

Attachment 8 –

Revised Traffic Impact Assessment

**Section 16 Town Planning Application for
Proposed Composite Social Welfare Facility
(Residential Care Home for the Elderly) and
Residential Institution (Senior Hostel)
Development in Lots 257 (Part), 258 RP (Part) and
Adjoining Government Land in DD 122**

Traffic Impact Assessment Report

February 2024



CTA Consultants Limited

志達顧問有限公司



1. INTRODUCTION

1.1 Background

1.1.1 CTA Consultants Limited (“CTA”) is commissioned by the Applicant to prepare a Traffic Impact Assessment Study for a proposed development of Lot Nos 257 (Part), 258RP (Part) and Adjoining government land in D.D. 122, Ping Shan, Yuen Long for RCHE and Senior Hostel Use.

1.1.2 The client intends to provide 420 beds for the RCHE purpose and 9 units for the senior hostel (the “Proposed Development”).

1.1.3 This TIA study aims to examine the impact of the traffic generated by the proposed number of beds in the vicinity. Improvement proposals where needed would be recommended if necessary to resolve any foreseeable traffic issues.

1.2 Study Objectives

1.2.1 The main objectives of this study are listed below:

- To assess the existing traffic condition in the vicinity of the proposed development;
- To forecast traffic flows on the adjacent road network in the design year 2032;
- To estimate the likely traffic generated by the proposed development;
- To appraise the traffic impact induced by the proposed development on the adjacent road network;
- To recommend traffic improvement measures to alleviate any foreseeable traffic problem to the surrounding road network, if any.



2. THE PROPOSED DEVELOPMENT

2.1 Site Location

2.1.1 The proposed development is located at Lot Nos 257 (Part), 258RP (Part) and Adjoining government land in D.D. 122, Ping Shan, Yuen Long as shown in **Figure 2.1**.

2.2 Development Proposal

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

Table 2.1 Development Parameters of the Proposed Development

	Development Parameters
Proposed Use	Residential Use & Residential Care Home for the Elderly (RCHE)
Site Area	3,330 m ²
Total Accountable GFA	9,800 m ²
No of blocking	1
No of beds & units	420 beds (RCHE) & 9 units (Senior Hostel)
No of storey	Not exceeding 8 storeys (excluding 1 basement floor)
No of staffs	75 staffs per shift (total of 150 staffs)

2.2.2 It is anticipated that the proposed development will be commissioned in year 2029. Therefore, design year 2032 (i.e., 3 years after the planned commencement year of the proposed development) is adopted for the Traffic Impact Assessment.

2.2.3 The working hour of staff would be in 2 shifts from 7:30 am to 7:30pm and 7:30pm to 7:30am tentatively. They would mainly go to/ leave from the site by the public



transport. It is understood that Hong Kong workers mainly go to work by public transport. GMB, bus stops, LRT and MTR are provided near the proposed development which are convince for the staff to travel by public transport.

2.2.4 Staffs are not allowed to use the parking spaces unless they are authorised by their management team.

2.2.5 Therefore, staffs will take the public transport to/ from their work.

2.3 Provision of Access Arrangement

2.3.1 No access road connects to the proposed development in the existing condition, and yet, an access road is proposed. The proposed access road connects to the Tsui Sing Road. The detail design of the access road is shown in **Figure 2.2** and the swept path analyses of the access road are shown in the **Figure SP 01-02**.



3. EXISTING TRAFFIC CONDITIONS

3.1 Existing Road Network

- 3.1.1 The proposed development is located in Lot Nos 257 (Part), 258RP (Part) and Adjoining government land in D.D. 122, Ping Shan, Yuen Long as shown in **Figure 2.1**. There is no road connects to the proposed development site.
- 3.1.2 Tsui Sing Road is a single 2-lane carriageway which connects to a local road and the proposed access road.
- 3.1.3 Tin Fuk Road is a dual 2-lane carriageway which connects to the Tin Shing Road.

3.2 Critical Junctions in Surrounding Area

- 3.2.1 In order to study the existing traffic condition of the area as requested by the Transport Department, a comprehensive traffic survey has been conducted.
- 3.2.2 Based on the location of the Lot and the road network in the vicinity, three key junctions are identified for this Traffic Impact Assessment (TIA) due to the Proposed Development and listed in **Table 2.1**. The location of the junctions is shown in **Figure 3.1**, while the details of each are illustrated in **Figures** from **3.2** to **3.4** respectively.
- 3.2.3 The traffic count surveys were carried out at the critical junctions in the vicinity of the Proposed Development.

Table 3.1 Identified Key Junctions

Ref.	Junction	Type	Figure No.
A	Tin Fuk Road/ Tin Shing Road	Signal	3.2
B	Ping Ha Road/ Tsui Sing Road	Signal	3.3
C	Tsui Sing Road/ Tin Shing Road	Priority	3.4



Traffic Survey

3.2.4 In order to appraise the existing traffic conditions of these junctions, a traffic survey in the form of manual classified was conducted on 12 June 2023 during AM and PM peak. The peak hour flows occurred from 7:30am to 8:30am and from 6:00pm to 7:00pm respectively. The 2023 observed traffic flows are presented in **Figure 3.5**.

Junction Assessments

3.2.5 Operation performance of the critical junctions has been examined in accordance with the existing traffic flow and the results are summarised in the **Table 3.2** below. Details of the junction assessment are enclosed in the **Appendix A**.

Table 3.2 Existing Operational Performance of Key Junctions in 2023

Ref.	Junction	Method of Control	Year 2023 RC/RFC ⁽¹⁾	
			AM Peak	PM Peak
A	Tin Fuk Road/ Tin Shing Road	Signal	61%	89%
B	Ping Ha Road/ Tsui Sing Road	Signal	123%	185%
C	Tsui Sing Road/ Tin Shing Road	Priority	0.25	0.32

Notes: (1) RC = Reserve Capacity
RFC = Ratio of Flow to Capacity for Priority Junction

3.2.6 The assessment results in **Table 3.2** indicate that all key junctions are operating with ample capacities during the peak hours in 2023.

3.3 Internal Transport Facilities Provisions

3.3.1 There is no requirements stipulated in the latest Hong Kong Planning Standards and Guidelines (HKPSG). Yet, the parking provision of other existing RCHE have been referenced and summarized in the **Table 3.3**.



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Table 3.3 Examples of Existing RCHE

Name of RCHE	Location	No. of beds	No. of Staff	Observed no. of Parking Provision	Parking Facilities ⁽¹⁾⁽²⁾⁽³⁾ (Category 1/2/3)
Assemblies of God Holy Light Church Aged Home	91 Sung Ching Sun Tsuen, Tai Tong Road, Yuen Long	60	19	Nil	Category 1
Chinese Christian Worker's Fellowship Wah Hei Elderly Home (Comet Mansion)	G/F & M/F, Shop 27, Comet Mansion, 45-67 Fung Cheung Road, Yuen Long	105	29	Nil	Category 1
Pok Oi Hospital Jockey Club Care and Attention Home	Lot 1392 & 837 R.P. in D.D. 115, Au Tau, Yuen Long	213	124	Nil	Category 2
Po Leung Kuk Tin Yan Home for the Elderly cum Green Joy Day Care Centre for the Elderly	3/F and 4/F, Ancillary Facilities Block, Tin Yan Estate, Tin Shui Wai	106	74	Nil	Category 2
Yan Oi Tong Tin Ka Ping Care and Attention Home	G/F & 1/F, Wah Ping House, Long Ping Estate, Yuen Long	85	51	Nil	Category 2
T.W.G.Hs. Y. C. Liang Memorial Home for the Elderly	G/F & 1/F, Yiu Yat House, Tin Yiu Estate, Tin Shui Wai	88	47	Nil	Category 1
Caritas Ying Shui Home	3/F, Ying Shui House, Shui Pin Wai Estate, Yuen Long	75	47	Nil	Category 2
Salvation Army Kam Tin Residence for Senior Citizens (The)	103 Kam Tin Road, Yuen Long	150	81	1 car parking space + 1 light bus parking spaces	Category 3
Pok Oi Hospital Yeung Chun Pui Care and Attention Home	58 Sha Chau Lei Tsuen, Ha Tsuen, Yuen Long	143	92	2 car parking spaces + 1 light bus parking spaces	Category 3
Pok Oi Hospital Tai Kwan Care & Attention Home	G/F-3/F & KW307, Shui Kwok House, Tin Shui Estate, Tin Shui Wai, Yuen Long	109	75	Nil	Category 2
Ching Chung Taoist Association of Hong Kong Limited Ching Chung Care and Attention Home for the Aged	57 Sha Chau Lei Chuen, Ping Ha Road, Yuen Long	120	61	1 car parking space + 1 light bus parking spaces	Category 3

Note: (1) Category 1 refers to homes with nil provision of car parking spaces within the Site and no public car parking spaces can be found in the close proximity.

(2) Category 2 refers to homes with nil provision of car parking spaces within the Site but may use the public car parking spaces of nearby car park.

(3) Category 3 refers to homes with provision of car parking spaces within the Site.



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3.3.2 The proposed internal transport facilities provision for the proposed development is summarized in **Table 3.4**.

3.3.3

Table 3.4 Car Parking Provision Requirement for RCHE

Type	Proposed Dimensions	Proposed Number of Spaces Parameters
Private Cars	5m(L) x 2.5m(W) x min.2.4m(H)	13
Private Cars for Disabilities	5m(L) x 3.5m(W) x min.2.4m(H)	3
L/UL for Light Bus	8m(L) x 3m(W) x min.3.3m(H)	1
L/UL for LGV	7m(L) x 3.5m(W) x min.3.6m(H)	1

3.3.4 Whilst, for the development of the senior hostel, the transport provision requirements will be referenced to the Hong Kong Planning Standards and Guidelines (HKPSG). The provision requirement is summarized in the **Table 3.5**.



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Table 3.5. Proposed Internal Transportation Provision under the HKPSG Requirements

Residential Development											
Proposed Development			Parking Requirement						Loading/Unloading Requirement		
			Private Car Parking Space (5m(L) x 2.5m(W) x 2.4m(H))			Motor cycle parking space	Visitors Car parking	Bicycle Parking Space	Loading / Unloading Bay for Goods Vehicles (LGV: 7m(L) x 3.5 m(W) x 3.6m(H)) (HGV: 11m(L) x 3.5 m(W) x 4.7m(H))		
Private Housing (1 towers; P.R.= 0.26)	GFA	No. of Flat	GPS: 1 space per 4-7 flats			GPS x R1 X R2 X R3	1 motorcycle parking space per 100-150 flats	More than 75 units per block should provide at 5 visitor space per block in addition in the requirement	Outside 2 km radius of rail station	1 per 30 flats with flat size less than 70 m ²	Provision of minimum 1 L/UL bay for goods vehicles within the site for every 800 flats or part thereof, subject to a minimum of 1 bay for each housing block or as determined by the Authority
			R1	R2	R3						
	40 ≤ FS ≤ 70	9	1.2	0.75	1.3	2-3	0	0	0	1	
Proposed						2	0	0	0	1	

3.3.5 The overall parking provision for the proposed development is summarized in the **Table 3.6**, and the layout of the car park is also shown in **Figure 3.6** and **Figure 3.7**

Table 3.6 Car Parking Provision Requirement for the Proposed Development

Type	Internal Transport Provision		
	RCHE Use	Senior Hostel	Total
Private Cars	13	1	14
Disable Private Car Park	3	1	4
Motorcycle	0	0	0
L/UL for LGV	1	1	2
L/UL for Light Bus	1	0	1



3.4 Public Transport Services in the Vicinity of the Proposed Development

3.4.1 Numerous road-based public transport services are provided in vicinity of the proposed development. Details of the current services of franchised buses and GMB routes within 500 meters catchment area are listed in **Table 3.7**, and the location of the nearby public transport stations is shown in **Figure 3.8**.

Table 3.8 Public Transport Services in the Vicinity of the Proposed Development

Service	Route	Origin - Destination	Headway (min)
Franchised Buses	69M	Tin Shui Wai Town Centre – Kwai Fong Station	6-30
	69X	Tin Shui Estate – Jordan (West Kowloon Station)	15-30
	265S	Tin Shui Wai Town Centre – Tai Po Industrial Estate	35
	269B	Tin Shui Wai Town Centre – Hung Hom (Hung Luen Road)	20-30
	269C	Tin Shui Wai Town Centre – Kwun Tong Ferry	5-20
	269D	Tin Fu – Lek Yuen	5-25
	269S	Tin Shui Wai Town Centre – Kwun Tong Ferry	20
	276A	Tin Heung Estate – Sheung Shui (Tai Ping)	6-25
	276C	Tin Shui Wai Station – Fanling (Cheung Wah)	10-30
	969	Tin Shui Wai Town Centre – Causeway Bay (Moreton Terrace)	7-25
	969N	Tin Shui Wai Town Centre – Causeway Bay (Moreton Terrace)	05:10
	A37	Airport (Ground Transportation Centre) – Long Ping Station	20-30
	B1	Tin Tsz – Lok Ma Station	10-20
	E37	Tin Shui Wai Town Centre – Airport (Ground Transportation Centre)	10-30
N296	Tin Tsz – Mei Foo	15-25	
GMB	79S ¹	Lok Ma Chau Control Point – A Tin Shui Wai (Grandeur Terrace)	10 - 15
	610S ¹	Tin Shui Wai (Tin Shui Estate) – Tsim Sha Tsui (Haiphong Road)	12 - 15
Light Rail	706	Tin Shui Wai (Circular)	5-7
	761P	Tin Shui Wai – Tin Yat	7-15
	705	Tin Shui Wai (Circular)	5-6
	751	Yan Oi – Tin Yat	4-0
	751P	Tin Shui Wai – Tin Yat	7-15
MTR	/	Tin Shui Wai MTR Station	2-8

Note: (1) Night service only

3.4.2 It reveals that the proposed development is currently well-served by the comprehensive public transport services in the vicinity.



4. FUTURE TRAFFIC CONDITION & TRAFFIC IMPACT ASSESSMENT

4.1 Design Year

4.1.1 It is anticipated that the proposed development would be completed in 2029 tentatively. In order to assess the possible traffic impacts to the local road network due to the proposed development, year 2032 (i.e., 3 years after construction work completion) has been adopted as the design year for this TIA.

4.2 Traffic Forecast

4.2.1 The traffic growth can be estimated by applying growth factor, based on the following information sources:

- I. Historical traffic growth in Annual Traffic Census (ATC) published by the Transport Department (TD).
- II. Territorial planning assumptions prepared by the Planning Department.

Historical Trend

4.2.2 Transport Department has traffic count stations in the vicinity of the proposed development. The traffic counts reported in the Annual Traffic Census over a period of seven years, i.e., 2012 to 2018 are summarized in **Table 4.1**.



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Table 4.1 Historical Traffic Data from Annual Traffic Census (ATC)

ATC Stn	Road Name	Annual Average Daily Traffic (AADT)							Avg. Annual Growth Rate
		2012	2013	2014	2015	2016	2017	2018	
5880	Tin Yiu Rd (From Ping Ha Rd to Tin Ho Rd)	15,780	15,910*	15,740*	15,610*	16,930	16,960	17,380	1.62%
5886	Tin Wah Rd (From Tin Shui Rd to Tin Shing Rd)	10,010	10,090*	9,980*	9,900*	10,190	10,420	10,680	1.09%
5890	Tin Wu Rd (From Tin Yiu Rd to Tin Shing Rd)	9,090	9,160*	9,060*	8,990*	9,740	8,160	8,360	-1.39%
Total		34,880	35,160	34,780	34,500	36,860	35,540	36,420	+0.72%

Note: *AADT estimated by Growth factor

**Due to the social movement in 2019 and COVID in 2020, the traffic flow will not be reliable and hence the growth rate will only take into account from 2016 to 2018

***As the traffic flow listed in the designated ATC stations are predicted, yet the flow will not be reliable and will not take it into the account.

