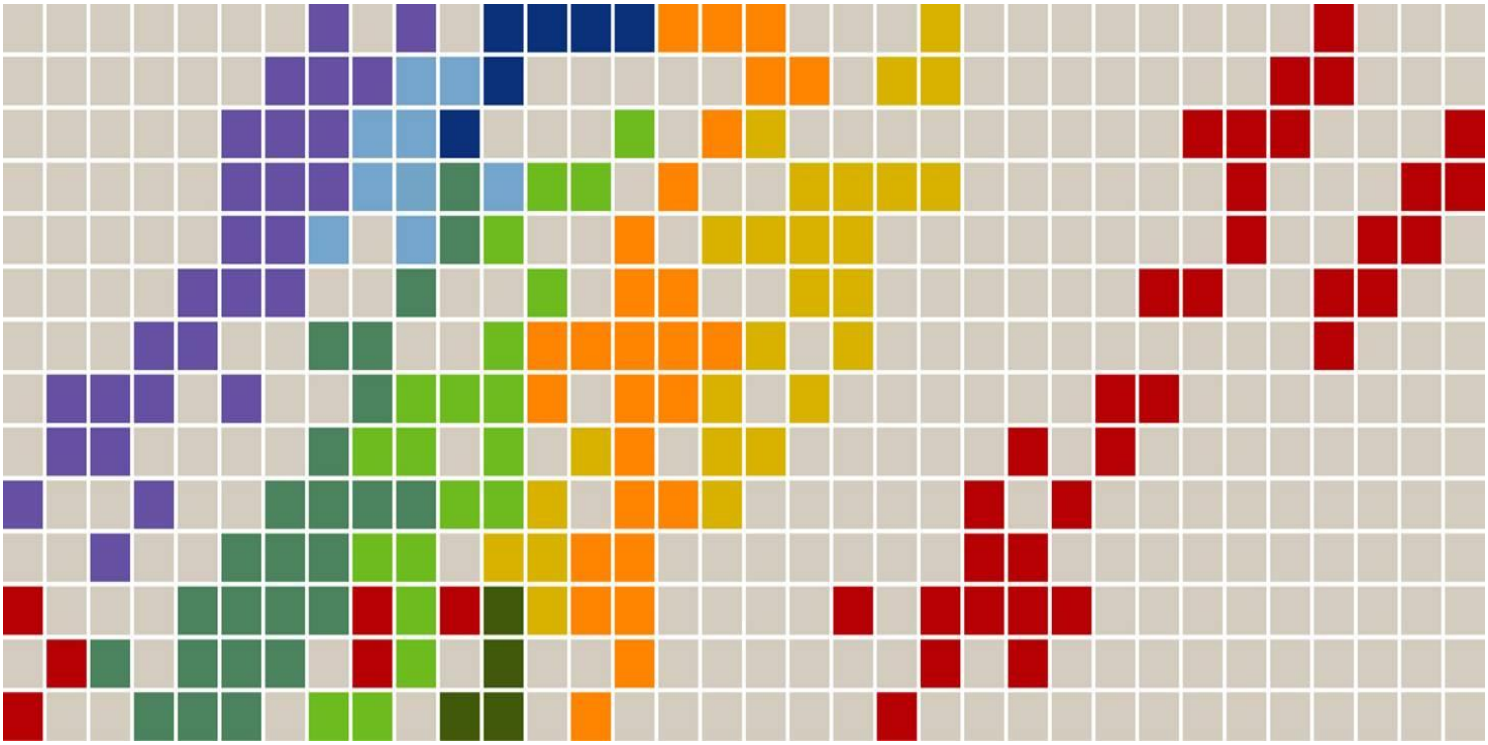
Appendix B

Sewerage Impact Assessment



Proposed Educational Institution (Academic Facilities and its Associated Ancillary Facilities) with Permitted Flat Use (Staff Quarters) in "Residential (Group B)" Zone at Inland Lot No. 7704 RP (Part), Pokfield Road, Hong Kong

Subject	:	**Sewerage Impact Assessment**
Submission Date	:	**07 July 2025**
Document No.	:	**WH67022-REPORT-SW-0003**

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Proposed Educational Institution (Academic Facilities and its Associated Ancillary Facilities) with Permitted Flat Use (Staff Quarters) in "Residential (Group B)" Zone at Inland Lot No. 7704 RP (Part), Pokfield Road, Hong Kong

Sewerage Impact Assessment

Issued to:
Environmental Protection Department

Issue/revision (Remarks) Date	Issue 1 02/11/2020	Issue 1a 02/12/2020 (Response to EPD's Comment)	Issue 2 29/01/2021 (Response to EPD's and DSD's Comment)	Issue 3 07/07/2025 (Section 16 Application for R(B) Zone)		
Prepared by Signature	Andrew Ngai	Andrew Ngai	Andrew Ngai	Ho-Ching Cheung		
Checked by Signature	Jacky Lam	Jacky Lam	Jacky Lam	Ricky Wong		
Authorized by Signature	Tracy Choi	Tracy Choi	Ben Wong	Ricky Wong		
Job number File reference	WH67022	WH67022	WH67022	WH67022		

SUMMARY

As per Sewerage Infrastructure Planning (SIG) of Environmental Protection Department (EPD)'s comment given on 21 May 2025, a Sewerage Impact Assessment report shall be submitted in connection with the recent Section 16 planning application.

The Application Site under this Section 16 planning application falls within an area zoned "Residential (Group B)" ("R(B)") on the Outline Zoning Plan. It was previously occupied by the HKU Pokfield Road Residences, which has been demolished and is currently under redevelopment for two blocks of staff quarters use. A new academic complex and sports centre is currently under construction in the adjacent "Government, Institution or Community" ("G/IC") zone. This Section 16 planning application is to seek permission from the Town Planning Board for proposed academic facilities and its associated ancillary facilities in the podium of the future staff quarters in the "R(B)" zone, while the staff quarters use is always permitted.

In this application, SIG noticed that canteen area has been incorporated in the architectural layout plans and requested an updated Sewerage Impact Assessment (SIA) to cover these proposed layouts.

Upon review of the latest approved SIA dated 29th Jan. 2021 (Refer to EPD's reply dated 1 June 2021 enclosed in Appendix A1), and the total canteen area proposed in this recent Section 16 application, it is deduced that the latest and previously EPD approved SIA is similar to the total canteen areas of this Section 16 application. Refer to Appendix A1. Therefore, the estimated sewerage flow from the area covered by this application shall be like that assessed and covered in the latest and previously EPD approved SIA submission.

This submission is similar to that from the latest and previously EPD approved SIA to facilitate the current Section 16 Application.

Table of Contents

1.0 INTRODUCTION

1.1 Background

1.1.1 WSP Hong Kong Limited was appointed by The University of Hong Kong as civil & structural engineering consultant to conduct a Sewerage Impact Assessment (SIA) for the proposed development at The University of Hong Kong (HKU) Campus, Pok Fu Lam, Hong Kong.

1.1.2 The objective of the Sewerage Impact Assessment (SIA) is to assess the potential impact to the existing sewerage system and to recommend mitigation measures as necessary such that the proposed development will not impose any adverse impact to the existing downstream sewerage system beyond the connection manhole.

1.1.3 The Application Site under this Section 16 planning application falls within an area zoned "Residential (Group B)" ("R(B)") on the Outline Zoning Plan. It was previously occupied by the HKU Pokfield Road Residences, which has been demolished and is currently under redevelopment for two blocks of staff quarters use. A new academic complex and sports centre is currently under construction in the adjacent "Government, Institution or Community" ("G/IC") zone. This Section 16 planning application is to seek permission from the Town Planning Board for proposed academic facilities and its associated ancillary facilities in the podium of the future staff quarters in the "R(B)" zone, while the staff quarters use is always permitted.

1.1.4 The proposed development will be consisted of a 1) 11-storey building for office, institutional and recreational use, including 6 basement floors and 1 roof floor; 2) a 30-storey building for residential, club house and other ancillary uses, including 6 basement floors and 1 roof floor and 3) a proposed vehicular ramp. The projected completion year of this development is estimated to be in 2027, and the intake year is estimated to be in 2028.

1.2 Project Location and Surroundings

1.2.1 The Application Site under this Section 16 planning application is located within Lot IL 7704RP (Part), Pokfield Road and covers the "R(B)" zone only. The subject site abuts Pokfield Road to the north and is predominantly surrounded by other G/IC uses for the HKU community.

2.0 STUDY OBJECTIVES

2.1 The SIA shall evaluate the potential sewerage impact on the existing downstream sewerage system. The aims for this assessment include the following:

(i) To review the capacity of the nearest existing sewerage system,
(ii) To estimate the sewage flows generated from the proposed development, and
(iii) To propose sewerage connection point at the existing sewerage network for the proposed development's terminal manhole connection.

3.0 HYDRAULIC ASSESSMENT METHODOLOGY FOR SEWERAGE SYSTEM

3.1 Assessment of the capacity of the existing sewer subjected to the sewage flow from the proposed development is necessary in order to fulfil the study objectives as stated in Section 2.1.

3.2 *Sewage Flows*

The sewage flow from the sewerage sub-catchments is categorised as commercial flow with 2 types of commercial activities. With reference based on the unit flow factors given in the Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning (GESF) from EPD, the unit flow factors adopted in the assessment are shown in Table 3.1. With reference to the Table 8 of "Commercial and Industrial Floor Space Utilization Survey" published by Planning Department, the density of employees adopted in the assessment are shown in Table 3.2.

Table 3.1 – Unit Flow Factors adopted for Sewerage Sub-catchments

Category [(1)]	Unit (per)	Unit Flow Factor (m^3/day)
Domestic Flows		
Private R3	person	0.370*
Institutional and Special Class	Person	0.19
Commercial Flows		
J10 Restaurant & Hotels	employee	1.580
J11 Community, Social & Personal Services	employee	0.280
School Student	person	0.040

Note: (1) The unit flow factor for commercial flows shown is the sum of the unit flow factor of employee (m^3/day) and the unit flow factor of commercial activities of a particular trade under consideration.

*Unit flow factor of 0.37m^3/day was adopted for private domestic flow for all residential domestic flows as a conservative approach.

Table 3.2 – Density of employees adopted for Sewerage Sub-catchments

Category	Employee per GFA (in 100m^2)	GFA per Employee (m^2)
J10 Restaurant & Hotels	5.1	19.6
J11 Community, Social & Personal Services	3.3	30.3

3.3 *Catchment Inflow Factors*

A P_{CIF} of 1.00 given in the Table T-4 of Guidelines for Estimating Sewage Flows for GESF from EPD is used for estimating the average flow of catchments located at Central.

3.4 *Pipe Roughness*

The pipe roughness is specified as an equivalent sand roughness (k_s) used by the Colebrook-White equation. In this hydraulic assessment, the roughness coefficient to be used for the existing sewer

would follow a value of k_s=0.6mm for vitrified clay, while the roughness coefficient to be used for proposed HDPE pipe would follow a value of k_s=0.3mm (assumed to be same with uPVC pipe).

3.5 *Peaking Factor*

To estimate the peak flow for the development, peaking factor would be used according to Table T-5 of Guidelines for GESF from EPD. Peaking Factor including stormwater allowance is adopted for conservative assumption in this assessment.

Table 3.3 – Peaking factors

Population Range	Peaking Factor (including stormwater allowance) for facility with existing upstream sewerage	Peaking Factor (excluding stormwater allowance) for facility with existing upstream sewerage
(a) For Sewers		
<1,000	8	6
1,000 – 5,000	6	5
5,000 – 10,000	5	4
10,000 – 50,000	4	3
>50,000	$\text{Max}\left(\frac{7.3}{N^{0.15}}, 2.4\right)$	$\text{Max}\left(\frac{6}{N^{0.175}}, 1.6\right)$
(b) Sewage Treatment Works, Preliminary Treatment Works and Pumping Stations		
<10,000	4	3
1,0000 – 25,000	3.5	2.5
25,000 – 50,000	3	2
>50,000	$\text{Max}\left(\frac{3.9}{N^{0.065}}, 2.4\right)$	$\text{Max}\left(\frac{2.6}{N^{0.065}}, 1.6\right)$

3.6 *Area Reduction Factor*

The area reduction factor is adopted to take into account the effect on flow capacity due to deposition of sediment in pipes in the following assumption:

(a) 5% reduction in flow area if the gradient is greater than 1 in 25.

(b) 10% reduction in flow area in other cases.

4.0 REVIEW OF EXISTING SEWERAGE CONDITION

4.1 Existing Public Sewerage Network

4.1.1 According to the DSD drainage record plan, there is an existing 300mm dia. sewerage network running along Pokfield Road at the North side of the subject site and an existing 225mm dia. sewerage network running along natural slope at the south side of the subject site.

4.1.2 According to the BD as-built record plan, apart from Lee Shau Kee hall, all existing building sewerage are connected to the existing 300Ø sewerage network running along Pokfield Road. For Lee Shau Kee Hall, its sewerage is connected to the existing 225Ø sewerage network running along natural slope.

4.1.3 The aforesaid sewerage networks convey the sewage by gravity flow and meet at existing manhole FMH7005383. The downstream of the network is connected to the existing Central Preliminary Treatment Works.

4.2 Sewage Flow Generated before Proposed Re-development

4.2.1 According to the DSD drainage record, there will be a split flow at existing manhole FMH7027765 which is connected to two existing DSD manholes at downstream, namely, 1) FMH7027809 at Pok Fu Lam Road and 2) FMH7027766 at natural slope. However, as per the DSD as-built drawing (drawing no. 91194/40/3007C), FMH7027809 at Pok Fu Lam Road is the only downstream manhole for FMH7027765. In this Sewerage Impact Assessment, we assume FMH7027809 at Pok Fu Lam Road is the only downstream manhole for FMH7027765. The DSD as-built drawing is attached in Appendix D.

4.2.2 For the existing 300Ø sewerage network running along Pokfield Road, the sewage induced from the existing 1) Lindsay Ride Sports Centre, 2) Flora Ho Sports Centre, Suen Chi Sun Hall, Morrison Hall, HKU Hill View Restaurant, 3) Stanley Smith Swimming Pool and 4) HKU Pokfield Road Residence at subject site, is discharged to existing government manholes via existing terminal manholes FT2, FT3, FT4 and FT5 respectively. Apart from sewage coming from Area A and subject site, the network also receives sewage from existing development including St. John's College, King Court, University Heights, St. Charles School and Caritas Mok Cheung Sui Kun Community Centre.

4.2.3 For the existing 225Ø sewerage network running along natural slope, the sewage induced from existing Lee Shau Kee Hall is discharged to existing government manhole FMH7047720 via terminal manhole FT1. The existing sub-catchments layout plan is shown in Appendix A – Drawing No. SW-01.

Table 4.1 – Sewerage Sub-catchments for Existing Sewerage Network

Sub-catchment	Location of Sewage Sources to the Subject Site	Development	Sewage Flow Category	Discharge Point (Existing Sewerage Manhole No.)
A	Upstream	Area A (Fulham Garden, Emerald Garden, Honey Court, Green Villa, Pokfulam Peak, Pofulam Mansion, Pokfulam Court, Fook Wai Mansion, Yue Yan Mansions, La Claire Mansion, Pok Fu Lam Road Playground)	Residential/ Recreational	Upstream of FMH7027765
B	Upstream	St. John's College	Residential/ Catering	FMH7027773 (Upstream of FMH7027775)
C1	Upstream	King Court	Residential	FMH7027785
C2	Downstream	University Heights	Residential	FMH7005407 (Upstream of FMH7005374)
D	Downstream	St. Charles School	Institutional	FMH7005379
E1	Downstream	Caritas Mok Cheung Sui Kun Community Centre	Community	FMH7005454
E2	Downstream	Poksmith Villa	Residential	FMH7005385 (Upstream of FMH7005456)
F1	Subject Site	Morrison Hall, Suen Chi Sun Hall	Residential	FMH7027796
F2		HKU Hill View Restaurant	Catering	
G		Lee Shau Kee Hall	Residential	FMH7047720
H		Lindsay Ride Sports Centre	Recreational	FMH7027800
I		Stanley Smith Swimming Pool	Recreational	FMH7027785
J		HKU Pokfield Road Residence	Residential	FMH7005461
K		Flora Ho Sports Centre	Recreational	FMH7027796

4.2.2 Table 4.2 and 4.3 summarizes the estimated sewage flows before the completion of proposed re-development. The calculations of the estimated sewage flow rate from the existing sewerage catchment are shown in Appendix B.

