Appendix V

Revised Traffic Impact Assessment

Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at No. 43 – 49A Hankow Road in Tsim Sha Tsui

Traffic Impact Assessment

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1 INTRODUCTION

1.1 Background

1.1.1 The application site, with a site area of about 1,074.5m^2, is located within a street block in Tsim Sha Tsui that is bounded by Haiphong Road in the north, Hankow Road in the east, Ichang Street in the south and Ashley Road in the west. The application site falls within "Commercial" zone on the Approved Tsim Sha Tsui Outline Zoning Plan ("OZP") No. S/K1/28. The location of application site is shown in **Figure 1.1**.

1.1.2 The Applicant intends to develop the application site into Proposed Flat with Permitted Office and Shops / Eating Places ("Proposed Development Scheme"). The Proposed Development Scheme will comprise a 30-storey mixed-use building with about 110 nos. flats and 9,211 m^2 GFA for commercial use.

1.1.3 According to the Statutory Notes of the Approved OZP for the "Commercial" Zone, "Office", "Shop and Services" and "Eating Place" are Column 1 uses which are always permitted. "Flat" is a Column 2 use and requires permission from the Town Planning Board.

1.1.4 Arup Hong Kong Limited ("Arup") was commissioned to prepare a Traffic Impact Assessment ("TIA") report in support of the Section 16 planning application for the application site.

1.2 Objectives of this Report

1.2.1 The principal objective of this report is to support the Proposed Development Scheme by addressing the traffic-related issues and ensuring that the Proposed Development Scheme would be feasible in traffic terms without causing adverse impact on the surrounding road network.

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 and future committed road network in the vicinity of the application site based on the latest information available;
- Provide justifications on nil internal transport facilities under the Proposed Development Scheme;

- Assess the volume of traffic likely to be generated by the Proposed Development Scheme;
- Set up the reference scenario without the Proposed Development Scheme;
- Identify the likely change in traffic generation should the application site be redeveloped under the Proposed Development Scheme;
- Assess future traffic condition, taking into account any future traffic growth, as well as the traffic generated by the Proposed Development Scheme and other planned / committed development, if any, to be built in the vicinity;
- Compare the above traffic scenarios for evaluation of the likely traffic impact, if any, associated with the Proposed Development Scheme;

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 Proposed Development Scheme
4	Traffic Impact Assessment	Illustrate the results of Traffic Impact Assessment
5	Conclusion	Summarise the findings of this Study

2 EXISTING TRAFFIC CONDITONS

2.1 Site Characteristics

2.1.1 The application site is located at No. 43 – 49A Hankow Road, Tsim Sha Tsui, Kowloon. It is bounded by Haiphong Road in the north, Hankow Road in the east, Ichang Street in the south and Ashley Road in the west.

2.1.2 The application site is currently occupied by an existing composite building with retail shops on the lower floors and about 90 nos. residential units above.

2.1.3 The existing building does not have any internal transport facilities. Loading / unloading activities associated with the building are conducted along the general lay-bys at Hankow Road.

2.2 Existing Road Network

2.2.1 The application site is well-served by comprehensive road network to and from all districts. Some major roads in the vicinity of the application site are as follows:

- **Hankow Road** is a local distributor of single carriageway standard. It connects Salisbury Road to the south and Haiphong Road to the north. The road section fronting the application site (between Ichang Street and Haiphong Road) is a one-way northbound carriageway with footpaths on both sides. A taxi stand, general lay-by and 4 nos. on-street parking spaces designated for the disabled can be found along the western kerbside of the Hankow Road section.
- **Haiphong Road** is a one-way two-lane carriageway running at eastbound direction. It connects Canton Road to the west and Nathan Road to the east.
- **Kowloon Park Drive** is a primary distributor of dual carriageway standard running in north-south direction. It connects Canton Road to the north and Salisbury Road to the south.
- **Nathan Road** is a primary distributor and is one of the major vehicular corridors in Kowloon aligning north-south from Sham Shui Po to Tsim Sha Tsui. The section of Nathan Road between Austin Road and Salisbury Road is a dual two-lane carriageway running in north-south direction.

2.3 Public Transport Facilities

2.3.1 The application site is well served by public transport services including high-capacity railway and road-based transport, which is shown in **Figure 2.1**.

2.3.2 Tsim Sha Tsui MTR Station (Tsuen Wan Line) is located around 150m away from the application site, and East Tsim Sha Tsui MTR Station (Tuen Ma Line) is connected to the Tsim Sha Tsui MTR Station via underground walkways within comfortable walking distance. The application site is therefore well served by a comprehensive railway service which has a significant passenger catchment.

2.3.3 In addition to the railway network, Nathan Road, Kowloon Park Drive, and Canton Road are the main public transport corridors which are well-served by comprehensive franchised bus (more than 70 nos. bus routes) and Green Mini-bus ("GMB") services within the surrounding road network. There is also a taxi stand located at Hankow Road outside the application site.

2.3.4 It can be concluded that the access to public transport services from the application site is convenient. Details of the public transport services operating in the vicinity of the application site are summarised in **Table 2.3.1**.

Table 2.3.1 Existing Franchised Bus & GMB Services*

Route No.	Origin	Destination
Franchised Bus Service		
1	Chui Yuen Estate	Star Ferry
1A	Sau Mau Ping (Central)	Star Ferry
1R	Hung Hom (Hung Luen Road)	Ngong Ping
2	Cheung Sha Wan (So Uk Estate)	Star Ferry
3X	Tsz Wan Shan (North)	China Ferry Terminal
6	Lai Chi Kok	Star Ferry
7	Lok Fu	Star Ferry
9	Choi Fook	Tsim Sha Tsui East (Mody Road)
12	Hoi Lai Estate	Tsim Sha Tsui East (Mody Road)
12P	Hoi Lai Estate	Hung Hom Station
13X	Po Tat	Tsim Sha Tsui East
14X	Yau Tong (Shung Tak Wai)	Tsim Sha Tsui (Circular)
20A	High Speed Rail West Kowloon Station	Kai Tak (Circular)
26	Shun Tin	Tsim Sha Tsui East
26X	Tsim Sha Tsui East	Shun Tin
35A	Kwai Chung (On Yam Estate)	Tsim Sha Tsui East
35X	Kwai Chung (On Yam Estate)	Tsim Sha Tsui East
36X	Lei Muk Shue	Tsim Sha Tsui East (Mody Road)
41A	Tsing Yi (Cheung On Estate)	Tsim Sha Tsui East
50	Tuen Mun (Ching Tin and Wo Tin)	Tsim Sha Tsui (Kowloon Station)
81C	Yiu On	Tsim Sha Tsui East (Mody Road)

Route No.	Origin	Destination
87D	Kam Ying Court	Hung Hom Station
87E	Nai Chun	Tsim Sha Tsui
98D	Hang Hau (North) (Tseung Kwan O Hospital)	Tsim Sha Tsui East
98P	Tsim Sha Tsui East	Hong Sing Garden
110	Shau Kei Wan	Tsim Sha Tsui (Circular)
203C	Sham Shui Po (Tai Hang Tung)	Tsim Sha Tsui East (Mody Road)
203S	Chak On Estate	Tsim Sha Tsui East (Mody Road)
208	Broadcast Drive	Tsim Sha Tsui East
213X	On Tai (South) (Hang Tai House)	Tsim Sha Tsui (Circular)
215P	Lam Tin (Kwong Tin Estate)	Kowloon Station
215X	Lam Tin (Kwong Tin Estate)	Kowloon Station
219X	Laguna City	Tsim Sha Tsui (Circular)
224X	Kai Yip	Tsim Sha Tsui East (Circular)
234P	Tsuen Wan (Bayview Garden)	Star Ferry
234X	Tsuen Wan (Bayview Garden)	Tsim Sha Tsui East (Mody Road)
242X	Tsing Yi (Cheung Han Estate)	Tsim Sha Tsui
260X	Tuen Mun (Po Tin Estate)	Hung Hom Station
261B	Sam Shing	Kowloon Station
268B	Long Ping Station	Hung Hom (Hung Luen Road)
269B	Tin Shui Wai Town Centre	Hung Hom (Hung Luen Road)
270A	Sheung Shui	Tsim Sha Tsui East (Mody Road)
270C	Fanling (Luen Wo Hui)	Tsim Sha Tsui East (Mody Road)
270S	Tsim Sha Tsui East (Mody Road)	Fanling (Luen Wo Hui)
271	Jordan (West Kowloon Station)	Tai Po (Fu Heng)
271B	Jordan (West Kowloon Station)	Tai Po (Fu Heng)
271P	Kau Lung Hang	Tsim Sha Tsui (Canton Road)
271S	Hung Hom Station	Tai Po (Tai Wo)
271X	Jordan (West Kowloon Station)	Tai Po (Fu Heng)
280X	Tsim Sha Tsui East (Mody Road)	Sui Wo Court
281A	Kwong Yuen	Kowloon Station
281B	Shek Mun Estate	Tsim Sha Tsui East (Mody Road)
281E	Hai Phong Road Tsim Sha Tsui	Kwong Yuen
281X	Yiu On	Tsim Sha Tsui East (Mody Road)
287D	Hung Hom Station	Kam Ying Court
296D	Sheung Tak	Kowloon Station
790	Oscar by the Sea	Tsim Sha Tsui (Mody Road)
796P	Tsim Sha Tsui (East)	Lohas Park
973	Tsim Sha Tsui East (Mody Road)	Stanley
A21	Hung Hom Station	Airport (via HZMB Hong Kong Port)
A25	Kai Tak	Airport
E21X	Tung Chung (Mun Tung Estate)	Hung Hom Station
H1	Tsim Sha Tsui	Central (Star Ferry)
H2	Tsim Sha Tsui	Central (Star Ferry)
N21	Tsim Sha Tsui (Star Ferry)	Airport (Ground Transportation Centre)

Route No.	Origin	Destination
N21A	Tsim Sha Tsui (Star Ferry)	Airport
N41X	Hung Hom Station	Tsing Yi (Cheung Wang Estate)
N213	Tsim Sha Tsui East (Mody Road)	On Tai (West)
N216	Yau Tong	Hung Hom Station
N241	Hung Hom Station	Tsing Yi (Cheung Wang Estate)
N271	Tai Po (Fu Heng)	Hung Hom Station
N281	Kam Ying Court	Hung Hom Station
N283	Tsim Sha Tsui East (Mody Road)	Wong Nai Tau
N287	Tsim Sha Tsui East (Mody Road)	Wu Kai Sha Station
N796	Lohas Park / Tseung Kwan O Station	Mongkok (via Tsim Sha Tsui)
T270	Fanling (Cheung Wah)	Tsim Sha Tsui East (Mody Road)
GMB Services		
3	Cosmopolitan Estates	Tsim Sha Tsui (Ashley Road)
8	Ho Man Tin (Sheung Wo Street)	Tsim Sha Tsui (Hankow Road)
8S	Ho Man Tin PTI	Tsim Sha Tsui (Hankow Road)
62S	Lam Tin (Kwong Tin Estate)	Tsim Sha Tsui
77M	Kowloon Station	East Tsim Sha Tsui (Circular)
78	Tak Kok Tsui (Island Harbourview) PTI	Tsim Sha Tsui (Peking Road) (Circular)
78A	Tak Kok Tsui (Island Harbourview) PTI	Tsim Sha Tsui (Peking Road)
606S	Tsim Sha Tsui (Mody Road)	Yuen Long (Fung Cheung Road)
610S	Tin Shui Wai (Tin Shui Estate)	Tsim Sha Tsui (Haipong Road)

* Source: Hong Kong eTransport (https://www.hkemobility.gov.hk/)
KMB (http://search.kmb.hk/KMBWebSite/)
CityBus & NWFB
(http://www.nwstbus.com.hk/routesearch.aspx?t=1479712062077&intLangID=2)
GMB (http://www.16seats.net/)

2.3.5 The ease of accessibility to public transport services will encourage pedestrians associated to the application site to use public transport services instead of using private vehicles.

2.4 Pedestrian Facilities

2.4.1 Footpaths can be found alongside the roads in the vicinity of the application site, and at-grade pedestrian crossings are provided at nearby road junctions. It is considered that pedestrians have good accessibility from the application site to the nearby public transport network and other areas in Tsim Sha Tsui.

2.5 Existing Junction Performance

2.5.1 To appreciate the existing traffic conditions, comprehensive classified traffic counts were conducted at the identified key junctions in the vicinity of the Application Site. These surveyed junctions are listed below, and their locations are shown in **Figure 2.2**.

J1	-	Nathan Road / Granville Road	(Signalised Junction)
J2	-	Nathan Road / Humphreys Avenue	(Signalised Junction)
J3	-	Hankow Road / Haiphong Road	(Signalised Junction)
J4	-	Hankow Road / Middle Road	(Signalised Junction)
J5	-	Kowloon Park Drive / Peking Road	(Signalised Junction)
J6	-	Kowloon Park Drive / Middle Road	(Signalised Junction)
J7	-	Nathan Road / Peking Road	(Signalised Junction)
J8	-	Salisbury Road / Kowloon Park Drive	(Signalised Junction)

2.5.2 The manual traffic count survey was undertaken on 1) one weekday in June 2023 during the periods of 07:00-10:00 and 17:00-20:00 hours; and 2) one Saturday in November 2023 during the period of 16:30–19:30 hours. The morning and evening peak hours on weekday were identified to be 08:45-09:45 and 17:15-18:15 respectively, and the weekend peak hour was identified to be 18:00–19:00. The observed traffic flows during these peak hours are presented in **Figure 2.3**.

2.5.3 Junction capacity analysis was carried out at the identified key junctions. The results of the capacity assessment are shown in **Table 2.5.1** and the detailed calculation sheets are presented in **Appendix A**.

Table 2.5.1 Year 2023 Existing Junction Performance

Junction		Type	Performance (1)		
			AM	PM	Weekend
J1	Nathan Road / Granville Road	Signalised	>100%	>100%	>100%
J2	Nathan Road / Humphreys Avenue	Signalised	>100%	>100%	>100%
J3	Hankow Road / Haiphong Road	Signalised	>100%	>100%	>100%
J4	Hankow Road / Middle Road	Signalised	>100%	>100%	>100%
J5	Kowloon Park Drive / Peking Road	Signalised	90%	55%	68%
J6	Kowloon Park Drive / Middle Road	Signalised	>100%	>100%	>100%
J7	Nathan Road / Peking Road	Signalised	>100%	>100%	>100%
J8	Salisbury Road / Kowloon Park Drive	Signalised	52%	67%	59%

Note:
(1) Figures shown represent "Reserve Capacity" ("RC") in % for signalised junctions.

2.5.4 The assessment results indicate that all identified junctions are currently operating with spare capacities during peak hours on weekday and weekend.

2.6 Transport Inventory Surveys

2.6.1 To collect the necessary information for the traffic study, a series of transport inventory surveys had been carried out on a typical weekday, and the findings are summarised in below sections:

Travel Behaviour Survey

2.6.2 To better understand the travel behaviour of future pedestrian associated to the application site, travel behaviour survey was conducted at Hong Kong Pacific Centre, a commercial building with retail use at lower floors, in opposite to the application site at No. 28 Hankow Road. A face-to-face interview targeted for pedestrians leaving the surveyed site was conducted to identify their arrival transport modes, and the survey results are summarised in **Table 2.6.1**.

Table 2.6.1 Arrival Transport Modes of Hong Kong Pacific Centre

Mode of Transport	Proportion
Railway	**60%**
Bus / GMB	**25%**
Taxi / On foot	10%
Private Car	5%
Total	100%

2.6.3 As shown in **Table 2.6.1**, around 85% of the pedestrians travelled to Hong Kong Pacific Centre by railway or road-based public transport.

This reflects the ease of accessibility to public transport services in the vicinity of the application site.

Parking Utilization Survey

2.6.4 To identify the current private car parking space availability at the nearby public car parks, parking utilization survey was carried out at four public car parks located in the vicinity of the application site during 07:00 – 24:00 hours. The details of the surveyed car parks are presented in **Table 2.6.2**, and the locations of surveyed car parks are indicated in **Figure 2.4**.

Table 2.6.2 Private Car Parking Inventories of Surveyed Car Parks

Development	Number of Private Car Parking Spaces	Approximate Distance from the Application site
[A] - Lippo Sun Centre	90	160m
[B] - One Peking	130	210m
[C] - Ocean Terminal	1200	380m
[D] - H Zentre	470	340m

2.6.5 The survey results are summarised in **Table 2.6.3**.

Table 2.6.3 Observed Car Parking Space Available in Surveyed Car Parks

Survey Period	Available Number of Car Parking Spaces				Total
	[A]	[B]	[C]	[D]	
07:00 – 08:00	85	105	975	240	1405
08:00 – 09:00	75	95	955	225	1350
09:00 – 10:00	65	90	905	200	1260
10:00 – 11:00	55	70	840	165	1130
11:00 – 12:00	45	65	780	160	1050
12:00 – 13:00	40	60	625	140	865
13:00 – 14:00	25	60	420	120	625
14:00 – 15:00	25	50	420	115	610
15:00 – 16:00	**15**	**45**	**415**	**120**	**595**
16:00 – 17:00	30	50	460	95	635
17:00 – 18:00	35	55	510	100	700
18:00 – 19:00	45	50	485	70	650
19:00 – 20:00	60	60	465	50	635
20:00 – 21:00	65	85	430	25	605
21:00 – 22:00	75	80	685	85	925
22:00 – 23:00	80	95	780	125	1080
23:00 – 24:00	80	100	935	195	1310

2.6.6 As shown in **Table 2.6.3**, the overall peak occupancy of car parking spaces of the surveyed car parks, i.e., the availability of private car parking spaces at the lowest, occurred during 15:00 - 16:00 hour. The available number of car parking spaces during the peak hour was 595, and over 1.000 nos. overnight parking spaces could be observed in the survey car parks.

Goods Vehicle Trip Generation Survey

2.6.7 To identify the goods loading / unloading demand of commercial and residential developments in Tsim Sha Tsui, goods vehicle trip generation survey had been carried out at three commercial developments and three residential developments during 09:00 – 18:00 hours in Tsim Sha Tsui. As the surveyed sites do not have any internal loading / unloading facilities, the frequency of goods vehicles which conducted loading / unloading activities at roadside and delivered goods to the surveyed sites were recorded.

2.6.8 The details of the surveyed sites are presented in **Table 2.6.4**, and the locations of surveyed sites are indicated in **Figure 2.5**.

Table 2.6.4 Survey Sites of Goods Vehicle Trip Generation Survey

Surveyed Site	Development Parameters (About)	Distance from the Application Site (About)
Type of Development: **Commercial**		
[A] - Kowloon Centre	12,710 m^2 GFA	60m
[B] - Yue Hwa International Building	7,365 m^2 GFA	140m
[C] - Hong Kong Pacific Centre	16,470 m^2 GFA	70m
Type of Development: **Residential**		
[D] – Passkon Court	63 nos. flats	630m
[E] – Shun Fai Building	68 nos. flats	610m
[F] – Hart Avenue Court	64 nos. flats	420m

2.6.9 The survey results are summarised in **Tables 2.6.5**. The observed goods vehicles were either light vans or light goods vehicles; no heavy goods vehicles were observed.

Table 2.6.5 Observed nos. of Goods Vehicle Trips Associated with the Surveyed Sites at Roadside

Survey Period	Observed Goods Vehicle Trips (no.)					
	Survey Sites					
	[A]	[B]	[C]	[D]	[E]	[F]
09:00 – 10:00	3	1	1	0	0	0
10:00 – 11:00	4	3	2	0	0	1
11:00 – 12:00	3	2	1	0	0	0
12:00 – 13:00	2	2	2	1	0	0
13:00 – 14:00	2	1	2	0	0	0
14:00 – 15:00	3	1	1	0	0	1
15:00 – 16:00	1	0	1	0	0	0
16:00 – 17:00	3	1	1	0	1	0
17:00 – 18:00	1	0	1	0	0	0
Total	**22**	**11**	**12**	**1**	**1**	**2**
Average Number of Trips per Hour	2.4	1.2	1.3	0.1	0.1	0.2
Average Dwelling Time for each trip (min)	5.5	5.9	5.7	5.8	5.1	5.5
Average Goods Vehicle Trip Generation Rate						
(Trip/hour/ 1,000m^2 GFA)	0.19	0.17	0.08	---	---	---
(Trip/hour/ 100 flats)	---	---	---	0.18	0.16	0.35

Kerbside Activity Survey

2.6.10 To identify the current kerbside activity pattern and kerbside utilization at the general lay-bys outside the application site, kerbside activity survey had been carried out at the two general lay-bys at Hankow Road during 09:00 – 18:00 hours. The vehicle types and duration of the kerbside activities were recorded. The location of the surveyed general lay-bys is shown in **Figure 2.6** and the survey results are summarised in **Tables 2.6.6** and **2.6.7**.

Table 2.6.6 Kerbside Activity Pattern and Utilization of the General Lay-by at Hankow Road Section between Haiphong Road and Ichang Street (Lay-by A)

Survey Period	Observed No. of Vehicle (vehicle/hour)	Average Occupied Length (m)	Length of general lay-by (m)	Average Utilization Rate
09:00 – 10:00	19	24.5	35	70%
10:00 – 11:00	23	30.0	35	86%
11:00 – 12:00	12	25.2	35	72%
12:00 – 13:00	14	20.1	35	57%
13:00 – 14:00	17	18.2	35	52%
14:00 – 15:00	20	24.6	35	70%
15:00 – 16:00	17	26.9	35	77%
16:00 – 17:00	20	29.6	35	85%
17:00 – 18:00	19	27.6	35	79%

Table 2.6.7 Kerbside Activity Pattern and Utilization of the General Lay-by at Hankow Road Section between Ichang Street and Peking Road (Lay-by B)

Survey Period	Observed No. of Vehicle (vehicle/hour)	Average Queue Length (m)	Length of general lay-by (m)	Average Utilization Rate
09:00 – 10:00	20	21.3	43	50%
10:00 – 11:00	25	29.1	43	68%
11:00 – 12:00	22	24.3	43	57%
12:00 – 13:00	21	23.3	43	54%
13:00 – 14:00	14	17.1	43	40%
14:00 – 15:00	15	18.8	43	44%
15:00 – 16:00	17	19.4	43	45%
16:00 – 17:00	20	20.0	43	47%
17:00 – 18:00	14	16.4	43	38%

2.6.11 The survey results shown in **Tables 2.6.6** and **2.6.7** indicated that both general lay-bys were not fully utilised.

3 THE PROPOSED DEVELOPMENT SCHEME

3.1 Development Schedule and Proposed Layout Plan

3.1.1 The key development parameters of the Proposed Development Scheme are summarised in **Table 3.1.1**. The proposed ground floor layout plan is shown in **Figure 3.1**.

Table 3.1.1 Key Development Parameters of the Proposed Development Scheme

Key Development Parameters	Proposed Development Scheme
Site Area	About 1,074.5 m^2
Total Plot Ratio (PR)	About 12
• Domestic PR	About 3.4
• Non-domestic PR	About 8.6
Total Gross Floor Area (GFA)	About 12,894 m^2
• Domestic GFA	About 3,683 m^2
• Non-domestic GFA *(For office / retail use)*	About 9,211 m^2
No. of Block	1
No. of Storeys	28 nos. storeys (1)
Total No. of Residential Units	110
Flat Size	FS ≤ 40m^2: 90 Flats 40 m^2 < FS ≤ 70 m^2: 20 Flats
Tentative Completion Year	2027

Note:
(1) According to the section plan under this application, G/F – 2/F will be used for retail / shop / F&B; 3/F –7/F will be used for retail / shop / F&B / office; 8/F – 17/F will be used for office, 18/F will be used for clubhouse; and 19/F - 30/F will be used for flats.

3.2 Provision of Internal Transport Facilities

HKPSG Requirements on Internal Transport Facility Provision

3.2.1 With reference to Hong Kong Planning Standards and Guidelines ("HKPSG"), the required provisions of internal transport facilities based on the development parameters of the Proposed Development Scheme are summarised in **Table 3.2.1**.

Table 3.2.1 HKPSG Required Internal Transport Facilities Provision under the Proposed Development Scheme

Facilities (L x W x H)	Use	HKPSG Requirement				HKPSG Required Provision	
						Low-end	High-end
Private Car Parking Space (5m x 2.5m x 2.4m)	Private Housing (110 flats, incl. *FS ≤ 40m²: 90 Flats* *40 m² < FS ≤ 70 m²: 20 Flats,* 1 block)	Ancillary Parking Space				8	13
		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	7.0		
		Accessibility Adjustment Ratio (R2)	Within a 500m-radius of rail station		**0.75**		
			Outside a 500m-radius of rail station		1.00		
		Development Intensity Adjustment Ratio (R3)	Domestic Plot Ratio (PR)	0.00<PR≤1.00	1.30		
				1.00<PR≤2.00	1.10		
				2.00<PR≤5.00	**1.00**		
				5.00<PR≤8.00	0.90		
				PR>8.00	0.75		
		Parking Requirement = GPS x R1 x R2 x R3					
		Visitor Parking Space: 5 visitor spaces per block in addition to the recommendations, or as determined by the Authority.				5	
	Retail [(1)] (9,211 m² GFA)	1 car space per 150 - 300m² GFA				31	62
		Total				**44** (incl. Accessible Car Parking Space)	**80** (incl. Accessible Car Parking Space)
Accessible Car Parking Space (5m x 3.5m x 2.4m)	1 space for 1-50 total number of car parking spaces in the lot; 2 spaces for 51-150 total number of car parking spaces in the lot;					1	2
Motorcycle Parking Space (2.4m x 1m x 2.4m)	Private Housing (110 flats, 1 block)	1 space per 100-150 flats excluding non-residential elements.				1	2
	Retail [(1)] (9,211 m² GFA)	5% - 10% of private cars provision for non-residential developments with respect to each type of development				2	7
		Total				**3**	**9**

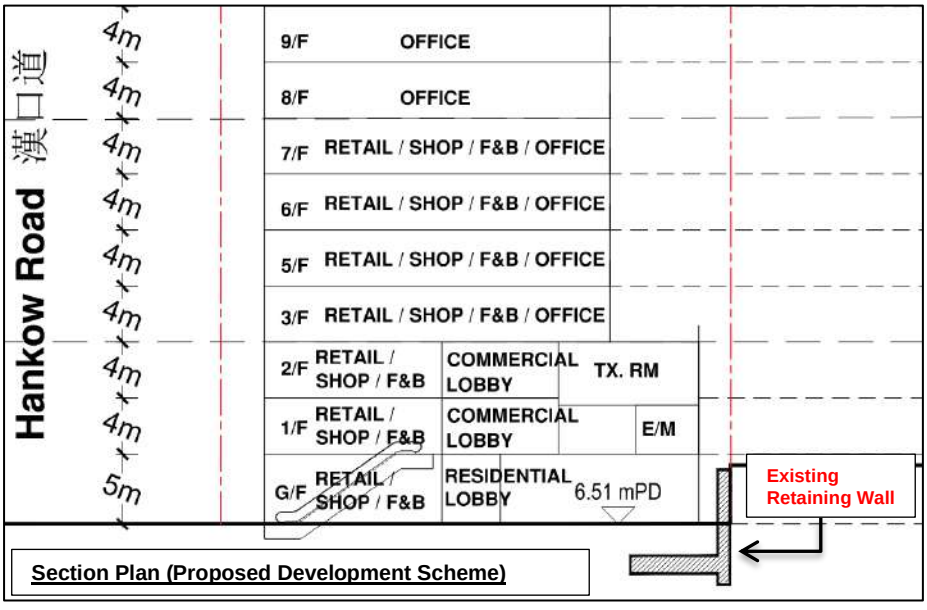
Facilities (L x W x H)	Use	HKPSG Requirement	HKPSG Required Provision	
			Low-end	High-end
Loading / Unloading Bay for Goods Vehicles **LGV** (7m x 3.5m x 3.6m) **HGV** (11m x 3.5m x 4.7m)	Private Housing (110 flats, 1 block)	Minimum of 1 L/UL bay for goods vehicles within the site for every 800 flats or part thereof, subject to a minimum of 1 bay for each housing block or as determined by the Authority	1 (HGV)	
	Retail (1) (9,211 m^2 GFA)	1 L/UL bay per 800 – 1,200m^2 GFA, including 65% LGV and 35% HGV	8 (6 LGV + 2 HGV)	12 (8 LGV + 4 HGV)
		Total	**9** (6 LGV + 3 HGV)	**13** (8 LGV + 5 HGV)

Note:
(1) To be conservative in the calculation, it is assumed that the non-domestic GFA will be all for retail use since in comparison with office use, retail use has the same required provision of private car parking space (i.e. 1 space per 150 m^2 GFA) and more required provisions of loading/unloading bays (i.e. 1 space per 800 m^2 GFA) according to HKPSG high-end requirements.

Feasibility on Internal Transport Facility Provision

3.2.2 According to the ground floor layout plan, the remaining floor area is limited when occupied by fundamental architectural facilities such as structural columns, staircase, lift lobby, escalators, E&M rooms, etc.

3.2.3 At present, there is a "L" shape retaining wall structure located at the western side of the development boundary to stabilise the soil. However, the toe of this retaining structure has encroached into the underground level of the application site, as shown in the diagram below.



Section Plan (Proposed Development Scheme)

3.2.4 If basement level would be provided, it is proposed to maintain the retaining structure by providing min. 6m reserved area to avoid adverse impact on soil stability. Therefore, the usable floor area at the basement level is further reduced in addition to the fundamental architectural facilities.

3.2.5 Taking into consideration the above background, a feasibility study from traffic engineering viewpoint on the provision of car parking spaces and goods vehicle loading / unloading bays under the Proposed Development Scheme was conducted.

3.2.6 For feasibility study purpose, it is assumed that the car parking spaces would be provided at the basement levels, and to be served by car ramp or car lifts. For the goods vehicle loading / unloading bay, it would be provided on the ground floor. The proposed run-in / out would be located at the eastern boundary fronting Hankow Road.

Provision on Car Parking Spaces at Basement via Car Ramp

3.2.7 According to PNAP APP-111 from Buildings Department, the maximum gradient for a helical ramp serving private cars is 1:8. Assuming the floor-to-floor height of 4m, the minimum length of the ramp from the ground floor to basement would be about 32m long. The proposed car ramp serving the two-way traffic of private cars is indicated on the ground floor plan and illustrated in **Figure 3.2**.

3.2.8 As shown in **Figure 3.2**, the proposed car ramp would encroach onto the structural columns and wall, therefore the proposed ground floor layout with car ramp to serve car parking spaces at basement levels would not be feasible.

3.2.9 *Provision of Car Parking Spaces at Basement via Car Lift*

3.2.10 Based on the proposed development schedule, the AM and PM peak hour attraction are estimated to be 28 pcu/hr and 38 pcu/hr respectively. (The calculation of trip generation / attraction of the Proposed Development Scheme is further discussed in **Chapter 4.1**). For a typical car lift system serving car parking spaces at the basement levels with the above vehicle arrival rates, it would require at least two car lifts and waiting spaces. Besides, a minimum of two car lifts would also be required to maintain normal daily operation, in case one of the two car lifts suddenly breaks down or is under maintenance.

3.2.11 Due to the limited availability of ground floor space, the provision and operation of two car lifts is affected by the structural columns / walls, as shown in **Figures 3.3** and **3.4**. Therefore, the proposed ground floor layout with two car lifts to serve the car parking spaces at basement levels would not be feasible.

Feasibility of Goods Vehicle Loading / Unloading Bay with / without Turntable

3.2.12 To minimize the required manoeuvring area for a goods vehicle to enter / leave the goods vehicle loading / unloading bay on the ground floor, a turntable would be proposed. To facilitate a heavy goods vehicle ("HGV") and light goods vehicle ("LGV") loading / unloading bay, the typical diameters of the turntable would be 12.6m and 8m respectively.

3.2.13 Based on the ground floor plan, it is not possible to provide a turntable with 12.6m or 8m diameter without encroaching onto any structural columns / wall, as shown in **Figures 3.5** to **3.8**.

3.2.14 Considering (i) the limited area, (ii) unable to provide a turntable and (iii) the manoeuvring space required for a LGV to enter / leave the LGV loading / unloading bay, the proposed ground floor layout to serve any goods vehicle loading / unloading bays would not be feasible.

3.3 Justifications for Nil Internal Transport Facilities for the Proposed Development Scheme

3.3.1 In view of site constraints mentioned in **Chapter 3.2**, it is proposed to provide nil internal transport facilities under the Proposed Development Scheme. Relaxation for the provision of internal transport facilities is therefore required.

3.3.2 The justifications for nil internal transport facilities for the Proposed Development Scheme are given below:

Justification 1 – Site constraints

3.3.3 Based on the ground floor and basement layout plans, the remaining floor area on ground and basement floor would be limited when the floor levels are occupied by fundamental architectural facilities such as structural columns, staircase, lift lobby, escalators, E&M rooms, etc. As presented in **Chapter 3.2**, it is not feasible to prepare an acceptable transport layout to cater for the minimum car parking spaces and goods vehicle loading / unloading bay from traffic engineering point of view.

Justification 2 – Good accessibility to public transport services

3.3.4 The application site is located at Tsim Sha Tsui with high-capacity public transport services, including public transport services at Nathan Road and Kowloon Park Drive. In addition, the MTR Tsim Sha Tsui Station entrance / exit is located around 100m away, or equivalent to less than 2-minute walk. Due to good accessibility to public transport services, most of the visitors, office workers and residents associated to the Proposed Development Scheme are anticipated to commute by public transport instead of private cars. The interview survey results on pedestrian arrival transport modes for the commercial building located in opposite to the application site (refer to **Table 2.6.1**) concur the

above statement. Thus, the demand on car parking space under the Proposed Development Scheme is expected to be limited.

3.3.5 In addition, there is a taxi stand located in front of application site. The convenience in using taxis will likely further reduce the demand on car parking spaces under the Proposed Development Scheme.

Justification 3 – Observed spare capacity on the car parks located in the vicinity

3.3.6 Based on the results on the parking utilization survey for the car parks located in the vicinity of the application site (refer to **Table 2.6.3**), there would be a surplus of around 590 nos. car parking spaces during the weekday peak hour and more than 1,000 nos. car parking spaces at mid-night hours. Therefore, the existing car parks surrounding the application site could supplement the demand of car parking spaces under the Proposed Development Scheme, which is expected to be limited.

Justification 4 – low demand for goods vehicle loading / unloading bay

3.3.7 A survey was conducted at commercial and residential developments located in Tsim Sha Tsui to identity the actual demand on goods loading / unloading facilities. Based on the derived peak hour goods vehicle trip generation rates (refer to **Table 2.6.5**) from the traffic survey, the average number of good vehicle trip required to conduct goods loading / unloading under the Proposed Development Scheme would be around 3 trips per hour (*Commercial*: 9,211m^2 / 1,000m^2 x 0.19 + *Residential:* 110 flats /100 flats x 0.35). Therefore, the demand of goods loading / unloading bays of the Proposed Development Scheme is expected to be low.

Justification 5 – On-street activities are permitted at the general lay-bys outside the application site

3.3.8 At present, on-street activities are permitted along the western kerbside of Hankow Road. There are two general lay-bys located along the western kerbside of Hankow Road, the first one is in front of the application site and the second one is located around 100m to the south of the application site. Both lay-bys are convenient for goods loading / unloading activities associated to the application site.

3.3.9 The average number of goods vehicle trips under the Proposed Development Scheme is about 3 trips per hour, and the average dwelling time is less than 6 minutes. Based on the utilization survey results at the two general lay-bys, both lay-bys are not fully utilized (refer to **Tables 2.6.6** and **2.6.7)**. Therefore, the anticipated loading / unloading activities could be conducted at the two general lay-bys and will not interrupt the traffic flow along Hankow Road.

Justification 6 – The provision of run-in / out is not desirable from pedestrian viewpoint

3.3.10 The existing building at the application site has no run-in/out. At present, the concerned road section of Hankow Road (between Peking Road and Haiphong Road) fronting the Proposed Development Scheme

is around 180m long without any run-in/out. Therefore, both sides of the footpath along this road is car-free, i.e., there is no conflict point between traffic and pedestrians.

3.3.11 The provision of run-in / out under the Proposed Development Scheme would introduce a conflict point between the traffic and pedestrians on the western footpath of the above road section of Hankow Road, which is not desirable for the pedestrians from safety point of view.

Justification 7 – The provision of run-in / out would be located in close proximity of the existing stop line of Hankow Road approach arm

3.3.12 According to TPDM Vol. 2 Ch. 3.6.2.3, run-ins should not normally be sited within 60m of the stop line on the major road or within 45m on the minor road, on either the approach or exit roads. Assuming the conceptual run-in/out would be provided towards the south of the eastern site boundary fronting Hankow Road, the distance between the existing stop line of Hankow Road approach arm and the conceptual run-in/out is around 34m, as shown in **Figure 3.9**. Therefore, the provision of run-in / out at Hankow Road is undesirable from traffic engineering viewpoint.

Justification 8 – The provision of run-in / out is not desirable from local traffic viewpoint

3.3.13 At present, there are a 35m long general lay-by, a 15m long taxi stand and 4 nos. disabled parking spaces along the kerbside fronting the application site at Hankow Road. To cater for the manoeuvring space of vehicles entering / leaving the application site and provide desirable visibility distance (60m according to TPDM Vol. 2 Ch. 3.6.3.2) for the motorists leaving the application site, the general lay-by and the taxi stand would be affected. The assessment of visibility distance at the conceptual run-in / out is shown in **Figure 3.10**.

3.3.14 The provision of run-in/out for the application site would be less beneficial to the public due to the followings:

- The existing general layby of 35m long (equivalent to 5 nos. LGV loading / unloading bays) would be affected to cater for the provision of run-in / out with adequate sightline. It would imply that there would be a loss of the above general lay-by on the public road within the local area; and
- The existing taxi stand would need to be relocated to other locations.

Justification 9 – Approved GBP Scheme with Nil Internal transport facilities

3.3.15 According to the latest General Building Plan ("GBP") approved by Building Department on 21 March 2023 at the same location of the application site, nil internal transport provision was permitted.

3.3.16 The above proposed development consisted of about 7,974 m^2 GFA for office use and 4,919 m^2 GFA for retail use ("Approved GBP Scheme"). The required provisions of internal transport facilities under the Approved GBP Scheme with reference to HKPSG are summarised in **Table 3.3.1.**

Table 3.3.1 HKPSG Required Internal Transport Facilities Provision for the Approved GBP Scheme

Facilities (L x W x H)	Use	HKPSG Requirement	HKPSG Required Provision	
			Low-end	High-end
Private Car Parking Space (5m x 2.5m x 2.4m)	Retail (4,919m^2 GFA)	1 car space per 150 - 300m^2 GFA	17	33
	Office (7,974m^2 GFA)	For first 15,000m^2 GFA, 1 car space per 150 - 200m^2 GFA	40	54
	Total		**57** (incl. Accessible Car Parking Space)	**87** (incl. Accessible Car Parking Space)
Accessible Car Parking Space (5m x 3.5m x 2.4m)	2 spaces for 51-150 total number of car parking spaces in the lot;		2	2
Motorcycle Parking Space (2.4m x 1m x 2.4m)	Retail (4,919m^2 GFA)	5% - 10% of private cars provision for non-residential developments with respect to each type of development	1	4
	Office (7,974m^2 GFA)	5% - 10% of private cars provision for non-residential developments with respect to each type of development	2	6
	Total		**3**	**10**
Loading / Unloading Bay for Goods Vehicles **LGV** (7m x 3.5m x 3.6m) **HGV** (11m x 3.5m x 4.7m)	Retail (4,919m^2 GFA)	1 L/UL bay per 800 – 1,200m^2 GFA, including 65% LGV and 35% HGV	5 (4 LGV + 1 HGV)	7 (5 LGV + 2 HGV)
	Office (7,974m^2 GFA)	1 L/UL bay per 2,000 – 3,000m^2 GFA, including 65% LGV and 35% HGV	3 (2 LGV + 1 HGV)	4 (3 LGV + 1 HGV)
	Total		**8** (6 LGV + 2 HGV)	**11** (8 LGV + 3 HGV)

3.3.17 The total required low-end provisions are compared with those of the Proposed Development Scheme as shown in **Table 3.3.2**.

Table 3.3.2 Comparison of Required Internal Transport Facilities Provision under HKPSG Low-end Requirements Between Approved GBP Scheme and Proposed Development Scheme

Facility	[A]: Approved GBP Scheme	[B]: Proposed Development Scheme	Net Difference: [B] – [A]
Private Car Parking Space	57	44	**-13**
Goods Vehicle Loading / Unloading Bay	8	9	**+1**

3.3.18 According to **Table 3.3.2**, the required car parking spaces for the Proposed Development Scheme is 13 nos. parking spaces lower and just 1 no. goods vehicle loading / unloading bay higher when compared with the Approved GBP Scheme, i.e., similar in terms of the demand of internal transport facilities.

3.3.19 Considering the Proposed Development Scheme have similar characterise and site constraint as the Approved GBP Scheme, it is believed that the Proposed Development Scheme would also be acceptable to provide nil internal transport facilities from traffic viewpoint.

Conclusion

3.3.20 In view of the above justifications, the provision of nil internal transport facilities for the Proposed Development Scheme is believed to be acceptable from traffic engineering viewpoint.

4 TRAFFIC IMPACT ASSESSMENT

4.1 Trip Generation and Attraction of Proposed Development Scheme

4.1.1 The likely amount of traffic generated and attracted by the Proposed Development Scheme was calculated based on 1) 'Traffic Rates for Non-Residential Development at 95% Confidence Level' and 2) 'Traffic Rates for Residential Development at 95% Confidence Level' adopted in the Transport Planning and Design Manual ("TPDM") Vol. 1 Table 1 and 2 respectively. The adopted rates and associated trips for the Proposed Development Scheme are shown in **Table 4.1.1**.

Table 4.1.1 Trip Generation and Attraction of the Proposed Development Scheme

Proposed Use		AM Peak		PM Peak	
		GEN	ATT	GEN	ATT
Residential Flat no. = **110**	Traffic Rate (pcu/hr/flat)	0.0718	0.0425	0.0286	0.0370
	Trip Generation (pcu/hr)	8	5	4	5
Retail (1) GFA = **9,211 m²**	Traffic Rate (pcu/hr/100m² GFA)	0.2296	0.2434	0.3100	0.3563
	Trip Generation (pcu/hr)	22	23	29	33
Total (pcu/hr)		**30**	**28**	**33**	**38**

Note:
(1) To be conservative in the calculation, it is assumed that the non-domestic GFA will be all for retail use since in comparison with office use, retail use has higher traffic trip generation/attraction rates (two-way) according to TPDM.

4.1.2 As indicated in **Table 4.1.1**, the Proposed Development Scheme would generate a total of some **58 pcu/hr** and **71 pcu/hr** (two-way) during morning and evening peak periods respectively. As there are no weekend trip rates for residential or retail developments in TPDM, the weekday PM peak hour trip generation on **Table 4.1.1** were assigned to the weekend peak hour accordingly.

4.2 Trip Generation and Attraction of Development under Approved GBP Scheme

4.2.1 As mentioned in Chapter 3.3, the Approved GBP Scheme consisted of about 7,974 m^2 GFA for office use and 4,919 m^2 GFA for retail use. The likely amount of traffic generated and attracted by this development was calculated similarly with reference to traffic rates in TPDM and compared with that of the Proposed Development Scheme, as shown in **Table 4.2.1**.

Table 4.2.1 Net Difference of Trip Generation and Attraction between Proposed Development Scheme and Approved GBP Scheme (pcu/hr)

Proposed Use	AM Peak			PM Peak		
	GEN	ATT	Two-way	GEN	ATT	Two-way
[A]: Development under Approved GBP Scheme	26	32	**58**	29	28	**57**
[B]: Proposed Development Scheme	30	28	**58**	33	38	**71**
Net Difference: [B] – [A]	+4	-4	**Nil**	+4	+10	**+14**

4.2.2 As indicated in **Table 4.2.1**, the overall two-way AM and PM peak hour traffic generation of the Proposed Development Scheme would be similar during the AM peak and slight addition of 14 pcu/hr during PM peak when compared to the Approved GBP Scheme. Hence, the traffic impact to the road network due to the Proposed Development Scheme is expected to be similar to the Approved GBP Scheme.

4.3 Adjacent Developments

4.3.1 In addition to the development flow, the traffic generated and attracted by adjacent major planned/committed developments in the area, as shown in **Table 4.3.1**, were taken into account for the traffic forecast.

Table 4.3.1 Adjacent Planned/Committed Developments

Development	Type	Parameters
Proposed Hotel Redevelopment of Mariners' Club at Middle Road	Hotel Development	About 500 guest rooms (1)
Proposed Expansion of Hong Kong Science Museum and Hong Kong Museum of History	GIC Development	About 66,438 m^2 GFA (2)
Proposed Redevelopment at No. 21 Ashley Road	Commercial Development	About 100,000 ft^2 GFA (3)
Proposed Redevelopment at Nos. 31-37 Hankow Road	Commercial Development	About 115,300 ft^2 GFA (4)

Note:
(1) Source: https://egh.com.hk/news/empire-group-wins-tender-for-mariners-club-redevelopment.html
(2) Refer to approved planning application no.: A/K1/267.
(3) Source: https://21ashley.com.hk/wp-content/uploads/2023/01/21-Ashley_Brochure-2.pdf
(4) Source: https://www.28hse.com/en/news/九展再有新進展-擬重建 4 商廈獲批-59433

4.4 Future Traffic Growth

4.4.1 The tentative completion year of the Proposed Development Scheme is Year 2027. In order to assess the traffic impact of the development-related traffic on the adjacent road network, Year 2030 (i.e. 3 years after the completion) is adopted as the design year of the study.

Annual Traffic Census

4.4.2 Reference was made to Annual Traffic Census ("ATC") on annual average daily traffic ("AADT") at counting stations in the vicinity of the Proposed Development Scheme and the corresponding traffic flows are summarised in **Table 4.4.1** below.

Table 4.4.1 Annual Average Growth Rate by ATC

Station No.	2017 AADT	2018 AADT	2019 AADT	2020 AADT	2021 AADT	Annual Average Growth Rate from 2017 to 2021
3021	15,080	15,610	15,130	14,410	11,350	-6.9%
3207	27,450	25,100	27,440	25,690	26,780	-0.6%
3410	45,750	45,940	49,380	42,720	44,540	-0.7%
3413	26,310	26,420	29,540	23,760	24,770	-1.5%
3414	14,160	14,220	15,370	15,650	16,310	3.6%
3446	11,710	11,760	10,180	10,570	11,020	-1.5%
3606	51,670	51,880	52,260	48,970	42,140	-5.0%
3609	25,980	26,080	26,270	26,320	26,310	0.3%
3811	35,810	35,960	36,220	33,900	40,380	3.0%
4009	34,120	35,760	36,020	33,710	35,150	0.7%
4614	5,690	6,130	5,490	5,570	5,960	1.2%
4654	9,900	11,530	11,290	10,610	8,260	-4.4%
4655	3,010	2,590	2,580	2,670	2,340	-6.1%
Total	**306,640**	**308,980**	**317,170**	**294,550**	**295,310**	**-0.9%**

4.4.3 The ATC historic data indicates an average reduction of traffic in recent years in the region with around -0.9% p.a.

Territorial Population and Employment Data Matrix (TPEDM)

4.4.4 Reference was made to 2019-based TPEDM published by Planning Department. **Table 4.4.2** below summarises the estimated and projected population and employment data as well as their respective annual average growth rate of Yau Ma Tei District in 2019, 2026 and 2031.

Table 4.4.2 Annual Average Growth Rate by TPEDM

Year	2019	2026	2031
Population	171,000	153,650	135,750
Annual Average Growth Rate	---	**-1.52% (from 2019 to 2026)**	**-2.45% (from 2026 to 2031)**
Employment	286,000	312,150	320,200
Annual Average Growth Rate	---	**+1.26% (from 2019 to 2026)**	**+0.51% (from 2026 to 2031)**

4.4.5 From the table above, the annual growth rates from 2019 to 2026 and from 2026 to 2031 are: 1) -1.52% and -2.45% (derived from population

data) and 2) +1.26% and +0.51% (derived from employment data), respectively.

4.4.6 For assessment purpose, growth rate of **+1.26% p.a.** was adopted to produce the traffic forecast for **Year 2023-2026**, and **+0.51% p.a.** was adopted to produce the traffic forecast for **Year 2026-2030**.

4.5 Assessment Scenarios

4.5.1 To evaluate the associated traffic impact likely to be induced by the Proposed Development Scheme, three scenarios were analysed and compared.

4.5.2 The first scenario assumed that the traffic forecast without the proposed development, i.e. *Year 2030 Reference Scenario*. The second scenario assumed that the existing building is to be redeveloped under the Proposed Development Scheme, i.e. *Year 2030 Design Scenario (Under Proposed Development Scheme)*. The third scenario assumed that the existing building is to be redeveloped under the Approved GBP Scheme, i.e. *Year 2030 Design Scenario (Under Approved GBP Scheme)*.

Scenario 1 (Reference Case)

Year 2030 Reference Scenario

= Year 2023 existing traffic flows × growth factor during the period of year 2023-2030

Plus traffic generations of other planned/committed developments in the vicinity

Scenario 2 (Design Case with Proposed Development Scheme)

Year 2030 Design Scenario (Under Proposed Development Scheme)

= Year 2030 Reference Scenario

Plus trips generated and attracted by the Proposed Development Scheme

Scenario 3 (Design Case with Approved GBP Scheme)

Year 2030 Design Scenario (Under Approved GBP Scheme)

= Year 2030 Reference Scenario

Plus trips generated and attracted by the Approved GBP Scheme

4.5.3 The forecasted traffic flows for the above three scenarios are presented in **Figures 4.1**, **4.2** and **4.3** respectively.

4.6 Junction Capacity Assessment

4.6.1 Junction capacity assessment was carried out at the identified key junctions under the Year 2030 Reference and Design scenarios. The Assessment results are summarised in **Table 4.6.1** below and the detailed calculation sheets are presented in **Appendix A**.

Table 4.6.1 Year 2030 Future Junction Performance

Junction		Type	Junction Performance (1)								
			2030 Reference			2030 Design (Under Proposed Development Scheme)			2030 Design (Under Approved GBP Scheme)		
			AM	PM	Weekend	AM	PM	Weekend	AM	PM	Weekend
J1	Nathan Road / Granville Road	Signalised	>100%	>100%	>100%	>100%	>100%	>100%	>100%	>100%	>100%
J2	Nathan Road / Humphreys Avenue	Signalised	>100%	99%	>100%	>100%	97%	>100%	>100%	97%	>100%
J3	Hankow Road / Haiphong Road	Signalised	>100%	>100%	>100%	>100%	>100%	>100%	>100%	>100%	>100%
J4	Hankow Road / Middle Road	Signalised	>100%	>100%	>100%	>100%	>100%	>100%	>100%	>100%	>100%
J5	Kowloon Park Drive / Peking Road	Signalised	73%	42%	54%	72%	41%	53%	72%	41%	53%
J6	Kowloon Park Drive / Middle Road	Signalised	89%	100%	>100%	87%	97%	>100%	87%	97%	>100%
J7	Nathan Road / Peking Road	Signalised	>100%	>100%	>100%	>100%	>100%	>100%	>100%	>100%	>100%
J8	Salisbury Road / Kowloon Park Drive	Signalised	38%	51%	44%	38%	51%	44%	38%	51%	44%

Notes:
(1) Figures shown represent "Reserve Capacity" (RC) in % for signalised junctions.

4.6.2 The above results reveal that the identified key junctions would operate within capacities with the Proposed Development Scheme. Therefore, it is anticipated that the Proposed Development Scheme would not induce significant traffic impact to the surrounding road network. Furthermore, the results of the Proposed Development Scheme are similar to the Approved GBP Scheme in Year 2030.

5 CONCLUSION

5.1 Summary

5.1.1 The application site is located at Nos. 43 – 49A Hankow Road with a site area of approximately 1,074.5m^2. It is currently zoned as "Commercial" under the Approved Tsim Sha Tsui Outline Zoning Plan ("OZP") No. S/K1/28.

