

Proposed Rezoning of the Site from “Other Specified Uses” annotated “Business” to “Other Specified Uses” annotated “Residential Care Home for the Elderly and Hotel”  
for a Proposed Composite Development with RCHE and Hotel  
at Nos. 107 – 109 Wai Yip Street, Kwun Tong  
(Planning Application No. Y/K14S/4)

## **Appendix IV**

Revised Sewerage Impact Assessment

Prepared by  
Ramboll Hong Kong Limited

PROPOSED HOTEL DEVELOPMENT AND SOCIAL WELFARE  
FACILITIES AT 107-109 WAI YIP STREET, KWUN TONG,  
KOWLOON

SEWERAGE IMPACT ASSESSMENT

Date 07 March 2025  
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Assistant Environmental Consultant

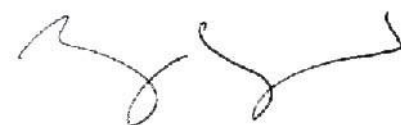
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Approved by Katie Yu  
Senior Manager

Signed



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## 1. INTRODUCTION

### 1.1 Background and Objectives

- 1.1.1 According to the Approved Kwun Tong (South) Outline Zoning Plan (OZP) No. S/K14S/25, the Application Site falls within an area zoned "Other Specified Uses (Business)". The purpose of this submission is to seek permission from the Town Planning Board (the Board) in support of the Proposed Development at 107-109 Wai Yip Street (hereafter referred to as the "Application Site").
- 1.1.2 Ramboll Hong Kong Limited has been appointed by the Applicant to conduct this Sewerage Impact Assessment (SIA) in support of the Planning Application under the Town Planning Ordinance.

### 1.2 Application Site and its Environ

- 1.2.1 The Application Site area is about 1,171 m<sup>2</sup>. It is located at the Kwun Tong Industrial Area bounded by Wai Yip Street to the south and Tai Yip Street to the north. The Application Site is sandwiched between industrial and commercial buildings to the west and east. Figure 1.1 shows the location of the Application Site and its environ.

### 1.3 Proposed Development

- 1.3.1 The Proposed Development comprises a 33-storey building with 1 level of basement carpark. The building consists of 18 storeys of residential care home for the elderly (RCHE) and 11 storeys of hotel. It contains a GFA of about 16,856 m<sup>2</sup> for RCHE and hotel use. The development schedule of the proposed development is shown in Table 1.1.

Table 1.1 Development Schedule

Total Site Area	About 1,170.578m <sup>2</sup>
Plot Ratio	14.4
Total GFA <ul style="list-style-type: none"> <li>• RCHE</li> <li>• Hotel</li> </ul>	Not more than 16,856.323m <sup>2</sup> <ul style="list-style-type: none"> <li>• 12,000m<sup>2</sup></li> <li>• 4,856.323m<sup>2</sup></li> </ul>
No. of Guestroom for Hotel	200 rooms
No. of RCHE Bed Space	Not less than 302 and not more than 557
Site Coverage	Not more than 60%
Class of Site	Class A
No. of Block	1
Maximum Building Height (Main Roof)	About +115mPD
No. of Storeys	33 (including 1 level of basement)

- 1.3.2 Although the proposed maximum number of beds is 557, the RCHE GFA can accommodate up to 644 beds if adopting the minimum space per bed requirement for nursing home or care and attention home under Section 22(1) of the Residential Care Homes (Elderly Persons) Regulation. Therefore, the assessment assumption adopting 644 beds has been assumed as a worst case scenario in this SIA.

## 2. SEWERAGE IMPACT ASSESSMENT

### 2.1 Scope of Work

2.1.1 The aim of this SIA is to assess whether the capacity of the existing sewerage network serving the Application Site is sufficient to cope with the sewage flow from the Proposed Development.

### 2.2 Assessment Criteria and Methodology

2.2.1 The Commercial and Industrial Floor Space Utilization Survey (CIFSUS) conducted by the Planning Department has been used to determine the worker density for various economic activities and planned usage types.

2.2.2 Environmental Protection Department's (EPD's) Guidelines for Estimating Sewage Flows for Sewerage Infrastructure Planning, Version 1 (GESF) has been referred to for the purposes of estimating the quantity of the sewage generated from the Proposed Development and the existing catchment area. Sewage flow parameters and global peaking factors in this document have been adopted for this SIA.

2.2.3 According to the GESF, the overall unit flow is composed of flows due to residents, employees and the associated activities. The following unit flow factors have been adopted in the SIA calculation in accordance with Tables T-1, T-2 and T-3 of the GESF:

- Domestic: 0.19 m<sup>3</sup>/day (Institutional and Special Class)
- Industrial: 0.53m<sup>3</sup>/day (Industrial Employee and J1 Manufacturing in East Kowloon)
- Retail Trade: 0.28m<sup>3</sup>/day (Commercial Employee and J4 Wholesale & Retail)
- Office: 0.08m<sup>3</sup>/day (Commercial Employee and J6 Finance, Insurance, Real Estate & Business Services)
- Restaurant: 1.58m<sup>3</sup>/day (Commercial Employee and J10 Restaurants & Hotels)
- Social Facilities: 0.28 m<sup>3</sup>/day (Commercial Employee and J11 Community, Social & Personal Services)
- Storage: 0.18m<sup>3</sup>/day (Commercial Employee and J3 Transport, Storage & Communication)

2.2.4 The catchment inflow factor, PCIF of 1.1 (East Kowloon), is adopted in catchment calculations.

### 2.3 Existing and Future Sewerage System

2.3.1 According to the Drainage Record obtained from DSD, there are Ø225mm sewer pipes running along Tai Yip Street and the back lane of the Proposed Development, and Ø225mm and Ø400mm sewer pipes running along Wai Yip Street. The existing sewers in the vicinity of the Application Site are shown in Figure 2.1.

2.3.2 A new terminal manhole FTMH-01 (P1) will be constructed within the Application Site to collect sewage from the Proposed Development. A new Ø225mm polyethylene sewer pipe is proposed to connect the Proposed Development and the existing government manhole FMH4042668(S1) along Wai Yip Street.

2.3.3 Invert levels and pipe size of the proposed terminal manhole and existing manholes are shown in Appendix 2.1.

## 2.4 Wastewater Generated by the Proposed Development

2.4.1 Wastewater arising from the Proposed Development will be contributed by residents of the RCHE and the hotel, as well as employees of the RCHE, the hotel, restaurants and RCHE communal facilities. In addition, backwash of the water feature is also considered when assessing the sewage system capacity. Backwash of the water feature will only be conducted in non-peak hours to avoid potential overflow.

2.4.2 As the proposed hotel portion is providing basic room accommodation without associated facilities, such as catering, swimming pool, function room etc., staff are employed to provide for management and basic housekeeping service only. The Applicant confirmed that the number of employees for the hotel portion would be about 40 to 50 nos. Correspondence from the Applicant is provided in Appendix 2.2. An employee number of 50 for the hotel portion has therefore been adopted as a conservative estimate. Detailed calculation of sewage generation from the Proposed Development is given in Table 2.1 below.

Table 2.1 Estimated Peak Flow

Calculation for Sewage Generation Rate of the Proposed Development			
1. Residential Care Homes for the Elderly (RCHE)			
1a. Total no. of residents	=	644	residents (644 beds)
1b. Design flow of residents	=	190	litre/resident/day – (refer to Table T-1 of GESF – Domestic – Institutional and Special Class)
1c. Sewage generation rate from residents	=	122.4	m <sup>3</sup> /day
1d. Total no. of employees <sup>[1]</sup>	=	148	Employees
1e. Design flow of employees	=	280	litre/employee/day – (refer to Table T-2 of GESF – J11 Community, Social & Personal Services)
1f. Sewage generation rate from employees	=	41.4	m <sup>3</sup> /day
2. Hotel			
2a. Assumed area	=	4856	m <sup>2</sup>
2b. Assumed floor area per employee	=	71.4	m <sup>2</sup> per employee – (refer to Table 8 of CIFSUS – Hotels and Boarding Houses, Private Commercials)
2c. Total number of employees	=	50	employees
2d. Design flow	=	1580	litre/employee/day – (refer to Table T-2 of GESF – J10 Restaurants & Hotels)
2e. Sewage generation rate	=	79.0	m <sup>3</sup> /day
3. RCHE F&B/ Restaurant			
3a. Assumed area	=	415	m <sup>2</sup>
3b. Assumed floor area per employee	=	19.6	m <sup>2</sup> per employee – (refer to Table 8 of CIFSUS – Restaurants)
3c. Total number of employees	=	21	employees
3d. Design flow	=	1580	litre/employee/day – (refer to Table T-2 of GESF – J10 Restaurants & Hotels)
3e. Sewage generation rate	=	33.4	m <sup>3</sup> /day
4. RCHE Communal Facilities			
4a. Assumed area	=	1338	m <sup>2</sup>
4b. Assumed floor area per employee	=	30.3	m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Community, Social & Personal Services)
4c. Total number of employees	=	44	employees
4d. Design flow	=	280	litre/employee/day -- (refer to Table T-2 of GESF - J11 Community, Social & Personal Services)
4e. Sewage generation rate	=	12.4	m <sup>3</sup> /day
5. Water Feature (Outdoor)			
5a. Volume of Water Feature	=	90.0	m <sup>3</sup>
5b. Turnover Rate	=	6	hr



Calculation for Sewage Generation Rate of the Proposed Development			
5c. Adopted Surface Loading Rate of Filter	=	50	m <sup>3</sup> /m <sup>2</sup> /hr
5d. Adopted Filter Area	=	0.3	m <sup>2</sup>
5e. Backwash Duration	=	3	min/d
5f. Backwash flow rate	=	30	m <sup>3</sup> /m <sup>2</sup> /hr
5g. Design flow for Water Feature Backwashing	=	0.5	m <sup>3</sup> /day
5h. Design flow for Water Feature Backwashing	=	2.5	litre/sec
Total Flow from the Proposed Development			
Flow Rate	=	288.6	m <sup>3</sup> /day
Flow Rate with P <sub>CIF</sub> (East Kowloon – 1.1)	=	317.5	m <sup>3</sup> /day (refer to Table T-4 of GESF – East Kowloon)
Contributing Population	=	1176	people
Peaking factor	=	6	refer to Table T-5 of GESF for a population of less than 5000 incl. stormwater allowance
Peak Flow (excluding backwash of water feature)	=	22.0	litre/sec
Peak Flow (including backwash of water feature)	=	24.5	litre/sec
Remark:			
[1] Build-up of staff under Code of Practice for RCHE Section 9.1.1 for Care and Attention Home:			
1) 1 health worker / nurse for every 30 residents, i.e. 644/30 = 22 nos.			
2) 1 care worker for every 20 residents, i.e. 644/20 = 33 nos.			
3) 1 ancillary worker for every 40 residents, i.e. 644/40 = 17 nos.			
4) General staff = 2 nos.			
Total staff = 74 nos.			
Assuming there are two shifts of staff, i.e. daytime and night-time, the total daily number of employees at the RCHE is 148. It should be noted that night-time requires less staff than daytime. Therefore, the current assumption serves as a conservative scenario.			

## 2.5 Assessment of Sewerage Impact

2.5.1 Sewage generated from the Application Site will be discharged from the terminal manhole FTMH-01 (P1) via a polyethylene (PE) pipe, to existing manhole FMH4042668 (S1) of the public sewerage system as shown in Figure 2.1. Catchments in the vicinity of the Application Site are shown in Figure 2.2.

2.5.2 The estimated sewage flow of the Proposed Development and nearby catchments under existing conditions have been compared with the capacity of the existing sewerage system as shown in Appendix 2.1 - Table 3a. For the estimated sewage flow of the Proposed Development and nearby catchments with approved planned developments, the results are shown in Appendix 2.1 – Table 3b.

2.5.3 In accordance with Section 5.11 of the Sewerage Manual, should the existing sewage system be under-capacity, the following shall be satisfied to demonstrate that no adverse sewerage impact will arise as a result of the proposed development:

- minimum freeboard of 1m at peak flow;
- A minimum factor of safety against overflowing of 1.15, i.e. overflow will not occur at a flow rate of (1.15 times peak flow)

## 2.6 Discussion

2.6.1 According to the calculation results presented in Tables 4a and 4b of Appendix 2.1, the sewage generated from the Application Site and surrounding catchment areas exceed the capacity of the existing sewerage network at segment S6-S7, S7-S8, S8-S9, S9-S10, S10-S11 and S11-S12 under both existing conditions and with approved planned developments. As spillage shown in existing condition is worse than that in planned conditions, backwash analysis is conducted with peak flow under existing conditions.

2.6.2 The results indicate that there are sufficient freeboards for all concerned manholes, i.e. over 1m. Taking into account the safety factor requirement, the peak flow rates are multiplied by 1.15 and no overflow is identified. With sufficient freeboards for the

surcharged sewers, no unacceptable sewerage impact resulting from the Proposed Development is anticipated.

