

**Section 12A Application for Proposed Rezoning from
“Government, Institution or Community” to
“Government, Institution or Community (6)”
at Tuen Mun, New Territories and to Amend the Notes of the Zone
Applicable to the Site for the Proposed Social Welfare Facility
(Residential Care Home for the Elderly) at
Section C of Lot No. 496 in D.D 132 and the
adjoining Government Land, Tuen Mun, New Territories**

Traffic Impact Assessment Report (Rev.A)

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CTA Consultants Limited

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1. INTRODUCTION

1.1 Background

- 1.1.1 The application site is located at Lot 496 S.C in D.D. 132 and Adjoining Government Land, Tuen Mun, N.T..The site location is shown in **Figure 1.1**.
- 1.1.2 In support of the aforesaid application, a traffic impact assessment is required to review and appraise any possible traffic impact induced by the proposed development on the adjacent road network.
- 1.1.3 CTA Consultants Limited (CTA) was therefore commissioned as the traffic consultant to prepare the Traffic Impact Assessment (TIA) and provide technical justifications in supporting the application from traffic engineering point of view.

1.2 Study Objectives

- 1.2.1 Main objectives of this study are listed below:

- To assess the existing and proposed traffic arrangement & provision of internal transport facilities at the subject site;
- To assess the existing traffic condition in the vicinity of the proposed development;
- To estimate traffic trips related to the proposed development;
- To carry out forecasts about traffic demand of the adjacent road network in design year 2035;
- To appraise any possible traffic impact induced by the proposed development on the adjacent road network;
- To recommend traffic improvement measures to alleviate any foreseeable traffic problem to the surrounding road network, if any.

2. THE PROPOSED DEVELOPMENT

2.1 Site Location

2.1.1 The application site is located at Lot 496 S.C in D.D. 132 and Adjoining Government Land, Tuen Mun, N.T..The site location is shown in **Figure 1.1**.

2.2 Development Proposal

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

Table 2.1 Parameters of the Proposed Development

Proposed Use	Residential Care Home for the Elderly (RCHE)
Site Area	About 1,770 m ²
Nos. of Block	1
No. of Storeys	13 storeys
No. of Beds	504

2.2.2 It is anticipated that the proposed development will be completed in year 2032. Therefore, design year 2035 (i.e. 3 years after the planned commencement year of the proposed development) is adopted for the Traffic Impact Assessment.

2.3 Provision of Internal Transport Facilities

2.3.1 The internal transport facilities provision is summarized in **Table 2.2** below:

Table 2.2 Proposed Provisions of Internal Transport Facilities

	Type	Dimensions	Proposed Parking Provision
Parking Space	Private Cars	5m(L) x 2.5m(W) x 2.4m(H)	7 nos. ⁽¹⁾
	Private Cars for Disabilities	5m(L) x 3.5m(W) x 2.4m(H)	1 no. ^{(1) (2)}
	Light Buses	8m(L) x 3m(W) x 3.3m(H)	1 no. ⁽³⁾
Loading/ Unloading	Shared Use for Light Goods Vehicles and Ambulance	8m(L) x 3.5m(W) x 3.6m(H)	1 no. ⁽⁴⁾

Notes:

1. Only one to two private parking spaces are provided with reference to other RCHEs. The most critical case is Pok Oi Hospital Yeung Chun Pui Care and Attention Home which have 2cps / 143 beds = 0.0140cps/bed. Based on this ratio, our proposed development requires $504 \times 0.0140 = 8\text{cps}$ (included 1 no. for disable parking).
2. The provision of PV parking space for disabilities is determined by referring to “Parking for persons with disabilities” stipulated in the latest HKPSG that 1 accessible parking space should be provided for 1-50 parking spaces.
3. Designated parking space at no less than 8m (L) x 3m (W) x 3.3m (H) is required referencing the “Features and Requirements of Phase Two of the Special Scheme on Privately Owned Sites for Welfare Uses (Special Sites Scheme)” published by the Social Welfare Department.
4. Based on operational needs.

2.3.2 The ground floor layout plan of the proposed development showing the proposed internal transport provision is shown in **Figure 2.1**. The swept path analysis within the Site and the sightline of the proposed vehicular access are illustrated in **Figure 2.1 (SP01-SP02)** and **Figure 2.2** respectively.

2.4 Provision Access Arrangement

2.4.1 The vehicular access is located as shown in **Figure 2.1** and the width of the vehicular access is approximately 7m. The vehicular access is directly connected to Tuen Fu Road, which is a two-lane single carriageway with two-way traffic currently.

3. EXISTING TRAFFIC CONDITION

3.1 Existing Road Network

3.1.1 Tuen Fu Road is a two-lane single carriageway with two-way traffic. It is a local road connecting Castle Peak Road – Lingnan to the North and South. It is the only access road connecting the proposed development.

3.2 Critical Junctions

3.2.1 Four junctions are identified to be critical for the Traffic Impact Assessment due to the proposed development. Relevant details are listed in **Table 3.1** and shown in **Figure 3.1**. Existing junction layouts are tabulated in **Figures 3.2 to 3.5** respectively.

Table 3.1 Identified Critical Junctions

Ref.	Junction	Type	Figure No.
A	Castle Peak Road – Lingnan / Castle Peak Road – Lam Tei / Yuen Long Highway	Signalized	3.2
B	Lam Tei Interchange	Roundabout	3.3
C	Castle Peak Road – Lingnan / Tuen Fu Road / Tuen Kwai Road	Signalized	3.4
D	Castle Peak Road – Lingnan / Tuen Fu Road	Signalized	3.5

3.2.2 In order to study the existing traffic condition of the above critical junctions, traffic survey in the form of manual-classified count was conducted for the four junctions during the peak periods on a typical weekday in 6 November 2025 from 07:00 to 09:00 and from 17:00 to 19:00 respectively. The survey provides most up-to-date details of the traffic condition within the study area under normal operation. Based on the observed traffic flows, it reveals that morning and evening peak hours occurred from 07:15 to 08:15 and from 17:30 to 18:30 respectively.

3.2.3 The 2025 existing peak traffic flows are presented in **Figure 3.6**. The operational performances of the critical junctions are listed in **Table 3.2** below.

Table 3.2 Operational Performances of Critical Junctions in 2025

Ref.	Junction	Method of Control	Year 2025 RC/DFC ⁽¹⁾	
			AM Peak	PM Peak
A	Castle Peak Road – Lingnan / Castle Peak Road – Lam Tei / Yuen Long Highway	Signalized	98%	>100%
B	Lam Tei Interchange	Roundabout	0.49	0.47
C	Castle Peak Road – Lingnan / Tuen Fu Road / Tuen Kwai Road	Signalized	75%	78%
D	Castle Peak Road – Lingnan / Tuen Fu Road	Signalized	>100%	>100%

Note: (1) RC = Reserve Capacity for Signal Junction;

DFC = Design Ratio of Flow to Capacity for Priority Junction/Roundabout

3.2.4 The assessment results in **Table 3.2** indicate that all critical junctions are at present operating with ample capacities during the peak hours.

3.3 Public Transport Services in the Vicinity

3.3.1 Numerous road-based public transport services, for instance, franchised bus and GMB are also provided in vicinity of the proposed development. Details of the current services of franchised bus and GMB routes are listed in **Table 3.3** and are illustrated diagrammatically in **Figure 3.7**.

Table 3.3 Public Transport Services in the Vicinity of the Proposed Development

Service	Route	Origin / Destination	Frequency (mins)
Franchised Bus	50	Tuen Mun (Ching Tin and Wo Tin) to Tsim Sha Tsui (Kowloon Station)	20-30
		Tsim Sha Tsui (Kowloon Station) to Tuen Mun (Ching Tin and Wo Tin)	20-30
	50M	Wo Tin Estate to Tuen Mun Sation (Circular)	15-30
		Wo Tin Estate to Tuen Mun Sation	1 Departure ⁽¹⁾
	55	Tuen Mun (Ching Tin and Wo Tin) to Kwun Tong Ferry Pier	15-30
		Tuen Mun (Ching Tin and Wo Tin) to Kwun Tong Ferry Pier (Via Kwung Tong Road)	20-30 ⁽⁴⁾
		Kwun Tong Ferry Pier to Tuen Mun (Ching Tin and Wo Tin)	20
		Kwun Tong Ferry Pier to Tuen Mun (Ching Tin and Wo Tin) (Via Kwun Tong Road)	20-30 ⁽⁴⁾
	56	Tuen Mun (Ching Tin and Wo Tin) to Sheung Shui (Tin Pin Estate)	20-30
		Sheung Shui (Tin Ping Estate) to Tuen Mun (Ching Tin and Wo Tin)	20-30
	56A	Tuen Mun (Ching Tin and Wo Tin) to Queen's Hill Fanling	10-20
		Queen's Hill Fanling to Tuen Mun (Ching Tin and Wo Tin)	15-30
	53	Tsuen Wan (Nina Tower) to Yoho Mall (Yuen Long)	30-35
		Yoho Mall (Yuen Long) to Tsuen Wan (Nina Tower)	25-35
	62X	Lei Yue Mun Estate to Siu Hong Station (South)	10-30
		Siu Hong Station (South) to Lei Yue Mun Estate	15-30
	63X	Hung Shui Kiu (Hung Fuk Estate) to Jordan (West Kowloon Station)	12-30
		Jordan (West Kowloon Station) to Hung Shui Kiu (Hung Fuk Estate)	15-30
	67A	Tuen Mun (Po Tin Estate) to Kwai Fong (Kwai Tsui Estate)	15-30
		Kwai Fong (Kwai Tsui Estate) to Tuen Mun (Po Tin Estate)	20-30
	67M	Kwai Fong Station to Tuen Mun (Siu Hong Court)	7-20
		Tuen Mun (Siu Hong Court) to Kwai Fong Station	5-20
	67X	Mong Kok East Station to Tuen Mun (Siu Hong Court)	10-20
		Tuen Mun (Siu Hong Court) to Mong Kok East Station	7-25



	68A	Long Ping Estate to Tsing Yi Station	10-30
		Tsing Yi Station to Long Ping Estate	12-30
	258A	Hung Shui Kiu (Hung Fuk Estate) to Lam Tin Station	3 Departures ⁽¹⁾
	258P	Lam Tin Station to Hung Fuk Estate Hung Tin Road	20-30 ⁽²⁾
		Hung Sui Kiu (Hung Fu Estate) to Lam Tin Station	12-30 ⁽²⁾
	261	Tuen Mun (Sam Shing Estate) to Fanling (Cheung Wah)	15-30
		Fanling (Cheung Wah) to Tuen Mun (Sam Shing Estate)	15-30
	267X	Lam Tin Station to Tuen Mun (Siu Hong Court)	2 Departures ⁽¹⁾
		Tuen Mun (Siu Hong Court) to Lam Tin Station	2 Departures ⁽¹⁾
	950	Tuen Mun (Ching Tin and Wo Tin) to Exhibition Centre Station	2 Departures ⁽¹⁾
		Exhibition Centre Station to Tuen Mun (Ching Tin and Wo Tin)	1 Departure ⁽¹⁾
	955	Tuen Mun (Ching Tin and Wo Tin) to Sai Wan Ho	1 Departure ⁽¹⁾
		Sai Wan Ho to Tuen Mun (Ching Tin and Wo Tin)	1 Departure ⁽¹⁾
	960A	Central to Tuen Mun (Fu Tai Estate)	1 Departure ⁽¹⁾
	960C	Causeway Bay to Fu Tai Estate	1 Departure ⁽¹⁾
		Tuen Mun (Fu Tai Estate) to Causeway Bay (Victoria Park)	2 Departures ⁽¹⁾
	960S	Causeway Bay to Tuen Mun (Fu Tai Estate)	3 Departures ⁽¹⁾
		Tuen Mun (Fu Tai Estate) to Causeway Bay (Victoria Park)	7 Departures ⁽¹⁾⁽⁵⁾ , 10-15 ⁽¹⁾⁽⁶⁾
	960P	Hung Shui Kiu (Hung Yuen Road) to Causeway Bay (Victoria Park)	11 Departures ⁽¹⁾ , 7 Departures ⁽¹⁾⁽⁴⁾
		Causeway Bay to Hung Shui Kiu	5 Departures ⁽¹⁾
	960X	Hung Shui Kiu (Hung Yuen Road) to Quarry Bay (King's Road)	9 Departures ⁽¹⁾
		Quarry Bay (King's Road) to Hung Shui Kiu (Hung Fuk Estate)	10 Departures ⁽¹⁾
	P960	Siu Hong Station (North) to Exhibition Centre Station	7 Departures ⁽¹⁾
		Exhibition Centre Station to Siu Hong Station (North)	9 Departures ⁽¹⁾
	A33X	Cathay Pacific City to Tuen Mun (Fu Tai Estate)	1 Departure ⁽¹⁾
		Airport (Ground Transportation Centre) to Tuen Mun (Fu Tai Estate)	15-60
		Tuen Mun (Fu Tai Estate) to Airport (Ground Transportation Centre)	15-30
		Tuen Mun (Fu Tai Estate) to Airport (Ground Transportation Centre) (Via Cathay City)	2 Departures ⁽¹⁾
	NA33	Cathay City to Tuen Mun (Fu Tai Estate)	6 Departures ⁽³⁾
		Tuen Mun (Fu Tai Estate) to Cathay City	5 Departures ⁽³⁾
	N50	Tuen Mun (Ching Tin and Wo Tin) to Tsim Sha Tsui (Kowloon Station)	2 Departures ⁽³⁾
		Tsim Sha Tsui (Kowloon Station) to Tuen Mun (Ching Tin and Wo Tin)	2 Departures ⁽³⁾
	N260	Tuen Mun Pier Head to Mei Foo	30 ⁽³⁾
		Mei Foo to Tuen Mun Pier Head	30 ⁽³⁾
	N969	Tin Shui Wai Town Centre to Causeway Bay (Moreton Terrace)	25-45 ⁽³⁾
		Causeway Bay (Moreton Terrace) to Tin Shui Wai Town Centre	30-45 ⁽³⁾
	E33P	Airport (Ground Transportation Centre) to Siu Hong Station (South)	20-40
		Siu Hong Station (South) to Airport (Ground Transportation Centre)	12-45
	B3A	Shenzhen Bay Port to Fu Tai Estate	2 Departures ⁽¹⁾
		Shenzhen Bay Port to Shan King Estate	9-30

		Shan King Estate to Shenzhen Bay Port	15-35
		Wo Tin Estate to Shenzhen Bay Port	2 Departures ⁽⁵⁾ , 4 Departures ⁽⁴⁾
MTR Feeder Bus	K51	Tai Lam to Fu Tai	6-20
		Fu Tai to Tai Lam	6-20
	K51A	So Kwun Wat to Fu Tai	30
		Fu Tai to So Kwun Wat	30
	K54	Wo Tin Estate to Tuen Mun Town Centre (Circular)	15-20
	K54A	Wo Tin Estate to Siu Hong Station	5-15
		Siu Hong Station to Wo Tin Estate	5-15
	K58	So Kwun Wat to Fu Tai	3 Departures ⁽¹⁾
		Fu Tai to So Kwun Wat	3 Departures ⁽¹⁾
GMB	42	Tsing Chuen Wai to Tuen Mun Town Centre (Circular)	13-15
	44A	Tuen Mun Station Public Transport Interchange to Sheung Shui Station	2-9
	44A1	Tuen Mun Po Tin Estate to Sheung Shui Station	20-25 ⁽²⁾
	44B	Tuen Mun Station to Lok Ma Chau (San Tin) Public Transport Interchange	15-20 ⁽⁷⁾
	N44B	Tuen Mun Ferry Pier to Lok Ma Chau Control Point	15-20 ⁽³⁾⁽⁸⁾
	46A	King Sau Lane to Tuen Mun Town Centre (Circular)	15-20
	46	Fu Tai Estate to Tuen Mun Town Centre (Circular)	6-30
	46X	Fu Tai Estate to Tuen Mun Town Centre (Circular)	5-30
LRT	606S	Tsim Sha Tsui East (Mody Road) to Yuen Long (Fung Cheung Road)	6-13
	505	Siu Hong - Sam Shing	6-18
	506P	Tuen Mun Ferry Pier - Siu Hong	2 Departures ⁽¹⁾
	610	Tuen Mun Ferry Pier - Yuen Long	8-17
	614	Tuen Mun Ferry Pier - Yuen Long	13-23
	614P	Tuen Mun Ferry Pier - Siu Hong	8-23
	615	Yuen Long - Tuen Mun Ferry Pier	13-25
	615P	Tuen Mun Ferry Pier - Siu Hong	8-23
	720	Siu Hong - Tin Wing	1 Departure ⁽¹⁾
	751	Yau Oi - Tin Yat	7-17
	751P	Yau Oi - Tin Yat	7-17 ⁽¹⁾

*Data updated by the date of 16 June 2026

Notes:

- (1) Peak-hour only.
- (2) Monday to Saturday only.
- (3) Overnight services.
- (4) Saturday and Public Holiday only.
- (5) Monday to Friday only.
- (6) Saturday only.
- (7) Temporarily adjusted to headway of 45 minutes.
- (8) Temporarily adjusted to headway of 60 minutes.



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 2032 tentatively with full intended operation. In order to assess the possible traffic impacts to the local road network due to the proposed development, year 2035 (i.e. 3 years after completion) has been adopted as the design year for this study.

4.2 Traffic Forecast

4.2.1 To estimate the reference traffic flow in year 2035 (without the proposed development) in the local road network, an appropriate growth factor has to be identified for the area in the first instance. The following approaches have been adopted to derive the growth factor for the Area of Influence.

Historical Trend

4.2.2 Numerous traffic-count stations are located in the vicinity of the proposed development. The traffic counts reported in the Annual Traffic Census (ATC), which is published by Transport Department, over a period of six years, i.e. 2019 to 2024 are summarized in **Table 4.1**.

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

Stn No.	Road Name	AADT						Annual Growth Rate
		2019	2020	2021	2022	2023	2024	(2019-2024)
5404	Tuen Mun Rd	126,570	117,560	123,290	117,820	125,200	134,470	+1.22%
5296	Castle Peak Rd - Lingnan	11,350	10,880	11,320	10,980	11,370	11,080	-0.48%
5202	Castle Peak Rd - San Hui	12,140	11,550	12,120	11,580	12,250	12,270	+0.21%
5025	Yuen Long Highway	109,220	103,100	113,690	109,410	116,440	122,600	+2.34%
Total AADT of Vicinity		259,280	243,090	260,420	249,790	265,260	280,420	+1.58%

Planning Data

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

Table 4.2 2021-Based Planning Data from 2021 to 2031

Tuen Mun District				
Data	Year			Average Annual Growth Rate
	2021	2026	2031	
Population	506,900	557,650	586,200	+1.46%
Employment	133,400	132,450	152,650	+1.36%
Total	640,300	690,100	738,850	+1.44%

- 4.2.4 From Hong Kong Population Projections 2022-2046 obtained from the Census and Statistics Department, average annual growth rates in terms of population from 2031 to 2035 is +0.5%, details are summarised in **Table 4.3**.

Table 4.3 Hong Kong Population Projections 2022-2046

Year	2031	2035	Average Growth Rate
Population	7,820,200	7,987,900	+0.5%

Adopted Growth Rate

- 4.2.5 A.A.D.T. of ATC indicates that the traffic flow of the local road network has an average annual growth rate of +1.58% from year 2019 to year 2024.
- 4.2.6 Whilst, the planning data indicates that the population and employment of the study area are expected to grow with an average annual growth rate of +1.44% from 2021 to 2031 and the population with a growth rate of +0.5% from 2031 to 2035.
- 4.2.7 As a conservative approach, an annual growth rate **+1.58% p.a.** is adopted for assessment year 2025-2031 and an annual growth rate of **+0.5% p.a.** is adopted from assessment year 2031-2035. 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.

