Appendix B

Revised Traffic Impact Assessment

Application for Amendment of Plan Under Section 12A of the Town Planning Ordinance (Cap. 131) for Proposed Innovation and Technology Hub at Various Lots in D.D. 82 and D.D. 86 and Adjoining Government Land, Man Kam To, New Territories

Traffic Impact Assessment Report

3rd Formal Submission | December 2024

Job number 287082-02

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1 INTRODUCTION

1.1 Background

1.1.1 The Application Site is located at Various Lots in D.D. 82 & D.D. 86 and Adjoining Government Land, Man Kam To, New Territories. It is currently zoned as mainly in Agriculture ("AGR"), and minor parts in Green Belt ("GB"), Government, Institution or Community ("G/IC") under the Approved Man Kam To (MKT) Outline Zoning Plan (OZP) No. S/NE-MKT/4 (the OZP). The location of Application Site is shown in **Figure 1.1**.

1.1.2 The Applicant proposes amendments to rezone the Application Site with a sizeable site area of about 125,863m^2 (Development site area of about 102,461m^2) into an Innovation and Technology Hub with Ancillary Facilities (the "Indicative Scheme"), subject to a non-domestic gross floor area (GFA) of 365,180m^2, which consists of R&D Centre with 268,780m^2 GFA and Data Centre with 86,400m^2 GFA to nurture the development of I&T industry, as well as a Commercial Centre with 9,276m^2 to support the daily needs of the working and living population. A kindergarten of 724m^2 will be provided on the ground floor of Ancillary Dormitories. In addition, there will be a domestic GFA of 170,400m^2, which consists of Private Residential Blocks providing a total of 2,320 units together with a 3,500m^2 Clubhouse, and Ancillary Dormitories with 63,900m^2 which provide 1,392 units for the working population of R&D Centre.

1.1.3 Arup Hong Kong Limited (Arup) was commissioned to carry out a Traffic Impact Assessment (TIA) report in support of the Section 12A planning application for the proposed amendment of plan.

1.2 Objectives of this Report

1.2.1 The objective of the Study is to evaluate the potential traffic impact associated with the Proposed Innovation and Technology Hub at the Application Site.

1.3 Scope of Study

1.3.1 The tasks for this TIA study are outlined as follows:

- Carry out traffic surveys at critical junctions to appreciate current traffic condition;
- Update the inventory regarding traffic circulation patterns, traffic conditions, as well as the constraints of the existing road network in the vicinity;
- Investigate the public transport in the vicinity;
- Recommend the proposed internal transport facilities provisions;
- Set up the reference scenario should there be no Indicative Scheme at the site location, i.e. reference scenario with the existing situation;
- Assess the volume of traffic likely to be generated by the Indicative Scheme;
- Compare and evaluate the likely traffic impact, if any, associated with the Indicative Scheme; and

- Assess future traffic condition, taking into account any future traffic growth, as well as the traffic generated by the Indicative Scheme and other planned/committed development, if any, to be built in the vicinity.

1.4 Structure of the Report

1.4.1 The structure of this TIA report is as follows:

Chapter	Title	Aims
1	Introduction	Provide project background and scope of the Study
2	Existing Traffic Condition	Review and appreciate the existing traffic condition
3	The Subject Development	Provide information of the Indicative Scheme
4	Traffic Impact Assessment	Illustrate the results of Traffic Impact Assessment
5	Conclusion	Summarize the findings of this Study

2 EXISTING TRAFFIC CONDITION

2.1 Site Characteristics

2.1.1 The Application Site is located in Zone with major part in Agriculture ("AGR"), and minor parts in Green Belt ("GB"), Government, Institution or Community ("G/IC") at Various Lots in D.D.82 & D.D.86, Man Kam To, New Territories.

2.1.2 The site boundary is surrounding existing Ta Ku Ling Ling Ying Public School and is bounded by existing Chow Tin Tsuen to the east and Lin Ma Hang Road to the north. **Figure 1.1** shows the location and the environs of the Application Site.

2.2 Existing Road Network

2.2.1 Some major roads in the vicinity of the Application Site are listed as follows:

- Lin Ma Hang Road is a rural road connecting Man Kam To Road at western end and Shan Tsui Village Road at eastern end. It is in single-two carriageway configuration for the section between Man Kam To Road and Ping Yuen River and the section between Ping Che Road and Tsung Yuen Ha, and in form of a single-track access road with passing bays for the remaining section.
- Man Kam To Road is a rural road in single-three carriageway configuration which consists of two lanes in Northbound and one lane in Southbound. It connects Jockey Club Road at southern end and Boundary (Man Kam To Control Point) at northern end.
- Ping Che Road is a district distributor in single-two carriageway configuration which connects Sha Tau Kok Road at southern end and Lin Ma Hang Road at northern end.
- Heung Yuen Wai Highway is a Rural Trunk Road in dual two-lane carriageway configuration connecting the Fanling Highway and the Heung Yuen Wai Boundary Control Point (Heung Yuen Wai BCP).

2.3 Existing Road Improvement Works Under Construction

2.3.1 Road works under construction currently in the vicinity of the Application Site are identified as follows:

- Widening Part of Lin Ma Hang Road (Man Kam To Road to Ping Yuen River) – under CEDD project number 5758CL

  The proposed road works are required to serve the anticipated traffic demand induced by the future development of innovation and technology (I&T) and related purposes at Sandy Ridge, which include widening of a section of the existing Lin Ma Hang Road of about 1.4 kilometres to a 7.3-m-wide carriageway with footpaths. The road works are anticipated to be completed in December 2022.

  Site Formation and Associated Infrastructural Works for Development of Columbarium, Crematorium and Related Facilities at Sandy Ridge Cemetery
  *(*https://www.cedd.gov.hk/eng/our-projects/major-projects/index-id-73.html*)*

- Widening of western section of Lin Ma Hang Road between Ping Yuen River and Ping Che Road – under HyD PWP Item 863TH

  Upon the opening up of the Frontier Closed Area, the estimated traffic demand will exceed the capacity of the concerned road section. The proposed road works include (a) widening of a section of Lin Ma Hang Road of approximately 750m long between Ping Yuen River and Ping Che Road to a single two-lane carriageway with a 2m wide footpath on both sides, (b) construction of a vehicular bridge for EB traffic of approximately 70m long and 8.3m wide across Ping Yuen River and (c) a slope structure would be constructed due to the level difference of Lin Ma Hang Road eastbound and westbound carriageway between River Ganges Pumping Station and Ping Yuen River. The road works are anticipated to be completed in August 2023.

  Legislative Council Panel on Transport, 863TH – Widening of Western Section of Lin Ma Hang Road Between Ping Yuen River and Ping Che Road, LC Paper No. CB(4)288/18-19(05) (https://www.legco.gov.hk/yr18-19/english/panels/tp/papers/tp20181214cb4-288-5-e.pdf)

- Advance Site Formation and Engineering Infrastructure Works at Kwu Tung North (KTN) and Fanling North (FLN) New Development Area (NDA) – under CEDD project number 7747CL

  The project is part of the First Phase of the KTN and FLN NDA Development, which include (a) construction of an approximately 2 km long dual two-lane Fanling Bypass Eastern Section between Shek Wu San Tsuen North and Lung Yeuk Tau comprising viaduct, at-grade road and underpass sections, (b) construction of Lung Yeuk Tau Interchange connecting Fanling Bypass Eastern Section with existing Sha Tau Kok Road – Lung Yeuk Tau, (c) construction of an approximately 2 km long dual two-lane Fanling Bypass Eastern Section between Shung Him Tong and Kau Lung Hang mainly on viaducts with two long span overbridges across the existing East Rail Line and (d) construction of local roads for First Phase Development within the KTN and FLN NDA. The Fanling Bypass Eastern Section is anticipated to be completed in Mid 2025, while the remaining road works are anticipated to be completed in Early 2026.

  Advance Site Formation and Engineering Infrastructure Works at Kwu Tung North and Fanling North New Development Areas (https://www.cedd.gov.hk/eng/our-projects/major-projects/index-id-36.html)

2.3.2 The corresponding Gazette Plans are attached in **Appendix A**.

2.4 Existing Traffic Performance

2.4.1 To appreciate the existing traffic conditions, comprehensive classified traffic counts were conducted at the following identified key junctions and road links in the vicinity of the Application Site. Locations of these surveyed junctions and road links are listed below and shown in **Figure 2.1** to **Figure 2.4**.

Identified Key Junctions:

J1	- Lin Ma Hang Road / Man Kam To Road	(Priority)
J2	- Lin Ma Hang Road / Ping Che Road	(Priority)
J3	- Lin Ma Hang Road / Heung Yuen Wai Highway Slip Road	(Roundabout)
J4	- Lin Ma Hang Road / Heung Yuen Wai Highway Slip Road	(Priority)
J5	- Sha Tau Kok Road / Ping Che Road	(Roundabout)
J6	- Sha Tau Kok Road / Lau Shui Heung Road	(Roundabout)
J7	- Sha Tau Kok Road / Lung Ma Road	(Roundabout)
J8	- Sha Tau Kok Road / Sui Wan Road	(Signalised)
J9	- Man Kam To Road / Kong Nga Po Road	(Priority)
J10	- Jockey Club Road / Po Wan Road	(Signalised)
J11	- Jockey Club Road / Tin Ping Road	(Signalised)
J12	- Po Shek Wu Road / Jockey Club Road	(Roundabout)
J13	- Po Shek Wu Road / Po Wan Road	(Signalised)
J14	- Po Shek Wu Road / Choi Yuen Road	(Signalised)
J15	- Lin Ma Hnag Road / Proposed Access Road	(Signalised)
J16	- Sha Tau Kok Road / Fanling Bypass	(Roundabout)
J17	- Man Kam To Road / Fanling Bypass	(Roundabout)
J18	- Man Kam To Road / Road L4	(Signalised)
J19	- Sha Tau Kok Road / Luen On Street	(Signalised)
J20	- Sha Tau Kok Road / Fan Leng Lau Road	(Signalised)
J21	- Sha Tau Kok Road / Jockey Club Road	(Roundabout)
J22	- Sha Tau Kok Road / San Wan Road	(Roundabout)
J23	- San Wan Road / Fanling Station Road	(Signalised)
J24	- Jockey Club Road / So Kwun Po Road	(Signalised)
J25	- Jockey Club Road / Lung Sum Avenue	(Signalised)

Identified Key Road Links:

L1 - Lin Ma Hang Road (near Man Kam To Road junction)
L2 - Lin Ma Hang Road (near Ping Che Road junction)
L3 - Lung Shan Tunnel (Fanling Highway – Sha Tau Kok Road)
L4 - Fanling Highway (at the south of Lung Shan Tunnel)
L5 - Sha Tau Kok Road (Sui Wan Road – Ma Sik Road)
L6 - Jockey Club Road (Tin Ping Road – Po Shek Wu Road)
L7 - Po Shek Wu Road (Po Wan Road – Choi Yuen Road)
L8 - Fanling Highway (at the west of Po Shek Wu Road Interchange)
L9 - Proposed Access Road

2.4.2 The counts were undertaken on typical weekdays during the periods 07:00-10:00 and 17:00-20:00 in May 2023.

2.4.3 The AM and PM peak hours were found to be 08:00-09:00 and 17:30-18:30 respectively. The observed traffic flows during these peak hours are adjusted accordingly and presented in **Figure 2.5** to **Figure 2.7**.

2.4.4 Junction capacity analysis was carried out at the identified key junctions in the vicinity of the Application Site. Results of the capacity assessment are shown in **Table 2.3.1** below.

Table 2.3.1 Year 2023 Key Junction Performance

Junction		Type	Performance (1)	
			AM	PM
J1	Lin Ma Hang Road / Man Kam To Road	Priority	0.29	0.27
J2	Lin Ma Hang Road / Ping Che Road	Priority	0.40	0.41
J3	Lin Ma Hang Road / Heung Yuen Wai Highway Slip Road	Roundabout	0.21	0.19
J4	Lin Ma Hang Road / Heung Yuen Wai Highway Slip Road	Priority	0.15	0.10
J5	Sha Tau Kok Road / Ping Che Road	Roundabout	0.41	0.46
J6	Sha Tau Kok Road / Lau Shui Heung Road	Roundabout	0.35	0.38
J7	Sha Tau Kok Road / Lung Ma Road	Roundabout	0.45	0.43
J8	Sha Tau Kok Road / Sui Wan Road	Signalised	41%	49%
J9	Man Kam To Road / Kong Nga Po Road	Priority	0.30	0.32
J10	Jockey Club Road / Po Wan Road	Signalised	53%	66%
J11	Jockey Club Road / Tin Ping Road	Signalised	66%	87%
J12	Po Shek Wu Road / Jockey Club Road	Roundabout	0.44	0.43
J13	Po Shek Wu Road / Po Wan Road	Signalised	43%	23%
J14	Po Shek Wu Road / Choi Yuen Road	Signalised	36%	42%
J15	Lin Ma Hnag Road / Proposed Access Road	Signalised	N.A.	
J16	Sha Tau Kok Road / Fanling Bypass	Roundabout		
J17	Man Kam To Road / Fanling Bypass	Roundabout		
J18	Man Kam To Road / Road L4	Signalised		
J19	Sha Tau Kok Road / Luen On Street	Signalised	65%	74%
J20	Sha Tau Kok Road / Fan Leng Lau Road	Signalised	33%	34%
J21	Sha Tau Kok Road / Jockey Club Road	Roundabout	0.53	0.57
J22	Sha Tau Kok Road / San Wan Road	Roundabout	0.39	0.42
J23	San Wan Road / Fanling Station Road	Signalised	22%	22%
J24	Jockey Club Road / So Kwun Po Road	Signalised	66%	57%
J25	Jockey Club Road / Lung Sum Avenue	Signalised	44%	39%

Notes:
(1) Figures shown represent "Reserve Capacity" (RC) in % for signalized junctions and "Design Flow Capacity" (DFC) ratio for roundabouts and priority junctions.

2.4.5 Results of the analysis indicate that the identified key junctions in the vicinity of the Application Site are currently operating with ample capacity during both AM and PM peak hours in Year 2023.

2.4.6 The road link capacity assessment has also been carried out to examine the volume to capacity (V/C) ratio of the assessed road links. Results of the road link assessment are shown in **Table 2.3.2** below.

Table 2.3.2 Year 2023 Key Link Performance

Link		Type (1)	Configuration	Direction	Capacity	Link Performance (2)			
						AM		PM	
						Flow (3)	V/C	Flow (3)	V/C
L1	Lin Ma Hang Road (near Man Kam To Road junction)	RR	6.75m wide Single two-lane carriageway	Two-way	1,160	410	0.36	375	0.33
L2	Lin Ma Hang Road (near Ping Che Road junction)	RR	3.5m wide single-track access road with passing bays	Two-way	600	490	0.82	455	0.76
L3	Lung Shan Tunnel (Fanling Highway – Sha Tau Kok Road)	RT	Dual two-lane carriageway	NB	3,000	885	0.3	780	0.26
				SB	3,000	685	0.23	625	0.21
L4	Fanling Highway (at the south of Lung Shan Tunnel)	EX	Dual four-lane carriageway	NB	8,200	6,065	0.74	5,360	0.66
				SB	8,200	5,745	0.71	5,230	0.64
L5	Sha Tau Kok Road (Lung Ma Road – Sui Wan Road)	RR	Dual two-lane carriageway	NB	2,800	1,345	0.49	1,420	0.51
				SB	2,800	1,310	0.47	1,550	0.56
L6	Jockey Club Road (Tin Ping Road – Po Shek Wu Road)	PD	Dual two-lane carriageway	NB	2,800	1,080	0.39	960	0.35
				SB	2,800	1,240	0.45	1,190	0.43
L7	Po Shek Wu Road (Po Wan Road – Choi Yuen Road)	PD	Dual two-lane carriageway	NB	2,800	1,295	0.47	1,255	0.45
				SB	2,800	1,460	0.53	1,585	0.57
L8	Fanling Highway (at the west of Po Shek Wu Road Interchange)	EX	Dual three-lane carriageway	EB	6,100	4,970	0.82	4,710	0.78
				WB	6,100	4,950	0.82	4,275	0.71
L9	Proposed Access Road	-	10.5m wide Single two-lane carriageway	Two-way	1,800	N.A.			

Notes:
(1) Abbreviation: EX – Expressway; PD – Primary Distributor; RR – Rural Road; RT – Rural Trunk Road
(2) A V/C ratio below 1.0 is considered acceptable. A V/C ratio above 1.0 indicates the onset of mild congestion and a V/C ratio between 1.0 and 1.2 would indicate a manageable degree of congestion. A V/C ratio above 1.2 indicates the onset of more serious congestion.
(3) Figures are rounded to the nearest 5.

2.4.7 Results of the analysis indicate that the performance of identified key road links in the vicinity of the Application Site are considered acceptable during both AM and PM peak hours in Year 2023.

2.5 Existing Public Transport Facilities

2.5.1 Currently, the Application Site is only directly served by GMB Route 59K and 59S operating along Lin Ma Hang Road, which is the major feeder service between Sheung Shui Station and Lin Ma Hang / Heung Yuen Wai BCP, serving the residents of private residential developments in the vicinity and the border-crossing passengers.

2.5.2 Existing public transport facilities in the vicinity of the Application Site are illustrated in **Figure 2.8** and summarised in **Table 2.4.1** below.

Table 2.4.1 Existing public transport facilities in the vicinity of the Application Site

Route No.	Origin / Destination	Peak Hour Headway (mins)
Green Minibus Services		
59K	Sheung Shui Station – Lin Ma Hang	15 - 30
59S	Sheung Shui Station – Heung Yuen Wai BCP	3 - 8

2.5.3 In summary, the Application Site is only served by limited existing public transport services.

2.5.4 To improve the accessibility of the Application Site, it is proposed to provide public transport feeder services and long-haul services with sufficient transport facilities in appropriate locations for the Indicative Scheme in order to minimise the impact to the existing public transport services. Details are further discussed in **Section 4.8**.

3 THE INDICATIVE SCHEME

3.1 Development Schedule

3.1.1 The Applicant intends to redevelop the site into Innovation and Technology Hub together with residential, commercial and I&T use.

3.1.2 The Indicative Scheme is envisaged to be completed by Year 2028.

3.1.3 The proposed development schedule of Indicative Scheme is summarized in **Table 3.1**, and the master layout plan, preliminary layout plans for basement levels and section plans are presented in **Figure 3.1** to **Figure 3.5** respectively.

Table 3.1 Development Schedule

Development Site Area (m^2)	Type		GFA (m^2)	Flat Mix		
				No. of Blocks	Flat Size	No. of Flats
102,461	Non-Domestic	Office (R&D Centre)	268,780	-		
		Data Centre	86,400			
		Commercial Centre	9,276			
		6-classroom Kindergarten	724			
	Domestic	Private Housing	106,500	5	~26m^2	532
					~33m^2	1,016
					~43m^2	482
					~77m^2	290
		Ancillary Dormitories	63,900	3	~26m^2	336
					~33m^2	660
					~43m^2	222
					~77m^2	174
		Club House	3,500 (2)	-		

Notes:
(1) Club House is proposed to be exempted from GFA calculation.

3.2 Proposed Self-containment Arrangement

3.2.1 Ancillary Dormitories would be provided for application by employees of the I&T Hub (including R&D Centres and Data Centres) to achieve the Self-containment Arrangement. Flats with size < 40m^2 will be assigned as one-person units while flats with size > 40m^2 will be assigned as family units.

3.2.2 The walking distance and time between AD 1 and R&D 1 is anticipated to be the longest among the Ancillary Dormitories group and Office Developments group, with walking distance of approx. 500m and time of approx. 7 minutes respectively, which is considered a walkable condition and hence appropriate for self-containment assumption.

3.2.3 With the self-containment arrangement, it is anticipated that the employees living in Dormitories will commute within the Application Site during weekday peak period. The associated parking demand as well as external trip generation and attraction would be low. Therefore, low-end parking provision rate and lower limit trip rate are adopted for one-person units, to avoid over-provision of parking spaces and over-estimation of external trips.

3.2.4 Taking into consideration of family members of the employees living in family units, high-end parking provision rate and mean trip rate are adopted for family units for conservative assessment approach.

3.3 Proposed Vehicular and Pedestrian Access Arrangement

3.3.1 The Application Site is located at the south of Lin Ma Hang Road near Ping Yuen River. Currently, there is no vehicular access and footpath connecting between the Application Site and the external road network.

Proposed Vehicular Access Road and Footpath

3.3.2 In order to provide vehicular and pedestrian access to the Application Site, the existing access road of River Ganges Pumping Station and its Substation is proposed to be widened and extended. A new standard single two-lane carriageway in width of minimum 10.5m with 2.5m-wide footpath on both sides is proposed connecting the Application Site and Lin Ma Hang Road ("Access Road"), with access point relocation of River Ganges Pumping Station and its Substation.

Proposed Signalized Junction of Lin Ma Hang Road / Access Road

3.3.3 In addition, signalized junction of Lin Ma Hang Road / Access Road is proposed to cater for the anticipated traffic demand arising from the Indicative Scheme.

3.3.4 Access Road will be further widened at junction approaches for providing additional traffic lanes to ensure the sufficient junction capacity. Despite the local road widening of Access Road, the vehicular accesses of River Ganges Pumping Station and its Substation will be maintained.

3.3.5 It is proposed to modify the road markings of Lin Ma Hang Road westbound carriageway to provide two traffic lanes at junction. Moreover, to ensure the junction operational performance, further widening of Lin Ma Hang Road eastbound carriageway (* without beyond the Frontier Closed Area Boundary) under the current road works by HyD PWP Item 863TH is also proposed. The slope structure in the middle of Lin Ma Hang Road carriageway between River Ganges Pumping Station and Ping Yuen River constructed under the same road works is proposed to be rearranged to facilitate the right-turn movements from the Access Road to Lin Ma Hang Road Eastbound and right-turn movement from Lin Ma Hang Road Eastbound to the Access Road.

3.3.6 The proposed junction layout and swept path analysis are illustrated in **Figure 3.6** to **Figure 3.9**. The major ingress and egress routes for vehicular traffic approaching and leaving the Application Site are illustrated in **Figure 3.10** and **Figure 3.11** respectively.

3.4 Internal Transport Facilities Provision

3.4.1 The internal transport facilities provision for the Indicative Scheme will be provided in accordance with the high-end requirements of Hong Kong Planning Standards and Guidelines (HKPSG) and TD's Departmental Circular No. 6/2012 – Standards for Goods Vehicle Parking and Loading/Unloading for Data Centres (TD Circular No. 6/2012).

3.4.2 The internal transport facilities provision for the Indicative Scheme are summarized in **Table 3.4.1** to **Table 3.4.6**.

Table 3.4.1 HKPSG Required Internal Transport Provision for the Proposed Office Development (R&D Centre)

Type of Development	Facilities	HKPSG Requirement	HKPSG Required Provision		Proposed Provision
			Low-end	High-end	
Office (R & D Centre) Total GFA (m^2) 268,780	Private Car Parking	**Private Car (5m (L) x 2.5m (W) x 2.4m (H))** For the first 15000m^2 GFA: 1 car space per 150 – 200 m^2 GFA; Above 15000m^2 GFA: 1 car space per 200 – 300 m^2 GFA	**921 (incl. accessible car parking space)**	**1369 (incl. accessible car parking space)**	**1369**
		Accessible Car Parking (5m (L) x 3.5m (W) x 2.4m (H)) 6 spaces for total number of car parking spaces above 450	6	6	
	Motorcycle Parking	**Motorcycle (2.4m (L) x 1m (W) x 2.4m (H))** 5 to 10% of the total provision for private cars with respect to each type of development should be provided	**47**	**137**	**137**
	L/UL Bay	1 loading/unloading bay for goods vehicles for every 2000 – 3000 m^2, or part thereof, GFA **TOTAL**	**90**	**135**	**HGV: 88** **LGV: 47**
		LGV Loading/Unloading (7m (L) x 3.5m (W) x 3.6m (H))	**59**	**88**	
		HGV Loading/Unloading (11m (L) x 3.5m (W) x 4.7m (H))	**31**	**47**	
	Lay-by for Taxis and Private Cars	**Taxi/Private Car (5m (L) x 2.5m (W) x 2.4m (H))** For sites of at least 5000m² net site area, 1 picking up/setting down lay-by for taxis and private cars for every 20000m², or part thereof, GFA.	**14**	**14**	**14**

Table 3.4.2 HKPSG / TD Circular No. 6/2012 Required Internal Transport Provision for the Proposed Data Centre

Type of Development	Facilities	HKPSG / TD Circular No. 6/2012 Requirement	HKPSG Required Provision		Proposed Provision
			Low-end	High-end	
Data Centre m^2 GFA 86,400	Private Car Parking (1)	**Private Car (5m (L) x 2.5m (W) x 2.4m (H))**	**116 (incl. accessible car parking space)**	**144 (incl. accessible car parking space)**	**144 (incl. accessible car parking space)**
		1 car space per 600 – 750 m^2 GFA			
		Accessible Car Parking (5m (L) x 3.5m (W) x 2.4m (H))	**2**	**2**	
		2 spaces for 51-150 total number of car parking spaces			
	Motorcycle Parking (1)	**Motorcycle (2.4m (L) x 1m (W) x 2.4m (H))**	**6**	**15**	**15**
		5 to 10% of the total provision for private cars with respect to each type of development should be provided			
	L/UL Bay (2)	For the first 20,000m^2 GFA: 1 no. per 3,400 – 3,800 m^2 GFA; Above 20,000m^2 GFA: 1 no. per 5500 – 6100m^2 GFA	**17**	**18**	**LGV: 12** **HGV: 6**
		TOTAL			
		Loading/Unloading bays are to be provided as such: 60% for loading / unloading and 40% for parking; 65% are for LGV and 35% are for HGV			
		LGV Loading/Unloading (7m (L) x 3.5m (W) x 3.6m (H))	**12**	**12**	
		For L/UL	**7**	**7**	
		For Parking	**5**	**5**	
		HGV Loading/Unloading (11m (L) x 3.5m (W) x 4.7m (H))	**5**	**6**	
		For L/UL	**3**	**4**	
		For Parking	**2**	**2**	
	Lay-by for Taxis and Private Cars	**Taxi/Private Car (5m (L) x 2.5m (W) x 2.4m (H))**	**-**	**-**	2 (3)
		-			

Notes:
(1) In accordance with HKPSG requirements.
(2) In accordance with TD's Circular No. 6/2012 – Standards for Goods Vehicle Parking and Loading/Unloading for Data Centres.
(3) There is no requirement of lay-by for taxis and private cars for Data Centre under HKPSG nor TD Circular No. 6/2012, lay-by provision is recommended to cater for operational need.

Table 3.4.3 HKPSG Required Internal Transport Provision for the Proposed Commercial Centre

Type of Development	Facilities	HKPSG Requirement	HKPSG Required Provision		Proposed Provision
			Low-end	High-end	
Commercial Centre m^2 GFA 9,406	Private Car Parking	**Private Car (5m (L) x 2.5m (W) x 2.4m (H))**	**31 (incl. accessible car parking space)**	**62 (incl. accessible car parking space)**	**62 (incl. accessible car parking space)**
		1 car space per 150 - 300 m^2 GFA			
		Accessible Car Parking (5m (L) x 3.5m (W) x 2.4m (H))	**1**	**2**	
		1 space for total number of car parking spaces below 50			
		2 spaces for 51-150 total number of car parking spaces			
	Motorcycle	**Motorcycle (2.4m (L) x 1m (W) x 2.4m (H))**	**2**	**7**	**7**
		5 to 10% of the total provision for private cars with respect to each type of development should be provided			
	L/UL Bay	1 loading/unloading bay for goods vehicles for every 800 - 1200 m^2, or part thereof, GFA	**8**	**12**	**LGV: 8** **HGV: 4**
		TOTAL			
		LGV Loading/Unloading (7m (L) x 3.5m (W) x 3.6m (H))	**6**	**8**	
		HGV Loading/Unloading (11m (L) x 3.5m (W) x 4.7m (H))	**2**	**4**	

Table 3.4.4 HKPSG Required Internal Transport Provision for the Proposed Kindergarten

Type of Development	Facilities	HKPSG Requirement	HKPSG Required Provision		Proposed Provision
			Low-end	High-end	
Kindergarten No. of Classrooms 6	Private Car Parking	**Private Car (5m (L) x 2.5m (W) x 2.4m (H))**	0 (incl. accessible car parking space)	**2 (incl. accessible car parking space)**	**2**
		0 to 1 car parking space per 4 to 6 classrooms			
		Accessible Car Parking (5m (L) x 3.5m (W) x 2.4m (H))	0	**1**	
		1 space for 1-50 total number of car parking spaces			
	Lay-by for Taxis and Private Cars	**Private Car/Taxi (5m (L) x 3.5m (W) x 2.4m (H))**	1	**2**	**2**
		1 lay-by for taxis and private cars for every 5 to 8 classrooms			
	Lay-by for School Buses	**School Bus (12m (L) x 3.5m (W) x 3.8m (H)) (OR mini-bus/nanny van (7m (L) x 3m (W) x 3.3m (H)))**	2 (5)	**2 (5)**	**2**
		A minimum of 2 lay-bys for school buses (OR substituted by 5 lay-bys of size 3m x 7m for mini-bus/nanny van which can provide a total number of seats equivalent to that provided by 2 large school buses)			

Table 3.4.5 HKPSG Required Internal Transport Provision for the Proposed Residential Development

Type of Development	Facilities	HKPSG Requirement				HKPSG Required Provision		Proposed Provision
						Low-end	High-end	
Private Housing No. of Flats FS≤40m²: 1,548 40m² < FS <70m²: 482 70m² < FS <100m²: 290 No. of Blocks 5	Private Car Parking	**Private Car (Residential) (5m (L) x 2.5m (W) x 2.4m (H))**				293 (incl. accessible car parking space)	513 (incl. accessible car parking space)	**538 (incl. visitor parking space & accessible car parking space)**
		Global Parking Standard (GPS)			1 car space per 4-7 flats			
		Demand Adjustment Ratio (R1)	Flat Size (FS) (m² GFA)	**FS≤40**	**0.5**			
				40<FS≤70	**1.2**			
				70<FS≤100	**2.4**			
				100<FS≤130	4.1			
				130<FS≤160	5.5			
				FS>160	7			
		Accessibility Adjustment Ratio (R2)	Within a 500m-radius of rail station		0.75			
			Outside a 500m-radius of rail station		**1**			
		Development Intensity Adjustment Ratio (R3)	Domestic Plot Ratio (PR)	0.00<PR≤1.00	1.3			
				1.00<PR≤2.00	1.1			
				2.00<PR≤5.00	**1**			
				5.00<PR≤8.00	0.9			
				PR>8.00	0.75			
		Parking Requirement = GPS x R1 x R2 x R3						
		Private Car (Visitors) (5m (L) x 2.5m (W) x 2.4m (H))				25	25	
		5 visitor spaces per block in addition to the recommendations, or as determined by the Authority						
		Accessible Car Parking (5m (L) x 3.5m (W) x 2.4m (H))				4	6	
		4 spaces for 251-350 total number of car parking spaces						
		6 spaces for total number of car parking spaces above 450						
		TOTAL Private Car Parking (5m (L) x 2.5m (W) x 2.4m (H))				**318 (incl. accessible car parking space)**	**538 (incl. accessible car parking space)**	
	Motorcycle Parking	**Motorcycle (2.4m (L) x 1m (W) x 2.4m (H))**				**16**	**24**	**24**
		1 motorcycle parking space per 100-150 flats excluding non-residential elements						
	L/UL Bay	**HGV Loading/Unloading (11m (L) x 3.5m (W) x 4.7m (H))**				**5**	**5**	**5**
		Minimum of 1 loading/unloading bay for goods vehicles within the site for every 800 flats or part thereof, subject to a minimum of 1 bay for each housing block or as determined by the Authority						

Table 3.4.6 HKPSG Required Internal Transport Provision for the Proposed Ancillary Dormitories

Type of Development	Facilities	HKPSG Requirement				HKPSG Required Provision		Proposed Provision
						Low-end	High-end	
Ancillary Dormitories No. of Flats(1) FS≤40m²: 996 40m² < FS <70m²: 222 70m² < FS <100m²: 174 No. of Blocks 3	Private Car Parking	**Private Car (Residential) (5m (L) x 2.5m (W) x 2.4m (H))**				One-person Unit **72** Family Unit 97 Total 169 (incl. accessible car parking space)	One-person Unit 125 Family Unit **171** Total 296 (incl. accessible car parking space)	**258 (1) (incl. visitor parking space & accessible car parking space)**
		Global Parking Standard (GPS)			1 car space per 4-7 flats			
		Demand Adjustment Ratio (R1)	Flat Size (FS) (m² GFA)	**FS≤40**	**0.5**			
				40<FS≤70	**1.2**			
				70<FS≤100	**2.4**			
				100<FS≤130	4.1			
				130<FS≤160	5.5			
				FS>160	7			
		Accessibility Adjustment Ratio (R2)	Within a 500m-radius of rail station		0.75			
			Outside a 500m-radius of rail station		**1**			
		Development Intensity Adjustment Ratio (R3)	Domestic Plot Ratio (PR)	0.00<PR≤1.00	1.3			
				1.00<PR≤2.00	1.1			
				2.00<PR≤5.00	**1**			
				5.00<PR≤8.00	0.9			
				PR>8.00	0.75			
		Parking Requirement = GPS x R1 x R2 x R3						
		Private Car (Visitors) (5m (L) x 2.5m (W) x 2.4m (H))				15	15	
		5 visitor spaces per block in addition to the recommendations, or as determined by the Authority						
		Accessible Car Parking (5m (L) x 3.5m (W) x 2.4m (H))				3	4	
		3 spaces for 151-250 total number of car parking spaces						
		4 spaces for 251-350 total number of car parking spaces						
		TOTAL Private Car Parking (5m (L) x 2.5m (W) x 2.4m (H))				**184 (incl. accessible car parking space)**	**311 (incl. accessible car parking space)**	
	Motorcycle Parking (1)	**Motorcycle (2.4m (L) x 1m (W) x 2.4m (H))**				Single Flat **7** Family Flat 3	Single Flat 10 Family Flat **4**	**11(1)**
		1 motorcycle parking space per 100-150 flats excluding non-residential elements						
	L/UL Bay	**HGV Loading/Unloading (11m (L) x 3.5m (W) x 4.7m (H))**				**3**	**3**	**3**
		Minimum of 1 loading/unloading bay for goods vehicles within the site for every 800 flats or part thereof, subject to a minimum of 1 bay for each housing block or as determined by the Authority						

Notes:
(1) As referred to the self-containment arrangement in Section 3.2

3.4.3 The proposed total provision of internal transport facilities of the Indicative Scheme is summarized in **Table 3.4.7** below.

Table 3.4.7 Summary of Proposed Total Internal Transport Facilities Provision

Facilities (L x W H)	Development Use	Proposed Provision
Private Car Parking Space (5m x 3.5m x 2.4m)	Office (R&D Centre)	1,369
	Data Centre	144
	Commercial Centre	62
	Kindergarten	2
	Private Housing	538
	Ancillary Dormitories	258
	Total (incl. visitor parking space & accessible car parking space)	**2,373**
Accessible Car Parking Space (5m x 3.5m x 2.4m)	Office (R&D Centre)	6
	Data Centre	2
	Commercial Centre	2
	Kindergarten	1
	Private Housing	6
	Ancillary Dormitories	3
	Total	**20**
Motorcycle Parking Space (2.4m x 1m x 2.4m)	Office (R&D Centre)	137
	Data Centre	15
	Commercial Centre	7
	Private Housing	24
	Ancillary Dormitories	11
	Total	**194**
LGV Loading/Unloading Bay (7m x 3.5m x 3.6m)	Office (R&D Centre)	88
	Data Centre	12
	Commercial Centre	8
	Total	**108**
HGV Loading/Unloading Bay (11m x 3.5m x 4.7m)	Office (R&D Centre)	47
	Data Centre	6
	Commercial Centre	4
	Private Housing	5
	Ancillary Dormitories	3
	Total	**65**
Lay-by for Taxis and Private Cars (5m x 3.5m x 2.4m)	Office (R&D Centre)	14
	Data Centre	2
	Kindergarten	2
	Total	**18**
Lay-by for School Buses (12m x 3.5m x 3.8m)	Kindergarten	2
	Total	**2**

3.4.4 The proposed internal transport facilities for the Indicative Scheme will be self-contained within the respective site boundary, located on ground floor and basement parking floors of the Indicative Scheme.

Private Car Parking Space Provision

3.4.5 A total of 2,373 nos. private car parking spaces (including 20 nos. accessible car parking spaces) as per HKPSG high-end requirements (except one-person unit of Ancillary Dormitories which adopted HKPSG low-end requirements) will be provided in the basement levels, which will be accessed via the car-ramp system of basement of corresponding type of development.

Accessible Car Parking Provision

3.4.6 A total of 20 nos. accessible car parking spaces (part of the 2,358 private car parking spaces), as per HKPSG high-end requirements will be provided in the basement levels, which will be accessed via the car-ramp system of basement of corresponding type of development.

Motorcycle Parking Space Provision

3.4.7 A total of 194 nos. motorcycle parking spaces as per HKPSG high-end requirements will be provided in the basement levels, which will be accessed via the car-ramp system of basement of corresponding type of development.

Loading / Unloading Bay Provision

3.4.8 A total of 108 nos. loading/unloading bays for LGV and 65 nos. loading/unloading bays for HGV as per HKPSG high-end requirement and recommended provision will be provided in both the basement levels and ground floors of corresponding type of development.

Lay-by Provision for Taxis and Private Cars

3.4.9 A total of 18 nos. lay-bys for taxis/private cars as per HKPSG high-end requirement and recommended provision will be provided on ground floor of corresponding type of development.

Lay-by Provision for School Buses

3.4.10 A total of 2 nos. lay-bys for school buses as per HKPSG high-end requirement will be provided on ground floor of corresponding School.

4 TRAFFIC IMPACT ASSESSMENT

4.1 Trip Generation and Attraction of Indicative Scheme

Data Centre

4.1.1 To establish appropriate trip generation and attraction rates for Data Centre of the Indicative Scheme, trip generation survey has been conducted on typical weekdays at various existing data centre developments as summarised in **Table 4.1.1**.

Table 4.1.1 Peak Hour Trip Generation and Attraction at the Surveyed Data Centres

Development		AM Peak		PM Peak	
		Generation	Attraction	Generation	Attraction
NTT Hong Kong Financial Data Centre at 6 Chun Kwang St, Tseung Kwan O (70,000 m^2 GFA)	Observed Trips (pcu/hr)	34.1	27.7	17.95	8.1
	Trip Rate (pcu/hr/100 sqm GFA)	0.049	0.040	0.026	0.012
iTech Tower 1 at 28 Pak Tin Par Street, Tsuen Wan (17,652m^2 GFA)	Observed Trips (pcu/hr)	2.1	1	2	1
	Trip Rate (pcu/hr/100 sqm GFA)	0.012	0.006	0.011	0.006
iTech Tower 2 at 54-56 Ta Chuen Ping Street, Kwai Chung (9,125m^2 GFA)	Observed Trips (pcu/hr)	2.5	3.5	2	0
	Trip Rate (pcu/hr/100 sqm GFA)	0.027	0.038	0.022	0.000
NTT Hong Kong Tai Po Data Centre at 2 Dai Hei Street, Tai Po (19,700 m^2 GFA)	Observed Trips (pcu/hr)	9	6.1	7.1	13
	Trip Rate (pcu/hr/100 sqm GFA)	0.046	0.031	0.036	0.066

4.1.2 For conservative assessment, the highest of the rates above were adopted for applying to Data Centre of the Indicative Scheme, as shown in **Table 4.1.2** below.

Other types of Developments

4.1.3 The likely amount of traffic generation and attraction associated with the Indicative Scheme, except Data Centre, was calculated based on the mean values of 'Traffic Rates for Residential Development at 95% Confidence Level' and 'Traffic Rates for Non-residential Development at 95% Confidence Level' adopted in the TPDM Vol. 1 Table 1 and Table 2.

4.1.4 Public transport feeder service with ancillary transport facilities in appropriate locations, including terminating facilities and en-route bus stops, has been proposed to/from the railway stations and bus interchange as discussed in **Section 4.8**. It is anticipated that the feeder service is significant to enhance the convenience for residents/ employees using public transport services. The Indicative Scheme would be well-served by public transport services to cater for the effect of "remote site". It is hence considered that "Mean" value is appropriate to be adopted. The adopted rates are shown in **Table 4.1.2** below.

Table 4.1.2 Adopted Trip Generation and Attraction Rates of the Indicative Scheme

Sources	Component		AM Peak		PM Peak	
			Generation	Attraction	Generation	Attraction
In-house surveys	Data Centre (pcu/hr/100 sqm GFA)		0.049	0.040	0.036	0.066
TPDM Vol. 1	Housing	Lower Limit, Average Flat Size 40sqm (pcu/flat/hr)	0.0325	0.0213	0.0196	0.0263
		Mean, Average Flat Size 50sqm (pcu/flat/hr)	0.0622	0.0426	0.0297	0.0401
		Mean, Average Flat Size 60sqm (pcu/flat/hr)	0.0718	0.0425	0.0286	0.0370
		Mean, Average Flat Size 80sqm (pcu/flat/hr)	0.1058	0.0605	0.0426	0.0590
	Office, Mean (pcu/hr/100 sqm GFA)		0.1703	0.2452	0.1573	0.1175
	Retail, Mean (pcu/hr/100 sqm GFA)		0.2296	0.2434	0.3100	0.3563

4.1.5 The peak traffic arriving and leaving the kindergarten are generally observed and occurred before school start time (i.e. 8am) and school finish time (i.e. 5pm) which will not overlap with the daily commuting AM and PM peak hours. For conservative approach, nominal school-related traffic flows 10 pcu/hr have been considered and superimposed on the traffic forecast for the same daily commuting AM and PM peak hours for assessment purpose.

4.1.6 The associated traffic generation and attraction for the Indicative Scheme are summarised in **Table 4.1.3**.

Table 4.1.3 Traffic Generation and Attraction of the Indicative Scheme (pcu/hr)

Type of Development	AM Peak		PM Peak	
	Generation	Attraction	Generation	Attraction
Office (R&D Centre)	305	439	282	211
Data Centre	43	35	32	58
Commercial Centre	22	23	29	34
Kindergarten	10	10	10	10
Private Housing	177	104	71	93
Ancillary Dormitories (1)	65	42	34	46
Additional bus trips (2)	50	50	50	50
Total	**672**	**703**	**508**	**502**

Notes:
(1) As referred to the self-containment arrangement in Section 3.2
(2) Based on the existing bus enhancement proposal by double-decked bus as discussed in Section 4.9

4.1.7 As indicated in table above, the total trips would be around 1,375 pcu/hr and 1,010 pcu/hr (two-way) during the AM and PM peak periods respectively.

4.2 Two-Tier Transport Model

4.2.1 The Indicative Scheme is targeted for completion in Year 2028. In order to assess the traffic impact of the development-related traffic on the adjacent road network, Year 2031 (i.e., 3 years after completion) is adopted as the design year of the study.

4.2.2 In view of the large population intake and the significant forecasted traffic generation and attraction of the Indicative Scheme, two levels of transport models are adopted. The Strategic Transport Model (STM) is at the upper tier. At the lower tier, it contains the Local Area Traffic Model (LATM).

Strategic Transport Model Structure

4.2.3 The STM is a link-based transport model which produces transport demand forecasts at strategic and inter-district levels. It is mainly to estimate the transport demand of the district-to-district movements by different private and public transport modes with respect to the infrastructures of the whole territory.

4.2.4 The STM follows the conventional 4-step modelling approach, comprising trip generation, trip distribution, modal split and trip assignment. The model produces passenger and vehicular flows on the transport network system by time periods of the day. This model offers the advantage to reflect the traffic demand forecasts especially the mode choice with respect to the fundamental assumptions such as the socio-economic and infrastructures.

4.2.5 The strategic and inter-district vehicular demand from the STM forms the primary input to the LATM.

Local Area Traffic Model Structure

4.2.6 The LATM is a junction-based assignment model which stimulates the local area traffic demand at intra-district level. With the incorporation of local area junction characteristics, the LATM is capable of estimating the junction delay and traffic queuing for route choice in assigning the traffic demand in local areas.

4.2.7 The development of LATM adopts the same approach as TD's 2019-based Base District Traffic Model (BDTM) with forecast year of 2031. The LATM is a peak hour trip assignment model which contains two components: (i) the "trip matrix" which specifies the number of AM peak/ PM peak hour trips from zone i to zone j; and (ii) the "network" which specifies the physical structure of the road links and junctions etc. upon which trips take place. Both the matrix and network are fed into a "route choice" model which allocates trips to "routes" through the network through the model assignment process.

4.2.8 There are three types of vehicles represented in the LATM. They are Private Vehicles (PV), Goods Vehicles (GV) and road-based public transport (PT) services. PV and GV are fed into the model in form of trip matrices, while PT vehicles are fixed route services and pre-loaded to the network.

4.2.9 The LATM matrices are developed from the cordoned matrices extracted from the STM, with the same LATM coverage of the model area. The compatibility between the STM and the LATM is ensured by the control of the external trip ends, which are essentially the link flows of major roads along the cordon. In other words, the LATM is consistent with the STM in terms of the socio-economic, transport infrastructure and road network assumptions.

4.2.10 The LATM matrices are developed from the cordoned matrices extracted from the STM, with the same LATM coverage of the model area. The compatibility between the STM and the LATM is ensured by the control of the external trip ends, which are essentially the link flows of major roads along the cordon. In other words, the LATM is consistent with the STM in terms of the socio-economic, transport infrastructure and road network assumptions.

4.2.11 Evaluations of link and junction performance for the Traffic Impact Assessment will be conducted based on the traffic forecast result from LATM.

Model Validation

4.2.12 As the road network and traffic flow in 2019-based BDTM are only validated to base Year 2019, the LATM has been further validated to latest traffic condition taking into account the latest traffic aids, junction layouts and method of control in the study area.

4.3 Planned/ Committed Developments in North District

4.3.1 In addition to the development flow, the traffic generated and attracted by adjacent major planned/committed developments which would anticipatedly induce traffic implication on the identified key junctions/ road links have been taken into account for the traffic forecast.

4.3.2 Under the 2019-based BDTM, the major planned / committed developments incorporated in design year 2031 BDTM trip matrices are listed in **Table 4.3.1**.

Table 4.3.1 Planned / Committed Developments in North District under 2019-based BDTM

Type of Development		Ref. Index in BDTM
KTN/ FLN NDA	Various Lots in D.D. 51, D.D. 83, D.D. 95 and D.D. 96 and Adjoining Government Land in Fanling North and Kwu Tung North, New Territories	P18-5-2
	CDA site Hang Tau Tai Po, Kwu Tung South (Y/NE-KTS/13)	P19-5-9 & P19-5-11
	CDA site to the west of Hang Tau Road, Kwu Tung South (Y/NE-KTS/15)	P19-5-3
Public / Subsidised Housing	Sheung Shui Areas 4 and 30	HN10 & HN11
	Ching Ho Estate Extension (Phase 4)	HN21
	Po Shek Wu Road	HN12
	Pak Wo Road (A/FSS/254)	B19-5-5
	Queen's Hill Extension	HN37
Private Housing	Residential Development at Ma Sik Road, Area 18, Fanling Sheung Shui Town Lot No. 262 *(Private Housing)*	P19-5-10
	Ling Hill (Y/FSS/18)	P19-5-8
Commercial	1 Lun Fat Street	B18-5-7

4.3.3 Apart from the major planned / committed developments incorporated in the design year 2031 BDTM trip matrices, the following major planned / committed developments have been further incorporated into the traffic forecast and summarized in **Table 4.3.2** below.

Table 4.3.2 Planned / Committed Developments in North District

Type of Development		Tentative Completion Year
KTN/ FLN NDA	"CDA(2)" Kam Hang Road, Kwu Tung South (Y/NE-KTS/14)	2025
	Yin Kong CDA (Y/KTN/2)	2026
	"CDA(1)" Lot 2579 in D.D. 92, Kam Hang Road (A/NE-KTS/506)	2027
Public / Subsidised Housing	Fanling Area 15 East Phase 1 & 2 (No. A/FLN/28) (1)	2025/26
	Jockey Club Road	2025/26
	Fanling Area 48	2029
	Ching Hiu Road	2028/29
	Choi Shun Street	2029/30
	San Wan Road	2026/27
	Fanling Area 17 Site A	2031/32
Traditional Housing	"Pok Oi Sing Ping Village" at Ping Che Road, Ta Kwu Ling (No. A/NE-TKL/692)	2024
Private Housing	1 Lun Fat Street (No. A/FSS/282) (2)	2025
	Fanling Area 40 (Y/FSS/13)	2027/28
	Sheung Shui Lot 2 RP (Oi Yuen) (Y/FSS/19)	2028
	"R(A)12" at Ma Sik Road (No. A/FSS/294) (3)	2029
	Fanling Area 17 Sites B1 and B2	2030/31
Others	North District Hospital Extension	2028
	New Territories East Cultural Centre	2027/28
	Community Health Centre cum Social Welfare Facilities at Pak Wo Road	2024
	Social Welfare Facility (Residential Care Home for the Elderly) and Flat (A/FSS/288)	2031
	Kong Nga Po Police Training Facilities	2026/27

Notes:
(1) Same site with Planned Development Ref. Index "P18-5-2" incorporated in BDTM. Only additional trip generation/attraction due to the increased nos. of flats from this application are further included in the traffic forecast
(2) Same site with Planned Development Ref. Index "B18-5-7" incorporated in BDTM. Only additional trip generation/attraction due to the additional land use of private residential development with 119 nos. of flats from this application are further included in the traffic forecast
(3) Same site with Planned Development Ref. Index "P19-5-8" incorporated in BDTM. Only additional trip generation/attraction due to the increased nos. of flats from this application are further included in the traffic forecast

4.4 Planned/ Committed Junction Improvement Schemes in North District

4.4.1 As North District is undergoing numerous planned large-scale developments, apart from the ongoing road improvements works as aforementioned in **Chapter 2.3**, transportation infrastructures have been planned and anticipated to be completed before the completion of the Indicative Scheme. Associated Road/Junction Improvement works to be completed beyond May 2023 which would anticipatedly induce traffic implication on the identified key junctions/ road links have been taken into account for the traffic forecast and summarised in **Table 4.4.1**.

Table 4.4.1 Planned/ Committed Infrastructures/ Junction Improvement Schemes in North District

Description			Proposed by Project	Tentative Completion Year
Transports Infrastructures	***CEDD Project Number 7835CL*** *(Source: https://www.cedd.gov.hk/eng/our-projects/major-projects/index-id-87.html)* - Construction Fanling Bypass Western Section - Widening of Fanling Highways between Chau Tau and Po Shek Wu Interchange from dual-three lane to dual-four lane - Provision of Po Shek Wu Road Flyover linking Po Shek Wu Road (Po Wan Road – Choi Yuen Road) and Fanling Highway (Kwu Tung Section) WB Construction of local roads for Remaining Phase Development within the KTN/ FLN NDA area		KTN/ FLN NDA	Before 2031
Junction Improvement Schemes	Po Shek Wu Road/ Po Wan Road (J13)	- Lane arrangement of Po Shek Wu Road southbound to be revised for allowing straight-ahead traffic to use three traffic lanes - Lane arrangement of Po Wan Road eastbound to be revised for allowing right-turn traffic to use two traffic lanes	Kong Nga Po	Completed
		- Land arrangement of Po Shek Wu Road northbound to be revised for allowing left-turn traffic to use two traffic lanes - Local widening of Po Wan Road westbound from 1 to 2 lanes	Sheung Shui Areas 4 and 30	
	Po Shek Wu Road/ Choi Yuen Road (J14)	- Local widening of entry arm of Po Shek Wu Road NB to allow straight-ahead traffic to use three traffic lanes	Kong Nga Po	2023 (not yet completed)
		- Po Shek Wu Road Interchange Improvement which provides a flyover to allow the right turning traffic from Po Shek Wu Road SB to Fanling Highway WB to bypass the existing Po Shek Wu Road Interchange - Entry arm of Po Shek Wu Road SB would be narrowed from 5 lanes to 4 lanes	KTN/ FLN NDA	2029
	Jockey Club Road/ So Kwun Po Road (J24)	- Lane arrangement of Jockey Club Road northbound to be revised for allowing left turn traffic to use two traffic lanes - Method-of-control to be revised for minimising/optimising the intergreen time - Lane arrangement of Ma Sik Road southbound to be revised for allowing three traffic lanes for vehicles to travel straight ahead - Local widening of So Kwun Po Road southbound from 2 to 3 lanes	KTN/ FLN NDA	2023 (not yet completed)
		- Local widening with one additional straight-ahead traffic lane on So Kwun Po Road northbound - Local widening of Ma Sik Road northbound from 2 to 3 lanes	Sheung Shui Areas 4 and 30	
	Jockey Club Road/ Lung Sum Avenue (J25)	- Local widening with one additional straight-ahead traffic lane on Jockey Club Road eastbound - Local widening with one additional straight-ahead traffic lane on Lung Sum Avenue northbound	Kong Nga Po	Completed

4.4.2 The corresponding discussion paper of the planned/ committed junction improvement schemes is attached in **Appendix B**.

4.5 Hong Kong Major Transport Infrastructure Development Blueprint

4.5.1 The Government has promulgated the "Hong Kong Major Transport Infrastructure Development Blueprint" (The Blueprint) in December 2023 with a view to meeting the city's long-term transport and logistics needs up to 2046 and beyond. One of the proposals included in The Blueprint is the additional "Two Railways & One Major Road", which is related to North District and comprises the Northern Link Eastern Extension (NOLE), the Northeast New Territories Line (NENTL), and the Northern Metropolis Highway (New Territories North New Town Section).

4.5.2 NOLE will extend the Northern Link eastward from Kwu Tung Station to Ping Che and is planned connect to NENTL at its terminal. Based on the preliminary alignment illustrated in The Blueprint, NOLE will pass by the southern edge of the Applicate Site without encroaching its boundary. Hence, it is anticipated that the Indicative Scheme will not have interface issue with NOLE, subject to the finalised design of NOLE.

4.5.3 On the other hand, with the consideration that there is no information about the station location and the operation year of NOLE, the traffic and transport impact have been assessed with the assumption that NOLE is not yet available at the time of population intake of the Indicative Scheme for conservative approach.

4.6 Assessment Scenarios

4.6.1 To evaluate the traffic impact likely to be induced by the traffic associated with the Indicative Scheme, two scenarios are analysed and compared. **Scenario 1** is the Reference Scenario (without the Indicative Scheme) in Year 2031. **Scenario 2** is the Design Scenario (with the Indicative Scheme) in Year 2031.

Scenario 1
Year 2031 Reference Scenario
= Adjusted Year 2031 Two-Tier Transport Model traffic flows
Plus traffic generations of major planned/committed developments in the vicinity not incorporated in 2019-based BDTM

Scenario 2
Year 2031 Design Scenario
= Year 2031 Reference Scenario
Plus trip generation and attraction associated with the Indicative Scheme as indicated in **Table 4.1.3**

4.6.2 The forecasted traffic flows for the above two scenarios are presented in **Figure 4.1** to **Figure 4.6**.

4.7 Junction Capacity Assessment

4.7.1 Junction capacity assessment was carried out at the identified key junctions for Year 2031 Reference and Design Scenarios. Assessment results are summarized in **Table 4.7.1** below. The detailed junction calculation sheets are attached in **Appendix C**.

Table 4.7.1 Year 2031 Future Junction Performance

Junction		Type	Performance (1)			
			2031 Reference		2031 Design	
			AM	PM	AM	PM
J1	Lin Ma Hang Road / Man Kam To Road	Priority	0.39	0.47	**0.87**	0.82
J2	Lin Ma Hang Road / Ping Che Road	Priority	0.57	0.68	**1.26**	**1.09**
J3	Lin Ma Hang Road / Heung Yuen Wai Highway Slip Road	Roundabout	0.30	0.31	0.46	0.42
J4	Lin Ma Hang Road / Heung Yuen Wai Highway Slip Road	Priority	0.24	0.18	0.53	0.36
J5	Sha Tau Kok Road / Ping Che Road	Roundabout	0.53	0.58	0.62	0.64
J6	Sha Tau Kok Road / Lau Shui Heung Road	Roundabout	0.48	0.49	0.54	0.53
J7	Sha Tau Kok Road / Lung Ma Road	Roundabout	0.56	0.64	0.59	0.67
J8	Sha Tau Kok Road / Sui Wan Road	Signalised	**6%**	17%	**1%**	**11%**
J9	Man Kam To Road / Kong Nga Po Road	Priority	0.49	0.53	0.63	0.60
J10	Jockey Club Road / Po Wan Road	Signalised	51%	46%	26%	28%
J11	Jockey Club Road / Tin Ping Road	Signalised	52%	53%	28%	39%
J12	Po Shek Wu Road / Jockey Club Road	Roundabout	0.52	0.53	0.64	0.62
J13	Po Shek Wu Road / Po Wan Road (2)	Signalised	32%	29%	**10%**	16%
J14	Po Shek Wu Road / Choi Yuen Road (2)	Signalised	33%	38%	21%	31%
J15	Lin Ma Hnag Road / Proposed Access Road	Signalised	-	-	28%	49%
J16	Sha Tau Kok Road / Fanling Bypass	Roundabout	0.56	0.55	0.59	0.59
J17	Man Kam To Road / Fanling Bypass	Roundabout	0.56	0.58	0.73	0.70
J18	Man Kam To Road / Road L4	Signalised	58%	67%	32%	44%
J19	Sha Tau Kok Road / Luen On Street	Signalised	37%	39%	30%	33%
J20	Sha Tau Kok Road / Fan Leng Lau Road	Signalised	31%	28%	29%	26%
J21	Sha Tau Kok Road / Jockey Club Road	Roundabout	0.59	0.65	0.62	0.67
J22	Sha Tau Kok Road / San Wan Road	Roundabout	0.45	0.47	0.47	0.49
J23	San Wan Road / Fanling Station Road	Signalised	**10%**	**10%**	**7%**	**8%**
J24	Jockey Club Road / So Kwun Po Road	Signalised	33%	36%	31%	34%
J25	Jockey Club Road / Lung Sum Avenue	Signalised	39%	32%	36%	29%

Notes:
(1) Figures shown represent "Reserve Capacity" (RC) in % for signalized junctions and "Design Flow Capacity" (DFC) ratio for roundabouts and priority junctions.
(2) With implementation of infrastructures/ junction improvement works as discussed in Section 2.3/ 4.4

4.7.2 The results revealed that all the identified key junctions would operate within capacity with the Indicative Scheme in Year 2031, except J1, J2, J8, J13 and J23.

4.7.3 Considering that the junction capacity for junction J1 – Lin Ma Hang Road / Man Kam To Road would be operated near capacity during AM peak period under Year 2031 Design Scenario, J2 – Lin Ma Hang Road / Ping Che Road would be overloaded during both AM and PM peak period under Year 2031 Design Scenario, J8 – Sha Tau Kok Road / Sui Wan Road would be operated near capacity during AM peak period under both Year 2031 Reference and Design Scenario as well as during PM peak period under Year 2031 Design Scenario, J13 – Po Shek Wu Road / Po Wan Road would be operated near capacity during AM peak period under Year 2031 Design Scenario, and J23 – San Wan Road / Fanling Station Road would be operated near capacity during both AM and PM peak period under both Year 2031 Reference and Design Scenario, improvement proposals have been explored to improve the performance of the junctions.

J1 - Lin Ma Hang Road / Man Kam To Road

4.7.4 Under the existing junction arrangement, Lin Ma Hang Road is currently operated as the minor arm of the priority junction with right and left turning traffic share the same single lane for queuing.

4.7.5 It is considered that right turning traffic has a longer average queuing time than left turning traffic to leave the minor arm as right turning traffic requires to wait for major stream traffic of Man Kam To Road both bounds while left turning traffic requires to wait for major arm traffic of Man Kam To Road southbound only. It may cause unnecessary delay for left turning traffic which is anticipated much more significant than right turning traffic upon the commissioning of the Indicative Scheme. As a result, it is proposed to provide a flare lane to allow right and left turning traffic queuing at separate lanes, as presented in **Figure 4.7** with corresponding swept path analysis presented in **Figure 4.8**.

J2 - Lin Ma Hang Road / Ping Che Road

4.7.6 Under the existing junction arrangement, Lin Ma Hang Road is currently operated as the minor arm of the priority junction.

4.7.7 Upon the commissioning of the Indicative Scheme, it is anticipated that traffic flow on Lin Ma Hang Road will become the major traffic movement of this junction. Therefore, it is proposed to modify the junction configuration by classifying Lin Ma Hang Road and Ping Che Road as the major arm and the minor arm of the junction respectively as presented in **Figure 4.9** to suit the future traffic pattern, with corresponding swept path analysis presented in **Figure 4.10**.

J8 - Sha Tau Kok Road / Sui Wan Road

4.7.8 Under the existing Method of Control arrangement (MOC), there is one exclusive stage for right-turn movement from Sha Tau Kok Road NB to Sui Wan Road EB, which limit the green time for straight-ahead movement along Sha Tau Kok Road.

4.7.9 Upon the commissioning of the Indicative Scheme as well as the Queen's Hill Extension, it is anticipated that straight-ahead traffic flow along Sha Tau Kok Road will be more significant of this junction. Therefore, it is proposed to improve the junction by, (1) banning of right-turn movements at Sui Wan Road WB, (2) banning of left-turn movements at Sui Wan Road EB, (3) banning of right-turn movements at both Sha Tau Kok Road NB and SB, (4) road marking modification of far-side traffic lane of approaching arm of Sha Tau Kok Road SB to provide a new straight-ahead traffic lane, and (5) road marking modification of Sha Tau Kok Road NB far-side traffic lane and rearrangement of central divider/ traffic island of Sha Tau Kok Road near the concerned junction J8 to provide a new traffic lane of leaving arm of Sha Tau Kok Road SB with approx. 50m weaving length. The proposed junction improvement scheme with proposed MOC is presented in **Figure 4.11**.

4.7.10 Affected traffic would use J7 – Sha Tau Kok Road/ Lung Ma Road Roundabout and J16 – Future Sha Tau Kok Road / Fanling Bypass Roundabout for resuming to Sui Wan Road and Sha Tau Kok Road. In view of the detoured traffic volume and travelling distance, the resultant traffic diversion is considered immaterial.

J13 - Po Shek Wu Road / Po Wan Road

4.7.11 Alternatively, local widening for exit arm of Po Shek Wu Road NB to allow straight-ahead traffic to use three lanes is proposed. With the consideration that left-turn traffic is much less significant than straight-ahead traffic, it is proposed to rearrange the lane movement to fit in the aforementioned local widening, such that nearside lane will be shared by left-turn traffic and straight-ahead traffic, while 2nd and 3rd lane will allow straight-ahead traffic only.

4.7.12 Furthermore, subsequent to the implementation of local widening of exit arm of Po Shek Wu Road SB, local widening of entry arm of Po Shek Wu Road SB is further proposed such that there would be three exclusive lanes for straight-ahead traffic and one exclusive lanes for left-turn traffic.

4.7.13 The proposed junction improvement scheme is presented in **Figure 4.12**.

J23 - San Wan Road / Fanling Station Road

4.7.14 Under the existing junction arrangement, the nearside lane from San Wan Road EB is exclusively for left-turn traffic. As the corresponding exit arm is only an access road to Cheung Wah Estate, the left-turn traffic flow volume is significantly low and such lane arrangement is not optimised. With the consideration that both straight-ahead traffic and right-turn traffic are the major traffic movement for San Wan Road EB, it is proposed to maintain the existing lane arrangement for right-turn traffic but share the nearside lane for straight-ahead traffic. Lane warning line road marking is further proposed to guide the straight-ahead movement to enhance the vehicular safety. The proposed junction improvement scheme is presented in **Figure 4.13**. corresponding swept path analysis at the junction is presented in **Figure 4.14**.

4.7.15 With the proposed junction improvement / modification, the junction J2, J7, J8, J13, J16 and J23 have been reassessed and the corresponding junction performance is summarized in **Table 4.7.2** below. The detailed junction calculation sheets for the proposed junction improvement schemes are attached in **Appendix D**.

Table 4.7.2 Year 2031 Future Junction Performance – With Junction Improvement / Modification

Junction		Type	2031 Design Performance (1)			
			Without Junction Improvement		With Junction Improvement	
			AM	AM	PM	PM
J1	Lin Ma Hang Road / Man Kam To Road	Priority	0.87	0.82	0.84	0.80
J2	Lin Ma Hang Road / Ping Che Road	Priority	1.26	1.09	0.71	0.65
J7	Sha Tau Kok Road / Lung Ma Road (2)	Roundabout	0.59	0.67	0.62	0.71
J8	Sha Tau Kok Road / Sui Wan Road	Signalised	1%	11%	28%	29%
J13	Po Shek Wu Road / Po Wan Road	Signalised	10%	16%	28%	26%
J16	Sha Tau Kok Road / Fanling Bypass (2)	Roundabout	0.59	0.59	0.61	0.60
J23	San Wan Road / Fanling Station Road	Signalised	7%	8%	24%	24%

Notes:
(1) Figures shown represent "Reserve Capacity" (RC) in % for signalized junctions and "Design Flow Capacity" (DFC) ratio for priority junctions.
(2) With the proposed junction improvement of J8

4.7.16 The above results revealed that under the Design Scenario in Year 2031, the DFC of J1 would be improved from 0.87 to 0.84 and 0.82 to 0.80 during AM peak and PM peak periods respectively, the DFC of J2 would be improved from 1.26 to 0.71 and 1.09 to 0.65 during AM peak and PM peak periods respectively, the RC of J8 would be improved from 1% to 28% and 11% to 29% during AM peak and PM peak periods respectively, the RC of J13 would be improved from 10% to 28% and 16% to 26% during AM peak and PM peak periods respectively, and the RC of J23 would be improved from 7% to 24% and 8% to 24% during AM peak and PM peak periods respectively.

4.7.17 On the other hand, due to the diverted traffic by the proposed junction modification of J8, the DFC of J7 would be slightly increase from 0.59 to 0.62 and 0.67 to 0.71 during AM peak and PM peak periods respectively, while the DFC of J16 would be slightly increase from 0.59 to 0.61 and 0.59 to 0.60 during AM peak and PM

peak periods respectively. It is hence anticipated that the traffic implication to J7 and J16 associated with the proposed junction modification of J8 is immaterial.

4.7.18 With the above improvement proposal, it is anticipated that the performance of junction J1, J2, J8, J13 and J23 would be enhanced, and all junctions would be operated within capacity with the Indicative Scheme in Year 2031.

4.8 Link Capacity Assessment

4.8.1 Key road links within the study area are identified and assessed in both Reference and Design scenarios in Design Year 2031. Assessment results are summarised in **Table 4.8.1** below.

Table 4.8.1 Year 2031 Future Link Performance

Link		Type (1)	Configuration	Direction	Capacity	Link Performance (2)							
						2031 Reference				2031 Design			
						AM		PM		AM		PM	
						Flow (3)	V/C	Flow (3)	V/C	Flow (3)	V/C	Flow (3)	V/C
L1	Lin Ma Hang Road (near Man Kam To Road junction) (4)	RR	7.3m wide Single two-lane carriageway	Two-way	1,500	545	0.37	555	0.37	1,240	0.83	1,070	0.72
L2	Lin Ma Hang Road (near Ping Che Road junction) (4)	RR	7.3m wide Single two-lane carriageway	Two-way	1,500	700	0.47	710	0.48	1,420	0.95	1,250	0.84
L3	Lung Shan Tunnel (Fanling Highway – Sha Tau Kok Road)	RT	Dual two-lane carriageway	NB	3,000	1,380	0.46	980	0.33	1,550	0.52	1,075	0.36
				SB	3,000	1,210	0.41	1,160	0.39	1,345	0.45	1,280	0.43
L4	Fanling Highway (at the south of Lung Shan Tunnel)	EX	Dual four-lane carriageway	NB	8,200	5,155	0.63	6,145	0.75	5,375	0.66	6,280	0.77
				SB	8,200	7,660	0.94	6,470	0.79	7,840	0.96	6,625	0.81
L5	Sha Tau Kok Road (Sui Wan Road – Fanling Bypas)	RR	Dual two-lane carriageway	NB	2,800	1,730	0.62	1,990	0.72	1,835	0.66	2,090	0.75
				SB	2,800	2,045	0.74	1,775	0.64	2,175	0.78	1,855	0.67
L6	Jockey Club Road (Tin Ping Road – Po Shek Wu Road)	PD	Dual two-lane carriageway	NB	2,800	1,135	0.41	1,065	0.39	1,465	0.53	1,320	0.48
				SB	2,800	1,370	0.49	1,415	0.51	1,690	0.61	1,650	0.59
L7	Po Shek Wu Road (Po Wan Road – Choi Yuen Road)	PD	Dual two-lane carriageway	NB	2,800	1,700	0.61	1,655	0.60	1,995	0.72	1,860	0.67
				SB	2,800	1,985	0.71	2,100	0.75	2,250	0.81	2,300	0.83
L8	Fanling Highway (at the west of Po Shek Wu Road Interchange) (4)	EX	Dual four-lane carriageway	EB	8,200	6,055	0.74	6,060	0.74	6,320	0.78	6,230	0.76
				WB	8,200	5,880	0.72	4,975	0.61	6,120	0.75	5,160	0.63
L9	Proposed Access Road	-	10.5m wide Single two-lane carriageway	Two-way	1,800	-	-	-	-	1,380	0.77	1,010	0.57

Notes:
(1) Abbreviation: EX – Expressway; PD – Primary Distributor; RR – Rural Road; RT – Rural Trunk Road
(2) A V/C ratio below 1.0 is considered acceptable. A V/C ratio above 1.0 indicates the onset of mild congestion and a V/C ratio between 1.0 and 1.2 would indicate a manageable degree of congestion. A V/C ratio above 1.2 indicates the onset of more serious congestion.
(3) Figures are rounded to the nearest 5.
(4) With implementation of infrastructures/ junction improvement works as discussed in Section 2.3/ 4.4

4.8.2 The above results revealed that all key road links assessed will be performing satisfactorily with spare capacity in both Reference and Design scenarios in Year 2031.

4.8.3 Similar to junction performance, due to the diverted traffic by the proposed junction modification of J8, L5 has been reassessed and the corresponding link performance is summarized in **Table 4.8.2** below.

Table 4.8.2 Year 2031 Future Link Performance – With Junction Improvement / Modification

Link		Type (1)	Configuration	Direction	Capacity	2031 Design Performance (2)							
						Without Junction Improvement				With Junction Improvement			
						AM		PM		AM		PM	
						Flow (3)	V/C	Flow (3)	V/C	Flow (3)	V/C	Flow (3)	V/C
L5	Sha Tau Kok Road (Sui Wan Road – Fanling Bypas)	RR	Dual two-lane carriageway	NB	2,800	1,835	0.66	2,090	0.75	1,880	0.68	2,135	0.77
				SB	2,800	2,175	0.78	1,855	0.67	2,220	0.80	1,900	0.68

Notes:
(1) Abbreviation: EX – Expressway; PD – Primary Distributor; RR – Rural Road; RT – Rural Trunk Road
(2) A V/C ratio below 1.0 is considered acceptable. A V/C ratio above 1.0 indicates the onset of mild congestion and a V/C ratio between 1.0 and 1.2 would indicate a manageable degree of congestion. A V/C ratio above 1.2 indicates the onset of more serious congestion.
(3) Figures are rounded to the nearest 5.

4.8.4 The above results revealed that the V/C ratio of Sha Tau Kok Road (Sui Wan Road – Fanling Bypas) Northbound would be slightly increase from 0.66 to 0.68 and 0.75 to 0.77 during AM peak and PM peak periods respectively, while the V/C ratio of Sha Tau Kok Road (Sui Wan Road – Fanling Bypass) Southbound would be slightly increase from 0.78 to 0.80 and 0.67 to 0.68 during AM peak and PM peak periods respectively. It is hence anticipated that the traffic implication to L5 associated with the proposed junction modification of J8 is immaterial.

4.9 Public Transport Assessment

4.9.1 The anticipated population of the Private Housing and family units of the ancillary dormitories of the Indicative Scheme is about 6,264 and 1,070 respectively. According to "Travel Characteristics Survey (TCS) 2011" published by Transport Department, the daily mechanised trip rate is 1.83 trips per person, while both morning and evening peak hour accounted for about 12% of the daily trips. It is hence estimated that the Indicative Scheme would generate a total of 1,611 passengers / hour (i.e., 7,334 × 1.83 × 0.12) during the morning peak hour. For conservative approach, a factor of 1.2 is further applied on the peak hour trip generation (i.e., 1,611 × 1.2 = 1,934) which deems sufficient to consider the unforeseen growth of peak hour trip generation. The anticipated passenger trips generated in the peak hour is summarized in **Table 4.9.1**.

Table 4.9.1 Passenger Trips Generated from Indicative Scheme in the Morning Peak Hour

Development Parameters	
No. of private residential units & family units in dormitories (1)	2,716 flats
Population (2)	7,334
Morning / Evening Peak Hours Trip Generation	1,933 pax/hr

Notes:
(1) Assuming single flats in dormitories will not generate / attract trips to external road network during daily commuting peaks as discussed in Section 3.2
(2) Average domestic household size of 2.7 is assumed based on the 2021 Population Census in North District.

4.9.2 The modal split for residents in North District extracted from Table B203 and C204 under District Council District "North" from 2021 Population Census published by Census and Statistics Department is summarised in **Table 4.9.2**.

Table 4.9.2 Main Mode of Transport to Place of Study and Work in North District

Mode of Transport	Place of Study (from B203)	Place of Work (from C204)	Total	
	Persons	Persons	Persons	%
MTR (Local line)	12,118	46,153	58,271	39.0%
Bus	8,238	22,781	31,019	21.0%
On foot only	12,822	11,285	24,107	16.0%
School bus	4,145	-	4,145	3.0%
Public light bus	3,541	7,802	11,343	8.0%
Private car/ Passenger van	3,400	7,887	11,287	7.5%
Company bus/ van	-	3,002	3,002	2.0%
MTR (Light Rail)	-	-	-	-
Taxi	214	711	925	0.5%
Residential coach service	489	580	1,069	0.5%
Ferry/ Vessel	-	18	18	0.0%
Others	888	3,212	4,100	2.5%
Total	**45,855**	**103,431**	**149,286**	**100%**

4.9.3 With the consideration of the locality of the Application Site, it is assumed that company bus/van, ferry/vessel are not the available for the residents of the Indicative Scheme, and the associated passenger trips will be evenly distributed into MTR and bus.

4.9.4 On the other hand, in order to minimise the disturbance of the residents from private residential developments in the vicinity as well as the border crossing passengers using the existing GMB 59K and 59S services, it is assumed that public light bus is also not available for the residents of the Indicative Scheme, with the consideration that service enhancement of GMB is not efficient due to its low carrying capacity. The associated passenger trips will be distributed into bus. The adjusted modal split for the Indicative Scheme is summarized in **Table 4.9.3**.

Table 4.9.3 Adjusted Modal Split for the Indicative Scheme

Original Passenger Trip at North District	Adjusted Modal Split for the Indicative Scheme								
	MTR (Local line)	Bus	School bus	Taxi	Residential coach service	Private car/ Passenger van	On foot only	Others	Total
MTR (Local line)	58,271								58,271
Franchised Bus		31,019							31,019
On foot only							24,107		24,107
School bus			4,145						4,145
Public light bus		11,343							11,343
Private car/ Passenger van						11,287			11,287
Company bus/ van	1,501	1,501							3,002
MTR (Light Rail)	-	-							-
Taxi				925					925
Residential coach service					1,069				1,069
Ferry/ Vessel	9	9							18
Others								4,100	4,100
Total	59,781	43,872	4,145	925	1,069	11,287	24,107	4,100	149,286
Proportion	**40.0%**	**30.0%**	**3.0%**	**0.5%**	**0.5%**	**7.5%**	**16.0%**	**2.5%**	**100.0%**

4.9.5 With respect to the adjusted modal split above, the associated passenger demand from Indicative Scheme in peak hour is estimated in **Table 4.9.4**.

Table 4.9.4 Estimated Passenger Demand from Indicative Scheme in Peak Hour

Mode of Transport	Proportion	Passenger Demand from Indicative Scheme (pax/hr)	
MTR (Local line)	**40.0%**	**773**	**1,253**
Franchised Bus	**30.0%**	**580**	
School bus	3.0%	58	
Taxi	0.5%	10	
Residential coach service	0.5%	10	
Private car/ Passenger van	7.5%	145	
On foot only	16.0%	309	
Others	2.5%	48	
Total	**100%**	**1,933**	

4.9.6 Although there is no existing franchised bus route operating along the section of Lin Ma Hang Road outside the Application Site, currently there are KMB 73K and KMB 79K operating along Man Kam To Road and Ping Che Road respectively, which are anticipated the major ingress and egress vehicular routes of the Application Site connecting MTR stations and major Bus-Bus Interchange (BBI) in Sheung Shui and Fanling. In order to avoid duplication of public transport services in terms of routings and to better utilise the existing bus resources, the Applicant proposes to extend the services of KMB 73K and KMB 79K to the Application Site instead of introducing new franchised bus routes.

4.9.7 The proposed routings of KMB 73K and KMB 79K are illustrated in **Figure 4.15** and **Figure 4.16** respectively. The proposed bus service extension would act as feeder services which not only cater for MTR passenger demand, but also cater for long-haul bus passenger demand from the Indicative Scheme, by interchanging with existing long-haul bus routes in Sheung Shui BBI and Fanling Station BBI.

4.9.8 With the consideration that the one-way travel distance of the proposed routing of KMB 79K (approx. 18 km) is more than double of that of KMB 73K (approx. 8 km), it is anticipated that the journey time of KMB 73K would be shorter by more than half accordingly such that the MTR and long-haul bus passengers induced by the Indicative Scheme would prefer KMB 73K over KMB 79K. For technical assessment purposes, it is assumed that 2/3 of them would take KMB 73K (i.e. 1,253 x 2/3 = 835) and remaining 1/3 (1,253 - 835 = 418) would take KMB 79K.

4.9.9 To identify if there are sufficient spare capacity to cope with the additional passenger demand induced by the Indicative Scheme, current occupancy of KMB 73K and KMB 79K at identified critical bus stops during morning and evening peak periods are surveyed and summarised from **Table 4.9.5** to **Table 4.9.8**, including Sheung Shui Terminus and Fung Kai No.1 Secondary School for KMB 73K, Luen Wo Hui Bus Terminus and Fanling Station for KMB 79K.

4.9.10 With the consideration of the location of the Application Site and the methodology of the public transport demand forecast by the Indicative Scheme, it is anticipated that the estimated passengers by the Indicative Scheme would be towards Sheung Shui bound and Man Kam To/Ta Kwu Ling bound during morning peak and evening peak respectively, hence current occupancy of KMB 73K and KMB 79K were only surveyed in one-way direction during respective peak period.

Table 4.9.5 Observed Bus Occupancy of KMB 73K at Sheung Shui Terminus

Hour	Sheung Shui Bound				Man Kam To Bound			
	No. of Bus Trips	Total Capacity*	Total Passengers	Occupancy	No. of Bus Trips	Total Capacity*	Total Passengers	Occupancy
0700 – 0800	3	225	36	16%	N.A.			
0800 – 0900	3	225	32	14%				
0900 – 1000	3	225	14	6%				
1700 – 1800	N.A.				3	225	60	27%
1800 – 1900					3	225	59	26%
1900 – 2000					3	225	69	31%

Note:
* Assumed Bus Capacity is 75 passengers per vehicle as single-decked buses are employed

Table 4.9.6 Observed Bus Occupancy of KMB 73K at Fung Kai No.1 Secondary School

Hour	Sheung Shui Bound				Man Kam To Bound			
	No. of Bus Trips	Total Capacity*	Total Passengers	Occupancy	No. of Bus Trips	Total Capacity*	Total Passengers	Occupancy
0700 – 0800	3	225	**105**	47%	N.A.			
0800 – 0900	3	225	95	42%				
0900 – 1000	3	225	41	18%				
1700 – 1800	N.A.				3	225	75	33%
1800 – 1900					3	225	87	39%
1900 – 2000					3	225	**102**	45%

Note:
* Assumed Bus Capacity is 75 passengers per vehicle as single-decked buses are employed

Table 4.9.7 Observed Bus Occupancy of KMB 79K at Luen Wo Hui Bus Terminus

Hour	Sheung Shui Bound				Ta Kwu Ling Bound			
	No. of Bus Trips	Total Capacity*	Total Passengers	Occupancy	No. of Bus Trips	Total Capacity*	Total Passengers	Occupancy
0700 – 0800	3	360	**135**	38%	N.A.			
0800 – 0900	3	360	81	23%				
0900 – 1000	3	360	107	30%				
1700 – 1800	N.A.				2	240	94	39%
1800 – 1900					2	240	162	68%
1900 – 2000					3	360	155	43%

Note:
* Assumed Bus Capacity is 120 passengers per vehicle as double-decked buses are employed

Table 4.9.8 Observed Bus Occupancy of KMB 79K at Fanling Station

Hour	Sheung Shui Bound				Ta Kwu Ling Bound			
	No. of Bus Trips	Total Capacity*	Total Passengers	Occupancy	No. of Bus Trips	Total Capacity*	Total Passengers	Occupancy
0700 – 0800	3	360	96	27%	N.A.			
0800 – 0900	3	360	76	21%				
0900 – 1000	3	360	74	21%				
1700 – 1800	N.A.				3	360	82	23%
1800 – 1900					3	360	84	23%
1900 – 2000					3	360	**172**	48%

Note:
* Assumed Bus Capacity is 120 passengers per vehicle as double-decked buses are employed

4.9.11 It is considered that the usage of franchised buses is hugely related to planned population and employment within its catchment area. Reference was hence made to 2019-based Territorial Population and Employment Data Matrix (TPEDM) published by Planning Department. **Table 4.9.9** and **Table 4.9.10** below summarize the estimated and projected population and employment data in 2019, 2026 and 2031 as well as the respective annual average growth rate of Planning Data District (PDD) "Fanling/Sheung Shui" and Sub-region "NENT" which is formed by a number of PDDs, including Fanling/Sheung Shui, Tai Po, Ma On Shan, Sha Tin and Other Area in NENT.

Table 4.9.9 Annual Average Growth Rate of Fanling/Sheung Shui by TPEDM

	2019 Estimates	2026 Projection	2031 Projection	Annual Growth Rate from 2019 to 2031
Population	258,300	274,100	352,350	2.62%
Employment	64,100	66,650	79,400	1.80%
TOTAL	322,400	340,750	431,750	2.46%

Table 4.9.10 Annual Average Growth Rate of NENT by TPEDM

	2019 Estimates	2026 Projection	2031 Projection	Annual Growth Rate from 2019 to 2031
Population	1,316,700	1,431,950	1,547,650	1.36%
Employment	421,000	411,500	438,000	0.33%
TOTAL	1,737,700	1,843,450	1,985,650	1.12%

4.9.12 From the above tables, the average annual growth rate determined from Fanling/Sheung Shui in TPEDM ranges from 1.80% to 2.62% p.a. and that from NENT in TPEDM ranges from 0.33% to 1.36% p.a.. For conservative assessment purpose, the highest growth factor (i.e. +2.62% p.a.) would be applied to the observed highest nos. of franchised bus passengers to forecast the franchised bus passenger demand in Design Year 2031.

4.9.13 As indicated in **Table 4.9.5** to **Table 4.9.8**, the highest usage of Sheung Shui bound during morning peak and Man Kam To/Ta Kwu Ling bound during evening peak for KMB 73K was 105 pax/hr and 102 pax/hr respectively, while that for KMB 79K was 135 pax/hr and 172 pax/hr respectively. By adopting the growth rate of +2.62% p.a. into the observed highest nos. of passengers, the estimated passengers demand of KMB 73K and KMB 79K in Year 2031 were summarised in **Table 4.9.11.**

Table 4.9.11 Estimated Passenger Demand of KMB 73K and KMB 79K in Year 2031

Bus Route	Peak Period	Direction	2023 Observed Peak Franchised Bus Passenger Demand (pax/hr)	2031 Reference Peak Franchised Bus Passenger Demand (pax/hr)	Additional Public Transport demand by Indicative Scheme (pax/hr)	2031 Design Peak Franchised Bus Passenger Demand (pax/hr)
KMB 73K	AM	Sheung Shui	105	126	835	961
	PM	Man Kam To	102	122	835	957
KMB 79K	AM	Sheung Shui	135	162	418	580
	PM	Ta Kwu Ling	172	206	418	624

4.9.14 Based on the above table, it is anticipated that there would be insufficient spare capacity for both KMB 73K and KMB 79K under their respective existing headway. Hence, it is proposed to enhance the service by employing double-

decked bus instead of single-decked bus for KMB 73K and increasing the frequency for both KMB 73K and KMB 79K during morning and evening peak period with the corresponding occupancy as summarised in **Table 4.9.12**. The proposed fleet size associated with the bus enhancement proposal are summarised in **Table 4.9.13**.

Table 4.9.12 Proposed Bus Enhancement and associated occupancy in Year 2031

Bus Route	Peak Period	Direction	Existing Frequency during peak hour (mins)	Proposed Frequency during peak hour (mins)	Proposed No. of Bus Trips during peak hour (bus trips/hr)	Total Capacity* (pax/hr)	2031 Design Peak Franchised Bus Passenger Demand (pax/hr)	Occupancy
KMB 73K	AM	Sheung Shui	15 - 30	4 - 6	12	1,440	961	67%
	PM	Man Kam To	20 - 25	4 - 6	12	1,440	957	66%
KMB 79K	AM	Sheung Shui	15 - 30	6 - 9	8	960	580	60%
	PM	Ta Kwu Ling	25 - 30	6 - 9	8	960	624	65%

Note:
* Assumed Bus Capacity is 120 passengers per vehicle

Table 4.9.13 Proposed Fleet Size associated with the Bus Enhancement Proposal

Bus Route	(A) Proposed Average Frequency during peak hour (mins)	(B) Estimated One-way Traveling Distance under the Proposed Service Extension (km)	(C) Observed Average speed (km/h)	(D) (=(B)/(C)) Estimated One-way Journey Time (mins)	(E) (=(D)/(A) x 2) Proposed Fleet Size
KMB 73K	(4+6) / 2 = 5	8	16	30	12
KMB 79K	(6+9) / 2 = 7.5	18	13.5	80	22

4.9.15 With the proposed bus enhancement of KMB 73K and KMB 79K, it is anticipated that there would be sufficient spare capacities to accommodate the additional passenger demand induced by the Indicative Scheme during morning and evening peak period in year 2031. The associated bus trips have also been distributed into the road network and incorporated into the traffic forecast.

4.9.16 Besides, it is proposed to provide transport interchange with 1 no. bus drop-off bay, 4 nos. bus pick-up bays and 12 nos. stacking bays for the proposed existing bus service enhancement underneath the R&D Centre 2, together with taxi stand to accommodate 5 nos. NT taxi and 5 nos. urban taxi and in accordance with TPDM requirement. as illustrated in **Figure 4.17**.

4.9.17 Charging-enabling facilities for each bus bay (2.5m(L) x 1.5m(W) x 2.6m(H)) and 4 nos. taxi (2 nos. NT taxi & 2 no. urban taxi, 2.5m(L) x 1.5m(W)) in accordance with EPD requirement, as well as a 237.5m^2 (47.5m(L) x 5m(W)) integrated structure of staff ancillary facilities for bus operators and passenger facilities such as kiosks and toilets in accordance with TPDM requirement has also been incorporated in the proposed transport interchange.

4.9.18 Furthermore, two sets of en-route bus stops would be provided outside the Residential Area and Data Centre in order to enhance the efficiency of the proposed feeder services and long-haul services. It is hence anticipated that the accessibility of the Indicative Scheme is considered acceptable, and the Indicative Scheme would not impose adverse impact to existing PT services.

4.9.19 The swept path analysis of 12.8m long bus manoeuvring along the proposed signalized junction of Lin Ma Hang Road / Proposed Access Road is presented

from **Figure 3.7** to **Figure 3.9**, while the swept path analysis of 12.8m long bus manoeuvring between the proposed transport interchange and the en-route bus stops is presented in **Figure 4.18.**

4.9.20 On the other hand, the swept path analysis of 12.8m long bus manoeuvring along each bus bay and stacking bay is presented from **Figure 4.19** to **Figure 4.23**, while the swept path analysis of 5m long taxi manoeuvring along the taxi stand is presented in **Figure 4.24**.

4.10 Railway Assessment

4.10.1 According to the Press Releases dated 6 Nov 2024, from the National Day Golden Week to Chung Yeung Festival in 2024, the weekday patronage for the critical link of East Rail Line (EAL) from 8am to 10am (Tai Wai to Kowloon Tong) and from 5pm to 7pm (Kowloon Tong to Tai Wai) was about 70,100 and 65,600 respectively. [Source: https://www.info.gov.hk/gia/general/202411/06/P2024110600173.htm?fontSize=1]

4.10.2 From the above statistic and assuming a factor of 1.2 for conservative approach, it could be estimated that the hourly patronage during morning and evening peak would be 70,100 / 2 × 1.2 = 42,060 and 65,600 / 2 × 1.2 = 39,360 respectively.

4.10.3 Similar to franchised buses, it is considered that the usage of EAL is hugely related to planned population and employment within its catchment area, hence the highest growth factor (i.e. +2.62% p.a.) as discussed in Section 4.9.10 and Section 4.9.11 would be applied to the Year 2024 recorded patronage to forecast railway demand in Design Year 2031 for conservative assessment purpose.

4.10.4 The forecasted hourly patronage for the critical link of EAL during morning and evening peak in 2031 would be $42,060 \times (1+2.62\%)^{(2031-2024)} = 50,412$ passengers and $39,360 \times (1+2.62\%)^{(2031-2024)} = 47,176$ passengers respectively.

4.10.5 According to MTR website, the carrying capacity of EAL during peak period is 62,500 passengers per hour per direction. Assuming no increase in carrying capacity, the forecasted usage during morning and evening peak hour in 2031 would be 50,412 / 62,500 = 81% and 47,176 / 62,500 = 75%, which indicates that there would still be ample capacity of 1 – 81% = 19% and 1 – 75% = 25% respectively. [Source: https://www.mtr.com.hk/en/corporate/operations/detail_worldclass.html]

4.10.6 As derived in **Table 4.9.5**, the anticipated MTR passenger induced by the Indicative Scheme would be 773 passengers per hour per direction, which is equivalent to about 1.24% (773 / 62,500) of existing carrying capacity only. With the identified ample capacity of EAL 19% and 25% during morning and evening peak hour, it can be concluded that the MTR passenger demand induced by the Indicative Scheme could be properly catered by EAL and thus no adverse railway impact would be induced by the Indicative Scheme.

5 CONCLUSION

5.1 Summary

5.1.1 The Application Site is located in Zone with major part in Agriculture ("AGR"), and minor parts in Green Belt ("GB"), Government, Institution or Community ("G/IC") at Various Lots in D.D.82 & D.D.86, Man Kam To, New Territories.

5.1.2 The Applicant proposes amendments to rezone the Application Site with a sizeable site area of about 125,863m^2 (Development site area of about 102,461m^2) into an Innovation and Technology Hub with Ancillary Facilities (the "Indicative Scheme"), subject to a non-domestic gross floor area (GFA) of 365,180m^2, which consists of R&D Centre with 268,780m^2 GFA and Data Centre with 86,400m^2 GFA to nurture the development of I&T industry, as well as a Commercial Centre with 9,276m^2 to support the daily needs of the working and living population. A kindergarten of 724m^2 will be provided on the ground floor of Ancillary Dormitories. In addition, there will be a domestic GFA of 170,400m^2, which consists of Private Residential Blocks providing a total of 2,320 units together with a 3,500m^2 Clubhouse, and Ancillary Dormitories with 63,900m^2 which provide 1,392 units for the working population of R&D Centre.

5.1.3 A Traffic Impact Assessment (TIA) study was carried out to evaluate the likely traffic impact associated with the Indicative Scheme, in support of the S12A planning application for proposed amendment of plan.

5.1.4 This TIA is to examine the impact of traffic induced by the Indicative Scheme on the existing and planned road networks, in particular with respect to the performances of the affected junctions in the vicinity; and present the findings on related traffic and transport issues. Any deficiency would be identified, and improvement proposal would be recommended as necessary to resolve any foreseeable problem from the deficiencies.

5.1.5 The proposed provision of internal transport facilities for the subject development is in full compliance with the HKPSG and TD Circular No. 6/2012 requirements, as well as with reference to project with similar use. The proposed internal transport facilities will be provided on ground floor and basement parking floors.

5.1.6 In order to assess the future traffic impacts associated with the Proposed Development in year 2031, two levels of transport models are adopted, with the Strategic Transport Model (STM) as the upper tier and the Local Area Traffic Model (LATM) as the lower tier. The STM is a link-based transport model which produces transport demand forecasts at strategic and inter-district levels, while the LATM is a junction-based assignment model which stimulates the local area traffic demand at intra-district level based on the latest available 2019-based Base District Traffic Model (BDTM) no. NTE1 which covers Northeast New Territories area (purchased from Transport Department). The LATM has been further validated to latest traffic condition taking into account the latest traffic aids, junction layouts and method of control in the study area.

5.1.7 Traffic impact assessment scenarios were set up to evaluate the associated traffic impact likely to be induced by the Indicative Scheme. **Scenario 1** is the Reference

Scenario (without the Indicative Scheme) in Year 2031. **Scenario 2** is the Design Scenario (with the Indicative Scheme) in 2031.

5.1.8 The junction assessment results revealed that all identified key junctions would operate within capacity with the Indicative Scheme in Year 2031, except J1 – Lin Ma Hang Road / Man Kam To Road, J2 – Lin Ma Hang Road/ Ping Che Road, J8 – Sha Tau Kok Road/ Sui Wan Road, J13 – Po Shek Wu Road/ Po Wan Road, and J23 – San Wan Road / Fanling Station Road.

5.1.9 With the proposed junction improvement at J1, J2, J8, J13 and J23, it is anticipated that the implication to the road network with the Indicative Scheme would be minimal.

5.1.10 The road link assessment results revealed that all identified key road links assessed will be performing satisfactorily with spare capacity in both Reference and Design scenarios in Year 2031.

5.1.11 The Applicant proposes to enhance the existing bus services of KMB 73K and KMB 79K by employing double-decked bus instead of single-decked bus for KMB 73K and increasing the frequency for both KMB 73K and KMB 79K during morning and evening peak period, together with transport interchange with 1 no. bus drop-off bay, 4 nos. bus pick-up bays and 12 nos. stacking bays as well as 1 no. taxi stand underneath the R&D Centre 2, and two sets of en-route bus stops outside Residential Area and Data Centre in order to enhance the efficiency of the proposed existing bus service enhancement. It is hence anticipated that the accessibility of the Indicative Scheme is considered acceptable, and the Indicative Scheme would not impose adverse impact to existing PT services.

5.2 Conclusion

5.2.1 It could be concluded that the Indicative Scheme will not impose adverse traffic impact on the surrounding road network, and thus is feasible from the traffic engineering point of view.