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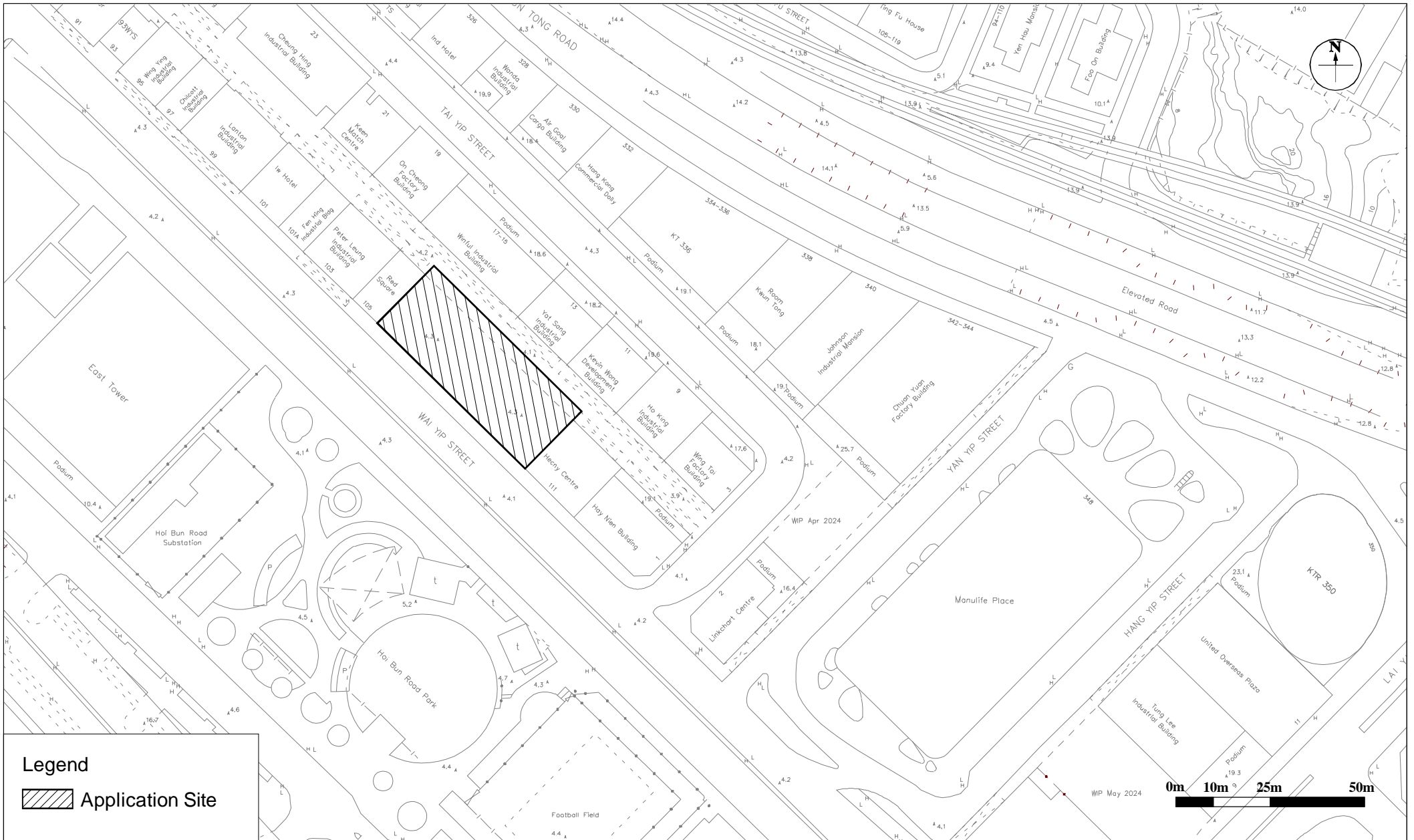
### 3. OVERALL CONCLUSION

- 3.1.1 The potential sewerage impact arising from the Application Site has been quantitatively assessed by comparing the estimated sewage flow from the Proposed Development and the capacity of the existing sewerage system in the vicinity.
- 3.1.2 Based on the assessment findings, the sewage generated from the Application Site and surrounding catchment areas exceed the capacity of the existing sewerage network at segment S6-S7, S7-S8, S8-S9, S9-S10, S10-S11 and S11-S12 under both existing conditions and with approved planned developments. A backwater analysis was conducted and revealed that there are sufficient freeboards for all concerned manholes and no overflow during peak flow rates. Therefore, with sufficient freeboards for the surcharged sewers, no unacceptable sewerage impact resulting from the Proposed Development is anticipated.
- 3.1.3 This SIA confirms the feasibility of the Proposed Development in terms of its sewerage impact.


Figures

Figure 1.1

Location of Application Site and its Environ



**Legend**

 Application Site


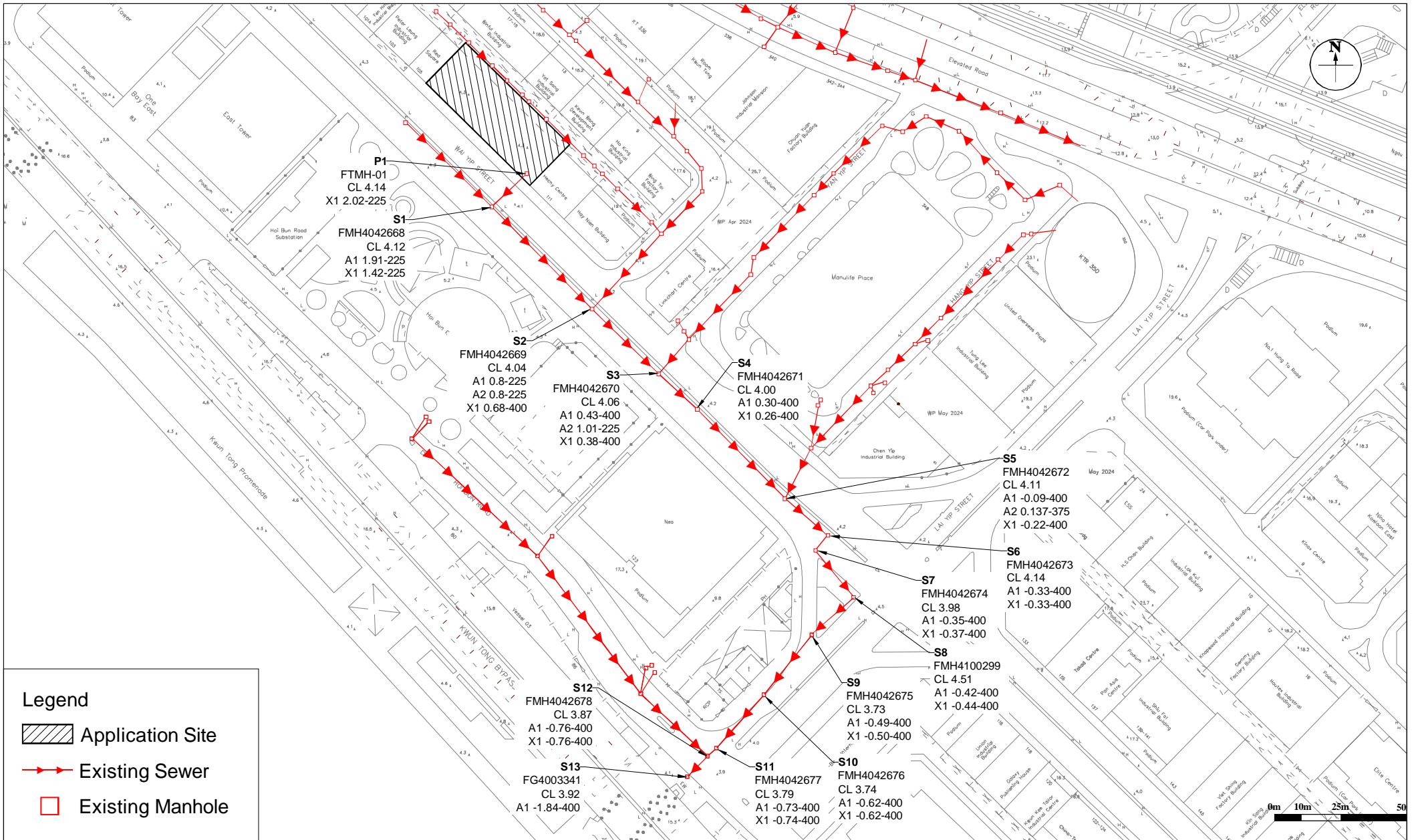
<b>Figure:</b> 1.1	
<b>Title:</b> Location of the Application Site and its Environ	Drawn by: CL
<b>Project:</b> Proposed Hotel Development and Social Welfare Facilities at 107-109 Wai Yip Street, Kwun Tong, Kowloon	Checked by: KY
	Rev.: 1.0 Date: Feb 2025

Figure 2.1

Existing Sewerage System in the Vicinity of the Application  
Site



**Figure:** 2.1

**Title:** Existing Sewerage System in the Vicinity of the Application Site

**Project:** Proposed Hotel Development and Social Welfare Facilities at 107-109 Wai Yip Street, Kwun Tong, Kowloon

**RAMBOLL**

Drawn by: CL

Checked by: KY

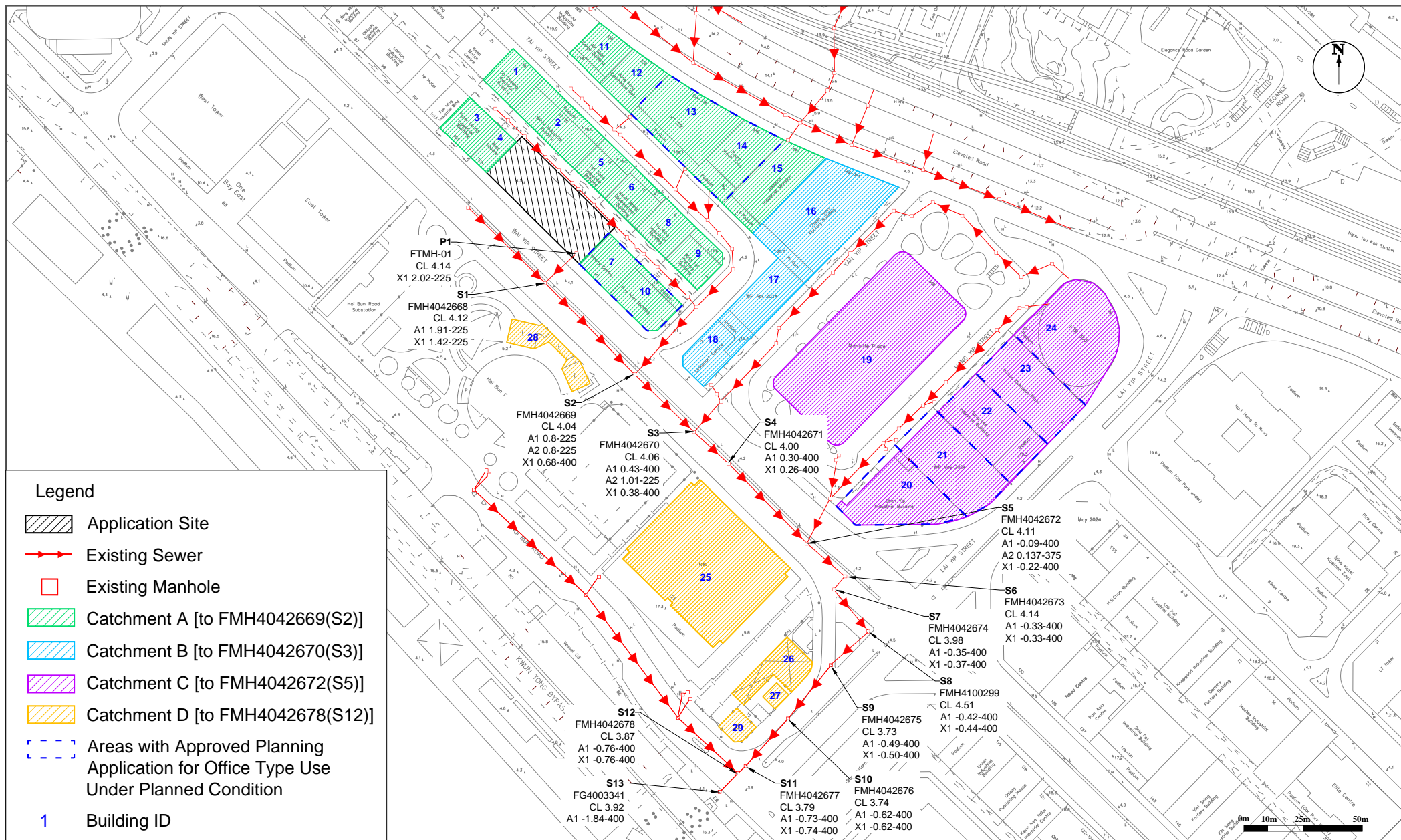
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Date: Feb 2025



Figure 2.2

Existing Sewerage System and Catchment Area in the  
Vicinity of the Application Site



**Figure:** 2.2

**Title:** Existing Sewerage System and Catchment Area in the Vicinity of the Application Site

**Project:** Proposed Hotel Development and Social Welfare Facilities at 107-109 Wai Yip Street, Kwun Tong, Kowloon

**RAMBOLL**

Drawn by: CL

Checked by: KY

Rev.: 5.0

Date: Mar 2025

Appendix

## Appendix 2.1

### Detailed Sewerage Impact Assessment Calculations

Table 1 Calculation for Sewage Generation Rate of the Proposed Development at the Application Site