Table 4.2 – Estimated Sewage Flows Generated before the Completion of Proposed Development

Sub-catchment	Location of Sewage Sources to the Subject Site	Contributing Population (Persons)	Estimated ADWF (m^3/day)
A	Upstream	2462	664.66
B	Upstream	318	85.94
C1	Upstream	249	67.34
C2	Downstream	1582	427.13
D	Downstream	81	21.96
E1	Downstream	36	9.80
E2	Downstream	128	34.63
F1	Subject Site	422	114.00
F2		43	11.71
G		211	57.00
H		73	19.60
J		220	59.47
K		73	19.60

Table 4.3 – Estimated Sewage Flows Generated before the Completion of Proposed Development

Sub-catchment	Location of Sewage Sources to the Subject Site	Peak Flow during the backwash event (L/s)
I	Subject Site	62.82

5.0 ESTIMATION AND DISPOSAL OF SEWAGE FLOW FROM SUBJECT SITE

5.1 Based on the latest architectural layout of the proposed development, the sewage flow from subject site can be divided into 3 sub-catchments, namely sub-catchment L1, L2 and M. Sewage flow from sub-catchment L1, L2 and M be conveyed by the building services sewer drains and discharged to the existing government manholes FMH7027795 and FMH7005461 at Pokfield road via the proposed terminal manhole FTM-01 and FTM-02 respectively. Sub-catchment L2 refers to backwash event of swimming pool in the proposed development. The locations of proposed terminal manholes are shown in Appendix A.

5.2 To suit the architectural layout of the proposed development, the existing sewerage pipes and manhole within the subject site are proposed to be diverted. Sewage from Sub-Catchment F (Morrison Hall, Suen Chi Sun Hall and HKU Hill View Restaurant) and K (Flora Ho Sports Centre) in Subject Site will be diverted and discharged to existing terminal manhole FT1, which is connected to existing government manhole FMH7047720. The proposed sub-catchments layout plan is shown in Appendix A.

Table 5.1 – Sewerage Sub-catchments for Proposed Sewerage Network

Sub-catchment	Location of Sewage Sources to the Subject Site	Development	Sewage Flow Category	Discharge Point (Existing Sewerage Manhole No.)
A	Upstream	Area A (Fulham Garden, Emerald Garden, Honey Court, Green Villa, Pokfulam Peak, Pofulam Mansion, Pokfulam Court, Fook Wai Mansion, Yue Yan Mansions, La Claire Mansion, Pok Fu Lam Road Playground)	Residential/ Recreational	Upstream of FMH7027765
B	Upstream	St. John's College	Residential/ Catering	FMH7027773 (Upstream of FMH7027775)
C1	Upstream	King Court	Residential	FMH7027785
C2	Downstream	University Heights	Residential	FMH7005407 (Upstream of FMH7005374)
D	Downstream	St. Charles School	Institutional	FMH7005379
E1	Downstream	Caritas Mok Cheung Sui Kun Community Centre	Community	FMH7005454
E2	Downstream	Poksmith Villa	Residential	FMH7005385 (Upstream of FMH7005456)
F1	Subject Site	Morrison Hall, Suen Chi Sun Hall	Residential	FMH7047720
F2		HKU Hill View Restaurant	Catering	
G		Lee Shau Kee Hall	Residential	FMH7047720
K		Flora Ho Sports Centre	Recreational	FMH7047720
L1 & L2		Proposed Development	Institutional/ Recreational	FMH7027795
M			Residential/ Catering	FMH7005461

5.3 Table 5.2 and 5.3 summarizes the estimated sewage flows after the completion of proposed development. The calculations of the estimated sewage flow rate from the proposed sewerage catchment are shown in Appendix B.

Table 5.2 – Estimated Sewage Flows Generated after the Completion of Proposed re-development

Sub-catchment	Location of Sewage Sources to the Subject Site	Contributing Population (Persons)	Estimated ADWF (m^3/day)
A	Upstream	2462	664.66
B	Upstream	318	85.94
C1	Upstream	249	67.34
C2	Downstream	1582	427.13
D	Downstream	81	21.96
E1	Downstream	36	9.80
E2	Downstream	128	34.63
F1	Subject Site	422	114.00
F2		43	11.71
G		211	57.00
K		73	19.60
L1		2812	759.11
M		629	169.94

Table 5.3 – Estimated Sewage Flows Generated after the Completion of Proposed re-development

Sub-catchment	Location of Sewage Sources to the Subject Site	Peak Flow during the backwash event (L/s)
L2	Subject Site	58.90

5.4 Table 5.3 below shows the existing pipe condition downstream to the proposed discharge point at Pokfield Road before and after the completion of proposed re-development. According to the hydraulic calculation, the most critical pipe section at the downstream to the subject site is an existing 300Ø pipe from FMH7005384 to FMH7005456. The detailed hydraulic calculations of sewerage flows generated from the proposed development is shown in Appendix C.

Table 5.3 - Estimation of Peak Sewage Flow and Existing Pipe Capacity between Manhole FMH7005384 to FMH7005456

	Peak Discharge Sewer Flows, Q_{peak} (L/s)	Capacity of existing 300 mm dia. sewer pipe from downstream manhole FMH7005384 to FMH7005456, Q_{cap} (L/s)	Usage of Sewer Pipe, Q_{peak} / Q_{cap} (%)	Increased % of Peak Flow
Existing Condition (Before Development)	152.99	291.11	52.6%	+29.6%
Proposed Condition (After Development)	198.26		68.1%	

5.5 It is estimated that the usage of sewer pipe will be 68.1% at the most critical pipe section at the downstream to the subject site. Therefore, the proposed re-development would not induce any adverse impact on the downstream sewerage pipe system along Pokfield Road beyond the proposed sewerage connection manhole.

5.6 For sub-catchment L and M of proposed development, sewage will be discharged to existing government manholes FMH7027795 and FMH7005461 via proposed terminal manhole FTM-01 and FTM-02 respectively, each with a 350Ø and a 250Ø PE100 PN10 pipe at a gradient of 1:50 respectively. The detailed hydraulic calculations of sewerage flows generated from the proposed development is shown in Appendix C.

Table 5.4 - Estimation of Peak Sewage Flow and Proposed Pipe Capacity at the downstream of FTM-01 and FTM-02

	Peak Discharge Sewer Flows, Q_{peak} (L/s)	Capacity of proposed sewer pipe, Q_{cap} (L/s)	Usage of Sewer Pipe, Q_{peak} / Q_{cap} (%)
FTM-01 (350Ø PE100 PN10 pipe, 1 in 50 fall)	111.62	165.41	67.48%
FTM-02 (250Ø PE100 PN10 pipe, 1 in 50 fall)	15.74	65.88	23.89%

5.7 It is estimated that the usage of proposed sewer pipes will be 67.48% and 23.89% at the downstream of FTM-01 and FTM-02 respectively. Therefore, the proposed sewerage systems will be able to convey the sewage flow to the downstream sewerage network. The actual levels and locations of the proposed terminal manholes shall be verified at the detail design stage.

5.8 For the sewerage system running along natural slope, the sewage flow will increase due the proposed sewerage diversion works within the subject site. According to the hydraulic calculation, the most critical pipe section at the downstream to the subject site is an existing 225Ø pipe from FMH7005356 to FMH7005357. The detailed hydraulic calculations of sewerage flows generated from the proposed development is shown in Appendix C.

Table 5.5 - Estimation of Peak Sewage Flow and Existing Pipe Capacity between Manhole FMH7005356 to FMH7005357

	Peak Discharge Sewer Flows, Q_{peak} (L/s)	Capacity of existing 300 mm dia. sewer pipe from downstream manhole FMH7005356 to FMH7005357, Q_{cap} (L/s)	Usage of Sewer Pipe, Q_{peak} / Q_{cap} (%)	Increased % of Peak Flow
Existing Condition (Before Development)	5.28	117.48	4.5%	+254.7%
Proposed Condition (After Development)	18.73		15.9%	

5.9 It is estimated that the usage of sewer pipe will be 15.9% at the most critical pipe section at the downstream to the subject site. Therefore, the proposed sewerage diversion would not induce any adverse impact on the downstream sewerage pipe system along natural slope.

6.0 MAINTENANCE

6.1 The owner will take up the maintenance responsibility for the proposed sewerage pipes within the subject site. All proposed sewerage works shall be constructed to comply with the specification of DSD requirements.

6.2 The owner should take up the routine maintenance and desilting of the sewerage terminal manhole frequently.

7.0 CONCLUSIONS

7.1 In conclusion, the total amount of sewerage flow from this S16 application is similar to that of the previously EPD approved SIA (Issue 2). Therefore, the estimated sewerage flow from the area covered by this application shall be like that assessed and covered in the latest and previously EPD approved SIA submission.

APPENDIX A - Previous SIA Approval Record from EPD and Canteen Area in Current Section 16 Application

本署檔號
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Water Policy Division
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EPD Approval on SIA Issue 2

1 June 2021

WSP Hong Kong Ltd.
7/F, One Kowloon
1 Wang Yuen Street
Kowloon Bay, Hong Kong

(Attn: Mr. Andrew Ngai)

Dear Mr. Ngai,

Proposed Capital Development Complex at the Pokfield Road Site
Sewerage Impact Assessment Report Issue 2

We refer to your above-referenced letter dated 29 January 2021.

2. Please be advised that we do not have further comment on the revised Sewerage Impact Assessment report from sewerage planning perspective.

Yours faithfully,

(Helen W. Y. AU)
Sewerage Infrastructure Group
for Director of Environmental Protection

Extract from SIA Issue 2
(Previously approved by EPD)

M Estimation of Proposed Sewerage Discharge Quantity Within Site Boundary (Proposed Development)

	Flow Category	Value (n)	Unit Flow Factor UFF (m^3/day/n)	Average Dry Weather Flow ADWF(m^3/day)	Notes
	Domestic Flow				
1	**Institutional and Special Class**				
	Total No. of Residents	613			
	Estimated Domestic Flow		0.19	116.47	Table T-2 of EPD/TP_1/05
	Commercial Flow				
2	**J11 Community, Social & Personal Services**				
	Common Area	1343 m^2			Proposed NOFA = 940 m^2 assuming NOFA/GFA=0.7
	Gym	457 m^2			Proposed NOFA = 320 m^2 assuming NOFA/GFA=0.7
	Number of Empolyee per 100 m^2	3.3			Figure extracted from https://www.pland.gov.hk/pland_en/p_study/comp_s/cifsus/cifsusReport.pdf
	Number of Employees	59			
	Estimated Commercial Flow		0.280	16.63	
	J10 Restaurant				
	Area (m^2)	457			Proposed NOFA = 320 m^2 assuming NOFA/GFA=0.7
	Number of Empolyee per 100 m^2	5.1			Figure extracted from https://www.pland.gov.hk/pland_en/p_study/comp_s/cifsus/cifsusReport.pdf
	Number of Employees	23			
	Estimated Commercial Flow		1.580	36.84	
2	**Summation of ADWF**			169.94	
	Catchment Inflow Factor	1.0			Table T-4 of EPD/TP_1/05
	Estimated ADWF =	***169.94*** m^3/day			

Area considered for restaurants and canteen: 457m^2

TOTAL AREA FOR CANTEEN FOR ALL FLOORS: 456m^2

N

UNIVERSITY HEIGHTS

UNIVERSITY HEIGHTS

SITE BOUNDARY

G/C ZONE

RESIDENTIAL (B) ZONE

WC

FIREMAN'S LIFT LOBBY

FIREMAN'S LIFT LOBBY

E&M

PANTRY

BACK OF HOUSE

LIFT LOBBY

STAFF AND STUDENTS CANTEEN

E&M

STAFF COMMON ROOM

WC

WC

BACK OF HOUSE

VOID

FIREMAN'S LIFT LOBBY

E&M

BREAKOUT ROOM

BREAKOUT ROOM

E&M

E&M

BREAKOUT ROOM

BREAKOUT ROOM

BACK OF HOUSE

BREAKOUT ROOM

BREAKOUT ROOM

ACADEMIC & ANCILLARY USES

74.90

PROTECTED CORRIDOR

VOID

VOID

E&M

VOID

Area under THIS S16 Application

POKFIELD ROAD

18-24 Pokfield House

KEY PLAN

Legend

- Application Site
- Subject Podium under Current S16 Application
- Academic and Ancillary Uses
- Shared-Use between Residential and Academic
- E & M

P&T GROUP

Title

Indicative Floor Plan (LG1)

Checked	DH	Drawn	PW
Rev	0	Date	Mar 2025
Scale		Figure	3.1

TOTAL AREA FOR CANTEEN FOR ALL FLOORS: 456m^2

N

UNIVERSITY HEIGHTS

UNIVERSITY HEIGHTS

SITE BOUNDARY

LANDSCAPED TERRACE

LANDSCAPED TERRACE

G/C ZONE

RESIDENTIAL (B) ZONE

WC

SOCIETY ROOMS AND ADMINSTRATIVE OFFICES

FIREMAN'S LIFT LOBBY

FIREMAN'S LIFT LOBBY

E&M

BACK OF HOUSE

PROTECTED CORRIDOR

E&M

PROTECTED CORRIDOR

BACK OF HOUSE

E&M

PANTRY

BACK OF HOUSE

LIFT LOBBY

STAFF AND STUDENTS CANTEEN

VOID

FIREMAN'S LIFT LOBBY

VOID

E&M

PROTECTED CORRIDOR

E&M

ACADEMIC & ANCILLARY USES

70.50

VOID

VOID

E&M

PROPOSED LIFT CONNECTING POKFIELD ROAD AND POK FU LAM ROAD

Area under THIS S16 Application

POKFIELD ROAD (EXISTING EVA)

Pokfield House

18-24

KEY PLAN

Legend

- Application Site
- Subject Podium under Current S16 Application
- Academic and Ancillary Uses
- Shared-Use between Residential and Academic
- E & M

P&T GROUP

Title

Indicative Floor Plan (LG2)

Checked	DH	Drawn	PW
Rev	0	Date	Mar 2025
Scale		Figure	3.2

TOTAL AREA FOR CANTEEN FOR ALL FLOORS: 456m^2

N

UNIVERSITY HEIGHTS

UNIVERSITY HEIGHTS

SITE BOUNDARY

G/C ZONE

RESIDENTIAL (B) ZONE

STUDENT COMMON ROOM

WC

VOID

STORE

E&M

FIREMAN'S LIFT LOBBY

PROTECTED CORRIDOR

BACK OF HOUSE

KITCHEN

LIFT LOBBY

STAFF AND STUDENTS CANTEEN

CLASSROOM

ACADEMIC & ANCILLARY USES

66.10

Area under THIS S16 Application

POKFIELD ROAD

Pokfield House

18-24

KEY PLAN

Legend

- Application Site
- Subject Podium under Current S16 Application
- Academic and Ancillary Uses
- Shared-Use between Residential and Academic
- E & M

P&T GROUP

Title

Indicative Floor Plan (LG3)

Checked	DH	Drawn	PW
Rev	0	Date	Mar 2025
Scale		Figure	3.3

TOTAL AREA FOR CANTEEN FOR ALL FLOORS: 456m^2

N

UNIVERSITY HEIGHTS

UNIVERSITY HEIGHTS

SITE BOUNDARY

G/C ZONE

RESIDENTIAL (B) ZONE

RESEARCH LABS/ ROOMS

ADMIN OFFICE

WC

E&M

FIREMAN'S LIFT LOBBY

FIREMAN'S LIFT LOBBY

E&M

E&M

BACK OF HOUSE

E&M

BACK OF HOUSE

LIFT LOBBY

BACK OF HOUSE

LIFT LOBBY

STAFF AND STUDENTS CANTEEN

PROTECTED CORRIDOR

PROTECTED CORRIDOR

WAITING ROOM

STUDENT ACTIVITY ROOM

RESEARCH LABS/ ROOMS

E&M / RSMRC

RESEARCH LABS/ROOM

L/UL

ADMIN OFFICE

FIREMAN'S LIFT LOBBY

E&M

VOID

ACADEMIC & ANCILLARY USES

61.70

VOID

CAR PARK / DRIVEWAY

Area under THIS S16 Application

POKFIELD ROAD

18-24 Pokfield House

KEY PLAN

Legend

- Application Site
- Subject Podium under Current S16 Application
- Academic and Ancillary Uses
- Shared-Use between Residential and Academic
- Carpark / Driveway
- E & M

P&T GROUP

Title

Indicative Floor Plan (LG4)

Checked	DH	Drawn	PW
Rev	0	Date	Mar 2025
Scale		Figure	3.4

TOTAL AREA FOR CANTEEN FOR ALL FLOORS: 456m²

N

UNIVERSITY HEIGHTS

UNIVERSITY HEIGHTS

SITE BOUNDARY

LANDSCAPED AVENUE

LANDSCAPED AVENUE

IGVC ZONE (RESIDENTIAL (R) ZONE)

