Attachment II

Revised TIA

Concrete Batching Plant at Tsing Yi
- Renewal Application A/TY/139
(New Planning Application No. A/TY/149)

Traffic Impact Assessment

Final Report

June 2024

CTA Consultants Limited
志達顧問有限公司

LIST OF CONTENT

1. INTRODUCTION

1.1 Background

1.1.1 The concrete batching plant of the captioned Planning Approval is located at Sai Tso Wan Road, Tsing Yi and shown in **Figure 1.1**.

1.1.2 The captioned Planning Approval (Planning Application No. A/TY/139) was granted in 2019 and will expire on 6 September 2024. The Applicant would like to submit a renewal planning application for another 5 years.

1.1.3 We, CTA Consultants Limited (CTA), is commissioned as the traffic consultant to undertake a Traffic Impact Assessment (TIA) study for assessing the traffic impact, and to propose any measures if necessary.

1.2 Study Objectives

1.2.1 The main objectives of this study are as follows:

- to carry out a traffic impact assessment to identify the acceptability of the concrete batching plant in traffic terms;
- to assess the existing traffic conditions in the vicinity of the plant;
- to forecast traffic demands in the adjacent road network in the design year 2029;
- to assess the impacts of traffic generated by the adjacent new developments in the road network; and
- to propose any traffic improvement measures for alleviating any foreseeable traffic problems if necessary.

1.3 Structure of this Report

1.2.2 Following this introductory chapter, there are five further chapters.

- **Chapter 2 – THE DEVELOPMENT**, which presents the site location and production information of the plant.

- **Chapter 3 – THE EXISTING TRAFFIC CONDITION**, which describes the

existing local road network, in the vicinity of Study Area, presents a summary of the traffic count survey and assesses the existing traffic conditions.

- **Chapter 4 – THE FUTURE TRAFFIC CONDITION**, which estimates the future traffic flows on the surrounding road network.

- **Chapter 5 – TRAFFIC IMPACT ASSESSMENT**, which discusses the methodology for the future traffic forecasts.

- **Chapter 6 – SUMMARY AND CONCLUCION**, which summarizes the findings of the study and presents the conclusions regarding the traffic issues associated with the plant.

2. THE DEVELOPMENT

2.1 Site Location

2.1.1 The plant is situated along Sai Tso Wan Road via Tsing Yi Road West. As shown in **Figure 1.1**, the development is located at the western seaside of Tsing Yi, which can only be accessed by Sai Tso Wan Road.

2.1.2 The layout of the existing plant is shown in **Figure 2.1**. An existing concrete batching plant (A/TY/143) and an asphalt plant (A/TY/144) are adjacent to the Application Site.

2.2 Development Proposal

2.2.1 The concrete batching plant is scheduled to extend is license from 2024 to another 5 years to 2029.

2.2.2 There is no material change in operational parameters since the previous temporary approval (A/TY/139) granted in 2019. The daily production capacity is 3,000 m^3 concrete. Its normal operation will last for 12 hours every day, from Mondays to Saturdays and occasionally on Sundays and public holidays. The hourly maximum production capacity of the concrete batching plant is 250 m^3/hr.

2.3 Traffic Arrangement

2.3.1 To facilitate the operation of the plant, the following types of parking facilities are provided within the plant:

- 5 nos. of private car parking space;
- 4 nos. of Loading/ Unloading Spaces (including 3 under the production bays) ; and
- 29 nos. of waiting/parking spaces at marshalling area

3. THE EXISTING TRAFFIC CONDITION

3.1 Existing Road Network

3.1.1 The plant will be accessed through Tsing Yi Road West, Tsing Yi Road and Sai Tso Wan Road.

3.1.2 Sai Tso Wan Road is a 2-lane local road connecting Sai Tso Wan area and Tsing Yi Road West/Tsing Yi Road. It is a major road link providing access to/from various sites in Sai Tso Wan area.

3.2 Critical Junctions

3.2.1 In order to establish the existing traffic condition in the vicinity, traffic survey in form of manual classification counts was conducted at 23 critical junctions. The location of the surveyed junctions is indicated in **Figure 3.1** and their existing junction layout arrangements are given in **Figures 3.2** to **3.24** respectively.

Table 3.1 Identified Critical Junctions

Ref.	Junction	Type	Figure No.
J1	Cheung Tsing Highway / Tsing Yi Road West	Signalized	3.2
J2	Tsing Yi Road / Tsing Yi Hong Wan Road / Tsing Sha Highway	Signalized	3.3
J3	Tsing Sheung Road / Tsing Yi Road Priority	Priority	3.4
J4	Sai Tso Wan Road / Tsing Yi Road / Tsing Yi Road West	Signalized	3.5
J5	Entrance of VEC / Sai Tso Wan Road	Signalized	3.6
J6	Tsing Tim Street / Sai Tso Wan Road	Priority	3.7
J7	Tsing Yi Road West / Tsing Chin Street*	Priority	3.8
J8	Tsing Yi Road West / Ching Hong Road	Signalized	3.9
J9	Tsing Yi Road West / Liu To Road	Signalized	3.10
J10	Tsing Yi Road West / Fung Shue Wo Road	Signalized	3.11
J11	Tsing Yi Heung Sze Wui Road / Cheung Wan Street	Signalized	3.12
J12	Tsing Yi Heung Sze Wui Road / Chung Mei Road	Signalized	3.13
J13	Tsing Yi Road / Tsing Keung Street	Priority	3.14
RA1	Tsing Yi Interchange	Roundabout	3.15
RA2	Tsing Yi Road West / Tsing Yi Hong Wan Road / Tsing Sha Highway	Roundabout	3.16
RA3	Hong Wan Road	Roundabout	3.17
RA4	Hong Wan Road / Tsing Ko Road	Roundabout	3.18
RA5	Tam Kon Shan Interchange	Roundabout	3.19
RA6	Tsing Yi Heung Sze Wui Road / Fung Shue Wo Road / Tsing King Road	Roundabout	3.20
RA7	Tsing Sheung Road / Tsing Yi Hong Wan Road	Roundabout	3.21
RA8	Ching Hong Road / Tsing Yi Road	Roundabout	3.22
RA9	Tam Kon Shan Road / Tsing Yi North Costal Road	Roundabout	3.23
RA10	Tsing Ko Road / Tsing Sheung Road	Roundabout	3.24

3.2.2 The survey was conducted during the morning, logistic peak and evening peak periods in 26 January 2024. The survey provides details of the traffic situation in the nearby area. Based on surveyed traffic flows, it was found that the AM, logistic and PM peak hour occurred from 08:00 to 09:00, 11:15 to 12:15 and 17:30 to 18:30 respectively. The results of the observed traffic flows are presented in **Figure 3.25**.

3.2.3 Based on the observed traffic flows in **Figure 3.25**, the junction capacity assessment is carried out for the critical junctions and the results of the assessment are summarized in **Table 3.2** below.

Table 3.2 Operational Performance of Identified Critical Junctions in 2024

Ref.	Junction	Method of Control	Year 2024 Observed Case		
			RC/RFC[1]		
			AM Peak	Logistic Peak	PM Peak
J1	Cheung Tsing Highway / Tsing Yi Road West	Signalized	72%	62%	107%
J2	Tsing Yi Road / Tsing Yi Hong Wan Road / Tsing Sha Highway	Signalized	74%	88%	96%
J3	Tsing Sheung Road / Tsing Yi Road Priority	Priority	0.50	0.41	0.41
J4	Sai Tso Wan Road / Tsing Yi Road / Tsing Yi Road West	Signalized	46%	35%	115%
J5	Entrance of VEC / Sai Tso Wan Road	Signalized	121%	82%	127%
J6	Tsing Tim Street / Sai Tso Wan Road	Priority	0.34	0.27	0.21
J7	Tsing Yi Road West / Tsing Chin Street[2]	Priority	N/A	N/A	N/A
J8	Tsing Yi Road West / Ching Hong Road	Signalized	60%	87%	103%
J9	Tsing Yi Road West / Liu To Road	Signalized	37%	60%	46%
J10	Tsing Yi Road West / Fung Shue Wo Road	Signalized	42%	82%	78%
J11	Tsing Yi Heung Sze Wui Road / Cheung Wan Street	Signalized	15%	16%	36%
J12	Tsing Yi Heung Sze Wui Road / Chung Mei Road	Signalized	45%	78%	70%
J13	Tsing Yi Road / Tsing Keung Street	Priority	0.17	0.25	0.13
RA1	Tsing Yi Interchange (North)	Roundabout	0.71	0.59	0.37
	Tsing Yi Interchange (South)	Roundabout	0.58	0.44	0.66
RA2	Tsing Yi Road West / Tsing Yi Hong Wan Road / Tsing Sha Highway	Roundabout	0.45	0.45	0.49
RA3	Hong Wan Road	Roundabout	0.45	0.37	0.40

RA4	Hong Wan Road / Tsing Ko Road	Roundabout	0.26	0.25	0.26
RA5	Tam Kon Shan Interchange	Roundabout	0.63	0.62	0.69
RA6	Tsing Yi Heung Sze Wui Road / Fung Shue Wo Road / Tsing King Road	Roundabout	0.38	0.32	0.38
RA7	Tsing Sheung Road / Tsing Yi Hong Wan Road	Roundabout	0.07	0.09	0.10
RA8	Ching Hong Road / Tsing Yi Road	Roundabout	0.43	0.43	0.43
RA9	Tam Kon Shan Road / Tsing Yi North Costal Road	Roundabout	0.06	0.08	0.08
RA10	Tsing Ko Road / Tsing Sheung Road	Roundabout	0.27	0.25	0.19

Note:

(1) RC = Reserve Capacity

RFC = Ratio of Flow to Capacity for Priority Junction

(2) Only ingress traffic is allowed on Tsing Chin Street. No traffic conflicts or delay is expected in this location. Therefore, no junction assessment is required.

3.2.4 The results in **Table 3.2** show that the junctions are now operating with ample capacities in peak hours.

3.3 Public Transport Services in the Vicinity

3.3.1 Limited road-based public transport services are currently operating in the vicinity of the plant. Only one GMB route is operating close to the plant (within 500m radius from the plant) and the details of the GMB route are presented in **Table 3.3** below.

Table 3.3 Existing Road-based Public Transport Services in the Vicinity

Service	Route	Origin - Destination	Frequency (min)
GMB	88M	Kwai Fong Station – Sai Tso Wan Road (Hong Kong Unit Dockyard)	6 – 15

4. THE FUTURE TRAFFIC CONDITIONS

4.1 Design Year

4.1.1 The original planning approval will expire on 6 September 2024, as another 5 year of temporary use is applied, year 2029 is adopted as the design year for this study to assess the impact of the development related traffic on the local road network.

4.2 Design Traffic Flows

4.2.1 To estimate the 2029 traffic flows in the local road network, an appropriate growth factor has to be identified for the area in the first instance based on historical trend and planning data.

Historical Trend

4.2.2 Transport Department has traffic count stations in the vicinity of the development. The traffic counts reported in the Annual Traffic Census (ATC) over a period of 6 years, between 2017 and 2022 are summarized in **Table 4.1**.

Table 4.1 Historical Traffic Data from Annual Traffic Census

ATC Stn No.	Road Name	Annual Average Daily Traffic						Annual Growth Rate
		2017	2018	2019	2020	2021	2022	
5038	Nam Wan Tunnel (from East Tsing Yi Viaduct to Cheung Tsing Highway)	50,940	54,280	55,040	37,850	41,090	41,060	-4.22%
5849	Tsing Yi Rd W (Tsing Nam St – Ching Hong Road)	15,410	15,640*	15,580*	15,430*	13,690	15,820	0.53%
6044	Tsing Yi Rd W (Ching Hong Road – Fung Shue Wo Road)	20,260	19,350	19,280*	19,100*	19,840*	21,050	0.77%
6643	Sai Tso Wan Rd (Tsing Yi Rd – Dockyard Front Gate)	5,020	10,030	8,390	8,960	9,410	11,200	17.41%
TOTAL		**91,630**	**99,300**	**98,290**	**81,340**	**84,030**	**89,130**	**-0.55%**

*AADT estimated by Growth Factor

4.2.3 As shown in **Table 4.1**, the average annual traffic growth pattern in the vicinity of the development shows a growth trend of -0.55% per year.

2019-Based TPEDM planning data

4.2.4 Reference has also been made to the latest 2019-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 2019 to 2031 are tabulated in **Table 4.2**.

Table 4.2 2019-based Population and Employment Growth

Tsing Yi				
Data	**Year**			**Average Annual Growth Rate**
	2019	**2026**	**2031**	
Population	182,350	188,550	184,400	+0.09%
Employment	38,500	38,700	36,650	-0.41%
Total	**220,850**	**227,250**	**221,050**	**0.01%**

4.2.5 From **Table 4.2**, it is found that the average annual growth rates of population and employment in Tsing Yi are +0.01% per annum respectively.

Adopted Growth Rate

4.2.6 A.A.D.T. of ATC indicates that the traffic flow of the local road network has an average annual growth rate of -0.55%.

4.2.7 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 +0.01%.

4.2.8 As a conservative approach, annual growth rate **+1.0%** p.a. has been adopted for projecting traffic forecasts. 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 Planned / Committed Future Developments

4.3.1 There are numbers of planned/committed future developments in vicinity. The updated planning parameters are shown in **Table 4.3**. The locations of these future developments are shown in **Figure 4.1**.

4.3.2 The traffic trips generated from these planned/committed developments are estimated and shown in **Table 4.4**.

4.3.3 These traffic trips were assigned to the road network to obtain the reference traffic in the design year.

Table 4.3 Development Schedule of Planned Development at Vicinity

Ref.	Development Site / Planning Application No.	Use	Development Parameters	Completion Year
A	A/TY/131	Animal Welfare Centre	About 8,720m^2	2024
B	Ching Hong Road North Public Housing Development	Public Housing	Phase 1: 851 units Phase 2: 612 units Phase 3: 1680 units Phase 4: 770 units	2024 2024 2029 2030-31
			Retail: 2000m^2 Social Welfare Facilities	2024 - 2029
C	Housing Development at Tsing Yi Road West	Public Housing	3,400 units	2034/35
D(1)	Y/TY/2 - Tsing Yi Town Lot 80 and 108RP (Phase 1)	Private Housing	5,048 units	2028
	Y/TY/2 - Tsing Yi Town Lot 80 and 108RP (Phase 2)	Public Housing	4,704 units	2036
		Private Housing	5,323 units	2036
E	Tsing Yi – Lantau Link	Infrastructure	-	2033 (Construction traffic may occur at about 2027)
F	A/TY/147 (Renewal of A/TY/136)	Concrete Batching Plant	300 m^3/hr (240 m^3/hr as limited by SP License)	Under Operation
G	A/TY/148 (Renewal of A/TY/135)	Asphalt Plant	260 tonnes/hr (208 tones/hr as limited by SP License)	2024

Note: (1) This application site will be redeveloped to part of Y/TY/2, if approved.

4.3.4 Housing Developments at Ching Hong Road North (Phase 4) and Tsing Yi Road West would be completed after our design year. Y/TY/2- Tsing Yi Town Lot 80 and 108RP is still under planning application and not approved yet. As the location of this application is part of Y/TY/2 - Tsing Yi Town Lot 80 and 108RP, this concrete plant will be closed down and redeveloped to Y/TY/2 if approved. Thus, they would not be included in this assessment. A/TY/147 is renewal application which is already under operation and thus no new trips will be formed. The construction traffic of Tsing Yi – Lantau Link is reviewed and considered. It would not give significant impact to the road network.

Table 4.4 Estimated Traffic Generations of Planned Vicinity Development

Development Type		Average Flat Size m^2	Unit	Trip Rate			
				AM Peak		PM Peak	
				Gen.	Att.	Gen.	Att.
Public Rental		40	Pcu/hr/flat	0.0432	0.0326	0.0237	0.0301
Retail		-	pcu/hr/100 sqm GFA	0.2296	0.2434	0.3100	0.3563
Developments				**Trips (Pcu/hr)**			
A[(1)]	A/TY/131			64	172	115	72
B	Ching Hong Road North Public Housing Development	Phase 1		37	28	20	26
		Phase 2		26	20	15	18
		Phase 3		73	55	40	51
		Retail		5	5	6	7
		Kindergarten[(2)]		30	30	30	30
		Social Welfare Facilities [(3)]		10	10	10	10
E	Tsing Yi – Lantau Link Construction Vehicles[(4)]			15	15	15	15
G[(1)]	A/TY/148 (Renewal of A/TY/135)			45	45	45	45

Note: (1) Development trips according to its TIA report

(2) Reference from other public housing TIA reports (Sheung Shui Area 4 and 30)

(3) Nominal Trips

(4) Assume 1 construction vehicle per 10 min per bound, i.e. 6 veh/hr,. For 2.5 pcu factor, 15 pcu/hr

4.3.5 The 2029 reference flows are then derived by applying the annual growth rate plus the additional traffic generations of the developments in Tsing Yi.

2029 Reference Flows (without the Plant)	=	**2024 Observed Flows**	x	**Adopted Growth Factor (i.e. +1% p.a. for 5 years)**	+	**Traffic Flows of Proposed Developments at Tsing Yi**

4.4 Development Traffic Flows

4.4.1 It is revealed that this is a renewal application, the concrete batching plant is already under operation and the development parameter is no change. Therefore, there will be **no additional traffic trip**. The 2029 design flows are shown in **Figure 5.1**.

2029 Design Flows = 2029 Reference Flows

5. TRAFFIC IMPACT ASSESSMENT

5.1 Traffic Generation Calculation

5.1.1 As there is no change in the operation scale of the plant, no additional trips are generated. The traffic generation adopted in the approved TIA for the exiting plant (A/TY/139) is summarized in **Table 5.1** below for reference:

Table 5.1 Adopted Hourly Traffic Generation of the Concrete Batching Plant

Types of Vehicles	Traffic Generation (in veh/hr)	Traffic Generation (in pcu/hr) (1)
Pulverized Fuel Ash (PFA) Tanker	0.25	1
Ice Truck	0.83	2
Waste Removal Truck	0.17	1
Admixture Truck	0.17	1
Concrete Mixer Truck	18	45
Private Car & Van	0.83	1
Total		**51**

Notes: (1) PCU factor of 2.5 has been adopted for trucks.

(2) Assuming the concrete average carrying capacity of each concrete mixer truck is 7.4m^3.

5.2 Operational Assessment

5.2.1 Based on the design traffic flows in **Figure 5.1**, a junction capacity assessment is carried out for the key junctions and the results of the assessment are summarized in **Table 5.2** below.

Table 5.2 Junction Performance of Critical Junctions in Design Year 2029

Ref.	Junction	Method of Control	Year 2029 Design Case		
			RC/RFC[1]		
			AM Peak	Logistic Peak	PM Peak
J1	Cheung Tsing Highway / Tsing Yi Road West	Signalized	40%	39%	75%
J2	Tsing Yi Road / Tsing Yi Hong Wan Road / Tsing Sha Highway	Signalized	66%	78%	85%
J3	Tsing Sheung Road / Tsing Yi Road Priority	Priority	0.54	0.45	0.45
J4	Sai Tso Wan Road / Tsing Yi Road / Tsing Yi Road West	Signalized	33%	24%	89%
J5	Entrance of VEC / Sai Tso Wan Road	Signalized	99%	65%	102%
J6	Tsing Tim Street / Sai Tso Wan Road	Priority	0.38	0.30	0.23
J7	Tsing Yi Road West / Tsing Chin Street[2]	Priority	N/A	N/A	N/A
J8	Tsing Yi Road West / Ching Hong Road	Signalized	39%	59%	81%
J9	Tsing Yi Road West / Liu To Road	Signalized	30%	53%	39%
J10	Tsing Yi Road West / Fung Shue Wo Road	Signalized	17%	44%	45%
J11	Tsing Yi Heung Sze Wui Road / Cheung Wan Street	Signalized	**-3%**	**-4%**	18%
J12	Tsing Yi Heung Sze Wui Road / Chung Mei Road	Signalized	26%	52%	51%
J13	Tsing Yi Road / Tsing Keung Street	Priority	0.18	0.26	0.14
J14	Tsing Yi Road / Planned New Road[3]	Signalized	35%	38%	53%
RA1	Tsing Yi Interchange (North)	Roundabout	0.76	0.63	0.40
	Tsing Yi Interchange (South)	Roundabout	0.63	0.48	0.73
RA2	Tsing Yi Road West / Tsing Yi Hong Wan Road / Tsing Sha Highway	Roundabout	0.48	0.48	0.53
RA3	Hong Wan Road / Planned New Road[3]	Roundabout	0.50	0.42	0.45
RA4	Hong Wan Road / Tsing Ko Road	Roundabout	0.27	0.26	0.28
RA5	Tam Kon Shan Interchange	Roundabout	0.72	0.70	0.79
RA6	Tsing Yi Heung Sze Wui Road / Fung Shue Wo Road / Tsing King Road	Roundabout	0.47	0.40	0.46
RA7	Tsing Sheung Road / Tsing Yi Hong Wan Road	Roundabout	0.08	0.09	0.11
RA8	Ching Hong Road / Tsing Yi Road	Roundabout	0.46	0.46	0.46
RA9	Tam Kon Shan Road / Tsing Yi North Costal Road	Roundabout	0.07	0.08	0.08
RA10	Tsing Ko Road / Tsing Sheung Road	Roundabout	0.28	0.27	0.20

Note: (1) RC = Reserve Capacity RFC = Ratio of Flow to Capacity for Priority Junction
(2) Only ingress traffic is allowed on Tsing Chin Street. No traffic conflicts or delay is expected in this location. Therefore, no junction assessment is required.
(3) New Road between Tsing Yi Road / Hong Wan Road was considered

5.2.2 Based on the assessment presented in **Table 5.2**, all junctions will be operating with ample capacities during design year except J11.

5.2.3 J11 will over its capacity due to the increase of left turn traffic by Annual Welfare Centre (A/TY/131) from Tsing Yi Heung Sze Wui Road southbound to Cheung Wan Street. As the concrete batching plant is already under operation for many years without affecting the public road and renewal applications of this plant has been applied and approved for many times. Also, the development parameter is no change under this renewal application, there will be no additional traffic impact caused by the plant.

5.3 Traffic Management Plan

5.3.1 Detailed Traffic Management Plan will be formulated and submitted to Transport Department separately.

6. SUMMARY AND CONCLUSION

6.1 Summary

6.1.1 The captioned Planning Approval (Approved Planning Application no.: A/TY/139) was granted in 2019 and will expire on 6 September 2024. The Applicant would like to submit a renewal planning application for another 5 years.

6.1.2 We, CTA Consultants Limited (CTA), is commissioned as the traffic consultant to undertake a Traffic Impact Assessment (TIA) study for assessing the traffic impact, and to propose any measures if necessary.

6.1.3 To appraise the existing traffic conditions, a traffic count survey was conducted in the surrounding road network of the plant. Moreover, current operational performance of the critical junctions was assessed with the observed traffic flows. The operational assessment results revealed that all critical junctions are at present operating with reasonable capacity in peak hours.

6.1.4 In order to assess the impact of the development related traffic on the local road network, the 5th year after the approval of extension application of the plant (i.e. year 2029) has been adopted as the design year for this study.

6.1.5 To reveal the traffic impact of various proposed developments in the vicinity, traffic generations by the proposed developments in the vicinity have also been taken into consideration.

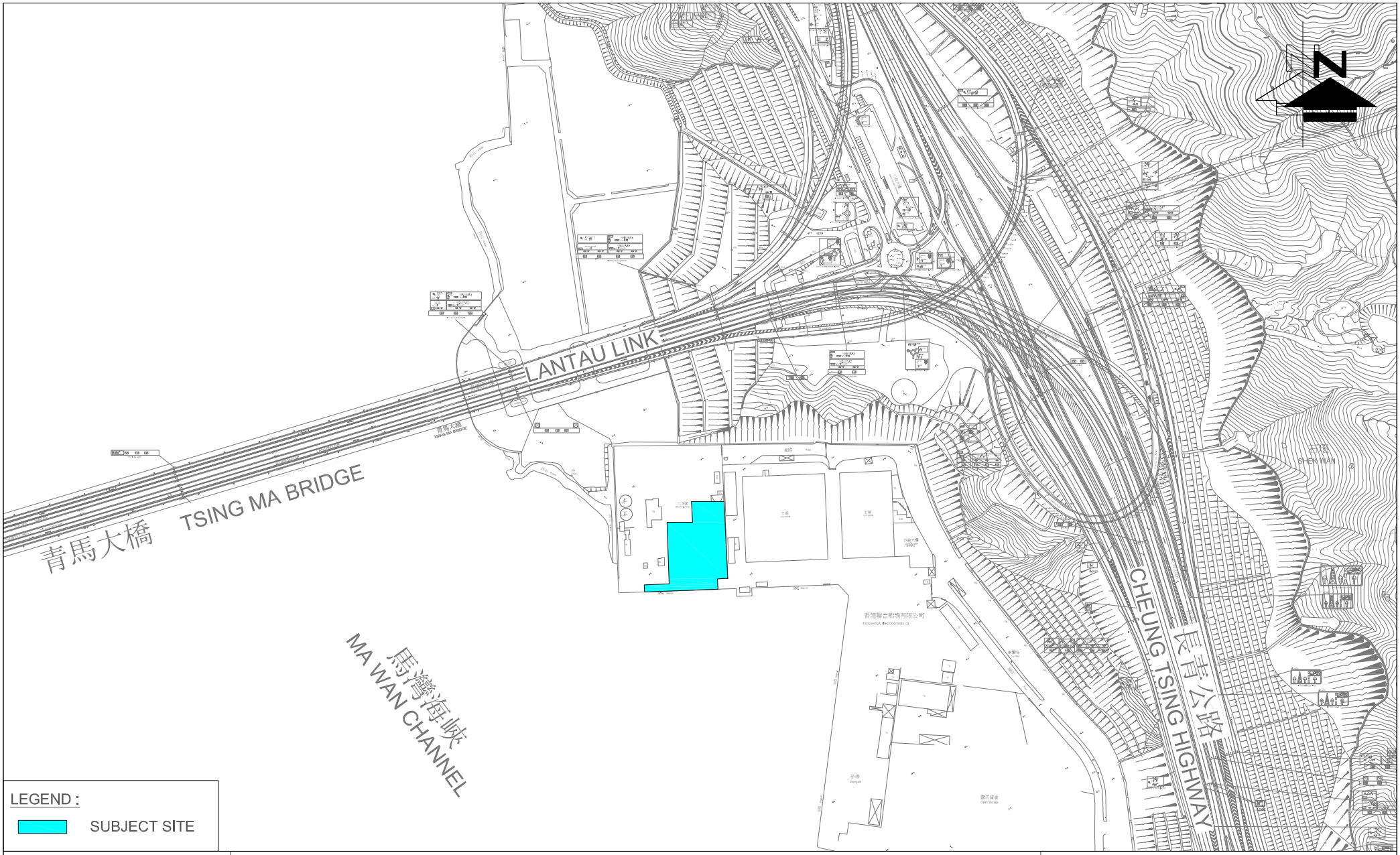
6.1.6 It is noted that the concrete plant is already operating currently, thus **no additional traffic** would be added to the road network by this plant under this application and 2029 design flows are the same as reference flows. It is noted that growth rate is also applied to the existing trips of the application plant as conservative approach.

6.1.7 All the assessed junctions will be operating with ample spare capacity in design year except J11, but our plant is already under operation for many years without affecting the public road and renewal applications of this plant has been applied and approved for many times. Also, the development parameter is no change under this renewal application, there will be no additional traffic impact caused by the plant and therefore would not worsen the case.

6.2 Conclusion

6.2.1 In conclusion, this Traffic Impact Assessment (TIA) has demonstrated that the application plant will not generate additional traffic to the surrounding road network and the junctions in vicinity would have ample capacities during design year 2029.

6.2.2 Hence, it is concluded that the renewal of the plant at the Application Site is acceptable from traffic engineering view point.



LEGEND :

SUBJECT SITE

FIGURE NO.: 1.1	PROJECT TITLE: Concrete Batching Plant at Tsing Yi - Renewal Application A/TY/139
PROJECT NO.: 24002HK	DRAWING TITLE: SITE LOCATION PLAN
SCALE: 1 : 5000 @A4	DATE: 01 FEB 2024

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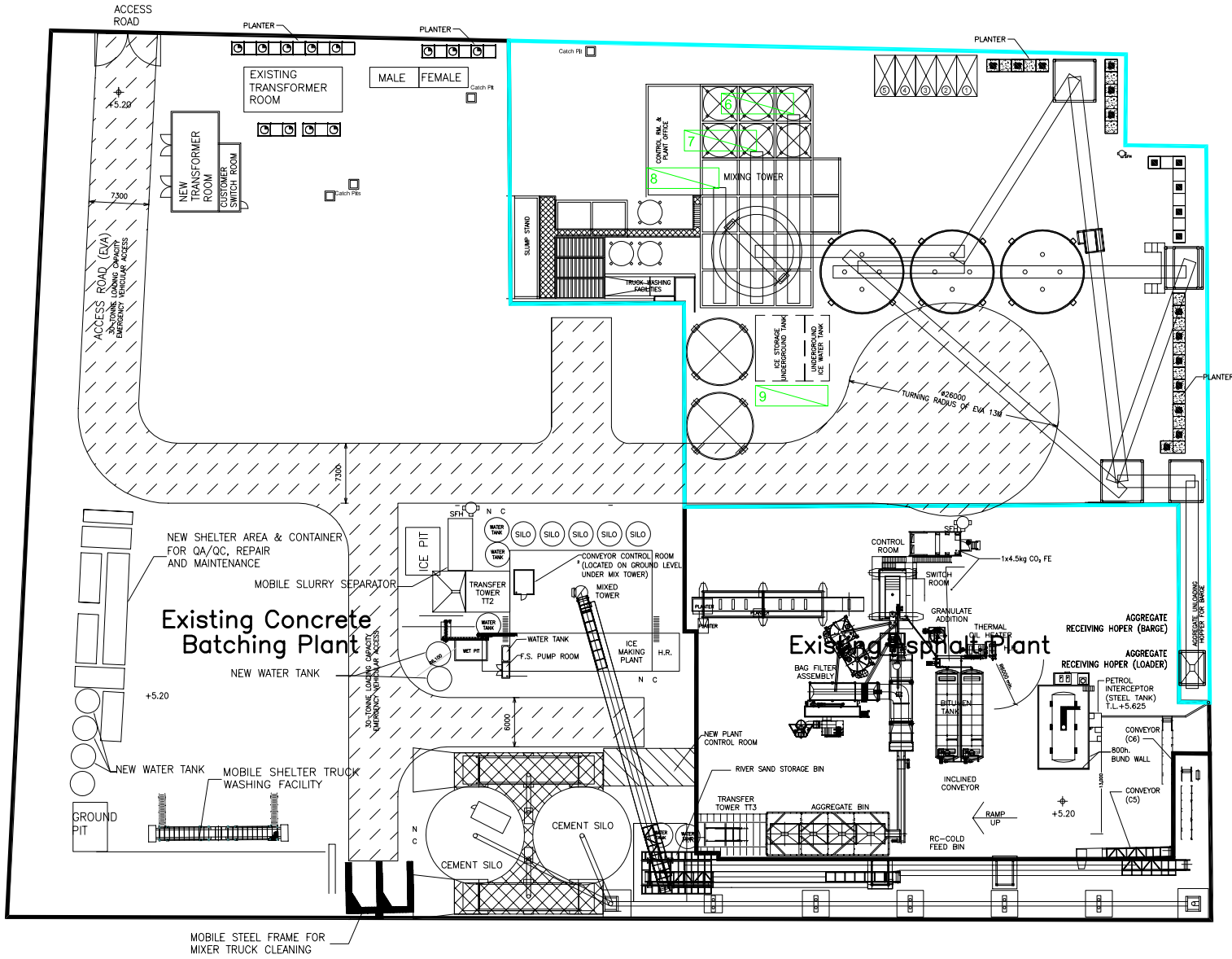

LEGEND :

- SUBJECT SITE BOUNDARY OF PROPOSED CONCRETE BATCHING PLANT
- INTERNAL ACCESS ROAD
- PARKING SPACE
- LOADING / UNLOADING SPACE

FIGURE NO.: 2.1	PROJECT TITLE: Concrete Batching Plant at Tsing Yi - Renewal Application A/TY/139
PROJECT NO.: 24002HK	DRAWING TITLE: LAYOUT PLAN FOR EXISTING CONCRETE BATCHING PLANT
SCALE: 1 : 750 @A4	DATE: 01 FEB 2024

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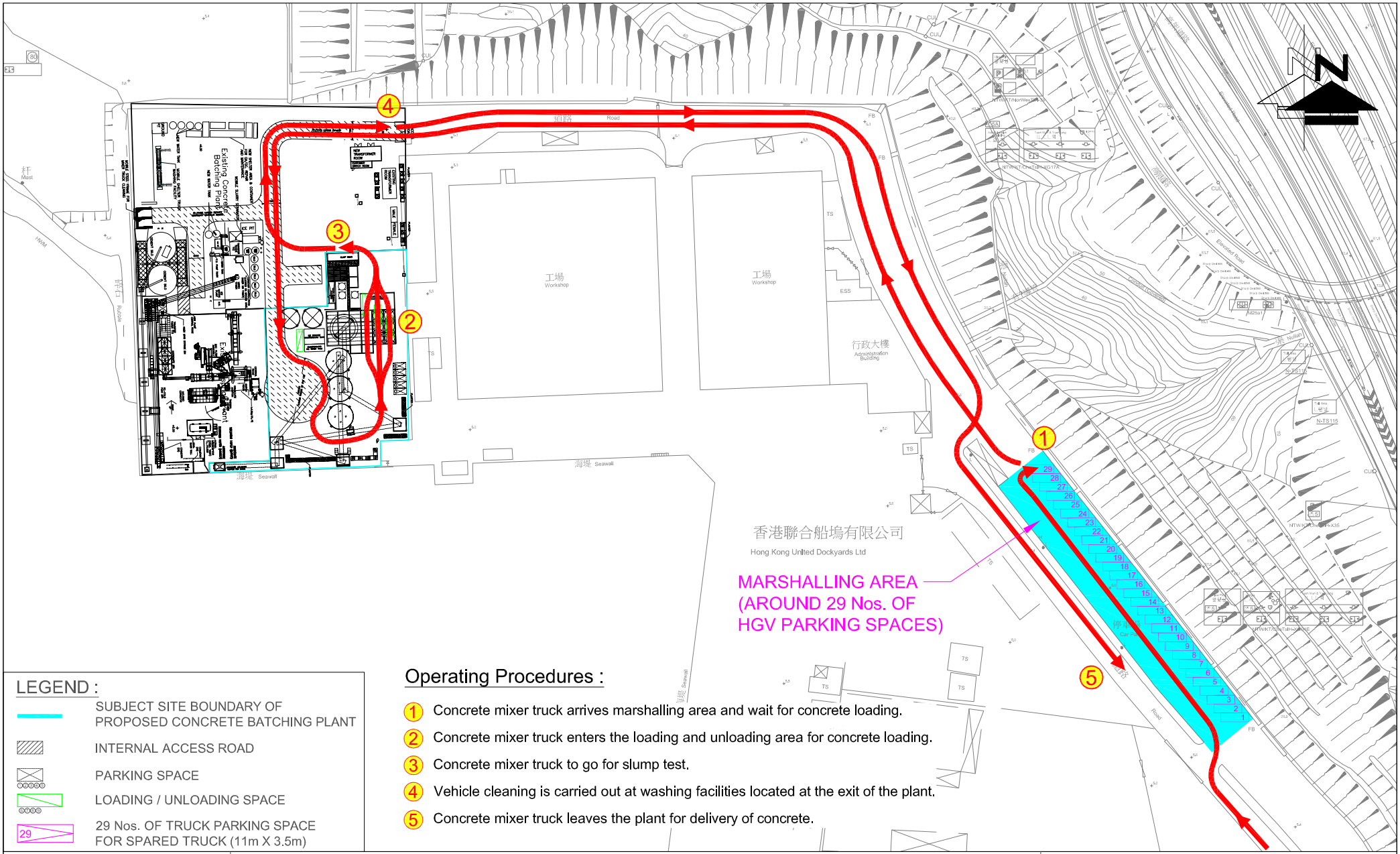

LEGEND :

- SUBJECT SITE BOUNDARY OF PROPOSED CONCRETE BATCHING PLANT
- INTERNAL ACCESS ROAD
- PARKING SPACE
- LOADING / UNLOADING SPACE
- 29 — 29 Nos. OF TRUCK PARKING SPACE FOR SPARED TRUCK (11m X 3.5m)

Operating Procedures :

1. Concrete mixer truck arrives marshalling area and wait for concrete loading.
2. Concrete mixer truck enters the loading and unloading area for concrete loading.
3. Concrete mixer truck to go for slump test.
4. Vehicle cleaning is carried out at washing facilities located at the exit of the plant.
5. Concrete mixer truck leaves the plant for delivery of concrete.

FIGURE NO.: 2.2	PROJECT TITLE: Concrete Batching Plant at Tsing Yi - Renewal Application A/TY/139
PROJECT NO.: 24002HK	DRAWING TITLE: OPERATION OF THE CONCRETE BATCHING PLANT
SCALE: 1 : 2000 @A4	DATE: 01 FEB 2024

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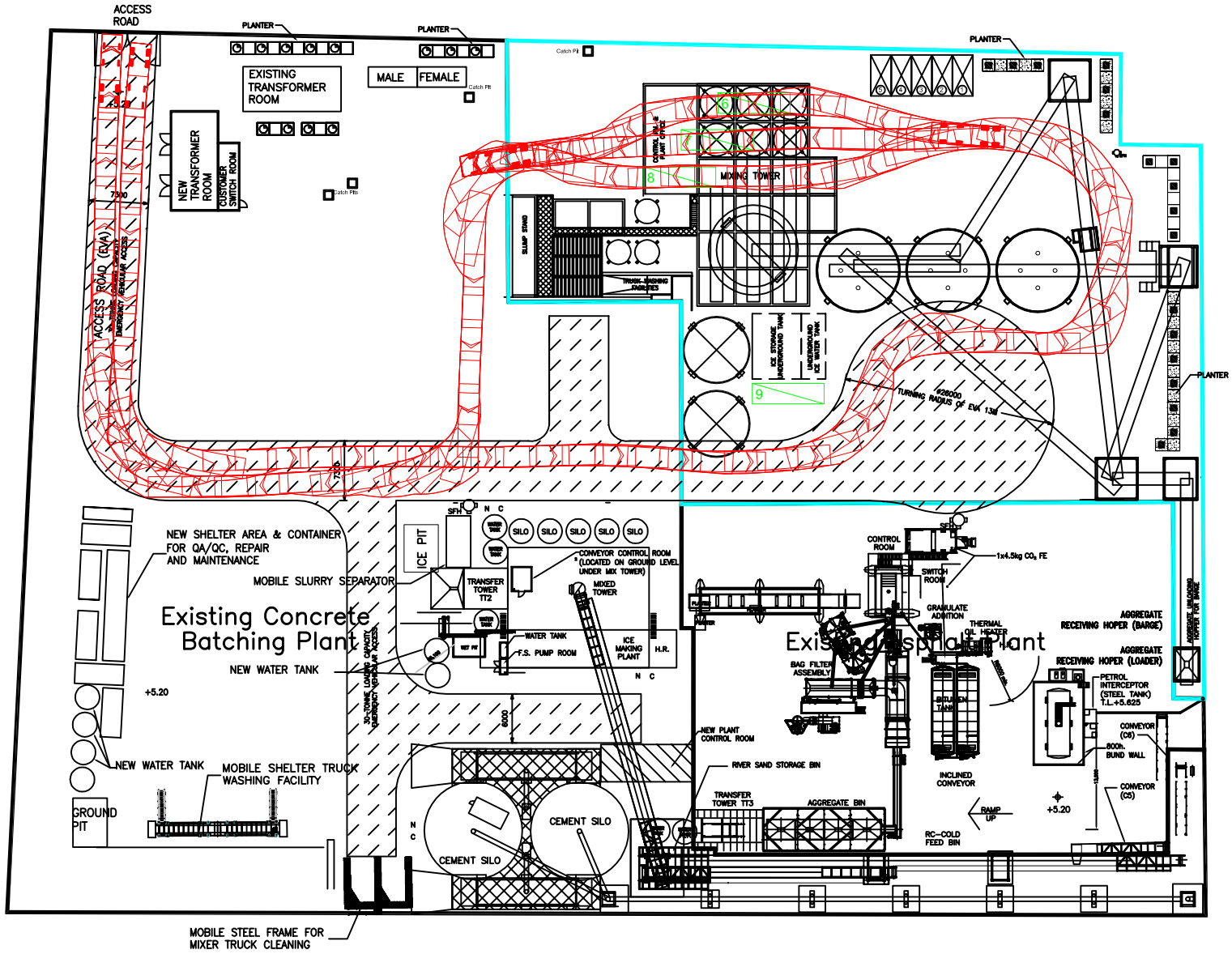

LEGEND :

SWEPT PATH OF 9m VEH

FIGURE NO.: SP-01	PROJECT TITLE: Concrete Batching Plant at Tsing Yi - Renewal Application A/TY/139
PROJECT NO.: 24002HK	DRAWING TITLE: SWEPT PATH ANALYSIS OF 9M VEHICLES
SCALE: 1 : 750 @A4	DATE: 06 JUN 2024

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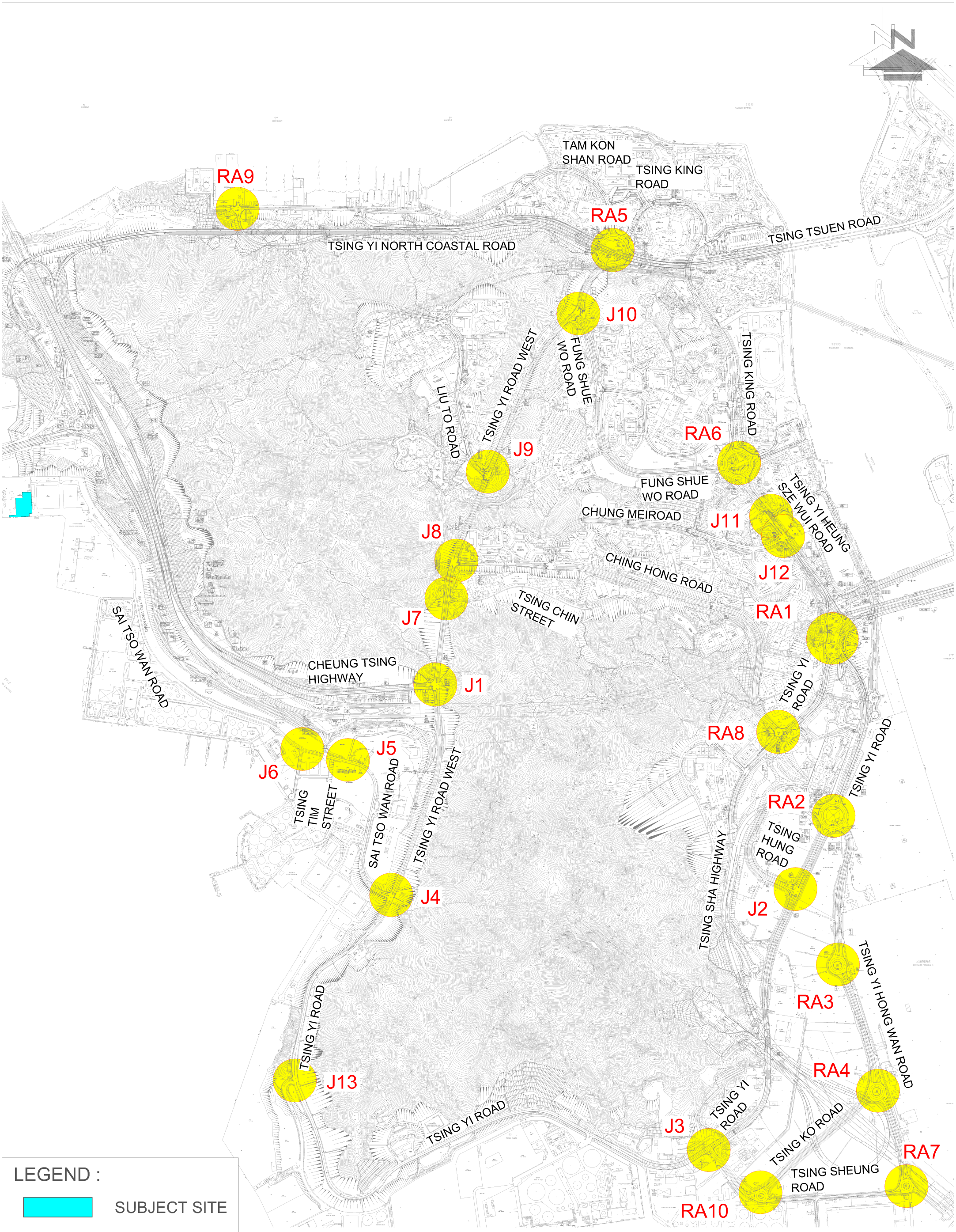

LEGEND :

SUBJECT SITE

FIGURE NO.: 3.1	PROJECT TITLE: Concrete Batching Plant at Tsing Yi - Renewal Application A/TY/13 9
PROJECT NO.: 24002HK	DRAWING TITLE: CRITICAL JUNCTION
SCALE: 1 : 12000 @A3	DATE: 11 JUN 2024