Adjacent New Developments

4.2.8 Additional traffic generation and attraction of major committed/planned developments in the vicinity have been estimated and superimposed onto the road network to derive the year 2035 reference traffic flow. The estimated trip generation and attractions of the planned developments are summarized and illustrated in **Table 4.3** and **Figure 4.1**.

Table 4.3 Estimated Traffic Generations and Attractions of Adjacent Developments

Planned/Committed Development	Proposed Use	Key Parameters	Trip (pcu/hr)			
			AM Peak		PM Peak	
			GEN	ATT	GEN	ATT
Y/TM-LTTY/10	Private Housing	288 flats ⁽¹⁾	46	37	28	30
Y/TM-LTTY/11	Private Housing	1,385 flats ⁽²⁾	100	59	28	30
A/TM-LTTY/426	Private Housing	184 flats ⁽³⁾	13	8	5	7
	Retail	67.59m ² GFA ⁽³⁾	16	16	21	24
A/TM/530	Columbarium	1,567 Niches; 1,089 Tablets ⁽⁴⁾	7	7	7	7
A.TM/595	Education	Approx. 11,000m ² GFA ⁽⁵⁾	5	4	7	10
Tuen Mun Area 54 Site 5	Public Housing	1,000 flats ⁽³⁾	62	43	30	40
	Social Welfare Facilities	1,300m ² GFA ⁽⁶⁾	1	1	1	1
Tuen Mun Area 54 Site 3 & 4 (West) NOVO LAND	Private Housing	3,215 flats ^{(3) (6)}	340	195	137	190
Tuen Mun Area 54 Site 4A (South)	Public Housing	1,400 flats ^{(3) (6)}	60	46	33	42
	Kindergarten	1 no. ⁽⁶⁾	10	10	10	10
Tuen Mun Area 54 Site 4A (East and West)	Light Public Housing	5300 units ^{(3) (7)}	38	25	59	74
Hong Po Road Site	Public Housing	9,500 flats ^{(3) (8)}	410	310	225	286
San Hing Road Site	Public Housing	9,400 flats ^{(3) (8)}	407	306	222	283
San Hing Road Extension	Public Housing	1,500 flats ^{(3) (8)}	65	49	36	45

Notes:

(1) Trip generation and attraction extracted from TIA reports of approved planning applications Y/TM-LTTY/10

(2) Trip generation and attraction extracted from TIA reports of approved planning applications Y/TM-LTTY/11

(3) Trip generation and attraction calculated based on TPDM Volume 1, Chapter3, Annex C

(4) Trip generation and attraction extracted from TIA reports of approved planning applications A/TM/530

(5) Trip generation and attraction extracted from TIA reports of approved planning applications A/TM/595

(6) Trip generations and attraction extracted from TIA reports of approved planning applications A/TM/499, A/TM/500, A/TM/547

(7) Information extracted from District Council Paper

(Ref.: https://www.districtcouncils.gov.hk/tm/doc/2020_2023/en/committee_meetings_doc/dfmehc/23449/dfmehc_2023_002.pdf)

(8) Information extracted from District Council Paper

(Ref.: https://www.districtcouncils.gov.hk/tm/doc/2020_2023/en/dc_meetings_doc/23419/dc_2023_019.pdf)

Planned Junction Improvement

4.2.9 It is noted that planned junction improvement works will be conducted at the Junction A, the Junction of Castle Peak Road – Lingnan / Castle Peak Road – Lam Tei / Yuen Long Highway. The planned road improvement work is conducted under CEDD Project “Site Formation and Infrastructure Works for Public Housing Developments at San Hing Road and Hong Po Road, Tuen Mun and Choi Shun Street, Sheung Shui – Investigation, Design and Construction”, contract no. CE 39/2021 (CE). The mentioned road improvement work will be completed gradually before 2030-2033, which will be adopted for the Year 2035 junction calculation.

4.2.10 The layout of the planned junction improvement is illustrated in **Figure 4.2**.

4.3 Reference Traffic Flow in Year 2035

4.3.1 The year 2035 reference traffic flow is estimated by applying the adopted growth rate to the year 2025 adopted traffic flow.

4.3.2 The 2035 reference peak traffic flows are presented in **Figure 4.3**.

$$\begin{array}{l} \text{2035 Reference Traffic} \\ \text{Flows} \\ \text{(without proposed} \\ \text{development)} \end{array} = \begin{array}{l} \text{2025} \\ \text{Adopted} \\ \text{Traffic} \\ \text{Flows} \end{array} \times \begin{array}{l} \text{Adopted Growth Factor} \\ \text{i.e. } \underline{+1.58\% \text{ p.a. for 6}} \\ \text{years and } \underline{+0.5\% \text{ p.a.}} \\ \text{for 4 years} \end{array} + \begin{array}{l} \text{Adjacent} \\ \text{Developments} \end{array}$$

4.4 Traffic Trips of the Proposed Development

4.4.1 It is noted that traffic rates of both generation and attraction for proposed development uses are not specified in the latest Transport Planning & Design Manual (TPDM).

4.4.2 In order to study the generation/attraction data from the RCHE, a traffic surveys were conducted at the following RCHE for the reference of trip generation:

- Pok Oi Hospital Yeung Chun Pui Care and Attention Home (with 143 nos. of bed)
- Ching Chung Taoist Association of Hong Kong Limited Ching Chung Care and Attention Home for the Aged (with 120 nos. of bed)
- Tung Wah Group of Hospitals Wong Cho Tong Care and Attention Home (with 278 nos. of bed)

4.4.3 The traffic trip rates and estimated traffic trips related to the proposed development are summarized in the **Tables 4.4**.

Table 4.4 Surveved Trip Rates at Referenced RCHE

Use		Units / Parameters	AM Peak		PM Peak	
			Gen.	Att.	Gen.	Att.
Pok Oi Hospital Yeung Chun Pui Care and Attention Home (143 beds)	Trips	(pcu/hr)	2	2	3	2
	Trip Rates	(pcu/hr/bed)	0.01	0.01	0.02	0.01
Ching Chung Taoist Association of Hong Kong Limited Ching Chung Care and Attention Home for the Aged (120 beds)	Trips	(pcu/hr)	2	0	0	0
	Trip Rates	(pcu/hr/bed)	0.02	0	0	0
Tung Wah Group of Hospitals Wong Cho Tong Care and Attention Home (278 beds)	Trips	(pcu/hr)	24	19	12	16
	Trip Rates	(pcu/hr/bed)	0.086	0.068	0.043	0.058

4.4.4 Taken into account, traffic trip rates at Tung Wah Group of Hospitals Wong Cho Tong Care and Attention Home are the most critical, which is adopted for the proposed development, the estimated traffic trips are shown in **Table 4.5**.

Table 4.5 Adopted Generation and Attraction Trip Rates of Proposed Development

Use	Units / Parameters	AM Peak		PM Peak	
		Gen.	Att.	Gen.	Att.
Adopted Trip Rates	(pcu/hr/bed)	0.086	0.068	0.043	0.058
Estimated Traffic Trips (504 beds)	(pcu/hr)	44	35	22	30

4.5 Traffic Forecast for Design Year 2035

4.5.1 The traffic trips of the proposed development as shown in **Figure 4.4**, which is superimposed onto the year 2035 reference traffic flow (without the proposed development) as shown in **Figure 4.3** to derive the year 2035 design traffic flow (with the proposed development).

$$\begin{array}{l} \text{Year 2035 Design} \\ \text{Traffic Flow} \\ \text{(with the Proposed} \\ \text{Development)} \end{array} = \begin{array}{l} \text{Year 2035 Reference} \\ \text{Traffic Flow} \\ \text{(without the Proposed} \\ \text{Development)} \end{array} + \begin{array}{l} \text{Traffic Trips of the} \\ \text{Proposed} \\ \text{Development} \end{array}$$

4.5.2 The traffic flow during peaks derived from AM and PM peak periods in the design year 2035 (with the proposed development) as shown in **Figure 4.5**.

4.6 Operational Assessment

4.6.1 To assess traffic impacts due to the proposed development, operational assessment of the critical junctions identified in **Chapter 3** and critical road section are carried out for both reference (without the proposed development) and design (with the proposed development) scenarios in year 2035. The results are summarized in **Table 4.6**.

Table 4.6 Operational Performance of Critical Junctions in Year 2035

Ref.	Junction	Method of Control	Year 2035 RC/DFC ⁽¹⁾			
			Reference Scenario (Without the Proposed Development)		Design Scenario (With the Proposed Development)	
			AM Peak	PM Peak	AM Peak	PM Peak
A ⁽²⁾	Castle Peak Road – Lingnan / Castle Peak Road – Lam Tei / Yuen Long Highway	Signalized	52%	72%	51%	72%
B	Lam Tei Interchange	Roundabout	0.83	0.70	0.83	0.71
C	Castle Peak Road – Lingnan / Tuen Fu Road / Tuen Kwai Road	Signalized	53%	57%	50%	54%
D	Castle Peak Road – Lingnan / Tuen Fu Road	Signalized	>100%	>100%	>100%	>100%

Notes: (1) RC = Reserve Capacity for Signal Junction;

DFC = Design Ratio of Flow to Capacity for Priority Junction/Roundabout

(2) Planned roadwork improvement of CEDD Project NO. CE 39/2021 (CE) is adopted for Junction A in Year 2035

- 4.6.2 The assessment result in **Table 4.6** reveals that all junctions operate with ample capacities in both reference and design scenarios in year 2035.
- 4.6.3 The traffic generated by the proposed development would induce insignificant impact on the surrounding road network. Therefore, the application is supported from the traffic points of view.

5. PUBLIC TRANSPORT ASSESSMENT

5.1 Public Transport Services in the Vicinity

- 5.1.1 Numerous road-based public transport services are currently operating in the vicinity of the proposed Site. These include franchised bus and GMB which are summarized in **Table 5.1** below and the location of the public transport services in the vicinity are shown diagrammatically in **Figure 5.1**.
- 5.1.2 A public transport survey was carried out at the existing bus/ GMB stops on Castle Peak Road - Lingnan as shown in **Figure 5.1**.
- 5.1.3 A Public Transport Occupancy Survey was carried out during morning and evening peak periods of a typical weekday in November 2025 to identify if there is surplus in the current Public Transport Services. The surveyed result indicates that the AM and PM peak hour occurred at 07:15 to 08:15 and from 17:30 to 18:30.
- 5.1.4 The assessment results of public transport are presented in **Tables 5.1** and **5.2** respectively.
- 5.1.5 The surveyed results indicate that there are surplus capacities for the existing public transport services during the AM and PM peak hours.



Table 5.1 Observed Occupancy of Public Transport in the Vicinity in Year 2025

AM Peak Hour							
Bus/GMB Route No.		Observed Vehicular Trips/hr [A]	Total Approx. Passengers on board arriving bus stop/hr [B]	Total No. of Boarding Passengers/hr [C]	% of Bus Stops	Total No. of Alighting Passengers/hr [D]	Total Surplus Capacity/hr [A]xAssumed Full Capacity-[B]-[C]+[D]
BUS	Bus Stop A: Brilliant Garden (Northbound)						
	53	1	48	0	0%	0	72
	67M	3	60	0	0%	4	304
	67X	4	132	0	0%	1	349
	261	4	252	7	7%	0	221
	E33P	2	72	0	0%	0	168
	K51	6	132	1	1%	2	589
	K51A	1	24	0	0%	2	98
	K58	3	108	0	0%	2	254
	Bus Stop B: Brilliant Garden (Southbound)						
	53	2	168	3	3%	0	69
	67M	8	552	15	15%	0	393
	67X	5	348	7	7%	0	245
	258P	2	96	5	5%	0	139
	261	1	48	2	2%	0	70
	267X	2	72	4	4%	0	164
	960S	7	324	27	29%	0	489
	A33X	3	132	11	11%	0	217
	K51	5	408	12	12%	0	180
	K51A	1	36	2	2%	0	82
	K58	1	72	2	2%	0	46
Total		61	3084	98	100%	11	4,149
GMB	Bus Stop A: Brilliant Garden (Northbound)						
	46	13	117	0	0%	0	130
	Bus Stop B: Brilliant Garden (Southbound)						
	46	18	341	1	100%	0	0
	46X	2	38	0	0%	0	0
Total		33	496	1	100%	0	130
PM Peak Hour							
Bus/GMB Route No.		Observed Vehicular Trips/hr [A]	Total Approx. Passengers on board arriving bus stop/hr [B]	Total No. of Boarding Passengers/hr [C]	% of Bus Stops	Total No. of Alighting Passengers/hr [D]	Total Surplus Capacity/hr [A]xAssumed Full Capacity-[B]-[C]+[D]
BUS	Bus Stop A: Brilliant Garden (Northbound)						
	53	2	72	0	0%	0	168
	67M	5	156	0	0%	0	444
	67X	3	144	1	2%	2	217
	258P	1	24	0	0%	0	96
	261	3	168	5	11%	0	187
	A33X	2	36	0	0%	0	204
	E33P	3	36	2	4%	0	322
	K51	13	600	1	2%	4	963
	K51A	2	168	0	0%	0	72
	Bus Stop B: Brilliant Garden (Southbound)						
	53	1	24	1	2%	0	95
	67M	5	204	11	23%	2	387

	67X	3	132	6	13%	0	222
	261	4	180	3	6%	5	302
	A33X	2	36	2	4%	0	202
	K51	6	372	15	33%	0	333
Total		55	2352	47	100%	13	4214
GMB	Bus Stop A: Brilliant Garden (Northbound)						
	46	13	131	0	0%	3	119
	46X	2	0	0	0%	0	38
	Bus Stop B: Brilliant Garden (Southbound)						
	46	17	188	3	100%	6	138
Total		32	319	3	100%	9	295

Note: (1) Assumed full capacity of 120 for double-decked franchised bus, 19 for Green Minibus.

5.2 Future Public Transport Service in the Vicinity

5.2.1 Based on the observed passenger flows, the adopted growth rate of **+1.58%** from 2025 to 2031 and growth rate of **+0.5%** from 2031 to 2035 as in **Section 4.2.7**, the reference passenger flows (without proposed development) in Year 2035 are estimated and summarized in the equation below.

$$\begin{array}{ccccc}
 \text{2035 Reference} & & & & \text{Adopted Growth Factor} \\
 \text{Passenger Flows} & & & & \text{i.e. +1.58\% p.a. for 6} \\
 \text{(without proposed} & = & \text{2025} & \times & \text{years and +0.5\% p.a. for} \\
 \text{development)} & & \text{Observed} & & \text{4 years} \\
 & & \text{Passenger Flows} & &
 \end{array}$$

5.2.2 The passenger flows generated by the proposed development was then superimposed onto the 2035 Reference Passenger Flows (without proposed development) to derive the 2035 Design Passenger Flows (with proposed development).

$$\begin{array}{ccccc}
 \text{2035 Design Passenger} & & & & \text{Passenger Flows} \\
 \text{Flows (with proposed} & = & \text{2035 Reference} & + & \text{generated from the} \\
 \text{development)} & & \text{Passenger Flows} & & \text{proposed development} \\
 & & \text{(without proposed} & & \\
 & & \text{development)} & &
 \end{array}$$

5.2.3 The above equations will be adopted in the estimated demand of the public transport in Year 2035 with proposed development which are shown in **Table 5.2**.

Proposed Development

Table 5.2 Public Transport Passengers Demand of the Proposed Development

Item	Proposed Development
Nos. of beds	504
Trip Rate per bed	2 visitors/bed ⁽¹⁾
Daily trips generated from proposed development	= 504 beds x 2 = 1,008 trips
Peak Hour Factor	12% ⁽²⁾
Peak hour trips (Two-ways)	= 1,008 trips x 12% = 121 trips/hr

Notes: (1) Figure provided from operator

(2) Peak Hour Factor Extracted from **TCS Report 2011 Table 3.3**

5.2.4 Reference has been made to the “Travel Characteristics Survey 2011 Report” as published by Transport Department to derive the estimated public transport demand due to the proposed development. **Table 5.3** shows the adjusted modal split from TCS 2011 and passenger demand with breakdown of transport modes.

Table 5.3 Distribution of Transport Modal Split

Mode	TCS 2011	Adjusted Split for Proposed Development ⁽¹⁾	Passenger Demand of Proposed Development (pax./hr)
Rail	30%	34%	42
MTR	27%	31%	38
LRT	3%	3%	4
Franchised Bus	27%	31%	38
PLB	13%	15%	18
Private Car	12%	13%	15
SPB	9%	-	-
Taxi	6%	7%	8
Tram	2%	-	-
Ferry	1%	-	-
<i>Total</i>	<i>100%</i>	<i>100%</i>	<i>121</i>

Note: (1) The non-related transport modes (SPB, Tram and Ferry) are re-distributed to the related transport modes (Rail, Franchised Bus, PLB, Private Car and Taxi) according to their ratio in TCS 2011.

5.2.5 Based on **Table 5.3** and assuming the percentage split of boarding passenger generation of the proposed development is the same as the survey for franchise bus and GMB.

5.2.6 The estimated boarding passenger generation from the proposed development are shown in **Table 5.4**.

Table 5.4 Boarding Passenger Generation from the Proposed Development

Route No.	AM Peak		PM Peak	
	% of Total	Generation	% of Total	Generation
Franchised Bus				
Bus Stop A: Brilliant Garden (Northbound)				
53	0%	0	0%	0
67M	0%	0	0%	0
67X	0%	0	2%	1
258P	0%	0	0%	0
261	7%	2	11%	4
A33X	0%	0	0%	0
E33P	0%	0	4%	2
K51	1%	0	2%	1
K51A	0%	0	0%	0
K58	0%	0	0%	0
Bus Stop B: Brilliant Garden (Southbound)				
53	3%	1	2%	1
67M	15%	6	23%	9
67X	7%	3	13%	5
258P	5%	2	0%	0
261	2%	1	6%	2
267X	4%	2	0%	0
960S	29%	11	0%	0
A33X	11%	4	4%	2
K51	12%	4	33%	11
K51A	2%	1	0%	0
K58	2%	1	0%	0
Total	100%	38	100%	38
Green Minibus				
Bus Stop A: Brilliant Garden (Northbound)				
46	0%	0	0%	0
46X	0%	0	0%	0
Bus Stop B: Brilliant Garden (Southbound)				
46	100%	18	100%	18
46X	0%	0	0%	0
Total	100%	18	100%	18

5.2.7 The expected demand of public transport services with and without the proposed development is shown in **Table 5.5**.