BACK OF HOUSE

FIREMAN'S LIFT LOBBY

PROTECTED CORRIDOR

LIFT LOBBY

FIREMAN'S LIFT LOBBY

E&M

E&M

E&M

STUDENT ACTIVITY ROOM

KITCHEN

IT AND DATA ROOM

FIREMAN'S LIFT LOBBY

E&M

ACADEMIC & ANCILLARY USES

57.30

PROTECTED LIBRARY CORRIDOR

E&M

PROPOSED LIFT CONNECTING POKFIELD ROAD AND POK FU LAM ROAD

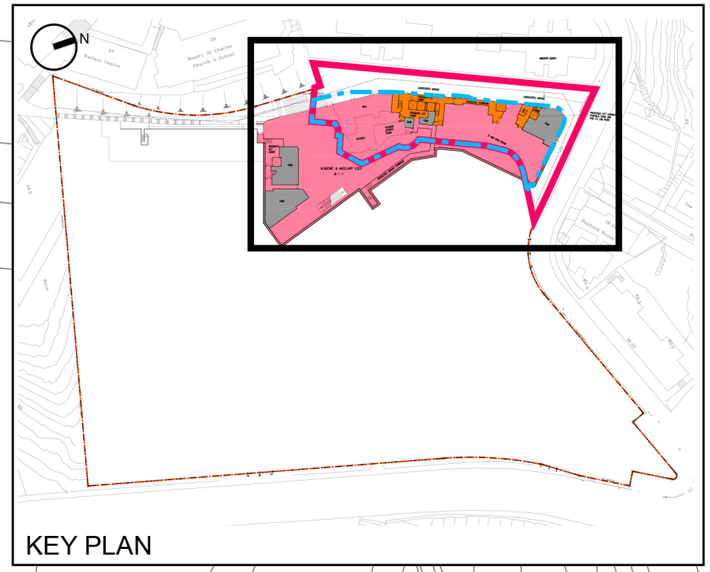
Area under THIS S16 Application

POKFIELD ROAD

18-24

Pokfield House

TP



Legend

- Application Site
- Subject Podium under Current S16 Application
- Academic and Ancillary Uses
- Shared-Use between Residential and Academic
- E & M

P&T GROUP

Title

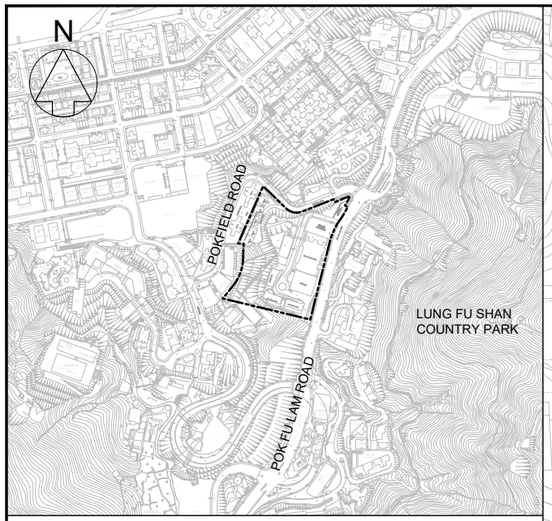
Indicative Floor Plan (LG5)

Checked	DH	Drawn	PW
Rev	0	Date	Mar 2025
Scale		Figure	3.5

APPENDIX A - Drawings

Drawing No.	Drawing Title
HKU-SIA-LP-001	Existing Sewerage Sub-Catchments Layout Plan
HKU-SIA-LP-002	Proposed Sewerage Sub-Catchments Layout Plan

DO NOT SCALE



KEY PLAN
(1:10000)

Existing Manhole FMH7005383
Catchment: A, B,C1, C2, D, E1, E2, F, G, H, I, J, K
Total ADWF:1,592.85 m^3/day +62.82 L/s
(backwash of Sub-Catchment I)

Existing Manhole FMH7005461
Catchment: A, B, C1, F, H, I, J, K
Total ADWF:1042.33 m^3/day+62.82L/s
(backwash of Sub Catchment I)

Existing Foul Water Terminal
Manhole FT5
BD Ref.: 4-2272-60
Sub-Catchment: J

Existing Foul Water Terminal
Manhole FT4
BD Ref.: 4-2367-70
Sub-Catchment: I

Existing Foul Water Terminal
Manhole FT3
BD Ref.: 4-2026-99(P)
Sub-Catchment: F, K

Existing Manhole FMH7027800
Catchment: A, B, H
Total ADWF: 770.21 m^3/day

Existing Foul Water Terminal
Manhole FT2
BD Ref.: 4-2173-60
Sub-Catchment: H

Existing Manhole FMH7047721
Catchment: G
Total ADWF: 57.00 m^3/day

Existing Foul Water Terminal
Manhole FT1
BD Ref:4-2026-99(P)
Catchment: G

Sub-Catchment	Area	Sewage Genderated	
A	Area A	664.66	(m^3/day)
B	St. John's College	85.94	(m^3/day)
C1	King Court	67.34	(m^3/day)
C2	University Heights	427.13	(m^3/day)
D	St. Charles School	21.96	(m^3/day)
E1	Caritas Mok Cheung Sui Kun Community Centre	9.80	(m^3/day)
E2	Poksmith Villa	34.63	(m^3/day)
F1	Morrison Hall, Suen Chi Sun Hall	114.00	(m^3/day)
F2	HKU Hill View Restaurant	11.71	(m^3/day)
G	Lee Shau Kee Hall	57.00	(m^3/day)
H	Lindsay Ride Sports Centre	19.60	(m^3/day)
I	Stanley Smith Swimming Pool	62.82	(L/s)
J	HKU Pokfield Road Residence	59.47	(m^3/day)
K	Flora Ho Sports Centre	19.60	(m^3/day)

B.D. REF. :

LEGEND:

- SITE BOUNDARY
- EXISTING MANHOLE AND SEWER
- EXISTING FOUL WATER TERMINAL MANHOLE AND SEWER
- SEWERAGE SUB-CATCHMENT

REV	DATE	DESCRIPTION
REVISION		

CLIENT
THE UNIVERSITY OF HONG KONG

ARCHITECT
P&T ARCHITECTS AND ENGINEERS LIMITED

STRUCTURAL ENGINEER
wsp

PROJECT :
PROPOSED CAPITAL REDEVELOPMENT COMPLEX AT THE POKFIELD ROAD SITE

DRAWING TITLE :
EXISTING SEWERAGE
SUB-CATCHMENTS LAYOUT PLAN

DESIGNED BY :	A.N.	SCALE @ SIZE :	1:2000 @ A3
CHECKED BY :	T.C.	DATE :	27/10/2020
DRAWN BY :	A.N.	APPROVED BY :	
FILE No. :	20201028_HKU_SIA_Proposed Catchment rev2		
JOB No:	WH67022A	STAGE :	
DRAWING No. :	HKU-SIA-LP-001	REV. :	

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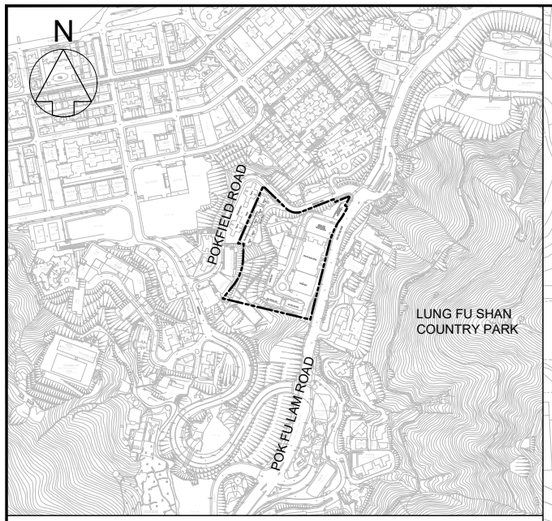
DO NOT SCALE



KEY PLAN
(1:10000)

Existing Manhole FMH7005383
Catchment: A, B, C1, C2, D, E1, E2, F, G, K, L1, L2, M
Total ADWF: 2442.83 m^3/day
+58.90 L/s (backwash event of Sub-catchment L2)

Existing Manhole FMH7005461
Catchment: A, B, C1, L, M
Total ADWF:1,747.00 m^3/day
+58.90 L/s (backwash of Sub-catchment L2)

Proposed Foul Water Terminal Manhole FTM-02
Sub-Catchment: M

Existing Manhole FMH7047721
Catchment: F, G, K
Total ADWF: 202.31 m^3/day

Existing Manhole FMH7027795
Catchment: A, B, L1,L2
Total ADWF: 1,509.72 m^3/day
+58.90 L/s (backwash of Sub-catchment L2)

Existing Foul Water Terminal Manhole FT1
BD Ref:4-2026-99(P)
Sub-Catchment: F, G, K

Proposed Foul Water Terminal Manhole FTM-01
Sub- Catchment: L

Proposed Diversion Works under separate submission

Sub-Catchment	Area	Sewage Generated	
A	Area A	664.66	(m^3/day)
B	St. John's College	85.94	(m^3/day)
C1	King Court	67.34	(m^3/day)
C2	University Heights	427.13	(m^3/day)
D	St. Charles School	21.96	(m^3/day)
E1	Caritas Mok Cheung Sui Kun Community Centre	9.80	(m^3/day)
E2	Poksmith Villa	34.63	(m^3/day)
F1	Morrison Hall, Suen Chi Sun Hall	114.00	(m^3/day)
F2	HKU Hill View Restaurant	11.71	(m^3/day)
G	Lee Shau Kee Hall	57.00	(m^3/day)
K	Flora Ho Sports Centre	19.60	(m^3/day)
L1	Proposed Development	759.11	(m^3/day)
L2	Proposed Swimming Pool	58.9	(L/s)
M	Proposed Development	169.94	(m^3/day)

B.D. REF. :

LEGEND:

- SITE BOUNDARY
- EXISTING MANHOLE AND SEWER
- EXISTING FOUL WATER TERMINAL MANHOLE AND SEWER TO BE ABANDONED
- EXISTING FOUL WATER TERMINAL MANHOLE AND SEWER TO BE MODIFIED
- PROPOSED FOUL WATER TERMINAL MANHOLE AND SEWER
- SEWERAGE SUB-CATCHMENT

REV	DATE	DESCRIPTION
REVISION		

CLIENT
THE UNIVERSITY OF HONG KONG

ARCHITECT
P&T ARCHITECTS AND ENGINEERS LIMITED

STRUCTURAL ENGINEER
wsp

PROJECT :
PROPOSED CAPITAL REDEVELOPMENT COMPLEX AT THE POKFIELD ROAD SITE

DRAWING TITLE :
PROPOSED SEWERAGE
SUB-CATCHMENTS LAYOUT PLAN

DESIGNED BY :	A.N.	SCALE @ SIZE :	1:2000 @ A3
CHECKED BY :	T.C.	DATE :	27/10/2020
DRAWN BY :	A.N.	APPROVED BY :	
FILE No. :	20201028_HKU_SIA_Proposed Catchment rev2		
JOB No:	WH67022A	STAGE :	
DRAWING No. :	HKU-SIA-LP-002	REV. :	

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APPENDIX B – Estimation of Sewage Flow

AREA A - Sewage Flow Estimation for Existing Sewerage Network along Pok Fu Lam Road

A1 Estimation of Existing Sewerage Discharge Quantity Outside Site Boundary (Fulham Garden, Emerald Garden, Honey Court, Green Villa, Pokfulam Peak, Pokfulam Mansion, Pokfulam Court, Fook Wai Mansion)

	Flow Category	Value (n)	Unit Flow Factor UFF (m^3/day/n)	Average Dry Weather Flow ADWF(m^3/day)	Notes
1	**Domestic Flow** **Private R3**				
	Total number of Residents	1,311			Figure extracted from CentaMap http://hk.centamap.com/gc/home.aspx
	Estimated Domestic Flow		0.370	485.07	Table T-1 of EPD/TP_1/05
2	**Summation of ADWF**			485.07	
	Catchment Inflow Factor	1.0			Table T-4 of EPD/TP_1/05
	Estimated ADWF =	***485.070*** m^3/day			

A2 Estimation of Existing Sewerage Discharge Quantity Outside Site Boundary (Yue Yan Mansions)

	Flow Category	Value (n)	Unit Flow Factor UFF (m^3/day/n)	Average Dry Weather Flow ADWF(m^3/day)	Notes
1	**Domestic Flow** **Private R3**				
	Total No. of Units	96			Figure extracted from Ricacorp Properties https://www.ricacorp.com/ricadata/ptest.aspx?type=2&code=TISMTHNOHT&info=basicinfo&code2=&page=0
	Average Residents density by Planned Usage Type	3.3			Figure extracted from https://www.bycensus2016.gov.hk/en/bc-dp-tpu.html
	Total number of Residents	317			
	Estimated Domestic Flow		0.370	117.22	Table T-1 of EPD/TP_1/05
3	**Summation of ADWF**			117.22	
	Catchment Inflow Factor	1.0			Table T-4 of EPD/TP_1/05
	Estimated ADWF =	***117.216*** m^3/day			

A3 Estimation of Existing Sewerage Discharge Quantity Outside Site Boundary (La Clare mansion)

	Flow Category	Value (n)	Unit Flow Factor UFF (m^3/day/n)	Average Dry Weather Flow ADWF(m^3/day)	Notes
1	**Domestic Flow** **Private R3**				
		48			Figure extracted from Ricacorp Properties https://www.ricacorp.com/ricadata/eptest.aspx?type=2&code=TITZIHZXHT&info=basicinfo&code2=&page=0
	Total No. of Units				
	Average Residents density by Planned Usage Type	3.3			Figure extracted from https://www.bycensus2016.gov.hk/en/bc-dp-tpu.html
	Total number of Residents	158			
	Estimated Domestic Flow		0.370	58.61	Table T-1 of EPD/TP_1/05
2	**Summation of ADWF**			58.61	
	Catchment Inflow Factor	1.0			Table T-4 of EPD/TP_1/05
	Estimated ADWF =	***58.608*** m^3/day			

A4 Estimation of Existing Sewerage Discharge Quantity Outside Site Boundary (Pok Fu Lam Road Playground)

	Flow Category	Value (n)	Unit Flow Factor UFF (m^3/day/n)	Average Dry Weather Flow ADWF(m^3/day)	Notes
	Commerical Flow				
1	**Unit Flow Factors of Commercial Flows**				
	J11 Community, Social & Personal Services				
	Total number of employees	4			Assume 4 employees in the park
	Estimated commerical activities Flow		0.025	0.1	Extracted from: https://www.epd.gov.hk/eia/register/report/eiareport/eia_1572008/EIA/EIA_PDF/S16.pdf
2	**Total visitors**				
	Total number of visitors	367			Assumption is made from: https://repository.hkbu.edu.hk/cgi/viewcontent.cgi?article=1158&context=pe_ja Using the mean number of visitors of the results.
	Estimated commerical activities Flow		0.010	3.67	Extracted from: https://www.epd.gov.hk/eia/register/report/eiareport/eia_1572008/EIA/EIA_PDF/S16.pdf
2	**Summation of ADWF**			3.77	
	Catchment Inflow Factor	1.0			Table T-4 of EPD/TP_1/05
	Estimated ADWF =	***3.770*** m^3/day			

Total Estimated ADWF of Area A	664.66 m^3/day

Sewage Flow Estimation for Existing Sewerage Network

B Estimation of Existing Sewerage Discharge Quantity Outside Site Boundary (St. John's College)

	Flow Category	Value (n)	Unit Flow Factor UFF (m^3/day/n)	Average Dry Weather Flow ADWF(m^3/day)	Notes
	Domestic Flow				
1	**Insitutional**				
	Total No. of Units	334			
	Average Residents density by Planned Usage Type	1.0			Figure extracted from https://www.stjohns.hk/
	Total number of Residents	334			
	Estimated Domestic Flow		0.190	63.46	Table T-1 of EPD/TP_1/05
2	**J10 Restaurant**				
	Area (m^2)	279			Area extracted from https://www.stjohns.hk/
	Number of Empolyee per 100 m^2	5.1			Figure extracted from https://www.pland.gov.hk/pland_en/p_study/comp_s/cifsus/cifsusReport.pdf
	Number of Employees	14			
	Estimated Commercial flow		1.580	22.48	Table T-2 of EPD/TP_1/05
2	**Summation of ADWF**			85.94	
	Catchment Inflow Factor	1.0			Table T-4 of EPD/TP_1/05
	Estimated ADWF =	***85.94*** m^3/day			

C1 Estimation of Existing Sewerage Discharge Quantity Outside Site Boundary (King Court)