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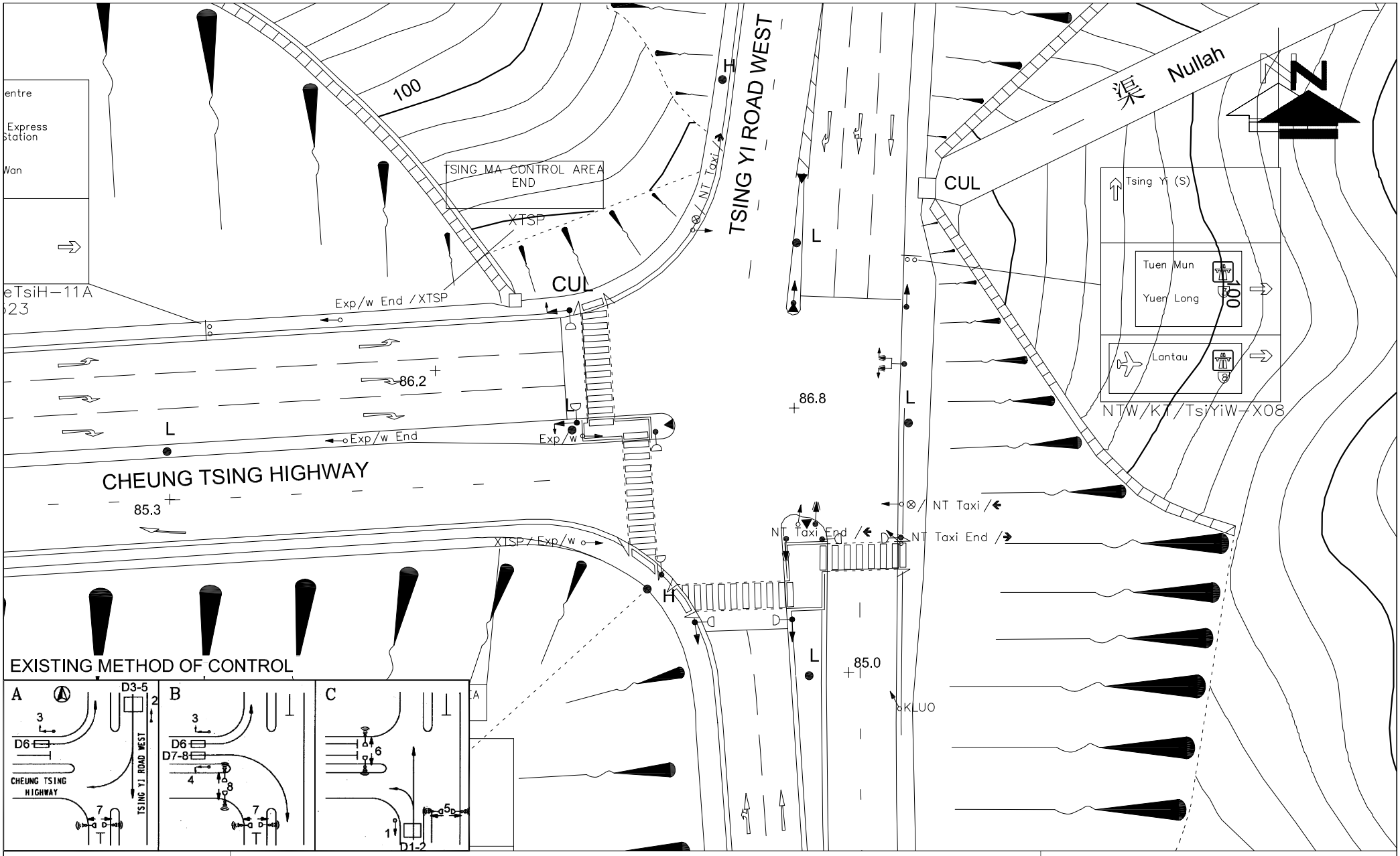

FIGURE NO.: 3.2	PROJECT TITLE: Concrete Batching Plant at Tsing Yi - Renewal Application A/TY/139
PROJECT NO.: 24002HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TSING YI ROAD WEST / CHEUNG TSING HIGHWAY (J1)
SCALE: 1 : 500 @A4	DATE: 11 JUN 2024

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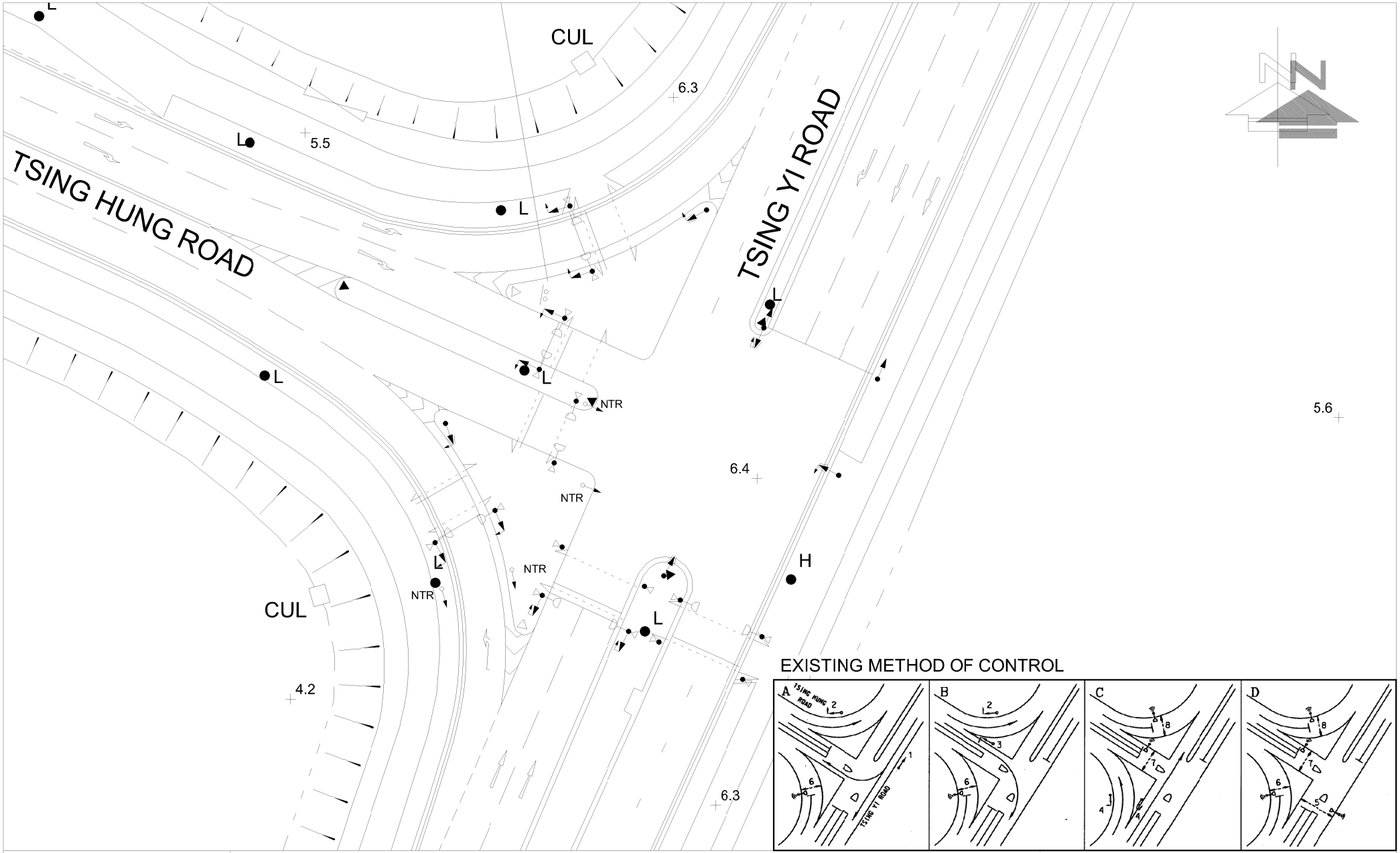

FIGURE NO.: 3.3	PROJECT TITLE: Concrete Batching Plant at Tsing Yi - Renewall Application A/TY/139
PROJECT NO.: 24002HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TSING HUNG ROAD / TSING YI ROAD (J2)
SCALE: 1 : 500 (IN A4 SIZE)	DATE: 11 JUN 2024

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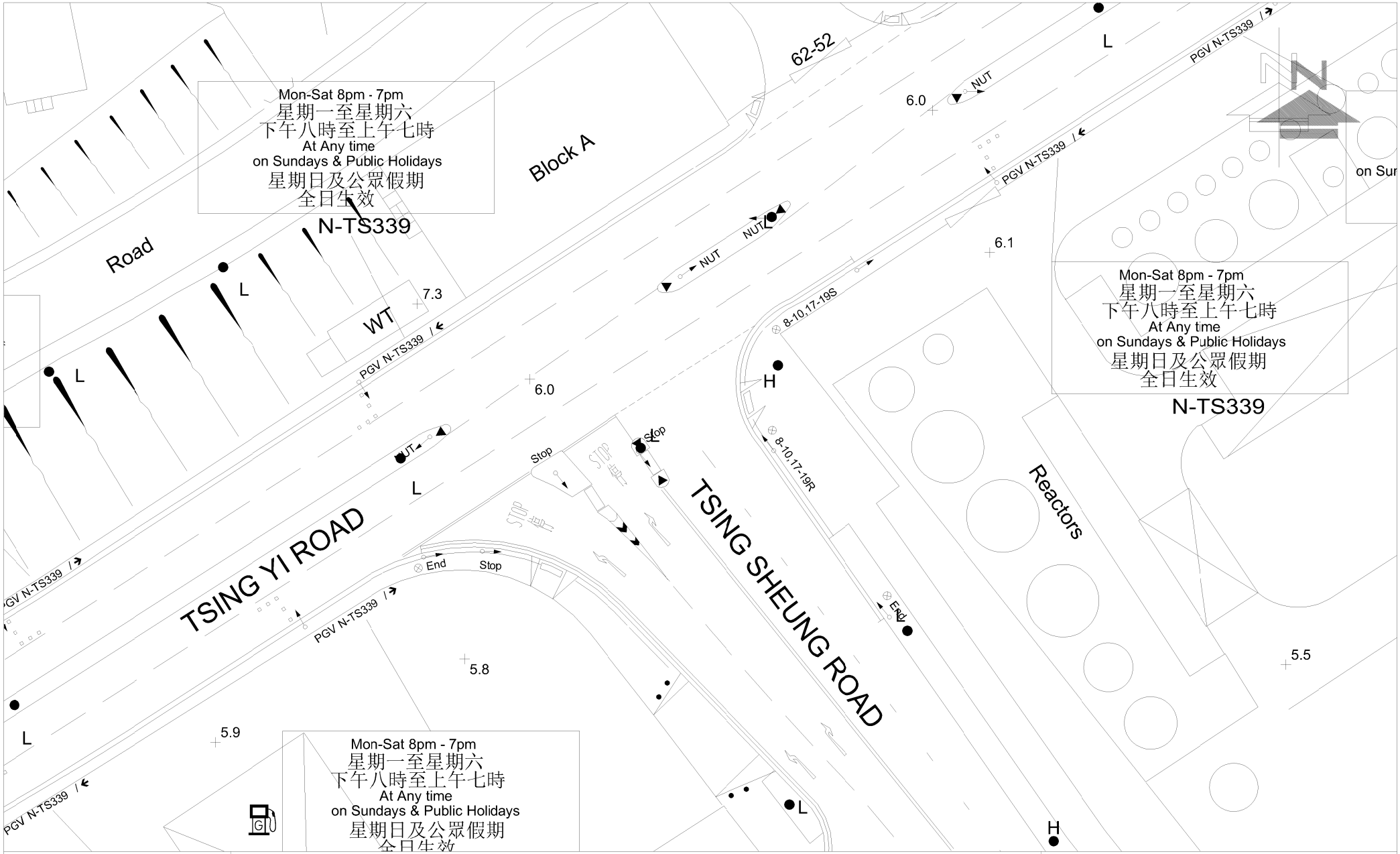

FIGURE NO.: 3.4	PROJECT TITLE: Concrete Batching Plant at Tsing Yi - Renewal Application A/TY/139
PROJECT NO.: 24002HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TSING SHEUNG ROAD / TSING YI ROAD (J3)
SCALE: 1 : 500 (IN A4 SIZE)	DATE: 11 JUN 2024

CTA Consultants Limited
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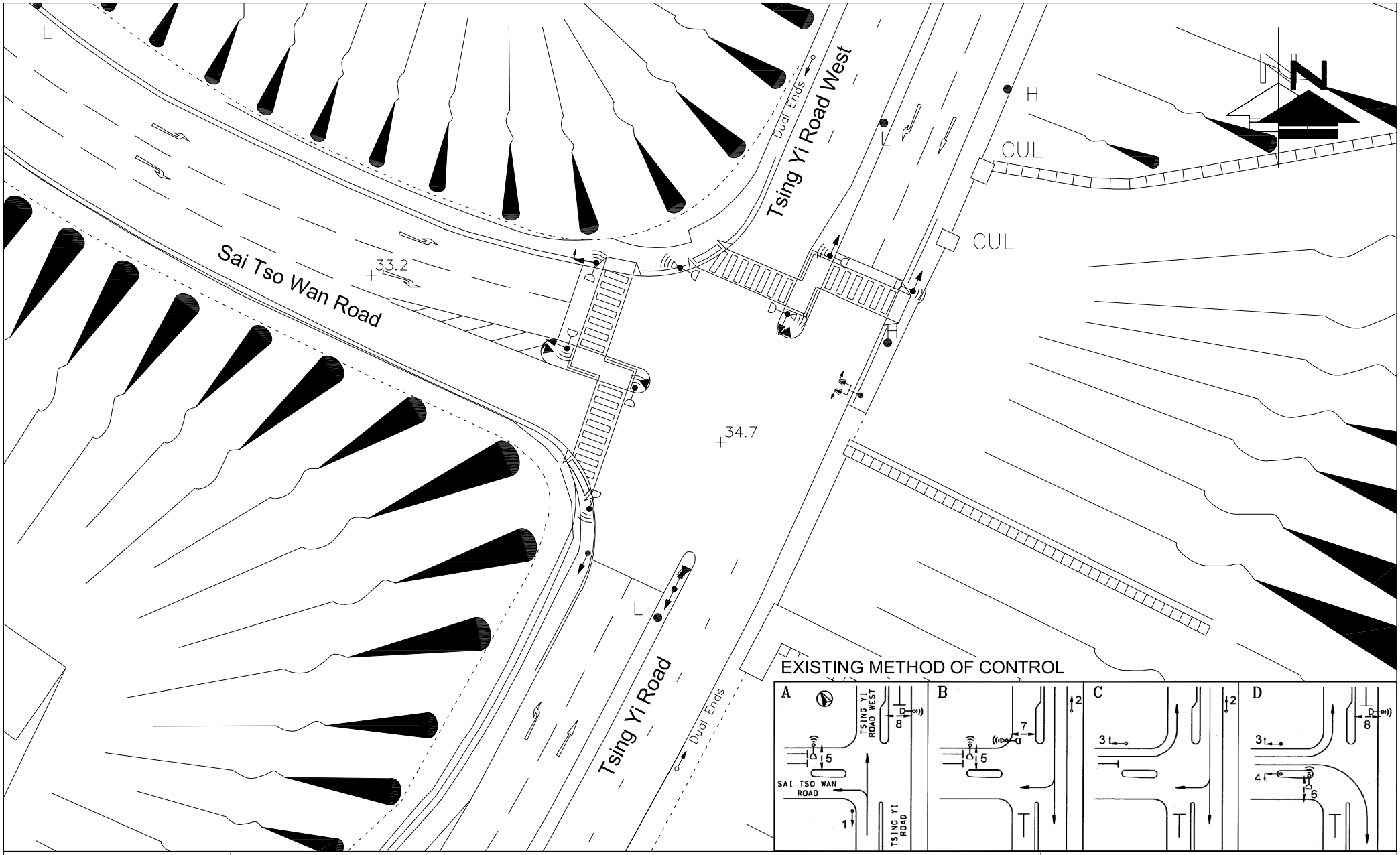

FIGURE NO.: 3.5	PROJECT TITLE: Concrete Batching Plant at Tsing Yi - Renewal Application A/TY/139
PROJECT NO.: 24002HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF SAI TSO WAN ROAD / TSING YI ROAD WEST / TSING YI ROAD (J4)
SCALE: 1 : 500 @A4	DATE: 11 JUN 2024

CTA Consultants Limited
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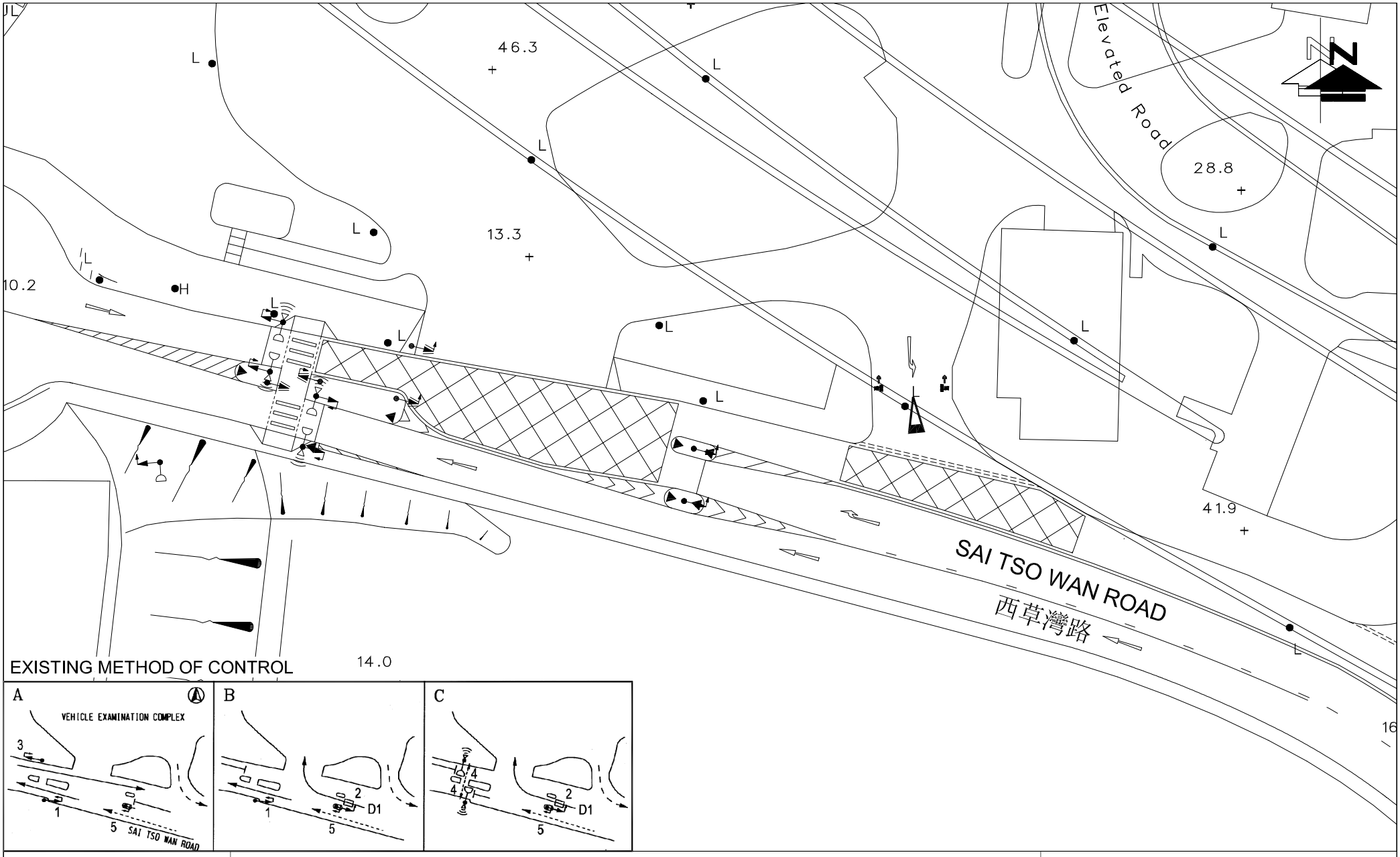

FIGURE NO.: 3.6	PROJECT TITLE: Concrete Batching Plant at Tsing Yi - Renewal Application A/TY/139
PROJECT NO.: 24002HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF ENTRANCE OF VEC / SAI TSO ROAD (J5)
SCALE: 1 : 500 @A4	DATE: 11 JUN 2024

CTA Consultants Limited
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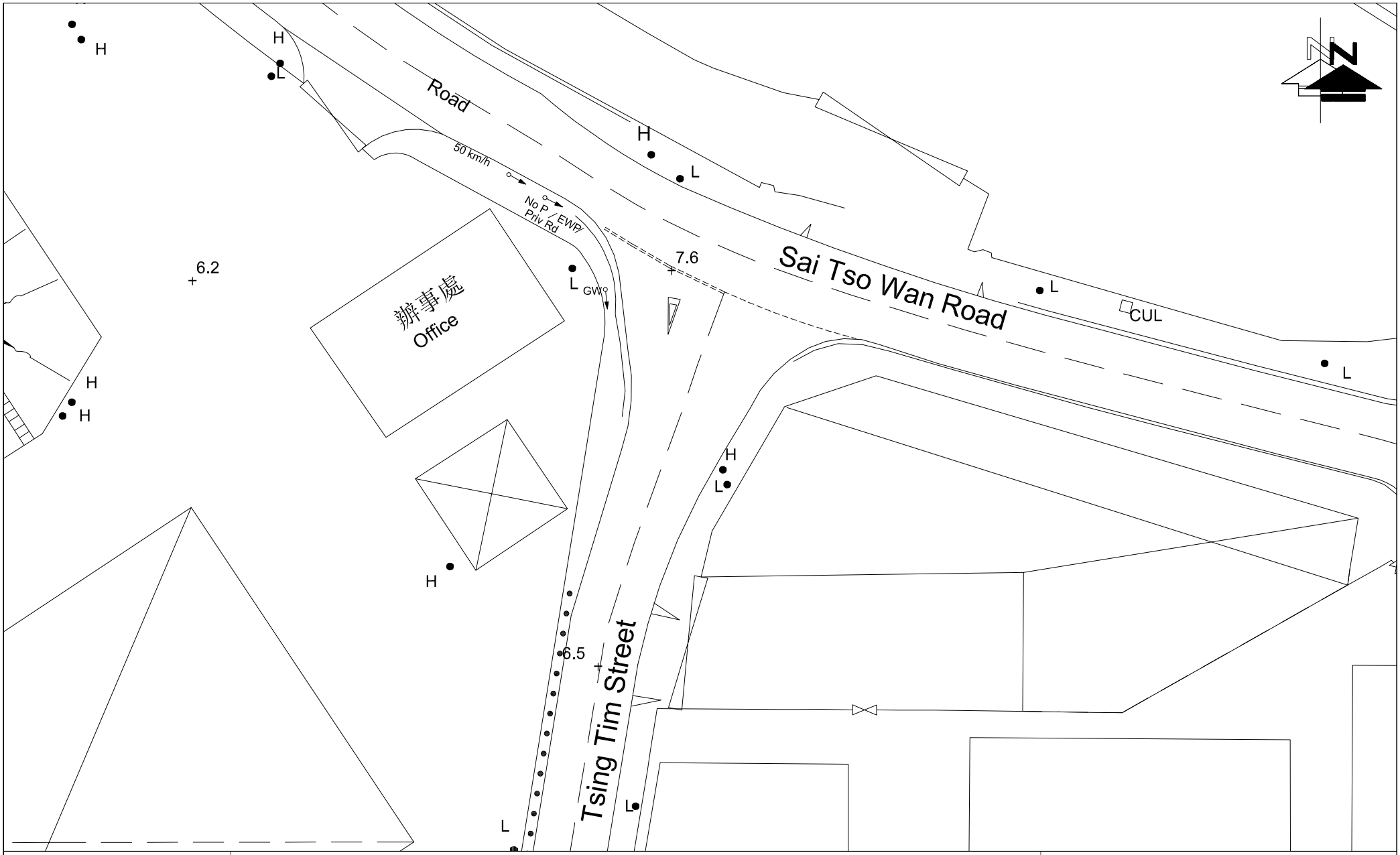

FIGURE NO.: 3.7	PROJECT TITLE: Concrete Batching Plant at Tsing Yi - Renewal Application A/TY/139	
PROJECT NO.: 24002HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TSING TIM STREET / SAI TSO WAN ROAD (J6)	CTA Consultants Limited 志達顧問有限公司
SCALE: 1 : 500 (IN A4 SIZE) / DATE: 11 JUN 2024		

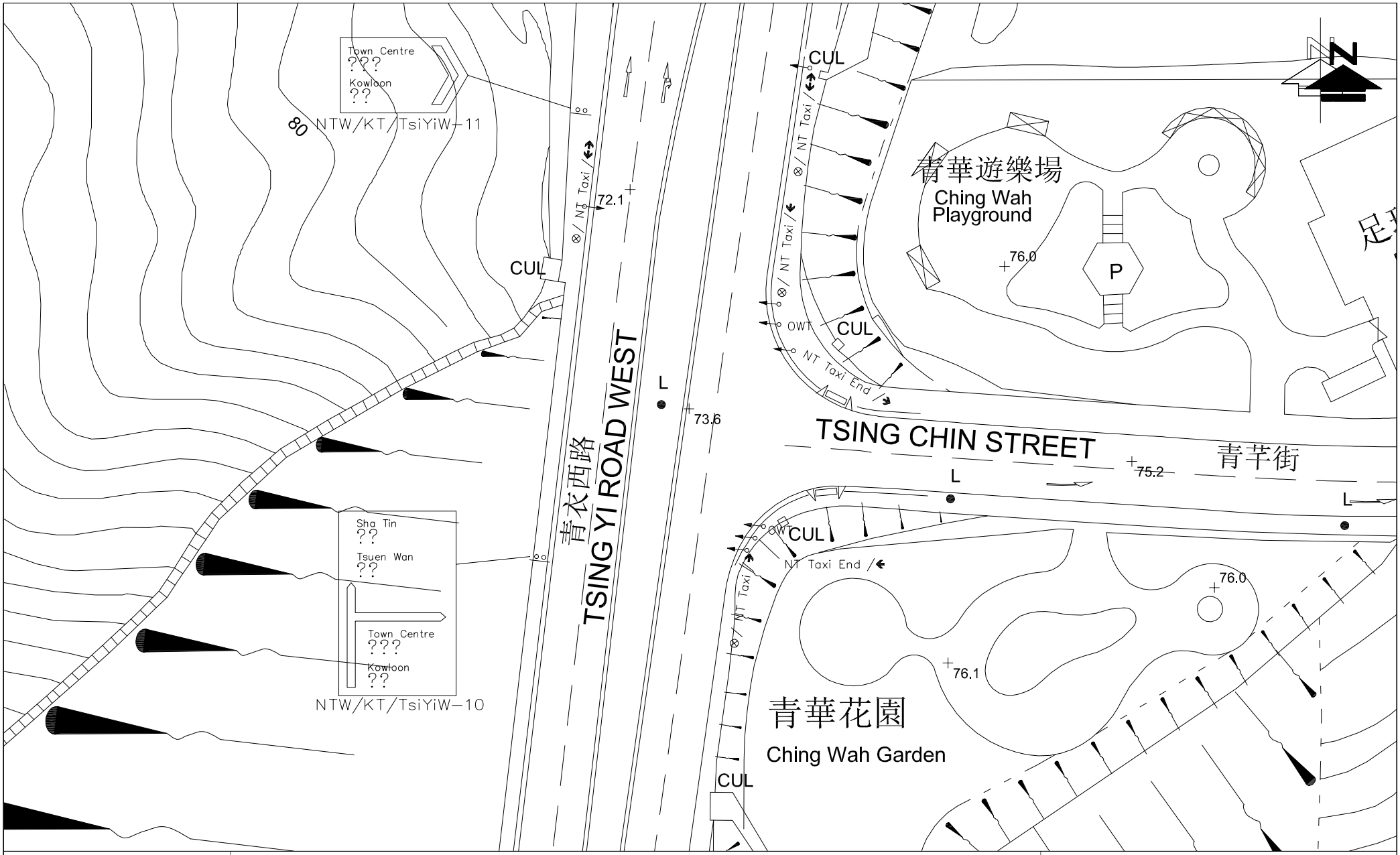

FIGURE NO.: 3.8	PROJECT TITLE: Concrete Batching Plant at Tsing Yi - Renewal Application A/TY/139	
PROJECT NO.: 24002HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF YI ROAD WEST / TSING CHIN STREET (J7)	CTA Consultants Limited 志達顧問有限公司
SCALE: 1 : 500 (IN A4 SIZE)	DATE: 11 JUN 2024	

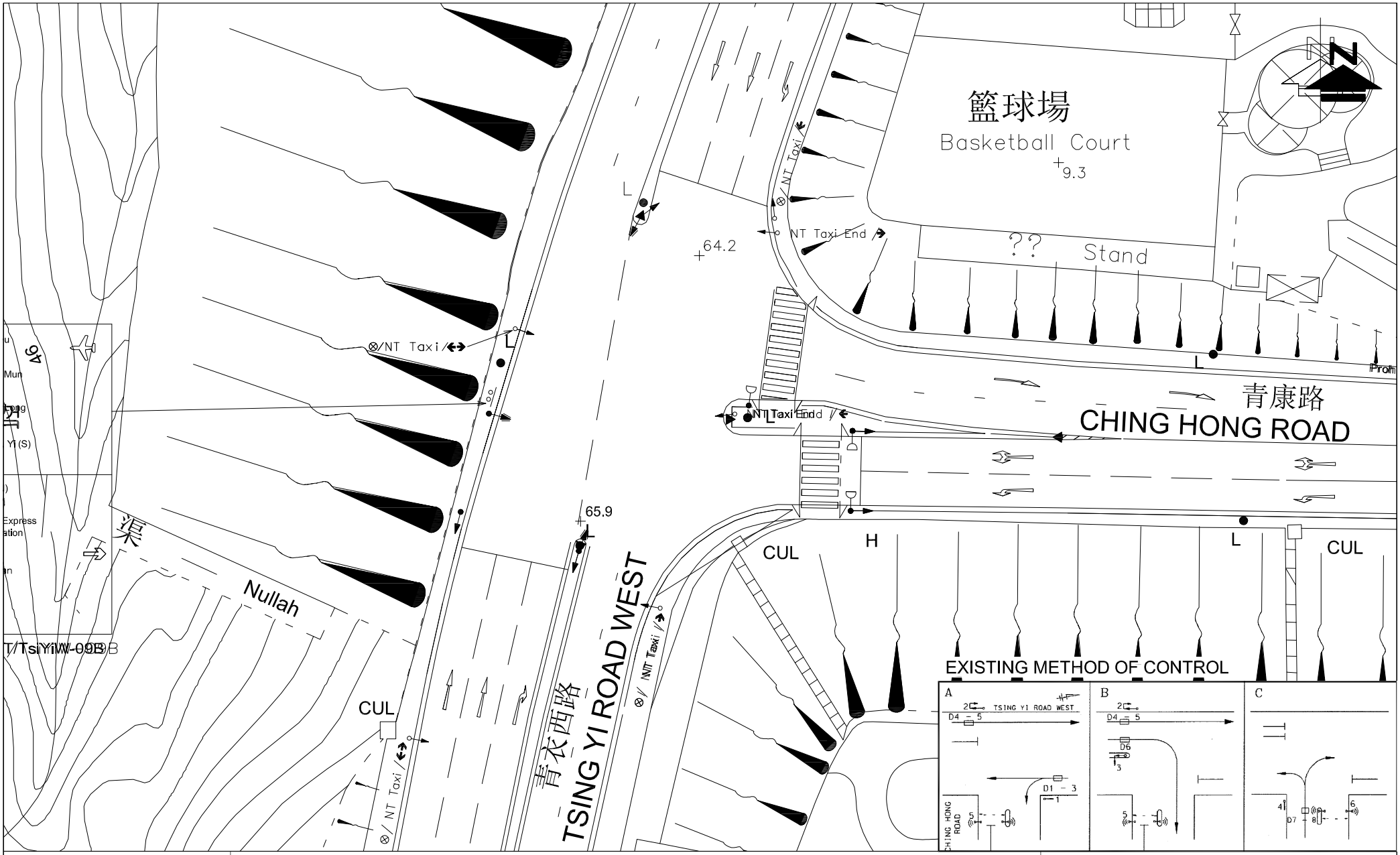

FIGURE NO.: 3.9	PROJECT TITLE: Concrete Batching Plant at Tsing Yi - Renewal Application A/TY/139
PROJECT NO.: 24002HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TSING YI ROAD WEST / CHING HONG ROAD (J8)
SCALE: 1 : 500 (IN A4 SIZE)	DATE: 11 JUN 2024

CTA Consultants Limited
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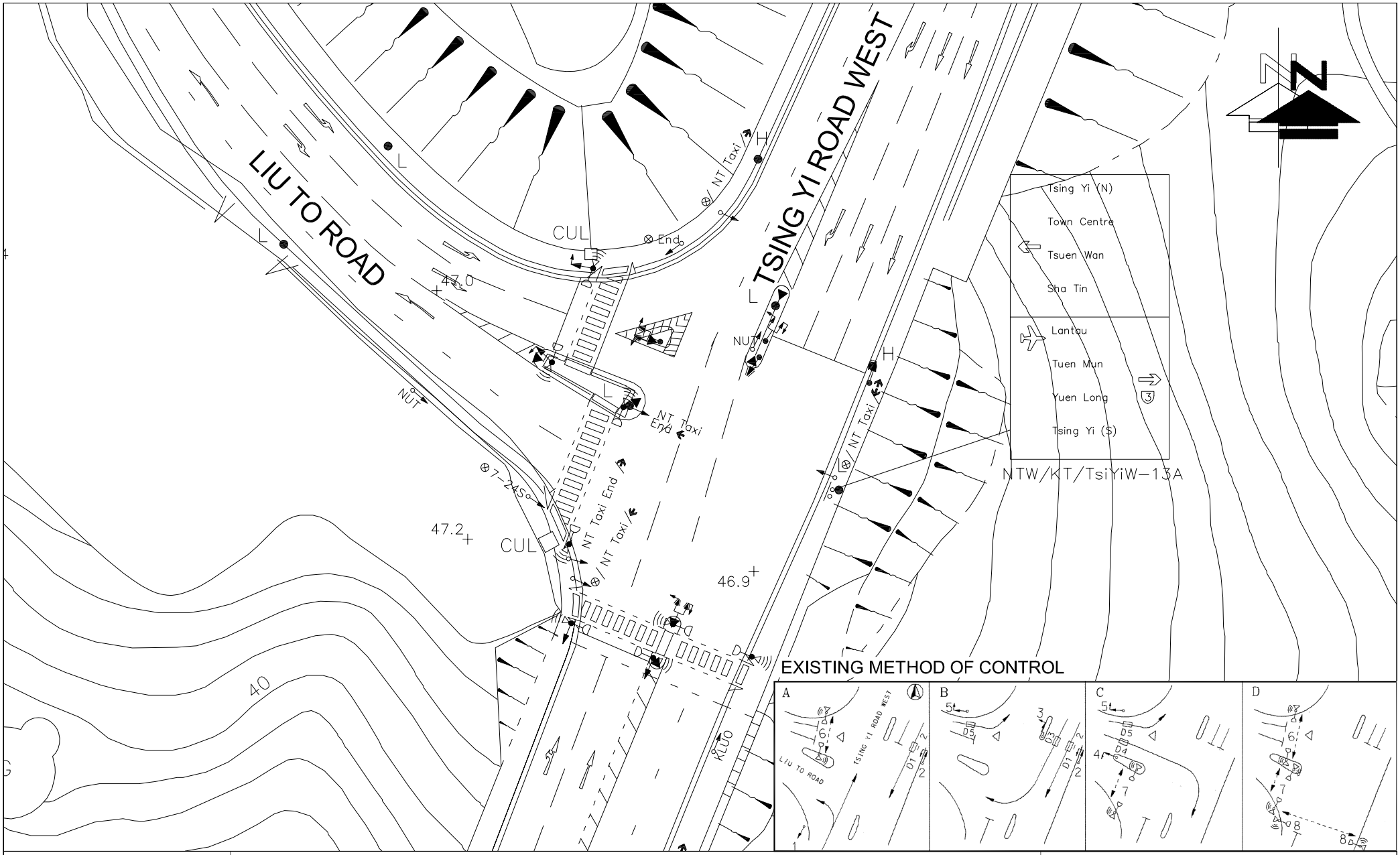

FIGURE NO.: 3.10	PROJECT TITLE: Concrete Batching Plant at Tsing Yi - Renewal Application A/TY/139	
PROJECT NO.: 24002HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TSING YI ROAD WEST / LIU TO ROAD (J9)	CTA Consultants Limited 志達顧問有限公司
SCALE: 1 : 500 (IN A4 SIZE)	DATE: 11 JUN 2024	

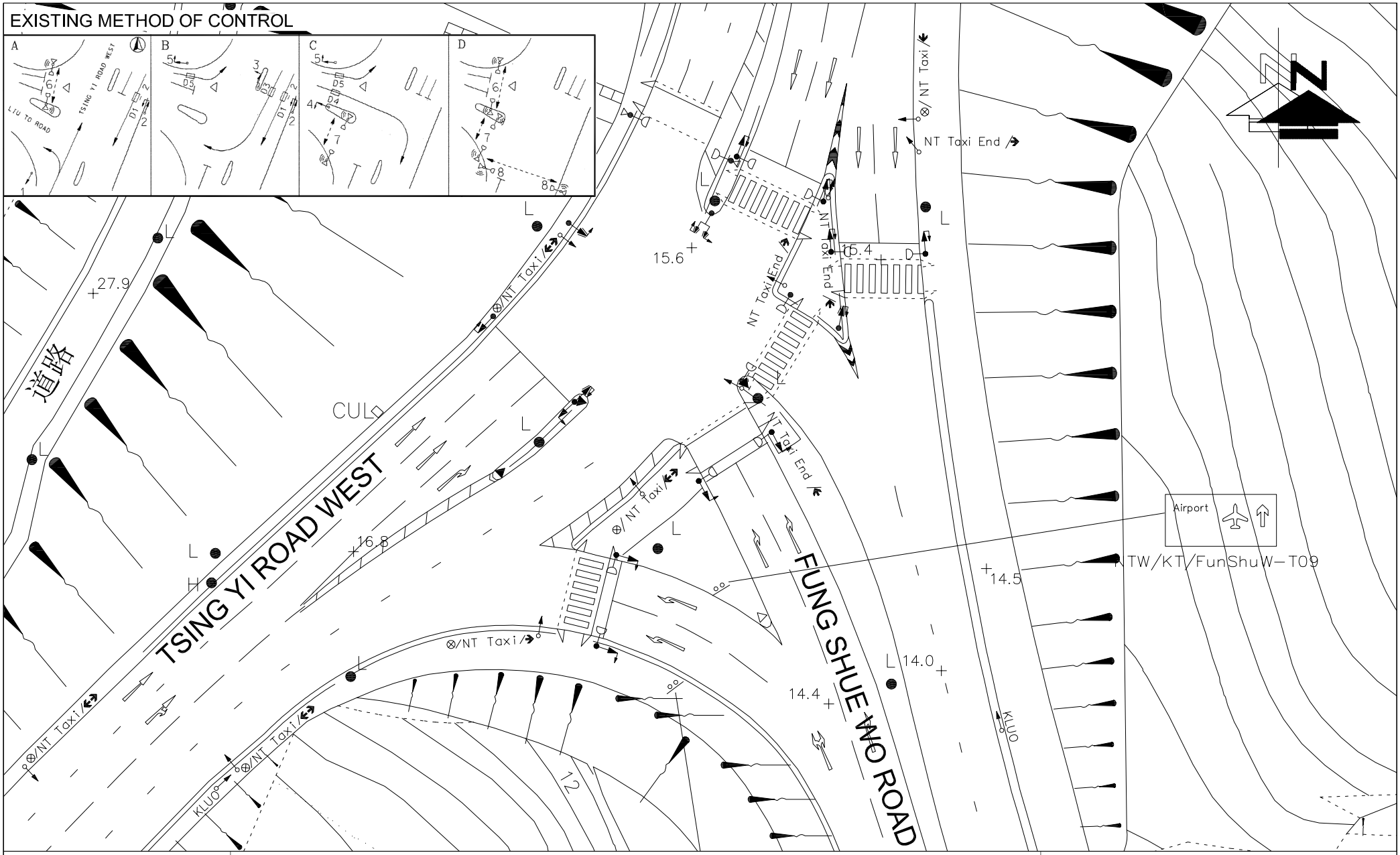

FIGURE NO.: 3.11	PROJECT TITLE: Concrete Batching Plant at Tsing Yi - Renewal Application A/TY/139		
PROJECT NO.: 24002HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TSING YI ROAD WEST / FUNG SHUE WO ROAD (J10)		
SCALE: 1 : 500 (IN A4 SIZE)	DATE: 11 JUN 2024		

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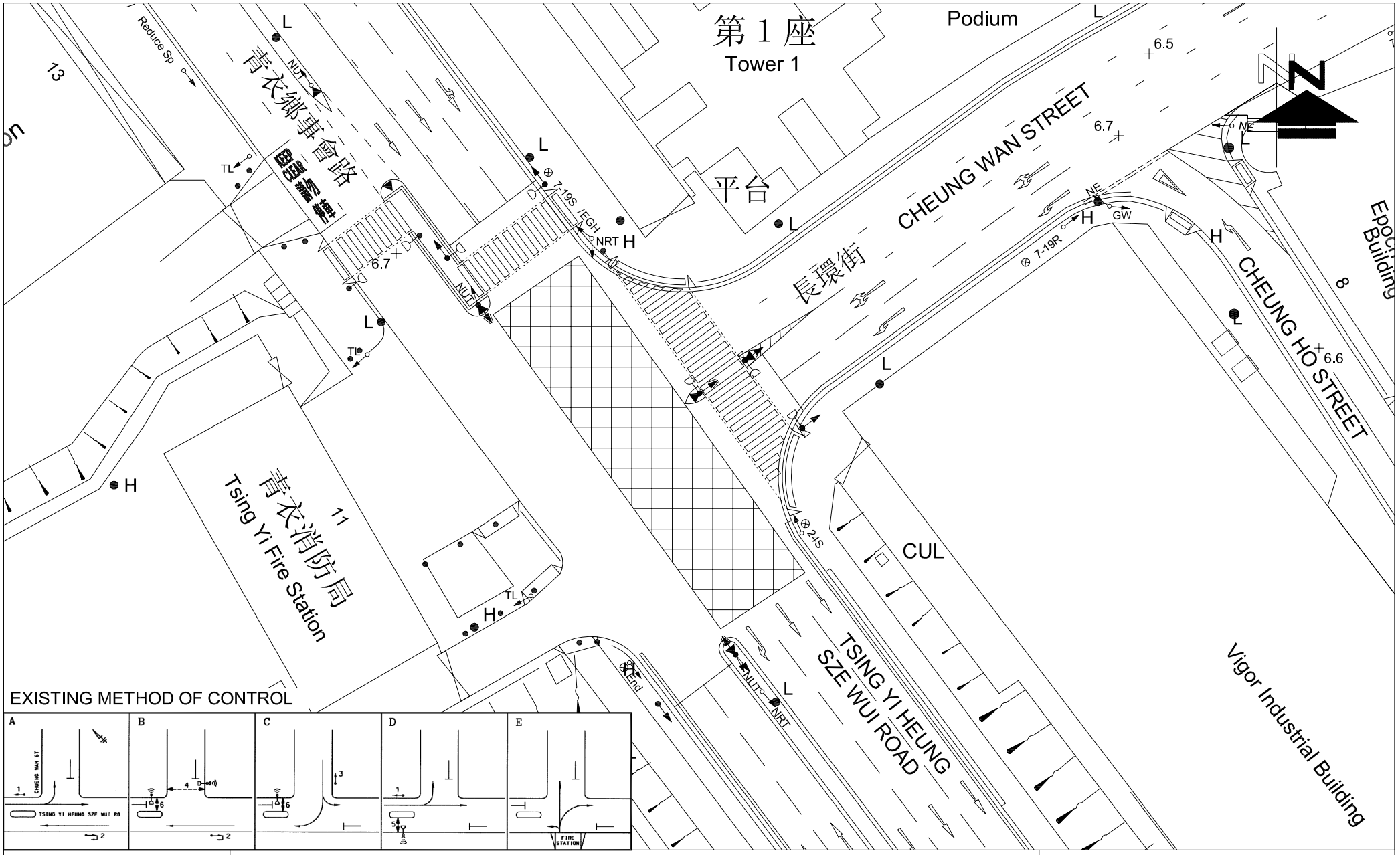

FIGURE NO.: 3.12	PROJECT TITLE: Concrete Batching Plant at Tsing Yi - Renewal Application A/TY/139
PROJECT NO.: 24002HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TSING YI HEUNG SZE WUI ROAD / CHEUNG WAN STREET (J11)
SCALE: 1 : 500 @A4	DATE: 11 JUN 2024

CTA Consultants Limited
志達顧問有限公司

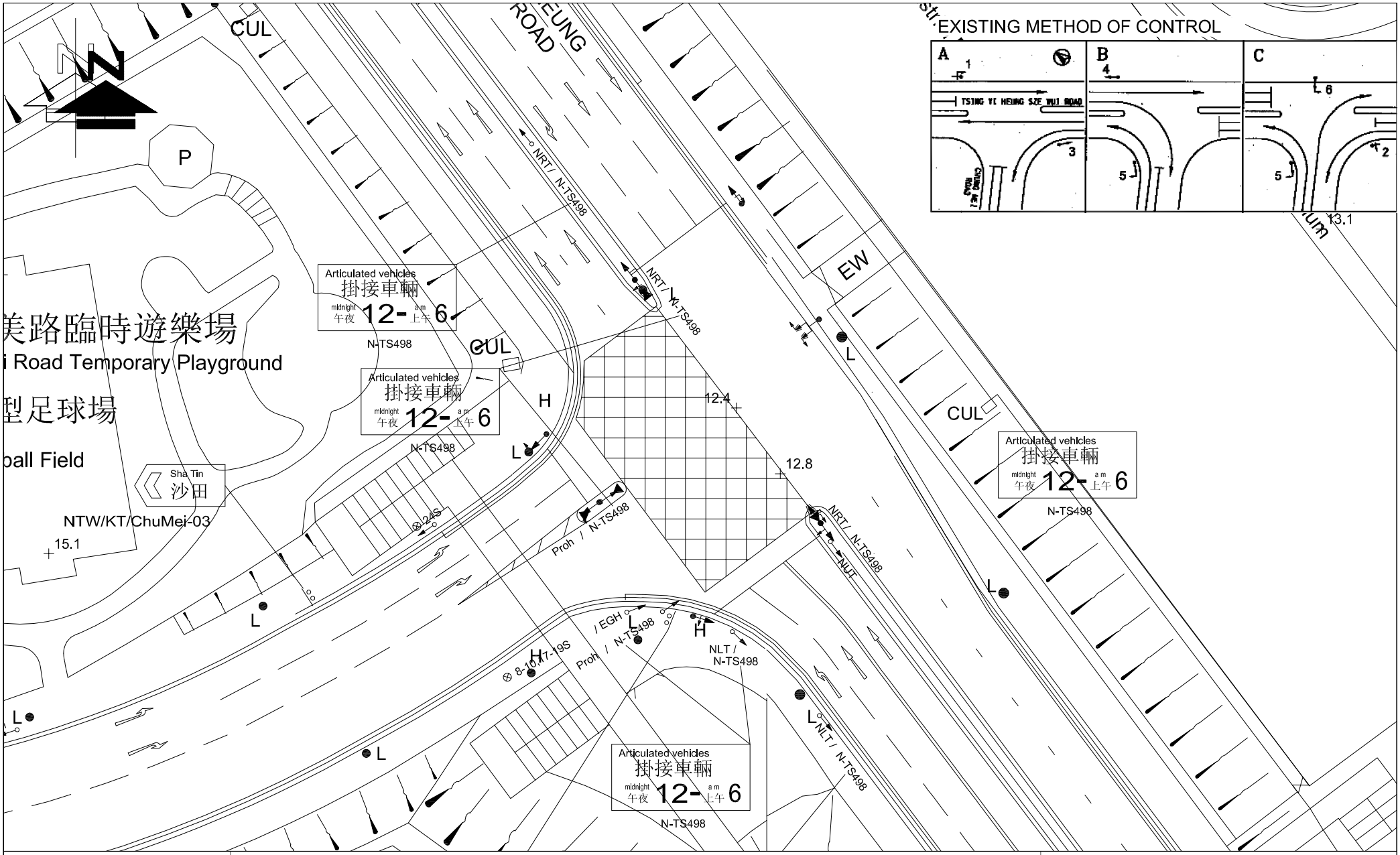

FIGURE NO.: 3.13	PROJECT TITLE: Concrete Batching Plant at Tsing Yi - Renewal Application A/TY/139	
PROJECT NO.: 24002HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TSING YI HEUNG SZE WUI ROAD / CHUNG MEI STREET (J12)	CTA Consultants Limited 志達顧問有限公司
SCALE: 1 : 500 @A4	DATE: 11 JUN 2024	

