Annex A
Revised Traffic Impact Assessment

Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.

Traffic Impact Assessment

Revised Final Report

March 2026

CTA Consultants Limited
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Appendix I – Kam Tin South Housing Development – Layout Plan
Appendix II – Junction Calculation Sheets

1. INTRODUCTION

1.1 Background

1.1.1 The Development Site is located at DD110, Shek Kong, Kam Tin Road, Yuen Long New Territories. The site location is shown in **Figure 1.1**.

1.1.2 The Applicant intends to rezone the Development Site from "Residential (Group C)2" and "Open Space" to "Residential (Group C)4" to enable the proposed residential development.

1.1.3 In support of the aforesaid application, a traffic impact assessment is required to review and appraise any possible traffic impact induced by the proposed development on the adjacent road network.

1.1.4 CTA Consultants Limited (CTA) was therefore commissioned as the traffic consultant to prepare the Traffic Impact Assessment (TIA) and provide technical justifications in supporting the application from traffic engineering point of view.

1.2 Study Objectives

1.2.1 Main objectives of this study are listed below:

- To assess the existing and proposed traffic arrangement & provision of internal transport facilities at the subject site;
- To assess the existing traffic condition in the vicinity of the proposed development;
- To estimate traffic trips related to the proposed development;
- To carry out forecasts about traffic demand of the adjacent road network in design year;
- To appraise any possible traffic impact induced by the proposed development on the adjacent road network;
- To recommend traffic improvement measures to alleviate any foreseeable traffic problem to the surrounding road network, if any.

2. THE PROPOSED DEVELOPMENT

2.1 Site Location

2.1.1 The Development Site is located in D.D. 110, Kam Tin, Yuen Long, New Territories. The site location is shown in **Figure 1.1**.

2.2 Development Proposal

2.2.1 Parameters of the proposed development are listed in **Table 2.1**.

Table 2.1 Parameters of the Proposed Development

	Development Parameters	
Proposed Use	Residential Use	
Development Site Area	8,580 m^2	
Domestic GFA	8,580 m^2	
Plot Ratio	1.0	
No. of Tower	6	
No. of Units	≤ 40 m^2	120
	40 m^2< FS ≤ 70 m^2	120

2.2.2 It is anticipated that the proposed development will be completed in year 2031.

2.2.3 The Master layout plan of the proposed development is shown in **Figures 2.1** and **2.2**. The Ground floor plan is shown in **Figures 2.3** and **2.4**.

2.3 Provision of Internal Transport Facilities

2.3.1 According to the requirements stipulated in the latest Hong Kong Planning Standards and Guidelines (HKPSG), the internal transport facilities provision for the proposed development is summarized in **Table 2.2**.

Table 2.2 Internal Transport Facilities Provision required under the HKPSG

Proposed Development			Parking Requirement					Loading/Unloading Requirement
			Private Car Parking Space				Motorcycle Parking Space	Bicycle Parking	Loading / Unloading Bay for Goods Vehicles
Private Housing	**Resident**						1 space per 100-150 flats	1 space for 15 flats with flat size ≤ 70m²	Provision of minimum 1 L/UL 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
	Flat Size (GFA) (m^2)	*No. of Flat*	GPS: 1 space per 4-7 flats			GPS x R1 X R2 X R3			
			R1	R2	R3				
	FS ≤ 40	120	0.5	1	1.3	12 to 20			
	40 <FS ≤ 70	120	1.2	1	1.3	27 to 47			
	70 < FS ≤ 100	0	2.4	1	1.3	0			
	100 < FS ≤ 130	0	4.1	1	1.3	0			
	130 < FS ≤ 160	0	5.5	1	1.3	0			
	FS > 160	0	7.0	1	1.3	0			
	Subtotal	***240***	***39 to 67***						
	Visitor								
	No. of Block	Average No. of Unit per Block	> 75 units per block: 5 visitor spaces per block, ≤ 75 units per block: Determined by TD						
	6	40	12(2)						
Total			**51 to 79(1)**				**2 to 3**	**16**	**6 HGV**

Notes: (1) Including 2 accessible car parking spaces for total 51-150 number of parking spaces

(2) Average about 40 units per block. As discussed with TD in previous planning application no. Y/YL-KTN/4, 2 visitor spaces per block is adopted.

2.3.2 The details of proposed internal transport facilities of the proposed development complying with the HKPSG requirements are summarized in **Table 2.3**.

Table 2.3 Proposed Internal Transport Facilities of Proposed Development

Type		Proposed Number of Spaces	
Private Housing			
Private Cars	Resident	67	79(1)
	Visitor	12(2)	
Motorcycles		3	
Bicycle Parking		16	
L/UL for HGV		6	

(1) Including 2 accessible car parking spaces for total 51-150 number of parking spaces.

(2) Average about 40 units per block. As discussed with TD in previous planning application no. Y/YL-KTN/4, 2 visitor spaces per block is adopted.

2.4 Upgrade of Kam Tin Road

2.4.1 Kam Tin Road will be upgraded by Highway Department under PWP item No. 6820TH "Upgrading of Remaining Sections of Kam Tin Road and Lam Kam Road". The works include:

(i) upgrading of a section of Kam Tin Road of approximately 1.9 kilometres long between Tung Wui Road and Fan Kam Road to a 10.3 metres wide single two lane carriageway

(ii) upgrading of a section of Kam Tin Road of approximately 2.1 kilometres long between Fan Kam Road and Lam Kam Road and a section of Lam Kam Road of approximately 1.3 kilometres long between Kam Tin Road and Kadoorie Farm and Botanic Garden to a 7.3 metres wide single two-lane carriageway;

2.4.2 The design of the proposed development and the assessment in this TIA considered this upgrading works.

2.5 Development Access

Without Kam Tin Road Widening

2.5.1 The access arrangement and the traffic signs are shown in **Figure 2.1.**

2.5.2 As shown in the swept paths in **Figures 2.1 (SP1)** to **2.1 (SP5)**, most of the vehicles can ingress and egress simultaneously, except for vehicles longer than 7m. To minimize the impact to the public road, it is proposed that all egress vehicles longer than **7m** are only allowed to turn right to westbound. One-way traffic flow will be adopted for the internal road. Ingress traffic cannot turn right but go straight inward to reduce conflicts with the egress traffic. Separate gates will be provided for ingress and egress traffic. The waiting area before the ingress gate could hold about 1 HGV plus 1 PV/LGV to avoid queue back to public road. Ingress traffic has priority to enter the proposed development. When long vehicles enter the proposed development, egress traffic must wait behind the egress gate until the long vehicles ingress. Traffic warden will be deployed at the entrance to assist vehicles in and out.

2.5.3 Besides, reference has been made to the surveyed trip distribution at Season Villas next to the proposed development to estimate the M/HGV trips of our proposed development. The estimated trips are shown below:

Table 2.4 Estimated M/HGV of the Proposed Development

	Traffic Trips (pcu/hr)			
	Weekday AM Peak		Weekday PM Peak	
	Gen.	Att.	Gen.	Att.
Estimated Trips of the Proposed Development *(From Table 4.7 in the Chapter 4 below)*	25	18	10	13
Surveyed % of M/HGV of Season Villas	0%	0%	13%	0%
Estimated M/HGV of the Proposed Development	**0**	**0**	**1**	**0**

2.5.4 It is revealed that the trips of M/HGV for the proposed development will be very low. Together with the above access arrangement and management, the chance of queuing back to the public road will be very small and negligible and therefore our proposed arrangement is acceptable.

With Kam Tin Road Widening

2.5.5 Under the "with Kam Tin Road Widening" scenario, the same arrangements are proposed (i.e. all egress vehicles longer than 7m are only allowed to turn right to westbound, one-way internal traffic, etc.). The access arrangement and the traffic signs are shown in **Figure 2.2**. Swept paths are shown in **Figure 2.2 (SP1)** and **2.2 (SP5)**.

2.5.6 The existing beam barrier and railings at proposed vehicular access will be removed as shown in **Figures 2.5**. Detailed modifications will be reviewed at the detail design stage.

3. EXISTING TRAFFIC CONDITION

3.1 Existing Road Network

3.1.1 The proposed development locates at Kam Tin Road. Kam Tin Road is a two-lane two-way road and connects to Kam Tin By-pass and Fan Kam Road.

3.2 Critical Junctions

3.2.1 Seven junctions are identified to be critical for the Traffic Impact Assessment due to the proposed development. Relevant details are listed in **Table 3.1** and shown in **Figure 3.1**. Existing junction layouts are tabulated in **Figures 3.2** to **3.8** respectively.

Table 3.1 Identified Critical Junctions

Ref.	Junction	Type	Figure No.
A	Kam Tin Bypass / Kam Tin Road / Tung Wui Road	Roundabout	3.2
B	Kam Tin Bypass / Kong Tai Road	Signalized	3.3
C	Kam Tin Road / Kam Tai Road	Priority	3.4
D	Kam Tin Road / Fan Kam Road	Roundabout	3.5
E	Kam Tin Road	Signalized	3.6
F	Kam Tin Road / Tsing Long Highway slip road	Signalized	3.7
G	Kam Tin Road / Kam Tin Bypass	Roundabout	3.8

3.2.2 As mentioned in Section 2.4, Kam Tin Road will be upgraded under HyD PWP item No. 6820TH. Therefore, junctions along Kam Tin Road (Junctions C, D and E) will also be improved. As there is no detail future layout of these junctions can be obtained from public domain, the conceptual future layouts of these junctions are drawn which are based on the existing layouts and gazette layout plans. Also, Junction improvement to Junctions F and G are constructing by CEDD under Contract No. YL/2017/01 (Original Target Completion Date: Mid 2022). The future layouts are shown in **Figures 3.10** to **3.14** respectively.

3.2.3 In order to study the existing traffic condition of the above critical junctions, traffic survey in the form of manual-classified count was carried out during the Weekday AM and PM peak periods on 26 February 2025 from 07:30AM to 09:30AM and 17:00PM to 19:00PM respectively. The survey provides most up-to-date details of the traffic condition within the study area under normal operation. Based on the observed traffic flows, it reveals that Weekday AM and PM peak hour occurred from 07:30AM to 08:30AM, 17:00PM to 18:00PM respectively.

3.2.4 Observed traffic data indicates that both morning peak hour, evening peak hour and the surveyed traffic flows are shown in **Figure 3.9**.

3.2.5 The operational performances of the critical junctions are listed in **Table 3.2** below.

Table 3.2 Operational Performances of Critical Junctions in 2025

Ref.	Junction	Method of Control	Year 2025 RC/DFC (1)	
			AM Peak	PM Peak
A	Kam Tin Bypass / Kam Tin Road / Tung Wui Road	Roundabout	0.36	0.34
B	Kam Tin Bypass / Kong Tai Road	Signalized	59%	90%
C	Kam Tin Road / Kam Tai Road	Priority	0.71	0.62
D	Kam Tin Road / Fan Kam Road	Roundabout	0.61	0.65
E	Kam Tin Road	Signalized	60%	70%
F(2)	Kam Tin Road / Tsing Long Highway slip road	Signalized	23%	23%
G	Kam Tin Road / Kam Tin Bypass	Roundabout	0.57	0.52

Notes: (1) RC = Reserve Capacity for Signal Junction;
DFC = Design Ratio of Flow to Capacity for Priority Junction/Roundabout
(2) Effect of TTA was considered

3.2.6 As the Government took over the Tai Lam Tunnel on 31 May 2025 and implemented new tolls, a new survey on Tai Lam Tunnel was carried out on 19 December 2025 to obtain the latest survey results.

Table 3.3 V/C Ratio of Critical Road Link in Year 2025

Index	Direction	Cap. (pcu/hr) (C)[1]	Observed Scenario			
			Flow (pcu/hr) (V)		V/C	
			AM Peak	PM Peak	AM Peak	PM Peak
L1	EB	3,415	2160	1935	0.63	0.57
	WB	3,415	2075	1930	0.61	0.56
L2	EB	3,415	675	620	0.20	0.18
	WB	3,415	685	700	0.20	0.21
L3	EB	855	320	265	0.37	0.31
	WB	855	260	295	0.30	0.35
L4	EB	1,035	870	830	0.84	0.80
	WB	1,035	915	860	**0.88**	0.83
L5	EB	1,035	920	820	**0.89**	0.79
	WB	1,035	950	970	**0.92**	**0.94**
Tai Lam Tunnel[3]	NB	6535	1815	3430	0.28	0.52
	SB	6535	5270	2560	0.81	0.39

***Note**:*

(1) Index please refer to Figure 3.1

3.2.7 The assessment results in **Table 3.2** and **3.3** indicate that all critical junctions and road links are at present operating with ample capacities during the peak hours except Link L4 and L5 above 0.85 but still lower than 1.0, which means there is still spare capacity.

3.3 Public Transport Services in the Vicinity

3.3.1 Numerous road-based public transport services, for instance, franchised buses and GMB are also provided in vicinity of the proposed development. Details of the current services of franchised buses and GMB routes within the catchment area of 500 meters are listed in **Table 3.4** and shown in **Figure 3.15**.

Table 3.4 Public Transport Services in the Vicinity of the Proposed Development

Service	Route	Origin - Destination	Frequency (mins)
Franchised Bus	54	Yuen Long (West) - Sheung Tsuen (Circular)	20 - 30
	77K	Yuen Long (Fung Cheung Road) – Sheung Shui	15 - 30
		Sheung Shui – Yuen Long (Fung Cheung Road)	12 - 30
		Sheung Shui – Yuen Long (West)	06:55(1)
		Sheung Shui – Kam Sheung Road Station	07:25(1)
	251B	Pat Heung Road - Sheung Tsuen (Circular)	20 - 30
	251M	Sheung Tsuen - Tsuen Wan Station	07:00, 08:00, 09:00(1)
GMB	608	Wang Toi Shan (Pat Heung) – Yuen Long (Fung Cheung Road) (Circular)	10-13
		Wang Toi Shan (Pat Heung) – Kam Sheung Road Station (Circular)	10-13
	608S	CONCORDIA Tsat Sing Kong Public Light Bus Terminus – Kam Sheung Road Station Public Transit Interchange (Circular)	15 – 30
RMB	18	Yuen Long - Sheung Shui	Non-regular
	Tai Po – Yuen Long	Tai Po – Yuen Long	Non-regular

***Note**:*

(1) Peak Hour Services only

4. FUTURE TRAFFIC CONDITION & TRAFFIC IMPACT ASSESSMENT

4.1 Design Year

4.1.1 It is anticipated that the proposed development would be completed in 2031 tentatively with full intended operation. In order to assess the possible traffic impacts to the local road network due to the proposed development, year 2034 (i.e. 3 years after completion) has been adopted as the design year for this study.

4.2 Traffic Forecast

4.2.1 To estimate the reference traffic flow in year 2034 (without the proposed development) in the local road network, an appropriate growth factor has to be identified for the area in the first instance. The following approaches have been adopted to derive the growth factor for the Area of Influence.

Historical Trend

4.2.2 TD has traffic count stations in the vicinity of the proposed development. The past 6 years traffic counts reported in the Annual Traffic Census (ATC) are shown in **Table 4.1**.

Table 4.1 Average Annual Daily Traffic (A.A.D.T.) Data in the Vicinity of the Proposed Development from ATC

ATC Stn.	Road Name	Annual Average Daily Traffic (AADT)						Average Annual Growth Rate
		2019	2020	2021	2022	2023	2024	
5014	Route Twisk (From Chuen Lung to Cheung Pei Shan RA)	6,420	6,910	6,990	6,660	6,960	7,060	1.92%
5463	Lam Kam Rd (From Kam Sheung Rd to Kadoorie Farm and Botanic Garden)	19,580	19,660	20,420	20,220	20,900	25,020	5.03%
6207	Kam Tin Rd (Kam Sheung Rd western junction to Fan Kam Rd)	21,300	21,640	20,490	20,520	21,510	20,230	-1.03%
6212	Fan Kam Rd (From Kam Tin Rd to Fanling Highway)	11,660	12,250	12,450	12,400	13,890	13,920	3.61%
6208	Kam Sheung Rd (From Kam Tin Rd to Kam Tin Rd)	8,080	9,400	8,960	9,600	10,460	10,060	4.48%
5254	Kam Tin Rd (From Fan Kam Rd to kam Sheung Rd eastern junctino)	18,510	18,330	19,040	18,850	15,740	16,320	-2.49%
Total		**85,550**	**88,190**	**88,350**	**88,250**	**89,460**	**92,610**	**1.60%**

4.2.3 The Average Annual Daily Traffic (AADT) flows in **Table 4.1** shows the average traffic growth on surrounding roads which increased at the rate of **1.60%** per annum.

Planning Data

4.2.4 Reference has also been made to the latest 2021-Based Territorial Population Employment Data Matrices (TPEDM) planning data published by the Planning Department for projection of population and employment within the study district. The average annual growth rates in terms of population and employment from 2021 to 2031 are tabulated in **Table 4.2**.

Table 4.2 2021-Based Planning Data from 2021 to 2031

Yuen Long Districts				
Data	**Year**			**Average Annual Growth Rate**
	2021	**2026**	**2031**	
Population	668,100	685,000	760,600	1.31%
Employment	152,850	238,500	258,200	5.38%
Total	**820,950**	**923,500**	**1,018,800**	**2.18%**

Adopted Growth Rate

4.2.5 A.A.D.T. of ATC indicates that the traffic flow of the local road network has an average annual growth rate of +1.60% from year 2019 to year 2024.

4.2.6 Whilst, the planning data indicates that the population and employment of the study area are expected to grow with an average annual growth rate of +2.18%.

4.2.7 As a conservative approach, annual growth rate **+2.18%** p.a. has been adopted for projecting traffic forecasts from year 2025 to year 2034. It is deemed sufficient to allow for any unexpected future growth as a result of some changes in land use or development in the study area.

4.3 Reference Traffic Flow in Year 2034

4.3.1 The year 2034 reference traffic flow is estimated by applying the adopted growth rate to the year 2025 observed traffic flow.

Adjacent New Developments

4.3.2 Additional traffic generation and attraction of major committed/planned developments in the vicinity have been estimated and superimposed onto the road network to derive the year 2034 reference traffic flow. The committed/planned developments in the vicinity are summarized **Tables 4.3** and **4.4** and illustrated in **Figure 4.1** and **Appendix I**.

Table 4.3 Development Schedule of Proposed Residential Development at Vicinity

Ref.	Development Site / Planning Application No.	Use	Development Parameters
A	A/YL-KTN/604	Residential	Not more than 3,891 flats
B	A/YL-KTN/663 (Park Yoho Phase 2)	Residential	Not more than 1,154 flats
C	A/YL-KTN/761	Residential	12 houses
D	A/YL-KTN/791	Residential	243 flats 87 houses
E	A/YL-KTN/964	Residential	615 flats
F	Y/YL-SK/1	Residential	850 flats

Note: According to their TIA reports / Planning Statement

Table 4.4 Development Schedules of Developments of Kam Tin South

Development Parameters	Proposed Scheme				
	KSRS	PHMC	Site 1	Site 4a	Site 6
Residential Type	Private	Private	PRH/SSF	PRH/SSF	PRH/SSF
No. of Flats	2,692	6,060	4,100	3,800	1,700
Average Flat Size	69m^2	70m^2	46m^2	46m^2	50m^2
Commercial / Retail GFA	40,000m^2	3,000m^2	4,000m^2	2,900m^2	-
Kindergarten	1	-	1	1	1
School	-	2	-	-	-

Note: According to the TIA report of Sites 1, 4a and 6 in support of Proposed Amendments to the Approved Kam Tin South Outline Zoning Plan No. S/YL-KTS/13 (RNTPC Paper No. 8/17) and the approved Planning Briefs of Site 1, 4a and 6

4.3.3 The adopted estimated trips of the proposed developments in vicinity are listed in below **Table 4.5**.

Table 4.5 Estimated Traffic Generations of Planned Vicinity Development

Developments	AM Peak		PM Peak	
	Gen.	Att.	Gen.	Att.
	Pcu/hr			
A/YL-KTN/604	335	223	149	185
A/YL-KTN/663	83	50	34	43
A/YL-KTN/761	4	2	2	3
A/YL-KTN/791	56	25	17	38
A/YL-KTN/964	63	44	26	29
Y/YL-SK/1	87	60	35	39
KSRS	331	236	220	271
PHMC (via Kam Ho Road Access)	176	117	72	96
PHMC (via Pat Heung Road Access)	383	256	155	208
Site 1	318	266	184	250
Site 4a	239	165	116	156
Site 6	113	102	51	69

Note: According to their TIA reports

4.3.4 The 2034 reference traffic flows are presented in **Figure 4.2**.

2034 Reference Flows (without proposed development) = **2025 Observed Flows** x **Adopted Growth Factor i.e. +2.18 % p.a. for 9 years** + **Traffic Flows of Adjacent Developments**

4.4 Traffic Trips of the Proposed Development

4.4.1 In order to estimate the traffic generation and attraction of the proposed development, reference has been made to the trip generation rates as stipulated in Volume 1 Chapter 3 Appendix D Table 1 of the latest T.P.D.M. published by Transport Department. The adopted trip rates are summarized in below **Table 4.6**.

Table 4.6 Adopted TPDM Trip Rates for the Development

Avg. Flat Size	Adopted Avg. Flat Size of TPDM	TPDM Upper Limit Trip Rates (pcu/flat/hr)			
		AM Peak		PM Peak	
		Gen	Att	Gen	Att
FS ≤ 40m^2	60 m^2	0.1021	0.0709	0.0415	0.0464
40m^2 <FS ≤ 70 m^2	70 m^2	0.1117	0.0729	0.0454	0.0551

4.4.2 Based on the adopted trip rate listed in the above **Table 4.6** and the development parameters in **Table 2.1**, the trip generated and attracted by the proposed development are estimated and summarized in the following **Table 4.7**.

Table 4.7 Estimated Traffic Generations and Attractions of Proposed Development

Proposed Development	Average Flat Size (m^2)	Nos. of Flat / GFA	AM Peak Hour		PM Peak Hour	
			Gen.	Att.	Gen.	Att.
			pcu/hr			
Resident	FS ≤ 40m^2	120	12	9	5	6
	40m^2 <FS ≤ 70 m^2	120	13	9	5	7
Total			**25**	**18**	**10**	**13**

4.5 Traffic Forecast for Design Year 2034

4.5.1 The net traffic trips of the proposed development is then superimposed onto the year 2034 reference traffic flow (without the proposed development) as shown in **Figure 4.2** to derive the year 2034 design traffic flow (with the proposed development).

Year 2034 Design Flow (with the Proposed Development) = **Year 2034 Reference Flow (without the Proposed Development)** + **Traffic Trips of the Proposed Development**

4.5.2 The traffic flow during AM and PM peak periods in the design year 2034 (with the proposed development) are shown in **Figure 4.3**. The development trips are shown in **Figure 4.4**.

5. TRAFFIC IMPACT ASSESSMENT

5.1 Operational Assessment

Reference Case in Year 2034

5.1.1 To assess traffic impacts due to the proposed development, operational assessment of the critical junctions identified in Chapter 3 are carried out for both reference (without the proposed development) and design (with the proposed development) scenarios in year 2034. The results are summarized in **Table 5.1**.

Table 5.1 Operational Performance of Critical Junctions for Reference Case in Year 2034

Ref.	Junction	Method of Control		Year 2034 RC/DFC [1] Reference Scenario (Without the Proposed Development)	
				AM Peak	PM Peak
A	Kam Tin Bypass / Kam Tin Road / Tung Wui Road	Roundabout		0.49	0.46
B	Kam Tin Bypass / Kong Tai Road	Signalized		31%	55%
C	Kam Tin Road / Kam Tai Road	Priority	w/o PWP	**1.08**	**0.97**
			w PWP[2]	0.25	0.30
D	Kam Tin Road / Fan Kam Road	Roundabout	w/o PWP	**0.90**	**0.90**
			w PWP[2]	0.74	0.67
E	Kam Tin Road	Signalized	w/o PWP	20%	28%
			w PWP[2]	28%	36%
F[3]	Kam Tin Road / Tsing Long Highway slip road	Signalized		30%	24%
G[3]	Kam Tin Road / Kam Tin Bypass	Roundabout		0.75	0.60

Notes: (1) RC = Reserve Capacity for Signal Junction;
DFC = Design Ratio of Flow to Capacity for Priority Junction/Roundabout
(2)Based on future PWP 6820's layouts shown in Figures 3.10 to 3.12
(3)Based on future CEDD's layouts shown in Figures 3.13 to 3.14

Table 5.2 V/C Ratio of Critical Road Link for Reference Case in Year 2034

Index	Direction	Cap. (pcu/hr) (C)[1]	Reference Scenario (Without the Proposed Development)			
			Flow (pcu/hr) (V)		V/C	
			AM Peak	PM Peak	AM Peak	PM Peak
L1[2]	EB	5,125	3030	2545	0.59	0.50
	WB	3,415	2895	2560	0.85	0.75
L2	EB	3,415	825	765	0.24	0.22
	WB	3,415	840	860	0.25	0.25
L3	EB	855	525	390	0.61	0.46
	WB	855	415	445	0.49	0.52
L4 (w/o PWP)	EB	1,035	1200	1090	**1.16**	**1.05**
	WB	1,035	1220	1145	**1.18**	**1.11**
L4 (w PWP)	EB	1,340	1200	1090	**0.90**	0.81
	WB	1,340	1220	1145	**0.91**	0.85
L5 (w/o PWP)	EB	1,035	1250	1070	**1.21**	**1.03**
	WB	1,035	1245	1265	**1.20**	**1.22**
L5 (w PWP)	EB	1,340	1250	1070	**0.93**	0.80
	WB	1,340	1245	1265	**0.93**	**0.94**
Tai Lam Tunnel	NB	6,535	2715	4645	0.42	0.71
	SB	6,535	7100	3470	**1.09**	0.53

Note: (1) Index please refer to Figure 3.1
(2) Capacity based on future widening schemes under government projects

Design Case in Year 2034

5.1.2 The operational assessment of the critical junctions for the Design Scenario (with the proposed development) in year 2034 was carried out and the results are summarized in **Table 5.3**.

Table 5.3 Operational Performance of Critical Junctions for Design Case in Year 2034

Ref.	Junction	Method of Control		Year 2034 RC/DFC [1] Design Scenario (With the Proposed Development)	
				AM Peak	PM Peak
A	Kam Tin Bypass / Kam Tin Road / Tung Wui Road	Roundabout		0.50	0.46
B	Kam Tin Bypass / Kong Tai Road	Signalized		30%	55%
C	Kam Tin Road / Kam Tai Road	Priority	w/o PWP	**1.09**	**0.98**
			w PWP[2]	0.25	0.30
D	Kam Tin Road / Fan Kam Road	Roundabout	w/o PWP	**0.90**	**0.90**
			w PWP[2]	0.75	0.67
E	Kam Tin Road	Signalized	w/o PWP	18%	28%
			w PWP[2]	26%	35%
F[3]	Kam Tin Road / Tsing Long Highway slip road	Signalized		30%	24%
G[3]	Kam Tin Road / Kam Tin Bypass	Roundabout		0.75	0.60

Notes: (1) RC = Reserve Capacity for Signal Junction;
DFC = Design Ratio of Flow to Capacity for Priority Junction/Roundabout
(2)Based on future PWP 6820's layouts shown in Figures 3.10 to 3.12
(3)Based on future CEDD's layouts shown in Figures 3.13 to 3.14

Table 5.4 V/C Ratio of Critical Road Link for Design Case in Year 2034

Index	Direction	Cap. (pcu/hr) (C)[1]	Design Scenario (With the Proposed Development)			
			Flow (pcu/hr) (V)		V/C	
			AM Peak	PM Peak	AM Peak	PM Peak
L1[2]	EB	5,125	3035	2550	0.59	0.50
	WB	3,415	2905	2565	0.85	0.75
L2	EB	3,415	830	770	0.24	0.23
	WB	3,415	850	865	0.25	0.25
L3	EB	855	525	390	0.61	0.46
	WB	855	415	445	0.49	0.52
L4 (w/o PWP)	EB	1,035	1215	1100	**1.17**	**1.06**
	WB	1,035	1240	1150	**1.19**	**1.11**
L4 (w PWP)	EB	1,340	1215	1100	**0.90**	0.82
	WB	1,340	1240	1150	**0.92**	**0.86**
L5 (w/o PWP)	EB	1,035	1260	1070	**1.22**	**1.03**
	WB	1,035	1255	1265	**1.21**	**1.22**
L5 (w PWP)	EB	1,340	1260	1070	**0.94**	0.80
	WB	1,340	1255	1265	**0.94**	**0.94**
Tai Lam Tunnel	NB	6,535	2720	4650	0.42	0.71
	SB	6,535	7110	3475	**1.09**	0.53

Note: (1) Index please refer to Figure 3.1
(2) Capacity based on future widening schemes under government projects

5.1.3 The assessment result in **Tables 5.1 to 5.4** reveals that all Junctions and V/C will operate with ample capacities in both reference and design scenarios with planned PWP's works in year 2034, except Link L4, L5 above 0.85 but still lower than 1.0, which means there is still spare capacity. Tai Lam Tunnel southbound in AM peak will over 1.0 but still below 1.2, which is a manageable degree of congestion but still acceptable.

5.1.4 According to Tuen Mun DC TTC paper 04/2021, the traffic flow would be redistributed by the strategic road planning Route 11 and associated major roads. The V/C ratio of Tai Lam Tunnel will drop from 1.2 to 0.7 after the Route 11 and associated major roads are completed. Therefore, the congestion of Tai Lam Tunnel would be relieved and become acceptable after the completion of Route 11 and associated major roads.

5.2 Sensitivity Test on Remaining Sites of Land Use Review for Kam Tin and Pat Heung (LUR)

5.2.1 There are 9 remaining sites under LUR. They are still in the review stage and therefore have no target year of completion. It is believed that developments at these sites should only be completed after our design year.

5.2.2 This sensitivity test is carried out to see the effect if all the remaining sites are being considered.

Table 5.5 Development Parameters of Remaining Sites under LUR

Site No.	Use	Planned/ Target PR (1)	Expected Completion	No. of Units (about)(1)
2	Private Housing	2.1	N/A	452
3	Private Housing	2.1	N/A	1,106
4b	Public Housing	3.0	N/A	5,700
4c	Private Housing	2.1	N/A	626
5a	Public Housing	3.0	N/A	3,300
5b	Private Housing	0.8	N/A	289
7	Private Housing	1.5	N/A	3,018
8	Private Housing	1.5	N/A	882
9	Private Housing	0.8	N/A	1,676

Note: (1) TPB Paper No. 9590 refers.

Table 5.6 Estimated Traffic Generations of Remaining Sites under LUR

Development Site No.	AM Peak		PM Peak	
	Gen.	Att.	Gen.	Att.
	Pcu/hr			
2	41	24	17	22
3	99	57	40	54
4b	355	243	170	229
4c	56	33	23	31
5a	206	141	99	133
5b	26	15	11	14
7	268	156	108	145
8	79	46	32	43
9	149	87	60	81

Note: Assume average 50m^2 for Public Housing and average 70m^2 for Private Housing

5.2.3 The traffic generation of the remaining sites under LUR are superimposed to the network and the results are shown below.

Table 5.7 Operational Performance for Reference Case in Year 2034 (With Remaining Sites under LUR)

Ref.	Junction	Method of Control		Year 2034 RC/DFC (1) Reference Scenario (Without the Proposed Development, With Remaining Sites under LUR)	
				AM Peak	PM Peak
A	Kam Tin Bypass / Kam Tin Road / Tung Wui Road	Roundabout		0.50	0.47
B	Kam Tin Bypass / Kong Tai Road	Signalized		31%	55%
C	Kam Tin Road / Kam Tai Road	Priority	w/o PWP	**1.68**	**1.01**
			w PWP(2)	0.26	0.30
D	Kam Tin Road / Fan Kam Road	Roundabout	w/o PWP	**0.93**	**0.93**
			w PWP(2)	0.76	0.69
E	Kam Tin Road	Signalized	w/o PWP	17%	25%
			w PWP(2)	25%	32%
F(3)	Kam Tin Road / Tsing Long Highway slip road	Signalized		16%	18%
G(3)	Kam Tin Road / Kam Tin Bypass	Roundabout		0.85	0.67

Notes: (1) RC = Reserve Capacity for Signal Junction;
DFC = Design Ratio of Flow to Capacity for Priority Junction/Roundabout
(2)Based on future PWP 6820's layouts shown in Figures 3.10 to 3.12
(3)Based on future CEDD's layouts shown in Figures 3.13 to 3.14

Table 5.8 V/C Ratio of Critical Road Link for Reference Case in Year 2034 (With Remaining Sites under LUR)

Index	Direction	Cap.	Reference Scenario (Without the Proposed Development, With Remaining Sites under LUR)			
		(pcu/hr) (C)[1]	Flow (pcu/hr) (V)		V/C	
			AM Peak	PM Peak	AM Peak	PM Peak
L1[2]	EB	5,125	3295	2795	0.64	0.55
	WB	3,415	3325	2745	**0.97**	0.80
L2	EB	3,415	825	765	0.24	0.22
	WB	3,415	840	860	0.25	0.25
L3	EB	855	525	390	0.61	0.46
	WB	855	415	445	0.49	0.52
L4 (w/o PWP)	EB	1,035	1250	1115	**1.21**	**1.08**
	WB	1,035	1250	1175	**1.21**	**1.14**
L4 (w PWP)	EB	1,340	1250	1115	**0.93**	0.83
	WB	1,340	1250	1175	**0.93**	**0.88**
L5 (w/o PWP)	EB	1,035	1300	1095	**1.25**	**1.06**
	WB	1,035	1275	1295	**1.23**	**1.25**
L5 (w PWP)	EB	1,340	1300	1095	**0.97**	0.82
	WB	1,340	1275	1295	**0.95**	**0.96**
Tai Lam Tunnel	NB	6,535	3275	5170	0.50	0.79
	SB	6,535	7995	3860	**1.22**	0.59

Note: (1) Index please refer to Figure 3.1
(2) Capacity based on future widening schemes under government projects

Table 5.9 Operational Performance for Design Case in Year 2034 (With Remaining Sites under LUR)

Ref.	Junction	Method of Control		Year 2034 RC/DFC [1] Design Scenario (With the Proposed Development, With Remaining Sites under LUR)	
				AM Peak	PM Peak
A	Kam Tin Bypass / Kam Tin Road / Tung Wui Road	Roundabout		0.51	0.47
B	Kam Tin Bypass / Kong Tai Road	Signalized		30%	55%
C	Kam Tin Road / Kam Tai Road	Priority	w/o PWP	**2.32**	**1.02**
			w PWP[2]	0.26	0.30
D	Kam Tin Road / Fan Kam Road	Roundabout	w/o PWP	**0.94**	**0.93**
			w PWP[2]	0.77	0.69
E	Kam Tin Road	Signalized	w/o PWP	15%	24%
			w PWP[2]	23%	32%
F[3]	Kam Tin Road / Tsing Long Highway slip road	Signalized		16%	18%
G[3]	Kam Tin Road / Kam Tin Bypass	Roundabout		0.85	0.67

Notes: (1) RC = Reserve Capacity for Signal Junction;
DFC = Design Ratio of Flow to Capacity for Priority Junction/Roundabout
(2)Based on future PWP 6820's layouts shown in Figures 3.10 to 3.12
(3)Based on future CEDD's layouts shown in Figures 3.13 to 3.14

Table 5.10 V/C Ratio of Critical Road Link for Design Case in Year 2034 (With Remaining Sites under LUR)

Index	Direction	Cap.	Design Scenario (With the Proposed Development, With Remaining Sites under LUR)			
		(pcu/hr) (C)[1]	Flow (pcu/hr) (V)		V/C	
			AM Peak	PM Peak	AM Peak	PM Peak
L1[2]	EB	5,125	3300	2800	0.64	0.55
	WB	3,415	3335	2750	**0.98**	0.80
L2	EB	3,415	830	770	0.24	0.23
	WB	3,415	850	865	0.25	0.25
L3	EB	855	525	390	0.61	0.46
	WB	855	415	445	0.49	0.52
L4 (w/o PWP)	EB	1,035	1265	1125	**1.22**	**1.08**
	WB	1,035	1270	1180	**1.22**	**1.14**
L4 (w PWP)	EB	1,340	1265	1125	**0.94**	0.84
	WB	1,340	1270	1180	**0.95**	**0.88**
L5 (w/o PWP)	EB	1,035	1310	1095	**1.26**	**1.06**
	WB	1,035	1285	1295	**1.24**	**1.25**
L5 (w PWP)	EB	1,340	1310	1095	**0.98**	0.82
	WB	1,340	1285	1295	**0.96**	**0.96**
Tai Lam Tunnel	NB	6,535	3280	5175	0.50	0.79
	SB	6,535	8005	3865	**1.22**	0.59

Note: (1) Index please refer to Figure 3.1
(2) Capacity based on future widening schemes under government projects

5.2.4 The assessment result in **Tables 5.7 to 5.10** reveals that all Junctions and V/C will operate with ample capacities in both reference and design scenarios with planned PWP's works and with the Remaining Sites under LUR in year 2034, except Link L1, L4 and L5 above 0.85 but still lower than 1.0, which means there is still spare capacity. Tai Lam Tunnel southbound in AM peak will be over 1.2. However, Tai Lam Tunnel will already be over 1.2 even without our proposed development and our impact to it is negligible.

5.2.5 According to Tuen Mun DC TTC paper 04/2021, the traffic flow would be redistributed by the strategic road planning Route 11 and associated major roads. The V/C ratio of Tai Lam Tunnel will drop from 1.2 to 0.7 after the Route 11 and associated major roads are completed. Therefore, the congestion of Tai Lam Tunnel would be relieved and become acceptable after the completion of Route 11 and associated major roads.

5.3 Mitigation Measure

5.3.1 As the programme of PWP works are still under review, the PWP works maybe delayed and the programme may be mis-match between the development and the public works project.

5.3.2 Except for Junction C (the DFC changes from 1.08 (reference case) to 1.09 (design case)), the rest of the road junction/road links only changes by 0 to 0.01 (DFC or V/C)

5.3.3 For Junction C, an improvement scheme is proposed as shown in **Figure 5.1**. The Applicant considers carrying out the improvement works as per the improvement scheme, in case of programme mis-match between the development and the public works project.

Table 5.11 Operational Performance of Critical Junctions for Design Case in Year 2034

Ref.	Junction	Proposed Improvement	Year 2034 RC/DFC (1)			
			Design Scenario (Without Proposed Improvement)		Design Scenario (With Proposed Improvement)	
			AM Peak	PM Peak	AM Peak	PM Peak
C	Kam Tin Road / Kam Tai Road	- Local Widening on Kam Tin Road - A right-turn pocket is added to allow traffic wait and turn from Kam Tin Road westbound into Kam Tai Road	**1.09**	**0.98**	0.80	0.35

Notes: (1) RC = Reserve Capacity for Signal Junction;
DFC = Design Ratio of Flow to Capacity for Priority Junction/Roundabout

5.3.4 The assessment results in **Table 5.11** indicate that Junction would be operating with ample capacities with the proposed improvement scheme. This improvement will be carried out by the Applicant to minimize the impact to traffic, in case of programme mis-match between the development and the public works project.

6. PUBLIC TRANSPORT DEMAND

6.1 Survey on Existing Public Transport Service

6.1.1 The proposed development is not close to MTR station and the public transport service is not comprehensive. A public transport survey was carried out at the existing bus/GMB stops on Kam Tin Road as shown in **Figure 3.15**.

6.1.2 The survey was carried out on 26 February 2025 during the morning / evening peak periods. The findings are presented in the **Tables 6.1** to **6.4** below.

Table 6.1 Public Transport Survey at Stop P1 – Eastbound (To Sheung Shui / Tsuen Wan)

P1						
Eastbound (To Sheung Shui / Tsuen Wan)						
		Routes	Observed Trips	Average Occupancy	Spare Capacity (passenger)	
AM Peak (0730-0830)	BUS	54	2	38%	89	329
		77K	3	43%	115	
		251B	2	23%	125	
	GMB	608	17	69%	84	202
		608S	3	38%	30	
	RMB	18	11	50%	88	
		-	7	100%	0	
PM Peak (1700-1800)	BUS	54	3	38%	133	438
		77K	4	49%	125	
		251B	3	25%	180	
	GMB	608	13	94%	12	32
		608S	2	63%	12	
	RMB	18	7	100%	0	
		Tai Po – Yuen Long	8	94%	8	

Notes: (a) Full capacity of 120 passengers with max. 75% for double-decked Franchised Bus is assumed.
(b) Part of the observed GMBs are 19-seater. For conservative, full capacity of 16 passengers for minibus is assumed.

Table 6.2 Summary of Public Transport Survey – Eastbound (To Sheung Shui / Tsuen Wan)

P1			
Eastbound (To Sheung Shui / Tsuen Wan)			
Period	**PT**	**Total Spare Capacity (passenger)**	**Expected Spare Capacity in 2034 (passenger) [(a)]**
AM Peak (0730-0830)	**Bus**	329	270
	Minibus	202	166
PM Peak (1700-1800)	**Bus**	438	359
	Minibus	32	26

Notes: (a) 2.18% growth rate adopted in Section 4.2

Table 6.3 Public Transport Survey at Stop B – Westbound (To Yuen Long / Kam Sheung Road)

P2						
Westbound (To Yuen Long / Kam Sheung Road)						
		Routes	**Observed Trips**	**Average Occupancy**	**Spare Capacity (passenger)**	
AM Peak (0730-0830)	BUS	54	2	49%	62	363
		77K	5	53%	132	
		251B	2	27%	115	
		251M	1	30%	54	
	GMB	608	21	113%	-44	-1
		608S	1	119%	-3	
	RMB	18	14	81%	43	
		-	3	94%	3	
PM Peak (1700-1800)	BUS	54	2	19%	134	448
		77K	3	25%	180	
		251B	2	19%	134	
	GMB	608	11	100%	0	33
		608S	3	50%	24	
	RMB	18	9	94%	9	
		Tai Po – Yuen Long	5	100%	0	

Notes: (a) Full capacity of 120 passengers with max. 75% for double-decked Franchised Bus is assumed.
(b) Part of the observed GMBs are 19-seater. For conservative, full capacity of 16 passengers for minibus is assumed.

Table 6.4 Summary of Public Transport Survey – Westbound (To Yuen Long / Kam Sheung Road)

P2			
Westbound (To Yuen Long / Kam Sheung Road)			
Period	**PT**	**Total Spare Capacity (passenger)**	**Expected Spare Capacity in 2034 (passenger) [(a)]**
AM Peak (0730-0830)	**Bus**	363	298
	Minibus	-1	-1
PM Peak (1700-1800)	**Bus**	448	367
	Minibus	33	27

Notes: (a) 2.18% growth rate adopted in Section 4.2

6.2 Assessment on Public Transport Demand

6.2.1 Reference is made to the "Travel Characteristics Survey 2011 Report" as published by Transport Department in February 2014 to derive the estimated public transport demand due to the proposed development.

6.2.2 The total trips generated from the proposed development are derived from development parameters and assumptions from the TCS Report 2011. The calculation of total trips during peak hours is summarized in **Table 6.5** below:

Table 6.5 Calculation of Total Passenger Trips from Proposed Development

Item	Proposed Development
Nos. of units	240
Average household size	2.7 ppl/unit*
Total population	= 240 x 2.7 = 648 ppl
Trip Rate per Person	1.83**
Daily trips generated from proposed development	= 648 ppl x 1.83 = 1,186 trips
Peak Hour Factor	12%**
Peak hour trips (Two-ways)	= 1,186 trips x 12% = **142 trips**

*Notes: * Latest average household size 2.7 in Hong Kong obtains from Census and Statistics Department*
***Data extracted from TCS Report 2011*

6.2.3 The distribution of trips by transport mode derived from 2021 Population Census is given in below **Table 6.6**. As the nearest MTR station is outside walking distance, no ferry services, and assumes there is no residential coach service from the proposed development, the modal split is therefore re-distributed on a conservative approach, and the model split after re-distribution is also shown in **Table 6.6**.

Table 6.6 Distribution of Transport Modal Split

Year 2021 Census (Yuen Long)													
Yuen Long District		**Mass Transit Railway**	**Bus**	**On foot only**	**Private car/ Passenger van**	**Public light bus**	**Company bus/ van**	**Light Rail**	**Taxi**	**Residential coach service**	**Ferry/ Vessel**	**Others**	**Total**
Number of Persons		90,523	59,345	16,860	24,012	7,913	6,848	20,458	1,275	2,628	468	4,146	234,476
Modal Split		39%	25%	7%	10%	3%	3%	9%	1%	1%	0%	2%	100%
Number of Persons (excluded on foot only)		90,523	59,345	-	24,012	7,913	6,848	20,458	1,275	2,628	468	4,146	217,616
Modal Split (excluded on foot only)		42%	27%	-	11%	4%	3%	9%	1%	1%	0%	2%	100%
Adjusted Modal Split for the Development Site	**PT**	**51%**	**27%**	-	-	**4%**	-	-	-	-	-	-	**82%**	**100%**
	Non-PT	-	-	-	**14%**	-	-	-	**1%**	-	-	**3%**	**18%**	
Adjusted Modal Split for the Development Site (MTR services by feeder bus/GMB)	**PT**	-	**71%**	-	-	**11%**	-	-	-	-	-	-	**82%**	**100%**
	Non-PT	-	-	-	**14%**	-	-	-	**1%**	-	-	**3%**	**18%**	

Notes: Example for PT: Adjusted Modal Split of MTR = 42% + 9% = 51%
Example for Non-PT: %Sum of Remaining Non related Model Split = 3% + 1% + 0 %= 4%
%Sum of Remaining related Model Split = 11% + 1% + 2% = 14%
Adjusted Modal Split of PV = 11% + 4% x 11% / 14% = 14%

Example for Further Adjust on PT:

Adjusted Modal Split of Bus = 51% x (27%/ (27% + 4%)) + 27% = 71%

6.2.4 Taking into consideration that the majority of residents will go out to work at AM peak and back at PM peak and the critical bus stops would be westbound stop at AM peak and eastbound stop at PM peak.