	Flow Category	Value (n)	Unit Flow Factor UFF (m^3/day/n)	Average Dry Weather Flow ADWF(m^3/day)	Notes
	Domestic Flow				
1	**Private R3**				
	Total No. of Units	70			Figure extracted from Ricacorp Properties https://www.ricacorp.com/ricadata/eptest.aspx?type=1&code=SSPPWBPEPS&info=basicinfo&code2=&page=0
	Average Residents density by Planned Usage Type	2.6			Extracted from https://www.bycensus2016.gov.hk/en/bc-dp-tpu.html
	Total number of Residents	182			
	Estimated Domestic Flow		0.370	67.34	Table T-1 of EPD/TP_1/05
2	**Summation of ADWF**			67.34	
	Catchment Inflow Factor	1.0			Table T-4 of EPD/TP_1/05
	Estimated ADWF =	***67.34*** m^3/day			

C2 Estimation of Existing Sewerage Discharge Quantity Outside Site Boundary (University Heights)

	Flow Category	Value (n)	Unit Flow Factor UFF (m^3/day/n)	Average Dry Weather Flow ADWF(m^3/day)	Notes
1	**Domestic Flow** **Private R3**				
	Total No. of Units	444			Figure extracted from Ricacorp Properties https://www.ricacorp.com/ricadata/eptest.aspx?type=2&code=TTXNZHIXHT&info=basicinfo&code2=&page=0
	Average Residents density by Planned Usage Type	2.6			Extracted from https://www.bycensus2016.gov.hk/en/bc-dp-tpu.html
	Total number of Residents	1,154			
	Estimated Domestic Flow		0.370	427.13	Table T-1 of EPD/TP_1/05
2	**Summation of ADWF**			427.13	
	Catchment Inflow Factor	1.0			Table T-4 of EPD/TP_1/05
	Estimated ADWF =	***427.13*** m^3/day			

D Estimation of Existing Sewerage Discharge Quantity Outside Site Boundary (St. Charles School)

	Flow Category	Value (n)	Unit Flow Factor UFF (m^3/day/n)	Average Dry Weather Flow ADWF(m^3/day)	Notes
1	**Commercial Flows** **J11 Community, Social & Personal Services**				
	Total number of employees	32			Data extracted from : https://www.schooland.hk/ps/stcharles and 2. https://www.myschool.hk/primary-school/St.-Charles-School
	Estimated Commercial Activities Flow		0.280	8.96	Table T-2 of EPD/TP_1/05
2	**Total students**				
	Total number of students	325			Data extracted from : https://www.schooland.hk/ps/stcharles and 2. https://www.myschool.hk/primary-school/St.-Charles-School
	Estimated Commercial Activities Flow		0.040	13.00	Table T-2 of EPD/TP_1/05
3	**Summation of ADWF**			21.96	
	Catchment Inflow Factor	1.0			Table T-4 of EPD/TP_1/05
	Estimated ADWF =	***21.96*** m^3/day			

E1 Estimation of Existing Sewerage Discharge Quantity Outside Site Boundary (Caritas Mok Cheung Sui Kun Community Centre)

	Flow Category	Value (n)	Unit Flow Factor UFF (m^3/day/n)	Average Dry Weather Flow ADWF(m^3/day)	Notes
1	**Commercial Flows** **J11 Community, Social & Personal Services**				
	Total No. of Employees	35			Extracted from https://mcskcc.caritas.org.hk/public/modules/main_page/index.htm
	Estimated Domestic Flow		0.280	9.80	Table T-2 of EPD/TP_1/05
2	**Summation of ADWF**			9.80	
	Catchment Inflow Factor	1.0			Table T-4 of EPD/TP_1/05
	Estimated ADWF =	***9.80*** m^3/day			

E2 Estimation of Existing Sewerage Discharge Quantity Outside Site Boundary (Poksmith Villa)

	Flow Category	Value (n)	Unit Flow Factor UFF (m^3/day/n)	Average Dry Weather Flow ADWF(m^3/day)	Notes
1	**Domestic Flow** **Private R3**				
	Total No. of Units	36			Figure extracted from Ricacorp Properties https://www.ricacorp.com/ricadata/eptest.aspx?type=1&code=SSWGBPDXPS&info=basicinfo&code2=&page=0
	Average Residents density by Planned Usage Type	2.6			Extracted from https://www.bycensus2016.gov.hk/en/bc-dp-tpu.html
	Total number of Residents	94			Area extracted from 1.
	Estimated Domestic Flow		0.370	34.63	Table T-1 of EPD/TP_1/05
2	**Summation of ADWF**			34.63	
	Catchment Inflow Factor	1.0			Table T-4 of EPD/TP_1/05
	Estimated ADWF =	***34.63*** m^3/day			

F1 Estimation of Existing Sewerage Discharge Quantity Within Site Boundary (Morrison Hall and Suen Chi Sun Hall)

	Flow Category	Value (n)	Unit Flow Factor UFF (m^3/day/n)	Average Dry Weather Flow ADWF(m^3/day)	Notes
1	**Domestic Flow** **Institutional and Special Class**				
	Total No. of Residents	600			*Population extracted from Foul Flow Estimation Report in BRAVO*
	Estimated Domestic Flow		0.190	114.00	Table T-1 of EPD/TP_1/05
2	**Summation of ADWF**			114.00	
	Catchment Inflow Factor	1.0			Table T-4 of EPD/TP_1/05
	Estimated ADWF =	***114.00*** m^3/day			

F2 Estimation of Existing Sewerage Discharge Quantity Within Site Boundary (Canteen at Lee Shau Kee Hall)

	Flow Category	Value (n)	Unit Flow Factor UFF (m^3/day/n)	Average Dry Weather Flow ADWF(m^3/day)	Notes
1	**Commercial Flow** **J10 Restaurant**				
	Area (m^2)	145			Area extracted from as-built drawing. (Assuming non-domestic area for G/F is within canteen area.)
	Number of Empolyee per 100 m^2	5.1			Figure extracted from https://www.pland.gov.hk/pland_en/p_study/comp_s/cifsus/cifsusReport.pdf
	Number of Employees	7			
	Estimated Commercial Flow		1.580	11.71	Table T-2 of EPD/TP_1/05
2	**Summation of ADWF**			11.71	
	Catchment Inflow Factor	1.0			Table T-4 of EPD/TP_1/05
	Estimated ADWF =	***11.71*** m^3/day			

G Estimation of Existing Sewerage Discharge Quantity Within Site Boundary (Lee Shau Kee Hall)

	Flow Category	Value (n)	Unit Flow Factor UFF (m^3/day/n)	Average Dry Weather Flow ADWF(m^3/day)	Notes
1	**Domestic Flow** **Institutional and Special Class**				
	Total No. of Residents	300			*Population extracted from Foul Flow Estimation Report in BRAVO*
	Estimated Domestic Flow		0.190	57.00	Table T-1 of EPD/TP_1/05
2	**Summation of ADWF**			57.00	
	Catchment Inflow Factor	1.0			Table T-4 of EPD/TP_1/05
	Estimated ADWF =	***57.00*** m^3/day			

H Estimation of Existing Sewerage Discharge Quantity Within Site Boundary (Lindsay Ride Sports Centre)

	Flow Category	Value (n)	Unit Flow Factor UFF (m^3/day/n)	Average Dry Weather Flow ADWF(m^3/day)	Notes
1	**Commercial Flow** **J11 Community, Social and Personal Services**				
	Total No. of Employees	70			Asumption is made from (7.3.5): https://www.epd.gov.hk/eia/register/report/eiareport/eia_2472016/html/EIA/EIA_Ch07.htm The number is taking the number correct to nearest 10, extracting from the reference. (35+36=71≈70)
	Estimated Commercial Flow		0.280	19.60	Table T-2 of EPD/TP_1/05
2	**Summation of ADWF**			19.60	
	Catchment Inflow Factor	1.0			Table T-4 of EPD/TP_1/05
	Estimated ADWF =	***19.60*** m^3/day			

I Estimation of Existing Sewerage Discharge Quantity Within Site Boundary (Stanley Smith Swimming Pool)

	Flow Category	Value (n)	Unit Flow Factor UFF (m^3/day/n)	Average Dry Weather Flow ADWF(m^3/day)	Notes
1	**Swimming Pool Backwashing**				
	Pool Volume	603.067 m^3			Dimension of the pool taken from as-built drawing
	Turnover Rate	4 hrs			
	Surface Loading Rate of Filter	20 $m^3/m^2/hr$			
	Filter Areas Required	7.538 m^2			
	Backwash Duration	3 min/day			
	Backwash Flow Rate	30 $m^3/m^2/hr$			
	Number of Filtration plant	1			
	Design Backwash volume generated per day	11.31 m^3/day			
	Design backwash flow rate by each filtraction plant	**62.82** L/s			

J Estimation of Existing Sewerage Discharge Quantity Within Site Boundary (Pokfield Road Residence)

	Flow Category	Value (n)	Unit Flow Factor UFF (m^3/day/n)	Average Dry Weather Flow ADWF(m^3/day)	Notes
1	**Domestic Flow** **Institutional and Special Class**				
	Total number of Residents	313			Area extracted from 1. https://wp2.cedars.hku.hk/nonhall/prr/
	Estimated Domestic Flow		0.190	59.47	Table T-1 of EPD/TP_1/05
2	**Summation of ADWF**			59.47	
	Catchment Inflow Factor	1.0			Table T-4 of EPD/TP_1/05
	Estimated ADWF =	***59.47*** m^3/day			

K Estimation of Existing Sewerage Discharge Quantity Within Site Boundary (Flora Ho Sports Centre)

	Flow Category	Value (n)	Unit Flow Factor UFF (m^3/day/n)	Average Dry Weather Flow ADWF(m^3/day)	Notes
1	**Commercial Flow** **J11 Community, Social and Personal Services**				
	Total No. of Employees	70			Asumption is made from (7.3.5): https://www.epd.gov.hk/eia/register/report/eiareport/eia_2472016/html/EIA/EIA_Ch07.htm The number is taking the number correct to nearest 10, extracting from the reference. (35+36=71≈70)
	Estimated Commercial Flow		0.280	19.60	Table T-2 of EPD/TP_1/05
2	**Summation of ADWF**			19.60	
	Catchment Inflow Factor	1.0			Table T-4 of EPD/TP_1/05
	Estimated ADWF =	***19.60*** m^3/day			

Sewage Flow Estimation for Proposed Sewerage

L1 Estimation of Proposed Sewerage Discharge Quantity Within Site Boundary (Proposed Development)

	Flow Category	Value (n)	Unit Flow Factor UFF (m^3/day/n)	Average Dry Weather Flow ADWF(m^3/day)	Notes
	Commercial Flow				
1	**School Students**				
	Total No. of Students	6,500			
	Estimated Commercial Flow		0.040	260.00	Table T-2 of EPD/TP_1/05
1	**J11 Community, Social & Personal Services**				
	Sports and FBE				
	Area (m^2)	54016			Proposed CFA= 54016 m^2 assuming CFA=GFA
	Number of Empolyee per 100 m^2	3.3			Figure extracted from https://www.pland.gov.hk/pland_en/p_study/comp_s/cifsus/cifsusReport.pdf
	Number of Employees	1783			
	Estimated Commercial Flow		0.280	499.11	
2	**Summation of ADWF**			759.11	
	Catchment Inflow Factor	1.0			Table T-4 of EPD/TP_1/05
	Estimated ADWF =	***759.11*** m^3/day			

L2 Estimation of Proposed Sewerage Discharge Quantity Within Site Boundary (Swimming Pool)

	Flow Category	Value (n)	Unit Flow Factor UFF (m^3/day/n)	Average Dry Weather Flow ADWF(m^3/day)	Notes
	Swimming Pool Backwashing				
1	**Pool Volume**	2000 m^3			Assumed dimension of the pools = 25 (L) x 25 (W) x 2 (H) & 25 (L) x 10 (W) x 3 (H)
	Turnover Rate	4 hrs			
	Surface Loading Rate of Filter	20 $m^3/m^2/hr$			
	Filter Areas Required	25.000 m^2			
	Backwash Duration	2 min/day			
	Backwash Flow Rate	30 $m^3/m^2/hr$			
	Number of proposed Filtration Plant	8			Assumed the filtration plants will not have backwashing simutaneously
	Design Filter Size of each Filtration Plant	7.07 m^2			Assume the area each filtration plant is 3m in diameter
	Total Design Filter Area	56.55 m^2			
	Design Backwash volume generated per day	56.55 m^3/day			
	Design backwash flow rate by each filtraction plant	**58.90** L/s			

M Estimation of Proposed Sewerage Discharge Quantity Within Site Boundary (Proposed Development)

	Flow Category	Value (n)	Unit Flow Factor UFF (m^3/day/n)	Average Dry Weather Flow ADWF(m^3/day)	Notes
1	**Domestic Flow**				
	Institutional and Special Class				
	Total No. of Residents	613			
	Estimated Domestic Flow		0.19	116.47	Table T-2 of EPD/TP_1/05
	Commercial Flow				
2	**J11 Community, Social & Personal Services**				
	Common Area	1343 m^2			Proposed NOFA = 940 m^2 assuming NOFA/GFA=0.7
	Gym	457 m^2			Proposed NOFA = 320 m^2 assuming NOFA/GFA=0.7
	Number of Empolyee per 100 m^2	3.3			Figure extracted from https://www.pland.gov.hk/pland_en/p_study/comp_s/cifsus/cifsusReport.pdf
	Number of Employees	59			
	Estimated Commercial Flow		0.280	16.63	
	J10 Restaurant				
	Area (m^2)	457			Proposed NOFA = 320 m^2 assuming NOFA/GFA=0.7
	Number of Empolyee per 100 m^2	5.1			Figure extracted from https://www.pland.gov.hk/pland_en/p_study/comp_s/cifsus/cifsusReport.pdf
	Number of Employees	23			
	Estimated Commercial Flow		1.580	36.84	
2	**Summation of ADWF**			169.94	
	Catchment Inflow Factor	1.0			Table T-4 of EPD/TP_1/05
	Estimated ADWF =	***169.94*** m^3/day			

APPENDIX C – Hydraulic Calculations

Existing Condition

Gravity	g =	9.80665 m^2/s		
kinematic viscosity of water	n =	0.00000101 m^2/s		
Colebrook-White roughness coefficient (Clayware)	k =	0.6 mm	=	0.0006 m

$$V = -2(2gDS)^{0.5}\log\left(\frac{k}{3.7D} + \frac{2.5\nu}{D(2gDS)^{0.5}}\right)$$

k = Colebrook-White roughness coefficient, in metres
V = velocity, in metres per second
D = circular cross-section pipe, inside diameter, in metres
S = slope, in metres per metre
ν = kinematic viscosity of water, in square metres per second.