Planning Data

4.2.3 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 from years 2019 to 2031. 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 Planning Data from 2019 to 2031

Tin Shui Wai District				
Data	Year			Average Annual Growth Rate
	2019	2026	2031	
Population	279,950	283,250	276,050	-0.14%
Employment	35,050	33,100	31,950	-0.92%
Total	315,000	316,350	308,000	-0.22%



Adopted Growth Rate

- 4.2.4 A.A.D.T. of ATC indicates that the traffic flow of the local road network has an average annual growth rate of +0.72% from year 2012 to year 2018.
- 4.2.5 Whilst, the planning data indicates that the population and employment data of the study area are expected to grow with an average annual growth rate of -0.14% and -0.92% respectively from 2019 to 2031.
- 4.2.6 Therefore, the annual growth rate +0.72% p.a. has been adopted for projecting traffic forecasts from year 2022 to year 2031.

4.3 Traffic Generations of Planned Adjacent New Developments

- 4.3.1 To fully reflect the growth traffic, trip generation of the future vicinity developments have been taken into consideration. The planned development is detailed in **Table 4.3**, shows the detailed location in **Figure 4.1**.

Table 4.3 Planned Adjacent Developments in the Vicinity

Planning Application No.	Development Site	Site area	Applied use	Use	Total floor area	Development Parameter
A/TSW/64	Tin Shui Wai Planning Area 33 (Tin Shui Wai Town Lot 23)	18,232 m ²	Residential development	Domestic	91,051 m ²	1,938 Flats
A/TSW/77	Tin Shui Wai Lot No. 4, New Territories	27,900 m ²	Proposed wholesale conversion of an existing hotel for “flat” and permitted commercial use	Domestic	55,668 m ²	1,102 Flats
				Non-domestic	52,395 m ²	/
/	Proposed Public Housing Development near Tin Shui Wai		Public Housing	Domestic	403,215 m ²	9,500 Flats
				Non-domestic	88,885 m ²	/



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4.3.2 The estimation on trip generations and attractions of the adjacent planned developments is shown in **Table 4.4**.

Table 4.4 Estimated Trip Generations and Attractions of Adjacent Developments

Development Type	Average Flat Size m ²	Trip Rates				
		Weekday AM Peak		Weekday PM Peak		
		Gen.	Att.	Gen.	Att.	
		pcu/hr				
Private Housing	60 m ²	0.0718	0.0425	0.0286	0.0370	
Private Housing	70 m ²	0.0888	0.0515	0.0356	0.048	
Private Housing	100 m ²	0.1887	0.0942	0.0862	0.1214	
Private Housing	120 m ²	0.2246	0.1157	0.1068	0.1468	
Public Housing	40 m ²	0.0432	0.0326	0.0237	0.0301	
Commercial	/	0.2296	0.2434	0.31	0.3563	
Hotel		0.1329	0.1457	0.1290	0.1456	
Kindergarten		2.4444 ⁽¹⁾	3.1111 ⁽¹⁾	2.6667 ⁽¹⁾	0.7778 ⁽¹⁾	
G/IC		15 ⁽¹⁾	15 ⁽¹⁾	15 ⁽¹⁾	15 ⁽¹⁾	
Planning Application No.	Development Site	Uses	Trip Rates			
			Weekday AM Peak		Weekday PM Peak	
			Gen.	Att.	Gen.	Att.
A/TSW/64	Tin Shui Wai Planning Area 33 (Tin Shui Wai TL 23)	Domestic	139	82	55	72
A/TSW/77	Tin Shui Wai Lot No. 4, New Territories Proposed use Existing use	Domestic (Proposed use)	96	56	39	53
		Non-domestic (Proposed use)	13	19	23	27
		Hotel (Existing use)	146	161	142	170
		Net Change	0	0	0	0
	Proposed Public Housing Development near Tin Shui Wai	Domestic	410	310	225	286
		Non-domestic	83	97	94	62
Total			632	489	374	420

Note:

- (1) As no specific trip rates lists in the TPEDM for both GIC and kindergarten use, the estimation of the trip related to the proposed development based on in-house surveys and approved planning applications which conducted with reference to other kindergarten and G/IC facilities.



4.3.3 The above-mentioned traffic flows were added to the traffic flows to obtain the reference traffic flows as described in Section 4.4.

4.4 Reference Traffic Flow in Year 2032

4.4.1 The reference traffic flow is estimated by applying the adopted growth rate to the observed traffic flow in the current year, and the 2032 reference traffic flows for Junction A to C can be computed with the following calculation:

$$\begin{array}{r}
 \text{2032 Reference} \\
 \text{Traffic Flows} \\
 \text{(without proposed} \\
 \text{development)}
 \end{array}
 =
 \begin{array}{r}
 \text{2023} \\
 \text{(Observed} \\
 \text{Traffic} \\
 \text{Flows)}
 \end{array}
 \times
 \begin{array}{r}
 \text{Adopted Growth} \\
 \text{Factor} \\
 \text{i.e. +0.72\% p.a.} \\
 \text{for 9 years}
 \end{array}
 \Big)
 +
 \begin{array}{r}
 \text{Traffic Flows} \\
 \text{of Planned} \\
 \text{Adjacent} \\
 \text{Developments}
 \end{array}$$

4.4.2 The 2032 reference traffic flows at surrounding critical junctions are shown in **Figure 4.2**.

4.5 Traffic Generations of the Proposed Development

4.5.1 As the use of RCHE does not specify in the latest Transport Planning & Design Manual (TPDM), the estimation of the traffic trips related to the RCHE is based on the in-house survey.

4.5.2 The estimation of the traffic trips related to the proposed development is based on the in-house survey carried out at Tung Wah Group Hospital – Wong Cho Social Services Building and summarised in the **Table 4.5**.



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Table 4.5 Adopted Trip Rates for the Proposed Development

Use	Units / Parameters	AM		PM	
		Gen.	Att.	Gen.	Att.
TWGHs Wong Cho Tong Social Service Building – IN/OUT of Building	(pcu/hr)	14	11	14	11
TWGHs Wong Cho Tong Social Service Building – Loading/Unloading activities of Building	(pcu/hr)	10	8	10	8
Total Trip	(pcu/hr)	24	19	24	19
Adopted Traffic Trip Rates (278beds)	(pcu/hr/bed)	0.08633	0.06835	0.04317	0.05755
Estimated Traffic Trips (420 beds)	(pcu/hr)	37	29	19	25

- 4.5.3 While for the traffic generation and attraction of the proposed development of the senior hostel, reference has been made to the trip generation rates as stipulated in Volume 1 Chapter 3 Appendix C Table 1 of the latest T.P.D.M. published by Transport Department. The adopted trip rates are also summarized in below **Table 4.6**.
- 4.5.4 Based on the adopted trip rate listed above and the development parameters in Table 2.1, the trip generated and attracted by the proposed development are estimated and summarized in the **Table 4.6**



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Table 4.6 Adopted Trip Rate and Trips of Proposed Development

Senior Hostel										
Use	Average Flat Size (sq. m.)	No. of Flats	Trips Rates				Trips			
			Weekday AM Peak (pcu/hr/flat)		Weekday PM Peak (pcu/hr/flat)		Weekday AM Peak (pcu/hr)		Weekday PM Peak (pcu/hr)	
			Gen.	Att.	Gen.	Att.	Gen.	Att.	Gen.	Att.
Private Housing: High-Density	FS ≤ 60	9	0.0718	0.0425	0.0286	0.0370	1	1	1	1
<i>Total</i>			<i>Sub-Total</i>				1	1	1	1
RCHE										
Use	No of beds	Trips Rates				Trips				
		Weekday AM Peak (pcu/hr/bed)		Weekday PM Peak (pcu/hr/bed)		Weekday AM Peak (pcu/hr)		Weekday PM Peak (pcu/hr)		
		Gen.	Att.	Gen.	Att.	Gen.	Att.	Gen.	Att.	
RCHE	420	0.8633	0.6835	0.04317	0.05755	37	29	19	25	
<i>Sub-Total</i>						37	29	19	25	
Total						38	30	20	26	

4.6 Traffic Forecast for Design Year 2032

4.6.1 The net traffic trips of the proposed development, which is shown in the Figure 4.2, is then superimposed onto the year 2032 reference traffic flow (without the proposed development) as:

$$\begin{array}{l}
 \text{2032 Design} \\
 \text{Traffic Flows} \\
 \text{(with proposed} \\
 \text{development)}
 \end{array}
 =
 \begin{array}{l}
 \text{2032 Reference} \\
 \text{Traffic Flows} \\
 \text{(without proposed} \\
 \text{development)}
 \end{array}
 +
 \begin{array}{l}
 \text{Proposed} \\
 \text{Development} \\
 \text{Traffic Flows}
 \end{array}$$



4.6.2 The 2032 design traffic flows at surrounding critical junctions are shown in **Figure 4.3**.

4.7 Operational Assessment

4.7.1 To assess traffic impacts due to the proposed development, operational assessment of the critical junctions identified in **Chapter 3** are carried out for both the reference (without the proposed development) and the design scenario (with the proposed development) in year 2032. The results are summarized in **Table 4.7**.

Table 4.7 Operational Performance of Key Junctions in Year 2032

Ref.	Junction	Method of Control ⁽¹⁾	Year 2032 RC/RFC			
			Reference Scenario (without the proposed development)		Design Scenario (with the proposed development)	
			AM Peak	PM Peak	AM Peak	PM Peak
A	Tin Fuk Road/ Tin Shing Road	Signal	36%	64%	30%	59%
B	Ping Ha Road/ Tsui Sing Road	Signal	108%	156%	105%	152%
C	Tsui Sing Road/ Tin Shing Road	Priority	0.27	0.34	0.28	0.35

Notes: (1) RC = Reserve Capacity for Signalized Junction
RFC = Ratio of Flow to Capacity for Priority Junction

4.7.2 Based on the assessment results given in **Table 4.7**, all key junctions would operate with ample capacities in both reference and design scenarios in year 2032.



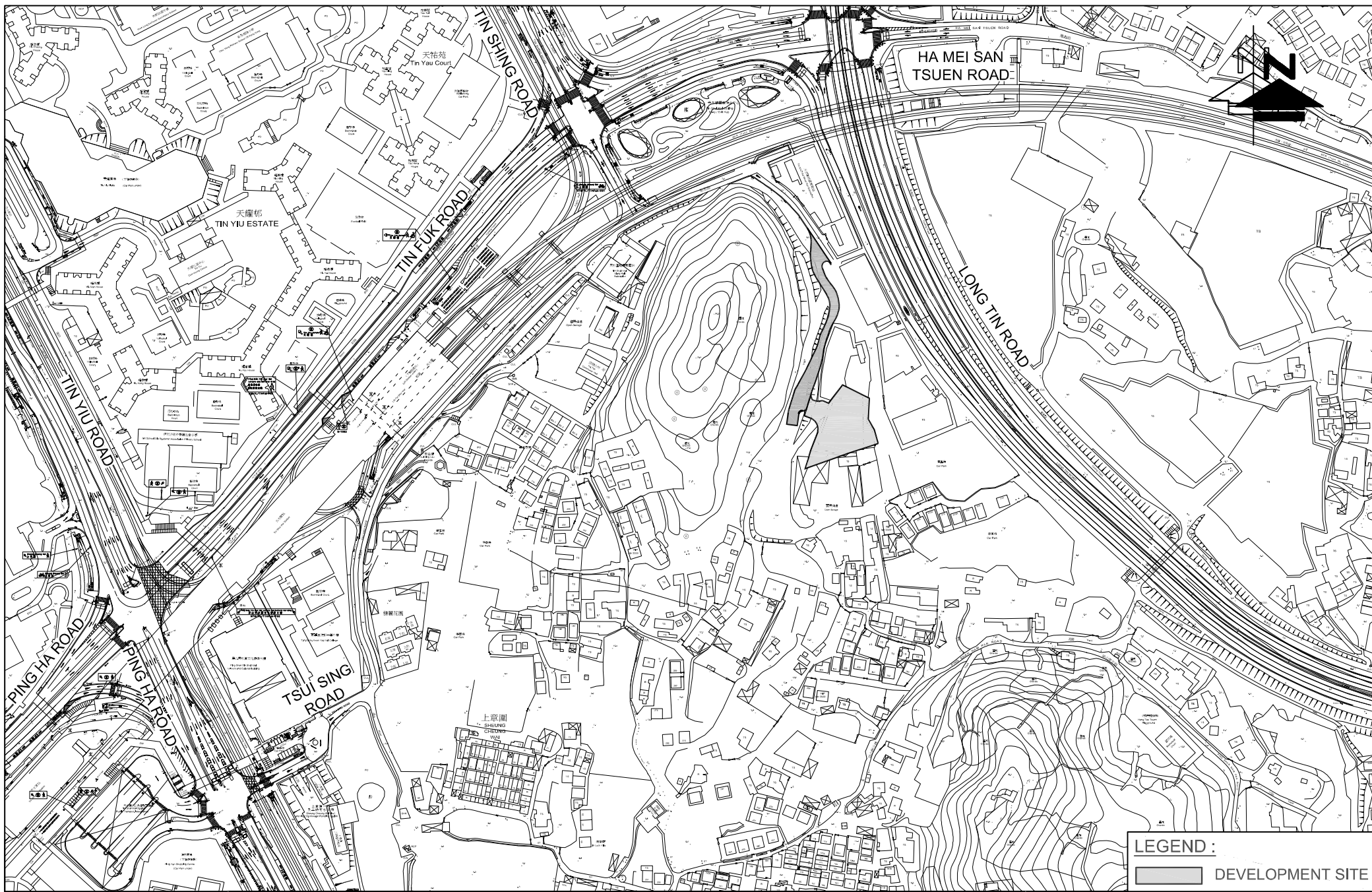
5. SUMMARY AND CONCLUSION

5.1 Summary

- 5.1.1 CTA Consultants Limited (CTA) is commissioned as the traffic consultant to prepare the Traffic Impact Assessment (TIA) and technical justifications in supporting the S16 Town Planning Application for proposed composite social welfare facility (residential care home for the elderly) and residential institution (senior hostel) development in Lots 257 (part), 258 RP (part) and adjoining government land in DD 122.
- 5.1.2 To appraise the existing traffic condition, a vehicular survey in the form of manual classified count was conducted at the surrounding road network of the proposed development. Current operational performance of the critical junctions has been assessed with the observed traffic flow. The results reveal that all critical junctions are at present operating within its capacities.
- 5.1.3 Assessment of operational performance of the critical junctions indicates that all critical junctions will still operate within their capacities in both reference and design scenarios in year 2032.
- 5.1.4 As the traffic trips of both committed planning and proposed development do not produce significant impact on the surrounding road network. Therefore, the application is supported from the traffic points of view.

5.2 Conclusion

- 5.2.1 Traffic Impact Assessment (TIA) study indicates that no adverse traffic impact will be induced by the proposed development.
- 5.2.2 Therefore, the proposed residential development at Lots 257 (part), 258 RP (part) and adjoining government land in DD 122 is reckoned feasible from traffic engineering point of view.