5.1.2 The Applicant intends to develop the application site into Proposed Flat with Permitted Office and Shops / Eating Places ("Proposed Development Scheme"). The Proposed Development Scheme will comprise a 30-storey mixed-use building with about 110 nos. flats and 9,211m^2 GFA for commercial use.

5.1.3 A Traffic Impact Assessment (TIA) study was carried out to evaluate the likely traffic impact associated with the Proposed Development, in support of the Section 16 planning application for the application site.

5.1.4 In view of limited floor area at ground floor and basement floor, it is considered infeasible to provide an acceptable traffic layout with internal transport facilities. Therefore, it is proposed to provide nil internal transport facilities under the Proposed Development Scheme with the justifications given below:

1) Site constraints;
2) Good accessibility to public transport services;
3) Observed spare capacity on the car parks located in the vicinity;
4) low demand for goods vehicle loading / unloading bay;
5) On-street activities are permitted at the general lay-bys outside the application site;
6) The provision of run-in/out is not desirable from pedestrian view point;
7) The provision of run-in / out would be located in close proximity of the existing stop line of Hankow Road approach arm;
8) The provision of run-in/out is not desirable to the public from local traffic view point; and
9) Approved GBP Scheme with nil internal transport facilities.

5.1.5 Considering the above justifications, the provision of nil internal transport facilities for the Proposed Development Scheme is believed to be acceptable from traffic engineering viewpoint.

5.1.6 The identified key junctions in the vicinity were assessed with respect to traffic generation associated to the Proposed Development Scheme upon Year 2030 (3 years after the target Completion Year 2027), taking into account the traffic generation by the major planned developments in the vicinity.

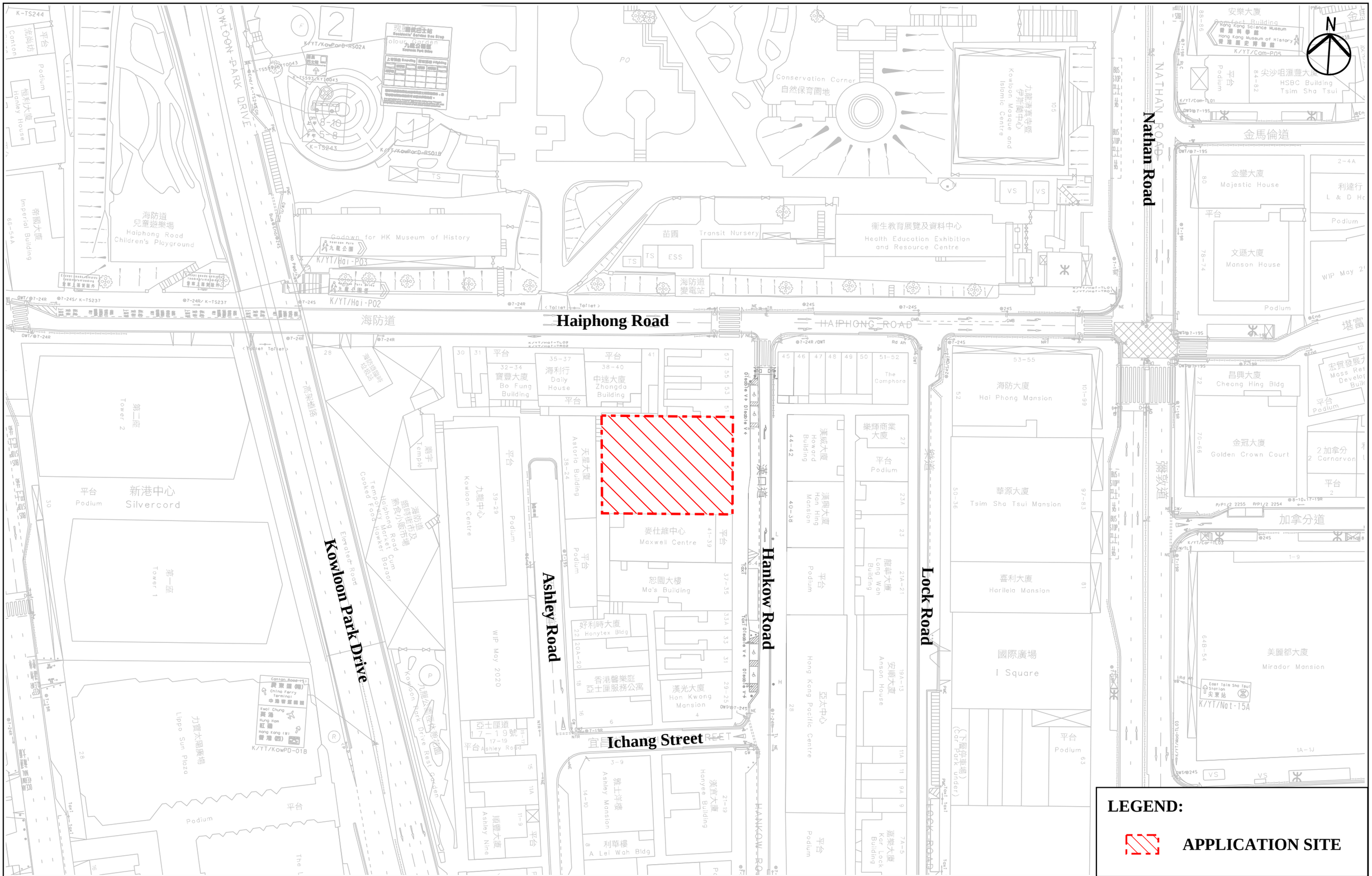
5.1.7 Traffic impact assessment scenarios were set up under the Proposed Development. The first scenario assumed that the traffic forecast without the proposed development, i.e. *Year 2030 Reference Scenario* . The second scenario assumed that the existing building is to be redeveloped under the Proposed Development Scheme, i.e. *Year 2030 Design Scenario (Under Proposed Development Scheme)*. The third scenario assumed that the existing building is to be redeveloped under the Approved GBP Scheme, i.e. *Year 2030 Design Scenario (Under Approved GBP Scheme).*

5.1.8 The assessment results revealed that the traffic condition would be more or less the same in both Reference and Design scenarios in year 2030. Furthermore, the results of the Design scenarios of the Proposed Development Scheme are similar to the Approved GBP Scheme in Year 2030. Therefore, the traffic impact due to the Proposed Development Scheme is considered insignificant and could be accommodated by the surrounding road network.

5.2 Conclusion

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

Figures



LEGEND:

APPLICATION SITE

Job Title: **SECTION 16 PLANNING APPLICATION FOR PROPOSED FLAT WITH PERMITTED OFFICE AND SHOPS/EATING PLACES AT NO. 43 - 49A HANKOW ROAD IN TSIM SHA TSUI**		**FIGURE 1.1**
Date: **11/2023**	Scale: **1:1,000 (A3)**	Drawing Title: **LOCATION OF THE APPLICATION SITE AND ITS ENVIRONS**
Drawn: **WYJL**	Job No.: **294680-01**	**ARUP**

LEGEND:

- APPLICATION SITE
- GMB STOP
- BUS STOP
- MTR STATION ENTRANCE/EXIT
- TAXI STAND

200m away from the application site

Bus Route:
271, 271B, 271X

Bus Route:
1R, 2, 3X, 7, 9, 50, 13X, 203C, 208, 213X, 219X, 224X, 260X, 269B, 270A, 270C, 270S, 271, 271B, 271S, 271X, N213, N241, N271, N796

GMB Route:
606S

Bus Route:
1, 1A, 2, 6, 9, 26, 98D, 98P, 203S, 270A, 270C, 790, 796P, A21, N21, N21A, N216, N241

GMB Route:
62S, 610S

GMB Route:
606S

GMB Route:
3, 26A

Bus Route:
12P, 20A, 203C, 973, A25, E21X

GMB Route:
77M, 78, 78A

GMB Route:
610S

Bus Route:
26, 26X, 81C, 87D, 87E, 98D, 98P, 280X, 281A, 281E, 287D, 296D, 790, 796P, A21, N21, N21A, N41X, N213, N216, N241, N281, N283, N287, N796

GMB Route:
77M, 78

GMB Route:
26A

GMB Route:
78

Bus Route:
3X, 12, 20A, 50, 215P, 215X, 261B, 271, 271B, 271P, 281A, 296D, A25, T270

GMB Route:
76C, 8, 8S, 77M

Bus Route:
1, 1A, 2, 6, 7, 9, 13X, 14X, 26, 35A, 35X, 41A, 50, 81C, 87D, 203S, 208, 234P, 234X, 268B, 270A, 270C, 271, 271B, 271P, 280X, 281A, 281B, 281X, 296D, 790, 796P, A21, N21, N21A, N216, N241, N271, N281

GMB Route:
3, 77M, 78, 78A

Bus Route:
50, 973

GMB Route:
606S

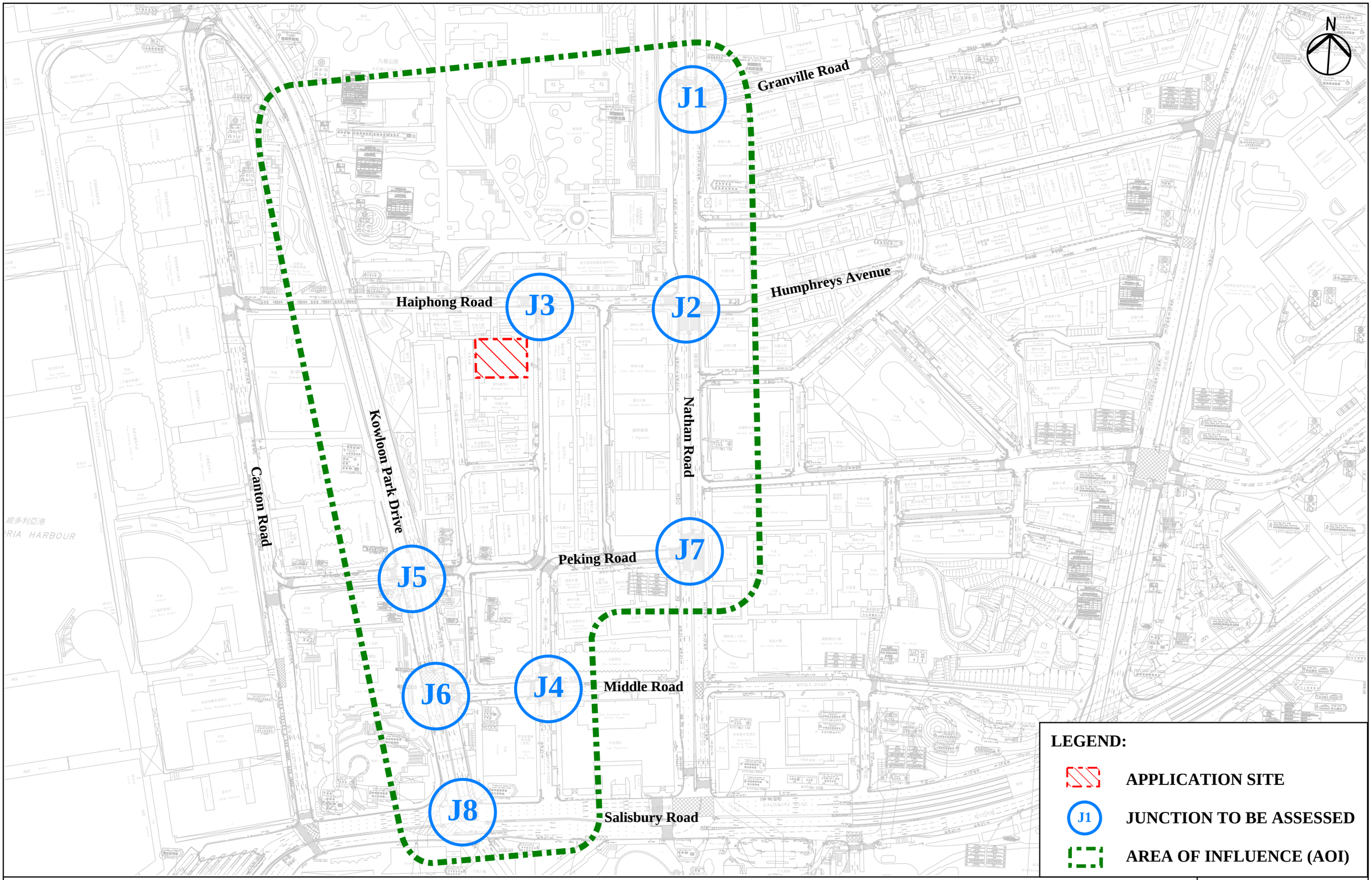
Bus Route:
1, 1A, 2, 3X, 6, 9, 13X, 35A, 35X, 36X, 41A, 50, 203C, 213X, 224X, 234X, 242X, 260X, 268B, 269B, N21, N21A, N241

Bus Route:
20A, 110, 271, 271B, 271X, 973, A25, E21X, H1, H2

GMB Route:
3

Granville Road
Nathan Road
Humphreys Avenue
Haiphong Road
Kowloon Park Drive
Canton Road
Hankow Road
Peking Road
Middle Road
維多利亞港
VICTORIA HARBOUR

Job Title: SECTION 16 PLANNING APPLICATION FOR PROPOSED FLAT WITH PERMITTED OFFICE AND SHOPS/EATING PLACES AT NO. 43 - 49A HANKOW ROAD IN TSIM SHA TSUI		FIGURE 2.1
Date: 11/2023	Scale: 1:2,000 (A3)	Drawing Title: EXISTING PUBLIC TRANSPORT SERVICES IN THE VICINITY
Drawn: WYJL	Job No.: 294680-01	ARUP



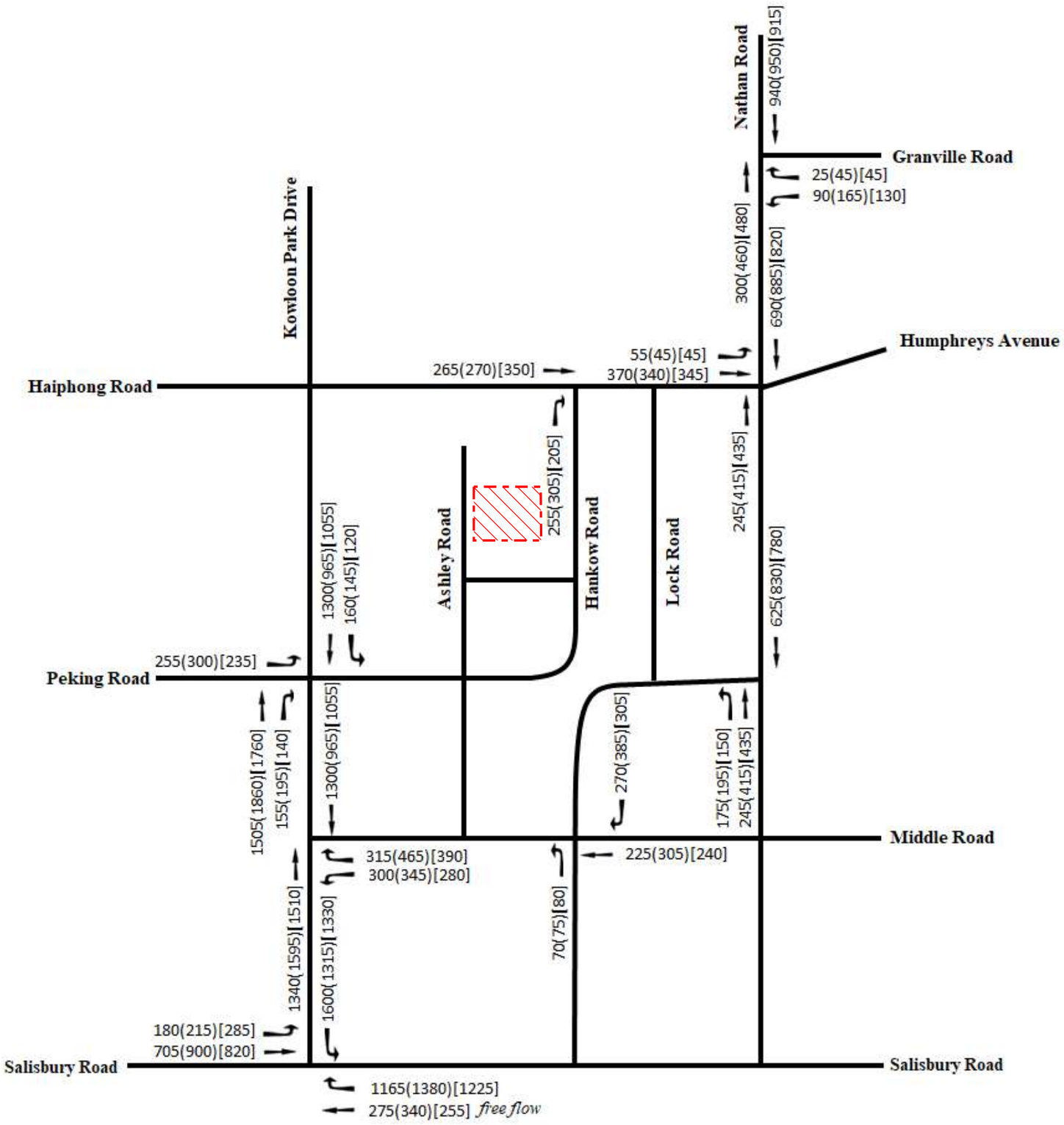
Job Title
SECTION 16 PLANNING APPLICATION FOR PROPOSED FLAT WITH PERMITTED OFFICE AND SHOPS/EATING PLACES AT NO. 43 - 49A HANKOW ROAD IN TSIM SHA TSUI

FIGURE 2.2

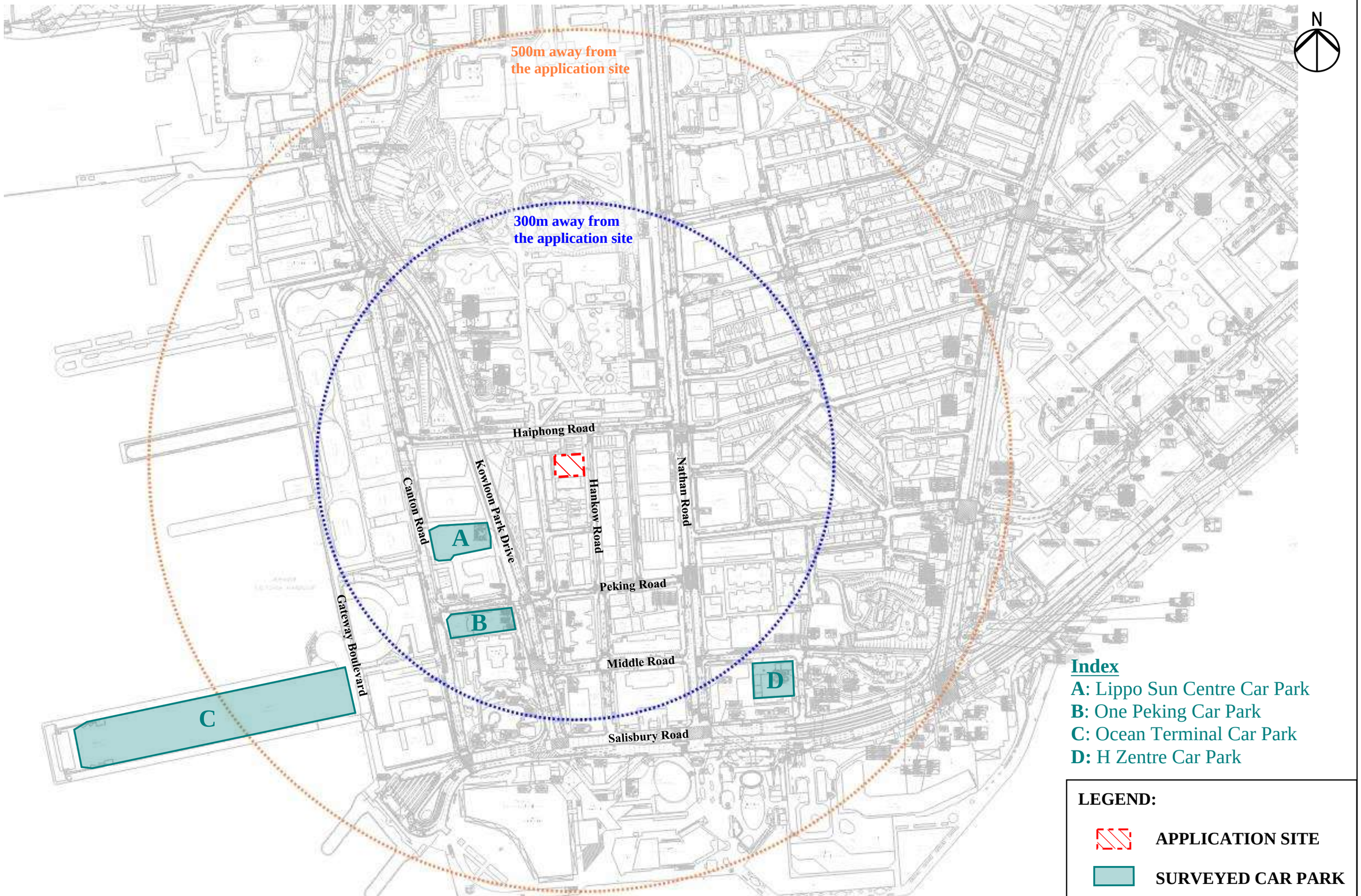
Date	Scale
11/2023	1:2,500 (A3)
Drawn	Job No.
WYJL	294680-01

Drawing Title
IDENTIFIED JUNCTIONS TO BE ASSESSED

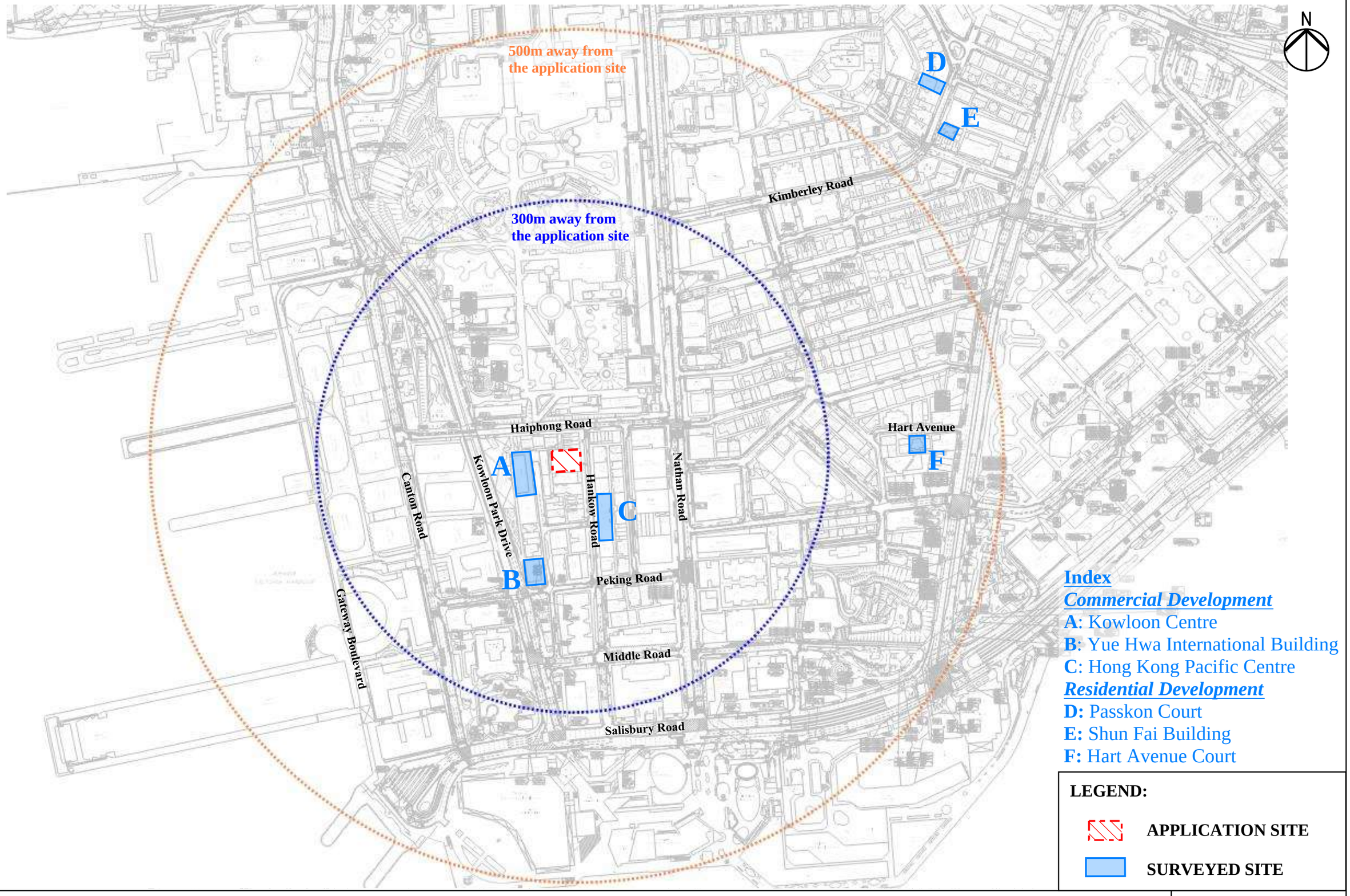
ARUP



Job Title: SECTION 16 PLANNING APPLICATION FOR PROPOSED FLAT WITH PERMITTED OFFICE AND SHOPS/EATING PLACES AT NO. 43 - 49A HANKOW ROAD IN TSIM SHA TSUI		FIGURE 2.3
Date: 11/2023	Scale: N.T.S	Drawing Title: YEAR 2023 EXISTING TRAFFIC FLOW
Drawn: WYJL	Job No.: 294680-01	ARUP



Job Title: SECTION 16 PLANNING APPLICATION FOR PROPOSED FLAT WITH PERMITTED OFFICE AND SHOPS/EATING PLACES AT NO. 43 - 49A HANKOW ROAD IN TSIM SHA TSUI			FIGURE 2.4
Date: 11/2023	Scale: 1:4,000 (A3)	Drawing Title: LOCATION OF SURVEYED CAR PARKS FOR PARKING UTILIZATION SURVEY	ARUP
Drawn: WYJL	Job No.: 294680-01		



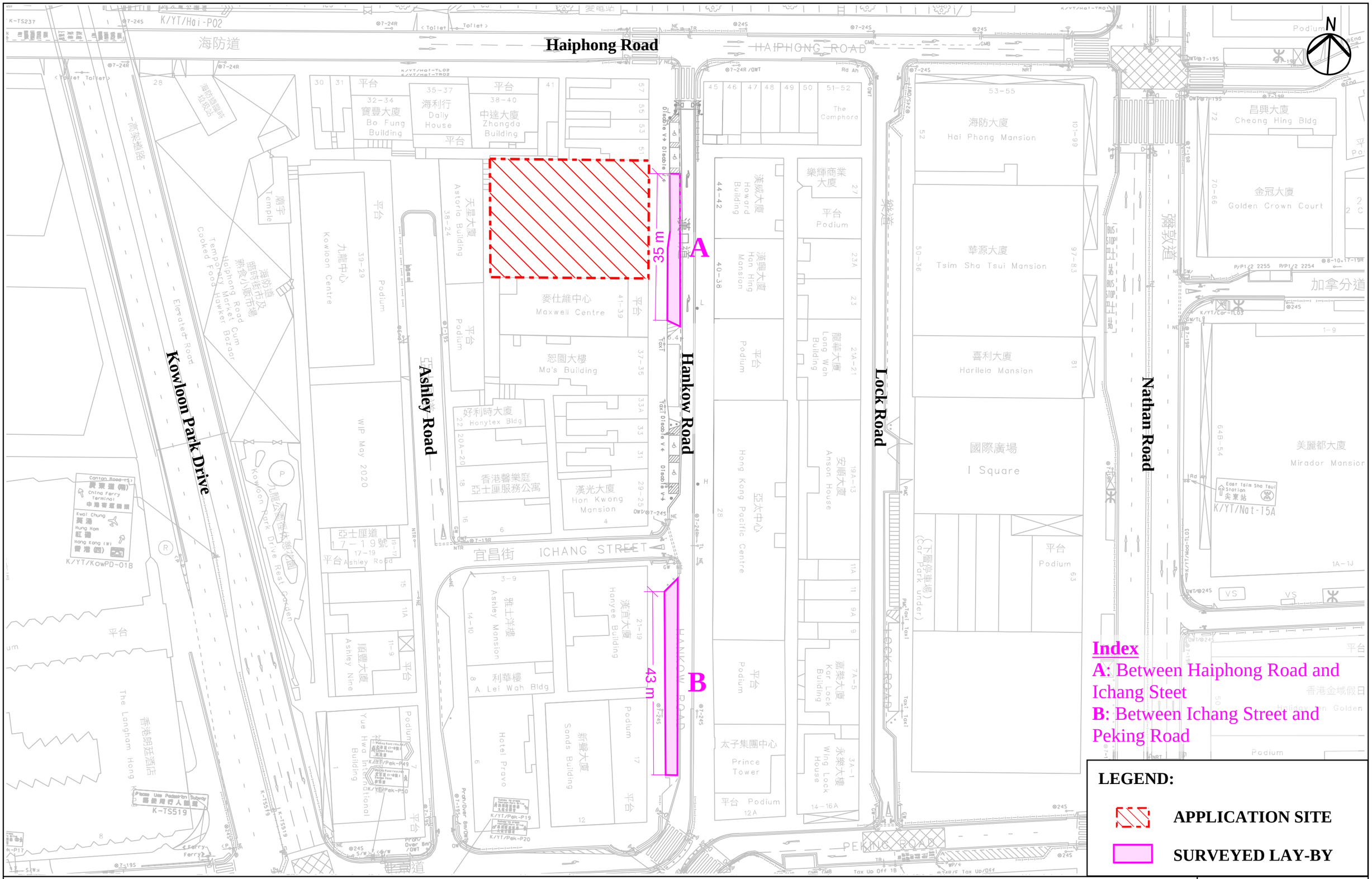
Job Title
SECTION 16 PLANNING APPLICATION FOR PROPOSED FLAT WITH PERMITTED OFFICE AND SHOPS/EATING PLACES AT NO. 43 - 49A HANKOW ROAD IN TSIM SHA TSUI

FIGURE 2.5

Date	Scale
11/2023	1:4,000 (A3)
Drawn	Job No.
WYJL	294680-01

Drawing Title
LOCATION OF SURVEYED SITES FOR GOODS VEHICLE TRIP GENERATION SURVEY

ARUP



Index

A: Between Haiphong Road and Ichang Steet

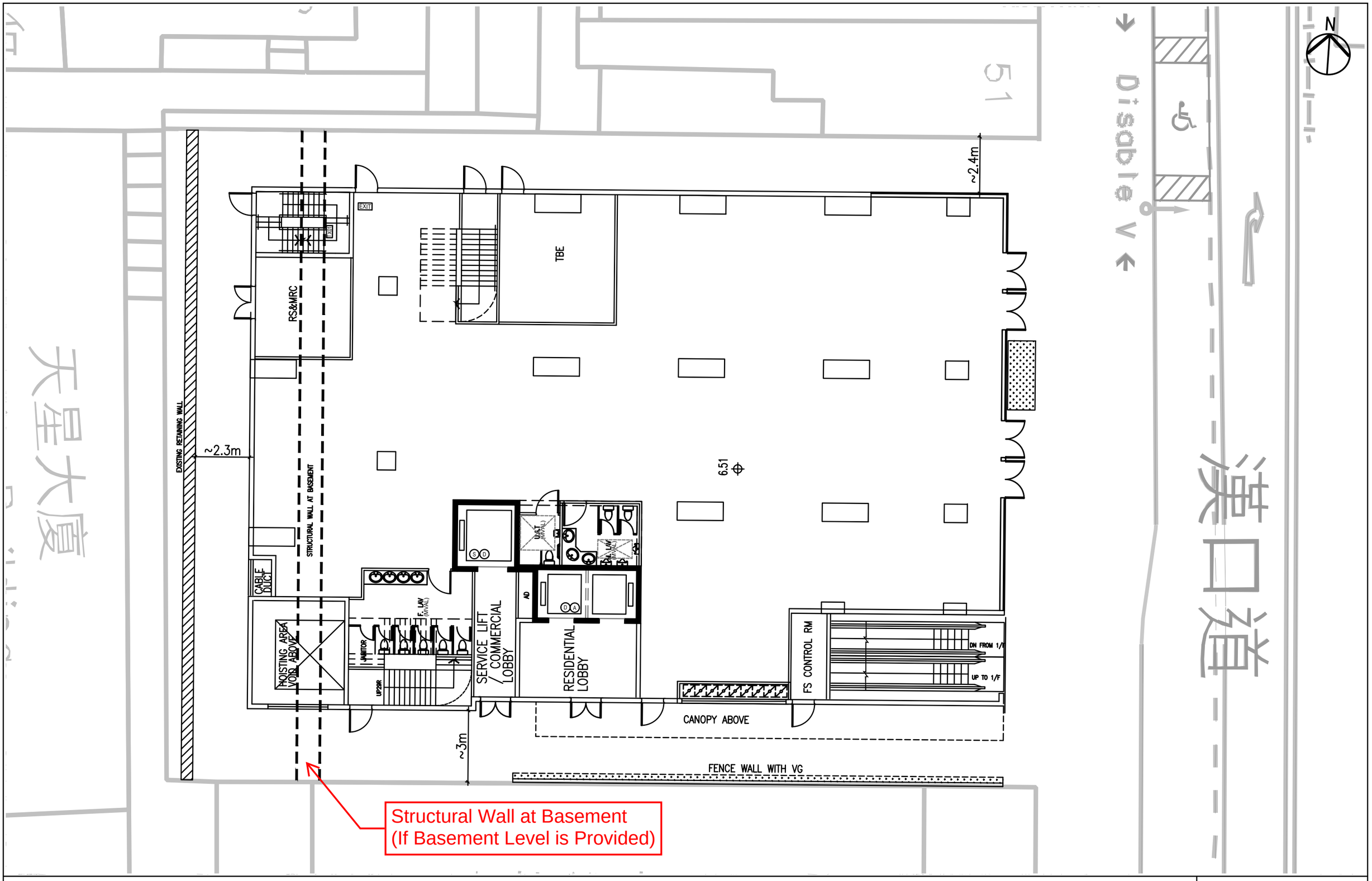
B: Between Ichang Street and Peking Road

LEGEND:

APPLICATION SITE

SURVEYED LAY-BY

Job Title: **SECTION 16 PLANNING APPLICATION FOR PROPOSED FLAT WITH PERMITTED OFFICE AND SHOPS/EATING PLACES AT NO. 43 - 49A HANKOW ROAD IN TSIM SHA TSUI**		**FIGURE 2.6**
Date: **11/2023**	Scale: **1:800 (A3)**	Drawing Title: **LOCATION OF SURVEYED LAY-BYS FOR KERBSIDE UTILIZATION SURVEY**
Drawn: **WYJL**	Job No.: **294680-01**	**ARUP**



Job Title: **SECTION 16 PLANNING APPLICATION FOR PROPOSED FLAT WITH PERMITTED OFFICE AND SHOPS/EATING PLACES AT NO. 43 - 49A HANKOW ROAD IN TSIM SHA TSUI**			**FIGURE 3.1**
Date: **11/2023**	Scale: **1:150 (A3)**	Drawing Title: **GROUND FLOOR LAYOUT PLAN**	**ARUP**
Drawn: **WYJL**	Job No.: **294680-01**		

The provision of two-way car ramp is affected by structural columns/walls and facilities

Structural Wall at Basement

N

Disable V

Run-in / out

~2.4m

~2.3m

6.7 m

6.51

EXISTING RETAINING WALL

STRUCTURAL WALL AT BASEMENT

EXIT

RS&MRC

TBE

CABLE DUCT

HOISTING AREA VOID ABOVE

F. LAV (M/AL)

JANITOR

UP2BR

SERVICE LIFT COMMERCIAL LOBBY

AD

RESIDENTIAL LOBBY

FS CONTROL RM

DN FROM 1/F

UP TO 1/F

CANOPY ABOVE

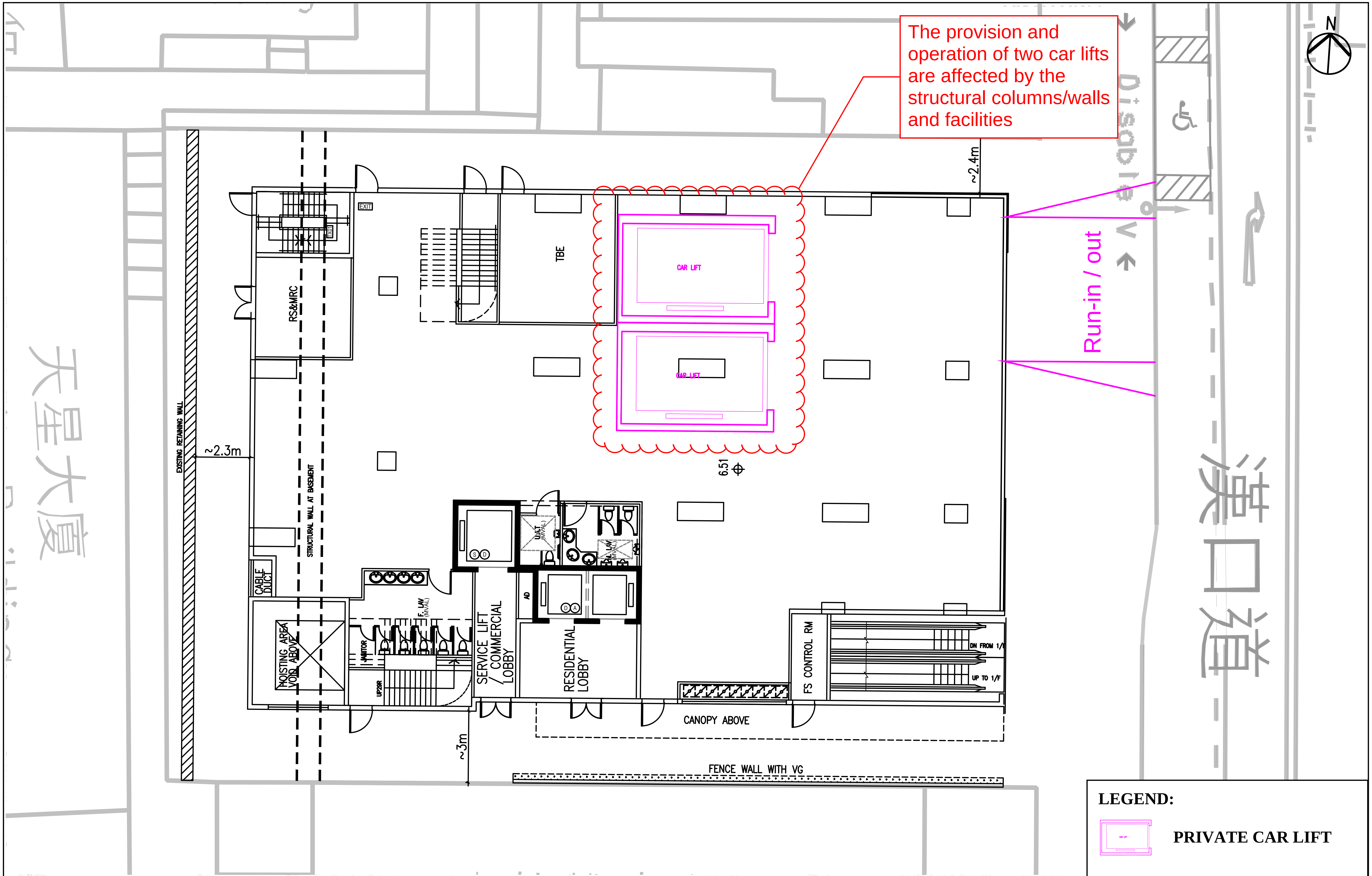
~3m

FENCE WALL WITH VG

LEGEND:

TWO-WAY CAR RAMP

Job Title: **SECTION 16 PLANNING APPLICATION FOR PROPOSED FLAT WITH PERMITTED OFFICE AND SHOPS/EATING PLACES AT NO. 43 - 49A HANKOW ROAD IN TSIM SHA TSUI**			**FIGURE 3.2**
Date: **11/2023**	Scale: **1:150 (A3)**	Drawing Title: **SCENARIO A - PROVISION OF TWO-WAY CAR RAMP**	**ARUP**
Drawn: **WYJL**	Job No.: **294680-01**		


The provision and operation of two car lifts are affected by the structural columns/walls and facilities
Run-in / out
~2.4m
~2.3m
~3m
CAR LIFT
TBE
RS&MRC
EXISTING RETAINING WALL
STRUCTURAL WALL AT BASEMENT
6.51
CABLE DUCT
HOISTING AREA VOID ABOVE
JANITOR
SERVICE LIFT / COMMERCIAL LOBBY
RESIDENTIAL LOBBY
FS CONTROL RM
DN FROM 1/F
UP TO 1/F
CANOPY ABOVE
FENCE WALL WITH VG
EXIT
天星大廈
漢口道
N

LEGEND:

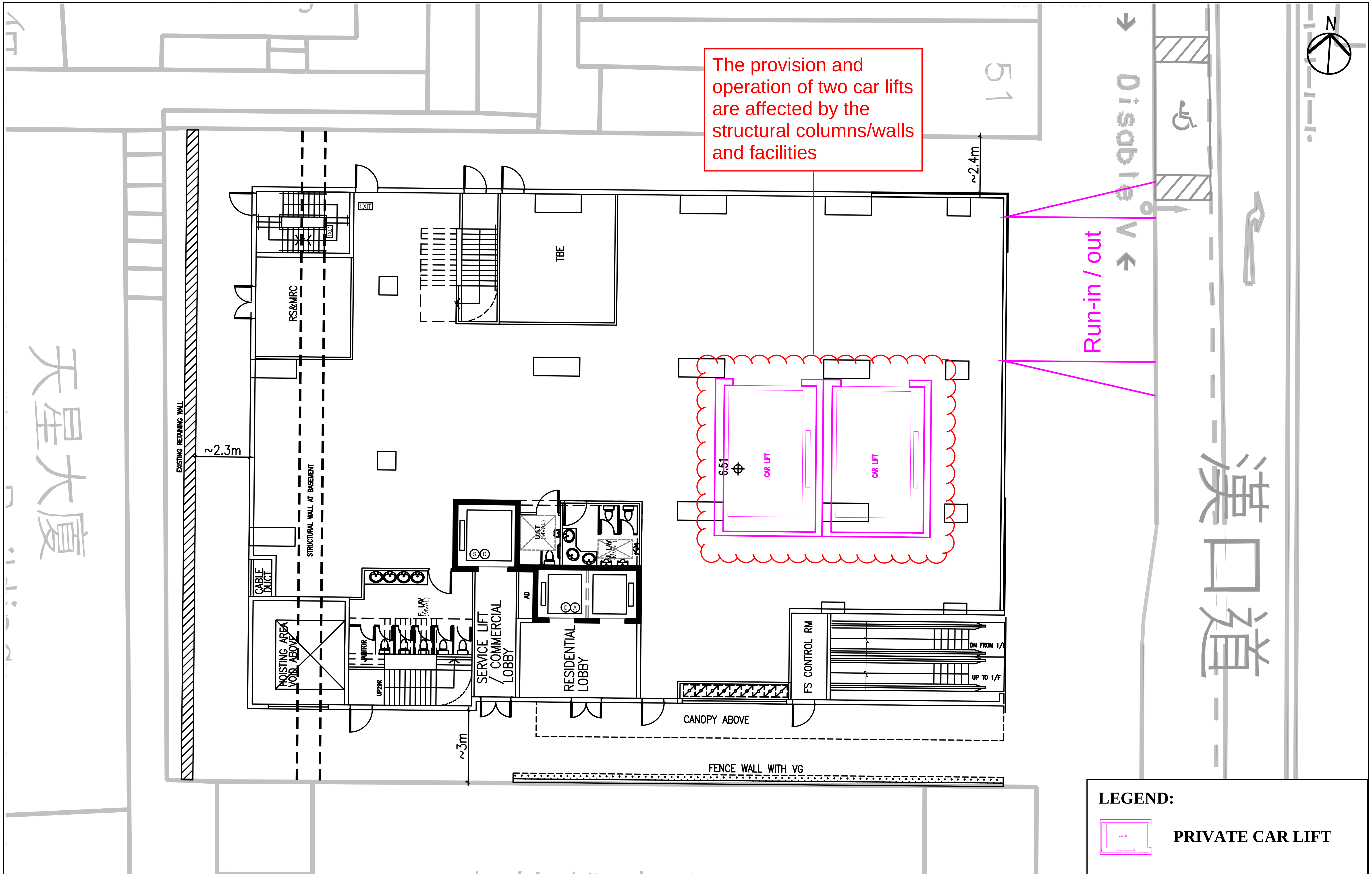
PRIVATE CAR LIFT

Job Title
SECTION 16 PLANNING APPLICATION FOR PROPOSED FLAT WITH PERMITTED OFFICE AND SHOPS/EATING PLACES AT NO. 43 - 49A HANKOW ROAD IN TSIM SHA TSUI

FIGURE 3.3

Date	Scale	Drawing Title
11/2023	1:150 (A3)	SCENARIO B1 - PROVISION OF CAR LIFT SYSTEM
Drawn: WYJL	Job No.: 294680-01	

ARUP


The provision and operation of two car lifts are affected by the structural columns/walls and facilities
Run-in / out
~2.4m
~2.3m
~3m
TBE
RS&MRC
EXISTING RETAINING WALL
STRUCTURAL WALL AT BASEMENT
CABLE DUCT
HOISTING AREA VOID ABOVE
JANITOR
F. LAV (M/VAL)
SERVICE LIFT / COMMERCIAL LOBBY
RESIDENTIAL LOBBY
FS CONTROL RM
DN FROM 1/F
UP TO 1/F
CANOPY ABOVE
FENCE WALL WITH VG
CAR LIFT
CAR LIFT
EXIT
N
天星大廈
漢口道
Disable
LEGEND:
PRIVATE CAR LIFT

Job Title
SECTION 16 PLANNING APPLICATION FOR PROPOSED FLAT WITH PERMITTED OFFICE AND SHOPS/EATING PLACES AT NO. 43 - 49A HANKOW ROAD IN TSIM SHA TSUI

FIGURE 3.4

Date	Scale	Drawing Title
11/2023	1:150 (A3)	SCENARIO B2 - PROVISION OF CAR LIFT SYSTEM
Drawn: WYJL	Job No.: 294680-01	

ARUP

The provision of HGV turntable is affected by the structural columns/walls and facilities

N

Disable V

Run-in / out

~2.4m

12.6 m

6.5T

HGV

~2.3m

EXISTING RETAINING WALL

STRUCTURAL WALL AT BASEMENT

RS&MRC

EXIT

TBE

CABLE DUCT

HOISTING AREA VOID ABOVE

MONITOR

UP2/3R

F. LAV (M/AL)

SERVICE LIFT / COMMERCIAL LOBBY

AD

RESIDENTIAL LOBBY

U&T (M/AL)

F. LAV (M/AL)

FS CONTROL RM

DN FROM 1/F

UP TO 1/F

CANOPY ABOVE

~3m

FENCE WALL WITH VG

LEGEND:

TURNTABLE (12.6m dia.)

HGV

HGV BAY (11m (L) x 3.5m (W))

Job Title

SECTION 16 PLANNING APPLICATION FOR PROPOSED FLAT WITH PERMITTED OFFICE AND SHOPS/EATING PLACES AT NO. 43 - 49A HANKOW ROAD IN TSIM SHA TSUI

FIGURE 3.5

Date	Scale	Drawing Title
11/2023	1:150 (A3)	**SCENARIO C1 - PROVISION OF HEAVY GOODS VEHICLE LOADING / UNLOADING BAY WITH TURNTABLE**
Drawn	Job No.	
WYJL	294680-01	

ARUP

The provision of LGV turn tables is affected by the structural columns/walls and facilities

N

Disable V

Run-in / out

8.0 m

8.0 m

8.0 m

6.51

~2.4m

~2.3m

~3m

EXISTING RETAINING WALL

STRUCTURAL WALL AT BASEMENT

RS&MRC

EXIT

TBE

CABLE DUCT

HOISTING AREA VOID ABOVE

F. LAV (M/AL)

MONITOR

UP2/3R

SERVICE LIFT / COMMERCIAL LOBBY

AD

UAT (M/AL)

F. LAV (M/AL)

RESIDENTIAL LOBBY

FS CONTROL RM

DN FROM 1/F

UP TO 1/F

CANOPY ABOVE

FENCE WALL WITH VG

LEGEND:

TURNTABLE (8m dia.)

