

22 May 2026

The Secretary
Town Planning Board
c/o Planning Department
15/F North Point Government Offices
333 Java Road, Hong Kong

By Hand and Email

Dear Sir

Section 16 Planning Application for Proposed Minor Relaxation of Gross Floor Area and Building Height Restrictions for Permitted Office Use and Other Permitted Uses in "Commercial (7)" Zone bounded by King's Road and Taikoo Shing Road, Quarry Bay (Application No. A/H21/160)

Reference is made to the captioned application submitted to the Town Planning Board (the Board) on 30 January 2026.

In response to the comments received from the District Planning Office / Hong Kong, Planning Department in May 2026, we would like to provide the following clarifications for the Board's consideration:-

Management & Maintenance (M&M) responsibilities of the proposed enhancement works

Please be confirmed that the Applicants will take up the M&M responsibilities of (i) the enhancement works outside the 5/F southern entrance lobby; and (ii) the improved pedestrian connectivity between King's Road and Taikoo Shing Road by providing a more direct internal route linking the escalator/service lift at the southern entrance lobby to the 6/F shuttle lift to G/F.

Rectification of a typo in the Planning Statement (PS)

A typo was noted regarding the annotation of Kornhill Road Flyover in Figure 2.2 of the PS. Attached please find the revised Figure 2.2 with the typo rectified for reference.

Rectification of a typo in the Traffic Impact Assessment (TIA)

A typo was noted regarding the motorcycle parking required. Attached please find the replacement page of the TIA with the typo rectified for reference.

Responses to comments of Drainage Services Department (DSD), Environmental Protection Department (EPD) and Highways Department (HyD)

In response to the comments of DSD, EPD and HyD, attached please find a responses-to-comments table and revised Sewerage Impact Assessment for consideration.

.../2

Town Planning Board
Page 2 of 2
22 May 2026

As this Further Information submission only provides clarifications, with no changes to the proposed development scheme, and the finding and conclusion of all technical assessments remain unchanged, the Applicants sincerely request the Board to consider the captioned application favourably at its meeting tentatively scheduled on 5 June 2026.

Thank you for your kind attention. Should there be any queries, please do not hesitate to contact the undersigned at [REDACTED] or our Miss Cody Yu at [REDACTED].

Yours faithfully
for Llewelyn-Davies Hong Kong Ltd



Winnie Wu
Planning Director

WW/cy
Encl.

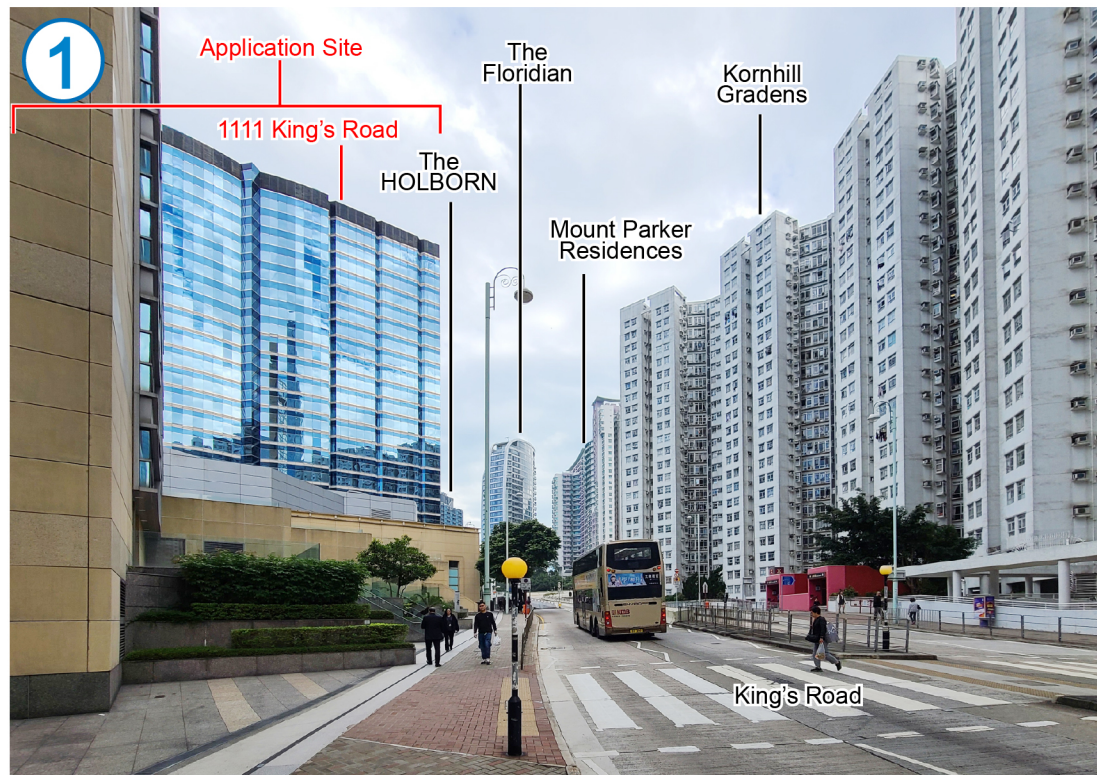
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DPO/HK

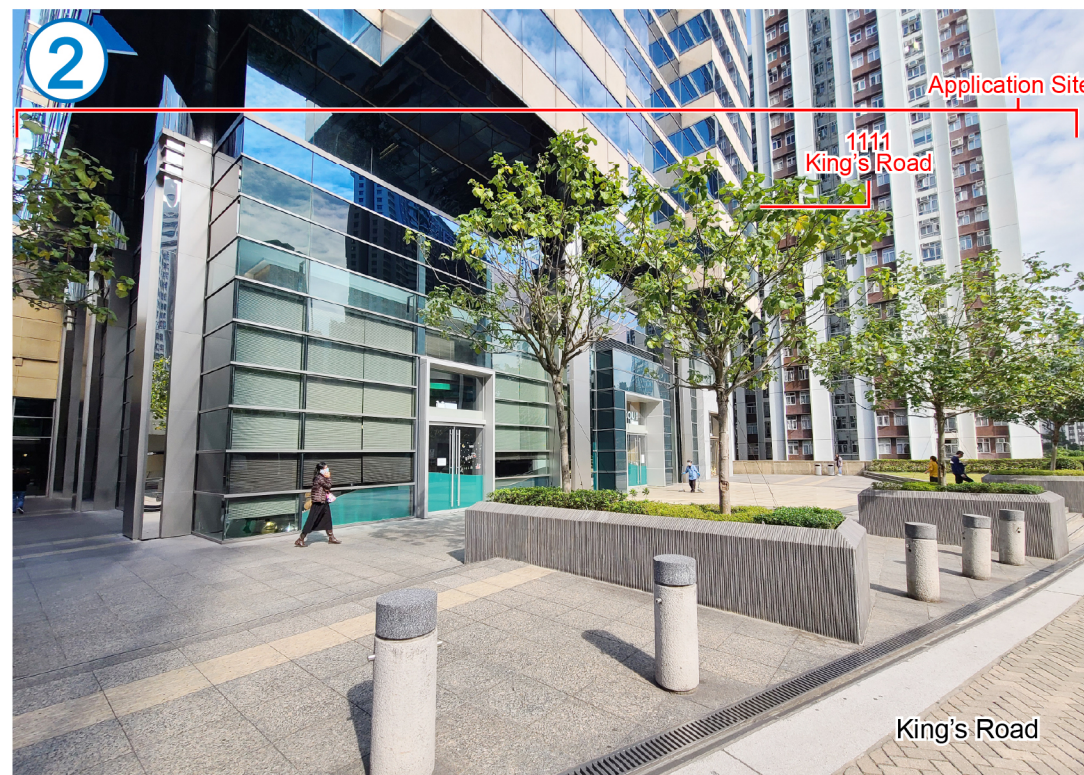
- Mr. Elton CHUNG / Mr. Henry AU

(by email)

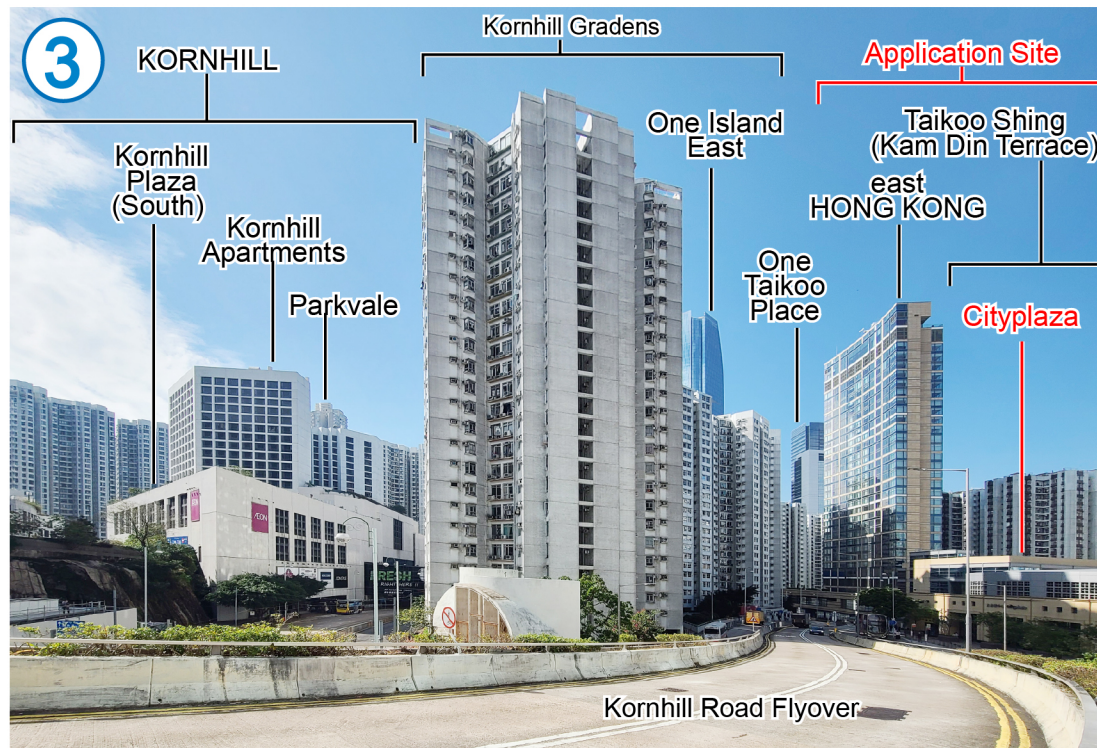
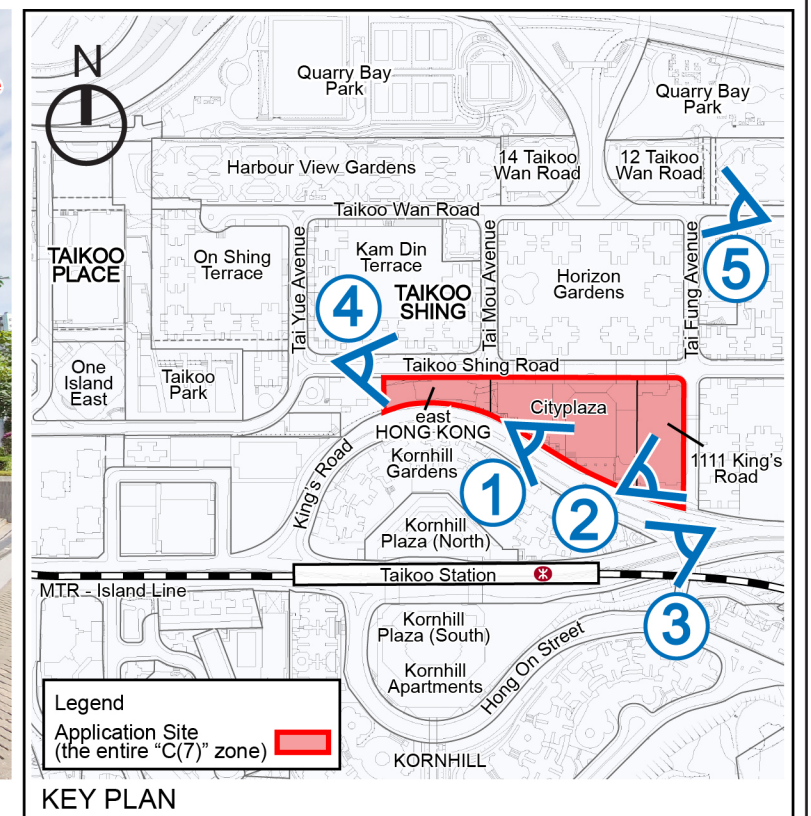
Revised Figure 2.2 of the Planning Statement
(rectification of a typo)



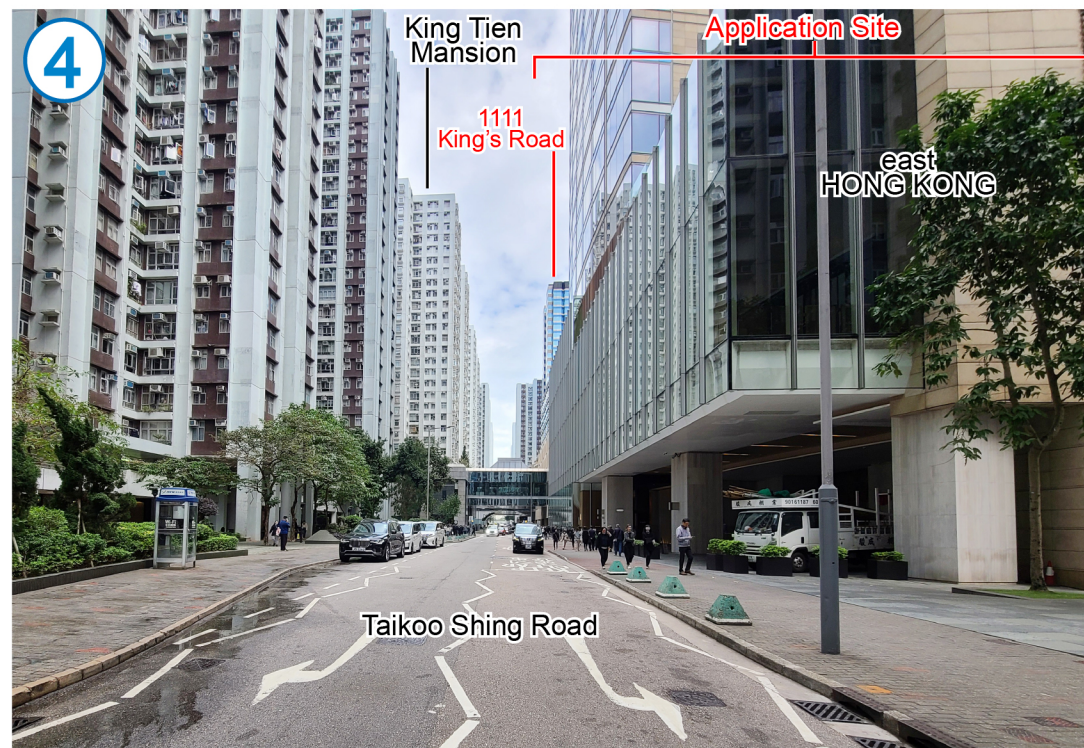
Application Site and the Surrounding Residential Developments viewed from King's Road