	Area	Sewage Generated	
A	Area A	664.66	(m^3/day)
B	St. John's College	85.94	(m^3/day)
C1	King Court	67.34	(m^3/day)
C2	University Heights	427.13	(m^3/day)
D	St. Charles School	21.96	(m^3/day)
E1	Caritas Mok Cheung Sui Kun Community Centre	9.80	(m^3/day)
E2	Poksmith Villa	34.63	(m^3/day)
F1	Morrison Hall, Suen Chi Sun Hall	114.00	(m^3/day)
F2	HKU Hill View Restaurant	11.71	(m^3/day)
G	Lee Shau Kee Hall	57.00	(m^3/day)
H	Lindsay Ride Sports Centre	19.60	(m^3/day)
I	Stanley Smith Swimming Pool	62.82	(L/s)
J	HKU Pokfield Road Residence	59.47	(m^3/day)
K	Flora Ho Sports Centre	19.60	(m^3/day)

Sewerage Network within Subject Site

Table B1: From FMH7027765 to FMH7007345

From	To	ADWF (m^3/day)	Cum.ADWF (m^3/day)	Contributing Population	Peaking Factor (including stormwater allowance)	From Branch (L/s)	Total Design Flow (m^3/s)	**Total Design Flow (L/s)**	L (m)	Dia. = (mm)	Dia. = (m)	Slope (1 in)	Slope (%)	Velocity (m/s)	Area (m^2)	Reduction Area (m^2)	**Q_{cap} (m^3/s)**	**Q_{cap} (L/s)**	cap. %	check	CL	US IL	DS IL
FMH 7027765	FMH 7027809	664.66 50% Sub-Catchment A	664.66	2462	6		0.046	**46.16**	35.6	225	0.225	28	3.59%	2.4890	0.0398	0.0358	**0.0891**	**89.07**	51.82%	OK	33.54	91.45	90.17
FMH 7027809	FMH 7027810		664.66	2462	6		0.046	**46.16**	25.4	225	0.225	13	7.79%	3.6719	0.0398	0.0378	**0.1387**	**138.70**	33.28%	OK	24.69	90.10	88.12
FMH 7027810	FMH 7027811		664.66	2462	6		0.046	**46.16**	31.3	225	0.225	11	8.83%	3.9094	0.0398	0.0378	**0.1477**	**147.67**	31.26%	OK	25.30	88.06	85.30
FMH 7027811	FMH 7027775		664.66	2462	6		0.046	**46.16**	18.8	225	0.225	12	8.59%	3.8552	0.0398	0.0378	**0.1456**	**145.62**	31.70%	OK	23.77	85.28	83.67
FMH 7027775	FMH 7027776	85.94 Sub-Catchment B	750.61	2780	6		0.052	**52.13**	35.0	300	0.300	13	7.66%	4.3733	0.0707	0.0672	**0.2937**	**293.67**	17.75%	OK	11.58	83.65	80.97
FMH 7027776	FMH 7027777		750.61	2780	6		0.052	**52.13**	25.5	300	0.300	15	6.59%	4.0558	0.0707	0.0672	**0.2724**	**272.36**	19.14%	OK	10.88	80.79	79.11
FMH 7027777	FMH 7027805		750.61	2780	6		0.052	**52.13**	5.6	300	0.300	12	8.36%	4.5703	0.0707	0.0672	**0.3069**	**306.91**	16.98%	OK	10.88	78.90	78.43
FMH 7027805	FMH 7027778		750.61	2780	6		0.052	**52.13**	21.5	300	0.300	41	2.42%	2.4541	0.0707	0.0636	**0.1561**	**156.12**	33.39%	OK	10.88	78.42	77.90
FMH 7027778	FMH 7027806		750.61	2780	6		0.052	**52.13**	29.0	300	0.300	22	4.48%	3.3432	0.0707	0.0672	**0.2245**	**224.50**	23.22%	OK	10.88	77.86	76.56
FMH 7027806	FMH 7027807		750.61	2780	6		0.052	**52.13**	8.5	300	0.300	121	0.82%	1.4262	0.0707	0.0636	**0.0907**	**90.73**	57.45%	OK	10.88	76.54	76.47
FMH 7027807	FMH 7027804		750.61	2780	6		0.052	**52.13**	13.3	300	0.300	121	0.83%	1.4284	0.0707	0.0636	**0.0909**	**90.87**	57.36%	OK	10.88	76.44	76.33
FMH 7027804	FMH 7027803		750.61	2780	6		0.052	**52.13**	4.1	300	0.300	24	4.12%	3.2025	0.0707	0.0672	**0.2151**	**215.05**	24.24%	OK	10.88	74.75	74.58
FMH 7027803	FMH 7027802		750.61	2780	6		0.052	**52.13**	13.5	300	0.300	16	6.15%	3.9168	0.0707	0.0672	**0.2630**	**263.02**	19.82%	OK	10.88	74.56	73.73
FMH 7027802	FMH 7027801		750.61	2780	6		0.052	**52.13**	15.5	300	0.300	14	7.35%	4.2852	0.0707	0.0672	**0.2878**	**287.76**	18.11%	OK	10.88	73.72	72.58
FMH 7027801	FMH 7027800		750.61	2780	6		0.052	**52.13**	7.0	300	0.300	20	5.01%	3.5360	0.0707	0.0672	**0.2374**	**237.45**	21.95%	OK	10.88	71.60	71.25
FMH 7027800	FMH 7027799	19.60 Sub-Catchment H	770.21	2853	6		0.053	**53.49**	11.9	300	0.300	7	14.41%	6.0026	0.0707	0.0672	**0.4031**	**403.09**	13.27%	OK	10.88	71.24	69.53
FMH 7027799	FMH 7027798		770.21	2853	6		0.053	**53.49**	24.2	300	0.300	7	15.36%	6.1978	0.0707	0.0672	**0.4162**	**416.19**	12.85%	OK	10.88	69.25	65.54
FMH 7027798	FMH 7027797		770.21	2853	6		0.053	**53.49**	15.6	300	0.300	18	5.47%	3.6925	0.0707	0.0672	**0.2480**	**247.95**	21.57%	OK	10.88	64.98	64.13
FMH 7027797	FMH 7027796		770.21	2853	6		0.053	**53.49**	7.8	300	0.300	10	9.69%	4.9216	0.0707	0.0672	**0.3305**	**330.49**	16.18%	OK	10.88	64.04	63.28
FMH 7027796	FMH 7027795	145.31 Sub-Catchment F and K	915.52	3391	6		0.064	**63.58**	11.5	300	0.300	9	11.01%	5.2471	0.0707	0.0672	**0.3523**	**352.35**	18.04%	OK	10.88	62.79	61.52
FMH 7027795	FMH 7027785		915.52	3391	6		0.064	**63.58**	12.9	300	0.300	13	7.70%	4.3861	0.0707	0.0672	**0.2945**	**294.54**	21.59%	OK	10.88	61.10	60.11
FMH 7027785	FMH 7027793	67.34 Sub-Catchment C1	982.86	3640	6	62.82 Sub-Catchment I	0.131	**131.07**	20.3	300	0.300	9	11.49%	5.3605	0.0707	0.0672	**0.3600**	**359.97**	36.41%	OK	10.88	59.91	57.58
FMH 7027793	FMH 7005461		982.86	3640	6		0.131	**131.07**	26.8	300	0.300	8	12.85%	5.6685	0.0707	0.0672	**0.3806**	**380.65**	34.43%	OK	10.88	56.98	53.54
FMH 7005461	FMH 7005371	59.47 Sub-Catchment J	1042.33	3860	6		0.135	**135.20**	16.0	300	0.300	8	11.90%	5.4538	0.0707	0.0672	**0.3662**	**366.23**	36.92%	OK	10.88	53.42	51.52
FMH 7005371	FMH 7005372		1042.33	3860	6		0.135	**135.20**	10.2	300	0.300	9	10.73%	5.1782	0.0707	0.0672	**0.3477**	**347.73**	38.88%	OK	10.88	51.52	50.43
FMH 7005372	FMH 7005459		1042.33	3860	6		0.135	**135.20**	8.6	300	0.300	9	11.15%	5.2792	0.0707	0.0672	**0.3545**	**354.51**	38.14%	OK	10.88	49.23	48.27
FMH 7005459	FMH 7005373		1042.33	3860	6		0.135	**135.20**	15.2	300	0.300	7	13.73%	5.8596	0.0707	0.0672	**0.3935**	**393.48**	34.36%	OK	10.88	48.25	46.17
FMH 7005373	FMH 7005374		1042.33	3860	6		0.135	**135.20**	38.0	300	0.300	8	11.81%	5.4329	0.0707	0.0672	**0.3648**	**364.82**	37.06%	OK	10.88	45.59	41.10
FMH 7005374	FMH 7005460	427.13 Sub-Catchment C2	1469.45	5442	5		0.148	**147.86**	24.9	300	0.300	10	10.47%	5.1142	0.0707	0.0672	**0.3434**	**343.42**	43.05%	OK	10.88	40.67	38.06
FMH 7005460	FMH 7005375		1469.45	5442	5		0.148	**147.86**	14.2	300	0.300	9	11.03%	5.2496	0.0707	0.0672	**0.3525**	**352.52**	41.94%	OK	10.88	38.03	36.46
FMH 7005375	FMH 7005378		1469.45	5442	5		0.148	**147.86**	16.6	300	0.300	10	9.92%	4.9793	0.0707	0.0672	**0.3344**	**334.37**	44.22%	OK	10.88	36.09	34.44
FMH 7005378	FMH 7005379		1469.45	5442	5		0.148	**147.86**	31.9	300	0.300	9	11.59%	5.3822	0.0707	0.0672	**0.3614**	**361.42**	40.91%	OK	10.88	33.86	30.16
FMH 7005379	FMH 7005453	21.96 Sub-Catchment D	1491.41	5524	5		0.149	**149.13**	11.7	300	0.300	8	12.81%	5.6595	0.0707	0.0672	**0.3800**	**380.04**	39.24%	OK	10.88	29.88	28.38
FMH 7005453	FMH 7005381		1491.41	5524	5		0.149	**149.13**	9.8	300	0.300	13	7.69%	4.3827	0.0707	0.0672	**0.2943**	**294.31**	50.67%	OK	10.88	27.97	27.22
FMH 7005381	FMH 7005454		1491.41	5524	5		0.149	**149.13**	9.8	300	0.300	10	9.61%	4.9006	0.0707	0.0672	**0.3291**	**329.08**	45.32%	OK	10.88	26.99	26.05
FMH 7005454	FMH 7005383	9.80 Sub-Catchment E1	1501.21	5560	5		0.150	**149.70**	4.9	300	0.300	8	13.27%	5.7595	0.0707	0.0672	**0.3868**	**386.76**	38.70%	OK	10.88	25.85	25.20
FMH 7005383	FMH 7005384	57.00 Branch from FMH7047721 to FMH7007383 (Table B2)	1558.21	5771	5		0.153	**152.99**	14.8	300	0.300	7	13.45%	5.7987	0.0707	0.0672	**0.3894**	**389.39**	39.29%	OK	10.88	25.10	23.11
FMH 7005384	FMH 7005456		1558.21	5771	5		0.153	**152.99**	11.2	300	0.300	13	7.53%	4.3352	0.0707	0.0672	**0.2911**	**291.11**	52.55%	OK	10.88	23.05	22.21
FMH 7005456	FMH 7007345	34.63 Sub-Catchment E2	1592.85	5899	5		0.155	**155.00**	7.1	400	0.400	27	3.66%	3.6230	0.1257	0.1131	**0.4098**	**409.75**	37.83%	OK	10.88	22.07	21.81

by interpolation

Table B2: From FMH7047721 to FMH7007383

From	To	ADWF (m^3/day)	Cum.ADWF (m^3/day)	Contributing Population	Peaking Factor (including stormwater allowance)	From Branch (L/s)	Total Design Flow (m^3/s)	**Total Design Flow (L/s)**	L (m)	Dia. = (mm)	Dia. = (m)	Slope (1 in)	Slope (%)	Velocity (m/s)	Area (m^2)	Reduction Area (m^2)	**Q_{cap} (m^3/s)**	**Q_{cap} (L/s)**	cap. %	check	CL	US IL	DS IL
FMH 7047721	FMH 7027770	57.00 Sub-Catchment G	57.00	211	8		0.005	**5.28**	11.1	225	0.225	4	24.66%	6.5428	0.0398	0.0378	**0.2471**	**247.14**	2.1%	OK	7.22	70.66	67.92
FMH 7027770	FMH 7027771		57.00	211	8		0.005	**5.28**	8.7	225	0.225	2	52.83%	9.5824	0.0398	0.0378	**0.3620**	**361.95**	1.5%	OK	6.97	67.92	63.35
FMH 7027771	FMH 7005351		57.00	211	8		0.005	**5.28**	14.0	225	0.225	3	29.32%	7.1350	0.0398	0.0378	**0.2695**	**269.51**	2.0%	OK	6.62	63.35	59.26
FMH 7005351	FMH 7005352		57.00	211	8		0.005	**5.28**	11.2	225	0.225	4	22.75%	6.2831	0.0398	0.0378	**0.2373**	**237.33**	2.2%	OK	6.47	59.26	56.71
FMH 7005352	FMH 7005353		57.00	211	8		0.005	**5.28**	7.8	225	0.225	6	17.90%	5.5725	0.0398	0.0378	**0.2105**	**210.49**	2.5%	OK	5.84	56.71	55.31
FMH 7005353	FMH 7005354		57.00	211	8		0.005	**5.28**	10.6	225	0.225	2	43.52%	8.6953	0.0398	0.0378	**0.3284**	**328.44**	1.6%	OK	5.66	55.31	50.68
FMH 7005354	FMH 7005355		57.00	211	8		0.005	**5.28**	6.5	225	0.225	13	7.89%	3.6961	0.0398	0.0378	**0.1396**	**139.61**	3.8%	OK	5.40	50.68	50.17
FMH 7005355	FMH 7005356		57.00	211	8		0.005	**5.28**	3.6	225	0.225	3	37.95%	8.1194	0.0398	0.0378	**0.3067**	**306.69**	1.7%	OK	5.90	50.17	48.80
FMH 7005356	FMH 7005357		57.00	211	8		0.005	**5.28**	14.7	225	0.225	18	5.60%	3.1101	0.0398	0.0378	**0.1175**	**117.48**	4.5%	OK	5.90	48.80	47.98
FMH 7005357	FMH 7005358		57.00	211	8		0.005	**5.28**	3.1	225	0.225	2	40.51%	8.3897	0.0398	0.0378	**0.3169**	**316.90**	1.7%	OK	5.90	47.98	46.72
FMH 7005358	FMH 7005359		57.00	211	8		0.005	**5.28**	21.4	225	0.225	11	8.94%	3.9335	0.0398	0.0378	**0.1486**	**148.58**	3.6%	OK	5.90	46.72	44.81
FMH 7005359	FMH 7005360		57.00	211	8		0.005	**5.28**	9.8	225	0.225	1	70.36%	11.0603	0.0398	0.0378	**0.4178**	**417.78**	1.3%	OK	5.90	44.81	37.95
FMH 7005360	FMH 7005406		57.00	211	8		0.005	**5.28**	8.4	225	0.225	3	30.64%	7.2944	0.0398	0.0378	**0.2755**	**275.53**	1.9%	OK	5.90	37.95	35.37
FMH 7005406	FMH 7005367		57.00	211	8		0.005	**5.28**	21.4	225	0.225	7	14.74%	5.0552	0.0398	0.0378	**0.1909**	**190.95**	2.8%	OK	5.90	35.37	32.22
FMH 7005367	FMH 7005368		57.00	211	8		0.005	**5.28**	14.6	225	0.225	7	13.73%	4.8783	0.0398	0.0378	**0.1843**	**184.27**	2.9%	OK	5.90	30.53	28.52
FMH 7005368	FMH 7005455		57.00	211	8		0.005	**5.28**	11.6	225	0.225	8	13.07%	4.7593	0.0398	0.0378	**0.1798**	**179.77**	2.9%	OK	5.90	28.19	26.67
FMH 7005455	FMH 7005383		57.00	211	8		0.005	**5.28**	5.6	225	0.225	11	8.78%	3.8988	0.0398	0.0378	**0.1473**	**147.27**	3.6%	OK	5.90	26.10	25.61

Table B3: From Existing FT1 to FMH7047721

From	To	ADWF (m^3/day)	Cum.ADWF (m^3/day)	Contributing Population	Peaking Factor (including stormwater allowance)	From Branch (L/s)	Total Design Flow (m^3/s)	**Total Design Flow (L/s)**	L (m)	Dia. = (mm)	Dia. = (m)	Slope (1 in)	Slope (%)	Velocity (m/s)	Area (m^2)	Reduction Area (m^2)	**Q_{cap} (m^3/s)**	**Q_{cap} (L/s)**	cap. %	check	CL	US IL	DS IL
FT 1	FMH 7047720	57.00 Sub-Catchment G	57.00	211	8		0.005	**5.28**	10.0	225	0.225	7	14.10%	4.9439	0.0398	0.0378	**0.1867**	**186.74**	2.83%	OK	79.70	76.11	74.70
FMH 7047720	FMH 7047721		57.00	211	8		0.005	**5.28**	12.4	225	0.225	3	32.71%	7.5373	0.0398	0.0378	**0.2847**	**284.71**	1.9%	OK	76.90	74.70	70.66

After Proposed Development and Sewerage Diversion

Gravity	g =	9.80665 m^2/s		
kinematic viscosity of water	n =	0.00000101 m^2/s		
Colebrook-White roughness coefficient (Clayware)	k =	0.6 mm	=	0.0006 m
Colebrook-White roughness coefficient (Polyethylene)	k =	0.3 mm	=	0.0003 m

$$V = -2(2gDS)^{0.5}\log\left(\frac{k}{3.7D} + \frac{2.5\nu}{D(2gDS)^{0.5}}\right)$$

k = Colebrook-White roughness coefficient, in metres
V = velocity, in metres per second
D = circular cross-section pipe, inside diameter, in metres
S = slope, in metres per metre
ν = kinematic viscosity of water, in square metres per second.