Job Title

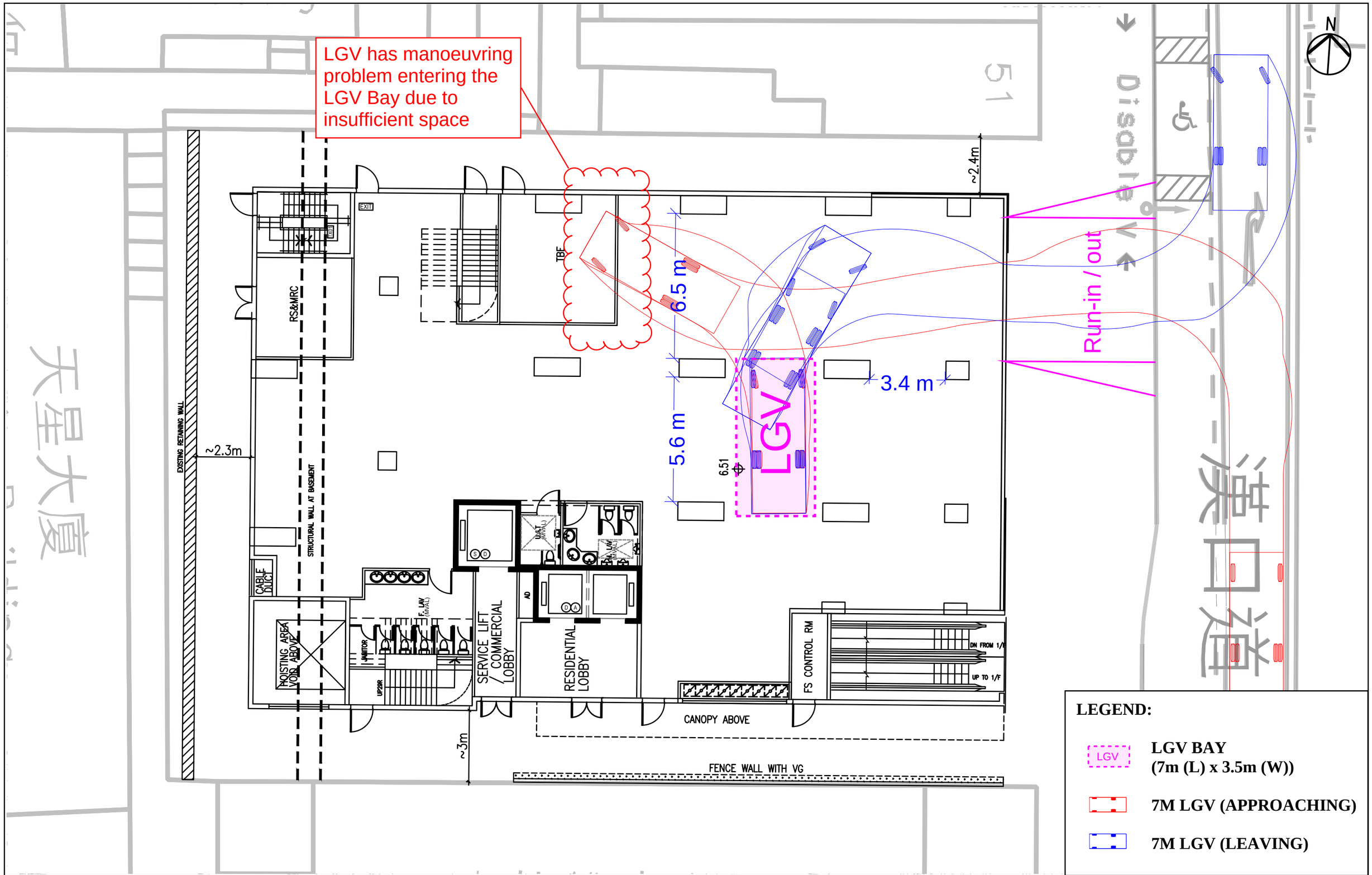
SECTION 16 PLANNING APPLICATION FOR PROPOSED FLAT WITH PERMITTED OFFICE AND SHOPS/EATING PLACES AT NO. 43 - 49A HANKOW ROAD IN TSIM SHA TSUI

FIGURE 3.6

Date	Scale	Drawing Title
11/2023	1:150 (A3)	**SCENARIO C2 - PROVISION OF LIGHT GOODS VEHICLE LOADING / UNLOADING BAY WITH TURNTABLE**
Drawn	Job No.	
WYJL	294680-01	

ARUP

LGV has manoeuvring problem entering the LGV Bay due to insufficient space



LEGEND:

LGV	**LGV BAY (7m (L) x 3.5m (W))**
	7M LGV (APPROACHING)
	7M LGV (LEAVING)

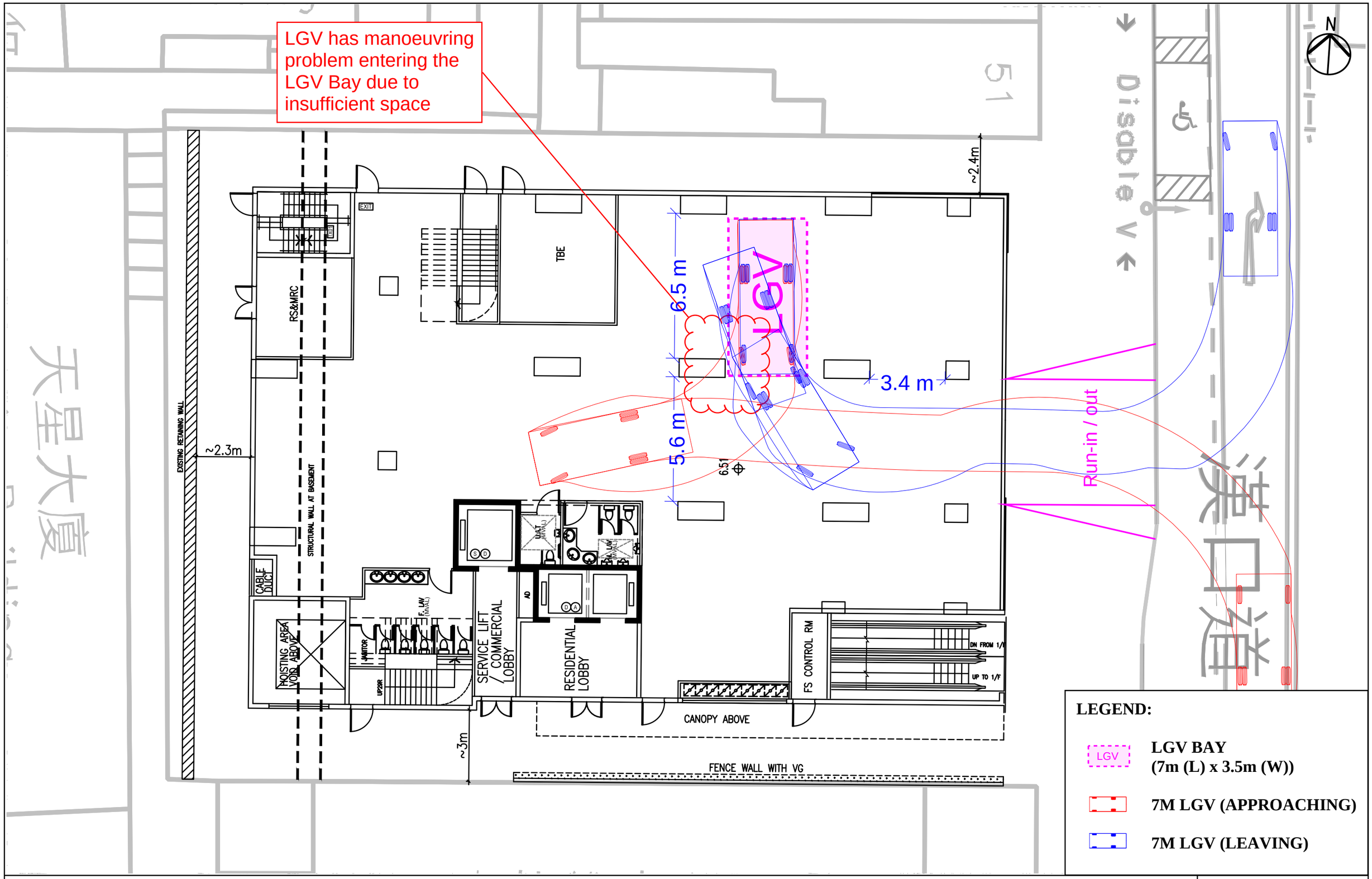
Job Title
SECTION 16 PLANNING APPLICATION FOR PROPOSED FLAT WITH PERMITTED OFFICE AND SHOPS/EATING PLACES AT NO. 43 - 49A HANKOW ROAD IN TSIM SHA TSUI

FIGURE 3.7

Date	Scale	Drawing Title
11/2023	1:150 (A3)	**SCENARIO C3 - PROVISION OF LIGHT GOODS VEHICLE LOADING / UNLOADING BAY**
Drawn	Job No.	
WYJL	294680-01	

ARUP

LGV has manoeuvring problem entering the LGV Bay due to insufficient space



LEGEND:

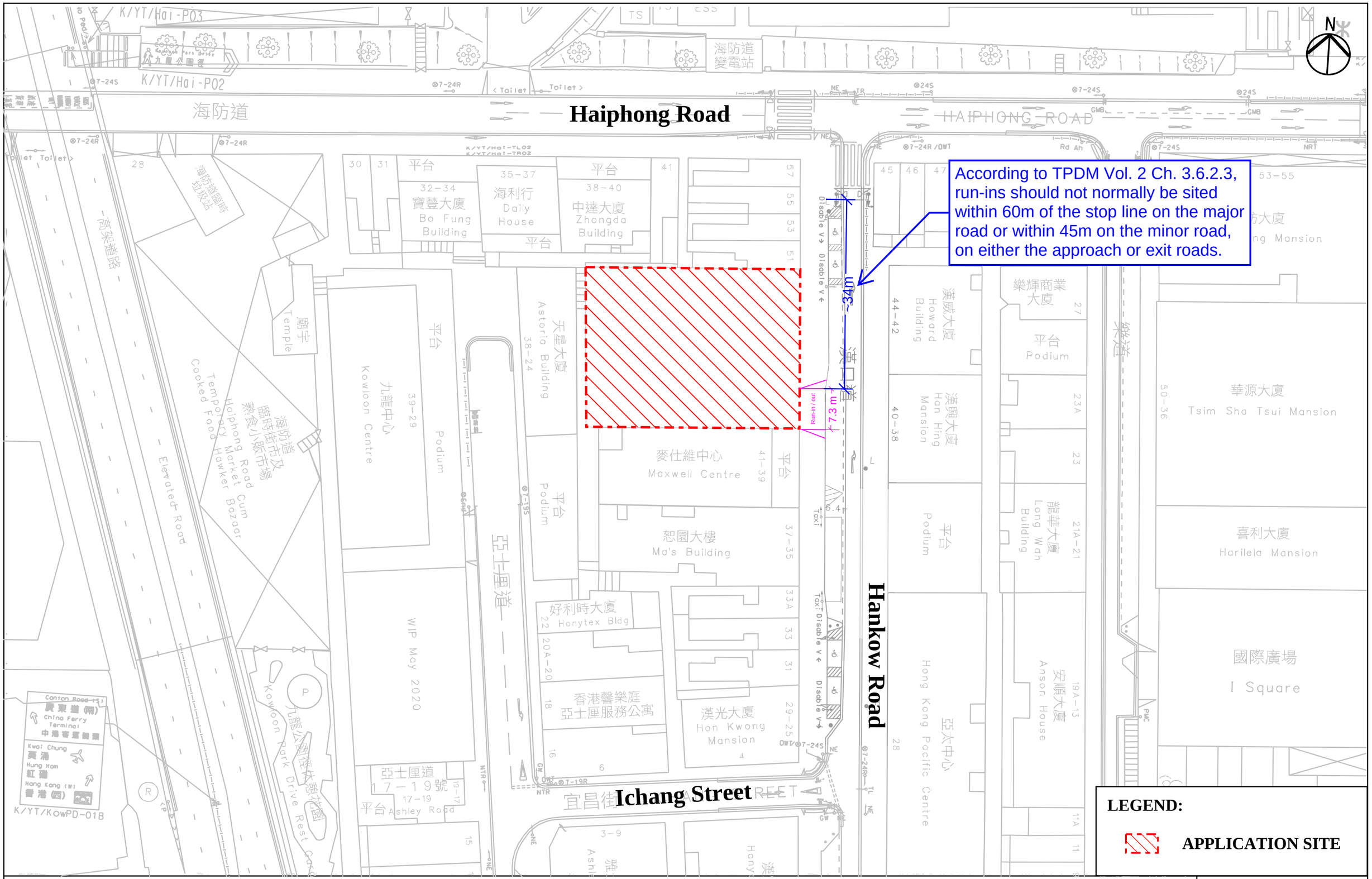
- LGV — **LGV BAY (7m (L) x 3.5m (W))**
- **7M LGV (APPROACHING)**
- **7M LGV (LEAVING)**

Job Title
SECTION 16 PLANNING APPLICATION FOR PROPOSED FLAT WITH PERMITTED OFFICE AND SHOPS/EATING PLACES AT NO. 43 - 49A HANKOW ROAD IN TSIM SHA TSUI

FIGURE 3.8

Date	Scale	Drawing Title
11/2023	1:150 (A3)	**SCENARIO C4 - PROVISION OF LIGHT GOODS VEHICLE LOADING / UNLOADING BAY**
Drawn: WYJL	Job No.: 294680-01	

ARUP



LEGEND:

APPLICATION SITE

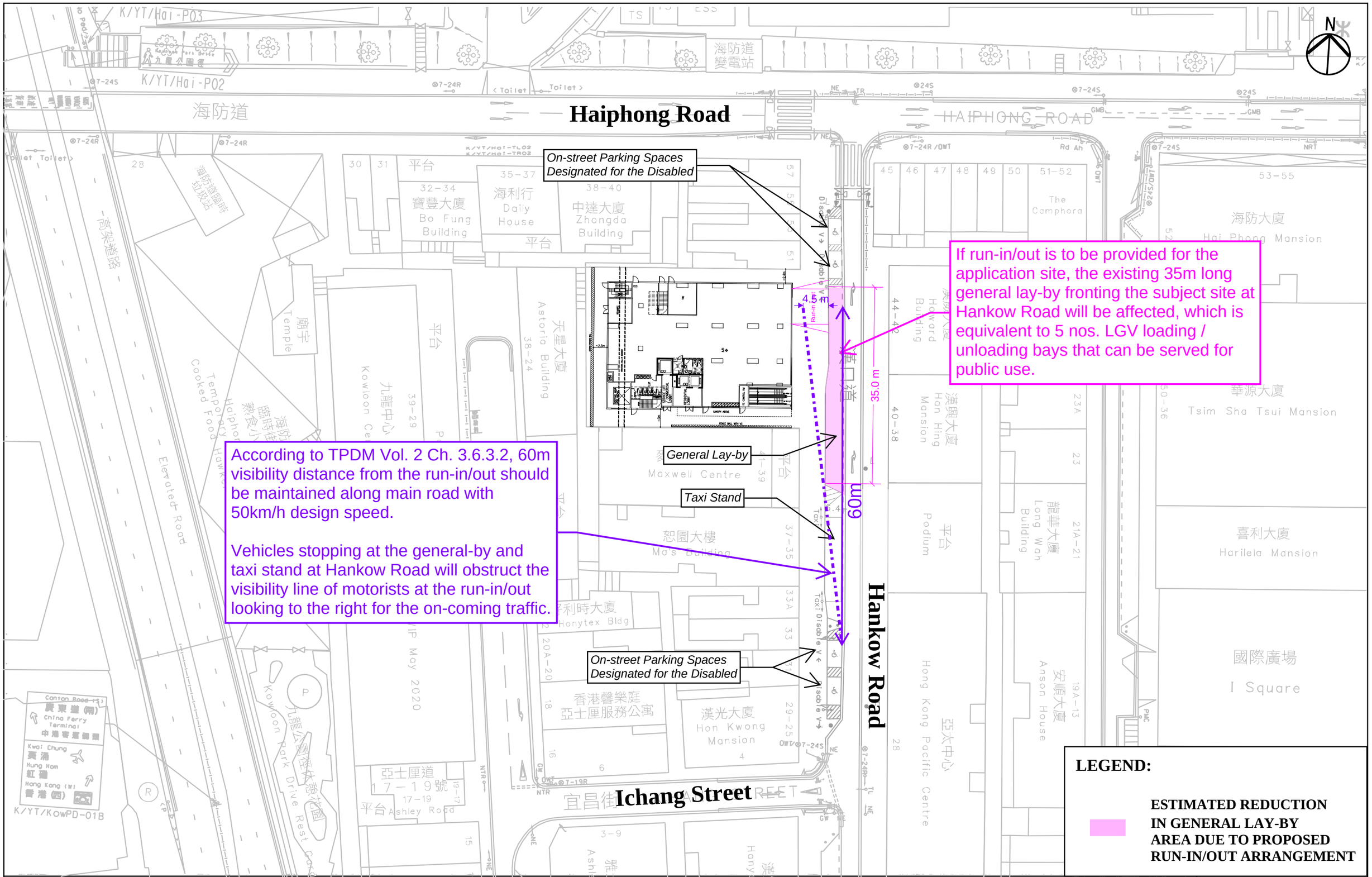
Job Title

SECTION 16 PLANNING APPLICATION FOR PROPOSED FLAT WITH PERMITTED OFFICE AND SHOPS/EATING PLACES AT NO. 43 - 49A HANKOW ROAD IN TSIM SHA TSUI

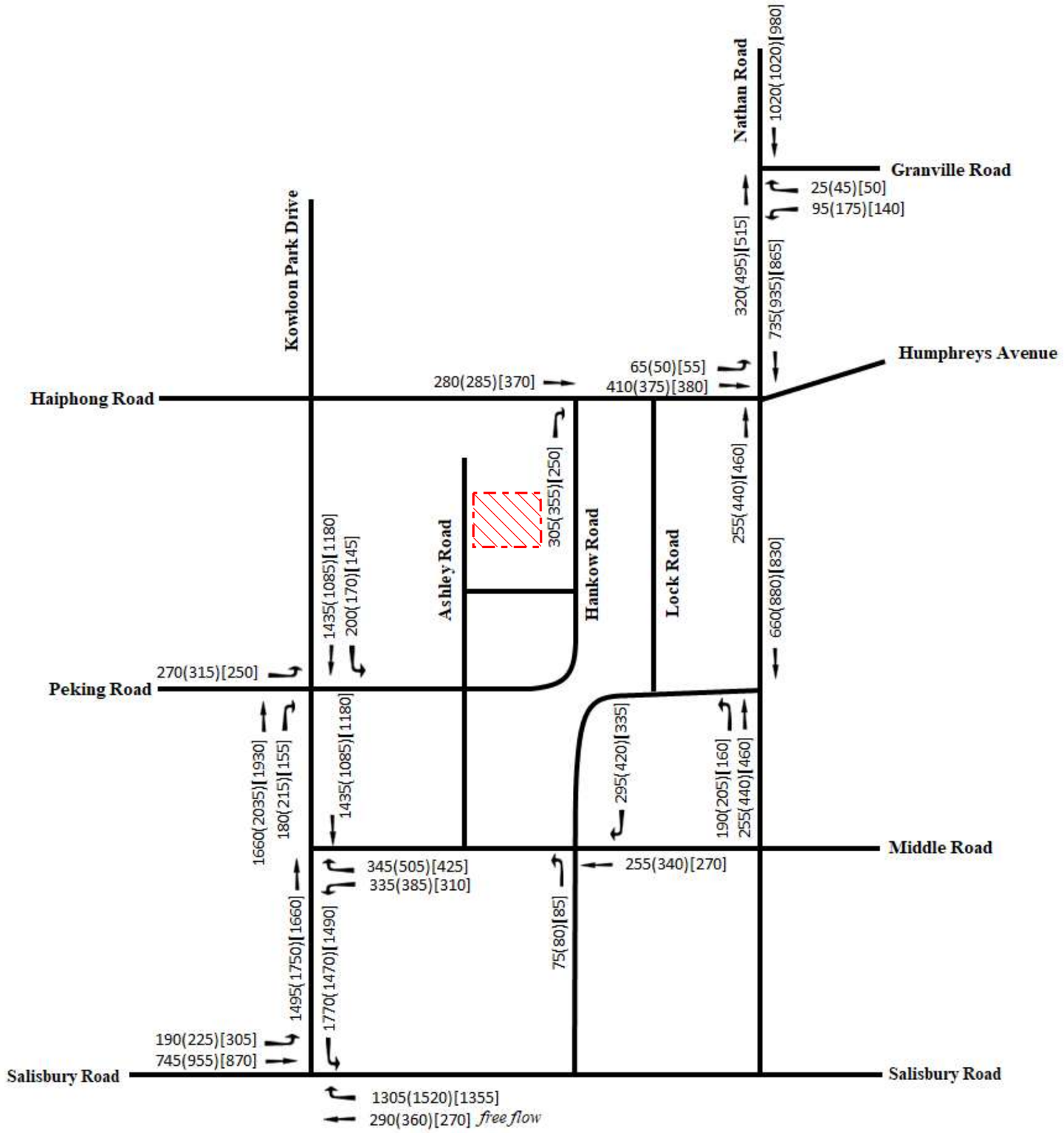
FIGURE 3.9

Date	Scale	Drawing Title
11/2023	1:600 (A3)	**ASSESSMENT ON THE LOCATION OF THE CONCEPTUAL RUN-IN / OUT FROM THE EXISTING STOP LINE**
Drawn	Job No.	
WYJL	294680-01	

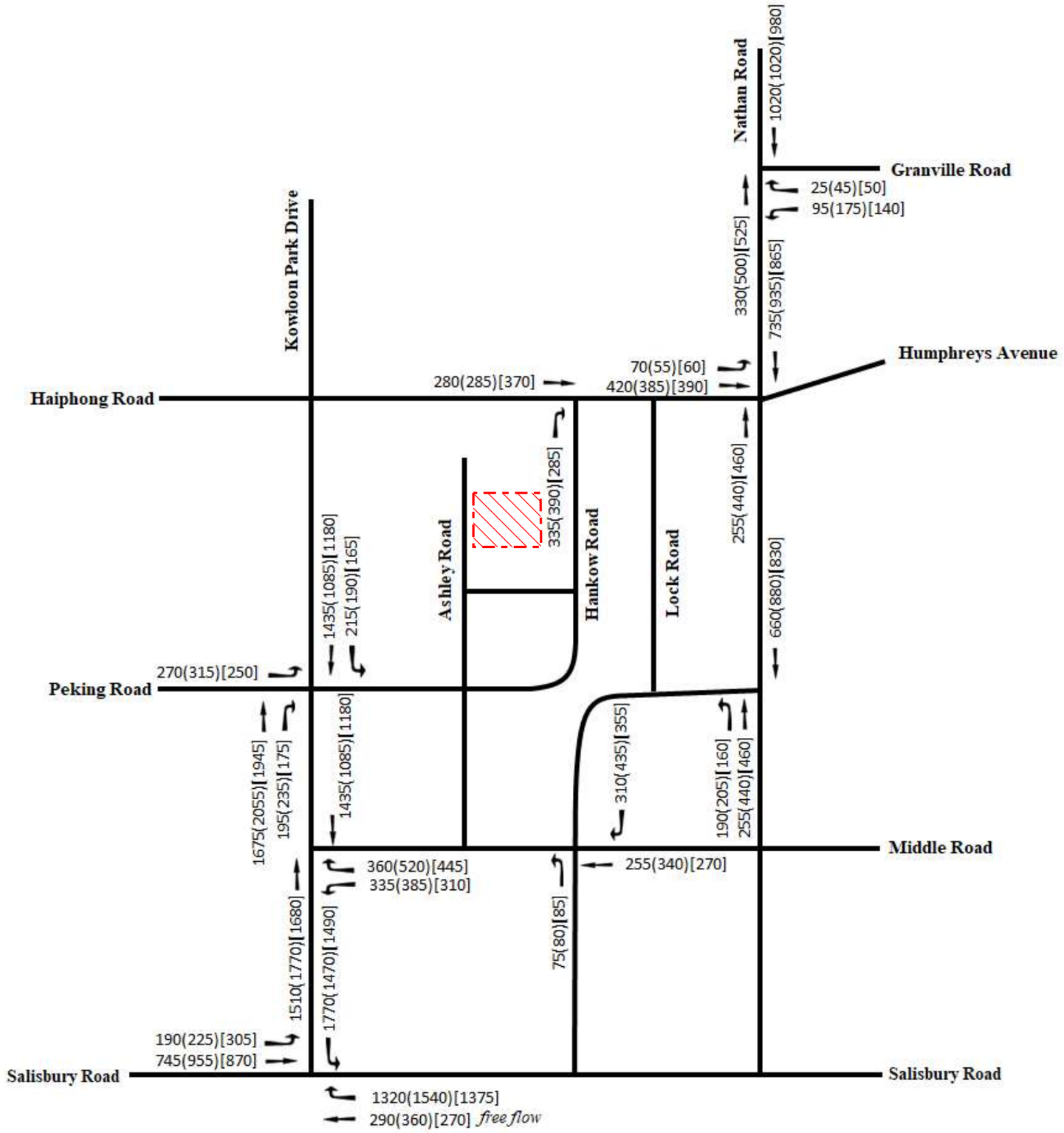
ARUP



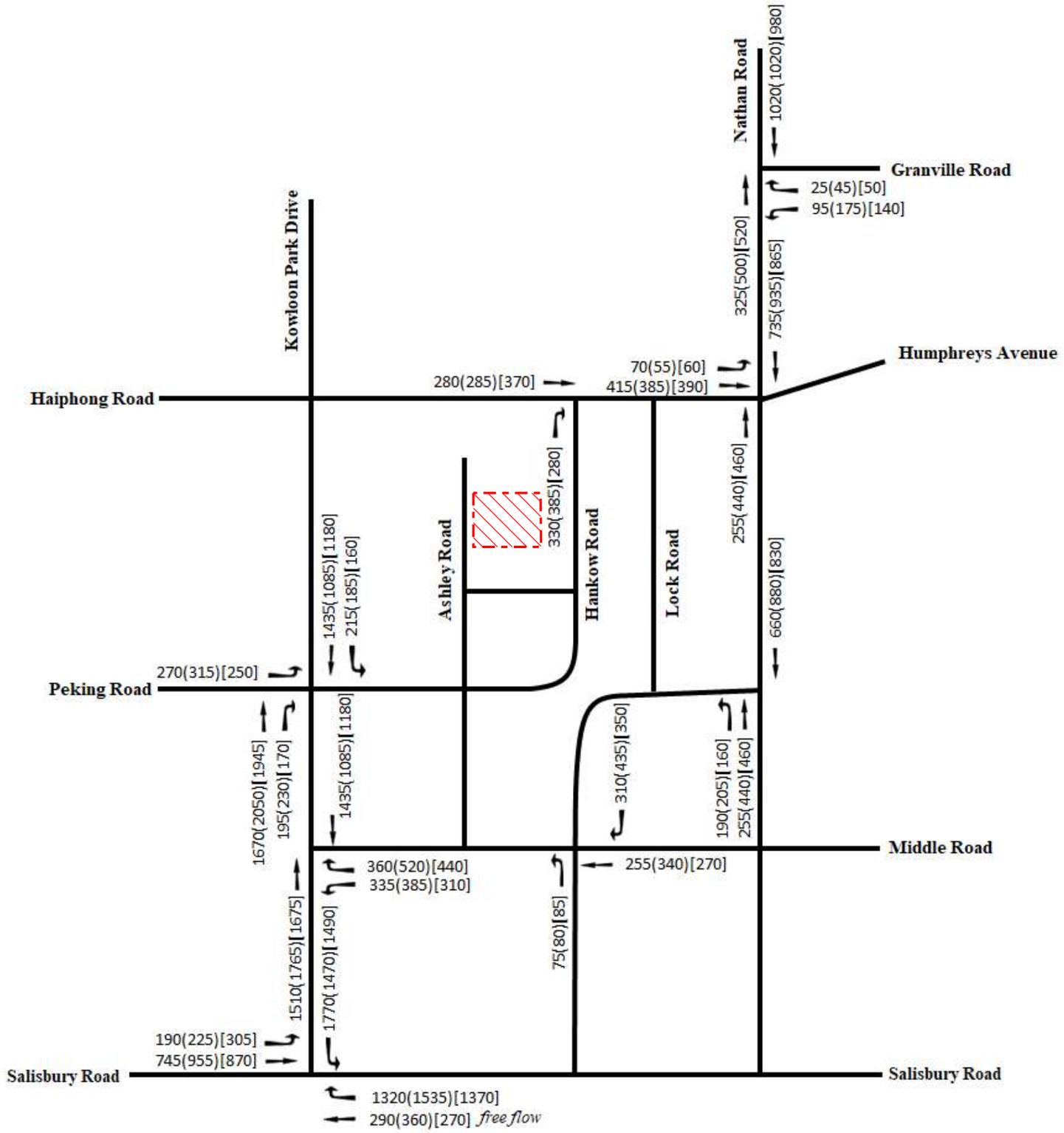
Job Title: SECTION 16 PLANNING APPLICATION FOR PROPOSED FLAT WITH PERMITTED OFFICE AND SHOPS/EATING PLACES AT NO. 43 - 49A HANKOW ROAD IN TSIM SHA TSUI			FIGURE 3.10
Date: 11/2023	Scale: 1:600 (A3)	Drawing Title: ASSESSMENT OF VISIBILITY DISTANCE AT CONCEPTUAL RUN-IN / OUT	ARUP
Drawn: WYJL	Job No.: 294680-01		



Job Title: SECTION 16 PLANNING APPLICATION FOR PROPOSED FLAT WITH PERMITTED OFFICE AND SHOPS/EATING PLACES AT NO. 43 - 49A HANKOW ROAD IN TSIM SHA TSUI			FIGURE 4.1
Date: 11/2023	Scale: N.T.S	Drawing Title: YEAR 2030 REFERENCE TRAFFIC FLOW	ARUP
Drawn: WYJL	Job No.: 294680-01		



Job Title: SECTION 16 PLANNING APPLICATION FOR PROPOSED FLAT WITH PERMITTED OFFICE AND SHOPS/EATING PLACES AT NO. 43 - 49A HANKOW ROAD IN TSIM SHA TSUI			FIGURE 4.2
Date: 11/2023	Scale: N.T.S	Drawing Title: YEAR 2030 DESIGN TRAFFIC FLOW (UNDER PROPOSED DEVELOPMENT SCHEME)	ARUP
Drawn: WYJL	Job No.: 294680-01		

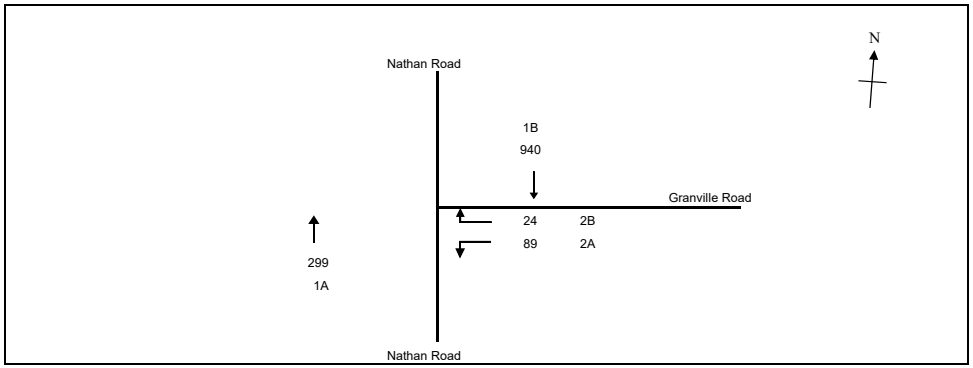


Job Title: SECTION 16 PLANNING APPLICATION FOR PROPOSED FLAT WITH PERMITTED OFFICE AND SHOPS/EATING PLACES AT NO. 43 - 49A HANKOW ROAD IN TSIM SHA TSUI			FIGURE 4.3
Date: 11/2023	Scale: N.T.S	Drawing Title: YEAR 2030 DESIGN TRAFFIC FLOW (UNDER APPROVED GBP SCHEME)	ARUP
Drawn: WYJL	Job No.: 294680-01		

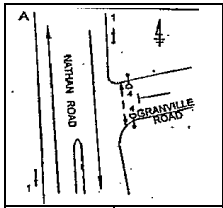
Appendix A

Junction Calculation Sheets

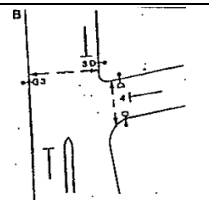
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J1
Nathan Road / Granville Road	2023 Existing AM Peak	DATE : 8-Nov-23	FILENAME :



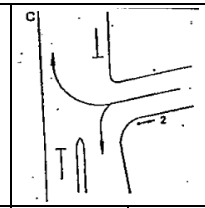
No. of stages per cycle		N =	3
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.267
Loss time		L =	31 sec
Total Flow		=	1351 pcu
Co	= (1.5*L+5)/(1-Y)	=	70.3 sec
Cm	= L/(1-Y)	=	42.3 sec
Yult		=	0.668
R.C.ult	= (Yult-Y)/Y*100%	=	149.8 %
Cp	= 0.9*L/(0.9-Y)	=	44.1 sec
Ymax	= 1-L/C	=	0.742
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	150 %



STAGE A INT= 5



STAGE B INT= 0



STAGE C INT= 6

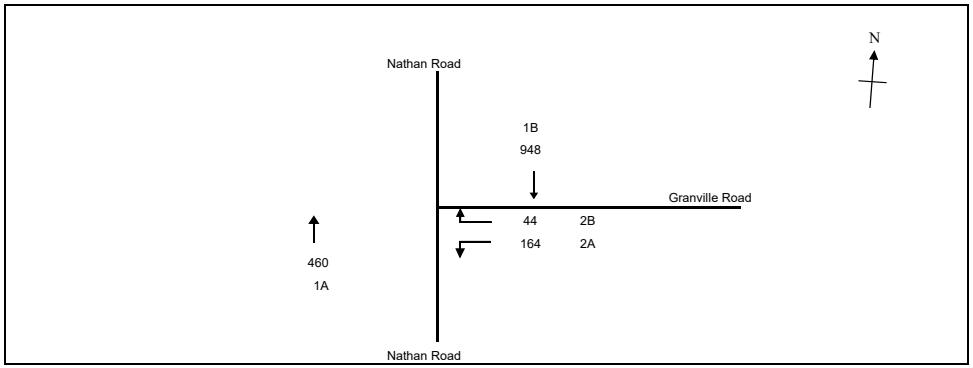
STAGE D INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3p	8	9	6	7	9	6	7	OK
4p	9	5	2	10	92	2	10	OK

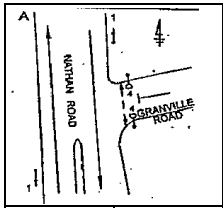
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				9				
1A	A	3.00	1	2			N	3970		299		299	0.00	3970			3970	0.075	0.234		25	78	0.116	10
1B	A	3.20	1	2			N	4010		940		940	0.00	4010			4010	0.234			78	78	0.360	33
2A	C	3.10	3	1	8		N	1925	53			53	1.00	1621			1621	0.033	0.033		11	11	0.359	10
2A,2B	C	3.10	3	1	10			2065	36		24	59	1.00	1796			1796	0.033			11	11	0.359	11
PED	B		2																	22				

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

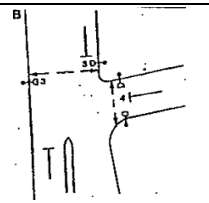
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J1
Nathan Road / Granville Road	2023 Existing PM Peak	DATE : 8-Nov-23	FILENAME :



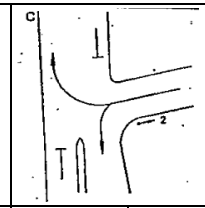
No. of stages per cycle		N =	3
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.297
Loss time		L =	31 sec
Total Flow		=	1617 pcu
Co	= (1.5*L+5)/(1-Y)	=	73.3 sec
Cm	= L/(1-Y)	=	44.1 sec
Yult		=	0.668
R.C.ult	= (Yult-Y)/Y*100%	=	124.5 %
Cp	= 0.9*L/(0.9-Y)	=	46.3 sec
Ymax	= 1-L/C	=	0.742
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	124 %



STAGE A INT= 5



STAGE B INT= 0



STAGE C INT= 6

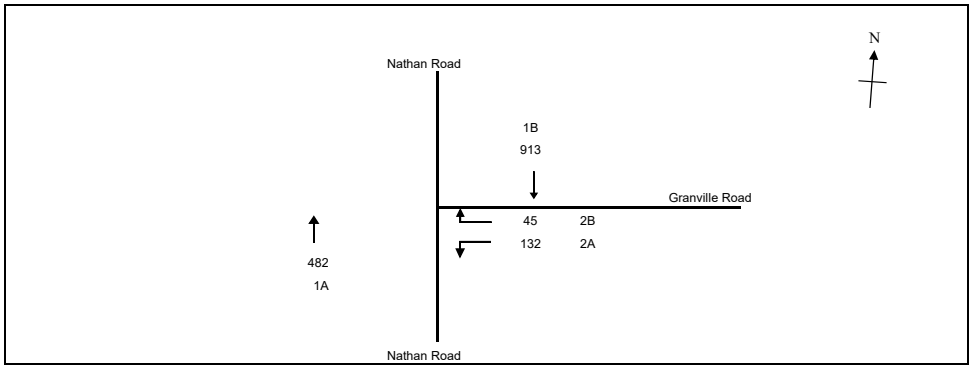
STAGE D INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3p	8	9	6	7	9	6	7	OK
4p	9	5	2	10	85	2	10	OK

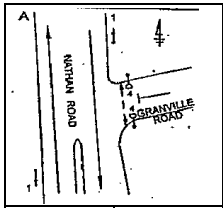
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				9				
1A	A	3.00	1	2			N	3970		460		460	0.00	3970			3970	0.116	0.237		35	71	0.196	19
1B	A	3.20	1	2			N	4010		948		948	0.00	4010			4010	0.237			71	71	0.400	39
2A	C	3.10	3	1	8		N	1925	99			99	1.00	1621			1621	0.061	0.061		18	18	0.406	17
2A,2B	C	3.10	3	1	10			2065	65		44	109	1.00	1796			1796	0.061			18	18	0.406	19
PED	B		2																	22				

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

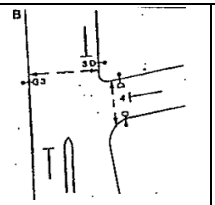
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J1
Nathan Road / Granville Road	2023 Existing Weekend Peak	DATE : 8-Nov-23	FILENAME :



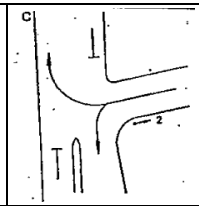
No. of stages per cycle		N =	3
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.280
Loss time		L =	31 sec
Total Flow		=	1573 pcu
Co	= (1.5*L+5)/(1-Y)	=	71.5 sec
Cm	= L/(1-Y)	=	43.0 sec
Yult		=	0.668
R.C.ult	= (Yult-Y)/Y*100%	=	138.7 %
Cp	= 0.9*L/(0.9-Y)	=	45.0 sec
Ymax	= 1-L/C	=	0.742
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	139 %



STAGE A INT= 5



STAGE B INT= 0



STAGE C INT= 6

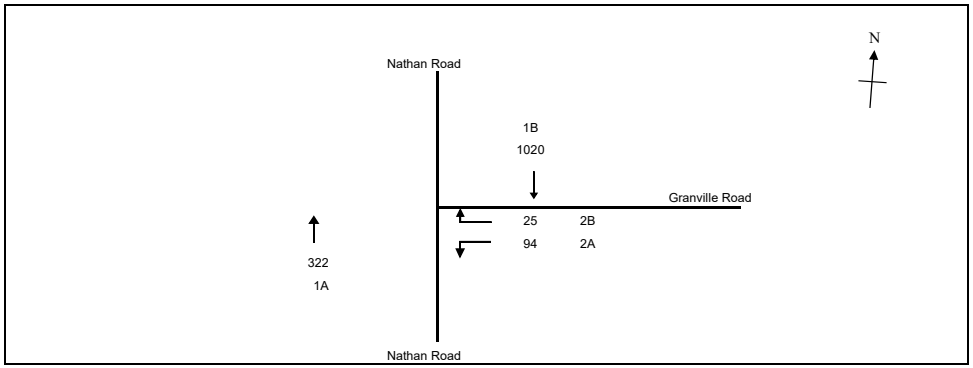
STAGE D INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3p	8	9	6	7	9	6	7	OK
4p	9	5	2	10	86	2	10	OK

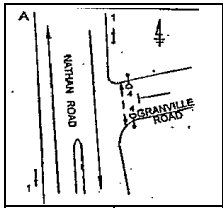
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				9				
1A	A	3.00	1	2			N	3970		482		482	0.00	3970			3970	0.121	0.228		39	72	0.202	19
1B	A	3.20	1	2			N	4010		913		913	0.00	4010			4010	0.228			72	72	0.380	37
2A	C	3.10	3	1	8		N	1925	84			84	1.00	1621			1621	0.052	0.052		17	17	0.366	14
2A,2B	C	3.10	3	1	10			2065	48		45	93	1.00	1796			1796	0.052			17	17	0.366	16
PED	B		2																	22				

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

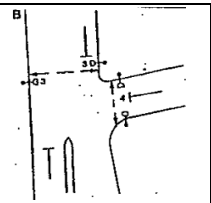
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J1
Nathan Road / Granville Road	2030 Reference AM Peak	DATE : 8-Nov-23	FILENAME :



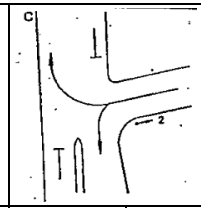
No. of stages per cycle		N =	3
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.289
Loss time		L =	31 sec
Total Flow		=	1461 pcu
Co	= (1.5*L+5)/(1-Y)	=	72.4 sec
Cm	= L/(1-Y)	=	43.6 sec
Yult		=	0.668
R.C.ult	= (Yult-Y)/Y*100%	=	130.9 %
Cp	= 0.9*L/(0.9-Y)	=	45.7 sec
Ymax	= 1-L/C	=	0.742
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	131 %



STAGE A INT= 5



STAGE B INT= 0



STAGE C INT= 6

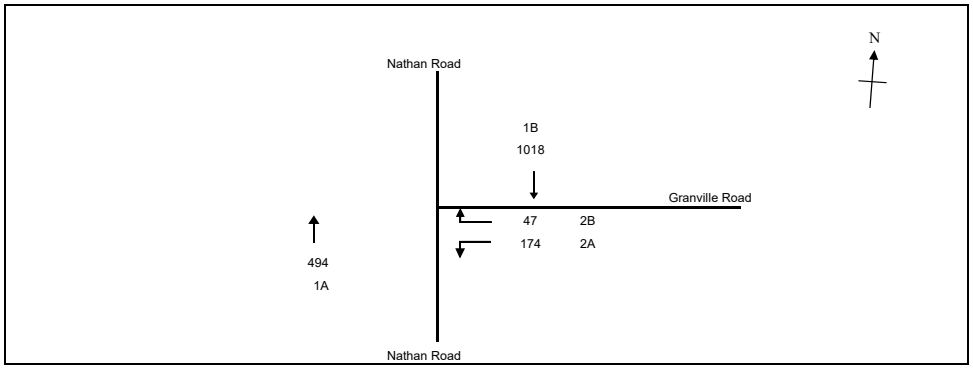
STAGE D INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3p	8	9	6	7	9	6	7	OK
4p	9	5	2	10	92	2	10	OK

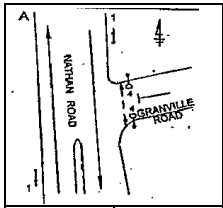
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				9				
1A	A	3.00	1	2			N	3970		322		322	0.00	3970			3970	0.081	0.254		25	78	0.125	11
1B	A	3.20	1	2			N	4010		1020		1020	0.00	4010			4010	0.254			78	78	0.391	36
2A	C	3.10	3	1	8		N	1925	57			57	1.00	1621			1621	0.035	0.035		11	11	0.380	10
2A,2B	C	3.10	3	1	10			2065	38		25	63	1.00	1796			1796	0.035			11	11	0.380	11
PED	B		2																	22				

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

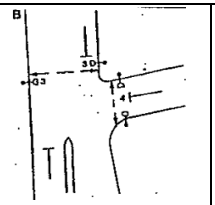
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J1
Nathan Road / Granville Road	2030 Reference PM Peak	DATE : 8-Nov-23	FILENAME :



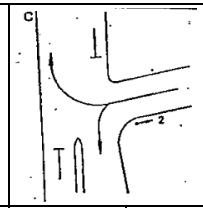
No. of stages per cycle		N =	3
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.318
Loss time		L =	31 sec
Total Flow		=	1732 pcu
Co	= (1.5*L+5)/(1-Y)	=	75.5 sec
Cm	= L/(1-Y)	=	45.5 sec
Yult		=	0.668
R.C.ult	= (Yult-Y)/Y*100%	=	109.7 %
Cp	= 0.9*L/(0.9-Y)	=	48.0 sec
Ymax	= 1-L/C	=	0.742
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	110 %



STAGE A INT= 5



STAGE B INT= 0



STAGE C INT= 6

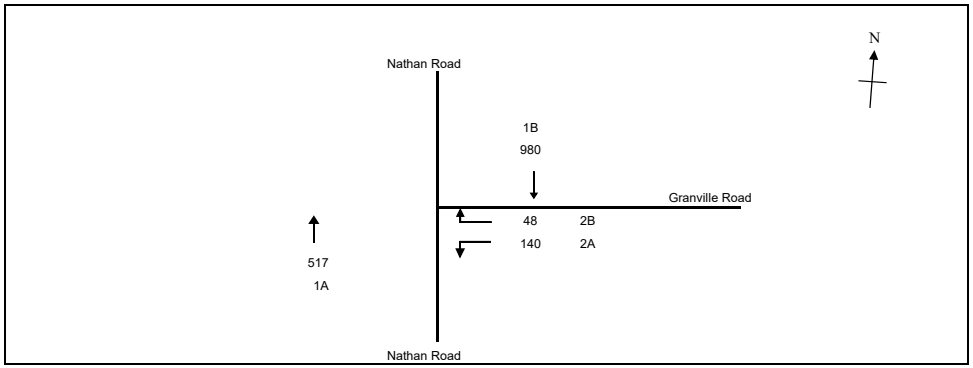
STAGE D INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3p	8	9	6	7	9	6	7	OK
4p	9	5	2	10	85	2	10	OK

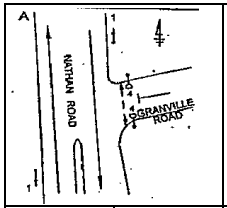
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				9				
1A	A	3.00	1	2			N	3970		494		494	0.00	3970			3970	0.124	0.254		35	71	0.210	20
1B	A	3.20	1	2			N	4010		1018		1018	0.00	4010			4010	0.254			71	71	0.429	42
2A	C	3.10	3	1	8		N	1925	105			105	1.00	1621			1621	0.064	0.064		18	18	0.430	18
2A,2B	C	3.10	3	1	10			2065	69		47	116	1.00	1796			1796	0.064			18	18	0.430	20
PED	B		2																	22				

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

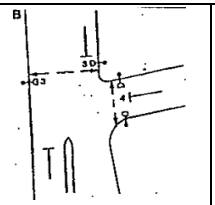
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J1
Nathan Road / Granville Road	2030 Reference Weekend Peak	DATE : 8-Nov-23	FILENAME :



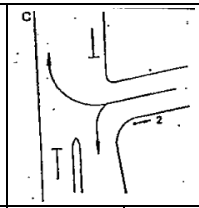
No. of stages per cycle		N =	3
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.299
Loss time		L =	31 sec
Total Flow		=	1685 pcu
Co	= (1.5*L+5)/(1-Y)	=	73.5 sec
Cm	= L/(1-Y)	=	44.3 sec
Yult		=	0.668
R.C.ult	= (Yult-Y)/Y*100%	=	122.9 %
Cp	= 0.9*L/(0.9-Y)	=	46.5 sec
Ymax	= 1-L/C	=	0.742
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	123 %



STAGE A INT= 5



STAGE B INT= 0



STAGE C INT= 6

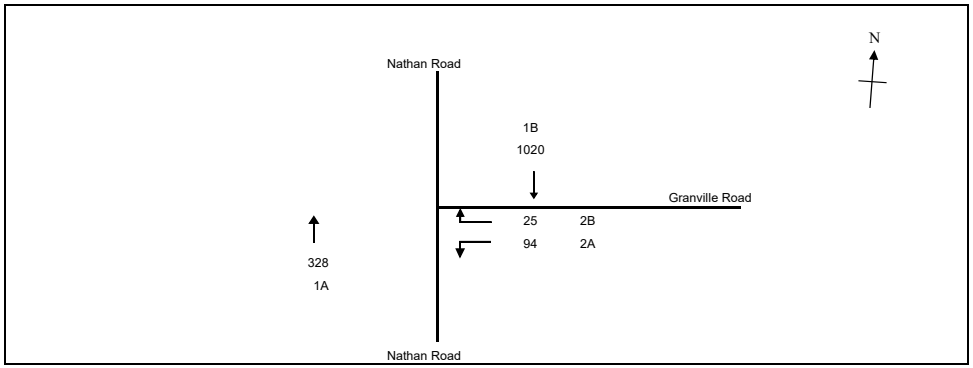
STAGE D INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3p	8	9	6	7	9	6	7	OK
4p	9	5	2	10	87	2	10	OK

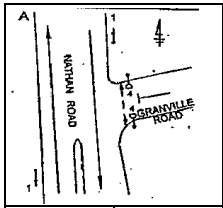
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				9				
1A	A	3.00	1	2			N	3970		517		517	0.00	3970			3970	0.130	0.245		39	73	0.214	20
1B	A	3.20	1	2			N	4010		980		980	0.00	4010			4010	0.245			73	73	0.402	38
2A	C	3.10	3	1	8		N	1925	89			89	1.00	1621			1621	0.055	0.055		16	16	0.412	15
2A,2B	C	3.10	3	1	10			2065	51		48	99	1.00	1796			1796	0.055			16	16	0.412	17
PED	B		2																	22				

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

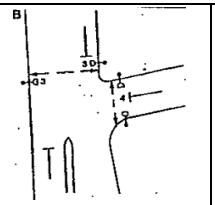
OVE ARUP & PARTNERS		TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui			PROJECT NO: 294680-01	JUNCTION NO: J1
Nathan Road / Granville Road		2030 Design AM Peak (Under Proposed Scheme)	DATE : 8-Nov-23	FILENAME :



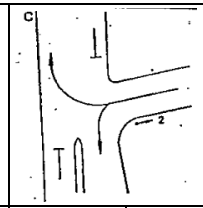
No. of stages per cycle		N =	3
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.289
Loss time		L =	31 sec
Total Flow		=	1467 pcu
Co	= (1.5*L+5)/(1-Y)	=	72.4 sec
Cm	= L/(1-Y)	=	43.6 sec
Yult		=	0.668
R.C.ult	= (Yult-Y)/Y*100%	=	130.9 %
Cp	= 0.9*L/(0.9-Y)	=	45.7 sec
Ymax	= 1-L/C	=	0.742
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	131 %



STAGE A INT= 5



STAGE B INT= 0



STAGE C INT= 6

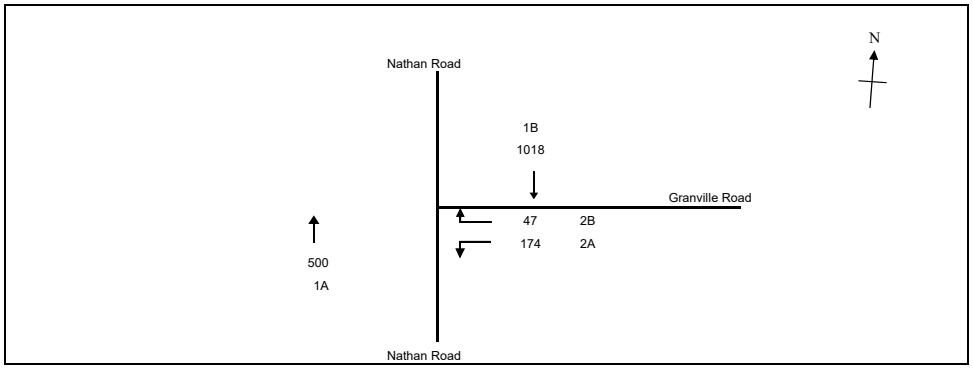
STAGE D INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3p	8	9	6	7	9	6	7	OK
4p	9	5	2	10	92	2	10	OK

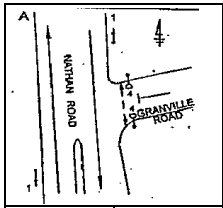
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				9				
1A	A	3.00	1	2			N	3970		328		328	0.00	3970			3970	0.083	0.254		25	78	0.127	11
1B	A	3.20	1	2			N	4010		1020		1020	0.00	4010			4010	0.254			78	78	0.391	36
2A	C	3.10	3	1	8		N	1925	57			57	1.00	1621			1621	0.035	0.035		11	11	0.380	10
2A,2B	C	3.10	3	1	10			2065	38		25	63	1.00	1796			1796	0.035			11	11	0.380	11
PED	B		2																	22				

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

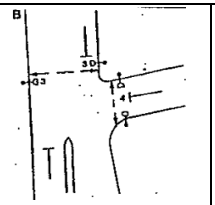
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J1
Nathan Road / Granville Road	2030 Design PM Peak (Under Proposed Scheme)	DATE : 8-Nov-23	FILENAME :



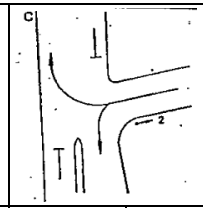
No. of stages per cycle		N =	3
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.318
Loss time		L =	31 sec
Total Flow		=	1738 pcu
Co	= (1.5*L+5)/(1-Y)	=	75.5 sec
Cm	= L/(1-Y)	=	45.5 sec
Yult		=	0.668
R.C.ult	= (Yult-Y)/Y*100%	=	109.7 %
Cp	= 0.9*L/(0.9-Y)	=	48.0 sec
Ymax	= 1-L/C	=	0.742
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	110 %



STAGE A INT= 5



STAGE B INT= 0



STAGE C INT= 6

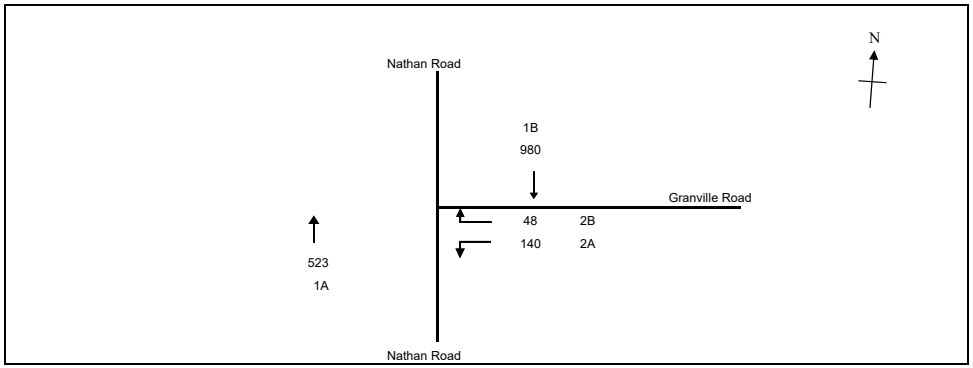
STAGE D INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3p	8	9	6	7	9	6	7	OK
4p	9	5	2	10	85	2	10	OK

