

DOCUMENT STATUS CONTROL RECORD

**S12A Planning Application
for Proposed Comprehensive Residential Development
at Hillside & Nam Koo Terrace,
Wan Chai, Hong Kong**

Traffic Impact Assessment Report

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1 INTRODUCTION

1.1 Background

1.1.1 LLA Consultancy Limited (“**the consultant**”) was commissioned to prepare a Traffic Impact Assessment (“**TIA**”) to support a Section 12A Planning Application for Proposed Comprehensive Residential Development at Nos. 1, 1A, 2 and 3 Hill Side Terrace (“**HST**”), No. 55 Ship Street (generally referred to as “Nam Koo Terrace” (“**NKT**”)), Nos. 1 – 5 Schooner Street, No. 53 Ship Street (generally referred to as “Miu Kang Terrace” (“**MKT**”)), Inland Lot No. 9048 (“**Schooner Street Site**”), 18 Sau Wa Fong at Inland Lot No. 199RP (“**SWF**”) and the adjoining Government land in Wan Chai, collectively referred to as “**the Site**”. The proposed comprehensive residential development is a residential and commercial building with conservation of the NKT in-situ. The Application Site also includes a barrier-free connection above Ship Street staircase to enhance the connectivity with the area.

1.1.2 This report presents the findings of the TIA undertaken by the consultant.

1.2 Objectives of TIA

1.2.1 The objectives of TIA are as follows:

- To examine the existing pedestrian and vehicular traffic conditions in the vicinity of the Site;
- To estimate the vehicular traffic generations/attractions of the proposed comprehensive residential development and appraise its traffic impact to the adjoining road network;
- To consider the arrangements for car parking and loading/unloading of the proposed comprehensive residential development given that there will be no vehicular access to the Site;
- To study the pedestrian connectivity of the proposed comprehensive residential development; and
- To project the future pedestrian demand of the proposed comprehensive residential development and examine the Level of Service (LOS) of the pedestrian facilities in the vicinity of the proposed comprehensive residential development.

2 THE PROPOSED COMPREHENSIVE RESIDENTIAL DEVELOPMENT

2.1 The Site

2.1.1 As shown in **Figure 2.1**, the proposed comprehensive residential development will be situated in several land lots in Wan Chai South with a total area of about 3,140.7m².

2.1.2 **Figure 2.1** also shows the two existing buildings, the two vacant lots and the lot under on-going demolition works at the Site with details as follows:

- a 2-storey Grade 1 historical building at NKT;
- a 6-storey residential building at SWF;
- vacant lots at former MKT and Schooner Street Site; and
- a vacant lot at HST.

2.1.3 All the aforementioned buildings/lots have no direct vehicular access to the public road and nil provision of internal car parking and loading/unloading facilities. At present and in the past, loading and unloading activities for this area are carried out either on the southern kerbside of Queen's Road East or St. Francis Street/Star Street.

2.1.4 For part of the Site at former MKT, the General Building Plans for a 11-storey residential building with 21 units without on-site parking and loading/unloading facilities have been approved in August 2015.

2.1.5 Another part of the Site at the Schooner Street Site was auctioned in June 2014 by the Government to a private owner for residential development with a plot ratio of 5.0. The land sales terms specified that "*the Purchaser shall have no right of ingress or egress to or from the lot for the passage of motor vehicles*". The purchaser of the Schooner Street Site has submitted General Building Plans application to develop the site into a 11-storey residential building of 21 units without on-site parking and loading/unloading facilities, and the application has been approved in June 2015.

2.1.6 Other parts of the Site include:

- Small piece of government land next to Hill Side Terrace and at Ship Street stairway; and
- Small piece of government land at the slopes to the south and west of the Site.

2.2 The Proposed Comprehensive Residential Development

2.2.1 **Table 2.1** presents the schedule of accommodation of the proposed comprehensive residential development.

Table 2.1 Schedule of Accommodation

Use	Parameters
Domestic Use	
Total Number of Residential Units	312
Average Flat Size of 69 m ²	168
Average Flat Size of 93 m ²	48
Average Flat Size of 122 m ²	96
Non-domestic Use	
Shops at G/F	536.7 m ²
Eating Place at G/F of NKT	Approx. 159.6 m ²
Event Space at 1/F of NKT	Approx. 159.6 m ²
Remaining Non-domestic GFA for stairs, private lobby with lifts	Approx. 208.7 m ²
Total	Approx. 1,064.6 m ²

2.2.2 The proposed comprehensive residential development will include the existing NKT historical building which will be preserved in-situ. It is proposed to convert the ground floor of the NKT into an eating place while the 1/F will be an event space. The eating place will be a coffee shop or a café to serve the visitors. Besides, the NKT historical building may act as a conserved historical tour spot with guided tour of the building arranged by a non-profit-making interest group at the event space by appointment. An open space for public use is also provided at the same level of NKT and the opening hours is from 6am to 11pm.

2.3 Vehicular and Pedestrian Access to the Site

2.3.1 As shown in **Figure 2.2**, the proposed comprehensive residential development has pedestrian accesses as follows:

- Entrance at Schooner Street, the exclusive entrance to the residential portion of the proposed comprehensive residential development.
- Entrance at Schooner Street, the entrance to the Public Open Space and the NKT historical building for the public via Lift C.
- Entrance at Ship Street, the entrance to the Public Open Space and the NKT historical building for the public via Lift B next to Ship Street steps.

2.3.2 **Figure 2.2** shows that the Site and the adjoining Sau Wa Fong and Sik On Street only equip with pedestrian (and barrier free) accesses but not vehicular access due to topographical constraints. They form a well-established residential area with nil internal car parking space and loading/unloading space provision.

2.3.3 Notwithstanding the Site does not have direct vehicular access, the Site is well connected to the following adjacent roads by footways and stairs:

- Queen’s Road East,
- St. Francis Street,
- Star Street, and
- Kennedy Road.

2.3.4 Queen’s Road East is a district distributor connecting Wan Chai to Causeway Bay and Admiralty. It carried an annual average daily traffic (“AADT”) of 16,600 vehicles in 2022.

2.3.5 St. Francis Street connects to Queen’s Road East at its northern end and Star Street at its southern end. It is a one-way southbound street for vehicular traffic with pedestrian footpaths on both sides of the street.

2.3.6 Kennedy Road is located to the south of the Site and is a district distributor servicing the hillside traffic between Wan Chai and Central. The section of Kennedy Road between Queen’s Road East and MacDonnell Road carried an AADT of 9,460 vehicles in 2022.

2.3.7 As shown in **Figure 2.2** and **Table 2.2**, there are few pedestrian access routes to and from the Site. They will provide ample and convenient accesses to the Site from the level ground and uphill of Wan Chai. In addition, barrier free accesses to the Site and the NKT historical building can be provided via the lifts in the public open space adjoining the Site.

Table 2.2 Pedestrian Access of the Site

Ref.	To / From	Type of Access	Details
Routing 1 (downhill)	Queen’s Road East	Non-Barrier Free Access	Via Sik On Street and Schooner Street
Routing 2 (downhill)	Queen’s Road East	Barrier Free Access	Via Ship Street through Ship Street Garden and Schooner Street
Routing 3 (downhill)	Queen’s Road East	Non-Barrier Free Access	Via St. Francis Street, Sau Wa Fong and Schooner Street
Routing 4 (uphill)	Kennedy Road	Non-Barrier Free Access	Via Ship Street Stairway and Schooner Street
		Barrier Free Access	Via The Park at Hopewell Hotel and Lift B
Routing 5	Star Street	Non-Barrier Free Access	Via St. Francis Street, Sau Wa Fong and Schooner Street
Routing 6	Queen’s Road East	Barrier Free Access	Via Hopewell Hotel through Ship Street Garden and Schooner Street

3 EXISTING TRAFFIC SITUATIONS

3.1 Road Network Adjacent to the Site

- 3.1.1 The local roads adjacent to the Site and vehicular and pedestrian access to the Site have been described in **Section 2.3** above.
- 3.1.2 Site observations revealed that the local road network adjoining the Site was not heavily trafficked during AM and PM peak hours. Traffic queues were observed to form when red traffic lights were lit up at the signalised junctions of Queen’s Road East/Spring Garden Lane and Queen’s Road East/Kennedy Road but the queues would dissipate when traffic lights turned green.
- 3.1.3 In order to assess the existing traffic conditions, a traffic count survey was carried out at the following locations in the vicinity of the Site on 5 March 2024 (Tuesday) during the peak hour period from 07:00 to 10:00 and 16:00 to 19:00. **Figure 3.1** shows the traffic movements at the major junctions adjacent to the Site, viz. the signalised junctions of Queen’s Road East /Spring Garden Lane and Queen’s Road East /Kennedy Road.

3.2 Existing Junction Performance

- 3.2.1 Based on the observed traffic movements at the major junctions adjacent to the Site, viz. the signalised junctions of Queen’s Road East/Spring Garden Lane and Queen’s Road East/Kennedy Road, the performance of the junctions was assessed and the assessment results of the capacities of the junctions are presented in **Table 3.1**.

Table 3.1 Existing Performance of Major Signalised Junctions Adjacent to the Site

No.	Junction	Reserve Capacity	
		AM Peak Hour	PM Peak Hour
J1	Queen’s Road East / Spring Garden Lane	48%	62%
J2	Queen’s Road East / Kennedy Road	79%	95%

Note: Please refer to **Appendix A** for signal calculation details.

- 3.2.2 As shown in **Table 3.1**, the signalised junctions of Queen’s Road East /Spring Garden Lane and Queen’s Road East /Kennedy Road are operating satisfactorily with spare capacity during the AM peak and PM peak hours at present.

3.3 Car Parking Facilities Available in the Vicinity of the Site

- 3.3.1 Off-street car parks in the vicinity (within 500m) of the Site for public hourly parking are set out in **Table 3.2**.

Table 3.2 Off-Street Hourly Car Parking in the Vicinity

No.	Building Name	No. of Off-street Private Car Parking Spaces Available for Hourly Parking
1	Hopewell Centre	weekdays - 78; weekends - 139
2	Wu Chung House	weekdays - 24; weekends - 32
3	Hopewell Centre II Development (to be opened)	100
4	The Avenue	59
5	248 Queen's Road East	25
6	The Zenith	50
7	Tai Yau Building	60
8	Shanghai Industrial Investment Building	60
9	East Town Building	35
Total - weekdays / weekends		491 / 560

Notes: (1) Building locations are obtained from www.map.gov.hk
 (2) No. of car parking spaces available to public were obtained from the respective management company/ by site observation

3.3.2 On-street metered parking spaces within a 500m-radius from the Site are shown in **Table 3.3**.

Table 3.3 On-street Metered Car Parking Spaces in the Vicinity

No.	Street Name	No. of On-street Private Car Parking Spaces
1.	Monmouth Path	6
2.	Hing Wan Street	7
3.	Kat On Street	7
4.	Stone Nullah Lane	16
5.	Kennedy Road (No. 54-56) – in front of Evan Court	8
6.	Kennedy Road (No. 9K) – near Monmouth Terrace	12
7.	Kennedy Road (No. 88-89) – in front of Merry Garden	8
8.	Lockhard Road	5
9.	Lockhard Road, No. 128	7
10.	Lockhard Road, No.167-169	5
11.	Jaffe Road, No. 25-33	16
12.	Jaffe Road, No.64-90	12
13.	Jaffe Road, No. 98-116	12
14.	Luard Road	4
15.	Luard Road, No. 18	11
16.	Thomson Road, No. 23	10
17.	Landale Street	5
Total		151

Notes: (1) Information obtained from www.map.gov.hk
 (2) On-street parking spaces for people with disabilities are not included

3.4 Loading/Unloading Facilities Available in the vicinity of the Site

3.4.1 **Table 3.4** sets out various kerbside spaces and lay-bys in Queen’s Road East in the vicinity of the Site for loading/unloading activities with locations shown in **Figure 3.2**.

Table 3.4 Locations in Queen’s Road East for Loading/unloading Activities

No.	Location in Queen’s Road East	“No-stopping” Restriction Period	Length [Equivalent No. of GV] ⁽¹⁾
K1	Lay-by along southern kerb outside No. 133-145	N/A	36m [3 nos. GV]
K2	Lay-by along southern Kerb outside Hopewell Centre	N/A	40m [3 no. GV]
Total			76m [6 nos. GV]

Note: (1) Assuming a goods vehicle (GV) will occupy 12m kerbside space for loading/unloading.

3.4.2 As the proposed office development at Nos. 155-167 Queen’s Road East have been completed and opened, the length of the lay-by outside Hopewell Centre (K2 in **Table 3.4** and **Figure 3.2**) have been extended to 40m and further improved the kerbside serviceability along Queen’s Road East.

3.4.3 In addition to the above kerbside spaces and lay-bys, there are 2 lay-bys of total 32m in length on Star Street, 1 lay-by of 18 m in length on Kennedy Road and off-street loading/unloading bays within Hopewell Centre II as shown in **Table 3.5** and **Figure 3.2**, for loading/unloading activities in the vicinity of the Site. Therefore, various kerbside spaces and lay-bys are available in the vicinity of the Site for conducting the loading/unloading activities of the proposed comprehensive residential development.

Table 3.5 Other Locations in Vicinity of the Site for Loading/unloading Activities

No.	Location	Restrictions	Length [Equivalent No. of GV]
K3	Lay-by along Star Street southern kerb outside No. 1	- Waiting will be prosecuted - Vehicles over 5.5 tonnes are prohibited	14m [1 no. GV] ⁽¹⁾
K4	Lay-by along Star Street southern kerb outside No. 3	- Waiting will be prosecuted - Vehicles over 5.5 tonnes are prohibited	18m [1 no. GV]
K5	Lay-by along Kennedy Road eastbound kerb outside the Park at Hopewell Hotel	N/A	18m [1 no. GV]
K6	Off-street loading/unloading bays within Hopewell Hotel	N/A	;
Total			50m [3 nos. GV]

Note: (1) 10 m out of 24 m will be allocated for provision of public disabled parking space as per TD’s comment. Therefore, only 14m [1 no. GV] will be available for kerbside activities.

3.5 Existing Public Transport Services

3.5.1 The Site is located within walking distances to a variety of bus and GMB services running along Queen’s Road East and Johnston Road as set out in **Table 3.6**. Also, the Site is within walking distance to MTR Island Line with station access in Johnston Road and tramways along Johnston Road.

Table 3.6 Existing Bus/Minibus Routes

Mode	Route No.	Origin-Destination	Frequency (min)
Bus	1P	Happy Valley (Wong Nai Chugn Road) – Central (Central Market)	4 trips per day
	6	Stanley Prison – Central (Exchange Square)	10 – 30
	6A	Central (Exchange Square) – Stanley Fort Gate	5 trips per day
	6X	Central (Exchange Square) – Stanley Market	10 – 20
	10	Kennedy Town – North point Ferry Pier	8 – 25
	15	Central (Central Ferry Piers) – Peak	10 – 25
	37B	Chi Fu Fa Yuen – Central (Exchange Square) (Circular)	9 – 20
	37X	Chi Fu Fa Yuen – Central (Circular)	7 – 20
	66	Central (Exchange Square) – Ma Hang Estate	20 – 30
	75	Central (Exchange Square) – Shum Wan	8 trips per day
	90	Central (Exchange Square) – Ap Lei Chau Estate	12 – 30
	90C	Ap Lei Chau (Main Street, Ap Lei Chau) – Central (Jardine House)	2 trips per day
	97	Lei Tung Estate – Central (Exchange Square)	15 – 30
	109	Central (Macau Ferry) – Ho Man Tin	8 – 30
	113	Kennedy Town (Belcher Bay) – Choi Hung	10 – 29
	603A	Central (Rumsey Street) – Ping Tin	4 trips per day
	A17	Airport – Sham Wan	6 trips per day
H1	Central (Star Ferry) – Tsim Sha Tsui	60	
N90	Central (Macau Ferry) – South Horizons (Overnight)	25 – 30	
GMB	4B	Aberdeen (Shek Pai Wan) – Wan Chai (Circular route)	5 – 10
	35M	Aberdeen (Shek Pai Wan) – Wan Chai (Johnston Road)	8 – 10
	24A	Admiralty Station (Drake Street) – Shiu Fai Terrace (Circular route)	15 – 25
	24M	Mount Butler – Admiralty Station (Drake Street)	15 – 20
	56	Mid-Levels (Robinson Road) – North Point (Marble Road)	20
	56A	Mid-Levels (Robinson Road) – Tin Hau Station	8 – 15
	56B	Mid-levels (Robinson Road) – Wan Chai (Circular route)	20 – 25

3.5.2 More bus and minibus services are available along Hennessy Road which is about 50m further away from the Site than Johnston Road.

3.5.3 As discussed in **Section 2.3**, the proposed comprehensive residential development will also be accessible on foot from Kennedy Road through a stairway or lifts within the **Park at Hopewell Hotel**. However, there is only 1 minibus route available along Kennedy Road.

4 TRAFFIC IMPACT OF THE PROPOSED COMPREHENSIVE RESIDENTIAL DEVELOPMENT

4.1 Traffic Generation of the Proposed Comprehensive Residential Development

4.1.1 The following paragraphs set out the estimation of the traffic generation of the following 3 land uses of the proposed comprehensive residential development:

- A. Residential units;
- B. Retail shops; and
- C. Eating place / event space in NKT historical building

A. Residential units

4.1.2 Reference is made to Volume 1 of the Transport Planning and Design Manual (“**TPDM**”) published by the Transport Department (“**TD**”) on trip rates to estimate the traffic generation and attraction of the proposed 312 residential units with average site of around 89m². The trip rates for private residential housing were adopted in this Study. The estimated traffic generation values are set out in **Table 4.1**.

Table 4.1 Traffic Generation of the Residential Units

312 Residential Units	Unit	AM Peak Hour		PM Peak Hour	
		Generation	Attraction	Generation	Attraction
Adopted Trip Rates⁽¹⁾					
Private Residential Building with an average flat size of 80m ²	pcu/hr/flat	0.1058	0.0605	0.0426	0.0590
Private Residential Building with an average flat size of 100m ²	pcu/hr/flat	0.1887	0.0942	0.0862	0.1214
Private Residential Building with an average flat size of 120m ²	pcu/hr/flat	0.2246	0.1157	0.1068	0.1468
Traffic Generation of the Residential Units					
Private Residential Building with an average flat size of 80m ²	168 flats	18	11	8	10
Private Residential Building with an average flat size of 100m ²	48 flats	10	5	5	6
Private Residential Building with an average flat size of 120m ²	96 flats	22	12	11	15
Total		50	28	24	31

Note: (1) Mean trip rates for residential use as set out in the TPDM, Volume 1.

B. Retail Shops

4.1.3 Reference is also made to the TPDM on trip rates to estimate the traffic generation and attraction of the proposed retail shops with a total GFA of about 536.7 m². The estimates are shown in **Table 4.2**.

Table 4.2 Traffic Generation of the Retail Shops

Retail Shops – About 536.7 m ² GFA	Unit	AM Peak Hour		PM Peak Hour	
		Generation	Attraction	Generation	Attraction
Trip Rates ⁽¹⁾	pcu/hr/100m ²	0.2296	0.2434	0.3100	0.3563
Traffic Generation	pcu/hr	2	2	2	2

Note: (1) Mean trip rates for retail use as set out in the TPDM, Volume 1.

C. NKT Historical Building

4.1.4 NKT historical building operates as eating place, such as coffee shop or café with an associated event space, reference is also made to the TPDM on trip rates to estimate the traffic generation and attraction of eating place with a total GFA of about 319.2 m². The overall capacity of the eating place and event space will be 50 people only. The estimates are shown in **Table 4.3**.

Table 4.3 Traffic Generation of Eating Place

Eating Place – About 319.2 m ² GFA	Unit	AM Peak Hour		PM Peak Hour	
		Generation	Attraction	Generation	Attraction
Trip Rates ⁽¹⁾	pcu/hr/100m ²	0.2296	0.2434	0.3100	0.3563
Traffic Generation	pcu/hr	1	1	1	2

Note: (1) Mean trip rates for retail use as set out in the TPDM, Volume 1.

4.1.5 In order to review the suitability of adopting the mean TPDM trip rates of retail for the proposed eating place, an additional survey is conducted at a nearby eating place during the AM and PM peak hours on a typical weekday. The details of the surveyed eating place and the results are presented in **Table 4.4**.

Table 4.4 Comparison of the Surveyed Trip Rates and the Trip Rates from TPDM

Item	Unit/Content	Recorded Trips [Trip Rates (pcu/hr/100 m ² GFA)]			
		AM Peak		PM Peak	
		Generation	Attraction	Generation	Attraction
Surveyed Trip Rates					
A.P.T. (Shop A&B, G/F, 2-12 Moon Street, Wan Chai)	40m ² GFA (20 seats)	2 [5.00]	2 [5.00]	1 [2.50]	1 [2.50]
TPDM Trip Rates					
Retail (Mean)	pcu/hr/100 m ² GFA	0.2296	0.2434	0.3100	0.3563

- 4.1.6 By comparing the trip rates derived from the surveyed building and the mean trip rates from TPDM, it shows that the surveyed rates are larger than the mean trip rates in TPDM. Hence, the surveyed trip rates are adopted in estimating the proposed comprehensive residential development traffic generation.
- 4.1.7 Notwithstanding its historical value, because of its nature, size and scale, the NKT historical building is one of the historical sites in the existing Wan Chai Heritage Trail introduced by the Old Wan Chai Revitalisation Initiatives Special Committee. Non-profit interest groups may arrange their own. Participants of the Trail will visit various historical sites including NKT on foot in small groups and no vehicular traffic will be involved. Hence, it is expected that the NKT historical building will not generate/attract any vehicular traffic arising from guided tours of the building.

Total Traffic Generation

- 4.1.8 **Table 4.5** summarises the traffic generation/attribution of the proposed comprehensive residential development as discussed above.

Table 4.5 Total Traffic Generation of the Proposed Comprehensive Residential Development

Use	Content	AM Peak Hour		PM Peak Hour	
		Generation	Attraction	Generation	Attraction
Residential units	312 flats	50	28	24	31
Retail Shops	About 536.7 m ² GFA	2	2	2	2
Eating Place and Event Space	About 319.2 m ²	16	16	8	8
Total		68	46	34	41

Note: All traffic generation figures are expressed in the units of pcu/hr.

- 4.1.9 As shown in **Table 4.5**, the proposed comprehensive residential development would generate two-way traffic volumes of 114 pcu's and 75 pcu's during the AM and PM peak hours respectively. For preparation of traffic forecast for undertaking the traffic impact assessment of the proposed comprehensive residential development, the traffic generated by the proposed comprehensive residential development will be assumed to be travelling in the local road network in the same proportions as the existing traffic demands.

4.2 Traffic Generation of Other Adjacent Planned Developments

- 4.2.1 For preparation of traffic forecast for undertaking the TIA of the proposed comprehensive residential development, the additional traffic generation of new developments approved through town planning applications should be taken into consideration. **Figure 4.1** shows the locations of the approved new developments and their proposed comprehensive residential development parameters are sets out in **Table 4.6**.