Residential Care Homes for the Elderly (RCHE)			
Total number of residents <sup>1</sup>	=	644 residents (644 beds)	
Design flow of residents	=	190 litre/resident/day -- (refer to Table T-1 of GESF - Domestic - Institutional and Special Class)	
Sewage generation rate	=	122.4 m <sup>3</sup> /day	
Total number of employees <sup>2</sup>	=	148 employees	
Design flow of employees	=	280 litre/employee/day -- (refer to Table T-2 of GESF - J11 Community, Social & Personal Services)	
Sewage generation rate	=	41.4 m <sup>3</sup> /day	
Hotel			
Assumed area	=	4856 m <sup>2</sup>	
Assumed floor area per employee	=	71.4 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Hotels and Boarding Houses, Private Commercials)	
Total number of employees	=	<b>50 employees (information provided by the Applicant)</b>	
Design flow	=	1580 litre/employee/day -- (refer to Table T-2 of GESF - J10 Restaurants & Hotels)	
Sewage generation rate	=	<b>79.0 m<sup>3</sup>/day</b>	
F&B / restaurant			
Assumed area	=	415 m <sup>2</sup>	
Assumed floor area per employee	=	19.6 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Restaurants)	
Total number of employees	=	21 employees	
Design flow	=	1580 litre/employee/day -- (refer to Table T-2 of GESF - J10 Restaurants & Hotels)	
Sewage generation rate	=	33.4 m <sup>3</sup> /day	
RCHE Communal Facilities			
Assumed area	=	1338 m <sup>2</sup>	
Assumed floor area per employee	=	30.3 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Community, Social & Personal Services)	
Total number of employees	=	44 employees	
Design flow	=	280 litre/employee/day -- (refer to Table T-2 of GESF - J11 Community, Social & Personal Services)	
Sewage generation rate	=	12.4 m <sup>3</sup> /day	
Water Feature (outdoor)			
Volume of Water Feature	=	90.0 m <sup>3</sup>	
Turnover Rate	=	6 hr	
Adopted Surface Loading Rate of Filter	=	50 m <sup>3</sup> /m <sup>2</sup> /hr	
Adopted Filter Area	=	0.3 m <sup>2</sup>	
Backwash Duration	=	3 min/d	
Backwash flow rate	=	30 m <sup>3</sup> /m <sup>2</sup> /hr	
Design flow for Water Feature Backwashing	=	0.5 m <sup>3</sup> /day	
Design flow for Water Feature Backwashing	=	2.5 litre/sec	
Total Flow from the Proposed Development			
Flow rate (excluding backwash of water feature)	=	<b>288.6 m<sup>3</sup>/day</b>	
Flow rate with P <sub>CIF</sub> (East Kowloon - 1.1)	=	<b>317.5 m<sup>3</sup>/day</b> (refer to Table T-4 of GESF - East Kowloon - 1.1)	
Contributing population	=	1176 people	
Peaking factor	=	6 (refer to Table T-5 of GESF for a population of less than 5000 incl. stormwater allowance)	
Peak flow (excluding backwash of water feature)	=	<b>22.0 litre/sec</b>	
Peak flow (including backwash of water feature)	=	<b>24.5 litre/sec</b>	

## Note:

[1] As a conservative approach, the total number of elderly residents is assumed to be the maximum number of beds provided by the RCHE.

[2] Build-up of staff under Code of Practice for RCHE Section 9.1.1 for Care and Attention Home:

- 1) 1 health worker / nurse for every 30 residents, i.e. 644/30 = 22 nos.
- 2) 1 care worker for every 20 residents, i.e. 644/20 = 33 nos.
- 3) 1 ancillary worker for every 40 residents, i.e. 644/40 = 17 nos.
- 4) General staff = 2 nos.

Total staff = 74 nos.

Assuming there are two shifts of staff, i.e. daytime and night-time, the total daily number of employee at the RCHE is 148. It should be noted that night-time requires less staff than daytime. Therefore, the current assumption serves as a conservative scenario.

[3] For job types J10 and J11, the "per-employee" unit flow factor takes into account the flows of customers and/or tenants

Table 2a Hydraulic Capacity of Existing and Proposed Sewers - Free Flow Condition (Existing Condition)

Segment	Manhole Reference	Manhole Reference	Material	Pipe Dia.	Pipe Length	Invert Level 1	Invert Level 2	g	k <sub>s</sub>	s	v	V	Area	Q	Estimated Capacity
				mm	m	mPD	mPD	m/s <sup>2</sup>	m	m <sup>2</sup> /s	m/s	m <sup>2</sup>	m <sup>3</sup> /s	L/s	
P1-S1	FTMH-01	FMH4042668	PE	225	16.37	2.02	1.91	9.81	0.0015	0.007	0.000001	0.94	0.04	0.04	37
S1-S2	FMH4042668	FMH4042669	clayware	225	53.49	1.42	0.80	9.81	0.0006	0.012	0.000001	1.41	0.04	0.06	56
S2-S3	FMH4042669	FMH4042670	clayware	400	34.30	0.68	0.43	9.81	0.0006	0.007	0.000001	1.61	0.13	0.20	202
S3-S4	FMH4042670	FMH4042671	clayware	400	19.14	0.38	0.30	9.81	0.0006	0.004	0.000001	1.22	0.13	0.15	153
S4-S5	FMH4042671	FMH4042672	clayware	400	46.50	0.26	-0.09	9.81	0.0006	0.008	0.000001	1.64	0.13	0.21	206
S5-S6	FMH4042672	FMH4042673	clayware	400	20.50	-0.22	-0.33	9.81	0.0006	0.005	0.000001	1.38	0.13	0.17	173
S6-S7	FMH4042673	FMH4042674	clayware	400	6.40	-0.33	-0.35	9.81	0.0030	0.003	0.000001	0.84	0.13	0.11	106
S7-S8	FMH4042674	FMH4100299	clayware	400	22.76	-0.37	-0.42	9.81	0.0030	0.002	0.000001	0.70	0.13	0.09	89
S8-S9	FMH4100299	FMH4042675	clayware	400	20.80	-0.44	-0.49	9.81	0.0030	0.002	0.000001	0.74	0.13	0.09	93
S9-S10	FMH4042675	FMH4042676	clayware	400	28.23	-0.50	-0.62	9.81	0.0030	0.004	0.000001	0.98	0.13	0.12	123
S10-S11	FMH4042676	FMH4042677	clayware	400	26.36	-0.62	-0.73	9.81	0.0030	0.004	0.000001	0.97	0.13	0.12	122
S11-S12	FMH4042677	FMH4042678	clayware	400	3.59	-0.74	-0.76	9.81	0.0030	0.006	0.000001	1.12	0.13	0.14	141
S12-S13	FMH4042678	FG4003341	clayware	400	10.11	-0.76	-1.84	9.81	0.0006	0.107	0.000001	6.20	0.13	0.78	779

- Remarks:
- (1) g=gravitational acceleration; k<sub>s</sub>=equivalent sand roughness; s=gradient; v=kinematic viscosity of water; V=mean velocity
  - (2) The values of k<sub>s</sub> = 0.6mm and 3mm are used for the calculation of slimed clayware sewer, poor condition @mean velocity = approximately 1.2m/s and 0.75m/s respectively (based on Table 5: Recommended Roughness Values in Sewerage Manual)
  - (3) The values of k<sub>s</sub> = 1.5mm is used for the calculation of proposed polyethylene sewer, poor condition @mean velocity = approximately 0.75m/s (based on Table 5: Recommended Roughness Values in Sewerage Manual)
  - (4) The value of velocity (V) is referred to the Tables for the hydraulic design of pipes, sewers and channels (8th edition)
  - (5) Equation used: 
$$V = \frac{1.49}{1.49} \sqrt{(8gDs)} \log\left(\frac{k_s}{3.7D} + \frac{2.51v}{D\sqrt{(2gDs)}}\right)$$

Table 3a Calculation for Sewage generation rate of the Surrounding Building (Existing Condition)

Catchment A, discharges to FMH4042669 (S2)

## 1. On Cheong Factory Building (19 Tai Yip Street)

## Industrial - Manufacturing

Assumed area	=	2510 m <sup>2</sup>
Assumed floor area per employee	=	43.5 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Manufacturing)
Total number of employees	=	58 employees
Design flow	=	530 litre/employee/day -- (refer to Table T-3 of GESF - J1 Manufacturing in East Kowloon)
Sewage generation rate	=	30.6 m <sup>3</sup> /day

## 2. Winful Industrial Building (15-17 Tai Yip Street)

## Industrial - Manufacturing

Reference: SIA report under Approved Planning Application A/K14/809

Assumed area	=	5280 m <sup>2</sup>
Assumed floor area per employee	=	30.3 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Manufacturing - I/O Buildings)
Total number of employees	=	174 employees
Design flow	=	530 litre/employee/day -- (refer to Table T-3 of GESF - J1 Manufacturing in East Kowloon)
Sewage generation rate	=	92.3 m <sup>3</sup> /day

## 3. Peter Leung Industrial Building (103 Wai Yip Street)

## a) Industrial - Manufacturing

Assumed area	=	2827 m <sup>2</sup>
Assumed floor area per employee	=	30.3 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Manufacturing - I/O Buildings)
Total number of employees	=	93 employees
Design flow	=	530 litre/employee/day -- (refer to Table T-3 of GESF - J1 Manufacturing in East Kowloon)
Sewage generation rate	=	49.4 m <sup>3</sup> /day

## b) Express delivery

Assumed area	=	201 m <sup>2</sup>
Assumed floor area per employee	=	22.7 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Financial, Insurance, Real Estate & Business Services - I/O Buildings)
Total number of employees	=	9 employees
Design flow	=	80 litre/employee/day -- (refer to Table T-2 of GESF - J6 Finance, Insurance, Real Estate & Business Services)
Sewage generation rate	=	0.7 m <sup>3</sup> /day

## 4. Red Square (105 Wai Yip Street)

## Office

Assumed area	=	1739 m <sup>2</sup>
Assumed floor area per employee	=	18.2 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Financial, Insurance, Real Estate & Business Services )
Total number of employees	=	96 employees
Design flow	=	80 litre/employee/day -- (refer to Table T-2 of GESF - J6 Finance, Insurance, Real Estate & Business Services)
Sewage generation rate	=	7.7 m <sup>3</sup> /day

## F&amp;B

Assumed area	=	191 m <sup>2</sup>
Assumed floor area per employee	=	19.6 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Restaurant)
Total number of employees	=	10 employees
Design flow	=	1580 litre/employee/day -- (refer to Table T-2 of GESF - J10 Restaurants and Hotels)
Sewage generation rate	=	15.4 m <sup>3</sup> /day

Table 3a Calculation for Sewage generation rate of the Surrounding Building (Existing Condition)

5. Yat Sang Industrial Building  
Industrial - Manufacturing

Assumed area	=	2400 m <sup>2</sup>
Assumed floor area per employee	=	43.5 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Manufacturing)
Total number of employees	=	55 employees
Design flow	=	530 litre/employee/day -- (refer to Table T-3 of GESF - J1 Manufacturing in East Kowloon)
Sewage generation rate	=	29.3 m <sup>3</sup> /day

Reference: SIA report under Approved Planning Application A/K14/809

6. Kevin Wong Development Building (11 Tai Yip Street)  
Industrial - Manufacturing

Assumed area	=	3080 m <sup>2</sup>
Assumed floor area per employee	=	30.3 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Manufacturing - I/O Buildings)
Total number of employees	=	102 employees
Design flow	=	530 litre/employee/day -- (refer to Table T-3 of GESF - J1 Manufacturing in East Kowloon)
Sewage generation rate	=	53.9 m <sup>3</sup> /day

Reference: SIA report under Approved Planning Application A/K14/809

7. Hecny Centre (111 Wai Yip Street)  
a) Office

Assumed area	=	1772 m <sup>2</sup>
Assumed floor area per employee	=	18.2 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Financial, Insurance, Real Estate & Business Services )
Total number of employees	=	97 employees
Design flow	=	80 litre/employee/day -- (refer to Table T-2 of GESF - J6 Finance, Insurance, Real Estate & Business Services)
Sewage generation rate	=	7.8 m <sup>3</sup> /day

## b) Retail

Assumed area	=	253 m <sup>2</sup>
Assumed floor area per employee	=	28.6 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Retail Trade)
Total number of employees	=	9 employees
Design flow	=	280 litre/employee/day -- (refer to Table T-2 of GESF - J4 Wholesale & Retail)
Sewage generation rate	=	2.5 m <sup>3</sup> /day

## c) F&amp;B

Assumed area	=	406 m <sup>2</sup>
Assumed floor area per employee	=	19.6 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Restaurants)
Total number of employees	=	21 employees
Design flow	=	1580 litre/employee/day -- (refer to Table T-2 of GESF - J10 Restaurants and Hotels)
Sewage generation rate	=	32.7 m <sup>3</sup> /day