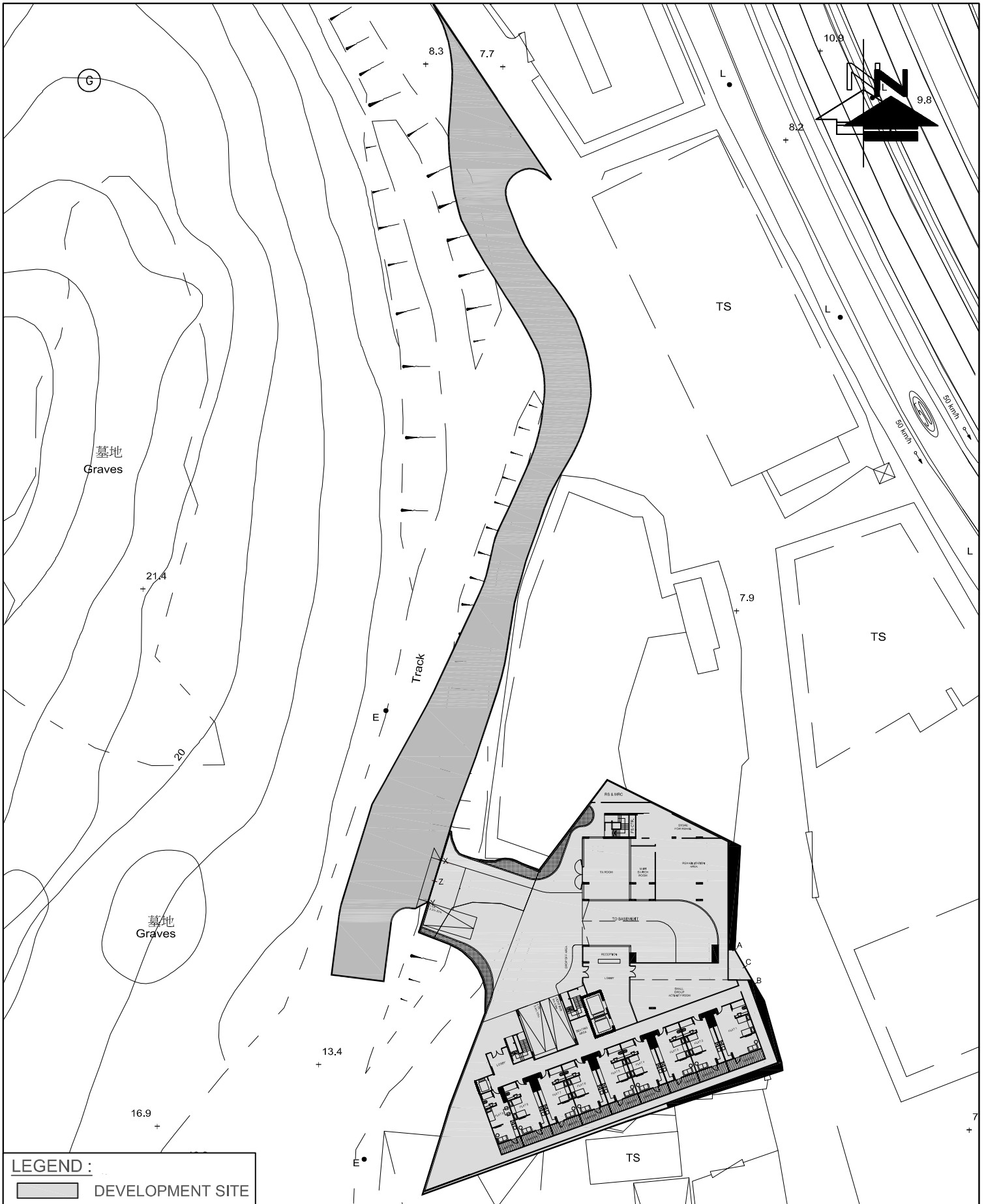
LEGEND:
 DEVELOPMENT SITE

FIGURE NO.:	2.1
PROJECT NO.:	23061HK
SCALE:	DATE:
1 : 3750 @A4	19 FEB 2024

PROJECT TITLE:	Section 16 Town Planning Application for Proposed Composite Social Welfare Facility (Residential Care Home for the Elderly) and Residential Institution (Senior Hostel) Development in Lot Nos. 257 (Part), 258 RP(Part) and adjoining Government Land in D.D.122
DRAWING TITLE:	SITE LOCATION PLAN



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LEGEND :
 DEVELOPMENT SITE

FIGURE NO.:
2.2

PROJECT TITLE:
 Section 16 Town Planning Application for Proposed Composite Social Welfare Facility (Residential Care Home for the Elderly) and Residential Institution (Senior Hostel) Development in Lot Nos. 257 (Part), 258 RP(Part) and adjoining Government Land in D.D.122

PROJECT NO.:
 23061HK

DRAWING TITLE:
PROPOSED ACCESS ROAD & XYZ

SCALE:
 1 : 750 @A4

DATE:
 19 FEB 2024

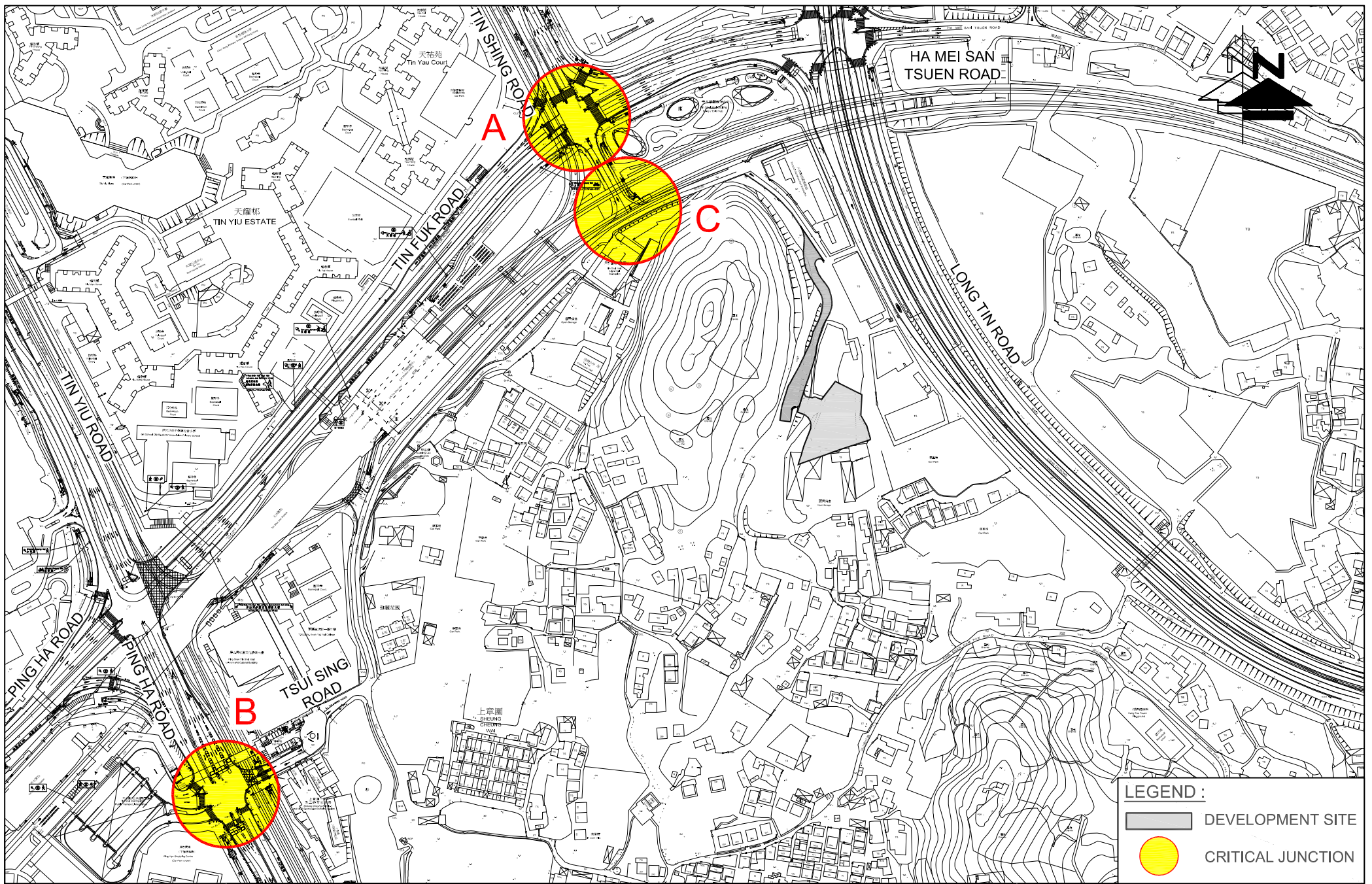
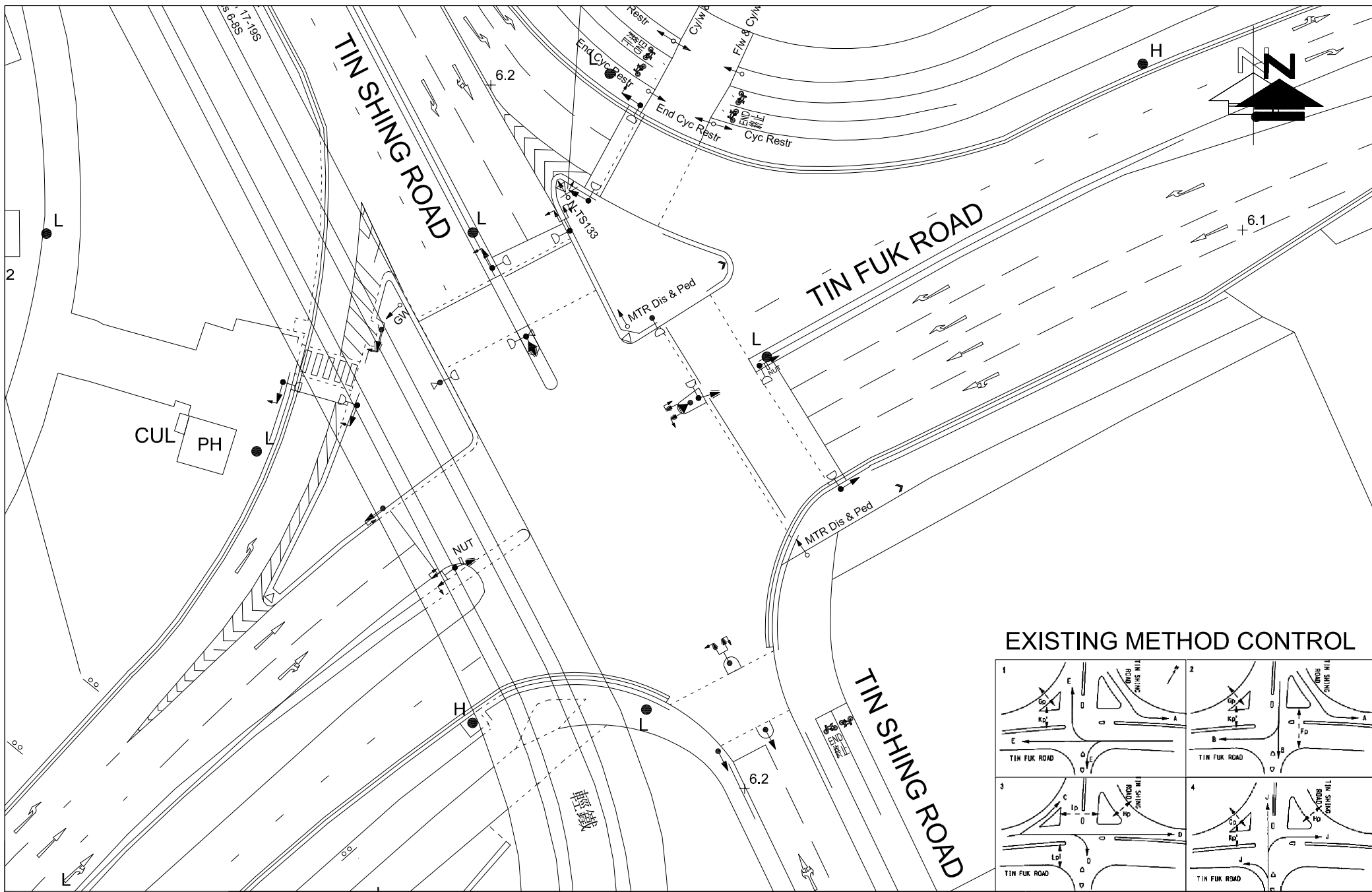


FIGURE NO.:		3.1
PROJECT NO.:		23061HK
SCALE:	DATE:	
1 : 3750 @A4	19 FEB 2024	

PROJECT TITLE:	Section 16 Town Planning Application for Proposed Composite Social Welfare Facility (Residential Care Home for the Elderly) and Residential Institution (Senior Hostel) Development in Lot Nos. 257 (Part), 258 RP(Part) and adjoining Government Land in D.D.122
DRAWING TITLE:	IDENTIFIED KEY JUNCTIONS



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EXISTING METHOD CONTROL

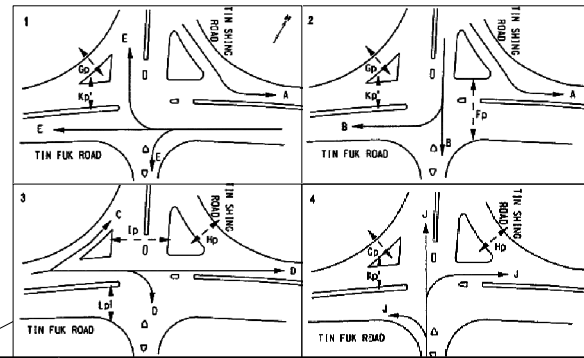
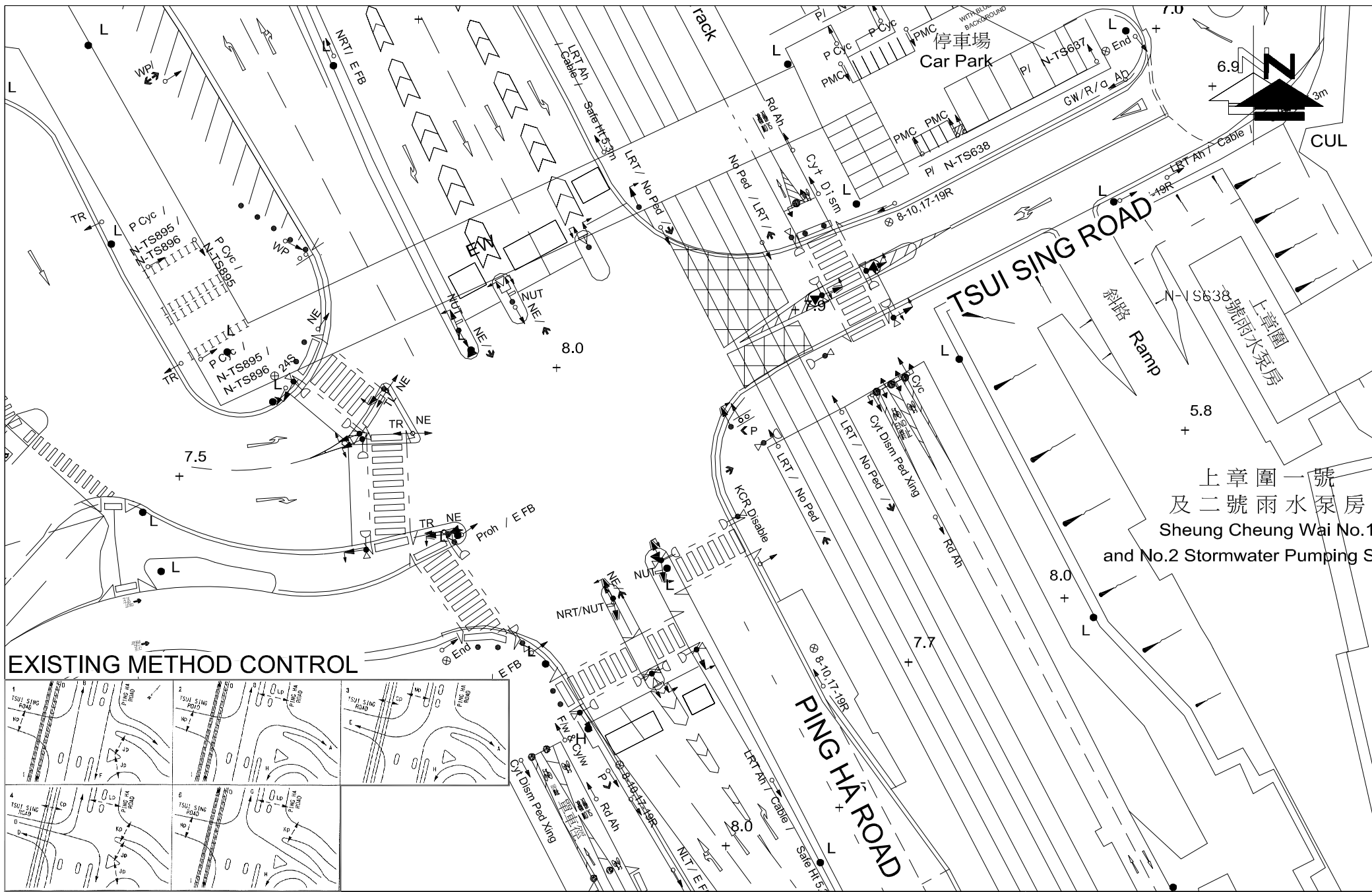