Table 4.6 Details of Approved New Developments Adjacent to the Site

Approved Development	Approved Development Parameters	Status
Hopewell Centre Phase II	Hotel – 1,024 rooms Hotel shop – 4,980m ² GFA Hotel office – 3,379m ² GFA Commercial/retail use – 24,800m ² GFA	Completed and to be opened
153-167 Queen's Road East ⁽¹⁾	Retail use – 9,871.8m ² GFA	Completed and opened
17 and 19 Hing Wan Street ⁽²⁾	Hotel – 78 rooms	Completed and opened
5-9 Hing Wan Street ⁽³⁾	Hotel – 50 rooms	Section 16 planning application approved with conditions
46-56 Queen's Road East, 2-12 Anton Street and 1-11 Landale Street ⁽⁴⁾	Commercial use – 20,728.4m ² GFA	Commencement of General Building and Superstructure Works
8-18 Wing Fung Street ⁽⁵⁾	Commercial use – 10,118.8 m ² GFA	General Building Plan approved
21-31 Wing Fung Street ⁽⁶⁾	Residential – 36 flats	Commencement of General Building and Superstructure Works
3-7 St. Francis Street and 61 Queen's Road East ⁽⁷⁾	Residential – 72 flats Retail use – 405.9 m ² GFA	General Building Plan approved
31-36 Sau Wa Fong and 8-12 St. Francis Street ⁽⁸⁾	Residential – 216 flats Retail use – 63.62 m ² GFA Art and Culture use – 458.65 m ² GFA	Section 16 planning application Partially approved/Partially agreed
269 Queen's Road East ⁽⁹⁾	Residential – 162 flats Retail use – 1,226m ² GFA	Section 16 planning application approved with conditions
33 – 35 Kennedy Road ⁽¹⁰⁾	Residential – 71 flats	Commencement of General Building and Superstructure Works

- Notes:
- (1) Reference was made to Monthly Digest (Sep 2023) published by Buildings Department.
 - (2) Reference was made to website of Home Affairs Department.
https://www.hadla.gov.hk/tc/licensing_matters/hotels/search_result.php?licence_no=&premises_name=china+rich+hotel&address=&district=0&licence_end_from=&licence_end_to=&no_of_room_from=&no_of_room_to=&showing=2
 - (3) Reference was made to Planning Application No. A/H5/404 from TPB Statutory Planning Portal 3.
 - (4) Reference was made to Monthly Digest (Jul 2021) published by Buildings Department.
 - (5) Reference was made to Monthly Digest (Oct 2022) published by Buildings Department.
 - (6) Reference was made to Monthly Digest (Mar 2020) published by Buildings Department.
 - (7) Reference was made to Monthly Digest (May 2023) published by Buildings Department.
 - (8) Reference was made to Planning Application No. Y/H5/7 from TPB Statutory Planning Portal 3.
 - (9) Reference was made to the approved TIA report of the project.
 - (10) Reference was made to Monthly Digest (May 2023) published by Buildings Department.

4.2.2 Reference is made to Volume 1 of the TPDM published by the TD on the trip rates of the foregoing developments to estimate their traffic generation and attraction. The estimated traffic generation values are set out in **Table 4.7** and the generated traffic will be assumed to be travelling in the local road network in the same proportions as the existing traffic demands when traffic forecast is prepared in this Study.

Table 4.7 Traffic Generation of Other Adjacent Planned Developments

Use	Type	Unit	AM Peak			PM Peak		
			Gen.	Att.	Total	Gen.	Att.	Total
Adopted Trip Rates								
Retail ⁽¹⁾	Retail	pcu/hr/100m ² GFA	0.2296	0.2434	-	0.3100	0.3563	-
Office ⁽¹⁾	Office	pcu/hr/100m ² GFA	0.1703	0.2452	-	0.1573	0.1175	-
Hotel	Hotel	pcu/hr/guest-room	0.1329	0.1457	-	0.1290	0.1546	-
Private Housing R(A) (60 m ²)	R-60	pcu/hr/flat	0.0718	0.0425	-	0.0286	0.0370	-
Private Housing R(A) (80 m ²)	R-80	pcu/hr/flat	0.1058	0.0605	-	0.0426	0.0590	-
Estimated Traffic Generation (pcu/hr)								
Hopewell Centre Phase II	Retail	4,980 m ²	11	12	23	15	18	33
	Office	3,379 m ²	6	8	14	5	4	9
	Hotel	1,024 guestrooms	136	149	285	132	158	290
	Retail	24,800 m ²	57	60	117	77	88	165
153-167 Queen's Road East	Retail	9,871.8 m ²	23	24	47	31	35	66
17 and 19 Hing Wan Street	Hotel	78 guestrooms	11	12	23	10	12	22
5-9 Hing Wan Street	Hotel	50 guestrooms	7	7	14	7	8	15
46-56 Queen's Rd East, 2-12 Anton St and 1-11 Landale St	Office	20,728.4 m ²	36	51	87	33	25	58
8-18 Wing Fung Street	Retail	10,118.8 m ²	24	25	49	32	37	69
21-31 Wing Fung Street	R-80	36 flats	4	3	7	2	3	5
3-7 St. Francis St and 61 Queen's Rd East	Retail	405.9 m ²	1	1	2	2	2	4
	R-80	72 flats	6	4	10	3	3	6
31-36 Sau Wa Fong and 8-12 St. Francis Street	R-60	216 flats	16	10	26	7	8	15
	Retail	63.62 m ²	1	1	2	1	1	2
	-	458.65 m ²	1 ⁽²⁾	1 ⁽²⁾	2	1 ⁽²⁾	1 ⁽²⁾	2
269 Queen's Road East	R-60	162 flats	17	11	28	7	8	15
	Retail	1,226 m ²	4	4	8	5	6	11
33-35 Kennedy Road	R-60	71 flats	6	4	10	3	3	6
Total			367	387	754	373	420	793

Notes: (1) Gen. = traffic generated (departing) Att. = traffic attracted (arriving)
 (2) Traffic generation and attraction from the approved TIA report is adopted.

4.2.3 As the Hopewell Centre Phase II Development can be access from both Queen’s Road East and Kennedy Road, its generated traffic will be assumed to arrive or depart the development at the same proportions of the traffic flows on Queen’s Road East and Kennedy Road. In comparison, as access to the approved developments in Queen’s Road East and Hing Wan Street will be from Queen’s Road East, their generated traffic will be prorated according to the eastbound and westbound traffic flows on Queen’s Road East.

4.3 Traffic Forecast

Design Year

4.3.1 According to the latest planning of the proposed comprehensive residential development, its target completion date will be in 2028. In accordance with the "Guidelines and Requirements of Traffic Impact Assessment Studies" of the TD, the design year for assessing the traffic impact of the proposed comprehensive residential development should be 3 years after the planned completion of the development. In this case, the design year of the TIA will be 2031.

Methodology

4.3.2 The proposed comprehensive residential development will be generating/attracting 59-93 pcu/hr of traffic during AM and PM peak hours, the growth factor method will be deployed to produce traffic forecast for undertaking the traffic assessment. In other words, suitable annual growth factors will be applied to the traffic movements recorded in 2024 to produce forecast traffic flows in the design year of 2031 without the proposed comprehensive residential development, i.e. the Reference Scenario.

4.3.3 Reference is made to the annual growth rates of the AADT of Queen’s Road East and Kennedy Road as presented in the Annual Traffic Census (“ATC”) published each year by the TD to calculate the average annual growth rates of the traffic movements in these two roads. **Table 4.8** sets out the AADT figures of Queen’s Road East and Kennedy Road, and changes in the AADT figures between years.

Table 4.8 AADT of Queen’s Road East and Kennedy Road

Station No.	Road	AADT / (change over previous year)						Mean Annual Growth Rate
		2017	2018	2019	2020	2021	2022	
1233	Queen’s Road East	17,890	15,310 (-14.4%)	18,160 (18.6%)	17,270 (-4.9%)	17,620 (2%)	16,600 (-5.8%)	-1.5%
2213	Kennedy Road	9,920	10,280 (3.6%)	9,560 (-7%)	9,300 (-2.7%)	9,820 (5.6%)	9,460 (-3.7%)	-0.9%

4.3.4 **Table 4.8** shows that the annual growth rates of the AADT of Queen’s Road East ranged from -14.4% to +18.6% between 2017 and 2022 and those of Kennedy Road from -7.0% to +5.6%. The mean annual growth rates of the AADT of Queen’s Road East and Kennedy Road between 2017 and 2022 were calculated to be -1.5% and -0.9% respectively. In the approved TIA for Hopewell Centre Phase II Development, the average annual growth rate for traffic movements in Queen’s Road East and Kennedy Road were assumed to be +0.5% and +1.3% respectively. Despite the mean annual growth rates of Queen’s Road East and Kennedy Road have not been changing much in the last 5 years, for consistency’s sake, the foregoing traffic growth rates will be adopted in this Study to produce traffic forecast for 2031. At the same time, the traffic generated by other approved proposed comprehensive residential developments as set out in **Table 4.7** will be assigned on the local road network.

4.3.5 Based on the foregoing discussions, the traffic movements at the major junctions adjacent to the Site, viz. the signalised junctions of Queen’s Road East/Spring Garden Lane and Queen’s Road

East /Kennedy Road in 2031 during the AM and PM peak hours were estimated. The future traffic flows, i.e. the traffic flows in the local road network without and with the proposed comprehensive residential development, were estimated by the following formulas:

$$2031 \text{ Reference Flows} = 2024 \text{ Traffic Flows} \times (1+0.5\%/1.3\%)^7 + \text{Traffic Flows Generated by Planned Developments in the Vicinity}$$

$$2031 \text{ Design Flows} = 2031 \text{ Reference Flows} + \text{Traffic Flows Generated by Proposed Comprehensive Residential Development}$$

4.3.6 The 2031 Reference and Design Flows are shown in **Figures 4.2** and **4.3** respectively.

4.4 Junction Capacity Assessment

4.4.1 Based on the Reference and Design traffic forecasts, assessment was carried out on the performance of two major junctions adjacent to the proposed comprehensive residential development, viz. the signalised junctions of Queen’s Road East /Spring Garden Lane and Queen’s Road East /Kennedy Road to examine the traffic impact of the proposed comprehensive residential development. The assessment results are presented in **Table 4.9**.

Table 4.9 Performance of Adjacent Major Junctions

Junction	Peak period	Reserve Capacity	
		Without Development	With Development
Queen’s Road East / Spring Garden Lane	AM	31%	28%
	PM	41%	40%
Queen’s Road East / Kennedy Road ⁽¹⁾	AM	48%	46%
	PM	53%	51%

Note: (1) Please refer to **Appendix A** for signal calculation details.

4.4.2 From **Table 4.9**, the traffic generated by the proposed comprehensive residential development would reduce the reserve capacity of the signalised junctions of Queen’s Road East/Spring Garden Lane and Queen’s Road East/Kennedy Road. These two junctions will still operate smoothly with spare reserve capacity after the implementation of the proposed comprehensive residential development.

4.5 Traffic Impact during Construction Stage

- 4.5.1 Based on the planning of similar development project in the past, the construction period would be around 2 to 3 years. From the construction experience in the recent completed Hopewell Hotel adjacent the Site, the construction traffic will be restricted to 09:00 – 17:00, i.e. 8 hours per day and it is estimated that there will be an average of about 2 vehicle/hour (5 pcu/hr) generated. **The construction of 2 veh/hr is estimated from the construction material delivery for the proposed development, which only involves the construction of a single building.** Such volume of construction traffic would unlikely be causing any adverse impact to the traffic operation in Queen's Road East and Kennedy Road.
- 4.5.2 It is planned to make use of The Park at Hopewell Hotel (HCII) to form a temporary construction access at Kennedy Road, subject to the Lands Department's no objection. The construction material can then be delivered via the tower crane with minimal impact to the public. The proposed construction arrangement is enclosed in **Appendix B**.
- 4.5.3 For the temporary construction access at The Park, sufficient turning space at the staging area will be provided to ensure that no vehicle will be queueing on Kennedy Road. Fencing, hoarding and construction gantry will be set up in The Park to separate the general public from the staging area. The general public can enjoy The Park facilities and can continue to make use of the public lift and Ship Street Staircase to commute between Kennedy Road and Schooner Street. Upon completion of the construction works, the staging area will be cleared and all the affected areas of the Park will be made good and reinstated for public enjoyment again.
- 4.5.4 Meanwhile, covered walkways in compliance with the Buildings Ordinance will be erected along the abutting Ship Street Staircase to protect the pedestrian during construction. After the hoarding erection, sufficient width of the Ship Street Staircase will be maintained and it will be probably lit and maintained throughout the period. A hoarding permit will be obtained from Buildings Department.
- 4.5.5 Please be informed that the lifting operation by crane is controlled under the Factories and Industrial Undertaking Ordinance (Cap.59). Lifting activity can be in private or public areas. Requirements under the Ordinance, including those related to precautionary measures have to be strictly followed. One of the main function of hoarding/covered walkway is to protect public areas from any fallen objects during construction. Hoarding/covered walkway has to withstand certain impact load to the satisfaction of Building Authority and in compliance with the Building Ordinance. Hoarding Plans will also have to be submitted for acceptance before erection.**
- 4.5.6 Before the commencement of the construction works, a detailed construction impact assessment will be submitted for approval and improvement measure identified therein will be implemented.

5 PROVISIONS OF TRANSPORT FACILITIES

5.1 Requirements on Transport Facilities

5.1.1 Based on the Hong Kong Planning Standards and Guidelines (“HKPSG”), the requirements for car parking and loading/unloading provisions of the proposed comprehensive residential development are set out in **Table 5.1**.

Table 5.1 Car Parking and Loading/Unloading Requirements

Land Use	HKPSG Requirements	Minimum Required Nos.					
Car Parking							
Residential (312 flats)	For Residents+ Parking Requirement = GPS X R1 X R2 X R3, where	17 10 32 5					
	Unit Size		No. of Unit	GPS	R1	R2	R3
	40m ² < FS ≤ 70m ²		168	1 space per 4 – 7 units	1.2	0.75	0.75
	70m ² < FS ≤ 100m ²		48		2.4	0.75	0.75
	100m² < FS ≤ 130m²		96		4.1	0.75	0.75
For Visitors 5 spaces per block with more than 75 units		5					
Non-domestic Use (About 1,064.6m ² GFA)	1 car space per 300m ² GFA	4					
Total Car Parking		68					
Motorcycle Parking	1 motorcycle parking space per 100-150 flats	3					
Goods Vehicle Loading/Unloading							
Residential (312 flats)	1 loading/unloading bay per block	1					
Non-domestic Use (About 1,064.6m ² GFA)	1 loading/unloading bay for goods vehicles per 1,200 m ² GFA	0 ⁽¹⁾					
Goods Vehicle Loading/Unloading Total		1					

Notes: (1) Nil provision is permitted for small road-side retail shops which are mainly serving local residents

5.1.2 As shown in **Table 5.1**, 68 nos. of private car parking space, 3 nos. of motorcycle parking space and 1 no. of loading/unloading space should be provided at the proposed comprehensive residential development. However, as stipulated in the HKPSG, flexibility may be given to meet special circumstances, such as redevelopment in built-up urban areas, with considerations to the following aspects:

- feasibility of providing safe entry/exit points;
- availability of public transport services in the vicinity;
- proximity to and quality of pedestrian access linking railway stations and other major public transport interchanges;
- projected road capacity and traffic volumes in both the immediate vicinity and the wider district;
- availability of public car parks in the locality; and
- parking demand and supply condition in the vicinity.

5.2 Proposed Car Parking Arrangements for the Proposed Comprehensive Residential Development

5.2.1 Owing to the physical constraints of the Site which is situated without vehicular access to any public road in a built-up urban area in Wan Chai, it is not feasible to provide any car parking facilities on site. Considerations on the possibility of not providing any car parking facilities at the proposed comprehensive residential development are set out in **Table 5.2**.

Table 5.2 Considerations for Nil Car Parking Provision at the Proposed Comprehensive Residential Development

No.	Aspect	Considerations
1	Feasibility of providing safe entry/exit points	It is not feasible to provide direct vehicular access connecting the Site to the existing road network due to (i) the significant level difference between Kennedy Road (+63mPD) and the proposed ground floor (about +19mPD) of over 40m; and (ii) other physical and topographical constraints, including the presence of existing developments and the terrain of the Site in the vicinity of Queen's Road East.
2	Availability of public transport services in the vicinity	As discussed in Section 3.5 , the Site is well served by public transport with services of the MTR, bus, minibus and tram in Queen's Road East and roads in the north (such as Johnston Road and Hennessy Road) that are within short walking distances.
3	Proximity to and quality of pedestrian access linking railway stations and or major public transport interchanges	Section 2.3 stated that the proposed comprehensive residential development is well connected to Queen's Road East via Ship Street, Sik On Street, Sau Wa Fong and St. Francis Street. The Site is easily accessible to the MTR Wan Chai station in Johnston Road involving a walking distance of about 470m. It is also accessible to the covered and air-conditioned pedestrian access in The Avenue at Lee Tung Street that links to the MTR Wan Chai station.
4	Projected road capacity and traffic volumes in both the immediate vicinity and the wider district	The main vehicular access to the Site is from Queen's Road East which is the major road connecting Wan Chai to Causeway Bay and Admiralty. The traffic volume of Queen's Road East is high during peak hours on weekdays but the signalised junction of Queen's Road East /Spring Garden Lane in the vicinity of the proposed comprehensive residential development would operate with spare reserve capacity.
5	Availability of public car parks in the locality	With no provision of car parking on site, residents and visitors of the proposed comprehensive residential development will tend to use the public transport just like other residents living in few nearby buildings without car parking facilities in the locality. Overnight parking of the residents and casual parking of visitors of the proposed comprehensive residential development can be met by off-street and on-street car park spaces that are available to the public in the vicinity of the proposed residential comprehensive residential development as listed in Section 3.3 .
6	Parking demand in the vicinity	The car parking spaces of The Avenue, Hopewell Center and Wu Chung House for shoppers and office users in daytime may be used for overnight parking of cars of the proposed comprehensive residential development. The foregoing available car parking facilities should be sufficient to meet the overnight parking demand generated by the proposed comprehensive residential development.

5.3 Proposed Car Parking Arrangements for the Proposed Comprehensive Residential Development

- 5.3.1 Based on the foregoing discussions, it is proposed not to provide any car parking facilities at the proposed comprehensive residential development. For residents and visitors of the proposed comprehensive residential development, they can park at the off-street and on-street car park facilities available in the vicinity.
- 5.3.2 In **Section 3.3**, it is mentioned that various on-street metered parking spaces and off-street car parks in the vicinity of the proposed comprehensive residential development are available for parking. A car park occupancy survey is therefore conducted at five of aforesaid car parks in the close proximity on 5 March 2024 (Tuesday) and 10 March 2024 (Sunday) during the time period of 07:00 – 23:00 to review the adequacy of off-street parking facilities in the vicinity to cater for the possible parking demand raised by the proposed comprehensive residential development. It is understood that some new developments in the vicinity cannot provide internal transport facilities due to site constraints, the parking demand of these developments would also be considered in the subsequent assessment. A utilization analysis is conducted based on the above for weekday and weekend and the results are presented in **Table 5.3** and **Table 5.4**.
- 5.3.3 The results show that the vacant spaces in the nearby carparks are sufficient to meet the overall demand throughout the day.

Table 5.3 Projected Car Parking Space Availability in the vicinity of the Site (Weekday)

Location	Time Period																
	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
Existing Availability of Public Hourly Car Parking Spaces																	
Hopewell Centre ^(note 1)	93	88	80	70	53	58	49	44	49	47	57	63	64	66	72	85	87
Wu Chung House ^(note 1)	22	22	20	19	16	11	0	1	8	8	10	9	12	16	18	23	23
The Avenue ^(note 1)	50	47	35	30	30	17	14	15	19	21	16	27	30	33	40	49	52
248 Queen's Road East ^(note 2)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
The Zenith ^(note 2)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Pacific Place 3	60	56	33	22	18	17	17	14	12	21	24	34	48	53	59	63	66
Shanghai Industrial Investment Building	17	16	11	10	9	6	8	8	12	9	13	14	13	11	15	18	16
SY Life Tower	19	20	17	12	13	12	10	13	15	14	17	17	17	18	20	20	20
East Town Building	16	16	14	8	7	6	6	6	9	9	10	14	13	15	16	16	16
Bank of East Asia Harbour View Centre	8	8	5	4	2	2	1	1	2	2	3	3	6	6	8	8	8
Total No. of Available Spaces [A]	289	277	219	179	152	133	109	106	130	135	154	185	207	222	252	286	292
Deficiency of Car Parking Spaces due to Nil Provision of New Planned Developments																	
33-35 Kennedy Road ^(note 3)	22	11	11	11	11	11	11	11	11	11	11	11	11	11	22	22	22
153-167 Queen's Road Central ^(note 4)	3	5	5	8	14	22	42	40	28	28	24	26	21	14	10	1	0
3 – 7 Francis Street and 61 Queen's Road East ^(note 5)	8	4	4	4	4	5	6	5	5	5	5	5	5	4	8	8	8
31-36 Sau Wa Fong and 8-12 St. Francis Street ^(note 6)	14	7	7	7	7	7	8	7	7	7	7	7	7	7	14	14	14
Total No. of Spaces Required [B]	47	27	27	30	36	45	67	63	51	51	47	49	44	36	54	45	44
Deficiency of Car Parking Spaces due to Nil Provision of Proposed Comprehensive Residential Development																	
No. of Spaces Required by the Proposed Development ^(note 7) [C]	64	32	32	32	33	34	36	35	34	34	34	34	34	33	65	64	64
Projected Availability of Public Hourly Car Parking Spaces																	
Total No. of Available Spaces [A] - [B] - [C]	184	223	154	122	80	51	4	10	43	52	75	99	127	152	135	179	187

- Note 1: The vacancy number is obtained from the carpark information sign provided by the developer.
- Note 2: Site observations were carried out at the carpark entrance while no vehicle is found to queue at the entrance. Therefore, vacant spaces should be available. A nominal number of 2 spaces is assumed for the calculation.
- Note 3: The residential development comprises of 71 flats. The car parking requirements are calculated based on the minimum requirement of HKPSG. It is anticipated most residents will be leave for work during the time period between 8:00 – 20:00, the parking demand is assumed to be 50% of the parking requirement during this period.
- Note 4: The Development comprises of 9,871.8 m² GFA for commercial use. It is assumed that 50% will be for office use and others are for retail use. The car parking requirements are calculated based on the minimum requirement of HKPSG. The parking demand pattern follows that of Wu Chung House.
- Note 5: The Development comprises of 72 residential units and 405.9 m² GFA for commercial use. The car parking requirements are calculated based on the minimum requirement of HKPSG. It is anticipated most residents will be leave for work during the time period between 8:00 – 20:00, the parking demand of the residential component is assumed to be 50% of the parking requirement during this period. The parking demand pattern for the commercial components follows that of Wu Chung House.
- Note 6: The Development comprises of 216 residential units and 63.62 m² GFA for commercial use. The car parking requirements are calculated based on the minimum requirement of HKPSG. It is anticipated most residents will be leave for work during the time period between 8:00 – 20:00, the parking demand of the residential component is assumed to be 50% of the parking requirement during this period. The parking demand pattern for the commercial components follows that of Wu Chung House.
- Note 7: The residential development comprises of 312 flats and 1,064.6 m² GFA for non-domestic use. The car parking requirements are calculated based on the minimum requirement of HKPSG. It is anticipated that residents will use the cars during the time period between 8:00 – 20:00, the parking demand is assumed to be 50% of the parking requirement during this period on a typical weekday. The parking demand pattern for the non-domestic components follows that of Wu Chung House.