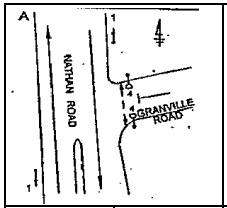
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				9				
1A	A	3.00	1	2			N	3970		500		500	0.00	3970			3970	0.126	0.254		35	71	0.213	20
1B	A	3.20	1	2			N	4010		1018		1018	0.00	4010			4010	0.254			71	71	0.429	42
2A	C	3.10	3	1	8		N	1925	105			105	1.00	1621			1621	0.064	0.064		18	18	0.430	18
2A,2B	C	3.10	3	1	10			2065	69		47	116	1.00	1796			1796	0.064			18	18	0.430	20
PED	B		2																	22				

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

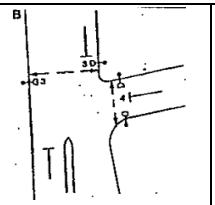
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J1
Nathan Road / Granville Road	2030 Design Weekend Peak (Under Proposed Scheme)	DATE : 8-Nov-23	FILENAME :



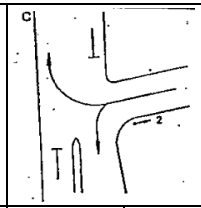
No. of stages per cycle		N =	3
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.299
Loss time		L =	31 sec
Total Flow		=	1691 pcu
Co	= (1.5*L+5)/(1-Y)	=	73.5 sec
Cm	= L/(1-Y)	=	44.3 sec
Yult		=	0.668
R.C.ult	= (Yult-Y)/Y*100%	=	122.9 %
Cp	= 0.9*L/(0.9-Y)	=	46.5 sec
Ymax	= 1-L/C	=	0.742
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	123 %



STAGE A INT= 5



STAGE B INT= 0



STAGE C INT= 6

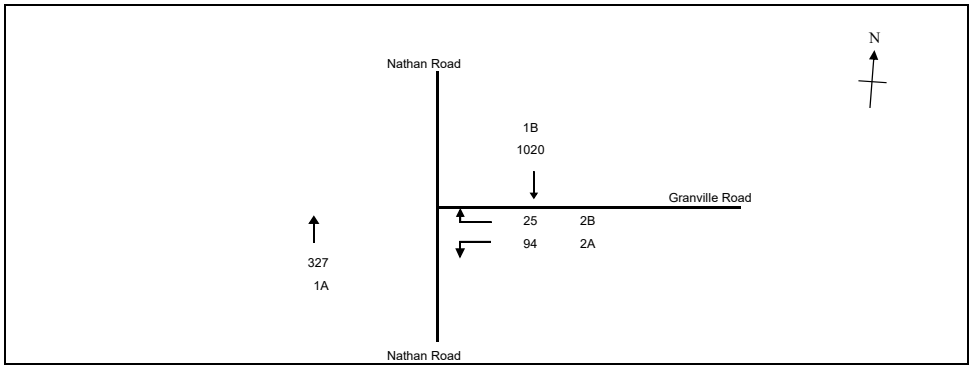
STAGE D INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3p	8	9	6	7	9	6	7	OK
4p	9	5	2	10	87	2	10	OK

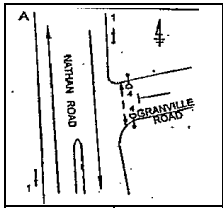
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				9				
1A	A	3.00	1	2			N	3970		523		523	0.00	3970			3970	0.132	0.245		39	73	0.217	20
1B	A	3.20	1	2			N	4010		980		980	0.00	4010			4010	0.245			73	73	0.402	38
2A	C	3.10	3	1	8		N	1925	89			89	1.00	1621			1621	0.055	0.055		16	16	0.412	15
2A,2B	C	3.10	3	1	10			2065	51		48	99	1.00	1796			1796	0.055			16	16	0.412	17
PED	B		2																	22				

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

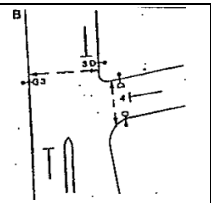
OVE ARUP & PARTNERS		TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui			PROJECT NO: 294680-01	JUNCTION NO: J1
Nathan Road / Granville Road		2030 Design AM Peak (Under Approved Scheme)	DATE : 8-Nov-23	FILENAME :



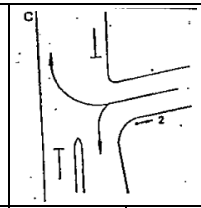
No. of stages per cycle		N =	3
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.289
Loss time		L =	31 sec
Total Flow		=	1466 pcu
Co	= (1.5*L+5)/(1-Y)	=	72.4 sec
Cm	= L/(1-Y)	=	43.6 sec
Yult		=	0.668
R.C.ult	= (Yult-Y)/Y*100%	=	130.9 %
Cp	= 0.9*L/(0.9-Y)	=	45.7 sec
Ymax	= 1-L/C	=	0.742
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	131 %



STAGE A INT= 5



STAGE B INT= 0



STAGE C INT= 6

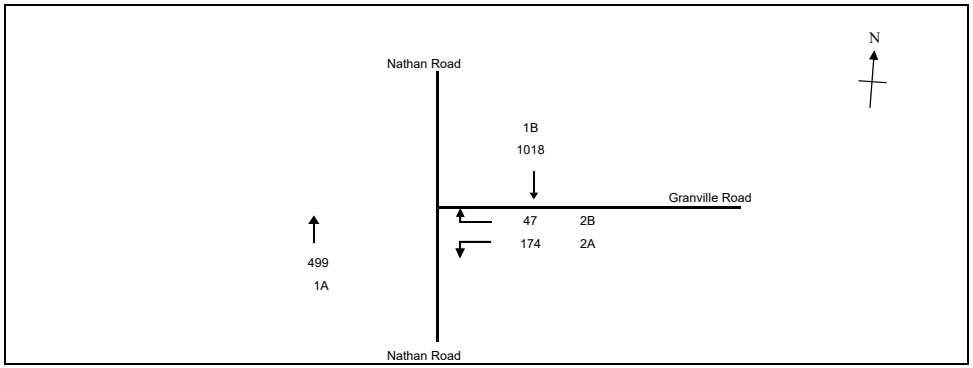
STAGE D INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3p	8	9	6	7	9	6	7	OK
4p	9	5	2	10	92	2	10	OK

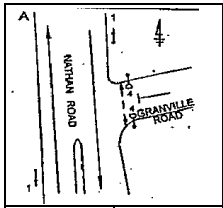
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				9				
1A	A	3.00	1	2			N	3970		327		327	0.00	3970			3970	0.082	0.254		25	78	0.127	11
1B	A	3.20	1	2			N	4010		1020		1020	0.00	4010			4010	0.254			78	78	0.391	36
2A	C	3.10	3	1	8		N	1925	57			57	1.00	1621			1621	0.035	0.035		11	11	0.380	10
2A,2B	C	3.10	3	1	10			2065	38		25	63	1.00	1796			1796	0.035			11	11	0.380	11
PED	B		2																	22				

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

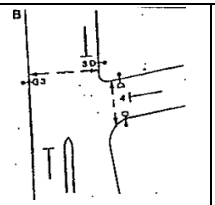
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J1
Nathan Road / Granville Road	2030 Design PM Peak (Under Approved Scheme)	DATE : 8-Nov-23	FILENAME :



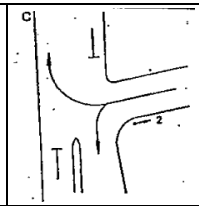
No. of stages per cycle		N =	3
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.318
Loss time		L =	31 sec
Total Flow		=	1737 pcu
Co	= (1.5*L+5)/(1-Y)	=	75.5 sec
Cm	= L/(1-Y)	=	45.5 sec
Yult		=	0.668
R.C.ult	= (Yult-Y)/Y*100%	=	109.7 %
Cp	= 0.9*L/(0.9-Y)	=	48.0 sec
Ymax	= 1-L/C	=	0.742
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	110 %



STAGE A INT= 5



STAGE B INT= 0



STAGE C INT= 6

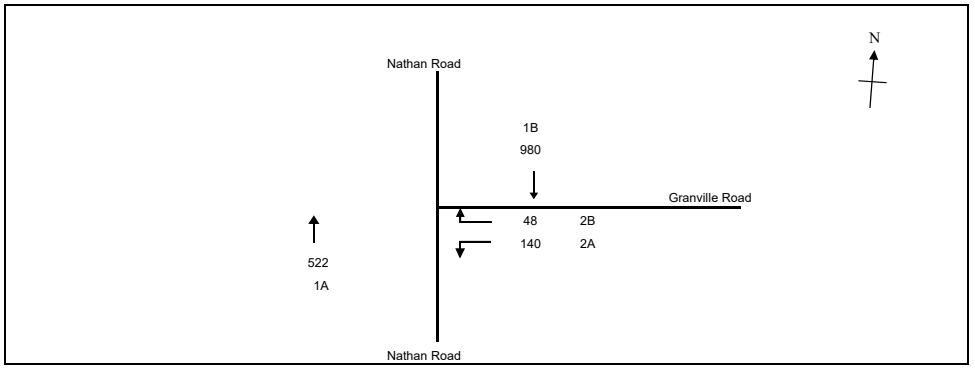
STAGE D INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3p	8	9	6	7	9	6	7	OK
4p	9	5	2	10	85	2	10	OK

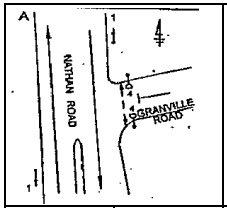
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				9				
1A	A	3.00	1	2			N	3970		499		499	0.00	3970			3970	0.126	0.254		35	71	0.212	20
1B	A	3.20	1	2			N	4010		1018		1018	0.00	4010			4010	0.254			71	71	0.429	42
2A	C	3.10	3	1	8		N	1925	105			105	1.00	1621			1621	0.064	0.064		18	18	0.430	18
2A,2B	C	3.10	3	1	10			2065	69		47	116	1.00	1796			1796	0.064			18	18	0.430	20
PED	B		2																	22				

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

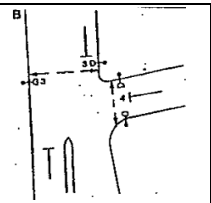
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J1
Nathan Road / Granville Road	2030 Design Weekend Peak (Under Approved Scheme)	DATE : 8-Nov-23	FILENAME :



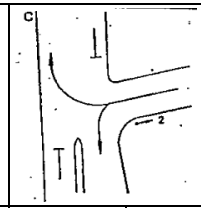
No. of stages per cycle		N =	3
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.299
Loss time		L =	31 sec
Total Flow		=	1690 pcu
Co	= (1.5*L+5)/(1-Y)	=	73.5 sec
Cm	= L/(1-Y)	=	44.3 sec
Yult		=	0.668
R.C.ult	= (Yult-Y)/Y*100%	=	122.9 %
Cp	= 0.9*L/(0.9-Y)	=	46.5 sec
Ymax	= 1-L/C	=	0.742
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	123 %



STAGE A INT= 5



STAGE B INT= 0



STAGE C INT= 6

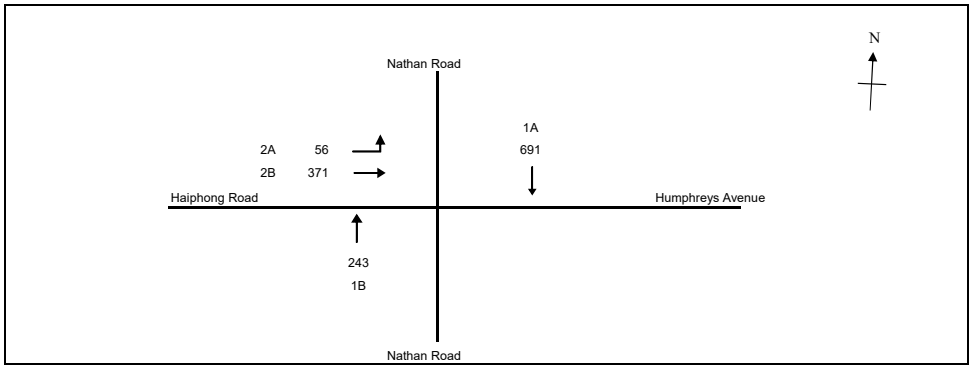
STAGE D INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3p	8	9	6	7	9	6	7	OK
4p	9	5	2	10	87	2	10	OK

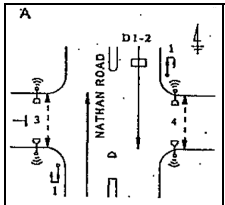
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				9				
1A	A	3.00	1	2			N	3970		522		522	0.00	3970			3970	0.132	0.245		39	73	0.216	20
1B	A	3.20	1	2			N	4010		980		980	0.00	4010			4010	0.245			73	73	0.402	38
2A	C	3.10	3	1	8		N	1925	89			89	1.00	1621			1621	0.055	0.055		16	16	0.412	15
2A,2B	C	3.10	3	1	10			2065	51		48	99	1.00	1796			1796	0.055			16	16	0.412	17
PED	B		2																	22				

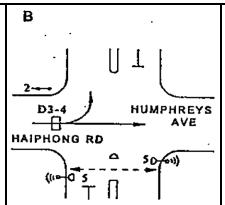
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Redevelopment at No. 43-49A Hankow Road, Tsim Sha Tsui		PROJECT NO: 282303-24	JUNCTION NO: J2
Nathan Road / Humphreys Avenue	2023 Existing AM Peak	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	2
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.349
Loss time		L =	11 sec
Total Flow		=	1361 pcu
Co	= (1.5*L+5)/(1-Y)	=	33.0 sec
Cm	= L/(1-Y)	=	16.9 sec
Yult		=	0.818
R.C.ult	= (Yult-Y)/Y*100%	=	134.4 %
Cp	= 0.9*L/(0.9-Y)	=	18.0 sec
Ymax	= 1-L/C	=	0.908
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	134 %





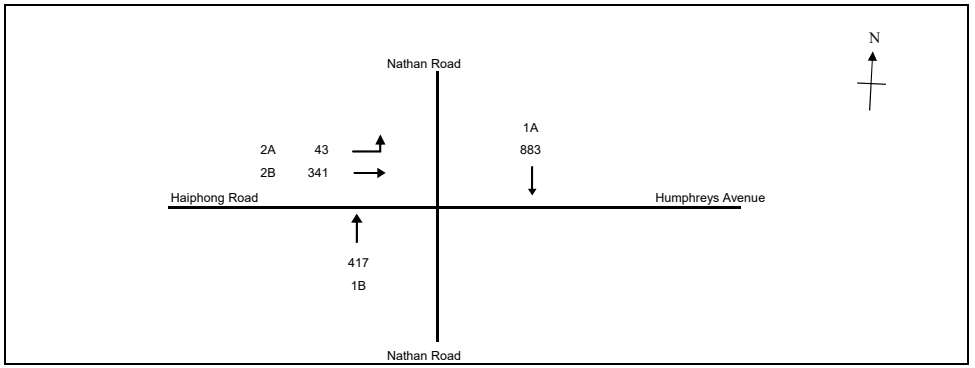
STAGE A	INT= 6	STAGE B	INT= 7	STAGE C	INT=	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3p	6.5	5	1	7	50	1	7	OK
4p	5.5	5	5	6	47	5	6	OK
5p	9	10	4	8	50	4	8	OK

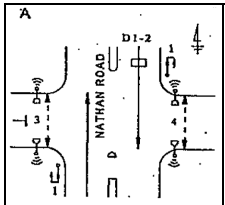
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				11				
1A	A	3.50	1	2			N	4070		691		691	0.00	4070			4070	0.170	0.170		53	53	0.385	39
1B	A	3.40	1	2			N	4050		243		243	0.00	4050			4050	0.060			19	53	0.136	14
2A	B	3.50	2	1	15		N	1965	56			56	1.00	1786			1786	0.032	0.179		10	56	0.068	6
2B	B	3.20	2	1				2075		371		371	0.00	2075			2075	0.179			56	56	0.383	40

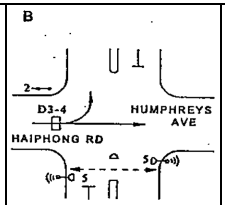
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS		TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Redevelopment at No. 43-49A Hankow Road, Tsim Sha Tsui			PROJECT NO: 282303-24	JUNCTION NO: J2
Nathan Road / Humphreys Avenue		2023 Existing PM Peak	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	2
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.381
Loss time		L =	11 sec
Total Flow		=	1684 pcu
Co	= (1.5*L+5)/(1-Y)	=	34.7 sec
Cm	= L/(1-Y)	=	17.8 sec
Yult		=	0.818
R.C.ult	= (Yult-Y)/Y*100%	=	114.4 %
Cp	= 0.9*L/(0.9-Y)	=	19.1 sec
Ymax	= 1-L/C	=	0.908
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	114 %





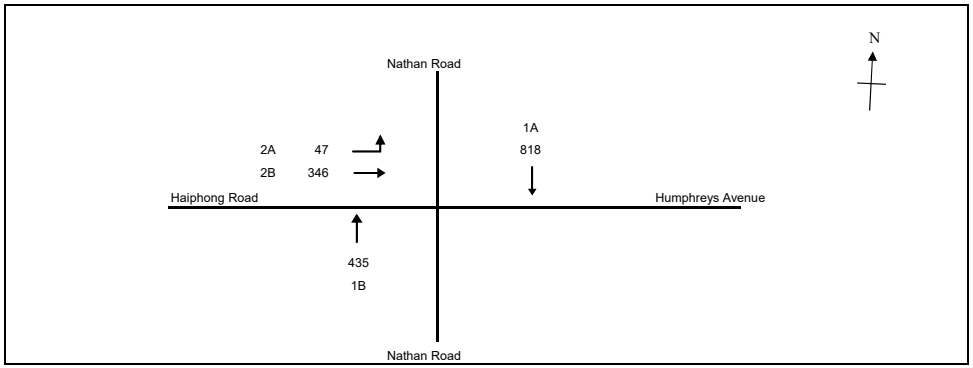
STAGE A	INT= 6	STAGE B	INT= 7	STAGE C	INT=	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3p	6.5	5	1	7	59	1	7	OK
4p	5.5	5	5	6	56	5	6	OK
5p	9	10	4	8	41	4	8	OK

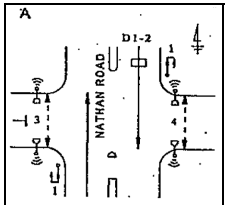
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				11				
1A	A	3.50	1	2			N	4070		883		883	0.00	4070			4070	0.217	0.217		62	62	0.420	43
1B	A	3.40	1	2			N	4050		417		417	0.00	4050			4050	0.103			29	62	0.199	20
2A	B	3.50	2	1	15		N	1965	43			43	1.00	1786			1786	0.024	0.164		7	47	0.061	5
2B	B	3.20	2	1				2075		341		341	0.00	2075			2075	0.164			47	47	0.420	41

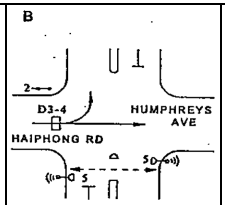
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Redevelopment at No. 43-49A Hankow Road, Tsim Sha Tsui		PROJECT NO: 282303-24	JUNCTION NO: J2
Nathan Road / Humphreys Avenue	2023 Existing Weekend Peak	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	2
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.368
Loss time		L =	11 sec
Total Flow		=	1646 pcu
Co	= (1.5*L+5)/(1-Y)	=	34.0 sec
Cm	= L/(1-Y)	=	17.4 sec
Yult		=	0.818
R.C.ult	= (Yult-Y)/Y*100%	=	122.4 %
Cp	= 0.9*L/(0.9-Y)	=	18.6 sec
Ymax	= 1-L/C	=	0.908
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	122 %





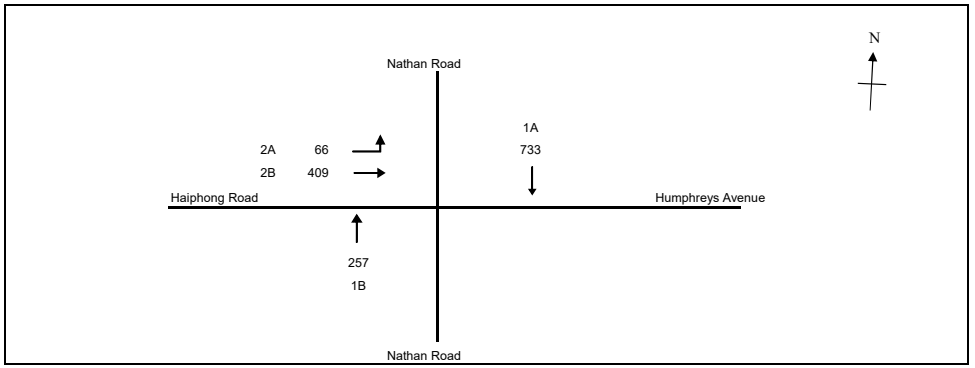
STAGE A	INT= 6	STAGE B	INT= 7	STAGE C	INT=	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3p	6.5	5	1	7	57	1	7	OK
4p	5.5	5	5	6	54	5	6	OK
5p	9	10	4	8	43	4	8	OK

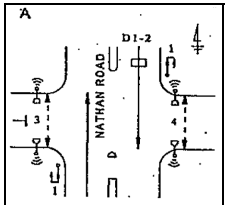
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				11				
1A	A	3.50	1	2			N	4070		818		818	0.00	4070			4070	0.201	0.201		60	60	0.402	41
1B	A	3.40	1	2			N	4050		435		435	0.00	4050			4050	0.108			32	60	0.215	22
2A	B	3.50	2	1	15		N	1965	47			47	1.00	1786			1786	0.026	0.167		8	49	0.064	6
2B	B	3.20	2	1				2075		346		346	0.00	2075			2075	0.167			49	49	0.408	41

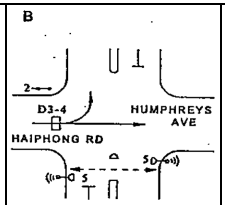
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS		TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Redevelopment at No. 43-49A Hankow Road, Tsim Sha Tsui			PROJECT NO: 282303-24	JUNCTION NO: J2
Nathan Road / Humphreys Avenue		2030 Reference AM Peak	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	2
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.377
Loss time		L =	11 sec
Total Flow		=	1465 pcu
Co	= (1.5*L+5)/(1-Y)	=	34.5 sec
Cm	= L/(1-Y)	=	17.7 sec
Yult		=	0.818
R.C.ult	= (Yult-Y)/Y*100%	=	116.7 %
Cp	= 0.9*L/(0.9-Y)	=	18.9 sec
Ymax	= 1-L/C	=	0.908
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	117 %





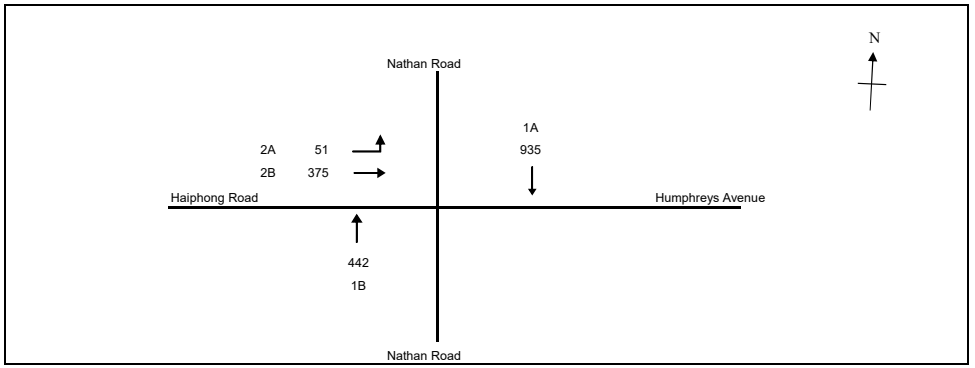
STAGE A	INT= 6	STAGE B	INT= 7	STAGE C	INT=	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3p	6.5	5	1	7	49	1	7	OK
4p	5.5	5	5	6	46	5	6	OK
5p	9	10	4	8	51	4	8	OK

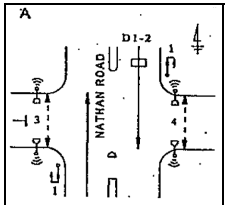
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				11				
1A	A	3.50	1	2			N	4070		733		733	0.00	4070			4070	0.180	0.180		52	52	0.415	42
1B	A	3.40	1	2			N	4050		257		257	0.00	4050			4050	0.063			18	52	0.146	15
2A	B	3.50	2	1	15		N	1965	66			66	1.00	1786			1786	0.037	0.197		11	57	0.077	7
2B	B	3.20	2	1				2075		409		409	0.00	2075			2075	0.197			57	57	0.415	43

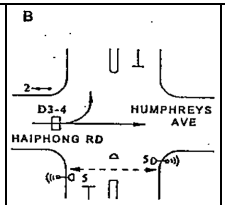
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Redevelopment at No. 43-49A Hankow Road, Tsim Sha Tsui		PROJECT NO: 282303-24	JUNCTION NO: J2
Nathan Road / Humphreys Avenue	2030 Reference PM Peak	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	2
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.411
Loss time		L =	11 sec
Total Flow		=	1804 pcu
Co	= (1.5*L+5)/(1-Y)	=	36.5 sec
Cm	= L/(1-Y)	=	18.7 sec
Yult		=	0.818
R.C.ult	= (Yult-Y)/Y*100%	=	99.0 %
Cp	= 0.9*L/(0.9-Y)	=	20.2 sec
Ymax	= 1-L/C	=	0.908
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	99 %





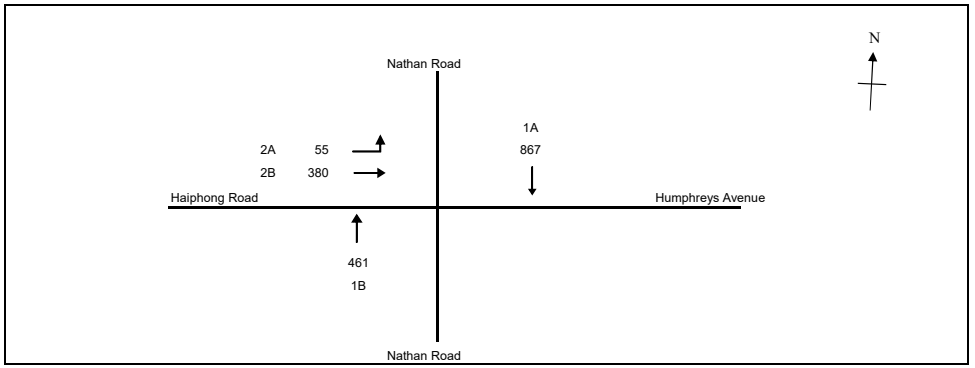
STAGE A	INT= 6	STAGE B	INT= 7	STAGE C	INT=	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3p	6.5	5	1	7	58	1	7	OK
4p	5.5	5	5	6	55	5	6	OK
5p	9	10	4	8	42	4	8	OK

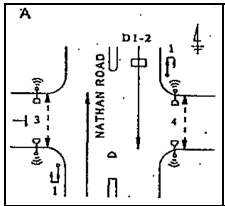
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				11				
1A	A	3.50	1	2			N	4070		935		935	0.00	4070			4070	0.230	0.230		61	61	0.452	46
1B	A	3.40	1	2			N	4050		442		442	0.00	4050			4050	0.109			29	61	0.215	22
2A	B	3.50	2	1	15		N	1965	51			51	1.00	1786			1786	0.029	0.181		8	48	0.072	6
2B	B	3.20	2	1				2075		375		375	0.00	2075			2075	0.181			48	48	0.452	45

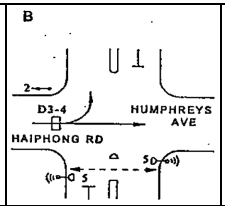
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Redevelopment at No. 43-49A Hankow Road, Tsim Sha Tsui		PROJECT NO: 282303-24	JUNCTION NO: J2
Nathan Road / Humphreys Avenue	2030 Reference Weekend Peak	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	2
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.396
Loss time		L =	11 sec
Total Flow		=	1764 pcu
Co	= (1.5*L+5)/(1-Y)	=	35.6 sec
Cm	= L/(1-Y)	=	18.2 sec
Yult		=	0.818
R.C.ult	= (Yult-Y)/Y*100%	=	106.3 %
Cp	= 0.9*L/(0.9-Y)	=	19.7 sec
Ymax	= 1-L/C	=	0.908
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	106 %





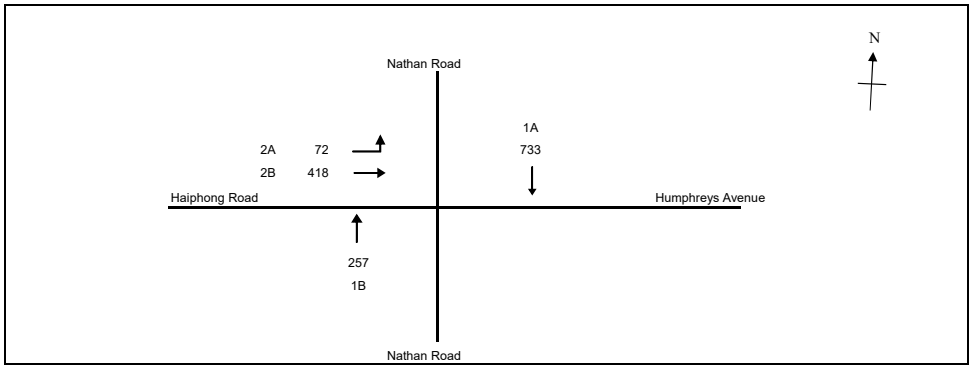
STAGE A	INT= 6	STAGE B	INT= 7	STAGE C	INT=	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3p	6.5	5	1	7	56	1	7	OK
4p	5.5	5	5	6	53	5	6	OK
5p	9	10	4	8	44	4	8	OK

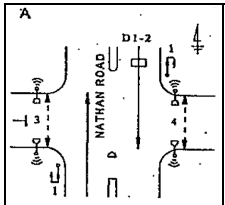
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				11				
1A	A	3.50	1	2			N	4070		867		867	0.00	4070			4070	0.213	0.213		59	59	0.433	44
1B	A	3.40	1	2			N	4050		461		461	0.00	4050			4050	0.114			31	59	0.232	23
2A	B	3.50	2	1	15		N	1965	55			55	1.00	1786			1786	0.031	0.183		9	50	0.075	6
2B	B	3.20	2	1				2075		380		380	0.00	2075			2075	0.183			50	50	0.440	44

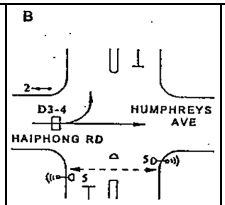
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS		TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Redevelopment at No. 43-49A Hankow Road, Tsim Sha Tsui			PROJECT NO: 282303-24	JUNCTION NO: J2
Nathan Road / Humphreys Avenue		2030 Design AM Peak (Under Proposed Scheme)	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	2
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.382
Loss time		L =	11 sec
Total Flow		=	1480 pcu
Co	= (1.5*L+5)/(1-Y)	=	34.8 sec
Cm	= L/(1-Y)	=	17.8 sec
Yult		=	0.818
R.C.ult	= (Yult-Y)/Y*100%	=	114.3 %
Cp	= 0.9*L/(0.9-Y)	=	19.1 sec
Ymax	= 1-L/C	=	0.908
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	114 %





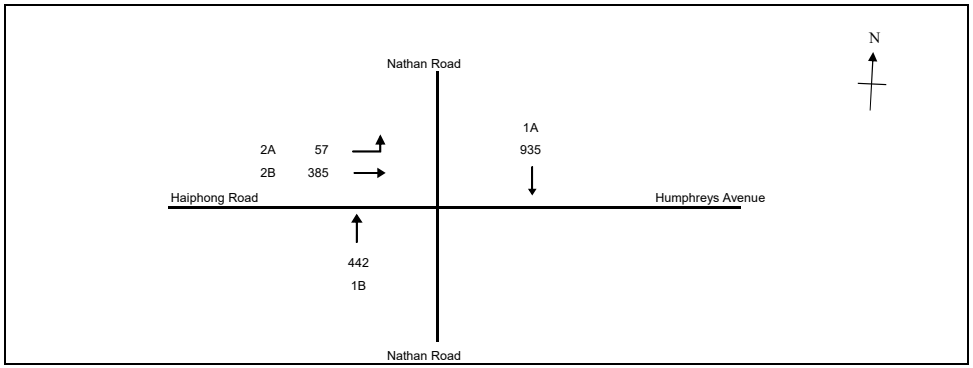
STAGE A	INT= 6	STAGE B	INT= 7	STAGE C	INT=	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3p	6.5	5	1	7	48	1	7	OK
4p	5.5	5	5	6	45	5	6	OK
5p	9	10	4	8	52	4	8	OK

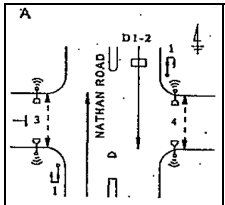
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				11				
1A	A	3.50	1	2			N	4070		733		733	0.00	4070			4070	0.180	0.180		51	51	0.424	42
1B	A	3.40	1	2			N	4050		257		257	0.00	4050			4050	0.063			18	51	0.149	15
2A	B	3.50	2	1	15		N	1965	72			72	1.00	1786			1786	0.040	0.202		11	58	0.083	7
2B	B	3.20	2	1				2075		418		418	0.00	2075			2075	0.202			58	58	0.417	43

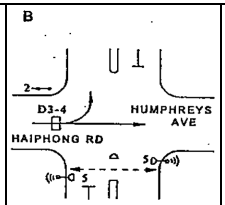
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Redevelopment at No. 43-49A Hankow Road, Tsim Sha Tsui		PROJECT NO: 282303-24	JUNCTION NO: J2
Nathan Road / Humphreys Avenue	2030 Design PM Peak (Under Proposed Scheme)	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	2
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.416
Loss time		L =	11 sec
Total Flow		=	1820 pcu
Co	= (1.5*L+5)/(1-Y)	=	36.8 sec
Cm	= L/(1-Y)	=	18.8 sec
Yult		=	0.818
R.C.ult	= (Yult-Y)/Y*100%	=	96.7 %
Cp	= 0.9*L/(0.9-Y)	=	20.4 sec
Ymax	= 1-L/C	=	0.908
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	97 %





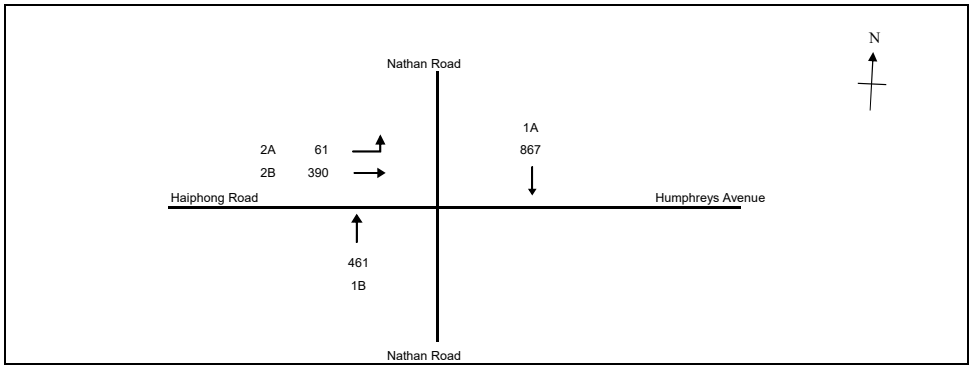
STAGE A	INT= 6	STAGE B	INT= 7	STAGE C	INT=	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3p	6.5	5	1	7	57	1	7	OK
4p	5.5	5	5	6	54	5	6	OK
5p	9	10	4	8	43	4	8	OK

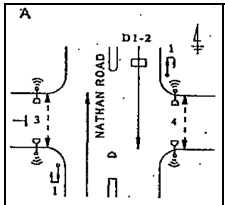
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				11				
1A	A	3.50	1	2			N	4070		935		935	0.00	4070			4070	0.230	0.230		60	60	0.460	47
1B	A	3.40	1	2			N	4050		442		442	0.00	4050			4050	0.109			29	60	0.218	22
2A	B	3.50	2	1	15		N	1965	57			57	1.00	1786			1786	0.032	0.186		8	49	0.078	7
2B	B	3.20	2	1				2075		385		385	0.00	2075			2075	0.186			49	49	0.455	46

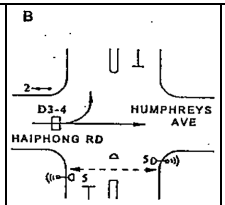
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Redevelopment at No. 43-49A Hankow Road, Tsim Sha Tsui		PROJECT NO: 282303-24	JUNCTION NO: J2
Nathan Road / Humphreys Avenue	2030 Design Weekend Peak (Under Proposed Scheme)	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	2
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.401
Loss time		L =	11 sec
Total Flow		=	1780 pcu
Co	= (1.5*L+5)/(1-Y)	=	35.9 sec
Cm	= L/(1-Y)	=	18.4 sec
Yult		=	0.818
R.C.ult	= (Yult-Y)/Y*100%	=	103.8 %
Cp	= 0.9*L/(0.9-Y)	=	19.8 sec
Ymax	= 1-L/C	=	0.908
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	104 %





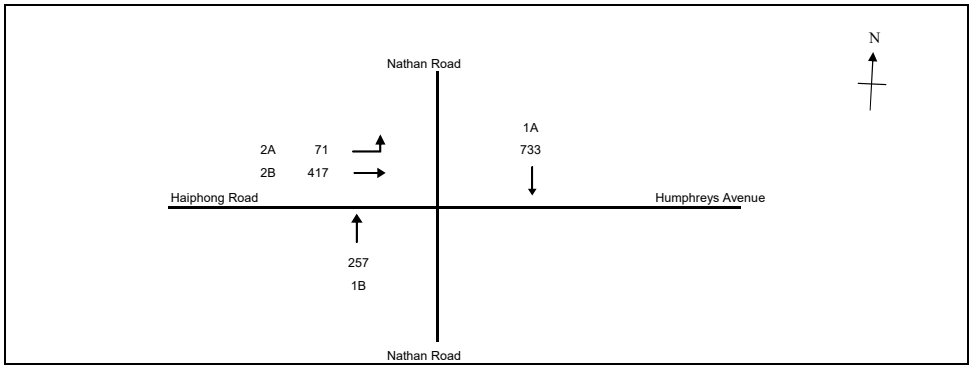
STAGE A	INT= 6	STAGE B	INT= 7	STAGE C	INT=	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3p	6.5	5	1	7	55	1	7	OK
4p	5.5	5	5	6	52	5	6	OK
5p	9	10	4	8	45	4	8	OK

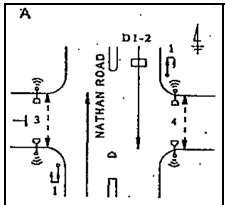
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				11				
1A	A	3.50	1	2			N	4070		867		867	0.00	4070			4070	0.213	0.213		58	58	0.441	45
1B	A	3.40	1	2			N	4050		461		461	0.00	4050			4050	0.114			31	58	0.236	24
2A	B	3.50	2	1	15		N	1965	61			61	1.00	1786			1786	0.034	0.188		9	51	0.081	7
2B	B	3.20	2	1				2075		390		390	0.00	2075			2075	0.188			51	51	0.442	45

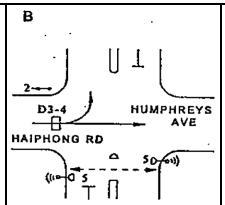
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Redevelopment at No. 43-49A Hankow Road, Tsim Sha Tsui		PROJECT NO: 282303-24	JUNCTION NO: J2
Nathan Road / Humphreys Avenue	2030 Design AM Peak (Under Approved Scheme)	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	2
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.381
Loss time		L =	11 sec
Total Flow		=	1478 pcu
Co	= (1.5*L+5)/(1-Y)	=	34.7 sec
Cm	= L/(1-Y)	=	17.8 sec
Yult		=	0.818
R.C.ult	= (Yult-Y)/Y*100%	=	114.5 %
Cp	= 0.9*L/(0.9-Y)	=	19.1 sec
Ymax	= 1-L/C	=	0.908
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	115 %





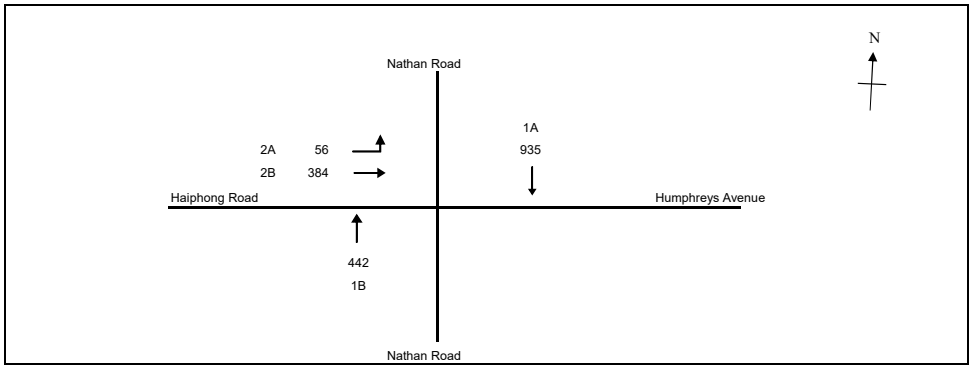
STAGE A	INT= 6	STAGE B	INT= 7	STAGE C	INT=	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3p	6.5	5	1	7	48	1	7	OK
4p	5.5	5	5	6	45	5	6	OK
5p	9	10	4	8	52	4	8	OK

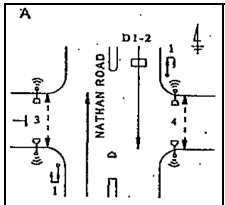
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				11				
1A	A	3.50	1	2			N	4070		733		733	0.00	4070			4070	0.180	0.180		51	51	0.424	42
1B	A	3.40	1	2			N	4050		257		257	0.00	4050			4050	0.063			18	51	0.149	15
2A	B	3.50	2	1	15		N	1965	71			71	1.00	1786			1786	0.040	0.201		11	58	0.082	7
2B	B	3.20	2	1				2075		417		417	0.00	2075			2075	0.201			58	58	0.416	43

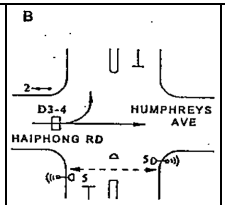
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Redevelopment at No. 43-49A Hankow Road, Tsim Sha Tsui		PROJECT NO: 282303-24	JUNCTION NO: J2
Nathan Road / Humphreys Avenue	2030 Design PM Peak (Under Approved Scheme)	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	2
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.415
Loss time		L =	11 sec
Total Flow		=	1818 pcu
Co	= (1.5*L+5)/(1-Y)	=	36.8 sec
Cm	= L/(1-Y)	=	18.8 sec
Yult		=	0.818
R.C.ult	= (Yult-Y)/Y*100%	=	97.0 %
Cp	= 0.9*L/(0.9-Y)	=	20.4 sec
Ymax	= 1-L/C	=	0.908
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	97 %





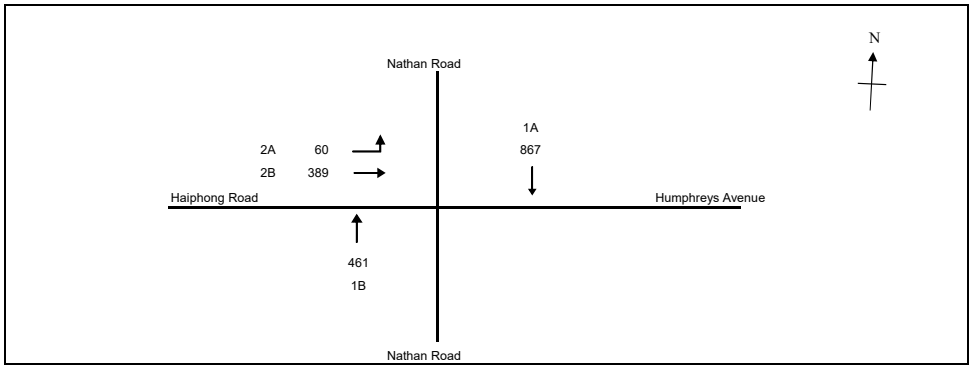
STAGE A	INT= 6	STAGE B	INT= 7	STAGE C	INT=	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3p	6.5	5	1	7	57	1	7	OK
4p	5.5	5	5	6	54	5	6	OK
5p	9	10	4	8	43	4	8	OK

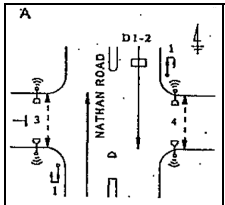
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				11				
1A	A	3.50	1	2			N	4070		935		935	0.00	4070			4070	0.230	0.230		60	60	0.460	47
1B	A	3.40	1	2			N	4050		442		442	0.00	4050			4050	0.109			29	60	0.218	22
2A	B	3.50	2	1	15		N	1965	56			56	1.00	1786			1786	0.031	0.185		8	49	0.077	7
2B	B	3.20	2	1				2075		384		384	0.00	2075			2075	0.185			49	49	0.454	45

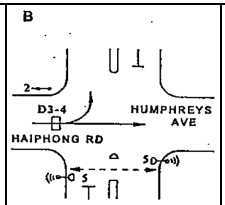
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS		TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Redevelopment at No. 43-49A Hankow Road, Tsim Sha Tsui			PROJECT NO: 282303-24	JUNCTION NO: J2
Nathan Road / Humphreys Avenue		2030 Design Weekend Peak (Under Approved Scheme)	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	2
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.401
Loss time		L =	11 sec
Total Flow		=	1778 pcu
Co	= (1.5*L+5)/(1-Y)	=	35.9 sec
Cm	= L/(1-Y)	=	18.4 sec
Yult		=	0.818
R.C.ult	= (Yult-Y)/Y*100%	=	104.1 %
Cp	= 0.9*L/(0.9-Y)	=	19.8 sec
Ymax	= 1-L/C	=	0.908
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	104 %





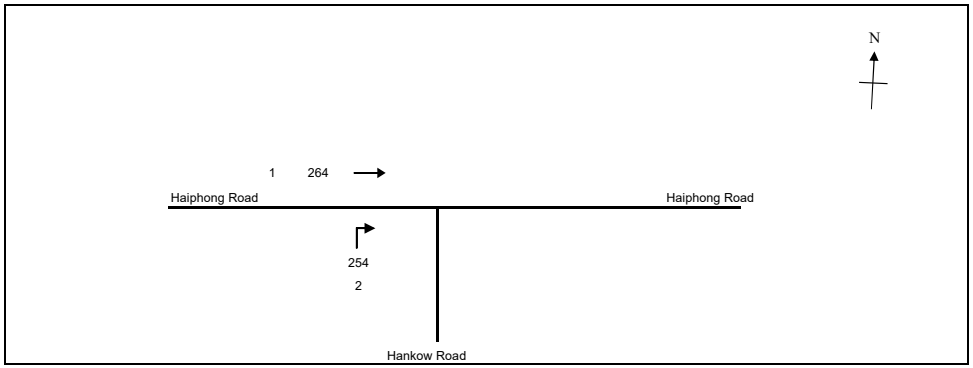
STAGE A	INT= 6	STAGE B	INT= 7	STAGE C	INT=	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3p	6.5	5	1	7	55	1	7	OK
4p	5.5	5	5	6	52	5	6	OK
5p	9	10	4	8	45	4	8	OK

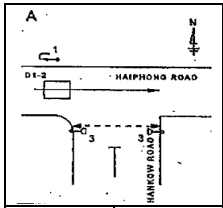
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				11				
1A	A	3.50	1	2			N	4070		867		867	0.00	4070			4070	0.213	0.213		58	58	0.441	45
1B	A	3.40	1	2			N	4050		461		461	0.00	4050			4050	0.114			31	58	0.236	24
2A	B	3.50	2	1	15		N	1965	60			60	1.00	1786			1786	0.034	0.188		9	51	0.080	7
2B	B	3.20	2	1				2075		389		389	0.00	2075			2075	0.188			51	51	0.441	45

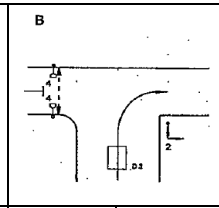
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Redevelopment at No. 43-49A Hankow Road, Tsim Sha Tsui		PROJECT NO: 282303-24	JUNCTION NO: J3
Hankow Road / Haiphong Road	2023 Existing AM Peak	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	2
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.205
Loss time		L =	8 sec
Total Flow		=	518 pcu
Co	= (1.5*L+5)/(1-Y)	=	21.4 sec
Cm	= L/(1-Y)	=	10.1 sec
Yult		=	0.840
R.C.ult	= (Yult-Y)/Y*100%	=	309.1 %
Cp	= 0.9*L/(0.9-Y)	=	10.4 sec
Ymax	= 1-L/C	=	0.933
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	309 %





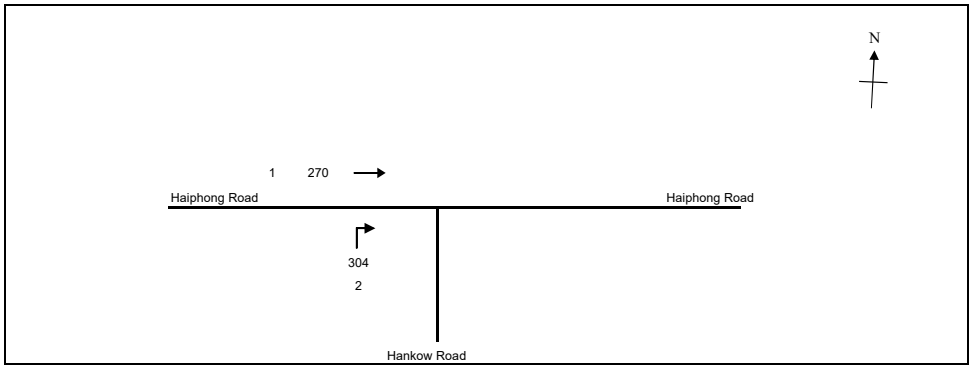
STAGE A	INT= 5	STAGE B	INT= 5	STAGE C	INT=	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3p	4	5	3	5	32	3	5	OK
4p	6	5	3	7	70	3	7	OK

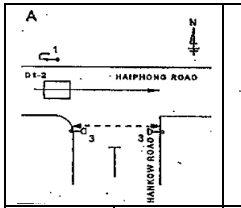
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				8				
1	A	3.20	1	2			N	4010		264		264	0.00	4010			4010	0.066	0.066		36	36	0.220	19
2	B	4.00	2	1	14		N	2015			254	254	1.00	1820			1820	0.139	0.139		76	76	0.220	19

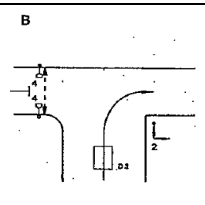
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Redevelopment at No. 43-49A Hankow Road, Tsim Sha Tsui		PROJECT NO: 282303-24	JUNCTION NO: J3
Hankow Road / Haiphong Road	2023 Existing PM Peak	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	2
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.234
Loss time		L =	8 sec
Total Flow		=	574 pcu
Co	= (1.5*L+5)/(1-Y)	=	22.2 sec
Cm	= L/(1-Y)	=	10.5 sec
Yult		=	0.840
R.C.ult	= (Yult-Y)/Y*100%	=	258.3 %
Cp	= 0.9*L/(0.9-Y)	=	10.8 sec
Ymax	= 1-L/C	=	0.933
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	258 %