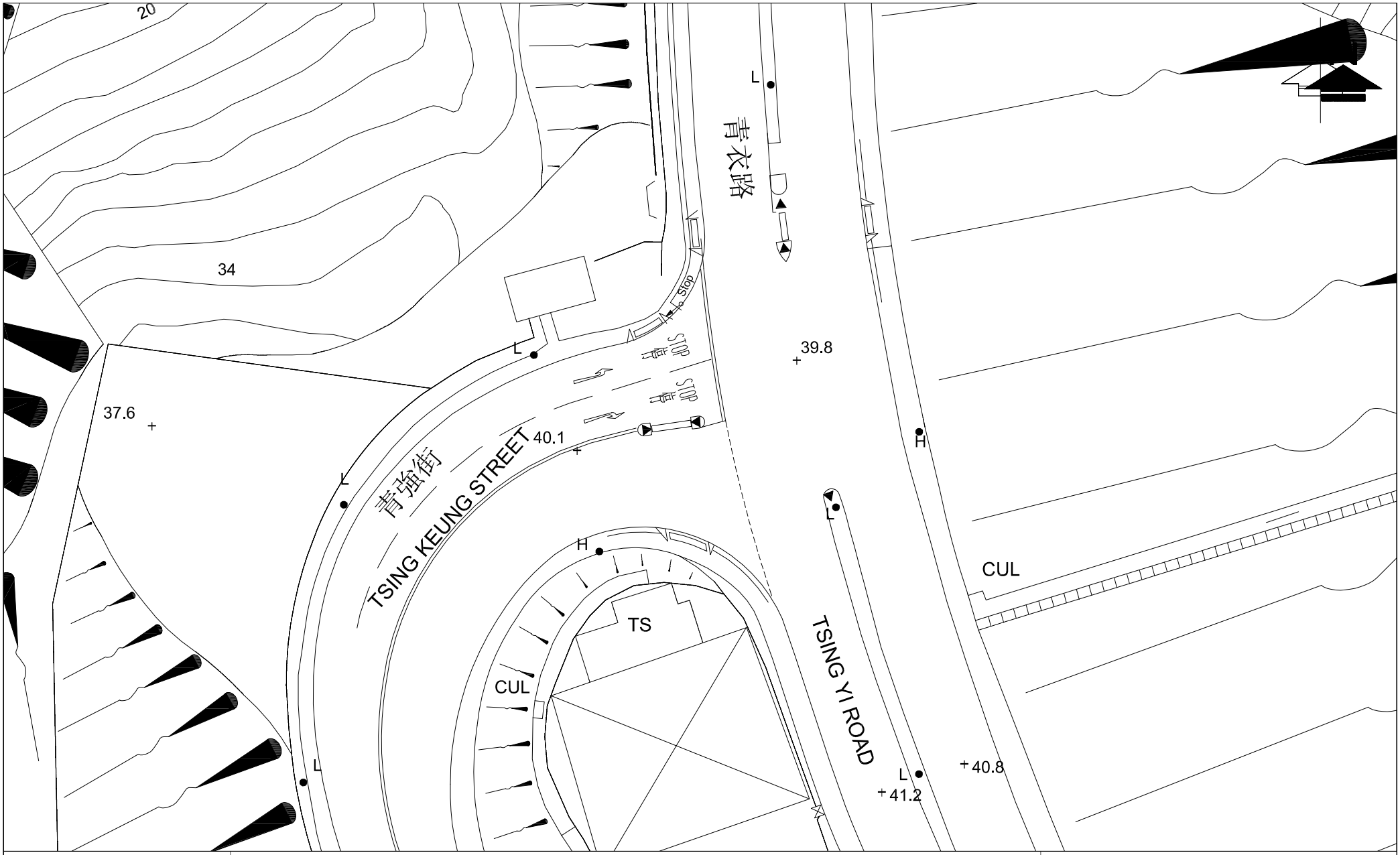

FIGURE NO.: 3.14	PROJECT TITLE: Concrete Batching Plant at Tsing Yi - Renewal Application A/TY/139	CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 24002HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TSING YIP ROAD / TSING KEUNG STREET (J13)	
SCALE: 1 : 500 (IN A4 SIZE) / DATE: 11 JUN 2024		

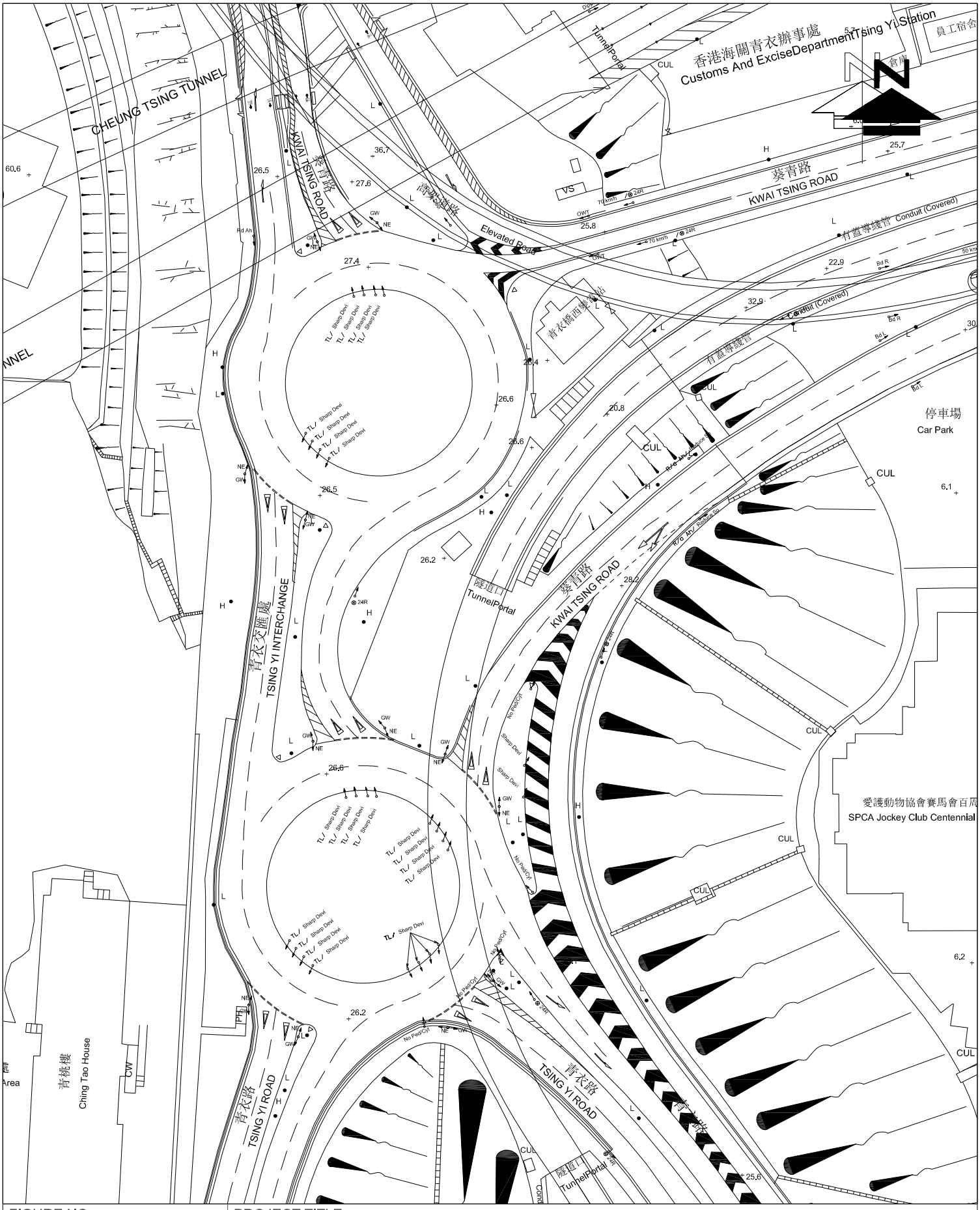

FIGURE NO.: 3.15	PROJECT TITLE: Concrete Batching Plant at Tsing Yi - Renewal Application A/TY/13 9
PROJECT NO.: 24002HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF SING YI INTERCHANGE (RA1)
SCALE: 1 : 1000 (IN A4 SIZE) / DATE: 11 JUN 2024	CTA Consultants Limited 志達顧問有限公司

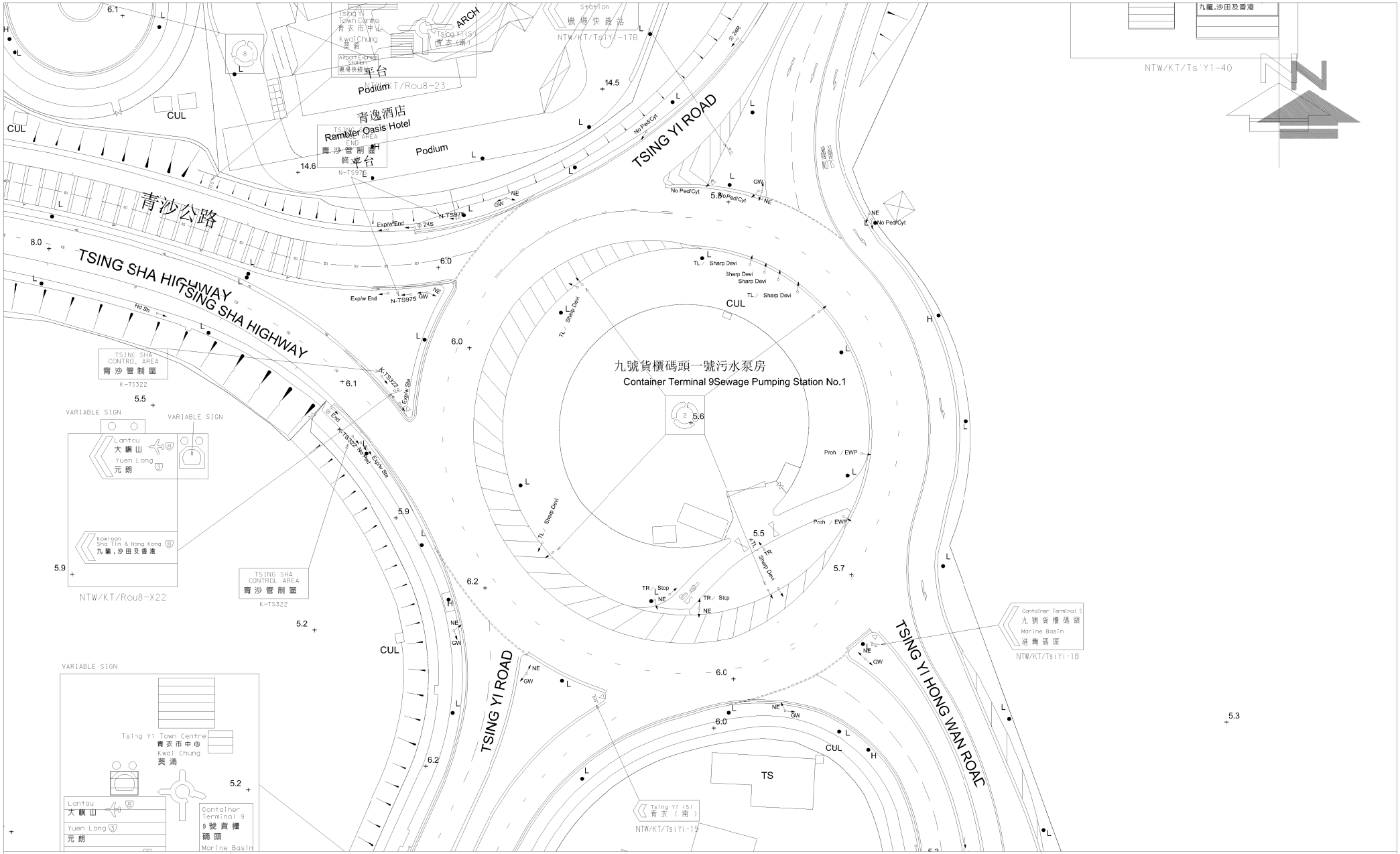

FIGURE NO.: 3.16	PROJECT TITLE: Concrete Batching Plant at Tsing Yi - Renewal Application A/TY/139
PROJECT NO.: 24002HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TSING YI ROAD WEST / TSING YI HONG WAN ROAD / TSING SHA HIGHWAY (RA2)
SCALE: 1 : 1000 (IN A4 SIZE)	DATE: 11 JUN 2024

CTA Consultants Limited
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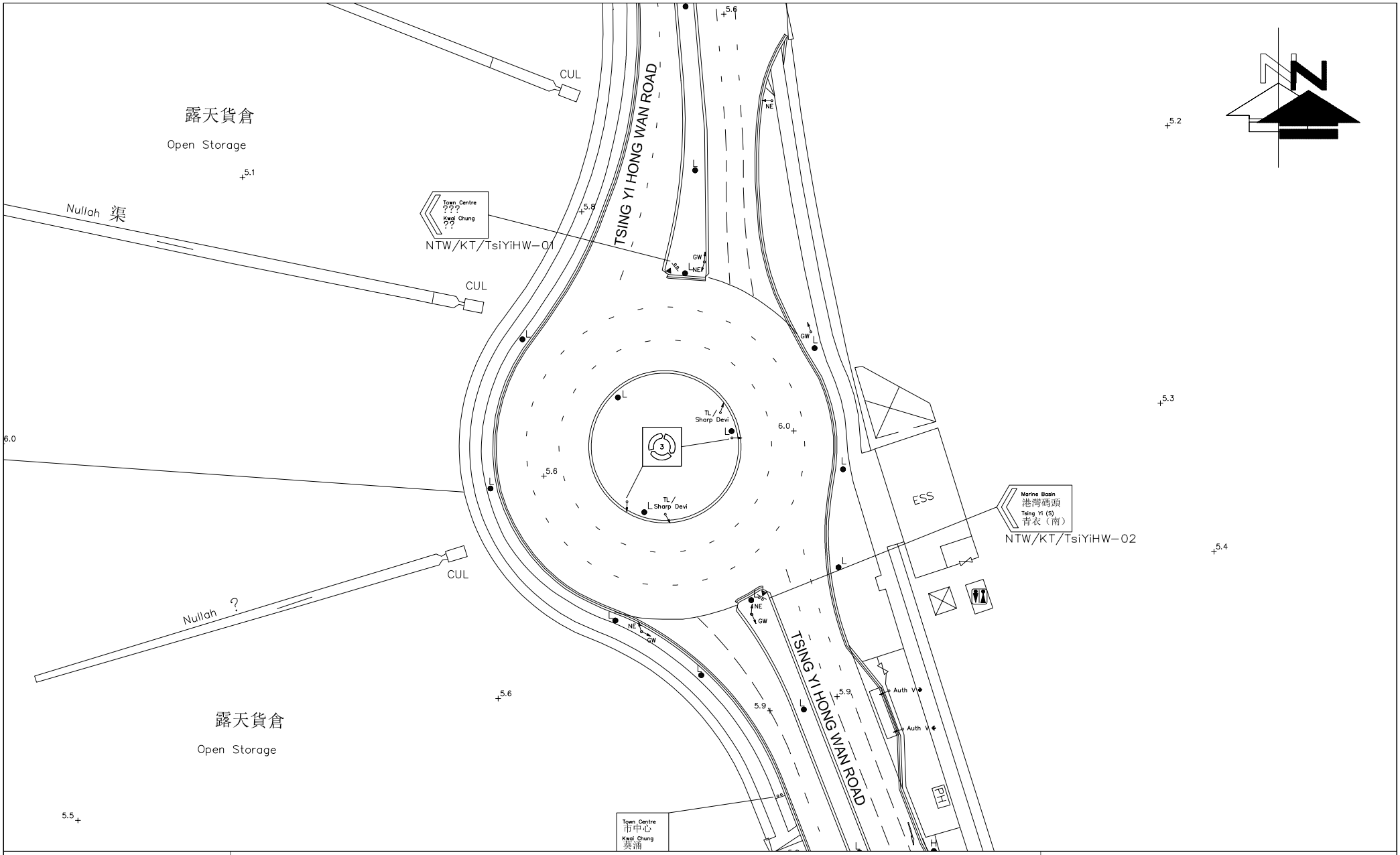

FIGURE NO.: 3.17	PROJECT TITLE: Concrete Batching Plant at Tsing Yi - Renewal Application A/TY/139	CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 24002HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TSING YI ROAD WEST / FUNG SHUE WO ROAD (RA3)	
SCALE: 1 : 1000 (IN A4 SIZE) / DATE: 11 JUN 2024		

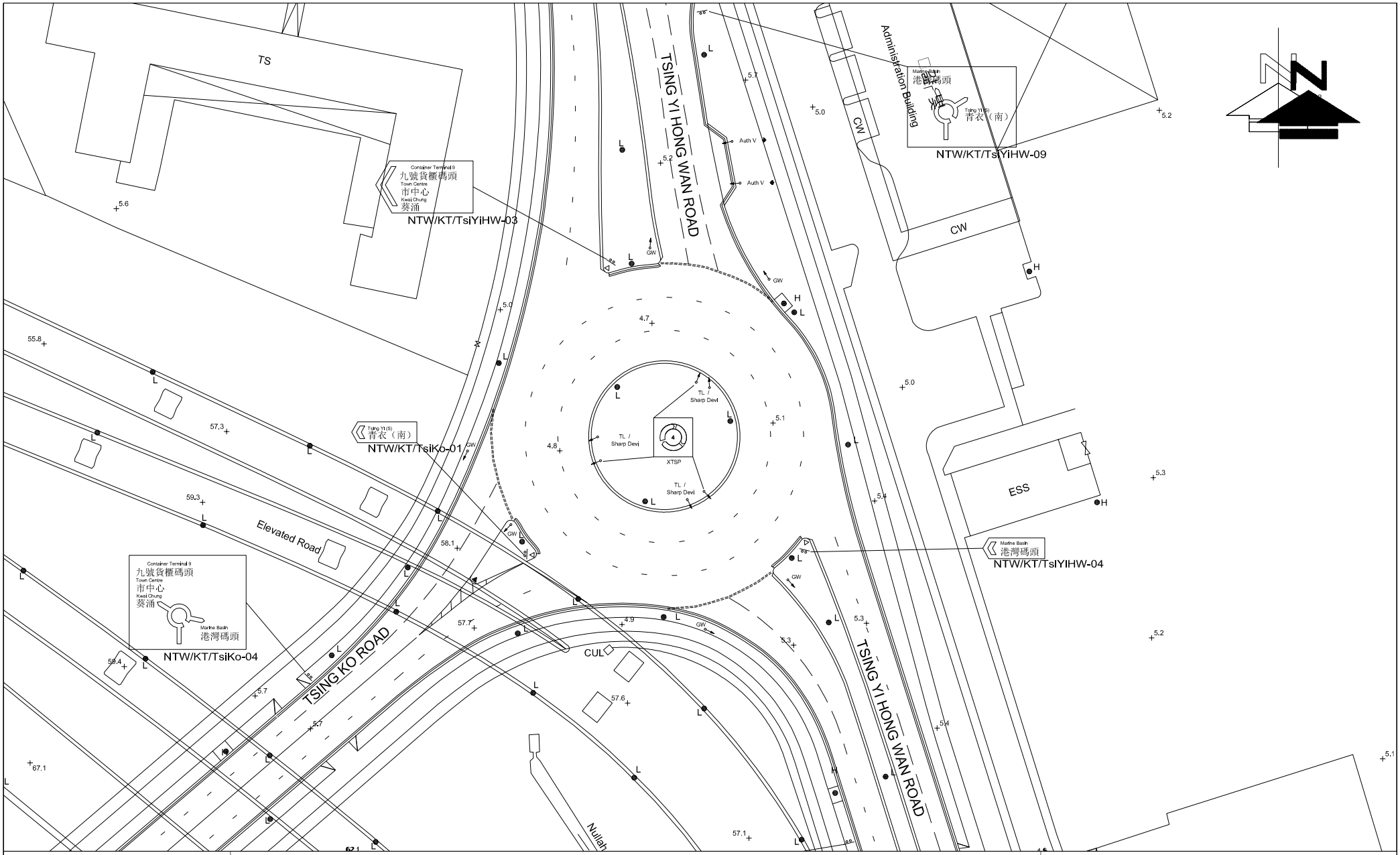

FIGURE NO.: 3.18		PROJECT TITLE: Concrete Batching Plant at Tsing Yi - Renewal Application A/TY/139	
PROJECT NO.: 24002HK		DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TSING YI HONG WAN ROAD / TSING KO ROAD (RA4)	CTA Consultants Limited 志達顧問有限公司
SCALE: 1 : 1000 (IN A4 SIZE)	DATE: 11 JUN 2024		

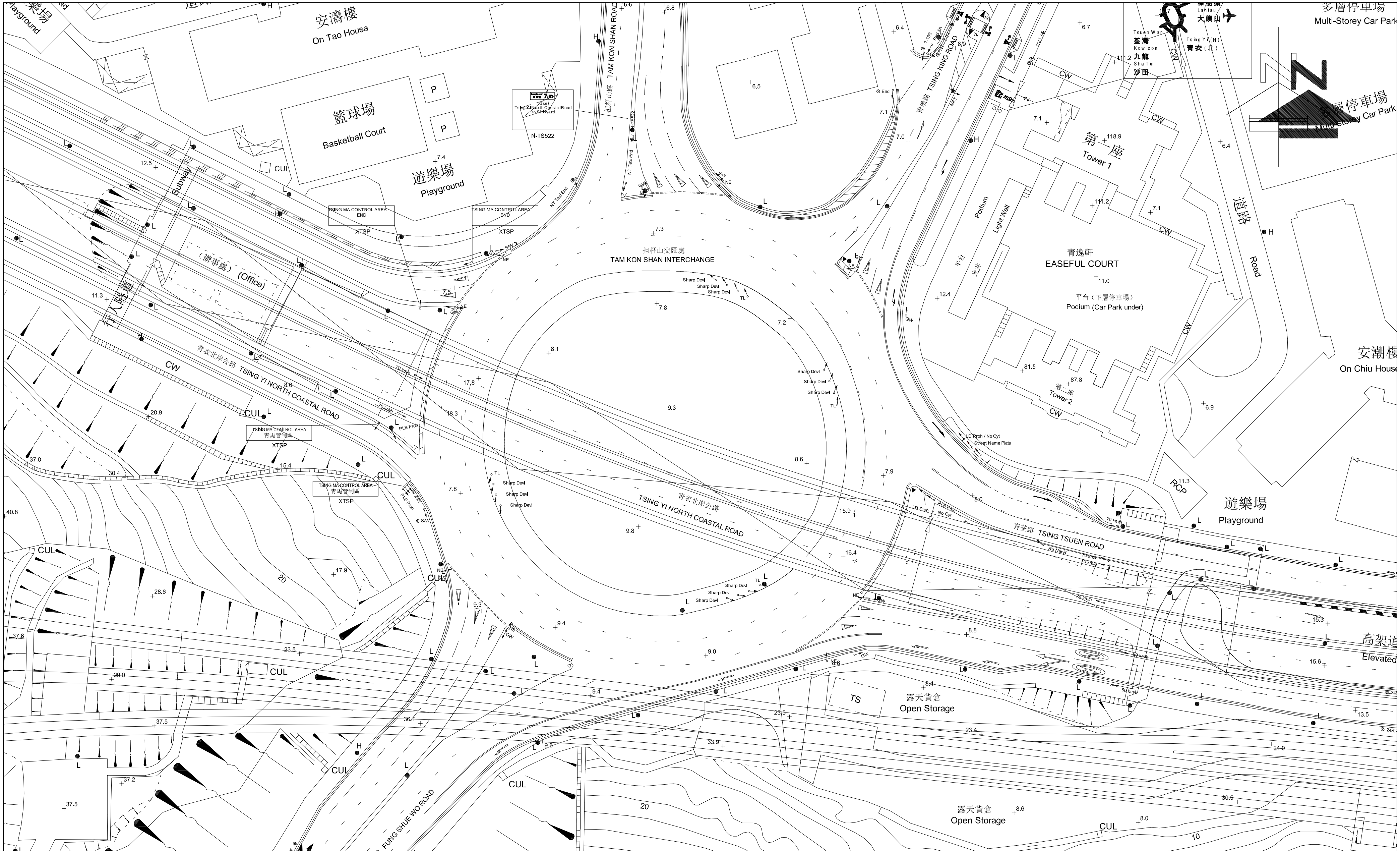

FIGURE NO.: 3.19	PROJECT TITLE: Concrete Batching Plant at Tsing Yi - Renewal Application A/TY/139	CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 24002HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TAM KON SHAN INTERCHANGE (RA5)	
SCALE: 1 : 1200 (IN A4 SIZE) — DATE: 11 JUN 2024		

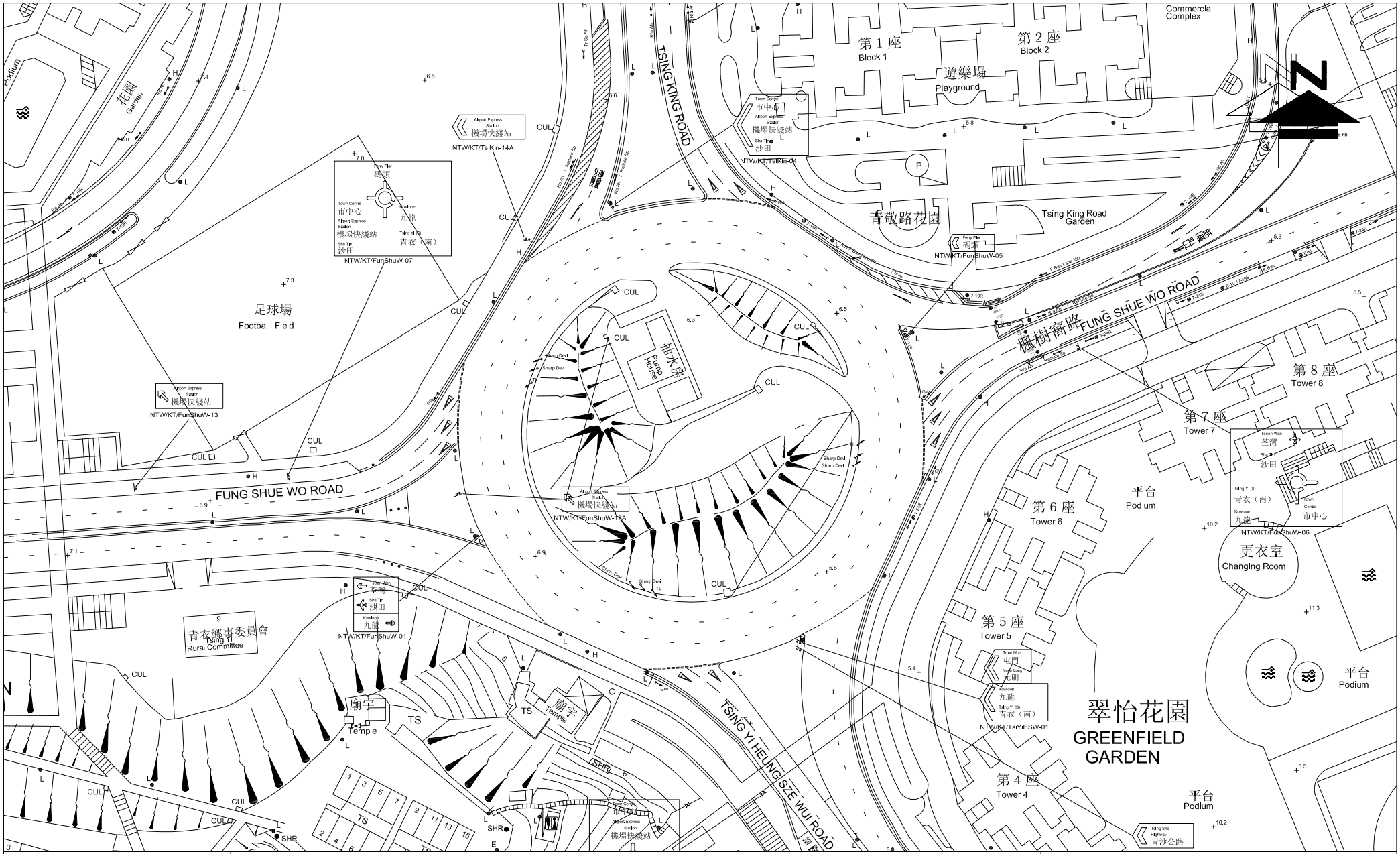

FIGURE NO.: 3.20	PROJECT TITLE: Concrete Batching Plant at Tsing Yi - Renewal Application A/TY/139	
PROJECT NO.: 24002HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TSING YI HEUNG SZE WUI ROAD / FUNG SHUE WO ROAD / TSING KING ROAD (RA6)	CTA Consultants Limited 志達顧問有限公司
SCALE: 1 : 1200 (IN A4 SIZE) / DATE: 11 JUN 2024		

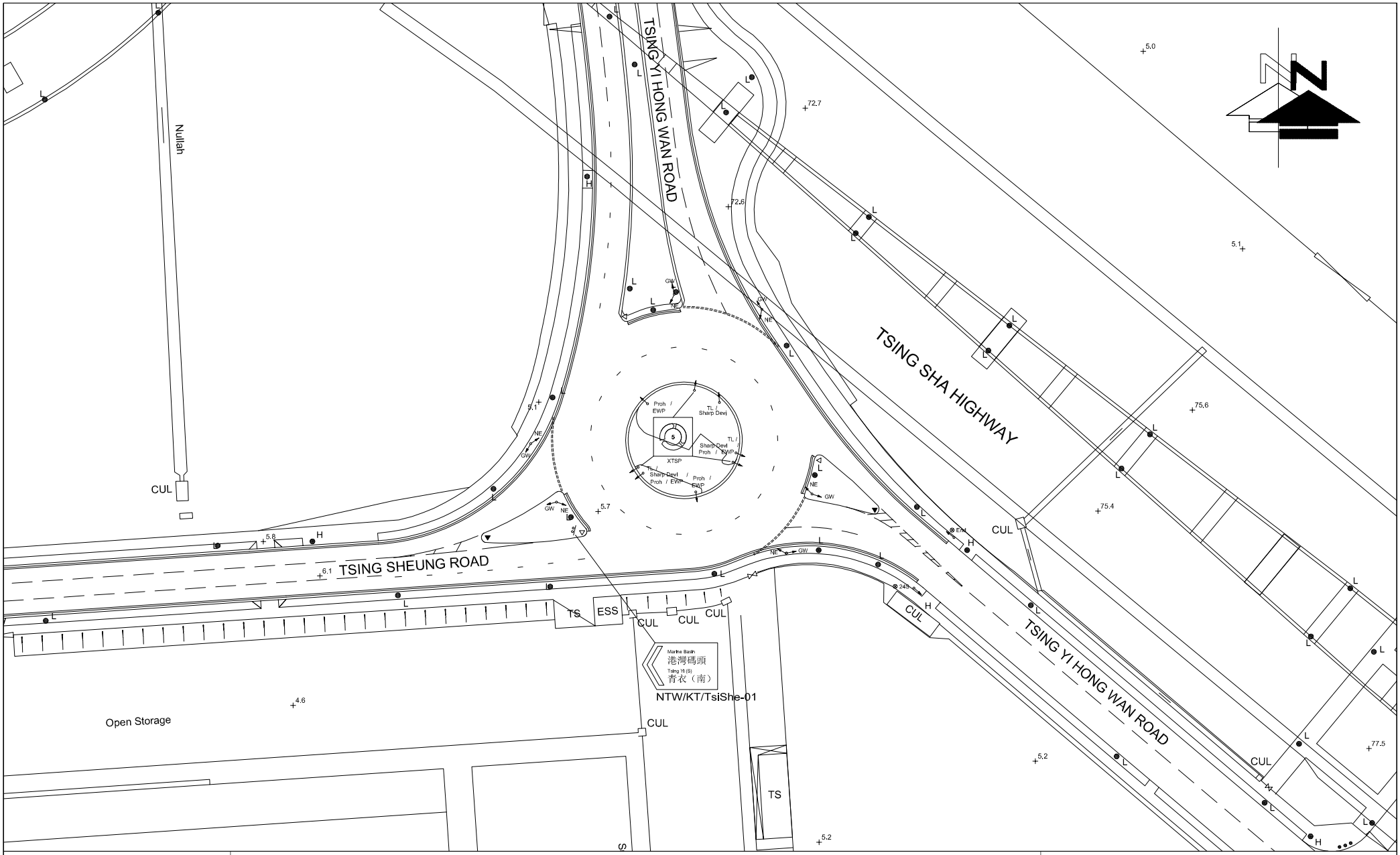

FIGURE NO.: 3.21	PROJECT TITLE: Concrete Batching Plant at Tsing Yi - Renewal Application A/TY/139	
PROJECT NO.: 24002HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TSING SHEUNG ROAD / TSING YI HONG WAN ROAD (RA7)	CTA Consultants Limited 志達顧問有限公司
SCALE: 1 : 1000 (IN A4 SIZE)	DATE: 11 JUN 2024	

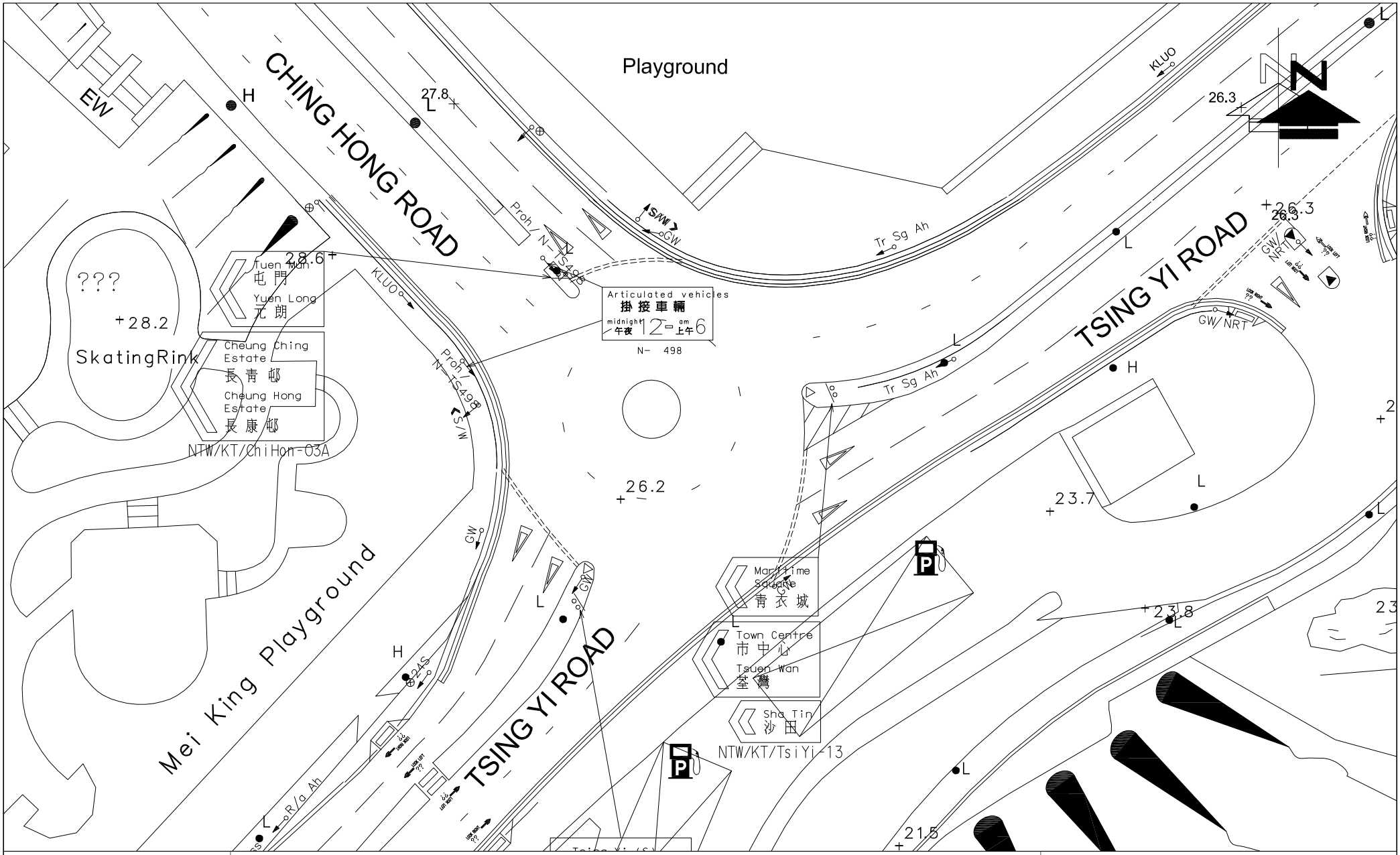

FIGURE NO.: 3.22	PROJECT TITLE: Concrete Batching Plant at Tsing Yi - Renewal Application A/TY/139	
PROJECT NO.: 24002HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF CHING HONG ROAD / TSING YI ROAD (RA8)	CTA Consultants Limited 志達顧問有限公司
SCALE: 1 : 500 (IN A4 SIZE)	DATE: 11 JUN 2024	

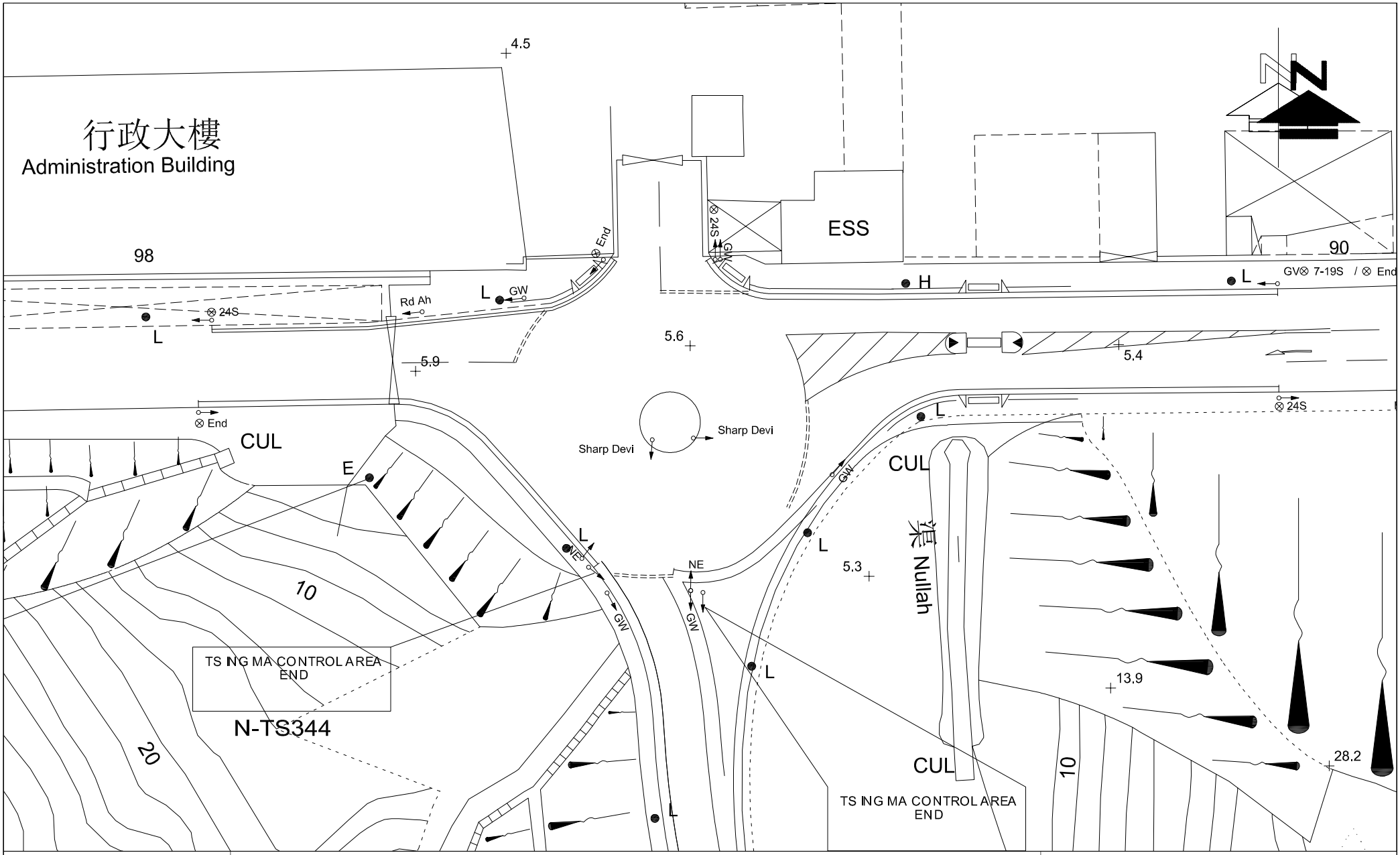

FIGURE NO.: 3.23	PROJECT TITLE: Concrete Batching Plant at Tsing Yi - Renewal Application A/TY/139
PROJECT NO.: 24002HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TAM KON SHAN ROAD / TSING YI NORTH COSTAL ROAD (RA9)
SCALE: 1 : 500 (IN A4 SIZE)	DATE: 11 JUN 2024

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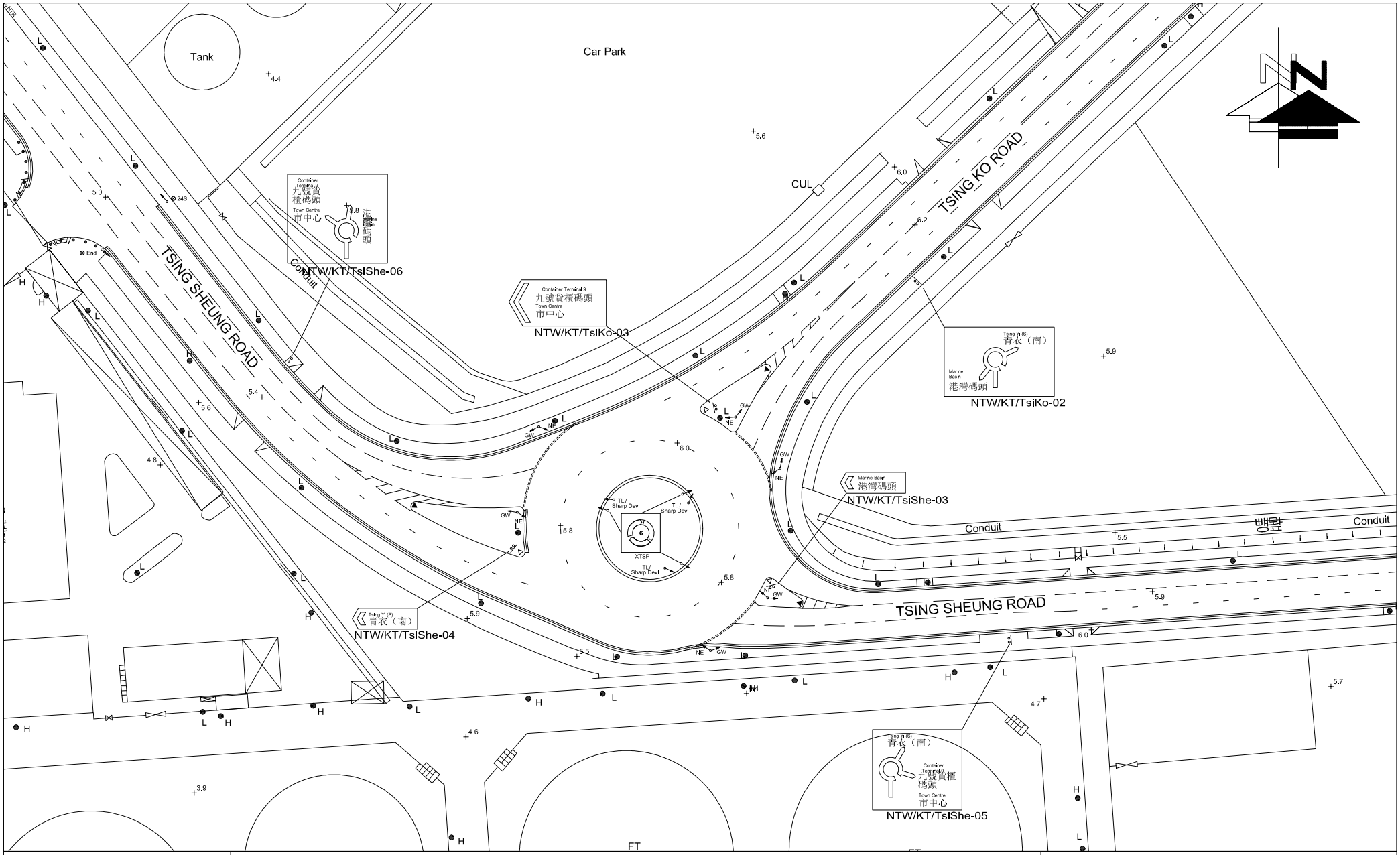

FIGURE NO.: 3.24	PROJECT TITLE: Concrete Batching Plant at Tsing Yi - Renewal Application A/TY/139	
PROJECT NO.: 24002HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TSING KO ROAD / TSING SHEUNG ROAD (RA10)	
SCALE: 1 : 1000 (IN A4 SIZE)	DATE: 11 JUN 2024	

