



Appendix IV

Traffic Impact Assessment

DOCUMENT STATUS CONTROL RECORD

**Proposed Rezoning from “Government, Institution or Community” to
“Residential (Group B)6” Zone to Include Social Welfare Facility (RCHE only) and
Public Vehicle Park (excluding container vehicle) at Lots Nos. 148 S.A RP (Part),
148 S.B RP (Part), 149 RP, 150 S.A, 150 S.B and 151 in D.D. 206 and
Adjoining Government Land, West of Wu Kai Sha Road, Ma On Shan, New Territories**

Traffic Impact Assessment Report

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1 INTRODUCTION

1.1 Background

- 1.1.1 The project site comprises of Lots Nos. 148 S.A RP (Part), 148 S.B RP (Part), 149 RP, 150 S.A, 150 S.B and 151 in D.D. 206 and adjoining government land to the west of Wu Kai Sha Road, Ma On Shan, New Territories (hereinafter called "the Site"). The present rezoning application intends to utilize a piece of vacant land presently under "Government, Institution or Community" ("G/IC") zone into a "Residential (Group B)6" ("R(B)6") zone. The location of the Site is shown in **Figure 1.1**.
- 1.1.2 The Site falls within an area zoned as "Government, Institution or Community" ("G/IC") zone under the Draft Ma On Shan Outline Zoning Plan (OZP), Plan No. S/MOS/27. The site covers a total land area of about 4,325 m². The proposed rezoning scheme comprises a total of 4 building blocks (i.e. two 16-storey residential towers, one 2-storey clubhouse and one 7-storey residential care homes for the elderly ("RCHE") on top of 3 levels of basement car park (i.e., the upper level is planned to serve the proposed development above, and the lower two levels are for "public vehicle park" ("PVP") purpose.).
- 1.1.3 Upon completion by 2027, the proposed rezoning scheme will provide a total of 184 private residential units, to be accommodated a population of 534 persons, 178 RCHE bed spaces, 124 public car parking spaces, 13 public motorcycle parking spaces, 72 ancillary car parking spaces, 3 loading/unloading bays ("L/UL"), 3 light bus/ambulance parking spaces, 2 motorcycle parking spaces and 8 bicycle parking spaces.
- 1.1.4 LLA Consultancy Limited has been commissioned by the applicant to undertake a Traffic Impact Assessment (TIA) study in support of this rezoning application. This report presents the findings of the study.

1.2 Objectives

- 1.2.1 The objectives of the traffic impact assessment study are as follows:
- to review the existing traffic conditions in the vicinity of the Site
 - to estimate the traffic generation and attraction of the proposed development;
 - to project the future traffic situation in the surrounding road network;
 - to appraise the potential traffic impact of the proposed development and to consider traffic improvement proposals, if required; and
 - to quantify the internal transport facilities for the proposed development;

2 THE PROPOSED DEVELOPMENT

2.1 The Site

2.1.1 As shown in **Figure 1.1**, the Site is located at the west corner of the junction of Yiu Sha Road and Wu Kai Sha Road, Wu Kai Sha, Ma On Shan. The Site area is about 4,325 m².

2.1.2 At present, the Site is a temporary convenient vehicles' holding area. The Site can be accessed from/to Yiu Sha Road and Wu Kai Sha Road via a local access road.

2.2 The Proposed Development Parameters

2.2.1 **Table 2.1** summarizes the key development parameters of the proposed rezoning scheme.

Table 2.1 Key Development Parameters

Item	Parameter(s)
1. Site Area	Approx. 4,325 m ²
2. Plot Ratio	2.356
3. No. of Blocks	4
- Residential	2
- RCHE	1
- Clubhouse	1
4. Total No. of Flats	184
- Flat Size (FS) ≤ 40m ²	116
- 40m ² < FS ≤ 70m ²	8
- 70m ² < FS ≤ 100 m ²	60
5. Average Flat Size	49
6. Residential Care Home for Elderly	178
7. Ancillary Parking Provision	
- Car Parking	72
- L/UL	1 bay for LGV, 2 bays for HGV
- Light bus bays	3
- Motorcycle	2
8. Public Vehicle Park	
- Car Parking	124
- Motorcycle	13

3 EXISTING TRAFFIC SITUATION

3.1 Existing Road Network

- 3.1.1 Yiu Sha Road is a dual 2-lane carriageway running east-west direction connecting with Wu Kai Sha Road and Lok Wo Sha Lane.
- 3.1.2 Wu Kai Sha Road is also dual 2-lane carriageway running north-south direction. It connects Yiu Sha Road to the north and Sai Sha Road to the south.
- 3.1.3 Sai Sha Road is a dual 2-lane carriageway (a district distributor road) running east-west direction. It connects Sha Tin and Sai Kung area. In Year 2021, the section of Sai Sha Road between Ma On Shan Bypass and Nai Chung carried an Annual Average Daily Traffic (AADT) of 25,120 vehicles.

3.2 Traffic Count Survey

- 3.2.1 A traffic count survey was carried out on 29 July 2022 (Friday) and 15 June 2023 (Thursday) each during the peak hour period from 07:00 to 9:00 and 17:00 to 19:00 at the following junctions as shown in **Table 3.1**. The locations of the key junctions and area of influence (AOI) are shown in **Figure 3.1**.

Table 3.1 Surveyed Junctions

No.	Junction	Junction Type/Capacity Index ⁽¹⁾
J1	Wu Kai Sha Road / Yiu Sha Road	Roundabout/DFC
J2	Sai Sha Road / Wu Kai Sha Road / Sha On Street	Roundabout/DFC
J3	Sai Sha Road / Kam Ying Road	Signalized/RC
J4	Sai Sha Road / Ma On Shan Road / On Chiu Street	Signalized/RC

Note: (1) DFC = Design Flow to Capacity;

- 3.2.2 The identified morning (AM) and evening (PM) peak hours were 07:30 – 08:30 and 18:00 – 19:00, respectively and the surveyed traffic flows are presented in **Figure 3.2**.

3.3 Existing Junction Capacity Assessment

- 3.3.1 Based on the surveyed traffic flows, the performance of the key junctions were assessed. The assessment results are tabulated in **Table 3.2** and detailed junction capacity calculation sheets are presented in **Appendix A**.

Table 3.2 Existing Junction Performance

No.	Junction	Junction Type/Index ⁽¹⁾	AM Peak	PM Peak
J1	Wu Kai Sha Road / Yiu Sha Road	Roundabout/DFC	0.11	0.16
J2	Sai Sha Road / Wu Kai Sha Road / Sha On Street	Roundabout/DFC	0.24	0.30
J3	Sai Sha Road / Kam Ying Road	Signalized/RC	82%	92%
J4	Sai Sha Road / Ma On Shan Road / On Chiu Street	Signalized/RC	61%	62%

Note: (1) RC = Reserve Capacity for signalized junction; DFC = Design Flow to Capacity ratio for priority junction.

3.3.2 It can be seen from **Table 3.2** that all concerned junctions performed satisfactorily during AM and PM peak hours.

3.4 Existing Link Capacity Assessment

3.4.1 The Volume to Capacity (V/C) Ratios of Sai Sha Road and Ma On Shan Bypass were assessed and the results are presented in **Table 3.3**.

Table 3.4 Link Capacity Assessment

Direction	Bound	Capacity (pcu/hr) ⁽¹⁾	Traffic Flow (pcu/hr)		V/C Ratio	
			AM	PM	AM	PM
Sai Sha Road (between On Yuen Street and On Chiu Street)	WB	5,040	873	661	0.17	0.13
	EB	5,040	637	798	0.13	0.16
Sai Sha Road (between On Chiu Street and Kam Ying Street)	WB	5,040	843	626	0.17	0.12
	EB	5,040	601	794	0.12	0.16
Sai Sha Road (between Kam Ying Street and Wu Kai Sha Road)	WB	3,360	537	491	0.16	0.15
	EB	3,360	596	606	0.18	0.18
Ma On Shan Bypass (between Sai Sha Road and Ma On Shan Road)	NB	3,600	1,121	1,182	0.31	0.33
	SB	5,640	1,635	1,270	0.29	0.23

Note: (1) Capacity refers to TPDM Vol.2 Ch. 2.4. A factor of 1.2 (based on the traffic count survey result) is adopted to convert the capacity from veh/hr to pcu/hr.

3.4.2 As shown in **Table 3.3**, the concerned road sections are operating with spare capacity during AM and PM hours.

3.5 Existing Public Transport Facilities

3.5.1 At present, the Site has been served by 22 franchised bus and 4 scheduled minibus (GMB) routes operating along Wu Kai Sha Road and Sai Sha Road. MTR Wu Kai Sha Station is located approximately 800m walking distance from the Site. **Table 3.4 and Figure 3.3** shows the existing bus and minibus routes running in the vicinity of the Site.

Table 3.4 Existing Public Transport Services

Mode	Route No.	Origin-Destination	Frequency (min)
Bus	40E	Nai Chung – Kwai Chung (Kwai Fong Estate)	07:20, 18:10
	40S	Nai Chung – Kwai Chung (Kwai Fong Estate)	07:20
	40X	Wu Kai Sha Station – Kwai Chung Estate	6 – 20
	85X	Ma On Shan Town Centre – Hung Hom (Hung Luen Road)	9 – 25
	87E	Nai Chung – Tsim Sha Tsui	07:40, 18:00
	89D	Wu Kai Sha Station – Lam Tin Station	3 – 20
	89S	Yuen Chau Kok – Wu Kai Sha Station (Circular)	20 – 30
	99	Sai Kung – Heng On	15 – 25
	274	Sheung Shui (Tai Ping) – Wu Kai Sha Station	06:40, 07:45
	274P	Tai Po Industrial Estate – Wu Kai Sha Station	7 trips per day
	680P	Wu Kai Sha Station – Admiralty Station (East)	4 trips per day
	680X	Wu Kai Sha Station – Central (Macau Ferry)	11 trips per day
	682	Chai Wan (East) – Wu Kai Sha Station	12 – 25
	682A	Chai Wan (East) – Nai Chung	5 trips per day
	682P	Wu Kai Sha Station – Chai Wan (East)	5 trips per day
	682X	Nai Chung – Chai Wan (East)	07:35
	980X	Wu Kai Sha Station – Wan Chai (Fleming Road)	18 trips per day
	988	Chai Wan (East) – Nai Chung	17:40, 18:00
	A41P	Airport – Wu Kai Sha Station	20 – 65
	N287	Tsim Sha Tsui East (Mody Road) – Wu Kai Sha Station	00:55, 01:25, 01:55
X89D	Nai Chung – Kwun Tong Ferry	8 trips per day	
NA40	Wu Kai Sha Station – HZMB Hong Kong Port	4 trips per day	
GMB	807B	Ma On Shan Station (Bayshore Towers Public Transport Interchange) – Wong Chuk Wan	12 – 15
	807K	University Station – Tseng Tau	6 – 15
	807X	University Station – Wu Kai Sha Station (Circular route)	5 – 10
	810A	White Head – Sha Tin Central	30

3.6 Existing Footpath Capacity Assessment

- 3.6.1 It is anticipated that most of the pedestrians to be generated and attracted by the proposed development will use the public transport services in its vicinity, i.e. MTR Wu Kai Sha Station and bus stops at Wu Kai Sha Road and Wu Kai Sha Station. The pedestrians to be generated by the proposed development are anticipated to access the public transport services on foot via the local footpath system as shown in **Figure 3.4**.
- 3.6.2 An assessment of the level-of-service (**LOS**) was conducted for the foregoing footpath sections to appraise their existing performances. **Table 3.5** is an extract of the definition of pedestrian walkway LOS according to the Highway Capacity Manual.

Table 3.5 Description of Level-of-service

LOS	Flow (ped/m/min)	Description
A	≤16	Pedestrians basically move in desired paths without altering their movements in response to other pedestrians. Walking speeds are freely selected, and conflicts between pedestrians are unlikely.
B	16-23	Sufficient space is provided for pedestrians to freely select their walking speeds, to bypass other pedestrians and to avoid crossing conflicts with others. At this level, pedestrians begin to be aware of other pedestrians and to respond to their presence in the selection of walking paths.
C	23-33	Sufficient space is available to select normal walking speeds and to bypass other pedestrians primarily in unidirectional stream. Where reverse direction or crossing movement exist, minor conflicts will occur, and speed and volume will be somewhat lower.
D	33-49	Freedom to select individual walking speeds and bypass other pedestrians is restricted. Where crossing or reverse flow movements exist, the probability of conflicts is high and its avoidance requires changes of speeds and position. The LOS provides reasonable fluid flow; however, considerable friction and interactions between pedestrians are likely to occur.
E	49-75	Virtually, all pedestrians would have their normal walking speeds restricted. At the lower range of this LOS, forward movement is possible only by shuffling. Space is insufficient to pass over slower pedestrians. Cross- and reverse-movement are possible only with extreme difficulties. Design volumes approach the limit of walking capacity with resulting stoppages and interruptions to flow.
F	>75	Walking speeds are severely restricted. Forward progress is made only by shuffling. There are frequent and unavoidable conflicts with other pedestrians. Cross- and reverse-movements are virtually impossible. Flow is sporadic and unstable. Space is more characteristics of queued pedestrians than of moving pedestrian streams.

Notes: (1) source: Highway Capacity Manual 2000 published by the US Transportation Research Board
 (2) ped/m/min = pedestrians per metre per minute

- 3.6.3 Based on the collected data of pedestrian movements, the LOS of the footways in accommodating the existing pedestrian movements have been assessed and the results of the assessment are summarised in **Table 3.6**.

Table 3.6 Existing Capacity Analysis of the Concerned Footpaths

Ref.	Location	Actual Width (m)	Effective Width (m) ⁽¹⁾	Peak Hour flow (ped/hr)		Flow Rate ⁽²⁾ ped/m/min [LOS]	
				AM	PM	AM	PM
P1	Western footpath of Yiu Sha Road	2.4	1.4	43	47	0.5 [A]	0.6 [A]
P2	Northern footpath of Wu Kai Sha Road (west of Double Cove's vehicular access)	2.3	1.3	71	105	0.9 [A]	1.3 [A]
P3	Northern footpath of Wu Kai Sha Road (east of Double Cove's vehicular access)	2.5	1.5	92	110	1.0 [A]	1.2 [A]
P4	Staircase connecting northern footpath of Sai Sha Road and Wu Kai Sha Station	4.4	3.4	113	99	0.6 [A]	0.5 [A]

Notes: (1) A clearance zone of 0.5m on side with obstruction was adopted.
(2) For LOS "C" or above, flow volumes should be less than 33 ped/m/min.

3.6.4 The results of the assessment have indicated that the existing footpath conditions are satisfactory in both AM and PM Peak hours with LOS "A" according to the Highway Capacity Manual.

4 FUTURE TRAFFIC SITUATION

4.1 Design Year

4.1.1 The tentative completion year for the proposed development is 2027. The guideline from the Transport Department recommends that the traffic impact assessment should be conducted for whichever is later: (i) three years after the completion date (2027 + 3 = 2030), or (ii) five years after the submission (2023 + 5 = 2028). For the captioned project, the design year adopted for junction capacity analysis is 2030.

4.2 Traffic Forecast

Annual Traffic Census (ATC) – Historical Data

4.2.1 In order to establish the traffic growth rate in the vicinity of the Site, reference was made to the 2016 to 2021 Annual Traffic Census Reports published by the Transport Department, reporting on the AADT at the counting stations in the territory. The details of the counting stations in the study area and the corresponding counts are shown in **Table 4.1**.

Table 4.1 Annual Traffic Census Data

Stn. No.	Road Section			AADT ⁽¹⁾						Avg. Growth%
	Road	From	To	2016	2017	2018	2019	2020	2021	
5005	Ma On Shan Road	Ma On Shan Bypass	Hang Hong St RA	26,500	26,270 (-0.9%)	26,020 (-1%)	26,020 (0%)	24,340 (-6.5%)	25,520 (4.8%)	-0.8%
5467	Ma On Shan Road	Hang Hong Street	Sai Sha Road	17,530	17,420 (-0.6%)	17,700 (1.6%)	17,150 (-3.1%)	15,990 (-6.8%)	16,740 (4.7%)	-0.9%
5662	Sai Sha Road	Ma On Shan Bypass	Nai Chung	18,260	18,140 (-0.7%)	18,430 (1.6%)	18,300 (-0.7%)	22,480 (22.8%)	25,120 (11.7%)	6.6%
5683	Sai Sha Road	On Yuen Street	Sui Tai Road	23,210	23,060 (-0.6%)	23,440 (1.6%)	23,270 (-0.7%)	24,950 (7.2%)	27,860 (11.7%)	3.7%
5708	Ma On Shan Bypass	Ma On Shan Road	Sai Sha Road	21,790	21,850 (0.3%)	21,930 (0.4%)	21,900 (-0.1%)	23,160 (5.8%)	25,780 (11.3%)	3.4%
5877	Hang Hong St	Ma On Shan Rd	Sai Sha Rd	14,820	15,040 (1.5%)	15,280 (1.6%)	15,180 (-0.7%)	14,600 (-3.8%)	12,710 (-12.9%)	-3.0%
5883	On Yuen St	Sai Sha Rd	On Chun St	10,530	11,410 (8.4%)	11,590 (1.6%)	11,510 (-0.7%)	11,070 (-3.8%)	12,520 (13.1%)	3.5%
Total				132,640	133,190 (0.4%)	134,390 (0.9%)	133,330 (-0.8%)	136,590 (2.4%)	146,250 (7.1%)	+2.0%

Note: (1) Figures in bracket indicated the % increase between two years.

4.2.2 **Table 4.1** showed that the recorded average annual growth rate of the concerned counting stations is +2.0% between years 2016 to 2021.

Territorial Population and Employment Data Matrix (TPEDM) – Projection Data

4.2.3 Reference was also made to the 2019 based Territorial Population and Employment Data Matrix (TPEDM) published by the Planning Department. The population and employment data of year 2019 and 2031 are summarized in **Table 4.2**.

Table 4.2 TPEDM – Ma On Shan District

Year	Population	Employment	Total
2019	219,950	34,100	254,050
2031	229,800	35,100	264,900
Average Annual Growth Rate			0.35%

4.2.4 As shown in **Table 4.2**, the average annual growth rate for both population and employment of Ma On Shan district is +0.35% between 2019 and 2031. Having considered the rates derived from ATC and TPEDM data, to be conservative, the larger growth rate of +2.0% will be adopted for the subsequent traffic forecasting.

4.3 Planned/Committed Developments

4.3.1 To estimate the future traffic flows, updated information are being obtained from available information regarding the planned and approved developments in the vicinity of the study area. Details of these developments are given in **Table 4.3**.

Table 4.3 Planned / Committed Developments

Ref.	Development	Proposed Use	Content	Anticipated Completion Year
1	STTL 600 – CDA(1) ⁽¹⁾	Student Hostel	2,236 units	2025
2	STTL 601 – R(C)5	Private Housing	547 units	2020
3	STTL 611 – R(C)3	Private Housing	160 units	2022
4	Sai Sha Development ⁽²⁾	Private Housing	9,700 units	2025/2030
		Commercial	12,077 m ² GFA	
		Recreation & Sport Centre	17,500 m ² GFA	
		Social Welfare	5,560 m ² GFA	
5	Proposed School Development at Various Lots and Adjoining Government Land in DD167, Nai Chung ⁽³⁾	School	29 classes	2025
6	Cheung Muk Tau Tsuen West Housing Development Site 1	Public Residential	1,660 units	2029/2030
7	Cheung Muk Tau East Housing Development Site 2	Public Residential	1,820 units	2029/2030
8	Cheung Muk Tau Holiday Centre Expansion	RCHE	200 beds	2026
9	29 On Chun Street, Ma On Shan ⁽⁴⁾	Private Housing	758 units	2025
		Retail	5,543 m ² GFA	
10	Public Housing Development at Ma On Shan Tsuen	Public Housing	2,700 units	2029/2030
11	Kam Chun Court	Public Housing	2,079 units	2023
12	Kam Pak Court	Public Housing	1,900 units	2024/2025

Notes: (1) Reference was made to Planning Application No. A/MOS/96, the proposed development will have a total of 2,236 units (2,168 hostel units and 68 overnight staff accommodation units).

- (2) Reference was made to the TIA report of Planning Application No. A/NE-SSH/142.
 (3) Reference was made to the gist of Planning Application No. A/MOS/125.
 (4) Reference was made to the gist of Planning Application No. Y/MOS/6.

4.3.2 The traffic flows that would be generated by these developments have been considered, by making reference to the trip generation rates in the Transport Planning and Design Manual ("TPDM"). The traffic generation and attraction numbers are shown in **Table 4.4**.

Table 4.4 Traffic Generation and Attraction of Planned / Committed Developments

Type / Development		Unit/Content	AM Peak Hour			PM Peak Hour		
			Gen.	Att.	2-way	Gen.	Att.	2-way
TPDM Trip Rates								
Subsidised: PRH (Mean)	PRH	pcu/hr/flat	0.0432	0.0326	-	0.0237	0.0301	-
Subsidised: PRH (Upper limit)	PRH(U)	pcu/hr/flat	0.0539	0.0439	-	0.0278	0.0339	-
Subsidised: HOS/PSPS (Upper limit)	HOS(U)	pcu/hr/flat	0.0761	0.0573	-	0.0350	0.0451	-
Private: High-Density/R(A): 60m ² (Upper limit)	Rs60 (U)	pcu/hr/flat	0.1021	0.0709	-	0.0415	0.0464	-
Private: High-Density/R(A): 70m ² (Mean)	Rs70	pcu/hr/flat	0.0888	0.0515	-	0.0356	0.0480	-
Private: Medium-Density/R(B): 120m ² (Upper limit)	Rs120 (U)	pcu/hr/flat	0.2601	0.1469	-	0.1353	0.1862	-
Retail (Mean)	R	pcu/hr/100m ²	0.2296	0.2434	-	0.3100	0.3563	-
Traffic Generation of the Planned Developments								
Site 1 ⁽¹⁾	Rs60 (U)	2,236 units	229	159	388	93	104	197
Site 2	Rs70	547 units	49	29	78	20	27	47
Site 3 ⁽¹⁾	Rs120 (U)	160 units	42	24	66	22	30	52
Site 4	-	(see Table 4.3)	981 ⁽²⁾	707 ⁽²⁾	1,688 ⁽²⁾	738 ⁽²⁾	846 ⁽²⁾	1,584 ⁽²⁾
Site 5	-	29 classes	116 ⁽³⁾	131 ⁽³⁾	247	87 ⁽³⁾	81 ⁽³⁾	168
Site 6 ⁽¹⁾	PRH(U)	1,660 units	90	73	163	47	57	104
Site 7 ⁽¹⁾	PRH(U)	1,820 units	99	80	179	51	62	113
Site 8	-	200 beds	7 ⁽⁴⁾	8 ⁽⁴⁾	15	7 ⁽⁴⁾	7 ⁽⁴⁾	14
Site 9	-	(see Table 4.3)	68 ⁽⁵⁾	47 ⁽⁵⁾	115 ⁽⁵⁾	40 ⁽⁵⁾	49 ⁽⁵⁾	89 ⁽⁵⁾
Site 10	PRH(U)	2,700 units	146	119	265	76	92	168
Site 11	HOS(U)	2,079 units	159	120	279	73	94	167
Site 12	HOS(U)	1,900 units	145	109	254	67	86	153

Notes: Gen. – Generation; Att. - Attraction

- (1) Due to the remoteness of the development, TPDM trip rates (upper limit) are adopted.
- (2) Traffic Generation adopted in the TIA of application no. A/NE-SSH/142, the relevant page is extracted and enclosed in **Appendix B**.
- (3) Traffic Generation adopted in the TIA of application no. A/MOS/125, the relevant page is extracted and enclosed in **Appendix B**.
- (4) Traffic Generation adopted in the TIA report, the relevant page is extracted and enclosed in **Appendix B**.
- (5) Traffic Generation adopted in the TIA of application no. Y/MOS/6, the relevant page is extracted and enclosed in **Appendix B**.

4.3.3 As shown in **Table 4.4**, some developments have been completed but the population has not yet fully intake at the time of survey. However, to be conservative, the traffic flows to be generated by these developments are also included in the subsequent traffic forecast.

4.4 Proposed Development Traffic Generation

4.4.1 In order to examine the traffic impact of the proposed development, traffic generated/ attracted by the proposed development should be estimated based on the development parameters as outlined in **Table 2.1** and the trip rates documented in TPDM Volume 1 Chapter 3 – Transport Considerations of Town Plans.

4.4.2 As there is no established trip rates published in TPDM or other relevant guidelines for public vehicle park, trip generation surveys at existing RCHEs and public vehicle parks, were arranged to collect trip rates of carpark. The trip generation survey was conducted 23 November 2021 (Tuesday) and 29 July 2022 (Friday) during the peak hour period from 07:30 to 09:30 and 17:00 to 19:00. The survey results and the derived trip rates are presented in **Table 4.5**.

Table 4.5 Survey Results at the Existing Buildings

Name	Unit / Content	AM Peak			PM Peak		
		Gen.	Att.	2-way	Gen.	Att.	2-way
Traffic Generation of Existing RCHEs (pcu/hr)							
Caritas Harold H.W. LEE Care and Attention Home	276 beds	9	11	20	9	9	18
SAGE Kwan Fong Nim Chee Home for the Elderly	204 beds	7	8	15	7	7	14
Traffic Generation of Existing Vehicle Parks (pcu/hr)							
33 On Chun Street	31 spaces	2	4	6	2	3	5
STT2174 at On Chun Street	245 spaces	39	5	44	11	41	52
STT2125 at Ma Kam Street	252 spaces	60	8	68	11	61	72
Derived Trip Rates for RCHE (pcu/hr/space)							
Caritas Harold H.W. LEE Care and Attention Home		0.3261	0.3986	-	0.3261	0.3261	-
SAGE Kwan Fong Nim Chee Home for the Elderly		0.3431	0.3922	-	0.3431	0.3431	-
	Adopted Trip Rates⁽¹⁾	0.3431	0.3986	-	0.3431	0.3431	-
Derived Trip Rates for PVP (pcu/hr/space)							
33 On Chun Street		0.0645	0.1290	-	0.0645	0.0968	-
STT2174 at On Chun Street		0.1592	0.0204	-	0.0449	0.1673	-
STT2125 at Ma Kam Street		0.2381	0.0317	-	0.0437	0.2421	-
	Adopted Trip Rates⁽¹⁾	0.2381	0.1290	-	0.0645	0.2421	-

Note: Gen. – Generation; Att. – Attraction.

(1) The largest trip rates are adopted for conservative assessment purposes.

4.4.3 Based on the above, the traffic generation of the proposed development has been estimated and presented in **Table 4.6**.

Table 4.6 Development Traffic Generation

Proposed Use	Unit/Content	AM Peak Hour			PM Peak Hour		
		Gen.	Att.	Total	Gen.	Att.	Total
Adopted Trip rates							
Private Housing: Low-Density/R(C) (Average Flat size 180 m ²) ⁽¹⁾	pcu/hr/flat	0.2772	0.1769	-	0.1635	0.2394	-
RCHE	pcu/hr/10 bed	0.3431	0.3986	-	0.3431	0.3431	-
Public Vehicle Carpark ⁽²⁾	pcu/hr/space	0.2381	0.1290	-	0.0645	0.2421	-
Estimated Traffic Generation/Attraction							
Residential	184 flats	52	33	85	31	45	76
RCHE	178 beds	6	7	13	6	6	12
Public Vehicle Carpark	137 spaces	33	18	51	9	33	42
Total		91	58	149	46	84	130

Note: (1) TPDM mean trip rates for private housing use with an average flat size of 180 m² is adopted.
 (2) Trip rates derived in **Table 4.5**.

4.4.4 As shown in **Table 4.6**, the proposed development would generate two-way traffic flows of 149 pcu/hr in the AM peak and 130 pcu/hr in the PM peak. The development traffic distribution pattern is presented in **Figure 4.1**.

4.5 Reference and Design Flows

4.5.1 The 2030 Reference Flows, i.e., the traffic flows in the vicinity **without** the traffic flows generated by the proposed development, were estimated based on the following equation.

$$2030 \text{ Reference Flows} = 2022 \text{ Existing Flows} \times (1 + 2.0\%)^8 + \text{Traffic Flows Generated by the Planned/Committed Developments}$$

4.5.2 The 2030 Design Flows, i.e., the traffic flows in the vicinity **with** the traffic flows generated by the proposed development, were estimated based on the following equation:

$$2030 \text{ Design Flows} = 2030 \text{ Reference Flows} + \text{Traffic Flows Generated by the Proposed Development}$$

4.5.3 The 2030 Reference and Design Flows are shown in **Figures 4.2** and **4.3**, respectively.

4.6 Junction Capacity Assessment

4.6.1 Junction capacity analysis was carried out for the assessment year 2030. The assessment results are shown in **Table 4.7** and the detailed calculation sheets are presented in **Appendix C**.

Table 4.7 Year 2030 Junction Capacity Assessment

No.	Junction	Junction Type/Index ⁽¹⁾	2030 Reference		2030 Design	
			AM Peak	PM Peak	AM Peak	PM Peak
J1	Wu Kai Sha Road / Yiu Sha Road	Roundabout / DFC	0.21	0.25	0.32	0.29
J2	Sai Sha Road / Wu Kai Sha Road / Sha On Street	Roundabout / DFC	0.40	0.44	0.41	0.47
J3	Sai Sha Road / Kam Ying Road	Signalized/RC	35%	36%	34%	35%
J4	Sai Sha Road / Ma On Shan Road / On Chiu Street	Signalized/RC	32%	35%	31%	34%

Note: (1) RC = Reserve Capacity for signalized junction; DFC = Design Flow to Capacity ratio for priority junction.

4.6.2 As shown in **Table 4.7**, the assessed junctions will operate with capacities during the peak hours in 2030 with the expected traffic growth and the additional traffic flows generated by the proposed development.

4.7 Link Capacity Assessment

4.7.1 The V/C Ratios of Sai Sha Road and Ma On Shan Bypass were assessed and the results are presented in **Table 4.8**.

Table 4.8 Year 2030 Link Capacity Assessments

Direction	Bound	Capacity (pcu/hr) ⁽¹⁾	Traffic Flow (pcu/hr)		V/C Ratio	
			AM	PM	AM	PM
2030 Reference Scenario						
Sai Sha Road (between On Yuen Street and On Chiu Street)	WB	5,040	1,097	830	0.22	0.16
	EB	5,040	835	1,041	0.17	0.21
Sai Sha Road (between On Chiu Street and Kam Ying Street)	WB	5,040	1,111	826	0.22	0.16
	EB	5,040	792	1,036	0.16	0.21
Sai Sha Road (between Kam Ying Street and Wu Kai Sha Road)	WB	3,360	777	687	0.23	0.20
	EB	3,360	804	837	0.24	0.25
Ma On Shan Bypass (between Sai Sha Road and Ma On Shan Road)	NB	3,600	2,299	2,364	0.64	0.66
	SB	5,640	3,210	2,354	0.57	0.42
2030 Design Scenario						
Sai Sha Road (between On Yuen Street and On Chiu Street)	WB	5,040	1,106	835	0.22	0.17
	EB	5,040	841	1,049	0.17	0.21
Sai Sha Road (between On Chiu Street and Kam Ying Street)	WB	5,040	1,120	831	0.22	0.16
	EB	5,040	798	1,044	0.16	0.21
Sai Sha Road (between Kam Ying Street and Wu Kai Sha Road)	WB	3,360	777	687	0.23	0.2
	EB	3,360	810	845	0.24	0.25
Ma On Shan Bypass (between Sai Sha Road and Ma On Shan Road)	NB	3,600	2,343	2,427	0.65	0.67
	SB	5,640	3,278	2,389	0.58	0.42

Note: (1) Capacity refers to TPDM Vol.2 Ch. 2.4. A factor of 1.2 (based on the traffic count survey result) is adopted to convert the capacity from veh/hr to pcu/hr.

4.7.2 As shown in **Table 4.8**, all the concerned road sections will operate with capacity during AM and PM hours in both reference and design scenarios.

4.8 Pedestrian Traffic Generation

4.8.1 To project the future pedestrian conditions, the pedestrian flows generated by the proposed development were being considered. Since there is no established pedestrian trip rate in TPDM, in-house pedestrian trip rates are adopted. The pedestrian trip generation surveys were conducted to collect data for deriving the pedestrian trip rates for each type of development. The survey result and the derived trip rates are presented in **Table 4.8**.

Table 4.8 Pedestrian Trip Rates from Surveyed Buildings

Building (Type of Building)	Address	Unit/ Content	AM Peak Hour			PM Peak Hour		
			Gen.	Att.	2-way	Gen.	Att.	2-way
Pedestrian Generation – Residential (persons/hr)								
The Met. Bliss	15 Hang Kwong Street	364 flats	292	81	373	62	182	244
Pedestrian Generation – RCHE (persons/hr)								
Caritas Harold H.W. LEE Care and Attention Home	17 Kong Pui Street, Shatin	276 beds	14	33	47	38	9	47
SAGE Kwan Fong Nim Chee Home for the Elderly	27 Chap Wai Kon Street, Shatin	204 beds	21	26	47	32	44	76
Pedestrian Generation – Car Park (persons/hr)								
33 On Chun Street		31 spaces	7	2	9	1	5	6
STT2174 at On Chun Street		245 spaces	78	10	88	22	82	104
STT2125 at Ma Kam Street		252 spaces	120	16	136	22	122	144
Derived Trip Rates for Residential (persons/hr/flat)								
The Met. Bliss			0.80	0.22	–	0.17	0.50	–
Derived Trip Rates for RCHE (persons /hr/10 bed)								
Caritas Harold H.W. LEE Care and Attention Home			0.51	1.20	–	1.38	0.33	–
SAGE Kwan Fong Nim Chee Home for the Elderly			1.03	1.27	–	1.57	2.16	–
Adopted Trip Rates ⁽¹⁾			1.03	1.27	–	1.57	2.16	–
Derived Trip Rates for Car Park (persons /hr/space)								
33 On Chun Street			0.23	0.06	–	0.03	0.16	–
STT2174 at On Chun Street			0.32	0.04	–	0.09	0.33	–
STT2125 at Ma Kam Street			0.48	0.06	–	0.09	0.48	–
Adopted Trip Rates ⁽¹⁾			0.48	0.06	–	0.09	0.48	–

Note: Gen. – Generation; Att. – Attraction.

(1) The largest rates are adopted for conservative assessment purpose.

4.8.2 By adopting the surveyed pedestrian trip rates as shown in **Table 4.8**, the additional pedestrian generation and attraction of the proposed development are also estimated and tabulated in **Table 4.9**.

Table 4.9 Estimated Pedestrian Traffic Generation of the Proposed Development

Use	Unit/ Content	AM Peak			PM Peak		
		Gen.	Att.	Total	Gen.	Att.	Total
Adopted Pedestrian Trip Rates⁽¹⁾							
Residential	persons/hr/flat	0.80	0.22	–	0.17	0.50	–
RCHE	persons/hr/10 bed	1.03	1.27	–	1.57	2.16	–
PVP	persons/hr/space	0.48	0.06	–	0.09	0.48	–
Estimated Pedestrian Generation of the Proposed Development							
Residential	184 units	148	41	189	32	92	124
RCHE	178 beds	19	23	42	28	39	67
PVP	137 spaces	66	9	75	13	66	79
Total		233	73	306	73	197	270

Note: Gen. – Generation; Att. – Attraction.

(1) Pedestrian trip rates derived in Table 4.7 are adopted.

4.8.3 The proposed development is estimated to generate 2-way pedestrian flows of 306 and 270 persons/ hour during AM and PM peak hours respectively. It is assumed that all the above pedestrian flows would walk to and from MTR Wu Kai Sha Station. The pedestrians to be generated and attracted by the proposed development will be distributed into the local pedestrian network.

4.9 Pedestrian Traffic Generation of the Other Planned Developments

4.9.1 It is understood that there are some planned and committed developments in the vicinity of the proposed development. The pedestrian flows that would be induced by these developments have been considered. The pedestrian flows of these planned development are estimated by adopting the in-house pedestrian trip rates and presented in Table 4.10.

Table 4.10 Estimated Pedestrian Generation/Attraction of Planned Developments

Use	Unit	AM Peak Hour			PM Peak Hour			
		Gen.	Att.	Total	Gen.	Att.	Total	
Adopted Pedestrian Trip Rates⁽¹⁾								
Residential	persons /hr/unit	0.80	0.22	–	0.17	0.50	–	
Estimated Pedestrian Generation								
STTL 600 – CDA(1)	Residential	2,236 flats	1,789	492	2,281	381	1,118	1,499
STTL 601 – R(C)5	Residential	547 flats	438	121	559	93	274	367
STTL 611 – R(C)3	Residential	111 flats	89	25	114	19	56	75
Total			2,316	638	2,954	493	1,448	1,941

Note: Gen. – Generation; Att. – Attraction.

(1) Pedestrian trip rates derived in Table 4.8 are adopted.

4.9.2 The planned developments are estimated to generate 2-way pedestrian flows of 2,954 and 1,941 persons/ hour during AM and PM peak hours respectively.

4.10 Reference and Design Pedestrian Flows

4.10.1 The 2030 Reference Pedestrian Flows, i.e. the pedestrian flows in the local road without the proposed development, were estimated based on the following equation.

$$2030 \text{ Reference Pedestrian Flows} = 2023 \text{ Existing Pedestrian Flows} \times (1 + 2.0\%)^7 + \text{Additional Pedestrians Induced by Planned Developments in the vicinity}$$

4.10.2 The 2030 Design Pedestrian Flows, i.e. the pedestrian flows in the local road network with the proposed development, were estimated based on the following equation:

$$2030 \text{ Design Pedestrian Flows} = 2030 \text{ Reference Flows} + \text{Additional Pedestrians Induced by the proposed development}$$

4.11 Footpath Capacity Assessment

4.11.1 Capacity analysis of the concerned footpath was carried out for the assessment year 2030. The pedestrians generated and attracted by the proposed development are distributed into the network with reference to the existing flow pattern. The assessment results are shown in **Table 4.13**.

Table 4.13 Year 2030 Capacity Analysis of the Concerned Footpaths

Ref.	Location	Actual Width (m)	Effective Width (m) ⁽¹⁾	Peak Hour flow (ped/hr)		Flow Rate ⁽²⁾ ped/m/min [LOS]	
				AM	PM	AM	PM
2030 Reference Scenario (Without the Proposed Development)							
P1	Western footpath of Yiu Sha Road	2.4	1.4	49	54	0.6 [A]	0.6 [A]
P2	Northern footpath of Wu Kai Sha Road (west of Double Cove's vehicular access)	2.3	1.3	2,139	1,837	27.4 [C]	23.6 [C]
P3	Northern footpath of Wu Kai Sha Road (east of Double Cove's vehicular access)	2.5	1.5	2,163	1,842	24.0 [C]	20.5 [B]
P4	Staircase connecting northern footpath of Sai Sha Road and Wu Kai Sha Station	4.4	3.4	2,187	1,830	10.7 [A]	9.0 [A]
2030 Design Scenario (With the Proposed Development)							
P1	Western footpath of Yiu Sha Road	2.4	1.4	355	324	4.2 [A]	3.9 [A]
P2	Northern footpath of Wu Kai Sha Road (west of Double Cove's vehicular access)	2.3	1.3	2,445	2,107	31.3 [C]	27.0 [C]
P3	Northern footpath of Wu Kai Sha Road (east of Double Cove's vehicular access)	2.5	1.5	2,469	2,112	27.4 [C]	23.5 [C]
P4	Staircase connecting northern footpath of Sai Sha Road and Wu Kai Sha Station	4.4	3.4	2,493	2,100	12.2 [A]	10.3 [A]

Notes: (1) A clearance zone of 0.5m on side with obstruction was adopted.
(2) For LOS "C" or above, flow volumes should be less than 33 ped/m/min.

4.11.2 **Table 4.13** shows that the condition of the concerned footpaths will be satisfactory after accommodating the pedestrians generated and attracted by the proposed development in both AM and PM Peak hours with LOS "C" or above.

4.12 Railway Patronage Capacity

4.12.1 In order to ensure sufficient railway capacity will be able to accommodate for the proposed development, an assessment was conducted to review the rail patronage capacity. Since railway services in AM are generally busier than that in PM, AM peak hour is considered more than critical in conducting railway capacity assessment, the AM scenario is used for analysis purpose.

4.12.2 As shown in **Table 4.9**, 298 persons/hour will be induced by the proposed development and all of them are anticipated to use railway services during AM peak hour, which 225 persons/hour will be generated from the Proposed Development and 73 persons/hour will be attracted to the proposed development.

4.12.3 According to the Legislative Council Paper FCRI(2022-23)18 published in April 2023, the existing morning peak hour loading factor of Tuen Ma Line at critical section (Tsuen Wan West to Mei Foo) in 2022 is 61%, which the passenger demand and capacity (based on 6 passengers per square meter) are 36,100 persons/hour and 58,800 persons /hour, respectively.

4.12.4 In 2030, the passenger demand is projected to be increased to approximately 37,600 persons /hour. The 2030 railway capacity performance is then evaluated by considering the 2030 passenger demand and the additional passengers to be induced by the proposed development. The results are tabulated in **Table 4.15**.

Table 4.15 2030 Railway Capacity Performance

Items	Capacity (persons /hour /direction)	Reference Scenario (see Note 1)	Design Scenarios (see Notes 1, 2 and 3)
2030 Projected Morning Peak Hour Passenger Demand (persons/hour)	-	37,600	37,833 [+233]
Loading factor - Existing Peak Hour Capacity	58,800	64%	64%

Note 1: 2030 Reference Scenario = 2022 morning peak hour passenger demand x (1+1.0%)⁸

Note 2: 2030 Design Scenario = 2030 Reference Scenario + Additional passenger demand induced by the Proposed Development.

Note 3: Figures in square brackets indicate the increase in passengers due to the proposed development.

4.12.5 From **Table 4.14**, after accommodating the additional passengers induced by the proposed development, the 2030 morning peak hour loading factor of Tuen Ma Line at critical sections, based on existing peak hour capacity, will be 64% (6 passengers per square meter).

4.12.6 It should be noted that the increase in passenger during the morning peak hour at Tuen Ma Line due to the proposed development, are only 233 persons. The increase in passengers only constitute 0.6% of the passenger demand of Tuen Ma Line, which are considered insignificant.

5 CONSTRUCTION TRAFFIC IMPACT ASSESSMENT

5.1 Construction Traffic Generation and Attraction

- 5.1.1 It is anticipated a maximum daily traffic of 40 vehicles i.e. 5 vehicles per hour (5 veh/hr x a pcu factor of 2.5 = 12.5, say 13 pcu/hr) will be attracted during the peak construction stage.
- 5.1.2 For conservative assessment purpose, it is assumed the construction traffic occurs at both AM and PM peak hours.

5.2 2026 Traffic Forecast

5.2.1 As discussed in **Section 4.1**, the proposed development can be completed for occupation in 2027. So, the design year for the construction traffic impact assessment will be 2026, which the peak construction activity will be occurred.

5.2.2 The 2026 Reference Flows, i.e. the traffic flows in the vicinity without the proposed development, were estimated based on the following equation.

$$2026 \text{ Reference Flows} = 2022 \text{ Existing Traffic Flows} \times (1 + 2.0\%)^4 + \text{Traffic Flows Generated by the Planned and Approved Development}$$

5.2.3 The 2026 Design Flows, i.e. the traffic flows in the local road network with the construction traffic generated by the proposed development, were estimated based on the following equation:

$$2026 \text{ Design Flows} = 2026 \text{ Reference Flows} + \text{Construction Traffic Flows Generated by the Proposed Development (see Figure 5.1)}$$

5.2.4 The 2026 Reference and Design Flows are shown in **Figures 5.2 and 5.3**, respectively.

5.3 Junction Capacity Assessment

5.3.1 Junction capacity analysis is carried out for the design year 2026. The assessment results are shown in **Table 5.1**. The detailed calculation sheets are attached in **Appendix D**.