Table 5.5 Public Transport Services in the Vicinity in Year 2035

AM Peak Hour								
2035 Reference Scenario						2035 Design Scenario		
Bus/GMB Route No.	Observed Vehicular Trips/hr [A]	Total Approx. Passengers on board arriving bus stop/hr [E]=Applying GR for [B]	Total No. of Boarding Passengers/hr [F]=Applying GR for [C]	Total No. of Alighting Passengers/hr [H]=Applying GR for [D]	Total Surplus Capacity/hr [I]=[A]x Assumed Full Capacity-[E]-[F]-[G]+[H]	No. of Boardings from Proposed Development [J]	Total Surplus Capacity/hr [I]-[J]	
BUS	Bus Stop A: Brilliant Garden (Northbound)							
	53	1	54	0	66	0	66	
	67M	3	67	0	297	0	297	
	67X	4	148	0	333	0	333	
	261	4	282	8	190	2	188	
	E33P	2	81	0	159	0	159	
	K51	6	148	1	573	0	573	
	K51A	1	27	0	95	0	95	
	K58	3	121	0	241	0	241	
	Bus Stop B: Brilliant Garden (Southbound)							
	53	2	188	3	49	1	48	
	67M	8	619	17	324	6	318	
	67X	5	390	8	202	3	199	
	258P	2	108	6	126	2	124	
	261	1	54	2	64	1	63	
	267X	2	81	4	155	2	153	
	960S	7	363	30	447	11	436	
	A33X	3	148	12	200	4	196	
	K51	5	457	13	130	4	126	
	K51A	1	40	2	78	1	77	
	K58	1	81	2	37	1	36	
	Total	61	3457	108	3766	38	3728	
GMB	Bus Stop A: Brilliant Garden (Northbound)							
	46	13	131	0	116	0	116	
	Bus Stop B: Brilliant Garden (Southbound)							
	46	18	382	1	-41	18	-59	
	46X	2	43	0	-5	0	-5	
Total		33	556	1	70	18	52	
PM Peak Hour								
2035 Reference Scenario						2035 Design Scenario		
Bus/GMB Route No.	Observed Vehicular Trips/hr [A]	Total Approx. Passengers on board arriving bus stop/hr [E]=Applying GR for [B]	Total No. of Boarding Passengers/hr [F]=Applying GR for [C]	Total No. of Alighting Passengers/hr [H]=Applying GR for [D]	Total Surplus Capacity/hr [I]=[A]x Assumed Full Capacity-[E]-[F]-[G]+[H]	No. of Boardings from Proposed Development [J]	Total Surplus Capacity/hr [I]-[J]	
BUS	Bus Stop A: Brilliant Garden (Northbound)							
	53	2	81	0	159	0	159	
	67M	5	175	0	425	0	425	
	67X	3	161	1	200	1	199	
	258P	1	27	0	93	0	93	
	261	3	188	6	166	4	162	
	A33X	2	40	0	200	0	200	
	E33P	3	40	2	318	2	316	
	K51	13	672	1	891	1	890	
	K51A	2	188	0	52	0	52	
	Bus Stop B: Brilliant Garden (Southbound)							
	53	1	27	1	92	1	91	
	67M	5	229	12	361	9	352	
	67X	3	148	7	205	5	200	
	261	4	202	3	281	2	279	



	A33X	2	40	2	0	198	2	196
	K51	6	417	17	0	286	11	275
Total		55	2635	52	14	3927	38	3889
GMB	Bus Stop A: Brilliant Garden (Northbound)							
	46	13	147	0	3	103	0	103
	46X	2	0	0	0	38	0	38
	Bus Stop B: Brilliant Garden (Southbound)							
	46	17	211	3	7	116	18	98
Total		32	358	3	10	257	18	239

Note: Assumed full capacity of 120 for double-decked franchised bus, 19 for Green Minibus.

5.2.8 It is proposed to enhance the services on existing Green Minibus routes in the vicinity in order to accommodate the passenger demand as shown in the results of **Table 5.5**. The detail of the additional services needed are summarized in **Table 5.6** below.

Table 5.6 Additional Public Transport Services Required

Peak Hour	Route	Additional Demand ⁽¹⁾	Nos. of Vehicles Required ⁽²⁾
AM Peak	GMB 46	59	$= 59/19 = 3.105$ = 4 nos.
	GMB 46X	5	$= 5/19 = 0.263$ = 1 no.

Notes: (1) Refer to **Table 5.5**

(2) Assumed full capacity of 19 for GMB

5.2.9 The proposed strengthening on public transport services is for assessment purpose only, any changes on public transport services will be subject to future actual passenger demand and Transport Department's decision when necessary.

6. PEDESTRIAN IMPACT ASSESSMENT

6.1 Survey on Pedestrian Flows in the Vicinity

- 6.1.1 In order to acquire the existing pedestrian condition around the proposed development, a pedestrian headcount survey was conducted at concerned footpath sections on a normal weekday in November 2025 from 07:00 to 09:00 and from 17:00 to 19:00. The assessment sections are shown in **Figure 6.1**.
- 6.1.2 To concept of Minimum Width of Footways and Level-of-service (LOS) in accordance with **T.P.D.M. Volume 2 Chapter 3.4.11** and **Volume 6 Chapter 10** have been applied for assessing the concerned walkways. The Minimum Width of Footways refers to the desirable minimum effective widths of footways according to pedestrian volume and type of land use. LOS directly relates to the pedestrian comfort and ease with which pedestrians queued and proceed at the walkway.
- 6.1.3 The related assessment of pedestrian is based on Level-of-Service (LOS) approach, which is stipulated in T.P.D.M. (**Volume 6, Chapter 10, Section 10.4.2**), defines the service level of walkway in terms of several parameters such as pedestrian flow rate, pedestrian space, walking speed, etc. The standard with relevant descriptions is summarized in **Table 6.1**.

Table 6.1 Descriptions of Level-of-Service (LOS)

LOS	Flow Rate (ped/min/meter)	Description
A	≤ 16	Pedestrians basically move in desired paths without altering their movements in response to other pedestrians. Walking speeds are freely selected, and conflicts between pedestrians are unlikely.
B	16 - 23	Sufficient space is provided for pedestrians to freely select their walking speeds, to bypass other pedestrians and to avoid crossing conflicts with others. At this level, pedestrians begin to be aware of other pedestrians and to respond to their presence in the selection of walking paths.
C	23 - 33	Sufficient space is available to select normal walking speeds and to bypass other pedestrians primarily in unidirectional stream. Where reverse direction or crossing movement exists, minor conflicts will occur, and speed and volume will be somewhat lower.

D	33 - 49	Freedom to select individual walking speeds and bypass other pedestrians is restricted. Where crossing or reverse-flow movements exist, the probability of conflicts is high and its avoidance requires changes of speeds and position. The LOS provides reasonable fluid flow; however considerable friction and interactions between pedestrians are likely to occur.
E	49 - 75	Virtually, all pedestrians would have their normal walking speeds restricted. At the lower range of this LOS, forward movement is possible only by shuffling. Space is insufficient to pass over slower pedestrians. Cross- and reverse-movement are possible only with extreme difficulties. Design volumes approach the limit of walking capacity with resulting stoppages and interruptions to flow.
F	> 75	Walking speeds are severely restricted. Forward progress is made only by shuffling. There are frequent and unavoidable conflicts with other pedestrians. Cross- and reverse-movements are virtually impossible. Flow is sporadic and unstable. Space is more characteristics of queued pedestrians than of moving pedestrian streams.

6.1.4 The level-of-service (LOS) for baseline operational performances of the identified critical sections are listed in **Table 6.2**.

Table 6.2 Performance of Critical Footpath in Year 2025

2025 Observed Scenario								
Critical Sections	Actual Width (m)	Effective Width (m)	AM Peak			PM Peak		
			Two-way Pedestrian Flow (ped/hr)	Two-way Pedestrian Flow Rate (ped/min/m) ⁽²⁾	LOS ⁽³⁾	Two-way Pedestrian Flow (ped/hr)	Two-way Pedestrian Flow Rate (ped/min/m) ⁽²⁾	LOS ⁽³⁾
P1	2.5	1.5 ⁽¹⁾	5	0.06	A	0	0.00	A
P2	2.7	1.7 ⁽¹⁾	140	1.37	A	170	1.67	A
P3	3.0	1.0 ⁽⁴⁾	50	0.83	A	35	0.58	A
P4	2.0	1.0 ⁽¹⁾	20	0.33	A	5	0.08	A

Notes: (1) Effective Width = Actual Width – 1.0m Death Width (0.5m from railings or walls for both sides)

(2) Two-way Pedestrian Flow Rate (ped/min/m) – Peak Pedestrian Flow / 60min / Effective Width

(3) LOS details extracted from the HCM are tabulated in TPDM Volume 6 Chapter 10 Clause 10.4.2.3

(4) Effective Width = Actual Width – 1.0m Death Width (0.5m from railings or walls for both sides) – 1.0m (Bus shelters and waiting area)

6.1.5 The results of assessment shown in **Table 6.2** indicate that all critical sections are operating with ample reserved capacity during AM and PM peak hours.

6.2 Future Pedestrian Conditions

6.2.1 Based on the observed pedestrian flows and the adopted growth rate of **+1.58%** from 2025 to 2031 and growth rate of **+0.5%** from 2031 to 2035 as in **Section 4.2.7**, future pedestrian reference flows at the critical sections (without proposed development) in Year 2035 are estimated and summarized in **Table 6.3**.

Table 6.3 Performance of Critical Footpath in Reference Scenario Year 2035

2035 Reference Scenario								
Critical Sections	Actual Width (m)	Effective Width (m)	AM Peak			PM Peak		
			Two-way Pedestrian Flow (ped/hr)	Two-way Pedestrian Flow Rate (ped/min/m) ⁽²⁾	LOS ⁽³⁾	Two-way Pedestrian Flow (ped/hr)	Two-way Pedestrian Flow Rate (ped/min/m) ⁽²⁾	LOS ⁽³⁾
P1	2.5	1.5 ⁽¹⁾	5	0.06	A	0	0.00	A
P2	2.7	1.7 ⁽¹⁾	155	1.52	A	190	1.86	A
P3	3.0	1.0 ⁽⁴⁾	55	0.92	A	40	0.67	A
P4	2.0	1.0 ⁽¹⁾	20	0.33	A	5	0.08	A

6.2.2 To estimate the pedestrian generation and attraction of the proposed development, assumptions of public transport demand in **Table 5.3** are also applied to the pedestrian assessment.

6.2.3 Based on the calculation of peak hour trips for franchised bus and minibus summarized in **Table 5.4**, the pedestrian flows of the proposed development is then superimposed onto the year 2035 reference pedestrian flow (without proposed development) as shown in **Table 6.3**, to derive the year 2035 design pedestrian flow (with the proposed development). The assessment of the year 2035 design scenario is summarized in **Table 6.4** below.



Table 6.4 Performance of Critical Footpath in Design Scenario Year 2035

2035 Design Scenario								
Critical Sections	Actual Width (m)	Effective Width (m) ⁽¹⁾	AM Peak			PM Peak		
			Two-way Pedestrian Flow (ped/hr)	Two-way Pedestrian Flow Rate (ped/min/m) ⁽²⁾	LOS ⁽³⁾	Two-way Pedestrian Flow (ped/hr)	Two-way Pedestrian Flow Rate (ped/min/m) ⁽²⁾	LOS ⁽³⁾
P1	2.5	1.5 ⁽¹⁾	200	2.22	A	195	2.17	A
P2	2.7	1.7 ⁽¹⁾	350	3.43	A	385	3.77	A
P3	3.0	1.0 ⁽⁴⁾	250	4.17	A	235	3.92	A
P4	2.0	1.0 ⁽¹⁾	215	3.58	A	200	3.33	A

6.2.4 The assessment results in **Table 6.4** show that the concerned sections of footpath and will all operate with ample reserved capacity (LOS A) during AM and PM peak hours in design year 2035.

7. SUMMARY AND CONCLUSION

7.1 Summary

- 7.1.1 The application site intends to develop Residential Care Home for the Elderly (RCHE).
- 7.1.2 CTA Consultants Limited (CTA), are therefore commissioned as the traffic consultant to prepare the Traffic Impact Assessment (TIA) and provide technical justifications in supporting the application from traffic engineering point of view.
- 7.1.3 To appraise the existing traffic condition, a vehicular survey in the form of manual-classified count was conducted at the surrounding road network of the proposed development. Current operational performance of the critical junctions has been assessed with the observed traffic flow. The results reveal that all critical junctions are at present operating within its capacities.
- 7.1.4 Assessment of operational performance of the critical junctions indicates that all critical junctions will still operate within their capacities in both reference and design scenarios in year 2035.
- 7.1.5 The public transport assessment reveals that the capacity of public transport will be overloaded in year 2035 even without the proposed development. Improvement measures are proposed include to enhance public transport service in the vicinity. After providing additional public transport services, it will be able to cope with the public transport demand in year 2035 with and without the proposed development.
- 7.1.6 The LOS assessment results indicated that the critical section of footpath at proposed site will operate with adequate capacities to accommodate the estimated pedestrian flows in 2035 design year.
- 7.1.7 Based on the above assessment, the development is supported from the traffic points of view.



7.2 Conclusion

- 7.2.1 In conclusion, this Traffic Impact Assessment (TIA) study demonstrated that the related traffic trips related to the proposed development can be absorbed by the nearby road network and no significant traffic impact will be induced.
- 7.2.2 Therefore, the proposed develop of RCHE is reckoned feasible from traffic engineering point of view.

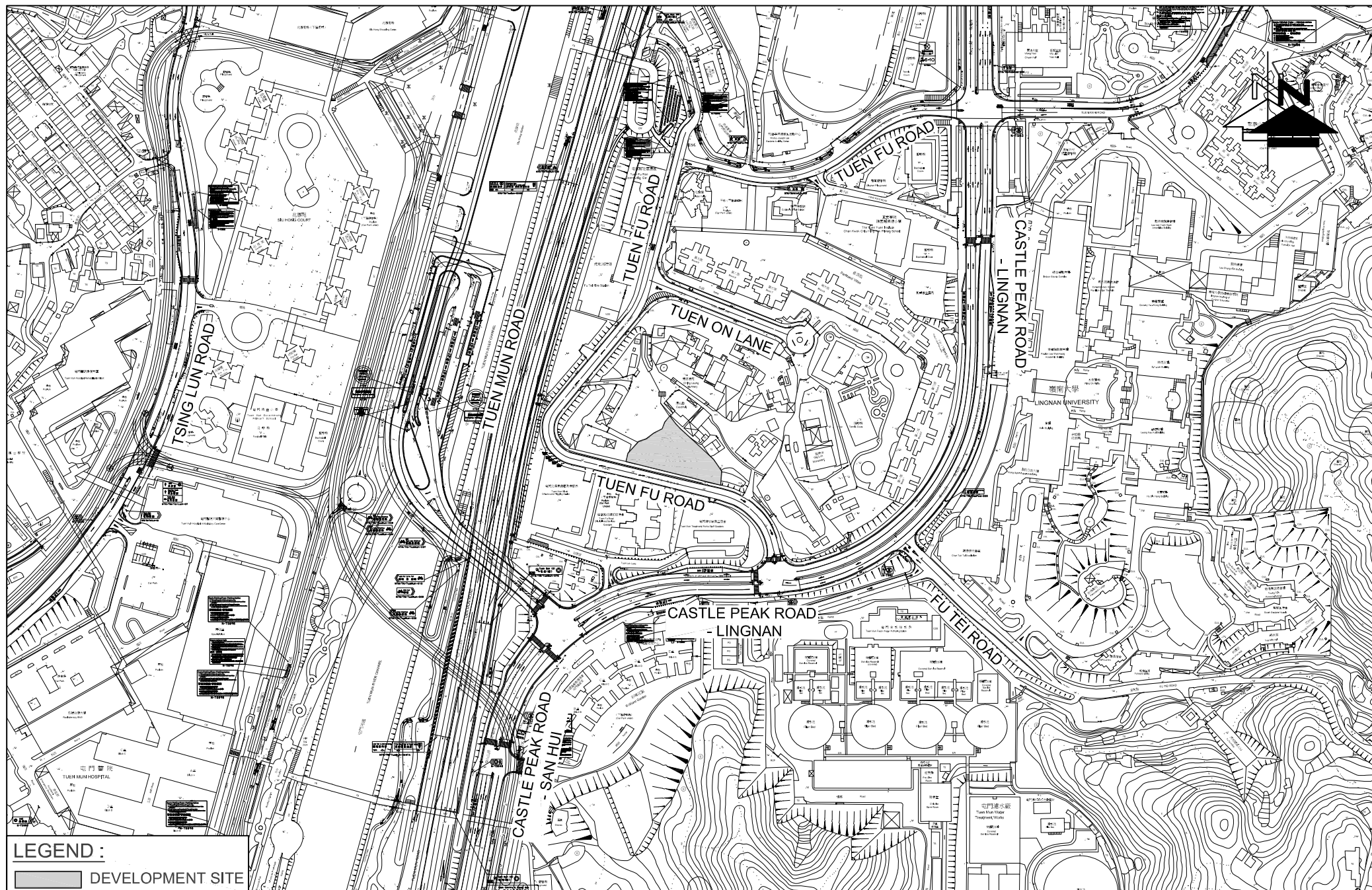


FIGURE NO.: 1.1	PROJECT TITLE: S12A Planning Application for Proposed Residential Care Home for Elderly (RCHE) at Lot 496 S.C in D.D. 132 and Adjoining Government Land, Tuen Mun, N.T.	 CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25075HK	DRAWING TITLE: SITE LOCATION PLAN	
SCALE: 1 : 3750 @A4	DATE: 30 OCT 2025	



LEGEND :

DEVELOPMENT SITE

FIGURE NO.: 2.1

PROJECT NO.: 25075HK

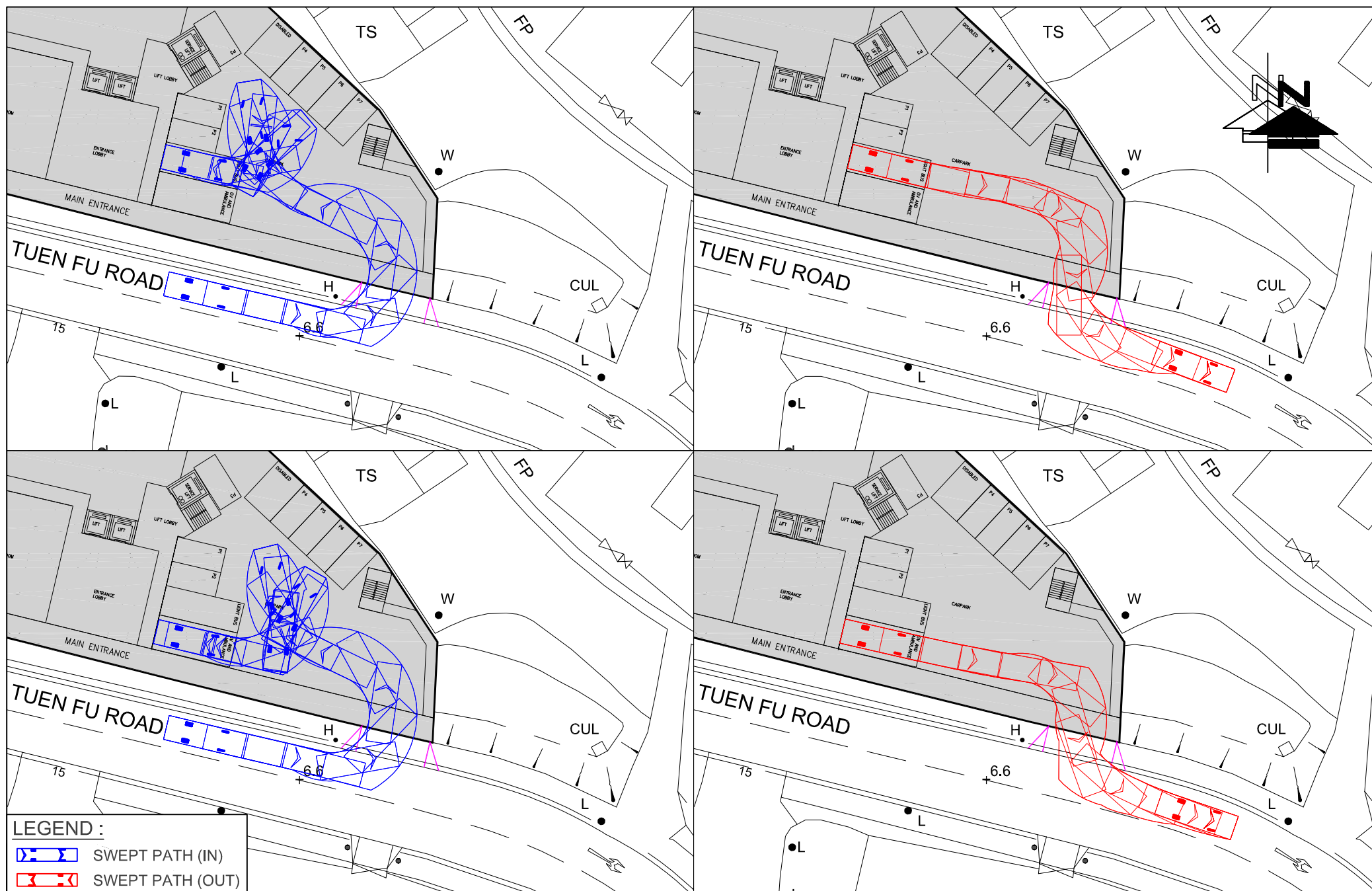
SCALE: 1 : 450 @A4
DATE: 17 JUN 2026

PROJECT TITLE: S12A Planning Application for Proposed Residential Care Home for Elderly (RCHE) at Lot 496 S.C in D.D. 132 and Adjoining Government Land, Tuen Mun, N.T.