Table 5.4 Projected Car Parking Space Availability in the vicinity of the Site (Sunday)

Location	Time Period																
	7:00	8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00
Existing Availability of Public Hourly Car Parking Spaces																	
Hopewell Centre ^(note 1)	158	144	151	131	129	94	79	89	107	123	135	140	114	116	110	96	93
Wu Chung House ^(note 1)	32	33	34	27	22	8	1	3	15	15	17	9	9	14	22	31	34
The Avenue ^(note 1)	56	49	44	39	32	12	0	2	9	11	15	18	15	25	38	47	54
248 Queen's Road East ^(note 2)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
The Zenith ^(note 2)	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Pacific Place 3	61	58	49	47	43	34	24	25	23	30	36	37	42	44	44	50	54
Shanghai Industrial Investment Building	18	19	16	12	10	9	7	7	11	13	13	12	8	7	10	13	15
SY Life Tower	20	19	17	17	16	15	16	15	14	14	12	11	11	8	8	10	16
East Town Building	16	17	17	15	9	8	9	8	10	10	12	12	9	10	9	9	13
Bank of East Asia Harbour View Centre	8	7	5	3	1	1	1	0	0	1	2	2	1	0	0	2	4
Total No. of Available Spaces [A]	373	350	337	295	266	185	141	153	193	221	246	245	213	228	245	262	287
Deficiency of Car Parking Spaces due to Nil Provision of New Planned Developments																	
33-35 Kennedy Road ^(note 3)	22	18	18	18	18	18	18	18	18	18	18	18	18	18	22	22	22
153-167 Queen's Road Central ^(note 4)	2	1	0	8	14	32	40	38	23	23	21	30	30	24	14	3	0
3 – 7 Francis Street and 61 Queen's Road East ^(note 5)	8	6	6	6	6	7	7	7	7	7	7	7	7	7	8	8	8
31-36 Sau Wa Fong and 8-12 St. Francis Street ^(note 6)	14	11	11	11	11	11	11	11	11	11	11	11	11	11	14	14	14
Total No. of Spaces Required [B]	46	36	35	43	49	68	76	74	59	59	57	66	66	60	58	47	44
Deficiency of Car Parking Spaces due to Nil Provision of Proposed Comprehensive Residential Development																	
No. of Spaces Required by the Proposed Development ^(note 7) [C]	64	51	51	51	52	54	54	54	53	53	53	53	53	53	65	64	64
Projected Availability of Public Hourly Car Parking Spaces																	
Total No. of Available Spaces [A] - [B] - [C]	263	263	251	201	165	63	11	25	81	109	136	126	94	115	122	151	179

- Note 1: The vacancy number is obtained from the carpark information sign provided by the developer.
- Note 2: Site observations were carried out at the carpark entrance while no vehicle is found to queue at the entrance. Therefore, vacant spaces should be available. A nominal number of 2 spaces is assumed for the calculation.
- Note 3: The residential development comprises of 71 flats. The car parking requirements are calculated based on the minimum requirement of HKPSG. It is anticipated less residents will use the cars during the time period between 8:00 – 20:00 as compared with weekday, the parking demand is assumed to be 80% of the parking requirement during this period.
- Note 4: The Development comprises of 9,871.8m² GFA for commercial use. It is assumed that 50% will be for office use and others are for retail use. The car parking requirements are calculated based on the minimum requirement of HKPSG. The parking demand pattern follows that of Wu Chung House.
- Note 5: The Development comprises of 72 residential units and 405.9 m² GFA for commercial use. The car parking requirements are calculated based on the minimum requirement of HKPSG. It is anticipated most residents will be leave for work during the time period between 8:00 – 20:00, the parking demand of the residential component is assumed to be 80% of the parking requirement during this period. The parking demand pattern for the commercial components follows that of Wu Chung House.
- Note 6: The Development comprises of 216 residential units and 63.62 m² GFA for commercial use. The car parking requirements are calculated based on the minimum requirement of HKPSG. It is anticipated most residents will be leave for work during the time period between 8:00 – 20:00, the parking demand of the residential component is assumed to be 80% of the parking requirement during this period. The parking demand pattern for the commercial components follows that of Wu Chung House.
- Note 7: The residential development comprises of 312 flats and 1,064.6 m² GFA for non-domestic use. The car parking requirements are calculated based on the minimum requirement of HKPSG. It is anticipated that residents will use the cars during the time period between 8:00 – 20:00, the parking demand for residential component is assumed to be 80% of the parking requirement during this period on a typical weekend. The parking demand pattern for the non-domestic components follows that of Wu Chung House.

5.4 Proposed Loading/Unloading Arrangements for the Proposed Comprehensive Residential Development

5.4.1 Given the site constraints as explained in previous sections making it infeasible to provide vehicular access to the Site, it is proposed that no provision of loading/unloading facilities will be provided in the proposed comprehensive residential development. Same as other existing developments in MKT, Sau Wa Fong and Sik On Street with no vehicular access, loading/unloading activities generated by the proposed comprehensive residential development will be carried out at on-street kerbside spaces / lay-bys and adjacent off-street car park.

5.4.2 In Section 3.4, it is mentioned that various kerbside spaces and lay-bys along Queen’s Road East and Star Street in the vicinity of the proposed comprehensive residential development are available for loading/unloading activities. A kerbside-activity survey was conducted on 5 March 2024 (Tuesday) from 8am to 10pm to record all the vehicles carrying out loading/unloading activities in 2 lay-bys in Star Street as shown in Table 3.5 and Figure 3.2. The survey results were analysed to work out the time period with each hourly period between 8am and 10pm that the kerbside space was vacant with a length of more than 9m, i.e. enough for a goods van / light goods vehicle to stop and do loading/unloading activities. The analysis results are presented in Table 5.5.

Table 5.5 Availability of Kerbside Space along Star Street

Time	No. of minutes within each hour that kerbside space with a length of over 9m was available	
	K3 (24m)	K4 (18m)
8:00 - 9:00	39 min	35 min
9:00 - 10:00	18 min	30 min
10:00 - 11:00	7 min	0 min
11:00 - 12:00	27 min	40 min
12:00 - 13:00	28 min	39 min
13:00 - 14:00	50 min	42 min
14:00 - 15:00	0 min	6 min
15:00 - 16:00	10 min	26 min
16:00 - 17:00	25 min	29 min
17:00 - 18:00	10 min	4 min
18:00 - 19:00	30 min	20 min
19:00 - 20:00	50 min	46 min
20:00 - 21:00	60 min	42 min
21:00 - 22:00	55 min	53 min

Note: Vehicles stopped/parked inside the lay-bys for more than 45 minutes were considered as parking illegally instead of conducting loading/unloading activities and they were excluded from the analysis.

- 5.4.3 **Table 5.6** shows that space in the 2 lay-bys was available throughout the survey period. Although 10m out of 24m at K3 will be allocated for public disabled car parking space in the future, the time available for loading/unloading activities will decrease upon completion, K4 is available for loading/unloading activities for most of the time. Therefore, the lay-bys in Star Street may be used for carrying out loading/unloading activities generated by the proposed comprehensive residential development.
- 5.4.4 To minimize the loading/unloading demand on public roads, the Applicant had obtained the support of the owner of the adjacent Hopewell Hotel for offering assistance to allow and enable loading/unloading through the internal transport facilities in Hopewell Hotel. In general, the owner of Hopewell Hotel will not prohibit future residents/occupiers of the proposed development from utilizing the carparking and/or loading and unloading facilities, and the access within Hopewell Hotel and Mall (Inland Lot No. 8715) for the operational needs of the proposed development. Also, the owner of Hopewell Hotel will offer assistance to alleviate and relieve any traffic congestion that occurs when residents/occupiers are moving-in and out the proposed development.
- 5.4.5 The refuse collection point (“**RCP**”) in Star Street is the closest RCP to the proposed comprehensive residential development. Same as other residential buildings in MKT and Sau Wa Fong, the caretakers of the proposed comprehensive residential development will collect garbage from the flats and shops and move it to the RCP by trolley. The refuse collection will be once per day which will be normally carried out at off-peak hours and it is expected that the disturbance to the public will be minimal. No direct access to the proposed comprehensive residential development for the garbage collection vehicle will be required. This refuse collection arrangement has been approved in both S12A and S16 of this proposed comprehensive residential development.

6 PEDESTRIAN TRAFFIC IMPACT ASSESSMENT

6.1 Level-of-service of Existing Situation

- 6.1.1 Pedestrian access to/from the Site will mainly via Ship Street, Sik On Street, St. Francis Street, Star Street and Kennedy Road. Pedestrian count survey was conducted on 2 September 2024 (Monday) to count the pedestrian movements at key footpath sections during the time periods of 7:30 am – 9:30 am, 12:00 noon – 2:00 pm and 5:00 pm – 7:00 pm. The peak 15-minute pedestrian flows are shown in **Figure 6.1**.
- 6.1.2 An assessment of the level-of-service (“**LOS**”) was conducted for the key footpath sections to appraise their existing performance. **Table 6.1** is an extract of the definition of pedestrian walkway LOS according to the Highway Capacity Manual 2000 published by the US Transportation Research Board.

Table 6.1 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.

- 6.1.3 Based on the observed pedestrian flows, the existing LOSs of the key footpaths were estimated and presented in **Table 6.2**.

Table 6.2 Existing LOS of Footpaths Adjacent to the Site

No.	Location	Actual Width (m)	Effective Width ⁽¹⁾ (m)	Peak 15-min 2-way Ped Flow (ped/15 mins)			Flow Rate (ped/min/m) & [LOS] ⁽²⁾⁽³⁾		
				AM	Noon	PM	AM	Noon	PM
P1	Southern Kerb Side of Queen's Road East outside the Temple	2.9	1.9	151	336	230	6.6 [A]	14.7 [A]	10.1 [A]
P2	Northwestern Kerb Side of Ship Street	1.5	0.8	3	13	10	0.3 [A]	1.4 [A]	1.0 [A]
P3	Southeastern Kerb Side of Ship Street	1.6	0.8	32	8	35	3.3 [A]	0.8 [A]	3.6 [A]
P4	Sik On Street	2.2	1.2	3	9	11	0.2 [A]	0.6 [A]	0.8 [A]
P5	Southeastern Kerb Side of St. Francis Street	2.1	1.1	203	64	40	15.4 [A]	4.8 [A]	3.0 [A]
P6	Northwestern Kerb Side of St. Francis Street	1.3	0.8	77	101	43	8.0 [A]	10.5 [A]	4.5 [A]
P7	Sau Wa Fong Staircases	11.1	10.1	10	13	15	0.1 [A]	0.1 [A]	0.1 [A]
P8	Sau Wa Fong adjacent to Hoover Towers Block 2	1.7	0.8	74	16	15	7.7 [A]	1.7 [A]	1.6 [A]
P9	Southern Kerb Side of Star Street	2.3	1.3	347	12	12	22.2 [B]	0.8 [A]	0.8 [A]

- Notes:
- (1) A nominal dead zone of 0.5m was assumed on both sides of footpath to estimate the effective width for footpaths over 1.8m. Otherwise, a minimum width of 0.8m will be adopted in the assessment.
 - (2) Figures in square brackets are the corresponding LOS at the footpath.
 - (3) It is assumed that the footpaths will be blocked by on-street loading/unloading activities by 3 minutes for every 15-minute interval. The flow rate is therefore calculated as follow:

$$\text{Flow Rate} = \text{Peak 15-minute 2-way pedestrian flows} / (15 \text{ minutes} - 3 \text{ minutes}) / \text{Effective Width}$$

6.2 Future Pedestrian Facilities

6.2.1 Under the planning application for 153-167 Queen's Road East (Application no. A/H5/412), the existing Queen's Road East back lane will be upgraded to a Pedestrian Public Passage (PPP) with pleasant safe walking environment. The section of footpath along the frontage of 153-167 Queen's Road East will also be widened and become part of the PPP. An Essential Public Passage (EPP) was proposed to connect the PPP and a proposed pedestrian subway which access Queen's Road East to link up Wan Chai South and Wan Chai MTR Station. It was expected that pedestrians from Queen's Road East would be attracted to use the EPP and hence reduce the pedestrian traffic on the footpath along Queen's Road East.

6.3 Methodology of Producing Pedestrian Flow Forecast

- 6.3.1 A growth factor approach was adopted to produce forecast of pedestrian flows in the vicinity of the Site, i.e. the Reference Scenario without the proposed comprehensive residential development. The growth factor would be derived to estimate the possible increase in pedestrian movements and apply to the pedestrian movements at critical locations.
- 6.3.2 The additional pedestrian flows that would be generated by the proposed comprehensive residential development were estimated and distributed into the local network based on the surveyed pedestrian traffic pattern, the percentage split of different routings is shown in Table 6.3.

Table 6.3 Pedestrian Distribution Along Different Routings

Ref.	To / From	Percentage Split	
		Generation	Attraction
Routing 1	Queen's Road East (via Sik On Street and Schooner Street)	10%	0% ⁽¹⁾
Routing 2	Queen's Road East (via Ship Street through Ship Street Garden and Schooner Street)	30%	40% ⁽¹⁾
Routing 3	Queen's Road East (St. Francis Street, Sau Wa Fong and Schooner Street)	0% ⁽²⁾	0% ⁽²⁾
Routing 4	Kennedy Road (via Ship Street Stairway and Schooner Street / The Park at Hopewell Hotel and Lift B)	5%	0%
Routing 5	Star Street (via St. Francis Street, Sau Wa Fong and Schooner Street)	5%	5%
Routing 6	Queen's Road East (via Hopewell Hotel through Ship Street Garden and Schooner Street)	50%	50%
Total		100%	100%

Notes: (1) Pedestrians are more willing to walk downhill as compared to walk uphill. Therefore, pedestrians who originally use route 1 will walk via route 2 when walk uphill

(2) Since route 1 provides a shorter distance to access Queen's Road East as compared to route 3, pedestrians walk to/from northwest of the Site are anticipated to use route 1, instead of route 3.

- 6.3.3 The additional pedestrian flows were added on to the Reference Scenario of pedestrian flows for subsequent assessment of the LOS of the footpaths in the vicinity of the proposed comprehensive residential development, i.e. the Design Scenario.

6.4 Level-of-service of Future Situation

- 6.4.1 Reference was made to the forecast of population and employment of the Wan Chai District by the Planning Department in their 2019-based Territorial Population and Employment Data Matrix ("TPEDM") which is shown in Table 6.4. The TPEDM forecast indicated that the population in the Wan Chai District would tend to reduce with average annual growth rate between 2019 to 2031 by 1.72%, while the employment in the Wan Chai District would fluctuate with average annual growth rate reducing at -0.21% between 2019 to 2026 and reducing at -0.50% between 2026 to 2031. In order to produce conservative forecast of future pedestrian flows, it was proposed to adopt an average annual growth rate of +0.5% for the pedestrian movements between 2024 and 2031.

Table 6.4 Forecast Changes in Population and Employment in Wan Chai

Year	Population	Employment	Average Annual Growth	
			Population	Employment
2019	162,350	298,750	-	-
2026	143,800	294,350	-1.72%	-0.21%
2031	131,850	287,050	-1.72%	-0.50%

Source: 2019-based TPEDM Data from Planning Department’s Website

Estimated Pedestrian Traffic Generation based on Trip Generation Survey

6.4.2 In order to identify the sufficiency of pedestrian facilities, additional pedestrians generated by the proposed comprehensive residential development should be estimated. As there are no pedestrian trip rates established in TPDM, reference was made to in-house pedestrian trip generation surveys conducted on 2 September 2024 (Monday) at buildings with similar uses. The survey results and the derived trip rates are shown in Table 6.5.

Table 6.5 Pedestrian Trip Generation Surveys at Existing Buildings

Name	Location	Unit/ Content	Recorded Trips					
			AM Peak		Noon Peak		PM Peak	
			Gen.	Att.	Gen.	Att.	Gen.	Att.
Residential Use								
Manrich Court	33 St. Francis Street	186 flats	21	8	9	14	10	16
Derived Rates (persons/15-min /flat)			0.11	0.04	0.05	0.08	0.05	0.09
Retail Use								
The L. Place	139 Queen’s Road Central	9,290 m ²	37	56	260	307	279	353
Derived Rates (persons/15-min /100 m²)			0.40	0.60	2.80	3.30	3.00	3.80
Eating Place Use								
APT.	Shop A&B, G/F, 2-12 Moon Street, Wan Chai	40 m ²	3	9	12	18	2	0
Derived Rates (persons/15-min /100 m²)			7.50	22.50	30.00	45.00	5.00	0.00

Note: Gen. = traffic generated (departing) Att. = traffic attracted (arriving)

6.4.3 By adopting the surveyed pedestrian trip rates as shown in Table 6.5, the additional pedestrian generation and attraction of the proposed comprehensive residential development are also estimated and tabulated in Table 6.6.

Table 6.6 Estimated Pedestrian Traffic Generation of the Proposed Comprehensive Residential Development

Use	Unit/ Content	AM Peak			Noon Peak			PM Peak		
		Gen.	Att.	Total	Gen.	Att.	Total	Gen.	Att.	Total
Adopted Pedestrian Trip Rates⁽¹⁾										
Residential	persons/15-min/flat	0.11	0.04	–	0.05	0.08	–	0.05	0.09	–
Retail	persons/15-min /100m ²	0.40	0.60	–	2.80	3.30	–	3.00	3.80	–
Eating Place	persons/15-min /100m ²	7.50	22.50	–	30.00	45.00	–	5.00	0.00	–
Estimated Pedestrian Generation of the Proposed Comprehensive Residential Development										
Residential	312 flats	35	13	48	16	25	41	16	29	45
Retail	About 536.7 m ²	3	4	7	16	18	34	17	21	38
Eating Place	About 319.2 m ²	24	72	96	96	144	240	16	0	16
Total		62	89	151	128	187	315	49	50	99

Note: Gen. = traffic generated (departing) Att. = traffic attracted (arriving)

(1) Pedestrian trip rates derived from pedestrian trip generation surveys are adopted.

6.4.4 The proposed comprehensive residential development is estimated to generate 2-way pedestrian flows of 151, 315 and 99 persons/ 15-minute during AM, Noon and PM peak hours respectively.

Estimated Pedestrian Traffic Generation based on Design Population

6.4.5 Based on the tentative flat mix, the overall population of the development is about 1,139. Reference has been made to the published “Travel Characteristics Survey (TCS) 2011 Final Report”. According to the Report, the daily mechanized trip rate per population is 1.83 trips (two-way) and the morning and evening peak hour accounted for about 12% of the daily trips for the two-way trips. It is assumed that 90%, 50% and 10% of the trips are in outbound direction in the AM, Noon and PM peak hour, respectively. 30% of the trips would occur during the peak 15-minute. Based on the above, the estimated outbound and inbound trips in peak hours are as follows:

AM Peak Outbound: 68 persons/15-min (i.e. $1,139 \times 1.83 \times 0.12 \times 0.9 \times 0.3$)

AM Peak Inbound: 8 persons/15-min (i.e. $1,139 \times 1.83 \times 0.12 \times 0.1 \times 0.3$)

Noon Peak Outbound: 38 persons/15-min (i.e. $1,139 \times 1.83 \times 0.12 \times 0.5 \times 0.3$)

Noon Peak Inbound: 38 persons/15-min (i.e. $1,139 \times 1.83 \times 0.12 \times 0.5 \times 0.3$)

PM Peak Outbound: 8 persons/15-min (i.e. $1,139 \times 1.83 \times 0.12 \times 0.1 \times 0.3$)

PM Peak Inbound: 68 persons/15-min (i.e. $1,139 \times 1.83 \times 0.12 \times 0.9 \times 0.3$)

6.4.6 The pedestrian traffic generations of the proposed comprehensive residential development estimated by trip generation survey and design population are similar. However, to be conservative, the larger values are adopted for the subsequent assessment. Based on the above, the two-way pedestrian flows generated by the proposed comprehensive residential development as shown in **Table 6.7**.

Table 6.7 Adopted Pedestrian Flows Generated by the Proposed Comprehensive Residential Development

Use	Unit/ Content	AM Peak			Noon Peak			PM Peak		
		Gen.	Att.	Total	Gen.	Att.	Total	Gen.	Att.	Total
Residential ⁽¹⁾	312 flats	68	8	76	38	38	76	8	68	76
Retail	About 549.1 m ²	3	4	7	16	18	34	17	21	38
Eating Place	About 319.2 m ²	24	72	96	96	144	240	16	0	16
Total		95	84	179	150	200	350	41	89	130

Note: Gen. = traffic generated (departing) Att. = traffic attracted (arriving)

(1) It is assumed that 30% of the pedestrian trips would occur in the peak 15-minute.

6.4.7 **Table 6.7** shows that the proposed comprehensive residential development will only generate additional two-way pedestrian flows of 179 ped/15-min, 350 ped/15-min and 130 ped/15-min during AM, Noon and PM peak hour, respectively. For example, during noon peak, the 351 ped/15-min is equivalent about 24 additional pedestrians using the footpath per minute.

6.4.8 Since there will be other planned developments in the close proximity, the pedestrian generation/attraction due to these developments were estimated and incorporated into the forecast. **Table 6.8** summarizes the estimated pedestrian generation/attraction of these developments.

Table 6.8 Pedestrian Flows Generated by the Other Planned Development

Use	Unit/Content	AM Peak			Noon Peak			PM Peak		
		Gen.	Att.	Total	Gen.	Att.	Total	Gen.	Att.	Total
Pedestrian Trip Rates										
Hotel ⁽¹⁾	ped/15-min/room	0.201	0.069	–	0.118	0.114	–	0.131	0.128	–
Retail ⁽²⁾	persons/15-min /100m ²	0.400	0.600	–	2.800	3.300	–	3.000	3.800	–
Pedestrian Generation/Attraction (ped/15-min)										
Hopewell Centre II:										
Hotel Rooms	1,024 rooms	206	71	277	121	117	238	135	132	267
Hotel Shop ⁽³⁾	4,980 m ²	0	0	0	0	0	0	0	0	0
Hotel Office ⁽³⁾	3,379 m ²	0	0	0	0	0	0	0	0	0
Commercial / Retails	24,800 m ²	100	149	249	695	819	1514	744	943	1687
Sub-total		306	220	526	816	936	1752	879	1075	1,954
Queen's Road East No. 153-167										
Retail	10,704 m ²	43	65	108	300	354	654	322	407	729
Total		349	285	634	1,116	1,290	2,406	1,201	1,482	2,683

Notes: Gen. = traffic generated (departing) Att. = traffic attracted (arriving)

(1) In-house pedestrian trip rates for hotel derived based on the trip generation survey on 2 September 2024 at Renaissance Hong Kong Harbour View Hotel (862 rooms) are adopted.

- (2) Pedestrian trip rates for retail derived in Table 6.5 above are adopted.
- (3) Since hotel shop and hotel office were considered as hotel ancillary facilities, its corresponding pedestrian flows generated/attracted (i.e. staff) are not anticipated to occur in the same peak of the hotel guest. Hence, the pedestrian flows for these components are assumed to be zero.

6.4.9 The planned developments are estimated to generate 2-way pedestrian flows of 634 ped/15-min, 2,406 ped/15-min and 2,683 ped/15-min during AM, Noon and PM peak hours respectively.

6.5 Reference and Design Pedestrian Flows

6.5.1 The 2031 Reference Flows, i.e. the pedestrian flows in the local road without the proposed comprehensive residential development, were estimated based on the following equation.

$$\text{2031 Reference Flows} = \text{2024 Existing Pedestrian Flows} \times (1 + 0.5\%)^7 + \text{Additional Pedestrians Induced by Planned Developments in the vicinity}$$

(see **Figure 6.2**)

6.5.2 The 2031 Design Flows, i.e. the pedestrian flows in the local road network with the proposed comprehensive residential development, were estimated based on the following equation:

$$\text{2031 Design Flows} = \text{2031 Reference Flows} + \text{Additional Pedestrians Induced by the Proposed Comprehensive Residential Development}$$

(see **Figure 6.3**)

6.6 Future Footpath LOS Assessment

6.6.1 The LOSs of the footpaths in the vicinity of the proposed comprehensive residential development for the Reference and Design Scenarios in 2031 were assessed and presented in **Table 6.9**.