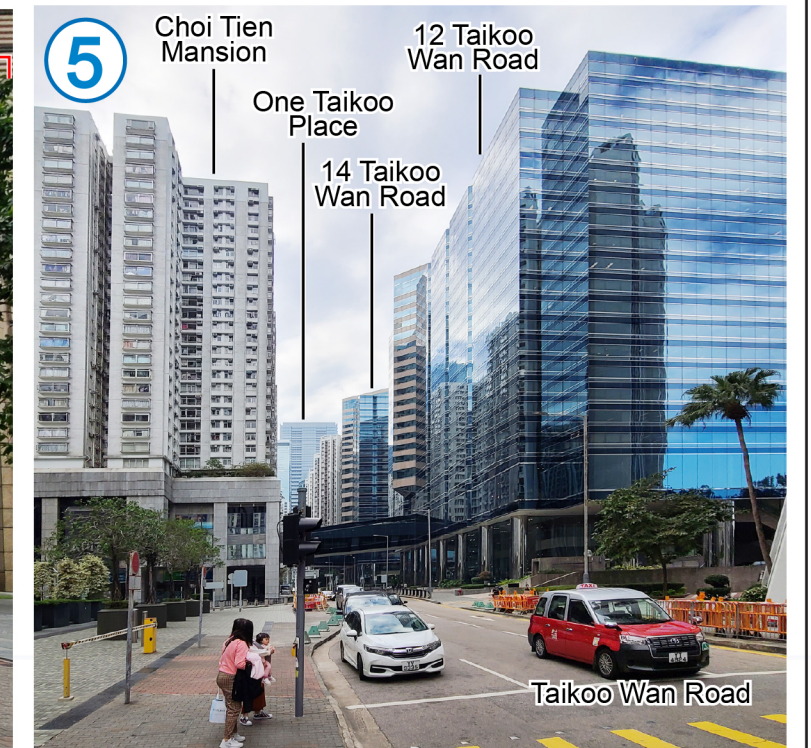
The Main Entrance of 1111 King's Road from King's Road



Application Site and Surrounding Developments viewed from Kornhill Road Flyover



Application Site and Surrounding Developments viewed from Taikoo Shing Road



12 Taikoo Wan Road and 14 Taikoo Wan Road viewed from Taikoo Wan Road

Replacement Page of the Traffic Impact Assessment
(rectification of a typo)

- 4.2.2 The survey results indicated that the existing Cityplaza car park is under-utilised. The car park utilisation in non-office period is higher than that in office period. The proposed extension will have additional GFA for office use and hence it is anticipated that the additional parking demand will be induced in office period. The Cityplaza car park alone on average provides more than 230 vacant spaces during normal office hours of typical weekdays. Also, the occupancy of 1111 King's Road office is about 90% according to the record in August 2024. Therefore, the remaining available parking spaces during the peak hour period are much more than sufficient to meet the additional HKPSG parking requirement (minimum of 85 nos. of car parking spaces) arising from the increase in GFA for the extension.
- 4.2.3 In addition, several existing public car parks are also available in the vicinity of 1111 King's Road. The surplus of the parking spaces at these public car parks may also serve the future car parking demand for the proposed extension.
- 4.2.4 The car parking space for Cityplaza, 1111 King's Road, 14 Taikoo Wan Road and 12 Taikoo Wan Road are provided in Cityplaza and Shing Fai Terrace. The car parking provision for existing developments and proposed scheme are summarised in **Table 4.3**, which could still fulfil the HKPSG requirement.

Table 4.3 Summary of Car Parking Provision

Site	Use	GFA (sqm) (about)	HKPSG Requirement	Required Provision	Existing Provision
Cityplaza	Retail	101,800	1 car space per 150 – 300sqm GFA	340 – 679	845 (Cityplaza) & 600 (Hourly parking at Shing Fai Terrace) ⁽¹⁾
1111 King's Road	Office	58,600	1 st 15,000sqm GFA, 1 car space per 150 – 200sqm GFA.	221 – 318	
Proposed 1111 King's Road extension	Office	25,500	Above 15,000sqm GFA,	85 – 128	
14 Taikoo Wan Road	Office	41,600	1 car space per 200 – 300sqm GFA.	139 – 208	
12 Taikoo Wan Road	Office	51,700		173 – 259	11
Total	-	279,200	-	958 - 1,592	1,456

Notes:

(1) Hourly parking at Shing Fai Terrace opened for public use.

- 4.2.5 In conclusion, the additional car parking demand due to the GFA increase of 1111 King's Road could be easily accommodated by the existing parking spaces available.

Motorcycle

- 4.2.6 Based on the HKPSG requirement, **5 – 13** nos. of motorcycle parking space are required for the proposed extension. As such, 13 nos. of motorcycle parking space will be provided at the basement of 1111 King's Road to fulfil the HKPSG requirement. The proposed layout was illustrated in **Appendix B**.

**Responses-to-Comments Table and
Revised Sewerage Impact Assessment**

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	Departmental Comments	Responses to Comments
1.	Comments from Drainage Services Department	
	<u>Hong Kong and Islands Division</u>	
1.1	From the drainage system point of view, no insurmountable drainage impact is envisaged from the proposed development based on the s.16 planning application.	Noted.
1.2	Based on the submitted SIA report, the applicants are reminded to keep updated existing record with their latest design parameters, as well as the latest records from the surrounding for their consideration of the upgrading the surrounding sewerage system as necessary. The SIA for the subject planning application also needs to meet the full satisfaction of Environmental Protection Department (EPD), the planning authority of sewerage infrastructure.	Noted.
1.3	The applicants have to submit a Drainage Impact Assessment (DIA) to the Buildings Department and copy to Drainage Services Department for comments at building plan submission stage.	Noted.
	<u>Land Drainage Division</u>	
1.4	Should “east Hong Kong” be read as “East Hong Kong”?	Revised accordingly in paras. 1.1.1 and 1.1.2. Please refer to the revised SIA.
1.5	Para. 1.2.2 - Please review the word “brining” in the 2nd line.	Typo rectified in para. 1.2.2, please see the revised SIA.
1.6	Sewer pipes at upstream and downstream of TaiKoo Shing Sewage Pumping Station (TKSSPS) are required to be upgraded. Please advise and justify whether upgrading of TKSSPS is also required.	As mentioned in Section 2.5.4, the sewage from the proposed development only occupies 5% of the TKSSPS which is deemed insignificant. Therefore, upgrading of TKSSPS is not required.

	Departmental Comments	Responses to Comments
1.7	Table 3 - For 4b and 8b, what are the basis for assuming 15% GFA and 20% GFA respectively for F&B?	With reference from the Wikipedia about City Plaza, for item 4b of Table 3 in Appendix 2.1, there are 6 floors with some areas of 1/F and 3/F being restaurant. Therefore, it is assumed 15% of GFA is F&B. For item 8b of Table 3 in Appendix 2.1, there are 4 floors with some areas of B1/F, 1/F and 2/F being restaurant. Therefore, it is assumed 20% of GFA is F&B. The information is from https://zh.wikipedia.org/zh-tw/%E5%A4%AA%E5%8F%A4%E5%9F%8E%E4%B8%AD%E5%B F%83.
1.8	Table 12 - Incorrect values for "g" were adopted for pipe segments from S11 to S15. Please revise.	Revised accordingly, please refer to the revised SIA.
1.9	Figure 2.3 - Both the proposed upstream invert level and downstream invert level for pipe segment S6-S7 are +0.15 mPD resulting zero pipe gradient. Please review.	Typo for the downstream invert level of manhole S6. It should be "+0.26" instead of "+0.15". Please refer to the revised SIA.
1.10	Please advise whether existing sewer manhole FMH7036243 needs to be reconstructed.	As the pipe for the downstream of manhole FMH7036243 has to be upgraded to 900mm, manhole FMH7036243 has to be reconstructed.
1.11	Please review the proposed pipe invert levels for pipe segments between S12 and S15, especially for S15 (FMH7036294) which the incoming pipe invert level is -0.30 mPD whereas the outgoing pipe has a higher invert levels is +2.10 mPD.	Although some invert levels between S0 to S12 are missing on GeoInfo Map, it is expected that the invert level of the existing sewers for S0 to S12 has the pipe invert level lower than the downstream invert level of S12. Also, as shown in Table 11 of App 2.1, some pipes (S2-S4, S6-S10 and S11-S15) do not have enough capacity which require further adjusting the invert level, resulting in the incoming invert level of S15 higher than the outgoing invert level.
1.12	Please review the practicality of the recommended works, for example some pipe invert levels are only slightly adjusted by 40mm (from +0.30 mPD to +0.26 mPD).	The incoming invert level of FMH7036248 is revised from "0.26" to "0.20". Please refer to the revised SIA.

	Departmental Comments	Responses to Comments
2.	Comments from Environmental Protection Department	
2.1	For Sections 2.3.1 and 2.5.1, according to Figure 2.1, sewage generated from the Proposed Development will be directed to manhole FMH7036295 rather than to FMH7036243, please revise.	Revised accordingly, please refer to the revised SIA.
2.2	For Sections 2.5.2, 2.5.3 and 3.1.2, please revise FNH7036270 to FMH7036270.	Revised accordingly, please refer to the revised SIA.
2.3	For Section 2.5.3, Table 12 instead of Table 13 should be referred to.	Revised accordingly, please refer to the revised SIA.
2.4	For Section 2.5.4, please revise the unit of design capacity of TKSPS as 22,464m3/day.	Revised accordingly, please refer to the revised SIA.
2.5	For Table 3 in Appendix 2.1, podium of East Hong Kong is approximately 1,370m ² as measured in Geoinfo Map, please revise the area measurement description to avoid confusion.	Revised accordingly, please refer to the revised SIA.
2.6	For Table 3 in Appendix 2.1, when compare this SIA with SIA submitted in April 2026, noted that area of (4a) and (4b) in Catchment B is reduced from 23504m ² to 21241m ² and from 5876m ² to 3748m ² respectively, please provide with source of reference to substantiate the changes.	As stated in para. 1.1.3, the total GFA of “C(7)” zone, which includes East Hong Kong, City Plaza and 1111 King's Road, is 123,129m ² . Therefore, with the increased GFA of East Hong Kong (item 3a in Catchment B), the area of City Plaza will be reduced.
2.7	Please also seek DSD's agreement on the technical feasibility of proposed mitigation measures.	Noted. The SIA has been circulated to DSD for their comments.
3.	Comments from Highways Department	
3.1	With reference to Public Comment no. 7 – “Concerns on insufficient foundation loading for the proposed development, and any adverse impact to the MTR tunnel”, please observe the following comments from our Railway Development Office:	Noted. Will keep close liaison with relevant departments and parties (including MTRC) during detailed design and implementation stage.

	Departmental Comments	Responses to Comments
	The proposed works fall within the railway protection boundary of the existing Island Line. As the operation of existing railway system is not under the jurisdiction of this office, we have no input on the plans from railway development point of view. With reference to DEVB TC(W) No. 1/2019 and/or Practice Notes for Authorized Persons, Registered Structural Engineers and Registered Geotechnical Engineers (PNAP) APP-24, please seek comments from MTR Corporation Limited with respect to the operation, maintenance, safety and any future works required for the existing railways.	
3.2	We reserve our rights to provide comments upon receiving further submission from the applicants.	Noted.

**Responses-to-Comments Table and
Revised Sewerage Impact Assessment**

Prepared by

Ramboll Hong Kong Limited

**SECTION 16 PLANNING APPLICATION FOR PROPOSED
MINOR RELAXATION OF GROSS FLOOR AREA AND BUILDING
HEIGHT RESTRICTIONS FOR PERMITTED OFFICE USE AND
OTHER PERMITTED USES IN “COMMERCIAL (7)” ZONE
BOUNDED BY KING’S ROAD AND TAIKOO SHING ROAD,
QUARRY BAY**

SEWERAGE IMPACT ASSESSMENT

Date **May 2026**

Prepared by **Sally Chiu**
Assistant Environmental Consultant

Signed



Approved by

Tony Cheng
Senior Manager

Signed



Project Reference

SA1111KREI00

Document No.

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APPENDICES

Appendix 2.1	Detailed Sewerage Impact Assessment Calculations
Appendix 2.2	Sewerage Record Plans obtained from DSD

1. INTRODUCTION

1.1 Background and Objectives

- 1.1.1 The “Commercial (7)” (“C(7)”) zone bounded by King’s Road and Taikoo Shing Road on the Quarry Bay Outline Zoning Plan (OZP) consists of 1111 King’s Road (formerly known as Cityplaza One), Cityplaza and East Hong Kong.
- 1.1.2 The “C(7)” zone is subject to a maximum non-domestic gross floor area (GFA) of 123,129m² and is subject to 2 building height (BH) bands: 1111 King’s Road and East Hong Kong are subject to maximum BH of 135mPD; while Cityplaza in between 1111 King’s Road and East Hong Kong is subject to maximum BH of 45mPD.
- 1.1.3 In this planning application, to support office extension of 1111 King’s Road, extra GFA and BH is required for 1111 King’s Road. Therefore, two items that require planning permission from the Town Planning Board (the Board) are involved:
- Minor relaxation of the GFA restriction of “C(7)” zone from 123,129m² to 148,629m² (+25,500m² / 20.7%)
 - Minor relaxation of the BH restriction of 1111 King’s Road from 135mPD to 165mPD (+30m / 22.2%)
- 1.1.4 The increase in GFA and BH will be absorbed by 1111 King’s Road only, other buildings in the “C(7)” zone will not be affected.
- 1.1.5 The location of “C(7)” Zone and 1111 King’s Road extension is shown in **Figure 1.1**.
- 1.1.6 Ramboll Hong Kong Limited is commissioned by the project proponent to carry out sewerage impact assessment for the additional sewage generated from the development arising from the proposed minor relaxation of GFA and BH restrictions.