DRAWING TITLE:

PROPOSED INTERNAL TRANSPORT FACILITIES (GF)

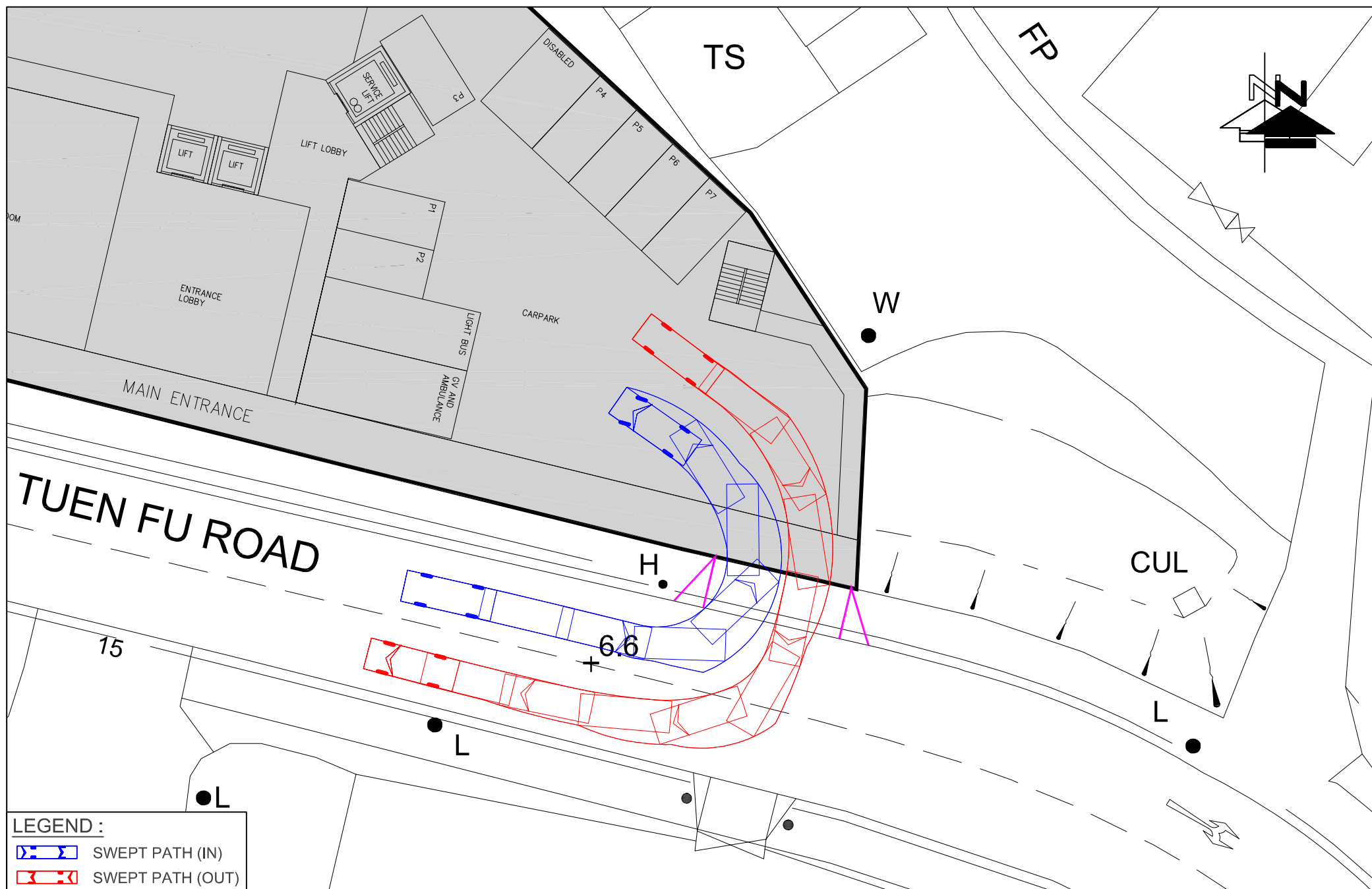
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LEGEND :

- SWEPT PATH (IN)
- SWEPT PATH (OUT)

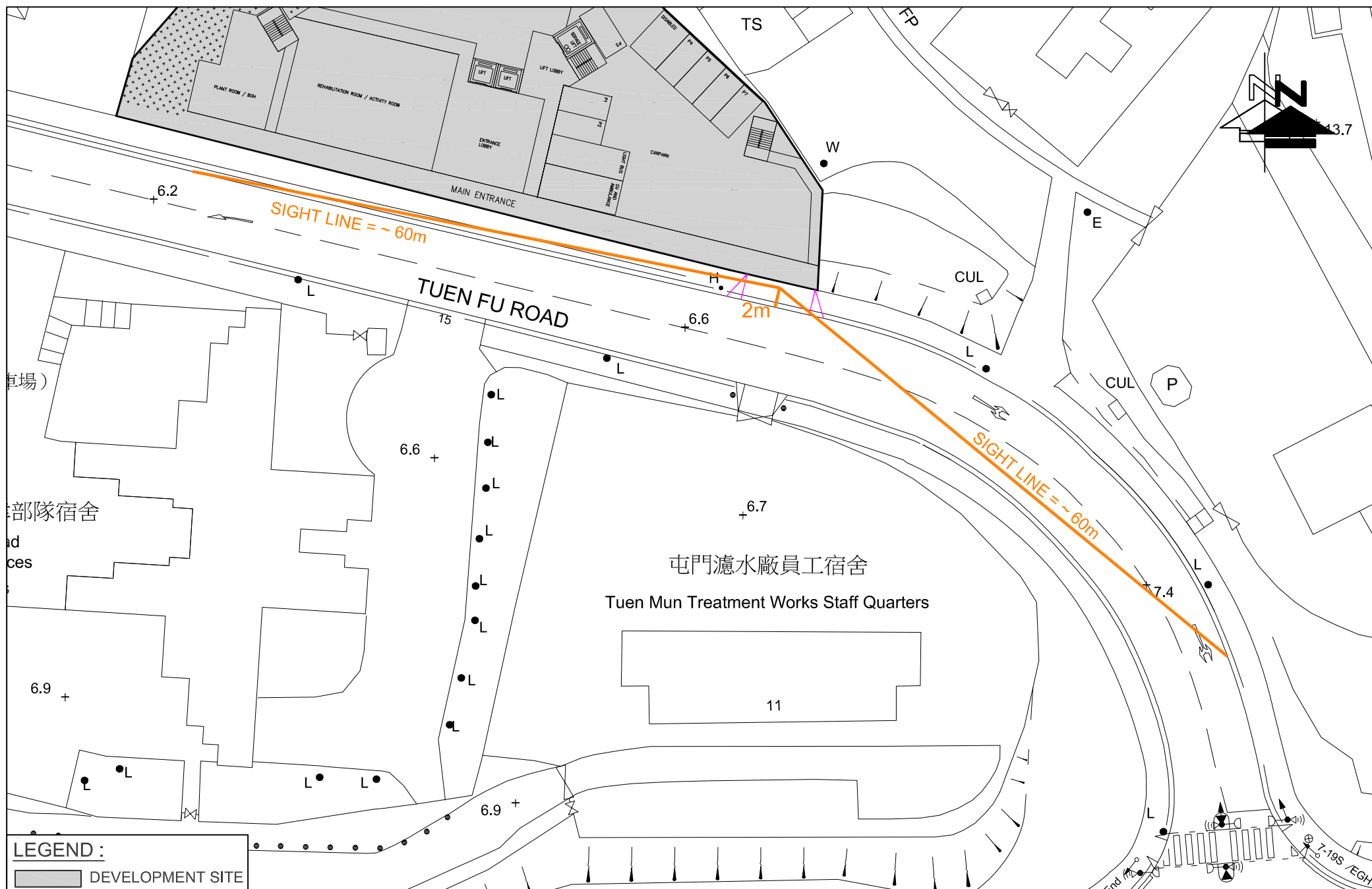
FIGURE NO.: 2.1(SP-01)	PROJECT TITLE: S12A Planning Application for Proposed Residential Care Home for Elderly (RCHE) at Lot 496 S.C in D.D. 132 and Adjoining Government Land, Tuen Mun, N.T.	 CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25075HK	DRAWING TITLE: SWEPT PATH ANALYSIS OF 8m VEHICLE AT PROPOSED ACCESS	
SCALE: 1 : 500 @A4	DATE: 17 JUN 2026	



LEGEND :

- ⬡ SWEPT PATH (IN)
- ⬡ SWEPT PATH (OUT)

FIGURE NO.: 2.1(SP-02)		PROJECT TITLE: S12A Planning Application for Proposed Residential Care Home for Elderly (RCHE) at Lot 496 S.C in D.D. 132 and Adjoining Government Land, Tuen Mun, N.T.	
PROJECT NO.: 25075HK		DRAWING TITLE: SWEPT PATH ANALYSIS OF PRIVATE VEHICLE AT PROPOSED ACCESS	
SCALE: 1 : 250 @A4	DATE: 17 JUN 2026	CTA Consultants Limited 志達顧問有限公司	



LEGEND :

DEVELOPMENT SITE

FIGURE NO.: 2.2

PROJECT TITLE: S12A Planning Application for Proposed Residential Care Home for Elderly (RCHE) at Lot 496 S.C in D.D. 132 and Adjoining Government Land, Tuen Mun, N.T.

PROJECT NO.: 25075HK

DRAWING TITLE:

SIGHT LINE OF THE PROPOSED VEHICULAR ACCESS

SCALE: 1 : 500 @A4
DATE: 17 JUN 2026

CTA Consultants Limited
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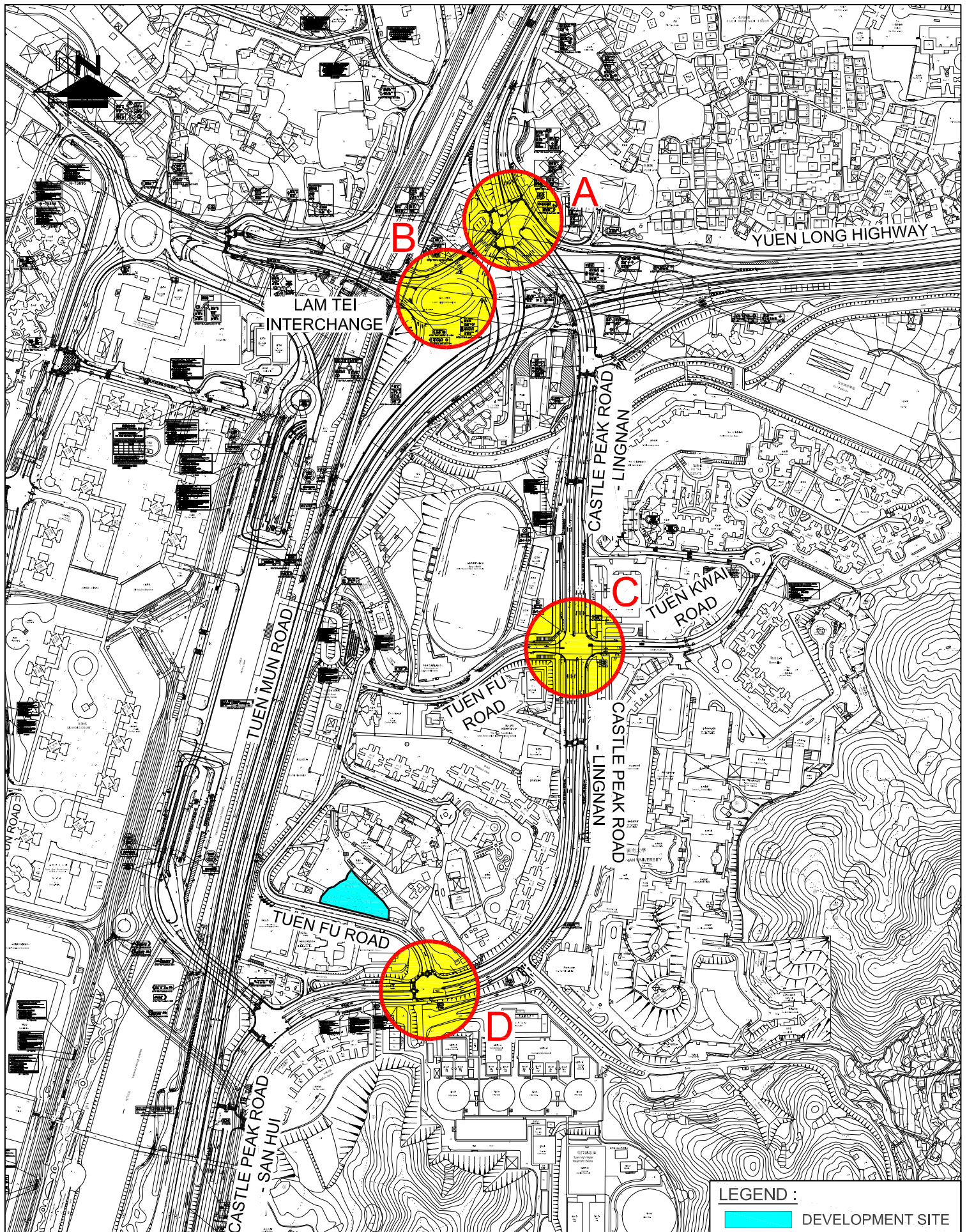


FIGURE NO.: 3.1

PROJECT NO.: 25075HK

SCALE: 1 : 5000 @A4

DATE: 02 JAN 2026

PROJECT TITLE: S12A Planning Application for Proposed Residential Care Home for Elderly (RCHE) at Lot 496 S.C in D.D. 132 and Adjoining Government Land, Tuen Mun, N.T.

DRAWING TITLE:

IDENTIFIED CRITICAL JUNCTIONS

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FIGURE NO.: 3.2		PROJECT TITLE: S12A Planning Application for Proposed Residential Care Home for Elderly (RCHE) at Lot 496 S.C in D.D. 132 and Adjoining Government Land, Tuen Mun, N.T.		 CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25075HK		DRAWING TITLE: EXISTING JUNCTION LAYOUT OF CASTLE PEAK ROAD - LINGNAN / CASTLE PEAK ROAD - LAM TEI / YUEN LONG HIGHWAY (A)		
SCALE: 1 : 750 @A4	DATE: 16 JAN 2026			

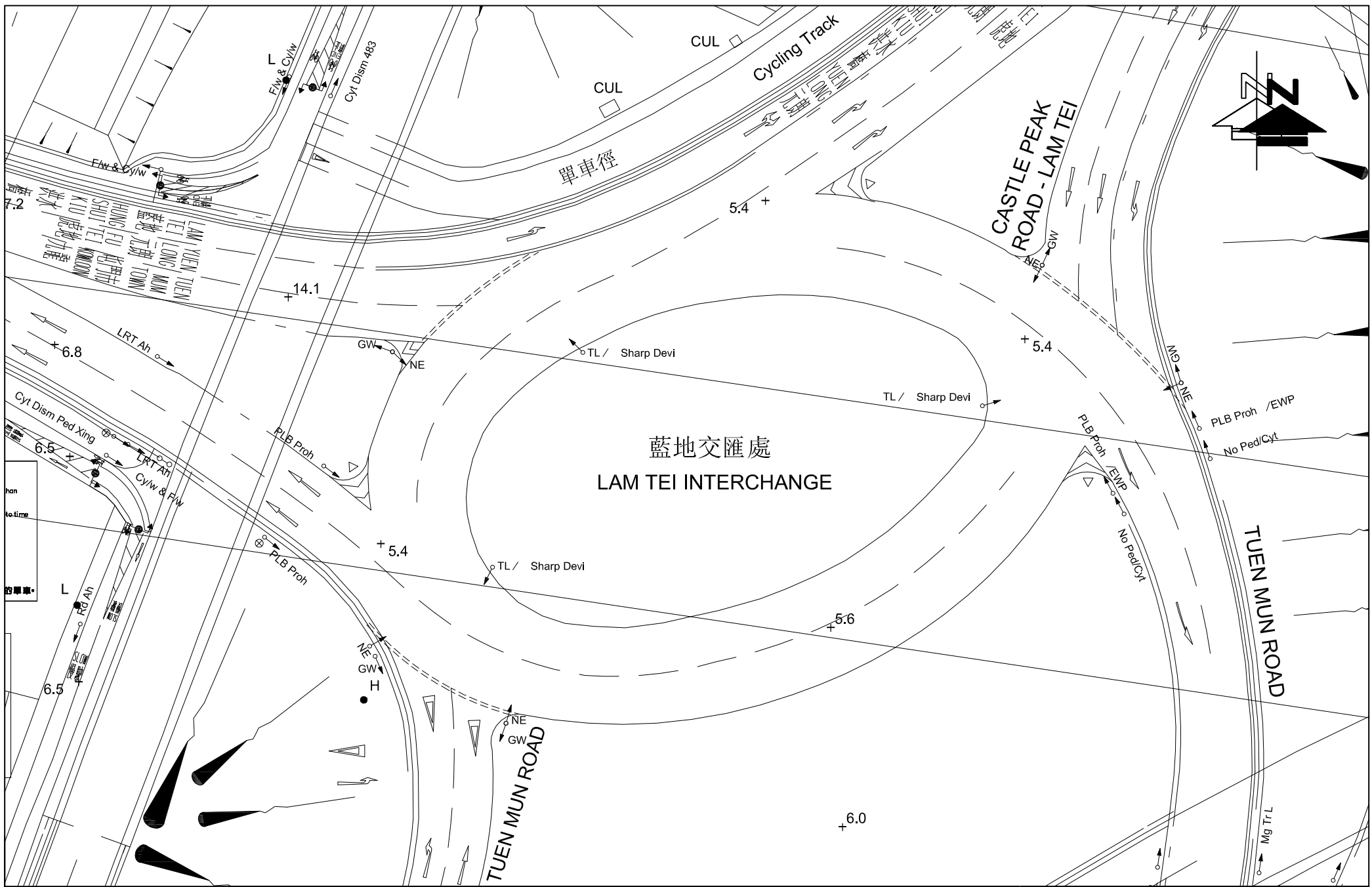


FIGURE NO.: 3.3	PROJECT TITLE: S12A Planning Application for Proposed Residential Care Home for Elderly (RCHE) at Lot 496 S.C in D.D. 132 and Adjoining Government Land, Tuen Mun, N.T.	 CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25075HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF LAM TEI INTERCHANGE (B)	
SCALE: 1 : 500 @A4	DATE: 16 JAN 2026	