Table 6.9 Future LOS of Footpaths Adjacent to the Proposed Comprehensive Residential Development

No.	Location	Actual Width (m)	Effective Width ⁽¹⁾ (m)	Peak 15mins 2-way Ped Flow (ped/15mins)			Flow Rate (ped/min/m) & [LOS] ⁽²⁾⁽³⁾		
				AM	Noon	PM	AM	Noon	PM
2031 Background Flows (without the planned and proposed comprehensive residential developments)									
P1	Southern Kerb Side of Queen's Rd East outside the Temple	2.9	1.9	157	348	239	6.9 [A]	15.3 [A]	10.5 [A]
P2	Northwestern Kerb Side of Ship Street	1.5	0.8	4	14	11	0.4 [A]	1.5 [A]	1.1 [A]
P3	Southeastern Kerb Side of Ship Street	1.6	0.8	34	9	37	3.5 [A]	0.9 [A]	3.9 [A]
P4	Sik On Street	2.2	1.2	4	10	12	0.3 [A]	0.7 [A]	0.8 [A]
P5	Southeastern Kerb Side of St. Francis Street	2.1	1.1	211	67	42	16.0 [B]	5.1 [A]	3.2 [A]
P6	Northwestern Kerb Side of St. Francis Street	1.3	0.8	80	105	45	8.3 [A]	10.9 [A]	4.7 [A]
P7	Sau Wa Fong Staircases	11.1	10.1	11	14	16	0.1 [A]	0.1 [A]	0.1 [A]

No.	Location	Actual Width (m)	Effective Width ⁽¹⁾ (m)	Peak 15mins 2-way Ped Flow (ped/15mins)			Flow Rate (ped/min/m) & [LOS] ⁽²⁾⁽³⁾		
				AM	Noon	PM	AM	Noon	PM
P8	Sau Wa Fong adjacent to Hoover Towers Block 2	1.7	0.8	77	17	16	8.0 [A]	1.8 [A]	1.7 [A]
P9	Southern Kerb Side of Star Street	2.3	1.3	360	13	13	23.1 [C]	0.8 [A]	0.8 [A]
2031 Reference Scenario (without the proposed comprehensive residential development)									
P1	Southern Kerb Side of Queen's Rd East outside the Temple	2.9	1.9	189	468	373	8.3 [A]	20.5 [B]	16.4 [B]
P2	Northwestern Kerb Side of Ship Street	1.5	0.8	4	14	11	0.4 [A]	1.5 [A]	1.1 [A]
P3	Southeastern Kerb Side of Ship Street	1.6	0.8	34	9	37	3.5 [A]	0.9 [A]	3.9 [A]
P4	Sik On Street	2.2	1.2	4	10	12	0.3 [A]	0.7 [A]	0.8 [A]
P5	Southeastern Kerb Side of St. Francis Street	2.1	1.1	211	67	42	16.0 [B]	5.1 [A]	3.2 [A]
P6	Northwestern Kerb Side of St. Francis Street	1.3	0.8	80	105	45	8.3 [A]	10.9 [A]	4.7 [A]
P7	Sau Wa Fong Staircases	11.1	10.1	11	14	16	0.1 [A]	0.1 [A]	0.1 [A]
P8	Sau Wa Fong adjacent to Hoover Towers Block 2	1.7	0.8	77	17	16	8.0 [A]	1.8 [A]	1.7 [A]
P9	Southern Kerb Side of Star Street	2.3	1.3	360	13	13	23.1 [C]	0.8 [A]	0.8 [A]
2031 Design Scenario (with the proposed comprehensive residential development)									
P1	Southern Kerb Side of Queen's Rd East outside the Temple	2.9	1.9	315	713	464	13.8 [A]	31.3 [C]	20.4 [B]
P2	Northwestern Kerb Side of Ship Street	1.5	0.8	130	259	102	13.5 [A]	27.0 [C]	10.6 [A]
P3	Southeastern Kerb Side of Ship Street	1.6	0.8	34	9	37	3.5 [A]	0.9 [A]	3.9 [A]
P4	Sik On Street	2.2	1.2	22	45	25	1.5 [A]	3.1 [A]	1.7 [A]
P5	Southeastern Kerb Side of St. Francis Street	2.1	1.1	211	67	42	16.0 [B]	5.1 [A]	3.2 [A]
P6	Northwestern Kerb Side of St. Francis Street	1.3	0.8	80	105	45	8.3 [A]	10.9 [A]	4.7 [A]

No.	Location	Actual Width (m)	Effective Width ⁽¹⁾ (m)	Peak 15mins 2-way Ped Flow (ped/15mins)			Flow Rate (ped/min/m) & [LOS] ⁽²⁾⁽³⁾		
				AM	Noon	PM	AM	Noon	PM
P7	Sau Wa Fong Staircases	11.1	10.1	11	14	16	0.1 [A]	0.1 [A]	0.1 [A]
P8	Sau Wa Fong adjacent to Hoover Towers Block 2	1.7	0.8	95	53	30	9.9 [A]	5.5 [A]	3.1 [A]
P9	Southern Kerb Side of Star Street	2.3	1.3	378	49	27	24.2 [C]	3.1 [A]	1.7 [A]

- Notes: (1) A nominal dead zone of 0.5m was assumed on both sides of footpath to estimate the effective width for footpaths over 1.8m. Otherwise, a minimum width of 0.8m will be adopted in the assessment.
- (2) Figures in square brackets are the corresponding LOS at the footpath.
- (3) It is assumed that the footpaths will be blocked by on-street loading/unloading activities by 3 minutes for every 15-minute interval. The assumption is for the insertion of a site factor in the estimation of the footpath conditions and is for reference only. The flow rate is therefore calculated as follow:

$$\text{Flow Rate} = \text{Peak 15-minute 2-way pedestrian flows} / (15 \text{ minutes} - 3 \text{ minutes}) / \text{Effective Width}$$

6.6.2 As can be observed from **Table 6.9**, the pedestrian flows will be the highest during the noon time peak in 2031. The LOS would remain at the acceptable levels of “C” or above as the pedestrian generation of the proposed comprehensive residential development would be small. Therefore, it was considered that the proposed comprehensive residential development would not cause any significant impact to the pedestrian movements in the local road network.

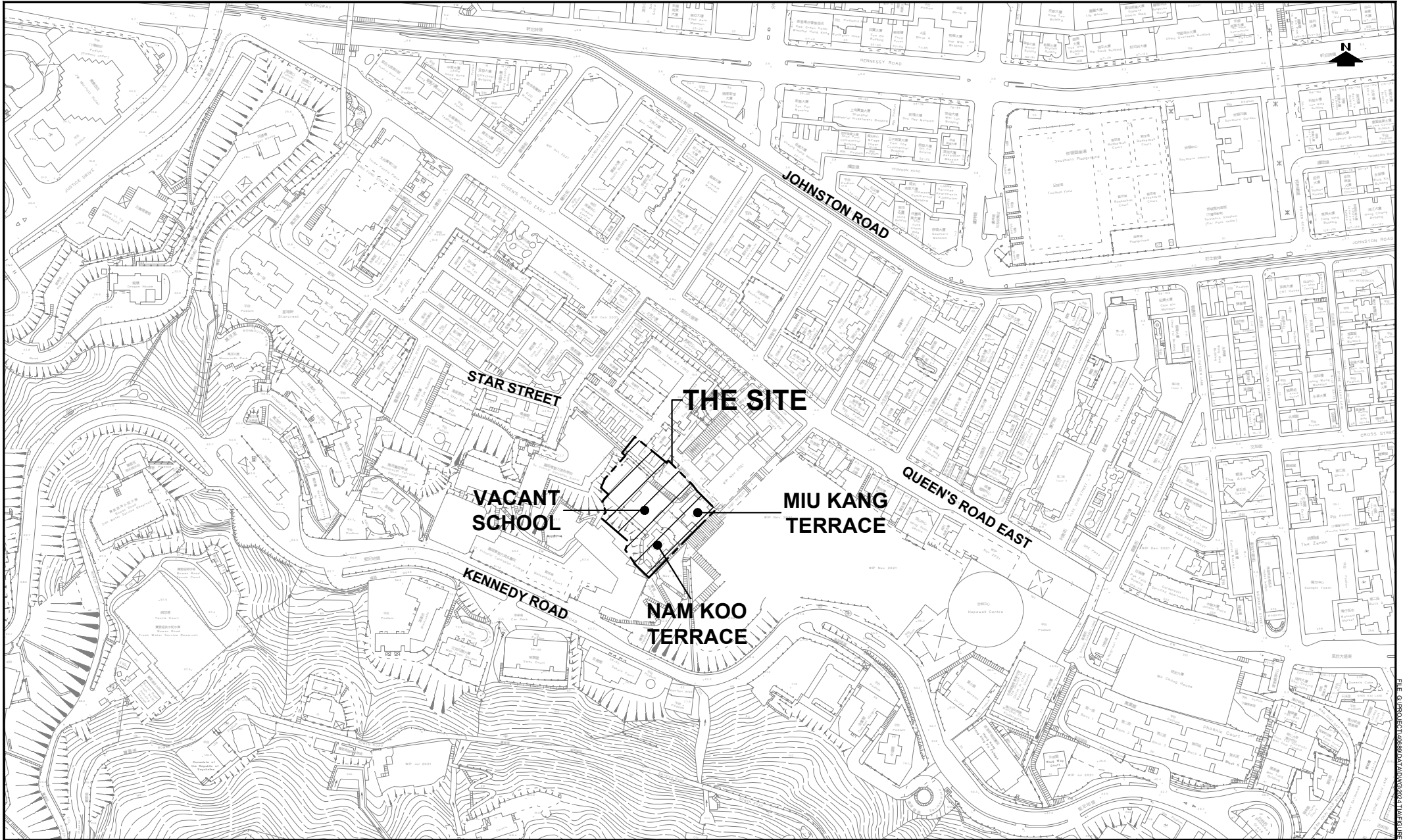
7 SUMMARY AND CONCLUSIONS

7.1 Summary

- 7.1.1 A Comprehensive Residential Development at Nos. 1, 1A, 2 and 3 HST, No. 55 Ship Street, Nos. 1 – 5 Schooner Street, No. 53 Ship Street, Inland Lot No. 9048, 18 Sau Wa Fong and the adjoining Government land in Wan Chai is proposed. The proposed comprehensive residential development comprises a 24-storeys residential and commercial building with 4 storeys of podium and also includes a barrier-free connection over Ship Street staircase to enhance connectivity with the area.
- 7.1.2 The Site is situated in a well-established residential and built-up urban area in Wan Chai South, which does not have direct vehicular access to any public road. It was found infeasible to provide direct vehicular access connecting the Site to the existing road network due to the significant level difference between Kennedy Road (+63mPD) and the proposed ground floor (about +19mPD) of over 40m; and other physical and topographical constraints, including the presence of existing developments and the terrain of the Site in the vicinity of Queen's Road East. Hence, neither car parking nor loading/unloading facilities will be provided in the proposed comprehensive residential development.
- 7.1.3 Vehicular and pedestrian access to the Site is via the local road network comprising Queen's Road East, Ship Street, St. Francis Street and Star Street. There are various pedestrian access routes to and from the Site connecting to Queen's Road East (downhill from the Site) as well as Kennedy Road (uphill of the Site). They will provide ample and convenient access to the Site from the level ground and uphill of Wan Chai. In addition, a barrier free access to the Site and the NKT historical building can be provided via the lifts in the public open space adjoining the Site.
- 7.1.4 The Site is located within walking distances to a variety of public transport services running along Queen's Road East, Johnston Road and Hennessy Road, viz. MTR, bus, minibus, tram and taxi.
- 7.1.5 Traffic analysis showed that the proposed comprehensive residential development would generate additional two-way traffic of 114 pcu's and 75 pcu's during the AM and PM peak hour, respectively. As compared with the existing traffic flows in Queen's Road East, traffic flows generated by the proposed comprehensive residential development would be light and the results of the TIA indicated that the generated traffic would not induce any adverse impact to the local road network.
- 7.1.6 Given the site is located in proximity to public transport and no provision of car parking on site, residents and visitors of the proposed comprehensive residential development will tend to use the public transport just like other residents living in buildings without car parking facilities in the locality. Overnight parking of the residents and casual parking of visitors of the proposed comprehensive residential development may be met by off-street and on-street car park spaces that are available to the public in the vicinity of the proposed comprehensive residential development. Recent traffic survey of nearby car parks adjacent to the proposed comprehensive residential development indicated that there would be sufficient spare car parking to meet the potential overnight parking demand.
- 7.1.7 Recent traffic survey results showed that the 2 lay-bys in Star Street can be used for carrying out loading/unloading activities generated by the proposed comprehensive residential development. To minimize the loading/unloading demand on public roads, the Applicant had obtained the support of the owner of the adjacent Hopewell Hotel for offering assistance to allow and enable loading/unloading through the internal transport facilities in Hopewell Hotel.
- 7.1.8 Traffic analysis showed that the proposed comprehensive residential development would generate small volumes of pedestrian movements and would not induce significant pedestrian traffic impact to its adjacent pedestrian network.

7.2 Conclusions

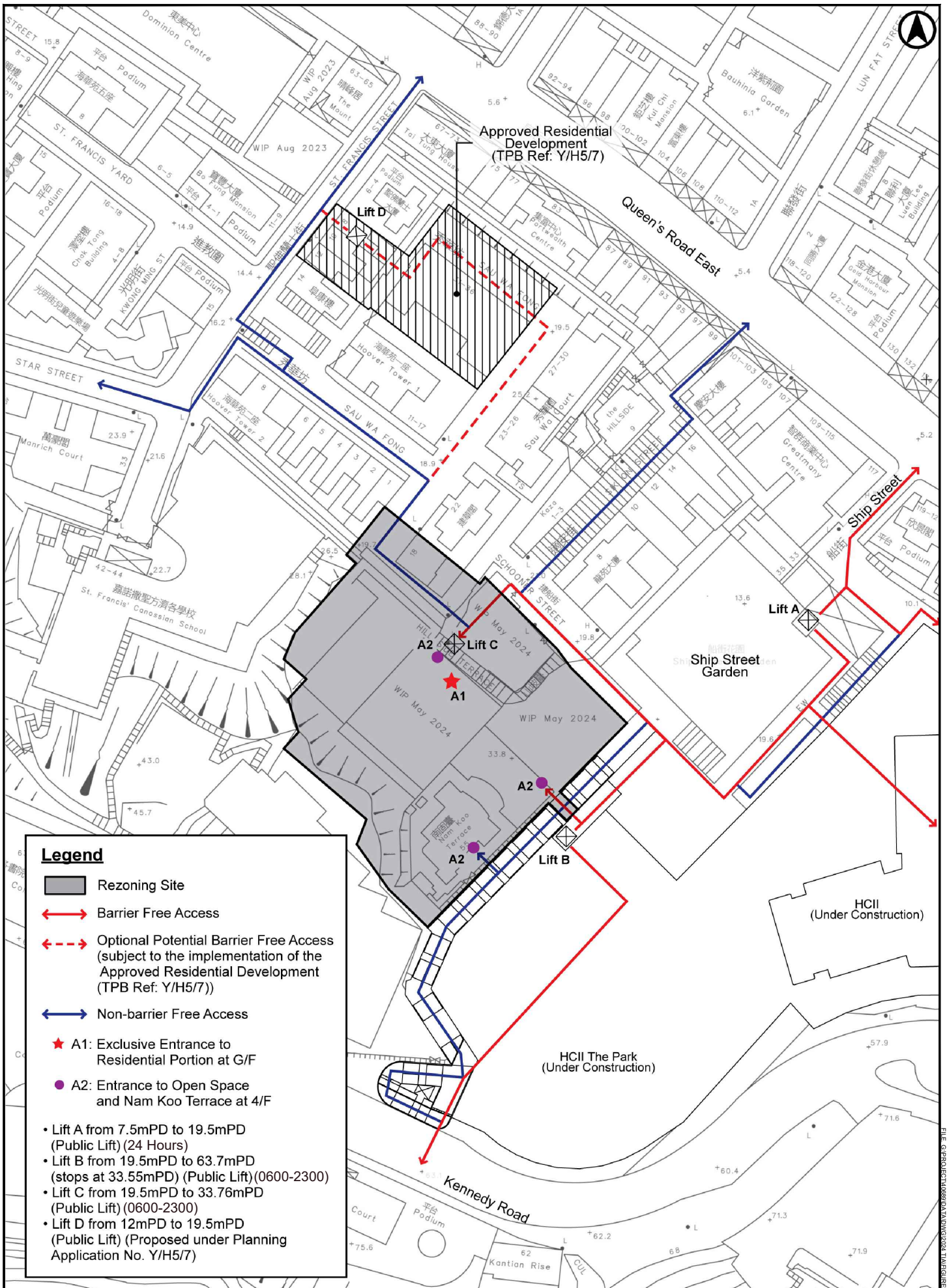
- 7.2.1 The findings of this TIA demonstrated that the proposed comprehensive residential development would not cause any adverse traffic impact or issues to the traffic and pedestrian movements in its adjacent road network.



PROJECT NO.	40689-1	
DESIGNED	SLN	DATE MAR 2024
DRAWN	CLL	SCALE 1:3000
CHECKED	SLN	

PROJECT TITLE	PROPOSED DEVELOPMENT AT NOS. 1, 1A, 2 AND 3 HILL SIDE TERRACE, NO. 55 SHIP STREET (NAM KOO TERRACE), NOS. 1 - 5 SCHOONER STREET, NO. 53 SHIP STREET (MIU KANG TERRACE), INLAND LOT NO. 9048 AND ADJOINING GOVERNMENT LAND, WAN CHAI	
DRAWING TITLE	THE PROPOSED DEVELOPMENT SITE	

DRAWING NO.	FIGURE 2.1	REV.	.
LLA 顧問有限公司		Consultancy Limited	

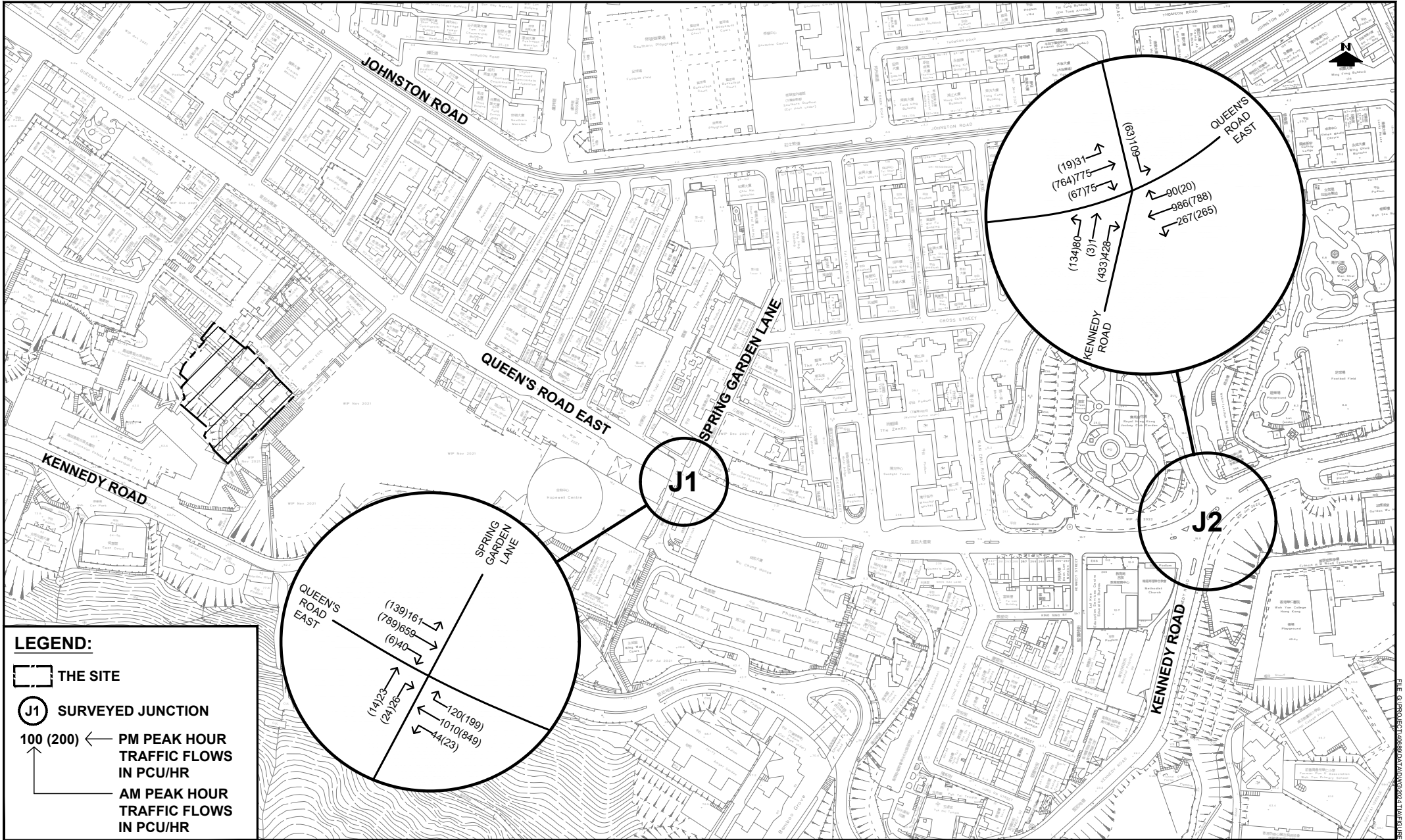


Legend

- Rezoning Site
- ↔ Barrier Free Access
- - - ↔ Optional Potential Barrier Free Access (subject to the implementation of the Approved Residential Development (TPB Ref: Y/H5/7))
- ↔ Non-barrier Free Access
- ★ A1: Exclusive Entrance to Residential Portion at G/F
- A2: Entrance to Open Space and Nam Koo Terrace at 4/F

- Lift A from 7.5mPD to 19.5mPD (Public Lift) (24 Hours)
- Lift B from 19.5mPD to 63.7mPD (stops at 33.55mPD) (Public Lift) (0600-2300)
- Lift C from 19.5mPD to 33.76mPD (Public Lift) (0600-2300)
- Lift D from 12mPD to 19.5mPD (Public Lift) (Proposed under Planning Application No. Y/H5/7)

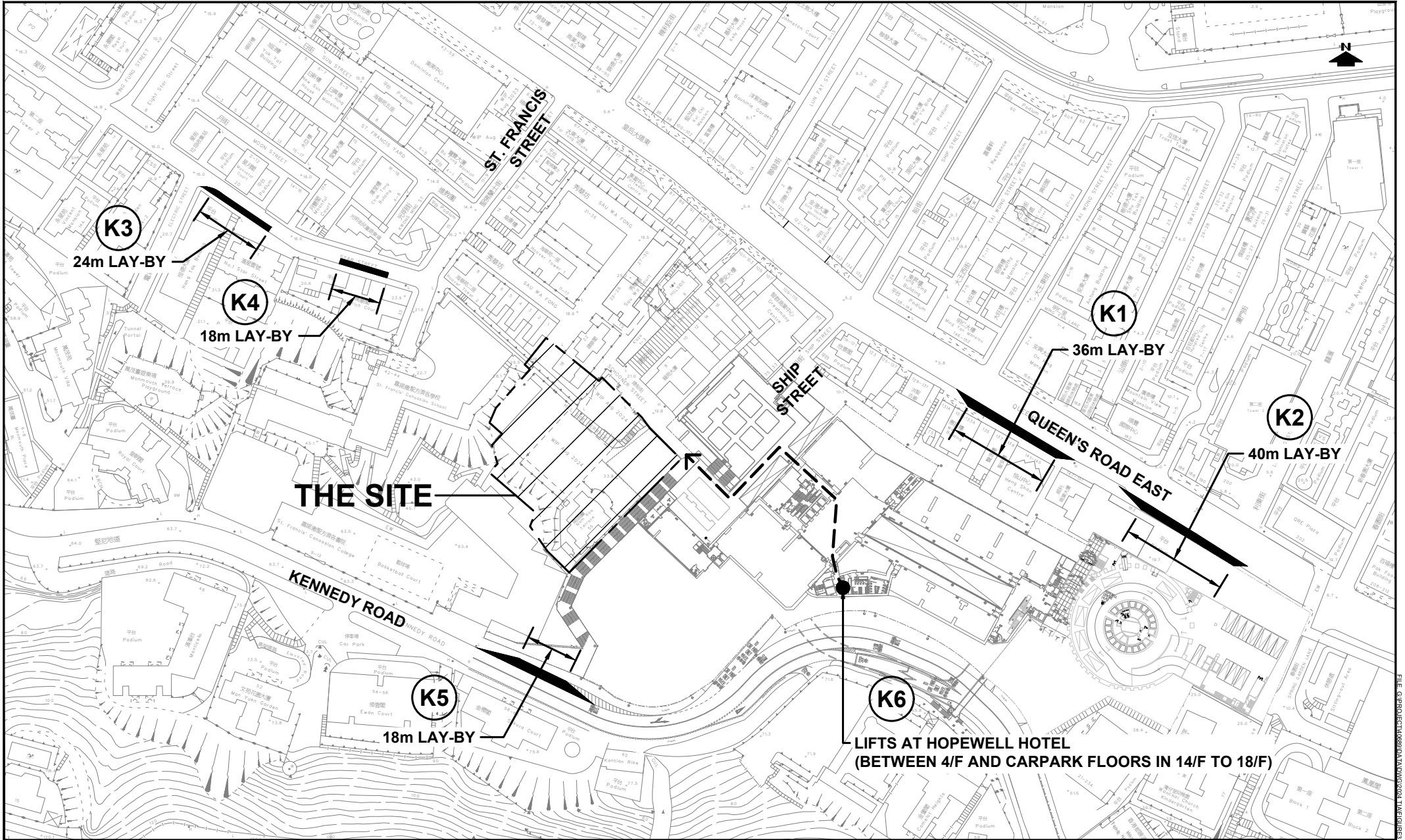
PROJECT NO. 40689	PROJECT TITLE PROPOSED DEVELOPMENT AT NOS. 1, 1A, 2 AND 3 HILL SIDE TERRACE, NO. 55 SHIP STREET (NAM KOO TERRACE), NOS. 1-5 SCHOONER STREET, NO. 53 SHIP STREET (MIU KANG TERRACE), INLAND LOT NO. 9048 AND ADJOINING GOVERNMENT LAND, WAN CHAI	DRAWING NO. FIGURE 2.2	REV. C
DESIGNED SLN	DATE DEC 2024	DRAWING TITLE PEDESTRIAN ACCESS TO THE SITE	
DRAWN CLL	SCALE 1:1000	LLA 顧問有限公司 Consultancy Limited	
CHECKED SLN			