6.2.5 For conservative approach, assume all residents will go out at AM peak and come back at PM peak and all the 82% public transport passengers will use westbound stop at AM peak and eastbound stop at PM peak in the assessment.

6.2.6 The distribution of proposed development trips are summarized in **Table 6.7**.

Table 6.7 Estimated Passenger Trips using Public Transports at Critical Stop

Period	Stop	Passenger trips
AM Peak	Stop P2 Westbound (To Kam Sheung Road MTR)	= 142 x 82% = 117 ppl
PM Peak	Stop P1 Eastbound (From Kam Sheung Road MTR)	= 142 x 82% = 117 ppl

Table 6.8 Estimated Passenger Trips using Bus and Mini-buses

PT Passenger trips					
Period	**Stop P2 Westbound (To Yuen Long / Kam Sheung Road)**				
	Total Trips	**Bus**		**Minibus**	
		Demand	**Spare Capacity [(b)]**	**Demand**	**Spare Capacity [(b)]**
AM Peak	117	142 x 71% = 101	< 298, OK	142 x 11% = 16	> -1, Not OK
Period	**Stop P1 Eastbound (To Sheung Shui / Tsuen Wan)**				
	Total Trips	**Bus**		**Minibus**	
		Demand	**Spare Capacity [(a)]**	**Demand**	**Spare Capacity [(a)]**
PM Peak	117	142 x 71% = 101	< 359, OK	142 x 11% = 16	< 26, OK

Note: (a) Refer to Table 6.2
(b) Refer to Table 6.4

6.2.7 Based on the assessment results shows in **Table 6.8**, part of the forecast spare capacity are not able to meet the expected public transport demand due to the proposed development in design year 2034. Therefore, it is proposed to increase the no. of PT trips as estimated in **Table 6.9** below.

Table 6.9 Additional Bus and Mini-buses Trips

Period	PT Passenger trips	
	Westbound (To Yuen Long / Kam Sheung Road)	
	Minibus	
	Spaces Required [(a)]	No. of Additional GMB Trips Required
AM Peak	16 – (-1) = 17	17 / 19 = 1

Note: (a) Refer to Table 6.8
(b) 19 seaters GMB are proposed to use

6.2.8 From **Table 6.9**, the demand could be solved by providing additional maximum 1 GMB trip.

6.3 Bus Stop Bay Assessment

6.3.1 At present, there is one bay at the eastbound and westbound bus stop respectively. Kam Tin Road will be widened by Highway Department and the bus stops will be upgraded to standard one bay bus layby.

6.3.2 The queuing situation can be assessed based on a single channel queuing system, thus Poisson distribution and multi-server queuing (M/M/N) theory is used.

6.3.3 The assessment is work out the probability that n bus are in the bus bay.

The formula in deriving the probability is given by:

$$P(n) = \frac{1}{\sum_{n=0}^{N-1} \frac{e^n}{n!} + \frac{e^N}{N!\left(1-\frac{e}{N}\right)}} \qquad \text{for } n = 0$$

$$P(n) = \frac{e^n}{n!} P(0) \qquad \text{for } 0 < n \le N$$

$$P(n) = \frac{e^n}{N^{n-N} N!} P(0) \qquad \text{for } n > N$$

where: $P(n)$ = Probability of n buses in the system
λ = Peak 15-minutes arrival rate

μ = Servicing rate
n = Number of bus in the system
N = Number of bus bay
e = λ / μ

Peak 15-minutes arrival Rate (λ)

6.3.4 Based on the survey result shown in **Tables 6.1** and **6.3**, the no of bus/GMB arrive/departure to the bus stop is shown in **Table 6.10** below.

Table 6.10 Trip Rates for Bus Stop

Bus Stop			Period	
			AM Peak	**PM Peak**
Stop P1 Eastbound (To Sheung Shui / Tsuen Wan)	Bus	No of trips (veh/hr)	7	10
	Minibus	No of trips (veh/hr)	38	30
	Total	No of trips (veh/hr)	**45**	**40**
Stop P2 Westbound (To Yuen Long / Kam Sheung Road)	Bus	No of trips (veh/hr)	10	7
	Minibus	No of trips (veh/hr)	39	28
	Total	No of trips (veh/hr)	**49**	**35**

6.3.5 Based on the data shown in **Table 6.10** above, the maximum peak 15-minutes arrival rate is 13 veh/15min/bay (= 49 x 15 minutes/60 minutes).

6.3.6 As mentioned in **Section 6.3**, 1 no. of GMB trip/hr is proposed to be added. Therefore, the Peak 15-minutes arrival Rate (λ) is 13 veh/15min/bay (= (49+ 1) x 15 minutes/60 minutes).

Servicing Rate (μ)

6.3.7 Based on site observation and internal survey, a bus/GMB will pick-up/drop-off for an average 20 sec = 0.33 min.

6.3.8 For conservative, assume a GMB would occupy a whole bus bay during pick-up/drop-off.

6.3.9 The average servicing rate (μ) is 60 / 0.33 = 180 veh/hr = 45 veh/15min

The probability that n vehicles are in the bus bay is given by:

$$P(n) = \frac{1}{\sum_{n=0}^{N-1}\frac{e^n}{n!} + \frac{e^N}{N!\left(1-\frac{e}{N}\right)}} \qquad \text{for } n = 0$$

$$P(n) = \frac{e^n}{n!}P(0) \qquad \text{for } 0 < n \le N$$

$$P(n) = \frac{e^n}{N^{n-N}N!}P(0) \qquad \text{for } n > N$$

where:

$P(n)$	= Probability of n vehicles in the system	
λ	= Peak 15-minutes arrival rate	= 13
μ	= Servicing rate	= 45 veh/15min
N	= Number of bus bay	= 1
e	= λ / μ	= 0.289
n	= Number of bus in the system	

6.3.10 Probability of requiring more than 1 bus bay

Table 6.11 Probability of requiring more than 1 bus bay

n	λ	μ	e	N	P(n)
0	13	49	0.265	1	0.734693878
1	13	49	0.265	1	0.194918784
				Total	**0.929612661**

6.3.11 As can be seen, it is anticipated that the probability for more than one bus coming to the bus stop and waiting outside the bus bay is 0.070387339 (= 1 - **0.929612661**), i.e. approximately 3 out of 49 expected vehicles in the peak hour.

6.3.12 Based on the assessment results and the above points of view, it is concluded that one bus bay for one bus stop is considered acceptable and no further lengthening is required.

6.4 Railway Assessment

6.4.1 Railway Assessment is carried out to assess the impact by the proposed development. The existing railway information was obtained from "Reply Serial No. TLB162 of Replies to initial written questions raised by Legislative Council Members in examining the Estimates of Expenditure 2024-2025". The assessment of Tuen Ma Line is summarized in **Table 6.10** below:

Table 6.11 Railway Assessment

Item	**Tuen Ma Line**		
	2023	**2034**	**2034**
	Existing	**Reference (without Proposed development)**	**Design (with Proposed development)**
Carrying Capacity (6 ppsm)	58,800	58,800	58,800
Passenger Throughput	35,700	45,258[(b)]	45,258+ (142[(c)]*51%[(d)]) = 45,330
Loading (6 ppsm) ***[Passenger Throughput / Carrying Capacity]***	61% (Tsuen Wan West to Mei Foo)	77.0%	77.1%
Loading (4 ppsm) ***[Loading (6 ppsm) / 71.2%]***	85%	108.1%	108.3%

Notes:

(a) Source of the data: "Reply Serial No. TLB162 of Replies to initial written questions raised by Legislative Council Members in examining the Estimates of Expenditure 2024-2025"

(b) 2.18% growth rate adopted in Section 4.2

(c) Expected passenger trips from Table 6.5

(d) MTR modal Split from Table 6.6

6.4.2 From the result, it is revealed that the loading (6 ppsm) of Tuen Ma Line would be below 100% but loading (4 ppsm) would be over 100% even without the proposed development. However, the change of loading is very small (+0.1% to +0.2%) with the proposed development and thus the impact by the proposed development is insignificant.

6.5 Conclusion

6.5.1 Based on the surveyed results and the forecast spare capacity for the public transport in 2034, the forecast spare capacity is able to meet the expected public transport demand due to the proposed development by providing additional maximum 1 GMB trip/hr. The impact by the proposed development to Tuen Ma Line is very small and insignificant.

7. PEDESTRIAN ASSESSMENT

7.1 Existing Pedestrian Condition

7.1.1 In order to acquire the existing pedestrian condition around the proposed development, a pedestrian headcount survey was conducted at concerned footpath sections during periods on a typical weekday on 26 February 2025 from 07:30 to 09:30 and 17:00 to 19:00 respectively. The layout of the critical sections of footpath is shown in **Figure 7.1**.

Footpath Assessment

7.1.2 The level-of-services (LOS) for the observed pedestrian flows of the identified critical sections are shown in **Table 7.1**.

Table 7.1 Operational Performance of Critical Footpath in Existing Scenario

Critical Section	Total Footpath Width (m)	Effective Width (m)(1)	Year 2025 Observed Scenario					
			AM Peak			PM Peak		
			Two-way Pedestrian Flow (ped/hr)	Two-way Pedestrian Flow Rate (ped/min/m) (2)	LOS(3)	Two-way Pedestrian Flow (ped/hr)	Two-way Pedestrian Flow Rate (ped/min/m) (2)	LOS(3)
F1	1.50	1.00	40	0.67	A	30	0.50	A
F2	1.50	1.00	30	0.50	A	35	0.58	A

Notes:
(1) Effective Width = Total Footpath Width – Death Width (0.5m from railings or walls each for both sides and 1m from shop frontage).
(2) Two-way Pedestrian Flow Rate (ped/min/m) = Peak Pedestrian Flow / 60 min / Effective Width.
(3) LOS details extracted from the HCM are tabulated in TPDM Volume 6 Chapter 10 Clause 10.4.2.3.

7.1.3 The assessment results shown in **Table 7.1** indicate that critical sections are operating within LOS A.

Pedestrian Crossing

7.1.4 The V/C Ratio of the pedestrian at the pedestrian crossing of the identified critical section are shown in **Tables 7.2**.

Table 7.2 V/C Ratio of Critical Crossing in Existing Scenario

Critical Sections	Lateral Width of Ped. Crossing [W] (m)	Year 2025 Observed Scenario											
		AM Peak						PM Peak					
		Two-way Ped. Flow (ped/hr)	Ped. Green + Flashing Green Time	Cycle time	Green Time Proportion [GTP)]	Ped. Crossing Capacity [PC] (ped/hr)	V/C	Two-way Ped. Flow (ped/hr)	Ped. Green + Flashing Green Time	Cycle time	Green Time Proportion [GTP)]	Ped. Crossing Capacity [PC] (ped/hr)	V/C
C1	4.00	30	12	60	0.20	1520	0.02	15	12	60	0.20	1520	0.01

Note:
(1) PC = K x GTP x W

where	PC	=	Pedestrian crossing capacity in pedestrians per hour
	GTP	=	Green time proportion
		i.e.	(Pedestrian green + flashing green time) / Cycle time
	W	=	Lateral width of pedestrian crossing
	K	=	A constant equivalent to saturation flow for pedestrians (1900 ped/metre/hours)

7.1.5 The assessment results shown in **Tables 7.2** indicate that all critical sections are operating within acceptable criteria (V/C < 0.85), and therefore considered acceptable.

7.2 Pedestrian Traffic Forecast

Reference Scenario (Without the Proposed Development)

7.2.1 To assess the future impact due to the proposed development, based on the survey flow and the growth rate of +2.18% adopted in **Chapter 4**, future reference pedestrian flows (without the proposed development) at the critical sections are estimated.

Footpath Assessment

7.2.2 The LOS are assessed and summarized in **Table 7.3** below:

Table 7.3 Operational Performance of Critical Footpath in Reference Scenario (Without the Proposed Development)

Critical Section	Total Footpath Width (m)	Effective Width (m)(1)	Year 2034 Reference Scenario (Without the Proposed Development)					
			AM Peak			PM Peak		
			Two-way Pedestrian Flow (ped/hr)	Two-way Pedestrian Flow Rate (ped/min/m) (2)	LOS(3)	Two-way Pedestrian Flow (ped/hr)	Two-way Pedestrian Flow Rate (ped/min/m) (2)	LOS(3)
F1 (without Widening)	1.5	1.0	50	0.83	A	35	0.58	A
F1 (with Widening)	2.0(4)	1.5	50	0.56	A	35	0.39	A
F2 (without Widening)	1.5	1.0	35	0.58	A	40	0.67	A
F2 (with Widening)	2.0(4)	1.5	35	0.39	A	40	0.44	A

Notes:
(1) Effective Width = Total Footpath Width – Death Width (0.5m from railings or walls each for both sides and 1m from shop frontage).
(2) Two-way Pedestrian Flow Rate (ped/min/m) = Peak Pedestrian Flow / 60 min / Effective Width.
(3) LOS details extracted from the HCM are tabulated in TPDM Volume 6 Chapter 10 Clause 10.4.2.3.
(4) Widening of Kam Tin Road will be carried out by HyD and 2m footpaths will be provided along both sides of the road.

7.2.3 The assessment results shown in **Table 7.3** indicate that critical sections are operating within LOS A.

Pedestrian Crossing

7.2.4 The V/C Ratio of the pedestrian at the pedestrian crossing of the identified critical section are shown in **Tables 7.4**.

Table 7.4 V/C Ratio of Critical Crossing in Reference Scenario (Without the Proposed Development)

Critical Sections	Lateral Width of Ped. Crossing [W] (m)	Year 2034 Reference Scenario (Without the Proposed Development)											
		AM Peak						PM Peak					
		Two-way Ped. Flow (ped/hr)	Ped. Green + Flashing Green Time	Cycle time	Green Time Proportion [GTP)]	Ped. Crossing Capacity [PC] (ped/hr)	V/C	Two-way Ped. Flow (ped/hr)	Ped. Green + Flashing Green Time	Cycle time	Green Time Proportion [GTP)]	Ped. Crossing Capacity [PC] (ped/hr)	V/C
C1 (without Widening)	4	35	12	60	0.20	1520	0.02	20	12	60	0.20	1520	0.01
C1 (with Widening)	4	35	11(2)	60	0.18	1395	0.03	20	11(2)	60	0.18	1395	0.01

Note:

(1) PC = K x GTP x W

where PC = Pedestrian crossing capacity in pedestrians per hour
GTP = Green time proportion
i.e. (Pedestrian green + flashing green time) / Cycle time
W = Lateral width of pedestrian crossing
K = A constant equivalent to saturation flow for pedestrians (1900 ped/metre/hours)

(2) Future crossing layout carried out by HyD is used for assessment.

7.2.5 The assessment results shown in **Tables 7.4** indicate that all critical sections are operating within acceptable criteria (V/C < 0.85), and therefore considered acceptable.

Design Scenario (With the Proposed Development)

7.2.6 The total trips generated from the proposed development are estimated in **Tables 6.5** of **Chapter 6** above.

Footpath Assessment

7.2.7 The estimated trips are superimposed to the network. The assessment of the design scenario is summarized in **Tables 7.5**.

Table 7.5 Operational Performance of Critical Footpath in Design Scenario (With the Proposed Development)

Critical Section	Total Footpath Width (m)	Effective Width (m)(1)	Year 2034 Design Scenario (With the Proposed Development)					
			AM Peak			PM Peak		
			Two-way Pedestrian Flow (ped/hr)	Two-way Pedestrian Flow Rate (ped/min/m) (2)	LOS(3)	Two-way Pedestrian Flow (ped/hr)	Two-way Pedestrian Flow Rate (ped/min/m) (2)	LOS(3)
F1 (without Widening)	1.5	1.0	190	3.17	A	175	2.92	A
F1 (with Widening)	2.0(4)	1.5	190	2.11	A	175	1.94	A
F2 (without Widening)	1.5	1.0	175	2.92	A	180	3.00	A
F2 (with Widening)	2.0(4)	1.5	175	1.94	A	180	2.00	A

Notes:
(1) Effective Width = Total Footpath Width – Death Width (0.5m from railings or walls each for both sides and 1m from shop frontage).
(2) Two-way Pedestrian Flow Rate (ped/min/m) = Peak Pedestrian Flow / 60 min / Effective Width.
(3) LOS details extracted from the HCM are tabulated in TPDM Volume 6 Chapter 10 Clause 10.4.2.3.
(4) Widening of Kam Tin Road will be carried out by HyD and 2m footpaths will be provided along both sides of the road.

7.2.8 The assessment results in **Table 7.5** shows that all critical footpaths would operate with LOS A and therefore considered acceptable.

Pedestrian Crossing

7.2.9 As a cautionary crossing was planned to be constructed near the proposed development under HyD's PWP works as shown in **Figure 7.2**. Part of the pedestrians will be diverted to use this crossing. The V/C Ratio and LOS of the pedestrian at the pedestrian crossing of the identified critical section are shown in **Tables 7.6** and **7.7**.

Table 7.6 V/C Ratio of Critical Crossing in Design Scenario (With the Proposed Development)

Critical Sections	Lateral Width of Ped. Crossing [W] (m)	Year 2034 Design Scenario (With the Proposed Development)											
		AM Peak						PM Peak					
		Two-way Ped. Flow (ped/hr)	Ped. Green + Flashing Green Time	Cycle time	Green Time Proportion [GTP)]	Ped. Crossing Capacity [PC] (ped/hr)	V/C	Two-way Ped. Flow (ped/hr)	Ped. Green + Flashing Green Time	Cycle time	Green Time Proportion [GTP)]	Ped. Crossing Capacity [PC] (ped/hr)	V/C
C1 (without Widening)	4	175	12	60	0.20	1520	0.12	160	11	60	0.18	1395	0.11
C1 (with Widening)	4	105	11(2)	60	0.18	1395	0.08	90	11(2)	60	0.18	1395	0.06

Note:
(1) PC = K x GTP x W
where PC = Pedestrian crossing capacity in pedestrians per hour
GTP = Green time proportion
i.e. (Pedestrian green + flashing green time) / Cycle time
W = Lateral width of pedestrian crossing
K = A constant equivalent to saturation flow for pedestrians (1900 ped/metre/hours)
(2) Future crossing layout carried out by HyD is used for assessment.

Table 7.7 Operational Performance of Cautionary Crossing in Design Scenario

Critical Sections	Input Parameters		Year 2034 Design Scenario (With HyD's PWP works)	
			AM Peak	PM Peak
C2	S_p	= average pedestrian walking speed (m/s)	1.2	1.2
	t_s	= pedestrian start-up time and end clearance time (s)	3	3
	L	= crosswalk length (m)	4.8	4.8
	v_p	= pedestrian flow rate (p/h)	70	70
		= pedestrian flow rate (p/s)	*0.02*	*0.02*
	v	= vehicular flow rate (veh/h)	1035	965
		= vehicular flow rate (veh/s)	*0.29*	*0.27*
	W_E	= effective crosswalk (m)	3	3
Step				
1	t_c	= single pedestrian critical gap	7	7
2	N_c	= total number of pedestrian in the crossing platoon (p)	1.3	1.3
3	N_p	= spatial distribution of pedestrian (p)	1	1
4	t_G	= group critical gap (s)	7	7
5	d_p	= average pedestrian delay (s)	15.8	13.8
6	LOS	= Level of Services	**C**	**C**

Note: Methodology from HCM Chapter 18

7.2.10 The assessment results shown in **Tables 7.6** and **7.7** indicate that all critical sections are operating within acceptable criteria (V/C < 0.85, LOS <= C), and therefore considered acceptable.

7.2.11 As the programme of PWP works are still under review, the PWP works maybe delayed. In case delay occurs, to facilitate residents crossing, the Applicant will provide a pair of dropped kerbs at the same location of planned cautionary crossing at Kam Tin Road as shown in **Figure 7.3**. Details arrangement would be discussed with government departments at detailed design stage.

7.3 Conclusion

7.3.1 Based on the assessment results, the critical footpath and crossing facilities are able to meet the future pedestrian demand due to the proposed development. It is revealed that footpaths and the pedestrian crossing at Kam Tin Road will be upgraded by HyD and thus the future walking condition will be improved.

8. SUMMARY AND CONCLUSION

8.1 Summary

8.1.1 The Applicant intends to rezone the Development Site from "Residential (Group C)2" and "Open Space" to "Residential (Group C)4" to enable the proposed residential development.

8.1.2 CTA Consultants Limited (CTA), are therefore commissioned as the traffic consultant to prepare the Traffic Impact Assessment (TIA) and provide technical justifications in supporting the application from traffic engineering point of view.

8.1.3 To appraise the existing traffic condition, a vehicular survey in the form of manual-classified count was conducted at the surrounding road network of the proposed development. Current operational performance of the critical junctions has been assessed with the observed traffic flow. The results reveal that all critical junctions are at present operating within its capacities, except Link L4, L5 above 0.85 but still lower than 1.0, which means there is still spare capacity.

8.1.4 Assessment of operational performance of the critical junctions indicates that all critical junctions will still operate within their capacities in both reference and design scenarios with planned PWP's works in year 2034, except Link L4, L5, Tai Lam Tunnel above 0.85 but still lower than 1.0, which means there is still spare capacity. Tai Lam Tunnel southbound in AM peak will be over 1.0 but still below 1.2, which is a manageable degree of congestion but still acceptable.

8.1.5 According to Tuen Mun DC TTC paper 04/2021, the traffic flow would be redistributed by the strategic road planning Route 11 and associated major roads. The V/C ratio of Tai Lam Tunnel will drop from 1.2 to 0.7 after the Route 11 and associated major roads are completed. Therefore, the congestion of Tai Lam Tunnel would be relieved and become acceptable after the completion of Route 11 and associated major roads.

8.1.6 Improvement on Junction C has been proposed and will be carried out by the Applicant to minimize the impact to traffic, in case of programme mis-match between the development and the public works project.

8.1.7 Assessment of public transport indicates that the existing public transport could cater the future public transport demand by providing additional maximum 1 GMB trip/hr. The impact by the proposed development to the loading of railway is very small and insignificant.

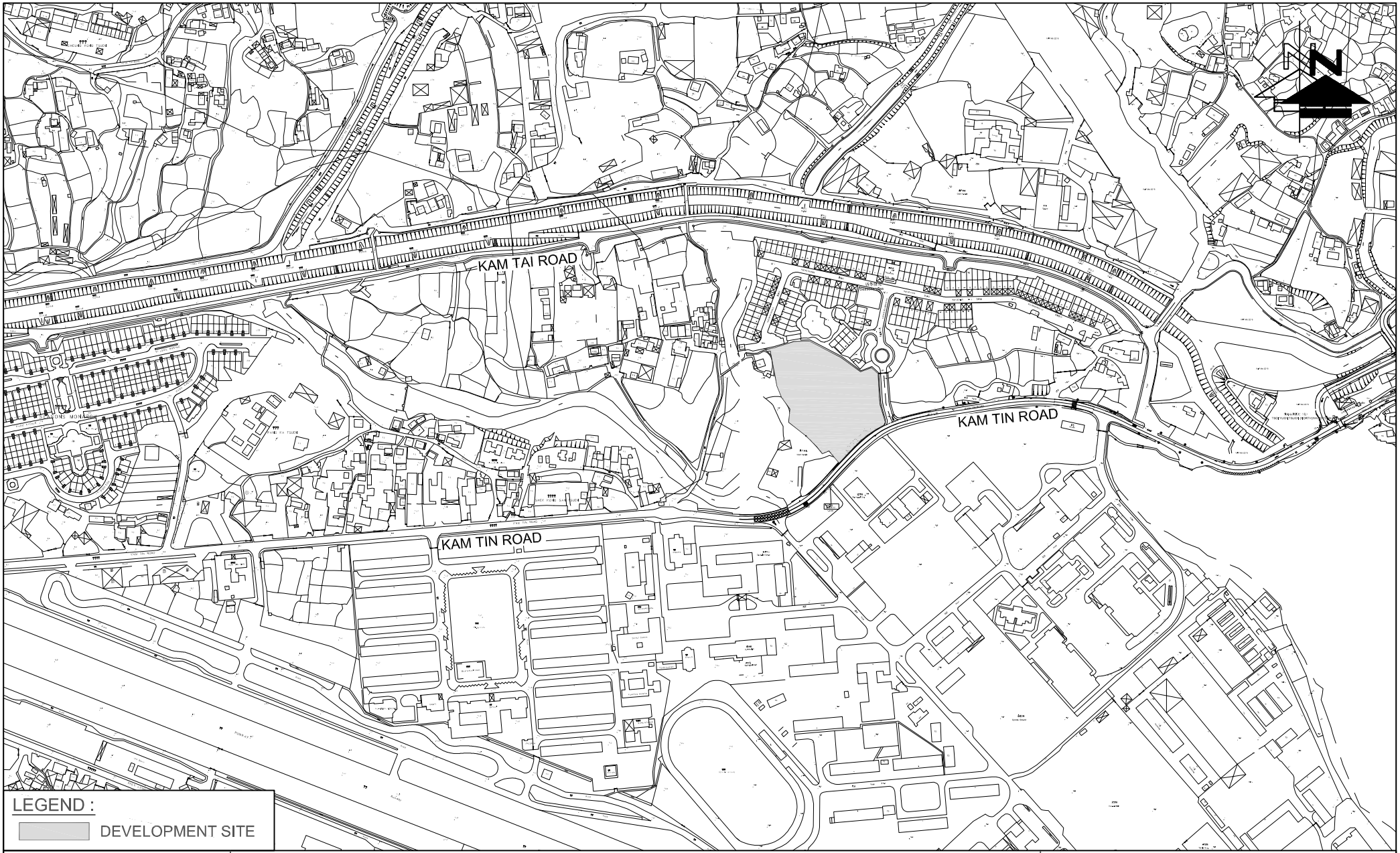
8.1.8 Assessment of pedestrian indicates that all footpath and pedestrian crossing could cater the future pedestrian demand in both reference and design scenarios in year 2034.

8.1.9 The traffic generated by the proposed development is very small and would induce insignificant impact on the surrounding road network. Therefore, the application is supported from the traffic points of view.

8.2 Conclusion

8.2.1 In conclusion, this Traffic Impact Assessment (TIA) study demonstrated that the related traffic trips related to the proposed development can be absorbed by the nearby road network and no significant traffic impact will be induced.

8.2.2 Therefore, the proposed residential development is reckoned feasible from traffic engineering point of view.



LEGEND :

DEVELOPMENT SITE

FIGURE NO.: 1.1	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: SITE LOCATION PLAN	
SCALE: 1 : 500 @A4 / DATE: 14 JUL 2025		

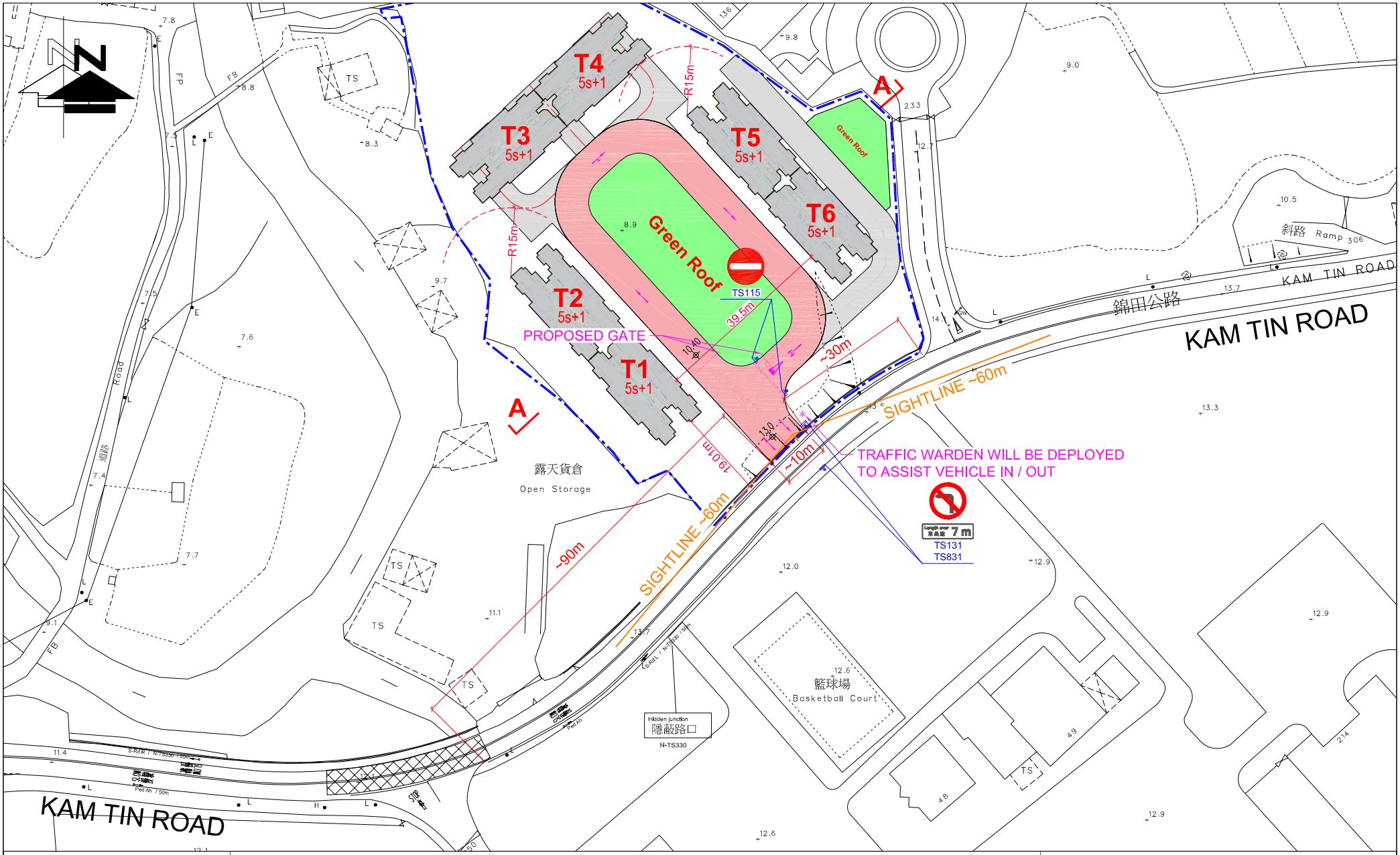


FIGURE NO.: 2.1	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: MASTER LAYOUT PLAN (WITHOUT KAM TIN ROAD WIDENING)	
SCALE: 1 : 1100 @A4 / DATE: 27 MAR 2026		

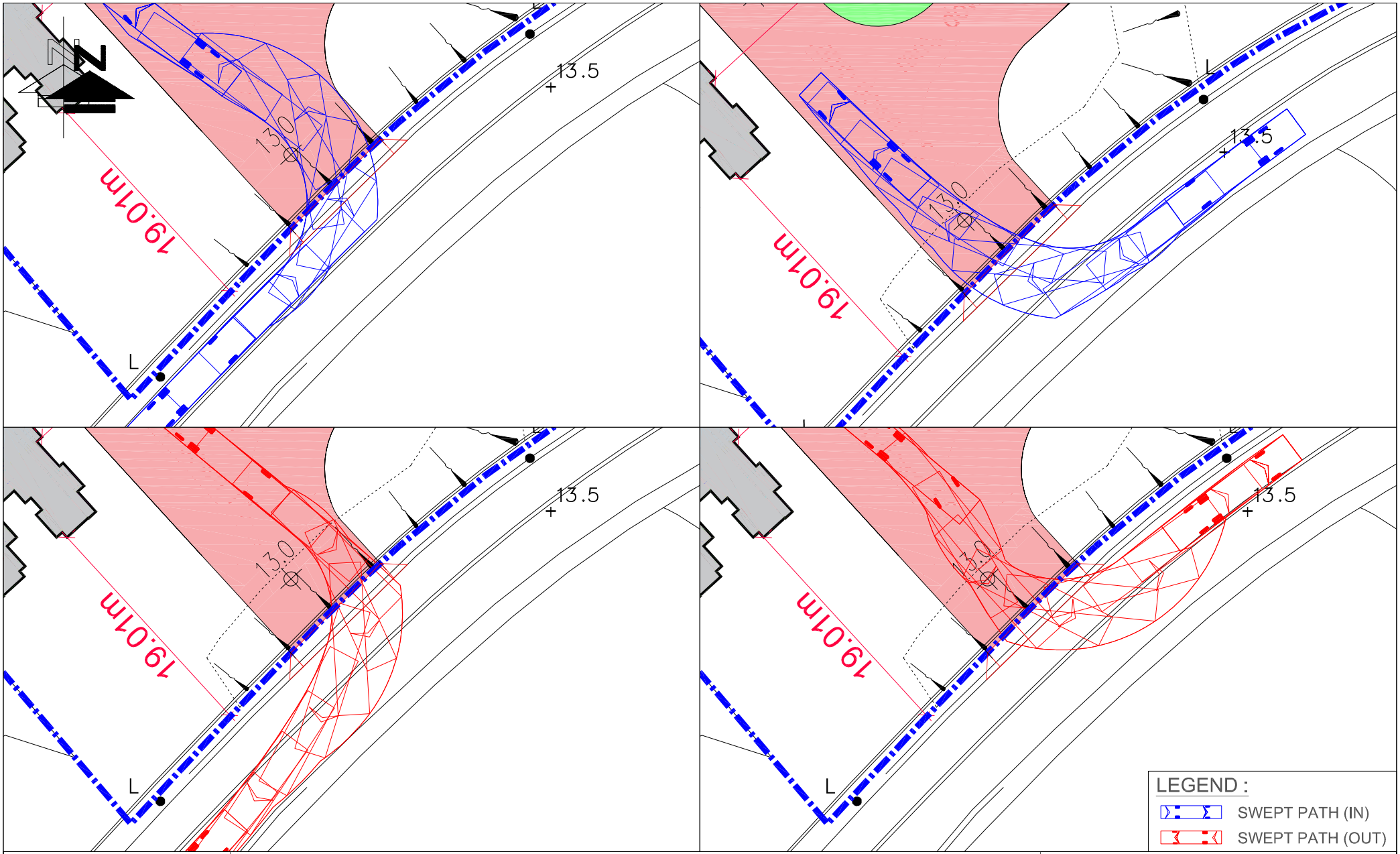


FIGURE NO.: 2.1(SP1)	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: SWEPT PATH ANALYSIS OF 12M FIRE ENGINE OF MASTER LAYOUT PLAN (WITHOUT KAM TIN ROAD WIDENING)	
SCALE: 1 : 400 @A4 / DATE: 25 MAR 2026		

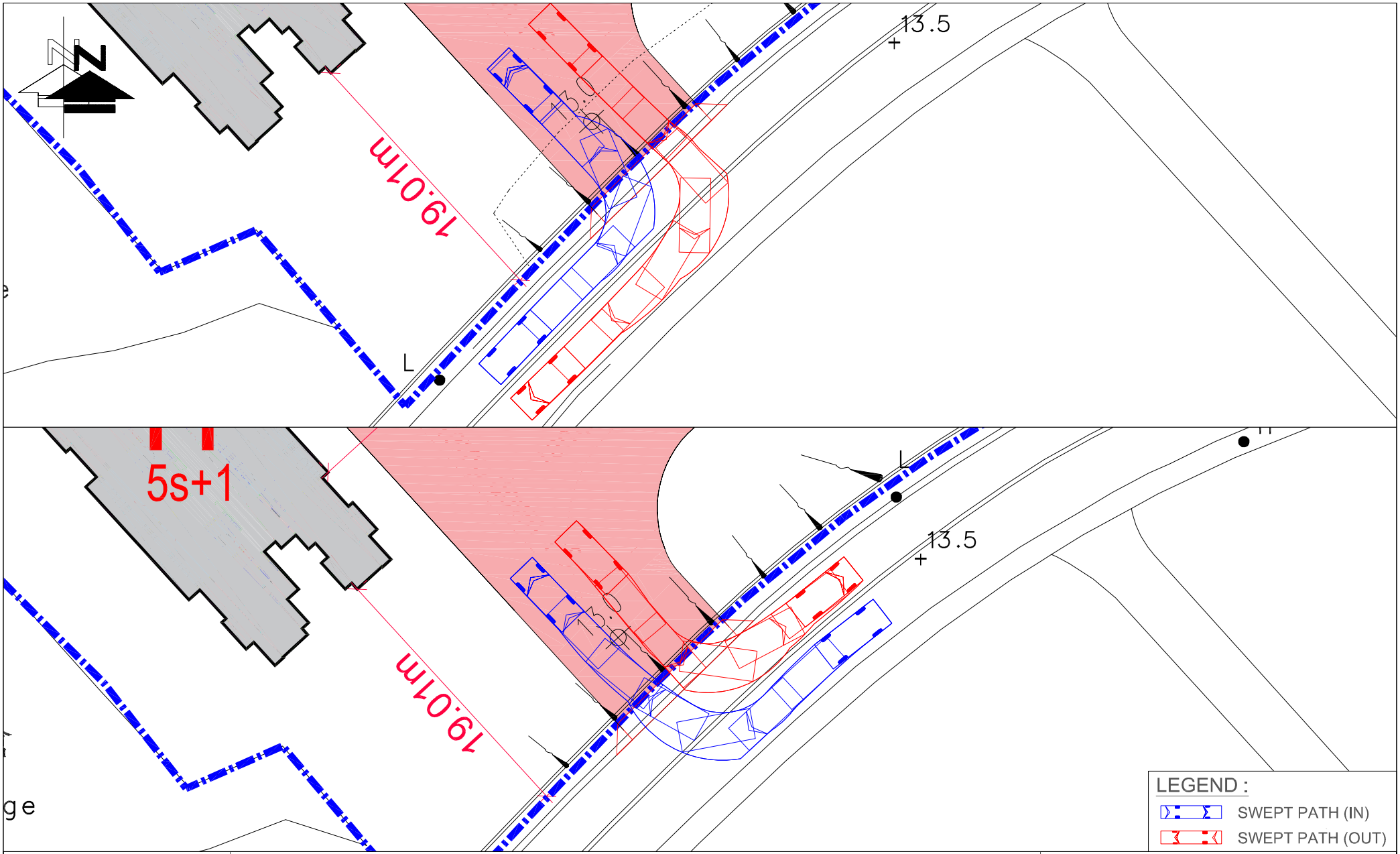


FIGURE NO.: 2.1(SP2)	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: SWEPT PATH ANALYSIS OF 5M VEHICLE OF MASTER LAYOUT PLAN (WITHOUT KAM TIN ROAD WIDENING)	
SCALE: 1 : 350 @A4 / DATE: 25 MAR 2026		

FIGURE NO.: 2.1(SP3)	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: SWEPT PATH ANALYSIS OF 11M VEHICLE OF MASTER LAYOUT PLAN (WITHOUT KAM TIN ROAD WIDENING)	
SCALE: 1 : 600 @A4 / DATE: 25 MAR 2026		

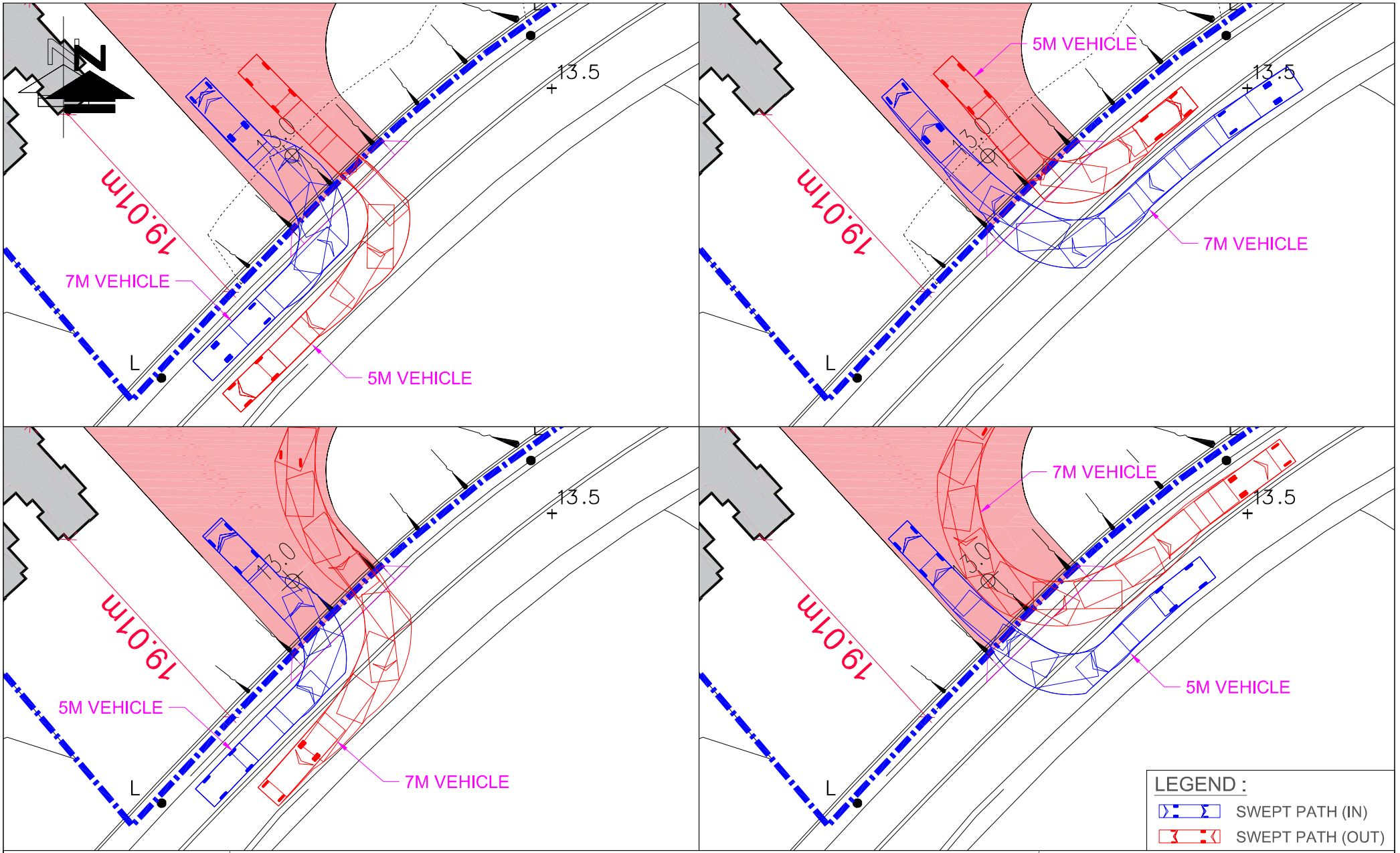


FIGURE NO.: 2.1(SP4)	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: SWEPT PATH ANALYSIS OF 5M AND 7M VEHICLE OF MASTER LAYOUT PLAN (WITHOUT KAM TIN ROAD WIDENING)	
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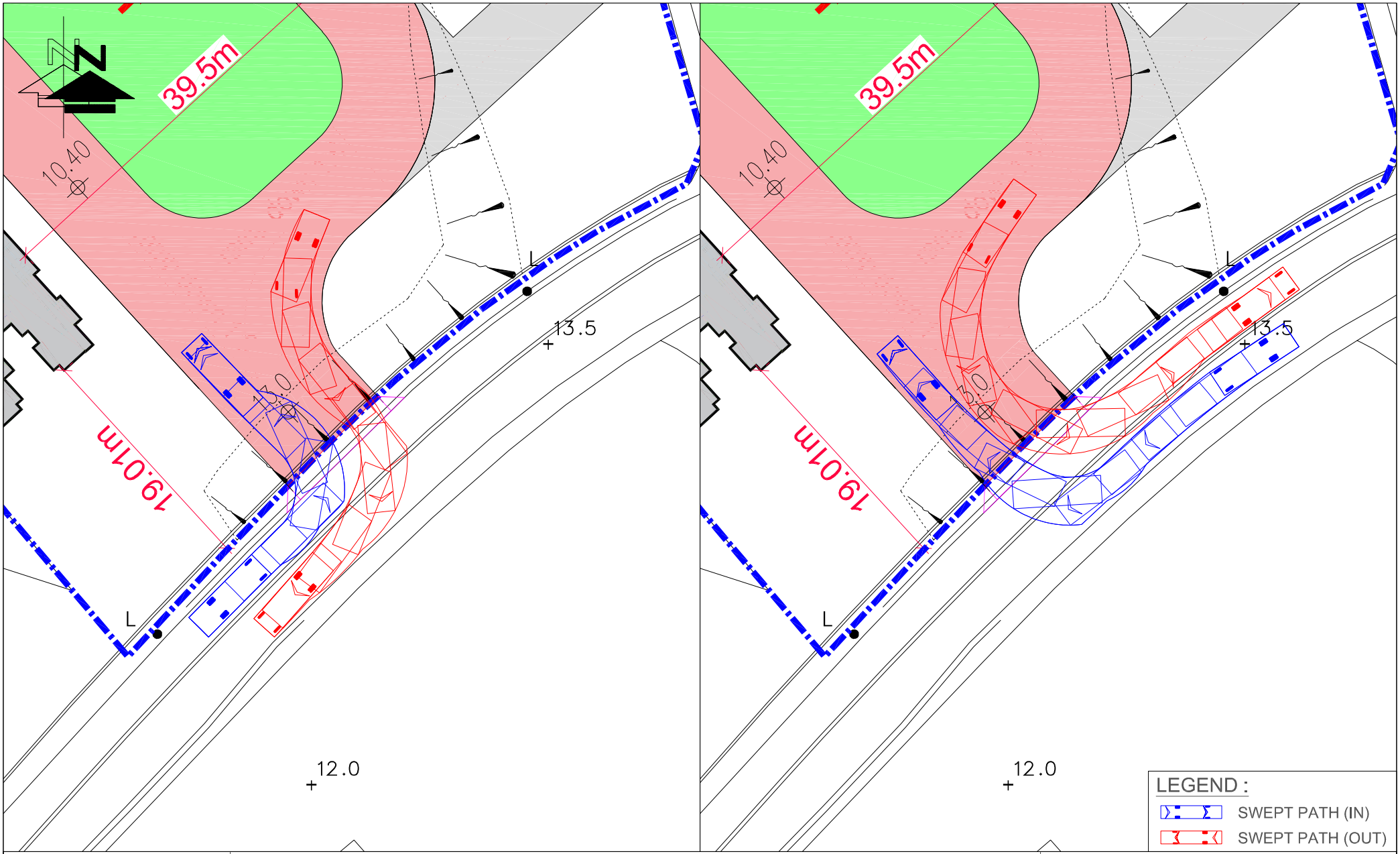