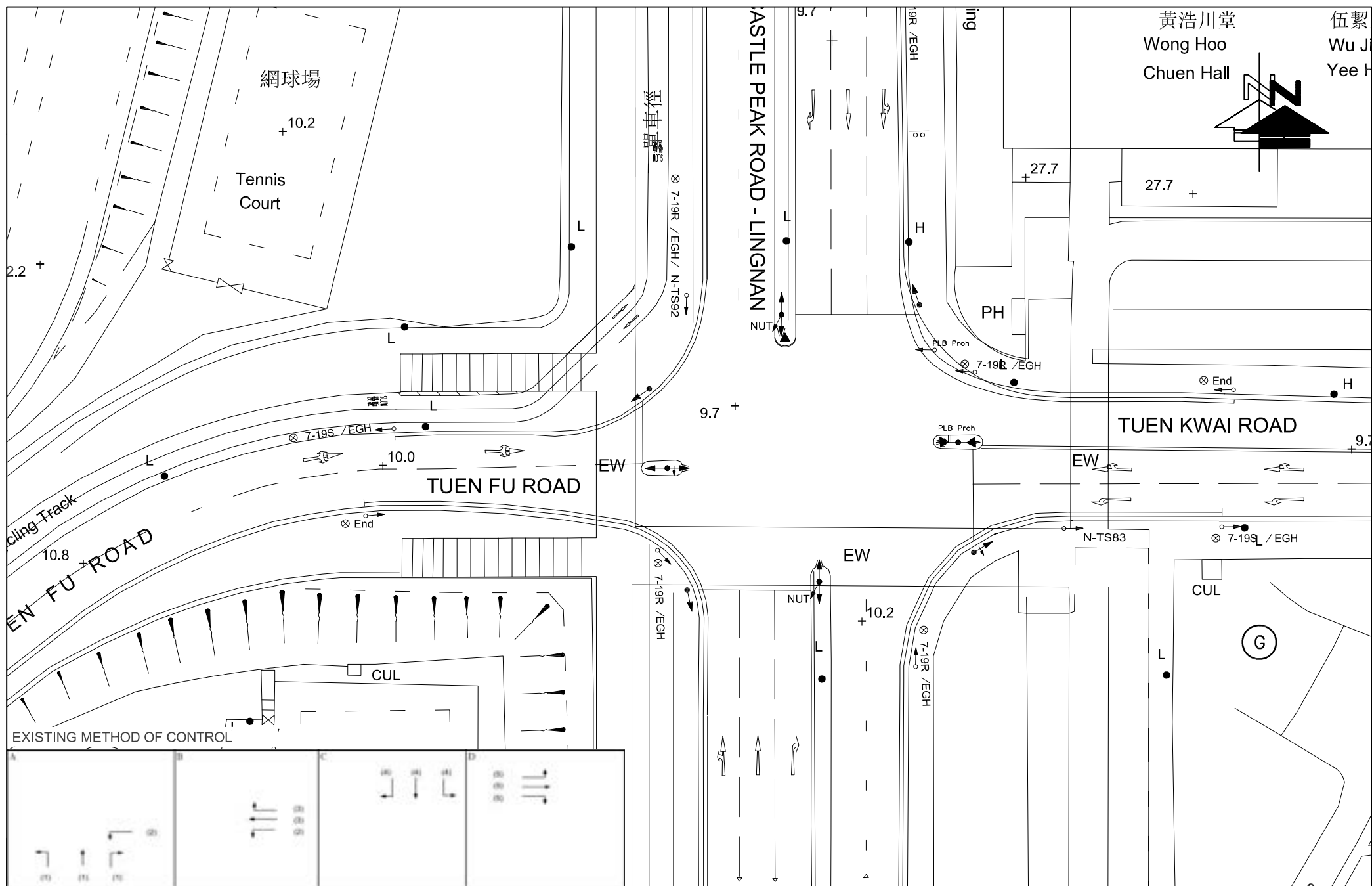


FIGURE NO.: 3.4	PROJECT TITLE: S12A Planning Application for Proposed Residential Care Home for Elderly (RCHE) at Lot 496 S.C in D.D. 132 and Adjoining Government Land, Tuen Mun, N.T.	 CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25075HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF CASTLE PEAK ROAD - LINGNAN / TUEN FU ROAD / TUEN KWAI ROAD (C)	
SCALE: 1 : 500 @A4	DATE: 16 JAN 2026	

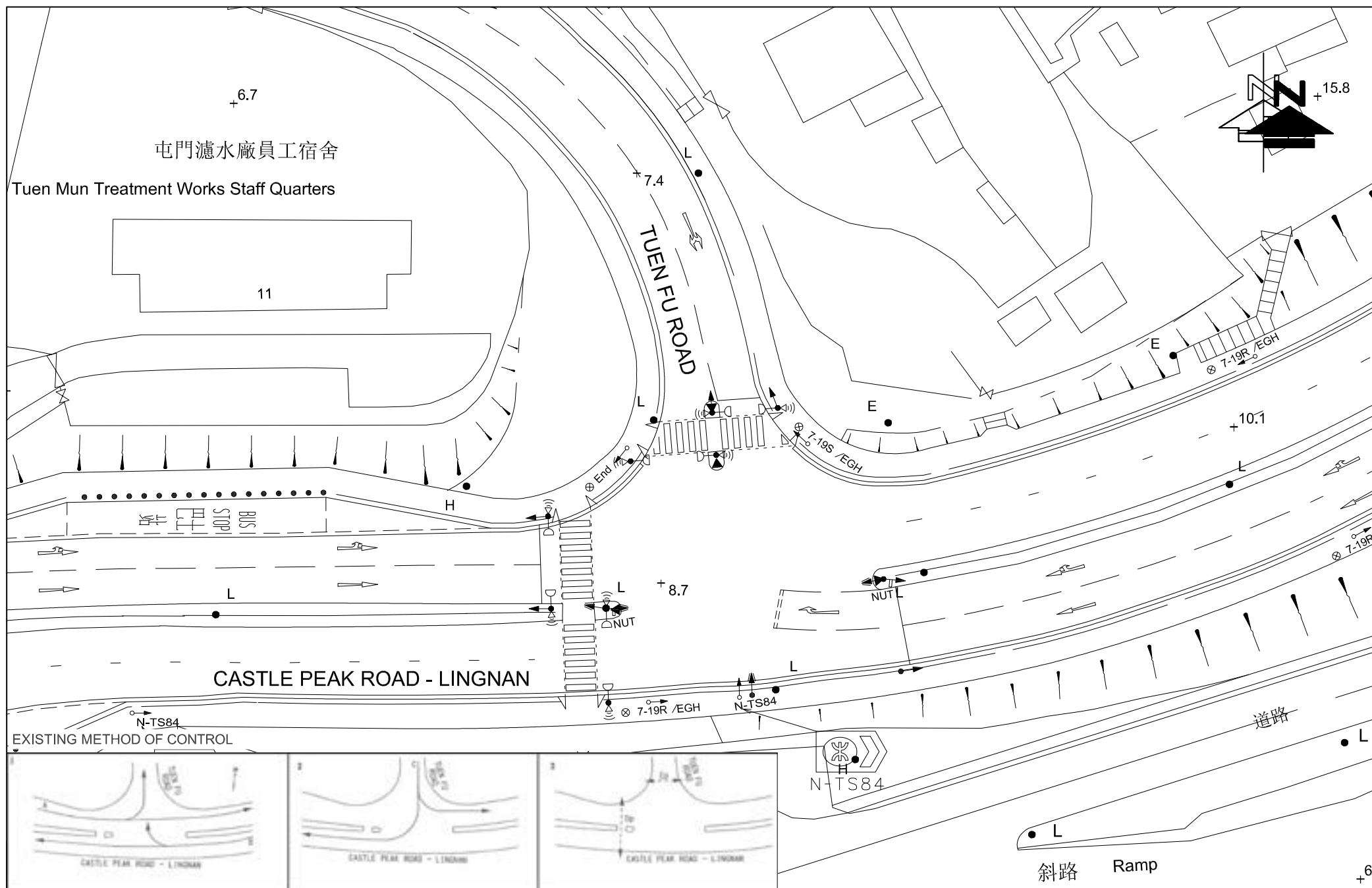


FIGURE NO.: 3.5	PROJECT TITLE: S12A Planning Application for Proposed Residential Care Home for Elderly (RCHE) at Lot 496 S.C in D.D. 132 and Adjoining Government Land, Tuen Mun, N.T.	 CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25075HK	DRAWING TITLE: EXISTING JUNCTION LAYOUT OF CASTLE PEAK ROAD - LINGNAN / TUEN FU ROAD (D)	
SCALE: 1 : 500 @A4	DATE: 16 JAN 2026	

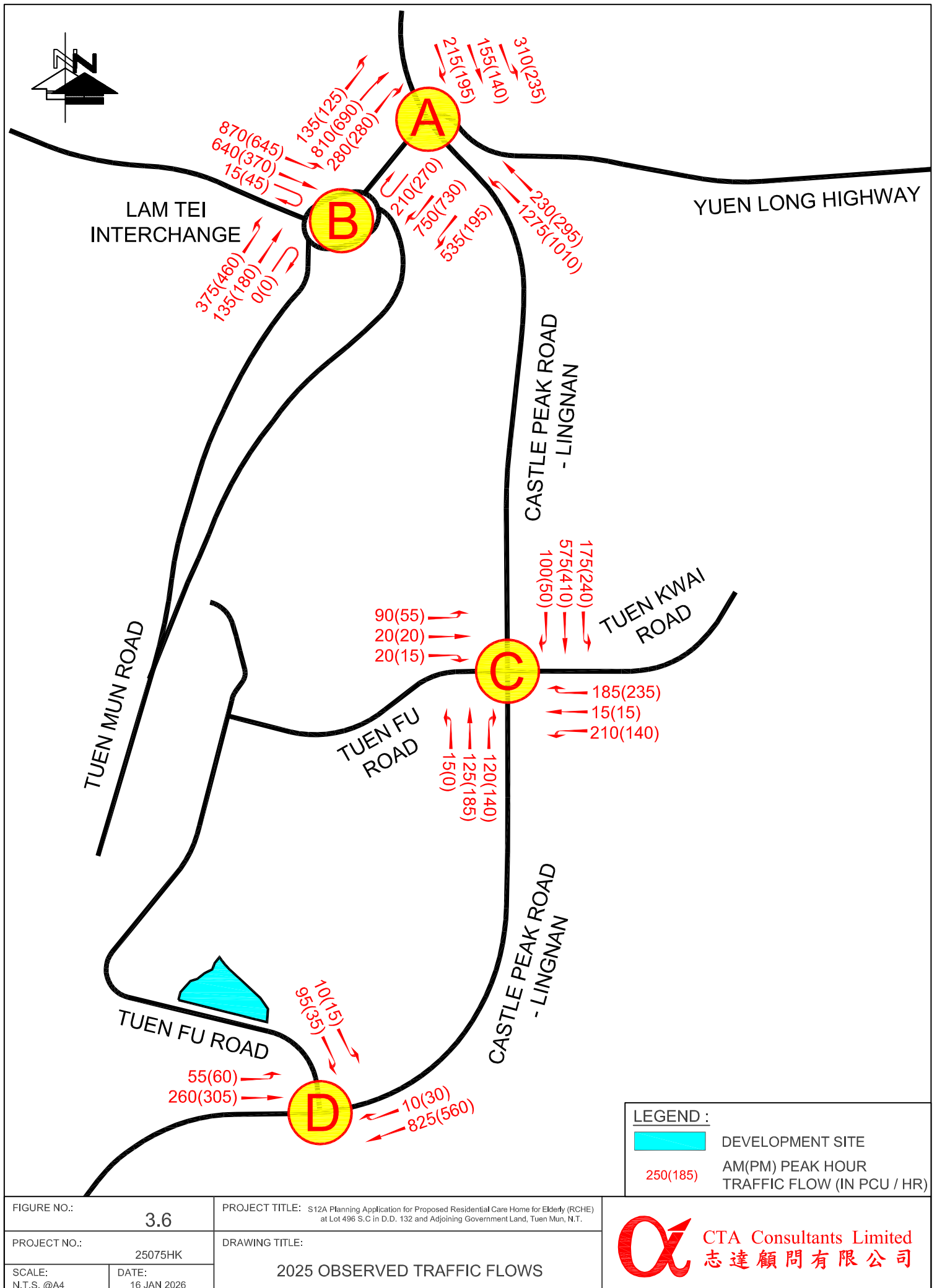


FIGURE NO.: 3.6

PROJECT TITLE: S12A Planning Application for Proposed Residential Care Home for Elderly (RCHE) at Lot 496 S.C in D.D. 132 and Adjoining Government Land, Tuen Mun, N.T.

PROJECT NO.: 25075HK

DRAWING TITLE:

SCALE: N.T.S. @A4
DATE: 16 JAN 2026

2025 OBSERVED TRAFFIC FLOWS

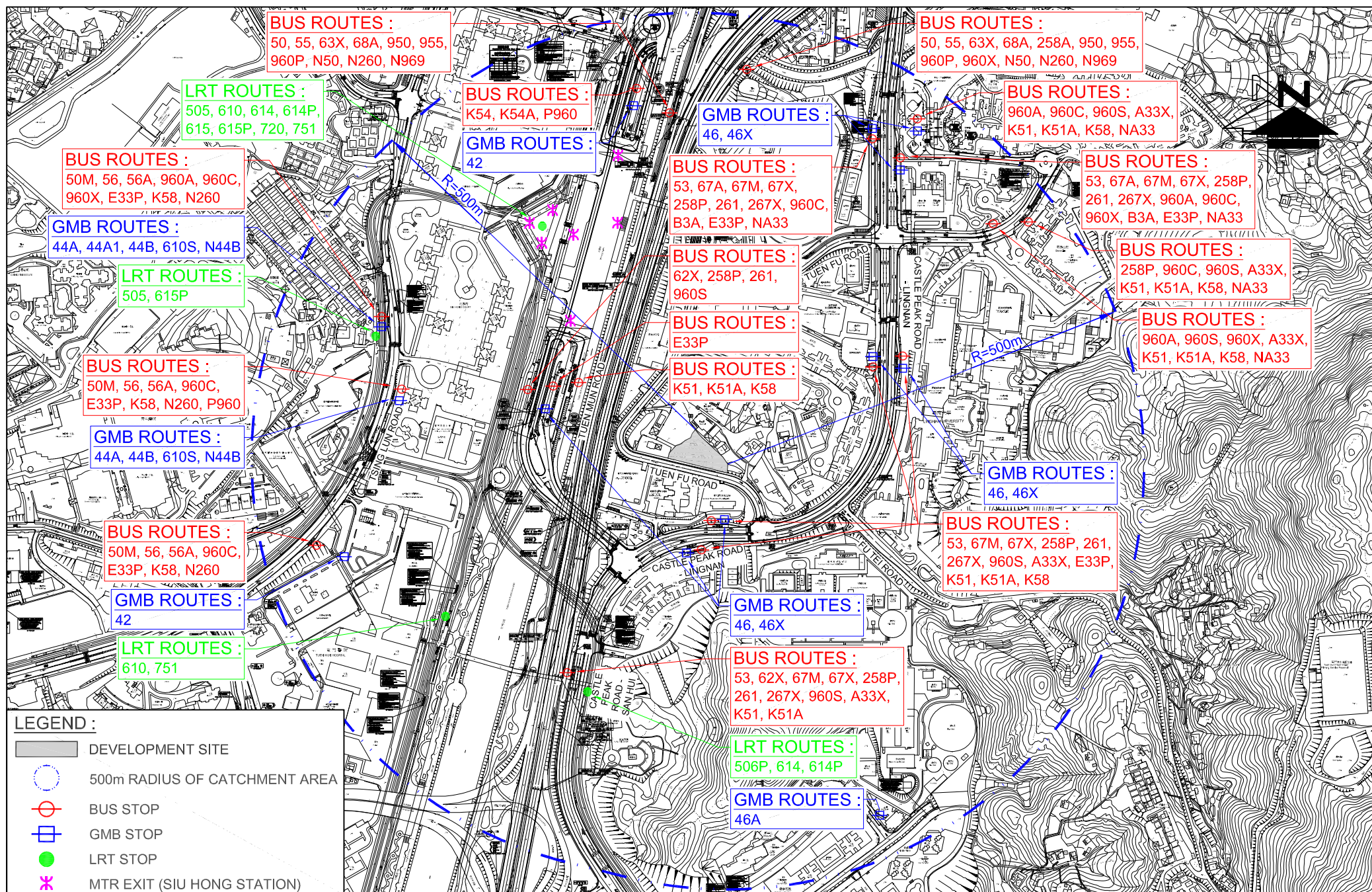


FIGURE NO.: 3.7		PROJECT TITLE: S12A Planning Application for Proposed Residential Care Home for Elderly (RCHE) at Lot 496 S.C in D.D. 132 and Adjoining Government Land, Tuen Mun, N.T.	
PROJECT NO.: 25075HK		DRAWING TITLE: PUBLIC TRANSPORT IN THE VICINITY	
SCALE: 1 : 6000 @A4	DATE: 17 JUN 2026	CTA Consultants Limited 志達顧問有限公司	

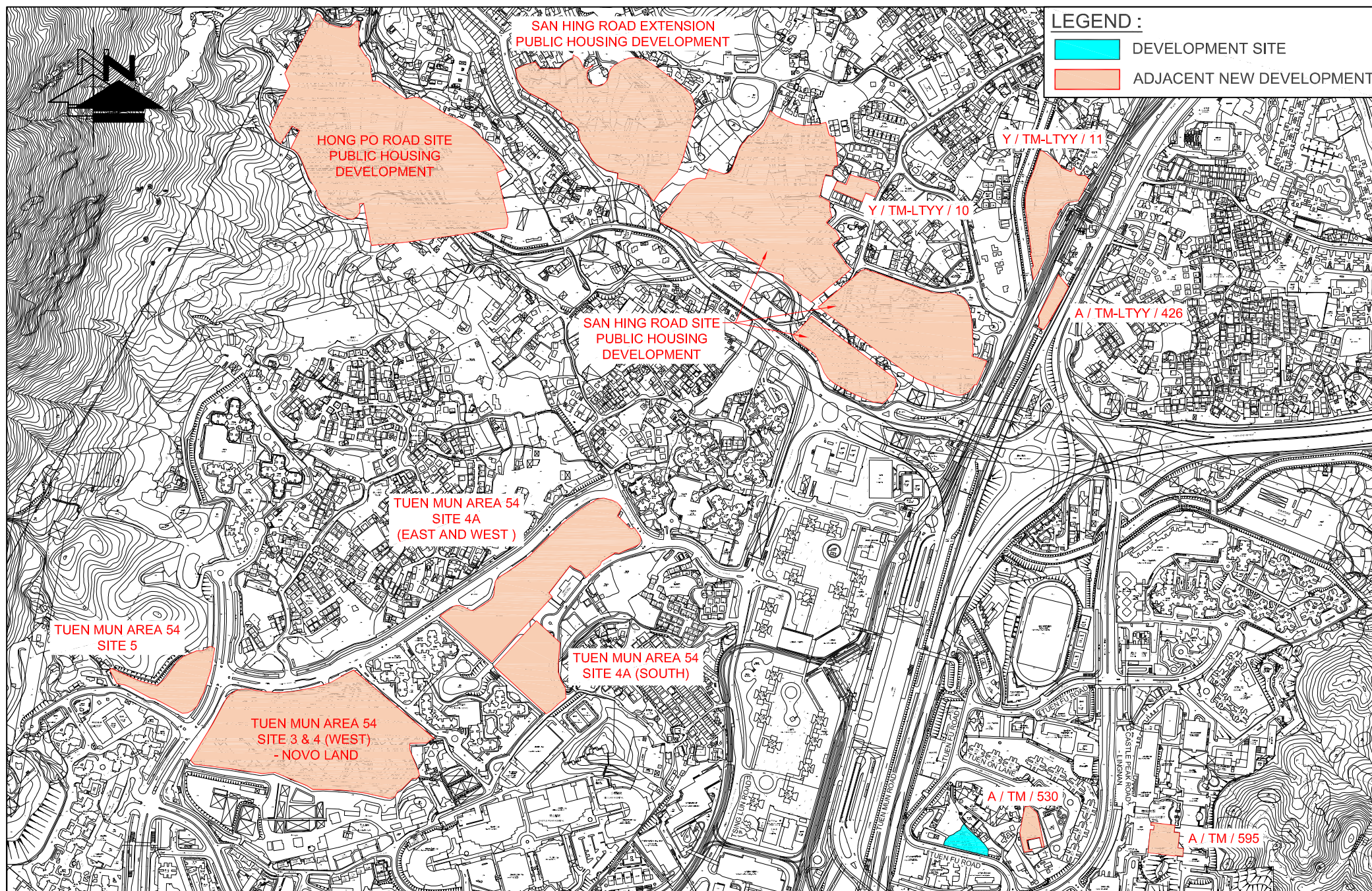


FIGURE NO.: 4.1	PROJECT TITLE: S12A Planning Application for Proposed Residential Care Home for Elderly (RCHE) at Lot 496 S.C in D.D. 132 and Adjoining Government Land, Tuen Mun, N.T.	 CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25075HK	DRAWING TITLE: PLANNED / COMMITTED DEVELOPMENT IN THE VICINITY	
SCALE: 1 : 8000 @A4	DATE: 24 DEC 2025	

