Appendix 6

Sewerage Impact Assessment

Prepared by

Ramboll Hong Kong Limited

SEWERAGE IMPACT ASSESSMENT FOR THE REDEVELOPMENT OF THE SALVATION ARMY LAI KING HOME AT NOS. 200-210 LAI KING HILL ROAD, KWAI CHUNG

SEWERAGE IMPACT ASSESSMENT

Date	**12 March 2024**
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1. INTRODUCTION

1.1 Background and Objectives

1.1.1 The Application Site is situated at No.200 – 210 Lai King Hill Road, Kwai Chung, which is currently occupied by the Salvation Army Lai King Home. The redevelopment at the Application Site comprises two 7-storey buildings (excluding LG/F) with a building height of approximately 63.45mPD (hereafter referred to as the "Proposed Development").

1.1.2 Ramboll Hong Kong Limited has been appointed to prepare this Sewerage Impact Assessment (SIA) for the Proposed Development.

1.1.3 The purpose of this assessment is to confirm the feasibility of the Proposed Development at the Application Site in terms of its sewerage impact.

1.2 Application Site and its Environ

1.2.1 The Application Site is currently the Salvation Army Lai King Home, situated in Kwai Tsing area and bounded by Lai King Hill Road to the North, Kwai Chung Road to the South and some housing estates to the East and West. **Figure 1.1** shows the location of the Application Site and its environ.

1.3 Proposed Development

1.3.1 The Application Site will be redeveloped into two 7-storey buildings (excluding LG/F) with a total GFA of about 12,888 m^2. The Proposed Development will comprise the following facilities:

- Day Activity Centre (DAC);
- Integrated Vocational Rehabilitation Services Centre (IVRSC);
- Hostel for Severely Mentally Handicapped Persons (HSMH);
- Hostel for Moderately Mentally Handicapped Persons (HMMH);
- Care & Attention Home for Severely Disabled Persons (C&ASD);
- Residential Respite Service (RRS);
- Extended Care Programme (ECP); and
- Ancillary facilities.

2. SEWERAGE IMPACT ASSESSMENT

2.1 Scope of Work

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

2.2 Assessment Criteria and Methodology

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

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

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

- Daytime staff & workshop: 0.28 m^3/employee/day (Commercial Employee and J11 – Community, Social & Personal Services);
- Residential use (including overnight staff and respite service users): 0.19 m^3/person/day (Domestic – Institutional and special class); and
- Public housing: 0.19 m^3/person/day (Domestic – Private R1)

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

2.3 Existing and Future Sewerage System

2.3.1 According to the Drainage Record obtained from DSD, there is a Ø150mm sewer pipe, a Ø225mm sewer pipe and a Ø300mm sewer pipe running outside the Application Site. The existing sewers in the vicinity of the Application Site are shown in **Figure 2.1**.

2.3.2 Sewage generated from the Application Site will be discharged to the existing terminal manhole (S0) and conveyed via the existing Ø150mm sewer pipe to government manhole. As advised by the Applicant, the existing terminal manhole (S0) is currently connected to the existing manhole no. FMH4020026 (S1) and sewage discharge from the Application Site will keep the same regime.

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

2.3.4 Manhole survey would be conducted to determine the actual invert levels and assess the pipe capacity in the detailed design stage of the project before implementation of the upgrading works.

2.4 Wastewater Generated by the Proposed Development

2.4.1 The sewage generated by the Application Site will be contributed by the residents, staffs and workshop's users.

2.4.2 Detailed calculation of sewage generation from the Proposed Development is given in **Table 2.1** below.

Table 2.1 Estimated Peak Flow

Calculation for Sewage Generation Rate of the Proposed Development			
Dorm (overnight)			
Total number of residents	=	328	residents (Provided by the Applicant)
Design flow	=	190	litre/person/day -- (Institutional and special class in Table T-1 of GESF)
Sewage generation rate	=	**62.3**	m^3/day
Workshops (daytime only)			
Total number of users (not resident or staff)	=	120	users (Provided by the Applicant)
Design flow for users' activities	=	280	litre/employee/day (J11 in Table T-2 of GESF)
Sewage generation rate	=	**33.6**	m^3/day
Office (daytime only)			
Total number of staff	=	245	staff (Provided by the Applicant)
Design flow for commercial activities	=	280	litre/employee/day (J11 in Table T-2 of GESF)
Sewage generation rate	=	**68.6**	m^3/day
Office (overnight)			
Total number of staff	=	20	staff (Provided by the Applicant)
Design flow	=	190	litre/person/day -- (Institutional and special class in Table T-1 of GESF)
Sewage generation rate	=	**3.8**	m^3/day
Total Flow from the Proposed Development			
Flow rate	=	168.3	m^3/day
Flow rate with P_{CIF} (Kwai Chung - 1.1)	=	185.2	m^3/day (refer to Table T-4 of GESF – Kwai Chung - 1.1)
Contributing population	=	686	people
Peaking factor	=	8	(refer to Table T-5 of GESF for a population of less than 1,000 incl. stormwater allowance)
Peak flow	=	**17.1**	litre/sec