PROJECT NO.	40689-1	
DESIGNED	SLN	DATE MAR 2024
DRAWN	CLL	SCALE 1:3000
CHECKED	SLN	

PROJECT TITLE	PROPOSED DEVELOPMENT AT NOS. 1, 1A, 2 AND 3 HILL SIDE TERRACE, NO. 55 SHIP STREET (NAM KOO TERRACE), NOS. 1 - 5 SCHOONER STREET, NO. 53 SHIP STREET (MIU KANG TERRACE), INLAND LOT NO. 9048 AND ADJOINING GOVERNMENT LAND, WAN CHAI	
DRAWING TITLE	2024 OBSERVED TRAFFIC MOVEMENTS	

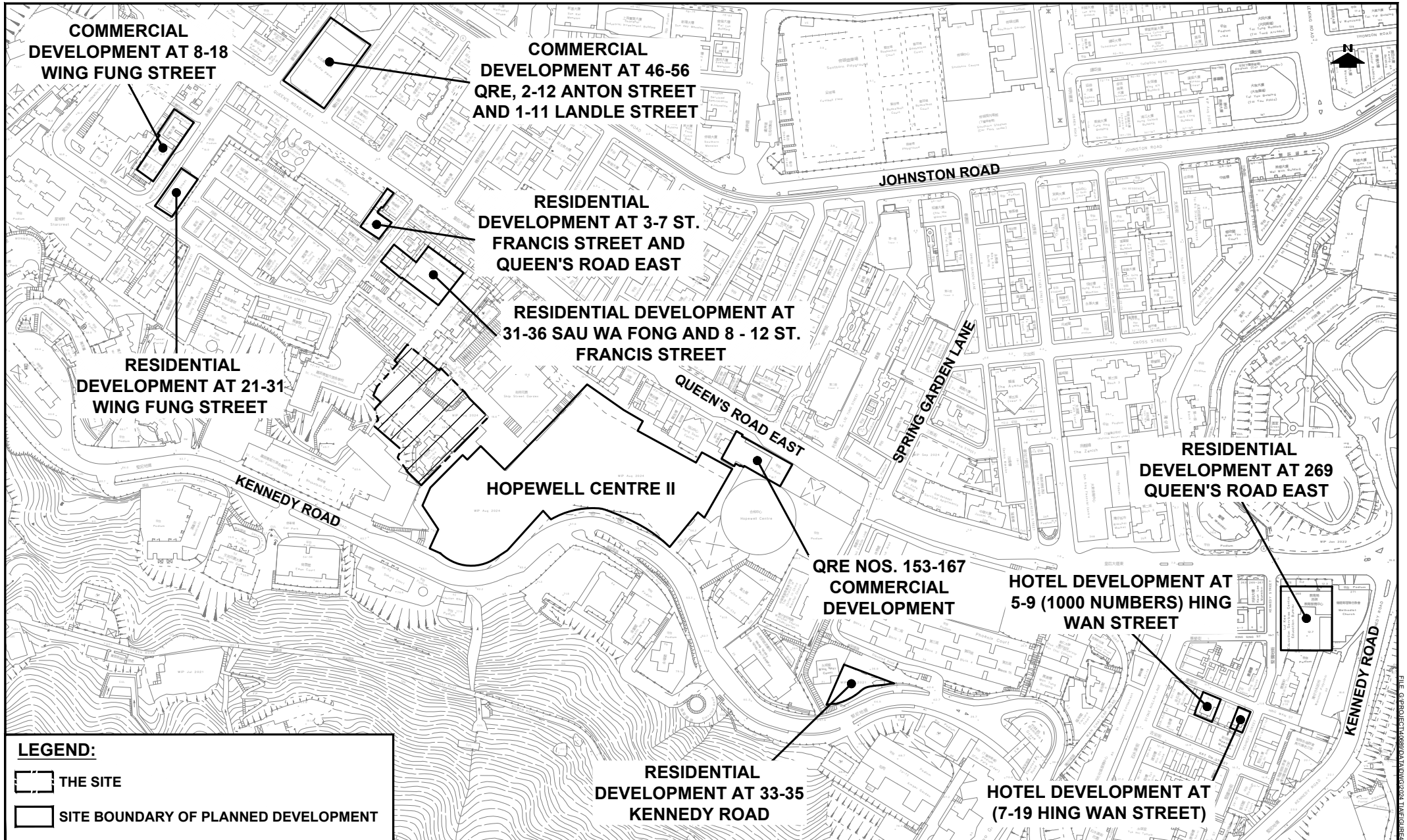
DRAWING NO.	FIGURE 3.1	REV.	-
		顧問有限公司 Consultancy Limited	



PROJECT NO.	40689-1	
DESIGNED	SLN	DATE DEC 2024
DRAWN	CLL	SCALE N.T.S.
CHECKED	SLN	

PROJECT TITLE	PROPOSED DEVELOPMENT AT NOS. 1, 1A, 2 AND 3 HILL SIDE TERRACE, NO. 55 SHIP STREET (NAM KOO TERRACE), NOS. 1 - 5 SCHOONER STREET, NO. 53 SHIP STREET (MIU KANG TERRACE), INLAND LOT NO. 9048 AND ADJOINING GOVERNMENT LAND, WAN CHAI
DRAWING TITLE	LOCATIONS ADJACENT TO THE SITE FOR LOADING/UNLOADING ACTIVITIES

DRAWING NO.	FIGURE 3.2	REV.	B
LLA 顧問有限公司		Consultancy Limited	



LEGEND:

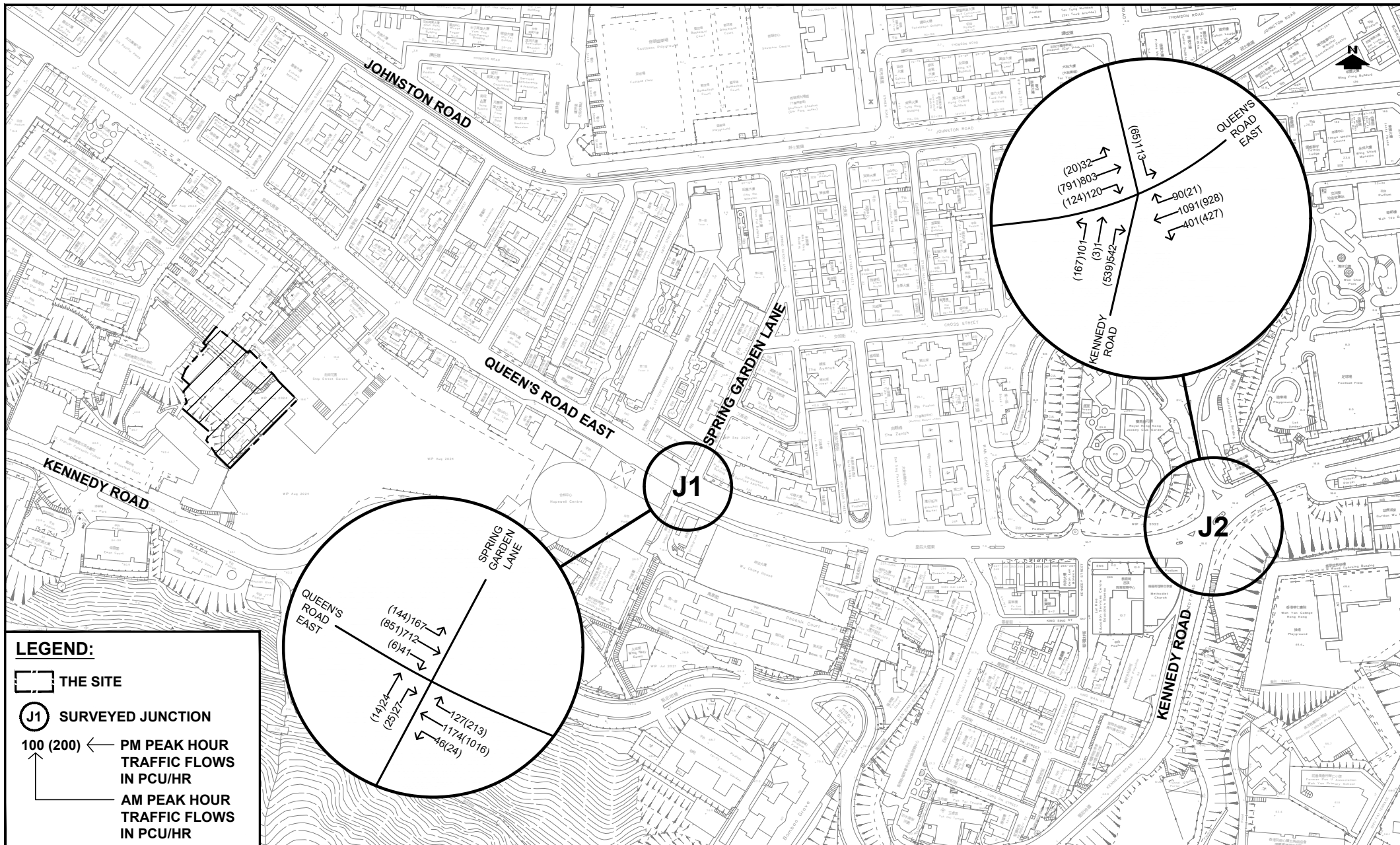
THE SITE

SITE BOUNDARY OF PLANNED DEVELOPMENT

PROJECT NO.	40689-1	
DESIGNED	SLN	DATE DEC 2024
DRAWN	CLL	SCALE 1:3000
CHECKED	SLN	

PROJECT TITLE	PROPOSED DEVELOPMENT AT NOS. 1, 1A, 2 AND 3 HILL SIDE TERRACE, NO. 55 SHIP STREET (NAM KOO TERRACE), NOS. 1 - 5 SCHOONER STREET, NO. 53 SHIP STREET (MIU KANG TERRACE), INLAND LOT NO. 9048 AND ADJOINING GOVERNMENT LAND, WAN CHAI
DRAWING TITLE	LOCATION OF PLANNED DEVELOPMENT

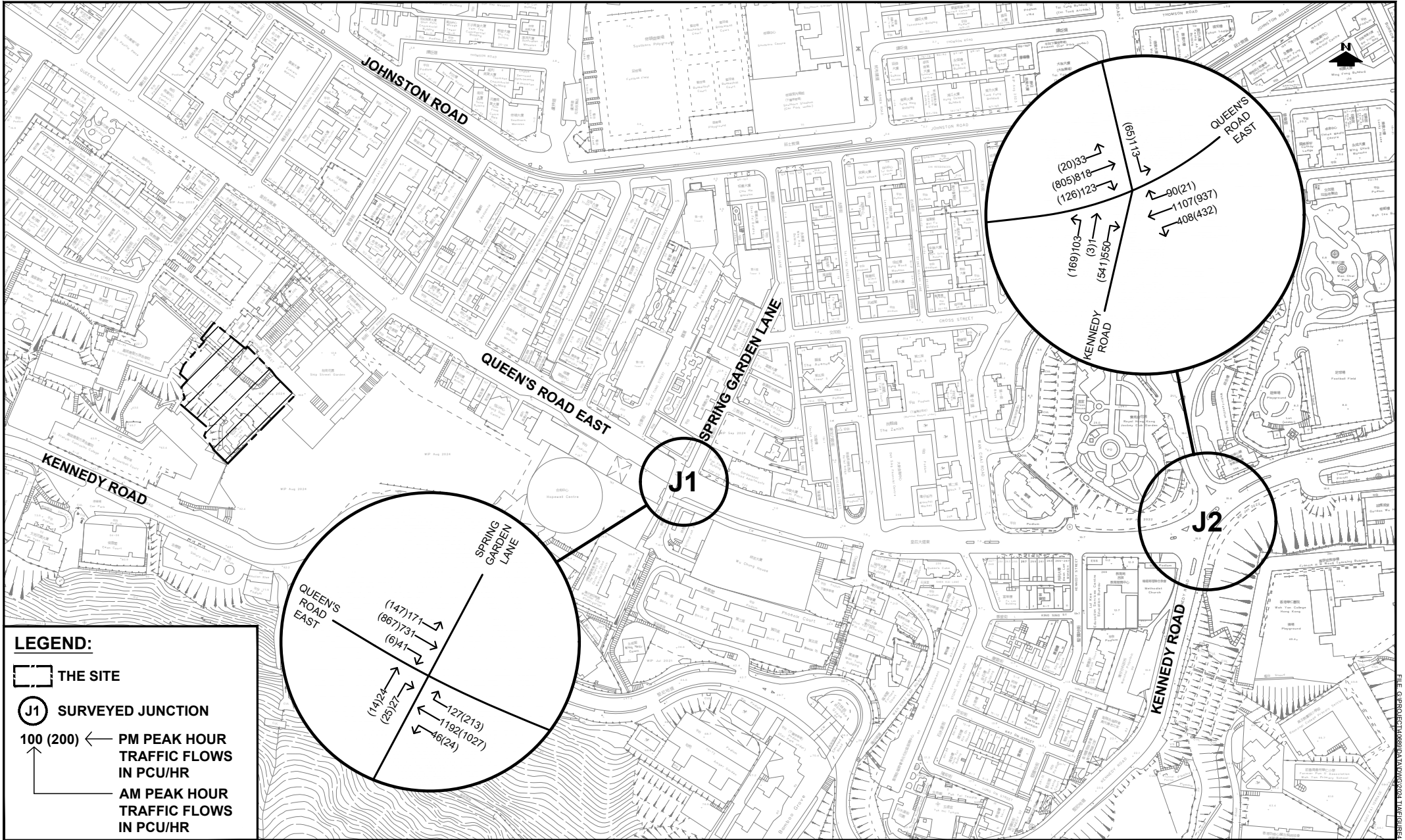
DRAWING NO.	FIGURE 4.1	REV.	A
		顧問有限公司 Consultancy Limited	



PROJECT NO.	40689-1	
DESIGNED	SLN	DATE DEC 2024
DRAWN	CLL	SCALE 1:3000
CHECKED	SLN	

PROJECT TITLE	PROPOSED DEVELOPMENT AT NOS. 1, 1A, 2 AND 3 HILL SIDE TERRACE, NO. 55 SHIP STREET (NAM KOO TERRACE), NOS. 1 - 5 SCHOONER STREET, NO. 53 SHIP STREET (MIU KANG TERRACE), INLAND LOT NO. 9048 AND ADJOINING GOVERNMENT LAND, WAN CHAI	
DRAWING TITLE	2031 REFERENCE TRAFFIC MOVEMENTS	

DRAWING NO.	FIGURE 4.2	REV.	B
LLA 顧問有限公司		Consultancy Limited	



LEGEND:

THE SITE

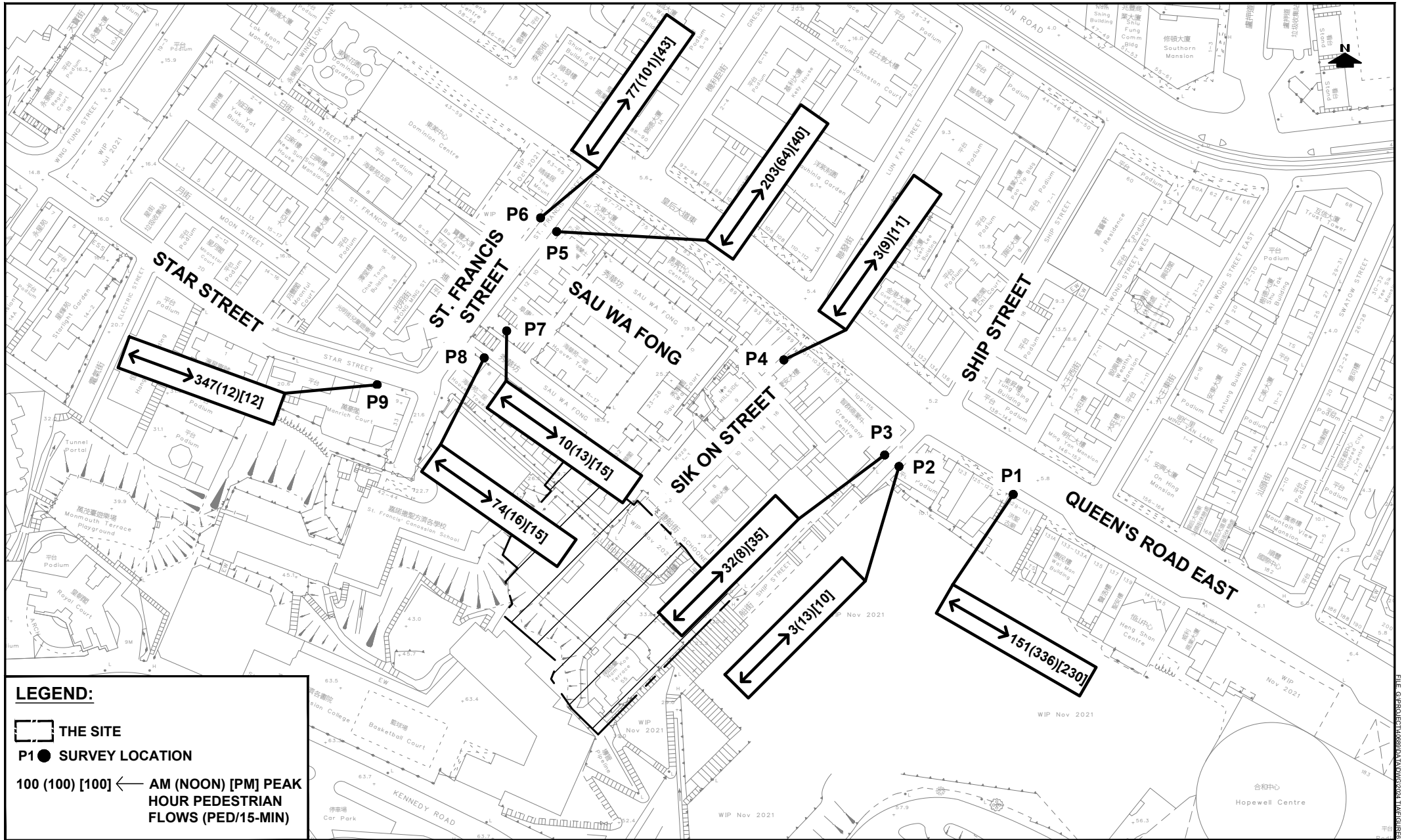
J1 SURVEYED JUNCTION

100 (200) ← PM PEAK HOUR TRAFFIC FLOWS IN PCU/HR
 ← AM PEAK HOUR TRAFFIC FLOWS IN PCU/HR

PROJECT NO.	40689-1	
DESIGNED	SLN	DATE DEC 2024
DRAWN	CLL	SCALE 1:3000
CHECKED	SLN	

PROJECT TITLE	PROPOSED DEVELOPMENT AT NOS. 1, 1A, 2 AND 3 HILL SIDE TERRACE, NO. 55 SHIP STREET (NAM KOO TERRACE), NOS. 1 - 5 SCHOONER STREET, NO. 53 SHIP STREET (MIU KANG TERRACE), INLAND LOT NO. 9048 AND ADJOINING GOVERNMENT LAND, WAN CHAI	
DRAWING TITLE	2031 DESIGN TRAFFIC MOVEMENTS	

DRAWING NO.	FIGURE 4.3	REV.	B
LLA 顧問有限公司		Consultancy Limited	



LEGEND:

THE SITE

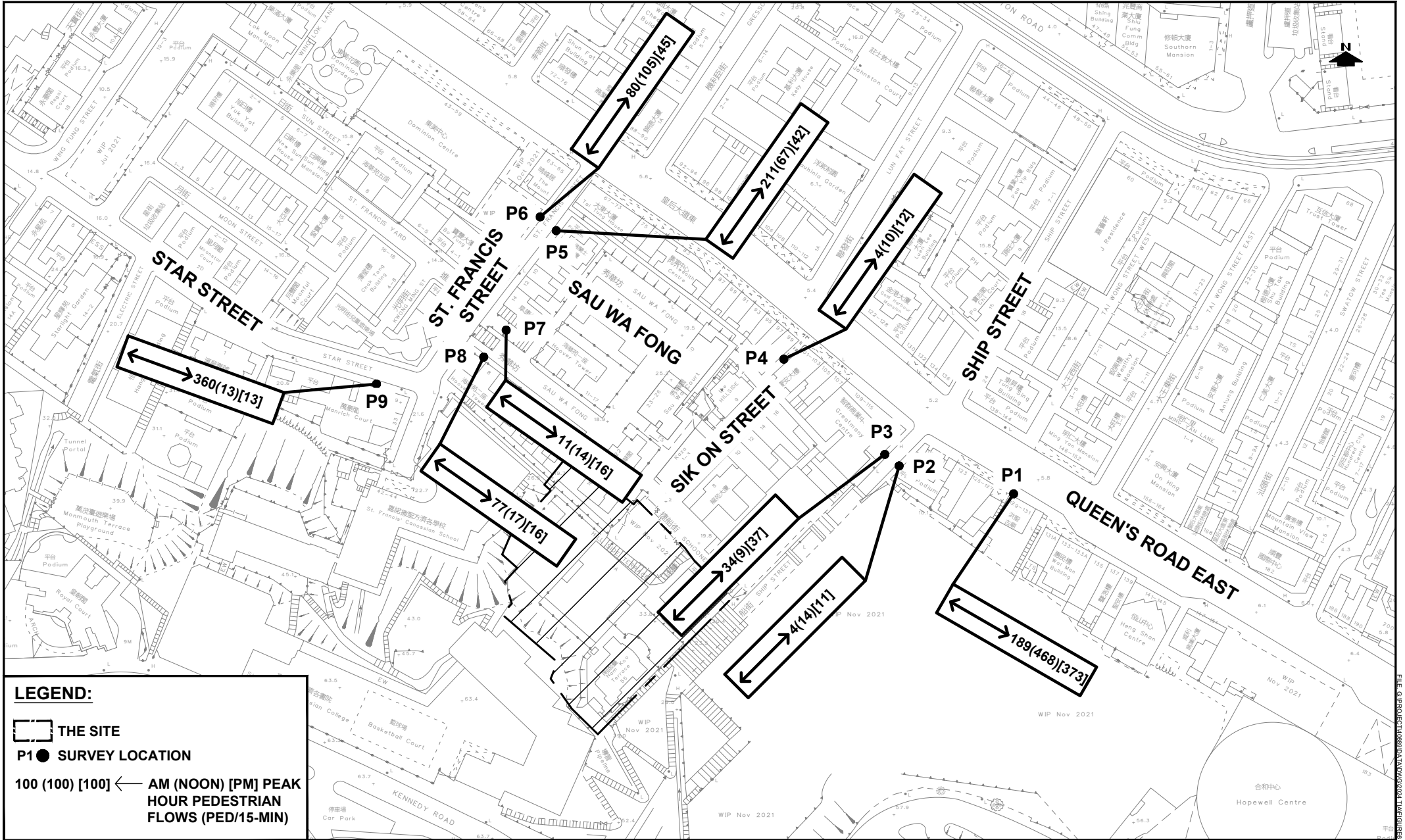
P1 ● SURVEY LOCATION

100 (100) [100] ← AM (NOON) [PM] PEAK HOUR PEDESTRIAN FLOWS (PED/15-MIN)