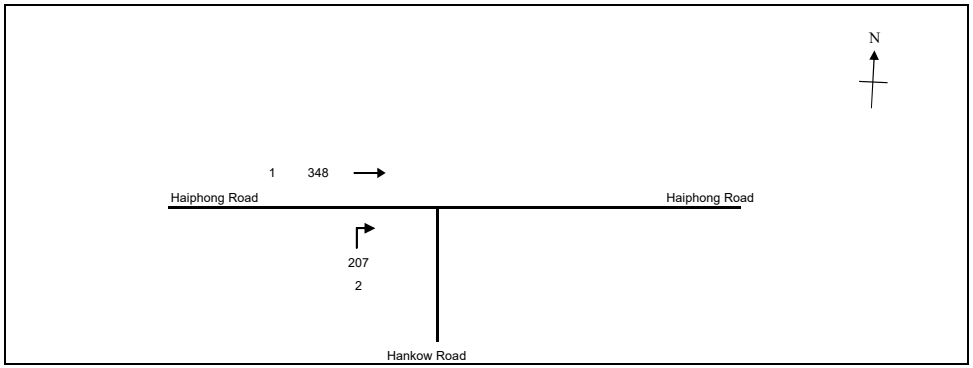
STAGE A	INT= 5	STAGE B	INT= 5	STAGE C	INT=	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3p	4	5	3	5	28	3	5	OK
4p	6	5	3	7	74	3	7	OK

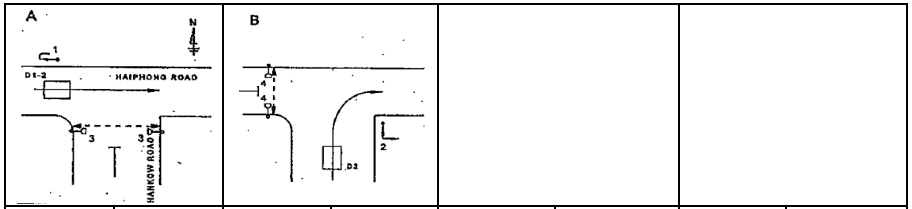
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				8				
1	A	3.20	1	2			N	4010		270		270	0.00	4010			4010	0.067	0.067		32	32	0.252	20
2	B	4.00	2	1	14		N	2015			304	304	1.00	1820			1820	0.167	0.167		80	80	0.251	20

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Redevelopment at No. 43-49A Hankow Road, Tsim Sha Tsui		PROJECT NO: 282303-24	JUNCTION NO: J3
Hankow Road / Haiphong Road	2023 Existing Weekend Peak	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	2
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.201
Loss time		L =	8 sec
Total Flow		=	555 pcu
Co	= (1.5*L+5)/(1-Y)	=	21.3 sec
Cm	= L/(1-Y)	=	10.0 sec
Yult		=	0.840
R.C.ult	= (Yult-Y)/Y*100%	=	318.6 %
Cp	= 0.9*L/(0.9-Y)	=	10.3 sec
Ymax	= 1-L/C	=	0.933
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	319 %



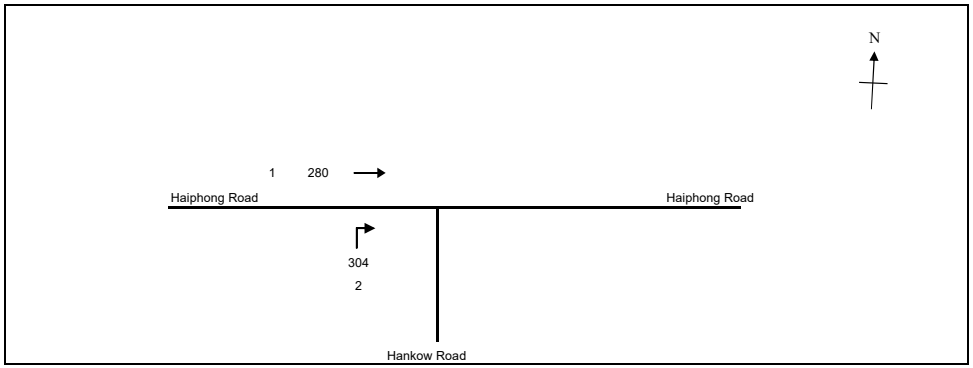
STAGE A	INT= 5	STAGE B	INT= 5	STAGE C	INT=	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3p	4	5	3	5	44	3	5	OK
4p	6	5	3	7	58	3	7	OK

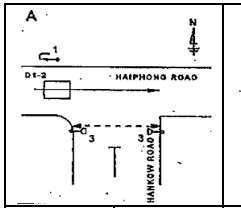
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				8				
1	A	3.20	1	2			N	4010		348		348	0.00	4010			4010	0.087	0.087		48	48	0.217	21
2	B	4.00	2	1	14		N	2015			207	207	1.00	1820			1820	0.114	0.114		64	64	0.214	19

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

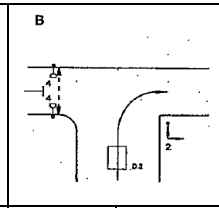
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Redevelopment at No. 43-49A Hankow Road, Tsim Sha Tsui		PROJECT NO: 282303-24	JUNCTION NO: J3
Hankow Road / Haiphong Road	2030 Reference AM Peak	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	2
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.237
Loss time		L =	8 sec
Total Flow		=	584 pcu
Co	= (1.5*L+5)/(1-Y)	=	22.3 sec
Cm	= L/(1-Y)	=	10.5 sec
Yult		=	0.840
R.C.ult	= (Yult-Y)/Y*100%	=	254.7 %
Cp	= 0.9*L/(0.9-Y)	=	10.9 sec
Ymax	= 1-L/C	=	0.933
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	255 %



STAGE A INT= 5



STAGE B INT= 5

STAGE C INT=

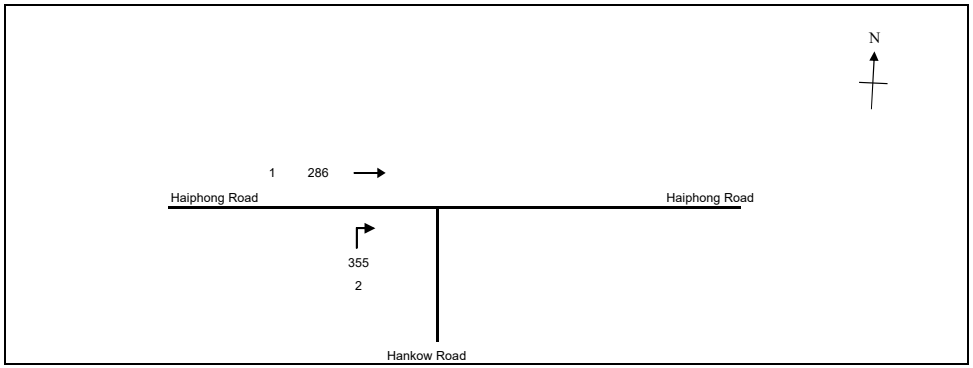
STAGE D INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3p	4	5	3	5	29	3	5	OK
4p	6	5	3	7	73	3	7	OK

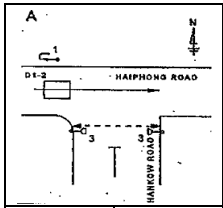
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				8				
1	A	3.20	1	2			N	4010		280		280	0.00	4010			4010	0.070	0.070		33	33	0.254	20
2	B	4.00	2	1	14		N	2015			304	304	1.00	1820			1820	0.167	0.167		79	79	0.254	21

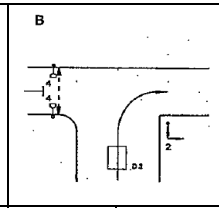
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Redevelopment at No. 43-49A Hankow Road, Tsim Sha Tsui		PROJECT NO: 282303-24	JUNCTION NO: J3
Hankow Road / Haiphong Road	2030 Reference PM Peak	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	2
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.266
Loss time		L =	8 sec
Total Flow		=	640 pcu
Co	= (1.5*L+5)/(1-Y)	=	23.2 sec
Cm	= L/(1-Y)	=	10.9 sec
Yult		=	0.840
R.C.ult	= (Yult-Y)/Y*100%	=	215.8 %
Cp	= 0.9*L/(0.9-Y)	=	11.4 sec
Ymax	= 1-L/C	=	0.933
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	216 %





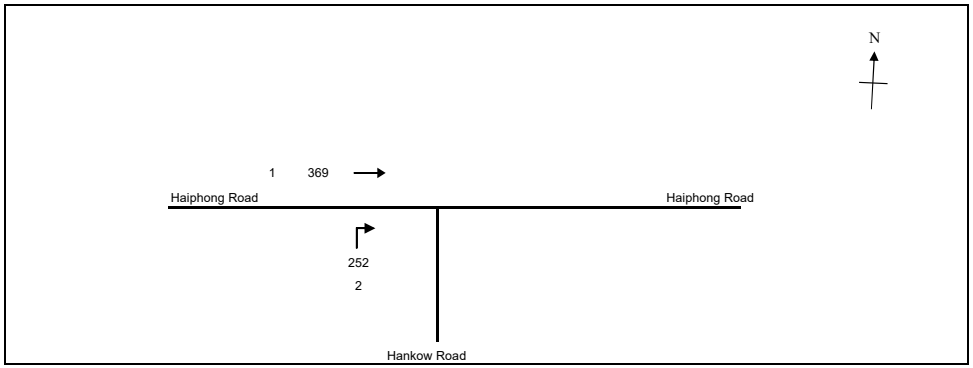
STAGE A	INT= 5	STAGE B	INT= 5	STAGE C	INT=	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3p	4	5	3	5	26	3	5	OK
4p	6	5	3	7	76	3	7	OK

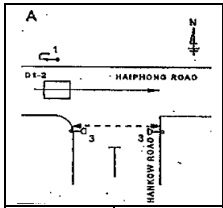
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				8				
1	A	3.20	1	2			N	4010		286		286	0.00	4010			4010	0.071	0.071		30	30	0.285	21
2	B	4.00	2	1	14		N	2015			355	355	1.00	1820			1820	0.195	0.195		82	82	0.285	22

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

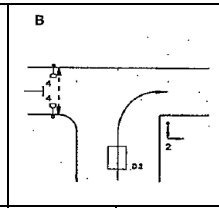
OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Redevelopment at No. 43-49A Hankow Road, Tsim Sha Tsui		PROJECT NO: 282303-24	JUNCTION NO: J3
Hankow Road / Haiphong Road	2030 Reference Weekend Peak	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	2	
No. of stage using for calculation		N =	2	
Cycle time		C =	120	sec
Sum(y)		Y =	0.230	
Loss time		L =	8	sec
Total Flow		=	620	pcu
Co	= (1.5*L+5)/(1-Y)	=	22.1	sec
Cm	= L/(1-Y)	=	10.4	sec
Yult		=	0.840	
R.C.ult	= (Yult-Y)/Y*100%	=	264.9	%
Cp	= 0.9*L/(0.9-Y)	=	10.7	sec
Ymax	= 1-L/C	=	0.933	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	265	%



STAGE A INT= 5



STAGE B INT= 5

STAGE C INT=

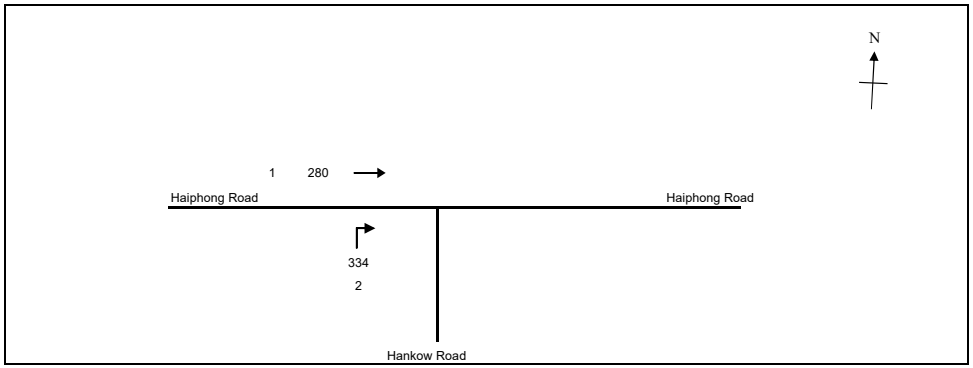
STAGE D INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3p	4	5	3	5	41	3	5	OK
4p	6	5	3	7	61	3	7	OK

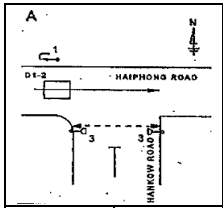
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				8				
1	A	3.20	1	2			N	4010		369		369	0.00	4010			4010	0.092	0.092		45	45	0.245	23
2	B	4.00	2	1	14		N	2015			252	252	1.00	1820			1820	0.138	0.138		67	67	0.248	22

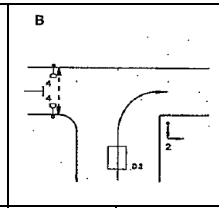
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Redevelopment at No. 43-49A Hankow Road, Tsim Sha Tsui		PROJECT NO: 282303-24	JUNCTION NO: J3
Hankow Road / Haiphong Road	2030 Design AM Peak (Under Proposed Scheme)	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	2
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.253
Loss time		L =	8 sec
Total Flow		=	614 pcu
Co	= (1.5*L+5)/(1-Y)	=	22.8 sec
Cm	= L/(1-Y)	=	10.7 sec
Yult		=	0.840
R.C.ult	= (Yult-Y)/Y*100%	=	231.6 %
Cp	= 0.9*L/(0.9-Y)	=	11.1 sec
Ymax	= 1-L/C	=	0.933
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	232 %





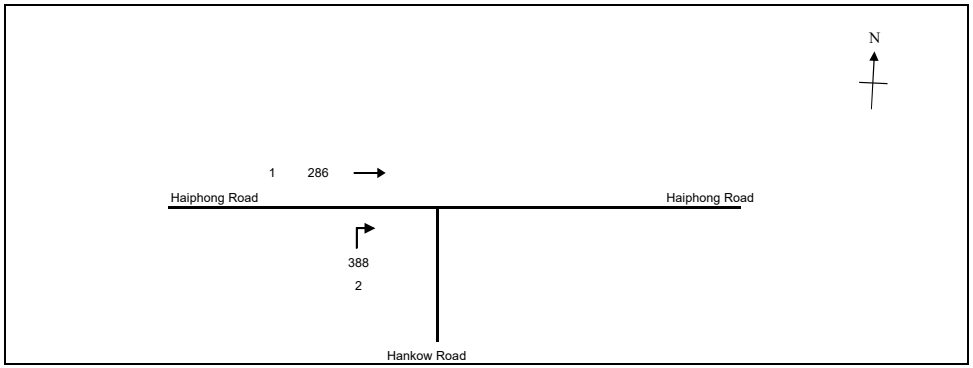
STAGE A	INT= 5	STAGE B	INT= 5	STAGE C	INT=	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3p	4	5	3	5	27	3	5	OK
4p	6	5	3	7	75	3	7	OK

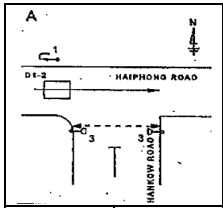
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				8				
1	A	3.20	1	2			N	4010		280		280	0.00	4010			4010	0.070	0.070		31	31	0.270	21
2	B	4.00	2	1	14		N	2015			334	334	1.00	1820			1820	0.183	0.183		81	81	0.272	22

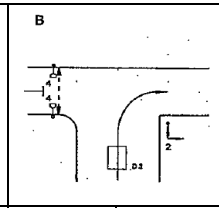
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Redevelopment at No. 43-49A Hankow Road, Tsim Sha Tsui		PROJECT NO: 282303-24	JUNCTION NO: J3
Hankow Road / Haiphong Road	2030 Design PM Peak (Under Proposed Scheme)	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	2
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.284
Loss time		L =	8 sec
Total Flow		=	673 pcu
Co	= (1.5*L+5)/(1-Y)	=	23.7 sec
Cm	= L/(1-Y)	=	11.2 sec
Yult		=	0.840
R.C.ult	= (Yult-Y)/Y*100%	=	195.6 %
Cp	= 0.9*L/(0.9-Y)	=	11.7 sec
Ymax	= 1-L/C	=	0.933
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	196 %





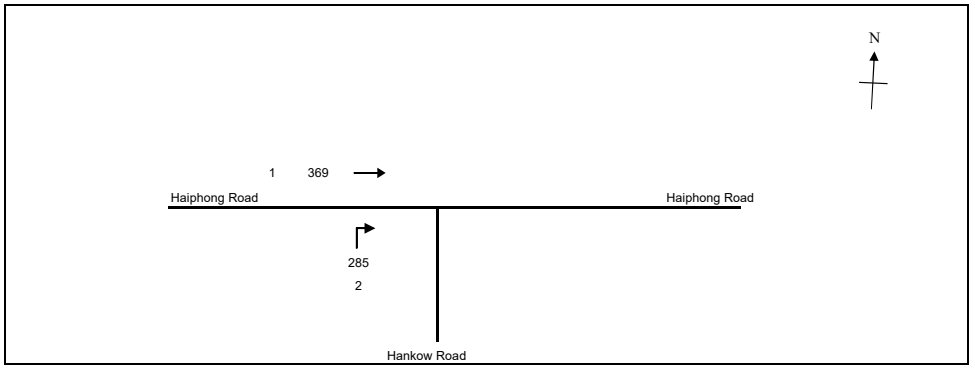
STAGE A	INT= 5	STAGE B	INT= 5	STAGE C	INT=	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3p	4	5	3	5	24	3	5	OK
4p	6	5	3	7	78	3	7	OK

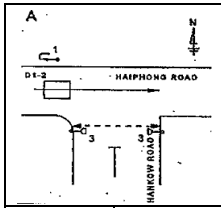
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				8				
1	A	3.20	1	2			N	4010		286		286	0.00	4010			4010	0.071	0.071		28	28	0.305	22
2	B	4.00	2	1	14		N	2015			388	388	1.00	1820			1820	0.213	0.213		84	84	0.304	23

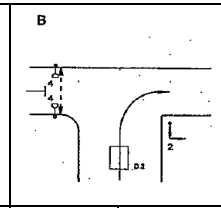
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Redevelopment at No. 43-49A Hankow Road, Tsim Sha Tsui		PROJECT NO: 282303-24	JUNCTION NO: J3
Hankow Road / Haiphong Road	2030 Design Weekend Peak (Under Proposed Scheme)	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	2
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.248
Loss time		L =	8 sec
Total Flow		=	653 pcu
Co	= (1.5*L+5)/(1-Y)	=	22.6 sec
Cm	= L/(1-Y)	=	10.6 sec
Yult		=	0.840
R.C.ult	= (Yult-Y)/Y*100%	=	238.2 %
Cp	= 0.9*L/(0.9-Y)	=	11.0 sec
Ymax	= 1-L/C	=	0.933
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	238 %





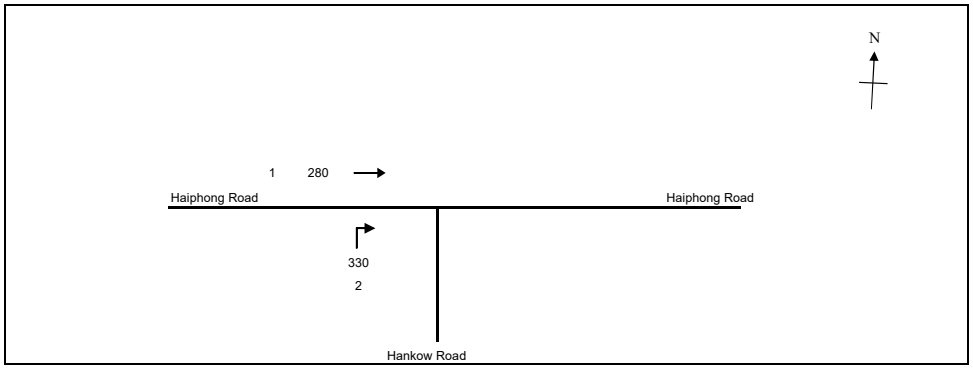
STAGE A	INT= 5	STAGE B	INT= 5	STAGE C	INT=	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3p	4	5	3	5	37	3	5	OK
4p	6	5	3	7	65	3	7	OK

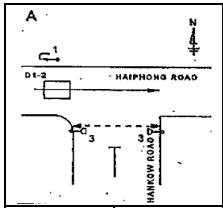
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				8				
1	A	3.20	1	2			N	4010		369		369	0.00	4010			4010	0.092	0.092		41	41	0.269	24
2	B	4.00	2	1	14		N	2015			285	285	1.00	1820			1820	0.156	0.156		71	71	0.264	23

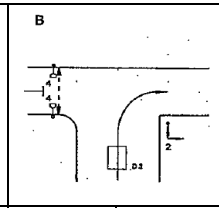
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Redevelopment at No. 43-49A Hankow Road, Tsim Sha Tsui		PROJECT NO: 282303-24	JUNCTION NO: J3
Hankow Road / Haiphong Road	2030 Design AM Peak (Under Approved Scheme)	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	2
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.251
Loss time		L =	8 sec
Total Flow		=	610 pcu
Co	= (1.5*L+5)/(1-Y)	=	22.7 sec
Cm	= L/(1-Y)	=	10.7 sec
Yult		=	0.840
R.C.ult	= (Yult-Y)/Y*100%	=	234.5 %
Cp	= 0.9*L/(0.9-Y)	=	11.1 sec
Ymax	= 1-L/C	=	0.933
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	235 %





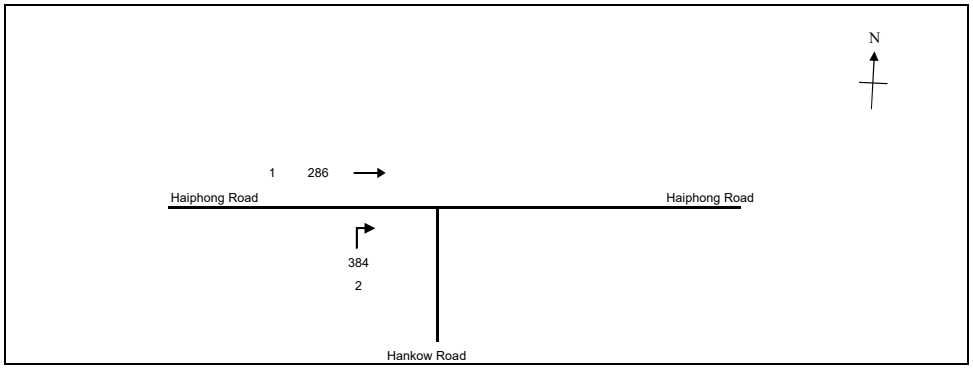
STAGE A	INT= 5	STAGE B	INT= 5	STAGE C	INT=	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3p	4	5	3	5	27	3	5	OK
4p	6	5	3	7	75	3	7	OK

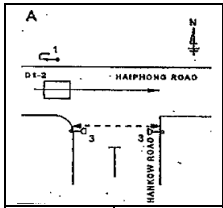
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				8				
1	A	3.20	1	2			N	4010		280		280	0.00	4010			4010	0.070	0.070		31	31	0.270	21
2	B	4.00	2	1	14		N	2015			330	330	1.00	1820			1820	0.181	0.181		81	81	0.268	21

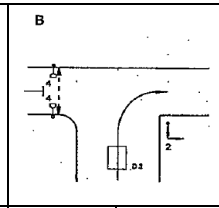
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Redevelopment at No. 43-49A Hankow Road, Tsim Sha Tsui		PROJECT NO: 282303-24	JUNCTION NO: J3
Hankow Road / Haiphong Road	2030 Design PM Peak (Under Approved Scheme)	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	2
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.282
Loss time		L =	8 sec
Total Flow		=	669 pcu
Co	= (1.5*L+5)/(1-Y)	=	23.7 sec
Cm	= L/(1-Y)	=	11.1 sec
Yult		=	0.840
R.C.ult	= (Yult-Y)/Y*100%	=	197.9 %
Cp	= 0.9*L/(0.9-Y)	=	11.6 sec
Ymax	= 1-L/C	=	0.933
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	198 %





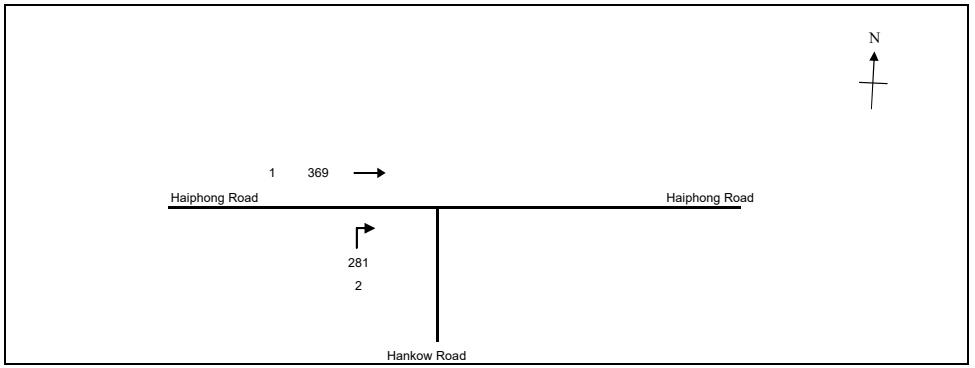
STAGE A	INT= 5	STAGE B	INT= 5	STAGE C	INT=	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3p	4	5	3	5	24	3	5	OK
4p	6	5	3	7	78	3	7	OK

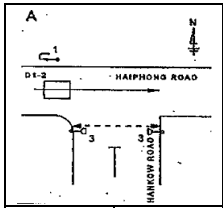
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				8				
1	A	3.20	1	2			N	4010		286		286	0.00	4010			4010	0.071	0.071		28	28	0.305	22
2	B	4.00	2	1	14		N	2015			384	384	1.00	1820			1820	0.211	0.211		84	84	0.301	23

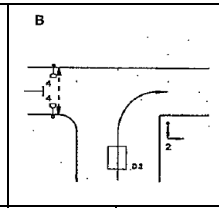
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Redevelopment at No. 43-49A Hankow Road, Tsim Sha Tsui		PROJECT NO: 282303-24	JUNCTION NO: J3
Hankow Road / Haiphong Road	2030 Design Weekend Peak (Under Approved Scheme)	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	2
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.246
Loss time		L =	8 sec
Total Flow		=	649 pcu
Co	= (1.5*L+5)/(1-Y)	=	22.6 sec
Cm	= L/(1-Y)	=	10.6 sec
Yult		=	0.840
R.C.ult	= (Yult-Y)/Y*100%	=	241.2 %
Cp	= 0.9*L/(0.9-Y)	=	11.0 sec
Ymax	= 1-L/C	=	0.933
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	241 %





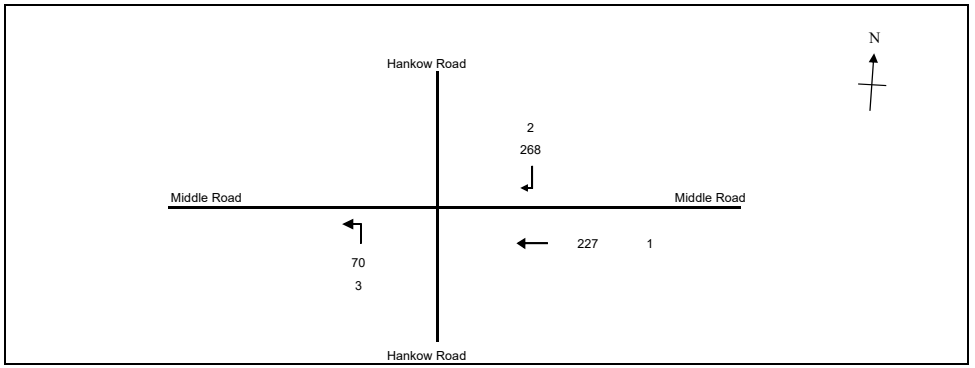
STAGE A	INT= 5	STAGE B	INT= 5	STAGE C	INT=	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3p	4	5	3	5	38	3	5	OK
4p	6	5	3	7	64	3	7	OK

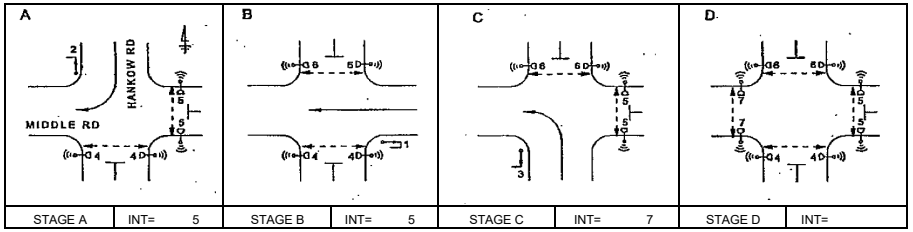
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				8				
1	A	3.20	1	2			N	4010		369		369	0.00	4010			4010	0.092	0.092		42	42	0.263	24
2	B	4.00	2	1	14		N	2015			281	281	1.00	1820			1820	0.154	0.154		70	70	0.264	23

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Redevelopment at No. 43-49A Hankow Road, Tsim Sha Tsui		PROJECT NO: 282303-24	JUNCTION NO: J4
Hankow Road / Middle Road	2023 Existing AM Peak	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	4	
No. of stage using for calculation		N =	3	
Cycle time		C =	120	sec
Sum(y)		Y =	0.146	
Loss time		L =	35	sec
Total Flow		=	565	pcu
Co	= (1.5*L+5)/(1-Y)	=	67.3	sec
Cm	= L/(1-Y)	=	41.0	sec
Yult		=	0.638	
R.C.ult	= (Yult-Y)/Y*100%	=	338.0	%
Cp	= 0.9*L/(0.9-Y)	=	41.8	sec
Ymax	= 1-L/C	=	0.708	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	338	%



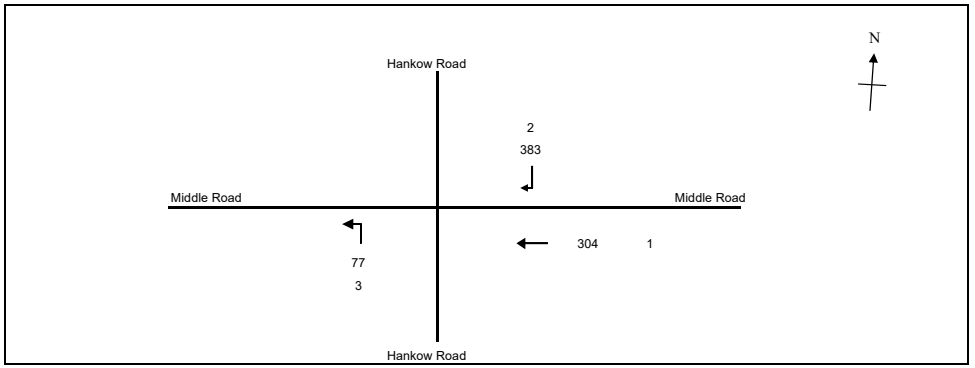
STAGE A	INT= 5	STAGE B	INT= 5	STAGE C	INT= 7	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
4p	10	6	1	11	91	1	11	OK
5p	10	6	3	11	70	3	11	OK
6p	8	5	3	9	62	3	9	OK
7p	11	6	3	12	6	3	12	OK

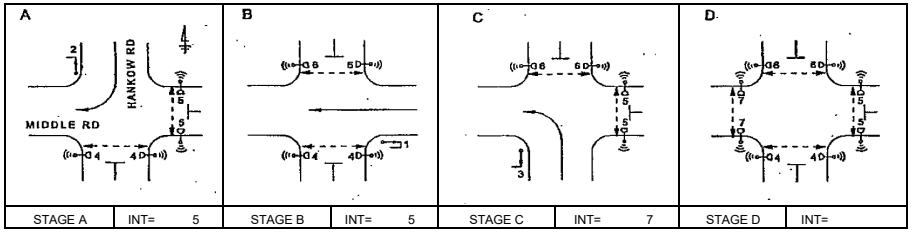
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				14				
2	A	3.60	1	2	16		N	4090			268	268	1.00	3739			3739	0.072	0.072		42	42	0.205	17
1	B	3.30	2	2			N	4030		227		227	0.00	4030		115	4145	0.055	0.055		32	32	0.206	17
3	C	2.60	3	2	16			4030	70			70	1.00	3685			3685	0.019	0.019		11	11	0.207	6
PED	D		4																	21				

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Redevelopment at No. 43-49A Hankow Road, Tsim Sha Tsui		PROJECT NO: 282303-24	JUNCTION NO: J4
Hankow Road / Middle Road	2023 Existing PM Peak	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	4	
No. of stage using for calculation		N =	3	
Cycle time		C =	120	sec
Sum(y)		Y =	0.196	
Loss time		L =	35	sec
Total Flow		=	763	pcu
Co	= (1.5*L+5)/(1-Y)	=	71.6	sec
Cm	= L/(1-Y)	=	43.6	sec
Yult		=	0.638	
R.C.ult	= (Yult-Y)/Y*100%	=	224.4	%
Cp	= 0.9*L/(0.9-Y)	=	44.8	sec
Ymax	= 1-L/C	=	0.708	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	224	%



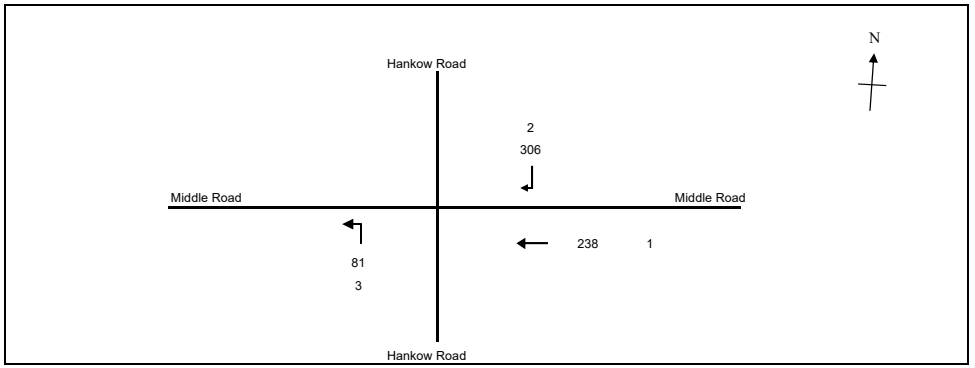
STAGE A	INT= 5	STAGE B	INT= 5	STAGE C	INT= 7	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
4p	10	6	1	11	93	1	11	OK
5p	10	6	3	11	70	3	11	OK
6p	8	5	3	9	60	3	9	OK
7p	11	6	3	12	6	3	12	OK

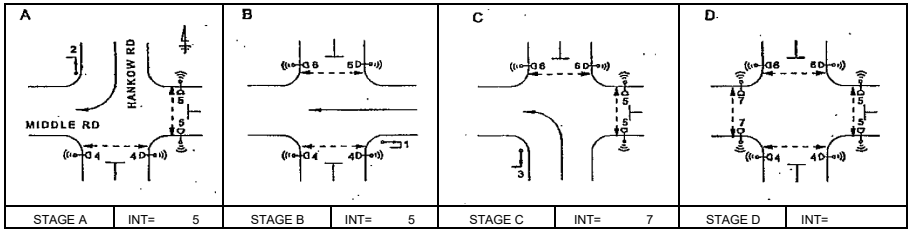
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				14				
2	A	3.60	1	2	16		N	4090			383	383	1.00	3739			3739	0.102	0.102		44	44	0.279	24
1	B	3.30	2	2			N	4030		304		304	0.00	4030		115	4145	0.073	0.073		32	32	0.275	22
3	C	2.60	3	2	16			4030	77			77	1.00	3685			3685	0.021	0.021		9	9	0.278	7
PED	D		4																	21				

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Redevelopment at No. 43-49A Hankow Road, Tsim Sha Tsui		PROJECT NO: 282303-24	JUNCTION NO: J4
Hankow Road / Middle Road	2023 Existing Weekend Peak	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.161
Loss time		L =	35 sec
Total Flow		=	625 pcu
Co	= (1.5*L+5)/(1-Y)	=	68.5 sec
Cm	= L/(1-Y)	=	41.7 sec
Yult		=	0.638
R.C.ult	= (Yult-Y)/Y*100%	=	295.5 %
Cp	= 0.9*L/(0.9-Y)	=	42.6 sec
Ymax	= 1-L/C	=	0.708
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	296 %



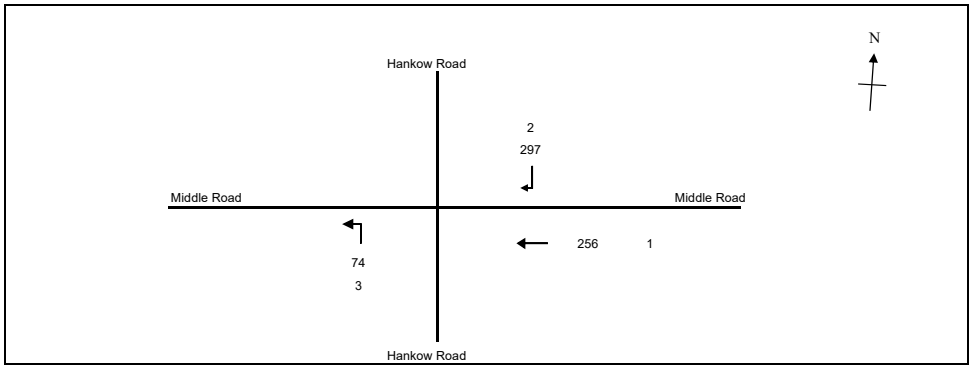
STAGE A	INT= 5	STAGE B	INT= 5	STAGE C	INT= 7	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
4p	10	6	1	11	90	1	11	OK
5p	10	6	3	11	72	3	11	OK
6p	8	5	3	9	61	3	9	OK
7p	11	6	3	12	6	3	12	OK

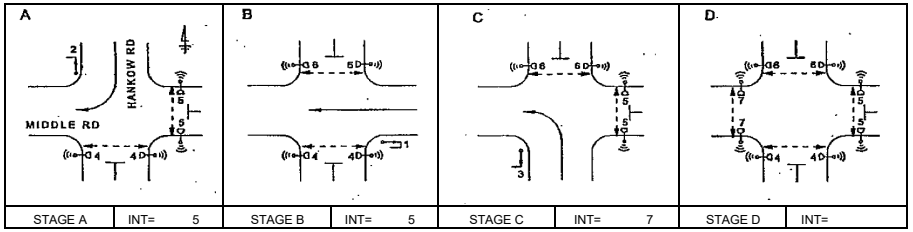
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				14				
2	A	3.60	1	2	16		N	4090			306	306	1.00	3739			3739	0.082	0.082		43	43	0.228	20
1	B	3.30	2	2			N	4030		238		238	0.00	4030		115	4145	0.057	0.057		30	30	0.230	18
3	C	2.60	3	2	16			4030	81			81	1.00	3685			3685	0.022	0.022		12	12	0.219	7
PED	D		4																	21				

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Redevelopment at No. 43-49A Hankow Road, Tsim Sha Tsui		PROJECT NO: 282303-24	JUNCTION NO: J4
Hankow Road / Middle Road	2030 Reference AM Peak	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	4	
No. of stage using for calculation		N =	3	
Cycle time		C =	120	sec
Sum(y)		Y =	0.161	
Loss time		L =	35	sec
Total Flow		=	627	pcu
Co	= (1.5*L+5)/(1-Y)	=	68.6	sec
Cm	= L/(1-Y)	=	41.7	sec
Yult		=	0.638	
R.C.ult	= (Yult-Y)/Y*100%	=	295.2	%
Cp	= 0.9*L/(0.9-Y)	=	42.6	sec
Ymax	= 1-L/C	=	0.708	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	295	%



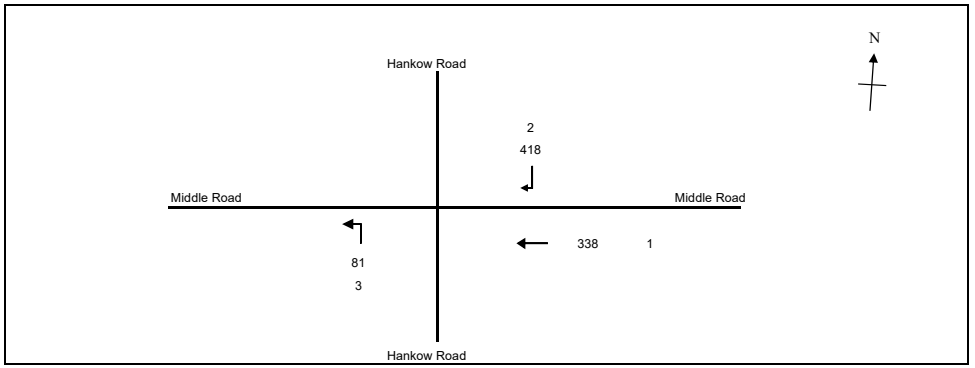
STAGE A	INT= 5	STAGE B	INT= 5	STAGE C	INT= 7	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
4p	10	6	1	11	92	1	11	OK
5p	10	6	3	11	70	3	11	OK
6p	8	5	3	9	63	3	9	OK
7p	11	6	3	12	6	3	12	OK

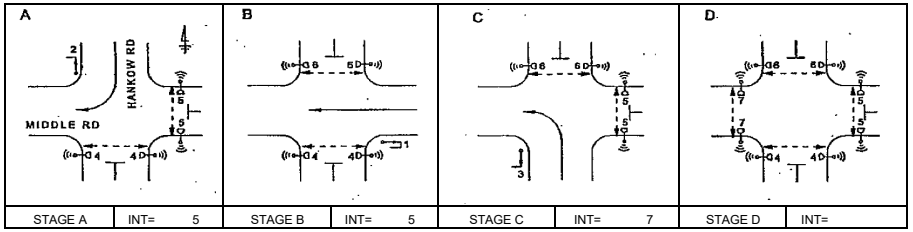
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				14				
2	A	3.60	1	2	16		N	4090			297	297	1.00	3739			3739	0.079	0.079		42	42	0.227	19
1	B	3.30	2	2			N	4030		256		256	0.00	4030		115	4145	0.062	0.062		33	33	0.224	19
3	C	2.60	3	2	16			4030	74			74	1.00	3685			3685	0.020	0.020		11	11	0.220	7
PED	D		4																	21				

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Redevelopment at No. 43-49A Hankow Road, Tsim Sha Tsui		PROJECT NO: 282303-24	JUNCTION NO: J4
Hankow Road / Middle Road	2030 Reference PM Peak	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	4	
No. of stage using for calculation		N =	3	
Cycle time		C =	120	sec
Sum(y)		Y =	0.215	
Loss time		L =	35	sec
Total Flow		=	837	pcu
Co	= (1.5*L+5)/(1-Y)	=	73.3	sec
Cm	= L/(1-Y)	=	44.6	sec
Yult		=	0.638	
R.C.ult	= (Yult-Y)/Y*100%	=	196.1	%
Cp	= 0.9*L/(0.9-Y)	=	46.0	sec
Ymax	= 1-L/C	=	0.708	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	196	%



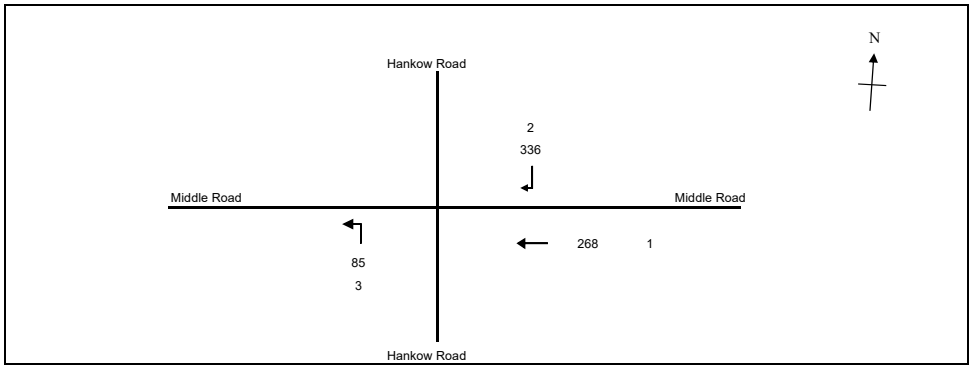
STAGE A	INT= 5	STAGE B	INT= 5	STAGE C	INT= 7	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
4p	10	6	1	11	93	1	11	OK
5p	10	6	3	11	70	3	11	OK
6p	8	5	3	9	60	3	9	OK
7p	11	6	3	12	6	3	12	OK

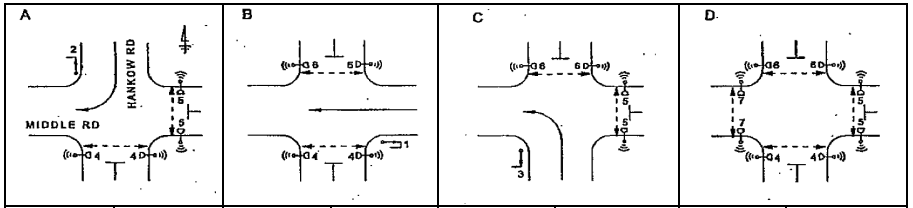
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				14				
2	A	3.60	1	2	16		N	4090			418	418	1.00	3739			3739	0.112	0.112		44	44	0.305	26
1	B	3.30	2	2			N	4030		338		338	0.00	4030		115	4145	0.081	0.081		32	32	0.306	25
3	C	2.60	3	2	16			4030	81			81	1.00	3685			3685	0.022	0.022		9	9	0.294	8
PED	D		4																	21				

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Redevelopment at No. 43-49A Hankow Road, Tsim Sha Tsui		PROJECT NO: 282303-24	JUNCTION NO: J4
Hankow Road / Middle Road	2030 Reference Weekend Peak	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.178
Loss time		L =	35 sec
Total Flow		=	690 pcu
Co	= (1.5*L+5)/(1-Y)	=	69.9 sec
Cm	= L/(1-Y)	=	42.6 sec
Yult		=	0.638
R.C.ult	= (Yult-Y)/Y*100%	=	258.5 %
Cp	= 0.9*L/(0.9-Y)	=	43.6 sec
Ymax	= 1-L/C	=	0.708
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	258 %



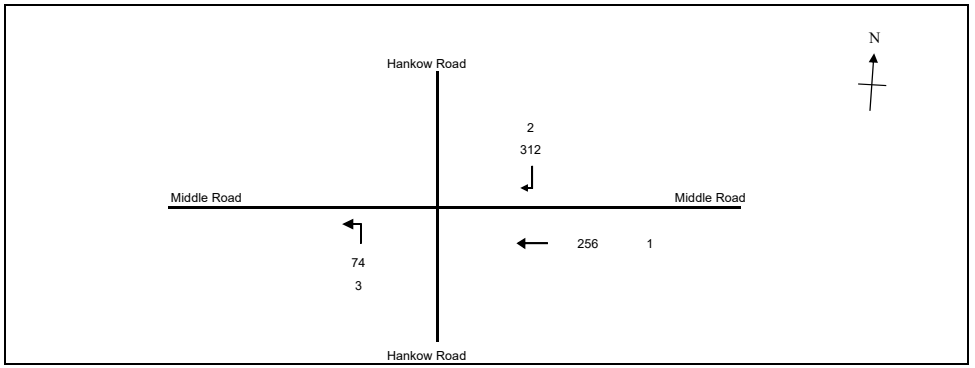
STAGE A	INT= 5	STAGE B	INT= 5	STAGE C	INT= 7	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
4p	10	6	1	11	91	1	11	OK
5p	10	6	3	11	71	3	11	OK
6p	8	5	3	9	61	3	9	OK
7p	11	6	3	12	6	3	12	OK

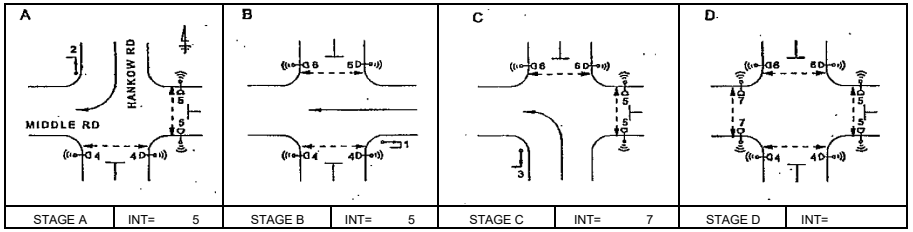
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				14				
2	A	3.60	1	2	16		N	4090			336	336	1.00	3739			3739	0.090	0.090		43	43	0.251	22
1	B	3.30	2	2			N	4030		268		268	0.00	4030		115	4145	0.065	0.065		31	31	0.251	20
3	C	2.60	3	2	16			4030	85			85	1.00	3685			3685	0.023	0.023		11	11	0.253	8
PED	D		4																	21				

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Redevelopment at No. 43-49A Hankow Road, Tsim Sha Tsui		PROJECT NO: 282303-24	JUNCTION NO: J4
Hankow Road / Middle Road	2030 Design AM Peak (Under Proposed Scheme)	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	4	
No. of stage using for calculation		N =	3	
Cycle time		C =	120	sec
Sum(y)		Y =	0.165	
Loss time		L =	35	sec
Total Flow		=	642	pcu
Co	= (1.5*L+5)/(1-Y)	=	68.9	sec
Cm	= L/(1-Y)	=	41.9	sec
Yult		=	0.638	
R.C.ult	= (Yult-Y)/Y*100%	=	285.6	%
Cp	= 0.9*L/(0.9-Y)	=	42.9	sec
Ymax	= 1-L/C	=	0.708	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	286	%



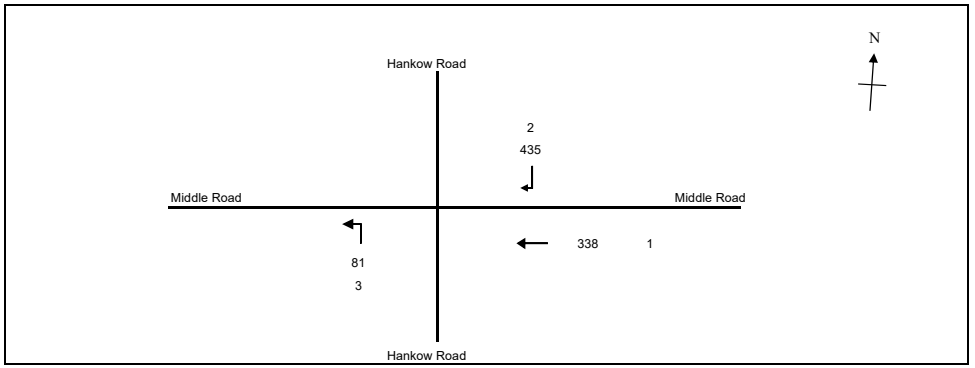
STAGE A	INT= 5	STAGE B	INT= 5	STAGE C	INT= 7	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
4p	10	6	1	11	92	1	11	OK
5p	10	6	3	11	70	3	11	OK
6p	8	5	3	9	61	3	9	OK
7p	11	6	3	12	6	3	12	OK

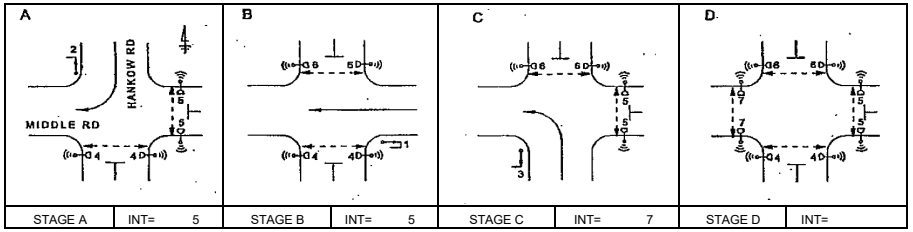
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				14				
2	A	3.60	1	2	16		N	4090			312	312	1.00	3739			3739	0.083	0.083		43	43	0.233	20
1	B	3.30	2	2			N	4030		256		256	0.00	4030		115	4145	0.062	0.062		32	32	0.231	19
3	C	2.60	3	2	16			4030	74			74	1.00	3685			3685	0.020	0.020		10	10	0.242	7
PED	D		4																	21				