Table 5.1 2026 Junction Capacity Assessment

No.	Junction	Junction Type/Index ⁽¹⁾	2026 Reference		2026 Design	
			AM Peak	PM Peak	AM Peak	PM Peak
J1	Wu Kai Sha Road / Yiu Sha Road	Roundabout / DFC	0.20	0.24	0.21	0.24
J2	Sai Sha Road / Wu Kai Sha Road / Sha On Street	Roundabout / DFC	0.37	0.41	0.38	0.42
J3	Sai Sha Road / Kam Ying Road	Signalized/RC	44%	46%	44%	45%
J4	Sai Sha Road / Ma On Shan Road / On Chiu Street	Signalized/RC	42%	31%	41%	31%

Note: (1) RC = Reserve Capacity for signalized junction; DFC = Design Flow to Capacity ratio for priority junction.

5.3.2 As shown in **Table 5.1**, all junctions will operate satisfactorily in both reference and design scenarios. Therefore, it can be concluded that the construction traffic will not induce significant adverse traffic impact on junctions.

5.4 Link Capacity Assessment

5.4.1 The V/C Ratios of Sai Sha Road and Ma On Shan Bypass were assessed and the results are presented in **Table 5.2**.

Table 5.2 Year 2026 Link Capacity Assessments

Direction	Bound	Capacity (pcu/hr) ⁽¹⁾	Traffic Flow (pcu/hr)		V/C Ratio	
			AM	PM	AM	PM
2026 Reference Scenario						
Sai Sha Road (between On Yuen Street and On Chiu Street)	WB	5,040	1,019	771	0.20	0.15
	EB	5,040	777	970	0.15	0.19
Sai Sha Road (between On Chiu Street and Kam Ying Street)	WB	5,040	1,035	769	0.21	0.15
	EB	5,040	739	965	0.15	0.19
Sai Sha Road (between Kam Ying Street and Wu Kai Sha Road)	WB	3,360	728	641	0.22	0.19
	EB	3,360	751	783	0.22	0.23
Ma On Shan Bypass (between Sai Sha Road and Ma On Shan Road)	NB	3,600	2,199	2,258	0.61	0.63
	SB	5,640	3,064	2,241	0.54	0.40
2026 Design Scenario						
Sai Sha Road (between On Yuen Street and On Chiu Street)	WB	5,040	1,022	774	0.20	0.15
	EB	5,040	780	973	0.15	0.19
Sai Sha Road (between On Chiu Street and Kam Ying Street)	WB	5,040	1,038	772	0.21	0.15
	EB	5,040	742	968	0.15	0.19
Sai Sha Road (between Kam Ying Street and Wu Kai Sha Road)	WB	3,360	728	641	0.22	0.19
	EB	3,360	754	786	0.22	0.23
Ma On Shan Bypass (between Sai Sha Road and Ma On Shan Road)	NB	3,600	2,209	2,268	0.61	0.63
	SB	5,640	3,074	2,251	0.55	0.40

Note: (1) Capacity refers to TPDM Vol.2 Ch. 2.4. A factor of 1.2 (based on the traffic count survey result) is adopted to convert the capacity from veh/hr to pcu/hr.

5.4.2 As shown in **Table 5.2**, all the concerned road sections will operate with capacity during AM and PM hours in both reference and design scenarios.

6 PROPOSED TRANSPORT FACILITIES PROVISIONS

6.1 Access Arrangement

6.1.1 The vehicular access of the proposed development will be located at the local access road at the southern side of the Site. The section of local access road connecting the Site and Wu Kai Sha Road will be widened to 7.3m. The proposed access arrangement is shown in **Figure 6.1**.

6.2 Internal Transport Facilities

6.2.1 The requirements of car parking and loading/unloading facilities for the proposed residential development should be provided in accordance with the latest Hong Kong Planning Standards and Guidelines (HKPSG) as listed out in **Table 6.1**. However, there is no specific parking requirement under HKPSG for RCHE use, car parking and loading/unloading facilities are proposed mainly to meet the operational needs.

Table 6.1 Proposed Transport Facilities Provisions

Type	HKPSG's Requirements					Required Provision	Proposed Provision
Proposed Residential Development – 184 units (92 units per block)							
Car Parking Space	Parking Requirements = GPS x R1 x R2 x R3 where GPS = 1 space per 4 – 7 units					9 – 15	
	Flat Size (FS)	No. of Unit	R1	R2	R3		
	FS ≤ 40m ²	116	0.5	1.0	1.0		
	40m ² < FS ≤ 70m ²	8	1.2				
	70m ² < FS ≤ 100m ²	60	2.4			21 – 36	
	Sub-total					32 – 54	54
	<u>For Visitors (2 blocks)</u> 5 spaces per block with more than 75 units					10	10
TOTAL					42 – 64	64	
Loading / Unloading Bay	1 bay per residential block					2	2
Motorcycle Parking Space	1 space per 100 – 150 flats					2	2
Bicycle Parking Space	1 bicycle parking space for every 15 flats with flat size smaller than 70m ²					8	8
Proposed RCHE – 178 beds							
Car Parking Space	No specific requirements under HKPSG.					-	8
Loading / Unloading Bay	No specific requirements under HKPSG.					-	1
Light Bus / Ambulance Parking Space	No specific requirements under HKPSG.					-	3
Proposed Public Vehicle Park (PVP)							

Type	HKPSG's Requirements	Required Provision	Proposed Provision
Car Parking Spaces	No specific requirements under HKPSG.	-	124
Motorcycle Parking Space	No specific requirements under HKPSG.	-	13

- 6.2.2 In formulating the building layout, three levels of basement are proposed to cater for the car parking and loading/unloading facilities. The upper level is planned for the proposed development in accordance with the requirements set out in HKPSG. The lower 2 levels will be used as a public carpark. The proposed space numbers for the proposed residential development are also listed out in **Table 6.2**.
- 6.2.3 An occupancy survey was carried out at the night-time on 29 July 2022 (Friday) at the existing temporary convenient vehicles' holding area. A total of 120 private cars was observed to stay overnight at the existing temporary convenient vehicles' holding area. According to the operator, about 50 private cars are idling vehicles which the vehicles are stored under long-term parking mode. As a result, the provision of 124 spaces can meet the parking demand for frequently-use vehicles as shown in **Table 6.2**.
- 6.2.4 **Table 6.2** lists out the dimensions required for each type of spaces to follow. The proposed car park layout plan is enclosed in **Appendix E**.

Table 6.2 Summary of Overall Transport Facilities Provisions

Facilities	Dimensions	Proposed Provision			
		Residential	RCHE	Public Vehicle Park	Total
Car Parking Space	2.5m (W) x 5.0m (L) x 2.4 (H)	62	6	124	192
Disabled Car Parking Space	3.5m (W) x 5.0m (L) x 2.4 (H)	2	2	2	6
Motorcycle Parking Space	1.0m (W) x 2.4m (L) x 2.4 (H)	2	-	13	15
Goods Vehicle Loading / Unloading Bay	3.5m (W) x 11.0m (L) x 4.7m (H)	2	-	0	2
	3.5m (W) x 7.0m (L) x 3.6m (H)	-	1	0	1
Light Bus/ Ambulance Parking Space	3.0m (W) x 9.0m (L) x 3.3m (H)	-	3	-	3
Bicycle Parking Space	-	8	-	-	8

7 SUMMARY AND CONCLUSION

7.1 Summary

- 7.1.1 The project site comprises of Lots Nos. 148 S.A RP (Part), 148 S.B RP (Part), 149 RP, 150 S.A, 150 S.B and 151 in D.D. 206 and adjoining government land to the west of Yiu Sha Road, Ma On Shan, New Territories. The present rezoning application intends to utilize a piece of land presently under "Government, Institution or Community" ("G/IC") zone into a "Residential (Group B)6" ("R(B)6") including a RCHE and a public vehicle park (PVP).
- 7.1.2 The Site falls within an area zoned as "Government, Institution or Community" ("G/IC") zone under the Draft Ma On Shan Outline Zoning Plan (OZP), Plan No. S/MOS/27. The site covers a total land area of about 4,325 m². The proposed rezoning scheme comprises a total of 4 building blocks (i.e. two 16-storey residential towers, one 2-storey clubhouse and one 7-storey residential care homes for the elderly ("RCHE") on top of 3 levels of basement car park (i.e., the upper level is planned to serve the proposed development above, and the lower two levels are for "public vehicle park" ("PVP") purpose.).
- 7.1.3 A traffic count survey was carried out on 29 July 2022 (Friday) and 15 June 2023 (Thursday) during the peak hour period from 07:00 to 9:00 and 17:00 to 19:00 at the identified key junctions, and the morning and evening peak hours were found to be 07:30 – 08:30 and 18:00 – 19:00, respectively. The capacity of the key junctions in the vicinity of the Site was analysed and they are operating satisfactorily.
- 7.1.4 The proposed development would generate two-way traffic flows of 149 pcu/hr in the AM peak hour and 130 pcu/hr in the PM peak hour. By assigning the additional development traffic to the 2030 Reference Flows, the 2030 Design Flows were obtained.
- 7.1.5 Junction and road link capacity assessments were carried out at the key junctions in the vicinity for the year 2030. The results have indicated that all junctions and road links will operate satisfactorily for both reference and design scenarios. Therefore, it is anticipated that the proposed development will not induce significant traffic impact to the surrounding road network.
- 7.1.6 Footpath capacity assessment and railway patronage capacity assessment were also carried out. The results show that the pedestrian and railway service can accommodate the future demand to be induced by the proposed development.
- 7.1.7 It is anticipated a maximum daily traffic of 40 vehicles i.e. 5 vehicles per hour will be attracted during the peak construction stage. The proposed development is planned to complete in 2027. So, the design year for the construction traffic impact assessment will be 2026, which the peak construction activity will be occurred. Junction capacity assessment is conducted based on the 2026 reference and design Flows. The results show that the construction traffic induced by the proposed development will not induce adverse traffic impact onto the adjacent road network.
- 7.1.8 The vehicular access of the proposed development will be located at the local access road at the south of the Site. The section of local access road connecting the Site and Wu Kai Sha Road will be widened to 7.3m.
- 7.1.9 It is proposed to provide a total of 72 car parking spaces (including 62 for ancillary car parking spaces and 10 for visitor parking spaces), 3 loading/unloading spaces, 3 light bus/ambulance parking spaces, 2 motorcycle parking spaces and 8 bicycle parking spaces within the proposed development. The internal transport facilities of the proposed development can meet the requirements as set out in the latest HKPSG. Also, it is proposed to provide a public car park of 124 parking spaces and 13 motorcycle parking spaces to accommodate the parking demand in the vicinity.

7.2 Conclusion

- 7.2.1 From the assessment results, it can be concluded that the proposed development will have no significant adverse traffic impact on the surrounding road network. The development proposal is considered acceptable from the traffic engineering point of view.

吐露港
TOLO HARBOUR



**THE
SITE**

YIU SHA ROAD

WU KAI SHA ROAD

SAI SHA ROAD

MTR WU KAI SHA
STATION

SAI SHA ROAD

SHA ON STREET

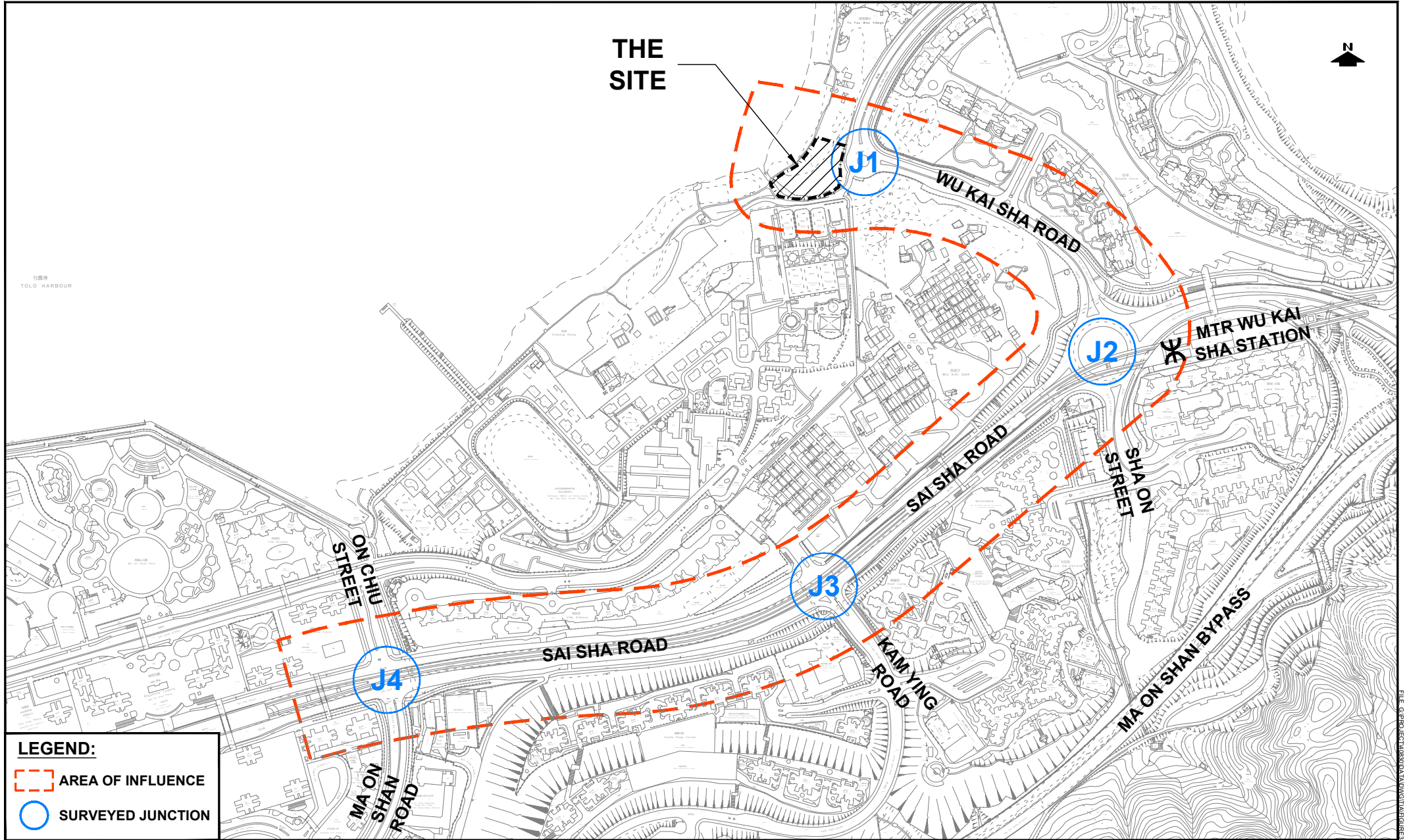
MA ON SHAN BYPASS

PROJECT NO.	40830	
DESIGNED	SLN	DATE OCT 2022
DRAWN	CLL	SCALE
CHECKED	SLN	1:5000

PROJECT TITLE **PROPOSED REZONING FROM "GOVERNMENT, INSTITUTION OR COMMUNITY" TO "RESIDENTIAL (GROUP B)6" ZONE TO INCLUDE SOCIAL WELFARE FACILITY (RCHC ONLY) AND PUBLIC VEHICLE PARK (EXCLUDING CONTAINER VEHICLE) AT LOTS NOS. 148 S.A RP (PART), 148 S.B RP (PART), 149 RP, 150 S.A, 150 S.B AND 151 IN D.D. 206 AND ADJOINING GOVERNMENT LAND, WEST OF WU KAI SHA ROAD, MA ON SHAN, NEW TERRITORIES**

DRAWING TITLE **LOCATION PLAN**

DRAWING NO.	FIGURE 1.1	REV.	.
LLA 顧問有限公司 Consultancy Limited			



LEGEND:

AREA OF INFLUENCE

SURVEYED JUNCTION

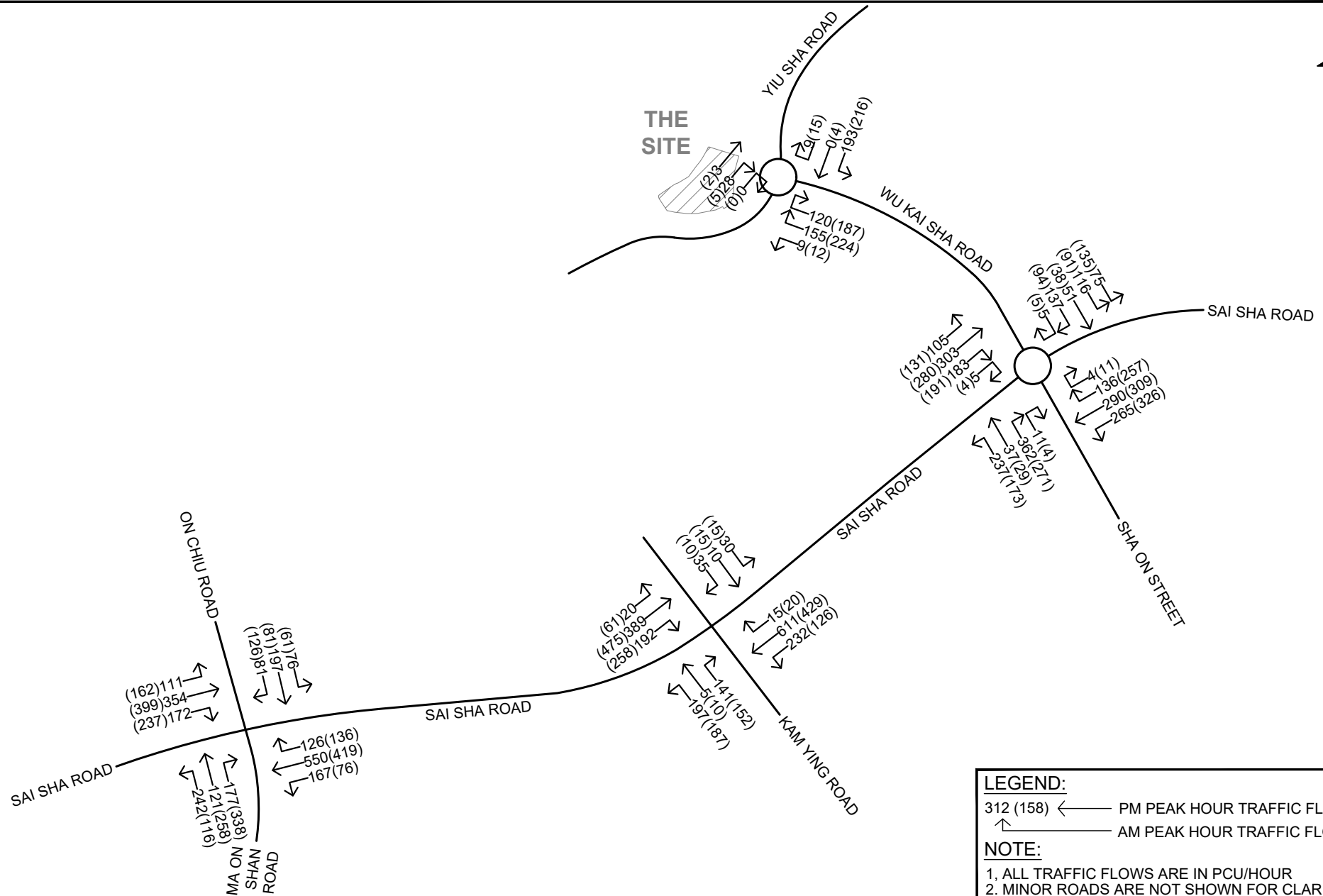
PROJECT NO.	40830	
DESIGNED	SLN	DATE SEP 2023
DRAWN	CLL	SCALE 1:6000
CHECKED	SLN	

PROJECT TITLE PROPOSED REZONING FROM "GOVERNMENT, INSTITUTION OR COMMUNITY" TO "RESIDENTIAL (GROUP B)6" ZONE TO INCLUDE SOCIAL WELFARE FACILITY (RCH ONLY) AND PUBLIC VEHICLE PARK (EXCLUDING CONTAINER VEHICLE) AT LOTS NOS. 148 S.A RP (PART), 148 S.B RP (PART), 149 RP, 150 S.A, 150 S.B AND 151 IN D.D. 206 AND ADJOINING GOVERNMENT LAND, WEST OF WU KAI SHA ROAD, MA ON SHAN, NEW TERRITORIES

DRAWING TITLE **LOCATION OF SURVEYED JUNCTIONS AND AREA OF INFLUENCE (AOI)**

DRAWING NO.	FIGURE 3.1	REV.	A
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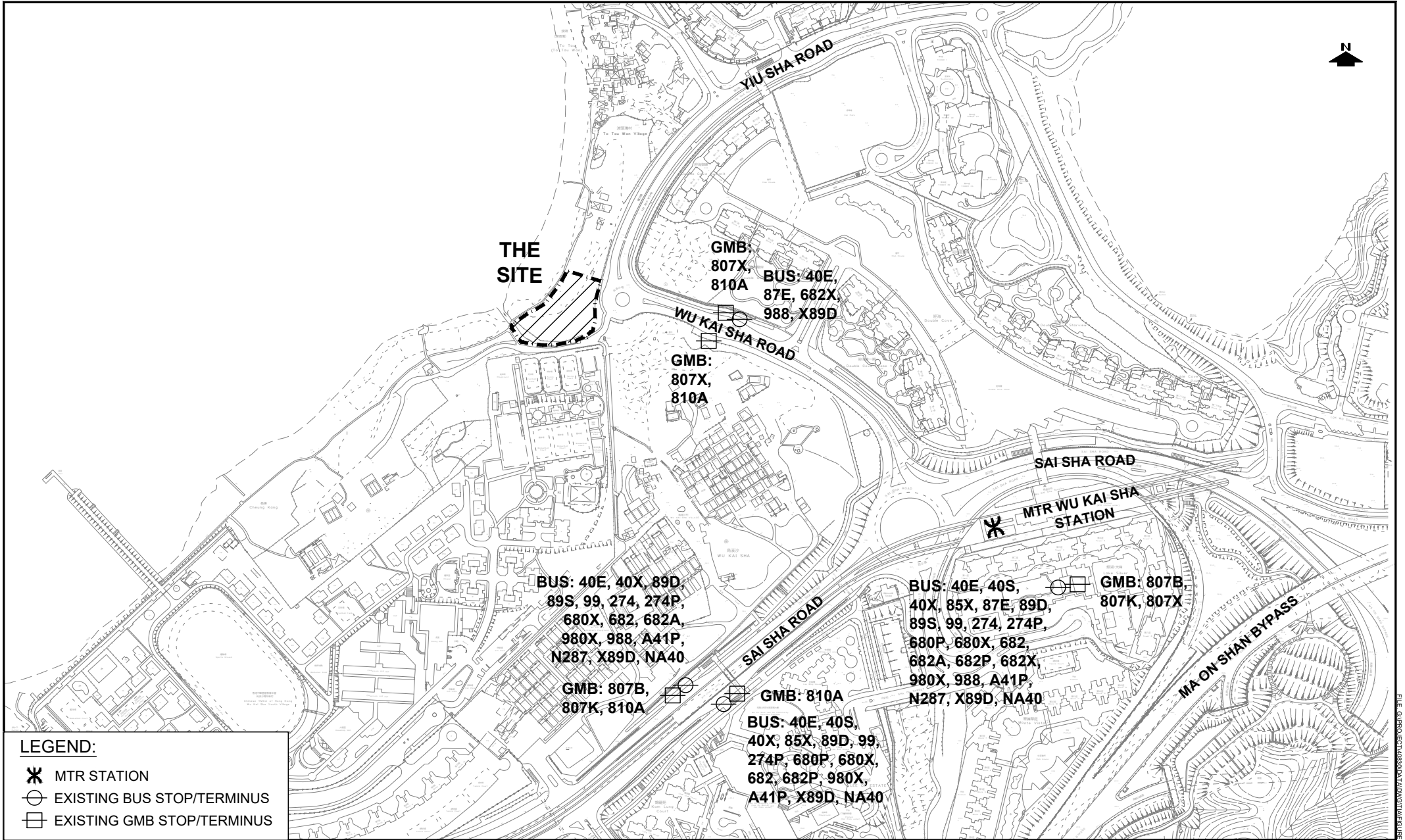
LLA 顧問有限公司
Consultancy Limited



LEGEND:
 312 (158) ← PM PEAK HOUR TRAFFIC FLOWS
 ↑ AM PEAK HOUR TRAFFIC FLOWS

NOTE:
 1. ALL TRAFFIC FLOWS ARE IN PCU/HOUR
 2. MINOR ROADS ARE NOT SHOWN FOR CLARITY

PROJECT NO. 40830		PROJECT TITLE PROPOSED REZONING FROM "GOVERNMENT, INSTITUTION OR COMMUNITY" TO "RESIDENTIAL (GROUP B)6" ZONE TO INCLUDE SOCIAL WELFARE FACILITY (RCHE ONLY) AND PUBLIC VEHICLE PARK (EXCLUDING CONTAINER VEHICLE) AT LOTS NOS. 148 S.A RP (PART), 148 S.B RP (PART), 149 RP, 150 S.A, 150 S.B AND 151 IN D.D. 206 AND ADJOINING GOVERNMENT LAND, WEST OF WU KAI SHA ROAD, MA ON SHAN, NEW TERRITORIES		DRAWING NO. FIGURE 3.2	REV. A
DESIGNED SLN	DATE SEP 2023	DRAWING TITLE			
DRAWN CLL	SCALE N.T.S.	2022 EXISTING TRAFFIC FLOWS			
CHECKED SLN					



LEGEND:

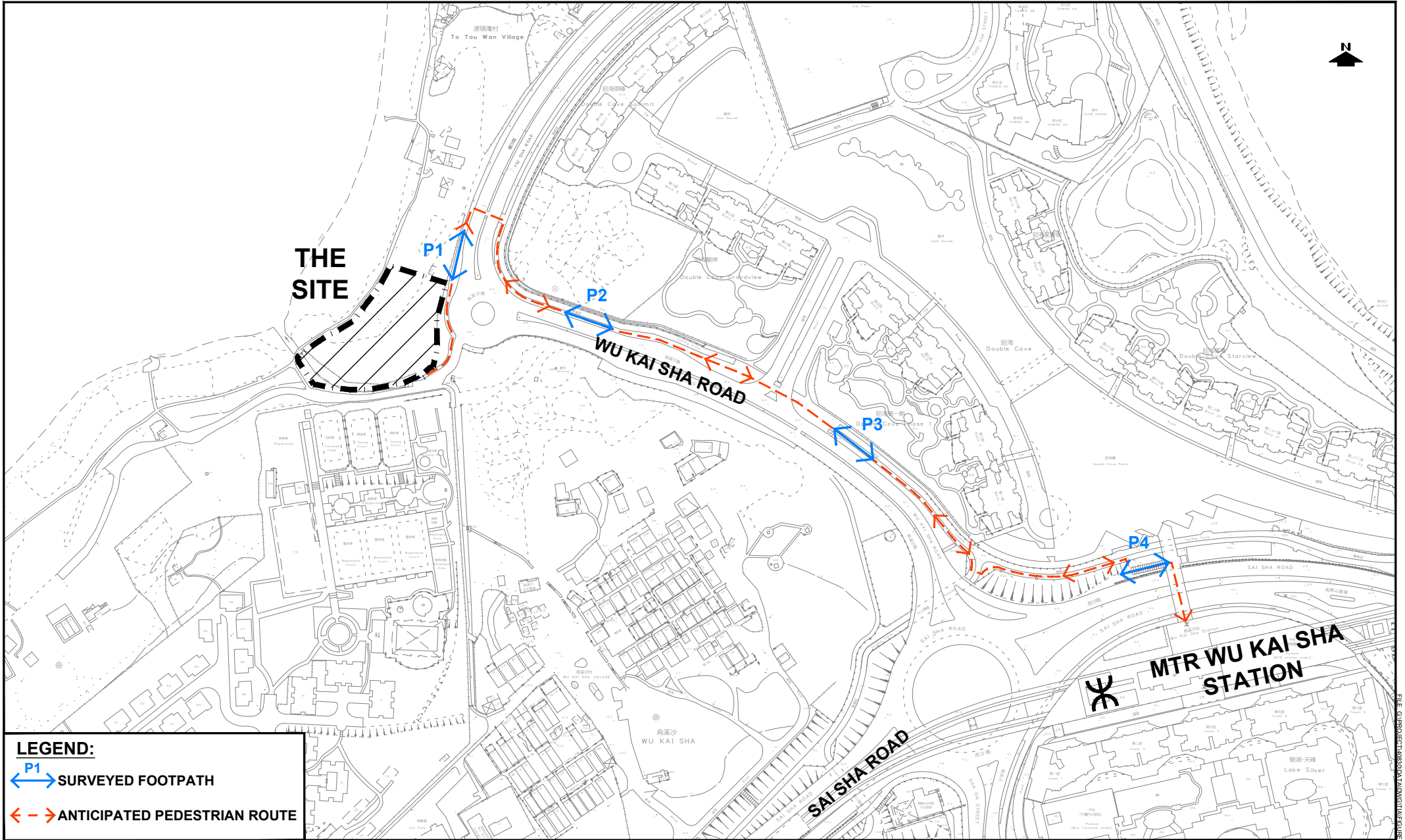
- MTR STATION
- EXISTING BUS STOP/TERMINUS
- EXISTING GMB STOP/TERMINUS

PROJECT NO.	40830	
DESIGNED	SLN	DATE FEB 2023
DRAWN	CLL	SCALE
CHECKED	SLN	1:5000

PROJECT TITLE **PROPOSED REZONING FROM "GOVERNMENT, INSTITUTION OR COMMUNITY" TO "RESIDENTIAL (GROUP B)6" ZONE TO INCLUDE SOCIAL WELFARE FACILITY (RCHC ONLY) AND PUBLIC VEHICLE PARK (EXCLUDING CONTAINER VEHICLE) AT LOTS NOS. 148 S.A RP (PART), 148 S.B RP (PART), 149 RP, 150 S.A, 150 S.B AND 151 IN D.D. 206 AND ADJOINING GOVERNMENT LAND, WEST OF WU KAI SHA ROAD, MA ON SHAN, NEW TERRITORIES**

DRAWING TITLE	PUBLIC TRANSPORT SERVICES IN THE VICINITY OF THE SITE	
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DRAWING NO.	FIGURE 3.3	REV.	.
LLA 顧問有限公司		Consultancy Limited	



LEGEND:

P1
 SURVEYED FOOTPATH

ANTICIPATED PEDESTRIAN ROUTE

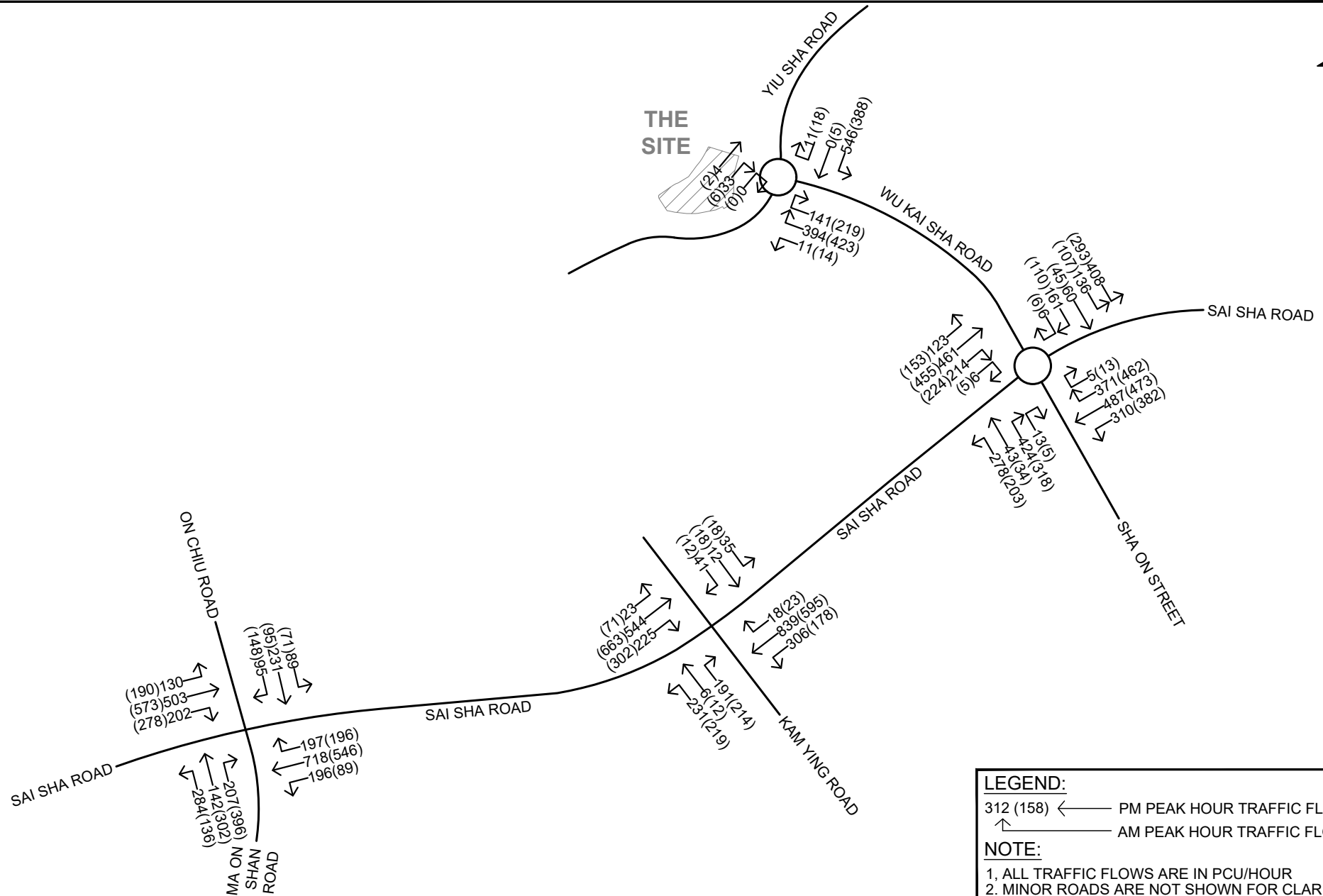
PROJECT NO.	40830	
DESIGNED	SLN	DATE JUL 2023
DRAWN	CLL	SCALE 1:3000
CHECKED	SLN	

PROJECT TITLE PROPOSED REZONING FROM "GOVERNMENT, INSTITUTION OR COMMUNITY" TO "RESIDENTIAL (GROUP B)6" ZONE TO INCLUDE SOCIAL WELFARE FACILITY (RCHE ONLY) AND PUBLIC VEHICLE PARK (EXCLUDING CONTAINER VEHICLE) AT LOTS NOS. 148 S.A RP (PART), 148 S.B RP (PART), 149 RP, 150 S.A, 150 S.B AND 151 IN D.D. 206 AND ADJOINING GOVERNMENT LAND, WEST OF WU KAI SHA ROAD, MA ON SHAN, NEW TERRITORIES

DRAWING TITLE
ANTICIPATED PEDESTRIAN ROUTINGS AND LOCATION OF SURVEYED FOOTPATHS

DRAWING NO. **FIGURE 3.4** REV. .

LLA 顧問有限公司
 Consultancy Limited



LEGEND:
 312 (158) ← PM PEAK HOUR TRAFFIC FLOWS
 ↑ AM PEAK HOUR TRAFFIC FLOWS

NOTE:
 1. ALL TRAFFIC FLOWS ARE IN PCU/HOUR
 2. MINOR ROADS ARE NOT SHOWN FOR CLARITY

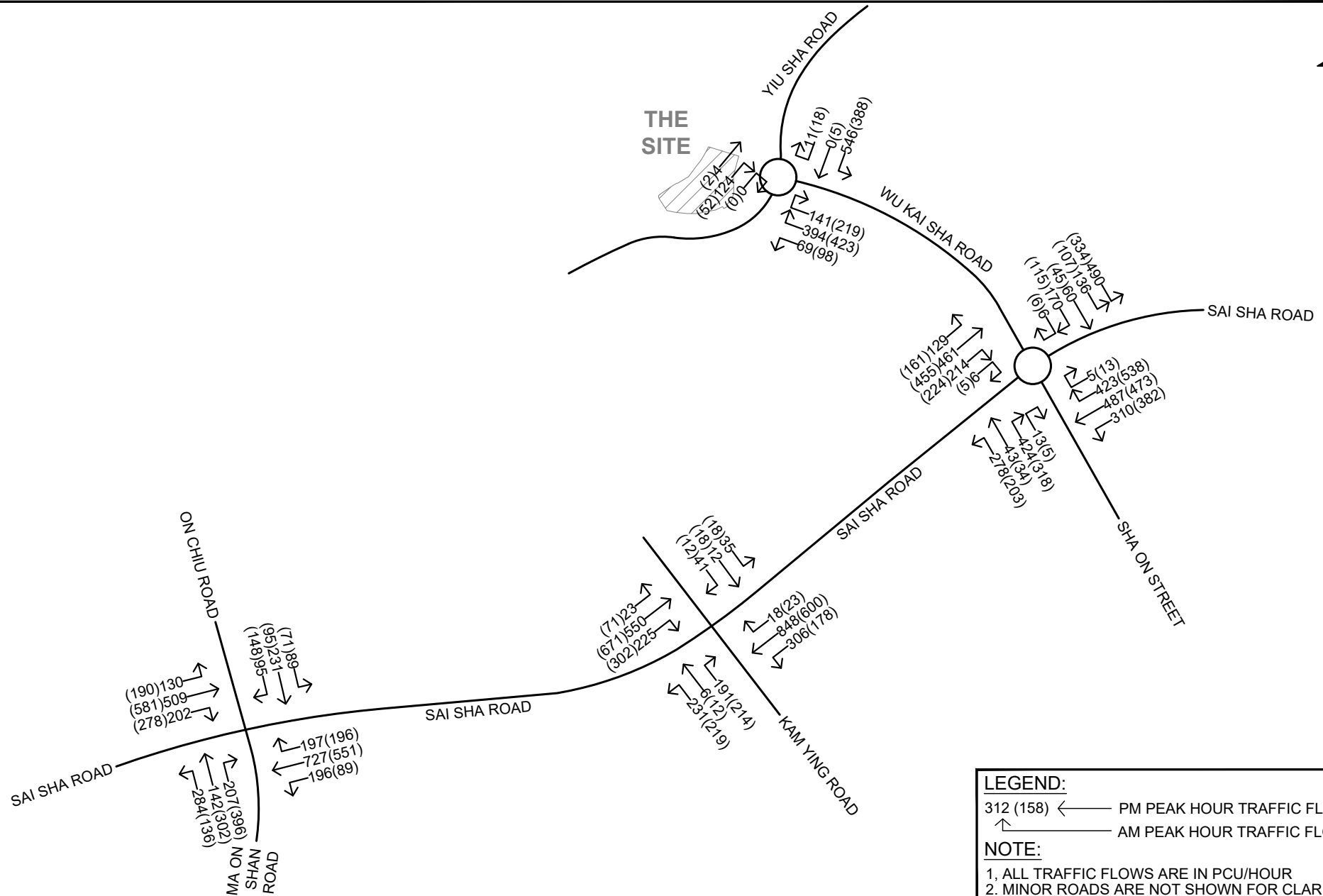
PROJECT NO.	40830	
DESIGNED	SLN	DATE SEP 2023
DRAWN	CLL	SCALE N.T.S.
CHECKED	SLN	

PROJECT TITLE: PROPOSED REZONING FROM "GOVERNMENT, INSTITUTION OR COMMUNITY" TO "RESIDENTIAL (GROUP B)6" ZONE TO INCLUDE SOCIAL WELFARE FACILITY (RCHE ONLY) AND PUBLIC VEHICLE PARK (EXCLUDING CONTAINER VEHICLE) AT LOTS NOS. 148 S.A RP (PART), 148 S.B RP (PART), 149 RP, 150 S.A, 150 S.B AND 151 IN D.D. 206 AND ADJOINING GOVERNMENT LAND, WEST OF WU KAI SHA ROAD, MA ON SHAN, NEW TERRITORIES

DRAWING NO. **FIGURE 4.2** REV. **A**

2030 REFERENCE TRAFFIC FLOWS

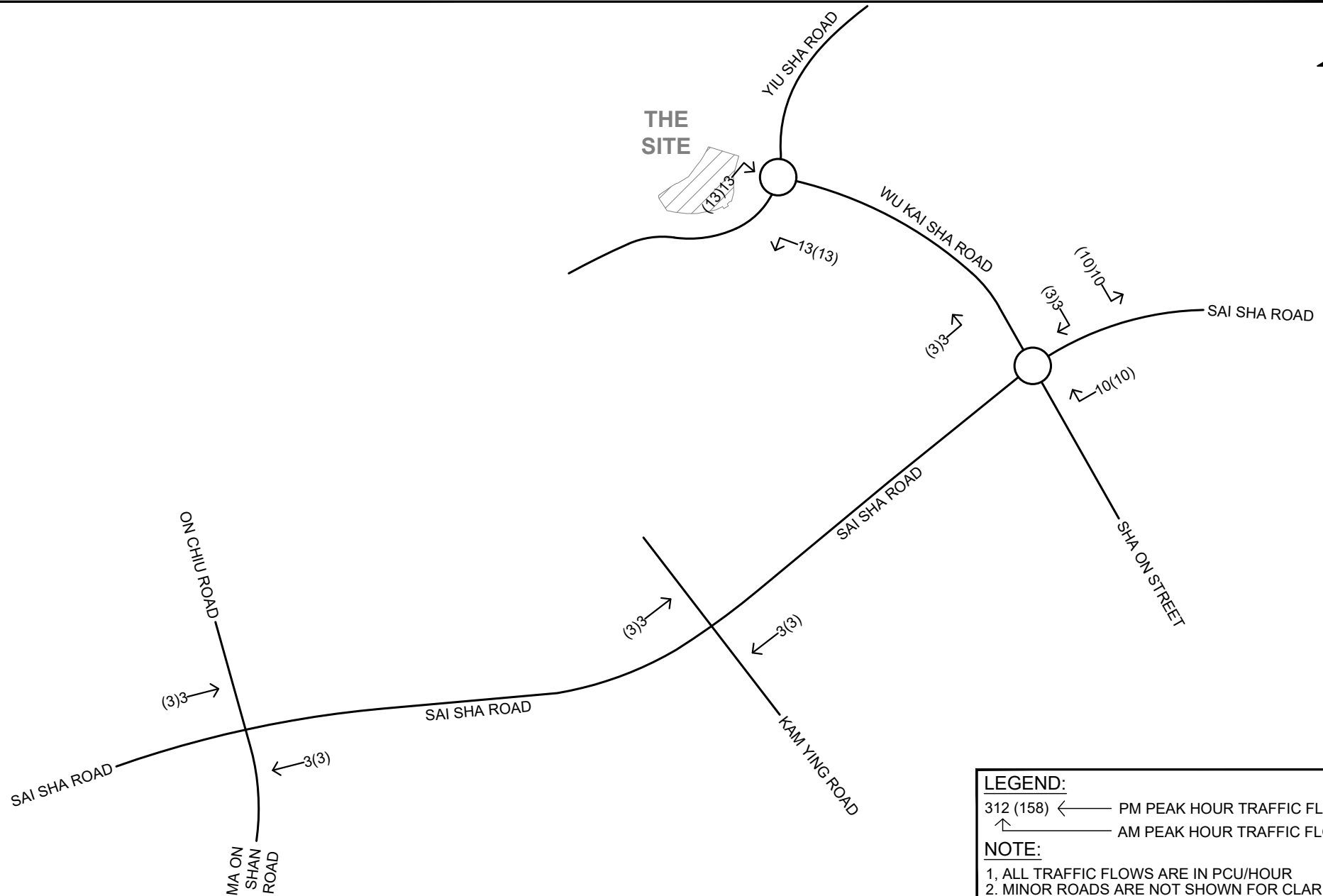
LLA 顧問有限公司
 Consultancy Limited



LEGEND:
 312 (158) ← PM PEAK HOUR TRAFFIC FLOWS
 ↑ AM PEAK HOUR TRAFFIC FLOWS

NOTE:
 1. ALL TRAFFIC FLOWS ARE IN PCU/HOUR
 2. MINOR ROADS ARE NOT SHOWN FOR CLARITY

PROJECT NO. 40830		PROJECT TITLE PROPOSED REZONING FROM "GOVERNMENT, INSTITUTION OR COMMUNITY" TO "RESIDENTIAL (GROUP B)6" ZONE TO INCLUDE SOCIAL WELFARE FACILITY (RCHE ONLY) AND PUBLIC VEHICLE PARK (EXCLUDING CONTAINER VEHICLE) AT LOTS NOS. 148 S.A RP (PART), 148 S.B RP (PART), 149 RP, 150 S.A, 150 S.B AND 151 IN D.D. 206 AND ADJOINING GOVERNMENT LAND, WEST OF WU KAI SHA ROAD, MA ON SHAN, NEW TERRITORIES		DRAWING NO. FIGURE 4.3	REV. A
DESIGNED SLN	DATE SEP 2023	DRAWING TITLE 2030 DESIGN TRAFFIC FLOWS			
DRAWN CLL	SCALE N.T.S.	LLA 顧問有限公司 Consultancy Limited			
CHECKED SLN					