Figures

N

HEUNG YUEN WAI BOUNDARY CONTROL POINT

HEUNG YUEN WAI HIGHWAY

LIN MA HANG ROAD

Boundary of Special Administrative Region

Kaw Liu Village

Muk Wu Nga Yiu

Ser Res

Muk Wu Raw Water Pumping Station

Muk Wu

MAN KAM TO

MAN KAM TO CONTROL POINT

LO SHUE ING

Ta Kwu Ling Village

Kan Tau Wai

Fung Wong Wu

Tong Fong

PING CHE ROAD

Chow Tin Tsuen

Lei Uk

San Uk Ling

MAN KAM TO ROAD

LEGEND:

APPLICATION SITE

DEVELOPMENT SITE

Job Title: APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES		FIGURE 1.1
Date: DEC 24 / Scale: NTS / Drawn: CKTY / Job No.: 287082-02	Drawing Title: LOCATION OF APPLICATION SITE	ARUP

N

HEUNG YUEN WAI HIGHWAY

HEUNG YUEN WAI HIGHWAY (LUNG SHAN TUNNEL)

PING CHE ROAD

LAU SHUI HEUNG ROAD

SHA TAU KOK ROAD

LUNG MA ROAD

FANLING HIGHWAY

LIN MA HANG ROAD

PING CHE ROAD

SUI WAN ROAD

FANLING BYPASS (INDICATIVE)

SHA TAU KOK ROAD

TIN PING ROAD

JOCKEY CLUB ROAD

LUEN ON STREET

LOK YIP ROAD

FAN LENG LAU ROAD

JOCKEY CLUB ROAD

SAN WAN ROAD

MA SIK ROAD

FANLING STATION

FANLING BYPASS (INDICATIVE)

ROAD L4 (INDICATIVE)

LUNG SUM AVENUE

SO KWUN PO ROAD

SHEUNG SHUI STATION

PO SHEK WU ROAD

PO WAN ROAD

CHOI YUEN ROAD

PO SHEK WU ROAD FLYOVER (INDICATIVE)

MAN KAM TO ROAD

J1 J2 J3 J4 J5 J6 J7 J8 J9 J10 J11 J12 J13 J14 J15 J16 J17 J18 J19 J20 J21 J22 J23 J24 J25

L1 L2 L3 L4 L5 L6 L7 L8

LEGEND:

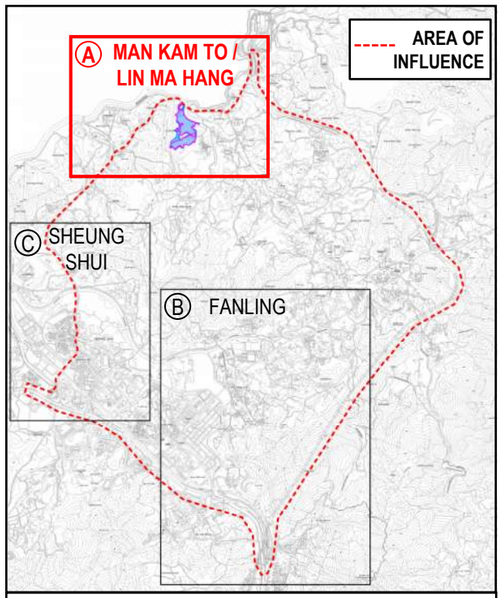
- APPLICATION SITE
- DEVELOPMENT SITE
- AREA OF influence
- J1 IDENTIFIED KEY JUNCTIONS
- L1 IDENTIFIED KEY ROAD LINKS

Job Title	APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES
Date: DEC 24	Scale: NTS
Drawn: CKTY	Job No.: 287082-02
Drawing Title	LOCATION OF IDENTIFIED KEY JUNCTIONS AND ROAD LINKS IN THE VICINITY OF APPLICATION SITE – OVERVIEW

FIGURE 2.1

ARUP

N



KEYPLAN

Ⓐ MAN KAM TO / LIN MA HANG

HEUNG YUEN WAI BOUNDARY CONTROL POINT

J4

J3

LIN MA HANG ROAD

HEUNG YUEN WAI HIGHWAY

Kaw Liu Village

J15

L2

J2

Ta Kwu Ling Village

Kan Tau Wai

PING CHE ROAD

Tong Fong

Fung Wong Wu

Chow Tin Tsuen

Lei Uk

Boundary of Special Administrative Region

Muk Wu Nga Yiu

LIN MA HANG ROAD

Muk Wu Raw Water Pumping Station

Muk Wu

MAN KAM TO

LO SHUE ING

MAN KAM TO CONTROL POINT

L1

J1

MAN KAM TO ROAD

San Uk Ling

LEGEND:

APPLICATION SITE

DEVELOPMENT SITE

J1 IDENTIFIED KEY JUNCTIONS

L1 IDENTIFIED KEY ROAD LINKS

Job Title	APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES	FIGURE 2.2
Date: DEC 24 / Scale: NTS / Drawn: CKTY / Job No.: 287082-02	Drawing Title: LOCATION OF IDENTIFIED KEY JUNCTIONS AND ROAD LINKS IN THE VICINITY OF APPLICATION SITE – MAN KAM TO / LIN MA HANG AREA	ARUP

N

Ⓑ FANLING

PING CHE ROAD

J5

LAU SHUI HEUNG ROAD

J6

SHA TAU KOK ROAD

J7

LUNG MA ROAD

HEUNG YUEN WAI HIGHWAY (LUNG SHAN TUNNEL)

L3

FANLING HIGHWAY

L4

FANLING BYPASS (INDICATIVE)

J19

LUEN ON STREET

LOK YIP ROAD

J20

J21

J23

J22

FAN LENG LAU ROAD

JOCKEY CLUB ROAD

SAN WAN ROAD

FANLING STATION

FANLING STATION ROAD

SUI WAN ROAD

J8

L5

J16

FANLING BYPASS (INDICATIVE)

SHA TAU KOK ROAD

KEYPLAN

Ⓐ MAN KAM TO / LIN MA HANG

Ⓒ SHEUNG SHUI

Ⓑ FANLING

AREA OF INFLUENCE

LEGEND:

APPLICATION SITE

DEVELOPMENT SITE

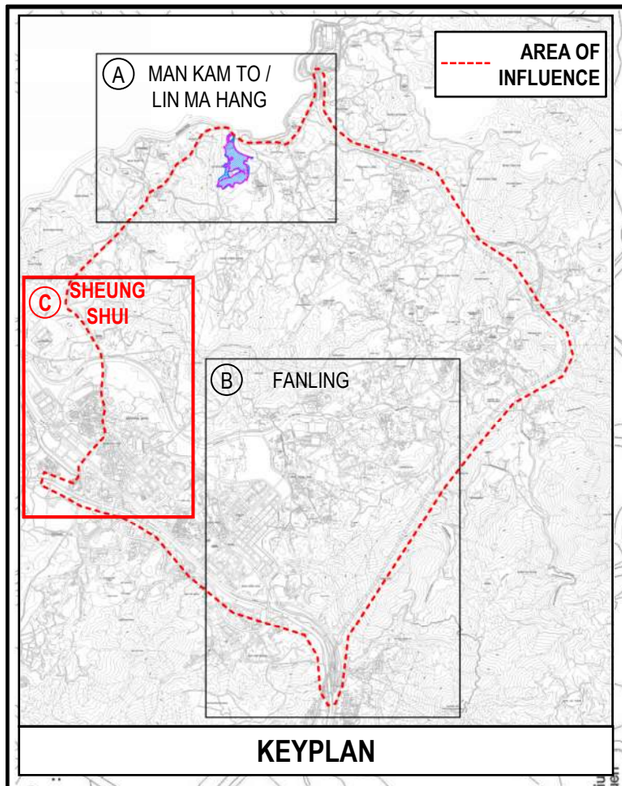
J1 IDENTIFIED KEY JUNCTIONS

L1 IDENTIFIED KEY ROAD LINKS

Job Title	APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES
Date: DEC 24	Scale: NTS
Drawn: CKTY	Job No.: 287082-02
Drawing Title	LOCATION OF IDENTIFIED KEY JUNCTIONS AND ROAD LINKS IN THE VICINITY OF APPLICATION SITE – FANLING AREA

FIGURE 2.3

ARUP



KEYPLAN

C SHEUNG SHUI

FANLING BYPASS (INDICATIVE)

NG TUNG RIVER

SHEUNG SHUI

TIN PING ROAD

JOCKEY CLUB ROAD

SO KWUN PO ROAD

J24

J25

LUNG SUM AVENUE

SHEUNG SHUI STATION

UNNAMED ROAD (INDICATIVE)

ROAD L4 (INDICATIVE)

J17

J18

J10

JOCKEY CLUB ROAD

J11

L6

J12

SHEK WU HUI

J13

L7

PO SHEK WU ROAD

CHOI YUEN ROAD

FANLING HIGHWAY

KONG NGA PO ROAD

MAN KAM TO ROAD

J9

UNNAMED ROAD (INDICATIVE)

NG TUNG RIVER

PO WAN ROAD

PO WAN ROAD

J14

CHOI YUEN ROAD

PO SHEK WU ROAD-FLYOVER (INDICATIVE)

L8

Sheung Shui Water Treatment Works

East Rail Line

SHEK SHEUNG RIVER

N

LEGEND:

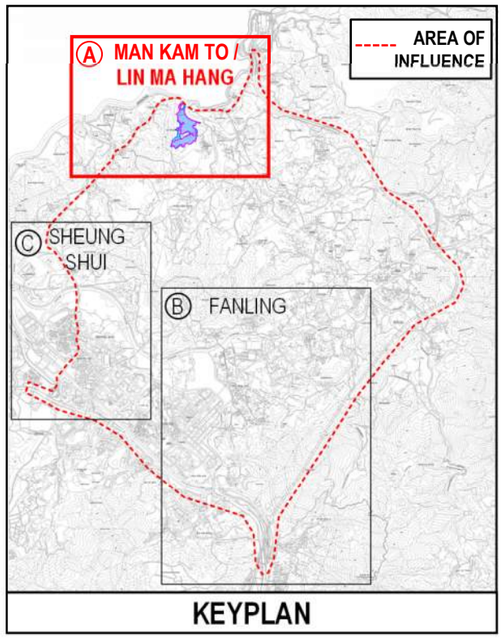
- APPLICATION SITE
- DEVELOPMENT SITE
- J1 — IDENTIFIED KEY JUNCTIONS
- L1 — IDENTIFIED KEY ROAD LINKS

Job Title	APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES
Date: DEC 24	Scale: NTS
Drawn: CKTY	Job No.: 287082-02
Drawing Title	LOCATION OF IDENTIFIED KEY JUNCTIONS AND ROAD LINKS IN THE VICINITY OF APPLICATION SITE – SHEUNG SHUI AREA

FIGURE 2.4

ARUP

N



KEYPLAN

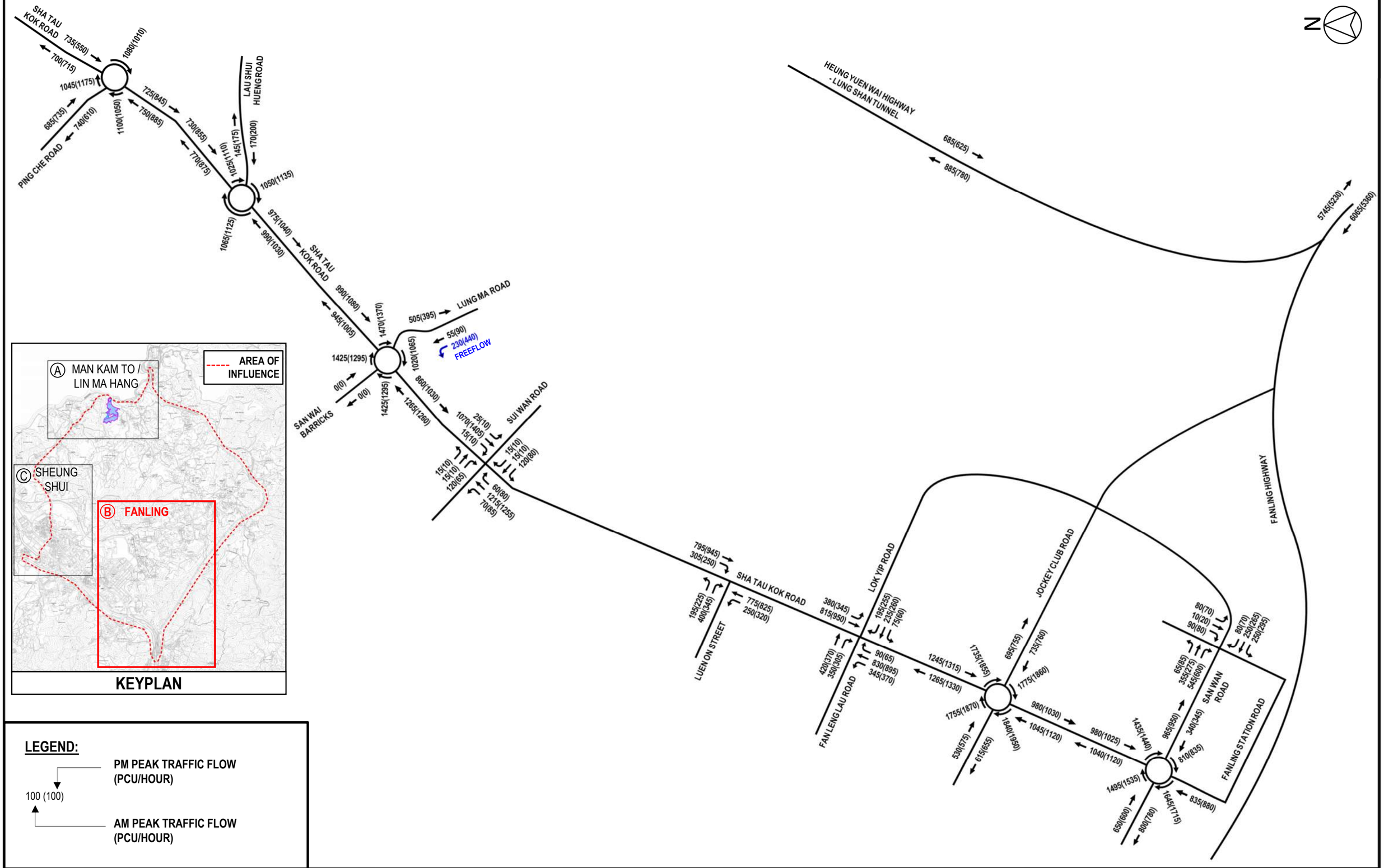
LEGEND:

PM PEAK TRAFFIC FLOW (PCU/HOUR)

100 (100)

AM PEAK TRAFFIC FLOW (PCU/HOUR)

Job Title: APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES		FIGURE 2.5
Date: DEC 24	Scale: NTS	Drawing Title: YEAR 2023 EXISTING TRAFFIC FLOW – MAN KAM TO / LIN MA HANG AREA
Drawn: CKTY	Job No.: 287082-02	ARUP



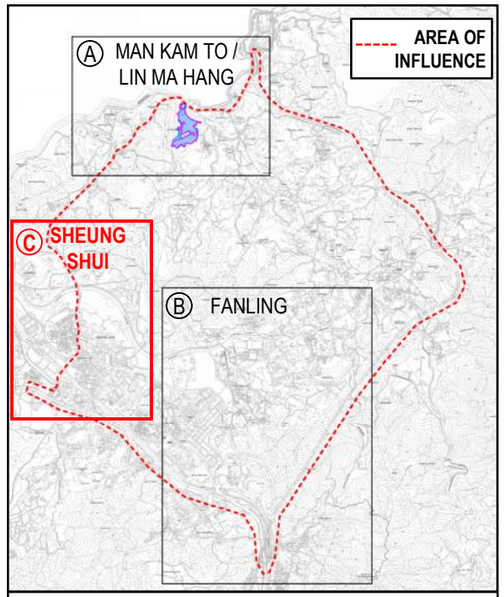
LEGEND:

PM PEAK TRAFFIC FLOW (PCU/HOUR)

100 (100)

AM PEAK TRAFFIC FLOW (PCU/HOUR)

Job Title: APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES		FIGURE 2.6
Date: DEC 24	Scale: NTS	Drawing Title: YEAR 2023 EXISTING TRAFFIC FLOW – FANLING AREA
Drawn: CKTY	Job No.: 287082-02	ARUP



KEYPLAN

LEGEND:

PM PEAK TRAFFIC FLOW (PCU/HOUR)

100 (100)

AM PEAK TRAFFIC FLOW (PCU/HOUR)

Job Title: APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES		FIGURE 2.7
Date: DEC 24 / Scale: NTS / Drawn: CKTY / Job No.: 287082-02	Drawing Title: YEAR 2023 EXISTING TRAFFIC FLOW – SHEUNG SHUI AREA	ARUP

N

HEUNG YUEN WAI BOUNDARY CONTROL POINT

LIN MA HANG ROAD

HEUNG YUEN WAI HIGHWAY

PING CHE ROAD

MAN KAM TO ROAD

MAN KAM TO CONTROL POINT

MAN KAM TO

LO SHUE ING

Boundary of Special Administrative Region

Muk Wu Raw Water Pumping Station

Muk Wu

Muk Wu Nga Yiu

Kaw Liu Village

Ta Kwu Ling Village

Kan Tau Wai

Fung Wong Wu

Tong Fong

Chow Tin Tsuen

Lei Uk

San Uk Ling

GMB Route:
59K, 59S

GMB Route:
59K, 59S

GMB Route:
59K, 59S

GMB Route:
59K, 59S

LEGEND:

APPLICATION SITE

DEVELOPMENT SITE

Job Title	APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES	FIGURE 2.8
Date: DEC 24 / Scale: NTS / Drawn: CKTY / Job No.: 287082-02	Drawing Title: PUBLIC TRANSPORT FACILITIES IN THE VICINITY OF APPLICATION SITE	ARUP

N

PROPOSED FOOTBRIDGE

R 2
31 storeys
120mPD

R 3
31 storeys
120mPD

R 1
32 storeys
120mPD

R 4
32 storeys
120mPD

R 5
33 storeys
120mPD

CH 1
4 storeys
34.7mPD

Existing School

AD 1
31 storeys
110mPD

KINDERGARTEN
1 storey
15.5mPD

AD 2
31 storeys
110mPD

AD 3
32 storeys
110mPD

FUNG SHUI
WOODLAND

DC 1
12 storeys
80mPD

DC 2
12 storeys
80mPD

DC 3
12 storeys
80mPD

C 1
6 storeys
37mPD

STP
2 storeys
17mPD

R&D 1
16 storeys
90mPD

R&D 2
16 storeys
90mPD
(Transport Interchange
on the ground floor)

R&D 3
16 storeys
90mPD

LIN MA HANG ROAD

EVA

LEGEND

APPLICATION SITE BOUNDARY

DEVELOPMENT SITE BOUNDARY

SITE FORMATION LEVEL

SITE RUN-IN/OUT

ACCESS TO BASEMENT CARPARK

R&D CENTRE

DATA CENTRE

RESIDENTIAL

COMMERCIAL

ANCILLARY DORMITORIES

CLUBHOUSE

LANDSCAPE AREA

SEWAGE TREATMENT PLANT

PROMENADE

ACCESS ROAD TO EXISTING SCHOOL

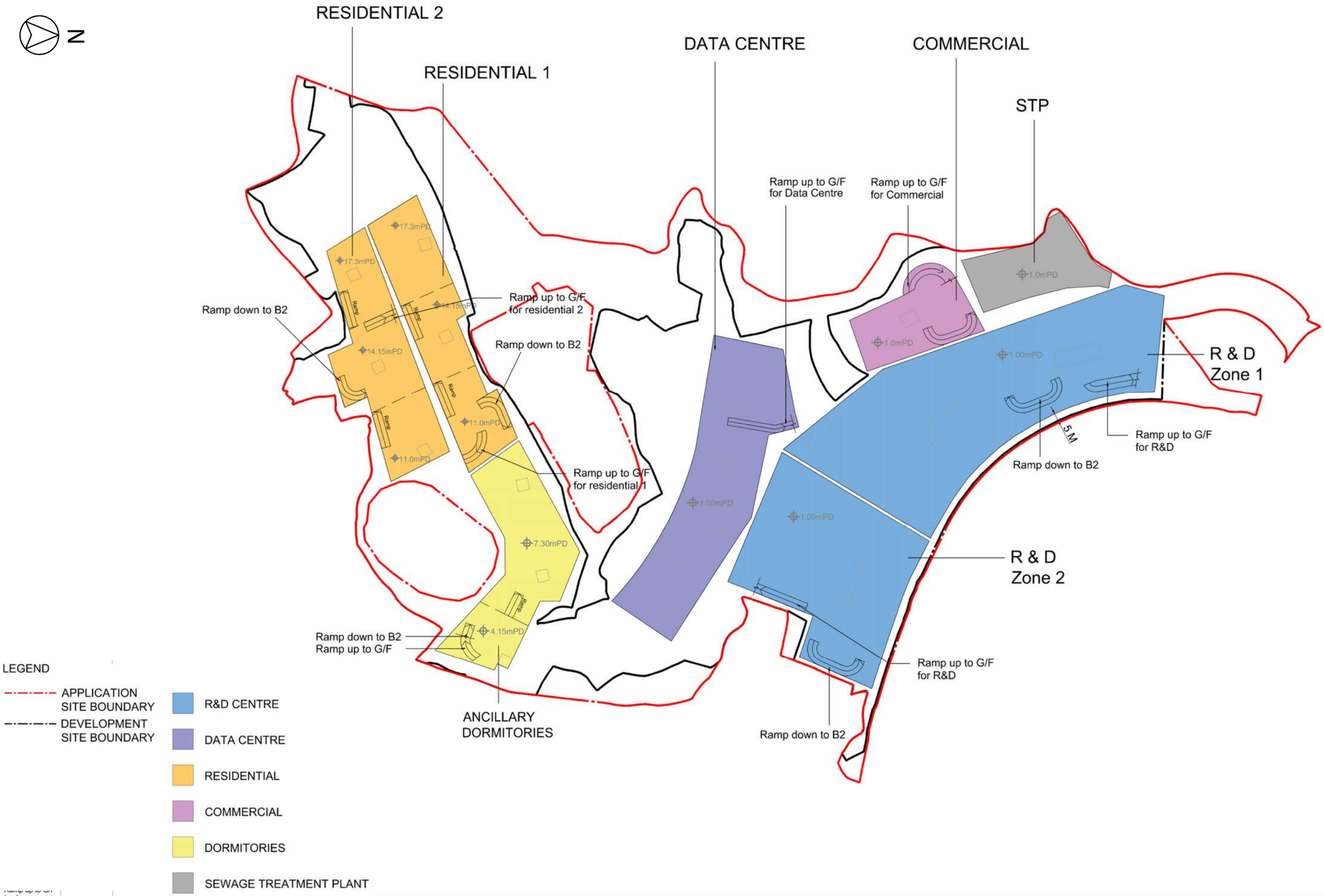
DRIVEWAY / EVA

PROPOSED FOOTBRIDGE

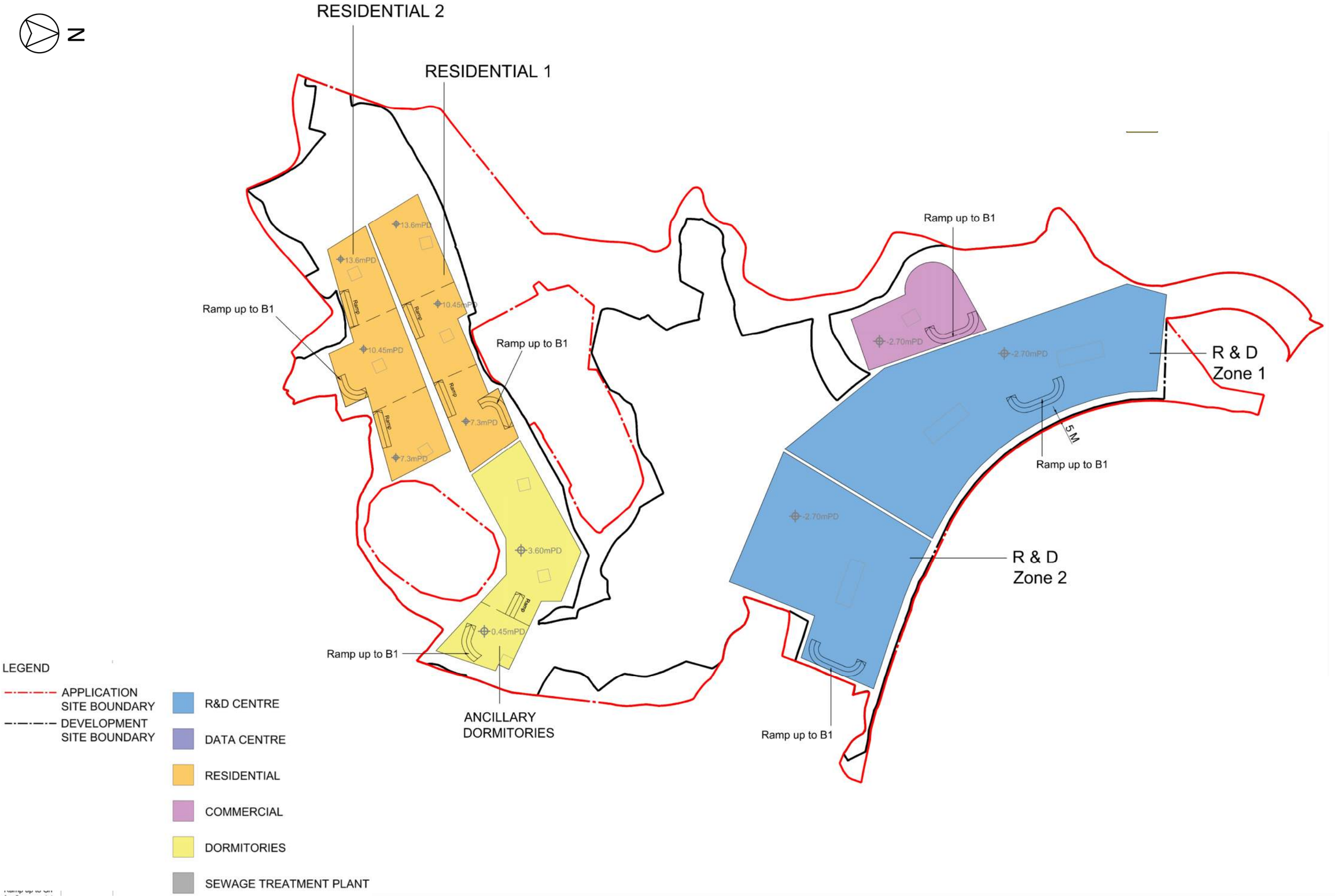
10M PROMENADE

EXISTING PUMPING STATION

Job Title: APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES		FIGURE 3.1
Date: DEC 24	Scale: NTS	Drawing Title: MASTER LAYOUT PLAN OF INDICATIVE SCHEME
Drawn: CKTY	Job No.: 287082-02	ARUP



Job Title: APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES		FIGURE 3.2
Date: DEC 24	Scale: NTS	Drawing Title: B1 BASEMENT LEVEL PLAN OF INDICATIVE SCHEME
Drawn: CKTY	Job No.: 287082-02	ARUP



Job Title	APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES	FIGURE 3.3
Date: DEC 24 / Scale: NTS	Drawing Title: B2 BASEMENT LEVEL PLAN OF INDICATIVE SCHEME	ARUP
Drawn: CKTY / Job No.: 287082-02		

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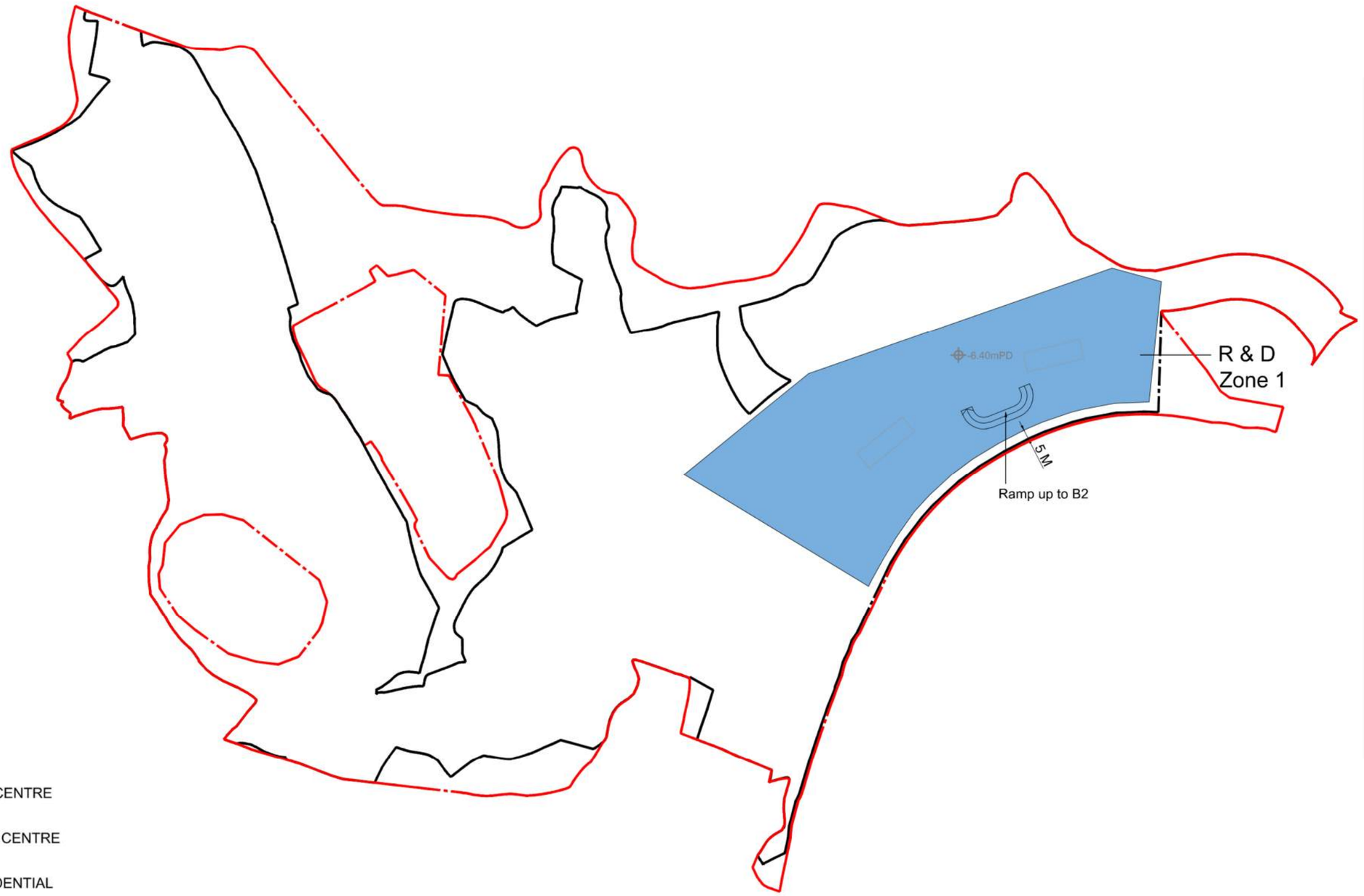


LEGEND

APPLICATION SITE BOUNDARY

DEVELOPMENT SITE BOUNDARY

R&D CENTRE

DATA CENTRE

RESIDENTIAL

COMMERCIAL

DORMITORIES

SEWAGE TREATMENT PLANT

Job Title: APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES

FIGURE 3.4

Date: DEC 24

Scale: NTS

Drawn: CKTY

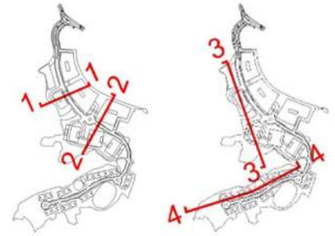
Job No.: 287082-02

Drawing Title: B3 BASEMENT LEVEL PLAN OF INDICATIVE SCHEME

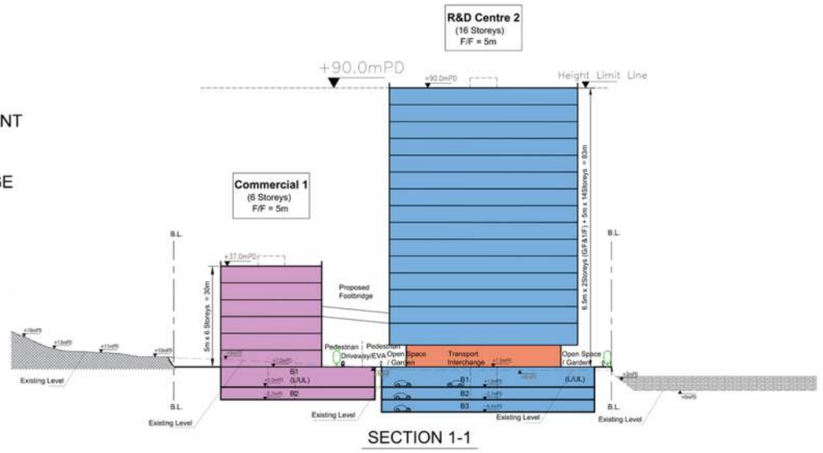
ARUP

LEGEND

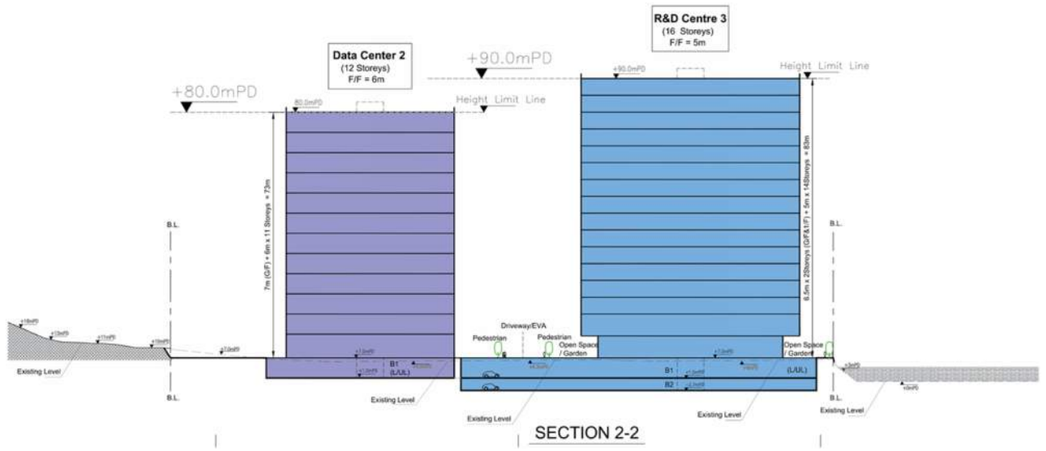
- R&D CENTRE
- DATA CENTRE
- ANCILLARY DORMITORY
- RESIDENTIAL
- COMMERCIAL
- CLUBHOUSE
- SEWAGE TREATMENT PLANT
- TRANSPORT INTERCHANGE



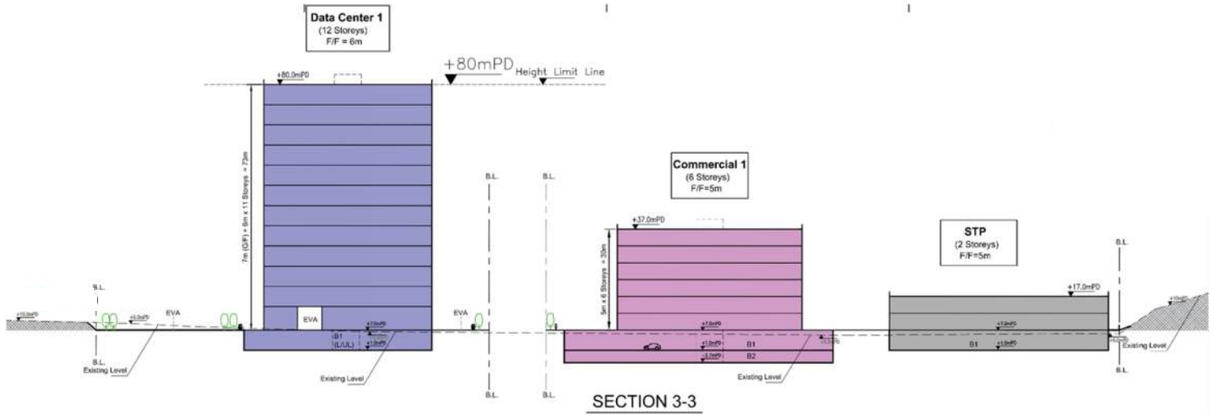
Key Plan



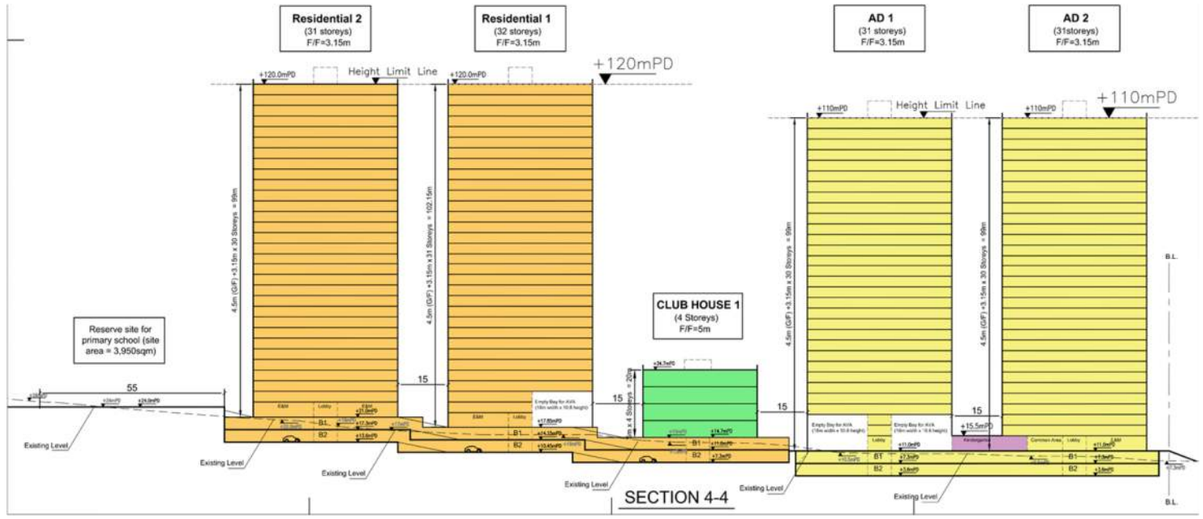
SECTION 1-1



SECTION 2-2



SECTION 3-3



SECTION 4-4

Job Title	APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES		FIGURE 3.5
Date: DEC 24	Scale: NTS	Drawing Title: SECTION PLAN OF INDICATIVE SCHEME	ARUP
Drawn: CKTY	Job No.: 287082-02		

N

+10.8 +10.4 +10.6 +10.0 +9.2 7.5 +8.3 +8.1 +8.7 +6.5 +6.5 +10.0 +5.7 7.3

L E ET C CUL ESS

排水口 Outfall

WIP Nov 2023

蓮麻坑路

LIN MA HANG ROAD

PROPOSED ACCESS ROAD OF APPLICATION SITE

平原河抽水站

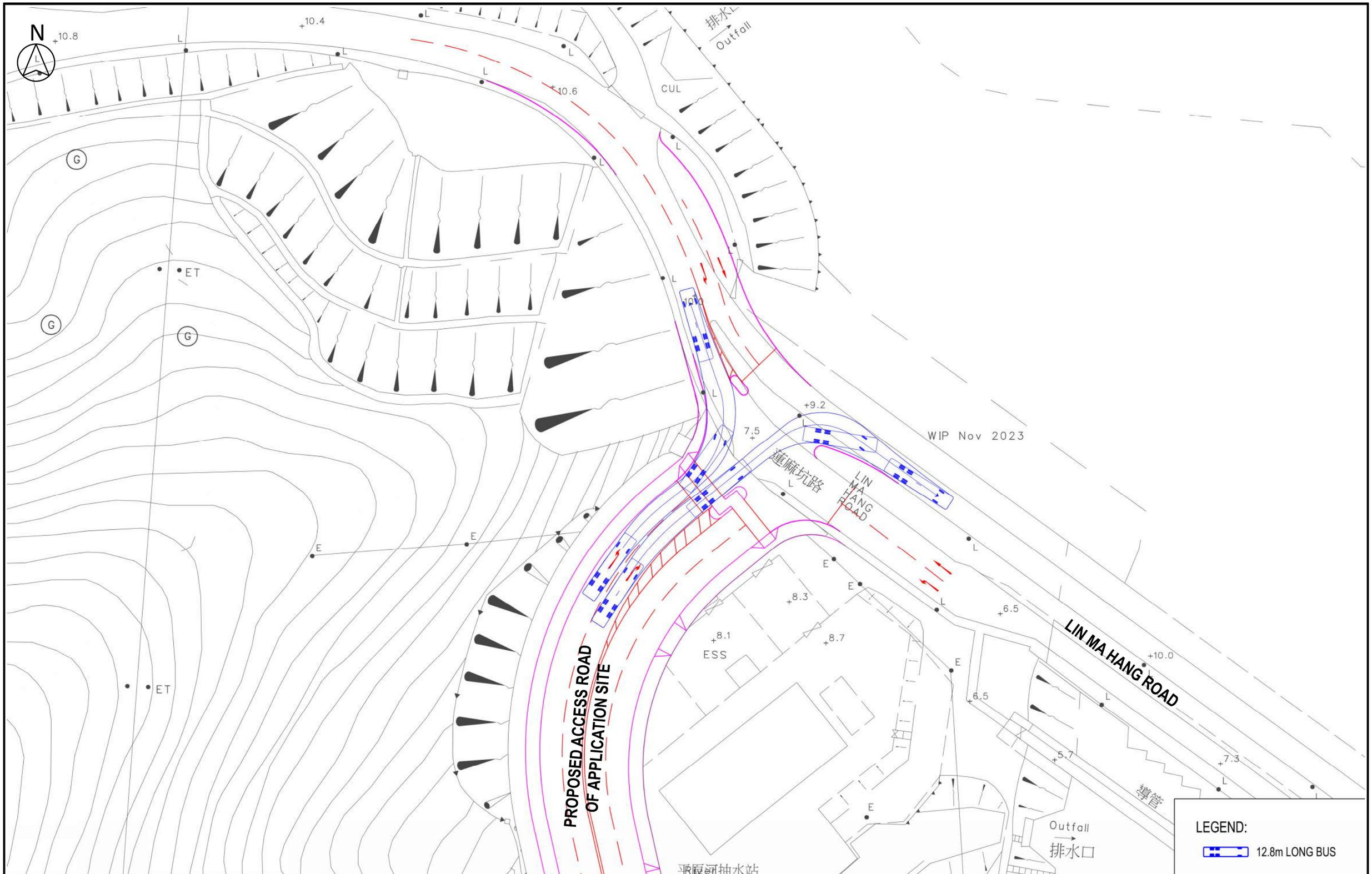
LEGEND:

- PROPOSED ROAD KERB ALIGNEMNT
- PROPOSED ROAD MARKING

Job Title	APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES
Date: DEC 24	Scale: NTS
Drawn: CKTY	Job No.: 287082-02
Drawing Title	PROPOSED ACCESSES ROAD AND SIGNALISED JUNCTION OF INDICATIVE SCHEME

FIGURE 3.6

ARUP



Job Title: APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES		FIGURE 3.7
Date: DEC 24 / Scale: NTS / Drawn: CKTY / Job No.: 287082-02	Drawing Title: SWEPT PATH ANALYSIS OF THE PROPOSED ACCESSES ROAD AND SIGNALISED JUNCTION OF INDICATIVE SCHEME – PROPOSED ACCESS ROAD	ARUP

N

WIP Nov 2023

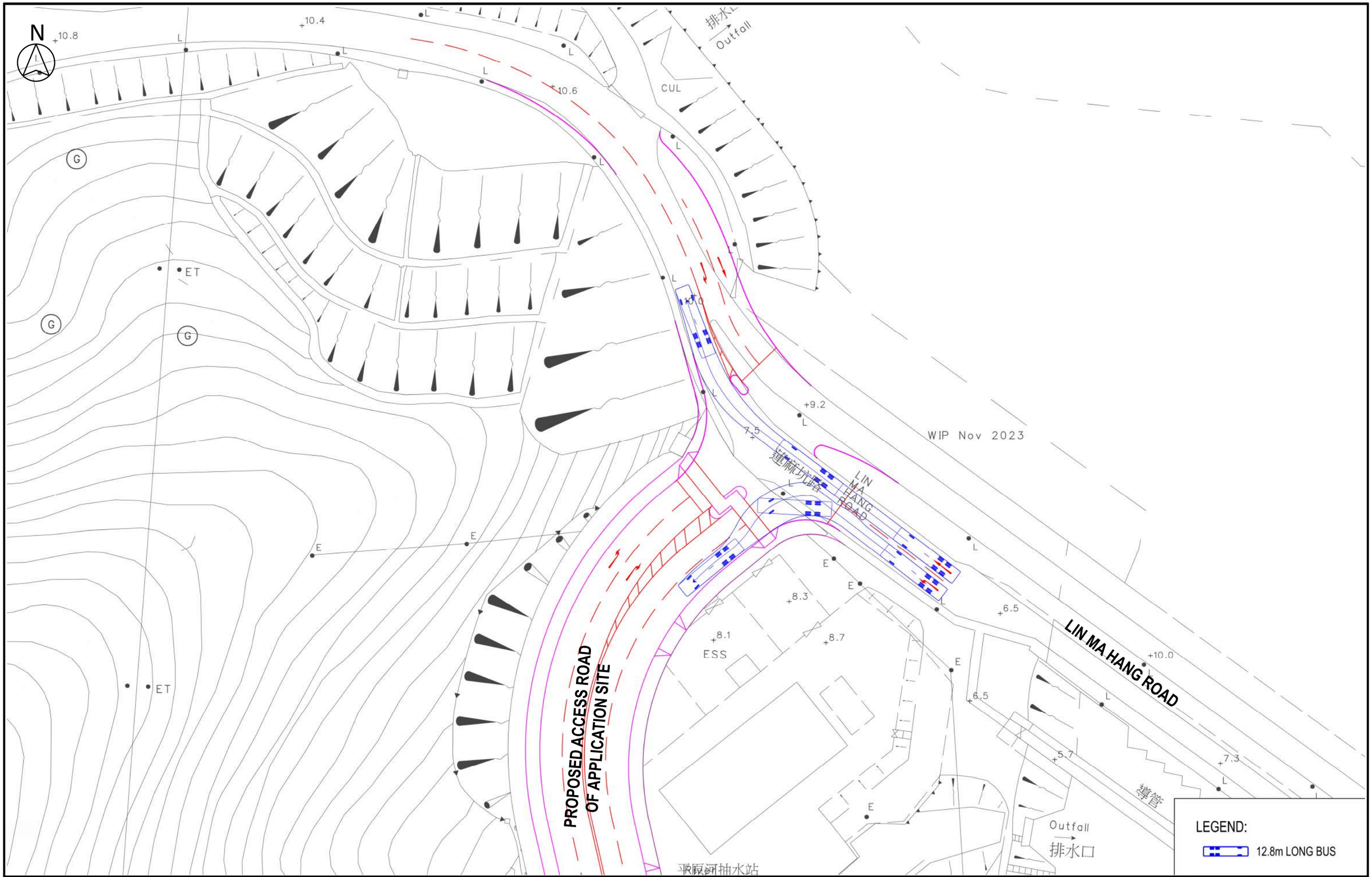
PROPOSED ACCESS ROAD OF APPLICATION SITE

LIN MA HANG ROAD

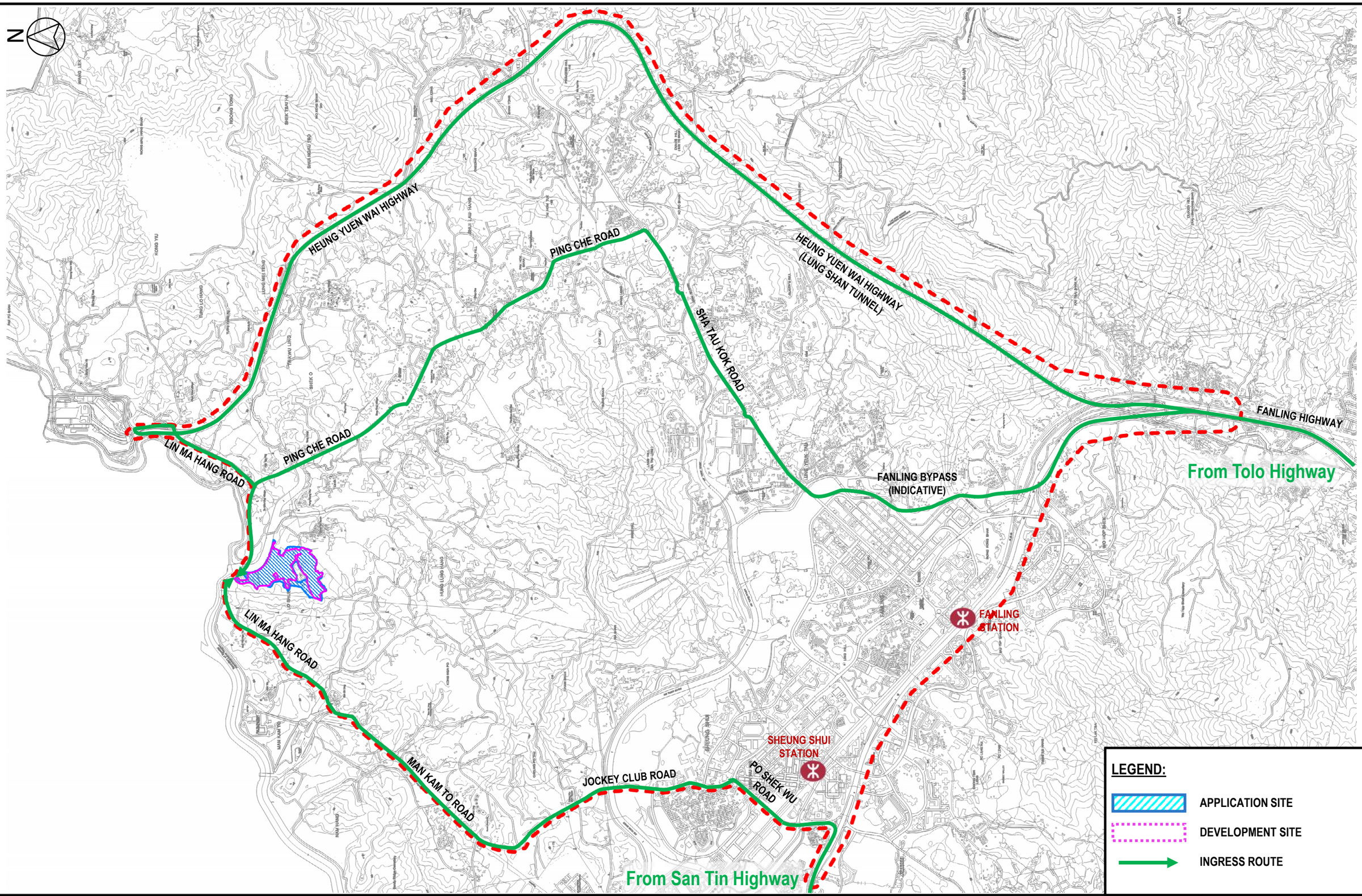
LEGEND:

12.8m LONG BUS

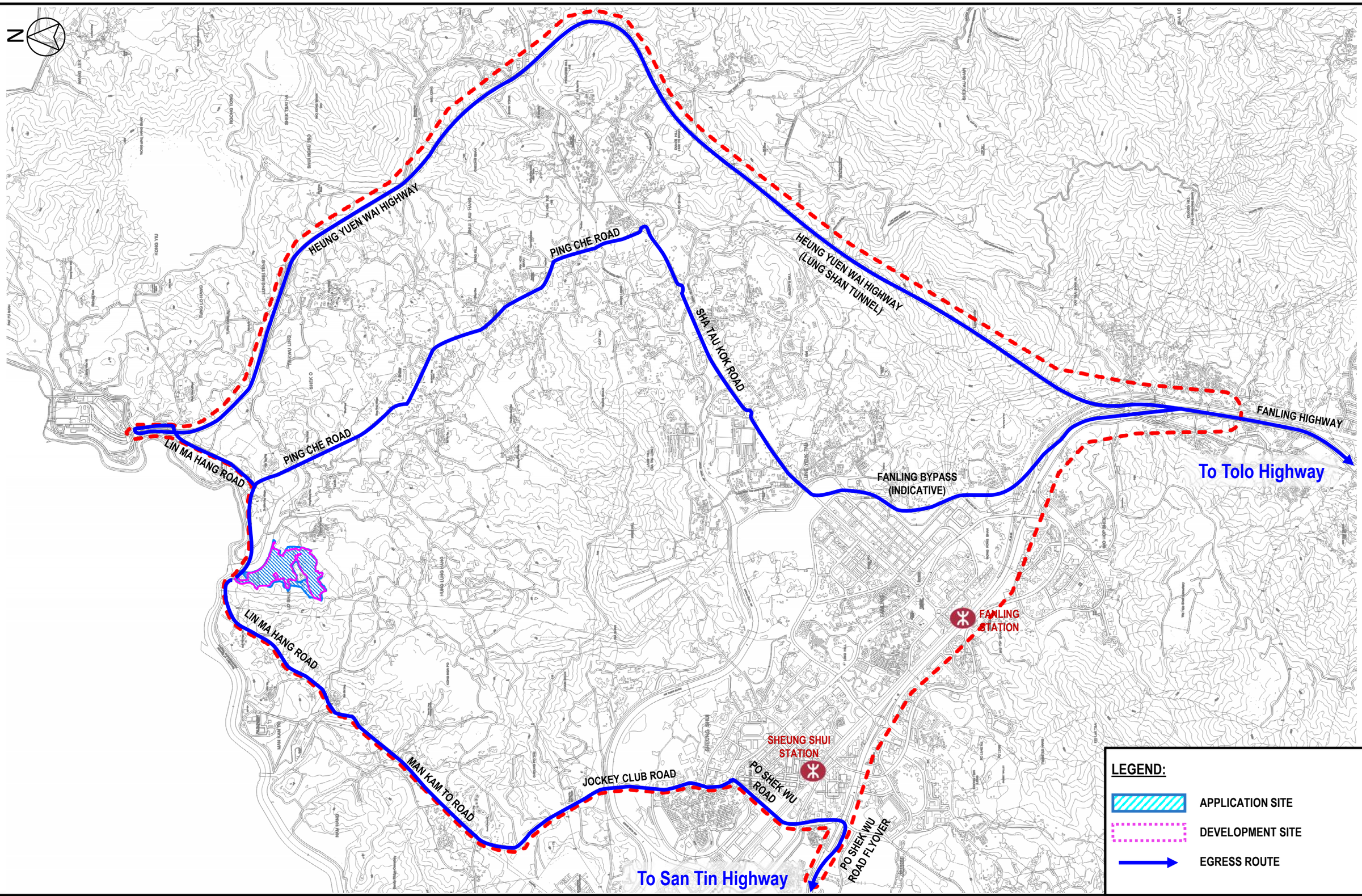
Job Title: APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES		FIGURE 3.8
Date: DEC 24 / Scale: NTS / Drawn: CKTY / Job No.: 287082-02	Drawing Title: SWEPT PATH ANALYSIS OF THE PROPOSED ACCESSES ROAD AND SIGNALISED JUNCTION OF INDICATIVE SCHEME – LIN MA HANG ROAD EASTBOUND	ARUP



Job Title: APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES		FIGURE 3.9
Date: DEC 24 / Scale: NTS / Drawn: CKTY / Job No.: 287082-02	Drawing Title: SWEPT PATH ANALYSIS OF THE PROPOSED ACCESSES ROAD AND SIGNALISED JUNCTION OF INDICATIVE SCHEME – LIN MA HANG ROAD WESTBOUND	ARUP



Job Title	APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES	FIGURE 3.10
Date: DEC 24 / Scale: NTS / Drawn: CKTY / Job No.: 287082-02	Drawing Title: MAJOR INGRESS VEHICULAR ROUTES OF INDICATIVE SCHEME	ARUP



Job Title	APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES
Date	DEC 24
Scale	NTS
Drawn	CKTY
Job No.	287082-02
Drawing Title	MAJOR EGRESS VEHICULAR ROUTES OF INDICATIVE SCHEME

FIGURE 3.11

ARUP

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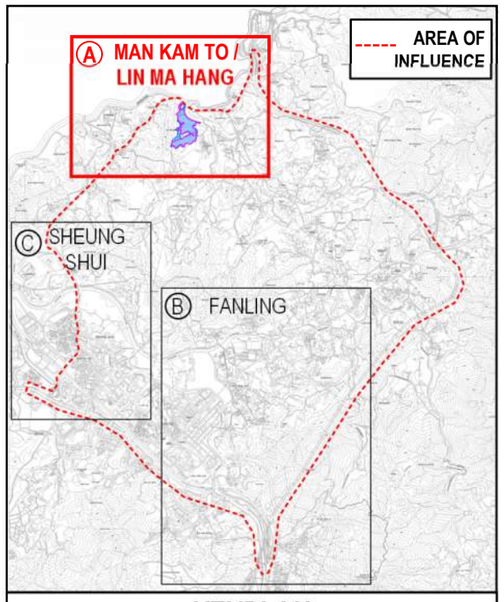


KEYPLAN

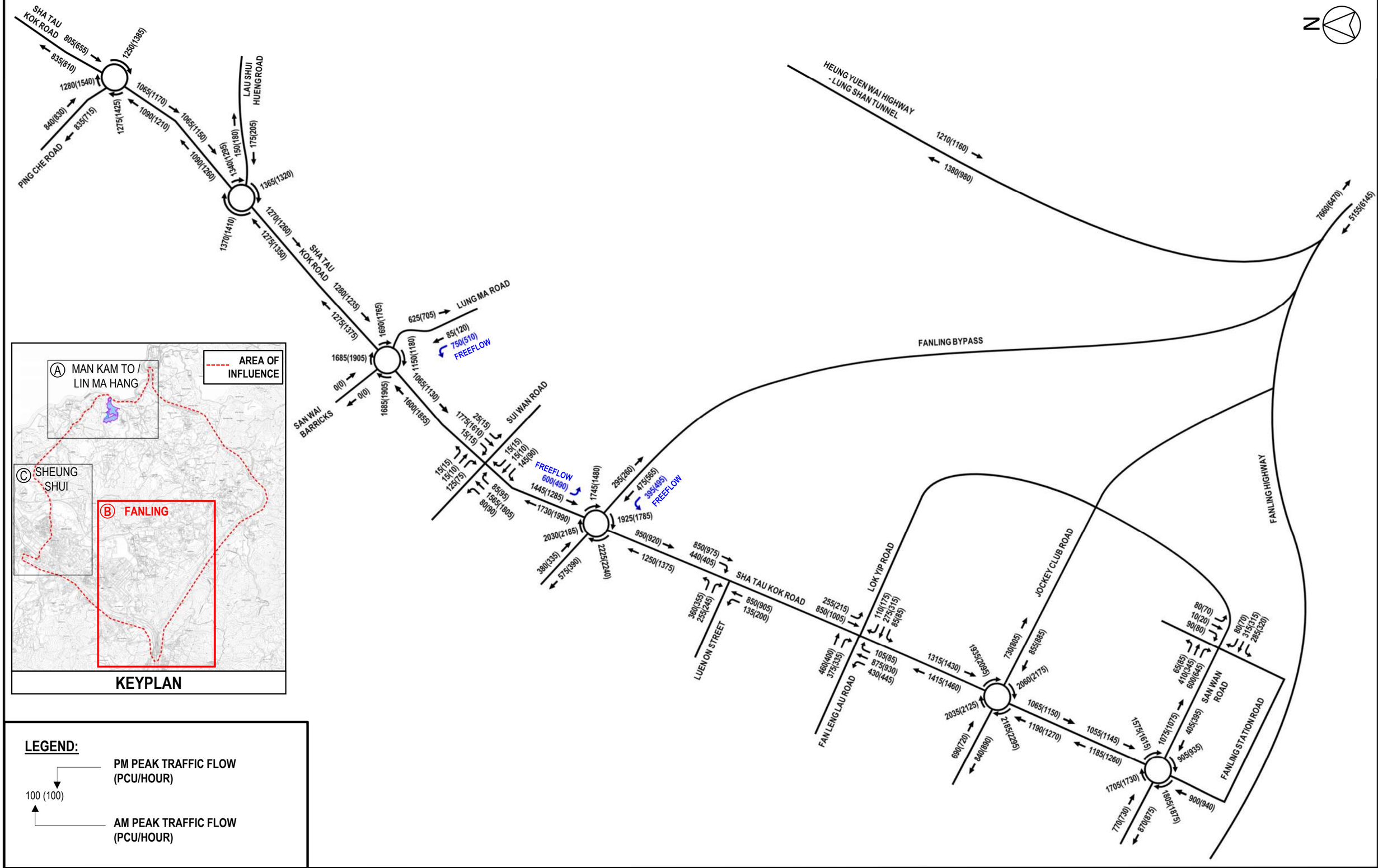
LEGEND:

PM PEAK TRAFFIC FLOW (PCU/HOUR)

100 (100)

AM PEAK TRAFFIC FLOW (PCU/HOUR)

Job Title: APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES		FIGURE 4.1
Date: DEC 24	Scale: NTS	
Drawn: CKTY	Job No.: 287082-02	Drawing Title: YEAR 2031 REFERENCE TRAFFIC FLOW – MAN KAM TO / LIN MA HANG AREA
		ARUP



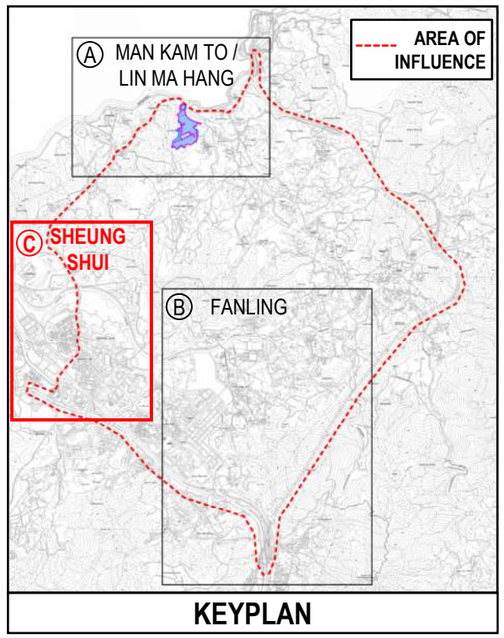
LEGEND:

100 (100)

PM PEAK TRAFFIC FLOW (PCU/HOUR)

AM PEAK TRAFFIC FLOW (PCU/HOUR)

Job Title: APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES		FIGURE 4.2
Date: DEC 24	Scale: NTS	
Drawn: CKTY	Job No.: 287082-02	Drawing Title: YEAR 2031 REFERENCE TRAFFIC FLOW – FANLING AREA
		ARUP



KEYPLAN

N

FANLING BYPASS
UNNAMED ROAD
ROAD L4
MAN KAM TO ROAD
TIN PING ROAD
JOCKEY CLUB ROAD
JOCKEY CLUB ROAD
SO KWUN PO ROAD
LUNG SUM AVENUE
PO WAN ROAD
PO SHEK WU ROAD
CHOI YUEN ROAD
PO SHEK WU ROAD FLYOVER
FANLING HIGHWAY
KONG NGA PO ROAD
MAN KAM TO ROAD
UNNAMED ROAD
PO WAN ROAD
CHOI YUEN ROAD

LEGEND:

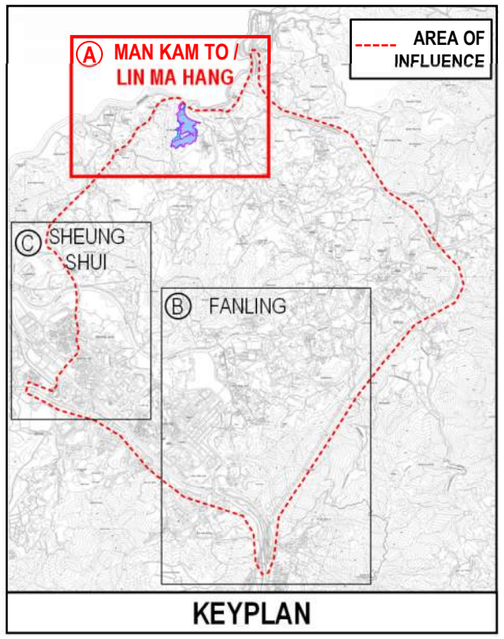
PM PEAK TRAFFIC FLOW (PCU/HOUR)

100 (100)

AM PEAK TRAFFIC FLOW (PCU/HOUR)

Job Title: APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES		FIGURE 4.3
Date: DEC 24 / Scale: NTS / Drawn: CKTY / Job No.: 287082-02	Drawing Title: YEAR 2031 REFERENCE TRAFFIC FLOW – SHEUNG SHUI AREA	ARUP

N



KEYPLAN

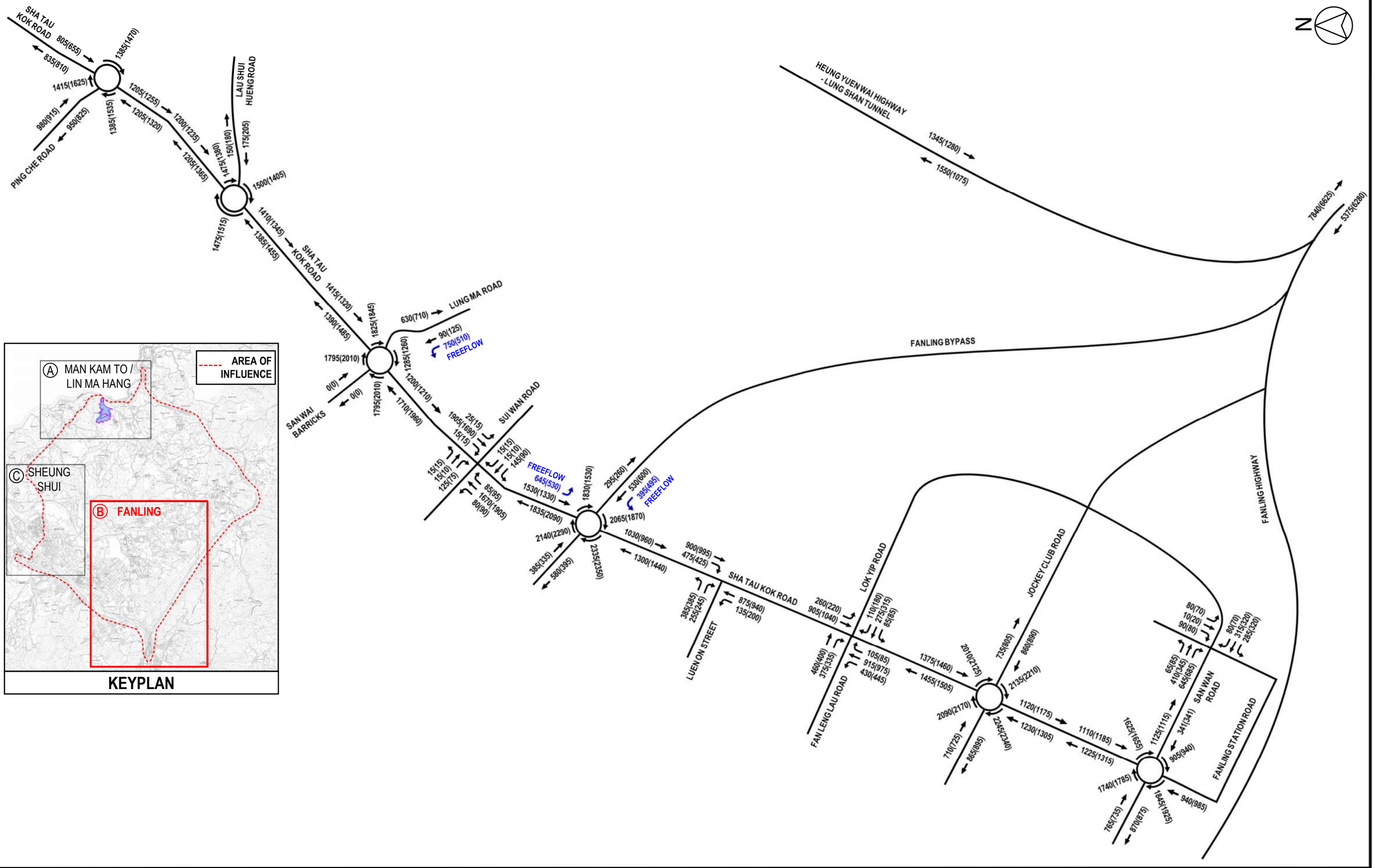
LEGEND:

PM PEAK TRAFFIC FLOW (PCU/HOUR)

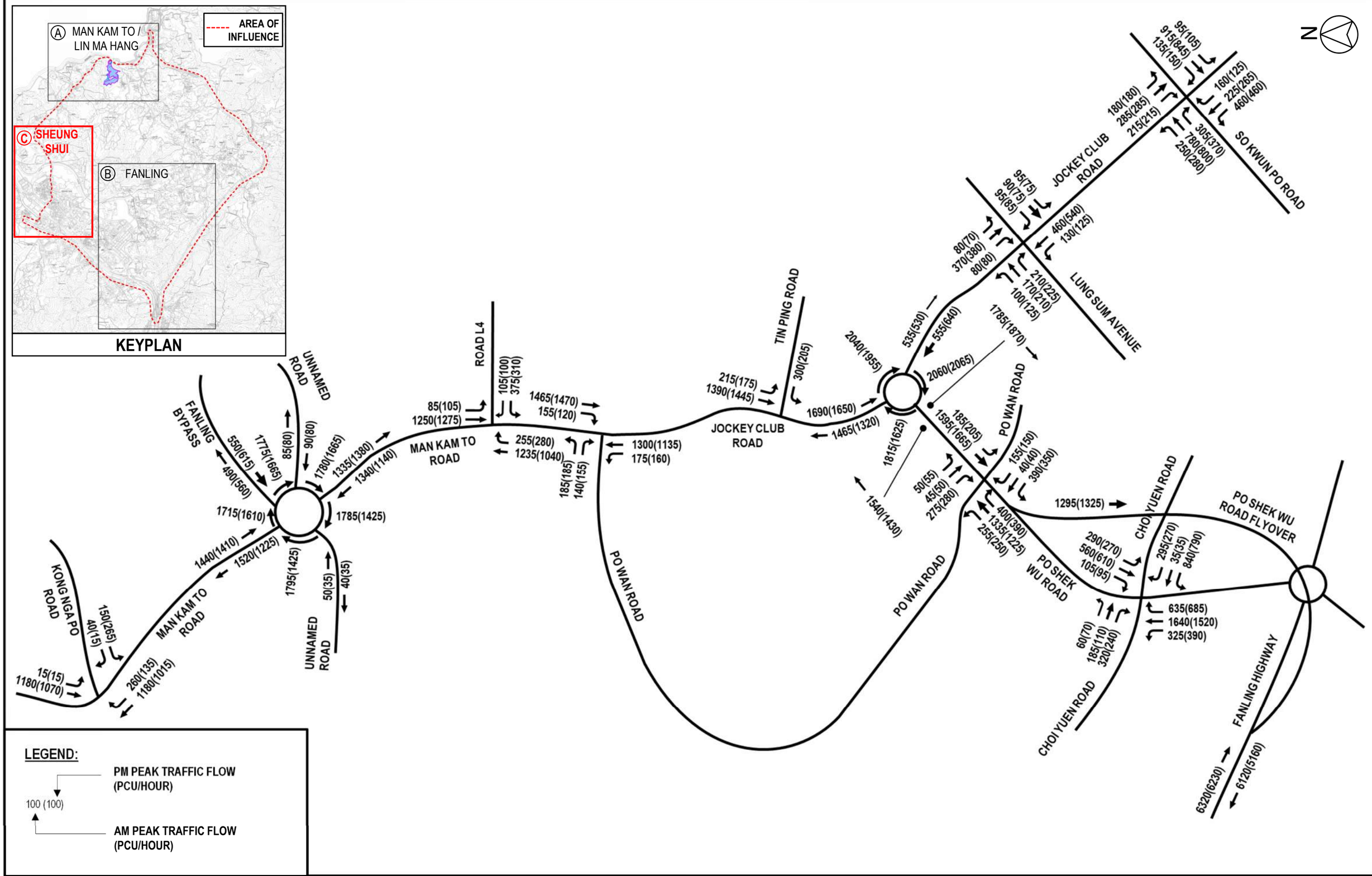
100 (100)

AM PEAK TRAFFIC FLOW (PCU/HOUR)

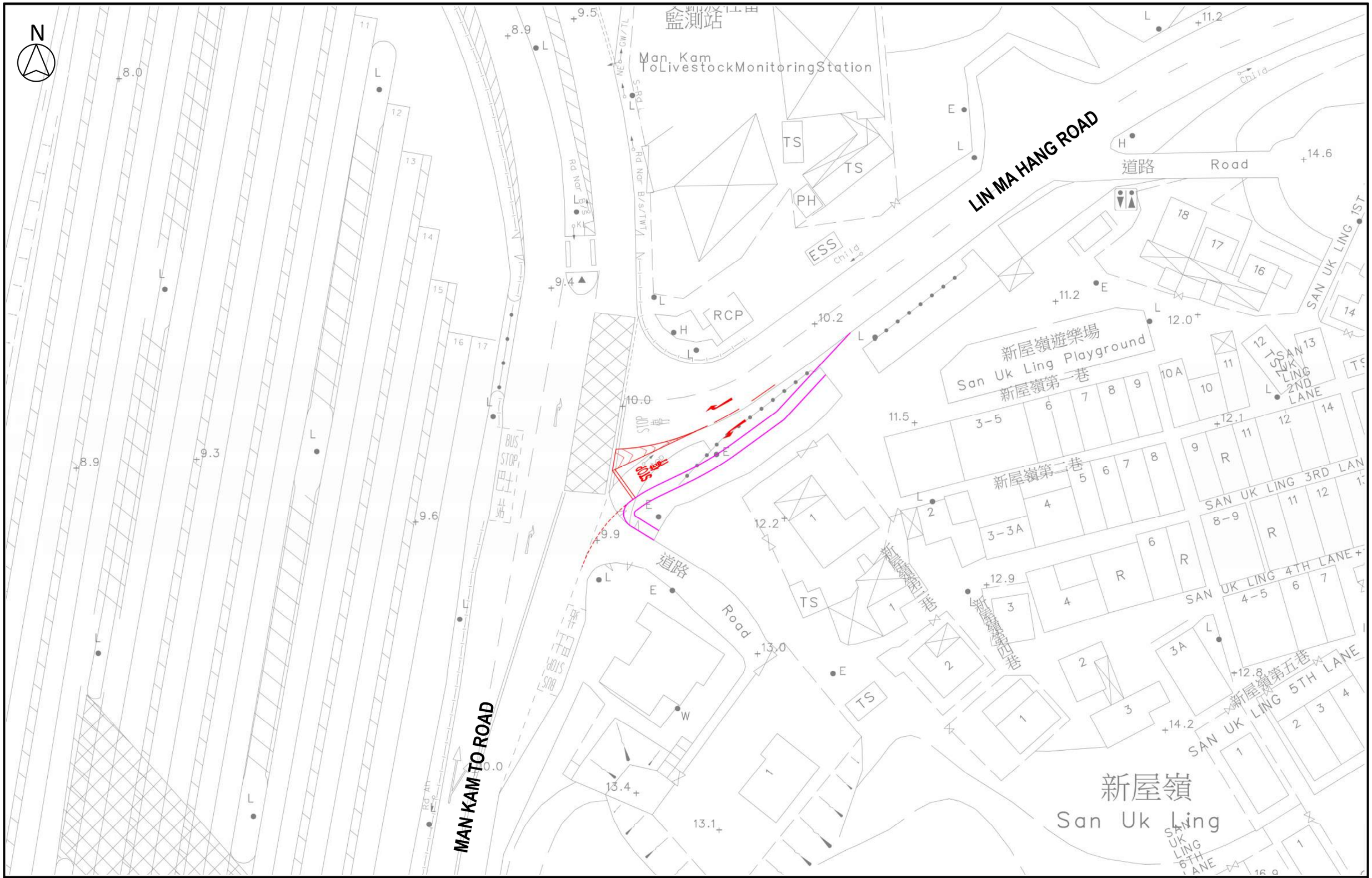
Job Title: APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES		FIGURE 4.4
Date: DEC 24	Scale: NTS	
Drawn: CKTY	Job No.: 287082-02	Drawing Title: YEAR 2031 DESIGN TRAFFIC FLOW – MAN KAM TO / LIN MA HANG AREA
		ARUP



Job Title	APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES	FIGURE 4.5
Date: DEC 24 / Scale: NTS	Drawing Title: YEAR 2031 DESIGN TRAFFIC FLOW – FANLING AREA	ARUP
Drawn: CKTY / Job No.: 287082-02		



Job Title: APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES		FIGURE 4.6
Date: DEC 24 / Scale: NTS / Drawn: CKTY / Job No.: 287082-02	Drawing Title: YEAR 2031 DESIGN TRAFFIC FLOW – SHEUNG SHUI AREA	ARUP



Job Title: APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES		**FIGURE 4.7**
Date: DEC 24 / Scale: NTS / Drawn: CKTY / Job No.: 287082-02	Drawing Title: **PROPOSED JUNCTION MODIFICATION FOR J1 – LIN MA HANG ROAD / MAN KAM TO ROAD**	ARUP

N

LIN MA HANG ROAD

MAN KAM TO ROAD

Man Kam To Livestock Monitoring Station

San Uk Ling Playground

新屋嶺遊樂場

新屋嶺第一巷

新屋嶺第二巷

新屋嶺第四巷

新屋嶺第五巷

SAN UK LING 1ST LANE

SAN UK LING 2ND LANE

SAN UK LING 3RD LANE

SAN UK LING 4TH LANE

SAN UK LING 5TH LANE

道路 Road

RCP

ESS

PH

TS

BUS STOP

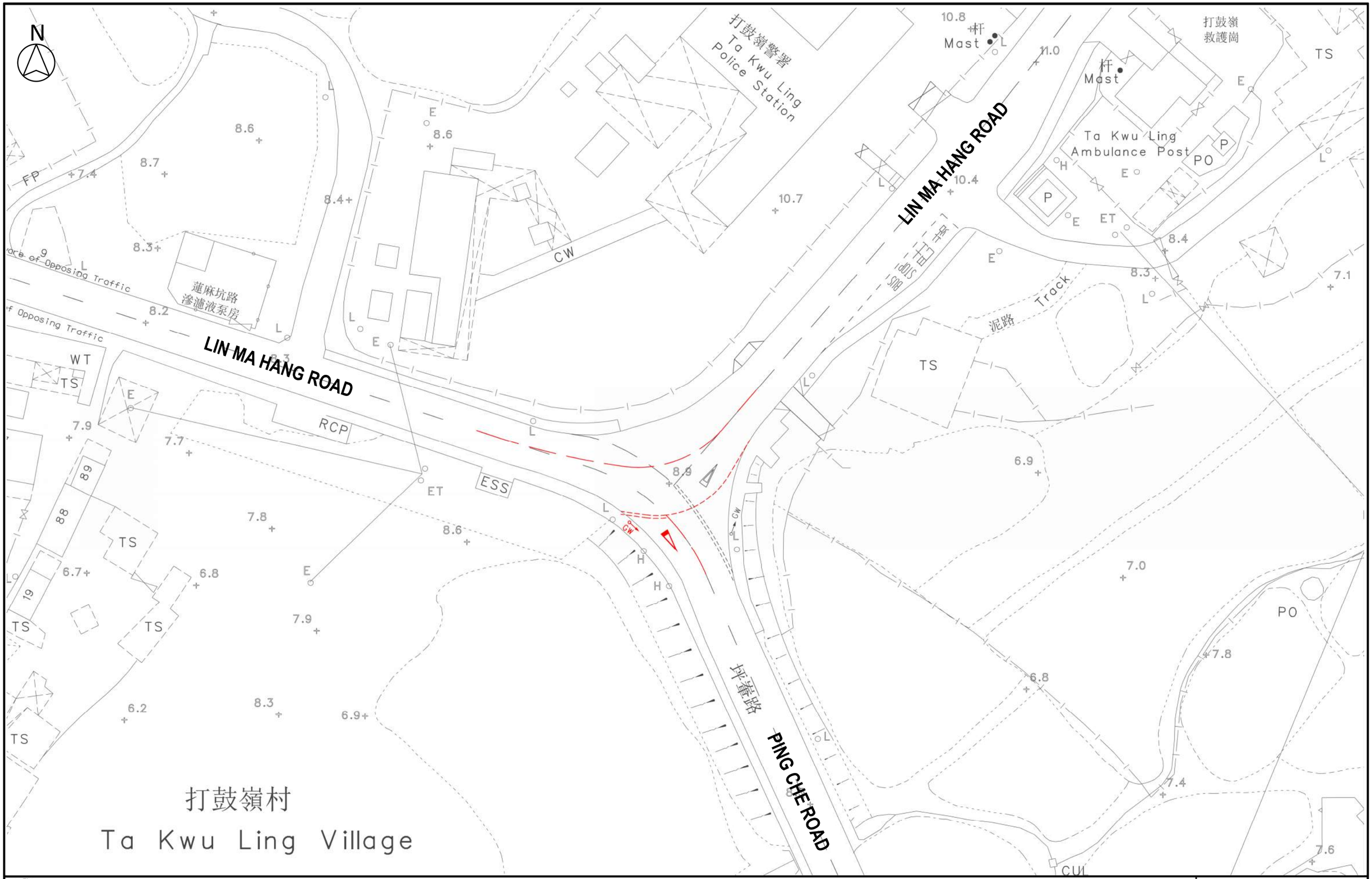
LEGEND:

16m LONG CONTAINER (LEAVING)

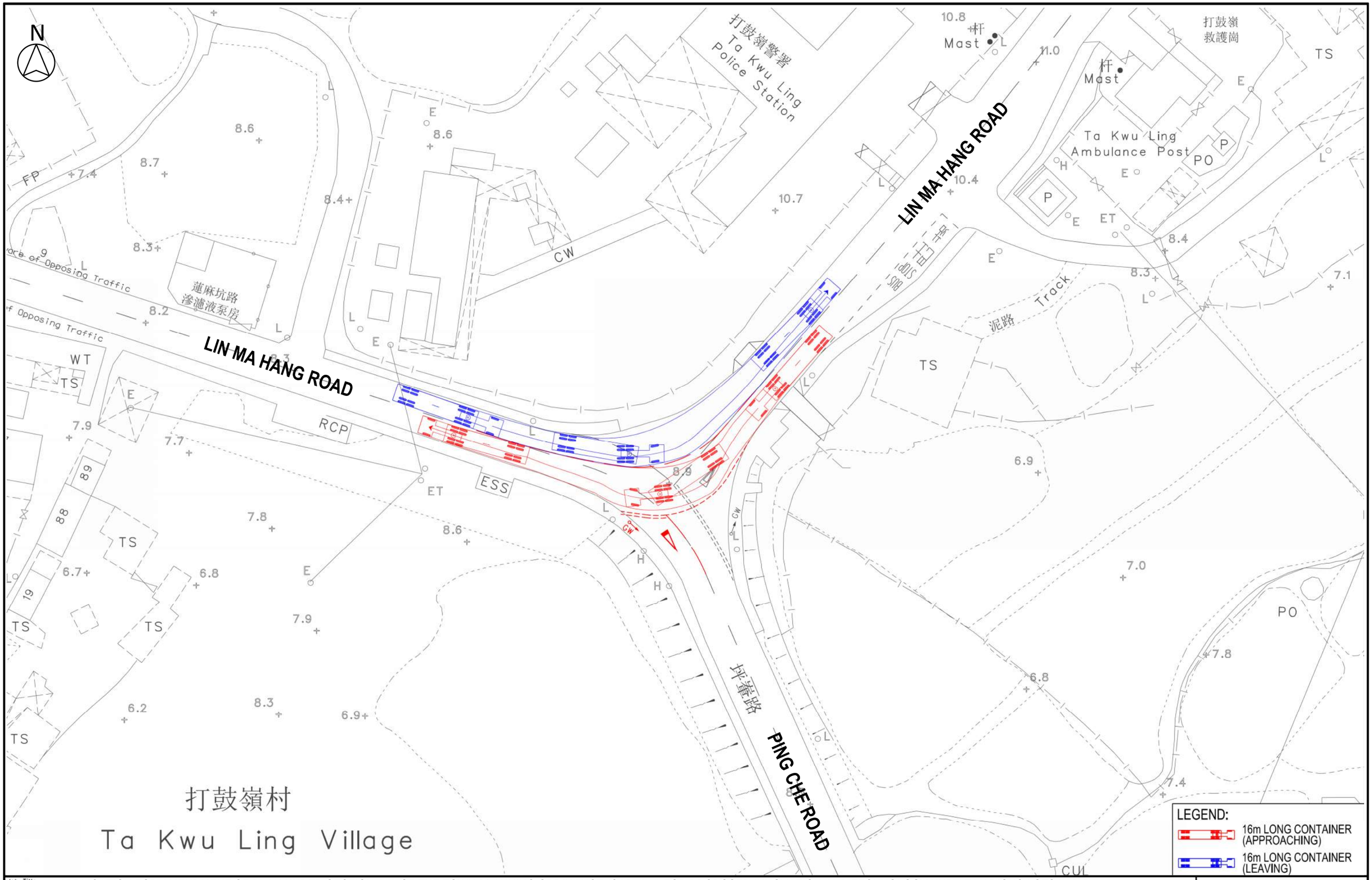
Job Title	APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES
Date: DEC 24	Scale: NTS
Drawn: CKTY	Job No.: 287082-02
Drawing Title	SWEPT PATH ANALYSIS OF PROPOSED JUNCTION MODIFICATION FOR J1 – LIN MA HANG ROAD / MAN KAM TO ROAD

FIGURE 4.8

ARUP



Job Title: APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES		**FIGURE 4.9**
Date: DEC 24	Scale: NTS	Drawing Title: **PROPOSED JUNCTION MODIFICATION FOR J2 – LIN MA HANG ROAD / PING CHE ROAD**
Drawn: CKTY	Job No.: 287082-02	ARUP



Job Title: APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES		FIGURE 4.10
Date: DEC 24 / Scale: NTS / Drawn: CKTY / Job No.: 287082-02	Drawing Title: SWEPT PATH ANALYSIS OF PROPOSED JUNCTION MODIFICATION FOR J2 – LIN MA HANG ROAD / PING CHE ROAD	ARUP

N

SUI WAN ROAD

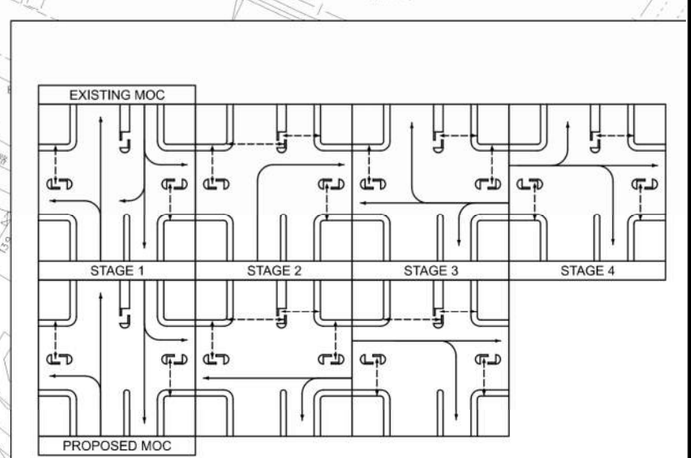
SHA TAU KOK ROAD

SUI WAN ROAD

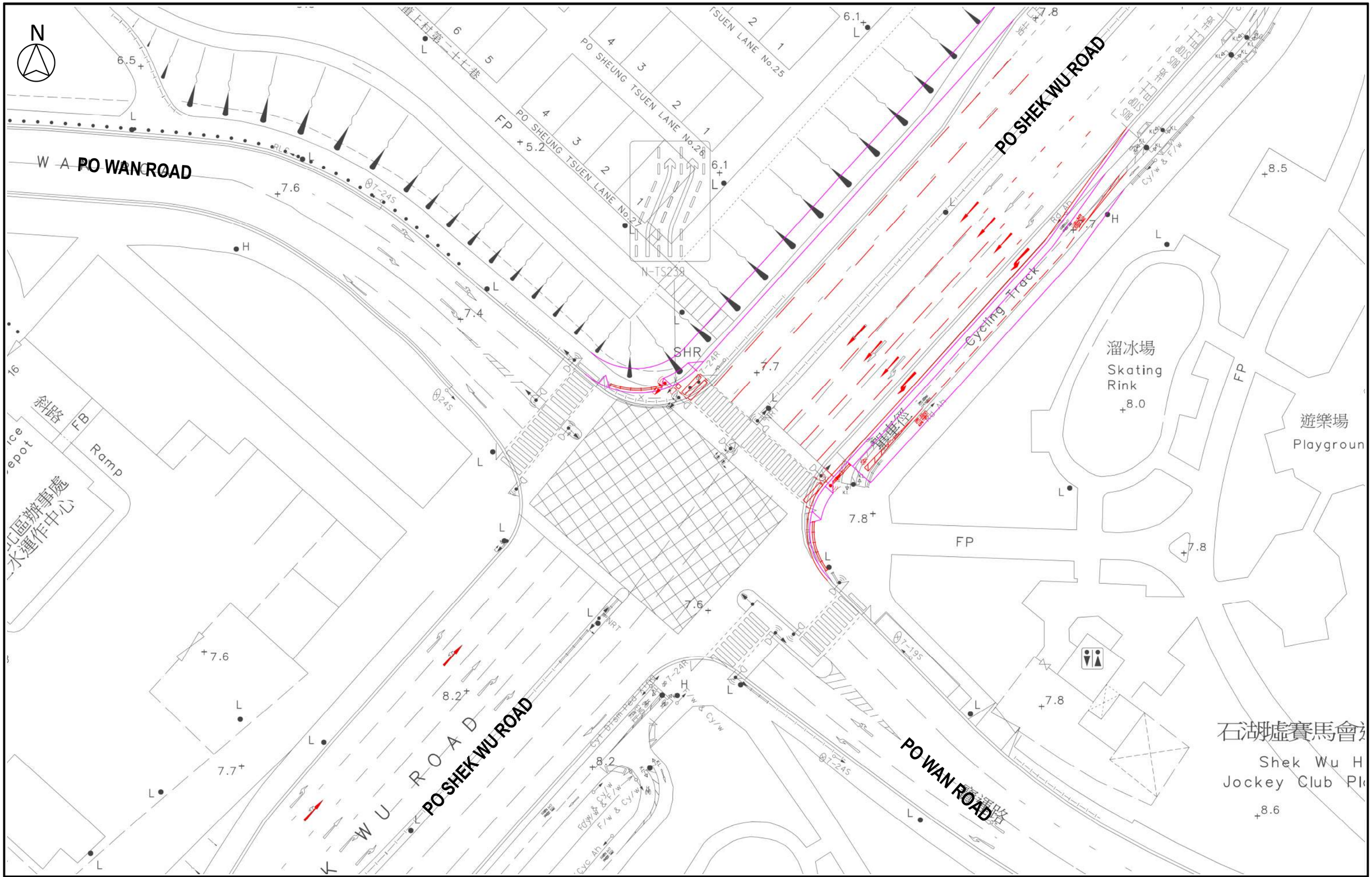
SHA TAU KOK ROAD

龍躍頭
LUNG YEUK TAU

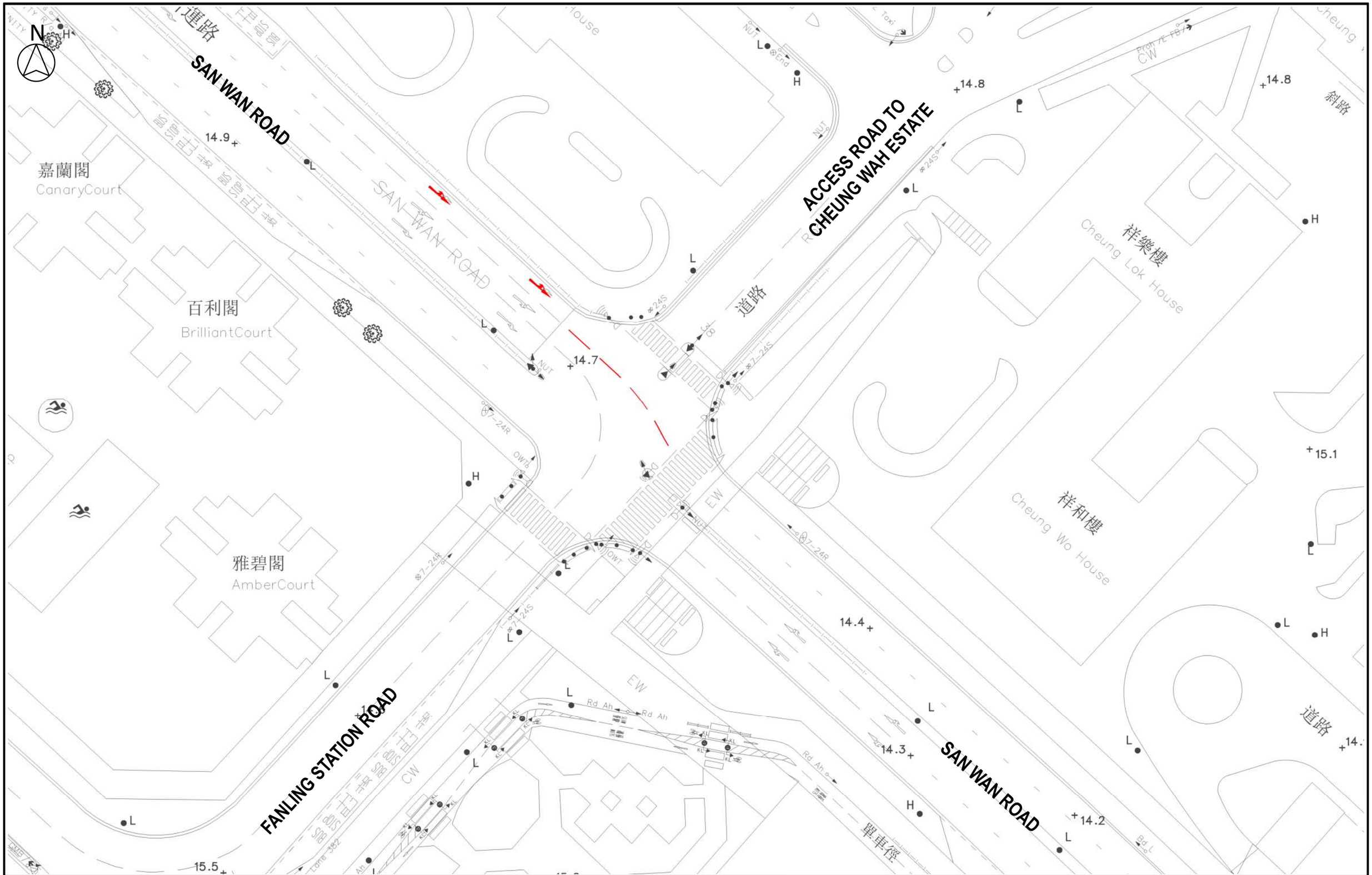
永寧花園



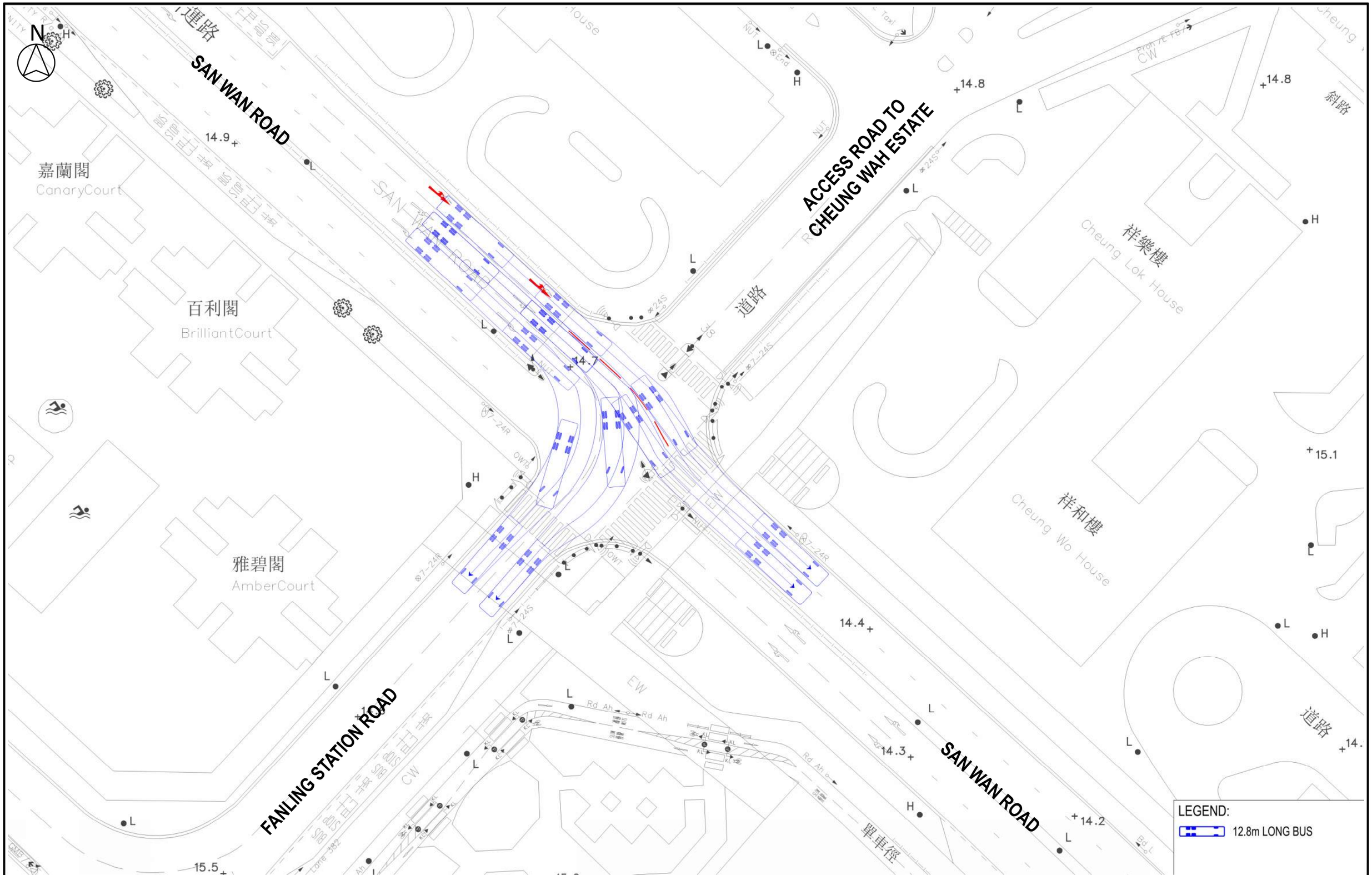
Job Title	APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES	FIGURE 4.11
Date: DEC 24 / Scale: NTS / Drawn: CKTY / Job No.: 287082-02	Drawing Title: PROPOSED JUNCTION MODIFICATION FOR J8 – SHA TAU KOK ROAD / SUI WAN ROAD	ARUP



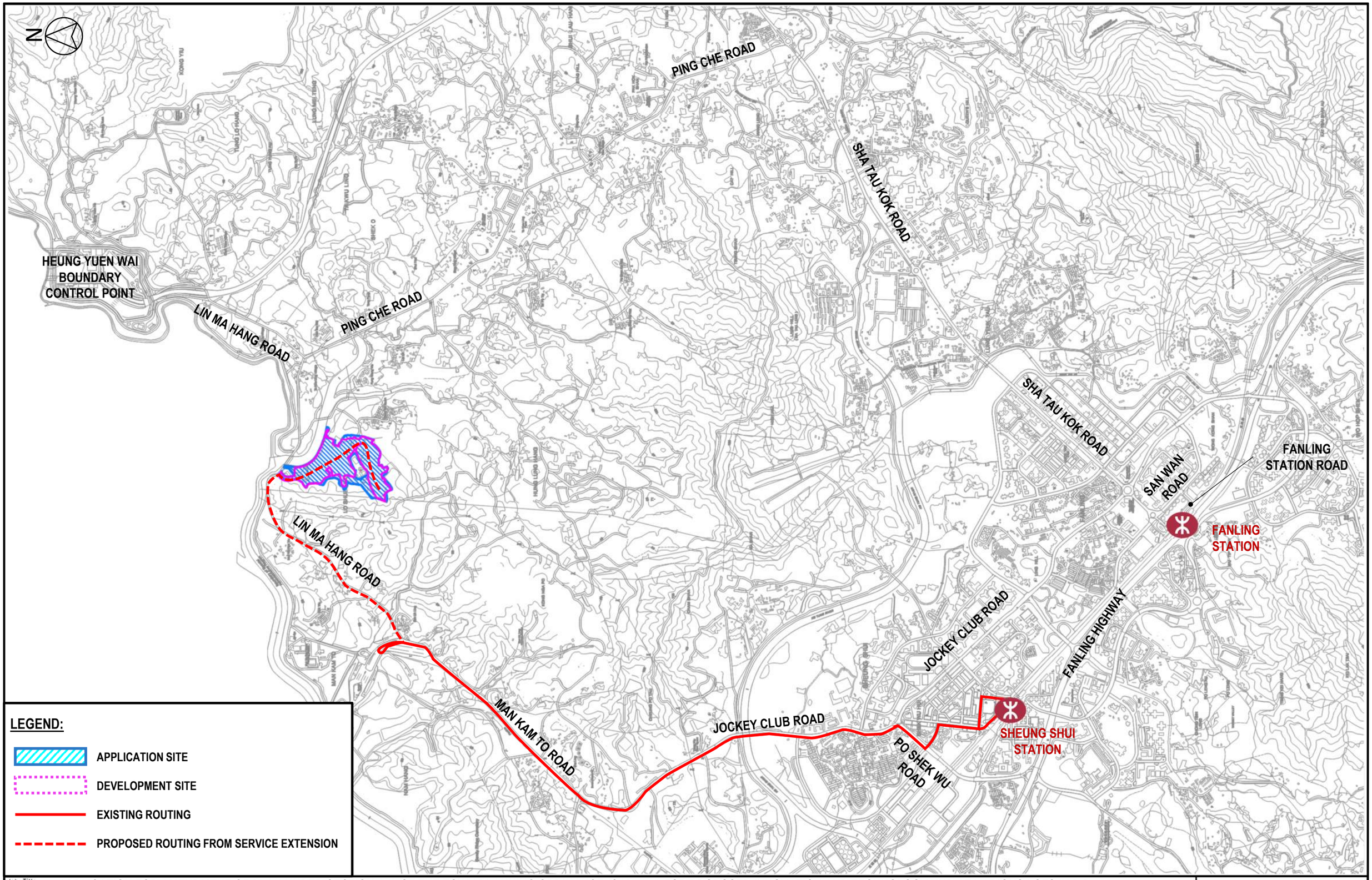
Job Title: APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES		**FIGURE 4.12**
Date: DEC 24 / Scale: NTS / Drawn: CKTY / Job No.: 287082-02	Drawing Title: **PROPOSED JUNCTION MODIFICATION FOR J13 – PO SHEK WU ROAD / PO WAN ROAD**	ARUP



