To H	Total	q _c *
From A	102	110	809	248					1269	259
From B	182	0	77	22					281	1336
From C	579	42	11	30					662	666
From D	406	40	54	2					502	1026
From E										
From F										
From G										
From H										
Total	1269	192	951	302					2714	

* q_c in existing condition is adjusted due to Temporary Traffic Arrangement

PM Peak

Arm	To A	To B	To C	To D	To E	To F	To G	To H	Total	q _c *
From A	205	90	742	362					1399	202
From B	91	0	67	22					180	1453
From C	443	32	18	37					530	772
From D	198	26	34	2					260	879
From E										
From F										
From G										
From H										
Total	937	148	861	423					2369	

* q_c in existing condition is adjusted for TTA

Legend

Arm	Road (in clockwise order)
A	Slip Road from Lam Tei Interchange
B	Access Road from Siu Hong Station
C	Tsing Lun Road
D	Hong Po Road
E	
F	
G	
H	

Geometric Parameters

Arm	e (m)	v (m)	r (m)	L (m)	D (m)	∅ (°)	S
From A	10.0	7.3	20.0	10.0	55	45	0.4
From B	9.0	6.8	28.0	4.0	55	19	0.9
From C	11.5	7.8	100.0	9.0	55	23	0.7
From D*	6.0	4.5	27.0	6.0	55	10	0.4
From E							
From F							
From G							
From H							

* Parameter in existing condition is adjusted for TTA

Predictive Equation $Q_E = K(F - f_c q_c)$

Q _E	Entry Capacity
q _c	Circulating Flow across the Entry
K	= 1-0.00347(∅-30)-0.978[(1/r)-0.05]
F	= 303x ₂
f _c	= 0.210t _D (1+0.2x ₂)
t _D	= 1+0.5/(1+M)
M	= exp[(D-60)/10]
x ₂	= v+(e-v)/(1+2S)
S	= 1.6(e-v)/L

Limitation

e	Entry Width	4.0 - 15.0 m
v	Approach Half Width	2.0 - 7.3 m
r	Entry Radius	6.0 - 100.0 m
L	Effective Length of Flare	1.0 - 100.0 m
D	Inscribed Circle Diameter	15 - 100 m
∅	Entry Angle	10° - 60°
S	Sharpness of Flare	0.0 - 3.0

Ratio-of-Flow to Capacity (RFC)

Arm	x ₂	M	t _D	K	F	f _c	Q _E		Entry Flow		RFC	
							AM	PM	AM	PM	AM	PM
From A	8.748	0.607	1.311	0.948	2651	0.757	2327	2368	1269	1399	0.545	0.591
From B	7.597	0.607	1.311	1.051	2302	0.694	1445	1360	281	180	0.194	0.132
From C	9.398	0.607	1.311	1.063	2848	0.793	2467	2377	662	530	0.268	0.223
From D	5.333	0.607	1.311	1.082	1616	0.569	1117	1207	502	260	0.449	0.215
From E												
From F												
From G												
From H												

Roundabout Analysis

Location Tsing Lun Road / Hong Po Road / Lam Tei Interchange

Scenario Without Development

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Design Year 2033

Job Number J7265

Date 03 October 2024

AM Peak

Arm	To A	To B	To C	To D	To E	To F	To G	To H	Total	Q _c
From A	332	0	1055	560					1947	431
From B	198	0	87	20					305	2271
From C	879	50	11	122					1062	1110
From D	782	57	313	0					1152	1470
From E										
From F										
From G										
From H										
Total	2191	107	1466	702					4466	

PM Peak

Arm	To A	To B	To C	To D	To E	To F	To G	To H	Total	Q _c
From A	422	0	857	660					1939	269
From B	108	0	77	25					210	2127
From C	580	41	20	147					788	1215
From D	473	40	168	0					681	1171
From E										
From F										
From G										
From H										
Total	1583	81	1122	832					3618	

Legend

Arm	Road (in clockwise order)
A	Slip Road to Lam Tei Interchange
B	Access Road to Siu Hong Station
C	Tsing Lun Road
D	Hong Po Road
E	
F	
G	
H	

Geometric Parameters

Arm	e (m)	v (m)	r (m)	L (m)	D (m)	∅ (°)	S
From A	11.0	7.8	30.0	10.0	55	20	0.5
From B	9.0	6.8	28.0	6.0	55	19	0.6
From C	11.5	7.8	100.0	9.0	55	23	0.7
From D	14.0	8.5	40.0	10.0	55	10	0.9
From E							
From F							
From G							
From H							

Predictive Equation $Q_E = K(F - f_c q_c)$

Q _E	Entry Capacity
q _c	Circulating Flow across the Entry
K	= 1-0.00347(∅-30)-0.978[(1/r)-0.05]
F	= 303x ₂
f _c	= 0.210t _D (1+0.2x ₂)
t _D	= 1+0.5/(1+M)
M	= exp[(D-60)/10]
x ₂	= v+(e-v)/(1+2S)
S	= 1.6(e-v)/L

Limitation

e	Entry Width	4.0 - 15.0 m
v	Approach Half Width	2.0 - 7.3 m
r	Entry Radius	6.0 - 100.0 m
L	Effective Length of Flare	1.0 - 100.0 m
D	Inscribed Circle Diameter	15 - 100 m
∅	Entry Angle	10° - 60°
S	Sharpness of Flare	0.0 - 3.0

Ratio-of-Flow to Capacity (RFC)

Arm	x ₂	M	t _D	K	F	f _c	Q _E		Entry Flow		RFC	
							AM	PM	AM	PM	AM	PM
From A	9.381	0.607	1.311	1.051	2842	0.792	2629	2764	1947	1939	0.741	0.702
From B	7.812	0.607	1.311	1.051	2367	0.706	804	911	305	210	0.379	0.231
From C	9.398	0.607	1.311	1.063	2848	0.793	2092	2004	1062	788	0.508	0.393
From D	10.493	0.607	1.311	1.094	3179	0.853	2106	2385	1152	681	0.547	0.286
From E												
From F												
From G												
From H												

Roundabout Analysis

Location Tsing Lun Road / Hong Po Road / Lam Tei Interchange

Scenario With Approved Scheme

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Design Year 2033

Job Number J7265

Date 03 October 2024

AM Peak

Arm	To A	To B	To C	To D	To E	To F	To G	To H	Total	q _c
From A	351	0	1055	560					1966	433
From B	198	0	87	20					305	2292
From C	880	50	11	122					1063	1129
From D	782	57	315	0					1154	1490
From E										
From F										
From G										
From H										
Total	2211	107	1468	702					4488	

PM Peak

Arm	To A	To B	To C	To D	To E	To F	To G	To H	Total	q _c
From A	442	0	857	660					1959	270
From B	108	0	77	25					210	2148
From C	581	41	20	147					789	1235
From D	473	40	169	0					682	1192
From E										
From F										
From G										
From H										
Total	1604	81	1123	832					3640	

Legend

Arm	Road (in clockwise order)
A	Slip Road to Lam Tei Interchange
B	Access Road to Siu Hong Station
C	Tsing Lun Road
D	Hong Po Road
E	
F	
G	
H	

Geometric Parameters

Arm	e (m)	v (m)	r (m)	L (m)	D (m)	∅ (°)	S
From A	11.0	7.8	30.0	10.0	55	20	0.5
From B	9.0	6.8	28.0	4.0	55	19	0.9
From C	11.5	7.8	100.0	9.0	55	23	0.7
From D	14.0	8.5	40.0	10.0	55	10	0.9
From E							
From F							
From G							
From H							

Predictive Equation $Q_E = K(F - f_c q_c)$

Q _E	Entry Capacity
q _c	Circulating Flow across the Entry
K	= 1-0.00347(∅-30)-0.978[(1/r)-0.05]
F	= 303x ₂
f _c	= 0.210t _D (1+0.2x ₂)
t _D	= 1+0.5/(1+M)
M	= exp[(D-60)/10]
x ₂	= v+(e-v)/(1+2S)
S	= 1.6(e-v)/L

Limitation

e	Entry Width	4.0 - 15.0 m
v	Approach Half Width	2.0 - 7.3 m
r	Entry Radius	6.0 - 100.0 m
L	Effective Length of Flare	1.0 - 100.0 m
D	Inscribed Circle Diameter	15 - 100 m
∅	Entry Angle	10° - 60°
S	Sharpness of Flare	0.0 - 3.0

Ratio-of-Flow to Capacity (RFC)

Arm	x ₂	M	t _D	K	F	f _c	Q _E		Entry Flow		RFC	
							AM	PM	AM	PM	AM	PM
From A	9.381	0.607	1.311	1.051	2842	0.792	2627	2763	1966	1959	0.748	0.709
From B	7.597	0.607	1.311	1.051	2302	0.694	748	853	305	210	0.408	0.246
From C	9.398	0.607	1.311	1.063	2848	0.793	2076	1987	1063	789	0.512	0.397
From D	10.493	0.607	1.311	1.094	3179	0.853	2087	2365	1154	682	0.553	0.288
From E												
From F												
From G												
From H												

Roundabout Analysis

Location Tsing Lun Road / Hong Po Road / Lam Tei Interchange

Scenario With Proposed Scheme

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Design Year 2033

Job Number J7265

Date 03 October 2024

AM Peak

Arm	To A	To B	To C	To D	To E	To F	To G	To H	Total	q _c
From A	382	0	1058	560					2000	436
From B	198	0	87	20					305	2329
From C	885	50	11	122					1068	1160
From D	782	57	318	0					1157	1526
From E										
From F										
From G										
From H										
Total	2247	107	1474	702					4530	

PM Peak

Arm	To A	To B	To C	To D	To E	To F	To G	To H	Total	q _c
From A	466	0	860	660					1986	271
From B	108	0	77	25					210	2176
From C	586	41	20	147					794	1259
From D	473	40	170	0					683	1221
From E										
From F										
From G										
From H										
Total	1633	81	1127	832					3673	

Legend

Arm	Road (in clockwise order)
A	Slip Road to Lam Tei Interchange
B	Access Road to Siu Hong Station
C	Tsing Lun Road
D	Hong Po Road
E	
F	
G	
H	

Geometric Parameters

Arm	e (m)	v (m)	r (m)	L (m)	D (m)	∅ (°)	S
From A	11.0	7.8	30.0	10.0	55	20	0.5
From B	9.0	6.8	28.0	4.0	55	19	0.9
From C	11.5	7.8	100.0	9.0	55	23	0.7
From D	14.0	8.5	40.0	10.0	55	10	0.9
From E							
From F							
From G							
From H							

Predictive Equation $Q_E = K(F - f_c q_c)$

Q _E	Entry Capacity
q _c	Circulating Flow across the Entry
K	= 1-0.00347(∅-30)-0.978[(1/r)-0.05]
F	= 303x ₂
f _c	= 0.210t _D (1+0.2x ₂)
t _D	= 1+0.5/(1+M)
M	= exp[(D-60)/10]
x ₂	= v+(e-v)/(1+2S)
S	= 1.6(e-v)/L

Limitation

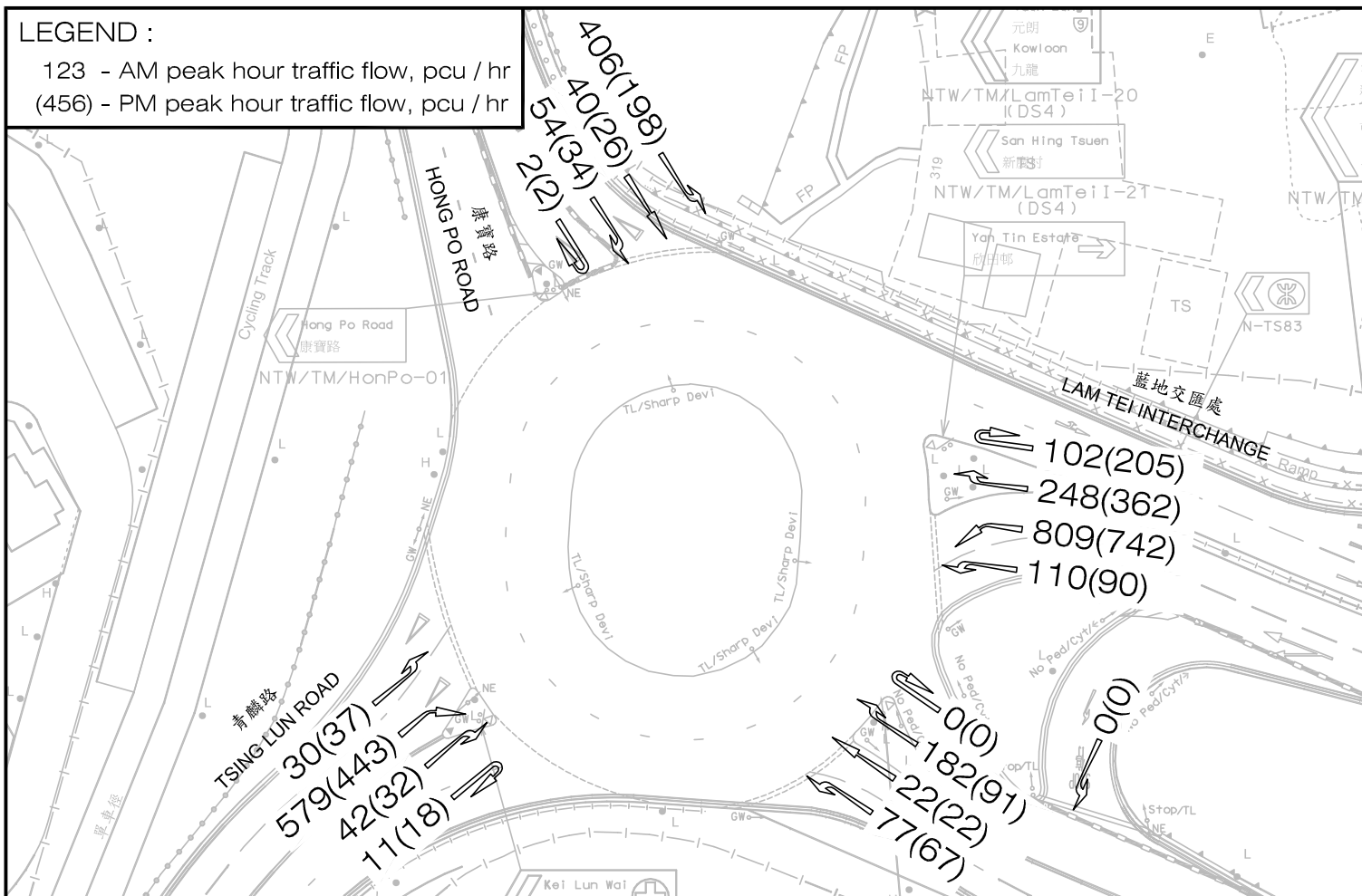
e	Entry Width	4.0 - 15.0 m
v	Approach Half Width	2.0 - 7.3 m
r	Entry Radius	6.0 - 100.0 m
L	Effective Length of Flare	1.0 - 100.0 m
D	Inscribed Circle Diameter	15 - 100 m
∅	Entry Angle	10° - 60°
S	Sharpness of Flare	0.0 - 3.0

Ratio-of-Flow to Capacity (RFC)

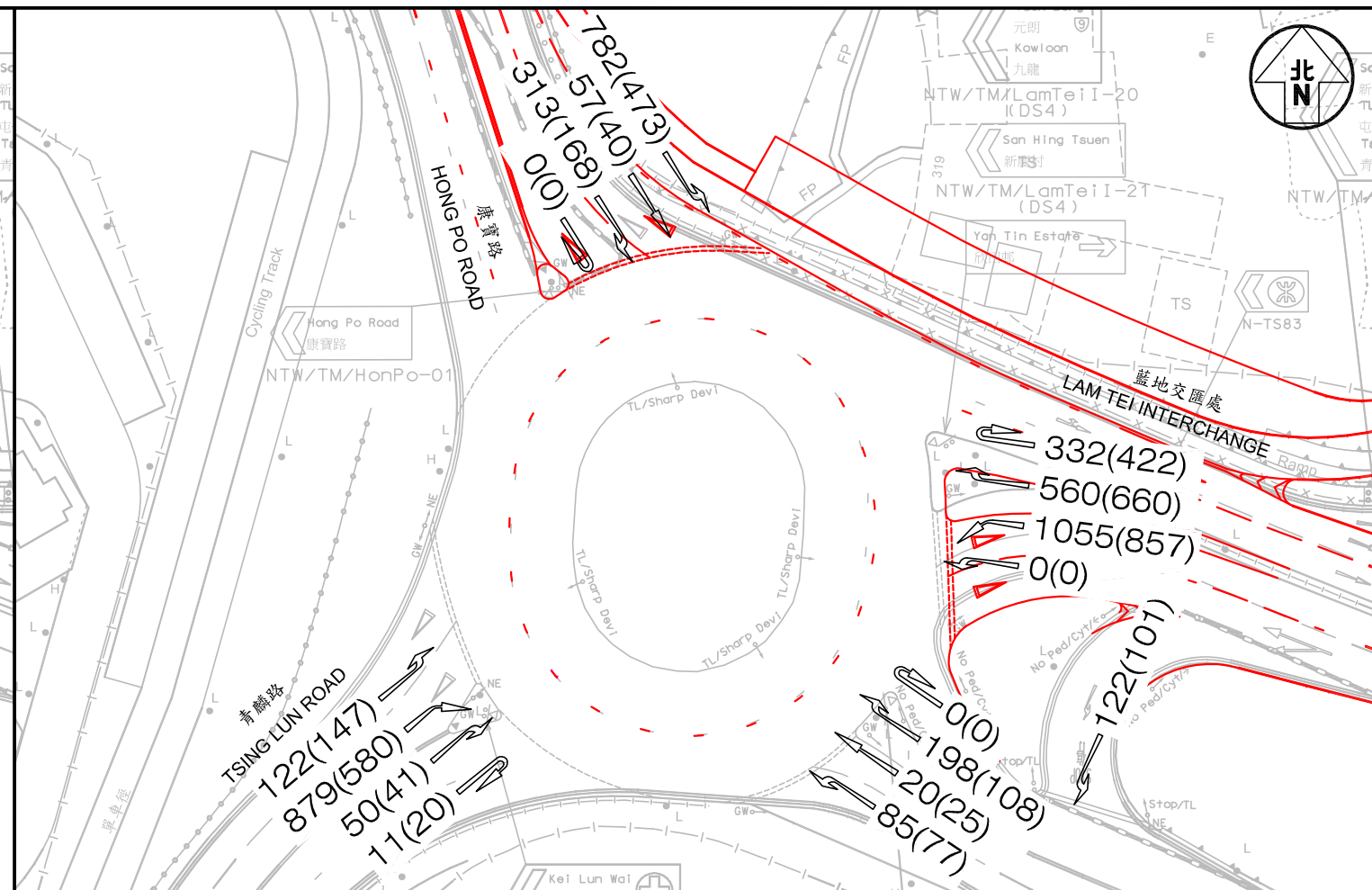
Arm	x ₂	M	t _D	K	F	f _c	Q _E		Entry Flow		RFC	
							AM	PM	AM	PM	AM	PM
From A	9.381	0.607	1.311	1.051	2842	0.792	2624	2762	2000	1986	0.762	0.719
From B	7.597	0.607	1.311	1.051	2302	0.694	721	833	305	210	0.423	0.252
From C	9.398	0.607	1.311	1.063	2848	0.793	2050	1967	1068	794	0.521	0.404
From D	10.493	0.607	1.311	1.094	3179	0.853	2053	2338	1157	683	0.563	0.292
From E												
From F												
From G												
From H												

J4 - Tsing Lun Road/ Hong Po Road/ Lam Tei Interchange

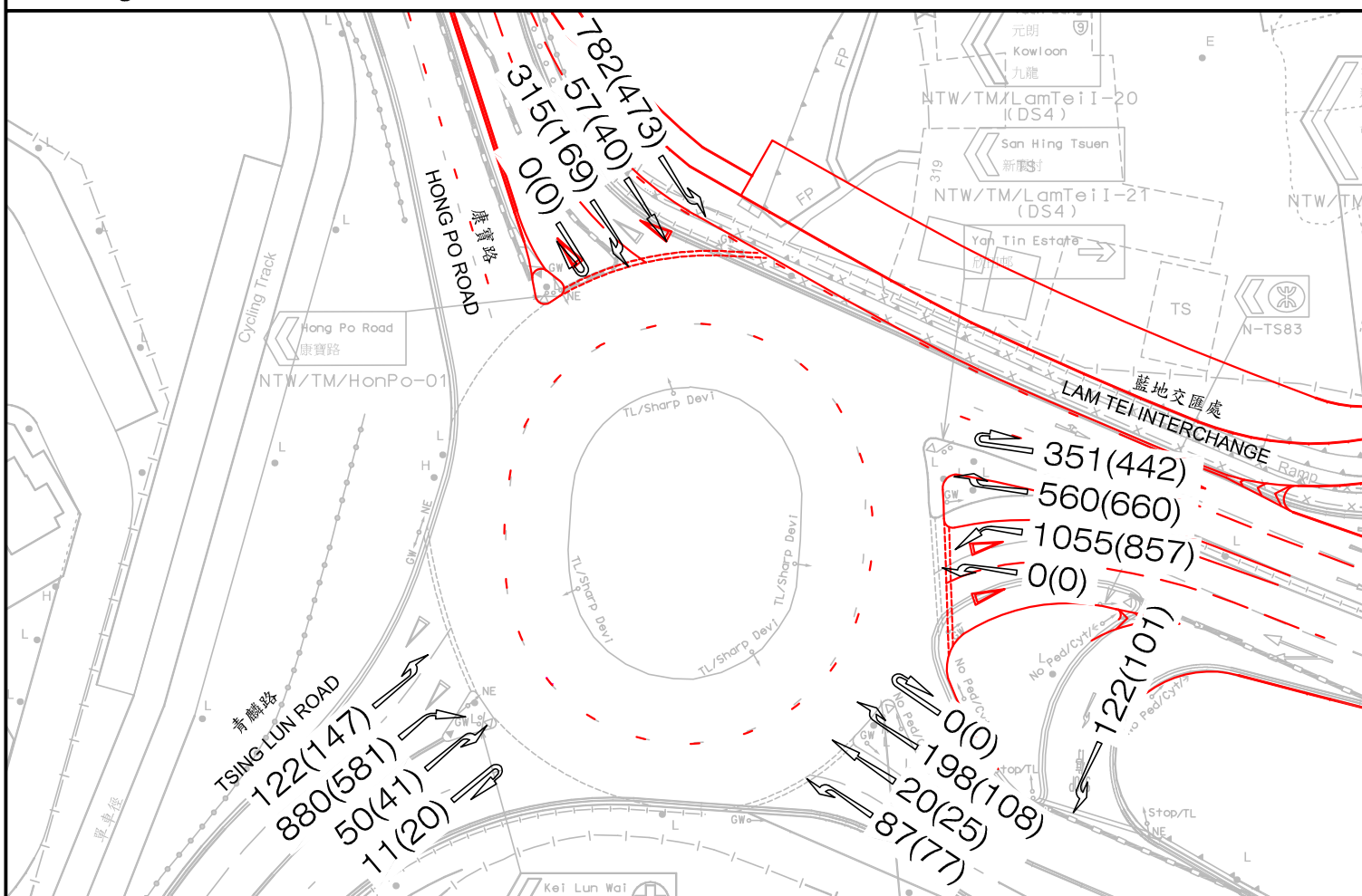
LEGEND :
 123 - AM peak hour traffic flow, pcu / hr
 (456) - PM peak hour traffic flow, pcu / hr



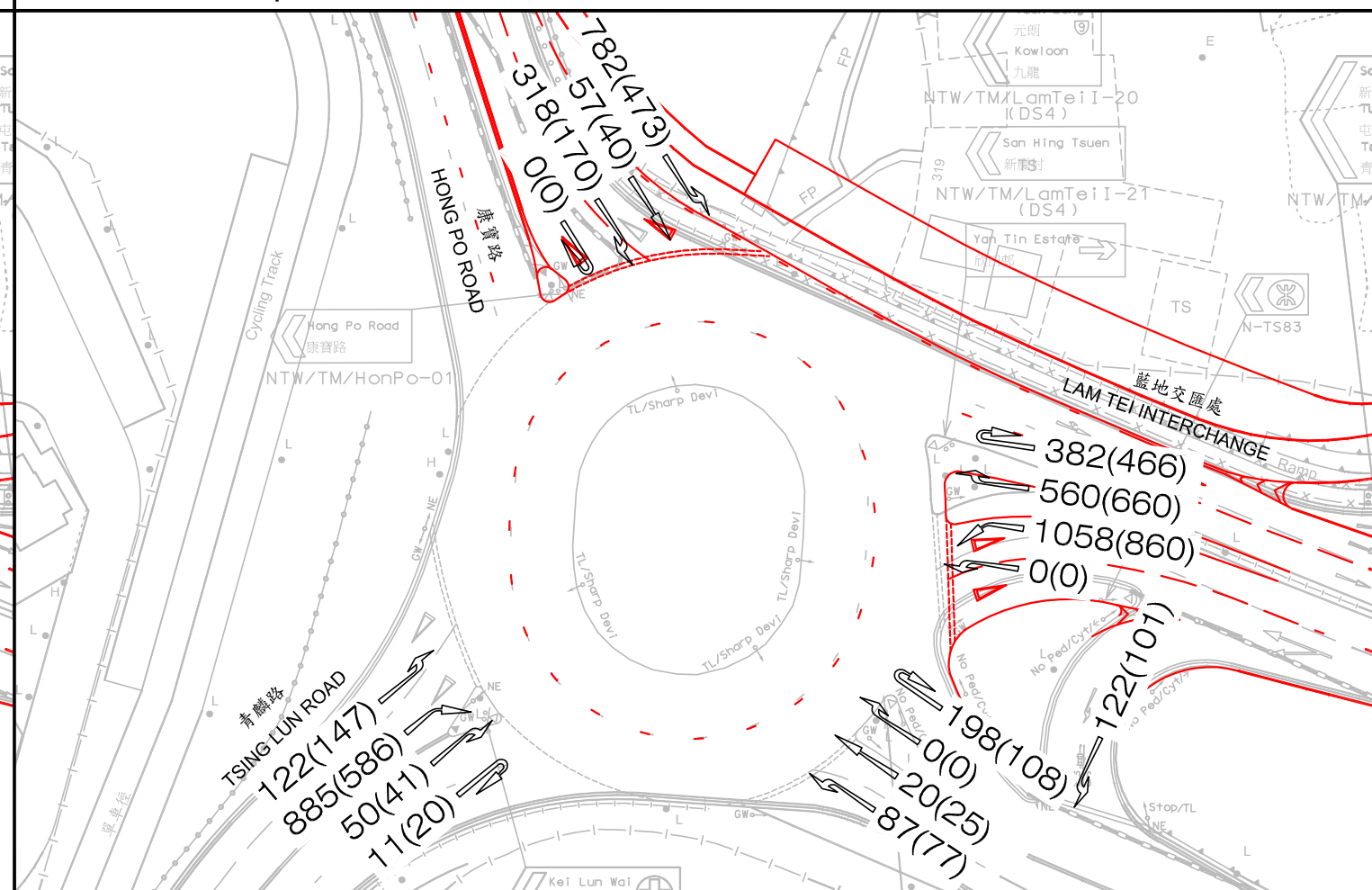
Existing Condition



Without Development



With Approved Scheme



With Proposed Scheme

scale 1:750 (A3)

Roundabout Analysis

Location Lam Tei Interchange

Scenario Existing Condition

Page 17

Design Year 2023

Job Number J7265

Date 03 October 2024

AM Peak

Arm	To A	To B	To C	To D	To E	To F	To G	To H	Total	q _c
From A	17	0	945						962	658
From B	293	4	310						607	976
From C	385	640	14						1039	314
From D										
From E										
From F										
From G										
Total	695	644	1269						2608	

PM Peak

Arm	To A	To B	To C	To D	To E	To F	To G	To H	Total	q _c
From A	7	0	958						965	483
From B	267	0	414						681	992
From C	202	456	27						685	274
From D										
From E										
From F										
From G										
From H										
Total	476	456	1399						2331	