	Area	Sewage Generated	
A	Area A	664.66	(m^3/day)
B	St. John's College	85.94	(m^3/day)
C1	King Court	67.34	(m^3/day)
C2	University Heights	427.13	(m^3/day)
D	St. Charles School	21.96	(m^3/day)
E1	Caritas Mok Cheung Sui Kun Community Centre	9.80	(m^3/day)
E2	Poksmith Villa	34.63	(m^3/day)
F1	Morrison Hall, Suen Chi Sun Hall	114.00	(m^3/day)
F2	HKU Hill View Restaurant	11.71	(m^3/day)
G	Lee Shau Kee Hall	57.00	(m^3/day)
K	Flora Ho Sports Centre	19.60	(m^3/day)
L1	Proposed Development	759.11	(m^3/day)
L2	Proposed Swimming Pool	58.90	(L/s)
M	Proposed Development	169.94	(m^3/day)

Table B4: From FMH7027765 to FMH7007345

From	To	ADWF (m^3/day)	Cum.ADWF (m^3/day)	Contributing Population	Peaking Factor (including stormwater allowance)	From Branch (L/s)	Total Design Flow (m^3/s)	**Total Design Flow (L/s)**	L (m)	Dia. = (mm)	Dia. = (m)	Slope (1 in)	Slope (%)	Velocity (m/s)	Area (m^2)	Reduction Area (m^2)	**Q_{cap} (m^3/s)**	**Q_{cap} (L/s)**	cap. %	check	CL	US IL	DS IL
FMH 7027765	FMH 7027809	664.66 12.6 % Sub-Catchment A	664.66	2462	6		0.046	**46.16**	35.6	225	0.225	28	3.59%	2.4890	0.0398	0.0358	**0.0891**	**89.07**	51.82%	OK	33.54	91.45	90.17
FMH 7027809	FMH 7027810		664.66	2462	6		0.046	**46.16**	25.4	225	0.225	13	7.79%	3.6719	0.0398	0.0378	**0.1387**	**138.70**	33.28%	OK	24.69	90.10	88.12
FMH 7027810	FMH 7027811		664.66	2462	6		0.046	**46.16**	31.3	225	0.225	11	8.83%	3.9094	0.0398	0.0378	**0.1477**	**147.67**	31.26%	OK	25.30	88.06	85.30
FMH 7027811	FMH 7027775		664.66	2462	6		0.046	**46.16**	18.8	225	0.225	12	8.59%	3.8552	0.0398	0.0378	**0.1456**	**145.62**	31.70%	OK	23.77	85.28	83.67
FMH 7027775	FMH 7027776	85.94 Sub-Catchment B	750.61	2780	6		0.052	**52.13**	35.0	300	0.300	13	7.66%	4.3733	0.0707	0.0672	**0.2937**	**293.67**	17.75%	OK	11.58	83.65	80.97
FMH 7027776	FMH 7027777		750.61	2780	6		0.052	**52.13**	25.5	300	0.300	15	6.59%	4.0558	0.0707	0.0672	**0.2724**	**272.36**	19.14%	OK	10.88	80.79	79.11
FMH 7027777	FMH 7027805		750.61	2780	6		0.052	**52.13**	5.6	300	0.300	12	8.36%	4.5703	0.0707	0.0672	**0.3069**	**306.91**	16.98%	OK	10.88	78.90	78.43
FMH 7027805	FMH 7027778		750.61	2780	6		0.052	**52.13**	21.5	300	0.300	41	2.42%	2.4541	0.0707	0.0636	**0.1561**	**156.12**	33.39%	OK	10.88	78.42	77.90
FMH 7027778	FMH 7027806		750.61	2780	6		0.052	**52.13**	29.0	300	0.300	22	4.48%	3.3432	0.0707	0.0672	**0.2245**	**224.50**	23.22%	OK	10.88	77.86	76.56
FMH 7027806	FMH 7027807		750.61	2780	6		0.052	**52.13**	8.5	300	0.300	121	0.82%	1.4262	0.0707	0.0636	**0.0907**	**90.73**	57.45%	OK	10.88	76.54	76.47
FMH 7027807	FMH 7027804		750.61	2780	6		0.052	**52.13**	13.3	300	0.300	121	0.83%	1.4284	0.0707	0.0636	**0.0909**	**90.87**	57.36%	OK	10.88	76.44	76.33
FMH 7027804	FMH 7027803		750.61	2780	6		0.052	**52.13**	4.1	300	0.300	24	4.12%	3.2025	0.0707	0.0672	**0.2151**	**215.05**	24.24%	OK	10.88	74.75	74.58
FMH 7027803	FMH 7027802		750.61	2780	6		0.052	**52.13**	13.5	300	0.300	16	6.15%	3.9168	0.0707	0.0672	**0.2630**	**263.02**	19.82%	OK	10.88	74.56	73.73
FMH 7027802	FMH 7027801		750.61	2780	6		0.052	**52.13**	15.5	300	0.300	14	7.35%	4.2852	0.0707	0.0672	**0.2878**	**287.76**	18.11%	OK	10.88	73.72	72.58
FMH 7027801	FMH 7027800		750.61	2780	6		0.052	**52.13**	7.0	300	0.300	20	5.01%	3.5360	0.0707	0.0672	**0.2374**	**237.45**	21.95%	OK	10.88	71.60	71.25
FMH 7027800	FMH 7027799		750.61	2780	6		0.052	**52.13**	11.9	300	0.300	7	14.41%	6.0026	0.0707	0.0672	**0.4031**	**403.09**	12.93%	OK	10.88	71.24	69.53
FMH 7027799	FMH 7027798		750.61	2780	6		0.052	**52.13**	24.2	300	0.300	7	15.36%	6.1978	0.0707	0.0672	**0.4162**	**416.19**	12.52%	OK	10.88	69.25	65.54
FMH 7027798	FMH 7027797		750.61	2780	6		0.052	**52.13**	15.6	300	0.300	18	5.47%	3.6925	0.0707	0.0672	**0.2480**	**247.95**	21.02%	OK	10.88	64.98	64.13
FMH 7027797	FMH 7027796		750.61	2780	6		0.052	**52.13**	7.8	300	0.300	10	9.69%	4.9216	0.0707	0.0672	**0.3305**	**330.49**	15.77%	OK	10.88	64.04	63.28
FMH 7027796	FMH 7027795		750.61	2780	6		0.052	**52.13**	11.5	300	0.300	9	11.01%	5.2471	0.0707	0.0672	**0.3523**	**352.35**	14.79%	OK	10.88	62.79	61.52
FMH 7027795	FMH 7027785	759.11 Sub-Catchment L1	1509.72	5592	5	58.90 Sub-Catchment L2	0.146	**146.27**	12.9	300	0.300	13	7.70%	4.3861	0.0707	0.0672	**0.2945**	**294.54**	49.66%	OK	10.88	61.10	60.11
FMH 7027785	FMH 7027793	67.34 Sub-Catchment C1	1577.06	5841	5		0.150	**150.16**	20.3	300	0.300	9	11.49%	5.3605	0.0707	0.0672	**0.3600**	**359.97**	41.72%	OK	10.88	59.91	57.58
FMH 7027793	FMH 7005461		1577.06	5841	5		0.150	**150.16**	26.8	300	0.300	8	12.85%	5.6685	0.0707	0.0672	**0.3806**	**380.65**	39.45%	OK	10.88	56.98	53.54
FMH 7005461	FMH 7005371	169.94 Sub-Catchment M	1747.00	6470	5		0.160	**160.00**	16.0	300	0.300	8	11.90%	5.4538	0.0707	0.0672	**0.3662**	**366.23**	43.69%	OK	10.88	53.42	51.52
FMH 7005371	FMH 7005372		1747.00	6470	5		0.160	**160.00**	10.2	300	0.300	9	10.73%	5.1782	0.0707	0.0672	**0.3477**	**347.73**	46.01%	OK	10.88	51.52	50.43
FMH 7005372	FMH 7005459		1747.00	6470	5		0.160	**160.00**	8.6	300	0.300	9	11.15%	5.2792	0.0707	0.0672	**0.3545**	**354.51**	45.13%	OK	10.88	49.23	48.27
FMH 7005459	FMH 7005373		1747.00	6470	5		0.160	**160.00**	15.2	300	0.300	7	13.73%	5.8596	0.0707	0.0672	**0.3935**	**393.48**	40.66%	OK	10.88	48.25	46.17
FMH 7005373	FMH 7005374		1747.00	6470	5		0.160	**160.00**	38.0	300	0.300	8	11.81%	5.4329	0.0707	0.0672	**0.3648**	**364.82**	43.86%	OK	10.88	45.59	41.10
FMH 7005374	FMH 7005460	427.13 Sub-Catchment C2	2174.12	8052	5		0.185	**184.72**	24.9	300	0.300	10	10.47%	5.1142	0.0707	0.0672	**0.3434**	**343.42**	53.79%	OK	10.88	40.67	38.06
FMH 7005460	FMH 7005375		2174.12	8052	5		0.185	**184.72**	14.2	300	0.300	9	11.03%	5.2496	0.0707	0.0672	**0.3525**	**352.52**	52.40%	OK	10.88	38.03	36.46
FMH 7005375	FMH 7005378		2174.12	8052	5		0.185	**184.72**	16.6	300	0.300	10	9.92%	4.9793	0.0707	0.0672	**0.3344**	**334.37**	55.24%	OK	10.88	36.09	34.44
FMH 7005378	FMH 7005379		2174.12	8052	5		0.185	**184.72**	31.9	300	0.300	9	11.59%	5.3822	0.0707	0.0672	**0.3614**	**361.42**	51.11%	OK	10.88	33.86	30.16
FMH 7005379	FMH 7005453	21.96 Sub-Catchment D	2196.08	8134	5		0.186	**185.99**	11.7	300	0.300	8	12.81%	5.6595	0.0707	0.0672	**0.3800**	**380.04**	48.94%	OK	10.88	29.88	28.38
FMH 7005453	FMH 7005381		2196.08	8134	5		0.186	**185.99**	9.8	300	0.300	13	7.69%	4.3827	0.0707	0.0672	**0.2943**	**294.31**	63.20%	OK	10.88	27.97	27.22
FMH 7005381	FMH 7005454		2196.08	8134	5		0.186	**185.99**	9.8	300	0.300	10	9.61%	4.9006	0.0707	0.0672	**0.3291**	**329.08**	56.52%	OK	10.88	26.99	26.05
FMH 7005454	FMH 7005383	9.80 Sub-Catchment E1	2205.88	8170	5		0.187	**186.56**	4.9	300	0.300	8	13.27%	5.7595	0.0707	0.0672	**0.3868**	**386.76**	48.24%	OK	10.88	25.85	25.20
FMH 7005383	FMH 7005384	202.31 Branch from FMH7027765 to FMH7007383	2408.19	8919	5		0.198	**198.26**	14.8	300	0.300	7	13.45%	5.7987	0.0707	0.0672	**0.3894**	**389.39**	50.92%	OK	10.88	25.10	23.11
FMH 7005384	FMH 7005456		2408.19	8919	5		0.198	**198.26**	11.2	300	0.300	13	7.53%	4.3352	0.0707	0.0672	**0.2911**	**291.11**	68.10%	OK	10.88	23.05	22.21
FMH 7005456	FMH 7007345	34.63 Sub-Catchment E2	2442.83	9048	5		0.200	**200.27**	7.1	400	0.400	27	3.66%	3.6230	0.1257	0.1131	**0.4098**	**409.75**	48.88%	OK	10.88	22.07	21.81

by interpolation

Table B5: From FMH7027765 to FMH7007383

From	To	ADWF (m^3/day)	Cum.ADWF (m^3/day)	Contributing Population	Peaking Factor (including stormwater allowance)	From Branch (L/s)	Total Design Flow (m^3/s)	**Total Design Flow (L/s)**	L (m)	Dia. = (mm)	Dia. = (m)	Slope (1 in)	Slope (%)	Velocity (m/s)	Area (m^2)	Reduction Area (m^2)	**Q_{cap} (m^3/s)**	**Q_{cap} (L/s)**	cap. %	check	CL	US IL	DS IL
FMH 7047721	FMH 7027770	202.31 Sub-Catchment F, G, K	202.31	749	8		0.019	**18.73**	11.1	225	0.225	4	24.66%	6.5428	0.0398	0.0378	**0.2471**	**247.14**	7.6%	OK	7.22	70.66	67.92
FMH 7027770	FMH 7027771		202.31	749	8		0.019	**18.73**	8.7	225	0.225	2	52.83%	9.5824	0.0398	0.0378	**0.3620**	**361.95**	5.2%	OK	6.97	67.92	63.35
FMH 7027771	FMH 7005351		202.31	749	8		0.019	**18.73**	14.0	225	0.225	3	29.32%	7.1350	0.0398	0.0378	**0.2695**	**269.51**	7.0%	OK	6.62	63.35	59.26
FMH 7005351	FMH 7005352		202.31	749	8		0.019	**18.73**	11.2	225	0.225	4	22.75%	6.2831	0.0398	0.0378	**0.2373**	**237.33**	7.9%	OK	6.47	59.26	56.71
FMH 7005352	FMH 7005353		202.31	749	8		0.019	**18.73**	7.8	225	0.225	6	17.90%	5.5725	0.0398	0.0378	**0.2105**	**210.49**	8.9%	OK	5.84	56.71	55.31
FMH 7005353	FMH 7005354		202.31	749	8		0.019	**18.73**	10.6	225	0.225	2	43.52%	8.6953	0.0398	0.0378	**0.3284**	**328.44**	5.7%	OK	5.66	55.31	50.68
FMH 7005354	FMH 7005355		202.31	749	8		0.019	**18.73**	6.5	225	0.225	13	7.89%	3.6961	0.0398	0.0378	**0.1396**	**139.61**	13.4%	OK	5.40	50.68	50.17
FMH 7005355	FMH 7005356		202.31	749	8		0.019	**18.73**	3.6	225	0.225	3	37.95%	8.1194	0.0398	0.0378	**0.3067**	**306.69**	6.1%	OK	5.90	50.17	48.80
FMH 7005356	FMH 7005357		202.31	749	8		0.019	**18.73**	14.7	225	0.225	18	5.60%	3.1101	0.0398	0.0378	**0.1175**	**117.48**	15.9%	OK	5.90	48.80	47.98
FMH 7005357	FMH 7005358		202.31	749	8		0.019	**18.73**	3.1	225	0.225	2	40.51%	8.3897	0.0398	0.0378	**0.3169**	**316.90**	5.9%	OK	5.90	47.98	46.72
FMH 7005358	FMH 7005359		202.31	749	8		0.019	**18.73**	21.4	225	0.225	11	8.94%	3.9335	0.0398	0.0378	**0.1486**	**148.58**	12.6%	OK	5.90	46.72	44.81
FMH 7005359	FMH 7005360		202.31	749	8		0.019	**18.73**	9.8	225	0.225	1	70.36%	11.0603	0.0398	0.0378	**0.4178**	**417.78**	4.5%	OK	5.90	44.81	37.95
FMH 7005360	FMH 7005406		202.31	749	8		0.019	**18.73**	8.4	225	0.225	3	30.64%	7.2944	0.0398	0.0378	**0.2755**	**275.53**	6.8%	OK	5.90	37.95	35.37
FMH 7005406	FMH 7005367		202.31	749	8		0.019	**18.73**	21.4	225	0.225	7	14.74%	5.0552	0.0398	0.0378	**0.1909**	**190.95**	9.8%	OK	5.90	35.37	32.22
FMH 7005367	FMH 7005368		202.31	749	8		0.019	**18.73**	14.6	225	0.225	7	13.73%	4.8783	0.0398	0.0378	**0.1843**	**184.27**	10.2%	OK	5.90	30.53	28.52
FMH 7005368	FMH 7005455		202.31	749	8		0.019	**18.73**	11.6	225	0.225	8	13.07%	4.7593	0.0398	0.0378	**0.1798**	**179.77**	10.4%	OK	5.90	28.19	26.67
FMH 7005455	FMH 7005383		202.31	749	8		0.019	**18.73**	5.6	225	0.225	11	8.78%	3.8988	0.0398	0.0378	**0.1473**	**147.27**	12.7%	OK	5.90	26.10	25.61

Table B6: From Proposed FTM-01 to FMH7027795

From	To	ADWF (m^3/day)	Cum.ADWF (m^3/day)	Contributing Population	Peaking Factor (including stormwater allowance)	From Branch (L/s)	Total Design Flow (m^3/s)	**Total Design Flow (L/s)**	L (m)	Dia. = (mm)	Dia. = (m)	Slope (1 in)	Slope (%)	Velocity (m/s)	Area (m^2)	Reduction Area (m^2)	**Q_{cap} (m^3/s)**	**Q_{cap} (L/s)**	cap. %	check	CL	US IL	DS IL
FTM 1	FMH 7027795	759.11 Sub-Catchment L1	759.11	2812	6	58.90 Sub-Catchment L2	0.112	**111.62**	16.0	308[1]	0.308	50	2.00%	2.4636	0.0746	0.0671	**0.1654**	**165.41**	67.48%	OK	-	61.42	61.10

Table B7: From Proposed FTM-02 to FMH7005461

From	To	ADWF (m^3/day)	Cum.ADWF (m^3/day)	Contributing Population	Peaking Factor (including stormwater allowance)	From Branch (L/s)	Total Design Flow (m^3/s)	**Total Design Flow (L/s)**	L (m)	Dia. = (mm)	Dia. = (m)	Slope (1 in)	Slope (%)	Velocity (m/s)	Area (m^2)	Reduction Area (m^2)	**Q_{cap} (m^3/s)**	**Q_{cap} (L/s)**	cap. %	check	CL	US IL	DS IL
FTM 2	FMH 7005461	169.94 Sub-Catchment M	169.94	629	8		0.016	**15.74**	10.0	217[1]	0.217	50	2.00%	1.9755	0.0371	0.0333	**0.0659**	**65.88**	23.89%	OK	-	53.62	53.42