1.2 Proposed Development

- 1.2.1 The Applicant proposes additional GFA and BH to 1111 King’s Road for its extension above the existing office building. The proposed extension will be constructed on top of the existing office building, no changes to the existing 1111 King’s Road will be made.
- 1.2.2 The existing GFA of 1111 King’s Road is about 78,069m². This planning application applies for an increase in office GFA, bringing 13 new storeys to the existing office building of 1111 King’s Road, involving 25,500m² increase in GFA for office use. Out of the 13 new storeys, 10 storeys will be for office use, 2 floors are for mechanical and electrical (M&E) facilities, and 1 floor will be designated as refuge floor-cum-sky garden. **Figure 1.2** shows the indicative floor plan of 1111 King’s Road extension and section plan.
- 1.2.3 The tentative completion of Proposed Development is in Year 2029.

2. SEWERAGE IMPACT ASSESSMENT

2.1 Scope of Work

- 2.1.1 The aim of this SIA is to assess if existing sewerage network is sufficient to cope with the additional sewage flow from the Proposed Development and propose corresponding mitigation measures if necessary.

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 Sewage Infrastructure Planning, Version 1 (GESF) has been referred to for the purposes of estimating the quantity of the sewage generated from the Proposed Development. 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 employees and the associated activities. The following unit flow factors of commercial activities have been adopted in the SIA calculation in accordance with Tables T-1, T-2 and T-3 of the GESF:
- J6 – Finance, Insurance, Real Estate & Business Services: 0 m³/day
- 2.2.4 The catchment inflow, P_{CIF} of 1.25 (Shau Kei Wan), is adopted in catchment calculations.

2.3 Existing Sewerage System

- 2.3.1 According to the Geoinfo Map, the sewers discharged from Proposed Development will be conveyed to the existing public manhole **FMH7036295**.

2.4 Wastewater Generated by the Existing and Proposed Development

- 2.4.1 The increase in GFA covers the use of office use, M&E facilities and refuge floor-cum-sky garden. As a conservative assessment, it is assumed all additional area is for office use.
- 2.4.2 Detailed calculations of sewage generation from the Existing and Proposed Development are given in **Table 2-1** below and **Appendix 2.1**.

Table 2-1 Estimated Peak Flow from the Proposed Development**Calculation for Sewage Generation Rate of the Proposed Development at the Subject Site****1. Office**

Assumed Area	=	25500	m ²
Assumed floor area per employee	=	18.2	m ² per employee -- (refer to Table 8 of CIFSUS – Financial, Insurance, Real Estate & Business Services)
Total number of employees	=	1403	employees
Design flow for commercial employees	=	0.08	m ³ /employee/day – (refer to Table T-3 of GESF – J6 Finance, Insurance, Real Estate & Business Services)
Sewerage generation rate	=	112.2	m ³ /day

Total Flow from the Proposed Development

Flow rate	=	112.2	m ³ /day
Flow rate with P _{CIF}	=	140.3	m ³ /day (refer to Table T-4 of GESF – Shau Kei Wan - 1.25) people (refer to Section 12 of GESF -- Contributing population is the Flow rate with P _{CIF} ÷ 0.27, while 0.27 is the average unit flow factor of all typical residents plus employees)
Contributing population	=	520	(refer to Table T-5 of GESF for a population between 5,000 – 10,000 incl. stormwater allowance)
Peaking factor	=	8	
Peak flow	=	13.0	litre/sec

2.5 Assessment of Sewerage Impact

- 2.5.1 Sewage generated from the Proposed Development will be discharged to the existing public manhole **FMH7036295** at Taikoo Shing Road as shown in **Figure 2.1**. The sewerage record plans obtained from Drainage Services Department (DSD) are attached in **Appendix 2.2**. Catchment in the vicinity of the Subject Site is shown in **Figure 2.2**.
- 2.5.2 Detailed calculation of sewage generation, peak flow estimation and the capacity of the public sewers can be referred to **Appendix 2.1**. Based on the assessment results, sewers (FMH7036243 to FMH7036248, FMH7036249 to **FMH7036270** and FSH7001300 to FMH7036294) would not have sufficient capacity for the future public sewers to cater for the sewage generated from the Proposed Development as well as the surrounding existing buildings.
- 2.5.3 Upgrading works on the sewers (FMH7036243 to FMH7036248, FMH7036249 to **FMH7036270** and FSH7001300 to FMH7036294) by the project proponent are required. About 383m of sewers required upgrading works. The details of the proposed upgrading sewers can be referred to **Table 12 of Appendix 2.1** and **Figure 2.3**.
- 2.5.4 The sewage generated from the Proposed Development would be conveyed to the nearby Tai Koo Shing Pumping Station (TKSPS) with its design capacity of **22,464m³/day** (i.e. 260 L/s). It will occupy 5% of the TKSPS which is deemed insignificant. Therefore, it can be deduced that the capacity of the TKSPS and the pipes connected to TKSPS are enough for the sewage generated from the Proposed Development. The contributions of sewage generated from the Subject Site on TKSPS can be referred to Table 13 of **Appendix 2.1**.
- 2.5.5 After the proposed upgrading pipe works, there would not have any adverse impact on the public sewerage system.

3. CONCLUSION

- 3.1.1 The potential sewerage impact arising from the Proposed Development has been quantitatively assessed by comparing the estimated sewage flow from the existing development and Proposed Development.
- 3.1.2 Based on the calculations as shown in **Appendix 2.1**, the increase in GFA for the Proposed Development would generate the peak flow of 13 L/s. Upgrading works on the sewers (FMH7036243 to FMH7036248, FMH7036249 to **FMH7036270** and FSH7001300 to FMH7036294) are required. About 383m of sewers required upgrading works.
- 3.1.3 The capacity of existing sewers and Tai Koo Shing Pumping Station are sufficient to cater for the sewage generated from the Proposed Development.
- 3.1.4 After the proposed upgrading pipe works, there would not have any adverse impact on the public sewerage system

Figure

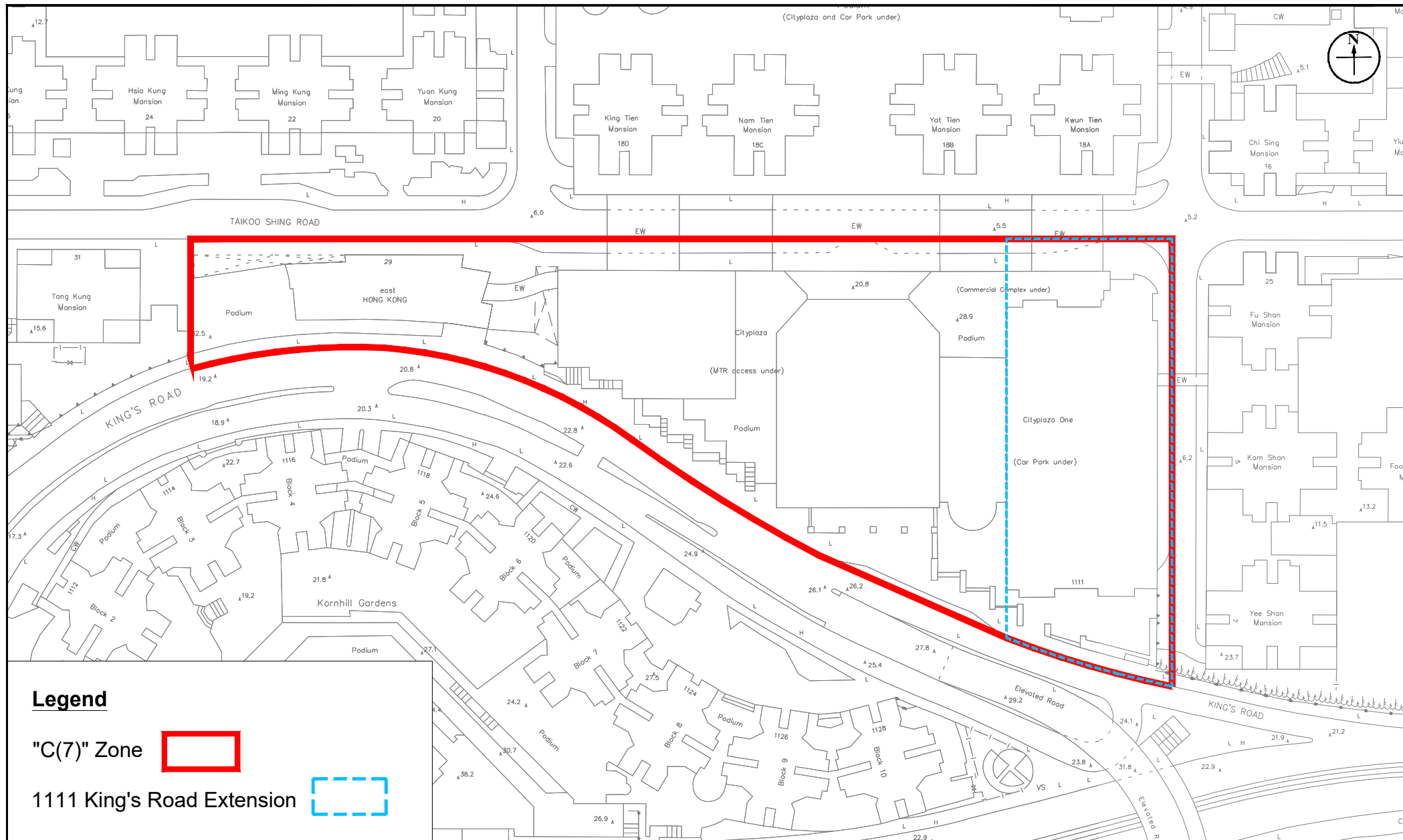


Figure: 1.1

Title: Location of "C(7)" Zone and 1111 King's Road Extension

Project: Section 16 Planning Application for Proposed Minor Relaxation of Gross Floor Area and Building Height Restrictions for Permitted Office Use and Other Permitted Uses in "Commercial (7)" Zone Bounded by King's Road and Taikoo Shing Road, Quarry Bay

RAMBOLL

Drawn by: SC

Checked by: TC

Rev.: 1.1

Date: Dec 2025

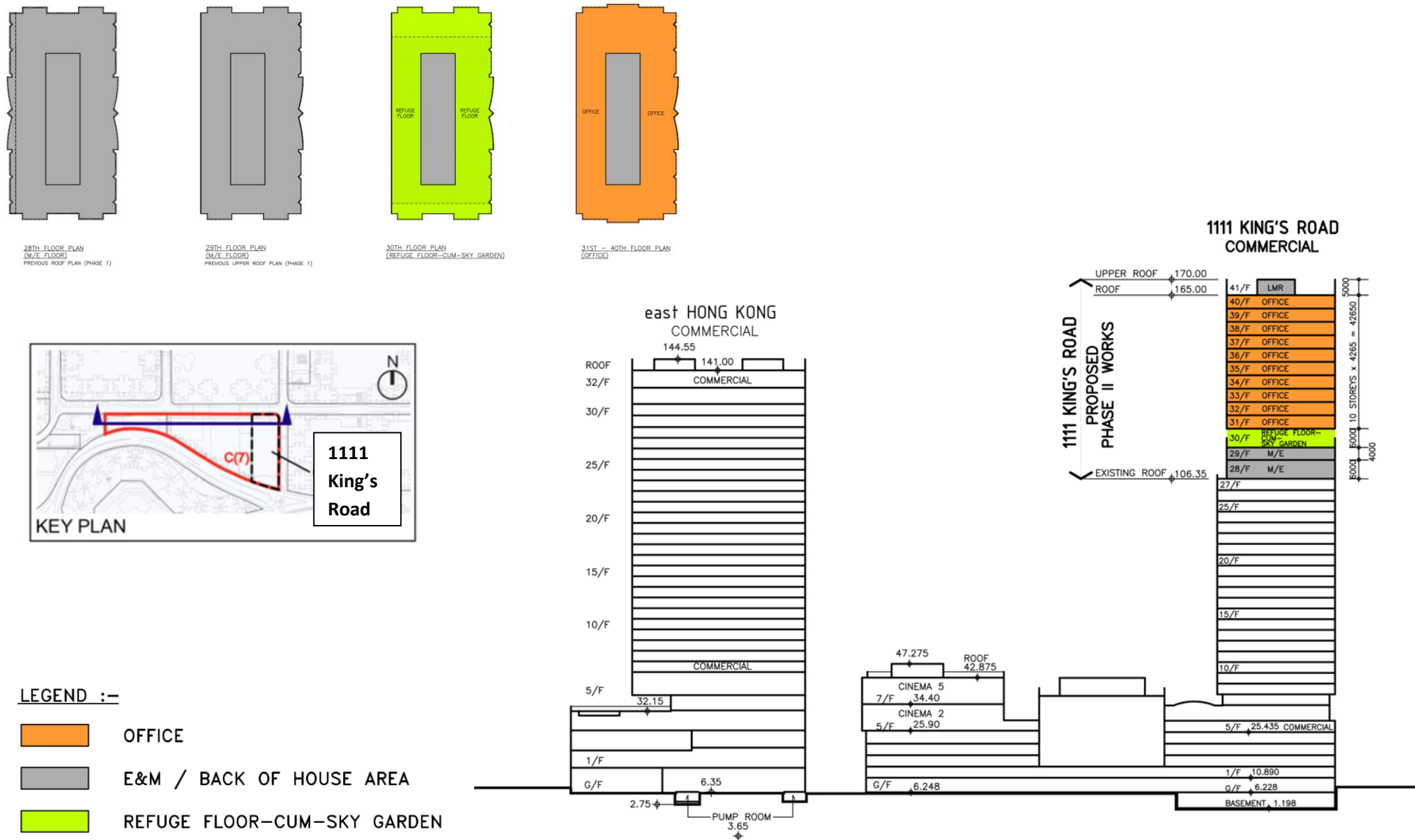


Figure: 1.2

Title: Indicative Floor Plan of 1111 King's Road Extension and Section Plan

Project: Section 16 Planning Application for Proposed Minor Relaxation of Gross Floor Area and Building Height Restrictions for Permitted Office Use and Other Permitted Uses in "Commercial (7)" Zone bounded by King's Road and Taikoo Shing Road, Quarry Bay