8. Ho King Industrial Building (9 Tai Yip Street)  
Industrial - Manufacturing

Assumed area	=	2044 m <sup>2</sup>
Assumed floor area per employee	=	43.5 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Manufacturing)
Total number of employees	=	47 employees
Design flow	=	530 litre/employee/day -- (refer to Table T-3 of GESF - J1 Manufacturing in East Kowloon)
Sewage generation rate	=	24.9 m <sup>3</sup> /day



Table 3a Calculation for Sewage generation rate of the Surrounding Building (Existing Condition)

## 9. Wing Tai Factory Building (3 Tai Yip Street)

## Industrial - Manufacturing

Assumed area	=	3144 m <sup>2</sup>
Assumed floor area per employee	=	30.3 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Manufacturing - I/O Buildings)
Total number of employees	=	104 employees
Design flow	=	530 litre/employee/day -- (refer to Table T-3 of GESF - J1 Manufacturing in East Kowloon)
Sewage generation rate	=	55.0 m <sup>3</sup> /day

## Storage

Assumed area	=	147 m <sup>2</sup>
Assumed floor area per employee	=	250.0 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Storage)
Total number of employees	=	1 employees
Design flow	=	180 litre/employee/day -- (refer to Table T-2 of GESF - J3 Transport, Storage & Communication)
Sewage generation rate	=	0.1 m <sup>3</sup> /day

## 10. Hay Nien Building (1 Tai Yip Street)

## Industrial - Manufacturing

Assumed area	=	5842 m <sup>2</sup>
Assumed floor area per employee	=	30.3 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Manufacturing - I/O Buildings)
Total number of employees	=	193 employees
Design flow	=	530 litre/employee/day -- (refer to Table T-3 of GESF - J1 Manufacturing in East Kowloon)
Sewage generation rate	=	102.2 m <sup>3</sup> /day

## 11. Air Goal Cargo Building (330 Kwun Tong Road)

## Industrial - Manufacturing

Assumed area	=	2309 m <sup>2</sup>
Assumed floor area per employee	=	43.5 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Manufacturing)
Total number of employees	=	53 employees
Design flow	=	530 litre/employee/day -- (refer to Table T-3 of GESF - J1 Manufacturing in East Kowloon)
Sewage generation rate	=	28.2 m <sup>3</sup> /day

Table 3a Calculation for Sewage generation rate of the Surrounding Building (Existing Condition)

## 12. Hong Kong Commercial Daily (332 Kwun Tong Road)

Office	
Assumed area	= 2304 m <sup>2</sup>
Assumed floor area per employee	= 18.2 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Financial, Insurance, Real Estate & Business Services )
Total number of employees	= 127 employees
Design flow	= 80 litre/employee/day -- (refer to Table T-2 of GESF - J6 Finance, Insurance, Real Estate & Business Services)
Sewage generation rate	= 10.1 m <sup>3</sup> /day

## 13. Far East Factory Building (334-336 Kwun Tong Road)

Office	
Assumed area	= 7833 m <sup>2</sup>
Assumed floor area per employee	= 30.3 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Manufacturing - I/O Buildings)
Total number of employees	= 258 employees
Design flow	= 530 litre/employee/day -- (refer to Table T-3 of GESF - J1 Manufacturing in East Kowloon)
Sewage generation rate	= 137.0 m <sup>3</sup> /day

## 14. Room Kwun Tong (338 Kwun Tong Road)

Storage	
Assumed area	= 6570 m <sup>2</sup>
Assumed floor area per employee	= 250.0 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Storage)
Total number of employees	= 26 employees
Design flow	= 180 litre/employee/day -- (refer to Table T-2 of GESF - J3 Transport, Storage & Communication)
Sewage generation rate	= 4.7 m <sup>3</sup> /day

## 15. Johnson Industrial Mansion (340 Kwun Tong Road)

Industrial - Manufacturing	
Assumed area	= 5772 m <sup>2</sup>
Assumed floor area per employee	= 30.3 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Manufacturing - I/O Buildings)
Total number of employees	= 190 employees
Design flow	= 530 litre/employee/day -- (refer to Table T-3 of GESF - J1 Manufacturing in East Kowloon)
Sewage generation rate	= 101.0 m <sup>3</sup> /day

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Total Flow of Catchment A, discharges to FMH4042669 (S2)	= 785.4 m <sup>3</sup> /day
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Table 3a Calculation for Sewage generation rate of the Surrounding Building (Existing Condition)

Catchment B, discharges to FMH4042670 (S3)16. Chuan Yuan Factory Building (342-344 Kwun Tong Road)  
Industrial - Manufacturing

Assumed area	=	13344 m <sup>2</sup>
Assumed floor area per employee	=	43.5 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Manufacturing)
Total number of employees	=	307 employees
Design flow	=	530 litre/employee/day -- (refer to Table T-3 of GESF - J1 Manufacturing in East Kowloon)
Sewage generation rate	=	162.7 m <sup>3</sup> /day

17. Hong Kong Baptist Hospital (4 Tai Yip Street)

Sewage generation rate

Reference: SIA report under Approved Planning Application A/K14/782

= 181.6 m<sup>3</sup>/day

18. Linkchart Centre (2 Tai Yip Street)

Office

Assumed area	=	9109 m <sup>2</sup>
Assumed floor area per employee	=	18.2 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Financial, Insurance, Real Estate & Business Services )
Total number of employees	=	501 employees
Design flow	=	80 litre/employee/day -- (refer to Table T-2 of GESF - J6 Finance, Insurance, Real Estate & Business Services)
Sewage generation rate	=	40.1 m <sup>3</sup> /day

Reference: Online building profile (<https://www.interasia.com.hk/en/Kowloon-Building/Kwun-Tong/1563/Linkchart-Centre>)

24a. KTR 350 (65% of total discharge capacity)

a) Office

Assumed area	=	19223 m <sup>2</sup>
Assumed floor area per employee	=	18.2 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Financial, Insurance, Real Estate & Business Services )
Total number of employees	=	1057 employees
Design flow	=	80 litre/employee/day -- (refer to Table T-2 of GESF - J6 Finance, Insurance, Real Estate & Business Services)
Sewage generation rate	=	84.6 m <sup>3</sup> /day

b) F&amp;B

Assumed area	=	1201 m <sup>2</sup>
Assumed floor area per employee	=	19.6 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Restaurants)
Total number of employees	=	61 employees
Design flow	=	1580 litre/employee/day -- (refer to Table T-2 of GESF - J10 Restaurants and Hotels)
Sewage generation rate	=	96.8 m <sup>3</sup> /day

b) Retail

Assumed area	=	1646 m <sup>2</sup>
Assumed floor area per employee	=	28.6 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Retail Trade)
Total number of employees	=	58 employees
Design flow	=	280 litre/employee/day -- (refer to Table T-2 of GESF - J4 Wholesale & Retail)
Sewage generation rate	=	16.1 m <sup>3</sup> /day
65% of Total sewage generation rate	=	128.4 m <sup>3</sup> /day

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**Total Flow of Catchment B, discharges to FMH4042670 (S3)****= 512.7 m<sup>3</sup>/day**

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Table 3a Calculation for Sewage generation rate of the Surrounding Building (Existing Condition)

Catchment C, discharges to FMH4042672 (S5)

## 19. Manulife Place

Office	
Assumed area	= 42693 m <sup>2</sup>
Assumed floor area per employee	= 18.2 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Financial, Insurance, Real Estate & Business Services )
Total number of employees	= 2348 employees
Design flow	= 80 litre/employee/day -- (refer to Table T-2 of GESF - J6 Finance, Insurance, Real Estate & Business Services)
Sewage generation rate	= 187.8 m <sup>3</sup> /day

## b) F&amp;B

Total number of employees	= 28 employees
Design flow	= 1580 litre/employee/day -- (refer to Table T-2 of GESF - J10 Restaurants and Hotels)
Sewage generation rate	= 44.2 m <sup>3</sup> /day

## b) Retail

Total number of employees	= 1 employees
Design flow	= 280 litre/employee/day -- (refer to Table T-2 of GESF - J4 Wholesale & Retail)
Sewage generation rate	= 0.3 m <sup>3</sup> /day

## 20. Chen Yip Industrial Building (5 Lai Yip Street)

Industrial - Manufacturing	
Assumed area	= 7431 m <sup>2</sup>
Assumed floor area per employee	= 43.5 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Manufacturing)
Total number of employees	= 171 employees
Design flow	= 530 litre/employee/day -- (refer to Table T-3 of GESF - J1 Manufacturing in East Kowloon)
Sewage generation rate	= 90.6 m <sup>3</sup> /day

21. 7 Lai Yip Street  
demolished

Table 3a Calculation for Sewage generation rate of the Surrounding Building (Existing Condition)

## 22. Tung Lee Industrial Building (9 Lai Yip Street)

## Industrial - Manufacturing

Assumed area	=	9524 m <sup>2</sup>
Assumed floor area per employee	=	43.5 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Manufacturing)
Total number of employees	=	219 employees
Design flow	=	530 litre/employee/day -- (refer to Table T-3 of GESF - J1 Manufacturing in East Kowloon)
Sewage generation rate	=	116.1 m <sup>3</sup> /day

## 23. United Overseas Plaza (11 Lai Yip Street)

## Industrial - Manufacturing

Assumed area	=	7272 m <sup>2</sup>
Assumed floor area per employee	=	43.5 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Manufacturing)
Total number of employees	=	167 employees
Design flow	=	530 litre/employee/day -- (refer to Table T-3 of GESF - J1 Manufacturing in East Kowloon)
Sewage generation rate	=	88.6 m <sup>3</sup> /day

## 24b. KTR 350 (35% of total discharge capacity)

## a) Office

Assumed area	=	19223 m <sup>2</sup>
Assumed floor area per employee	=	18.2 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Financial, Insurance, Real Estate & Business Services )
Total number of employees	=	1057 employees
Design flow	=	80 litre/employee/day -- (refer to Table T-2 of GESF - J6 Finance, Insurance, Real Estate & Business Services)
Sewage generation rate	=	84.6 m <sup>3</sup> /day

## b) F&amp;B

Assumed area	=	1201 m <sup>2</sup>
Assumed floor area per employee	=	19.6 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Restaurants)
Total number of employees	=	61 employees
Design flow	=	1580 litre/employee/day -- (refer to Table T-2 of GESF - J10 Restaurants and Hotels)
Sewage generation rate	=	96.8 m <sup>3</sup> /day

## b) Retail

Assumed area	=	1646 m <sup>2</sup>
Assumed floor area per employee	=	28.6 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Retail Trade)
Total number of employees	=	58 employees
Design flow	=	280 litre/employee/day -- (refer to Table T-2 of GESF - J4 Wholesale & Retail)
Sewage generation rate	=	16.1 m <sup>3</sup> /day
35% of Total sewage generation rate	=	69.1 m <sup>3</sup> /day

<b>Total Flow of Catchment C, discharges to FMH4042672 (S5)</b>	<b>=</b>	<b>596.8 m<sup>3</sup>/day</b>
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Table 3a Calculation for Sewage generation rate of the Surrounding Building (Existing Condition)

Catchment D, discharges to FMH4042678 (S12)

## 25. NEO

Office	
Assumed area	= 55390 m <sup>2</sup>
Assumed floor area per employee	= 18.2 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Financial, Insurance, Real Estate & Business Services )
Total number of employees	= 3046 employees
Design flow	= 80 litre/employee/day -- (refer to Table T-2 of GESF - J6 Finance, Insurance, Real Estate & Business Services)
Sewage generation rate	= 243.7 m <sup>3</sup> /day

## 26. Cooked Food Stall

Assumed area	= 385 m <sup>2</sup>
Assumed floor area per employee	= 19.6 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Restaurants)
Total number of employees	= 20 employees
Design flow	= 1580 litre/employee/day -- (refer to Table T-2 of GESF - J10 Restaurants and Hotels)
Sewage generation rate	= 31.0 m <sup>3</sup> /day

## 27. Lai Yip Street Public Toilet

Discharge from WC (Qty * DU)	= 19.8 L/s
Discharge from Basin (Qty * DU)	= 3.0 L/s
Discharge from Single Urinal with Cistern (Qty * DU)	= 2.4 L/s
Sum of DUs	= 25.2 L/s
Wastewater Flow Rate ( $K \sum DU$ )	= 5.0 L/s
<i>Frequency of use, K = 1, extracted from Table 6 of Plumbing Engineering Services Design Guide (PESDG)</i>	
<i>Discharge Unit (DU) of WC = 1.8 L/s; DU of Basin = 0.3 L/s, DU of Single Urinal with Cistern = 0.4L/s, extracted from Table 5 of PESDG</i>	
<i>Total number of WC = 11; Total number of Basin = 10; Total number of Single Urinal with Cistern = 6 (Site observation)</i>	

## 28. Hoi Bun Road Park Public Restroom

Discharge from WC (Qty * DU)	= 21.6 L/s
Discharge from Basin (Qty * DU)	= 2.7 L/s
Discharge from Single Urinal with Cistern (Qty * DU)	= 1.2 L/s
Discharge from Shower without Plug (Qty * DU)	= 2.4 L/s
Sum of DUs	= 27.9 L/s
Wastewater Flow Rate ( $K \sum DU$ )	= 5.3 L/s
<i>Frequency of use, K = 1, extracted from Table 6 of Plumbing Engineering Services Design Guide (PESDG)</i>	
<i>Discharge Unit (DU) of WC = 1.8 L/s; DU of Basin = 0.3 L/s, DU of Single Urinal with Cistern = 0.4L/s, DU of Shower without Plug = 0.4L/s, extracted from Table 5 of PESDG</i>	
<i>Total number of WC = 12; Total number of Basin = 9; Total number of Single Urinal with Cistern = 3; Total number of Shower without plug = 6 (Site observation)</i>	