LEGEND:
 312 (158) ← PM PEAK HOUR TRAFFIC FLOWS
 ↑ AM PEAK HOUR TRAFFIC FLOWS

NOTE:
 1. ALL TRAFFIC FLOWS ARE IN PCU/HOUR
 2. MINOR ROADS ARE NOT SHOWN FOR CLARITY

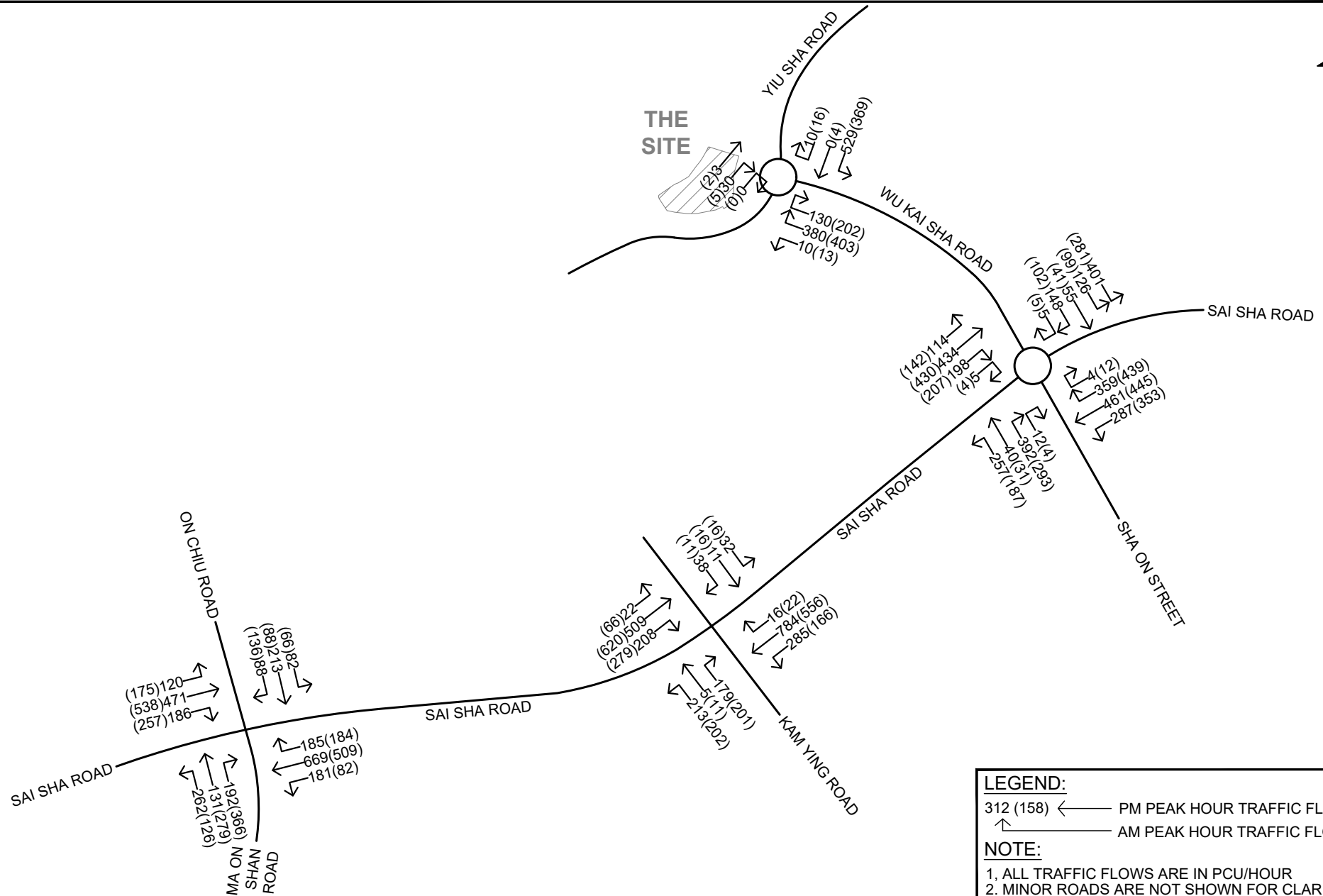
PROJECT NO.		40830	
DESIGNED	SLN	DATE	SEP 2023
DRAWN	CLL	SCALE	N.T.S.
CHECKED	SLN		

PROJECT TITLE: PROPOSED REZONING FROM "GOVERNMENT, INSTITUTION OR COMMUNITY" TO "RESIDENTIAL (GROUP B)6" ZONE TO INCLUDE SOCIAL WELFARE FACILITY (RCHC ONLY) AND PUBLIC VEHICLE PARK (EXCLUDING CONTAINER VEHICLE) AT LOTS NOS. 148 S.A RP (PART), 148 S.B RP (PART), 149 RP, 150 S.A, 150 S.B AND 151 IN D.D. 206 AND ADJOINING GOVERNMENT LAND, WEST OF WU KAI SHA ROAD, MA ON SHAN, NEW TERRITORIES

DRAWING NO.	FIGURE 5.1	REV.	A
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CONSTRUCTION TRAFFIC FLOWS

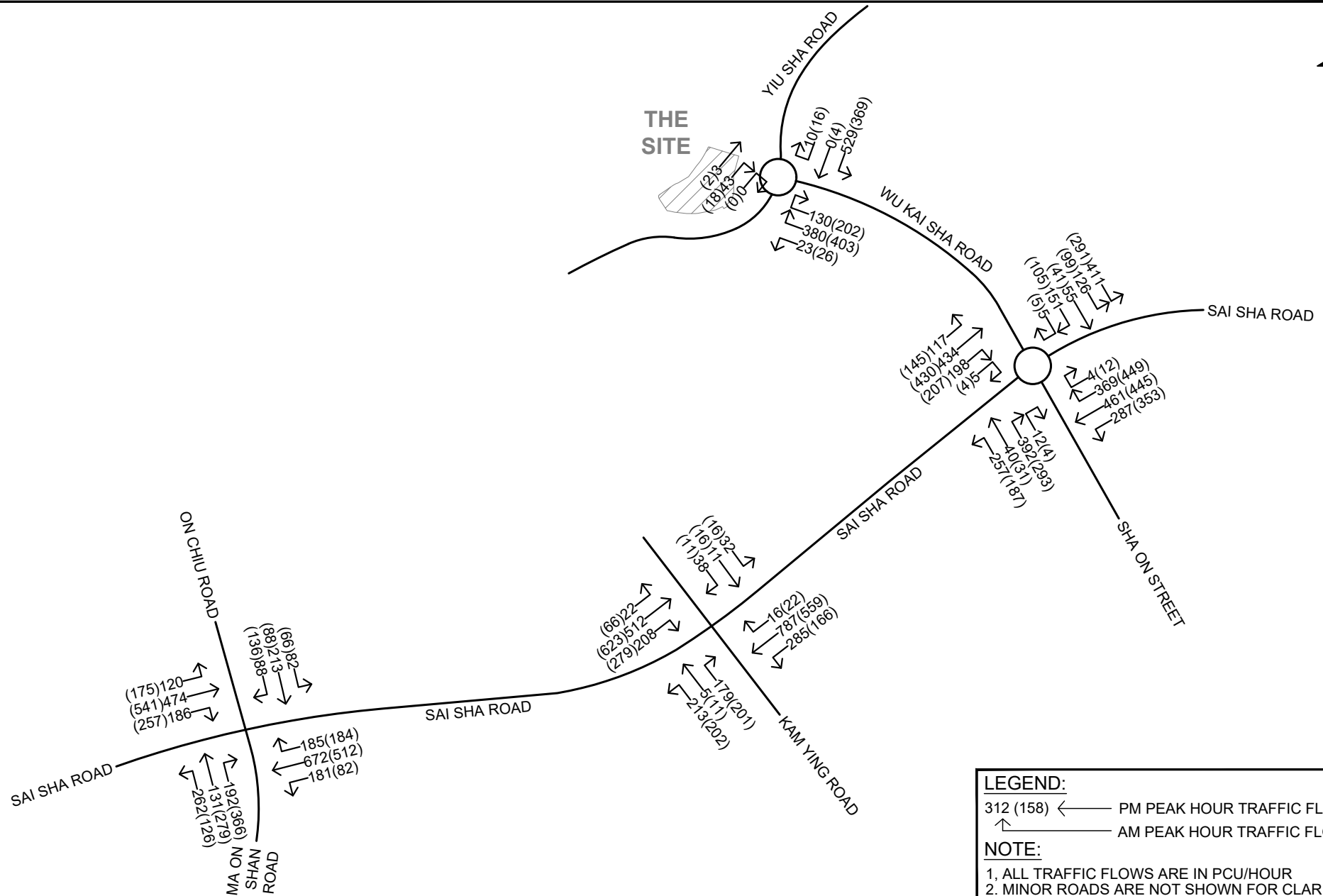




PROJECT NO.	40830	
DESIGNED	SLN	DATE SEP 2023
DRAWN	CLL	SCALE N.T.S.
CHECKED	SLN	

PROJECT TITLE	PROPOSED REZONING FROM "GOVERNMENT, INSTITUTION OR COMMUNITY" TO "RESIDENTIAL (GROUP B)6" ZONE TO INCLUDE SOCIAL WELFARE FACILITY (RCHE ONLY) AND PUBLIC VEHICLE PARK (EXCLUDING CONTAINER VEHICLE) AT LOTS NOS. 148 S.A RP (PART), 148 S.B RP (PART), 149 RP, 150 S.A, 150 S.B AND 151 IN D.D. 206 AND ADJOINING GOVERNMENT LAND, WEST OF WU KAI SHA ROAD, MA ON SHAN, NEW TERRITORIES
DRAWING TITLE	2026 REFERENCE TRAFFIC FLOWS (CONSTRUCTION)

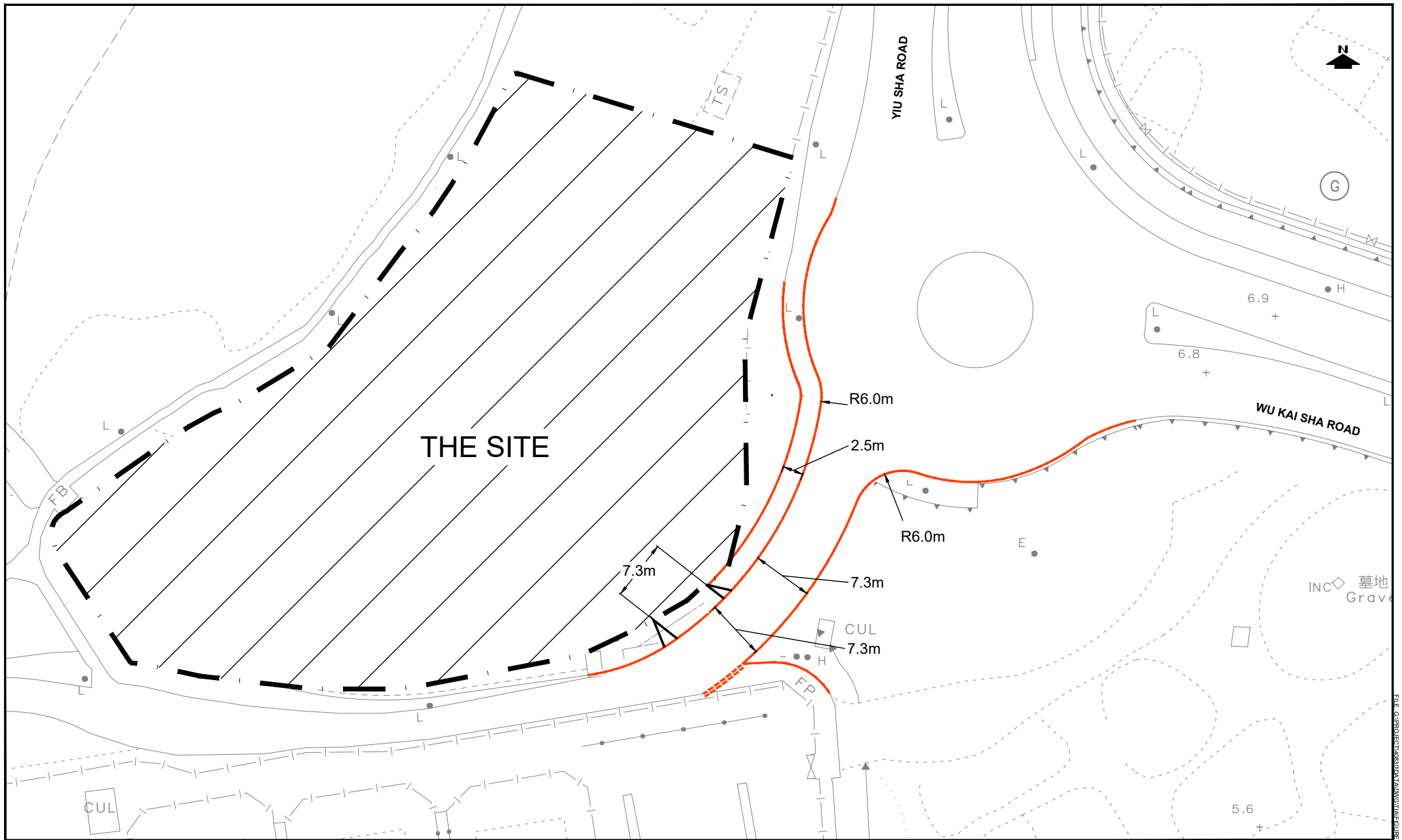
DRAWING NO.	FIGURE 5.2	REV.	-
LLA 顧問有限公司 Consultancy Limited			



LEGEND:
 312 (158) ← PM PEAK HOUR TRAFFIC FLOWS
 ↗ AM PEAK HOUR TRAFFIC FLOWS

NOTE:
 1. ALL TRAFFIC FLOWS ARE IN PCU/HOUR
 2. MINOR ROADS ARE NOT SHOWN FOR CLARITY

PROJECT NO. 40830		PROJECT TITLE PROPOSED REZONING FROM "GOVERNMENT, INSTITUTION OR COMMUNITY" TO "RESIDENTIAL (GROUP B)6" ZONE TO INCLUDE SOCIAL WELFARE FACILITY (RCHE ONLY) AND PUBLIC VEHICLE PARK (EXCLUDING CONTAINER VEHICLE) AT LOTS NOS. 148 S.A RP (PART), 148 S.B RP (PART), 149 RP, 150 S.A, 150 S.B AND 151 IN D.D. 206 AND ADJOINING GOVERNMENT LAND, WEST OF WU KAI SHA ROAD, MA ON SHAN, NEW TERRITORIES		DRAWING NO. FIGURE 5.3	REV. -
DESIGNED SLN	DATE SEP 2023	DRAWING TITLE 2026 DESIGN TRAFFIC FLOWS (CONSTRUCTION)			
DRAWN CLL	SCALE N.T.S.	<div style="text-align: right; font-size: 1.2em; font-weight: bold;">LLA</div> 顧問有限公司 Consultancy Limited			
CHECKED SLN					



PROJECT NO.	40830	
DESIGNED	SLN	DATE SEP 2023
DRAWN	CLL	SCALE 1:600@A4
CHECKED	SLN	

PROJECT TITLE PROPOSED REZONING FROM "GOVERNMENT, INSTITUTION OR COMMUNITY" TO "RESIDENTIAL (GROUP B)6" ZONE TO INCLUDE SOCIAL WELFARE FACILITY (RCHC ONLY) AND PUBLIC VEHICLE PARK (EXCLUDING CONTAINER VEHICLE) AT LOTS NOS. 148 S.A RP (PART), 148 S.B RP (PART), 149 RP, 150 S.A, 150 S.B AND 151 IN D.D. 206 AND ADJOINING GOVERNMENT LAND, WEST OF WU KAI SHA ROAD, MA ON SHAN, NEW TERRITORIES

DRAWING TITLE	PROPOSED ACCESS ARRANGEMENT	
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DRAWING NO.	FIGURE 6.1	
REV.	.	
LLA 顧問有限公司 Consultancy Limited		

Appendix A
Junction Capacity Assessments
- Existing Scenario

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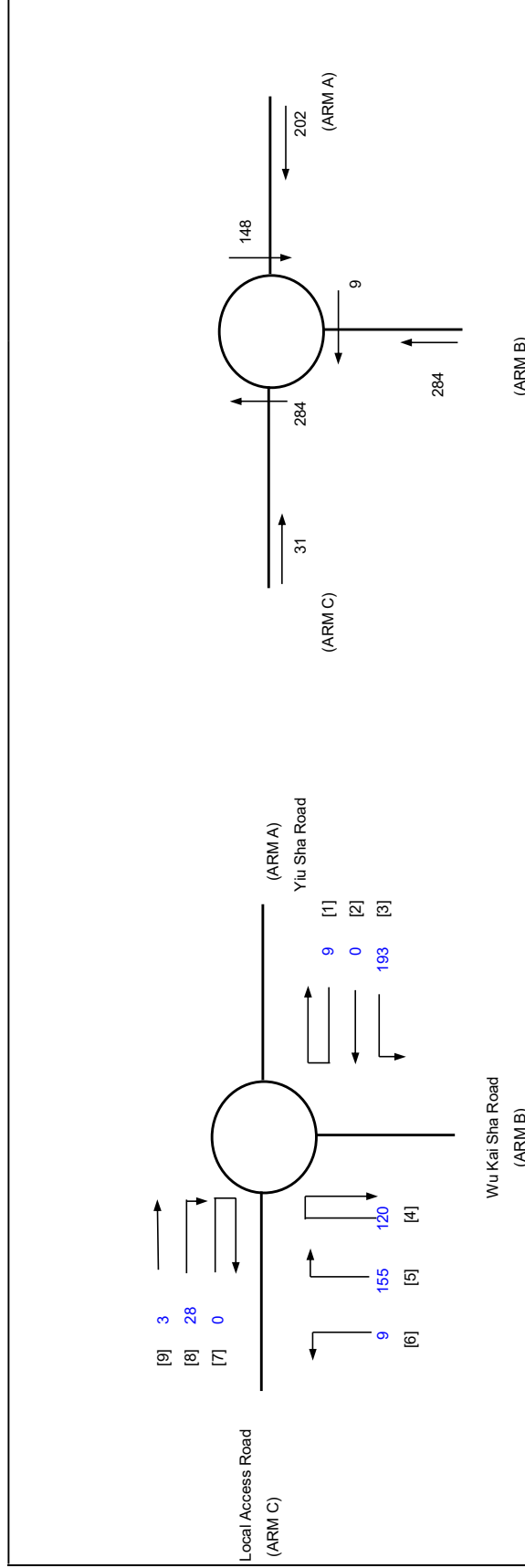
Proposed Rezoning from "Government, Institution or Community" to "Residential (Group B)": Zone to include Social Welfare Facility (RCHC only) and Public Vehicle Park (excluding container vehicle) at Lots Nos. 148 S.A RP (Part), 148 S.B RP (Part), 149 RP, 150 S.A, 150 S.B and 151 in D.D. 206 and Adjoining Government Land, West of Wu Kai Sha Road, J1

Wu Kai Sha Road / Yiu Sha Road

ROUNDABOUT CALCULATION

PROJECT NO.: 40830
 FILENAME: J1_WKSR_YSR.xls
 REFERENCE NO.:
 PREPARED BY: SKL
 CHECKED BY: SLN
 REVIEWED BY: SLN
 DATE: Sep-23

2022 Existing AM



ARM	A	B	C
V = Approach half width (m)	7.50	7.30	2.30
E = Entry width (m)	10.00	9.00	2.80
L = Effective length of flare (m)	12.50	11.00	1.00
R = Entry radius (m)	35.00	35.00	6.00
D = Inscribed circle diameter (m)	44.00	44.00	44.00
A = Entry angle (degree)	15.00	31.00	60.00
Q = Entry flow (pcu/h)	202	284	31
Qc = Circulating flow across entry (pcu/h)	148	9	284
OUTPUT PARAMETERS:			
S = Sharpness of flare = 1.6(E-V)/L	0.32	0.25	0.80
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.02	0.78
X2 = V + ((E-V)/(1+2S))	9.02	8.44	2.49
M = EXP((D-60)/10)	0.20	0.20	0.20
F = 303*X2	2734	2557	755
Td = 1+(0.5/(1+M))	1.42	1.42	1.42
Fc = 0.21*Td(1+0.2*X2)	0.83	0.80	0.45
Qe = K(F-Fc*Qc)	2802	2594	491
DFC = Design flow/Capacity = Q/Qe	0.07	0.11	0.06
Total In Sum =			514 PCU
DFC of Critical Approach =			0.11

LLA CONSULTANCY LIMITED

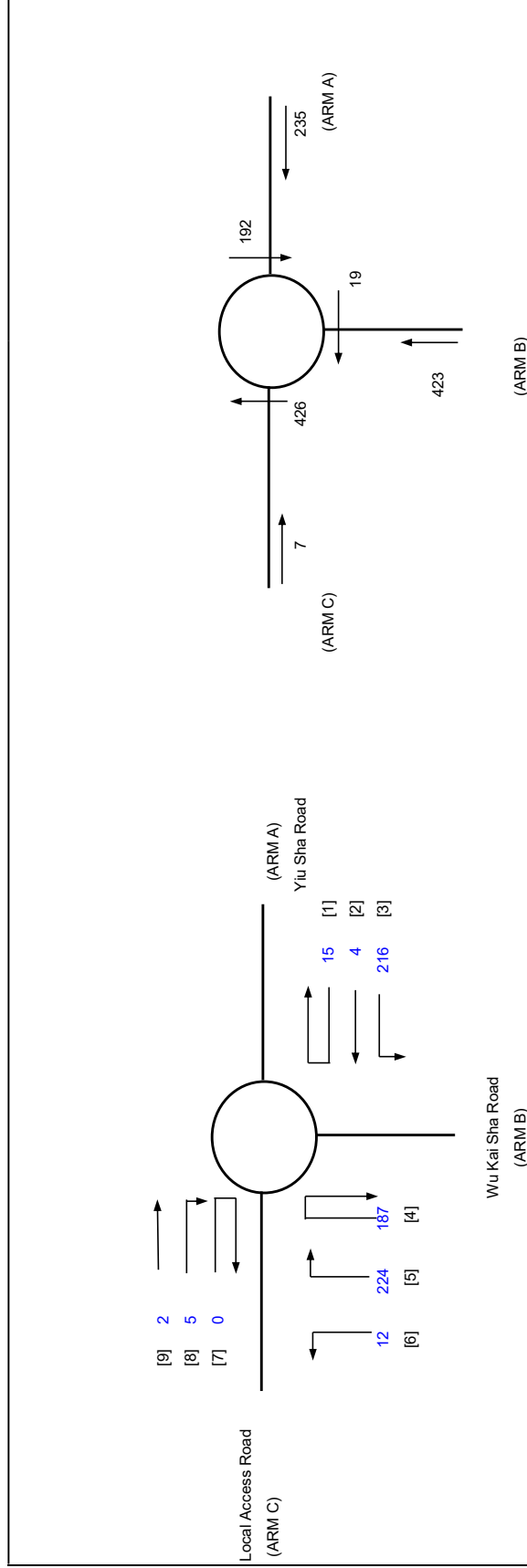
Proposed Rezoning from "Government, Institution or Community" to "Residential (Group B)": Zone to include Social Welfare Facility (RCHC only) and Public Vehicle Park (excluding container vehicle) at Lots Nos. 148 S.A RP (Part), 148 S.B RP (Part), 149 RP, 150 S.A, 150 S.B and 151 in D.D. 206 and Adjoining Government Land, West of Wu Kai Sha Road.

J1 Wu Kai Sha Road / Yiu Sha Road

ROUNDABOUT CALCULATION

PROJECT NO.: 40830
 FILENAME: J1_WKSR_YSR.xls
 REFERENCE NO.:
 PREPARED BY: SKL
 CHECKED BY: SLN
 REVIEWED BY: SLN
 DATE: Sep-23

2022 Existing PM



ARM	A	B	C
V = Approach half width (m)	7.50	7.30	2.30
E = Entry width (m)	10.00	9.00	2.80
L = Effective length of flare (m)	12.50	11.00	1.00
R = Entry radius (m)	35.00	35.00	6.00
D = Inscribed circle diameter (m)	44.00	44.00	44.00
A = Entry angle (degree)	15.00	31.00	60.00
Q = Entry flow (pcu/h)	235	423	7
Qc = Circulating flow across entry (pcu/h)	192	19	426

S = Sharpness of flare = 1.6(E-V)/L	0.32	0.25	0.80
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.02	0.78
X2 = V + ((E-V)/(1+2S))	9.02	8.44	2.49
M = EXP((D-60)/10)	0.20	0.20	0.20
F = 303*X2	2734	2557	755
Td = 1+(0.5/(1+M))	1.42	1.42	1.42
Fc = 0.21*Td(1+0.2*X2)	0.83	0.80	0.45
Qe = K(F-Fc*Qc)	2762	2586	442

DFC = Design flow/Capacity = Q/Qe	0.09	0.16	0.02
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Total In Sum = 659 PCU

DFC of Critical Approach = 0.16

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Proposed Rezoning from "Government, Institution or Community" to "Residential (Group B)"; Zone to include Social Welfare Facility (RCHC only) and Public Vehicle Park (excluding container vehicle) at Lots Nos. 148 S.A RP (Part), 148 S.B RP (Part), 149 RP, 150 S.A, 150 S.B and 151 in D.D. 206 and Adjoining Government Land, West of Wu Kai Sha Road, J2

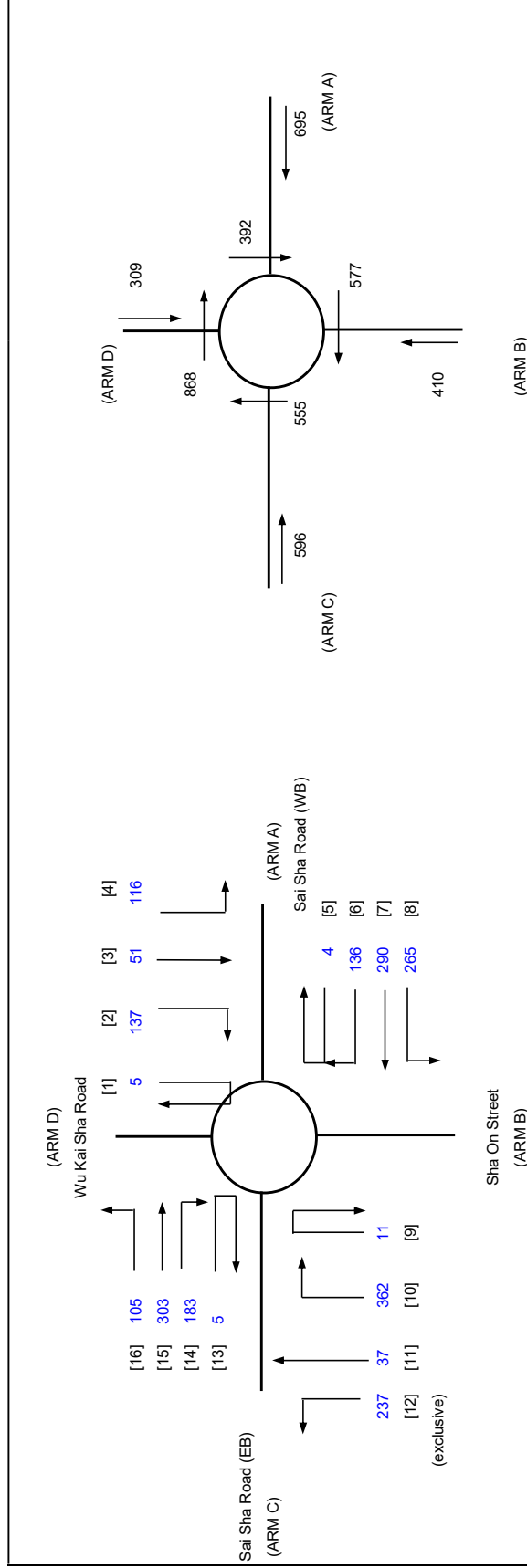
Sai Sha Road / Wu Kai Sha Road / Sha On Street

ROUNDBABOUT CALCULATION

PROJECT NO.: 40830
 FILENAME: J2_SSR_WKSR_S
 REFERENCE NO.:

PREPARED BY: SKL
 CHECKED BY: SLN
 REVIEWED BY: SLN

DATE: Sep-23



ARM	A	B	C	D
V = Approach half width (m)	8.50	3.20	7.00	7.50
E = Entry width (m)	10.50	12.00	9.00	8.00
L = Effective length of flare (m)	40.00	50.00	35.00	5.00
R = Entry radius (m)	160.00	35.00	100.00	40.00
D = Inscribed circle diameter (m)	90.00	90.00	90.00	90.00
A = Entry angle (degree)	25.00	40.00	25.00	30.00
Q = Entry flow (pcu/h)	695	410	596	309
Qc = Circulating flow across entry (pcu/h)	392	577	555	868
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.08	0.28	0.09	0.16
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.06	0.99	1.06	1.02
X2 = V + ((E-V)/(1+2S))	10.22	8.83	8.69	7.88
M = EXP((D-60)/10)	20.09	20.09	20.09	20.09
F = 303*X2	3098	2675	2633	2387
Td = 1+(0.5/(1+M))	1.02	1.02	1.02	1.02
Fc = 0.21*Td(1+0.2*X2)	0.65	0.59	0.59	0.55
Qe = K(F-Fc*Qc)	3012	2300	2437	1953
Total In Sum = 1203 PCU				
DFC = Design flow/Capacity = Q/Qe	0.23	0.18	0.24	0.16
DFC of Critical Approach = 0.24				

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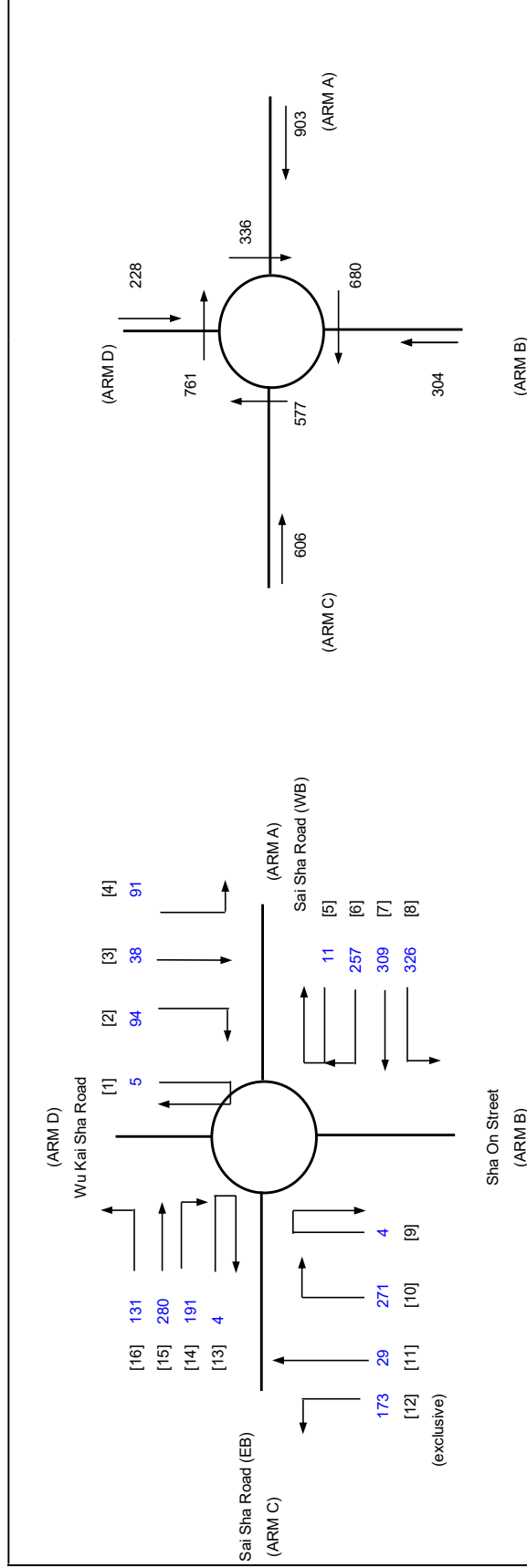
Proposed Rezoning from "Government, Institution or Community" to "Residential (Group B)"; Zone to include Social Welfare Facility (RCHC only) and Public Vehicle Park (excluding container vehicle) at Lots Nos. 148 S.A RP (Part), 148 S.B RP (Part), 149 RP, 150 S.A, 150 S.B and 151 in D.D. 206 and Adjoining Government Land, West of Wu Kai Sha Road.

J2 Sai Sha Road / Wu Kai Sha Road / Sha On Street

ROUNDBABOUT CALCULATION

PROJECT NO.: 40830
 FILENAME: J2_SSR_WKSR_S
 REFERENCE NO.:
 PREPARED BY: SKL
 CHECKED BY: SLN
 REVIEWED BY: SLN
 DATE: Sep-23

2022 Existing PM



ARM	A	B	C	D
V = Approach half width (m)	8.50	3.20	7.00	7.50
E = Entry width (m)	10.50	12.00	9.00	8.00
L = Effective length of flare (m)	40.00	50.00	35.00	5.00
R = Entry radius (m)	160.00	35.00	100.00	40.00
D = Inscribed circle diameter (m)	90.00	90.00	90.00	90.00
A = Entry angle (degree)	25.00	40.00	25.00	30.00
Q = Entry flow (pcu/h)	903	304	606	228
Qc = Circulating flow across entry (pcu/h)	336	680	577	761
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.08	0.28	0.09	0.16
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.06	0.99	1.06	1.02
X2 = V + ((E-V)/(1+2S))	10.22	8.83	8.69	7.88
M = EXP((D-60)/10)	20.09	20.09	20.09	20.09
F = 303*X2	3098	2675	2633	2387
Td = 1+(0.5/(1+M))	1.02	1.02	1.02	1.02
Fc = 0.21*Td(1+0.2*X2)	0.65	0.59	0.59	0.55
Qe = K(F-Fc*Qc)	3051	2240	2423	2014
DFC = Design flow/Capacity = Q/Qe	0.30	0.14	0.25	0.11
Total In Sum =				1179 PCU
DFC of Critical Approach =				0.30

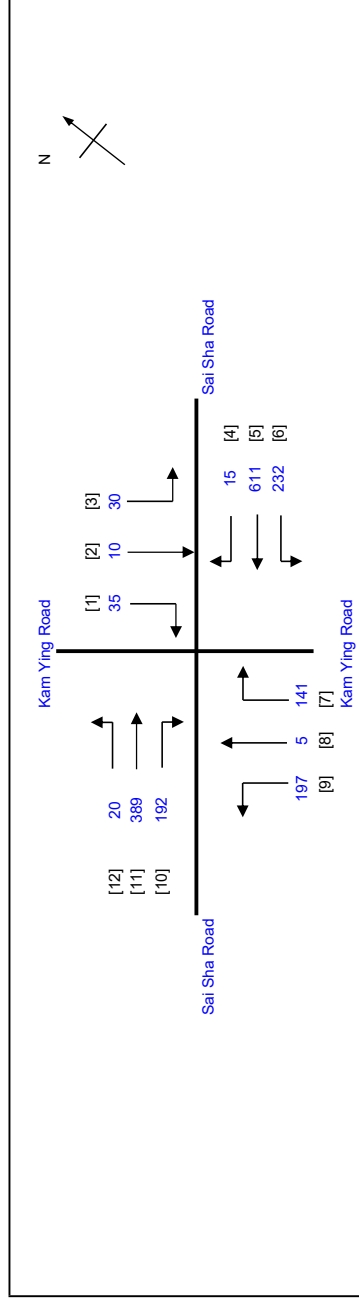
LLA CONSULTANCY LIMITED

Proposed Rezoning from "Government, Institution or Community" to "Residential (Group B)(e) Zone to Include Social Welfare Facility (RCHE only) and Public Vehicle Park (excluding container vehicle) at Lots Nos. 148 S.A RP (Part), 148 S.B RP (Part), 149 RP, 150 S.A, 150 S.B and 151 in D.D. J3 Sai Sha Road / Kam Ying Road

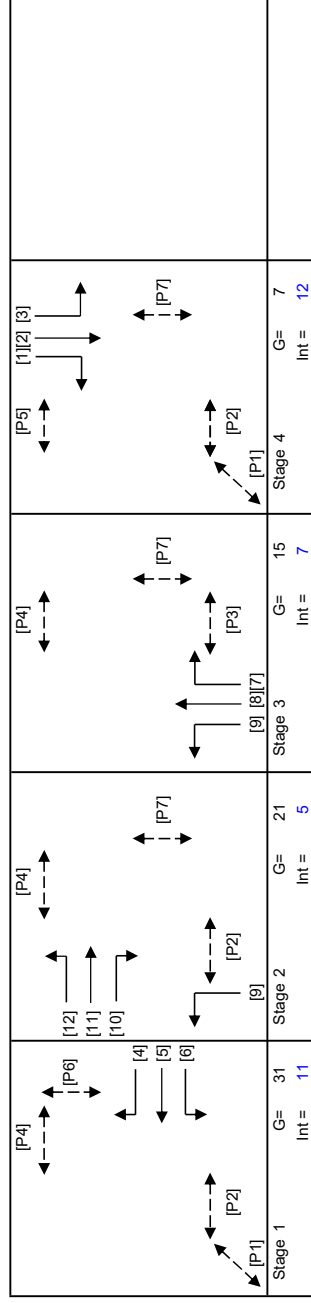
TRAFFIC SIGNAL CALCULATION

PROJECT NO.: 40830
 FILENAME: J3_SSR_KYR.xlsm
 Prepared By:
 Checked By:
 Reviewed By:

INITIALS	DATE
SKL	Sep-23
SLN	Sep-23
SLN	Sep-23



No. of stages per cycle	N = 4
Cycle time	C = 110 sec
Sum(y)	0.355
Loss time	Y = 31 sec
Total Flow	L = 1877 pcu
Co	= 79.8 sec
Cm	= 48.1 sec
Yult	= 0.668
R.C.ult	= (Yult-Y)*100%
Cp	= 0.9*L/(0.9-Y)
Ymax	= 1-L/C
R.C.(C)	= 0.9*Ymax-Y)*100% = 82 %



Pedestrian Phase	Stage	Green Time SG	Green Time FG	Delay	Green Time Provided SG	Green Time Provided FG
P1	1,4	5	6	2	54	6
P2	1,2,4	5	5	0	83	5
P3	3	5	8	7	7	8
P4	1,2,3	5	5	0	86	5
P5	4	5	6	6	7	6
P6	1	5	7	5	30	7
P7	2,3,4	5	12	0	56	12

Move-ment	Stage	Lane Width m.	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement	Total Flow	Proportion of Turning Vehicles	Sat. Flow	Flare Effect	Site Factor	Site Effect	Gradient %	Gradient Effect	Revised Sat. Flow	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m /lane)	Average Delay (seconds)
6	1	3.50	1	15		N	1965	Left	232	1.00	1786					1786	0.130		31	29	32	0.494	30	34	
5	1	3.50	2	25			4210	Right	611	0.00	4210					4210	0.145	0.145		32	32	0.494	39	30	
4	1	3.50	1	25			2105		15	1.00	1986					1986	0.008			2	32	0.494	0	101	
11,12	2	4.00	1	15		N	2015	Left	197	0.10	1995					1995	0.099	0.099		22	22	0.494	24	39	
11	2	4.00	1	25			2155	Right	212	0.00	2155					2155	0.098			22	22	0.494	30	39	
10	2	3.50	1	25			2105		192	1.00	1986					1986	0.097			22	22	0.494	24	40	
9	2,3	4.50	1	25		N	2065	Left	197	1.00	1948					1948	0.101			23	38	0.494	24	39	
7,8	3	3.50	1	25			2105	Right	146	0.97	1990					1990	0.073	0.073		16	16	0.494	18	44	
1,2,3	4	5.50	1	15		N	2165	Left	30	0.87	1992					1992	0.038	0.038		8	8	0.494	12	54	

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

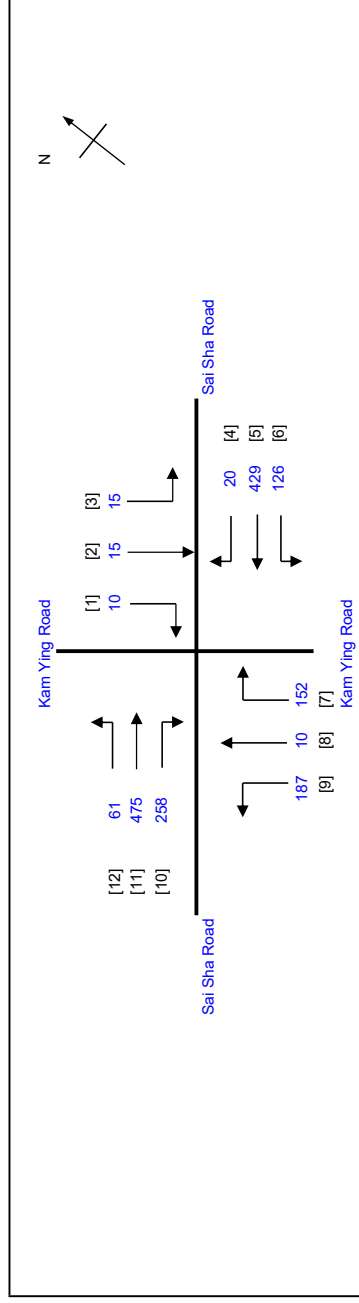
LLA CONSULTANCY LIMITED

Proposed Rezoning from "Government, Institution or Community" to "Residential (Group B)" Zone to Include Social Welfare Facility (RCHE only) and Public Vehicle Park (excluding container vehicle) at Lots Nos. 148 S.A RP (Part), 148 S.B RP (Part), 149 RP, 150 S.A, 150 S.B and 151 in D.D. J3 Sai Sha Road / Kam Ying Road

TRAFFIC SIGNAL CALCULATION

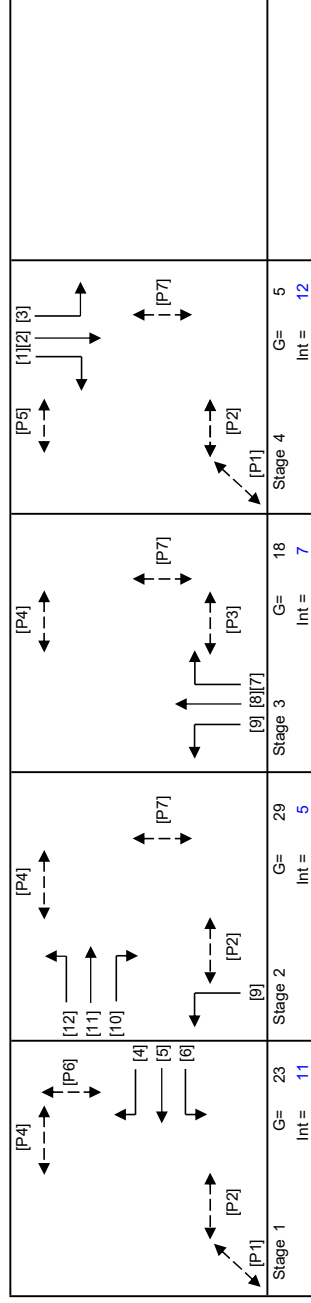
PROJECT NO.: 40830
 FILENAME: J3_SSR_KYR.xlsm
 Prepared By:
 Checked By:
 Reviewed By:

INITIALS DATE
 SKL Sep-23
 SLN Sep-23
 SLN Sep-23



No. of stages per cycle = 4
 Cycle time = 110 sec
 Sum(y) = 0.333
 Loss time = 32 sec
 Total Flow = 1758 pcu
 Co = (1.5*L+5)/(1-Y) = 79.4 sec
 Crm = L/(1-Y) = 48.0 sec
 Yult = 0.660
 R.C.ult = (Yult-Y)*100% = 98.3 %
 Cp = 0.9*L/(0.9-Y) = 50.8 sec
 Ymax = 1-L/C = 0.709

R.C.(C) = 0.9*Ymax-Y)*100% = 92 %



Pedestrian Phase	Stage	Green Time Required SG	Delay FG	Green Time Provided SG	Delay FG
P1	1,4	5	6	42	6
P2	1,2,4	5	5	80	5
P3	3	5	8	10	8
P4	1,2,3	5	5	88	5
P5	4	5	6	5	6
P6	1	5	7	22	7
P7	2,3,4	5	12	64	12

Move-ment	Stage	Lane Width m.	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare Effect pcu/hr	Site Factor	Site Effect pcu/hr	Gradient %	Gradient Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m /lane)	Average Delay (seconds)
6	1	3.50	1	15		N	1965	126	429	20	126	1.00	1786						1786	0.071		31	17	24	0.469	18	44
5	1	3.50	2	25			4210				429	0.00	4210						4210	0.102	0.102		24	24	0.469	30	35
4	1	3.50	1	25			2105				20	1.00	1986						1986	0.010			2	24	0.469	0	82
11,12	2	4.00	1	15		N	2015	61	195		256	0.24	1968						1968	0.130	0.130		30	30	0.469	30	32
11	2	4.00	1	25			2155		280		280	0.00	2155						2155	0.130			30	30	0.469	36	32
10	2	3.50	1	25			2105		258		258	1.00	1986						1986	0.130			30	30	0.469	30	32
9	2,3	4.50	1	25		N	2065	187			187	1.00	1948						1948	0.096			22	50	0.469	24	38
7,8	3	3.50	1	25			2105		10		162	0.94	1993						1993	0.081	0.081		19	19	0.469	24	41
1,2,3	4	5.50	1	15		N	2165	15	15	10	40	0.63	2038						2038	0.020	0.020	1	5	6	0.469	6	63

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

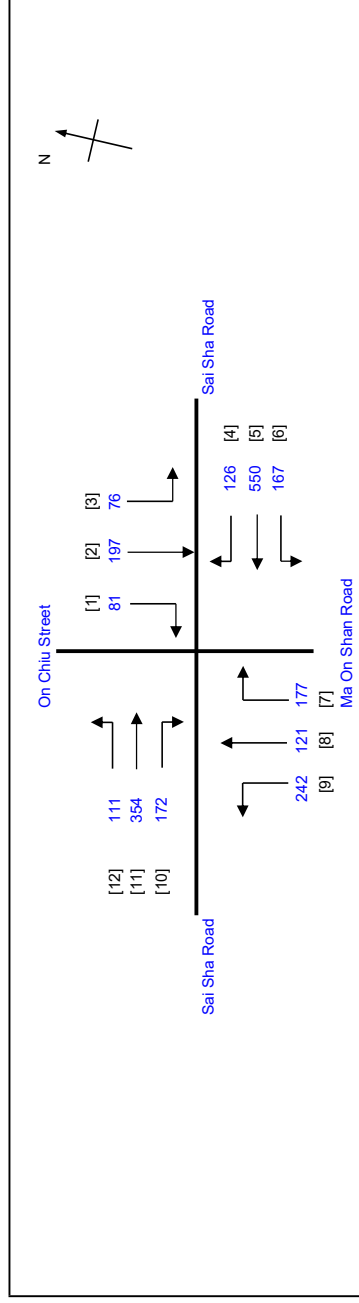
LLA CONSULTANCY LIMITED

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TRAFFIC SIGNAL CALCULATION

PROJECT NO.: 40830
 FILENAME: J4_SSR_MOSR_OCR.xlsm
 Prepared By:
 Checked By:
 Reviewed By:

INITIALS DATE
 SKL Sep-23
 SLN Sep-23
 SLN Sep-23



No. of stages per cycle = 4

Cycle time = 110 sec
 Sum(y) = 0.426
 Loss time = 26 sec
 Total Flow = 2374 pcu
 Co = (1.5*L+5)/(1-Y) = 76.6 sec
 Crm = L/(1-Y) = 45.3 sec
 Yult = 0.705
 R.C.Ult = (Yult-Y)*100% = 65.6 %
 Cp = 0.9*L/(0.9-Y) = 49.3 sec
 Ymax = 1-L/C = 0.764

R.C.(C) = (0.9*Ymax-Y)*100% = 61 %

Stage	Lane Width m.	No. of lane	Radius m.	O	N	Straight Ahead Sat. Flow	Movement	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare Lane m.	Flare Effect pcu/hr	Site Factor	Site Effect pcu/hr	Gradient %	Gradient Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
8.9	3.70	1	10		N	1985	Left: 242	242	1.00	1726							1726	0.140	0.140	23	28	28	0.558	30	37
7.8	3.70	1	30		N	2125	Left: 121, Right: 145	153	0.21	2103							2103	0.073	0.073		14	28	0.558	24	48
7	3.70	1	25		N	2125	Left: 167	145	1.00	2005							2005	0.072	0.072		14	28	0.558	18	48
6	3.75	1	15		N	1990	Left: 76	167	1.00	1809							1809	0.092	0.092		18	53	0.558	24	45
5	3.75	2	30		N	4260	Left: 550	550	0.00	4260							4260	0.129	0.129		25	25	0.558	36	36
4	3.75	1	25		N	2130	Left: 52, Right: 145	126	1.00	2009							2009	0.063	0.063		12	25	0.558	18	51
2.3	3.50	1	15		N	1965	Left: 111	128	0.59	1855							1855	0.069	0.069		14	14	0.558	18	50
1.2	3.50	1	30		N	2105	Left: 354	145	0.00	2105							2105	0.069	0.069		14	14	0.558	18	49
1	3.00	1	25		N	2055	Left: 111	81	1.00	1939							1939	0.042	0.042		8	14	0.558	12	58
12	3.30	1	10		N	1945	Left: 172	111	1.00	1691							1691	0.066	0.066		13	14	0.558	18	51
11	3.30	2	30		N	4170	Left: 354	354	0.00	4170							4170	0.085	0.085		17	20	0.558	27	42
10	3.30	1	25		N	2085	Left: 172	172	1.00	1967							1967	0.087	0.087		17	20	0.558	24	45

Stage	Stage	Green Time SG	Green Time FG	Green Time Delay	Green Time Provided SG	Green Time Provided FG
P1	4	11	9	4	11	9

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

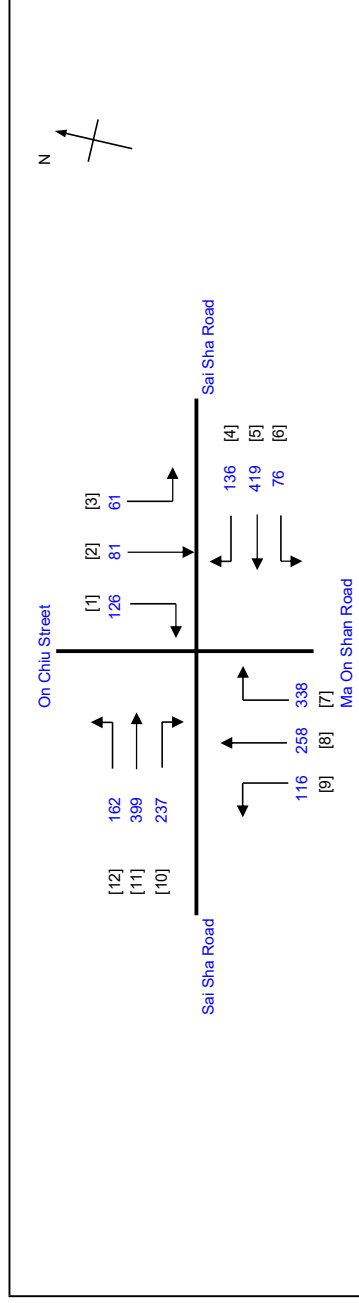
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TRAFFIC SIGNAL CALCULATION

PROJECT NO.: 40830
 FILENAME: J4_SSR_MOSR_OCR.xlsm
 Prepared By:
 Checked By:
 Reviewed By:

INITIALS	DATE
SKL	Sep-23
SLN	Sep-23
SLN	Sep-23



No. of stages per cycle	N = 4
Cycle time	C = 110 sec
Sum(y)	0.435
Loss time	Y = 24 sec
Total Flow	L = 2409 pcu
Co	= (1.5*L+5)/(1-Y) = 72.5 sec
Cm	= L/(1-Y) = 42.5 sec
Yult	= 0.720
R.C.Ult	= (Yult-Y)*100% = 65.6 %
Cp	= 0.9*L/(0.9-Y) = 46.4 sec
Ymax	= 1-L/C = 0.782
R.C.(C)	= (0.9*Ymax-Y)*100% = 62 %

Stage	Lane Width m.	No. of lane	Radius m.	O	N	Straight Ahead Sat. Flow	Movement	Total Flow	Proportion of Turning Vehicles	Sat. Flow	Flare Lane m.	Flare Effect	Site Factor	Site Effect	Gradient %	Gradient Effect	Revised Sat. Flow	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
8.9	3.70	1	10		N	1985	Left: 116, Straight: 105, Right: 97	221	0.52	1840							1840	0.120	0.120	24	24	24	0.556	30	40
7.8	3.70	1	30		N	2125	Left: 76, Straight: 419, Right: 241	250	0.39	2085							2085	0.120	0.120	24	24	24	0.556	30	39
7	3.70	1	25		N	2125	Left: 61, Straight: 23, Right: 37	241	1.00	2005							2005	0.120	0.120	24	24	24	0.556	30	39
6	3.75	1	15		N	1990	Left: 76, Straight: 419, Right: 136	76	1.00	1809							1809	0.042	0.098	8	8	43	0.556	12	59
5	3.75	2	30		N	4260	Left: 61, Straight: 58, Right: 37	419	0.00	4260							4260	0.098	0.098	19	19	19	0.556	30	40
4	3.75	1	25		N	2130	Left: 162, Straight: 399, Right: 89	136	1.00	2009							2009	0.068	0.120	13	13	19	0.556	18	49
2.3	3.50	1	15		N	1965	Left: 162, Straight: 399, Right: 237	84	0.73	1832							1832	0.046	0.096	9	9	19	0.556	12	57
1.2	3.50	1	30		N	2105	Left: 162, Straight: 399, Right: 237	95	0.39	2065							2065	0.046	0.096	9	9	19	0.556	12	56
1	3.00	1	25		N	2055	Left: 162, Straight: 399, Right: 237	89	1.00	1939							1939	0.046	0.120	9	9	19	0.556	12	56
12	3.30	1	10		N	1945	Left: 162, Straight: 399, Right: 237	162	1.00	1691							1691	0.096	0.096	19	19	19	0.556	24	44
11	3.30	2	30		N	4170	Left: 162, Straight: 399, Right: 237	399	0.00	4170							4170	0.096	0.120	19	19	24	0.556	30	40
10	3.30	1	25		N	2085	Left: 162, Straight: 399, Right: 237	237	1.00	1967							1967	0.120	0.120	24	24	24	0.556	30	39

Stage	Green Time SG	Green Time FG	Green Time Delay	Green Time Provided SG	Green Time Provided FG
Stage 1	23	8	Int = 8	15	9
Stage 2	18	10	Int = 10	15	9
Stage 3	18	5	Int = 5	15	9
Stage 4	18	5	Int = 5	15	9

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

Appendix B

Traffic Generation of Planned Developments

Extracted from Corresponding TIA Reports

Table 4.8 Development Traffic Flows (Sports & Recreation Centres)

Facilities	Approved Scheme				Current Scheme			
	AM Peak		PM Peak		AM Peak		PM Peak	
	Gen. (pcu/hr)	Att. (pcu/hr)	Gen. (pcu/hr)	Att. (pcu/hr)	Gen. (pcu/hr)	Att. (pcu/hr)	Gen. (pcu/hr)	Att. (pcu/hr)
Golf Driving ⁽¹⁾ Range	11	42	66	34	9	34	54	28
Tennis Court ⁽²⁾	-	-	3	3	-	-	5	5
Football Court ⁽³⁾	-	-	-	-	-	-	10	10
Lacrosse ⁽⁴⁾	-	-	-	-	-	-	8	8
Surfing Pool ⁽⁵⁾	-	-	-	-	-	-	2	2
Training Path ⁽⁶⁾ for cycling	-	-	-	-	-	-	8	8
Ball Court ⁽⁷⁾	-	-	14	46	-	-	14	46
Cinema ⁽⁸⁾	-	-	16	16	-	-	16	16
Ancillary Facilities for Sports & Recreation Centre	16	17	22	25	16	17	22	25
Retail & F&B Facilities	8	9	11	12	8	9	11	12
Total	35	68	132	136	33	60	150	160
Change (Current Scheme – Approved Scheme)					-2	-8	+18	+24

- Notes:
- (1) Based on the adopted trip rates as given in Table 4.7.
 - (2) Referring to Table 2.2, the tennis court are anticipated to attract 15 persons/hr (in approved scheme) and 25 persons/hr (current scheme) during PM peak. Based on the observed modal split in Table 2.9 (40% for private car / taxi) and the occupancy of 2 passenger per car / taxi, the tennis court would induce a traffic generation / attraction of 3 pcu/hr (i.e. 15 x 40% / 2) in the approved scheme and 5 pcu/hr (i.e. 25 x 40% / 2) in the current scheme.
 - (3) Referring to Table 2.2, the football court are anticipated to attract 30 persons/hr (current scheme) during PM peak. Based on the observed modal split in Table 2.9 (40% for private car / taxi) and the occupancy of 2 passenger per car / taxi, the football court would induce a traffic generation / attraction of 10 pcu/hr (i.e. 30 x 40% / 2) in the current scheme.
 - (4) Referring to Table 2.2, the Lacrosse court are anticipated to attract 15 persons/hr (current scheme) during PM peak. Based on the observed modal split in Table 2.9 (73% for private car / taxi) and the occupancy of 1.5 passenger per car / taxi, the Lacrosse court would induce a traffic generation of 8 pcu/hr (i.e. 15 x 40% / 1.5)
 - (5) Assumed all use private cars.
 - (6) Referring to Table 2.2, the cycling path are anticipated to attract 30 persons/hr (current scheme) during PM peak. Based on the observed modal split in Table 2.9 (100% for private car / taxi) and the occupancy of 4 passenger per car / taxi, the cycling path would induce a traffic generation of 8 pcu/hr (ie 30 x 100% / 4)
 - (7) Based on the observed trip rates at Lai King Sports Centre (i.e. PM in = 5.2 pcu/100 seats and PM out = 1.6 pcu/100 seats)
 - (8) Based on number of provided car parking spaces (i.e. 16 spaces).
 - (9) Based on trip rates of Retail as stated in TPDM.

4.4.6 As shown in Table 4.8, the analysis reveals that the change in trip ends due to the proposed amendment to the Approved Scheme is minimal.

4.4.7 Based on the development traffic generation as given Table 4.5 and Table 4.8, the overall traffic generation of the proposed development in the Approved Scheme and Current Scheme are summarised and listed in Table 4.9.

Table 4.9 Overall Development Traffic Flows

	Approved Scheme				Current Scheme			
	AM Peak		PM Peak		AM Peak		PM Peak	
	Gen. (pcu/hr)	Att. (pcu/hr)	Gen. (pcu/hr)	Att. (pcu/hr)	Gen. (pcu/hr)	Att. (pcu/hr)	Gen. (pcu/hr)	Att. (pcu/hr)
Development Traffic Flow (Exclude Sports & Recreation Centres)	948	647	588	686	948	647	588	686
Development Traffic Flow (Sports & Recreation Centres)	35	68	132	136	33	60	150	160
Total	983	715	720	822	981	707	738	846

4.5 2028 Reference and Design Traffic Flows

4.5.1 The 2028 reference traffic flows were produced by adding the additional trips to be generated by the Proposed Development in the approved scheme in Table 4.9 to the 2028 background traffic flows. The directional distribution of the development traffic of the Application Site is illustrated in Figure 4.2. The resultant 2028 reference traffic flows (approved scheme) are shown in Figures 4.3 - 4.4.

4.5.2 The 2028 design traffic flows were produced by adding the additional trips to be generated by the Proposed Development in current scheme in Table 4.9 to the 2028 background traffic flows. The resultant 2028 design traffic flows (current scheme) are shown in Figures 4.5 - 4.6.

4.6 Sensitivity Test – Potential School at Sai Keng

4.6.1 A recent submission was made to Town Planning Board for a proposed private school at Sai Keng (Application A/NE-SSH/139). Its location is indicated in Figure 4.1. The potential school will be operated as a private school with a total of 1,226 students ranging from early year learning, primary to secondary education.

4.6.2 It is anticipated that the AM peak traffic generation of the potential school in Sai Keng would be critical as it would overlap with the commuting AM peak. However, its PM peak traffic generation should occur earlier than the commuting PM peak which shall not be critical. The current scheme would generate less traffic than the approved scheme during AM peak as demonstrated in Table 4.9. In view of the above, the TIA of Potential School in Sai Keng in design year 2031 (under the Application A/NE-SSH/139) would be more critical. In conclusion, the current proposal in Site C would not affect the TIA findings under the Application A/NE-SSH/139.

Table D 4.6 Estimated Transport Mode of Surveyed Schools / Kindergarten

	Transport Mode		
	Car / Taxi	School Bus	Public Transport / Walk
Renaissance College	11%	49%	40%
Shatin College / Shatin Junior School	12%	58%	30%
Anchors Kindergarten & International Nursery	25%	70%	5%

4.5.5 By applying the adopted trip generation rates as given in Table D4.5 and the proposed development scheme as listed in Table D2.1, the development traffic of Proposed School was calculated and summarised in Table D4.7.

Table D 4.7 Traffic Generations of Proposed School (Proposed Scheme)

	Trip Ends (pcu/hr)			
	AM Peak		Mid-Afternoon Peak	
	Generation	Attraction	Generation	Attraction
Primary / Secondary School (672 students)	100	114	71	65
Early Year Learning (50 students)	16	17	16	16
Total	116	131	87	81

4.5.6 Table D4.4 and Table D 4.7 shows the development traffic generations of both the Approved Scheme and the Proposed Scheme in the AM peak and mid-afternoon peak. The mid-afternoon peak (i.e. school dismissal period) falls between around 3pm – 4pm and does not coincide with the normal PM peak period. As a conservative approach, it is assumed that 50% of development traffic at mid-afternoon peak would occur at the normal PM Peak period.

Table D 4.8 Traffic Generations of Approved Scheme and Proposed Scheme

	Trip Ends (pcu)			
	AM Peak		PM Peak	
	Generation	Attraction	Generation	Attraction
Private School (Approved Scheme)	90	100	30	25
Proposed School (Proposed Scheme)	116	131	44	41
Difference	+26	+31	+14	+16

4.5.7 As shown in Table D 4.8, the overall traffic generation of Proposed School under the previously Approved Scheme and the current Proposed Scheme would be similar. The two-way development traffic to be induced by the Proposed School would only be slightly increased by 57 pcu/hr and by 30 pcu/hr in AM and PM peak respectively.

4.3.4 As shown in **Table 4.3**, the Proposed RCHE will generate an additional two-way traffic of 10 veh/hr, equivalent to 14 pcu/hr, during both the AM and PM peak hours.

Estimated Development Traffic Generation based on Trip Generation Survey

4.3.5 To verify the adopted traffic generation of proposed RCHE is conservative, additional trip generation surveys at other existing RCHEs in the area were arranged to collect trip rates of RCHE. The traffic trip generation surveys were conducted on 23 November 2021 (Tuesday) during the peak hour period from 07:30 to 09:30 and 17:00 to 19:00. The trip generations at the identified highway peak are adopted and summarized in **Table 4.4**.

Table 4.4 Trip Rates of Surveyed RCHE

Name	Location	Capacity	Recorded Trips (pcu/hr) [Trip Rates (pcu/hr/10 bed)]			
			AM Peak		PM Peak	
			Gen.	Att.	Gen.	Att.
Caritas Harold H.W. LEE Care and Attention Home	17 Kong Pui Street, Shatin	276 beds	9 [0.3261]	11 [0.3986]	9 [0.3261]	9 [0.3261]
SAGE Kwan Fong Nim Chee Home for the Elderly	27 Chap Wai Kon Street, Shatin	204 beds	7 [0.3431]	8 [0.3922]	7 [0.3431]	7 [0.3431]
Estimated Trip Rates⁽¹⁾			0.3431	0.3986	0.3431	0.3431

Note: (1) The larger trip rates are adopted.

4.3.6 Taking into consideration of the above, the traffic generation and attraction of the proposed development is estimated in **Table 4.5**.

Table 4.5 Proposed RCHE Traffic Generation Estimated by Trip Generation Survey

Proposed RCHE – 200 beds	Unit/Content	AM Peak Hour			PM Peak Hour		
		Gen.	Att.	2-way	Gen.	Att.	2-way
Adopted Trip Rates	pcu/10 bed	0.3431	0.3986	-	0.3431	0.3431	-
Traffic Generations	pcu/hr/10 bed	7	8	15	7	7	14

4.3.7 As shown in **Table 4.5**, the Proposed RCHE will generate additional two-way traffic of 15 pcu/hr and 14 pcu/hr, during AM and PM peak hour, respectively.

4.3.8 The traffic generations of the proposed RCHE estimated by trip characteristics and trip generation survey are similar. However, to be conservative, the larger values are adopted for the subsequent assessment. The estimated additional development traffic was assigned onto the future road network based on the observed traffic pattern. **Figure 4.1** shows the additional development traffic generation pattern.

4.3.2 **Table 4.3** shows that the proposed development will generate a two-way traffic of 115 pcu/hour and 89 pcu/hour during both AM peak hour and PM peak hour, respectively. As compared with the existing hotel use in **Table 4.2**, the net change of proposed development traffic is shown in **Table 4.4**.

Table 4.3 Traffic Generation of the Proposed Development

Type	Unit/Content	AM Peak Hour			PM Peak Hour		
		Gen.	Att.	2-way	Gen.	Att.	2-way
Adopted Trip Rates							
Hotel ⁽¹⁾	pcu/hr/room	0.0722	0.0517	-	0.0457	0.0542	-
Office ⁽²⁾	pcu/hr/100m ²	0.1703	0.2452	-	0.1573	0.1175	-
Retail ⁽³⁾	pcu/hr/100m ²	0.2296	0.2434	-	0.3100	0.3563	-
Traffic Generation of the Existing Hotel							
Hotel [A]	831 rooms	60	43	103	38	45	83
Retail [B]	4,776m ²	11	12	23	15	18	33
Sub-Total [A]+[B]		71	55	126	53	63	116
Traffic Generation of the Proposed Development							
Residential [C]	758 flats	55	33	88	22	29	51
Retail [D]	5,543m ²	13	14	27	18	20	38
Sub-Total [C]+[D]		68	47	115	40	49	89

- Notes: (1) Surveyed trip rates for hotel are adopted.
(2) Mean trip rates for office are adopted from TPDM, Transport Department
(3) Mean trip rates for retail are adopted from TPDM, Transport Department

Table 4.4 Net Change in Development Traffic Generation

Use	AM Peak Hour			PM Peak Hour		
	Gen.	Att.	Total	Gen.	Att.	Total
Existing Hotel (A)	71	55	126	53	63	116
Proposed Development (B)	68	47	115	40	49	89
Net Increase (B) – (A)	-3	-8	-11	-13	-14	-27

4.3.3 As shown in **Table 4.4**, there would be a decrease in traffic generation of 11 pcu/hour and 27 pcu/hour in the AM and PM peak hour, respectively. The change in development traffic flows are assigned onto the road network based on the observed traffic pattern for future assessment. The estimated distribution pattern of the development traffic is shown in **Figure 4.1**.

Appendix C

Junction Capacity Assessments

- Reference & Design Scenarios

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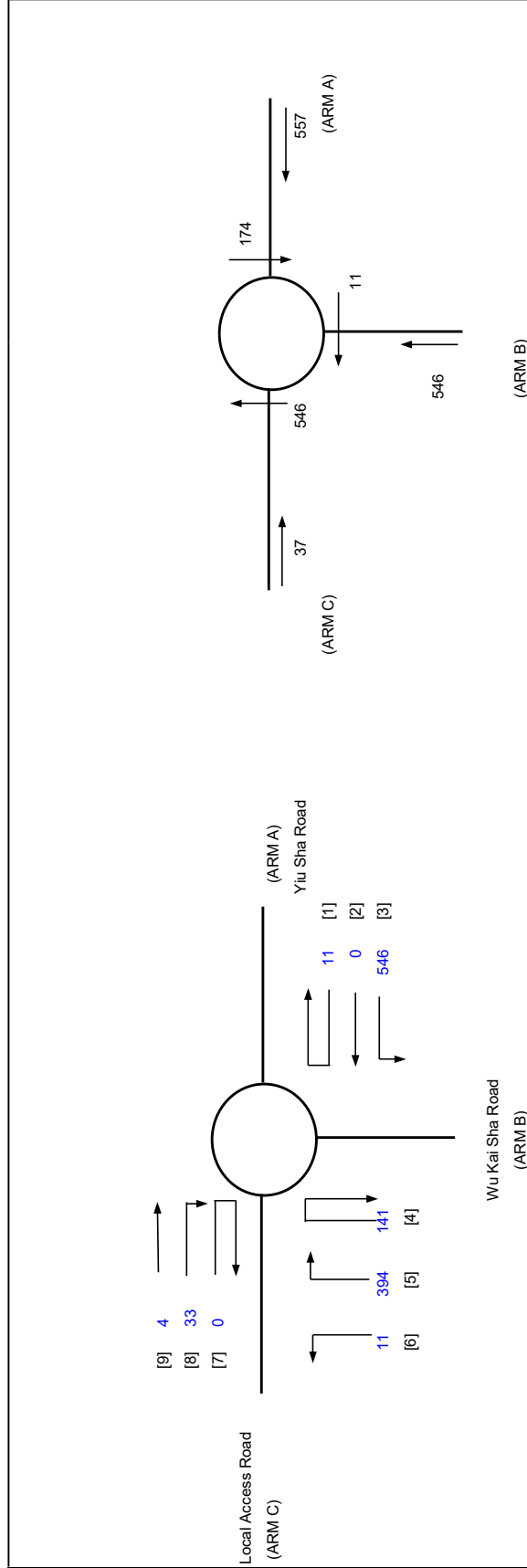
Proposed Rezoning from "Government, Institution or Community" to "Residential (Group B)": Zone to include Social Welfare Facility (RCHC only) and Public Vehicle Park (excluding container vehicle) at Lots Nos. 148 S.A RP (Part), 148 S.B RP (Part), 149 RP, 150 S.A, 150 S.B and 151 in D.D. 206 and Adjoining Government Land, West of Wu Kai Sha Road, J1

Wu Kai Sha Road / Yiu Sha Road

ROUNDABOUT CALCULATION

PROJECT NO.: 40830
 FILENAME: J1_WKSR_YSR.xls
 REFERENCE NO.:
 PREPARED BY: SKL
 CHECKED BY: SLN
 REVIEWED BY: SLN
 DATE: Sep-23

2030 Reference AM



ARM	A	B	C
V = Approach half width (m)	7.50	7.30	2.30
E = Entry width (m)	10.00	9.00	2.80
L = Effective length of flare (m)	12.50	11.00	1.00
R = Entry radius (m)	35.00	35.00	6.00
D = Inscribed circle diameter (m)	44.00	44.00	44.00
A = Entry angle (degree)	15.00	31.00	60.00
Q = Entry flow (pcu/h)	557	546	37
Qc = Circulating flow across entry (pcu/h)	174	11	546
OUTPUT PARAMETERS:			
S = Sharpness of flare = 1.6(E-V)/L	0.32	0.25	0.80
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.02	0.78
X2 = V + ((E-V)/(1+2S))	9.02	8.44	2.49
M = EXP((D-60)/10)	0.20	0.20	0.20
F = 303*X2	2734	2557	755
Td = 1+(0.5/(1+M))	1.42	1.42	1.42
Fc = 0.21*Td*(1+0.2*X2)	0.83	0.80	0.45
Qe = K(F-Fc*Qc)	2778	2592	400
DFC = Design flow/Capacity = Q/Qe	0.20	0.21	0.09
Total In Sum =			1136 PCU
DFC of Critical Approach =			0.21

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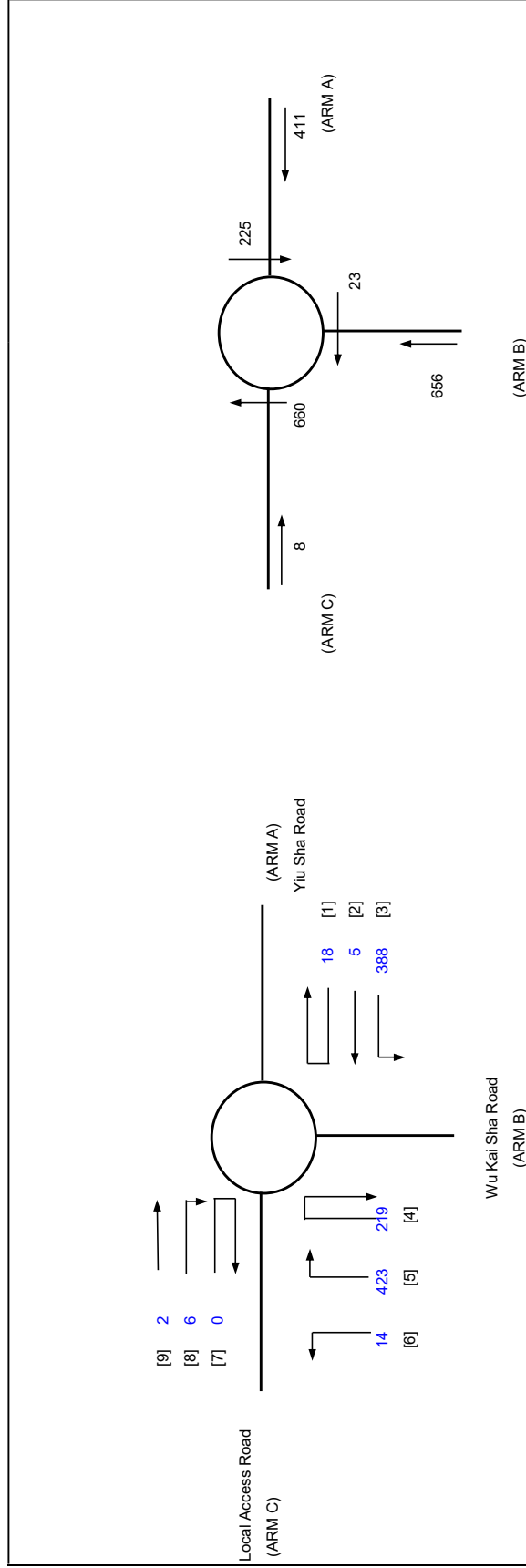
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Wu Kai Sha Road / Yiu Sha Road

ROUNDABOUT CALCULATION

PROJECT NO.: 40830
 FILENAME: J1_WKSR_YSR.xls
 REFERENCE NO.:
 PREPARED BY: SKL
 CHECKED BY: SLN
 REVIEWED BY: SLN
 DATE: Sep-23

2030 Reference PM



ARM	A	B	C
V = Approach half width (m)	7.50	7.30	2.30
E = Entry width (m)	10.00	9.00	2.80
L = Effective length of flare (m)	12.50	11.00	1.00
R = Entry radius (m)	35.00	35.00	6.00
D = Inscribed circle diameter (m)	44.00	44.00	44.00
A = Entry angle (degree)	15.00	31.00	60.00
Q = Entry flow (pcu/h)	411	656	8
Qc = Circulating flow across entry (pcu/h)	225	23	660
OUTPUT PARAMETERS:			
S = Sharpness of flare = 1.6(E-V)/L	0.32	0.25	0.80
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.02	0.78
X2 = V + ((E-V)/(1+2S))	9.02	8.44	2.49
M = EXP((D-60)/10)	0.20	0.20	0.20
F = 303*X2	2734	2557	755
Td = 1+(0.5/(1+M))	1.42	1.42	1.42
Fc = 0.21*Td(1+0.2*X2)	0.83	0.80	0.45
Qe = K(F-Fc*Qc)	2733	2583	360
DFC = Design flow/Capacity = Q/Qe	0.15	0.25	0.02
Total In Sum =			1068 PCU
DFC of Critical Approach =			0.25

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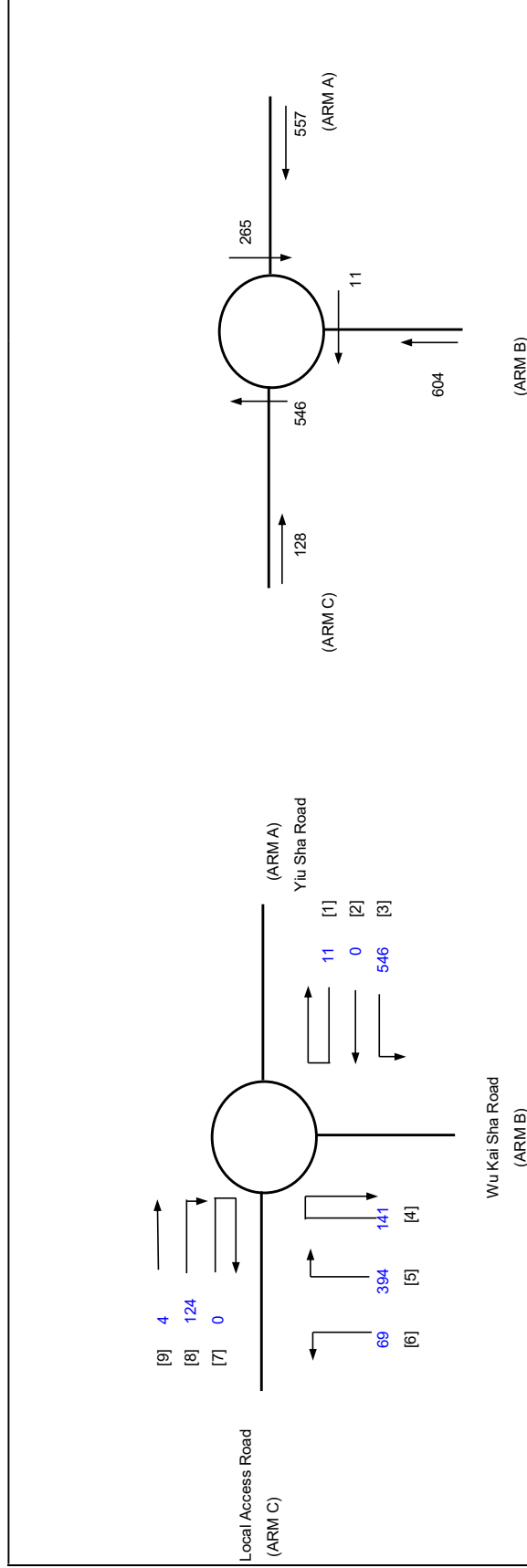
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J1 Wu Kai Sha Road / Yiu Sha Road

ROUNDABOUT CALCULATION

PROJECT NO.: 40830
 FILENAME: J1_WKSR_YSR.xls
 REFERENCE NO.:
 PREPARED BY: SKL
 CHECKED BY: SLN
 REVIEWED BY: SLN
 DATE: Sep-23

2030 Design AM



ARM	A	B	C
V = Approach half width (m)	7.50	7.30	2.30
E = Entry width (m)	10.00	9.00	2.80
L = Effective length of flare (m)	12.50	11.00	1.00
R = Entry radius (m)	35.00	35.00	6.00
D = Inscribed circle diameter (m)	44.00	44.00	44.00
A = Entry angle (degree)	15.00	31.00	60.00
Q = Entry flow (pcu/h)	557	604	128
Qc = Circulating flow across entry (pcu/h)	265	11	546
OUTPUT PARAMETERS:			
S = Sharpness of flare = 1.6(E-V)/L	0.32	0.25	0.80
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.02	0.78
X2 = V + ((E-V)/(1+2S))	9.02	8.44	2.49
M = EXP((D-60)/10)	0.20	0.20	0.20
F = 303*X2	2734	2557	755
Td = 1+(0.5/(1+M))	1.42	1.42	1.42
Fc = 0.21*Td(1+0.2*X2)	0.83	0.80	0.45
Qe = K(F-Fc*Qc)	2697	2592	400
DFC = Design flow/Capacity = Q/Qe	0.21	0.23	0.32
Total In Sum =			1285 PCU
DFC of Critical Approach =			0.32

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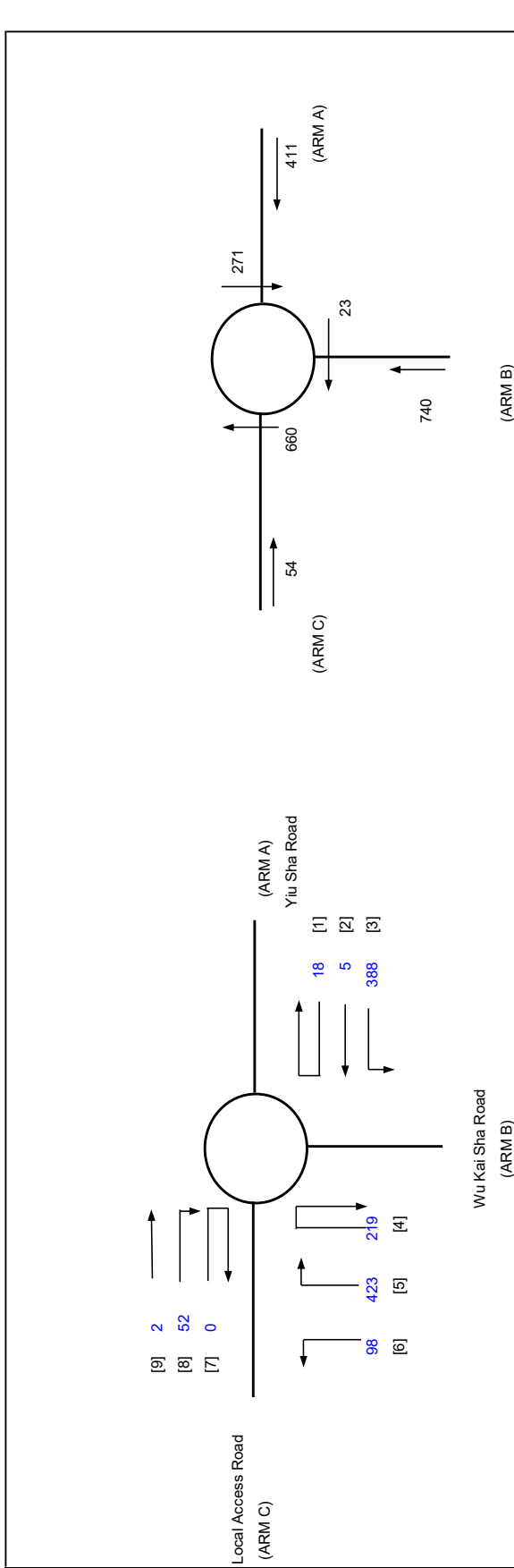
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Wu Kai Sha Road / Yiu Sha Road

ROUNDABOUT CALCULATION

PROJECT NO.: 40830
 FILENAME: J1_WKSR_YSR.xls
 REFERENCE NO.:
 PREPARED BY: SKL
 CHECKED BY: SLN
 REVIEWED BY: SLN
 DATE: Sep-23

2030 Design PM



ARM	A	B	C
V = Approach half width (m)	7.50	7.30	2.30
E = Entry width (m)	10.00	9.00	2.80
L = Effective length of flare (m)	12.50	11.00	1.00
R = Entry radius (m)	35.00	35.00	6.00
D = Inscribed circle diameter (m)	44.00	44.00	44.00
A = Entry angle (degree)	15.00	31.00	60.00
Q = Entry flow (pcu/h)	411	740	54
Qc = Circulating flow across entry (pcu/h)	271	23	660
OUTPUT PARAMETERS:			
S = Sharpness of flare = 1.6(E-V)/L	0.32	0.25	0.80
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.02	0.78
X2 = V + ((E-V)/(1+2S))	9.02	8.44	2.49
M = EXP((D-60)/10)	0.20	0.20	0.20
F = 303*X2	2734	2557	755
Td = 1+(0.5/(1+M))	1.42	1.42	1.42
Fc = 0.21*Td(1+0.2*X2)	0.83	0.80	0.45
Qe = K(F-Fc*Qc)	2691	2583	360
DFC = Design flow/Capacity = Q/Qe	0.15	0.29	0.15
Total In Sum =			1198 PCU
DFC of Critical Approach =			0.29

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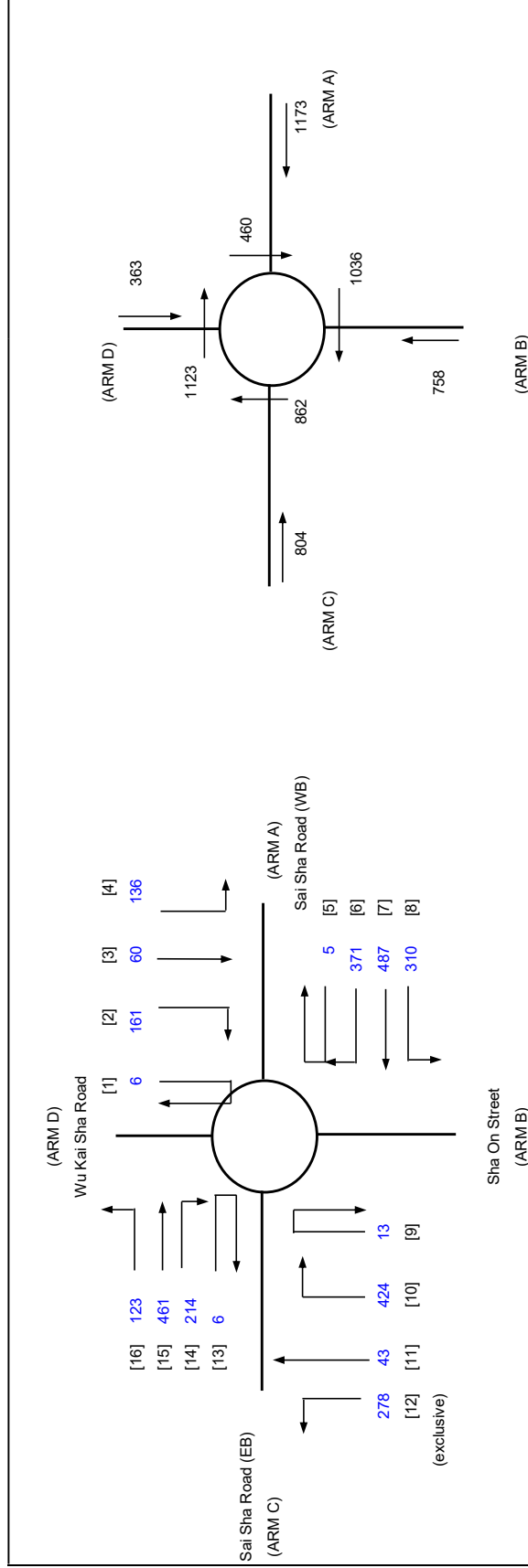
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Sai Sha Road / Wu Kai Sha Road / Sha On Street