CTA Consultants Limited
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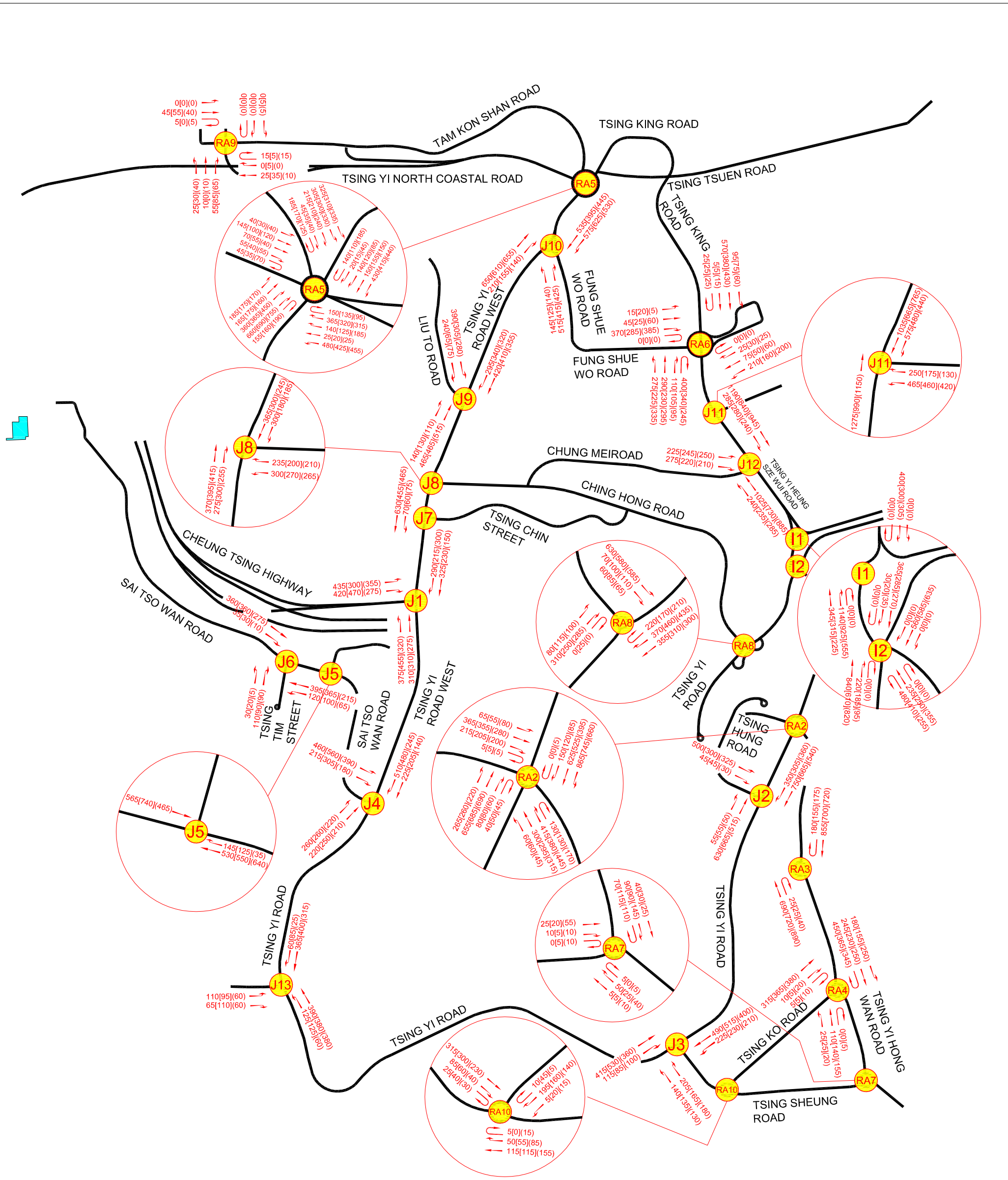


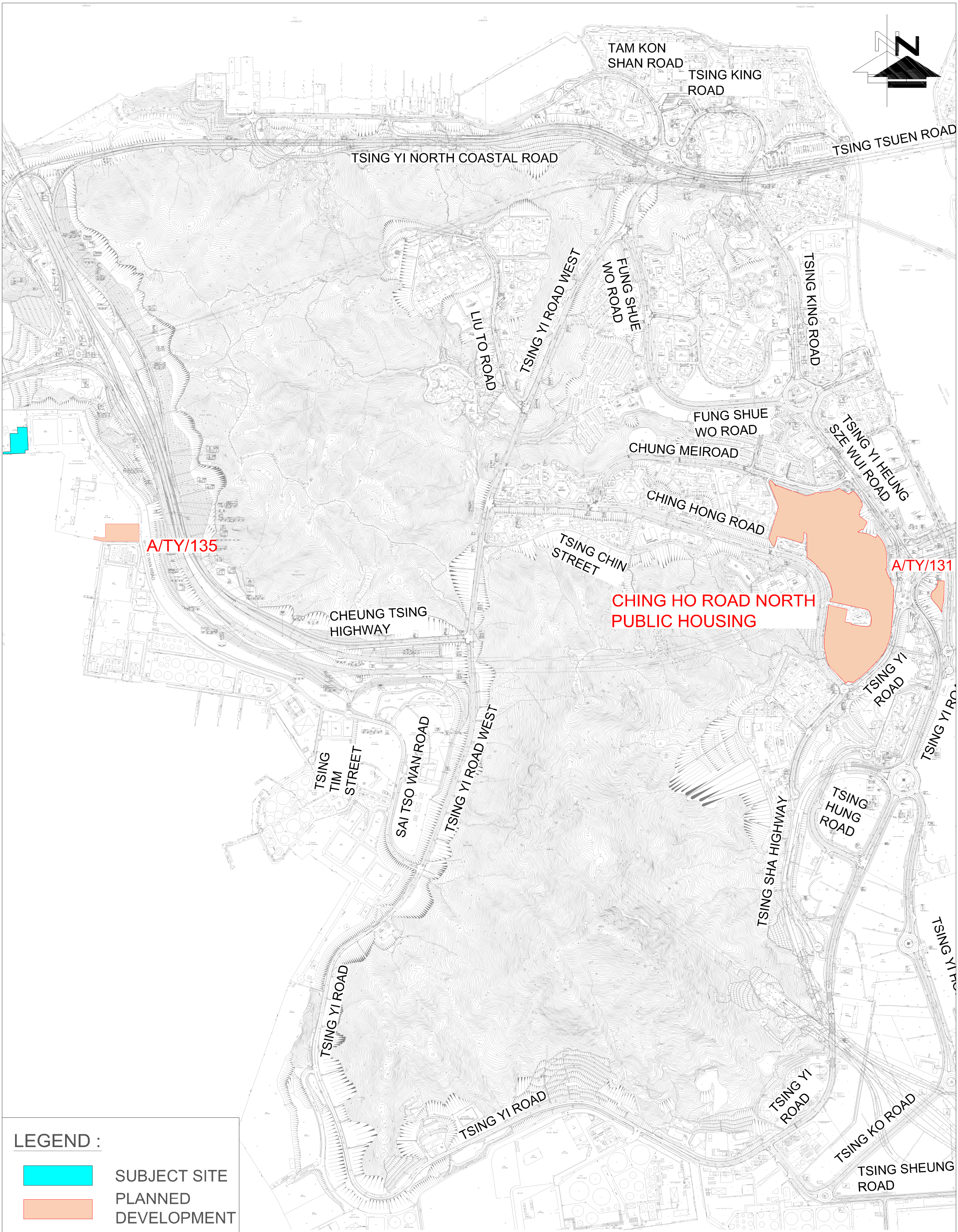
LEGEND :

SUBJECT SITE

530(500)[455] AM [LOGISTIC](PM) TRAFFIC FLOW (IN PCU / HR)

FIGURE NO.: 3.25	PROJECT TITLE: Concrete Batching Plant at Tsing Yi - Renewal Application A/TY/13 9
PROJECT NO.: 24002HK	DRAWING TITLE: 2024 OBSERVED TRAFFIC FLOW
SCALE: 1 : 13750 @ A3	DATE: 11 JUN 2024

CTA Consultants Limited 志達顧問有限公司



LEGEND :

- SUBJECT SITE
- PLANNED DEVELOPMENT

FIGURE NO.: 4.1	PROJECT TITLE: Concrete Batching Plant at Tsing Yi - Renewal Application A/TY/139
PROJECT NO.: 24002HK	DRAWING TITLE: PLANNED DEVELOPMENT IN VICINITY
SCALE: 1 : 11000 @A3	DATE: 02 MAY 2024

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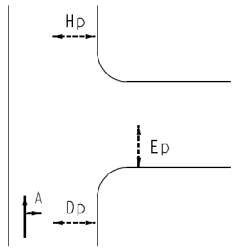
METHOD OF CONTROL

1.



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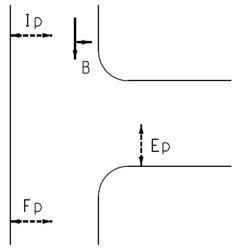

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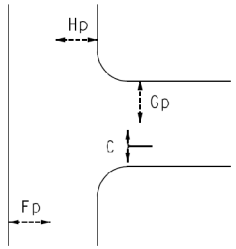


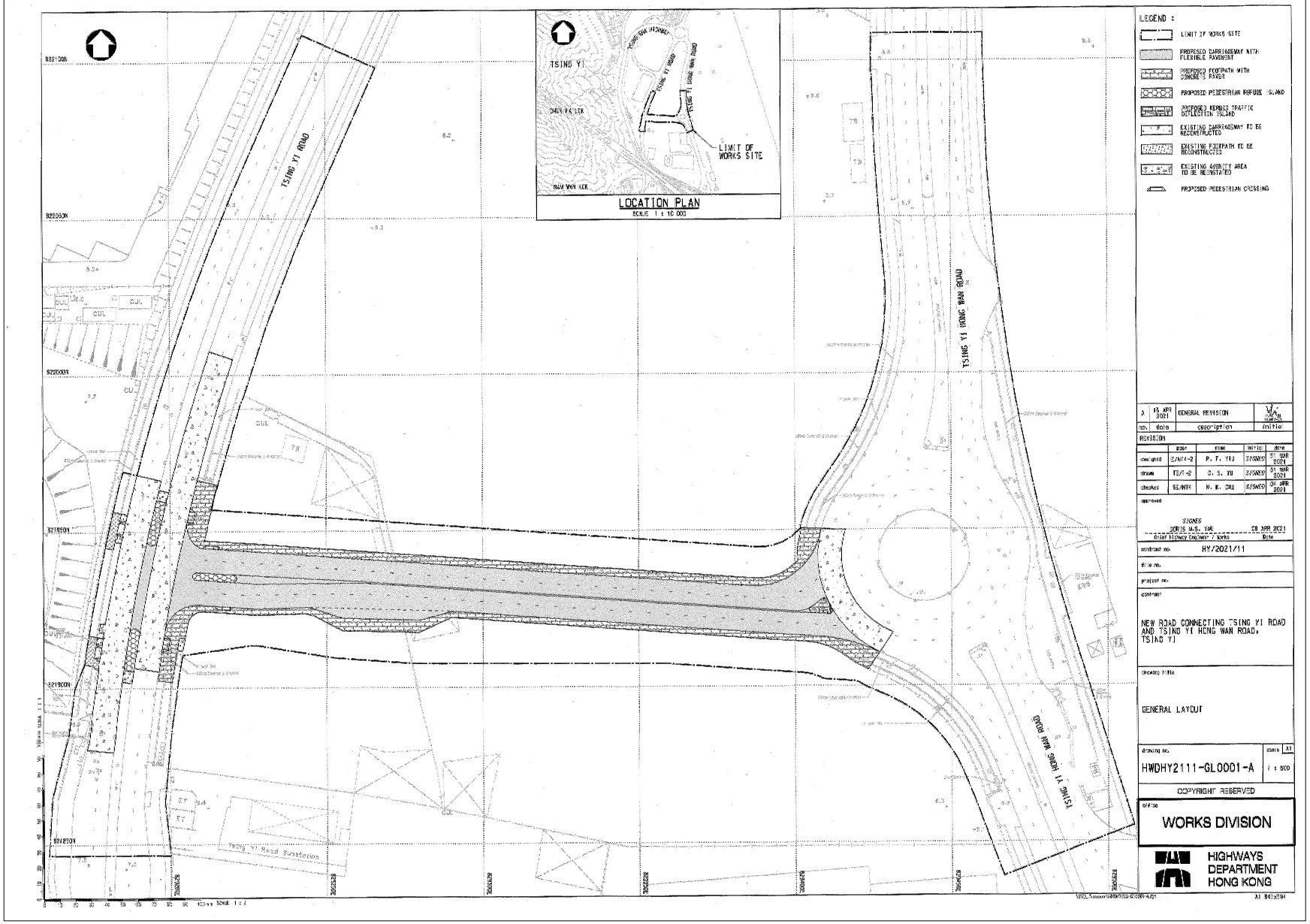
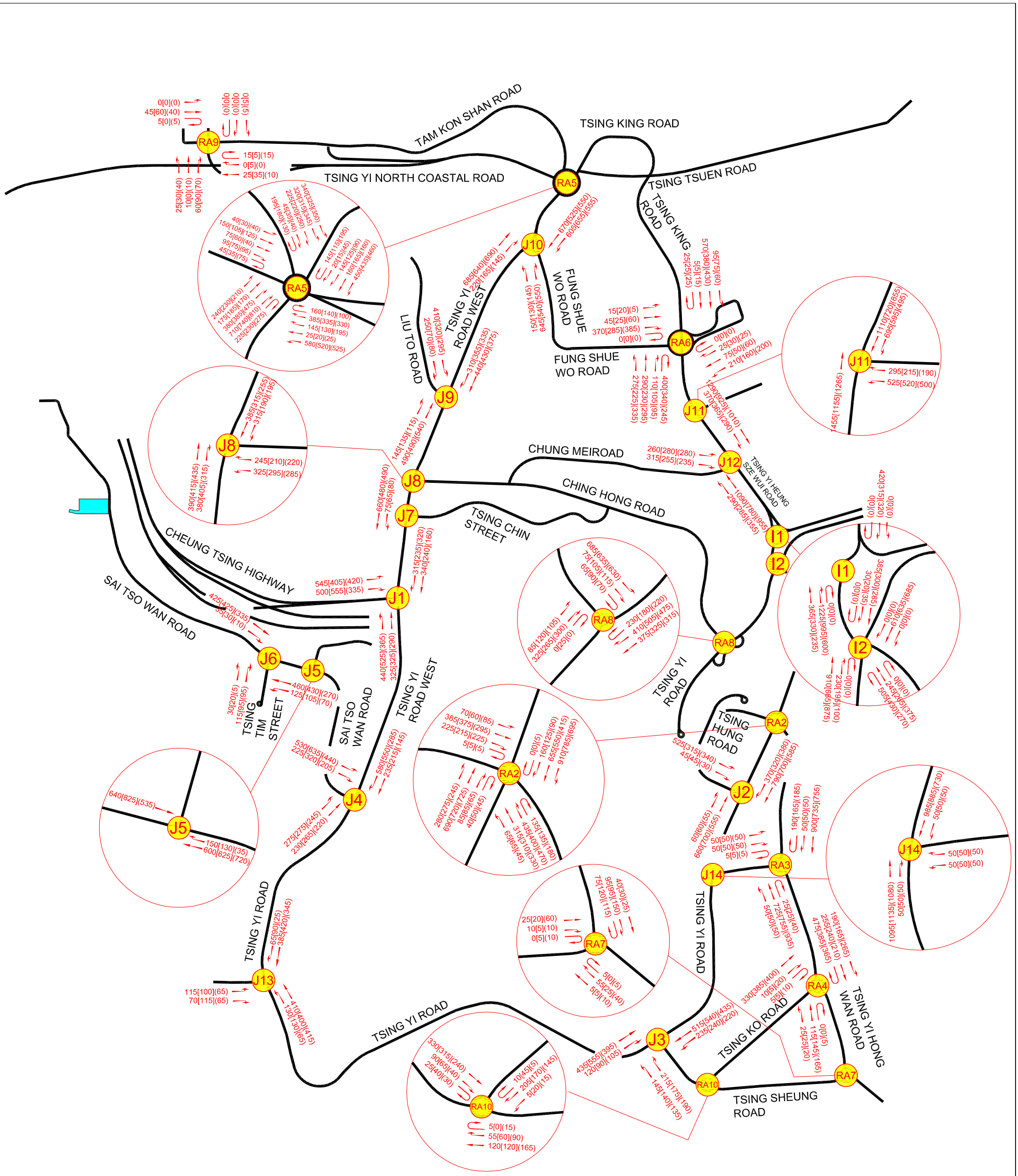


FIGURE NO.: 4.2	PROJECT TITLE: Concrete Batching Plant at Tsing Yi - Renewal Application A/TY/139	
PROJECT NO.: 24002HK	DRAWING TITLE: PLANNED JUNCTION LAYOUT OF NEW ROAD CONNECTING TSING YI HONG WAN ROAD AND TSING YI ROAD	
SCALE: N.T.S (IN A4 SIZE) / DATE: 11 JUN 2024		CTA Consultants Limited 志達顧問有限公司



LEGEND :

SUBJECT SITE

530(500)[455] AM [LOGISTIC](PM) TRAFFIC FLOW (IN PCU / HR)

FIGURE NO.: 5.1	PROJECT TITLE: Concrete Batching Plant at Tsing Yi - Renewal Application A/TY/13 9
PROJECT NO.: 24002HK	DRAWING TITLE: 2029 DESIGN TRAFFIC FLOW
SCALE: 1 : 13750 @ A3	DATE: 20 JUN 2024

CTA Consultants Limited 志達顧問有限公司

Appendix 1

Junction Calculation Sheets

TRAFFIC SIGNALS CALCULATION Job No: 24002HK **CTA Consultants Ltd.**

Junction: **(J1) Tsing Yi Road West / Cheung Tsing Highway**

Description: **2024 Observed Traffic Flow**

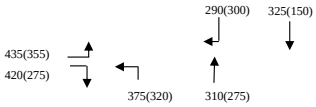
Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	(%) uphill Gradient	Nearside 0/1	Pro. Turning (%) A.M.	Pro. Turning (%) P.M.	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) A.M.	Revised Saturation Flow (pcu/hr) P.M.	Total Revised Saturation Flow (pcu/hr) A.M.	Total 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
Tsing Yi Road West	S		2	A	3.5	0	0	0	1	0%	0%	1965	6135	1965	1965	5905	5825	205	0.104	0.104	150	0.076	0.078
	S		2	A	3.3	0	20	0	0	43%	100%	2085	0	2020	1940	0	0	210	0.104		151	0.078	
	S		2	A	3.3	0	17.5	0	0	100%	100%	2085	0	1920	1920	0	0	200	0.104		149	0.078	
Cheung Tsing Highway	E		3	A,B	3.4	20	0	0	1	100%	100%	1955	1955	1820	1820	1820	1820	435	0.239		355	0.195	
	E		4	B	3.5	0	30	0	0	100%	100%	2105	4210	2005	2005	3990	3990	211	0.105		138	0.069	
			4	B	3.5	0	25	0	0	100%	100%	2105	0	1985	1985	0	0	209	0.105	0.105	137	0.069	0.069
Tsing Yi Road West	N		1	C	3.6	20	0	6.5	1	100%	100%	1702	3544	1585	1585	3425	3425	375	0.237	0.237	320	0.202	0.202
	N		1	C	3.6	0	0	6.5	0	0%	0%	1842	0	1840	1840	0	0	310	0.168		275	0.149	
																				*			*

Pedestrian crossing

5P	C	Min. Green time = 5GM + 10FG = 15s	
6P	C	Min. Green time = 5GM + 6FG = 11s	
7P	A,B	Min. Green time = 5GM + 9FG = 14s	
8P	B	Min. Green time = 5GM + 10FG = 15s	

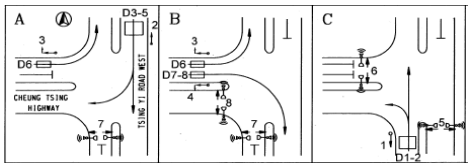
Notes:

Traffic Flow (pcu / hr)



	A.M. Check Phase A,B,C	A.M. Check Phase AB,C	P.M. Check Phase A,B,C	P.M. Check Phase AB,C
ey	0.446	0.476	0.349	0.397
L (sec)	13	9	13	9
C (sec)	100	100	105	105
y pract.	0.783	0.819	0.789	0.823
R.C. (%)	**76%**	**72%**	**126%**	**107%**

Stage / Phase Diagrams



I/G = 5	I/G = 5	I/G = 6

TRAFFIC SIGNALS CALCULATION Job No: 24002HK **CTA Consultants Ltd.**

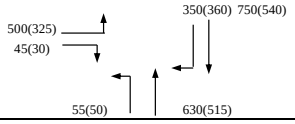
Junction: **(J2) Tsing Hung Road / Tsing Yi Road**

Description: **2024 Observed Traffic Flow**

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)		AM Peak			PM Peak		
						Left	Right		AM	PM			AM	PM	AM	PM	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Tsing Yi Road	S		1	A	3.5	0.0	0	1	0%	0%	1965	4070	1965	1965	4070	4070	362	0.184		261	0.133	
	S		1	A	3.5	0.0	0	0	0%	0%	2105	0	2105	2105	0	0	388	0.184		279	0.133	
	S		1	A	3.6	0.0	18	0	100%	100%	2115	2115	1950	1950	1950	1950	350	0.179		360	0.185	0.185
Tsing Yi Road	N		4	C	4.0	30.0	0	1	100%	100%	2015	2015	1920	1920	1920	1920	55	0.029		50	0.026	
	N		4	C	3.5	0.0	0	0	0%	0%	2105	4210	2105	2105	4210	4210	315	0.150	0.150	258	0.122	
	N		4	C	3.5	0.0	0	0	0%	0%	2105	0	2105	2105	0	0	315	0.150		258	0.122	0.122
Tsing Hung Road	E		2	A,B	3.3	25.0	0	1	100%	100%	1945	1945	1835	1835	1835	1835	500	0.272	0.272	325	0.177	
	E		3	B	4.0	0.0	22	0	100%	100%	2155	2155	2015	2015	2015	2015	45	0.022		30	0.015	
Pedestrian Crossing			5P	D		Min. Green time = 5GM + 7FG = 12s																
			6P	A,B,D		Min. Green time = 5GM + 5FG = 10s																
			7P	C,D		Min. Green time = 5GM + 10FG = 15s																
			8P	C,D		Min. Green time = 5GM + 5FG = 10s																

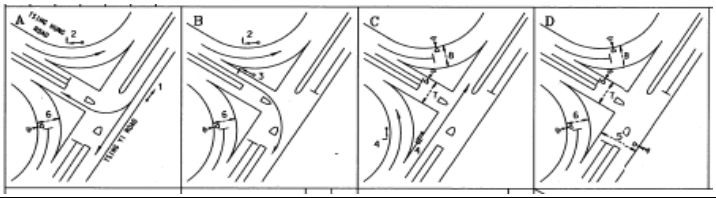
Notes:

Traffic Flow (pcu / hr) Weekday AM Peak



	AM Peak Check Phase			PM Peak Check Phase		
	A,B,C,D	AB,C,D		A,B,C,D	AB,C,D
εy	0.356	0.422	εy	0.307	0.299
L (sec)	33	22	L (sec)	33	22
C (sec)	120	120	C (sec)	100	100
y pract.	0.653	0.735	y pract.	0.603	0.702
R.C. (%)	**83%**	**74%**	R.C. (%)	**96%**	**134%**

Stage / Phase Diagrams



I/G = 2		I/G = 5	I/G = 5 + 12	
I/G = 2	I/G = 6 + Min. G 5	I/G = 5	I/G = 5 + 12	

TRAFFIC SIGNALS CALCULATION Job No: 24002HK **CTA Consultants Ltd.**

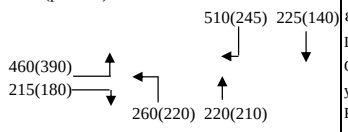
Junction: **(J4) Sai Tso Wan Road / Tsing Yi Road West / Tsing Yi Road**

Description: **2024 Observed Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		(%) uphill Gradient	Nearside 0/1	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	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
Tsing Yi Road	NE		1	A	4.5	15	0	6.5	1	100%	100%	1792	1792	1630	1630	260	0.160	0.160	220	0.135	0.135
	NE		1	A	3.4	0	0	6.5	0	0%	0%	1822	1822	1820	1820	220	0.121		210	0.115	
Sai Tso Wan Road	NW		3	C,D	3.8	15	0	0	1	100%	100%	1995	1995	1815	1815	460	0.253		390	0.215	
	NW		4	D	3.8	0	25	0	0	100%	100%	2135	2135	2015	2015	215	0.107	0.107	180	0.089	0.089
Tsing Yi Road West	SE		2	B,C	3.4	0	0	0	1	0%	0%	1955	1955	1955	1955	225	0.115		140	0.072	
	SE		2	B,C	3.7	0	25	0	0	100%	100%	2125	2125	2005	2005	510	0.254	0.254	245	0.122	0.122
Pedestrian crossing			5p	A,B		Min. Green time = 5GM + 8FG = 13s															
			6p	D		Min. Green time = 5GM + 10FG = 15s															
			7p	B,C		Min. Green time = 5GM + 9FG = 14s															
			8p	A,D		Min. Green time = 5GM + 7FG = 12s															

Notes:

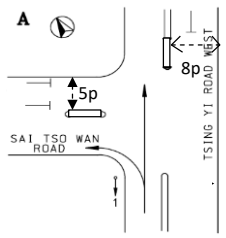
Traffic Flow (pcu / hr)



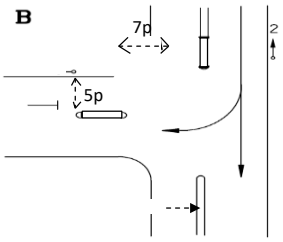
A.M. Check Phase	
εy	0.521
L (sec)	19
C (sec)	120
y pract.	0.758
R.C. (%)	**46%**

P.M. Check Phase	
εy	0.346
L (sec)	19
C (sec)	110
y pract.	0.745
R.C. (%)	**115%**

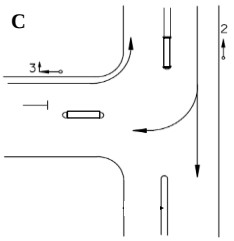
Stage / Phase Diagrams

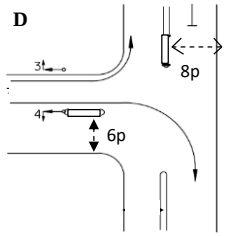


I/G = 7



I/G = 10





I/G = 5

TRAFFIC SIGNALS CALCULATION Job No: 24002HK **CTA Consultants Ltd.**

Junction: **(J5) Sai Tso Wan Road Near VEC**

Description: **2024 Observed Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Nearside 0/1	Pro. Turning (%) AM	Pro. Turning (%) PM	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	Total Revised Saturation Flow (pcu/hr) AM	Total Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Sai Tso Wan Road	EB	→	3	A	4.0	0.0	0	1	0%	0%	2015	2015	2015	2015	2015	2015	565	0.280	0.280	465	0.231	
Sai Tso Wan Road	WB	←	1	A,B	4.0	0.0	0	1	0%	0%	2015	2015	2015	2015	2015	2015	530	0.263		640	0.318	0.318
Sai Tso Wan Road	WB	↖	2	B,C	4.0	0.0	10	0	100%	100%	2155	2155	1875	1875	1875	1875	145	0.077	0.077	35	0.019	
Pedestrian Crossing		↕	4P	C																		

Green time = 13Gm + 5 FGm = 18s

Notes:
(None)

Traffic Flow (pcu / hr) AM (PM) Peak

565(465) →

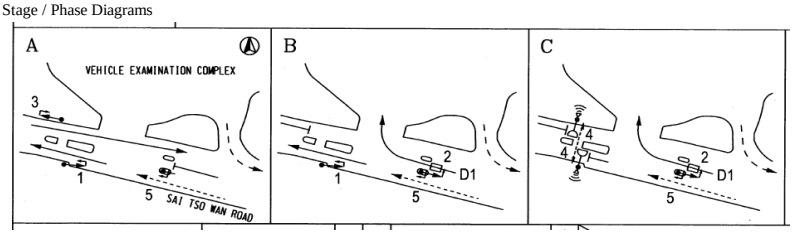
145(35) ↖

530(640) ←

	A,BC	AB,C
AM Peak Check Phase		
εy	0.358	0.263
L (sec)	11	25
C (sec)	91	91
y pract.	0.791	0.653
R.C. (%)	**121%**	**148%**

	A,BC	AB,C
PM Peak Check Phase		
εy	0.249	0.318
L (sec)	11	25
C (sec)	91	91
y pract.	0.791	0.653
R.C. (%)	**217%**	**106%**

Stage / Phase Diagrams



I/G = 6	I/G = 7		
I/G = 3	I/G = 7	I/G = 5 + Ped 18s	

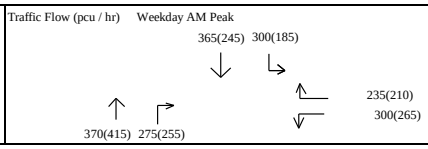
TRAFFIC SIGNALS CALCULATION Job No: 24002HK **CTA Consultants Ltd.**

Junction: **(J8) Tsing Yi Road West / Ching Hong Road**
Description: **2024 Observed Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	(%) uphill Gradient	Nearside 0/1	Pro. Turning (%) AM	Pro. Turning (%) PM	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	Total Revised Saturation Flow (pcu/hr) AM	Total Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Tsing Yi Road West	S	↓	1	A	3.0	0.0	0	5.5	0	0%	0%	1824	3698	1824	1824	3698	3698	180	0.099	0.197	121	0.066	0.121
	S	↓	1	A	3.5	0.0	0	5.5	0	0%	0%	1874	0	1874	1874	0	0	185	0.099		124	0.066	
	S	↳	1	A	3.7	10.0	0	5.5	1	100%	100%	1754	1754	1525	1525	1525	1525	300	0.197		185	0.121	
Tsing Yi Road West	N	↑	2	A,B	3.5	0.0	0	0	1	0%	0%	1965	4070	1965	1965	4070	4070	179	0.091		200	0.102	
	N	↑	2	A,B	3.5	0.0	0	0	0	0%	0%	2105	0	2105	2105	0	0	191	0.091		215	0.102	
	N	↱	3	B	3.3	0.0	18	0	0	100%	100%	2085	2085	1925	1925	1925	1925	275	0.143	0.143	255	0.132	0.132
Ching Hong Road	W	↰	4	C	3.4	18.0	20	0	0	16% / 84%	15% / 85%	2095	0	1945	1945	0	0	280	0.144	0.144	248	0.128	0.128
	W	↙	4	C	3.4	15.0	0	0	1	100%	100%	1955	4050	1775	1775	3720	3720	255	0.144		227	0.128	
Pedestrian crossing		↕	5P	A,B		Min. Green time = 11GM + 8FG = 19s																	
		✱	6P	C		Min. Green time = 5GM + 12FG = 17s																	

Notes:

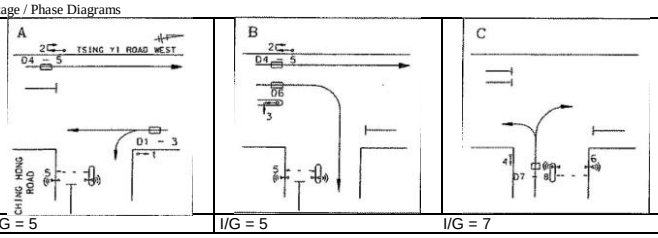
Traffic Flow (pcu / hr) Weekday AM Peak



AM Peak Check Phase	
εy	0.483
L (sec)	14
C (sec)	100
y pract.	0.774
R.C. (%)	**60%**

PM Peak Check Phase	
εy	0.382
L (sec)	14
C (sec)	100
y pract.	0.774
R.C. (%)	**103%**

Stage / Phase Diagrams



I/G = 5 I/G = 5 I/G = 7

TRAFFIC SIGNALS CALCULATION Job No: 24002HK **CTA Consultants Ltd.**

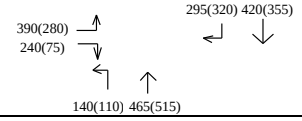
Junction: **(J9) Tsing Yi Road West / Liu To Road**

Description: **2024 Observed Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	(%) uphill Gradient	Nearside 0/1	Pro. Turning (%) AM	Pro. Turning (%) PM	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	Total Revised Saturation Flow (pcu/hr) AM	Total Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Tsing Yi Road West	S		2	A,B	3.3	0.0	0	5	1	0%	0%	1735	3610	1735	1735	3610	3610	202	0.116		171	0.098	
	S		2	A,B	3.3	0.0	0	5	0	0%	0%	1875	0	1875	1875	0	0	218	0.116		184	0.098	
	S		3	B	3.3	0.0	22	5	0	100%	100%	1875	1875	1755	1755	1755	1755	295	0.168	0.168	320	0.182	0.182
Tsing Yi Road West	N		1	A	3.2	10.0	0	0	1	51%	38%	1935	4100	1795	1830	3960	3995	274	0.153	0.153	286	0.156	0.156
	N		1	A	4.1	0.0	0	0	0	0%	0%	2165	0	2165	2165	0	0	331	0.153		339	0.156	
Liu To Road	E		5	B,C	3.2	10.0	0	0	1	100%	100%	1935	1935	1685	1685	1685	1685	390	0.231		280	0.166	
	E		4	C	4.1	0.0	18	0	0	100%	100%	2165	2165	2000	2000	2000	2000	240	0.120	0.120	75	0.038	0.038
Pedestrian crossing			6P	A,D		AM: Green time = 49GM + 9FG = 58s, PM: Green time = 46GM + 9FG = 55s																	
			7P	C,D		AM: Green time = 51GM + 13FG = 64s, PM: Green time = 28GM + 13FG = 41s																	
			8P	D		Green time = 10GM + 8FG = 18s																	
Pedestrian Crossing																							
														A,BC,D	A,B,C,D						A,BC,D	A,B,C,D	

Notes:

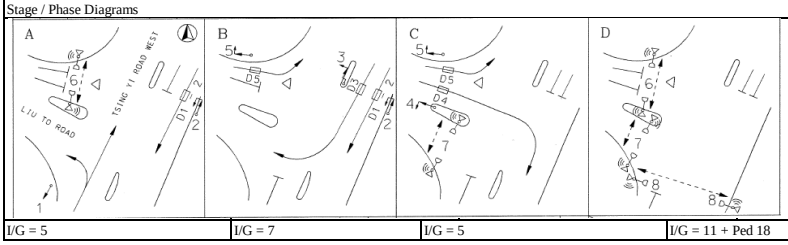
Traffic Flow (pcu / hr) Weekday AM Peak



AM Peak Check Phase		
εy	0.384	0.441
L (sec)	39	43
C (sec)	130	130
y pract.	0.630	0.602
R.C. (%)	**64%**	**37%**

PM Peak Check Phase		
εy	0.323	0.376
L (sec)	39	43
C (sec)	110	110
y pract.	0.581	0.548
R.C. (%)	**80%**	**46%**

Stage / Phase Diagrams



I/G = 5	I/G = 7	I/G = 5	I/G = 11 + Ped 18

TRAFFIC SIGNALS CALCULATION Job No: 24002HK **CTA Consultants Ltd.**

Junction: **(J10) Tsing Yi Road West / Fung Shue Wo Road**

Description: **2024 Observed Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	(%) uphill Gradient	Nearside 0/1	Pro. Turning (%) AM	Pro. Turning (%) PM	Site Factor	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	Total Revised Saturation Flow (pcu/hr) AM	Total Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Fung Shue Wo Road	S	↓	1	A,D	4.1	0.0	0	3	0	0%	0%	1	2039	4058	2039	2039	4058	4058	289	0.142	0.233	266	0.131	0.194
(To Tsing Yi Road West)	S	↓	1	A,D	3.9	0.0	0	3	0	0%	0%	1	2019	0	2019	2019	0	0	286	0.142		264	0.131	
Fung Shue Wo Road	S	↓	1	A,D	4.0	0.0	0	3	1	0%	0%	1	1889	2294.8	1889	1889	2294.8	2294.8	440	0.233		366	0.194	
(To Fung Shue Wo Road)	S	↓	1	A,D	4.0	0.0	0	3	0	0%	0%	0.2	405.8	0	405.8	405.8	0	0	95	0.233		79	0.194	
Tsing Yi Road West	N	↑	2	A,B	3.5	0.0	0	0	1	0%	0%	1	1965	2491.3	1965	1965	2491.25	2491.25	513	0.261		517	0.263	
	N	↑	2	A,B	3.5	0.0	0	0	0	0%	0%	0.25	526.25	0	526.25	526.25	0	0	137	0.261		138	0.263	
	N	↱	3	B	3.6	0.0	18	0	0	100%	100%	1	2115	2115	1950	1950	1950	1950	210	0.108	0.108	140	0.072	0.072
Fung Shue Wo Road	N	↰	4	C	3.8	35.0	0	3	1	100%	100%	1	1869	2193.6	1790	1790	2100	2100	124	0.069		119	0.067	
	N	↰	4	C	4.0	38.0	0	3	0	100%	100%	0.16	324.64	0	310	310	0	0	21	0.069		21	0.067	
Fung Shue Wo Road	N	↱	4	C	3.6	0.0	43	3	0	100%	100%	0.23	457.47	2446.5	440	440	2355	2355	96	0.219	0.219	79	0.180	0.180
	N	↱	4	C	3.6	0.0	40	3	0	100%	100%	1	1989	0	1915	1915	0	0	419	0.219		346	0.180	

Pedestrian crossing			
5p	D	Min. Green time = 5GM + 8FG = 13s	
6P	B,C	Min. Green time = 5GM + 8FG = 13s	
7P	A,C,D	Min. Green time = 5GM + 7FG = 12s	
8P	A,B,D	Min. Green time = 5GM + 8FG = 13s	

Notes:

Traffic Flow (pcu / hr) Weekday AM Peak

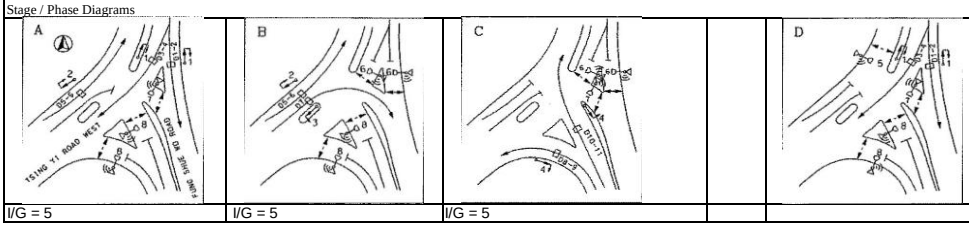
575(530) 535(445)

650(655) 210(140) 145(140) 515(425)

AM Peak Check Phase	
Σy	0.560
L (sec)	12
C (sec)	100
y pract.	0.792
R.C. (%)	**42%**

PM Peak Check Phase	
Σy	0.446
L (sec)	12
C (sec)	100
y pract.	0.792
R.C. (%)	**78%**

Stage / Phase Diagrams



I/G = 5 I/G = 5 I/G = 5

TRAFFIC SIGNALS CALCULATION Job No: 24002HK **CTA Consultants Ltd.**

Junction: **(J11) Tsing Yi Heung Sze Wui Road / Cheung Wan Street**

Description: **2024 Observed Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	(%) uphill Gradient	Nearside 0/1	Pro. Turning (%) AM	Pro. Turning (%) PM	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	Total Revised Saturation Flow (pcu/hr) AM	Total Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Tsing Yi Heung Sze Wui Road	N	↑	2	A,B	3.5	0.0	0	0	1	0%	0%	1965	4070	1965	1965	4070	4070	616	0.313		555	0.283	0.283
	N	↑	2	A,B	3.5	0.0	0	0	0	0%	0%	2105	0	2105	2105	0	0	659	0.313		595	0.283	
Cheung Wan Street	W	↰↓	3	C	3.5	18.0	20	0	0	33% / 67%	55% / 45%	2105	0	1955	1950	0	0	374	0.191	0.191	287	0.147	0.147
	W	↓	3	C	3.5	15.0	0	0	1	100%	100%	1965	4070	1785	1785	3740	3735	341	0.191		263	0.147	
Tsing Yi Heung Sze Wui Road	S	↓↱	1	A,D	3.5	10.0	0	0	1	100%	100%	1965	6175	1710	1710	5920	5920	575	0.336	0.336	440	0.257	
	S	↓	1	A,D	3.5	0.0	0	0	0	0%	0%	2105	0	2105	2105	0	0	518	0.246		398	0.189	
	S	↓	1	A,D	3.5	0.0	0	0	0	0%	0%	2105	0	2105	2105	0	0	518	0.246		398	0.189	
Pedestrian crossing		←--→	4P	B	AM: Green time = 12GM + 11FG = 23s, PM: Green time = 12GM + 11FG = 23s																		
		↕	5P	D	AM: Green time = 6GM + 8FG = 14s, PM: Green time = 10GM + 8FG = 18s																		
		↕	6P	B,C	AM: Green time = 45GM + 10FG = 55s, AM: Green time = 41GM + 10FG = 51s																		
																			AB,C,D	AD,B,C		AB,C,D	AD,B,C

Notes:

Traffic Flow (pcu / hr) Weekday AM Peak

1035(795) 575(440)

250(130)

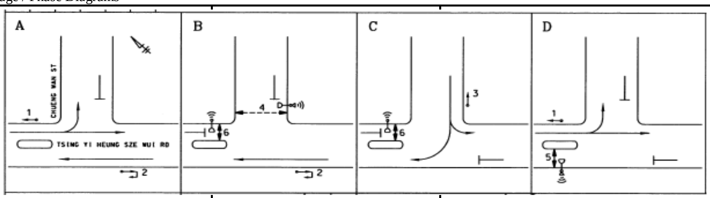
465(420)

1275(1150)

AM Peak Check Phase		
εy	0.505	0.528
L (sec)	31	37
C (sec)	114	114
y pract.	0.655	0.608
R.C. (%)	**30%**	**15%**

PM Peak Check Phase		
εy	0.430	0.405
L (sec)	35	37
C (sec)	100	100
y pract.	0.585	0.567
R.C. (%)	**36%**	**40%**

Stage / Phase Diagrams



	I/G = 8 + Ped 23	I/G = 3	I/G = 5
I/G = 2		I/G = 5	I/G = 12 + Ped 18

TRAFFIC SIGNALS CALCULATION Job No: 24002HK **CTA Consultants Ltd.**

Junction: **(J12) Tsing Yi Heung Sze Wui Road / Chung Mei Road**
Description: **2024 Observed Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		(%) uphill Gradient	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)		AM Peak			PM Peak		
						Left	Right			AM	PM			AM	PM	AM	PM	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Chung Mei Road	E		5	B,C	3.3	10.0	0	0	1	100%	100%	1945	1945	1690	1690	1690	1690	225	0.133		250	0.148	
	E		6	C	3.3	0.0	18	0	0	100%	100%	2085	2085	1925	1925	1925	1925	275	0.143	0.143	210	0.109	0.109
Tsing Yi Heung Sze Wui Road	N		2	A,C	3.3	25.0	0	0	1	100%	100%	1945	1945	1835	1835	1835	1835	240	0.131		285	0.155	
	N		3	A	3.5	0.0	0	0	0	0%	0%	2105	4210	2105	2105	4210	4210	513	0.243	0.243	443	0.210	0.210
	N		3	A	3.5	0.0	0	0	0	0%	0%	2105	0	2105	2105	0	0	513	0.243		443	0.210	
Tsing Yi Heung Sze Wui Road	S		1	A,B	3.5	0.0	0	3	1	0%	0%	1839	3818	1839	1839	3818	3818	573	0.312		455	0.248	
	S		1	A,B	3.5	0.0	0	3	0	0%	0%	1979	0	1979	1979	0	0	617	0.312		490	0.248	
	S		4	B	3.5	0.0	22	3	0	100%	100%	1979	1979	1855	1855	1855	1855	285	0.154	0.154	240	0.129	0.129

Notes:

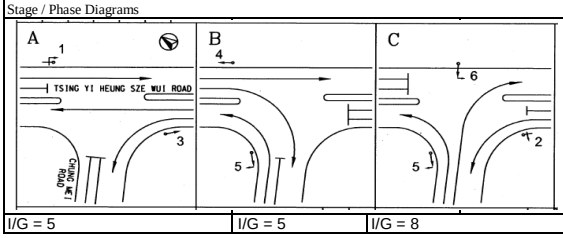
Traffic Flow (pcu / hr) Weekday AM Peak

225(250)
275(210)
285(240) 1190(945)
240(285) 1025(885)

AM Peak Check Phase	
εy	0.540
L (sec)	15
C (sec)	114
y pract.	0.782
R.C. (%)	**45%**

PM Peak Check Phase	
εy	0.449
L (sec)	15
C (sec)	100
y pract.	0.765
R.C. (%)	**70%**

Stage / Phase Diagrams



I/G = 5 | I/G = 5 | I/G = 8

TRAFFIC SIGNALS CALCULATION Job No: 24002HK **CTA Consultants Ltd.**

Junction: **(J1) Cheung Tsing Highway / Tsing Yi Road West**

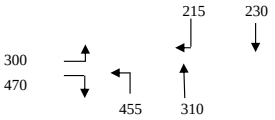
Description: **2024 Observed Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	(%) uphill Gradient	Nearside 0/1	Pro. Turning (%) Logistic Peak	Pro. Turning (%)	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) Logistic Peak	Revised Saturation Flow (pcu/hr)	Total Revised Saturation Flow (pcu/hr) Logistic Peak	Total Revised Saturation Flow (pcu/hr)	Logistic Peak Flow (pcu/hr)	Logistic Peak y Value	Logistic Peak Critical y	Flow (pcu/hr)	y Value	Critical y
Tsing Yi Road West	S		2	A	3.5	0	0	0	1	0%		1965	6135	1965		5900		148	0.075	0.075			
	S		2	A	3.3	0	20	0	0	46%		2085	0	2015		0		152	0.075				
	S		2	A	3.3	0	17.5	0	0	100%		2085	0	1920		0		145	0.075				
Cheung Tsing Highway	E		3	A,B	3.4	20	0	0	1	100%		1955	1955	1820		1820		300	0.165				
	E		4	B	3.5	0	30	0	0	100%		2105	4070	2005		3860		244	0.122				
	E		4	B	3.5	0	25	0	1	100%		1965	0	1855		0		226	0.122	0.122			
Tsing Yi Road West	N		1	C	3.6	20	0	6.5	1	100%		1702	3544	1585		3425		455	0.287	0.287			
	N		1	C	3.6	0	0	6.5	0	0%		1842	0	1840		0		310	0.168				

Pedestrian crossing	5P	C	Min. Green time = 5GM + 10FG = 15s
	6P	C	Min. Green time = 5GM + 6FG = 11s
	7P	A.B	Min. Green time = 5GM + 9FG = 14s
	8P	B	Min. Green time = 5GM + 10FG = 15s

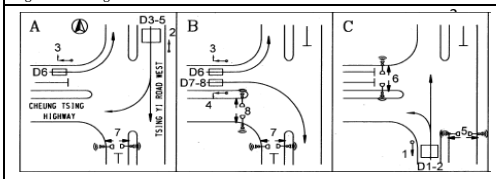
Notes:

Traffic Flow (pcu / hr)



Logistic Peak Check Phase	A,B,C	AB,C
£y	0.484	0.452
L (sec)	13	9
C (sec)	100	100
y pract.	0.783	0.819
R.C. (%)	**62%**	**81%**