Legend

Arm	Road (in clockwise order)
A	Slip Road to Castle Peak Road
B	Slip Road to Tuen Mun Road
C	Slip Road to Tsing Lun Road
D	
E	
F	
G	
H	

Geometric Parameters

Arm	e (m)	v (m)	r (m)	L (m)	D (m)	∅ (°)	S
From A	7.3	7.3	40.0	1.0	51	22	0.0
From B	8.8	7.3	65.0	3.0	51	26	0.8
From C	7.7	6.8	100.0	8.0	51	17	0.2
From D							
From E							
From F							
From G							
From H							

Predictive Equation $Q_E = K(F - f_c q_c)$

Q _E	Entry Capacity
q _c	Circulating Flow across the Entry
K	= 1-0.00347(∅-30)-0.978[(1/r)-0.05]
F	= 303x ₂
f _c	= 0.210t _D (1+0.2x ₂)
t _D	= 1+0.5/(1+M)
M	= exp[(D-60)/10]
x ₂	= v+(e-v)/(1+2S)
S	= 1.6(e-v)/L

Limitation

e	Entry Width	4.0 - 15.0 m
v	Approach Half Width	2.0 - 7.3 m
r	Entry Radius	6.0 - 100.0 m
L	Effective Length of Flare	1.0 - 100.0 m
D	Inscribed Circle Diameter	15 - 100 m
∅	Entry Angle	10° - 60°
S	Sharpness of Flare	0.0 - 3.0

Ratio-of-Flow to Capacity (RFC)

Arm	x ₂	M	t _D	K	F	f _c	Q _E		Entry Flow		RFC	
							AM	PM	AM	PM	AM	PM
From A	7.300	0.407	1.355	1.052	2212	0.700	1843	1972	962	965	0.522	0.489
From B	7.877	0.407	1.355	1.048	2387	0.733	1751	1739	607	681	0.347	0.392
From C	7.438	0.407	1.355	1.084	2254	0.708	2203	2233	1039	685	0.472	0.307
From D												
From E												
From F												
From G												
From H												

Roundabout Analysis

Location Lam Tei Interchange

Scenario Without Development

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Design Year 2033

Job Number J7265

Date 03 October 2024

AM Peak

Arm	To A	To B	To C	To D	To E	To F	To G	To H	Total	q _c
From A	18	0	1241						1259	1055
From B	326	0	817						1143	1271
From C	711	1043	12						1766	344
From D										
From E										
From F										
From G										
From H										
Total	1055	1043	2070						4168	

PM Peak

Arm	To A	To B	To C	To D	To E	To F	To G	To H	Total	q _c
From A	15	0	1214						1229	742
From B	286	0	799						1085	1255
From C	414	716	26						1156	301
From D										
From E										
From F										
From G										
From H										
Total	715	716	2039						3470	

Legend

Arm	Road (in clockwise order)
A	Slip Road to Castle Peak Road
B	Slip Road to Tuen Mun Road
C	Slip Road to Tsing Lun Road
D	
E	
F	
G	
H	

Geometric Parameters

Arm	e (m)	v (m)	r (m)	L (m)	D (m)	∅ (°)	S
From A	7.3	7.3	40.0	1.0	51	22	0.0
From B	8.8	7.3	65.0	3.0	51	26	0.8
From C	7.7	6.8	100.0	8.0	51	17	0.2
From D							
From E							
From F							
From G							
From H							

Predictive Equation $Q_E = K(F - f_c q_c)$

Q _E	Entry Capacity
q _c	Circulating Flow across the Entry
K	= 1-0.00347(∅-30)-0.978[(1/r)-0.05]
F	= 303x ₂
f _c	= 0.210t _D (1+0.2x ₂)
t _D	= 1+0.5/(1+M)
M	= exp[(D-60)/10]
x ₂	= v+(e-v)/(1+2S)
S	= 1.6(e-v)/L

Limitation

e	Entry Width	4.0 - 15.0 m
v	Approach Half Width	2.0 - 7.3 m
r	Entry Radius	6.0 - 100.0 m
L	Effective Length of Flare	1.0 - 100.0 m
D	Inscribed Circle Diameter	15 - 100 m
∅	Entry Angle	10° - 60°
S	Sharpness of Flare	0.0 - 3.0

Ratio-of-Flow to Capacity (RFC)

Arm	x ₂	M	t _D	K	F	f _c	Q _E		Entry Flow		RFC	
							AM	PM	AM	PM	AM	PM
From A	7.300	0.407	1.355	1.052	2212	0.700	1550	1781	1259	1229	0.812	0.690
From B	7.877	0.407	1.355	1.048	2387	0.733	1524	1537	1143	1085	0.750	0.706
From C	7.438	0.407	1.355	1.084	2254	0.708	2180	2213	1766	1156	0.810	0.522
From D												
From E												
From F												
From G												
From H												

Roundabout Analysis

Location Lam Tei Interchange

Scenario With Approved Scheme

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Design Year 2033

Job Number J7265

Date 03 October 2024

AM Peak

Arm	To A	To B	To C	To D	To E	To F	To G	To H	Total	q _c
From A	18	0	1252						1270	1068
From B	326	0	825						1151	1282
From C	721	1056	12						1789	344
From D										
From E										
From F										
From G										
From H										
Total	1065	1056	2089						4210	

PM Peak

Arm	To A	To B	To C	To D	To E	To F	To G	To H	Total	q _c
From A	15	0	1226						1241	748
From B	286	0	807						1093	1267
From C	412	722	26						1159.658	301
From D										
From E										
From F										
From G										
From H										
Total	713	722	2059						3493.658	

Legend

Arm	Road (in clockwise order)
A	Slip Road to Castle Peak Road
B	Slip Road to Tuen Mun Road
C	Slip Road to Tsing Lun Road
D	
E	
F	
G	
H	

Geometric Parameters

Arm	e (m)	v (m)	r (m)	L (m)	D (m)	∅ (°)	S
From A	7.3	7.3	40.0	1.0	51	22	0.0
From B	8.8	7.3	65.0	3.0	51	26	0.8
From C	7.7	6.8	100.0	8.0	51	17	0.2
From D							
From E							
From F							
From G							
From H							

Predictive Equation $Q_E = K(F - f_c q_c)$

Q _E	Entry Capacity
q _c	Circulating Flow across the Entry
K	= 1-0.00347(∅-30)-0.978[(1/r)-0.05]
F	= 303x ₂
f _c	= 0.210t _D (1+0.2x ₂)
t _D	= 1+0.5/(1+M)
M	= exp[(D-60)/10]
x ₂	= v+(e-v)/(1+2S)
S	= 1.6(e-v)/L

Limitation

e	Entry Width	4.0 - 15.0 m
v	Approach Half Width	2.0 - 7.3 m
r	Entry Radius	6.0 - 100.0 m
L	Effective Length of Flare	1.0 - 100.0 m
D	Inscribed Circle Diameter	15 - 100 m
∅	Entry Angle	10° - 60°
S	Sharpness of Flare	0.0 - 3.0

Ratio-of-Flow to Capacity (RFC)

Arm	x ₂	M	t _D	K	F	f _c	Q _E		Entry Flow		RFC	
							AM	PM	AM	PM	AM	PM
From A	7.300	0.407	1.355	1.052	2212	0.700	1540	1776	1270	1241	0.824	0.699
From B	7.877	0.407	1.355	1.048	2387	0.733	1516	1527	1151	1093	0.759	0.716
From C	7.438	0.407	1.355	1.084	2254	0.708	2180	2213	1789	1160	0.821	0.524
From D												
From E												
From F												
From G												
From H												

Roundabout Analysis

Location Lam Tei Interchange

Scenario With Proposed Scheme

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Design Year 2033

Job Number J7265

Date 03 October 2024

AM Peak

Arm	To A	To B	To C	To D	To E	To F	To G	To H	Total	q _c
From A	18	0	1273						1291	1090
From B	326	0	838						1164	1303
From C	740	1078	12						1830	344
From D										
From E										
From F										
From G										
From H										
Total	1083.599	1078	2123						4285	

PM Peak

Arm	To A	To B	To C	To D	To E	To F	To G	To H	Total	q _c
From A	15	0	1309						1324	790
From B	286	0	851						1137	1350
From C	419	764	26						1209	301
From D										
From E										
From F										
From G										
From H										
Total	720	764	2186						3670	

Legend

Arm	Road (in clockwise order)
A	Slip Road to Castle Peak Road
B	Slip Road to Tuen Mun Road
C	Slip Road to Tsing Lun Road
D	
E	
F	
G	
H	

Geometric Parameters

Arm	e (m)	v (m)	r (m)	L (m)	D (m)	∅ (°)	S
From A	7.3	7.3	40.0	1.0	51	22	0.0
From B	8.8	7.3	65.0	3.0	51	26	0.8
From C	7.7	6.8	100.0	8.0	51	17	0.2
From D							
From E							
From F							
From G							
From H							

Predictive Equation $Q_E = K(F - f_c q_c)$

Q _E	Entry Capacity
q _c	Circulating Flow across the Entry
K	= 1-0.00347(∅-30)-0.978[(1/r)-0.05]
F	= 303x ₂
f _c	= 0.210t _D (1+0.2x ₂)
t _D	= 1+0.5/(1+M)
M	= exp[(D-60)/10]
x ₂	= v+(e-v)/(1+2S)
S	= 1.6(e-v)/L

Limitation

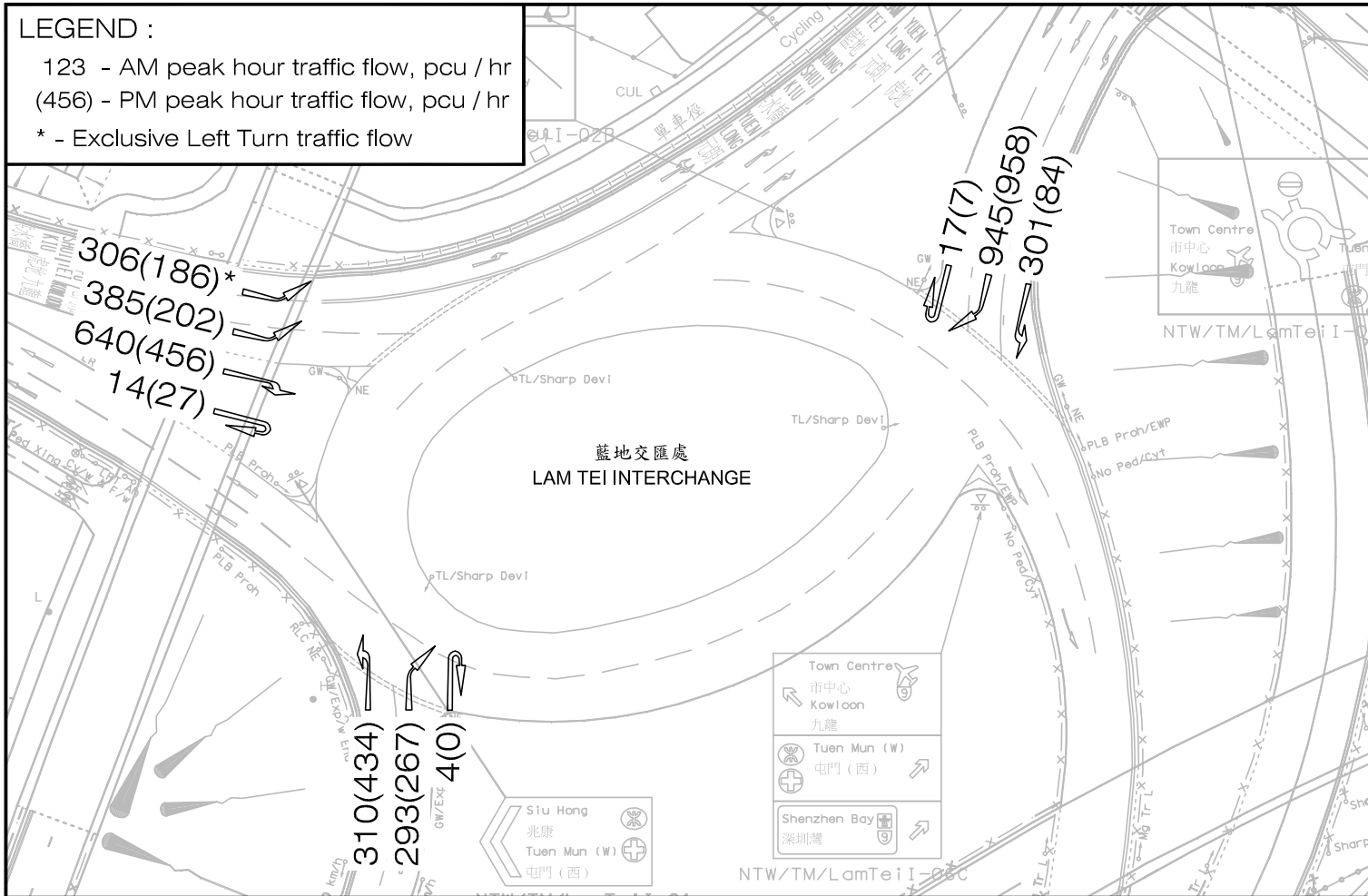
e	Entry Width	4.0 - 15.0 m
v	Approach Half Width	2.0 - 7.3 m
r	Entry Radius	6.0 - 100.0 m
L	Effective Length of Flare	1.0 - 100.0 m
D	Inscribed Circle Diameter	15 - 100 m
∅	Entry Angle	10° - 60°
S	Sharpness of Flare	0.0 - 3.0

Ratio-of-Flow to Capacity (RFC)

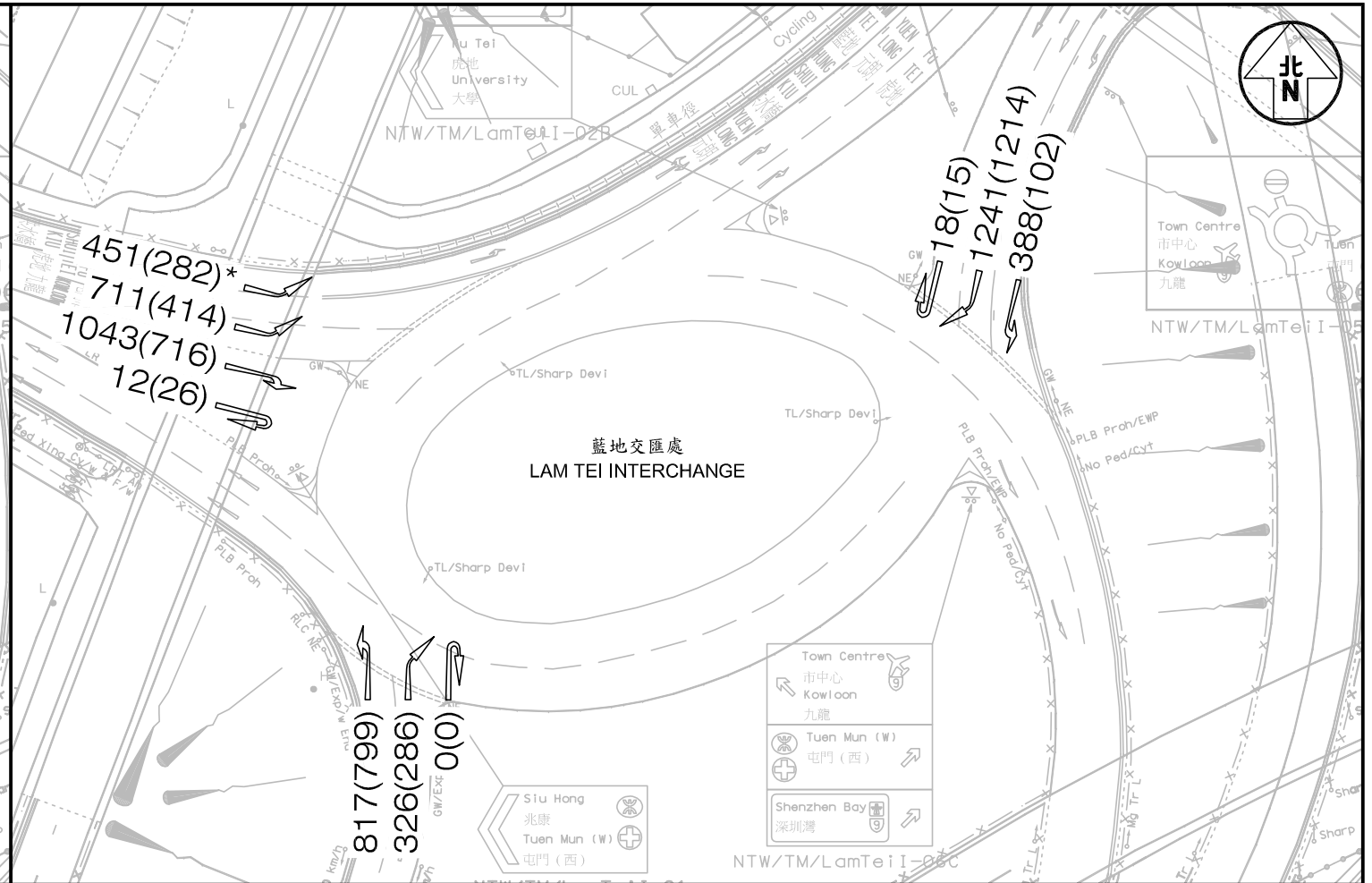
Arm	x ₂	M	t _D	K	F	f _c	Q _E				RFC	
							AM	PM	AM	PM	AM	PM
From A	7.300	0.407	1.355	1.052	2212	0.700	1524	1745	1291	1324	0.847	0.759
From B	7.877	0.407	1.355	1.048	2387	0.733	1500	1464	1164	1137	0.776	0.777
From C	7.438	0.407	1.355	1.084	2254	0.708	2180	2213	1830	1209	0.839	0.546
From D												
From E												
From F												
From G												
From H												

J5 - Lam Tei Interchange

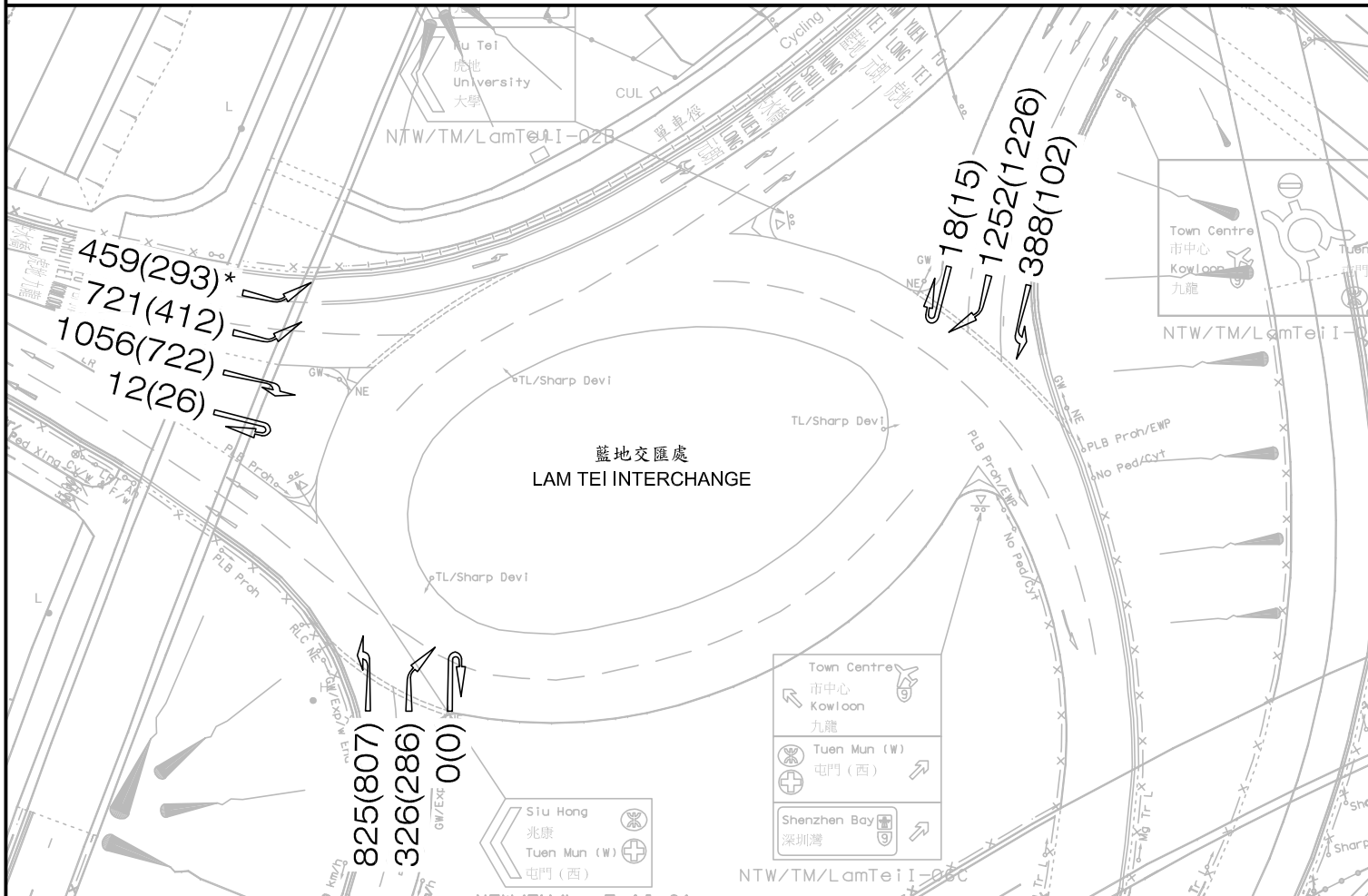
LEGEND :
 123 - AM peak hour traffic flow, pcu / hr
 (456) - PM peak hour traffic flow, pcu / hr
 * - Exclusive Left Turn traffic flow



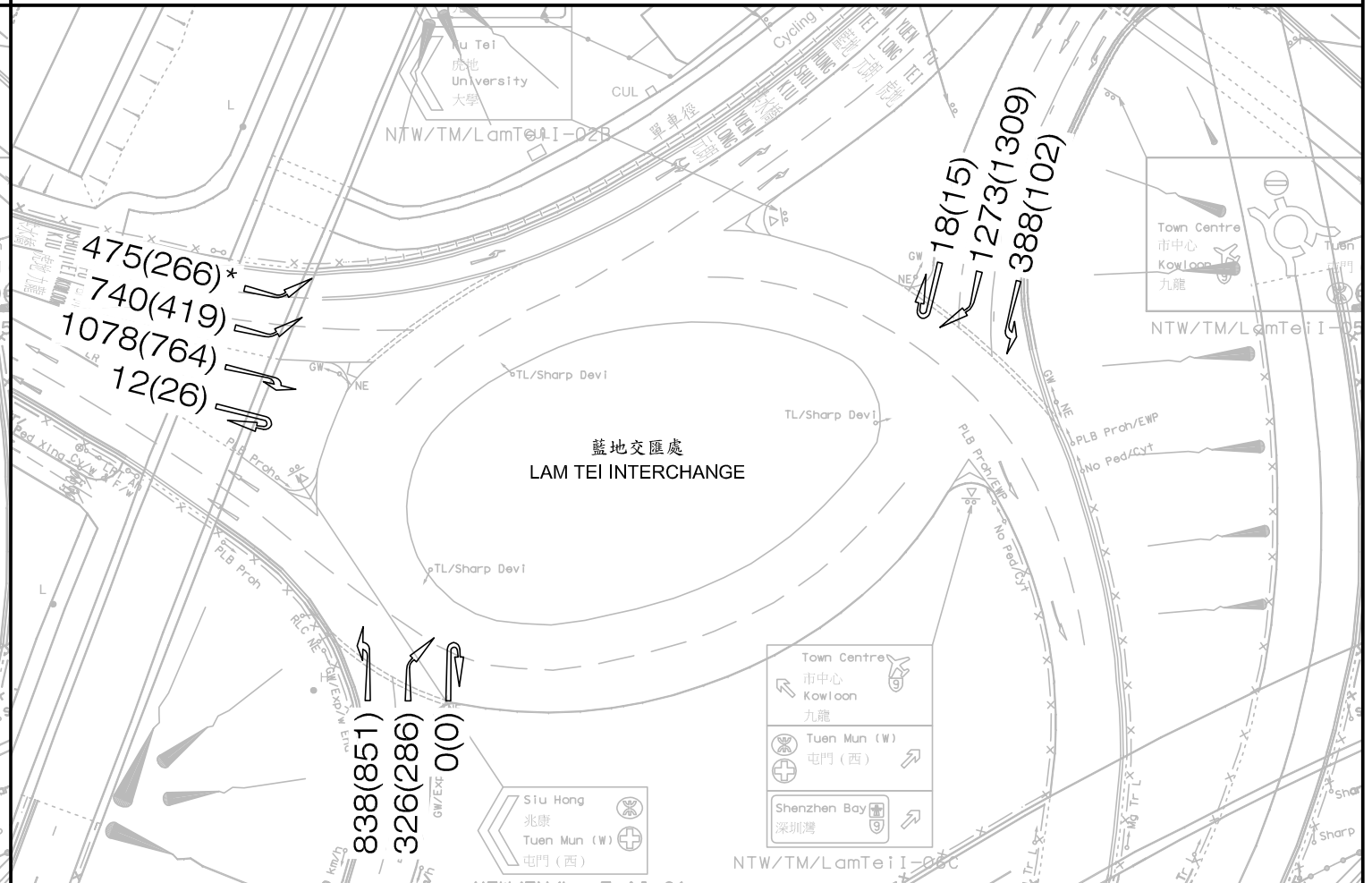
Existing Condition



Year 2033 without Proposed Development



Year 2033 with Approved Scheme



Year 2033 with Proposed Development

scale 1:750 (A3)

Signal Junction Analysis

Junction: <u>Lam Tei Interchange / Castle Peak Road – Lam Tei</u>											Job Number: <u>J7265</u>																									
Scenario: <u>Existing Condition</u>											P. 21																									
Design Year: <u>2023</u>			Designed By: _____				Checked By: _____				Date: <u>03 Oct 2024</u>																									
Approach	Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	Turning %	AM Peak				PM Peak																									
							Sat. Flow (pcu/hr)	Flow (pcu/hr)	y value	Critical y	Turning %	Sat. Flow (pcu/hr)	Flow (pcu/hr)	y value	Critical y																					
Castle Peak Road -Lam Tei SB	LT	A1	1,4	3.25	80.0	100	1904	364	0.191	0.191	100	1904	249	0.131	0.131																					
	SA	A2	1,4	3.25			2080	157	0.075			2080	132	0.063																						
	SA+RT	A3	1	3.25	22.5	64	1995	151	0.076		55	2006	128	0.064																						
	RT	A4	1	3.25	20.0	100	1935	146	0.075		100	1935	123	0.064																						
Slip Road from Lam Tei Interchange	LT	B1	2,3	3.50	8.0	100	1655	163	0.099		100	1655	116	0.070																						
	LT+RT	B2	2,3	3.50	30.0	100	2005	281	0.140		100	2005	202	0.101																						
	RT	B3	2,3	3.50	26.0	100	1990	278	0.140	0.140	100	1990	200	0.100	0.100																					
	RT	B4	2,3	3.50	23.0	100	1976	280	0.142		100	1976	145	0.073																						
Castle Peak Road NB	LT	C1	3,4	3.50	14.0	100	1775	486	0.274		100	1775	407	0.229																						
	LT	C2	3,4	3.50	19.0	100	1951	534	0.274		100	1951	448	0.230																						
	SA	D1	4	3.50			2105	137	0.065			2105	223	0.106																						
	SA	D2	4	3.50			2105	137	0.065			2105	223	0.106																						
pedestrian phase	E _(P)	1,3			min crossing time =	6	sec GM +	12	sec FGM =	18	sec																									
	F _(P)	1			min crossing time =	5	sec GM +	7	sec FGM =	12	sec																									
	G _(P)	2			min crossing time =	6	sec GM +	11	sec FGM =	17	sec																									
	H _(P)	2			min crossing time =	5	sec GM +	9	sec FGM =	14	sec																									
AM Traffic Flow (pcu/hr)		N		PM Traffic Flow (pcu/hr)		N		Note:																												
								$S = 1940 + 100 (W-3.25)$ $S = 2080 + 100 (W-3.25)$ $SM = S / (1 + 1.5 f/r)$ $SM = (S - 230) / (1 + 1.5 f/r)$																												
								<table border="1"> <thead> <tr> <th></th> <th>AM Peak</th> <th>PM Peak</th> </tr> </thead> <tbody> <tr> <td>1,4+2,3</td> <td></td> <td>1,4+2,3</td> </tr> <tr> <td>Sum y</td> <td>0.331</td> <td>0.231</td> </tr> <tr> <td>L (s)</td> <td>21</td> <td>21</td> </tr> <tr> <td>C (s)</td> <td>110</td> <td>110</td> </tr> <tr> <td>practical y</td> <td>0.728</td> <td>0.728</td> </tr> <tr> <td>R.C. (%)</td> <td>120%</td> <td>215%</td> </tr> </tbody> </table>			AM Peak	PM Peak	1,4+2,3		1,4+2,3	Sum y	0.331	0.231	L (s)	21	21	C (s)	110	110	practical y	0.728	0.728	R.C. (%)	120%	215%						
	AM Peak	PM Peak																																		
1,4+2,3		1,4+2,3																																		
Sum y	0.331	0.231																																		
L (s)	21	21																																		
C (s)	110	110																																		
practical y	0.728	0.728																																		
R.C. (%)	120%	215%																																		
1		2		3		4		5																												
AM		G = I/G = 15		G = I/G = 15		G = I/G = 8		G = I/G = 7		G = I/G = 7		G = I/G = 7		G = I/G = 7																						
PM		G = I/G = 15		G = I/G = 15		G = I/G = 8		G = I/G = 7		G = I/G = 7		G = I/G = 7		G = I/G = 7																						