FIGURE NO.: 2.1(SP5)	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: SWEPT PATH ANALYSIS OF 7M VEHICLE OF MASTER LAYOUT PLAN (WITHOUT KAM TIN ROAD WIDENING)	
SCALE: 1 : 400 @A4 / DATE: 27 MAR 2026		

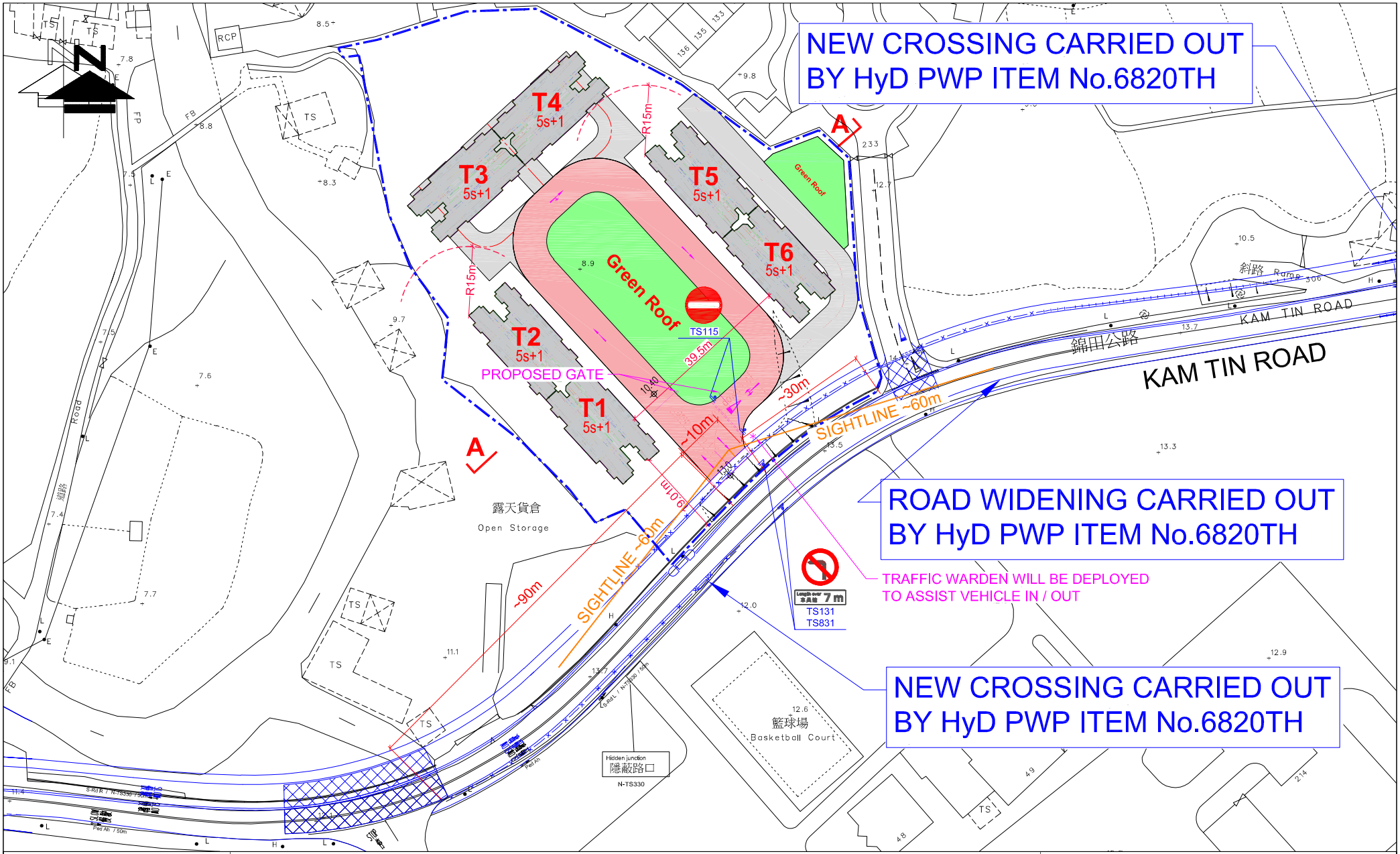


FIGURE NO.: 2.2	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: MASTER LAYOUT PLAN (WITH KAM TIN ROAD WIDENING)	
SCALE: 1 : 1100 @A4 / DATE: 27 MAR 2026		

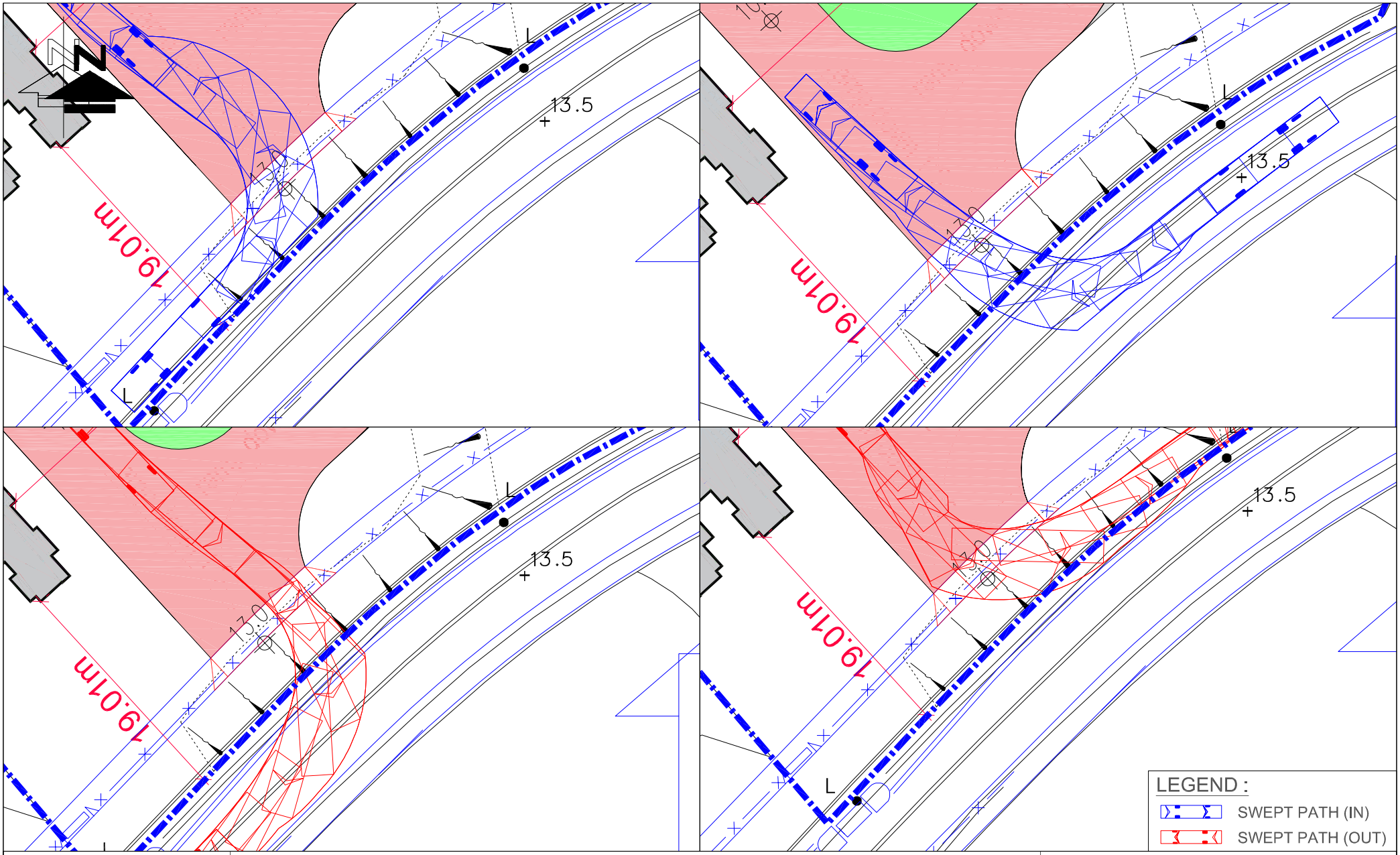


FIGURE NO.: 2.2(SP1)	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: SWEPT PATH ANALYSIS OF 12M FIRE ENGINE OF MASTER LAYOUT PLAN (WITH KAM TIN ROAD WIDENING)	
SCALE: 1 : 400 @A4 / DATE: 25 MAR 2026		

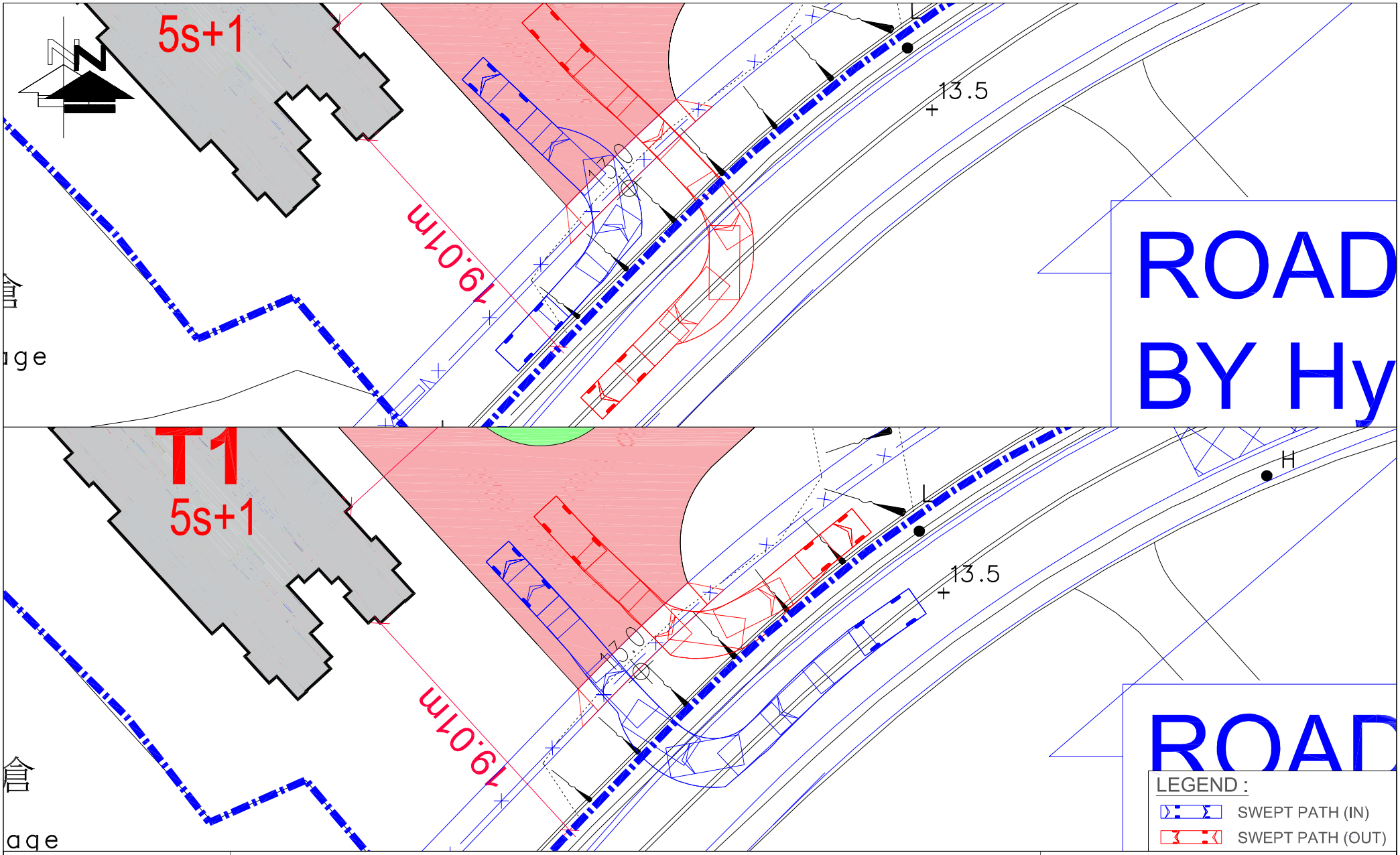


FIGURE NO.: 2.2(SP2)	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: SWEPT PATH ANALYSIS OF 5M VEHICLE OF MASTER LAYOUT PLAN (WITH KAM TIN ROAD WIDENING)	
SCALE: 1 : 350 @A4 / DATE: 25 MAR 2026		

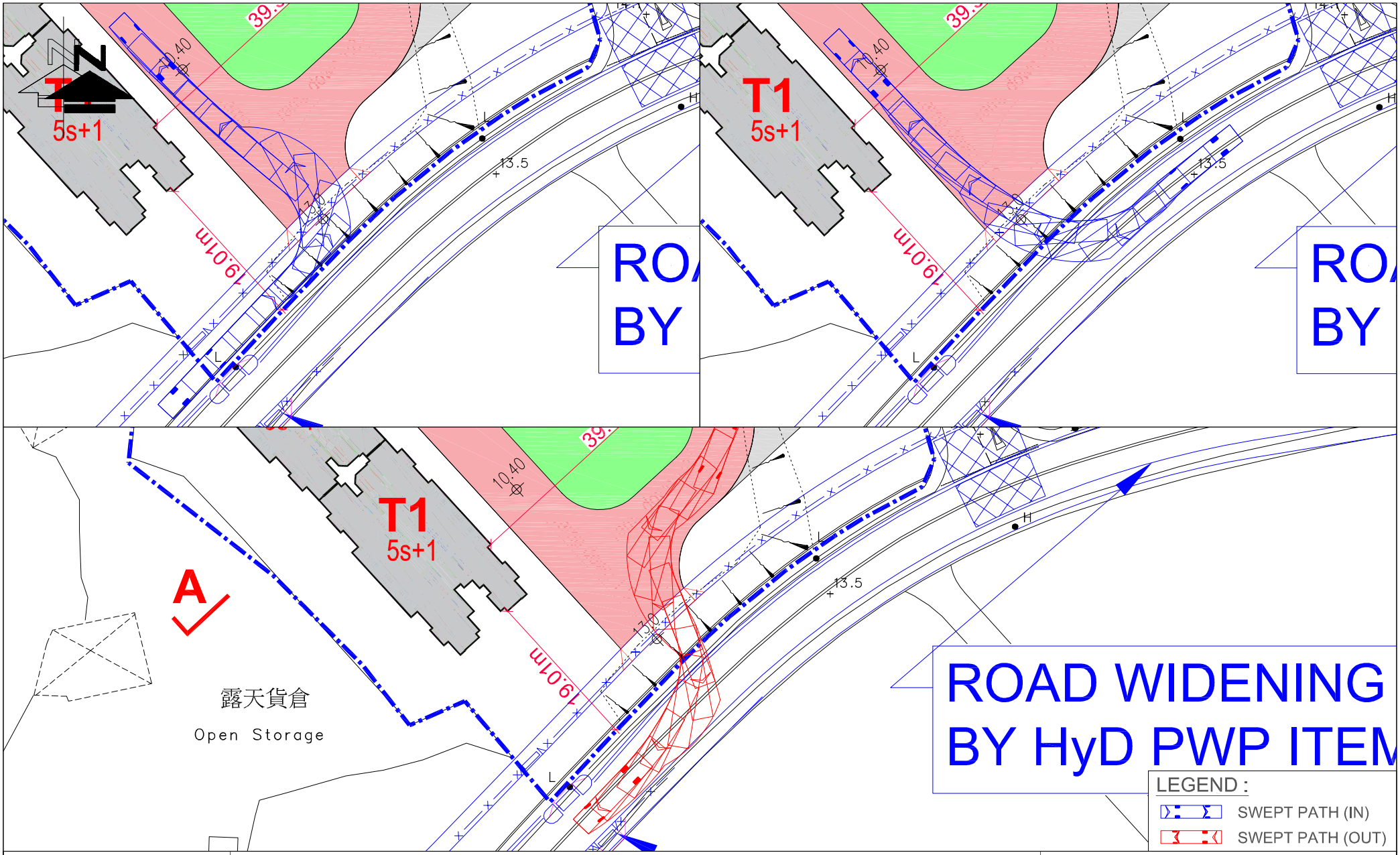


FIGURE NO.: 2.2(SP3)	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: SWEPT PATH ANALYSIS OF 11M VEHICLE OF MASTER LAYOUT PLAN (WITH KAM TIN ROAD WIDENING)	
SCALE: 1 : 600 @A4 / DATE: 25 MAR 2026		

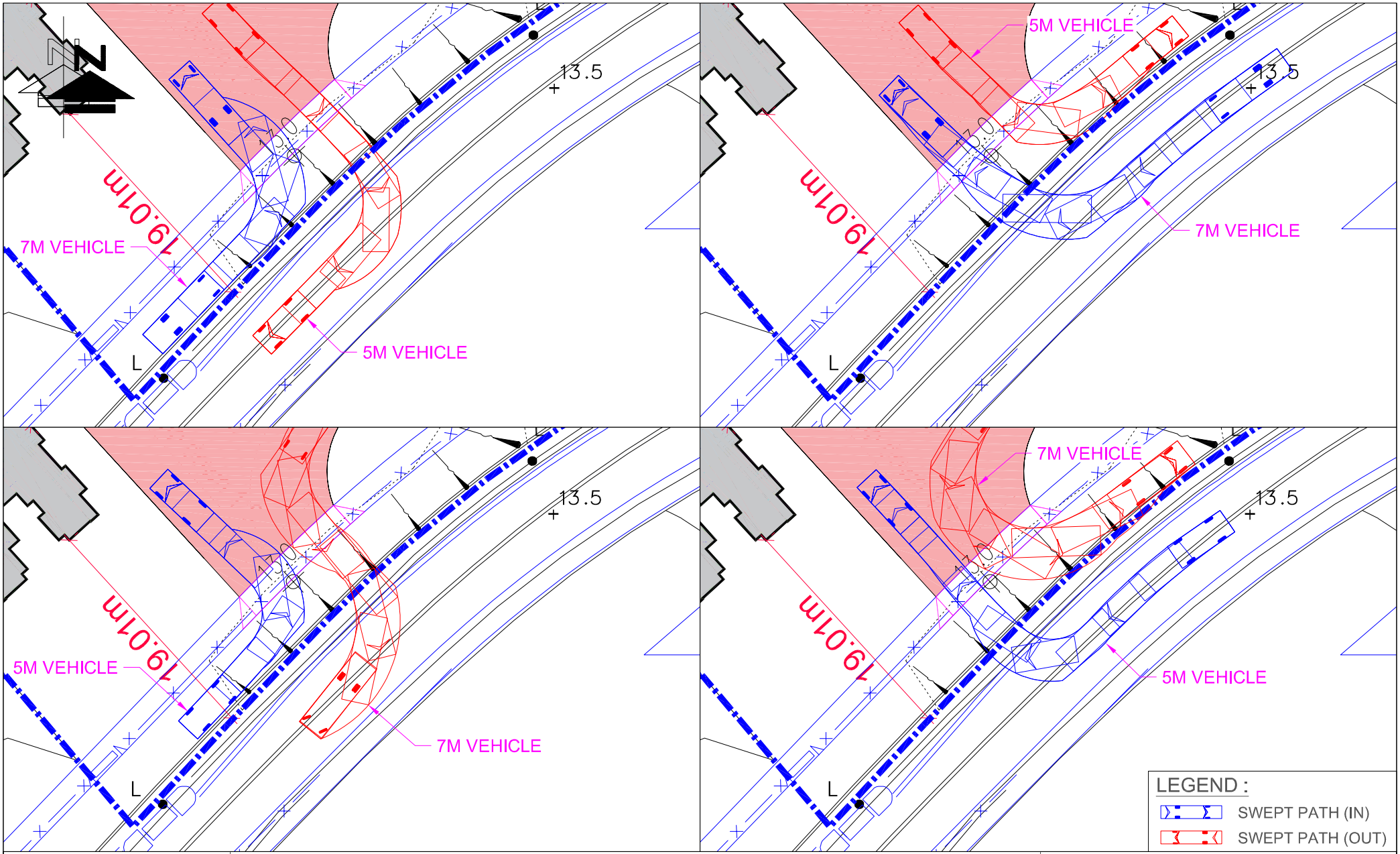


FIGURE NO.: 2.2(SP4)	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: SWEPT PATH ANALYSIS OF 5M AND 7M VEHICLE OF MASTER LAYOUT PLAN (WITH KAM TIN ROAD WIDENING)	
SCALE: 1 : 400 @A4 / DATE: 26 MAR 2026		

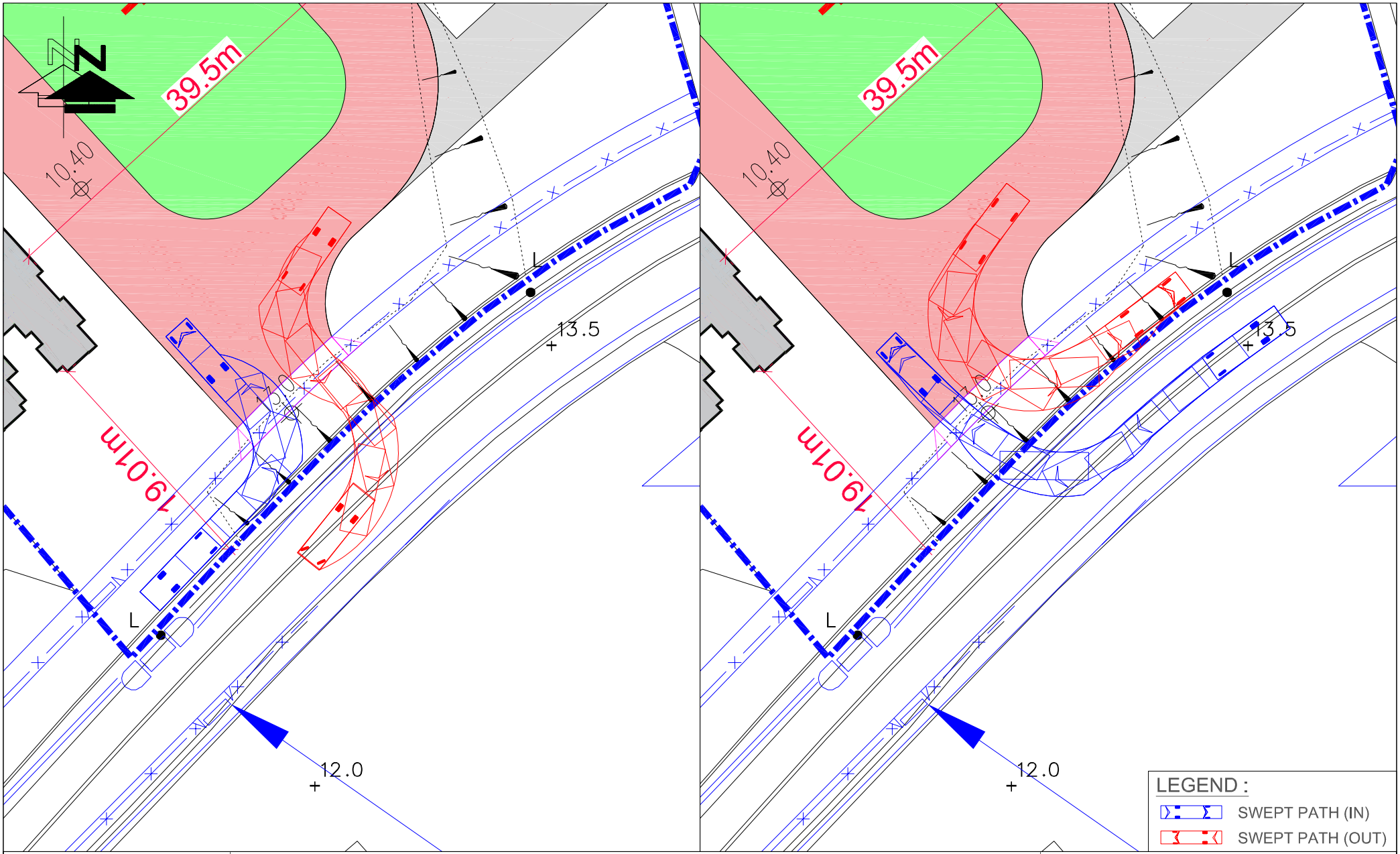


FIGURE NO.: 2.2(SP5)	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: SWEPT PATH ANALYSIS OF 7M VEHICLE OF MASTER LAYOUT PLAN (WITH KAM TIN ROAD WIDENING)	
SCALE: 1 : 400 @A4 / DATE: 27 MAR 2026		

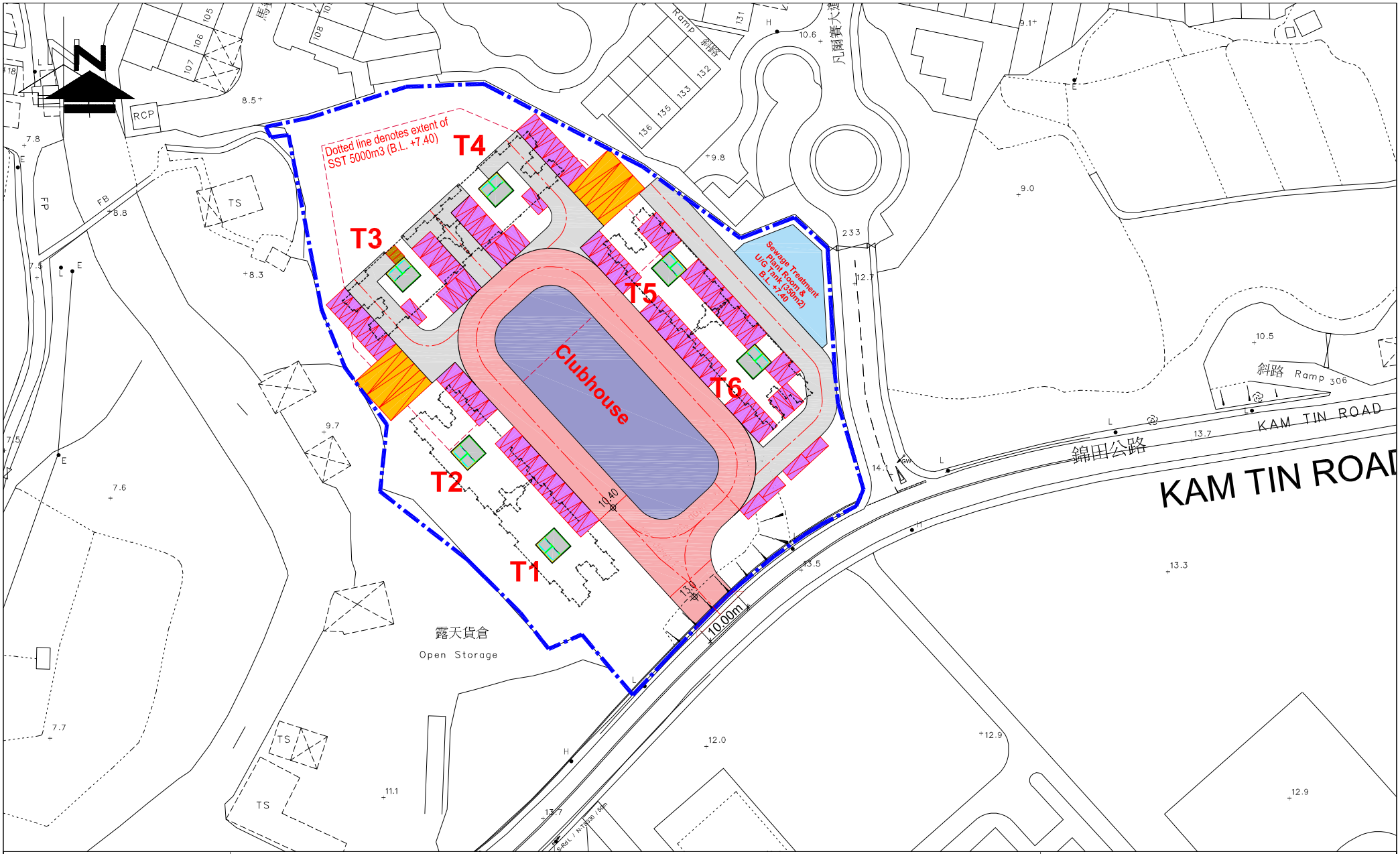


FIGURE NO.: 2.3	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: GROUND FLOOR PLAN (WITHOUT KAM TIN ROAD WIDENING)	
SCALE: 1 : 1000 @A4 / DATE: 26 MAR 2026		

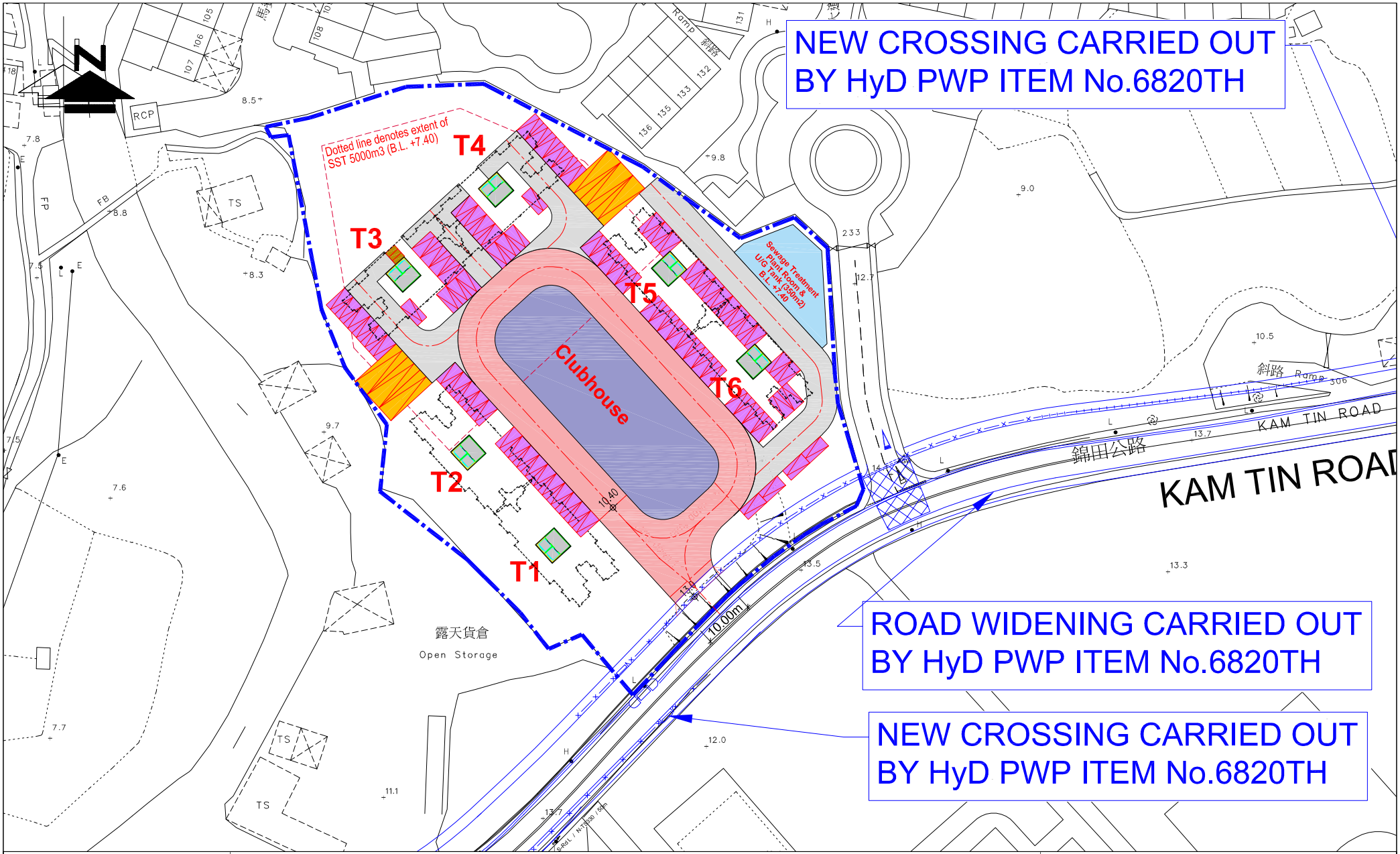


FIGURE NO.: 2.4	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: GROUND FLOOR PLAN (WITH KAM TIN ROAD WIDENING)	
SCALE: 1 : 1000 @A4 / DATE: 26 MAR 2026		

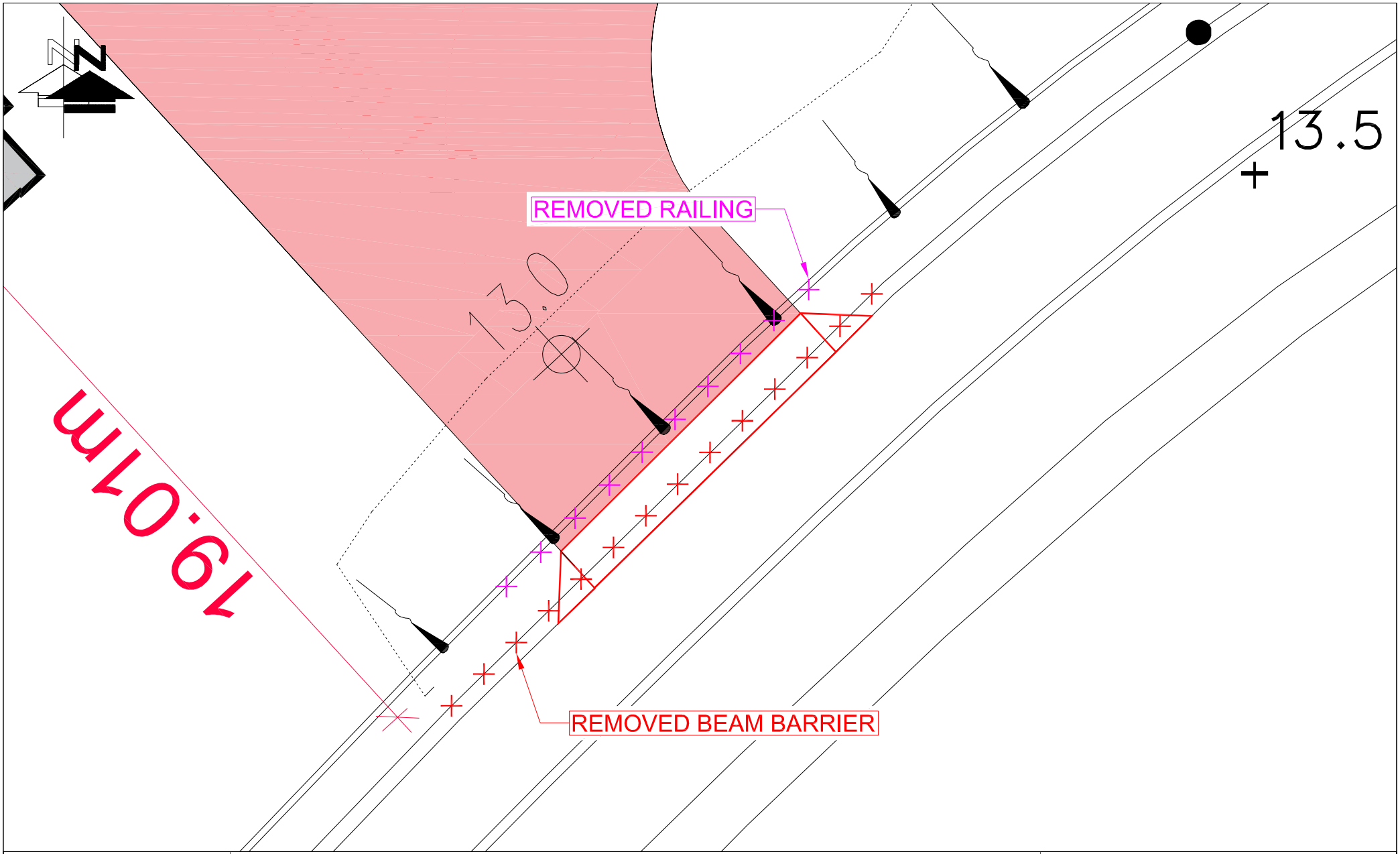
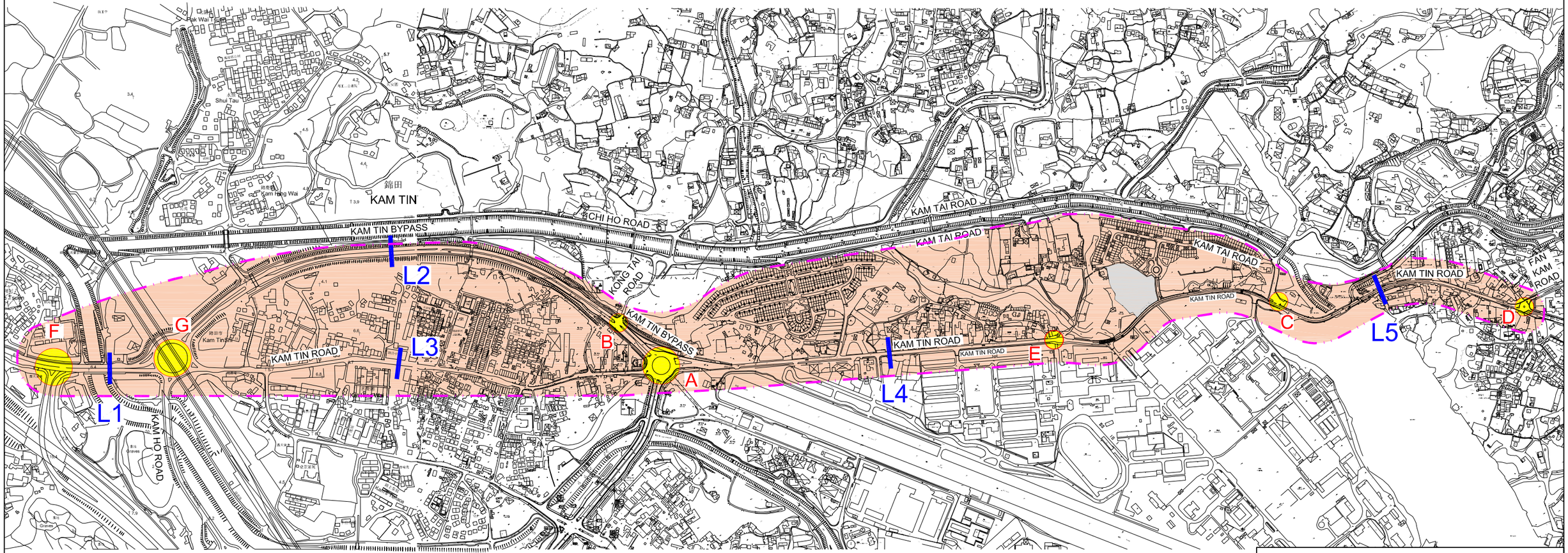


FIGURE NO.: 2.5	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: PROPOSED MODIFICATION OF EXISTING STREET FURNITURE (WITHOUT KAM TIN ROAD WIDENING)	
SCALE: 1 : 150 @A4 / DATE: 25 MAR 2026		



LEGEND :

- DEVELOPMENT SITE
- CRITICAL JUNCTION
- AREA OF INFLUENCE
- CRITICAL ROAD LINK

FIGURE NO.: 3.1	PROJECT TITLE: Rezoning from “Residential (Group C)2” and “Open Space” zones to “Residential (Group C)4” zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.
PROJECT NO.: 25009HK	DRAWING TITLE: IDENTIFIED CRITICAL JUNCTIONS
SCALE: 1 : 8700 @A3 / DATE: 14 JUL 2025	

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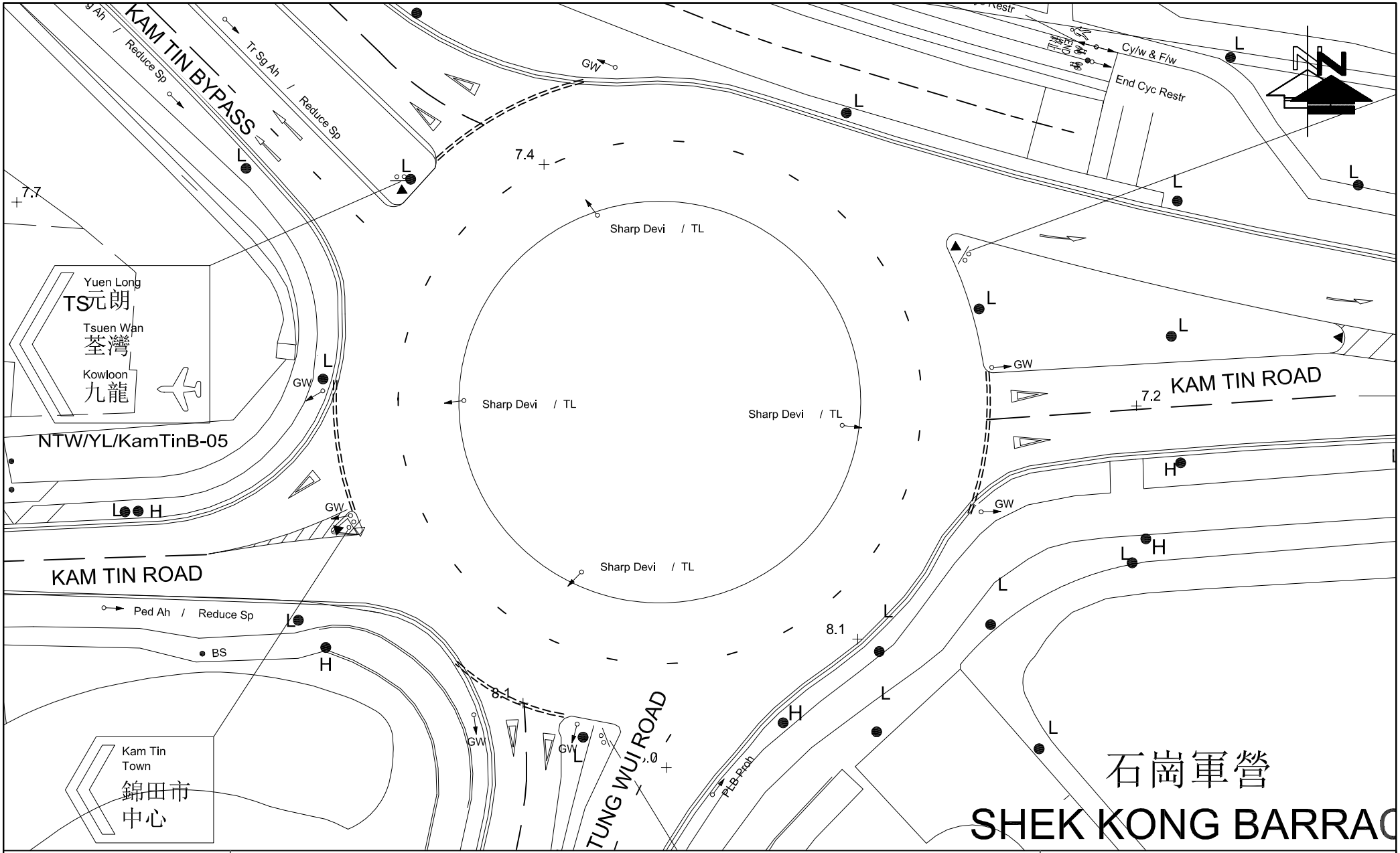