Stage / Phase Diagrams



I/G = 5	I/G = 5	I/G = 6

TRAFFIC SIGNALS CALCULATION Job No: 24002HK **CTA Consultants Ltd.**

Junction: **(J2) Tsing Hung Road / Tsing Yi Road**

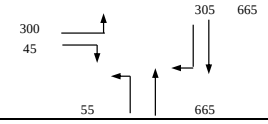
Description: **2024 Observed Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Nearside 0/1	Pro. Turning (%) Logistic Peak	Pro. Turning (%)	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) Logistic Peak	Revised Saturation Flow (pcu/hr)	Total Revised Saturation Flow (pcu/hr) Logistic Peak	Total Revised Saturation Flow (pcu/hr)	Logistic Peak Flow (pcu/hr)	Logistic Peak y Value	Logistic Peak Critical y	Flow (pcu/hr)	y Value	Critical y
Tsing Yi Road	S		1	A	3.5	0.0	0	1	0%		1965	4070	1965		4070		321	0.163				
	S		1	A	3.5	0.0	0	0	0%		2105	0	2105		0		344	0.163				
	S		1	A	3.6	0.0	18	0	100%		2115	2115	1950		1950		305	0.156	0.163			
Tsing Yi Road	N		4	C	4.0	30.0	0	1	100%		2015	2015	1920		1920		55	0.029				
	N		4	C	3.5	0.0	0	0	0%		2105	4210	2105		4210		333	0.158				
	N		4	C	3.5	0.0	0	0	0%		2105	0	2105		0		333	0.158	0.158			
Tsing Hung Road	E		2	A,B	3.3	25.0	0	1	100%		1945	1945	1835		1835		300	0.163				
	E		3	B	4.0	0.0	22	0	100%		2155	2155	2015		2015		45	0.022				
Pedestrian Crossing			5P	D		Min. Green time = 5GM + 7FG = 12s																
			6P	A,B,D		Min. Green time = 5GM + 5FG = 10s																
			7P	C,D		Min. Green time = 5GM + 10FG = 15s																
			8P	C,D		Min. Green time = 5GM + 5FG = 10s																

A,B,C,D AB,C,D

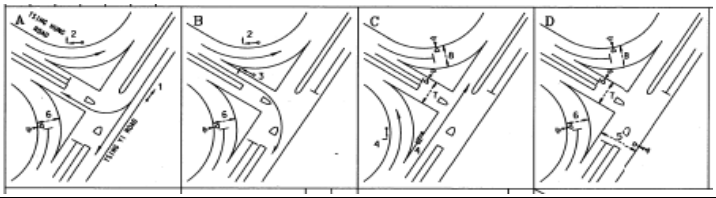
Notes:

Traffic Flow (pcu / hr) Weekday AM Peak



Logistic Peak Check Phase	A,B,C,D	AB,C,D
εy	0.321	0.321
L (sec)	33	22
C (sec)	100	100
y pract.	0.603	0.702
R.C. (%)	**88%**	**118%**

Stage / Phase Diagrams



I/G = 2	I/G = 6 + Min. G 5	I/G = 5	I/G = 5 + 12

TRAFFIC SIGNALS CALCULATION Job No: 24002HK **CTA Consultants Ltd.**

Junction: **(J4) Sai Tso Wan Road / Tsing Yi Road West / Tsing Yi Road**

Description: **2024 Observed Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	(%) uphill Gradient	Nearside 0/1	Pro. Turning (%) Logistic Peak	Pro. Turning (%)	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) Logistic Peak	Revised Saturation Flow (pcu/hr)	Logistic Peak Flow (pcu/hr)	Logistic Peak y Value	Logistic Peak Critical y	Flow (pcu/hr)	y Value	Critical y
Tsing Yi Road	NE		1	A	4.5	15	0	6.5	1	100%		1792	1792	1630		260	0.160	0.160			
	NE		1	A	3.4	0	0	6.5	0	0%		1822	1822	1820		250	0.137				
Sai Tso Wan Road	NW		3	C,D	3.8	15	0	0	1	100%		1995	1995	1815		560	0.309				
	NW		4	D	3.8	0	25	0	0	100%		2135	2135	2015		305	0.151	0.151			
Tsing Yi Road West	SE		2	B,C	3.4	0	0	0	1	0%		1955	1955	1955		205	0.105				
	SE		2	B,C	3.7	0	25	0	0	100%		2125	2125	2005		480	0.239	0.239			
Pedestrian crossing			5p	A,B																	
			6p	D																	
			7p	B,C																	
			8p	A,D																	

Min. Green time = 5GM + 8FG = 13s

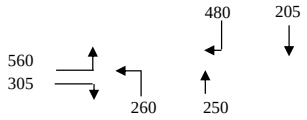
Min. Green time = 5GM + 10FG = 15s

Min. Green time = 5GM + 9FG = 14s

Min. Green time = 5GM + 7FG = 12s

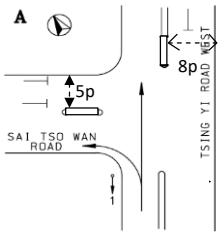
Notes:

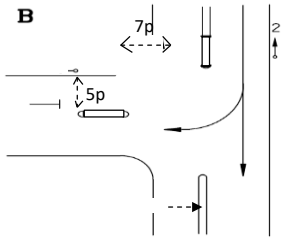
Traffic Flow (pcu / hr)

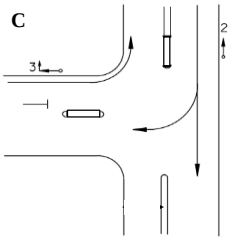


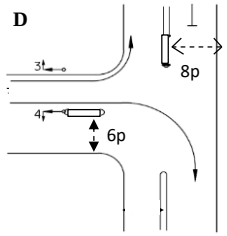
Logistic Peak Check Phase	
εy	0.550
L (sec)	19
C (sec)	110
y pract.	0.745
R.C. (%)	**35%**

Stage / Phase Diagrams









I/G = 5	I/G =5		I/G = 5	
I/G = 5	I/G =8+12	I/G = 2		

TRAFFIC SIGNALS CALCULATION Job No: 24002HK **CTA Consultants Ltd.**

Junction: **(J5) Sai Tso Wan Road Near VEC**

Description: **2024 Observed Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Nearside 0/1	Pro. Turning (%) Logistic Peak	Pro. Turning (%)	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) Logistic Peak	Revised Saturation Flow (pcu/hr)	Total Revised Saturation Flow (pcu/hr) Logistic Peak	Total Revised Saturation Flow (pcu/hr)	Logistic Peak Flow (pcu/hr)	Logistic Peak y Value	Logistic Peak Critical y	Flow (pcu/hr)	y Value	Critical y
Sai Tso Wan Road	EB	→	3	A	4.0	0.0	0	1	0%		2015	2015	2015		2015		740	0.367	0.367			
Sai Tso Wan Road	WB	←	1	A,B	4.0	0.0	0	1	0%		2015	2015	2015		2015		550	0.273				
Sai Tso Wan Road	WB	↰	2	B,C	4.0	0.0	10	0	100%		2155	2155	1875		1875		125	0.067	0.067			
Pedestrian Crossing		↕	4P	C																		

Green time = 13Gm + 5 FGm = 18s

	A,BC	AB,C
Logistic Peak Check Phase		
εy	0.434	0.273
L (sec)	11	25
C (sec)	91	91
y pract.	0.791	0.653
R.C. (%)	**82%**	**139%**

Notes:
(None)

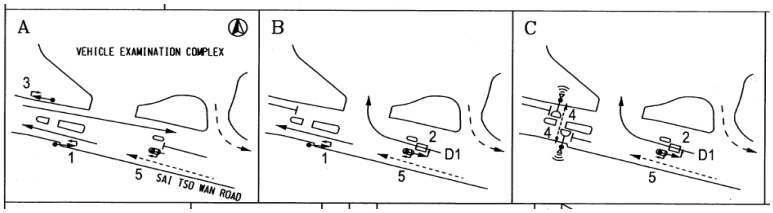
Traffic Flow (pcu / hr) AM (PM) Peak

740 →

125 ↰

550 ←

Stage / Phase Diagrams



I/G = 6	I/G = 7		
I/G = 3	I/G = 7	I/G = 5 + Ped 18s	

TRAFFIC SIGNALS CALCULATION Job No: 24002HK **CTA Consultants Ltd.**

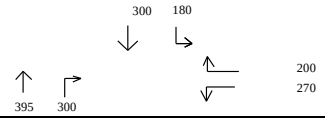
Junction: **(J8) Tsing Yi Road West / Ching Hong Road**

Description: **2024 Observed Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	(%) uphill Gradient	Nearside 0/1	Pro. Turning (%) Logistic Peak	Pro. Turning (%)	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) Logistic Peak	Revised Saturation Flow (pcu/hr)	Total Revised Saturation Flow (pcu/hr) Logistic Peak	Total Revised Saturation Flow (pcu/hr)	Logistic Peak Flow (pcu/hr)	Logistic Peak y Value	Logistic Peak Critical y	Flow (pcu/hr)	y Value	Critical y
Tsing Yi Road West	S	↓	1	A	3.0	0.0	0	5.5	0	0%		1824	3698	1824		3698		148	0.081	0.118			
	S	↓	1	A	3.5	0.0	0	5.5	0	0%		1874	0	1874		0		152	0.081				
	S	↳	1	A	3.7	10.0	0	5.5	1	100%		1754	1754	1525		1525		180	0.118				
Tsing Yi Road West	N	↑	2	A,B	3.5	0.0	0	0	1	0%		1965	4070	1965		4070		191	0.097				
	N	↑	2	A,B	3.5	0.0	0	0	0	0%		2105	0	2105		0		204	0.097				
	N	↱	3	B	3.3	0.0	18	0	0	100%		2085	2085	1925		1925		300	0.156	0.156			
Ching Hong Road	W	⇅	4	C	3.4	18.0	20	0	0	19% / 81%		2095	0	1945		0		246	0.126	0.126			
	W	↙	4	C	3.4	15.0	0	0	1	100%		1955	4050	1775		3720		224	0.126				
Pedestrian crossing		↕	5P	A,B		Min. Green time = 11GM + 8FG = 19s																	
			6P	C		Min. Green time = 5GM + 12FG = 17s																	

Notes:

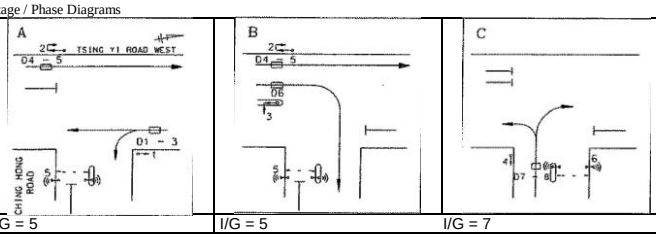
Traffic Flow (pcu / hr) Weekday AM Peak



Logistic Peak Check Phase

εy	0.400
L (sec)	12
C (sec)	71
y pract.	0.748
R.C. (%)	**87%**

Stage / Phase Diagrams



I/G = 5 I/G = 5 I/G = 7

TRAFFIC SIGNALS CALCULATION Job No: 24002HK **CTA Consultants Ltd.**

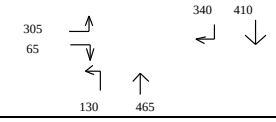
Junction: **J9 - Tsing Yi Road West / Liu To Road**

Description: **2024 Observed Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	(%) uphill Gradient	Nearside 0/1	Pro. Turning (%) Logistic Peak	Pro. Turning (%)	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) Logistic Peak	Revised Saturation Flow (pcu/hr)	Total Revised Saturation Flow (pcu/hr) Logistic Peak	Total Revised Saturation Flow (pcu/hr)	Logistic Peak Flow (pcu/hr)	Logistic Peak y Value	Logistic Peak Critical y	Flow (pcu/hr)	y Value	Critical y
Tsing Yi Road West	S		2	A,B	3.3	0.0	0	5	1	0%		1735	3610	1735		3610		197	0.114				
	S		2	A,B	3.3	0.0	0	5	0	0%		1875	0	1875		0		213	0.114				
	S		3	B	3.3	0.0	22	5	0	100%		1875	1875	1755		1755		340	0.194	0.194			
Tsing Yi Road West	N		1	A	3.2	10.0	0	0	1	48%		1935	4100	1805		3970		271	0.150	0.150			
	N		1	A	4.1	0.0	0	0	0	0%		2165	0	2165		0		324	0.150				
Liu To Road	E		5	B,C	3.2	10.0	0	0	1	100%		1935	1935	1685		1685		305	0.181				
	E		4	C	4.1	0.0	18	0	0	100%		2165	2165	2000		2000		65	0.033	0.033			
Pedestrian crossing			6P	A,D		Green time = 46GM + 9FG = 55s																	
			7P	C,D		Green time = 31GM + 13FG = 44s																	
			8P	D		Green time = 10GM + 8FG = 18s																	
Pedestrian Crossing																							
																		A,BC,D		A,B,C,D			

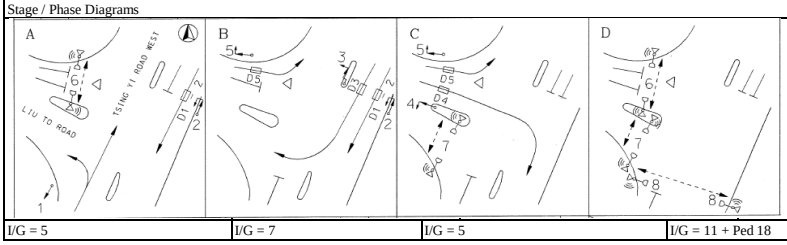
Notes:

Traffic Flow (pcu / hr) Weekday AM Peak



Logistic Peak Check Phase		
εy	0.331	0.376
L (sec)	39	43
C (sec)	130	130
y pract.	0.630	0.602
R.C. (%)	**90%**	**60%**

Stage / Phase Diagrams



I/G = 5	I/G = 7	I/G = 5	I/G = 11 + Ped 18

TRAFFIC SIGNALS CALCULATION Job No: 24002HK **CTA Consultants Ltd.**

Junction: **J10 - Tsing Yi Road West / Fung Shue Wo Road**
Description: **2024 Observed Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	(%) uphill Gradient	Nearside 0/1	Pro. Turning (%) Logistic Peak	Pro. Turning (%)	Site Factor	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) Logistic Peak	Revised Saturation Flow (pcu/hr)	Total Revised Saturation Flow (pcu/hr) Logistic Peak	Total Revised Saturation Flow (pcu/hr)	Logistic Peak Flow (pcu/hr)	Logistic Peak y Value	Logistic Peak Critical y	Flow (pcu/hr)	y Value	Critical y
Fung Shue Wo Road	S	↓	1	A,D	4.1	0.0	0	3	0	0%		1	2039	4058	2039		4058		314	0.154	0.172			
(To Tsing Yi Road West)	S	↓	1	A,D	3.9	0.0	0	3	0	0%		1	2019	0	2019		0		311	0.154				
Fung Shue Wo Road	S	↓	1	A,D	4.0	0.0	0	3	1	0%		1	1889	2294.8	1889		2294.8		325	0.172				
(To Fung Shue Wo Road)	S	↓	1	A,D	4.0	0.0	0	3	0	0%		0.2	405.8	0	405.8		0		70	0.172				
Tsing Yi Road West	N	↑	2	A,B	3.5	0.0	0	0	1	0%		1	1965	2491.3	1965		2491.25		481	0.245				
	N	↑	2	A,B	3.5	0.0	0	0	0	0%		0.25	526.25	0	526.25		0		129	0.245				
	N	↱	3	B	3.6	0.0	18	0	0	100%		1	2115	2115	1950		1950		155	0.079	0.079			
Fung Shue Wo Road	N	↰	4	C	3.8	35.0	0	3	1	100%		1	1869	2193.6	1790		2100		107	0.060				
	N	↰	4	C	4.0	38.0	0	3	0	100%		0.16	324.64	0	310		0		18	0.060				
Fung Shue Wo Road	N	↱	4	C	3.6	0.0	43	3	0	100%		0.23	457.47	2446.5	440		2355		78	0.176	0.176			
	N	↱	4	C	3.6	0.0	40	3	0	100%		1	1989	0	1915		0		337	0.176				

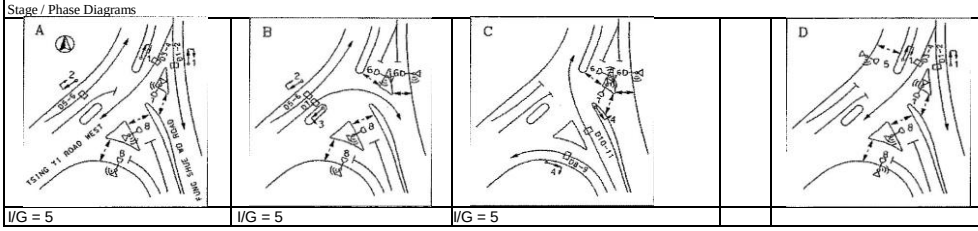
Pedestrian crossing	5p	D	Min. Green time = 5s (G) + 8s (FS) = 13s
	6P	B,C	Min. Green time = 5s (G) + 8s (FS) = 13s
	7P	A,C,D	Min. Green time = 5s (G) + 8s (FS) = 13s
	8P	A,B,D	Min. Green time = 5s (G) + 7s (FS) = 12s

Notes:

Traffic Flow (pcu / hr) Weekday AM Peak

Logistic Peak Check Phase	
£y	0.428
L (sec)	12
C (sec)	90
y pract.	0.780
R.C. (%)	**82%**

Stage / Phase Diagrams



I/G = 5 I/G = 5 I/G = 5

TRAFFIC SIGNALS CALCULATION Job No: 24002HK **CTA Consultants Ltd.**

Junction: **(J11) Tsing Yi Heung Sze Wui Road / Cheung Wan Street**

Description: **2024 Observed Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	(%) uphill Gradient	Nearside 0/1	Pro. Turning (%) Logistic Peak	Pro. Turning (%)	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) Logistic Peak	Revised Saturation Flow (pcu/hr)	Total Revised Saturation Flow (pcu/hr) Logistic Peak	Total Revised Saturation Flow (pcu/hr)	Logistic Peak Flow (pcu/hr)	Logistic Peak y Value	Logistic Peak Critical y	Flow (pcu/hr)	y Value	Critical y
Tsing Yi Heung Sze Wui Road	N		2	A,B	3.5	0.0	0	0	1	0%		1965	4070	1965		4070		478	0.243				
	N		2	A,B	3.5	0.0	0	0	0	0%		2105	0	2105		0		512	0.243				
Cheung Wan Street	W		3	C	3.5	18.0	20	0	0	47% / 53%		2105	0	1950		0		332	0.170	0.170			
	W		3	C	3.5	15.0	0	0	1	100%		1965	4070	1785		3735		303	0.170				
Tsing Yi Heung Sze Wui Road	S		1	A,D	3.0	10.0	0	0	1	100%		1915	6025	1665		5775		480	0.288	0.288			
	S		1	A,D	3.0	0.0	0	0	0	0%		2055	0	2055		0		333	0.162				
	S		1	A,D	3.0	0.0	0	0	0	0%		2055	0	2055		0		333	0.162				
Pedestrian crossing			4P	B		Green time = 12GM + 11FG = 23s																	
			5P	D		Green time = 8GM + 8FG = 16s																	
			6P	B,C		Green time = 42GM + 10FG = 52s																	

AB,C,D AD,B,C

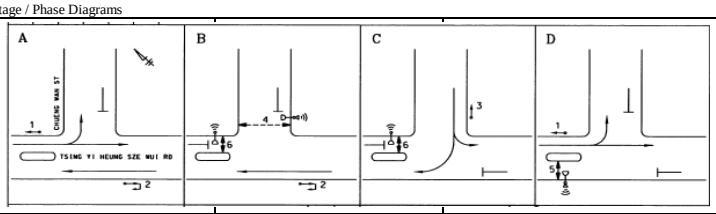
Notes:

Traffic Flow (pcu / hr) Weekday AM Peak

665 480 175 460 990

Logistic Peak Check Phase		
εy	0.413	0.458
L (sec)	33	37
C (sec)	90	90
y pract.	0.570	0.530
R.C. (%)	**38%**	**16%**

Stage / Phase Diagrams



I/G = 2 | I/G = 5 | I/G = 12 + Ped 16

TRAFFIC SIGNALS CALCULATION Job No: 24002HK **CTA Consultants Ltd.**

Junction: **(J12) Tsing Yi Heung Sze Wui Road / Chung Mei Road**

Description: **2024 Observed Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		(%) uphill Gradient	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)		Logistic Peak					
						Left	Right			Logistic Peak				Logistic Peak		Logistic Peak		Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Chung Mei Road	E		5	B,C	3.3	10.0	0	0	1	100%		1945	1945	1690		1690		245	0.145				
	E		6	C	3.3	0.0	18	0	0	100%		2085	2085	1925		1925		220	0.114	0.114			
Tsing Yi Heung Sze Wui Road	N		2	A,C	3.3	25.0	0	0	1	100%		1945	1945	1835		1835		235	0.128				
	N		3	A	3.5	0.0	0	0	0	0%		2105	4210	2105		4210		365	0.173	0.173			
	N		3	A	3.5	0.0	0	0	0	0%		2105	0	2105		0		365	0.173				
Tsing Yi Heung Sze Wui Road	S		1	A,B	3.5	0.0	0	3	1	0%		1839	3818	1839		3818		405	0.220				
	S		1	A,B	3.5	0.0	0	3	0	0%		1979	0	1979		0		435	0.220				
	S		4	B	3.5	0.0	22	3	0	100%		1979	1979	1855		1855		280	0.151	0.151			
Pedestrian crossing																							

Notes:

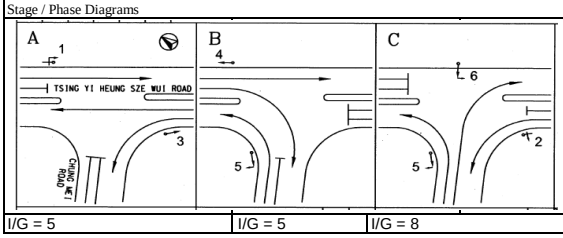
Traffic Flow (pcu / hr) Weekday AM Peak

245 (E)
220 (E)
280 (S)
840.00 (S)
235 (N)
730 (N)

Logistic Peak Check Phase

εy	0.439
L (sec)	15
C (sec)	114
y pract.	0.782
R.C. (%)	**78%**

Stage / Phase Diagrams

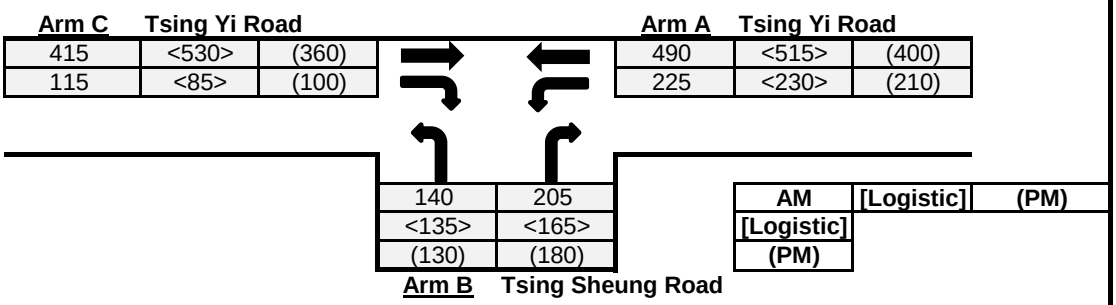


I/G = 5	I/G = 5	I/G = 8

Priority Junction Calculation

Junction : (J3) Tsing Yi Road / Tsing Sheung Road Job No.: 24002HK

Scenario : 2024 Observed Traffic Flow



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	14	V-rBA	30	w-BA	4.5	D	0.933
W-CR	0	V-IBA	50	w-BC	4.5	E	1.012
C-B blocked C-A, residual width <2.5m? (Yes: 1, No: 0)	0	V-rBC	50	w-CB	0	F	0.616
Minor Road Share LT&RT? (Yes: 1, No: 0)	0	V-rCB	50			Y	0.517

Analysis :	**Traffic Flow pcu/hr**	**AM**	**Logistic**	**PM**	**Capacity pcu/hr**	**AM**	**Logistic**	**PM**	
	q-CA	415	530	360	Q-BA	409	399	435	
	q-CB	115	85	100	Q-BC	644	638	662	
	q-AB	225	230	210	Q-CB	376	372	388	
	q-AC	490	515	400	Q-CA	N/A	N/A	N/A	(If C-B blocked C-
	q-BA	205	165	180	Q-BAC	N/A	N/A	N/A	(If Minor Road Share LT&RT)
	q-BC	140	135	130					
	f	0.406	0.450	0.419					

Results :	**Ratio of Flow-to-Capacity**	**AM**	**Logistic**	**PM**
	B-A	0.50	0.41	0.41
	B-C	0.22	0.21	0.20
	C-B	0.31	0.23	0.26
	C-A	N/A	N/A	N/A
	B-AC	N/A	N/A	N/A
	Critical DFC	**0.50**	**0.41**	**0.41**

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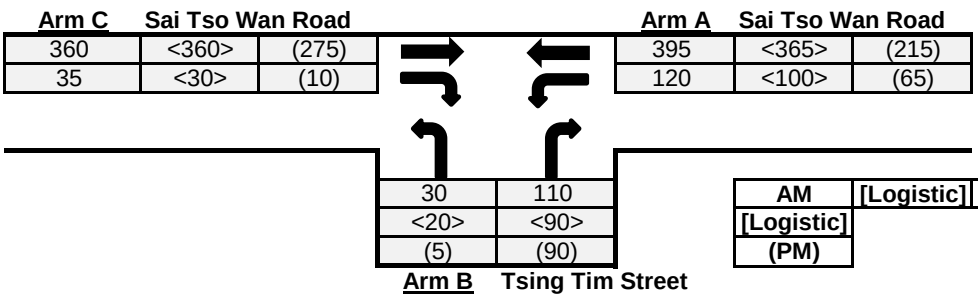
Priority Junction Calculation

Junction :	(J6) Sai Tso Wan Road / Tsing Tim Street	Job No.:	24002HK
Scenario :	2024 Observed Traffic Flow		



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	3.6	D	0.877
W-CR	0	V-IBA	50	w-BC	3.6	E	0.933
C-B blocked C-A, residual width <2.5m? (Yes: 1, No: 0)	0	V-rBC	50	w-CB	0	F	0.616
Minor Road Share LT&RT? (Yes: 1, No: 0)	1	V-rCB	50			Y	0.759

Analysis :	**Traffic Flow pcu/hr**	**AM**	**Logistic**	**PM**	**Capacity pcu/hr**	**AM**	**Logistic**	**PM**	
	q-CA	360	360	275	Q-BA	376	387	446	
	q-CB	35	30	10	Q-BC	581	591	633	
	q-AB	120	100	65	Q-CB	371	380	411	
	q-AC	395	365	215	Q-CA	N/A	N/A	N/A	(If C-B blocked C-
	q-BA	110	90	90	Q-BAC	406	412	453	(If Minor Road Share LT&RT)
	q-BC	30	20	5					
	f	0.214	0.182	0.053					

Results :	**Ratio of Flow-to-Capacity**	**AM**	**Logistic**	**PM**
	B-A	N/A	N/A	N/A
	B-C	N/A	N/A	N/A
	C-B	0.09	0.08	0.02
	C-A	N/A	N/A	N/A
	B-AC	0.34	0.27	0.21
	Critical DFC	**0.34**	**0.27**	**0.21**

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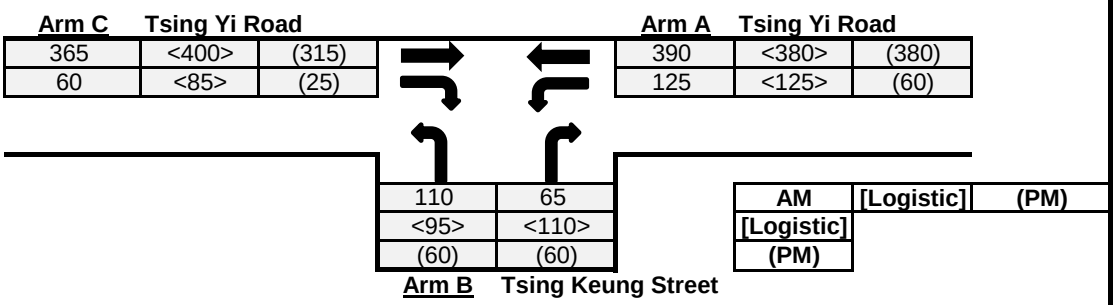
Priority Junction Calculation

Junction :	(J13) Tsing Yi Road / Tsing Keung Street	Job No.:	24002HK
Scenario :	2024 Observed Traffic Flow		



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	15	V-rBA	50	w-BA	4	D	0.910
W-CR	0	V-IBA	50	w-BC	4	E	0.968
C-B blocked C-A, residual width <2.5m? (Yes: 1, No: 0)	0	V-rBC	50	w-CB	0	F	0.616
Minor Road Share LT&RT? (Yes: 1, No: 0)	0	V-rCB	50			Y	0.483

Analysis :	**Traffic Flow pcu/hr**	**AM**	**Logistic**	**PM**	**Capacity pcu/hr**	**AM**	**Logistic**	**PM**	
	q-CA	365	400	315	Q-BA	450	442	469	
	q-CB	60	85	25	Q-BC	646	648	652	
	q-AB	125	125	60	Q-CB	403	404	411	
	q-AC	390	380	380	Q-CA	N/A	N/A	N/A	(If C-B blocked C-
	q-BA	65	110	60	Q-BAC	N/A	N/A	N/A	(If Minor Road Share LT&RT)
	q-BC	110	95	60					
	f	0.629	0.463	0.500					

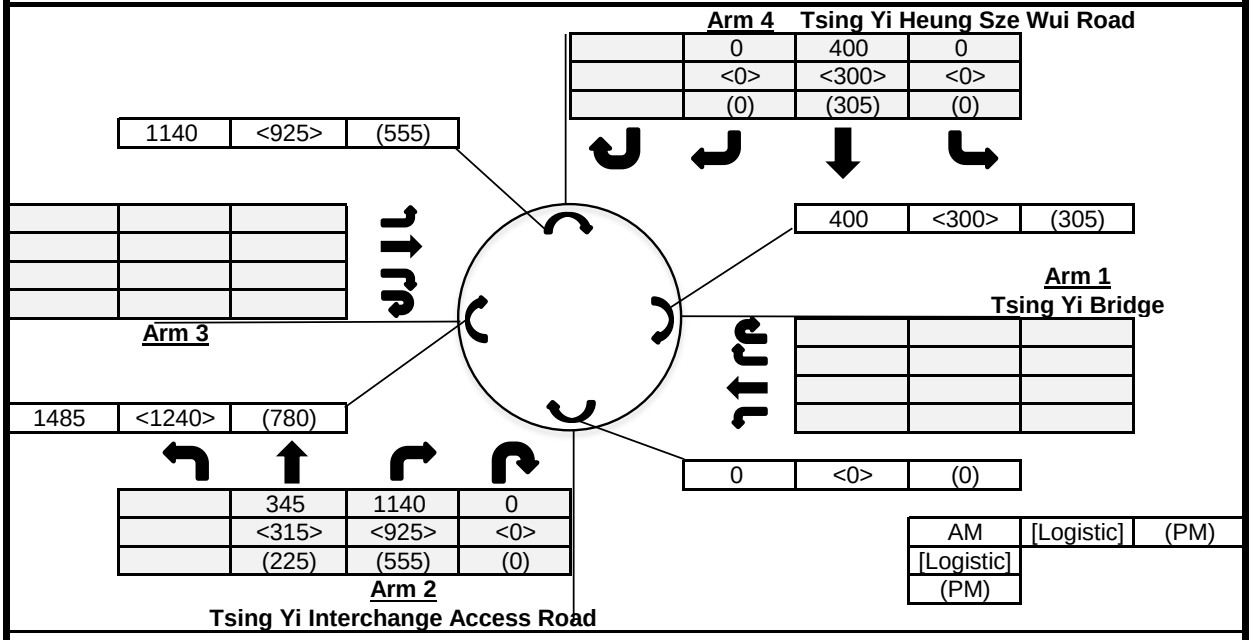
Results :	**Ratio of Flow-to-Capacity**	**AM**	**Logistic**	**PM**
	B-A	0.14	0.25	0.13
	B-C	0.17	0.15	0.09
	C-B	0.15	0.21	0.06
	C-A	N/A	N/A	N/A
	B-AC	N/A	N/A	N/A
	Critical DFC	**0.17**	**0.25**	**0.13**

CTA Consultants Ltd.

Roundabout Junction Calculation

Junction : (RA1) Tsing Yi Interchange (North) Job No.: 24002HK

Scenario : 2024 Observed Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)			6		6
E	=	Entry width (m)			7		7
L	=	Effective length of flare (m)			5		5
R	=	Entry radius			62		41
D	=	Inscribed circle diameter (m)			60		60
A	=	Entry angle (degree)			27		60
Q	=	Entry flow (pcu/hr)	AM		1485		400
			Logistic		1240		300
			PM		780		305
Qc	=	Circulating flow	AM		0		1140
		across entry (pcu/hr)	Logistic		0		925
			PM		0		555

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L			0.32		0.32
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)			1.04		0.92
X_2	=	V+((E-V)/(1+2*S))			6.61		6.61
M	=	Exp((D-60)/10)			1.00		1.00
F	=	303*X_2			2003		2003
Td	=	1+(0.5/(1+M))			1.25		1.25
Fc	=	0.21*Td*(1+0.2*X_2)			0.61		0.61
Qe	=	Capacity = K*(F-Fc*Qc)	AM		2090		1205
			Logistic		2090		1325
			PM		2090		1533
DFC	=	Entry Flow/Capacity = Q/Qe	AM		0.71		0.33
			Logistic		0.59		0.23
			PM		0.37		0.20

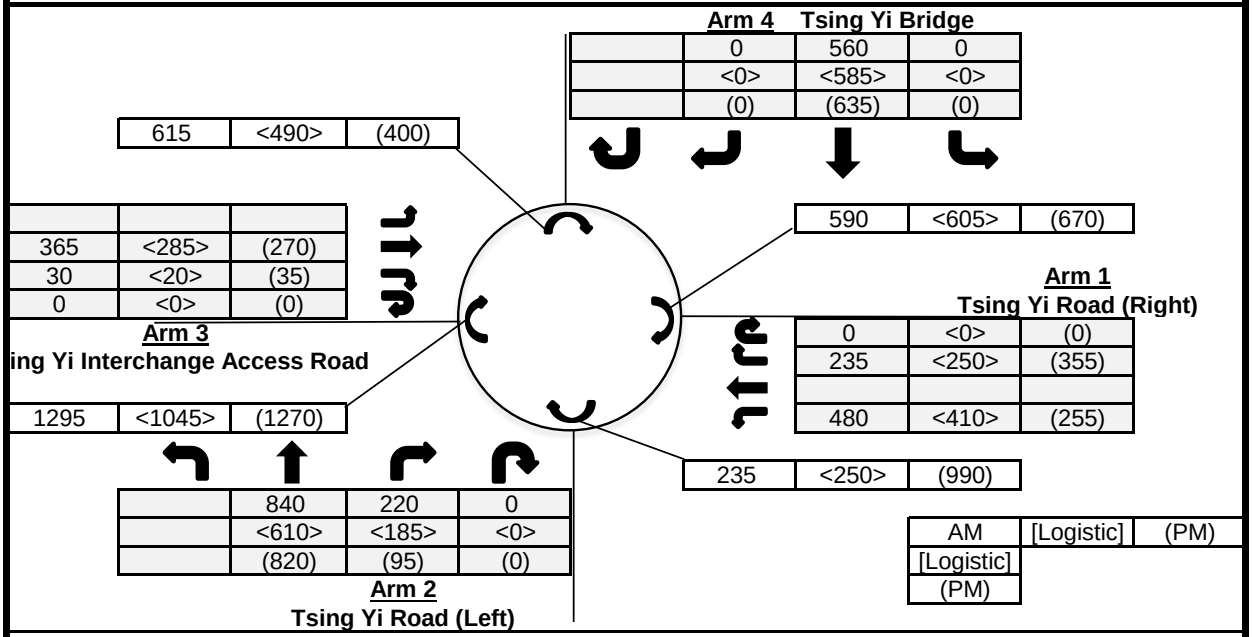
DFC of Critical Approach = AM 0.71
Logistic 0.59
PM 0.37

CTA Consultants Ltd.

Roundabout Junction Calculation

Junction : (RA1) Tsing Yi Interchange (South) Job No.: 24002HK

Scenario : 2024 Observed Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)		7	6.8	7	6
E	=	Entry width (m)		7.2	7	7.3	6.3
L	=	Effective length of flare (m)		5	5	5	5
R	=	Entry radius		23	25	24	44
D	=	Inscribed circle diameter (m)		60	60	60	60
A	=	Entry angle (degree)		43	54	27	23
Q	=	Entry flow (pcu/hr)	AM	715	1060	395	560
			Logistic	660	795	305	585
			PM	610	915	305	635
Qc	=	Circulating flow	AM	590	235	1295	615
		across entry (pcu/hr)	Logistic	605	250	1045	490
			PM	670	990	1270	400

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L		0.06	0.06	0.10	0.10
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)		0.96	0.93	1.02	1.05
X_2	=	V+((E-V)/(1+2*S))		7.18	6.98	7.25	6.25
M	=	Exp((D-60)/10)		1.00	1.00	1.00	1.00
F	=	303*X_2		2175	2114	2197	1894
Td	=	1+(0.5/(1+M))		1.25	1.25	1.25	1.25
Fc	=	0.21*Td*(1+0.2*X_2)		0.64	0.63	0.64	0.59
Qe	=	Capacity = K*(F-Fc*Qc)	AM	1728	1822	1390	1609
			Logistic	1719	1813	1553	1687
			PM	1679	1382	1406	1742
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.41	0.58	0.28	0.35
			Logistic	0.38	0.44	0.20	0.35
			PM	0.36	0.66	0.22	0.36

DFC of Critical Approach = AM 0.58
Logistic 0.44
PM 0.66

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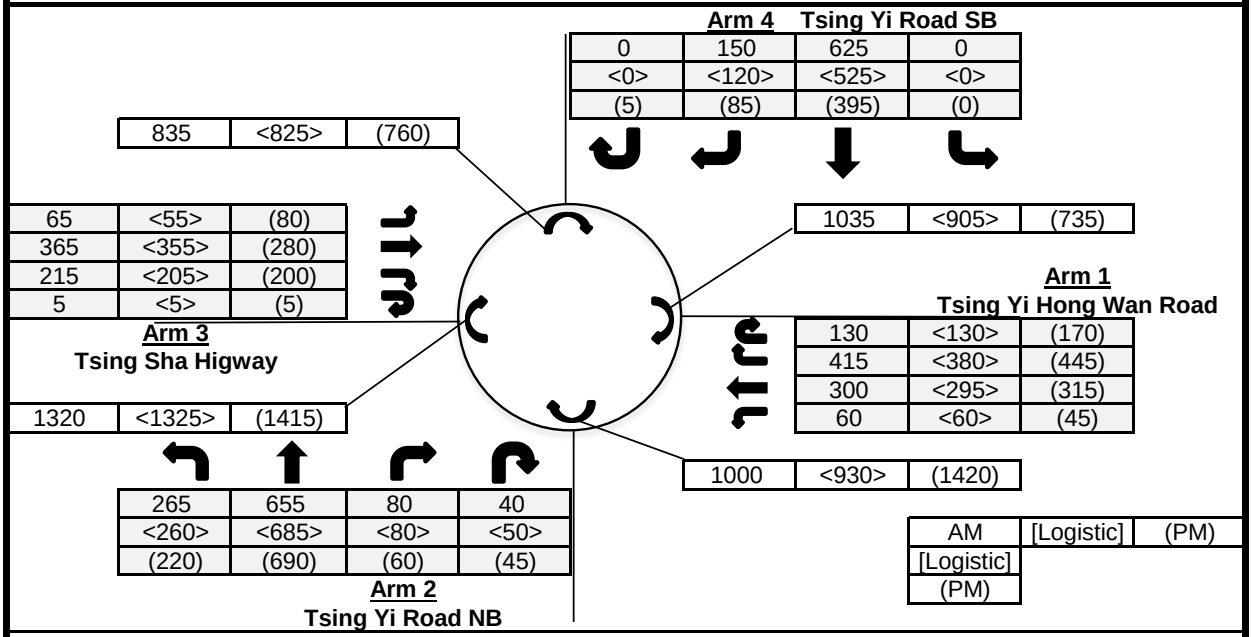
Roundabout Junction Calculation

Junction : (RA2) Tsing Yi Road / Tsing Yi Hong Wan Road / Tsing Sha Hig Job No.: 24002HK

Scenario : 2024 Observed Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)		7.3	7.1	7.3	7.3
E	=	Entry width (m)		13.5	12	9.5	10
L	=	Effective length of flare (m)		30	15	30	15
R	=	Entry radius		45	97	52	34
D	=	Inscribed circle diameter (m)		100	100	100	100
A	=	Entry angle (degree)		29	32	31	46
Q	=	Entry flow (pcu/hr)	AM	905	1040	650	775
			Logistic	865	1075	620	645
			PM	975	1015	565	485
Qc	=	Circulating flow	AM	1035	1000	1320	835
		across entry (pcu/hr)	Logistic	905	930	1325	825
			PM	735	1420	1415	760

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L		0.33	0.52	0.12	0.29
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)		1.03	1.03	1.03	0.96
X_2	=	V+((E-V)/(1+2*S))		11.03	9.50	9.08	9.01
M	=	Exp((D-60)/10)		54.60	54.60	54.60	54.60
F	=	303*X_2		3343	2877	2752	2731
Td	=	1+(0.5/(1+M))		1.01	1.01	1.01	1.01
Fc	=	0.21*Td*(1+0.2*X_2)		0.68	0.61	0.60	0.59
Qe	=	Capacity = K*(F-Fc*Qc)	AM	2720	2335	2016	2156
			Logistic	2811	2379	2013	2162
			PM	2930	2069	1958	2199
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.33	0.45	0.32	0.36
			Logistic	0.31	0.45	0.31	0.30
			PM	0.33	0.49	0.29	0.22

DFC of Critical Approach = AM 0.45
Logistic 0.45
PM 0.49

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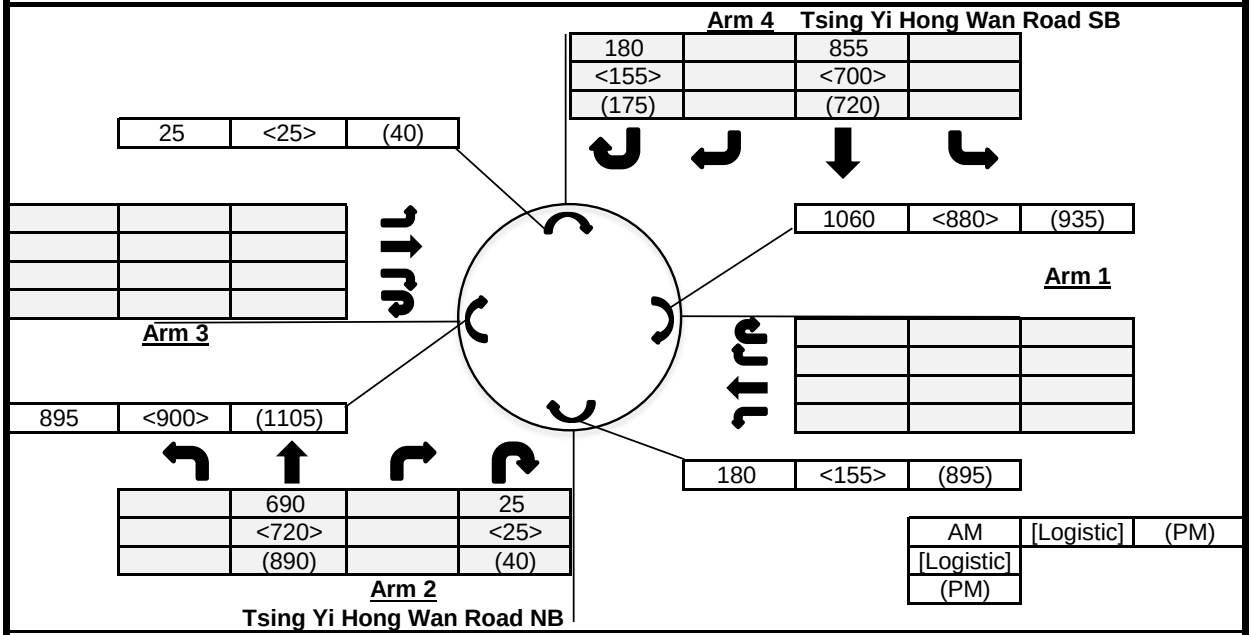
Roundabout Junction Calculation

Junction : (RA3) Tsing Yi Hong Wan Road Job No.: 24002HK

Scenario : 2024 Observed Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)			7		7.3
E	=	Entry width (m)			14		12
L	=	Effective length of flare (m)			20		2
R	=	Entry radius			65		75
D	=	Inscribed circle diameter (m)			68		68
A	=	Entry angle (degree)			53		46
Q	=	Entry flow (pcu/hr)	AM		715		1035
			Logistic		745		855
			PM		930		895
Qc	=	Circulating flow	AM		180		25
		across entry (pcu/hr)	Logistic		155		25
			PM		895		40

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L			0.56		3.76
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)			0.95		0.98
X_2	=	V+((E-V)/(1+2*S))			10.30		7.85
M	=	Exp((D-60)/10)			2.23		2.23
F	=	303*X_2			3121		2379
Td	=	1+(0.5/(1+M))			1.16		1.16
Fc	=	0.21*Td*(1+0.2*X_2)			0.74		0.62
Qe	=	Capacity = K*(F-Fc*Qc)	AM		2851		2317
			Logistic		2868		2317
			PM		2344		2308
DFC	=	Entry Flow/Capacity = Q/Qe	AM		0.25		0.45
			Logistic		0.26		0.37
			PM		0.40		0.39