FIGURE NO.:		3.2
PROJECT NO.:		23061HK
SCALE:	DATE:	
1 : 500 @A4	12 SEP 2023	

PROJECT TITLE: Section 16 Town Planning Application for Proposed Composite Social Welfare Facility (Residential Care Home for the Elderly) and Residential Institution (Senior Hostel) Development in Lot Nos. 257 (Part), 258 RP(Part) and adjoining Government Land in D.D.122

DRAWING TITLE: **EXISTING JUNCTION LAYOUT OF TIN FUK ROAD / TIN SHING ROAD (A)**

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EXISTING METHOD CONTROL

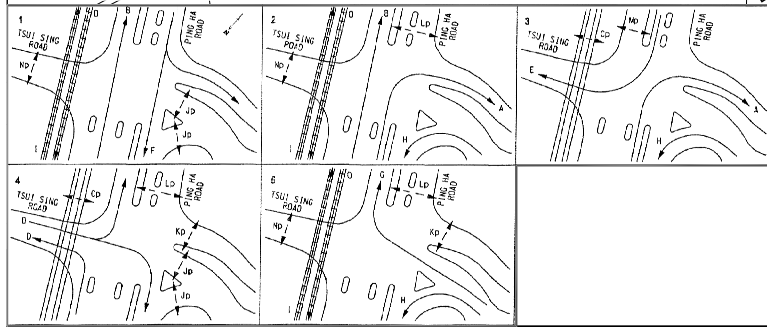


FIGURE NO.: 3.3		PROJECT TITLE: Section 16 Town Planning Application for Proposed Composite Social Welfare Facility (Residential Care Home for the Elderly) and Residential Institution (Senior Hostel) Development in Lot Nos. 257 (Part), 258 RP(Part) and adjoining Government Land in D.D.122
PROJECT NO.: 23061HK		DRAWING TITLE: EXISTING JUNCTION LAYOUT OF TSUI SING ROAD / PING HA ROAD (B)
SCALE: 1 : 500 @A4	DATE: 20 SEP 2023	



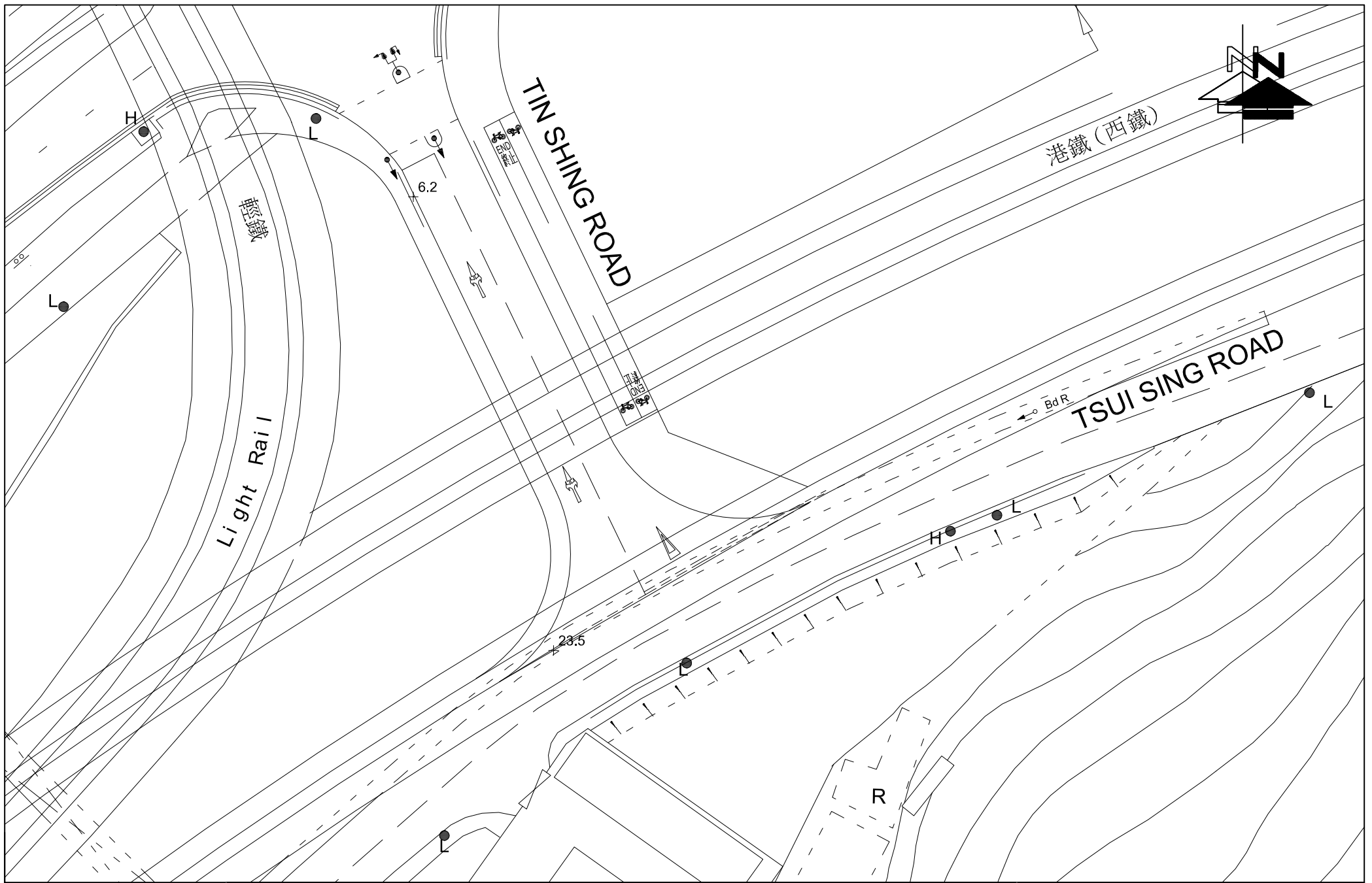


FIGURE NO.:	3.4
PROJECT NO.:	23061HK
SCALE:	1:500 @A4
DATE:	12 SEP 2023

PROJECT TITLE:	Section 16 Town Planning Application for Proposed Composite Social Welfare Facility (Residential Care Home for the Elderly) and Residential Institution (Senior Hostel) Development in Lot Nos. 257 (Part), 258 RP(Part) and adjoining Government Land in D.D.122
DRAWING TITLE:	EXISTING JUNCTION LAYOUT OF TSUI SING ROAD / TIN SHING ROAD (C)



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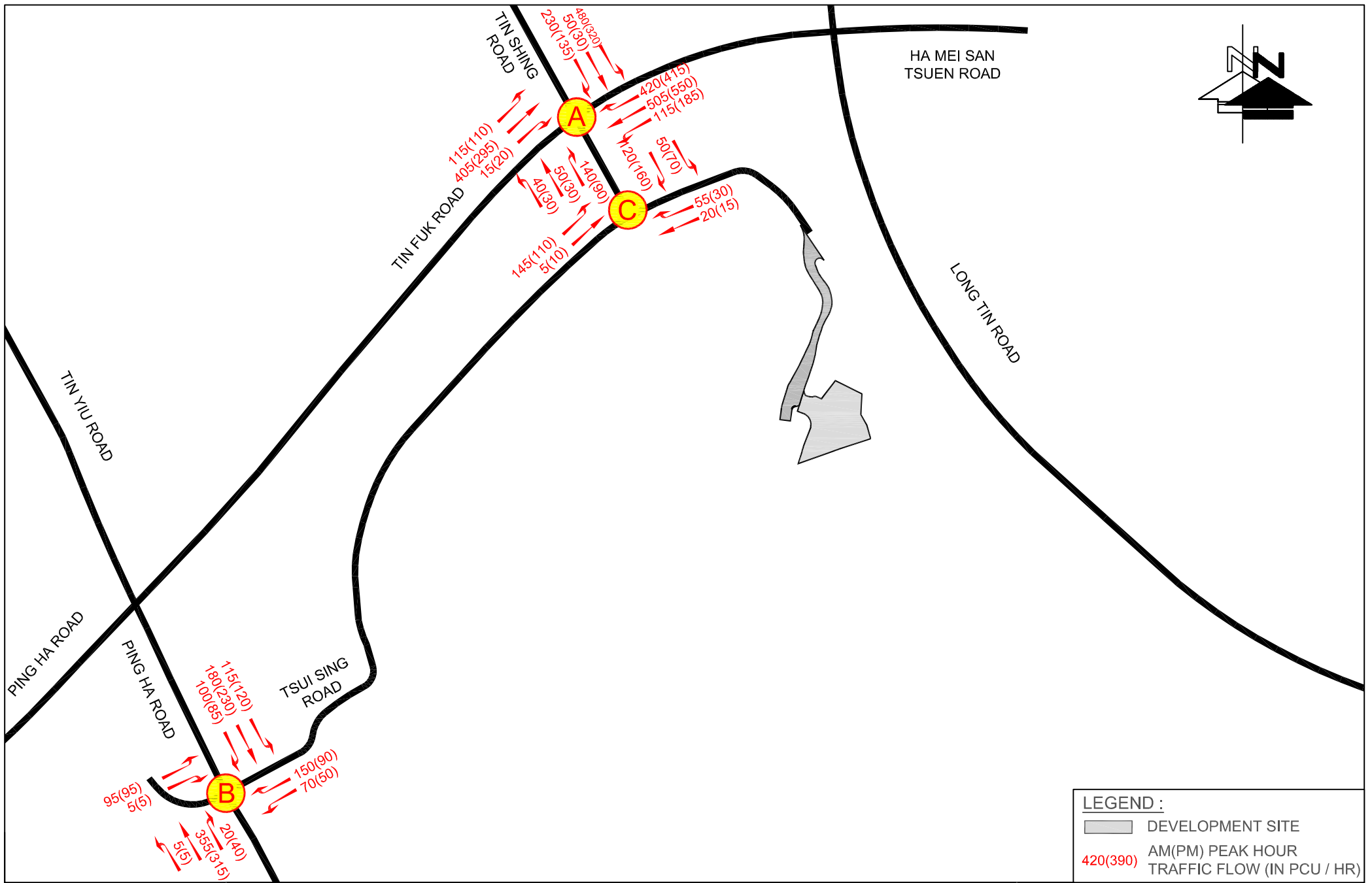


FIGURE NO.:	3.5	PROJECT TITLE:	Section 16 Town Planning Application for Proposed Composite Social Welfare Facility (Residential Care Home for the Elderly) and Residential Institution (Senior Hostel) Development in Lot Nos. 257 (Part), 258 RP(Part) and adjoining Government Land in D.D.122
PROJECT NO.:	23061HK	DRAWING TITLE:	2023 OBSERVED TRAFFIC FLOW
SCALE:	N.T.S. @A4	DATE:	19 FEB 2024

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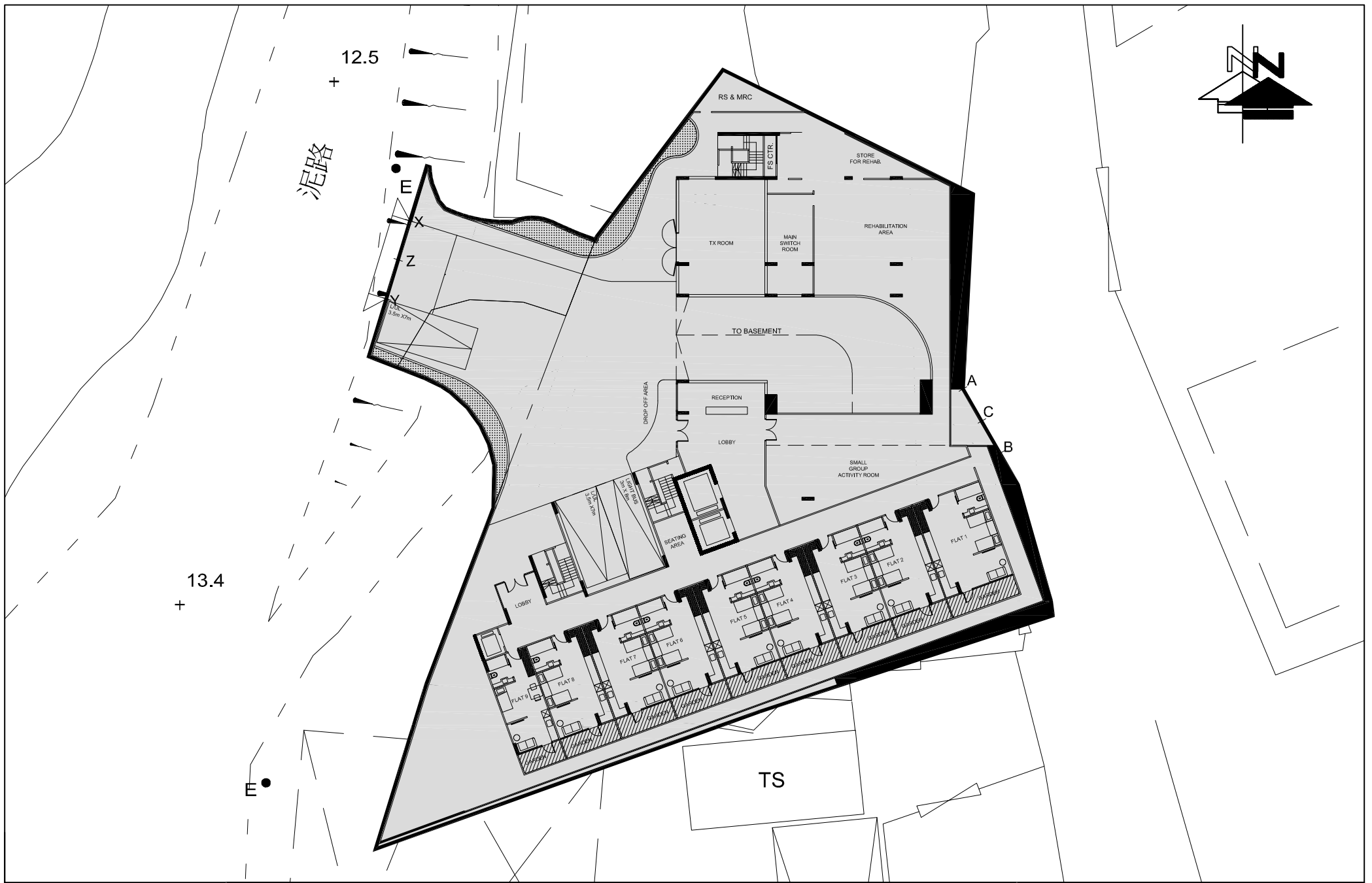


FIGURE NO.:	3.6
PROJECT NO.:	23061HK
SCALE:	DATE:
1 : 400 @A4	19 FEB 2024

PROJECT TITLE:	Section 16 Town Planning Application for Proposed Composite Social Welfare Facility (Residential Care Home for the Elderly) and Residential Institution (Senior Hostel) Development in Lot Nos. 257 (Part), 258 RP(Part) and adjoining Government Land in D.D.122
DRAWING TITLE:	CARPARK LAYOUT PLAN ON G/F