RAMBOLL

Drawn by: KW

Checked by: TC

Rev.: 1.0

Date: Dec 2025

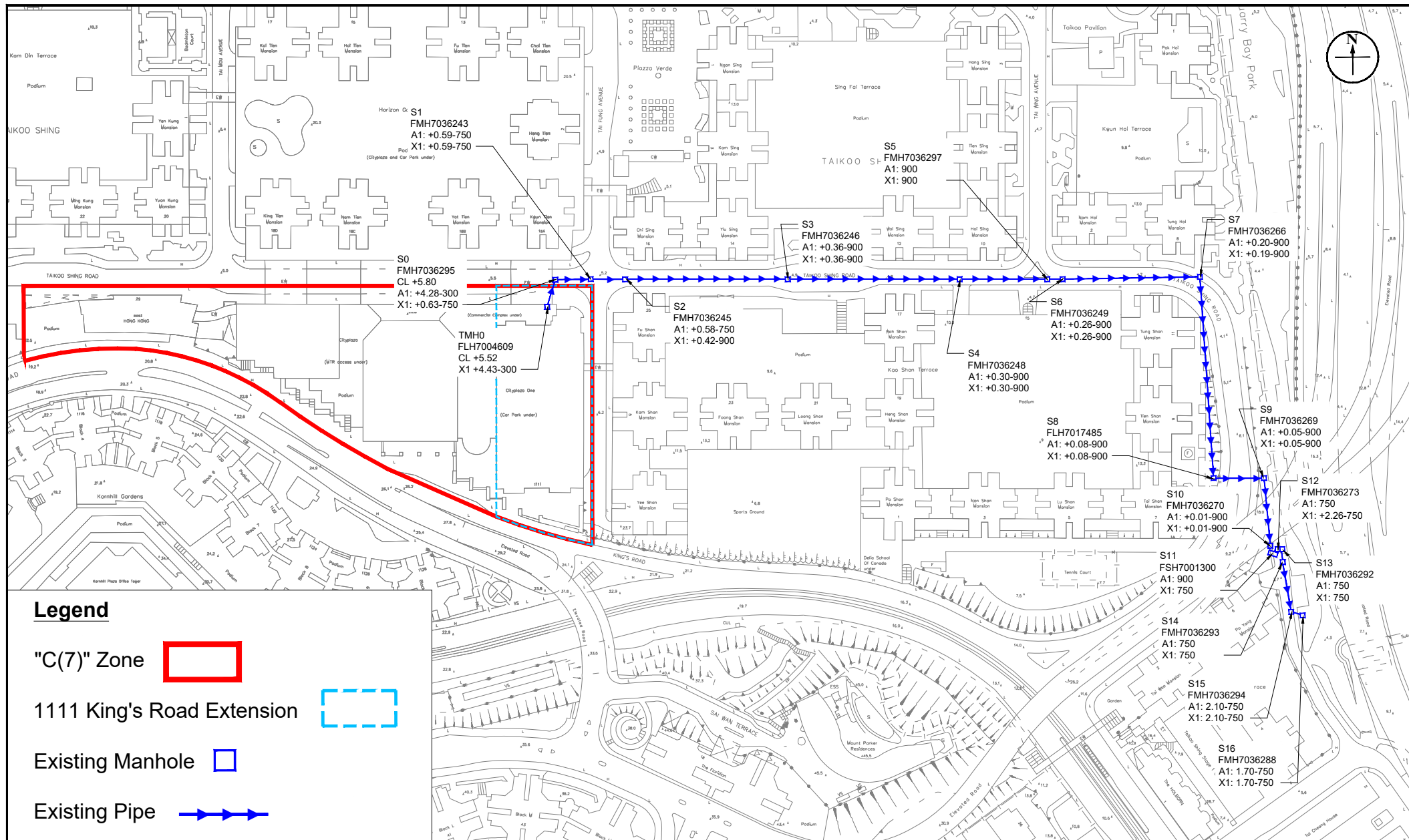


Figure: 2.1

Title: Existing Sewerage System in the Vicinity of the Subject Site

Project: Section 16 Planning Application for Proposed Minor Relaxation of Gross Floor Area and Building Height Restrictions for Permitted Office Use and Other Permitted Uses in "Commercial (7)" Zone Bounded by King's Road and Taikoo Shing Road, Quarry Bay

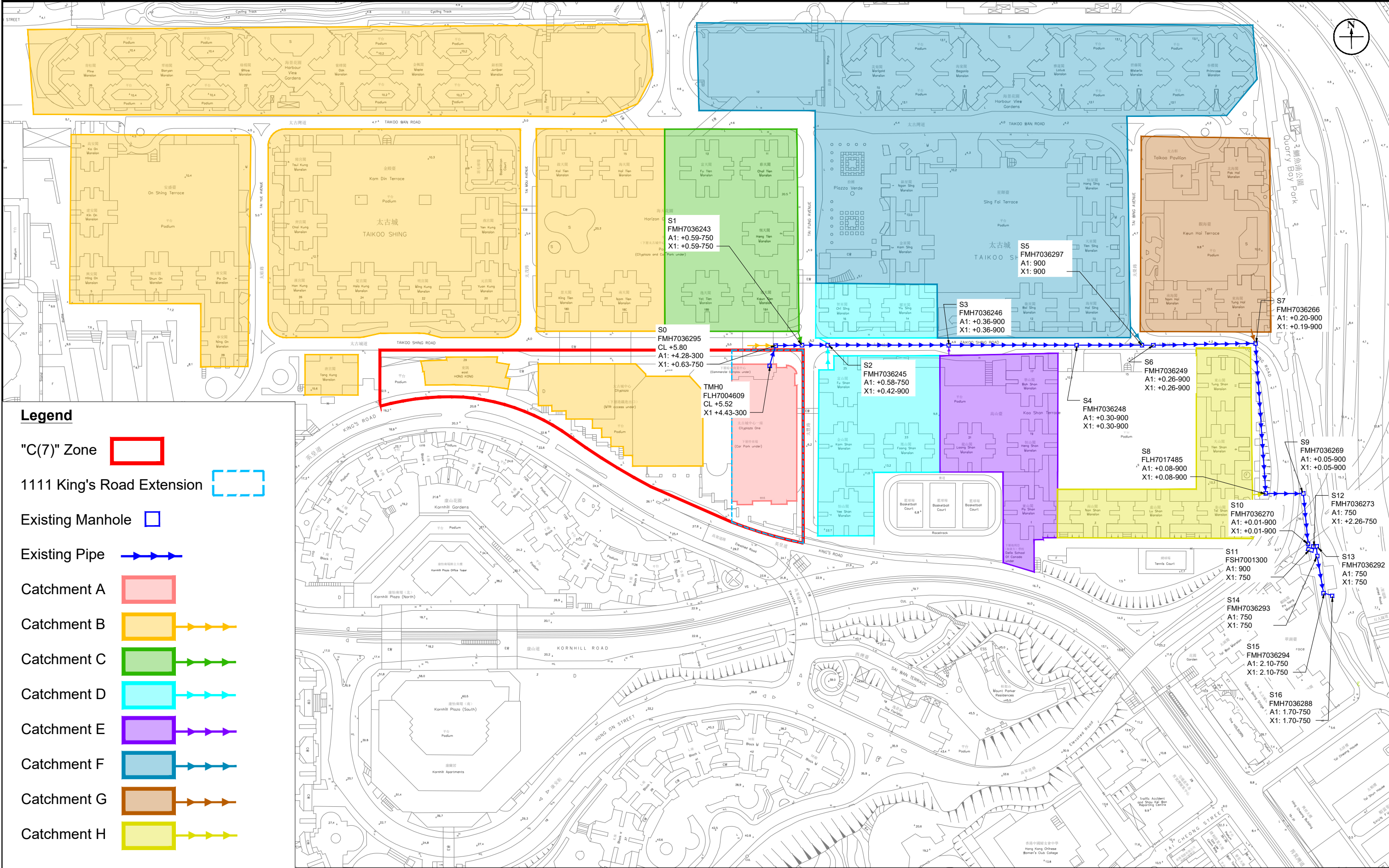
RAMBOLL

Drawn by: SC

Checked by: TC

Rev.: 1.0

Date: Dec 2025



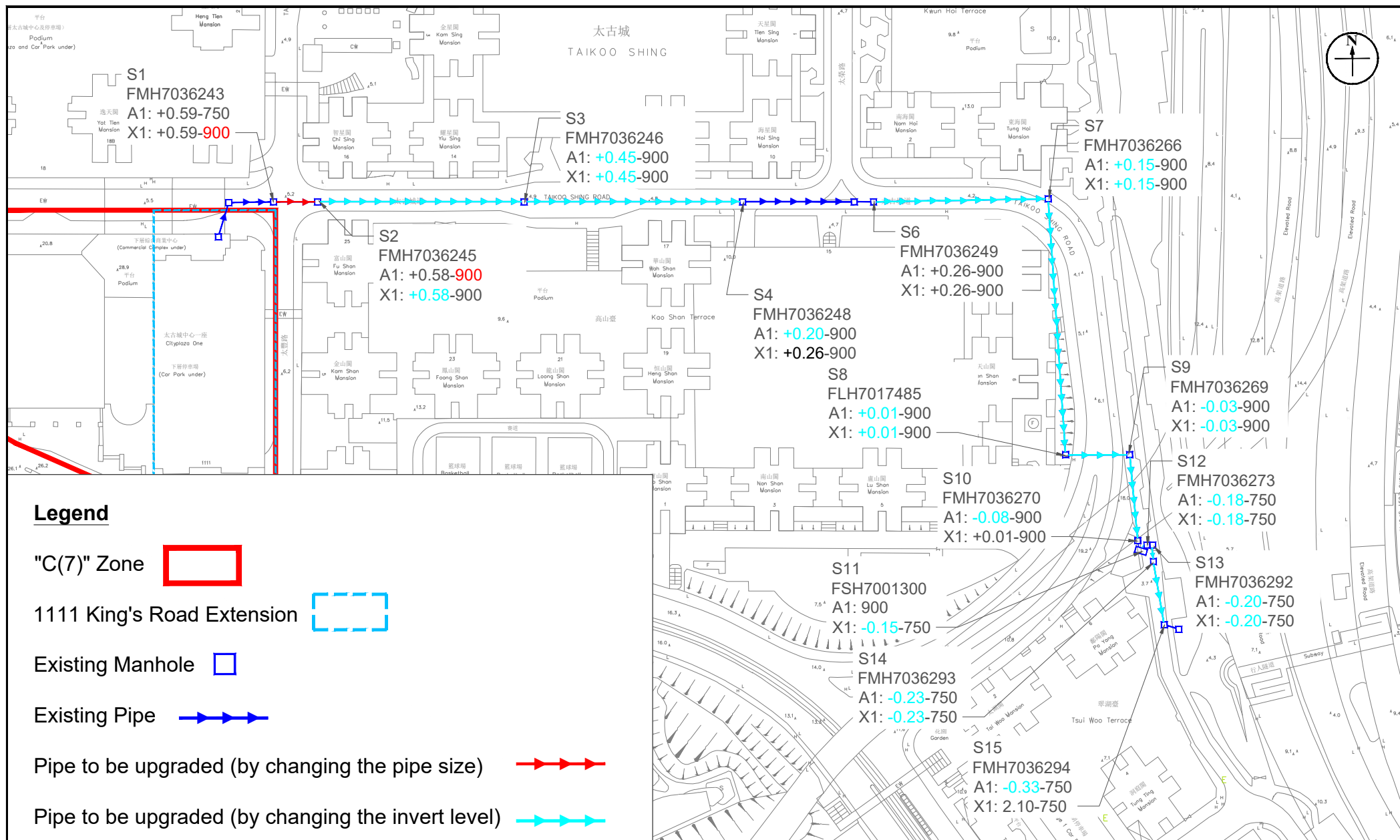


Figure: 2.3

Title: Proposed Upgrading Sewerage System

Project: Section 16 Planning Application for Proposed Minor Relaxation of Gross Floor Area and Building Height Restrictions for Permitted Office Use and Other Permitted Uses in "Commercial (7)" Zone Bounded by King's Road and Taikoo Shing Road, Quarry Bay

RAMBOLL

Drawn by: SC

Checked by: TC

Rev.: 1.0

Date: May 2026

Appendix 2.1 Detailed Sewerage Impact Assessment Calculations

Table 1 Calculation for Sewage Generation Rate of the Future Development (Proposed Additional Office at 1111 King's Road)

1. Office			
Assumed area	=	25500	m ²
Assumed floor area per employee	=	18.2	m ² per employee -- (refer to Table 8 of CIFSUS - Financial, Insurance, Real Estate & Business Services)
Total number of employees	=	1403	employees
Design flow for commercial employees	=	0.08	m ³ /employee/day -- (refer to Table T-2 of GESF - J6 Finance, Insurance, Real Estate & Business Services)
Sewage generation rate	=	112.2	m ³ /day
Total Flow from the Future Development			
Flow rate	=	112.2	m ³ /day
Flow rate with P _{CIF}	=	140.3	m ³ /day (refer to Table T-4 of GESF - Shau Kei Wan - 1.25)
Contributing population	=	520	people (refer to Section 12 of GESF -- Contributing population is the Flow rate with P _{CIF} ÷ 0.27, while 0.27 is the average unit flow factor of all typical residents plus employees)
Peaking factor	=	8	(refer to Table T-5 of GESF for a population <1,000 incl. stormwater allowance)
Peak flow	=	<u>13.0</u>	litre/sec

Table 2 Calculation for Sewage Generation Rate of Catchment A

1. 1111 King's Road			
Assumed area	=	78069	m ²
Assumed floor area per employee	=	18.2	m ² per employee -- (refer to Table 8 of CIFSUS - Financial, Insurance, Real Estate and Business Services)
Total number of employees	=	4294.0	employees
Design flow for commercial employees	=	0.08	m ³ /employee/day -- (refer to Table T-2 of GESF - J6 Finance, Insurance, Real Estate and Business Services)
Sewage generation rate		343.5	m ³ /day
Total Flow from the Future Development and Catchment A			
Flow rate	=	455.8	m ³ /day
Flow rate with P _{CIF}	=	569.7	m ³ /day (refer to Table T-4 of GESF - Shau Kei Wan - 1.25)
Contributing population	=	2110	people (refer to Section 12 of GESF -- Contributing population is the Flow rate with P _{CIF} ÷ 0.27, while 0.27 is the average unit flow factor of all typical residents plus employees)
Peaking factor	=	6	(refer to Table T-5 of GESF for a population between 1,000 - 5,000 incl. stormwater allowance)
Peak flow	=	<u>39.6</u>	litre/sec

Table 3 Calculation for Sewage Generation Rate of Catchment B

1a. On Shing Terrace

Number of units	=	1357	units (from Centaline: https://hk.centanet.com/estate/en/Taikoo-Shing/2-OVDUURFSJJ)
Number of residents	=	3800	residents (refer to Census and Statistics Department 2021 data - average household size of 2.8 in Eastern)
Design flow	=	0.27	m ³ /day (Private R2 in Table T-1 of GESF)
Sewage generation rate	=	1026.0	m ³ /day

1b. Restaurants

Assumed area	=	2201	m ²
Assumed floor area per employee	=	19.6	m ² per employee -- (refer to Table 8 of CIFSUS - Restaurant)
Total number of employees	=	112	employees
Design flow for commercial employees	=	1.58	m ³ /employee/day -- (refer to Table T-2 of GESF - J10 Restaurant & Hotels)
Sewage generation rate	=	177.4	m ³ /day