## 29. Lai Yip Street Refuse Collection Point

Assumed area	= 125.0 m <sup>2</sup> --(measured from basemap)
Assumed depth of wash water	= 0.05 m
Volume of wastewater due to station cleaning	= 6.25 L
Assumed duration of cleaning	= 10 minutes
Wastewater flow rate	= 0.010 L/s

<b>Total Flow of Catchment D, excluding public toilet/restroom/RCP, discharges to FMH4042678 (S12)</b>	<b>= 274.7 m<sup>3</sup>/day</b>
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Table 3a Calculation for Sewage generation rate of the Surrounding Building (Existing Condition)

Sub-total

Total Flow at P1 (including Proposed Development)	=	288.6	m <sup>3</sup> /day
Total Flow at S1 (including Proposed Development)	=	288.6	m <sup>3</sup> /day
Total Flow at S2 (including Proposed Development + Catchment A)	=	1,074.0	m <sup>3</sup> /day
<b>Total Flow at S3 (including Proposed Development + Catchment A &amp; B)</b>	=	<b>1,586.7</b>	<b>m<sup>3</sup>/day</b>
Total Flow at S4 (including Proposed Development + Catchment A & B)	=	1,586.7	m <sup>3</sup> /day
Total Flow at S5 (including Proposed Development + Catchment A & B & C)	=	2,183.5	m <sup>3</sup> /day
Total Flow at S6 (including Proposed Development + Catchment A & B & C)	=	2,183.5	m <sup>3</sup> /day
Total Flow at S7 (including Proposed Development + Catchment A & B & C)	=	2,183.5	m <sup>3</sup> /day
Total Flow at S8 (including Proposed Development + Catchment A & B & C)	=	2,183.5	m <sup>3</sup> /day
Total Flow at S9 (including Proposed Development + Catchment A & B & C)	=	2,183.5	m <sup>3</sup> /day
Total Flow at S10 (including Proposed Development + Catchment A & B & C)	=	2,183.5	m <sup>3</sup> /day
Total Flow at S11 (including Proposed Development + Catchment A & B & C)	=	2,183.5	m <sup>3</sup> /day
Total Flow at S12 (including Proposed Development + Catchment A & B & C & D)	=	2,458.3	m <sup>3</sup> /day
Total Flow at S13 (including Proposed Development + Catchment A & B & C & D)	=	2,458.3	m <sup>3</sup> /day

Sub-total with Catchment Inflow Factor - East Kowloon = 1.1

Total Flow at P1 (including Proposed Development)	=	317.5	m <sup>3</sup> /day
Total Flow at S1 (including Proposed Development)	=	317.5	m <sup>3</sup> /day
Total Flow at S2 (including Proposed Development + Catchment A)	=	1,181.4	m <sup>3</sup> /day
<b>Total Flow at S3 (including Proposed Development + Catchment A &amp; B)</b>	=	<b>1,745.4</b>	<b>m<sup>3</sup>/day</b>
Total Flow at S4 (including Proposed Development + Catchment A & B)	=	1,745.4	m <sup>3</sup> /day
Total Flow at S5 (including Proposed Development + Catchment A & B & C)	=	2,401.9	m <sup>3</sup> /day
Total Flow at S6 (including Proposed Development + Catchment A & B & C)	=	2,401.9	m <sup>3</sup> /day
Total Flow at S7 (including Proposed Development + Catchment A & B & C)	=	2,401.9	m <sup>3</sup> /day
Total Flow at S8 (including Proposed Development + Catchment A & B & C)	=	2,401.9	m <sup>3</sup> /day
Total Flow at S9 (including Proposed Development + Catchment A & B & C)	=	2,401.9	m <sup>3</sup> /day
Total Flow at S10 (including Proposed Development + Catchment A & B & C)	=	2,401.9	m <sup>3</sup> /day
Total Flow at S11 (including Proposed Development + Catchment A & B & C)	=	2,401.9	m <sup>3</sup> /day
Total Flow at S12 (including Proposed Development + Catchment A & B & C & D)	=	2,704.1	m <sup>3</sup> /day
Total Flow at S13 (including Proposed Development + Catchment A & B & C & D)	=	2,704.1	m <sup>3</sup> /day

Table 3b Calculation for Sewage generation rate of the Surrounding Building (Planned Condition)  
Catchment A, discharges to FMH4042669 (S2)

1. On Cheong Factory Building (19 Tai Yip Street)  
 Industrial - Manufacturing

Assumed area	=	2510 m <sup>2</sup>
Assumed floor area per employee	=	43.5 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Manufacturing)
Total number of employees	=	58 employees
Design flow	=	530 litre/employee/day -- (refer to Table T-3 of GESF - J1 Manufacturing in East Kowloon)
Sewage generation rate	=	30.6 m <sup>3</sup> /day

2. Winful Industrial Building (15-17 Tai Yip Street)

Industrial - Manufacturing

Assumed area	=	5280 m <sup>2</sup>
Assumed floor area per employee	=	30.3 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Manufacturing - I/O Buildings)
Total number of employees	=	174 employees
Design flow	=	530 litre/employee/day -- (refer to Table T-3 of GESF - J1 Manufacturing in East Kowloon)
Sewage generation rate	=	92.3 m <sup>3</sup> /day

Reference: SIA report under Approved Planning Application A/K14/809

3. Peter Leung Industrial Building (103 Wai Yip Street)

a) Industrial - Manufacturing

Assumed area	=	2827 m <sup>2</sup>
Assumed floor area per employee	=	30.3 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Manufacturing - I/O Buildings)
Total number of employees	=	93 employees
Design flow	=	530 litre/employee/day -- (refer to Table T-3 of GESF - J1 Manufacturing in East Kowloon)
Sewage generation rate	=	49.4 m <sup>3</sup> /day

b) Express delivery

Assumed area	=	201 m <sup>2</sup>
Assumed floor area per employee	=	22.7 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Financial, Insurance, Real Estate & Business Services - I/O Buildings)
Total number of employees	=	9 employees
Design flow	=	80 litre/employee/day -- (refer to Table T-2 of GESF - J6 Finance, Insurance, Real Estate & Business Services)
Sewage generation rate	=	0.7 m <sup>3</sup> /day

4. Red Square (105 Wai Yip Street)

Office

Assumed area	=	1739 m <sup>2</sup>
Assumed floor area per employee	=	18.2 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Financial, Insurance, Real Estate & Business Services )
Total number of employees	=	96 employees
Design flow	=	80 litre/employee/day -- (refer to Table T-2 of GESF - J6 Finance, Insurance, Real Estate & Business Services)
Sewage generation rate	=	7.7 m <sup>3</sup> /day

F&B

Assumed area	=	191 m <sup>2</sup>
Assumed floor area per employee	=	19.6 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Restaurant)
Total number of employees	=	10 employees
Design flow	=	1580 litre/employee/day -- (refer to Table T-2 of GESF - J10 Restaurants and Hotels)
Sewage generation rate	=	15.4 m <sup>3</sup> /day



Table 3b Calculation for Sewage generation rate of the Surrounding Building (Planned Condition)

5. Yat Sang Industrial Building  
Industrial - Manufacturing

Assumed area	=	2400 m <sup>2</sup>
Assumed floor area per employee	=	43.5 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Manufacturing)
Total number of employees	=	55 employees
Design flow	=	530 litre/employee/day -- (refer to Table T-3 of GESF - J1 Manufacturing in East Kowloon)
Sewage generation rate	=	29.3 m <sup>3</sup> /day

Reference: SIA report under Approved Planning Application A/K14/809

6. Kevin Wong Development Building (11 Tai Yip Street)  
Industrial - Manufacturing

Assumed area	=	3080 m <sup>2</sup>
Assumed floor area per employee	=	30.3 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Manufacturing - I/O Buildings)
Total number of employees	=	102 employees
Design flow	=	530 litre/employee/day -- (refer to Table T-3 of GESF - J1 Manufacturing in East Kowloon)
Sewage generation rate	=	53.9 m <sup>3</sup> /day

Reference: SIA report under Approved Planning Application A/K14/809

7. Proposed Commercial Development at 111 Wai Yip Street and 1 Tai Yip Street (Planning Application No. A/K14/809)  
Office

Assumed area	=	13349 m <sup>2</sup>
Assumed floor area per employee	=	18.2 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Financial, Insurance, Real Estate & Business Services )
Total number of employees	=	734 employees
Design flow	=	80 litre/employee/day -- (refer to Table T-2 of GESF - J6 Finance, Insurance, Real Estate & Business Services)
Sewage generation rate	=	58.7 m <sup>3</sup> /day

Reference: Approved Planning Application A/K14/809 (<https://www.ozp.tpb.gov.hk/api/Perm/Gist?caseNo=A%2fK14%2f809&lang=EN&ext=f>)8. Ho King Industrial Building (9 Tai Yip Street)  
Industrial - Manufacturing

Assumed area	=	2044 m <sup>2</sup>
Assumed floor area per employee	=	43.5 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Manufacturing)
Total number of employees	=	47 employees
Design flow	=	530 litre/employee/day -- (refer to Table T-3 of GESF - J1 Manufacturing in East Kowloon)
Sewage generation rate	=	24.9 m <sup>3</sup> /day

9. Wing Tai Factory Building (3 Tai Yip Street)  
Industrial - Manufacturing

Assumed area	=	3144 m <sup>2</sup>
Assumed floor area per employee	=	30.3 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Manufacturing - I/O Buildings)
Total number of employees	=	104 employees
Design flow	=	530 litre/employee/day -- (refer to Table T-3 of GESF - J1 Manufacturing in East Kowloon)
Sewage generation rate	=	55.0 m <sup>3</sup> /day

## Storage

Assumed area	=	147 m <sup>2</sup>
Assumed floor area per employee	=	250.0 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Storage)
Total number of employees	=	1 employees
Design flow	=	180 litre/employee/day -- (refer to Table T-2 of GESF - Transport, Storage & Communication)
Sewage generation rate	=	0.1 m <sup>3</sup> /day

*Table 3b Calculation for Sewage generation rate of the Surrounding Building (Planned Condition)*

## 11. Air Goal Cargo Building (330 Kwun Tong Road)

## Industrial - Manufacturing

Assumed area	=	2309 m <sup>2</sup>
Assumed floor area per employee	=	43.5 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Manufacturing)
Total number of employees	=	53 employees
Design flow	=	530 litre/employee/day -- (refer to Table T-3 of GESF - J1 Manufacturing in East Kowloon)
Sewage generation rate	=	28.2 m <sup>3</sup> /day

## 12. Hong Kong Commercial Daily (332 Kwun Tong Road)

## Office

Assumed area	=	2304 m <sup>2</sup>
Assumed floor area per employee	=	18.2 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Financial, Insurance, Real Estate & Business Services )
Total number of employees	=	127 employees
Design flow	=	80 litre/employee/day -- (refer to Table T-2 of GESF - J6 Finance, Insurance, Real Estate & Business Services)
Sewage generation rate	=	10.1 m <sup>3</sup> /day

## 13. Planned Development (334-336 &amp; 338 Kwun Tong Road)

## Office

Reference: Approved Planning Application A/K14/804 (<https://www.ozp.tpb.gov.hk/api/Perm/Gist?caseNo=A%2fK14%2f804&lang=EN&ext=f>)

Assumed area	=	23211 m <sup>2</sup>
Assumed floor area per employee	=	18.2 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Financial, Insurance, Real Estate & Business Services )
Total number of employees	=	1277 employees
Design flow	=	80 litre/employee/day -- (refer to Table T-2 of GESF - J6 Finance, Insurance, Real Estate & Business Services)
Sewage generation rate	=	102.1 m <sup>3</sup> /day

## 15. Johnson Industrial Mansion (340 Kwun Tong Road)

## Industrial - Manufacturing

Assumed area	=	5772 m <sup>2</sup>
Assumed floor area per employee	=	30.3 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Manufacturing - I/O Buildings)
Total number of employees	=	190 employees
Design flow	=	530 litre/employee/day -- (refer to Table T-3 of GESF - J1 Manufacturing in East Kowloon)
Sewage generation rate	=	101.0 m <sup>3</sup> /day

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Total Flow of Catchment A, discharges to FMH4042669 (S2)	=	659.4 m <sup>3</sup> /day
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*Table 3b Calculation for Sewage generation rate of the Surrounding Building (Planned Condition)*

Catchment B, discharges to FMH4042670 (S3)

16. Chuan Yuan Factory Building (342-344 Kwun Tong Road)  
Industrial - Manufacturing

Assumed area	=	13344 m <sup>2</sup>
Assumed floor area per employee	=	43.5 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Manufacturing)
Total number of employees	=	307 employees
Design flow	=	530 litre/employee/day -- (refer to Table T-3 of GESF - J1 Manufacturing in East Kowloon)
Sewage generation rate	=	162.7 m <sup>3</sup> /day