PROJECT NO.	40689-1	
DESIGNED	SLN	DATE SEP 2024
DRAWN	CLL	SCALE 1:1500
CHECKED	SLN	

PROJECT TITLE	PROPOSED DEVELOPMENT AT NOS. 1, 1A, 2 AND 3 HILL SIDE TERRACE, NO. 55 SHIP STREET (NAM KOO TERRACE), NOS. 1 - 5 SCHOONER STREET, NO. 53 SHIP STREET (MIU KANG TERRACE), INLAND LOT NO. 9048 AND ADJOINING GOVERNMENT LAND, WAN CHAI	
DRAWING TITLE	EXISTING PEAK 15-MINUTE PEDESTRIAN FLOWS	

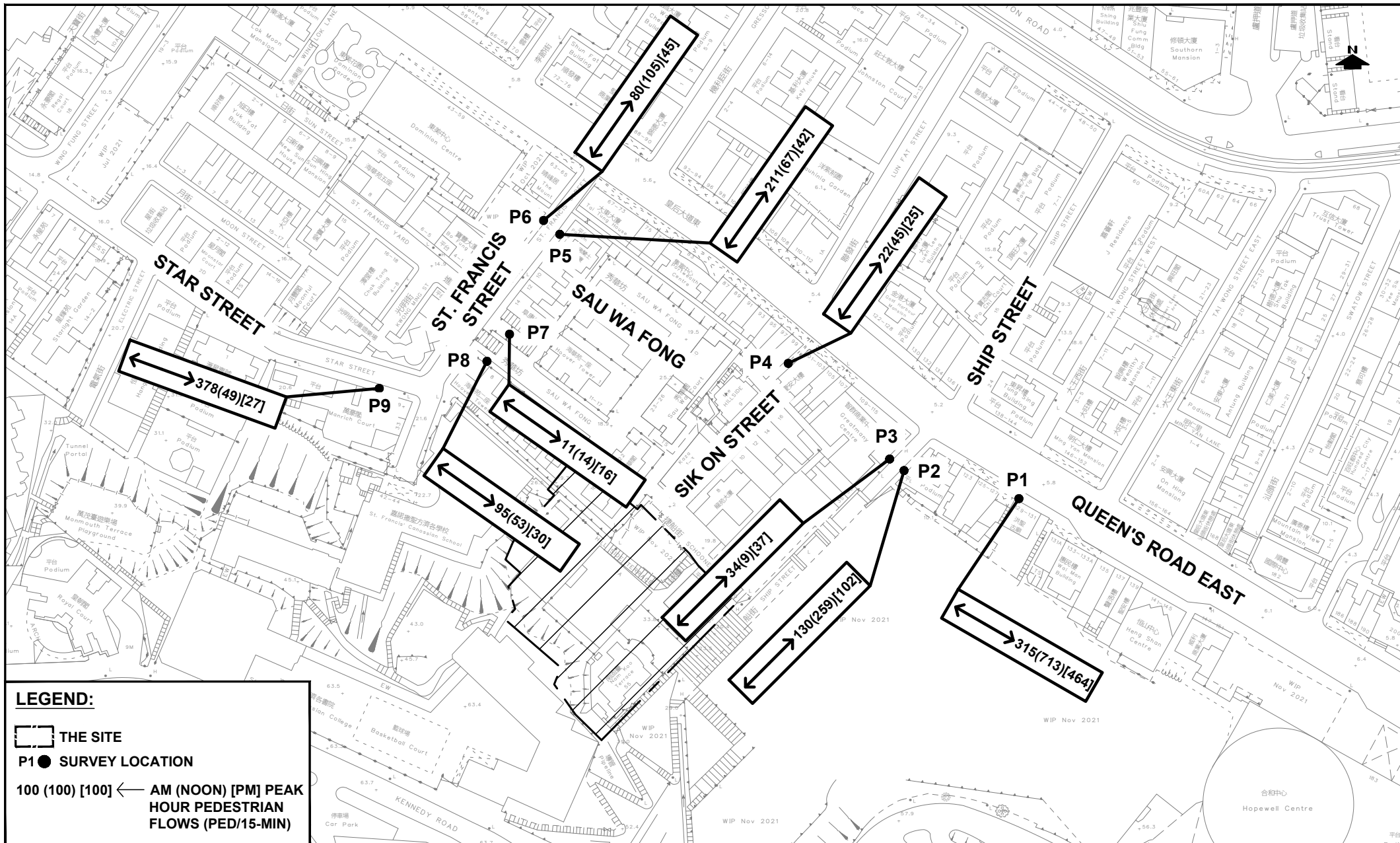
DRAWING NO.	FIGURE 6.1	REV.	A
LLA 顧問有限公司		Consultancy Limited	



PROJECT NO.	40689-1
DESIGNED	SLN
DRAWN	CLL
CHECKED	SLN
DATE	SEP 2024
SCALE	1:1500

PROJECT TITLE	PROPOSED DEVELOPMENT AT NOS. 1, 1A, 2 AND 3 HILL SIDE TERRACE, NO. 55 SHIP STREET (NAM KOO TERRACE), NOS. 1 - 5 SCHOONER STREET, NO. 53 SHIP STREET (MIU KANG TERRACE), INLAND LOT NO. 9048 AND ADJOINING GOVERNMENT LAND, WAN CHAI
DRAWING TITLE	2031 REFERENCE PEAK 15-MINUTE PEDESTRIAN FLOWS

DRAWING NO.	FIGURE 6.2	REV.	A
LLA 顧問有限公司		Consultancy Limited	



LEGEND:

THE SITE

P1 SURVEY LOCATION

100 (100) [100] ← AM (NOON) [PM] PEAK HOUR PEDESTRIAN FLOWS (PED/15-MIN)

PROJECT NO.	40689-1
DESIGNED	SLN
DRAWN	CLL
CHECKED	SLN
DATE	SEP 2024
SCALE	1:1500

PROJECT TITLE
 PROPOSED DEVELOPMENT AT NOS. 1, 1A, 2 AND 3 HILL SIDE TERRACE, NO. 55 SHIP STREET (NAM KOO TERRACE), NOS. 1 - 5 SCHOONER STREET, NO. 53 SHIP STREET (MIU KANG TERRACE), INLAND LOT NO. 9048 AND ADJOINING GOVERNMENT LAND, WAN CHAI

DRAWING TITLE
 2031 DESIGN PEAK 15-MINUTE PEDESTRIAN FLOWS

DRAWING NO.	FIGURE 6.3
REV.	A

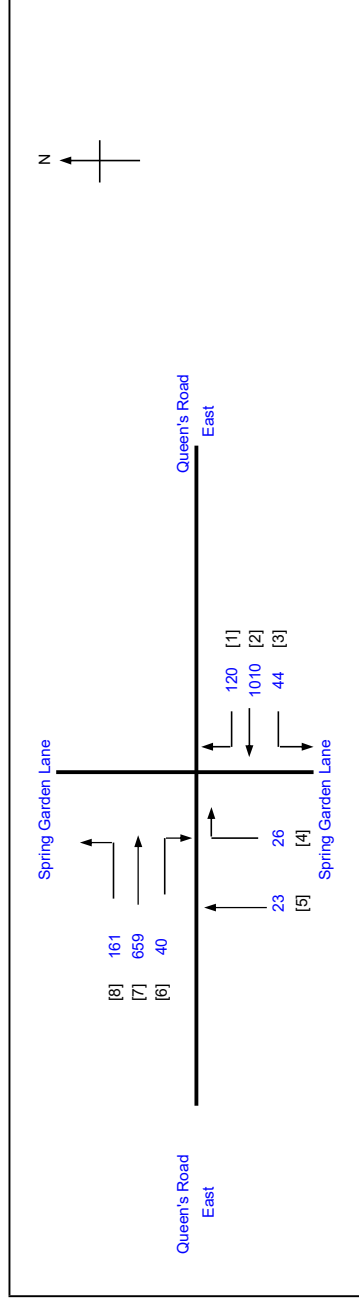
LLA 顧問有限公司
 Consultancy Limited

Appendix A
Junction Capacity Assessments

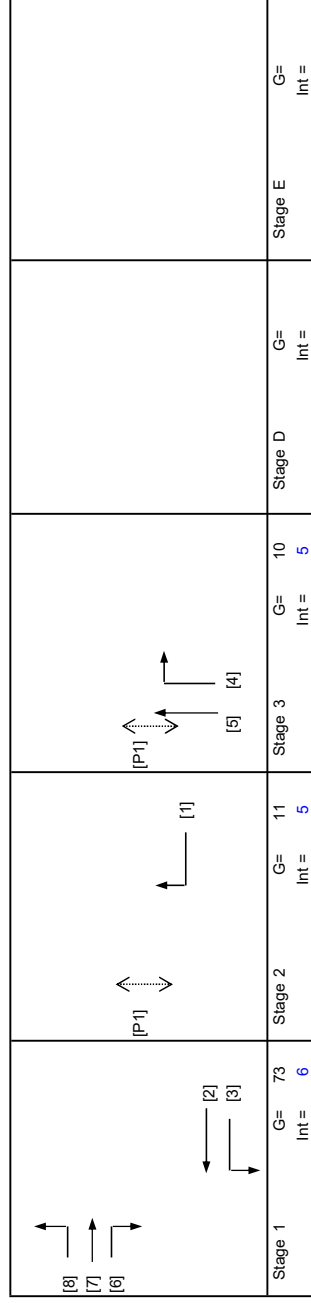
TRAFFIC SIGNAL CALCULATION

LLA CONSULTANCY LIMITED
 Proposed Development at Nos. 1, 1A, 2 and 3 Hill Side Terrace, No. 55 Ship Street (Nam Koo Terrace), Nos. 1 – 5 Schooner Street, No. 53 Ship Street (Miu Kang Terrace), Queen's Road East / Spring Garden Lane

PROJECT NO.: 40689
 FILENAME: JT_0RE_SGL.xlsx
 Prepared By: JTH
 Checked By: HCS
 Reviewed By: SLN
 DATE: Mar-24



No. of stages per cycle: **3**
 Cycle time: **110 sec**
 Sum(y): **0.535**
 Loss time: **13 sec**
 Total Flow: **2083 pcu**
 $Co = (1.5 * L + 5) / (1 - Y)$
 $Cm = L / (1 - Y)$
 $Yult = (Yult - Y) * 100\%$
 $Cp = 0.9 * L / (0.9 - Y)$
 $Ymax = 1 - L / C$
R.C.(C) = $(0.9 * Ymax - Y) * 100\%$ = 48 %



Pedestrian Phase	Stage	Width (m)	Green Time SG	Green Time FG	Green Time Delay	Green Time Provided SG	Green Time Provided FG
P1	2,3	14	12	16	2	13	16

Move-ment	Stage	Lane Width (m)	No. of lane	O	Radius (m)	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)
							Left (pcu/h)	Right (pcu/h)																		Average
2, 2.3*	1	3.00	1			2055	832	832	0.00	2055								2055	0.405	0.405	13	73	74	0.607	48	11
	1	3.00	1		6	1915	222	222	0.20	1825			0.3	-1277				548	0.405	0.405		74	74	0.607	12	16
6.7	1	2.65	1	O	6	2020	454	454	0.09	1751								1751	0.259	0.259		47	74	0.607	42	25
7.8	1	2.65	1		3	1880	406	406	0.40	1569								1569	0.259	0.259		47	74	0.607	42	26
1	2	3.00	1		9	2055	120	120	1.00	1761								1761	0.068	0.068		12	12	0.607	18	54
4.5#	3	2.50	1		15	1865	49	49	0.53	1771			0.5	-974				797	0.061	0.061		11	11	0.607	6	74

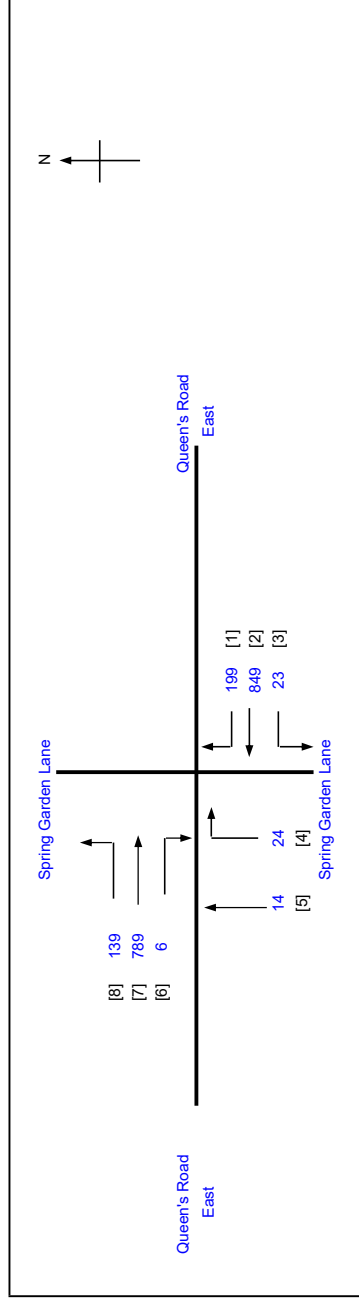
NOTE: O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m
 * A site factor is adopted to reflect the kerbside activities observed. # The length of the traffic lane is only about 20m, a site factor is adopted to reflect the reduction in capacity compared to a normal traffic lane.

TRAFFIC SIGNAL CALCULATION

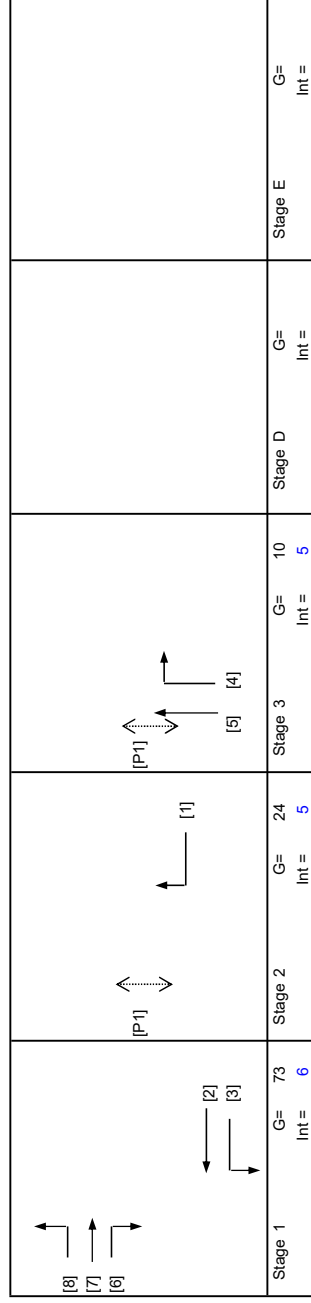
LLA CONSULTANCY LIMITED
 Proposed Development at Nos. 1, 1A, 2 and 3 Hill Side Terrace, No. 55 Ship Street (Nam Koo Terrace), Nos. 1 – 5 Schooner Street, No. 53 Ship Street (Miu Kang Terrace), J1 Queen's Road East / Spring Garden Lane

PROJECT NO.: 40689
 FILENAME: J1_QUE_SGL.xlsx
 Prepared By: JTH
 Checked By: HCS
 Reviewed By: SLN
 DATE: Mar-24

2024 Existing PM



No. of stages per cycle	N =	3
Cycle time	C =	122 sec
Sum(y)	Y =	0.495
Loss time	L =	13 sec
Total Flow	=	2043 pcu
Co	=	48.5 sec
Cm	=	25.7 sec
Yult	=	0.803
R.C.ult	=	62.1 %
Cp	=	28.9 sec
Ymax	=	0.893
R.C.(C)	= 0.9*Ymax-Y)*100%	= 62 %



Pedestrian Phase	Stage	Width (m)	Green Time SG	Green Time FG	Green Time Delay	Green Time Provided SG	Green Time Provided FG
P1	2,3	14	12	16	2	25	16

Move-ment	Stage	Lane Width m.	No. of lane	O	Radius m.	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)	
								Left pcu/h	Right pcu/h																		Average	
2, 2.3*	1	3.00	1			N	2055	686	0.00	2055									2055	0.334	0.334	13	74	74	0.554	54	15	
	1	3.00	1		6		1915	186	0.12	1858				0.3	-1300			558	0.334	0.334		73	74	0.554	12	19		
6.7	1	2.65	1		6	O	2020	489	0.01	1785									1785	0.274	0.274		60	74	0.554	48	22	
	1	2.65	1		3		1880	445	0.31	1626									1626	0.274	0.274		60	74	0.554	42	22	
7.8	1	3.00	1		9		2055	199	1.00	1761									1761	0.113	0.113		25	25	0.554	30	45	
	2	3.00	1		15		1865	38	0.63	1754									789	0.048	0.048		11	11	0.554	6	77	
4.5 #	3	2.50	1																									

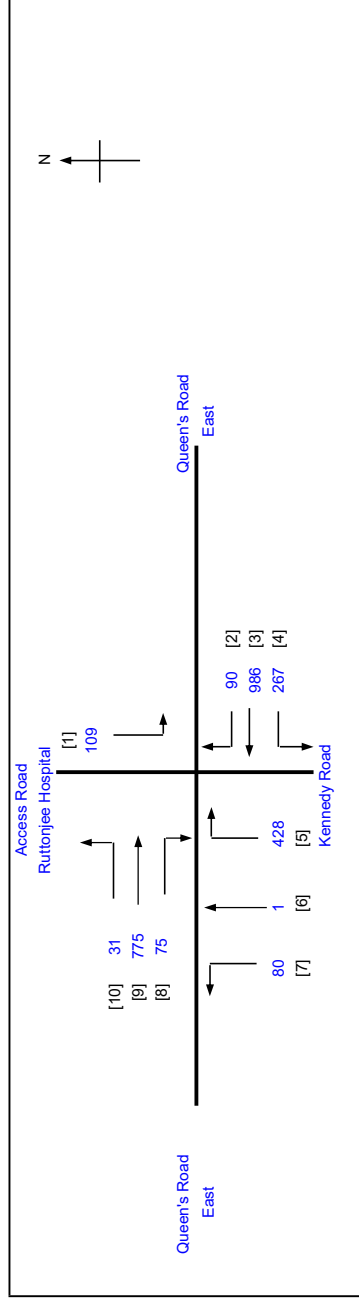
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m
 * A site factor is adopted to reflect the kerbside activities observed. # The length of the traffic lane is only about 20m, a site factor is adopted to reflect the reduction in capacity compared to a normal traffic lane.

TRAFFIC SIGNAL CALCULATION

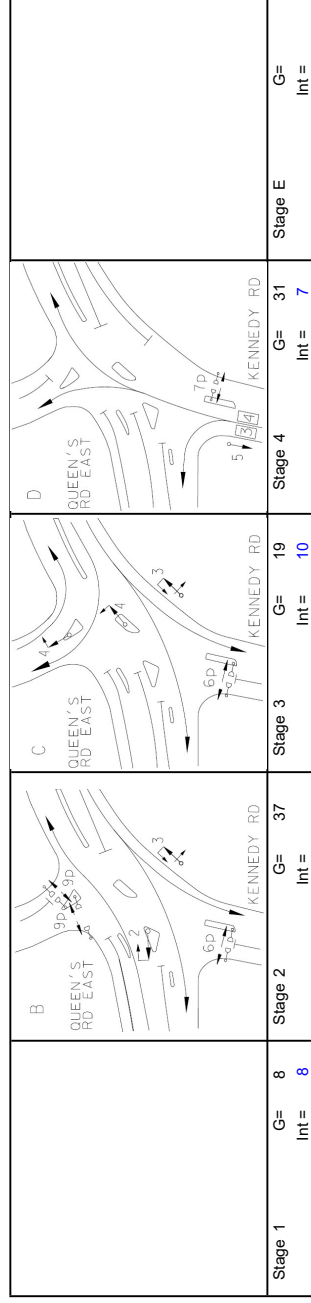
LLA CONSULTANCY LIMITED
 Proposed Development at Nos. 1, 1A, 2 and 3 Hill Side Terrace, No. 55 Ship Street (Nam Koo Terrace), Nos. 1 – 5 Schooner Street, No. 53 Ship Street (Miu Kang Terrace), J2 Queen's Road East/Kennedy Road

PROJECT NO.: 40689
 FILENAME: J2_QUE_KR.xlsx
 Prepared By:
 Checked By:
 Reviewed By:

INITIALS
 SKL
 SLN
 SLN
 DATE
 Oct-24
 Oct-24
 Oct-24



No. of stages per cycle = 4
 Cycle time = 120 sec
 Sum(y) = 0.411
 Loss time = 22 sec
 Total Flow = 2842 pcu
 Co = 64.5 sec
 Crm = 37.3 sec
 Yult = 0.735
 R.C.ult = 79.0 %
 Cp = 40.5 sec
 Ymax = 0.817
R.C.(C) = (0.9*Ymax-Y)*Y*100% = 79 %

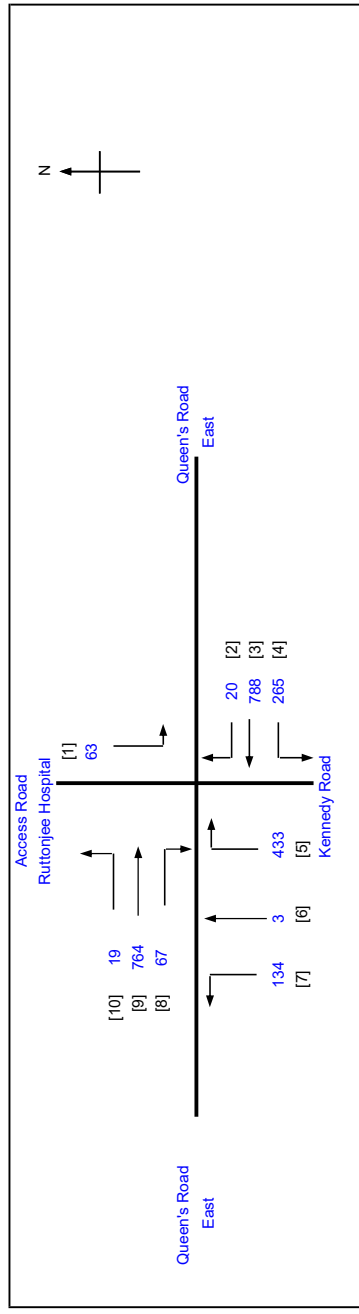


Stage	Green Time (SG)	Green Time (FG)	Delay	Green Time Provided (SG)	Green Time Provided (FG)
1,2,3	5	6	0	76	6
4	5	5	6	27	5
2	11	8	4	25	8

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 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)
								Left (pcu/h)	Straight (pcu/h)	Right (pcu/h)																	
1	3	4.00	1	10		N	2015	109		75	109	1.00	1752					1752	0.062		22	15	20	0.503	18	52	
10	1	3.30	1	10		N	1945	31		775	31	1.00	1691	0.6	-677			1014	0.031			7	9	0.503	6	76	
9	1,2	3.30	2	15			4170				775	0.00	4170					4170	0.186			44	46	0.503	48	27	
8	1	3.30	1	15			2085			75	75	1.00	1895					1895	0.040	0.040		9	9	0.503	12	59	
2	3	3.30	1	10		N	2085			90	90	1.00	1813	0.6	-725			1068	0.083			20	20	0.503	12	50	
3	2,3	3.30	2	50			4170			986	986	0.00	4170					4170	0.236	0.236		56	56	0.503	51	21	
4	2,3	3.40	1	50			1955			267	267	1.00	1898					1898	0.141			34	56	0.503	36	36	
5,6,7	4	3.10	1	30		N	1925			80	1	1.00	1834					1834	0.135	0.135		32	32	0.503	36	37	
5	4	3.10	1	25			2065			262	262	1.00	1948					1948	0.134			32	32	0.503	36	37	