Signal Junction Analysis

Junction: Lam Tei Interchange / Castle Peak Road – Lam Tei Job Number: J7265
 Scenario: Without Development P. 22
 Design Year: 2033 Designed By: _____ Checked By: _____ Date: 03 Oct 2024

Approach	Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	Turning %	AM Peak				PM Peak				
							Sat. Flow (pcu/hr)	Flow (pcu/hr)	y value	Critical y	Turning %	Sat. Flow (pcu/hr)	Flow (pcu/hr)	y value	Critical y
Castle Peak Road SB	LT	A1	1,4	3.50	80.0	100	1929	448	0.232		100	1929	276	0.143	
	SA+RT	A2	1	3.50	30.0	0	2105	291	0.138	0.138	0	2105	233	0.111	0.111
	RT	A3	1	3.50	25.0	100	1986	167	0.084		100	1986	119	0.060	
	RT	A4	1	3.50	20.0	100	1958	165	0.084		100	1958	117	0.060	
Slip Road from	LT+(To YL Hwy)RT	B2	2,3	3.50	30.0	100	2105	585	0.278		100	2005	405	0.202	0.202
Lam Tei Interchange	(To YL Hwy) RT	B3	2,3	3.50	25.0	100	1986	552	0.278		100	2086	421	0.202	
	(To CPR) RT	B4	2,3	3.50	20.0	100	1958	369	0.188		100	1958	170	0.087	
Castle Peak Road NB	LT	C1	3,4	3.50	14.0	100	1775	625	0.352	0.352	100	1775	522	0.294	
	LT	C2	3,4	3.50	19.0	100	1951	688	0.353		100	1951	573	0.294	
	SA	D1	4	3.50			2105	222	0.105			2105	333	0.158	0.158
	SA	D2	4	3.50			2105	222	0.105			2105	333	0.158	
pedestrian phase	D _(P)	1			min crossing time =	6	sec GM +	12	sec FGM =	18	sec				
	E _(P)	1,4			min crossing time =	5	sec GM +	7	sec FGM =	12	sec				
	F _(P)	2			min crossing time =	6	sec GM +	11	sec FGM =	17	sec				
	G _(P)	2,3			min crossing time =	5	sec GM +	9	sec FGM =	14	sec				

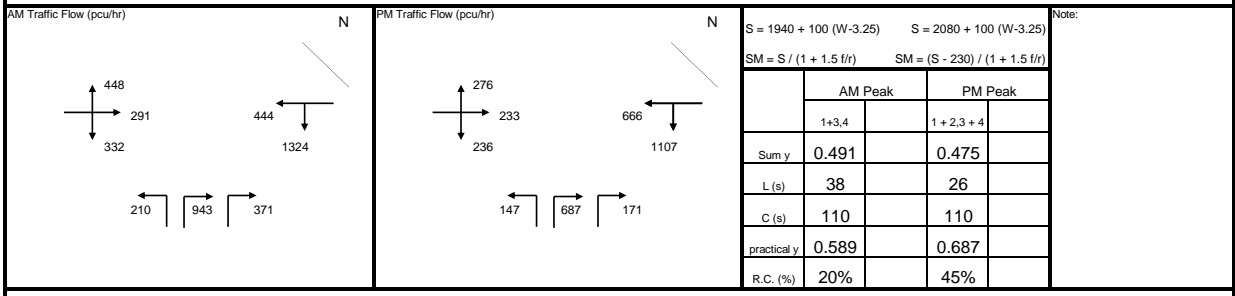
AM Traffic Flow (pcu/hr)	PM Traffic Flow (pcu/hr)	Note:																					
		$S = 1940 + 100 (W-3.25)$ $S = 2080 + 100 (W-3.25)$ $SM = S / (1 + 1.5 f/r)$ $SM = (S - 230) / (1 + 1.5 f/r)$																					
		<table border="1"> <thead> <tr> <th></th> <th>AM Peak</th> <th>PM Peak</th> </tr> </thead> <tbody> <tr> <td>1+3,4</td> <td></td> <td>1+2,3+4</td> </tr> <tr> <td>Sum y</td> <td>0.490</td> <td>0.471</td> </tr> <tr> <td>L (s)</td> <td>38</td> <td>26</td> </tr> <tr> <td>C (s)</td> <td>110</td> <td>110</td> </tr> <tr> <td>practical y</td> <td>0.589</td> <td>0.687</td> </tr> <tr> <td>R.C. (%)</td> <td>20%</td> <td>46%</td> </tr> </tbody> </table>		AM Peak	PM Peak	1+3,4		1+2,3+4	Sum y	0.490	0.471	L (s)	38	26	C (s)	110	110	practical y	0.589	0.687	R.C. (%)	20%	46%
	AM Peak	PM Peak																					
1+3,4		1+2,3+4																					
Sum y	0.490	0.471																					
L (s)	38	26																					
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R.C. (%)	20%	46%																					

1	2	3	4	5
AM G = I/G = 15 G = 7 I/G = 11 G = I/G = 7 G = I/G = 7 G =				
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Signal Junction Analysis

Junction: Lam Tei Interchange / Castle Peak Road – Lam Tei Job Number: J7265
 Scenario: With Approved Scheme P. 23
 Design Year: 2033 Designed By: _____ Checked By: _____ Date: 03 Oct 2024

Approach	Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	Turning %	Sat. Flow (pcu/hr)	AM Peak			PM Peak					
								Flow (pcu/hr)	y value	Critical y	Turning %	Sat. Flow (pcu/hr)	Flow (pcu/hr)	y value	Critical y	
Castle Peak Road SB	LT	A1	1,4	3.50	80.0		100	1929	448	0.232		100	1929	276	0.143	
	SA+RT	A2	1	4.00	85.0		0	2155	291	0.135	0.135	0	2155	233	0.108	0.108
	RT	A3	1	3.50	25.0		100	1986	167	0.084		100	1986	119	0.060	
	RT	A4	1	3.50	20.0		100	1958	165	0.084		100	1958	117	0.060	
Slip Road from	LT+(To YL Hwy)RT	B2	2,3	3.50	30.0		100	2105	593	0.282		100	2005	419	0.209	0.209
Lam Tei Interchange	(To YL Hwy) RT	B3	2,3	3.50	25.0		100	1986	560	0.282		100	1986	415	0.209	
	(To CPR) RT	B4	2,3	3.50	20.0		100	1958	371	0.189		100	1958	171	0.087	
Castle Peak Road NB	LT	C1	3,4	3.50	14.0		100	1775	631	0.356	0.356	100	1775	527	0.297	
	LT	C2	3,4	3.50	19.0		100	1951	693	0.355		100	1951	580	0.297	
	SA	D1	4	3.50				2105	222	0.105			2105	333	0.158	0.158
	SA	D2	4	3.50				2105	222	0.105			2105	333	0.158	
pedestrian phase	E _(P)	1				min crossing time =	6	sec GM +	12	sec FGM =	18	sec				
	F _(P)	1,4				min crossing time =	5	sec GM +	7	sec FGM =	12	sec				
	G _(P)	2				min crossing time =	6	sec GM +	11	sec FGM =	17	sec				
	H _(P)	2,3				min crossing time =	5	sec GM +	9	sec FGM =	14	sec				



1	2	3	4	5
AM	G = I/G = 15	G = 7 I/G = 11	G = I/G = 7	G = I/G = 7
AM	G = I/G = 15	G = 7 I/G = 11	G = I/G = 7	G = I/G = 7

Signal Junction Analysis

Junction: <u>Lam Tei Interchange / Castle Peak Road – Lam Tei</u>										Job Number: <u>J7265</u>					
Scenario: <u>With Proposed Scheme</u>										P. <u>24</u>					
Design Year: <u>2033</u>			Designed By: _____			Checked By: _____			Date: <u>03 Oct 2024</u>						
Approach	Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	Turning %	AM Peak				PM Peak				
							Sat. Flow (pcu/hr)	Flow (pcu/hr)	y value	Critical y	Turning %	Sat. Flow (pcu/hr)	Flow (pcu/hr)	y value	Critical y
Castle Peak Road SB	LT	A1	1,4	3.50	80.0	100	1929	448	0.232		100	1929	276	0.143	
	SA+RT	A2	1	4.00	85.0	0	2155	291	0.135	0.135	0	2155	233	0.108	0.108
	RT	A3	1	3.50	25.0	100	1986	170	0.086		100	1986	121	0.061	
	RT	A4	1	3.50	20.0	100	1958	167	0.085		100	1958	120	0.061	
Slip Road from	LT+(To YL Hwy)RT	B2	2,3	3.50	30.0	100	2105	610	0.290		100	2005	426	0.212	
Lam Tei Interchange	(To YL Hwy) RT	B3	2,3	3.50	25.0	100	1986	575	0.290		100	1986	421	0.212	0.212
	(To CPR) RT	B4	2,3	3.50	20.0	100	1958	374	0.191		100	1958	172	0.088	
Castle Peak Road NB	LT	C1	3,4	3.50	14.0	100	1775	638	0.359	0.359	100	1775	533	0.300	
	LT	C2	3,4	3.50	19.0	100	1951	702	0.360		100	1951	586	0.300	
	SA	D1	4	3.50			2105	222	0.105			2105	333	0.158	0.158
	SA	D2	4	3.50			2105	222	0.105			2105	333	0.158	
pedestrian phase	E _(P)	1						min crossing time = 6	sec GM + 12				sec FGM = 18	sec	
	F _(P)	1,4						min crossing time = 5	sec GM + 7				sec FGM = 12	sec	
	G _(P)	2						min crossing time = 6	sec GM + 11				sec FGM = 17	sec	
	H _(P)	2,3						min crossing time = 5	sec GM + 9				sec FGM = 14	sec	
AM Traffic Flow (pcu/hr)		PM Traffic Flow (pcu/hr)		Note:		S = 1940 + 100 (W-3.25)		S = 2080 + 100 (W-3.25)		SM = S / (1 + 1.5 f/r)		SM = (S - 230) / (1 + 1.5 f/r)			
						AM Peak		PM Peak							
						1+3,4		1+2,3+4							
						Sum y		0.495		0.478					
						L (s)		38		26					
						C (s)		110		110					
						practical y		0.589		0.687					
						R.C. (%)		19%		44%					
1		2		3		4		5							
AM		AM		AM		AM		AM							
G =		I/G = 15		G = 7		I/G = 11		G =		I/G = 7		G =		G =	
G =		I/G = 15		G =		I/G =		G =		I/G = 7		G =		I/G = 7	
AM		AM		AM		AM		AM							
G =		I/G = 15		G =		I/G =		G =		I/G = 7		G =		I/G = 7	
G =		I/G = 15		G = 7		I/G = 11		G =		I/G = 7		G =		I/G = 7	

Signal Junction Analysis

Junction: <u>Tsing Lun Road/ Tsz Tin Road</u>												Job Number: <u>J7265</u>																														
Scenario: <u>Existing Condition</u>												P. 25																														
Design Year: <u>2023</u>			Designed By: _____			Checked By: _____			Date: <u>03 Oct 2024</u>																																	
Approach	Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	Turning %	Sat. Flow (pcu/hr)	AM Peak			PM Peak																															
								Flow (pcu/hr)	y value	Critical y	Turning %	Sat. Flow (pcu/hr)	Flow (pcu/hr)	y value	Critical y																											
Tsing Lun Road SB	LT+SA	A1	1	3.65	13.0		5	1969	488	0.248	0.248	12	1953	337	0.173																											
	RT	A2	1	3.65	15.0		100	1927	392	0.203		100	2120	446	0.210	0.210																										
Tsing Lun Road NB	LT+SA	C1	2	3.30	23.0		38	1898	116	0.061	0.061	34	1903	120	0.063	0.063																										
	SA	C2	2	3.40				2095	127	0.061			2095	133	0.063																											
	RT	C3	2	3.40	15.0		100	1905	8	0.004		100	1905	18	0.009																											
Access Road to	LT+SA+RT	D1	3	3.50	15.0		89	1804	70	0.039	0.039	87	1808	60	0.033	0.033																										
Siu Hong Court WB																																										
Tsz Tin Road EB	LT	B1	4	3.38	10.0		100	1698	180	0.106	0.106	100	1698	115	0.068	0.068																										
	LT+SA+RT	B2	4	3.37	15.0		98	1905	201	0.105		94	2092	142	0.068																											
pedestrian phase	E _(P)	2				min crossing time =	5	sec GM +	10	sec FGM =	15	sec																														
	F _(P)	3				min crossing time =	5	sec GM +	6	sec FGM =	11	sec																														
AM Traffic Flow (pcu/hr)												PM Traffic Flow (pcu/hr)					Note:																									
																	$S = 1940 + 100 (W-3.25)$ $S = 2080 + 100 (W-3.25)$ $SM = S / (1 + 1.5 f/r)$ $SM = (S - 230) / (1 + 1.5 f/r)$																									
												<table border="1"> <thead> <tr> <th></th> <th>AM Peak</th> <th>PM Peak</th> </tr> </thead> <tbody> <tr> <td>1+2+3+4</td> <td></td> <td>1+2+3+4</td> </tr> <tr> <td>Sum y</td> <td>0.454</td> <td>0.374</td> </tr> <tr> <td>L (s)</td> <td>24</td> <td>24</td> </tr> <tr> <td>C (s)</td> <td>118</td> <td>118</td> </tr> <tr> <td>practical y</td> <td>0.717</td> <td>0.717</td> </tr> <tr> <td>R.C. (%)</td> <td>58%</td> <td>92%</td> </tr> </tbody> </table>						AM Peak	PM Peak	1+2+3+4		1+2+3+4	Sum y	0.454	0.374	L (s)	24	24	C (s)	118	118	practical y	0.717	0.717	R.C. (%)	58%	92%					
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PM	G =	I/G = 6	G =	I/G = 6	G =	I/G = 6	G =	I/G = 9	G =	I/G = 7	G =	I/G = 7	G =	I/G = 7	G =	I/G = 7																										

Junction: <u>Tsing Lun Road/ Tsz Tin Road</u>											Job Number: <u>J7265</u>																																																																																
Scenario: <u>Without Development</u>											P. 26																																																																																
Design Year: <u>2033</u>			Designed By: _____				Checked By: _____				Date: <u>03 Oct 2024</u>																																																																																
Approach	Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	Turning %	Sat. Flow (pcu/hr)	AM Peak			PM Peak																																																																																
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Tsing Lun Road SB	LT+SA	A1	1	3.65	13.0		4	1971	760	0.386	0.386	10	1957	486	0.248																																																																												
	RT	A2	1	3.65	15.0		100	1927	622	0.323		100	2120	545	0.257	0.257																																																																											
Tsing Lun Road NB	LT+SA	C1	2	3.30	23.0		53	1880	191	0.102	0.102	66	1865	227	0.122	0.122																																																																											
	SA	C2	2	3.40				2095	212	0.101			2095	255	0.122																																																																												
	RT	C3	2	3.40	15.0		100	1905	10	0.005		100	1905	25	0.013																																																																												
Access Road to	LT+SA+RT	D1	3	3.50	15.0		88	1806	86	0.048	0.048	87	1808	75	0.041	0.041																																																																											
Siu Hong Court WB																																																																																											
Tsz Tin Road EB	LT	B1	4.1	3.38	10.0		100	1698	561	0.330		100	1698	329	0.194																																																																												
	SA+RT	B2	4	3.37	15.0		90	1919	101	0.053	0.053	88	1923	74	0.038	0.038																																																																											
pedestrian phase																																																																																											
	E _(P)	2				min crossing time =	5	sec GM +	10	sec FGM =	15	sec																																																																															
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Signal Junction Analysis

Junction: Tsing Lun Road/ Tsz Tin Road Job Number: J7265
 Scenario: With Approved Scheme P. 27
 Design Year: 2033 Designed By: _____ Checked By: _____ Date: 03 Oct 2024

Approach	Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	Turning %	Sat. Flow (pcu/hr)	AM Peak			PM Peak					
								Flow (pcu/hr)	y value	Critical y	Turning %	Sat. Flow (pcu/hr)	Flow (pcu/hr)	y value	Critical y	
Tsing Lun Road SB	LT+SA	A1	1	3.65	13.0		4	1971	762	0.387	0.387	10	1957	487	0.249	
	RT	A2	1	3.65	15.0		100	1927	622	0.323		100	2120	545	0.257	0.257
Tsing Lun Road NB	LT+SA	C1	2	3.30	23.0		53	1880	191	0.102	0.102	66	1865	227	0.122	0.122
	SA	C2	2	3.40				2095	213	0.102			2095	256	0.122	
	RT	C3	2	3.40	15.0		100	1905	10	0.005		100	1905	25	0.013	
Access Road to	LT+SA+RT	D1	3	3.50	15.0		88	1806	86	0.048	0.048	87	1808	75	0.041	0.041
Siu Hong Court WB																
Tsz Tin Road EB	LT	B1	4.1	3.38	10.0		100	1698	561	0.330		100	1698	329	0.194	
	SA+RT	B2	4	3.37	15.0		90	1919	101	0.053	0.053	88	1923	74	0.038	0.038
pedestrian phase	E _(P)	2				min crossing time =	5	sec GM +	10	sec FGM =	15	sec				
	F _(P)	3				min crossing time =	5	sec GM +	6	sec FGM =	11	sec				

<p>AM Traffic Flow (pcu/hr)</p>	<p>PM Traffic Flow (pcu/hr)</p>	<p>Note:</p> <p>S = 1940 + 100 (W-3.25) S = 2080 + 100 (W-3.25)</p> <p>SM = S / (1 + 1.5 f/r) SM = (S - 230) / (1 + 1.5 f/r)</p> <table border="1"> <thead> <tr> <th></th> <th>AM Peak</th> <th>PM Peak</th> </tr> </thead> <tbody> <tr> <td>1+2+3+4</td> <td></td> <td>1+2+3+4</td> </tr> <tr> <td>Sum y</td> <td>0.588</td> <td>0.459</td> </tr> <tr> <td>L (s)</td> <td>24</td> <td>24</td> </tr> <tr> <td>C (s)</td> <td>118</td> <td>118</td> </tr> <tr> <td>practical y</td> <td>0.717</td> <td>0.717</td> </tr> <tr> <td>R.C. (%)</td> <td>22%</td> <td>56%</td> </tr> </tbody> </table>		AM Peak	PM Peak	1+2+3+4		1+2+3+4	Sum y	0.588	0.459	L (s)	24	24	C (s)	118	118	practical y	0.717	0.717	R.C. (%)	22%	56%
	AM Peak	PM Peak																					
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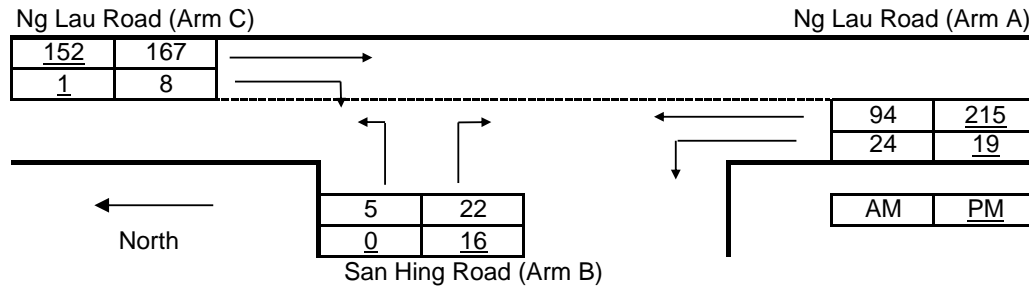
1		2		3		4		5	
AM	G =	I/G = 6	G =	I/G = 6	G =	I/G = 9	G =	I/G = 7	G =
	G =	I/G = 6	G =	I/G = 6	G =	I/G = 9	G =	I/G =	G =
PM	G =	I/G = 6	G =	I/G = 6	G =	I/G = 9	G =	I/G = 7	G =
	G =	I/G = 6	G =	I/G = 6	G =	I/G = 9	G =	I/G =	G =

Signal Junction Analysis

Junction: <u>Tsing Lun Road/ Tsz Tin Road</u>										Job Number: <u>J7265</u>																														
Scenario: <u>With Proposed Scheme</u>										P. <u>28</u>																														
Design Year: <u>2033</u>			Designed By: _____			Checked By: _____			Date: <u>03 Oct 2024</u>																															
Approach	Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	Turning %	Sat. Flow (pcu/hr)	AM Peak			PM Peak																													
								Flow (pcu/hr)	y value	Critical y	Turning %	Sat. Flow (pcu/hr)	Flow (pcu/hr)	y value	Critical y																									
Tsing Lun Road SB	LT+SA	A1	1	3.65	13.0		4	1971	765	0.388	0.388	10	1957	488	0.249																									
	RT	A2	1	3.65	15.0		100	1927	622	0.323		100	2120	545	0.257	0.257																								
Tsing Lun Road NB	LT+SA	C1	2	3.30	23.0		53	1880	192	0.102	0.102	66	1865	228	0.122	0.122																								
	SA	C2	2	3.40				2095	214	0.102			2095	257	0.123																									
	RT	C3	2	3.40	15.0		100	1905	10	0.005		100	1905	25	0.013																									
Access Road to Siu Hong Court WB	LT+SA+RT	D1	3	3.50	15.0		88	1806	86	0.048	0.048	87	1808	75	0.041	0.041																								
Tsz Tin Road EB	LT	B1	4,1	3.38	10.0		100	1698	561	0.330		100	1698	329	0.194																									
	SA+RT	B2	4	3.37	15.0		90	1919	101	0.053	0.053	88	1923	74	0.038	0.038																								
pedestrian phase	E _(P)	2				min crossing time =	5	sec GM +	10	sec FGM =	15	sec																												
	F _(P)	3				min crossing time =	5	sec GM +	6	sec FGM =	11	sec																												
AM Traffic Flow (pcu/hr)										PM Traffic Flow (pcu/hr)																														
$S = 1940 + 100 (W-3.25)$ $S = 2080 + 100 (W-3.25)$										$SM = S / (1 + 1.5 f/r)$ $SM = (S - 230) / (1 + 1.5 f/r)$																														
										<table border="1"> <thead> <tr> <th></th> <th>AM Peak</th> <th>PM Peak</th> </tr> </thead> <tbody> <tr> <td>1+2+3+4</td> <td></td> <td></td> </tr> <tr> <td>Sum y</td> <td>0.591</td> <td>0.459</td> </tr> <tr> <td>L (s)</td> <td>24</td> <td>24</td> </tr> <tr> <td>C (s)</td> <td>118</td> <td>118</td> </tr> <tr> <td>practical y</td> <td>0.717</td> <td>0.717</td> </tr> <tr> <td>R.C. (%)</td> <td>21%</td> <td>56%</td> </tr> </tbody> </table>											AM Peak	PM Peak	1+2+3+4			Sum y	0.591	0.459	L (s)	24	24	C (s)	118	118	practical y	0.717	0.717	R.C. (%)	21%	56%
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I/G = 6										I/G = 6																														

Priority Junction Analysis

Junction:	San Hing Road / Ng Lau Road (Southern)		
Design Year:	2023	Job Number:	J7265
Scenario:	Existing Condition	Date:	03 Oct 2024
			P. 29



The predictive equations of capacity of movement are:

$$Q\text{-BA} = D[627 + 14W\text{-CR} - Y(0.364q\text{-AC} + 0.144q\text{-AB} + 0.229q\text{-CA} + 0.52q\text{-CB})]$$

$$Q\text{-BC} = E[745 - Y(0.364q\text{-AC} + 0.144q\text{-AB})]$$

$$Q\text{-CB} = F[745 - 0.364Y(q\text{-AC} + q\text{-AB})]$$

The geometric parameters represented by D, E, F are:

$$D = [1 + 0.094(w\text{-BA} - 3.65)][1 + 0.0009(V\text{-rBA} - 120)][1 + 0.0006(V\text{-lBA} - 150)]$$

$$E = [1 + 0.094(w\text{-BC} - 3.65)][1 + 0.0009(V\text{-rBC} - 120)]$$

$$F = [1 + 0.094(w\text{-CB} - 3.65)][1 + 0.0009(V\text{-rCB} - 120)]$$

where $Y = 1 - 0.0345W$

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-lBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input		Input		Input		Calculated	
	W	6.65	V-rBA	23	w-BA	2.40	D	0.7441
	W-CR	0.00	V-lBA	23	w-BC	2.40	E	0.8078
			V-rBC	26	w-CB	3.00	F	0.8857
			V-lCB	57			Y	0.7706

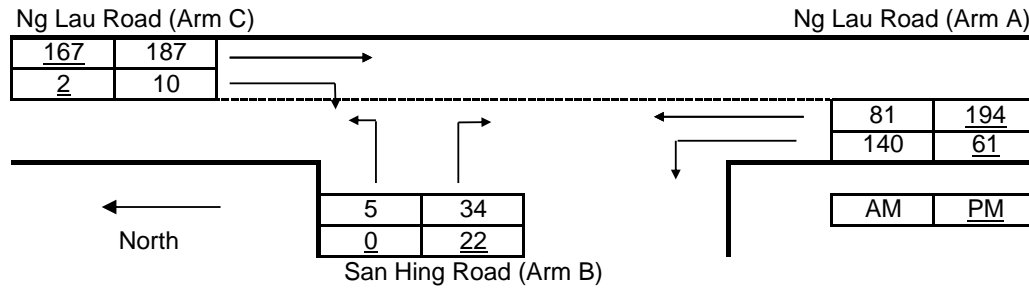
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr		AM	PM
q-CA	167	152	Q-BA		421	400
q-CB	8	1	Q-BC		578	551
q-AB	24	19	Q-CB		631	602
q-AC	94	215	Q-BAC		443	400
q-BA	22	16				
q-BC	5	0				
f	0.185	0.000				

Ratio-of-flow to Capacity	AM	PM
B-A	0.052	0.040
B-C	0.009	0.000
C-B	0.013	0.002
B-AC	0.061	0.040

Priority Junction Analysis

Junction:	San Hing Road / Ng Lau Road (Southern)		
Design Year:	2033	Job Number:	J7265
Scenario:	Without Development	Date:	03 Oct 2024
			P. 30