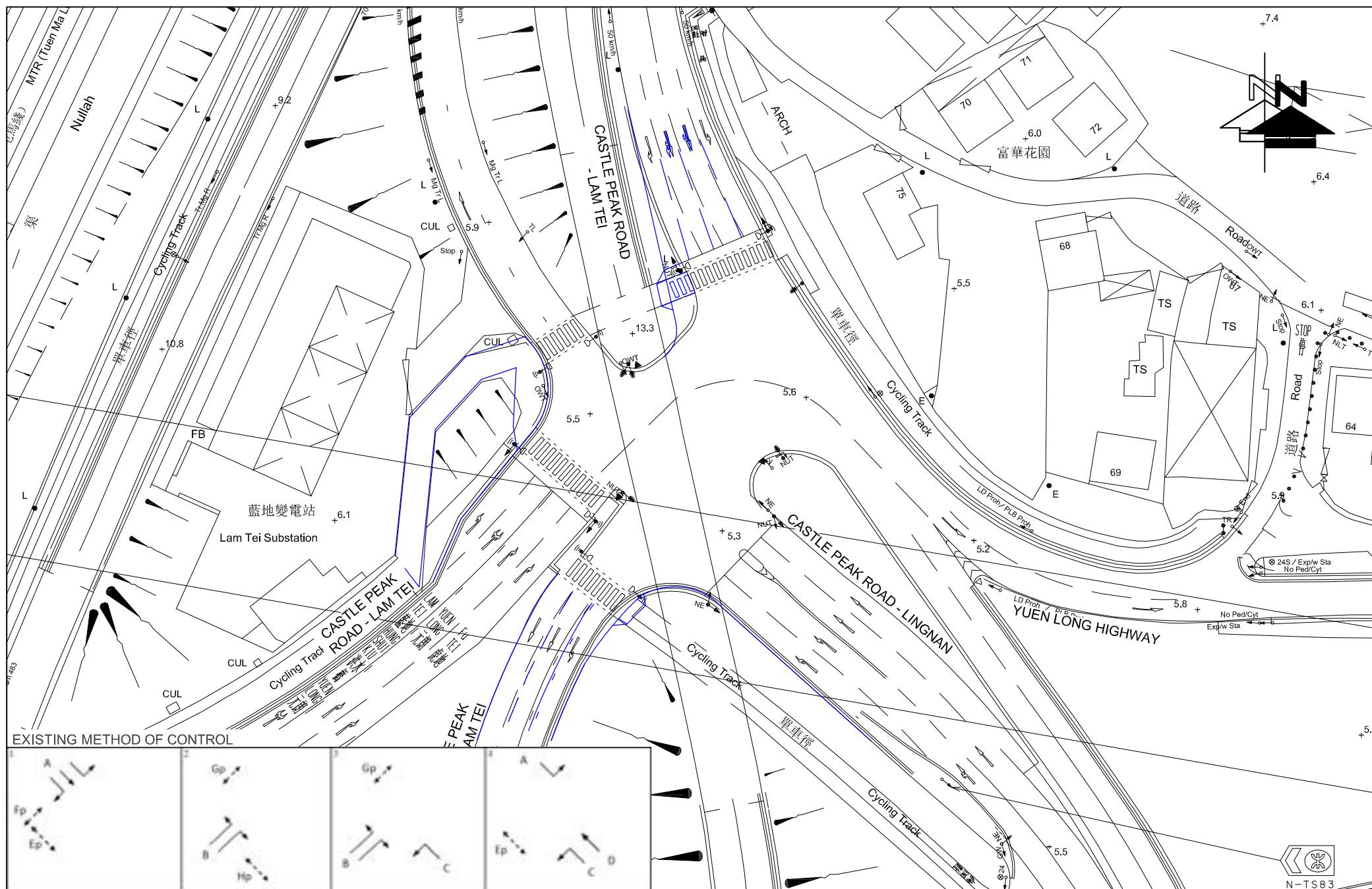


FIGURE NO.: 4.2		PROJECT TITLE: S12A Planning Application for Proposed Residential Care Home for Elderly (RCHE) at Lot 496 S.C in D.D. 132 and Adjoining Government Land, Tuen Mun, N.T.	
PROJECT NO.: 25075HK		DRAWING TITLE: PLANNED JUNCTION IMPROVEMENT LAYOUT OF CASTLE PEAK ROAD - LINGNAN / CASTLE PEAK ROAD - LAM TEI / YUEN LONG HIGHWAY (A) UNDER AGREEMENT No. CE 39 / 2021 (CE)	
SCALE: 1 : 750 @A4	DATE: 16 JAN 2026		

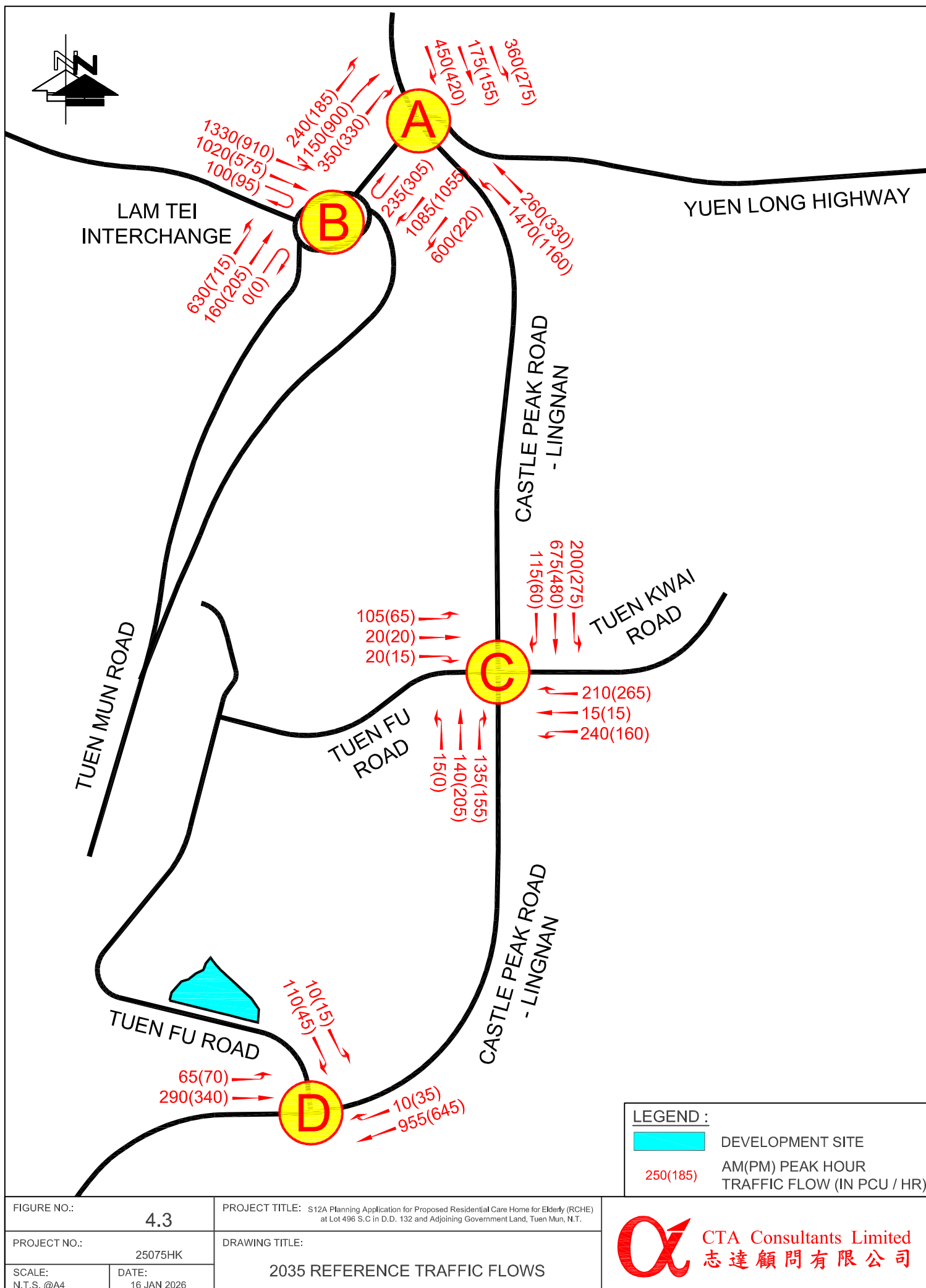


FIGURE NO.: 4.3

PROJECT NO.: 25075HK

SCALE: N.T.S. @A4 DATE: 16 JAN 2026

PROJECT TITLE: S12A Planning Application for Proposed Residential Care Home for Elderly (RCHE) at Lot 496 S.C in D.D. 132 and Adjoining Government Land, Tuen Mun, N.T.

DRAWING TITLE:

2035 REFERENCE TRAFFIC FLOWS



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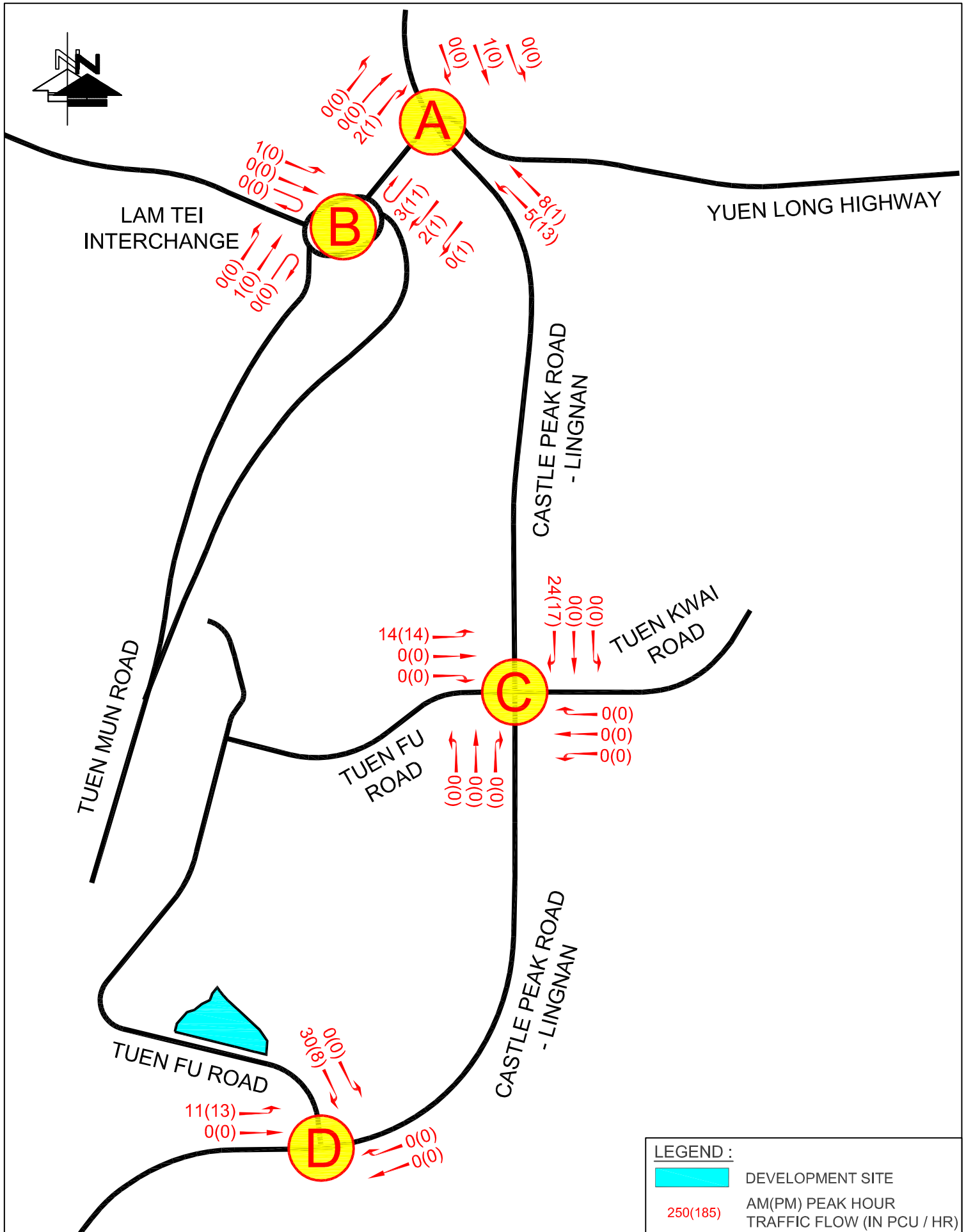


FIGURE NO.: 4.4	PROJECT TITLE: S12A Planning Application for Proposed Residential Care Home for Elderly (RCHE) at Lot 496 S.C in D.D. 132 and Adjoining Government Land, Tuen Mun, N.T.	CTA Consultants Limited 志達顧問有限公司
PROJECT NO.: 25075HK	DRAWING TITLE:	
SCALE: N.T.S. @A4	DATE: 29 JAN 2026	

DEVELOPMENT TRAFFIC FLOWS

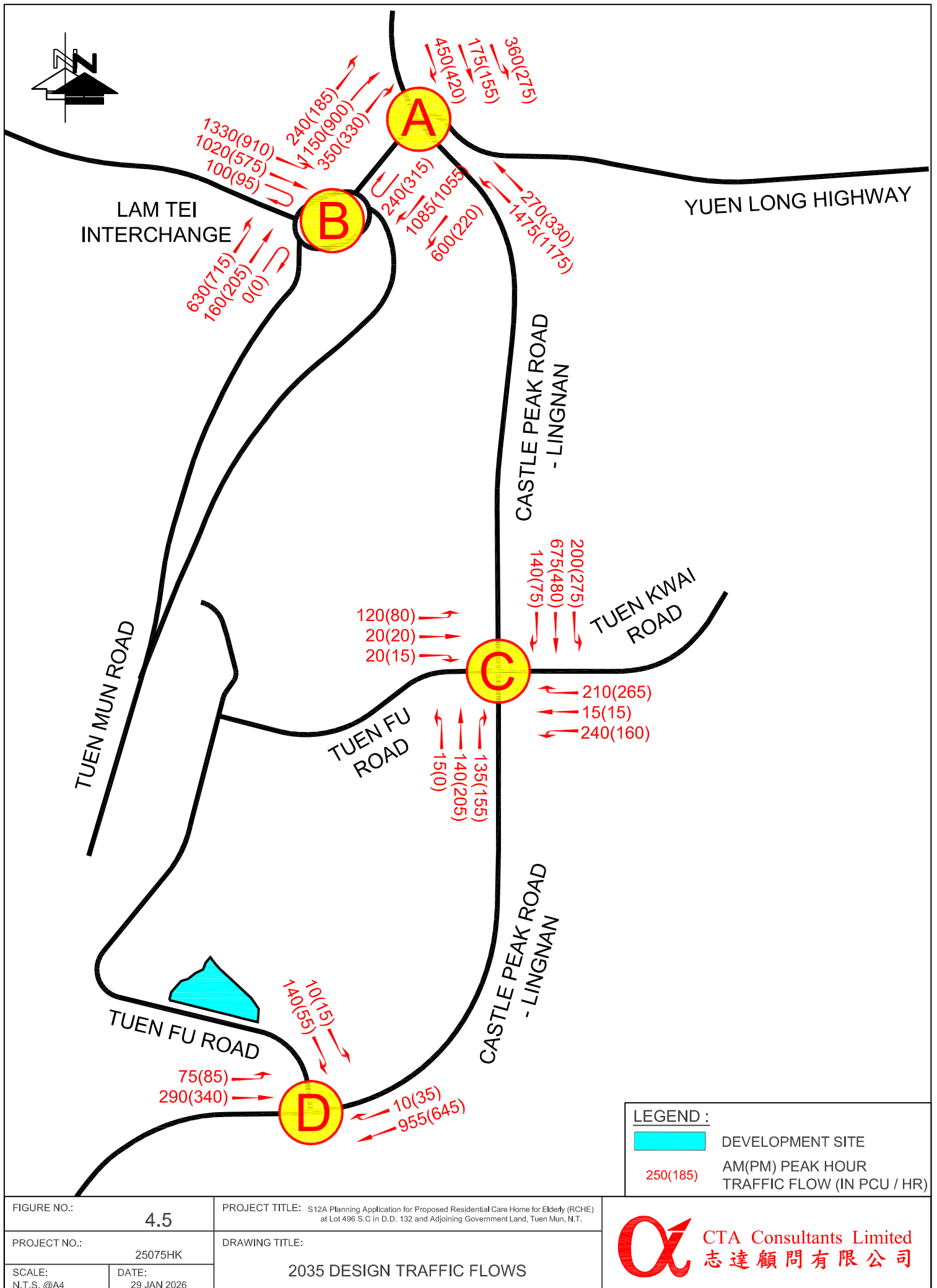


FIGURE NO.: 4.5

PROJECT NO.: 25075HK

SCALE: N.T.S. @A4

DATE: 29 JAN 2026

PROJECT TITLE: S12A Planning Application for Proposed Residential Care Home for Elderly (RCHE) at Lot 496 S.C in D.D. 132 and Adjoining Government Land, Tuen Mun, N.T.