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		TRAFFIC SIGNAL CALCULATION		INITIALS	DATE
Proposed Development at Nos. 1, 1A, 2 and 3 Hill Side Terrace, No. 55 Ship Street (Nam Koo Terrace), Nos. 1 – 5 Schooner Street, No. 53 Ship Street (Miu Kang Terrace), J2 Queen's Road East/Kennedy Road		PROJECT NO.: 40689	Prepared By:	SKL	Oct-24
		FILENAME : J2_0RE_KR.xlsx	Checked By:	SLN	Oct-24
			Reviewed By:	SLN	Oct-24



No. of stages per cycle	N = 4
Cycle time	C = 122 sec
Sum(y)	0.375
Loss time	Y = 23 sec
Total Flow	L = 2556 pcu
Co	= (1.5*L+5)/(1-Y) = 63.2 sec
Cm	= L/(1-Y) = 36.8 sec
Yult	= 0.728
R.C.ult	= (Yult-Y)*100% = 93.8 %
Cp	= 0.9*L/(0.9-Y) = 39.5 sec
Ymax	= 1-L/C = 0.811
R.C.(C)	= (0.9*Ymax-Y)*100% = 95 %

Pedestrian Phase	Stage	Green Time Required SG	Delay FG	Green Time Provided SG	FG
6P	2,3,4	5	0	70	6
7P	1	5	5	36	5
9P	3	11	8	37	8

Stage	G=	Int=	Stage	G=	Int=
Stage 1	39	7	Stage 2	8	8
Stage 3	40	9	Stage 4	8	10

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 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)
1	2	4.00	1	10		N	2015	63			63	1.00	1752							1752	0.036		23	9	9	0.463	12	59
10	4	3.30	1	10		N	1945	19	764		783	1.00	1691		-677	0.6	-677		1014	0.019			5	9	0.463	0	85	
9	3,4	3.30	2	15		N	4170				764	0.00	4170						4170	0.183	0.035		48	50	0.463	45	25	
8	4	3.30	1	15		N	2085				67	1.00	1895						1895	0.035			9	9	0.463	12	58	
2	2	3.30	1	10		N	2085				20	1.00	1813		-725	0.6	-725		1068	0.018			5	9	0.463	0	84	
3	2,3	3.30	2	50		N	4170				788	0.00	4170						4170	0.189	0.189		50	50	0.463	45	24	
4	2,3	3.40	1	50		N	1955				265	1.00	1898						1898	0.140			37	50	0.463	36	34	
5,6,7	1	3.10	1	30		N	1925				3	0.99	1834						1834	0.151	0.151		40	40	0.463	36	32	
5	1	3.10	1	25		N	2065				293	1.00	1948						1948	0.150			40	40	0.463	36	32	

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

TRAFFIC SIGNAL CALCULATION

LLA CONSULTANCY LIMITED

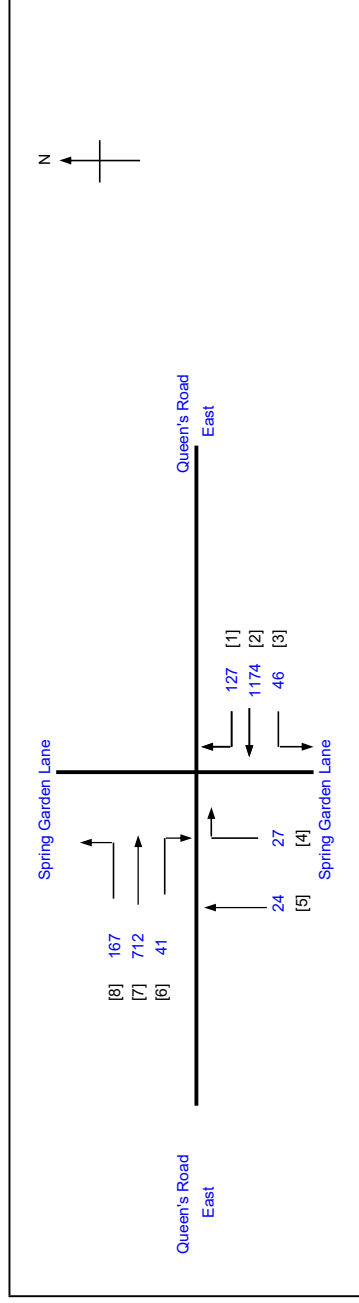
Proposed Development at Nos. 1, 1A, 2 and 3 Hill Side Terrace, No. 55 Ship Street (Nam Koo Terrace), Nos. 1 – 5 Schooner Street, No. 53 Ship Street (Miu Kang Terrace), J1 Queen's Road East / Spring Garden Lane

PROJECT NO.: 40689
 FILENAME: J1_QUE_SGL.xlsx

Prepared By:
 Checked By:
 Reviewed By:

INITIALS
 SKL
 SLN
 SLN

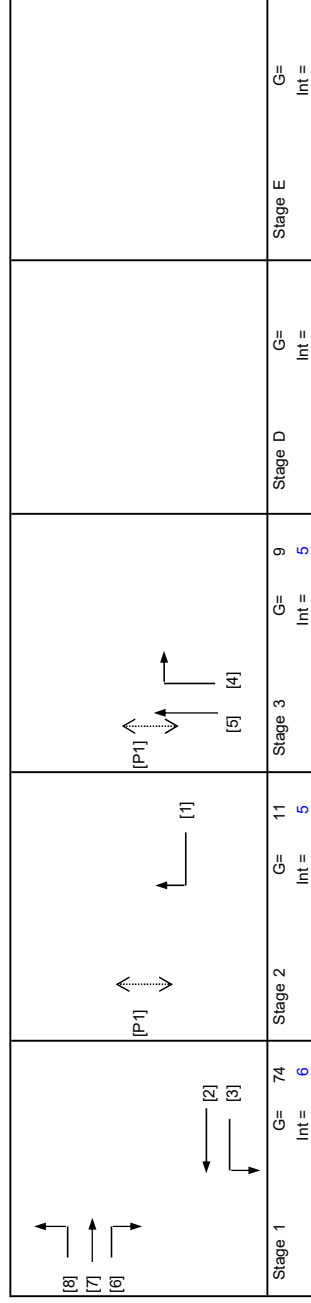
DATE
 Dec-24
 Dec-24
 Dec-24



No. of stages per cycle
 Cycle time
 Sum(y)
 Loss time
 Total Flow
 Co
 Crm
 Yult
 R.C.ult
 Cp
 Ymax

N = 3
 C = 110 sec
 Y = 0.605
 L = 13 sec
 = 2318 pcu
 = 62.0 sec
 = 32.9 sec
 = 0.803
 = 32.7 %
 = 39.7 sec
 = 0.882

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



Stage	Width (m)	Green Time Required SG	Green Time Provided SG
P1	14	12	12
		16	16
		2	2

Move-ment	Stage	Lane Width m.	No. of lane	O	Radius m.	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 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)
2, 3*	1	3.00	1			N	2055	962	258	962	962	0.00	2055							2055	0.468	0.468	13	75	75	0.686	54	12
	1	3.00	1		6		1915	46	212	212	258	0.18	1833			0.3	-1283			550	0.469	0.469		75	75	0.686	12	19
6, 7	1	2.65	1	O	6		2020		443	41	484	0.08	1753							1753	0.276	0.276		44	44	0.686	48	29
7, 8	1	2.65	1		3		1880	167	269	269	436	0.38	1578							1578	0.276	0.276		44	44	0.686	42	30
1	2	3.00	1		9		2055		127	127	127	1.00	1761							1761	0.072	0.072		12	12	0.686	18	62
4, 5 #	3	2.50	1		15		1865	24	27	27	51	0.53	1771			0.5	-974			797	0.064	0.064		10	10	0.686	6	91

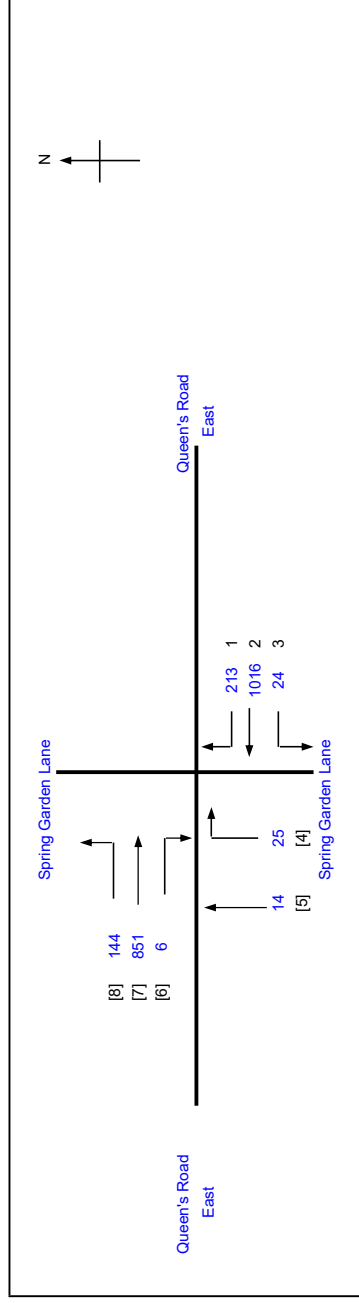
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m
 * A site factor is adopted to reflect the kerbside activities observed. # The length of the traffic lane is only about 20m, a site factor is adopted to reflect the reduction in capacity compared to a normal traffic lane.

TRAFFIC SIGNAL CALCULATION

LLA CONSULTANCY LIMITED
 Proposed Development at Nos. 1, 1A, 2 and 3 Hill Side Terrace, No. 55 Ship Street (Nam Koo Terrace), Nos. 1 – 5 Schooner Street, No. 53 Ship Street (Miu Kang Terrace), J1 Queen's Road East / Spring Garden Lane

PROJECT NO.: 40689
 FILENAME: J1_QUE_SGL.xlsx
 Prepared By: [Blank]
 Checked By: [Blank]
 Reviewed By: [Blank]

INITIALS
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 DATE
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 Dec-24



No. of stages per cycle N = 3
 Cycle time C = 122 sec
 Sum(y) Y = 0.569
 Loss time L = 13 sec
 Total Flow = 2293 pcu
 Co = 56.8 sec
 Crm = 30.1 sec
 Yult = 0.803
 R.C.ult = 41.1 %
 Cp = 35.3 sec
 Ymax = 0.893
R.C.(C) = (0.9*Ymax-Y)*100% = 41 %

Stage	Width (m)	Green Time Required SG	Green Time Provided SG
P1	14	12	23
		Delay 2	FG 16

Stage	G=	Int=	Stage	G=	Int=
Stage 1	75	6	Stage 2	22	5
Stage 3	8	5	Stage D	G=	Int=

Move-ment	Stage	Lane Width (m)	No. of lane	O	Radius (m)	N	Straight Ahead Sat. Flow	Movement Left Sat. Flow	Movement Straight Sat. Flow	Movement Right Sat. Flow	Total FLOW	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)
2, 3*	1	3.00	1			N	2055	24	199	817	817	0.00	2055							2055	0.398	0.398	13	76	76	0.637	60	15
6, 7	1	2.65	1	O	6	N	2020		517	523	523	0.01	1785							1785	0.293	0.293	56	76	76	0.637	54	26
7, 8	1	2.65	1		3	N	1880	144	334	478	478	0.30	1634							1634	0.293	0.293	56	76	76	0.637	48	26
1	2	3.00	1		9	N	2055		213	213	213	1.00	1761							1761	0.121	0.121	23	23	23	0.637	30	49
4, 5 #	3	2.50	1		15	N	1865		14	39	39	0.64	1753			0.5	-964			789	0.049	0.049	9	9	9	0.637	6	95

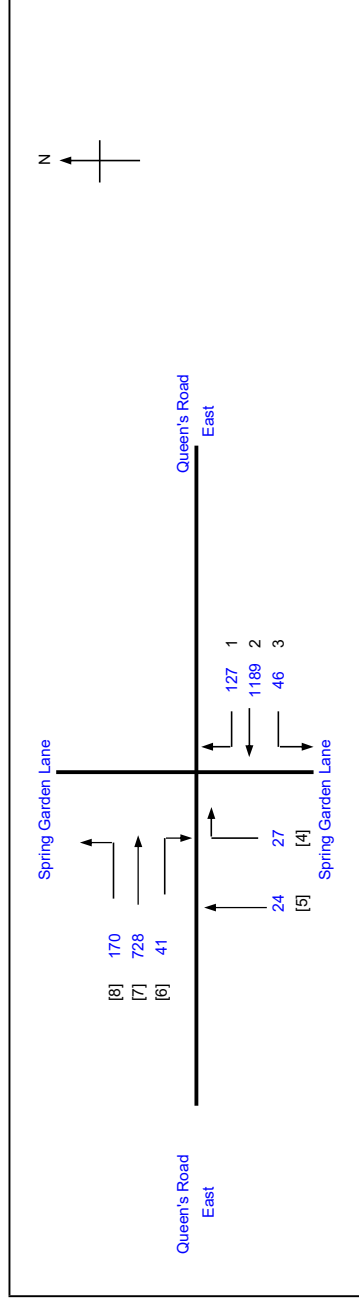
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m
 * A site factor is adopted to reflect the kerbside activities observed. # The length of the traffic lane is only about 20m, a site factor is adopted to reflect the reduction in capacity compared to a normal traffic lane.

TRAFFIC SIGNAL CALCULATION

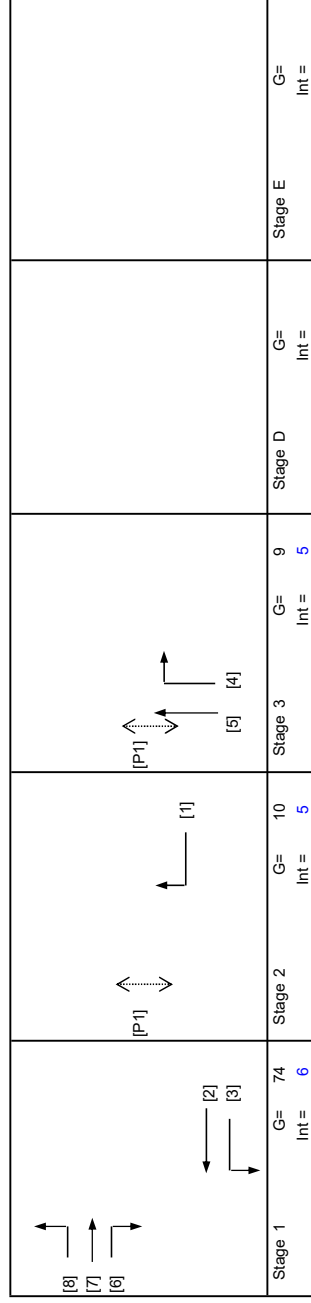
LLA CONSULTANCY LIMITED
 Proposed Development at Nos. 1, 1A, 2 and 3 Hill Side Terrace, No. 55 Ship Street (Nam Koo Terrace), Nos. 1 – 5 Schooner Street, No. 53 Ship Street (Miu Kang Terrace), J1 Queen's Road East / Spring Garden Lane

PROJECT NO.: 40689
 FILENAME: J1_0RE_SGL.xlsx
 Prepared By: [Blank]
 Checked By: [Blank]
 Reviewed By: [Blank]

INITIALS
 SKL
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 Dec-24
 Dec-24
 Dec-24



No. of stages per cycle **N = 3**
 Cycle time **C = 110 sec**
 Sum(y) **Y = 0.610**
 Loss time **L = 13 sec**
 Total Flow **= 2352 pcu**
 $Co = (1.5 * L + 5) / (1 - Y) = 62.9 \text{ sec}$
 $Cm = L / (1 - Y) = 33.4 \text{ sec}$
 $Yult = 0.803$
 $R.C.ult = (Yult - Y) * 100\% = 31.5 \%$
 $Cp = 0.9 * L / (0.9 - Y) = 40.4 \text{ sec}$
 $Ymax = 1 - L / C = 0.882$
R.C.(C) = (0.9 * Ymax - Y) * 100% = 30 %



Pedestrian Phase	Stage	Width (m)	Green Time SG	Green Time FG	Delay	Green Time Provided SG	Green Time Provided FG
P1	2,3	14	12	16	2	12	16

Move-ment	Stage	Lane Width m.	No. of lane	O	Radius m.	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)
							Left pcu/h	Right pcu/h																		Average Delay (seconds)
2, 3*	1	3.00	1			2055	974	974	0.00	2055								2055	0.474	0.474	13	75	75	0.692	54	12
	1	3.00	1		6	1915	261	261	0.18	1834			0.3	-1284				550	0.474	0.474		75	75	0.692	12	19
6, 7	1	2.65	1	O	6	2020	494	494	0.08	1754								1754	0.282	0.282		45	75	0.692	48	29
	1	2.65	1		3	1880	445	445	0.38	1578								1578	0.282	0.282		45	75	0.692	48	30
1	2	3.00	1		9	2055	127	127	1.00	1761								1761	0.072	0.072		11	11	0.692	18	63
	3	2.50	1		15	1865	51	51	0.53	1771				0.5	-974			797	0.064	0.064		10	10	0.692	12	93

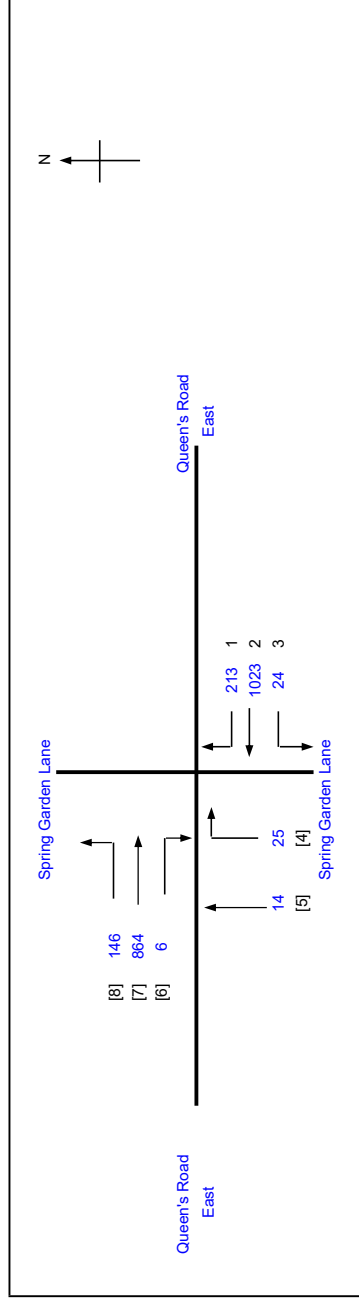
NOTE: O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m
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 Proposed Development at Nos. 1, 1A, 2 and 3 Hill Side Terrace, No. 55 Ship Street (Nam Koo Terrace), Nos. 1 – 5 Schooner Street, No. 53 Ship Street (Miu Kang Terrace), J1 Queen's Road East / Spring Garden Lane

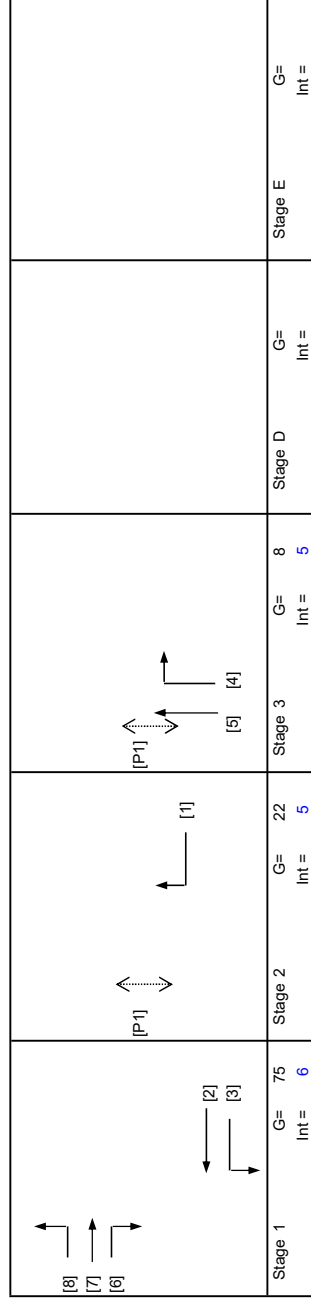
PROJECT NO.: 40689
 FILENAME: J1_QUE_SGL.xlsx
 Prepared By: [Blank]
 Checked By: [Blank]
 Reviewed By: [Blank]

INITIALS
 SKL
 SLN
 SLN
 DATE
 Dec-24
 Dec-24
 Dec-24



No. of stages per cycle = 3
 Cycle time = 122 sec
 Sum(y) = 0.571
 Loss time = 13 sec
 Total Flow = 2315 pcu
 Co = 57.1 sec
 Crm = 30.3 sec
 Yult = 0.803
 R.C.ult = 40.5 %
 Cp = 35.6 sec
 Ymax = 0.893

R.C.(C) = (0.9*Ymax-y)/Y*100% = 41 %



Pedestrian Phase	Stage	Width (m)	Green Time Required SG	Green Time Provided SG
P1	2,3	14	12	23
			Delay 2	FG 16
				FG 16

Move-ment	Stage	Lane Width m.	No. of lane	O	Radius m.	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)
							Left pcu/h	Right pcu/h																		Average Delay (seconds)
2, 2.3*	1	3.00	1			2055	823	823	0.00	2055								2055	0.400	0.400	13	76	76	0.639	60	15
	1	3.00	1		6	1915	224	224	0.11	1865			0.3	-1306				559	0.401	0.401		76	76	0.639	12	21
6.7	1	2.65	1	O	6	2020	530	530	0.01	1785								1785	0.297	0.297		57	76	0.639	54	26
7.8	1	2.65	1		3	1880	486	486	0.30	1634								1634	0.297	0.297		57	76	0.639	48	26
1	2	3.00	1		9	2055	213	213	1.00	1761								1761	0.121	0.121		23	23	0.639	30	50
4.5#	3	2.50	1		15	1865	39	39	0.64	1753			0.5	-964				789	0.049	0.049		9	9	0.639	6	96

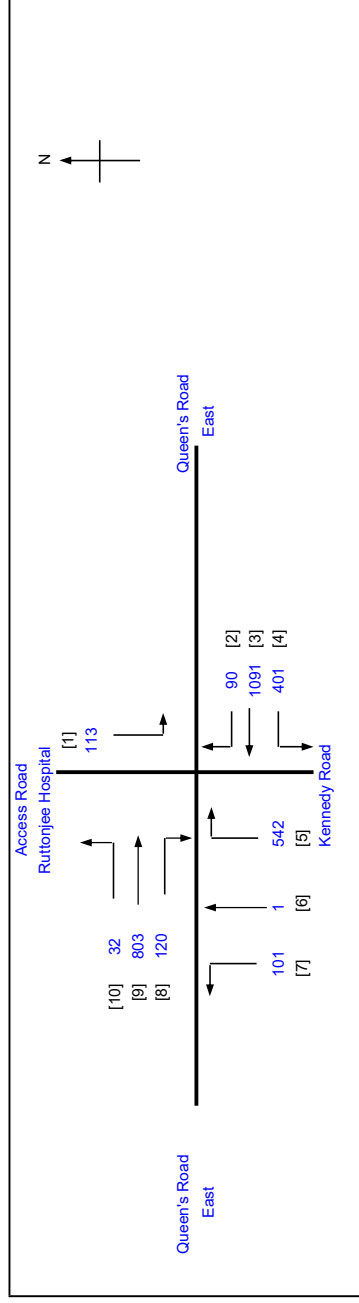
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TRAFFIC SIGNAL CALCULATION

LLA CONSULTANCY LIMITED
 Proposed Development at Nos. 1, 1A, 2 and 3 Hill Side Terrace, No. 55 Ship Street (Nam Koo Terrace), Nos. 1 – 5 Schooner Street, No. 53 Ship Street (Miu Kang Terrace), J2 Queen's Road East/Kennedy Road