ROUNDABOUT CALCULATION

2030 Reference AM

PROJECT NO.: 40830
 FILENAME: J2_SSR_WKSR_S
 REFERENCE NO.:
 PREPARED BY: SKL
 CHECKED BY: SLN
 REVIEWED BY: SLN
 DATE: Sep-23



ARM	A	B	C	D
V = Approach half width (m)	8.50	3.20	7.00	7.50
E = Entry width (m)	10.50	12.00	9.00	8.00
L = Effective length of flare (m)	40.00	50.00	35.00	5.00
R = Entry radius (m)	160.00	35.00	100.00	40.00
D = Inscribed circle diameter (m)	90.00	90.00	90.00	90.00
A = Entry angle (degree)	25.00	40.00	25.00	30.00
Q = Entry flow (pcu/h)	1173	758	804	363
Qc = Circulating flow across entry (pcu/h)	460	1036	862	1123
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.08	0.28	0.09	0.16
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.06	0.99	1.06	1.02
X2 = V + ((E-V)/(1+2S))	10.22	8.83	8.69	7.88
M = EXP((D-60)/10)	20.09	20.09	20.09	20.09
F = 303*X2	3098	2675	2633	2387
Td = 1+(0.5/(1+M))	1.02	1.02	1.02	1.02
Fc = 0.21*Td(1+0.2*X2)	0.65	0.59	0.59	0.55
Qe = K(F-Fc*Qc)	2965	2031	2246	1809
DFC = Design flow/Capacity = Q/Qe	0.40	0.37	0.36	0.20
Total In Sum = 1556 PCU				
DFC of Critical Approach = 0.40				

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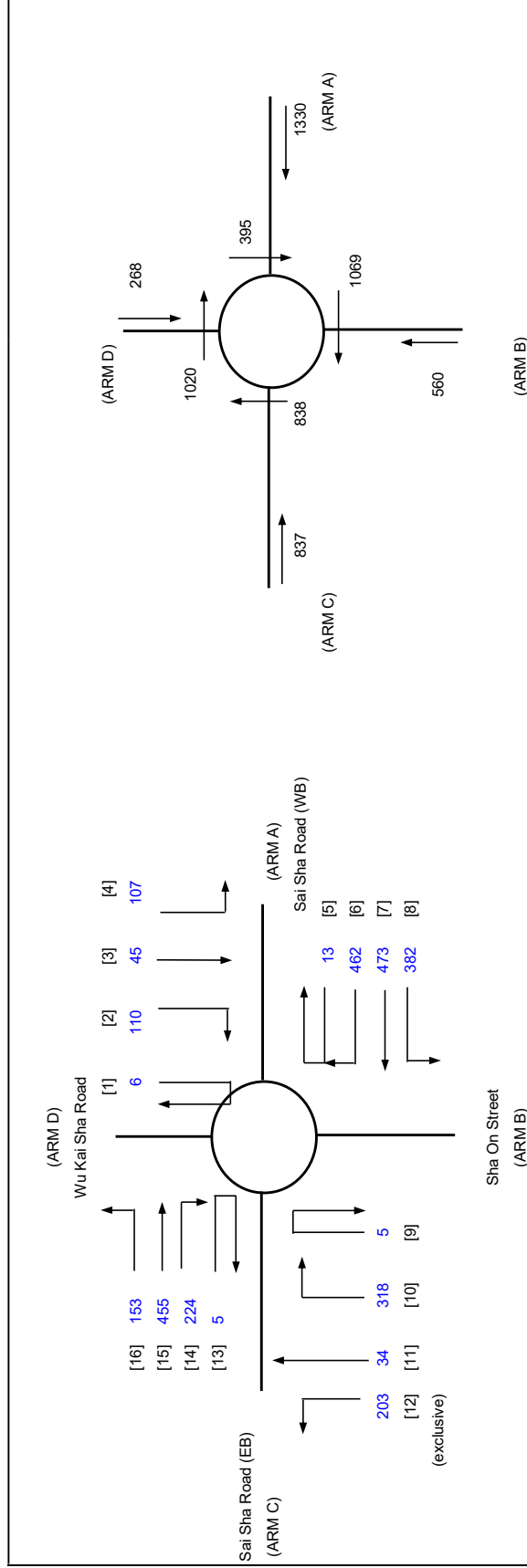
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J2 Sai Sha Road / Wu Kai Sha Road / Sha On Street

ROUNDABOUT CALCULATION

2030 Reference PM

PROJECT NO.: 40830
 FILENAME: J2_SSR_WKSR_S
 REFERENCE NO.:
 PREPARED BY: SKL
 CHECKED BY: SLN
 REVIEWED BY: SLN
 DATE: Sep-23



ARM

INPUT PARAMETERS:

PARAMETER	A	B	C	D
V = Approach half width (m)	8.50	3.20	7.00	7.50
E = Entry width (m)	10.50	12.00	9.00	8.00
L = Effective length of flare (m)	40.00	50.00	35.00	5.00
R = Entry radius (m)	160.00	35.00	100.00	40.00
D = Inscribed circle diameter (m)	90.00	90.00	90.00	90.00
A = Entry angle (degree)	25.00	40.00	25.00	30.00
Q = Entry flow (pcu/h)	1330	560	837	268
Qc = Circulating flow across entry (pcu/h)	395	1069	838	1020

OUTPUT PARAMETERS:

S = Sharpness of flare = 1.6(E-V)/L	0.08	0.28	0.09	0.16
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.06	0.99	1.06	1.02
X2 = V + ((E-V)/(1+2S))	10.22	8.83	8.69	7.88
M = EXP((D-60)/10)	20.09	20.09	20.09	20.09
F = 303*X2	3098	2675	2633	2387
Td = 1+(0.5/(1+M))	1.02	1.02	1.02	1.02
Fc = 0.21*Td(1+0.2*X2)	0.65	0.59	0.59	0.55
Qe = K(F-Fc*Qc)	3010	2012	2261	1867
DFC = Design flow/Capacity = Q/Qe	0.44	0.28	0.37	0.14

Total In Sum =

1494 PCU

DFC of Critical Approach = 0.44

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Sai Sha Road / Wu Kai Sha Road / Sha On Street

ROUNDABOUT CALCULATION

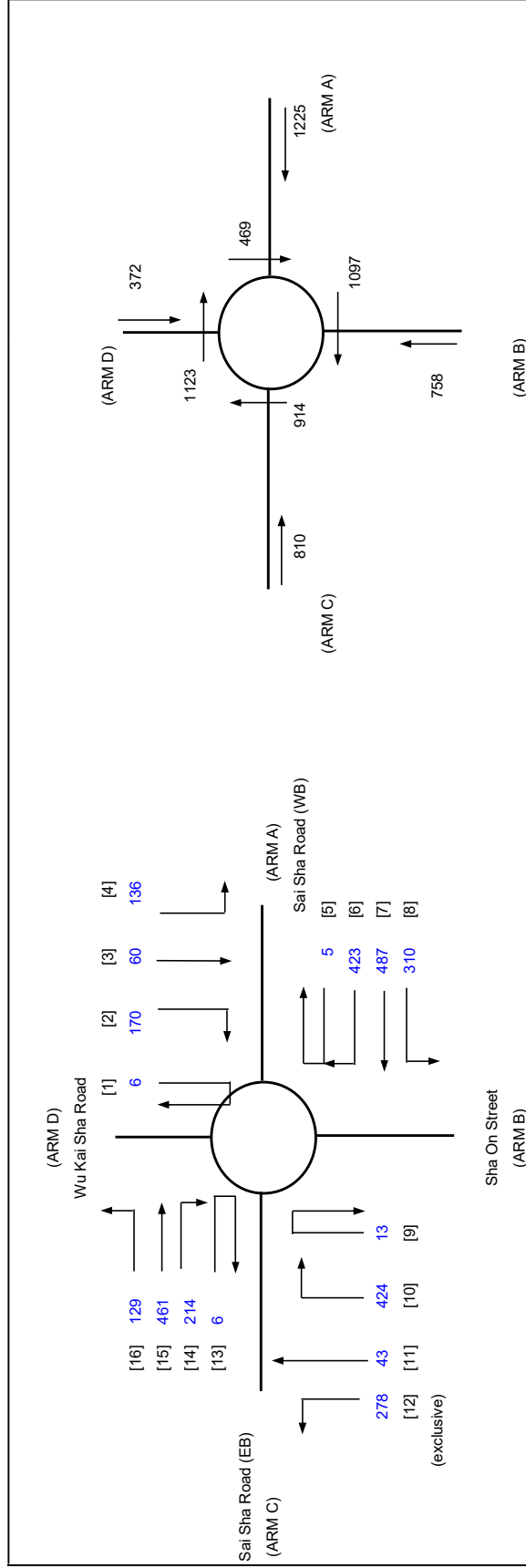
2030 Design AM

PROJECT NO.: 40830
 FILENAME: J2_SSR_WKSR_S
 REFERENCE NO.:

PREPARED BY:
 CHECKED BY:
 REVIEWED BY:

INITIALS
 SKL
 SLN
 SLN

DATE
 Sep-23
 Sep-23
 Sep-23



ARM	A	B	C	D
V = Approach half width (m)	8.50	3.20	7.00	7.50
E = Entry width (m)	10.50	12.00	9.00	8.00
L = Effective length of flare (m)	40.00	50.00	35.00	5.00
R = Entry radius (m)	160.00	35.00	100.00	40.00
D = Inscribed circle diameter (m)	90.00	90.00	90.00	90.00
A = Entry angle (degree)	25.00	40.00	25.00	30.00
Q = Entry flow (pcu/h)	1225	758	810	372
Qc = Circulating flow across entry (pcu/h)	469	1097	914	1123
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.08	0.28	0.09	0.16
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.06	0.99	1.06	1.02
X2 = V + ((E-V)/(1+2S))	10.22	8.83	8.69	7.88
M = EXP((D-60)/10)	20.09	20.09	20.09	20.09
F = 303*X2	3098	2675	2633	2387
Td = 1+(0.5/(1+M))	1.02	1.02	1.02	1.02
Fc = 0.21*Td(1+0.2*X2)	0.65	0.59	0.59	0.55
Qe = K(F-Fc*Qc)	2959	1995	2214	1809
DFC = Design flow/Capacity = Q/Qe	0.41	0.38	0.37	0.21
Total In Sum = 1556 PCU				
DFC of Critical Approach = 0.41				

LLA CONSULTANCY LIMITED

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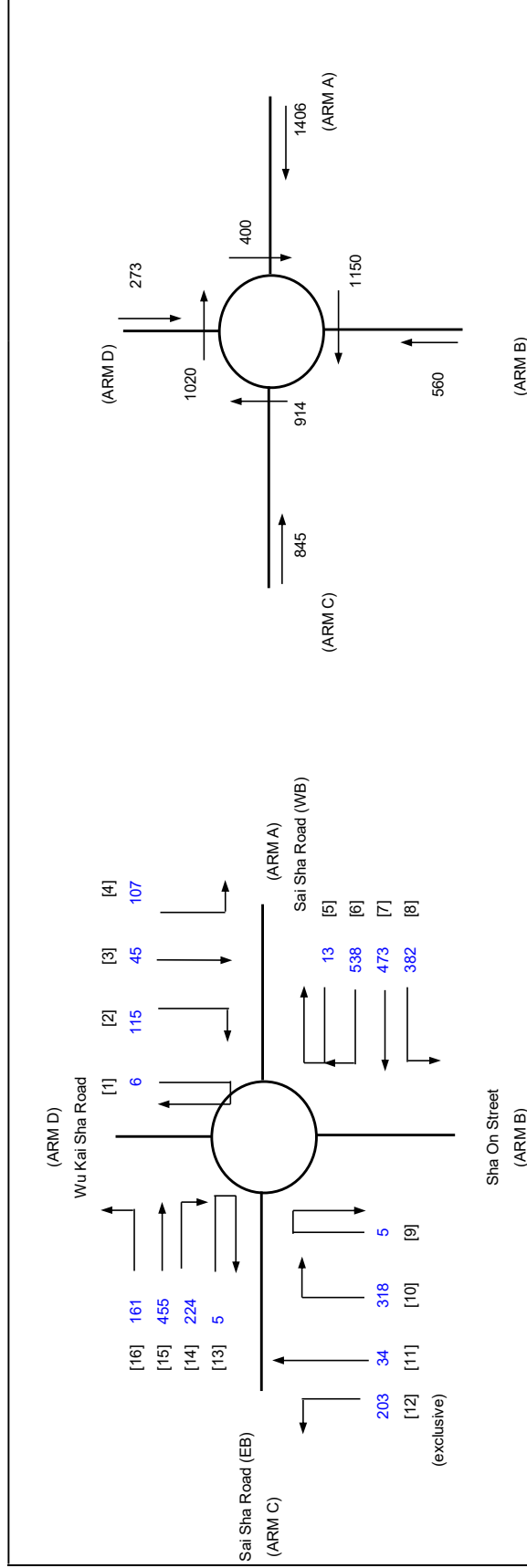
Sai Sha Road / Wu Kai Sha Road / Sha On Street

ROUNDABOUT CALCULATION

PROJECT NO.: 40830
 FILENAME: J2_SSR_WKSR_S
 REFERENCE NO.:

PREPARED BY: SKL
 CHECKED BY: SLN
 REVIEWED BY: SLN

DATE: Sep-23



ARM	A	B	C	D
V = Approach half width (m)	8.50	3.20	7.00	7.50
E = Entry width (m)	10.50	12.00	9.00	8.00
L = Effective length of flare (m)	40.00	50.00	35.00	5.00
R = Entry radius (m)	160.00	35.00	100.00	40.00
D = Inscribed circle diameter (m)	90.00	90.00	90.00	90.00
A = Entry angle (degree)	25.00	40.00	25.00	30.00
Q = Entry flow (pcu/h)	1406	560	845	273
Qc = Circulating flow across entry (pcu/h)	400	1150	914	1020
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.08	0.28	0.09	0.16
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.06	0.99	1.06	1.02
X2 = V + ((E-V)/(1+2S))	10.22	8.83	8.69	7.88
M = EXP((D-60)/10)	20.09	20.09	20.09	20.09
F = 303*X2	3098	2675	2633	2387
Td = 1+(0.5/(1+M))	1.02	1.02	1.02	1.02
Fc = 0.21*Td(1+0.2*X2)	0.65	0.59	0.59	0.55
Qe = K(F-Fc*Qc)	3007	1964	2214	1867
Total In Sum = 1494 PCU				
DFC = Design flow/Capacity = Q/Qe	0.47	0.29	0.38	0.15
DFC of Critical Approach = 0.47				

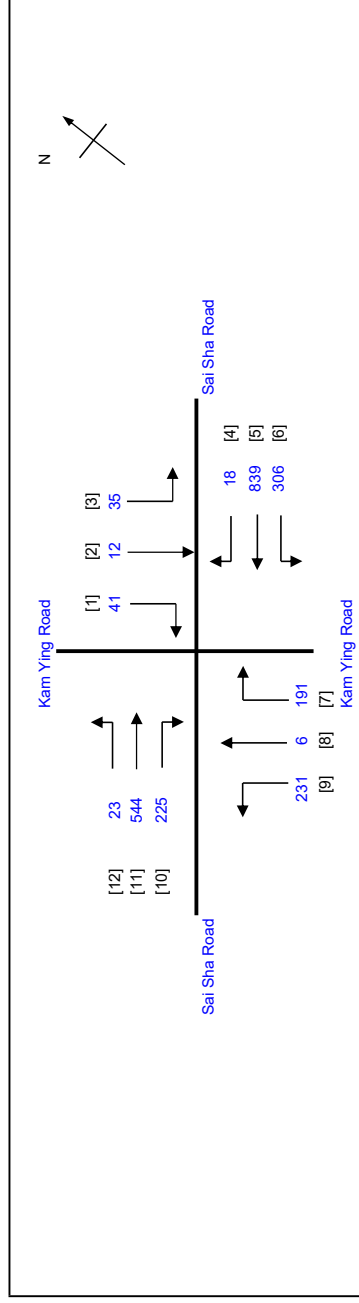
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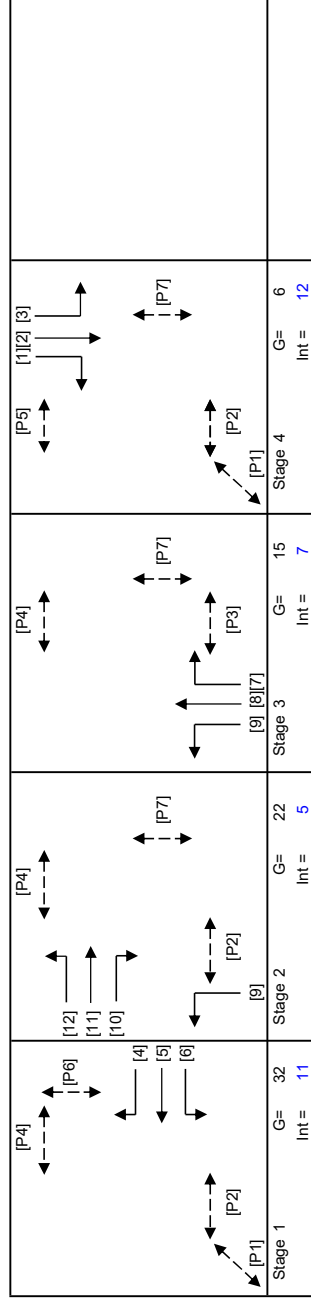
TRAFFIC SIGNAL CALCULATION

PROJECT NO.: 40830
 FILENAME: J3_SSR_KYR.xlsm
 Prepared By:
 Checked By:
 Reviewed By:

INITIALS	DATE
SKL	Sep-23
SLN	Sep-23
SLN	Sep-23



No. of stages per cycle	N = 4
Cycle time	C = 110 sec
Sum(y)	Y = 0.479
Loss time	L = 31 sec
Total Flow	= 2471 pcu
Co	= 98.9 sec
Cm	= 59.5 sec
Yult	= 0.668
R.C.Ult	= (Yult-Y)*100%
Cp	= 0.9*L/(0.9-Y)
Ymax	= 1-L/C
R.C.(C)	= 0.9*Ymax-Y)*100% = 35 %



Pedestrian Phase	Stage	Green Time SG	Green Time FG	Delay	Green Time Provided SG	Green Time Provided FG
P1	1,4	5	6	2	53	6
P2	1,2,4	5	5	0	83	5
P3	3	5	8	7	7	8
P4	1,2,3	5	5	0	87	5
P5	4	5	6	6	6	6
P6	1	5	7	5	31	7
P7	2,3,4	5	12	0	55	12

Move-ment	Stage	Lane Width m.	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare Effect pcu/hr	Site Factor	Site Effect pcu/hr	Gradient %	Gradient Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m /lane)	Average Delay (seconds)
6	1	3.50	1	15		N	1965	306	839	18	306	1.00	1786					1786	0.171		31	28	33	0.667	36	40	
5	1	3.50	2	25			4210				839	0.00	4210					4210	0.199	0.199		33	33	0.667	51	33	
4	1	3.50	1	25			2105				18	1.00	1986					1986	0.009			1	33	0.667	6	169	
11,12	2	4.00	1	15		N	2015	23	250	225	273	0.08	1998					1998	0.137	0.137		23	23	0.667	36	44	
11	2	4.00	1	25			2155	294	294		294	0.00	2155					2155	0.136			22	23	0.667	42	44	
10	2	3.50	1	25			2105				225	1.00	1986					1986	0.113			19	23	0.667	30	48	
9	2,3	4.50	1	25		N	2065	231			231	1.00	1948					1948	0.119			20	39	0.667	30	47	
7,8	3	3.50	1	25			2105	6	191		197	0.97	1989					1989	0.099	0.099		16	16	0.667	30	51	
1,2,3	4	5.50	1	15		N	2165	35	12	41	88	0.86	1993					1993	0.044	0.044		7	7	0.667	12	70	

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

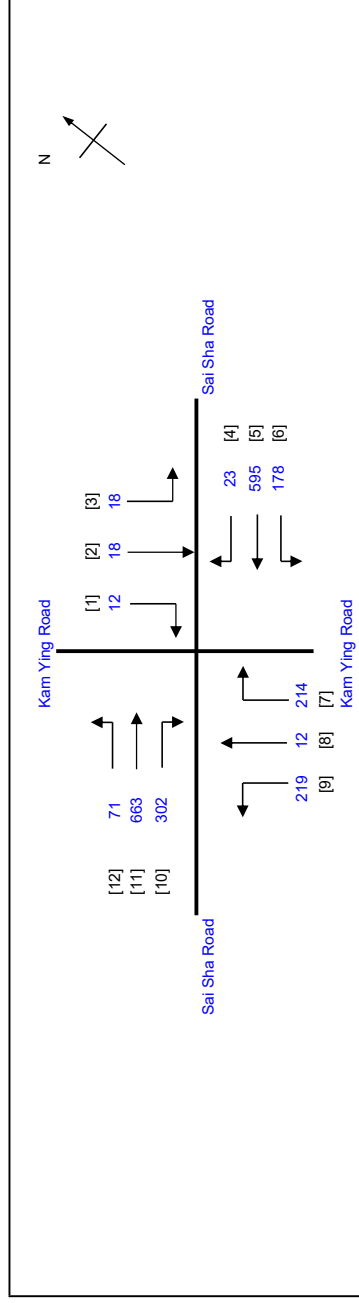
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Proposed Rezoning from "Government, Institution or Community" to "Residential (Group B)" Zone to Include Social Welfare Facility (RCHE only) and Public Vehicle Park (excluding container vehicle) at Lots Nos. 148 S.A RP (Part), 148 S.B RP (Part), 149 RP, 150 S.A, 150 S.B and 151 in D.D. J3 Sai Sha Road / Kam Ying Road

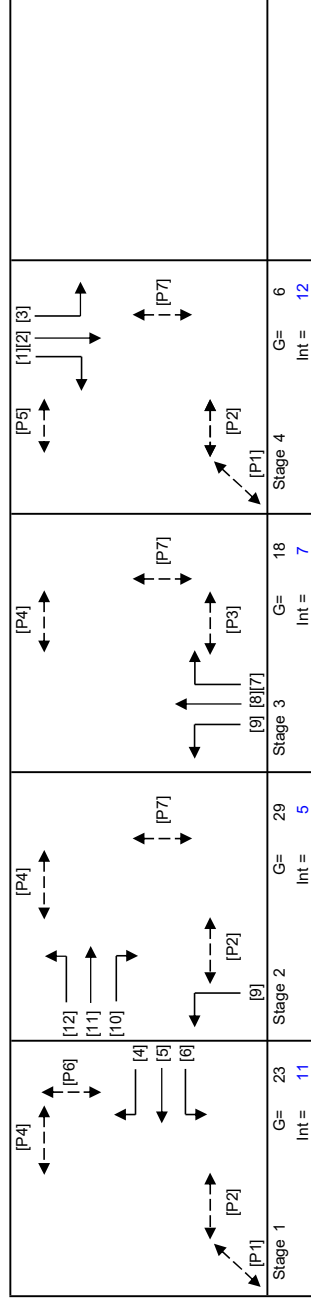
TRAFFIC SIGNAL CALCULATION

PROJECT NO.: 40830
 FILENAME: J3_SSR_KYR.xlsm
 Prepared By:
 Checked By:
 Reviewed By:

INITIALS	DATE
SKL	Sep-23
SLN	Sep-23
SLN	Sep-23



No. of stages per cycle	N = 4
Cycle time	C = 110 sec
Sum(y)	Y = 0.456
Loss time	L = 34 sec
Total Flow	= 2325 pcu
Co	= 103.0 sec
Cm	= 62.5 sec
Yult	= 0.645
R.C.ult	= (Yult-Y)*100%
Cp	= 0.9*L/(0.9-Y)
Ymax	= 1-L/C
R.C.(C)	= (0.9*Ymax-Y)*100% = 36 %



Pedestrian Phase	Stage	Green Time Required SG	Delay FG	Green Time Provided SG	FG
P1	1,4	5	2	43	6
P2	1,2,4	5	0	80	5
P3	3	5	8	10	8
P4	1,2,3	5	0	87	5
P5	4	5	6	6	6
P6	1	5	7	22	7
P7	2,3,4	5	12	64	12

Move-ment	Stage	Lane Width m.	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare Effect pcu/hr	Site Factor	Site Effect pcu/hr	Gradient %	Gradient Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m /lane)	Average Delay (seconds)
6	1	3.50	1	15		N	1965	178	595	23	178	1.00	1786						1786	0.100	0.100	31	17	24	0.660	24	51
5	1	3.50	2	25			4210				595	0.00	4210						4210	0.141	0.141		24	24	0.660	42	39
4	1	3.50	1	25			2105		23		23	1.00	1986						1986	0.012	0.012		2	24	0.660	6	139
11,12	2	4.00	1	15		N	2015	71	280		351	0.20	1975						1975	0.178	0.178		30	30	0.660	42	38
11	2	4.00	1	25			2155		383		383	0.00	2155						2155	0.178	0.178		30	30	0.660	48	38
10	2	3.50	1	25			2105		302		302	1.00	1986						1986	0.152	0.152		25	30	0.660	42	41
9	2,3	4.50	1	25		N	2065	219			219	1.00	1948						1948	0.112	0.112		19	49	0.660	30	48
7,8	3	3.50	1	25			2105		12		226	0.95	1992						1992	0.113	0.113		19	19	0.660	30	47
1,2,3	4	5.50	1	15		N	2165	18	12		48	0.63	2038						2038	0.024	0.024	3	4	7	0.660	6	90

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

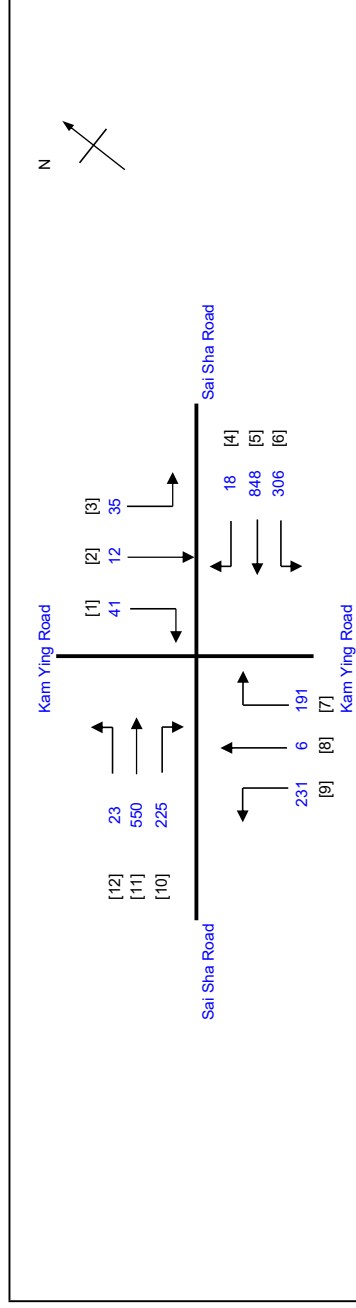
LLA CONSULTANCY LIMITED

Proposed Rezoning from "Government, Institution or Community" to "Residential (Group B)(i) Zone to Include Social Welfare Facility (RCHE only) and Public Vehicle Park (excluding container vehicle) at Lots Nos. 148 S.A RP (Part), 148 S.B RP (Part), 149 RP, 150 S.A, 150 S.B and 151 in D.D.

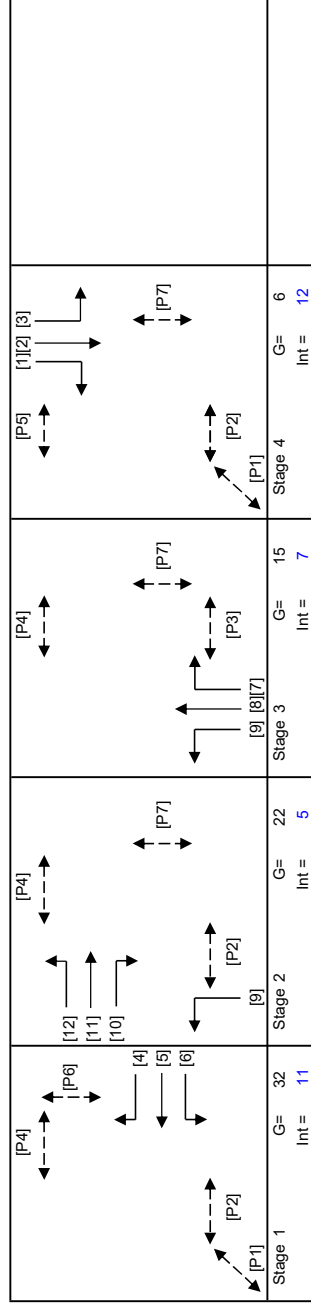
TRAFFIC SIGNAL CALCULATION

PROJECT NO.: 40830
 FILENAME : J3_SSR_KYR.xlsm
 Prepared By:
 Checked By:
 Reviewed By:

INITIALS	DATE
SKL	Sep-23
SLN	Sep-23
SLN	Sep-23



No. of stages per cycle	N = 4
Cycle time	C = 110 sec
Sum(y)	0.483
Loss time	Y = 31 sec
Total Flow	L = 2486 pcu
Co	= 99.6 sec
Cm	= 59.9 sec
Yult	= 0.668
R.C.Ult	= (Yult-Y)/Y*100%
Cp	= 0.9*L/(0.9-Y)
Ymax	= 1-L/C
R.C.(C)	= 0.9*Ymax-Y/Y*100% = 34 %



Pedestrian Phase	Stage	Green Time SG	Green Time FG	Delay	Green Time Provided SG	Green Time Provided FG
P1	1,4	5	6	2	53	6
P2	1,2,4	5	5	0	83	5
P3	3	5	8	7	7	8
P4	1,2,3	5	5	0	87	5
P5	4	5	6	6	6	6
P6	1	5	7	5	31	7
P7	2,3,4	5	12	0	55	12

Move-ment	Stage	Lane Width m.	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/hr	Movement Straight pcu/hr	Movement Right pcu/hr	Total Flow pcu/hr	Proportion of Turning Vehicles	Sat. Flow pcu/hr	Flare Effect pcu/hr	Site Factor	Site Effect pcu/hr	Gradient %	Gradient Effect pcu/hr	Revised Sat. Flow pcu/hr	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m /lane)	Average Delay (seconds)
6	1	3.50	1	15		N	1965	306	848	18	306	1.00	1786						1786	0.171		31	28	33	0.672	36	40
5	1	3.50	2	25			4210				848	0.00	4210						4210	0.201	0.201		33	33	0.672	54	33
4	1	3.50	1	25			2105				18	1.00	1986						1986	0.009			1	33	0.672	6	173
11,12	2	4.00	1	15		N	2015	23	253	225	276	0.08	1998						1998	0.138	0.138		23	23	0.672	36	44
11	2	4.00	1	25			2155				297	0.00	2155						2155	0.138			23	23	0.672	42	44
10	2	3.50	1	25			2105				225	1.00	1986						1986	0.113			19	23	0.672	30	49
9	2,3	4.50	1	25		N	2065	231			231	1.00	1948						1948	0.119			19	39	0.672	30	48
7,8	3	3.50	1	25			2105				197	0.97	1989						1989	0.099	0.099		16	16	0.672	30	51
1,2,3	4	5.50	1	15		N	2165	35	12	41	88	0.86	1993						1993	0.044	0.044		7	7	0.672	12	71

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

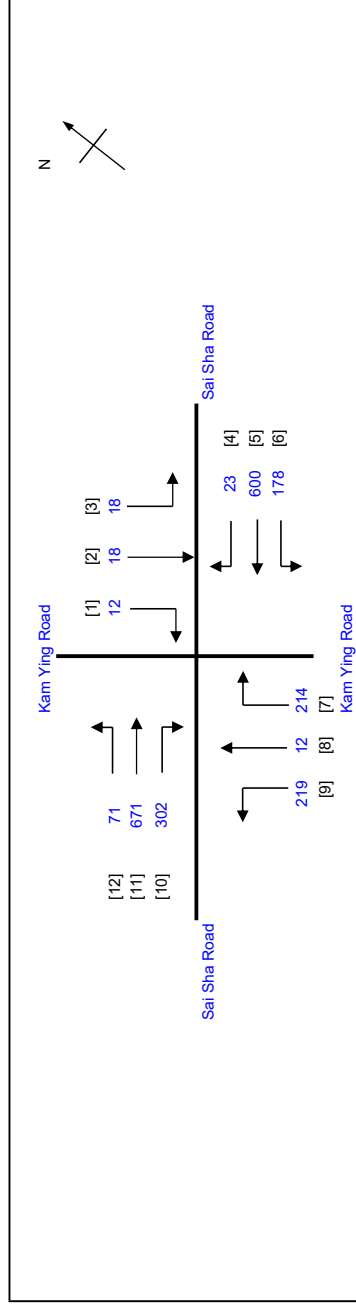
LLA CONSULTANCY LIMITED

Proposed Rezoning from "Government, Institution or Community" to "Residential (Group B)" Zone to Include Social Welfare Facility (RCHE only) and Public Vehicle Park (excluding container vehicle) at Lots Nos. 148 S.A RP (Part), 148 S.B RP (Part), 149 RP, 150 S.A, 150 S.B and 151 in D.D. J3 Sai Sha Road / Kam Ying Road

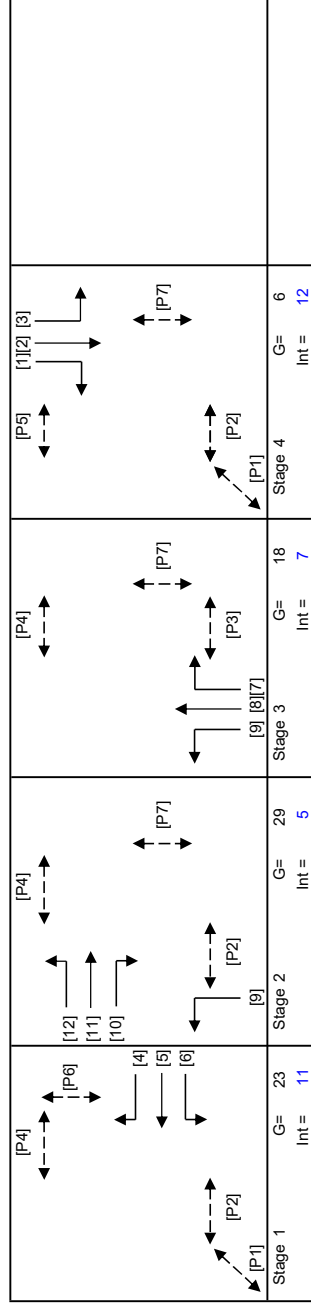
TRAFFIC SIGNAL CALCULATION

PROJECT NO.: 40830
 FILENAME: J3_SSR_KYR.xlsm
 Prepared By:
 Checked By:
 Reviewed By:

INITIALS	DATE
SKL	Sep-23
SLN	Sep-23
SLN	Sep-23



No. of stages per cycle	N = 4
Cycle time	C = 110 sec
Sum(y)	Y = 0.459
Loss time	L = 34 sec
Total Flow	= 2338 pcu
Co	= 103.6 sec
Cm	= 62.9 sec
Yult	= 0.645
R.C.Ult	= (Yult-Y)*100%
Cp	= 0.9*L/(0.9-Y)
Ymax	= 1-L/C
R.C.(C)	= 0.9*Ymax-Y)*100% = 35 %



Pedestrian Phase	Stage	Green Time Required SG	Delay FG	Green Time Provided SG	Delay FG
P1	1,4	5	2	43	6
P2	1,2,4	5	0	80	5
P3	3	5	8	10	8
P4	1,2,3	5	0	87	5
P5	4	5	6	6	6
P6	1	5	7	22	7
P7	2,3,4	5	12	64	12

Move-ment	Stage	Lane Width m.	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/hr	Movement Straight pcu/hr	Movement Right pcu/hr	Total Flow pcu/hr	Proportion of Turning Vehicles	Sat. Flow pcu/hr	Flare Effect pcu/hr	Site Factor	Site Effect pcu/hr	Gradient %	Gradient Effect pcu/hr	Revised Sat. Flow pcu/hr	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m /lane)	Average Delay (seconds)
6	1	3.50	1	15		N	1965	178	600	23	178	1.00	1786						1786	0.100	0.100	31	16	24	0.665	24	52
5	1	3.50	2	25			4210				600	0.00	4210						4210	0.143	0.143		24	24	0.665	42	39
4	1	3.50	1	25			2105				23	1.00	1986						1986	0.012	0.012		2	24	0.665	6	141
11,12	2	4.00	1	15		N	2015	71	284	302	355	0.20	1975						1975	0.180	0.180		30	30	0.665	42	38
11	2	4.00	1	25			2155				387	0.00	2155						2155	0.180	0.180		30	30	0.665	48	38
10	2	3.50	1	25			2105				302	1.00	1986						1986	0.152	0.152		25	30	0.665	42	42
9	2,3	4.50	1	25		N	2065	219			219	1.00	1948						1948	0.112	0.112		19	49	0.665	30	48
7,8	3	3.50	1	25			2105				226	0.95	1992						1992	0.113	0.113		19	19	0.665	30	48
1,2,3	4	5.50	1	15		N	2165	18	12		48	0.63	2038						2038	0.024	0.024		4	7	0.665	6	92

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

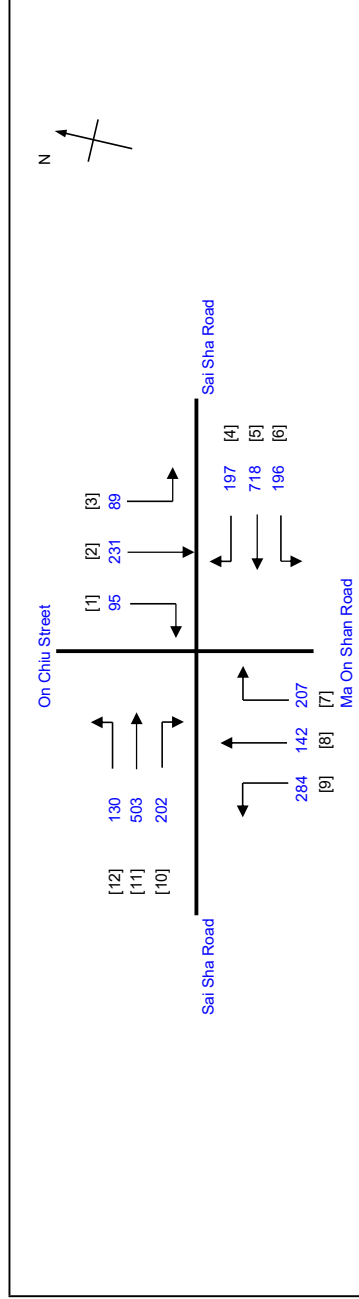
LLA CONSULTANCY LIMITED

Proposed Rezoning from "Government, Institution or Community" to "Residential (Group B)(e)" Zone to Include Social Welfare Facility (RCHE only) and Public Vehicle Park (excluding container vehicle) at Lots Nos. 148 S.A RP (Part), 148 S.B RP (Part), 148 RP, 150 S.A, 150 S.B and 151 in D.D. J4 Sai Sha Road / Ma On Shan Road / On Chiu Street

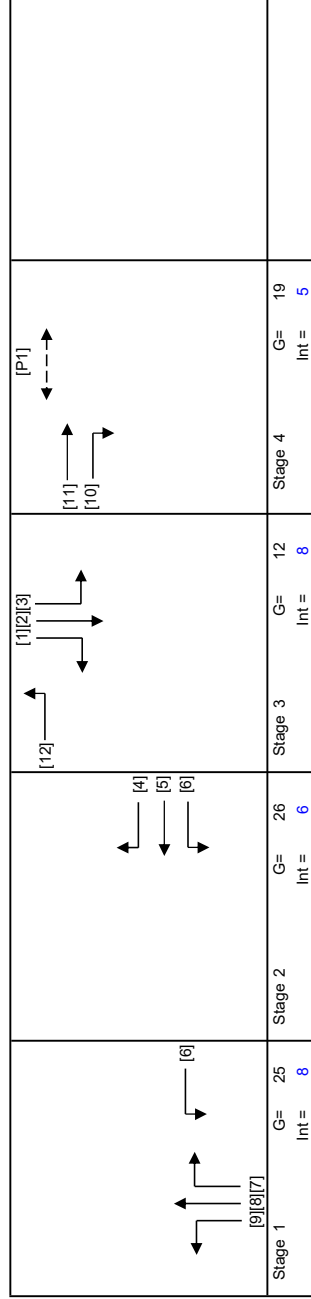
TRAFFIC SIGNAL CALCULATION

PROJECT NO.: 40830
 FILENAME: J4_SSR_MOSR_OCR.xlsm
 Prepared By:
 Checked By:
 Reviewed By:

INITIALS	DATE
SKL	Sep-23
SLN	Sep-23
SLN	Sep-23



No. of stages per cycle	N = 4
Cycle time	C = 110 sec
Sum(y)	0.535
Loss time	Y = 24 sec
Total Flow	L = 2994 pcu
Co	= (1.5*L+5)/(1-Y) = 88.1 sec
Cm	= L/(1-Y) = 51.6 sec
Yult	= 0.720
R.C.ult	= (Yult-Y)*100% = 34.7 %
Cp	= 0.9*L/(0.9-Y) = 59.1 sec
Ymax	= 1-L/C = 0.782
R.C.(C)	= (0.9*Ymax-Y)*100% = 32 %



Stage	Green Time Required SG	Green Time Provided SG	Delay FG	Green Time Provided FG
1	11	11	4	9
2	11	11	4	9
3	11	11	4	9
4	11	11	4	9

Move-ment	Stage	Lane	No. of lane	Radius m.	O	N	Straight Ahead Sat. Flow	Movement	Total Flow	Proportion of Turning Vehicles	Sat. Flow	Flare Lane m.	Flare Effect pcu/hr	Site Factor	Site Effect pcu/hr	Gradient %	Gradient Effect pcu/hr	Revised Sat. Flow pcu/hr	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m /lane)	Average Delay (seconds)
8,9	1	3.70	1	10		N	1985	Left 284	284	1.00	1726							1726	0.165	0.165	23	26	26	0.684	36	43
7,8	1	3.70	1	30			2125	Straight 142	179	0.21	2103							2103	0.085	0.085		14	26	0.684	30	55
7	1	3.70	1	25			2125	Right 170	170	1.00	2005							2005	0.085	0.085		14	26	0.684	24	56
6	1,2	3.75	1	15		N	1990	Left 196	196	1.00	1809							1809	0.108	0.108		17	54	0.684	30	52
5	2	3.75	2	30			4260	Straight 718	718	0.00	4260							4260	0.169	0.169		27	27	0.684	48	37
4	2	3.75	1	25			2130	Right 197	197	1.00	2009							2009	0.098	0.098		16	27	0.684	30	52
2,3	3	3.50	1	15		N	1965	Left 89	150	0.59	1855							1855	0.081	0.081		13	13	0.684	24	58
1,2	3	3.50	1	30			2105	Straight 170	170	0.00	2105							2105	0.081	0.081		13	13	0.684	24	56
1	3	3.00	1	25			2055	Right 95	95	1.00	1939							1939	0.049	0.049		8	13	0.684	18	70
12	3	3.30	1	10		N	1945	Left 130	130	1.00	1691							1691	0.077	0.077		12	13	0.684	18	61
11	4	3.30	2	30			4170	Straight 503	503	0.00	4170							4170	0.121	0.121	1	19	20	0.684	36	43
10	4	3.30	1	25			2085	Right 202	202	1.00	1967							1967	0.103	0.103		17	20	0.684	30	52