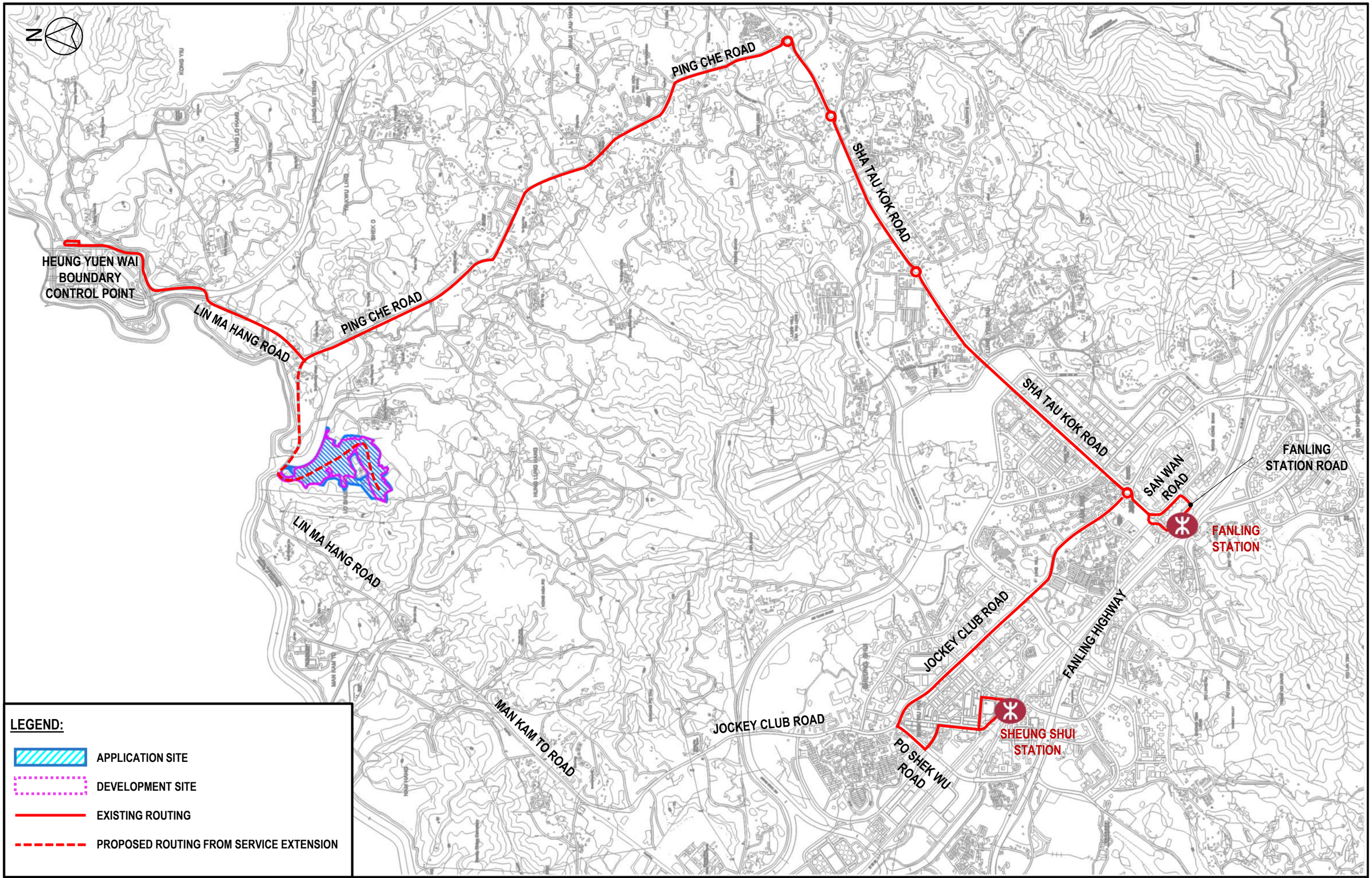
Job Title	APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES		FIGURE 4.13
Date: DEC 24	Scale: NTS	Drawing Title: PROPOSED JUNCTION MODIFICATION FOR J23 – SAN WAN ROAD / FANLING STATION ROAD	ARUP
Drawn: CKTY	Job No.: 287082-02		



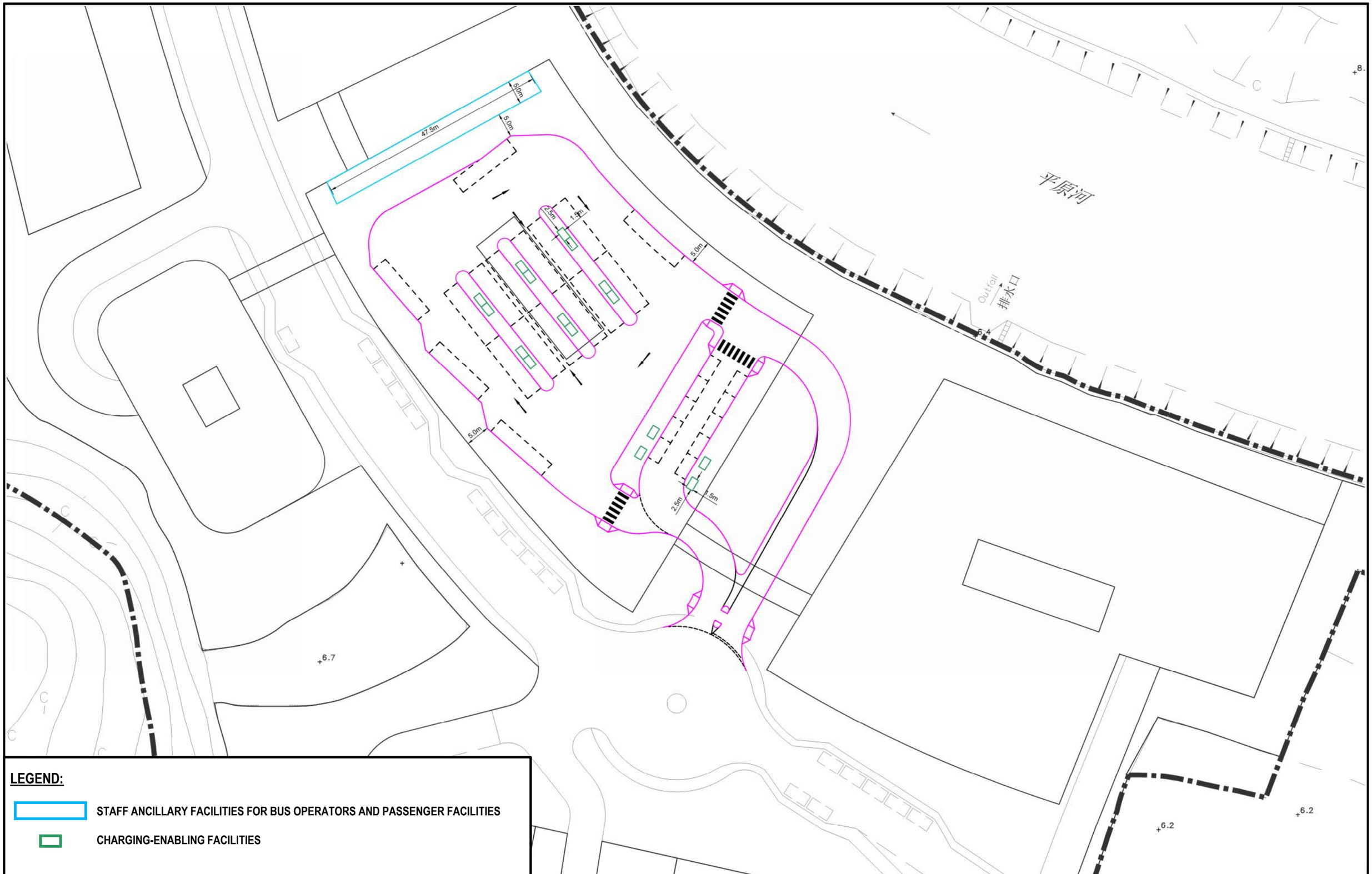
Job Title: APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES		**FIGURE 4.14**
Date: DEC 24	Scale: NTS	Drawing Title: **SWEPT PATH ANALYSIS OF PROPOSED JUNCTION MODIFICATION FOR J23 – SAN WAN ROAD / FANLING STATION ROAD**
Drawn: CKTY	Job No.: 287082-02	ARUP



Job Title: APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES		FIGURE 4.15
Date: DEC 24 / Scale: NTS / Drawn: CKTY / Job No.: 287082-02	Drawing Title: PROPOSED ROUTING OF KMB 73K FOR SERVICE EXTENSION TO THE APPLICATION SITE	ARUP



Job Title: APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES		FIGURE 4.16
Date: DEC 24	Scale: NTS	
Drawn: CKTY	Job No.: 287082-02	Drawing Title: PROPOSED ROUTING OF KMB 79K FOR SERVICE EXTENSION TO THE APPLICATION SITE
		ARUP

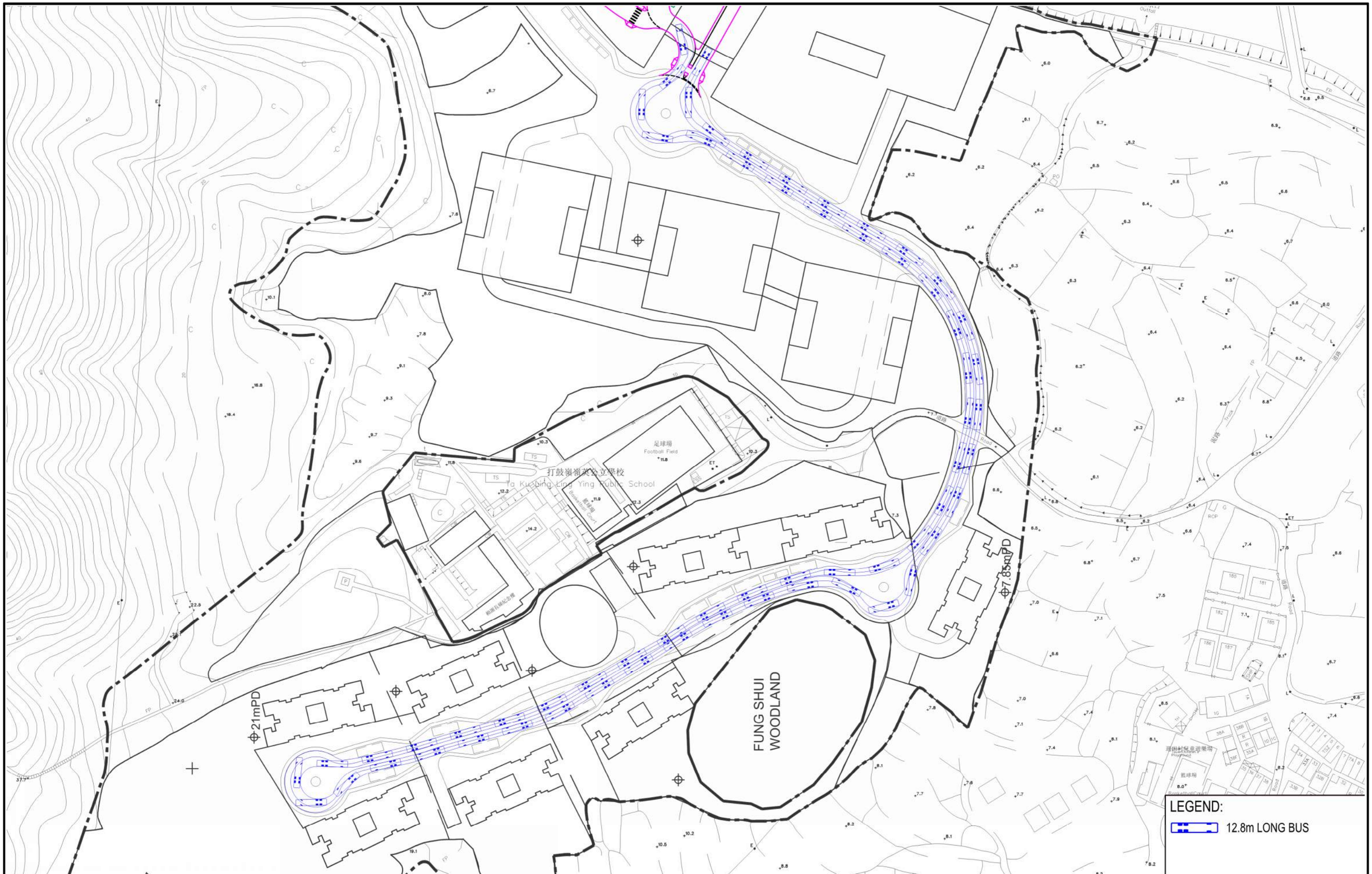


LEGEND:

STAFF ANCILLARY FACILITIES FOR BUS OPERATORS AND PASSENGER FACILITIES

CHARGING-ENABLING FACILITIES

Job Title: APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES		**FIGURE 4.17**
Date: DEC 24 / Scale: NTS / Drawn: CKTY / Job No.: 287082-02	Drawing Title: **PROPOSED LAYOUT OF TERMINATING FACILITIES**	ARUP



Job Title: APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES		**FIGURE 4.18**
Date: DEC 24 / Scale: NTS	Drawing Title: **SWEPT PATH ANALYSIS OF 12.8m LONG BUS BETWEEN THE PROPOSED TRANSPORT INTERCHANGE AND THE EN-ROUTE BUS STOPS**	ARUP
Drawn: CKTY / Job No.: 287082-02		

平原河

Outfall
排水口

+6.7

LEGEND:

STAFF ANCILLARY FACILITIES FOR BUS OPERATORS AND PASSENGER FACILITIES

CHARGING-ENABLING FACILITIES

LEGEND:

12.8m LONG BUS

Job Title: APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES

FIGURE 4.19

Date	Scale	Drawing Title
DEC 24	NTS	SWEPT PATH ANALYSIS OF 12.8m LONG BUS FROM INTERNAL DRIVEWAY APPROACHING BUS DROP-OFF BAY
Drawn	Job No.	
CKTY	287082-02	

ARUP

平原河

Outfall
排水口

+6.7

LEGEND:

STAFF ANCILLARY FACILITIES FOR BUS OPERATORS AND PASSENGER FACILITIES

CHARGING-ENABLING FACILITIES

LEGEND:

12.8m LONG BUS

Job Title: APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES		**FIGURE 4.20**
Date: DEC 24	Scale: NTS	Drawing Title: **SWEPT PATH ANALYSIS OF 12.8m LONG BUS FROM INTERNAL DRIVEWAY APPROACHING BUS PICK-UP BAY 1, 3**
Drawn: CKTY	Job No.: 287082-02	ARUP

平原河

Outfall
排水口

LEGEND:

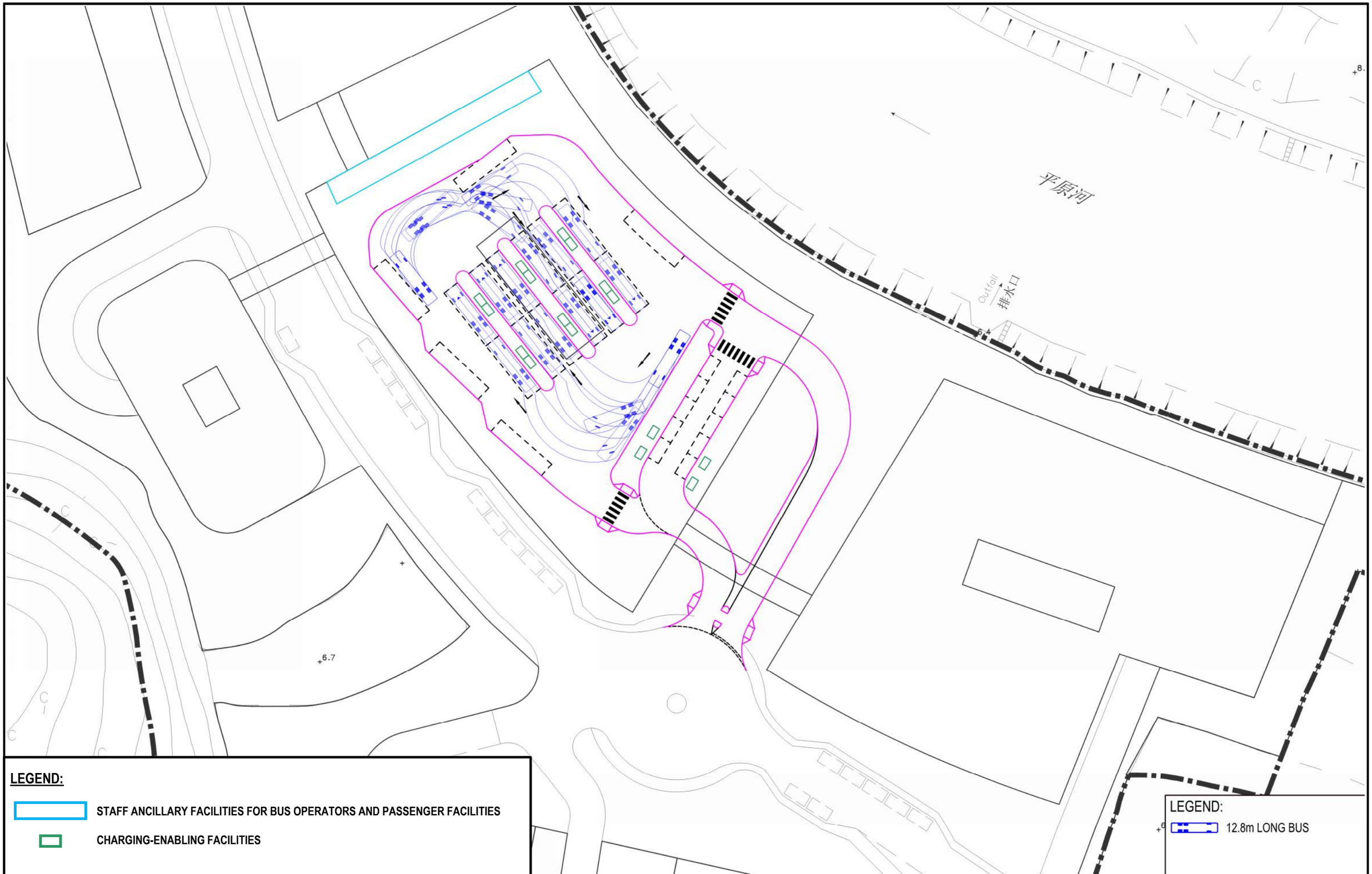
STAFF ANCILLARY FACILITIES FOR BUS OPERATORS AND PASSENGER FACILITIES

CHARGING-ENABLING FACILITIES

LEGEND:

12.8m LONG BUS

Job Title: APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES		FIGURE 4.21
Date: DEC 24	Scale: NTS	Drawing Title: SWEPT PATH ANALYSIS OF 12.8m LONG BUS FROM INTERNAL DRIVEWAY APPROACHING BUS PICK-UP BAY 2, 4
Drawn: CKTY	Job No.: 287082-02	ARUP



Job Title: APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES		**FIGURE 4.22**
Date: DEC 24	Scale: NTS	Drawing Title: **SWEPT PATH ANALYSIS OF 12.8m LONG BUS APPROACHING BUS STACKING AREA**
Drawn: CKTY	Job No.: 287082-02	ARUP

平原河

Outfall
排水口

+6.7

LEGEND:

STAFF ANCILLARY FACILITIES FOR BUS OPERATORS AND PASSENGER FACILITIES

CHARGING-ENABLING FACILITIES

LEGEND:

12.8m LONG BUS

Job Title: APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES

FIGURE 4.23

Date: DEC 24

Scale: NTS

Drawn: CKTY

Job No.: 287082-02

Drawing Title: SWEPT PATH ANALYSIS OF 12.8m LONG BUS FROM BUS STACKING AREA APPROACHING BUS PICK-UP BAY 1, 3

ARUP

平原河

Outfall
排水口

+6.7

LEGEND:

STAFF ANCILLARY FACILITIES FOR BUS OPERATORS AND PASSENGER FACILITIES

CHARGING-ENABLING FACILITIES

LEGEND:

12.8m LONG BUS

Job Title: APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES		**FIGURE 4.24**
Date: DEC 24	Scale: NTS	Drawing Title: **SWEPT PATH ANALYSIS OF 12.8m LONG BUS FROM BUS STACKING AREA APPROACHING BUS PICK-UP BAY 2, 4**
Drawn: CKTY	Job No.: 287082-02	ARUP

平原河

Outfall
排水口

+6.7

LEGEND:

STAFF ANCILLARY FACILITIES FOR BUS OPERATORS AND PASSENGER FACILITIES

CHARGING-ENABLING FACILITIES

LEGEND:

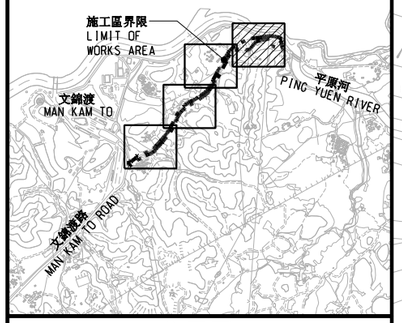
5m LONG TAXI

Job Title: APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A OF THE TOWN PLANNING ORDINANCE (CAP. 131) FOR PROPOSED INNOVATION AND TECHNOLOGY HUB AT VARIOUS LOTS IN D.D. 82 AND D.D. 86 AND ADJOINING GOVERNMENT LAND, MAN KAM TO, NEW TERRITORIES		**FIGURE 4.25**
Date: DEC 24	Scale: NTS	Drawing Title: **SWEPT PATH ANALYSIS OF 5m LONG TAXI ON TAXI STANDS**
Drawn: CKTY	Job No.: 287082-02	ARUP

Appendix A

Existing Road Improvement Works under Construction

Widening Part of Lin Ma Hang Road (Man Kam To Road to Ping Yuen River) – under CEDD project number 5758CL



位置圖
LOCATION PLAN
比例 SCALE A1 1:20000

圖例:
LEGEND:

- 施工區界限 LIMIT OF WORKS AREA
- 擬建行車道 PROPOSED CARRIAGEWAY
- 擬建行人路 PROPOSED FOOTPATH
- 擬建直立式隔音屏障(高約1米) PROPOSED VERTICAL NOISE BARRIER (APPROXIMATELY 1 METRE HIGH)
- 擬建直立式隔音屏障(高約3米) PROPOSED VERTICAL NOISE BARRIER (APPROXIMATELY 3 METRES HIGH)
- 擬建直立式隔音屏障(高約4米) PROPOSED VERTICAL NOISE BARRIER (APPROXIMATELY 4 METRES HIGH)
- 現有行車道將永久封閉及改建為行人路 EXISTING CARRIAGEWAY TO BE PERMANENTLY CLOSED AND CONVERTED INTO FOOTPATH
- 現有行人路將永久封閉及改建為行車道 EXISTING FOOTPATH TO BE PERMANENTLY CLOSED AND CONVERTED INTO CARRIAGEWAY
- 現有行車道將永久封閉及拆卸 EXISTING CARRIAGEWAY TO BE PERMANENTLY CLOSED AND DEMOLISHED
- 現有行車道將暫時封閉及重建 EXISTING CARRIAGEWAY TO BE TEMPORARILY CLOSED AND RECONSTRUCTED
- 現有行人路將暫時封閉及重建 EXISTING FOOTPATH TO BE TEMPORARILY CLOSED AND RECONSTRUCTED

註
NOTE:

1. 除在其他方面指定外，全部以米為量度單位。
   ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED.
2. 所有水平均為約數,以米為單位,並在香港水平基準以上(+)或以下(-)。
   ALL LEVELS ARE APPROXIMATE VALUES AND IN METRES ABOVE (+) OR BELOW (-) HONG KONG PRINCIPAL DATUM.
3. 如有需要，施工區界限內現有行車道及行人路或會分階段暫時封閉。
   SECTIONS OF THE EXISTING CARRIAGEWAYS AND FOOTPATHS WITHIN THE LIMIT OF WORKS AREA MAY BE TEMPORARILY CLOSED IN PHASES AS AND WHEN REQUIRED.

工程名稱 PROJECT TITLE
工務計劃項目第5758CL號
沙嶺墳場興建骨灰龕、火葬場及有關設施的土地平整及相關基建工程
- 擴闊部份蓮麻坑路

PWP ITEM NO. 5758CL
SITE FORMATION AND ASSOCIATED INFRASTRUCTURAL WORKS FOR DEVELOPMENT OF COLUMBARIUM, CREMATORIUM AND RELATED FACILITIES AT SANDY RIDGE CEMETERY
- WIDENING PART OF LIN MA HANG ROAD

圖則名稱 PLAN TITLE
根據《道路(工程、使用及補償)條例》(第370章)而在憲報公布之圖則

PLAN FOR GAZETTING UNDER ROADS(WORKS, USE AND COMPENSATION) ORDINANCE (CHAPTER 370)

圖則編號 PLAN NO.	比例 SCALE
231448/GAZ-B/001	1:500 @ A1

辦事處 OFFICE
土木工程處 土地工程部
LAND WORKS DIVISION
CIVIL ENGINEERING OFFICE

土木工程拓展署
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

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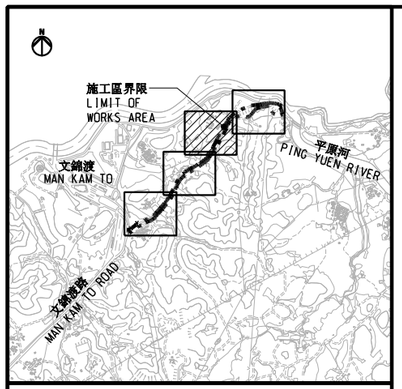

位置圖
LOCATION PLAN
比例 SCALE A1 1:20000

圖例:
LEGEND:

- 施工區界限 LIMIT OF WORKS AREA
- 擬建行車道 PROPOSED CARRIAGEWAY
- 擬建行人路 PROPOSED FOOTPATH
- 擬建直立式隔音屏障(高約1米) PROPOSED VERTICAL NOISE BARRIER (APPROXIMATELY 1 METRE HIGH)
- 擬建直立式隔音屏障(高約3米) PROPOSED VERTICAL NOISE BARRIER (APPROXIMATELY 3 METRES HIGH)
- 擬建直立式隔音屏障(高約4米) PROPOSED VERTICAL NOISE BARRIER (APPROXIMATELY 4 METRES HIGH)
- 現有行車道將永久封閉及改建為行人路 EXISTING CARRIAGEWAY TO BE PERMANENTLY CLOSED AND CONVERTED INTO FOOTPATH
- 現有行人路將永久封閉及改建為行車道 EXISTING FOOTPATH TO BE PERMANENTLY CLOSED AND CONVERTED INTO CARRIAGEWAY
- 現有行車道將永久封閉及拆卸 EXISTING CARRIAGEWAY TO BE PERMANENTLY CLOSED AND DEMOLISHED
- 現有行車道將暫時封閉及重建 EXISTING CARRIAGEWAY TO BE TEMPORARILY CLOSED AND RECONSTRUCTED
- 現有行人路將暫時封閉及重建 EXISTING FOOTPATH TO BE TEMPORARILY CLOSED AND RECONSTRUCTED

Widening Part of Lin Ma Hang Road (Man Kam To Road to Ping Yuen River) – under CEDD project number 5758CL

N

連接線A-A連接圖則編號
231448/GAZ-B/001
CUT LINE A - A
CONTINUED ON PLAN
NO. 231448/GAZ-B/001

連接線B-B連接圖則編號
231448/GAZ-B/003
CUT LINE B - B
CONTINUED ON PLAN
NO. 231448/GAZ-B/003

木湖瓦窰
Muk Wu Nga Yiu

連馬坑路
LIN MA HANG ROAD

墓地
Graves

註
NOTE:

1. 除在其他方面指定外，全部以米為量度單位。
   ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED.
2. 所有水平均為約數,以米為單位,並在香港水平基準以上(+)或以下(-)。
   ALL LEVELS ARE APPROXIMATE VALUES AND IN METRES ABOVE (+) OR BELOW (-) HONG KONG PRINCIPAL DATUM.
3. 如有需要，施工區界限內現有行車道及行人路或會分階段暫時封閉。
   SECTIONS OF THE EXISTING CARRIAGEWAYS AND FOOTPATHS WITHIN THE LIMIT OF WORKS AREA MAY BE TEMPORARILY CLOSED IN PHASES AS AND WHEN REQUIRED.

工程名稱 PROJECT TITLE
工務計劃項目第5758CL號
沙嶺墳場興建骨灰龕、火葬場及有關設施的土地平整及相關基建工程
- 擴闊部份蓮麻坑路

PWP ITEM NO. 5758CL
SITE FORMATION AND ASSOCIATED INFRASTRUCTURAL WORKS FOR DEVELOPMENT OF COLUMBARIUM, CREMATORIUM AND RELATED FACILITIES AT SANDY RIDGE CEMETERY
- WIDENING PART OF LIN MA HANG ROAD

圖則名稱 PLAN TITLE
根據《道路(工程、使用及補償)條例》(第370章)而在憲報公布之圖則

PLAN FOR GAZETTING UNDER ROADS(WORKS, USE AND COMPENSATION) ORDINANCE (CHAPTER 370)

圖則編號 PLAN NO.	比例 SCALE
231448/GAZ-B/002	1:500 @ A1

辦事處 OFFICE
土木工程處 土地工程部
LAND WORKS DIVISION
CIVIL ENGINEERING OFFICE

土木工程拓展署
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

Printed by : 2/03/2015
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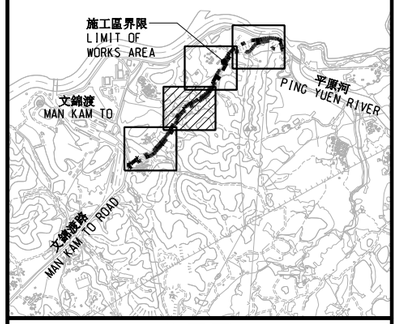

位置圖
LOCATION PLAN
比例 SCALE A1 1:20000

圖例:
LEGEND:

- 施工區界限 LIMIT OF WORKS AREA
- 擬建行車道 PROPOSED CARRIAGEWAY
- 擬建行人路 PROPOSED FOOTPATH
- 擬建直立式隔音屏障(高約1米) PROPOSED VERTICAL NOISE BARRIER (APPROXIMATELY 1 METRE HIGH)
- 擬建直立式隔音屏障(高約3米) PROPOSED VERTICAL NOISE BARRIER (APPROXIMATELY 3 METRES HIGH)
- 擬建直立式隔音屏障(高約4米) PROPOSED VERTICAL NOISE BARRIER (APPROXIMATELY 4 METRES HIGH)
- 現有行車道將永久封閉及改建為行人路 EXISTING CARRIAGEWAY TO BE PERMANENTLY CLOSED AND CONVERTED INTO FOOTPATH
- 現有行人路將永久封閉及改建為行車道 EXISTING FOOTPATH TO BE PERMANENTLY CLOSED AND CONVERTED INTO CARRIAGEWAY
- 現有行車道將永久封閉及拆卸 EXISTING CARRIAGEWAY TO BE PERMANENTLY CLOSED AND DEMOLISHED
- 現有行車道將暫時封閉及重建 EXISTING CARRIAGEWAY TO BE TEMPORARILY CLOSED AND RECONSTRUCTED
- 現有行人路將暫時封閉及重建 EXISTING FOOTPATH TO BE TEMPORARILY CLOSED AND RECONSTRUCTED

Widening Part of Lin Ma Hang Road (Man Kam To Road to Ping Yuen River) – under CEDD project number 5758CL

連接線B-B連接圖則編號
231448/GAZ-B/002
CUT LINE B - B
CONTINUED ON PLAN
NO. 231448/GAZ-B/002

連接線C-C連接圖則編號
231448/GAZ-B/004
CUT LINE C - C
CONTINUED ON PLAN
NO. 231448/GAZ-B/004

註
NOTE:

1. 除在其他方面指定外，全部以米為量度單位。
   ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED.
2. 所有水平均為約數,以米為單位,並在香港水平基準以上(+)或以下(-)。
   ALL LEVELS ARE APPROXIMATE VALUES AND IN METRES ABOVE (+) OR BELOW (-) HONG KONG PRINCIPAL DATUM.
3. 如有需要，施工區界限內現有行車道及行人路或會分階段暫時封閉。
   SECTIONS OF THE EXISTING CARRIAGEWAYS AND FOOTPATHS WITHIN THE LIMIT OF WORKS AREA MAY BE TEMPORARILY CLOSED IN PHASES AS AND WHEN REQUIRED.

工程名稱 PROJECT TITLE
工務計劃項目第5758CL號
沙嶺墳場興建骨灰龕、火葬場及有關設施
的土地平整及相關基建工程
- 擴闊部份蓮麻坑路

PWP ITEM NO. 5758CL
SITE FORMATION AND ASSOCIATED INFRASTRUCTURAL WORKS FOR DEVELOPMENT OF COLUMBARIUM, CREMATORIUM AND RELATED FACILITIES AT SANDY RIDGE CEMETERY
- WIDENING PART OF LIN MA HANG ROAD

圖則名稱 PLAN TITLE
根據《道路(工程、使用及補償)條例》(第370章)
而在憲報公布之圖則

PLAN FOR GAZETTING UNDER ROADS(WORKS, USE AND COMPENSATION) ORDINANCE (CHAPTER 370)

圖則編號 PLAN NO.	比例 SCALE
231448/GAZ-B/003	1:500 @ A1

辦事處 OFFICE
土木工程處 土地工程部
LAND WORKS DIVISION
CIVIL ENGINEERING OFFICE

土木工程拓展署
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

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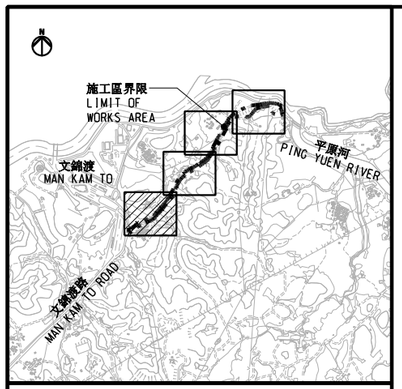


位置圖
LOCATION PLAN
比例 SCALE A1 1:20000

圖例:
LEGEND:

- 施工區界限 LIMIT OF WORKS AREA
- 擬建行車道 PROPOSED CARRIAGEWAY
- 擬建行人路 PROPOSED FOOTPATH
- 擬建直立式隔音屏障(高約1米) PROPOSED VERTICAL NOISE BARRIER (APPROXIMATELY 1 METRE HIGH)
- 擬建直立式隔音屏障(高約3米) PROPOSED VERTICAL NOISE BARRIER (APPROXIMATELY 3 METRES HIGH)
- 擬建直立式隔音屏障(高約4米) PROPOSED VERTICAL NOISE BARRIER (APPROXIMATELY 4 METRES HIGH)
- 現有行車道將永久封閉及改建為行人路 EXISTING CARRIAGEWAY TO BE PERMANENTLY CLOSED AND CONVERTED INTO FOOTPATH
- 現有行人路將永久封閉及改建為行車道 EXISTING FOOTPATH TO BE PERMANENTLY CLOSED AND CONVERTED INTO CARRIAGEWAY
- 現有行車道將永久封閉及拆卸 EXISTING CARRIAGEWAY TO BE PERMANENTLY CLOSED AND DEMOLISHED
- 現有行車道將暫時封閉及重建 EXISTING CARRIAGEWAY TO BE TEMPORARILY CLOSED AND RECONSTRUCTED
- 現有行人路將暫時封閉及重建 EXISTING FOOTPATH TO BE TEMPORARILY CLOSED AND RECONSTRUCTED

Widening Part of Lin Ma Hang Road (Man Kam To Road to Ping Yuen River) – under CEDD project number 5758CL

連接線C-C連接圖則編號
231448/GAZ-B/003
CUT LINE C - C
CONTINUED ON PLAN
NO. 231448/GAZ-B/003

註
NOTE:

1. 除在其他方面指定外，全部以米為量度單位。
   ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED.
2. 所有水平均為約數,以米為單位,並在香港水平基準以上(+)或以下(-)。
   ALL LEVELS ARE APPROXIMATE VALUES AND IN METRES ABOVE (+) OR BELOW (-) HONG KONG PRINCIPAL DATUM.
3. 如有需要，施工區界限內現有行車道及行人路或會分階段暫時封閉。
   SECTIONS OF THE EXISTING CARRIAGEWAYS AND FOOTPATHS WITHIN THE LIMIT OF WORKS AREA MAY BE TEMPORARILY CLOSED IN PHASES AS AND WHEN REQUIRED.

工程名稱 PROJECT TITLE
工務計劃項目第5758CL號
沙嶺墳場興建骨灰龕、火葬場及有關設施
的土地平整及相關基建工程
- 擴闊部份蓮麻坑路

PWP ITEM NO. 5758CL
SITE FORMATION AND ASSOCIATED INFRASTRUCTURAL WORKS FOR DEVELOPMENT OF COLUMBARIUM, CREMATORIUM AND RELATED FACILITIES AT SANDY RIDGE CEMETERY
- WIDENING PART OF LIN MA HANG ROAD

圖則名稱 PLAN TITLE
根據《道路(工程、使用及補償)條例》(第370章)而在憲報公布之圖則

PLAN FOR GAZETTING UNDER ROADS(WORKS, USE AND COMPENSATION) ORDINANCE (CHAPTER 370)

圖則編號 PLAN NO.	比例 SCALE
231448/GAZ-B/004	1:500 @ A1

辦事處 OFFICE
土木工程處 土地工程部
LAND WORKS DIVISION
CIVIL ENGINEERING OFFICE

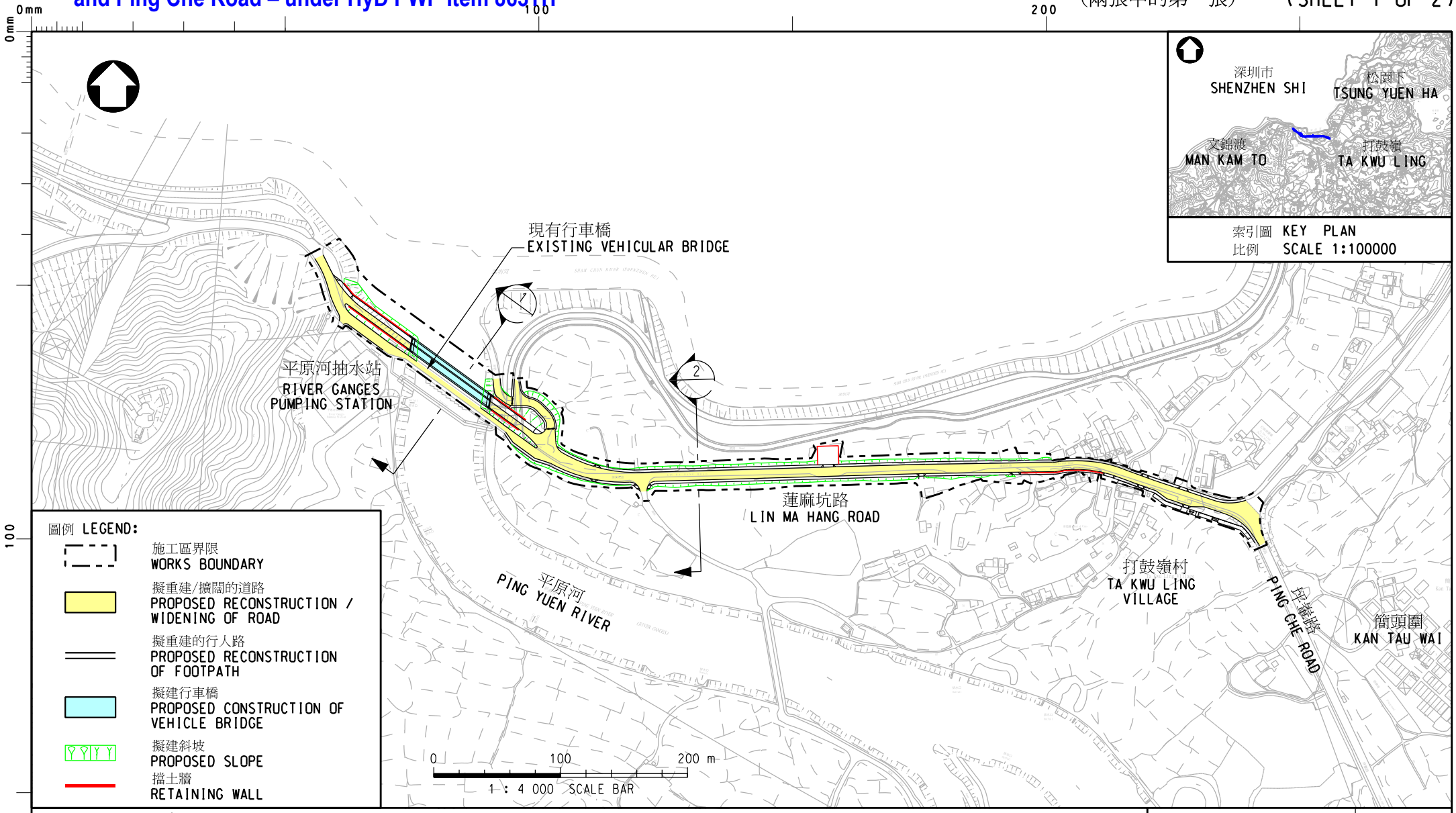
土木工程拓展署
CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

Printed by : 2/12/2025
J:\231448\Drwg\Civil\Gazette\231448_GAZ_B_004.dgn

Widening of western section of Lin Ma Hang Road between Ping Yuen River and Ping Che Road – under HyD PWP Item 863TH

附件一
(兩張中的第一張)

ENCLOSURE 1
(SHEET 1 OF 2)



圖則名稱 plan title

工務計劃項目第6863TH號蓮麻坑路西段(平原河至坪輋路)擴闊工程 - 平面圖

PWP ITEM NO. 6863TH WIDENING OF WESTERN SECTION OF LIN MA HANG ROAD BETWEEN PING YUEN RIVER AND PING CHE ROAD - LAYOUT PLAN

圖則編號 plan no.
HMW6863TH-SK0007

比例 scale
1:4000 或圖示
Or As Shown

HIGHWAYS DEPARTMENT HONG KONG
香港 路政署

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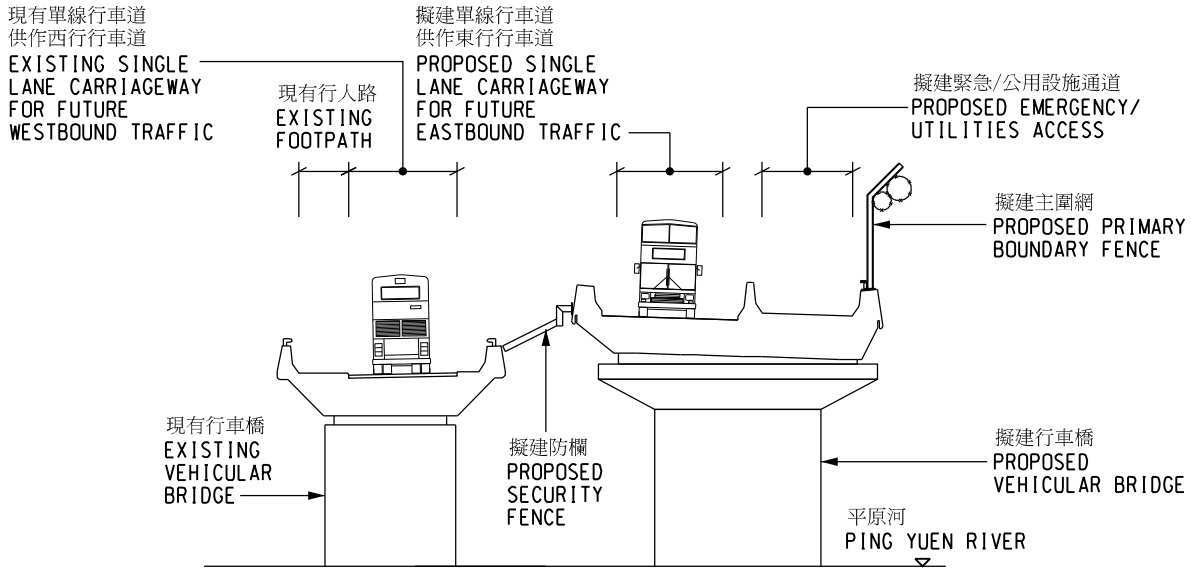
A4 210 x 297

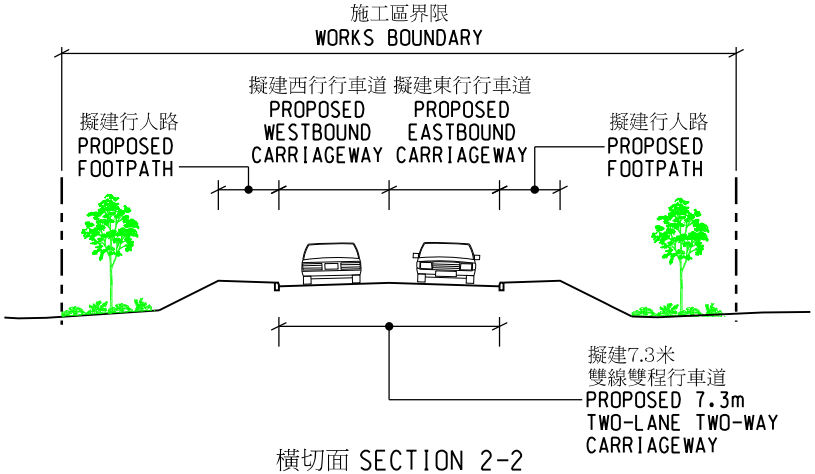
Widening of western section of Lin Ma Hang Road between Ping Yuen River and Ping Che Road – under HyD PWP Item 863TH

附件一
(兩張中的第二張)

ENCLOSURE 1
(SHEET 2 OF 2)



橫切面 SECTION 1-1



橫切面 SECTION 2-2

圖則名稱 plan title

工務計劃項目第6863TH號蓮麻坑路西段(平原河至坪輋路)擴闊工程 - 切面圖

PWP ITEM NO. 6863TH WIDENING OF WESTERN SECTION OF LIN MA HANG ROAD BETWEEN PING YUEN RIVER AND PING CHE ROAD - SECTIONS

圖則編號 plan no.
HMW6863TH-SK0008

比例 scale
示意圖
DIAGRAMMATIC

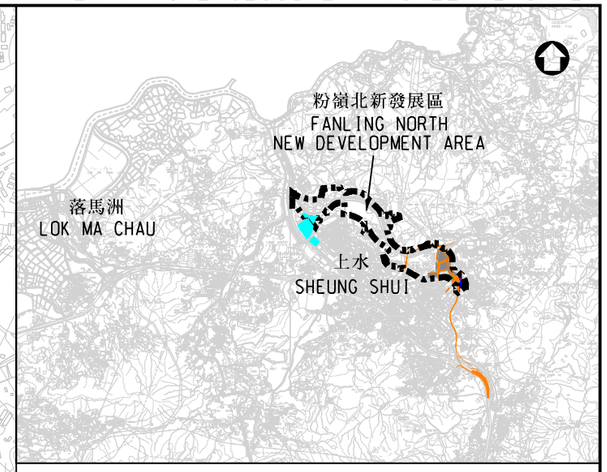
HIGHWAYS DEPARTMENT HONG KONG
路政署 香港

c:\cdms\mw\dms07107\HMW6863TH-SK0008.dgn

A4 210 x 297

圖例
LEGEND:

- 粉嶺北新發展區界線
  BOUNDARY OF FANLING NORTH NEW DEVELOPMENT AREA
- 擬議工程項目範圍
  PROPOSED WORKS BOUNDARY
- 擬議道路工程（包括合適的噪音緩減設施及基礎設施）
  PROPOSED ROAD WORKS (WITH APPROPRIATE NOISE MITIGATION MEASURES AND INFRASTRUCTURE WORKS)
- 擬議地盤平整（包括合適的基礎設施）
  PROPOSED SITE FORMATION (WITH APPROPRIATE INFRASTRUCTURE WORKS)
- 擬議重置北區臨時農產品批發市場
  PROPOSED REPROVISIONING OF NORTH DISTRICT TEMPORARY WHOLESALE MARKET FOR AGRICULTURAL PRODUCTS
- 擬議粉嶺北污水泵房
  PROPOSED FANLING NORTH SEWAGE PUMPING STATION
- 擬議重置安樂門街遊樂場
  PROPOSED REPROVISIONING OF ON LOK MUN STREET PLAYGROUND
- 擬議擴建及提升石湖墟污水處理廠
  PROPOSED EXPANSION AND UPGRADING OF SHEK WU HUI SEWAGE TREATMENT WORKS



位置圖 LOCATION PLAN

擬議粉嶺繞道(東段)
PROPOSED FANLING BYPASS (EASTERN SECTION)
(詳情請參閱附件1附錄2)
(PLEASE REFER TO ANNEX 2 TO ENCLOSURE 1 FOR DETAILS)

擬議重置安樂門街遊樂場
PROPOSED REPROVISIONING OF ON LOK MUN STREET PLAYGROUND
(詳情請參閱附件1附錄3)
(PLEASE REFER TO ANNEX 3 TO ENCLOSURE 1 FOR DETAILS)

沙頭角公路
SHA TAU KOK ROAD

龍躍頭
LUNG YEUK TAU

擬議重置北區臨時農產品批發市場
PROPOSED REPROVISIONING OF NORTH DISTRICT TEMPORARY WHOLESALE MARKET FOR AGRICULTURAL PRODUCTS
(詳情請參閱附件1附錄3)
(PLEASE REFER TO ANNEX 3 TO ENCLOSURE 1 FOR DETAILS)

粉嶺
FANLING

NG TUNG RIVER 梧桐河

上水
SHEUNG SHUI

擬議粉嶺北污水泵房
PROPOSED FANLING NORTH SEWAGE PUMPING STATION
(詳情請參閱附件1附錄4)
(PLEASE REFER TO ANNEX 4 TO ENCLOSURE 1 FOR DETAILS)

樂業路
LOK YIP ROAD

馬會道
JOCKEY CLUB ROAD

石湖墟
SHEK WU HUI

上水站
SHEUNG SHUI STATION

粉嶺站
FANLING STATION

粉嶺公路
FANLING HIGHWAY

雙魚河 SHEUNG YUE RIVER

擬議擴建及提升
石湖墟污水處理廠
PROPOSED EXPANSION AND UPGRADING OF SHEK WU HUI SEWAGE TREATMENT WORKS

工務計劃項目第747CL號
古洞北新發展區及粉嶺北新發展區前期地盤平整和基礎設施工程-平面圖（粉嶺北新發展區）
PWP ITEM NO. 747CL
ADVANCE SITE FORMATION AND INFRASTRUCTURE WORKS FOR KWU TUNG NORTH NEW DEVELOPMENT AREA AND FANLING NORTH NEW DEVELOPMENT AREA-LAYOUT PLAN (FANLING NORTH NEW DEVELOPMENT AREA)

Construction of Fanling Bypass (Eastern Section) – under CEDD project number 7747CL

A3 420MM X 297MM

Appendix B

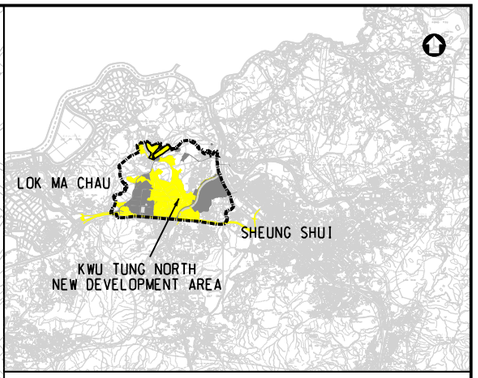
Planned / Committed Infrastructures in North District

LEGEND:

BOUNDARY OF KWU TUNG NORTH NEW DEVELOPMENT AREA

PWP ITEM NO. 828CL - REMAINING PHASE OF SITE FORMATION AND ENGINEERING INFRASTRUCTURE WORKS AT KWU TUNG NORTH NEW DEVELOPMENT AREA AND FANLING NORTH NEW DEVELOPMENT AREA (REMAINING PHASE WORKS)

PWP ITEM NOS. 747CL & 759CL - ADVANCE WORKS AND FIRST STAGE WORKS FOR DEVELOPMENT AT KWU TUNG NORTH NEW DEVELOPMENT AREA AND FANLING NORTH NEW DEVELOPMENT AREA (FIRST PHASE WORKS)



LOCATION PLAN

TENTATIVE SEWAGE PUMPING STATION

MA TSO LUNG

NG TUNG RIVER

FUNG KONG

HO SHEUNG HEUNG

SHEUNG YUE RIVER

EAST RAIL LINE

LONG VALLEY

TENTATIVE PO SHEK WU ROAD FLYOVER

PAK SHEK AU

LOK MA CHAU SPUR LINE

CASTLE PEAK ROAD (CHAU TAU)

KWU TUNG

YIN KONG

FANLING HIGHWAY

KWU TUNG ROAD

PAK SHEK AU INTERCHANGE

TENTATIVE WIDENING OF FANLING HIGHWAY

TENTATIVE KWU TUNG INTERCHANGE

圖則名稱 drawing title

PHASING OF THE DEVELOPMENT OF KWU TUNG NORTH AND FANLING NORTH NEW DEVELOPMENT AREAS - LAYOUT PLAN (KWU TUNG NORTH NEW DEVELOPMENT AREA)

繪圖 drawn	簽署 initial	日期 date	項目編號 item no.	辦事處 office
W K LAU		04.04.19		北拓展處 NORTH DEVELOPMENT OFFICE
核對 checked	簽署 initial	日期 date	比例 scale	
P Y MAK		04.04.19	1:12 000 (A3)	
核准 approved	簽署 initial	日期 date	圖則編號 drawing no.	土木工程拓展署 CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
F O HO		04.04.19	CDNKFNZ0117	

FILE

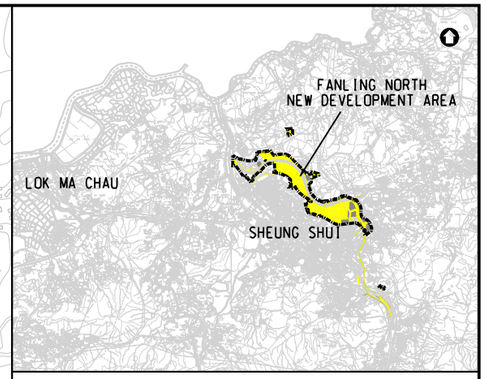
A3 420MM X 297MM

LEGEND:

BOUNDARY OF FANLING NORTH NEW DEVELOPMENT AREA

PWP ITEM NO. 828CL-
REMAINING PHASE OF SITE FORMATION AND ENGINEERING INFRASTRUCTURE WORKS AT KWU TUNG NORTH NEW DEVELOPMENT AREA AND FANLING NORTH NEW DEVELOPMENT AREA (REMAINING PHASE WORKS)

PWP ITEM NOS. 747CL & 759CL-
ADVANCE WORKS AND FIRST STAGE WORKS FOR DEVELOPMENT AT KWU TUNG NORTH NEW DEVELOPMENT AREA AND FANLING NORTH NEW DEVELOPMENT AREA (FIRST PHASE WORKS)



LOCATION PLAN

TENTATIVE FRESH WATER SERVICE RESERVOIR

TENTATIVE FANLING BYPASS (WESTERN SECTION)

TENTATIVE SEWAGE PUMPING STATION

TENTATIVE SEWAGE PUMPING STATION

NG UNG RIVER

LUNG YEUK TAU

TENTATIVE FLUSHING WATER SERVICE RESERVOIR

FANLING

SHEUNG SHUI

FAN LENG LAU ROAD

LOK YIP ROAD

JOCKEY CLUB ROAD

TENTATIVE PO SHEK WU ROAD FLYOVER

SHEK WU HUI

FANLING HIGHWAY

SHEUNG SHUI STATION

FANLING STATION

FANLING HIGHWAY

SHEUNG YUE RIVER

圖則名稱 drawing title

PHASING OF THE DEVELOPMENT OF KWU TUNG NORTH AND FANLING NORTH NEW DEVELOPMENT AREAS - LAYOUT PLAN (FANLING NORTH NEW DEVELOPMENT AREA)

繪圖 drawn	簽署 initial	日期 date	項目編號 item no.	辦事處 office
W K LAU		04.04.19		北拓展處 NORTH DEVELOPMENT OFFICE
核對 checked	簽署 initial	日期 date	比例 scale	
P Y MAK		04.04.19	1:15 000 (A3)	
核准 approved	簽署 initial	日期 date	圖則編號 drawing no.	土木工程拓展署 CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
F O HO		04.04.19	CDNKFNZ0118	

FILE

A3 420MM X 297MM

Summary of Junction Improvement Schemes

Junction		Description	Proposed by Project	Anticipated Implementation Schedule	Plan No.
J2	Po Shek Wu Road/ Po Wan Road	- Lane arrangement of Po Shek Wu Road southbound to be revised for allowing straight-ahead traffic to use three traffic lanes - Lane arrangement of Po Wan Road eastbound to be revised for allowing right-turn traffic to use two traffic lanes	Kong Nga Po	2023	H-6b
		- Land arrangement of Po Shek Wu Road northbound to be revised for allowing left-turn traffic to use two traffic lanes - Local widening of Po Wan Road westbound from 1 to 2 lanes	Sheung Shui Areas 4 and 30 (junction improvement works to be incorporated in Kong Nga Po project)	2023	H-6b
J3	Po Shek Wu Road/ Choi Yuen Road	- Lane arrangement of Choi Yuen Road westbound to be revised for providing two left-turn lanes	Queen's Hill	Completed	H-6c
		- Local widening of Po Shek Wu Road northbound to allow straight-ahead traffic to use three traffic lanes	Kong Nga Po	2023	H-6d
		- Po Shek Wu Road Interchange Improvement which provides a flyover to allow the right turning traffic from Po Shek Wu Road southbound to Fanling Highway westbound to bypass the existing Po Shek Wu Road Interchange - Po Shek Wu Road southbound would be narrowed from 5 lanes to 4 lanes	Kwu Tung North and Fanling North New Development Area (NDA)	2029	H-6e

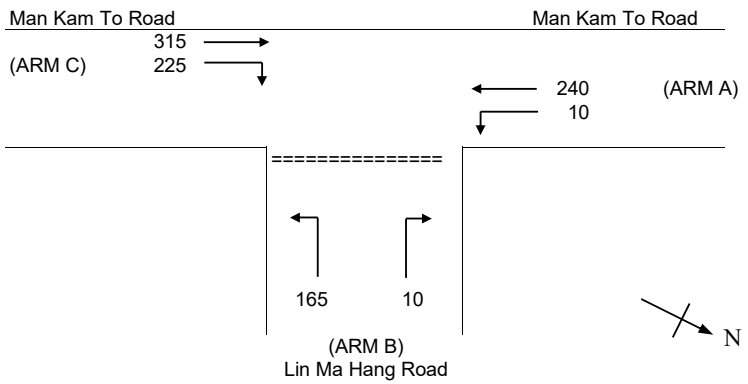
Junction		Description	Proposed by Project	Anticipated Implementation Schedule	Plan No.
J5	Jockey Club Road/ Lung Sum Avenue	- Lane arrangement of Lung Sum Avenue northbound/southbound to be revised for allowing straight-ahead traffic to use two traffic lanes - Widening Lung Sum Avenue northbound by narrowing the central median of Lung Sum Avenue	Queen's Hill	2021	H-6f
		- Local widening with one additional straight-ahead traffic lane on Jockey Club Road eastbound - Local widening with one additional straight-ahead traffic lane on Lung Sum Avenue northbound	Kong Nga Po	2023	H-6g
J6	Jockey Club Road/ So Kwun Po Road	- Lane arrangement of Jockey Club Road northbound to be revised for allowing left turn traffic to use two traffic lanes - Method-of-control to be revised for minimising/optimising the intergreen time - Lane arrangement of Ma Sik Road southbound to be revised for allowing three traffic lanes for vehicles to travel straight ahead - Local widening of So Kwun Po Road southbound from 2 to 3 lanes	Kwu Tung North and Fanling NDA	2023	H-6h

Junction		Description	Proposed by Project	Anticipated Implementation Schedule	Plan No.
		- Local widening with one additional straight-ahead traffic lane on So Kwun Po Road northbound - Local widening of Ma Sik Road northbound from 2 to 3 lanes	Sheung Shui Areas 4 and 30 (junction improvement works to be incorporated in Kwu Tung North and Fanling NDA project)	2023	H-6h
J7	So Kwun Po Road Interchange	- Local widening of southbound approach arm of So Kwun Po Road for a smoother entrance to the elevated roundabout	Queen's Hill	2021	H-6i
		- New infrastructure to connect the northern and southern side of Fanling Highway	Subject to further study	n.a	n.a.
J8	Po Shek Wu Road Interchange	- Local widening of southbound approach arm of Po Shek Wu Road to 10m to have two traffic lanes when approaching the roundabout	Queen's Hill	2021	H-6j
		- Local widening of the entry arm of Fanling Highway westbound slip road from existing two lanes to three lanes	Kong Nga Po	2023	H-6k
		- Local widening section of southbound of Po Shek Wu Road between Choi Yuen Road and Po Shek Wu Road Interchange	Sheung Shui Areas 4 and 30	2023/24	H-6l
		- Po Shek Wu Road Interchange Improvement which provides a flyover to allow the right turning traffic from Po Shek Wu Road southbound to Fanling Highway westbound to bypass the existing Po Shek Wu Road Interchange	Kwu Tung North and Fanling NDA	2029	H-6e

Appendix C

Junction Calculation Sheets

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
		PROJECT NO: 287082	DESIGNED BY:
J1 - Lin Ma Hang Road / Man Kam To Road	J1_2023_EXT_AM	DATE : 16/12/2024	FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
W cr	=	CENTRAL RESERVE WIDTH (0m, 1.2-9m)
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	12.50	(metres)
W cr	=	0.00	(metres)
q a-b	=	10	(pcu/hr)
q a-c	=	240	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	5.00	(metres)
Vr c-b	=	100	(metres)
q c-a	=	315	(pcu/hr)
q c-b	=	225	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	4.50	(metres)
W b-c	=	4.50	(metres)
Vl b-a	=	80	(metres)
Vr b-a	=	125	(metres)
Vr b-c	=	125	(metres)
q b-a	=	10	(pcu/hr)
q b-c	=	165	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.04
E	=	1.08
F	=	1.11
Y	=	0.57

THE CAPACITY OF MOVEMENT :

Q b-a	=	487
Q b-c	=	753
Q c-b	=	767
Q b-ac	=	730

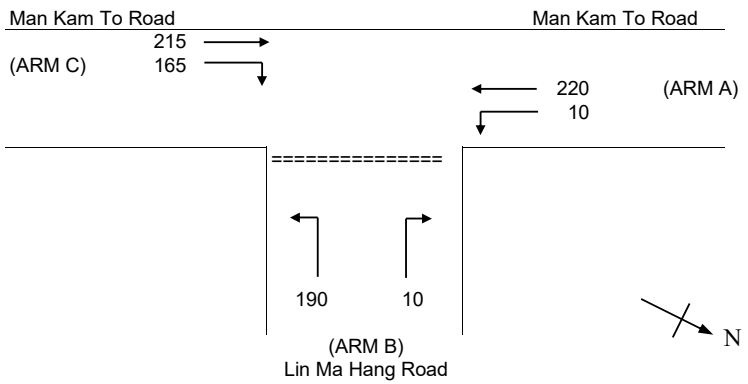
TOTAL FLOW = 965 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.02
DFC b-c	=	0.22
DFC c-b	=	0.29
DFC b-ac	=	0.24

CRITICAL DFC = 0.29

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
		PROJECT NO: 287082	DESIGNED BY:
J1 - Lin Ma Hang Road / Man Kam To Road	J1_2023_EXT_PM	DATE : 16/12/2024	FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
W cr	=	CENTRAL RESERVE WIDTH (0m, 1.2-9m)
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	12.50	(metres)
W cr	=	0.00	(metres)
q a-b	=	10	(pcu/hr)
q a-c	=	220	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	5.00	(metres)
Vr c-b	=	100	(metres)
q c-a	=	215	(pcu/hr)
q c-b	=	165	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	4.50	(metres)
W b-c	=	4.50	(metres)
Vl b-a	=	80	(metres)
Vr b-a	=	125	(metres)
Vr b-c	=	125	(metres)
q b-a	=	10	(pcu/hr)
q b-c	=	190	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.04
E	=	1.08
F	=	1.11
Y	=	0.57

THE CAPACITY OF MOVEMENT :

Q b-a	=	524
Q b-c	=	758
Q c-b	=	772
Q b-ac	=	741

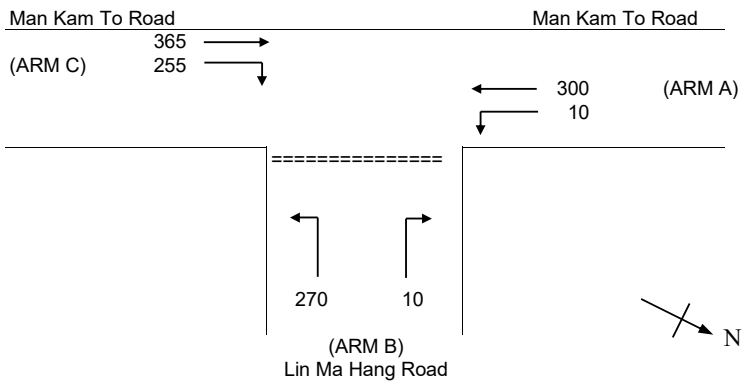
TOTAL FLOW = 810 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.02
DFC b-c	=	0.25
DFC c-b	=	0.21
DFC b-ac	=	0.27

CRITICAL DFC = 0.27

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
		PROJECT NO: 287082	DESIGNED BY:
J1 - Lin Ma Hang Road / Man Kam To Road	J1_2031_REF_AM	DATE : 16/12/2024	FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

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W cr	=	CENTRAL RESERVE WIDTH (0m, 1.2-9m)
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	12.50	(metres)
W cr	=	0.00	(metres)
q a-b	=	10	(pcu/hr)
q a-c	=	300	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	5.00	(metres)
Vr c-b	=	100	(metres)
q c-a	=	365	(pcu/hr)
q c-b	=	255	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	4.50	(metres)
W b-c	=	4.50	(metres)
Vl b-a	=	80	(metres)
Vr b-a	=	125	(metres)
Vr b-c	=	125	(metres)
q b-a	=	10	(pcu/hr)
q b-c	=	270	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.04
E	=	1.08
F	=	1.11
Y	=	0.57

THE CAPACITY OF MOVEMENT :

Q b-a	=	458
Q b-c	=	740
Q c-b	=	753
Q b-ac	=	724

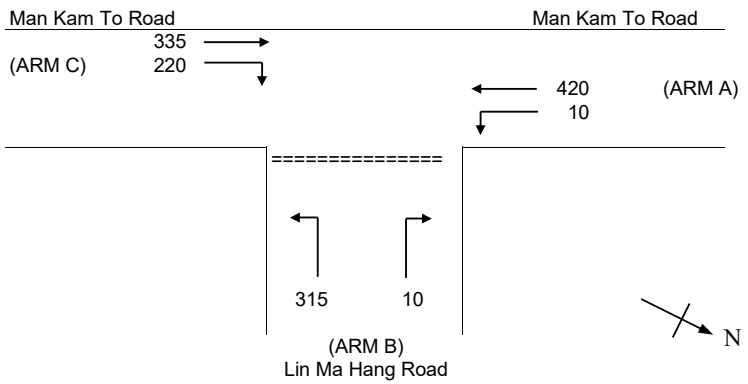
TOTAL FLOW = 1210 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.03
DFC b-c	=	0.37
DFC c-b	=	0.34
DFC b-ac	=	0.39

CRITICAL DFC = 0.39

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
		PROJECT NO: 287082	DESIGNED BY:
J1 - Lin Ma Hang Road / Man Kam To Road	J1_2031_REF_PM	DATE : 16/12/2024	FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
W cr	=	CENTRAL RESERVE WIDTH (0m, 1.2-9m)
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	12.50	(metres)
W cr	=	0.00	(metres)
q a-b	=	10	(pcu/hr)
q a-c	=	420	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	5.00	(metres)
Vr c-b	=	100	(metres)
q c-a	=	335	(pcu/hr)
q c-b	=	220	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	4.50	(metres)
W b-c	=	4.50	(metres)
Vl b-a	=	80	(metres)
Vr b-a	=	125	(metres)
Vr b-c	=	125	(metres)
q b-a	=	10	(pcu/hr)
q b-c	=	315	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.04
E	=	1.08
F	=	1.11
Y	=	0.57

THE CAPACITY OF MOVEMENT :

Q b-a	=	447
Q b-c	=	713
Q c-b	=	726
Q b-ac	=	700

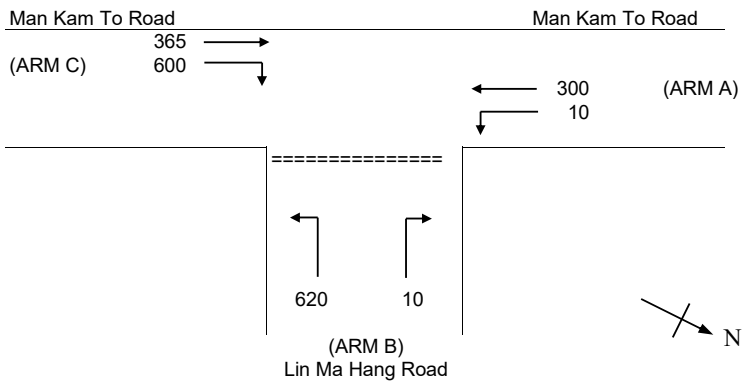
TOTAL FLOW = 1310 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.03
DFC b-c	=	0.45
DFC c-b	=	0.31
DFC b-ac	=	0.47

CRITICAL DFC = 0.47

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
		PROJECT NO: 287082	DESIGNED BY:
J1 - Lin Ma Hang Road / Man Kam To Road	J1_2031_DES_AM	DATE : 16/12/2024	FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
W cr	=	CENTRAL RESERVE WIDTH (0m, 1.2-9m)
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	12.50	(metres)
W cr	=	0.00	(metres)
q a-b	=	10	(pcu/hr)
q a-c	=	300	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	5.00	(metres)
Vr c-b	=	100	(metres)
q c-a	=	365	(pcu/hr)
q c-b	=	600	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	4.50	(metres)
W b-c	=	4.50	(metres)
Vl b-a	=	80	(metres)
Vr b-a	=	125	(metres)
Vr b-c	=	125	(metres)
q b-a	=	10	(pcu/hr)
q b-c	=	620	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.04
E	=	1.08
F	=	1.11
Y	=	0.57

THE CAPACITY OF MOVEMENT :

Q b-a	=	352
Q b-c	=	740
Q c-b	=	753
Q b-ac	=	727

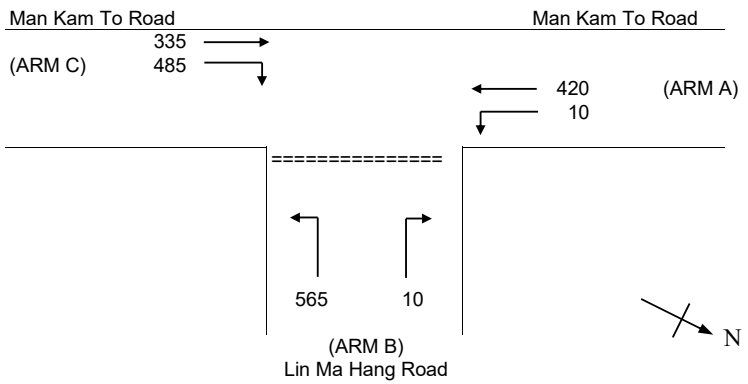
TOTAL FLOW = 1905 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.03
DFC b-c	=	0.84
DFC c-b	=	0.80
DFC b-ac	=	0.87

CRITICAL DFC = 0.87

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
		PROJECT NO: 287082	DESIGNED BY:
J1 - Lin Ma Hang Road / Man Kam To Road	J1_2031_DES_PM	DATE : 16/12/2024	FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
W cr	=	CENTRAL RESERVE WIDTH (0m, 1.2-9m)
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	12.50	(metres)
W cr	=	0.00	(metres)
q a-b	=	10	(pcu/hr)
q a-c	=	420	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	5.00	(metres)
Vr c-b	=	100	(metres)
q c-a	=	335	(pcu/hr)
q c-b	=	485	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	4.50	(metres)
W b-c	=	4.50	(metres)
Vl b-a	=	80	(metres)
Vr b-a	=	125	(metres)
Vr b-c	=	125	(metres)
q b-a	=	10	(pcu/hr)
q b-c	=	565	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.04
E	=	1.08
F	=	1.11
Y	=	0.57

THE CAPACITY OF MOVEMENT :

Q b-a	=	366
Q b-c	=	713
Q c-b	=	726
Q b-ac	=	701

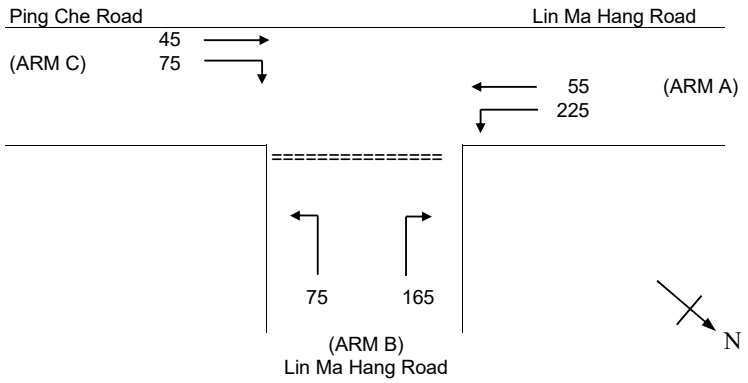
TOTAL FLOW = 1825 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.03
DFC b-c	=	0.80
DFC c-b	=	0.67
DFC b-ac	=	0.82

CRITICAL DFC = 0.82

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
		PROJECT NO: 287082	DESIGNED BY:
J2 - Lin Ma Hang Road / Ping Che Road	J2_2023_EXT_AM	DATE : 16/12/2024	FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
W cr	=	CENTRAL RESERVE WIDTH (0m, 1.2-9m)
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	7.00	(metres)
W cr	=	0.00	(metres)
q a-b	=	225	(pcu/hr)
q a-c	=	55	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.30	(metres)
Vr c-b	=	100	(metres)
q c-a	=	45	(pcu/hr)
q c-b	=	75	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	3.50	(metres)
W b-c	=	4.50	(metres)
Vl b-a	=	200	(metres)
Vr b-a	=	100	(metres)
Vr b-c	=	100	(metres)
q b-a	=	165	(pcu/hr)
q b-c	=	75	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1
E	=	1.06
F	=	0.95
Y	=	0.76

THE CAPACITY OF MOVEMENT :

Q b-a	=	548
Q b-c	=	748
Q c-b	=	634
Q b-ac	=	598

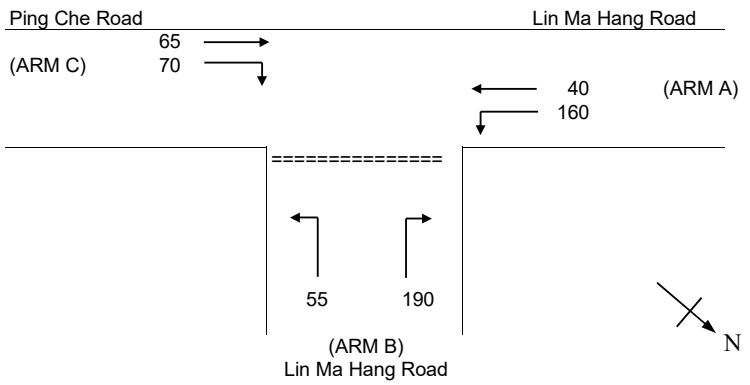
TOTAL FLOW = 640 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.30
DFC b-c	=	0.10
DFC c-b	=	0.12
DFC b-ac	=	0.40

CRITICAL DFC = 0.40

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
		PROJECT NO: 287082	DESIGNED BY:
J2 - Lin Ma Hang Road / Ping Che Road	J2_2023_EXT_PM	DATE : 16/12/2024	FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
W cr	=	CENTRAL RESERVE WIDTH (0m, 1.2-9m)
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	7.00	(metres)
W cr	=	0.00	(metres)
q a-b	=	160	(pcu/hr)
q a-c	=	40	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.30	(metres)
Vr c-b	=	100	(metres)
q c-a	=	65	(pcu/hr)
q c-b	=	70	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	3.50	(metres)
W b-c	=	4.50	(metres)
Vl b-a	=	200	(metres)
Vr b-a	=	100	(metres)
Vr b-c	=	100	(metres)
q b-a	=	190	(pcu/hr)
q b-c	=	55	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1
E	=	1.06
F	=	0.95
Y	=	0.76

THE CAPACITY OF MOVEMENT :

Q b-a	=	558
Q b-c	=	760
Q c-b	=	655
Q b-ac	=	593

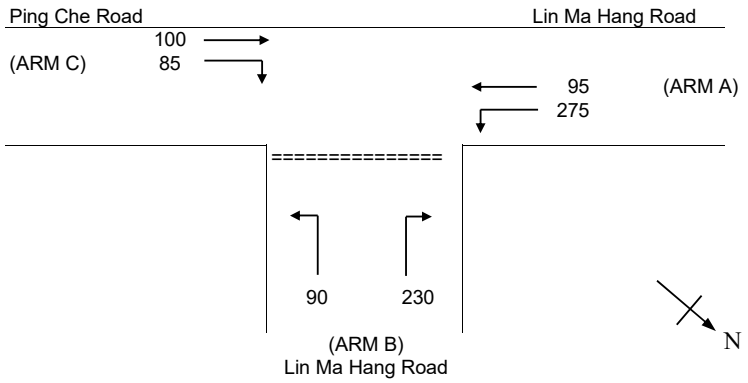
TOTAL FLOW = 580 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.34
DFC b-c	=	0.07
DFC c-b	=	0.11
DFC b-ac	=	0.41

CRITICAL DFC = 0.41

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
		PROJECT NO: 287082	DESIGNED BY:
J2 - Lin Ma Hang Road / Ping Che Road	J2_2031_REF_AM	DATE : 16/12/2024	FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
W cr	=	CENTRAL RESERVE WIDTH (0m, 1.2-9m)
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	7.00	(metres)
W cr	=	0.00	(metres)
q a-b	=	275	(pcu/hr)
q a-c	=	95	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.30	(metres)
Vr c-b	=	100	(metres)
q c-a	=	100	(pcu/hr)
q c-b	=	85	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	3.50	(metres)
W b-c	=	4.50	(metres)
Vl b-a	=	200	(metres)
Vr b-a	=	100	(metres)
Vr b-c	=	100	(metres)
q b-a	=	230	(pcu/hr)
q b-c	=	90	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1
E	=	1.06
F	=	0.95
Y	=	0.76

THE CAPACITY OF MOVEMENT :

Q b-a	=	518
Q b-c	=	730
Q c-b	=	611
Q b-ac	=	564

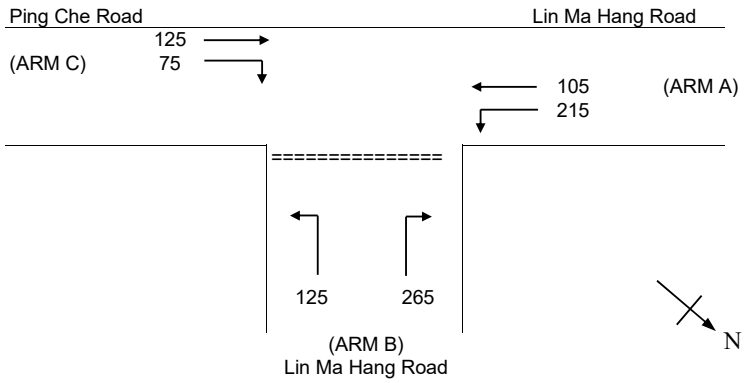
TOTAL FLOW = 875 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.45
DFC b-c	=	0.13
DFC c-b	=	0.14
DFC b-ac	=	0.57

CRITICAL DFC = 0.57

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
		PROJECT NO: 287082	DESIGNED BY:
J2 - Lin Ma Hang Road / Ping Che Road	J2_2031_REF_PM	DATE : 16/12/2024	FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
W cr	=	CENTRAL RESERVE WIDTH (0m, 1.2-9m)
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	7.00	(metres)
W cr	=	0.00	(metres)
q a-b	=	215	(pcu/hr)
q a-c	=	105	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.30	(metres)
Vr c-b	=	100	(metres)
q c-a	=	125	(pcu/hr)
q c-b	=	75	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	3.50	(metres)
W b-c	=	4.50	(metres)
Vl b-a	=	200	(metres)
Vr b-a	=	100	(metres)
Vr b-c	=	100	(metres)
q b-a	=	265	(pcu/hr)
q b-c	=	125	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1
E	=	1.06
F	=	0.95
Y	=	0.76

THE CAPACITY OF MOVEMENT :

Q b-a	=	522
Q b-c	=	734
Q c-b	=	624
Q b-ac	=	575

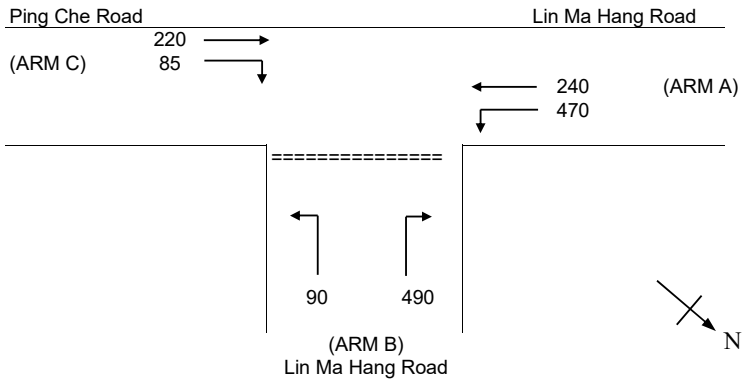
TOTAL FLOW = 910 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.51
DFC b-c	=	0.18
DFC c-b	=	0.13
DFC b-ac	=	0.68

CRITICAL DFC = 0.68

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
		PROJECT NO: 287082	DESIGNED BY:
J2 - Lin Ma Hang Road / Ping Che Road	J2_2031_DES_AM	DATE : 16/12/2024	FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
W cr	=	CENTRAL RESERVE WIDTH (0m, 1.2-9m)
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	7.00	(metres)
W cr	=	0.00	(metres)
q a-b	=	470	(pcu/hr)
q a-c	=	240	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.30	(metres)
Vr c-b	=	100	(metres)
q c-a	=	220	(pcu/hr)
q c-b	=	85	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	3.50	(metres)
W b-c	=	4.50	(metres)
Vl b-a	=	200	(metres)
Vr b-a	=	100	(metres)
Vr b-c	=	100	(metres)
q b-a	=	490	(pcu/hr)
q b-c	=	90	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1
E	=	1.06
F	=	0.95
Y	=	0.76

THE CAPACITY OF MOVEMENT :

Q b-a	=	436
Q b-c	=	665
Q c-b	=	521
Q b-ac	=	461

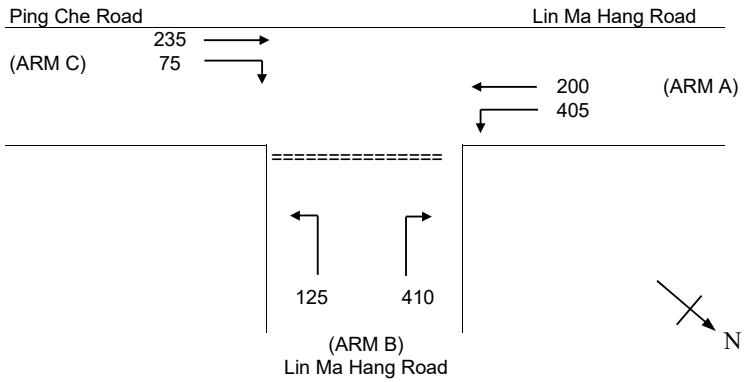
TOTAL FLOW = 1595 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	1.13
DFC b-c	=	0.14
DFC c-b	=	0.17
DFC b-ac	=	1.26

CRITICAL DFC = 1.26

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
		PROJECT NO: 287082	DESIGNED BY:
J2 - Lin Ma Hang Road / Ping Che Road	J2_2031_DES_PM	DATE : 16/12/2024	FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
W cr	=	CENTRAL RESERVE WIDTH (0m, 1.2-9m)
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	7.00	(metres)
W cr	=	0.00	(metres)
q a-b	=	405	(pcu/hr)
q a-c	=	200	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.30	(metres)
Vr c-b	=	100	(metres)
q c-a	=	235	(pcu/hr)
q c-b	=	75	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	3.50	(metres)
W b-c	=	4.50	(metres)
Vl b-a	=	200	(metres)
Vr b-a	=	100	(metres)
Vr b-c	=	100	(metres)
q b-a	=	410	(pcu/hr)
q b-c	=	125	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1
E	=	1.06
F	=	0.95
Y	=	0.76

THE CAPACITY OF MOVEMENT :

Q b-a	=	456
Q b-c	=	685
Q c-b	=	549
Q b-ac	=	495

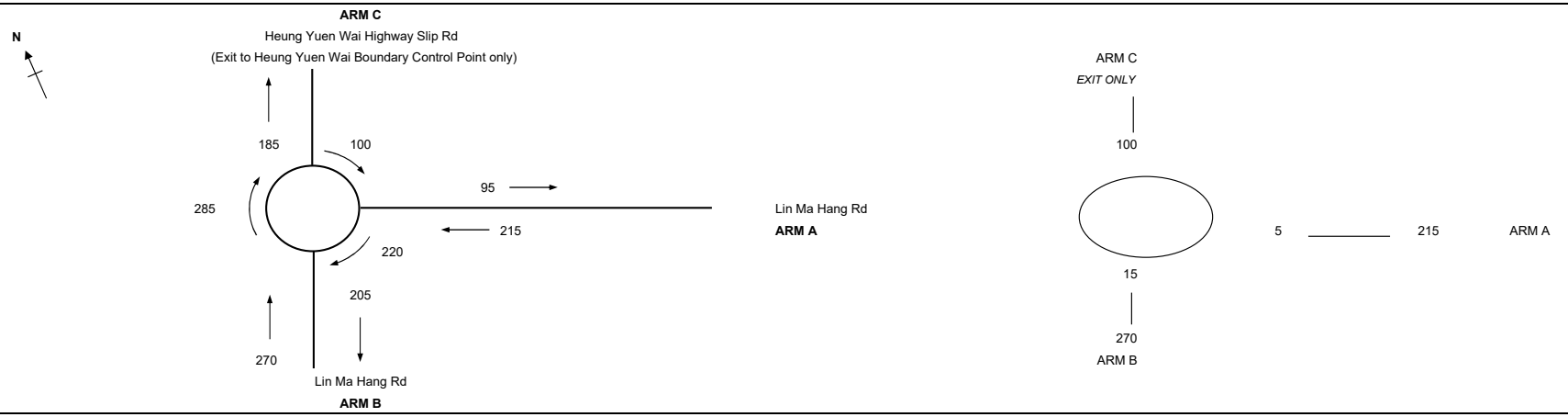
TOTAL FLOW = 1450 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.90
DFC b-c	=	0.19
DFC c-b	=	0.14
DFC b-ac	=	1.09

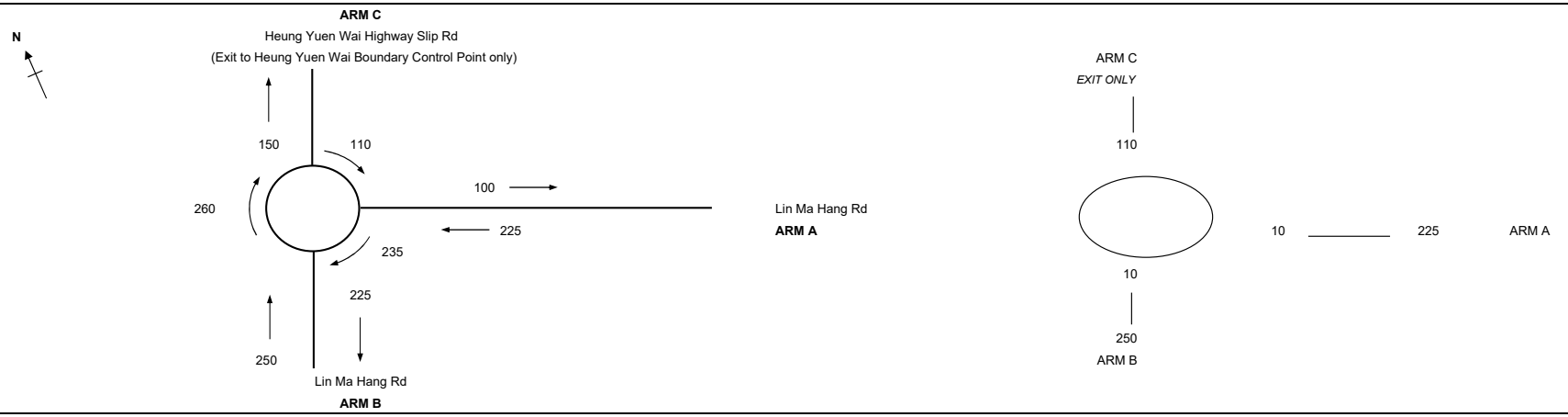
CRITICAL DFC = 1.09

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
			PROJECT NO. 287082
J3 - Lin Ma Hang Road / Heung Yuen Wai Highway Slip Road	J3_2023_EXT_AM	DATE 16/12/2024	



ARM			A	B			
INPUT PARAMETERS:							
V	=	Approach half width (m)	3.65	3.65			
E	=	Entry width (m)	4.00	4.00			
L	=	Effective length of flare (m)	10	10			
R	=	Entry radius (m)	100	45			
D	=	Inscribed circle diameter (m)	25	25			
A	=	Entry angle (degree)	10	15			
Q	=	Entry flow (pcu/h)	215	270			
Qc	=	Circulating flow across entry (pcu/h)	5	15			
OUTPUT PARAMETERS:							
S	=	Sharpness of flare = 1.6(E-V)/L	0.06	0.06			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.11	1.08			
X2	=	V + ((E-V)/(1+2S))	3.96	3.96			
M	=	EXP((D-60)/10)	0.03	0.03			
F	=	303*X2	1201	1201			
Td	=	1+(0.5/(1+M))	1.49	1.49			
Fc	=	0.21*Td(1+0.2*X2)	0.56	0.56			
Qe	=	K(F-Fc*Qc)	1329	1287	**Total In Sum =**	**485**	**PCU**
DFC	=	Design flow/Capacity = Q/Qe	0.16	0.21	**DFC of Critical Approach =**	**0.21**	

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
			PROJECT NO. 287082
J3 - Lin Ma Hang Road / Heung Yuen Wai Highway Slip Road	J3_2023_EXT_PM	DATE 16/12/2024	

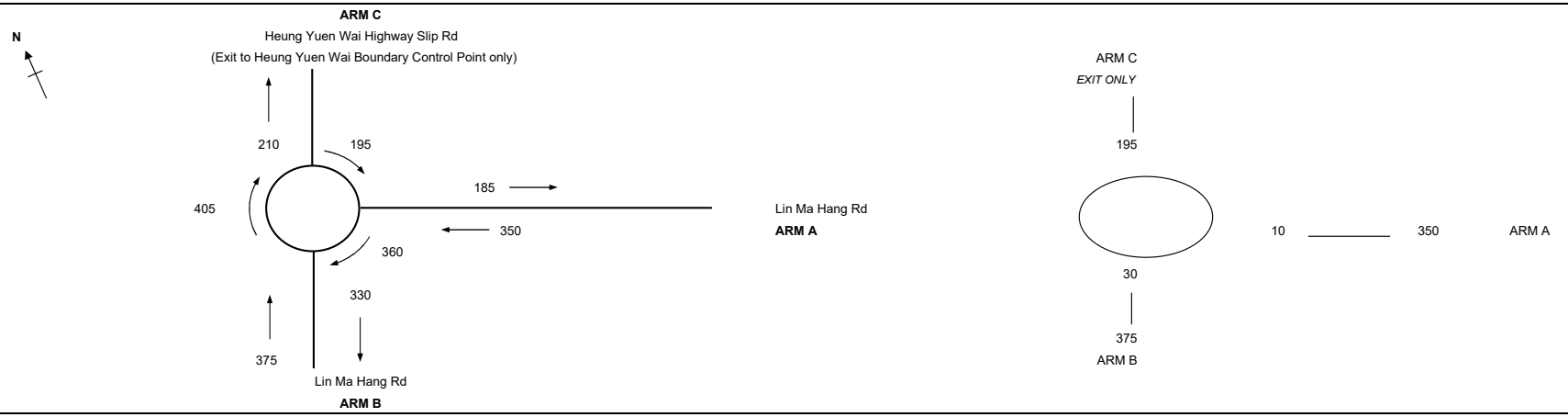


ARM			A	B
INPUT PARAMETERS:				
V	=	Approach half width (m)	3.65	3.65
E	=	Entry width (m)	4.00	4.00
L	=	Effective length of flare (m)	10	10
R	=	Entry radius (m)	100	45
D	=	Inscribed circle diameter (m)	25	25
A	=	Entry angle (degree)	10	15
Q	=	Entry flow (pcu/h)	225	250
Qc	=	Circulating flow across entry (pcu/h)	10	10
OUTPUT PARAMETERS:				
S	=	Sharpness of flare = 1.6(E-V)/L	0.06	0.06
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.11	1.08
X2	=	V + ((E-V)/(1+2S))	3.96	3.96
M	=	EXP((D-60)/10)	0.03	0.03
F	=	303*X2	1201	1201
Td	=	1+(0.5/(1+M))	1.49	1.49
Fc	=	0.21*Td(1+0.2*X2)	0.56	0.56
Qe	=	K(F-Fc*Qc)	1325	1290
DFC	=	Design flow/Capacity = Q/Qe	0.17	0.19

Total In Sum = **475** **PCU**

DFC of Critical Approach = **0.19**

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
			PROJECT NO. 287082
J3 - Lin Ma Hang Road / Heung Yuen Wai Highway Slip Road	J3_2031_REF_AM	DATE 16/12/2024	

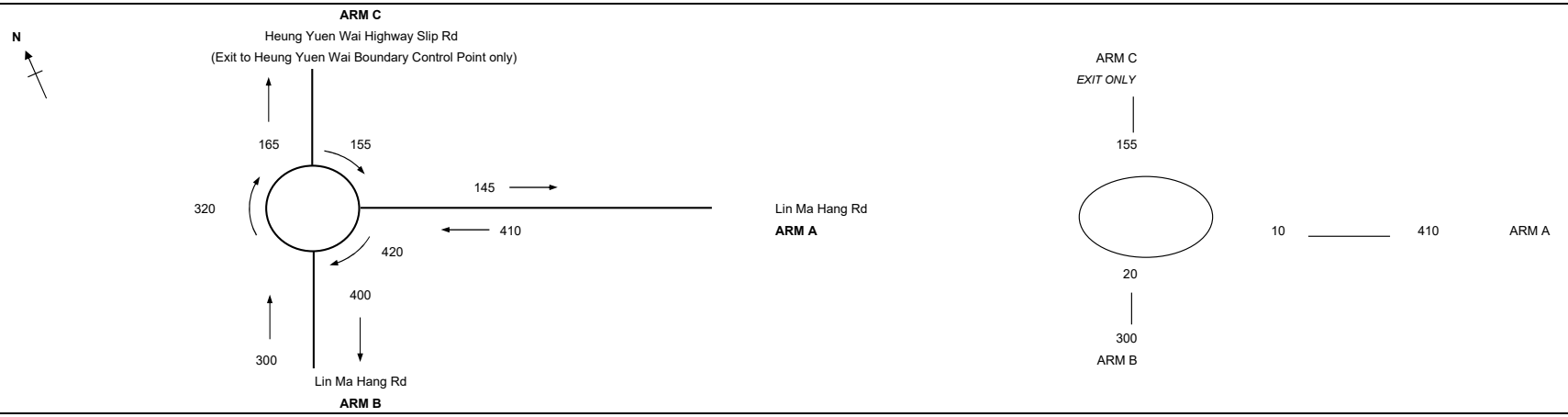


ARM			A	B
INPUT PARAMETERS:				
V	=	Approach half width (m)	3.65	3.65
E	=	Entry width (m)	4.00	4.00
L	=	Effective length of flare (m)	10	10
R	=	Entry radius (m)	100	45
D	=	Inscribed circle diameter (m)	25	25
A	=	Entry angle (degree)	10	15
Q	=	Entry flow (pcu/h)	350	375
Qc	=	Circulating flow across entry (pcu/h)	10	30
OUTPUT PARAMETERS:				
S	=	Sharpness of flare = 1.6(E-V)/L	0.06	0.06
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.11	1.08
X2	=	V + ((E-V)/(1+2S))	3.96	3.96
M	=	EXP((D-60)/10)	0.03	0.03
F	=	303*X2	1201	1201
Td	=	1+(0.5/(1+M))	1.49	1.49
Fc	=	0.21*Td(1+0.2*X2)	0.56	0.56
Qe	=	K(F-Fc*Qc)	1325	1278
DFC	=	Design flow/Capacity = Q/Qe	0.27	0.30

Total In Sum = **725** **PCU**

DFC of Critical Approach = **0.30**

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
			PROJECT NO. 287082
J3 - Lin Ma Hang Road / Heung Yuen Wai Highway Slip Road	J3_2031_REF_PM	DATE 16/12/2024	

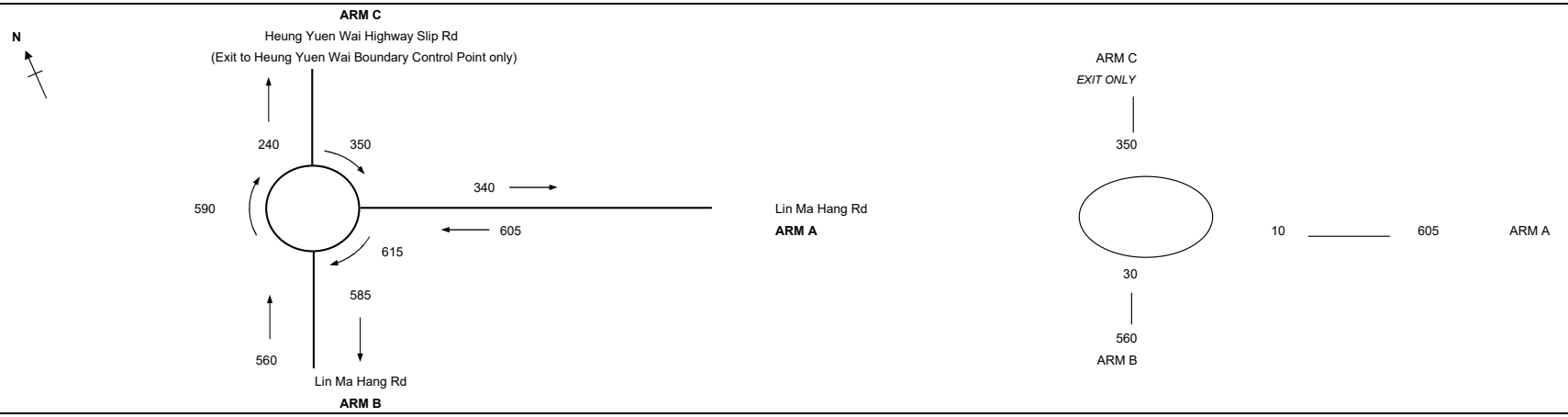


ARM			A	B
INPUT PARAMETERS:				
V	=	Approach half width (m)	3.65	3.65
E	=	Entry width (m)	4.00	4.00
L	=	Effective length of flare (m)	10	10
R	=	Entry radius (m)	100	45
D	=	Inscribed circle diameter (m)	25	25
A	=	Entry angle (degree)	10	15
Q	=	Entry flow (pcu/h)	410	300
Qc	=	Circulating flow across entry (pcu/h)	10	20
OUTPUT PARAMETERS:				
S	=	Sharpness of flare = 1.6(E-V)/L	0.06	0.06
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.11	1.08
X2	=	V + ((E-V)/(1+2S))	3.96	3.96
M	=	EXP((D-60)/10)	0.03	0.03
F	=	303*X2	1201	1201
Td	=	1+(0.5/(1+M))	1.49	1.49
Fc	=	0.21*Td(1+0.2*X2)	0.56	0.56
Qe	=	K(F-Fc*Qc)	1325	1284
DFC	=	Design flow/Capacity = Q/Qe	0.31	0.24