17. Hong Kong Baptist Hospital (4 Tai Yip Street)

Sewage generation rate

Reference: SIA report under Approved Planning Application A/K14/782

= 181.6 m<sup>3</sup>/day

18. Linkchart Centre (2 Tai Yip Street)

Office

Assumed area	=	9109 m <sup>2</sup>
Assumed floor area per employee	=	18.2 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Financial, Insurance, Real Estate & Business Services )
Total number of employees	=	501 employees
Design flow	=	80 litre/employee/day -- (refer to Table T-2 of GESF - J6 Finance, Insurance, Real Estate & Business Services)
Sewage generation rate	=	40.1 m <sup>3</sup> /day

Reference: Online building profile (<https://www.interasia.com.hk/en/Kowloon-Building/Kwun-Tong/1563/Linkchart-Centre>)

24a. KTR 350 (65% of total discharge capacity)

a) Office

Assumed area	=	19223 m <sup>2</sup>
Assumed floor area per employee	=	18.2 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Financial, Insurance, Real Estate & Business Services )
Total number of employees	=	1057 employees
Design flow	=	80 litre/employee/day -- (refer to Table T-2 of GESF - J6 Finance, Insurance, Real Estate & Business Services)
Sewage generation rate	=	84.6 m <sup>3</sup> /day

b) F&B

Assumed area	=	1201 m <sup>2</sup>
Assumed floor area per employee	=	19.6 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Restaurants)
Total number of employees	=	61 employees
Design flow	=	1580 litre/employee/day -- (refer to Table T-2 of GESF - J10 Restaurants and Hotels)
Sewage generation rate	=	96.8 m <sup>3</sup> /day

b) Retail

Assumed area	=	1646 m <sup>2</sup>
Assumed floor area per employee	=	28.6 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Retail Trade)
Total number of employees	=	58 employees
Design flow	=	280 litre/employee/day -- (refer to Table T-2 of GESF - J4 Wholesale & Retail)
Sewage generation rate	=	16.1 m <sup>3</sup> /day
65% of Total sewage generation rate	=	128.4 m <sup>3</sup> /day

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Total Flow of Catchment B, discharges to FMH4042670 (S3) = 512.7 m<sup>3</sup>/day

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Table 3b Calculation for Sewage generation rate of the Surrounding Building (Planned Condition)

Catchment C, discharges to FMH4042672 (S5)

## 19. Manulife Place

## a) Office

Assumed area	=	42693 m <sup>2</sup>
Assumed floor area per employee	=	18.2 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Financial, Insurance, Real Estate & Business Services )
Total number of employees	=	2348 employees
Design flow	=	80 litre/employee/day -- (refer to Table T-2 of GESF - J6 Finance, Insurance, Real Estate & Business Services)
Sewage generation rate	=	187.8 m <sup>3</sup> /day

## b) F&amp;B

Total number of employees	=	28 employees
Design flow	=	1580 litre/employee/day -- (refer to Table T-2 of GESF - J10 Restaurants and Hotels)
Sewage generation rate	=	44.2 m <sup>3</sup> /day

## b) Retail

Total number of employees	=	1 employees
Design flow	=	280 litre/employee/day -- (refer to Table T-2 of GESF - J4 Wholesale & Retail)
Sewage generation rate	=	0.3 m <sup>3</sup> /day

## 20. Proposed Commercial Development at 5 Lai Yip Street (Planning Application No. A/K14/810)

Assumed area	=	14787 m <sup>2</sup>
Assumed floor area per employee	=	18.2 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Financial, Insurance, Real Estate & Business Services )
Total number of employees	=	813 employees
Design flow	=	80 litre/employee/day -- (refer to Table T-2 of GESF - J6 Finance, Insurance, Real Estate & Business Services)
Sewage generation rate	=	65.1 m <sup>3</sup> /day

## 21. Proposed Commercial Development at 7 Lai Yip Street (Planning Application No. A/K14/774)

## a) Office

Assumed area	=	12375 m <sup>2</sup>
Assumed floor area per employee	=	18.2 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Financial, Insurance, Real Estate & Business Services )
Total number of employees	=	681 employees
Design flow	=	80 litre/employee/day -- (refer to Table T-2 of GESF - J6 Finance, Insurance, Real Estate & Business Services)
Sewage generation rate	=	54.5 m <sup>3</sup> /day

## b) F&amp;B

Assumed area	=	1200 m <sup>2</sup>
Assumed floor area per employee	=	19.6 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Restaurants)
Total number of employees	=	61 employees
Design flow	=	1580 litre/employee/day -- (refer to Table T-2 of GESF - J10 Restaurants and Hotels)
Sewage generation rate	=	96.7 m <sup>3</sup> /day

## c) Retail

Assumed area	=	1200 m <sup>2</sup>
Assumed floor area per employee	=	28.6 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Retail Trade)
Total number of employees	=	42 employees
Design flow	=	280 litre/employee/day -- (refer to Table T-2 of GESF - J4 Wholesale & Retail)
Sewage generation rate	=	11.8 m <sup>3</sup> /day

**Table 3b Calculation for Sewage generation rate of the Surrounding Building (Planned Condition)****22. Proposed Commercial Development at 9 Lai Yip Street (Planning Application No. A/K14/748)**

Office	
Assumed area	= 9524 m <sup>2</sup>
Assumed floor area per employee	= 18.2 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Financial, Insurance, Real Estate & Business Services )
Total number of employees	= 524 employees
Design flow	= 80 litre/employee/day -- (refer to Table T-2 of GESF - J6 Finance, Insurance, Real Estate & Business Services)
Sewage generation rate	= 89.0 m <sup>3</sup> /day

**23. Proposed Commercial Development at 11 Lai Yip Street (Planning Application No. A/K14/806)**

Office	
Assumed area	= 15050 m <sup>2</sup>
Assumed floor area per employee	= 18.2 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Financial, Insurance, Real Estate & Business Services )
Total number of employees	= 828 employees
Design flow	= 80 litre/employee/day -- (refer to Table T-2 of GESF - J6 Finance, Insurance, Real Estate & Business Services)
Sewage generation rate	= 66.2 m <sup>3</sup> /day

**24b. KTR 350 (35% of total discharge capacity)**

a) Office	
Assumed area	= 19223 m <sup>2</sup>
Assumed floor area per employee	= 18.2 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Financial, Insurance, Real Estate & Business Services )
Total number of employees	= 1057 employees
Design flow	= 80 litre/employee/day -- (refer to Table T-2 of GESF - J6 Finance, Insurance, Real Estate & Business Services)
Sewage generation rate	= 84.6 m <sup>3</sup> /day

## b) F&amp;B

Assumed area	= 1201 m <sup>2</sup>
Assumed floor area per employee	= 19.6 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Restaurants)
Total number of employees	= 61 employees
Design flow	= 1580 litre/employee/day -- (refer to Table T-2 of GESF - J10 Restaurants and Hotels)
Sewage generation rate	= 96.8 m <sup>3</sup> /day

## b) Retail

Assumed area	= 1646 m <sup>2</sup>
Assumed floor area per employee	= 28.6 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Retail Trade)
Total number of employees	= 58 employees
Design flow	= 280 litre/employee/day -- (refer to Table T-2 of GESF - J4 Wholesale & Retail)
Sewage generation rate	= 16.1 m <sup>3</sup> /day
35% of Total sewage generation rate	= 69.1 m <sup>3</sup> /day

<b>Total Flow of Catchment C, discharges to FMH4042672 (S5)</b>	<b>= 576.3 m<sup>3</sup>/day</b>
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Table 3b Calculation for Sewage generation rate of the Surrounding Building (Planned Condition)

Catchment D, discharges to FMH4042678 (S12)

## 25. Neo

Office	
Assumed area	= 55390 m <sup>2</sup>
Assumed floor area per employee	= 18.2 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Financial, Insurance, Real Estate & Business Services)
Total number of employees	= 3046 employees
Design flow	= 80 litre/employee/day -- (refer to Table T-2 of GESF - J6 Finance, Insurance, Real Estate & Business Services)
Sewage generation rate	= 243.7 m <sup>3</sup> /day

## 26. Cooked Food Stall

Assumed area	= 385 m <sup>2</sup>
Assumed floor area per employee	= 19.6 m <sup>2</sup> per employee -- (refer to Table 8 of CIFSUS - Restaurants)
Total number of employees	= 20 employees
Design flow	= 1580 litre/employee/day -- (refer to Table T-2 of GESF - J10 Restaurants and Hotels)
Sewage generation rate	= 31.0 m <sup>3</sup> /day

## 27. Lai Yip Street Public Toilet

Discharge from WC (Qty * DU)	= 19.8 L/s
Discharge from Basin (Qty * DU)	= 3.0 L/s
Discharge from Single Urinal with Cistern (Qty * DU)	= 2.4 L/s
Sum of DUs	= 25.2 L/s
Wastewater Flow Rate ( $K \sum DU$ )	= 5.0 L/s

Frequency of use,  $K = 1$ , extracted from Table 6 of Plumbing Engineering Services Design Guide (PESDG)  
 Discharge Unit (DU) of WC = 1.8 L/s; DU of Basin = 0.3 L/s, DU of Single Urinal with Cistern = 0.4L/s, extracted from Table 5 of PESDG  
 Total number of WC = 11; Total number of Basin = 10; Total number of Single Urinal with Cistern = 6 (Site observation)

## 28. Hoi Bun Road Park Public Restroom

Discharge from WC (Qty * DU)	= 21.6 L/s
Discharge from Basin (Qty * DU)	= 2.7 L/s
Discharge from Single Urinal with Cistern (Qty * DU)	= 1.2 L/s
Discharge from Shower without Plug (Qty * DU)	= 2.4 L/s
Sum of DUs	= 27.9 L/s
Wastewater Flow Rate ( $K \sum DU$ )	= 5.3 L/s

Frequency of use,  $K = 1$ , extracted from Table 6 of Plumbing Engineering Services Design Guide (PESDG)  
 Discharge Unit (DU) of WC = 1.8 L/s; DU of Basin = 0.3 L/s, DU of Single Urinal with Cistern = 0.4L/s, DU of Shower without Plug = 0.4L/s, extracted from Table 5 of PESDG  
 Total number of WC = 12; Total number of Basin = 9; Total number of Single Urinal with Cistern = 3; Total number of Shower without plug = 6 (Site observation)

## 29. Lai Yip Street Refuse Collection Point

Assumed area	= 125.0 m <sup>2</sup> --(measured from basemap)
Assumed depth of wash water	= 0.05 m
Volume of wastewater due to station cleaning	= 6.25 L
Assumed duration of cleaning	= 10 minutes
Wastewater flow rate	= 0.010 L/s

<b>Total Flow of Catchment D, excluding public toilet/restroom/RCP, discharges to FMH4042678 (S12)</b>	<b>= 274.7 m<sup>3</sup>/day</b>
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Table 3b Calculation for Sewage generation rate of the Surrounding Building (Planned Condition)

**Sub-total**

Total Flow at S0 (including Proposed Development)	=	288.6	m <sup>3</sup> /day
Total Flow at S1 (including Proposed Development)	=	288.6	m <sup>3</sup> /day
Total Flow at S2 (including Proposed and Planned Development + Catchment A)	=	948.0	m <sup>3</sup> /day
<b>Total Flow at S3 (including Proposed and Planned Development + Catchment A &amp; B)</b>	=	<b>1,460.7</b>	<b>m<sup>3</sup>/day</b>
Total Flow at S4 (including Proposed and Planned Development + Catchment A & B)	=	1,460.7	m <sup>3</sup> /day
Total Flow at S5 (including Proposed and Planned Development + Catchment A & B & C)	=	2,036.9	m <sup>3</sup> /day
Total Flow at S6 (including Proposed and Planned Development + Catchment A & B & C)	=	2,036.9	m <sup>3</sup> /day
Total Flow at S7 (including Proposed and Planned Development + Catchment A & B & C)	=	2,036.9	m <sup>3</sup> /day
Total Flow at S8 (including Proposed and Planned Development + Catchment A & B & C)	=	2,036.9	m <sup>3</sup> /day
Total Flow at S9 (including Proposed and Planned Development + Catchment A & B & C)	=	2,036.9	m <sup>3</sup> /day
Total Flow at S10 (including Proposed and Planned Development + Catchment A & B & C)	=	2,036.9	m <sup>3</sup> /day
Total Flow at S11 (including Proposed and Planned Development + Catchment A & B & C)	=	2,036.9	m <sup>3</sup> /day
Total Flow at S12 (including Proposed and Planned Development + Catchment A & B & C & D)	=	2,311.7	m <sup>3</sup> /day
Total Flow at S13 (including Proposed and Planned Development + Catchment A & B & C & D)	=	2,311.7	m <sup>3</sup> /day