2.5 Assessment of Sewerage Impact

2.5.1 Sewage generated from the Application Site will be discharged via the terminal manhole to the existing manhole FMH4020026 (S1) downstream of the public sewerage system via a Ø150mm clayware pipe as shown in **Figure 2.1**. Catchments in the vicinity of the Application Site are shown in **Figure 2.2**.

2.5.2 The estimated sewage flow from the Application Site and the existing catchments have been compared with the capacity of the existing sewerage system as shown in **Appendix 2.1**.

2.6 Discussion

2.6.1 According to the calculation results presented in Table 4a of **Appendix 2.1**, the sewage generated from the Application Site exceeds the capacity of the existing sewerage network at segments S0-S1 and S5-S6.

2.6.2 Moreover, with reference to the Drainage Record obtained from DSD, the existing sewer S0-S1, which connects the Proposed Development and public sewerage system is a Ø150mm pipe. To comply with the minimum pipe size requirement set out in Section 5.1.6, Part 1, Sewerage Manual, upgrading of sewer S0-S1 (12.2m in length)

from Ø150mm to Ø225mm using polyethylene pipe is recommended. As the downstream sewers shall be with a diameter no less than the upstream sewers, sewer segments S1-S2, S2-S3, S3-S4 and S4-S5 which serve the Application Site only would also need to be upgraded.

2.6.3 In addition, to achieve minimum velocity pursuant to the Section 5.1.2 of Sewerage Manual for sewer S0-S1 with a proposed diameter of 225mm, modification to invert level of manhole S0 from 33.90 mPD to 33.91 mPD is proposed.

2.6.4 Overall, the proposed upgrading of sewer segments S0-S1, S1-S2, S2-S3, S3-S4, S4-S5 and S5-S6 will be carried out by the applicant as presented in **Tables 2a** and **2b** of **Appendix 2.1.** The proposed upgrading works are summarized in **Table 2.2** below:

Table 2.2 Proposed Upgrading Works

Segment	Length (m)	Original Size (Ø) (mm)	Upgraded Size (Ø) (mm)	Original Invert Level 1 (mPD)	Upgraded Invert Level 1 (mPD)
S0-S1	12.2	150	225	33.90	33.91
S1-S2	5.7	150	225	33.86	
S2-S3	20.8	150	225	33.70	
S3-S4	25.9	150	225	33.10	
S4-S5	4.2	150	225	32.80	
S5-S6	28.9	150	225	32.25	

2.6.5 The estimated sewage flow from the Application Site and the existing catchments have been compared with the capacity of the proposed upgraded sewerage system as shown in **Table 4b** of **Appendix 2.1**. The results indicate that the sewerage system will have adequate capacity to cater for the Proposed Development and nearby existing catchments.

2.6.6 As such, with the implementation of the proposed sewer upgrading works, the Proposed Development will not cause adverse sewerage impact.

3. OVERALL CONCLUSION

3.1.1 The potential sewerage impact arising from the Application Site has been quantitatively assessed by comparing the estimated sewage flow from the Proposed Development and the capacity of the existing sewerage system in the vicinity.

3.1.2 The capacity of two sewer segments of the existing sewerage system would be insufficient to cater for the sewage generation from the Application Site and nearby catchments. Moreover, since the existing sewer from the terminal manhole of the Proposed Development to S1 is a Ø150mm pipe, it is proposed to upgrade this sewer and the downstream Ø150mm sewer segments to Ø225mm to meet the minimum pipe size requirement set out in Section 5.1.6, Part 1, Sewerage Manual. In order to fulfil the minimum velocity in accordance with Section 5.1.2 of Sewerage Manual, it is proposed to modify the invert level of manhole S0 from 33.90 mPD to 33.91 mPD. Hence, upgrading works at segments S0-S1, S1-S2, S2-S3, S3-S4, S4-S5 and S5-S6 will be required and implemented by the Applicant.