Total In Sum = **710** **PCU**

DFC of Critical Approach = **0.31**

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
			PROJECT NO. 287082
J3 - Lin Ma Hang Road / Heung Yuen Wai Highway Slip Road	J3_2031_DES_AM	DATE 16/12/2024	

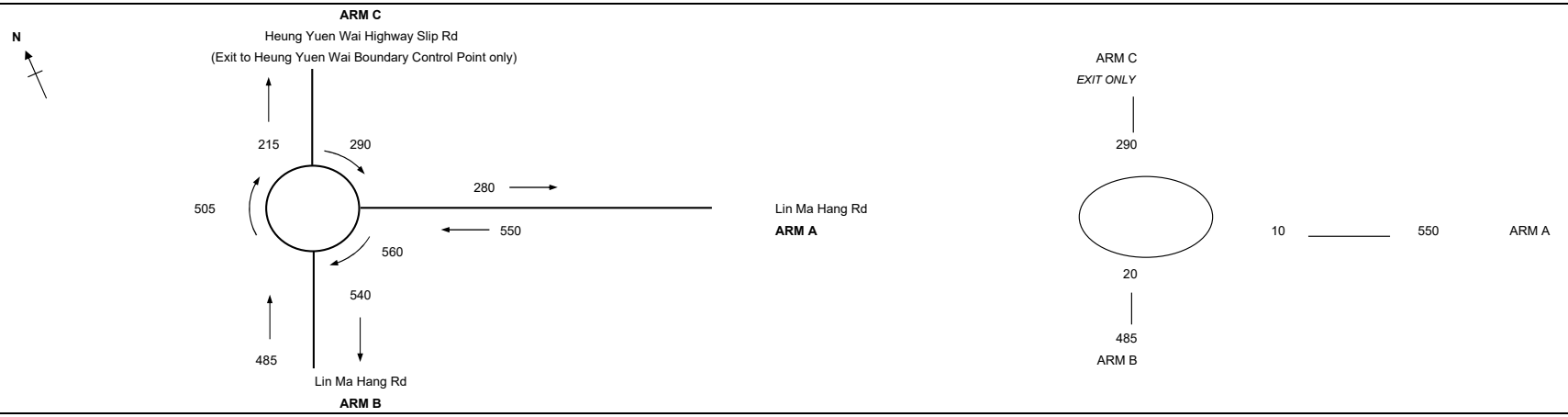


ARM			A	B
INPUT PARAMETERS:				
V	=	Approach half width (m)	3.65	3.65
E	=	Entry width (m)	4.00	4.00
L	=	Effective length of flare (m)	10	10
R	=	Entry radius (m)	100	45
D	=	Inscribed circle diameter (m)	25	25
A	=	Entry angle (degree)	10	15
Q	=	Entry flow (pcu/h)	605	560
Qc	=	Circulating flow across entry (pcu/h)	10	30
OUTPUT PARAMETERS:				
S	=	Sharpness of flare = 1.6(E-V)/L	0.06	0.06
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.11	1.08
X2	=	V + ((E-V)/(1+2S))	3.96	3.96
M	=	EXP((D-60)/10)	0.03	0.03
F	=	303*X2	1201	1201
Td	=	1+(0.5/(1+M))	1.49	1.49
Fc	=	0.21*Td(1+0.2*X2)	0.56	0.56
Qe	=	K(F-Fc*Qc)	1325	1278
DFC	=	Design flow/Capacity = Q/Qe	0.46	0.44

Total In Sum = **1165** **PCU**

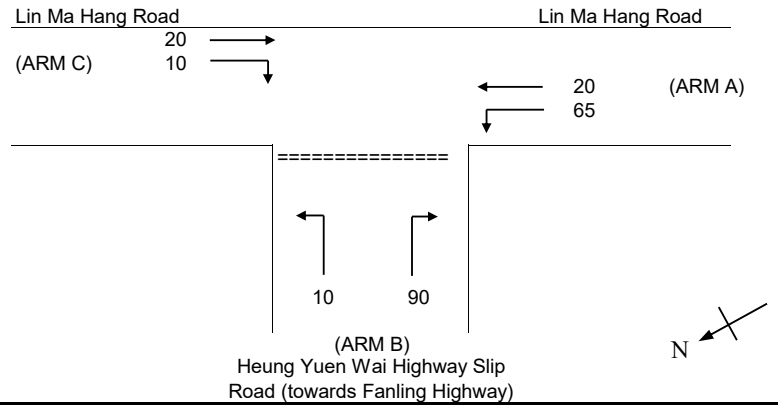
DFC of Critical Approach = **0.46**

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
			PROJECT NO. 287082
J3 - Lin Ma Hang Road / Heung Yuen Wai Highway Slip Road	J3_2031_DES_PM	DATE 16/12/2024	



ARM			A	B			
INPUT PARAMETERS:							
V	=	Approach half width (m)	3.65	3.65			
E	=	Entry width (m)	4.00	4.00			
L	=	Effective length of flare (m)	10	10			
R	=	Entry radius (m)	100	45			
D	=	Inscribed circle diameter (m)	25	25			
A	=	Entry angle (degree)	10	15			
Q	=	Entry flow (pcu/h)	550	485			
Qc	=	Circulating flow across entry (pcu/h)	10	20			
OUTPUT PARAMETERS:							
S	=	Sharpness of flare = 1.6(E-V)/L	0.06	0.06			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.11	1.08			
X2	=	V + ((E-V)/(1+2S))	3.96	3.96			
M	=	EXP((D-60)/10)	0.03	0.03			
F	=	303*X2	1201	1201			
Td	=	1+(0.5/(1+M))	1.49	1.49			
Fc	=	0.21*Td(1+0.2*X2)	0.56	0.56			
Qe	=	K(F-Fc*Qc)	1325	1284	**Total In Sum =**	**1035**	**PCU**
DFC	=	Design flow/Capacity = Q/Qe	0.42	0.38	**DFC of Critical Approach =**	**0.42**	

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
		PROJECT NO: 287082	DESIGNED BY:
J4 - Lin Ma Hang Road / Heung Yuen Wai Highway Slip Road	J4_2023_EXT_AM	DATE : 16/12/2024	FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
W cr	=	CENTRAL RESERVE WIDTH (0m, 1.2-9m)
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	7.30	(metres)
W cr	=	0.00	(metres)
q a-b	=	65	(pcu/hr)
q a-c	=	20	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.65	(metres)
Vr c-b	=	50	(metres)
q c-a	=	20	(pcu/hr)
q c-b	=	10	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	5.00	(metres)
W b-c	=	5.00	(metres)
Vl b-a	=	100	(metres)
Vr b-a	=	100	(metres)
Vr b-c	=	100	(metres)
q b-a	=	90	(pcu/hr)
q b-c	=	10	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.07
E	=	1.11
F	=	0.94
Y	=	0.75

THE CAPACITY OF MOVEMENT :

Q b-a	=	652
Q b-c	=	811
Q c-b	=	676
Q b-ac	=	665

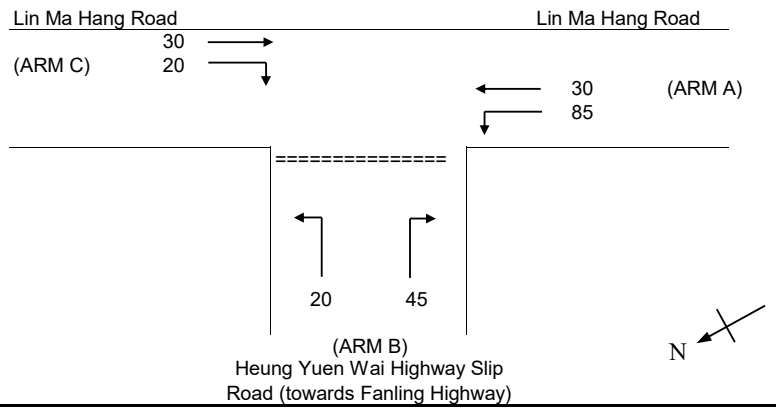
TOTAL FLOW = 215 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.14
DFC b-c	=	0.01
DFC c-b	=	0.01
DFC b-ac	=	0.15

CRITICAL DFC = 0.15

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
		PROJECT NO: 287082	DESIGNED BY:
J4 - Lin Ma Hang Road / Heung Yuen Wai Highway Slip Road	J4_2023_EXT_PM	DATE : 16/12/2024	FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
W cr	=	CENTRAL RESERVE WIDTH (0m, 1.2-9m)
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	7.30	(metres)
W cr	=	0.00	(metres)
q a-b	=	85	(pcu/hr)
q a-c	=	30	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.65	(metres)
Vr c-b	=	50	(metres)
q c-a	=	30	(pcu/hr)
q c-b	=	20	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	5.00	(metres)
W b-c	=	5.00	(metres)
Vl b-a	=	100	(metres)
Vr b-a	=	100	(metres)
Vr b-c	=	100	(metres)
q b-a	=	45	(pcu/hr)
q b-c	=	20	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.07
E	=	1.11
F	=	0.94
Y	=	0.75

THE CAPACITY OF MOVEMENT :

Q b-a	=	641
Q b-c	=	805
Q c-b	=	669
Q b-ac	=	684

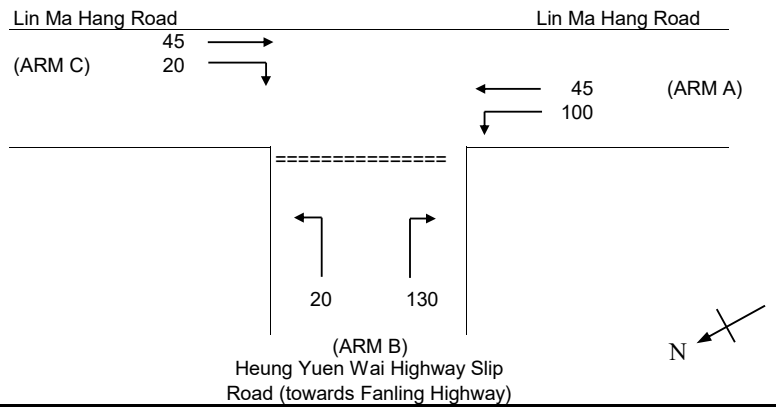
TOTAL FLOW = 230 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.07
DFC b-c	=	0.02
DFC c-b	=	0.03
DFC b-ac	=	0.10

CRITICAL DFC = 0.10

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
		PROJECT NO: 287082	DESIGNED BY:
J4 - Lin Ma Hang Road / Heung Yuen Wai Highway Slip Road	J4_2031_REF_AM	DATE : 16/12/2024	FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
W cr	=	CENTRAL RESERVE WIDTH (0m, 1.2-9m)
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	7.30	(metres)
W cr	=	0.00	(metres)
q a-b	=	100	(pcu/hr)
q a-c	=	45	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.65	(metres)
Vr c-b	=	50	(metres)
q c-a	=	45	(pcu/hr)
q c-b	=	20	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	5.00	(metres)
W b-c	=	5.00	(metres)
Vl b-a	=	100	(metres)
Vr b-a	=	100	(metres)
Vr b-c	=	100	(metres)
q b-a	=	130	(pcu/hr)
q b-c	=	20	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.07
E	=	1.11
F	=	0.94
Y	=	0.75

THE CAPACITY OF MOVEMENT :

Q b-a	=	632
Q b-c	=	799
Q c-b	=	661
Q b-ac	=	650

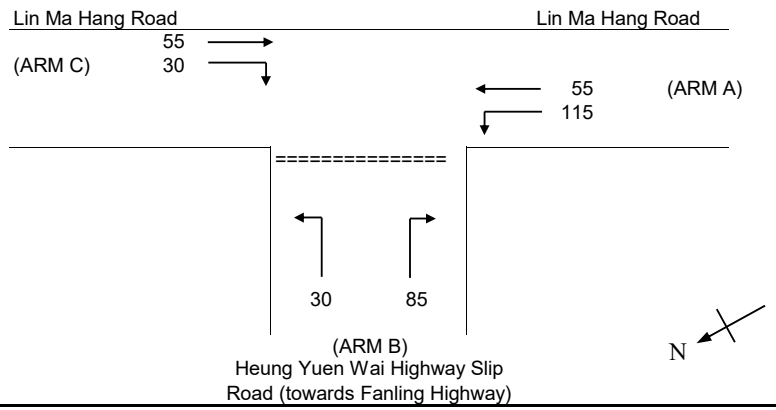
TOTAL FLOW = 360 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.21
DFC b-c	=	0.03
DFC c-b	=	0.04
DFC b-ac	=	0.24

CRITICAL DFC = 0.24

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
		PROJECT NO: 287082	DESIGNED BY:
J4 - Lin Ma Hang Road / Heung Yuen Wai Highway Slip Road	J4_2031_REF_PM	DATE : 16/12/2024	FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
W cr	=	CENTRAL RESERVE WIDTH (0m, 1.2-9m)
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	7.30	(metres)
W cr	=	0.00	(metres)
q a-b	=	115	(pcu/hr)
q a-c	=	55	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.65	(metres)
Vr c-b	=	50	(metres)
q c-a	=	55	(pcu/hr)
q c-b	=	30	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	5.00	(metres)
W b-c	=	5.00	(metres)
Vl b-a	=	100	(metres)
Vr b-a	=	100	(metres)
Vr b-c	=	100	(metres)
q b-a	=	85	(pcu/hr)
q b-c	=	30	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.07
E	=	1.11
F	=	0.94
Y	=	0.75

THE CAPACITY OF MOVEMENT :

Q b-a	=	621
Q b-c	=	794
Q c-b	=	655
Q b-ac	=	658

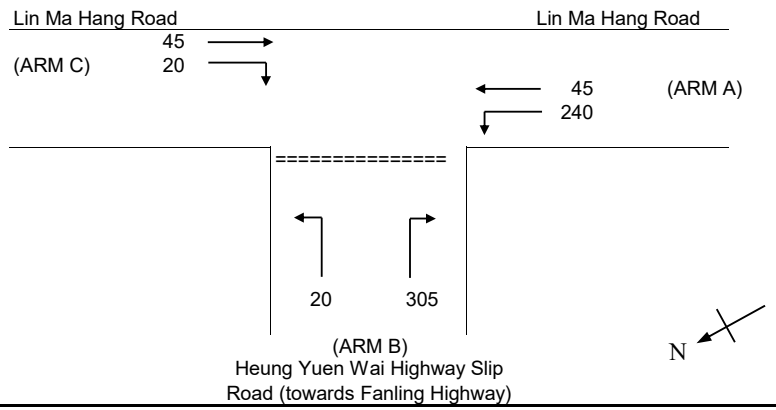
TOTAL FLOW = 370 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.14
DFC b-c	=	0.04
DFC c-b	=	0.05
DFC b-ac	=	0.18

CRITICAL DFC = 0.18

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
		PROJECT NO: 287082	DESIGNED BY:
J4 - Lin Ma Hang Road / Heung Yuen Wai Highway Slip Road	J4_2031_DES_AM	DATE : 16/12/2024	FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
W cr	=	CENTRAL RESERVE WIDTH (0m, 1.2-9m)
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	7.30	(metres)
W cr	=	0.00	(metres)
q a-b	=	240	(pcu/hr)
q a-c	=	45	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.65	(metres)
Vr c-b	=	50	(metres)
q c-a	=	45	(pcu/hr)
q c-b	=	20	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	5.00	(metres)
W b-c	=	5.00	(metres)
Vl b-a	=	100	(metres)
Vr b-a	=	100	(metres)
Vr b-c	=	100	(metres)
q b-a	=	305	(pcu/hr)
q b-c	=	20	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.07
E	=	1.11
F	=	0.94
Y	=	0.75

THE CAPACITY OF MOVEMENT :

Q b-a	=	615
Q b-c	=	782
Q c-b	=	625
Q b-ac	=	623

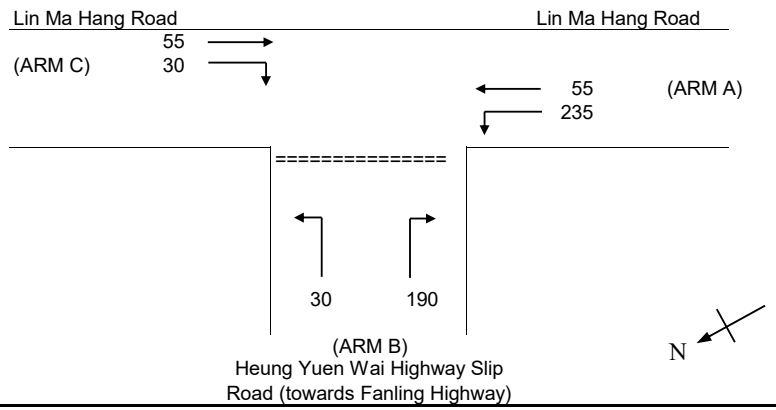
TOTAL FLOW = 675 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.50
DFC b-c	=	0.03
DFC c-b	=	0.04
DFC b-ac	=	0.53

CRITICAL DFC = 0.53

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
		PROJECT NO: 287082	DESIGNED BY:
J4 - Lin Ma Hang Road / Heung Yuen Wai Highway Slip Road	J4_2031_DES_PM	DATE : 16/12/2024	FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
W cr	=	CENTRAL RESERVE WIDTH (0m, 1.2-9m)
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	7.30	(metres)
W cr	=	0.00	(metres)
q a-b	=	235	(pcu/hr)
q a-c	=	55	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	3.65	(metres)
Vr c-b	=	50	(metres)
q c-a	=	55	(pcu/hr)
q c-b	=	30	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	5.00	(metres)
W b-c	=	5.00	(metres)
Vl b-a	=	100	(metres)
Vr b-a	=	100	(metres)
Vr b-c	=	100	(metres)
q b-a	=	190	(pcu/hr)
q b-c	=	30	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.07
E	=	1.11
F	=	0.94
Y	=	0.75

THE CAPACITY OF MOVEMENT :

Q b-a	=	607
Q b-c	=	780
Q c-b	=	624
Q b-ac	=	626

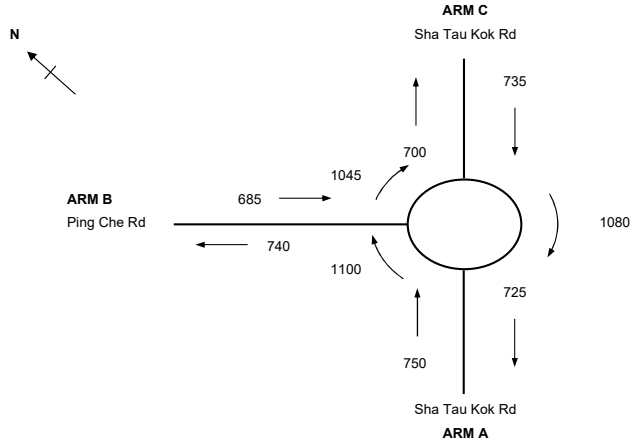
TOTAL FLOW = 595 (PCU/HR)

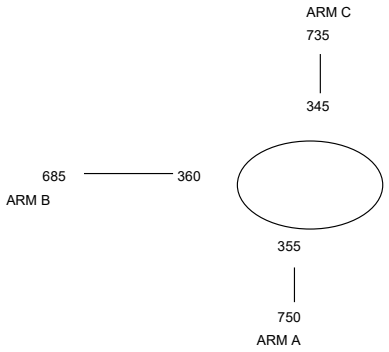
COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.32
DFC b-c	=	0.04
DFC c-b	=	0.05
DFC b-ac	=	0.36

CRITICAL DFC = 0.36

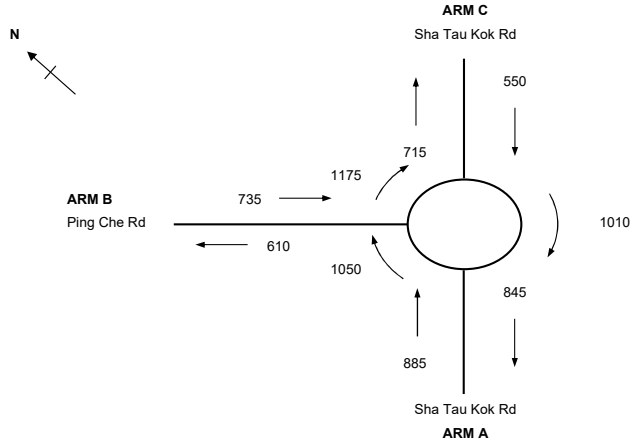
OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
			PROJECT NO. 287082
J5 - Sha Tau Kok Road / Ping Che Road	J5_2023_EXT_AM	DATE 16/12/2024	

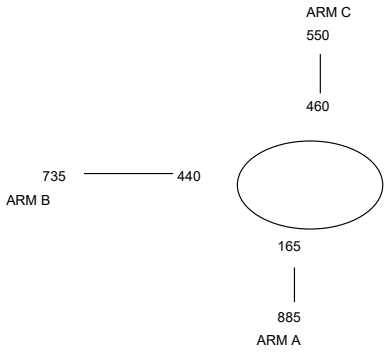




ARM			A	B	C			
INPUT PARAMETERS:								
V	=	Approach half width (m)	7.30	5.50	7.30			
E	=	Entry width (m)	9.00	8.50	9.00			
L	=	Effective length of flare (m)	5	5	5			
R	=	Entry radius (m)	40	15	40			
D	=	Inscribed circle diameter (m)	50	50	50			
A	=	Entry angle (degree)	20	40	25			
Q	=	Entry flow (pcu/h)	750	685	735			
Qc	=	Circulating flow across entry (pcu/h)	355	360	345			
OUTPUT PARAMETERS:								
S	=	Sharpness of flare = 1.6(E-V)/L	0.54	0.96	0.54			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.06	0.95	1.04			
X2	=	V + ((E-V)/(1+2S))	8.11	6.53	8.11			
M	=	EXP((D-60)/10)	0.37	0.37	0.37			
F	=	303*X2	2459	1978	2459			
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37			
Fc	=	0.21*Td(1+0.2*X2)	0.75	0.66	0.75			
Qe	=	K(F-Fc*Qc)	2321	1651	2291	**Total In Sum =**	**2170**	**PCU**
DFC	=	Design flow/Capacity = Q/Qe	0.32	0.41	0.32	**DFC of Critical Approach =**	**0.41**	

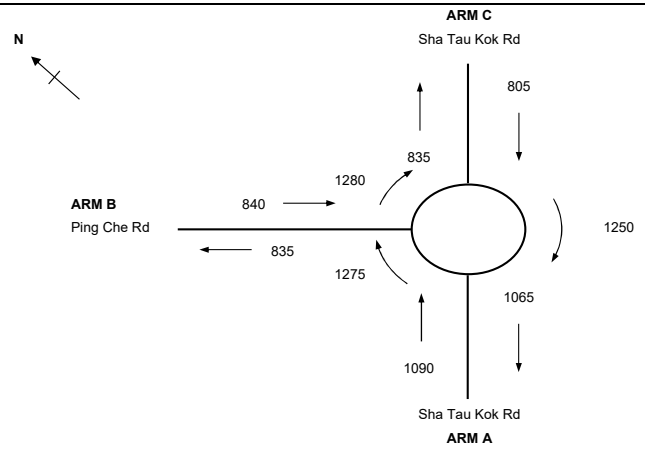
OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
			PROJECT NO. 287082
J5 - Sha Tau Kok Road / Ping Che Road	J5_2023_EXT_PM	DATE 16/12/2024	

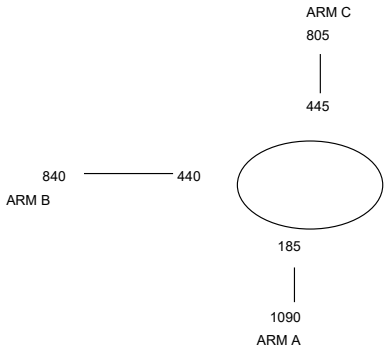




ARM			A	B	C			
INPUT PARAMETERS:								
V	=	Approach half width (m)	7.30	5.50	7.30			
E	=	Entry width (m)	9.00	8.50	9.00			
L	=	Effective length of flare (m)	5	5	5			
R	=	Entry radius (m)	40	15	40			
D	=	Inscribed circle diameter (m)	50	50	50			
A	=	Entry angle (degree)	20	40	25			
Q	=	Entry flow (pcu/h)	885	735	550			
Qc	=	Circulating flow across entry (pcu/h)	165	440	460			
OUTPUT PARAMETERS:								
S	=	Sharpness of flare = 1.6(E-V)/L	0.54	0.96	0.54			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.06	0.95	1.04			
X2	=	V + ((E-V)/(1+2S))	8.11	6.53	8.11			
M	=	EXP((D-60)/10)	0.37	0.37	0.37			
F	=	303*X2	2459	1978	2459			
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37			
Fc	=	0.21*Td(1+0.2*X2)	0.75	0.66	0.75			
Qe	=	K(F-Fc*Qc)	2473	1601	2201	**Total In Sum =**	**2170**	**PCU**
DFC	=	Design flow/Capacity = Q/Qe	0.36	0.46	0.25	**DFC of Critical Approach =**	**0.46**	

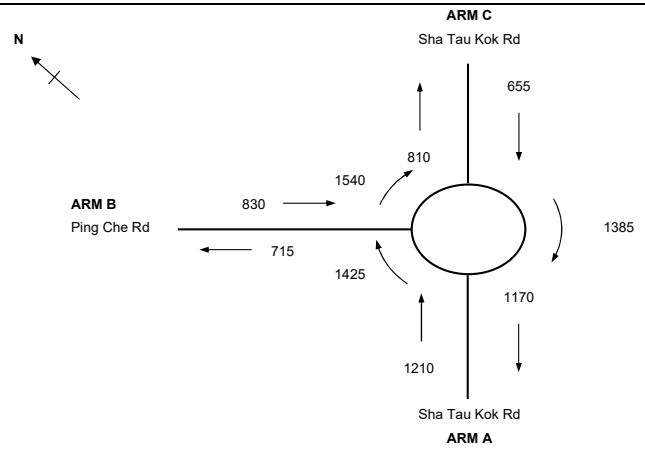
OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
			PROJECT NO. 287082
J5 - Sha Tau Kok Road / Ping Che Road	J5_2031_REF_AM	DATE 16/12/2024	

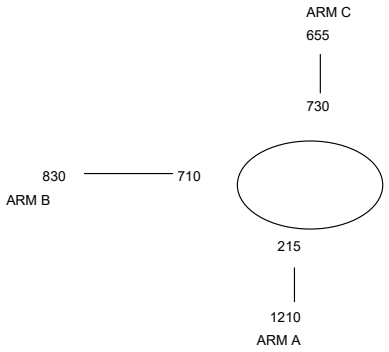




ARM			A	B	C			
INPUT PARAMETERS:								
V	=	Approach half width (m)	7.30	5.50	7.30			
E	=	Entry width (m)	9.00	8.50	9.00			
L	=	Effective length of flare (m)	5	5	5			
R	=	Entry radius (m)	40	15	40			
D	=	Inscribed circle diameter (m)	50	50	50			
A	=	Entry angle (degree)	20	40	25			
Q	=	Entry flow (pcu/h)	1090	840	805			
Qc	=	Circulating flow across entry (pcu/h)	185	440	445			
OUTPUT PARAMETERS:								
S	=	Sharpness of flare = 1.6(E-V)/L	0.54	0.96	0.54			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.06	0.95	1.04			
X2	=	V + ((E-V)/(1+2S))	8.11	6.53	8.11			
M	=	EXP((D-60)/10)	0.37	0.37	0.37			
F	=	303*X2	2459	1978	2459			
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37			
Fc	=	0.21*Td(1+0.2*X2)	0.75	0.66	0.75			
Qe	=	K(F-Fc*Qc)	2457	1601	2213	**Total In Sum =**	**2735**	**PCU**
DFC	=	Design flow/Capacity = Q/Qe	0.45	0.53	0.37	**DFC of Critical Approach =**	**0.53**	

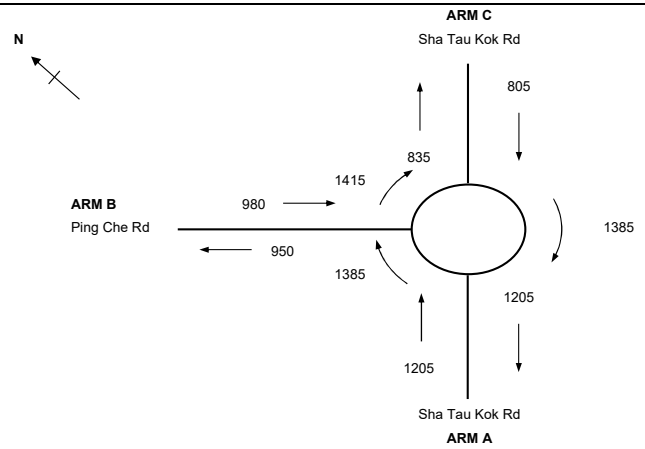
OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
			PROJECT NO. 287082
J5 - Sha Tau Kok Road / Ping Che Road	J5_2031_REF_PM	DATE 16/12/2024	

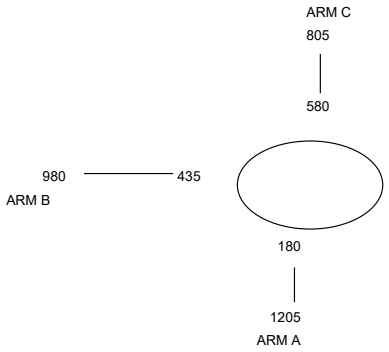




ARM			A	B	C			
INPUT PARAMETERS:								
V	=	Approach half width (m)	7.30	5.50	7.30			
E	=	Entry width (m)	9.00	8.50	9.00			
L	=	Effective length of flare (m)	5	5	5			
R	=	Entry radius (m)	40	15	40			
D	=	Inscribed circle diameter (m)	50	50	50			
A	=	Entry angle (degree)	20	40	25			
Q	=	Entry flow (pcu/h)	1210	830	655			
Qc	=	Circulating flow across entry (pcu/h)	215	710	730			
OUTPUT PARAMETERS:								
S	=	Sharpness of flare = 1.6(E-V)/L	0.54	0.96	0.54			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.06	0.95	1.04			
X2	=	V + ((E-V)/(1+2S))	8.11	6.53	8.11			
M	=	EXP((D-60)/10)	0.37	0.37	0.37			
F	=	303*X2	2459	1978	2459			
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37			
Fc	=	0.21*Td(1+0.2*X2)	0.75	0.66	0.75			
Qe	=	K(F-Fc*Qc)	2433	1431	1989	**Total In Sum =**	**2695**	**PCU**
DFC	=	Design flow/Capacity = Q/Qe	0.50	0.58	0.33	**DFC of Critical Approach =**	**0.58**	

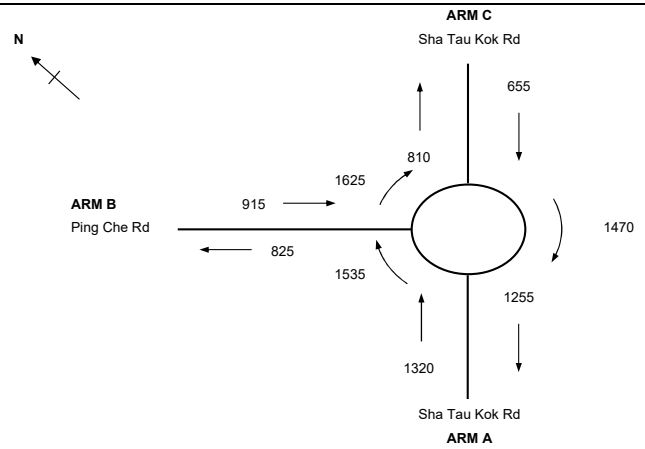
OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
			PROJECT NO. 287082
J5 - Sha Tau Kok Road / Ping Che Road	J5_2031_DES_AM	DATE 16/12/2024	

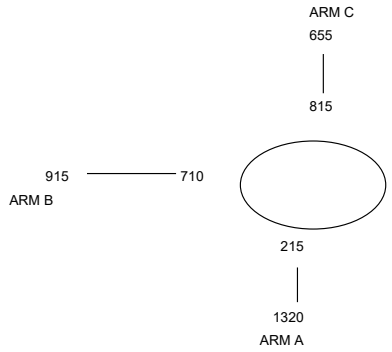




ARM			A	B	C			
INPUT PARAMETERS:								
V	=	Approach half width (m)	7.30	5.50	7.30			
E	=	Entry width (m)	9.00	8.50	9.00			
L	=	Effective length of flare (m)	5	5	5			
R	=	Entry radius (m)	40	15	40			
D	=	Inscribed circle diameter (m)	50	50	50			
A	=	Entry angle (degree)	20	40	25			
Q	=	Entry flow (pcu/h)	1205	980	805			
Qc	=	Circulating flow across entry (pcu/h)	180	435	580			
OUTPUT PARAMETERS:								
S	=	Sharpness of flare = 1.6(E-V)/L	0.54	0.96	0.54			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.06	0.95	1.04			
X2	=	V + ((E-V)/(1+2S))	8.11	6.53	8.11			
M	=	EXP((D-60)/10)	0.37	0.37	0.37			
F	=	303*X2	2459	1978	2459			
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37			
Fc	=	0.21*Td(1+0.2*X2)	0.75	0.66	0.75			
Qe	=	K(F-Fc*Qc)	2461	1604	2107	**Total In Sum =**	**2990**	**PCU**
DFC	=	Design flow/Capacity = Q/Qe	0.49	0.62	0.39	**DFC of Critical Approach =**	**0.62**	

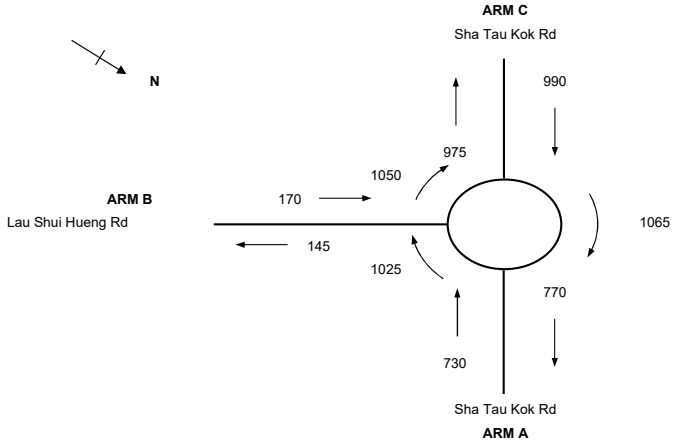
OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
			PROJECT NO. 287082
J5 - Sha Tau Kok Road / Ping Che Road	J5_2031_DES_PM	DATE 16/12/2024	

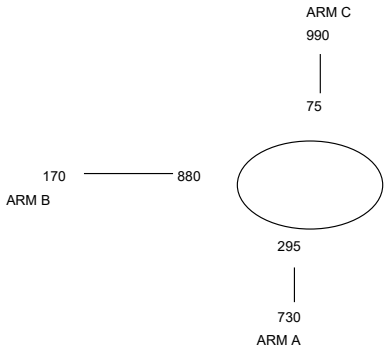




ARM			A	B	C			
INPUT PARAMETERS:								
V	=	Approach half width (m)	7.30	5.50	7.30			
E	=	Entry width (m)	9.00	8.50	9.00			
L	=	Effective length of flare (m)	5	5	5			
R	=	Entry radius (m)	40	15	40			
D	=	Inscribed circle diameter (m)	50	50	50			
A	=	Entry angle (degree)	20	40	25			
Q	=	Entry flow (pcu/h)	1320	915	655			
Qc	=	Circulating flow across entry (pcu/h)	215	710	815			
OUTPUT PARAMETERS:								
S	=	Sharpness of flare = 1.6(E-V)/L	0.54	0.96	0.54			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.06	0.95	1.04			
X2	=	V + ((E-V)/(1+2S))	8.11	6.53	8.11			
M	=	EXP((D-60)/10)	0.37	0.37	0.37			
F	=	303*X2	2459	1978	2459			
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37			
Fc	=	0.21*Td(1+0.2*X2)	0.75	0.66	0.75			
Qe	=	K(F-Fc*Qc)	2433	1431	1923	**Total In Sum =**	**2890**	**PCU**
DFC	=	Design flow/Capacity = Q/Qe	0.55	0.64	0.35	**DFC of Critical Approach =**	**0.64**	

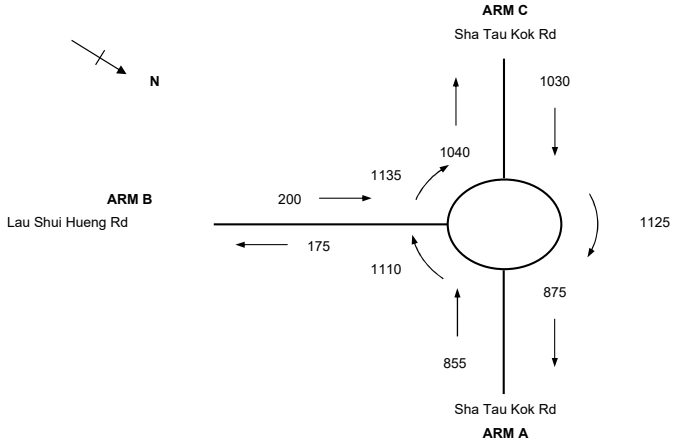
OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
			PROJECT NO. 287082
J6 - Sha Tau Kok Road / Lau Shui Heung Road	J6_2023_EXT_AM	DATE 16/12/2024	

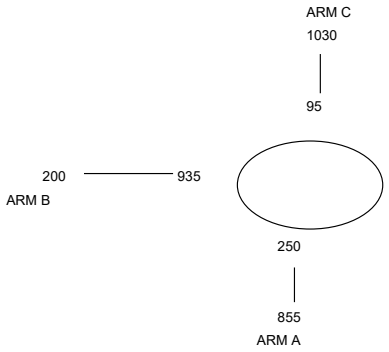




ARM			A	B	C			
INPUT PARAMETERS:								
V	=	Approach half width (m)	7.30	3.30	7.30			
E	=	Entry width (m)	9.00	5.00	9.00			
L	=	Effective length of flare (m)	15	5	15			
R	=	Entry radius (m)	15	80	80			
D	=	Inscribed circle diameter (m)	50	50	50			
A	=	Entry angle (degree)	40	25	10			
Q	=	Entry flow (pcu/h)	730	170	990			
Qc	=	Circulating flow across entry (pcu/h)	295	880	75			
OUTPUT PARAMETERS:								
S	=	Sharpness of flare = 1.6(E-V)/L	0.18	0.54	0.18			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	0.95	1.05	1.11			
X2	=	V + ((E-V)/(1+2S))	8.55	4.11	8.55			
M	=	EXP((D-60)/10)	0.37	0.37	0.37			
F	=	303*X2	2590	1247	2590			
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37			
Fc	=	0.21*Td(1+0.2*X2)	0.78	0.52	0.78			
Qe	=	K(F-Fc*Qc)	2240	829	2800	**Total In Sum =**	**1890**	**PCU**
DFC	=	Design flow/Capacity = Q/Qe	0.33	0.21	0.35	**DFC of Critical Approach =**	**0.35**	

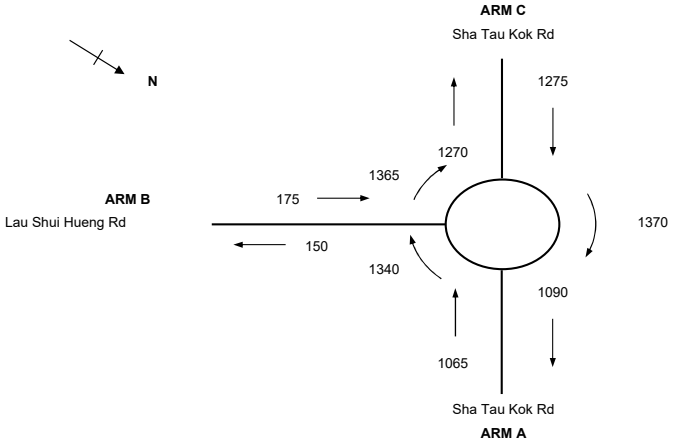
OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
			PROJECT NO. 287082
J6 - Sha Tau Kok Road / Lau Shui Heung Road	J6_2023_EXT_PM	DATE 16/12/2024	

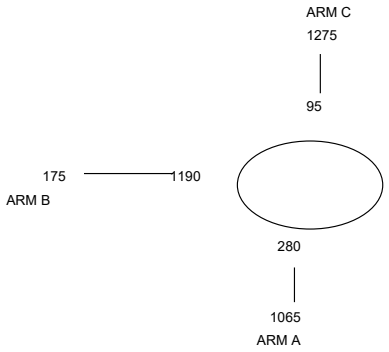




ARM			A	B	C			
INPUT PARAMETERS:								
V	=	Approach half width (m)	7.30	3.30	7.30			
E	=	Entry width (m)	9.00	5.00	9.00			
L	=	Effective length of flare (m)	15	5	15			
R	=	Entry radius (m)	15	80	80			
D	=	Inscribed circle diameter (m)	50	50	50			
A	=	Entry angle (degree)	40	25	10			
Q	=	Entry flow (pcu/h)	855	200	1030			
Qc	=	Circulating flow across entry (pcu/h)	250	935	95			
OUTPUT PARAMETERS:								
S	=	Sharpness of flare = 1.6(E-V)/L	0.18	0.54	0.18			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	0.95	1.05	1.11			
X2	=	V + ((E-V)/(1+2S))	8.55	4.11	8.55			
M	=	EXP((D-60)/10)	0.37	0.37	0.37			
F	=	303*X2	2590	1247	2590			
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37			
Fc	=	0.21*Td(1+0.2*X2)	0.78	0.52	0.78			
Qe	=	K(F-Fc*Qc)	2273	799	2783	**Total In Sum =**	**2085**	**PCU**
DFC	=	Design flow/Capacity = Q/Qe	0.38	0.25	0.37	**DFC of Critical Approach =**	**0.38**	

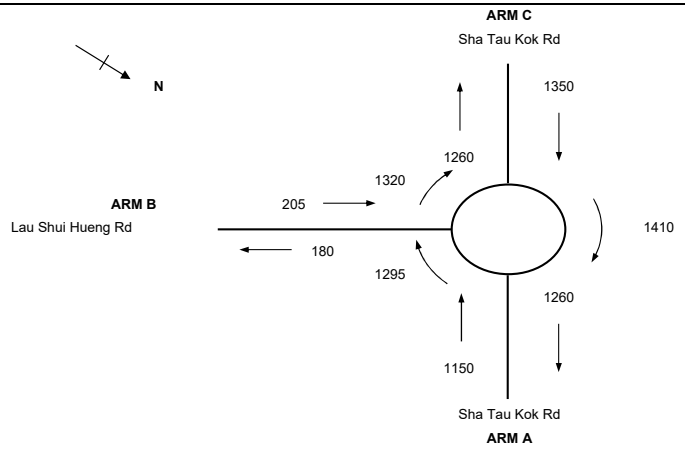
OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
			PROJECT NO. 287082
J6 - Sha Tau Kok Road / Lau Shui Heung Road	J6_2031_REF_AM	DATE 16/12/2024	

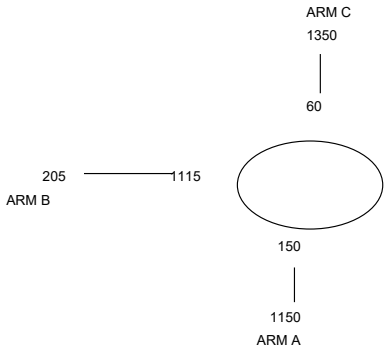




ARM			A	B	C			
INPUT PARAMETERS:								
V	=	Approach half width (m)	7.30	3.30	7.30			
E	=	Entry width (m)	9.00	5.00	9.00			
L	=	Effective length of flare (m)	15	5	15			
R	=	Entry radius (m)	15	80	80			
D	=	Inscribed circle diameter (m)	50	50	50			
A	=	Entry angle (degree)	40	25	10			
Q	=	Entry flow (pcu/h)	1065	175	1275			
Qc	=	Circulating flow across entry (pcu/h)	280	1190	95			
OUTPUT PARAMETERS:								
S	=	Sharpness of flare = 1.6(E-V)/L	0.18	0.54	0.18			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	0.95	1.05	1.11			
X2	=	V + ((E-V)/(1+2S))	8.55	4.11	8.55			
M	=	EXP((D-60)/10)	0.37	0.37	0.37			
F	=	303*X2	2590	1247	2590			
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37			
Fc	=	0.21*Td(1+0.2*X2)	0.78	0.52	0.78			
Qe	=	K(F-Fc*Qc)	2251	658	2783	**Total In Sum =**	**2515**	**PCU**
DFC	=	Design flow/Capacity = Q/Qe	0.48	0.27	0.46	**DFC of Critical Approach =**	**0.48**	

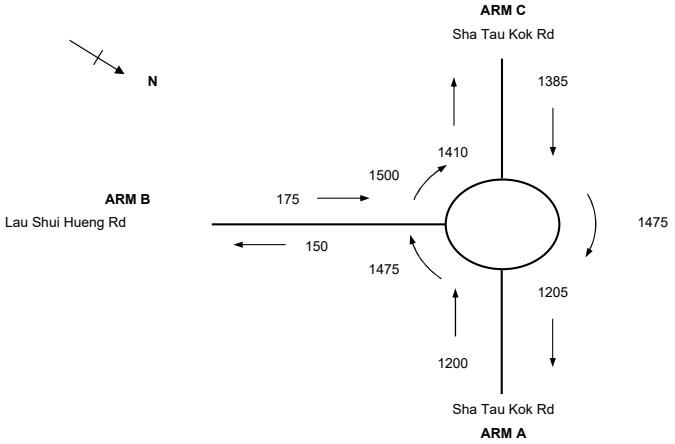
OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
			PROJECT NO. 287082
J6 - Sha Tau Kok Road / Lau Shui Heung Road	J6_2031_REF_PM	DATE 16/12/2024	

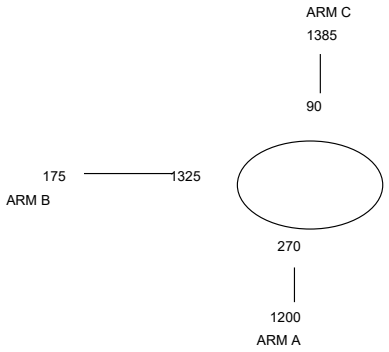




ARM			A	B	C			
INPUT PARAMETERS:								
V	=	Approach half width (m)	7.30	3.30	7.30			
E	=	Entry width (m)	9.00	5.00	9.00			
L	=	Effective length of flare (m)	15	5	15			
R	=	Entry radius (m)	15	80	80			
D	=	Inscribed circle diameter (m)	50	50	50			
A	=	Entry angle (degree)	40	25	10			
Q	=	Entry flow (pcu/h)	1150	205	1350			
Qc	=	Circulating flow across entry (pcu/h)	150	1115	60			
OUTPUT PARAMETERS:								
S	=	Sharpness of flare = 1.6(E-V)/L	0.18	0.54	0.18			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	0.95	1.05	1.11			
X2	=	V + ((E-V)/(1+2S))	8.55	4.11	8.55			
M	=	EXP((D-60)/10)	0.37	0.37	0.37			
F	=	303*X2	2590	1247	2590			
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37			
Fc	=	0.21*Td(1+0.2*X2)	0.78	0.52	0.78			
Qe	=	K(F-Fc*Qc)	2347	700	2813	**Total In Sum =**	**2705**	**PCU**
DFC	=	Design flow/Capacity = Q/Qe	0.49	0.30	0.48	**DFC of Critical Approach =**	**0.49**	

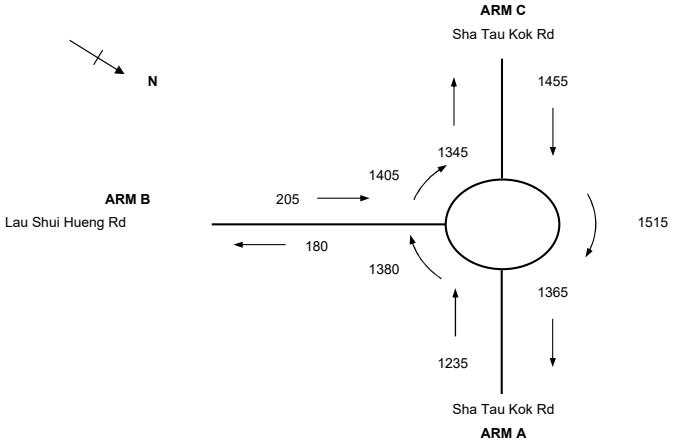
OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
			PROJECT NO. 287082
J6 - Sha Tau Kok Road / Lau Shui Heung Road	J6_2031_DES_AM	DATE 16/12/2024	

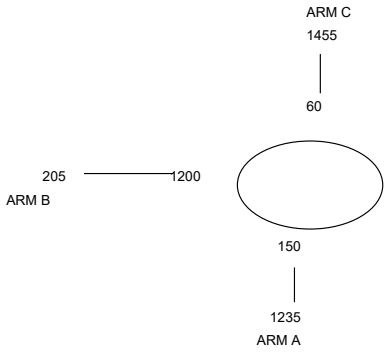




ARM			A	B	C			
INPUT PARAMETERS:								
V	=	Approach half width (m)	7.30	3.30	7.30			
E	=	Entry width (m)	9.00	5.00	9.00			
L	=	Effective length of flare (m)	15	5	15			
R	=	Entry radius (m)	15	80	80			
D	=	Inscribed circle diameter (m)	50	50	50			
A	=	Entry angle (degree)	40	25	10			
Q	=	Entry flow (pcu/h)	1200	175	1385			
Qc	=	Circulating flow across entry (pcu/h)	270	1325	90			
OUTPUT PARAMETERS:								
S	=	Sharpness of flare = 1.6(E-V)/L	0.18	0.54	0.18			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	0.95	1.05	1.11			
X2	=	V + ((E-V)/(1+2S))	8.55	4.11	8.55			
M	=	EXP((D-60)/10)	0.37	0.37	0.37			
F	=	303*X2	2590	1247	2590			
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37			
Fc	=	0.21*Td(1+0.2*X2)	0.78	0.52	0.78			
Qe	=	K(F-Fc*Qc)	2259	584	2787	**Total In Sum =**	**2760**	**PCU**
DFC	=	Design flow/Capacity = Q/Qe	0.54	0.30	0.50	**DFC of Critical Approach =**	**0.54**	

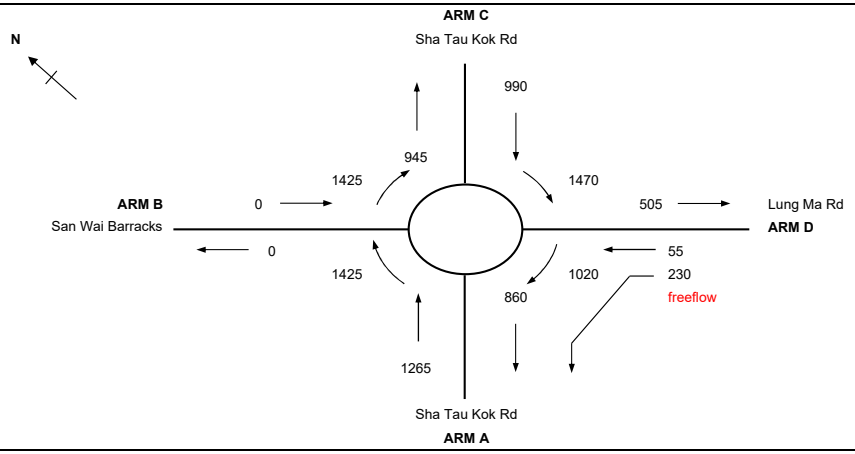
OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
			PROJECT NO. 287082
J6 - Sha Tau Kok Road / Lau Shui Heung Road	J6_2031_DES_PM	DATE 16/12/2024	

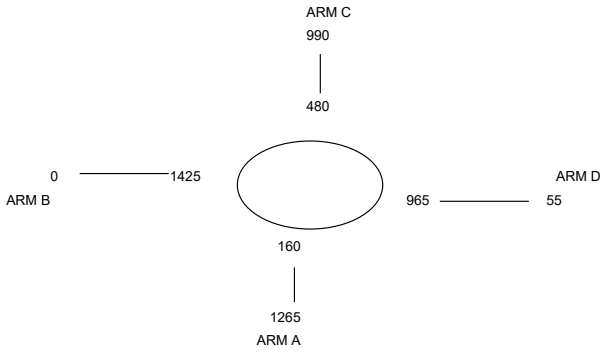




ARM			A	B	C			
INPUT PARAMETERS:								
V	=	Approach half width (m)	7.30	3.30	7.30			
E	=	Entry width (m)	9.00	5.00	9.00			
L	=	Effective length of flare (m)	15	5	15			
R	=	Entry radius (m)	15	80	80			
D	=	Inscribed circle diameter (m)	50	50	50			
A	=	Entry angle (degree)	40	25	10			
Q	=	Entry flow (pcu/h)	1235	205	1455			
Qc	=	Circulating flow across entry (pcu/h)	150	1200	60			
OUTPUT PARAMETERS:								
S	=	Sharpness of flare = 1.6(E-V)/L	0.18	0.54	0.18			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	0.95	1.05	1.11			
X2	=	V + ((E-V)/(1+2S))	8.55	4.11	8.55			
M	=	EXP((D-60)/10)	0.37	0.37	0.37			
F	=	303*X2	2590	1247	2590			
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37			
Fc	=	0.21*Td(1+0.2*X2)	0.78	0.52	0.78			
Qe	=	K(F-Fc*Qc)	2347	653	2813	**Total In Sum =**	**2895**	**PCU**
DFC	=	Design flow/Capacity = Q/Qe	0.53	0.32	0.52	**DFC of Critical Approach =**	**0.53**	

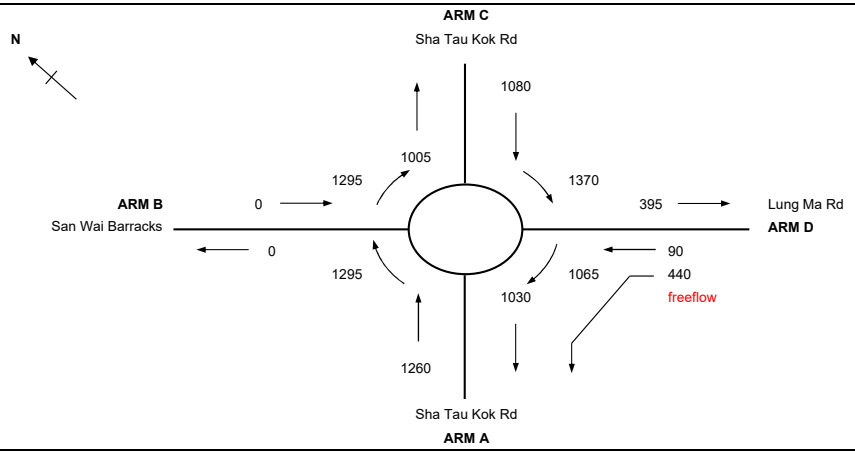
OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
			PROJECT NO. 287082
J7 - Sha Tau Kok Road / Lung Ma Road / San Wai Barracks	J7_2023_EXT_AM	DATE 16/12/2024	

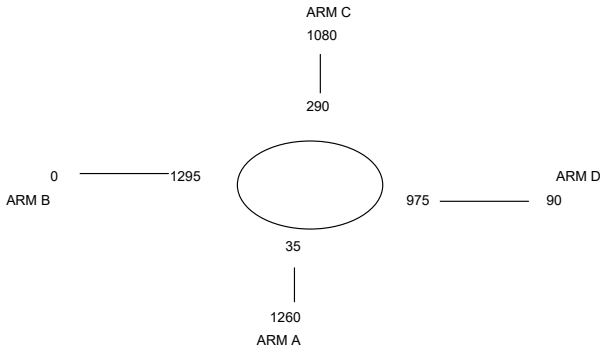




ARM			A	B	C	D			
INPUT PARAMETERS:									
V	=	Approach half width (m)	7.30	3.30	7.30	3.50			
E	=	Entry width (m)	10.00	5.00	10.00	5.00			
L	=	Effective length of flare (m)	20	5	10	5			
R	=	Entry radius (m)	30	60	30	70			
D	=	Inscribed circle diameter (m)	50	50	50	50			
A	=	Entry angle (degree)	15	15	25	15			
Q	=	Entry flow (pcu/h)	1265	0	990	55			
Qc	=	Circulating flow across entry (pcu/h)	160	1425	480	965			
OUTPUT PARAMETERS:									
S	=	Sharpness of flare = 1.6(E-V)/L	0.22	0.54	0.43	0.48			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.08	1.03	1.09			
X2	=	V + ((E-V)/(1+2S))	9.19	4.11	8.75	4.27			
M	=	EXP((D-60)/10)	0.37	0.37	0.37	0.37			
F	=	303*X2	2783	1247	2651	1292			
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37	1.37			
Fc	=	0.21*Td(1+0.2*X2)	0.81	0.52	0.79	0.53			
Qe	=	K(F-Fc*Qc)	2834	544	2349	847	**Total In Sum =**	**2255**	**PCU**
DFC	=	Design flow/Capacity = Q/Qe	0.45	0.00	0.42	0.06	**DFC of Critical Approach =**	**0.45**	

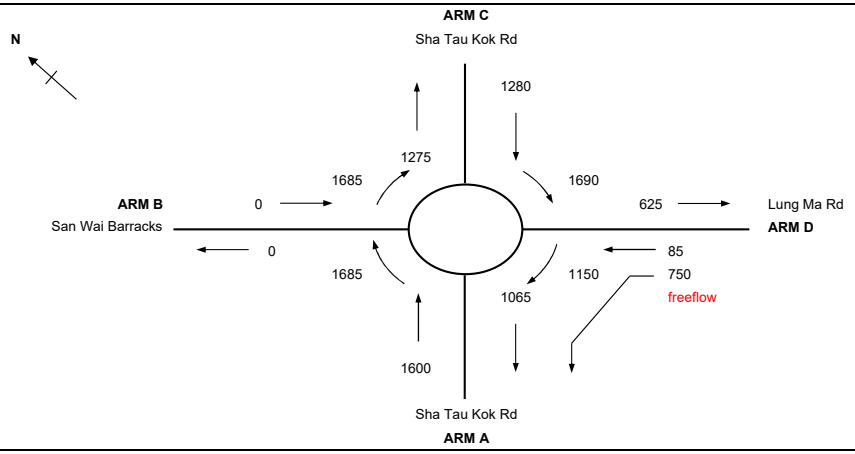
OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
			PROJECT NO. 287082
J7 - Sha Tau Kok Road / Lung Ma Road / San Wai Barracks	J7_2023_EXT_PM	DATE 16/12/2024	

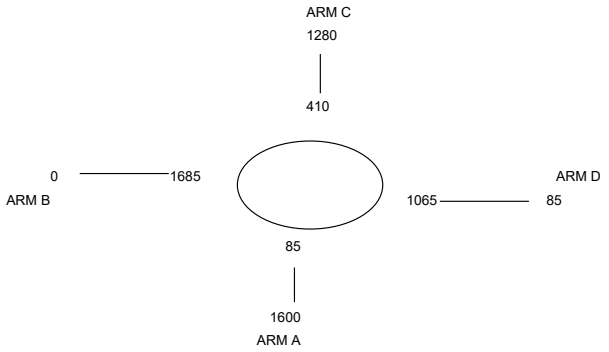




ARM			A	B	C	D			
INPUT PARAMETERS:									
V	=	Approach half width (m)	7.30	3.30	7.30	3.50			
E	=	Entry width (m)	10.00	5.00	10.00	5.00			
L	=	Effective length of flare (m)	20	5	10	5			
R	=	Entry radius (m)	30	60	30	70			
D	=	Inscribed circle diameter (m)	50	50	50	50			
A	=	Entry angle (degree)	15	15	25	15			
Q	=	Entry flow (pcu/h)	1260	0	1080	90			
Qc	=	Circulating flow across entry (pcu/h)	35	1295	290	975			
OUTPUT PARAMETERS:									
S	=	Sharpness of flare = 1.6(E-V)/L	0.22	0.54	0.43	0.48			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.08	1.03	1.09			
X2	=	V + ((E-V)/(1+2S))	9.19	4.11	8.75	4.27			
M	=	EXP((D-60)/10)	0.37	0.37	0.37	0.37			
F	=	303*X2	2783	1247	2651	1292			
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37	1.37			
Fc	=	0.21*Td(1+0.2*X2)	0.81	0.52	0.79	0.53			
Qe	=	K(F-Fc*Qc)	2943	618	2504	842	**Total In Sum =**	**2340**	**PCU**
DFC	=	Design flow/Capacity = Q/Qe	0.43	0.00	0.43	0.11	**DFC of Critical Approach =**	**0.43**	

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
			PROJECT NO. 287082
J7 - Sha Tau Kok Road / Lung Ma Road / San Wai Barracks	J7_2031_REF_AM	DATE 16/12/2024	



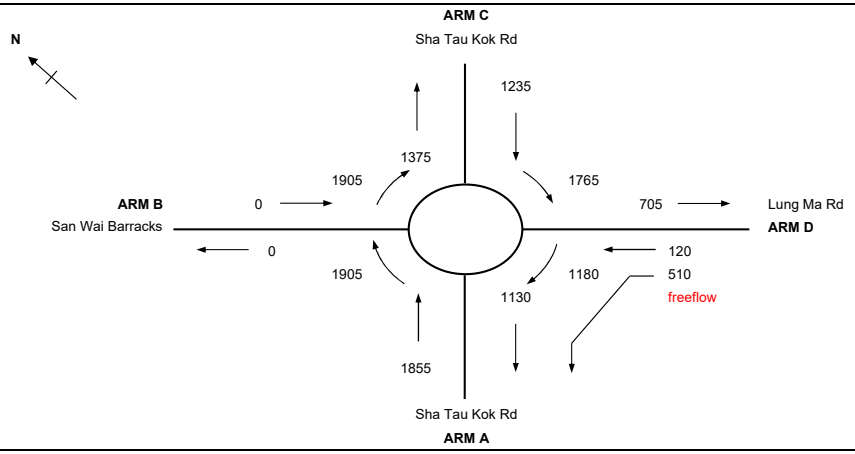


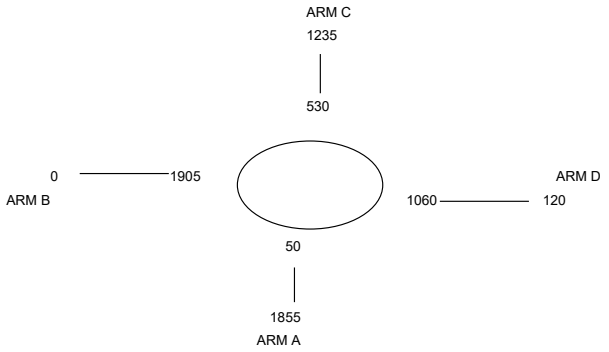
ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.30	3.30	7.30	3.50
E	=	Entry width (m)	10.00	5.00	10.00	5.00
L	=	Effective length of flare (m)	20	5	10	5
R	=	Entry radius (m)	30	60	30	70
D	=	Inscribed circle diameter (m)	50	50	50	50
A	=	Entry angle (degree)	15	15	25	15
Q	=	Entry flow (pcu/h)	1600	0	1280	85
Qc	=	Circulating flow across entry (pcu/h)	85	1685	410	1065
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.22	0.54	0.43	0.48
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.08	1.03	1.09
X2	=	V + ((E-V)/(1+2S))	9.19	4.11	8.75	4.27
M	=	EXP((D-60)/10)	0.37	0.37	0.37	0.37
F	=	303*X2	2783	1247	2651	1292
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37	1.37
Fc	=	0.21*Td(1+0.2*X2)	0.81	0.52	0.79	0.53
Qe	=	K(F-Fc*Qc)	2900	397	2406	790
DFC	=	Design flow/Capacity = Q/Qe	0.56	0.00	0.54	0.11

Total In Sum = **2880** **PCU**

DFC of Critical Approach = **0.56**

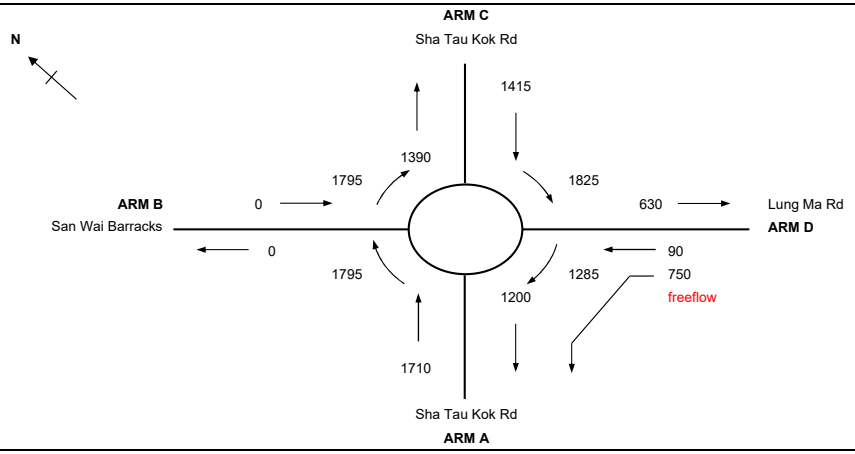
OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
			PROJECT NO. 287082
J7 - Sha Tau Kok Road / Lung Ma Road / San Wai Barracks	J7_2031_REF_PM	DATE 16/12/2024	

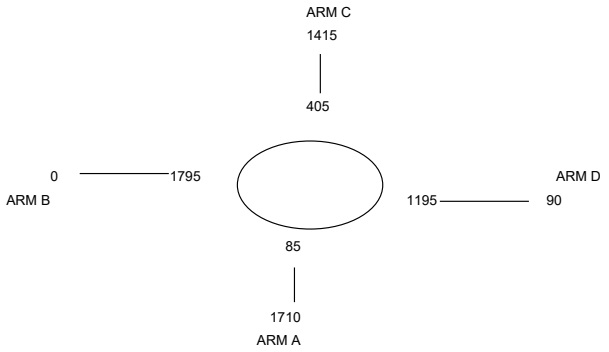




ARM			A	B	C	D			
INPUT PARAMETERS:									
V	=	Approach half width (m)	7.30	3.30	7.30	3.50			
E	=	Entry width (m)	10.00	5.00	10.00	5.00			
L	=	Effective length of flare (m)	20	5	10	5			
R	=	Entry radius (m)	30	60	30	70			
D	=	Inscribed circle diameter (m)	50	50	50	50			
A	=	Entry angle (degree)	15	15	25	15			
Q	=	Entry flow (pcu/h)	1855	0	1235	120			
Qc	=	Circulating flow across entry (pcu/h)	50	1905	530	1060			
OUTPUT PARAMETERS:									
S	=	Sharpness of flare = 1.6(E-V)/L	0.22	0.54	0.43	0.48			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.08	1.03	1.09			
X2	=	V + ((E-V)/(1+2S))	9.19	4.11	8.75	4.27			
M	=	EXP((D-60)/10)	0.37	0.37	0.37	0.37			
F	=	303*X2	2783	1247	2651	1292			
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37	1.37			
Fc	=	0.21*Td(1+0.2*X2)	0.81	0.52	0.79	0.53			
Qe	=	K(F-Fc*Qc)	2930	272	2308	793	**Total In Sum =**	**3090**	**PCU**
DFC	=	Design flow/Capacity = Q/Qe	0.64	0.00	0.54	0.16	**DFC of Critical Approach =**	**0.64**	

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
			PROJECT NO. 287082
J7 - Sha Tau Kok Road / Lung Ma Road / San Wai Barracks	J7_2031_DES_AM	DATE 16/12/2024	



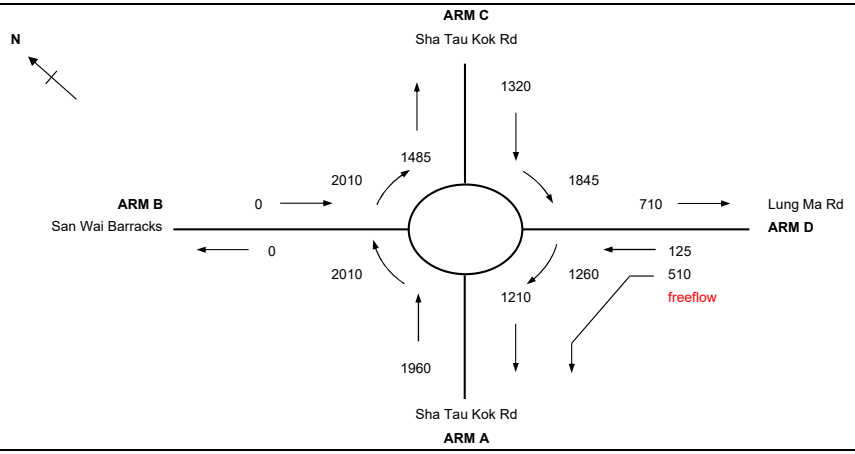


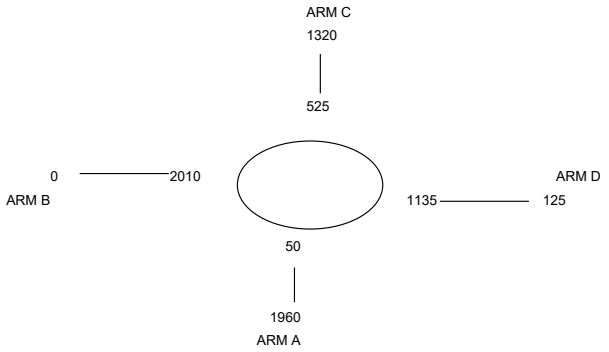
ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.30	3.30	7.30	3.50
E	=	Entry width (m)	10.00	5.00	10.00	5.00
L	=	Effective length of flare (m)	20	5	10	5
R	=	Entry radius (m)	30	60	30	70
D	=	Inscribed circle diameter (m)	50	50	50	50
A	=	Entry angle (degree)	15	15	25	15
Q	=	Entry flow (pcu/h)	1710	0	1415	90
Qc	=	Circulating flow across entry (pcu/h)	85	1795	405	1195
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.22	0.54	0.43	0.48
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.08	1.03	1.09
X2	=	V + ((E-V)/(1+2S))	9.19	4.11	8.75	4.27
M	=	EXP((D-60)/10)	0.37	0.37	0.37	0.37
F	=	303*X2	2783	1247	2651	1292
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37	1.37
Fc	=	0.21*Td(1+0.2*X2)	0.81	0.52	0.79	0.53
Qe	=	K(F-Fc*Qc)	2900	334	2410	715
DFC	=	Design flow/Capacity = Q/Qe	0.59	0.00	0.59	0.13

Total In Sum = **3125** **PCU**

DFC of Critical Approach = **0.59**

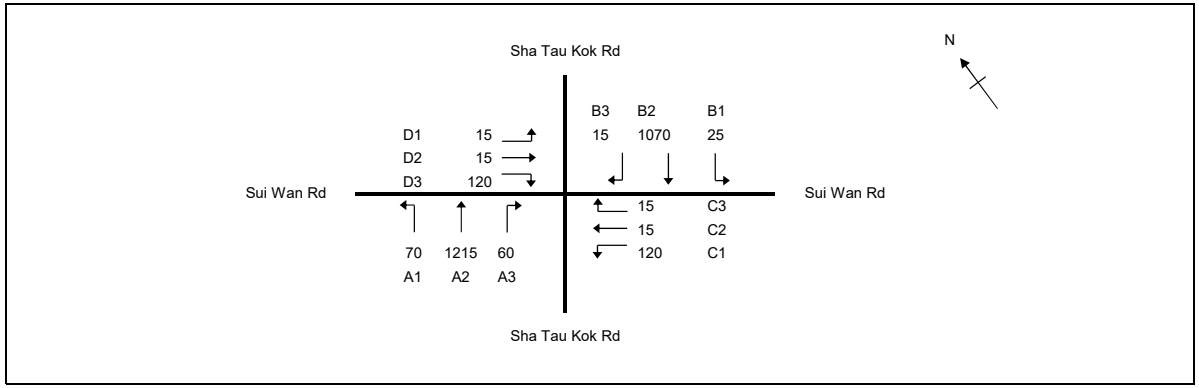
OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
			PROJECT NO. 287082
J7 - Sha Tau Kok Road / Lung Ma Road / San Wai Barracks	J7_2031_DES_PM	DATE 16/12/2024	



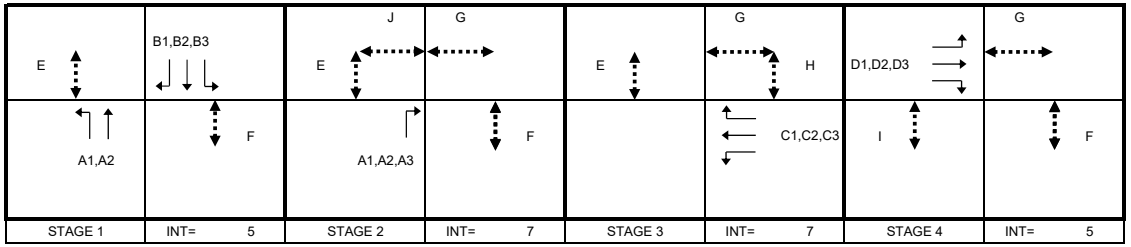


ARM			A	B	C	D			
INPUT PARAMETERS:									
V	=	Approach half width (m)	7.30	3.30	7.30	3.50			
E	=	Entry width (m)	10.00	5.00	10.00	5.00			
L	=	Effective length of flare (m)	20	5	10	5			
R	=	Entry radius (m)	30	60	30	70			
D	=	Inscribed circle diameter (m)	50	50	50	50			
A	=	Entry angle (degree)	15	15	25	15			
Q	=	Entry flow (pcu/h)	1960	0	1320	125			
Qc	=	Circulating flow across entry (pcu/h)	50	2010	525	1135			
OUTPUT PARAMETERS:									
S	=	Sharpness of flare = 1.6(E-V)/L	0.22	0.54	0.43	0.48			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.08	1.03	1.09			
X2	=	V + ((E-V)/(1+2S))	9.19	4.11	8.75	4.27			
M	=	EXP((D-60)/10)	0.37	0.37	0.37	0.37			
F	=	303*X2	2783	1247	2651	1292			
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37	1.37			
Fc	=	0.21*Td(1+0.2*X2)	0.81	0.52	0.79	0.53			
Qe	=	K(F-Fc*Qc)	2930	213	2312	749	**Total In Sum =**	**3280**	**PCU**
DFC	=	Design flow/Capacity = Q/Qe	0.67	0.00	0.58	0.17	**DFC of Critical Approach =**	**0.67**	

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J8
J8 - Sha Tau Kok Road / Sui Wan Road	J8_2023_EXT_AM	DATE : 16/12/2024	FILENAME :



No. of stages per cycle	N =	4
No. of stage using for calculation	N =	3
Cycle time	C =	135 sec
Sum(y)	Y =	0.477
Loss time	L =	34 sec
Total Flow	=	2755 pcu
Co = (1.5*L+5)/(1-Y)	=	107.0 sec
Cm = L/(1-Y)	=	65.0 sec
Yult	=	0.645
R.C.ult = (Yult-Y)/Y*100%	=	35.3 %
Cp = 0.9*L/(0.9-Y)	=	72.3 sec
Ymax = 1-L/C	=	0.748
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	41 %



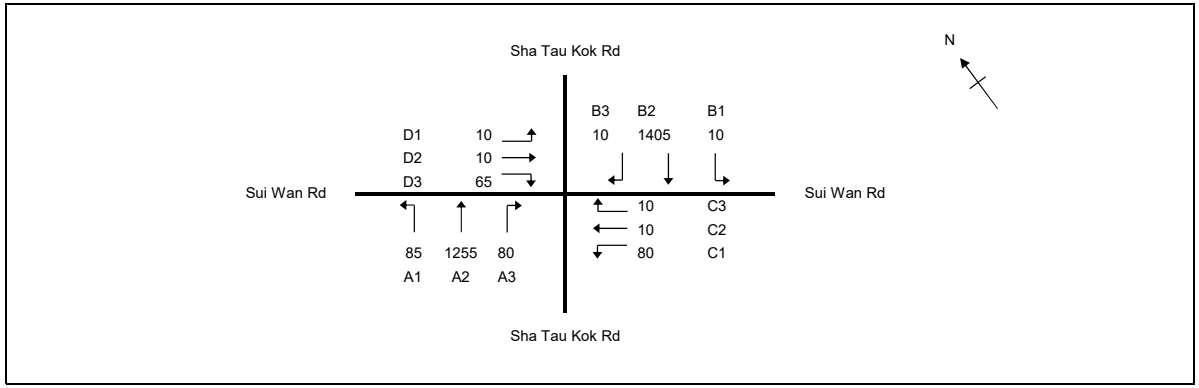
STAGE 1	INT= 5	STAGE 2	INT= 7	STAGE 3	INT= 7	STAGE 4	INT= 5

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
E	5	6	2	6	103	2	6	OK
F	5	6	2	6	101	2	6	OK
G	10.5	6	5	12	47	5	12	OK
H	5	6	2	6	16	2	6	OK
I	5	6	2	6	14	2	6	OK
J	8	6	5	9	6	5	9	OK

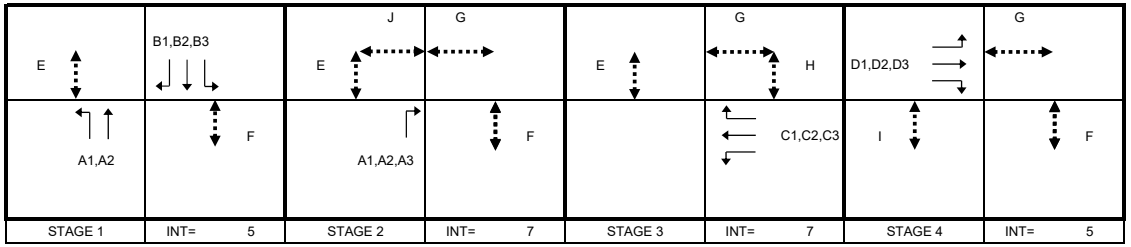
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				14				
B1,B2	1	3.50	B	1	10		N	1965	25	502		527	0.05	1951			1951	0.270	0.308		57	65	0.559	61
B2	1	3.50	B	1				2105		568		568	0.00	2105			2105	0.270			57	65	0.559	66
B3	1	3.50	B	1		O		2105		15		15	0.00	1875			1875	0.008			2	65	0.017	2
A1,A2	1	3.50	A	1	10			2105	70	567		637	0.11	2071			2071	0.308			65	65	0.637	74
A2	1	3.50	A	1				2105		648		648	0.00	2105			2105	0.308			65	65	0.637	75
A3	2	3.50	A	1	10			2105			60	60	1.00	1830			1830	0.033			7	14	0.316	12
C1,C2,C3	3	4.00	C	1	10		N	2015	120	15	15	150	0.90	1775			1775	0.084	0.084		18	18	0.637	29
D1,D2,D3	4	4.00	D	1	10		N	2015	15	15	120	150	0.90	1775			1775	0.084	0.084		18	18	0.637	29
PED	2		J																	20				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J8
J8 - Sha Tau Kok Road / Sui Wan Road	J8_2023_EXT_PM	DATE : 16/12/2024	FILENAME :



No. of stages per cycle	N =	4
No. of stage using for calculation	N =	3
Cycle time	C =	135 sec
Sum(y)	Y =	0.452
Loss time	L =	34 sec
Total Flow	=	3030 pcu
Co = (1.5*L+5)/(1-Y)	=	102.2 sec
Cm = L/(1-Y)	=	62.1 sec
Yult	=	0.645
R.C.ult = (Yult-Y)/Y*100%	=	42.6 %
Cp = 0.9*L/(0.9-Y)	=	68.4 sec
Ymax = 1-L/C	=	0.748
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	49 %

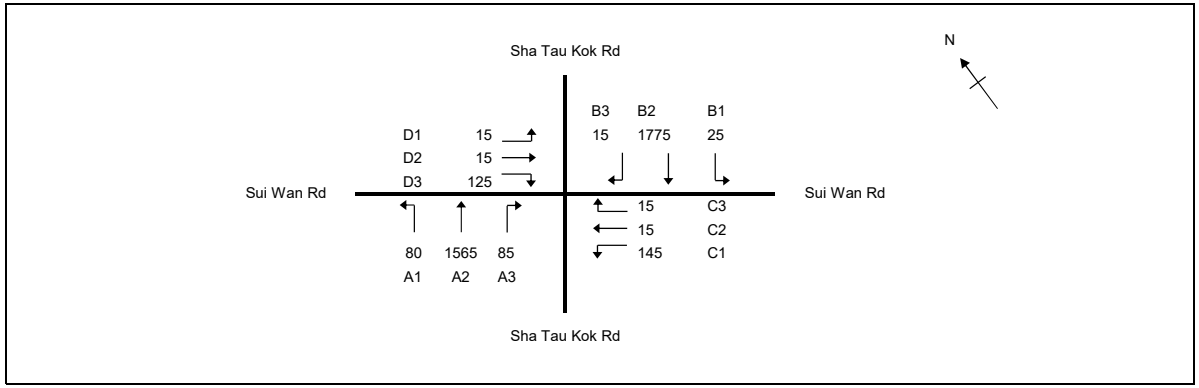


Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
E	5	6	2	6	110	2	6	OK
F	5	6	2	6	106	2	6	OK
G	10.5	6	5	12	34	5	12	OK
H	5	6	2	6	11	2	6	OK
I	5	6	2	6	7	2	6	OK
J	8	6	5	9	6	5	9	OK

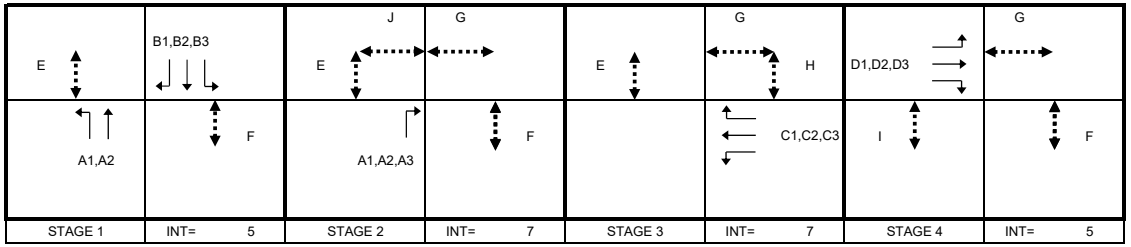
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				14				
B1,B2	1	3.50	B	1	10		N	1965	10	672		682	0.01	1961			1961	0.348	0.348		78	78	0.604	65
B2	1	3.50	B	1				2105		733		733	0.00	2105			2105	0.348			78	78	0.605	70
B3	1	3.50	B	1		O		2105		10		10	0.00	1875			1875	0.005			1	78	0.009	1
A1,A2	1	3.50	A	1	10			2105	85	579		664	0.13	2065			2065	0.321			72	78	0.558	63
A2	1	3.50	A	1				2105		676		676	0.00	2105			2105	0.321			72	78	0.558	64
A3	2	3.50	A	1	10			2105			80	80	1.00	1830			1830	0.044			10	14	0.421	16
C1,C2,C3	3	4.00	C	1	10		N	2015	80	10	10	100	0.90	1775			1775	0.056	0.056		13	13	0.605	20
D1,D2,D3	4	4.00	D	1	10		N	2015	10	10	65	85	0.88	1779			1779	0.048	0.048		11	11	0.605	18
PED	2		J																	20				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J8
J8 - Sha Tau Kok Road / Sui Wan Road	J8_2031_REF_AM	DATE : 16/12/2024	FILENAME :



No. of stages per cycle	N =	4
No. of stage using for calculation	N =	3
Cycle time	C =	135 sec
Sum(y)	Y =	0.629
Loss time	L =	34 sec
Total Flow	=	3875 pcu
Co = (1.5*L+5)/(1-Y)	=	151.1 sec
Cm = L/(1-Y)	=	91.7 sec
Yult	=	0.645
R.C.ult = (Yult-Y)/Y*100%	=	2.5 %
Cp = 0.9*L/(0.9-Y)	=	113.1 sec
Ymax = 1-L/C	=	0.748
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	6 %

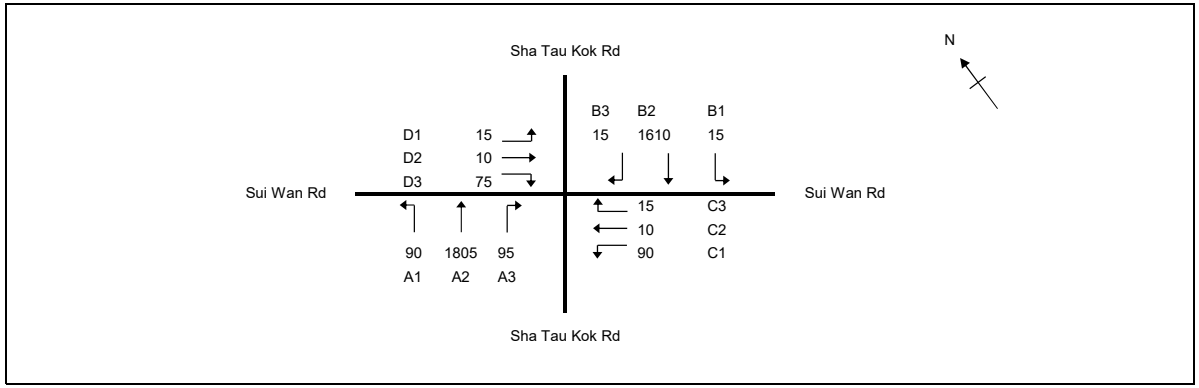


Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
E	5	6	2	6	107	2	6	OK
F	5	6	2	6	103	2	6	OK
G	10.5	6	5	12	41	5	12	OK
H	5	6	2	6	14	2	6	OK
I	5	6	2	6	10	2	6	OK
J	8	6	5	9	6	5	9	OK

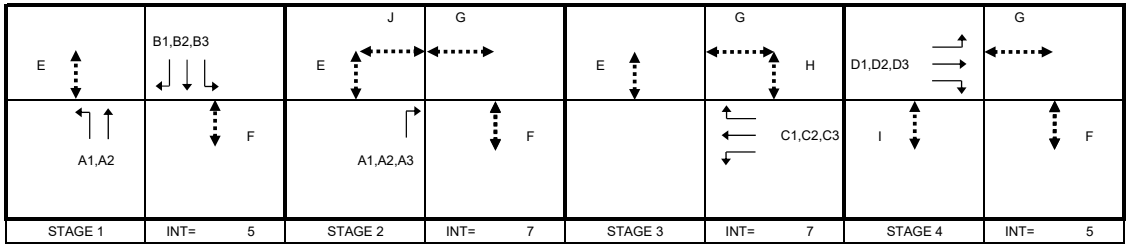
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				14				
B1,B2	1	3.50	B	1	10		N	1965	25	842		867	0.03	1957			1957	0.443	0.443		71	71	0.841	92
B2	1	3.50	B	1				2105		933		933	0.00	2105			2105	0.443			71	71	0.841	99
B3	1	3.50	B	1		O		2105		15		15	0.00	1875			1875	0.008			1	71	0.015	2
A1,A2	1	3.50	A	1	10			2105	80	737		817	0.10	2075			2075	0.394			63	71	0.747	87
A2	1	3.50	A	1				2105		828		828	0.00	2105			2105	0.393			63	71	0.747	88
A3	2	3.50	A	1	10			2105			85	85	1.00	1830			1830	0.046			7	14	0.448	17
C1,C2,C3	3	4.00	C	1	10		N	2015	145	15	15	175	0.91	1772			1772	0.099	0.099		16	16	0.841	35
D1,D2,D3	4	4.00	D	1	10		N	2015	15	15	125	155	0.90	1775			1775	0.087	0.087		14	14	0.841	31
PED	2		J																	20				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J8
J8 - Sha Tau Kok Road / Sui Wan Road	J8_2031_REF_PM	DATE : 16/12/2024	FILENAME :



No. of stages per cycle	N =	4	
No. of stage using for calculation	N =	2	
Cycle time	C =	135	sec
Sum(y)	Y =	0.518	
Loss time	L =	44	sec
Total Flow	=	3845	pcu
Co = (1.5*L+5)/(1-Y)	=	147.4	sec
Cm = L/(1-Y)	=	91.3	sec
Yult	=	0.570	
R.C.ult = (Yult-Y)/Y*100%	=	10.0	%
Cp = 0.9*L/(0.9-Y)	=	103.8	sec
Ymax = 1-L/C	=	0.674	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	17	%

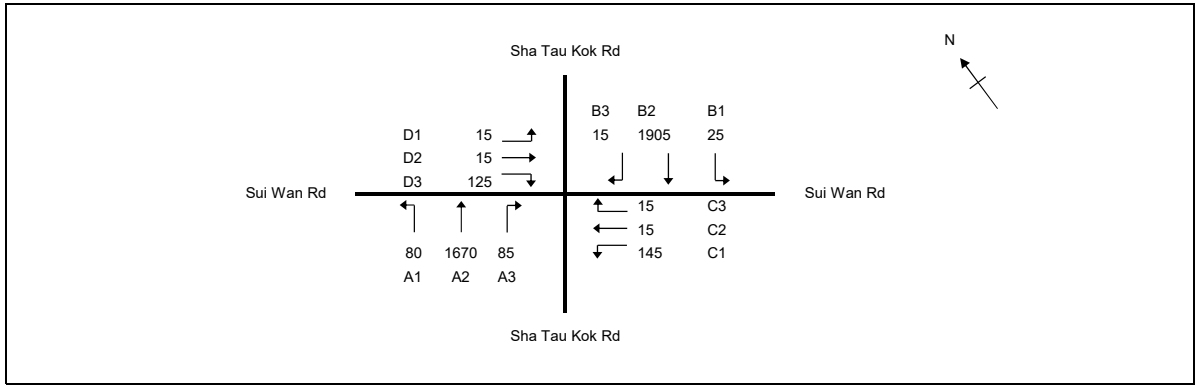


Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
E	5	6	2	6	111	2	6	OK
F	5	6	2	6	108	2	6	OK
G	10.5	6	5	12	32	5	12	OK
H	5	6	2	6	9	2	6	OK
I	5	6	2	6	6	2	6	OK
J	8	6	5	9	6	5	9	OK

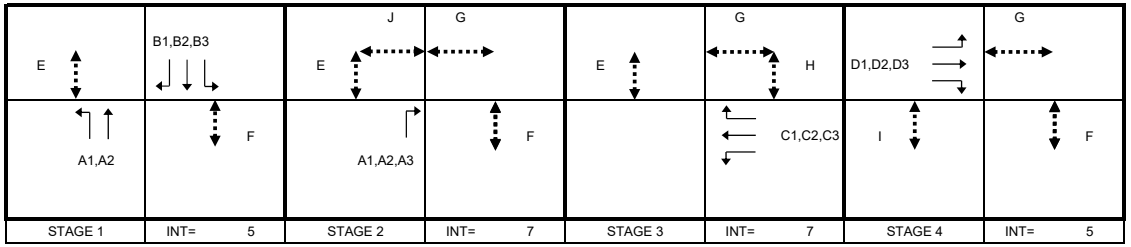
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				10				
B1,B2	1	3.50	B	1	10		N	1965	15	768		783	0.02	1959			1959	0.400			70	80	0.678	72
B2	1	3.50	B	1				2105		842		842	0.00	2105			2105	0.400			70	80	0.678	78
B3	1	3.50	B	1		O		2105		15		15	0.00	1875			1875	0.008			1	80	0.014	1
A1,A2	1	3.50	A	1	10			2105	90	851		941	0.10	2075			2075	0.453	0.453		80	80	0.769	87
A2	1	3.50	A	1				2105		954		954	0.00	2105			2105	0.453			80	80	0.769	88
A3	2	3.50	A	1	10			2105			95	95	1.00	1830			1830	0.052			9	14	0.500	19
C1,C2,C3	3	4.00	C	1	10		N	2015	90	10	15	115	0.91	1772			1772	0.065	0.065		11	11	0.769	24
D1,D2,D3	4	4.00	D	1	10		N	2015	15	10	75	100	0.90	1775			1775	0.056			10	10	0.760	21
PED	2		J																	20				
PED	4		I																	14				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J8
J8 - Sha Tau Kok Road / Sui Wan Road	J8_2031_DES_AM	DATE : 16/12/2024	FILENAME :



No. of stages per cycle	N =	4
No. of stage using for calculation	N =	3
Cycle time	C =	135 sec
Sum(y)	Y =	0.661
Loss time	L =	34 sec
Total Flow	=	4110 pcu
Co = (1.5*L+5)/(1-Y)	=	165.3 sec
Cm = L/(1-Y)	=	100.4 sec
Yult	=	0.645
R.C.ult = (Yult-Y)/Y*100%	=	-2.5 %
Cp = 0.9*L/(0.9-Y)	=	128.2 sec
Ymax = 1-L/C	=	0.748
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	1 %



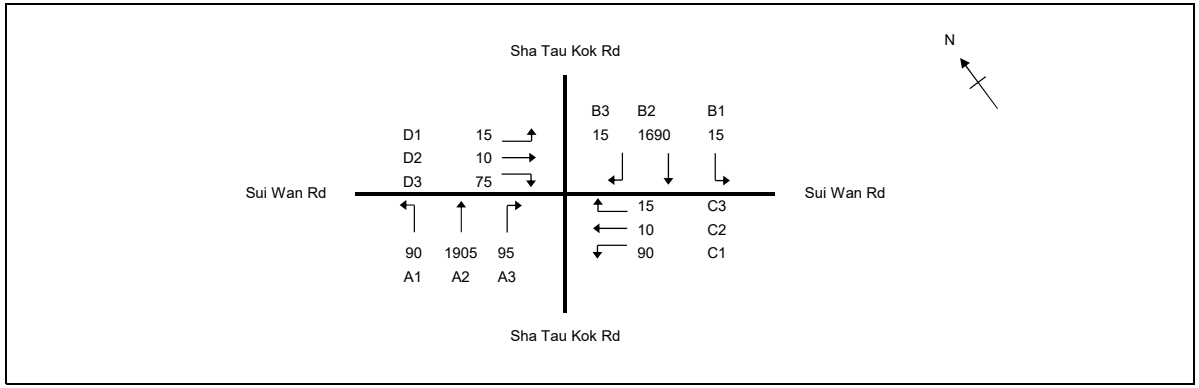
STAGE 1	INT= 5	STAGE 2	INT= 7	STAGE 3	INT= 7	STAGE 4	INT= 5

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
E	5	6	2	6	108	2	6	OK
F	5	6	2	6	104	2	6	OK
G	10.5	6	5	12	39	5	12	OK
H	5	6	2	6	13	2	6	OK
I	5	6	2	6	9	2	6	OK
J	8	6	5	9	6	5	9	OK

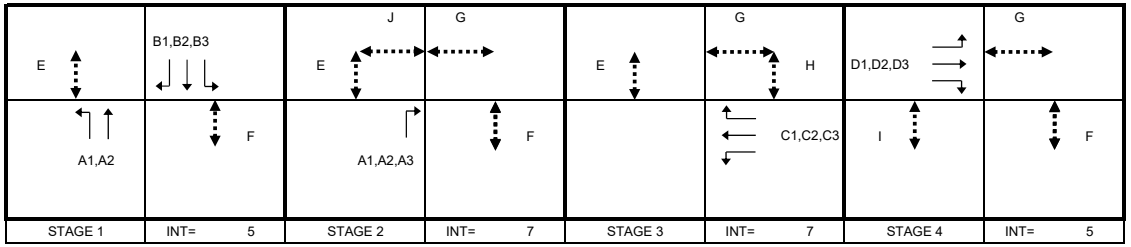
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				14				
B1,B2	1	3.50	B	1	10		N	1965	25	905		930	0.03	1957			1957	0.475	0.475		73	73	0.884	97
B2	1	3.50	B	1				2105		1000		1000	0.00	2105			2105	0.475			73	73	0.884	104
B3	1	3.50	B	1		O		2105		15		15	0.00	1875			1875	0.008			1	73	0.015	2
A1,A2	1	3.50	A	1	10			2105	80	789		869	0.09	2076			2076	0.419			64	73	0.779	90
A2	1	3.50	A	1				2105		881		881	0.00	2105			2105	0.419			64	73	0.779	92
A3	2	3.50	A	1	10			2105			85	85	1.00	1830			1830	0.046			7	14	0.448	17
C1,C2,C3	3	4.00	C	1	10		N	2015	145	15	15	175	0.91	1772			1772	0.099	0.099		15	15	0.884	36
D1,D2,D3	4	4.00	D	1	10		N	2015	15	15	125	155	0.90	1775			1775	0.087	0.087		13	13	0.884	34
PED	2		J																	20				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J8
J8 - Sha Tau Kok Road / Sui Wan Road	J8_2031_DES_PM	DATE : 16/12/2024	FILENAME :



No. of stages per cycle	N =	4	
No. of stage using for calculation	N =	2	
Cycle time	C =	135	sec
Sum(y)	Y =	0.542	
Loss time	L =	44	sec
Total Flow	=	4025	pcu
Co = (1.5*L+5)/(1-Y)	=	155.1	sec
Cm = L/(1-Y)	=	96.1	sec
Yult	=	0.570	
R.C.ult = (Yult-Y)/Y*100%	=	5.1	%
Cp = 0.9*L/(0.9-Y)	=	110.6	sec
Ymax = 1-L/C	=	0.674	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	11	%