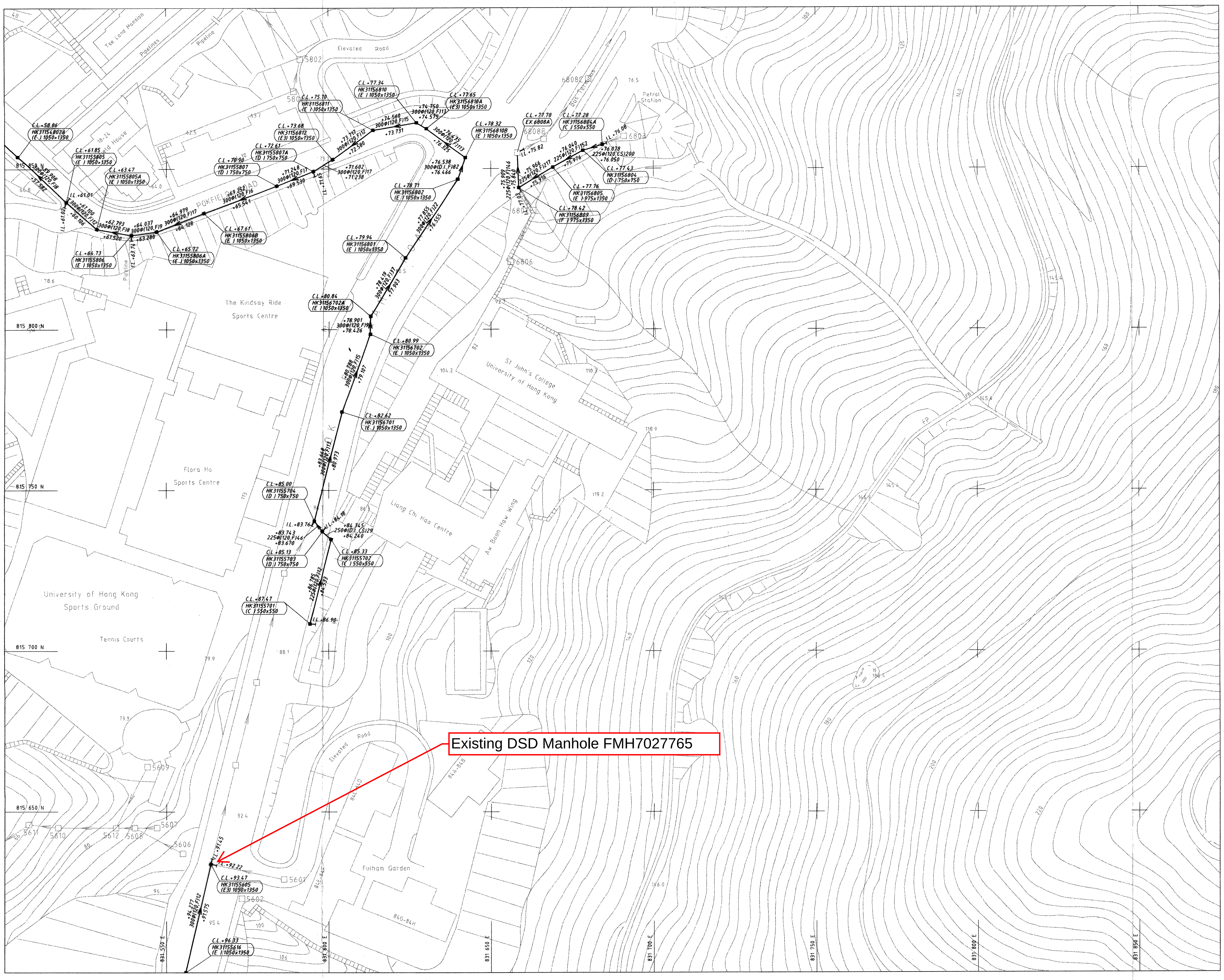
Remark [1] Assume the internal diameter proposed 350Ø and 250Ø PE 100 PN 10 polyethylene pipes are 308mm and 217mm respectively.

Table B8: From Existing FT1 to FMH7047721

From	To	ADWF (m^3/day)	Cum.ADWF (m^3/day)	Contributing Population	Peaking Factor (including stormwater allowance)	From Branch (L/s)	Total Design Flow (m^3/s)	**Total Design Flow (L/s)**	L (m)	Dia. = (mm)	Dia. = (m)	Slope (1 in)	Slope (%)	Velocity (m/s)	Area (m^2)	Reduction Area (m^2)	**Q_{cap} (m^3/s)**	**Q_{cap} (L/s)**	cap. %	check	CL	US IL	DS IL
FT 1	FMH 7047720	202.31 Sub-Catchment F, G, K	202.31	749	8		0.019	**18.73**	10.0	225	0.225	7	14.10%	4.9439	0.0398	0.0378	**0.1867**	**186.74**	10.03%	OK	79.70	76.11	74.70
FMH 7047720	FMH 7047721		202.31	749	8		0.019	**18.73**	12.4	225	0.225	3	32.71%	7.5373	0.0398	0.0378	**0.2847**	**284.71**	6.6%	OK	76.90	74.70	70.66

APPENDIX D – DSD As-built Drawing (Drawing Number: 91194/40/3007C)

91194/40/3005

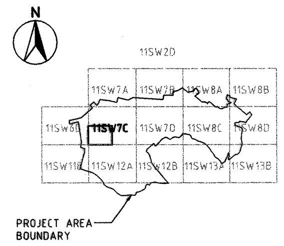


91194/40/3002

91194/40/3008

-10 0 10 20 30 40 50m

11SW7C3



KEY PLAN

NOTES :

1. FOR NOTES AND LEGEND REFER TO DRG No 91194/40/3002.

LEGEND :

—→— COMPLETED SEWER (AS-BUILT)

REV. 修訂	DESCRIPTION 內容摘要	DRAWN BY 繪圖	E.R. CHECKED 複核	DATE 日期
C	AS-BUILT DRAWING	EL	KCC	MAY 01

REV. 修訂	DESCRIPTION 內容摘要	D.E. CHECKED 複核	P.E. CHECKED 複核	APPROVED 批准人	DATE 日期
B	WORKING DRAWING	AC	CKWY	DML	APR. 98
A	TENDER ADDENDUM No.1	AC	CKWY	TS	NOV. 97
-	FIRST ISSUE	KF	CY	TS	OCT. 97

DRAINAGE SERVICES DEPARTMENT

CENTRAL, WESTERN AND WAN CHAI WEST SEWERAGE

CENTRAL AND WESTERN INTERCEPTOR AND RETICULATION SEWERS - UPPER CATCHMENT CONTRACT NO. DC/95/07

PROPOSED SEWERAGE SYSTEM LAYOUT PLAN

SHEET 7 OF 23

MAUNSELL CONSULTANTS ASIA LTD

茂盛(亞洲)工程顧問有限公司

In association with

ATKINS HASWELL

DRG.NO. 圖紙編號 91194/40/3007C

DESIGNED BY 設計 MW	CONTRACT NO. 合約編號 DC/95/07	DATE OF ISSUE 發出日期 MAY 2001
DRAWN BY 繪圖 AF	STATUS 階段 **AS-BUILT DRAWING**	
SCALE 比例 1 : 500		
DIMENSIONS ARE IN 尺寸單位 METRES		

Maunsell

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APPENDIX E – Submission and Comment Record

Submission and Comment Record Summary

Item	WSP	EPD	DSD
E1	Issue 1 on 02 Nov 2020 Letter Ref: WH67022A-CO-22430/20	Comment on 25 Nov 2020 by email	/
E2	Issue 1a on 02 Dec 2020 by email	Comment on 15 Dec 2020 by email	Comment on 08 Dec 2020 Letter Ref: (00LKWQ) in DSD HK10/IL/7704

APPENDIX E – Submission and Comment Record

Item E1

Our ref : WH67022A-CO-22430/20 2 November 2020

By Hand

Attn: Distribution List

Dear Sir/Madam,

Proposed Capital Redevelopment Complex at the Pokfield Road Site
Sewerage Impact Assessment Report

We are the civil engineering consultant to carry out the Sewerage Impact Assessment for the captioned project located at Pokfield Road, Kennedy Town, Hong Kong.

We are pleased to provide the SIA report for your review and comment.

We would be grateful if you could provide your comments at your earliest convenience. Should you have any queries, please do not hesitate to contact the undersigned at 2217 2222 or Mr. Alex Ng at 2217 2020.

Yours faithfully,
for and on behalf of
WSP Hong Kong Ltd.

Tracy Choi
Senior Associate

TC/JL/pc

Encl

cc : HKU – Ms. Bella Fan (by email)
P&T – Ms. Esther Chow (by email)

7/F One Kowloon
1 Wang Yuen Street
Kowloon Bay, Hong Kong

香港九龍灣宏遠街1號
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Quarry Bay, Hong Kong

Ms. AU Wai Yee, Helen (Env Protection Offr(Sewerage Infrastructure)63)
Environmental Protection Department
Water Policy Division
Sewerage Infrastructure Group
Regional Sewerage Infrastructure Planning (HK Island, Tolo Harbour & Port Shelter)
34th floor, Hopewell Centre,
183 Queen's Road East, Wanchai, Hong Kong

Ngai, Andrew Kin-Hang

From: wyau@epd.gov.hk
Sent: Wednesday, November 25, 2020 1:50 PM
To: Ngai, Andrew Kin-Hang
Cc: Choi, Tracy; Ng, Alex Yat-Ho; rickyliu@epd.gov.hk; hokkingwong@epd.gov.hk; cwmok@epd.gov.hk
Subject: Re: HKU Proposed Capital Redevelopment at Pokfield Road - Sewerage Impact Assessment Submission

Dear Andrew,

Please find below my comments on the SIA Report:

1. Title of the submitted SIA Issue 1 is inconsistent with the attached cover letter (Development or Redevelopment).

2. Typo in Table 4.1 Sub-catchment A: 'Pok Fu Lam Playground' should be 'Pok Fu Lam Road Playground'.

3. Table 4.1 Sub-catchment C: Please double check if the discharge point of University Heights is FMH7005407 or FMH7005374 and revise the sub-catchment layout accordingly.

4. Appendix A: The average domestic household size as 3.0 is considered underestimated. The appropriate average domestic household size should be adopted according to their corresponding Tertiary Planning Unit under 2016 Population By-Census.

5. Appendix A: Please clarify whether there will be any swimming pool in the redevelopment.

6. Appendix B: Sub-catchment C: Typo "Private R1" shall read as R4 as UFF of 0.37 is applied.

7. Appendix B: Sub-catchment E, Notes:"Area extracted from Ricacorp Properties" is irrelevant for the calculation.

8. Appendix B: Sub-catchment F1, Notes : Please provide supporting for "Population extracted from Foul Flow Estimation".

9. Appendix B: Sub-catchment C, F1, G, M, Please check if the reference table should be Table T-1 of the GESF instead.

10. Appendix B & C, Stanley Smith Swimming Pool: Please note that backwash flow from the swimming pool is not ADWF but the peak flow during the backwash event and should be presented in L/s. There is no need to apply an additional peaking factor to the peak flow.

11. Appendix C: Table B1 & B4, Row, From FMH7005383 to FMH7005384, Description in Column "ADWF": should "Branch from FMH7027765 to FMH7007345" be read as "Branch from FMH7027765 to FMH7005383" instead.

12. Appendix C: Table B2 & B5: should the heading "From FMH7027765 to FMH7007345" be read as "From FMH7027765 to FMH7005383" instead.

13. Appendix C – According to the drainage record from Geoinfo map, sewage flow from FMH7005457 would also be conveyed to FMH7005456. Please include the sewage flow from the upstream catchment of FMH7005457 in the assessment.

Regards,
Helen Au/ E(SI)63, EPD
T: 3107 2478

From: "Ngai, Andrew Kin-Hang" <Andrew.Ngai@wsp.com>
To: "kylau02@dsd.gov.hk" <kylau02@dsd.gov.hk>, "wyau@epd.gov.hk" <wyau@epd.gov.hk>
Cc: "Choi, Tracy" <Tracy.Choi@wsp.com>, "Ng, Alex Yat-Ho" <Alex.Ng@wsp.com>
Date: 09/11/2020 10:43
Subject: HKU Proposed Capital Redevelopment at Pokfield Road - Sewerage Impact Assessment Submission

---

Dear Mr. Lau (DSD) and Ms. Au (EPD),

Please note that we have submitted the Sewerage Impact Assessment Issue 1 Report to you by post.

The submission cover letter scan copy is attached for you reference.

Should you have any query, please do not hesitate to contact me at 2579 8793 or Alex Ng at 2217 2020.

Many thanks.

Best Regards,
Andrew Ngai

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T +852 2579-8899
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-LAEmHhHzdJzBtTWfa4Hgs7pbKl [attachment "20201102_HKU_SIA_Issue 1 cover letter.pdf" deleted by WY AU/EPD/HKSARG]

APPENDIX E – Submission and Comment Record

Item E2

Email received from Environmental Protection Department, Water Policy Division, Sewerage Infrastructure Group, Regional Sewerage Infrastructure Planning (HK Island, Tolo Harbour & Port Shelter), dated 25th November 2020		
Item	EPD's comment	WSP's Comment
1.	Title of the submitted SIA Issue 1 is inconsistent with the attached cover letter (Development or Redevelopment).	Noted and revised. The Full Project Name is "**Proposed Capital Development Complex at the Pokfield Road Site**".
2	Typo in Table 4.1 Sub-catchment A: 'Pok Fu Lam Playground' should be 'Pok Fu Lam Road Playground'.	Noted and revised.
3	Table 4.1 Sub-catchment C: Please double check if the discharge point of University Heights is FMH7005407 or FMH7005374 and revise the sub-catchment layout accordingly.	Noted and revised. Please refer to the revised sewage flow estimation and hydraulic checking in Appendix B and C in the revised SIA.
4	Appendix A: The average domestic household size as 3.0 is considered underestimated. The appropriate average domestic household size should be adopted according to their corresponding Tertiary Planning Unit under 2016 Population By-Census.	Noted and revised. According to the 2016 Population By census. The average domestic household size is **3.3** and **2.6** in Tertiary Planning Unit 141 and 111 respectively. Please refer to the revised sewage flow estimation in Appendix B in the revised SIA. Figure extracted from 2016 Population By Census: https://www.bycensus2016.gov.hk/en/bc-dp-tpu.html
5	Appendix A: Please clarify whether there will be any swimming pool in the redevelopment.	There will be a swimming pool in the proposed development. The peak sewage flow is calculated to be **0.35** L/s in the backwash event of the proposed swimming pool. Please refer to the revised sewage flow estimation and hydraulic checking in Appendix B and C in the revised SIA.
6	Appendix B: Sub-catchment C: Typo "Private R1" shall read as R4 as UFF of 0.37 is applied.	Noted and revised.
7	Appendix B: Sub-catchment E, Notes:"Area extracted from Ricacorp Properties" is irrelevant for the calculation.	Noted and revised.
8	Appendix B: Sub-catchment F1, Notes : Please provide supporting for "Population extracted from Foul Flow Estimation".	Noted. Please see the Sewage Flow Estimation Table of the thee existing student halls extracted from BRAVO in Appendix A.

9	Appendix B: Sub-catchment C, F1, G, M, Please check if the reference table should be Table T-1 of the GESF instead.	Noted and revised.
10	Appendix B & C, Stanley Smith Swimming Pool: Please note that backwash flow from the swimming pool is not ADWF but the peak flow during the backwash event and should be presented in L/s. There is no need to apply an additional peaking factor to the peak flow.	Noted and revised. Please refer to the revised sewage flow estimation and hydraulic checking in Appendix B and C in the revised SIA.
11	Appendix C: Table B1 & B4, Row, From FMH7005383 to FMH7005384, Description in Column "ADWF": should "Branch from FMH7027765 to FMH7007345" be read as "Branch from FMH7027765 to FMH7005383" instead.	Noted and revised.
12	Appendix C: Table B2 & B5: should the heading "From FMH7027765 to FMH7007345" be read as "From FMH7027765 to FMH7005383" instead.	Noted and revised.
13	Appendix C – According to the drainage record from Geoinfo map, sewage flow from FMH7005457 would also be conveyed to FMH7005456. Please include the sewage flow from the upstream catchment of FMH7005457 in the assessment.	Noted and revised. Please refer to the revised sewage flow estimation and hydraulic checking in Appendix B and C in the revised SIA.