DRAWING TITLE: 2035 DESIGN TRAFFIC FLOWS

CTA Consultants Limited
 志達顧問有限公司

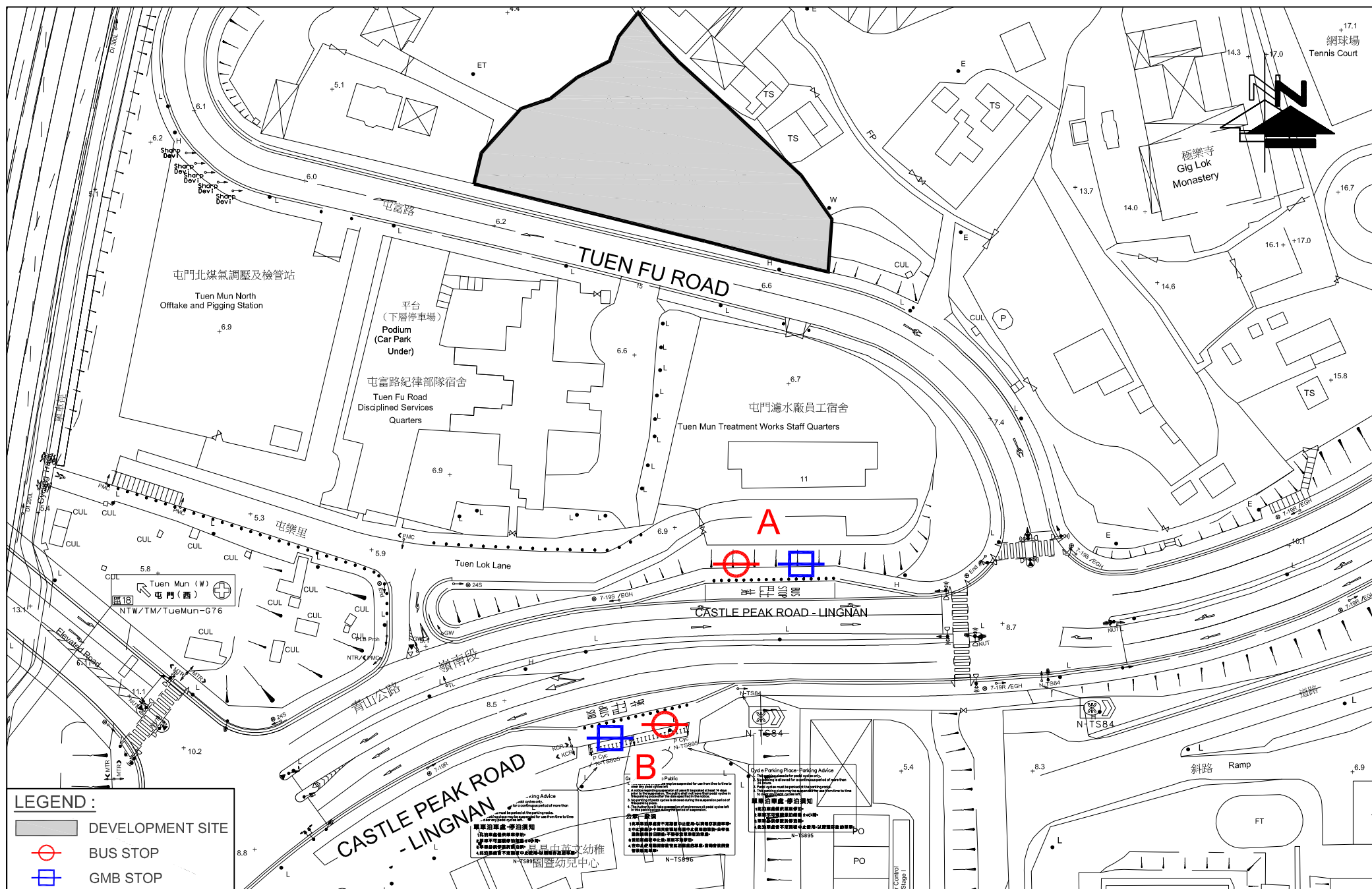


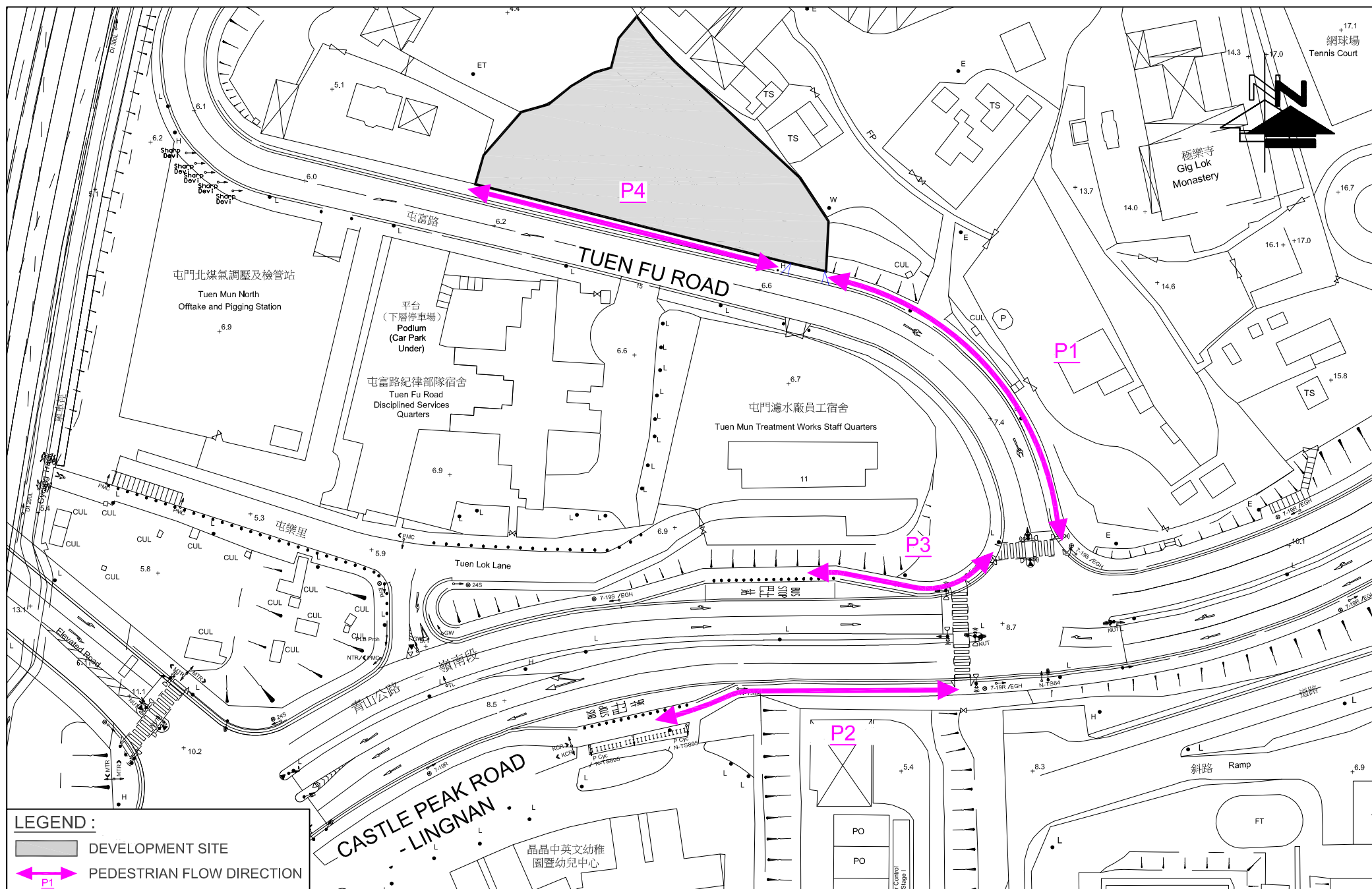
FIGURE NO.: 5.1

PROJECT NO.: 25075HK

SCALE: 1 : 1000 @A4
DATE: 06 JAN 2026

PROJECT TITLE: S12A Planning Application for Proposed Residential Care Home for Elderly (RCHE) at Lot 496 S.C. in D.D. 132 and Adjoining Government Land, Tuen Mun, N.T.

DRAWING TITLE: PUBLIC TRANSPORT IN THE VICINITY





Appendix 1

Junction Calculation Sheets

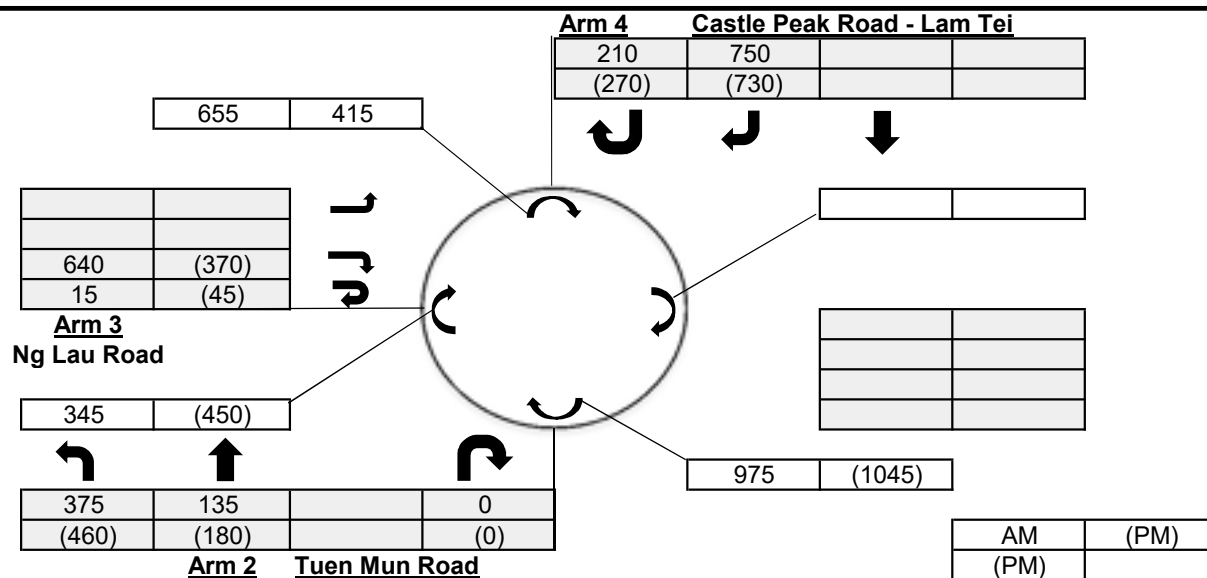
Job No: 25075HK

Junction: (A) Castle Peak Road - Lingnan / Castle Peak Road - Lam Tei / Yuen Long Highway
Description: 2025 Observe Traffic Flows

Notes:	Traffic Flow (pcu / hr)				[AM (PM)]	Check Phase			Check Phase					
	135(125)	↗	215(195)	↖	155(140)	↓	310(235)	↘	εy	0.320	0.367	εy	0.300	0.298
	810(690)	→							L (sec)	26	21	L (sec)	26	21
	280(280)	↘							C (sec)	110	110	C (sec)	110	110
			↖	↗					y pract.	0.687	0.728	y pract.	0.687	0.728
			1275(1000)	230(295)					R.C. (%)	114%	98%	R.C. (%)	129%	145%

1	2	3	4	
I/G = 7s	I/G = 15s I/G = 15s		I/G = 7s I/G = 8s	

Junction :	(B) Lam Tei Interchange	Job No.:	25075HK
Scenario :	2025 Observe Traffic Flows		



Input Parameters

			Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)	7.3	6.8	7.3
E	=	Entry width (m)	8.8	7.7	7.6
L	=	Effective length of flare (m)	3	8	4
R	=	Entry radius	65	100	60
D	=	Inscribed circle diameter (m)	53	53	53
A	=	Entry angle (degree)	26	17	20
Q	=	Entry flow (pcu/hr)			
		AM	510	655	960
		PM	640	415	1000
Qc	=	Circulating flow across entry (pcu/hr)			
		AM	975	345	655
		PM	1045	450	415

Output Parameters

			Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = $1.6*(E-V)/L$	0.80	0.18	0.12
K	=	$1-0.00347*(A-30)-0.978*(1/R-0.05)$	1.05	1.08	1.07
X2	=	$V+((E-V)/(1+2*S))$	7.88	7.46	7.54
M	=	$\text{Exp}((D-60)/10)$	0.50	0.50	0.50
F	=	$303*X2$	2387	2261	2285
Td	=	$1+(0.5/(1+M))$	1.33	1.33	1.33
Fc	=	$0.21*Td*(1+0.2*X2)$	0.72	0.70	0.70
Qe	=	Capacity = $K*(F-Fc*Qc)$			
		AM	1764	2190	1948
		PM	1711	2111	2128
DFC	=	Entry Flow/Capacity = Q/Qe			
		AM	0.29	0.30	0.49
		PM	0.37	0.20	0.47

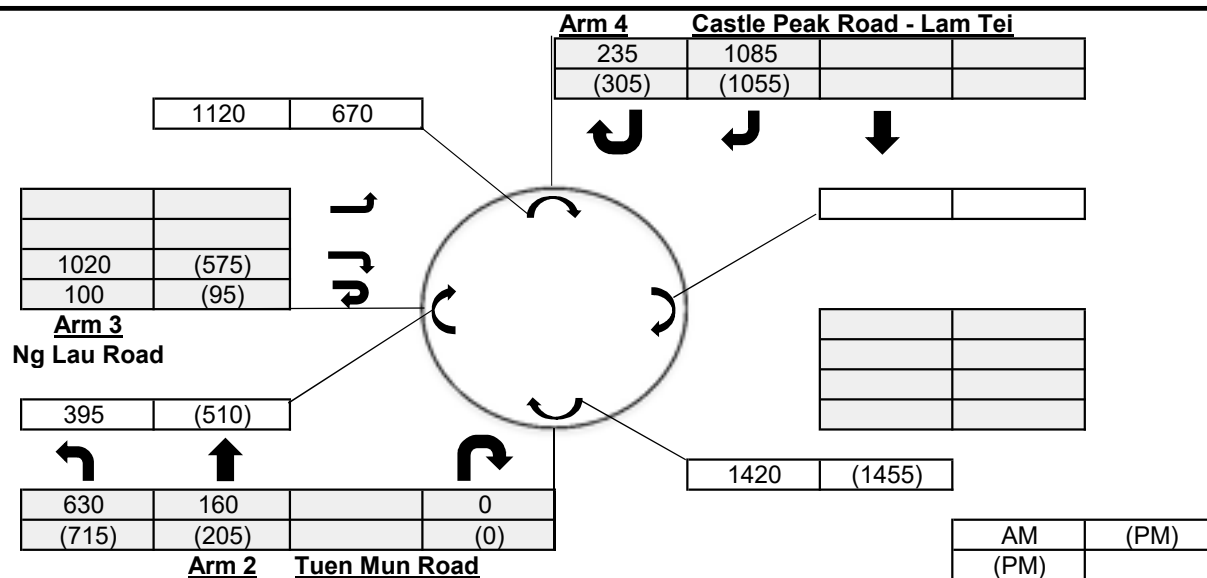
DFC of Critical Approach	=	AM	0.49
		PM	0.47

TRAFFIC SIGNALS CALCULATION														Job No: 25075HK										CTA Consultants Ltd.							
Junction: (C) Castle Peak Road - Lingnan / Tuen Fu Road / Tuen Kwai Road																															
Description: 2025 Observe Traffic Flows																															
Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside 0/1	Pro. Turning (%)		Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		A.M. Peak			P.M. Peak													
						Left	Right		A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y											
Castle Peak Road - Lingnan	N	↗	1	A	3.6	9	0	1	23%	0%	1900	1975	4010	4085	66	0.035	0.061	89	0.045	0.071											
	N	↑	1	A	3.5	0	0	0	0%	0%	2110	2110	0	0	74	0.035		96	0.045												
	N	↖	1	A	3.7	0	18	0	100%	100%	1960	1960	1960	1960	120	0.061		140	0.071												
Tuen Kwai Road	W	←	3	B	3.5	0	12	0	93%	94%	1885	1885	1885	1885	200	0.106	0.106	250	0.133	0.133											
	W	↙	2	A,B	3.3	25	0	1	100%	100%	1830	1830	1830	1830	210	0.115		140	0.077												
Castle Peak Road - Lingnan	S	↘	4	C	3.7	11	0	1	50%	81%	1860	1790	3975	3905	351	0.189	0.189	298	0.166	0.166											
	S	↓	4	C	3.6	0	0	0	0%	0%	2115	2115	0	0	399	0.189		352	0.166												
	S	↖	4	C	3.6	0	17	0	100%	100%	1945	1945	1945	1945	100	0.051		50	0.026												
Tuen Fu Road	E	→	5	D	3.5	12	12	1	69% / 15%	61% / 17%	1775	1785	1775	1785	130	0.073	0.073	90	0.050	0.050											
Notes:								Traffic Flow (pcu / hr)						[AM (PM)]		A,B,C,D		AB,C,D		A,B,C,D		AB,C,D									
								90(55)						100(50)		575(410)		175(240)		εy		0.429		0.377		εy		0.421		0.293	
								20(20)						↓		↓		↓		L (sec)		20		15		120		20		15	
								20(15)						↑		↑		↑		C (sec)		120		120		C (sec)		120		120	
														15(0)		125(185)		120(140)		y pract.		0.750		0.788		y pract.		0.750		0.788	
																				R.C. (%)		75%		109%		R.C. (%)		78%		168%	
Stage / Phase Diagrams																															
A				B				C				D																			
I/G = 6s				I/G = 6s				I/G = 6s				I/G = 6s																			

TRAFFIC SIGNALS CALCULATION										Job No: 25075HK										CTA Consultants Ltd.									
Junction: (D) Castle Peak Road - Lingnan / Tuen Fu Road																													
Description: 2025 Observe Traffic Flows																													
Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside 0/1	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		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							
Castle Peak Road - San Hui	E	↗	A	1,2	4.0	15	0	1	37%	35%	2015	4160	1945	1950	4090	4095	150	0.077	0.213	174	0.089	0.151							
	E	→	A	1,2	3.9	0	0	0	0%	0%	2145	0	2145	2145	0	0	165	0.077		191	0.089								
Castle Peak Road - Lingnan	W	←	B	1,2	4.0	0	0	1	0%	0%	2010	3930	2010	2010	3925	3910	428	0.213		303	0.151								
	W	↖	B	1,2	4.0	0	17	0	2%	10%	1920	0	1915	1900	0	0	407	0.213		287	0.151								
Tuen Fu Road	S	↕	C	2,3	4.2	15	18	1	10% / 90%	30% / 70%	2035	2035	1875	1870	1875	1870	105	0.056	0.056	50	0.027	0.027							
Pedestrian crossing ↕ Dp 1,3 Min. Crossing Time = 8Gm + 8FGm = 16s ↔ Ep 1,3 Min. Crossing Time = 8Gm + 10FGm = 18s																													
Notes:												Traffic Flow (pcu / hr) 95(35) 10(15) 10(30) 825(560) [AM (PM)] B,C,Dp B,C,Ep B,C,Dp B,C,Ep AM Peak Check Phase PM Peak Check Phase Ey 0.269 0.269 Ey 0.178 0.178 L (sec) 27 27 L (sec) 27 27 C (sec) 120 120 C (sec) 120 120 y pract. 0.698 0.698 y pract. 0.698 0.698 R.C. (%) 159% 159% R.C. (%) 292% 292%																	
Stage / Phase Diagrams																													
1 CASTLE PEAK ROAD - LINGNAN						2 CASTLE PEAK ROAD - LINGNAN						3 CASTLE PEAK ROAD - LINGNAN																	
I/G = 4s						I/G = 8s						I/G = 3s+4s=7s																	