FIGURE NO.: 3.2	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF KAM TIN BYPASS / KAM TIN ROAD / TUNG WUI ROAD (A)	
SCALE: 1 : 500 @A4 / DATE: 01 APR 2025		

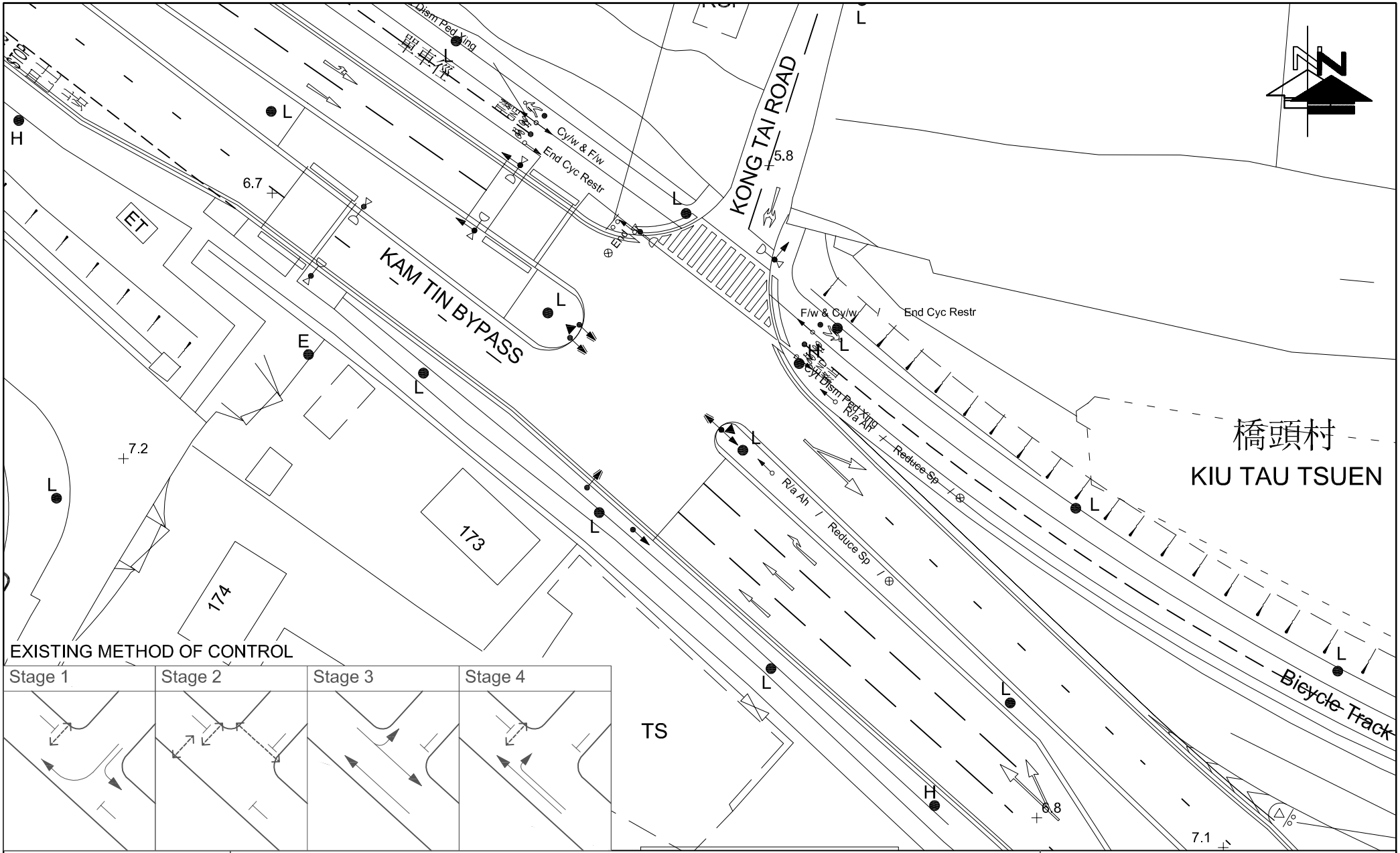


FIGURE NO.: 3.3	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.
PROJECT NO.: 25009HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF KAM TIN BYPASS / KONG TAI ROAD (B)
SCALE: 1 : 500 @A4 / DATE: 01 APR 2025	

CTA Consultants Limited
志達顧問有限公司

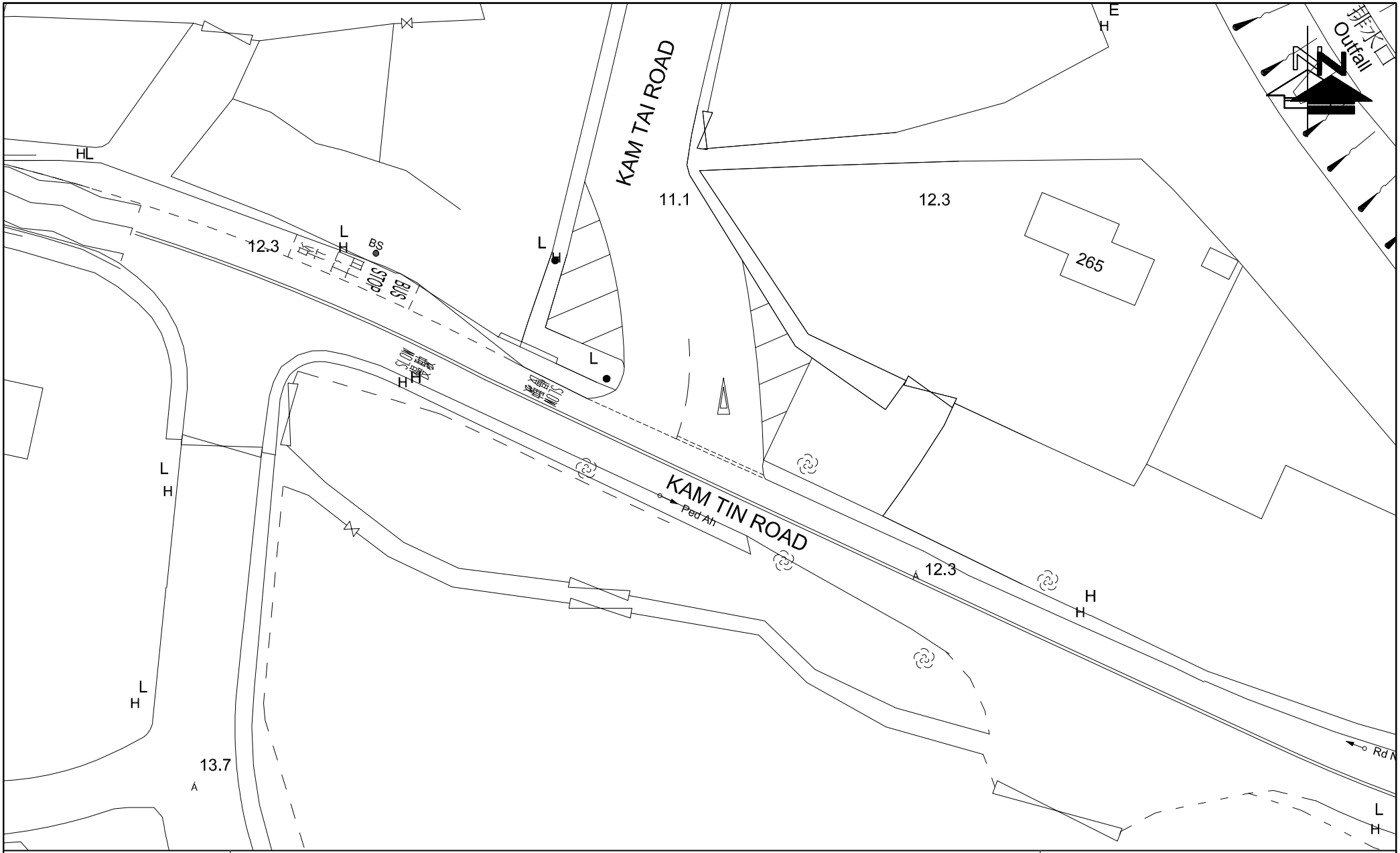


FIGURE NO.: 3.4	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF KAM TIN ROAD / KAM TAI ROAD (C)	
SCALE: 1 : 500 @A4 / DATE: 05 NOV 2025		

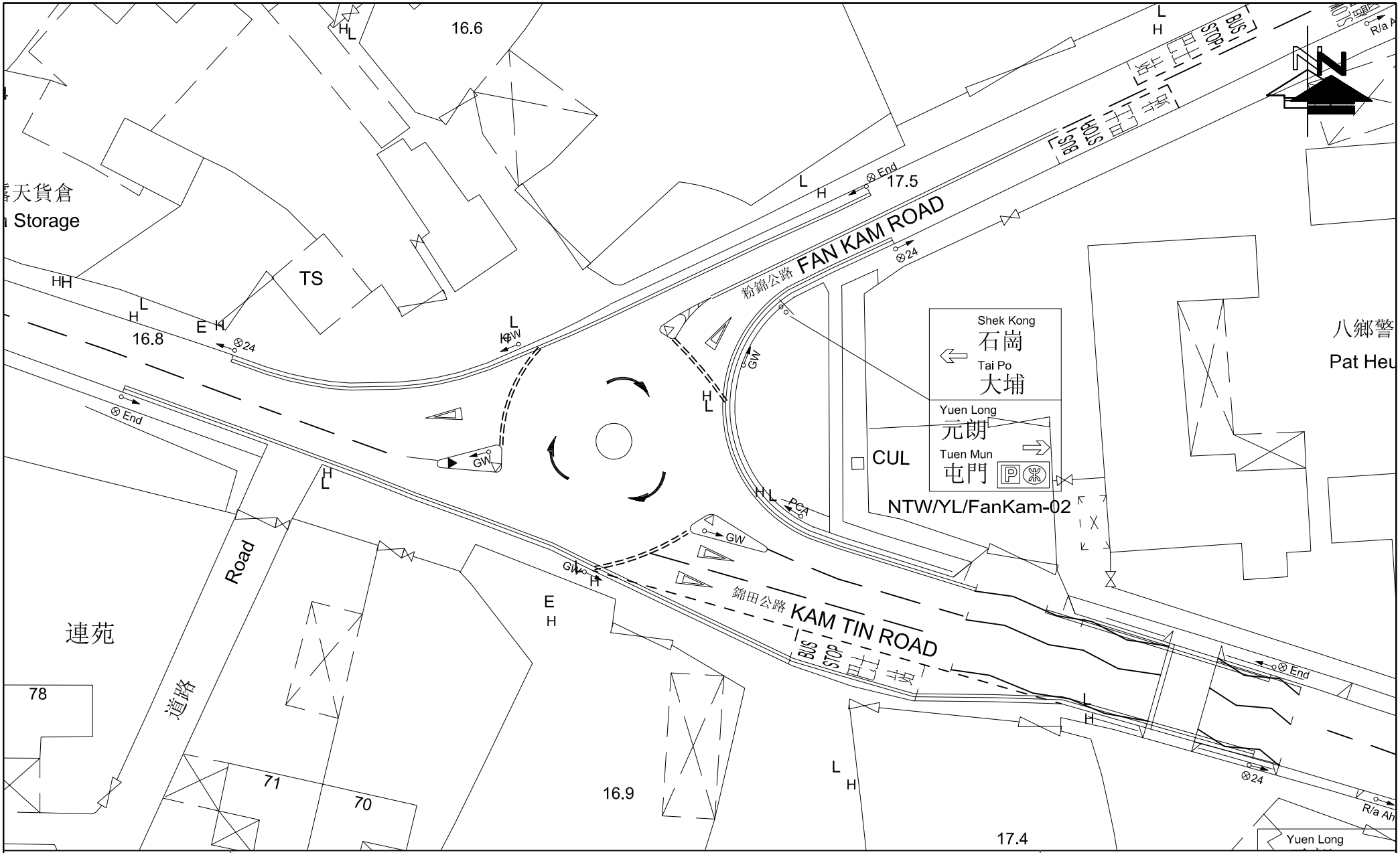
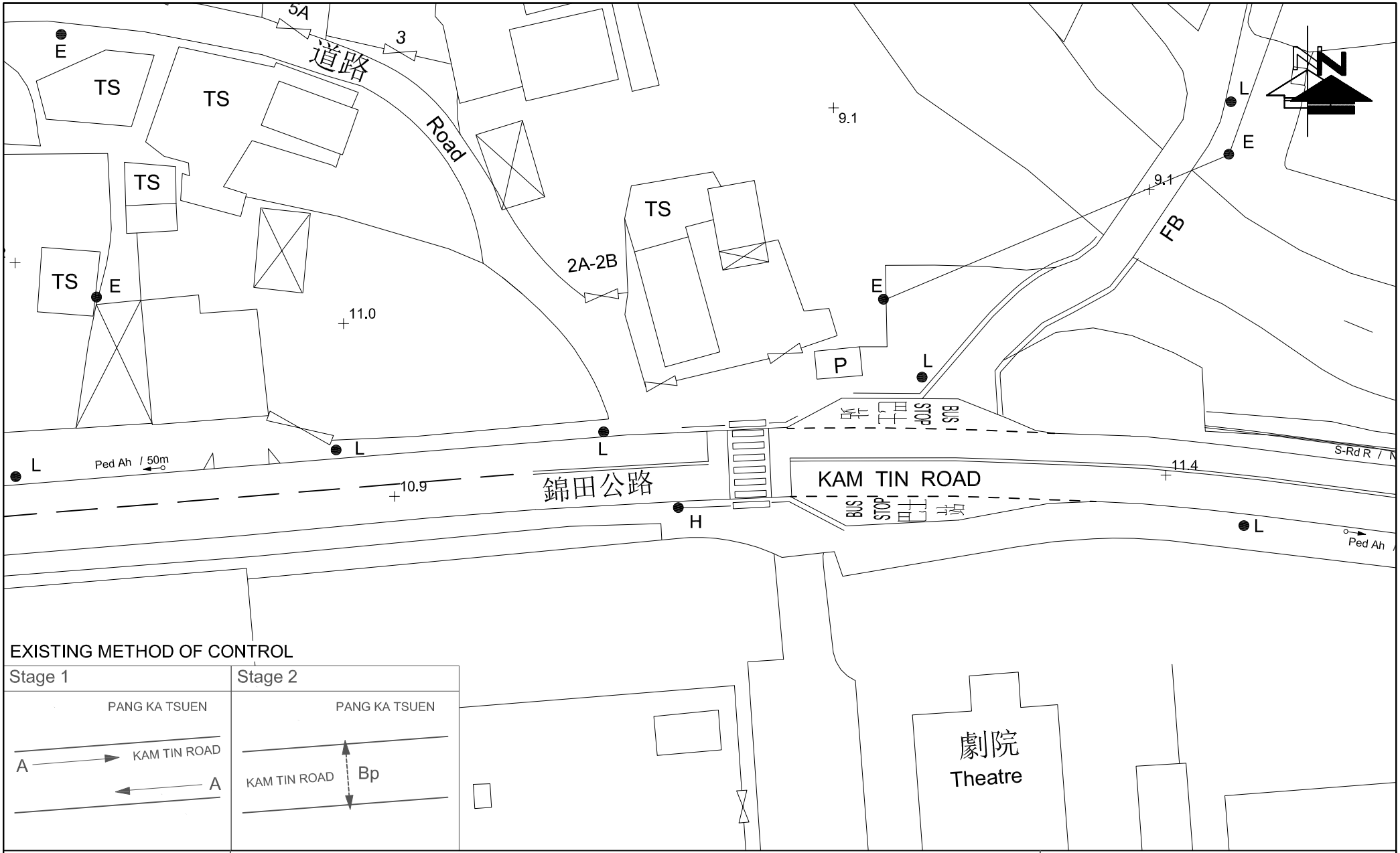


FIGURE NO.: 3.5	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF KAM TIN ROAD / FAN KAM ROAD (D)	
SCALE: 1 : 500 @A4 / DATE: 01 APR 2025		



EXISTING METHOD OF CONTROL

FIGURE NO.: 3.6	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF KAM TIN ROAD / LOCAL ACCESS ROAD (E)	
SCALE: 1 : 500 @A4 / DATE: 01 APR 2025		

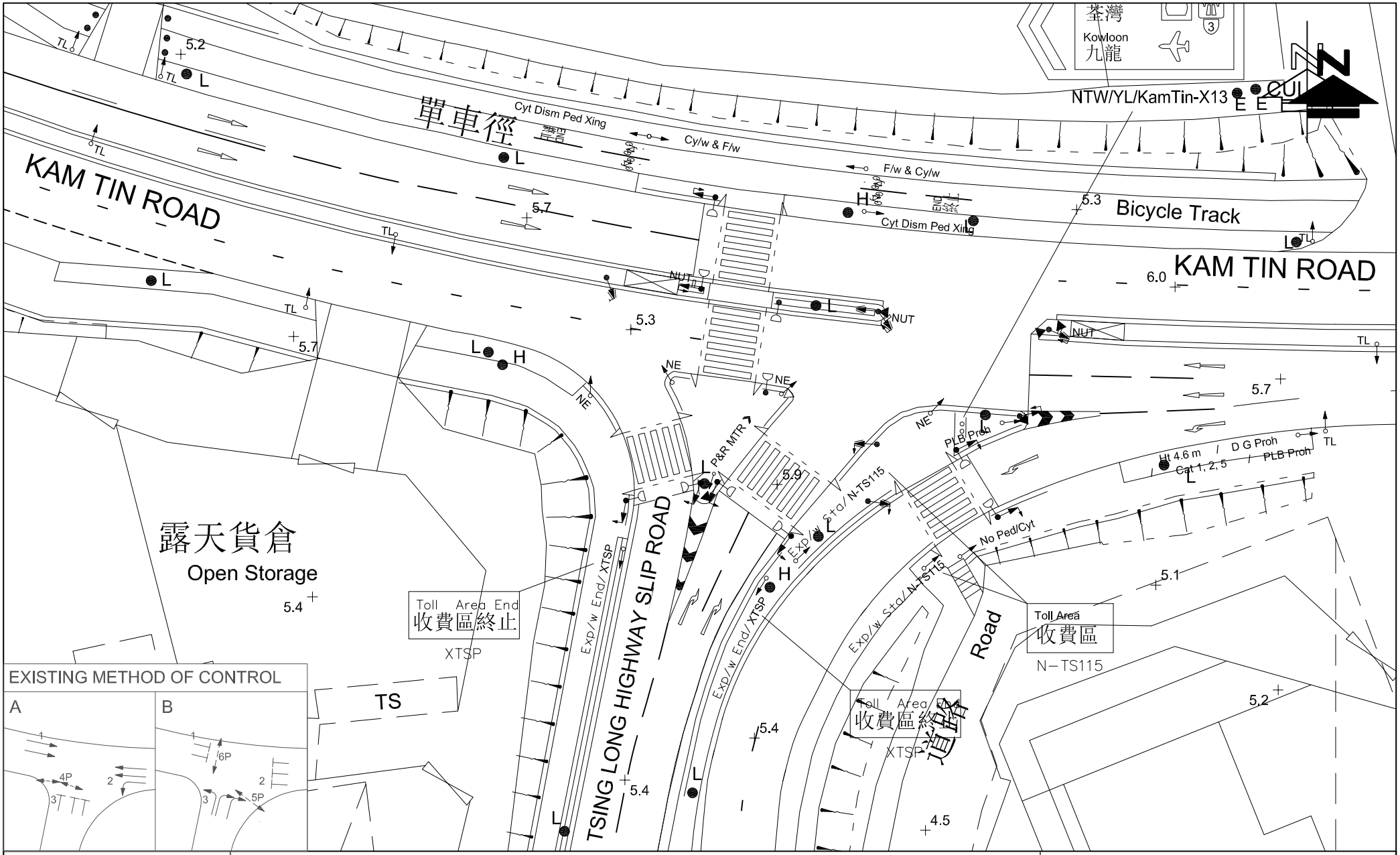


FIGURE NO.: 3.7	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.
PROJECT NO.: 25009HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF KAM TIN ROAD / TSING LONG HIGHWAY SLIP ROAD (F)
SCALE: 1 : 500 @A4	DATE: 01 APR 2025

CTA Consultants Limited
志達顧問有限公司

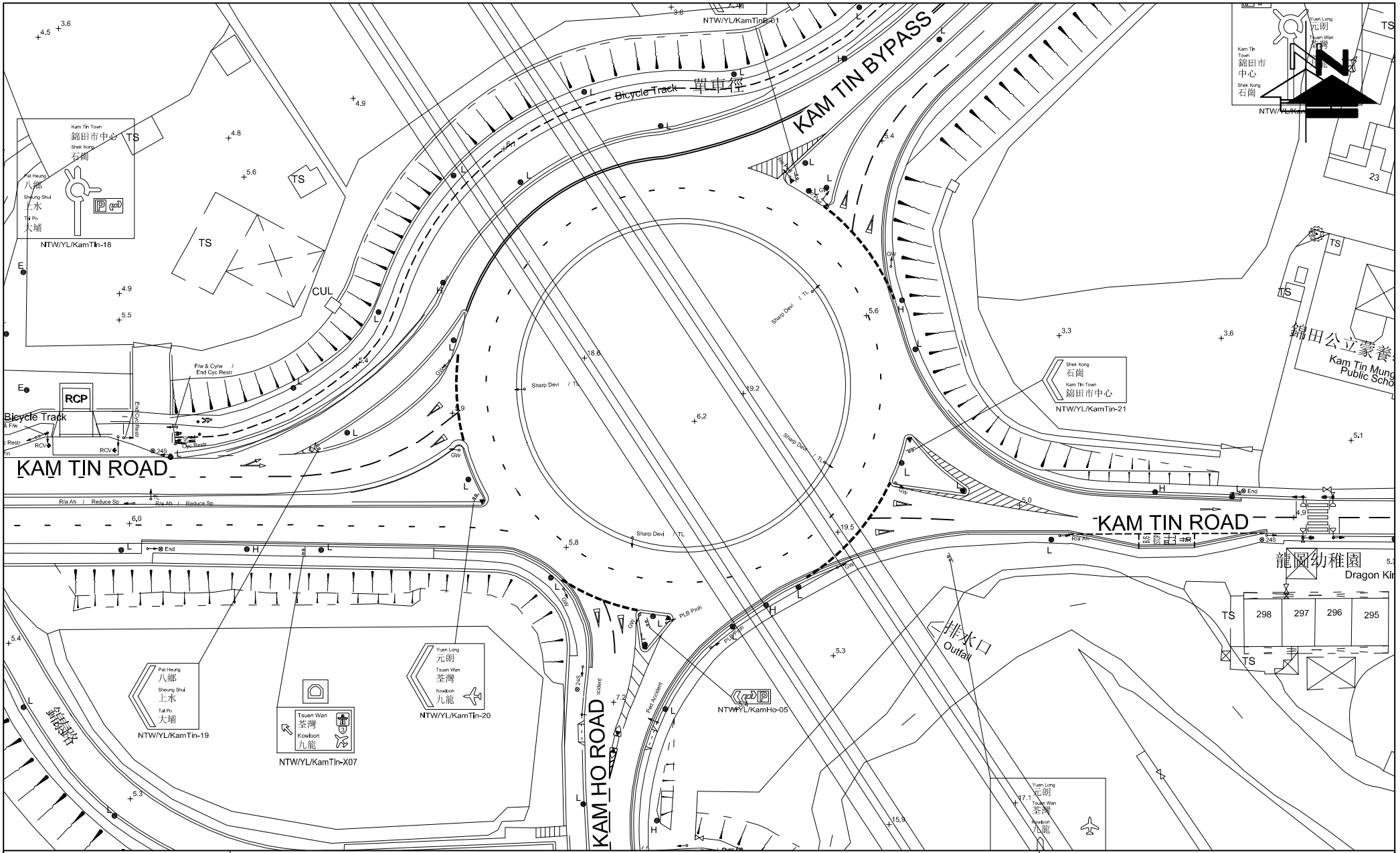
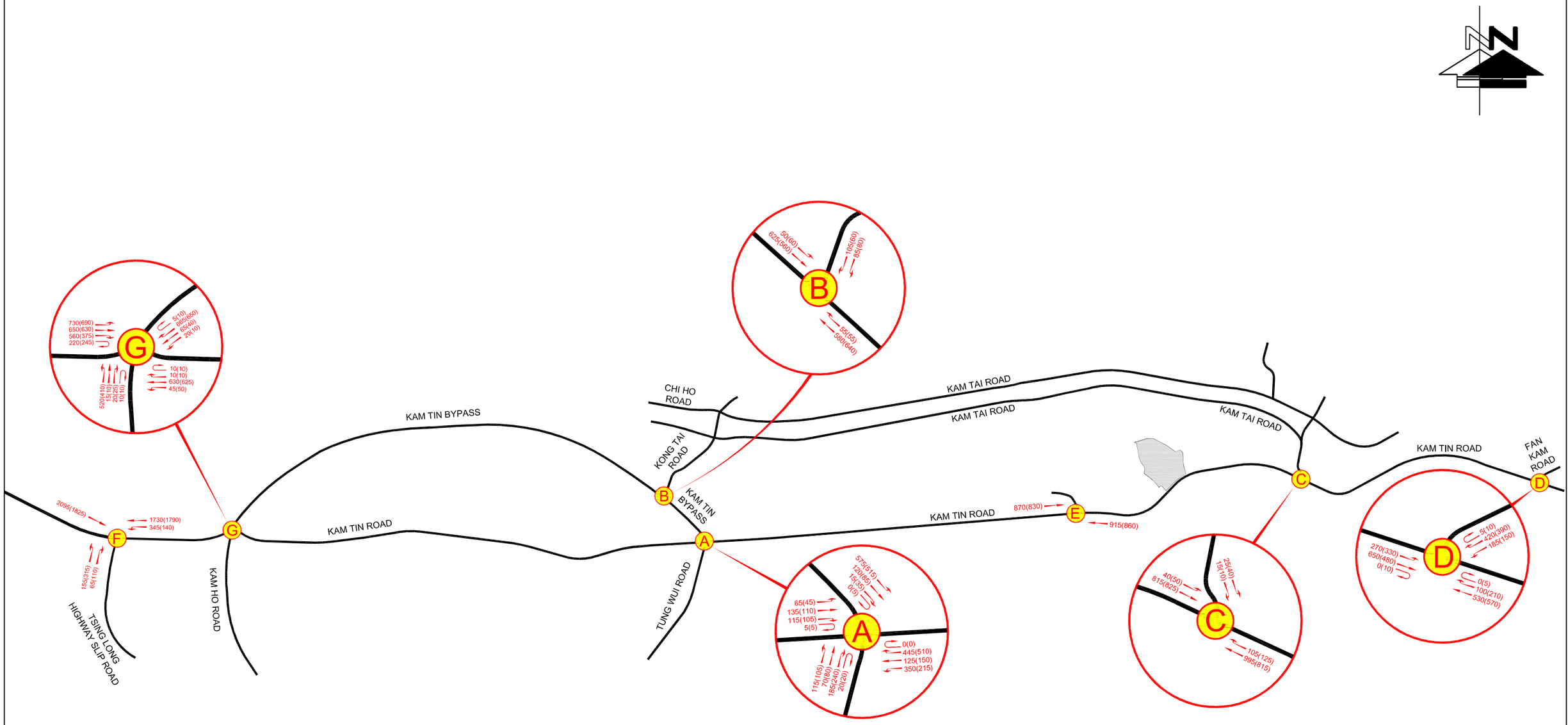


FIGURE NO.: 3.8	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF KAM TIN ROAD / KAM TIN BYPASS / KAM HO ROAD (G)	
SCALE: 1 : 1000 @A4 / DATE: 01 APR 2025		



LEGEND :

DEVELOPMENT SITE

595(540) AM (PM) PEAK HOUR TRAFFIC FLOW (IN PCU / HR)

FIGURE NO.: 3.9	PROJECT TITLE:	Rezoning from “Residential (Group C)2” and “Open Space” zones to “Residential (Group C)4” zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.
PROJECT NO.: 25009HK	DRAWING TITLE:	2025 OBSERVED TRAFFIC FLOWS
SCALE: N. T. S. @A3 / DATE: 14 JUL 2025		

CTA Consultants Limited
志達顧問有限公司

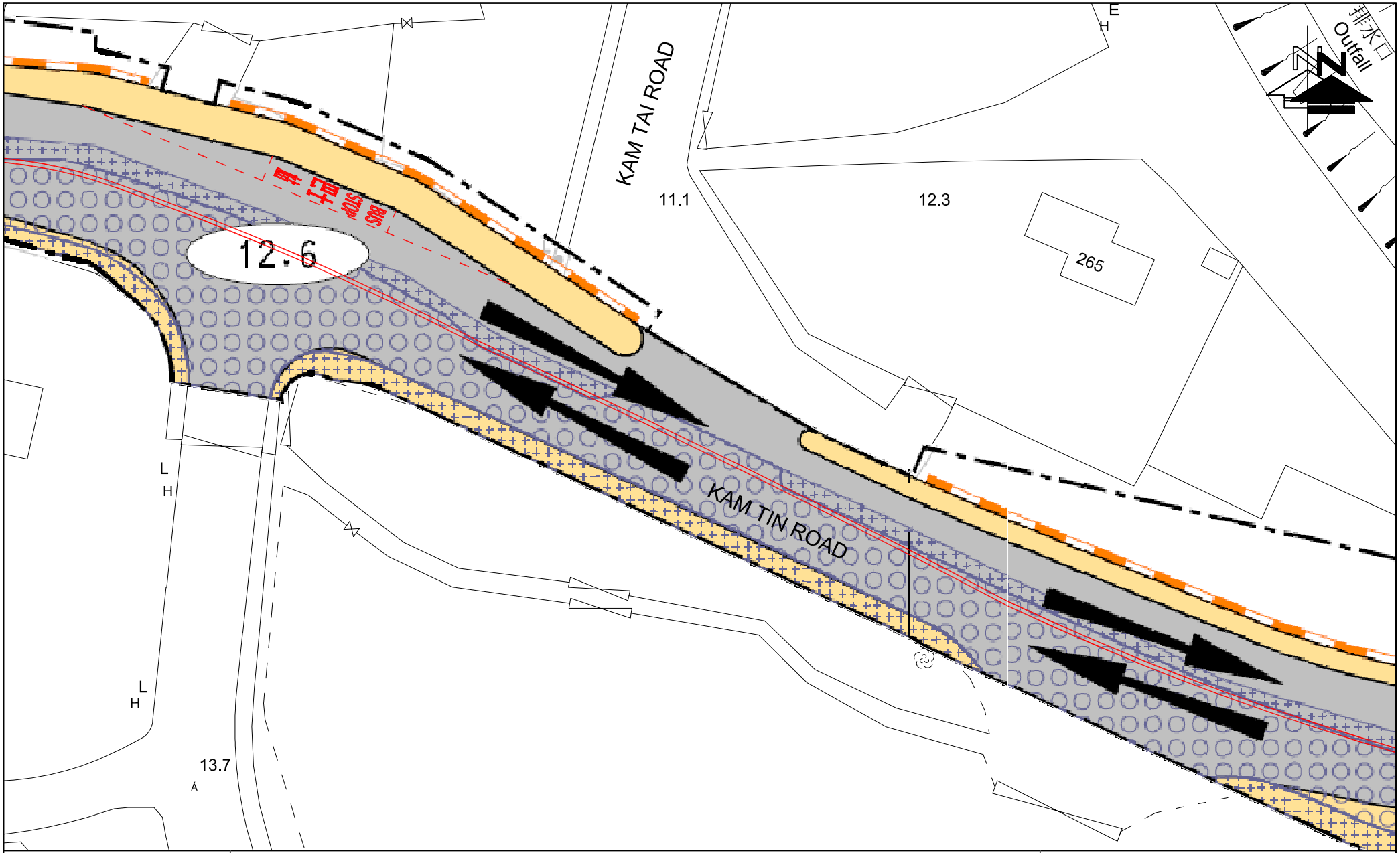


FIGURE NO.: 3.10	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: CONCEPTUAL JUNCTION IMPROVEMENT LAYOUT OF KAM TIN ROAD / KAM TAI ROAD (C) (CARRIED OUT BY HyD PWP ITEM No.6820TH)	
SCALE: 1 : 500 @A4 / DATE: 01 APR 2025		

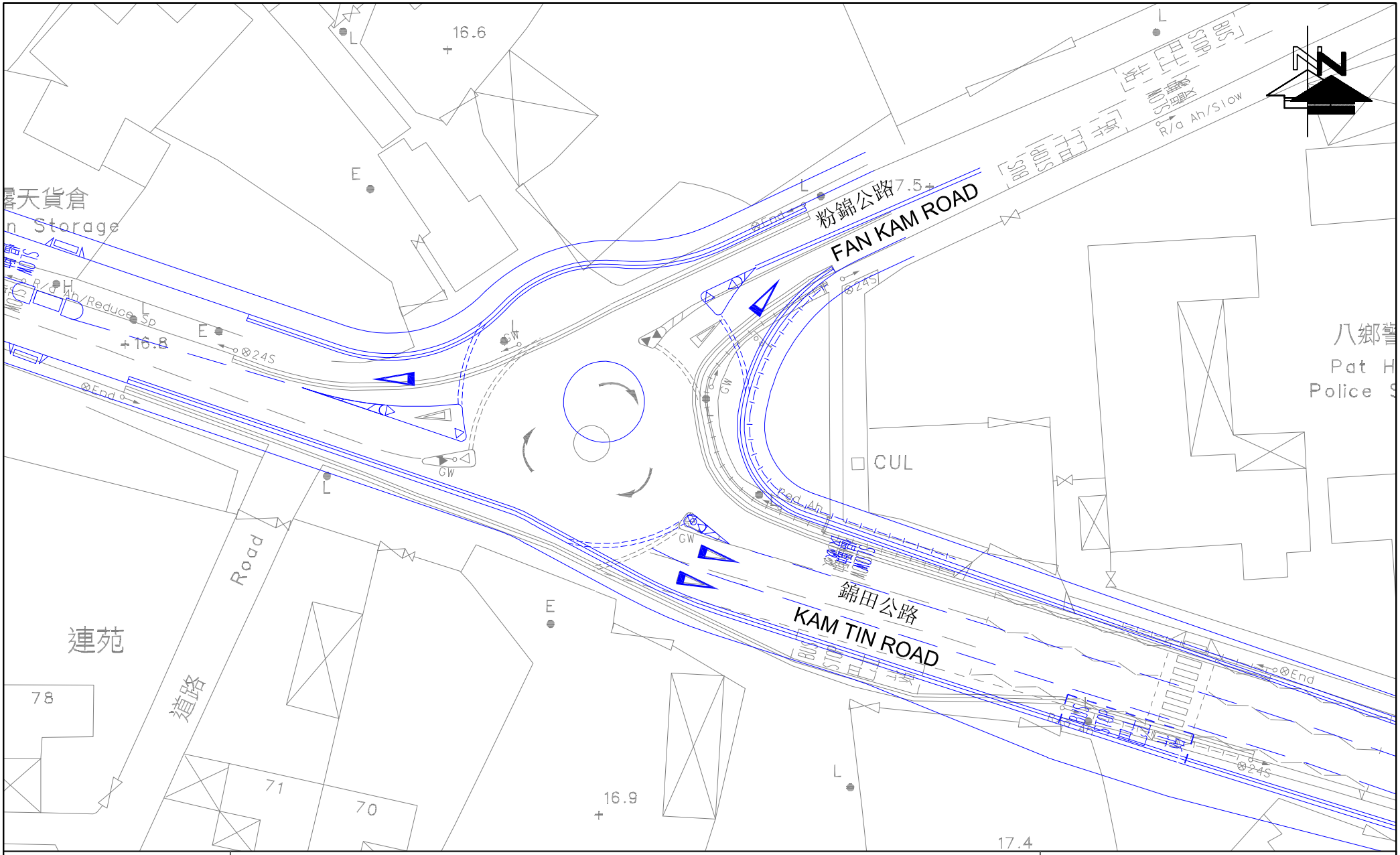


FIGURE NO.: 3.11	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: PROPOSED JUNCTION IMPROVEMENT OF KAM TIN ROAD / FAN KAM ROAD (D) (CARRIED OUT BY HyD UNDER PWP ITEM No.6820TH)	
SCALE: 1 : 500 @A4 / DATE: 24 APR 2025		

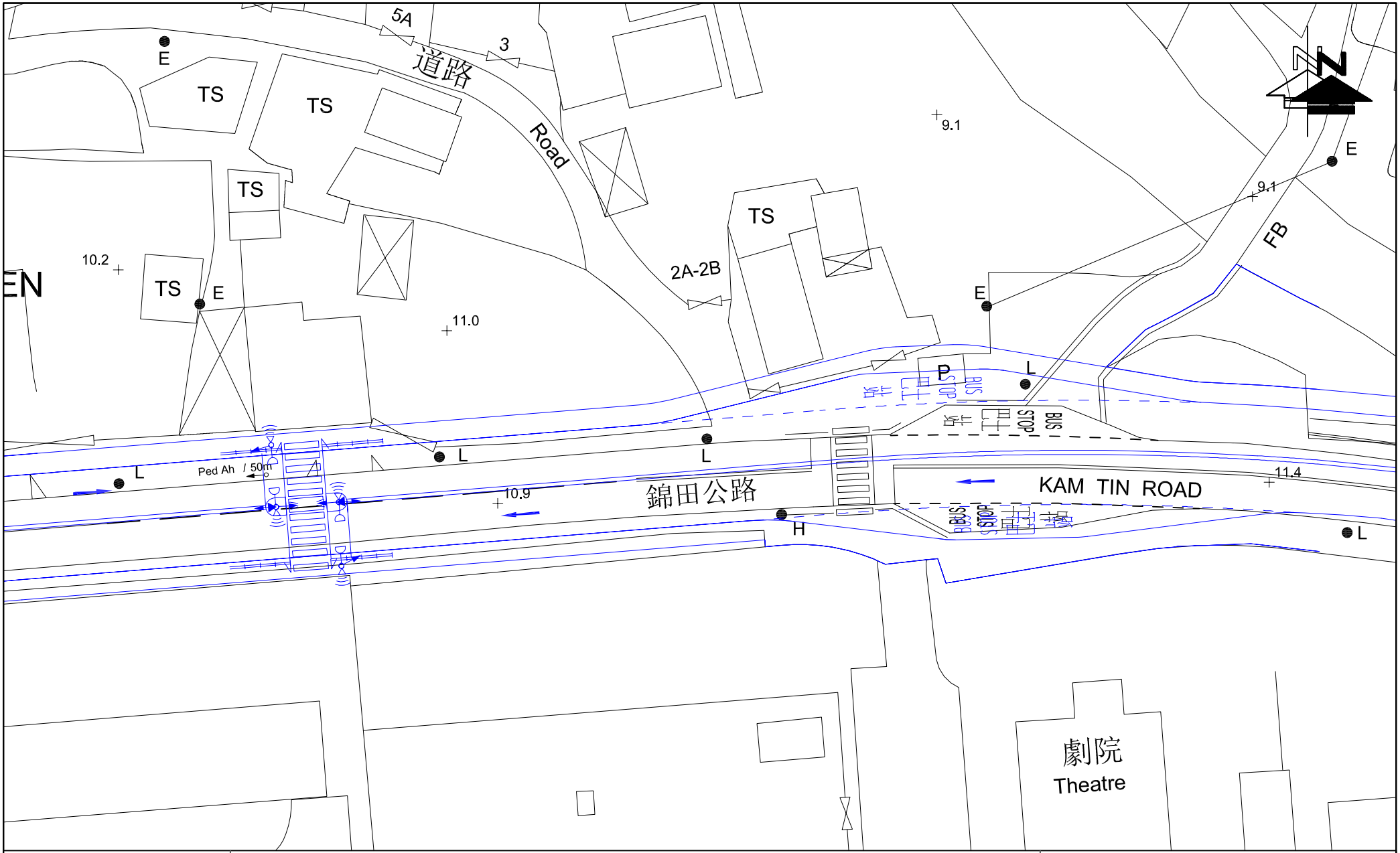


FIGURE NO.: 3.12	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: CONCEPTUAL JUNCTION IMPROVEMENT OF KAM TIN ROAD / LOCAL ACCESS ROAD (E) (CARRIED OUT BY HyD PWP ITEM No.6820TH)	
SCALE: 1 : 500 @A4 / DATE: 24 APR 2025		

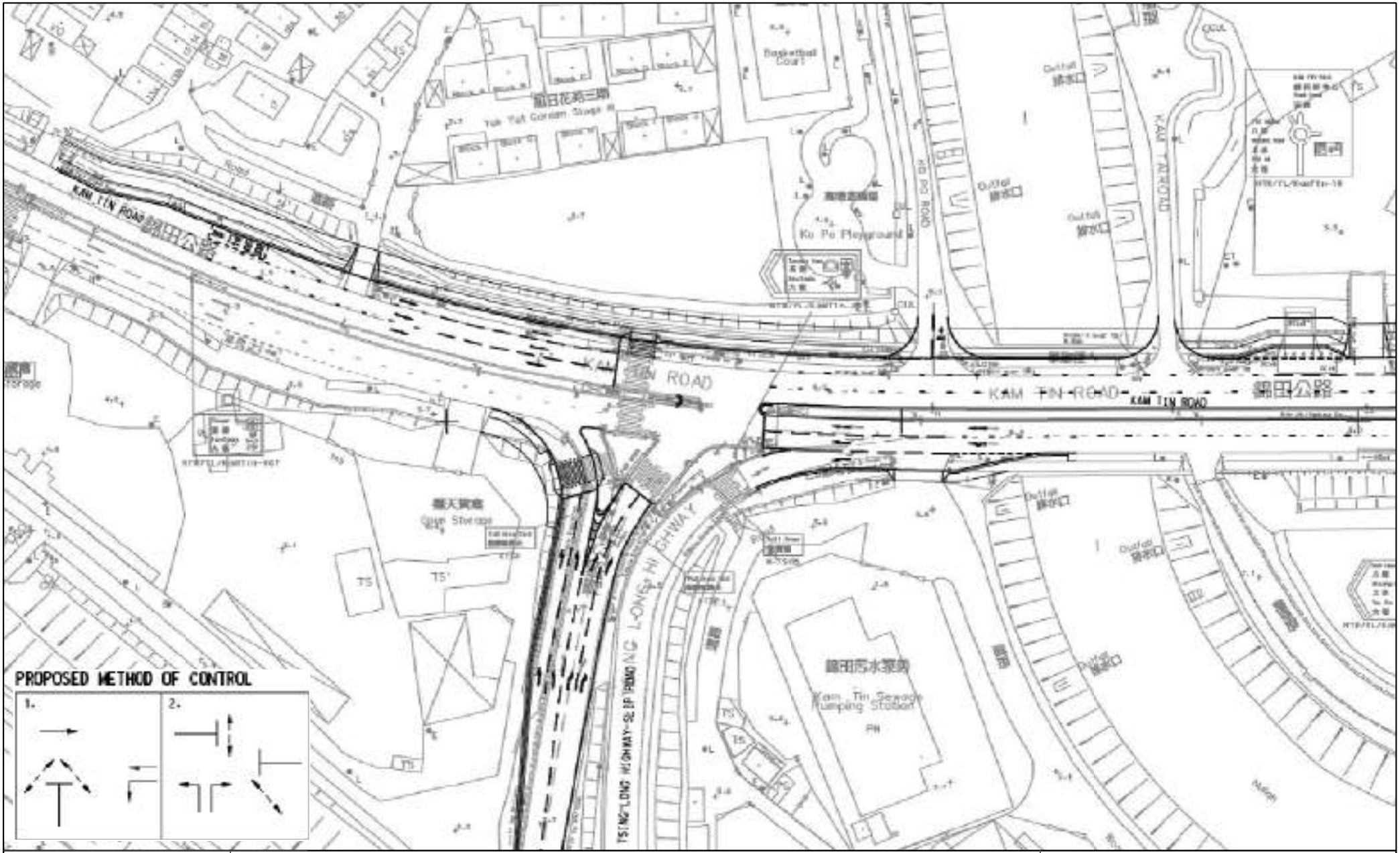


FIGURE NO.: 3.13	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: FUTURE JUNCTION LAYOUT OF KAM TIN ROAD / TSING LONG HIGHWAY SLIP ROAD (F) (CARRIED OUT BY CEDD UNDER CONTRACT NO. YL/2017/01)	
SCALE: N.T.S. @A4 / DATE: 01 APR 2025		