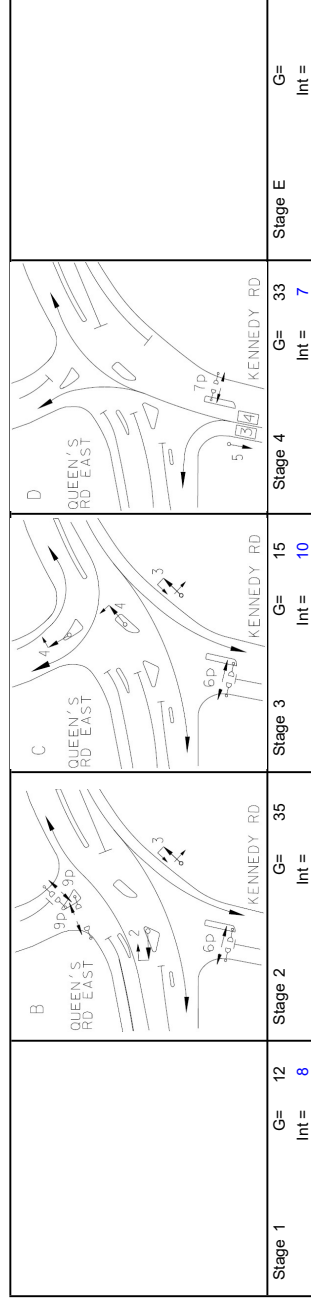
PROJECT NO.: 40689
 FILENAME: J2_QUE_KR.xlsx
 Prepared By:
 Checked By:
 Reviewed By:

INITIALS DATE
 SKL Dec-24
 SLN Dec-24
 SLN Dec-24



No. of stages per cycle = 4
 Cycle time = 120 sec
 Sum(y) = 0.495
 Loss time = 22 sec
 Total Flow = 3294 pcu
 Co = (1.5*L+5)/(1-Y) = 75.3 sec
 Crm = L/(1-Y) = 43.6 sec
 Yult = 0.735
 R.C.ult = (Yult-Y)*100% = 48.4 %
 Cp = 0.9*L/(0.9-Y) = 48.9 sec
 Ymax = 1-L/C = 0.817

R.C.(C) = (0.9*Ymax-Y)*100% = 48 %



Pedestrian Phase	Stage	Green Time SG	Green Time FG	Delay	Green Time Provided SG	Green Time Provided FG
P1	1,2,3	5	6	0	74	6
P2	4	5	5	6	29	5
P3	2	11	8	4	23	8

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)
								Left pcu/h	Right pcu/h																		
1	3	4.00	1	10		N	2015	113	0	113	1.00	1752						1752	0.064	0.064	22	13	16	0.607	18	60	
10	1	3.30	1	10		N	1945	32	803	32	1.00	1691		0.6	-677			1014	0.032	0.032		6	13	0.607	6	97	
9	1,2	3.30	2	15		N	4170	0	803	803	0.00	4170						4170	0.193	0.193		38	48	0.607	54	33	
8	1	3.30	1	15		N	2085	120	120	120	1.00	1895						1895	0.063	0.063		13	13	0.607	18	59	
2	3	3.30	1	10		N	2085	90	1091	90	1.00	1813		0.6	-725			1088	0.083	0.083		16	16	0.607	12	61	
3	2,3	3.30	2	50		N	4170	401	1091	1091	0.00	4170						4170	0.262	0.262		52	52	0.607	60	25	
4	2,3	3.40	1	50		N	1955	401	401	401	1.00	1898						1898	0.211	0.211		42	52	0.607	48	33	
5,6,7	4	3.10	1	30		N	1925	101	1	312	1.00	1834						1834	0.170	0.170		34	34	0.607	42	39	
5	4	3.10	1	25		N	2065	332	332	332	1.00	1948						1948	0.170	0.170		34	34	0.607	42	38	

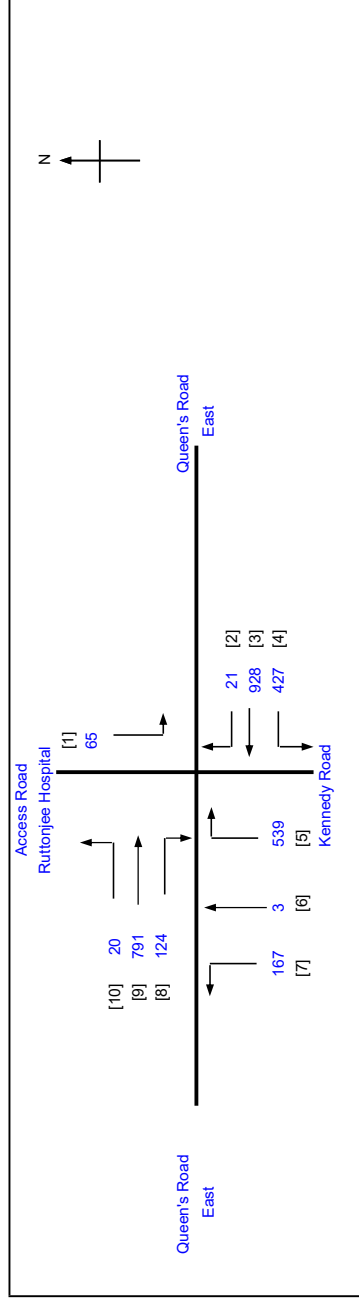
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION

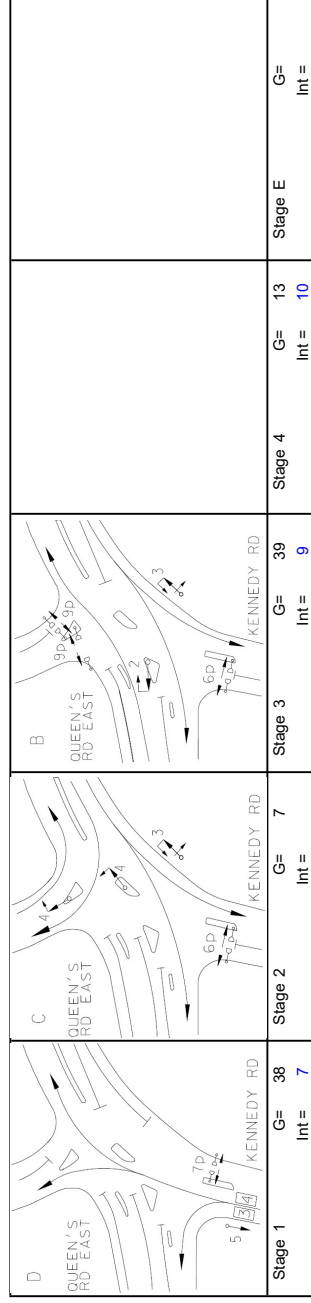
LLA CONSULTANCY LIMITED
 Proposed Development at Nos. 1, 1A, 2 and 3 Hill Side Terrace, No. 55 Ship Street (Nam Koo Terrace), Nos. 1 – 5 Schooner Street, No. 53 Ship Street (Miu Kang Terrace), J2 Queen's Road East/Kennedy Road

PROJECT NO.: 40689
 FILENAME: J2_QUE_KR.xlsx
 Prepared By:
 Checked By:
 Reviewed By:

INITIALS DATE
 SKL Dec-24
 SLN Dec-24
 SLN Dec-24



No. of stages per cycle = 4
 Cycle time = 122 sec
 Sum(y) = 0.478
 Loss time = 23 sec
 Total Flow = 3085 pcu
 Co = (1.5*L+5)/(1-Y) = 75.7 sec
 Crm = L/(1-Y) = 44.1 sec
 Yult = 0.728
 R.C.ult = (Yult-Y)*100% = 52.2 %
 Cp = 0.9*L/(0.9-Y) = 49.0 sec
 Ymax = 1-L/C = 0.811
R.C.(C) = (0.9*Ymax-Y)*100% = 53 %



Pedestrian Phase	Stage	Green Time SG	Green Time FG	Delay	Green Time Provided SG	Green Time Provided FG
P1	2,3,4	5	6	0	71	6
P2	1	5	5	5	35	5
P3	3	11	8	4	36	8

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 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)
1	2	4.00	1	10		N	2015	65			65	1.00	1752							1752	0.037		23	8	8	0.589	12	71
10	4	3.30	1	10		N	1945	20			20	1.00	1691			0.6	-677			1014	0.020			4	14	0.589	0	121
9	3,4	3.30	2	15			4170		791		791	0.00	4170							4170	0.190	0.065		39	52	0.589	54	33
8	4	3.30	1	15			2085			124	124	1.00	1895							1895	0.065			14	14	0.589	18	57
2	2	3.30	1	10		N	2085			21	21	1.00	1813			0.6	-725			1068	0.019			4	8	0.589	6	117
3	2,3	3.30	2	50			4170		928		928	0.00	4170							4170	0.223	0.225		46	47	0.589	57	29
4	2,3	3.40	1	50		N	1955			427	427	1.00	1898							1898	0.225			47	47	0.589	48	30
5,6,7	1	3.10	1	30		N	1925		3		3	0.99	1834							1834	0.188	0.188		39	39	0.589	42	35
5	1	3.10	1	25		N	2065			365	365	1.00	1948							1948	0.187			39	39	0.589	48	35

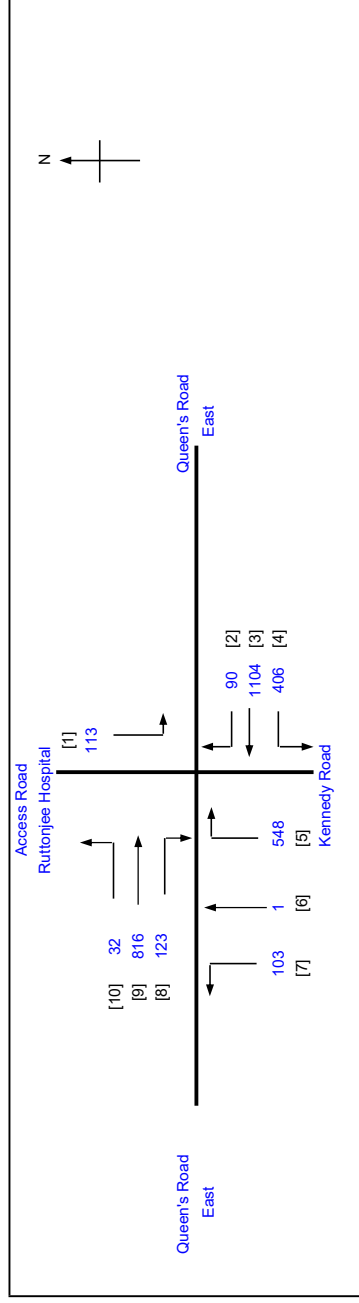
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION

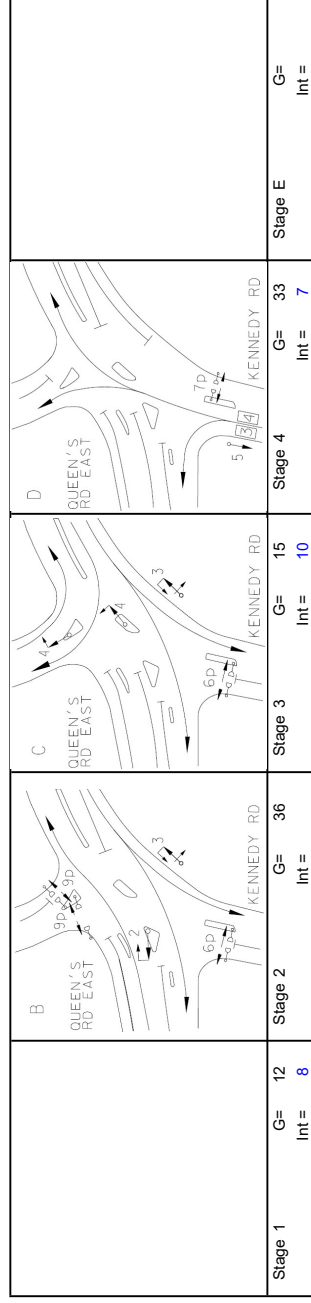
LLA CONSULTANCY LIMITED
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PROJECT NO.: 40689
 FILENAME: J2_QUE_KR.xlsx
 Prepared By:
 Checked By:
 Reviewed By:

INITIALS DATE
 SKL Dec-24
 SLN Dec-24
 SLN Dec-24



No. of stages per cycle: **4**
 Cycle time: **120 sec**
 Sum(y): **0.502**
 Loss time: **22 sec**
 Total Flow: **3336 pcu**
 Co = $(1.5 \cdot L + 5) / (1 - Y)$: **76.3 sec**
 Crm = $L / (1 - Y)$: **44.2 sec**
 Yult: **0.735**
 R.C.ult = $(Yult - Y) \cdot Y \cdot 100\%$: **46.4 %**
 Cp = $0.9 \cdot L / (0.9 - Y)$: **49.8 sec**
 Ymax = $1 - L / C$: **0.817**
R.C.(C) = $(0.9 \cdot Ymax - Y) \cdot Y \cdot 100\%$ = 46 %



Green Time Provided	Green Time Required	Stage	Green Time Required	Green Time Provided
SG	FG	Delay	SG	FG
5	6	1,2,3	5	6
5	5	4	5	5
11	8	2	11	8

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)
								Left pcu/h	Right pcu/h																		
1	3	4.00	1	10		N	2015	113	113	113	1.00	1752						1752	0.064	0.064	22	13	16	0.615	18	60	
10	1	3.30	1	10		N	1945	32	32	32	1.00	1691		0.6	-677			1014	0.032	0.032		6	13	0.615	6	100	
9	1,2	3.30	2	15			4170	816	816	816	0.00	4170						4170	0.196	0.196		38	48	0.615	54	33	
8	1	3.30	1	15			2085	123	123	123	1.00	1895						1895	0.065	0.065		13	13	0.615	18	59	
2	3	3.30	1	10		N	2085	90	90	90	1.00	1813		0.6	-725			1088	0.083	0.083		16	16	0.615	12	62	
3	2,3	3.30	2	50			4170	1104	1104	1104	0.00	4170						4170	0.265	0.265		52	52	0.615	60	25	
4	2,3	3.40	1	50			1955	406	406	406	1.00	1898						1898	0.214	0.214		42	52	0.615	48	33	
5,6,7	4	3.10	1	30		N	1925	103	103	316	1.00	1834						1834	0.172	0.172		34	34	0.615	42	39	
5	4	3.10	1	25			2065	336	336	336	1.00	1948						1948	0.172	0.172		34	34	0.615	48	39	

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

TRAFFIC SIGNAL CALCULATION

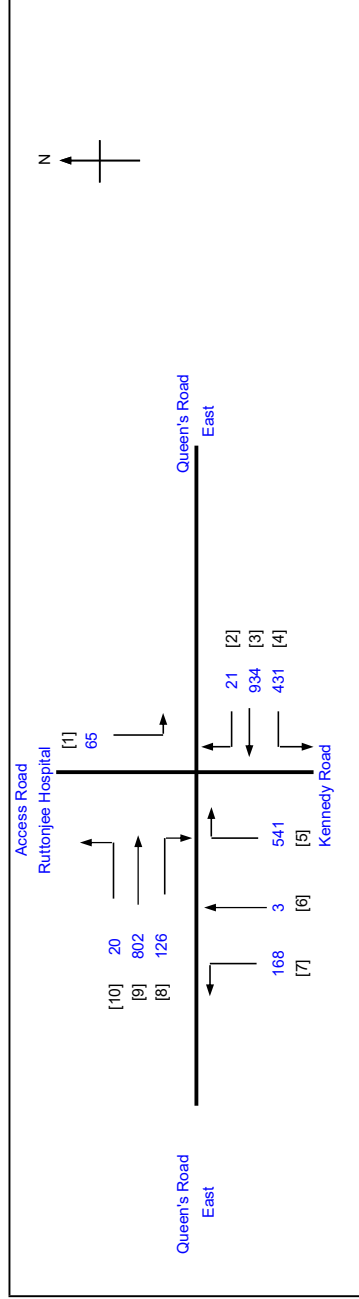
LLA CONSULTANCY LIMITED

Proposed Development at Nos. 1, 1A, 2 and 3 Hill Side Terrace, No. 55 Ship Street (Nam Koo Terrace), Nos. 1 – 5 Schooner Street, No. 53 Ship Street (Miu Kang Terrace), J2 Queen's Road East/Kennedy Road

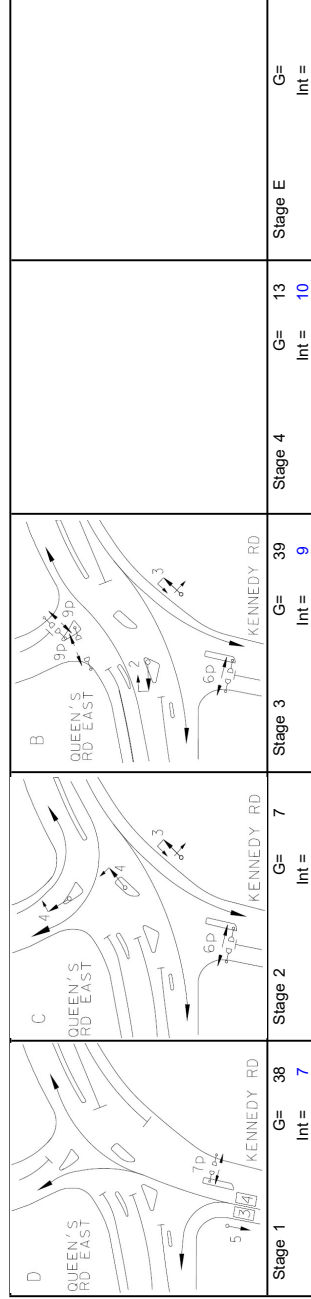
PROJECT NO.: 40689
FILENAME: J2_QUE_KR.xlsx

Prepared By:
Checked By:
Reviewed By:

INITIALS DATE
SKL Dec-24
SLN Dec-24
SLN Dec-24



No. of stages per cycle	N = 4
Cycle time	C = 122 sec
Sum(y)	0.482
Loss time	Y = 23 sec
Total Flow	L = 3111 pcu
Co	= (1.5*L+5)/(1-Y)
Cm	= L/(1-Y)
Yult	= 0.728
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% = 52 %

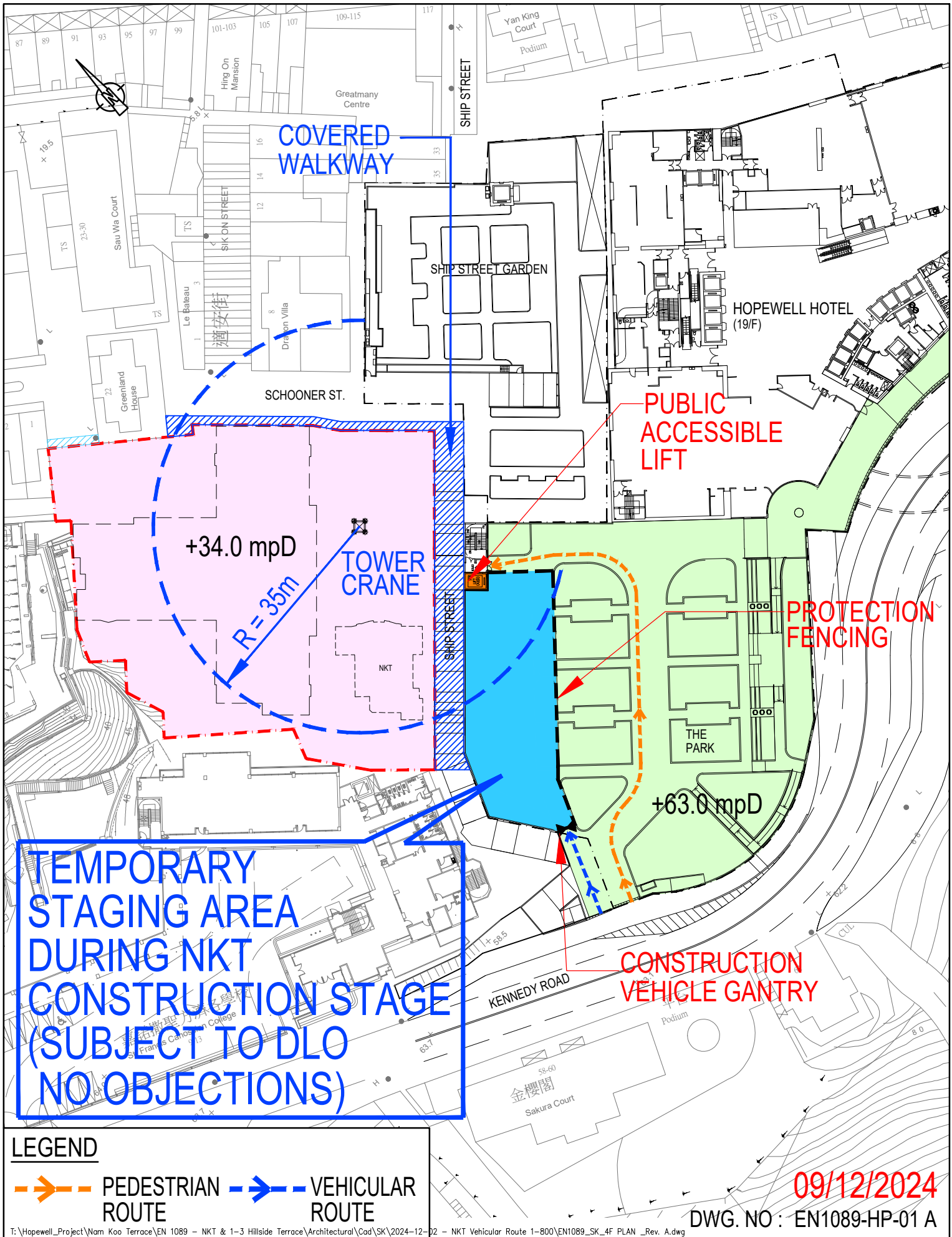


Pedestrian Phase	Stage	Green Time Required SG	Delay FG	Green Time Provided SG	FG
P1	2,3,4	5	6	71	6
P2	1	5	5	35	5
P3	3	11	8	36	8

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)
								Left pcu/h	Straight pcu/h	Right pcu/h																		
1	2	4.00	1	10		N	2015	65			65	1.00	1752						1752	0.037		23	8	8	0.594	12	72	
10	4	3.30	1	10		N	1945	20			20	1.00	1691		0.6	-677			1014	0.020			4	14	0.594	6	123	
9	3,4	3.30	2	15			2085	802			802	0.00	4170						4170	0.192	0.066		40	53	0.594	54	33	
8	4	3.30	1	15			2085	126			126	1.00	1895						1895	0.066			14	14	0.594	18	58	
2	2	3.30	1	10		N	2085	21			21	1.00	1813		0.6	-725			1068	0.019			4	8	0.594	6	119	
3	2,3	3.30	2	10			4170	934			934	0.00	4170						4170	0.224	0.227		46	47	0.594	57	29	
4	2,3	3.40	1	50		N	1955	431			431	1.00	1898						1898	0.227	0.227		47	47	0.594	54	30	
5,6,7	1	3.10	1	30		N	1925	168			168	0.99	1834						1834	0.188	0.188		39	39	0.594	42	36	
5	1	3.10	1	25		N	2065	367			367	1.00	1948						1948	0.188	0.188		39	39	0.594	48	35	

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
Proposed Construction Arrangement

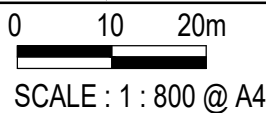


TEMPORARY STAGING AREA DURING NKT CONSTRUCTION STAGE (SUBJECT TO DLO NO OBJECTIONS)

LEGEND

- - -> PEDESTRIAN ROUTE
- - -> VEHICULAR ROUTE

PROPOSED COMPREHENSIVE DEVELOPMENT AT HILLSIDE & NAM KOO TERRACE, WAN CHAI, HONG KONG



09/12/2024

DWG. NO : EN1089-HP-01 A

HOPEWELL CONSTRUCTION COMPANY LIMITED
合和建築有限公司