DFC of Critical Approach = AM 0.45
Logistic 0.37
PM 0.40

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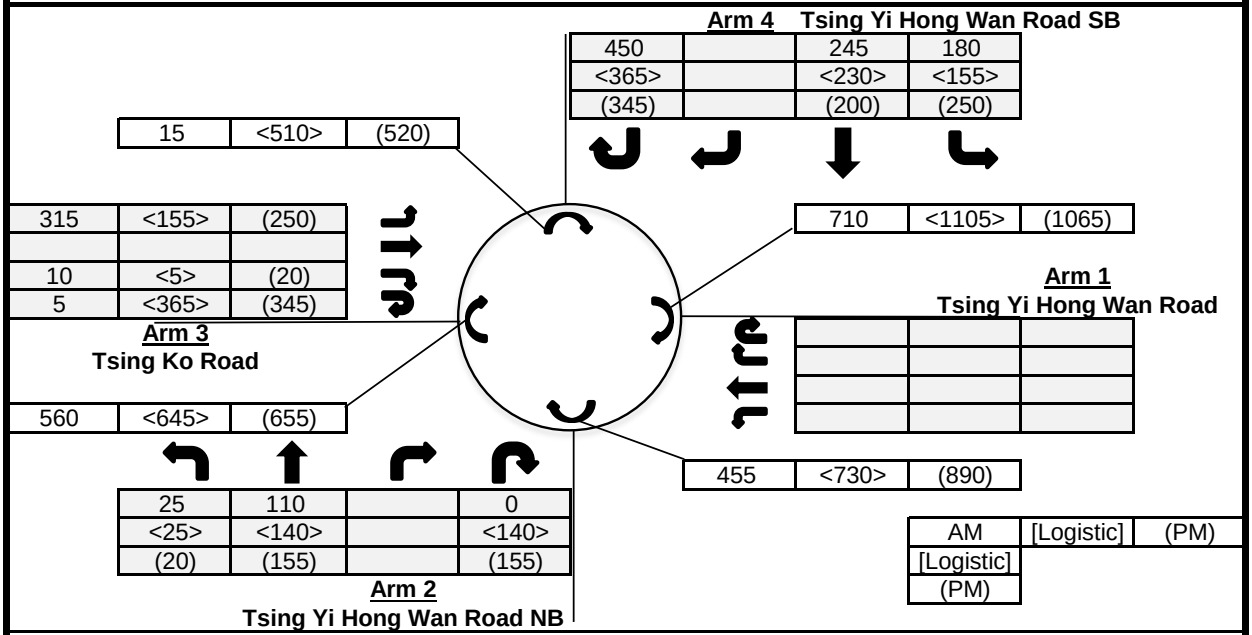
Roundabout Junction Calculation

Junction : (RA4) Tsing Yi Hong Wan Road / Tsing Ko Road Job No.: 24002HK

Scenario : 2024 Observed Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)			6.7	6.3	7.3
E	=	Entry width (m)			13.5	12.5	15
L	=	Effective length of flare (m)			18	30	30
R	=	Entry radius			47	100	75
D	=	Inscribed circle diameter (m)			68	68	68
A	=	Entry angle (degree)			41	22	46
Q	=	Entry flow (pcu/hr)	AM		135	330	875
			Logistic		305	525	750
			PM		330	615	795
Qc	=	Circulating flow	AM		455	560	15
		across entry (pcu/hr)	Logistic		730	645	510
			PM		890	655	520

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L			0.60	0.33	0.41
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)			0.99	1.07	0.98
X_2	=	V+((E-V)/(1+2*S))			9.78	10.03	11.53
M	=	Exp((D-60)/10)			2.23	2.23	2.23
F	=	303*X_2			2963	3040	3493
Td	=	1+(0.5/(1+M))			1.16	1.16	1.16
Fc	=	0.21*Td*(1+0.2*X_2)			0.72	0.73	0.80
Qe	=	Capacity = K*(F-Fc*Qc)	AM		2610	2807	3412
			Logistic		2415	2741	3023
			PM		2301	2733	3015
DFC	=	Entry Flow/Capacity = Q/Qe	AM		0.05	0.12	0.26
			Logistic		0.13	0.19	0.25
			PM		0.14	0.22	0.26

DFC of Critical Approach = AM 0.26
Logistic 0.25
PM 0.26

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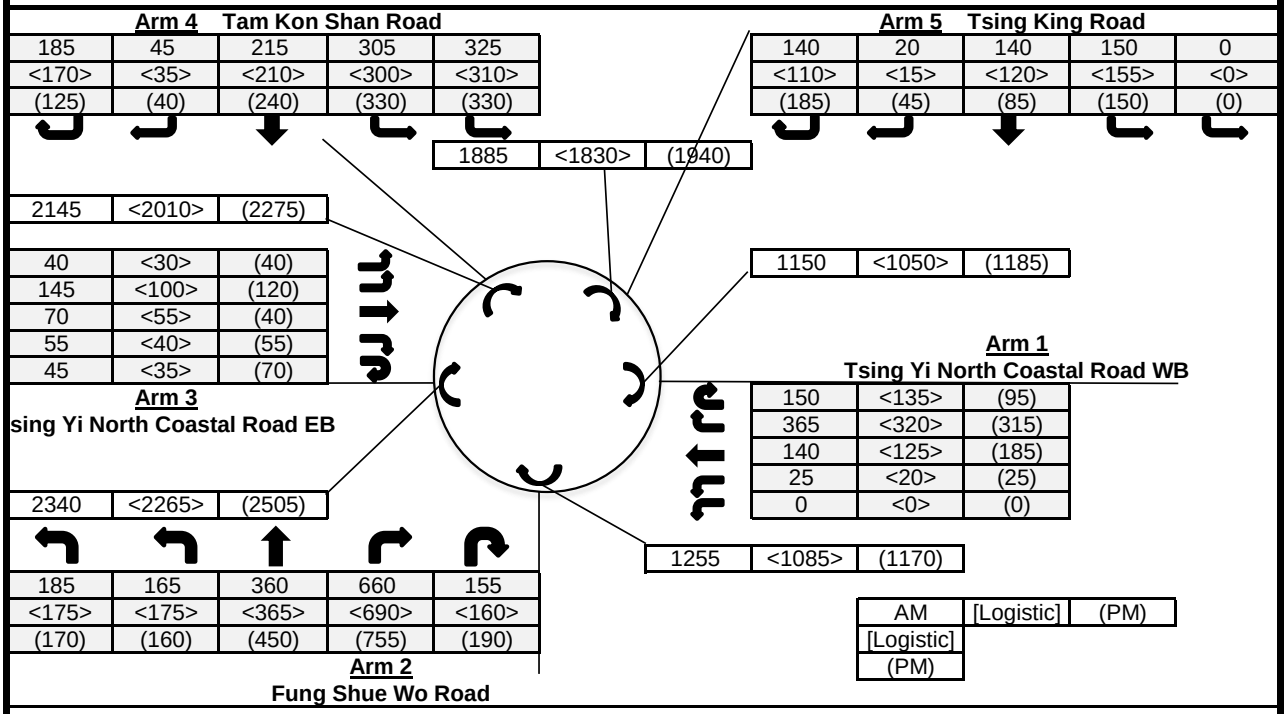
Roundabout Junction Calculation

Junction : (RA5) Tam Kon Shan Interchange Job No.: 24002HK

Scenario : 2024 Observed Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4	Arm 5
V	=	Approach half width (m)		7	7.3	5.5	7.3	7
E	=	Entry width (m)		9	13.5	7.5	13.5	11
L	=	Effective length of flare (m)		9	20	11	50	10
R	=	Entry radius		100	35	45	35	45
D	=	Inscribed circle diameter (m)		100	100	100	100	100
A	=	Entry angle (degree)		30	25	25	45	45
Q	=	Entry flow (pcu/hr)	AM	680	1525	355	1075	450
			Logistic	600	1565	260	1025	400
			PM	620	1725	325	1065	465
Qc	=	Circulating flow	AM	1150	1255	2340	2145	1885
		across entry (pcu/hr)	Logistic	1050	1085	2265	2010	1830
			PM	1185	1170	2505	2275	1940

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4	Arm 5
S	=	Sharpness of flare = 1.6*(E-V)/L		0.36	0.50	0.29	0.20	0.64
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)		1.04	1.04	1.04	0.97	0.98
X_2	=	V+((E-V)/(1+2*S))		8.17	10.41	6.76	11.74	8.75
M	=	Exp((D-60)/10)		54.60	54.60	54.60	54.60	54.60
F	=	303*X_2		2475	3155	2050	3557	2653
Td	=	1+(0.5/(1+M))		1.01	1.01	1.01	1.01	1.01
Fc	=	0.21*Td*(1+0.2*X_2)		0.56	0.65	0.50	0.71	0.58
Qe	=	Capacity = K*(F-Fc*Qc)	AM	1905	2425	922	1972	1515
			Logistic	1963	2540	961	2065	1546
			PM	1885	2482	836	1883	1484
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.36	0.63	0.38	0.55	0.30
			Logistic	0.31	0.62	0.27	0.50	0.26
			PM	0.33	0.69	0.39	0.57	0.31

DFC of Critical Approach = AM 0.63
Logistic 0.62
PM 0.69

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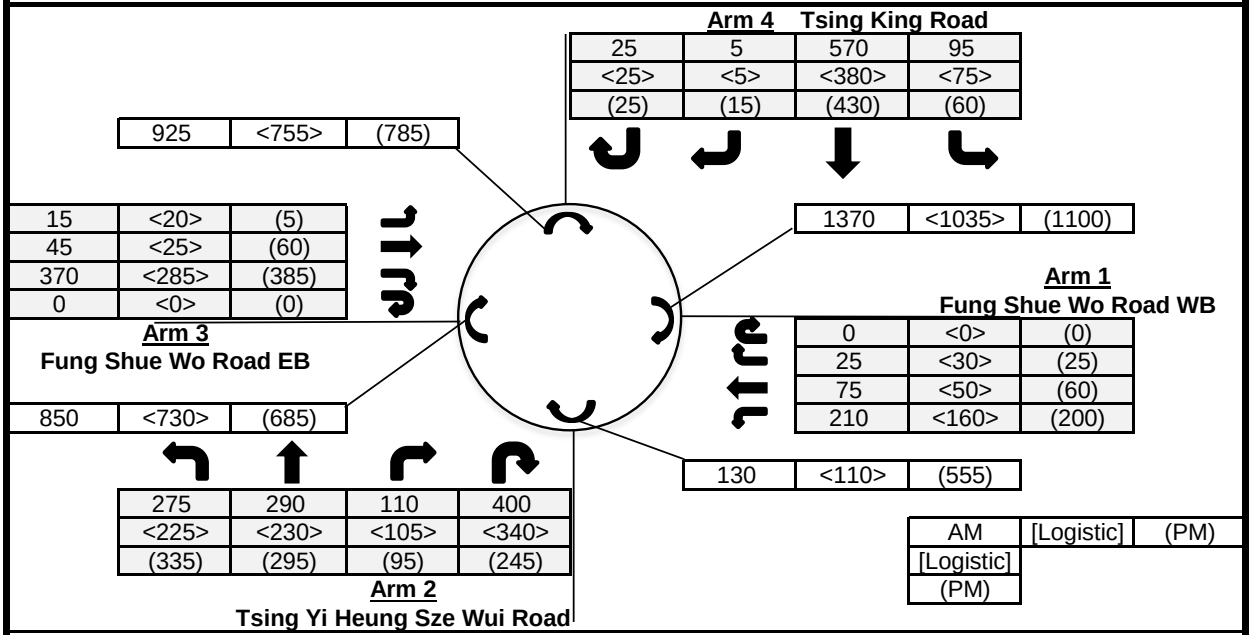
Roundabout Junction Calculation

Junction : (RA6) Tsing King Road / Fung Shue Wo Road Job No.: 24002HK

Scenario : 2024 Observed Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)		6.7	7.3	7.3	6.9
E	=	Entry width (m)		9.7	10	9.2	8.9
L	=	Effective length of flare (m)		16	20	14	16
R	=	Entry radius		55	71	60	62
D	=	Inscribed circle diameter (m)		100	100	100	100
A	=	Entry angle (degree)		36	30	18	25
Q	=	Entry flow (pcu/hr)	AM	310	1075	430	695
			Logistic	240	900	330	485
			PM	285	970	450	530
Qc	=	Circulating flow	AM	1370	130	850	925
		across entry (pcu/hr)	Logistic	1035	110	730	755
			PM	1100	555	685	785

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L		0.30	0.22	0.22	0.20
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)		1.01	1.04	1.07	1.05
X_2	=	V+((E-V)/(1+2*S))		8.58	9.19	8.62	8.33
M	=	Exp((D-60)/10)		54.60	54.60	54.60	54.60
F	=	303*X_2		2598	2783	2613	2524
Td	=	1+(0.5/(1+M))		1.01	1.01	1.01	1.01
Fc	=	0.21*Td*(1+0.2*X_2)		0.58	0.60	0.58	0.56
Qe	=	Capacity = K*(F-Fc*Qc)	AM	1829	2800	2280	2102
			Logistic	2023	2813	2355	2203
			PM	1986	2536	2382	2185
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.17	0.38	0.19	0.33
			Logistic	0.12	0.32	0.14	0.22
			PM	0.14	0.38	0.19	0.24

DFC of Critical Approach = AM 0.38
Logistic 0.32
PM 0.38

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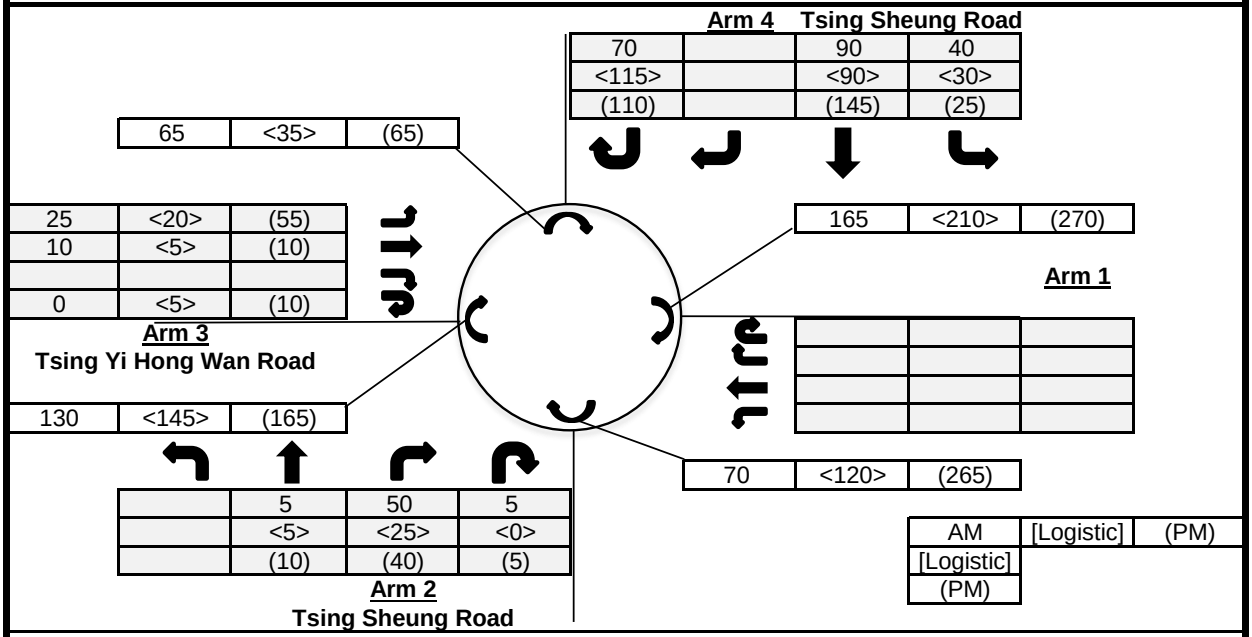
Roundabout Junction Calculation

Junction : (RA7) Tsing Yi Hong Wan Road / Tsing Sheung Road Job No.: 24002HK

Scenario : 2024 Observed Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)			5.2	3	6.7
E	=	Entry width (m)			9	8.4	12
L	=	Effective length of flare (m)			25	15	23
R	=	Entry radius			63	55	11.6
D	=	Inscribed circle diameter (m)			53	53	53
A	=	Entry angle (degree)			33	48	38
Q	=	Entry flow (pcu/hr)	AM		60	35	200
			Logistic		30	30	235
			PM		55	75	280
Qc	=	Circulating flow	AM		70	130	65
		across entry (pcu/hr)	Logistic		120	145	35
			PM		265	165	65

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L			0.24	0.58	0.37
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)			1.02	0.97	0.94
X_2	=	V+((E-V)/(1+2*S))			7.76	5.51	9.75
M	=	Exp((D-60)/10)			0.50	0.50	0.50
F	=	303*X_2			2350	1669	2954
Td	=	1+(0.5/(1+M))			1.33	1.33	1.33
Fc	=	0.21*Td*(1+0.2*X_2)			0.71	0.59	0.83
Qe	=	Capacity = K*(F-Fc*Qc)	AM		2353	1543	2717
			Logistic		2316	1534	2741
			PM		2210	1523	2717
DFC	=	Entry Flow/Capacity = Q/Qe	AM		0.03	0.02	0.07
			Logistic		0.01	0.02	0.09
			PM		0.02	0.05	0.10

DFC of Critical Approach = AM 0.07 / Logistic 0.09 / PM 0.10

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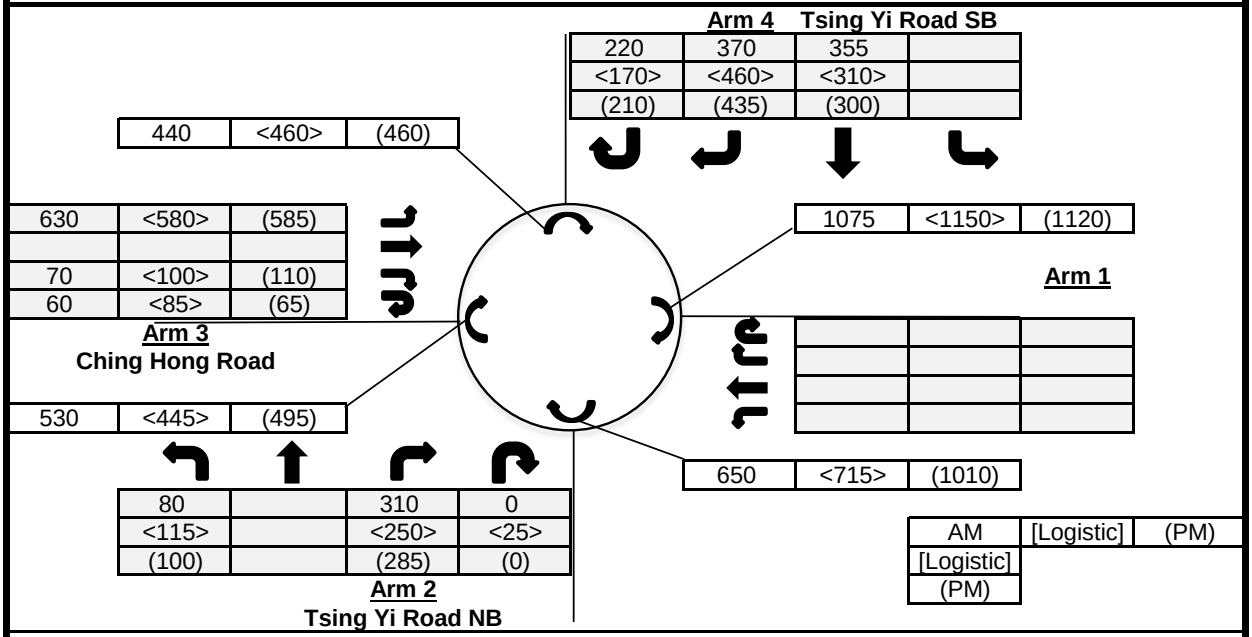
Roundabout Junction Calculation

Junction : (RA8) Tsing Yi Road / Ching Hong Road Job No.: 24002HK

Scenario : 2024 Observed Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)			4.5	7.3	7
E	=	Entry width (m)			9	8.5	8.5
L	=	Effective length of flare (m)			25	4	16
R	=	Entry radius			24.5	30	100
D	=	Inscribed circle diameter (m)			30	30	30
A	=	Entry angle (degree)			44	40	27
Q	=	Entry flow (pcu/hr)	AM		390	760	945
			Logistic		390	765	940
			PM		385	760	945
Qc	=	Circulating flow	AM		650	530	440
		across entry (pcu/hr)	Logistic		715	445	460
			PM		1010	495	460

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L			0.29	0.48	0.15
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)			0.96	0.98	1.05
X_2	=	V+((E-V)/(1+2*S))			7.36	7.91	8.15
M	=	Exp((D-60)/10)			0.05	0.05	0.05
F	=	303*X_2			2229	2397	2471
Td	=	1+(0.5/(1+M))			1.48	1.48	1.48
Fc	=	0.21*Td*(1+0.2*X_2)			0.77	0.80	0.82
Qe	=	Capacity = K*(F-Fc*Qc)	AM		1662	1937	2216
			Logistic		1614	2004	2199
			PM		1397	1964	2199
DFC	=	Entry Flow/Capacity = Q/Qe	AM		0.23	0.39	0.43
			Logistic		0.24	0.38	0.43
			PM		0.28	0.39	0.43

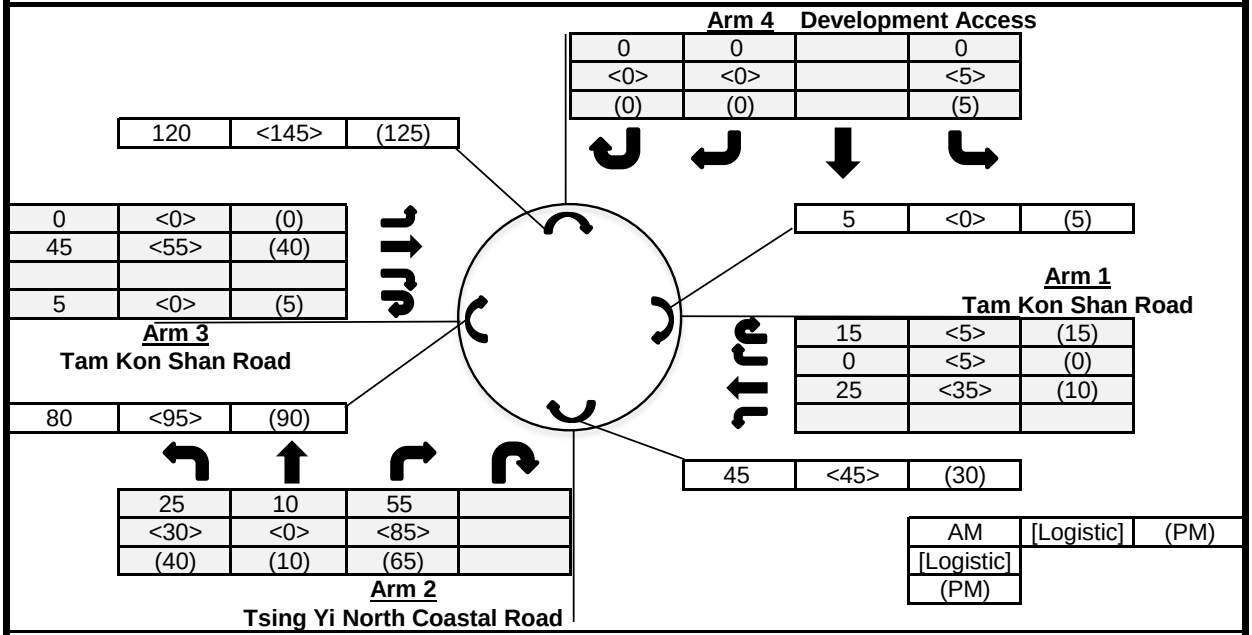
DFC of Critical Approach = AM 0.43
Logistic 0.43
PM 0.43

CTA Consultants Ltd.

Roundabout Junction Calculation

Junction : (RA9) Tam Kon Shan Road Job No.: 24002HK

Scenario : 2024 Observed Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)		3.3	4	3.4	4.2
E	=	Entry width (m)		6.7	4.9	5.8	5.4
L	=	Effective length of flare (m)		10	10	10	10
R	=	Entry radius		32	97	52	34
D	=	Inscribed circle diameter (m)		30	30	30	30
A	=	Entry angle (degree)		34	32	31	46
Q	=	Entry flow (pcu/hr)	AM	40	90	50	0
			Logistic	45	115	55	5
			PM	25	115	45	5
Qc	=	Circulating flow	AM	5	45	80	120
		across entry (pcu/hr)	Logistic	0	45	95	145
			PM	5	30	90	125

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L		0.54	0.14	0.38	0.19
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)		1.00	1.03	1.03	0.96
X_2	=	V+((E-V)/(1+2*S))		4.93	4.70	4.76	5.07
M	=	Exp((D-60)/10)		0.05	0.05	0.05	0.05
F	=	303*X_2		1493	1424	1442	1535
Td	=	1+(0.5/(1+M))		1.48	1.48	1.48	1.48
Fc	=	0.21*Td*(1+0.2*X_2)		0.62	0.60	0.61	0.62
Qe	=	Capacity = K*(F-Fc*Qc)	AM	1497	1441	1430	1409
			Logistic	1500	1441	1421	1394
			PM	1497	1450	1424	1406
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.03	0.06	0.03	0.00
			Logistic	0.03	0.08	0.04	0.00
			PM	0.02	0.08	0.03	0.00

DFC of Critical Approach = AM 0.06
Logistic 0.08
PM 0.08

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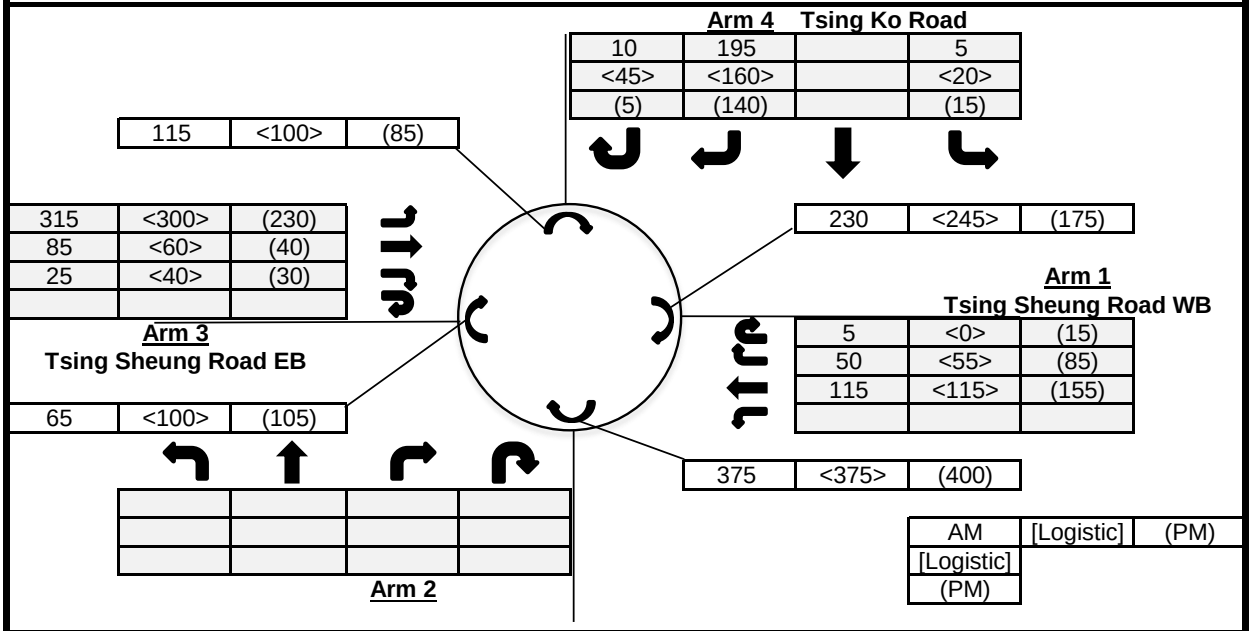
Roundabout Junction Calculation

Junction : (RA10) Tsing Sheung Road / Tsing Ko Road Job No.: 24002HK

Scenario : 2024 Observed Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)		6.6		5.6	6.4
E	=	Entry width (m)		12.9		5.1	11.6
L	=	Effective length of flare (m)		18		30	30
R	=	Entry radius		47		67.3	75
D	=	Inscribed circle diameter (m)		50		50	50
A	=	Entry angle (degree)		41		22	46
Q	=	Entry flow (pcu/hr)	AM	170		425	210
			Logistic	170		400	225
			PM	255		300	160
Qc	=	Circulating flow	AM	230		65	115
		across entry (pcu/hr)	Logistic	245		100	100
			PM	175		105	85

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L		0.56		-0.03	0.28
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)		0.99		1.06	0.98
X_2	=	V+((E-V)/(1+2*S))		9.57		5.07	9.74
M	=	Exp((D-60)/10)		0.37		0.37	0.37
F	=	303*X_2		2900		1537	2953
Td	=	1+(0.5/(1+M))		1.37		1.37	1.37
Fc	=	0.21*Td*(1+0.2*X_2)		0.84		0.58	0.85
Qe	=	Capacity = K*(F-Fc*Qc)	AM	2681		1592	2799
			Logistic	2668		1571	2812
			PM	2726		1568	2824
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.06		0.27	0.08
			Logistic	0.06		0.25	0.08
			PM	0.09		0.19	0.06

DFC of Critical Approach = AM 0.27
Logistic 0.25
PM 0.19

CTA Consultants Ltd.

TRAFFIC SIGNALS CALCULATION Job No: 24002HK **CTA Consultants Ltd.**

Junction: **(J1) Tsing Yi Road West / Cheung Tsing Highway**

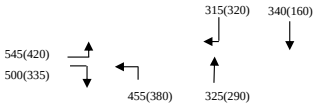
Description: **2029 Design Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	(%) uphill Gradient	Nearside 0/1	Pro. Turning (%) A.M.	Pro. Turning (%) P.M.	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) A.M.	Revised Saturation Flow (pcu/hr) P.M.	Total Revised Saturation Flow (pcu/hr) A.M.	Total 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
Tsing Yi Road West	S		2	A	3.5	0	0	0	1	0%	0%	1965	6135	1965	1965	5900	5825	218	0.111	0.111	160	0.081	0.083
	S		2	A	3.3	0	20	0	0	46%	100%	2085	0	2015	1940	0	0	224	0.111		161	0.083	
	S		2	A	3.3	0	17.5	0	0	100%	100%	2085	0	1920	1920	0	0	213	0.111		159	0.083	
Cheung Tsing Highway	E		3	A,B	3.4	20	0	0	1	100%	100%	1955	1955	1820	1820	1820	1820	545	0.299		420	0.231	
	E		4	B	3.5	0	30	0	0	100%	100%	2105	4210	2005	2005	3990	3990	251	0.125		168	0.084	
			4	B	3.5	0	25	0	0	100%	100%	2105	0	1985	1985	0	0	249	0.125	0.125	167	0.084	0.084
Tsing Yi Road West	N		1	C	3.6	20	0	6.5	1	100%	100%	1702	3544	1585	1585	3425	3425	455	0.287	0.287	380	0.240	0.240
	N		1	C	3.6	0	0	6.5	0	0%	0%	1842	0	1840	1840	0	0	325	0.177		290	0.158	
																				*			*

Pedestrian crossing	5P	C	Min. Green time = 5GM + 10FG = 15s
	6P	C	Min. Green time = 5GM + 6FG = 11s
	7P	A.B	Min. Green time = 5GM + 9FG = 14s
	8P	B	Min. Green time = 5GM + 10FG = 15s

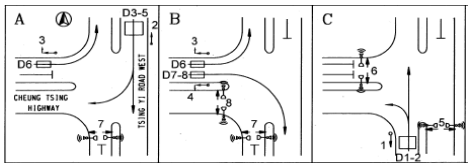
Notes:

Traffic Flow (pcu / hr)



	A.M. Check Phase A,B,C	A.M. Check Phase AB,C	P.M. Check Phase A,B,C	P.M. Check Phase AB,C
ey	0.523	0.587	0.407	0.471
L (sec)	13	9	13	9
C (sec)	100	100	105	105
y pract.	0.783	0.819	0.789	0.823
R.C. (%)	**50%**	**40%**	**94%**	**75%**

Stage / Phase Diagrams



I/G = 5	I/G = 5	I/G = 6

TRAFFIC SIGNALS CALCULATION Job No: 24002HK **CTA Consultants Ltd.**

Junction: **(J2) Tsing Hung Road / Tsing Yi Road**

Description: **2029 Design Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Nearside 0/1	Pro. Turning (%) AM	Pro. Turning (%) PM	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	Total Revised Saturation Flow (pcu/hr) AM	Total Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Tsing Yi Road	S		1	A	3.5	0.0	0	1	0%	0%	1965	4070	1965	1965	4070	4070	381	0.194		282	0.144	
	S		1	A	3.5	0.0	0	0	0%	0%	2105	0	2105	2105	0	0	409	0.194		303	0.144	
	S		1	A	3.6	0.0	18	0	100%	100%	2115	2115	1950	1950	1950	1950	370	0.190		380	0.195	0.195
Tsing Yi Road	N		4	C	4.0	30.0	0	1	100%	100%	2015	2015	1920	1920	1920	1920	60	0.031		55	0.029	
	N		4	C	3.5	0.0	0	0	0%	0%	2105	4210	2105	2105	4210	4210	330	0.157	0.157	278	0.132	
	N		4	C	3.5	0.0	0	0	0%	0%	2105	0	2105	2105	0	0	330	0.157		278	0.132	0.132
Tsing Hung Road	E		2	A,B	3.3	25.0	0	1	100%	100%	1945	1945	1835	1835	1835	1835	525	0.286	0.286	340	0.185	
	E		3	B	4.0	0.0	22	0	100%	100%	2155	2155	2015	2015	2015	2015	45	0.022		30	0.015	
Pedestrian Crossing			5P	D																		
			6P	A,B,D																		
			7P	C,D																		
			8P	C,D																		

Min. Green time = 5GM + 7FG = 12s

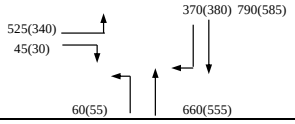
Min. Green time = 5GM + 5FG = 10s

Min. Green time = 5GM + 10FG = 15s

Min. Green time = 5GM + 5FG = 10s

Notes:

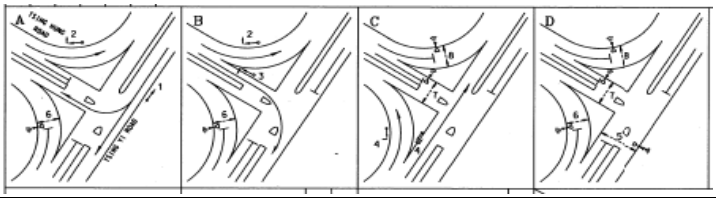
Traffic Flow (pcu / hr) Weekday AM Peak



	A,B,C,D	AB,C,D
AM Peak Check Phase		
εy	0.373	0.443
L (sec)	33	22
C (sec)	120	120
y pract.	0.653	0.735
R.C. (%)	**75%**	**66%**

	A,B,C,D	AB,C,D
PM Peak Check Phase		
εy	0.327	0.317
L (sec)	33	22
C (sec)	100	100
y pract.	0.603	0.702
R.C. (%)	**85%**	**121%**

Stage / Phase Diagrams



I/G = 2		I/G = 5	I/G = 5 + 12		
I/G = 2	I/G = 6 + Min. G 5	I/G = 5	I/G = 5 + 12		

TRAFFIC SIGNALS CALCULATION Job No: 24002HK **CTA Consultants Ltd.**

Junction: **(J4) Sai Tso Wan Road / Tsing Yi Road West / Tsing Yi Road**

Description: **2029 Design Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	(%) uphill Gradient	Nearside 0/1	Pro. Turning (%) A.M.	Pro. Turning (%) P.M.	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	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
Tsing Yi Road	NE		1	A	4.5	15	0	6.5	1	100%	100%	1792	1792	1630	1630	275	0.169	0.169	245	0.150	0.150
	NE		1	A	3.4	0	0	6.5	0	0%	0%	1822	1822	1820	1820	230	0.126		220	0.121	
Sai Tso Wan Road	NW		3	C,D	3.8	15	0	0	1	100%	100%	1995	1995	1815	1815	530	0.292		440	0.242	
	NW		4	D	3.8	0	25	0	0	100%	100%	2135	2135	2015	2015	225	0.112	0.112	205	0.102	0.102
Tsing Yi Road West	SE		2	B,C	3.4	0	0	0	1	0%	0%	1955	1955	1955	1955	235	0.120		145	0.074	
	SE		2	B,C	3.7	0	25	0	0	100%	100%	2125	2125	2005	2005	580	0.289	0.289	285	0.142	0.142
Pedestrian crossing			5p	A,B																	
			6p	D																	
			7p	B,C																	
			8p	A,D																	

Pedestrian crossing — Min. Green time = 5GM + 8FG = 13s

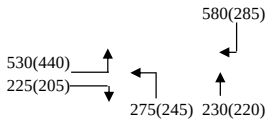
Pedestrian crossing — Min. Green time = 5GM + 10FG = 15s

Pedestrian crossing — Min. Green time = 5GM + 9FG = 14s

Pedestrian crossing — Min. Green time = 5GM + 7FG = 12s

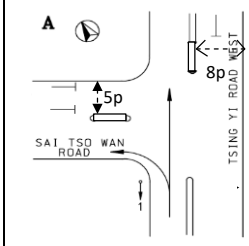
Notes:

Traffic Flow (pcu / hr)

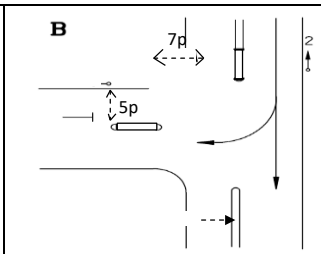


A.M. Check Phase		P.M. Check Phase	
εy	0.570	εy	0.394
L (sec)	19	L (sec)	19
C (sec)	120	C (sec)	110
y pract.	0.758	y pract.	0.745
R.C. (%)	**33%**	R.C. (%)	**89%**

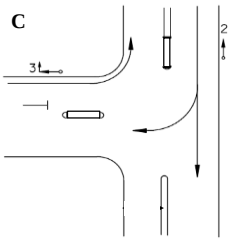
Stage / Phase Diagrams

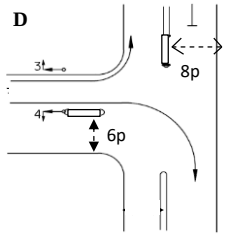


I/G = 7



I/G = 10





I/G = 5

TRAFFIC SIGNALS CALCULATION Job No: 24002HK **CTA Consultants Ltd.**

Junction: **(J5) Sai Tso Wan Road Near VEC**

Description: **2029 Design Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Nearside 0/1	Pro. Turning (%) AM	Pro. Turning (%) PM	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	Total Revised Saturation Flow (pcu/hr) AM	Total Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Sai Tso Wan Road	EB	→	3	A	4.0	0.0	0	1	0%	0%	2015	2015	2015	2015	2015	2015	640	0.318	0.318	535	0.266	
Sai Tso Wan Road	WB	←	1	A,B	4.0	0.0	0	1	0%	0%	2015	2015	2015	2015	2015	2015	600	0.298		720	0.357	0.357
Sai Tso Wan Road	WB	↰	2	B,C	4.0	0.0	10	0	100%	100%	2155	2155	1875	1875	1875	1875	150	0.080	0.080	35	0.019	
Pedestrian Crossing		↕	4P	C																		

Green time = 13Gm + 5 FGm = 18s

Notes:
(None)

Traffic Flow (pcu / hr) AM (PM) Peak

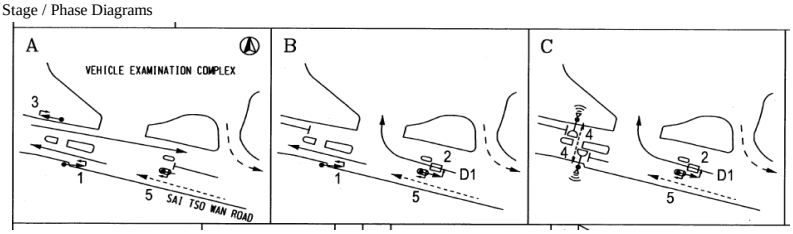
640(535) →

150(35) ↰

600(720) ←

	AM Peak Check Phase A,BC	AM Peak Check Phase AB,C	PM Peak Check Phase A,BC	PM Peak Check Phase AB,C
εy	0.398	0.298	0.284	0.357
L (sec)	11	25	11	25
C (sec)	91	91	91	91
y pract.	0.791	0.653	0.791	0.653
R.C. (%)	**99%**	**119%**	**178%**	**83%**

Stage / Phase Diagrams



I/G = 6	I/G = 7		
I/G = 3	I/G = 7	I/G = 5 + Ped 18s	

TRAFFIC SIGNALS CALCULATION Job No: 24002HK **CTA Consultants Ltd.**

Junction: **(J8) Tsing Yi Road West / Ching Hong Road**

Description: **2029 Design Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		(%) uphill Gradient	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)		AM Peak			PM Peak		
						Left	Right			AM	PM			AM	PM	AM	PM	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Tsing Yi Road West	S	↓	1	A	3.0	0.0	0	5.5	0	0%	0%	1824	3698	1824	1824	3698	3698	190	0.104	0.207	126	0.069	0.128
	S	↓	1	A	3.5	0.0	0	5.5	0	0%	0%	1874	0	1874	1874	0	0	195	0.104		129	0.069	
	S	↳	1	A	3.7	10.0	0	5.5	1	100%	100%	1754	1754	1525	1525	1525	1525	315	0.207		195	0.128	
Tsing Yi Road West	N	↑	2	A,B	3.5	0.0	0	0	1	0%	0%	1965	4070	1965	1965	4070	4070	188	0.096		210	0.107	
	N	↑	2	A,B	3.5	0.0	0	0	0	0%	0%	2105	0	2105	2105	0	0	202	0.096		225	0.107	
	N	↱	3	B	3.3	0.0	18	0	0	100%	100%	2085	2085	1925	1925	1925	1925	380	0.197	0.197	315	0.164	0.164
Ching Hong Road	W	↰	4	C	3.4	18.0	20	0	0	18% / 82%	17% / 83%	2095	0	1945	1945	0	0	298	0.153	0.153	264	0.136	0.136
	W	↰	4	C	3.4	15.0	0	0	1	100%	100%	1955	4050	1775	1775	3720	3720	272	0.153		241	0.136	
Pedestrian crossing			5P	A,B		Min. Green time = 11GM + 8FG = 19s																	
			6P	C		Min. Green time = 5GM + 12FG = 17s																	

Notes:

Traffic Flow (pcu / hr) Weekday AM Peak

385(255) 315(195)

245(220)

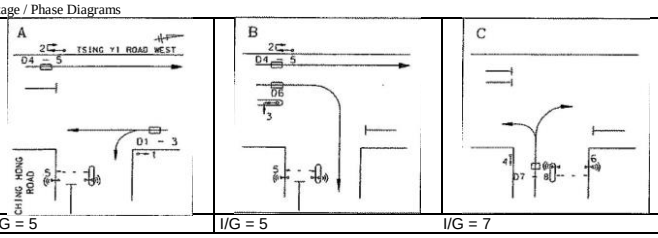
325(285)

390(435) 380(315)

AM Peak Check Phase	
εy	0.557
L (sec)	14
C (sec)	100
y pract.	0.774
R.C. (%)	**39%**

PM Peak Check Phase	
εy	0.427
L (sec)	14
C (sec)	100
y pract.	0.774
R.C. (%)	**81%**

Stage / Phase Diagrams



I/G = 5 I/G = 5 I/G = 7

TRAFFIC SIGNALS CALCULATION Job No: 24002HK **CTA Consultants Ltd.**

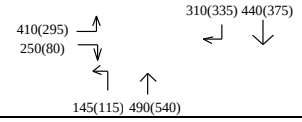
Junction: **(J9) Tsing Yi Road West / Liu To Road**

Description: **2029 Design Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	(%) uphill Gradient	Nearside 0/1	Pro. Turning (%) AM	Pro. Turning (%) PM	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	Total Revised Saturation Flow (pcu/hr) AM	Total Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Tsing Yi Road West	S		2	A,B	3.3	0.0	0	5	1	0%	0%	1735	3610	1735	1735	3610	3610	211	0.122		180	0.104	
	S		2	A,B	3.3	0.0	0	5	0	0%	0%	1875	0	1875	1875	0	0	229	0.122		195	0.104	
	S		3	B	3.3	0.0	22	5	0	100%	100%	1875	1875	1755	1755	1755	1755	310	0.177	0.177	335	0.191	0.191
Tsing Yi Road West	N		1	A	3.2	10.0	0	0	1	50%	38%	1935	4100	1800	1830	3965	3995	288	0.160	0.160	300	0.164	0.164
	N		1	A	4.1	0.0	0	0	0	0%	0%	2165	0	2165	2165	0	0	347	0.160		355	0.164	
Liu To Road	E		5	B,C	3.2	10.0	0	0	1	100%	100%	1935	1935	1685	1685	1685	1685	410	0.243		295	0.175	
	E		4	C	4.1	0.0	18	0	0	100%	100%	2165	2165	2000	2000	2000	2000	250	0.125	0.125	80	0.040	0.040
Pedestrian crossing			6P	A,D		AM: Green time = 49GM + 9FG = 58s, PM: Green time = 46GM + 9FG = 55s																	
			7P	C,D		AM: Green time = 51GM + 13FG = 64s, PM: Green time = 28GM + 13FG = 41s																	
			8P	D		Green time = 10GM + 8FG = 18s																	
Pedestrian Crossing																							
														A,BC,D	A,B,C,D						A,BC,D	A,B,C,D	

Notes:

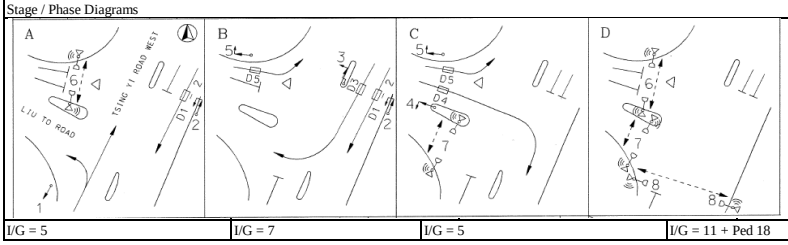
Traffic Flow (pcu / hr) Weekday AM Peak



AM Peak Check Phase		
εy	0.404	0.462
L (sec)	39	43
C (sec)	130	130
y pract.	0.630	0.602
R.C. (%)	**56%**	**30%**

PM Peak Check Phase		
εy	0.339	0.395
L (sec)	39	43
C (sec)	110	110
y pract.	0.581	0.548
R.C. (%)	**71%**	**39%**