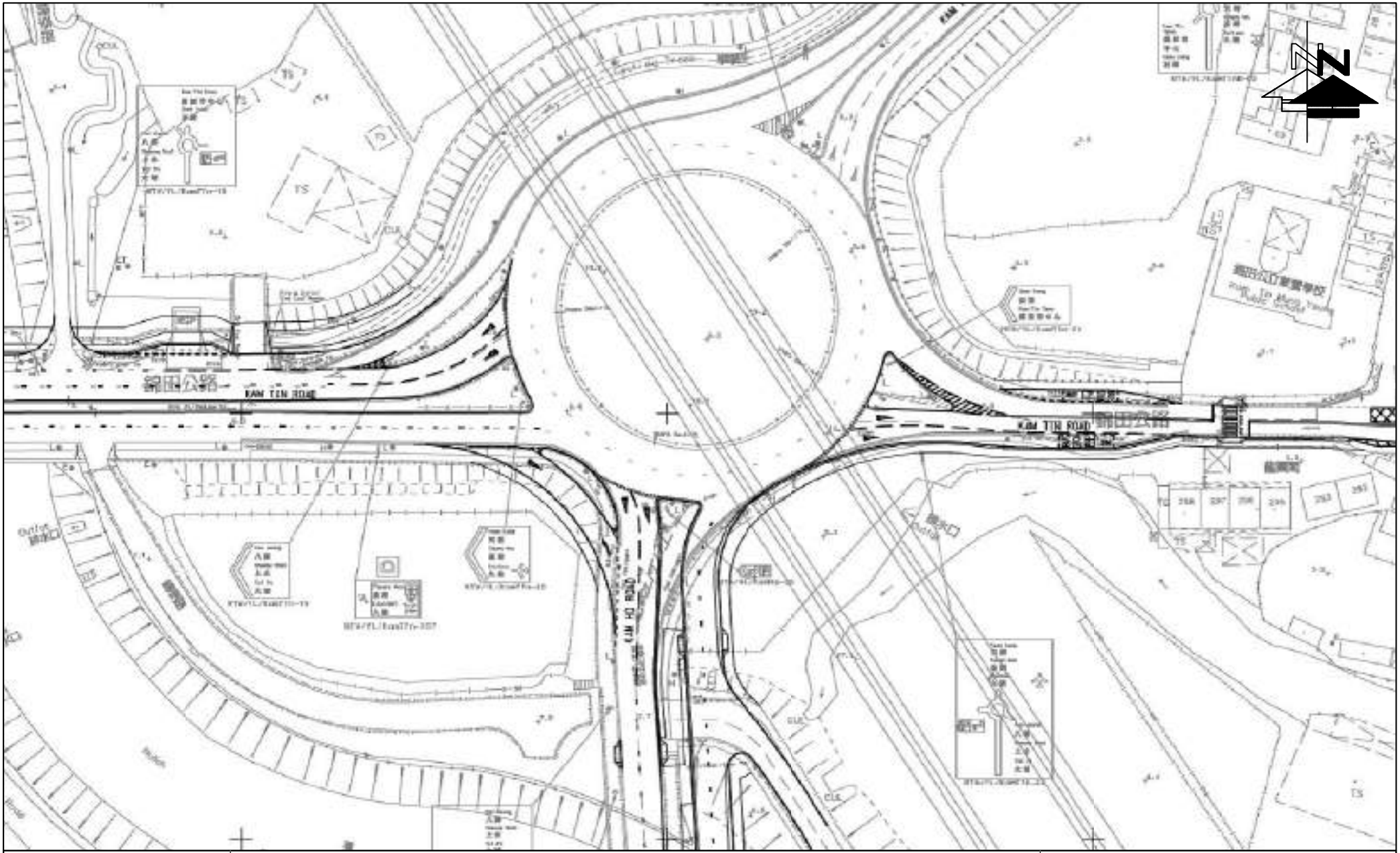


FIGURE NO.: 3.14	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: FUTURE JUNCTION LAYOUT OF KAM TIN ROAD / KAM TIN BYPASS / KAM HO ROAD (G) (CARRIED OUT BY CEDD UNDER CONTRACT NO. YL/2017/01)	
SCALE: N.T.S. @A4 / DATE: 01 APR 2025		

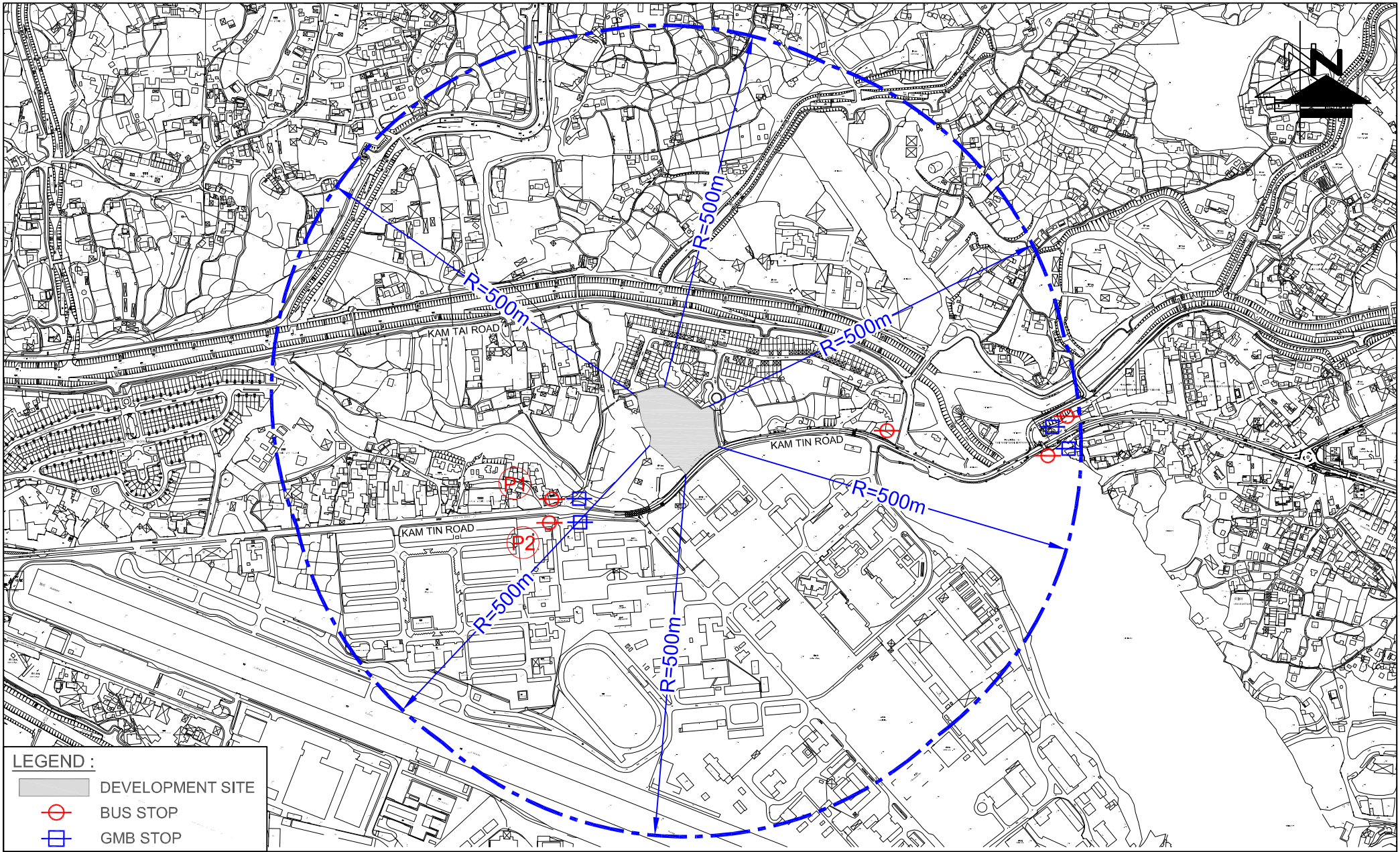


FIGURE NO.: 3.15	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: PUBLIC TRANSPORT SERVICES IN THE VICINITY	
SCALE: 1 : 7000 @A4 / DATE: 14 JUL 2025		

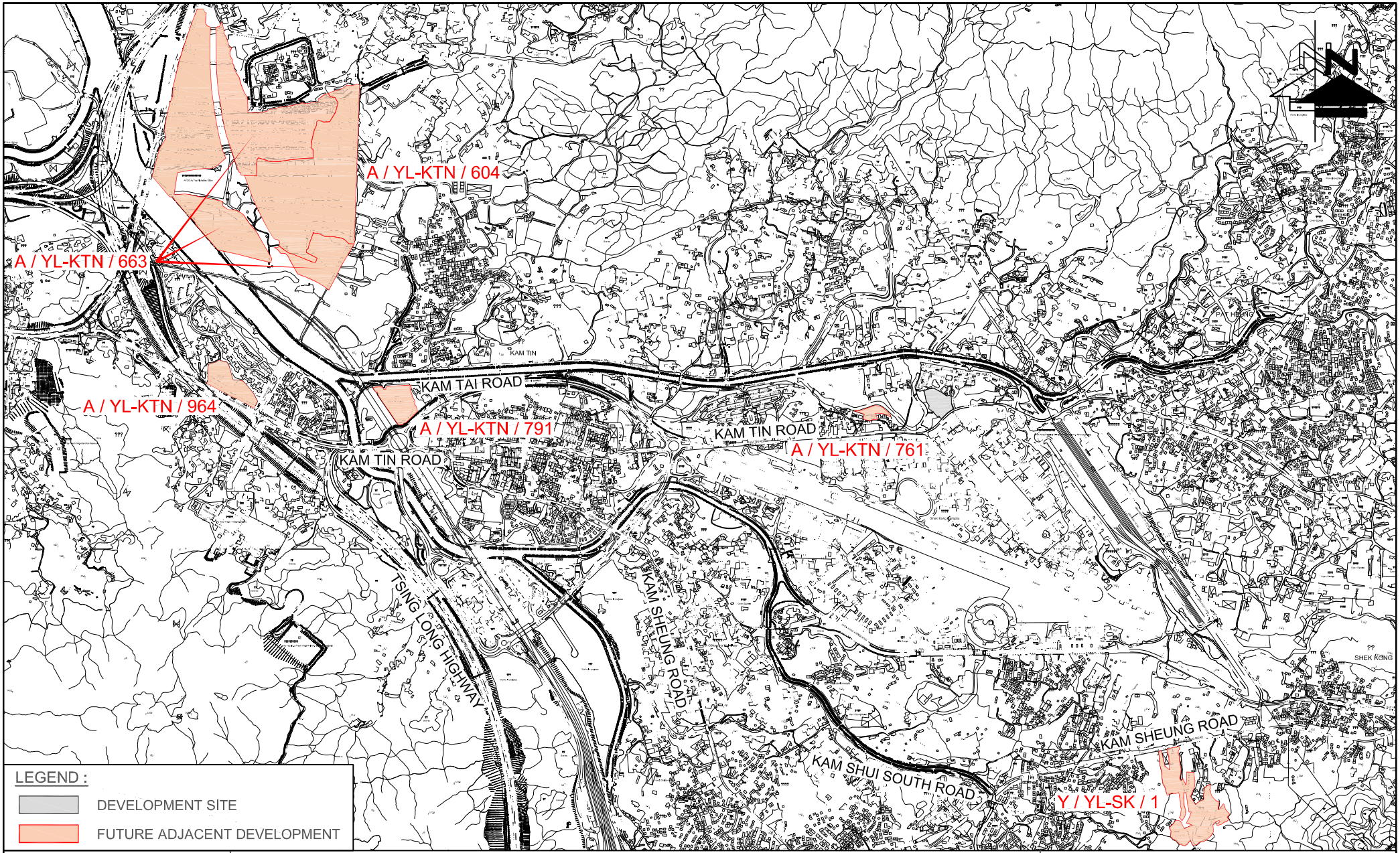


FIGURE NO.: 4.1	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.
PROJECT NO.: 25009HK	DRAWING TITLE: PLANNED / COMMITTED FUTURE DEVELOPMENT IN THE VICINITY
SCALE: 1 : 20000 @A4	DATE: 14 JUL 2025

CTA Consultants Limited
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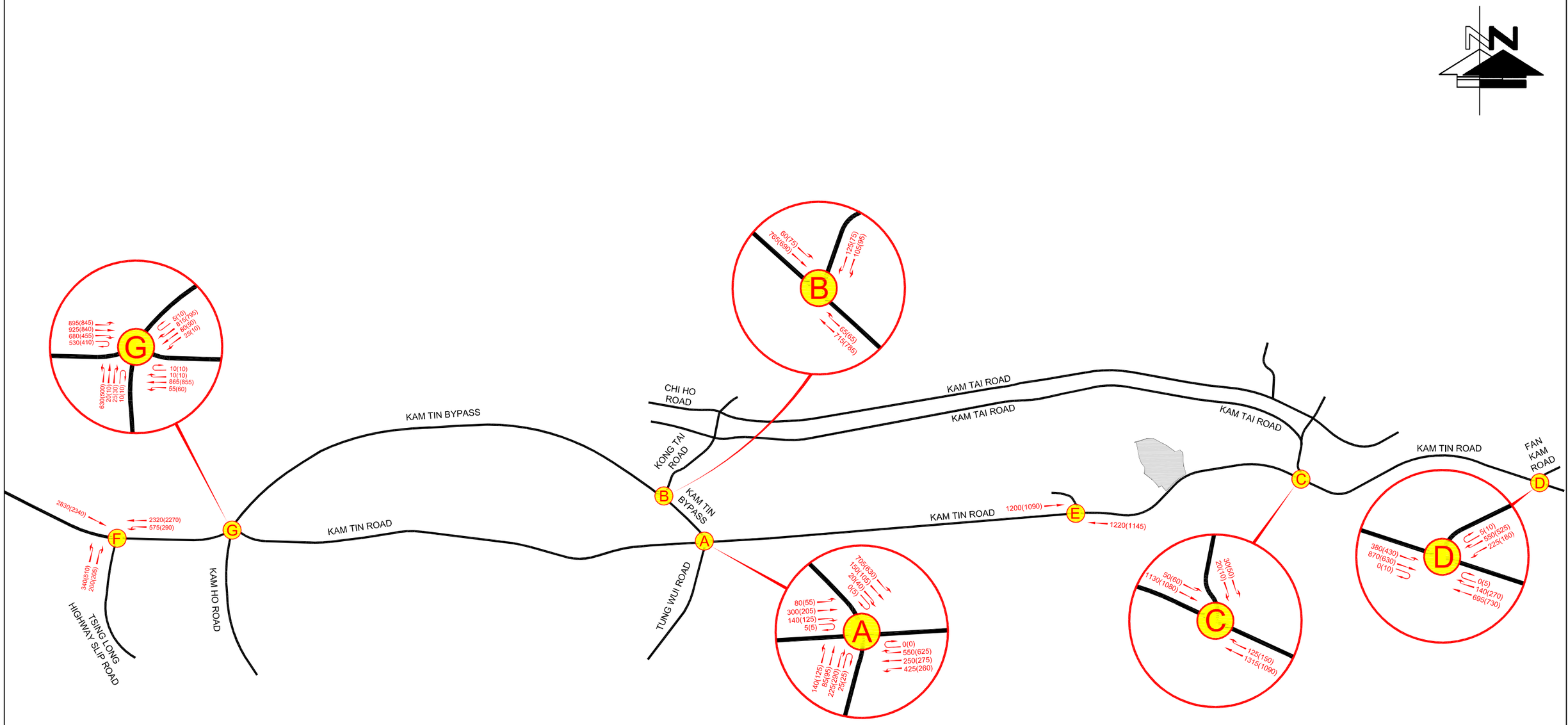


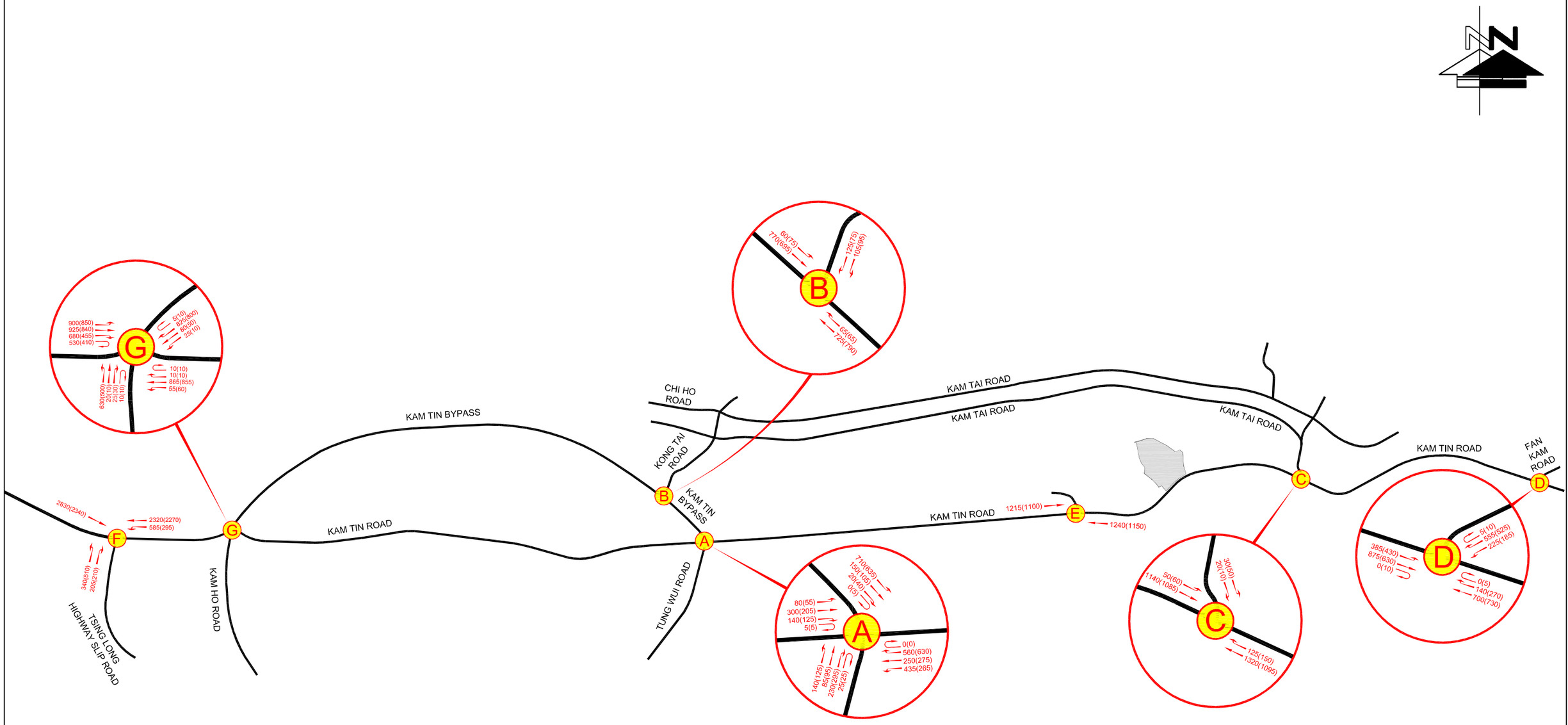
LEGEND :

DEVELOPMENT SITE

595(540) AM (PM) PEAK HOUR TRAFFIC FLOW (IN PCU / HR)

FIGURE NO.: 4.2	PROJECT TITLE:	Rezoning from “Residential (Group C)2” and “Open Space” zones to “Residential (Group C)4” zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.
PROJECT NO.: 25009HK	DRAWING TITLE:	2034 REFERENCE TRAFFIC FLOWS
SCALE: N. T. S. @A3 / DATE: 14 JUL 2025		

CTA Consultants Limited
志達顧問有限公司

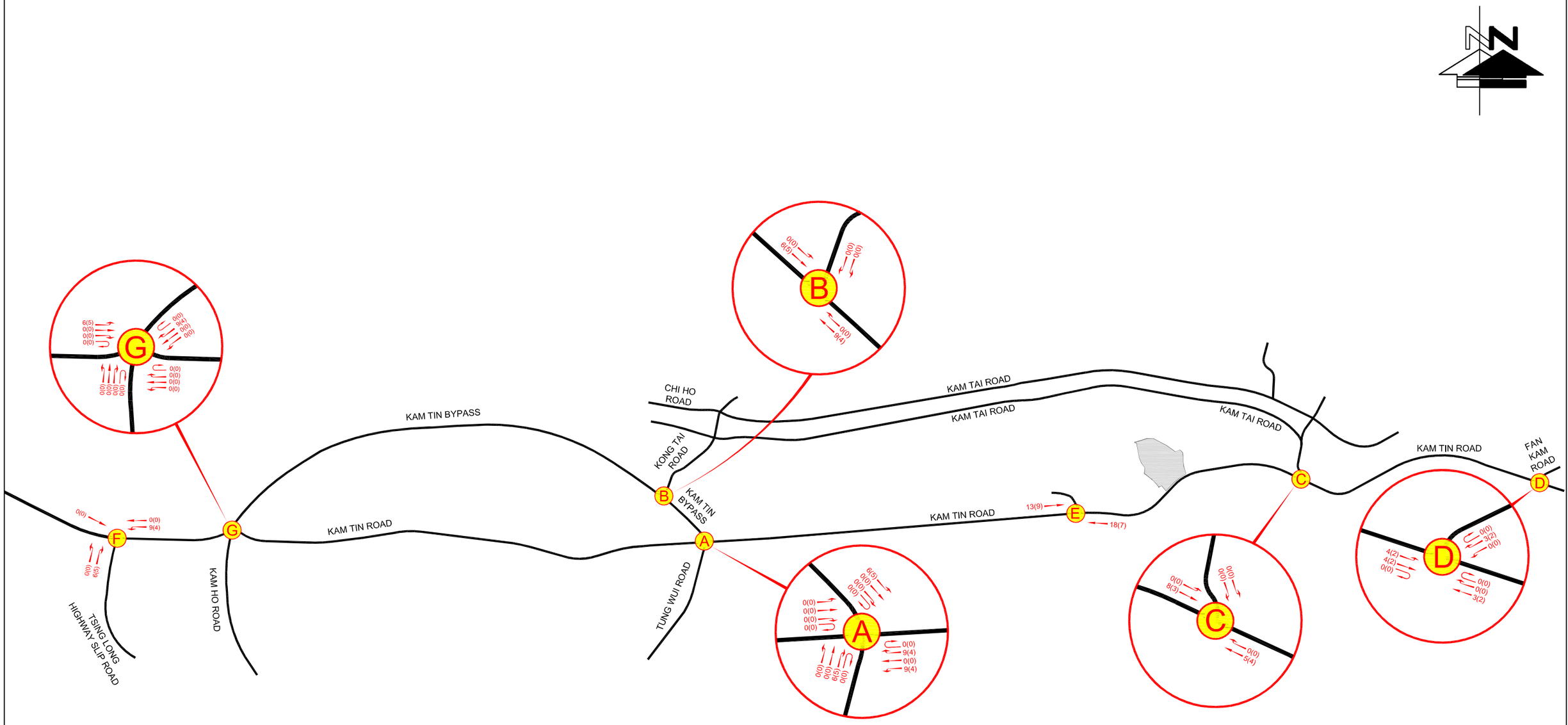


LEGEND :

DEVELOPMENT SITE

595(540) AM (PM) PEAK HOUR TRAFFIC FLOW (IN PCU / HR)

FIGURE NO.: 4.3	PROJECT TITLE: Rezoning from “Residential (Group C)2” and “Open Space” zones to “Residential (Group C)4” zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: 2034 DESIGN TRAFFIC FLOWS	
SCALE: N. T. S. @A3 / DATE: 15 JUL 2025		

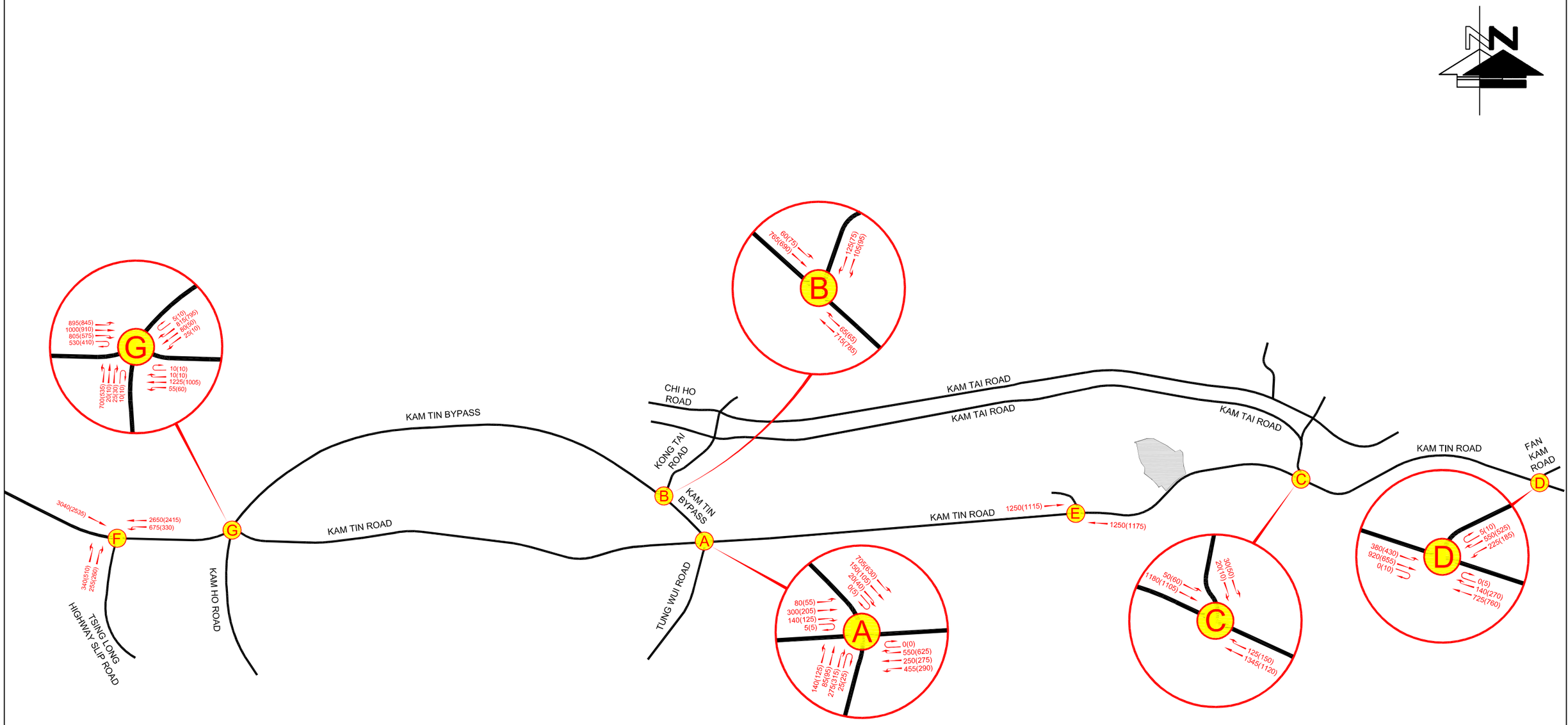


LEGEND :

DEVELOPMENT SITE

595(540) AM (PM) PEAK HOUR TRAFFIC FLOW (IN PCU / HR)

FIGURE NO.: 4.4	PROJECT TITLE: Rezoning from “Residential (Group C)2” and “Open Space” zones to “Residential (Group C)4” zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.
PROJECT NO.: 25009HK	DRAWING TITLE: 2034 DEVELOPMENT TRAFFIC FLOWS
SCALE: N. T. S. @A3 / DATE: 15 JUL 2025	CTA Consultants Limited 志達顧問有限公司

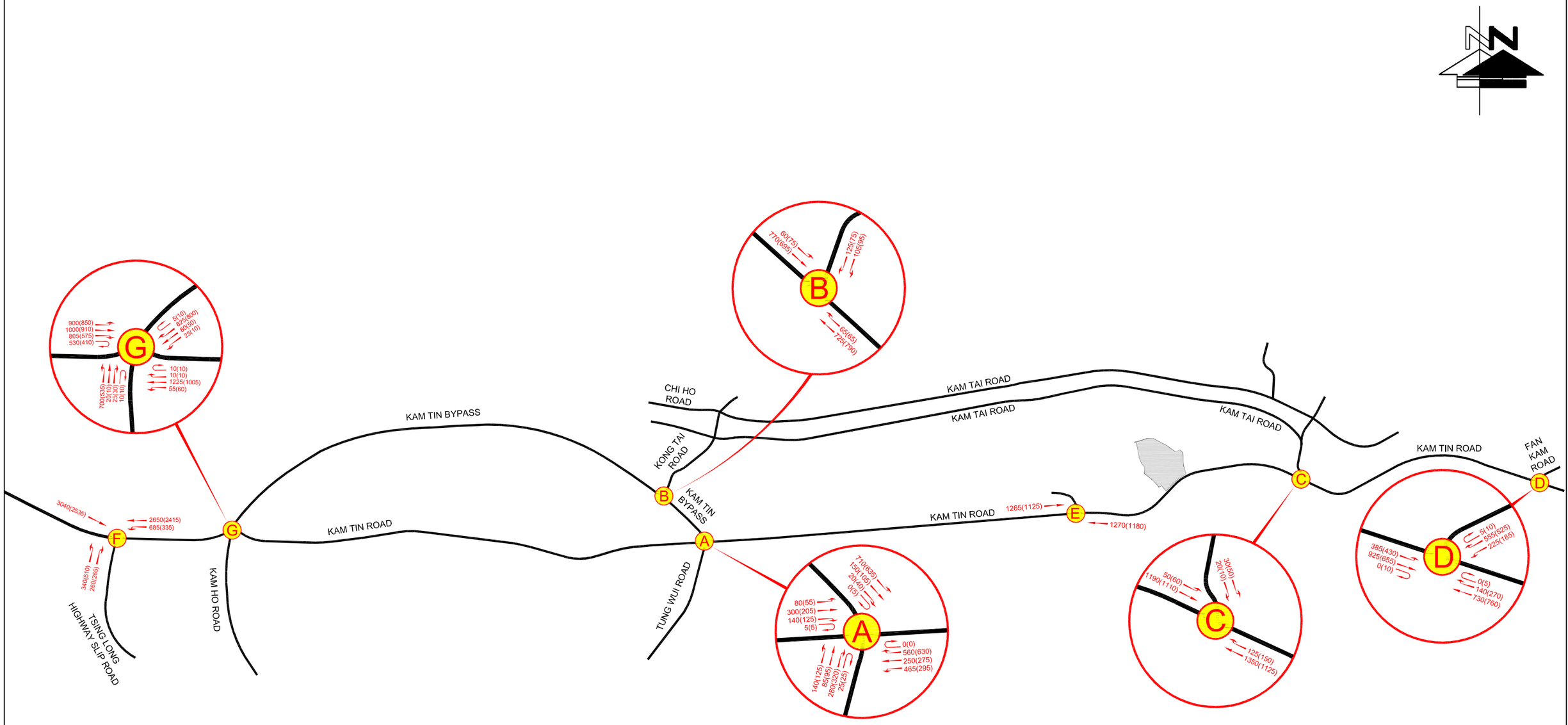


LEGEND :

DEVELOPMENT SITE

595(540) AM (PM) PEAK HOUR TRAFFIC FLOW (IN PCU / HR)

FIGURE NO.: 4.5	PROJECT TITLE: Rezoning from “Residential (Group C)2” and “Open Space” zones to “Residential (Group C)4” zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: 2034 REFERENCE TRAFFIC FLOWS (WITH REMAINING SITES OF LUR)	
SCALE: N. T. S. @A3 / DATE: 14 JUL 2025		



LEGEND :

DEVELOPMENT SITE

595(540) AM (PM) PEAK HOUR TRAFFIC FLOW (IN PCU / HR)

FIGURE NO.: 4.6	PROJECT TITLE: Rezoning from “Residential (Group C)2” and “Open Space” zones to “Residential (Group C)4” zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: 2034 DESIGN TRAFFIC FLOWS (WITH REMAINING SITES OF LUR)	
SCALE: N. T. S. @A3 / DATE: 15 JUL 2025		

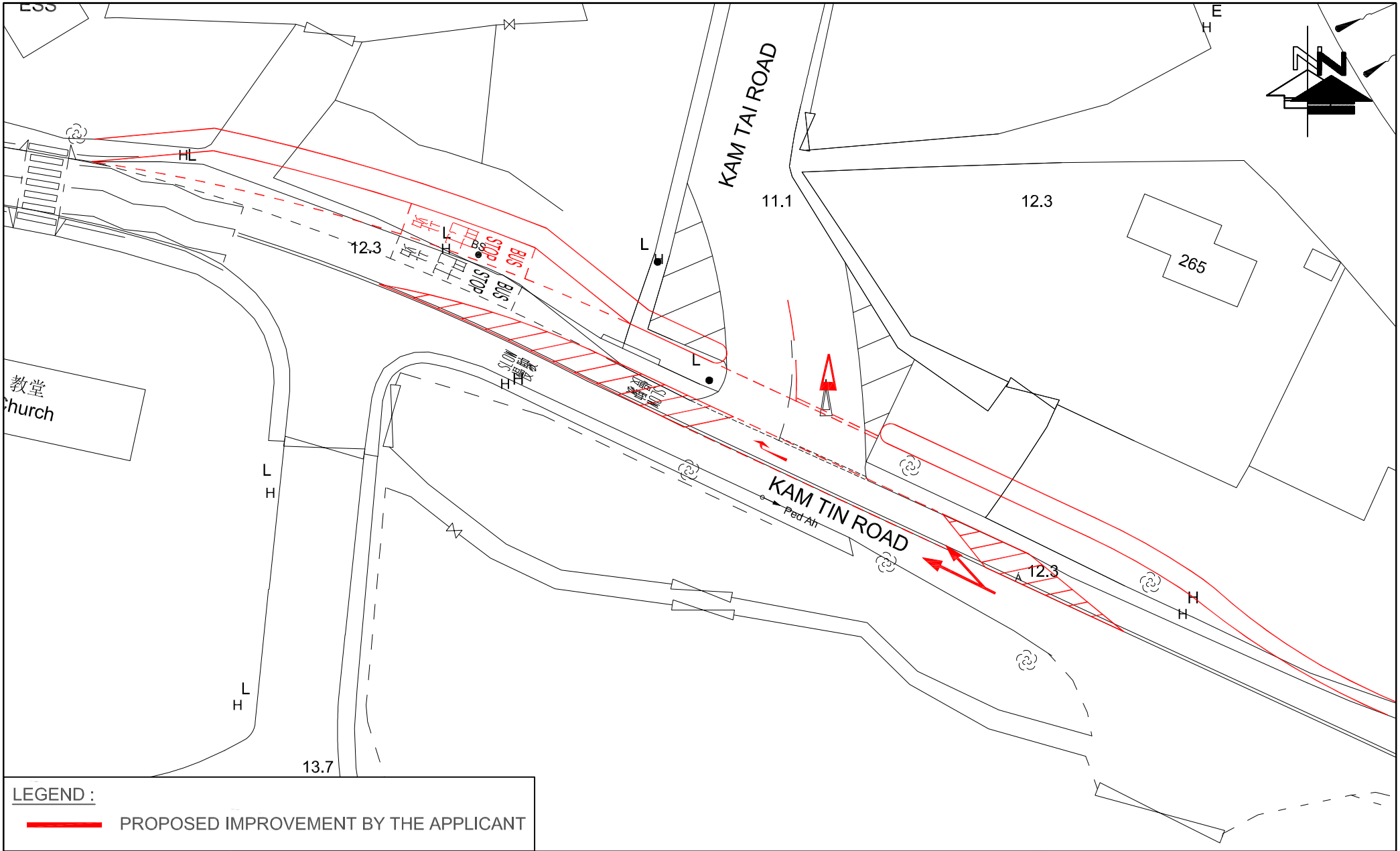


FIGURE NO.: 5.1	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: PROPOSED IMPROVEMENT LAYOUT OF JUNCTION KAM TIN ROAD / KAM TAI ROAD (C)	
SCALE: 1 : 500 @A4 / DATE: 04 FEB 2026		

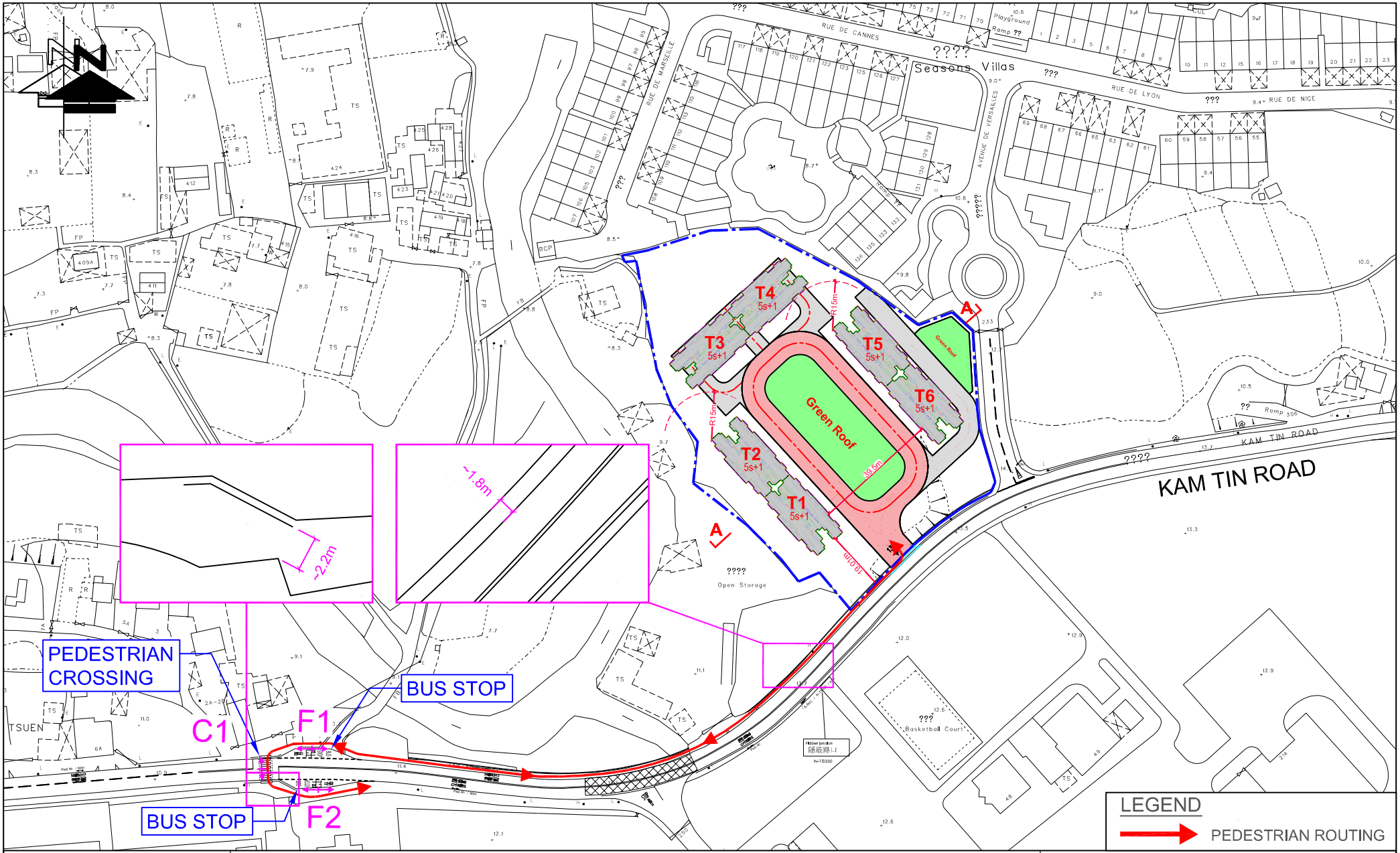


FIGURE NO.: 7.1	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: CRITICAL FOOTPATH AND CROSSING (WITHOUT KAM TIN ROAD WIDENING)	
SCALE: 1 : 1600 @A4 / DATE: 05 FEB 2026		

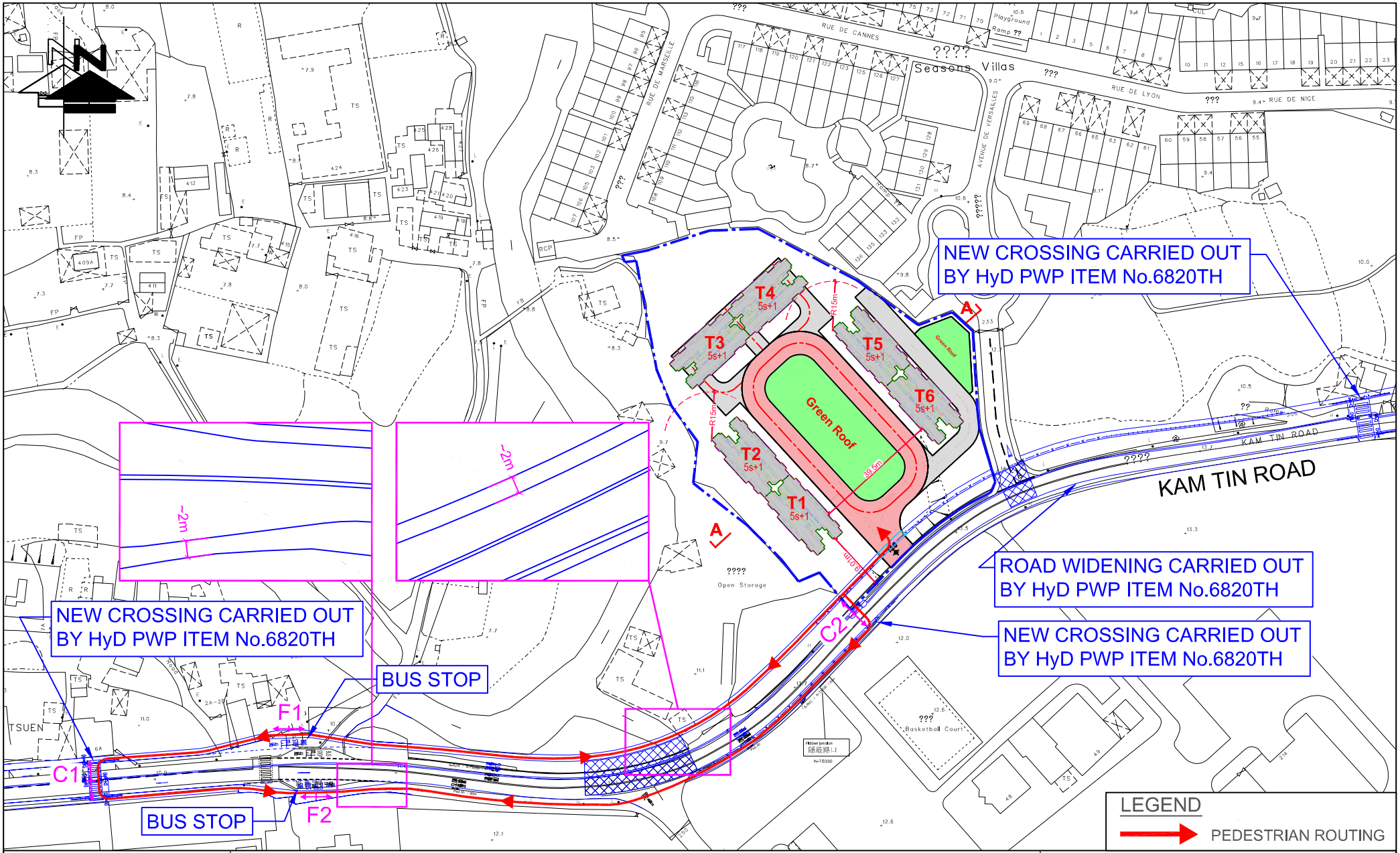


FIGURE NO.: 7.2	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: CRITICAL FOOTPATH AND CROSSING (WITH KAM TIN ROAD WIDENING)	
SCALE: 1 : 1600 @A4 / DATE: 05 FEB 2026		