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Redevelopment at No. 43-49A Hankow Road, Tsim Sha Tsui		PROJECT NO: 282303-24	JUNCTION NO: J4
Hankow Road / Middle Road	2030 Design PM Peak (Under Proposed Scheme)	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	4	
No. of stage using for calculation		N =	3	
Cycle time		C =	120	sec
Sum(y)		Y =	0.220	
Loss time		L =	35	sec
Total Flow		=	854	pcu
Co	= (1.5*L+5)/(1-Y)	=	73.7	sec
Cm	= L/(1-Y)	=	44.9	sec
Yult		=	0.638	
R.C.ult	= (Yult-Y)/Y*100%	=	190.0	%
Cp	= 0.9*L/(0.9-Y)	=	46.3	sec
Ymax	= 1-L/C	=	0.708	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	190	%



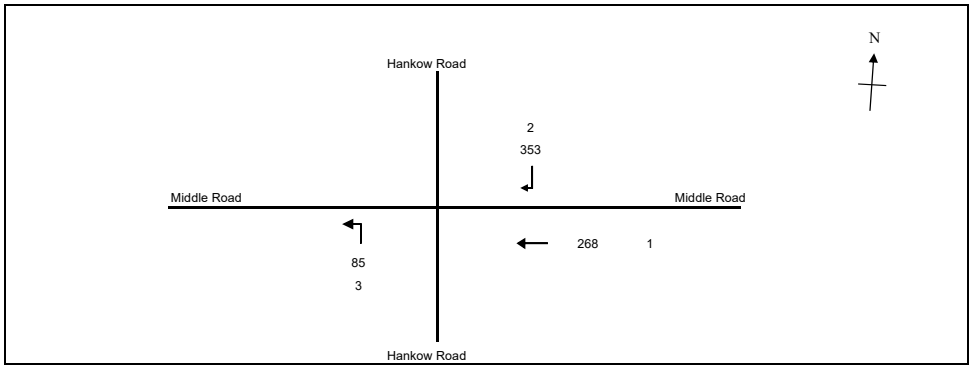
STAGE A	INT= 5	STAGE B	INT= 5	STAGE C	INT= 7	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
4p	10	6	1	11	94	1	11	OK
5p	10	6	3	11	71	3	11	OK
6p	8	5	3	9	60	3	9	OK
7p	11	6	3	12	6	3	12	OK

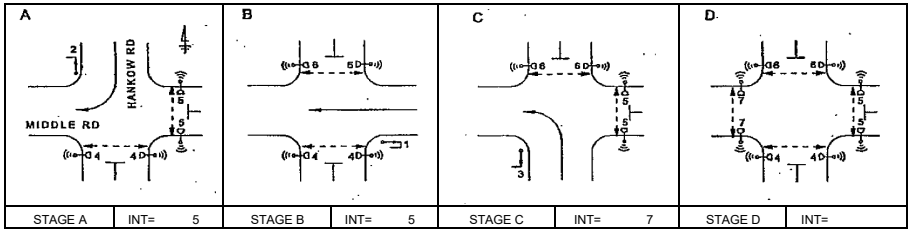
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				14				
2	A	3.60	1	2	16		N	4090			435	435	1.00	3739			3739	0.116	0.116		45	45	0.310	27
1	B	3.30	2	2			N	4030		338		338	0.00	4030		115	4145	0.081	0.081		32	32	0.306	25
3	C	2.60	3	2	16			4030	81			81	1.00	3685			3685	0.022	0.022		9	9	0.294	8
PED	D		4																	21				

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Redevelopment at No. 43-49A Hankow Road, Tsim Sha Tsui		PROJECT NO: 282303-24	JUNCTION NO: J4
Hankow Road / Middle Road	2030 Design Weekend Peak (Under Proposed Scheme)	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.182
Loss time		L =	35 sec
Total Flow		=	707 pcu
Co	= (1.5*L+5)/(1-Y)	=	70.3 sec
Cm	= L/(1-Y)	=	42.8 sec
Yult		=	0.638
R.C.ult	= (Yult-Y)/Y*100%	=	249.5 %
Cp	= 0.9*L/(0.9-Y)	=	43.9 sec
Ymax	= 1-L/C	=	0.708
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	250 %



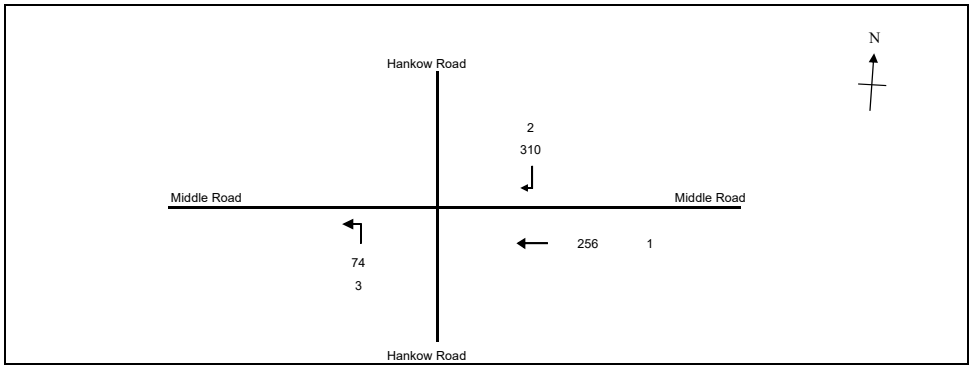
STAGE A	INT= 5	STAGE B	INT= 5	STAGE C	INT= 7	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
4p	10	6	1	11	91	1	11	OK
5p	10	6	3	11	72	3	11	OK
6p	8	5	3	9	60	3	9	OK
7p	11	6	3	12	6	3	12	OK

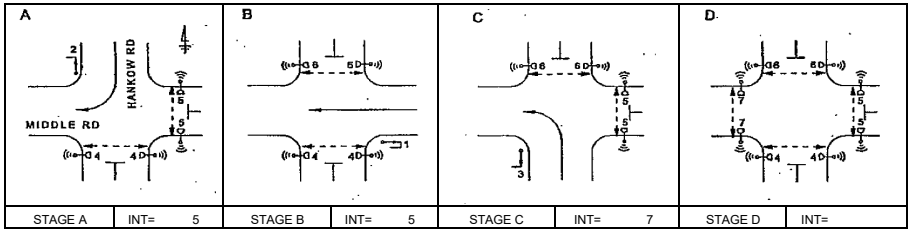
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				14				
2	A	3.60	1	2	16		N	4090			353	353	1.00	3739			3739	0.094	0.094		44	44	0.258	22
1	B	3.30	2	2			N	4030		268		268	0.00	4030		115	4145	0.065	0.065		30	30	0.259	20
3	C	2.60	3	2	16			4030	85			85	1.00	3685			3685	0.023	0.023		11	11	0.253	8
PED	D		4																	21				

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Redevelopment at No. 43-49A Hankow Road, Tsim Sha Tsui		PROJECT NO: 282303-24	JUNCTION NO: J4
Hankow Road / Middle Road	2030 Design AM Peak (Under Approved Scheme)	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	4	
No. of stage using for calculation		N =	3	
Cycle time		C =	120	sec
Sum(y)		Y =	0.165	
Loss time		L =	35	sec
Total Flow		=	640	pcu
Co	= (1.5*L+5)/(1-Y)	=	68.8	sec
Cm	= L/(1-Y)	=	41.9	sec
Yult		=	0.638	
R.C.ult	= (Yult-Y)/Y*100%	=	286.9	%
Cp	= 0.9*L/(0.9-Y)	=	42.8	sec
Ymax	= 1-L/C	=	0.708	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	287	%



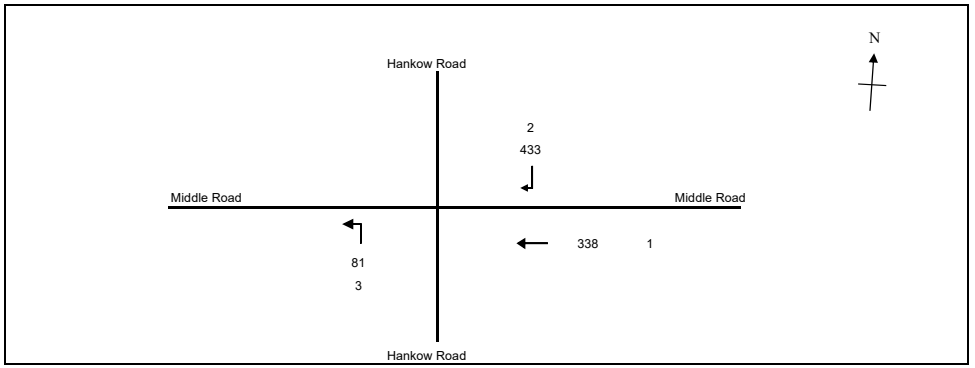
STAGE A	INT= 5	STAGE B	INT= 5	STAGE C	INT= 7	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
4p	10	6	1	11	92	1	11	OK
5p	10	6	3	11	70	3	11	OK
6p	8	5	3	9	61	3	9	OK
7p	11	6	3	12	6	3	12	OK

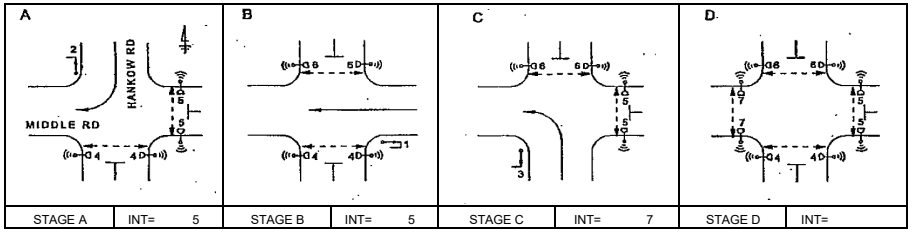
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				14				
2	A	3.60	1	2	16		N	4090			310	310	1.00	3739			3739	0.083	0.083		43	43	0.231	20
1	B	3.30	2	2			N	4030		256		256	0.00	4030		115	4145	0.062	0.062		32	32	0.231	19
3	C	2.60	3	2	16			4030	74			74	1.00	3685			3685	0.020	0.020		10	10	0.242	7
PED	D		4																	21				

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Redevelopment at No. 43-49A Hankow Road, Tsim Sha Tsui		PROJECT NO: 282303-24	JUNCTION NO: J4
Hankow Road / Middle Road	2030 Design PM Peak (Under Approved Scheme)	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	4	
No. of stage using for calculation		N =	3	
Cycle time		C =	120	sec
Sum(y)		Y =	0.219	
Loss time		L =	35	sec
Total Flow		=	852	pcu
Co	= (1.5*L+5)/(1-Y)	=	73.7	sec
Cm	= L/(1-Y)	=	44.8	sec
Yult		=	0.638	
R.C.ult	= (Yult-Y)/Y*100%	=	190.7	%
Cp	= 0.9*L/(0.9-Y)	=	46.3	sec
Ymax	= 1-L/C	=	0.708	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	191	%



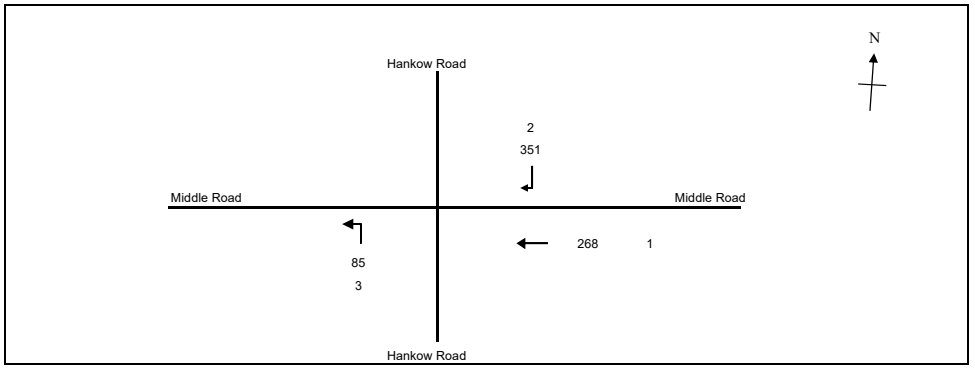
STAGE A	INT= 5	STAGE B	INT= 5	STAGE C	INT= 7	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
4p	10	6	1	11	94	1	11	OK
5p	10	6	3	11	71	3	11	OK
6p	8	5	3	9	60	3	9	OK
7p	11	6	3	12	6	3	12	OK

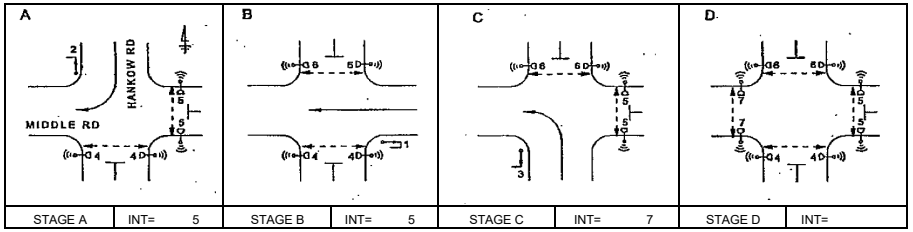
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				14				
2	A	3.60	1	2	16		N	4090			433	433	1.00	3739			3739	0.116	0.116		45	45	0.309	27
1	B	3.30	2	2			N	4030		338		338	0.00	4030		115	4145	0.081	0.081		32	32	0.306	25
3	C	2.60	3	2	16			4030	81			81	1.00	3685			3685	0.022	0.022		9	9	0.294	8
PED	D		4																	21				

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Redevelopment at No. 43-49A Hankow Road, Tsim Sha Tsui		PROJECT NO: 282303-24	JUNCTION NO: J4
Hankow Road / Middle Road	2030 Design Weekend Peak (Under Approved Scheme)	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	4
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.182
Loss time		L =	35 sec
Total Flow		=	705 pcu
Co	= (1.5*L+5)/(1-Y)	=	70.3 sec
Cm	= L/(1-Y)	=	42.8 sec
Yult		=	0.638
R.C.ult	= (Yult-Y)/Y*100%	=	250.5 %
Cp	= 0.9*L/(0.9-Y)	=	43.9 sec
Ymax	= 1-L/C	=	0.708
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	251 %



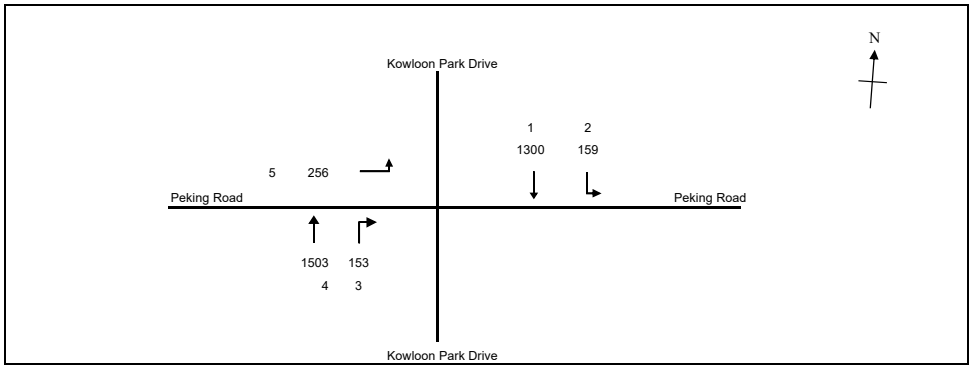
STAGE A	INT= 5	STAGE B	INT= 5	STAGE C	INT= 7	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
4p	10	6	1	11	91	1	11	OK
5p	10	6	3	11	72	3	11	OK
6p	8	5	3	9	60	3	9	OK
7p	11	6	3	12	6	3	12	OK

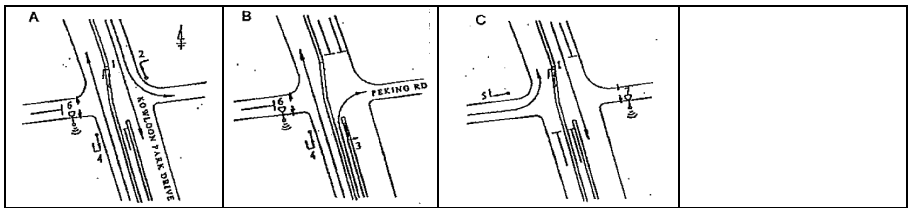
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				14				
2	A	3.60	1	2	16		N	4090			351	351	1.00	3739			3739	0.094	0.094		44	44	0.256	22
1	B	3.30	2	2			N	4030		268		268	0.00	4030		115	4145	0.065	0.065		30	30	0.259	20
3	C	2.60	3	2	16			4030	85			85	1.00	3685			3685	0.023	0.023		11	11	0.253	8
PED	D		4																	21				

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J5
Kowloon Park Drive / Peking Road	2023 Existing AM Peak	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle	N =	3
No. of stage using for calculation	N =	3
Cycle time	C =	120 sec
Sum(y)	Y =	0.447
Loss time	L =	7 sec
Total Flow	=	3370 pcu
Co = (1.5*L+5)/(1-Y)	=	28.0 sec
Cm = L/(1-Y)	=	12.7 sec
Yult	=	0.848
R.C.ult = (Yult-Y)/Y*100%	=	89.7 %
Cp = 0.9*L/(0.9-Y)	=	13.9 sec
Ymax = 1-L/C	=	0.942
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	90 %



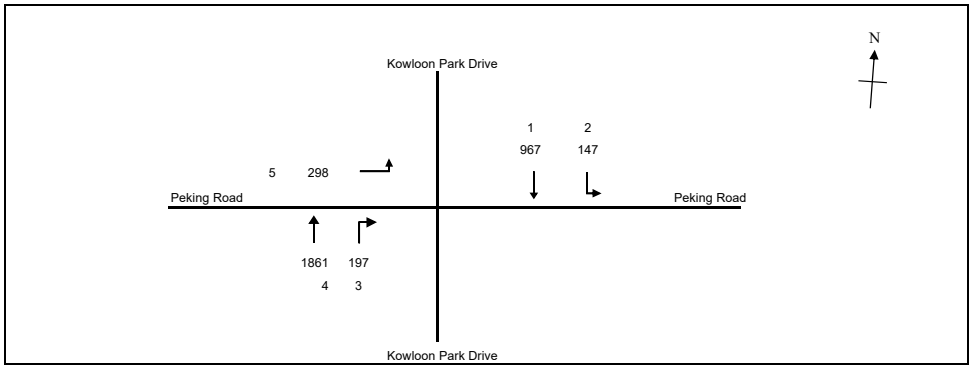
STAGE A	INT= 5	STAGE B	INT= 5	STAGE C	INT= 5	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
6p	8	5	3	9	85	3	9	OK
7p	5.5	5	7	6	10	7	6	OK

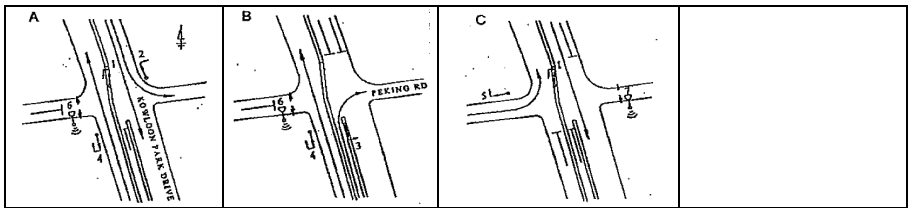
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				7				
1	A,C	3.30	1	2				4170		1300		1300	0.00	4170			4170	0.312			79	79	0.471	44
2	A	3.00	2	1	8		N	1915	159			159	1.00	1613			1613	0.099			25	56	0.210	17
3	B	3.40	3	1	15			2095			153	153	1.00	1905			1905	0.080			20	33	0.296	22
4	A,B	3.30	4	2			N	4030		1503		1503	0.00	4030			4030	0.373	0.373		94	94	0.476	33
5	C	3.30	5	2	9		N	4030	256			256	1.00	3454			3454	0.074	0.074		19	19	0.467	22

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J5
Kowloon Park Drive / Peking Road	2023 Existing PM Peak	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle	N =	3
No. of stage using for calculation	N =	3
Cycle time	C =	120 sec
Sum(y)	Y =	0.548
Loss time	L =	7 sec
Total Flow	=	3469 pcu
Co = (1.5*L+5)/(1-Y)	=	34.3 sec
Cm = L/(1-Y)	=	15.5 sec
Yult	=	0.848
R.C.ult = (Yult-Y)/Y*100%	=	54.7 %
Cp = 0.9*L/(0.9-Y)	=	17.9 sec
Ymax = 1-L/C	=	0.942
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	55 %



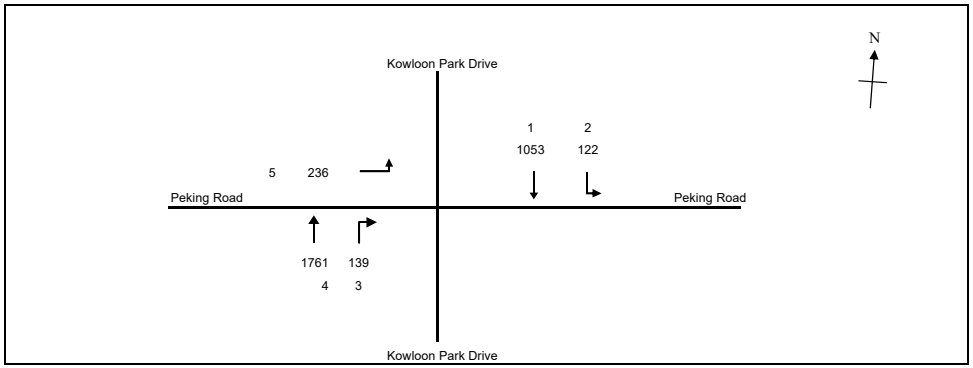
STAGE A	INT= 5	STAGE B	INT= 5	STAGE C	INT= 5	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
6p	8	5	3	9	86	3	9	OK
7p	5.5	5	7	6	9	7	6	OK

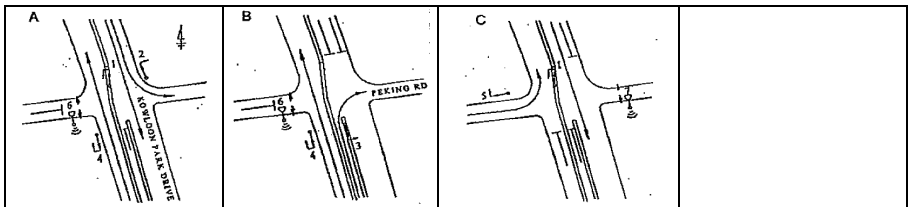
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				7				
1	A,C	3.30	1	2				4170		967		967	0.00	4170			4170	0.232			48	65	0.430	45
2	A	3.00	2	1	8		N	1915	147			147	1.00	1613			1613	0.091			19	43	0.255	19
3	B	3.40	3	1	15			2095			197	197	1.00	1905			1905	0.103			21	47	0.262	24
4	A,B	3.30	4	2			N	4030		1861		1861	0.00	4030			4030	0.462	0.462		95	95	0.583	39
5	C	3.30	5	2	9		N	4030	298			298	1.00	3454			3454	0.086	0.086		18	18	0.575	25

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J5
Kowloon Park Drive / Peking Road	2023 Existing Weekend Peak	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle	N =	3
No. of stage using for calculation	N =	3
Cycle time	C =	120 sec
Sum(y)	Y =	0.505
Loss time	L =	7 sec
Total Flow	=	3311 pcu
Co = (1.5*L+5)/(1-Y)	=	31.3 sec
Cm = L/(1-Y)	=	14.1 sec
Yult	=	0.848
R.C.ult = (Yult-Y)/Y*100%	=	67.8 %
Cp = 0.9*L/(0.9-Y)	=	16.0 sec
Ymax = 1-L/C	=	0.942
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	68 %



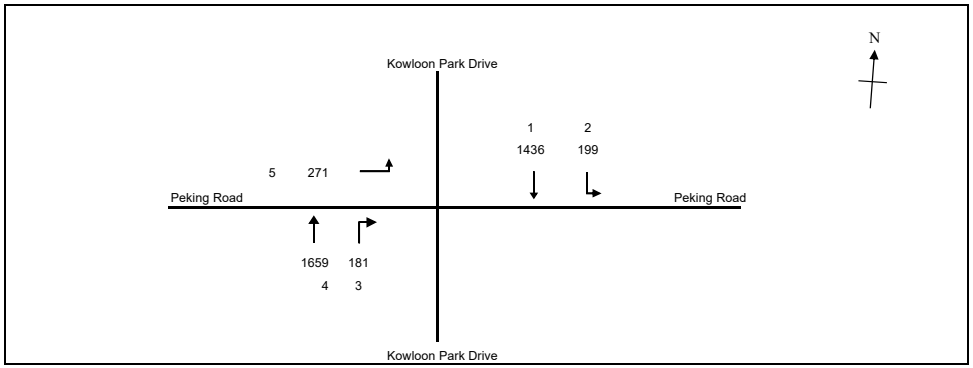
STAGE A	INT= 5	STAGE B	INT= 5	STAGE C	INT= 5	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
6p	8	5	3	9	89	3	9	OK
7p	5.5	5	7	6	6	7	6	OK

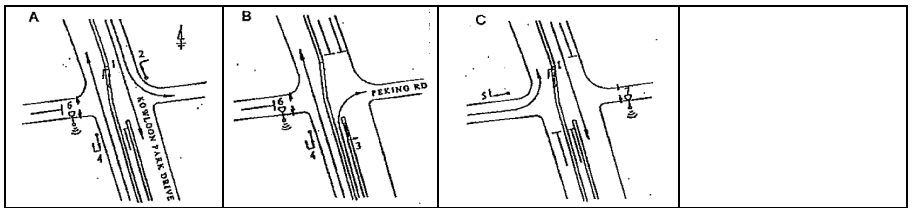
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				7				
1	A,C	3.30	1	2				4170		1053		1053	0.00	4170			4170	0.253			57	67	0.453	47
2	A	3.00	2	1	8		N	1915	122			122	1.00	1613			1613	0.075			17	48	0.189	15
3	B	3.40	3	1	15			2095			139	139	1.00	1905			1905	0.073			16	45	0.194	17
4	A,B	3.30	4	2			N	4030		1761		1761	0.00	4030			4030	0.437	0.437		98	98	0.535	32
5	C	3.30	5	2	9		N	4030	236			236	1.00	3454			3454	0.068	0.068		15	15	0.546	21

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J5
Kowloon Park Drive / Peking Road	2030 Reference AM Peak	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle	N =	3
No. of stage using for calculation	N =	3
Cycle time	C =	120 sec
Sum(y)	Y =	0.490
Loss time	L =	7 sec
Total Flow	=	3746 pcu
Co = (1.5*L+5)/(1-Y)	=	30.4 sec
Cm = L/(1-Y)	=	13.7 sec
Yult	=	0.848
R.C.ult = (Yult-Y)/Y*100%	=	72.9 %
Cp = 0.9*L/(0.9-Y)	=	15.4 sec
Ymax = 1-L/C	=	0.942
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	73 %



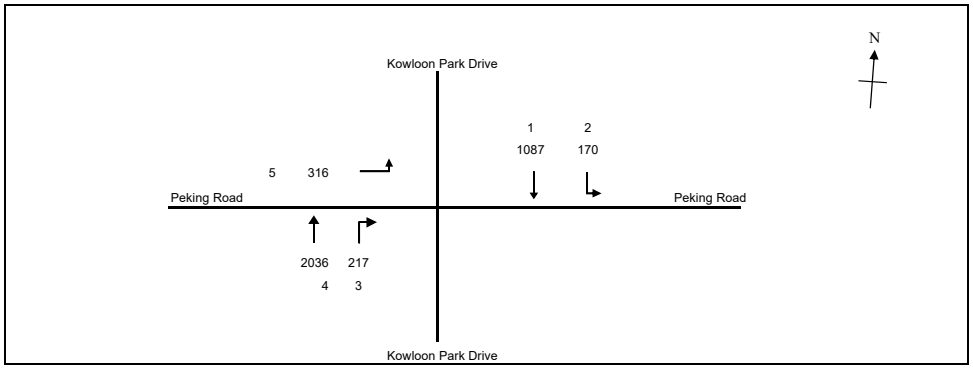
STAGE A	INT= 5	STAGE B	INT= 5	STAGE C	INT= 5	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
6p	8	5	3	9	86	3	9	OK
7p	5.5	5	7	6	9	7	6	OK

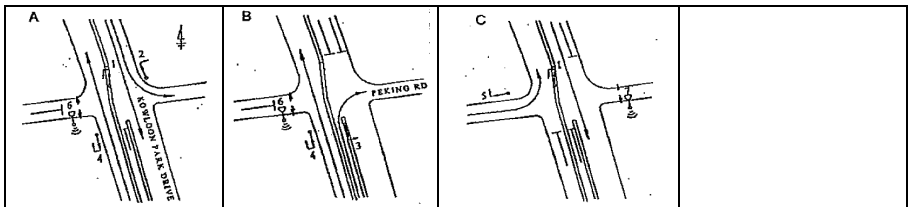
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				7				
1	A,C	3.30	1	2				4170		1436		1436	0.00	4170			4170	0.344			79	79	0.522	49
2	A	3.00	2	1	8		N	1915	199			199	1.00	1613			1613	0.124			29	57	0.260	21
3	B	3.40	3	1	15			2095			181	181	1.00	1905			1905	0.095			22	33	0.347	26
4	A,B	3.30	4	2			N	4030		1659		1659	0.00	4030			4030	0.412	0.412		95	95	0.520	35
5	C	3.30	5	2	9		N	4030	271			271	1.00	3454			3454	0.078	0.078		18	18	0.523	23

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J5
Kowloon Park Drive / Peking Road	2030 Reference PM Peak	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle	N =	3
No. of stage using for calculation	N =	3
Cycle time	C =	120 sec
Sum(y)	Y =	0.596
Loss time	L =	7 sec
Total Flow	=	3825 pcu
Co = (1.5*L+5)/(1-Y)	=	38.4 sec
Cm = L/(1-Y)	=	17.3 sec
Yult	=	0.848
R.C.ult = (Yult-Y)/Y*100%	=	42.1 %
Cp = 0.9*L/(0.9-Y)	=	20.8 sec
Ymax = 1-L/C	=	0.942
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	42 %



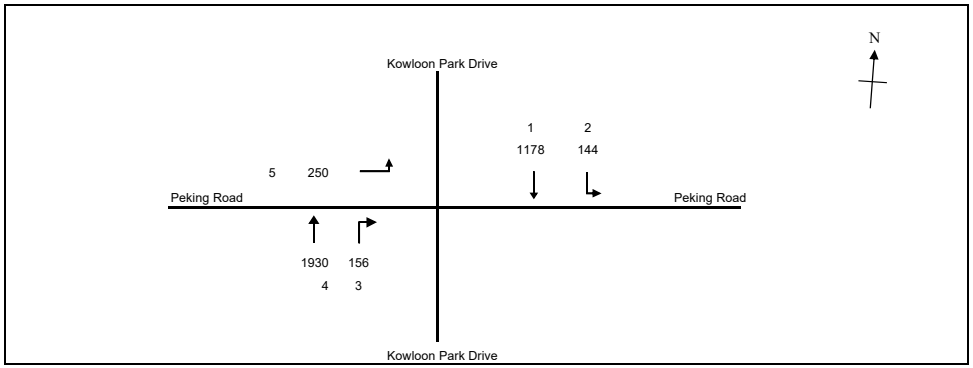
STAGE A	INT= 5	STAGE B	INT= 5	STAGE C	INT= 5	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
6p	8	5	3	9	87	3	9	OK
7p	5.5	5	7	6	8	7	6	OK

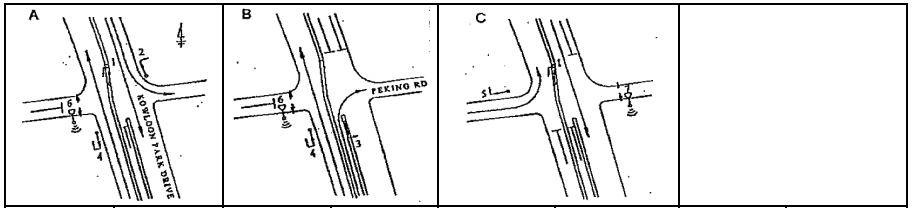
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				7				
1	A,C	3.30	1	2				4170		1087		1087	0.00	4170			4170	0.261			49	64	0.486	50
2	A	3.00	2	1	8		N	1915	170			170	1.00	1613			1613	0.106			20	43	0.293	22
3	B	3.40	3	1	15			2095			217	217	1.00	1905			1905	0.114			22	48	0.287	26
4	A,B	3.30	4	2			N	4030		2036		2036	0.00	4030			4030	0.505	0.505		96	96	0.631	41
5	C	3.30	5	2	9		N	4030	316			316	1.00	3454			3454	0.091	0.091		17	17	0.645	27

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J5
Kowloon Park Drive / Peking Road	2030 Reference Weekend Peak	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle	N =	3
No. of stage using for calculation	N =	3
Cycle time	C =	120 sec
Sum(y)	Y =	0.551
Loss time	L =	7 sec
Total Flow	=	3658 pcu
Co = (1.5*L+5)/(1-Y)	=	34.5 sec
Cm = L/(1-Y)	=	15.6 sec
Yult	=	0.848
R.C.ult = (Yult-Y)/Y*100%	=	53.8 %
Cp = 0.9*L/(0.9-Y)	=	18.1 sec
Ymax = 1-L/C	=	0.942
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	54 %



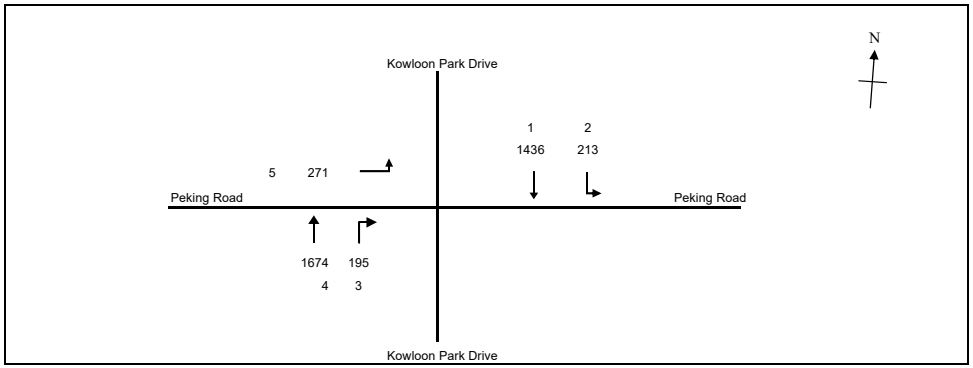
STAGE A	INT= 5	STAGE B	INT= 5	STAGE C	INT= 5	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
6p	8	5	3	9	89	3	9	OK
7p	5.5	5	7	6	6	7	6	OK

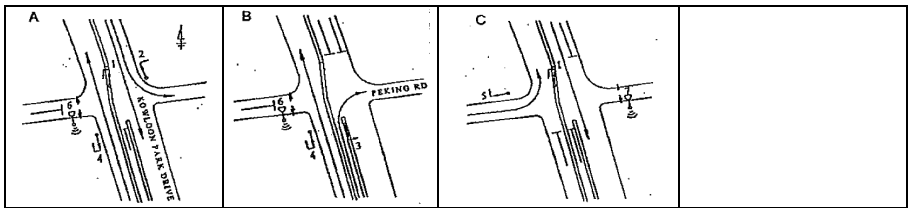
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				7				
1	A,C	3.30	1	2				4170		1178		1178	0.00	4170			4170	0.283			58	67	0.507	52
2	A	3.00	2	1	8		N	1915	144			144	1.00	1613			1613	0.089			18	48	0.224	17
3	B	3.40	3	1	15			2095			156	156	1.00	1905			1905	0.082			17	45	0.218	20
4	A,B	3.30	4	2			N	4030		1930		1930	0.00	4030			4030	0.479	0.479		98	98	0.586	35
5	C	3.30	5	2	9		N	4030	250			250	1.00	3454			3454	0.072	0.072		15	15	0.579	22

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J5
Kowloon Park Drive / Peking Road	2030 Design AM Peak (Under Proposed Scheme)	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle	N =	3
No. of stage using for calculation	N =	3
Cycle time	C =	120 sec
Sum(y)	Y =	0.494
Loss time	L =	7 sec
Total Flow	=	3789 pcu
Co = (1.5*L+5)/(1-Y)	=	30.6 sec
Cm = L/(1-Y)	=	13.8 sec
Yult	=	0.848
R.C.ult = (Yult-Y)/Y*100%	=	71.6 %
Cp = 0.9*L/(0.9-Y)	=	15.5 sec
Ymax = 1-L/C	=	0.942
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	72 %



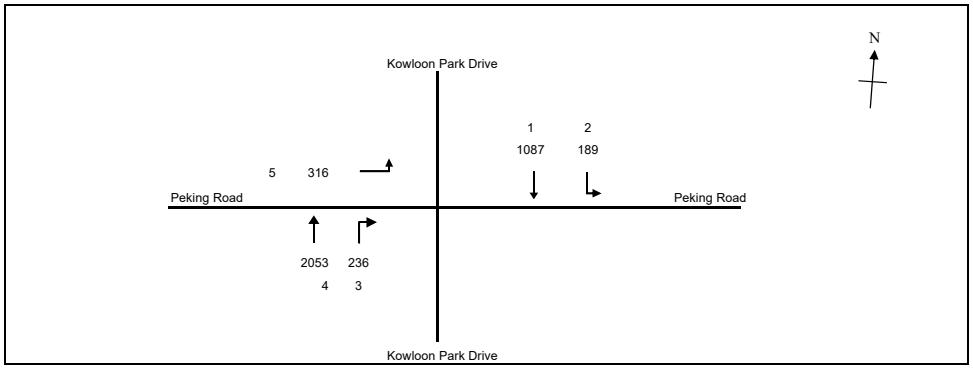
STAGE A	INT= 5	STAGE B	INT= 5	STAGE C	INT= 5	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
6p	8	5	3	9	86	3	9	OK
7p	5.5	5	7	6	9	7	6	OK

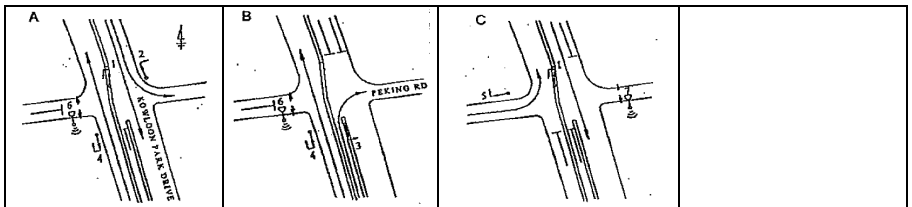
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				7				
1	A,C	3.30	1	2				4170		1436		1436	0.00	4170			4170	0.344			79	79	0.523	49
2	A	3.00	2	1	8		N	1915	213			213	1.00	1613			1613	0.132			30	57	0.279	22
3	B	3.40	3	1	15			2095			195	195	1.00	1905			1905	0.102			23	33	0.372	28
4	A,B	3.30	4	2			N	4030		1674		1674	0.00	4030			4030	0.415	0.415		95	95	0.525	35
5	C	3.30	5	2	9		N	4030	271			271	1.00	3454			3454	0.078	0.078		18	18	0.523	23

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J5
Kowloon Park Drive / Peking Road	2030 Design PM Peak (Under Proposed Scheme)	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle	N =	3
No. of stage using for calculation	N =	3
Cycle time	C =	120 sec
Sum(y)	Y =	0.601
Loss time	L =	7 sec
Total Flow	=	3880 pcu
Co = (1.5*L+5)/(1-Y)	=	38.8 sec
Cm = L/(1-Y)	=	17.5 sec
Yult	=	0.848
R.C.ult = (Yult-Y)/Y*100%	=	41.1 %
Cp = 0.9*L/(0.9-Y)	=	21.0 sec
Ymax = 1-L/C	=	0.942
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	41 %



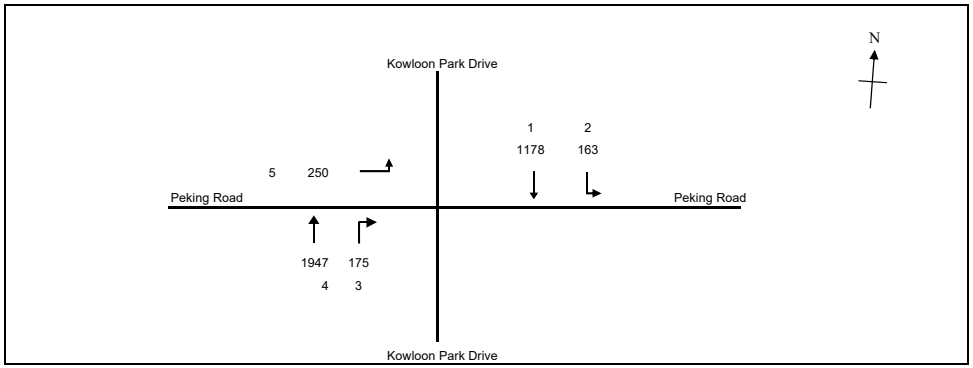
STAGE A	INT= 5	STAGE B	INT= 5	STAGE C	INT= 5	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
6p	8	5	3	9	87	3	9	OK
7p	5.5	5	7	6	8	7	6	OK

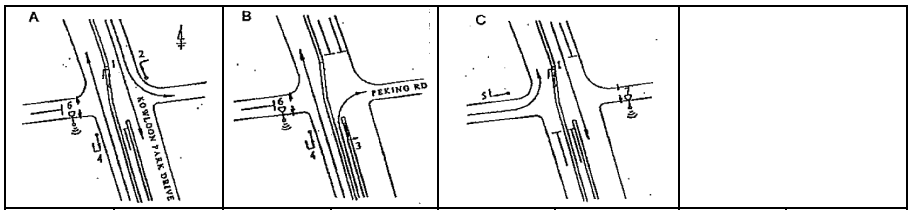
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				7				
1	A,C	3.30	1	2				4170		1087		1087	0.00	4170			4170	0.261			49	65	0.477	49
2	A	3.00	2	1	8		N	1915	189			189	1.00	1613			1613	0.117			22	44	0.317	24
3	B	3.40	3	1	15			2095			236	236	1.00	1905			1905	0.124			23	47	0.320	29
4	A,B	3.30	4	2			N	4030		2053		2053	0.00	4030			4030	0.509	0.509		96	96	0.637	41
5	C	3.30	5	2	9		N	4030	316			316	1.00	3454			3454	0.091	0.091		17	17	0.645	27

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J5
Kowloon Park Drive / Peking Road	2030 Design Weekend Peak (Under Proposed Scheme)	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle	N =	3
No. of stage using for calculation	N =	3
Cycle time	C =	120 sec
Sum(y)	Y =	0.555
Loss time	L =	7 sec
Total Flow	=	3713 pcu
Co = (1.5*L+5)/(1-Y)	=	34.9 sec
Cm = L/(1-Y)	=	15.7 sec
Yult	=	0.848
R.C.ult = (Yult-Y)/Y*100%	=	52.6 %
Cp = 0.9*L/(0.9-Y)	=	18.3 sec
Ymax = 1-L/C	=	0.942
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	53 %



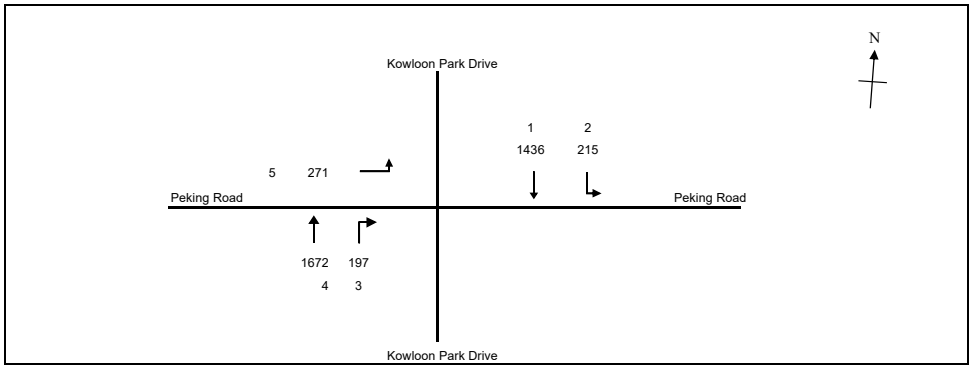
STAGE A	INT= 5	STAGE B	INT= 5	STAGE C	INT= 5	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
6p	8	5	3	9	89	3	9	OK
7p	5.5	5	7	6	6	7	6	OK

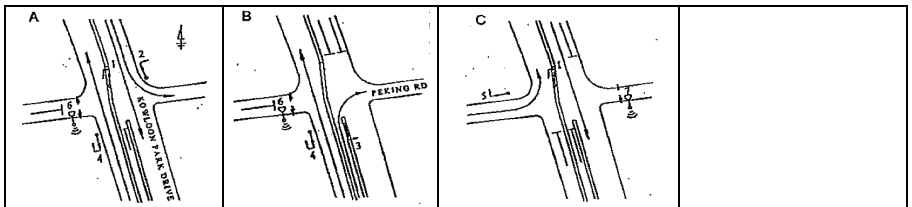
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				7				
1	A,C	3.30	1	2				4170		1178		1178	0.00	4170			4170	0.283			57	68	0.500	51
2	A	3.00	2	1	8		N	1915	163			163	1.00	1613			1613	0.101			21	49	0.248	19
3	B	3.40	3	1	15			2095			175	175	1.00	1905			1905	0.092			19	44	0.250	22
4	A,B	3.30	4	2			N	4030		1947		1947	0.00	4030			4030	0.483	0.483		98	98	0.591	36
5	C	3.30	5	2	9		N	4030	250			250	1.00	3454			3454	0.072	0.072		15	15	0.579	22

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J5
Kowloon Park Drive / Peking Road	2030 Design AM Peak (Under Approved Scheme)	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle	N =	3
No. of stage using for calculation	N =	3
Cycle time	C =	120 sec
Sum(y)	Y =	0.493
Loss time	L =	7 sec
Total Flow	=	3791 pcu
Co = (1.5*L+5)/(1-Y)	=	30.6 sec
Cm = L/(1-Y)	=	13.8 sec
Yult	=	0.848
R.C.ult = (Yult-Y)/Y*100%	=	71.8 %
Cp = 0.9*L/(0.9-Y)	=	15.5 sec
Ymax = 1-L/C	=	0.942
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	72 %



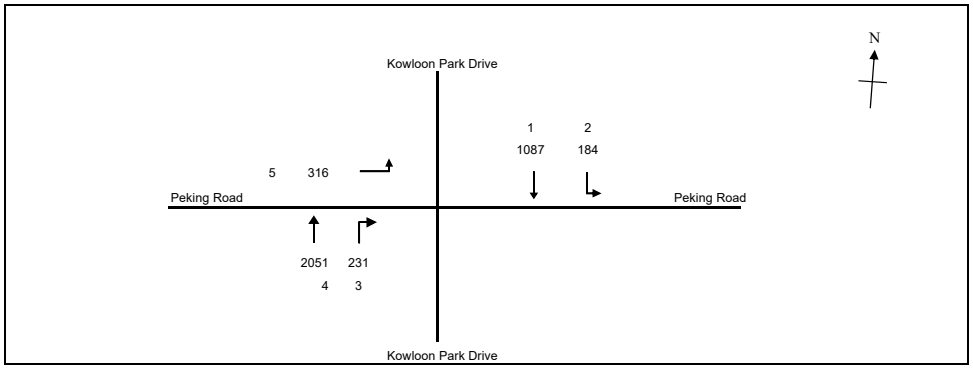
STAGE A	INT= 5	STAGE B	INT= 5	STAGE C	INT= 5	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
6p	8	5	3	9	86	3	9	OK
7p	5.5	5	7	6	9	7	6	OK

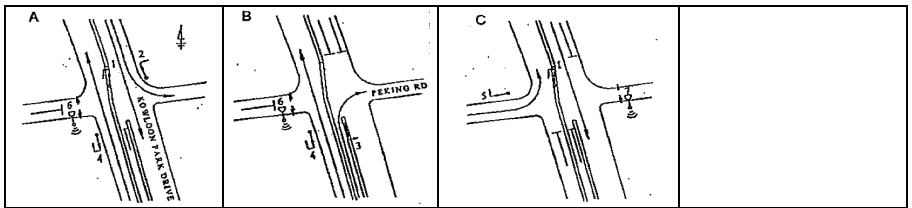
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				7				
1	A,C	3.30	1	2				4170		1436		1436	0.00	4170			4170	0.344			79	79	0.525	49
2	A	3.00	2	1	8		N	1915	215			215	1.00	1613			1613	0.134			31	57	0.283	23
3	B	3.40	3	1	15			2095			197	197	1.00	1905			1905	0.103			24	33	0.373	28
4	A,B	3.30	4	2			N	4030		1672		1672	0.00	4030			4030	0.415	0.415		95	95	0.524	35
5	C	3.30	5	2	9		N	4030	271			271	1.00	3454			3454	0.078	0.078		18	18	0.523	23

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J5
Kowloon Park Drive / Peking Road	2030 Design PM Peak (Under Approved Scheme)	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle	N =	3
No. of stage using for calculation	N =	3
Cycle time	C =	120 sec
Sum(y)	Y =	0.600
Loss time	L =	7 sec
Total Flow	=	3868 pcu
Co = (1.5*L+5)/(1-Y)	=	38.8 sec
Cm = L/(1-Y)	=	17.5 sec
Yult	=	0.848
R.C.ult = (Yult-Y)/Y*100%	=	41.2 %
Cp = 0.9*L/(0.9-Y)	=	21.0 sec
Ymax = 1-L/C	=	0.942
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	41 %



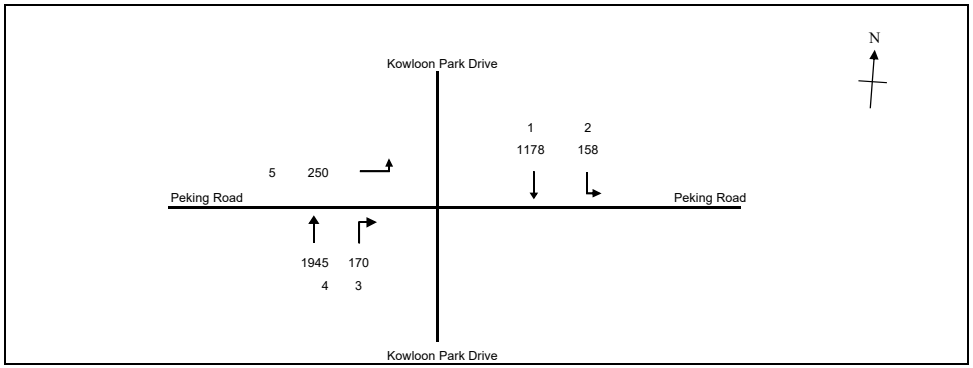
STAGE A	INT= 5	STAGE B	INT= 5	STAGE C	INT= 5	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
6p	8	5	3	9	87	3	9	OK
7p	5.5	5	7	6	8	7	6	OK

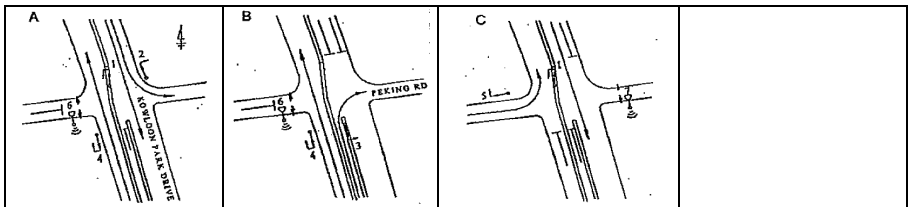
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				7				
1	A,C	3.30	1	2				4170		1087		1087	0.00	4170			4170	0.261			49	65	0.477	49
2	A	3.00	2	1	8		N	1915	184			184	1.00	1613			1613	0.114			22	44	0.308	23
3	B	3.40	3	1	15			2095			231	231	1.00	1905			1905	0.121			23	47	0.313	28
4	A,B	3.30	4	2			N	4030		2051		2051	0.00	4030			4030	0.509	0.509		96	96	0.636	41
5	C	3.30	5	2	9		N	4030	316			316	1.00	3454			3454	0.091	0.091		17	17	0.645	27