3.1.3 With the proposed upgrading works in place, this SIA confirms the feasibility of the Proposed Development in terms of its sewerage impact.

Figures

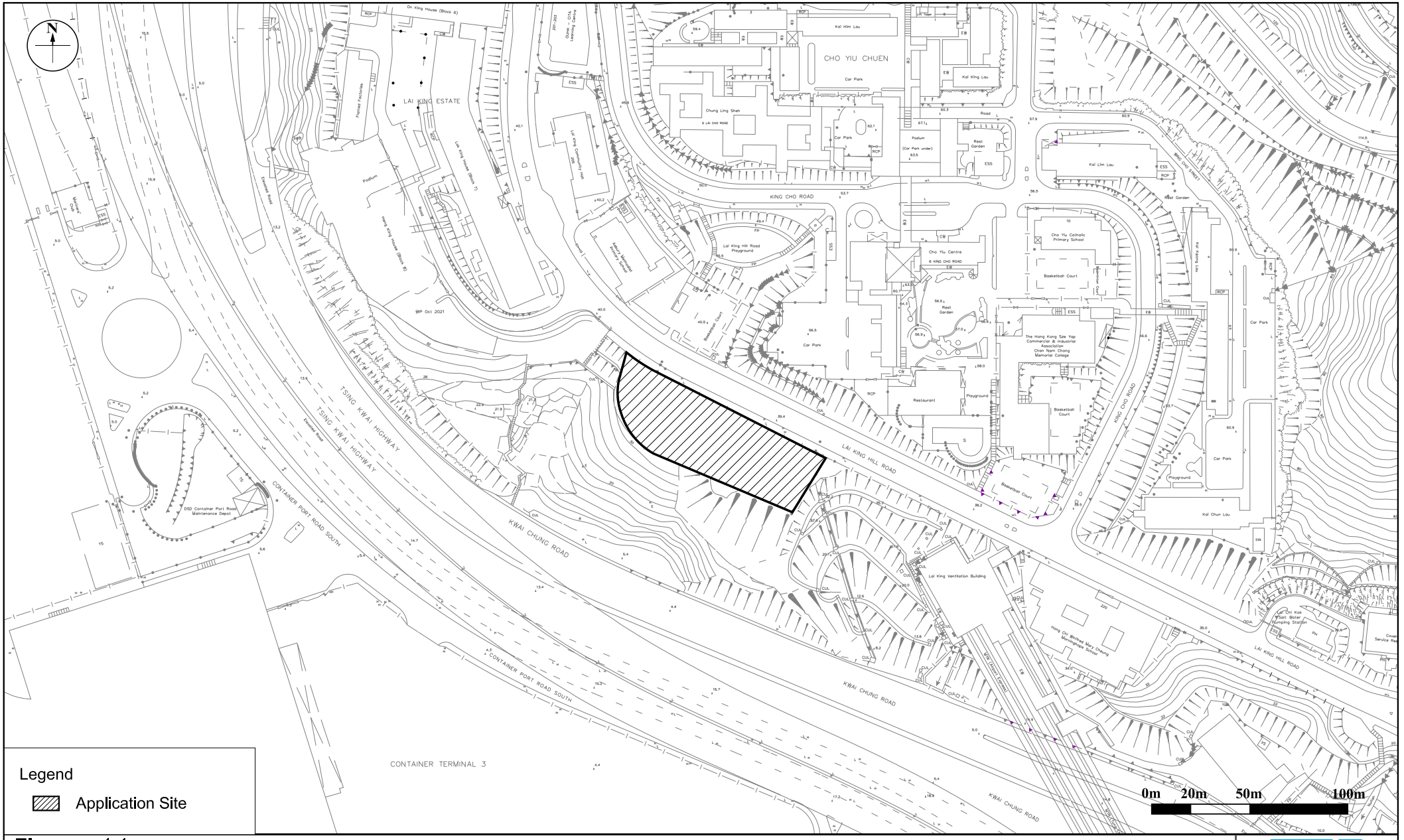

Figure: 1.1

Title: Location of Application Site and its Environ

Project: Technical Feasibility Study (TFS) for the Redevelopment of the Salvation Army Lai King Home at Nos. 200-210 Lai King Hill Road, Kwai Chung, New Territories