Stage / Phase Diagrams



I/G = 5	I/G = 7	I/G = 5	I/G = 11 + Ped 18

TRAFFIC SIGNALS CALCULATION Job No: 24002HK **CTA Consultants Ltd.**

Junction: **(J10) Tsing Yi Road West / Fung Shue Wo Road**

Description: **2029 Design Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	(%) uphill Gradient	Nearside 0/1	Pro. Turning (%) AM	Pro. Turning (%) PM	Site Factor	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	Total Revised Saturation Flow (pcu/hr) AM	Total Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Fung Shue Wo Road	S	↓	1	A,D	4.1	0.0	0	3	0	0%	0%	1	2039	4058	2039	2039	4058	4058	304	0.149	0.292	279	0.137	0.240
(To Tsing Yi Road West)	S	↓	1	A,D	3.9	0.0	0	3	0	0%	0%	1	2019	0	2019	2019	0	0	301	0.149		276	0.137	
Fung Shue Wo Road	S	↓	1	A,D	4.0	0.0	0	3	1	0%	0%	1	1889	2294.8	1889	1889	2294.8	2294.8	552	0.292		453	0.240	
(To Fung Shue Wo Road)	S	↓	1	A,D	4.0	0.0	0	3	0	0%	0%	0.2	405.8	0	405.8	405.8	0	0	118	0.292		97	0.240	
Tsing Yi Road West	N	↑	2	A,B	3.5	0.0	0	0	1	0%	0%	1	1965	2491.3	1965	1965	2491.25	2491.25	540	0.275		544	0.277	
	N	↑	2	A,B	3.5	0.0	0	0	0	0%	0%	0.25	526.25	0	526.25	526.25	0	0	145	0.275		146	0.277	
	N	↱	3	B	3.6	0.0	18	0	0	100%	100%	1	2115	2115	1950	1950	1950	1950	220	0.113	0.113	145	0.074	0.074
Fung Shue Wo Road	N	↰	4	C	3.8	35.0	0	3	1	100%	100%	1	1869	2193.6	1790	1790	2100	2100	128	0.071		124	0.069	
	N	↰	4	C	4.0	38.0	0	3	0	100%	100%	0.16	324.64	0	310	310	0	0	22	0.071		21	0.069	
Fung Shue Wo Road	N	↱	4	C	3.6	0.0	43	3	0	100%	100%	0.23	457.47	2446.5	440	440	2355	2355	121	0.274	0.274	103	0.234	0.234
	N	↱	4	C	3.6	0.0	40	3	0	100%	100%	1	1989	0	1915	1915	0	0	524	0.274		447	0.234	

Pedestrian crossing	5p	D	Min. Green time = 5GM + 8FG = 13s
	6P	B,C	Min. Green time = 5GM + 8FG = 13s
	7P	A,C,D	Min. Green time = 5GM + 7FG = 12s
	8P	A,B,D	Min. Green time = 5GM + 8FG = 13s

Notes:

Traffic Flow (pcu / hr) Weekday AM Peak

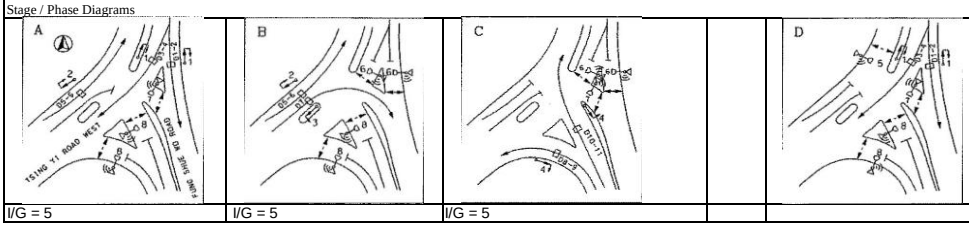
605(555) 670(550)

685(690) 220(145) 150(145) 645(550)

AM Peak Check Phase	
Σy	0.679
L (sec)	12
C (sec)	100
y pract.	0.792
R.C. (%)	**17%**

PM Peak Check Phase	
Σy	0.548
L (sec)	12
C (sec)	100
y pract.	0.792
R.C. (%)	**45%**

Stage / Phase Diagrams



I/G = 5 I/G = 5 I/G = 5

TRAFFIC SIGNALS CALCULATION Job No: 24002HK **CTA Consultants Ltd.**

Junction: **(J11) Tsing Yi Heung Sze Wui Road / Cheung Wan Street**

Description: **2029 Design Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	(%) uphill Gradient	Nearside 0/1	Pro. Turning (%) AM	Pro. Turning (%) PM	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	Total Revised Saturation Flow (pcu/hr) AM	Total Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Tsing Yi Heung Sze Wui Road	N		2	A,B	3.5	0.0	0	0	1	0%	0%	1965	4070	1965	1965	4070	4070	702	0.357		611	0.311	0.311
	N		2	A,B	3.5	0.0	0	0	0	0%	0%	2105	0	2105	2105	0	0	753	0.357		654	0.311	
Cheung Wan Street	W		3	C	3.5	18.0	20	0	0	31% / 69%	47% / 53%	2105	0	1955	1950	0	0	428	0.219	0.219	360	0.185	0.185
	W		3	C	3.5	15.0	0	0	1	100%	100%	1965	4070	1785	1785	3740	3735	392	0.219		330	0.185	
Tsing Yi Heung Sze Wui Road	S		1	A,D	3.5	10.0	0	0	1	100%	100%	1965	6175	1710	1710	5920	5920	695	0.406	0.406	495	0.289	
	S		1	A,D	3.5	0.0	0	0	0	0%	0%	2105	0	2105	2105	0	0	555	0.264		428	0.203	
	S		1	A,D	3.5	0.0	0	0	0	0%	0%	2105	0	2105	2105	0	0	555	0.264		428	0.203	
Pedestrian crossing			4P	B																			
			5P	D																			
			6P	B,C																			

Pedestrian crossing: AM: Green time = 12GM + 11FG = 23s, PM: Green time = 12GM + 11FG = 23s

Pedestrian crossing: AM: Green time = 6GM + 8FG = 14s, PM: Green time = 10GM + 8FG = 18s

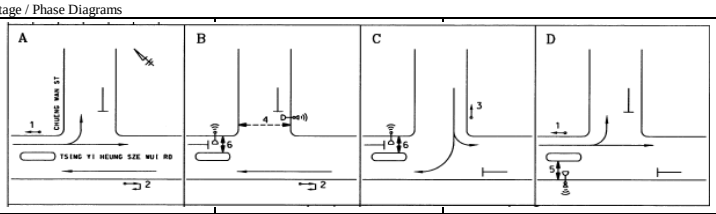
Pedestrian crossing: AM: Green time = 45GM + 10FG = 55s, AM: Green time = 41GM + 10FG = 51s

Notes:

Traffic Flow (pcu / hr) Weekday AM Peak

	AM Peak Check Phase AB,C,D	AM Peak Check Phase AD,B,C	PM Peak Check Phase AB,C,D	PM Peak Check Phase AD,B,C
εy	0.577	0.626	0.496	0.474
L (sec)	31	37	35	37
C (sec)	114	114	100	100
y pract.	0.655	0.608	0.585	0.567
R.C. (%)	**14%**	**-3%**	**18%**	**20%**

Stage / Phase Diagrams



	I/G = 8 + Ped 23	I/G = 3	I/G = 5
I/G = 2		I/G = 5	I/G = 12 + Ped 18

TRAFFIC SIGNALS CALCULATION Job No: 24002HK **CTA Consultants Ltd.**

Junction: **(J12) Tsing Yi Heung Sze Wui Road / Chung Mei Road**
Description: **2029 Design Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		(%) uphill Gradient	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)		AM Peak			PM Peak		
						Left	Right			AM	PM			AM	PM	AM	PM	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Chung Mei Road	E		5	B,C	3.3	10.0	0	0	1	100%	100%	1945	1945	1690	1690	1690	1690	260	0.154		280	0.166	
	E		6	C	3.3	0.0	18	0	0	100%	100%	2085	2085	1925	1925	1925	1925	315	0.164	0.164	235	0.122	0.122
Tsing Yi Heung Sze Wui Road	N		2	A,C	3.3	25.0	0	0	1	100%	100%	1945	1945	1835	1835	1835	1835	290	0.158		355	0.193	
	N		3	A	3.5	0.0	0	0	0	0%	0%	2105	4210	2105	2105	4210	4210	545	0.259	0.259	478	0.227	0.227
	N		3	A	3.5	0.0	0	0	0	0%	0%	2105	0	2105	2105	0	0	545	0.259		478	0.227	
Tsing Yi Heung Sze Wui Road	S		1	A,B	3.5	0.0	0	3	1	0%	0%	1839	3818	1839	1839	3818	3818	621	0.338		486	0.265	
	S		1	A,B	3.5	0.0	0	3	0	0%	0%	1979	0	1979	1979	0	0	669	0.338		524	0.265	
	S		4	B	3.5	0.0	22	3	0	100%	100%	1979	1979	1855	1855	1855	1855	370	0.199	0.199	290	0.156	0.156

Notes:

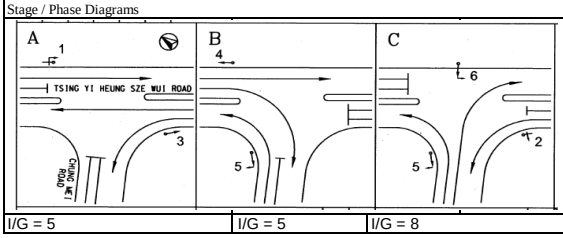
Traffic Flow (pcu / hr) Weekday AM Peak

260(280)
315(235)
370(290) 1290(1010)
290(355) 1090(955)

AM Peak Check Phase	
εy	0.622
L (sec)	15
C (sec)	114
y pract.	0.782
R.C. (%)	**26%**

PM Peak Check Phase	
εy	0.505
L (sec)	15
C (sec)	100
y pract.	0.765
R.C. (%)	**51%**

Stage / Phase Diagrams



I/G = 5 | I/G = 5 | I/G = 8

TRAFFIC SIGNALS CALCULATION Job No: 24002HK **CTA Consultants Ltd.**

Junction: **(J14) Tsing Yi Road / Planned New Road**

Description: **2029 Design Traffic Flow** **(With Planned New Road)**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	(%) uphill Gradient	Nearside 0/1	Pro. Turning (%) AM	Pro. Turning (%) PM	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) AM	Revised Saturation Flow (pcu/hr) PM	Total Revised Saturation Flow (pcu/hr) AM	Total Revised Saturation Flow (pcu/hr) PM	AM Peak Flow (pcu/hr)	AM Peak y Value	AM Peak Critical y	PM Peak Flow (pcu/hr)	PM Peak y Value	PM Peak Critical y
Tsing Yi Road	N		A	1	3.5	0.0	0	0	1	0%	0%	1965	4070	1965	1965	4065	4065	554	0.282	0.282	546	0.278	0.278
	N		A	1	3.5	0.0	40	0	0	8%	9%	2105	0	2100	2100	0	0	591	0.282		584	0.278	
Planned New Road	W		C	3	3.5	0.0	18	0	0	100%	100%	2105	2105	1945	1945	1945	1945	50	0.026		50	0.026	
	W		C	3	3.5	10.0	0	0	1	100%	100%	1965	1965	1710	1710	1710	1710	50	0.029	0.029	50	0.029	0.029
Tsing Yi Road	S		B	2	3.5	10.0	0	0	1	10%	13%	1965	4070	1935	1925	4040	4030	496	0.256	0.256	373	0.194	0.194
	S		B	2	3.5	0.0	0	0	0	0%	0%	2105	0	2105	2105	0	0	539	0.256		407	0.193	

Pedestrian crossing	Dp	1	AM: Green time = 26GM + 7FG = 33s, PM: Green time = 32GM + 7FG = 39s
	EP	1,2	AM: Green time = 76GM + 7FG = 83s, PM: Green time = 82GM + 7FG = 89s
	Fp	2,3	AM: Green time = 70GM + 7FG = 77s, PM: Green time = 64GM + 7FG = 71s
	Gp	3	AM: Green time = 22GM + 7FG = 29s, PM: Green time = 16GM + 7FG = 23s
	Hp	1,3	AM: Green time = 66GM + 7FG = 73s, PM: Green time = 66GM + 7FG = 73s
	Ip	2	AM: Green time = 32GM + 7FG = 39s, PM: Green time = 32GM + 7FG = 39s

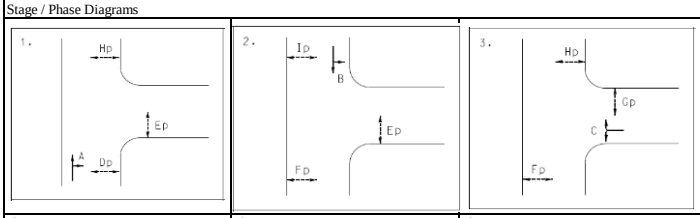
Notes:

Traffic Flow (pcu / hr) Weekday AM Peak

AM Peak Check Phase	
εy	0.567
L (sec)	18
C (sec)	120
y pract.	0.765
R.C. (%)	**35%**

PM Peak Check Phase	
εy	0.501
L (sec)	18
C (sec)	120
y pract.	0.765
R.C. (%)	**53%**

Stage / Phase Diagrams



I/G = 5 | I/G = 10 | I/G = 6

TRAFFIC SIGNALS CALCULATION Job No: 24002HK **CTA Consultants Ltd.**

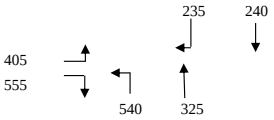
Junction: **(J1) Cheung Tsing Highway / Tsing Yi Road West**

Description: **2029 Design Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	(%) uphill Gradient	Nearside 0/1	Pro. Turning (%) Logistic Peak	Pro. Turning (%)	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) Logistic Peak	Revised Saturation Flow (pcu/hr)	Total Revised Saturation Flow (pcu/hr) Logistic Peak	Total Revised Saturation Flow (pcu/hr)	Logistic Peak Flow (pcu/hr)	Logistic Peak y Value	Logistic Peak Critical y	Flow (pcu/hr)	y Value	Critical y
Tsing Yi Road West	S		2	A	3.5	0	0	0	1	0%		1965	6135	1965		5895		158	0.081	0.081			
	S		2	A	3.3	0	20	0	0	50%		2085	0	2010		0		162	0.081				
	S		2	A	3.3	0	17.5	0	0	100%		2085	0	1920		0		155	0.081				
Cheung Tsing Highway	E		3	A,B	3.4	20	0	0	1	100%		1955	1955	1820		1820		405	0.223				
	E		4	B	3.5	0	30	0	0	100%		2105	4070	2005		3860		288	0.144				
	E		4	B	3.5	0	25	0	1	100%		1965	0	1855		0		267	0.144	0.144			
Tsing Yi Road West	N		1	C	3.6	20	0	6.5	1	100%		1702	3544	1585		3425		540	0.341	0.341			
	N		1	C	3.6	0	0	6.5	0	0%		1842	0	1840		0		325	0.177				
Pedestrian crossing			5P	C		Min. Green time = 5GM + 10FG = 15s																	
			6P	C		Min. Green time = 5GM + 6FG = 11s																	
			7P	A.B		Min. Green time = 5GM + 9FG = 14s																	
			8P	B		Min. Green time = 5GM + 10FG = 15s																	

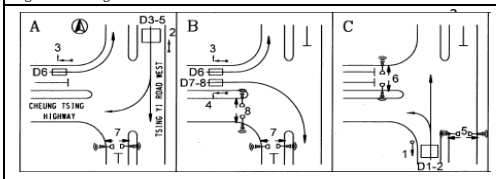
Notes:

Traffic Flow (pcu / hr)



Logistic Peak Check Phase	A,B,C	AB,C
ε y	0.565	0.563
L (sec)	13	9
C (sec)	100	100
y pract.	0.783	0.819
R.C. (%)	**39%**	**45%**

Stage / Phase Diagrams



I/G = 5	I/G = 5	I/G = 6

TRAFFIC SIGNALS CALCULATION Job No: 24002HK **CTA Consultants Ltd.**

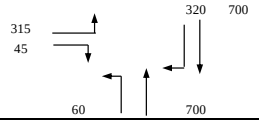
Junction: **(J2) Tsing Hung Road / Tsing Yi Road**
Description: **2029 Design Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Nearside 0/1	Pro. Turning (%) Logistic Peak	Pro. Turning (%)	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) Logistic Peak	Revised Saturation Flow (pcu/hr)	Total Revised Saturation Flow (pcu/hr) Logistic Peak	Total Revised Saturation Flow (pcu/hr)	Logistic Peak Flow (pcu/hr)	Logistic Peak y Value	Logistic Peak Critical y	Flow (pcu/hr)	y Value	Critical y
Tsing Yi Road	S		1	A	3.5	0.0	0	1	0%		1965	4070	1965		4070		338	0.172				
	S		1	A	3.5	0.0	0	0	0%		2105	0	2105		0		362	0.172				
	S		1	A	3.6	0.0	18	0	100%		2115	2115	1950		1950		320	0.164	0.172			
Tsing Yi Road	N		4	C	4.0	30.0	0	1	100%		2015	2015	1920		1920		60	0.031				
	N		4	C	3.5	0.0	0	0	0%		2105	4210	2105		4210		350	0.166				
	N		4	C	3.5	0.0	0	0	0%		2105	0	2105		0		350	0.166	0.166			
Tsing Hung Road	E		2	A,B	3.3	25.0	0	1	100%		1945	1945	1835		1835		315	0.172				
	E		3	B	4.0	0.0	22	0	100%		2155	2155	2015		2015		45	0.022				
Pedestrian Crossing			5P	D		Min. Green time = 5GM + 7FG = 12s																
			6P	A,B,D		Min. Green time = 5GM + 5FG = 10s																
			7P	C,D		Min. Green time = 5GM + 10FG = 15s																
			8P	C,D		Min. Green time = 5GM + 5FG = 10s																

A,B,C,D AB,C,D

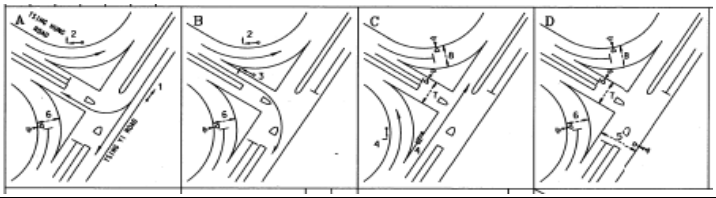
Notes:

Traffic Flow (pcu / hr) Weekday AM Peak



Logistic Peak Check Phase	A,B,C,D	AB,C,D
εy	0.338	0.338
L (sec)	33	22
C (sec)	100	100
y pract.	0.603	0.702
R.C. (%)	**78%**	**108%**

Stage / Phase Diagrams



I/G = 2	I/G = 6 + Min. G 5	I/G = 5	I/G = 5 + 12

TRAFFIC SIGNALS CALCULATION Job No: 24002HK **CTA Consultants Ltd.**

Junction: **(J4) Sai Tso Wan Road / Tsing Yi Road West / Tsing Yi Road**

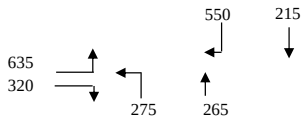
Description: **2029 Design Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	(%) uphill Gradient	Nearside 0/1	Pro. Turning (%) Logistic Peak	Pro. Turning (%)	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) Logistic Peak	Revised Saturation Flow (pcu/hr)	Logistic Peak Flow (pcu/hr)	Logistic Peak y Value	Logistic Peak Critical y	Flow (pcu/hr)	y Value	Critical y
Tsing Yi Road	NE		1	A	4.5	15	0	6.5	1	100%		1792	1792	1630		275	0.169	0.169			
	NE		1	A	3.4	0	0	6.5	0	0%		1822	1822	1820		265	0.146				
Sai Tso Wan Road	NW		3	C,D	3.8	15	0	0	1	100%		1995	1995	1815		635	0.350				
	NW		4	D	3.8	0	25	0	0	100%		2135	2135	2015		320	0.159	0.159			
Tsing Yi Road West	SE		2	B,C	3.4	0	0	0	1	0%		1955	1955	1955		215	0.110				
	SE		2	B,C	3.7	0	25	0	0	100%		2125	2125	2005		550	0.274	0.274			
Pedestrian crossing			5p	A,B																	
			6p	D																	
			7p	B,C																	
			8p	A,D																	

Pedestrian crossing:
- 5p: Min. Green time = 5GM + 8FG = 13s
- 6p: Min. Green time = 5GM + 10FG = 15s
- 7p: Min. Green time = 5GM + 9FG = 14s
- 8p: Min. Green time = 5GM + 7FG = 12s

Notes:

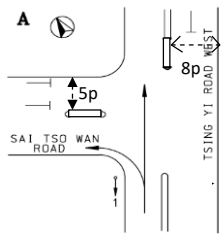
Traffic Flow (pcu / hr)

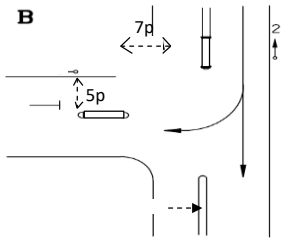


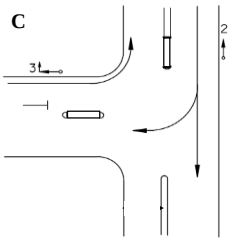
Logistic Peak Check Phase

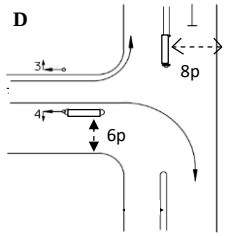
εy	0.602
L (sec)	19
C (sec)	110
y pract.	0.745
R.C. (%)	**24%**

Stage / Phase Diagrams









I/G = 5	I/G =5		I/G = 5	
I/G = 5	I/G =8+12	I/G = 2		

TRAFFIC SIGNALS CALCULATION Job No: 24002HK **CTA Consultants Ltd.**

Junction: **(J5) Sai Tso Wan Road Near VEC**

Description: **2029 Design Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	Nearside 0/1	Pro. Turning (%) Logistic Peak	Pro. Turning (%)	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) Logistic Peak	Revised Saturation Flow (pcu/hr)	Total Revised Saturation Flow (pcu/hr) Logistic Peak	Total Revised Saturation Flow (pcu/hr)	Logistic Peak Flow (pcu/hr)	Logistic Peak y Value	Logistic Peak Critical y	Flow (pcu/hr)	y Value	Critical y
Sai Tso Wan Road	EB	→	3	A	4.0	0.0	0	1	0%		2015	2015	2015		2015		825	0.409	0.409			
Sai Tso Wan Road	WB	←	1	A,B	4.0	0.0	0	1	0%		2015	2015	2015		2015		625	0.310				
Sai Tso Wan Road	WB	↰	2	B,C	4.0	0.0	10	0	100%		2155	2155	1875		1875		130	0.069	0.069			
Pedestrian Crossing		↕	4P	C																		

Green time = 13Gm + 5 FGm = 18s

	A,BC	AB,C
Logistic Peak Check Phase		
εy	0.479	0.310
L (sec)	11	25
C (sec)	91	91
y pract.	0.791	0.653
R.C. (%)	**65%**	**110%**

Notes:
(None)

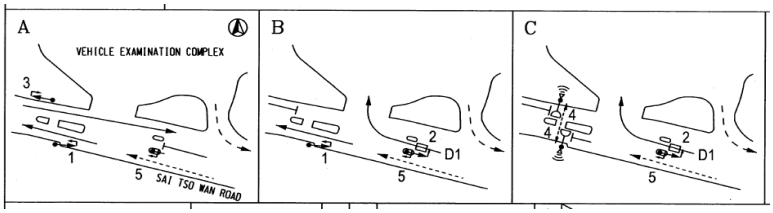
Traffic Flow (pcu / hr) AM (PM) Peak

825 →

↰ 130

← 625

Stage / Phase Diagrams



I/G = 6	I/G = 7		
I/G = 3	I/G = 7	I/G = 5 + Ped 18s	

TRAFFIC SIGNALS CALCULATION Job No: 24002HK **CTA Consultants Ltd.**

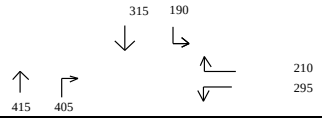
Junction: **(J8) Tsing Yi Road West / Ching Hong Road**

Description: **2029 Design Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	(%) uphill Gradient	Nearside 0/1	Pro. Turning (%) Logistic Peak	Pro. Turning (%)	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) Logistic Peak	Revised Saturation Flow (pcu/hr)	Total Revised Saturation Flow (pcu/hr) Logistic Peak	Total Revised Saturation Flow (pcu/hr)	Logistic Peak Flow (pcu/hr)	Logistic Peak y Value	Logistic Peak Critical y	Flow (pcu/hr)	y Value	Critical y
Tsing Yi Road West	S	↓	1	A	3.0	0.0	0	5.5	0	0%		1824	3698	1824		3698		155	0.085	0.125			
	S	↓	1	A	3.5	0.0	0	5.5	0	0%		1874	0	1874		0		160	0.085				
	S	↳	1	A	3.7	10.0	0	5.5	1	100%		1754	1754	1525		1525		190	0.125				
Tsing Yi Road West	N	↑	2	A,B	3.5	0.0	0	0	1	0%		1965	4070	1965		4070		200	0.102				
	N	↑	2	A,B	3.5	0.0	0	0	0	0%		2105	0	2105		0		215	0.102				
	N	↱	3	B	3.3	0.0	18	0	0	100%		2085	2085	1925		1925		405	0.210	0.210			
Ching Hong Road	W	↰↓	4	C	3.4	18.0	20	0	0	20% / 80%		2095	0	1945		0		264	0.136	0.136			
	W	↓	4	C	3.4	15.0	0	0	1	100%		1955	4050	1775		3720		241	0.136				
Pedestrian crossing		↕	5P	A,B		Min. Green time = 11GM + 8FG = 19s																	
			6P	C		Min. Green time = 5GM + 12FG = 17s																	

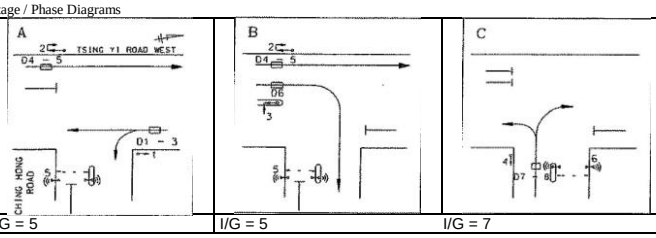
Notes:

Traffic Flow (pcu / hr) Weekday AM Peak



Logistic Peak Check Phase	
εy	0.471
L (sec)	12
C (sec)	71
y pract.	0.748
R.C. (%)	**59%**

Stage / Phase Diagrams



I/G = 5 I/G = 5 I/G = 7

TRAFFIC SIGNALS CALCULATION Job No: 24002HK **CTA Consultants Ltd.**

Junction: **J9 - Tsing Yi Road West / Liu To Road**

Description: **2029 Design Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	(%) uphill Gradient	Nearside 0/1	Pro. Turning (%) Logistic Peak	Pro. Turning (%)	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) Logistic Peak	Revised Saturation Flow (pcu/hr)	Total Revised Saturation Flow (pcu/hr) Logistic Peak	Total Revised Saturation Flow (pcu/hr)	Logistic Peak Flow (pcu/hr)	Logistic Peak y Value	Logistic Peak Critical y	Flow (pcu/hr)	y Value	Critical y
Tsing Yi Road West	S		2	A,B	3.3	0.0	0	5	1	0%		1735	3610	1735		3610		207	0.119				
	S		2	A,B	3.3	0.0	0	5	0	0%		1875	0	1875		0		223	0.119				
	S		3	B	3.3	0.0	22	5	0	100%		1875	1875	1755		1755		355	0.202	0.202			
Tsing Yi Road West	N		1	A	3.2	10.0	0	0	1	47%		1935	4100	1805		3970		284	0.157	0.157			
	N		1	A	4.1	0.0	0	0	0	0%		2165	0	2165		0		341	0.157				
Liu To Road	E		5	B,C	3.2	10.0	0	0	1	100%		1935	1935	1685		1685		320	0.190				
	E		4	C	4.1	0.0	18	0	0	100%		2165	2165	2000		2000		70	0.035	0.035			

Pedestrian crossing

6P A,D Green time = 46GM + 9FG = 55s

7P C,D Green time = 31GM + 13FG = 44s

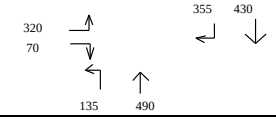
8P D Green time = 10GM + 8FG = 18s

Pedestrian Crossing

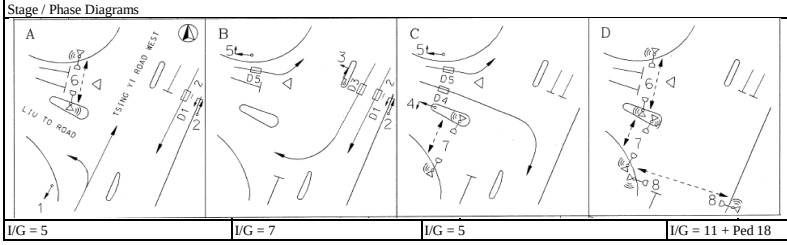
	A,BC,D	A,B,C,D
Logistic Peak Check Phase		
εy	0.347	0.395
L (sec)	39	43
C (sec)	130	130
y pract.	0.630	0.602
R.C. (%)	**81%**	**53%**

Notes:

Traffic Flow (pcu / hr) Weekday AM Peak



Stage / Phase Diagrams



I/G = 5	I/G = 7	I/G = 5	I/G = 11 + Ped 18

TRAFFIC SIGNALS CALCULATION Job No: 24002HK **CTA Consultants Ltd.**

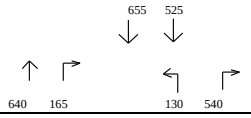
Junction: **J10 - Tsing Yi Road West / Fung Shue Wo Road**
Description: **2029 Design Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	(%) uphill Gradient	Nearside 0/1	Pro. Turning (%) Logistic Peak	Pro. Turning (%)	Site Factor	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) Logistic Peak	Revised Saturation Flow (pcu/hr)	Total Revised Saturation Flow (pcu/hr) Logistic Peak	Total Revised Saturation Flow (pcu/hr)	Logistic Peak Flow (pcu/hr)	Logistic Peak y Value	Logistic Peak Critical y	Flow (pcu/hr)	y Value	Critical y
Fung Shue Wo Road	S	↓	1	A,D	4.1	0.0	0	3	0	0%		1	2039	4058	2039		4058		329	0.161	0.229			
(To Tsing Yi Road West)	S	↓	1	A,D	3.9	0.0	0	3	0	0%		1	2019	0	2019		0		326	0.161				
Fung Shue Wo Road	S	↓	1	A,D	4.0	0.0	0	3	1	0%		1	1889	2294.8	1889		2294.8		432	0.229				
(To Fung Shue Wo Road)	S	↓	1	A,D	4.0	0.0	0	3	0	0%		0.2	405.8	0	405.8		0		93	0.229				
Tsing Yi Road West	N	↑	2	A,B	3.5	0.0	0	0	1	0%		1	1965	2491.3	1965		2491.25		505	0.257				
	N	↑	2	A,B	3.5	0.0	0	0	0	0%		0.25	526.25	0	526.25		0		135	0.257				
	N	↱	3	B	3.6	0.0	18	0	0	100%		1	2115	2115	1950		1950		165	0.085	0.085			
Fung Shue Wo Road	N	↰	4	C	3.8	35.0	0	3	1	100%		1	1869	2193.6	1790		2100		111	0.062				
	N	↰	4	C	4.0	38.0	0	3	0	100%		0.16	324.64	0	310		0		19	0.062				
Fung Shue Wo Road	N	↱	4	C	3.6	0.0	43	3	0	100%		0.23	457.47	2446.5	440		2355		101	0.229	0.229			
	N	↱	4	C	3.6	0.0	40	3	0	100%		1	1989	0	1915		0		439	0.229				

Pedestrian crossing			
↔	5p	D	Min. Green time = 5s (G) + 8s (FS) = 13s
↔	6P	B,C	Min. Green time = 5s (G) + 8s (FS) = 13s
↕	7P	A,C,D	Min. Green time = 5s (G) + 8s (FS) = 13s
↕	8P	A,B,D	Min. Green time = 5s (G) + 7s (FS) = 12s

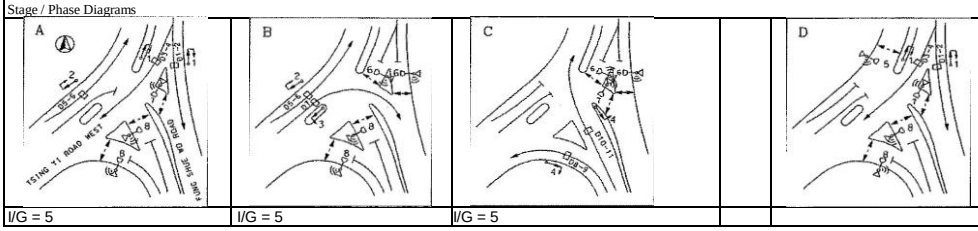
Notes:

Traffic Flow (pcu / hr) Weekday AM Peak



Logistic Peak Check Phase	
£y	0.543
L (sec)	12
C (sec)	90
y pract.	0.780
R.C. (%)	**44%**

Stage / Phase Diagrams



I/G = 5 I/G = 5 I/G = 5

TRAFFIC SIGNALS CALCULATION Job No: 24002HK **CTA Consultants Ltd.**

Junction: **(J11) Tsing Yi Heung Sze Wui Road / Cheung Wan Street**

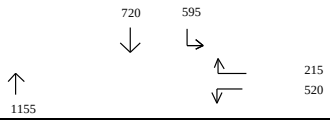
Description: **2029 Design Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	(%) uphill Gradient	Nearside 0/1	Pro. Turning (%) Logistic Peak	Pro. Turning (%)	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) Logistic Peak	Revised Saturation Flow (pcu/hr)	Total Revised Saturation Flow (pcu/hr) Logistic Peak	Total Revised Saturation Flow (pcu/hr)	Logistic Peak Flow (pcu/hr)	Logistic Peak y Value	Logistic Peak Critical y	Flow (pcu/hr)	y Value	Critical y
Tsing Yi Heung Sze Wui Road	N	↑	2	A,B	3.5	0.0	0	0	1	0%		1965	4070	1965		4070		558	0.284				
	N	↑	2	A,B	3.5	0.0	0	0	0	0%		2105	0	2105		0		597	0.284				
Cheung Wan Street	W	↰↓	3	C	3.5	18.0	20	0	0	44% / 56%		2105	0	1950		0		384	0.197	0.197			
	W	↓	3	C	3.5	15.0	0	0	1	100%		1965	4070	1785		3735		351	0.197				
Tsing Yi Heung Sze Wui Road	S	↓→	1	A,D	3.0	10.0	0	0	1	100%		1915	6025	1665		5775		595	0.357	0.357			
	S	↓	1	A,D	3.0	0.0	0	0	0	0%		2055	0	2055		0		360	0.175				
	S	↓	1	A,D	3.0	0.0	0	0	0	0%		2055	0	2055		0		360	0.175				
Pedestrian crossing		↔	4P	B		Green time = 12GM + 11FG = 23s																	
		↕	5P	D		Green time = 8GM + 8FG = 16s																	
		↕	6P	B,C		Green time = 42GM + 10FG = 52s																	

AB,C,D AD,B,C

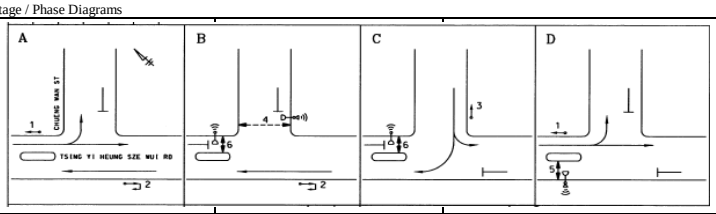
Notes:

Traffic Flow (pcu / hr) Weekday AM Peak



Logistic Peak Check Phase		
εy	0.481	0.554
L (sec)	33	37
C (sec)	90	90
y pract.	0.570	0.530
R.C. (%)	**19%**	**-4%**

Stage / Phase Diagrams



I/G = 2 | I/G = 5 | I/G = 12 + Ped 16

TRAFFIC SIGNALS CALCULATION Job No: 24002HK **CTA Consultants Ltd.**

Junction: **(J12) Tsing Yi Heung Sze Wui Road / Chung Mei Road**

Description: **2029 Design Traffic Flow**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	(%) uphill Gradient	Nearside 0/1	Pro. Turning (%) Logistic Peak	Pro. Turning (%)	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) Logistic Peak	Revised Saturation Flow (pcu/hr)	Total Revised Saturation Flow (pcu/hr) Logistic Peak	Total Revised Saturation Flow (pcu/hr)	Logistic Peak Flow (pcu/hr)	Logistic Peak y Value	Logistic Peak Critical y	Flow (pcu/hr)	y Value	Critical y
Chung Mei Road	E		5	B,C	3.3	10.0	0	0	1	100%		1945	1945	1690		1690		280	0.166				
	E		6	C	3.3	0.0	18	0	0	100%		2085	2085	1925		1925		255	0.132	0.132			
Tsing Yi Heung Sze Wui Road	N		2	A,C	3.3	25.0	0	0	1	100%		1945	1945	1835		1835		285	0.155				
	N		3	A	3.5	0.0	0	0	0	0%		2105	4210	2105		4210		390	0.185	0.185			
	N		3	A	3.5	0.0	0	0	0	0%		2105	0	2105		0		390	0.185				
Tsing Yi Heung Sze Wui Road	S		1	A,B	3.5	0.0	0	3	1	0%		1839	3818	1839		3818		446	0.242				
	S		1	A,B	3.5	0.0	0	3	0	0%		1979	0	1979		0		479	0.242				
	S		4	B	3.5	0.0	22	3	0	100%		1979	1979	1855		1855		365	0.197	0.197			

Pedestrian crossing

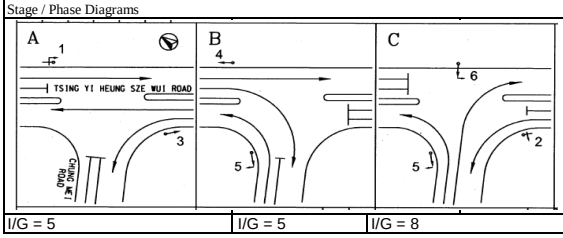
Notes:

Traffic Flow (pcu / hr) Weekday AM Peak

280 (E) 255 (E) 365 (S) 925.00 (S) 285 (N) 780 (N)

Logistic Peak Check Phase	
εy	0.515
L (sec)	15
C (sec)	114
y pract.	0.782
R.C. (%)	**52%**

Stage / Phase Diagrams



I/G = 5 | I/G = 5 | I/G = 8

TRAFFIC SIGNALS CALCULATION Job No: 24002HK **CTA Consultants Ltd.**

Junction: **(J14) Tsing Yi Road / Planned New Road**

Description: **2029 Design Traffic Flow** **(With Planned New Road)**

Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m) Left	Radius (m) Right	(%) uphill Gradient	Nearside 0/1	Pro. Turning (%) Logistic Peak	Pro. Turning (%)	Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr) Logistic Peak	Revised Saturation Flow (pcu/hr)	Total Revised Saturation Flow (pcu/hr) Logistic Peak	Total Revised Saturation Flow (pcu/hr)	Logistic Peak Flow (pcu/hr)	Logistic Peak y Value	Logistic Peak Critical y	Flow (pcu/hr)	y Value	Critical y
Tsing Yi Road	N		A	1	3.5	0.0	0	0	1	0%		1965	4070	1965		4065		573	0.292	0.292			
	N		A	1	3.5	0.0	40	0	0	8%		2105	0	2100		0		612	0.291				
Planned New Road	W		C	3	3.5	0.0	18	0	0	100%		2105	2105	1945		1945		50	0.026				
	W		C	3	3.5	10.0	0	0	1	100%		1965	1965	1710		1710		50	0.029	0.029			
Tsing Yi Road	S		B	2	3.5	10.0	0	0	1	11%		1965	4070	1935		4040		448	0.231	0.232			
	S		B	2	3.5	0.0	0	0	0	0%		2105	0	2105		0		487	0.232				

Pedestrian crossing	Dp	1	Green time = 28GM + 7FG = 35s
	EP	1,2	Green time = 78GM + 7FG = 85s
	Fp	2,3	Green time = 68GM + 7FG = 75s
	Gp	3	Green time = 20GM + 7FG = 27s
	Hp	1,3	Green time = 66GM + 7FG = 73s
	Ip	2	Green time = 32GM + 7FG = 39s

Notes:

Traffic Flow (pcu / hr) Weekday AM Peak

985(730) 50(50)

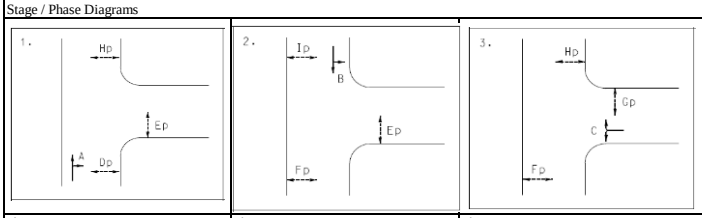
50(50)

50(50)

1095(1080) 50(50)

AM Peak Check Phase	
εy	0.552
L (sec)	18
C (sec)	120
y pract.	0.765
R.C. (%)	**38%**

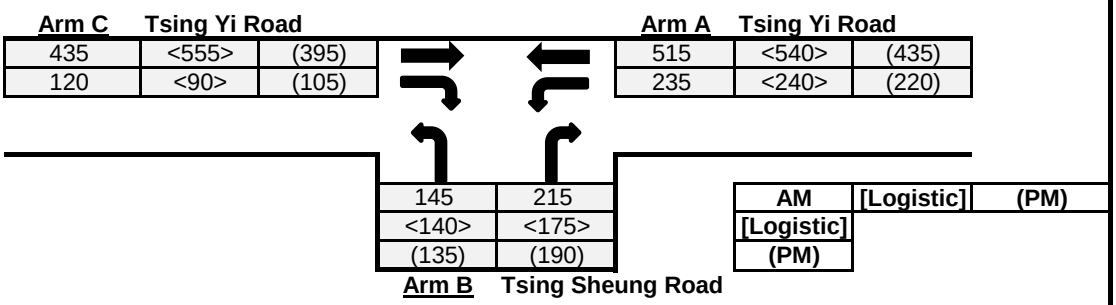
Stage / Phase Diagrams



I/G = 5	I/G = 10	I/G = 6

Priority Junction Calculation

Junction :	(J3) Tsing Yi Road / Tsing Sheung Road	Job No.:	24002HK
Scenario :	2029 Design Traffic Flow		



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	14	V-rBA	30	w-BA	4.5	D	0.933
W-CR	0	V-IBA	50	w-BC	4.5	E	1.012
C-B blocked C-A, residual width <2.5m? (Yes: 1, No: 0)	0	V-rBC	50	w-CB	0	F	0.616
Minor Road Share LT&RT? (Yes: 1, No: 0)	0	V-rCB	50			Y	0.517

Analysis :	**Traffic Flow pcu/hr**	**AM**	**Logistic**	**PM**	**Capacity pcu/hr**	**AM**	**Logistic**	**PM**	
	q-CA	435	555	395	Q-BA	400	390	423	
	q-CB	120	90	105	Q-BC	638	633	654	
	q-AB	235	240	220	Q-CB	372	368	383	
	q-AC	515	540	435	Q-CA	N/A	N/A	N/A	(If C-B blocked C-
	q-BA	215	175	190	Q-BAC	N/A	N/A	N/A	(If Minor Road Share LT&RT)
	q-BC	145	140	135					
	f	0.403	0.444	0.415					

Results :	**Ratio of Flow-to-Capacity**	**AM**	**Logistic**	**PM**
	B-A	0.54	0.45	0.45
	B-C	0.23	0.22	0.21
	C-B	0.32	0.24	0.27
	C-A	N/A	N/A	N/A
	B-AC	N/A	N/A	N/A
	Critical DFC	**0.54**	**0.45**	**0.45**

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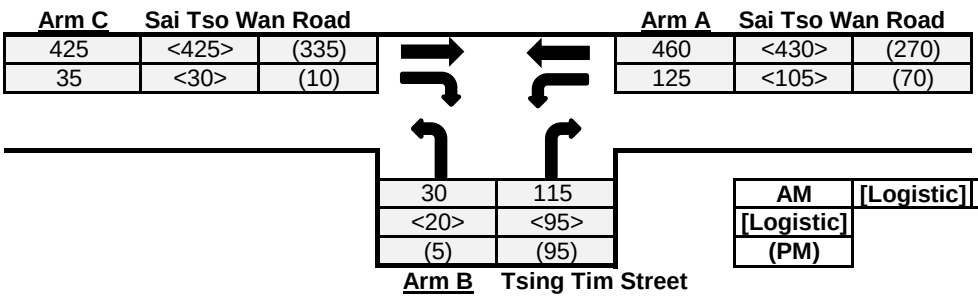
Priority Junction Calculation

Junction : (J6) Sai Tso Wan Road / Tsing Tim Street Job No.: 24002HK

Scenario : 2029 Design Traffic Flow



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	3.6	D	0.877
W-CR	0	V-IBA	50	w-BC	3.6	E	0.933
C-B blocked C-A, residual width <2.5m? (Yes: 1, No: 0)	0	V-rBC	50	w-CB	0	F	0.616
Minor Road Share LT&RT? (Yes: 1, No: 0)	1	V-rCB	50			Y	0.759

Analysis :	**Traffic Flow pcu/hr**	**AM**	**Logistic**	**PM**	**Capacity pcu/hr**	**AM**	**Logistic**	**PM**	
	q-CA	425	425	335	Q-BA	350	360	423	
	q-CB	35	30	10	Q-BC	564	573	618	
	q-AB	125	105	70	Q-CB	359	368	401	
	q-AC	460	430	270	Q-CA	N/A	N/A	N/A	(If C-B blocked C-
	q-BA	115	95	95	Q-BAC	379	385	430	(If Minor Road Share LT&RT)
	q-BC	30	20	5					
	f	0.207	0.174	0.050					

Results :	**Ratio of Flow-to-Capacity**	**AM**	**Logistic**	**PM**
	B-A	N/A	N/A	N/A
	B-C	N/A	N/A	N/A
	C-B	0.10	0.08	0.02
	C-A	N/A	N/A	N/A
	B-AC	0.38	0.30	0.23
	Critical DFC	**0.38**	**0.30**	**0.23**

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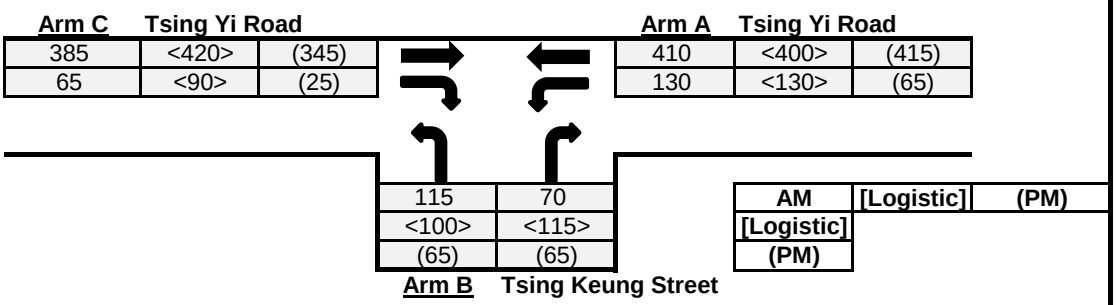
Priority Junction Calculation

Junction :	(J13) Tsing Yi Road / Tsing Keung Street	Job No.:	24002HK
Scenario :	2029 Design Traffic Flow		