APPENDIX A - Sewage Flow Estimation Table of the thee existing student halls extracted from BRAVO

Table 2.2.1 : Foul Flow Estimation

Accommodation Type	Gross Floor Area (m^2)	Population	Unit Flow Factor	Dry Weather Flow (l/sec)	Peaking Factor	Design Peak Flow (l/sec)	Remarks
Building A Hall of Residence		300	175 l/h/day	0.61	6.00	3.65	
Building B Hall of Residence		300	175 l/h/day	0.61	6.00	3.65	
Building C Hall of Residence		300	175 l/h/day	0.61	6.00	3.65	
Canteen Kitchen Kitchen Area	98	---	500 l/kitchen area/day	0.57	6.00	3.40	
Total		900	---	2.39	6.00	14.34	

Note: 1. Unit flow rate and peaking factor for residence building is according to Table 2 of Sewerage Manual Part I
2. Peaking factor excluding stormwater allowance have been adopted

Estimation of Foul Water Generated in Existing Flora Ho Sport Centre

Reference: IOP Sanitary Plumbing & Drainage Section C

Floor	No. of WC (@ DU = 7)	No. of Sink (@ DU = 4)	No. of Urinal (@ DU = 0.3)	Total DU	No. of Shower (@ Q = 0.1 l/s)
Lower Ground Floor	8	7	5	85.5	11
Ground Floor	11	9	5	114.5	6
First Floor	3	3	1	33.3	2
Second Floor	8	7	4	85.2	0
			Total	318.5	19

Note: DU stand for discharge unit.

$$\text{Peak Foul Water Generated} = (DU/60)^{0.666} \times 0.7 + \text{No. of shower} \times 0.1$$
$$= (318.5/60)^{0.666} \times 0.7 + 19 \times 0.1$$
$$= \underline{\underline{4.03}} \text{ l/sec}$$

Estimation of Foul Water Generated in Lindsay Ride Sports Centre

Assume the peak foul water generated is the same as Flora Ho Sport Hall
Thus, peak flow = 4.03 l/sec

Total Foul Water Generated from within the Proposed Site

= Flow from residences buildings + Flow from canteen + Flow from Flora Ho Sports Center + Flow from Lindsay Ride Sports Centre
= 14.34 + 4.03 + 4.03 l/sec
= 22.40 l/sec

Table 2.3.1 : Hydraulic Calculation of Proposed Foul Sewers

Manhole						Pipe Capacity																Design Flow					Pipe Class/ Bedding Type
											Invert Level		Cover Level		Cover Depth												
Pipe No.	From	To	Inc. Area	Area (m2)	Pop.	Trial (mm)	Pipe Dia (m)	A (m2)	P (m)	R (m)	US (mPD)	DS (mPD)	US (mPD)	DS (mPD)	US (mPD)	DS (mPD)	Length (m)	Gradient	Gradient (32gRs)^ (1 in X)	0.5	V (m/s)	Q=AV (m3/s)	Q=AV (l/sec)	Cul. Pop.	D.W.F (l/sec)	Peaking Factor	Design Qp (l/sec)	Full Flow %	
	F25	F24	R-B		300	225	0.225	0.04	0.71	0.06	76.98	76.75	79.30	79.38	2.10	2.40	18.0	0.01	80	0.47	1.28	0.05	51.03	300	0.61	6	3.65	7.14	F/A
	F24	F23				225	0.225	0.04	0.71	0.06	76.75	76.66	79.38	79.50	2.40	2.61	7.0	0.01	80	0.47	1.28	0.05	51.03	300	0.61	6	3.65	7.14	F/A
	F23	F22				225	0.225	0.04	0.71	0.06	76.66	76.50	79.50	79.50	2.61	2.77	13.0	0.01	80	0.47	1.28	0.05	51.03	300	0.61	6	3.65	7.14	F/A
	F22	F21				225	0.225	0.04	0.71	0.06	76.50	76.43	79.50	79.50	2.77	2.85	6.0	0.01	80	0.47	1.28	0.05	51.03	300	0.61	6	3.65	7.14	F/A
	F21	FT1	Kitchen	98		225	0.225	0.04	0.71	0.06	75.80	75.41	79.50	79.70	3.48	4.07	4.0	0.10	10	1.32	3.61	0.14	143.44	300	0.61	6	7.05	4.91	F/A
																									0.57	6			
	FT1	MHZ2				225	0.225	0.04	0.71	0.06	75.26	74.91	79.70	79.50	4.22	4.37	16.0	0.02	46	0.62	1.70	0.07	67.57	300	0.61	6	7.05	10.43	Existing
																								Total Flow via FT1			**7.05**		
	F2	F3	R-C		300	225	0.225	0.04	0.71	0.06	77.73	77.65	79.50	79.50	1.55	1.62	6.0	0.01	80	0.47	1.28	0.05	51.03	300	0.61	6	3.65	7.14	F/A
	F3	F4	R-A		300	225	0.225	0.04	0.71	0.06	77.65	77.49	79.50	79.50	1.62	1.78	9.5	0.02	60	0.54	1.48	0.06	58.95	600	0.61	6	7.29	12.37	F/A
	F4	F5				225	0.225	0.04	0.71	0.06	77.49	77.34	79.50	79.50	1.78	1.93	12.0	0.01	80	0.47	1.28	0.05	51.03	600	1.22	6	7.29	14.29	F/B
	F5	F6				225	0.225	0.04	0.71	0.06	77.34	77.24	79.50	79.50	1.93	2.04	8.5	0.01	80	0.47	1.28	0.05	51.03	600	1.82	6	7.29	14.29	F/A
	F6	F7				225	0.225	0.04	0.71	0.06	77.24	77.04	79.50	79.26	2.04	2.00	16.0	0.01	80	0.47	1.28	0.05	51.03	600	1.82	6	7.29	14.29	F/A
	F1	F7				225	0.225	0.04	0.71	0.06	77.14	77.04	79.50	79.26	2.14	2.00	6.5	0.02	62	0.53	1.46	0.06	57.92	600	1.82	6	7.29	12.59	F/A
	F7	F8				225	0.225	0.04	0.71	0.06	77.04	76.74	79.26	79.24	2.00	2.28	15.0	0.02	50	0.59	1.63	0.06	64.60	600	1.82	6	7.29	11.29	F/A
	F8	F9				225	0.225	0.04	0.71	0.06	76.74	76.41	79.24	79.10	2.28	2.47	16.5	0.02	50	0.59	1.63	0.06	64.60	600	1.82	6	7.29	11.29	F/A
	F9	F10				225	0.225	0.04	0.71	0.06	76.41	76.13	79.10	78.76	2.47	2.41	14.0	0.02	50	0.59	1.63	0.06	64.60	600	1.82	6	7.29	11.29	
	F10	FT2				225	0.225	0.04	0.71	0.06	76.13	75.77	78.76	78.83	2.41	2.83	21.5	0.02	60	0.54	1.48	0.06	58.71	600	1.82	6	7.29	12.42	
	FT2	F11				225	0.225	0.04	0.71	0.06	75.62	75.59	78.83	78.83	2.98	3.01	3.0	0.01	100	0.42	1.15	0.05	45.62	600	1.82	6	7.29	15.98	
																								Total Flow via FT2			**7.29**		
			Two Exist. Sports																										
Existing	EX F5	FT2	Centre			150	0.15	0.02	0.47	0.04	75.82	75.60	78.92	78.83	2.95	3.08	15.0	0.01	68	0.42	1.06	0.02	18.75				8.06	42.98	Existing
																								Total Flow via F11			**15.35**		
	EX F11	F31				100	0.1	0.01	0.31	0.03	78.41	77.91	79.27	79.30	0.76	1.29	17.0	0.03	34	0.48	1.15	0.01	9.01				1.34	14.90	Existing
	F31	F32				100	0.1	0.01	0.31	0.03	77.91	77.82	79.30	79.30	1.29	1.38	3.0	0.03	37	0.46	1.10	0.01	8.65				1.34	15.54	F/A
	F32	F33				100	0.1	0.01	0.31	0.03	77.82	77.72	79.30	79.30	1.38	1.48	4.0	0.03	37	0.46	1.10	0.01	8.65				1.34	15.54	F/A
	F33	F34				100	0.1	0.01	0.31	0.03	77.72	77.61	79.30	79.30	1.48	1.59	4.0	0.03	37	0.46	1.10	0.01	8.65				1.34	15.54	F/A
	F34	EX F13				100	0.1	0.01	0.31	0.03	77.61	77.36	79.30	79.00	1.59	1.54	12.0	0.02	49	0.40	0.95	0.01	7.49				2.69	35.85	Existing
																								Total Flow via F34			**2.69**		

Total Flow from Proposed Site **22.40**

Notes: 1. The pipe roughness is assumed to be 1.5mm. (I.e. Ks = 1.5mm)

2. The unit flow factor for residential population and kitchen are 175 l/person/day and 500 l/sq. m/ day respectively.

3. The peaking factor excluding stormwater allowance has been adopted.

4. Proposed foul sewers to be vitrified clay pipe class F to BS EN-295.

5. Bedding type: A - concrete cradle, B - concrete surround.

Capacity of Existing Connection Pipe

Manhole				Pipe Capacity																Flow to pipe		Remark
									Invert Level		Cover Level		Cover Depth									
Pipe No.	From	To	Location	Pipe Dia (mm)	Pipe Dia (m)	A	P	R	US	DS	US	DS	US	DS	Length	Gradient	Gradient (32gRs)^ (1 in)	0.5	V (m/s)	Q=AV (m3/s)	Q=AV (l/s)	Additional Flow	Inc. Flow / Capacity (%)	
EX 1	MHZ1	MHZ2	Slope near Pok Fu	225	0.225	0.04	0.71	0.06	75.54	74.91	76.75	76.36	0.98	1.23	14.00	0.03	33.00	0.73	2.00	0.08	79.57	7.05	8.86	Upgrade is not required
EX 2	MHZ2	MHZ3	Lam Road	225	0.225	0.04	0.71	0.06	74.91	67.92	76.36	69.26	1.23	1.12	17.40	0.40	2.49	2.66	7.30	0.29	290.26	7.05	2.43	Upgrade is not required
EX 3	MHZ4	MHZ5	Pokfield Road	300	0.3	0.07	0.94	0.08	64.04	63.28	65.72	64.73	1.38	1.15	11.00	0.07	14.47	1.28	3.65	0.26	258.16	7.29	2.82	Upgrade is not required
EX 4	MHZ5	MHZ6	Pokfield Road	300	0.3	0.07	0.94	0.08	62.79	61.52	64.73	63.47	1.64	1.65	11.00	0.12	8.66	1.65	4.73	0.33	333.83	7.29	2.18	Upgrade is not required

Drainage Services Department
Hong Kong & Islands Division
23/F, 1063 King's Road,
Quarry Bay, Hong Kong.

渠務署
香港及離島渠務部
香港鰂魚涌英皇道 1063 號 23 樓

本署檔號 Our Ref: (00LKWQ) in DSD HK 10/IL/7704
來函檔號 Your Ref: WH67022A-CO-22430/20
電　　話 Tel : (852) 3101 2358
圖文傳真 Fax: (852) 3101 0716

By Fax 2856 9902

8 December 2020

WSP Hong Kong Ltd.
7/F One Kowloon
1 Wong Yuen Street
Kowloon Bay, Hong Kong
Attn.: Ms. Tracy CHOI

Dear Madam,

Proposed Capital Redevelopment Complex at the Pokfiled Road Site
Sewerage Impact Assessment Report

I refer to your letter dated 2 November 2020 enclosing the Sewerage Impact Assessment (SIA) report (Issue 1) and your subsequent email dated 2 December 2020 enclosing the revised SIA report (Issue 1a) at the captioned site and have the following comments:

i. The SIA needs to meet the full satisfaction of Sewerage Infrastructure Group (SIG) of Environmental Protection Department (EPD), the authority of sewerage infrastructure. Please note that the comments of this department are subject to the views and agreement of the EPD.

ii. In estimating the sewage flows in accordance with the Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning published by the EPD, all proposed parameters and assumptions should be subject to the agreement of the EPD. However, the following is observed –

   a. Section 3.3 - Please review if the relevant catchment should be Central instead of Wan Chai, although the same recommended catchment inflow factor may be considered.

   b. Appendix B - Please review if the proposed unit flow factor for residential housing R3 may be over-estimated for some of the domestic catchment sites.

iii. Paragraph 4.2.2 - Please substantiate the assumption for the split of sewage flow at existing manhole FMH7027765 by 50% conveying to existing manhole FMH7027766 and another 50% to FMH7027809. Please review and note that verification/measurement on site shall be required to justify your split assumption.

iv. Polyethylene pipes should be used for proposed sewer connections to the public sewerage system. Please review the material type of the proposed sewer pipes connecting from the proposed terminal manholes to existing public sewer manholes.

v. Table 5.1 – Existing sewer manhole FMH7047720 and the downstream sewer pipes are located on a natural hillside without any proper maintenance access. Proposed sewage diversion from existing sub-catchments F1 & F2 (residential and catering) and additional sewage flow from proposed sub-catchment N (institutional) would have significant impact to the existing 225 dia. vitrified clay pipes. Please review if the existing usage of FMH7047720 could be remained while any additional sewage flow could be discharge to other public sewerage networks at Pok Fu Lam Road or Pokfield Road.

vi. Tables B2 and B5 – The title "From FMH7027765 to FMH7007383" should be "From FMH7027765 to FMH7005383". Please clarify.

vii. Table B6 – The estimated usage of the proposed 225 dia. sewer pipe from terminal manhole FTM-01 to existing FMH7027795 has reached about 80% of the hydraulic capacity. Please review your design to upgrade the proposed sewer pipe to 300 dia. for potential increase of sewage discharge in the future due to any substantive increase in the contributing population at sub-catchments L1 and L2.

viii. It is the developer's responsibility to identify/locate the existing government sewers and stormwater drains to which drainage connections from his site are to be proposed. The developer should verify the existence of any drains/sewers/utilities and also their exact locations, levels and alignments on site in order to ascertain the positions and levels of the proposed manholes and the associated connection works. The developer should also verify that the existing government drains/sewer, to which connections are proposed, are in normal working conditions and capable for taking the discharge from the site.

2. Please note that this is the coordinated reply from Land Drainage Division and Hong Kong and Islands Division of Drainage Services Department.

Yours faithfully,

H.K.&I. DIVISION
D. S. D.
0 9 DEC 2020
F A X E D

(Gabriel K Y LAU)
for Chief Engineer/Hong Kong & Islands
Drainage Services Department

c.c.
CE/LD (Attn: Mr. Y. T. LI) by fax: 2771 9858
Internal (via EIMS)
IOW/W1/1, E/W1, STO/HK2

Ngai, Andrew Kin-Hang

From: wyau@epd.gov.hk
Sent: Tuesday, December 15, 2020 1:35 PM
To: Ngai, Andrew Kin-Hang
Cc: Choi, Tracy; Ng, Alex Yat-Ho; rickyliu@epd.gov.hk; hokkingwong@epd.gov.hk; cwmok@epd.gov.hk
Subject: RE: HKU Proposed Capital Development Complex at Pokfield Road - Sewerage Impact Assessment Submission

Dear Andrew,

Please find below my comments on the revised SIA:

1. Table 4.2 & 5.2 - Please revisit the Contributing Population (Persons) of Sub-catchment A which has an ADWF of 664.66m3/day.

2. Appendix B: Sub-catchment I & L2, the backwash flow applied for swimming pools is still the average daily flow presented in L/s rather than the instantaneous peak discharge from the backwash. Please revise and update the assessment.

Regards,
Helen Au/ E(SI)63, EPD
T: 3107 2478

From: "Ngai, Andrew Kin-Hang" <Andrew.Ngai@wsp.com>
To: "wyau@epd.gov.hk" <wyau@epd.gov.hk>, "kylau02@dsd.gov.hk" <kylau02@dsd.gov.hk>
Cc: "Choi, Tracy" <Tracy.Choi@wsp.com>, "Ng, Alex Yat-Ho" <Alex.Ng@wsp.com>, "rickyliu@epd.gov.hk" <rickyliu@epd.gov.hk>, "hokkingwong@epd.gov.hk" <hokkingwong@epd.gov.hk>, "cwmok@epd.gov.hk" <cwmok@epd.gov.hk>
Date: 2020/12/02 下午 05:28
Subject: RE: HKU Proposed Capital Development Complex at Pokfield Road - Sewerage Impact Assessment Submission

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Dear Ms. Au (EPD) and Mr. Lau (DSD),

Attached please find our response-to-comment and revised SIA Issue 1a in response to EPD's comment dated 25 Nov 2020 for your review and comment. Thank you.

Best Regards,
Andrew Ngai

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