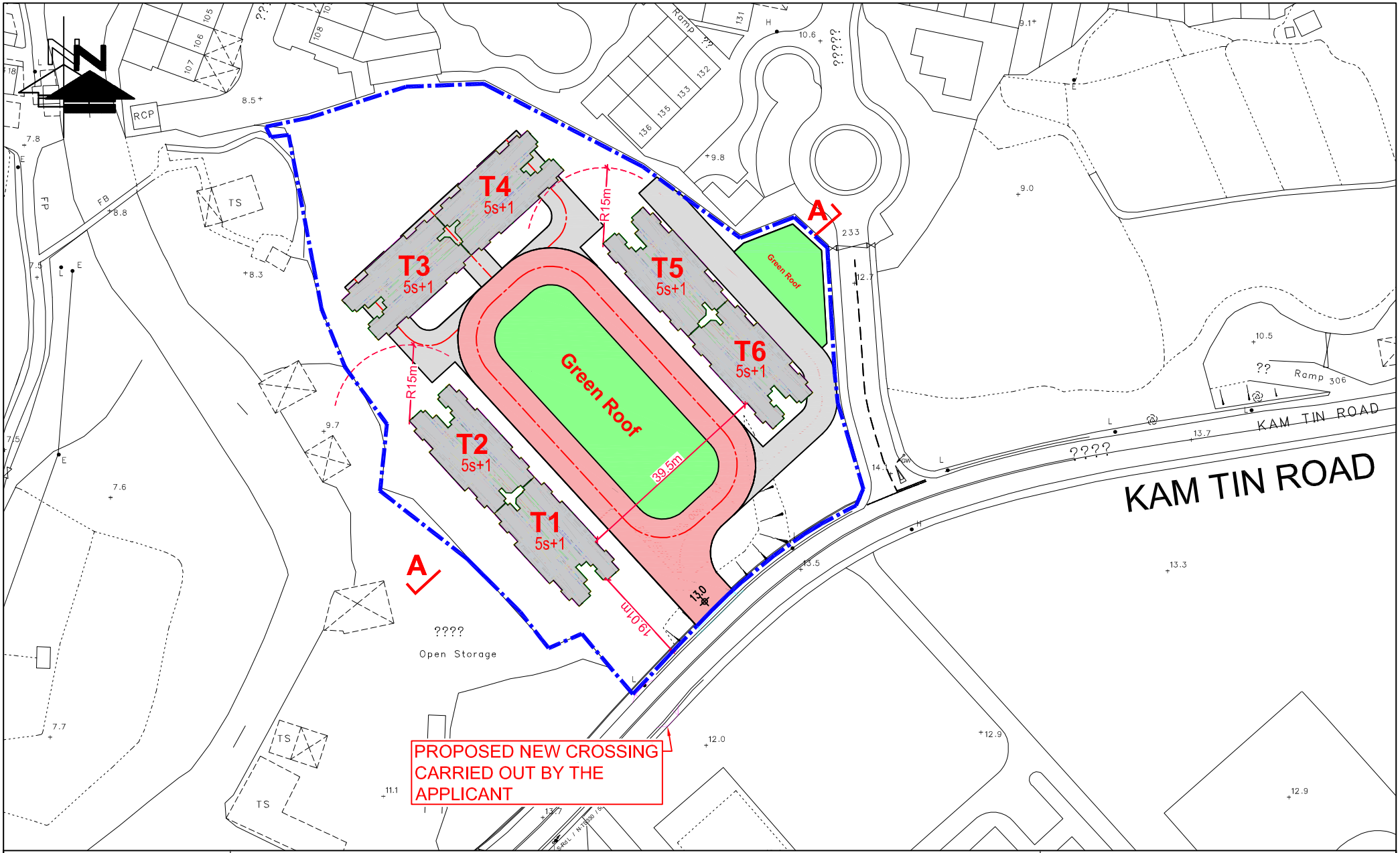
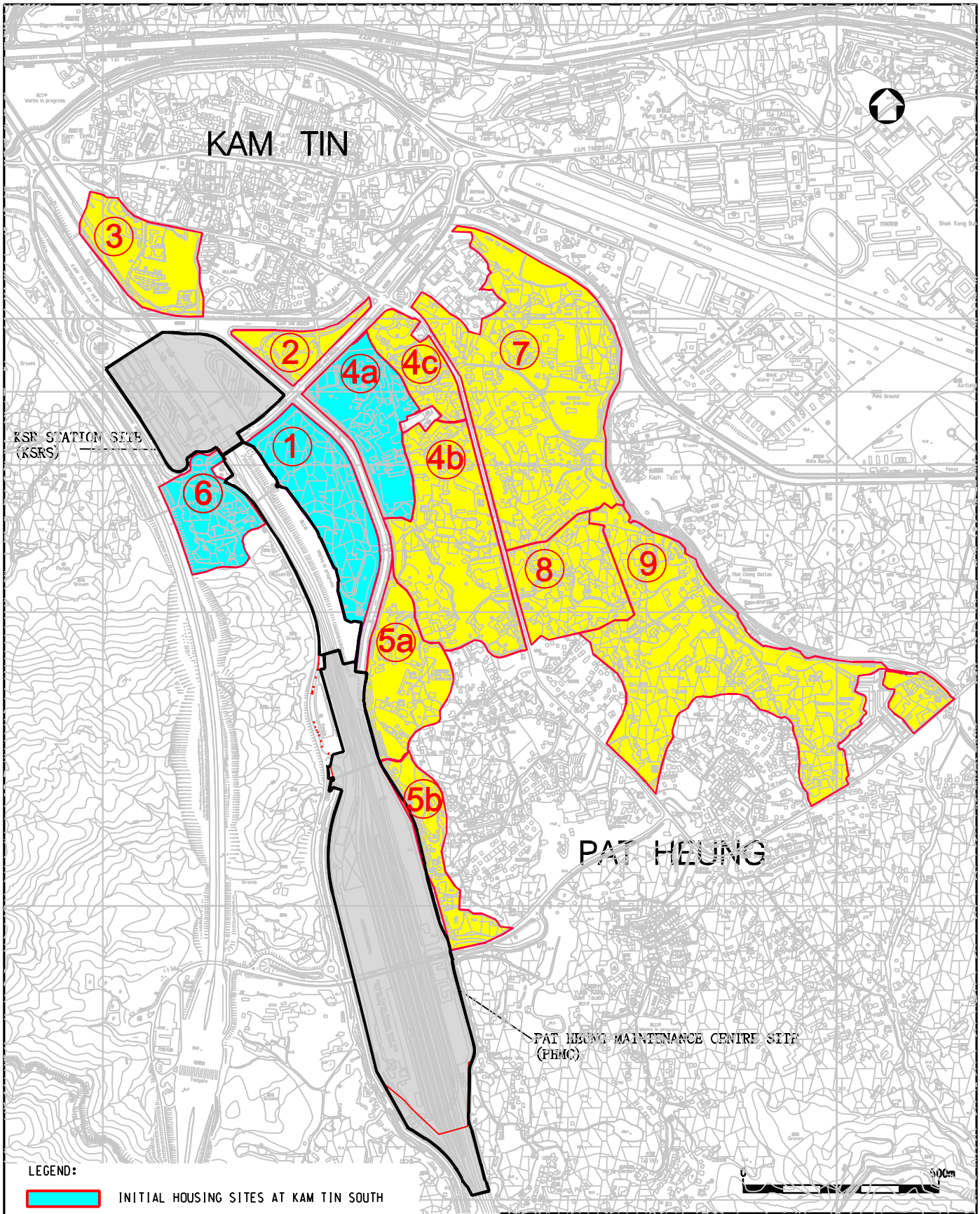


FIGURE NO.: 7.3	PROJECT TITLE: Rezoning from "Residential (Group C)2" and "Open Space" zones to "Residential (Group C)4" zone for a Proposed Residential Development at Lot Nos. 519 RP (part) and 520 RP in D.D. 110 and the Adjoining Government land, Shek Kong, Yuen Long, N.T.	CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25009HK	DRAWING TITLE: PROPOSED PEDESTRIAN CROSSING (PRIOR TO PWP'S WORKS)	
SCALE: 1 : 1000 @A4 / DATE: 05 FEB 2026		

Appendix I

Kam Tin South Housing Development – Layout Plan



A	12.08.2014	TITLE BLOCK UPDATED	SIGNED	SIGNED
編號 no.	日期 date	內容摘要 description	核對 checked	核准 approved

修訂 REVISION

圖則名稱 drawing title

KAM TIN SOUTH HOUSING DEVELOPMENT -LAYOUT PLAN

繪圖 drawn	簽署 initial	日期 date	項目編號 item no.	辦事處 office
S M CHU	SIGNED	18.10.13		新界西拓展處 NEW TERRITORIES WEST DEVELOPMENT OFFICE
核對 checked	簽署 initial	日期 date	比例 scale	
H S KO	SIGNED	18.10.13	AS SHOWN	
核准 approved	簽署 initial	日期 date	圖則編號 drawing no.	CEDD 土木工程拓展署 CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
K L CHEUNG	SIGNED	18.10.13	NTNZ1855A	

*ate filename (Updated as at 30 JUL 2014) L:\Drawing-MS\NTnz1855-1856\NTnz1855A.dgn A3 297MM X 420MM

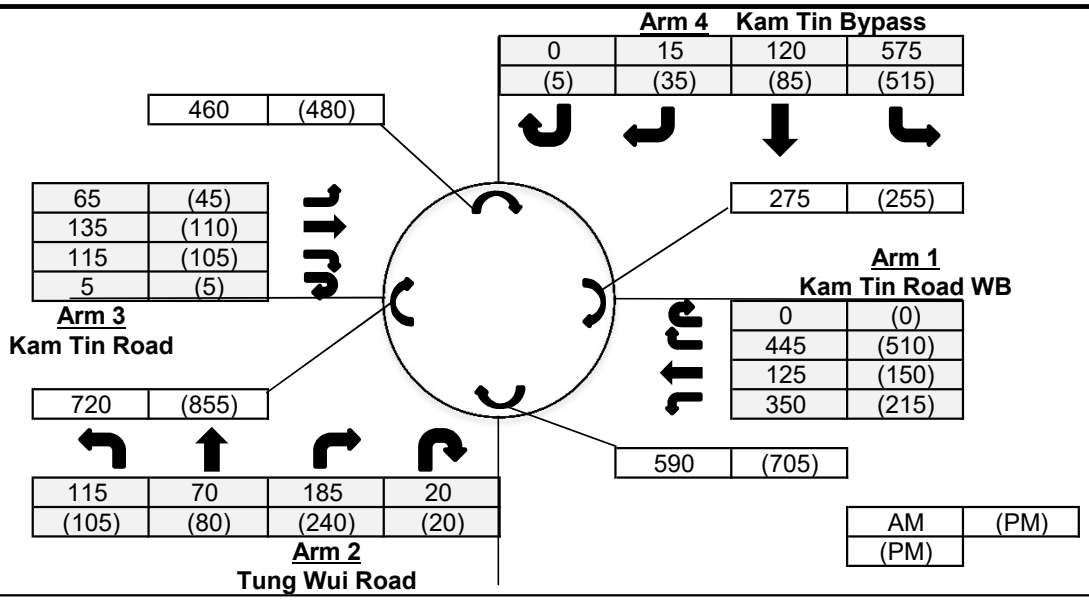
Appendix II

Junction Calculation Sheets

Roundabout Junction Calculation

Junction : (A) Kam Tin Bypass / Kam Tin Road / Tung Wui Road Job No.: 25009HK

Scenario : 2025 Observed Traffic Flows



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)		7.3	7.2	3.6	7.3
E	=	Entry width (m)		11.5	10.1	11.8	13.5
L	=	Effective length of flare (m)		12.6	9.4	14	12.5
R	=	Entry radius		26	20	18.4	36
D	=	Inscribed circle diameter (m)		64	64	64	64
A	=	Entry angle (degree)		42	27	45	23
Q	=	Entry flow (pcu/hr)	AM	920	390	320	710
			PM	875	445	265	640
Qc	=	Circulating flow	AM	275	590	720	460
		across entry	PM	255	705	855	480

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L		0.53	0.49	0.94	0.79
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)		0.97	1.01	0.94	1.05
X_2	=	V+((E-V)/(1+2*S))		9.33	8.66	6.45	9.70
M	=	Exp((D-60)/10)		1.49	1.49	1.49	1.49
F	=	303*X_2		2828	2624	1955	2938
Td	=	1+(0.5/(1+M))		1.20	1.20	1.20	1.20
Fc	=	0.21*Td*(1+0.2*X_2)		0.72	0.69	0.58	0.74
Qe	=	Capacity = K*(F-Fc*Qc)	AM	2549	2240	1453	2717
			PM	2563	2160	1379	2701
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.36	0.17	0.22	0.26
			PM	0.34	0.21	0.19	0.24

DFC of Critical Approach = AM 0.36
PM 0.34

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TRAFFIC SIGNALS CALCULATION Job No: 25009HK **CTA Consultants Ltd.**

Junction: **(B) Kam Tin Bypass / Kong Tai Road**

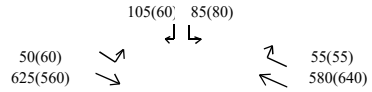
Description: **2025 Observed Traffic Flows**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside 0/1	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		A.M. Peak			P.M. Peak		
						Left	Right		A.M.	P.M.			A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Kam Tin Bypass	W		C	2	3.0	0	15	0	100%	100%	2055	2055	1870	1870	1870	1870	55	0.029		55	0.029	
	W		B	1,2	3.5	0	0	0	0%	0%	2105	0	2105	2105	0	0	315	0.149		347	0.165	
	W		B	1,2	3.0	0	0	1	0%	0%	1775	3880	1775	1775	3880	3880	265	0.149		293	0.165	
Kam Tin Bypass	E		A	1	3.0	13	0	1	15%	20%	1915	3970	1880	1870	3935	3925	323	0.172	0.172	295	0.158	0.158
	E		A	1	3.0	0	0	0	0%	0%	2055	0	2055	2055	0	0	352	0.171		325	0.158	
Kong To Road	S		D	3	3.5	10	12	1	45% / 55%	57% / 43%	1461	1461	1285	1280	1285	1280	190	0.148	0.148	140	0.109	0.109

Pedestrian crossing	Ep	4	Min. Crossing Time = 12GM + 15FGM = 27s
	Fp	2,3,4	Min. Crossing Time = 7GM + 7FGM = 14s
	Gp	4	Min. Crossing Time = 7GM + 7FGM = 14s

Notes:

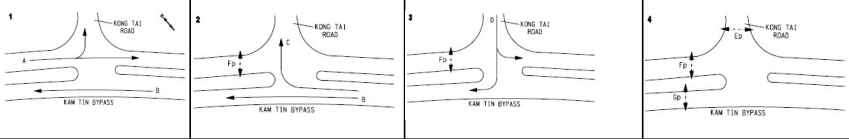
Traffic Flow (pcu / hr)



A.M. Check Phase	
εy	0.319
L (sec)	47
C (sec)	108
y pract.	0.508
R.C. (%)	59%

P.M. Check Phase	
εy	0.267
L (sec)	47
C (sec)	108
y pract.	0.508
R.C. (%)	90%

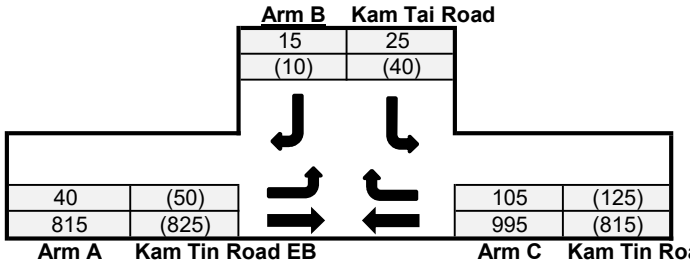
Stage/Phase Diagram:



I/G=3s	I/G=6s + 5s	I/G=5s	I/G=4s (Min. Green Time for Ep=27s)

Priority Junction Calculation

Junction :	(C) Kam Tin Road / Kam Tai Road	Job No.:	25009HK
Scenario :	2025 Observed Traffic Flows		



AM	(PM)
(PM)	

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

Geometry :	**Input**						**Calculated**	
W	7	V-rBA	50	w-BA	4.7	D	0.968
W-CR	0	V-IBA	50	w-BC	4.7	E	1.029
C-B blocked C-A, residual width <2.5m? (Yes: 1, No: 0)	1	V-rBC	50	w-CB	3.5	F	0.924
Minor Road Share LT&RT? (Yes: 1, No: 0)	1	V-rCB	50			Y	0.759

Analysis :	**Traffic Flow pcu/hr**	**AM**	**PM**	**Capacity pcu/hr**	**AM**	**PM**	
	q-CA	995	815	Q-BA	177	196	
	q-CB	105	125	Q-BC	531	527	
	q-AB	40	50	Q-CB	470	465	
	q-AC	815	825	Q-CA	1398	1316	(If C-B blocked C-A)
	q-BA	15	10	Q-BAC	304	394	(If Minor Road Share LT&RT)
	q-BC	25	40				
	f	0.625	0.800				

Results :	**Ratio of Flow-to-Capacity**	**AM**	**PM**
	B-A	N/A	N/A
	B-C	N/A	N/A
	C-B	0.22	0.27
	C-A	0.71	0.62
	B-AC	0.13	0.13
	Critical DFC	**0.71**	**0.62**

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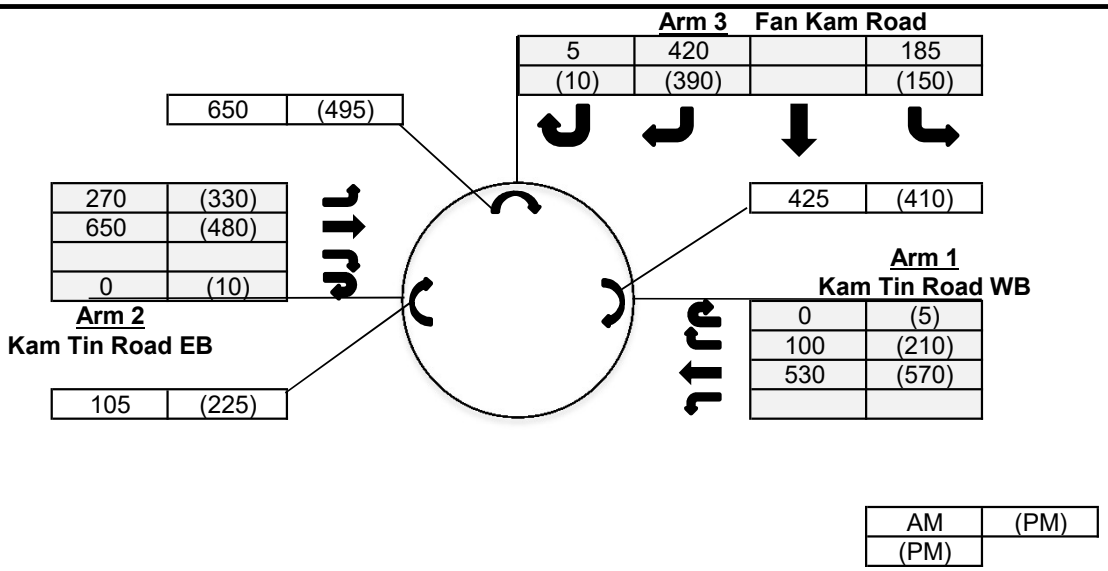
Roundabout Junction Calculation

Junction : (D) Kam Tin Road / Fan Kam Road Job No.: 25009HK

Scenario : 2025 Observed Traffic Flows



Input Parameters				Arm 1	Arm 2	Arm 3
V	=	Approach half width (m)		3	7	3
E	=	Entry width (m)		8	8	5.9
L	=	Effective length of flare (m)		7.8	12	10
R	=	Entry radius		100	33	13.4
D	=	Inscribed circle diameter (m)		20	20	20
A	=	Entry angle (degree)		30	10	15
Q	=	Entry flow (pcu/hr)	AM	630	920	610
			PM	785	820	550
Qc	=	Circulating flow	AM	425	105	650
		across entry	PM	410	225	495

Output Parameters				Arm 1	Arm 2	Arm 3
S	=	Sharpness of flare = 1.6*(E-V)/L		1.03	0.13	0.46
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)		1.04	1.09	1.03
X_2	=	V+((E-V)/(1+2*S))		4.64	7.79	4.50
M	=	Exp((D-60)/10)		0.02	0.02	0.02
F	=	303*X_2		1406	2360	1365
Td	=	1+(0.5/(1+M))		1.49	1.49	1.49
Fc	=	0.21*Td*(1+0.2*X_2)		0.60	0.80	0.60
Qe	=	Capacity = K*(F-Fc*Qc)	AM	1194	2478	1005
			PM	1203	2373	1100
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.53	0.37	0.61
			PM	0.65	0.35	0.50

DFC of Critical Approach = AM 0.61
PM 0.65

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TRAFFIC SIGNALS CALCULATION Job No. 25009HK **CTA Consultants Ltd.**

Junction: **(E) Kam Tin Road**

Description: **2025 Observed Traffic Flows**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside 0/1	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		A.M. Peak			P.M. Peak		
						Left	Right		A.M.	P.M.			A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Kam Tin Road	W	←	A	1	3.4	0	0	1	0%	0%	1955	1955	1955	1955	1955	1955	915	0.468	0.468	860	0.440	0.440
Kam Tin Road	E	→	A	1	3.4	0	0	1	0%	0%	1955	1955	1955	1955	1955	1955	870	0.445		830	0.425	

Pedestrian crossing ⇐⇒ Bp 2 Min. Crossing Time = 5GM + 7FGM = 12s

Notes:

Traffic Flow (pcu / hr)

870(830) → ← 915(860)

A.M. Check Phase	
εy	0.468
L (sec)	20
C (sec)	120
y pract.	0.750
R.C. (%)	60%

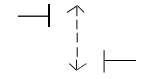
P.M. Check Phase	
εy	0.440
L (sec)	20
C (sec)	120
y pract.	0.750
R.C. (%)	70%

Stage/Phase Diagram:

1 →

←

2



I/G = 5s

I/G = 4s + 12s

TRAFFIC SIGNALS CALCULATION Job No: 25009HK **CTA Consultants Ltd.**

Junction: **(F) Kam Tin Road / Tsing Long Highway Slip Road**
Description: **2025 Observed Traffic Flows (With TTA)**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Nearside 0/1	Pro. Turning (%) A.M.	Pro. Turning (%) P.M.	Revised Saturation Flow (pcu/hr) A.M.	Revised Saturation Flow (pcu/hr) P.M.	A.M. Peak Flow (pcu/hr)	A.M. Peak y Value	A.M. Peak Critical y	P.M. Peak Flow (pcu/hr)	P.M. Peak y Value	P.M. Peak Critical y
Kam Tin Road	E	→	1	A	3.65	0	0	1	0%	0%	1980	1980	1012	0.511	0.511	881	0.445	
	E	→	1	A	3.65	0	0	0	0%	0%	2120	2120	1083	0.511		944	0.445	
Kam Tin Road	W	←	2	A	3.80	0	0	0	0%	0%	2135	2135	865	0.405		895	0.419	0.445
	W	←	2	A	3.80	0	0	0	0%	0%	2135	2135	865	0.405		895	0.419	
	W	↓	2	A	5.00	15	0	1	100%	100%	1925	1925	345	0.179		140	0.073	
Tsing Long Highway Slip Road	N	↰	3	B	5.60	25	0	1	100%	100%	2050	2050	155	0.076	0.108	315	0.154	0.183
	N	→	3	B	3.60	0	30	0	100%	100%	525	525	57	0.108		96	0.183	
	N		3	B	3.50	0	28	0	100%	100%	75	75	8	0.108		14	0.183	
											(*revised saturation flow)							
*Pedestrian Crossing			4p	A		Min. Crossing Time		=	7 Gm + 7 Fm = 14s									
			5p	B		Min. Crossing Time		=	7 Gm + 7 Fm = 14s									

Notes:	Traffic Flow (pcu / hr) [AM (PM)]	Check Phase		Check Phase	
	2095(1825) →	εy	0.619	εy	0.628
	↰ 155(315) ↱ 65(110)	L (sec)	15	L (sec)	15
	← 1730(1790)	C (sec)	96	C (sec)	106
	↓ 345(140)	y pract.	0.759	y pract.	0.773
		R.C. (%)	23%	R.C. (%)	23%

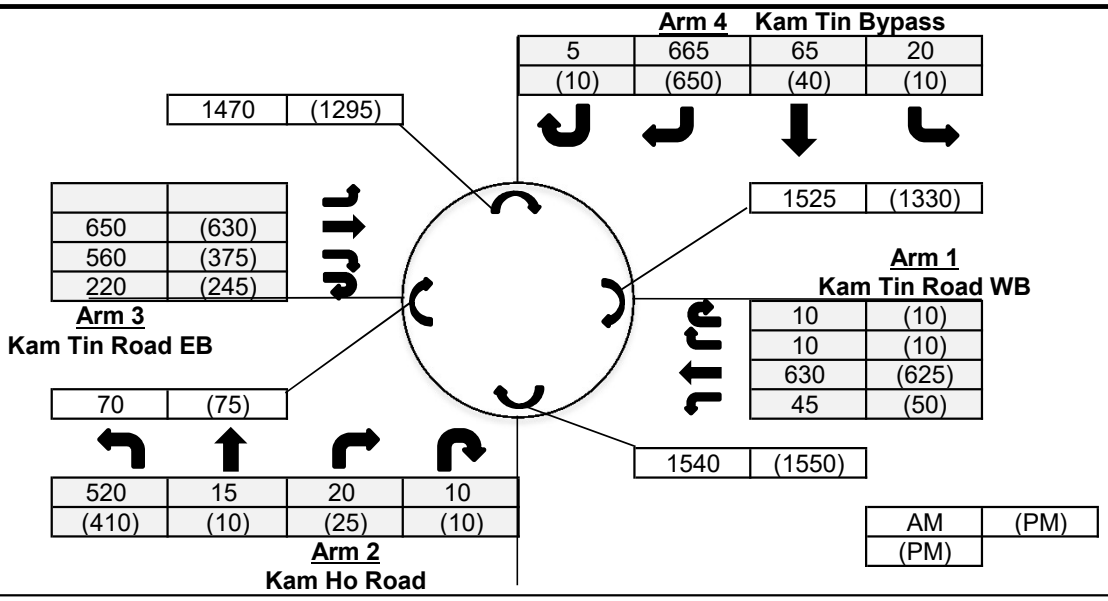
Stage / Phase Diagrams

I/G = 7 I/G = 10

Roundabout Junction Calculation

Junction : (G) Kam Tin Road / Kam Tin Bypass Job No.: 25009HK

Scenario : 2025 Observed Traffic Flows



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)		3.5	5	7.3	6.5
E	=	Entry width (m)		12	10	11	11
L	=	Effective length of flare (m)		13	9.5	13	15
R	=	Entry radius		100	20	42.5	42.5
D	=	Inscribed circle diameter (m)		88	88	88	88
A	=	Entry angle (degree)		23	38	29	39
Q	=	Entry flow (pcu/hr)	AM	695	565	1430	755
			PM	695	455	1250	710
Qc	=	Circulating flow	AM	1525	1540	70	1470
		across entry	PM	1330	1550	75	1295

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L		1.05	0.84	0.46	0.48
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)		1.06	0.97	1.03	0.99
X_2	=	V+((E-V)/(1+2*S))		6.25	6.86	9.24	8.80
M	=	Exp((D-60)/10)		16.44	16.44	16.44	16.44
F	=	303*X_2		1893	2079	2799	2665
Td	=	1+(0.5/(1+M))		1.03	1.03	1.03	1.03
Fc	=	0.21*Td*(1+0.2*X_2)		0.49	0.51	0.62	0.60
Qe	=	Capacity = K*(F-Fc*Qc)	AM	1225	1254	2836	1779
			PM	1326	1249	2833	1883
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.57	0.45	0.50	0.42
			PM	0.52	0.36	0.44	0.38

DFC of Critical Approach = AM 0.57
PM 0.52

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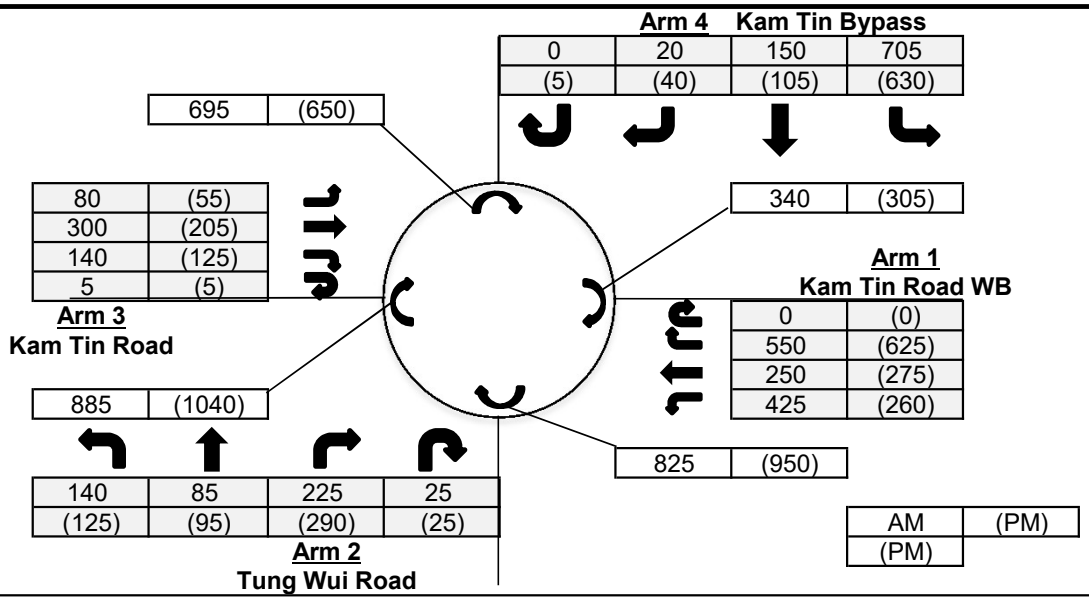
Roundabout Junction Calculation

Junction : (A) Kam Tin Bypass / Kam Tin Road / Tung Wui Road Job No.: 25009HK

Scenario : 2034 Reference Traffic Flows



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)		7.3	7.2	3.6	7.3
E	=	Entry width (m)		11.5	10.1	11.8	13.5
L	=	Effective length of flare (m)		12.6	9.4	14	12.5
R	=	Entry radius		26	20	18.4	36
D	=	Inscribed circle diameter (m)		64	64	64	64
A	=	Entry angle (degree)		42	27	45	23
Q	=	Entry flow (pcu/hr)	AM	1225	475	525	875
			PM	1160	535	390	780
Qc	=	Circulating flow	AM	340	825	885	695
		across entry	PM	305	950	1040	650

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L		0.53	0.49	0.94	0.79
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)		0.97	1.01	0.94	1.05
X_2	=	V+((E-V)/(1+2*S))		9.33	8.66	6.45	9.70
M	=	Exp((D-60)/10)		1.49	1.49	1.49	1.49
F	=	303*X_2		2828	2624	1955	2938
Td	=	1+(0.5/(1+M))		1.20	1.20	1.20	1.20
Fc	=	0.21*Td*(1+0.2*X_2)		0.72	0.69	0.58	0.74
Qe	=	Capacity = K*(F-Fc*Qc)	AM	2504	2077	1363	2534
			PM	2528	1990	1278	2569
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.49	0.23	0.39	0.35
			PM	0.46	0.27	0.31	0.30

DFC of Critical Approach = AM 0.49
PM 0.46

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TRAFFIC SIGNALS CALCULATION Job No: 25009HK **CTA Consultants Ltd.**

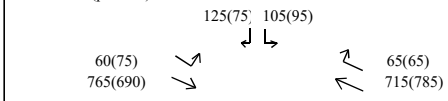
Junction: **(B) Kam Tin Bypass / Kong Tai Road**

Description: **2034 Reference Traffic Flows**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside 0/1	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		A.M. Peak			P.M. Peak		
						Left	Right		A.M.	P.M.			A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Kam Tin Bypass	W		C	2	3.0	0	15	0	100%	100%	2055	2055	1870	1870	1870	1870	65	0.035		65	0.035	
	W		B	1,2	3.5	0	0	0	0%	0%	2105	0	2105	2105	0	0	388	0.184		426	0.202	
	W		B	1,2	3.0	0	0	1	0%	0%	1775	3880	1775	1775	3880	3880	327	0.184		359	0.202	
Kam Tin Bypass	E		A	1	3.0	13	0	1	15%	21%	1915	3970	1880	1870	3935	3925	394	0.210	0.210	365	0.195	0.195
	E		A	1	3.0	0	0	0	0%	0%	2055	0	2055	2055	0	0	431	0.210		400	0.195	
Kong To Road	S		D	3	3.5	10	12	1	46% / 54%	56% / 44%	1461	1461	1285	1285	1285	1285	230	0.179	0.179	170	0.132	0.132
Pedestrian crossing			Ep	4		Min. Crossing Time = 12GM + 15FGM = 27s																
			Fp	2,3,4		Min. Crossing Time = 7GM + 7FGM = 14s																
			Gp	4		Min. Crossing Time = 7GM + 7FGM = 14s																

Notes:

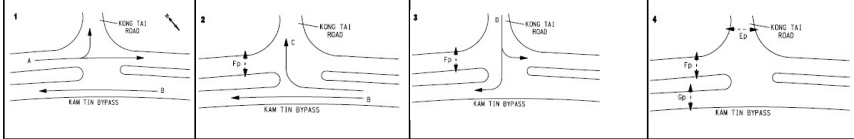
Traffic Flow (pcu / hr)



A.M. Check Phase	
εy	0.389
L (sec)	47
C (sec)	108
y pract.	0.508
R.C. (%)	31%

P.M. Check Phase	
εy	0.327
L (sec)	47
C (sec)	108
y pract.	0.508
R.C. (%)	55%

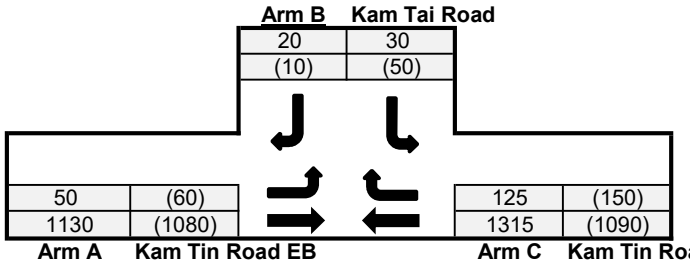
Stage/Phase Diagram:



I/G=3s	I/G=6s + 5s	I/G=5s	I/G=4s (Min. Green Time for Ep=27s)

Priority Junction Calculation

Junction :	(C) Kam Tin Road / Kam Tai Road	Job No.:	25009HK
Scenario :	2034 Reference Traffic Flows		



AM	(PM)
(PM)	

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

Geometry :	**Input**						**Calculated**	
W	7	V-rBA	50	w-BA	4.7	D	0.968
W-CR	0	V-IBA	50	w-BC	4.7	E	1.029
C-B blocked C-A, residual width <2.5m? (Yes: 1, No: 0)	1	V-rBC	50	w-CB	3.5	F	0.924
Minor Road Share LT&RT? (Yes: 1, No: 0)	1	V-rCB	50			Y	0.759

Analysis :	**Traffic Flow pcu/hr**	**AM**	**PM**	**Capacity pcu/hr**	**AM**	**PM**	
	q-CA	1315	1090	Q-BA	31	71	
	q-CB	125	150	Q-BC	440	453	
	q-AB	50	60	Q-CB	387	397	
	q-AC	1130	1080	Q-CA	1219	1121	(If C-B blocked C-A)
	q-BA	20	10	Q-BAC	70	240	(If Minor Road Share LT&RT)
	q-BC	30	50				
	f	0.600	0.833				

Results :	**Ratio of Flow-to-Capacity**	**AM**	**PM**
	B-A	N/A	N/A
	B-C	N/A	N/A
	C-B	0.32	0.38
	C-A	1.08	0.97
	B-AC	0.72	0.25
	Critical DFC	**1.08**	**0.97**

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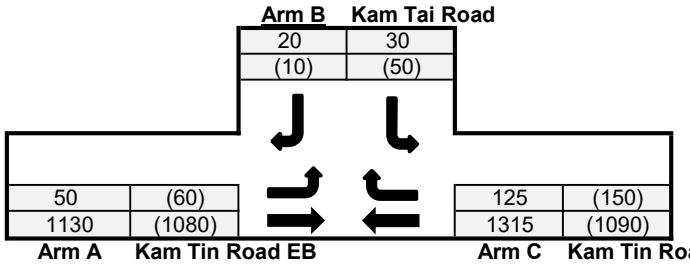
Priority Junction Calculation

Junction :	(C) Kam Tin Road / Kam Tai Road	Job No.:	25009HK
Scenario :	2034 Reference Traffic Flows (With Planned Improvement)		



AM	(PM)
(PM)	

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

Geometry :	**Input**					**Calculated**	
W	11	V-rBA	50	w-BA	4.7	D	0.968
W-CR	0	V-IBA	50	w-BC	4.7	E	1.029
C-B blocked C-A, residual width <2.5m? (Yes: 1, No: 0)	0	V-rBC	50	w-CB	4.7	F	1.029
Minor Road Share LT&RT? (Yes: 1, No: 0)	1	V-rCB	50			Y	0.621

Analysis :	**Traffic Flow pcu/hr**	**AM**	**PM**	**Capacity pcu/hr**	**AM**	**PM**	
	q-CA	1315	1090	Q-BA	136	169	
	q-CB	125	150	Q-BC	500	510	
	q-AB	50	60	Q-CB	493	502	
	q-AC	1130	1080	Q-CA	N/A	N/A	(If C-B blocked C-A)
	q-BA	20	10	Q-BAC	241	382	(If Minor Road Share LT&RT)
	q-BC	30	50				
	f	0.600	0.833				

Results :	**Ratio of Flow-to-Capacity**	**AM**	**PM**
	B-A	N/A	N/A
	B-C	N/A	N/A
	C-B	0.25	0.30
	C-A	N/A	N/A
	B-AC	0.21	0.16
	Critical DFC	**0.25**	**0.30**

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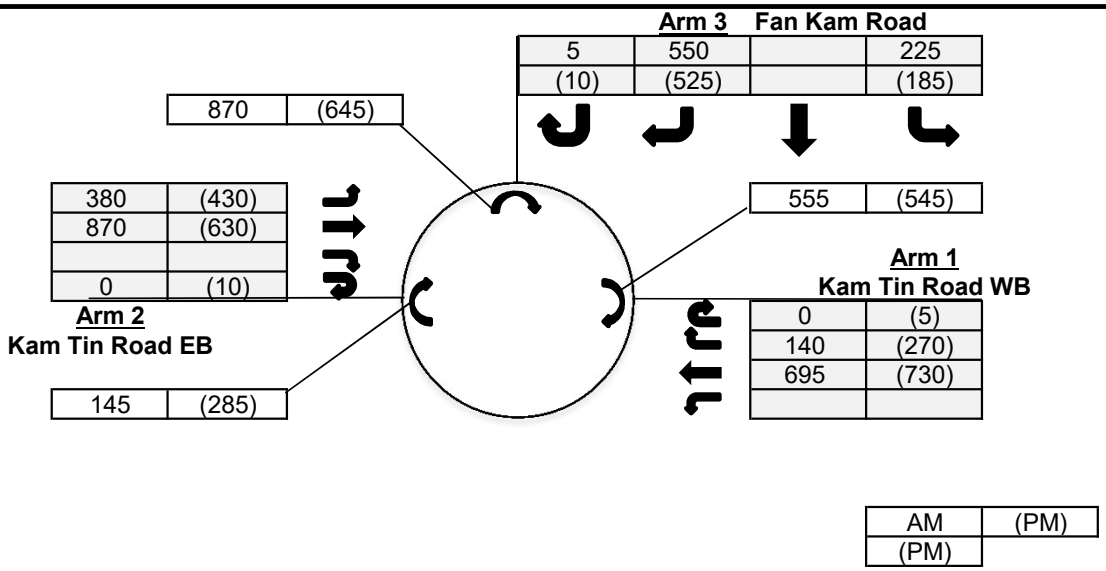
Roundabout Junction Calculation

Junction : (D) Kam Tin Road / Fan Kam Road Job No.: 25009HK

Scenario : 2034 Reference Traffic Flows



Input Parameters				Arm 1	Arm 2	Arm 3
V	=	Approach half width (m)		3	7	3
E	=	Entry width (m)		8	8	5.9
L	=	Effective length of flare (m)		7.8	12	10
R	=	Entry radius		100	33	13.4
D	=	Inscribed circle diameter (m)		20	20	20
A	=	Entry angle (degree)		30	10	15
Q	=	Entry flow (pcu/hr)	AM	835	1250	780
			PM	1005	1070	720
Qc	=	Circulating flow	AM	555	145	870
		across entry	PM	545	285	645

Output Parameters				Arm 1	Arm 2	Arm 3
S	=	Sharpness of flare = 1.6*(E-V)/L		1.03	0.13	0.46
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)		1.04	1.09	1.03
X_2	=	V+((E-V)/(1+2*S))		4.64	7.79	4.50
M	=	Exp((D-60)/10)		0.02	0.02	0.02
F	=	303*X_2		1406	2360	1365
Td	=	1+(0.5/(1+M))		1.49	1.49	1.49
Fc	=	0.21*Td*(1+0.2*X_2)		0.60	0.80	0.60
Qe	=	Capacity = K*(F-Fc*Qc)	AM	1112	2443	871
			PM	1119	2321	1008
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.75	0.51	0.90
			PM	0.90	0.46	0.71

DFC of Critical Approach = AM 0.90
PM 0.90

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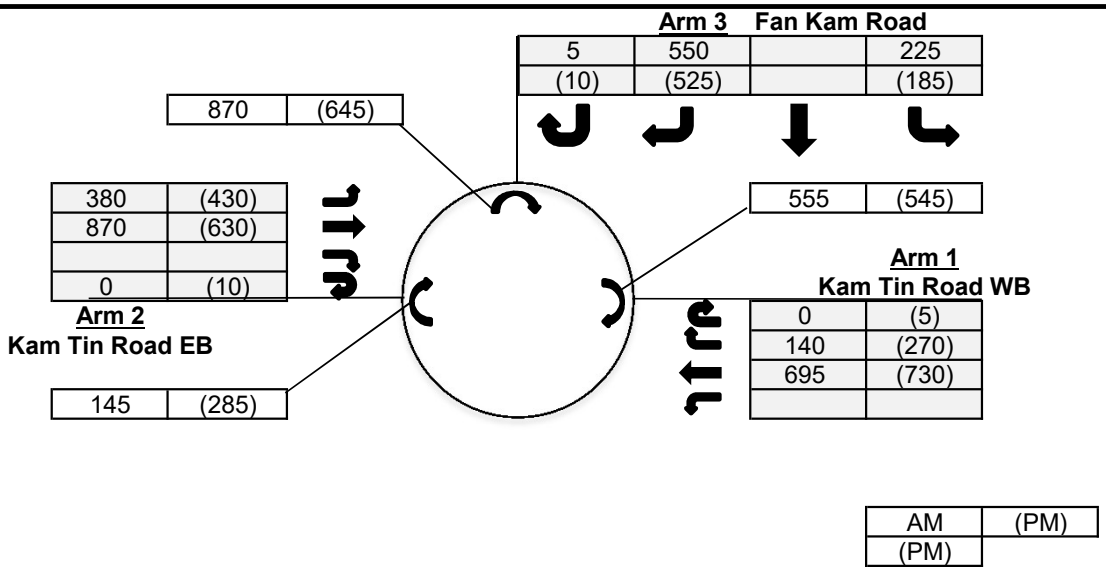
Roundabout Junction Calculation

Junction : (D) Kam Tin Road / Fan Kam Road Job No.: 25009HK

Scenario : 2034 Reference Traffic Flows (With Planned Improvement)



Input Parameters				Arm 1	Arm 2	Arm 3
V	=	Approach half width (m)		5	7	3.2
E	=	Entry width (m)		6.5	7.5	6.5
L	=	Effective length of flare (m)		12	3.6	15
R	=	Entry radius		100	15.8	25
D	=	Inscribed circle diameter (m)		28	28	28
A	=	Entry angle (degree)		33	10	20
Q	=	Entry flow (pcu/hr)	AM	835	1250	780
			PM	1005	1070	720
Qc	=	Circulating flow	AM	555	145	870
		across entry	PM	545	285	645

Output Parameters				Arm 1	Arm 2	Arm 3
S	=	Sharpness of flare = 1.6*(E-V)/L		0.20	0.22	0.35
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)		1.03	1.06	1.04
X_2	=	V+((E-V)/(1+2*S))		6.07	7.35	5.14
M	=	Exp((D-60)/10)		0.04	0.04	0.04
F	=	303*X_2		1840	2226	1556
Td	=	1+(0.5/(1+M))		1.48	1.48	1.48
Fc	=	0.21*Td*(1+0.2*X_2)		0.69	0.77	0.63
Qe	=	Capacity = K*(F-Fc*Qc)	AM	1499	2234	1053
			PM	1507	2120	1201
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.56	0.56	0.74
			PM	0.67	0.50	0.60

DFC of Critical Approach = AM 0.74
PM 0.67

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TRAFFIC SIGNALS CALCULATION Job No. 25009HK **CTA Consultants Ltd.**

Junction: **(E) Kam Tin Road**

Description: **2034 Reference Traffic Flows**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside 0/1	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		A.M. Peak			P.M. Peak		
						Left	Right		A.M.	P.M.			A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Kam Tin Road	W	←	A	1	3.4	0	0	1	0%	0%	1955	1955	1955	1955	1955	1955	1220	0.624	0.624	1145	0.586	0.586
Kam Tin Road	E	→	A	1	3.4	0	0	1	0%	0%	1955	1955	1955	1955	1955	1955	1200	0.614		1090	0.558	
Pedestrian crossing		⇐⇒	Bp	2		Min. Crossing Time = 5GM + 7FGM = 12s																

Notes:

Traffic Flow (pcu / hr)

1200(1090) → ← 1220(1145)

A.M. Check Phase	
εy	0.624
L (sec)	20
C (sec)	120
y pract.	0.750
R.C. (%)	20%

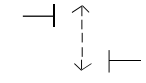
P.M. Check Phase	
εy	0.586
L (sec)	20
C (sec)	120
y pract.	0.750
R.C. (%)	28%