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

LLA CONSULTANCY LIMITED

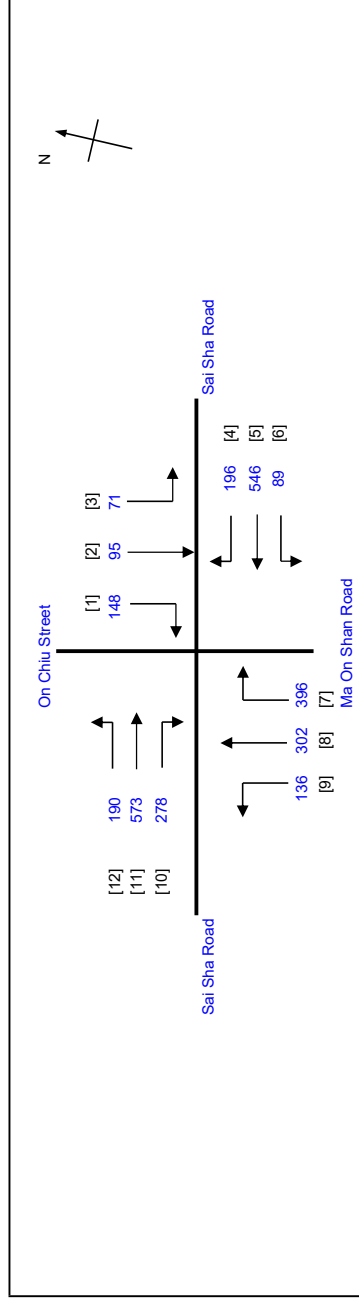
Proposed Rezoning from "Government, Institution or Community" to "Residential (Group B)" Zone to Include Social Welfare Facility (RCHE only) and Public Vehicle Park (excluding container vehicle) at Lots Nos. 148 S.A RP (Part), 148 S.B RP (Part), 149 RP, 150 S.A, 150 S.B and 151 in D.D. J4 - Sai Sha Road / Ma On Shan Road / On Chiu Street

TRAFFIC SIGNAL CALCULATION

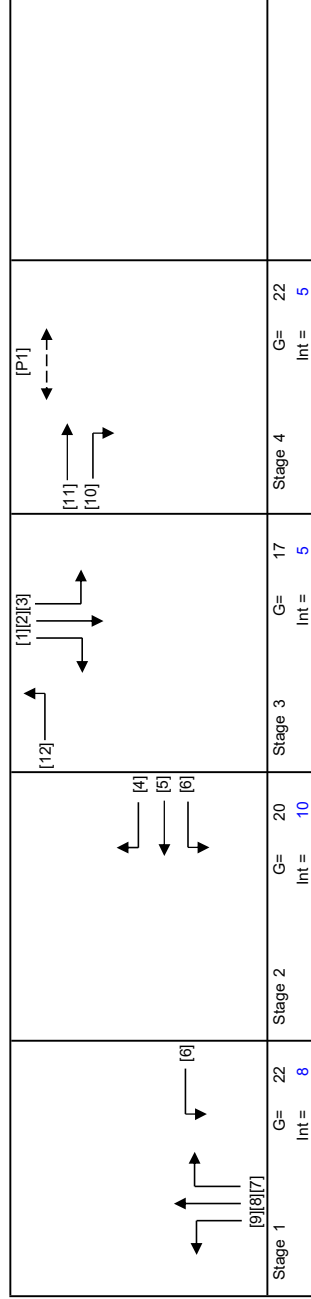
PROJECT NO.: 40830
 FILENAME: J4_SSR_MOSR_OCR.xlsm

Prepared By: SKL
 Checked By: SLN
 Reviewed By: SLN

DATE: Sep-23
 Sep-23
 Sep-23



No. of stages per cycle	N =	4
Cycle time	C =	110 sec
Sum(y)	Y =	0.523
Loss time	L =	24 sec
Total Flow	=	3022 pcu
Co	= (1.5*L+5)/(1-Y)	85.9 sec
Cm	= L/(1-Y)	50.3 sec
Yult	=	0.720
R.C.ult	= (Yult-Y)*100%	37.8 %
Cp	= 0.9*L/(0.9-Y)	57.2 sec
Ymax	= 1-L/C	0.782
R.C.(C)	= (0.9*Ymax-Y)*100%	= 35 %



Stage	Green Time SG	Green Time FG	Green Time Delay	Green Time Provided SG	Green Time Provided FG
1	11	9	4	14	9
2	11	9	4	14	9
3	11	9	4	14	9
4	11	9	4	14	9

Move-ment	Stage	Lane Width m.	No. of lane	Radius m.	O	N	Straight Ahead Sat. Flow	Movement	Total Flow	Proportion of Turning Vehicles	Sat. Flow	Flare Lane m.	Flare Effect pcu/hr	Site Factor	Site Effect pcu/hr	Gradient %	Gradient Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
8,9	1	3.70	1	10		N	1985	Left 136, Straight 123, Right 179	259	0.53	1840						1840	0.141	0.141	24	23	23	0.668	36	44	
7,8	1	3.70	1	30		N	2125	Left 114, Straight 114, Right 282	293	0.39	2084						2084	0.141	0.141		23	23	0.668	42	43	
7	1	3.70	1	25		N	2125	Left 89, Straight 89, Right 104	282	1.00	2005						2005	0.141	0.141		23	23	0.668	36	44	
6	1,2	3.75	1	15		N	1990	Left 71, Straight 27, Right 67	89	1.00	1809						1809	0.049	0.128		8	44	0.668	12	69	
5	2	3.75	2	30		N	4260	Left 190, Straight 573, Right 278	546	0.00	4260						4260	0.128	0.128		21	21	0.668	39	41	
4	2	3.75	1	25		N	2130	Left 190, Straight 190, Right 278	196	1.00	2009						2009	0.098	0.141		16	21	0.668	30	51	
2,3	3	3.50	1	15		N	1965	Left 190, Straight 573, Right 278	98	0.72	1832						1832	0.053	0.112		9	18	0.668	18	67	
1,2	3	3.50	1	30		N	2105	Left 190, Straight 573, Right 278	110	0.39	2065						2065	0.053	0.112		9	18	0.668	18	64	
1	3	3.00	1	25		N	2055	Left 190, Straight 573, Right 278	104	1.00	1939						1939	0.054	0.141		9	18	0.668	18	65	
12	3	3.30	1	10		N	1945	Left 190, Straight 573, Right 278	190	1.00	1691						1691	0.112	0.112		18	18	0.668	30	50	
11	4	3.30	2	25		N	4170	Left 190, Straight 573, Right 278	573	0.00	4170						4170	0.137	0.141		23	23	0.668	39	40	
10	4	3.30	1	25		N	2085	Left 190, Straight 573, Right 278	278	1.00	1967						1967	0.141	0.141		23	23	0.668	36	44	

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

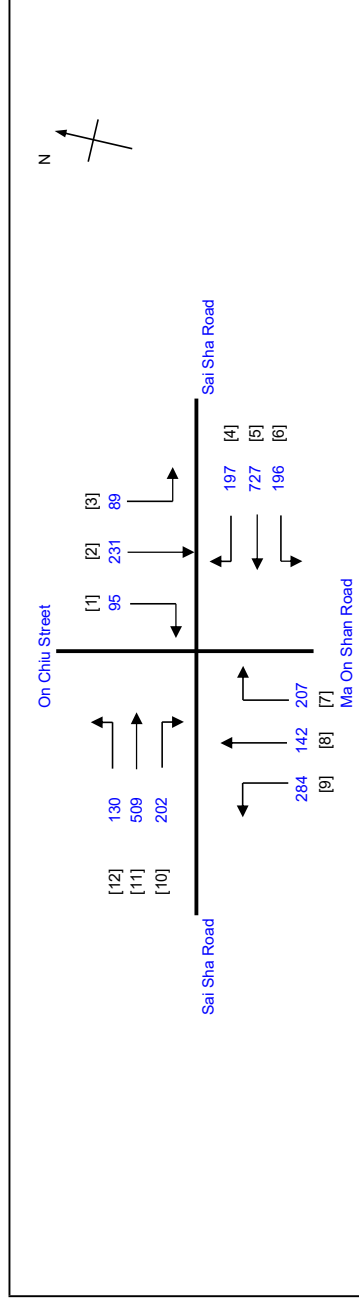
LLA CONSULTANCY LIMITED

Proposed Rezoning from "Government, Institution or Community" to "Residential (Group B)(e)" Zone to Include Social Welfare Facility (RCHE only) and Public Vehicle Park (excluding container vehicle) at Lots Nos. 148 S.A RP (Part), 148 S.B RP (Part), 148 RP, 150 S.A, 150 S.B and 151 in D.D. J4 - Sai Sha Road / Ma On Shan Road / On Chiu Street

TRAFFIC SIGNAL CALCULATION

PROJECT NO.: 40830
 FILENAME: J4_SSR_MOSR_OCR.xlsm

INITIALS DATE
 SKL Sep-23
 SLN Sep-23
 SLN Sep-23



No. of stages per cycle = 4

Cycle time = 110 sec

Sum(y) = 0.538

Loss time = 24 sec

Total Flow = 3009 pcu

Co = 88.8 sec

Cm = 52.0 sec

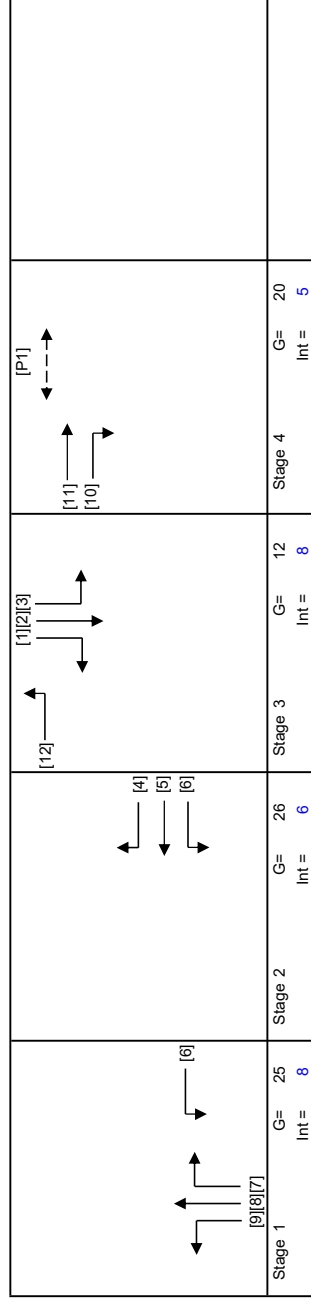
Yult = 0.720

R.C.Ult = 33.8 %

Cp = 59.7 sec

Ymax = 0.782

R.C.(C) = (0.9*Ymax-y)/Y*100% = 31 %



Stage	Green Time (SG)	Green Time (FG)	Green Time (FG)	Green Time (FG)	Green Time (FG)	Green Time (FG)	Green Time (FG)	Green Time (FG)	Green Time (FG)
Stage 1	25	8							
Stage 2	26	6							
Stage 3	12	8							
Stage 4	20	5							

Move-ment	Stage	Lane Width (m)	No. of lane	Radius (m)	O	N	Straight Ahead Sat. Flow	Movement	Total Flow	Proportion of Turning Vehicles	Sat. Flow	Flare Lane (m)	Flare Effect (pcu/hr)	Site Factor	Site Effect (pcu/hr)	Gradient Effect (pcu/hr)	Revised Sat. Flow (pcu/hr)	y	Greater y	L (sec)	g (required) (sec)	g (input) (sec)	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
8,9	1	3.70	1	10		N	1985	0	284	1.00	1726						1726	0.165	0.165	23	26	26	0.688	36	43
7,8	1	3.70	1	30		N	2125	142	179	0.21	2103						2103	0.085	0.085		14	26	0.688	30	55
7	1	3.70	1	25		N	2125	170	170	1.00	2005						2005	0.085	0.085		14	26	0.688	24	56
6	1,2	3.75	1	15		N	1990	727	196	1.00	1809						1809	0.108	0.171		17	54	0.688	30	52
5	2	3.75	2			N	4260	197	727	0.00	4260						4260	0.171	0.171		27	27	0.688	48	37
4	2	3.75	1	25		N	2130	197	197	1.00	2009						2009	0.098	0.098		16	27	0.688	30	53
2,3	3	3.50	1	15		N	1965	61	150	0.59	1855						1855	0.081	0.081		13	13	0.688	24	58
1,2	3	3.50	1	30		N	2105	170	170	0.00	2105						2105	0.081	0.081		13	13	0.688	24	56
1	3	3.00	1	25		N	2055	95	95	1.00	1939						1939	0.049	0.049		8	13	0.688	18	71
12	3	3.30	1	10		N	1945	509	130	1.00	1691						1691	0.077	0.122	1	12	13	0.688	18	61
11	4	3.30	2			N	4170	202	509	0.00	4170						4170	0.122	0.122		20	21	0.688	36	43
10	4	3.30	1	25		N	2085	202	202	1.00	1967						1967	0.103	0.103		16	21	0.688	30	52

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

LLA CONSULTANCY LIMITED

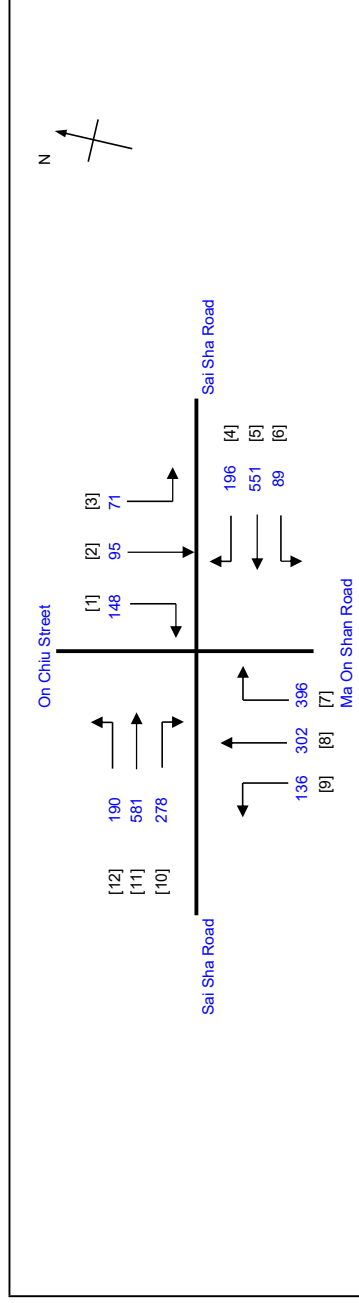
Proposed Rezoning from "Government, Institution or Community" to "Residential (Group B)" Zone to Include Social Welfare Facility (RCHE only) and Public Vehicle Park (excluding container vehicle) at Lots Nos. 148 S.A RP (Part), 148 S.B RP (Part), 149 RP, 150 S.A, 150 S.B and 151 in D.D. J4 Sai Sha Road / Ma On Shan Road / On Chiu Street

TRAFFIC SIGNAL CALCULATION

PROJECT NO.: 40830
 FILENAME: J4_SSR_MOSR_OCR.xlsm

Prepared By:
 Checked By:
 Reviewed By:

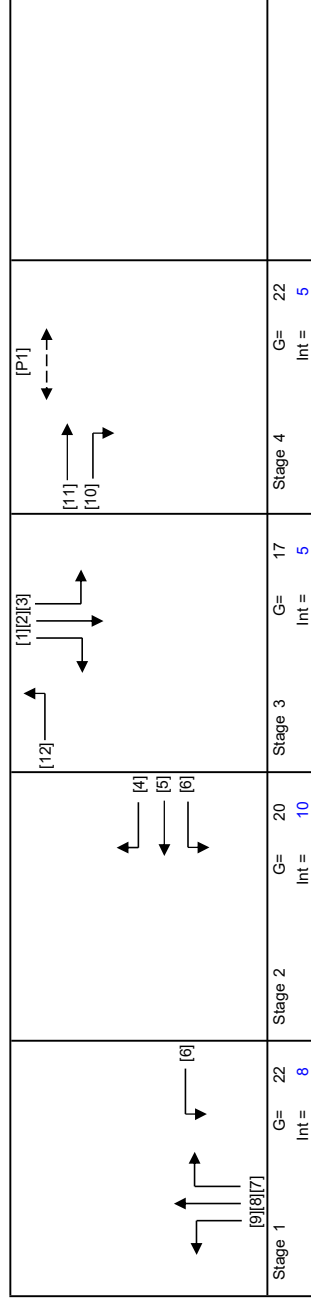
INITIALS DATE
 SKL Sep-23
 SLN Sep-23
 SLN Sep-23



No. of stages per cycle = 4

Cycle time = 110 sec
 Sum(y) = 0.524
 Loss time = 24 sec
 Total Flow = 3035 pcu
 Co = 86.1 sec
 Crm = 50.4 sec
 Yult = 0.720
 R.C.ult = 37.5 %
 Cp = 57.4 sec
 Ymax = 0.782

R.C.(C) = (0.9*Ymax-Y)*100% = 34 %



Stage	Green Time (SG)	Green Time (FG)	Delay	Green Time Provided (SG)	Green Time Provided (FG)
1	11	9	4	14	9
2	11	9	4	14	9
3	11	9	4	14	9
4	11	9	4	14	9

Move-ment	Stage	Lane	No. of lane	Radius m.	O	N	Straight Ahead Sat. Flow	Movement	Total Flow	Proportion of Turning Vehicles	Sat. Flow	Flare Lane m.	Flare Effect	Site Factor	Site Effect	Gradient %	Gradient Effect	Revised Sat. Flow	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
8,9	1	3.70	1	10		N	1985	Left: 136, Straight: 123, Right: 114	259	0.53	1840						1840	0.141	0.141	24	23	23	0.670	36	44	
7,8	1	3.70	1	30		N	2125	Left: 179, Straight: 114, Right: 282	293	0.39	2084						2084	0.141	0.141		23	23	0.670	42	43	
7	1	3.70	1	25		N	2125	Left: 89, Straight: 551, Right: 196	282	1.00	2005						2005	0.141	0.141		23	23	0.670	36	44	
6	1,2	3.75	1	15		N	1990	Left: 71, Straight: 27, Right: 43	89	1.00	1809						1809	0.049	0.129		8	44	0.670	12	69	
5	2	3.75	2	30		N	4260	Left: 67, Straight: 104, Right: 278	551	0.00	4260						4260	0.129	0.129		21	21	0.670	39	41	
4	2	3.75	1	25		N	2130	Left: 190, Straight: 581, Right: 278	196	1.00	2009						2009	0.098	0.141		16	21	0.670	30	51	
2,3	3	3.50	1	15		N	1965	Left: 190, Straight: 581, Right: 278	98	0.72	1832						1832	0.053	0.112		9	18	0.670	18	67	
1,2	3	3.50	1	30		N	2105	Left: 190, Straight: 581, Right: 278	110	0.39	2065						2065	0.053	0.112		9	18	0.670	18	64	
1	3	3.00	1	25		N	2055	Left: 190, Straight: 581, Right: 278	104	1.00	1939						1939	0.054	0.141		9	18	0.670	18	65	
12	3	3.30	1	10		N	1945	Left: 190, Straight: 581, Right: 278	190	1.00	1691						1691	0.112	0.112		18	18	0.670	30	50	
11	4	3.30	2	25		N	4170	Left: 190, Straight: 581, Right: 278	581	0.00	4170						4170	0.139	0.141		23	23	0.670	42	40	
10	4	3.30	1	25		N	2085	Left: 190, Straight: 581, Right: 278	278	1.00	1967						1967	0.141	0.141		23	23	0.670	36	44	

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

Appendix D

Junction Capacity Assessments

- Reference & Design Scenarios (Construction)

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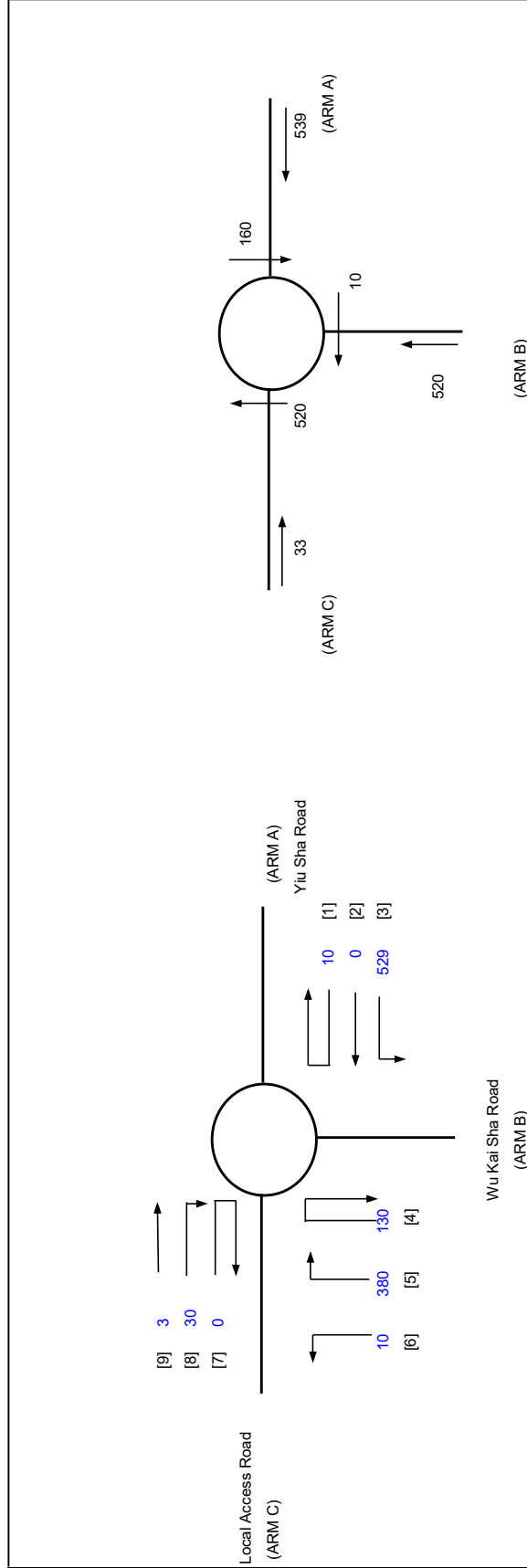
Proposed Rezoning from "Government, Institution or Community" to "Residential (Group B)": Zone to include Social Welfare Facility (RCHC only) and Public Vehicle Park (excluding container vehicle) at Lots Nos. 148 S.A RP (Part), 148 S.B RP (Part), 149 RP, 150 S.A, 150 S.B and 151 in D.D. 206 and Adjoining Government Land, West of Wu Kai Sha Road.

J1 Wu Kai Sha Road / Yiu Sha Road

ROUNDABOUT CALCULATION

2026 Reference AM (Construction)

PROJECT NO.: 40830
 FILENAME: J1_WKSR_YSR.xls
 REFERENCE NO.:
 PREPARED BY: SKL
 CHECKED BY: SLN
 REVIEWED BY: SLN
 DATE: Sep-23



ARM	A	B	C
V = Approach half width (m)	7.50	7.30	2.30
E = Entry width (m)	10.00	9.00	2.80
L = Effective length of flare (m)	12.50	11.00	1.00
R = Entry radius (m)	35.00	35.00	6.00
D = Inscribed circle diameter (m)	44.00	44.00	44.00
A = Entry angle (degree)	15.00	31.00	60.00
Q = Entry flow (pcu/h)	539	520	33
Qc = Circulating flow across entry (pcu/h)	160	10	520
OUTPUT PARAMETERS:			
S = Sharpness of flare = 1.6(E-V)/L	0.32	0.25	0.80
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.02	0.78
X2 = V + ((E-V)/(1+2S))	9.02	8.44	2.49
M = EXP((D-60)/10)	0.20	0.20	0.20
F = 303*X2	2734	2557	755
Td = 1+(0.5/(1+M))	1.42	1.42	1.42
Fc = 0.21*Td(1+0.2*X2)	0.83	0.80	0.45
Qe = K(F-Fc*Qc)	2791	2593	409
DFC = Design flow/Capacity = Q/Qe	0.19	0.20	0.08
Total In Sum =			1089 PCU
DFC of Critical Approach =			0.20

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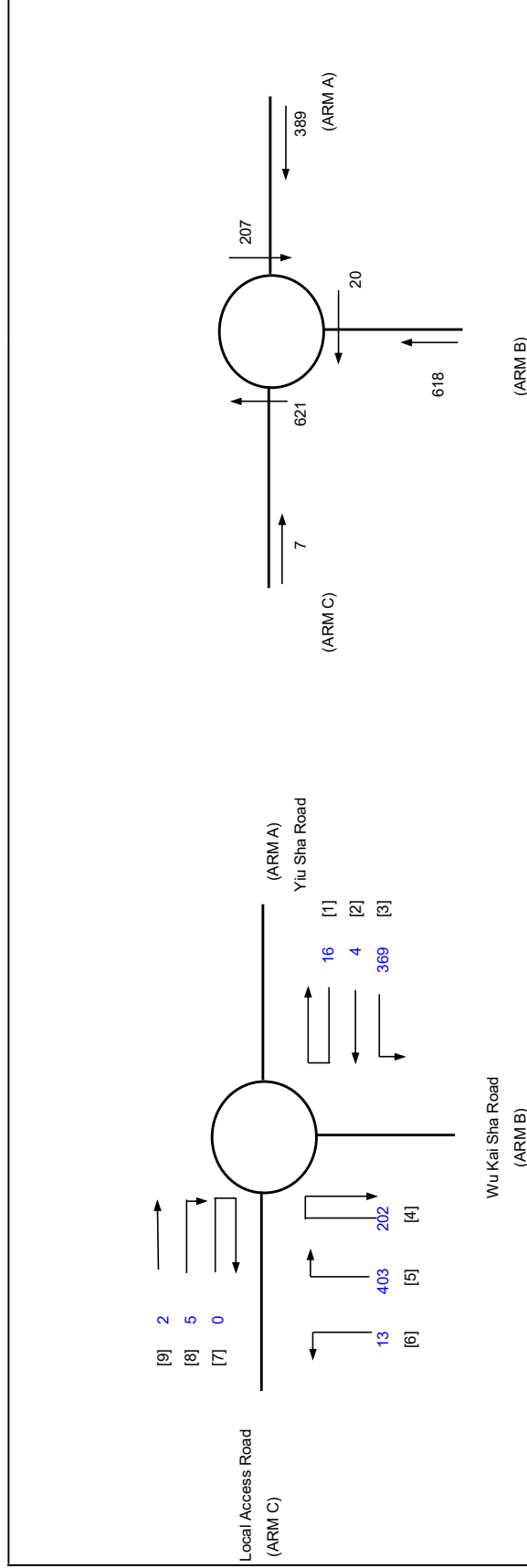
Proposed Rezoning from "Government, Institution or Community" to "Residential (Group B)": Zone to include Social Welfare Facility (RCHC only) and Public Vehicle Park (excluding container vehicle) at Lots Nos. 148 S.A RP (Part), 148 S.B RP (Part), 149 RP, 150 S.A, 150 S.B and 151 in D.D. 206 and Adjoining Government Land, West of Wu Kai Sha Road.

J1 Wu Kai Sha Road / Yiu Sha Road

ROUNDABOUT CALCULATION

2026 Reference PM (Construction)

PROJECT NO.:	40830	PREPARED BY:	SKL	INITIALS	DATE
FILENAME :	J1_WKSR_YSR.xls	CHECKED BY:	SLN	INITIALS	Sep-23
REFERENCE NO.:		REVIEWED BY:	SLN	INITIALS	Sep-23



ARM	A	B	C
V = Approach half width (m)	7.50	7.30	2.30
E = Entry width (m)	10.00	9.00	2.80
L = Effective length of flare (m)	12.50	11.00	1.00
R = Entry radius (m)	35.00	35.00	6.00
D = Inscribed circle diameter (m)	44.00	44.00	44.00
A = Entry angle (degree)	15.00	31.00	60.00
Q = Entry flow (pcu/h)	389	618	7
Qc = Circulating flow across entry (pcu/h)	207	20	621
OUTPUT PARAMETERS:			
S = Sharpness of flare = 1.6(E-V)/L	0.32	0.25	0.80
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.02	0.78
X2 = V + ((E-V)/(1+2S))	9.02	8.44	2.49
M = EXP((D-60)/10)	0.20	0.20	0.20
F = 303*X2	2734	2557	755
Td = 1+(0.5/(1+M))	1.42	1.42	1.42
Fc = 0.21*Td(1+0.2*X2)	0.83	0.80	0.45
Qe = K(F-Fc*Qc)	2749	2585	374
DFC = Design flow/Capacity = Q/Qe	0.14	0.24	0.02
Total In Sum =			1008 PCU
DFC of Critical Approach =			0.24

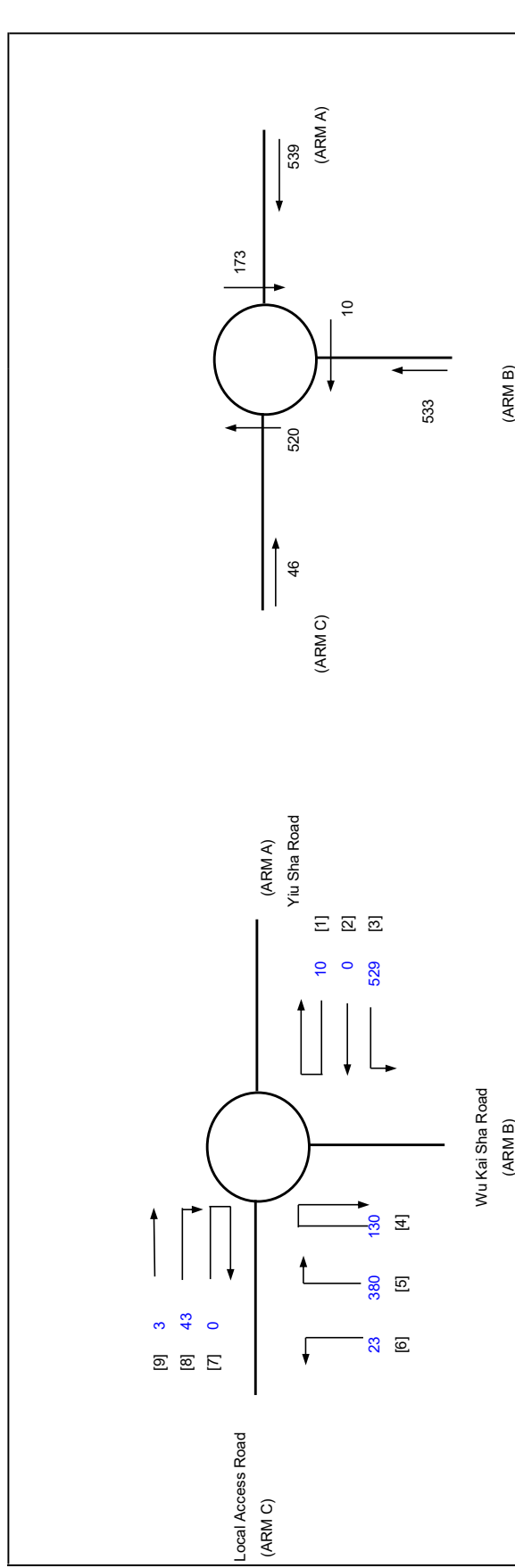
LLA CONSULTANCY LIMITED

Proposed Rezoning from "Government, Institution or Community" to "Residential (Group B)": Zone to include Social Welfare Facility (RCHC only) and Public Vehicle Park (excluding container vehicle) at Lots Nos. 148 S.A RP (Part), 148 S.B RP (Part), 149 RP, 150 S.A, 150 S.B and 151 in D.D. 206 and Adjoining Government Land, West of Wu Kai Sha Road.

J1 Wu Kai Sha Road / Yiu Sha Road

ROUNDABOUT CALCULATION

PROJECT NO.: 40830
 FILENAME: J1_WKSR_YSR.xls
 REFERENCE NO.:
 PREPARED BY: SKL
 CHECKED BY: SLN
 REVIEWED BY: SLN
 DATE: Sep-23



ARM	A	B	C
V = Approach half width (m)	7.50	7.30	2.30
E = Entry width (m)	10.00	9.00	2.80
L = Effective length of flare (m)	12.50	11.00	1.00
R = Entry radius (m)	35.00	35.00	6.00
D = Inscribed circle diameter (m)	44.00	44.00	44.00
A = Entry angle (degree)	15.00	31.00	60.00
Q = Entry flow (pcu/h)	539	533	46
Qc = Circulating flow across entry (pcu/h)	173	10	520
OUTPUT PARAMETERS:			
S = Sharpness of flare = 1.6(E-V)/L	0.32	0.25	0.80
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.07	1.02	0.78
X2 = V + ((E-V)/(1+2S))	9.02	8.44	2.49
M = EXP((D-60)/10)	0.20	0.20	0.20
F = 303*X2	2734	2557	755
Td = 1+(0.5/(1+M))	1.42	1.42	1.42
Fc = 0.21*Td(1+0.2*X2)	0.83	0.80	0.45
Qe = K(F-Fc*Qc)	2779	2593	409
DFC = Design flow/Capacity = Q/Qe	0.19	0.21	0.11
Total In Sum =			1115 PCU
DFC of Critical Approach =			0.21

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Proposed Rezoning from "Government, Institution or Community" to "Residential (Group B)": Zone to include Social Welfare Facility (RCHC only) and Public Vehicle Park (excluding container vehicle) at Lots Nos. 148 S.A RP (Part), 148 S.B RP (Part), 149 RP, 150 S.A, 150 S.B and 151 in D.D. 206 and Adjoining Government Land, West of Wu Kai Sha Road, J1

Wu Kai Sha Road / Yiu Sha Road

ROUNDABOUT CALCULATION

2026 Design PM (Construction)

PROJECT NO.: 40830

FILENAME: J1_WKSR_YSR.xls

REFERENCE NO.:

PREPARED BY: SKL

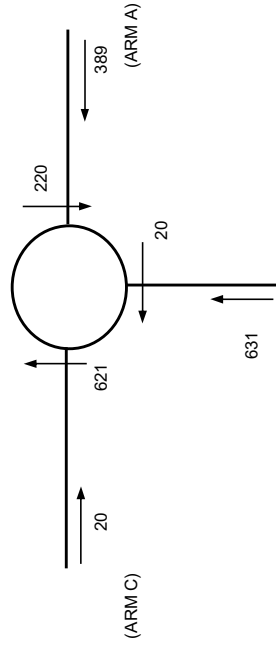
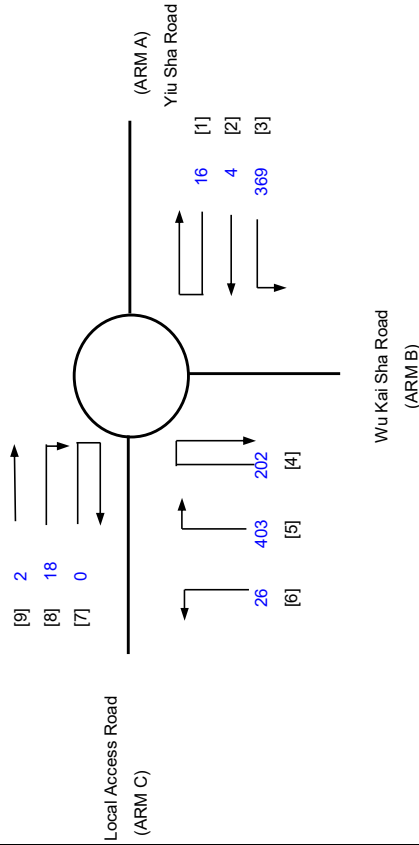
CHECKED BY: SLN

REVIEWED BY: SLN

DATE: Sep-23

DATE: Sep-23

DATE: Sep-23



ARM

INPUT PARAMETERS:

PARAMETER	A	B	C
V = Approach half width (m)	7.50	7.30	2.30
E = Entry width (m)	10.00	9.00	2.80
L = Effective length of flare (m)	12.50	11.00	1.00
R = Entry radius (m)	35.00	35.00	6.00
D = Inscribed circle diameter (m)	44.00	44.00	44.00
A = Entry angle (degree)	15.00	31.00	60.00
Q = Entry flow (pcu/h)	389	631	20
Qc = Circulating flow across entry (pcu/h)	220	20	621

OUTPUT PARAMETERS:

S = Sharpness of flare = $1.6(E-V)/L$	0.32	0.25	0.80
K = $1-0.00347(A-30)-0.978(1/R-0.05)$	1.07	1.02	0.78
X2 = $V + ((E-V)/(1+2S))$	9.02	8.44	2.49
M = $EXP((D-60)/10)$	0.20	0.20	0.20
F = $303 \times X2$	2734	2557	755
Td = $1+(0.5/(1+M))$	1.42	1.42	1.42
Fc = $0.21 \times Td(1+0.2 \times X2)$	0.83	0.80	0.45
Qe = $K(F-Fc \times Qc)$	2737	2585	374

DFC = Design flow/Capacity = Q/Qe

Total In Sum =

1034 PCU

DFC of Critical Approach = 0.24

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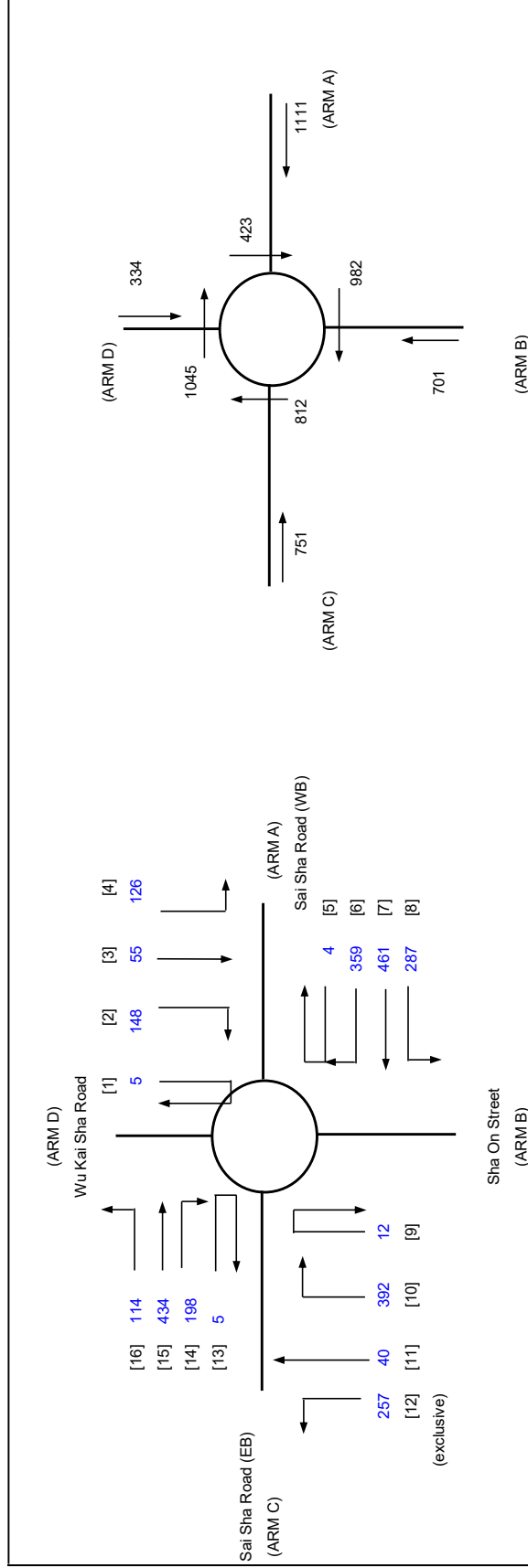
Proposed Rezoning from "Government, Institution or Community" to "Residential (Group B)"; Zone to include Social Welfare Facility (RCHC only) and Public Vehicle Park (excluding container vehicle) at Lots Nos. 148 S.A RP (Part), 148 S.B RP (Part), 149 RP, 150 S.A, 150 S.B and 151 in D.D. 206 and Adjoining Government Land, West of Wu Kai Sha Road, J2

Sai Sha Road / Wu Kai Sha Road / Sha On Street

ROUNDBABOUT CALCULATION

2026 Reference AM
(Construction)

PROJECT NO.: 40830
FILENAME: J2_SSR_WKSR_S
REFERENCE NO.:
PREPARED BY: SKL
CHECKED BY: SLN
REVIEWED BY: SLN
DATE: Sep-23



ARM	A	B	C	D
V = Approach half width (m)	8.50	3.20	7.00	7.50
E = Entry width (m)	10.50	12.00	9.00	8.00
L = Effective length of flare (m)	40.00	50.00	35.00	5.00
R = Entry radius (m)	160.00	35.00	100.00	40.00
D = Inscribed circle diameter (m)	90.00	90.00	90.00	90.00
A = Entry angle (degree)	25.00	40.00	25.00	30.00
Q = Entry flow (pcu/h)	1111	701	751	334
Qc = Circulating flow across entry (pcu/h)	423	982	812	1045
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.08	0.28	0.09	0.16
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.06	0.99	1.06	1.02
X2 = V + ((E-V)/(1+2S))	10.22	8.83	8.69	7.88
M = EXP((D-60)/10)	20.09	20.09	20.09	20.09
F = 303*X2	3098	2675	2633	2387
Td = 1+(0.5/(1+M))	1.02	1.02	1.02	1.02
Fc = 0.21*Td(1+0.2*X2)	0.65	0.59	0.59	0.55
Qe = K(F-Fc*Qc)	2991	2063	2277	1853
DFC = Design flow/Capacity = Q/Qe	0.37	0.34	0.33	0.18
Total In Sum = 1449 PCU				
DFC of Critical Approach = 0.37				

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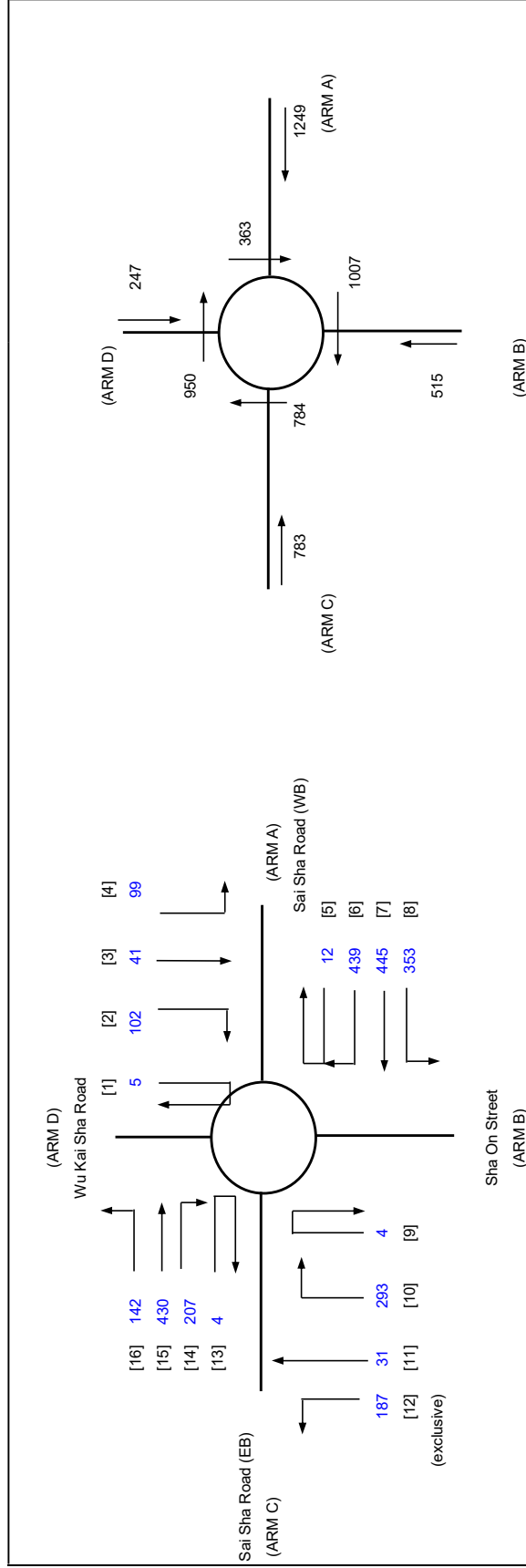
Proposed Rezoning from "Government, Institution or Community" to "Residential (Group B)"; Zone to include Social Welfare Facility (RCHC only) and Public Vehicle Park (excluding container vehicle) at Lots Nos. 148 S.A RP (Part), 148 S.B RP (Part), 149 RP, 150 S.A, 150 S.B and 151 in D.D. 206 and Adjoining Government Land, West of Wu Kai Sha Road.