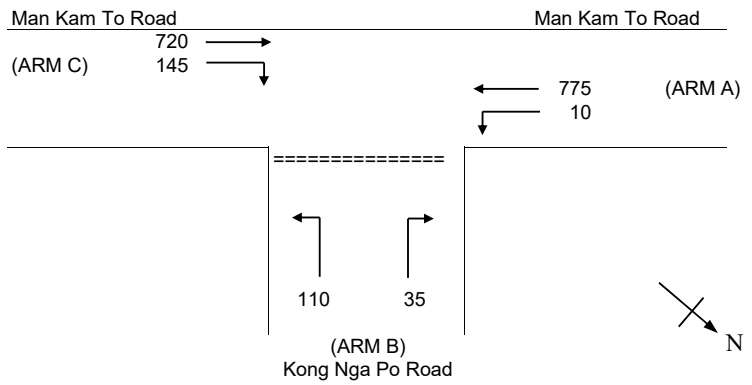


Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
E	5	6	2	6	111	2	6	OK
F	5	6	2	6	108	2	6	OK
G	10.5	6	5	12	32	5	12	OK
H	5	6	2	6	9	2	6	OK
I	5	6	2	6	6	2	6	OK
J	8	6	5	9	6	5	9	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				10				
B1,B2	1	3.50	B	1	10		N	1965	15	807		822	0.02	1960			1960	0.419			70	80	0.707	75
B2	1	3.50	B	1				2105		883		883	0.00	2105			2105	0.419			70	80	0.707	81
B3	1	3.50	B	1		O		2105		15		15	0.00	1875			1875	0.008			1	80	0.013	1
A1,A2	1	3.50	A	1	10			2105	90	901		991	0.09	2077			2077	0.477	0.477		80	80	0.804	91
A2	1	3.50	A	1				2105		1004		1004	0.00	2105			2105	0.477			80	80	0.804	92
A3	2	3.50	A	1	10			2105			95	95	1.00	1830			1830	0.052			9	14	0.500	19
C1,C2,C3	3	4.00	C	1	10		N	2015	90	10	15	115	0.91	1772			1772	0.065	0.065		11	11	0.804	24
D1,D2,D3	4	4.00	D	1	10		N	2015	15	10	75	100	0.90	1775			1775	0.056			9	9	0.804	21
PED	2		J																	20				
PED	4		I																	14				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
		PROJECT NO: 287082	DESIGNED BY:
J9 - Man Kam To Road / Kong Nga Po Road	J9_2023_EXT_AM	DATE : 16/12/2024	FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
W cr	=	CENTRAL RESERVE WIDTH (0m, 1.2-9m)
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	11.00	(metres)
W cr	=	2.00	(metres)
q a-b	=	10	(pcu/hr)
q a-c	=	775	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	4.00	(metres)
Vr c-b	=	50	(metres)
q c-a	=	720	(pcu/hr)
q c-b	=	145	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	4.00	(metres)
W b-c	=	4.50	(metres)
Vl b-a	=	100	(metres)
Vr b-a	=	50	(metres)
Vr b-c	=	50	(metres)
q b-a	=	35	(pcu/hr)
q b-c	=	110	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.94
E	=	1.01
F	=	0.97
Y	=	0.62

THE CAPACITY OF MOVEMENT :

Q b-a	=	310
Q b-c	=	576
Q c-b	=	549
Q b-ac	=	477

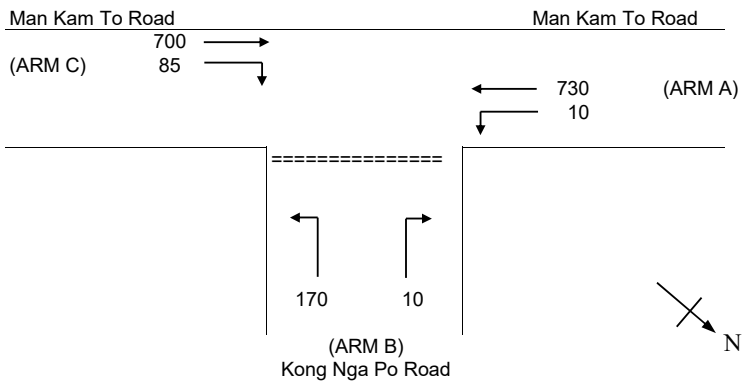
TOTAL FLOW = 1795 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.11
DFC b-c	=	0.19
DFC c-b	=	0.26
DFC b-ac	=	0.30

CRITICAL DFC = 0.30

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
		PROJECT NO: 287082	DESIGNED BY:
J9 - Man Kam To Road / Kong Nga Po Road	J9_2023_EXT_PM	DATE : 16/12/2024	FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
W cr	=	CENTRAL RESERVE WIDTH (0m, 1.2-9m)
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	11.00	(metres)
W cr	=	2.00	(metres)
q a-b	=	10	(pcu/hr)
q a-c	=	730	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	4.00	(metres)
Vr c-b	=	50	(metres)
q c-a	=	700	(pcu/hr)
q c-b	=	85	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	4.00	(metres)
W b-c	=	4.50	(metres)
Vl b-a	=	100	(metres)
Vr b-a	=	50	(metres)
Vr b-c	=	50	(metres)
q b-a	=	10	(pcu/hr)
q b-c	=	170	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.94
E	=	1.01
F	=	0.97
Y	=	0.62

THE CAPACITY OF MOVEMENT :

Q b-a	=	340
Q b-c	=	586
Q c-b	=	559
Q b-ac	=	563

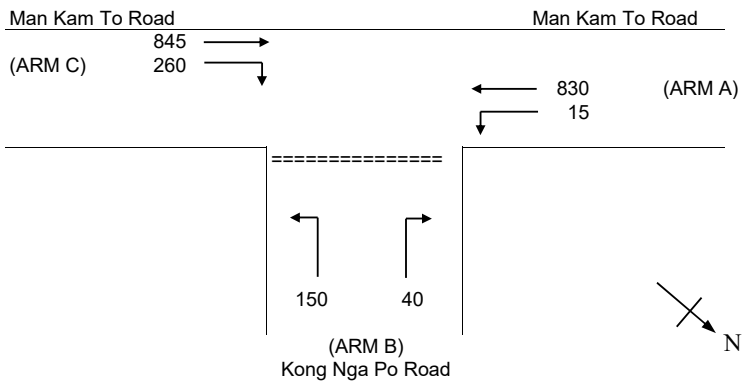
TOTAL FLOW = 1705 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.03
DFC b-c	=	0.29
DFC c-b	=	0.15
DFC b-ac	=	0.32

CRITICAL DFC = 0.32

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
		PROJECT NO: 287082	DESIGNED BY:
J9 - Man Kam To Road / Kong Nga Po Road	J9_2031_REF_AM	DATE : 16/12/2024	FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
W cr	=	CENTRAL RESERVE WIDTH (0m, 1.2-9m)
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	11.00	(metres)
W cr	=	2.00	(metres)
q a-b	=	15	(pcu/hr)
q a-c	=	830	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	4.00	(metres)
Vr c-b	=	50	(metres)
q c-a	=	845	(pcu/hr)
q c-b	=	260	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	4.00	(metres)
W b-c	=	4.50	(metres)
Vl b-a	=	100	(metres)
Vr b-a	=	50	(metres)
Vr b-c	=	50	(metres)
q b-a	=	40	(pcu/hr)
q b-c	=	150	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.94
E	=	1.01
F	=	0.97
Y	=	0.62

THE CAPACITY OF MOVEMENT :

Q b-a	=	246
Q b-c	=	563
Q c-b	=	536
Q b-ac	=	443

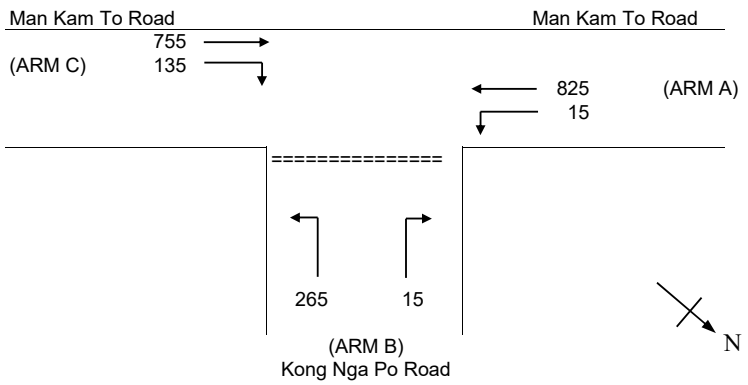
TOTAL FLOW = 2140 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.17
DFC b-c	=	0.27
DFC c-b	=	0.49
DFC b-ac	=	0.43

CRITICAL DFC = 0.49

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
		PROJECT NO: 287082	DESIGNED BY:
J9 - Man Kam To Road / Kong Nga Po Road	J9_2031_REF_PM	DATE : 16/12/2024	FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
W cr	=	CENTRAL RESERVE WIDTH (0m, 1.2-9m)
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	11.00	(metres)
W cr	=	2.00	(metres)
q a-b	=	15	(pcu/hr)
q a-c	=	825	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	4.00	(metres)
Vr c-b	=	50	(metres)
q c-a	=	755	(pcu/hr)
q c-b	=	135	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	4.00	(metres)
W b-c	=	4.50	(metres)
Vl b-a	=	100	(metres)
Vr b-a	=	50	(metres)
Vr b-c	=	50	(metres)
q b-a	=	15	(pcu/hr)
q b-c	=	265	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.94
E	=	1.01
F	=	0.97
Y	=	0.62

THE CAPACITY OF MOVEMENT :

Q b-a	=	297
Q b-c	=	564
Q c-b	=	537
Q b-ac	=	538

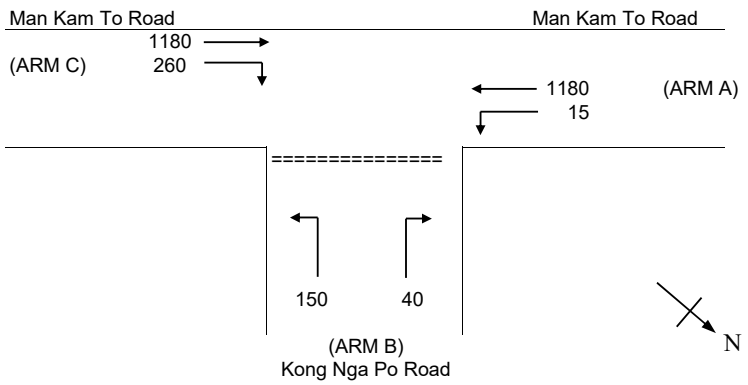
TOTAL FLOW = 2010 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.06
DFC b-c	=	0.47
DFC c-b	=	0.26
DFC b-ac	=	0.53

CRITICAL DFC = 0.53

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
		PROJECT NO: 287082	DESIGNED BY:
J9 - Man Kam To Road / Kong Nga Po Road	J9_2031_DES_AM	DATE : 16/12/2024	FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
W cr	=	CENTRAL RESERVE WIDTH (0m, 1.2-9m)
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	11.00	(metres)
W cr	=	2.00	(metres)
q a-b	=	15	(pcu/hr)
q a-c	=	1180	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	4.00	(metres)
Vr c-b	=	50	(metres)
q c-a	=	1180	(pcu/hr)
q c-b	=	260	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	4.00	(metres)
W b-c	=	4.50	(metres)
Vl b-a	=	100	(metres)
Vr b-a	=	50	(metres)
Vr b-c	=	50	(metres)
q b-a	=	40	(pcu/hr)
q b-c	=	150	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.94
E	=	1.01
F	=	0.97
Y	=	0.62

THE CAPACITY OF MOVEMENT :

Q b-a	=	127
Q b-c	=	483
Q c-b	=	460
Q b-ac	=	304

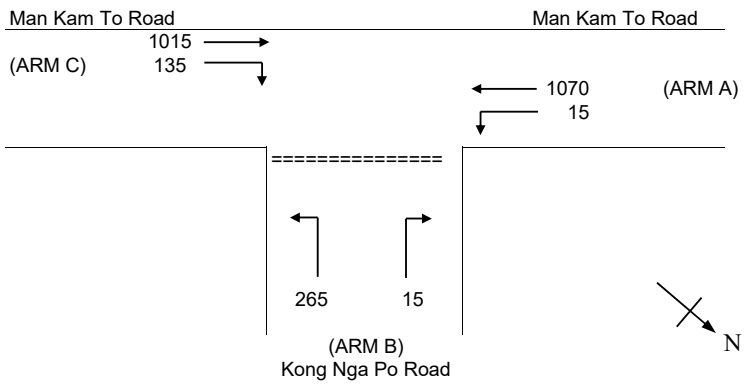
TOTAL FLOW = 2825 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.32
DFC b-c	=	0.32
DFC c-b	=	0.57
DFC b-ac	=	0.63

CRITICAL DFC = 0.63

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
		PROJECT NO: 287082	DESIGNED BY:
J9 - Man Kam To Road / Kong Nga Po Road	J9_2031_DES_PM	DATE : 16/12/2024	FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
W cr	=	CENTRAL RESERVE WIDTH (0m, 1.2-9m)
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	11.00	(metres)
W cr	=	2.00	(metres)
q a-b	=	15	(pcu/hr)
q a-c	=	1070	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	4.00	(metres)
Vr c-b	=	50	(metres)
q c-a	=	1015	(pcu/hr)
q c-b	=	135	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	4.00	(metres)
W b-c	=	4.50	(metres)
Vl b-a	=	100	(metres)
Vr b-a	=	50	(metres)
Vr b-c	=	50	(metres)
q b-a	=	15	(pcu/hr)
q b-c	=	265	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.94
E	=	1.01
F	=	0.97
Y	=	0.62

THE CAPACITY OF MOVEMENT :

Q b-a	=	210
Q b-c	=	508
Q c-b	=	484
Q b-ac	=	472

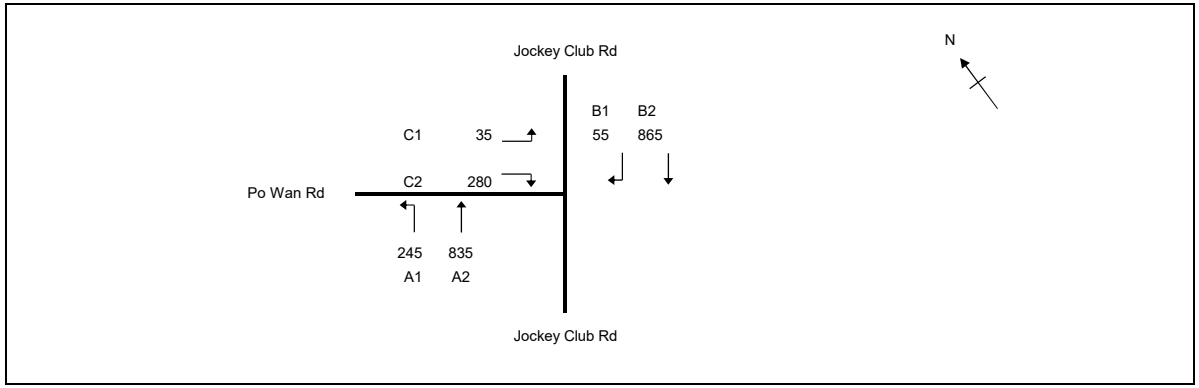
TOTAL FLOW = 2515 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

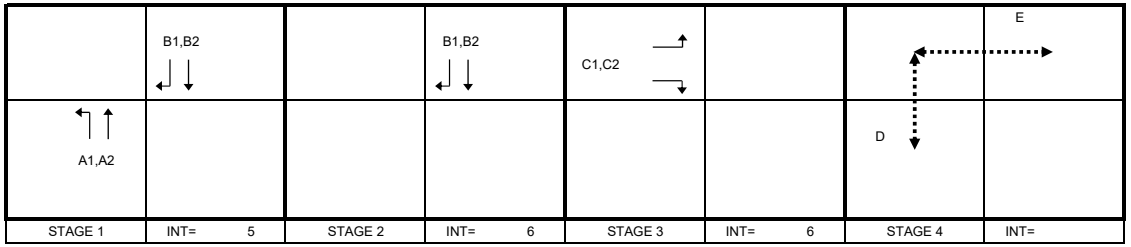
DFC b-a	=	0.08
DFC b-c	=	0.53
DFC c-b	=	0.28
DFC b-ac	=	0.60

CRITICAL DFC = 0.60

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J10
J10 - Jockey Club Road / Po Wan Road	J10_2023_EXT_AM	DATE : 16/12/2024	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	2
Cycle time		C =	90 sec
Sum(y)		Y =	0.359
Loss time		L =	35 sec
Total Flow		=	2315 pcu
Co	= (1.5*L+5)/(1-Y)	=	89.8 sec
Cm	= L/(1-Y)	=	54.6 sec
Yult		=	0.638
R.C.ult	= (Yult-Y)/Y*100%	=	77.4 %
Cp	= 0.9*L/(0.9-Y)	=	58.3 sec
Ymax	= 1-L/C	=	0.611
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	53 %

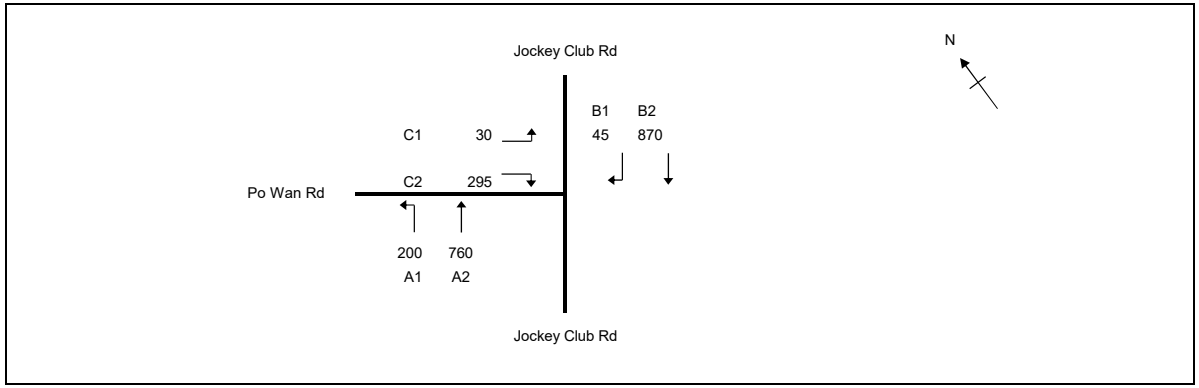


Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
D	8	7	2	7	11	2	7	OK
E	8	7	6	7	7	6	7	OK

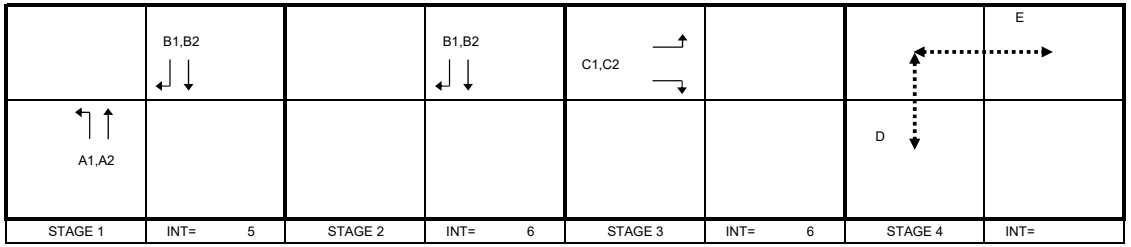
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				9				
A1,A2	1	3.30	C	1	15		N	1945	245	264		509	0.48	1856			1856	0.274	0.274		42	42	0.588	41
A2	1	3.30	C	1				2085		571		571	0.00	2085			2085	0.274			42	42	0.587	46
B1,B2	1,2	3.30	B	1	20	O		2085	55	392		447	0.12	1838			1838	0.243			37	37	0.588	39
B2	1,2	3.30	B	1			N	1945		473		473	0.00	1945			1945	0.243			37	37	0.588	42
C1,C2	3	3.30	D	1	15		N	1945	35		115	150	1.00	1768			1768	0.085	0.085		13	13	0.586	19
C2	3	3.30	D	1	20			2085			165	165	1.00	1940			1940	0.085			13	13	0.588	21
	2																			6				
	4		PED																	20				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J10
J10 - Jockey Club Road / Po Wan Road	J10_2023_EXT_PM	DATE : 16/12/2024	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	2
Cycle time		C =	90 sec
Sum(y)		Y =	0.331
Loss time		L =	35 sec
Total Flow		=	2200 pcu
Co	= (1.5*L+5)/(1-Y)	=	85.9 sec
Cm	= L/(1-Y)	=	52.3 sec
Yult		=	0.638
R.C.ult	= (Yult-Y)/Y*100%	=	92.7 %
Cp	= 0.9*L/(0.9-Y)	=	55.3 sec
Ymax	= 1-L/C	=	0.611
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	66 %

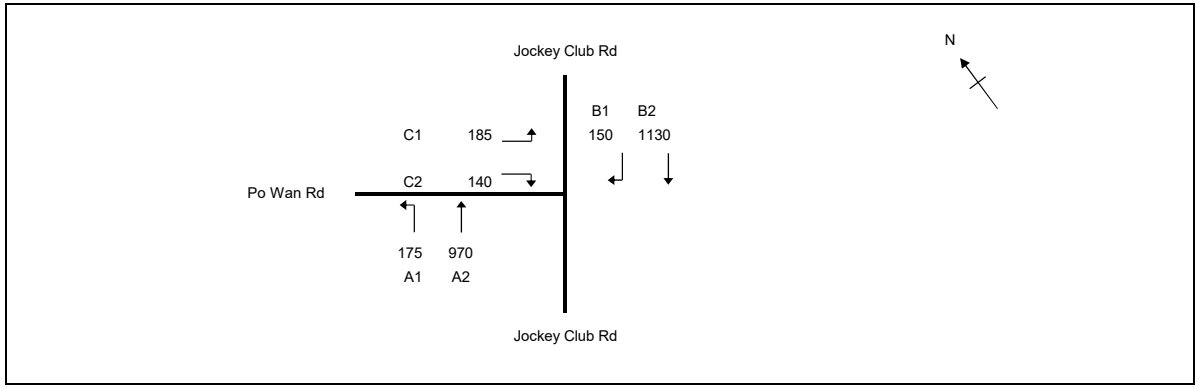


Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
D	8	7	2	7	11	2	7	OK
E	8	7	6	7	7	6	7	OK

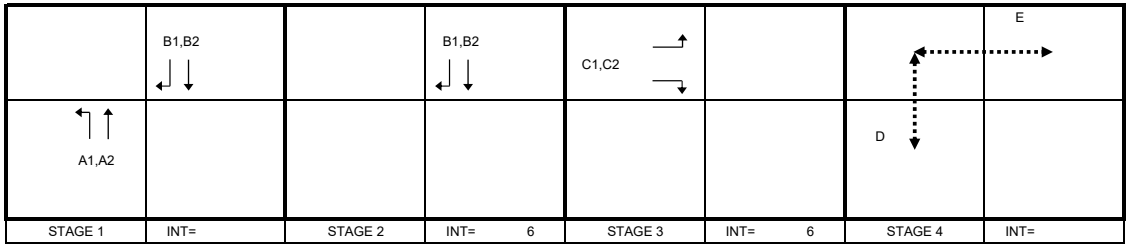
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				9				
A1,A2	1	3.30	C	1	15		N	1945	200	253		453	0.44	1863			1863	0.243	0.243		40	40	0.541	37
A2	1	3.30	C	1				2085		507		507	0.00	2085			2085	0.243			40	40	0.541	42
B1,B2	1,2	3.30	B	1	20	O		2085	45	400		445	0.10	1841			1841	0.242			40	40	0.541	37
B2	1,2	3.30	B	1			N	1945		470		470	0.00	1945			1945	0.242			40	40	0.541	39
C1,C2	3	3.30	D	1	15		N	1945	30		125	155	1.00	1768			1768	0.088	0.088		15	15	0.541	19
C2	3	3.30	D	1	20			2085			170	170	1.00	1940			1940	0.088			15	15	0.541	21
	2																			6				
	4		PED																	20				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J10
J10 - Jockey Club Road / Po Wan Road	J10_2031_REF_AM	DATE : 16/12/2024	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.444
Loss time		L =	30 sec
Total Flow		=	2750 pcu
Co	= (1.5*L+5)/(1-Y)	=	90.0 sec
Cm	= L/(1-Y)	=	54.0 sec
Yult		=	0.675
R.C.ult	= (Yult-Y)/Y*100%	=	51.9 %
Cp	= 0.9*L/(0.9-Y)	=	59.3 sec
Ymax	= 1-L/C	=	0.750
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	51 %

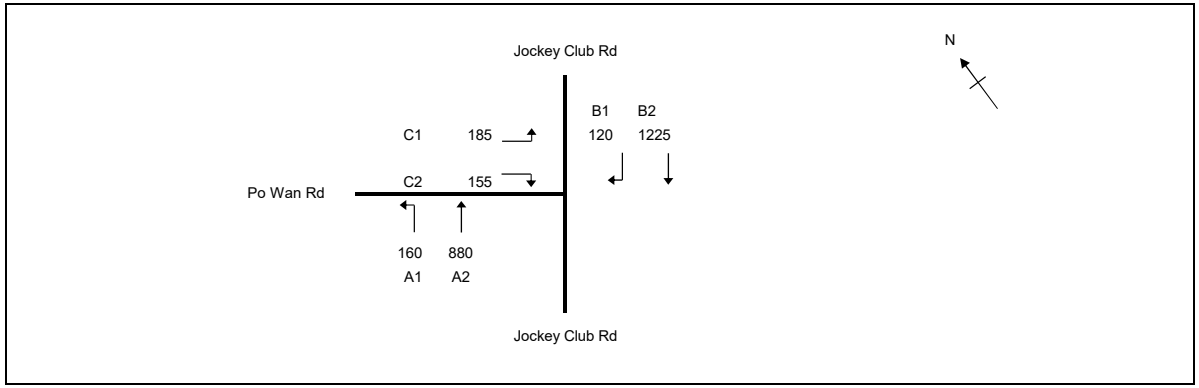


Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
D	8	7	2	7	11	2	7	OK
E	8	7	6	7	7	6	7	OK

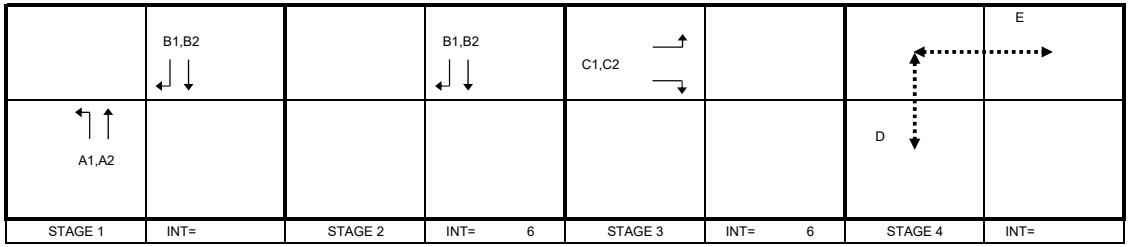
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				10				
A1,A2	1	3.30	C	1	15		N	1945	175	369		544	0.32	1884			1884	0.289			58	63	0.552	52
A2	1	3.30	C	1				2085		601		601	0.00	2085			2085	0.288			58	63	0.551	57
B1,B2	1,2	3.30	B	1	20	O		2085	150	469		619	0.24	1822			1822	0.340	0.340		69	69	0.592	53
B2	1,2	3.30	B	1			N	1945		661		661	0.00	1945			1945	0.340			69	69	0.593	56
C1,C2	3	3.30	D	1	15		N	1945	185		0	185	1.00	1768			1768	0.105	0.105		21	21	0.593	30
C2	3	3.30	D	1	20			2085			140	140	1.00	1940			1940	0.072			15	21	0.409	23
	4		PED																	20				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J10
J10 - Jockey Club Road / Po Wan Road	J10_2031_REF_PM	DATE : 16/12/2024	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.461
Loss time		L =	30 sec
Total Flow		=	2725 pcu
Co	= (1.5*L+5)/(1-Y)	=	92.8 sec
Cm	= L/(1-Y)	=	55.7 sec
Yult		=	0.675
R.C.ult	= (Yult-Y)/Y*100%	=	46.4 %
Cp	= 0.9*L/(0.9-Y)	=	61.5 sec
Ymax	= 1-L/C	=	0.750
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	46 %

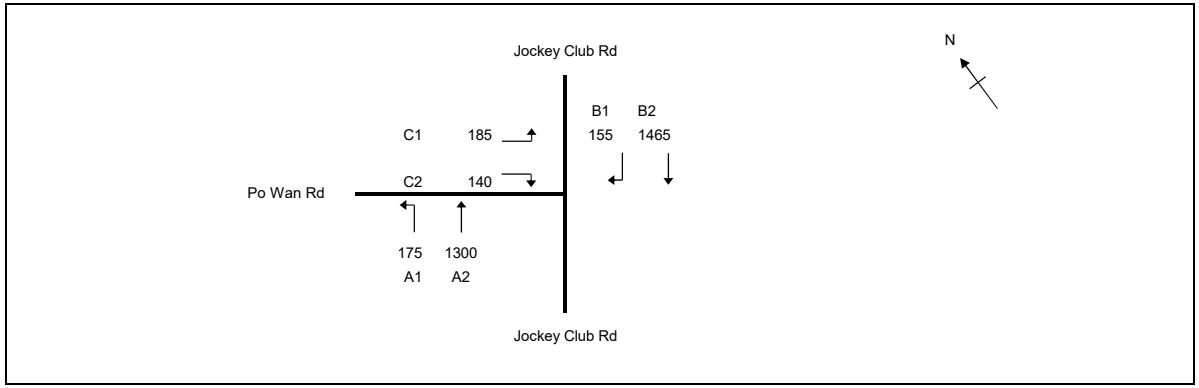


Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
D	8	7	2	7	11	2	7	OK
E	8	7	6	7	7	6	7	OK

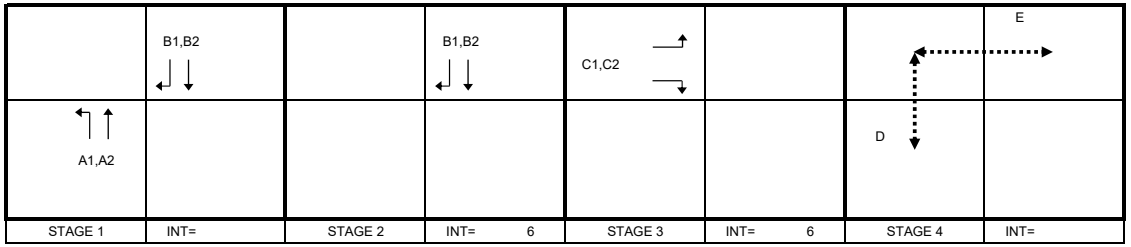
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				10				
A1,A2	1	3.30	C	1	15		N	1945	160	334		494	0.32	1884			1884	0.262			51	64	0.495	46
A2	1	3.30	C	1				2085		546		546	0.00	2085			2085	0.262			51	64	0.494	51
B1,B2	1,2	3.30	B	1	20	O		2085	120	532		652	0.18	1830			1830	0.356	0.356		70	70	0.615	55
B2	1,2	3.30	B	1			N	1945		693		693	0.00	1945			1945	0.356			70	70	0.615	58
C1,C2	3	3.30	D	1	15		N	1945	185		0	185	1.00	1768			1768	0.105	0.105		20	20	0.615	31
C2	3	3.30	D	1	20			2085			155	155	1.00	1940			1940	0.080			16	20	0.469	26
	4		PED																	20				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J10
J10 - Jockey Club Road / Po Wan Road	J10_2031_DES_AM	DATE : 16/12/2024	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.534
Loss time		L =	30 sec
Total Flow		=	3420 pcu
Co	= (1.5*L+5)/(1-Y)	=	107.3 sec
Cm	= L/(1-Y)	=	64.4 sec
Yult		=	0.675
R.C.ult	= (Yult-Y)/Y*100%	=	26.4 %
Cp	= 0.9*L/(0.9-Y)	=	73.8 sec
Ymax	= 1-L/C	=	0.750
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	26 %

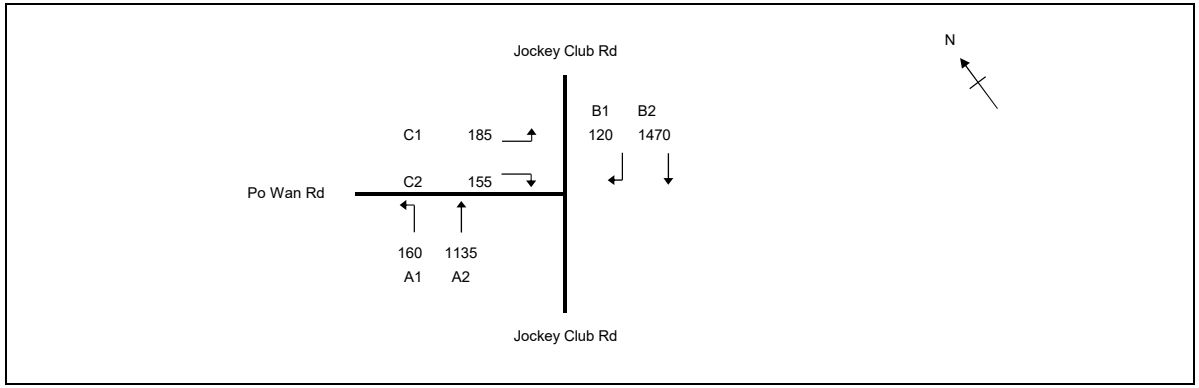


Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
D	8	7	2	7	11	2	7	OK
E	8	7	6	7	7	6	7	OK

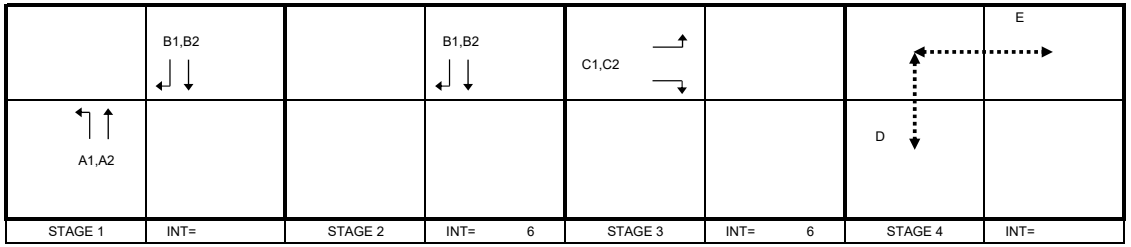
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				10				
A1,A2	1	3.30	C	1	15		N	1945	175	528		703	0.25	1898			1898	0.370			62	66	0.670	63
A2	1	3.30	C	1				2085		772		772	0.00	2085			2085	0.370			62	66	0.669	69
B1,B2	1,2	3.30	B	1	20	O		2085	155	630		785	0.20	1828			1828	0.429	0.429		72	72	0.712	62
B2	1,2	3.30	B	1			N	1945		835		835	0.00	1945			1945	0.429			72	72	0.712	66
C1,C2	3	3.30	D	1	15		N	1945	185		0	185	1.00	1768			1768	0.105	0.105		18	18	0.712	32
C2	3	3.30	D	1	20			2085			140	140	1.00	1940			1940	0.072			12	18	0.491	24
	4		PED																	20				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J10
J10 - Jockey Club Road / Po Wan Road	J10_2031_DES_PM	DATE : 16/12/2024	FILENAME :



No. of stages per cycle	N =	4
No. of stage using for calculation	N =	2
Cycle time	C =	120 sec
Sum(y)	Y =	0.526
Loss time	L =	30 sec
Total Flow	=	3225 pcu
Co = (1.5*L+5)/(1-Y)	=	105.4 sec
Cm = L/(1-Y)	=	63.2 sec
Yult	=	0.675
R.C.ult = (Yult-Y)/Y*100%	=	28.4 %
Cp = 0.9*L/(0.9-Y)	=	72.1 sec
Ymax = 1-L/C	=	0.750
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	28 %

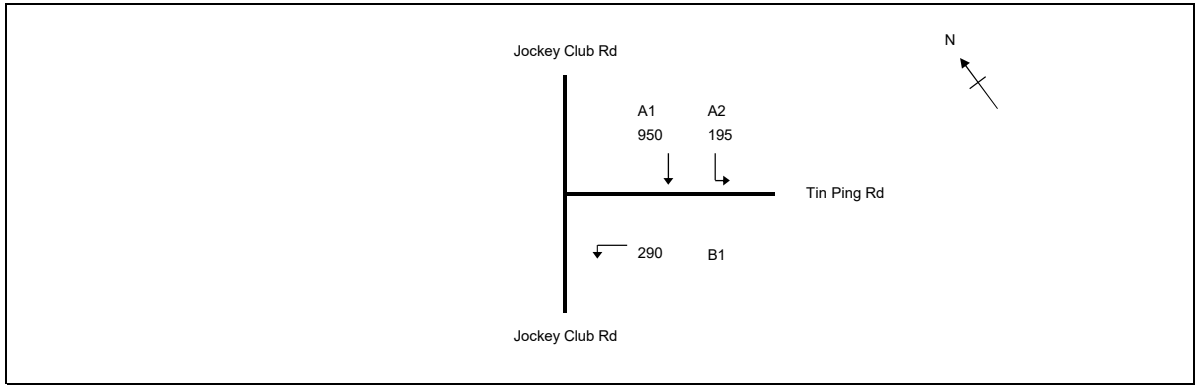


Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
D	8	7	2	7	11	2	7	OK
E	8	7	6	7	7	6	7	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				10				
A1,A2	1	3.30	C	1	15		N	1945	160	457		617	0.26	1896			1896	0.325			56	66	0.591	55
A2	1	3.30	C	1				2085		678		678	0.00	2085			2085	0.325			56	66	0.590	61
B1,B2	1,2	3.30	B	1	20	O		2085	120	652		772	0.16	1834			1834	0.421	0.421		72	72	0.701	62
B2	1,2	3.30	B	1			N	1945		818		818	0.00	1945			1945	0.421			72	72	0.700	65
C1,C2	3	3.30	D	1	15		N	1945	185		0	185	1.00	1768			1768	0.105	0.105		18	18	0.701	31
C2	3	3.30	D	1	20			2085			155	155	1.00	1940			1940	0.080			14	18	0.535	26
	4		PED																	20				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J11
J11 - Jockey Club Road / Tin Ping Road	J11_2023_EXT_AM	DATE : 16/12/2024	FILENAME :



No. of stages per cycle	N =	3	
No. of stage using for calculation	N =	2	
Cycle time	C =	70	sec
Sum(y)	Y =	0.340	
Loss time	L =	26	sec
Total Flow	=	1435	pcu
Co = (1.5*L+5)/(1-Y)	=	66.7	sec
Cm = L/(1-Y)	=	39.4	sec
Yult	=	0.705	
R.C.ult = (Yult-Y)/Y*100%	=	107.3	%
Cp = 0.9*L/(0.9-Y)	=	41.8	sec
Ymax = 1-L/C	=	0.629	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	66	%

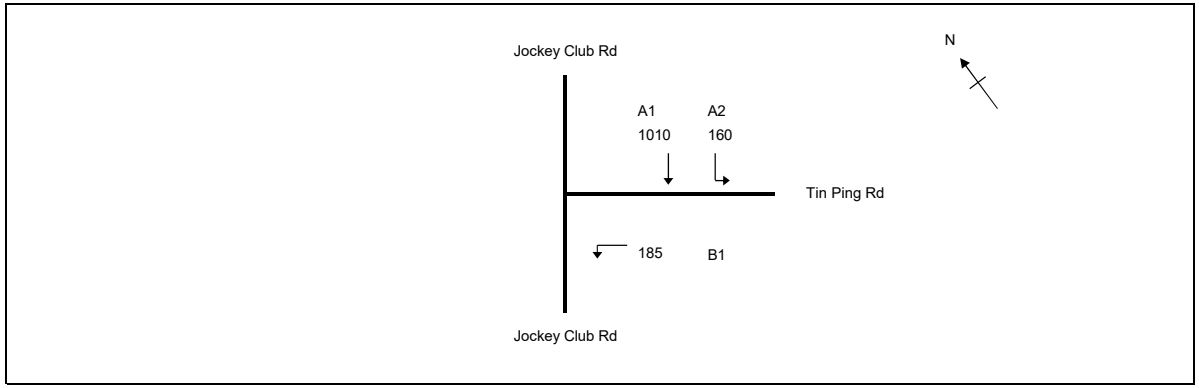
	A1,A2		A1 C	A2
				B1
STAGE 1	INT= 5	STAGE 2	INT= 5	STAGE 3
STAGE 4	INT=			INT= 6

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
C	8	7	4	6	7	4	6	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				9				
A2	3	3.50	C	1	10		N	1965	195			195	1.00	1709			1709	0.114			15	20	0.390	16
A1,A2	1	3.50	B	1	10		N	1965	0	357		357	0.00	1965			1965	0.182	0.182		24	24	0.541	28
A1	1	3.50	B	1				2105		382		382	0.00	2105			2105	0.181			23	24	0.540	30
A1	2	3.50	B	1				2105		211		211	0.00	2105			2105	0.100			13	13	0.540	20
B1	3	3.50	D	1	10			2105	290			290	1.00	1830			1830	0.158	0.158		20	20	0.541	24
PED	2		C																	17				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J11
J11 - Jockey Club Road / Tin Ping Road	J11_2023_EXT_PM	DATE : 16/12/2024	FILENAME :



No. of stages per cycle	N =	3	
No. of stage using for calculation	N =	2	
Cycle time	C =	70	sec
Sum(y)	Y =	0.303	
Loss time	L =	26	sec
Total Flow	=	1355	pcu
Co = (1.5*L+5)/(1-Y)	=	63.1	sec
Cm = L/(1-Y)	=	37.3	sec
Yult	=	0.705	
R.C.ult = (Yult-Y)/Y*100%	=	132.6	%
Cp = 0.9*L/(0.9-Y)	=	39.2	sec
Ymax = 1-L/C	=	0.629	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	87	%

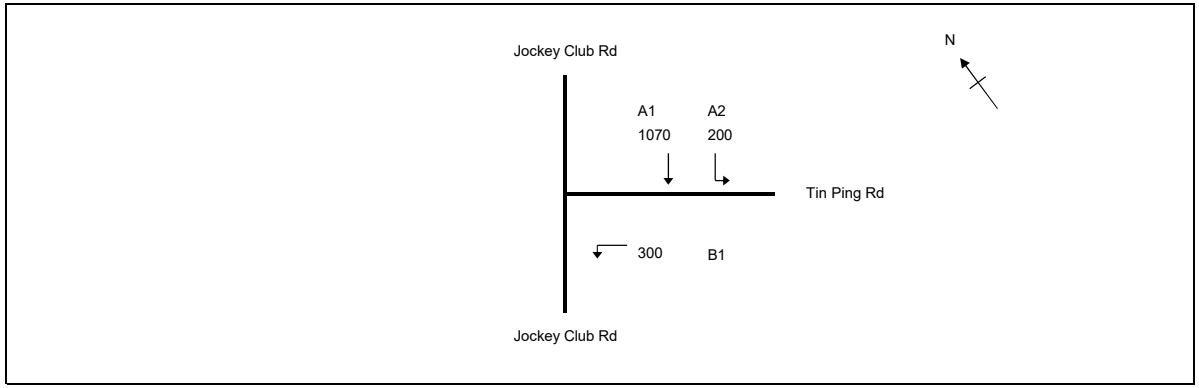
	A1,A2		A1 C		A2			
					B1			
STAGE 1	INT= 5	STAGE 2	INT= 5	STAGE 3	INT= 6	STAGE 4	INT=	

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
C	8	7	4	6	7	4	6	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				9				
A2	3	3.50	C	1	10		N	1965	160			160	1.00	1709			1709	0.094			14	15	0.447	15
A1,A2	1	3.50	B	1	10		N	1965	0	397		397	0.00	1965			1965	0.202	0.202		29	29	0.482	27
A1	1	3.50	B	1				2105		425		425	0.00	2105			2105	0.202			29	29	0.482	29
A1	2	3.50	B	1				2105		188		188	0.00	2105			2105	0.089			13	13	0.481	18
B1	3	3.50	D	1	10			2105	185			185	1.00	1830			1830	0.101	0.101		15	15	0.482	17
PED	2		C																	17				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J11
J11 - Jockey Club Road / Tin Ping Road	J11_2031_REF_AM	DATE : 16/12/2024	FILENAME :



No. of stages per cycle	N =	3
No. of stage using for calculation	N =	2
Cycle time	C =	70 sec
Sum(y)	Y =	0.371
Loss time	L =	26 sec
Total Flow	=	1570 pcu
Co = (1.5*L+5)/(1-Y)	=	69.9 sec
Cm = L/(1-Y)	=	41.3 sec
Yult	=	0.705
R.C.ult = (Yult-Y)/Y*100%	=	90.3 %
Cp = 0.9*L/(0.9-Y)	=	44.2 sec
Ymax = 1-L/C	=	0.629
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	52 %

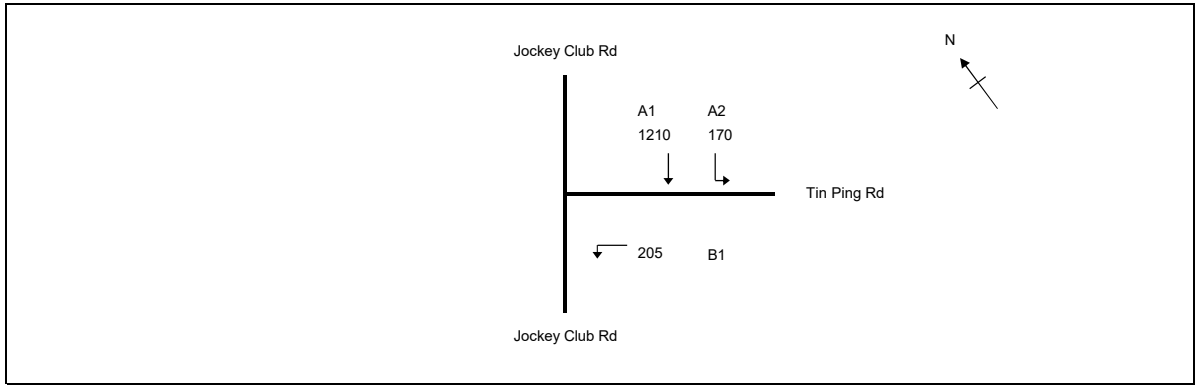
	A1,A2		A1 C	A2
				B1
STAGE 1	INT= 5	STAGE 2	INT= 5	STAGE 3 INT= 6 STAGE 4 INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
C	8	7	4	6	7	4	6	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				9				
A2	3	3.50	C	1	10		N	1965	200			200	1.00	1709			1709	0.117			14	19	0.421	17
A1,A2	1	3.50	B	1	10		N	1965	0	405		405	0.00	1965			1965	0.206	0.207		24	25	0.588	31
A1	1	3.50	B	1				2105		435		435	0.00	2105			2105	0.207			25	25	0.590	33
A1	2	3.50	B	1				2105		230		230	0.00	2105			2105	0.109			13	13	0.588	22
B1	3	3.50	D	1	10			2105	300	0	0	300	1.00	1830			1830	0.164	0.164		19	19	0.590	25
PED	2		C																	17				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J11
J11 - Jockey Club Road / Tin Ping Road	J11_2031_REF_PM	DATE : 16/12/2024	FILENAME :



No. of stages per cycle	N =	3
No. of stage using for calculation	N =	2
Cycle time	C =	70 sec
Sum(y)	Y =	0.369
Loss time	L =	26 sec
Total Flow	=	1585 pcu
Co = (1.5*L+5)/(1-Y)	=	69.7 sec
Cm = L/(1-Y)	=	41.2 sec
Yult	=	0.705
R.C.ult = (Yult-Y)/Y*100%	=	91.1 %
Cp = 0.9*L/(0.9-Y)	=	44.1 sec
Ymax = 1-L/C	=	0.629
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	53 %

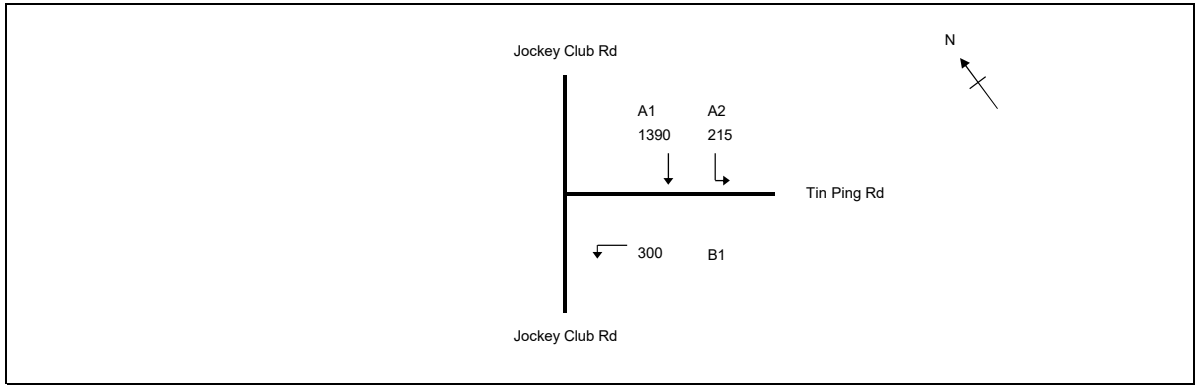
STAGE 1	INT= 5	STAGE 2	INT= 5	STAGE 3	INT= 6	STAGE 4	INT=
	A1,A2		A1 C		A2		
					B1		

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
C	8	7	4	6	7	4	6	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				9				
A2	3	3.50	C	1	10		N	1965	118			118	1.00	1709			1709	0.069			8	13	0.362	11
A1,A2	1	3.50	B	1	10		N	1965	52	445		497	0.10	1935			1935	0.257	0.257		31	31	0.587	33
A1	1	3.50	B	1				2105		541		541	0.00	2105			2105	0.257			31	31	0.587	35
A1	2	3.50	B	1				2105		224		224	0.00	2105			2105	0.106			13	13	0.573	21
B1	3	3.50	D	1	10			2105	205	0	0	205	1.00	1830			1830	0.112	0.112		13.4	13.4	0.587	19
PED	2		C																	17				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J11
J11 - Jockey Club Road / Tin Ping Road	J11_2031_DES_AM	DATE : 16/12/2024	FILENAME :



No. of stages per cycle	N =	3
No. of stage using for calculation	N =	2
Cycle time	C =	70 sec
Sum(y)	Y =	0.439
Loss time	L =	26 sec
Total Flow	=	1905 pcu
Co = (1.5*L+5)/(1-Y)	=	78.4 sec
Cm = L/(1-Y)	=	46.3 sec
Yult	=	0.705
R.C.ult = (Yult-Y)/Y*100%	=	60.7 %
Cp = 0.9*L/(0.9-Y)	=	50.7 sec
Ymax = 1-L/C	=	0.629
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	28 %

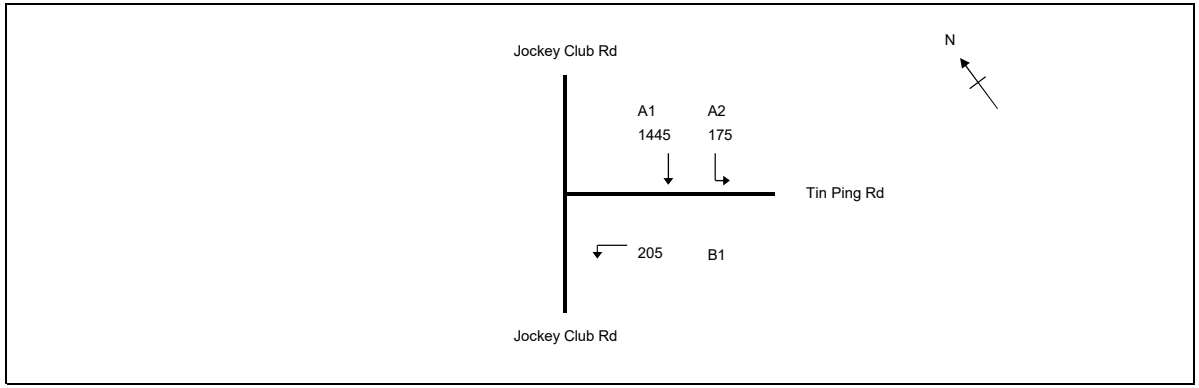
	A1,A2		A1 C	A2
				B1
STAGE 1	INT= 5	STAGE 2	INT= 5	STAGE 3 INT= 6 STAGE 4 INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
C	8	7	4	6	7	4	6	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				9				
A2	3	3.50	C	1	10		N	1965	215			215	1.00	1709			1709	0.126			13	16	0.536	19
A1,A2	1	3.50	B	1	10		N	1965	0	540		540	0.00	1965			1965	0.275	0.275		28	28	0.698	38
A1	1	3.50	B	1				2105		578		578	0.00	2105			2105	0.275			28	28	0.697	41
A1	2	3.50	B	1				2105		272		272	0.00	2105			2105	0.129			13	13	0.696	26
B1	3	3.50	D	1	10			2105	300	0	0	300	1.00	1830			1830	0.164	0.164		16	16	0.698	27
PED	2		C																	17				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J11
J11 - Jockey Club Road / Tin Ping Road		DATE : 16/12/2024	FILENAME :
	J11_2031_DES_PM		



No. of stages per cycle	N =	3
No. of stage using for calculation	N =	2
Cycle time	C =	70 sec
Sum(y)	Y =	0.406
Loss time	L =	26 sec
Total Flow	=	1825 pcu
Co = (1.5*L+5)/(1-Y)	=	74.0 sec
Cm = L/(1-Y)	=	43.7 sec
Yult	=	0.705
R.C.ult = (Yult-Y)/Y*100%	=	73.8 %
Cp = 0.9*L/(0.9-Y)	=	47.3 sec
Ymax = 1-L/C	=	0.629
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	39 %

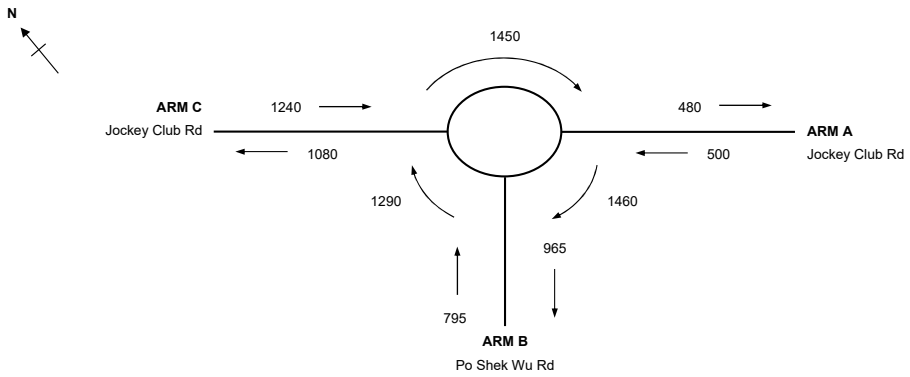
STAGE 1	INT= 5	STAGE 2	INT= 5	STAGE 3	INT= 6	STAGE 4	INT=
	A1,A2		A1 C		A2		
					B1		

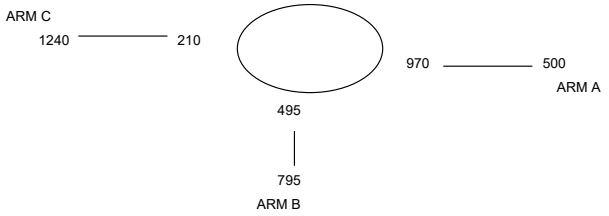
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
C	8	7	4	6	7	4	6	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				9				
A2	3	3.50	C	1	10		N	1965	175			175	1.00	1709			1709	0.102			11	12	0.590	17
A1,A2	1	3.50	B	1	10		N	1965	0	576		576	0.00	1965			1965	0.293	0.294		32	32	0.644	37
A1	1	3.50	B	1				2105		618		618	0.00	2105			2105	0.294			32	32	0.645	39
A1	2	3.50	B	1				2105		251		251	0.00	2105			2105	0.119			13	13	0.642	24
B1	3	3.50	D	1	10			2105	205	0	0	205	1.00	1830			1830	0.112	0.112		12	12	0.645	20
PED	2		C																	17				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

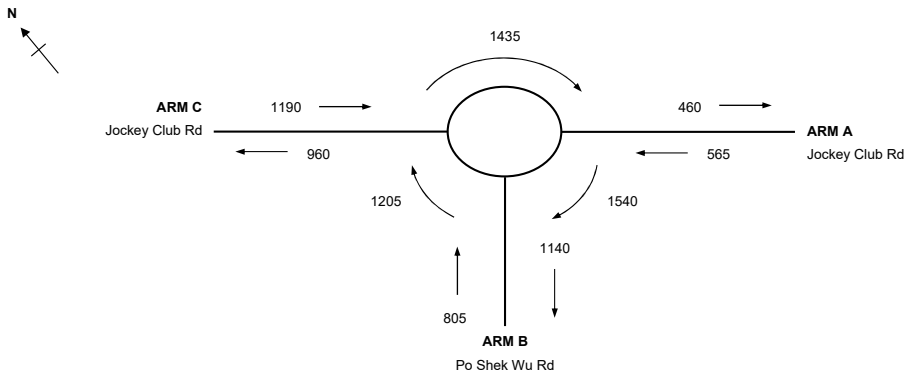
OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
		PROJECT NO.	287082
J12 - Po Shek Wu Road / Jockey Club Road	J12_2023_EXT_AM	DATE 16/12/2024	

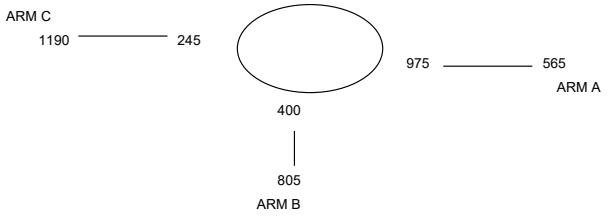




ARM			A	B	C			
INPUT PARAMETERS:								
V	=	Approach half width (m)	7.50	7.00	7.50			
E	=	Entry width (m)	10.50	10.50	10.00			
L	=	Effective length of flare (m)	10	10	10			
R	=	Entry radius (m)	10	90	100			
D	=	Inscribed circle diameter (m)	40	40	40			
A	=	Entry angle (degree)	30	20	10			
Q	=	Entry flow (pcu/h)	500	795	1240			
Qc	=	Circulating flow across entry (pcu/h)	970	495	210			
OUTPUT PARAMETERS:								
S	=	Sharpness of flare = 1.6(E-V)/L	0.48	0.56	0.40			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	0.95	1.07	1.11			
X2	=	V + ((E-V)/(1+2S))	9.03	8.65	8.89			
M	=	EXP((D-60)/10)	0.14	0.14	0.14			
F	=	303*X2	2736	2621	2693			
Td	=	1+(0.5/(1+M))	1.44	1.44	1.44			
Fc	=	0.21*Td(1+0.2*X2)	0.85	0.83	0.84			
Qe	=	K(F-Fc*Qc)	1819	2373	2790	**Total In Sum =**	**2535**	**PCU**
DFC	=	Design flow/Capacity = Q/Qe	0.27	0.33	0.44	**DFC of Critical Approach =**	**0.44**	

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
		PROJECT NO.	287082
J12 - Po Shek Wu Road / Jockey Club Road	J12_2023_EXT_PM	DATE 16/12/2024	



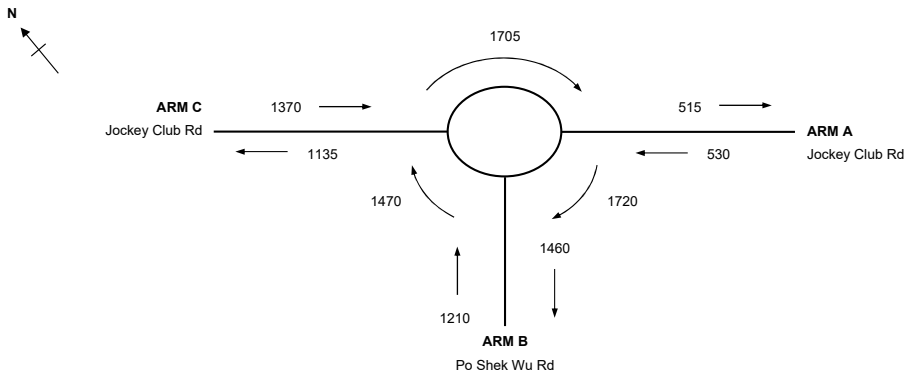


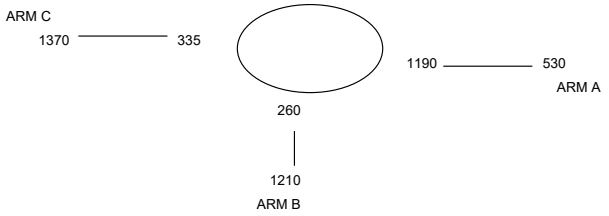
ARM			A	B	C
INPUT PARAMETERS:					
V	=	Approach half width (m)	7.50	7.00	7.50
E	=	Entry width (m)	10.50	10.50	10.00
L	=	Effective length of flare (m)	10	10	10
R	=	Entry radius (m)	10	90	100
D	=	Inscribed circle diameter (m)	40	40	40
A	=	Entry angle (degree)	30	20	10
Q	=	Entry flow (pcu/h)	565	805	1190
Qc	=	Circulating flow across entry (pcu/h)	975	400	245
OUTPUT PARAMETERS:					
S	=	Sharpness of flare = 1.6(E-V)/L	0.48	0.56	0.40
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	0.95	1.07	1.11
X2	=	V + ((E-V)/(1+2S))	9.03	8.65	8.89
M	=	EXP((D-60)/10)	0.14	0.14	0.14
F	=	303*X2	2736	2621	2693
Td	=	1+(0.5/(1+M))	1.44	1.44	1.44
Fc	=	0.21*Td(1+0.2*X2)	0.85	0.83	0.84
Qe	=	K(F-Fc*Qc)	1815	2458	2757
DFC	=	Design flow/Capacity = Q/Qe	0.31	0.33	0.43

Total In Sum = **2560** **PCU**

DFC of Critical Approach = **0.43**

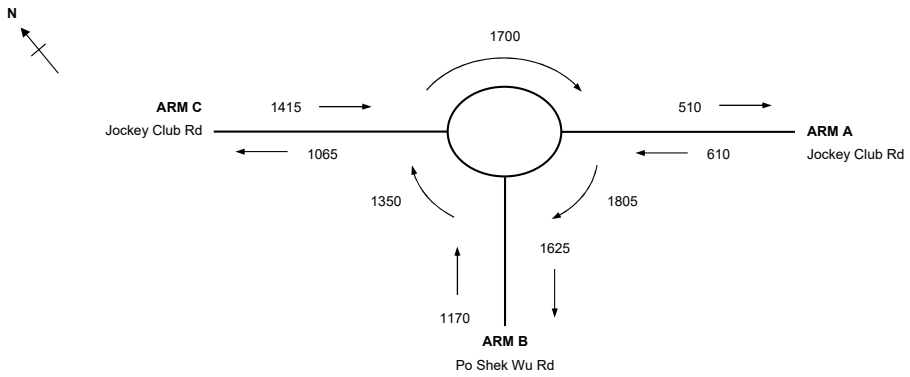
OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
		PROJECT NO.	287082
J12 - Po Shek Wu Road / Jockey Club Road	J12_2031_REF_AM	DATE 16/12/2024	

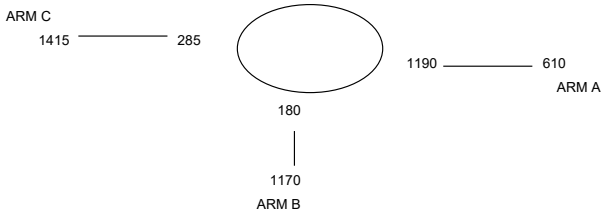




ARM			A	B	C			
INPUT PARAMETERS:								
V	=	Approach half width (m)	7.50	7.00	7.50			
E	=	Entry width (m)	10.50	10.50	10.00			
L	=	Effective length of flare (m)	10	10	10			
R	=	Entry radius (m)	10	90	100			
D	=	Inscribed circle diameter (m)	40	40	40			
A	=	Entry angle (degree)	30	20	10			
Q	=	Entry flow (pcu/h)	530	1210	1370			
Qc	=	Circulating flow across entry (pcu/h)	1190	260	335			
OUTPUT PARAMETERS:								
S	=	Sharpness of flare = 1.6(E-V)/L	0.48	0.56	0.40			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	0.95	1.07	1.11			
X2	=	V + ((E-V)/(1+2S))	9.03	8.65	8.89			
M	=	EXP((D-60)/10)	0.14	0.14	0.14			
F	=	303*X2	2736	2621	2693			
Td	=	1+(0.5/(1+M))	1.44	1.44	1.44			
Fc	=	0.21*Td(1+0.2*X2)	0.85	0.83	0.84			
Qe	=	K(F-Fc*Qc)	1642	2582	2674	**Total In Sum =**	**3110**	**PCU**
DFC	=	Design flow/Capacity = Q/Qe	0.33	0.47	0.52	**DFC of Critical Approach =**	**0.52**	

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
		PROJECT NO.	287082
J12 - Po Shek Wu Road / Jockey Club Road	J12_2031_REF_PM	DATE 16/12/2024	



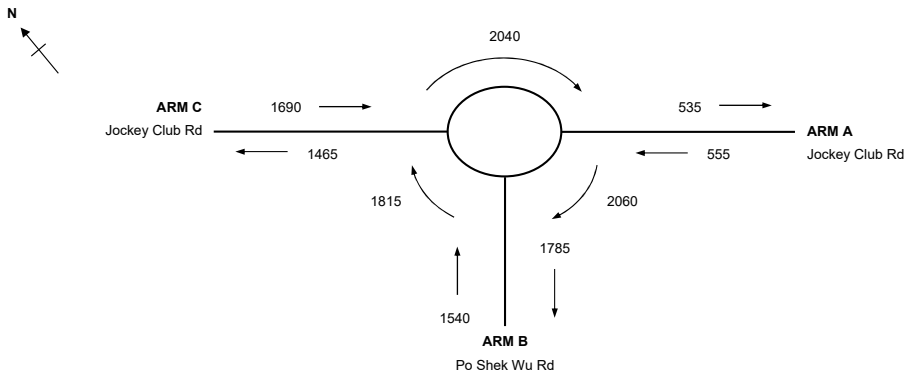


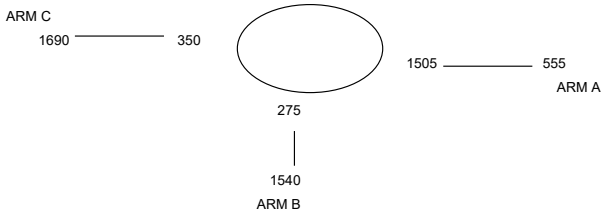
ARM			A	B	C
INPUT PARAMETERS:					
V	=	Approach half width (m)	7.50	7.00	7.50
E	=	Entry width (m)	10.50	10.50	10.00
L	=	Effective length of flare (m)	10	10	10
R	=	Entry radius (m)	10	90	100
D	=	Inscribed circle diameter (m)	40	40	40
A	=	Entry angle (degree)	30	20	10
Q	=	Entry flow (pcu/h)	610	1170	1415
Qc	=	Circulating flow across entry (pcu/h)	1190	180	285
OUTPUT PARAMETERS:					
S	=	Sharpness of flare = 1.6(E-V)/L	0.48	0.56	0.40
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	0.95	1.07	1.11
X2	=	V + ((E-V)/(1+2S))	9.03	8.65	8.89
M	=	EXP((D-60)/10)	0.14	0.14	0.14
F	=	303*X2	2736	2621	2693
Td	=	1+(0.5/(1+M))	1.44	1.44	1.44
Fc	=	0.21*Td(1+0.2*X2)	0.85	0.83	0.84
Qe	=	K(F-Fc*Qc)	1642	2652	2720
DFC	=	Design flow/Capacity = Q/Qe	0.38	0.45	0.53

Total In Sum = **3195** **PCU**

DFC of Critical Approach = **0.53**

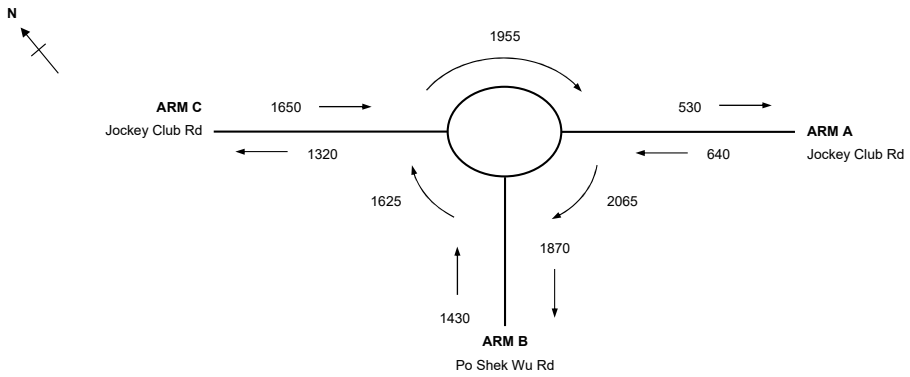
OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
		PROJECT NO.	287082
J12 - Po Shek Wu Road / Jockey Club Road	J12_2031_DES_AM	DATE 16/12/2024	

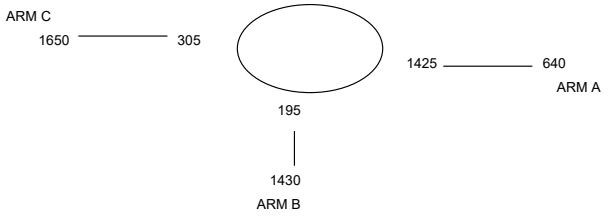




ARM			A	B	C			
INPUT PARAMETERS:								
V	=	Approach half width (m)	7.50	7.00	7.50			
E	=	Entry width (m)	10.50	10.50	10.00			
L	=	Effective length of flare (m)	10	10	10			
R	=	Entry radius (m)	10	90	100			
D	=	Inscribed circle diameter (m)	40	40	40			
A	=	Entry angle (degree)	30	20	10			
Q	=	Entry flow (pcu/h)	555	1540	1690			
Qc	=	Circulating flow across entry (pcu/h)	1505	275	350			
OUTPUT PARAMETERS:								
S	=	Sharpness of flare = 1.6(E-V)/L	0.48	0.56	0.40			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	0.95	1.07	1.11			
X2	=	V + ((E-V)/(1+2S))	9.03	8.65	8.89			
M	=	EXP((D-60)/10)	0.14	0.14	0.14			
F	=	303*X2	2736	2621	2693			
Td	=	1+(0.5/(1+M))	1.44	1.44	1.44			
Fc	=	0.21*Td(1+0.2*X2)	0.85	0.83	0.84			
Qe	=	K(F-Fc*Qc)	1387	2568	2660	**Total In Sum =**	**3785**	**PCU**
DFC	=	Design flow/Capacity = Q/Qe	0.41	0.60	0.64	**DFC of Critical Approach =**	**0.64**	

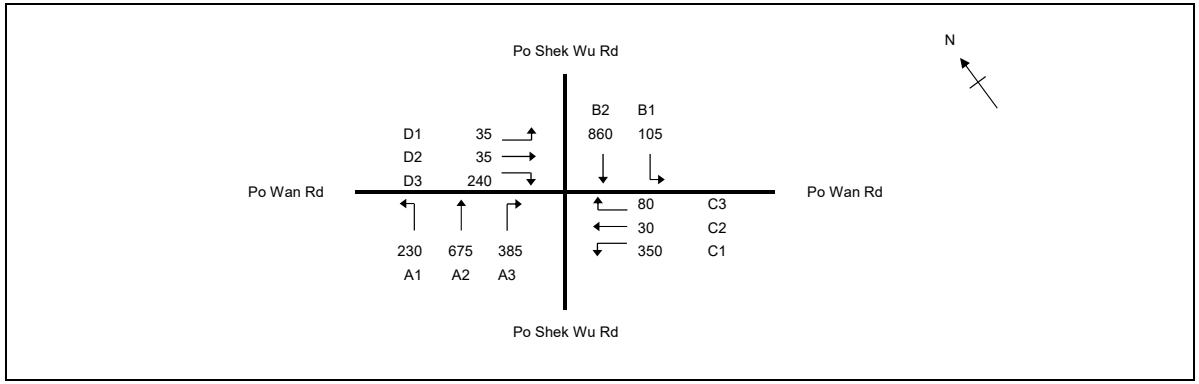
OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
		PROJECT NO.	287082
J12 - Po Shek Wu Road / Jockey Club Road	J12_2031_DES_PM	DATE 16/12/2024	



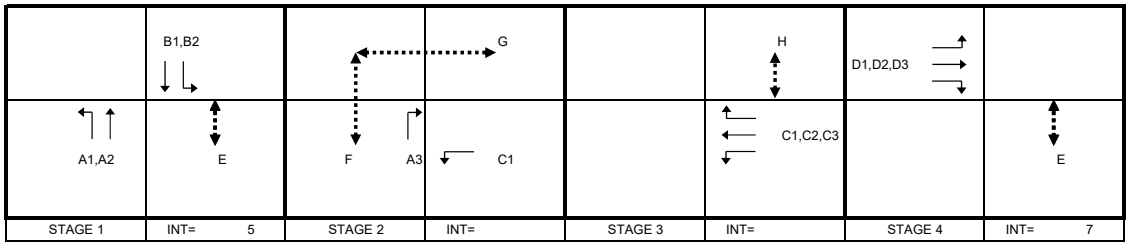


ARM			A	B	C			
INPUT PARAMETERS:								
V	=	Approach half width (m)	7.50	7.00	7.50			
E	=	Entry width (m)	10.50	10.50	10.00			
L	=	Effective length of flare (m)	10	10	10			
R	=	Entry radius (m)	10	90	100			
D	=	Inscribed circle diameter (m)	40	40	40			
A	=	Entry angle (degree)	30	20	10			
Q	=	Entry flow (pcu/h)	640	1430	1650			
Qc	=	Circulating flow across entry (pcu/h)	1425	195	305			
OUTPUT PARAMETERS:								
S	=	Sharpness of flare = 1.6(E-V)/L	0.48	0.56	0.40			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	0.95	1.07	1.11			
X2	=	V + ((E-V)/(1+2S))	9.03	8.65	8.89			
M	=	EXP((D-60)/10)	0.14	0.14	0.14			
F	=	303*X2	2736	2621	2693			
Td	=	1+(0.5/(1+M))	1.44	1.44	1.44			
Fc	=	0.21*Td(1+0.2*X2)	0.85	0.83	0.84			
Qe	=	K(F-Fc*Qc)	1452	2639	2702	**Total In Sum =**	**3720**	**PCU**
DFC	=	Design flow/Capacity = Q/Qe	0.45	0.55	0.62	**DFC of Critical Approach =**	**0.62**	

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO:	Junction No. J13
J13 - Po Shek Wu Road / Po Wan Road	J13_2023_EXT_AM	DATE : 16/12/2024	FILENAME :



No. of stages per cycle	N =	4
No. of stage using for calculation	N =	2
Cycle time	C =	128 sec
Sum(y)	Y =	0.324
Loss time	L =	62 sec
Total Flow	=	3025 pcu
Co = (1.5*L+5)/(1-Y)	=	145.0 sec
Cm = L/(1-Y)	=	91.8 sec
Yult	=	0.435
R.C.ult = (Yult-Y)/Y*100%	=	34.1 %
Cp = 0.9*L/(0.9-Y)	=	96.9 sec
Ymax = 1-L/C	=	0.516
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	43 %

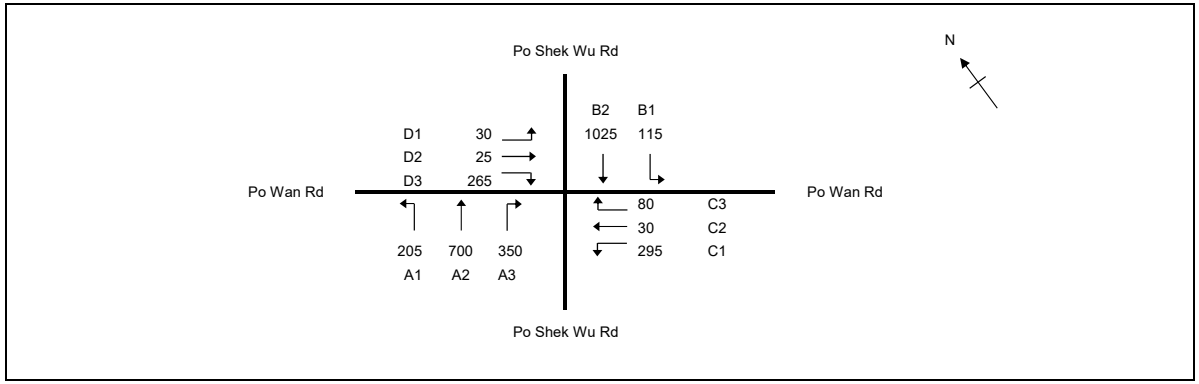


Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
E	8	6	2	9	64	2	9	OK
F	8	7	6	7	15	6	7	OK
G	12	10	6	12	10	6	12	OK
H	7	6	10	8	6	10	8	OK

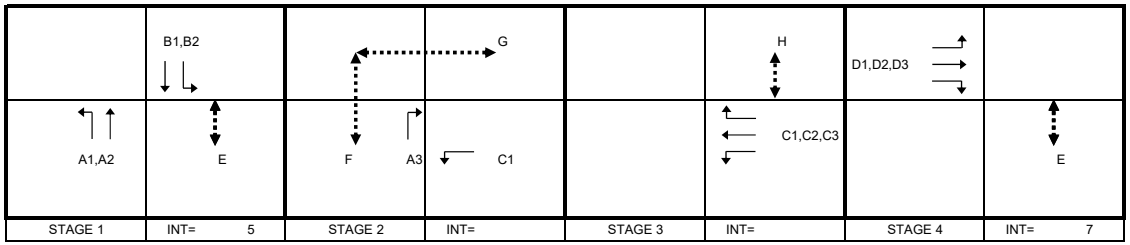
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				10				
A1	1	3.30	A	1	15		N	1945	230			230	1.00	1768			1768	0.130	0.202		26	41	0.406	33
A2	1	3.30	A	2				4170		675		675	0.00	4170			4170	0.162			33	41	0.505	49
B1	1	3.70	B	1	15			2125	105			105	1.00	1932			1932	0.054			11	41	0.170	15
B2	1	3.70	A	2				4250		860		860	0.00	4250			4250	0.202			41	41	0.632	62
A3	2	3.30	A	2	15			4170			385	385	1.00	3791			3791	0.102			21	23	0.565	34
C1	2,3	3.50	B	1	15		N	1965	350			350	1.00	1786			1786	0.196			40	44	0.570	49
C2,C3	3	3.30	C,D	1	20			2085		30	80	110	0.73	1977			1977	0.056			11	18	0.396	20
D1,D2	4	3.30	D	1	15		N	1945	35	35		70	0.50	1852			1852	0.038	0.122		8	25	0.193	12
D3	4	3.30	E	1	25			2085			240	240	1.00	1967			1967	0.122			25	25	0.625	41
PED	2		G																	28				
PED	3		H																	24				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO:	Junction No. J13
J13 - Po Shek Wu Road / Po Wan Road	J13_2023_EXT_PM	DATE : 16/12/2024	FILENAME :



No. of stages per cycle	N =	4
No. of stage using for calculation	N =	2
Cycle time	C =	128 sec
Sum(y)	Y =	0.376
Loss time	L =	62 sec
Total Flow	=	3120 pcu
Co = (1.5*L+5)/(1-Y)	=	157.0 sec
Cm = L/(1-Y)	=	99.3 sec
Yult	=	0.435
R.C.ult = (Yult-Y)/Y*100%	=	15.7 %
Cp = 0.9*L/(0.9-Y)	=	106.5 sec
Ymax = 1-L/C	=	0.516
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	23 %

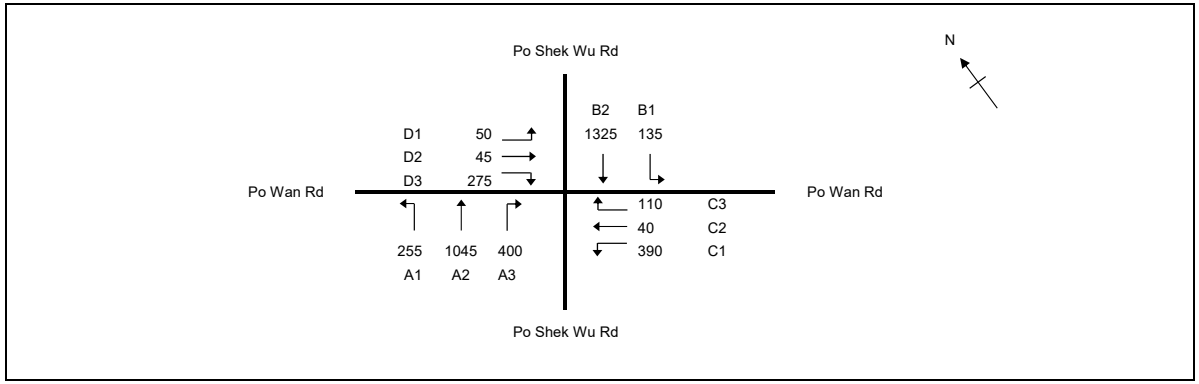


Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
E	8	6	2	9	64	2	9	OK
F	8	7	6	7	15	6	7	OK
G	12	10	6	12	10	6	12	OK
H	7	6	10	8	6	10	8	OK

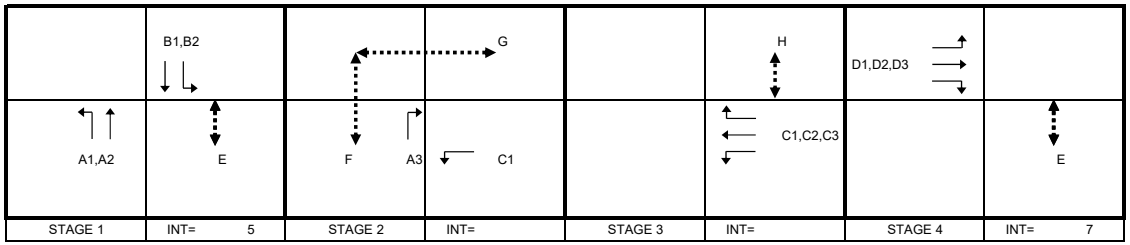
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				10				
A1	1	3.30	A	1	15		N	1945	205			205	1.00	1768			1768	0.116	0.241		20	42	0.353	29
A2	1	3.30	A	2				4170		700		700	0.00	4170			4170	0.168			29	42	0.512	50
B1	1	3.70	B	1	15			2125	115			115	1.00	1932			1932	0.060			10	42	0.181	16
B2	1	3.70	A	2				4250		1025		1025	0.00	4250			4250	0.241			42	42	0.735	73
A3	2	3.30	A	2	15			4170			350	350	1.00	3791			3791	0.092			16	23	0.514	31
C1	2,3	3.50	B	1	15		N	1965	295			295	1.00	1786			1786	0.165			29	44	0.480	41
C2,C3	3	3.30	C,D	1	20			2085		30	80	110	0.73	1977			1977	0.056			10	18	0.396	20
D1,D2	4	3.30	D	1	15		N	1945	30	25		55	0.55	1844			1844	0.030	0.135		5	24	0.159	10
D3	4	3.30	E	1	25			2085			265	265	1.00	1967			1967	0.135			24	24	0.719	46
PED	2		G																	28				
PED	3		H																	24				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO:	Junction No. J13
J13 - Po Shek Wu Road / Po Wan Road		DATE : 16/12/2024	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	2
Cycle time		C =	128 sec
Sum(y)		Y =	0.349
Loss time		L =	62 sec
Total Flow		=	4070 pcu
Co	= (1.5*L+5)/(1-Y)	=	150.5 sec
Cm	= L/(1-Y)	=	95.2 sec
Yult		=	0.435
R.C.ult	= (Yult-Y)/Y*100%	=	24.7 %
Cp	= 0.9*L/(0.9-Y)	=	101.3 sec
Ymax	= 1-L/C	=	0.516
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	32 %

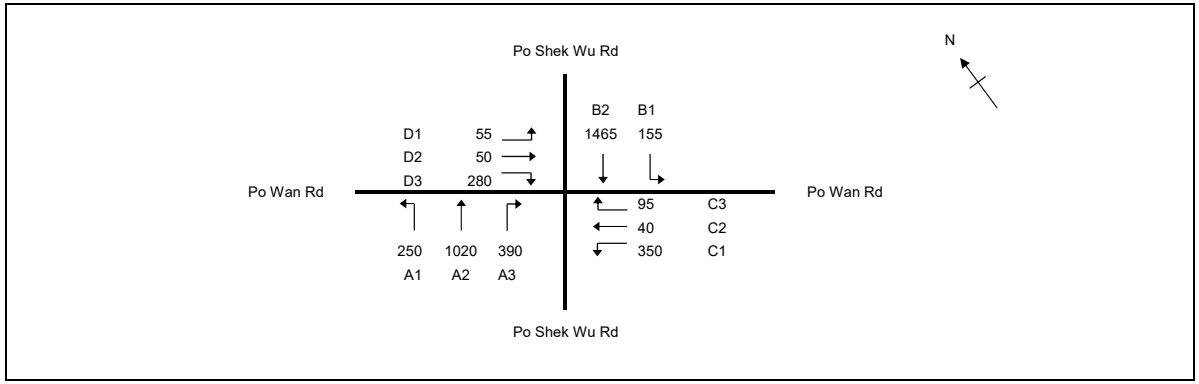


Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
E	8	6	2	9	65	2	9	OK
F	8	7	6	7	15	6	7	OK
G	12	10	6	12	10	6	12	OK
H	7	6	10	8	6	10	8	OK

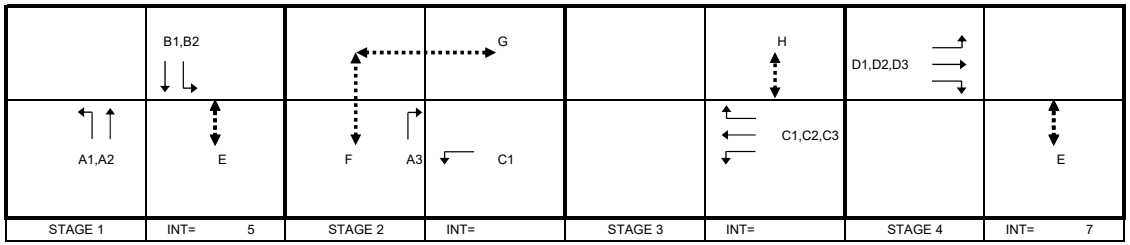
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				10				
A1	1	3.30	A	1	15		N	1945	255			255	1.00	1768			1768	0.144	0.251		27	47	0.389	34
A1,A2	1	3.30	A	1	20			2085	0	522		522	0.00	2085			2085	0.250			47	47	0.675	70
A2	1	3.30	A	1				2085		523		523	0.00	2085			2085	0.251			47	47	0.677	70
B1,B2	1	3.70	A	1	15			2125	135	343		478	0.28	2067			2067	0.231			44	47	0.624	64
B2	1	3.70	A	2				4250		982		982	0.00	4250			4250	0.231			44	47	0.623	66
A3	2	3.30	B	2	20			4170			400	400	1.00	3879			3879	0.103			20	23	0.574	35
C1	2,3	3.30	C,D	1	15		N	1945	390			390	1.00	1768			1768	0.221			42	44	0.642	55
C2,C3	3	3.30	D	1	20			2085		40	110	150	0.73	1976			1976	0.076			14	18	0.540	28
D1,D2,D3	4	3.30	E	1	15		N	1945	50	45	82	177	0.75	1810			1810	0.098	0.098		18	19	0.674	32
D3	4	3.30	E	1	25			2085			193	193	1.00	1967			1967	0.098			19	19	0.677	35
PED	2		G																	28				
PED	3		H																	24				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO:	Junction No. J13
J13 - Po Shek Wu Road / Po Wan Road	J13_2031_REF_PM	DATE : 16/12/2024	FILENAME :



No. of stages per cycle	N =	4
No. of stage using for calculation	N =	2
Cycle time	C =	128 sec
Sum(y)	Y =	0.359
Loss time	L =	62 sec
Total Flow	=	4150 pcu
Co = (1.5*L+5)/(1-Y)	=	152.8 sec
Cm = L/(1-Y)	=	96.7 sec
Yult	=	0.435
R.C.ult = (Yult-Y)/Y*100%	=	21.3 %
Cp = 0.9*L/(0.9-Y)	=	103.1 sec
Ymax = 1-L/C	=	0.516
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	29 %

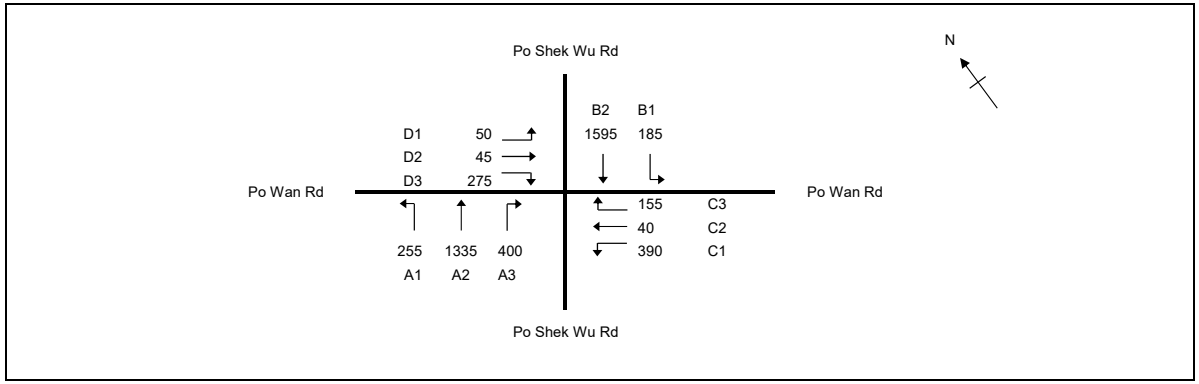


Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
E	8	6	2	9	65	2	9	OK
F	8	7	6	7	15	6	7	OK
G	12	10	6	12	10	6	12	OK
H	7	6	10	8	6	10	8	OK

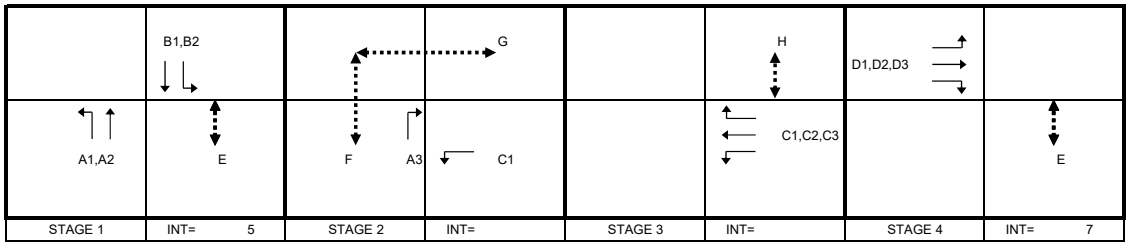
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				10				
A1	1	3.30	A	1	15		N	1945	250			250	1.00	1768			1768	0.141	0.257		26	47	0.383	34
A1,A2	1	3.30	A	1	20			2085	0	510		510	0.00	2085			2085	0.245			45	47	0.663	69
A2	1	3.30	A	1				2085		510		510	0.00	2085			2085	0.245			45	47	0.663	69
B1,B2	1	3.70	A	1	15			2125	155	375		530	0.29	2065			2065	0.257			47	47	0.696	71
B2	1	3.70	A	2				4250		1090		1090	0.00	4250			4250	0.256			47	47	0.695	73
A3	2	3.30	B	2	20			4170			390	390	1.00	3879			3879	0.101			18	23	0.560	34
C1	2,3	3.30	C,D	1	15		N	1945	350			350	1.00	1768			1768	0.198			36	44	0.576	49
C2,C3	3	3.30	D	1	20			2085		40	95	135	0.70	1980			1980	0.068			13	18	0.485	25
D1,D2,D3	4	3.30	E	1	15		N	1945	55	50	80	185	0.73	1813			1813	0.102	0.102		19	19	0.696	34
D3	4	3.30	E	1	25			2085			200	200	1.00	1967			1967	0.102			19	19	0.693	36
PED	2		G																	28				
PED	3		H																	24				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO:	Junction No. J13
J13 - Po Shek Wu Road / Po Wan Road		DATE : 16/12/2024	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	2
Cycle time		C =	128 sec
Sum(y)		Y =	0.419
Loss time		L =	62 sec
Total Flow		=	4725 pcu
Co	= (1.5*L+5)/(1-Y)	=	168.5 sec
Cm	= L/(1-Y)	=	106.6 sec
Yult		=	0.435
R.C.ult	= (Yult-Y)/Y*100%	=	3.9 %
Cp	= 0.9*L/(0.9-Y)	=	115.9 sec
Ymax	= 1-L/C	=	0.516
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	10 %

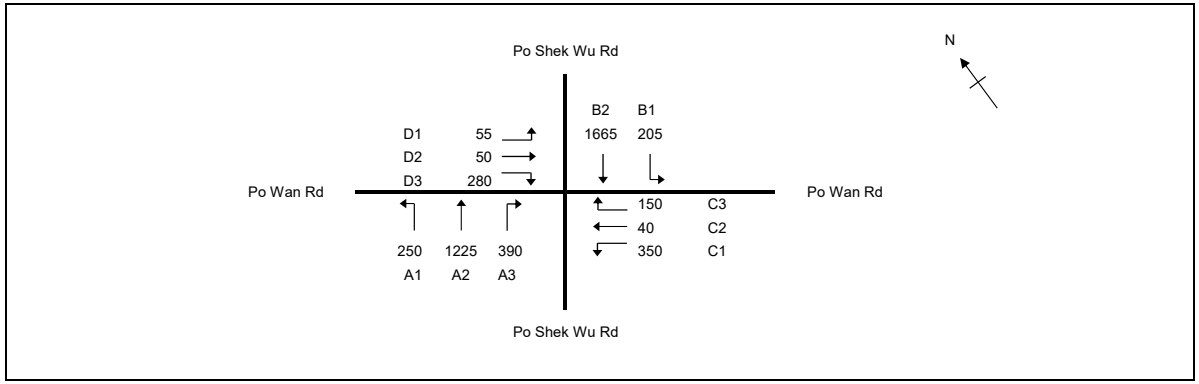


Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
E	8	6	2	9	65	2	9	OK
F	8	7	6	7	15	6	7	OK
G	12	10	6	12	10	6	12	OK
H	7	6	10	8	6	10	8	OK

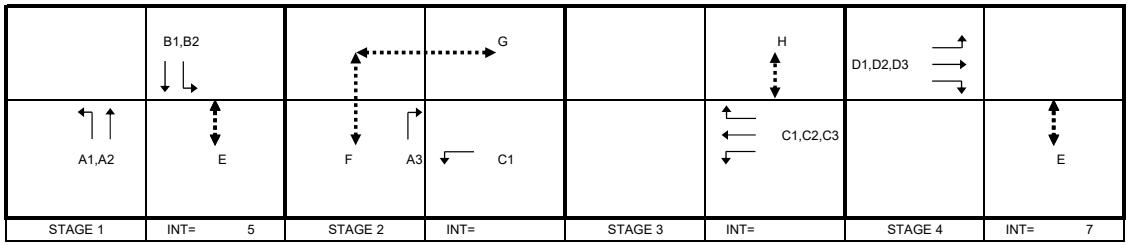
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				10				
A1	1	3.30	A	1	15		N	1945	255			255	1.00	1768			1768	0.144	0.320		23	51	0.365	33
A1,A2	1	3.30	A	1	20			2085	0	667		667	0.00	2085			2085	0.320			50	51	0.810	86
A2	1	3.30	A	1				2085		668		668	0.00	2085			2085	0.320			51	51	0.812	86
B1,B2	1	3.70	A	1	15			2125	185	398		583	0.32	2060			2060	0.283			45	51	0.717	75
B2	1	3.70	A	2				4250		1197		1197	0.00	4250			4250	0.282			44	51	0.714	77
A3	2	3.30	B	2	20			4170			400	400	1.00	3879			3879	0.103			16	23	0.574	35
C1	2,3	3.30	C,D	1	15		N	1945	390			390	1.00	1768			1768	0.221			35	44	0.642	55
C2,C3	3	3.30	D	1	20			2085		40	155	195	0.79	1968			1968	0.099			16	18	0.705	36
D1,D2,D3	4	3.30	E	1	15		N	1945	50	45	82	177	0.75	1810			1810	0.098	0.098		15	15	0.809	33
D3	4	3.30	E	1	25			2085			193	193	1.00	1967			1967	0.098			15	15	0.812	36
PED	2		G																	28				
PED	3		H																	24				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO:	Junction No. J13
J13 - Po Shek Wu Road / Po Wan Road	J13_2031_DES_PM	DATE : 16/12/2024	FILENAME :



No. of stages per cycle	N =	4
No. of stage using for calculation	N =	2
Cycle time	C =	128 sec
Sum(y)	Y =	0.399
Loss time	L =	62 sec
Total Flow	=	4660 pcu
Co = (1.5*L+5)/(1-Y)	=	163.0 sec
Cm = L/(1-Y)	=	103.1 sec
Yult	=	0.435
R.C.ult = (Yult-Y)/Y*100%	=	9.1 %
Cp = 0.9*L/(0.9-Y)	=	111.3 sec
Ymax = 1-L/C	=	0.516
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	16 %

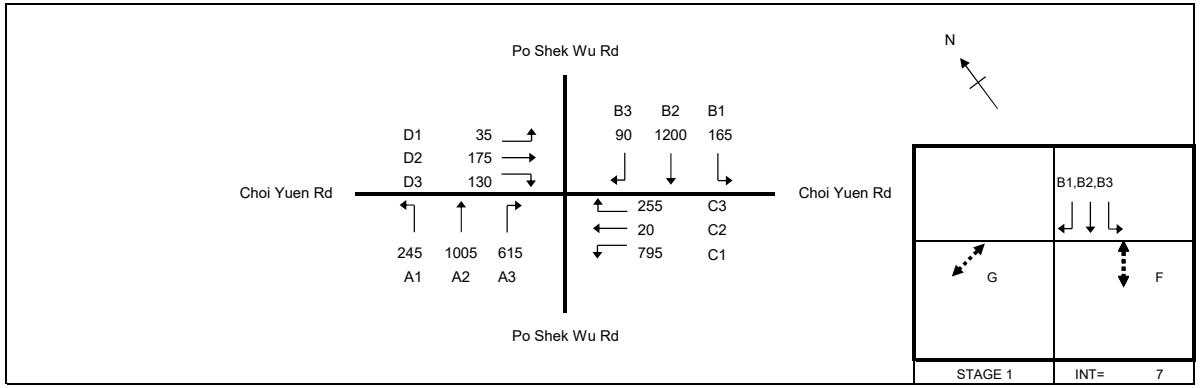


Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
E	8	6	2	9	65	2	9	OK
F	8	7	6	7	15	6	7	OK
G	12	10	6	12	10	6	12	OK
H	7	6	10	8	6	10	8	OK

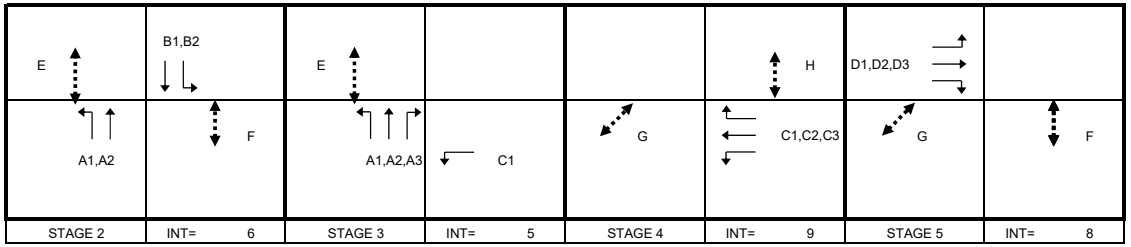
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				10				
A1	1	3.30	A	1	15		N	1945	250			250	1.00	1768			1768	0.141	0.297		23	49	0.369	33
A1,A2	1	3.30	A	1	20			2085	0	612		612	0.00	2085			2085	0.294			49	49	0.765	80
A2	1	3.30	A	1				2085		613		613	0.00	2085			2085	0.294			49	49	0.766	81
B1,B2	1	3.70	A	1	15			2125	205	405		610	0.34	2056			2056	0.297			49	49	0.773	80
B2	1	3.70	A	2				4250		1260		1260	0.00	4250			4250	0.296			49	49	0.773	83
A3	2	3.30	B	2	20			4170			390	390	1.00	3879			3879	0.101			17	23	0.560	34
C1	2,3	3.30	C,D	1	15		N	1945	350			350	1.00	1768			1768	0.198			33	44	0.576	49
C2,C3	3	3.30	D	1	20			2085		40	150	190	0.79	1968			1968	0.097			16	18	0.686	35
D1,D2,D3	4	3.30	E	1	15		N	1945	55	50	80	185	0.73	1813			1813	0.102	0.102		17	17	0.773	34
D3	4	3.30	E	1	25			2085			200	200	1.00	1967			1967	0.102			17	17	0.770	37
PED	2		G																	28				
PED	3		H																	24				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J14
J14 - Po Shek Wu Road / Choi Yuen Road	J14_2023_EXT_AM	DATE : 16/12/2024	FILENAME :