The predictive equations of capacity of movement are:

$$Q\text{-BA} = D[627 + 14W\text{-CR} - Y(0.364q\text{-AC} + 0.144q\text{-AB} + 0.229q\text{-CA} + 0.52q\text{-CB})]$$

$$Q\text{-BC} = E[745 - Y(0.364q\text{-AC} + 0.144q\text{-AB})]$$

$$Q\text{-CB} = F[745 - 0.364Y(q\text{-AC} + q\text{-AB})]$$

The geometric parameters represented by D, E, F are:

$$D = [1 + 0.094(w\text{-BA} - 3.65)][1 + 0.0009(V\text{-rBA} - 120)][1 + 0.0006(V\text{-lBA} - 150)]$$

$$E = [1 + 0.094(w\text{-BC} - 3.65)][1 + 0.0009(V\text{-rBC} - 120)]$$

$$F = [1 + 0.094(w\text{-CB} - 3.65)][1 + 0.0009(V\text{-rCB} - 120)]$$

where $Y = 1 - 0.0345W$

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-lBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input		Input		Input		Calculated	
	W	6.65	V-rBA	23	w-BA	2.40	D	0.7441
	W-CR	0.00	V-lBA	23	w-BC	2.40	E	0.8078
			V-rBC	26	w-CB	3.00	F	0.8857
			V-lCB	57			Y	0.7706

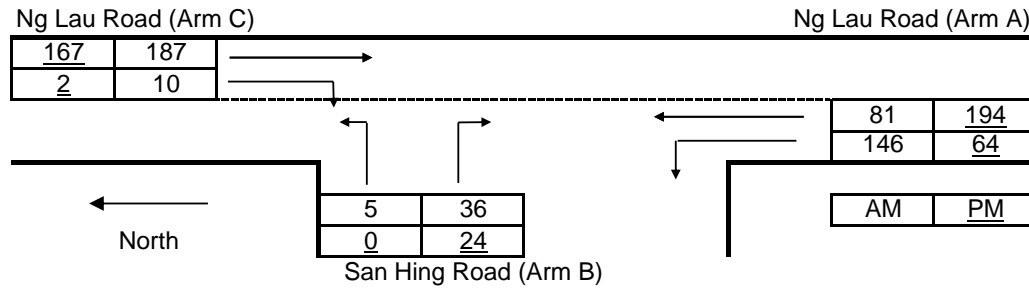
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr		AM	PM
q-CA	187	167	Q-BA		411	398
q-CB	10	2	Q-BC		571	552
q-AB	140	61	Q-CB		605	596
q-AC	81	194	Q-BAC		426	398
q-BA	34	22				
q-BC	5	0				
f	0.128	0.000				

Ratio-of-flow to Capacity	AM	PM
B-A	0.083	0.055
B-C	0.009	0.000
C-B	0.017	0.003
B-AC	0.092	0.055

Priority Junction Analysis

Junction:	San Hing Road / Ng Lau Road (Southern)		
Design Year:	2033	Job Number:	J7265
Scenario:	With Approved Scheme	Date:	03 Oct 2024
			P. 31



The predictive equations of capacity of movement are:

$$Q\text{-BA} = D[627 + 14W\text{-CR} - Y(0.364q\text{-AC} + 0.144q\text{-AB} + 0.229q\text{-CA} + 0.52q\text{-CB})]$$

$$Q\text{-BC} = E[745 - Y(0.364q\text{-AC} + 0.144q\text{-AB})]$$

$$Q\text{-CB} = F[745 - 0.364Y(q\text{-AC} + q\text{-AB})]$$

The geometric parameters represented by D, E, F are:

$$D = [1 + 0.094(w\text{-BA} - 3.65)][1 + 0.0009(V\text{-rBA} - 120)][1 + 0.0006(V\text{-IBA} - 150)]$$

$$E = [1 + 0.094(w\text{-BC} - 3.65)][1 + 0.0009(V\text{-rBC} - 120)]$$

$$F = [1 + 0.094(w\text{-CB} - 3.65)][1 + 0.0009(V\text{-rCB} - 120)]$$

where $Y = 1 - 0.0345W$

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-IBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input		Input		Input		Calculated	
	W	6.65	V-rBA	23	w-BA	2.40	D	0.7441
	W-CR	0.00	V-IBA	23	w-BC	2.40	E	0.8078
			V-rBC	26	w-CB	3.00	F	0.8857
			V-rCB	57			Y	0.7706

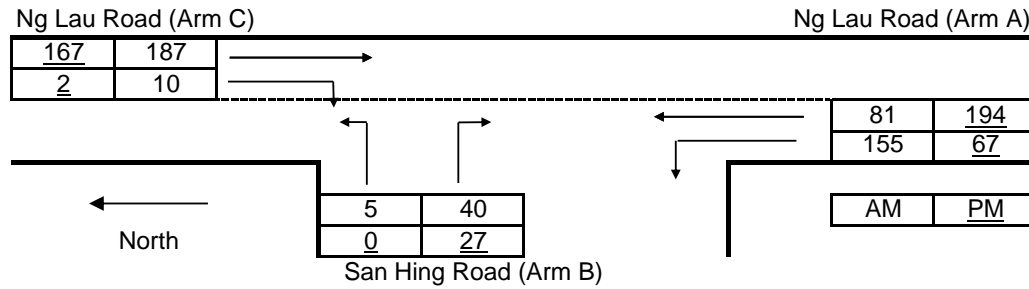
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr		AM	PM
q-CA	187	167	Q-BA		410	398
q-CB	10	2	Q-BC		570	552
q-AB	146	64	Q-CB		603	596
q-AC	81	194	Q-BAC		425	398
q-BA	36	24				
q-BC	5	0				
f	0.122	0.000				

Ratio-of-flow to Capacity	AM	PM
B-A	0.088	0.060
B-C	0.009	0.000
C-B	0.017	0.003
B-AC	0.097	0.060

Priority Junction Analysis

Junction:	San Hing Road / Ng Lau Road (Southern)		
Design Year:	2033	Job Number:	J7265
Scenario:	With Proposed Scheme	Date:	03 Oct 2024
			P. 32



The predictive equations of capacity of movement are:

$$Q\text{-BA} = D[627 + 14W\text{-CR} - Y(0.364q\text{-AC} + 0.144q\text{-AB} + 0.229q\text{-CA} + 0.52q\text{-CB})]$$

$$Q\text{-BC} = E[745 - Y(0.364q\text{-AC} + 0.144q\text{-AB})]$$

$$Q\text{-CB} = F[745 - 0.364Y(q\text{-AC} + q\text{-AB})]$$

The geometric parameters represented by D, E, F are:

$$D = [1 + 0.094(w\text{-BA} - 3.65)][1 + 0.0009(V\text{-rBA} - 120)][1 + 0.0006(V\text{-IBA} - 150)]$$

$$E = [1 + 0.094(w\text{-BC} - 3.65)][1 + 0.0009(V\text{-rBC} - 120)]$$

$$F = [1 + 0.094(w\text{-CB} - 3.65)][1 + 0.0009(V\text{-rCB} - 120)]$$

where $Y = 1 - 0.0345W$

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-IBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input		Input		Input		Calculated	
	W	6.65	V-rBA	23	w-BA	2.40	D	0.7441
	W-CR	0.00	V-IBA	23	w-BC	2.40	E	0.8078
			V-rBC	26	w-CB	3.00	F	0.8857
			V-rCB	57			Y	0.7706

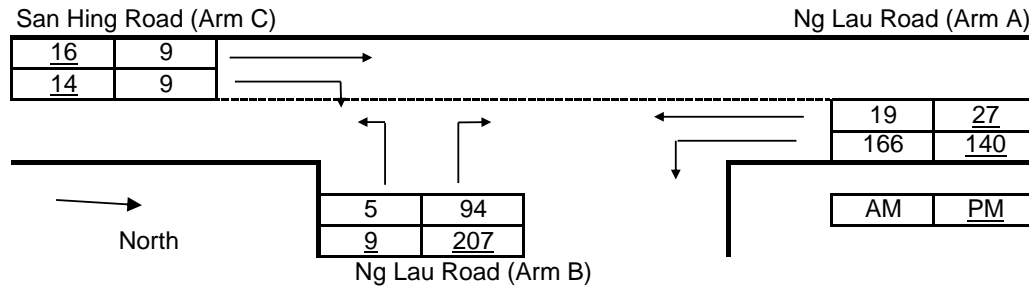
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr		AM	PM
q-CA	187	167	Q-BA		409	398
q-CB	10	2	Q-BC		570	552
q-AB	155	67	Q-CB		601	595
q-AC	81	194	Q-BAC		423	398
q-BA	40	27				
q-BC	5	0				
f	0.111	0.000				

Ratio-of-flow to Capacity	AM	PM
B-A	0.098	0.068
B-C	0.009	0.000
C-B	0.017	0.003
B-AC	0.107	0.068

Priority Junction Analysis

Junction:	San Hing Road / Ng Lau Road (Northern)		
Design Year:	2023	Job Number:	J7265
Scenario:	Existing Condition	Date:	03 Oct 2024
			P. 33



The predictive equations of capacity of movement are:

$$Q\text{-BA} = D[627 + 14W\text{-CR} - Y(0.364q\text{-AC} + 0.144q\text{-AB} + 0.229q\text{-CA} + 0.52q\text{-CB})]$$

$$Q\text{-BC} = E[745 - Y(0.364q\text{-AC} + 0.144q\text{-AB})]$$

$$Q\text{-CB} = F[745 - 0.364Y(q\text{-AC} + q\text{-AB})]$$

The geometric parameters represented by D, E, F are:

$$D = [1 + 0.094(w\text{-BA} - 3.65)][1 + 0.0009(V\text{-rBA} - 120)][1 + 0.0006(V\text{-IBA} - 150)]$$

$$E = [1 + 0.094(w\text{-BC} - 3.65)][1 + 0.0009(V\text{-rBC} - 120)]$$

$$F = [1 + 0.094(w\text{-CB} - 3.65)][1 + 0.0009(V\text{-rCB} - 120)]$$

where $Y = 1 - 0.0345W$

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-IBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input		Input		Input		Calculated	
	W	6.63	V-rBA	45	w-BA	1.90	D	0.7207
	W-CR	0.00	V-IBA	25	w-BC	1.90	E	0.7768
			V-rBC	42	w-CB	3.50	F	0.9344
			V-rCB	62			Y	0.7714

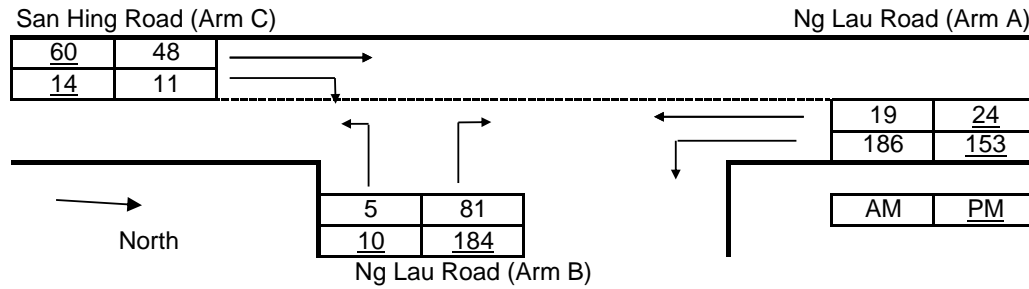
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr	AM	PM
q-CA	9	16	Q-BA	431	429
q-CB	9	14	Q-BC	560	561
q-AB	166	140	Q-CB	648	652
q-AC	19	27	Q-BAC	436	433
q-BA	94	207			
q-BC	5	9			
f	0.051	0.042			

Ratio-of-flow to Capacity	AM	PM
B-A	0.218	0.482
B-C	0.009	0.016
C-B	0.014	0.021
B-AC	0.227	0.498

Priority Junction Analysis

Junction:	San Hing Road / Ng Lau Road (Northern)		
Design Year:	2033	Job Number:	J7265
Scenario:	Without Development	Date:	03 Oct 2024
			P. 34



The predictive equations of capacity of movement are:

$$Q\text{-BA} = D[627 + 14W\text{-CR} - Y(0.364q\text{-AC} + 0.144q\text{-AB} + 0.229q\text{-CA} + 0.52q\text{-CB})]$$

$$Q\text{-BC} = E[745 - Y(0.364q\text{-AC} + 0.144q\text{-AB})]$$

$$Q\text{-CB} = F[745 - 0.364Y(q\text{-AC} + q\text{-AB})]$$

The geometric parameters represented by D, E, F are:

$$D = [1 + 0.094(w\text{-BA} - 3.65)][1 + 0.0009(V\text{-rBA} - 120)][1 + 0.0006(V\text{-IBA} - 150)]$$

$$E = [1 + 0.094(w\text{-BC} - 3.65)][1 + 0.0009(V\text{-rBC} - 120)]$$

$$F = [1 + 0.094(w\text{-CB} - 3.65)][1 + 0.0009(V\text{-rCB} - 120)]$$

where $Y = 1 - 0.0345W$

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-IBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input		Input		Input		Calculated	
	W	6.63	V-rBA	45	w-BA	1.90	D	0.7207
	W-CR	0.00	V-IBA	25	w-BC	1.90	E	0.7768
			V-rBC	42	w-CB	3.50	F	0.9344
			V-rCB	62			Y	0.7714

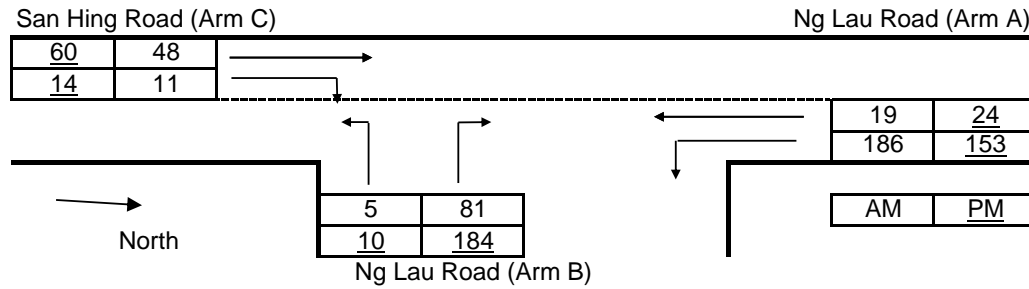
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr		AM	PM
q-CA	48	60	Q-BA		424	423
q-CB	11	14	Q-BC		559	560
q-AB	186	153	Q-CB		642	650
q-AC	19	24	Q-BAC		430	428
q-BA	81	184				
q-BC	5	10				
f	0.058	0.052				

Ratio-of-flow to Capacity	AM	PM
B-A	0.191	0.435
B-C	0.009	0.018
C-B	0.017	0.022
B-AC	0.200	0.453

Priority Junction Analysis

Junction:	San Hing Road / Ng Lau Road (Northern)		
Design Year:	2033	Job Number:	J7265
Scenario:	With Approved Scheme	Date:	03 Oct 2024
			P. 35



The predictive equations of capacity of movement are:

$$Q\text{-BA} = D[627 + 14W\text{-CR} - Y(0.364q\text{-AC} + 0.144q\text{-AB} + 0.229q\text{-CA} + 0.52q\text{-CB})]$$

$$Q\text{-BC} = E[745 - Y(0.364q\text{-AC} + 0.144q\text{-AB})]$$

$$Q\text{-CB} = F[745 - 0.364Y(q\text{-AC} + q\text{-AB})]$$

The geometric parameters represented by D, E, F are:

$$D = [1 + 0.094(w\text{-BA} - 3.65)][1 + 0.0009(V\text{-rBA} - 120)][1 + 0.0006(V\text{-IBA} - 150)]$$

$$E = [1 + 0.094(w\text{-BC} - 3.65)][1 + 0.0009(V\text{-rBC} - 120)]$$

$$F = [1 + 0.094(w\text{-CB} - 3.65)][1 + 0.0009(V\text{-rCB} - 120)]$$

where $Y = 1 - 0.0345W$

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-IBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input		Input		Input		Calculated	
	W	6.63	V-rBA	45	w-BA	1.90	D	0.7207
	W-CR	0.00	V-IBA	25	w-BC	1.90	E	0.7768
			V-rBC	42	w-CB	3.50	F	0.9344
			V-rCB	62			Y	0.7714

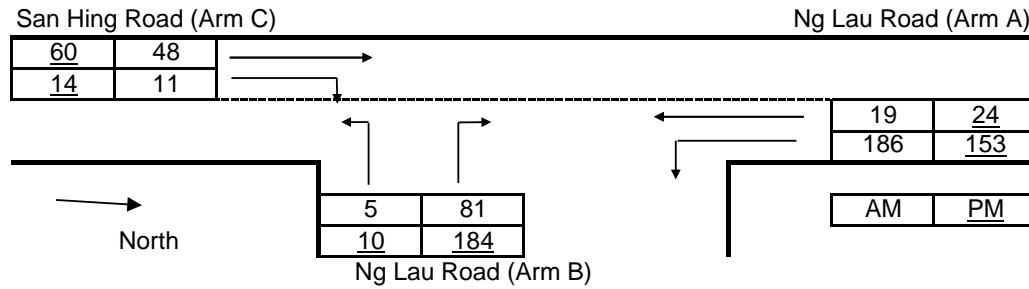
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr		AM	PM
q-CA	48	60	Q-BA		424	423
q-CB	11	14	Q-BC		559	560
q-AB	186	153	Q-CB		642	650
q-AC	19	24	Q-BAC		430	428
q-BA	81	184				
q-BC	5	10				
f	0.058	0.052				

Ratio-of-flow to Capacity	AM	PM
B-A	0.191	0.435
B-C	0.009	0.018
C-B	0.017	0.022
B-AC	0.200	0.453

Priority Junction Analysis

Junction:	San Hing Road / Ng Lau Road (Northern)		
Design Year:	2033	Job Number:	J7265
Scenario:	With Proposed Scheme	Date:	03 Oct 2024
			P. 36



The predictive equations of capacity of movement are:

$$Q\text{-BA} = D[627 + 14W\text{-CR} - Y(0.364q\text{-AC} + 0.144q\text{-AB} + 0.229q\text{-CA} + 0.52q\text{-CB})]$$

$$Q\text{-BC} = E[745 - Y(0.364q\text{-AC} + 0.144q\text{-AB})]$$

$$Q\text{-CB} = F[745 - 0.364Y(q\text{-AC} + q\text{-AB})]$$

The geometric parameters represented by D, E, F are:

$$D = [1 + 0.094(w\text{-BA} - 3.65)][1 + 0.0009(V\text{-rBA} - 120)][1 + 0.0006(V\text{-IBA} - 150)]$$

$$E = [1 + 0.094(w\text{-BC} - 3.65)][1 + 0.0009(V\text{-rBC} - 120)]$$

$$F = [1 + 0.094(w\text{-CB} - 3.65)][1 + 0.0009(V\text{-rCB} - 120)]$$

where $Y = 1 - 0.0345W$

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-IBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input		Input		Input		Calculated	
	W	6.63	V-rBA	45	w-BA	1.90	D	0.7207
	W-CR	0.00	V-IBA	25	w-BC	1.90	E	0.7768
			V-rBC	42	w-CB	3.50	F	0.9344
			V-rCB	62			Y	0.7714

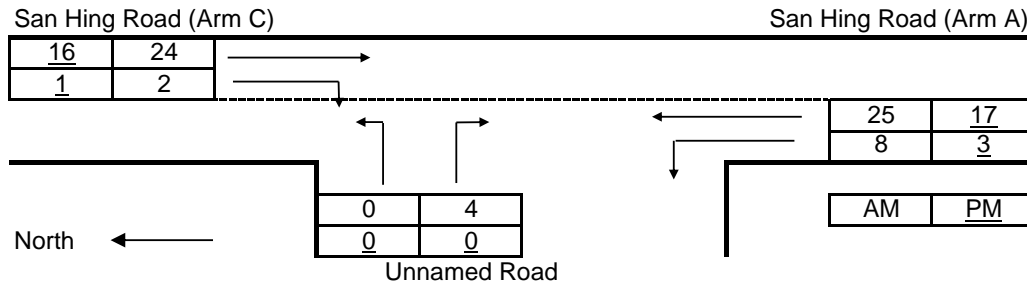
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr	AM	PM
q-CA	48	60	Q-BA	424	423
q-CB	11	14	Q-BC	559	560
q-AB	186	153	Q-CB	642	650
q-AC	19	24	Q-BAC	430	428
q-BA	81	184			
q-BC	5	10			
f	0.058	0.052			

Ratio-of-flow to Capacity	AM	PM
B-A	0.191	0.435
B-C	0.009	0.018
C-B	0.017	0.022
B-AC	0.200	0.453

Priority Junction Analysis

Junction:	T-junction of San Hing Road		
Design Year:	2023	Job Number:	J7265
Scenario:	Existing Condition	Date:	03 Oct 2024
			P. 37



The predictive equations of capacity of movement are:

$$Q\text{-BA} = D[627 + 14W\text{-CR} - Y(0.364q\text{-AC} + 0.144q\text{-AB} + 0.229q\text{-CA} + 0.52q\text{-CB})]$$

$$Q\text{-BC} = E[745 - Y(0.364q\text{-AC} + 0.144q\text{-AB})]$$

$$Q\text{-CB} = F[745 - 0.364Y(q\text{-AC} + q\text{-AB})]$$

The geometric parameters represented by D, E, F are:

$$D = [1 + 0.094(w\text{-BA} - 3.65)][1 + 0.0009(V\text{-rBA} - 120)][1 + 0.0006(V\text{-IBA} - 150)]$$

$$E = [1 + 0.094(w\text{-BC} - 3.65)][1 + 0.0009(V\text{-rBC} - 120)]$$

$$F = [1 + 0.094(w\text{-CB} - 3.65)][1 + 0.0009(V\text{-rCB} - 120)]$$

where $Y = 1 - 0.0345W$

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-IBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input		Input		Input		Calculated	
	W	6.00	V-rBA	25	w-BA	2.50	D	0.7912
	W-CR	0.00	V-IBA	100	w-BC	2.50	E	0.8156
			V-rBC	25	w-CB	3.00	F	0.8586
			V-rCB	25			Y	0.7930

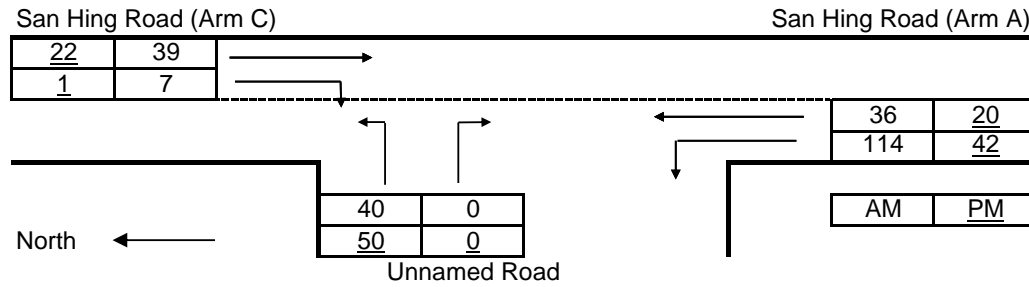
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr	AM	PM
q-CA	24	16	Q-BA	486	489
q-CB	2	1	Q-BC	601	603
q-AB	8	3	Q-CB	631	635
q-AC	25	17	Q-BAC	486	489
q-BA	4	0			
q-BC	0	0			
f	0.000	0.000			

Ratio-of-flow to Capacity	AM	PM
B-A	0.008	0.000
B-C	0.000	0.000
C-B	0.003	0.002
B-AC	0.008	0.000

Priority Junction Analysis

Junction:	T-junction of San Hing Road		
Design Year:	2033	Job Number:	J7265
Scenario:	Without Development	Date:	03 Oct 2024
			P. 38



The predictive equations of capacity of movement are:

$$Q-BA = D[627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB)]$$

$$Q-BC = E[745 - Y(0.364q-AC + 0.144q-AB)]$$

$$Q-CB = F[745 - 0.364Y(q-AC + q-AB)]$$

The geometric parameters represented by D, E, F are:

$$D = [1 + 0.094(w-BA - 3.65)][1 + 0.0009(V-rBA - 120)][1 + 0.0006(V-IBA - 150)]$$

$$E = [1 + 0.094(w-BC - 3.65)][1 + 0.0009(V-rBC - 120)]$$

$$F = [1 + 0.094(w-CB - 3.65)][1 + 0.0009(V-rCB - 120)]$$

where $Y = 1 - 0.0345W$

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-IBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input		Input		Input		Calculated	
	W	6.00	V-rBA	45	w-BA	4.00	D	0.9343
	W-CR	0.00	V-IBA	100	w-BC	4.00	E	0.9632
			V-rBC	45	w-CB	3.00	F	0.8586
			V-rCB	25			Y	0.7930

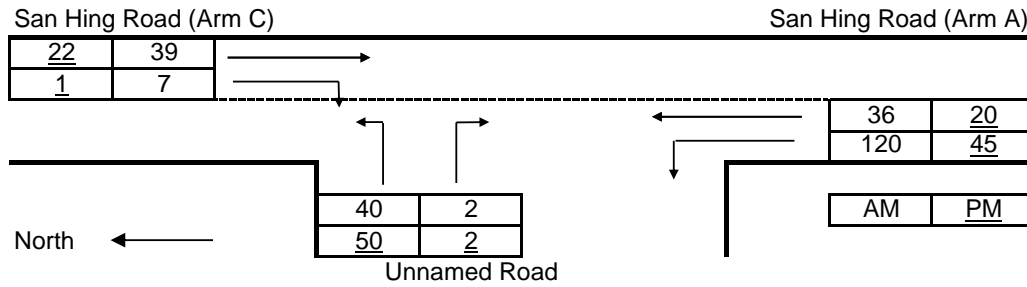
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr		AM	PM
q-CA	39	22	Q-BA		555	572
q-CB	7	1	Q-BC		695	707
q-AB	114	42	Q-CB		602	624
q-AC	36	20	Q-BAC		695	707
q-BA	0	0				
q-BC	40	50				
f	1.000	1.000				

Ratio-of-flow to Capacity	AM	PM
B-A	0.000	0.000
B-C	0.058	0.071
C-B	0.012	0.002
B-AC	0.058	0.071

Priority Junction Analysis

Junction: T-junction of San Hing Road
 Design Year: 2033 Job Number: J7265 Date: 03 Oct 2024
 Scenario: With Approved Scheme P. 39



The predictive equations of capacity of movement are:

$$Q-BA = D[627 + 14W-CR - Y(0.364q-AC + 0.144q-AB + 0.229q-CA + 0.52q-CB)]$$

$$Q-BC = E[745 - Y(0.364q-AC + 0.144q-AB)]$$

$$Q-CB = F[745 - 0.364Y(q-AC + q-AB)]$$

The geometric parameters represented by D, E, F are:

$$D = [1 + 0.094(w-BA - 3.65)][1 + 0.0009(V-rBA - 120)][1 + 0.0006(V-IBA - 150)]$$

$$E = [1 + 0.094(w-BC - 3.65)][1 + 0.0009(V-rBC - 120)]$$

$$F = [1 + 0.094(w-CB - 3.65)][1 + 0.0009(V-rCB - 120)]$$

where $Y = 1 - 0.0345W$

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-IBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input		Input		Input		Calculated	
	W	6.00	V-rBA	45	w-BA	4.00	D	0.9343
	W-CR	0.00	V-IBA	100	w-BC	4.00	E	0.9632
			V-rBC	45	w-CB	3.00	F	0.8586
			V-rCB	25			Y	0.7930

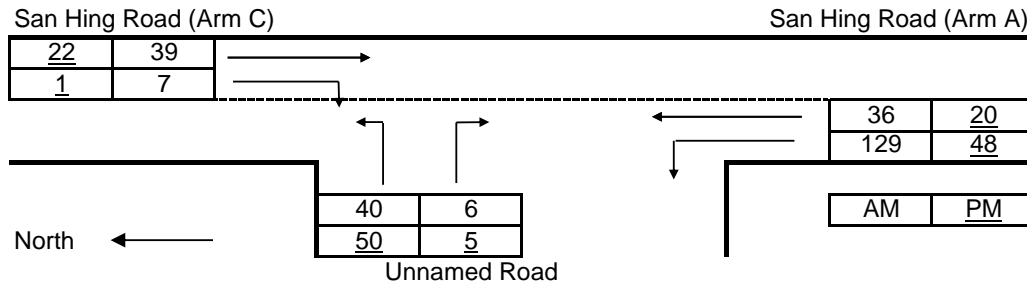
Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr	AM	PM
q-CA	39	22	Q-BA	554	571
q-CB	7	1	Q-BC	694	707
q-AB	120	45	Q-CB	601	624
q-AC	36	20	Q-BAC	686	701
q-BA	2	2			
q-BC	40	50			
f	0.952	0.962			