2. Kam Din Terrace

Number of units	=	1663	units (from centaline: https://hk.centanet.com/estate/en/Taikoo-Shing-Kam-Din-Terrace/2-OVDUURFSSJ)
Number of residents	=	4656	residents (refer to Census and Statistics Department 2021 data - average household size of 2.8 in Eastern)
Design flow	=	0.27	m ³ /day (Private R2 in Table T-1 of GESF)
Sewage generation rate	=	1257.1	m ³ /day

3a. East Hong Kong

Assumed area	=	21476.8	m ² (measured in Geoinfo Map 784 m2 x 29 storeys x 80% + Podium: 1370 x 3 storeys x 80%)
Assumed floor area per employee	=	31.3	m ² per employee -- (refer to Table 8 of CIFSUS - Hotels and Boarding Houses)
Total number of employees	=	687	employees
Design flow for commercial employees	=	1.58	m ³ /employee/day -- (refer to Table T-2 of GESF - J10 Restaurant & Hotels)
Sewage generation rate	=	1085.9	m ³ /day

3b. East Hong Kong (Outdoor Swimming Pool)

Assumed area	=	300	m ² (Assumed 100m x 3m)
Assumed depth of water	=	1.5	m
Volume of water	=	450.0	m ³
Turnover Rate	=	6.0	hr (CAP132, Section 42 Swimming Pools Regulation (open air pool))
Surface loading rate of filter	=	50.0	m ³ /m ² /hr
Filter areas required	=	1.5	m ²
Backwashing flow rate	=	30.0	m ³ /m ² /hr
Design flow for backwashing	=	45.0	m ³ /hr
Backwash duration	=	3.0	min/day
Backwash generation rate	=	2.25	m ³ /day
Backwash generation rate	=	12.5	litre/sec

4a. City Plaza (Retail)

Assumed Area	=	20046	m ² (Assume 85% of GFA is Retail)
Assumed floor area per employee	=	29.4	m ² per employee -- (refer to Table 8 of CIFSUS - All Economic Activities (All Types))
Total number of employees	=	682.0	employees
Design flow for commercial employees	=	0.28	m ³ /employee/day -- (refer to Table T-2 of GESF)
Sewage generation rate	=	191.0	m ³ /day

4b. City Plaza (F&B)

Assumed Floor Area	=	3538	m ² (Assume 15% of GFA is F&B)
Assumed floor area per employee	=	19.6	m ² per employee -- (refer to Table 8 of CIFSUS - Restaurant)
Total number of employees	=	180	employees
Design flow for commercial employees	=	1.58	m ³ /employee/day -- (refer to Table T-2 of GESF - J10 Restaurant & Hotels)
Sewage generation rate	=	285.1	m ³ /day

5a. Harbour View Gardens (West)

Number of units	=	1328	units (from Centaline: https://hk.centanet.com/estate/en/Taikoo-Shing/2-OVDUURFSUJ)
Number of residents	=	3718	residents (refer to Census and Statistics Department 2021 data - average household size of 2.8 in Eastern)
Design flow	=	0.27	m ³ /day (Private R2 in Table T-1 of GESF)
Sewage generation rate	=	1003.9	m ³ /day

5b. Swimming Pool in Harbour View Gardens

Assumed area	=	248.7	m ²
Assumed depth of water	=	1.5	m
Volume of water	=	373.0	m ³
Turnover Rate	=	6.0	hr (CAP132, Section 42 Swimming Pools Regulation (open air pool))
Surface loading rate of filter	=	50.0	m ³ /m ² /hr
Filter areas required	=	1.2	m ²
Backwashing flow rate	=	30.0	m ³ /m ² /hr
Design flow for backwashing	=	37.3	m ³ /hr
Backwash duration	=	3.0	min/day
Backwash generation rate	=	1.86	m ³ /day
Backwash generation rate	=	10.4	litre/sec

6. 14 Tai Koo Wan Road

Assumed Area	=	32962	m ²
Assumed floor area per employee	=	29.4	m ² per employee -- (refer to Table 8 of CIFSUS - All Economic Activities (All Types))
Total number of employees	=	1121	employees
Design flow for commercial employees	=	0.08	m ³ /employee/day -- (refer to Table T-2 of GESF)
Sewage generation rate	=	89.7	m ³ /day

7a. Horizon Gardens (Kai Tien Mansion, Hoi Tien Mansion, King Tien Mansion, Nam Tien Mansion)

Number of units	=	768	units
Number of residents	=	2150	residents (refer to Census and Statistics Department 2021 data - average household size of 2.8 in Eastern)
Design flow	=	0.27	m ³ /day (Private R2 in Table T-1 of GESF)
Sewage generation rate	=	580.5	m ³ /day

7b. Swimming Pool in Horizon Gardens

Assumed area	=	490.0	m ²
Assumed depth of water	=	1.5	m
Volume of water	=	735.0	m ³
Turnover Rate	=	6.0	hr (CAP132, Section 42 Swimming Pools Regulation (open air pool))
Surface loading rate of filter	=	50.0	m ³ /m ² /hr
Filter areas required	=	2.5	m ²
Backwashing flow rate	=	30.0	m ³ /m ² /hr
Design flow for backwashing	=	73.5	m ³ /hr
Backwash duration	=	3.0	min/day
Backwash generation rate	=	3.68	m ³ /day
Backwash generation rate	=	20.4	litre/sec

**8a. Half of City Plaza (Under Horizon Gardens)
(Retail)**

Assumed Area	=	21619	m ² (Assume 80% of GFA is retail)
Assumed floor area per employee	=	29.4	m ² per employee -- (refer to Table 8 of CIFSUS - All Economic Activities (All Types))
Total number of employees	=	735	employees
Design flow for commercial employees	=	0.28	m ³ /employee/day -- (refer to Table T-2 of GESF)
Sewage generation rate	=	205.8	m ³ /day

**8b. Half of City Plaza (Under Horizon Gardens)
(F&B)**

Assumed Floor Area	=	5405	m ² (Assume 20% of GFA is F&B)
Assumed floor area per employee	=	19.6	m ² per employee -- (refer to Table 8 of CIFSUS - Restaurant)
Total number of employees	=	276	employees
Design flow for commercial employees	=	1.58	m ³ /employee/day -- (refer to Table T-2 of GESF - J10 Restaurant & Hotels)
Sewage generation rate	=	435.5	m ³ /day

Total Flow from the Catchment B

Flow rate	=	6337.7	m ³ /day
Flow rate with P _{CIF}	=	7922.1	m ³ /day (refer to Table T-4 of GESF - Shau Kei Wan - 1.25)
Contributing population	=	29341	people (refer to Section 12 of GESF -- Contributing population is the Flow rate with P _{CIF} ÷ 0.27, while 0.27 is the average unit flow factor of all typical residents plus employees)
Peaking factor	=	4	(refer to Table T-5 of GESF for a population between 1,000 - 5,000 incl. stormwater allowance)
Peak flow	=	366.8	litre/sec

Total Flow from the Future Development and Catchment A and B to Manhole FMH7036295

Flow rate	=	6793.5	m ³ /day
Flow rate with P _{CIF}	=	8491.8	m ³ /day (refer to Table T-4 of GESF - Shau Kei Wan - 1.25)
Contributing population	=	31451	people (refer to Section 12 of GESF -- Contributing population is the Flow rate with P _{CIF} ÷ 0.27, while 0.27 is the average unit flow factor of all typical residents plus employees)
Peaking factor	=	4	(refer to Table T-5 of GESF for a population between 10,000 - 50,000 incl. stormwater allowance)
Peak flow (without swimming pool)	=	393.1	litre/sec
Peak flow (with swimming pool)	=	<u>436.4</u>	litre/sec

Table 4 Calculation for Sewage Generation Rate of Catchment C

1a. Horizons Garden (Fu Tien Mansion, Choi Tien Mansion, Heng Tien Mansion, Yat Tien Mansion, Kwun Tien Mansion)

Number of units	=	960	units
Number of residents	=	2688	residents (refer to Census and Statistics Department 2021 data - average household size of 2.8 in Eastern)
Design flow	=	0.27	m ³ /day (Private R2 in Table T-1 of GESF)
Sewage generation rate	=	725.8	m ³ /day

2a. Half of City Plaza (Under Horizon Gardens)

Assumed Area	=	21919	m ² (Assume 80% of GFA is retail)
Assumed floor area per employee	=	29.4	m ² per employee -- (refer to Table 8 of CIFSUS - All Economic Activities (All Types))
Total number of employees	=	745	employees
Design flow for commercial employees	=	0.28	m ³ /employee/day -- (refer to Table T-2 of GESF)
Sewage generation rate	=	208.7	m ³ /day

2b. Half of City Plaza (Under Horizon Gardens) (F&B)

Assumed Floor Area	=	5480	m ² (Assume 20% of GFA is F&B)
Assumed floor area per employee	=	19.6	m ² per employee -- (refer to Table 8 of CIFSUS - Restaurant)
Total number of employees	=	279	employees
Design flow for commercial employees	=	1.58	m ³ /employee/day -- (refer to Table T-2 of GESF - J10 Restaurant & Hotels)
Sewage generation rate	=	441.6	m ³ /day

Total Flow from the Catchment C

Flow rate	=	1376.0	m ³ /day
Flow rate with P _{CIF}	=	1720.0	m ³ /day (refer to Table T-4 of GESF - Shau Kei Wan - 1.25)
Contributing population	=	6370	people (refer to Section 12 of GESF -- Contributing population is the Flow rate with P _{CIF} ÷ 0.27, while 0.27 is the average unit flow factor of all typical residents plus employees)
Peaking factor	=	5	(refer to Table T-5 of GESF for a population between 1,000 - 5,000 incl. stormwater allowance)
Peak flow	=	99.5	litre/sec

Total Flow from the Future Development and Catchment A, B and C to FMH7036243

Flow rate	=	8169.4	m ³ /day
Flow rate with P _{CIF}	=	10211.8	m ³ /day (refer to Table T-4 of GESF - Shau Kei Wan - 1.25)
Contributing population	=	37822	people (refer to Section 12 of GESF -- Contributing population is the Flow rate with P _{CIF} ÷ 0.27, while 0.27 is the average unit flow factor of all typical residents plus employees)
Peaking factor	=	4	(refer to Table T-5 of GESF for a population between 10,000 - 50,000 incl. stormwater allowance)
Peak flow (without swimming pool)	=	472.8	litre/sec
Peak flow (with swimming pool)	=	<u>516.0</u>	litre/sec

Table 5 Calculation for Sewage Generation Rate of Catchment D

1. Fu Shan Mansion			
Number of units	=	216	units
Number of residents	=	605	residents (refer to Census and Statistics Department 2021 data - average household size of 2.8 in Eastern)
Design flow	=	0.27	m ³ /day (Private R2 in Table T-1 of GESF)
Sewage generation rate	=	163.4	m ³ /day
2. Kam Shan Mansion			
Number of units	=	216	units
Number of residents	=	605	residents (refer to Census and Statistics Department 2021 data - average household size of 2.8 in Eastern)
Design flow	=	0.27	m ³ /day (Private R2 in Table T-1 of GESF)
Sewage generation rate	=	163.4	m ³ /day
3. Yee Shan Mansion			
Number of units	=	216	units
Number of residents	=	605	residents (refer to Census and Statistics Department 2021 data - average household size of 2.8 in Eastern)
Design flow	=	0.27	m ³ /day (Private R2 in Table T-1 of GESF)
Sewage generation rate	=	163.4	m ³ /day
4. Foong Shan Mansion			
Number of units	=	216	units
Number of residents	=	605	residents (refer to Census and Statistics Department 2021 data - average household size of 2.8 in Eastern)
Design flow	=	0.27	m ³ /day (Private R2 in Table T-1 of GESF)
Sewage generation rate	=	163.4	m ³ /day
5. Chi Sing Mansion			
Number of units	=	208	units
Number of residents	=	582	residents (refer to Census and Statistics Department 2021 data - average household size of 2.8 in Eastern)
Design flow	=	0.27	m ³ /day (Private R2 in Table T-1 of GESF)
Sewage generation rate	=	157.1	m ³ /day
6. Yiu Sing Mansion			
Number of units	=	208	units
Number of residents	=	582	residents (refer to Census and Statistics Department 2021 data - average household size of 2.8 in Eastern)
Design flow	=	0.27	m ³ /day (Private R2 in Table T-1 of GESF)
Sewage generation rate	=	157.1	m ³ /day
7. Restaurants			
Assumed area	=	661	m ²
Assumed floor area per employee	=	19.6	m ² per employee -- (refer to Table 8 of CIFSUS - Restaurant)
Total number of employees	=	34	employees
Design flow for commercial employees	=	1.58	m ³ /employee/day -- (refer to Table T-2 of GESF - J10 Restaurant & Hotels)
Sewage generation rate	=	53.3	m ³ /day
Total Flow from the Catchment D			
Flow rate	=	1020.9	m ³ /day
Flow rate with P _{CIF}	=	1276.2	m ³ /day (refer to Table T-4 of GESF - Shau Kei Wan - 1.25)
Contributing population	=	4727	people (refer to Section 12 of GESF -- Contributing population is the Flow rate with P _{CIF} ÷ 0.27, while 0.27 is the average unit flow factor of all typical residents plus employees)
Peaking factor	=	6	(refer to Table T-5 of GESF for a population between 1,000 - 5,000 incl. stormwater allowance)
Peak flow	=	88.6	litre/sec
Total Flow from the Future Development and Catchment A, B, C and D to FMH7036245			
Flow rate	=	9190.4	m ³ /day
Flow rate with P _{CIF}	=	11488.0	m ³ /day (refer to Table T-4 of GESF - Shau Kei Wan - 1.25)
Contributing population	=	42548	people (refer to Section 12 of GESF -- Contributing population is the Flow rate with P _{CIF} ÷ 0.27, while 0.27 is the average unit flow factor of all typical residents plus employees)
Peaking factor	=	4	(refer to Table T-5 of GESF for a population between 10,000 - 50,000 incl. stormwater allowance)
Peak flow (without swimming pool)	=	531.9	litre/sec
Peak flow (with swimming pool)	=	<u>575.1</u>	litre/sec