RAMBOLL

Drawn by: SM

Checked by: KY

Rev.: 1.0

Date: Jul 2022

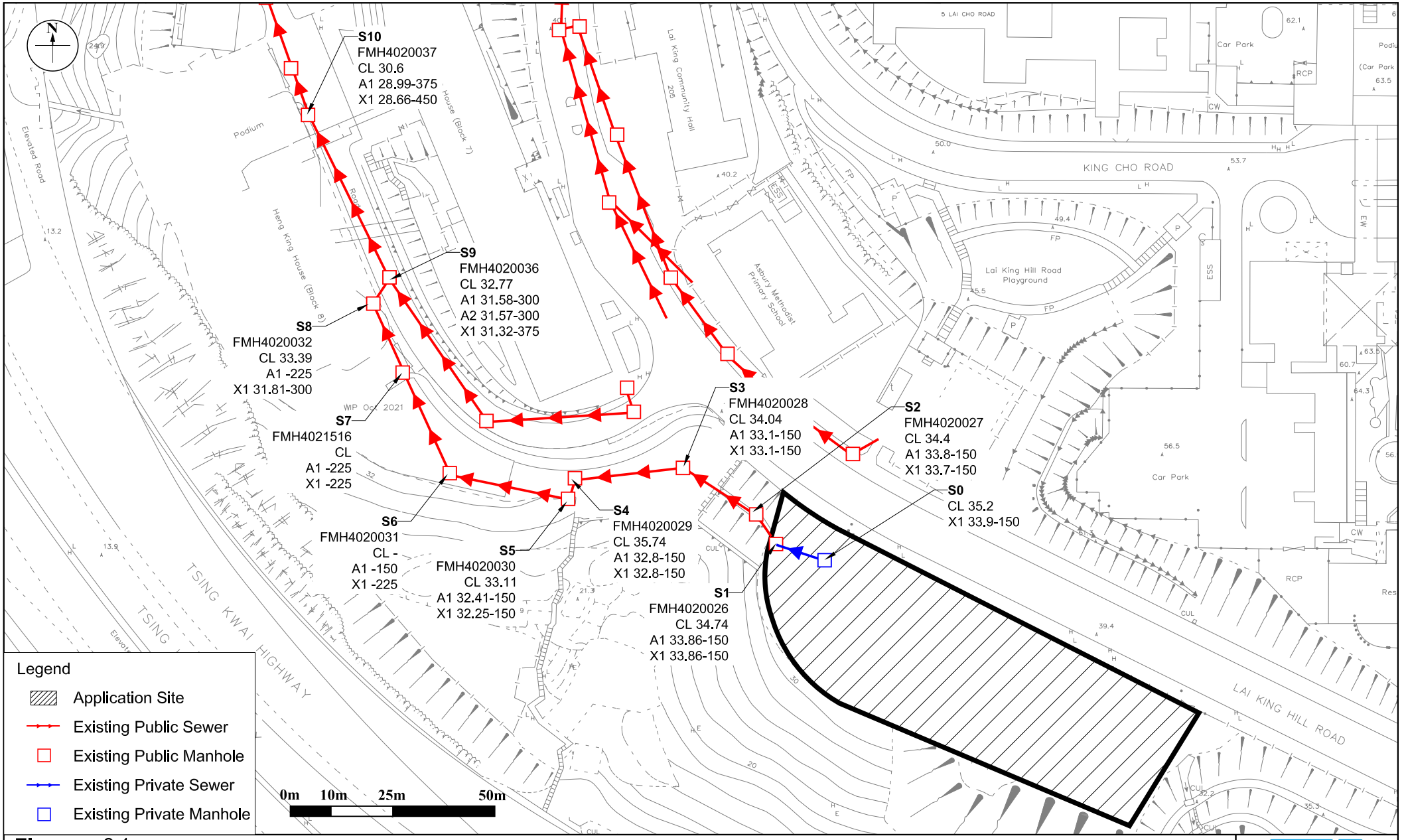

Figure: 2.1

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

Project: Technical Feasibility Study (TFS) for the Redevelopment of the Salvation Army Lai King Home at Nos. 200-210 Lai King Hill Road, Kwai Chung, New Territories