TRAFFIC SIGNALS CALCULATION										Job No: 25075HK		CTA Consultants Ltd.																	
Junction: (A) Castle Peak Road - Lingnan / Castle Peak Road - Lam Tei / Yuen Long Highway																													
Description: 2035 Reference Traffic Flows (Planned Junction Improvement under CE 39/2021 (CE) by CEDD)																													
Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside O/I	Pro. Turning (%)		Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		A.M. Peak			P.M. Peak											
						Left	Right		A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y									
Castle Peak Road - Lam Tei	E	↘	A	1,4	3.5	80	0	1	100%	100%	1930	1930	1930	1930	360	0.187		275	0.142										
	E	↘	A	1	4.0	0	85	0	20%	24%	2145	2145	6090	6090	220	0.103	0.103	203	0.095	0.095									
	E	↘	A	1	3.5	0	25	0	100%	100%	1985	1985	0	0	204	0.103		187	0.094										
	E	↘	A	1	3.5	0	20	0	100%	100%	1960	1960	0	0	201	0.103		185	0.094										
Lam Tei Interchange	N	↗	B	2,3	3.5	8	0	1	100%	100%	1655	1655	5645	5645	240	0.145	0.288	185	0.112	0.226									
	N	↗	B	2,3	3.5	30	30	0	0% / 100%	0% / 100%	2005	2005	0	0	578	0.288		452	0.226										
	N	↗	B	2,3	3.5	0	25	0	100%	100%	1985	1985	0	0	572	0.288		448	0.226										
	N	↗	B	2,3	3.5	0	20	0	100%	100%	1960	1960	1960	1960	350	0.179		330	0.168										
Castle Peak Road - Lingnan	W	↖	C	3,4	3.5	14	0	1	100%	100%	1775	1775	3725	3725	700	0.395		553	0.311										
	W	↖	C	3,4	3.5	19	0	0	100%	100%	1950	1950	0	0	770	0.395		607	0.311										
	W	↖	D	4	3.5	0	0	0	0%	0%	2105	2105	4210	4210	130	0.062	0.062	165	0.078	0.078									
	W	↖	D	4	3.5	0	0	0	0%	0%	2105	2105	0	0	130	0.062		165	0.078										
Pedestrian crossing	↕	E	1,4	Min. Crossing Time = 5Gm + 7FGm = 12s																									
		F	1	Min. Crossing Time = 6Gm + 12FGm = 18s																									
		G	2,3	Min. Crossing Time = 5Gm + 9FGm = 14s																									
		H	2	Min. Crossing Time = 6Gm + 11FGm = 17s																									
Notes:						Traffic Flow (pcu / hr)						[AM (PM)]		1,2,3,4 14,23		1,2,3,4 14,23													
						240(185) → 1150(900) → 350(330) → 1470(1160) ↖ 260(330) ↗						450(420) ↖ 175(155) ↓ 360(275) ↘		[AM (PM)]		Ey 0.453 0.475 L (sec) 26 21 C (sec) 110 110 y pract. 0.687 0.728 R.C. (%) 52% 53%		Ey 0.399 0.368 L (sec) 26 21 C (sec) 110 110 y pract. 0.687 0.728 R.C. (%) 72% 98%											
Stage / Phase Diagrams																													
1						2								3								4							
I/G = 7s		I/G = 15s I/G = 15s												I/G = 7s I/G = 8s															

Junction :	(B) Lam Tei Interchange	Job No.:	25075HK
Scenario :	2035 Reference Traffic Flows		



Input Parameters

			Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)	7.3	6.8	7.3
E	=	Entry width (m)	8.8	7.7	7.6
L	=	Effective length of flare (m)	3	8	4
R	=	Entry radius	65	100	60
D	=	Inscribed circle diameter (m)	53	53	53
A	=	Entry angle (degree)	26	17	20
Q	=	Entry flow (pcu/hr)			
		AM	790	1120	1320
		PM	920	670	1360
Qc	=	Circulating flow across entry (pcu/hr)			
		AM	1420	395	1120
		PM	1455	510	670

Output Parameters

			Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = $1.6 \cdot (E - V) / L$	0.80	0.18	0.12
K	=	$1 - 0.00347 \cdot (A - 30) - 0.978 \cdot (1 / R - 0.05)$	1.05	1.08	1.07
X2	=	$V + ((E - V) / (1 + 2 \cdot S))$	7.88	7.46	7.54
M	=	$\text{Exp}((D - 60) / 10)$	0.50	0.50	0.50
F	=	$303 \cdot X2$	2387	2261	2285
Td	=	$1 + (0.5 / (1 + M))$	1.33	1.33	1.33
Fc	=	$0.21 \cdot Td \cdot (1 + 0.2 \cdot X2)$	0.72	0.70	0.70
Qe	=	Capacity = $K \cdot (F - Fc \cdot Qc)$			
		AM	1427	2152	1599
		PM	1401	2065	1936
DFC	=	Entry Flow/Capacity = Q / Qe			
		AM	0.55	0.52	0.83
		PM	0.66	0.32	0.70

DFC of Critical Approach	=	AM	0.83
		PM	0.70

TRAFFIC SIGNALS CALCULATION										Job No: 25075HK		CTA Consultants Ltd.									
Junction: (C) Castle Peak Road - Lingnan / Tuen Fu Road / Tuen Kwai Road																					
Description: 2035 Reference Traffic Flows																					
Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside 0/1	Pro. Turning (%)		Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		A.M. Peak			P.M. Peak			
						Left	Right		A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y	
Castle Peak Road - Lingnan	N	↰	1	A	3.6	9	0	1	20%	0%	1910	1975	4020	4085	74	0.039	0.069	99	0.050	0.079	
	N	↑	1	A	3.5	0	0	0	0%	0%	2110	2110	0	0	81	0.039		106	0.050		
	N	↱	1	A	3.7	0	18	0	100%	100%	1960	1960	1960	1960	135	0.069		155	0.079		
Tuen Kwai Road	W	↰	3	B	3.5	0	12	0	93%	95%	1885	1880	1885	1880	225	0.119	0.119	280	0.149	0.149	
	W	↱	2	A,B	3.3	25	0	1	100%	100%	1830	1830	1830	1830	240	0.131		160	0.087		
Castle Peak Road - Lingnan	S	↱	4	C	3.7	11	0	1	49%	79%	1860	1790	3975	3905	410	0.220	0.220	346	0.193	0.193	
	S	↓	4	C	3.6	0	0	0	0%	0%	2115	2115	0	0	465	0.220		409	0.193		
	S	↰	4	C	3.6	0	17	0	100%	100%	1945	1945	1945	1945	115	0.059		60	0.031		
Tuen Fu Road	E	↰	5	D	3.5	12	12	1	72% / 14%	65% / 15%	1770	1785	1770	1785	145	0.082	0.082	100	0.056	0.056	
Notes:						Traffic Flow (pcu / hr)						[AM (PM)]		A,B,C,D		AB,C,D		A,B,C,D		AB,C,D	
						115(60) 675(480) 200(275)								Check Phase				Check Phase			
						105(65) 20(20) 20(15)						210(265) 15(15) 240(160)		Ey 0.490 0.433		Ey 0.477 0.337					
						15(0) 140(205) 135(155)								L (sec) 20 15		L (sec) 20 15					
														C (sec) 120 120		C (sec) 120 120					
														y pract. 0.750 0.788		y pract. 0.750 0.788		y pract. 0.750 0.788		y pract. 0.750 0.788	
												R.C. (%) 53% 82%		R.C. (%) 57% 134%							
Stage / Phase Diagrams																					
A					B					C					D						
I/G = 6s					I/G = 6s					I/G = 6s					I/G = 6s						

Job No: 25075HK

Junction: **(D) Castle Peak Road - Lingnan / Tuen Fu Road**
Description: **2035 Reference Traffic Flows**

Pedestrian crossing		Dp	1,3 Min. Crossing Time = 8Gm + 8FGm = 16s
			
		Ep	1,3 Min. Crossing Time = 8Gm + 10FGm = 18s

Notes:

Traffic Flow (pcu / hr)

[AM (PM)]

B,C,Dp B,C,Ep

B,C,Dp B,C,Ep

	B,C,Dp	B,C,LP
AM Peak Check Phase		

PM Peak Check Phase

ϵ_V	0.310	0.310
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ε_V	0.206	0.206
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L (sec)	27	27
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L (sec)	27	27
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C (sec)	120	120
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C (sec)	120	120
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y pract.	0.698	0.698
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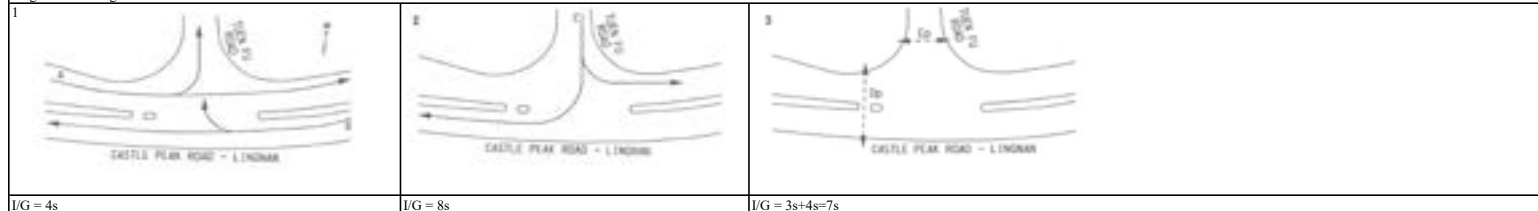
y pract.	0.698	0.698
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R.C. (%)	125%	125%
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R.C. (%)	238%	238%
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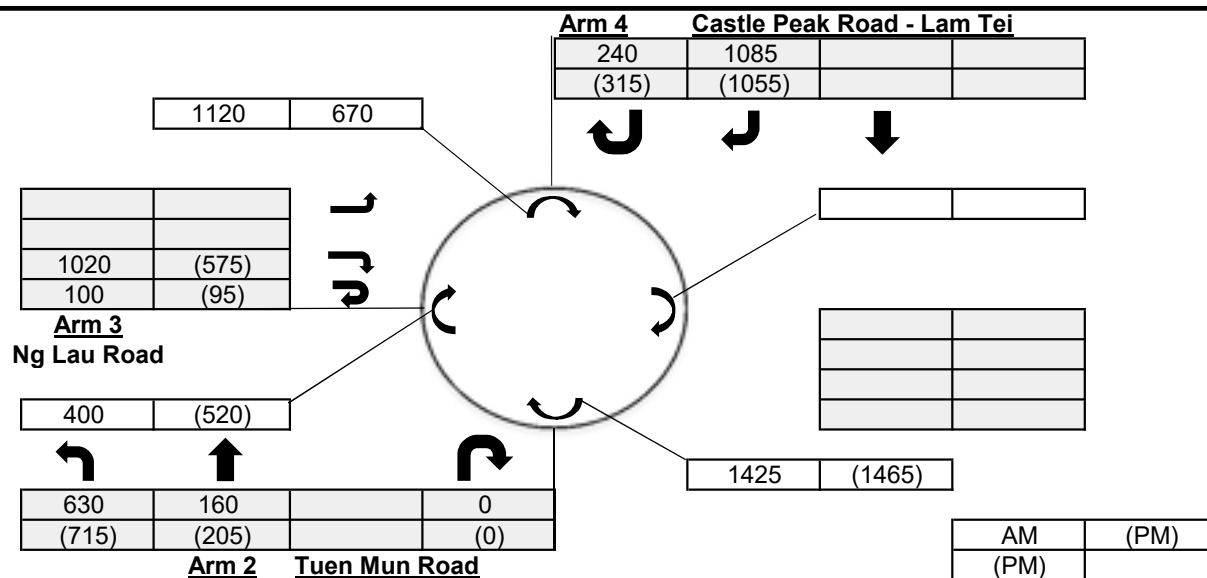
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Stage / Phase Diagrams



TRAFFIC SIGNALS CALCULATION										Job No: 25075HK		CTA Consultants Ltd.																					
Junction: (A) Castle Peak Road - Lingnan / Castle Peak Road - Lam Tei / Yuen Long Highway																																	
Description: 2035 Design Traffic Flows (Planned Junction Improvement under CE 39/2021 (CE) by CEDD)																																	
Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside O/I	Pro. Turning (%)		Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		A.M. Peak			P.M. Peak															
						Left	Right		A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y													
Castle Peak Road - Lam Tei	E	↘	A	1,4	3.5	80	0	1	100%	100%	1930	1930	1930	1930	360	0.187		275	0.142														
	E	↘	A	1	4.0	0	85	0	20%	24%	2145	2145	6090	6090	220	0.103	0.103	203	0.095	0.095													
	E	↘	A	1	3.5	0	25	0	100%	100%	1985	1985	0	0	204	0.103		187	0.094														
	E	↘	A	1	3.5	0	20	0	100%	100%	1960	1960	0	0	201	0.103		185	0.094														
Lam Tei Interchange	N	↗	B	2,3	3.5	8	0	1	100%	100%	1655	1655	5645	5645	240	0.145	0.288	185	0.112	0.226													
	N	↗	B	2,3	3.5	30	30	0	0% / 100%	0% / 100%	2005	2005	0	0	578	0.288		452	0.226														
	N	↗	B	2,3	3.5	0	25	0	100%	100%	1985	1985	0	0	572	0.288		448	0.226														
	N	↗	B	2,3	3.5	0	20	0	100%	100%	1960	1960	1960	1960	350	0.179		330	0.168														
Castle Peak Road - Lingnan	W	↖	C	3,4	3.5	14	0	1	100%	100%	1775	1775	3725	3725	703	0.396		560	0.315														
	W	↖	C	3,4	3.5	19	0	0	100%	100%	1950	1950	0	0	772	0.396		615	0.315														
	W	↖	D	4	3.5	0	0	0	0%	0%	2105	2105	4210	4210	135	0.064	0.064	165	0.078	0.078													
	W	↖	D	4	3.5	0	0	0	0%	0%	2105	2105	0	0	135	0.064		165	0.078														
Pedestrian crossing	↕	E	1,4	Min. Crossing Time = 5Gm + 7FGm = 12s																													
		F	1	Min. Crossing Time = 6Gm + 12FGm = 18s																													
		G	2,3	Min. Crossing Time = 5Gm + 9FGm = 14s																													
		H	2	Min. Crossing Time = 6Gm + 11FGm = 17s																													
Notes:						Traffic Flow (pcu / hr)						[AM (PM)]		1,23,4 14,23		1,23,4 14,23																	
														Check Phase		Check Phase																	
240(185) → 1150(900) → 350(330) →						450(420) ↖ 175(155) ↓ 360(275) ↘ 1475(1175) ↖ 270(330) ↗								Ey	0.455	0.475	Ey	0.399	0.368														
														L (sec)	26	21	L (sec)	26	21														
														C (sec)	110	110	C (sec)	110	110														
														y pract.	0.687	0.728	y pract.	0.687	0.728														
														R.C. (%)	51%	53%	R.C. (%)	72%	98%														
Stage / Phase Diagrams																																	
1						2								3								4											
I/G = 7s		I/G = 15s I/G = 15s												I/G = 7s I/G = 8s																			

Junction :	(B) Lam Tei Interchange	Job No.:	25075HK
Scenario :	2035 Design Traffic Flows		



Input Parameters				Arm 2	Arm 3	Arm 4
V	=	Approach half width (m)		7.3	6.8	7.3
E	=	Entry width (m)		8.8	7.7	7.6
L	=	Effective length of flare (m)		3	8	4
R	=	Entry radius		65	100	60
D	=	Inscribed circle diameter (m)		53	53	53
A	=	Entry angle (degree)		26	17	20
Q	=	Entry flow (pcu/hr)	AM	790	1120	1325
			PM	920	670	1370
Qc	=	Circulating flow across entry (pcu/hr)	AM	1425	400	1120
			PM	1465	520	670

Output Parameters				Arm 2	Arm 3	Arm 4
S	=	Sharpness of flare = $1.6*(E-V)/L$		0.80	0.18	0.12
K	=	$1-0.00347*(A-30)-0.978*(1/R-0.05)$		1.05	1.08	1.07
X2	=	$V+((E-V)/(1+2*S))$		7.88	7.46	7.54
M	=	$Exp((D-60)/10)$		0.50	0.50	0.50
F	=	$303*X2$		2387	2261	2285
Td	=	$1+(0.5/(1+M))$		1.33	1.33	1.33
Fc	=	$0.21*Td*(1+0.2*X2)$		0.72	0.70	0.70
Qe	=	Capacity = $K*(F-Fc*Qc)$	AM	1423	2149	1599
			PM	1393	2058	1936
DFC	=	Entry Flow/Capacity = Q/Qe	AM	0.56	0.52	0.83
			PM	0.66	0.33	0.71

DFC of Critical Approach	=	AM	0.83
		PM	0.71

CTA Consultants Ltd.

Job No: 25075HK

Junction: **(C) Castle Peak Road - Lingnan / Tuen Fu Road / Tuen Kwai Road**
Description: **2035 Design Traffic Flows**

		A,B,C,D		AB,C,D		A,B,C,D		AB,C,D			
Notes:	Traffic Flow (pcu / hr)				[AM (PM)]	Check Phase		Check Phase			
		140(75)	675(480)	200(275)		Ey	0.499	0.442	Ey	0.486	0.346
	120(80)	↗	↘	↙		L (sec)	20	15		20	15
	20(20)	→			210(265)	C (sec)	120	120	C (sec)	120	120
	20(15)	↘			15(15)	y pract.	0.750	0.788	y pract.	0.750	0.788
		↙	↗	↘	240(160)	R.C. (%)	50%	78%	R.C. (%)	54%	128%
		15(0)	140(205)	135(155)							

A	B	C	D	
$I/G = 6s$	$I/G = 6s$	$I/G = 6s$	$I/G = 6s$	

TRAFFIC SIGNALS CALCULATION										Job No: 25075HK										CTA Consultants Ltd.									
Junction: (D) Castle Peak Road - Lingnan / Tuen Fu Road																													
Description: 2035 Design Traffic Flows																													
Approach	Direction	Movement notation	Phase	Stage	Width (m)	Radius (m)		Nearside 0/1	Pro. Turning (%)		Saturation Flow (pcu/hr)	Total Saturation Flow (pcu/hr)	Revised Saturation Flow (pcu/hr)		Total Revised Saturation Flow (pcu/hr)		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							
Castle Peak Road - San Hui	E	↗	A	1,2	4.0	15	0	1	43%	42%	2015	4160	1930	1935	4075	4080	173	0.090	0.246	201	0.104	0.174							
	E	→	A	1,2	3.9	0	0	0	0%	0%	2145	0	2145	2145	0	0	192	0.090		224	0.104								
Castle Peak Road - Lingnan	W	←	B	1,2	4.0	0	0	1	0%	0%	2010	3930	2010	2010	3925	3910	494	0.246		349	0.174								
	W	↖	B	1,2	4.0	0	17	0	2%	11%	1920	0	1915	1900	0	0	471	0.246		331	0.174								
Tuen Fu Road	S	↕	C	2,3	4.2	15	18	1	7% / 93%	21% / 79%	2035	2035	1875	1870	1875	1870	150	0.080	0.080	70	0.037	0.037							
Pedestrian crossing ↕ Dp 1,3 Min. Crossing Time = 8Gm + 8FGm = 16s ↔ Ep 1,3 Min. Crossing Time = 8Gm + 10FGm = 18s																													
Notes:										Traffic Flow (pcu / hr) 75(85) 290(340) ↗ → 140(55) 10(15) ↖ ↗ 10(35) 955(645) ↗ ↖ [AM (PM)]										B,C,Dp B,C,Ep AM Peak Check Phase ey 0.326 0.326 L (sec) 27 27 C (sec) 120 120 y pract. 0.698 0.698 R.C. (%) 114% 114%					B,C,Dp B,C,Ep PM Peak Check Phase ey 0.211 0.211 L (sec) 27 27 C (sec) 120 120 y pract. 0.698 0.698 R.C. (%) 230% 230%				
Stage / Phase Diagrams																													
1 CASTLE PEAK ROAD - LINGNAN						2 CASTLE PEAK ROAD - LINGNAN						3 CASTLE PEAK ROAD - LINGNAN																	
I/G = 4s						I/G = 8s						I/G = 3s+4s=7s																	