J2 Sai Sha Road / Wu Kai Sha Road / Sha On Street

ROUNDABOUT CALCULATION

2026 Reference PM (Construction)

PROJECT NO.: 40830
 FILENAME: J2_SSR_WKSR_S
 REFERENCE NO.:
 PREPARED BY: SKL
 CHECKED BY: SLN
 REVIEWED BY: SLN
 DATE: Sep-23



ARM	A	B	C	D
V = Approach half width (m)	8.50	3.20	7.00	7.50
E = Entry width (m)	10.50	12.00	9.00	8.00
L = Effective length of flare (m)	40.00	50.00	35.00	5.00
R = Entry radius (m)	160.00	35.00	100.00	40.00
D = Inscribed circle diameter (m)	90.00	90.00	90.00	90.00
A = Entry angle (degree)	25.00	40.00	25.00	30.00
Q = Entry flow (pcu/h)	1249	515	783	247
Qc = Circulating flow across entry (pcu/h)	363	1007	784	950
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.08	0.28	0.09	0.16
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.06	0.99	1.06	1.02
X2 = V + ((E-V)/(1+2S))	10.22	8.83	8.69	7.88
M = EXP((D-60)/10)	20.09	20.09	20.09	20.09
F = 303*X2	3098	2675	2633	2387
Td = 1+(0.5/(1+M))	1.02	1.02	1.02	1.02
Fc = 0.21*Td(1+0.2*X2)	0.65	0.59	0.59	0.55
Qe = K(F-Fc*Qc)	3032	2048	2294	1907
Total In Sum = 1386 PCU				
DFC = Design flow/Capacity = Q/Qe	0.41	0.25	0.34	0.13
DFC of Critical Approach = 0.41				

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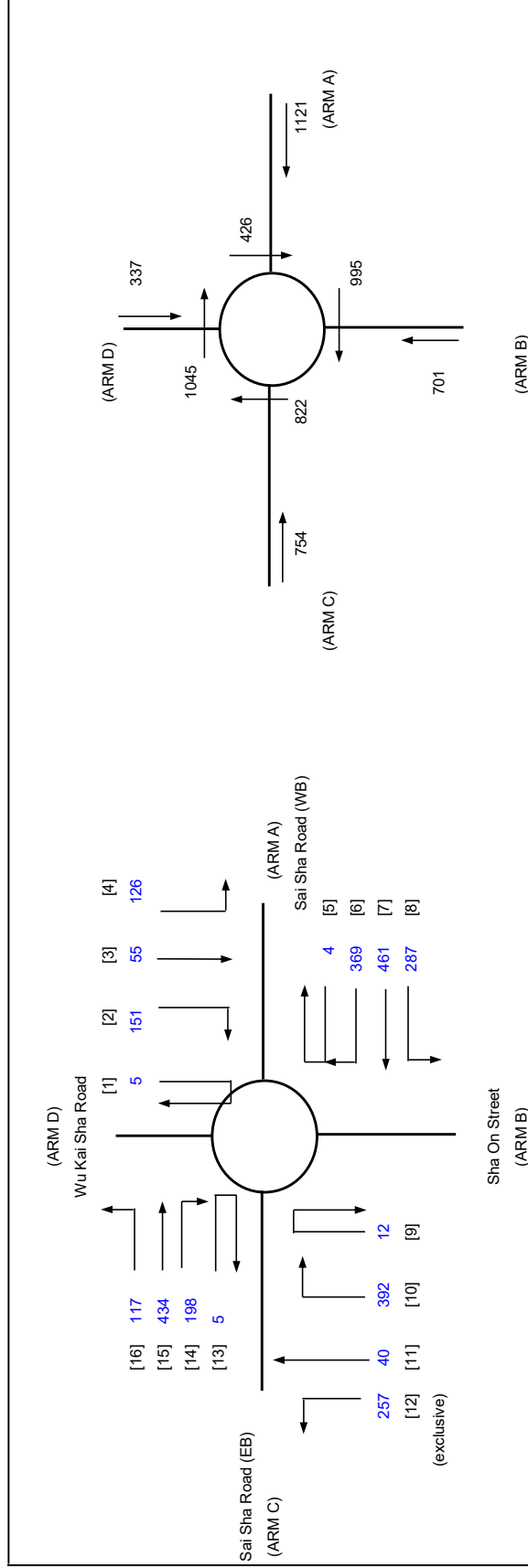
Proposed Rezoning from "Government, Institution or Community" to "Residential (Group B)"; Zone to include Social Welfare Facility (RCHC only) and Public Vehicle Park (excluding container vehicle) at Lots Nos. 148 S.A RP (Part), 148 S.B RP (Part), 149 RP, 150 S.A, 150 S.B and 151 in D.D. 206 and Adjoining Government Land, West of Wu Kai Sha Road, J2

Sai Sha Road / Wu Kai Sha Road / Sha On Street

ROUNDABOUT CALCULATION

2026 Design AM (Construction)

PROJECT NO.: 40830
 FILENAME: J2_SSR_WKSR_S
 REFERENCE NO.:
 PREPARED BY: SKL
 CHECKED BY: SLN
 REVIEWED BY: SLN
 DATE: Sep-23



ARM	A	B	C	D
V = Approach half width (m)	8.50	3.20	7.00	7.50
E = Entry width (m)	10.50	12.00	9.00	8.00
L = Effective length of flare (m)	40.00	50.00	35.00	5.00
R = Entry radius (m)	160.00	35.00	100.00	40.00
D = Inscribed circle diameter (m)	90.00	90.00	90.00	90.00
A = Entry angle (degree)	25.00	40.00	25.00	30.00
Q = Entry flow (pcu/h)	1121	701	754	337
Qc = Circulating flow across entry (pcu/h)	426	995	822	1045
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.08	0.28	0.09	0.16
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.06	0.99	1.06	1.02
X2 = V + ((E-V)/(1+2S))	10.22	8.83	8.69	7.88
M = EXP((D-60)/10)	20.09	20.09	20.09	20.09
F = 303*X2	3098	2675	2633	2387
Td = 1+(0.5/(1+M))	1.02	1.02	1.02	1.02
Fc = 0.21*Td(1+0.2*X2)	0.65	0.59	0.59	0.55
Qe = K(F-Fc*Qc)	2989	2055	2271	1853
DFC = Design flow/Capacity = Q/Qe	0.38	0.34	0.33	0.18
Total In Sum =				1449 PCU
DFC of Critical Approach =				0.38

LLA CONSULTANCY LIMITED

Proposed Rezoning from "Government, Institution or Community" to "Residential (Group B)"; Zone to include Social Welfare Facility (RCHC only) and Public Vehicle Park (excluding container vehicle) at Lots Nos. 148 S.A RP (Part), 148 S.B RP (Part), 149 RP, 150 S.A, 150 S.B and 151 in D.D. 206 and Adjoining Government Land, West of Wu Kai Sha Road.

J2 Sai Sha Road / Wu Kai Sha Road / Sha On Street

ROUNDABOUT CALCULATION

2026 Design PM (Construction)

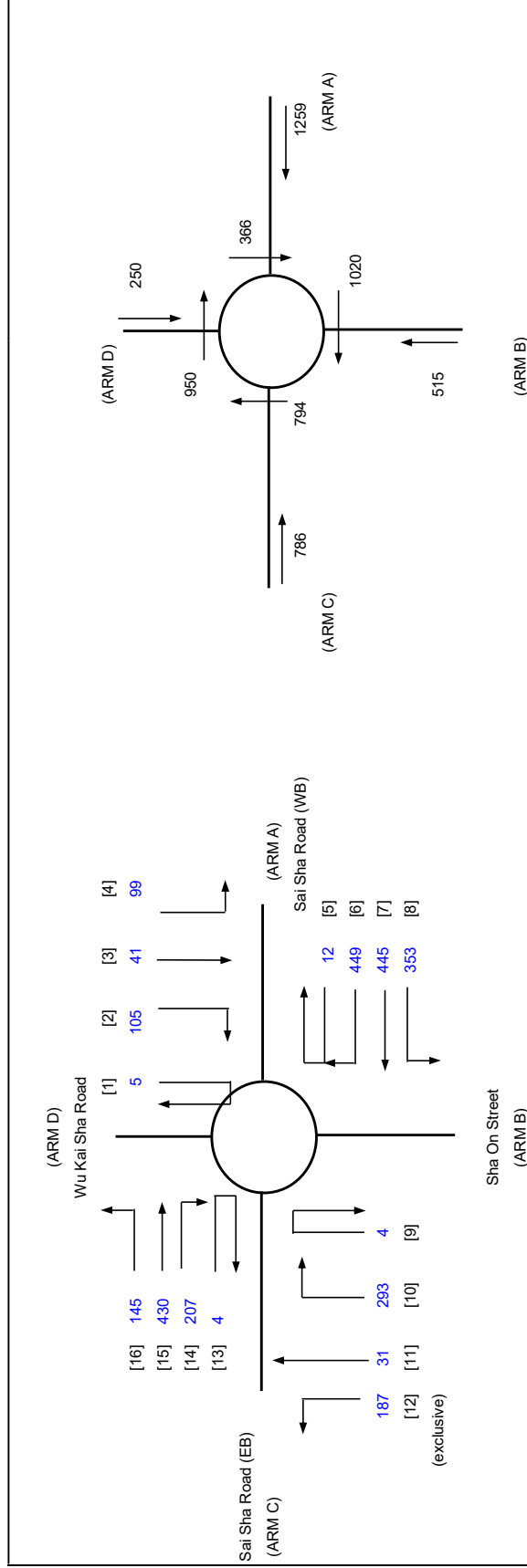
PROJECT NO.: 40830

FILENAME: J2_SSR_WKSR_S

REFERENCE NO.: REVIEWED BY: SLN

PREPARED BY: SKL

DATE: Sep-23



ARM

INPUT PARAMETERS:

	A	B	C	D
V = Approach half width (m)	8.50	3.20	7.00	7.50
E = Entry width (m)	10.50	12.00	9.00	8.00
L = Effective length of flare (m)	40.00	50.00	35.00	5.00
R = Entry radius (m)	160.00	35.00	100.00	40.00
D = Inscribed circle diameter (m)	90.00	90.00	90.00	90.00
A = Entry angle (degree)	25.00	40.00	25.00	30.00
Q = Entry flow (pcu/h)	1259	515	786	250
Qc = Circulating flow across entry (pcu/h)	366	1020	794	950

OUTPUT PARAMETERS:

S = Sharpness of flare = 1.6(E-V)/L	0.08	0.28	0.09	0.16
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.06	0.99	1.06	1.02
X2 = V + ((E-V)/(1+2S))	10.22	8.83	8.69	7.88
M = EXP((D-60)/10)	20.09	20.09	20.09	20.09
F = 303*X2	3098	2675	2633	2387
Td = 1+(0.5/(1+M))	1.02	1.02	1.02	1.02
Fc = 0.21*Td(1+0.2*X2)	0.65	0.59	0.59	0.55
Qe = K(F-Fc*Qc)	3030	2040	2288	1907
DFC = Design flow/Capacity = Q/Qe	0.42	0.25	0.34	0.13

Total In Sum =

1386 PCU

DFC of Critical Approach = 0.42

LLA CONSULTANCY LIMITED

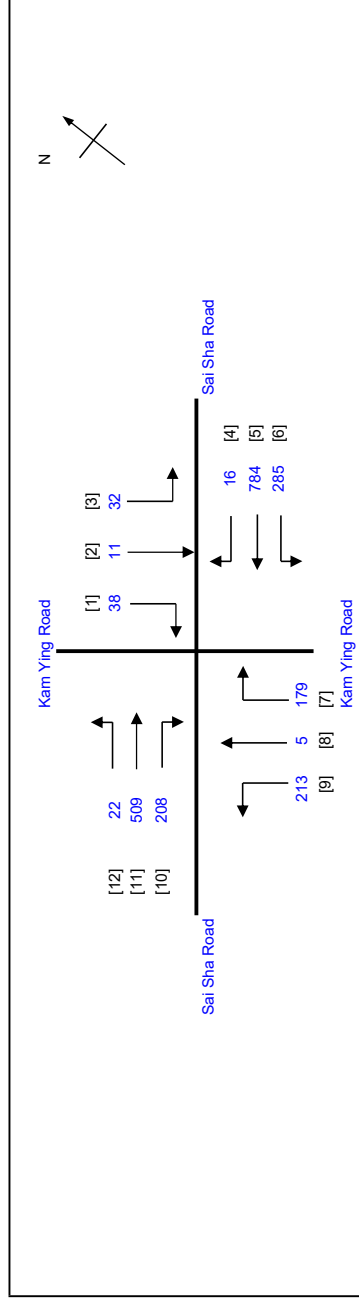
Proposed Rezoning from "Government, Institution or Community" to "Residential (Group B)(e) Zone to Include Social Welfare Facility (RCHE only) and Public Vehicle Park (excluding container vehicle) at Lots Nos. 148 S.A RP (Part), 148 S.B RP (Part), 149 RP, 150 S.A, 150 S.B and 151 in D.D.

TRAFFIC SIGNAL CALCULATION

PROJECT NO.: 40830
 FILENAME: J3_SSR_KYR.xlsm

Prepared By:
 Checked By:
 Reviewed By:

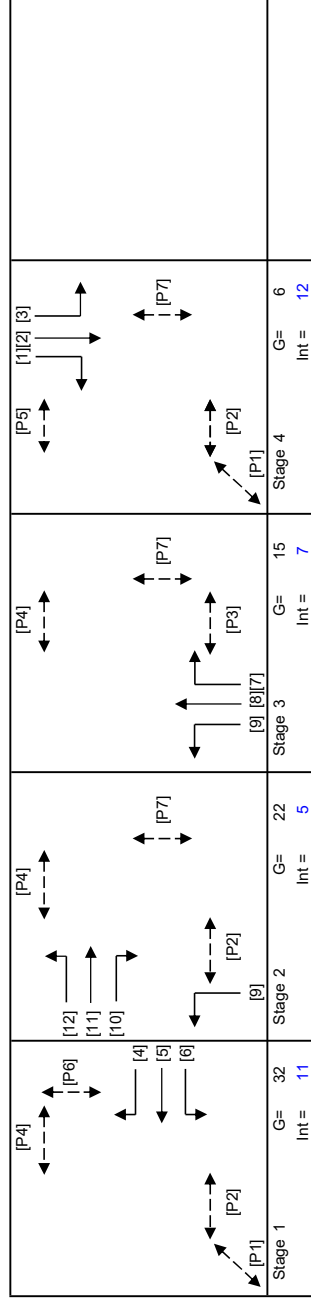
INITIALS DATE
 SKL Sep-23
 SLN Sep-23
 SLN Sep-23



No. of stages per cycle = 4

Cycle time = 110 sec
 Sum(y) = 0.447
 Loss time = 31 sec
 Total Flow = 2302 pcu
 Co = 93.2 sec
 Crm = 56.1 sec
 Yult = 0.668
 R.C.ult = (Yult-Y)*100% = 49.2 %
 Cp = 0.9*L/(0.9-Y) = 61.7 sec
 Ymax = 1-L/C = 0.718

R.C.(C) = 0.9*Ymax-Y)*100% = 44 %



Pedestrian Phase	Stage	Green Time SG	Green Time FG	Delay	Green Time Provided SG	Green Time Provided FG
P1	1,4	5	6	2	53	6
P2	1,2,4	5	5	0	83	5
P3	3	5	8	7	7	8
P4	1,2,3	5	5	0	87	5
P5	4	5	6	6	6	6
P6	1	5	7	5	31	7
P7	2,3,4	5	12	0	55	12

Move-ment	Stage	Lane Width m.	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/hr	Movement Straight pcu/hr	Movement Right pcu/hr	Total Flow pcu/hr	Proportion of Turning Vehicles	Sat. Flow pcu/hr	Flare Effect pcu/hr	Site Factor	Site Effect pcu/hr	Gradient %	Gradient Effect pcu/hr	Revised Sat. Flow pcu/hr	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m /lane)	Average Delay (seconds)
6	1	3.50	1	15		N	1965	285	784	16	285	1.00	1786						1786	0.160		31	28	33	0.623	36	38
5	1	3.50	2	25			4210				784	0.00	4210						4210	0.186	0.186		33	33	0.623	48	32
4	1	3.50	1	25			2105				16	1.00	1986						1986	0.008			1	33	0.623	0	153
11,12	2	4.00	1	15		N	2015	22	233	208	255	0.09	1998						1998	0.128			23	23	0.623	36	42
11	2	4.00	1	25			2155	276	276	208	276	0.00	2155						2155	0.128	0.128		23	23	0.623	36	42
10	2	3.50	1	25			2105				208	1.00	1986						1986	0.105			18	23	0.623	30	46
9	2,3	4.50	1	25		N	2065	213	213		213	1.00	1948						1948	0.109			19	39	0.623	30	46
7,8	3	3.50	1	25			2105		5	179	184	0.97	1989						1989	0.093	0.093		16	16	0.623	24	49
1,2,3	4	5.50	1	15		N	2165	32	11	38	81	0.86	1993						1993	0.041	0.041		7	7	0.623	12	66

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

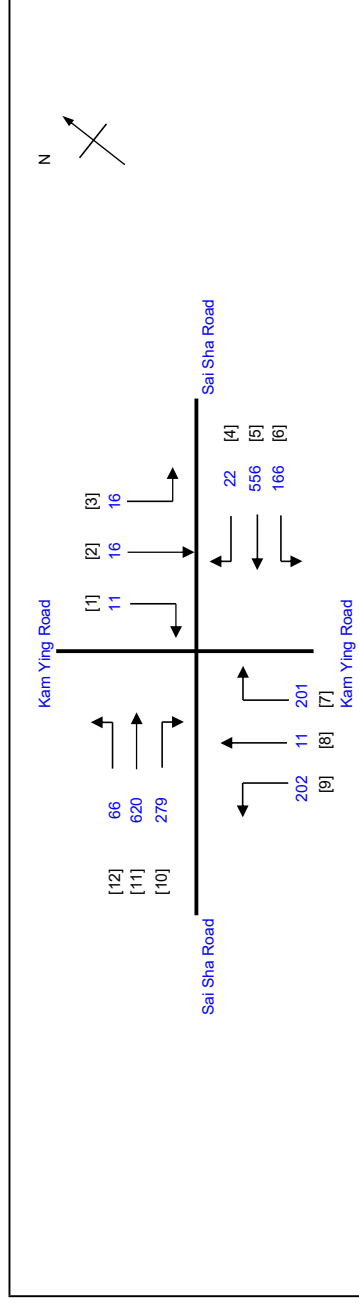
LLA CONSULTANCY LIMITED

Proposed Rezoning from "Government, Institution or Community" to "Residential (Group B)" Zone to Include Social Welfare Facility (RCHE only) and Public Vehicle Park (excluding container vehicle) at Lots Nos. 148 S.A RP (Part), 148 S.B RP (Part), 149 RP, 150 S.A, 150 S.B and 151 in D.D. J3 Sai Sha Road / Kam Ying Road

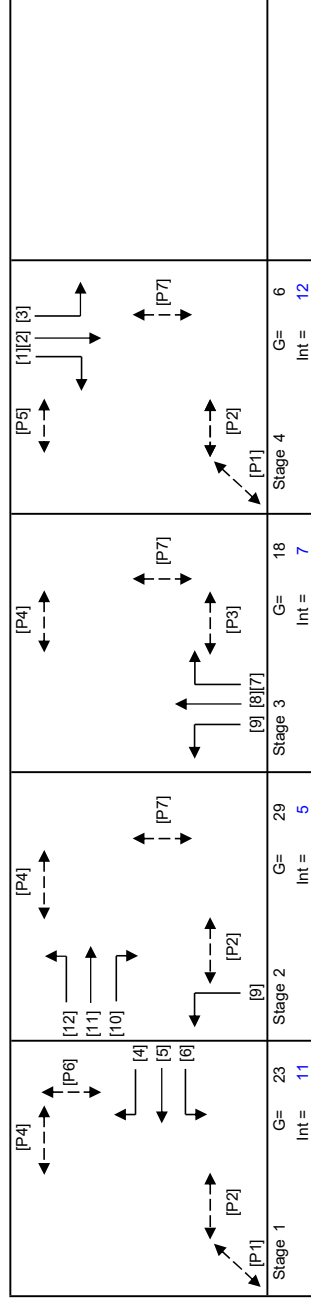
TRAFFIC SIGNAL CALCULATION

PROJECT NO.: 40830
 FILENAME: J3_SSR_KYR.xlsm
 Prepared By:
 Checked By:
 Reviewed By:

INITIALS	DATE
SKL	Sep-23
SLN	Sep-23
SLN	Sep-23



No. of stages per cycle	N = 4
Cycle time	C = 110 sec
Sum(y)	0.426
Loss time	Y = 34 sec
Total Flow	L = 2166 pcu
Co	= (1.5*L+5)/(1-Y) = 97.5 sec
Cm	= L/(1-Y) = 59.2 sec
Yult	= 0.645
R.C.ult	= (Yult-Y)*100% = 51.5 %
Cp	= 0.9*L/(0.9-Y) = 64.5 sec
Ymax	= 1-L/C = 0.691
R.C.(C)	= (0.9*Ymax-Y)*100% = 46 %



Pedestrian Phase	Stage	Green Time Required SG	Delay FG	Green Time Provided SG	FG
P1	1,4	5	2	43	6
P2	1,2,4	5	0	80	5
P3	3	5	8	10	8
P4	1,2,3	5	0	87	5
P5	4	5	6	6	6
P6	1	5	7	22	7
P7	2,3,4	5	12	64	12

Move-ment	Stage	Lane Width m.	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare Effect pcu/hr	Site Factor	Site Effect pcu/hr	Gradient %	Gradient Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m /lane)	Average Delay (seconds)
6	1	3.50	1	15		N	1965	166	556	22	166	1.00	1786						1786	0.093		31	17	24	0.616	24	49
5	1	3.50	2	25			4210				556	0.00	4210						4210	0.132	0.132		24	24	0.616	39	38
4	1	3.50	1	25			2105				22	1.00	1986						1986	0.011			2	24	0.616	6	121
11,12	2	4.00	1	15		N	2015	66	262	279	328	0.20	1975						1975	0.166	0.166		30	30	0.616	42	37
11	2	4.00	1	25			2155				358	0.00	2155						2155	0.166	0.166		30	30	0.616	42	36
10	2	3.50	1	25			2105				279	1.00	1986						1986	0.140			25	30	0.616	36	40
9	2,3	4.50	1	25		N	2065	202			202	1.00	1948						1948	0.104			19	49	0.616	30	46
7,8	3	3.50	1	25			2105				212	0.95	1992						1992	0.106	0.106		19	19	0.616	30	45
1,2,3	4	5.50	1	15		N	2165	16	11		43	0.63	2037						2037	0.021	0.021		4	7	0.616	6	84

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

LLA CONSULTANCY LIMITED

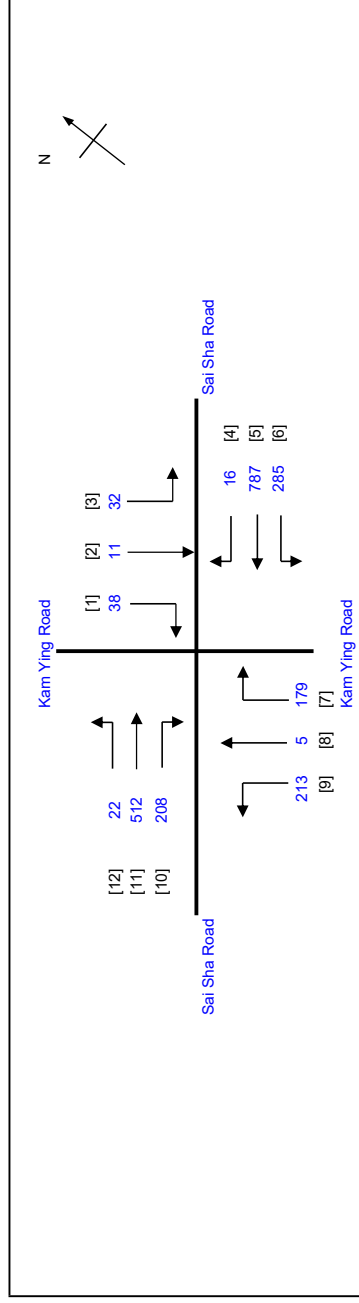
Proposed Rezoning from "Government, Institution or Community" to "Residential (Group B)" Zone to Include Social Welfare Facility (RCHE only) and Public Vehicle Park (excluding container vehicle) at Lots Nos. 148 S.A RP (Part), 148 S.B RP (Part), 149 RP, 150 S.A, 150 S.B and 151 in D.D. J3 Sai Sha Road / Kam Ying Road

TRAFFIC SIGNAL CALCULATION

2026 Design AM (Construction)

PROJECT NO.: 40830
 FILENAME: J3_SSR_KYR.xlsm
 Prepared By:
 Checked By:
 Reviewed By:

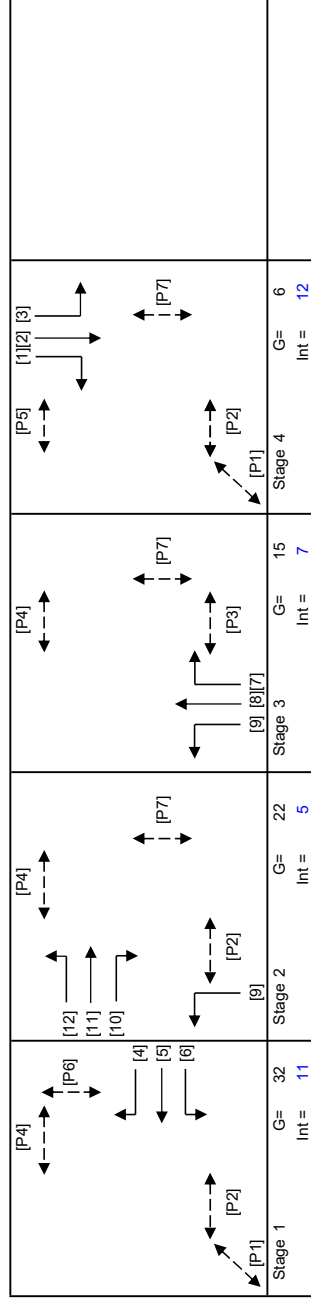
INITIALS DATE
 SKL Sep-23
 SLN Sep-23
 SLN Sep-23



No. of stages per cycle = 4

Cycle time = 110 sec
 Sum(y) = 0.449
 Loss time = 31 sec
 Total Flow = 2308 pcu
 Co = 93.4 sec
 Crm = 56.2 sec
 Yult = 0.668
 R.C.ult = (Yult-Y)*100% = 48.8 %
 Cp = 0.9*L/(0.9-Y) = 61.8 sec
 Ymax = 1-L/C = 0.718

R.C.(C) = 0.9*Ymax-Y)*100% = 44 %



Pedestrian Phase	Stage	Green Time Required SG	Delay FG	Green Time Provided SG	FG
P1	1,4	5	2	53	6
P2	1,2,4	5	0	83	5
P3	3	5	8	7	8
P4	1,2,3	5	0	87	5
P5	4	5	6	6	6
P6	1	5	7	31	7
P7	2,3,4	5	12	55	12

Move-ment	Stage	Lane Width m.	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/hr	Movement Straight pcu/hr	Movement Right pcu/hr	Total Flow pcu/hr	Proportion of Turning Vehicles	Sat. Flow pcu/hr	Flare Effect pcu/hr	Site Factor	Site Effect pcu/hr	Gradient %	Gradient Effect pcu/hr	Revised Sat. Flow pcu/hr	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m /lane)	Average Delay (seconds)
6	1	3.50	1	15		N	1965	285	787	16	285	1.00	1786						1786	0.160		31	28	33	0.825	36	39
5	1	3.50	2	25			4210				787	0.00	4210						4210	0.187	0.187		33	33	0.625	48	32
4	1	3.50	1	25			2105				16	1.00	1986						1986	0.008			1	33	0.625	0	154
11,12	2	4.00	1	15		N	2015	22	235	208	257	0.09	1998						1998	0.129	0.129		23	23	0.625	36	42
11	2	4.00	1	25			2155				277	0.00	2155						2155	0.129			23	23	0.625	36	42
10	2	3.50	1	25			2105				208	1.00	1986						1986	0.105			18	23	0.625	30	46
9	2,3	4.50	1	25		N	2065	213			213	1.00	1948						1948	0.109			19	39	0.625	30	46
7,8	3	3.50	1	25			2105		5	179	184	0.97	1989						1989	0.093	0.093		16	16	0.625	24	49
1,2,3	4	5.50	1	15		N	2165	32	11	38	81	0.86	1993						1993	0.041	0.041		7	7	0.625	12	66

NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUEING LENGTH = AVERAGE QUEUE * 6m

LLA CONSULTANCY LIMITED

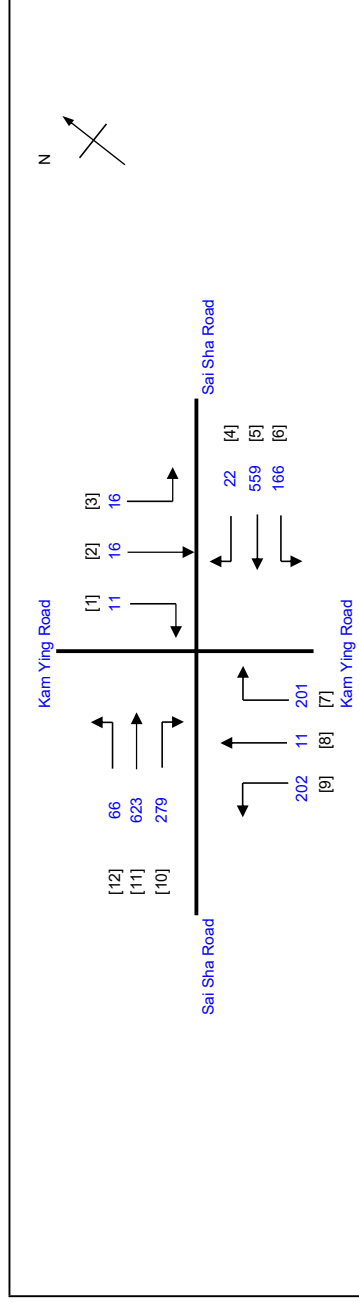
Proposed Rezoning from "Government, Institution or Community" to "Residential (Group B)" Zone to Include Social Welfare Facility (RCHE only) and Public Vehicle Park (excluding container vehicle) at Lots Nos. 148 S.A RP (Part), 148 S.B RP (Part), 149 RP, 150 S.A, 150 S.B and 151 in D.D. J3 Sai Sha Road / Kam Ying Road

TRAFFIC SIGNAL CALCULATION

2026 Design PM (Construction)

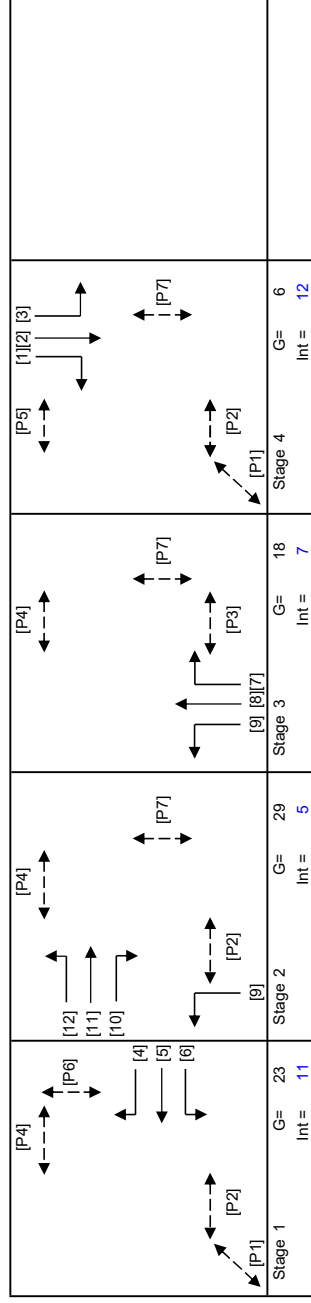
PROJECT NO.: 40830
 FILENAME: J3_SSR_KYR.xlsm
 Prepared By:
 Checked By:
 Reviewed By:

INITIALS DATE
 SKL Sep-23
 SLN Sep-23
 SLN Sep-23



No. of stages per cycle = 4
 Cycle time = 110 sec
 Sum(y) = 0.427
 Loss time = 34 sec
 Total Flow = 2172 pcu
 Co = 97.8 sec
 Crm = 59.4 sec
 Yult = 0.645
 R.C.ult = (Yult-Y)*100% = 50.9 %
 Cp = 0.9*L/(0.9-Y) = 64.7 sec
 Ymax = 1-L/C = 0.691

R.C.(C) = 0.9*Ymax-Y)*100% = 45 %



Pedestrian Phase	Stage	Green Time Required SG	Green Time Required FG	Delay	Green Time Provided SG	Green Time Provided FG
P1	1,4	5	6	2	43	6
P2	1,2,4	5	5	0	80	5
P3	3	5	8	7	10	8
P4	1,2,3	5	5	0	87	5
P5	4	5	6	6	6	6
P6	1	5	7	5	22	7
P7	2,3,4	5	12	0	64	12

Move-ment	Stage	Lane Width m.	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement Left pcu/h	Movement Straight pcu/h	Movement Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare Effect pcu/hr	Site Factor	Site Effect pcu/hr	Gradient %	Gradient Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m /lane)	Average Delay (seconds)
6	1	3.50	1	15		N	1965	166	559	22	166	1.00	1786						1786	0.093		31	17	24	0.619	24	49
5	1	3.50	2	25			4210				559	0.00	4210						4210	0.133	0.133		24	24	0.619	39	38
4	1	3.50	1	25			2105				22	1.00	1986						1986	0.011			2	24	0.619	6	122
11,12	2	4.00	1	15		N	2015	66	263	279	329	0.20	1975						1975	0.167	0.167		30	30	0.619	42	37
11	2	4.00	1	25			2155				360	0.00	2155						2155	0.167	0.167		30	30	0.619	48	36
10	2	3.50	1	25			2105				279	1.00	1986						1986	0.140			25	30	0.619	36	40
9	2,3	4.50	1	25		N	2065	202			202	1.00	1948						1948	0.104			18	49	0.619	30	46
7,8	3	3.50	1	25			2105				212	0.95	1992						1992	0.106	0.106		19	19	0.619	30	46
1,2,3	4	5.50	1	15		N	2165	16	16	11	43	0.63	2037						2037	0.021	0.021	3	4	7	0.619	6	85

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

LLA CONSULTANCY LIMITED

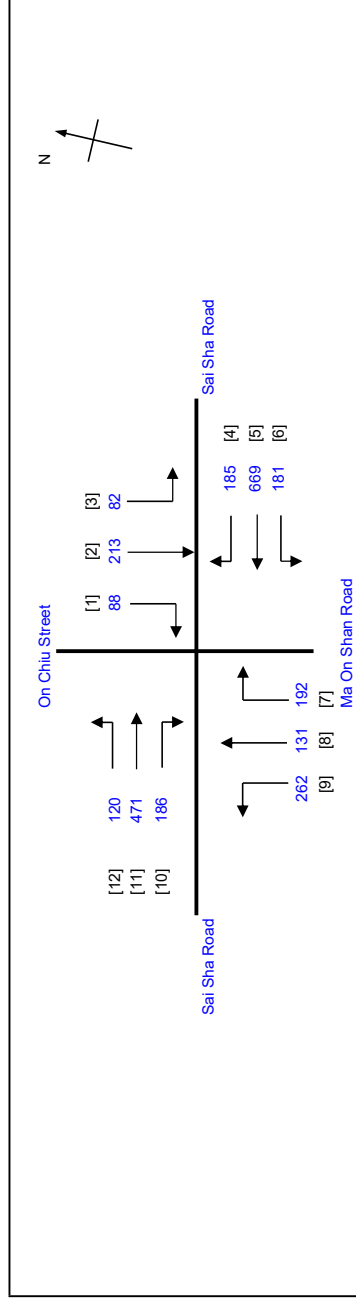
Proposed Rezoning from "Government, Institution or Community" to "Residential (Group B)(e)" Zone to Include Social Welfare Facility (RCHE only) and Public Vehicle Park (excluding container vehicle) at Lots Nos. 148 S.A RP (Part), 148 S.B RP (Part), 149 RP, 150 S.A, 150 S.B and 151 in D.D. J4 Sai Sha Road / Ma On Shan Road / On Chiu Street

TRAFFIC SIGNAL CALCULATION

PROJECT NO.: 40830
 FILENAME: J4_SSR_MOSR_OCR.xlsm

Prepared By: SKL
 Checked By: SLN
 Reviewed By: SLN

DATE: Sep-23



No. of stages per cycle: 4

Cycle time: 110 sec
 Sum(y): 0.496
 Loss time: 24 sec
 Total Flow: 2780 pcu
 Co = (1.5*L+5)/(1-Y) = 81.4 sec
 Crm = L/(1-Y) = 47.7 sec
 Yult = 0.720
 R.C.ult = (Yult-Y)*100% = 45.1 %
 Cp = 0.9*L/(0.9-Y) = 53.5 sec
 Ymax = 1-L/C = 0.782

R.C.(C) = (0.9*Ymax-Y)*100% = 42 %

Stage	Lane Width (m)	No. of lane	Radius (m)	O	N	Straight Ahead Sat. Flow	Movement	Total Flow (pcu/h)	Proportion of Turning Vehicles	Sat. Flow (pcu/h)	Flare Lane (m)	Flare Effect (pcu/hr)	Site Factor	Site Effect (pcu/hr)	Gradient %	Gradient Effect (pcu/hr)	Revised Sat. Flow (pcu/h)	y	Greater y	L (sec)	g (required) (sec)	g (input) (sec)	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
8,9	3.70	1	10		N	1985	Left: 262	262	1.00	1726							1726	0.152	0.152	23	26	26	0.635	36	41
7,8	3.70	1	30		N	2125	Left: 131, Right: 158	165	0.21	2103							2103	0.078	0.078		14	26	0.635	24	52
7	3.70	1	25		N	2125	Left: 181, Right: 669	158	1.00	2005							2005	0.079	0.079		14	26	0.635	24	53
6	3.75	1	15		N	1990	Left: 82, Right: 56	181	1.00	1809							1809	0.100	0.100		17	54	0.635	24	49
5	3.75	2	30		N	4260	Left: 157, Right: 88	669	0.00	4260							4260	0.157	0.157		27	27	0.635	45	36
4	3.75	1	25		N	2130	Left: 471, Right: 186	185	1.00	2009							2009	0.092	0.092		16	27	0.635	24	50
2,3	3.50	1	15		N	1965	Left: 120, Right: 471	138	0.59	1855							1855	0.074	0.074		13	13	0.635	18	55
1,2	3.50	1	30		N	2105	Left: 186, Right: 186	157	0.00	2105							2105	0.075	0.075	1	13	21	0.635	24	53
1	3.00	1	25		N	2055	Left: 120, Right: 186	88	1.00	1939							1939	0.045	0.045		8	13	0.635	12	65
12	3.30	1	10		N	1945	Left: 120, Right: 186	120	1.00	1691							1691	0.071	0.071		12	13	0.635	18	57
11	3.30	2	25		N	4170	Left: 186, Right: 186	471	0.00	4170							4170	0.113	0.113		20	21	0.635	33	42
10	3.30	1	25		N	2085	Left: 186, Right: 186	186	1.00	1967							1967	0.095	0.095		16	21	0.635	24	49

Stage	Stage	Green Time (SG)	Green Time (FG)	Delay	Green Time Provided (SG)	Green Time Provided (FG)
P1	4	11	9	4	12	9

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

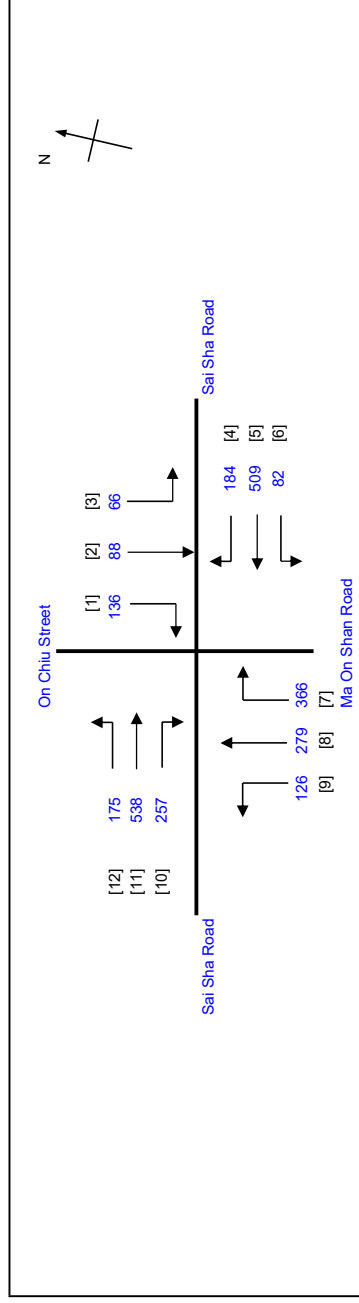
LLA CONSULTANCY LIMITED

Proposed Rezoning from "Government, Institution or Community" to "Residential (Group B)" Zone to Include Social Welfare Facility (RCHE only) and Public Vehicle Park (excluding container vehicle) at Lots Nos. 148 S.A RP (Part), 148 S.B RP (Part), 149 RP, 150 S.A, 150 S.B and 151 in D.D. J4 Sai Sha Road / Ma On Shan Road / On Chiu Street

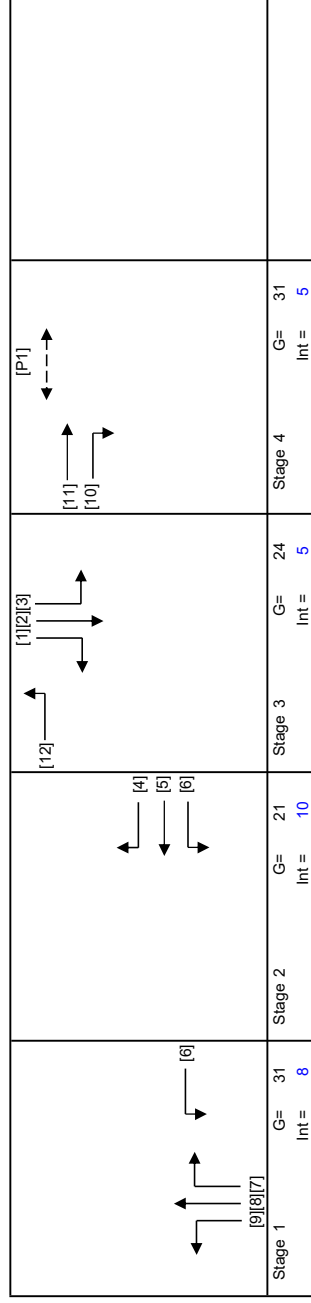
TRAFFIC SIGNAL CALCULATION

PROJECT NO.: 40830
 FILENAME: J4_SSR_MOSR_OCR.xlsm
 Prepared By:
 Checked By:
 Reviewed By:

INITIALS	DATE
SKL	Sep-23
SLN	Sep-23
SLN	Sep-23



No. of stages per cycle	N = 4
Cycle time	C = 110 sec
Sum(y)	0.354
Loss time	Y = 24 sec
Total Flow	L = 2804 pcu
Co	= (1.5*L+5)/(1-Y) = 63.4 sec
Cm	= L/(1-Y) = 37.1 sec
Yult	= 0.720
R.C.Ult	= (Yult-Y)*100% = 103.6 %
Cp	= 0.9*L/(0.9-Y) = 39.5 sec
Ymax	= 1-L/C = 0.782
R.C.(C)	= (0.9*Ymax-Y)*100% = 99 %



Stage	Green Time Required SG	Green Time Provided SG	Delay FG	Green Time Provided FG
1	11	11	9	22
2	11	11	9	22
3	11	11	9	22
4	11	11	9	22

Move-ment	Stage	Lane Width m.	No. of lane	Radius m.	O	N	Straight-Ahead Sat. Flow	Movement	Total Flow	Proportion of Turning Vehicles	Sat. Flow	Flare Lane m.	Site Factor	Site Effect	Flare Effect	Gradient Effect	Revised Sat. Flow	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
8,9	1	3.70	1	10		N	1985	Left 126	240	0.53	1840						1840	0.130	0.130	25	32	32	0.626	30	31
7,8	1	3.70	1	30		N	2125	Right 106	272	0.39	2084						2084	0.130	0.130		32	32	0.626	30	31
7	1	3.70	1	25		N	2125	261	261	1.00	2005						2005	0.130	0.130		32	32	0.626	30	31
6	1,2	3.75	1	15		N	1990	82	82	1.00	1809						1809	0.045	0.045		11	54	0.626	12	49
5	2	3.75	2	30		N	4260	509	509	0.00	4260						4260	0.119	0.119		29	29	0.626	33	32
4	2	3.75	1	25		N	2130	184	184	1.00	2009						2009	0.092	0.092		22	29	0.626	24	38
2,3	3	3.50	1	15		N	1965	66	91	0.73	1832						1832	0.050	0.050		12	18	0.626	12	48
1,2	3	3.50	1	30		N	2105	63	103	0.39	2065						2065	0.050	0.050		12	18	0.626	12	47
1	3	3.00	1	25		N	2055	175	96	1.00	1939						1939	0.050	0.050		12	18	0.626	12	48
12	3	3.30	1	10		N	1945	538	175	1.00	1691						1691	0.103	0.103		25	18	0.626	24	36
11	4	3.30	2	25		N	4170	257	538	0.00	4170						4170	0.129	0.129		31	31	0.626	33	30
10	4	3.30	1	25		N	2085	257	257	1.00	1967						1967	0.131	0.131		32	31	0.626	30	31

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

LLA CONSULTANCY LIMITED

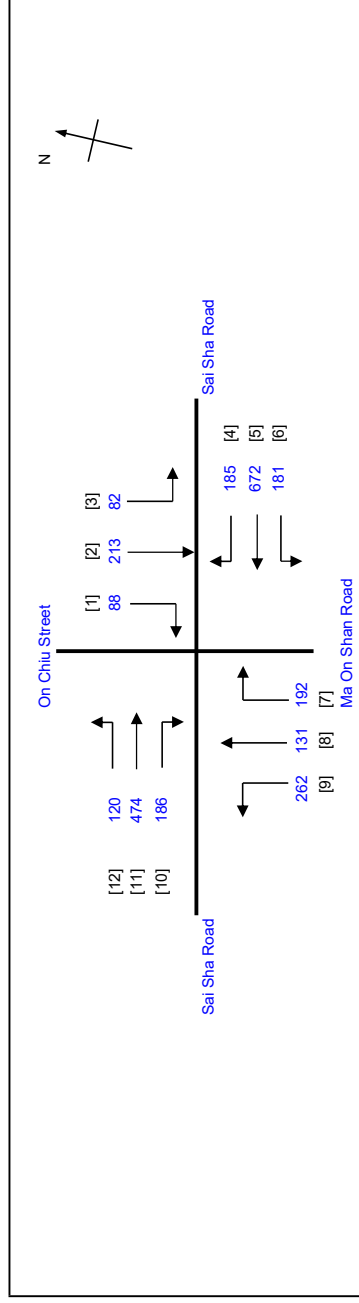
Proposed Rezoning from "Government, Institution or Community" to "Residential (Group B)(e)" Zone to Include Social Welfare Facility (RCHE only) and Public Vehicle Park (excluding container vehicle) at Lots Nos. 148 S.A RP (Part), 148 S.B RP (Part), 148 RP, 150 S.A, 150 S.B and 151 in D.D. J4 Sai Sha Road / Ma On Shan Road / On Chiu Street

TRAFFIC SIGNAL CALCULATION

PROJECT NO.: 40830
 FILENAME: J4_SSR_MOSR_OCR.xlsm

Prepared By: SKL
 Checked By: SLN
 Reviewed By: SLN

DATE: Sep-23



No. of stages per cycle = 4

Cycle time = 110 sec

Sum(y) = 0.498

Loss time = 24 sec

Total Flow = 2786 pcu

Co = 81.6 sec

Cm = 47.8 sec

Yult = 0.720

R.C.ult = 44.6 %

Cp = 53.7 sec

Ymax = 0.782

R.C.(C) = $(0.9 * Y_{max} - Y) * 100\%$ = 41 %

Stage	Lane Width m.	No. of lane	Radius m.	O	N	Straight Ahead Sat. Flow	Movement	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare Lane m.	Flare Effect pcu/hr	Site Factor	Site Effect pcu/hr	Gradient %	Gradient Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
8,9	3.70	1	10		N	1985	Left 262	262	1.00	1726							1726	0.152	0.152	23	26	26	0.637	36	41
7,8	3.70	1	30		N	2125	Left 131, Right 158	165	0.21	2103							2103	0.078	0.078		14	26	0.637	24	52
7	3.70	1	25		N	2125	Left 186	158	1.00	2005							2005	0.079	0.079		14	26	0.637	24	53
6	3.75	1	15		N	1990	Left 181	181	1.00	1809							1809	0.100	0.100		17	53	0.637	24	49
5	3.75	2			N	4260	Left 672	672	0.00	4260							4260	0.158	0.158		27	27	0.637	45	36
4	3.75	1	25		N	2130	Left 82, Right 157	185	1.00	2009							2009	0.092	0.092		16	27	0.637	24	50
2,3	3.50	1	15		N	1965	Left 56, Right 157	138	0.59	1855							1855	0.074	0.074		13	13	0.637	18	55
1,2	3.50	1	30		N	2105	Left 88, Right 88	157	0.00	2105							2105	0.075	0.075		13	13	0.637	24	53
1	3.00	1	25		N	2055	Left 120	88	1.00	1939							1939	0.045	0.045		8	13	0.637	12	65
12	3.30	1	10		N	1945	Left 474	120	1.00	1691							1691	0.071	0.071		12	13	0.637	18	57
11	3.30	2			N	4170	Left 186	474	0.00	4170							4170	0.114	0.114	1	20	21	0.637	33	42
10	3.30	1	25		N	2085	Left 186	186	1.00	1967							1967	0.095	0.095		16	21	0.637	24	49

Stage	Green Time SG	Green Time FG	Green Time Delay	Green Time Provided SG	Green Time Provided FG
4	11	9	4	12	9

Move-ment	Stage	Lane Width m.	No. of lane	Radius m.	O	N	Straight Ahead Sat. Flow	Movement	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare Lane m.	Flare Effect pcu/hr	Site Factor	Site Effect pcu/hr	Gradient %	Gradient Effect pcu/hr	Revised Sat. Flow pcu/h	y	Greater y	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
8,9	1	3.70	1	10		N	1985	Left 262	262	1.00	1726							1726	0.152	0.152	23	26	26	0.637	36	41
7,8	1	3.70	1	30		N	2125	Left 131, Right 158	165	0.21	2103							2103	0.078	0.078		14	26	0.637	24	52
7	1	3.70	1	25		N	2125	Left 186	158	1.00	2005							2005	0.079	0.079		14	26	0.637	24	53
6	1,2	3.75	1	15		N	1990	Left 181	181	1.00	1809							1809	0.100	0.100		17	53	0.637	24	49
5	2	3.75	2			N	4260	Left 672	672	0.00	4260							4260	0.158	0.158		27	27	0.637	45	36
4	2	3.75	1	25		N	2130	Left 82, Right 157	185	1.00	2009							2009	0.092	0.092		16	27	0.637	24	50
2,3	3	3.50	1	15		N	1965	Left 56, Right 157	138	0.59	1855							1855	0.074	0.074		13	13	0.637	18	55
1,2	3	3.50	1	30		N	2105	Left 88, Right 88	157	0.00	2105							2105	0.075	0.075		13	13	0.637	24	53
1	3	3.00	1	25		N	2055	Left 120	88	1.00	1939							1939	0.045	0.045		8	13	0.637	12	65
12	3	3.30	1	10		N	1945	Left 474	120	1.00	1691							1691	0.071	0.071		12	13	0.637	18	57
11	4	3.30	2			N	4170	Left 186	474	0.00	4170							4170	0.114	0.114	1	20	21	0.637	33	42
10	4	3.30	1	25		N	2085	Left 186	186	1.00	1967							1967	0.095	0.095		16	21	0.637	24	49

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

LLA CONSULTANCY LIMITED

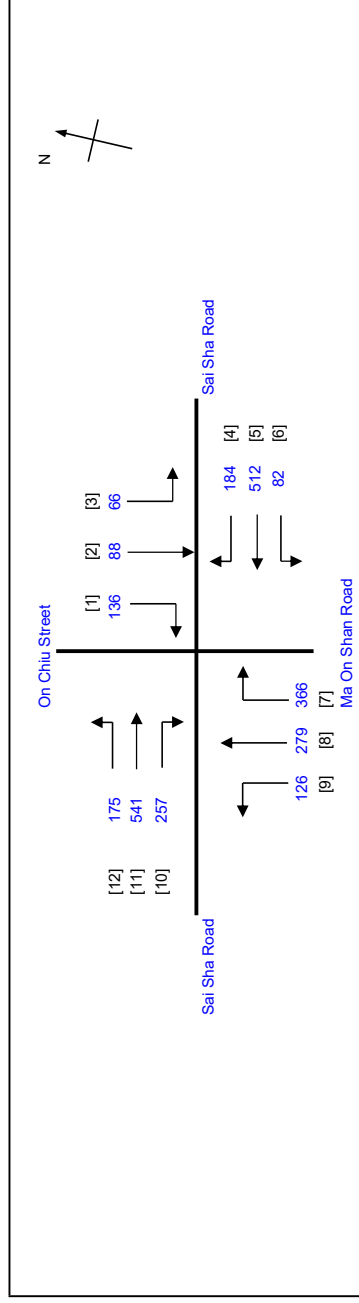
Proposed Rezoning from "Government, Institution or Community" to "Residential (Group B)" Zone to Include Social Welfare Facility (RCHE only) and Public Vehicle Park (excluding container vehicle) at Lots Nos. 148 S.A RP (Part), 148 S.B RP (Part), 149 RP, 150 S.A, 150 S.B and 151 in D.D. J4 Sai Sha Road / Ma On Shan Road / On Chiu Street

TRAFFIC SIGNAL CALCULATION

PROJECT NO.: 40830
 FILENAME: J4_SSR_MOSR_OCR.xlsm

Prepared By: SKL
 Checked By: SLN
 Reviewed By: SLN

DATE: Sep-23
 Sep-23
 Sep-23



No. of stages per cycle: **4**

Cycle time: **110 sec**

Sum(y): **0.354**

Loss time: **24 sec**

Total Flow: **2810 pcu**

Co = $(1.5 \cdot L + 5) / (1 - Y)$ = **63.5 sec**

Cm = $L / (1 - Y)$ = **37.2 sec**

Yult = **0.720**

R.C.ult = $(Yult - Y) / Y * 100\%$ = **103.2 %**

Cp = $0.9 \cdot L / (0.9 - Y)$ = **39.6 sec**

Ymax = $1 - L / C$ = **0.782**

R.C.(C) = $(0.9 \cdot Ymax - Y) / Y * 100\%$ = 99 %

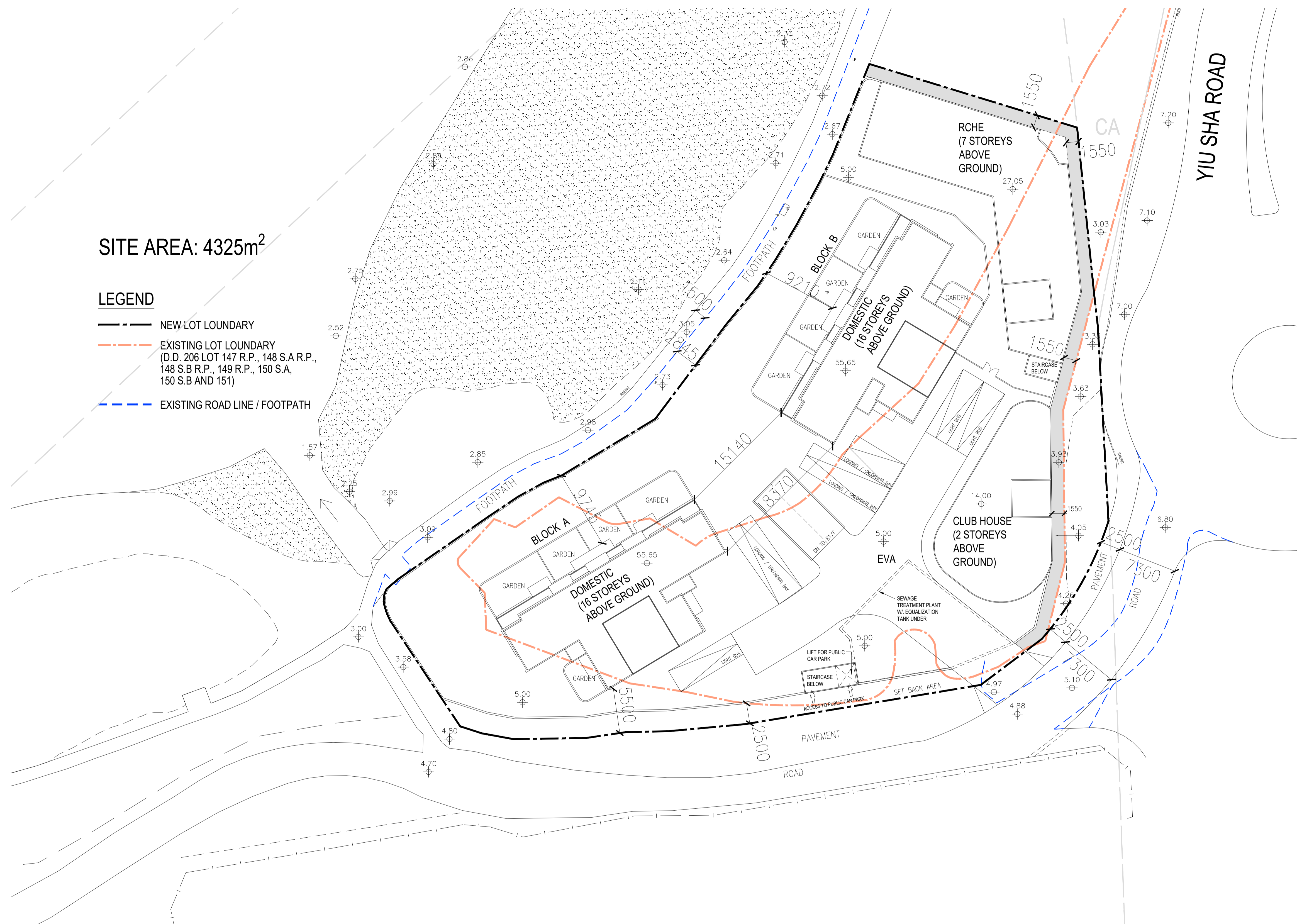
Stage	Lane Width (m)	No. of lane	Radius (m)	O	N	Straight Ahead Sat. Flow	Movement	Total Flow (pcu/h)	Proportion of Turning Vehicles	Sat. Flow (pcu/h)	Flare Lane (m)	Flare Effect (pcu/hr)	Site Factor	Site Effect (pcu/hr)	Gradient %	Gradient Effect (pcu/hr)	Revised Sat. Flow (pcu/h)	y	Greater y	L (sec)	g (required) (sec)	g (input) (sec)	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds)
8,9	3.70	1	10		N	1985	Left 126	240	0.53	1840							1840	0.130	0.130	25	32	32	0.827	30	31
7,8	3.70	1	30		N	2125	Straight 166	272	0.39	2084							2084	0.130	0.130		32	32	0.827	30	31
7	3.70	1	25		N	2125	Right 261	261	1.00	2005							2005	0.130	0.130		32	32	0.827	30	31
6	3.75	1	15		N	1990	Left 82	82	1.00	1809							1809	0.045	0.120		11	54	0.827	12	49
5	3.75	2			N	4260	Straight 512	512	0.00	4260							4260	0.120	0.120		29	29	0.827	33	32
4	3.75	1	25		N	2130	Right 184	184	1.00	2009							2009	0.092	0.092		22	29	0.827	24	38
2,3	3.50	1	15		N	1965	Left 66	91	0.73	1832							1832	0.050	0.103		12	18	0.827	12	48
1,2	3.50	1	30		N	2105	Straight 63	103	0.39	2065							2065	0.050	0.103		12	18	0.827	12	47
1	3.00	1	25		N	2055	Right 96	96	1.00	1939							1939	0.050	0.103		12	18	0.827	12	48
12	3.30	1	10		N	1945	Left 175	175	1.00	1691							1691	0.103	0.131		25	18	0.827	24	36
11	3.30	2			N	4170	Straight 541	541	0.00	4170							4170	0.130	0.131		31	31	0.827	33	30
10	3.30	1	25		N	2085	Right 257	257	1.00	1967							1967	0.131	0.131		32	31	0.827	30	31

Stage	Stage	Green Time (SG)	Green Time (FG)	Green Time (FG)	Green Time (FG)	Green Time (FG)	Green Time (FG)
Stage 1	4	11	9	9	4	22	9

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

Appendix E

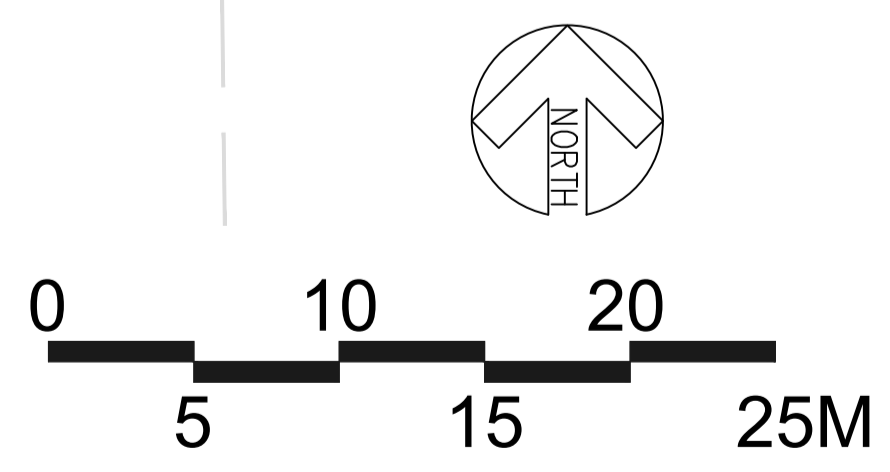
Proposed Layout Plan



SITE AREA: 4325m²

LEGEND

- NEW LOT LOUNDRARY
- - - EXISTING LOT LOUNDRARY (D.D. 206 LOT 147 R.P., 148 S.A R.P., 148 S.B R.P., 149 R.P., 150 S.A, 150 S.B AND 151)
- - - EXISTING ROAD LINE / FOOTPATH



GENERAL NOTES
 1. DO NOT SCALE DRAWINGS. DIMENSIONS GOVERN.
 2. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE.
 3. ALL DIMENSIONS SHALL BE VERIFIED ON SITE BEFORE PROCEEDING WITH THE WORK.
 4. ARCHITECT SHALL BE NOTIFIED IN WRITING OF ANY DISCREPANCIES.

2023.9.29

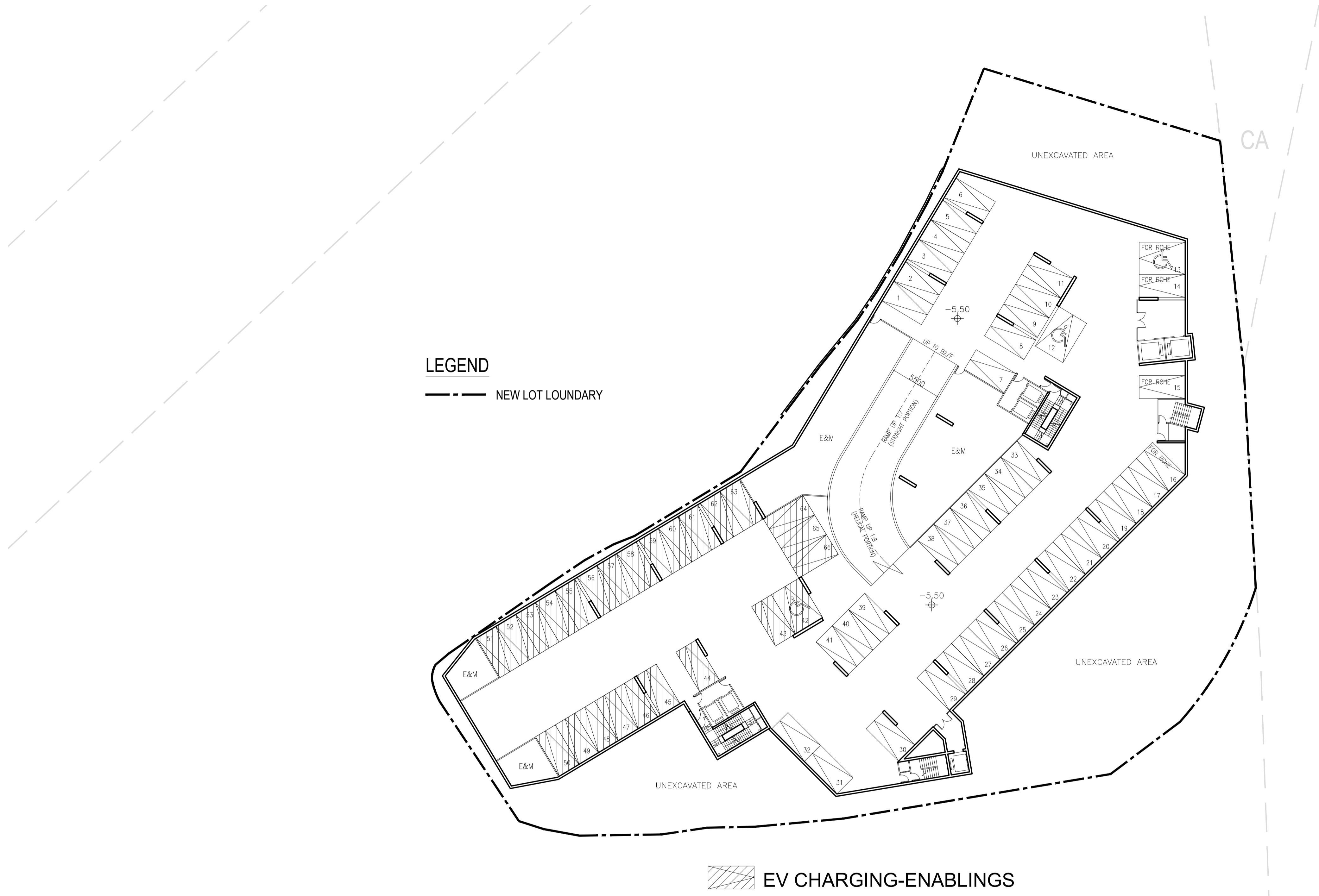
Project:
 PROPOSED REZONING FROM "GOVERNMENT, INSTITUTION OR COMMUNITY" TO "RESIDENTIAL (GROUP B)6" ZONE TO INCLUDE SOCIAL WELFARE FACILITY (RCHE ONLY) AND PUBLIC VEHICLE PARK (EXCLUDING CONTAINER VEHICLE) AT LOTS NOS. 148 S.A RP (PART), 148 S.B RP (PART), 149 RP, 150 S.A, 150 S.B AND 151 IN D.D. 206 AND ADJOINING GOVERNMENT LAND, WEST OF WU KAI SHA ROAD, MA ON SHAN, NEW TERRITORIES

Drawing Title:
 MASTER LAYOUT PLAN

Drawing No.:
 MP-01

Architect:

 標安建築師有限公司
 L&N Architects Ltd.
 Rooms 1203-1204, 12/F Belgian Bank Building,
 721-725 Nathan Road, Kowloon
 Tel: (852) 3422 3082, Fax: (852) 3428 2269



NO. OF PUBLIC CARPARKS : 62 (INCLUDING 2 ACCESSIBLE CARPARKS AND 25 EV CHARGING-ENABLINGS)
 NO. OF RHCE CARPARKS : 4 (INCLUDING 1 ACCESSIBLE CARPARK)

GENERAL NOTES
 1. DO NOT SCALE DRAWINGS. DIMENSIONS GOVERN.
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2023.9.29

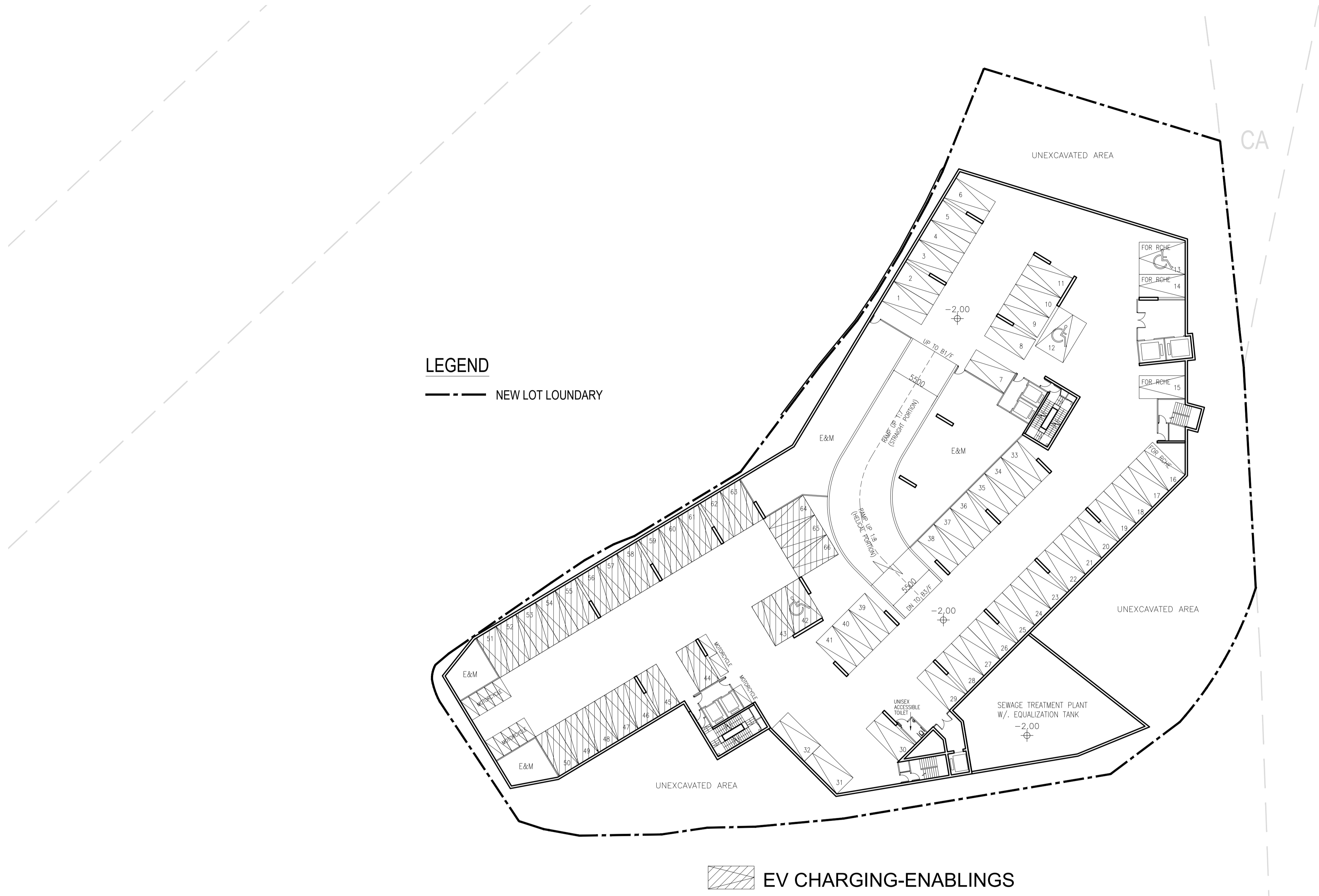
Project:
 PROPOSED REZONING FROM "GOVERNMENT, INSTITUTION OR COMMUNITY" TO "RESIDENTIAL (GROUP B)6"
 ZONE TO INCLUDE SOCIAL WELFARE FACILITY (RCHE ONLY) AND PUBLIC VEHICLE PARK (EXCLUDING
 CONTAINER VEHICLE) AT LOTS NOS. 148 S.A RP (PART), 148 S.B RP (PART), 149 RP, 150 S.A, 150 S.B AND 151 IN
 D.D. 206 AND ADJOINING GOVERNMENT LAND, WEST OF WU KAI SHA ROAD, MA ON SHAN, NEW TERRITORIES

Drawing Title:
 B3/F PLAN

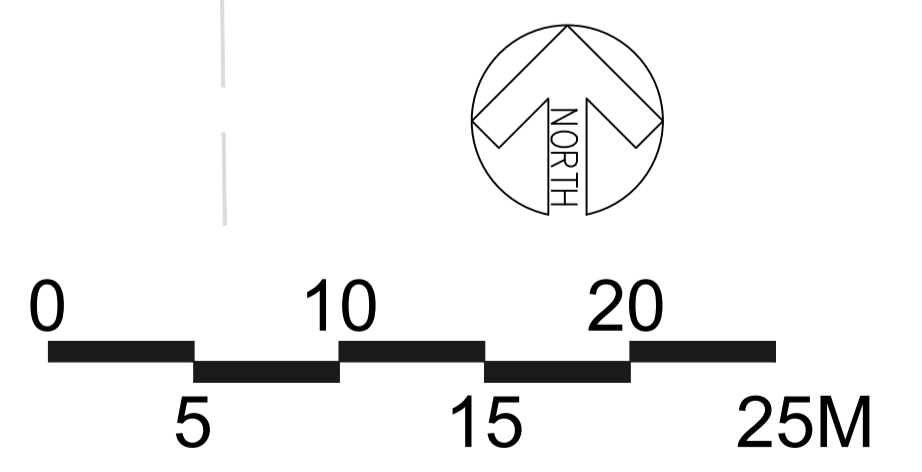
Drawing No.:
 GP-01

Architect:

 樑安建築師有限公司
 L&N Architects Ltd.
 Rooms 1203-1204, 12/F Belgian Bank Building,
 721-725 Nathan Road, Kowloon
 Tel: (852) 3422 3082, Fax: (852) 3428 2269



NO. OF PUBLIC CARPARKS : 62 (INCLUDING 2 ACCESSIBLE CARPARKS AND 25 EV CHARGING-ENABLINGS)
 NO. OF RHCE CARPARKS : 4 (INCLUDING 1 ACCESSIBLE CARPARK)
 NO. OF MOTORCYCLES: 13



GENERAL NOTES
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 4. ARCHITECT SHALL BE NOTIFIED IN WRITING OF ANY DISCREPANCIES.

2023.9.29

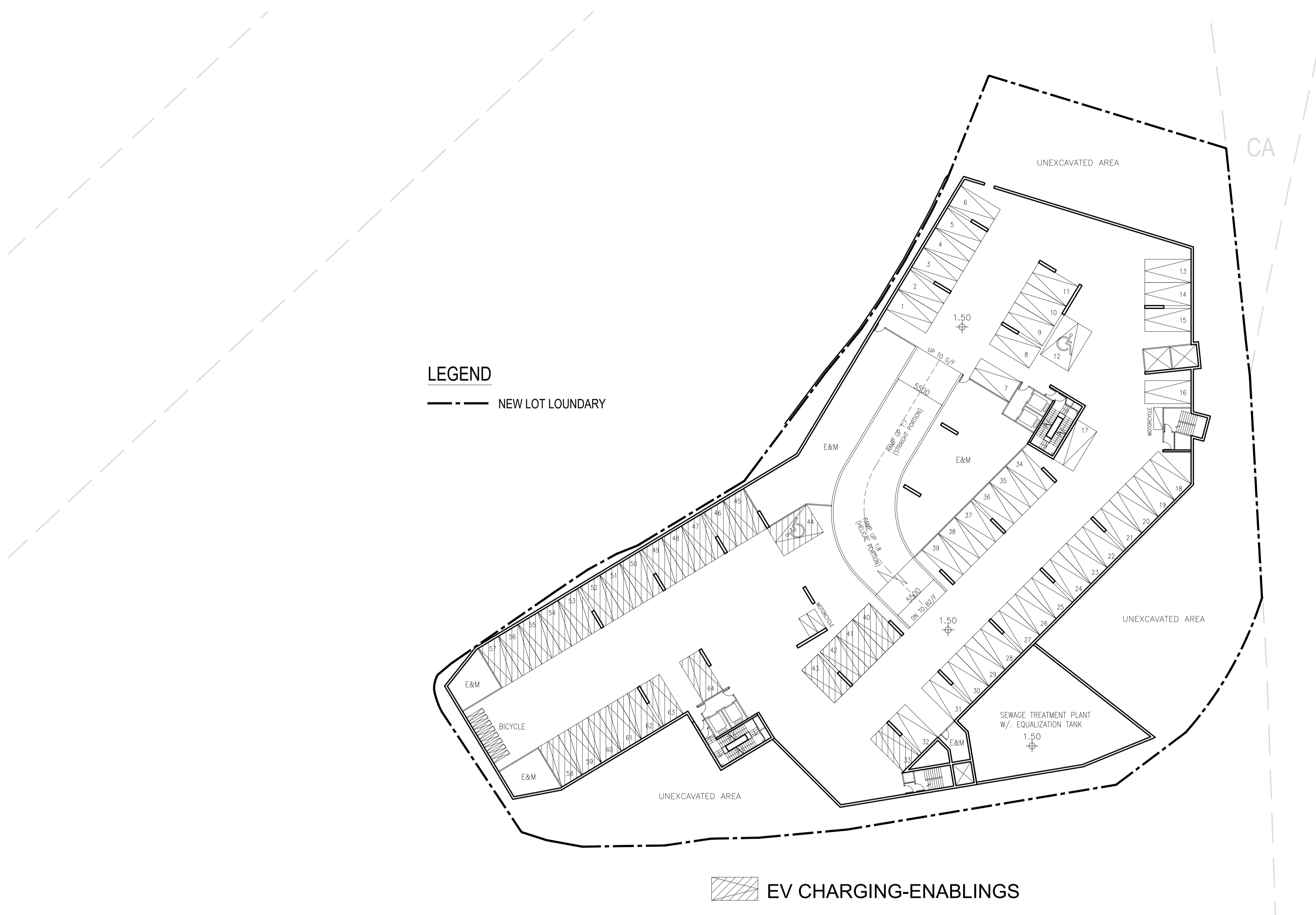
Project:
 PROPOSED REZONING FROM "GOVERNMENT, INSTITUTION OR COMMUNITY" TO "RESIDENTIAL (GROUP B)6"
 ZONE TO INCLUDE SOCIAL WELFARE FACILITY (RCHE ONLY) AND PUBLIC VEHICLE PARK (EXCLUDING
 CONTAINER VEHICLE) AT LOTS NOS. 148 S.A RP (PART), 148 S.B RP (PART), 149 RP, 150 S.A, 150 S.B AND 151 IN
 D.D. 206 AND ADJOINING GOVERNMENT LAND, WEST OF WU KAI SHA ROAD, MA ON SHAN, NEW TERRITORIES

Drawing Title:
 B2/F PLAN

Drawing No.:
 GP-02

Architect:


 標安建築師有限公司
 L&N Architects Ltd.
Rooms 1203-1204, 12/F Belgian Bank Building,
 721-725 Nathan Road, Kowloon
 Tel: (852) 3422 3082, Fax: (852) 3428 2269



NO. OF CARPARK: 54 (INCLUDING 2 ACCESSIBLE CARPARKS AND 26 EV CHARGING-ENABLINGS)
 NO. OF VISITOR CARPARK: 10
 NO. OF MOTORCYCLES: 2
 NO. OF BICYCLE: 8

GENERAL NOTES
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2023.9.29

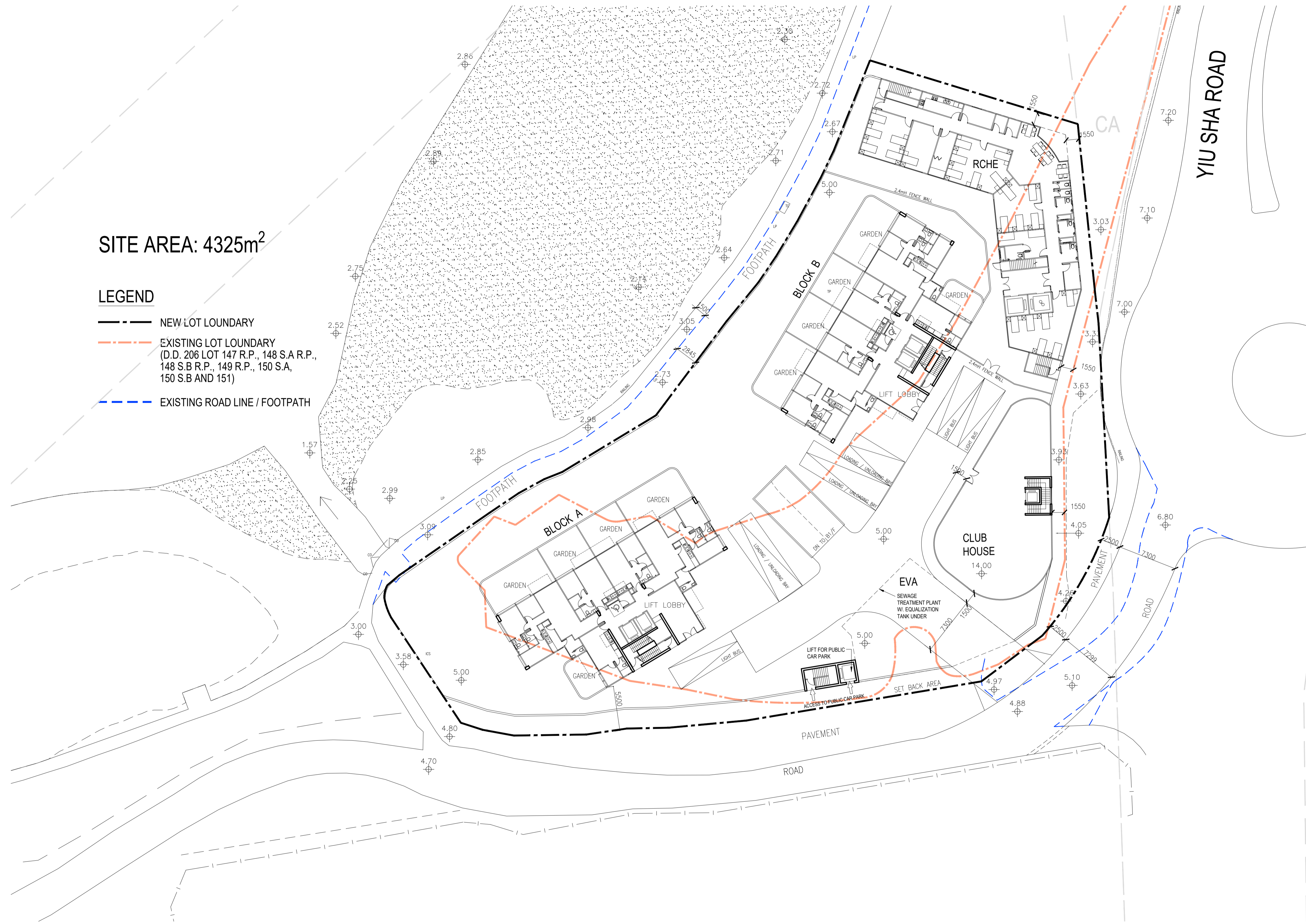
Project:
 PROPOSED REZONING FROM "GOVERNMENT, INSTITUTION OR COMMUNITY" TO "RESIDENTIAL (GROUP B)6"
 ZONE TO INCLUDE SOCIAL WELFARE FACILITY (RCHE ONLY) AND PUBLIC VEHICLE PARK (EXCLUDING
 CONTAINER VEHICLE) AT LOTS NOS. 148 S.A RP (PART), 148 S.B RP (PART), 149 RP, 150 S.A, 150 S.B AND 151 IN
 D.D. 206 AND ADJOINING GOVERNMENT LAND, WEST OF WU KAI SHA ROAD, MA ON SHAN, NEW TERRITORIES

Drawing Title:
 B1/F PLAN

Drawing No.:
 GP-03

Architect:

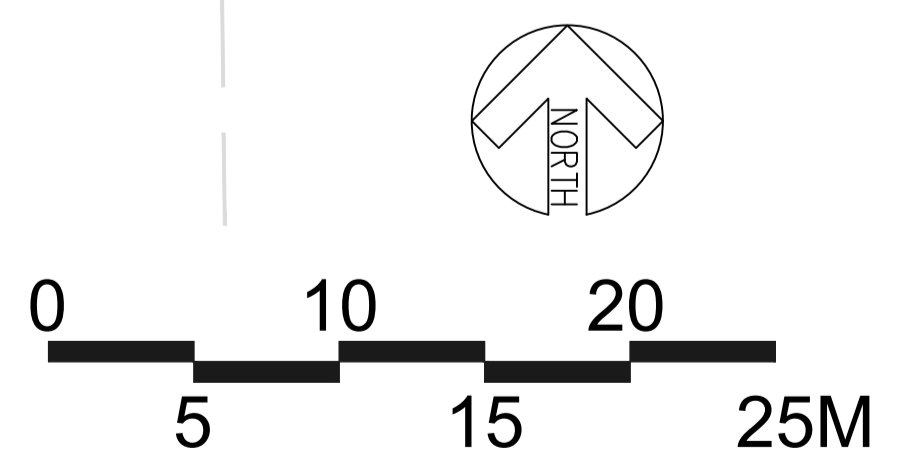
 標安建築師有限公司
 L&N Architects Ltd.
 Rooms 1203-1204, 12/F Belgian Bank Building,
 721-725 Nathan Road, Kowloon
 Tel: (852) 3422 3082, Fax: (852) 3428 2269



SITE AREA: 4325m²

LEGEND

- NEW LOT LOUNDRARY
- - - EXISTING LOT LOUNDRARY
(D.D. 206 LOT 147 R.P., 148 S.A R.P.,
148 S.B R.P., 149 R.P., 150 S.A,
150 S.B AND 151)
- EXISTING ROAD LINE / FOOTPATH



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2023.9.29

Project:
 PROPOSED REZONING FROM "GOVERNMENT, INSTITUTION OR COMMUNITY" TO "RESIDENTIAL (GROUP B)6"
 ZONE TO INCLUDE SOCIAL WELFARE FACILITY (RCHE ONLY) AND PUBLIC VEHICLE PARK (EXCLUDING
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 D.D. 206 AND ADJOINING GOVERNMENT LAND, WEST OF WU KAI SHA ROAD, MA ON SHAN, NEW TERRITORIES

Drawing Title:
 G/F PLAN

Drawing No.:
 GP-04

Architect:

 標安建築師有限公司
 L&N Architects Ltd.
 Rooms 1203-1204, 12/F Belgian Bank Building,
 721-725 Nathan Road, Kowloon
 Tel: (852) 3422 3082, Fax: (852) 3428 2269