Ratio-of-flow to Capacity	AM	PM
B-A	0.004	0.003
B-C	0.058	0.071
C-B	0.012	0.002
B-AC	0.061	0.074

Priority Junction Analysis

Junction:	T-junction of San Hing Road		
Design Year:	2033	Job Number:	J7265
Scenario:	With Proposed Scheme	Date:	03 Oct 2024
			P. 40



The predictive equations of capacity of movement are:

$$Q\text{-BA} = D[627 + 14W\text{-CR} - Y(0.364q\text{-AC} + 0.144q\text{-AB} + 0.229q\text{-CA} + 0.52q\text{-CB})]$$

$$Q\text{-BC} = E[745 - Y(0.364q\text{-AC} + 0.144q\text{-AB})]$$

$$Q\text{-CB} = F[745 - 0.364Y(q\text{-AC} + q\text{-AB})]$$

The geometric parameters represented by D, E, F are:

$$D = [1 + 0.094(w\text{-BA} - 3.65)][1 + 0.0009(V\text{-rBA} - 120)][1 + 0.0006(V\text{-IBA} - 150)]$$

$$E = [1 + 0.094(w\text{-BC} - 3.65)][1 + 0.0009(V\text{-rBC} - 120)]$$

$$F = [1 + 0.094(w\text{-CB} - 3.65)][1 + 0.0009(V\text{-rCB} - 120)]$$

where $Y = 1 - 0.0345W$

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-IBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input		Input		Input		Calculated	
	W	6.00	V-rBA	45	w-BA	4.00	D	0.9343
	W-CR	0.00	V-IBA	100	w-BC	4.00	E	0.9632
			V-rBC	45	w-CB	3.00	F	0.8586
			V-rCB	25			Y	0.7930

Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr		AM	PM
q-CA	39	22	Q-BA		553	571
q-CB	7	1	Q-BC		693	707
q-AB	129	48	Q-CB		599	623
q-AC	36	20	Q-BAC		671	692
q-BA	6	5				
q-BC	40	50				
f	0.870	0.909				

Ratio-of-flow to Capacity	AM	PM
B-A	0.011	0.009
B-C	0.058	0.071
C-B	0.012	0.002
B-AC	0.069	0.080

Signal Junction Analysis

Junction: <u>Ng Lau Road / Castle Peak Road - Lam Tei</u>												Job Number: <u>J7265</u>				
Scenario: <u>Existing Condition</u>												P. 41				
Design Year: <u>2023</u>				Designed By: _____				Checked By: _____				Date: <u>03 Oct 2024</u>				

Approach	Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	Turning %	Sat. Flow (pcu/hr)	AM Peak				PM Peak				
								Flow (pcu/hr)	y value	Critical y	Turning %	Sat. Flow (pcu/hr)	Flow (pcu/hr)	y value	Critical y	
Ng Lau Road EB	LT	A1	2	4.00	20.0	100	1874	110	0.059	0.059	100	1874	135	0.072	0.072	
Castle Peak Road - Lam Tei NB	LT	B1	1	3.50	15.0	100	1786	128	0.072	0.072	100	1786	128	0.072	0.072	
pedestrian phase		C _(P)	1,2	min crossing time =		8	sec GM +		8	sec FGM =		16	sec			
		D _(P)	3	min crossing time =		7	sec GM +		7	sec FGM =		14	sec			

<p>AM Traffic Flow (pcu/hr)</p>	<p>PM Traffic Flow (pcu/hr)</p>	<p>Note:</p> <p>S = 1940 + 100 (W-3.25) S = 2080 + 100 (W-3.25)</p> <p>SM = S / (1 + 1.5 f/r) SM = (S - 230) / (1 + 1.5 f/r)</p> <table border="1" style="width:100%; text-align: center;"> <thead> <tr> <th></th> <th>AM Peak</th> <th>PM Peak</th> </tr> <tr> <th></th> <th>1 + 2</th> <th>1 + 2</th> </tr> </thead> <tbody> <tr> <td>Sum y</td> <td>0.130</td> <td>0.144</td> </tr> <tr> <td>L (s)</td> <td>2358</td> <td>2284</td> </tr> <tr> <td>C (s)</td> <td>3609</td> <td>3627</td> </tr> <tr> <td>practical y</td> <td>0.312</td> <td>0.333</td> </tr> <tr> <td>R.C. (%)</td> <td>139%</td> <td>132%</td> </tr> </tbody> </table>		AM Peak	PM Peak		1 + 2	1 + 2	Sum y	0.130	0.144	L (s)	2358	2284	C (s)	3609	3627	practical y	0.312	0.333	R.C. (%)	139%	132%
	AM Peak	PM Peak																					
	1 + 2	1 + 2																					
Sum y	0.130	0.144																					
L (s)	2358	2284																					
C (s)	3609	3627																					
practical y	0.312	0.333																					
R.C. (%)	139%	132%																					

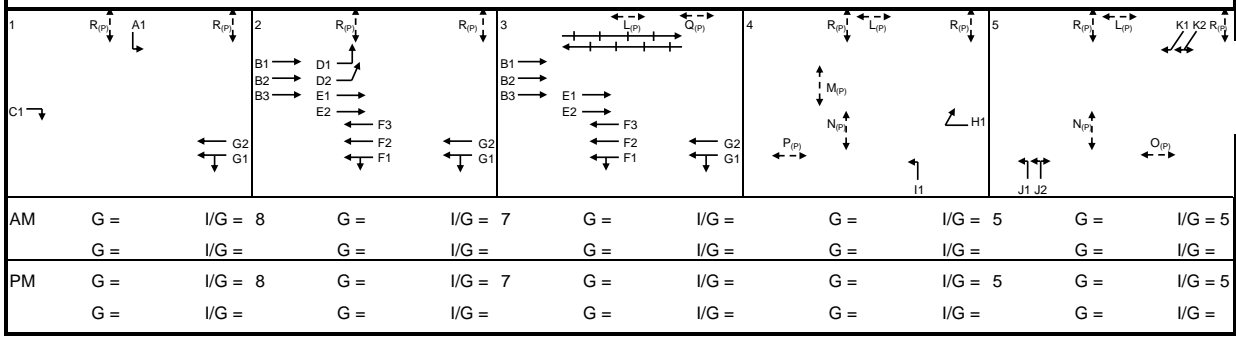
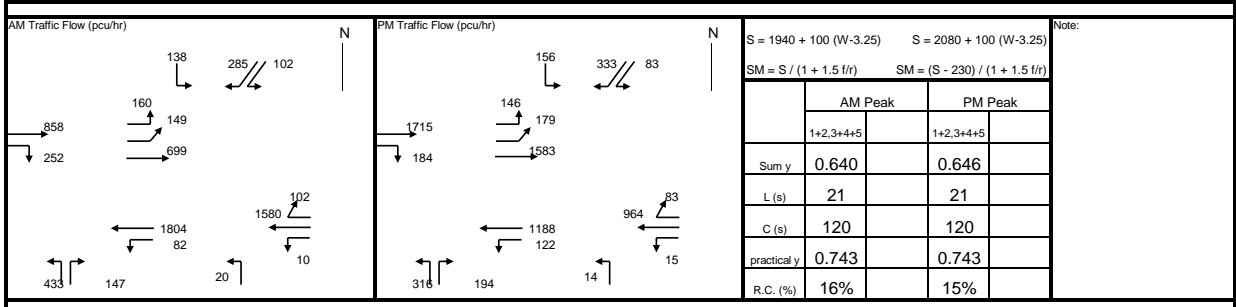
1 	2 	3 	4	5
AM G = I/G = G = I/G = G = I/G = G = I/G = G =				
PM G = I/G = G = I/G = G = I/G = G = I/G = G =				

Junction: <u>Ng Lau Road / Castle Peak Road - Lam Tei</u>										Job Number: <u>J7265</u>																						
Scenario: <u>Without Development</u>										P. <u>42</u>																						
Design Year: <u>2033</u>			Designed By: _____			Checked By: _____			Date: <u>03 Oct 2024</u>																							
Approach	Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	Turning %	AM Peak				PM Peak																					
							Sat. Flow (pcu/hr)	Flow (pcu/hr)	y value	Critical y	Turning %	Sat. Flow (pcu/hr)	Flow (pcu/hr)	y value	Critical y																	
Ng Lau Road EB	LT	A1	1	4.00	15.0	100	1832	138	0.075		100	1832	156	0.085																		
Castle Peak Road - Lam Tei NB	SA	B1	2,3	3.30			1945	273	0.140			1945	545	0.280																		
	SA	B2	2,3	3.30			2085	293	0.141			2085	585	0.281																		
	SA	B3	2,3	3.30			2085	292	0.140			2085	585	0.281																		
Castle Peak Road - Lam Tei NB	RT	C1	1	3.70	15.0	100	1932	252	0.130	0.130	100	1932	184	0.095	0.095																	
	LT	D1	2	3.70	13.0	100	1780	160	0.090		100	1780	146	0.082																		
	LT	D2	2	3.70	15.0	100	1932	149	0.077		100	1932	179	0.093																		
	SA	E1	2,3	3.70			2125	350	0.165			2125	792	0.373	0.373																	
Castle Peak Road - Lam Tei SB	SA	E2	2,3	3.65			2120	349	0.165			2125	791	0.372																		
	LT+SA	F1	2,3	3.70	15.0	2	1981	600	0.303	0.303	4	1977	416	0.210																		
	SA	F2	2,3	3.70			2125	643	0.303			2125	447	0.210																		
Castle Peak Road - Lam Tei SB	SA	F3	2,3	3.70			2125	643	0.303			2125	447	0.210																		
	LT+SA	G1	1,2,3	3.70	10.0	11	1953	761	0.390		26	1910	463	0.242																		
	SA	G2	1,2,3	3.70			2125	829	0.390			2125	516	0.243																		
Wong Kong Wai Road WB	RT	H1	4	3.50	20.0	100	1958	102	0.052	0.052	100	1958	83	0.042	0.042																	
	LT	I1	4	4.00	10.0	100	1752	20	0.011		100	1752	14	0.008																		
	LT	J1	5	3.70	15.0	100	1805	280	0.155	0.155	100	1805	246	0.136	0.136																	
Fuk Hang Tsuen Road WB	LT	J1	5	3.70	15.0	100	1805	280	0.155	0.155	100	1805	246	0.136	0.136																	
	LT+RT	J2	5	3.70	15.0	100	1932	300	0.155		100	1932	264	0.137																		
Road P1	LT+RT	K1	5	3.80	12.0	100	1773	185	0.104		100	1773	199	0.112																		
	RT	K2	5	3.80	15.0	100	1941	202	0.104		100	1941	217	0.112																		
pedestrian phase		L _(p)	3,4,5				min crossing time = 5	sec GM + 11				sec FGM = 16	sec																			
		M _(p)	3				min crossing time = 5	sec GM + 15				sec FGM = 20	sec																			
		N _(p)	3,4				min crossing time = 5	sec GM + 16				sec FGM = 21	sec																			
		O _(p)	5				min crossing time = 5	sec GM + 14				sec FGM = 19	sec																			
		P _(p)	4				min crossing time = 5	sec GM + 18				sec FGM = 23	sec																			
		Q _(p)	3				min crossing time = 11	sec GM + 11				sec FGM = 22	sec																			
		R _(p)	1,2,4,5				min crossing time = 5	sec GM + 13				sec FGM = 18	sec																			
AM Traffic Flow (pcu/hr)		PM Traffic Flow (pcu/hr)				$S = 1940 + 100 (W-3.25)$ $S = 2080 + 100 (W-3.25)$ $SM = S / (1 + 1.5 f/r)$ $SM = (S - 230) / (1 + 1.5 f/r)$				Note:																						
						<table border="1"> <thead> <tr> <th></th> <th>AM Peak</th> <th>PM Peak</th> </tr> </thead> <tbody> <tr> <td>1+2,3+4+5</td> <td></td> <td></td> </tr> <tr> <td>Sum y</td> <td>0.641</td> <td>0.646</td> </tr> <tr> <td>L (s)</td> <td>21</td> <td>21</td> </tr> <tr> <td>C (s)</td> <td>120</td> <td>120</td> </tr> <tr> <td>practical y</td> <td>0.743</td> <td>0.743</td> </tr> <tr> <td>R.C. (%)</td> <td>16%</td> <td>15%</td> </tr> </tbody> </table>					AM Peak	PM Peak	1+2,3+4+5			Sum y	0.641	0.646	L (s)	21	21	C (s)	120	120	practical y	0.743	0.743	R.C. (%)	16%	15%		
	AM Peak	PM Peak																														
1+2,3+4+5																																
Sum y	0.641	0.646																														
L (s)	21	21																														
C (s)	120	120																														
practical y	0.743	0.743																														
R.C. (%)	16%	15%																														
AM	G =	I/G = 8	G =	I/G = 7	G =	I/G =	G =	I/G = 5	G =	I/G = 5																						
	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =																						
PM	G =	I/G = 8	G =	I/G = 7	G =	I/G =	G =	I/G = 5	G =	I/G = 5																						
	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =																						

Signal Junction Analysis

Junction: Ng Lau Road / Castle Peak Road - Lam Tei Job Number: J7265
 Scenario: With Approved Scheme P. 43
 Design Year: 2033 Designed By: _____ Checked By: _____ Date: 03 Oct 2024

Approach	Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	Turning %	AM Peak				PM Peak				
							Sat. Flow (pcu/hr)	Flow (pcu/hr)	y value	Critical y	Turning %	Sat. Flow (pcu/hr)	Flow (pcu/hr)	y value	Critical y
Ng Lau Road EB	LT	A1	1	4.00	15.0	100	1832	138	0.075		100	1832	156	0.085	
Castle Peak Road - Lam Tei NB	SA	B1	2,3	3.30			1945	273	0.140			1945	545	0.280	
	SA	B2	2,3	3.30			2085	293	0.141			2085	585	0.281	
	SA	B3	2,3	3.30			2085	292	0.140			2085	585	0.281	
Castle Peak Road - Lam Tei NB	RT	C1	1	3.70	15.0	100	1932	252	0.130	0.130	100	1932	184	0.095	0.095
	LT	D1	2	3.70	13.0	100	1780	160	0.090		100	1780	146	0.082	
	LT	D2	2	3.70	15.0	100	1932	149	0.077		100	1932	179	0.093	
	SA	E1	2,3	3.70			2125	350	0.165			2125	792	0.373	
Castle Peak Road - Lam Tei SB	SA	E2	2,3	3.65			2120	349	0.165			2125	791	0.372	0.372
	LT+SA	F1	2,3	3.70	15.0	2	1981	600	0.303		4	1977	416	0.210	
	SA	F2	2,3	3.70			2125	643	0.303			2125	447	0.210	
Castle Peak Road - Lam Tei SB	SA	F3	2,3	3.70			2125	643	0.303	0.303		2125	447	0.210	
	LT+SA	G1	1,2,3	3.70	10.0	11	1953	761	0.390		26	1910	463	0.242	
	SA	G2	1,2,3	3.70			2125	829	0.390			2125	516	0.243	
Wong Kong Wai Road WB	RT	H1	4	3.50	20.0	100	1958	102	0.052	0.052	100	1958	83	0.042	0.042
	LT	I1	4	4.00	10.0	100	1752	20	0.011		100	1752	14	0.008	
	LT	J1	5	3.70	15.0	100	1805	280	0.155	0.155	100	1805	246	0.136	0.136
Fuk Hang Tsuen Road WB	LT	J1	5	3.70	15.0	100	1805	280	0.155	0.155	100	1805	246	0.136	0.136
	LT+RT	J2	5	3.70	15.0	100	1932	300	0.155		100	1932	264	0.137	
Road P1	LT+RT	K1	5	3.80	12.0	100	1773	185	0.104		100	1773	199	0.112	
	RT	K2	5	3.80	15.0	100	1941	202	0.104		100	1941	217	0.112	



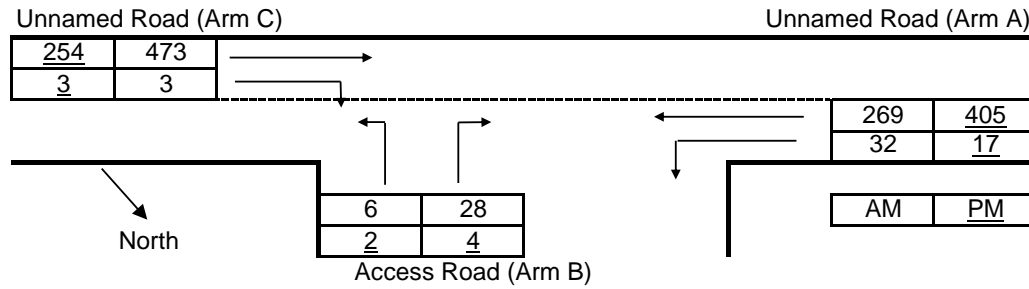
Junction: <u>Ng Lau Road / Castle Peak Road - Lam Tei</u>											Job Number: <u>J7265</u>					
Scenario: <u>With Proposed Scheme</u>											P. 44					
Design Year: <u>2033</u>			Designed By: _____			Checked By: _____			Date: <u>03 Oct 2024</u>							
Approach	Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	AM Peak					PM Peak					
						Turning %	Sat. Flow (pcu/hr)	Flow (pcu/hr)	y value	Critical y	Turning %	Sat. Flow (pcu/hr)	Flow (pcu/hr)	y value	Critical y	
Ng Lau Road EB	LT	A1	1	4.00	15.0		100	1832	138	0.075		100	1832	156	0.085	
Castle Peak Road - Lam Tei NB	SA	B1	2,3	3.30				1945	276	0.142			1945	549	0.282	
	SA	B2	2,3	3.30				2085	296	0.142			2085	588	0.282	
	SA	B3	2,3	3.30				2085	297	0.142			2085	588	0.282	
Castle Peak Road - Lam Tei NB	RT	C1	1	3.70	15.0		100	1932	252	0.130	0.130	100	1932	184	0.095	0.095
	LT	D1	2	3.70	13.0		100	1780	160	0.090		100	1780	146	0.082	
	LT	D2	2	3.70	15.0		100	1932	150	0.078		100	1932	179	0.093	
	SA	E1	2,3	3.70				2125	355	0.167			2125	797	0.375	
Castle Peak Road - Lam Tei SB	SA	E2	2,3	3.65				2120	354	0.167			2125	796	0.375	0.375
	LT+SA	F1	2,3	3.70	15.0		2	1981	603	0.304		4	1977	420	0.212	
	SA	F2	2,3	3.70				2125	647	0.304			2125	451	0.212	
Castle Peak Road - Lam Tei SB	SA	F3	2,3	3.70				2125	648	0.305	0.305		2125	451	0.212	
	LT+SA	G1	1,2,3	3.70	10.0		11	1953	767	0.393		26	1910	469	0.245	
	SA	G2	1,2,3	3.70				2125	834	0.392			2125	521	0.245	
	RT	H1	4	3.50	20.0		100	1958	102	0.052	0.052	100	1958	83	0.042	0.042
Wong Kong Wai Road WB	LT	I1	4	4.00	10.0		100	1752	20	0.011		100	1752	14	0.008	
Fuk Hang Tsuen Road WB	LT	J1	5	3.70	15.0		100	1805	280	0.155	0.155	100	1805	246	0.136	0.136
	LT+RT	J2	5	3.70	15.0		100	1932	300	0.155		100	1932	264	0.137	
Road P1	LT+RT	K1	5	3.80	12.0		100	1773	185	0.104		100	1773	199	0.112	
	RT	K2	5	3.80	15.0		100	1941	203	0.105		100	1941	218	0.112	
pedestrian phase	L _(P)	3,4,5						min crossing time = 5	sec GM +	11			sec FGM = 16	sec		
	M _(P)	3						min crossing time = 5	sec GM +	15			sec FGM = 20	sec		
	N _(P)	3,4						min crossing time = 5	sec GM +	16			sec FGM = 21	sec		
	O _(P)	5						min crossing time = 5	sec GM +	14			sec FGM = 19	sec		
	P _(P)	4						min crossing time = 5	sec GM +	18			sec FGM = 23	sec		
	Q _(P)	3						min crossing time = 11	sec GM +	11			sec FGM = 22	sec		
	R _(P)	1,2,4,5						min crossing time = 5	sec GM +	13			sec FGM = 18	sec		

AM Traffic Flow (pcu/hr)	PM Traffic Flow (pcu/hr)	Notes																					
		<p>S = 1940 + 100 (W-3.25) S = 2080 + 100 (W-3.25)</p> <p>SM = S / (1 + 1.5 f/r) SM = (S - 230) / (1 + 1.5 f/r)</p> <table border="1"> <thead> <tr> <th></th> <th>AM Peak</th> <th>PM Peak</th> </tr> </thead> <tbody> <tr> <td>1+2,3+4+5</td> <td></td> <td>1+2,3+4+5</td> </tr> <tr> <td>Sum y</td> <td>0.643</td> <td>0.648</td> </tr> <tr> <td>L (s)</td> <td>21</td> <td>21</td> </tr> <tr> <td>C (s)</td> <td>120</td> <td>120</td> </tr> <tr> <td>practical y</td> <td>0.743</td> <td>0.743</td> </tr> <tr> <td>R.C. (%)</td> <td>16%</td> <td>15%</td> </tr> </tbody> </table>		AM Peak	PM Peak	1+2,3+4+5		1+2,3+4+5	Sum y	0.643	0.648	L (s)	21	21	C (s)	120	120	practical y	0.743	0.743	R.C. (%)	16%	15%
	AM Peak	PM Peak																					
1+2,3+4+5		1+2,3+4+5																					
Sum y	0.643	0.648																					
L (s)	21	21																					
C (s)	120	120																					
practical y	0.743	0.743																					
R.C. (%)	16%	15%																					

Phase	1	2	3	4	5
AM	G = I/G = 8	G = I/G = 7	G = I/G = 5	G = I/G = 5	G = I/G = 5
PM	G = I/G = 8	G = I/G = 7	G = I/G = 5	G = I/G = 5	G = I/G = 5

Priority Junction Analysis

Junction:	Hong Po Road / Yan Tin Estate Access Road		
Design Year:	2023	Job Number:	J7265
Scenario:	Existing Condition	Date:	03 Oct 2024
			P. 45



The predictive equations of capacity of movement are:

$$Q\text{-BA} = D[627 + 14W\text{-CR} - Y(0.364q\text{-AC} + 0.144q\text{-AB} + 0.229q\text{-CA} + 0.52q\text{-CB})]$$

$$Q\text{-BC} = E[745 - Y(0.364q\text{-AC} + 0.144q\text{-AB})]$$

$$Q\text{-CB} = F[745 - 0.364Y(q\text{-AC} + q\text{-AB})]$$

The geometric parameters represented by D, E, F are:

$$D = [1 + 0.094(w\text{-BA} - 3.65)][1 + 0.0009(V\text{-rBA} - 120)][1 + 0.0006(V\text{-IBA} - 150)]$$

$$E = [1 + 0.094(w\text{-BC} - 3.65)][1 + 0.0009(V\text{-rBC} - 120)]$$

$$F = [1 + 0.094(w\text{-CB} - 3.65)][1 + 0.0009(V\text{-rCB} - 120)]$$

where $Y = 1 - 0.0345W$

q-AB, etc = the design flow of movement AB, etc

W = major road width

W-CR = central reserve width

w-BA, etc = lane width to vehicle

v-rBA, etc = visibility to the right for waiting vehicles in stream BA, etc

v-IBA, etc = visibility to the left for waiting vehicles in stream BA, etc

Geometry :	Input		Input		Input		Calculated	
	W	9.50	V-rBA	55	w-BA	4.40	D	0.9323
	W-CR	3.00	V-IBA	25	w-BC	4.40	E	1.0079
			V-rBC	55	w-CB	3.18	F	0.9042
			V-rCB	60			Y	0.6723

Analysis :

Traffic Flows, pcu/hr	AM	PM	Capacity, pcu/hr	AM	PM
q-CA	473	254	Q-BA	491	492
q-CB	3	3	Q-BC	681	649
q-AB	32	17	Q-CB	607	580
q-AC	269	405	Q-BAC	516	535
q-BA	28	4			
q-BC	6	2			
f	0.176	0.333			

Ratio-of-flow to Capacity	AM	PM
B-A	0.057	0.008
B-C	0.009	0.003
C-B	0.005	0.005
B-AC	0.066	0.011

Signal Junction Analysis

Junction: <u>Hong Po Road / San Hing Road</u>										Job Number: <u>J7265</u>																									
Scenario: <u>Without Development</u>										P. 46																									
Design Year: <u>2033</u>			Designed By: _____			Checked By: _____			Date: <u>03 Oct 2024</u>																										
Approach	Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	Turning %	AM Peak				PM Peak																								
							Sat. Flow (pcu/hr)	Flow (pcu/hr)	y value	Critical y	Turning %	Sat. Flow (pcu/hr)	Flow (pcu/hr)	y value	Critical y																				
Hong Po Road WB	SA+LT	A1	1	3.75	10.0	11	1958	336	0.172		4	1978	401	0.203																					
	SA	A2	1	3.75			2130	365	0.171			2130	432	0.203	0.203																				
Access Road NB	LT+RT	B1	2	3.50	15.0	100	1786	35	0.020		100	1786	8	0.004																					
Hong Po Road EB	LT	C1	1	3.65	25.0	100	1868	23	0.012		100	1868	35	0.019																					
	SA	C2	1	3.65			2120	515	0.243	0.243		2120	314	0.148																					
	SA	C3	1	3.65			2120	515	0.243			2120	313	0.148																					
San Hing Road SB	LT	D1	3	3.65	10.0	100	1722	77	0.045	0.045	100	1722	37	0.021	0.021																				
	LT+RT	D2	3	3.65	15.0	100	1800	81	0.045		100	1800	39	0.022																					
pedestrian phase		$E_{(P)}$	4			min crossing time =	8	sec GM +	7	sec FGM =	15	sec																							
		$F_{(P)}$	4			min crossing time =	7	sec GM +	6	sec FGM =	13	sec																							
		$G_{(P)}$	4			min crossing time =	8	sec GM +	7	sec FGM =	15	sec																							
		$H_{(P)}$	4			min crossing time =	11	sec GM +	9	sec FGM =	20	sec																							
		$I_{(P)}$	2,3,4			min crossing time =	5	sec GM +	9	sec FGM =	14	sec																							
AM Traffic Flow (pcu/hr)						PM Traffic Flow (pcu/hr)								<p>S = 1940 + 100 (W-3.25) S = 2080 + 100 (W-3.25)</p> <p>SM = S / (1 + 1.5 f/r) SM = (S - 230) / (1 + 1.5 f/r)</p> <table border="1"> <thead> <tr> <th></th> <th>AM Peak</th> <th>PM Peak</th> </tr> </thead> <tbody> <tr> <td>Sum y</td> <td>0.288</td> <td>0.224</td> </tr> <tr> <td>L (s)</td> <td>41</td> <td>41</td> </tr> <tr> <td>C (s)</td> <td>120</td> <td>120</td> </tr> <tr> <td>practical y</td> <td>0.593</td> <td>0.593</td> </tr> <tr> <td>R.C. (%)</td> <td>106%</td> <td>164%</td> </tr> </tbody> </table>					AM Peak	PM Peak	Sum y	0.288	0.224	L (s)	41	41	C (s)	120	120	practical y	0.593	0.593	R.C. (%)	106%	164%
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1	2	3	4	5																															
AM	G =	I/G = 5	G = 5	I/G = 5	G =	I/G = 10	G = 15	I/G = 3	G =																										
	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =	G =																										
PM	G =	I/G = 5	G = 5	I/G = 5	G =	I/G = 10	G = 15	I/G = 3	G =																										
	G =	I/G =	G =	I/G =	G =	I/G =	G =	I/G =	G =																										