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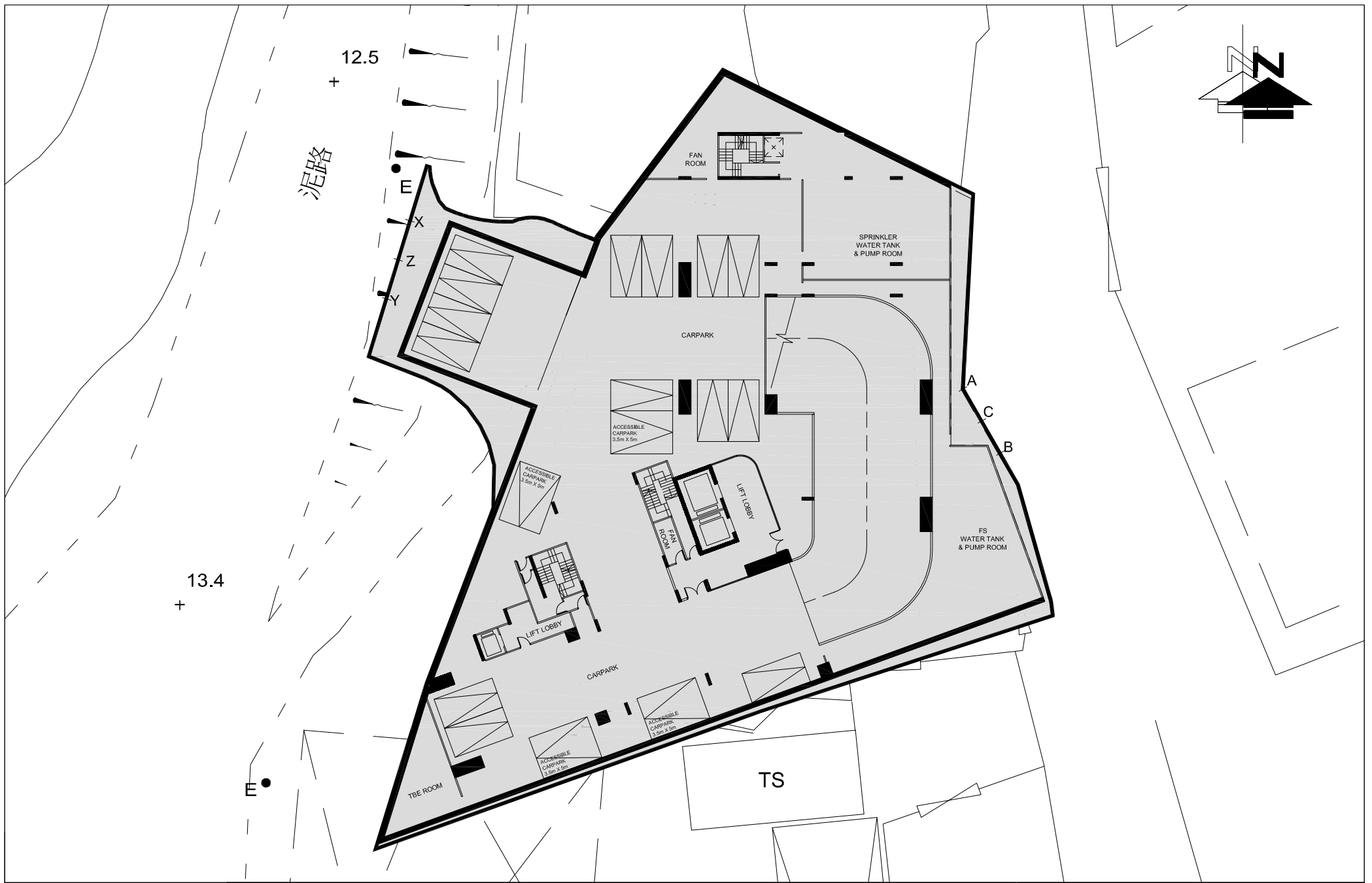
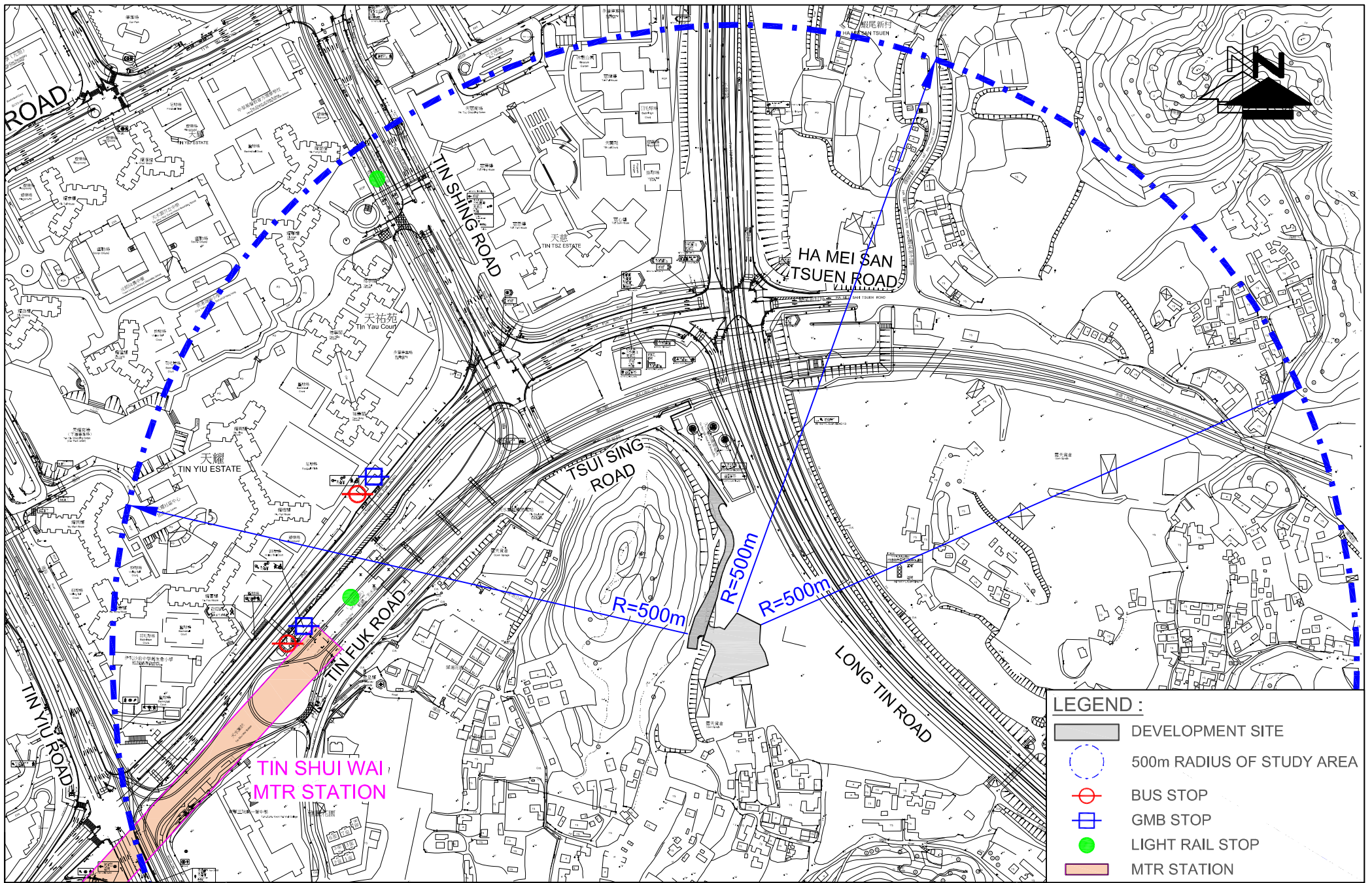


FIGURE NO.:	3.7
PROJECT NO.:	23061HK
SCALE:	DATE:
1 : 400 @A4	20 FEB 2024

PROJECT TITLE:	Section 16 Town Planning Application for Proposed Composite Social Welfare Facility (Residential Care Home for the Elderly) and Residential Institution (Senior Hostel) Development in Lot Nos. 257 (Part), 258 RP(Part) and adjoining Government Land in D.D.122
DRAWING TITLE:	CARPARK LAYOUT PLAN ON B/F

CTA Consultants Limited
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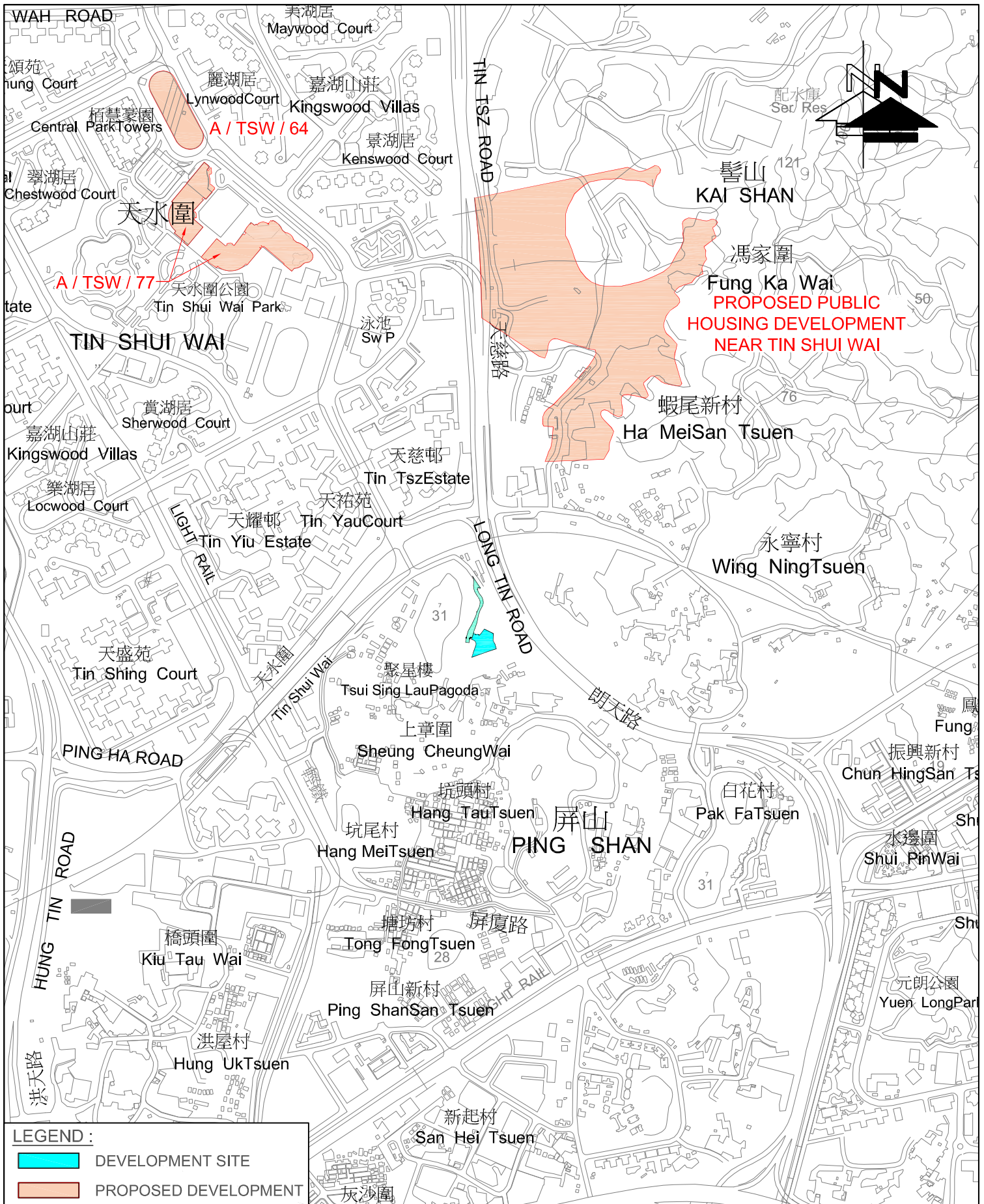
LEGEND :

- DEVELOPMENT SITE
- 500m RADIUS OF STUDY AREA
- BUS STOP
- GMB STOP
- LIGHT RAIL STOP
- MTR STATION

FIGURE NO.:	3.8	PROJECT TITLE: Section 16 Town Planning Application for Proposed Composite Social Welfare Facility (Residential Care Home for the Elderly) and Residential Institution (Senior Hostel) Development in Lot Nos. 257 (Part), 258 RP(Part) and adjoining Government Land in D.D.122
PROJECT NO.:	23061HK	DRAWING TITLE:
SCALE:	DATE:	PUBLIC TRANSPORT SERVICES IN THE VICINITY
1 : 4200 @A4	19 FEB 2024	

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LEGEND :	
	DEVELOPMENT SITE
	PROPOSED DEVELOPMENT

FIGURE NO.:
4.1

PROJECT TITLE:
Section 16 Town Planning Application for Proposed Composite Social Welfare Facility (Residential Care Home for the Elderly) and Residential Institution (Senior Hostel) Development in Lot Nos. 257 (Part), 258 RP(Part) and adjoining Government Land in D.D.122