No. of stages per cycle		N =	5
No. of stage using for calculation		N =	4
Cycle time		C =	135 sec
Sum(y)		Y =	0.546
Loss time		L =	24 sec
Total Flow		=	4730 pcu
Co	= (1.5*L+5)/(1-Y)	=	90.3 sec
Cm	= L/(1-Y)	=	52.9 sec
Yult		=	0.720
R.C.ult	= (Yult-Y)/Y*100%	=	31.9 %
Cp	= 0.9*L/(0.9-Y)	=	61.0 sec
Ymax	= 1-L/C	=	0.822
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	36 %

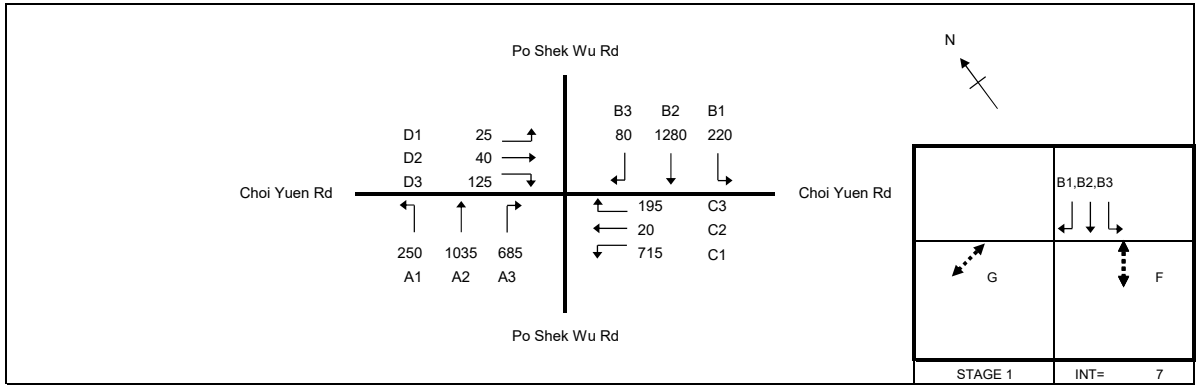


Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
E	15	13	8	15	41	8	15	OK
F	14	6	1	16	45	1	16	OK
G	5.5	6	1	6	64	1	6	OK
H	11	6	10	12	16	10	12	OK

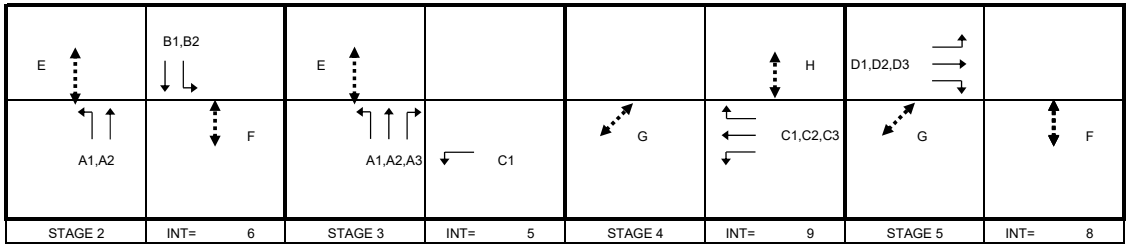
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				24				
A1,A2	2,3	3.50	D	1	15		N	1965	245	417		662	0.37	1895		474	2369	0.279			57	60	0.627	83
A2	2,3	3.50	D	1				2105		588		588	0.00	2105			2105	0.279			57	60	0.626	73
A3	3	3.50	D	2	20			4210			615	615	1.00	3916			3916	0.157	0.157		32	32	0.664	53
C1	3,4	3.30	F,G	2	15		N	4030	795			795	1.00	3664			3664	0.217			44	65	0.453	47
C2,C3	4	3.30	G	1	20			2085		20	255	275	0.93	1949			1949	0.141	0.141		29	29	0.664	49
D1,D2	5	3.30	H	1	15		N	1945	35	74		109	0.32	1884			1884	0.058	0.058		12	12	0.664	22
D2,D3	5	3.30	H	1	25			2085		101	18	119	0.15	2066			2066	0.058			12	12	0.661	24
D3	5	3.30	H	1	20			2085			112	112	1.00	1940			1940	0.058			12	12	0.663	23
B1	1,2	3.50	B	1	15		N	1965	165			165	1.00	1786			1786	0.092			19	39	0.323	27
B2	1,2	3.50	B	3				6315		1200		1200	0.00	6315			6315	0.190	0.190		39	39	0.664	64
B3	1	3.50	A	1	20			2105			90	90	1.00	1958			1958	0.046			9	9	0.664	19

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J14
J14 - Po Shek Wu Road / Choi Yuen Road	J14_2023_EXT_PM	DATE : 16/12/2024	FILENAME :



No. of stages per cycle		N =	5
No. of stage using for calculation		N =	4
Cycle time		C =	135 sec
Sum(y)		Y =	0.521
Loss time		L =	24 sec
Total Flow		=	4670 pcu
Co	= (1.5*L+5)/(1-Y)	=	85.5 sec
Cm	= L/(1-Y)	=	50.1 sec
Yult		=	0.720
R.C.ult	= (Yult-Y)/Y*100%	=	38.3 %
Cp	= 0.9*L/(0.9-Y)	=	57.0 sec
Ymax	= 1-L/C	=	0.822
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	42 %

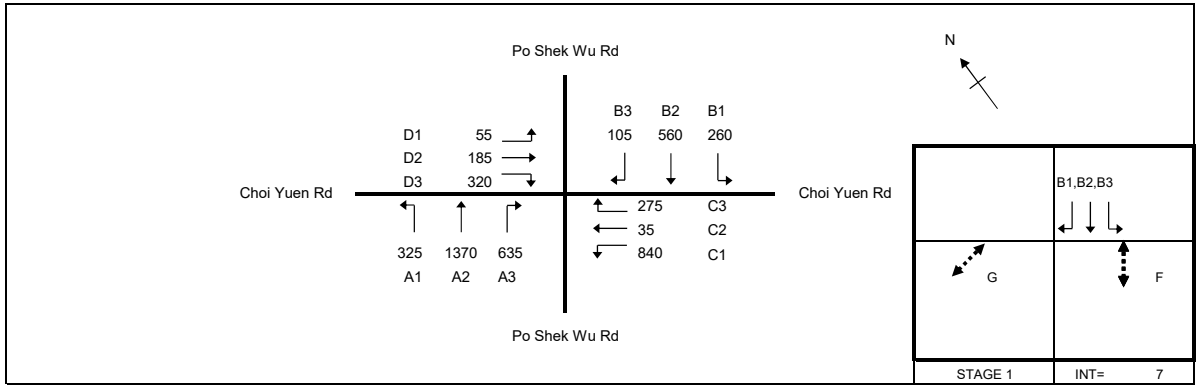


Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
E	15	13	8	15	52	8	15	OK
F	14	6	1	16	45	1	16	OK
G	5.5	6	1	6	53	1	6	OK
H	11	6	10	12	10	10	12	OK

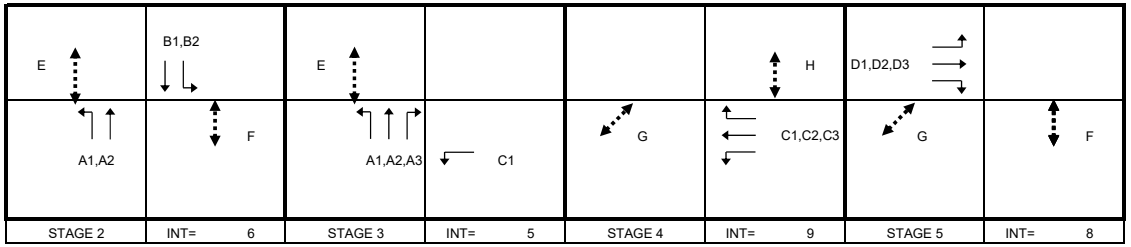
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				24				
A1,A2	2,3	3.50	D	1	15		N	1965	250	430		680	0.37	1895		474	2369	0.287			61	71	0.547	73
A2	2,3	3.50	D	1				2105		605		605	0.00	2105			2105	0.287			61	71	0.548	65
A3	3	3.50	D	2	20			4210			685	685	1.00	3916			3916	0.175	0.175		37	37	0.633	56
C1	3,4	3.30	F,G	2	15		N	4030	715			715	1.00	3664			3664	0.195			42	65	0.407	42
C2,C3	4	3.30	G	1	20			2085		20	195	215	0.91	1952			1952	0.110	0.110		23	23	0.633	40
D1,D2	5	3.30	H	1	15		N	1945	25	36		61	0.41	1868			1868	0.033	0.033		7	7	0.627	13
D2,D3	5	3.30	H	1	25			2085		4	61	65	0.94	1974			1974	0.033			7	7	0.632	14
D3	5	3.30	H	1	20			2085			64	64	1.00	1940			1940	0.033			7	7	0.633	14
B1	1,2	3.50	B	1	15		N	1965	220			220	1.00	1786			1786	0.123			26	43	0.385	34
B2	1,2	3.50	B	3				6315		1280		1280	0.00	6315			6315	0.203	0.203		43	43	0.633	65
B3	1	3.50	A	1	20			2105			80	80	1.00	1958			1958	0.041			9	9	0.633	17

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS		TRAFFIC SIGNAL CALCULATION		
			PROJECT NO: 287082	Junction No. J14
J14 - Po Shek Wu Road / Choi Yuen Road		J14_2031_REF_AM	DATE : 16/12/2024	FILENAME :



No. of stages per cycle	N =	5
No. of stage using for calculation	N =	4
Cycle time	C =	135 sec
Sum(y)	Y =	0.556
Loss time	L =	24 sec
Total Flow	=	4965 pcu
Co = (1.5*L+5)/(1-Y)	=	92.4 sec
Cm = L/(1-Y)	=	54.1 sec
Yult	=	0.720
R.C.ult = (Yult-Y)/Y*100%	=	29.4 %
Cp = 0.9*L/(0.9-Y)	=	62.9 sec
Ymax = 1-L/C	=	0.822
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	33 %

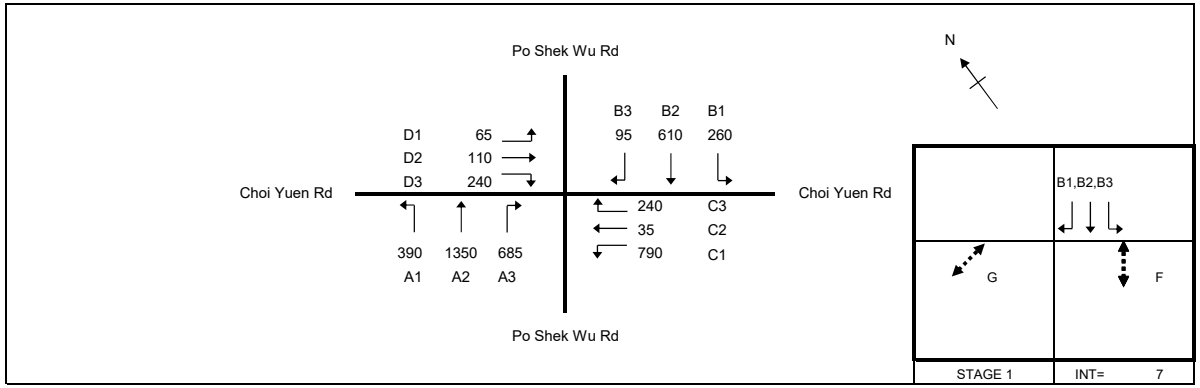


Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
E	15	13	8	15	29	8	15	OK
F	14	6	1	16	42	1	16	OK
G	5.5	6	1	6	76	1	6	OK
H	11	6	10	12	19	10	12	OK

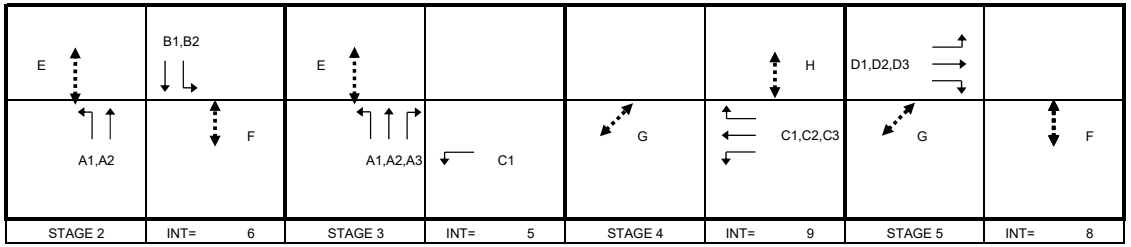
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				24				
A1,A2	2,3	3.60	D	1	15		N	1975	325	325		650	0.50	1881		752	2633	0.247			49	48	0.689	94
A2	2,3	3.60	D	2				4230		1045		1045	0.00	4230			4230	0.247			49	48	0.689	75
A3	3	3.60	D	2	20			4230			635	635	1.00	3935			3935	0.161	0.161		32	32	0.677	54
C1	3,4	3.30	F,G	2	15		N	4030	840			840	1.00	3664			3664	0.229			46	68	0.456	47
C2,C3	4	3.30	G	1	20			2085		35	275	310	0.89	1955			1955	0.159	0.159		32	32	0.677	53
D1,D2	5	3.30	H	1	15		N	1945	55	127		182	0.30	1888			1888	0.096	0.096		19	19	0.677	35
D2,D3	5	3.30	H	1	25			2085		58	134	192	0.70	2001			2001	0.096			19	19	0.673	37
D3	5	3.30	H	1	20			2085			186	186	1.00	1940			1940	0.096			19	19	0.673	36
B1	1,2	3.40	B	1	10		N	1955	238			238	1.00	1700			1700	0.140	0.140		28	28	0.677	42
B1,B2	1,2	3.40	B	1	10			2095	22	267		289	0.08	2071			2071	0.140			28	28	0.675	52
B2	1,2	3.40	B	1				2095		293		293	0.00	2095			2095	0.140			28	28	0.676	52
B3	1	3.40	A	1	20			2095			105	105	1.00	1949			1949	0.054			11	11	0.677	22

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J14
J14 - Po Shek Wu Road / Choi Yuen Road	J14_2031_REF_PM	DATE : 16/12/2024	FILENAME :



No. of stages per cycle		N =	5
No. of stage using for calculation		N =	4
Cycle time		C =	135 sec
Sum(y)		Y =	0.534
Loss time		L =	24 sec
Total Flow		=	4870 pcu
Co	= (1.5*L+5)/(1-Y)	=	88.1 sec
Cm	= L/(1-Y)	=	51.6 sec
Yult		=	0.720
R.C.ult	= (Yult-Y)/Y*100%	=	34.7 %
Cp	= 0.9*L/(0.9-Y)	=	59.1 sec
Ymax	= 1-L/C	=	0.822
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	38 %

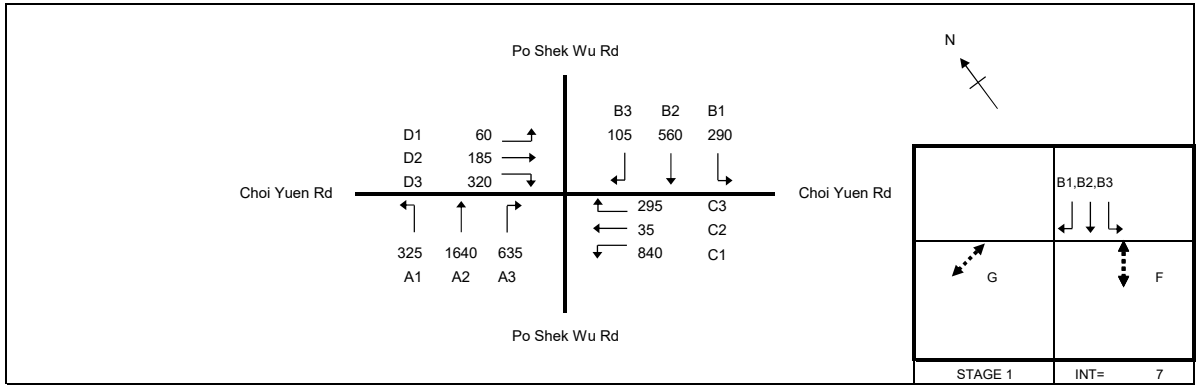


Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
E	15	13	8	15	37	8	15	OK
F	14	6	1	16	41	1	16	OK
G	5.5	6	1	6	68	1	6	OK
H	11	6	10	12	16	10	12	OK

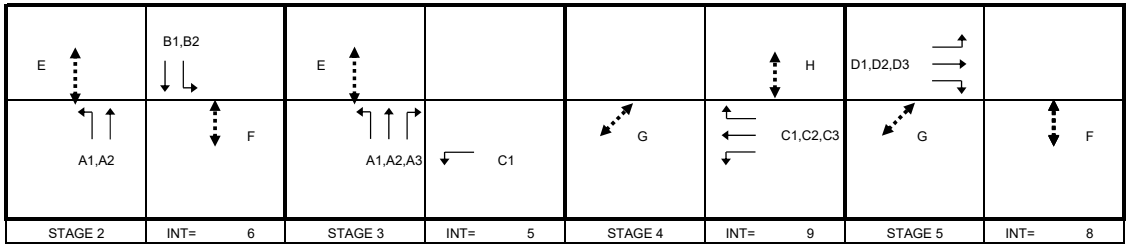
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				24				
A1,A2	2,3	3.60	D	1	15		N	1975	390	274		664	0.59	1865		746	2612	0.254			53	56	0.615	88
A2	2,3	3.60	D	2				4230		1076		1076	0.00	4230			4230	0.254			53	56	0.615	71
A3	3	3.60	D	2	20			4230			685	685	1.00	3935			3935	0.174	0.174		36	36	0.650	56
C1	3,4	3.30	F,G	2	15		N	4030	790			790	1.00	3664			3664	0.216			45	69	0.420	43
C2,C3	4	3.30	G	1	20			2085		35	240	275	0.87	1957			1957	0.141	0.141		29	29	0.650	48
D1,D2	5	3.30	H	1	15		N	1945	65	68		133	0.49	1854			1854	0.072	0.072		15	15	0.650	27
D2,D3	5	3.30	H	1	25			2085		42	101	143	0.71	2000			2000	0.071			15	15	0.648	29
D3	5	3.30	H	1	20			2085			139	139	1.00	1940			1940	0.072			15	15	0.650	28
B1	1,2	3.40	B	1	10		N	1955	251			251	1.00	1700			1700	0.148	0.148		31	31	0.648	44
B1,B2	1,2	3.40	B	1	10			2095	9	300		309	0.03	2086			2086	0.148			31	31	0.650	54
B2	1,2	3.40	B	1				2095		310		310	0.00	2095			2095	0.148			31	31	0.649	54
B3	1	3.40	A	1	20			2095			95	95	1.00	1949			1949	0.049			10	10	0.650	20

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J14
J14 - Po Shek Wu Road / Choi Yuen Road	J14_2031_DES_AM	DATE : 16/12/2024	FILENAME :



No. of stages per cycle		N =	5
No. of stage using for calculation		N =	4
Cycle time		C =	135 sec
Sum(y)		Y =	0.606
Loss time		L =	25 sec
Total Flow		=	5290 pcu
Co	= (1.5*L+5)/(1-Y)	=	107.7 sec
Cm	= L/(1-Y)	=	63.4 sec
Yult		=	0.713
R.C.ult	= (Yult-Y)/Y*100%	=	17.7 %
Cp	= 0.9*L/(0.9-Y)	=	76.4 sec
Ymax	= 1-L/C	=	0.815
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	21 %

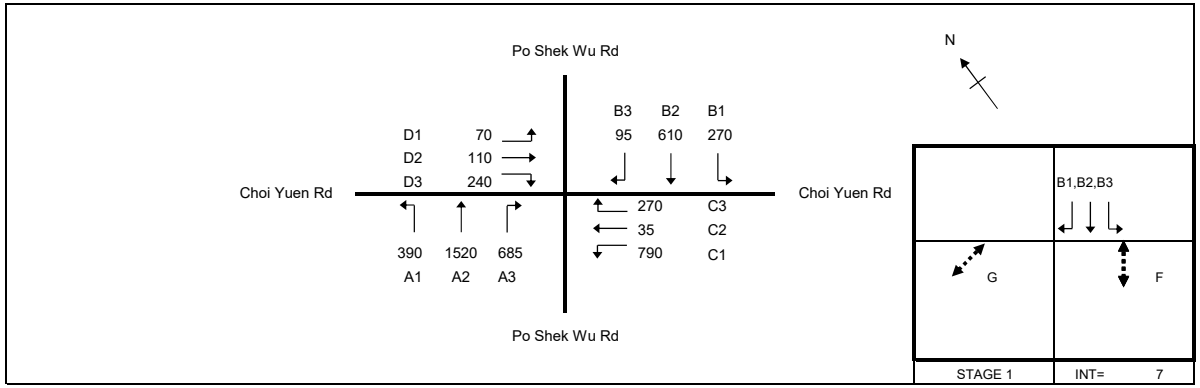


Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
E	15	13	8	15	35	8	15	OK
F	14	6	1	16	49	1	16	OK
G	5.5	6	1	6	70	1	6	OK
H	11	6	10	12	14	10	12	OK

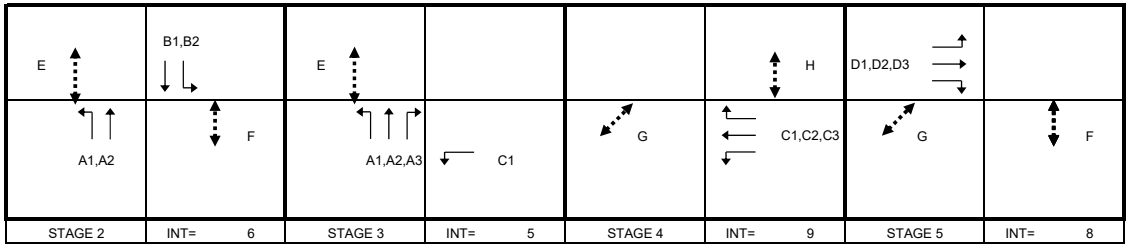
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				25				
A1,A2	2,3	3.60	D	1	15		N	1975	325	432		757	0.43	1894		757	2651	0.286	0.286		52	52	0.743	105
A2	2,3	3.60	D	2				4230		1208		1208	0.00	4230			4230	0.286			52	52	0.743	84
A3	3	3.60	D	2	20			4230			635	635	1.00	3935			3935	0.161			29	29	0.743	56
C1	3,4	3.30	F,G	2	15		N	4030	840			840	1.00	3664			3664	0.229			42	62	0.499	51
C2,C3	4	3.30	G	1	20			2085		35	295	330	0.89	1954			1954	0.169	0.169		31	31	0.743	57
D1,D2	5	3.30	H	1	15		N	1945	60	123		183	0.33	1883			1883	0.097	0.097		18	18	0.743	36
D2,D3	5	3.30	H	1	25			2085		62	132	194	0.68	2003			2003	0.097			18	18	0.741	38
D3	5	3.30	H	1	20			2085			188	188	1.00	1940			1940	0.097			18	18	0.741	37
B1	1,2	3.40	B	1	10		N	1955	244			244	1.00	1700			1700	0.144			26	33	0.581	41
B1,B2	1,2	3.40	B	1	10			2095	46	253		299	0.15	2048			2048	0.146			27	33	0.591	51
B2	1,2	3.40	B	1				2095		307		307	0.00	2095			2095	0.147			27	33	0.593	52
B3	1	3.40	A	1	20			2095			105	105	1.00	1949			1949	0.054	0.054		10	10	0.743	22

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS		TRAFFIC SIGNAL CALCULATION		
			PROJECT NO: 287082	Junction No. J14
J14 - Po Shek Wu Road / Choi Yuen Road		J14_2031_DES_PM	DATE : 16/12/2024	FILENAME :



No. of stages per cycle	N =	5
No. of stage using for calculation	N =	4
Cycle time	C =	135 sec
Sum(y)	Y =	0.556
Loss time	L =	25 sec
Total Flow	=	5085 pcu
Co = (1.5*L+5)/(1-Y)	=	95.8 sec
Cm = L/(1-Y)	=	56.3 sec
Yult	=	0.713
R.C.ult = (Yult-Y)/Y*100%	=	28.1 %
Cp = 0.9*L/(0.9-Y)	=	65.4 sec
Ymax = 1-L/C	=	0.815
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	31 %

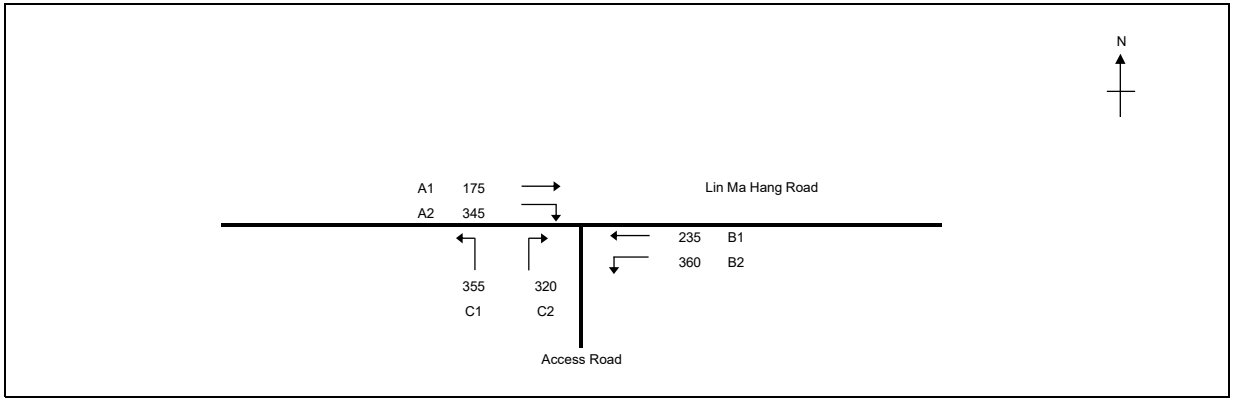


Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
E	15	13	8	15	38	8	15	OK
F	14	6	1	16	44	1	16	OK
G	5.5	6	1	6	67	1	6	OK
H	11	6	10	12	14	10	12	OK

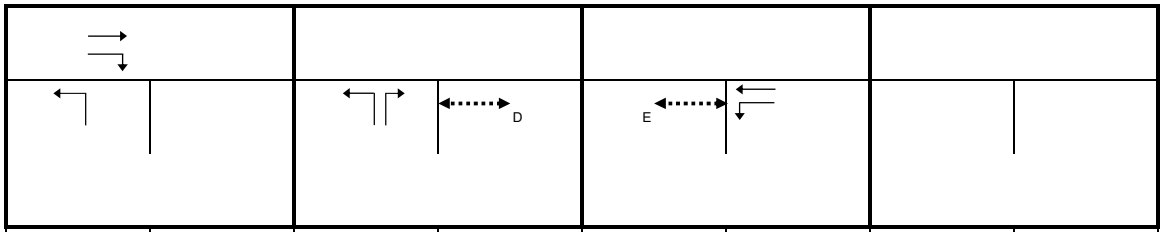
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				25				
A1,A2	2,3	3.60	D	1	15		N	1975	390	341		731	0.53	1875		750	2625	0.278	0.279		55	55	0.682	97
A2	2,3	3.60	D	2				4230		1179		1179	0.00	4230			4230	0.279			55	55	0.683	78
A3	3	3.60	D	2	20			4230			685	685	1.00	3935			3935	0.174			34	34	0.683	57
C1	3,4	3.30	F,G	2	15		N	4030	790			790	1.00	3664			3664	0.216			43	67	0.433	45
C2,C3	4	3.30	G	1	20			2085		35	270	305	0.89	1955			1955	0.156	0.156		31	31	0.683	53
D1,D2	5	3.30	H	1	15		N	1945	70	64		134	0.52	1848			1848	0.072	0.073		14	14	0.681	27
D2,D3	5	3.30	H	1	25			2085		46	99	145	0.68	2003			2003	0.072			14	14	0.680	29
D3	5	3.30	H	1	20			2085			141	141	1.00	1940			1940	0.073			14	14	0.683	28
B1	1,2	3.40	B	1	10		N	1955	255			255	1.00	1700			1700	0.150			30	31	0.646	44
B1,B2	1,2	3.40	B	1	10			2095	15	296		311	0.05	2080			2080	0.150			30	31	0.644	54
B2	1,2	3.40	B	1				2095		314		314	0.00	2095			2095	0.150			30	31	0.646	54
B3	1	3.40	A	1	20			2095			95	95	1.00	1949			1949	0.049	0.049		10	10	0.683	20

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO:	Junction No. J15
J15 - Ling Ma Hang Rd / Access Rd	J15_2031_DES_AM	DATE : 16-Dec-24	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	90 sec
Sum(y)		Y =	0.585
Loss time		L =	15 sec
Total Flow		=	1790 pcu
Co	= (1.5*L+5)/(1-Y)	=	66.2 sec
Cm	= L/(1-Y)	=	36.1 sec
Yult		=	0.788
R.C.ult	= (Yult-Y)/Y*100%	=	34.7 %
Cp	= 0.9*L/(0.9-Y)	=	42.8 sec
Ymax	= 1-L/C	=	0.833
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	28 %

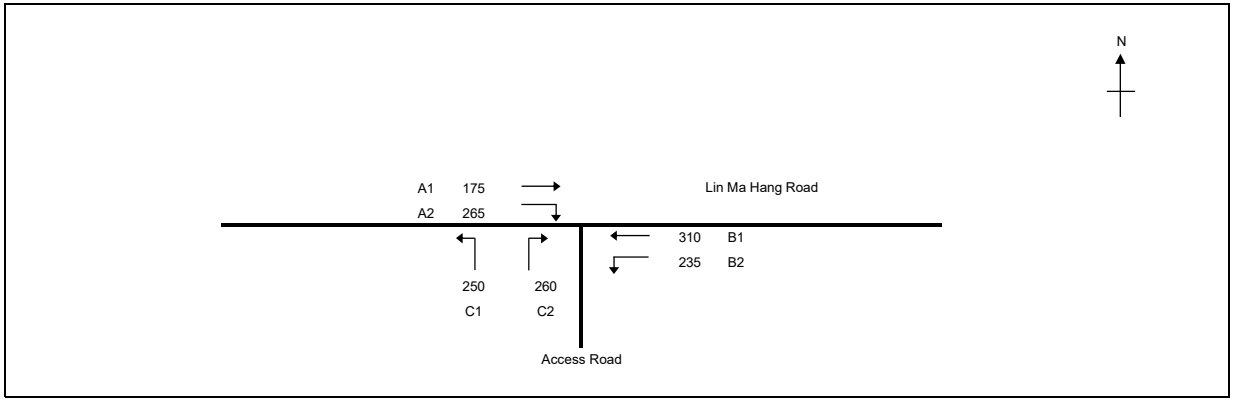


Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
D	8.5	6	6	9	11	6	9	OK
E	7.5	6	2	8	24	2	8	OK

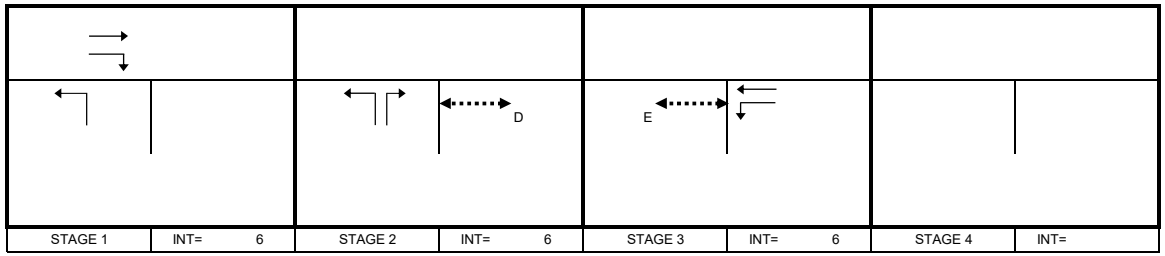
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				15				
A1,A2	1	3.50	A	1	15			2105		175	345	520	0.66	1974		790	2764	0.188	0.188		24	24	0.702	57
C1	1,2	3.50	C	1	10		N	1965	355			355	1.00	1709			1709	0.208			27	51	0.370	23
C2	2	3.50	C	1	15			2105			320	320	1.00	1914			1914	0.167	0.167		21	21	0.702	37
B1,B2	3	3.50	B	1	15		N	1965	360	235		595	0.61	1853		741	2594	0.229	0.229		29	29	0.702	60

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO:	Junction No. J15
J15 - Ling Ma Hang Rd / Access Rd	J15_2031_DES_PM	DATE : 16-Dec-24	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	90 sec
Sum(y)		Y =	0.501
Loss time		L =	15 sec
Total Flow		=	1495 pcu
Co	= (1.5*L+5)/(1-Y)	=	55.1 sec
Cm	= L/(1-Y)	=	30.0 sec
Yult		=	0.788
R.C.ult	= (Yult-Y)/Y*100%	=	57.2 %
Cp	= 0.9*L/(0.9-Y)	=	33.8 sec
Ymax	= 1-L/C	=	0.833
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	49 %



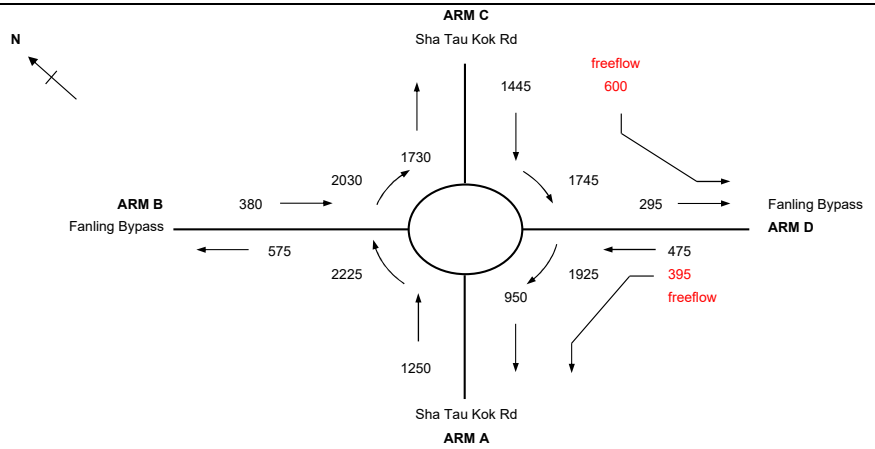
STAGE 1	INT= 6	STAGE 2	INT= 6	STAGE 3	INT= 6	STAGE 4	INT=

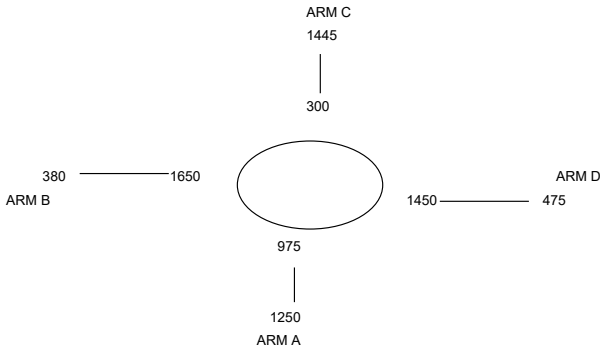
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
D	8.5	6	6	9	10	6	9	OK
E	7.5	6	2	8	26	2	8	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				15				
A1,A2	1	3.50	A	1	15			2105		175	265	440	0.60	1985		794	2780	0.158	0.158		24	24	0.601	49
C1	1,2	3.50	C	1	10		N	1965	250			250	1.00	1709			1709	0.146			22	49	0.268	17
C2	2	3.50	C	1	15			2105			260	260	1.00	1914			1914	0.136	0.136		20	20	0.601	30
B1,B2	3	3.50	B	1	15		N	1965	235	310		545	0.43	1884		754	2637	0.207	0.207		31	31	0.601	54

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

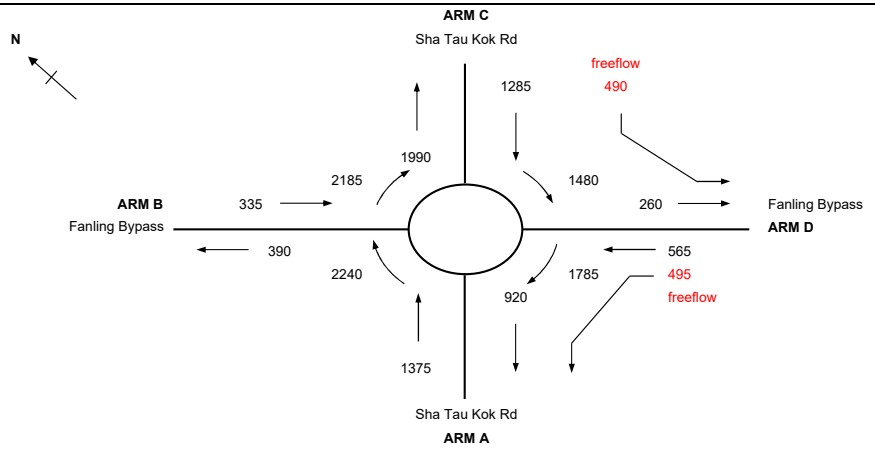
OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
			PROJECT NO. 287082
J16 - Sha Tau Kok Road / Fanling Bypass	J16_2031_REF_AM	DATE 16/12/2024	

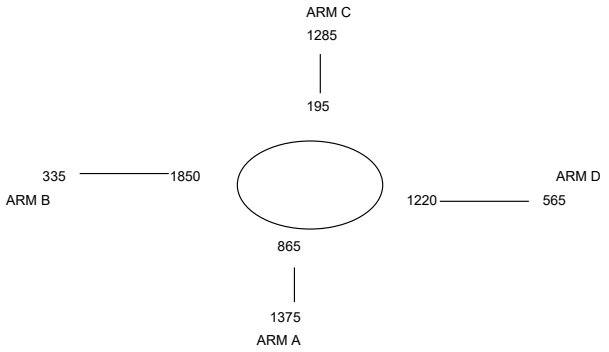




ARM			A	B	C	D			
INPUT PARAMETERS:									
V	=	Approach half width (m)	7.30	4.50	7.30	4.50			
E	=	Entry width (m)	10.00	7.00	10.00	7.00			
L	=	Effective length of flare (m)	30	10	15	25			
R	=	Entry radius (m)	50	20	20	10			
D	=	Inscribed circle diameter (m)	75	75	75	75			
A	=	Entry angle (degree)	10	25	20	25			
Q	=	Entry flow (pcu/h)	1250	380	1445	475			
Qc	=	Circulating flow across entry (pcu/h)	975	1650	300	1450			
OUTPUT PARAMETERS:									
S	=	Sharpness of flare = 1.6(E-V)/L	0.14	0.40	0.29	0.16			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.10	1.02	1.03	0.97			
X2	=	V + ((E-V)/(1+2S))	9.40	5.89	9.01	6.39			
M	=	EXP((D-60)/10)	4.48	4.48	4.48	4.48			
F	=	303*X2	2847	1784	2731	1937			
Td	=	1+(0.5/(1+M))	1.09	1.09	1.09	1.09			
Fc	=	0.21*Td(1+0.2*X2)	0.66	0.50	0.64	0.52			
Qe	=	K(F-Fc*Qc)	2421	978	2626	1143	**Total In Sum =**	**3550**	**PCU**
DFC	=	Design flow/Capacity = Q/Qe	0.52	0.39	0.56	0.42	**DFC of Critical Approach =**	**0.56**	

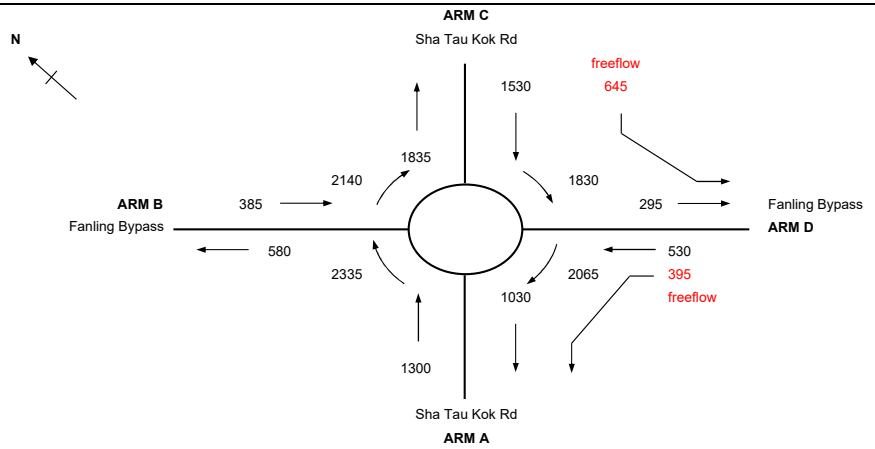
OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
			PROJECT NO. 287082
J16 - Sha Tau Kok Road / Fanling Bypass	J16_2031_REF_PM	DATE 16/12/2024	

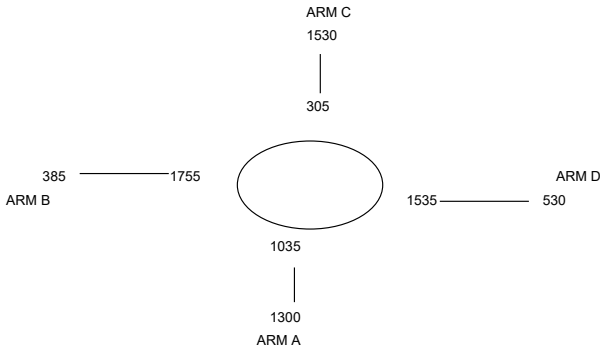




ARM			A	B	C	D			
INPUT PARAMETERS:									
V	=	Approach half width (m)	7.30	4.50	7.30	4.50			
E	=	Entry width (m)	10.00	7.00	10.00	7.00			
L	=	Effective length of flare (m)	30	10	15	25			
R	=	Entry radius (m)	50	20	20	10			
D	=	Inscribed circle diameter (m)	75	75	75	75			
A	=	Entry angle (degree)	10	25	20	25			
Q	=	Entry flow (pcu/h)	1375	335	1285	565			
Qc	=	Circulating flow across entry (pcu/h)	865	1850	195	1220			
OUTPUT PARAMETERS:									
S	=	Sharpness of flare = 1.6(E-V)/L	0.14	0.40	0.29	0.16			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.10	1.02	1.03	0.97			
X2	=	V + ((E-V)/(1+2S))	9.40	5.89	9.01	6.39			
M	=	EXP((D-60)/10)	4.48	4.48	4.48	4.48			
F	=	303*X2	2847	1784	2731	1937			
Td	=	1+(0.5/(1+M))	1.09	1.09	1.09	1.09			
Fc	=	0.21*Td(1+0.2*X2)	0.66	0.50	0.64	0.52			
Qe	=	K(F-Fc*Qc)	2501	876	2696	1259	**Total In Sum =**	**3560**	**PCU**
DFC	=	Design flow/Capacity = Q/Qe	0.55	0.39	0.48	0.45	**DFC of Critical Approach =**	**0.55**	

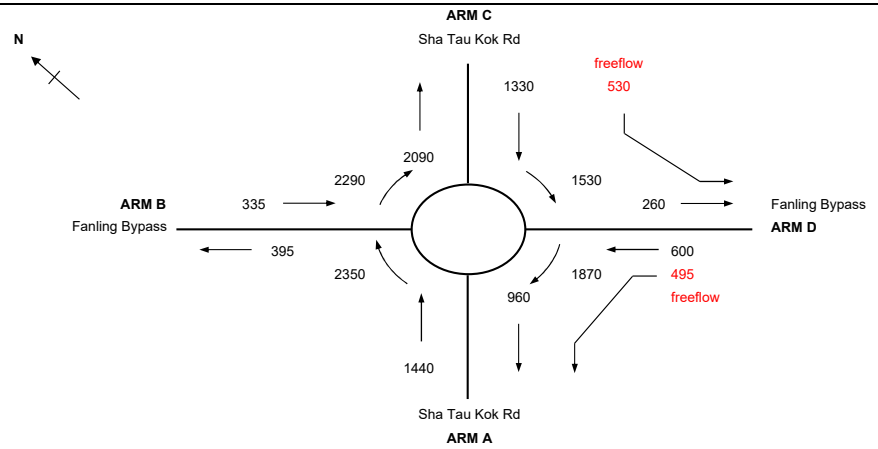
OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
			PROJECT NO. 287082
J16 - Sha Tau Kok Road / Fanling Bypass	J16_2031_DES_AM	DATE 16/12/2024	

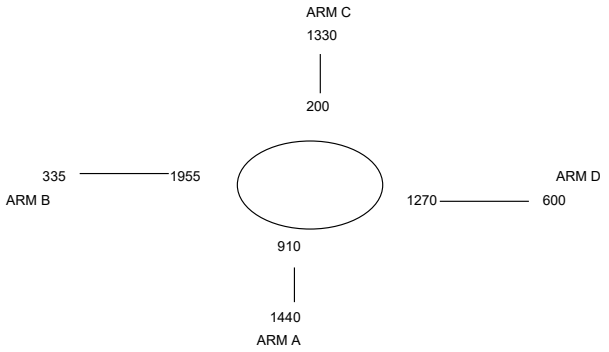




ARM			A	B	C	D			
INPUT PARAMETERS:									
V	=	Approach half width (m)	7.30	4.50	7.30	4.50			
E	=	Entry width (m)	10.00	7.00	10.00	7.00			
L	=	Effective length of flare (m)	30	10	15	25			
R	=	Entry radius (m)	50	20	20	10			
D	=	Inscribed circle diameter (m)	75	75	75	75			
A	=	Entry angle (degree)	10	25	20	25			
Q	=	Entry flow (pcu/h)	1300	385	1530	530			
Qc	=	Circulating flow across entry (pcu/h)	1035	1755	305	1535			
OUTPUT PARAMETERS:									
S	=	Sharpness of flare = 1.6(E-V)/L	0.14	0.40	0.29	0.16			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.10	1.02	1.03	0.97			
X2	=	V + ((E-V)/(1+2S))	9.40	5.89	9.01	6.39			
M	=	EXP((D-60)/10)	4.48	4.48	4.48	4.48			
F	=	303*X2	2847	1784	2731	1937			
Td	=	1+(0.5/(1+M))	1.09	1.09	1.09	1.09			
Fc	=	0.21*Td(1+0.2*X2)	0.66	0.50	0.64	0.52			
Qe	=	K(F-Fc*Qc)	2378	924	2623	1100	**Total In Sum =**	**3745**	**PCU**
DFC	=	Design flow/Capacity = Q/Qe	0.55	0.42	0.59	0.49	**DFC of Critical Approach =**	**0.59**	

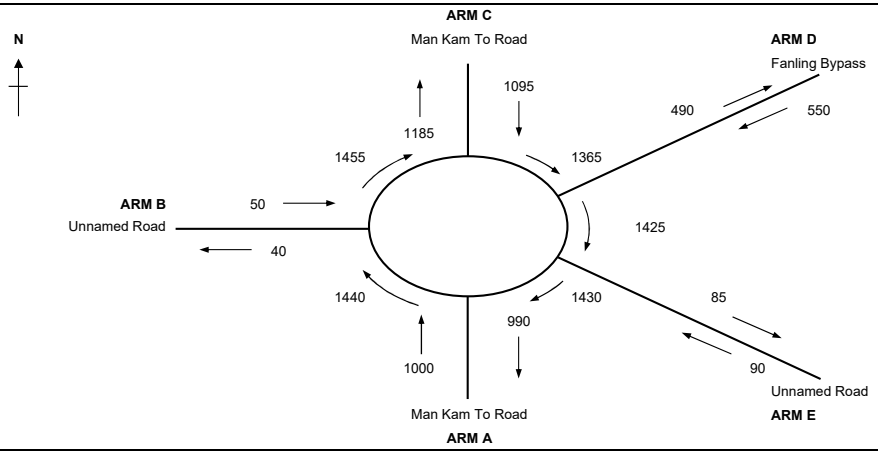
OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
			PROJECT NO. 287082
J16 - Sha Tau Kok Road / Fanling Bypass	J16_2031_DES_PM	DATE 16/12/2024	

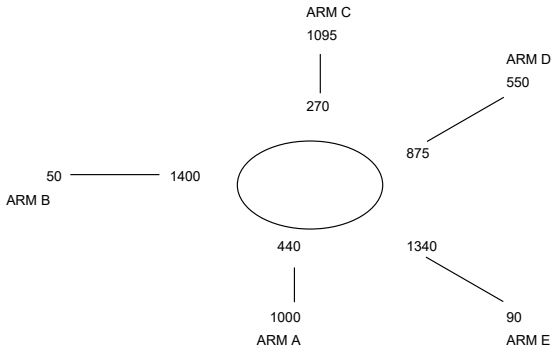




ARM			A	B	C	D			
INPUT PARAMETERS:									
V	=	Approach half width (m)	7.30	4.50	7.30	4.50			
E	=	Entry width (m)	10.00	7.00	10.00	7.00			
L	=	Effective length of flare (m)	30	10	15	25			
R	=	Entry radius (m)	50	20	20	10			
D	=	Inscribed circle diameter (m)	75	75	75	75			
A	=	Entry angle (degree)	10	25	20	25			
Q	=	Entry flow (pcu/h)	1440	335	1330	600			
Qc	=	Circulating flow across entry (pcu/h)	910	1955	200	1270			
OUTPUT PARAMETERS:									
S	=	Sharpness of flare = 1.6(E-V)/L	0.14	0.40	0.29	0.16			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.10	1.02	1.03	0.97			
X2	=	V + ((E-V)/(1+2S))	9.40	5.89	9.01	6.39			
M	=	EXP((D-60)/10)	4.48	4.48	4.48	4.48			
F	=	303*X2	2847	1784	2731	1937			
Td	=	1+(0.5/(1+M))	1.09	1.09	1.09	1.09			
Fc	=	0.21*Td(1+0.2*X2)	0.66	0.50	0.64	0.52			
Qe	=	K(F-Fc*Qc)	2468	823	2693	1234	**Total In Sum =**	**3705**	**PCU**
DFC	=	Design flow/Capacity = Q/Qe	0.59	0.41	0.50	0.49	**DFC of Critical Approach =**	**0.59**	

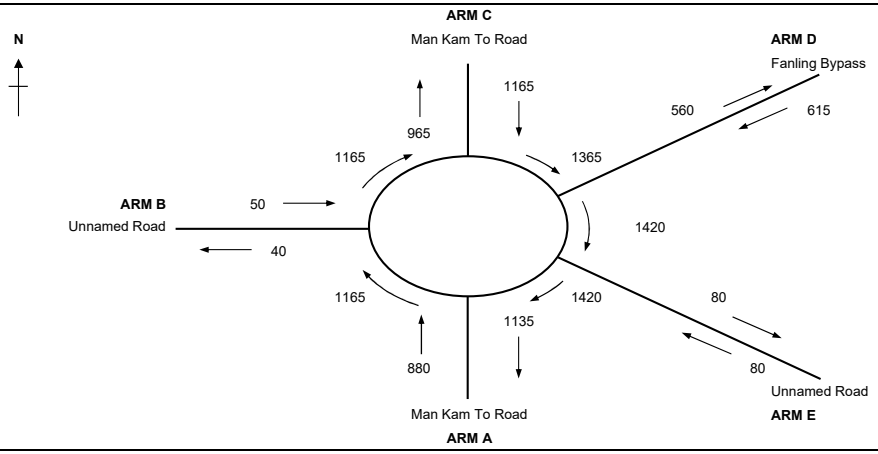
OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
			PROJECT NO. 287082
J17 - Man Kam To Road / Fanling Bypass	J17_2031_REF_AM	DATE 16/12/2024	

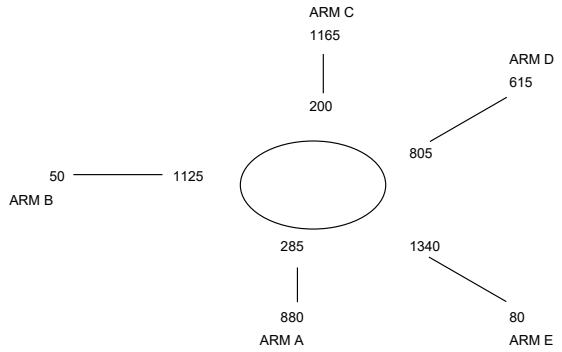




ARM			A	B	C	D	E			
INPUT PARAMETERS:										
V	=	Approach half width (m)	7.00	3.30	5.00	4.50	3.00			
E	=	Entry width (m)	10.00	5.00	8.00	8.00	5.00			
L	=	Effective length of flare (m)	5	20	10	10	20			
R	=	Entry radius (m)	20	20	50	40	15			
D	=	Inscribed circle diameter (m)	80	80	80	80	80			
A	=	Entry angle (degree)	35	20	15	25	35			
Q	=	Entry flow (pcu/h)	1000	50	1095	550	90			
Qc	=	Circulating flow across entry (pcu/h)	440	1400	270	875	1340			
OUTPUT PARAMETERS:										
S	=	Sharpness of flare = 1.6(E-V)/L	0.96	0.14	0.48	0.56	0.16			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	0.98	1.03	1.08	1.04	0.97			
X2	=	V + ((E-V)/(1+2S))	8.03	4.64	6.53	6.15	4.52			
M	=	EXP((D-60)/10)	7.39	7.39	7.39	7.39	7.39			
F	=	303*X2	2432	1405	1979	1864	1368			
Td	=	1+(0.5/(1+M))	1.06	1.06	1.06	1.06	1.06			
Fc	=	0.21*Td(1+0.2*X2)	0.58	0.43	0.51	0.50	0.42			
Qe	=	K(F-Fc*Qc)	2139	832	1990	1489	774	**Total In Sum =**	**2145**	**PCU**
DFC	=	Design flow/Capacity = Q/Qe	0.47	0.07	0.56	0.37	0.12	**DFC of Critical Approach =**	**0.56**	

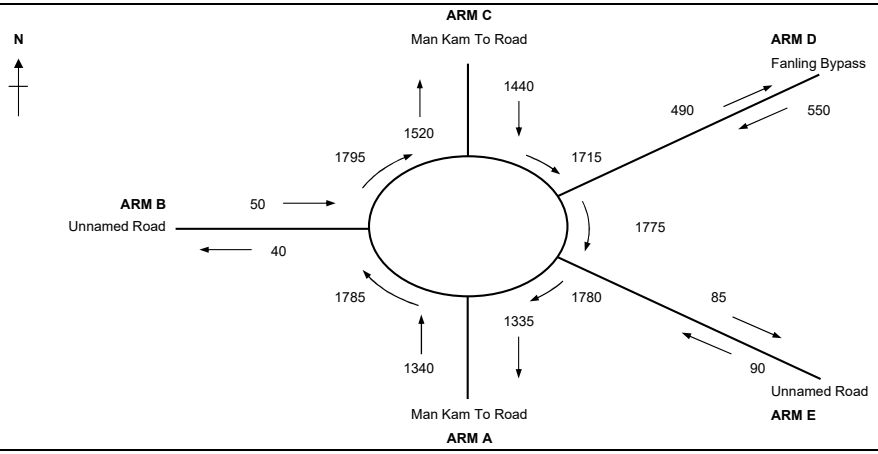
OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
			PROJECT NO. 287082
J17 - Man Kam To Road / Fanling Bypass	J17_2031_REF_PM	DATE 16/12/2024	

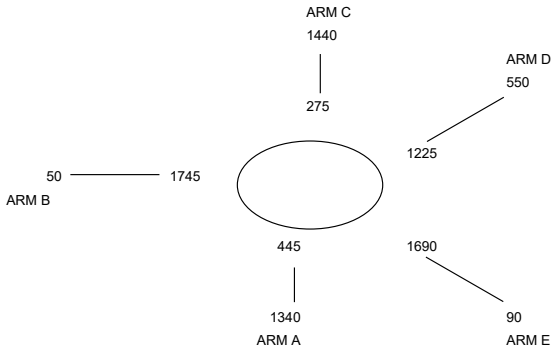




ARM			A	B	C	D	E			
INPUT PARAMETERS:										
V	=	Approach half width (m)	7.00	3.30	5.00	4.50	3.00			
E	=	Entry width (m)	10.00	5.00	8.00	8.00	5.00			
L	=	Effective length of flare (m)	5	20	10	10	20			
R	=	Entry radius (m)	20	20	50	40	15			
D	=	Inscribed circle diameter (m)	80	80	80	80	80			
A	=	Entry angle (degree)	35	20	15	25	35			
Q	=	Entry flow (pcu/h)	880	50	1165	615	80			
Qc	=	Circulating flow across entry (pcu/h)	285	1125	200	805	1340			
OUTPUT PARAMETERS:										
S	=	Sharpness of flare = 1.6(E-V)/L	0.96	0.14	0.48	0.56	0.16			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	0.98	1.03	1.08	1.04	0.97			
X2	=	V + ((E-V)/(1+2S))	8.03	4.64	6.53	6.15	4.52			
M	=	EXP((D-60)/10)	7.39	7.39	7.39	7.39	7.39			
F	=	303*X2	2432	1405	1979	1864	1368			
Td	=	1+(0.5/(1+M))	1.06	1.06	1.06	1.06	1.06			
Fc	=	0.21*Td(1+0.2*X2)	0.58	0.43	0.51	0.50	0.42			
Qe	=	K(F-Fc*Qc)	2228	954	2029	1525	774	**Total In Sum =**	**2095**	**PCU**
DFC	=	Design flow/Capacity = Q/Qe	0.40	0.06	0.58	0.41	0.11	**DFC of Critical Approach =**	**0.58**	

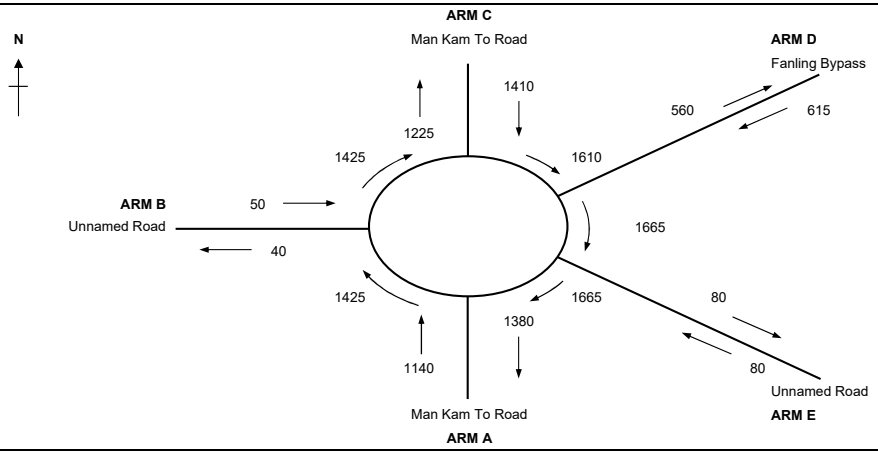
OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
			PROJECT NO. 287082
J17 - Man Kam To Road / Fanling Bypass	J17_2031_DES_AM	DATE 16/12/2024	

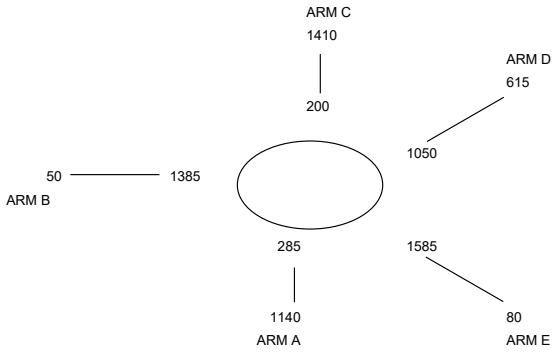




ARM			A	B	C	D	E			
INPUT PARAMETERS:										
V	=	Approach half width (m)	7.00	3.30	5.00	4.50	3.00			
E	=	Entry width (m)	10.00	5.00	8.00	8.00	5.00			
L	=	Effective length of flare (m)	5	20	10	10	20			
R	=	Entry radius (m)	20	20	50	40	15			
D	=	Inscribed circle diameter (m)	80	80	80	80	80			
A	=	Entry angle (degree)	35	20	15	25	35			
Q	=	Entry flow (pcu/h)	1340	50	1440	550	90			
Qc	=	Circulating flow across entry (pcu/h)	445	1745	275	1225	1690			
OUTPUT PARAMETERS:										
S	=	Sharpness of flare = 1.6(E-V)/L	0.96	0.14	0.48	0.56	0.16			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	0.98	1.03	1.08	1.04	0.97			
X2	=	V + ((E-V)/(1+2S))	8.03	4.64	6.53	6.15	4.52			
M	=	EXP((D-60)/10)	7.39	7.39	7.39	7.39	7.39			
F	=	303*X2	2432	1405	1979	1864	1368			
Td	=	1+(0.5/(1+M))	1.06	1.06	1.06	1.06	1.06			
Fc	=	0.21*Td(1+0.2*X2)	0.58	0.43	0.51	0.50	0.42			
Qe	=	K(F-Fc*Qc)	2137	679	1987	1308	630	**Total In Sum =**	**2830**	**PCU**
DFC	=	Design flow/Capacity = Q/Qe	0.63	0.08	0.73	0.43	0.15	**DFC of Critical Approach =**	**0.73**	

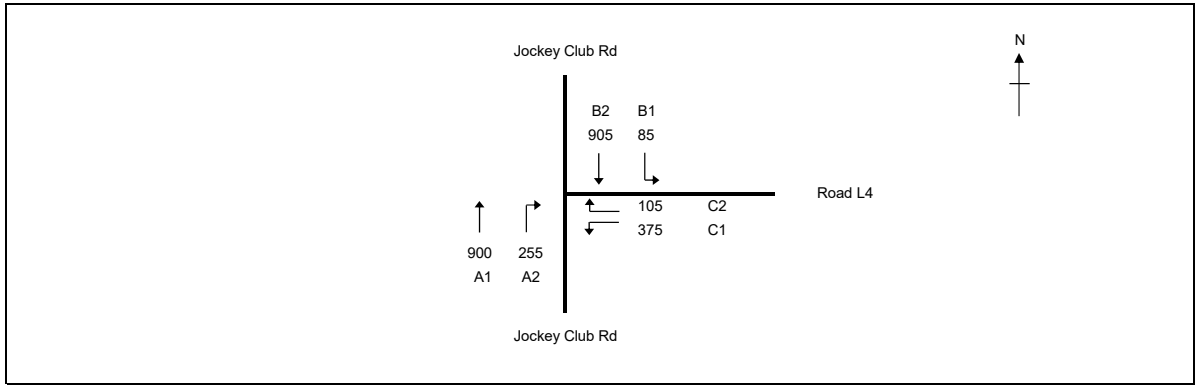
OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
			PROJECT NO. 287082
J17 - Man Kam To Road / Fanling Bypass	J17_2031_DES_PM	DATE 16/12/2024	





ARM			A	B	C	D	E			
INPUT PARAMETERS:										
V	=	Approach half width (m)	7.00	3.30	5.00	4.50	3.00			
E	=	Entry width (m)	10.00	5.00	8.00	8.00	5.00			
L	=	Effective length of flare (m)	5	20	10	10	20			
R	=	Entry radius (m)	20	20	50	40	15			
D	=	Inscribed circle diameter (m)	80	80	80	80	80			
A	=	Entry angle (degree)	35	20	15	25	35			
Q	=	Entry flow (pcu/h)	1140	50	1410	615	80			
Qc	=	Circulating flow across entry (pcu/h)	285	1385	200	1050	1585			
OUTPUT PARAMETERS:										
S	=	Sharpness of flare = 1.6(E-V)/L	0.96	0.14	0.48	0.56	0.16			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	0.98	1.03	1.08	1.04	0.97			
X2	=	V + ((E-V)/(1+2S))	8.03	4.64	6.53	6.15	4.52			
M	=	EXP((D-60)/10)	7.39	7.39	7.39	7.39	7.39			
F	=	303*X2	2432	1405	1979	1864	1368			
Td	=	1+(0.5/(1+M))	1.06	1.06	1.06	1.06	1.06			
Fc	=	0.21*Td(1+0.2*X2)	0.58	0.43	0.51	0.50	0.42			
Qe	=	K(F-Fc*Qc)	2228	839	2029	1399	673	**Total In Sum =**	**2600**	**PCU**
DFC	=	Design flow/Capacity = Q/Qe	0.52	0.06	0.70	0.44	0.12	**DFC of Critical Approach =**	**0.70**	

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO:	Junction No. J18
J18 - Jockey Club Road / Road L4	J18_2031_REF_AM	DATE : 16/12/2024	FILENAME :



No. of stages per cycle	N =	4	
No. of stage using for calculation	N =	2	
Cycle time	C =	120	sec
Sum(y)	Y =	0.434	
Loss time	L =	28	sec
Total Flow	=	2625	pcu
Co = (1.5*L+5)/(1-Y)	=	83.0	sec
Cm = L/(1-Y)	=	49.5	sec
Yult	=	0.690	
R.C.ult = (Yult-Y)/Y*100%	=	59.0	%
Cp = 0.9*L/(0.9-Y)	=	54.1	sec
Ymax = 1-L/C	=	0.767	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	58	%

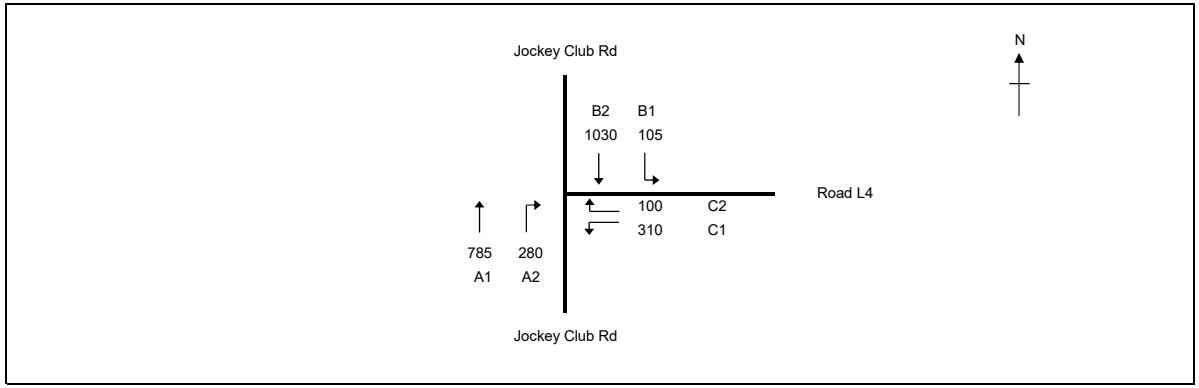
STAGE 1	INT=	STAGE 2	INT= 6	STAGE 3	INT= 6	STAGE 4	INT=
A1,A2	B1,B2	A1,A2			C1,C2		D

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
D	9	8	2	8	8	2	8	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				10				
A1	1,2	3.50	C	1			N	1965		601		601	0.00	1965			1965	0.306	0.306		65	65	0.566	55
A1,A2	1,2	3.50	C	1	20	O		2105		299	255	554	0.46	1812			1812	0.306			65	65	0.566	51
B1,B2	1	3.50	B	1	20		N	1965	85	390		475	0.18	1939			1939	0.245			52	52	0.566	54
B2	1	3.50	B	1				2105		515		515	0.00	2105			2105	0.245			52	52	0.565	58
C1	3	3.50	D	1	15		N	1965	229			229	1.00	1786			1786	0.128	0.128		27	27	0.566	35
C1,C2	3	3.50	D	1	20			2105	146		105	251	1.00	1958			1958	0.128			27	27	0.566	39
	4		PED																	18				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO:	Junction No. J18
J18 - Jockey Club Road / Road L4	J18_2031_REF_PM	DATE : 16/12/2024	FILENAME :



No. of stages per cycle	N =	4
No. of stage using for calculation	N =	2
Cycle time	C =	120 sec
Sum(y)	Y =	0.391
Loss time	L =	33 sec
Total Flow	=	2610 pcu
Co = (1.5*L+5)/(1-Y)	=	89.4 sec
Cm = L/(1-Y)	=	54.1 sec
Yult	=	0.653
R.C.ult = (Yult-Y)/Y*100%	=	67.1 %
Cp = 0.9*L/(0.9-Y)	=	58.3 sec
Ymax = 1-L/C	=	0.725
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	67 %

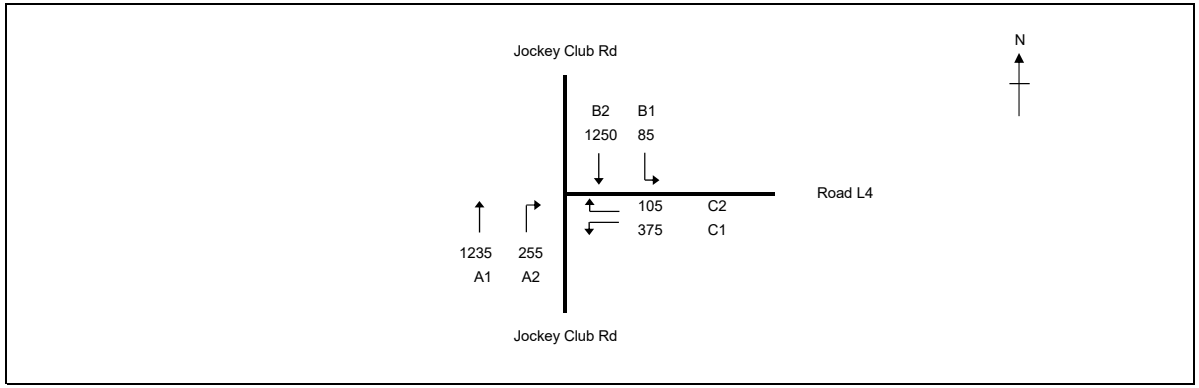
	B1,B2						
A1,A2		A1,A2			C1,C2		D
STAGE 1	INT= 5	STAGE 2	INT= 6	STAGE 3	INT= 6	STAGE 4	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
D	9	8	2	8	8	2	8	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				15				
A1	1,2	3.50	C	1			N	1965		556		556	0.00	1965			1965	0.283			63	69	0.495	48
A1,A2	1,2	3.50	C	1	20	O		2105		229	280	509	0.55	1801			1801	0.283			63	69	0.495	44
B1,B2	1	3.50	B	1	20		N	1965	105	439		544	0.19	1937			1937	0.281	0.281		63	63	0.539	52
B2	1	3.50	B	1				2105		591		591	0.00	2105			2105	0.281			63	63	0.539	57
C1	3	3.50	D	1	15		N	1965	196			196	1.00	1786			1786	0.110	0.110		24	24	0.539	31
C1,C2	3	3.50	D	1	20			2105	114		100	214	1.00	1958			1958	0.109			24	24	0.537	34
	4		PED																	18				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO:	Junction No. J18
J18 - Jockey Club Road / Road L4	J18_2031_DES_AM	DATE : 16/12/2024	FILENAME :



No. of stages per cycle	N =	4
No. of stage using for calculation	N =	2
Cycle time	C =	120 sec
Sum(y)	Y =	0.521
Loss time	L =	28 sec
Total Flow	=	3305 pcu
Co = (1.5*L+5)/(1-Y)	=	98.2 sec
Cm = L/(1-Y)	=	58.5 sec
Yult	=	0.690
R.C.ult = (Yult-Y)/Y*100%	=	32.4 %
Cp = 0.9*L/(0.9-Y)	=	66.5 sec
Ymax = 1-L/C	=	0.767
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	32 %

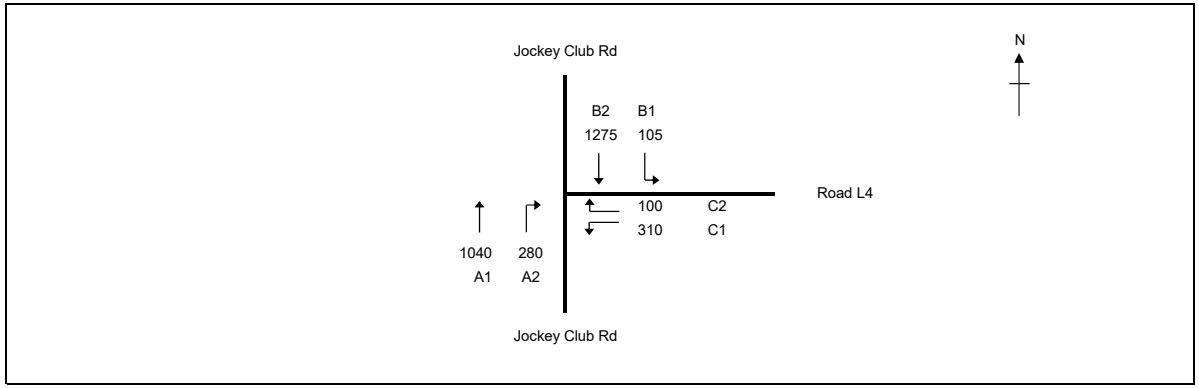
	B1,B2						
A1,A2		A1,A2			C1,C2		D
STAGE 1	INT=	STAGE 2	INT= 6	STAGE 3	INT= 6	STAGE 4	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
D	9	8	2	8	8	2	8	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				10				
A1	1,2	3.50	C	1			N	1965		772		772	0.00	1965			1965	0.393	0.393		69	69	0.680	65
A1,A2	1,2	3.50	C	1	20	O		2105		463	255	718	0.36	1826			1826	0.393			69	69	0.680	61
B1,B2	1	3.50	B	1	20		N	1965	85	556		641	0.13	1946			1946	0.329			58	58	0.680	66
B2	1	3.50	B	1				2105		694		694	0.00	2105			2105	0.330			58	58	0.680	72
C1	3	3.50	D	1	15		N	1965	229			229	1.00	1786			1786	0.128	0.128		23	23	0.680	37
C1,C2	3	3.50	D	1	20			2105	146		105	251	1.00	1958			1958	0.128			23	23	0.680	41
	4		PED																	18				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO:	Junction No. J18
J18 - Jockey Club Road / Road L4	J18_2031_DES_PM	DATE : 16/12/2024	FILENAME :



No. of stages per cycle	N =	4
No. of stage using for calculation	N =	2
Cycle time	C =	120 sec
Sum(y)	Y =	0.451
Loss time	L =	33 sec
Total Flow	=	3110 pcu
Co = (1.5*L+5)/(1-Y)	=	99.2 sec
Cm = L/(1-Y)	=	60.1 sec
Yult	=	0.653
R.C.ult = (Yult-Y)/Y*100%	=	44.7 %
Cp = 0.9*L/(0.9-Y)	=	66.1 sec
Ymax = 1-L/C	=	0.725
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	44 %

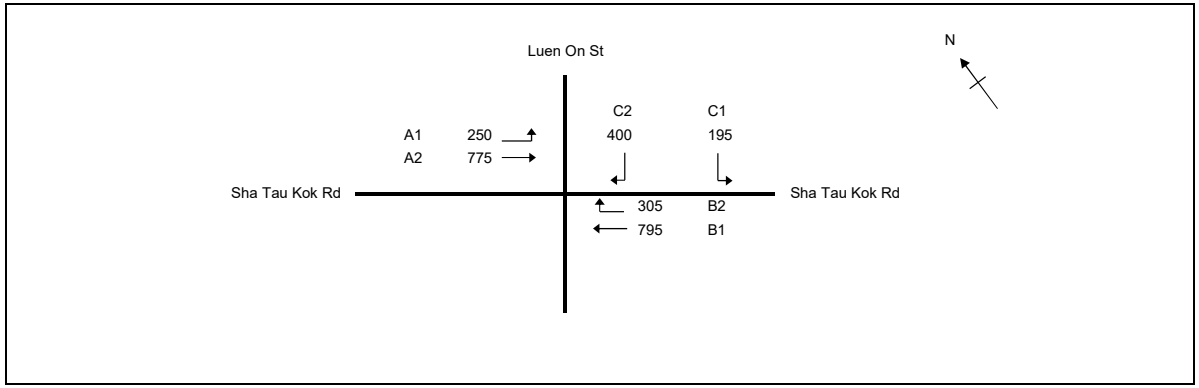
	B1,B2						
A1,A2		A1,A2			C1,C2		D
STAGE 1	INT= 5	STAGE 2	INT= 6	STAGE 3	INT= 6	STAGE 4	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
D	9	8	2	8	8	2	8	OK

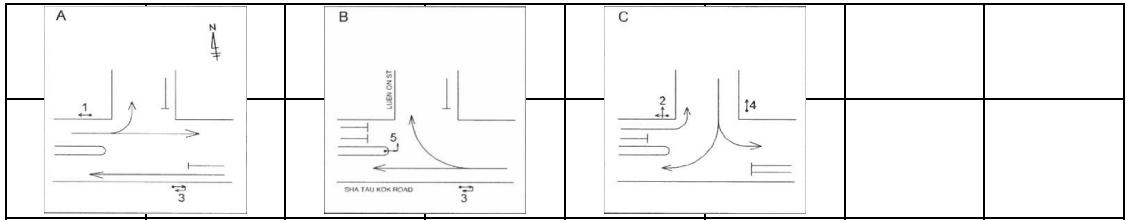
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				15				
A1	1,2	3.50	C	1			N	1965		686		686	0.00	1965			1965	0.349			67	72	0.584	55
A1,A2	1,2	3.50	C	1	20	O		2105		354	280	634	0.44	1815			1815	0.349			67	72	0.584	51
B1,B2	1	3.50	B	1	20		N	1965	105	557		662	0.16	1942			1942	0.341	0.341		66	66	0.622	60
B2	1	3.50	B	1				2105		718		718	0.00	2105			2105	0.341			66	66	0.622	65
C1	3	3.50	D	1	15		N	1965	196			196	1.00	1786			1786	0.110	0.110		21	21	0.622	32
C1,C2	3	3.50	D	1	20			2105	114		100	214	1.00	1958			1958	0.109			21	21	0.619	35
	4		PED																	18				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J19
J19 - Sha Tau Kok Road / Luen On Street	J19_2023_EXT_AM	DATE : 16/12/2024	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	90 sec
Sum(y)		Y =	0.453
Loss time		L =	15 sec
Total Flow		=	2720 pcu
Co	= (1.5*L+5)/(1-Y)	=	50.3 sec
Cm	= L/(1-Y)	=	27.4 sec
Yult		=	0.788
R.C.ult	= (Yult-Y)/Y*100%	=	73.7 %
Cp	= 0.9*L/(0.9-Y)	=	30.2 sec
Ymax	= 1-L/C	=	0.833
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	65 %



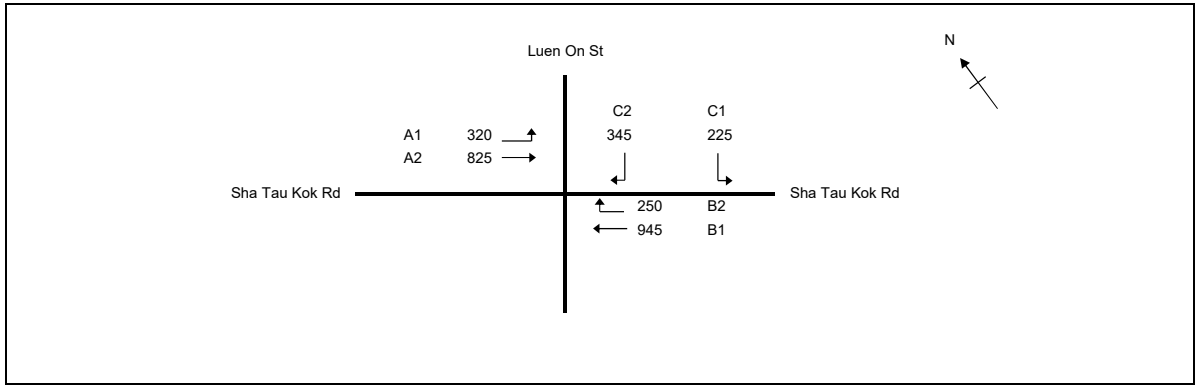
STAGE 1	INT= 6	STAGE 2	INT= 6	STAGE 3	INT= 6	STAGE 4	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check

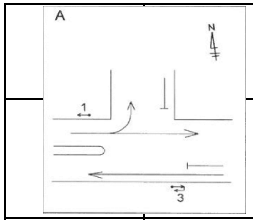
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				15				
A1	1,3	3.50	2	1	15		N	1965	250			250	1.00	1786			1786	0.140			23	55	0.230	15
A2	1	3.50	1	2				4210		775		775	0.00	4210			4210	0.184	0.184		30	30	0.544	38
B1	1,2	3.10	3	1			N	1925		384		384	0.00	1925			1925	0.199			33	62	0.291	18
B1	1,2	3.10	3	1				2065		411		411	0.00	2065			2065	0.199			33	62	0.290	19
B2	2	3.10	5	1	20			2065			305	305	1.00	1921			1921	0.159	0.159		26	26	0.544	32
C1	3	3.40	4	1	10		N	1955	188			188	1.00	1700			1700	0.111	0.111		18	18	0.544	22
C1,C2	3	3.40	4	1	12.5			2095	7		199	206	1.00	1871			1871	0.110			18	18	0.542	25
C2	3	3.40	4	1	10			2095			201	201	1.00	1822			1822	0.110			18	18	0.543	24

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

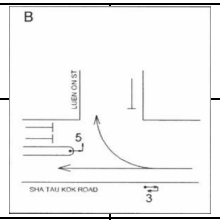
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J19
J19 - Sha Tau Kok Road / Luen On Street	J19_2023_EXT_PM	DATE : 16/12/2024	FILENAME :



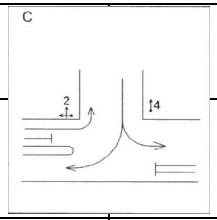
No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	90 sec
Sum(y)		Y =	0.432
Loss time		L =	15 sec
Total Flow		=	2910 pcu
Co	= (1.5*L+5)/(1-Y)	=	48.4 sec
Cm	= L/(1-Y)	=	26.4 sec
Yult		=	0.788
R.C.ult	= (Yult-Y)/Y*100%	=	82.3 %
Cp	= 0.9*L/(0.9-Y)	=	28.8 sec
Ymax	= 1-L/C	=	0.833
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	74 %



STAGE 1 INT= 6



STAGE 2 INT= 6



STAGE 3 INT= 6

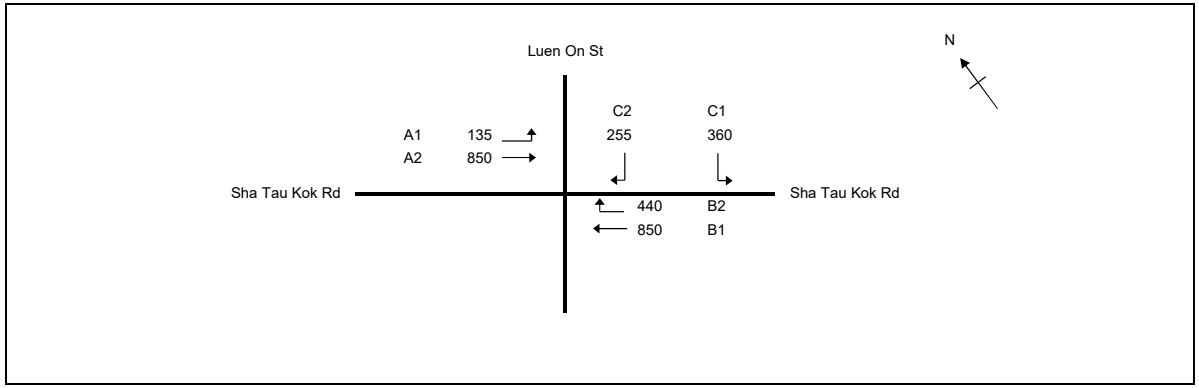
STAGE 4 INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check

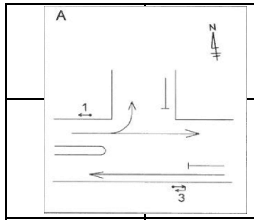
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				15				
A1	1,3	3.50	2	1	15		N	1965	320			320	1.00	1786			1786	0.179			31	58	0.276	17
A2	1	3.50	1	2				4210		825		825	0.00	4210			4210	0.196	0.196		34	34	0.518	38
B1	1,2	3.10	3	1			N	1925		456		456	0.00	1925			1925	0.237			41	62	0.346	22
B1	1,2	3.10	3	1				2065		489		489	0.00	2065			2065	0.237			41	62	0.346	23
B2	2	3.10	5	1	20			2065			250	250	1.00	1921			1921	0.130	0.130		23	23	0.518	28
C1	3	3.40	4	1	10		N	1955	180			180	1.00	1700			1700	0.106	0.106		18	18	0.518	21
C1,C2	3	3.40	4	1	12.5			2095	45		153	198	1.00	1871			1871	0.106			18	18	0.518	24
C2	3	3.40	4	1	10			2095			192	192	1.00	1822			1822	0.105			18	18	0.516	23

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

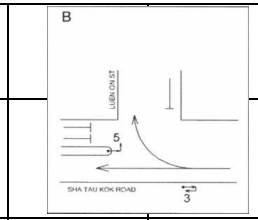
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J19
J19 - Sha Tau Kok Road / Luen On Street	J19_2031_REF_AM	DATE : 16/12/2024	FILENAME :



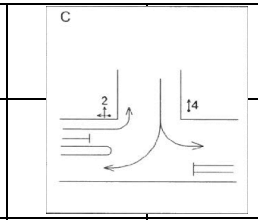
No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	90 sec
Sum(y)		Y =	0.545
Loss time		L =	15 sec
Total Flow		=	2890 pcu
Co	= (1.5*L+5)/(1-Y)	=	60.5 sec
Cm	= L/(1-Y)	=	33.0 sec
Yult		=	0.788
R.C.ult	= (Yult-Y)/Y*100%	=	44.5 %
Cp	= 0.9*L/(0.9-Y)	=	38.0 sec
Ymax	= 1-L/C	=	0.833
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	37 %



STAGE 1 INT= 6



STAGE 2 INT= 6



STAGE 3 INT= 6

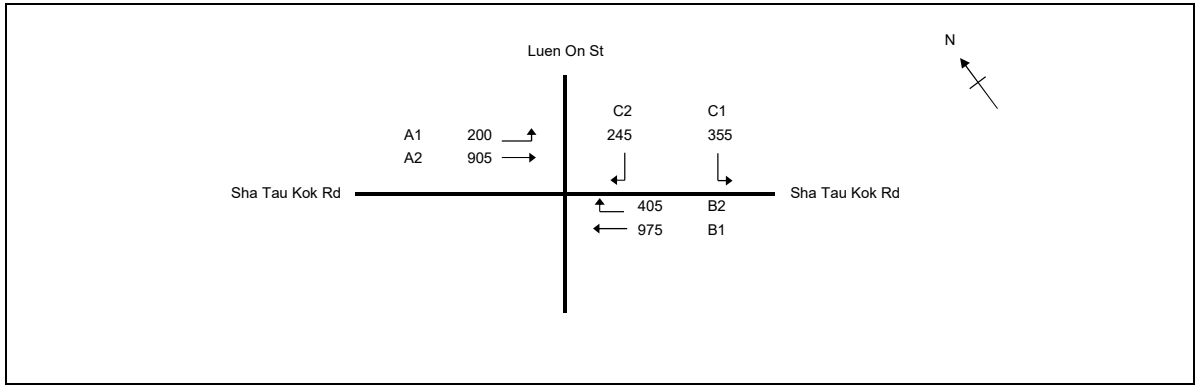
STAGE 4 INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check

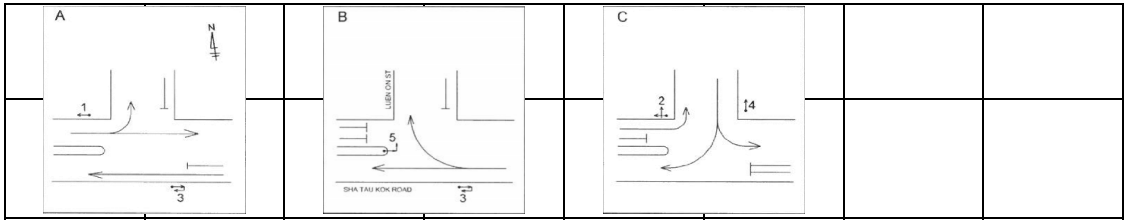
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				15				
A1	1,3	3.50	2	1	15		N	1965	135			135	1.00	1786			1786	0.076			10	49	0.137	9
A2	1	3.50	1	2				4210		850		850	0.00	4210			4210	0.202	0.202		28	28	0.654	44
B1	1,2	3.10	3	1			N	1925		410		410	0.00	1925			1925	0.213			29	64	0.298	18
B1	1,2	3.10	3	1				2065		440		440	0.00	2065			2065	0.213			29	64	0.298	19
B2	2	3.10	5	1	20			2065			440	440	1.00	1921			1921	0.229	0.229		32	32	0.654	43
C1	3	3.40	4	1	10		N	1955	194			194	1.00	1700			1700	0.114	0.114		16	16	0.654	24
C1,C2	3	3.40	4	1	12.5			2095	166		47	213	1.00	1871			1871	0.114			16	16	0.652	26
C2	3	3.40	4	1	10			2095			208	208	1.00	1822			1822	0.114			16	16	0.654	26

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J19
J19 - Sha Tau Kok Road / Luen On Street	J19_2031_REF_PM	DATE : 16/12/2024	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	90 sec
Sum(y)		Y =	0.537
Loss time		L =	15 sec
Total Flow		=	3085 pcu
Co	= (1.5*L+5)/(1-Y)	=	59.4 sec
Cm	= L/(1-Y)	=	32.4 sec
Yult		=	0.788
R.C.ult	= (Yult-Y)/Y*100%	=	46.6 %
Cp	= 0.9*L/(0.9-Y)	=	37.2 sec
Ymax	= 1-L/C	=	0.833
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	39 %



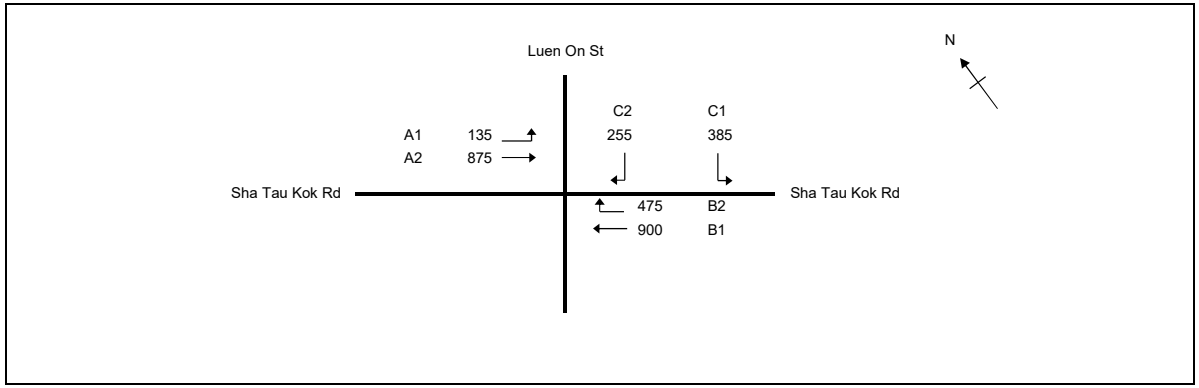
STAGE 1	INT= 6	STAGE 2	INT= 6	STAGE 3	INT= 6	STAGE 4	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check

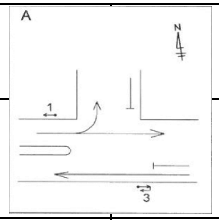
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				15				
A1	1,3	3.50	2	1	15		N	1965	200			200	1.00	1786			1786	0.112			16	52	0.195	13
A2	1	3.50	1	2				4210		905		905	0.00	4210			4210	0.215	0.215		30	30	0.645	45
B1	1,2	3.10	3	1			N	1925		470		470	0.00	1925			1925	0.244			34	64	0.341	20
B1	1,2	3.10	3	1				2065		505		505	0.00	2065			2065	0.245			34	64	0.342	22
B2	2	3.10	5	1	20			2065			405	405	1.00	1921			1921	0.211	0.211		29	29	0.645	41
C1	3	3.40	4	1	10		N	1955	189			189	1.00	1700			1700	0.111	0.111		16	16	0.643	23
C1,C2	3	3.40	4	1	12.5			2095	166		42	208	1.00	1871			1871	0.111			16	16	0.643	26
C2	3	3.40	4	1	10			2095			203	203	1.00	1822			1822	0.111			16	16	0.645	25

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

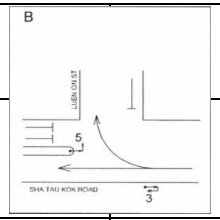
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J19
J19 - Sha Tau Kok Road / Luen On Street	J19_2031_DES_AM	DATE : 16/12/2024	FILENAME :



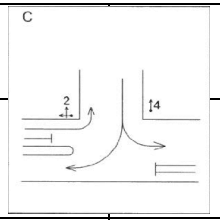
No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	90 sec
Sum(y)		Y =	0.574
Loss time		L =	15 sec
Total Flow		=	3025 pcu
Co	= (1.5*L+5)/(1-Y)	=	64.5 sec
Cm	= L/(1-Y)	=	35.2 sec
Yult		=	0.788
R.C.ult	= (Yult-Y)/Y*100%	=	37.2 %
Cp	= 0.9*L/(0.9-Y)	=	41.4 sec
Ymax	= 1-L/C	=	0.833
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	30 %



STAGE 1 INT= 6



STAGE 2 INT= 6



STAGE 3 INT= 6

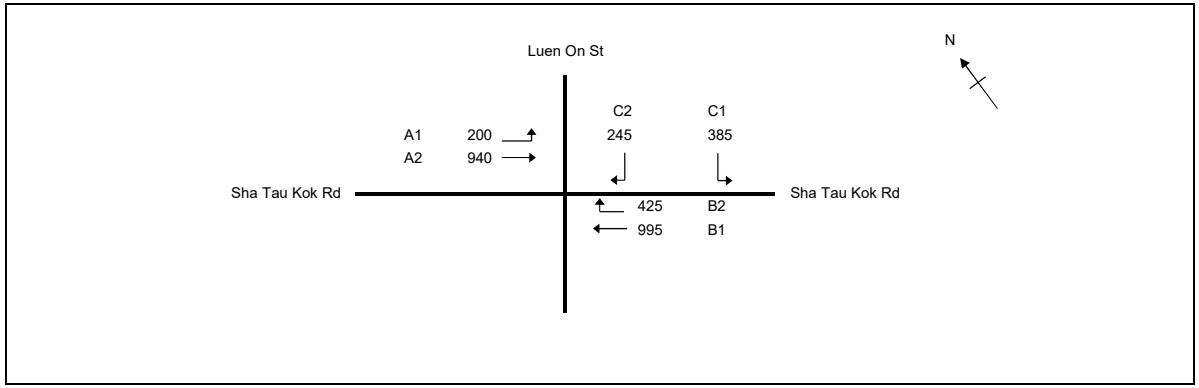
STAGE 4 INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check

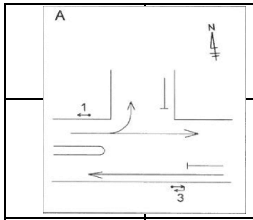
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				15				
A1	1,3	3.50	2	1	15		N	1965	135			135	1.00	1786			1786	0.076			10	49	0.140	9
A2	1	3.50	1	2				4210		875		875	0.00	4210			4210	0.208	0.208		27	27	0.689	46
B1	1,2	3.10	3	1			N	1925		434		434	0.00	1925			1925	0.225			29	64	0.315	18
B1	1,2	3.10	3	1				2065		466		466	0.00	2065			2065	0.226			29	64	0.315	20
B2	2	3.10	5	1	20			2065			475	475	1.00	1921			1921	0.247	0.247		32	32	0.689	46
C1	3	3.40	4	1	10		N	1955	202			202	1.00	1700			1700	0.119	0.119		16	16	0.689	25
C1,C2	3	3.40	4	1	12.5			2095	183		39	222	1.00	1871			1871	0.119			16	16	0.688	28
C2	3	3.40	4	1	10			2095			216	216	1.00	1822			1822	0.119			15	16	0.687	27

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

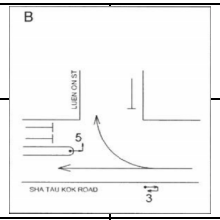
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J19
J19 - Sha Tau Kok Road / Luen On Street	J19_2031_DES_PM	DATE : 16/12/2024	FILENAME :



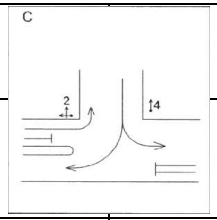
No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	90 sec
Sum(y)		Y =	0.562
Loss time		L =	15 sec
Total Flow		=	3190 pcu
Co	= (1.5*L+5)/(1-Y)	=	62.7 sec
Cm	= L/(1-Y)	=	34.2 sec
Yult		=	0.788
R.C.ult	= (Yult-Y)/Y*100%	=	40.2 %
Cp	= 0.9*L/(0.9-Y)	=	39.9 sec
Ymax	= 1-L/C	=	0.833
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	33 %



STAGE 1 INT= 6



STAGE 2 INT= 6



STAGE 3 INT= 6

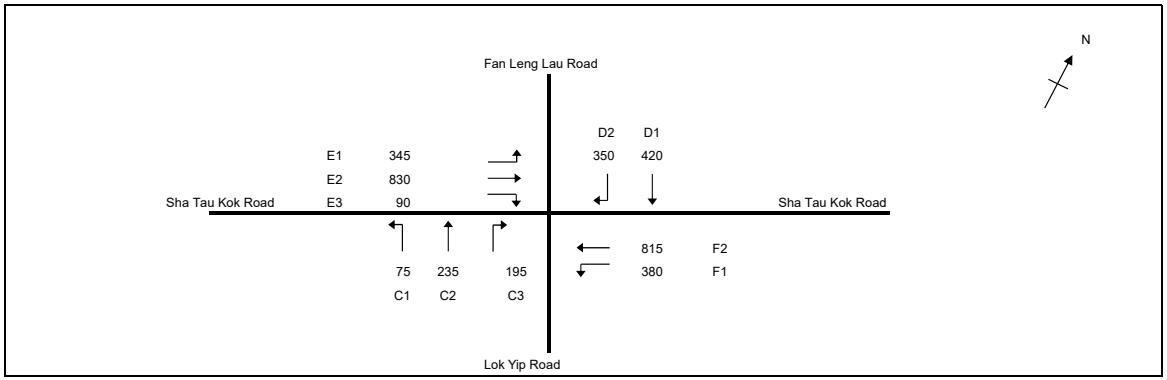
STAGE 4 INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check