Signal Junction Analysis

Junction: <u>Hong Po Road / San Hing Road</u>										Job Number: <u>J7265</u>																								
Scenario: <u>With Approved Scheme</u>										P. 47																								
Design Year: <u>2033</u>			Designed By: _____			Checked By: _____			Date: <u>03 Oct 2024</u>																									
Approach	Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	Turning %	AM Peak				PM Peak																							
							Sat. Flow (pcu/hr)	Flow (pcu/hr)	y value	Critical y	Turning %	Sat. Flow (pcu/hr)	Flow (pcu/hr)	y value	Critical y																			
Hong Po Road WB	SA+LT	A1	1	3.75	10.0	11	1958	336	0.172		4	1978	401	0.203																				
	SA	A2	1	3.75			2130	365	0.171			2130	432	0.203	0.203																			
Access Road NB	LT+RT	B1	2	3.50	15.0	100	1786	35	0.020		100	1786	8	0.004																				
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		$G_{(P)}$	4			min crossing time =	8	sec GM +	7	sec FGM =	15	sec																						
		$H_{(P)}$	4			min crossing time =	11	sec GM +	9	sec FGM =	20	sec																						
		$I_{(P)}$	2,3,4			min crossing time =	5	sec GM +	9	sec FGM =	14	sec																						
AM Traffic Flow (pcu/hr)						<p>PM Traffic Flow (pcu/hr)</p>				<p>Note:</p> <p>S = 1940 + 100 (W-3.25) S = 2080 + 100 (W-3.25)</p> <p>SM = S / (1 + 1.5 f/r) SM = (S - 230) / (1 + 1.5 f/r)</p> <table border="1"> <thead> <tr> <th></th> <th>AM Peak</th> <th>PM Peak</th> </tr> </thead> <tbody> <tr> <td>1+3</td> <td></td> <td></td> </tr> <tr> <td>Sum y</td> <td>0.288</td> <td>0.224</td> </tr> <tr> <td>L (s)</td> <td>41</td> <td>41</td> </tr> <tr> <td>C (s)</td> <td>120</td> <td>120</td> </tr> <tr> <td>practical y</td> <td>0.593</td> <td>0.593</td> </tr> <tr> <td>R.C. (%)</td> <td>106%</td> <td>164%</td> </tr> </tbody> </table>					AM Peak	PM Peak	1+3			Sum y	0.288	0.224	L (s)	41	41	C (s)	120	120	practical y	0.593	0.593	R.C. (%)	106%	164%
	AM Peak	PM Peak																																
1+3																																		
Sum y	0.288	0.224																																
L (s)	41	41																																
C (s)	120	120																																
practical y	0.593	0.593																																
R.C. (%)	106%	164%																																
1	2	3	4	5																														
AM	G = I/G = 5	G = 5 I/G =	I/G = 5 G =	G = I/G =	G = I/G = 10	G = 15 I/G =	I/G = 3 G =	G = I/G =																										
PM	G = I/G = 5	G = 5 I/G =	I/G = 5 G =	G = I/G =	G = I/G = 10	G = 15 I/G =	I/G = 3 G =	G = I/G =																										

Signal Junction Analysis

Junction: Hong Po Road / San Hing Road Job Number: J7265
 Scenario: With Proposed Scheme P. 48
 Design Year: 2033 Designed By: _____ Checked By: _____ Date: 03 Oct 2024

Approach	Phase	Stage	Width (m)	Radius (m)	% Up-hill Gradient	Turning %	AM Peak				PM Peak					
							Sat. Flow (pcu/hr)	Flow (pcu/hr)	y value	Critical y	Turning %	Sat. Flow (pcu/hr)	Flow (pcu/hr)	y value	Critical y	
Hong Po Road WB	SA+LT	A1	1	3.75	10.0		11	1958	336	0.172		4	1978	401	0.203	
	SA	A2	1	3.75				2130	365	0.171			2130	432	0.203	0.203
Access Road NB	LT+RT	B1	2	3.50	15.0		100	1786	35	0.020		100	1786	8	0.004	
Hong Po Road EB	LT	C1	1	3.65	25.0		100	1868	27	0.014		100	1868	38	0.020	
	SA	C2	1	3.65				2120	515	0.243	0.243		2120	314	0.148	
	SA	C3	1	3.65				2120	515	0.243			2120	313	0.148	
San Hing Road SB	LT	D1	3	3.65	10.0		100	1722	82	0.048	0.048	100	1722	39	0.023	0.023
	LT+RT	D2	3	3.65	15.0		100	1800	85	0.047		100	1800	40	0.022	
pedestrian phase	E _(P)	4			min crossing time =	8	sec GM +	7	sec FGM =	15	sec					
	F _(P)	4			min crossing time =	7	sec GM +	6	sec FGM =	13	sec					
	G _(P)	4			min crossing time =	8	sec GM +	7	sec FGM =	15	sec					
	H _(P)	4			min crossing time =	11	sec GM +	9	sec FGM =	20	sec					
	I _(P)	2,3,4			min crossing time =	5	sec GM +	9	sec FGM =	14	sec					

AM Traffic Flow (pcu/hr)

PM Traffic Flow (pcu/hr)

Note:

S = 1940 + 100 (W-3.25) S = 2080 + 100 (W-3.25)
 SM = S / (1 + 1.5 I/r) SM = (S - 230) / (1 + 1.5 I/r)

	AM Peak	PM Peak
1+3		1+3
Sum y	0.291	0.225
L (s)	41	41
C (s)	120	120
practical y	0.593	0.593
R.C. (%)	104%	163%

1	2	3	4	5
AM G = IG = 5	G = 5 IG =	G = 5 IG =	G = 10 IG =	G = 15 IG = 3
PM G = IG = 5	G = 5 IG =	G = 5 IG =	G = 10 IG =	G = 15 IG = 3

**Appendix B –
Public Transport Survey Result**

TABLE B1 DETAILED PEAK 1 HOUR OCCUPANCY SURVEY RESULT ON THE PUBLIC TRANSPORT NEAR THE PROPOSED DEVELOPMENT

Direction	Routes	Survey Location	AM Peak 1 Hour				PM Peak 1 Hour			
			No. of Trips	No. of Passenger		Occu-pancy [c]=[b]/[a]	No. of Trips	No. of Passenger		Occu-pancy [c]=[b]/[a]
				Capacity [a]	Occupied [b]			Capacity [a]	Occupied [b]	
To other districts	CTB 50	LTI - EB	3	360	180	50%	0	-	-	-
	CTB 55	LTI - EB	4	480	320	67%	0	-	-	-
	CTB 56	LTI - EB	0	-	-	-	0	-	-	-
	CTB 56A	LTI - EB	3	360	252	70%	0	-	-	-
	CTB 950	LTI - EB	2	240	150	63%	0	-	-	-
	CTB 955	LTI - EB	1	120	60	50%	0	-	-	-
	CTB B3A	LTI - EB	1	120	108	90%	2	240	120	50%
	KMB 53	CPR - SB	2	240	90	38%	1	120	60	50%
	KMB 63X	CPR - SB	5	600	338	56%	4	480	120	25%
	KMB 67M	LTI - EB	8	960	210	22%	3	360	36	10%
	KMB 67X	LTI - EB	7	840	174	21%	1	120	30	25%
	KMB 68A	CPR - SB	3	360	217	60%	3	360	135	38%
	KMB 258A	CPR - SB	2	240	120	50%	0	-	-	-
	KMB 258P	CPR - SB	4	480	120	25%	0	-	-	-
	KMB 261P	CPR - NB	1	120	36	30%	0	-	-	-
	KMB 267X	LTI - EB	2	240	24	10%	0	-	-	-
	KMB 960A	N/A	0	-	-	-	0	-	-	-
	KMB 960C	LTI - WB	1	120	6	5%	0	-	-	-
	KMB 960P	CPR - SB	6	720	412	57%	0	-	-	-
	KMB 960X	CPR - SB	7	840	105	13%	0	-	-	-
LWB A34	CPR - SB	3	360	66	18%	1	120	0	0%	
LWB E33P	LTI - WB	3	360	77	21%	0	-	-	-	
NLB B2	CPR - SB	3	360	158	44%	3	360	225	63%	
GMB 42	LTI - EB	4	76	46	60%	4	76	31	40%	
From other districts	CTB 50	LTI - WB	0	-	-	-	3	360	90	25%
	CTB 55	LTI - WB	0	-	-	-	2	240	60	25%
	CTB 56	LTI - WB	0	-	-	-	0	-	-	-
	CTB 56A	LTI - WB	3	360	180	50%	3	360	270	75%
	CTB 950	LTI - WB	0	-	-	-	1	120	54	45%
	CTB 955	LTI - WB	0	-	-	-	1	120	72	60%
	CTB B3A	LTI - WB	1	120	60	50%	2	240	180	75%
	KMB 53	CPR - NB	2	240	90	38%	2	240	180	75%
	KMB 63X	CPR - NB	2	240	90	38%	2	240	180	75%
	KMB 67M	LTI - WB	3	360	27	8%	4	480	150	31%
	KMB 67X	LTI - WB	3	360	50	14%	3	360	90	25%
	KMB 68A	CPR - NB	2	240	140	58%	5	600	350	58%
	KMB 258A	N/A	0	-	-	-	0	-	-	-
	KMB 258P	CPR - NB	0	-	-	-	3	360	90	25%
	KMB 261P	CPR - SB	0	-	-	-	0	-	-	-
	KMB 267X	LTI - WB	0	-	-	-	2	240	60	25%
	KMB 960A	LTI - EB	0	-	-	-	1	120	36	30%
	KMB 960C	LTI - EB	0	-	-	-	1	120	12	10%
	KMB 960P	CPR - NB	0	-	-	-	2	240	60	25%
	KMB 960X	CPR - NB	0	-	-	-	3	360	180	50%
LWB A34	CPR - NB	0	-	-	-	3	360	36	10%	
LWB E33P	LTI - EB	0	-	-	-	3	360	36	10%	
NLB B2	CPR - NB	4	480	240	50%	3	360	135	38%	
GMB 42	LTI	4	76	20	26%	4	76	10	13%	

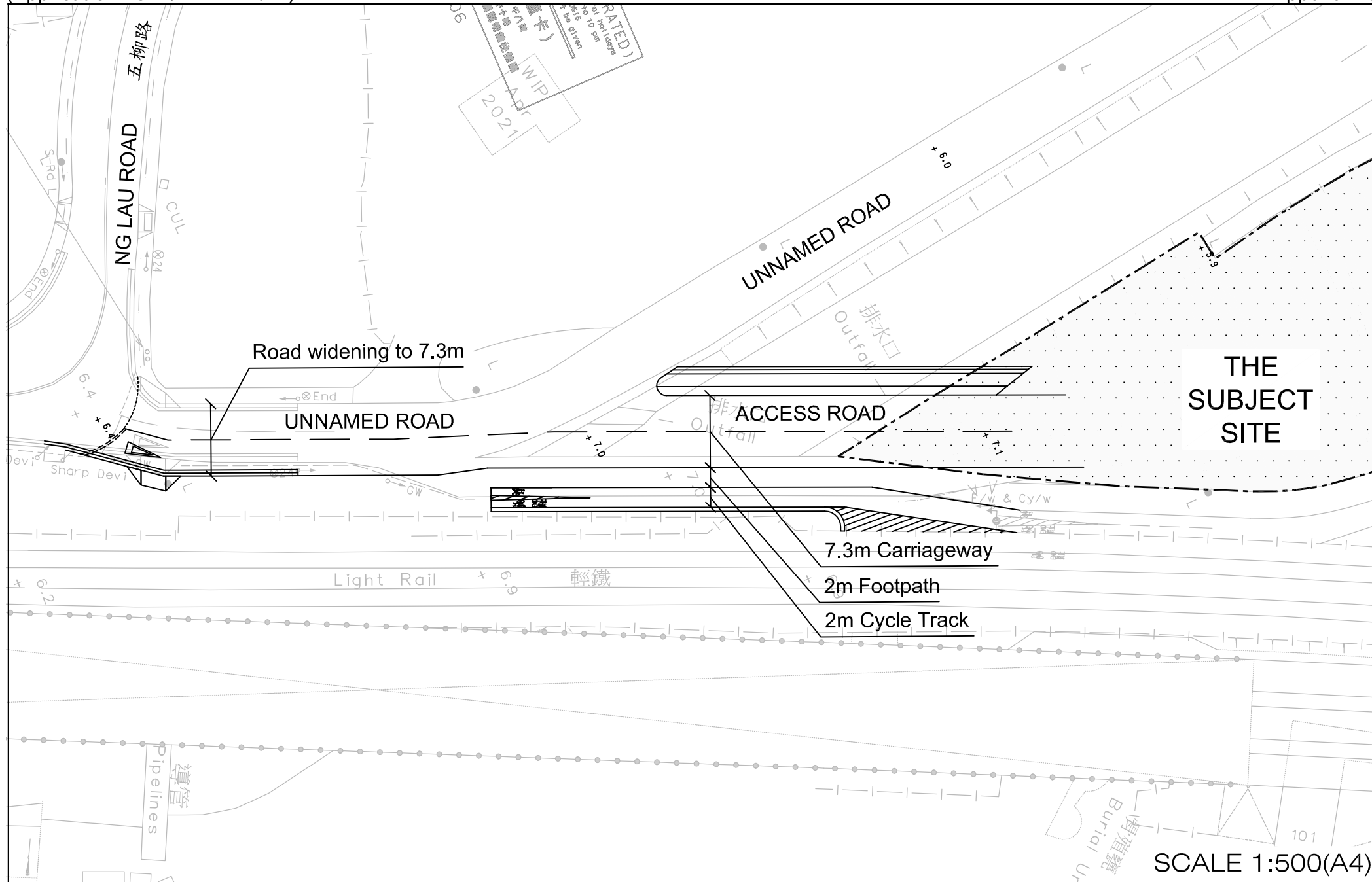
CPR – Castle Peak Road –Lam Tei LTI – Lam Tei Interchange
NB – northbound SB – southbound EB – eastbound WB – westbound

TABLE B2 DETAILED PEAK HALF-HOUR OCCUPANCY SURVEY RESULT ON THE PUBLIC TRANSPORT NEAR THE PROPOSED DEVELOPMENT

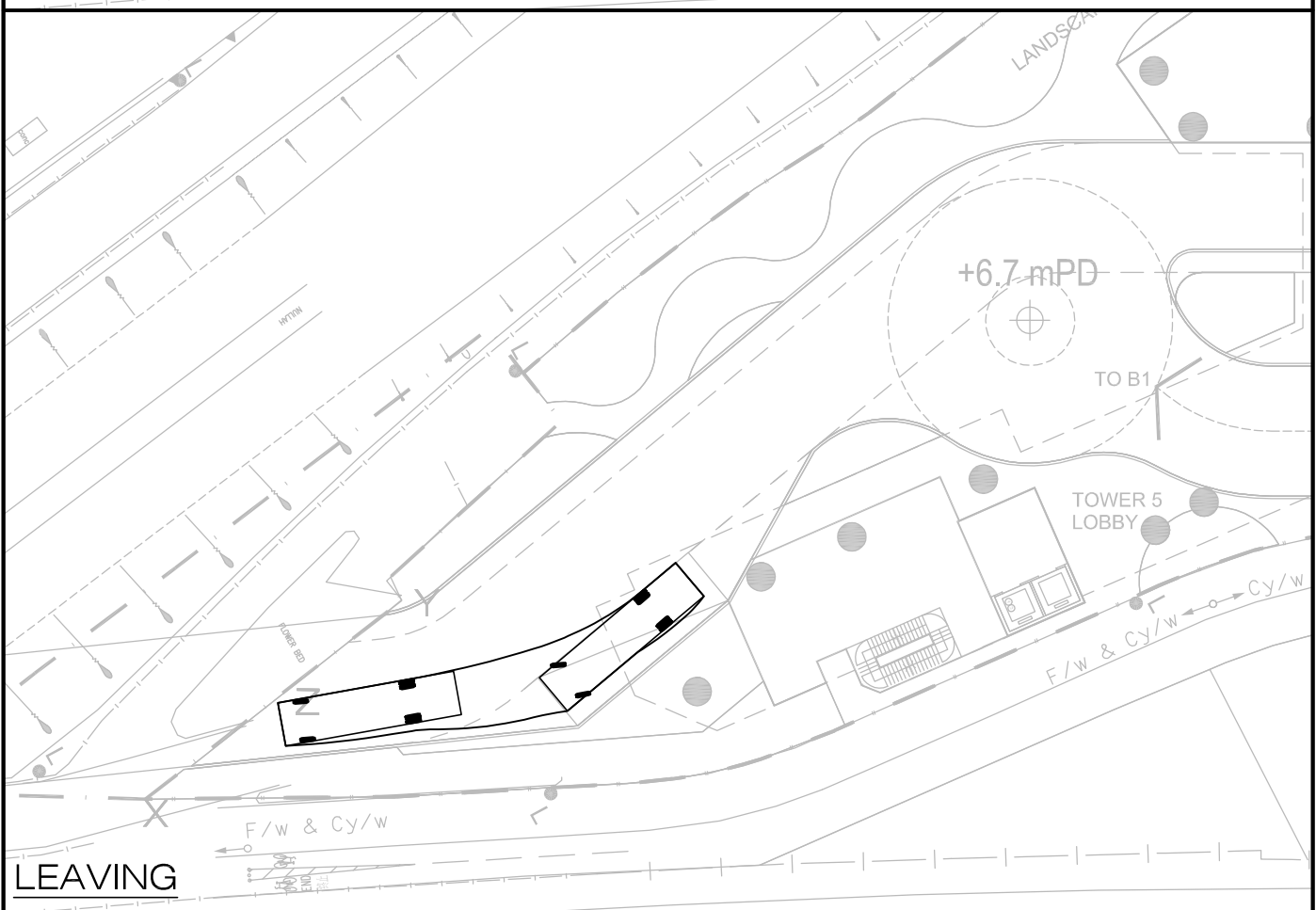
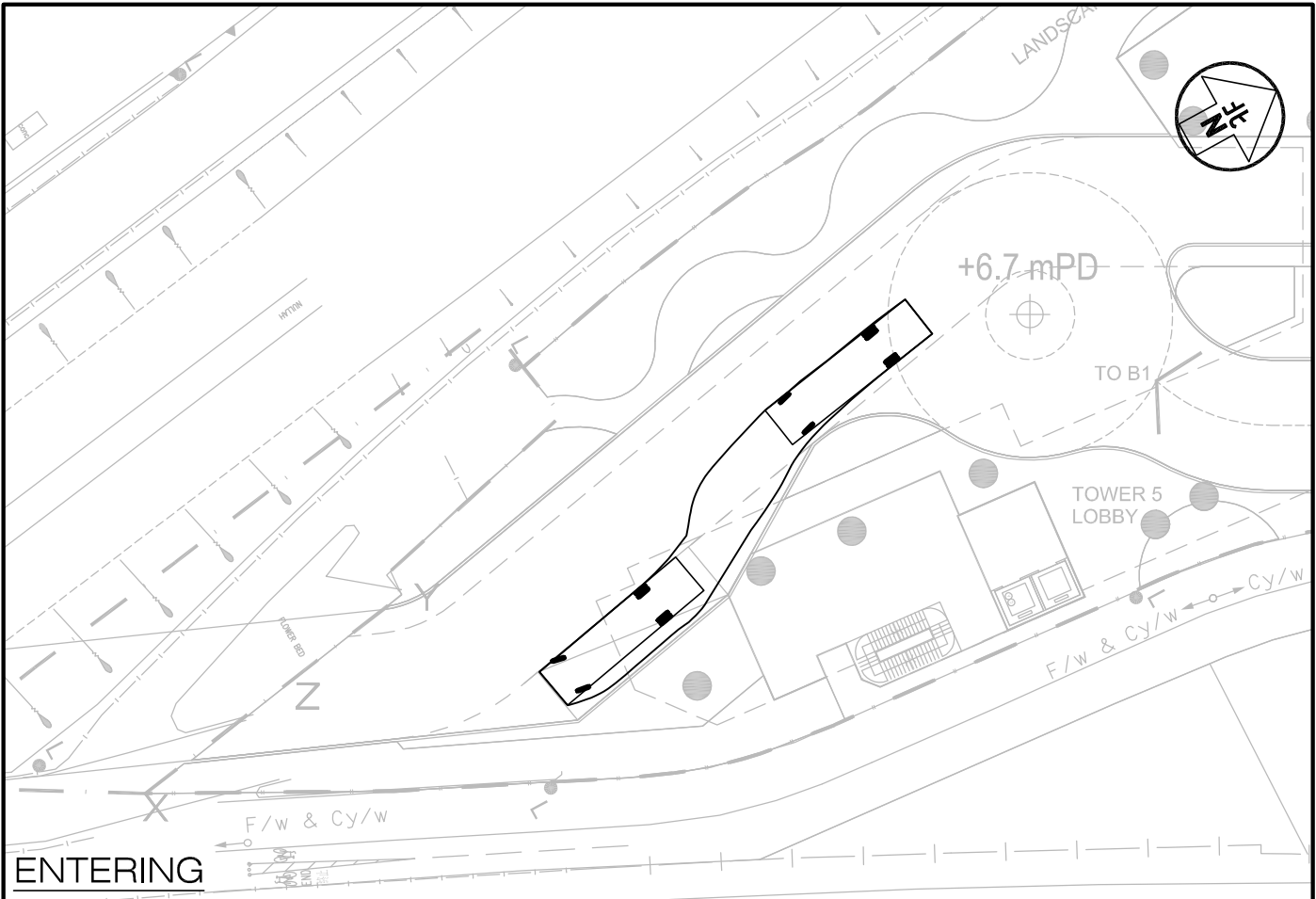
Direction	Routes	Survey Location	AM Peak Half-hour				PM Peak Half-hour			
			No. of Trips	No. of Passenger		Occu-pancy [c]=[b]/[a]	No. of Trips	No. of Passenger		Occu-pancy [c]=[b]/[a]
				Capacity [a]	Occupied [b]			Capacity [a]	Occupied [b]	
To other districts	CTB 50	LTI - EB	2	240	152	63%	0	0	-	-
	CTB 55	LTI - EB	2	240	180	75%	0	0	-	-
	CTB 56	LTI - EB	0	0	-	-	0	0	-	-
	CTB 56A	LTI - EB	2	240	192	80%	0	0	-	-
	CTB 950	LTI - EB	2	240	152	63%	0	0	-	-
	CTB 955	LTI - EB	1	120	60	50%	0	0	-	-
	CTB B3A	LTI - EB	1	120	108	90%	1	120	66	55%
	KMB 53	CPR - SB	1	120	45	38%	1	120	60	50%
	KMB 63X	CPR - SB	3	360	203	56%	2	240	72	30%
	KMB 67M	LTI - EB	4	480	144	30%	2	240	29	12%
	KMB 67X	LTI - EB	4	480	135	28%	1	120	30	25%
	KMB 68A	CPR - SB	2	240	169	70%	2	240	101	42%
	KMB 258A	CPR - SB	1	120	60	50%	0	0	-	-
	KMB 258P	CPR - SB	2	240	60	25%	0	0	-	-
	KMB 261P	CPR - NB	1	120	36	30%	0	0	-	-
	KMB 267X	LTI - EB	2	240	24	10%	0	0	-	-
	KMB 960A	N/A	0	0	-	-	0	0	-	-
	KMB 960C	LTI - WB	1	120	6	5%	0	0	-	-
	KMB 960P	CPR - SB	3	360	206	57%	0	0	-	-
	KMB 960X	CPR - SB	4	480	60	13%	0	0	-	-
LWB A34	CPR - SB	2	240	44	18%	1	120	0	0%	
LWB E33P	LTI - WB	2	240	63	26%	0	0	-	-	
NLB B2	CPR - SB	2	240	105	44%	2	240	168	70%	
GMB 42	LTI - EB	2	38	29	75%	2	38	16	40%	
From other districts	CTB 50	LTI - WB	0	0	-	-	2	240	68	28%
	CTB 55	LTI - WB	0	0	-	-	1	120	36	30%
	CTB 56	LTI - WB	0	0	-	-	0	0	-	-
	CTB 56A	LTI - WB	2	240	140	58%	2	240	200	83%
	CTB 950	LTI - WB	0	0	-	-	1	120	54	45%
	CTB 955	LTI - WB	0	0	-	-	1	120	72	60%
	CTB B3A	LTI - WB	1	120	60	50%	1	120	108	90%
	KMB 53	CPR - NB	1	120	60	50%	1	120	90	75%
	KMB 63X	CPR - NB	1	120	54	45%	1	120	96	80%
	KMB 67M	LTI - WB	2	240	24	10%	2	240	87	36%
	KMB 67X	LTI - WB	2	240	33	14%	2	240	68	28%
	KMB 68A	CPR - NB	1	120	78	65%	3	360	234	65%
	KMB 258A	N/A	0	0	-	-	0	0	-	-
	KMB 258P	CPR - NB	0	0	-	-	2	240	72	30%
	KMB 261P	CPR - SB	0	0	-	-	0	0	-	-
	KMB 267X	LTI - WB	0	0	-	-	2	240	60	25%
	KMB 960A	LTI - EB	0	0	-	-	1	120	36	30%
	KMB 960C	LTI - EB	0	0	-	-	1	120	12	10%
	KMB 960P	CPR - NB	0	0	-	-	1	120	30	25%
	KMB 960X	CPR - NB	0	0	-	-	2	240	144	60%
LWB A34	CPR - NB	0	0	-	-	2	240	29	12%	
LWB E33P	LTI - EB	0	0	-	-	2	240	24	10%	
NLB B2	CPR - NB	2	240	152	63%	2	240	101	42%	
GMB 42	LTI	2	38	15	37%	2	38	7	18%	

CPR – Castle Peak Road –Lam Tei LTI – Lam Tei Interchange
NB – northbound SB – southbound EB – eastbound WB – westbound

**Appendix C – Planned Road Works to be
implemented by the Owner**



SCALE 1:500(A4)



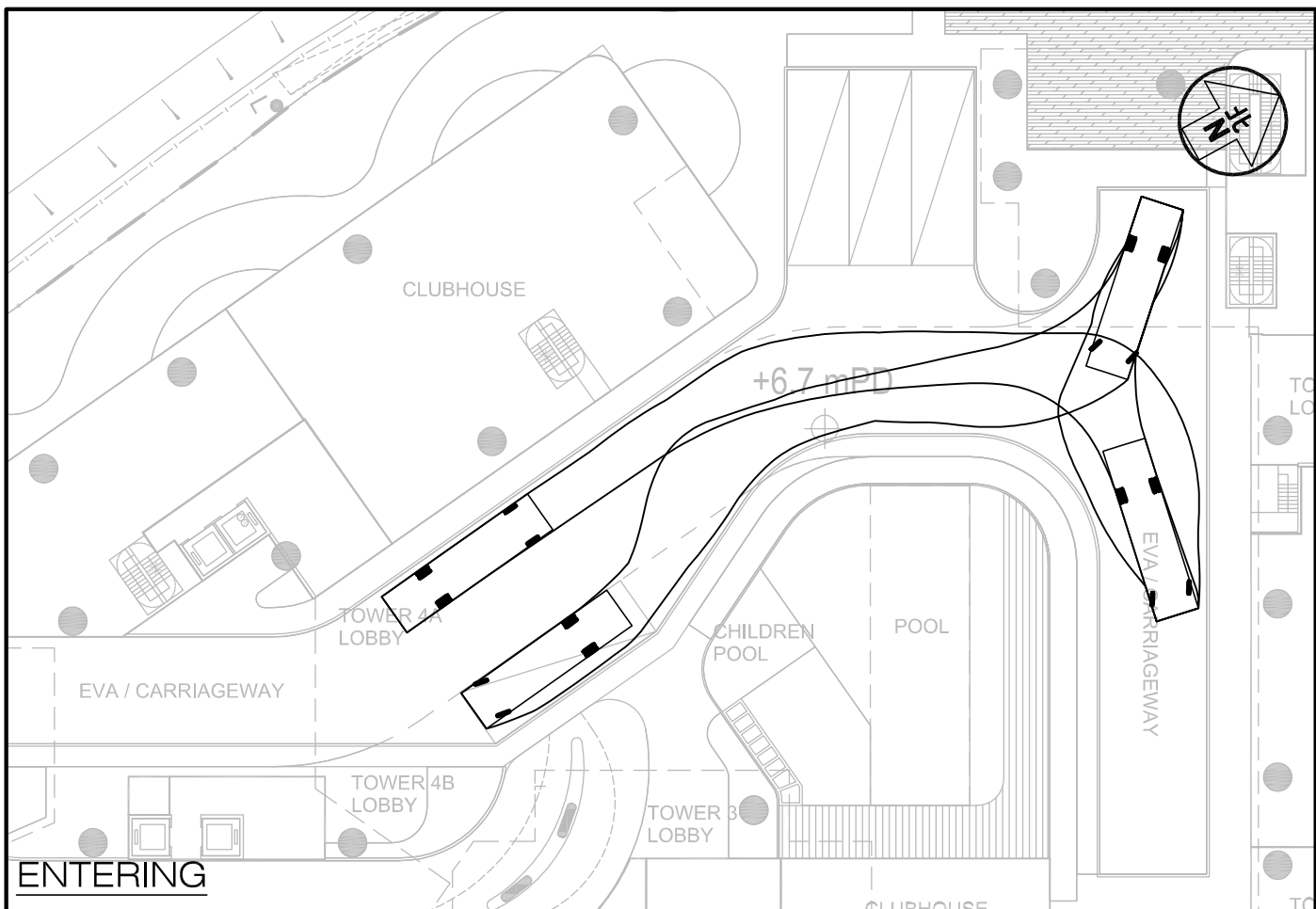
Project Title **PROPOSED REZONING FROM "RESIDENTIAL (GROUP B)1" ZONE TO "RESIDENTIAL (GROUP B)4" ZONE FOR MEDIUM-DENSITY HOUSING DEVELOPMENT TO INCLUDE A FOOTPATH FOR PUBLIC USE AT VARIOUS LOTS AND ADJACENT GOVERNMENT LAND IN DD130, LAM TEI, TUEN MUN (APPLICATION NO. Y/TM-LTY/11)**