PROJECT NO.:
23061HK

DRAWING TITLE:
**PLANNED COMMITTED FUTURE DEVELOPMENT
IN THE VICINTY**

SCALE:
1: 11000 @A4

DATE:
19 FEB 2024



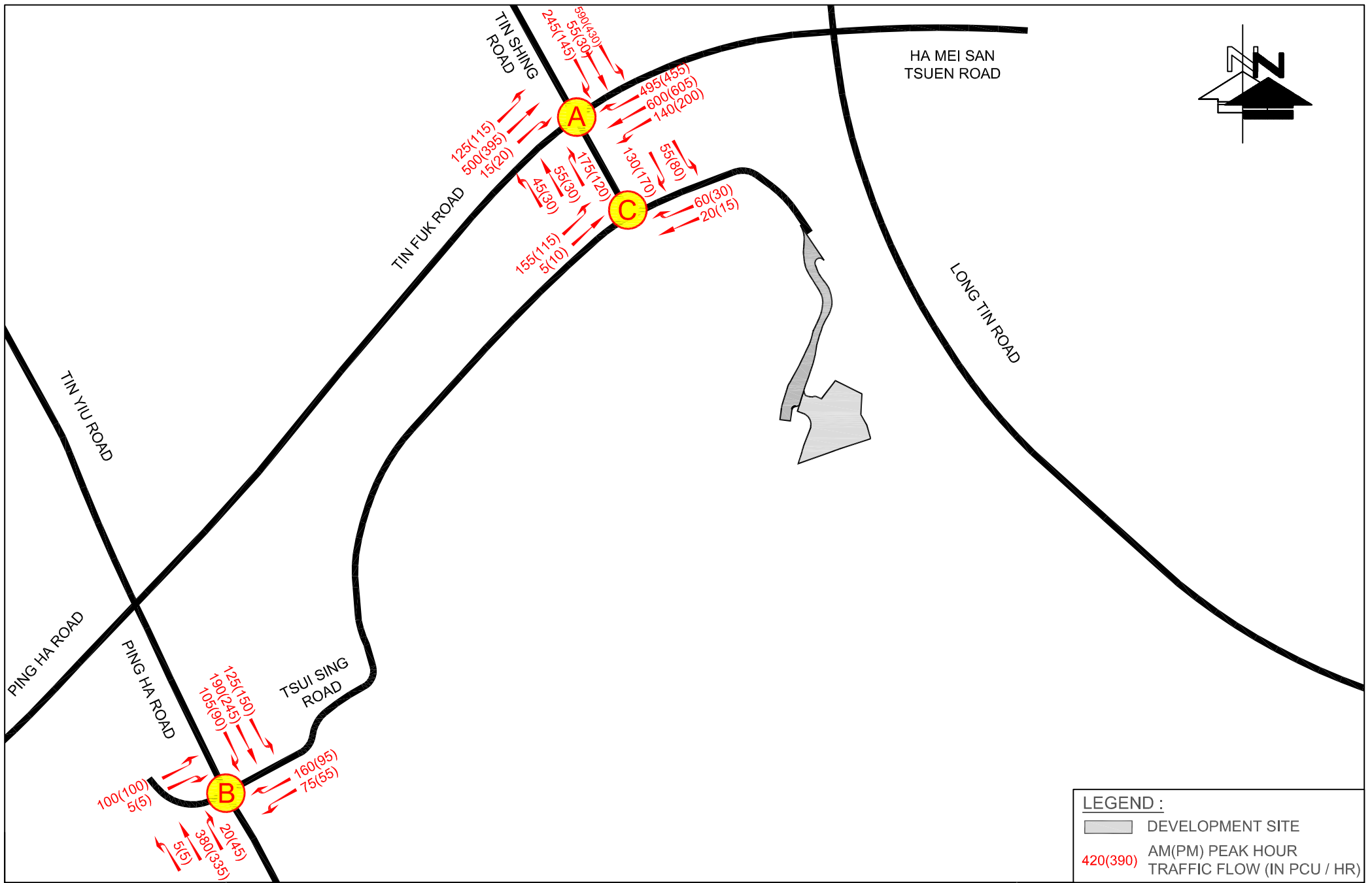
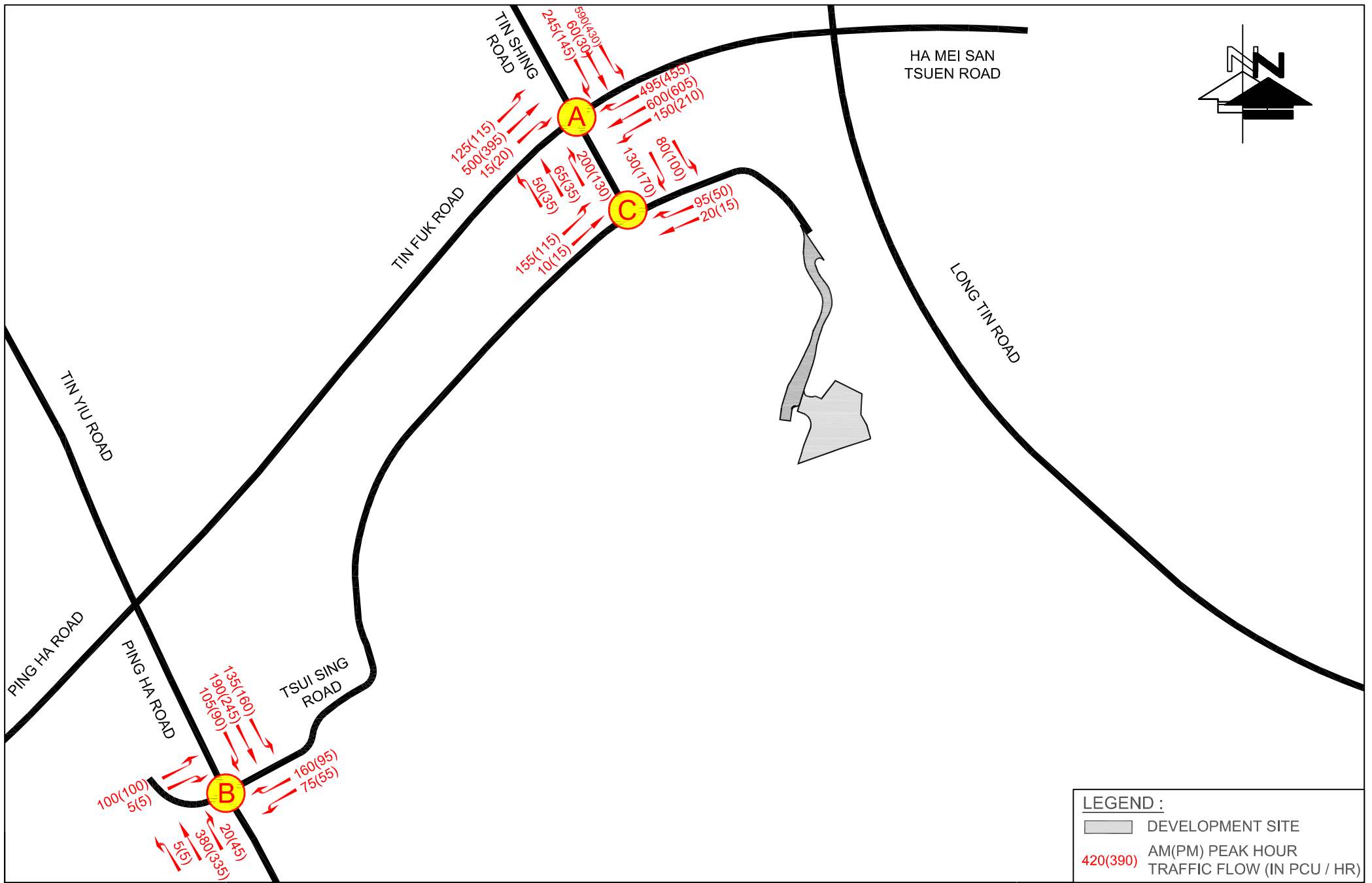


FIGURE NO.:	4.2	PROJECT TITLE:	Section 16 Town Planning Application for Proposed Composite Social Welfare Facility (Residential Care Home for the Elderly) and Residential Institution (Senior Hostel) Development in Lot Nos. 257 (Part), 258 RP(Part) and adjoining Government Land in D.D.122
PROJECT NO.:	23061HK	DRAWING TITLE:	2032 REFERENCE TRAFFIC FLOW
SCALE:	N.T.S. @A4	DATE:	19 FEB 2024

CTA Consultants Limited
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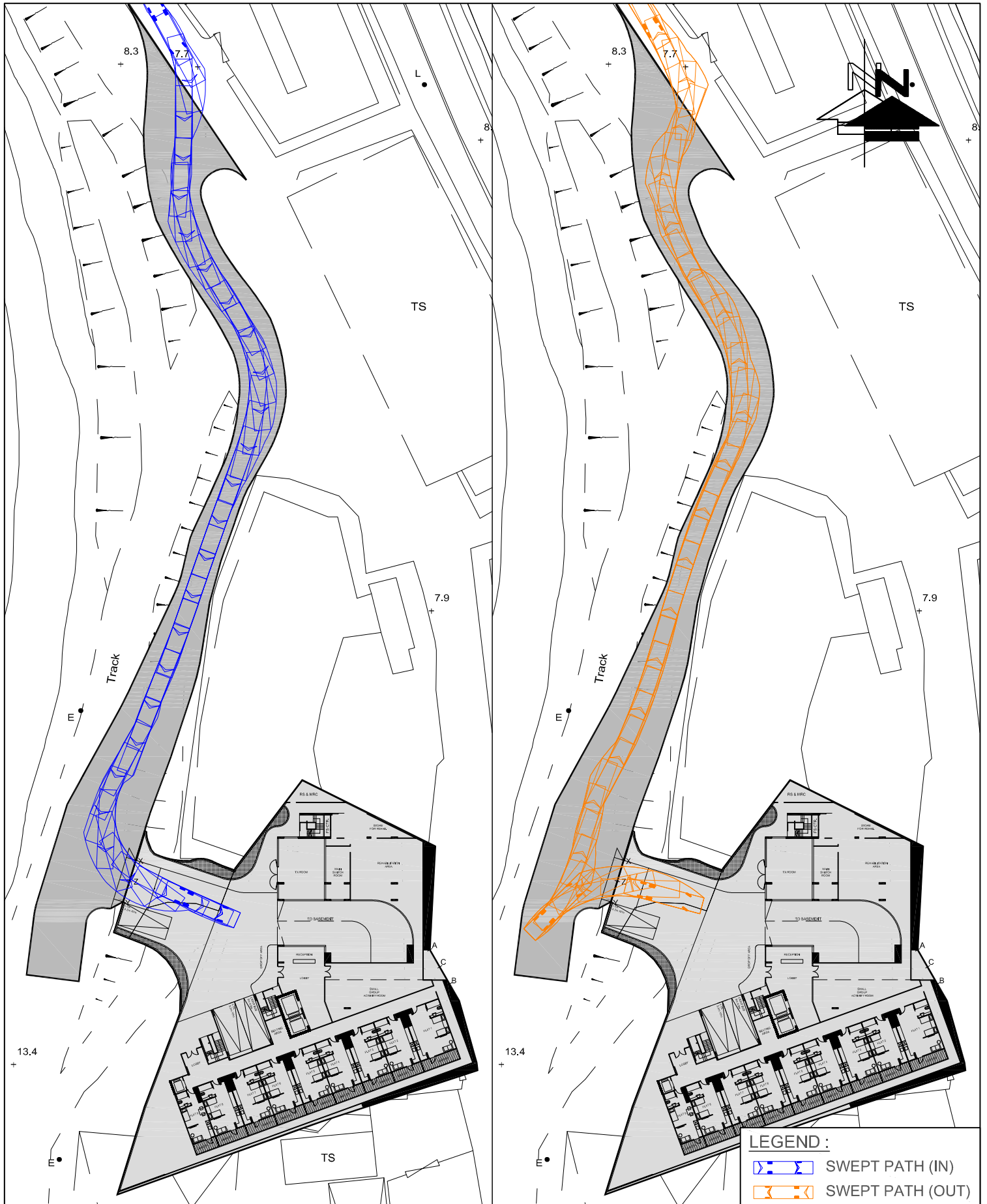
LEGEND :

- DEVELOPMENT SITE
- AM(PM) PEAK HOUR TRAFFIC FLOW (IN PCU / HR)

FIGURE NO.:	4.3	PROJECT TITLE: Section 16 Town Planning Application for Proposed Composite Social Welfare Facility (Residential Care Home for the Elderly) and Residential Institution (Senior Hostel) Development in Lot Nos. 257 (Part), 258 RP(Part) and adjoining Government Land in D.D.122
PROJECT NO.:	23061HK	DRAWING TITLE:
SCALE: N.T.S. @A4	DATE: 19 FEB 2024	2032 DESIGN TRAFFIC FLOW

CTA Consultants Limited

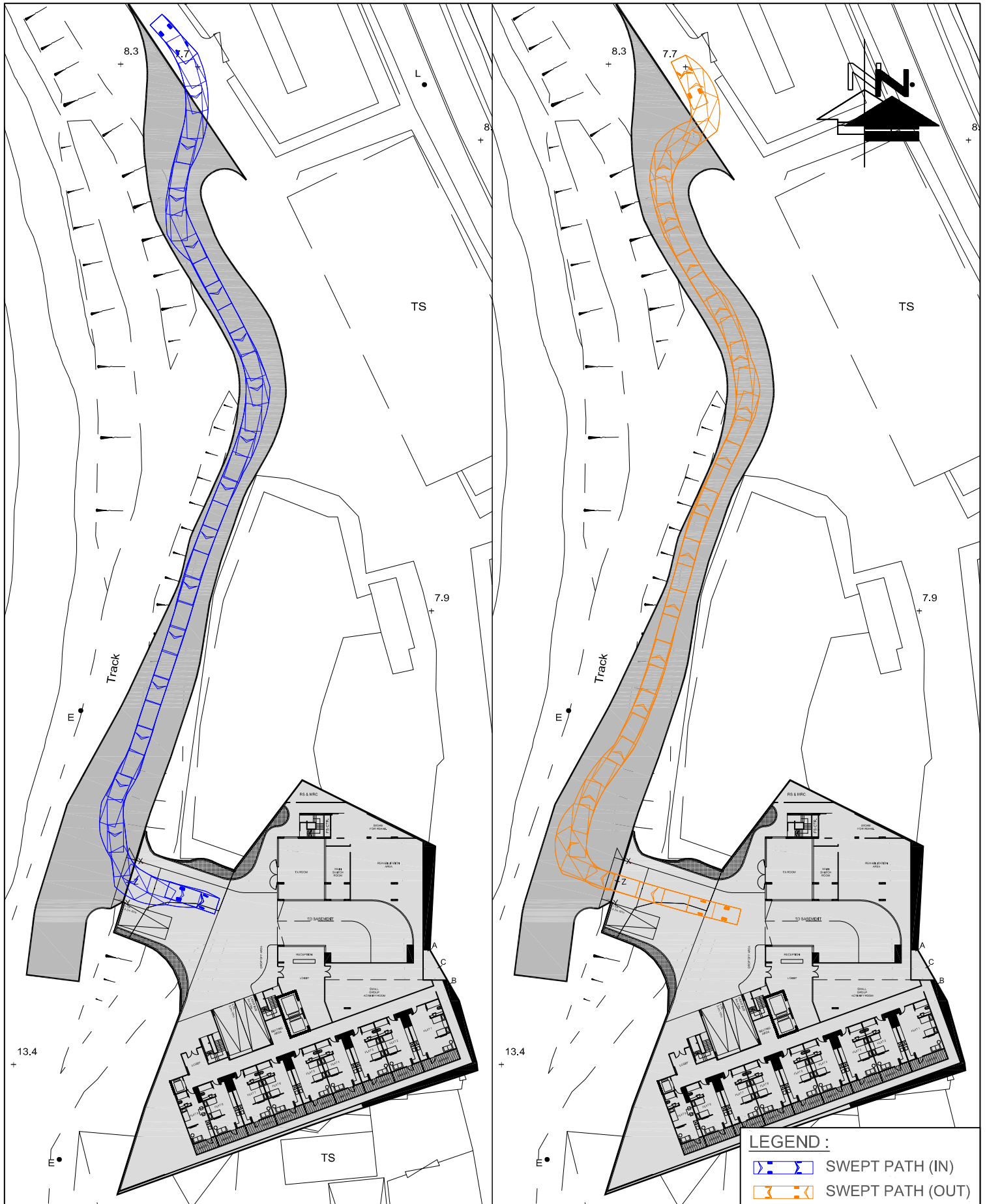
志達顧問有限公司



LEGEND :

- SWEEP PATH (IN)
- SWEEP PATH (OUT)

FIGURE NO.:		SP-01		PROJECT TITLE:		Section 16 Town Planning Application for Proposed Composite Social Welfare Facility (Residential Care Home for the Elderly) and Residential Institution (Senior Hostel) Development in Lot Nos. 257 (Part), 258 RP(Part) and adjoining Government Land in D.D.122	
PROJECT NO.:		23061HK		DRAWING TITLE:			
SCALE:		DATE:		SWEPT PATH ANALYSIS OF 12m VEHICLE			
1 : 750 @A4		19 FEB 2024					
				CTA Consultants Limited 志達顧問有限公司			



LEGEND :



-  SWEEP PATH (IN)
-  SWEEP PATH (OUT)

FIGURE NO.:		SP-02		PROJECT TITLE:		Section 16 Town Planning Application for Proposed Composite Social Welfare Facility (Residential Care Home for the Elderly) and Residential Institution (Senior Hostel) Development in Lot Nos. 257 (Part), 258 RP(Part) and adjoining Government Land in D.D.122	
PROJECT NO.:		23061HK		DRAWING TITLE:			
SCALE:		DATE:		SWEPT PATH ANALYSIS OF 8m VEHICLE			
1 : 750 @A4		19 FEB 2024					
 CTA Consultants Limited 志達顧問有限公司							



APPENDIX 1

JUNCTION CALCULATION SHEETS

TRAFFIC SIGNALS CALCULATION

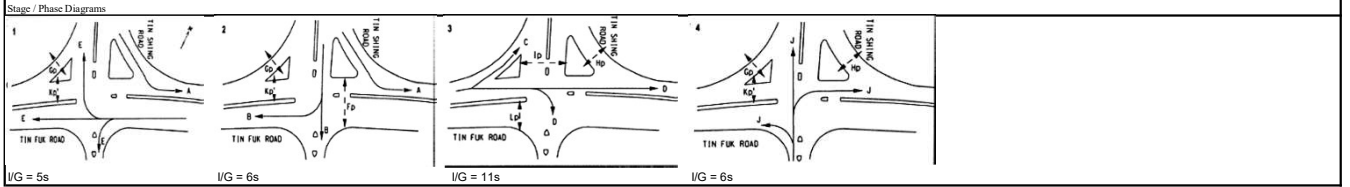
Job No: 23061HK

CTA Consultants Ltd.