Table 6 Calculation for Sewage Generation Rate of Catchment E

1. Po Shan Mansion			
Number of units	=	216	units
Number of residents	=	605	residents (refer to Census and Statistics Department 2021 data - average household size of 2.8 in Eastern)
Design flow	=	0.27	m ³ /day (Private R2 in Table T-1 of GESF)
Sewage generation rate	=	163.4	m ³ /day
2. Heng Shan Mansion			
Number of units	=	216	units
Number of residents	=	605	residents (refer to Census and Statistics Department 2021 data - average household size of 2.8 in Eastern)
Design flow	=	0.27	m ³ /day (Private R2 in Table T-1 of GESF)
Sewage generation rate	=	163.4	m ³ /day
3. Wah Shan Mansion			
Number of units	=	216	units
Number of residents	=	605	residents (refer to Census and Statistics Department 2021 data - average household size of 2.8 in Eastern)
Design flow	=	0.27	m ³ /day (Private R2 in Table T-1 of GESF)
Sewage generation rate	=	163.4	m ³ /day
4. Loong Shan Mansion			
Number of units	=	216	units
Number of residents	=	605	residents (refer to Census and Statistics Department 2021 data - average household size of 2.8 in Eastern)
Design flow	=	0.27	m ³ /day (Private R2 in Table T-1 of GESF)
Sewage generation rate	=	163.4	m ³ /day
5. Delia School of Canada			
Total number of teachers & staff	=	160	people (information from https://en.wikipedia.org/wiki/DSC_International_School,_Hong_Kong)
Design flow for teachers & staff	=	0.28	m ³ /person/day (refer to Table T-2 of GESF , Community, Social & Personal Services)
Total number of students	=	1300	people (information from https://en.wikipedia.org/wiki/DSC_International_School,_Hong_Kong)
Design flow for students	=	0.04	m ³ /person/day (refer to Table T-2 of GESF, School Student)
Sewage Generation rate	=	96.8	m ³ /day
Total Flow from the Catchment E			
Flow rate	=	750.2	m ³ /day
Flow rate with P _{ClF}	=	937.8	m ³ /day (refer to Table T-4 of GESF - Shau Kei Wan - 1.25)
Contributing population	=	3473	people (refer to Section 12 of GESF -- Contributing population is the Flow rate with P _{ClF} ÷ 0.27, while 0.27 is the average unit flow factor of all typical residents plus employees)
Peaking factor	=	6	(refer to Table T-5 of GESF for a population between 1,000 - 5,000 incl. stormwater allowance)
Peak flow	=	65.1	litre/sec
Total Flow from the Future Development and Catchment A, B, C, D and E to FMH7036246			
Flow rate	=	9940.6	m ³ /day
Flow rate with P _{ClF}	=	12425.7	m ³ /day (refer to Table T-4 of GESF - Shau Kei Wan - 1.25)
Contributing population	=	46021	people (refer to Section 12 of GESF -- Contributing population is the Flow rate with P _{ClF} ÷ 0.27, while 0.27 is the average unit flow factor of all typical residents plus employees)
Peaking factor	=	4	(refer to Table T-5 of GESF for a population between 10,000 - 50,000 incl. stormwater allowance)
Peak flow (without swimming pool)	=	575.3	litre/sec
Peak flow (with swimming pool)	=	<u>618.5</u>	litre/sec

Table 7 Calculation for Sewage Generation Rate of Catchment F

1. 12 Tai Koo Wan Road			
Assumed Area	=	41512.8	m ²
Assumed floor area per employee	=	18.2	m ² per employee -- (refer to Table 8 of CIFSUS - Financial, Insurance, Real Estate and Business Services)
Total number of employees	=	2283.0	employees
Design flow for commercial employees	=	0.08	m ³ /employee/day -- (refer to Table T-2 of GESF - J6 Finance, Insurance, Real Estate and Business Services)
Sewage generation rate	=	182.6	m ³ /day
2a. Harbour View Gardens (East)			
Number of units	=	1071	units (from Centaline: https://hk.centanet.com/estate/en/Taikoo-Shing-Harbour-View-Gardens-East/2-OVDUURFSOJ)
Number of residents	=	2999	residents (refer to Census and Statistics Department 2021 data - average household size of 2.8 in Eastern)
Design flow	=	0.27	m ³ /day (Private R2 in Table T-1 of GESF)
Sewage generation rate	=	809.7	m ³ /day
2b. Swimming Pool in Harbour View Gardens			
Assumed area	=	280.0	m ²
Assumed depth of water	=	1.5	m
Volume of water	=	420.0	m ³
Turnover Rate	=	6.0	hr (CAP132, Section 42 Swimming Pools Regulation (open air pool))
Surface loading rate of filter	=	50.0	m ³ /m ² /hr
Filter areas required	=	1.4	m ²
Backwashing flow rate	=	30.0	m ³ /m ² /hr
Design flow for backwashing	=	42.0	m ³ /hr
Backwash duration	=	3.0	min/day
Backwash generation rate	=	2.10	m ³ /day
Backwash generation rate	=	11.7	litre/sec
3. Nqan Sing Mansion			
Number of units	=	208	units (from https://zh.wikipedia.org/zh-hk/%E5%A4%AA%E5%8F%A4%E5%9F%8E)
Number of residents	=	582	residents (refer to Census and Statistics Department 2021 data - average household size of 2.8 in Eastern)
Design flow	=	0.27	m ³ /day (Private R2 in Table T-1 of GESF)
Sewage generation rate	=	157.1	m ³ /day
4. Kam Sing Mansion			
Number of units	=	208	units (from https://zh.wikipedia.org/zh-hk/%E5%A4%AA%E5%8F%A4%E5%9F%8E)
Number of residents	=	582	residents (refer to Census and Statistics Department 2021 data - average household size of 2.8 in Eastern)
Design flow	=	0.27	m ³ /day (Private R2 in Table T-1 of GESF)
Sewage generation rate	=	157.1	m ³ /day
5. Wai Sing Mansion			
Number of units	=	208	units (from https://zh.wikipedia.org/zh-hk/%E5%A4%AA%E5%8F%A4%E5%9F%8E)
Number of residents	=	582	residents (refer to Census and Statistics Department 2021 data - average household size of 2.8 in Eastern)
Design flow	=	0.27	m ³ /day (Private R2 in Table T-1 of GESF)
Sewage generation rate	=	157.1	m ³ /day
5. Hoi Sing Mansion			
Number of units	=	208	units (from https://zh.wikipedia.org/zh-hk/%E5%A4%AA%E5%8F%A4%E5%9F%8E)
Number of residents	=	582	residents (refer to Census and Statistics Department 2021 data - average household size of 2.8 in Eastern)
Design flow	=	0.27	m ³ /day (Private R2 in Table T-1 of GESF)
Sewage generation rate	=	157.1	m ³ /day
6. Tien Sing Mansion			
Number of units	=	208	units (from https://zh.wikipedia.org/zh-hk/%E5%A4%AA%E5%8F%A4%E5%9F%8E)
Number of residents	=	582	residents (refer to Census and Statistics Department 2021 data - average household size of 2.8 in Eastern)
Design flow	=	0.27	m ³ /day (Private R2 in Table T-1 of GESF)
Sewage generation rate	=	157.1	m ³ /day
7. Hang Sing Mansion			
Number of units	=	208	units (from https://zh.wikipedia.org/zh-hk/%E5%A4%AA%E5%8F%A4%E5%9F%8E)
Number of residents	=	582	residents (refer to Census and Statistics Department 2021 data - average household size of 2.8 in Eastern)
Design flow	=	0.27	m ³ /day (Private R2 in Table T-1 of GESF)
Sewage generation rate	=	157.1	m ³ /day
8. Restaurants			
Assumed area	=	662	m ²
Assumed floor area per employee	=	19.6	m ² per employee -- (refer to Table 8 of CIFSUS - Restaurant)
Total number of employees	=	34	employees
Design flow for commercial employees	=	1.58	m ³ /employee/day -- (refer to Table T-2 of GESF - J10 Restaurant & Hotels)
Sewage generation rate	=	53.3	m ³ /day
Total Flow from the Catchment F			
Flow rate	=	1988.6	m ³ /day
Flow rate with P _{CIF}	=	2485.7	m ³ /day (refer to Table T-4 of GESF - Shau Kei Wan - 1.25)
Contributing population	=	9206	people (refer to Section 12 of GESF -- Contributing population is the Flow rate with P _{CIF} ÷ 0.27, while 0.27 is the average unit flow factor of all typical residents plus employees)
Peaking factor	=	5	(refer to Table T-5 of GESF for a population between 1,000 - 5,000 incl. stormwater allowance)
Peak flow	=	143.8	litre/sec
Total Flow from the Future Development and Catchment A, B, C, D, E and F to FMH7036297			
Flow rate	=	11929.1	m ³ /day
Flow rate with P _{CIF}	=	14911.4	m ³ /day (refer to Table T-4 of GESF - Shau Kei Wan - 1.25)
Contributing population	=	55228	people (refer to Section 12 of GESF -- Contributing population is the Flow rate with P _{CIF} ÷ 0.27, while 0.27 is the average unit flow factor of all typical residents plus employees)
Peaking factor	=	4	(refer to Table T-5 of GESF for a population between 5,000 - 10,000 incl. stormwater allowance)
Peak flow (without swimming pool)	=	690.2	litre/sec
Peak flow (with swimming pool)	=	745.2	litre/sec

Table 8 Calculation for Sewage Generation Rate of Catchment G

1. Pak Hoi Mansion			
Number of units	=	216	units (from https://zh.wikipedia.org/zh-hk/%E5%A4%AA%E5%8F%A4%E5%9F%8E)
Number of residents	=	605	residents (refer to Census and Statistics Department 2021 data - average household size of 2.8 in Eastern)
Design flow	=	0.27	m ³ /day (Private R2 in Table T-1 of GESF)
Sewage generation rate	=	163.4	m ³ /dav
2. Nam Hoi Mansion			
Number of units	=	216	units (from https://zh.wikipedia.org/zh-hk/%E5%A4%AA%E5%8F%A4%E5%9F%8E)
Number of residents	=	605	residents (refer to Census and Statistics Department 2021 data - average household size of 2.8 in Eastern)
Design flow	=	0.27	m ³ /day (Private R2 in Table T-1 of GESF)
Sewage generation rate	=	163.4	m ³ /day
3. Tung Hoi Mansion			
Number of units	=	216	units (from https://zh.wikipedia.org/zh-hk/%E5%A4%AA%E5%8F%A4%E5%9F%8E)
Number of residents	=	605	residents (refer to Census and Statistics Department 2021 data - average household size of 2.8 in Eastern)
Design flow	=	0.27	m ³ /day (Private R2 in Table T-1 of GESF)
Sewage generation rate	=	163.4	m ³ /day
4. Swimming Pool in Kwun Hoi Terrace			
Assumed area	=	200.0	m ²
Assumed depth of water	=	1.5	m
Volume of water	=	300.0	m ³
Turnover Rate	=	6.0	hr (CAP132, Section 42 Swimming Pools Regulation (open air pool))
Surface loading rate of filter	=	50.0	m ³ /m ² /hr
Filter areas required	=	1.0	m ²
Backwashing flow rate	=	30.0	m ³ /m ² /hr
Design flow for backwashing	=	30.0	m ³ /hr
Backwash duration	=	3.0	min/day
Backwash generation rate	=	1.50	m ³ /dav
Backwash generation rate	=	8.3	litre/sec
5. Saint Anna Anglo Chinese Kindergarten			
Total number of teachers & staff	=	16	people (information from https://kap2024.azurewebsites.net/edb/schoolinfo.php?lanq=en&schid=5939&district=hkeast&category=&voucher=&schoolno=&schoolname=%E8%B1%96%E5%AE%89%E5%A8%9C%E4%B8%AD%E8%BB%B1%E6%96%87%E5%B9%BC%E7%A8%9A%E5%9C%92&othe)
Design flow for teachers & staff	=	0.28	m ³ /person/day (refer to Table T-2 of GESF , Community, Social & Personal Services)
Total number of students	=	173	people (information from https://kap2024.azurewebsites.net/edb/schoolinfo.php?lanq=en&schid=5939&district=hkeast&category=&voucher=&schoolno=&schoolname=%E8%B1%96%E5%AE%89%E5%A8%9C%E4%B8%AD%E8%BB%B1%E6%96%87%E5%B9%BC%E7%A8%9A%E5%9C%92&othe)
Design flow for students	=	0.04	m ³ /person/day (refer to Table T-2 of GESF, School Student)
Sewage Generation rate	=	11.4	m ³ /dav
Total Flow from the Catchment G			
Flow rate	=	501.5	m ³ /dav
Flow rate with P _{CHF}	=	626.8	m ³ /day (refer to Table T-4 of GESF - Shau Kei Wan - 1.25)
Contributing population	=	2322	people (refer to Section 12 of GESF -- Contributing population is the Flow rate with P _{CHF} ÷ 0.27, while 0.27 is the average unit flow factor of all typical residents plus employees)
Peaking factor	=	6	(refer to Table T-5 of GESF for a population between 1,000 - 5,000 incl. stormwater allowance)
Peak flow	=	43.5	litre/sec
Total Flow from the Future Development and Catchment A, B, C, D, E, F and G to FMH7036266			
Flow rate	=	12430.6	m ³ /dav
Flow rate with P _{CHF}	=	15538.2	m ³ /dav (refer to Table T-4 of GESF - Shau Kei Wan - 1.25)
Contributing population	=	57549	people (refer to Section 12 of GESF -- Contributing population is the Flow rate with P _{CHF} ÷ 0.27, while 0.27 is the average unit flow factor of all typical residents plus employees)
Peaking factor	=	4	(refer to Table T-5 of GESF for a population between 10,000 - 50,000 incl. stormwater allowance)
Peak flow (without swimming pool)	=	714.8	litre/sec
Peak flow (with swimming pool)	=	778.1	litre/sec