**Sub-total with Catchment Inflow Factor - Fast Kowloon = 1.1**

Total Flow at S0 (including Proposed Development)	=	317.5	m <sup>3</sup> /day
Total Flow at S1 (including Proposed Development)	=	317.5	m <sup>3</sup> /day
Total Flow at S2 (including Proposed and Planned Development + Catchment A)	=	1,042.8	m <sup>3</sup> /day
<b>Total Flow at S3 (including Proposed and Planned Development + Catchment A &amp; B)</b>	=	<b>1,606.7</b>	<b>m<sup>3</sup>/day</b>
Total Flow at S4 (including Proposed and Planned Development + Catchment A & B)	=	1,606.7	m <sup>3</sup> /day
Total Flow at S5 (including Proposed and Planned Development + Catchment A & B & C)	=	2,240.6	m <sup>3</sup> /day
Total Flow at S6 (including Proposed and Planned Development + Catchment A & B & C)	=	2,240.6	m <sup>3</sup> /day
Total Flow at S7 (including Proposed and Planned Development + Catchment A & B & C)	=	2,240.6	m <sup>3</sup> /day
Total Flow at S8 (including Proposed and Planned Development + Catchment A & B & C)	=	2,240.6	m <sup>3</sup> /day
Total Flow at S9 (including Proposed and Planned Development + Catchment A & B & C)	=	2,240.6	m <sup>3</sup> /day
Total Flow at S10 (including Proposed and Planned Development + Catchment A & B & C)	=	2,240.6	m <sup>3</sup> /day
Total Flow at S11 (including Proposed and Planned Development + Catchment A & B & C)	=	2,240.6	m <sup>3</sup> /day
Total Flow at S12 (including Proposed and Planned Development + Catchment A & B & C & D)	=	2,542.8	m <sup>3</sup> /day
Total Flow at S13 (including Proposed and Planned Development + Catchment A & B & C & D)	=	2,542.8	m <sup>3</sup> /day

Table 4a Comparison of the Hydraulic Capacity of Existing Sewers for Sewerage generated from the Proposed Development and Surrounding Catchment Areas (Existing Condition)

Hydraulic Capacity of Existing Sewers

Segment	Manhole Reference	Manhole Reference	Pipe Dia. (mm)	Pipe Length (m)	Gradient	Estimated Capacity (L/s)	Peak Flow from the Proposed Development only (L/s)	Contribution from the Proposed Development only (%)	Status	Included Catchment	Daily Flow (m <sup>3</sup> /day)	Contributing Population	Peaking Factor	Public Toilet/ Restroom/ RCP (L/s)	Peak Flow from the Proposed Development and Catchment Areas (Without Water Feature Backwash) (L/s)	Water Feature Backwash (L/s)	Peak Flow from the Proposed Development and Catchment Areas (With Water Feature Backwash) (L/s)	Contribution from the Proposed Development and the Surrounding Catchment Areas (%)	Status
P1-S1	FTMH-01	FMH4042668	225	16.4	0.007	37	22.0	59.0%	OK	-	317.5	1,176	6	-	22.0	2.5	24.5	65.7%	OK
S1-S2	FMH4042668	FMH4042669	225	53.5	0.012	56	22.0	39.4%	OK	-	317.5	1,176	6	-	22.0	2.5	24.5	43.8%	OK
S2-S3	FMH4042669	FMH4042670	400	34.3	0.007	202	22.0	10.9%	OK	A	1181.4	4,376	6	-	82.0	2.5	84.5	41.8%	OK
S3-S4	FMH4042670	FMH4042671	400	19.1	0.004	153	22.0	14.4%	OK	A + B	1745.4	6,464	5	-	101.0	2.5	103.5	67.8%	OK
S4-S5	FMH4042671	FMH4042672	400	46.5	0.008	206	22.0	10.7%	OK	A + B	1745.4	6,464	5	-	101.0	2.5	103.5	50.4%	OK
S5-S6	FMH4042672	FMH4042673	400	20.5	0.005	173	22.0	12.7%	OK	A + B + C	2401.9	8,896	5	-	139.0	2.5	141.5	81.6%	OK
S6-S7	FMH4042673	FMH4042674	400	6.4	0.003	106	22.0	20.9%	OK	A + B + C	2401.9	8,896	5	-	139.0	2.5	141.5	133.9%	Spill
S7-S8	FMH4042674	FMH4100299	400	22.8	0.002	89	22.0	24.9%	OK	A + B + C	2401.9	8,896	5	-	139.0	2.5	141.5	159.8%	Spill
S8-S9	FMH4100299	FMH4042675	400	20.8	0.002	93	22.0	23.8%	OK	A + B + C	2401.9	8,896	5	-	139.0	2.5	141.5	152.7%	Spill
S9-S10	FMH4042675	FMH4042676	400	28.2	0.004	123	22.0	17.9%	OK	A + B + C	2401.9	8,896	5	-	139.0	2.5	141.5	114.8%	Spill
S10-S11	FMH4042676	FMH4042677	400	26.4	0.004	122	22.0	18.0%	OK	A + B + C	2401.9	8,896	5	-	139.0	2.5	141.5	115.8%	Spill
S11-S12	FMH4042677	FMH4042678	400	3.6	0.006	141	22.0	15.6%	OK	A + B + C	2401.9	8,896	5	-	139.0	2.5	141.5	100.3%	Spill
S12-S13	FMH4042678	FG4003341	400	10.1	0.107	779	22.0	2.8%	OK	A + B + C + D	2704.1	10,015	4	10.3	135.5	2.5	138.0	17.7%	OK

Table 4b Comparison of the Hydraulic Capacity of Existing Sewers for Sewerage generated from the Proposed Development and Surrounding Catchment Areas (Planned Condition)

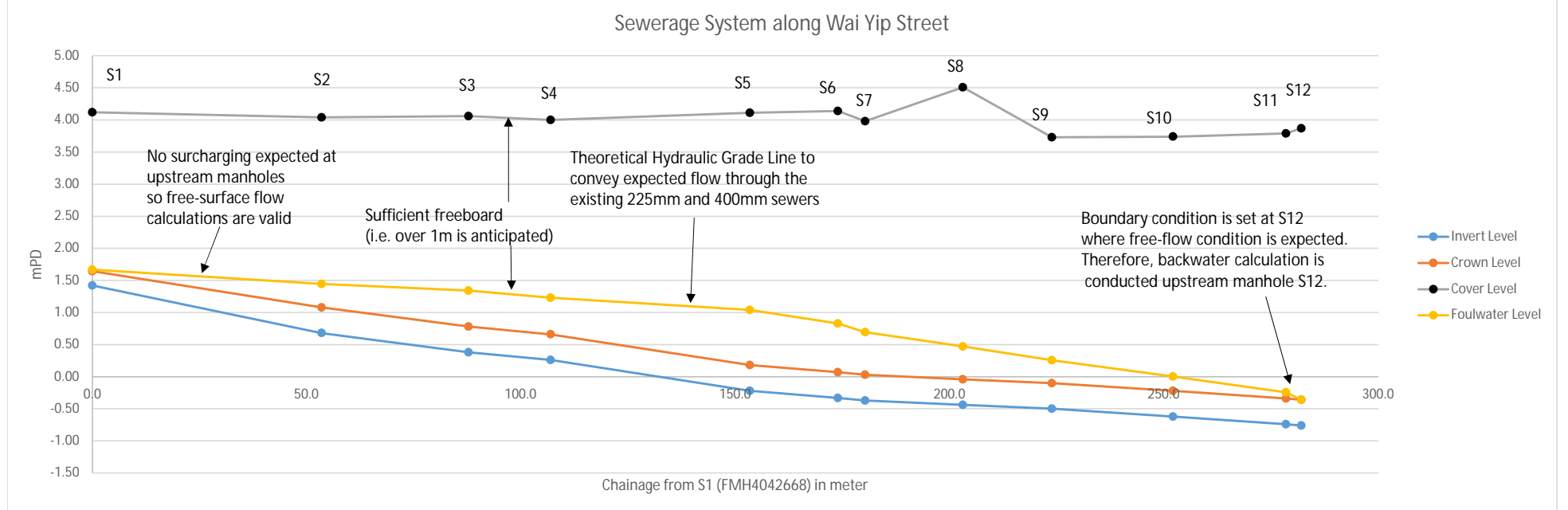
Hydraulic Capacity of Existing Sewers

Segment	Manhole Reference	Manhole Reference	Pipe Dia. (mm)	Pipe Length (m)	Gradient	Estimated Capacity (L/s)	Peak Flow from the Proposed Development only (L/s)	Contribution from the Proposed Development only (%)	Status	Included Catchment	Daily Flow (m <sup>3</sup> /day)	Contributing Population	Peaking Factor	Public Toilet/ Restroom/ RCP (L/s)	Peak Flow from the Proposed Development and Catchment Areas (Without Water Feature Backwash) (L/s)	Water Feature Backwash (L/s)	Peak Flow from the Proposed Development and Catchment Areas (With Water Feature Backwash) (L/s)	Contribution from the Proposed Development and the Surrounding Catchment Areas (%)	Status
P1-S1	FTMH-01	FMH4042668	225	16.4	0.007	37	22.0	59.0%	OK	-	317.5	1,176	6	-	22.0	2.5	24.5	65.7%	OK
S1-S2	FMH4042668	FMH4042669	225	53.5	0.012	56	22.0	39.4%	OK	-	317.5	1,176	6	-	22.0	2.5	24.5	43.8%	OK
S2-S3	FMH4042669	FMH4042670	400	34.3	0.007	202	22.0	10.9%	OK	A	1042.8	3,862	6	-	72.4	2.5	74.9	37.0%	OK
S3-S4	FMH4042670	FMH4042671	400	19.1	0.004	153	22.0	14.4%	OK	A + B	1606.7	5,951	5	-	93.0	2.5	95.5	62.5%	OK
S4-S5	FMH4042671	FMH4042672	400	46.5	0.008	206	22.0	10.7%	OK	A + B	1606.7	5,951	5	-	93.0	2.5	95.5	46.4%	OK
S5-S6	FMH4042672	FMH4042673	400	20.5	0.005	173	22.0	12.7%	OK	A + B + C	2240.6	8,299	5	-	129.7	2.5	132.2	76.3%	OK
S6-S7	FMH4042673	FMH4042674	400	6.4	0.003	106	22.0	20.9%	OK	A + B + C	2240.6	8,299	5	-	129.7	2.5	132.2	125.1%	Spill
S7-S8	FMH4042674	FMH4100299	400	22.8	0.002	89	22.0	24.9%	OK	A + B + C	2240.6	8,299	5	-	129.7	2.5	132.2	149.3%	Spill
S8-S9	FMH4100299	FMH4042675	400	20.8	0.002	93	22.0	23.8%	OK	A + B + C	2240.6	8,299	5	-	129.7	2.5	132.2	142.7%	Spill
S9-S10	FMH4042675	FMH4042676	400	28.2	0.004	123	22.0	17.9%	OK	A + B + C	2240.6	8,299	5	-	129.7	2.5	132.2	107.2%	Spill
S10-S11	FMH4042676	FMH4042677	400	26.4	0.004	122	22.0	18.0%	OK	A + B + C	2240.6	8,299	5	-	129.7	2.5	132.2	108.2%	Spill
S11-S12	FMH4042677	FMH4042678	400	3.6	0.006	141	22.0	15.6%	OK	A + B + C	2240.6	8,299	5	-	129.7	2.5	132.2	93.7%	Spill
S12-S13	FMH4042678	FG4003341	400	10.1	0.107	779	22.0	2.8%	OK	A + B + C + D	2542.8	9,418	5	10.3	157.5	2.5	160.0	20.5%	OK



Table 5a Hydraulic Capacity of Existing Sewers along Wai Yip Street - surcharge condition with 1m freeboard

Segment	Manhole Reference	Manhole Reference	Pipe Dia. mm	Pipe Length m	Chainage m	Invert Level 1 mPD	Invert Level 2 mPD	Foulwater Level 1 mPD	Foulwater Level 2 mPD	Cover Level 1 mPD	Cover Level 2 mPD	Freeboard 1 m	Freeboard 2 m	Friction Loss m	Entry and Exit Loss m	g m/s <sup>2</sup>	k <sub>s</sub> m	Required Hydraulic v m <sup>3</sup> /s	V m/s	Area m <sup>2</sup>	Q m <sup>3</sup> /s	Required Peak Flow L/s	
S1-S2	FMH4042668	FMH4042669	225	53.5	0.0	1.42	0.80	1.67	1.44	4.12	4.04	2.45	2.60	0.19	0.03	9.81	0.0030	0.0036	1E-06	0.62	0.04	0.02	24.5
S2-S3	FMH4042669	FMH4042670	400	34.3	53.5	0.68	0.43	1.44	1.34	4.04	4.06	2.60	2.72	0.07	0.03	9.81	0.0030	0.0020	1E-06	0.67	0.13	0.08	84.5
S3-S4	FMH4042670	FMH4042671	400	19.1	87.8	0.38	0.30	1.34	1.23	4.06	4.00	2.72	2.77	0.06	0.05	9.81	0.0030	0.0030	1E-06	0.82	0.13	0.10	103.5
S4-S5	FMH4042671	FMH4042672	400	46.5	106.9	0.26	-0.09	1.23	1.04	4.00	4.11	2.77	3.07	0.14	0.05	9.81	0.0030	0.0030	1E-06	0.82	0.13	0.10	103.5
S5-S6	FMH4042672	FMH4042673	400	20.5	153.4	-0.22	-0.33	1.04	0.83	4.11	4.14	3.07	3.31	0.11	0.10	9.81	0.0030	0.0056	1E-06	1.13	0.13	0.14	141.5
S6-S7	FMH4042673	FMH4042674	400	6.4	173.9	-0.33	-0.35	0.83	0.69	4.14	3.98	3.31	3.29	0.04	0.10	9.81	0.0030	0.0056	1E-06	1.13	0.13	0.14	141.5
S7-S8	FMH4042674	FMH4100299	400	22.8	180.3	-0.37	-0.42	0.69	0.47	3.98	4.51	3.29	4.04	0.13	0.10	9.81	0.0030	0.0056	1E-06	1.13	0.13	0.14	141.5
S8-S9	FMH4100299	FMH4042675	400	20.8	203.1	-0.44	-0.49	0.47	0.26	4.51	3.73	4.04	3.47	0.12	0.10	9.81	0.0030	0.0056	1E-06	1.13	0.13	0.14	141.5
S9-S10	FMH4042675	FMH4042676	400	28.2	223.9	-0.50	-0.62	0.26	0.00	3.73	3.74	3.47	3.74	0.16	0.10	9.81	0.0030	0.0056	1E-06	1.13	0.13	0.14	141.5
S10-S11	FMH4042676	FMH4042677	400	26.4	252.1	-0.62	-0.73	0.00	-0.24	3.74	3.79	3.74	4.03	0.15	0.10	9.81	0.0030	0.0056	1E-06	1.13	0.13	0.14	141.5
S11-S12	FMH4042677	FMH4042678	400	3.6	278.5	-0.74	-0.76	-0.24	-0.36	3.79	3.87	4.03	4.23	0.02	0.10	9.81	0.0030	0.0056	1E-06	1.13	0.13	0.14	141.5
S12-S13	FMH4042678	FG4003341	400	10.1	282.1	-0.76	-1.84	-0.36	-	3.87	3.97	4.23	-	0.05	0.09	9.81	0.0030	0.0053	1E-06	1.10	0.13	0.14	138.0