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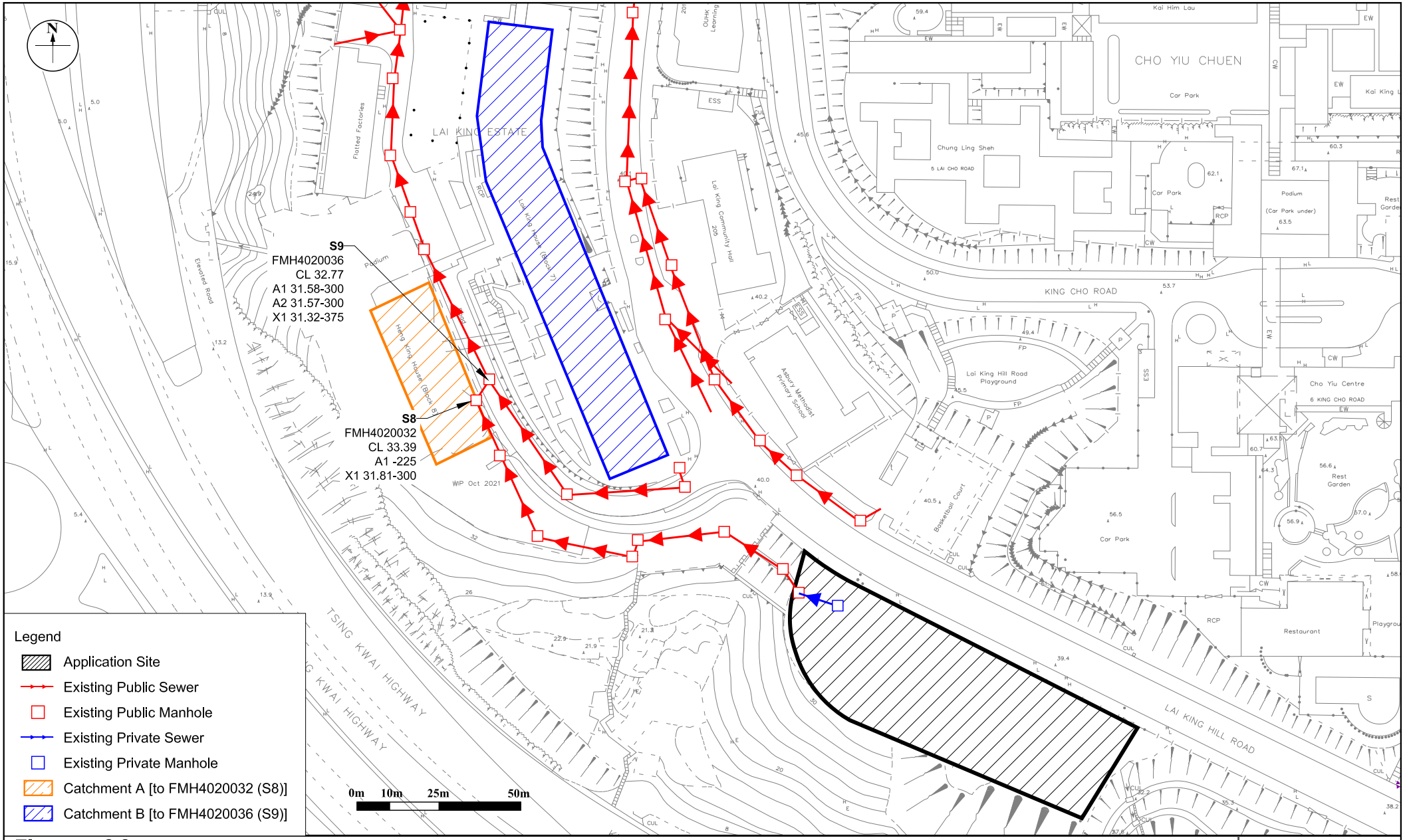

Figure: 2.2

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

Project: Technical Feasibility Study (TFS) for the Redevelopment of the Salvation Army Lai King Home at Nos. 200-210 Lai King Hill Road, Kwai Chung, New Territories