Table 9 Calculation for Sewage Generation Rate of Catchment H

1. Nan Shan Mansion		
Number of units	=	216 units (from https://zh.wikipedia.org/zh-hk/%E5%A4%AA%E5%8F%A4%E5%9F%8E)
Number of residents	=	605 residents (refer to Census and Statistics Department 2021 data - average household size of 2.8 in Eastern)
Design flow	=	0.27 m ³ /day (Private R2 in Table T-1 of GESF)
Sewage generation rate	=	163.4 m ³ /day
2. Lu Shan Mansion		
Number of units	=	216 units (from https://zh.wikipedia.org/zh-hk/%E5%A4%AA%E5%8F%A4%E5%9F%8E)
Number of residents	=	605 residents (refer to Census and Statistics Department 2021 data - average household size of 2.8 in Eastern)
Design flow	=	0.27 m ³ /day (Private R2 in Table T-1 of GESF)
Sewage generation rate	=	163.4 m ³ /day
3. Tai Shan Mansion		
Number of units	=	216 units (from https://zh.wikipedia.org/zh-hk/%E5%A4%AA%E5%8F%A4%E5%9F%8E)
Number of residents	=	605 residents (refer to Census and Statistics Department 2021 data - average household size of 2.8 in Eastern)
Design flow	=	0.27 m ³ /day (Private R2 in Table T-1 of GESF)
Sewage generation rate	=	163.4 m ³ /day
4. Tien Shan Mansion		
Number of units	=	216 units (from https://zh.wikipedia.org/zh-hk/%E5%A4%AA%E5%8F%A4%E5%9F%8E)
Number of residents	=	605 residents (refer to Census and Statistics Department 2021 data - average household size of 2.8 in Eastern)
Design flow	=	0.27 m ³ /day (Private R2 in Table T-1 of GESF)
Sewage generation rate	=	163.4 m ³ /day
5. Tung Shan Mansion		
Number of units	=	216 units (from https://zh.wikipedia.org/zh-hk/%E5%A4%AA%E5%8F%A4%E5%9F%8E)
Number of residents	=	605 residents (refer to Census and Statistics Department 2021 data - average household size of 2.8 in Eastern)
Design flow	=	0.27 m ³ /day (Private R2 in Table T-1 of GESF)
Sewage generation rate	=	163.4 m ³ /day
Total Flow from the Catchment H		
Flow rate	=	816.8 m ³ /day
Flow rate with P _{CIF}	=	1020.9 m ³ /day (refer to Table T-4 of GESF - Shau Kei Wan - 1.25)
Contributing population	=	3781 people (refer to Section 12 of GESF -- Contributing population is the Flow rate with P _{CIF} ÷ 0.27, while 0.27 is the average unit flow factor of all typical residents plus employees)
Peaking factor	=	6 (refer to Table T-5 of GESF for a population between 1,000 - 5,000 incl. stormwater allowance)
Peak flow	=	70.9 litre/sec
Total Flow from the Future Development and Catchment A, B, C, D, E, F, G and H to FMH7036270		
Flow rate	=	13247.3 m ³ /day
Flow rate with P _{CIF}	=	16559.2 m ³ /day (refer to Table T-4 of GESF - Shau Kei Wan - 1.25)
Contributing population	=	61330 people (refer to Section 12 of GESF -- Contributing population is the Flow rate with P _{CIF} ÷ 0.27, while 0.27 is the average unit flow factor of all typical residents plus employees)
Peaking factor	=	4 (refer to Table T-5 of GESF for a population between <50,000 incl. stormwater allowance)
Peak flow (without swimming pool)	=	754.6 litre/sec
Peak flow (with swimming pool)	=	<u>817.8</u> litre/sec

Table 10 Hydraulic Capacity of Existing Sewers

Segment	Manhole Reference	Manhole Reference	Pipe Dia. (mm)	Pipe Length (m)	Invert Level 1 (mPD)	Invert Level 2 (mPD)	g (m/s ²)	k _s (m)	s	v (m ² /s)	V (m/s)	Area (m ²)	Q (m ³ /s)	Estimated Capacity (L/s)	Remark
TMH0 - S0	FLH7004609	FMH7036295	300	10.3	4.43	4.28	9.81	0.0003	0.0146	0.000001	2.07	0.071	0.1	146.1	
S0 - S1	FMH7036295	FMH7036243	750	13.4	0.63	0.59	9.81	0.0030	0.0030	0.000001	1.24	0.442	0.5	548.2	
S1 - S2	FMH7036243	FMH7036245	750	14.3	0.59	0.58	9.81	0.0060	0.0007	0.000001	0.54	0.442	0.2	238.1	
S2 - S3	FMH7036245	FMH7036246	900	70.3	0.42	0.36	9.81	0.0060	0.0009	0.000001	0.67	0.636	0.4	427.9	
S3 - S4	FMH7036246	FMH7036248	900	74.3	0.36	0.30	9.81	0.0060	0.0008	0.000001	0.65	0.636	0.4	416.2	
S4 - S5	FMH7036248	FMH7036297	900	37.6	0.3	N/A	9.81	0.0030	0.0067	0.000001	2.09	0.636	1.3	1327.7	(5) (6)
S5 - S6	FMH7036297	FMH7036249	900	5.9	N/A	0.26	9.81	0.0030	0.0067	0.000001	2.09	0.636	1.3	1327.7	(5) (6)
S6 - S7	FMH7036249	FMH7036266	900	59.3	0.26	0.2	9.81	0.0060	0.0010	0.000001	0.73	0.636	0.5	466.0	
S7 - S8	FMH7036266	FLH7017485	900	87.5	0.19	0.08	9.81	0.0060	0.0013	0.000001	0.82	0.636	0.5	519.5	
S8 - S9	FLH7017485	FMH7036269	900	21.3	0.08	0.05	9.81	0.0060	0.0014	0.000001	0.86	0.636	0.6	550.2	
S9 - S10	FMH7036269	FMH7036270	900	27.6	0.05	0.01	9.81	0.0060	0.0014	0.000001	0.88	0.636	0.6	557.7	
S10 - S11	FMH7036270	FSH7001300	900	2.4	0.01	N/A	9.81	0.0030	0.0067	0.000001	2.09	0.636	1.3	1327.7	(5) (6)
S11 - S12	FSH7001300	FMH7036273	750	1.7	N/A	N/A	9.81	0.0030	0.0067	0.000001	1.86	0.442	0.8	819.7	(5) (6)
S12 - S13	FMH7036273	FMH7036292	750	0.9	2.26	N/A	9.81	0.0030	0.0067	0.000001	1.86	0.442	0.8	819.7	(5) (6)
S13 - S14	FMH7036292	FMH7036293	750	5.0	N/A	N/A	9.81	0.0030	0.0067	0.000001	1.86	0.442	0.8	819.7	(5) (6)
S14 - S15	FMH7036293	FMH7036294	750	21.1	N/A	2.1	9.81	0.0030	0.0067	0.000001	1.86	0.442	0.8	819.7	(5) (6)
S15 - S16	FMH7036294	FMH7036288	750	4.7	2.1	1.7	9.81	0.0030	0.0843	0.000001	6.60	0.442	2.9	2917.5	

Remarks: (1) g=gravitational acceleration; k_s=equivalent sand roughness; s=gradient; v=kinematic viscosity of water; V=mean velocity

(2) The values of k_s = 6.0mm and 3.0mm is used for the calculation of slimed concrete sewer, poor condition @mean velocity = approximately 0.75m/s and 1.2m/s (based on Table 5: Recommended Roughness Values in Sewerage Manual)

(3) The value of velocity (V) is referred to the Tables for the hydraulic design of pipes, sewers and channels (8th edition)

(4) Equation used:
$$V = -\sqrt{(8gDs)} \log\left(\frac{k_s}{3.7D} + \frac{2.51v}{D\sqrt{(2gDs)}}\right)$$

(5) N/A = No information is provided in the geoinfo map and sewerage plan provided by DSD.

(6) As there are no invert level information for FMH7036297, FSH7001300, FMH7036273, FMH7036292 and FMH7036293, the slopes of the segments are assumed to be in 1/150.

Table 11 Contributions of Sewage generated from the subject site and Catchments

Segment	Manhole Reference	Manhole Reference	Pipe Dia. (mm)	Pipe Length (m)	Gradient	Estimated Capacity (L/s)	Included Catchment	Estimated Flow from the Proposed Development only (L/s)	Contributed by the Proposed Development only (%)	Estimated Flow from the Proposed Development and Catchments (L/s)	Contributed by the Proposed Development and Catchments (%)	Status	Remark
TMH0 - S0	FLH7004609	FMH7036295	300	10.3	0.0146	146.1	Proposed Development + Catchment A	13.0	8.9	39.6	27.1	OK	
S0 - S1	FMH7036295	FMH7036243	750	13.4	0.0030	548.2	Proposed Development + Catchment A+B	13.0	2.4	436.4	79.6	OK	
S1 - S2	FMH7036243	FMH7036245	750	14.3	0.0007	238.1	Proposed Development + Catchment A+B+C	13.0	5.5	516.0	216.7	Spill	
S2 - S3	FMH7036245	FMH7036246	900	70.3	0.0009	427.9	Proposed Development + Catchment A+B+C+D	13.0	3.0	575.1	134.4	Spill	
S3 - S4	FMH7036246	FMH7036248	900	74.3	0.0008	416.2	Proposed Development + Catchment A+B+C+D+E	13.0	3.1	618.5	148.6	Spill	
S4 - S5	FMH7036248	FMH7036297	900	37.6	0.0067	1327.7	Proposed Development + Catchment A+B+C+D+E	13.0	1.0	618.5	46.6	OK	
S5 - S6	FMH7036297	FMH7036249	900	5.9	0.0067	1327.7	Proposed Development + Catchment A+B+C+D+E+F	13.0	1.0	745.2	56.1	OK	
S6 - S7	FMH7036249	FMH7036266	900	59.3	0.0010	466.0	Proposed Development + Catchment A+B+C+D+E+F	13.0	2.8	745.2	159.9	Spill	
S7 - S8	FMH7036266	FLH7017485	900	87.5	0.0013	519.5	Proposed Development + Catchment A+B+C+D+E+F+G	13.0	2.5	778.1	149.8	Spill	
S8 - S9	FLH7017485	FMH7036269	900	21.3	0.0014	550.2	Proposed Development + Catchment A+B+C+D+E+F+G+H	13.0	2.4	817.8	148.6	Spill	
S9 - S10	FMH7036269	FMH7036270	900	27.6	0.0014	557.7	Proposed Development + Catchment A+B+C+D+E+F+G+H	13.0	2.3	817.8	146.6	Spill	
S10 - S11	FMH7036270	FSH7001300	900	2.4	0.0067	1327.7	Proposed Development + Catchment A+B+C+D+E+F+G+H	13.0	1.0	817.8	61.6	OK	
S11 - S12	FSH7001300	FMH7036273	750	1.7	0.0067	819.7	Proposed Development + Catchment A+B+C+D+E+F+G+H	13.0	1.6	817.8	99.8	Spill	
S12 - S13	FMH7036273	FMH7036292	750	0.9	0.0067	819.7	Proposed Development + Catchment A+B+C+D+E+F+G+H	13.0	1.6	817.8	99.8	Spill	
S13 - S14	FMH7036292	FMH7036293	750	5.0	0.0067	819.7	Proposed Development + Catchment A+B+C+D+E+F+G+H	13.0	1.6	817.8	99.8	Spill	
S14 - S15	FMH7036293	FMH7036294	750	21.1	0.0067	819.7	Proposed Development + Catchment A+B+C+D+E+F+G+H	13.0	1.6	817.8	99.8	Spill	
S15 - S16	FMH7036294	FMH7036288	750	4.7	0.0843	2917.5	Proposed Development + Catchment A+B+C+D+E+F+G+H	13.0	0.4	817.8	28.0	OK	

Table 12 Hydraulic Capacity of Proposed Upgrading Sewer

Segment	Manhole Reference	Manhole Reference	Pipe Dia. (mm)	Pipe Length (m)	Invert Level 1 (mPD)	Invert Level 2 (mPD)	g (m/s ²)	k _s (m)	s	v (m ² /s)	V (m/s)	Area (m ²)	Q (m ³ /s)	Estimated Capacity (L/s)	Estimated Flow from the Proposed Development and Catchments (L/s)	Contributed by the Proposed Development and Catchments (%)	Status
S1 - S2	FMH7036243	FMH7036245	900	14.3	0.59	0.58	9.81	0.0003	0.0007	0.000001	0.87	0.636	0.6	556.5	516	92.7	OK
S2 - S3	FMH7036245	FMH7036246	900	70.3	0.58	0.45	9.81	0.0003	0.0019	0.000001	1.44	0.636	0.9	914.5	575	62.9	OK
S3 - S4	FMH7036246	FMH7036248	900	74.3	0.45	0.20	9.81	0.0003	0.0034	0.000001	1.95	0.636	1.2	1238.8	619	49.9	OK
S6 - S7	FMH7036249	FMH7036266	900	59.3	0.26	0.15	9.81	0.0003	0.0019	0.000001	1.44	0.636	0.9	915.9	745	81.4	OK
S7 - S8	FMH7036266	FLH7017485	900	87.5	0.15	0.01	9.81	0.0003	0.0016	0.000001	1.34	0.636	0.8	849.6	778	91.6	OK
S8 - S9	FLH7017485	FMH7036269	900	21.3	0.01	-0.03	9.81	0.0003	0.0019	0.000001	1.45	0.636	0.9	922.2	818	88.7	OK
S9 - S10	FMH7036269	FMH7036270	900	27.6	-0.03	-0.08	9.81	0.0003	0.0018	0.000001	1.42	0.636	0.9	904.8	818	90.4	OK
S11 - S12	FSH7001300	FMH7036273	750	1.7	-0.15	-0.18	9.81	0.0003	0.0176	0.000001	4.02	0.442	1.8	1774.2	818	46.1	OK
S12 - S13	FMH7036273	FMH7036292	750	0.9	-0.18	-0.20	9.81	0.0003	0.0211	0.000001	4.39	0.442	1.9	1941.3	818	42.1	OK
S13 - S14	FMH7036292	FMH7036293	750	5.0	-0.20	-0.23	9.81	0.0003	0.0060	0.000001	2.33	0.442	1.0	1030.5	818	79.4	OK
S14 - S15	FMH7036293	FMH7036294	750	21.1	-0.23	-0.33	9.81	0.0003	0.0047	0.000001	2.07	0.442	0.9	913.8	818	89.5	OK

Remarks: (1) g=gravitational acceleration; k_s=equivalent sand roughness; s=gradient; v=kinematic viscosity of water; V=mean velocity

(2) The values of k_s = 1.5mm and 0.3mm is used for the calculation of slimed uPVC sewer, poor condition @mean velocity = approximately 0.75m/s and 1.2m/s (based on Table 5: Recommended Roughness Values in Sewerage Manual)