Junction: (A) Tin Fuk Road / Tin Shing Road
 Description: 2023 Observed Flow

Approach	Direction	Movement notation	Phase	Stage	Width (m)		Radius (m)		Nearside OI	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
Tin Fuk Road	E	↖	C	3	3.5	20.0	0	1	100%	100%	1965	1965	1830	1830	1830	1830	115	0.063		110	0.060		
	E	→	D	3	3.5	0.0	0	0	0%	0%	2105	4210	2105	2105	4200	4190	211	0.100		158	0.075		
	E	↗	D	3	3.5	0.0	20	0	7%	13%	2105	0	2095	2085	0	0	209	0.100	0.100	157	0.075	0.075	
Tsui Sing Road	N	↕	J	4	3.5	20.0	30	1	17% / 61%	20% / 60%	1965	1965	1885	1880	1885	1880	230	0.122	0.122	150	0.080	0.080	
Tin Fuk Road	W	↖	E	1	3.5	0.0	25	0	100%	100%	2105	4210	1985	1985	3970	3970	210	0.106		208	0.105		
	W	↖	E	1	3.5	0.0	25	0	100%	100%	2105	0	1985	1985	0	0	210	0.106		208	0.105		
	W	←	E	1	3.5	0.0	0	0	0%	0%	2105	0	2105	2105	0	0	325	0.154	0.154	387	0.184	0.184	
	W	↙	E	1	3.5	20.0	0	1	39%	53%	1965	4070	1910	1890	4015	3995	295	0.154		348	0.184		
Tin Shing Road	S	↘	A	1,2	3.5	20.0	0	1	100%	100%	1965	4070	1830	1830	3790	3790	232	0.127		155	0.084		
	S	↘	A	1,2	3.5	20.0	0	0	100%	100%	2105	0	1960	1960	0	0	248	0.127		165	0.084		
	S	↙	B	2	3.5	0.0	25	0	65%	64%	2105	4210	2025	2025	4010	4010	141	0.070	0.070	83	0.041	0.041	
	S	↙	B	2	3.5	0.0	25	0	100%	100%	2105	0	1985	1985	0	0	139	0.070		82	0.041		
Pedestrian crossing			Fp	Min. Crossing Time = 14Gm + 13FGm = 27s																			
			Gp	Min. Crossing Time = 5Gm + 5FGm = 10s																			
			Hp	Min. Crossing Time = 5Gm + 8FGm = 13s																			
			Ip	Min. Crossing Time = 8Gm + 10FGm = 18s																			
			Kp	Min. Crossing Time = 5Gm + 7FGm = 12s																			
			Lp	Min. Crossing Time = 5Gm + 10FGm = 15s																			

Notes: (Nil)	Traffic Flow (pcu / hr)	AM Peak Check Phase		PM Peak Check Phase	
		Ey 0.446	Ey 0.380	L (sec) 24	L (sec) 24
		C (sec) 120	C (sec) 120	y pract. 0.720	y pract. 0.720
		R.C. (%) 61%	R.C. (%) 89%		



TRAFFIC SIGNALS CALCULATION

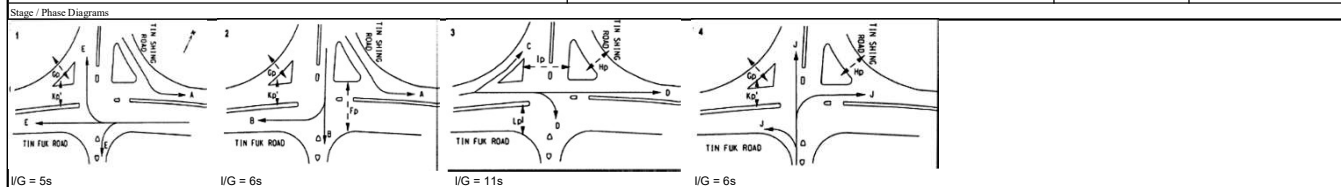
Job No: 23061HK

CTA Consultants Ltd.

Junction: (A) Tin Fuk Road / Tin Shing Road
 Description: 2032 Reference Flow

Approach	Direction	Movement notation	Phase	Stage	Width (m)			Nearside OI	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		
					Radius (m)		AM		PM	AM			PM	AM	PM	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y	
					Left	Right																
Tin Fuk Road	E	↖	C	3	3.5	20.0	0	1	100%	100%	1965	1965	1830	1830	1830	1830	125	0.068		115	0.063	
	E	→	D	3	3.5	0.0	0	0	0%	0%	2105	4210	2105	2105	4200	4195	258	0.123		208	0.099	
	E	↗	D	3	3.5	0.0	20	0	6%	10%	2105	0	2095	2090	0	0	257	0.123	0.123	207	0.099	0.099
Tsui Sing Road	N	↕	J	4	3.5	20.0	30	1	16% / 64%	17% / 67%	1965	1965	1880	1880	1880	1880	275	0.146	0.146	180	0.096	0.096
Tin Fuk Road	W	↖	E	1	3.5	0.0	25	0	100%	100%	2105	4210	1985	1985	3970	3970	248	0.125		228	0.115	
	W	↖	E	1	3.5	0.0	25	0	100%	100%	2105	0	1985	1985	0	0	248	0.125		228	0.115	
	W	←	E	1	3.5	0.0	0	0	0%	0%	2105	0	2105	2105	0	0	388	0.184	0.184	424	0.201	0.202
	W	↙	E	1	3.5	20.0	0	1	40%	53%	1965	4070	1910	1890	4015	3995	352	0.184		381	0.202	
Tin Shing Road	S	↘	A	1,2	3.5	20.0	0	1	100%	100%	1965	4070	1830	1830	3790	3790	285	0.156		208	0.113	
	S	↘	A	1,2	3.5	20.0	0	0	100%	100%	2105	0	1960	1960	0	0	305	0.156		222	0.113	
	S	↙	B	2	3.5	0.0	25	0	64%	66%	2105	4210	2025	2025	4010	4010	152	0.075	0.075	88	0.044	0.044
	S	↙	B	2	3.5	0.0	25	0	100%	100%	2105	0	1985	1985	0	0	148	0.075		87	0.044	
Pedestrian crossing			Fp	Min. Crossing Time = 14Gm + 13FGm = 27s																		
			Gp	Min. Crossing Time = 5Gm + 5FGm = 10s																		
			Hp	Min. Crossing Time = 5Gm + 8FGm = 13s																		
			Ip	Min. Crossing Time = 8Gm + 10FGm = 18s																		
			Kp	Min. Crossing Time = 5Gm + 7FGm = 12s																		
			Lp	Min. Crossing Time = 5Gm + 10FGm = 15s																		

Notes: (Nil)	Traffic Flow (pcu / hr)	AM Peak Check Phase		PM Peak Check Phase					
		Ey 0.528	Ey 0.440	L(sec) 24	L(sec) 24	C(sec) 120	C(sec) 120	y pract. 0.720	y pract. 0.720



TRAFFIC SIGNALS CALCULATION

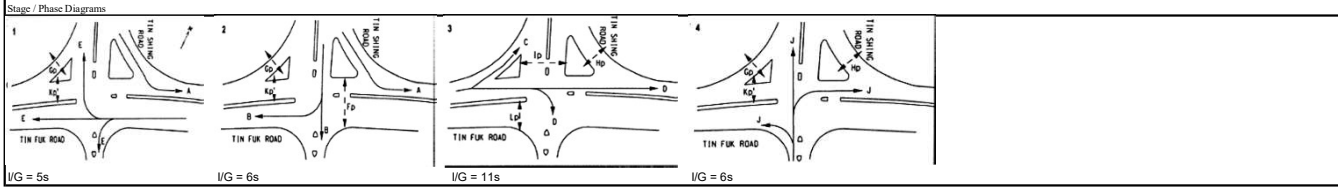
Job No: 23061HK

CTA Consultants Ltd.

Junction: (A) Tin Fuk Road / Tin Shing Road
 Description: 2032 Design Flow

Approach	Direction	Movement notation	Phase	Stage	Width (m)		Radius (m)		Nearside OI	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		
Tin Fuk Road	E	↖	C	3	3.5	20.0	0	1	100%	100%	1965	1965	1830	1830	1830	1830	125	0.068		115	0.063		
	E	→	D	3	3.5	0.0	0	0	0%	0%	2105	4210	2105	2105	4200	4195	258	0.123		208	0.099		
	E	↗	D	3	3.5	0.0	20	0	6%	10%	2105	0	2095	2090	0	0	257	0.123	0.123	207	0.099	0.099	
Tsui Sing Road	N	↕	J	4	3.5	20.0	30	1	16% / 63%	18% / 65%	1965	1965	1885	1880	1885	1880	315	0.167	0.167	200	0.106	0.106	
Tin Fuk Road	W	↖	E	1	3.5	0.0	25	0	100%	100%	2105	4210	1985	1985	3970	3970	248	0.125		228	0.115		
	W	↖	E	1	3.5	0.0	25	0	100%	100%	2105	0	1985	1985	0	0	248	0.125		228	0.115		
	W	←	E	1	3.5	0.0	0	0	0%	0%	2105	0	2105	2105	0	0	394	0.187	0.187	430	0.204	0.204	
	W	↗	E	1	3.5	20.0	0	1	42%	54%	1965	4070	1905	1890	4010	3995	356	0.187		385	0.204		
Tin Shing Road	S	↘	A	1,2	3.5	20.0	0	1	100%	100%	1965	4070	1830	1830	3790	3790	285	0.156		208	0.113		
	S	↘	A	1,2	3.5	20.0	0	0	100%	100%	2105	0	1960	1960	0	0	305	0.156		222	0.113		
	S	↙	B	2	3.5	0.0	25	0	61%	66%	2105	4210	2030	2025	4015	4010	154	0.076	0.076	88	0.044	0.044	
	S	↙	B	2	3.5	0.0	25	0	100%	100%	2105	0	1985	1985	0	0	151	0.076		87	0.044		
Pedestrian crossing			Fp	Min. Crossing Time = 14Gm + 13FGm = 27s																			
			Gp	Min. Crossing Time = 5Gm + 5FGm = 10s																			
			Hp	Min. Crossing Time = 5Gm + 8FGm = 13s																			
			Ip	Min. Crossing Time = 8Gm + 10FGm = 18s																			
			Kp	Min. Crossing Time = 5Gm + 7FGm = 12s																			
			Lp	Min. Crossing Time = 5Gm + 10FGm = 15s																			

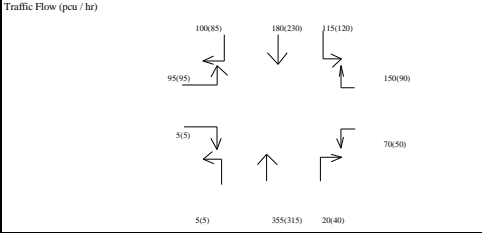
Notes: (Nil)	Traffic Flow (pcu / hr)	AM Peak Check Phase		PM Peak Check Phase					
		Ey 0.553	L(sec) 24	C(sec) 120	y pract. 0.720	R.C. (%) 30%	Ey 0.453	L(sec) 24	C(sec) 120



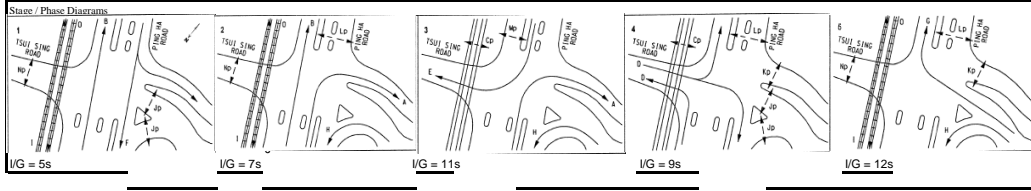
Junction: **(B) Ping Ha Road/ Tsui Sing Road**
 Description: **2023 Observed Flow**

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
Tsui Sing Road	W	←	D	4	3.5	10.0	12	1	32% / 68%	36% / 64%	1461	1461	1290	1290	1290	1290	220	0.171	0.171	140	0.109	0.109
Tsui Sing Road	E	→	H	2,3,5	7.0	20.0	0	1	100%	100%	2315	2315	2155	2155	2155	2155	95	0.044		95	0.044	
Tsui Sing Road	E	↓	G	5	9.5	0.0	15	0	100%	100%	2705	2705	2460	2460	2460	2460	5	0.002		5	0.002	
Ping Ha Road	N	→	E	3	3.5	0.0	15	0	100%	100%	2105	2105	1915	1915	1915	1915	20	0.010		40	0.021	
Ping Ha Road	N	↑	F	1	3.5	20.0	0	1	3%	3%	1965	4070	1960	1960	4065	4065	174	0.089	0.089	154	0.079	0.079
Ping Ha Road	N	↔	F	1	3.5	0.0	0	0	0%	0%	2105	0	2105	2105	0	0	186	0.089		166	0.079	
Ping Ha Road	S	←	A	2,3	4.1	0.0	12.5	0	100%	100%	2165	2165	1935	1935	1935	1935	115	0.059	0.059	120	0.062	0.062
Ping Ha Road	S	↓	B	1,2	3.5	0.0	0	1	0%	0%	1965	4070	1965	1965	4070	4070	87	0.044		111	0.057	
Ping Ha Road	S	↓	B	1,2	3.5	0.0	0	0	0%	0%	2105	0	2105	2105	0	0	93	0.044		119	0.057	
Ping Ha Road	S	↔	D	4	4.0	15.0	0	1	100%	100%	2015	2015	1830	1830	1830	1830	100	0.055		85	0.046	
Pedestrian crossing			Np																			
			Ip																			
			Lp																			
			Cp																			
			Mp																			
			Kp																			

Notes:
(Nil)



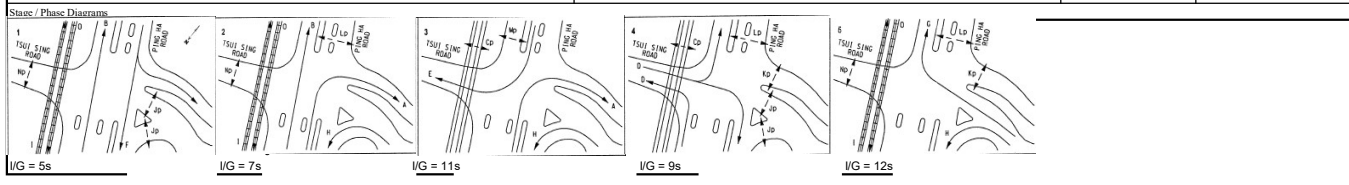
	AM Peak Check Phase	PM Peak Check Phase
Ey	0.319	0.249
L (sec)	21	21
C (sec)	100	100
y pract.	0.711	0.711
R.C. (%)	123%	185%