Job No. J7265	Figure No. SP1	Scale in A4 1 : 400	
Designed by L K W	Drawn by W S W	Checked by K C	Revision G
		Date 20 FEB 2024	

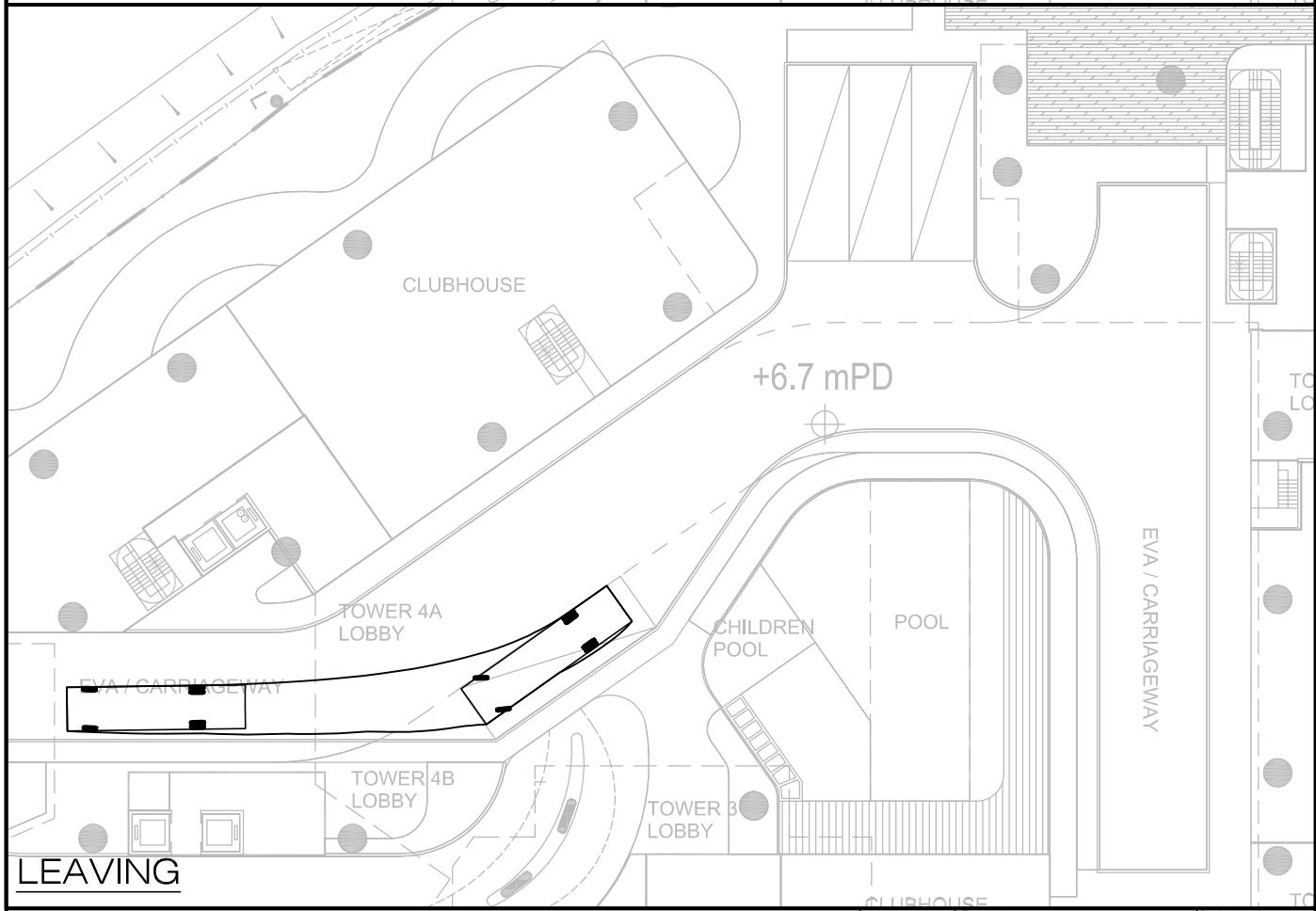
Figure Title **SWEPT PATH OF HGV ENTERING AND LEAVING THE LOADING / UNLOADING BAY**

CKM Asia Limited
 Traffic and Transportation Planning Consultants
 21st Floor, Methodist House, 36 Hennessy Road, Wan Chai, Hong Kong
 Tel : (852) 2520 5990 Fax : (852) 2528 6343 Email : mail@ckmasia.com.hk

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ENTERING



LEAVING

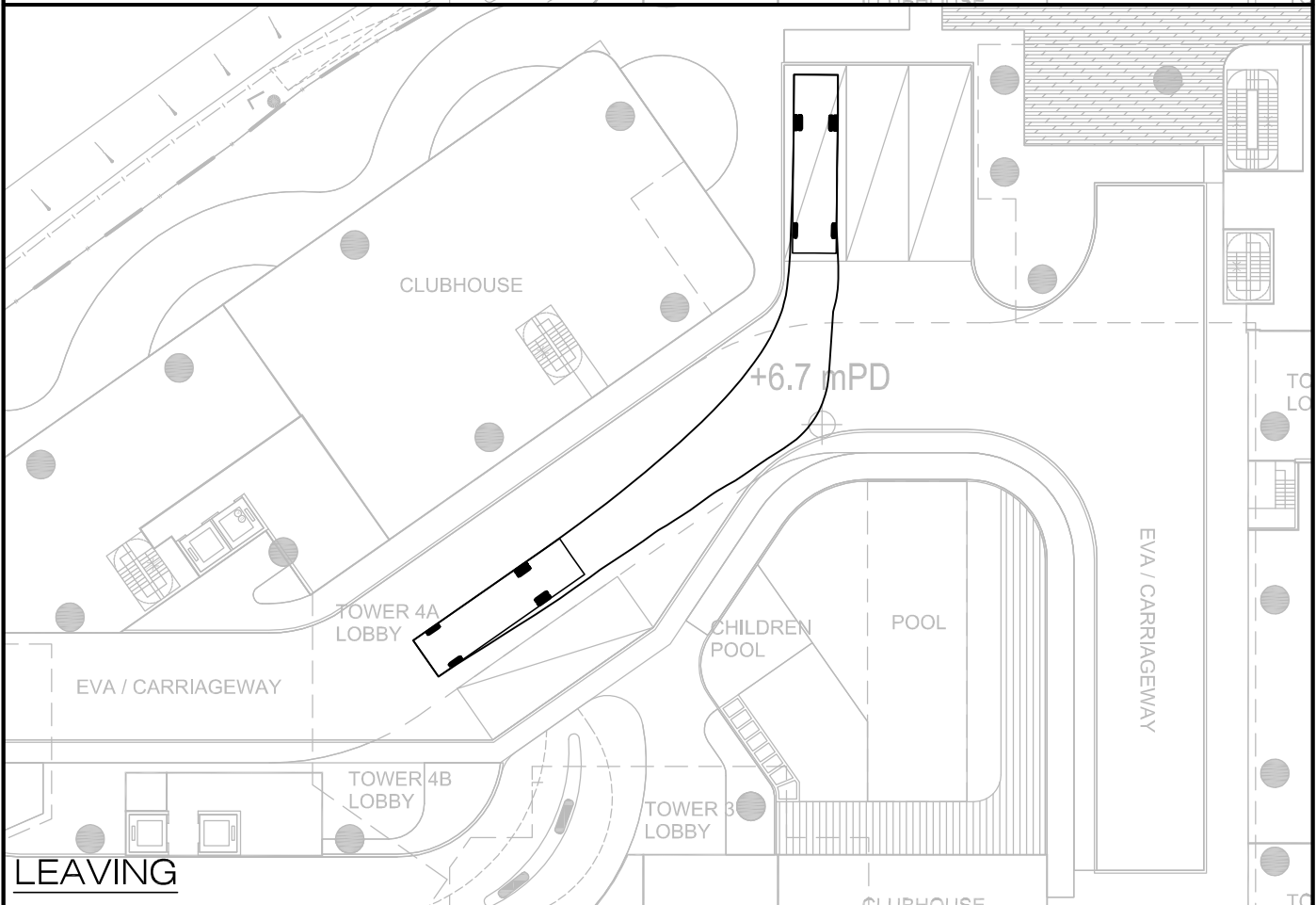
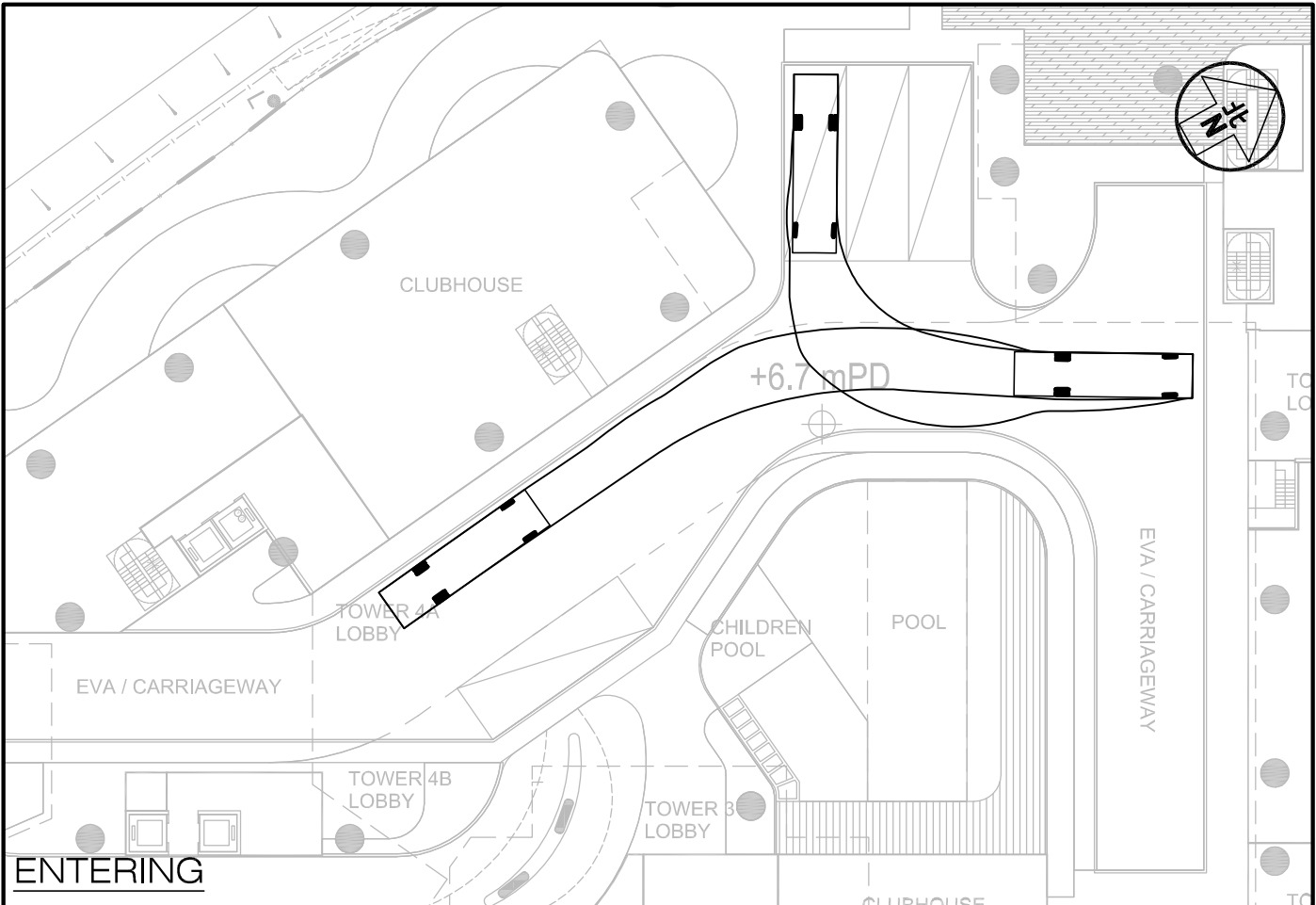
Project Title PROPOSED REZONING FROM "RESIDENTIAL (GROUP B)1" ZONE TO "RESIDENTIAL (GROUP B)4" ZONE FOR MEDIUM-DENSITY HOUSING DEVELOPMENT TO INCLUDE A FOOTPATH FOR PUBLIC USE AT VARIOUS LOTS AND ADJACENT GOVERNMENT LAND IN DD130, LAM TEI, TUEN MUN (APPLICATION NO. Y/TM-LTY/11)

Job No. J7265	Figure No. SP2	Scale in A4 1 : 400	
Designed by L K W	Drawn by W S W	Checked by K C	Revision G
		Date 20 FEB 2024	

Figure Title
SWEPT PATH OF HGV ENTERING AND LEAVING THE LOADING / UNLOADING BAY

CKM Asia Limited
Traffic and Transportation Planning Consultants
21st Floor, Methodist House, 36 Hennessy Road, Wan Chai, Hong Kong
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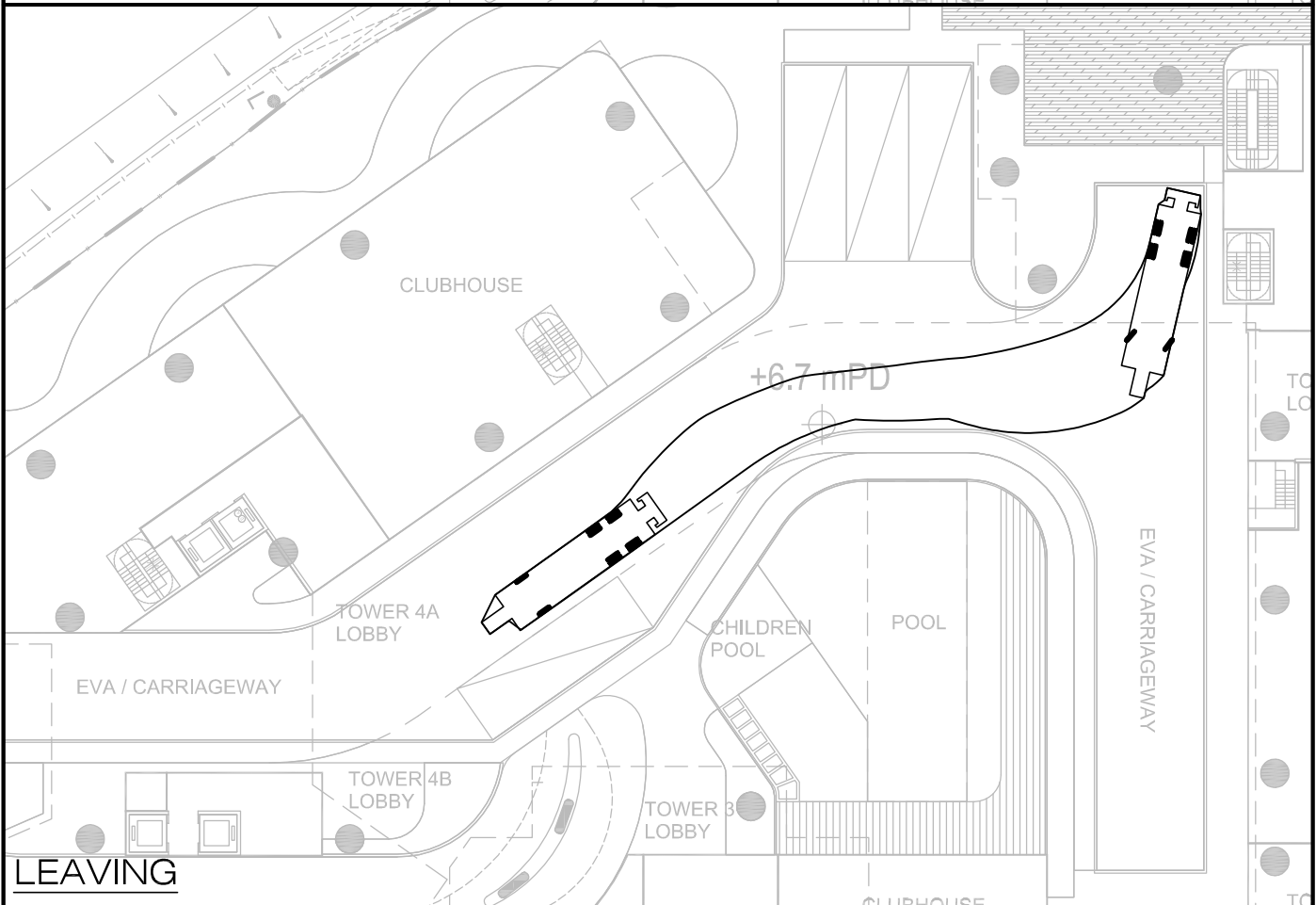
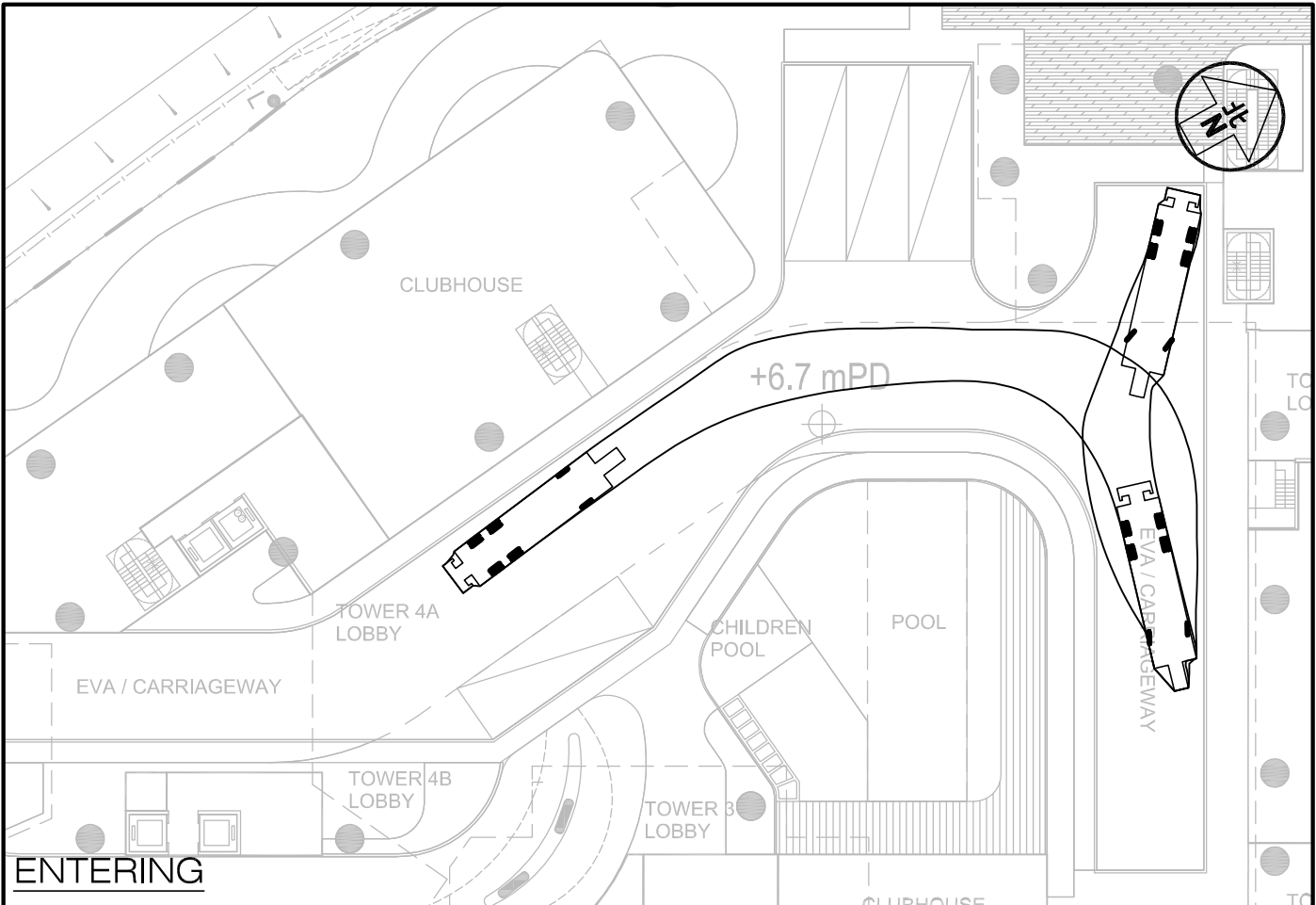
Project Title PROPOSED REZONING FROM "RESIDENTIAL (GROUP B)1" ZONE TO "RESIDENTIAL (GROUP B)4" ZONE FOR MEDIUM-DENSITY HOUSING DEVELOPMENT TO INCLUDE A FOOTPATH FOR PUBLIC USE AT VARIOUS LOTS AND ADJACENT GOVERNMENT LAND IN DD130, LAM TEI, TUEN MUN (APPLICATION NO. Y/TM-LTY/11)

Job No. J7265	Figure No. SP3	Scale in A4 1 : 400	
Designed by L K W	Drawn by W S W	Checked by K C	Revision G
		Date 20 FEB 2024	

Figure Title
SWEPT PATH OF HGV ENTERING AND LEAVING THE LOADING / UNLOADING BAY

CKM Asia Limited
Traffic and Transportation Planning Consultants
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Project Title PROPOSED REZONING FROM "RESIDENTIAL (GROUP B)1" ZONE TO "RESIDENTIAL (GROUP B)4" ZONE FOR MEDIUM-DENSITY HOUSING DEVELOPMENT TO INCLUDE A FOOTPATH FOR PUBLIC USE AT VARIOUS LOTS AND ADJACENT GOVERNMENT LAND IN DD130, LAM TEI, TUEN MUN (APPLICATION NO. Y/TM-LTY/11)

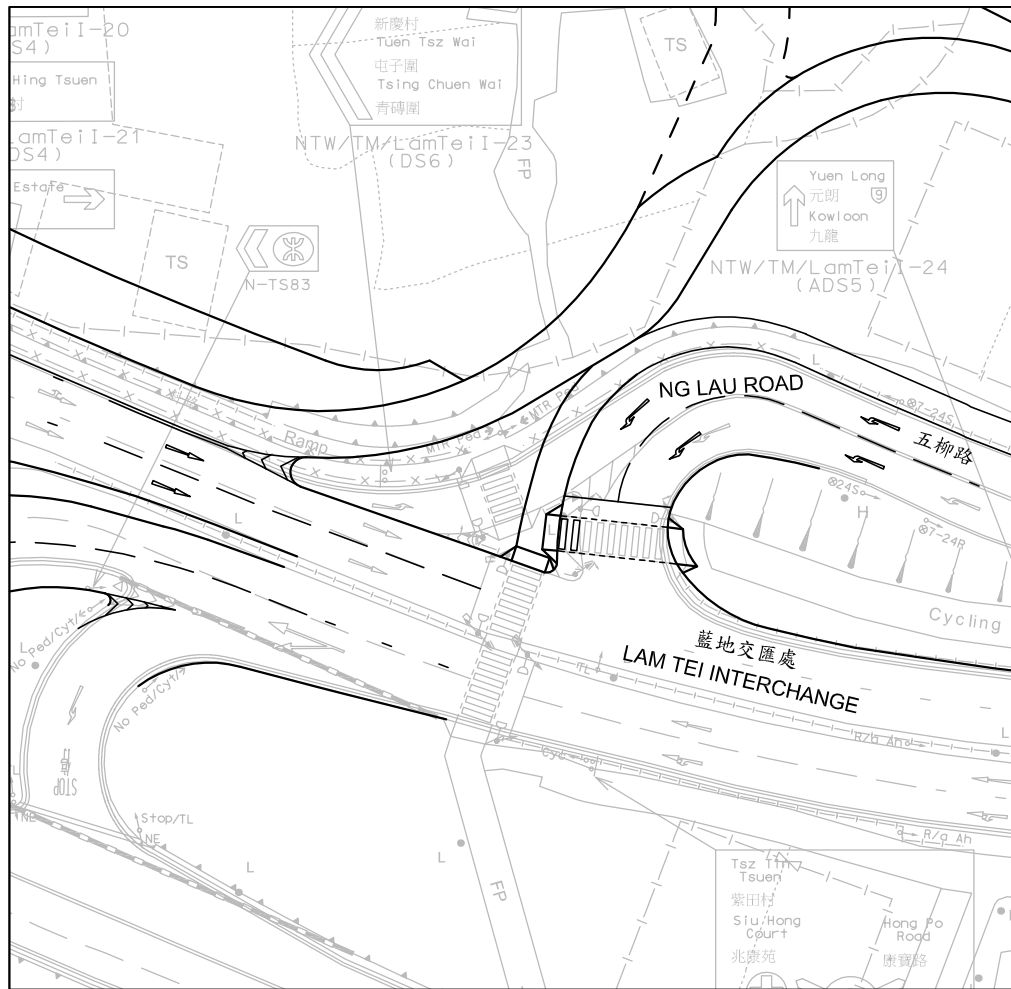
Job No. J7265	Figure No. SP4	Scale in A4 1 : 400	
Designed by L K W	Drawn by W S W	Checked by K C	Revision G
		Date 20 FEB 2024	