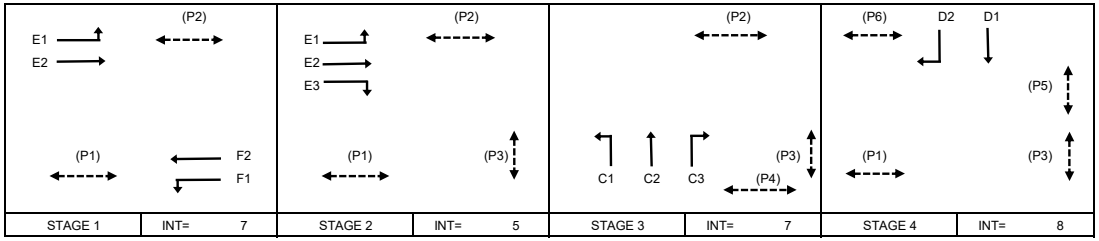
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				15				
A1	1,3	3.50	2	1	15		N	1965	200			200	1.00	1786			1786	0.112			15	51	0.196	13
A2	1	3.50	1	2				4210		940		940	0.00	4210			4210	0.223	0.223		30	30	0.674	47
B1	1,2	3.10	3	1			N	1925		480		480	0.00	1925			1925	0.249			33	64	0.349	21
B1	1,2	3.10	3	1				2065		515		515	0.00	2065			2065	0.249			33	64	0.349	22
B2	2	3.10	5	1	20			2065			425	425	1.00	1921			1921	0.221	0.221		30	30	0.674	43
C1	3	3.40	4	1	10		N	1955	199			199	1.00	1700			1700	0.117	0.117		16	16	0.674	25
C1,C2	3	3.40	4	1	12.5			2095	186		32	218	1.00	1871			1871	0.117			16	16	0.671	27
C2	3	3.40	4	1	10			2095			213	213	1.00	1822			1822	0.117			16	16	0.673	26

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J20
J20 - Sha Tau Kok Road / Fan Leng Lau Road / Lok Yip Road	J20_2023_EXT_AM	DATE : 16-Dec-24	FILENAME :



No. of stages per cycle	N =	4	
No. of stage using for calculation	N =	4	
Cycle time	C =	120	sec
Sum(y)	Y =	0.549	
Loss time	L =	23	sec
Total Flow	=	3735	pcu
Co = (1.5*L+5)/(1-Y)	=	87.6	sec
Cm = L/(1-Y)	=	51.0	sec
Yult	=	0.728	
R.C.ult = (Yult-Y)/Y*100%	=	32.5	%
Cp = 0.9*L/(0.9-Y)	=	59.0	sec
Ymax = 1-L/C	=	0.808	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	33	%

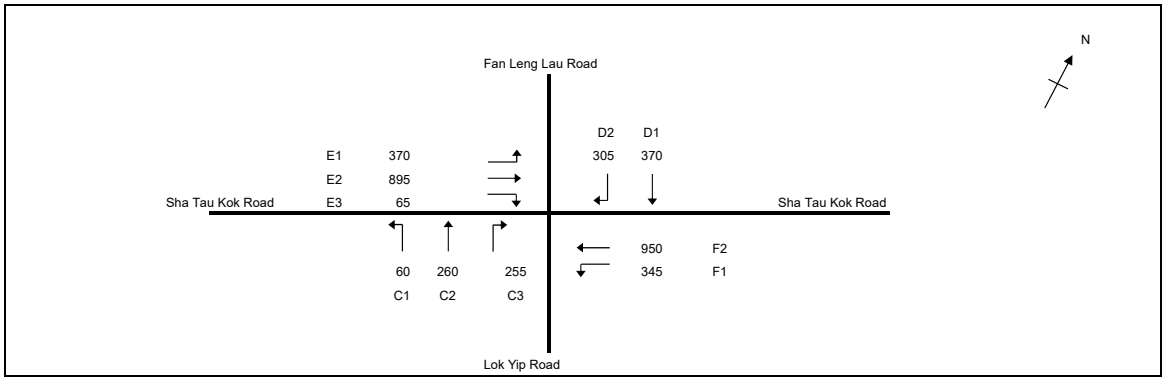


Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
P1	10	6	3	11	77	3	11	OK
P2	7	6	2	8	67	2	8	OK
P3	13.5	6	2	15	69	2	15	OK
P4	7.5	6	8	8	13	8	8	OK
P5	8.5	6	9	9	25	9	9	OK
P6	9	6	6	10	27	6	10	OK

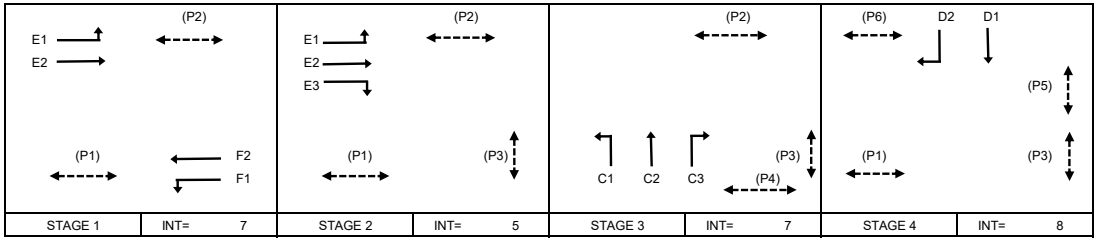
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				23				
F1	1	3.10	F	1	10		N	1925	261			261	1.00	1674			1674	0.156	0.156		28	28	0.677	40
F1,F2	1	3.10	F	1	10			2065	119	186		305	0.39	1951			1951	0.156			28	28	0.679	47
F2	1	3.10	F	1				2065		306		306	0.00	2065			1962	0.156			28	28	0.677	47
F2	1	3.10	F	1				2065		323		323	0.00	2065			2065	0.156			28	28	0.679	50
E1	1,2	3.00	E	1	10		N	1915	339			339	1.00	1665			1665	0.204			36	44	0.556	43
E1,E2	1,2	3.00	E	1	10			2055	6	412		418	0.01	2051			2051	0.204			36	44	0.556	53
E2	1,2	3.00	E	1				2055		418		418	0.00	2055			2055	0.203			36	44	0.555	53
E3	2	3.00	E	1	20			2055			90	90	1.00	1912			1912	0.047	0.047		8	8	0.679	17
C1,C2	3	3.50	C	1	15		N	1965	75	172		247	0.30	1907			1907	0.130	0.130		23	23	0.679	40
C2,C3	3	3.50	C	1	20			2105		63	195	258	0.76	1992			1992	0.130			23	23	0.679	42
D1,D2	4	3.30	D	1	20		N	1945		420	0	420	0.00	1945			1945	0.216	0.216		38	38	0.679	57
D2	4	3.30	D	1	20			2085			350	350	1.00	1940			1940	0.180			32	38	0.568	48

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J20
J20 - Sha Tau Kok Road / Fan Leng Lau Road / Lok Yip Road	J20_2023_EXT_PM	DATE : 16-Dec-24	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	4
Cycle time		C =	120 sec
Sum(y)		Y =	0.542
Loss time		L =	23 sec
Total Flow		=	3875 pcu
Co	= (1.5*L+5)/(1-Y)	=	86.3 sec
Cm	= L/(1-Y)	=	50.2 sec
Yult		=	0.728
R.C.ult	= (Yult-Y)/Y*100%	=	34.2 %
Cp	= 0.9*L/(0.9-Y)	=	57.9 sec
Ymax	= 1-L/C	=	0.808
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	34 %

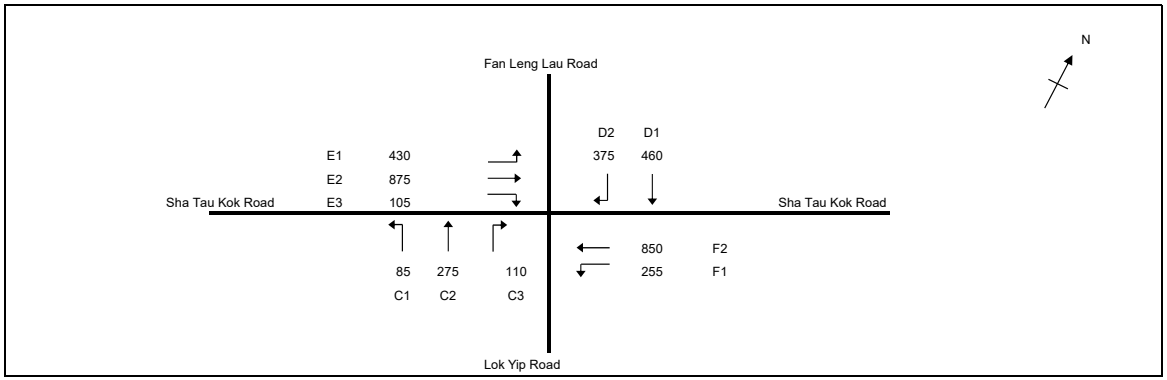


Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
P1	10	6	3	11	74	3	11	OK
P2	7	6	2	8	71	2	8	OK
P3	13.5	6	2	15	67	2	15	OK
P4	7.5	6	8	8	16	8	8	OK
P5	8.5	6	9	9	21	9	9	OK
P6	9	6	6	10	23	6	10	OK

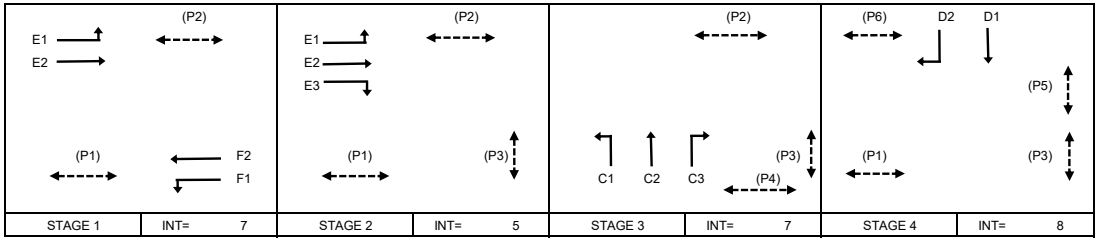
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				23				
F1	1	3.10	F	1	10		N	1925	285			285	1.00	1674			1674	0.170	0.170		30	30	0.670	43
F1,F2	1	3.10	F	1	10			2065	60	282		342	0.18	2012			2012	0.170			30	30	0.669	51
F2	1	3.10	F	1				2065		316		316	0.00	2065			1859	0.170			30	30	0.669	47
F2	1	3.10	F	1				2065		352		352	0.00	2065			2065	0.170			30	30	0.671	53
E1	1,2	3.00	E	1	10		N	1915	365			365	1.00	1665			1665	0.219			39	45	0.590	46
E1,E2	1,2	3.00	E	1	10			2055	5	445		450	0.01	2052			2052	0.219			39	45	0.591	57
E2	1,2	3.00	E	1				2055		450		450	0.00	2055			2055	0.219			39	45	0.590	57
E3	2	3.00	E	1	20			2055			65	65	1.00	1912			1912	0.034	0.034		6	6	0.671	12
C1,C2	3	3.50	C	1	15		N	1965	60	224		284	0.21	1924			1924	0.148	0.148		26	26	0.671	44
C2,C3	3	3.50	C	1	20			2105		36	255	291	0.88	1975			1975	0.147			26	26	0.670	45
D1,D2	4	3.30	D	1	20		N	1945		370	0	370	0.00	1945			1945	0.190	0.190		34	34	0.671	53
D2	4	3.30	D	1	20			2085			305	305	1.00	1940			1940	0.157			28	34	0.555	44

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J20
J20 - Sha Tau Kok Road / Fan Leng Lau Road / Lok Yip Road		DATE : 16-Dec-24	FILENAME :



No. of stages per cycle	N =	4	
No. of stage using for calculation	N =	4	
Cycle time	C =	120	sec
Sum(y)	Y =	0.552	
Loss time	L =	23	sec
Total Flow	=	3820	pcu
Co = (1.5*L+5)/(1-Y)	=	88.2	sec
Cm = L/(1-Y)	=	51.4	sec
Yult	=	0.728	
R.C.ult = (Yult-Y)/Y*100%	=	31.7	%
Cp = 0.9*L/(0.9-Y)	=	59.5	sec
Ymax = 1-L/C	=	0.808	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	31	%

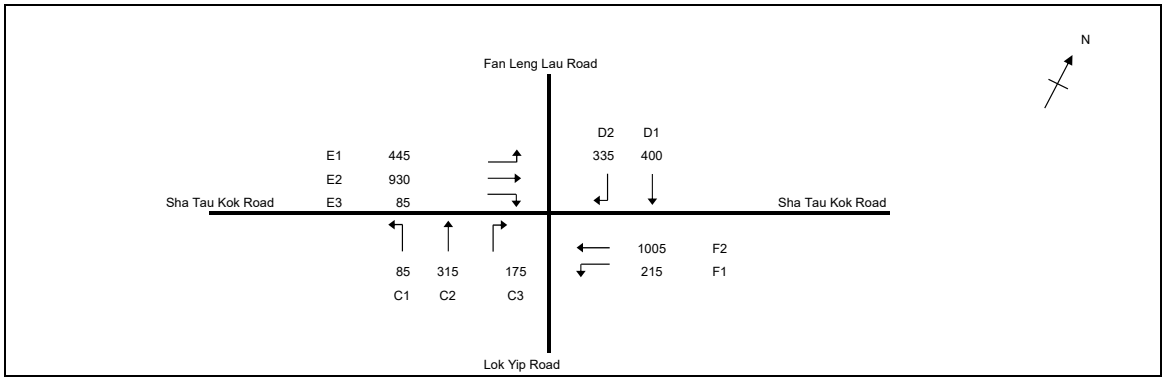


Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
P1	10	6	3	11	79	3	11	OK
P2	7	6	2	8	63	2	8	OK
P3	13.5	6	2	15	72	2	15	OK
P4	7.5	6	8	8	11	8	8	OK
P5	8.5	6	9	9	29	9	9	OK
P6	9	6	6	10	31	6	10	OK

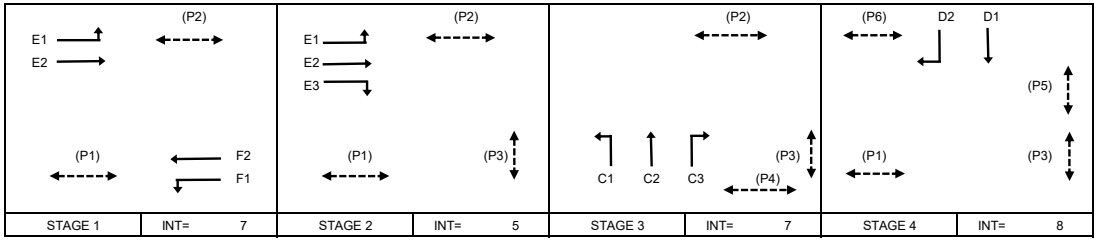
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				23				
F1	1	3.10	F	1	10		N	1925	236			236	1.00	1674			1674	0.141	0.141		25	25	0.683	37
F1,F2	1	3.10	F	1	10			2065	19	269		288	0.07	2045			2045	0.141			25	25	0.683	46
F2	1	3.10	F	1				2065		291		291	0.00	2065			2065	0.141			25	25	0.683	46
F2	1	3.10	F	1				2065		290		290	0.00	2065			2065	0.140			25	25	0.681	46
E1	1,2	3.00	E	1	10		N	1915	379			379	1.00	1665			1665	0.228			40	42	0.644	49
E1,E2	1,2	3.00	E	1	10			2055	51	408		459	0.11	2021			2021	0.227			40	42	0.643	59
E2	1,2	3.00	E	1				2055		467		467	0.00	2055			2055	0.227			40	42	0.643	60
E3	2	3.00	E	1	20			2055			105	105	1.00	1912			1912	0.055	0.055		10	10	0.683	19
C1,C2	3	3.50	C	1	15		N	1965	85	142		227	0.37	1894			1894	0.120	0.120		21	21	0.683	37
C2,C3	3	3.50	C	1	20			2105		133	110	243	0.45	2036			2036	0.119			21	21	0.680	40
D1,D2	4	3.30	D	1	20		N	1945		460	0	460	0.00	1945			1945	0.237	0.237		42	42	0.683	60
D2	4	3.30	D	1	20			2085			375	375	1.00	1940			1940	0.193			34	42	0.559	49

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J20
J20 - Sha Tau Kok Road / Fan Leng Lau Road / Lok Yip Road		DATE : 16-Dec-24	FILENAME :



No. of stages per cycle	N =	4
No. of stage using for calculation	N =	4
Cycle time	C =	120 sec
Sum(y)	Y =	0.565
Loss time	L =	23 sec
Total Flow	=	3990 pcu
Co = (1.5*L+5)/(1-Y)	=	90.8 sec
Cm = L/(1-Y)	=	52.9 sec
Yult	=	0.728
R.C.ult = (Yult-Y)/Y*100%	=	28.8 %
Cp = 0.9*L/(0.9-Y)	=	61.8 sec
Ymax = 1-L/C	=	0.808
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	28 %

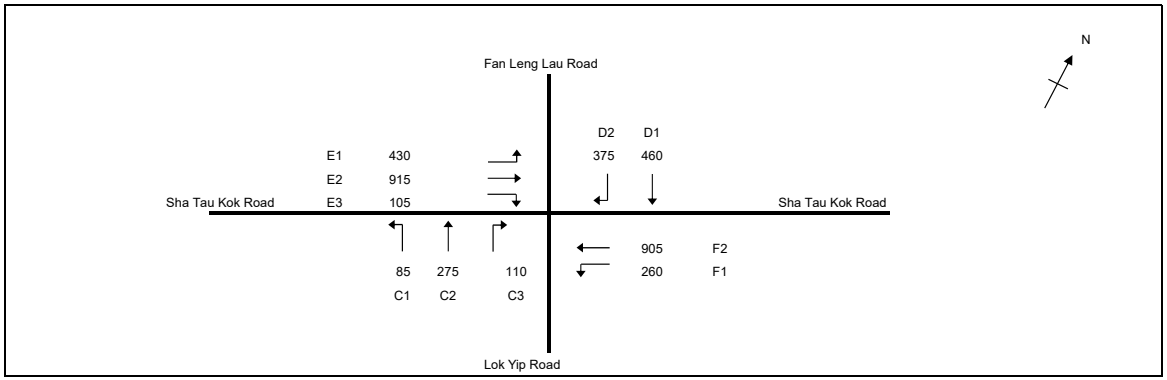


Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
P1	10	6	3	11	75	3	11	OK
P2	7	6	2	8	70	2	8	OK
P3	13.5	6	2	15	68	2	15	OK
P4	7.5	6	8	8	15	8	8	OK
P5	8.5	6	9	9	22	9	9	OK
P6	9	6	6	10	24	6	10	OK

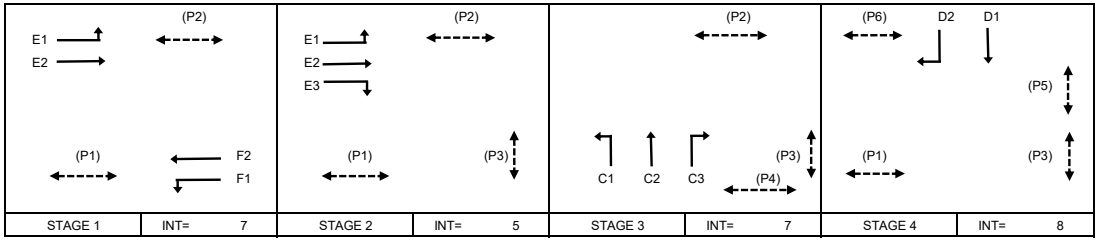
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				23				
F1	1	3.10	F	1	10		N	1925	215			215	1.00	1674			1674	0.128	0.168		22	29	0.534	33
F1,F2	1	3.10	F	1	10			2065	0	347		347	0.00	2065			2065	0.168			29	29	0.699	53
F2	1	3.10	F	1				2065		311		311	0.00	2065			1859	0.167			29	29	0.696	47
F2	1	3.10	F	1				2065		347		347	0.00	2065			2065	0.168			29	29	0.699	53
E1	1,2	3.00	E	1	10		N	1915	405			405	1.00	1665			1665	0.243			42	44	0.656	51
E1,E2	1,2	3.00	E	1	10			2055	40	455		495	0.08	2030			2030	0.244			42	44	0.658	62
E2	1,2	3.00	E	1				2055		475		475	0.00	2055			1952	0.243			42	44	0.656	60
E3	2	3.00	E	1	20			2055			85	85	1.00	1912			1912	0.044	0.044		8	8	0.699	16
C1,C2	3	3.50	C	1	15		N	1965	85	195		280	0.30	1907			1907	0.147	0.147		25	25	0.699	44
C2,C3	3	3.50	C	1	20			2105		120	175	295	0.59	2015			2015	0.146			25	25	0.697	47
D1,D2	4	3.30	D	1	20		N	1945		400	0	400	0.00	1945			1945	0.206	0.206		35	35	0.699	56
D2	4	3.30	D	1	20			2085			335	335	1.00	1940			1940	0.173			30	35	0.587	47

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J20
J20 - Sha Tau Kok Road / Fan Leng Lau Road / Lok Yip Road	J20_2031_DES_AM	DATE : 16-Dec-24	FILENAME :



No. of stages per cycle	N =	4	
No. of stage using for calculation	N =	4	
Cycle time	C =	120	sec
Sum(y)	Y =	0.562	
Loss time	L =	23	sec
Total Flow	=	3920	pcu
Co = (1.5*L+5)/(1-Y)	=	90.1	sec
Cm = L/(1-Y)	=	52.5	sec
Yult	=	0.728	
R.C.ult = (Yult-Y)/Y*100%	=	29.5	%
Cp = 0.9*L/(0.9-Y)	=	61.2	sec
Ymax = 1-L/C	=	0.808	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	29	%

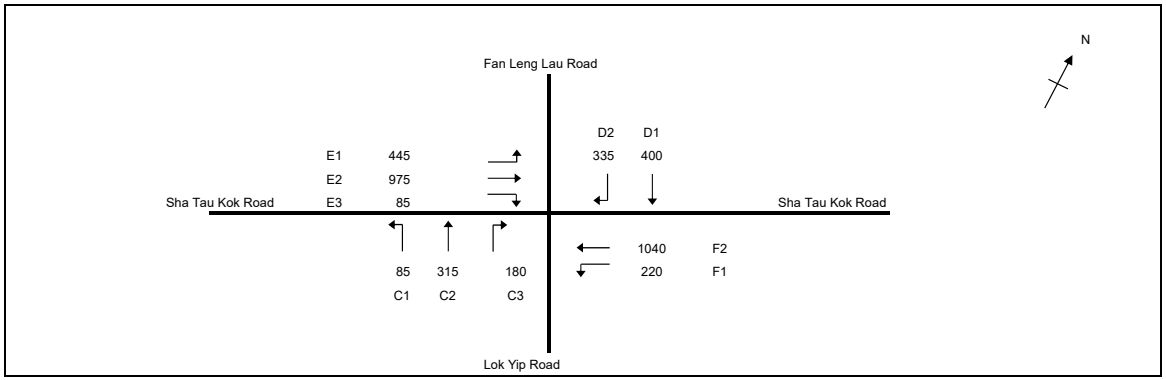


Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
P1	10	6	3	11	79	3	11	OK
P2	7	6	2	8	64	2	8	OK
P3	13.5	6	2	15	71	2	15	OK
P4	7.5	6	8	8	11	8	8	OK
P5	8.5	6	9	9	28	9	9	OK
P6	9	6	6	10	30	6	10	OK

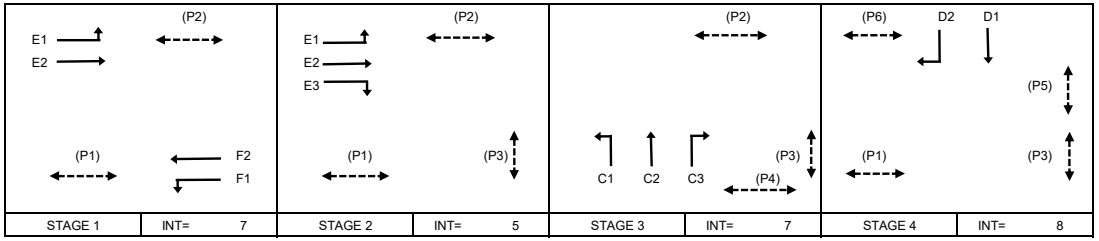
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				23				
F1	1	3.10	F	1	10		N	1925	251			251	1.00	1674			1674	0.150	0.150		26	26	0.693	39
F1,F2	1	3.10	F	1	10			2065	9	300		309	0.03	2056			2056	0.150			26	26	0.694	48
F2	1	3.10	F	1				2065		295		295	0.00	2065			1962	0.150			26	26	0.695	46
F2	1	3.10	F	1				2065		310		310	0.00	2065			2065	0.150			26	26	0.694	49
E1	1,2	3.00	E	1	10		N	1915	389			389	1.00	1665			1665	0.234			40	43	0.645	50
E1,E2	1,2	3.00	E	1	10			2055	41	434		475	0.09	2029			2029	0.234			40	43	0.647	61
E2	1,2	3.00	E	1				2055		481		481	0.00	2055			2055	0.234			40	43	0.646	61
E3	2	3.00	E	1	20			2055			105	105	1.00	1912			1912	0.055	0.055		9	9	0.695	19
C1,C2	3	3.50	C	1	15		N	1965	85	142		227	0.37	1894			1894	0.120	0.120		21	21	0.695	38
C2,C3	3	3.50	C	1	20			2105		133	110	243	0.45	2036			2036	0.119			21	21	0.692	40
D1,D2	4	3.30	D	1	20		N	1945		460	0	460	0.00	1945			1945	0.237	0.237		41	41	0.695	61
D2	4	3.30	D	1	20			2085			375	375	1.00	1940			1940	0.193			33	41	0.568	49

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J20
J20 - Sha Tau Kok Road / Fan Leng Lau Road / Lok Yip Road	J20_2031_DES_PM	DATE : 16-Dec-24	FILENAME :



No. of stages per cycle	N =	4	
No. of stage using for calculation	N =	4	
Cycle time	C =	120	sec
Sum(y)	Y =	0.575	
Loss time	L =	23	sec
Total Flow	=	4080	pcu
Co = (1.5*L+5)/(1-Y)	=	92.9	sec
Cm = L/(1-Y)	=	54.1	sec
Yult	=	0.728	
R.C.ult = (Yult-Y)/Y*100%	=	26.6	%
Cp = 0.9*L/(0.9-Y)	=	63.7	sec
Ymax = 1-L/C	=	0.808	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	26	%

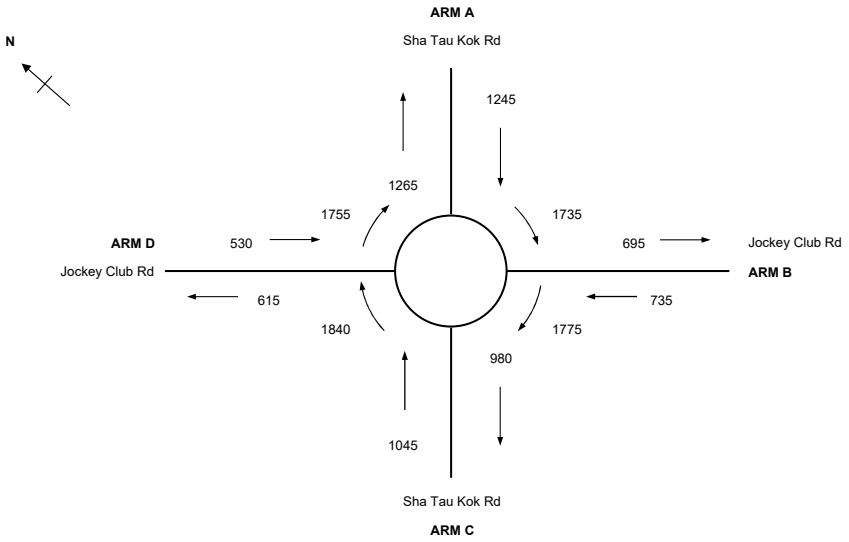


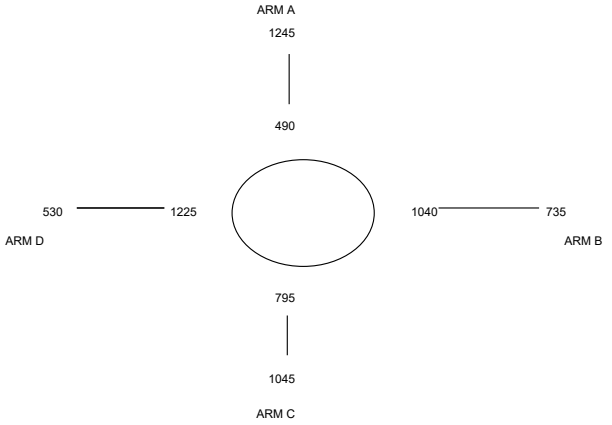
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
P1	10	6	3	11	75	3	11	OK
P2	7	6	2	8	70	2	8	OK
P3	13.5	6	2	15	67	2	15	OK
P4	7.5	6	8	8	15	8	8	OK
P5	8.5	6	9	9	22	9	9	OK
P6	9	6	6	10	24	6	10	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				23				
F1	1	3.10	F	1	10		N	1925	220			220	1.00	1674			1674	0.131	0.177		22	30	0.529	33
F1,F2	1	3.10	F	1	10			2065	0	365		365	0.00	2065			2065	0.177			30	30	0.711	55
F2	1	3.10	F	1				2065		310		310	0.00	2065			1755	0.177			30	30	0.711	47
F2	1	3.10	F	1				2065		365		365	0.00	2065			2065	0.177			30	30	0.711	55
E1	1,2	3.00	E	1	10		N	1915	425			425	1.00	1665			1665	0.255			43	45	0.676	53
E1,E2	1,2	3.00	E	1	10			2055	20	502		522	0.04	2043			2043	0.255			43	45	0.676	65
E2	1,2	3.00	E	1				2055		473		473	0.00	2055			1850	0.256			43	45	0.677	59
E3	2	3.00	E	1	20			2055			85	85	1.00	1912			1912	0.044	0.044		8	8	0.711	16
C1,C2	3	3.50	C	1	15		N	1965	85	197		282	0.30	1908			1908	0.148	0.148		25	25	0.710	45
C2,C3	3	3.50	C	1	20			2105		118	180	298	0.60	2014			2014	0.148			25	25	0.711	47
D1,D2	4	3.30	D	1	20		N	1945		400	0	400	0.00	1945			1945	0.206	0.206		35	35	0.711	57
D2	4	3.30	D	1	20			2085			335	335	1.00	1940			1940	0.173			29	35	0.597	48

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
			PROJECT NO. 287082
J21 - Sha Tau Kok Road / Jockey Club Road	J21_2023_EXT_AM	DATE 16/12/2024	



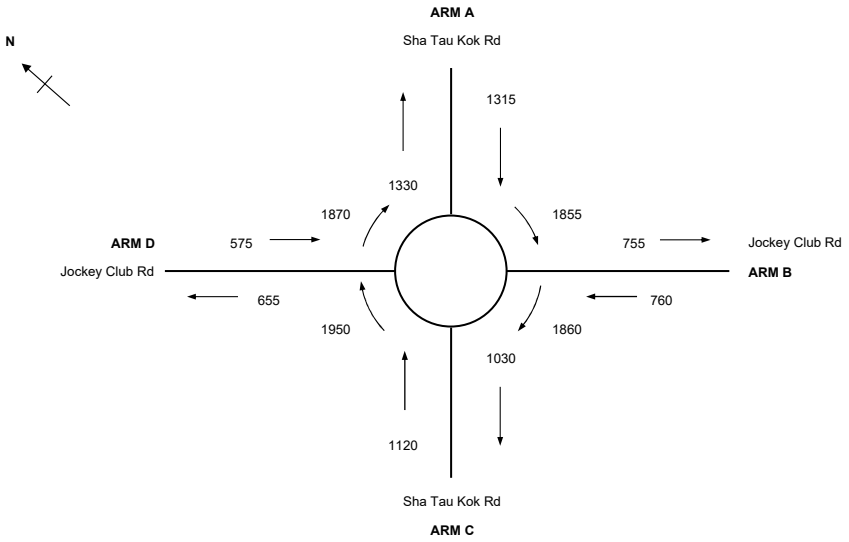


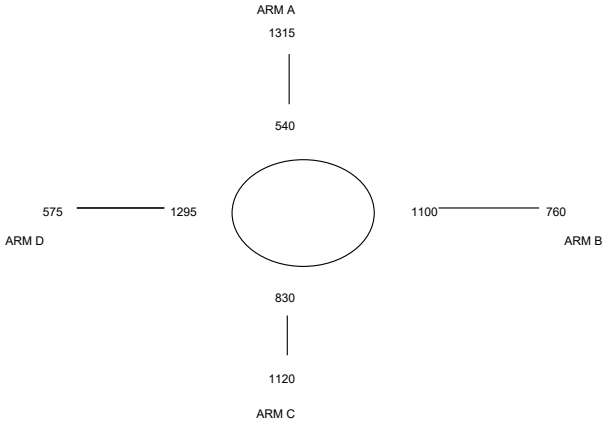
ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.30	7.30	7.30	7.30
E	=	Entry width (m)	9.00	8.00	9.00	8.00
L	=	Effective length of flare (m)	10	10	15	10
R	=	Entry radius (m)	30	35	50	30
D	=	Inscribed circle diameter (m)	65	65	65	65
A	=	Entry angle (degree)	20	10	15	25
Q	=	Entry flow (pcu/h)	1245	735	1045	530
Qc	=	Circulating flow across entry (pcu/h)	490	1040	795	1225
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.27	0.11	0.18	0.11
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.05	1.09	1.08	1.03
X2	=	V + ((E-V)/(1+2S))	8.40	7.87	8.55	7.87
M	=	EXP((D-60)/10)	1.65	1.65	1.65	1.65
F	=	303*X2	2546	2385	2590	2385
Td	=	1+(0.5/(1+M))	1.19	1.19	1.19	1.19
Fc	=	0.21*Td(1+0.2*X2)	0.67	0.64	0.68	0.64
Qe	=	K(F-Fc*Qc)	2331	1872	2219	1652
DFC	=	Design flow/Capacity = Q/Qe	0.53	0.39	0.47	0.32

Total In Sum = **3555** **PCU**

DFC of Critical Approach = **0.53**

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
			PROJECT NO. 287082
J21 - Sha Tau Kok Road / Jockey Club Road	J21_2023_EXT_PM	DATE 16/12/2024	



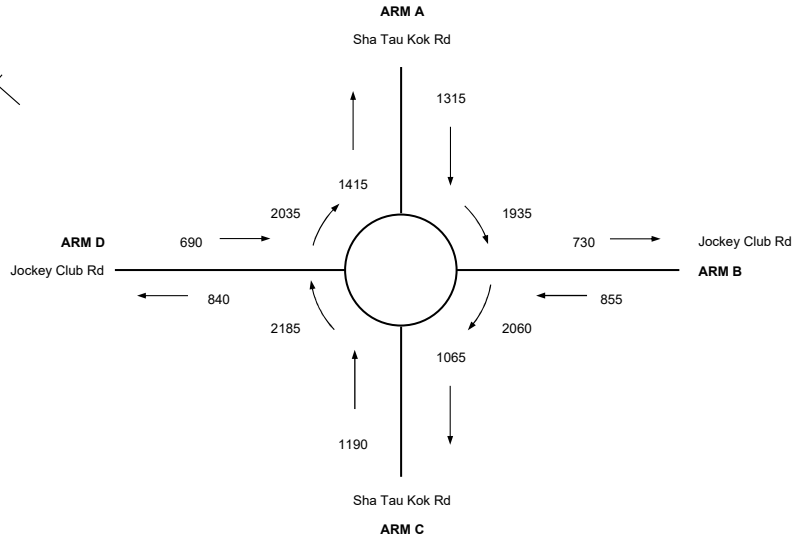


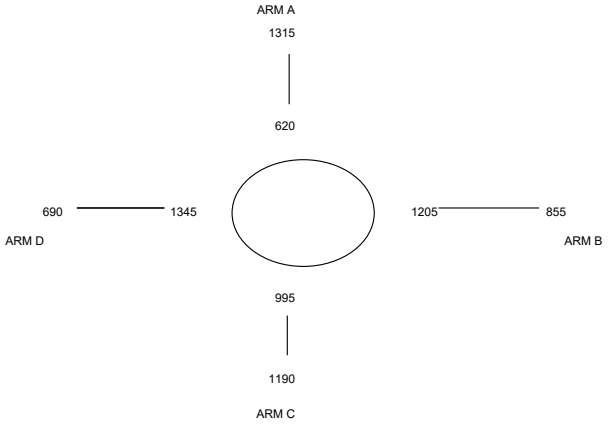
ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.30	7.30	7.30	7.30
E	=	Entry width (m)	9.00	8.00	9.00	8.00
L	=	Effective length of flare (m)	10	10	15	10
R	=	Entry radius (m)	30	35	50	30
D	=	Inscribed circle diameter (m)	65	65	65	65
A	=	Entry angle (degree)	20	10	15	25
Q	=	Entry flow (pcu/h)	1315	760	1120	575
Qc	=	Circulating flow across entry (pcu/h)	540	1100	830	1295
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.27	0.11	0.18	0.11
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.05	1.09	1.08	1.03
X2	=	V + ((E-V)/(1+2S))	8.40	7.87	8.55	7.87
M	=	EXP((D-60)/10)	1.65	1.65	1.65	1.65
F	=	303*X2	2546	2385	2590	2385
Td	=	1+(0.5/(1+M))	1.19	1.19	1.19	1.19
Fc	=	0.21*Td(1+0.2*X2)	0.67	0.64	0.68	0.64
Qe	=	K(F-Fc*Qc)	2296	1830	2194	1605
DFC	=	Design flow/Capacity = Q/Qe	0.57	0.42	0.51	0.36

Total In Sum = **3770** **PCU**

DFC of Critical Approach = **0.57**

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
			PROJECT NO. 287082
J21 - Sha Tau Kok Road / Jockey Club Road	J21_2031_REF_AM	DATE 16/12/2024	



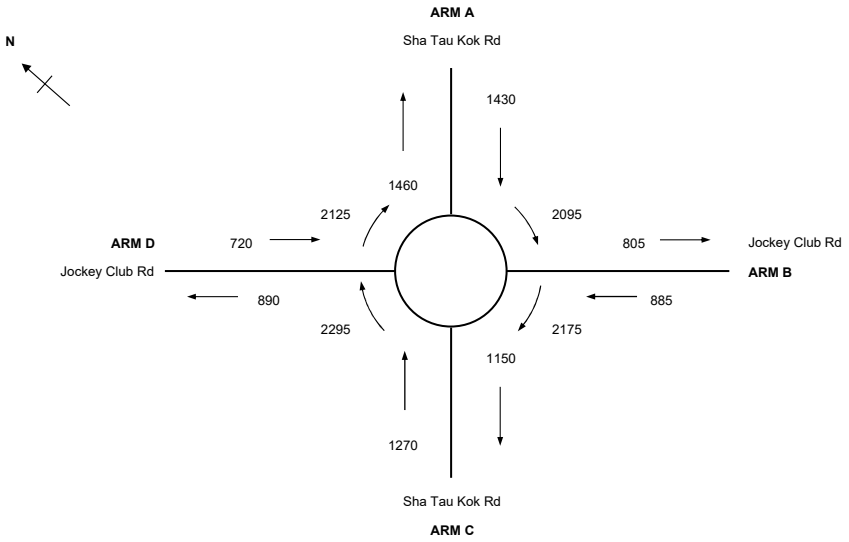


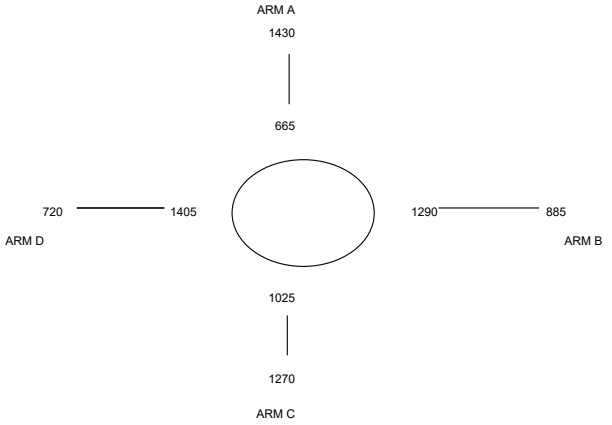
ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.30	7.30	7.30	7.30
E	=	Entry width (m)	9.00	8.00	9.00	8.00
L	=	Effective length of flare (m)	10	10	15	10
R	=	Entry radius (m)	30	35	50	30
D	=	Inscribed circle diameter (m)	65	65	65	65
A	=	Entry angle (degree)	20	10	15	25
Q	=	Entry flow (pcu/h)	1315	855	1190	690
Qc	=	Circulating flow across entry (pcu/h)	620	1205	995	1345
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.27	0.11	0.18	0.11
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.05	1.09	1.08	1.03
X2	=	V + ((E-V)/(1+2S))	8.40	7.87	8.55	7.87
M	=	EXP((D-60)/10)	1.65	1.65	1.65	1.65
F	=	303*X2	2546	2385	2590	2385
Td	=	1+(0.5/(1+M))	1.19	1.19	1.19	1.19
Fc	=	0.21*Td(1+0.2*X2)	0.67	0.64	0.68	0.64
Qe	=	K(F-Fc*Qc)	2239	1756	2073	1572
DFC	=	Design flow/Capacity = Q/Qe	0.59	0.49	0.58	0.44

Total In Sum = **4050** **PCU**

DFC of Critical Approach = **0.59**

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
			PROJECT NO. 287082
J21 - Sha Tau Kok Road / Jockey Club Road	J21_2031_REF_PM	DATE 16/12/2024	



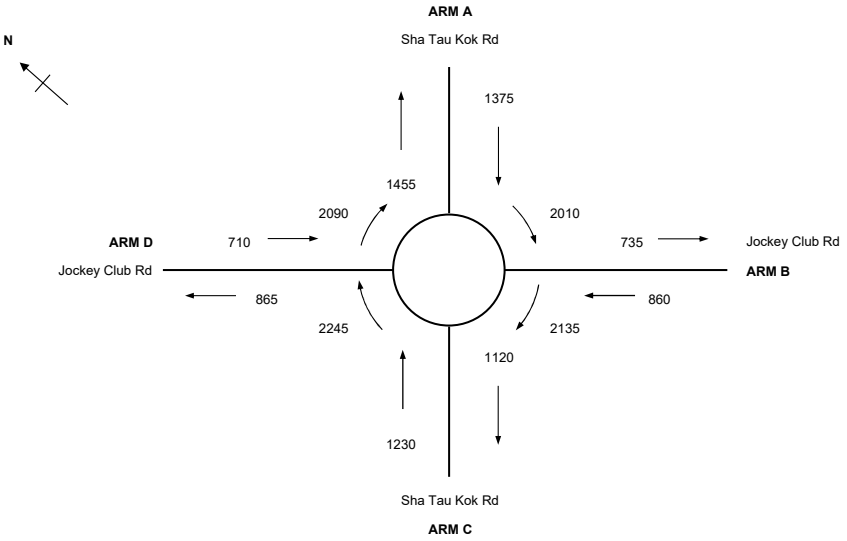


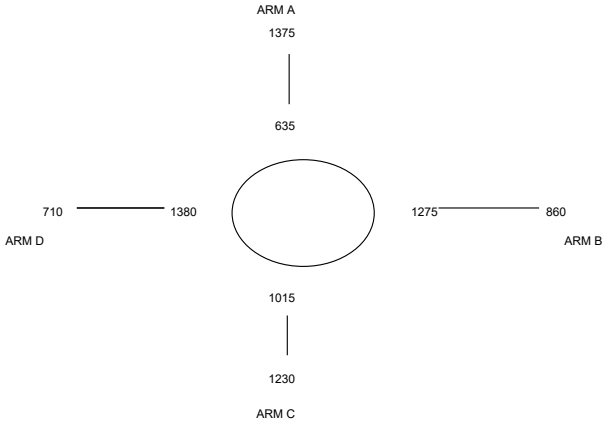
ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.30	7.30	7.30	7.30
E	=	Entry width (m)	9.00	8.00	9.00	8.00
L	=	Effective length of flare (m)	10	10	15	10
R	=	Entry radius (m)	30	35	50	30
D	=	Inscribed circle diameter (m)	65	65	65	65
A	=	Entry angle (degree)	20	10	15	25
Q	=	Entry flow (pcu/h)	1430	885	1270	720
Qc	=	Circulating flow across entry (pcu/h)	665	1290	1025	1405
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.27	0.11	0.18	0.11
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.05	1.09	1.08	1.03
X2	=	V + ((E-V)/(1+2S))	8.40	7.87	8.55	7.87
M	=	EXP((D-60)/10)	1.65	1.65	1.65	1.65
F	=	303*X2	2546	2385	2590	2385
Td	=	1+(0.5/(1+M))	1.19	1.19	1.19	1.19
Fc	=	0.21*Td(1+0.2*X2)	0.67	0.64	0.68	0.64
Qe	=	K(F-Fc*Qc)	2208	1697	2051	1532
DFC	=	Design flow/Capacity = Q/Qe	0.65	0.53	0.62	0.47

Total In Sum = **4305** **PCU**

DFC of Critical Approach = **0.65**

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
			PROJECT NO. 287082
J21 - Sha Tau Kok Road / Jockey Club Road	J21_2031_DES_AM	DATE 16/12/2024	



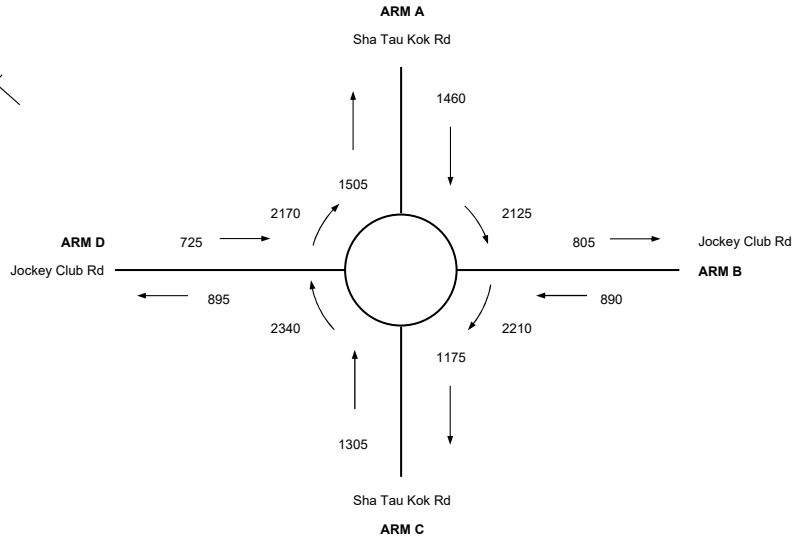


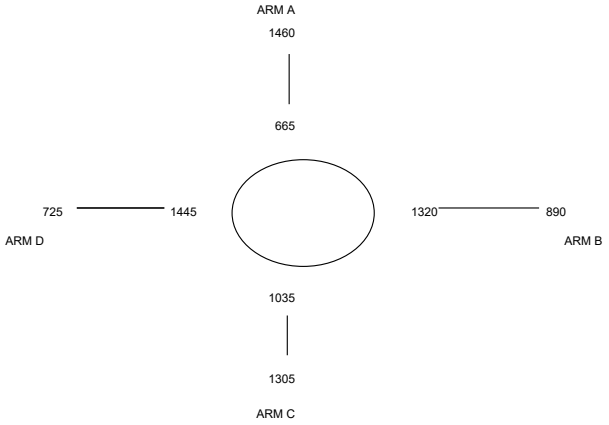
ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.30	7.30	7.30	7.30
E	=	Entry width (m)	9.00	8.00	9.00	8.00
L	=	Effective length of flare (m)	10	10	15	10
R	=	Entry radius (m)	30	35	50	30
D	=	Inscribed circle diameter (m)	65	65	65	65
A	=	Entry angle (degree)	20	10	15	25
Q	=	Entry flow (pcu/h)	1375	860	1230	710
Qc	=	Circulating flow across entry (pcu/h)	635	1275	1015	1380
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.27	0.11	0.18	0.11
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.05	1.09	1.08	1.03
X2	=	V + ((E-V)/(1+2S))	8.40	7.87	8.55	7.87
M	=	EXP((D-60)/10)	1.65	1.65	1.65	1.65
F	=	303*X2	2546	2385	2590	2385
Td	=	1+(0.5/(1+M))	1.19	1.19	1.19	1.19
Fc	=	0.21*Td(1+0.2*X2)	0.67	0.64	0.68	0.64
Qe	=	K(F-Fc*Qc)	2229	1707	2058	1549
DFC	=	Design flow/Capacity = Q/Qe	0.62	0.51	0.60	0.46

Total In Sum = **4175** **PCU**

DFC of Critical Approach = **0.62**

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
			PROJECT NO. 287082
J21 - Sha Tau Kok Road / Jockey Club Road	J21_2031_DES_PM	DATE 16/12/2024	



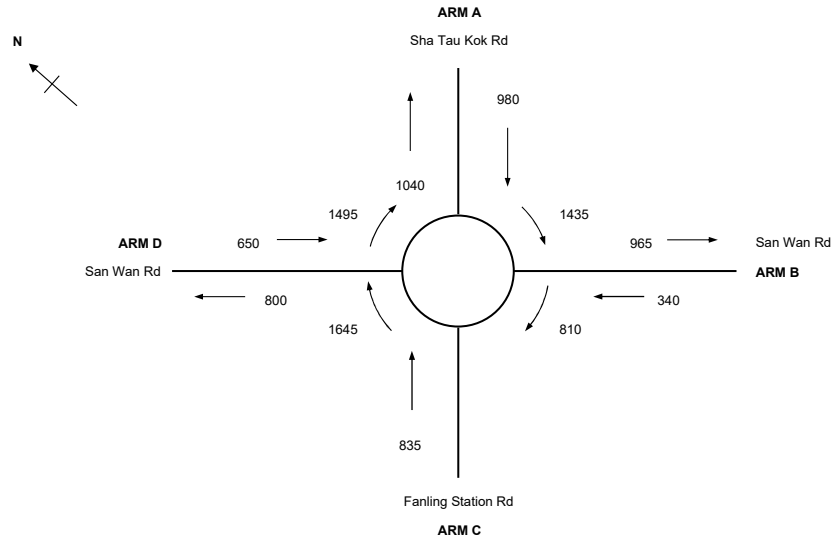


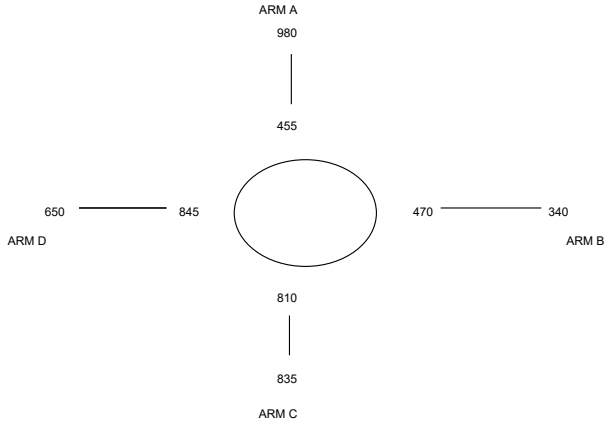
ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.30	7.30	7.30	7.30
E	=	Entry width (m)	9.00	8.00	9.00	8.00
L	=	Effective length of flare (m)	10	10	15	10
R	=	Entry radius (m)	30	35	50	30
D	=	Inscribed circle diameter (m)	65	65	65	65
A	=	Entry angle (degree)	20	10	15	25
Q	=	Entry flow (pcu/h)	1460	890	1305	725
Qc	=	Circulating flow across entry (pcu/h)	665	1320	1035	1445
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.27	0.11	0.18	0.11
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.05	1.09	1.08	1.03
X2	=	V + ((E-V)/(1+2S))	8.40	7.87	8.55	7.87
M	=	EXP((D-60)/10)	1.65	1.65	1.65	1.65
F	=	303*X2	2546	2385	2590	2385
Td	=	1+(0.5/(1+M))	1.19	1.19	1.19	1.19
Fc	=	0.21*Td(1+0.2*X2)	0.67	0.64	0.68	0.64
Qe	=	K(F-Fc*Qc)	2208	1676	2044	1506
DFC	=	Design flow/Capacity = Q/Qe	0.67	0.54	0.64	0.49

Total In Sum = **4380** **PCU**

DFC of Critical Approach = **0.67**

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
			PROJECT NO. 287082
J22 - Sha Tau Kok Road-Lung Yeuk Tau / San Wan Road	J22_2023_EXT_AM	DATE 16/12/2024	



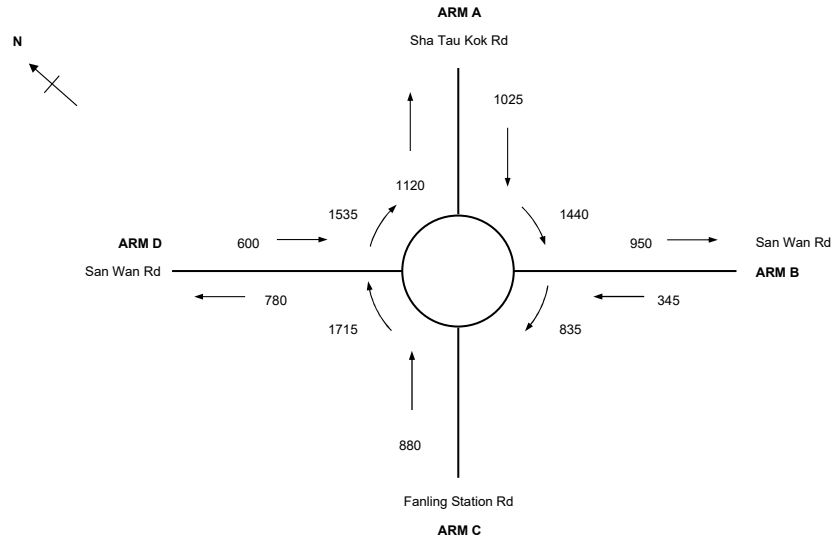


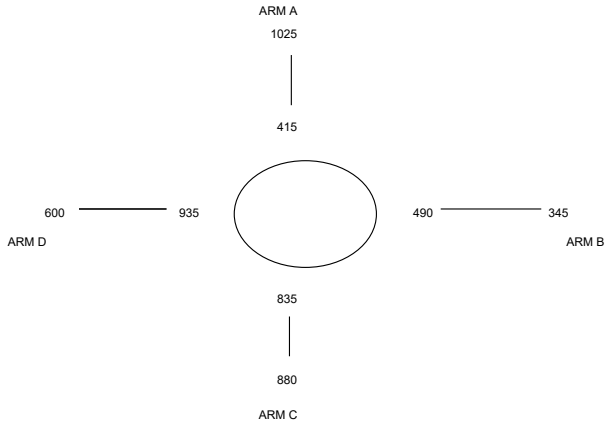
ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	5.50	7.30	7.30	6.00
E	=	Entry width (m)	10.00	10.50	10.00	7.50
L	=	Effective length of flare (m)	30	50	15	50
R	=	Entry radius (m)	100	100	25	50
D	=	Inscribed circle diameter (m)	55	55	55	55
A	=	Entry angle (degree)	10	30	30	15
Q	=	Entry flow (pcu/h)	980	340	835	650
Qc	=	Circulating flow across entry (pcu/h)	455	470	810	845
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.24	0.10	0.29	0.05
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.11	1.04	1.01	1.08
X2	=	V + ((E-V)/(1+2S))	8.54	9.96	9.01	7.37
M	=	EXP((D-60)/10)	0.61	0.61	0.61	0.61
F	=	303*X2	2588	3017	2731	2233
Td	=	1+(0.5/(1+M))	1.31	1.31	1.31	1.31
Fc	=	0.21*Td(1+0.2*X2)	0.75	0.82	0.77	0.68
Qe	=	K(F-Fc*Qc)	2492	2732	2126	1792
DFC	=	Design flow/Capacity = Q/Qe	0.39	0.12	0.39	0.36

Total In Sum = **2805** **PCU**

DFC of Critical Approach = **0.39**

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
			PROJECT NO. 287082
J22 - Sha Tau Kok Road-Lung Yeuk Tau / San Wan Road	J22_2023_EXT_PM	DATE 16/12/2024	



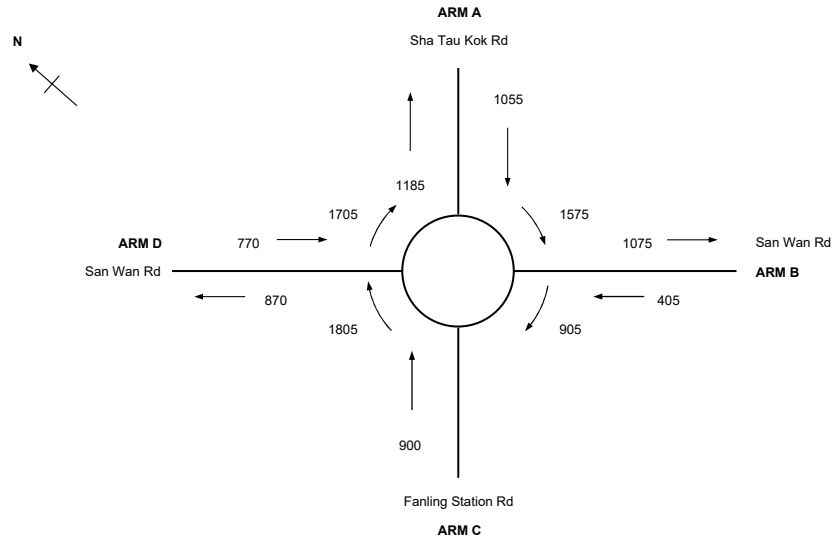


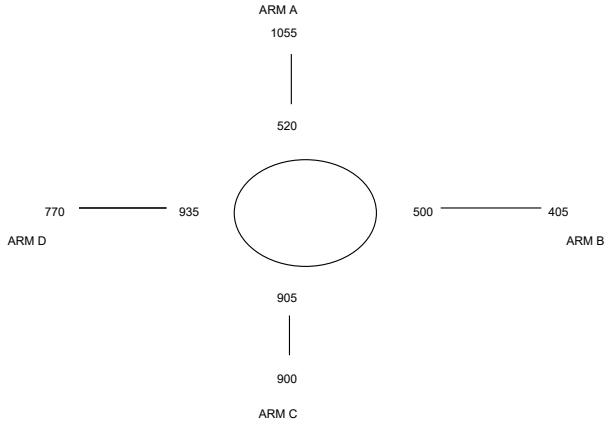
ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	5.50	7.30	7.30	6.00
E	=	Entry width (m)	10.00	10.50	10.00	7.50
L	=	Effective length of flare (m)	30	50	15	50
R	=	Entry radius (m)	100	100	25	50
D	=	Inscribed circle diameter (m)	55	55	55	55
A	=	Entry angle (degree)	10	30	30	15
Q	=	Entry flow (pcu/h)	1025	345	880	600
Qc	=	Circulating flow across entry (pcu/h)	415	490	835	935
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.24	0.10	0.29	0.05
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.11	1.04	1.01	1.08
X2	=	V + ((E-V)/(1+2S))	8.54	9.96	9.01	7.37
M	=	EXP((D-60)/10)	0.61	0.61	0.61	0.61
F	=	303*X2	2588	3017	2731	2233
Td	=	1+(0.5/(1+M))	1.31	1.31	1.31	1.31
Fc	=	0.21*Td(1+0.2*X2)	0.75	0.82	0.77	0.68
Qe	=	K(F-Fc*Qc)	2526	2715	2107	1726
DFC	=	Design flow/Capacity = Q/Qe	0.41	0.13	0.42	0.35

Total In Sum = **2850** **PCU**

DFC of Critical Approach = **0.42**

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
			PROJECT NO. 287082
J22 - Sha Tau Kok Road-Lung Yeuk Tau / San Wan Road	J22_2031_REF_AM	DATE 16/12/2024	



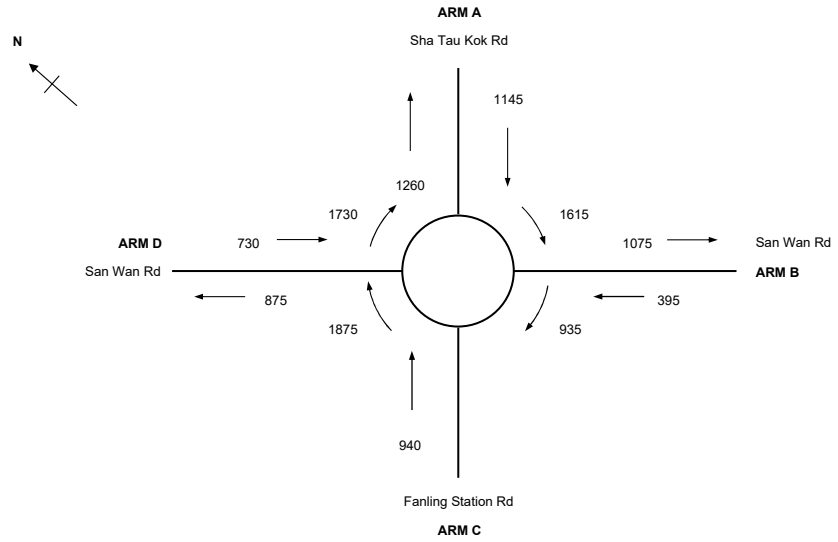


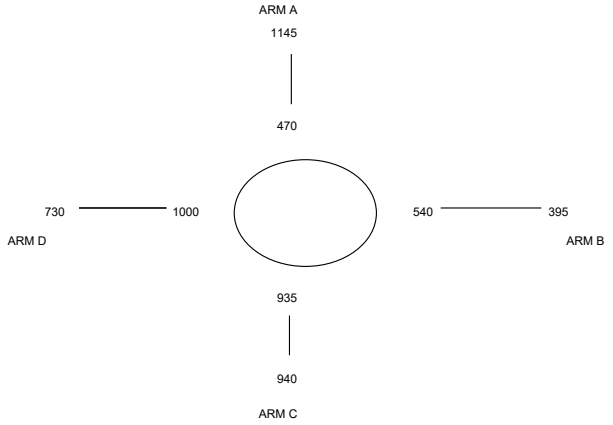
ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	5.50	7.30	7.30	6.00
E	=	Entry width (m)	10.00	10.50	10.00	7.50
L	=	Effective length of flare (m)	30	50	15	50
R	=	Entry radius (m)	100	100	25	50
D	=	Inscribed circle diameter (m)	55	55	55	55
A	=	Entry angle (degree)	10	30	30	15
Q	=	Entry flow (pcu/h)	1055	405	900	770
Qc	=	Circulating flow across entry (pcu/h)	520	500	905	935
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.24	0.10	0.29	0.05
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.11	1.04	1.01	1.08
X2	=	V + ((E-V)/(1+2S))	8.54	9.96	9.01	7.37
M	=	EXP((D-60)/10)	0.61	0.61	0.61	0.61
F	=	303*X2	2588	3017	2731	2233
Td	=	1+(0.5/(1+M))	1.31	1.31	1.31	1.31
Fc	=	0.21*Td(1+0.2*X2)	0.75	0.82	0.77	0.68
Qe	=	K(F-Fc*Qc)	2439	2707	2052	1726
DFC	=	Design flow/Capacity = Q/Qe	0.44	0.15	0.44	0.45

Total In Sum = **3130** **PCU**

DFC of Critical Approach = **0.45**

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
			PROJECT NO. 287082
J22 - Sha Tau Kok Road-Lung Yeuk Tau / San Wan Road	J22_2031_REF_PM	DATE 16/12/2024	



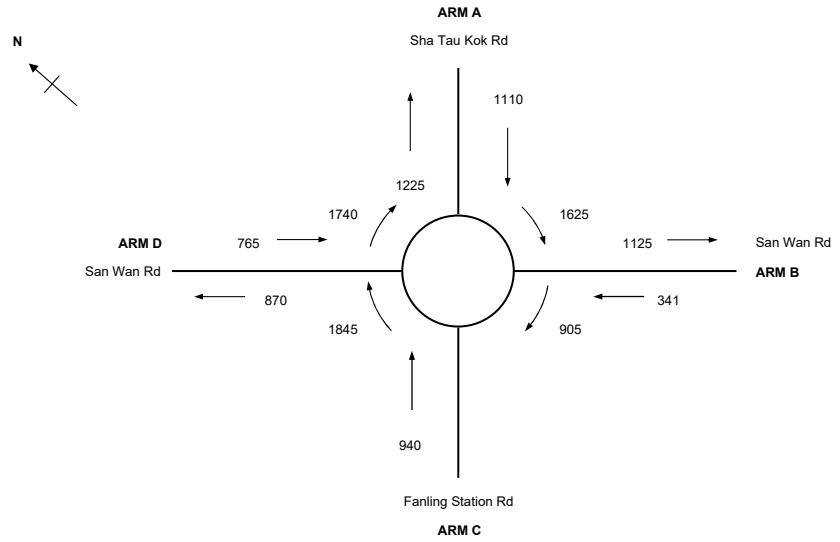


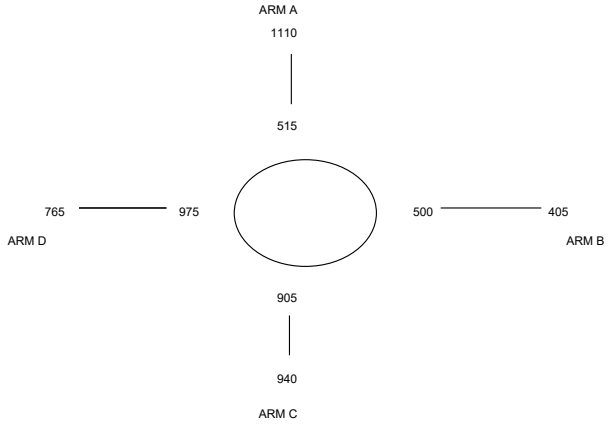
ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	5.50	7.30	7.30	6.00
E	=	Entry width (m)	10.00	10.50	10.00	7.50
L	=	Effective length of flare (m)	30	50	15	50
R	=	Entry radius (m)	100	100	25	50
D	=	Inscribed circle diameter (m)	55	55	55	55
A	=	Entry angle (degree)	10	30	30	15
Q	=	Entry flow (pcu/h)	1145	395	940	730
Qc	=	Circulating flow across entry (pcu/h)	470	540	935	1000
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.24	0.10	0.29	0.05
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.11	1.04	1.01	1.08
X2	=	V + ((E-V)/(1+2S))	8.54	9.96	9.01	7.37
M	=	EXP((D-60)/10)	0.61	0.61	0.61	0.61
F	=	303*X2	2588	3017	2731	2233
Td	=	1+(0.5/(1+M))	1.31	1.31	1.31	1.31
Fc	=	0.21*Td(1+0.2*X2)	0.75	0.82	0.77	0.68
Qe	=	K(F-Fc*Qc)	2480	2673	2029	1678
DFC	=	Design flow/Capacity = Q/Qe	0.47	0.15	0.47	0.44

Total In Sum = **3210** **PCU**

DFC of Critical Approach = **0.47**

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
			PROJECT NO. 287082
J22 - Sha Tau Kok Road-Lung Yeuk Tau / San Wan Road	J22_2031_DES_AM	DATE 16/12/2024	



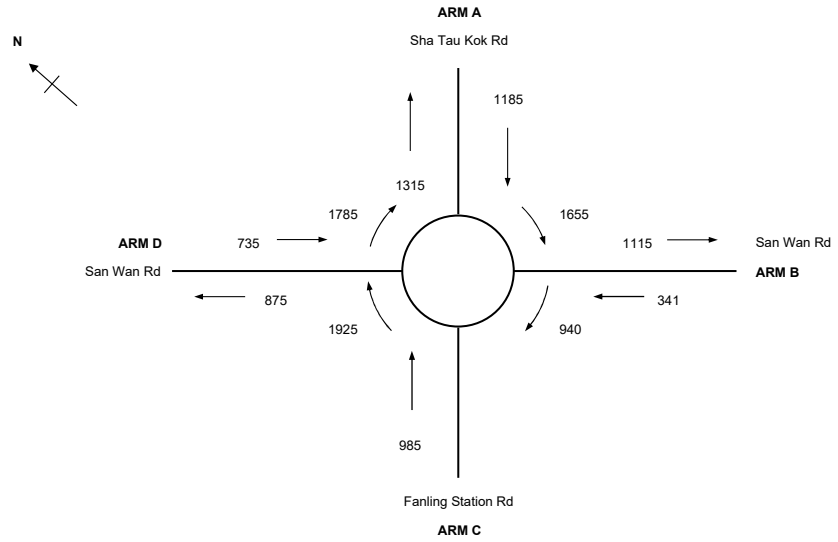


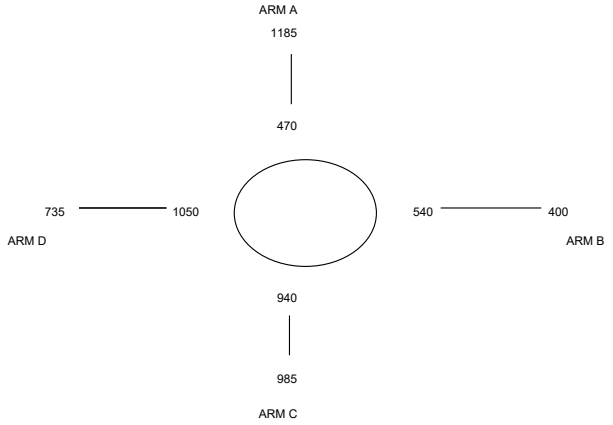
ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	5.50	7.30	7.30	6.00
E	=	Entry width (m)	10.00	10.50	10.00	7.50
L	=	Effective length of flare (m)	30	50	15	50
R	=	Entry radius (m)	100	100	25	50
D	=	Inscribed circle diameter (m)	55	55	55	55
A	=	Entry angle (degree)	10	30	30	15
Q	=	Entry flow (pcu/h)	1110	405	940	765
Qc	=	Circulating flow across entry (pcu/h)	515	500	905	975
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.24	0.10	0.29	0.05
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.11	1.04	1.01	1.08
X2	=	V + ((E-V)/(1+2S))	8.54	9.96	9.01	7.37
M	=	EXP((D-60)/10)	0.61	0.61	0.61	0.61
F	=	303*X2	2588	3017	2731	2233
Td	=	1+(0.5/(1+M))	1.31	1.31	1.31	1.31
Fc	=	0.21*Td(1+0.2*X2)	0.75	0.82	0.77	0.68
Qe	=	K(F-Fc*Qc)	2443	2707	2052	1696
DFC	=	Design flow/Capacity = Q/Qe	0.46	0.15	0.46	0.46

Total In Sum = **3220** **PCU**

DFC of Critical Approach = **0.46**

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
			PROJECT NO. 287082
J22 - Sha Tau Kok Road-Lung Yeuk Tau / San Wan Road	J22_2031_DES_PM	DATE 16/12/2024	



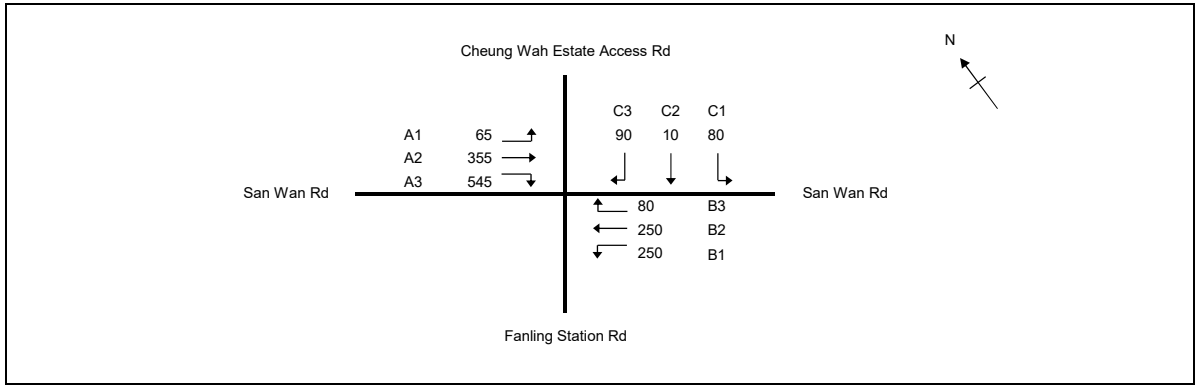


ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	5.50	7.30	7.30	6.00
E	=	Entry width (m)	10.00	10.50	10.00	7.50
L	=	Effective length of flare (m)	30	50	15	50
R	=	Entry radius (m)	100	100	25	50
D	=	Inscribed circle diameter (m)	55	55	55	55
A	=	Entry angle (degree)	10	30	30	15
Q	=	Entry flow (pcu/h)	1185	400	985	735
Qc	=	Circulating flow across entry (pcu/h)	470	540	940	1050
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.24	0.10	0.29	0.05
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.11	1.04	1.01	1.08
X2	=	V + ((E-V)/(1+2S))	8.54	9.96	9.01	7.37
M	=	EXP((D-60)/10)	0.61	0.61	0.61	0.61
F	=	303*X2	2588	3017	2731	2233
Td	=	1+(0.5/(1+M))	1.31	1.31	1.31	1.31
Fc	=	0.21*Td(1+0.2*X2)	0.75	0.82	0.77	0.68
Qe	=	K(F-Fc*Qc)	2480	2673	2025	1641
DFC	=	Design flow/Capacity = Q/Qe	0.48	0.15	0.49	0.45

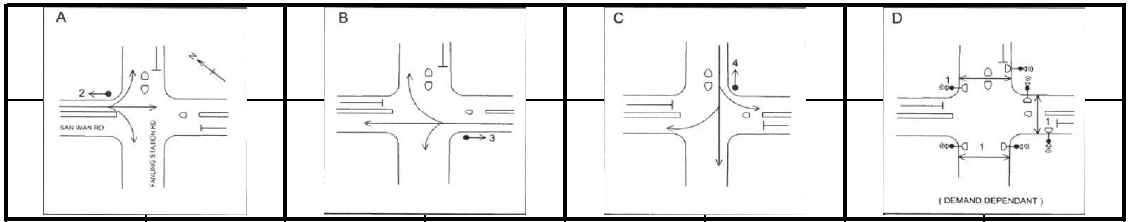
Total In Sum = **3305** **PCU**

DFC of Critical Approach = **0.49**

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J23
J23 - San Wan Road / Fanling Station Road	J23_2023_EXT_AM	DATE : 16/12/2024	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.472
Loss time		L =	43 sec
Total Flow		=	1725 pcu
Co	= (1.5*L+5)/(1-Y)	=	131.5 sec
Cm	= L/(1-Y)	=	81.4 sec
Yult		=	0.578
R.C.ult	= (Yult-Y)/Y*100%	=	22.5 %
Cp	= 0.9*L/(0.9-Y)	=	90.3 sec
Ymax	= 1-L/C	=	0.642
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	22 %



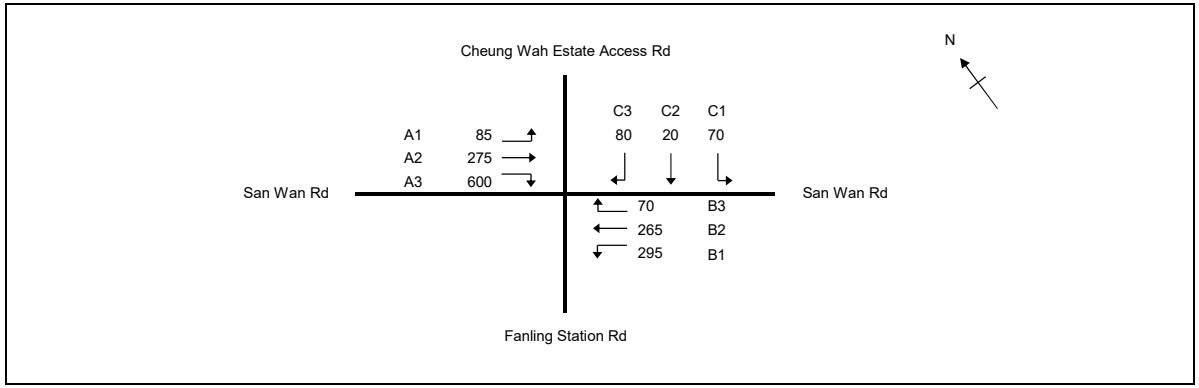
STAGE 1	INT= 7	STAGE 2	INT= 6	STAGE 3	INT= 6	STAGE 4	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1	13.5	6	6	15	6	6	15	OK

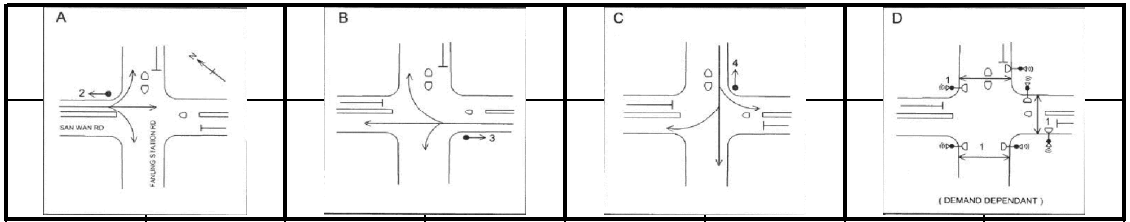
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				16				
A1	1	3.30	2	1	10		N	1945	65			65	1.00	1691			1691	0.038	0.231		6	38	0.122	9
A2,A3	1	3.30	2	1	15			2085		355	115	470	0.24	2035			2035	0.231			38	38	0.735	64
A3	1	3.30	2	1	12.5			2085			430	430	1.00	1862			1862	0.231			38	38	0.735	59
B1,B2	2	3.60	3	1	17.5		N	1975	250	24		274	0.91	1832			1832	0.150	0.150		24	24	0.735	44
B2,B3	2	3.60	3	1	12.5			2115		226	80	306	0.26	2051			2051	0.149			24	24	0.733	49
C1,C2,C3	5	5.50	4	1	15		N	2165	80	10	90	180	0.94	1978			1978	0.091	0.091		15	15	0.735	32
PED	4		1																	27				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J23
J23 - San Wan Road / Fanling Station Road	J23_2023_EXT_PM	DATE : 16/12/2024	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.474
Loss time		L =	43 sec
Total Flow		=	1760 pcu
Co	= (1.5*L+5)/(1-Y)	=	132.2 sec
Cm	= L/(1-Y)	=	81.8 sec
Yult		=	0.578
R.C.ult	= (Yult-Y)/Y*100%	=	21.8 %
Cp	= 0.9*L/(0.9-Y)	=	90.9 sec
Ymax	= 1-L/C	=	0.642
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	22 %



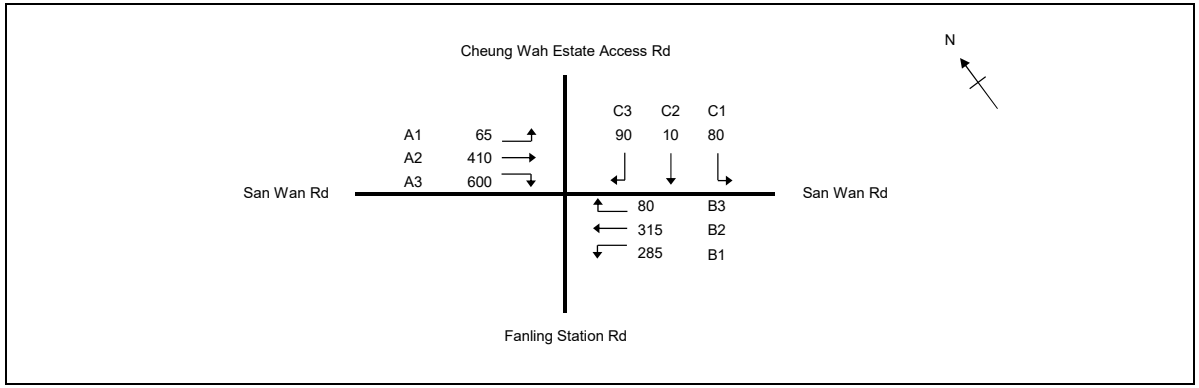
STAGE 1	INT= 7	STAGE 2	INT= 6	STAGE 3	INT= 6	STAGE 4	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1	13.5	6	6	15	6	6	15	OK

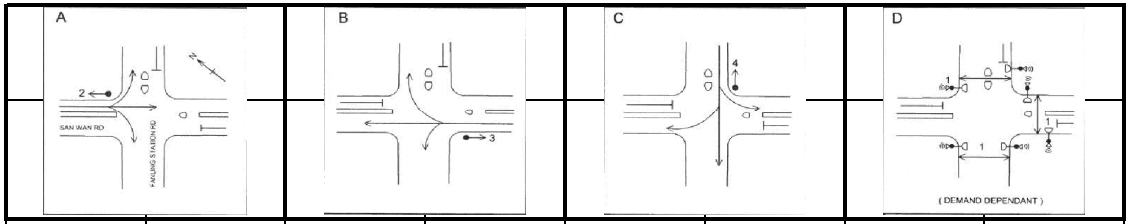
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				16				
A1	1	3.30	2	1	10		N	1945	85			85	1.00	1691			1691	0.050	0.226		8	37	0.164	12
A2,A3	1	3.30	2	1	15			2085		275	179	454	0.39	2006			2006	0.226			37	37	0.739	63
A3	1	3.30	2	1	12.5			2085			421	421	1.00	1862			1862	0.226			37	37	0.738	58
B1,B2	2	3.60	3	1	17.5		N	1975	295	0		295	1.00	1819			1819	0.162	0.162		26	26	0.738	46
B2,B3	2	3.60	3	1	12.5			2115		265	70	335	0.21	2063			2063	0.162			26	26	0.739	52
C1,C2,C3	5	5.50	4	1	15		N	2165	70	20	80	170	0.88	1989			1989	0.085	0.085		14	14	0.739	30
PED	4		1																	27				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J23
J23 - San Wan Road / Fanling Station Road	J23_2031_REF_AM	DATE : 16/12/2024	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.525
Loss time		L =	43 sec
Total Flow		=	1935 pcu
Co	= (1.5*L+5)/(1-Y)	=	146.2 sec
Cm	= L/(1-Y)	=	90.5 sec
Yult		=	0.578
R.C.ult	= (Yult-Y)/Y*100%	=	10.1 %
Cp	= 0.9*L/(0.9-Y)	=	103.1 sec
Ymax	= 1-L/C	=	0.642
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	10 %



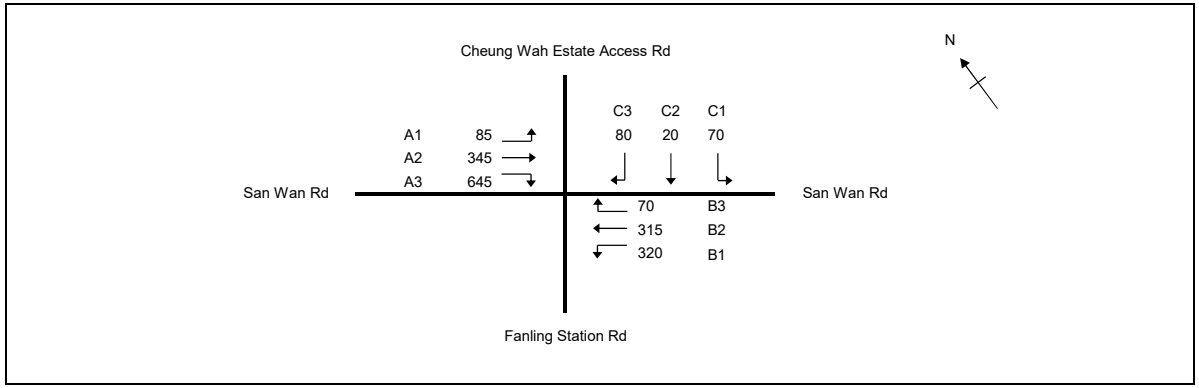
STAGE 1	INT= 7	STAGE 2	INT= 6	STAGE 3	INT= 6	STAGE 4	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1	13.5	6	6	15	6	6	15	OK

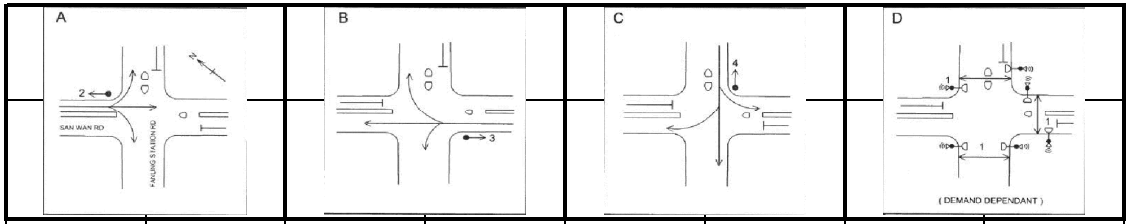
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				16				
A1	1	3.30	2	1	10		N	1945	65			65	1.00	1691			1691	0.038	0.259		6	38	0.121	9
A2,A3	1	3.30	2	1	15			2085		410	118	528	0.22	2039			2039	0.259			38	38	0.818	72
A3	1	3.30	2	1	12.5			2085			482	482	1.00	1862			1862	0.259			38	38	0.818	66
B1,B2	2	3.60	3	1	17.5		N	1975	285	35		320	0.89	1835			1835	0.174	0.175		26	26	0.816	50
B2,B3	2	3.60	3	1	12.5			2115		280	80	360	0.22	2060			2060	0.175			26	26	0.818	57
C1,C2,C3	5	5.50	4	1	15		N	2165	80	10	90	180	0.94	1978			1978	0.091	0.091		13	13	0.818	32
PED	4		1																	27				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J23
J23 - San Wan Road / Fanling Station Road	J23_2031_REF_PM	DATE : 16/12/2024	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.522
Loss time		L =	43 sec
Total Flow		=	1950 pcu
Co	= (1.5*L+5)/(1-Y)	=	145.4 sec
Cm	= L/(1-Y)	=	89.9 sec
Yult		=	0.578
R.C.ult	= (Yult-Y)/Y*100%	=	10.7 %
Cp	= 0.9*L/(0.9-Y)	=	102.3 sec
Ymax	= 1-L/C	=	0.642
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	10 %



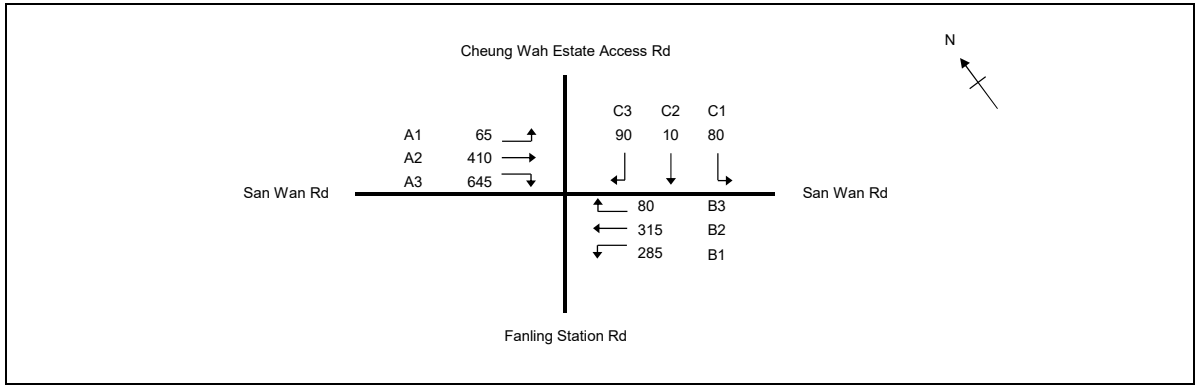
STAGE 1	INT= 7	STAGE 2	INT= 6	STAGE 3	INT= 6	STAGE 4	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1	13.5	6	6	15	6	6	15	OK

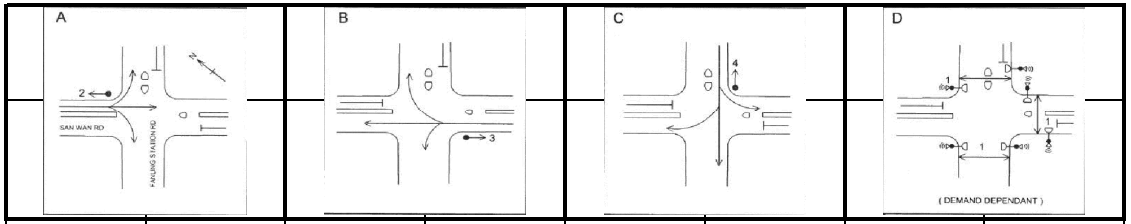
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				16				
A1	1	3.30	2	1	10		N	1945	85			85	1.00	1691			1691	0.050	0.255		7	38	0.160	12
A2,A3	1	3.30	2	1	15			2085		345	170	515	0.33	2018			2018	0.255			38	38	0.813	71
A3	1	3.30	2	1	12.5			2085			475	475	1.00	1862			1862	0.255			38	38	0.813	65
B1,B2	2	3.60	3	1	17.5		N	1975	320	10		330	0.97	1823			1823	0.181	0.181		27	27	0.812	51
B2,B3	2	3.60	3	1	12.5			2115		305	70	375	0.19	2069			2069	0.181			27	27	0.813	58
C1,C2,C3	5	5.50	4	1	15		N	2165	70	20	80	170	0.88	1989			1989	0.085	0.085		13	13	0.813	30
PED	4		1																	27				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J23
J23 - San Wan Road / Fanling Station Road	J23_2031_DES_AM	DATE : 16/12/2024	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.537
Loss time		L =	43 sec
Total Flow		=	1980 pcu
Co	= (1.5*L+5)/(1-Y)	=	150.0 sec
Cm	= L/(1-Y)	=	92.8 sec
Yult		=	0.578
R.C.ult	= (Yult-Y)/Y*100%	=	7.6 %
Cp	= 0.9*L/(0.9-Y)	=	106.5 sec
Ymax	= 1-L/C	=	0.642
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	7 %



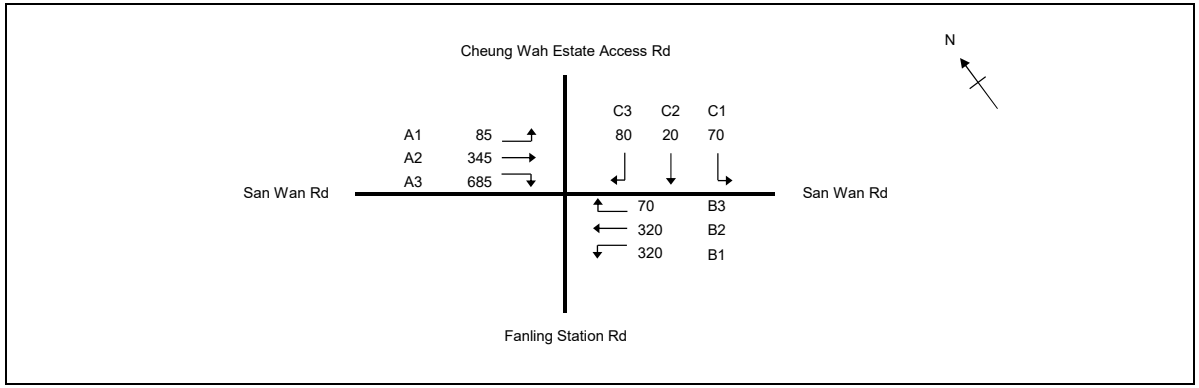
STAGE 1	INT= 7	STAGE 2	INT= 6	STAGE 3	INT= 6	STAGE 4	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1	13.5	6	6	15	6	6	15	OK

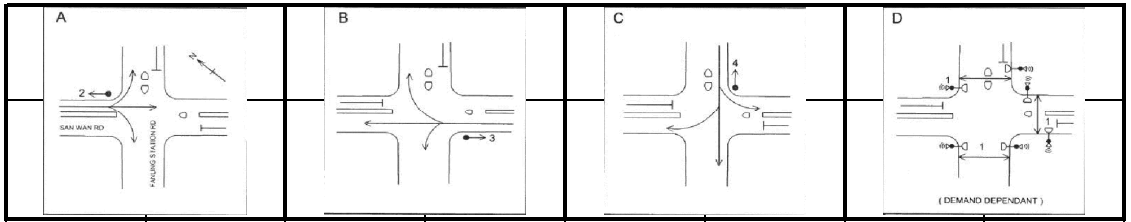
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				16				
A1	1	3.30	2	1	10		N	1945	65			65	1.00	1691			1691	0.038	0.271		6	39	0.119	9
A2,A3	1	3.30	2	1	15			2085		410	141	551	0.26	2033			2033	0.271			39	39	0.837	74
A3	1	3.30	2	1	12.5			2085			504	504	1.00	1862			1862	0.271			39	39	0.836	68
B1,B2	2	3.60	3	1	17.5		N	1975	285	35		320	0.89	1835			1835	0.174	0.175		25	25	0.835	51
B2,B3	2	3.60	3	1	12.5			2115		280	80	360	0.22	2060			2060	0.175			25	25	0.837	57
C1,C2,C3	5	5.50	4	1	15		N	2165	80	10	90	180	0.94	1978			1978	0.091	0.091		13	13	0.837	32
PED	4		1																	27				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J23
J23 - San Wan Road / Fanling Station Road	J23_2031_DES_PM	DATE : 16/12/2024	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.534
Loss time		L =	43 sec
Total Flow		=	1995 pcu
Co	= (1.5*L+5)/(1-Y)	=	149.1 sec
Cm	= L/(1-Y)	=	92.2 sec
Yult		=	0.578
R.C.ult	= (Yult-Y)/Y*100%	=	8.2 %
Cp	= 0.9*L/(0.9-Y)	=	105.7 sec
Ymax	= 1-L/C	=	0.642
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	8 %



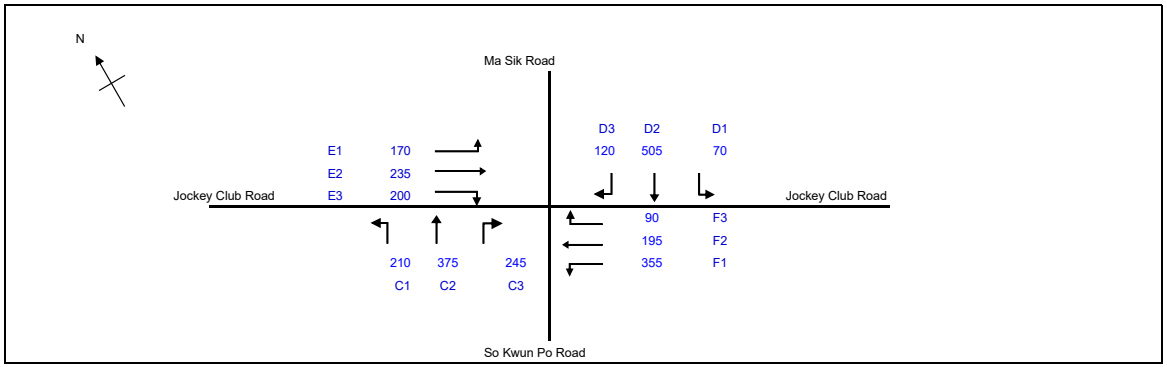
STAGE 1	INT= 7	STAGE 2	INT= 6	STAGE 3	INT= 6	STAGE 4	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1	13.5	6	6	15	6	6	15	OK

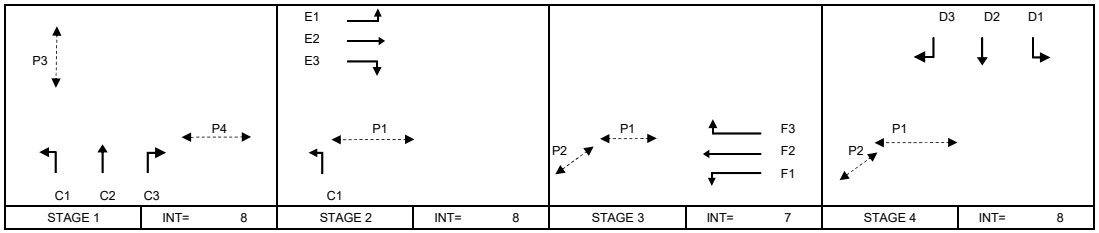
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				16				
A1	1	3.30	2	1	10		N	1945	85			85	1.00	1691			1691	0.050	0.266		7	38	0.157	12
A2,A3	1	3.30	2	1	15			2085		345	190	535	0.36	2013			2013	0.266			38	38	0.831	73
A3	1	3.30	2	1	12.5			2085			495	495	1.00	1862			1862	0.266			38	38	0.832	67
B1,B2	2	3.60	3	1	17.5		N	1975	320	13		333	0.96	1825			1825	0.182	0.182		26	26	0.832	52
B2,B3	2	3.60	3	1	12.5			2115		307	70	377	0.19	2069			2069	0.182			26	26	0.831	59
C1,C2,C3	5	5.50	4	1	15		N	2165	70	20	80	170	0.88	1989			1989	0.085	0.085		12	12	0.832	31
PED	4		1																	27				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J24
J24 - So Kwun Po Road / Jockey Club Road		DATE : 16-Dec-24	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.293
Loss time		L =	55 sec
Total Flow		=	2770 pcu
Co	= (1.5*L+5)/(1-Y)	=	123.8 sec
Cm	= L/(1-Y)	=	77.8 sec
Yult		=	0.488
R.C.ult	= (Yult-Y)/Y*100%	=	66.1 %
Cp	= 0.9*L/(0.9-Y)	=	81.6 sec
Ymax	= 1-L/C	=	0.542
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	66 %



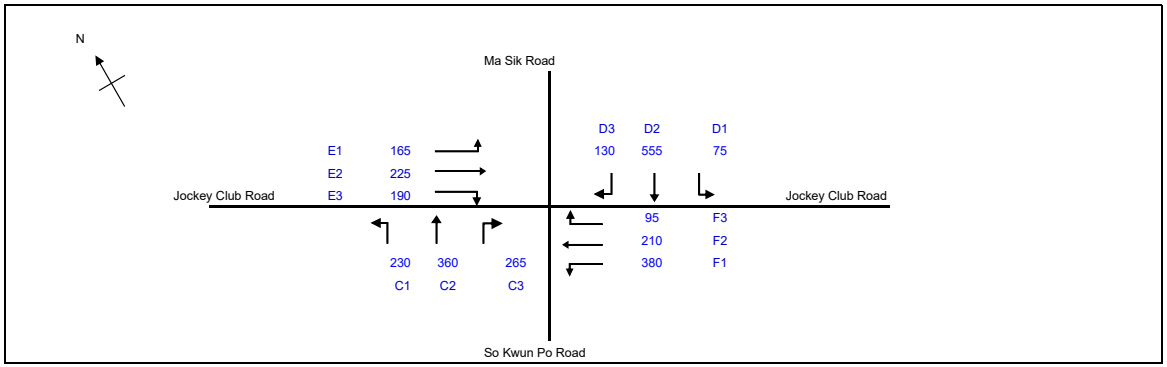
STAGE 1	INT= 8	STAGE 2	INT= 8	STAGE 3	INT= 7	STAGE 4	INT= 8

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
P1	10	6	2	11	72	2	11	OK
P2	5	6	2	6	54	2	6	OK
P3	16	13	6	16	13	6	16	OK
P4	10	6	4	11	20	4	11	OK