Junction: **(B) Ping Ha Road/ Tsui Sing Road**
 Description: **2023 Reference 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		
Tsui Sing Road	W	←	D	4	3.5	10.0	12	1	32% / 68%	37% / 63%	1461	1461	1290	1290	1290	1290	235	0.182	0.182	150	0.116	0.116	
Tsui Sing Road	E	→	H	2,3,5	7.0	20.0	0	1	100%	100%	2315	2315	2155	2155	2155	2155	100	0.046		100	0.046		
Tsui Sing Road	E	↓	G	5	9.5	0.0	15	0	100%	100%	2705	2705	2460	2460	2460	2460	5	0.002		5	0.002		
Ping Ha Road	N	→	E	3	3.5	0.0	15	0	100%	100%	2105	2105	1915	1915	1915	1915	20	0.010		45	0.023		
Ping Ha Road	N	↑	F	1	3.5	20.0	0	1	3%	3%	1965	4070	1960	1960	4065	4065	186	0.095	0.095	164	0.084	0.084	
Ping Ha Road	N	↔	F	1	3.5	0.0	0	0	0%	0%	2105	0	2105	2105	0	0	199	0.095		176	0.084		
Ping Ha Road	S	↓	A	2,3	4.1	0.0	12.5	0	100%	100%	2165	2165	1935	1935	1935	1935	125	0.065	0.065	150	0.078	0.078	
Ping Ha Road	S	↓	B	1,2	3.5	0.0	0	1	0%	0%	1965	4070	1965	1965	4070	4070	92	0.047		118	0.060		
Ping Ha Road	S	↓	B	1,2	3.5	0.0	0	0	0%	0%	2105	0	2105	2105	0	0	98	0.047		127	0.060		
Ping Ha Road	S	↑	D	4	4.0	15.0	0	1	100%	100%	2015	2015	1830	1830	1830	1830	105	0.057		90	0.049		
Pedestrian crossing			Np			Min. Crossing Time = 5Gm + 8FGm = 13s																	
			JP			Min. Crossing Time = 5Gm + 6FGm = 11s																	
			LP			Min. Crossing Time = 5Gm + 10FGm = 15s																	
			CP			Min. Crossing Time = 7Gm + 8FGm = 15s																	
			MP			Min. Crossing Time = 5Gm + 7FGm = 12s																	
			Kp			Min. Crossing Time = 5Gm + 9FGm = 14s																	

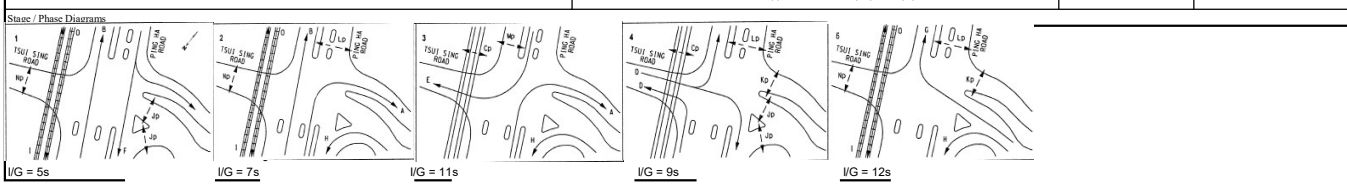
Notes: (Nil)	Traffic Flow (pcu / hr)	AM Peak Check Phase	PM Peak Check Phase
		Ey 0.342 L (sec) 21 C (sec) 100 y pract. 0.711 R.C. (%) 108%	Ey 0.277 L (sec) 21 C (sec) 100 y pract. 0.711 R.C. (%) 156%



Junction: **(B) Ping Ha Road/ Tsui Sing Road**
 Description: **2023 Design 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		
Tsui Sing Road	W	←	D	4	3.5	10.0	12	1	32% / 68%	37% / 63%	1461	1461	1290	1290	1290	1290	235	0.182	0.182	150	0.116	0.116	
Tsui Sing Road	E	→	H	2,3,5	7.0	20.0	0	1	100%	100%	2315	2315	2155	2155	2155	2155	100	0.046		100	0.046		
Tsui Sing Road	E	↓	G	5	9.5	0.0	15	0	100%	100%	2705	2705	2460	2460	2460	2460	5	0.002		5	0.002		
Ping Ha Road	N	→	E	3	3.5	0.0	15	0	100%	100%	2105	2105	1915	1915	1915	1915	20	0.010		45	0.023		
Ping Ha Road	N	↑	F	1	3.5	20.0	0	1	3%	3%	1965	4070	1960	1960	4065	4065	186	0.095	0.095	164	0.084	0.084	
Ping Ha Road	N	↔	F	1	3.5	0.0	0	0	0%	0%	2105	0	2105	2105	0	0	199	0.095		176	0.084		
Ping Ha Road	S	↓	A	2,3	4.1	0.0	12.5	0	100%	100%	2165	2165	1935	1935	1935	1935	135	0.070	0.070	160	0.083	0.083	
Ping Ha Road	S	↓	B	1,2	3.5	0.0	0	1	0%	0%	1965	4070	1965	1965	4070	4070	92	0.047		118	0.060		
Ping Ha Road	S	↓	B	1,2	3.5	0.0	0	0	0%	0%	2105	0	2105	2105	0	0	98	0.047		127	0.060		
Ping Ha Road	S	↔	D	4	4.0	15.0	0	1	100%	100%	2015	2015	1830	1830	1830	1830	105	0.057		90	0.049		
Pedestrian crossing			Np		Min. Crossing Time = 5Gm + 8FGm = 13s																		
			JP		Min. Crossing Time = 5Gm + 6FGm = 11s																		
			LP		Min. Crossing Time = 5Gm + 10FGm = 15s																		
			CP		Min. Crossing Time = 7Gm + 8FGm = 15s																		
			MP		Min. Crossing Time = 5Gm + 7FGm = 12s																		
			Kp		Min. Crossing Time = 5Gm + 9FGm = 14s																		

Notes: (Nil)		AM Peak Check Phase	PM Peak Check Phase
		E _y 0.347 L (sec) 21 C (sec) 100 y pract. 0.711 R.C. (%) 105%	E _y 0.283 L (sec) 21 C (sec) 100 y pract. 0.711 R.C. (%) 152%



Junctions 8

PICADY 8 - Priority Intersection Module

Version: 8.0.5.523 [19102,19/06/2015]
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Filename: JunC.arc8

Path: \\CTA_NAS01\Project\CTA Consultants Limited\CTA - Project\23061HK (mwy) - RCHE and Senior Hostel in GIC in Ping Shan Tin Shui Wai Yuen Long\Cal\2023.09.19

Report generation date: 19/9/2023 16:24:37

« (Default Analysis Set) - 2032 Des Flow, PM

- » Junction Network
- » Arms
- » Traffic Flows
- » Entry Flows
- » Turning Proportions
- » Vehicle Mix
- » Results

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	LOS	Queue (PCU)	Delay (s)	RFC	LOS
A1 - 2023 Observed Flow								
Stream B-C	0.09	5.71	0.08	A	0.13	6.04	0.11	A
Stream B-A	0.33	8.99	0.25	A	0.47	9.75	0.32	A
Stream C-A	-	-	-	-	-	-	-	-
Stream C-B	0.13	7.50	0.11	A	0.06	7.00	0.06	A
Stream A-B	-	-	-	-	-	-	-	-
Stream A-C	-	-	-	-	-	-	-	-
A1 - 2023 des Flow								
Stream B-C	0.15	6.11	0.13	A				
Stream B-A	0.38	9.68	0.28	A				
Stream C-A	-	-	-	-				
Stream C-B	0.24	8.32	0.19	A				
Stream A-B	-	-	-	-				
Stream A-C	-	-	-	-				
A1 - 2023 Des Flow								
Stream B-C					0.20	6.47	0.17	A
Stream B-A					0.53	10.32	0.35	B
Stream C-A					-	-	-	-
Stream C-B					0.11	7.35	0.10	A
Stream A-B					-	-	-	-
Stream A-C					-	-	-	-
A1 - 2023 Ref Flow								
Stream B-C	0.10	5.81	0.09	A	0.15	6.20	0.13	A
Stream B-A	0.36	9.22	0.27	A	0.52	10.06	0.34	B
Stream C-A	-	-	-	-	-	-	-	-
Stream C-B	0.11	7.45	0.10	A	0.06	7.02	0.06	A
Stream A-B	-	-	-	-	-	-	-	-
Stream A-C	-	-	-	-	-	-	-	-

Values shown are the maximum values over all time segments. Delay is the maximum value of average delay per arriving vehicle.

"D1 - 2023 Observed Flow, AM" model duration: 8:00 - 9:30

"D2 - 2023 Observed Flow, PM" model duration: 8:00 - 9:30

"D3 - 2023 Ref Flow, AM" model duration: 8:00 - 9:30

"D4 - 2023 Ref Flow, PM" model duration: 8:00 - 9:30

"D5 - 2023 des Flow, AM" model duration: 8:00 - 9:30

"D6 - 2023 Des Flow, PM " model duration: 8:00 - 9:30

Run using Junctions 8.0.5.523 at 19/9/2023 16:24:36

File summary

Title	23061HK
Location	
Site Number	
Date	19/9/2023
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	user
Description	

Analysis Options

Vehicle Length (m)	Do Queue Variations	Calculate Residual Capacity	Residual Capacity Criteria Type	RFC Threshold	Average Delay Threshold (s)	Queue Threshold (PCU)
5.75			N/A	0.85	36.00	20.00

Units

Distance Units	Speed Units	Traffic Units Input	Traffic Units Results	Flow Units	Average Delay Units	Total Delay Units	Rate Of Delay Units
m	kph	PCU	PCU	perHour	s	-Min	perMin

(Default Analysis Set) - 2032 Des Flow, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

Name	Roundabout Capacity Model	Description	Locked	Network Flow Scaling Factor (%)	Reason For Scaling Factors
(Default Analysis Set)	N/A			100.000	

Demand Set Details

Name	Scenario Name	Time Period Name	Description	Traffic Profile Type	Model Start Time (HH:mm)	Model Finish Time (HH:mm)	Model Time Period Length (min)	Time Segment Length (min)	Single Time Segment Only	Locked
2032 Des Flow, PM	2032 Des Flow	PM		ONE HOUR	08:00	09:30	90	15		

Junction Network

Junctions

Junction	Name	Junction Type	Major Road Direction	Arm Order	Junction Delay (s)	Junction LOS
1	(untitled)	T-Junction	Two-way	A,B,C	8.65	A

Junction Network Options

Driving Side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Arm	Name	Description	Arm Type
A	A	(untitled)		Major
B	B	(untitled)		Minor
C	C	(untitled)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Width of kerbed central reserve (m)	Has right turn bay	Width For Right Turn (m)	Visibility For Right Turn (m)	Blocks?	Blocking Queue (PCU)
C	8.00		0.00		2.20	0.00		

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor Arm Type	Lane Width (m)	Lane Width (Left) (m)	Lane Width (Right) (m)	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate Flare Length	Flare Length (PCU)	Visibility To Left (m)	Visibility To Right (m)
B	Two lanes		5.00	5.00								0	0

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	573.534	0.095	0.241	0.152	0.344
1	B-C	748.870	0.105	0.265	-	-
1	C-B	573.963	0.203	0.203	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Flows

Demand Set Data Options

Default Vehicle Mix	Vehicle Mix Varies Over Time	Vehicle Mix Varies Over Turn	Vehicle Mix Varies Over Entry	Vehicle Mix Source	PCU Factor for a HV (PCU)	Default Turning Proportions	Estimate from entry/exit counts	Turning Proportions Vary Over Time	Turning Proportions Vary Over Turn	Turning Proportions Vary Over Entry
		✓	✓	HV Percentages	2.00				✓	✓

Entry Flows

General Flows Data

Arm	Profile Type	Use Turning Counts	Average Demand Flow (PCU/hr)	Flow Scaling Factor (%)
A	ONE HOUR	✓	130.00	100.000
B	ONE HOUR	✓	270.00	100.000
C	ONE HOUR	✓	65.00	100.000

Turning Proportions

Turning Counts / Proportions (PCU/hr) - Junction 1 (for whole period)

		To		
		A	B	C
From	A	0.000	115.000	15.000
	B	170.000	0.000	100.000
	C	15.000	50.000	0.000

Turning Proportions (PCU) - Junction 1 (for whole period)

		To		
		A	B	C
From	A	0.00	0.88	0.12
	B	0.63	0.00	0.37
	C	0.23	0.77	0.00

Vehicle Mix

Average PCU Per Vehicle - Junction 1 (for whole period)

		To		
		A	B	C
From	A	1.000	1.000	1.000
	B	1.000	1.000	1.000
	C	1.000	1.000	1.000

Heavy Vehicle Percentages - Junction 1 (for whole period)

		To		
		A	B	C
From	A	0.0	0.0	0.0
	B	0.0	0.0	0.0
	C	0.0	0.0	0.0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-C	0.17	6.47	0.20	A
B-A	0.35	10.32	0.53	B
C-A	-	-	-	-
C-B	0.10	7.35	0.11	A
A-B	-	-	-	-
A-C	-	-	-	-

Main Results for each time segment

Main results: (08:00-08:15)

Stream	Total Demand (PCU/hr)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	End Queue (PCU)	Delay (s)	LOS
B-C	75.29	74.80	0.00	693.78	0.109	0.12	5.816	A
B-A	127.98	126.78	0.00	547.88	0.234	0.30	8.526	A
C-A	11.29	11.29	0.00	-	-	-	-	-
C-B	37.64	37.35	0.00	554.09	0.068	0.07	6.964	A
A-B	86.58	86.58	0.00	-	-	-	-	-
A-C	11.29	11.29	0.00	-	-	-	-	-

Main results: (08:15-08:30)

Stream	Total Demand (PCU/hr)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	End Queue (PCU)	Delay (s)	LOS
B-C	89.90	89.78	0.00	682.36	0.132	0.15	6.073	A
B-A	152.83	152.48	0.00	542.80	0.282	0.39	9.214	A
C-A	13.48	13.48	0.00	-	-	-	-	-
C-B	44.95	44.89	0.00	550.24	0.082	0.09	7.123	A
A-B	103.38	103.38	0.00	-	-	-	-	-
A-C	13.48	13.48	0.00	-	-	-	-	-

Main results: (08:30-08:45)

Stream	Total Demand (PCU/hr)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	End Queue (PCU)	Delay (s)	LOS
B-C	110.10	109.92	0.00	666.85	0.165	0.20	6.462	A
B-A	187.17	186.61	0.00	535.89	0.349	0.53	10.290	B
C-A	16.52	16.52	0.00	-	-	-	-	-
C-B	55.05	54.96	0.00	544.90	0.101	0.11	7.348	A
A-B	126.62	126.62	0.00	-	-	-	-	-
A-C	16.52	16.52	0.00	-	-	-	-	-

Main results: (08:45-09:00)

Stream	Total Demand (PCU/hr)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	End Queue (PCU)	Delay (s)	LOS
B-C	110.10	110.10	0.00	666.65	0.165	0.20	6.467	A
B-A	187.17	187.16	0.00	535.86	0.349	0.53	10.321	B
C-A	16.52	16.52	0.00	-	-	-	-	-
C-B	55.05	55.05	0.00	544.90	0.101	0.11	7.348	A
A-B	126.62	126.62	0.00	-	-	-	-	-
A-C	16.52	16.52	0.00	-	-	-	-	-

Main results: (09:00-09:15)

Stream	Total Demand (PCU/hr)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	End Queue (PCU)	Delay (s)	LOS
B-C	89.90	90.07	0.00	682.04	0.132	0.15	6.082	A
B-A	152.83	153.37	0.00	542.75	0.282	0.40	9.258	A
C-A	13.48	13.48	0.00	-	-	-	-	-
C-B	44.95	45.04	0.00	550.24	0.082	0.09	7.126	A
A-B	103.38	103.38	0.00	-	-	-	-	-
A-C	13.48	13.48	0.00	-	-	-	-	-

Main results: (09:15-09:30)

Stream	Total Demand (PCU/hr)	Entry Flow (PCU/hr)	Pedestrian Demand (Ped/hr)	Capacity (PCU/hr)	RFC	End Queue (PCU)	Delay (s)	LOS
B-C	75.29	75.41	0.00	693.23	0.109	0.12	5.827	A
B-A	127.98	128.34	0.00	547.76	0.234	0.31	8.592	A
C-A	11.29	11.29	0.00	-	-	-	-	-
C-B	37.64	37.71	0.00	554.09	0.068	0.07	6.974	A
A-B	86.58	86.58	0.00	-	-	-	-	-
A-C	11.29	11.29	0.00	-	-	-	-	-