Stage/Phase Diagram:

1 →

←

2



I/G = 5s

I/G = 4s + 12s

TRAFFIC SIGNALS CALCULATION Job No. 25009HK **CTA Consultants Ltd.**

Junction: **(E) Kam Tin Road**

Description: **2034 Reference Traffic Flows (With Planned Improvement)**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside 0/1	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		A.M. Peak			P.M. Peak		
						Left	Right		A.M.	P.M.			A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Kam Tin Road	W	←	A	1	4.4	0	0	1	0%	0%	2055	2055	2055	2055	2055	2055	1220	0.594	0.594	1145	0.557	0.557
Kam Tin Road	E	→	A	1	4.4	0	0	1	0%	0%	2055	2055	2055	2055	2055	2055	1200	0.584		1090	0.530	

Pedestrian crossing ⟷ Bp 2 Min. Crossing Time = 5GM + 6FGM = 11s

Notes:

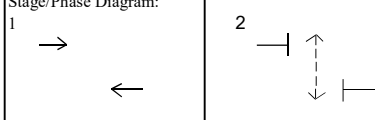
Traffic Flow (pcu / hr)

1200(1090) → ← 1220(1145)

A.M. Check Phase	
εy	0.594
L (sec)	19
C (sec)	120
y pract.	0.758
R.C. (%)	28%

P.M. Check Phase	
εy	0.557
L (sec)	19
C (sec)	120
y pract.	0.758
R.C. (%)	36%

Stage/Phase Diagram:



I/G = 5s I/G = 4s + 11s

TRAFFIC SIGNALS CALCULATION Job No: 25009HK **CTA Consultants Ltd.**

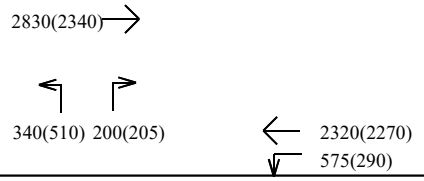
Junction: **(F) Kam Tin Road / Tsing Long Highway Slip Road**
Description: **2034 Reference Traffic Flows (With Planned Improvement)**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside 0/1	Pro. Turning (%)		Revised Saturation Flow (pcu/hr)		A.M. Peak			P.M. Peak		
						Left	Right		A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Kam Tin Road	E	→	1	A	3.65	0	0	1	0%	0%	1980	1980	901	0.455		745	0.376	
	E	→	1	A	3.65	0	0	0	0%	0%	2120	2120	965	0.455		798	0.376	
	E	→	1	A	3.65	0	0	0	0%	0%	2120	2120	965	0.455		798	0.376	
Kam Tin Road	W	←	2	A	3.80	0	0	0	0%	0%	2135	2135	1160	0.543	0.543	1135	0.532	0.532
	W	←	2	A	3.80	0	0	0	0%	0%	2135	2135	1160	0.543		1135	0.532	
	W	↓	2	A	5.00	15	0	1	100%	100%	1925	1925	575	0.299		290	0.151	
Tsing Long Highway Slip Road	N	↰	3	B	3.50	20	0	1	100%	100%	1830	1830	163	0.089	0.089	245	0.134	0.134
	N	↰	3	B	3.50	25	0	0	100%	100%	1985	1985	177	0.089		265	0.134	
	N	↱	3	B	3.60	0	30	0	100%	100%	2015	2015	100	0.050		103	0.051	
	N	↱	3	B	3.50	0	28	0	100%	100%	2000	2000	100	0.050		102	0.051	

*Pedestrian Crossing
4p A Min. Crossing Time = 7 Gm + 7 Fm = 14s
5p B Min. Crossing Time = 7 Gm + 7 Fm = 14s

Notes:

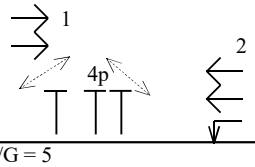
Traffic Flow (pcu / hr) [AM (PM)]



Check Phase		Check Phase	
εy	0.632	εy	0.665
L (sec)	10	L (sec)	10
C (sec)	120	C (sec)	120
y pract.	0.825	y pract.	0.825
R.C. (%)	30%	R.C. (%)	24%

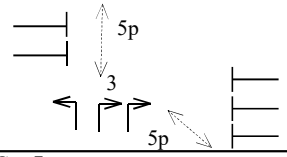
Stage / Phase Diagrams

A



I/G = 5

B

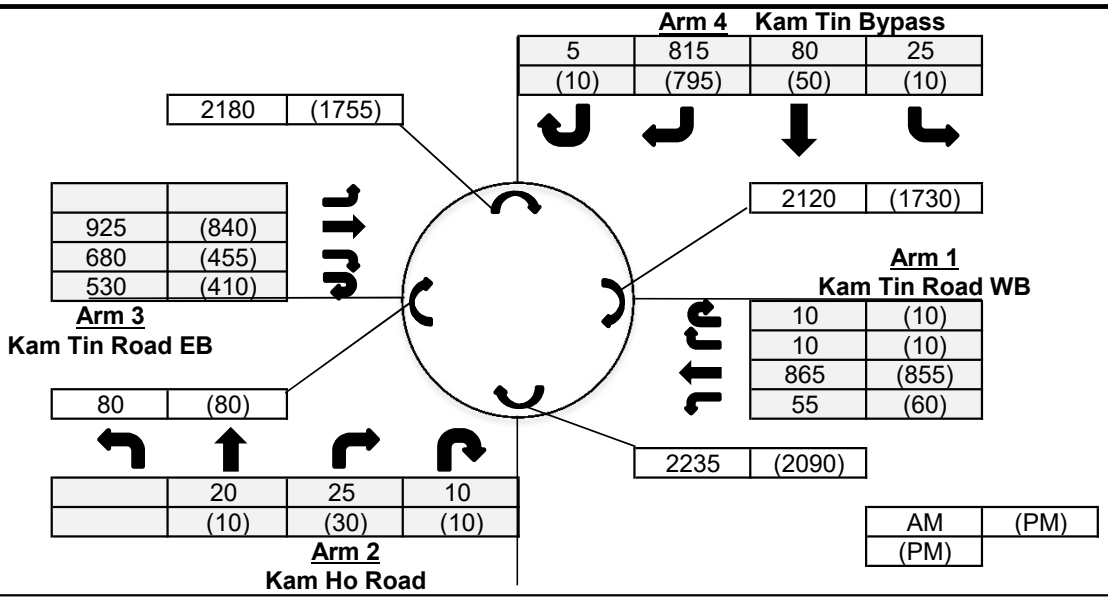


I/G = 7

Roundabout Junction Calculation

Junction : (G) Kam Tin Road / Kam Tin Bypass Job No.: 25009HK

Scenario : 2034 Reference Traffic Flows (With Planned Improvement)



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)		7.3	7.3	7.3	6.5
E	=	Entry width (m)		13	10	11	11
L	=	Effective length of flare (m)		12	9.5	13	15
R	=	Entry radius		70	20	42.5	42.5
D	=	Inscribed circle diameter (m)		88	88	88	88
A	=	Entry angle (degree)		30	38	29	39
Q	=	Entry flow (pcu/hr)	AM	940	55	2135	925
			PM	935	50	1705	865
Qc	=	Circulating flow	AM	2120	2235	80	2180
		across entry	PM	1730	2090	80	1755

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L		0.76	0.45	0.46	0.48
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)		1.03	0.97	1.03	0.99
X_2	=	V+((E-V)/(1+2*S))		9.56	8.71	9.24	8.80
M	=	Exp((D-60)/10)		16.44	16.44	16.44	16.44
F	=	303*X_2		2897	2640	2799	2665
Td	=	1+(0.5/(1+M))		1.03	1.03	1.03	1.03
Fc	=	0.21*Td*(1+0.2*X_2)		0.63	0.59	0.62	0.60
Qe	=	Capacity = K*(F-Fc*Qc)	AM	1618	1280	2830	1359
			PM	1872	1363	2830	1610
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.58	0.04	0.75	0.68
			PM	0.50	0.04	0.60	0.54

DFC of Critical Approach = AM 0.75
PM 0.60

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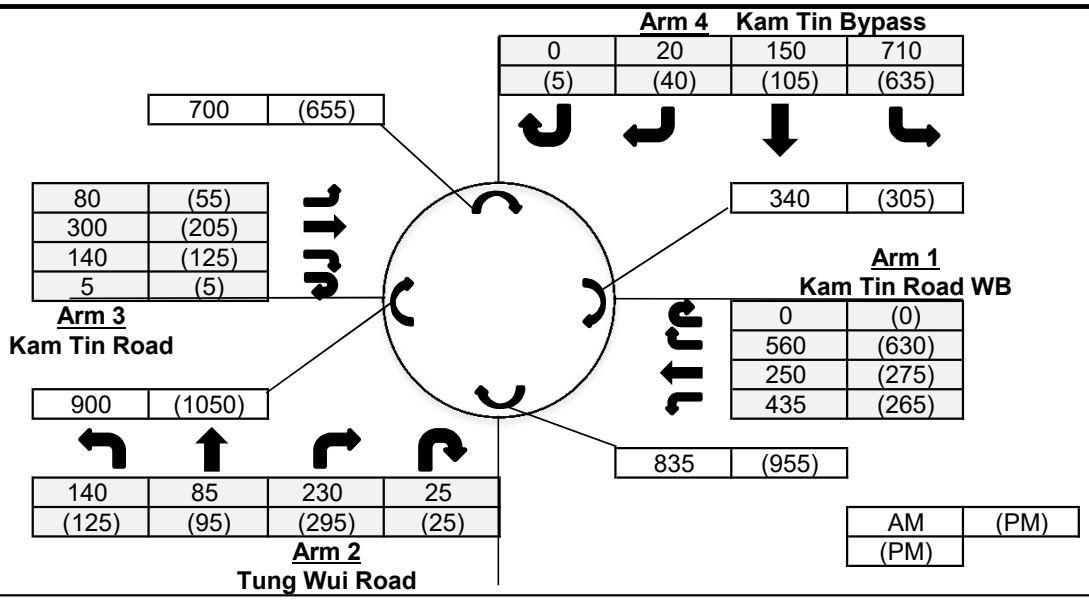
Roundabout Junction Calculation

Junction : (A) Kam Tin Bypass / Kam Tin Road / Tung Wui Road Job No.: 25009HK

Scenario : 2034 Design Traffic Flows



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)		7.3	7.2	3.6	7.3
E	=	Entry width (m)		11.5	10.1	11.8	13.5
L	=	Effective length of flare (m)		12.6	9.4	14	12.5
R	=	Entry radius		26	20	18.4	36
D	=	Inscribed circle diameter (m)		64	64	64	64
A	=	Entry angle (degree)		42	27	45	23
Q	=	Entry flow (pcu/hr)	AM	1245	480	525	880
			PM	1170	540	390	785
Qc	=	Circulating flow	AM	340	835	900	700
		across entry	PM	305	955	1050	655

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L		0.53	0.49	0.94	0.79
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)		0.97	1.01	0.94	1.05
X_2	=	V+((E-V)/(1+2*S))		9.33	8.66	6.45	9.70
M	=	Exp((D-60)/10)		1.49	1.49	1.49	1.49
F	=	303*X_2		2828	2624	1955	2938
Td	=	1+(0.5/(1+M))		1.20	1.20	1.20	1.20
Fc	=	0.21*Td*(1+0.2*X_2)		0.72	0.69	0.58	0.74
Qe	=	Capacity = K*(F-Fc*Qc)	AM	2504	2070	1355	2531
			PM	2528	1986	1273	2565
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.50	0.23	0.39	0.35
			PM	0.46	0.27	0.31	0.31

DFC of Critical Approach = AM 0.50
PM 0.46

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TRAFFIC SIGNALS CALCULATION Job No: 25009HK **CTA Consultants Ltd.**

Junction: **(B) Kam Tin Bypass / Kong Tai Road**

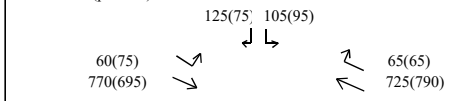
Description: **2034 Design Traffic Flows**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside 0/1	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		A.M. Peak			P.M. Peak		
						Left	Right		A.M.	P.M.			A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Kam Tin Bypass	W		C	2	3.0	0	15	0	100%	100%	2055	2055	1870	1870	1870	1870	65	0.035		65	0.035	
	W		B	1,2	3.5	0	0	0	0%	0%	2105	0	2105	2105	0	0	393	0.187		429	0.204	
	W		B	1,2	3.0	0	0	1	0%	0%	1775	3880	1775	1775	3880	3880	332	0.187		361	0.204	
Kam Tin Bypass	E		A	1	3.0	13	0	1	15%	20%	1915	3970	1880	1870	3935	3925	397	0.211	0.211	367	0.196	0.196
	E		A	1	3.0	0	0	0	0%	0%	2055	0	2055	2055	0	0	433	0.211		403	0.196	
Kong To Road	S		D	3	3.5	10	12	1	46% / 54%	56% / 44%	1461	1461	1285	1285	1285	1285	230	0.179	0.179	170	0.132	0.132

Pedestrian crossing	Ep	4	Min. Crossing Time = 12GM + 15FGM = 27s
	Fp	2,3,4	Min. Crossing Time = 7GM + 7FGM = 14s
	Gp	4	Min. Crossing Time = 7GM + 7FGM = 14s

Notes:

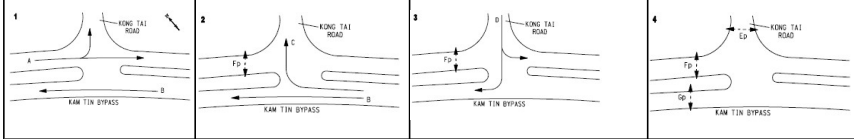
Traffic Flow (pcu / hr)



A.M. Check Phase	
εy	0.390
L (sec)	47
C (sec)	108
y pract.	0.508
R.C. (%)	30%

P.M. Check Phase	
εy	0.329
L (sec)	47
C (sec)	108
y pract.	0.508
R.C. (%)	55%

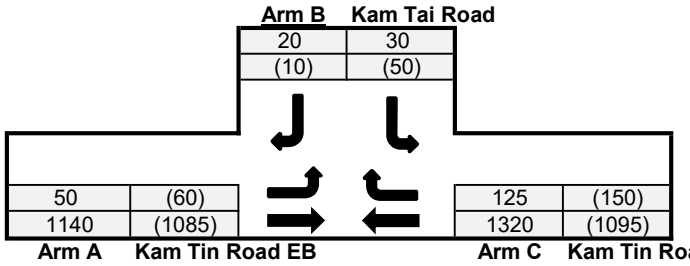
Stage/Phase Diagram:



I/G=3s	I/G=6s + 5s	I/G=5s	I/G=4s (Min. Green Time for Ep=27s)

Priority Junction Calculation

Junction :	(C) Kam Tin Road / Kam Tai Road	Job No.:	25009HK
Scenario :	2034 Design Traffic Flows		



AM	(PM)
(PM)	

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

Geometry :	**Input**						**Calculated**	
W	7	V-rBA	50	w-BA	4.7	D	0.968
W-CR	0	V-IBA	50	w-BC	4.7	E	1.029
C-B blocked C-A, residual width <2.5m? (Yes: 1, No: 0)	1	V-rBC	50	w-CB	3.5	F	0.924
Minor Road Share LT&RT? (Yes: 1, No: 0)	1	V-rCB	50			Y	0.759

Analysis :	**Traffic Flow pcu/hr**	**AM**	**PM**	**Capacity pcu/hr**	**AM**	**PM**	
	q-CA	1320	1095	Q-BA	27	69	
	q-CB	125	150	Q-BC	437	452	
	q-AB	50	60	Q-CB	385	396	
	q-AC	1140	1085	Q-CA	1215	1119	(If C-B blocked C-A)
	q-BA	20	10	Q-BAC	62	235	(If Minor Road Share LT&RT)
	q-BC	30	50				
	f	0.600	0.833				

Results :	**Ratio of Flow-to-Capacity**	**AM**	**PM**
	B-A	N/A	N/A
	B-C	N/A	N/A
	C-B	0.32	0.38
	C-A	1.09	0.98
	B-AC	0.80	0.26
	Critical DFC	**1.09**	**0.98**

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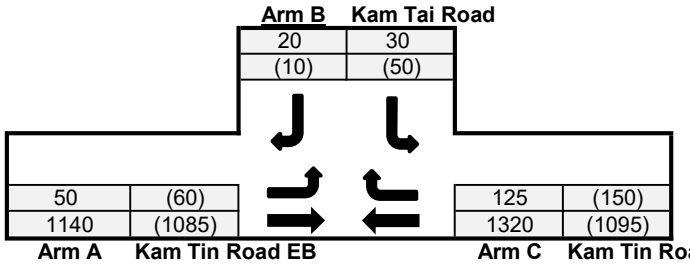
Priority Junction Calculation

Junction : (C) Kam Tin Road / Kam Tai Road Job No.: 25009HK

Scenario : 2034 Design Traffic Flows (With Planned Improvement)



AM	(PM)
(PM)	

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

Geometry :	**Input**						**Calculated**	
W	11	V-rBA	50	w-BA	4.7	D	0.968
W-CR	0	V-IBA	50	w-BC	4.7	E	1.029
C-B blocked C-A, residual width <2.5m? (Yes: 1, No: 0)	0	V-rBC	50	w-CB	4.7	F	1.029
Minor Road Share LT&RT? (Yes: 1, No: 0)	1	V-rCB	50			Y	0.621

Analysis :	**Traffic Flow pcu/hr**	**AM**	**PM**	**Capacity pcu/hr**	**AM**	**PM**	
	q-CA	1320	1095	Q-BA	133	167	
	q-CB	125	150	Q-BC	497	509	
	q-AB	50	60	Q-CB	490	501	
	q-AC	1140	1085	Q-CA	N/A	N/A	(If C-B blocked C-A)
	q-BA	20	10	Q-BAC	237	380	(If Minor Road Share LT&RT)
	q-BC	30	50				
	f	0.600	0.833				

Results :	**Ratio of Flow-to-Capacity**	**AM**	**PM**
	B-A	N/A	N/A
	B-C	N/A	N/A
	C-B	0.25	0.30
	C-A	N/A	N/A
	B-AC	0.21	0.16
	Critical DFC	**0.25**	**0.30**

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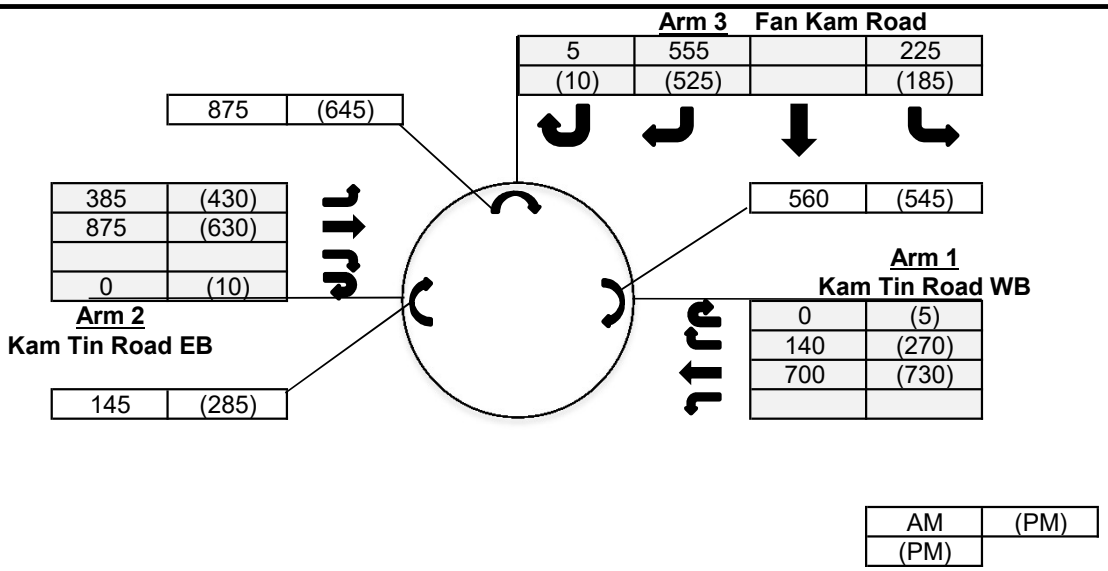
Roundabout Junction Calculation

Junction : (D) Kam Tin Road / Fan Kam Road Job No.: 25009HK

Scenario : 2034 Design Traffic Flows



Input Parameters				Arm 1	Arm 2	Arm 3
V	=	Approach half width (m)		3	7	3
E	=	Entry width (m)		8	8	5.9
L	=	Effective length of flare (m)		7.8	12	10
R	=	Entry radius		100	33	13.4
D	=	Inscribed circle diameter (m)		20	20	20
A	=	Entry angle (degree)		30	10	15
Q	=	Entry flow (pcu/hr)	AM	840	1260	785
			PM	1005	1070	720
Qc	=	Circulating flow	AM	560	145	875
		across entry	PM	545	285	645

Output Parameters				Arm 1	Arm 2	Arm 3
S	=	Sharpness of flare = 1.6*(E-V)/L		1.03	0.13	0.46
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)		1.04	1.09	1.03
X_2	=	V+((E-V)/(1+2*S))		4.64	7.79	4.50
M	=	Exp((D-60)/10)		0.02	0.02	0.02
F	=	303*X_2		1406	2360	1365
Td	=	1+(0.5/(1+M))		1.49	1.49	1.49
Fc	=	0.21*Td*(1+0.2*X_2)		0.60	0.80	0.60
Qe	=	Capacity = K*(F-Fc*Qc)	AM	1109	2443	868
			PM	1119	2321	1008
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.76	0.52	0.90
			PM	0.90	0.46	0.71

DFC of Critical Approach = AM 0.90
PM 0.90

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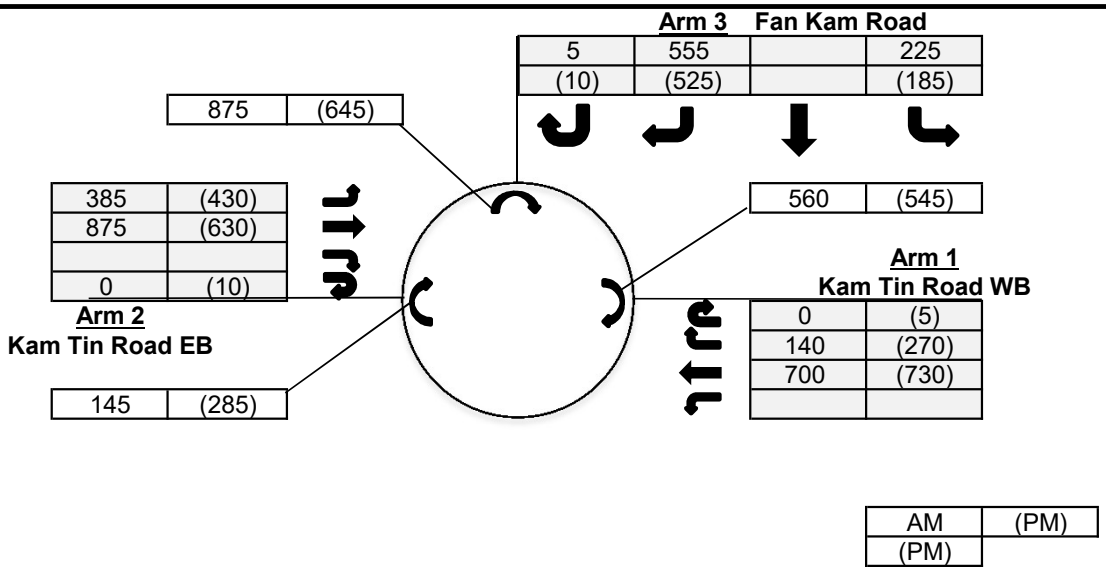
Roundabout Junction Calculation

Junction : (D) Kam Tin Road / Fan Kam Road Job No.: 25009HK

Scenario : 2034 Design Traffic Flows (With Planned Improvement)



Input Parameters				Arm 1	Arm 2	Arm 3
V	=	Approach half width (m)		5	7	3.2
E	=	Entry width (m)		6.5	7.5	6.5
L	=	Effective length of flare (m)		12	3.6	15
R	=	Entry radius		100	15.8	25
D	=	Inscribed circle diameter (m)		28	28	28
A	=	Entry angle (degree)		33	10	20
Q	=	Entry flow (pcu/hr)	AM	840	1260	785
			PM	1005	1070	720
Qc	=	Circulating flow	AM	560	145	875
		across entry	PM	545	285	645

Output Parameters				Arm 1	Arm 2	Arm 3
S	=	Sharpness of flare = 1.6*(E-V)/L		0.20	0.22	0.35
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)		1.03	1.06	1.04
X_2	=	V+((E-V)/(1+2*S))		6.07	7.35	5.14
M	=	Exp((D-60)/10)		0.04	0.04	0.04
F	=	303*X_2		1840	2226	1556
Td	=	1+(0.5/(1+M))		1.48	1.48	1.48
Fc	=	0.21*Td*(1+0.2*X_2)		0.69	0.77	0.63
Qe	=	Capacity = K*(F-Fc*Qc)	AM	1496	2234	1050
			PM	1507	2120	1201
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.56	0.56	0.75
			PM	0.67	0.50	0.60

DFC of Critical Approach = AM 0.75
PM 0.67

CTA Consultants Ltd.

TRAFFIC SIGNALS CALCULATION Job No. 25009HK **CTA Consultants Ltd.**

Junction: **(E) Kam Tin Road**

Description: **2034 Design Traffic Flows**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside 0/1	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		A.M. Peak			P.M. Peak		
						Left	Right		A.M.	P.M.			A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Kam Tin Road	W	←	A	1	3.4	0	0	1	0%	0%	1955	1955	1955	1955	1955	1955	1240	0.634	0.634	1150	0.588	0.588
Kam Tin Road	E	→	A	1	3.4	0	0	1	0%	0%	1955	1955	1955	1955	1955	1955	1215	0.621		1100	0.563	
Pedestrian crossing		⟷	Bp	2		Min. Crossing Time = 5GM + 7FGM = 12s																

Notes:

Traffic Flow (pcu / hr)

1215(1100) → ← 1240(1150)

A.M. Check Phase	
εy	0.634
L (sec)	20
C (sec)	120
y pract.	0.750
R.C. (%)	18%

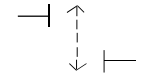
P.M. Check Phase	
εy	0.588
L (sec)	20
C (sec)	120
y pract.	0.750
R.C. (%)	28%

Stage/Phase Diagram:

1 →

←

2



I/G = 5s

I/G = 4s + 12s

TRAFFIC SIGNALS CALCULATION Job No. 25009HK **CTA Consultants Ltd.**

Junction: **(E) Kam Tin Road**

Description: **2034 Design Traffic Flows (With Planned Improvement)**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside 0/1	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		A.M. Peak			P.M. Peak		
						Left	Right		A.M.	P.M.			A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Kam Tin Road	W	←	A	1	4.4	0	0	1	0%	0%	2055	2055	2055	2055	2055	2055	1240	0.603	0.603	1150	0.560	0.560
Kam Tin Road	E	→	A	1	4.4	0	0	1	0%	0%	2055	2055	2055	2055	2055	2055	1215	0.591		1100	0.535	
Pedestrian crossing		⇐⇒	Bp	2		Min. Crossing Time = 5GM + 6FGM = 11s																

Notes:

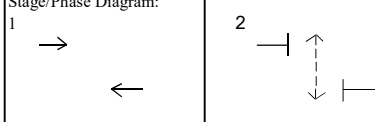
Traffic Flow (pcu / hr)

1215(1100) → ← 1240(1150)

A.M. Check Phase	
εy	0.603
L (sec)	19
C (sec)	120
y pract.	0.758
R.C. (%)	26%

P.M. Check Phase	
εy	0.560
L (sec)	19
C (sec)	120
y pract.	0.758
R.C. (%)	35%

Stage/Phase Diagram:



I/G = 5s

I/G = 4s + 11s

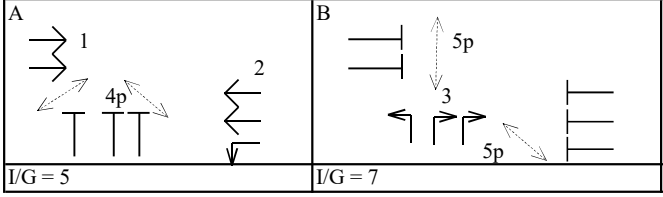
TRAFFIC SIGNALS CALCULATION Job No: 25009HK **CTA Consultants Ltd.**

Junction: **(F) Kam Tin Road / Tsing Long Highway Slip Road**
Description: **2034 Design Traffic Flows (With Planned Improvement)**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Nearside 0/1	Pro. Turning (%) A.M.	Pro. Turning (%) P.M.	Revised Saturation Flow (pcu/hr) A.M.	Revised Saturation Flow (pcu/hr) P.M.	A.M. Peak Flow (pcu/hr)	A.M. Peak y Value	A.M. Peak Critical y	P.M. Peak Flow (pcu/hr)	P.M. Peak y Value	P.M. Peak Critical y
Kam Tin Road	E	→	1	A	3.65	0	0	1	0%	0%	1980	1980	901	0.455		745	0.376	
	E	→	1	A	3.65	0	0	0	0%	0%	2120	2120	965	0.455		798	0.376	
	E	→	1	A	3.65	0	0	0	0%	0%	2120	2120	965	0.455		798	0.376	
Kam Tin Road	W	←	2	A	3.80	0	0	0	0%	0%	2135	2135	1160	0.543	0.543	1135	0.532	0.532
	W	←	2	A	3.80	0	0	0	0%	0%	2135	2135	1160	0.543		1135	0.532	
	W	↓	2	A	5.00	15	0	1	100%	100%	1925	1925	585	0.304		295	0.153	
Tsing Long Highway Slip Road	N	←	3	B	3.50	20	0	1	100%	100%	1830	1830	163	0.089	0.089	245	0.134	0.134
	N		3	B	3.50	25	0	0	100%	100%	1985	1985	177	0.089		265	0.134	
	N	→	3	B	3.60	0	30	0	100%	100%	2015	2015	103	0.051		105	0.052	
	N	→	3	B	3.50	0	28	0	100%	100%	2000	2000	102	0.051		105	0.052	
*Pedestrian Crossing			4p	A		Min. Crossing Time = 7 Gm + 7 Fm = 14s												
			5p	B		Min. Crossing Time = 7 Gm + 7 Fm = 14s												

Notes:	Traffic Flow (pcu / hr) [AM (PM)]	Check Phase		Check Phase	
	2830(2340) →	εy	0.632	εy	0.665
		L (sec)	10	L (sec)	10
		C (sec)	120	C (sec)	120
		y pract.	0.825	y pract.	0.825
	340(510) 205(210) ← 2320(2270)	R.C. (%)	30%	R.C. (%)	24%
	↓ 585(295)				

Stage / Phase Diagrams

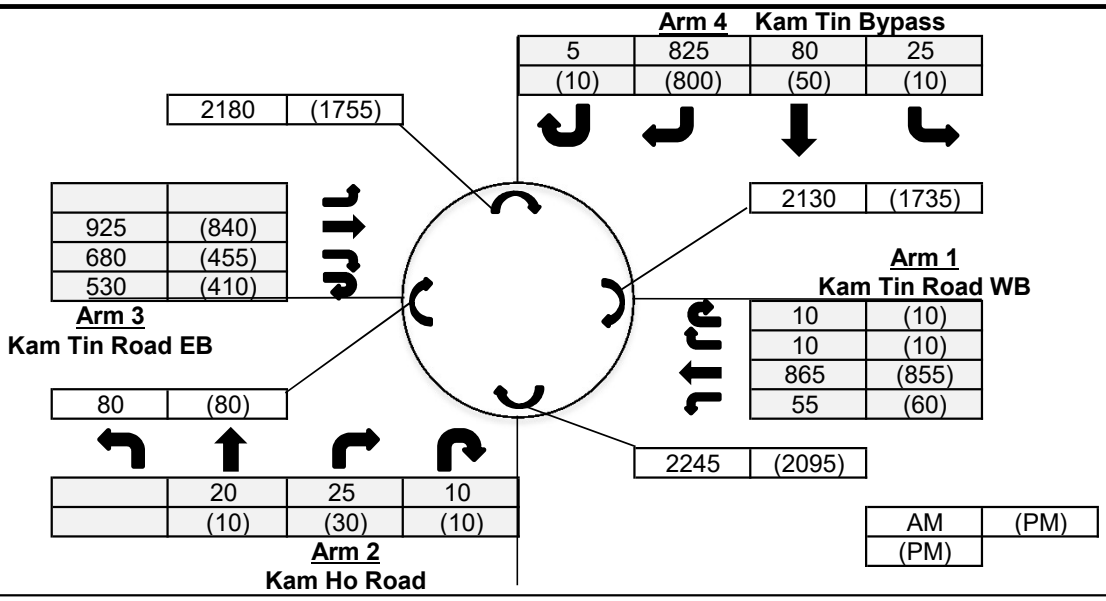


I/G = 5 I/G = 7

Roundabout Junction Calculation

Junction : (G) Kam Tin Road / Kam Tin Bypass Job No.: 25009HK

Scenario : 2034 Design Traffic Flows (With Planned Improvement)



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)		7.3	7.3	7.3	6.5
E	=	Entry width (m)		13	10	11	11
L	=	Effective length of flare (m)		12	9.5	13	15
R	=	Entry radius		70	20	42.5	42.5
D	=	Inscribed circle diameter (m)		88	88	88	88
A	=	Entry angle (degree)		30	38	29	39
Q	=	Entry flow (pcu/hr)	AM	940	55	2135	935
			PM	935	50	1705	870
Qc	=	Circulating flow	AM	2130	2245	80	2180
		across entry	PM	1735	2095	80	1755

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L		0.76	0.45	0.46	0.48
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)		1.03	0.97	1.03	0.99
X_2	=	V+((E-V)/(1+2*S))		9.56	8.71	9.24	8.80
M	=	Exp((D-60)/10)		16.44	16.44	16.44	16.44
F	=	303*X_2		2897	2640	2799	2665
Td	=	1+(0.5/(1+M))		1.03	1.03	1.03	1.03
Fc	=	0.21*Td*(1+0.2*X_2)		0.63	0.59	0.62	0.60
Qe	=	Capacity = K*(F-Fc*Qc)	AM	1612	1274	2830	1359
			PM	1869	1360	2830	1610
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.58	0.04	0.75	0.69
			PM	0.50	0.04	0.60	0.54

DFC of Critical Approach = AM 0.75
PM 0.60

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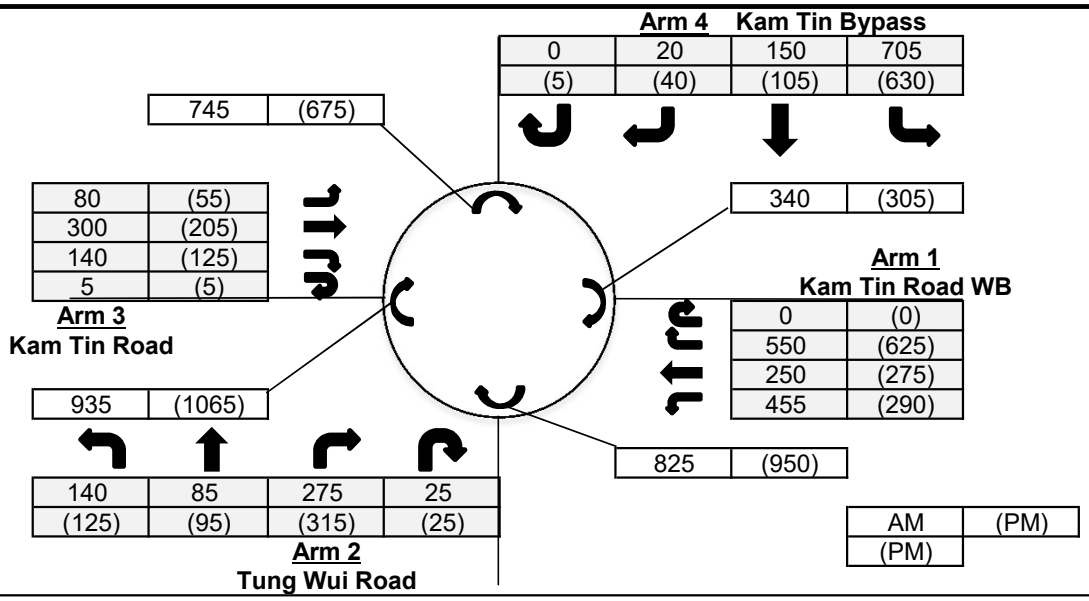
Roundabout Junction Calculation

Junction : (A) Kam Tin Bypass / Kam Tin Road / Tung Wui Road Job No.: 25009HK

Scenario : 2034 Reference Traffic Flows (With Remaining Site under LUR)



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)		7.3	7.2	3.6	7.3
E	=	Entry width (m)		11.5	10.1	11.8	13.5
L	=	Effective length of flare (m)		12.6	9.4	14	12.5
R	=	Entry radius		26	20	18.4	36
D	=	Inscribed circle diameter (m)		64	64	64	64
A	=	Entry angle (degree)		42	27	45	23
Q	=	Entry flow (pcu/hr)	AM	1255	525	525	875
			PM	1190	560	390	780
Qc	=	Circulating flow	AM	340	825	935	745
		across entry	PM	305	950	1065	675

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L		0.53	0.49	0.94	0.79
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)		0.97	1.01	0.94	1.05
X_2	=	V+((E-V)/(1+2*S))		9.33	8.66	6.45	9.70
M	=	Exp((D-60)/10)		1.49	1.49	1.49	1.49
F	=	303*X_2		2828	2624	1955	2938
Td	=	1+(0.5/(1+M))		1.20	1.20	1.20	1.20
Fc	=	0.21*Td*(1+0.2*X_2)		0.72	0.69	0.58	0.74
Qe	=	Capacity = K*(F-Fc*Qc)	AM	2504	2077	1336	2496
			PM	2528	1990	1265	2550
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.50	0.25	0.39	0.35
			PM	0.47	0.28	0.31	0.31

DFC of Critical Approach = AM 0.50
PM 0.47

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TRAFFIC SIGNALS CALCULATION Job No: 25009HK **CTA Consultants Ltd.**

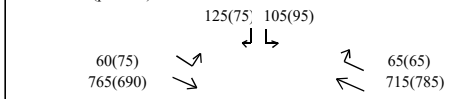
Junction: **(B) Kam Tin Bypass / Kong Tai Road**

Description: **2034 Reference Traffic Flows (With Remaining Site under LUR)**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside 0/1	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		A.M. Peak			P.M. Peak		
						Left	Right		A.M.	P.M.			A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Kam Tin Bypass	W		C	2	3.0	0	15	0	100%	100%	2055	2055	1870	1870	1870	1870	65	0.035		65	0.035	
	W		B	1,2	3.5	0	0	0	0%	0%	2105	0	2105	2105	0	0	388	0.184		426	0.202	
	W		B	1,2	3.0	0	0	1	0%	0%	1775	3880	1775	1775	3880	3880	327	0.184		359	0.202	
Kam Tin Bypass	E		A	1	3.0	13	0	1	15%	21%	1915	3970	1880	1870	3935	3925	394	0.210	0.210	365	0.195	0.195
	E		A	1	3.0	0	0	0	0%	0%	2055	0	2055	2055	0	0	431	0.210		400	0.195	
Kong To Road	S		D	3	3.5	10	12	1	46% / 54%	56% / 44%	1461	1461	1285	1285	1285	1285	230	0.179	0.179	170	0.132	0.132
Pedestrian crossing			Ep	4		Min. Crossing Time = 12GM + 15FGM = 27s																
			Fp	2,3,4		Min. Crossing Time = 7GM + 7FGM = 14s																
			Gp	4		Min. Crossing Time = 7GM + 7FGM = 14s																

Notes:

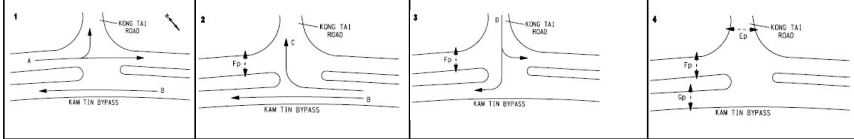
Traffic Flow (pcu / hr)



A.M. Check Phase	
εy	0.389
L (sec)	47
C (sec)	108
y pract.	0.508
R.C. (%)	31%

P.M. Check Phase	
εy	0.327
L (sec)	47
C (sec)	108
y pract.	0.508
R.C. (%)	55%

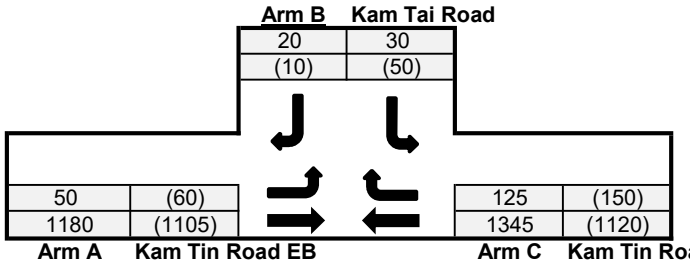
Stage/Phase Diagram:



I/G=3s	I/G=6s + 5s	I/G=5s	I/G=4s (Min. Green Time for Ep=27s)

Priority Junction Calculation

Junction :	(C) Kam Tin Road / Kam Tai Road	Job No.:	25009HK
Scenario :	2034 Reference Traffic Flows (With Remaining Site under LUR)		



AM	(PM)
(PM)	

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

Geometry :	**Input**						**Calculated**	
W	7	V-rBA	50	w-BA	4.7	D	0.968
W-CR	0	V-IBA	50	w-BC	4.7	E	1.029
C-B blocked C-A, residual width <2.5m? (Yes: 1, No: 0)	1	V-rBC	50	w-CB	3.5	F	0.924
Minor Road Share LT&RT? (Yes: 1, No: 0)	1	V-rCB	50			Y	0.759

Analysis :	**Traffic Flow pcu/hr**	**AM**	**PM**	**Capacity pcu/hr**	**AM**	**PM**	
	q-CA	1345	1120	Q-BA	12	60	
	q-CB	125	150	Q-BC	426	446	
	q-AB	50	60	Q-CB	375	391	
	q-AC	1180	1105	Q-CA	1199	1110	(If C-B blocked C-A)
	q-BA	20	10	Q-BAC	30	215	(If Minor Road Share LT&RT)
	q-BC	30	50				
	f	0.600	0.833				

Results :	**Ratio of Flow-to-Capacity**	**AM**	**PM**
	B-A	N/A	N/A
	B-C	N/A	N/A
	C-B	0.33	0.38
	C-A	1.12	1.01
	B-AC	1.68	0.28
	Critical DFC	**1.68**	**1.01**

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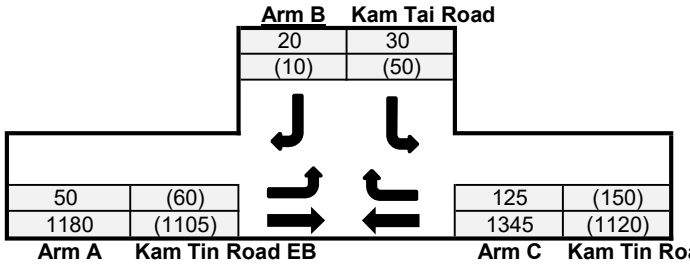
Priority Junction Calculation

Junction : (C) Kam Tin Road / Kam Tai Road Job No.: 25009HK

Scenario : 2034 Reference Traffic Flows (With Remaining Site under LUR) (With Planned Improvemer



AM	(PM)
(PM)	

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

Geometry :

Input						Calculated	
W	11	V-rBA	50	w-BA	4.7	D	0.968
W-CR	0	V-IBA	50	w-BC	4.7	E	1.029
C-B blocked C-A, residual width <2.5m? (Yes: 1, No: 0)	0	V-rBC	50	w-CB	4.7	F	1.029
Minor Road Share LT&RT? (Yes: 1, No: 0)	1	V-rCB	50			Y	0.621

Analysis :

Traffic Flow pcu/hr	AM	PM	Capacity pcu/hr	AM	PM	
q-CA	1345	1120	Q-BA	121	159	
q-CB	125	150	Q-BC	488	505	
q-AB	50	60	Q-CB	481	496	
q-AC	1180	1105	Q-CA	N/A	N/A	(If C-B blocked C-A)
q-BA	20	10	Q-BAC	220	371	(If Minor Road Share LT&RT)
q-BC	30	50				
f	0.600	0.833				

Results :

Ratio of Flow-to-Capacity	AM	PM
B-A	N/A	N/A
B-C	N/A	N/A
C-B	0.26	0.30
C-A	N/A	N/A
B-AC	0.23	0.16
Critical DFC	**0.26**	**0.30**