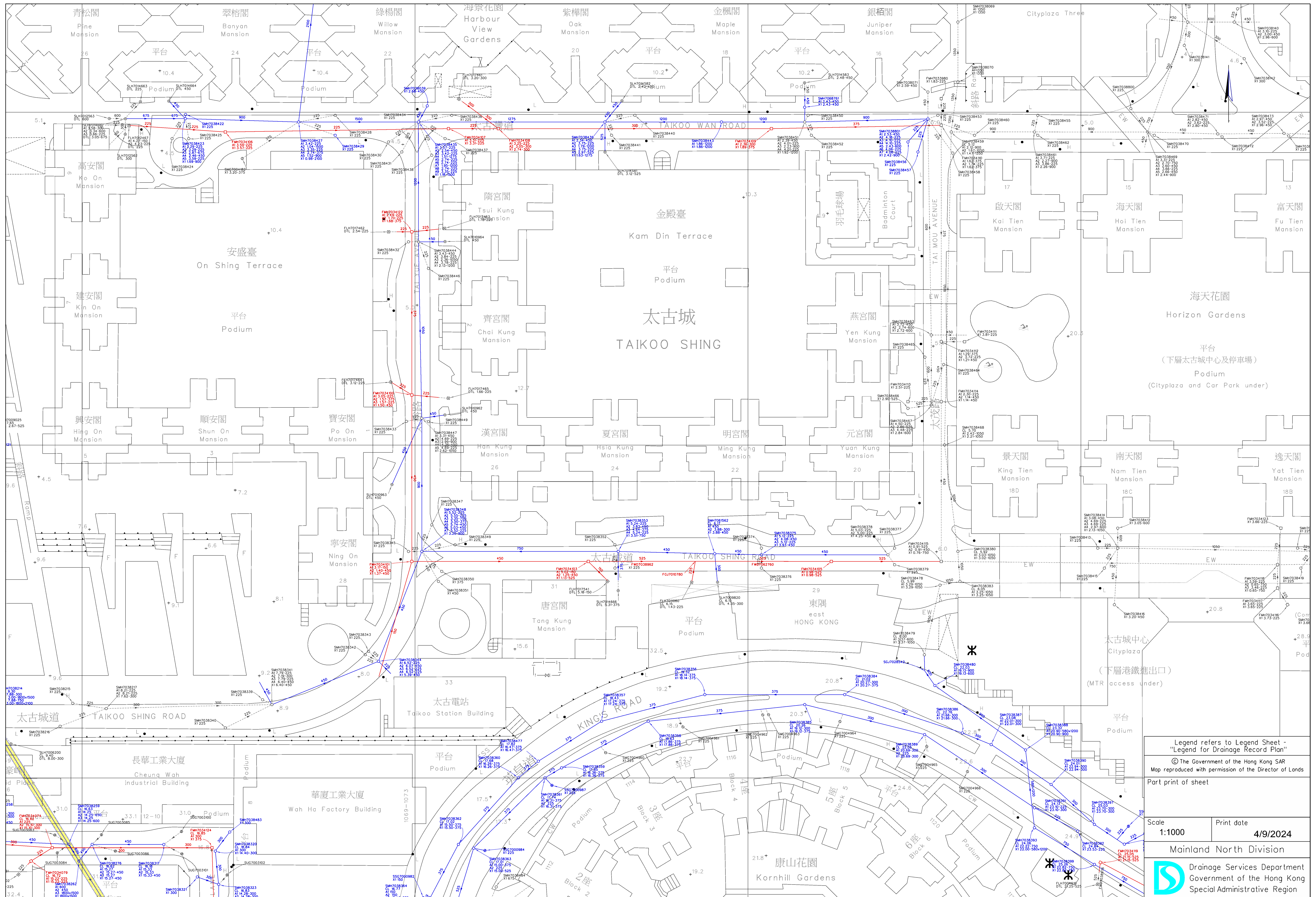
(3) The value of velocity (V) is referred to the Tables for the hydraulic design of pipes, sewers and channels (8th edition)

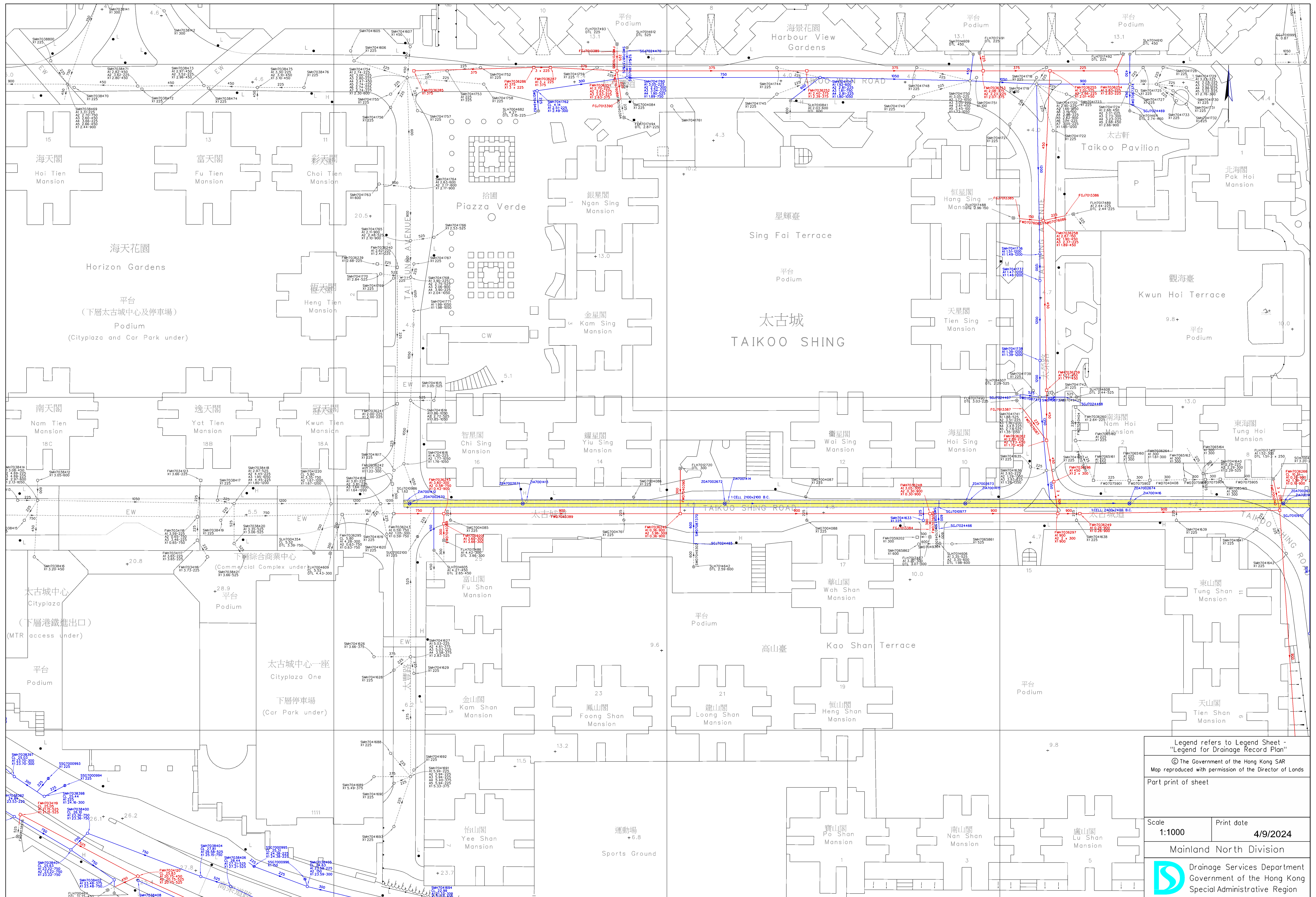
(4) Equation used: $V = \sqrt{\frac{8gDs}{3.7D + \frac{2.51v}{D\sqrt{(2gDs)}}}}$

Table 13 Contributions of Sewage generated from the Subject Site on Tai Koo Shing Pumping Station (TKSPS)

Design Capacity of Tai Koo Shing Pumping Station (m3/day)	Design Capacity of Tai Koo Shing Pumping Station (L/s)	Estimated Flow from the Proposed Development (L/s)	Contributed by the Proposed Development (%)
22464	260	13.0	5%

Appendix 2.2 Sewerage Record Plans obtained from DSD





Legend refers to Legend Sheet -
"Legend for Drainage Record Plan"

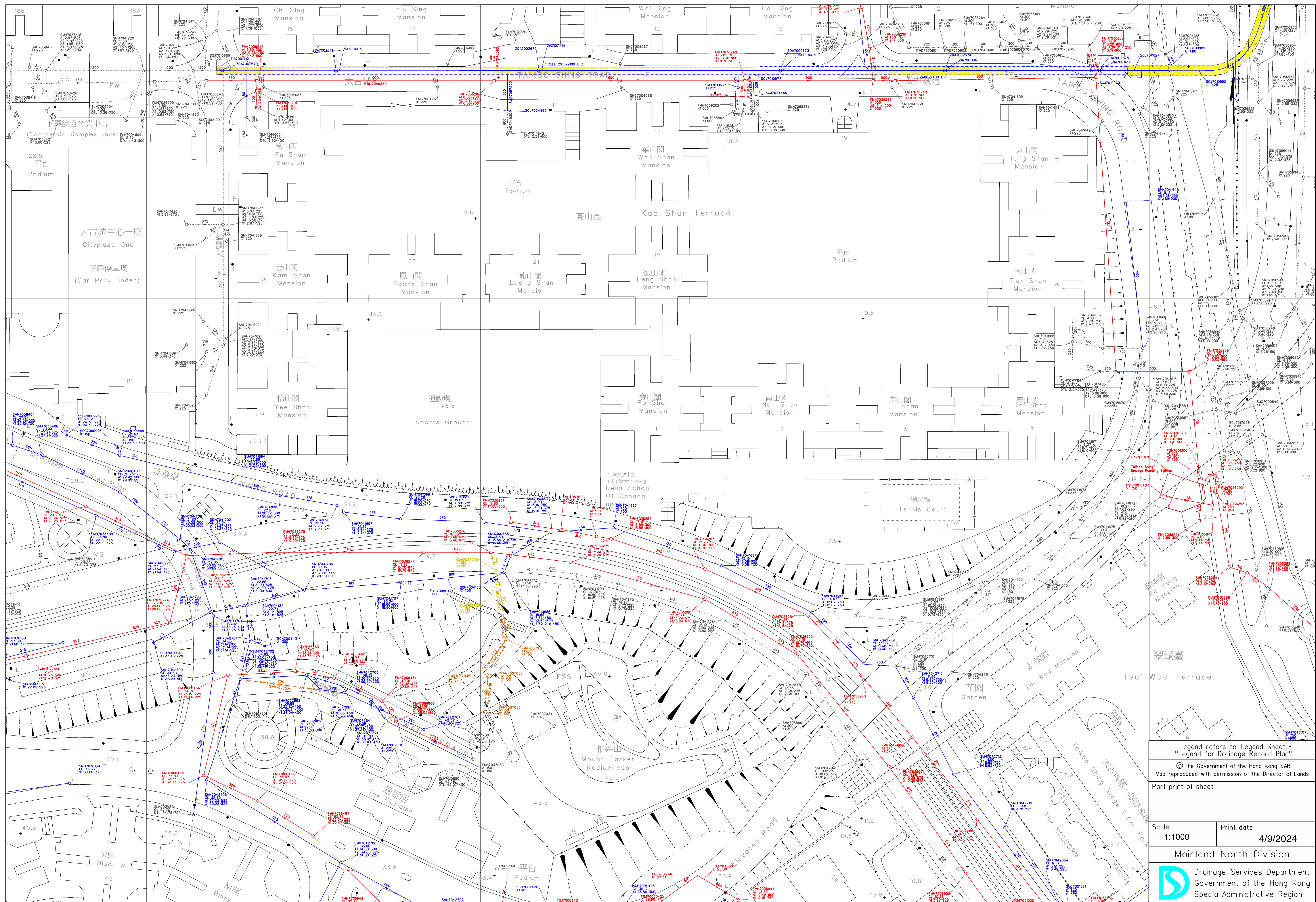
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Mainland North Division

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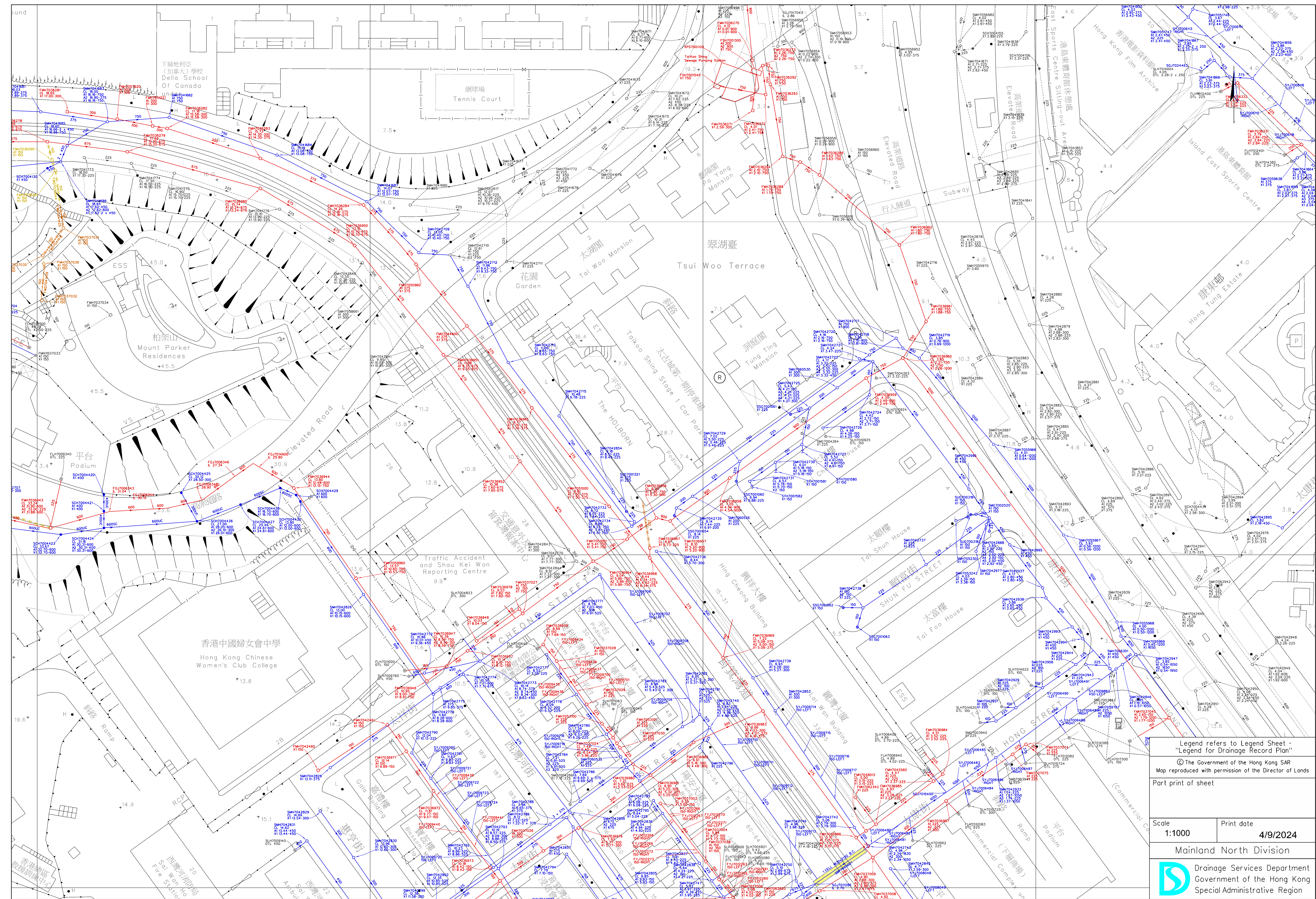


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