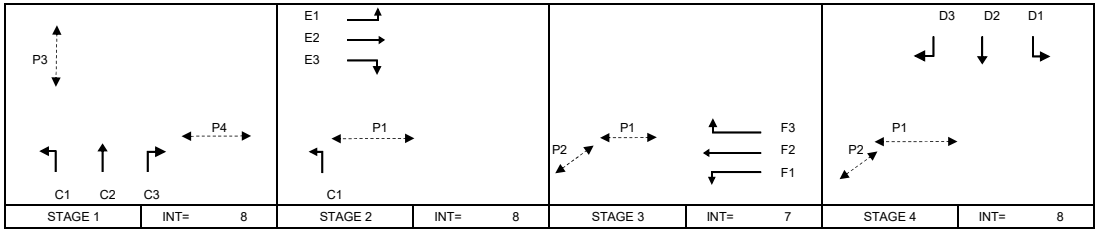
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				20				
C1	1,2	5.00	C	1	40			2255	210			210	1.00	2173			2173	0.097			21	51	0.229	24
C2	1	3.30	C	1				2085		213		213	0.00	2085			2085	0.102			23	28	0.438	33
C2,C3	1	3.30	C	1	15			2085		162	47	209	0.22	2039			2039	0.102			23	28	0.439	32
C3	1	3.30	C	1	20			2085			198	198	1.00	1940			1940	0.102			23	28	0.438	30
E1	2	3.20	E	1	7.5			2075	121			121	1.00	1729			1729	0.070	0.070		16	16	0.539	21
E1,E2	2	3.20	E	1	10			2075	49	89		138	0.36	1970			1970	0.070			16	16	0.539	24
E2	2	3.20	E	1				2075		146		146	0.00	2075			2075	0.070			16	16	0.542	25
E3	2	3.20	E	2	15			4150			200	200	1.00	3773			3773	0.053			12	16	0.408	17
F1	3	3.30	F	1	7.5		N	1945	167			167	1.00	1621			1621	0.103	0.104		23	23	0.538	27
F1,F2	3	3.30	F	1	10			2085	188	0		188	1.00	1813			1813	0.104			23	23	0.542	30
F2	3	3.30	F	1				2085		195		195	0.00	2085			2085	0.094			21	23	0.489	32
F3	3	3.30	F	1	15			2085			90	90	1.00	1895			1137	0.079			18	23	0.413	15
D1	4	3.60	D	1	7.5			2115	70			70	1.00	1763			1763	0.040	0.119		9	26	0.180	11
D2	4	3.60	D	2				4230		505		505	0.00	4230			4230	0.119			26	26	0.542	39
D3	4	3.60	D	1	15			2115			120	120	1.00	1923			1923	0.062			14	26	0.283	19
PED	1		P3																	35				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED OF SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J24
J24 - So Kwun Po Road / Jockey Club Road		DATE : 16-Dec-24	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.310
Loss time		L =	55 sec
Total Flow		=	2880 pcu
Co	= (1.5*L+5)/(1-Y)	=	126.8 sec
Cm	= L/(1-Y)	=	79.7 sec
Yult		=	0.488
R.C.ult	= (Yult-Y)/Y*100%	=	57.4 %
Cp	= 0.9*L/(0.9-Y)	=	83.9 sec
Ymax	= 1-L/C	=	0.542
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	57 %



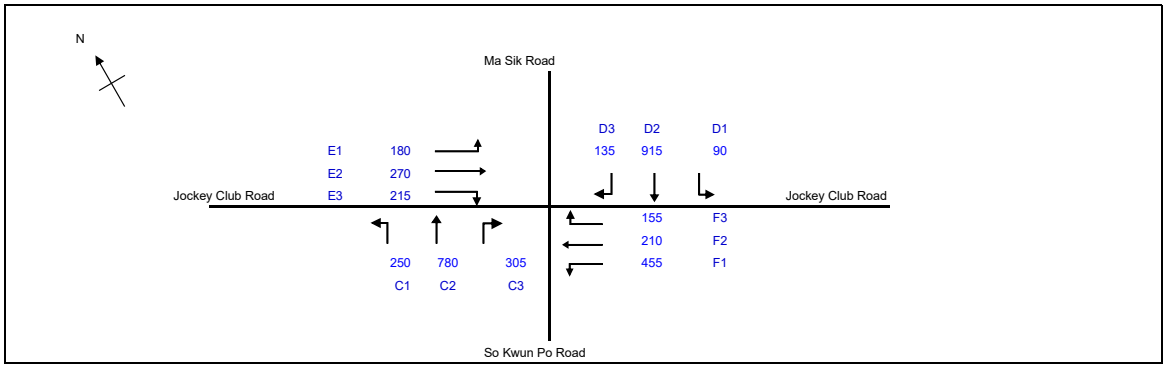
STAGE 1	INT= 8	STAGE 2	INT= 8	STAGE 3	INT= 7	STAGE 4	INT= 8

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
P1	10	6	2	11	72	2	11	OK
P2	5	6	2	6	56	2	6	OK
P3	16	13	6	16	13	6	16	OK
P4	10	6	4	11	20	4	11	OK

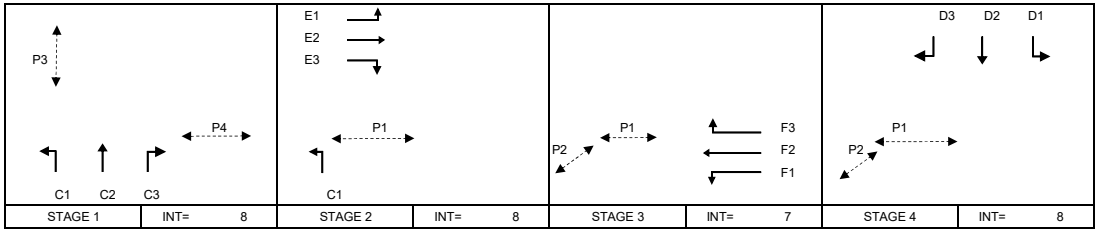
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				20				
C1	1,2	5.00	C	1	40			2255	230			230	1.00	2173			2173	0.106			22	49	0.258	27
C2	1	3.30	C	1				2085		216		216	0.00	2085			2085	0.104			22	28	0.444	33
C2,C3	1	3.30	C	1	15			2085		144	65	209	0.31	2022			2022	0.103			22	28	0.443	32
C3	1	3.30	C	1	20			2085			200	200	1.00	1940			1940	0.103			22	28	0.442	31
E1	2	3.20	E	1	7.5			2075	117			117	1.00	1729			1729	0.068	0.068		14	14	0.572	21
E1,E2	2	3.20	E	1	10			2075	48	85		133	0.36	1968			1968	0.068			14	14	0.571	23
E2	2	3.20	E	1				2075		140		140	0.00	2075			2075	0.067			14	14	0.570	25
E3	2	3.20	E	2	15			4150			190	190	1.00	3773			3773	0.050			11	14	0.426	17
F1	3	3.30	F	1	7.5		N	1945	179			179	1.00	1621			1621	0.110	0.111		23	23	0.570	29
F1,F2	3	3.30	F	1	10			2085	201	0		201	1.00	1813			1813	0.111			23	23	0.572	32
F2	3	3.30	F	1				2085		210		210	0.00	2085			2085	0.101			21	23	0.519	34
F3	3	3.30	F	1	15			2085			95	95	1.00	1895			1137	0.084			18	23	0.431	15
D1	4	3.60	D	1	7.5			2115	75			75	1.00	1763			1763	0.043	0.131		9	28	0.185	12
D2	4	3.60	D	2				4230		555		555	0.00	4230			4230	0.131			28	28	0.572	43
D3	4	3.60	D	1	15			2115			130	130	1.00	1923			1923	0.068			14	28	0.295	20
PED	1		P3																	35				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED OF SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J24
J24 - So Kwun Po Road / Jockey Club Road		DATE : 16-Dec-24	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.365
Loss time		L =	55 sec
Total Flow		=	3875 pcu
Co	= (1.5*L+5)/(1-Y)	=	137.9 sec
Cm	= L/(1-Y)	=	86.7 sec
Yult		=	0.488
R.C.ult	= (Yult-Y)/Y*100%	=	33.4 %
Cp	= 0.9*L/(0.9-Y)	=	92.6 sec
Ymax	= 1-L/C	=	0.542
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	33 %



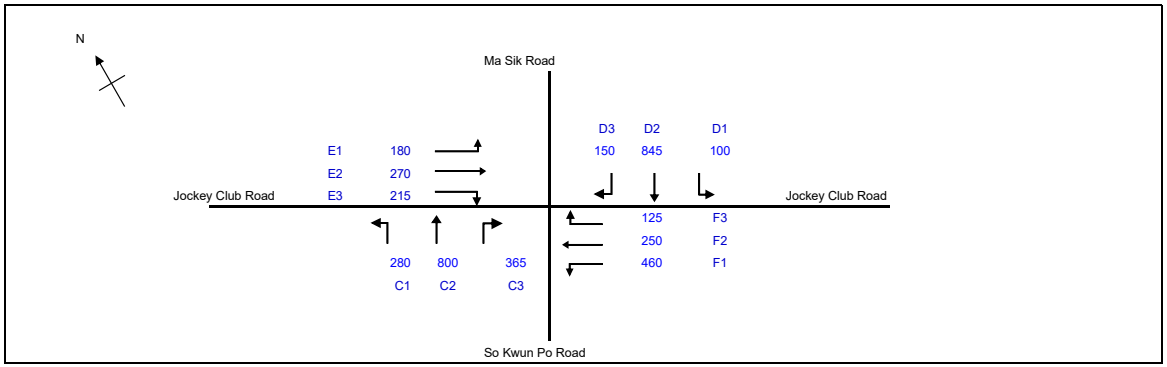
STAGE 1	INT= 8	STAGE 2	INT= 8	STAGE 3	INT= 7	STAGE 4	INT= 8

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
P1	10	6	2	11	72	2	11	OK
P2	5	6	2	6	58	2	6	OK
P3	16	13	6	16	13	6	16	OK
P4	10	6	4	11	20	4	11	OK

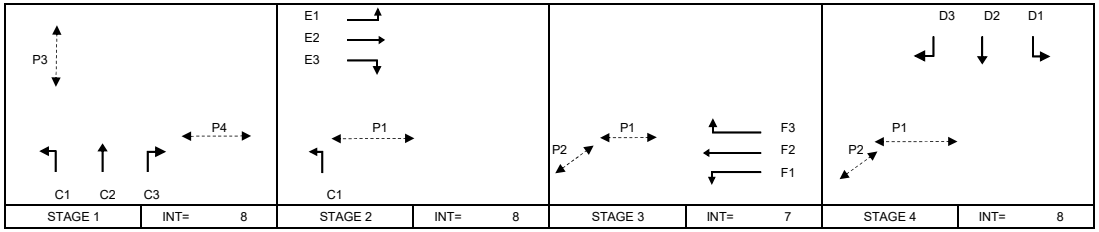
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				20				
C1	1,2	5.00	C	1	40		N	2115	250			250	1.00	2039			2039	0.123			22	47	0.316	31
C2	1	3.30	C	2				4170		554		554	0.00	4170			4170	0.133			24	28	0.569	42
C2,C3	1	3.30	C	1	15			2085		226	47	273	0.17	2050			2050	0.133			24	28	0.571	42
C3	1	3.30	C	1	20			2085			258	258	1.00	1940			1940	0.133			24	28	0.570	40
E1	2	3.20	E	1	7.5		N	1935	95			95	1.00	1613			1613	0.059	0.065		10	12	0.611	17
E1,E2	2	3.20	E	1	10			2075	0	135		135	0.00	2075			2075	0.065			12	12	0.674	24
E2	2	3.20	E	1				2075		135		135	0.00	2075			2075	0.065			12	12	0.674	24
E3	2	3.20	E	2	15			4150			215	215	1.00	3773			3773	0.057			10	12	0.591	19
F1	3	3.30	F	1	7.5		N	1945	215			215	1.00	1621			1621	0.133	0.133		24	24	0.674	35
F1	3	3.30	F	1	10			2085	240			240	1.00	1813			1813	0.132			24	24	0.673	39
F2	3	3.30	F	1				2085		190		190	0.00	2085			2085	0.091			16	24	0.463	31
F2.F3	3	3.30	F	1	15			2085		20	155	175	0.89	1915			1915	0.091			16	24	0.465	28
D1	4	3.60	D	1	7.5		N	1975	90			90	1.00	1646			1646	0.055	0.168		10	30	0.220	14
D2	4	3.60	D	2				4230		709		709	0.00	4230			4230	0.168			30	30	0.674	53
D2,D3	4	3.60	D	1	15			2115		206	135	341	0.40	2034			2034	0.168			30	30	0.674	51
PED	1		P3																	35				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED OF SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J24
J24 - So Kwun Po Road / Jockey Club Road	J24_2031_REF_PM	DATE : 16-Dec-24	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.358
Loss time		L =	55 sec
Total Flow		=	3955 pcu
Co	= (1.5*L+5)/(1-Y)	=	136.4 sec
Cm	= L/(1-Y)	=	85.7 sec
Yult		=	0.488
R.C.ult	= (Yult-Y)/Y*100%	=	36.0 %
Cp	= 0.9*L/(0.9-Y)	=	91.4 sec
Ymax	= 1-L/C	=	0.542
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	36 %



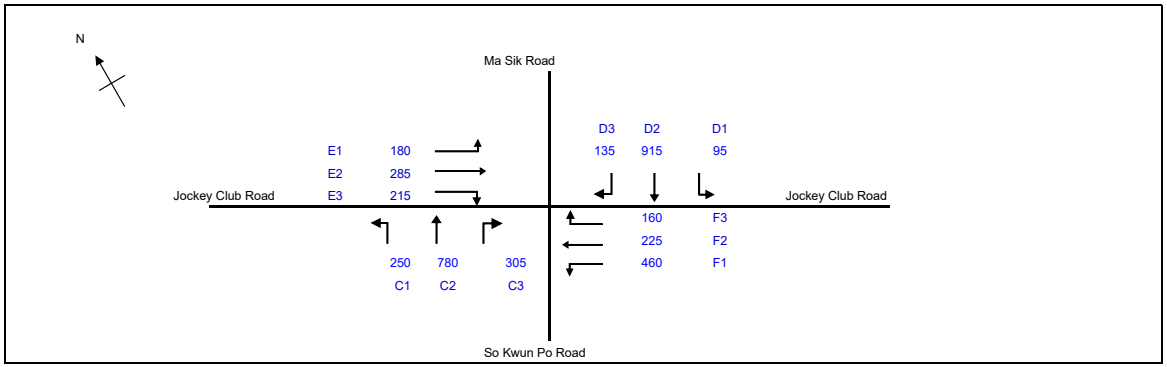
STAGE 1	INT= 8	STAGE 2	INT= 8	STAGE 3	INT= 7	STAGE 4	INT= 8

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
P1	10	6	2	11	72	2	11	OK
P2	5	6	2	6	58	2	6	OK
P3	16	13	6	16	13	6	16	OK
P4	10	6	4	11	20	4	11	OK

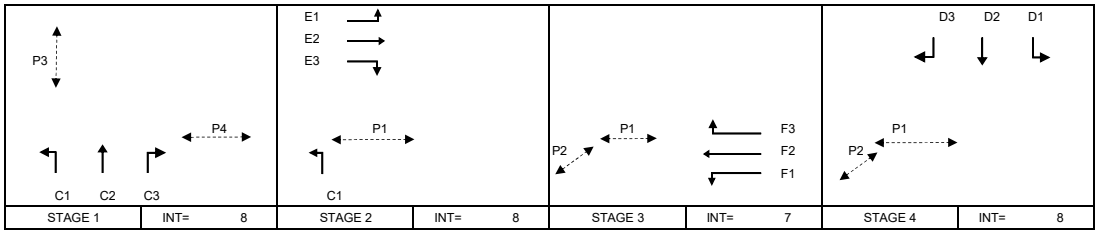
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				20				
C1	1,2	5.00	C	1	40		N	2115	280			280	1.00	2039			2039	0.137			25	47	0.352	34
C2	1	3.30	C	2				4170		597		597	0.00	4170			4170	0.143			26	28	0.614	46
C2,C3	1	3.30	C	1	15			2085		203	87	290	0.30	2024			2024	0.143			26	28	0.614	44
C3	1	3.30	C	1	20			2085			278	278	1.00	1940			1940	0.143			26	28	0.614	43
E1	2	3.20	E	1	7.5		N	1935	95			95	1.00	1613			1613	0.059	0.065		11	12	0.599	17
E1,E2	2	3.20	E	1	10			2075	0	135		135	0.00	2075			2075	0.065			12	12	0.662	24
E2	2	3.20	E	1				2075		135		135	0.00	2075			2075	0.065			12	12	0.662	24
E3	2	3.20	E	2	15			4150			215	215	1.00	3773			3773	0.057			10	12	0.580	19
F1	3	3.30	F	1	7.5		N	1945	217			217	1.00	1621			1621	0.134	0.134		24	24	0.661	35
F1	3	3.30	F	1	10			2085	243			243	1.00	1813			1813	0.134			24	24	0.662	39
F2	3	3.30	F	1				2085		194		194	0.00	2085			2085	0.093			17	24	0.459	31
F2.F3	3	3.30	F	1	15			2085		56	125	181	0.69	1950			1950	0.093			17	24	0.458	29
D1	4	3.60	D	1	7.5		N	1975	100			100	1.00	1646			1646	0.061	0.159		11	29	0.252	15
D2	4	3.60	D	2				4230		673		673	0.00	4230			4230	0.159			29	29	0.661	51
D2,D3	4	3.60	D	1	15			2115		172	150	322	0.47	2021			2021	0.159			29	29	0.662	49
PED	1		P3																	35				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED OF SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J24
J24 - So Kwun Po Road / Jockey Club Road		DATE : 16-Dec-24	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.371
Loss time		L =	55 sec
Total Flow		=	3920 pcu
Co	= (1.5*L+5)/(1-Y)	=	139.0 sec
Cm	= L/(1-Y)	=	87.4 sec
Yult		=	0.488
R.C.ult	= (Yult-Y)/Y*100%	=	31.6 %
Cp	= 0.9*L/(0.9-Y)	=	93.5 sec
Ymax	= 1-L/C	=	0.542
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	31 %



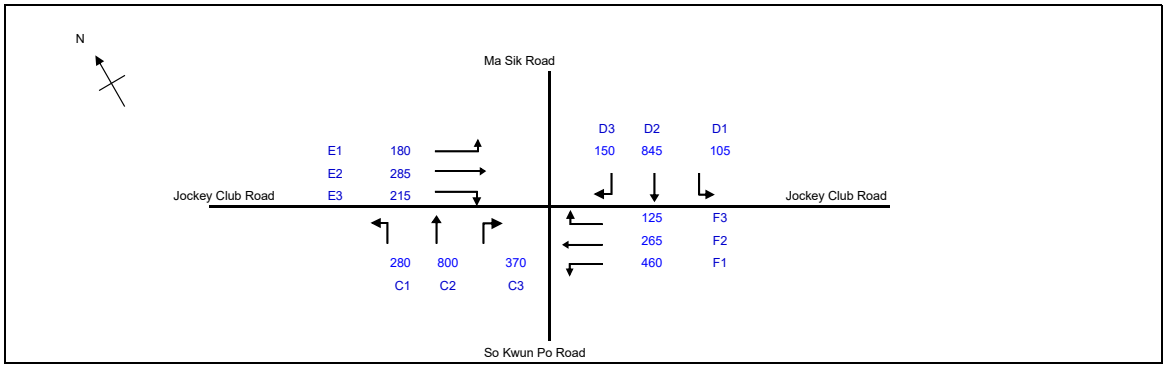
STAGE 1	INT= 8	STAGE 2	INT= 8	STAGE 3	INT= 7	STAGE 4	INT= 8

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
P1	10	6	2	11	72	2	11	OK
P2	5	6	2	6	58	2	6	OK
P3	16	13	6	16	13	6	16	OK
P4	10	6	4	11	20	4	11	OK

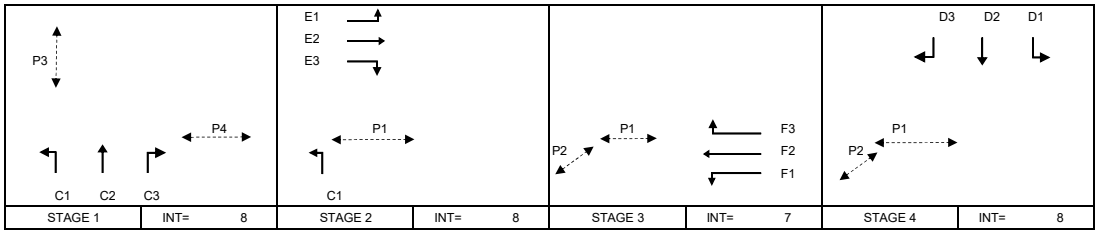
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				20				
C1	1,2	5.00	C	1	40		N	2115	250			250	1.00	2039			2039	0.123			22	47	0.313	30
C2	1	3.30	C	2				4170		554		554	0.00	4170			4170	0.133			23	28	0.569	42
C2,C3	1	3.30	C	1	15			2085		226	47	273	0.17	2050			2050	0.133			23	28	0.571	42
C3	1	3.30	C	1	20			2085			258	258	1.00	1940			1940	0.133			23	28	0.570	40
E1	2	3.20	E	1	7.5		N	1935	95			95	1.00	1613			1613	0.059	0.069		10	12	0.585	17
E1,E2	2	3.20	E	1	10			2075	0	142		142	0.00	2075			2075	0.068			12	12	0.679	26
E2	2	3.20	E	1				2075		143		143	0.00	2075			2075	0.069			12	12	0.684	26
E3	2	3.20	E	2	15			4150			215	215	1.00	3773			3773	0.057			10	12	0.566	19
F1	3	3.30	F	1	7.5		N	1945	217			217	1.00	1621			1621	0.134	0.134		23	24	0.683	35
F1	3	3.30	F	1	10			2085	243			243	1.00	1813			1813	0.134			24	24	0.684	39
F2	3	3.30	F	1				2085		201		201	0.00	2085			2085	0.096			17	24	0.492	32
F2.F3	3	3.30	F	1	15			2085		24	160	184	0.87	1918			1918	0.096			17	24	0.490	30
D1	4	3.60	D	1	7.5		N	1975	95			95	1.00	1646			1646	0.058	0.168		10	29	0.236	14
D2	4	3.60	D	2				4230		709		709	0.00	4230			4230	0.168			29	29	0.684	54
D2,D3	4	3.60	D	1	15			2115		206	135	341	0.40	2034			2034	0.168			29	29	0.684	51
PED	1		P3																	35				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED OF SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J24
J24 - So Kwun Po Road / Jockey Club Road		DATE : 16-Dec-24	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.362
Loss time		L =	55 sec
Total Flow		=	3995 pcu
Co	= (1.5*L+5)/(1-Y)	=	137.2 sec
Cm	= L/(1-Y)	=	86.2 sec
Yult		=	0.488
R.C.ult	= (Yult-Y)/Y*100%	=	34.6 %
Cp	= 0.9*L/(0.9-Y)	=	92.1 sec
Ymax	= 1-L/C	=	0.542
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	34 %



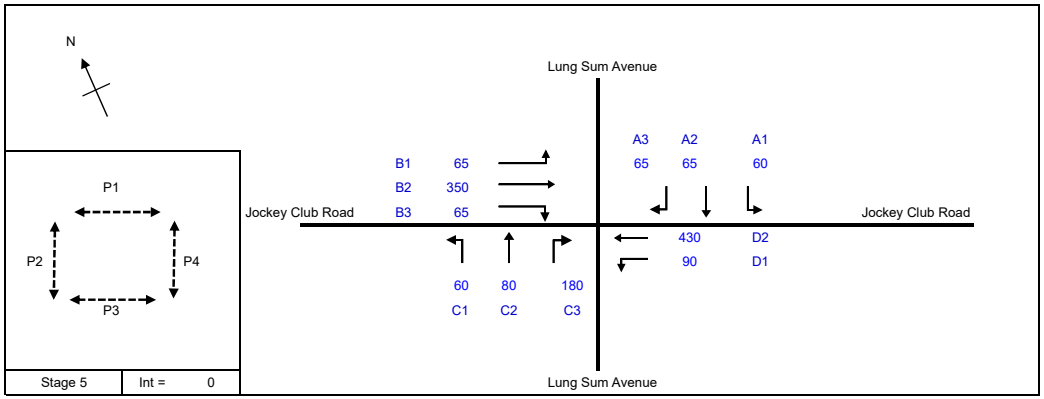
STAGE 1	INT= 8	STAGE 2	INT= 8	STAGE 3	INT= 7	STAGE 4	INT= 8

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
P1	10	6	2	11	72	2	11	OK
P2	5	6	2	6	58	2	6	OK
P3	16	13	6	16	13	6	16	OK
P4	10	6	4	11	20	4	11	OK

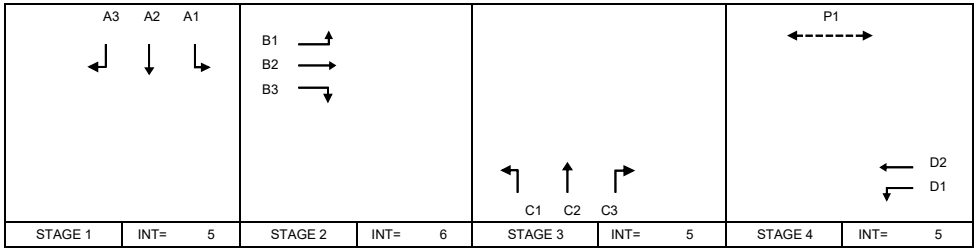
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				20				
C1	1,2	5.00	C	1	40		N	2115	280			280	1.00	2039			2039	0.137			25	47	0.348	34
C2	1	3.30	C	2				4170		600		600	0.00	4170			4170	0.144			26	28	0.617	46
C2,C3	1	3.30	C	1	15			2085		200	91	291	0.31	2022			2022	0.144			26	28	0.617	45
C3	1	3.30	C	1	20			2085			279	279	1.00	1940			1940	0.144			26	28	0.616	43
E1	2	3.20	E	1	7.5		N	1935	95			95	1.00	1613			1613	0.059	0.069		11	12	0.572	17
E1,E2	2	3.20	E	1	10			2075	0	142		142	0.00	2075			2075	0.068			12	12	0.664	25
E2	2	3.20	E	1				2075		143		143	0.00	2075			2075	0.069			12	12	0.669	26
E3	2	3.20	E	2	15			4150			215	215	1.00	3773			3773	0.057			10	12	0.553	19
F1	3	3.30	F	1	7.5		N	1945	217			217	1.00	1621			1621	0.134	0.134		24	24	0.668	35
F1	3	3.30	F	1	10			2085	243			243	1.00	1813			1813	0.134			24	24	0.669	39
F2	3	3.30	F	1				2085		201		201	0.00	2085			2085	0.096			17	24	0.481	32
F2.F3	3	3.30	F	1	15			2085		64	125	189	0.66	1956			1956	0.097			17	24	0.482	30
D1	4	3.60	D	1	7.5		N	1975	105			105	1.00	1646			1646	0.064	0.159		11	29	0.268	16
D2	4	3.60	D	2				4230		673		673	0.00	4230			4230	0.159			29	29	0.668	51
D2,D3	4	3.60	D	1	15			2115		172	150	322	0.47	2021			2021	0.159			29	29	0.669	49
PED	1		P3																	35				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED OF SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J25
J25 - Jockey Club Road / Lung Sum Road	J25_2023_EXT_AM	DATE : 16-Dec-24	FILENAME :



No. of stages per cycle	N =	5
No. of stage using for calculation	N =	4
Cycle time	C =	120 sec
Sum(y)	Y =	0.401
Loss time	L =	43 sec
Total Flow	=	1510 pcu
Co = (1.5*L+5)/(1-Y)	=	115.9 sec
Cm = L/(1-Y)	=	71.7 sec
Yult	=	0.578
R.C.ult = (Yult-Y)/Y*100%	=	44.2 %
Cp = 0.9*L/(0.9-Y)	=	77.5 sec
Ymax = 1-L/C	=	0.642
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	44 %

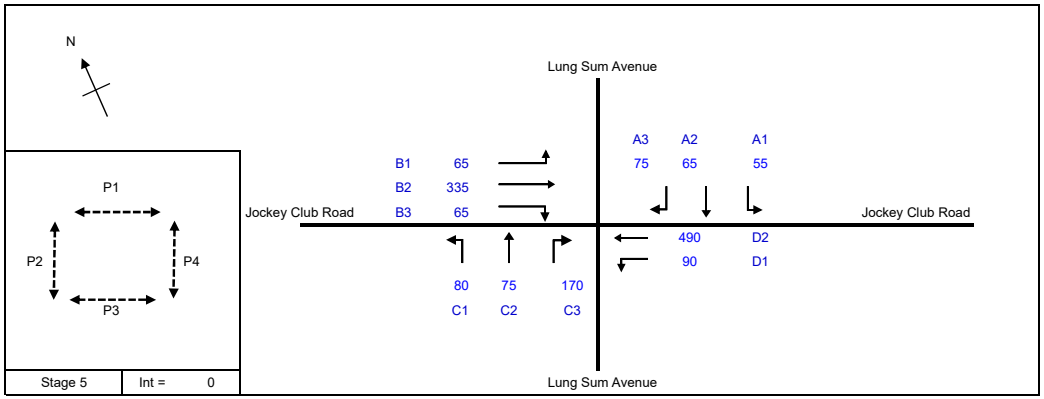


Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
P1	7	6	8	6	42	8	6	OK
P2	10.5	9	7	10	9	7	10	OK
P3	10.5	9	5	10	11	5	10	OK
P4	8.5	7	2	8	16	2	8	OK

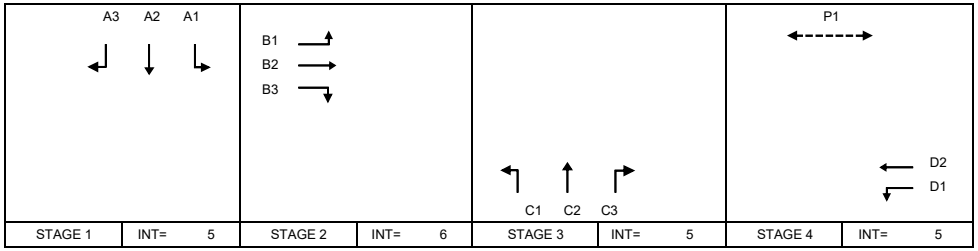
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				17				
A1,A2	1	3.50	A	1	7.5		N	1965	60	29		89	0.67	1732			1732	0.051	0.051		10	10	0.624	16
A2,A3	1	3.50	A	1	15			2105		36	65	101	0.64	1978			1978	0.051			10	10	0.620	19
B1,B2	2	3.90	B	1	7.5		N	2005	65	163		228	0.29	1897			1897	0.120	0.121		23	23	0.623	37
B2,B3	2	3.90	B	1	15			2145		187	65	252	0.26	2091			2091	0.121			23	23	0.624	41
C1,C2	3	3.60	C	1	7.5		N	1975	60	80		140	0.43	1819			1819	0.077	0.094		15	18	0.513	24
C2,C3	3	3.60	C	1	15			2115		0	180	180	1.00	1923			1923	0.094			18	18	0.624	31
D1,D2	4	3.10	D	1	7.5		N	1925	90	152		242	0.37	1792			1792	0.135	0.135		26	26	0.624	38
D2	4	3.10	D	1				2065		278		278	0.00	2065			2065	0.135			26	26	0.622	44
PED	5																			26				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED OF SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J25
J25 - Jockey Club Road / Lung Sum Road	J25_2023_EXT_PM	DATE : 16-Dec-24	FILENAME :



No. of stages per cycle	N =	5
No. of stage using for calculation	N =	4
Cycle time	C =	120 sec
Sum(y)	Y =	0.413
Loss time	L =	43 sec
Total Flow	=	1575 pcu
Co = (1.5*L+5)/(1-Y)	=	118.4 sec
Cm = L/(1-Y)	=	73.3 sec
Yult	=	0.578
R.C.ult = (Yult-Y)/Y*100%	=	39.8 %
Cp = 0.9*L/(0.9-Y)	=	79.5 sec
Ymax = 1-L/C	=	0.642
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	39 %

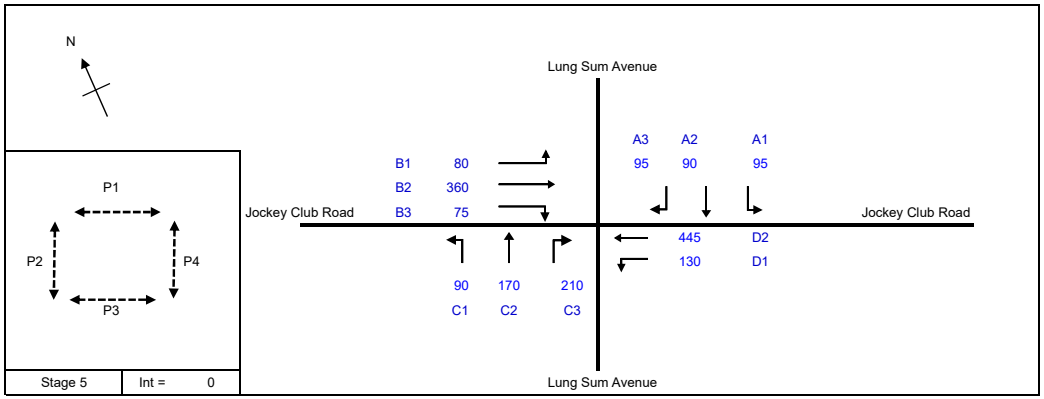


Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
P1	7	6	8	6	44	8	6	OK
P2	10.5	9	7	10	9	7	10	OK
P3	10.5	9	5	10	11	5	10	OK
P4	8.5	7	2	8	16	2	8	OK

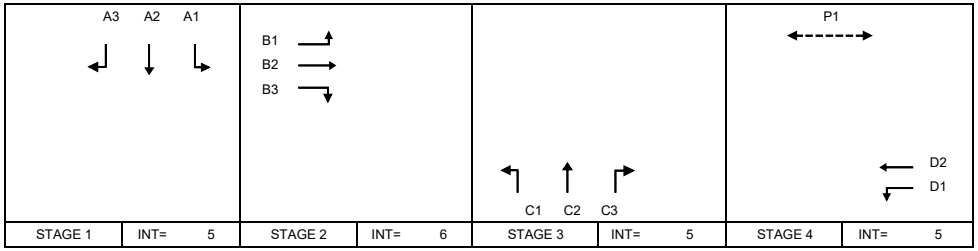
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				17				
A1,A2	1	3.50	A	1	7.5		N	1965	55	37		92	0.60	1755			1755	0.052	0.052		10	10	0.643	17
A2,A3	1	3.50	A	1	15			2105		28	75	103	0.73	1962			1962	0.052			10	10	0.644	19
B1,B2	2	3.90	B	1	7.5		N	2005	65	156		221	0.29	1894			1894	0.117	0.117		22	22	0.643	36
B2,B3	2	3.90	B	1	15			2145		179	65	244	0.27	2089			2089	0.117			22	22	0.644	40
C1,C2	3	3.60	C	1	7.5		N	1975	80	75		155	0.52	1790			1790	0.087	0.094		16	17	0.595	26
C2,C3	3	3.60	C	1	15			2115		0	180	180	1.00	1923			1923	0.094			17	17	0.644	31
D1,D2	4	3.10	D	1	7.5		N	1925	90	181		271	0.33	1805			1805	0.150	0.150		28	28	0.644	42
D2	4	3.10	D	1				2065		309		309	0.00	2065			2065	0.150			28	28	0.642	47
PED	5																			26				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED OF SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J25
J25 - Jockey Club Road / Lung Sum Road	J25_2031_REF_AM	DATE : 16-Dec-24	FILENAME :



No. of stages per cycle	N =	5	
No. of stage using for calculation	N =	4	
Cycle time	C =	120	sec
Sum(y)	Y =	0.414	
Loss time	L =	43	sec
Total Flow	=	1840	pcu
Co = (1.5*L+5)/(1-Y)	=	118.6	sec
Cm = L/(1-Y)	=	73.4	sec
Yult	=	0.578	
R.C.ult = (Yult-Y)/Y*100%	=	39.5	%
Cp = 0.9*L/(0.9-Y)	=	79.6	sec
Ymax = 1-L/C	=	0.642	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	39	%

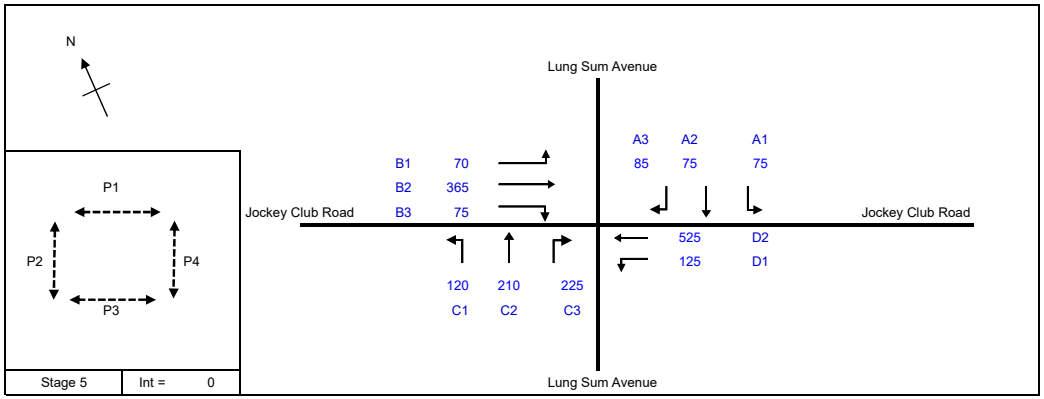


Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
P1	7	6	8	6	18	8	6	OK
P2	10.5	9	7	10	9	7	10	OK
P3	10.5	9	5	10	11	5	10	OK
P4	8.5	7	2	8	16	2	8	OK

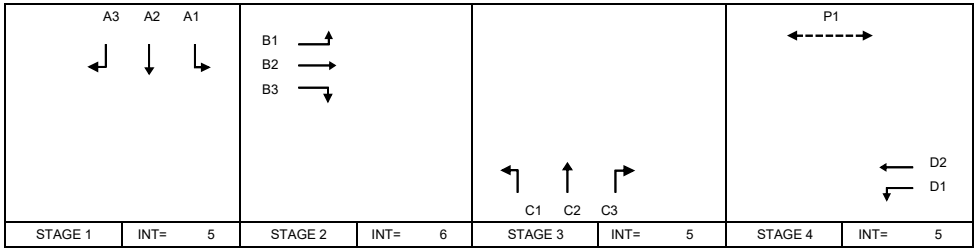
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				17				
A1,A2	1	3.50	A	1	7.5		N	1965	95	35		130	0.73	1714			1714	0.076	0.076		14	14	0.645	23
A2,A3	1	3.50	A	1	15			2105		55	95	150	0.63	1980			1980	0.076			14	14	0.645	26
B1	2	3.90	B	1	7.5		N	2005	80			80	1.00	1671			1671	0.048	0.103		9	19	0.299	13
B2	2	3.90	B	1				2145		221		221	0.00	2145			2145	0.103			19	19	0.644	37
B2,B3	2	3.90	B	1	15			2145		139	75	214	0.35	2072			2072	0.103			19	19	0.645	36
C1,C2	3	**3.40**	C	1	7.5		N	1955	90	56		146	0.62	1740			1740	0.084	0.084		16	16	0.642	25
C2,C3	3	**3.40**	C	1	15			2095		114	57	171	0.33	2027			2027	0.084			16	16	0.645	30
C3	3	**3.40**	C	1	10			2095			153	153	1.00	1822			1822	0.084			16	16	0.643	27
D1,D2	4	3.10	D	1	7.5		N	1925	130	134		264	0.49	1752			1752	0.151	0.151		28	28	0.645	40
D2	4	3.10	D	1				2065		311		311	0.00	2065			2065	0.151			28	28	0.645	48
PED	5																			26				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED OF SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J25
J25 - Jockey Club Road / Lung Sum Road	J25_2031_REF_PM	DATE : 16-Dec-24	FILENAME :



No. of stages per cycle	N =	5
No. of stage using for calculation	N =	4
Cycle time	C =	120 sec
Sum(y)	Y =	0.437
Loss time	L =	43 sec
Total Flow	=	1950 pcu
Co = (1.5*L+5)/(1-Y)	=	123.4 sec
Cm = L/(1-Y)	=	76.4 sec
Yult	=	0.578
R.C.ult = (Yult-Y)/Y*100%	=	32.2 %
Cp = 0.9*L/(0.9-Y)	=	83.6 sec
Ymax = 1-L/C	=	0.642
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	32 %

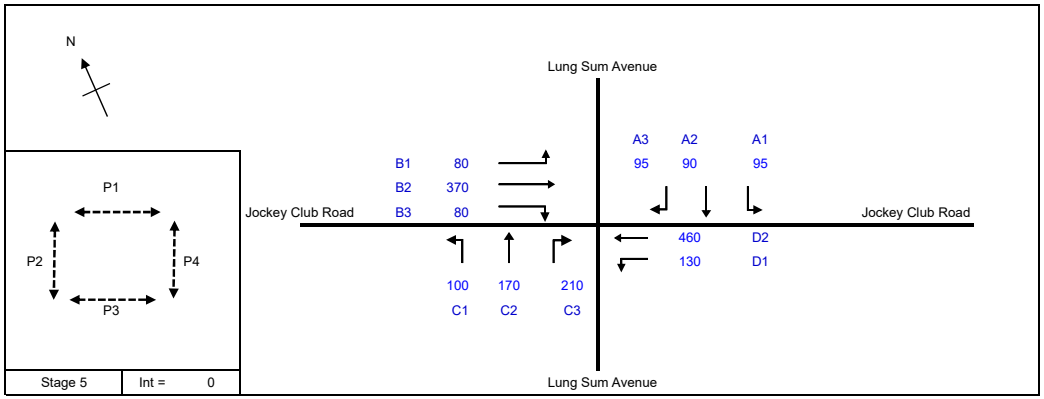


Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
P1	7	6	8	6	20	8	6	OK
P2	10.5	9	7	10	9	7	10	OK
P3	10.5	9	5	10	11	5	10	OK
P4	8.5	7	2	8	16	2	8	OK

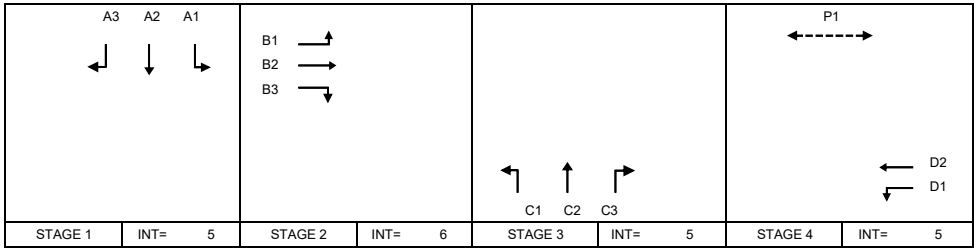
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				17				
A1,A2	1	3.50	A	1	7.5		N	1965	75	35		110	0.68	1729			1729	0.064	0.064		11	11	0.681	20
A2,A3	1	3.50	A	1	15			2105		40	85	125	0.68	1971			1971	0.063			11	11	0.679	23
B1	2	3.90	B	1	7.5		N	2005	70			70	1.00	1671			1671	0.042	0.104		7	18	0.273	12
B2	2	3.90	B	1				2145		224		224	0.00	2145			2145	0.104			18	18	0.681	38
B2,B3	2	3.90	B	1	15			2145		141	75	216	0.35	2073			2073	0.104			18	18	0.679	37
C1,C2	3	**3.40**	C	1	7.5		N	1955	120	50		170	0.71	1713			1713	0.099	0.099		17	18	0.679	29
C2,C3	3	**3.40**	C	1	15			2095		160	44	204	0.22	2051			2051	0.099			18	18	0.681	35
C3	3	**3.40**	C	1	10			2095			181	181	1.00	1822			1822	0.099			18	18	0.680	31
D1,D2	4	3.10	D	1	7.5		N	1925	125	176		301	0.42	1777			1777	0.169	0.169		30	30	0.681	45
D2	4	3.10	D	1				2065		349		349	0.00	2065			2065	0.169			30	30	0.679	52
PED	5																			26				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED OF SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J25
J25 - Jockey Club Road / Lung Sum Road	J25_2031_DES_AM	DATE : 16-Dec-24	FILENAME :



No. of stages per cycle	N =	5	
No. of stage using for calculation	N =	4	
Cycle time	C =	120	sec
Sum(y)	Y =	0.423	
Loss time	L =	43	sec
Total Flow	=	1880	pcu
Co = (1.5*L+5)/(1-Y)	=	120.5	sec
Cm = L/(1-Y)	=	74.6	sec
Yult	=	0.578	
R.C.ult = (Yult-Y)/Y*100%	=	36.4	%
Cp = 0.9*L/(0.9-Y)	=	81.2	sec
Ymax = 1-L/C	=	0.642	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	36	%

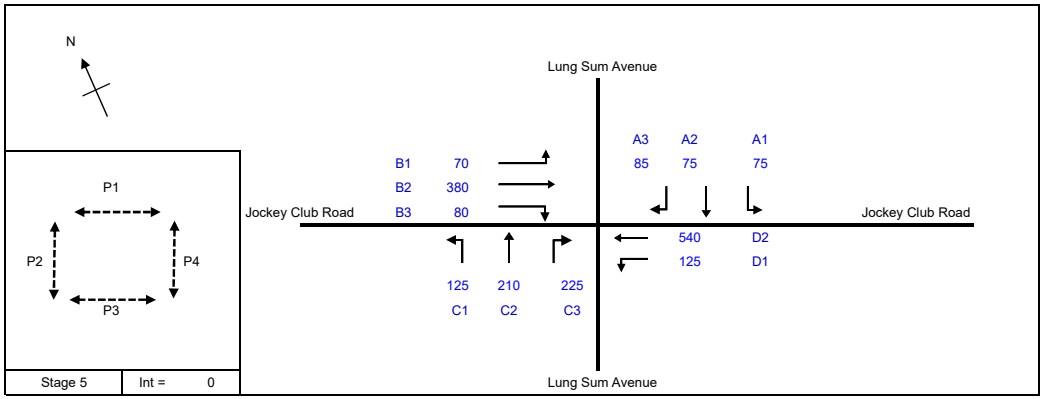


Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
P1	7	6	8	6	18	8	6	OK
P2	10.5	9	7	10	9	7	10	OK
P3	10.5	9	5	10	11	5	10	OK
P4	8.5	7	2	8	16	2	8	OK

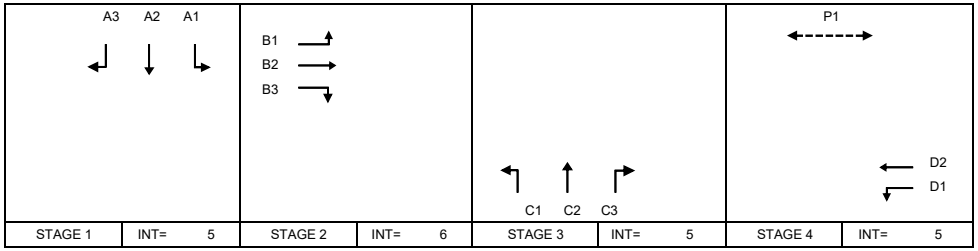
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				17				
A1,A2	3	3.50	A	1	7.5		N	1965	95	35		130	0.73	1714			1714	0.076	0.076		14	14	0.660	23
A2,A3	3	3.50	A	1	15			2105		55	95	150	0.63	1980			1980	0.076			14	14	0.659	27
B1	1	3.90	B	1	7.5		N	2005	80			80	1.00	1671			1671	0.048	0.107		9	19	0.296	13
B2	1	3.90	B	1				2145		229		229	0.00	2145			2145	0.107			19	19	0.660	38
B2,B3	1	3.90	B	1	15			2145		141	80	221	0.36	2070			2070	0.107			19	19	0.660	37
C1,C2	2	**3.40**	C	1	7.5		N	1955	100	48		148	0.68	1722			1722	0.086	0.086		16	16	0.658	26
C2,C3	2	**3.40**	C	1	15			2095		122	53	175	0.30	2033			2033	0.086			16	16	0.659	30
C3	2	**3.40**	C	1	10			2095			157	157	1.00	1822			1822	0.086			16	16	0.660	27
D1,D2	4	3.10	D	1	7.5		N	1925	130	141		271	0.48	1756			1756	0.154	0.154		28	28	0.659	42
D2	4	3.10	D	1				2065		319		319	0.00	2065			2065	0.154			28	28	0.660	49
PED	5																			26				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED OF SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS		TRAFFIC SIGNAL CALCULATION		
			PROJECT NO: 287082	Junction No. J25
J25 - Jockey Club Road / Lung Sum Road		J25_2031_DES_PM	DATE : 16-Dec-24	FILENAME :



No. of stages per cycle	N =	5	
No. of stage using for calculation	N =	4	
Cycle time	C =	120	sec
Sum(y)	Y =	0.446	
Loss time	L =	43	sec
Total Flow	=	1990	pcu
Co = (1.5*L+5)/(1-Y)	=	125.5	sec
Cm = L/(1-Y)	=	77.6	sec
Yult	=	0.578	
R.C.ult = (Yult-Y)/Y*100%	=	29.4	%
Cp = 0.9*L/(0.9-Y)	=	85.3	sec
Ymax = 1-L/C	=	0.642	
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	29	%



Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
P1	7	6	8	6	20	8	6	OK
P2	10.5	9	7	10	9	7	10	OK
P3	10.5	9	5	10	11	5	10	OK
P4	8.5	7	2	8	16	2	8	OK

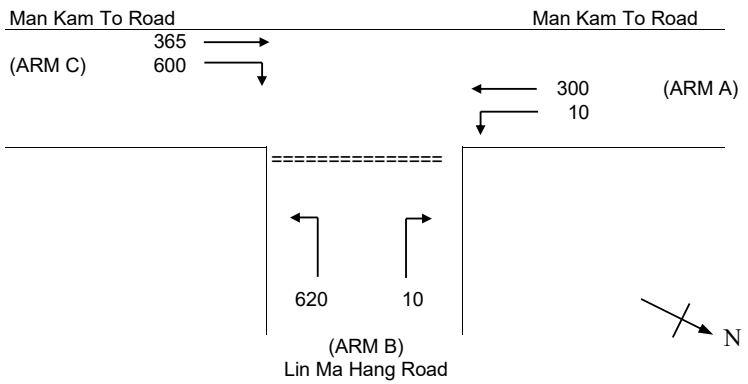
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				17				
A1,A2	1	3.50	A	1	7.5		N	1965	75	35		110	0.68	1729			1729	0.064	0.064		11	11	0.695	20
A2,A3	1	3.50	A	1	15			2105		40	85	125	0.68	1971			1971	0.063			11	11	0.693	23
B1	2	3.90	B	1	7.5		N	2005	70			70	1.00	1671			1671	0.042	0.109		7	19	0.267	12
B2	2	3.90	B	1				2145		234		234	0.00	2145			2145	0.109			19	19	0.695	39
B2,B3	2	3.90	B	1	15			2145		146	80	226	0.35	2072			2072	0.109			19	19	0.695	38
C1,C2	3	3.40	C	1	7.5		N	1955	125	46		171	0.73	1706			1706	0.100	0.100		17	17	0.694	29
C2,C3	3	3.40	C	1	15			2095		164	42	206	0.20	2053			2053	0.100			17	17	0.694	35
C3	3	3.40	C	1	10			2095			183	183	1.00	1822			1822	0.100			17	17	0.695	31
D1,D2	4	3.10	D	1	7.5		N	1925	125	183		308	0.41	1780			1780	0.173	0.173		30	30	0.695	46
D2	4	3.10	D	1				2065		357		357	0.00	2065			2065	0.173			30	30	0.695	54
PED	5																			26				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED OF SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Appendix D

Junction Calculation Sheets for Proposed Junction Improvement

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
		PROJECT NO: 287082	DESIGNED BY:
J1 - Lin Ma Hang Road / Man Kam To Road	J1_2031_DES_AM_IMP	DATE : 16/12/2024	FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
W cr	=	CENTRAL RESERVE WIDTH (0m, 1.2-9m)
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	12.50	(metres)
W cr	=	0.00	(metres)
q a-b	=	10	(pcu/hr)
q a-c	=	300	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	5.00	(metres)
Vr c-b	=	100	(metres)
q c-a	=	365	(pcu/hr)
q c-b	=	600	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	4.50	(metres)
W b-c	=	4.50	(metres)
Vl b-a	=	80	(metres)
Vr b-a	=	125	(metres)
Vr b-c	=	125	(metres)
q b-a	=	10	(pcu/hr)
q b-c	=	620	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.04
E	=	1.08
F	=	1.11
Y	=	0.57

THE CAPACITY OF MOVEMENT :

Q b-a	=	352
Q b-c	=	740
Q c-b	=	753
Q b-ac	=	727

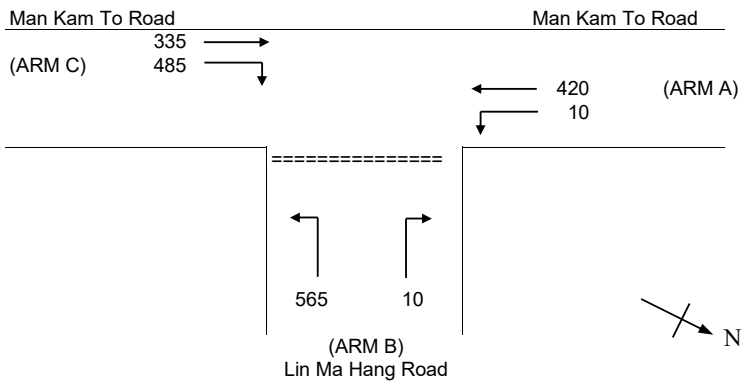
TOTAL FLOW = 1905 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.03
DFC b-c	=	0.84
DFC c-b	=	0.80

CRITICAL DFC = 0.84

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
		PROJECT NO: 287082	DESIGNED BY:
J1 - Lin Ma Hang Road / Man Kam To Road	J1_2031_DES_PM_IMP	DATE : 16/12/2024	FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
W cr	=	CENTRAL RESERVE WIDTH (0m, 1.2-9m)
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	12.50	(metres)
W cr	=	0.00	(metres)
q a-b	=	10	(pcu/hr)
q a-c	=	420	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	5.00	(metres)
Vr c-b	=	100	(metres)
q c-a	=	335	(pcu/hr)
q c-b	=	485	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	4.50	(metres)
W b-c	=	4.50	(metres)
Vl b-a	=	80	(metres)
Vr b-a	=	125	(metres)
Vr b-c	=	125	(metres)
q b-a	=	10	(pcu/hr)
q b-c	=	565	(pcu/hr)

GEOMETRIC FACTORS :

D	=	1.04
E	=	1.08
F	=	1.11
Y	=	0.57

THE CAPACITY OF MOVEMENT :

Q b-a	=	366
Q b-c	=	713
Q c-b	=	726
Q b-ac	=	701

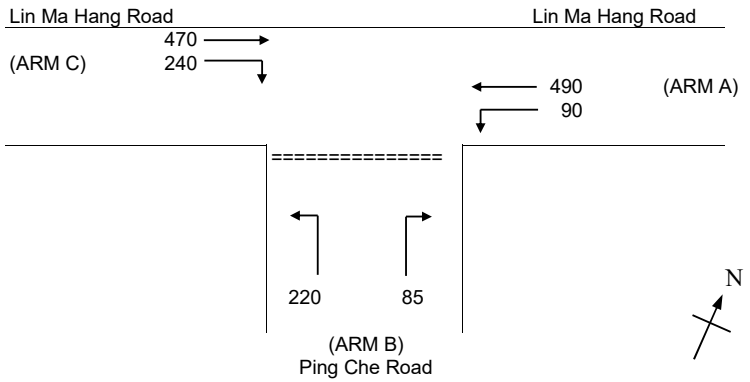
TOTAL FLOW = 1825 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.03
DFC b-c	=	0.80
DFC c-b	=	0.67

CRITICAL DFC = 0.80

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
		PROJECT NO: 287082	DESIGNED BY:
J2 - Lin Ma Hang Road / Ping Che Road	J2_2031_DES_AM_IMP	DATE : 16/12/2024	FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
W cr	=	CENTRAL RESERVE WIDTH (0m, 1.2-9m)
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	7.30	(metres)
W cr	=	0.00	(metres)
q a-b	=	90	(pcu/hr)
q a-c	=	490	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	4.00	(metres)
Vr c-b	=	100	(metres)
q c-a	=	470	(pcu/hr)
q c-b	=	240	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	3.00	(metres)
W b-c	=	3.00	(metres)
Vl b-a	=	100	(metres)
Vr b-a	=	100	(metres)
Vr b-c	=	100	(metres)
q b-a	=	85	(pcu/hr)
q b-c	=	220	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.89
E	=	0.92
F	=	1.01
Y	=	0.75

THE CAPACITY OF MOVEMENT :

Q b-a	=	277
Q b-c	=	555
Q c-b	=	595
Q b-ac	=	434

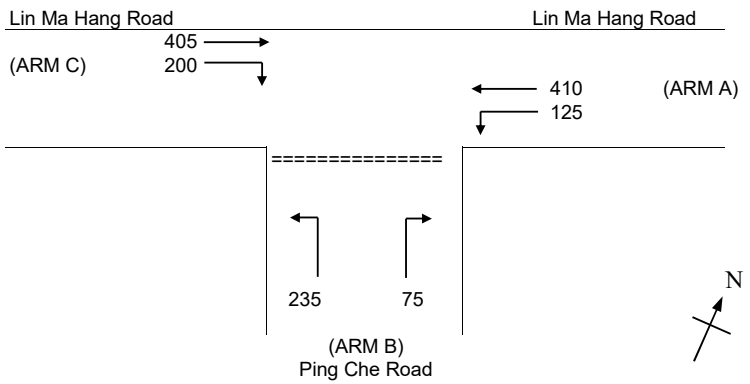
TOTAL FLOW = 1595 (PCU/HR)

COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.31
DFC b-c	=	0.40
DFC c-b	=	0.41
DFC b-ac	=	0.71

CRITICAL DFC = 0.71

OVE ARUP & PARTNERS	PRIORITY JUNCTION CALCULATION		
		PROJECT NO: 287082	DESIGNED BY:
J2 - Lin Ma Hang Road / Ping Che Road	J2_2031_DES_PM_IMP	DATE : 16/12/2024	FILENAME :



NOTES : (GEOMETRIC INPUT DATA)

W	=	MAJOR ROAD WIDTH (6-20m) (minor road turn left only, 2W)
W cr	=	CENTRAL RESERVE WIDTH (0m, 1.2-9m)
W b-a	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-a (0m, 2.2-5m)
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM b-c (2.2-5m)
W c-b	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM c-b (0m, 2.2-5m)
Vl b-a	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM b-a (0-250m)
Vr b-a	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-a (0-250)
Vr b-c	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM b-c (0-250)
Vr c-b	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM c-b (0-250)
D	=	STREAM-SPECIFIC B-A
E	=	STREAM-SPECIFIC B-C
F	=	STREAM-SPECIFIC C-B
Y	=	(1-0.0345W)

GEOMETRIC DETAILS:

MAJOR ROAD (ARM A)

W	=	7.30	(metres)
W cr	=	0.00	(metres)
q a-b	=	125	(pcu/hr)
q a-c	=	410	(pcu/hr)

MAJOR ROAD (ARM C)

W c-b	=	4.00	(metres)
Vr c-b	=	100	(metres)
q c-a	=	405	(pcu/hr)
q c-b	=	200	(pcu/hr)

MINOR ROAD (ARM B)

W b-a	=	3.00	(metres)
W b-c	=	3.00	(metres)
Vl b-a	=	100	(metres)
Vr b-a	=	100	(metres)
Vr b-c	=	100	(metres)
q b-a	=	75	(pcu/hr)
q b-c	=	235	(pcu/hr)

GEOMETRIC FACTORS :

D	=	0.89
E	=	0.92
F	=	1.01
Y	=	0.75

THE CAPACITY OF MOVEMENT :

Q b-a	=	317
Q b-c	=	572
Q c-b	=	608
Q b-ac	=	479

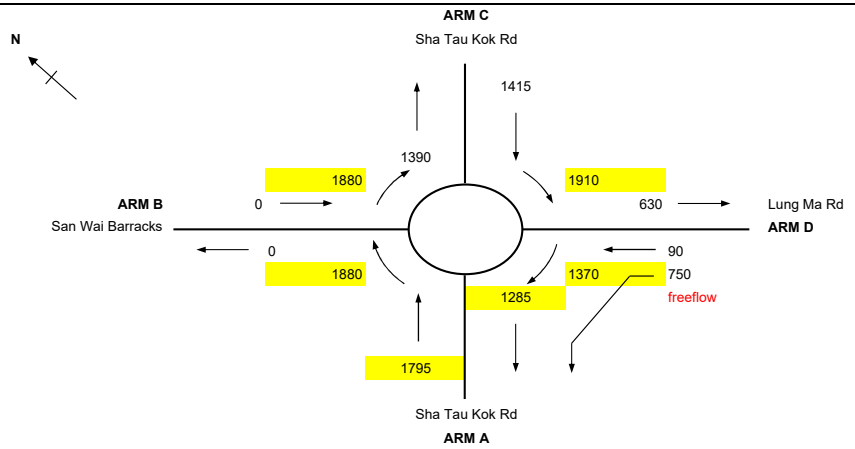
TOTAL FLOW = 1450 (PCU/HR)

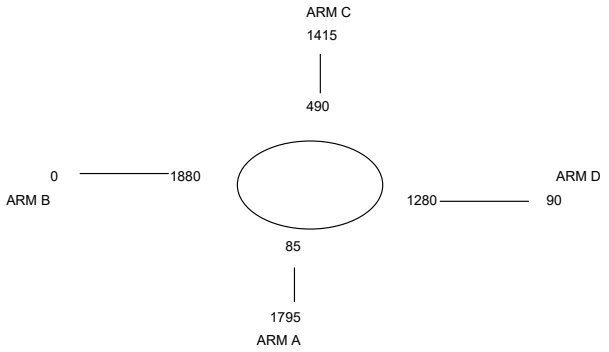
COMPARISION OF DESIGN FLOW TO CAPACITY:

DFC b-a	=	0.24
DFC b-c	=	0.42
DFC c-b	=	0.33
DFC b-ac	=	0.65

CRITICAL DFC = 0.65

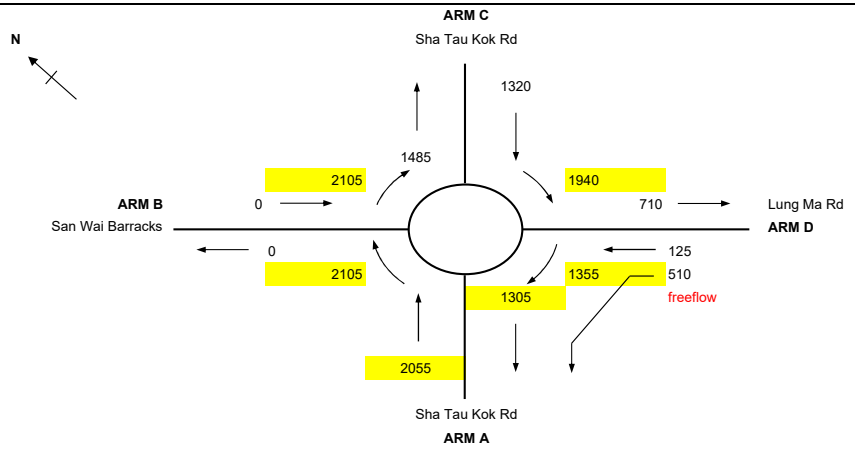
OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
			PROJECT NO. 287082
J7 - Sha Tau Kok Road / Lung Ma Road / San Wai Barracks	J7_2031_DES_AM_WITHJ8IMP	DATE 16/12/2024	

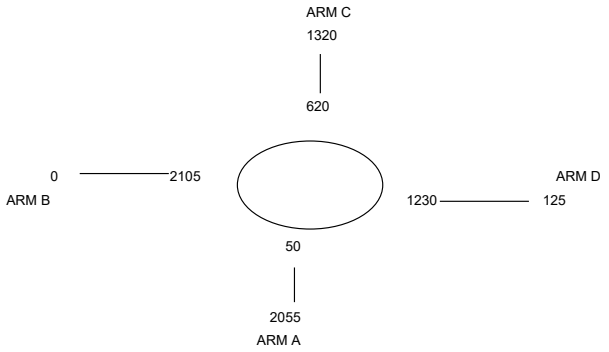




ARM			A	B	C	D			
INPUT PARAMETERS:									
V	=	Approach half width (m)	7.30	3.30	7.30	3.50			
E	=	Entry width (m)	10.00	5.00	10.00	5.00			
L	=	Effective length of flare (m)	20	5	10	5			
R	=	Entry radius (m)	30	60	30	70			
D	=	Inscribed circle diameter (m)	50	50	50	50			
A	=	Entry angle (degree)	15	15	25	15			
Q	=	Entry flow (pcu/h)	1795	0	1415	90			
Qc	=	Circulating flow across entry (pcu/h)	85	1880	490	1280			
OUTPUT PARAMETERS:									
S	=	Sharpness of flare = 1.6(E-V)/L	0.22	0.54	0.43	0.48			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.08	1.03	1.09			
X2	=	V + ((E-V)/(1+2S))	9.19	4.11	8.75	4.27			
M	=	EXP((D-60)/10)	0.37	0.37	0.37	0.37			
F	=	303*X2	2783	1247	2651	1292			
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37	1.37			
Fc	=	0.21*Td(1+0.2*X2)	0.81	0.52	0.79	0.53			
Qe	=	K(F-Fc*Qc)	2900	286	2341	665	**Total In Sum =**	**3210**	**PCU**
DFC	=	Design flow/Capacity = Q/Qe	0.62	0.00	0.61	0.14	**DFC of Critical Approach =**	**0.62**	

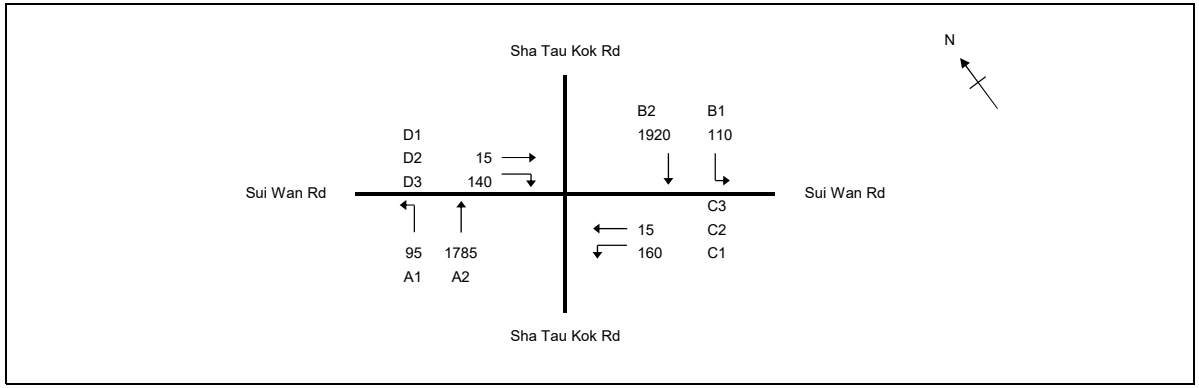
OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
			PROJECT NO. 287082
J7 - Sha Tau Kok Road / Lung Ma Road / San Wai Barracks	J7_2031_DES_PM_WITHJ8IMP	DATE 16/12/2024	



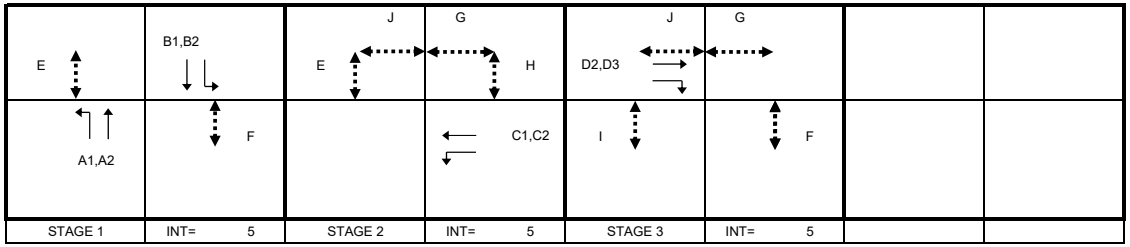


ARM			A	B	C	D			
INPUT PARAMETERS:									
V	=	Approach half width (m)	7.30	3.30	7.30	3.50			
E	=	Entry width (m)	10.00	5.00	10.00	5.00			
L	=	Effective length of flare (m)	20	5	10	5			
R	=	Entry radius (m)	30	60	30	70			
D	=	Inscribed circle diameter (m)	50	50	50	50			
A	=	Entry angle (degree)	15	15	25	15			
Q	=	Entry flow (pcu/h)	2055	0	1320	125			
Qc	=	Circulating flow across entry (pcu/h)	50	2105	620	1230			
OUTPUT PARAMETERS:									
S	=	Sharpness of flare = 1.6(E-V)/L	0.22	0.54	0.43	0.48			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.08	1.03	1.09			
X2	=	V + ((E-V)/(1+2S))	9.19	4.11	8.75	4.27			
M	=	EXP((D-60)/10)	0.37	0.37	0.37	0.37			
F	=	303*X2	2783	1247	2651	1292			
Td	=	1+(0.5/(1+M))	1.37	1.37	1.37	1.37			
Fc	=	0.21*Td(1+0.2*X2)	0.81	0.52	0.79	0.53			
Qe	=	K(F-Fc*Qc)	2930	159	2235	694	**Total In Sum =**	**3375**	**PCU**
DFC	=	Design flow/Capacity = Q/Qe	0.71	0.00	0.60	0.19	**DFC of Critical Approach =**	**0.71**	

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J8
J8 - Sha Tau Kok Road / Sui Wan Road	J8_2031_DES_AM_IMP	DATE : 16/12/2024	FILENAME :



No. of stages per cycle	N =	3
No. of stage using for calculation	N =	3
Cycle time	C =	135 sec
Sum(y)	Y =	0.636
Loss time	L =	12 sec
Total Flow	=	4240 pcu
Co = (1.5*L+5)/(1-Y)	=	63.2 sec
Cm = L/(1-Y)	=	33.0 sec
Yult	=	0.810
R.C.ult = (Yult-Y)/Y*100%	=	27.3 %
Cp = 0.9*L/(0.9-Y)	=	40.9 sec
Ymax = 1-L/C	=	0.911
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	28 %

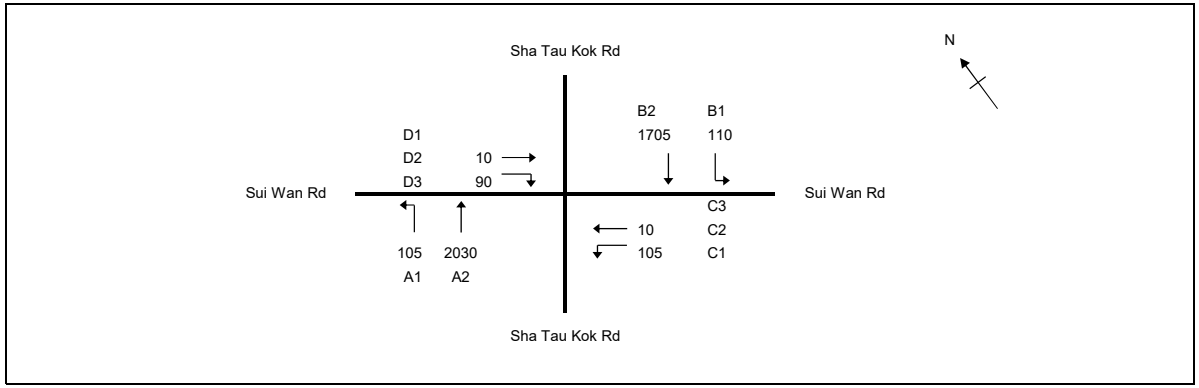


Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
E	5	6	2	6	106	2	6	OK
F	5	6	2	6	104	2	6	OK
G	10.5	6	5	12	27	5	12	OK
H	5	6	2	6	15	2	6	OK
I	5	6	2	6	13	2	6	OK
J	8	6	5	9	30	5	9	OK

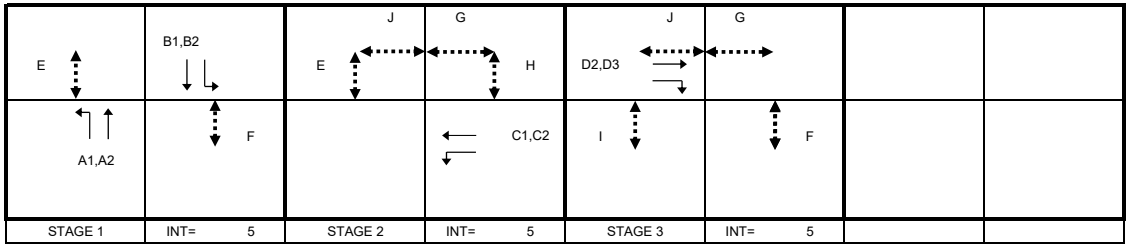
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
B1,B2	1	3.50	B	1	10		N	1965	110	525		635	0.17	1915			1915	0.332	0.450		64	87	0.514	51
B2	1	3.50	B	2				4210		1395		1395	0.00	4210			4210	0.331			64	87	0.514	56
		3.50																						
A1,A2	1	3.50	A	1	10			2105	95	838		933	0.10	2073			2073	0.450			87	87	0.698	75
A2	1	3.50	A	1				2105		947		947	0.00	2105			2105	0.450			87	87	0.698	76
C1,C2,C3	2	4.00	C	1	10		N	2015	160	15	0	175	0.91	1772			1772	0.099	0.099		19	19	0.698	34
D1,D2,D3	3	4.00	D	1	10		N	2015	0	15	140	155	0.90	1775			1775	0.087	0.087		17	17	0.698	31

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J8
J8 - Sha Tau Kok Road / Sui Wan Road	J8_2031_DES_PM_IMP	DATE : 16/12/2024	FILENAME :



No. of stages per cycle	N =	3
No. of stage using for calculation	N =	3
Cycle time	C =	135 sec
Sum(y)	Y =	0.632
Loss time	L =	12 sec
Total Flow	=	4165 pcu
Co = (1.5*L+5)/(1-Y)	=	62.5 sec
Cm = L/(1-Y)	=	32.6 sec
Yult	=	0.810
R.C.ult = (Yult-Y)/Y*100%	=	28.1 %
Cp = 0.9*L/(0.9-Y)	=	40.3 sec
Ymax = 1-L/C	=	0.911
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	29 %

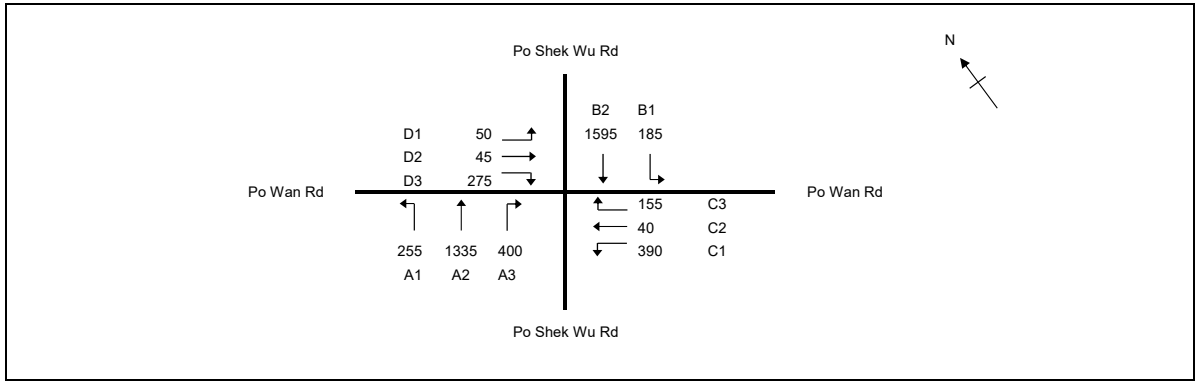


Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
E	5	6	2	6	112	2	6	OK
F	5	6	2	6	110	2	6	OK
G	10.5	6	5	12	15	5	12	OK
H	5	6	2	6	9	2	6	OK
I	5	6	2	6	7	2	6	OK
J	8	6	5	9	18	5	9	OK

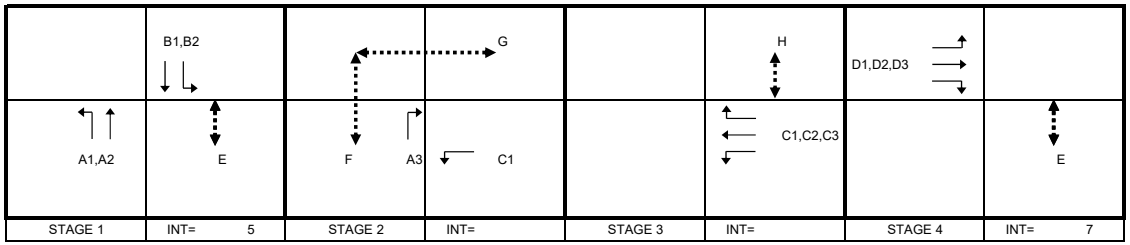
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				12				
B1,B2	1	3.50	B	1	10		N	1965	110	456		566	0.19	1909			1909	0.296	0.511		58	99	0.403	34
B2	1	3.50	B	2				4210		1249		1249	0.00	4210			4210	0.297			58	99	0.403	37
		3.50																						
A1,A2	1	3.50	A	1	10			2105	105	955		1060	0.10	2074			2074	0.511			99	99	0.694	63
A2	1	3.50	A	1				2105		1075		1075	0.00	2105			2105	0.511			99	99	0.693	64
C1,C2,C3	2	4.00	C	1	10		N	2015	105	10	0	115	0.91	1772			1772	0.065	0.065		13	13	0.694	23
D1,D2,D3	3	4.00	D	1	10		N	2015	0	10	90	100	0.90	1775			1775	0.056	0.056		11	11	0.694	21

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO:	Junction No. J13
J13 - Po Shek Wu Road / Po Wan Road	J13_2031_DES_AM_IMP	DATE : 16/12/2024	FILENAME :



No. of stages per cycle	N =	4
No. of stage using for calculation	N =	2
Cycle time	C =	128 sec
Sum(y)	Y =	0.362
Loss time	L =	62 sec
Total Flow	=	4725 pcu
Co = (1.5*L+5)/(1-Y)	=	153.7 sec
Cm = L/(1-Y)	=	97.2 sec
Yult	=	0.435
R.C.ult = (Yult-Y)/Y*100%	=	20.0 %
Cp = 0.9*L/(0.9-Y)	=	103.8 sec
Ymax = 1-L/C	=	0.516
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	28 %

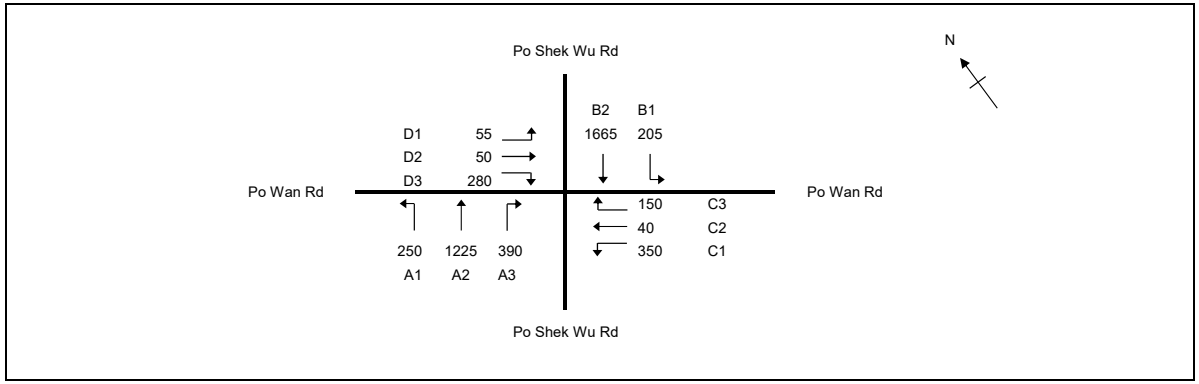


Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
E	8	6	2	9	65	2	9	OK
F	8	7	6	7	15	6	7	OK
G	12	10	6	12	10	6	12	OK
H	7	6	10	8	6	10	8	OK

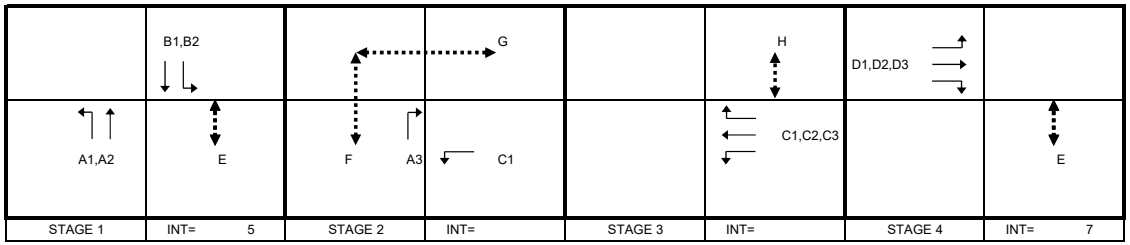
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				10				
A1,A2	1	3.30	A	1	15		N	1945	255	233		488	0.52	1848			1848	0.264	0.264		48	48	0.702	65
A2	1	3.30	A	2				4170		1102		1102	0.00	4170			4170	0.264			48	48	0.703	73
B1	1	3.30	A	1	15			2085	185			185	1.00	1895			1895	0.098			18	48	0.260	25
B2	1	3.30	A	3				6255		1595		1595	0.00	6255			6255	0.255			46	48	0.678	71
A3	2	3.30	B	2	20			4170			400	400	1.00	3879			3879	0.103			19	23	0.574	35
C1	2,3	3.30	C,D	1	15		N	1945	390			390	1.00	1768			1768	0.221			40	44	0.642	55
C2,C3	3	3.30	D	1	20			2085		40	155	195	0.79	1968			1968	0.099			18	18	0.705	36
D1,D2,D3	4	3.30	E	1	15		N	1945	50	45	82	177	0.75	1810			1810	0.098	0.098		18	18	0.700	32
D3	4	3.30	E	1	25			2085			193	193	1.00	1967			1967	0.098			18	18	0.703	35
PED	2		G																	28				
PED	3		H																	24				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO:	Junction No. J13
J13 - Po Shek Wu Road / Po Wan Road	J13_2031_DES_PM_IMP	DATE : 16/12/2024	FILENAME :



No. of stages per cycle	N =	4
No. of stage using for calculation	N =	2
Cycle time	C =	128 sec
Sum(y)	Y =	0.368
Loss time	L =	62 sec
Total Flow	=	4660 pcu
Co = (1.5*L+5)/(1-Y)	=	155.1 sec
Cm = L/(1-Y)	=	98.1 sec
Yult	=	0.435
R.C.ult = (Yult-Y)/Y*100%	=	18.1 %
Cp = 0.9*L/(0.9-Y)	=	104.9 sec
Ymax = 1-L/C	=	0.516
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	26 %

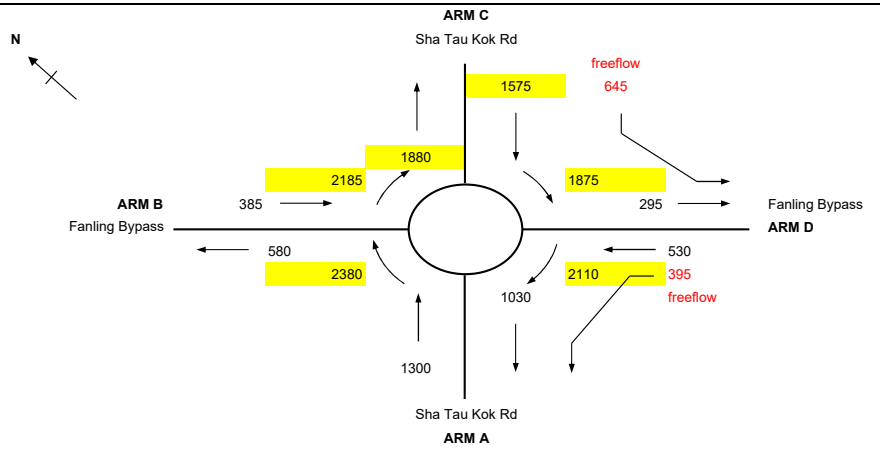


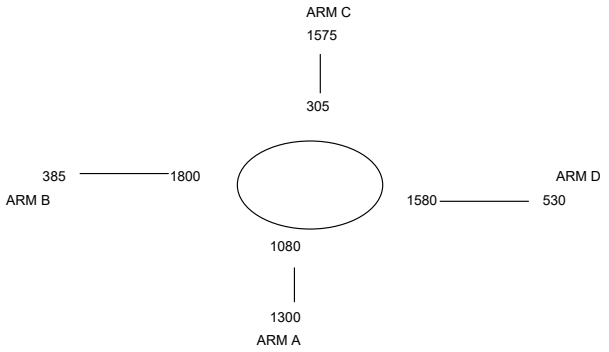
Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
E	8	6	2	9	65	2	9	OK
F	8	7	6	7	15	6	7	OK
G	12	10	6	12	10	6	12	OK
H	7	6	10	8	6	10	8	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				10				
A1,A2	1	3.30	A	1	15		N	1945	250	202		452	0.55	1843			1843	0.245	0.266		44	48	0.658	60
A2	1	3.30	A	2				4170		1023		1023	0.00	4170			4170	0.245			44	48	0.658	68
B1	1	3.30	A	1	15			2085	205			205	1.00	1895			1895	0.108			19	48	0.290	27
B2	1	3.30	A	3				6255		1665		1665	0.00	6255			6255	0.266			48	48	0.714	74
A3	2	3.30	B	2	20			4170			390	390	1.00	3879			3879	0.101			18	23	0.560	34
C1	2,3	3.30	C,D	1	15		N	1945	350			350	1.00	1768			1768	0.198			35	44	0.576	49
C2,C3	3	3.30	D	1	20			2085		40	150	190	0.79	1968			1968	0.097			17	18	0.686	35
D1,D2,D3	4	3.30	E	1	15		N	1945	55	50	80	185	0.73	1813			1813	0.102	0.102		18	18	0.714	34
D3	4	3.30	E	1	25			2085			200	200	1.00	1967			1967	0.102			18	18	0.712	37
PED	2		G																	28				
PED	3		H																	24				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
			PROJECT NO. 287082
J16 - Sha Tau Kok Road / Fanling Bypass	J16_2031_DES_AM_WITHJ8IMP	DATE 16/12/2024	



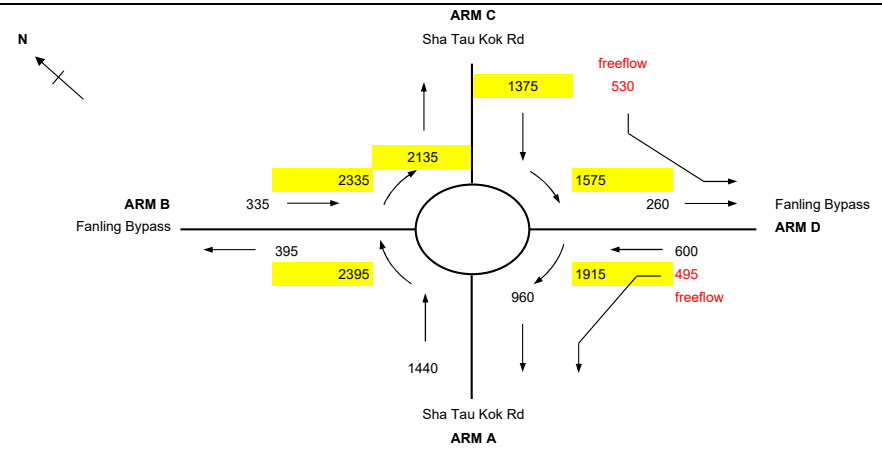


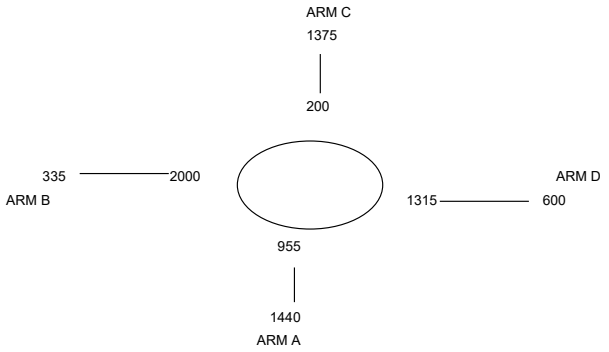
ARM			A	B	C	D
INPUT PARAMETERS:						
V	=	Approach half width (m)	7.30	4.50	7.30	4.50
E	=	Entry width (m)	10.00	7.00	10.00	7.00
L	=	Effective length of flare (m)	30	10	15	25
R	=	Entry radius (m)	50	20	20	10
D	=	Inscribed circle diameter (m)	75	75	75	75
A	=	Entry angle (degree)	10	25	20	25
Q	=	Entry flow (pcu/h)	1300	385	1575	530
Qc	=	Circulating flow across entry (pcu/h)	1080	1800	305	1580
OUTPUT PARAMETERS:						
S	=	Sharpness of flare = 1.6(E-V)/L	0.14	0.40	0.29	0.16
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.10	1.02	1.03	0.97
X2	=	V + ((E-V)/(1+2S))	9.40	5.89	9.01	6.39
M	=	EXP((D-60)/10)	4.48	4.48	4.48	4.48
F	=	303*X2	2847	1784	2731	1937
Td	=	1+(0.5/(1+M))	1.09	1.09	1.09	1.09
Fc	=	0.21*Td(1+0.2*X2)	0.66	0.50	0.64	0.52
Qe	=	K(F-Fc*Qc)	2345	901	2623	1077
DFC	=	Design flow/Capacity = Q/Qe	0.56	0.43	0.61	0.50

Total In Sum = **3790** **PCU**

DFC of Critical Approach = **0.61**

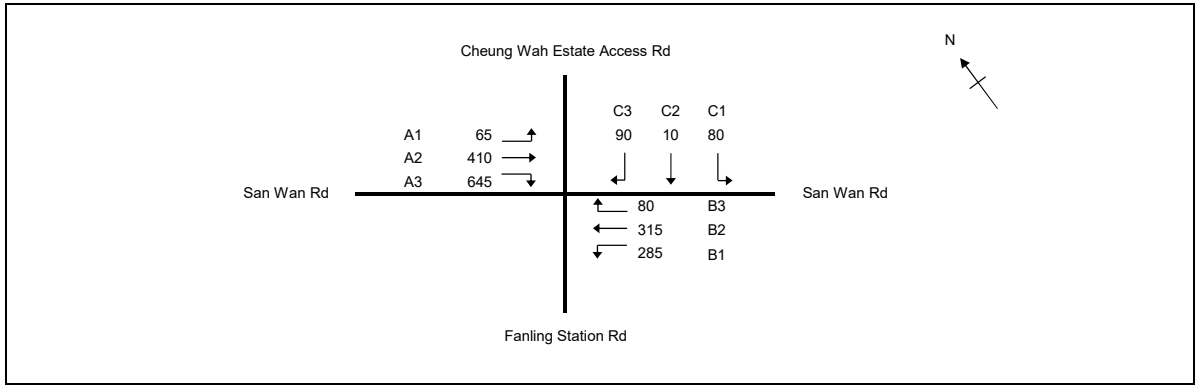
OVE ARUP & PARTNERS	ROUNDABOUT CALCULATION		
			PROJECT NO. 287082
J16 - Sha Tau Kok Road / Fanling Bypass	J16_2031_DES_PM_WITHJ8IMP	DATE 16/12/2024	



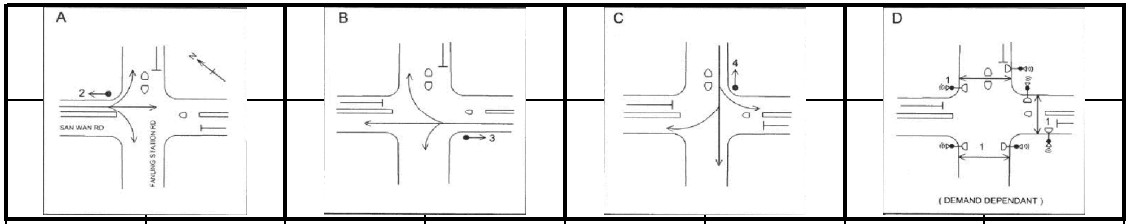


ARM			A	B	C	D			
INPUT PARAMETERS:									
V	=	Approach half width (m)	7.30	4.50	7.30	4.50			
E	=	Entry width (m)	10.00	7.00	10.00	7.00			
L	=	Effective length of flare (m)	30	10	15	25			
R	=	Entry radius (m)	50	20	20	10			
D	=	Inscribed circle diameter (m)	75	75	75	75			
A	=	Entry angle (degree)	10	25	20	25			
Q	=	Entry flow (pcu/h)	1440	335	1375	600			
Qc	=	Circulating flow across entry (pcu/h)	955	2000	200	1315			
OUTPUT PARAMETERS:									
S	=	Sharpness of flare = 1.6(E-V)/L	0.14	0.40	0.29	0.16			
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.10	1.02	1.03	0.97			
X2	=	V + ((E-V)/(1+2S))	9.40	5.89	9.01	6.39			
M	=	EXP((D-60)/10)	4.48	4.48	4.48	4.48			
F	=	303*X2	2847	1784	2731	1937			
Td	=	1+(0.5/(1+M))	1.09	1.09	1.09	1.09			
Fc	=	0.21*Td(1+0.2*X2)	0.66	0.50	0.64	0.52			
Qe	=	K(F-Fc*Qc)	2436	800	2693	1211	**Total In Sum =**	**3750**	**PCU**
DFC	=	Design flow/Capacity = Q/Qe	0.60	0.42	0.52	0.50	**DFC of Critical Approach =**	**0.60**	

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J23
J23 - San Wan Road / Fanling Station Road	J23_2031_DES_AM_IMP	DATE : 16/12/2024	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.462
Loss time		L =	43 sec
Total Flow		=	1980 pcu
Co	= (1.5*L+5)/(1-Y)	=	129.3 sec
Cm	= L/(1-Y)	=	80.0 sec
Yult		=	0.578
R.C.ult	= (Yult-Y)/Y*100%	=	24.9 %
Cp	= 0.9*L/(0.9-Y)	=	88.4 sec
Ymax	= 1-L/C	=	0.642
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	24 %



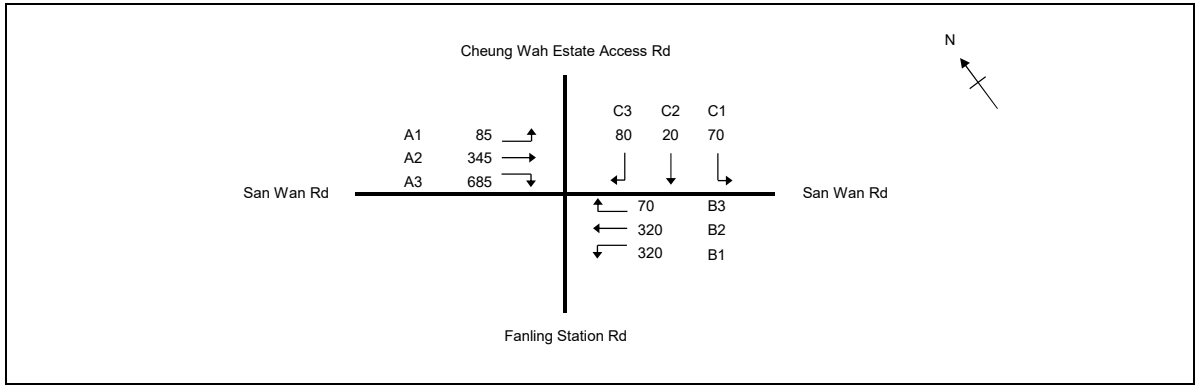
STAGE 1	INT= 7	STAGE 2	INT= 6	STAGE 3	INT= 6	STAGE 4	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1	13.5	6	6	15	6	6	15	OK

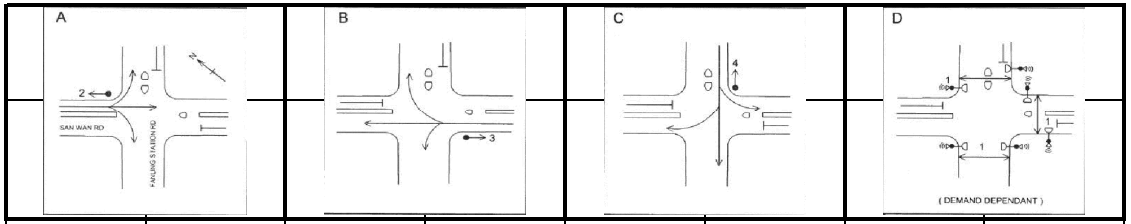
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				16				
A1,A2	1	3.30	2	1	10		N	1945	65	307		372	0.17	1895			1895	0.196	0.197		33	33	0.719	54
A2,A3	1	3.30	2	1	15			2085		103	279	382	0.73	1943			1943	0.197			33	33	0.721	56
A3	1	3.30	2	1	12.5			2085			366	366	1.00	1862			1862	0.197			33	33	0.721	53
B1,B2	2	3.60	3	1	17.5		N	1975	285	35		320	0.89	1835			1835	0.174	0.175		29	29	0.719	48
B2,B3	2	3.60	3	1	12.5			2115		280	80	360	0.22	2060			2060	0.175			29	29	0.721	55
C1,C2,C3	5	5.50	4	1	15		N	2165	80	10	90	180	0.94	1978			1978	0.091	0.091		15	15	0.721	31
PED	4		1																	27				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
		PROJECT NO: 287082	Junction No. J23
J23 - San Wan Road / Fanling Station Road	J23_2031_DES_PM_IMP	DATE : 16/12/2024	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.465
Loss time		L =	43 sec
Total Flow		=	1995 pcu
Co	= (1.5*L+5)/(1-Y)	=	129.9 sec
Cm	= L/(1-Y)	=	80.4 sec
Yult		=	0.578
R.C.ult	= (Yult-Y)/Y*100%	=	24.2 %
Cp	= 0.9*L/(0.9-Y)	=	89.0 sec
Ymax	= 1-L/C	=	0.642
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	24 %



STAGE 1	INT= 7	STAGE 2	INT= 6	STAGE 3	INT= 6	STAGE 4	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
1	13.5	6	6	15	6	6	15	OK

Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				16				
A1,A2	1	3.30	2	1	10		N	1945	85	285		370	0.23	1880			1880	0.197	0.197		33	33	0.724	54
A2,A3	1	3.30	2	1	15			2085		60	319	379	0.84	1923			1923	0.197			33	33	0.725	55
A3	1	3.30	2	1	12.5			2085			366	366	1.00	1862			1862	0.197			33	33	0.723	53
B1,B2	2	3.60	3	1	17.5		N	1975	320	13		333	0.96	1825			1825	0.182	0.182		30	30	0.725	50
B2,B3	2	3.60	3	1	12.5			2115		307	70	377	0.19	2069			2069	0.182			30	30	0.724	56
C1,C2,C3	5	5.50	4	1	15		N	2165	70	20	80	170	0.88	1989			1989	0.085	0.085		14	14	0.725	30
PED	4		1																	27				

NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED FOR SG(FG) = 1.2(0.9)m/s QUEUING LENGTH = AVERAGE QUEUE * 6m