Figure Title
SWEPT PATH OF FIRE APPLIANCE ENTERING AND LEAVING THE SUBJECT SITE

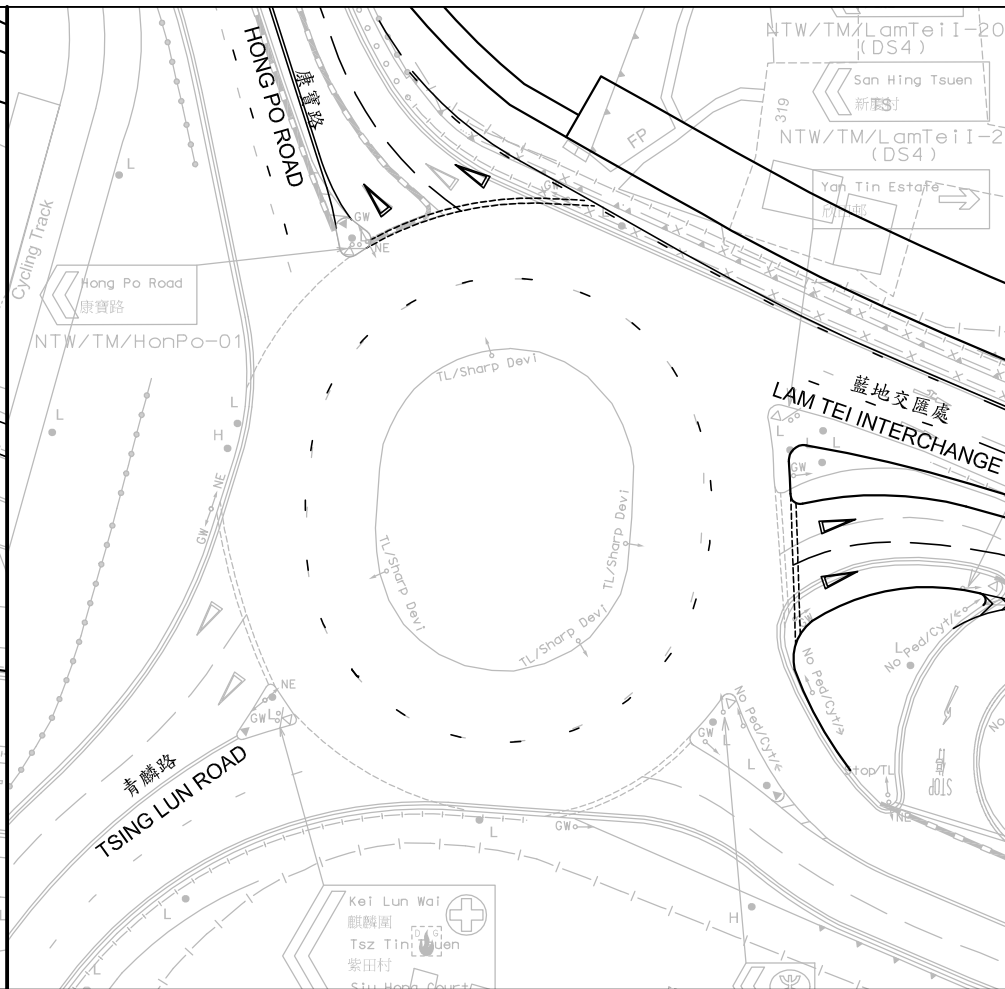
CKM Asia Limited
Traffic and Transportation Planning Consultants
21st Floor, Methodist House, 36 Hennessy Road, Wan Chai, Hong Kong
Tel : (852) 2520 5990 Fax : (852) 2528 6343 Email : mail@ckmasia.com.hk

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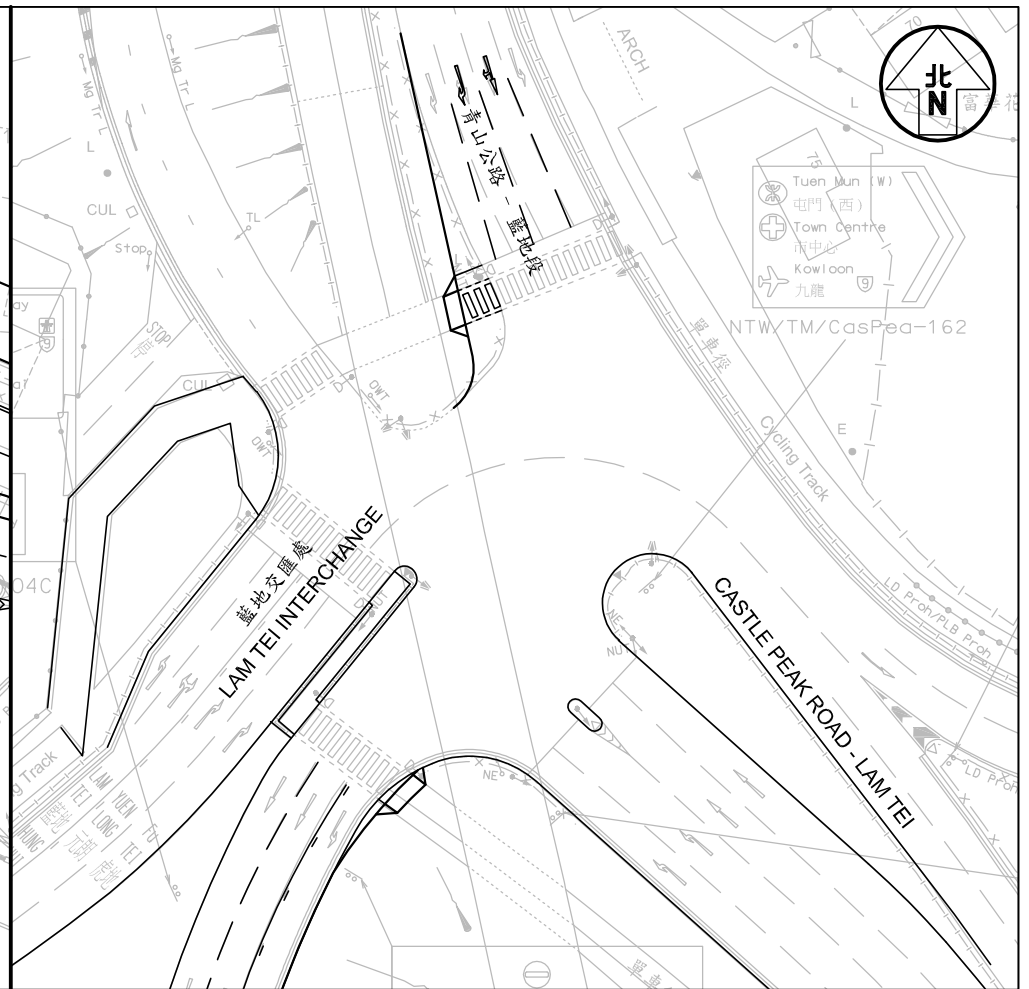
**Appendix E –
Extract of Planned Road Works under
Agreement No. CE 39/2021 (CE) and
CV/2019/04 by CEDD**



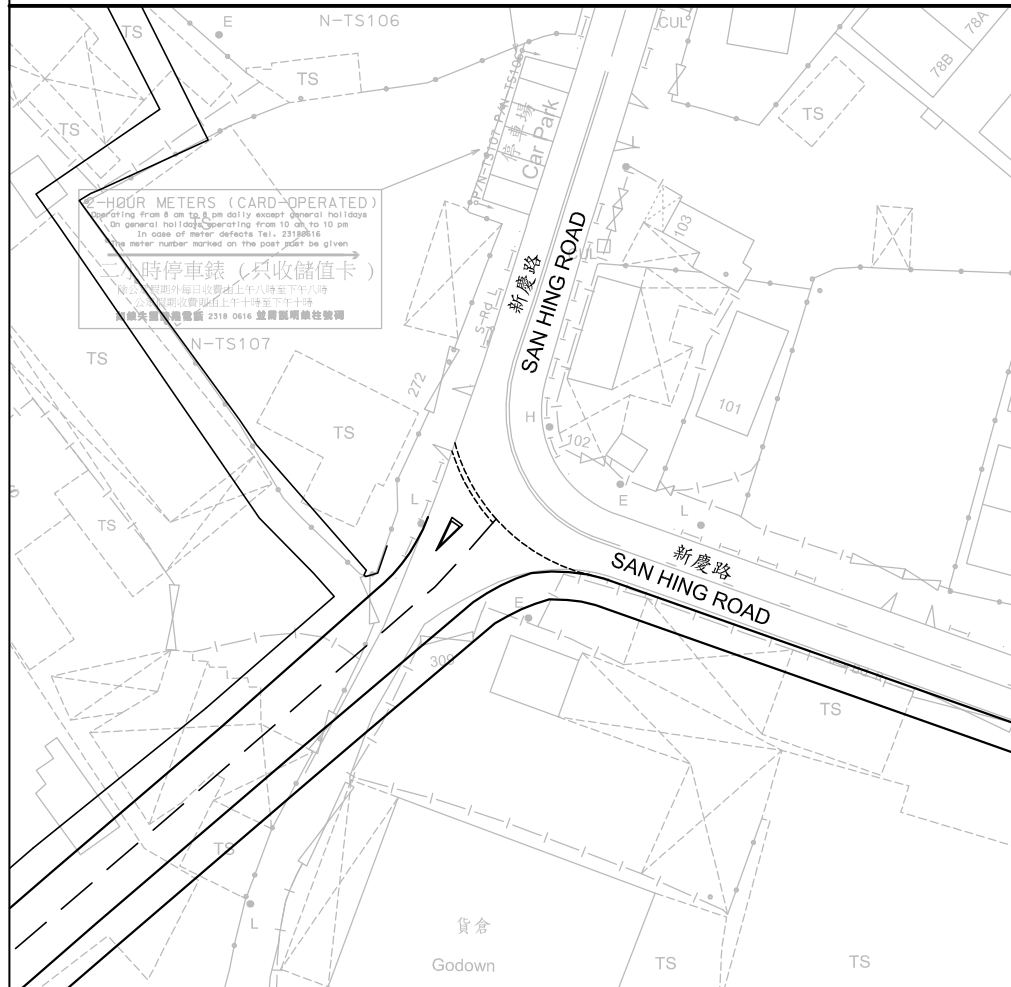
J3 - Ng Lau Road/ Lam Tei Interchange



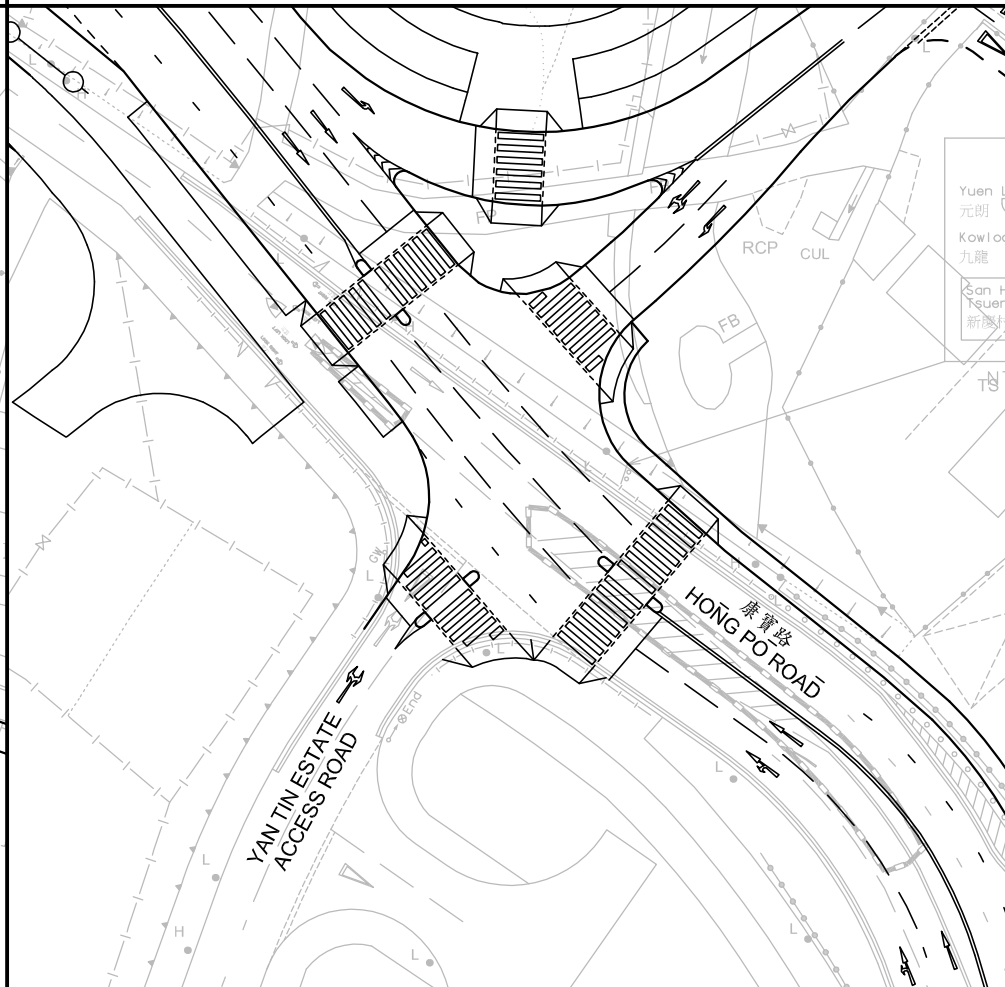
J4 - Tsing Lun Road/ Hong Po Road/ Lam Tei Interchange



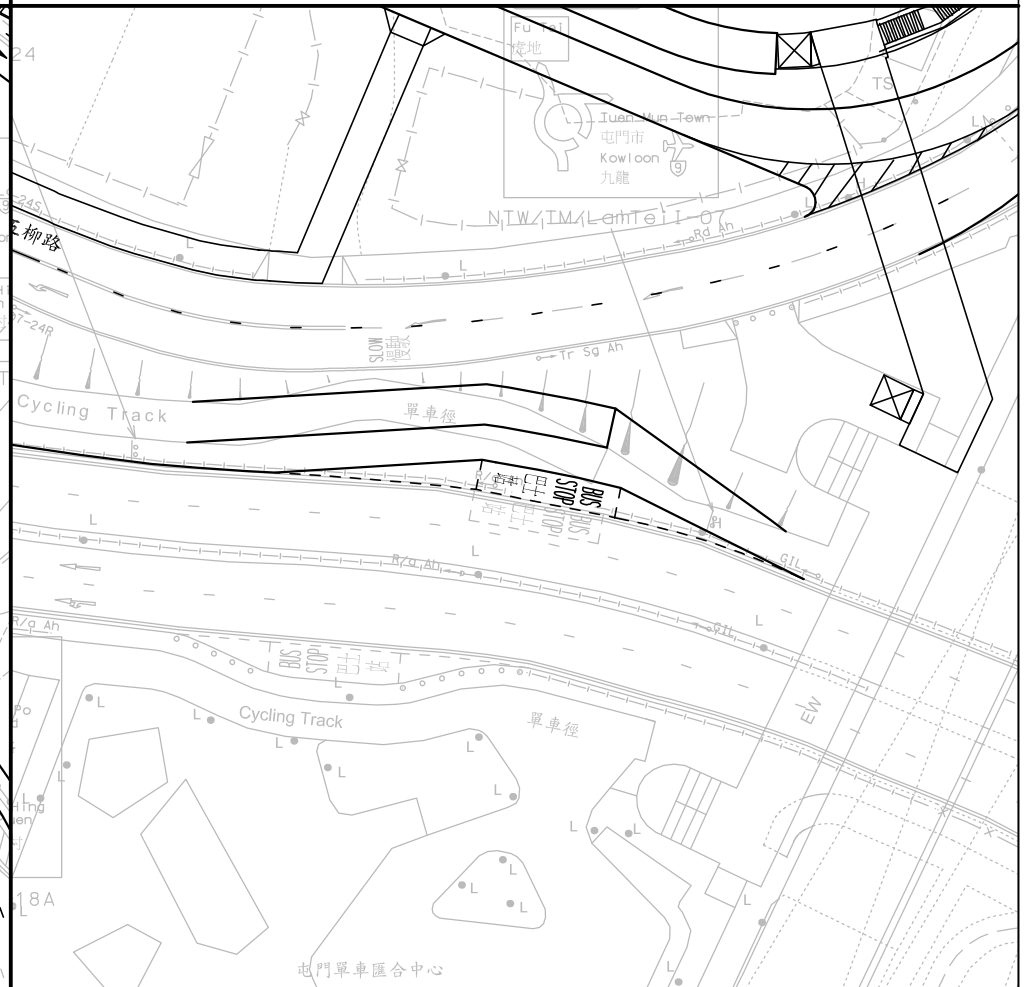
J6 - Lam Tei Interchange/ Castle Peak Road - Lam Tei



J10 - T-junction at San Hing Road



J12 - Hong Po Road/ Yan Tin Estate Access Road



Lam Tei Interchange Bus Stops

scale 1:750 (A3)

Planned Road Improvement Scheme at J7 - Junction of Tsing Lun Road / Tsz Tin Road

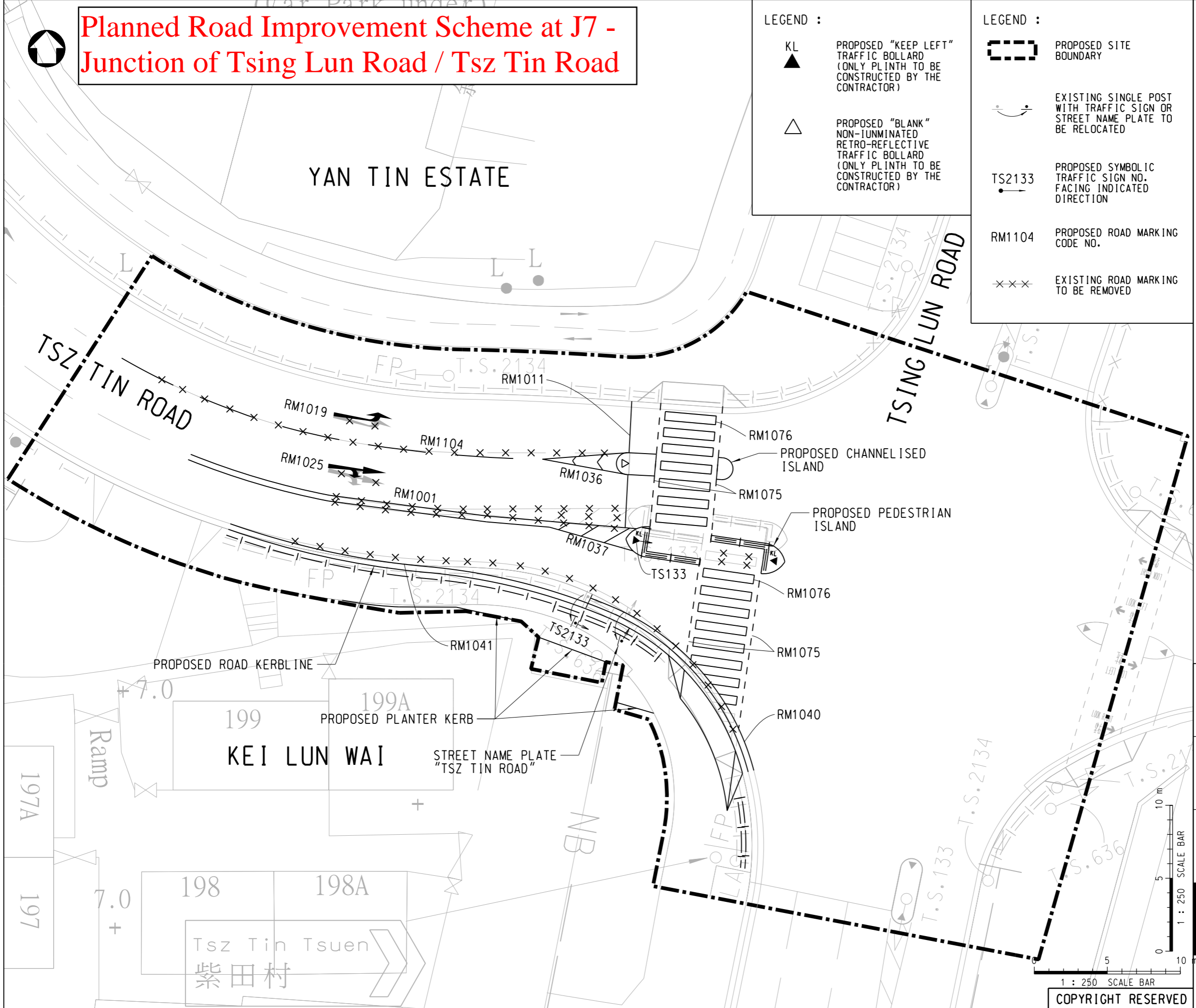
LEGEND :

- ▲ PROPOSED "KEEP LEFT" TRAFFIC BOLLARD (ONLY PLINTH TO BE CONSTRUCTED BY THE CONTRACTOR)
- △ PROPOSED "BLANK" NON-ILLUMINATED RETRO-REFLECTIVE TRAFFIC BOLLARD (ONLY PLINTH TO BE CONSTRUCTED BY THE CONTRACTOR)

LEGEND :

- PROPOSED SITE BOUNDARY
- ⤵ EXISTING SINGLE POST WITH TRAFFIC SIGN OR STREET NAME PLATE TO BE RELOCATED
- TS2133 PROPOSED SYMBOLIC TRAFFIC SIGN NO. FACING INDICATED DIRECTION
- RM1104 PROPOSED ROAD MARKING CODE NO.
- xxx EXISTING ROAD MARKING TO BE REMOVED

- NOTES :**
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
 2. GRID LINES ARE IN HONG KONG METRIC GRID 1980.
 3. ALL LEVELS ARE IN METRES ABOVE PRINCIPAL DATUM (mPD).
 4. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING NO. LWSK-J5-0010.
 5. DETAILS OF CONCRETE PLINTH FOR TRAFFIC BOLLARD SHALL REFER TO HyD STANDARD DRAWING NOS. H2140 TO H2141.
 6. FOR DETAILS OF TRAFFIC SIGNS AND ROAD MARKING, REFER TO VOLUME 3 OF TRANSPORT PLANNING AND DESIGN MANUAL (TPDM) PUBLISHED BY TRANSPORT DEPARTMENT.
 7. FOR SUPPORT DETAILS OF SINGLE POST TRAFFIC SIGNS INCLUDING COLOR OF POST, REFER TO HyD STANDARD DRAWING NOS. H2147 TO H2148.
 8. BACK OF ALL SIGNS SHALL BE PAINTED IN GREY TO BS5252F CODE 18B19.
 9. EXISTING ROAD MARKING TO BE AFFECTED SHALL BE REMOVED AND REPLACED BY PROPOSED ROAD MARKING.
 10. NEW SUPPORTS, INCLUDING SINGLE/MULTIPLE POSTS AND FRAME SUPPORTS, SHALL BE CONSTRUCTED FOR ALL PROPOSED AND RELOCATED TRAFFIC OR DIRECTIONAL SIGNS.



works order title
IMPROVEMENT WORKS AT
JUNCTION OF TSING LUN
ROAD AND TSZ TIN ROAD,
TUEN MUN

drawing title
**TRAFFIC AIDS AND ROAD
MARKING LAYOUT**

drawing no.	scale
LWSK-J5-0009	1 : 250

Office
**LAND WORKS DIVISION
CIVIL ENGINEERING OFFICE**

CEDD CIVIL ENGINEERING AND
DEVELOPMENT DEPARTMENT

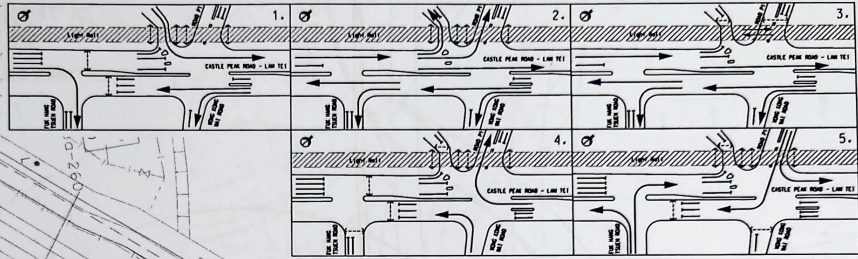
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19/09/2022 **10.9.25.31#CAD_General#CAD_Common#PEN_TABLE#filename&date.tbl

1 : 250 SCALE BAR
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**Appendix F –
Extract of Planned Road Works under
Agreement No. CE 01/2020 (CE) by CEDD**

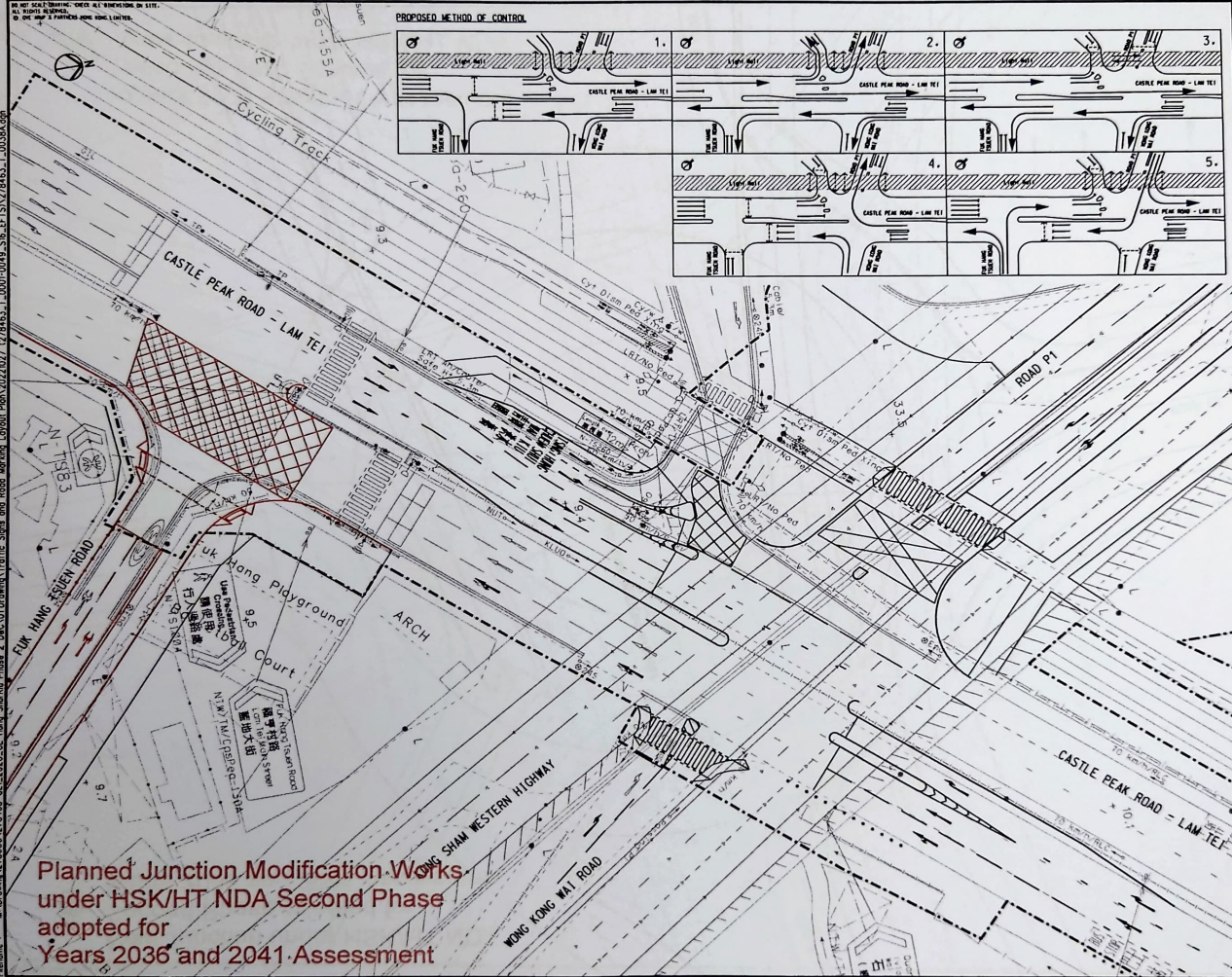
NO NET SCALE DRAWING. CHECK ALL DIMENSIONS ON SITE.
 ALL DIMENSIONS IN METERS.
 © THE HONG KONG ROAD AND LIGHTING AUTHORITY.

PROPOSED METHOD OF CONTROL



NOTES:
 1. FOR NOTES AND LEGEND, REFER TO DWG. NO. 278463/1/0001.

LEGEND:
 COMMITTED JUNCTION IMPROVEMENT SCHEME BY OTHERS
 PLANNED JUNCTION IMPROVEMENT SCHEME UNDER HSK/HT NDA SECOND PHASE



Rev	Description	By	Date

Comment

ARUP

Project Title
 Agreement No. CE 1/2020 (CE)
 Hung Shui Kiu / Ha Tsuen
 New Development Area Package A
 Works for Second Phase Development
 - Design and Construction

Drawing Title
 JUNCTION LAYOUT PLAN - J38
 CASTLE PEAK ROAD / ROAD P1/
 FUK HANG TSUEN ROAD

Drawing No.	Scale	Date	Checked	Approved
278463/1/0038A	1:250 @ A1			

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 Civil Engineering and
 Development Department

Planned Junction Modification Works
 under HSK/HT NDA Second Phase
 adopted for
 Years 2036 and 2041 Assessment

Printed by : 01/17/2022
 Drawing No. : 278463/1/0038A
 Project Title : Hung Shui Kiu Phase 2 NDA CE Design Traffic Signal and Road Marking Layout
 Photo: 5/22/2022 12:34:53
 I: 0001-0049-316-ETS/278463_1_0038A.dwg