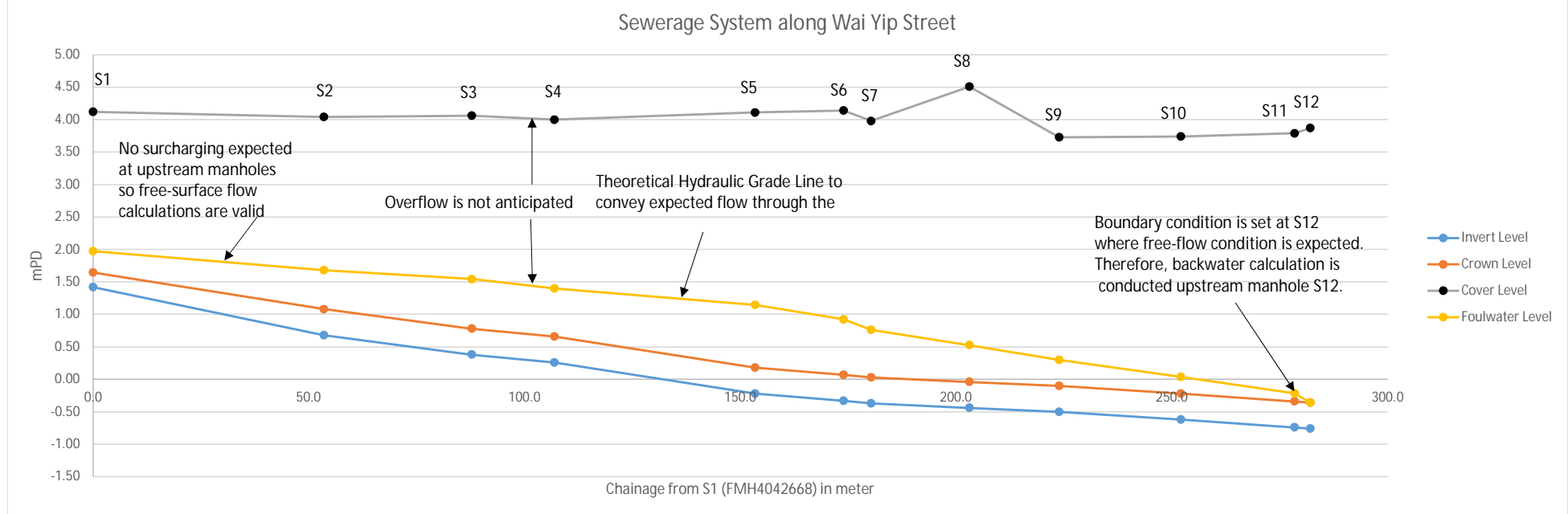


- Note:
1. Boundary condition is set at S12 where free-flow condition is expected. Therefore, backwater calculation is conducted upstream manhole S12. Foulwater level at S12 is assumed to be:  $-0.76 \text{ (IL)} + 0.400 \text{ (pipe dia.)} = -0.36\text{mPD}$  as a conservative approach
  2. For this assessment, the Colebrook-White Equation has been used to calculate the friction loss. (Sewerage Manual section 5.2.1)
  3. According to DSD's Sewerage Manual (Part 1) section 5.2.2, Local losses are usually small in relation to the pipeline head losses and are not normally considered. However, as a conservative approach, further allowances have been included for local losses at pipe entry ( $K=0.5$ ) and exit ( $K=1$ ), with a total local loss coefficient of 1.5
  4. Comparing the cover levels and foulwater levels at each manhole, the freeboards are found sufficient ( $>1\text{m}$ ). Therefore, no unacceptable adverse sewerage impacts are identified.
  5. Friction loss is deduced by required hydraulic gradient x pipe length, while the local loss is deduced by the equation:

$$h_f = K \frac{V^2}{2g}$$

Table 5b Hydraulic Capacity of Existing Sewers along Wai Yip Street - surcharge condition with 1.15 safety factor

Segment	Manhole Reference	Manhole Reference	Pipe Dia. mm	Pipe Length m	Chainage m	Invert Level 1 mPD	Invert Level 2 mPD	Foulwater Level 1 mPD	Foulwater Level 2 mPD	Cover Level 1 mPD	Cover Level 2 mPD	Freeboard 1 m	Freeboard 2 m	Friction Loss m	Entry and Exit Loss m	g m/s <sup>2</sup>	k <sub>s</sub> m	Required Hydraulic v m <sup>3</sup> /s	v m/s	V m <sup>2</sup>	Q m <sup>3</sup> /s	Required Peak Flow L/s	
S1-S2	FMH4042668	FMH4042669	225	53.5	0.0	1.42	0.80	1.98	1.68	4.12	4.04	2.14	2.36	0.26	0.04	9.81	0.0030	0.0048	1E-06	0.71	0.04	0.03	28.2
S2-S3	FMH4042669	FMH4042670	400	34.3	53.5	0.68	0.43	1.68	1.54	4.04	4.06	2.36	2.52	0.09	0.05	9.81	0.0030	0.0026	1E-06	0.77	0.13	0.10	97.2
S3-S4	FMH4042670	FMH4042671	400	19.1	87.8	0.38	0.30	1.54	1.40	4.06	4.00	2.52	2.60	0.08	0.07	9.81	0.0030	0.0040	1E-06	0.95	0.13	0.12	119.0
S4-S5	FMH4042671	FMH4042672	400	46.5	106.9	0.26	-0.09	1.40	1.15	4.00	4.11	2.60	2.96	0.18	0.07	9.81	0.0030	0.0040	1E-06	0.95	0.13	0.12	119.0
S5-S6	FMH4042672	FMH4042673	400	20.5	153.4	-0.22	-0.33	1.15	0.92	4.11	4.14	2.96	3.22	0.10	0.13	9.81	0.0006	0.0047	1E-06	1.29	0.13	0.16	162.7
S6-S7	FMH4042673	FMH4042674	400	6.4	173.9	-0.33	-0.35	0.92	0.76	4.14	3.98	3.22	3.22	0.03	0.13	9.81	0.0006	0.0047	1E-06	1.29	0.13	0.16	162.7
S7-S8	FMH4042674	FMH4100299	400	22.8	180.3	-0.37	-0.42	0.76	0.53	3.98	4.51	3.22	3.98	0.11	0.13	9.81	0.0006	0.0047	1E-06	1.29	0.13	0.16	162.7
S8-S9	FMH4100299	FMH4042675	400	20.8	203.1	-0.44	-0.49	0.53	0.30	4.51	3.73	3.98	3.43	0.10	0.13	9.81	0.0006	0.0047	1E-06	1.29	0.13	0.16	162.7
S9-S10	FMH4042675	FMH4042676	400	28.2	223.9	-0.50	-0.62	0.30	0.04	3.73	3.74	3.43	3.70	0.13	0.13	9.81	0.0006	0.0047	1E-06	1.29	0.13	0.16	162.7
S10-S11	FMH4042676	FMH4042677	400	26.4	252.1	-0.62	-0.73	0.04	-0.21	3.74	3.79	3.70	4.00	0.12	0.13	9.81	0.0006	0.0047	1E-06	1.29	0.13	0.16	162.7
S11-S12	FMH4042677	FMH4042678	400	3.6	278.5	-0.74	-0.76	-0.21	-0.36	3.79	3.87	4.00	4.23	0.02	0.13	9.81	0.0006	0.0047	1E-06	1.29	0.13	0.16	162.7
S12-S13	FMH4042678	FG4003341	400	10.1	282.1	-0.76	-1.84	-0.36	-	3.87	3.97	4.23	-	0.05	0.12	9.81	0.0006	0.0045	1E-06	1.26	0.13	0.16	158.7



- Note:
1. Boundary condition is set at S12 where free-flow condition is expected. Therefore, backwater calculation is conducted upstream manhole S12. Foulwater level at S12 is assumed to be: -0.76 (IL) + 0.400 (pipe dia.) = -0.36mPD as a conservative approach
  2. For this assessment, the Colebrook-White Equation has been used to calculate the friction loss. (Sewerage Manual section 5.2.1)
  3. According to DSD's Sewerage Manual (Part 1) section 5.2.2, Local losses are usually small in relation to the pipeline head losses and are not normally considered. However, as a conservative approach, further allowances have been included for local losses at pipe entry (K=0.5) and exit (K = 1), with a total local loss coefficient of 1.5
  4. Comparing the cover levels and foulwater levels at each manhole, no overflowing is found (freeboard >0m). Therefore, no unacceptable adverse sewerage impacts are identified.
  5. Friction loss is deduced by required hydraulic gradient x pipe length, while the local loss is deduced by the equation:

$$h_f = K \frac{V^2}{2g}$$

## Appendix 2.2

### Estimated number of hotel employee

## Katie Yu

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**From:** Philip Lee <philiplee@starproperties.com.hk>  
**Sent:** 05 March 2025 12:42  
**To:** Katie Yu  
**Cc:** Jack Lam; Nelly Tang; Crystal Lui; wilsonman@kta planning.com  
**Subject:** Re: FW: [Planning Application No. Y/K14S/4] [Response-to-Comments Table] Star Prop-Singular\_107-109 Wai Yip Street

Dear Katie,

Further to the Section 12A application on the RCHE and Hotel application for our 109 Wai Yip Street, Kwun Tong.

As the proposed hotel portion is providing basic room accommodation without associated facilities, such as catering, swimming pool, function room etc, staff are employed to provide for management and basic housekeeping service only. We anticipate the number of employees for the hotel portion would be about 40 to 50 nos.

Thank you.

Best Regards,



Classification: Confidential

**From:** Wilson Man <[wilsonman@kta planning.com](mailto:wilsonman@kta planning.com)>  
**Sent:** 03 March 2025 17:24  
**To:** Derek Tam <[derektam@singularstudio.hk](mailto:derektam@singularstudio.hk)>; Katie Yu <[KYU@ramboll.com](mailto:KYU@ramboll.com)>; Jack Lam <[jacklam@starproperties.com.hk](mailto:jacklam@starproperties.com.hk)>; Philip Lee <[philiplee@starproperties.com.hk](mailto:philiplee@starproperties.com.hk)>; Nelly Tang <[NELLYTANG@ramboll.com](mailto:NELLYTANG@ramboll.com)>; [franklinyu@singularstudio.hk](mailto:franklinyu@singularstudio.hk); Ted Lam <[tedlam@landes.com.hk](mailto:tedlam@landes.com.hk)>; Asia CKM <[mail@ckmasia.com.hk](mailto:mail@ckmasia.com.hk)>; Joe Chan <[joechan@stargroup.net](mailto:joechan@stargroup.net)>; Bobby Yu <[bobbyyu@stargroup.net](mailto:bobbyyu@stargroup.net)>; CK Law <[cklaw@stargroup.net](mailto:cklaw@stargroup.net)>; Yan Lam <[yanlam@singularstudio.hk](mailto:yanlam@singularstudio.hk)>; Jackie Lee <[jackielee@singularstudio.hk](mailto:jackielee@singularstudio.hk)>; 'Daman Wong' <[damanwong@singularstudio.hk](mailto:damanwong@singularstudio.hk)>  
**Cc:** Gladys Ng <[gladysng@kta planning.com](mailto:gladysng@kta planning.com)>  
**Subject:** RE: [Planning Application No. Y/K14S/4] [Response-to-Comments Table] Star Prop-Singular\_107-109 Wai Yip Street