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J5
Kowloon Park Drive / Peking Road	2030 Design Weekend Peak (Under Approved Scheme)	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle	N =	3
No. of stage using for calculation	N =	3
Cycle time	C =	120 sec
Sum(y)	Y =	0.555
Loss time	L =	7 sec
Total Flow	=	3701 pcu
Co = (1.5*L+5)/(1-Y)	=	34.8 sec
Cm = L/(1-Y)	=	15.7 sec
Yult	=	0.848
R.C.ult = (Yult-Y)/Y*100%	=	52.7 %
Cp = 0.9*L/(0.9-Y)	=	18.3 sec
Ymax = 1-L/C	=	0.942
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	53 %



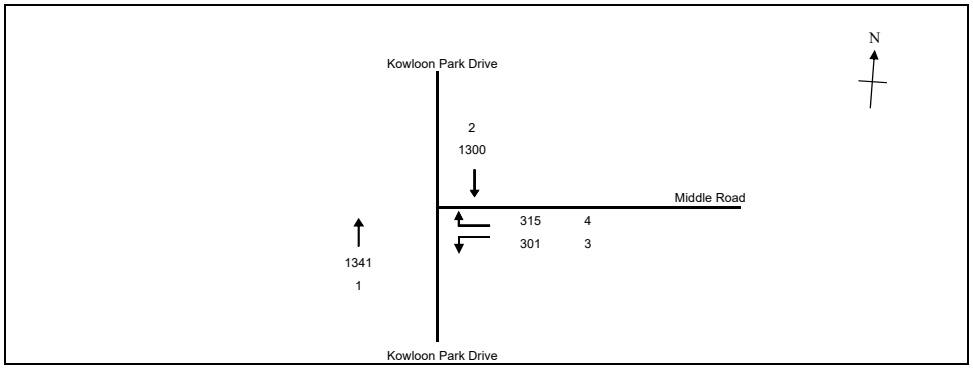
STAGE A	INT= 5	STAGE B	INT= 5	STAGE C	INT= 5	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
6p	8	5	3	9	89	3	9	OK
7p	5.5	5	7	6	6	7	6	OK

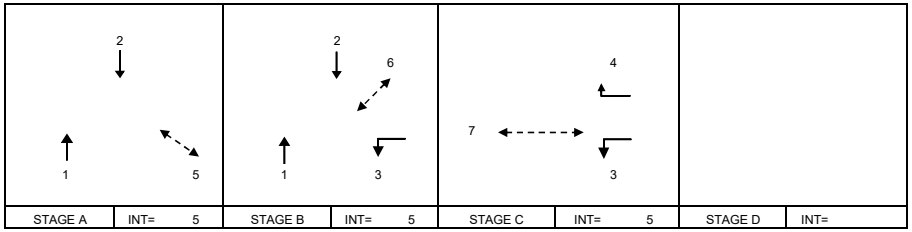
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Straight pcu/h	Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				7				
1	A,C	3.30	1	2				4170		1178		1178	0.00	4170			4170	0.283			58	68	0.499	51
2	A	3.00	2	1	8		N	1915	158			158	1.00	1613			1613	0.098			20	49	0.240	19
3	B	3.40	3	1	15			2095			170	170	1.00	1905			1905	0.089			18	44	0.244	22
4	A,B	3.30	4	2			N	4030		1945		1945	0.00	4030			4030	0.483	0.483		98	98	0.591	36
5	C	3.30	5	2	9		N	4030	250			250	1.00	3454			3454	0.072	0.072		15	15	0.579	22

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J6
Kowloon Park Drive / Middle Road	2023 Existing AM Peak	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.403
Loss time		L =	8 sec
Total Flow		=	3258 pcu
Co	= (1.5*L+5)/(1-Y)	=	28.5 sec
Cm	= L/(1-Y)	=	13.4 sec
Yult		=	0.840
R.C.ult	= (Yult-Y)/Y*100%	=	108.3 %
Cp	= 0.9*L/(0.9-Y)	=	14.5 sec
Ymax	= 1-L/C	=	0.933
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	108 %

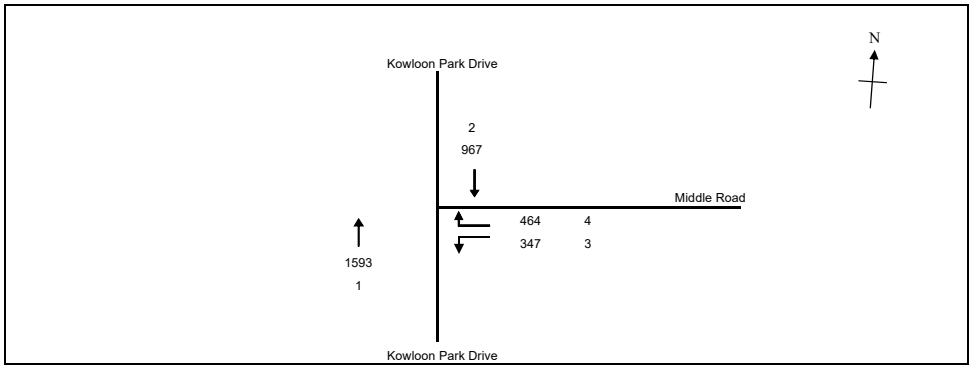


Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
5p	7	5	2	8	59	2	8	OK
6p	7	5	2	8	14	2	8	OK
7p	11	12	4	11	12	4	11	OK

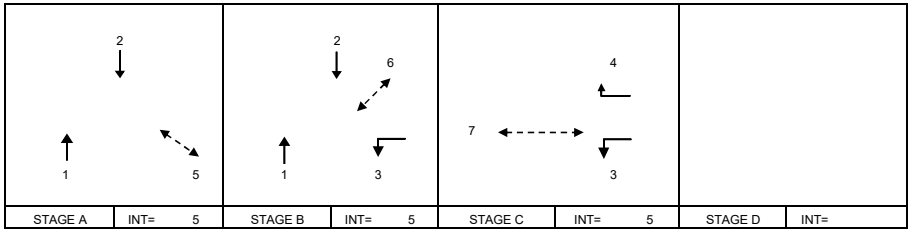
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				8				
1	A,B	3.30	1	3			N	6115		1341		1341	0.00	6115			6115	0.219			61	89	0.296	23
2	A,B	3.50	1	2			N	4070		1300		1300	0.00	4070			4070	0.319	0.319		89	89	0.431	34
3	B,C	3.80	2	1	12		N	1995	301			301	1.00	1773			1773	0.170			47	47	0.434	37
4	C	3.30	3	2	14			4170			315	315	1.00	3766			3766	0.084	0.084		23	23	0.437	25

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J6
Kowloon Park Drive / Middle Road	2023 Existing PM Peak	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.384
Loss time		L =	8 sec
Total Flow		=	3371 pcu
Co	= (1.5*L+5)/(1-Y)	=	27.6 sec
Cm	= L/(1-Y)	=	13.0 sec
Yult		=	0.840
R.C.ult	= (Yult-Y)/Y*100%	=	118.9 %
Cp	= 0.9*L/(0.9-Y)	=	13.9 sec
Ymax	= 1-L/C	=	0.933
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	119 %

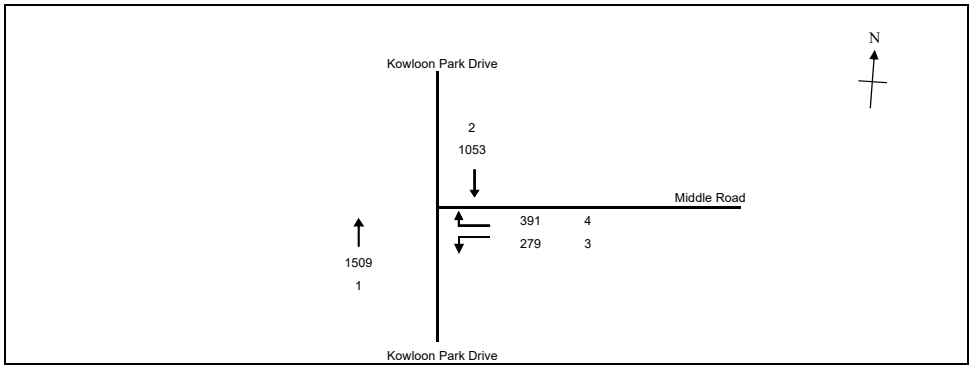


Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
5p	7	5	2	8	49	2	8	OK
6p	7	5	2	8	11	2	8	OK
7p	11	12	4	11	25	4	11	OK

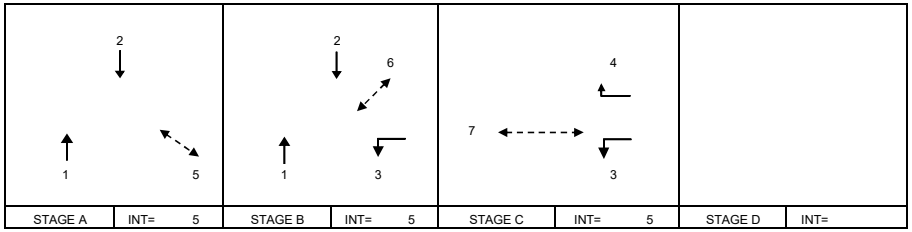
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				8				
1	A,B	3.30	1	3			N	6115		1593		1593	0.00	6115			6115	0.260			76	76	0.411	39
2	A,B	3.50	1	2			N	4070		967		967	0.00	4070			4070	0.238	0.260		69	76	0.375	35
3	B,C	3.80	2	1	12		N	1995	347			347	1.00	1773			1773	0.196			57	57	0.412	36
4	C	3.30	3	2	14			4170			464	464	1.00	3766			3766	0.123	0.123		36	36	0.411	33

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J6
Kowloon Park Drive / Middle Road	2023 Existing Weekend Peak	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.363
Loss time		L =	8 sec
Total Flow		=	3232 pcu
Co	= (1.5*L+5)/(1-Y)	=	26.7 sec
Cm	= L/(1-Y)	=	12.5 sec
Yult		=	0.840
R.C.ult	= (Yult-Y)/Y*100%	=	131.7 %
Cp	= 0.9*L/(0.9-Y)	=	13.4 sec
Ymax	= 1-L/C	=	0.933
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	132 %

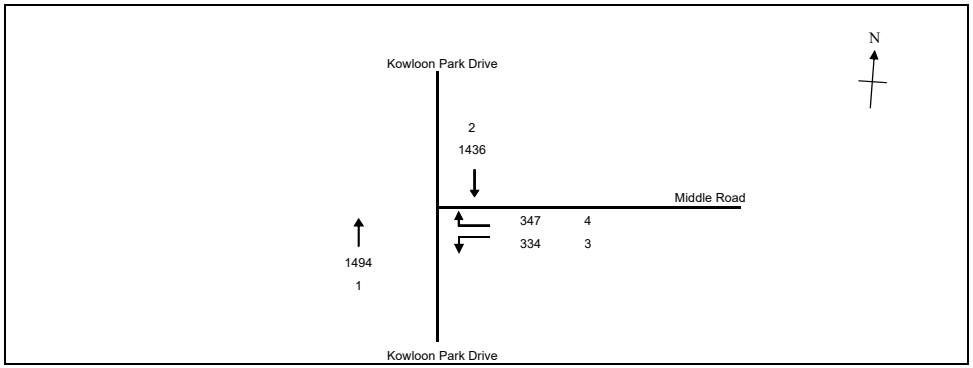


Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
5p	7	5	2	8	57	2	8	OK
6p	7	5	2	8	7	2	8	OK
7p	11	12	4	11	21	4	11	OK

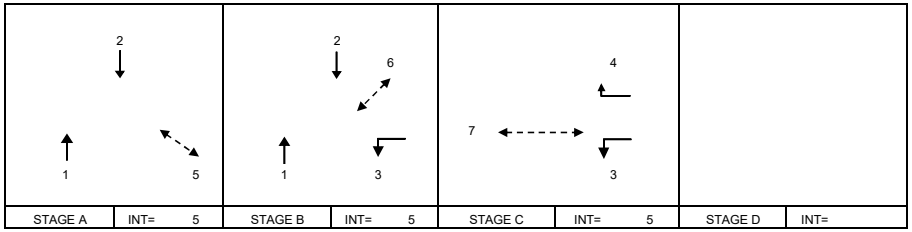
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				8				
1	A,B	3.30	1	3			N	6115		1509		1509	0.00	6115			6115	0.247			76	80	0.370	34
2	A,B	3.50	1	2			N	4070		1053		1053	0.00	4070			4070	0.259	0.259		80	80	0.388	35
3	B,C	3.80	2	1	12		N	1995	279			279	1.00	1773			1773	0.157			49	49	0.386	33
4	C	3.30	3	2	14			4170			391	391	1.00	3766			3766	0.104	0.104		32	32	0.389	29

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J6
Kowloon Park Drive / Middle Road	2030 Reference AM Peak	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.445
Loss time		L =	8 sec
Total Flow		=	3611 pcu
Co	= (1.5*L+5)/(1-Y)	=	30.6 sec
Cm	= L/(1-Y)	=	14.4 sec
Yult		=	0.840
R.C.ult	= (Yult-Y)/Y*100%	=	88.8 %
Cp	= 0.9*L/(0.9-Y)	=	15.8 sec
Ymax	= 1-L/C	=	0.933
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	89 %

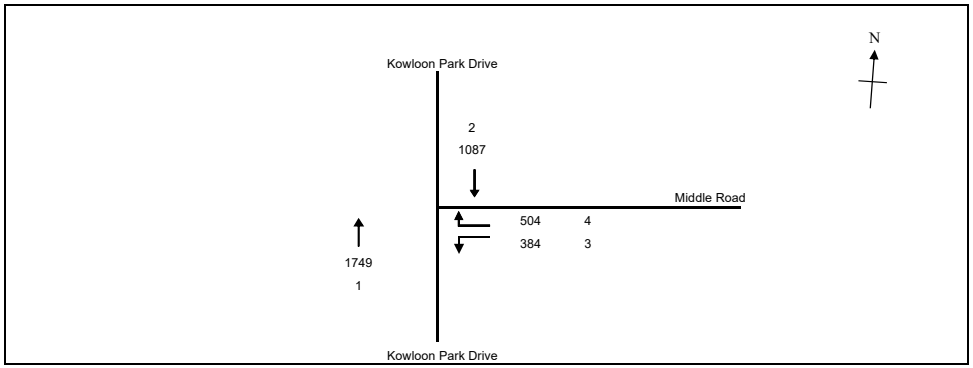


Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
5p	7	5	2	8	59	2	8	OK
6p	7	5	2	8	14	2	8	OK
7p	11	12	4	11	12	4	11	OK

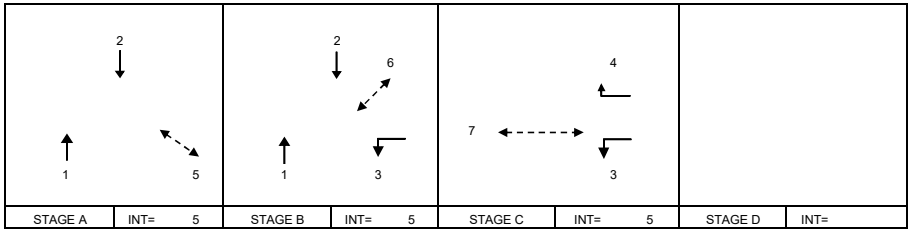
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				8				
1	A,B	3.30	1	3			N	6115		1494		1494	0.00	6115			6115	0.244			61	89	0.329	26
2	A,B	3.50	1	2			N	4070		1436		1436	0.00	4070			4070	0.353	0.353		89	89	0.476	37
3	B,C	3.80	2	1	12		N	1995	334			334	1.00	1773			1773	0.189			47	47	0.481	41
4	C	3.30	3	2	14			4170			347	347	1.00	3766			3766	0.092	0.092		23	23	0.481	28

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J6
Kowloon Park Drive / Middle Road	2030 Reference PM Peak	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.420
Loss time		L =	8 sec
Total Flow		=	3723 pcu
Co	= (1.5*L+5)/(1-Y)	=	29.3 sec
Cm	= L/(1-Y)	=	13.8 sec
Yult		=	0.840
R.C.ult	= (Yult-Y)/Y*100%	=	100.1 %
Cp	= 0.9*L/(0.9-Y)	=	15.0 sec
Ymax	= 1-L/C	=	0.933
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	100 %

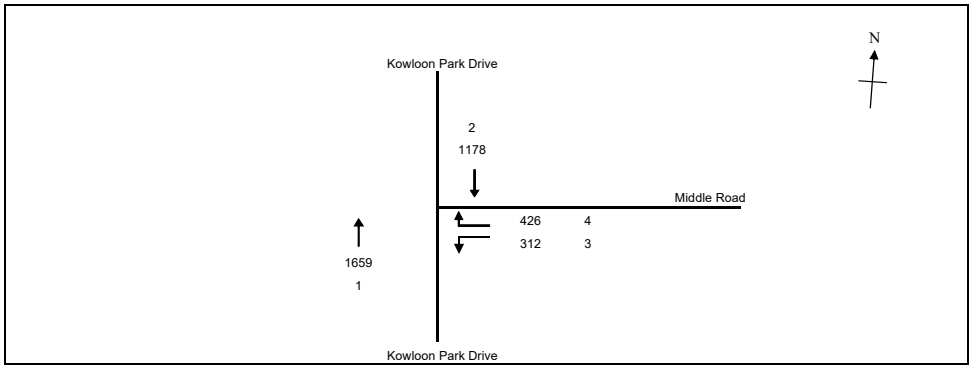


Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
5p	7	5	2	8	48	2	8	OK
6p	7	5	2	8	12	2	8	OK
7p	11	12	4	11	25	4	11	OK

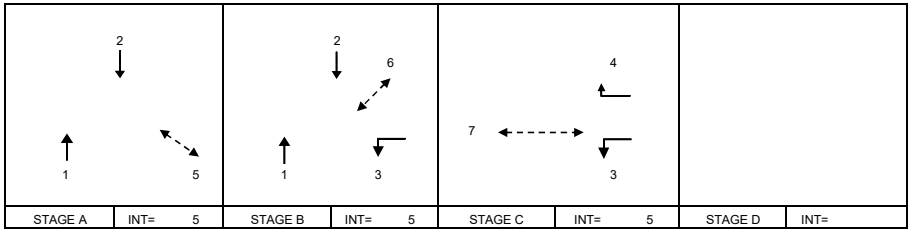
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				8				
1	A,B	3.30	1	3			N	6115		1749		1749	0.00	6115			6115	0.286			76	76	0.452	43
2	A,B	3.50	1	2			N	4070		1087		1087	0.00	4070			4070	0.267	0.286		71	76	0.422	40
3	B,C	3.80	2	1	12		N	1995	384			384	1.00	1773			1773	0.216			58	58	0.448	40
4	C	3.30	3	2	14			4170			504	504	1.00	3766			3766	0.134	0.134		36	36	0.446	35

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J6
Kowloon Park Drive / Middle Road	2030 Reference Weekend Peak	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.403
Loss time		L =	8 sec
Total Flow		=	3575 pcu
Co	= (1.5*L+5)/(1-Y)	=	28.5 sec
Cm	= L/(1-Y)	=	13.4 sec
Yult		=	0.840
R.C.ult	= (Yult-Y)/Y*100%	=	108.7 %
Cp	= 0.9*L/(0.9-Y)	=	14.5 sec
Ymax	= 1-L/C	=	0.933
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	109 %

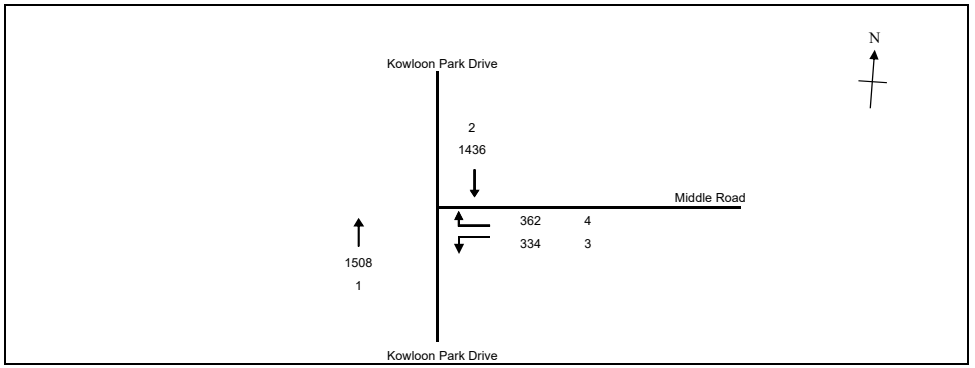


Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
5p	7	5	2	8	57	2	8	OK
6p	7	5	2	8	8	2	8	OK
7p	11	12	4	11	20	4	11	OK

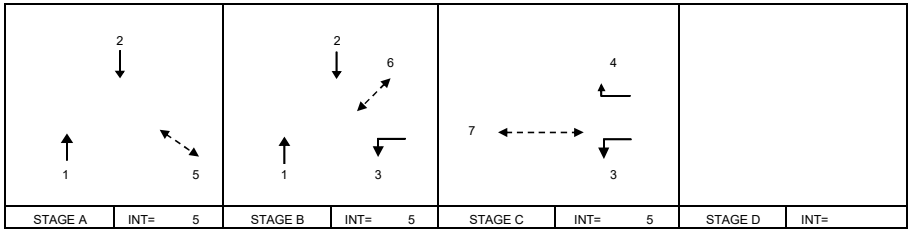
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				8				
1	A,B	3.30	1	3			N	6115		1659		1659	0.00	6115			6115	0.271			75	81	0.402	36
2	A,B	3.50	1	2			N	4070		1178		1178	0.00	4070			4070	0.289	0.289		81	81	0.429	38
3	B,C	3.80	2	1	12		N	1995	312			312	1.00	1773			1773	0.176			49	49	0.431	37
4	C	3.30	3	2	14			4170			426	426	1.00	3766			3766	0.113	0.113		31	31	0.438	32

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J6
Kowloon Park Drive / Middle Road	2030 Design AM Peak (Under Proposed Scheme)	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle	N =	3
No. of stage using for calculation	N =	3
Cycle time	C =	120 sec
Sum(y)	Y =	0.449
Loss time	L =	8 sec
Total Flow	=	3640 pcu
Co = (1.5*L+5)/(1-Y)	=	30.8 sec
Cm = L/(1-Y)	=	14.5 sec
Yult	=	0.840
R.C.ult = (Yult-Y)/Y*100%	=	87.1 %
Cp = 0.9*L/(0.9-Y)	=	16.0 sec
Ymax = 1-L/C	=	0.933
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	87 %

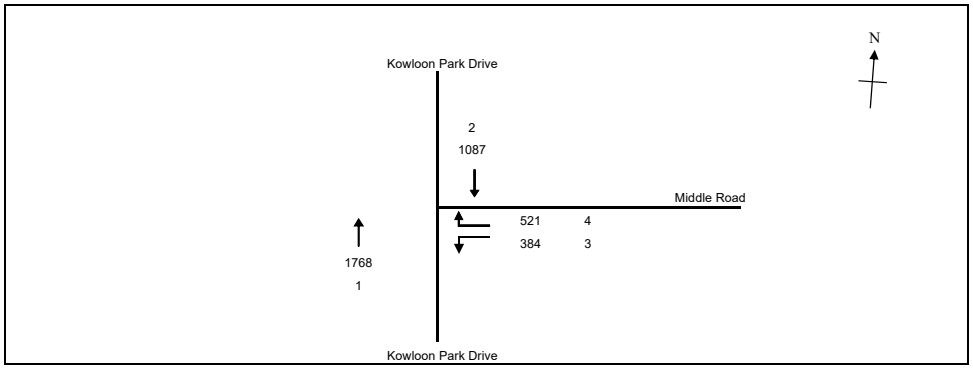


Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
5p	7	5	2	8	59	2	8	OK
6p	7	5	2	8	13	2	8	OK
7p	11	12	4	11	13	4	11	OK

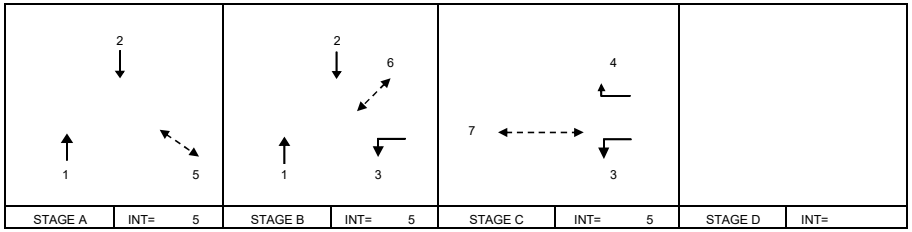
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				8				
1	A,B	3.30	1	3			N	6115		1508		1508	0.00	6115			6115	0.247			62	88	0.336	27
2	A,B	3.50	1	2			N	4070		1436		1436	0.00	4070			4070	0.353	0.353		88	88	0.481	38
3	B,C	3.80	2	1	12		N	1995	334			334	1.00	1773			1773	0.189			47	47	0.481	41
4	C	3.30	3	2	14			4170			362	362	1.00	3766			3766	0.096	0.096		24	24	0.481	29

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J6
Kowloon Park Drive / Middle Road	2030 Design PM Peak (Under Proposed Scheme)	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.427
Loss time		L =	8 sec
Total Flow		=	3759 pcu
Co	= (1.5*L+5)/(1-Y)	=	29.7 sec
Cm	= L/(1-Y)	=	14.0 sec
Yult		=	0.840
R.C.ult	= (Yult-Y)/Y*100%	=	96.5 %
Cp	= 0.9*L/(0.9-Y)	=	15.2 sec
Ymax	= 1-L/C	=	0.933
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	97 %

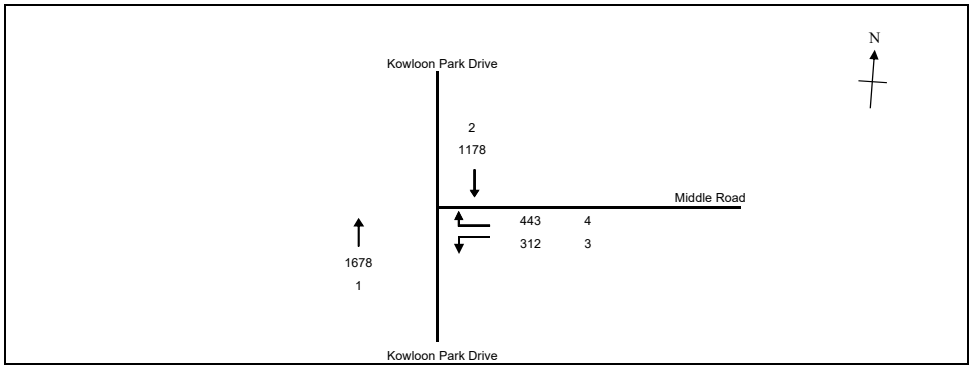


Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
5p	7	5	2	8	49	2	8	OK
6p	7	5	2	8	11	2	8	OK
7p	11	12	4	11	25	4	11	OK

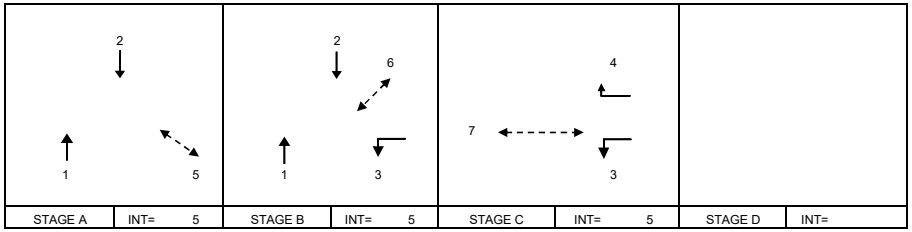
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				8				
1	A,B	3.30	1	3			N	6115		1768		1768	0.00	6115			6115	0.289			76	76	0.456	43
2	A,B	3.50	1	2			N	4070		1087		1087	0.00	4070			4070	0.267	0.289		70	76	0.422	40
3	B,C	3.80	2	1	12		N	1995	384			384	1.00	1773			1773	0.216			57	57	0.455	40
4	C	3.30	3	2	14			4170			521	521	1.00	3766			3766	0.138	0.138		36	36	0.461	36

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J6
Kowloon Park Drive / Middle Road	2030 Design Weekend Peak (Under Proposed Scheme)	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	3
No. of stage using for calculation		N =	3
Cycle time		C =	120 sec
Sum(y)		Y =	0.407
Loss time		L =	8 sec
Total Flow		=	3611 pcu
Co	= (1.5*L+5)/(1-Y)	=	28.7 sec
Cm	= L/(1-Y)	=	13.5 sec
Yult		=	0.840
R.C.ult	= (Yult-Y)/Y*100%	=	106.3 %
Cp	= 0.9*L/(0.9-Y)	=	14.6 sec
Ymax	= 1-L/C	=	0.933
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	106 %

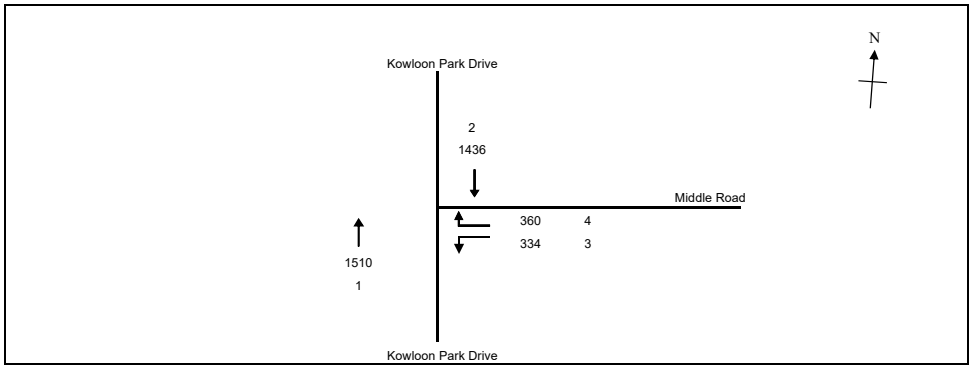


Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
5p	7	5	2	8	58	2	8	OK
6p	7	5	2	8	6	2	8	OK
7p	11	12	4	11	21	4	11	OK

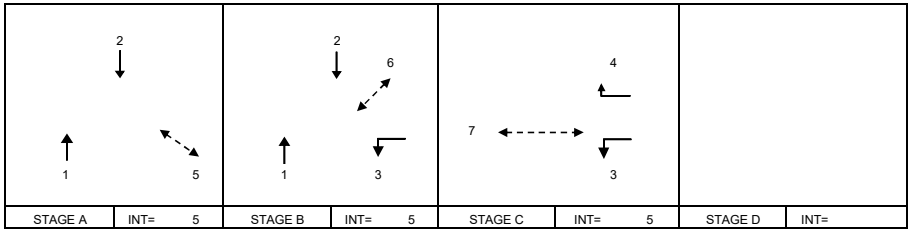
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				8				
1	A,B	3.30	1	3			N	6115		1678		1678	0.00	6115			6115	0.274			76	80	0.412	37
2	A,B	3.50	1	2			N	4070		1178		1178	0.00	4070			4070	0.289	0.289		80	80	0.434	39
3	B,C	3.80	2	1	12		N	1995	312			312	1.00	1773			1773	0.176			48	48	0.440	37
4	C	3.30	3	2	14			4170			443	443	1.00	3766			3766	0.118	0.118		32	32	0.441	33

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J6
Kowloon Park Drive / Middle Road	2030 Design AM Peak (Under Approved Scheme)	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle	N =	3
No. of stage using for calculation	N =	3
Cycle time	C =	120 sec
Sum(y)	Y =	0.448
Loss time	L =	8 sec
Total Flow	=	3640 pcu
Co = (1.5*L+5)/(1-Y)	=	30.8 sec
Cm = L/(1-Y)	=	14.5 sec
Yult	=	0.840
R.C.ult = (Yult-Y)/Y*100%	=	87.3 %
Cp = 0.9*L/(0.9-Y)	=	15.9 sec
Ymax = 1-L/C	=	0.933
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	87 %

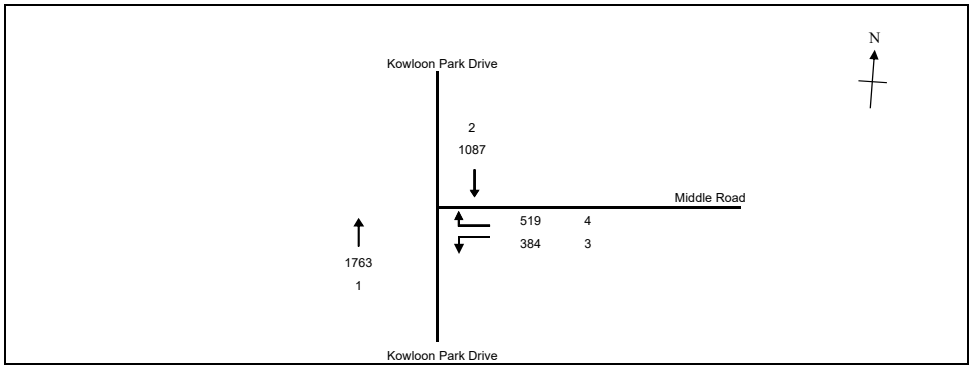


Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
5p	7	5	2	8	59	2	8	OK
6p	7	5	2	8	13	2	8	OK
7p	11	12	4	11	13	4	11	OK

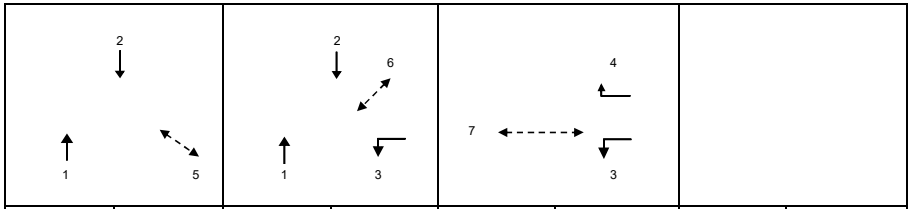
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				8				
1	A,B	3.30	1	3			N	6115		1510		1510	0.00	6115			6115	0.247			62	88	0.337	27
2	A,B	3.50	1	2			N	4070		1436		1436	0.00	4070			4070	0.353	0.353		88	88	0.481	38
3	B,C	3.80	2	1	12		N	1995	334			334	1.00	1773			1773	0.189			47	47	0.481	41
4	C	3.30	3	2	14			4170			360	360	1.00	3766			3766	0.096	0.096		24	24	0.478	29

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J6
Kowloon Park Drive / Middle Road	2030 Design PM Peak (Under Approved Scheme)	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle	N =	3
No. of stage using for calculation	N =	3
Cycle time	C =	120 sec
Sum(y)	Y =	0.426
Loss time	L =	8 sec
Total Flow	=	3752 pcu
Co = (1.5*L+5)/(1-Y)	=	29.6 sec
Cm = L/(1-Y)	=	13.9 sec
Yult	=	0.840
R.C.ult = (Yult-Y)/Y*100%	=	97.2 %
Cp = 0.9*L/(0.9-Y)	=	15.2 sec
Ymax = 1-L/C	=	0.933
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	97 %

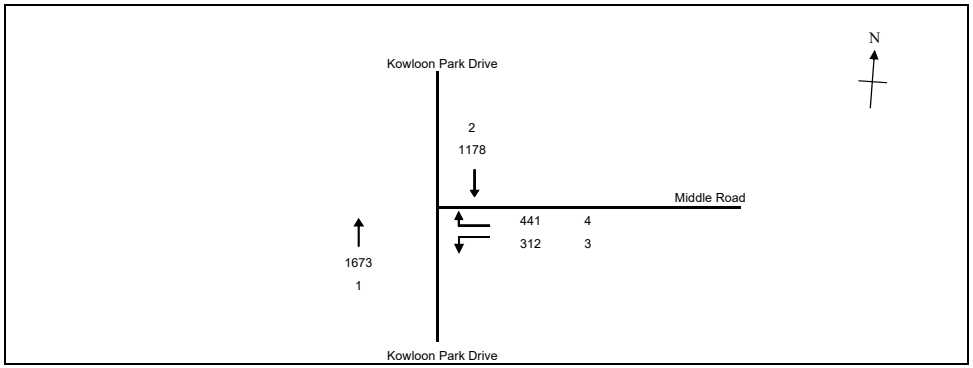


Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
5p	7	5	2	8	49	2	8	OK
6p	7	5	2	8	11	2	8	OK
7p	11	12	4	11	25	4	11	OK

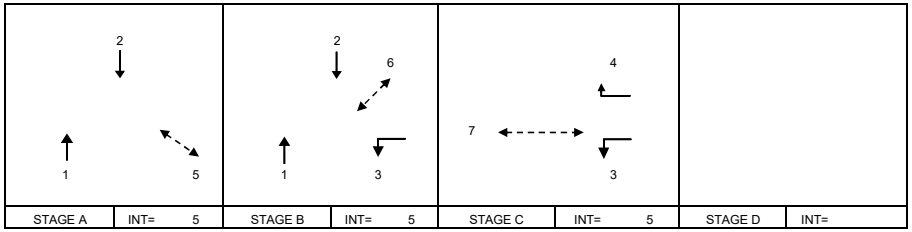
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				8				
1	A,B	3.30	1	3			N	6115		1763		1763	0.00	6115			6115	0.288			76	76	0.455	43
2	A,B	3.50	1	2			N	4070		1087		1087	0.00	4070			4070	0.267	0.288		70	76	0.422	40
3	B,C	3.80	2	1	12		N	1995	384			384	1.00	1773			1773	0.216			57	57	0.455	40
4	C	3.30	3	2	14			4170			519	519	1.00	3766			3766	0.138	0.138		36	36	0.459	36

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J6
Kowloon Park Drive / Middle Road	2030 Design Weekend Peak (Under Approved Scheme)	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle	N =	3
No. of stage using for calculation	N =	3
Cycle time	C =	120 sec
Sum(y)	Y =	0.407
Loss time	L =	8 sec
Total Flow	=	3604 pcu
Co = (1.5*L+5)/(1-Y)	=	28.6 sec
Cm = L/(1-Y)	=	13.5 sec
Yult	=	0.840
R.C.ult = (Yult-Y)/Y*100%	=	106.6 %
Cp = 0.9*L/(0.9-Y)	=	14.6 sec
Ymax = 1-L/C	=	0.933
R.C.(C) = (0.9*Ymax-Y)/Y*100%	=	107 %

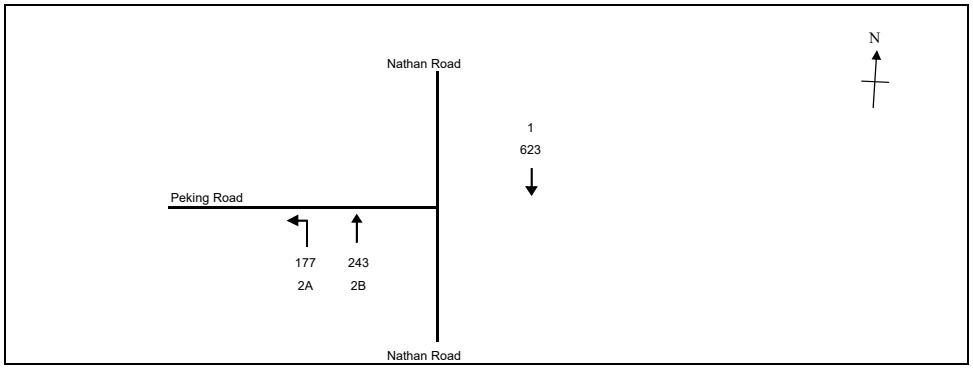


Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
5p	7	5	2	8	58	2	8	OK
6p	7	5	2	8	6	2	8	OK
7p	11	12	4	11	21	4	11	OK

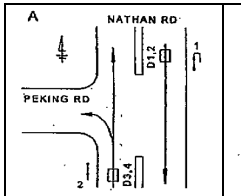
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				8				
1	A,B	3.30	1	3			N	6115		1673		1673	0.00	6115			6115	0.274			75	80	0.410	37
2	A,B	3.50	1	2			N	4070		1178		1178	0.00	4070			4070	0.289	0.289		80	80	0.434	39
3	B,C	3.80	2	1	12		N	1995	312			312	1.00	1773			1773	0.176			48	48	0.440	37
4	C	3.30	3	2	14			4170			441	441	1.00	3766			3766	0.117	0.117		32	32	0.439	32

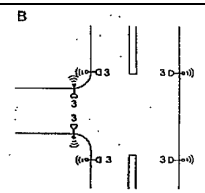
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J7
Nathan Road / Peking Road	2023 Existing AM Peak	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	2	
No. of stage using for calculation		N =	1	
Cycle time		C =	120	sec
Sum(y)		Y =	0.154	
Loss time		L =	44	sec
Total Flow		=	1043	pcu
Co	= (1.5*L+5)/(1-Y)	=	83.9	sec
Cm	= L/(1-Y)	=	52.0	sec
Yult		=	0.570	
R.C.ult	= (Yult-Y)/Y*100%	=	270.6	%
Cp	= 0.9*L/(0.9-Y)	=	53.1	sec
Ymax	= 1-L/C	=	0.633	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	271	%





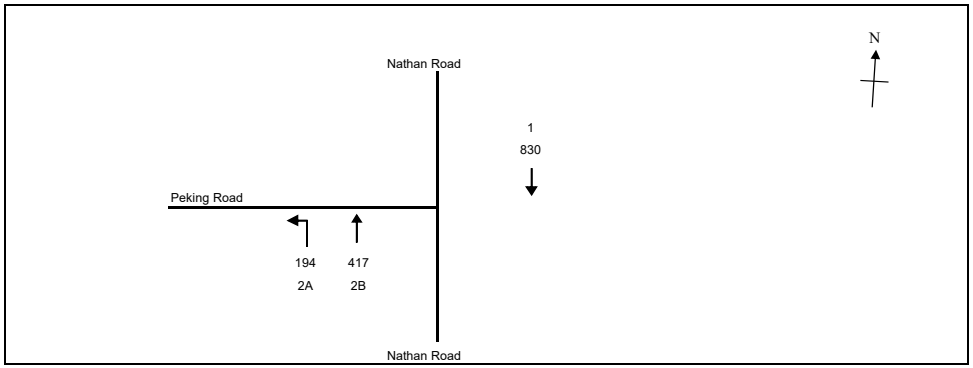
STAGE A	INT= 10	STAGE B	INT=	STAGE C	INT=	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3p	8.5	9	1	8	26	1	8	OK

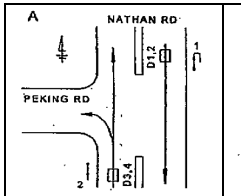
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				9				
1	A	3.40	1	2			N	4050		623		623	0.00	4050			4050	0.154	0.154		76	76	0.243	23
2A,2B	A	3.40	1	1	13		N	1955	177	15		192	0.92	1767			1767	0.109			54	76	0.172	14
2B	A	3.40	1	1				2095		228		228	0.00	2095			2095	0.109			54	76	0.172	17
PED	B		2																	35				

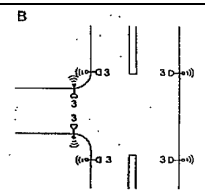
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J7
Nathan Road / Peking Road	2023 Existing PM Peak	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	2	
No. of stage using for calculation		N =	1	
Cycle time		C =	120	sec
Sum(y)		Y =	0.205	
Loss time		L =	44	sec
Total Flow		=	1440	pcu
Co	= (1.5*L+5)/(1-Y)	=	89.3	sec
Cm	= L/(1-Y)	=	55.3	sec
Yult		=	0.570	
R.C.ult	= (Yult-Y)/Y*100%	=	178.2	%
Cp	= 0.9*L/(0.9-Y)	=	57.0	sec
Ymax	= 1-L/C	=	0.633	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	178	%





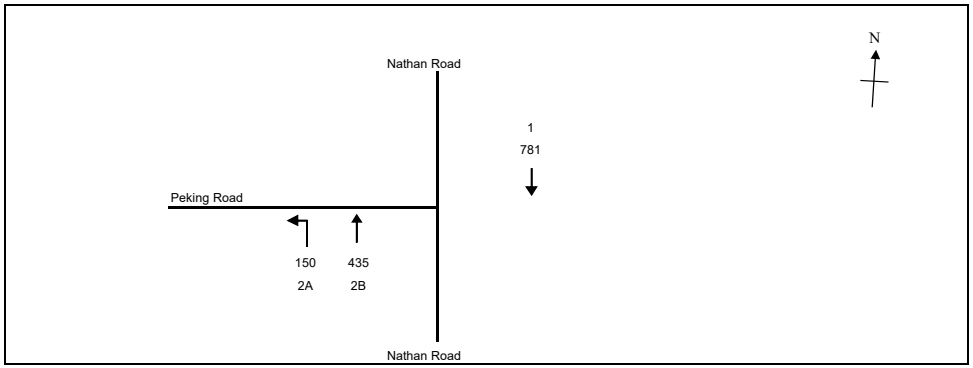
STAGE A	INT= 10	STAGE B	INT=	STAGE C	INT=	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3p	8.5	9	1	8	26	1	8	OK

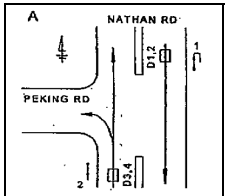
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				9				
1	A	3.40	1	2			N	4050		830		830	0.00	4050			4050	0.205	0.205		76	76	0.323	30
2A,2B	A	3.40	1	1	13		N	1955	194	90		283	0.68	1812			1812	0.156			58	76	0.247	21
2B	A	3.40	1	1				2095		327		327	0.00	2095			2095	0.156			58	76	0.247	24
PED	B		2																	35				

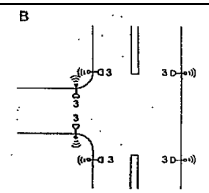
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J7
Nathan Road / Peking Road	2023 Existing Weekend Peak	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	2	
No. of stage using for calculation		N =	1	
Cycle time		C =	120	sec
Sum(y)		Y =	0.193	
Loss time		L =	44	sec
Total Flow		=	1367	pcu
Co	= (1.5*L+5)/(1-Y)	=	88.0	sec
Cm	= L/(1-Y)	=	54.5	sec
Yult		=	0.570	
R.C.ult	= (Yult-Y)/Y*100%	=	195.5	%
Cp	= 0.9*L/(0.9-Y)	=	56.0	sec
Ymax	= 1-L/C	=	0.633	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	196	%





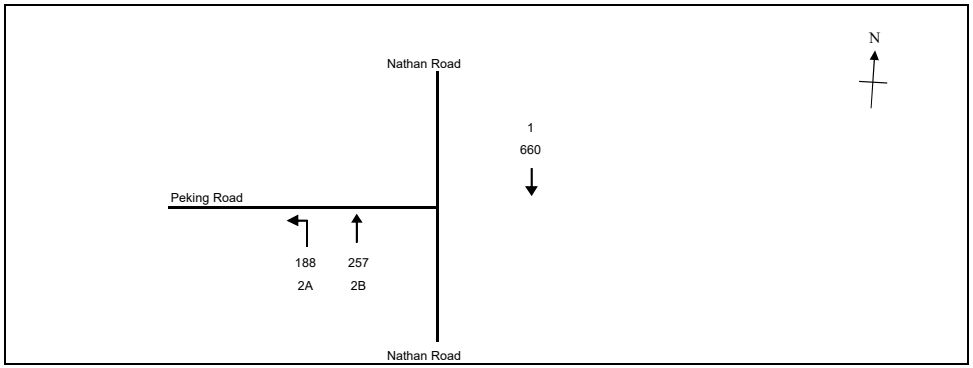
STAGE A	INT= 10	STAGE B	INT=	STAGE C	INT=	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3p	8.5	9	1	8	26	1	8	OK

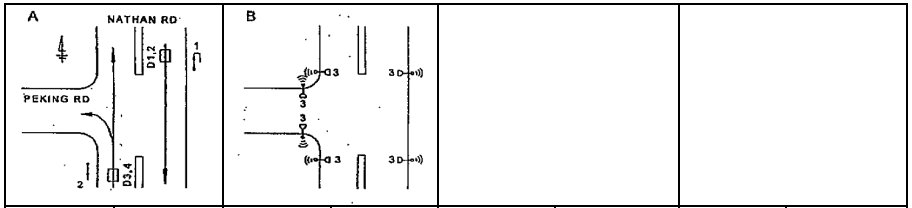
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				9				
1	A	3.40	1	2			N	4050		781		781	0.00	4050			4050	0.193	0.193		76	76	0.305	29
2A,2B	A	3.40	1	1	13		N	1955	150	123		274	0.55	1839			1839	0.149			59	76	0.235	20
2B	A	3.40	1	1				2095		312		312	0.00	2095			2095	0.149			59	76	0.235	23
PED	B		2																	35				

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J7
Nathan Road / Peking Road	2030 Reference AM Peak	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	2	
No. of stage using for calculation		N =	1	
Cycle time		C =	120	sec
Sum(y)		Y =	0.163	
Loss time		L =	44	sec
Total Flow		=	1105	pcu
Co	= (1.5*L+5)/(1-Y)	=	84.8	sec
Cm	= L/(1-Y)	=	52.6	sec
Yult		=	0.570	
R.C.ult	= (Yult-Y)/Y*100%	=	249.8	%
Cp	= 0.9*L/(0.9-Y)	=	53.7	sec
Ymax	= 1-L/C	=	0.633	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	250	%



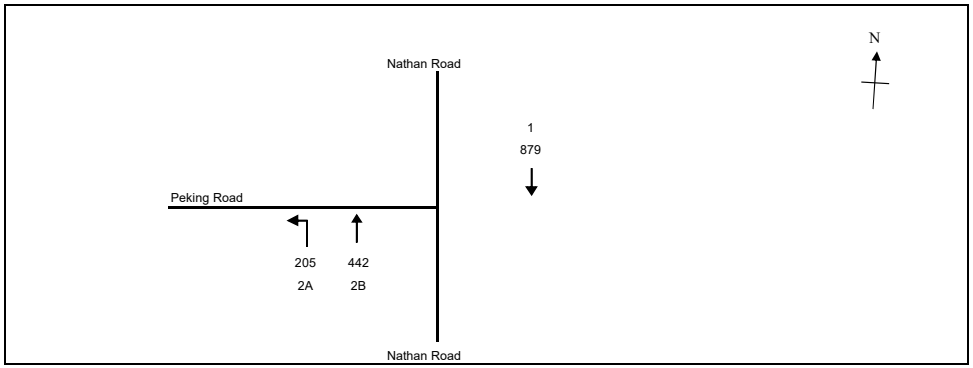
STAGE A	INT= 10	STAGE B	INT=	STAGE C	INT=	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3p	8.5	9	1	8	26	1	8	OK

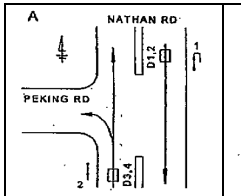
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				9				
1	A	3.40	1	2			N	4050		660		660	0.00	4050			4050	0.163	0.163		76	76	0.257	24
2A,2B	A	3.40	1	1	13		N	1955	188	16		203	0.92	1767			1767	0.115			54	76	0.182	15
2B	A	3.40	1	1				2095		241		241	0.00	2095			2095	0.115			54	76	0.182	18
PED	B		2																	35				