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	15	V-rBA	50	w-BA	4	D	0.910
W-CR	0	V-IBA	50	w-BC	4	E	0.968
C-B blocked C-A, residual width <2.5m? (Yes: 1, No: 0)	0	V-rBC	50	w-CB	0	F	0.616
Minor Road Share LT&RT? (Yes: 1, No: 0)	0	V-rCB	50			Y	0.483

Analysis :	**Traffic Flow pcu/hr**	**AM**	**Logistic**	**PM**	**Capacity pcu/hr**	**AM**	**Logistic**	**PM**	
	q-CA	385	420	345	Q-BA	443	436	460	
	q-CB	65	90	25	Q-BC	643	644	646	
	q-AB	130	130	65	Q-CB	400	401	407	
	q-AC	410	400	415	Q-CA	N/A	N/A	N/A	(If C-B blocked C-
	q-BA	70	115	65	Q-BAC	N/A	N/A	N/A	(If Minor Road Share LT&RT)
	q-BC	115	100	65					
	f	0.622	0.465	0.500					

Results :	**Ratio of Flow-to-Capacity**	**AM**	**Logistic**	**PM**
	B-A	0.16	0.26	0.14
	B-C	0.18	0.16	0.10
	C-B	0.16	0.22	0.06
	C-A	N/A	N/A	N/A
	B-AC	N/A	N/A	N/A
	Critical DFC	**0.18**	**0.26**	**0.14**

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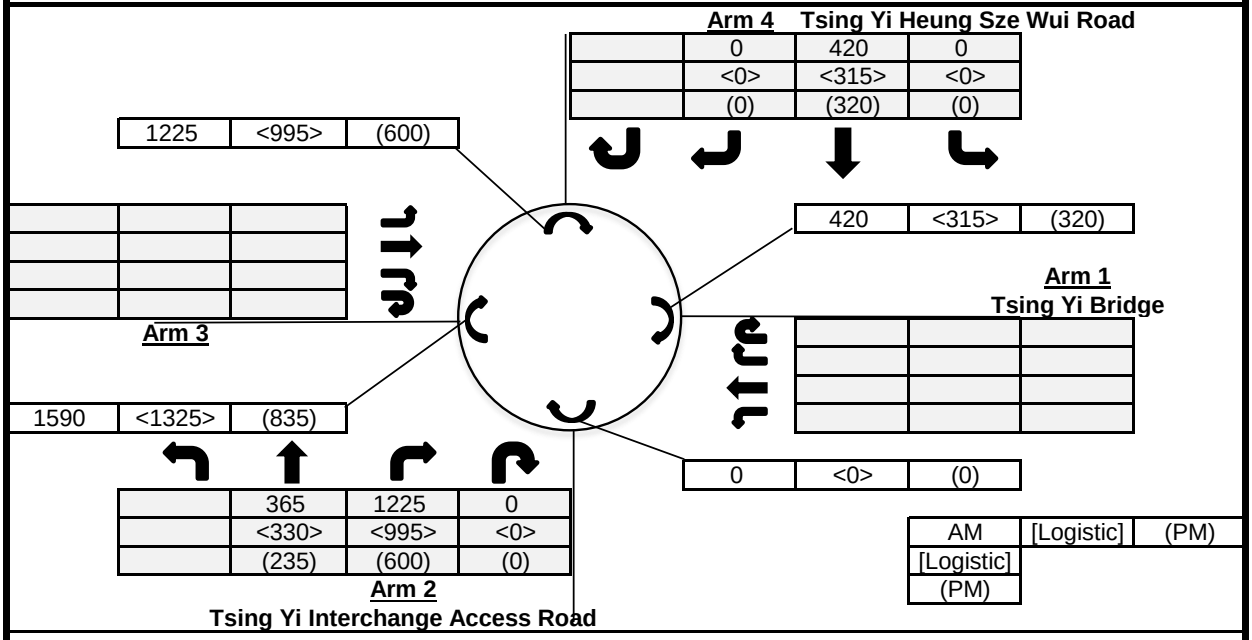
Roundabout Junction Calculation

Junction : (RA1) Tsing Yi Interchange (North) Job No.: 24002HK

Scenario : 2029 Design Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)			6		6
E	=	Entry width (m)			7		7
L	=	Effective length of flare (m)			5		5
R	=	Entry radius			62		41
D	=	Inscribed circle diameter (m)			60		60
A	=	Entry angle (degree)			27		60
Q	=	Entry flow (pcu/hr)	AM		1590		420
			Logistic		1325		315
			PM		835		320
Qc	=	Circulating flow	AM		0		1225
		across entry (pcu/hr)	Logistic		0		995
			PM		0		600

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L			0.32		0.32
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)			1.04		0.92
X_2	=	V+((E-V)/(1+2*S))			6.61		6.61
M	=	Exp((D-60)/10)			1.00		1.00
F	=	303*X_2			2003		2003
Td	=	1+(0.5/(1+M))			1.25		1.25
Fc	=	0.21*Td*(1+0.2*X_2)			0.61		0.61
Qe	=	Capacity = K*(F-Fc*Qc)	AM		2090		1157
			Logistic		2090		1286
			PM		2090		1508
DFC	=	Entry Flow/Capacity = Q/Qe	AM		0.76		0.36
			Logistic		0.63		0.24
			PM		0.40		0.21

DFC of Critical Approach = AM 0.76
Logistic 0.63
PM 0.40

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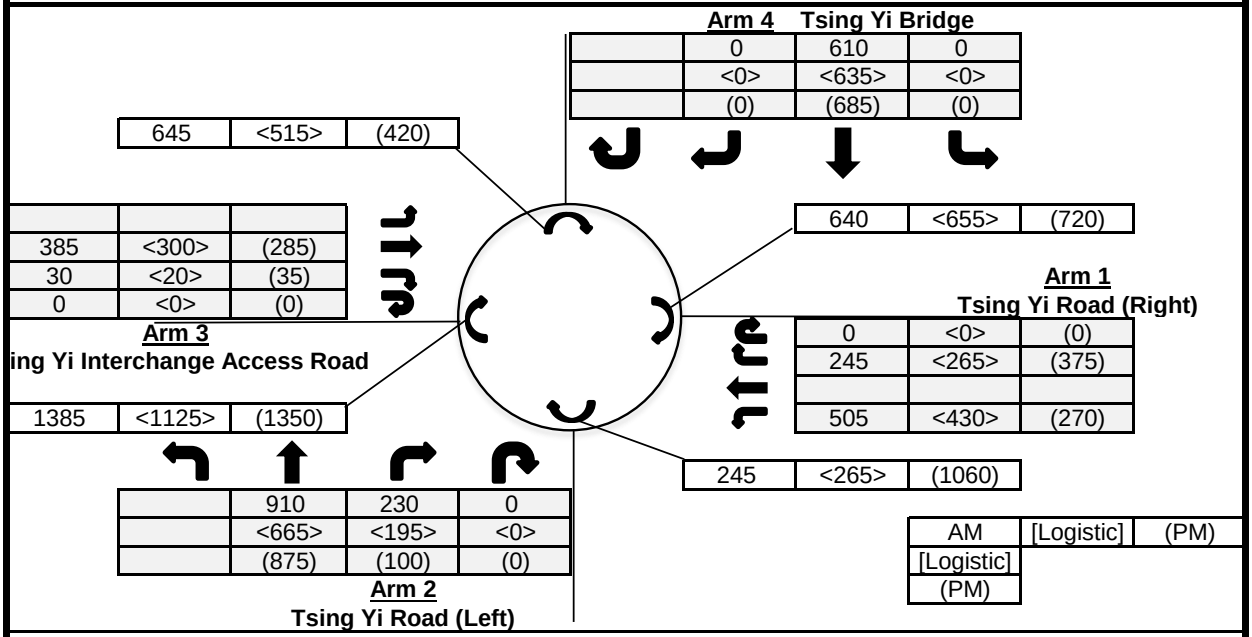
Roundabout Junction Calculation

Junction : (RA1) Tsing Yi Interchange (South) Job No.: 24002HK

Scenario : 2029 Design Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)		7	6.8	7	6
E	=	Entry width (m)		7.2	7	7.3	6.3
L	=	Effective length of flare (m)		5	5	5	5
R	=	Entry radius		23	25	24	44
D	=	Inscribed circle diameter (m)		60	60	60	60
A	=	Entry angle (degree)		43	54	27	23
Q	=	Entry flow (pcu/hr)	AM	750	1140	415	610
			Logistic	695	860	320	635
			PM	645	975	320	685
Qc	=	Circulating flow	AM	640	245	1385	645
		across entry (pcu/hr)	Logistic	655	265	1125	515
			PM	720	1060	1350	420

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L		0.06	0.06	0.10	0.10
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)		0.96	0.93	1.02	1.05
X_2	=	V+((E-V)/(1+2*S))		7.18	6.98	7.25	6.25
M	=	Exp((D-60)/10)		1.00	1.00	1.00	1.00
F	=	303*X_2		2175	2114	2197	1894
Td	=	1+(0.5/(1+M))		1.25	1.25	1.25	1.25
Fc	=	0.21*Td*(1+0.2*X_2)		0.64	0.63	0.64	0.59
Qe	=	Capacity = K*(F-Fc*Qc)	AM	1697	1816	1331	1590
			Logistic	1688	1804	1501	1671
			PM	1648	1341	1354	1730
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.44	0.63	0.31	0.38
			Logistic	0.41	0.48	0.21	0.38
			PM	0.39	0.73	0.24	0.40

DFC of Critical Approach = AM 0.63
Logistic 0.48
PM 0.73

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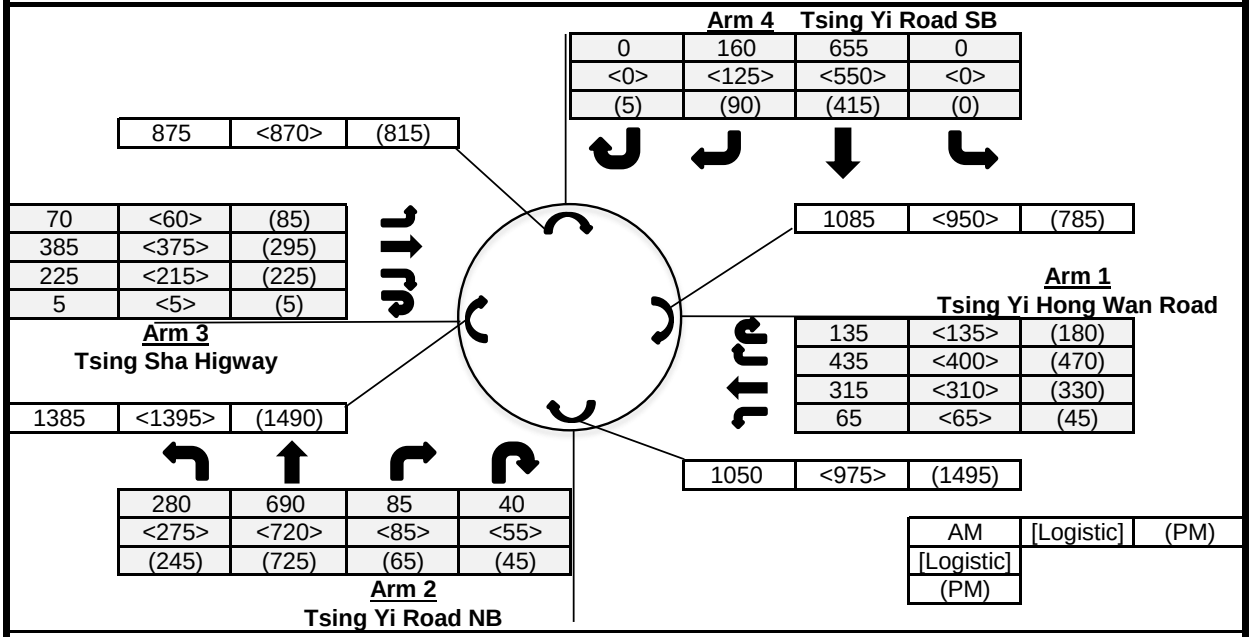
Roundabout Junction Calculation

Junction : (RA2) Tsing Yi Road / Tsing Yi Hong Wan Road / Tsing Sha Hig Job No.: 24002HK

Scenario : 2029 Design Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)		7.3	7.1	7.3	7.3
E	=	Entry width (m)		13.5	12	9.5	10
L	=	Effective length of flare (m)		30	15	30	15
R	=	Entry radius		45	97	52	34
D	=	Inscribed circle diameter (m)		100	100	100	100
A	=	Entry angle (degree)		29	32	31	46
Q	=	Entry flow (pcu/hr)	AM	950	1095	685	815
			Logistic	910	1135	655	675
			PM	1025	1080	610	510
Qc	=	Circulating flow	AM	1085	1050	1385	875
		across entry (pcu/hr)	Logistic	950	975	1395	870
			PM	785	1495	1490	815

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L		0.33	0.52	0.12	0.29
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)		1.03	1.03	1.03	0.96
X_2	=	V+((E-V)/(1+2*S))		11.03	9.50	9.08	9.01
M	=	Exp((D-60)/10)		54.60	54.60	54.60	54.60
F	=	303*X_2		3343	2877	2752	2731
Td	=	1+(0.5/(1+M))		1.01	1.01	1.01	1.01
Fc	=	0.21*Td*(1+0.2*X_2)		0.68	0.61	0.60	0.59
Qe	=	Capacity = K*(F-Fc*Qc)	AM	2685	2303	1977	2133
			Logistic	2780	2351	1970	2136
			PM	2895	2021	1912	2168
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.35	0.48	0.35	0.38
			Logistic	0.33	0.48	0.33	0.32
			PM	0.35	0.53	0.32	0.24

DFC of Critical Approach = AM 0.48
Logistic 0.48
PM 0.53

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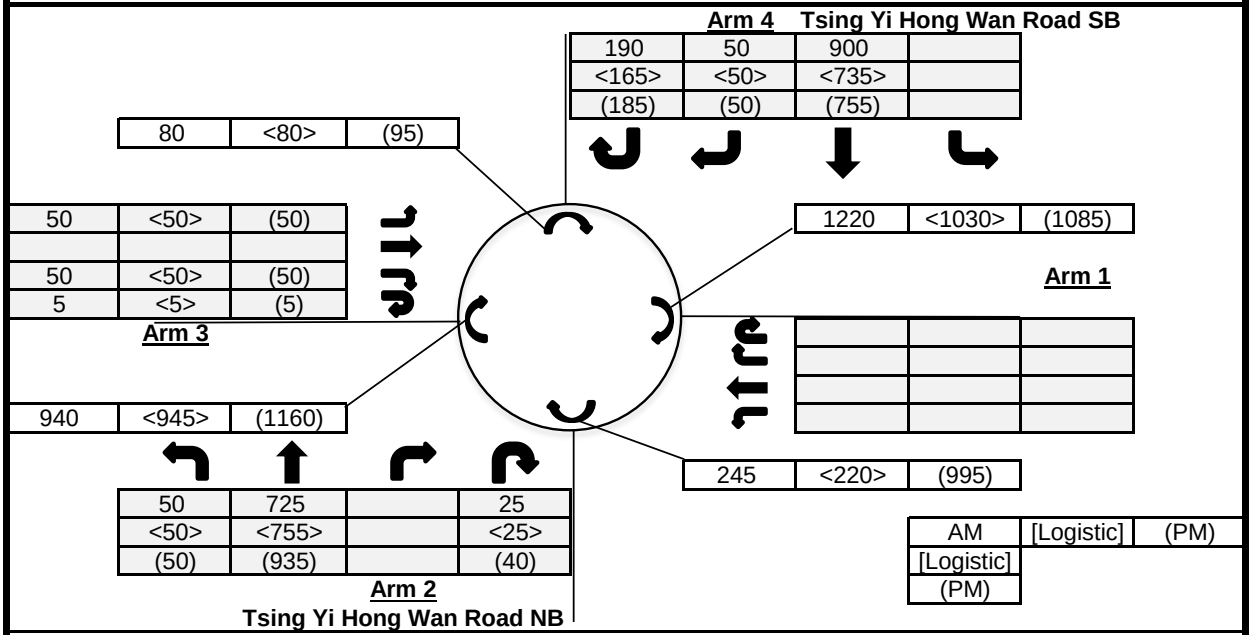
Roundabout Junction Calculation

Junction : (RA3) Tsing Yi Hong Wan Road Job No.: 24002HK

Scenario : 2029 Design Traffic Flow (With Planned New Road)



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)			7	7.3	7.3
E	=	Entry width (m)			14	13	12
L	=	Effective length of flare (m)			20	10	2
R	=	Entry radius			65	25	75
D	=	Inscribed circle diameter (m)			68	68	68
A	=	Entry angle (degree)			53	60	46
Q	=	Entry flow (pcu/hr)	AM		800	105	1140
			Logistic		830	105	950
			PM		1025	105	990
Qc	=	Circulating flow	AM		245	940	80
		across entry (pcu/hr)	Logistic		220	945	80
			PM		995	1160	95

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L			0.56	0.91	3.76
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)			0.95	0.91	0.98
X_2	=	V+((E-V)/(1+2*S))			10.30	9.32	7.85
M	=	Exp((D-60)/10)			2.23	2.23	2.23
F	=	303*X_2			3121	2823	2379
Td	=	1+(0.5/(1+M))			1.16	1.16	1.16
Fc	=	0.21*Td*(1+0.2*X_2)			0.74	0.69	0.62
Qe	=	Capacity = K*(F-Fc*Qc)	AM		2805	1966	2283
			Logistic		2822	1963	2283
			PM		2273	1827	2274
DFC	=	Entry Flow/Capacity = Q/Qe	AM		0.29	0.05	0.50
			Logistic		0.29	0.05	0.42
			PM		0.45	0.06	0.44

DFC of Critical Approach = AM 0.50
Logistic 0.42
PM 0.45

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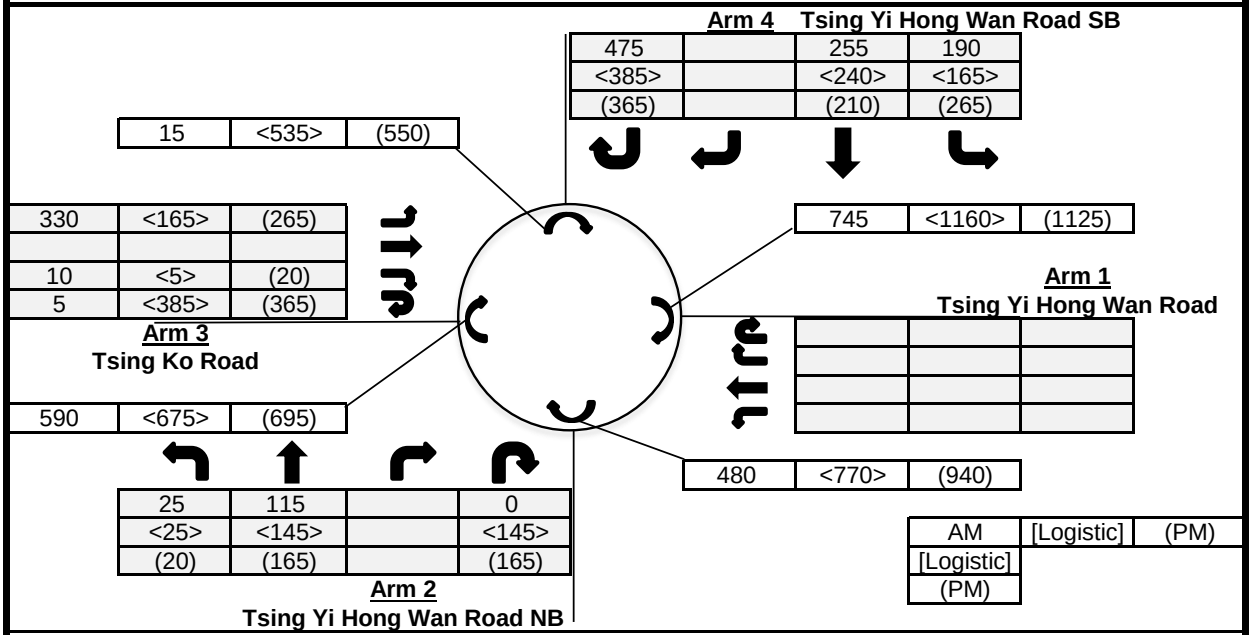
Roundabout Junction Calculation

Junction : (RA4) Tsing Yi Hong Wan Road / Tsing Ko Road Job No.: 24002HK

Scenario : 2029 Design Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)			6.7	6.3	7.3
E	=	Entry width (m)			13.5	12.5	15
L	=	Effective length of flare (m)			18	30	30
R	=	Entry radius			47	100	75
D	=	Inscribed circle diameter (m)			68	68	68
A	=	Entry angle (degree)			41	22	46
Q	=	Entry flow (pcu/hr)	AM		140	345	920
			Logistic		315	555	790
			PM		350	650	840
Qc	=	Circulating flow	AM		480	590	15
		across entry (pcu/hr)	Logistic		770	675	535
			PM		940	695	550

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L			0.60	0.33	0.41
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)			0.99	1.07	0.98
X_2	=	V+((E-V)/(1+2*S))			9.78	10.03	11.53
M	=	Exp((D-60)/10)			2.23	2.23	2.23
F	=	303*X_2			2963	3040	3493
Td	=	1+(0.5/(1+M))			1.16	1.16	1.16
Fc	=	0.21*Td*(1+0.2*X_2)			0.72	0.73	0.80
Qe	=	Capacity = K*(F-Fc*Qc)	AM		2592	2784	3412
			Logistic		2387	2718	3004
			PM		2266	2702	2992
DFC	=	Entry Flow/Capacity = Q/Qe	AM		0.05	0.12	0.27
			Logistic		0.13	0.20	0.26
			PM		0.15	0.24	0.28

DFC of Critical Approach = AM 0.27
Logistic 0.26
PM 0.28

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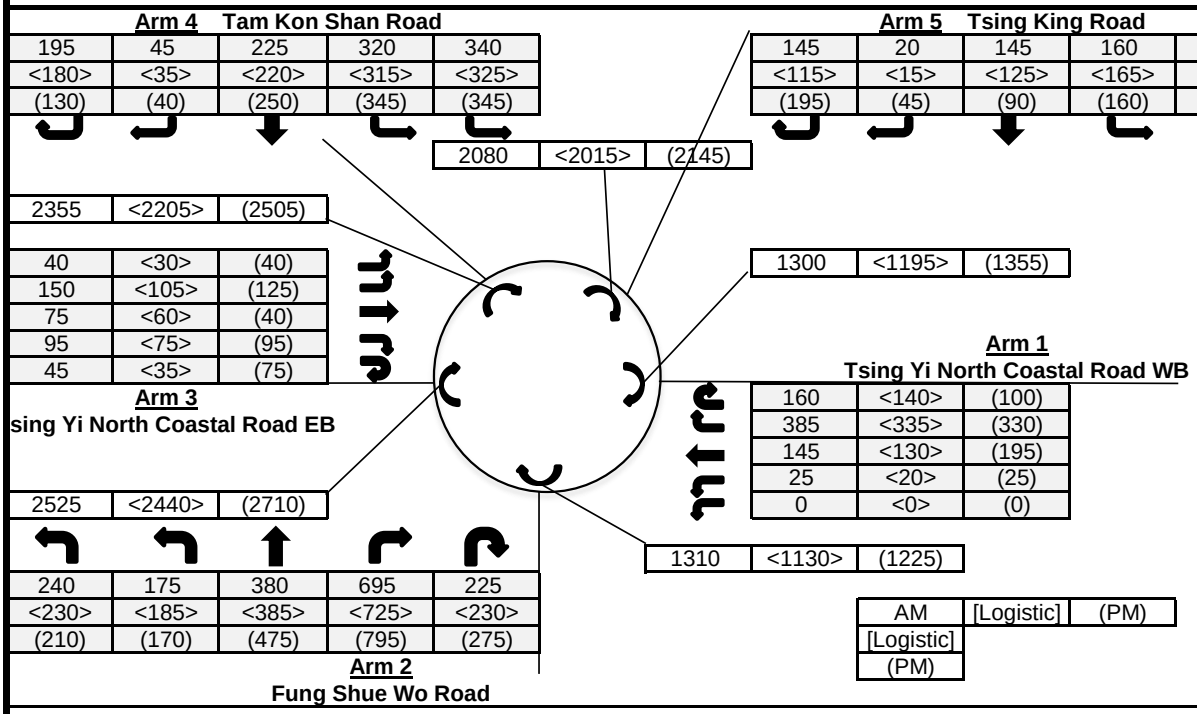
Roundabout Junction Calculation

Junction : (RA5) Tam Kon Shan Interchange Job No.: 24002HK

Scenario : 2029 Design Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4	Arm 5
V	=	Approach half width (m)		7	7.3	5.5	7.3	7
E	=	Entry width (m)		9	13.5	7.5	13.5	11
L	=	Effective length of flare (m)		9	20	11	50	10
R	=	Entry radius		100	35	45	35	45
D	=	Inscribed circle diameter (m)		100	100	100	100	100
A	=	Entry angle (degree)		30	25	25	45	45
Q	=	Entry flow (pcu/hr)	AM	715	1715	405	1125	470
			Logistic	625	1755	305	1075	420
			PM	650	1925	375	1110	490
Qc	=	Circulating flow	AM	1300	1310	2525	2355	2080
		across entry (pcu/hr)	Logistic	1195	1130	2440	2205	2015
			PM	1355	1225	2710	2505	2145

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4	Arm 5
S	=	Sharpness of flare = 1.6*(E-V)/L		0.36	0.50	0.29	0.20	0.64
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)		1.04	1.04	1.04	0.97	0.98
X_2	=	V+((E-V)/(1+2*S))		8.17	10.41	6.76	11.74	8.75
M	=	Exp((D-60)/10)		54.60	54.60	54.60	54.60	54.60
F	=	303*X_2		2475	3155	2050	3557	2653
Td	=	1+(0.5/(1+M))		1.01	1.01	1.01	1.01	1.01
Fc	=	0.21*Td*(1+0.2*X_2)		0.56	0.65	0.50	0.71	0.58
Qe	=	Capacity = K*(F-Fc*Qc)	AM	1818	2387	826	1828	1404
			Logistic	1879	2510	870	1931	1441
			PM	1786	2445	730	1725	1367
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.39	0.72	0.49	0.62	0.33
			Logistic	0.33	0.70	0.35	0.56	0.29
			PM	0.36	0.79	0.51	0.64	0.36

DFC of Critical Approach = AM 0.72
Logistic 0.70
PM 0.79

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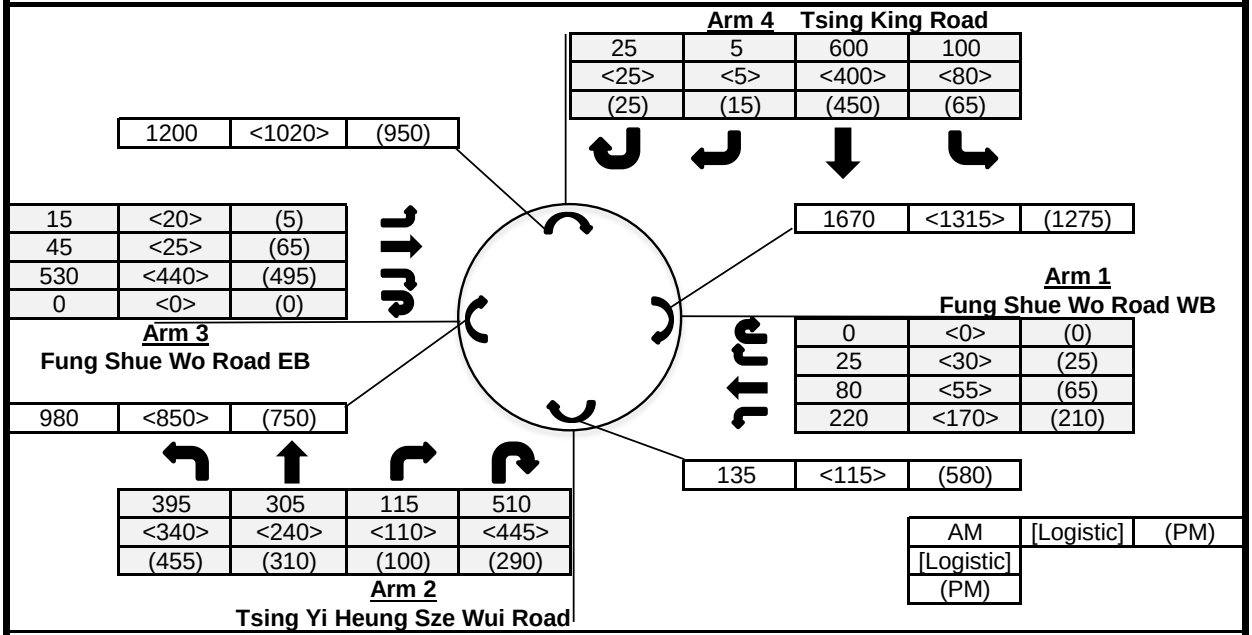
Roundabout Junction Calculation

Junction : (RA6) Tsing King Road / Fung Shue Wo Road Job No.: 24002HK

Scenario : 2029 Design Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)		6.7	7.3	7.3	6.9
E	=	Entry width (m)		9.7	10	9.2	8.9
L	=	Effective length of flare (m)		16	20	14	16
R	=	Entry radius		55	71	60	62
D	=	Inscribed circle diameter (m)		100	100	100	100
A	=	Entry angle (degree)		36	30	18	25
Q	=	Entry flow (pcu/hr)	AM	325	1325	590	730
			Logistic	255	1135	485	510
			PM	300	1155	565	555
Qc	=	Circulating flow	AM	1670	135	980	1200
		across entry (pcu/hr)	Logistic	1315	115	850	1020
			PM	1275	580	750	950

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L		0.30	0.22	0.22	0.20
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)		1.01	1.04	1.07	1.05
X_2	=	V+((E-V)/(1+2*S))		8.58	9.19	8.62	8.33
M	=	Exp((D-60)/10)		54.60	54.60	54.60	54.60
F	=	303*X_2		2598	2783	2613	2524
Td	=	1+(0.5/(1+M))		1.01	1.01	1.01	1.01
Fc	=	0.21*Td*(1+0.2*X_2)		0.58	0.60	0.58	0.56
Qe	=	Capacity = K*(F-Fc*Qc)	AM	1654	2797	2199	1939
			Logistic	1861	2809	2280	2046
			PM	1884	2520	2342	2087
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.20	0.47	0.27	0.38
			Logistic	0.14	0.40	0.21	0.25
			PM	0.16	0.46	0.24	0.27

DFC of Critical Approach = AM 0.47
Logistic 0.40
PM 0.46

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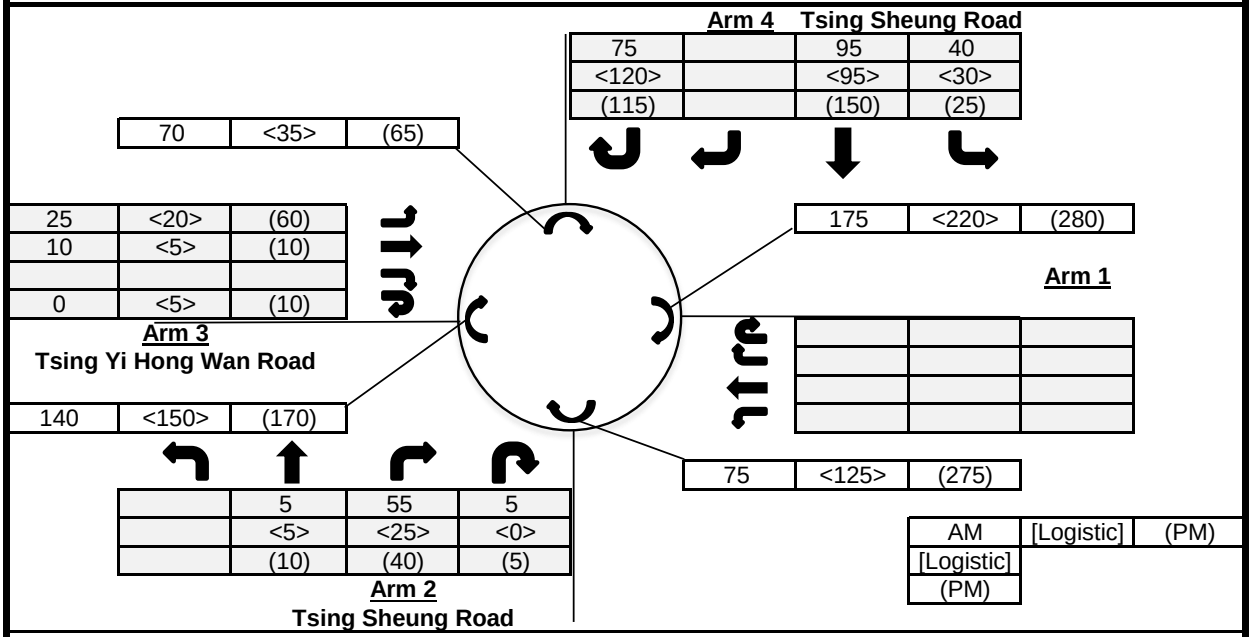
Roundabout Junction Calculation

Junction : (RA7) Tsing Yi Hong Wan Road / Tsing Sheung Road Job No.: 24002HK

Scenario : 2029 Design Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)			5.2	3	6.7
E	=	Entry width (m)			9	8.4	12
L	=	Effective length of flare (m)			25	15	23
R	=	Entry radius			63	55	11.6
D	=	Inscribed circle diameter (m)			53	53	53
A	=	Entry angle (degree)			33	48	38
Q	=	Entry flow (pcu/hr)	AM		65	35	210
			Logistic		30	30	245
			PM		55	80	290
Qc	=	Circulating flow	AM		75	140	70
		across entry (pcu/hr)	Logistic		125	150	35
			PM		275	170	65

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L			0.24	0.58	0.37
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)			1.02	0.97	0.94
X_2	=	V+((E-V)/(1+2*S))			7.76	5.51	9.75
M	=	Exp((D-60)/10)			0.50	0.50	0.50
F	=	303*X_2			2350	1669	2954
Td	=	1+(0.5/(1+M))			1.33	1.33	1.33
Fc	=	0.21*Td*(1+0.2*X_2)			0.71	0.59	0.83
Qe	=	Capacity = K*(F-Fc*Qc)	AM		2349	1537	2714
			Logistic		2313	1531	2741
			PM		2203	1520	2717
DFC	=	Entry Flow/Capacity = Q/Qe	AM		0.03	0.02	0.08
			Logistic		0.01	0.02	0.09
			PM		0.02	0.05	0.11

DFC of Critical Approach = AM 0.08
Logistic 0.09
PM 0.11

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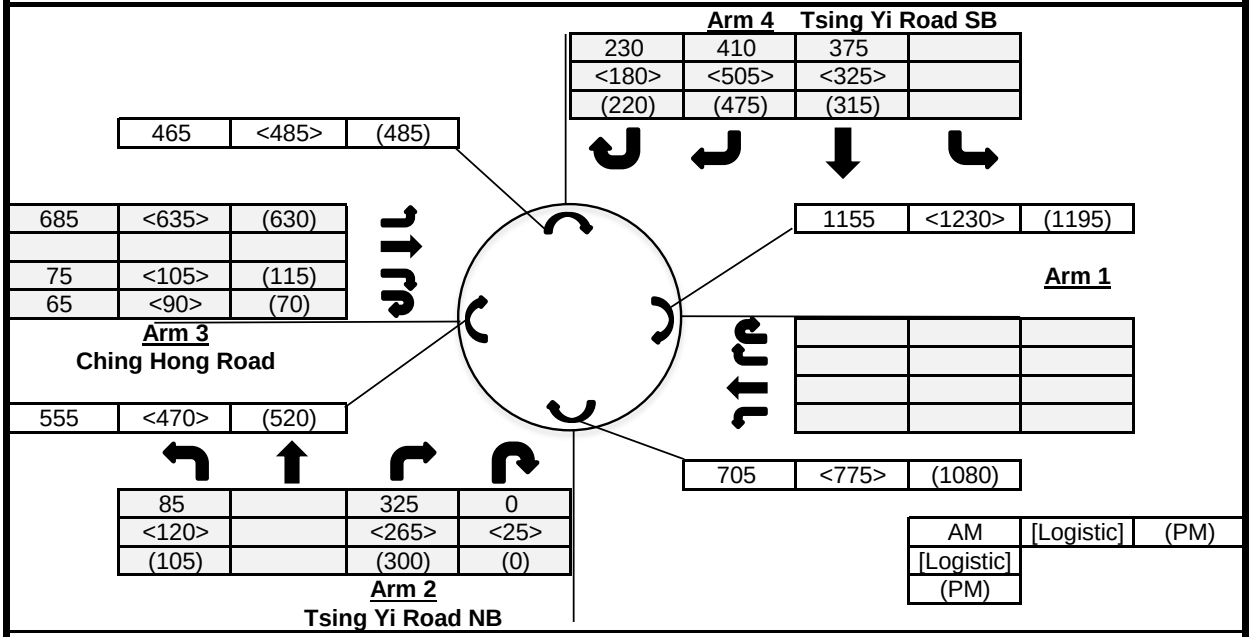
Roundabout Junction Calculation

Junction : (RA8) Tsing Yi Road / Ching Hong Road Job No.: 24002HK

Scenario : 2029 Design Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)			4.5	7.3	7
E	=	Entry width (m)			9	8.5	8.5
L	=	Effective length of flare (m)			25	4	16
R	=	Entry radius			24.5	30	100
D	=	Inscribed circle diameter (m)			30	30	30
A	=	Entry angle (degree)			44	40	27
Q	=	Entry flow (pcu/hr)	AM		410	825	1015
			Logistic		410	830	1010
			PM		405	815	1010
Qc	=	Circulating flow	AM		705	555	465
		across entry (pcu/hr)	Logistic		775	470	485
			PM		1080	520	485

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L			0.29	0.48	0.15
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)			0.96	0.98	1.05
X_2	=	V+((E-V)/(1+2*S))			7.36	7.91	8.15
M	=	Exp((D-60)/10)			0.05	0.05	0.05
F	=	303*X_2			2229	2397	2471
Td	=	1+(0.5/(1+M))			1.48	1.48	1.48
Fc	=	0.21*Td*(1+0.2*X_2)			0.77	0.80	0.82
Qe	=	Capacity = K*(F-Fc*Qc)	AM		1622	1917	2195
			Logistic		1570	1984	2178
			PM		1346	1945	2178
DFC	=	Entry Flow/Capacity = Q/Qe	AM		0.25	0.43	0.46
			Logistic		0.26	0.42	0.46
			PM		0.30	0.42	0.46

DFC of Critical Approach = AM 0.46
Logistic 0.46
PM 0.46

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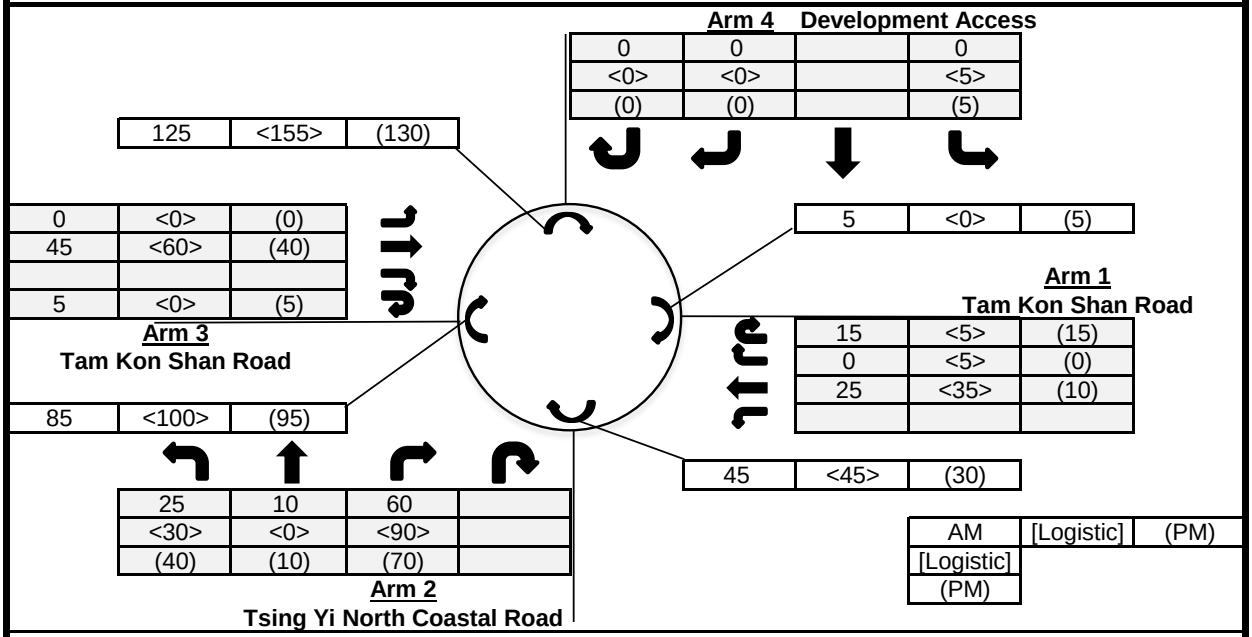
Roundabout Junction Calculation

Junction : (RA9) Tam Kon Shan Road Job No.: 24002HK

Scenario : 2029 Design Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)		3.3	4	3.4	4.2
E	=	Entry width (m)		6.7	4.9	5.8	5.4
L	=	Effective length of flare (m)		10	10	10	10
R	=	Entry radius		32	97	52	34
D	=	Inscribed circle diameter (m)		30	30	30	30
A	=	Entry angle (degree)		34	32	31	46
Q	=	Entry flow (pcu/hr)	AM	40	95	50	0
			Logistic	45	120	60	5
			PM	25	120	45	5
Qc	=	Circulating flow	AM	5	45	85	125
		across entry (pcu/hr)	Logistic	0	45	100	155
			PM	5	30	95	130

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L		0.54	0.14	0.38	0.19
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)		1.00	1.03	1.03	0.96
X_2	=	V+((E-V)/(1+2*S))		4.93	4.70	4.76	5.07
M	=	Exp((D-60)/10)		0.05	0.05	0.05	0.05
F	=	303*X_2		1493	1424	1442	1535
Td	=	1+(0.5/(1+M))		1.48	1.48	1.48	1.48
Fc	=	0.21*Td*(1+0.2*X_2)		0.62	0.60	0.61	0.62
Qe	=	Capacity = K*(F-Fc*Qc)	AM	1497	1441	1427	1406
			Logistic	1500	1441	1418	1388
			PM	1497	1450	1421	1403
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.03	0.07	0.04	0.00
			Logistic	0.03	0.08	0.04	0.00
			PM	0.02	0.08	0.03	0.00

DFC of Critical Approach = AM 0.07
Logistic 0.08
PM 0.08

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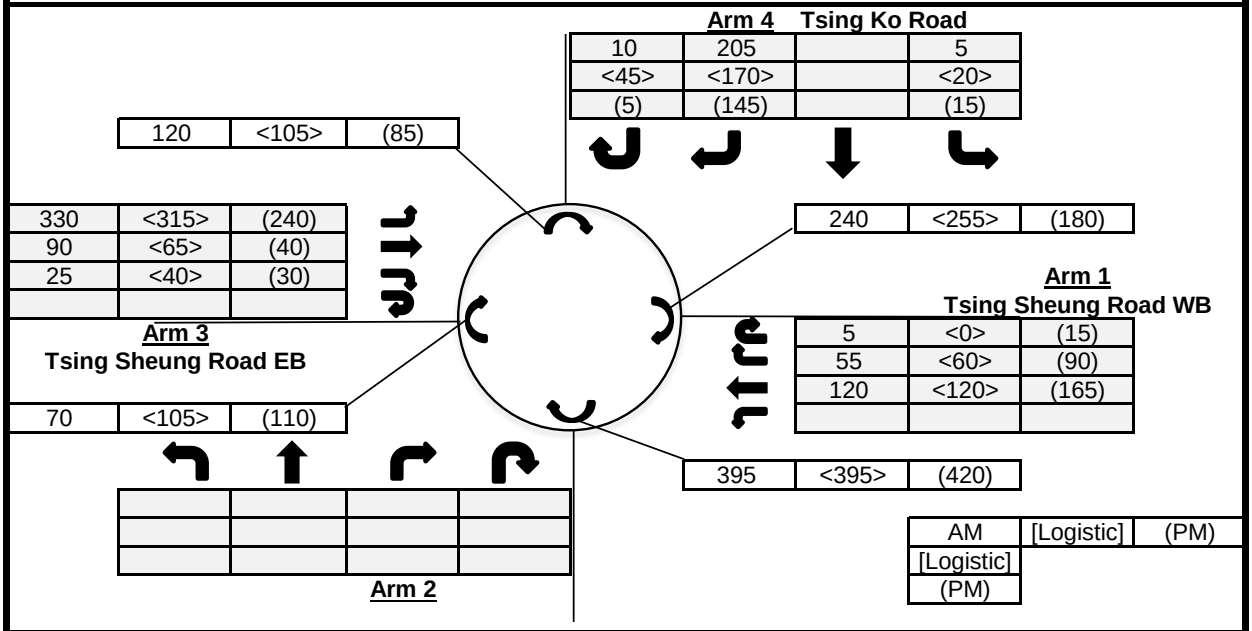
Roundabout Junction Calculation

Junction : (RA10) Tsing Sheung Road / Tsing Ko Road Job No.: 24002HK

Scenario : 2029 Design Traffic Flow



Input Parameters				Arm 1	Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)		6.6		5.6	6.4
E	=	Entry width (m)		12.9		5.1	11.6
L	=	Effective length of flare (m)		18		30	30
R	=	Entry radius		47		67.3	75
D	=	Inscribed circle diameter (m)		50		50	50
A	=	Entry angle (degree)		41		22	46
Q	=	Entry flow (pcu/hr)	AM	180		445	220
			Logistic	180		420	235
			PM	270		310	165
Qc	=	Circulating flow	AM	240		70	120
		across entry (pcu/hr)	Logistic	255		105	105
			PM	180		110	85

Output Parameters				Arm 1	Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = 1.6*(E-V)/L		0.56		-0.03	0.28
K	=	1-0.00347*(A-30)-0.978*(1/R-0.05)		0.99		1.06	0.98
X_2	=	V+((E-V)/(1+2*S))		9.57		5.07	9.74
M	=	Exp((D-60)/10)		0.37		0.37	0.37
F	=	303*X_2		2900		1537	2953
Td	=	1+(0.5/(1+M))		1.37		1.37	1.37
Fc	=	0.21*Td*(1+0.2*X_2)		0.84		0.58	0.85
Qe	=	Capacity = K*(F-Fc*Qc)	AM	2672		1589	2795
			Logistic	2660		1568	2808
			PM	2722		1565	2824
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.07		0.28	0.08
			Logistic	0.07		0.27	0.08
			PM	0.10		0.20	0.06

DFC of Critical Approach = AM 0.28
Logistic 0.27
PM 0.20

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