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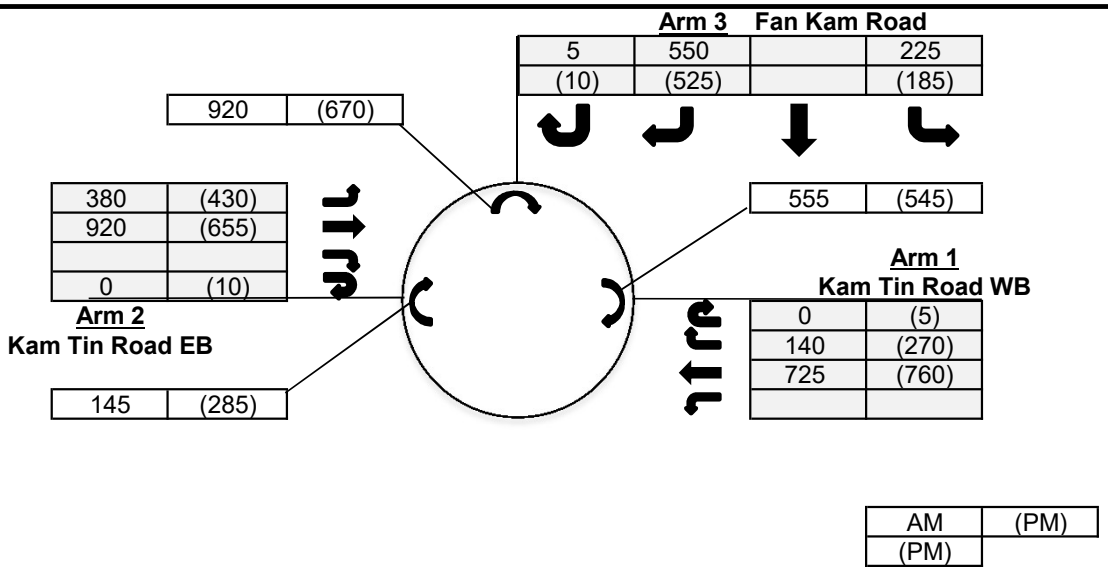
Roundabout Junction Calculation

Junction : (D) Kam Tin Road / Fan Kam Road Job No.: 25009HK

Scenario : 2034 Reference Traffic Flows (With Remaining Site under LUR)



Input Parameters				Arm 1	Arm 2	Arm 3
V	=	Approach half width (m)		3	7	3
E	=	Entry width (m)		8	8	5.9
L	=	Effective length of flare (m)		7.8	12	10
R	=	Entry radius		100	33	13.4
D	=	Inscribed circle diameter (m)		20	20	20
A	=	Entry angle (degree)		30	10	15
Q	=	Entry flow (pcu/hr)	AM	865	1300	780
			PM	1035	1095	720
Qc	=	Circulating flow	AM	555	145	920
		across entry	PM	545	285	670

Output Parameters				Arm 1	Arm 2	Arm 3
S	=	Sharpness of flare = 1.6*(E-V)/L		1.03	0.13	0.46
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)		1.04	1.09	1.03
X_2	=	V+((E-V)/(1+2*S))		4.64	7.79	4.50
M	=	Exp((D-60)/10)		0.02	0.02	0.02
F	=	303*X_2		1406	2360	1365
Td	=	1+(0.5/(1+M))		1.49	1.49	1.49
Fc	=	0.21*Td*(1+0.2*X_2)		0.60	0.80	0.60
Qe	=	Capacity = K*(F-Fc*Qc)	AM	1112	2443	840
			PM	1119	2321	993
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.78	0.53	0.93
			PM	0.93	0.47	0.73

DFC of Critical Approach = AM 0.93
PM 0.93

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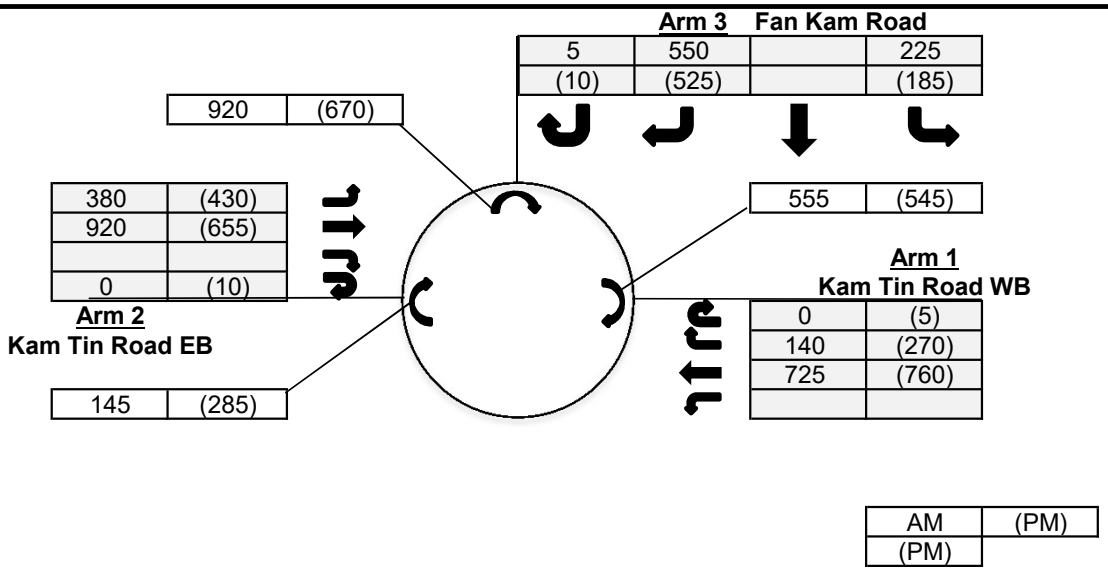
Roundabout Junction Calculation

Junction : (D) Kam Tin Road / Fan Kam Road Job No.: 25009HK

Scenario : 2034 Reference Traffic Flows (With Remaining Site under LUR) (With Planned Improvement)



Input Parameters				Arm 1	Arm 2	Arm 3
V	=	Approach half width (m)		5	7	3.2
E	=	Entry width (m)		6.5	7.5	6.5
L	=	Effective length of flare (m)		12	3.6	15
R	=	Entry radius		100	15.8	25
D	=	Inscribed circle diameter (m)		28	28	28
A	=	Entry angle (degree)		33	10	20
Q	=	Entry flow (pcu/hr)	AM	865	1300	780
			PM	1035	1095	720
Qc	=	Circulating flow	AM	555	145	920
		across entry	PM	545	285	670

Output Parameters				Arm 1	Arm 2	Arm 3
S	=	Sharpness of flare = 1.6*(E-V)/L		0.20	0.22	0.35
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)		1.03	1.06	1.04
X_2	=	V+((E-V)/(1+2*S))		6.07	7.35	5.14
M	=	Exp((D-60)/10)		0.04	0.04	0.04
F	=	303*X_2		1840	2226	1556
Td	=	1+(0.5/(1+M))		1.48	1.48	1.48
Fc	=	0.21*Td*(1+0.2*X_2)		0.69	0.77	0.63
Qe	=	Capacity = K*(F-Fc*Qc)	AM	1499	2234	1020
			PM	1507	2120	1185
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.58	0.58	0.76
			PM	0.69	0.52	0.61

DFC of Critical Approach = AM 0.76
PM 0.69

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TRAFFIC SIGNALS CALCULATION Job No. 25009HK **CTA Consultants Ltd.**

Junction: **(E) Kam Tin Road**

Description: **2034 Reference Traffic Flows (With Remaining Site under LUR)**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside 0/1	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		A.M. Peak			P.M. Peak		
						Left	Right		A.M.	P.M.			A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Kam Tin Road	W	←	A	1	3.4	0	0	1	0%	0%	1955	1955	1955	1955	1955	1955	1250	0.639	0.639	1175	0.601	0.601
Kam Tin Road	E	→	A	1	3.4	0	0	1	0%	0%	1955	1955	1955	1955	1955	1955	1250	0.639		1115	0.570	
Pedestrian crossing		⇐⇒	Bp	2																		

Min. Crossing Time = 5GM + 7FGM = 12s

Notes:

Traffic Flow (pcu / hr)

1250(1115) → ← 1250(1175)

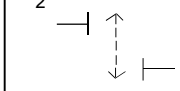
A.M. Check Phase	
εy	0.639
L (sec)	20
C (sec)	120
y pract.	0.750
R.C. (%)	17%

P.M. Check Phase	
εy	0.601
L (sec)	20
C (sec)	120
y pract.	0.750
R.C. (%)	25%

Stage/Phase Diagram:

1 → ←

2



I/G = 5s

I/G = 4s + 12s

TRAFFIC SIGNALS CALCULATION Job No. 25009HK **CTA Consultants Ltd.**

Junction: **(E) Kam Tin Road**

Description: **2034 Reference Traffic Flows (With Remaining Site under LUR) (With Planned Improvement)**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside 0/1	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		A.M. Peak			P.M. Peak		
						Left	Right		A.M.	P.M.			A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Kam Tin Road	W	←	A	1	4.4	0	0	1	0%	0%	2055	2055	2055	2055	2055	2055	1250	0.608	0.608	1175	0.572	0.572
Kam Tin Road	E	→	A	1	4.4	0	0	1	0%	0%	2055	2055	2055	2055	2055	2055	1250	0.608		1115	0.543	
Pedestrian crossing		⇐⇒	Bp	2		Min. Crossing Time = 5GM + 6FGM = 11s																

Notes:

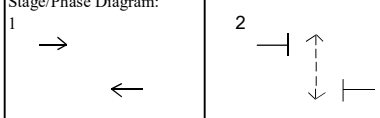
Traffic Flow (pcu / hr)

1250(1115) → ← 1250(1175)

A.M. Check Phase	
εy	0.608
L (sec)	19
C (sec)	120
y pract.	0.758
R.C. (%)	25%

P.M. Check Phase	
εy	0.572
L (sec)	19
C (sec)	120
y pract.	0.758
R.C. (%)	32%

Stage/Phase Diagram:



I/G = 5s

I/G = 4s + 11s

TRAFFIC SIGNALS CALCULATION Job No: 25009HK **CTA Consultants Ltd.**

Junction: **(F) Kam Tin Road / Tsing Long Highway Slip Road**

Description: **2034 Reference Traffic Flows (With Remaining Site under LUR) (With Planned Improvement)**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Nearside 0/1	Pro. Turning (%) A.M.	Pro. Turning (%) P.M.	Revised Saturation Flow (pcu/hr) A.M.	Revised Saturation Flow (pcu/hr) P.M.	A.M. Peak Flow (pcu/hr)	A.M. Peak y Value	A.M. Peak Critical y	P.M. Peak Flow (pcu/hr)	P.M. Peak y Value	P.M. Peak Critical y
Kam Tin Road	E	→	1	A	3.65	0	0	1	0%	0%	1980	1980	968	0.489		807	0.408	
	E	→	1	A	3.65	0	0	0	0%	0%	2120	2120	1036	0.489		864	0.408	
	E	→	1	A	3.65	0	0	0	0%	0%	2120	2120	1036	0.489		864	0.408	
Kam Tin Road	W	←	2	A	3.80	0	0	0	0%	0%	2135	2135	1325	0.621	0.621	1208	0.566	0.566
	W	←	2	A	3.80	0	0	0	0%	0%	2135	2135	1325	0.621		1208	0.566	
	W	↓	2	A	5.00	15	0	1	100%	100%	1925	1925	675	0.351		330	0.171	
Tsing Long Highway Slip Road	N	↰	3	B	3.50	20	0	1	100%	100%	1830	1830	163	0.089	0.089	245	0.134	0.134
	N	↰	3	B	3.50	25	0	0	100%	100%	1985	1985	177	0.089		265	0.134	
	N	↱	3	B	3.60	0	30	0	100%	100%	2015	2015	128	0.064		130	0.065	
	N	↱	3	B	3.50	0	28	0	100%	100%	2000	2000	127	0.064		130	0.065	

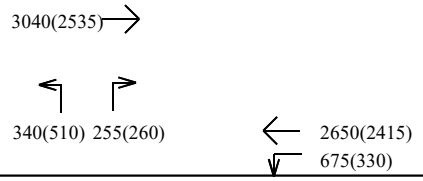
*Pedestrian Crossing

4p A Min. Crossing Time = 7 Gm + 7 Fm = 14s

5p B Min. Crossing Time = 7 Gm + 7 Fm = 14s

Notes:

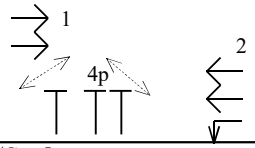
Traffic Flow (pcu / hr) [AM (PM)]



Check Phase		Check Phase	
εy	0.710	εy	0.699
L (sec)	10	L (sec)	10
C (sec)	120	C (sec)	120
y pract.	0.825	y pract.	0.825
R.C. (%)	16%	R.C. (%)	18%

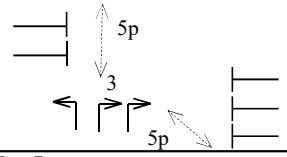
Stage / Phase Diagrams

A



I/G = 5

B

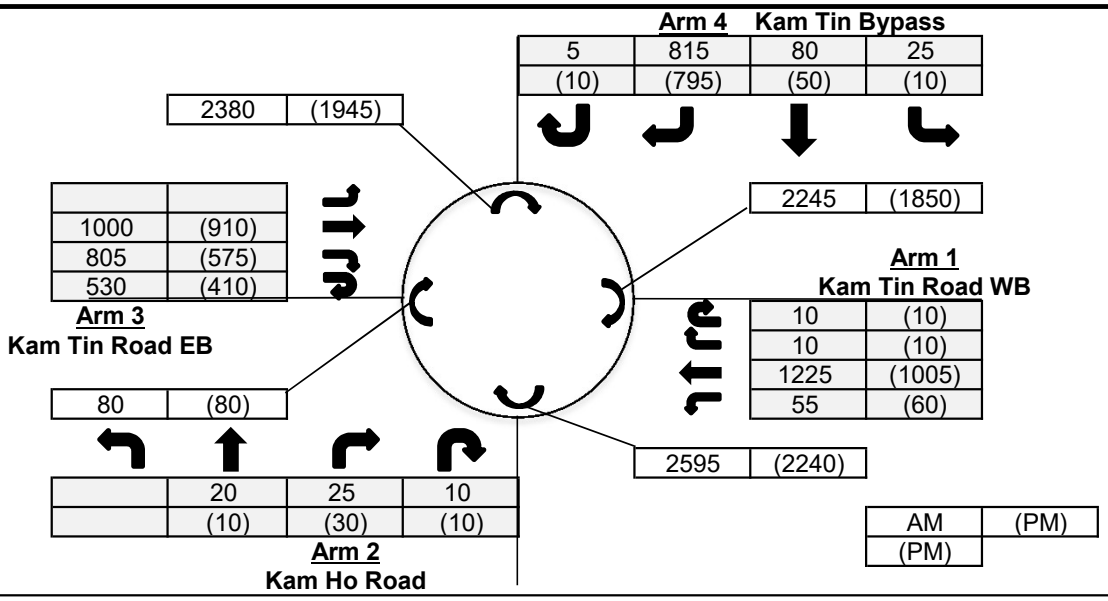


I/G = 7

Roundabout Junction Calculation

Junction : (G) Kam Tin Road / Kam Tin Bypass Job No.: 25009HK

Scenario : 2034 Reference Traffic Flows (With Remaining Site under LUR) (With Planned Improvement)



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)		7.3	7.3	7.3	6.5
E	=	Entry width (m)		13	10	11	11
L	=	Effective length of flare (m)		12	9.5	13	15
R	=	Entry radius		70	20	42.5	42.5
D	=	Inscribed circle diameter (m)		88	88	88	88
A	=	Entry angle (degree)		30	38	29	39
Q	=	Entry flow (pcu/hr)	AM	1300	55	2335	925
			PM	1085	50	1895	865
Qc	=	Circulating flow	AM	2245	2595	80	2380
		across entry	PM	1850	2240	80	1945

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L		0.76	0.45	0.46	0.48
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)		1.03	0.97	1.03	0.99
X_2	=	V+((E-V)/(1+2*S))		9.56	8.71	9.24	8.80
M	=	Exp((D-60)/10)		16.44	16.44	16.44	16.44
F	=	303*X_2		2897	2640	2799	2665
Td	=	1+(0.5/(1+M))		1.03	1.03	1.03	1.03
Fc	=	0.21*Td*(1+0.2*X_2)		0.63	0.59	0.62	0.60
Qe	=	Capacity = K*(F-Fc*Qc)	AM	1537	1072	2830	1240
			PM	1794	1277	2830	1498
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.85	0.05	0.83	0.75
			PM	0.60	0.04	0.67	0.58

DFC of Critical Approach = AM 0.85
PM 0.67

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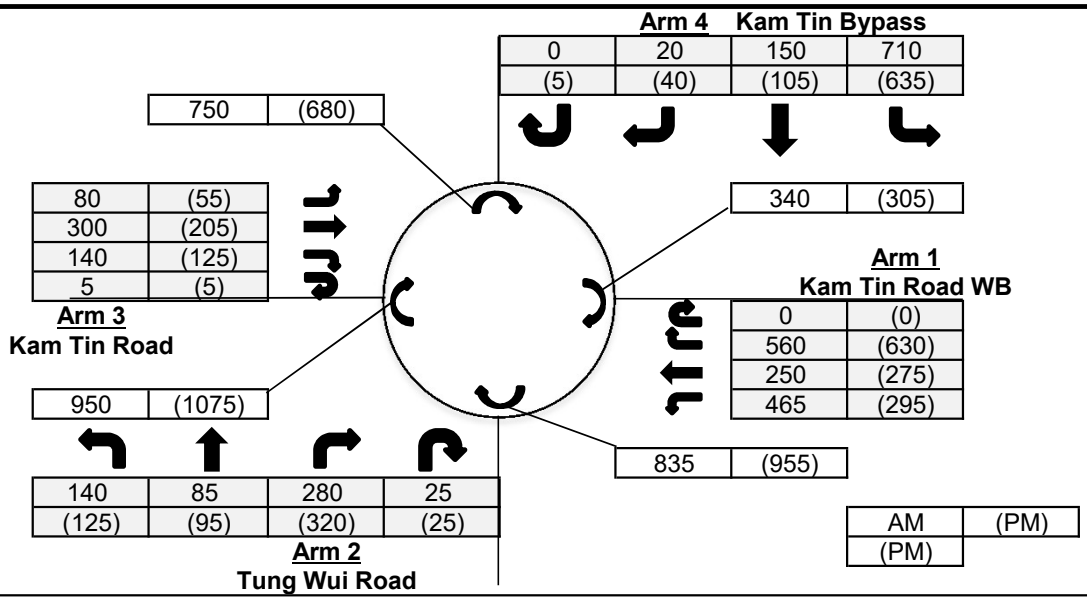
Roundabout Junction Calculation

Junction : (A) Kam Tin Bypass / Kam Tin Road / Tung Wui Road Job No.: 25009HK

Scenario : 2034 Design Traffic Flows (With Remaining Site under LUR)



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)		7.3	7.2	3.6	7.3
E	=	Entry width (m)		11.5	10.1	11.8	13.5
L	=	Effective length of flare (m)		12.6	9.4	14	12.5
R	=	Entry radius		26	20	18.4	36
D	=	Inscribed circle diameter (m)		64	64	64	64
A	=	Entry angle (degree)		42	27	45	23
Q	=	Entry flow (pcu/hr)	AM	1275	530	525	880
			PM	1200	565	390	785
Qc	=	Circulating flow	AM	340	835	950	750
		across entry	PM	305	955	1075	680

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L		0.53	0.49	0.94	0.79
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)		0.97	1.01	0.94	1.05
X_2	=	V+((E-V)/(1+2*S))		9.33	8.66	6.45	9.70
M	=	Exp((D-60)/10)		1.49	1.49	1.49	1.49
F	=	303*X_2		2828	2624	1955	2938
Td	=	1+(0.5/(1+M))		1.20	1.20	1.20	1.20
Fc	=	0.21*Td*(1+0.2*X_2)		0.72	0.69	0.58	0.74
Qe	=	Capacity = K*(F-Fc*Qc)	AM	2504	2070	1327	2492
			PM	2528	1986	1259	2546
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.51	0.26	0.40	0.35
			PM	0.47	0.28	0.31	0.31

DFC of Critical Approach = AM 0.51
PM 0.47

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TRAFFIC SIGNALS CALCULATION Job No: 25009HK **CTA Consultants Ltd.**

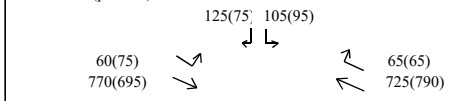
Junction: **(B) Kam Tin Bypass / Kong Tai Road**

Description: **2034 Design Traffic Flows (With Remaining Site under LUR)**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside 0/1	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		A.M. Peak			P.M. Peak		
						Left	Right		A.M.	P.M.			A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Kam Tin Bypass	W		C	2	3.0	0	15	0	100%	100%	2055	2055	1870	1870	1870	1870	65	0.035		65	0.035	
	W		B	1,2	3.5	0	0	0	0%	0%	2105	0	2105	2105	0	0	393	0.187		429	0.204	
	W		B	1,2	3.0	0	0	1	0%	0%	1775	3880	1775	1775	3880	3880	332	0.187		361	0.204	
Kam Tin Bypass	E		A	1	3.0	13	0	1	15%	20%	1915	3970	1880	1870	3935	3925	397	0.211	0.211	367	0.196	0.196
	E		A	1	3.0	0	0	0	0%	0%	2055	0	2055	2055	0	0	433	0.211		403	0.196	
Kong To Road	S		D	3	3.5	10	12	1	46% / 54%	56% / 44%	1461	1461	1285	1285	1285	1285	230	0.179	0.179	170	0.132	0.132
Pedestrian crossing			Ep	4		Min. Crossing Time = 12GM + 15FGM = 27s																
			Fp	2,3,4		Min. Crossing Time = 7GM + 7FGM = 14s																
			Gp	4		Min. Crossing Time = 7GM + 7FGM = 14s																

Notes:

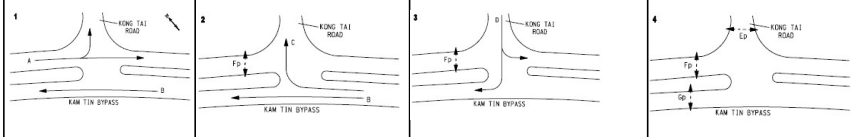
Traffic Flow (pcu / hr)



A.M. Check Phase	
εy	0.390
L (sec)	47
C (sec)	108
y pract.	0.508
R.C. (%)	30%

P.M. Check Phase	
εy	0.329
L (sec)	47
C (sec)	108
y pract.	0.508
R.C. (%)	55%

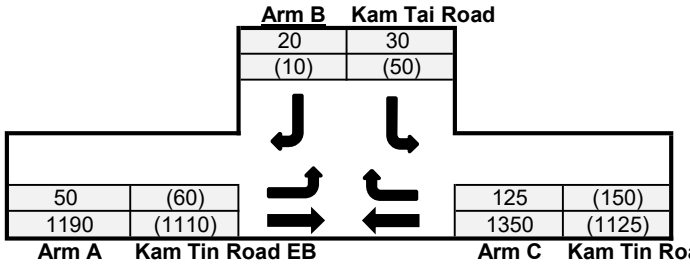
Stage/Phase Diagram:



I/G=3s	I/G=6s + 5s	I/G=5s	I/G=4s (Min. Green Time for Ep=27s)

Priority Junction Calculation

Junction :	(C) Kam Tin Road / Kam Tai Road	Job No.:	25009HK
Scenario :	2034 Design Traffic Flows (With Remaining Site under LUR)		



AM	(PM)
(PM)	

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

Geometry :	**Input**						**Calculated**	
W	7	V-rBA	50	w-BA	4.7	D	0.968
W-CR	0	V-IBA	50	w-BC	4.7	E	1.029
C-B blocked C-A, residual width <2.5m? (Yes: 1, No: 0)	1	V-rBC	50	w-CB	3.5	F	0.924
Minor Road Share LT&RT? (Yes: 1, No: 0)	1	V-rCB	50			Y	0.759

Analysis :	**Traffic Flow pcu/hr**	**AM**	**PM**	**Capacity pcu/hr**	**AM**	**PM**	
	q-CA	1350	1125	Q-BA	9	57	
	q-CB	125	150	Q-BC	423	445	
	q-AB	50	60	Q-CB	372	390	
	q-AC	1190	1110	Q-CA	1195	1107	(If C-B blocked C-A)
	q-BA	20	10	Q-BAC	22	210	(If Minor Road Share LT&RT)
	q-BC	30	50				
	f	0.600	0.833				

Results :	**Ratio of Flow-to-Capacity**	**AM**	**PM**
	B-A	N/A	N/A
	B-C	N/A	N/A
	C-B	0.34	0.38
	C-A	1.13	1.02
	B-AC	2.32	0.29
	Critical DFC	**2.32**	**1.02**

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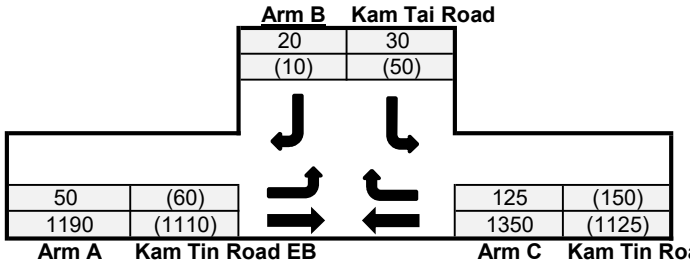
Priority Junction Calculation

Junction : (C) Kam Tin Road / Kam Tai Road Job No.: 25009HK

Scenario : 2034 Design Traffic Flows (With Remaining Site under LUR) (With Planned Improvement)



	AM	(PM)
	(PM)	

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

Geometry :

Input						Calculated	
W	11	V-rBA	50	w-BA	4.7	D	0.968
W-CR	0	V-IBA	50	w-BC	4.7	E	1.029
C-B blocked C-A, residual width <2.5m? (Yes: 1, No: 0)	0	V-rBC	50	w-CB	4.7	F	1.029
Minor Road Share LT&RT? (Yes: 1, No: 0)	1	V-rCB	50			Y	0.621

Analysis :

Traffic Flow pcu/hr	AM	PM	Capacity pcu/hr	AM	PM	
q-CA	1350	1125	Q-BA	118	157	
q-CB	125	150	Q-BC	486	503	
q-AB	50	60	Q-CB	479	495	
q-AC	1190	1110	Q-CA	N/A	N/A	(If C-B blocked C-A)
q-BA	20	10	Q-BAC	216	368	(If Minor Road Share LT&RT)
q-BC	30	50				
f	0.600	0.833				

Results :

Ratio of Flow-to-Capacity	AM	PM
B-A	N/A	N/A
B-C	N/A	N/A
C-B	0.26	0.30
C-A	N/A	N/A
B-AC	0.23	0.16
Critical DFC	**0.26**	**0.30**

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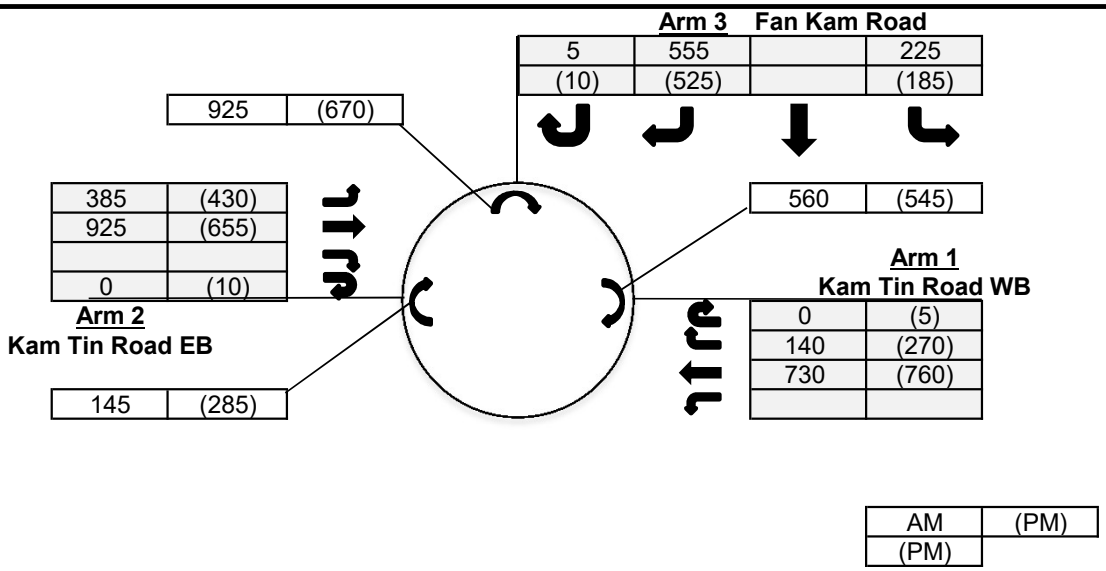
Roundabout Junction Calculation

Junction : (D) Kam Tin Road / Fan Kam Road Job No.: 25009HK

Scenario : 2034 Design Traffic Flows (With Remaining Site under LUR)



Input Parameters				Arm 1	Arm 2	Arm 3
V	=	Approach half width (m)		3	7	3
E	=	Entry width (m)		8	8	5.9
L	=	Effective length of flare (m)		7.8	12	10
R	=	Entry radius		100	33	13.4
D	=	Inscribed circle diameter (m)		20	20	20
A	=	Entry angle (degree)		30	10	15
Q	=	Entry flow (pcu/hr)	AM	870	1310	785
			PM	1035	1095	720
Qc	=	Circulating flow	AM	560	145	925
		across entry	PM	545	285	670

Output Parameters				Arm 1	Arm 2	Arm 3
S	=	Sharpness of flare = 1.6*(E-V)/L		1.03	0.13	0.46
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)		1.04	1.09	1.03
X_2	=	V+((E-V)/(1+2*S))		4.64	7.79	4.50
M	=	Exp((D-60)/10)		0.02	0.02	0.02
F	=	303*X_2		1406	2360	1365
Td	=	1+(0.5/(1+M))		1.49	1.49	1.49
Fc	=	0.21*Td*(1+0.2*X_2)		0.60	0.80	0.60
Qe	=	Capacity = K*(F-Fc*Qc)	AM	1109	2443	837
			PM	1119	2321	993
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.78	0.54	0.94
			PM	0.93	0.47	0.73

DFC of Critical Approach = AM 0.94
PM 0.93

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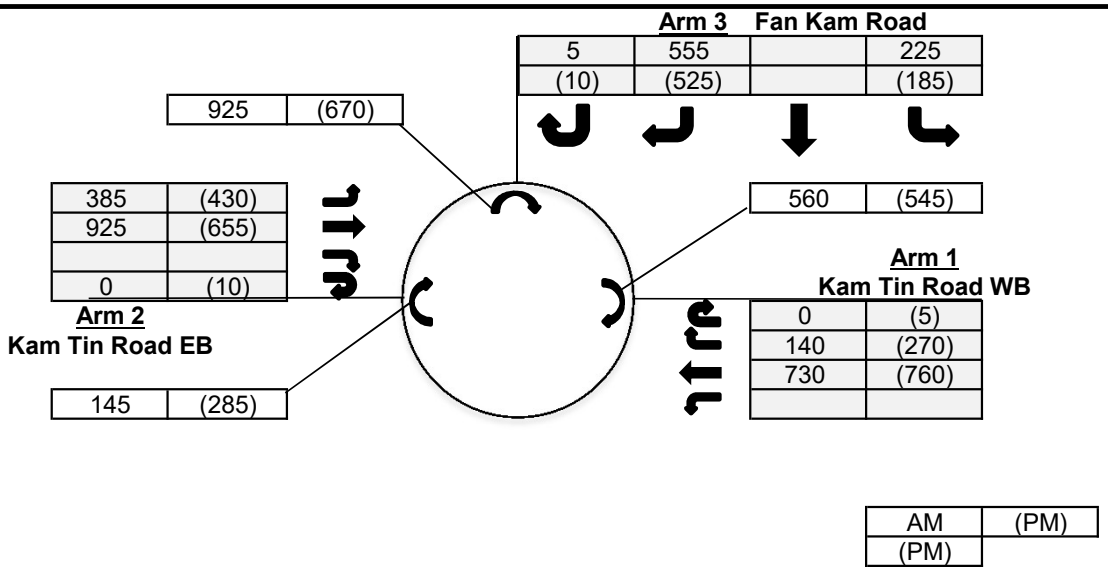
Roundabout Junction Calculation

Junction : (D) Kam Tin Road / Fan Kam Road Job No.: 25009HK

Scenario : 2034 Design Traffic Flows (With Remaining Site under LUR) (With Planned Improvement)



Input Parameters				Arm 1	Arm 2	Arm 3
V	=	Approach half width (m)		5	7	3.2
E	=	Entry width (m)		6.5	7.5	6.5
L	=	Effective length of flare (m)		12	3.6	15
R	=	Entry radius		100	15.8	25
D	=	Inscribed circle diameter (m)		28	28	28
A	=	Entry angle (degree)		33	10	20
Q	=	Entry flow (pcu/hr)	AM	870	1310	785
			PM	1035	1095	720
Qc	=	Circulating flow	AM	560	145	925
		across entry	PM	545	285	670

Output Parameters				Arm 1	Arm 2	Arm 3
S	=	Sharpness of flare = 1.6*(E-V)/L		0.20	0.22	0.35
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)		1.03	1.06	1.04
X_2	=	V+((E-V)/(1+2*S))		6.07	7.35	5.14
M	=	Exp((D-60)/10)		0.04	0.04	0.04
F	=	303*X_2		1840	2226	1556
Td	=	1+(0.5/(1+M))		1.48	1.48	1.48
Fc	=	0.21*Td*(1+0.2*X_2)		0.69	0.77	0.63
Qe	=	Capacity = K*(F-Fc*Qc)	AM	1496	2234	1017
			PM	1507	2120	1185
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.58	0.59	0.77
			PM	0.69	0.52	0.61

DFC of Critical Approach = AM 0.77
PM 0.69

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TRAFFIC SIGNALS CALCULATION Job No. 25009HK **CTA Consultants Ltd.**

Junction: **(E) Kam Tin Road**

Description: **2034 Design Traffic Flows (With Remaining Site under LUR)**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside 0/1	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		A.M. Peak			P.M. Peak		
						Left	Right		A.M.	P.M.			A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Kam Tin Road	W	←	A	1	3.4	0	0	1	0%	0%	1955	1955	1955	1955	1955	1955	1270	0.650	0.650	1180	0.604	0.604
Kam Tin Road	E	→	A	1	3.4	0	0	1	0%	0%	1955	1955	1955	1955	1955	1955	1265	0.647		1125	0.575	

Pedestrian crossing ⟷ Bp 2 Min. Crossing Time = 5GM + 7FGM = 12s

Notes:

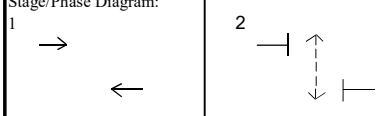
Traffic Flow (pcu / hr)

1265(1125) → ← 1270(1180)

A.M. Check Phase	
εy	0.650
L (sec)	20
C (sec)	120
y pract.	0.750
R.C. (%)	15%

P.M. Check Phase	
εy	0.604
L (sec)	20
C (sec)	120
y pract.	0.750
R.C. (%)	24%

Stage/Phase Diagram:



I/G = 5s I/G = 4s + 12s

TRAFFIC SIGNALS CALCULATION Job No. 25009HK **CTA Consultants Ltd.**

Junction: **(E) Kam Tin Road**

Description: **2034 Design Traffic Flows (With Remaining Site under LUR) (With Planned Improvement)**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside 0/1	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		A.M. Peak			P.M. Peak		
						Left	Right		A.M.	P.M.			A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Kam Tin Road	W	←	A	1	4.4	0	0	1	0%	0%	2055	2055	2055	2055	2055	2055	1270	0.618	0.618	1180	0.574	0.574
Kam Tin Road	E	→	A	1	4.4	0	0	1	0%	0%	2055	2055	2055	2055	2055	2055	1265	0.616		1125	0.547	
Pedestrian crossing		⇐⇒	Bp	2																		

Min. Crossing Time = 5GM + 6FGM = 11s

Notes:

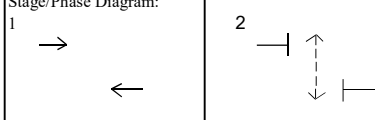
Traffic Flow (pcu / hr)

1265(1125) → ← 1270(1180)

A.M. Check Phase	
εy	0.618
L (sec)	19
C (sec)	120
y pract.	0.758
R.C. (%)	23%

P.M. Check Phase	
εy	0.574
L (sec)	19
C (sec)	120
y pract.	0.758
R.C. (%)	32%

Stage/Phase Diagram:



I/G = 5s

I/G = 4s + 11s

TRAFFIC SIGNALS CALCULATION Job No: 25009HK **CTA Consultants Ltd.**

Junction: **(F) Kam Tin Road / Tsing Long Highway Slip Road**

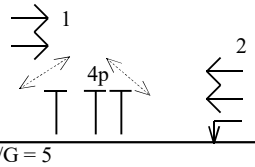
Description: **2034 Design Traffic Flows (With Remaining Site under LUR) (With Planned Improvement)**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside 0/1	Pro. Turning (%)		Revised Saturation Flow (pcu/hr)		A.M. Peak			P.M. Peak		
						Left	Right		A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Kam Tin Road	E	→	1	A	3.65	0	0	1	0%	0%	1980	1980	968	0.489		807	0.408	
	E	→	1	A	3.65	0	0	0	0%	0%	2120	2120	1036	0.489		864	0.408	
	E	→	1	A	3.65	0	0	0	0%	0%	2120	2120	1036	0.489		864	0.408	
Kam Tin Road	W	←	2	A	3.80	0	0	0	0%	0%	2135	2135	1325	0.621	0.621	1208	0.566	0.566
	W	←	2	A	3.80	0	0	0	0%	0%	2135	2135	1325	0.621		1208	0.566	
	W	↓	2	A	5.00	15	0	1	100%	100%	1925	1925	685	0.356		335	0.174	
Tsing Long Highway Slip Road	N	↰	3	B	3.50	20	0	1	100%	100%	1830	1830	163	0.089	0.089	245	0.134	0.134
	N	↰	3	B	3.50	25	0	0	100%	100%	1985	1985	177	0.089		265	0.134	
	N	↱	3	B	3.60	0	30	0	100%	100%	2015	2015	130	0.065		133	0.066	
	N	↱	3	B	3.50	0	28	0	100%	100%	2000	2000	130	0.065		132	0.066	
*Pedestrian Crossing			4p	A		Min. Crossing Time		=	7 Gm + 7 Fm = 14s									
			5p	B		Min. Crossing Time		=	7 Gm + 7 Fm = 14s									

Notes:	Traffic Flow (pcu / hr) [AM (PM)]	Check Phase		Check Phase	
	3040(2535) →	εy	0.710	εy	0.699
	↰ 340(510) ↱ 260(265)	L (sec)	10	L (sec)	10
	← 2650(2415)	C (sec)	120	C (sec)	120
	↓ 685(335)	y pract.	0.825	y pract.	0.825
		R.C. (%)	16%	R.C. (%)	18%

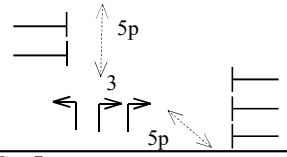
Stage / Phase Diagrams

A



I/G = 5

B

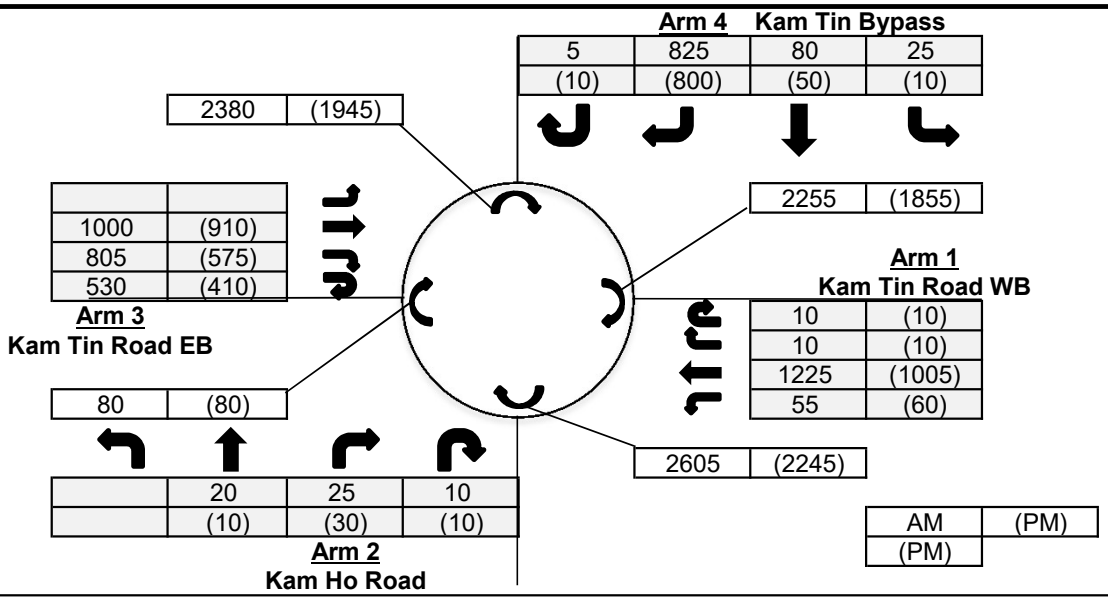


I/G = 7

Roundabout Junction Calculation

Junction : (G) Kam Tin Road / Kam Tin Bypass Job No.: 25009HK

Scenario : 2034 Design Traffic Flows (With Remaining Site under LUR) (With Planned Improvement)



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)		7.3	7.3	7.3	6.5
E	=	Entry width (m)		13	10	11	11
L	=	Effective length of flare (m)		12	9.5	13	15
R	=	Entry radius		70	20	42.5	42.5
D	=	Inscribed circle diameter (m)		88	88	88	88
A	=	Entry angle (degree)		30	38	29	39
Q	=	Entry flow (pcu/hr)	AM	1300	55	2335	935
			PM	1085	50	1895	870
Qc	=	Circulating flow	AM	2255	2605	80	2380
		across entry	PM	1855	2245	80	1945

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L		0.76	0.45	0.46	0.48
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)		1.03	0.97	1.03	0.99
X_2	=	V+((E-V)/(1+2*S))		9.56	8.71	9.24	8.80
M	=	Exp((D-60)/10)		16.44	16.44	16.44	16.44
F	=	303*X_2		2897	2640	2799	2665
Td	=	1+(0.5/(1+M))		1.03	1.03	1.03	1.03
Fc	=	0.21*Td*(1+0.2*X_2)		0.63	0.59	0.62	0.60
Qe	=	Capacity = K*(F-Fc*Qc)	AM	1530	1066	2830	1240
			PM	1791	1274	2830	1498
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.85	0.05	0.83	0.75
			PM	0.61	0.04	0.67	0.58

DFC of Critical Approach = AM 0.85
PM 0.67

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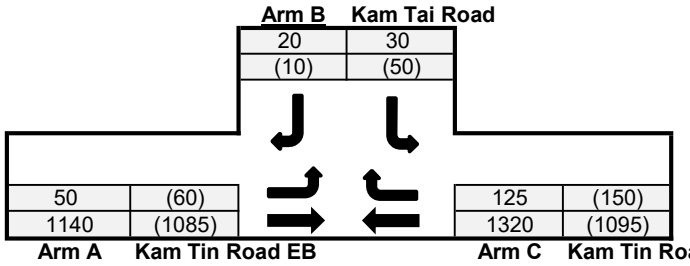
Priority Junction Calculation

Junction :	(C) Kam Tin Road / Kam Tai Road	Job No.:	25009HK
Scenario :	2034 Design Traffic Flows (With Proposed Improvement)		



AM	(PM)
(PM)	

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

Geometry :	**Input**						**Calculated**	
W	7	V-rBA	50	w-BA	4.7	D	0.968
W-CR	0	V-IBA	50	w-BC	4.7	E	1.029
C-B blocked C-A, residual width <2.5m? (Yes: 1, No: 0)	0	V-rBC	50	w-CB	3.5	F	0.924
Minor Road Share LT&RT? (Yes: 1, No: 0)	1	V-rCB	50			Y	0.759

Analysis :	**Traffic Flow pcu/hr**	**AM**	**PM**	**Capacity pcu/hr**	**AM**	**PM**	
	q-CA	1320	1095	Q-BA	27	69	
	q-CB	125	150	Q-BC	437	452	
	q-AB	50	60	Q-CB	385	396	
	q-AC	1140	1085	Q-CA	N/A	N/A	(If C-B blocked C-A)
	q-BA	20	10	Q-BAC	62	235	(If Minor Road Share LT&RT)
	q-BC	30	50				
	f	0.600	0.833				

Results :	**Ratio of Flow-to-Capacity**	**AM**	**PM**
	B-A	N/A	N/A
	B-C	N/A	N/A
	C-B	0.32	0.38
	C-A	N/A	N/A
	B-AC	0.80	0.26
	Critical DFC	**0.80**	**0.38**

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