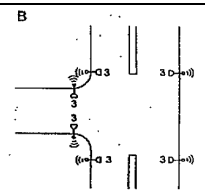
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J7
Nathan Road / Peking Road	2030 Reference PM Peak	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	2	
No. of stage using for calculation		N =	1	
Cycle time		C =	120	sec
Sum(y)		Y =	0.217	
Loss time		L =	44	sec
Total Flow		=	1526	pcu
Co	= (1.5*L+5)/(1-Y)	=	90.7	sec
Cm	= L/(1-Y)	=	56.2	sec
Yult		=	0.570	
R.C.ult	= (Yult-Y)/Y*100%	=	162.6	%
Cp	= 0.9*L/(0.9-Y)	=	58.0	sec
Ymax	= 1-L/C	=	0.633	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	163	%





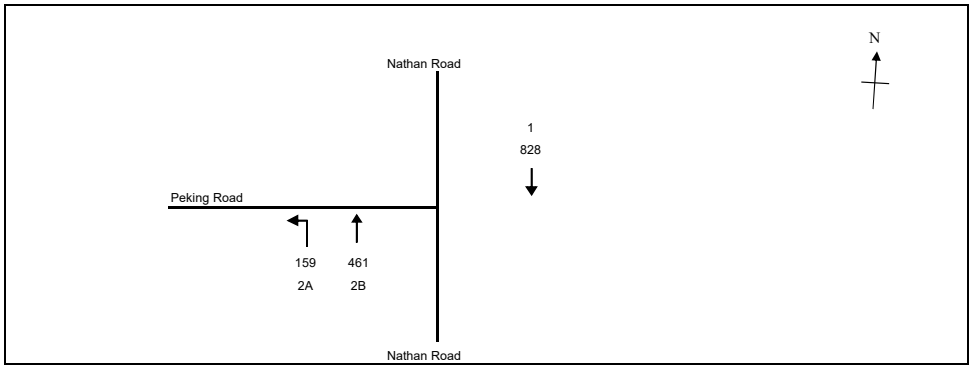
STAGE A	INT= 10	STAGE B	INT=	STAGE C	INT=	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3p	8.5	9	1	8	26	1	8	OK

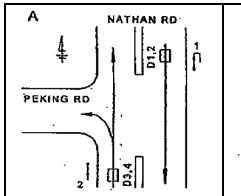
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				9				
1	A	3.40	1	2			N	4050		879		879	0.00	4050			4050	0.217	0.217		76	76	0.343	32
2A,2B	A	3.40	1	1	13		N	1955	205	95		300	0.68	1812			1812	0.166			58	76	0.261	22
2B	A	3.40	1	1				2095		347		347	0.00	2095			2095	0.166			58	76	0.261	25
PED	B		2																	35				

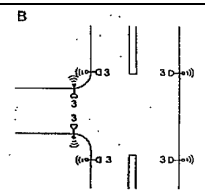
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J7
Nathan Road / Peking Road	2030 Reference Weekend Peak	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	2	
No. of stage using for calculation		N =	1	
Cycle time		C =	120	sec
Sum(y)		Y =	0.204	
Loss time		L =	44	sec
Total Flow		=	1448	pcu
Co	= (1.5*L+5)/(1-Y)	=	89.2	sec
Cm	= L/(1-Y)	=	55.3	sec
Yult		=	0.570	
R.C.ult	= (Yult-Y)/Y*100%	=	178.9	%
Cp	= 0.9*L/(0.9-Y)	=	56.9	sec
Ymax	= 1-L/C	=	0.633	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	179	%





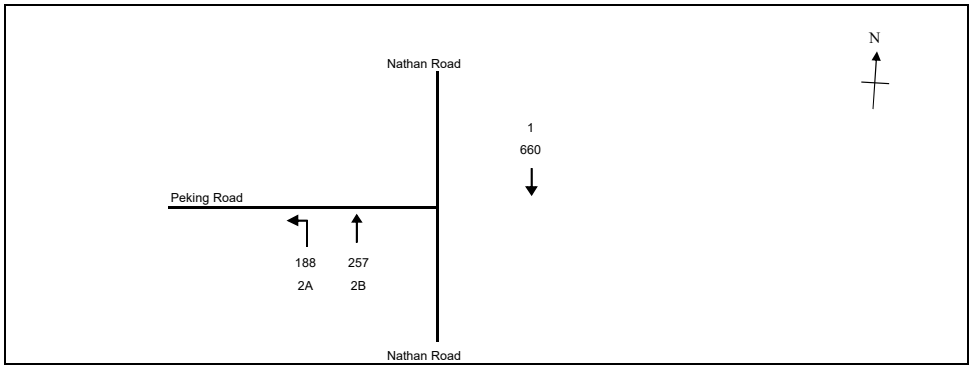
STAGE A	INT= 10	STAGE B	INT=	STAGE C	INT=	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3p	8.5	9	1	8	26	1	8	OK

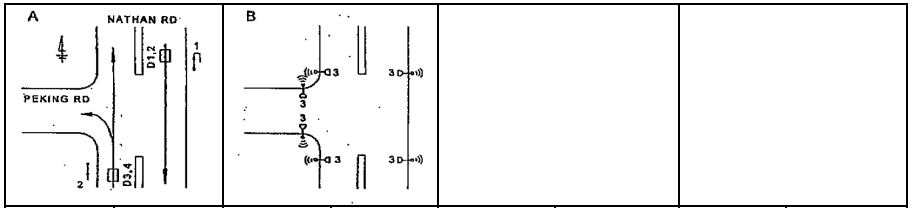
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				9				
1	A	3.40	1	2			N	4050		828		828	0.00	4050			4050	0.204	0.204		76	76	0.323	30
2A,2B	A	3.40	1	1	13		N	1955	159	131		290	0.55	1839			1839	0.158			59	76	0.249	21
2B	A	3.40	1	1				2095		330		330	0.00	2095			2095	0.158			59	76	0.249	24
PED	B		2																	35				

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J7
Nathan Road / Peking Road	2030 Design AM Peak (Under Proposed Scheme)	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	2	
No. of stage using for calculation		N =	1	
Cycle time		C =	120	sec
Sum(y)		Y =	0.163	
Loss time		L =	44	sec
Total Flow		=	1105	pcu
Co	= (1.5*L+5)/(1-Y)	=	84.8	sec
Cm	= L/(1-Y)	=	52.6	sec
Yult		=	0.570	
R.C.ult	= (Yult-Y)/Y*100%	=	249.8	%
Cp	= 0.9*L/(0.9-Y)	=	53.7	sec
Ymax	= 1-L/C	=	0.633	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	250	%



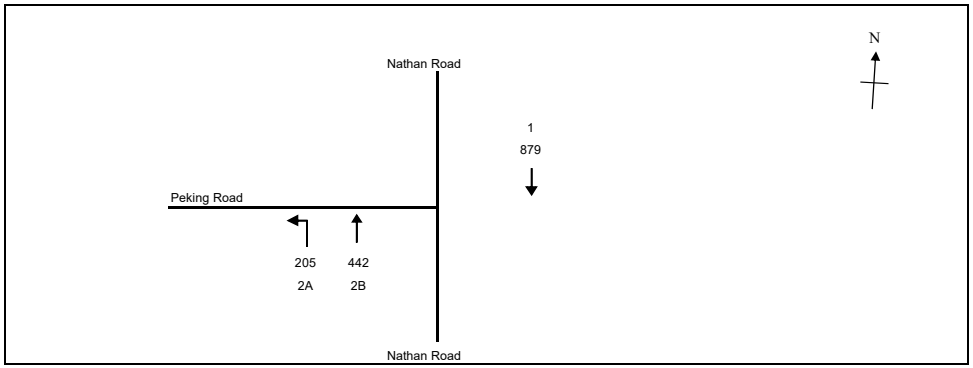
STAGE A	INT= 10	STAGE B	INT=	STAGE C	INT=	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3p	8.5	9	1	8	26	1	8	OK

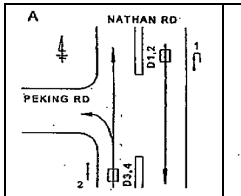
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				9				
1	A	3.40	1	2			N	4050		660		660	0.00	4050			4050	0.163	0.163		76	76	0.257	24
2A,2B	A	3.40	1	1	13		N	1955	188	16		203	0.92	1767			1767	0.115			54	76	0.182	15
2B	A	3.40	1	1				2095		241		241	0.00	2095			2095	0.115			54	76	0.182	18
PED	B		2																	35				

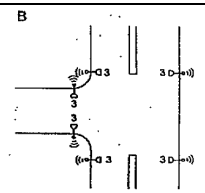
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J7
Nathan Road / Peking Road	2030 Design PM Peak (Under Proposed Scheme)	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	2	
No. of stage using for calculation		N =	1	
Cycle time		C =	120	sec
Sum(y)		Y =	0.217	
Loss time		L =	44	sec
Total Flow		=	1526	pcu
Co	= (1.5*L+5)/(1-Y)	=	90.7	sec
Cm	= L/(1-Y)	=	56.2	sec
Yult		=	0.570	
R.C.ult	= (Yult-Y)/Y*100%	=	162.6	%
Cp	= 0.9*L/(0.9-Y)	=	58.0	sec
Ymax	= 1-L/C	=	0.633	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	163	%





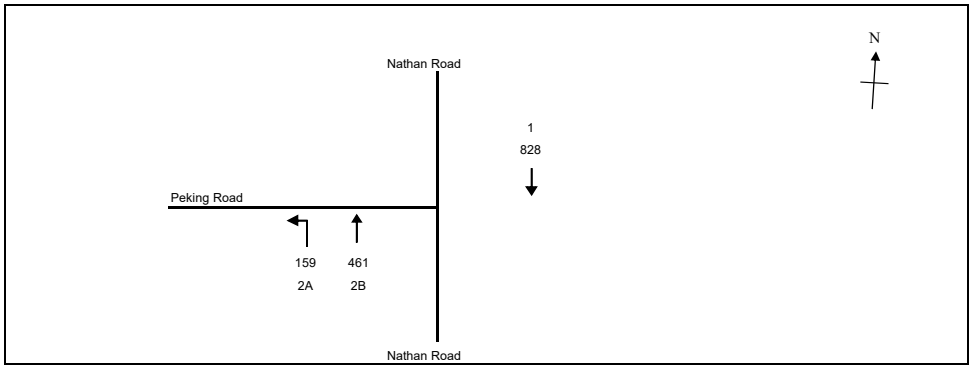
STAGE A	INT= 10	STAGE B	INT=	STAGE C	INT=	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3p	8.5	9	1	8	26	1	8	OK

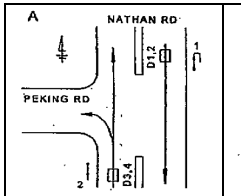
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				9				
1	A	3.40	1	2			N	4050		879		879	0.00	4050			4050	0.217	0.217		76	76	0.343	32
2A,2B	A	3.40	1	1	13		N	1955	205	95		300	0.68	1812			1812	0.166			58	76	0.261	22
2B	A	3.40	1	1				2095		347		347	0.00	2095			2095	0.166			58	76	0.261	25
PED	B		2																	35				

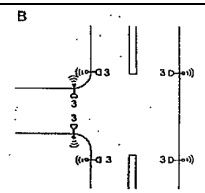
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J7
Nathan Road / Peking Road	2030 Design Weekend Peak (Under Proposed Scheme)	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	2	
No. of stage using for calculation		N =	1	
Cycle time		C =	120	sec
Sum(y)		Y =	0.204	
Loss time		L =	44	sec
Total Flow		=	1448	pcu
Co	= (1.5*L+5)/(1-Y)	=	89.2	sec
Cm	= L/(1-Y)	=	55.3	sec
Yult		=	0.570	
R.C.ult	= (Yult-Y)/Y*100%	=	178.9	%
Cp	= 0.9*L/(0.9-Y)	=	56.9	sec
Ymax	= 1-L/C	=	0.633	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	179	%





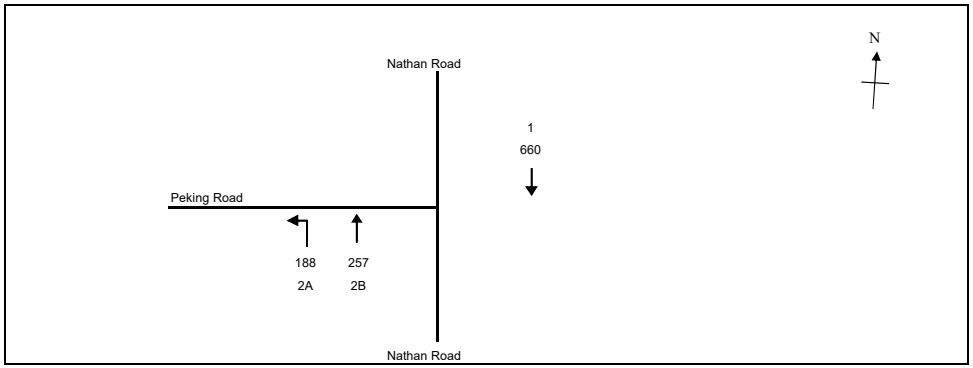
STAGE A	INT= 10	STAGE B	INT=	STAGE C	INT=	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3p	8.5	9	1	8	26	1	8	OK

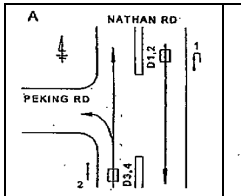
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				9				
1	A	3.40	1	2			N	4050		828		828	0.00	4050			4050	0.204	0.204		76	76	0.323	30
2A,2B	A	3.40	1	1	13		N	1955	159	131		290	0.55	1839			1839	0.158			59	76	0.249	21
2B	A	3.40	1	1				2095		330		330	0.00	2095			2095	0.158			59	76	0.249	24
PED	B		2																	35				

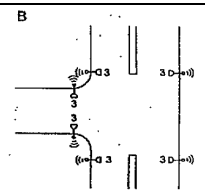
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J7
Nathan Road / Peking Road	2030 Design AM Peak (Under Approved Scheme)	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	2
No. of stage using for calculation		N =	1
Cycle time		C =	120 sec
Sum(y)		Y =	0.163
Loss time		L =	44 sec
Total Flow		=	1105 pcu
Co	= (1.5*L+5)/(1-Y)	=	84.8 sec
Cm	= L/(1-Y)	=	52.6 sec
Yult		=	0.570
R.C.ult	= (Yult-Y)/Y*100%	=	249.8 %
Cp	= 0.9*L/(0.9-Y)	=	53.7 sec
Ymax	= 1-L/C	=	0.633
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	250 %





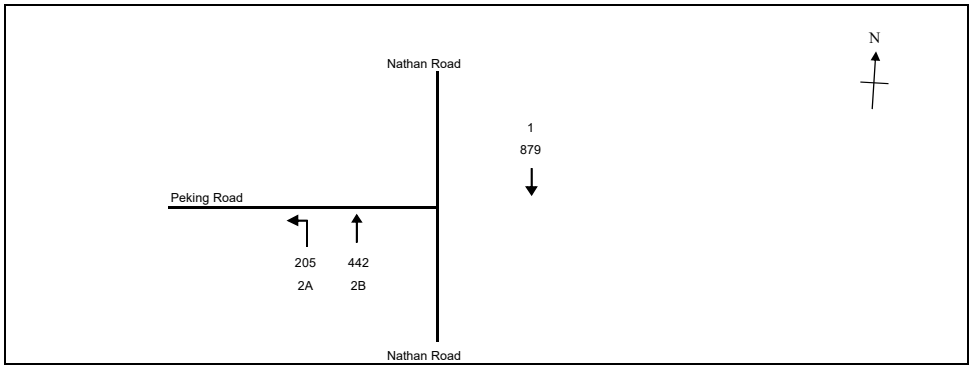
STAGE A	INT= 10	STAGE B	INT=	STAGE C	INT=	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3p	8.5	9	1	8	26	1	8	OK

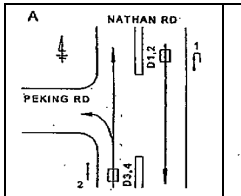
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				9				
1	A	3.40	1	2			N	4050		660		660	0.00	4050			4050	0.163	0.163		76	76	0.257	24
2A,2B	A	3.40	1	1	13		N	1955	188	16		203	0.92	1767			1767	0.115			54	76	0.182	15
2B	A	3.40	1	1				2095		241		241	0.00	2095			2095	0.115			54	76	0.182	18
PED	B		2																	35				

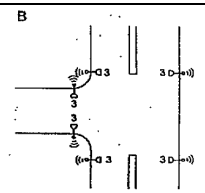
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J7
Nathan Road / Peking Road	2030 Design PM Peak (Under Approved Scheme)	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	2	
No. of stage using for calculation		N =	1	
Cycle time		C =	120	sec
Sum(y)		Y =	0.217	
Loss time		L =	44	sec
Total Flow		=	1526	pcu
Co	= (1.5*L+5)/(1-Y)	=	90.7	sec
Cm	= L/(1-Y)	=	56.2	sec
Yult		=	0.570	
R.C.ult	= (Yult-Y)/Y*100%	=	162.6	%
Cp	= 0.9*L/(0.9-Y)	=	58.0	sec
Ymax	= 1-L/C	=	0.633	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	163	%





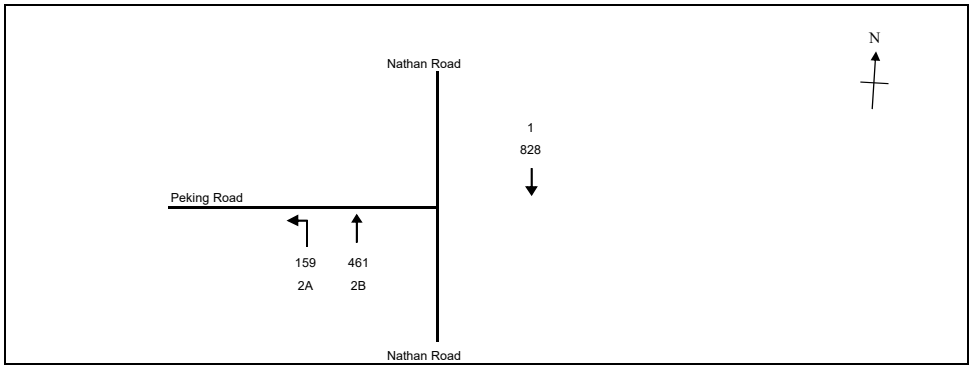
STAGE A	INT= 10	STAGE B	INT=	STAGE C	INT=	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3p	8.5	9	1	8	26	1	8	OK

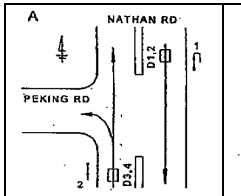
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				9				
1	A	3.40	1	2			N	4050		879		879	0.00	4050			4050	0.217	0.217		76	76	0.343	32
2A,2B	A	3.40	1	1	13		N	1955	205	95		300	0.68	1812			1812	0.166			58	76	0.261	22
2B	A	3.40	1	1				2095		347		347	0.00	2095			2095	0.166			58	76	0.261	25
PED	B		2																	35				

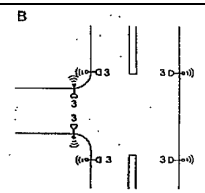
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J7
Nathan Road / Peking Road	2030 Design Weekend Peak (Under Approved Scheme)	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	2	
No. of stage using for calculation		N =	1	
Cycle time		C =	120	sec
Sum(y)		Y =	0.204	
Loss time		L =	44	sec
Total Flow		=	1448	pcu
Co	= (1.5*L+5)/(1-Y)	=	89.2	sec
Cm	= L/(1-Y)	=	55.3	sec
Yult		=	0.570	
R.C.ult	= (Yult-Y)/Y*100%	=	178.9	%
Cp	= 0.9*L/(0.9-Y)	=	56.9	sec
Ymax	= 1-L/C	=	0.633	
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	179	%





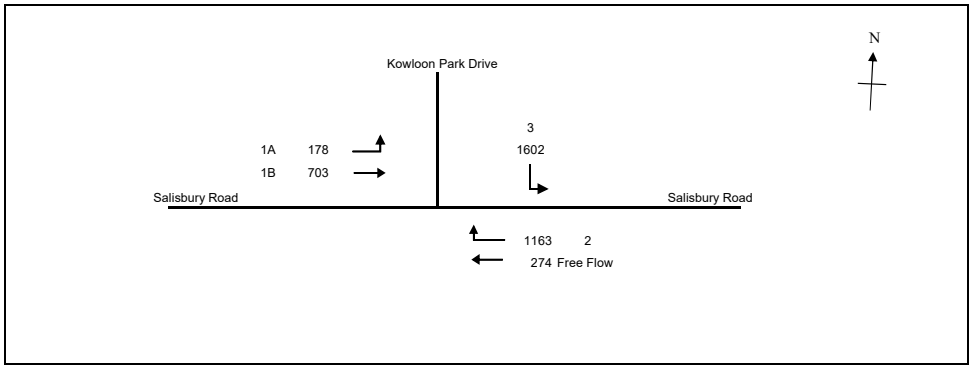
STAGE A	INT= 10	STAGE B	INT=	STAGE C	INT=	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check
3p	8.5	9	1	8	26	1	8	OK

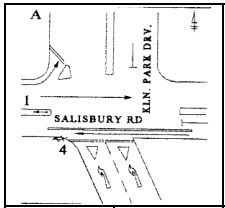
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				9				
1	A	3.40	1	2			N	4050		828		828	0.00	4050			4050	0.204	0.204		76	76	0.323	30
2A,2B	A	3.40	1	1	13		N	1955	159	131		290	0.55	1839			1839	0.158			59	76	0.249	21
2B	A	3.40	1	1				2095		330		330	0.00	2095			2095	0.158			59	76	0.249	24
PED	B		2																	35				

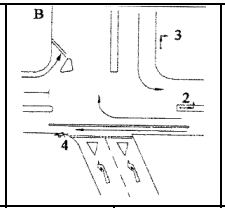
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J8
Salisbury Road / Kowloon Park Drive	2023 Existing AM Peak	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	2
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.544
Loss time		L =	10 sec
Total Flow		=	3920 pcu
Co	= (1.5*L+5)/(1-Y)	=	43.9 sec
Cm	= L/(1-Y)	=	21.9 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	51.6 %
Cp	= 0.9*L/(0.9-Y)	=	25.3 sec
Ymax	= 1-L/C	=	0.917
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	52 %





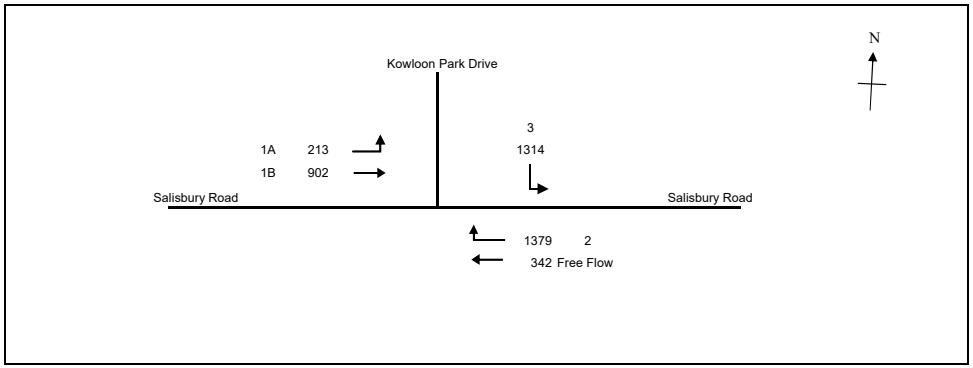
STAGE A	INT= 5	STAGE B	INT= 7	STAGE C	INT=	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check

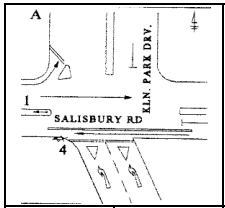
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				10				
1A,1B	A	3.30	1	1	20		N	1945	178	21		199	0.90	1823			1823	0.109	0.109		22	22	0.595	32
1B	A	3.30	1	3				6255		682		682	0.00	6255			6255	0.109			22	22	0.595	37
2	B	3.30	2	2	20			4170			1163	1163	1.00	3879			3879	0.300			61	88	0.409	31
3	B	3.40	2	2	15		N	4050	1602			1602	1.00	3682			3682	0.435	0.435		88	88	0.593	43

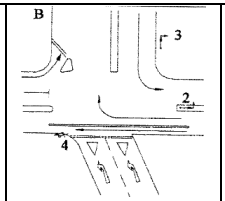
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J8
Salisbury Road / Kowloon Park Drive	2023 Existing PM Peak	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	2
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.495
Loss time		L =	10 sec
Total Flow		=	4150 pcu
Co	= (1.5*L+5)/(1-Y)	=	39.6 sec
Cm	= L/(1-Y)	=	19.8 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	66.7 %
Cp	= 0.9*L/(0.9-Y)	=	22.2 sec
Ymax	= 1-L/C	=	0.917
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	67 %





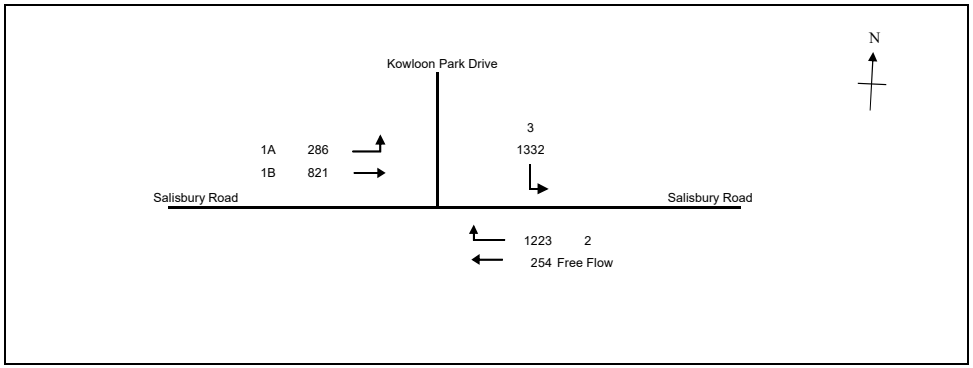
STAGE A	INT= 5	STAGE B	INT= 7	STAGE C	INT=	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check

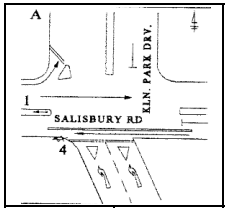
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				10				
1A,1B	A	3.30	1	1	20		N	1945	213	39		252	0.85	1829			1829	0.138	0.138		31	31	0.534	37
1B	A	3.30	1	3				6255		863		863	0.00	6255			6255	0.138			31	31	0.534	43
2	B	3.30	2	2	20			4170			1379	1379	1.00	3879			3879	0.356			79	79	0.540	47
3	B	3.40	2	2	15		N	4050	1314			1314	1.00	3682			3682	0.357	0.357		79	79	0.542	45

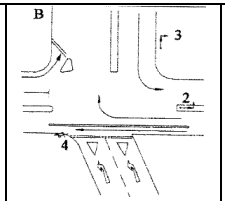
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J8
Salisbury Road / Kowloon Park Drive	2023 Existing Weekend Peak	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	2
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.520
Loss time		L =	10 sec
Total Flow		=	3916 pcu
Co	= (1.5*L+5)/(1-Y)	=	41.6 sec
Cm	= L/(1-Y)	=	20.8 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	58.7 %
Cp	= 0.9*L/(0.9-Y)	=	23.7 sec
Ymax	= 1-L/C	=	0.917
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	59 %





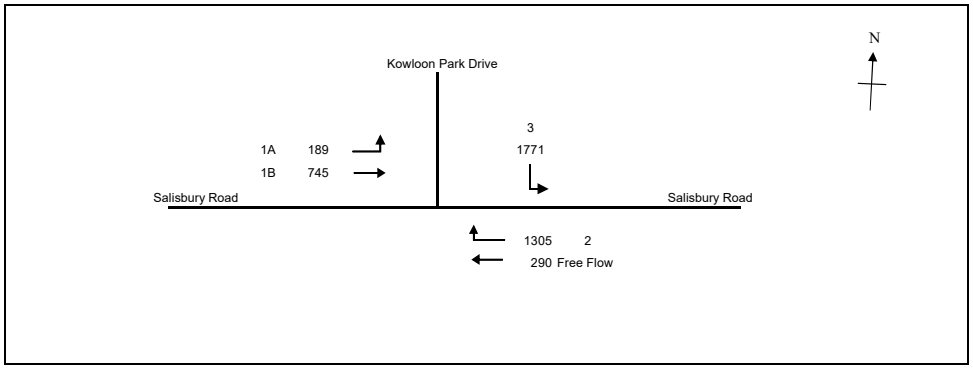
STAGE A	INT= 5	STAGE B	INT= 7	STAGE C	INT=	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check

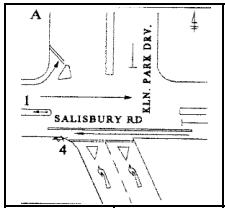
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				10				
1A,1B	A	3.30	1	1	20		N	1945	286	0		286	1.00	1809			1809	0.158	0.158		33	33	0.574	41
1B	A	3.30	1	3				6255		821		821	0.00	6255			6255	0.131			28	33	0.477	40
2	B	3.30	2	2	20			4170			1223	1223	1.00	3879			3879	0.315			67	77	0.491	44
3	B	3.40	2	2	15		N	4050	1332			1332	1.00	3682			3682	0.362	0.362		77	77	0.564	48

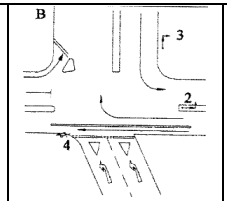
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J8
Salisbury Road / Kowloon Park Drive	2030 Reference AM Peak	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	2
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.597
Loss time		L =	10 sec
Total Flow		=	4300 pcu
Co	= (1.5*L+5)/(1-Y)	=	49.6 sec
Cm	= L/(1-Y)	=	24.8 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	38.3 %
Cp	= 0.9*L/(0.9-Y)	=	29.7 sec
Ymax	= 1-L/C	=	0.917
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	38 %





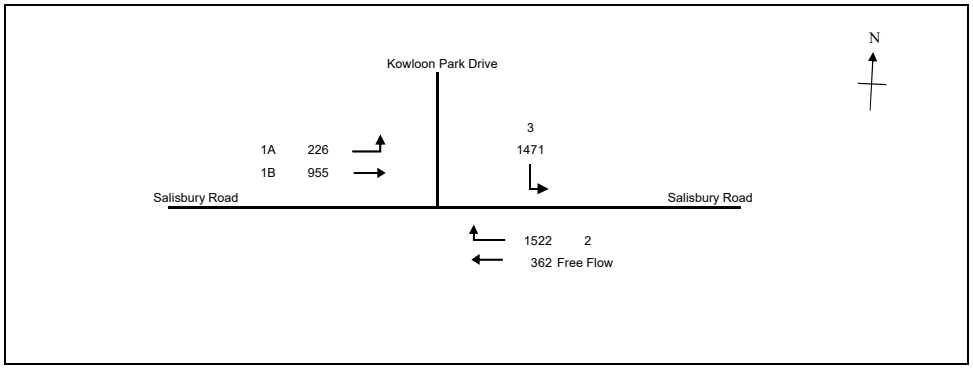
STAGE A	INT= 5	STAGE B	INT= 7	STAGE C	INT=	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check

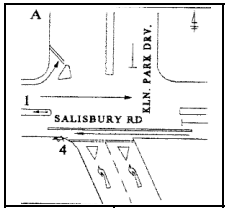
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				10				
1A,1B	A	3.30	1	1	20		N	1945	189	22		211	0.90	1823			1823	0.116	0.116		21	21	0.661	35
1B	A	3.30	1	3				6255		723		723	0.00	6255			6255	0.116			21	21	0.661	40
2	B	3.30	2	2	20			4170			1305	1305	1.00	3879			3879	0.336			62	89	0.454	34
3	B	3.40	2	2	15		N	4050	1771			1771	1.00	3682			3682	0.481	0.481		89	89	0.648	46

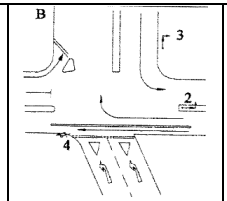
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J8
Salisbury Road / Kowloon Park Drive	2030 Reference PM Peak	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	2
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.546
Loss time		L =	10 sec
Total Flow		=	4537 pcu
Co	= (1.5*L+5)/(1-Y)	=	44.0 sec
Cm	= L/(1-Y)	=	22.0 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	51.2 %
Cp	= 0.9*L/(0.9-Y)	=	25.4 sec
Ymax	= 1-L/C	=	0.917
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	51 %





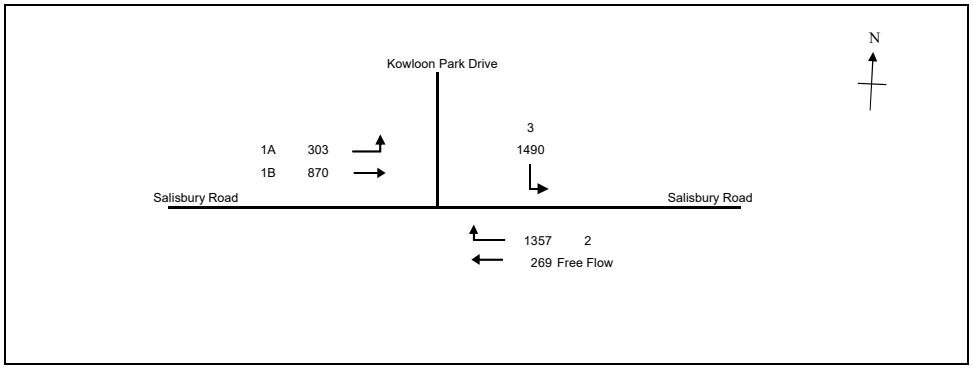
STAGE A	INT= 5	STAGE B	INT= 7	STAGE C	INT=	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check

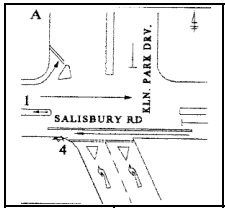
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				10				
1A,1B	A	3.30	1	1	20		N	1945	226	41		267	0.85	1829			1829	0.146	0.146		29	29	0.605	41
1B	A	3.30	1	3				6255		914		914	0.00	6255			6255	0.146			29	29	0.605	46
2	B	3.30	2	2	20			4170			1522	1522	1.00	3879			3879	0.392			79	81	0.581	49
3	B	3.40	2	2	15		N	4050	1471			1471	1.00	3682			3682	0.399	0.399		81	81	0.592	48

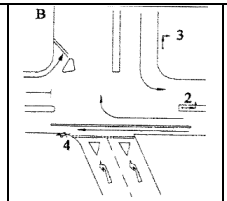
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J8
Salisbury Road / Kowloon Park Drive	2030 Reference Weekend Peak	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	2
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.572
Loss time		L =	10 sec
Total Flow		=	4288 pcu
Co	= (1.5*L+5)/(1-Y)	=	46.7 sec
Cm	= L/(1-Y)	=	23.4 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	44.3 %
Cp	= 0.9*L/(0.9-Y)	=	27.4 sec
Ymax	= 1-L/C	=	0.917
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	44 %





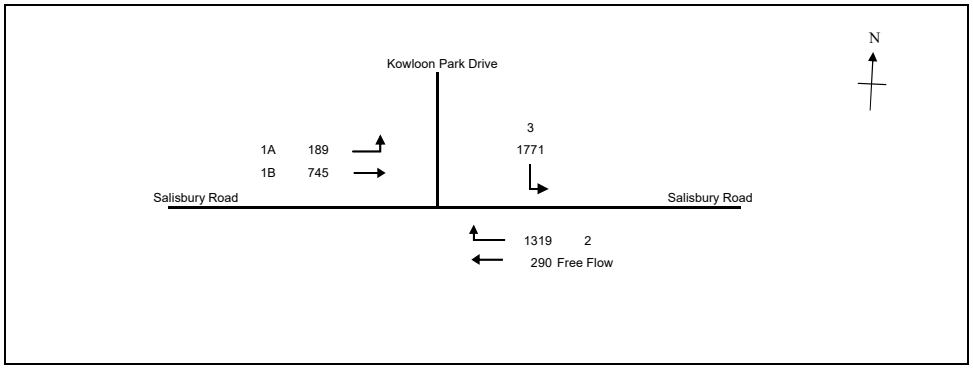
STAGE A	INT= 5	STAGE B	INT= 7	STAGE C	INT=	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check

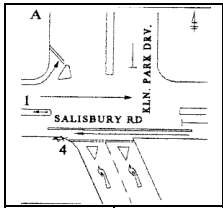
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				10				
1A,1B	A	3.30	1	1	20		N	1945	303	0		303	1.00	1809			1809	0.167	0.167		32	32	0.627	44
1B	A	3.30	1	3				6255		870		870	0.00	6255			6255	0.139			27	32	0.521	43
2	B	3.30	2	2	20			4170			1357	1357	1.00	3879			3879	0.350			67	78	0.538	47
3	B	3.40	2	2	15		N	4050	1490			1490	1.00	3682			3682	0.405	0.405		78	78	0.622	52

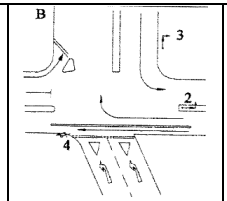
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J8
Salisbury Road / Kowloon Park Drive	2030 Design AM Peak (Under Proposed Scheme)	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	2
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.597
Loss time		L =	10 sec
Total Flow		=	4314 pcu
Co	= (1.5*L+5)/(1-Y)	=	49.6 sec
Cm	= L/(1-Y)	=	24.8 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	38.3 %
Cp	= 0.9*L/(0.9-Y)	=	29.7 sec
Ymax	= 1-L/C	=	0.917
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	38 %





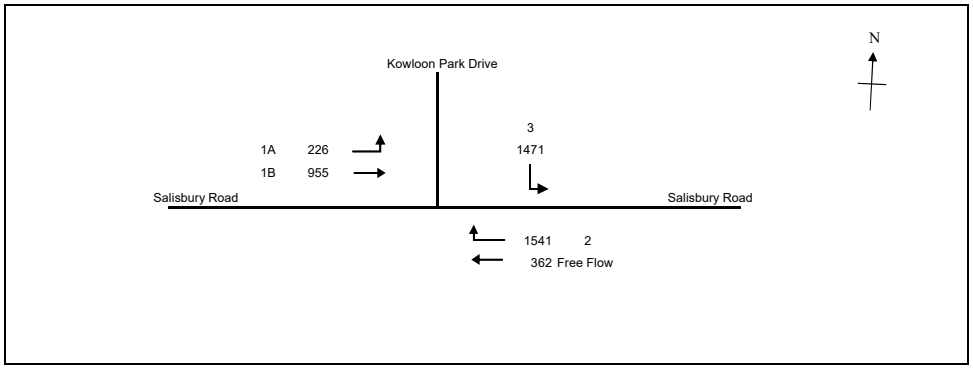
STAGE A	INT= 5	STAGE B	INT= 7	STAGE C	INT=	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check

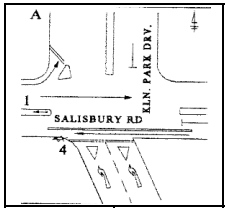
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				10				
1A,1B	A	3.30	1	1	20		N	1945	189	22		211	0.90	1823			1823	0.116	0.116		21	21	0.661	35
1B	A	3.30	1	3				6255		723		723	0.00	6255			6255	0.116			21	21	0.661	40
2	B	3.30	2	2	20			4170			1319	1319	1.00	3879			3879	0.340			63	89	0.458	34
3	B	3.40	2	2	15		N	4050	1771			1771	1.00	3682			3682	0.481	0.481		89	89	0.648	46

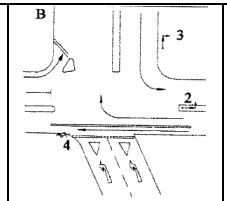
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J8
Salisbury Road / Kowloon Park Drive	2030 Design PM Peak (Under Proposed Scheme)	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	2
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.546
Loss time		L =	10 sec
Total Flow		=	4556 pcu
Co	= (1.5*L+5)/(1-Y)	=	44.0 sec
Cm	= L/(1-Y)	=	22.0 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	51.2 %
Cp	= 0.9*L/(0.9-Y)	=	25.4 sec
Ymax	= 1-L/C	=	0.917
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	51 %





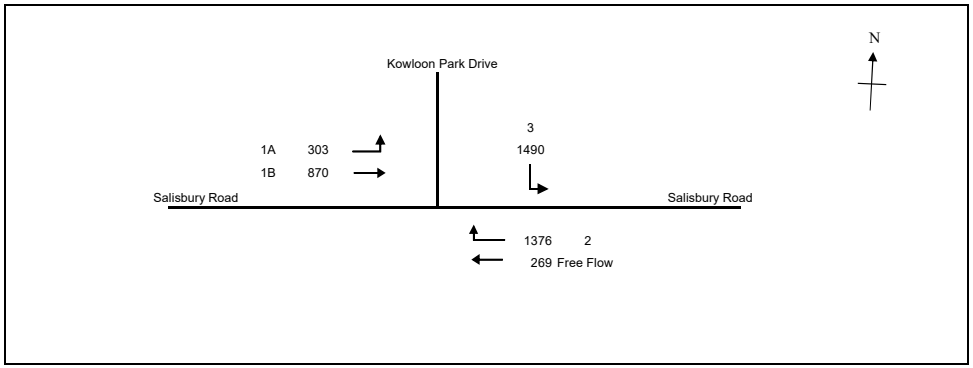
STAGE A	INT= 5	STAGE B	INT= 7	STAGE C	INT=	STAGE D	INT=

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.
																				10				
1A,1B	A	3.30	1	1	20		N	1945	226	41		267	0.85	1829			1829	0.146	0.146		29	29	0.605	41
1B	A	3.30	1	3				6255		914		914	0.00	6255			6255	0.146			29	29	0.605	46
2	B	3.30	2	2	20			4170			1541	1541	1.00	3879			3879	0.397			80	81	0.589	50
3	B	3.40	2	2	15		N	4050	1471			1471	1.00	3682			3682	0.399	0.399		81	81	0.592	48

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

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J8
Salisbury Road / Kowloon Park Drive	2030 Design Weekend Peak (Under Proposed Scheme)	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	2
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
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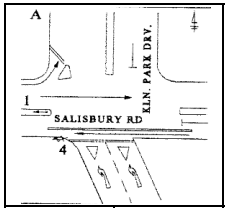
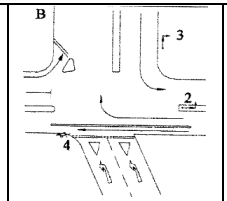
Loss time		L =	10 sec
Total Flow		=	4307 pcu
Co	= (1.5*L+5)/(1-Y)	=	46.7 sec
Cm	= L/(1-Y)	=	23.4 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	44.3 %
Cp	= 0.9*L/(0.9-Y)	=	27.4 sec
Ymax	= 1-L/C	=	0.917
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	44 %





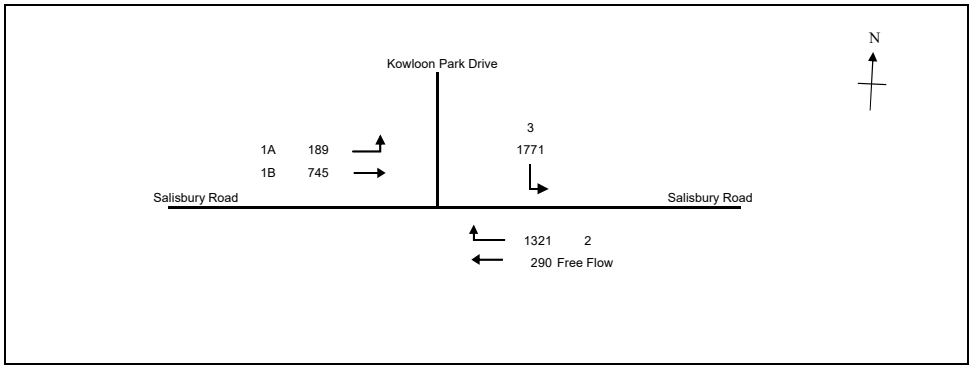
STAGE A	INT= 5	STAGE B	INT= 7	STAGE C	INT=	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check

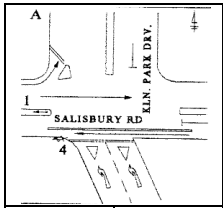
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				10				
1A,1B	A	3.30	1	1	20		N	1945	303	0		303	1.00	1809			1809	0.167	0.167		32	32	0.627	44
1B	A	3.30	1	3				6255		870		870	0.00	6255			6255	0.139			27	32	0.521	43
2	B	3.30	2	2	20			4170			1376	1376	1.00	3879			3879	0.355			68	78	0.546	48
3	B	3.40	2	2	15		N	4050	1490			1490	1.00	3682			3682	0.405	0.405		78	78	0.622	52

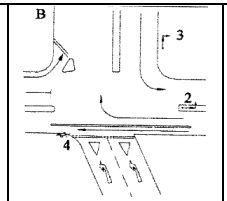
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J8
Salisbury Road / Kowloon Park Drive	2030 Design AM Peak (Under Approved Scheme)	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	2
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.597
Loss time		L =	10 sec
Total Flow		=	4316 pcu
Co	= (1.5*L+5)/(1-Y)	=	49.6 sec
Cm	= L/(1-Y)	=	24.8 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	38.3 %
Cp	= 0.9*L/(0.9-Y)	=	29.7 sec
Ymax	= 1-L/C	=	0.917
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	38 %





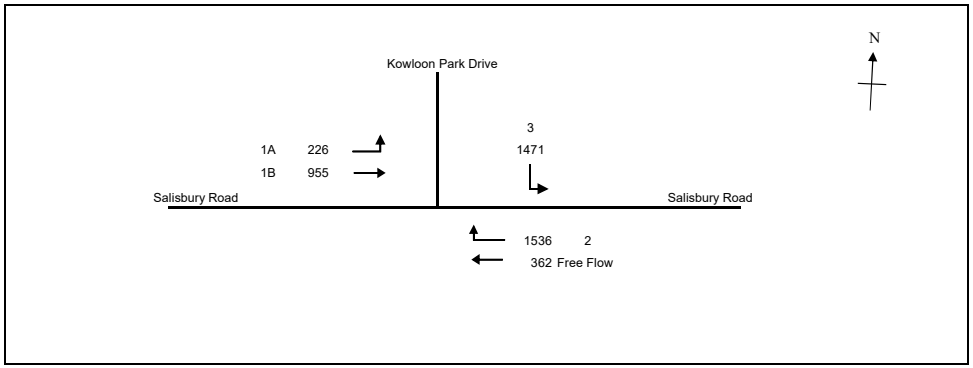
STAGE A	INT= 5	STAGE B	INT= 7	STAGE C	INT=	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check

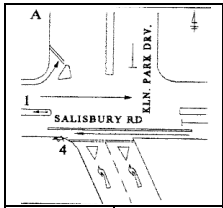
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				10				
1A,1B	A	3.30	1	1	20		N	1945	189	22		211	0.90	1823			1823	0.116	0.116		21	21	0.661	35
1B	A	3.30	1	3				6255		723		723	0.00	6255			6255	0.116			21	21	0.661	40
2	B	3.30	2	2	20			4170			1321	1321	1.00	3879			3879	0.341			63	89	0.459	34
3	B	3.40	2	2	15		N	4050	1771			1771	1.00	3682			3682	0.481	0.481		89	89	0.648	46

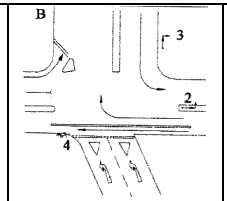
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J8
Salisbury Road / Kowloon Park Drive	2030 Design PM Peak (Under Approved Scheme)	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	2
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.546
Loss time		L =	10 sec
Total Flow		=	4551 pcu
Co	= (1.5*L+5)/(1-Y)	=	44.0 sec
Cm	= L/(1-Y)	=	22.0 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	51.2 %
Cp	= 0.9*L/(0.9-Y)	=	25.4 sec
Ymax	= 1-L/C	=	0.917
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	51 %





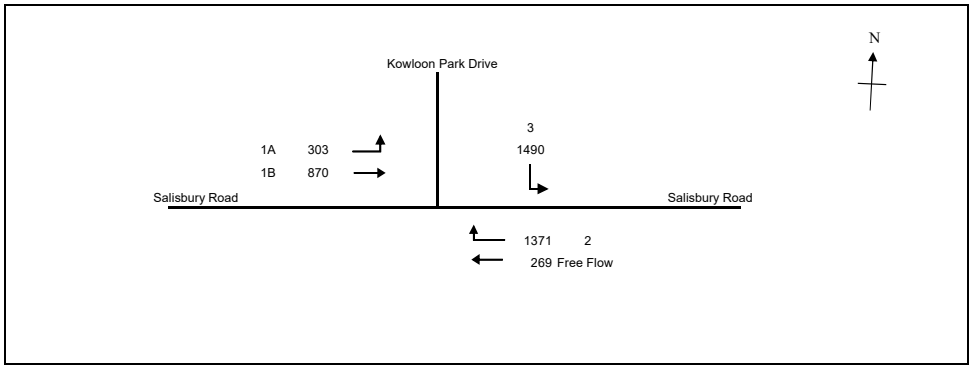
STAGE A	INT= 5	STAGE B	INT= 7	STAGE C	INT=	STAGE D	INT=

Pedestrian Phase	Width (m)	Green Time Required (s) SG	Delay	FG	Green Time Provided (s) SG	Delay	FG	Check

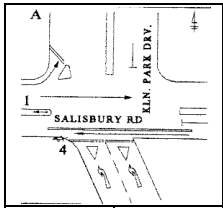
Move-ment	Stage	Lane Width m.	Phase	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Flow Left pcu/h	Flow Straight pcu/h	Flow Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Uphill Gradient %	Short lane Effect pcu/h	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queuing Length m.
																				10				
1A,1B	A	3.30	1	1	20		N	1945	226	41		267	0.85	1829			1829	0.146	0.146		29	29	0.605	41
1B	A	3.30	1	3				6255		914		914	0.00	6255			6255	0.146			29	29	0.605	46
2	B	3.30	2	2	20			4170			1536	1536	1.00	3879			3879	0.396			80	81	0.587	50
3	B	3.40	2	2	15		N	4050	1471			1471	1.00	3682			3682	0.399	0.399		81	81	0.592	48

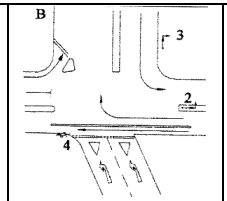
NOTE : 'O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRIAN WALKING SPEED = 0.9m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

OVE ARUP & PARTNERS	TRAFFIC SIGNAL CALCULATION		
Section 16 Planning Application for Proposed Flat with Permitted Office and Shops/Eating Places at 43 - 49A Hankow Road in Tsim Sha Tsui		PROJECT NO: 294680-01	JUNCTION NO: J8
Salisbury Road / Kowloon Park Drive	2030 Design Weekend Peak (Under Approved Scheme)	DATE : 8-Nov-23	FILENAME :



No. of stages per cycle		N =	2
No. of stage using for calculation		N =	2
Cycle time		C =	120 sec
Sum(y)		Y =	0.572
Loss time		L =	10 sec
Total Flow		=	4302 pcu
Co	= (1.5*L+5)/(1-Y)	=	46.7 sec
Cm	= L/(1-Y)	=	23.4 sec
Yult		=	0.825
R.C.ult	= (Yult-Y)/Y*100%	=	44.3 %
Cp	= 0.9*L/(0.9-Y)	=	27.4 sec
Ymax	= 1-L/C	=	0.917
R.C.(C)	= (0.9*Ymax-Y)/Y*100%	=	44 %





STAGE A	INT= 5	STAGE B	INT= 7	STAGE C	INT=	STAGE D	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.
																				10				
1A,1B	A	3.30	1	1	20		N	1945	303	0		303	1.00	1809			1809	0.167	0.167		32	32	0.627	44
1B	A	3.30	1	3				6255		870		870	0.00	6255			6255	0.139			27	32	0.521	43
2	B	3.30	2	2	20			4170			1371	1371	1.00	3879			3879	0.353			68	78	0.544	48
3	B	3.40	2	2	15		N	4050	1490			1490	1.00	3682			3682	0.405	0.405		78	78	0.622	52

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