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Appendix

Appendix 2.1 Detailed Sewerage Impact Assessment Calculations

Table 1A Calculation for Sewage Generation Rate of the Proposed Development

Dorm (overnight)*			
Total number of residents	=	328	residents (Provided by the Applicant)
Design flow	=	190	litre/person/day -- (Institutional and special class in Table T-1 of GESF)
Sewage generation rate	=	**62.3**	m^3/day
Workshops (daytime only)*			
Total number of users (not resident or staff)	=	120.0	users (Provided by the Applicant)
Design flow for users' activities	=	280.0	litre/employee/day (J11 in Table T-2 of GESF)
Sewage generation rate	=	**33.6**	m3/day
Office (daytime only)			
Total number of staff	=	245	staff (Provided by the Applicant)
Design flow for commercial activities	=	280	litre/employee/day (J11 in Table T-2 of GESF)
Sewage generation rate	=	**68.6**	m^3/day
Office (overnight)			
Total number of staff	=	20	staff (Provided by the Applicant)
Design flow	=	190	litre/person/day -- (Institutional and special class in Table T-1 of GESF)
Sewage generation rate	=	**3.8**	m^3/day
Total Flow from the Proposed Development			
Flow rate	=	168.3	m^3/day
Flow rate with P_{CIF} (Kwai Chung - 1.1)	=	185.2	m^3/day (refer to Table T-4 of GESF - Kwai Chung - 1.1)
Contributing population	=	686	people
Peaking factor	=	8	(refer to Table T-5 of GESF for a population of less than 1000 incl. stormwater allowance)
Peak flow	=	**17.1**	litre/sec

*For details, please refer to **Table 1B**.

Table 1B Correlation between the Number of Residents/Users and the Number of Places of the Social Welfare Facilities

Dorm (overnight)		**Proposed Capacity upon Redevelopment**		**Total number of residents/ users**
Hostel for Severely Mentally Handicapped Persons ("HSMH")	=	178		
▪ Residential Respite Service ("RRS")		2	=	
Hostel for Moderately Mentally Handicapped Persons ("HMMH")	=	80		
Care & Attention Home for Severely Disabled Persons ("C&A"/SD)	=	70		**328**
Workshops (daytime only)				
Integrated Vocational Rehabilitation Services Centre ("IVRSC")	=	120	=	**120**

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

Segment	Manhole Reference	Manhole Reference	Material	Pipe Dia.	Pipe Length	Invert Level 1	Invert Level 2	g	k_s	s	v	V	Area	Q	Estimated Capacity
				mm	m	mPD	mPD	m/s^2	m		m^2/s	m/s	m^2	m^3/s	L/s
S0-S1	-	FMH4020026	clayware	150	12.17	33.90	33.86	9.81	0.0030	0.003	0.000001	0.44	0.02	0.01	8
S1-S2	FMH4020026	FMH4020027	clayware	150	5.67	33.86	33.80	9.81	0.0030	0.011	0.000001	0.80	0.02	0.01	14
S2-S3	FMH4020027	FMH4020028	clayware	150	20.84	33.70	33.10	9.81	0.0006	0.029	0.000001	1.71	0.02	0.03	30
S3-S4	FMH4020028	FMH4020029	clayware	150	25.91	33.10	32.80	9.81	0.0030	0.012	0.000001	0.83	0.02	0.01	15
S4-S5	FMH4020029	FMH4020030	clayware	150	4.22	32.80	32.41	9.81	0.0006	0.092	0.000001	3.08	0.02	0.05	54
S5-S6	FMH4020030	FMH4020031	clayware	150	28.86	32.25	32.08	9.81	0.0030	0.006	0.000001	0.60	0.02	0.01	11
S6-S7	FMH4020031	FMH4071516	clayware	225	27.01	32.08	31.92	9.81	0.0030	0.006	0.000001	0.79	0.04	0.03	31
S7-S8	FMH4071516	FMH4020032	clayware	225	17.56	31.92	31.81	9.81	0.0030	0.006	0.000001	0.79	0.04	0.03	31
S8-S9	FMH4020032	FMH4020036	clayware	300	6.37	31.81	31.57	9.81	0.0006	0.038	0.000001	3.06	0.07	0.22	217
S9-S10	FMH4020036	FMH4020037	clayware	375	44.10	31.32	28.99	9.81	0.0006	0.053	0.000001	4.18	0.11	0.46	462

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

(2) The values of ks = 0.6mm and 3mm are used for the calculation of slimed clayware sewer, poor condition @mean velocity = approximately 1.2m/s and 0.75m/s respectively (based on Table 5: Recommended Roughness Values in Sewerage Manual)

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

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

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

(6) According to DSD Drainage Records, the invert levels of Manhole S6 (FMH4020031), S7 (FHM4071516) and S8 (FMH4020032) are missing. Steady pipe gradient is assumed across FMH4020030 (32.25 mPD) and FMH4020032 (31.81 mPD).

Table 2b Hydraulic Capacity of Existing and Proposed Sewers - Free Flow Condition (After upgrading)

Segment	Manhole Reference	Manhole Reference	Material	Pipe Dia.	Pipe Length	Invert Level 1	Invert Level 2	g	k_s	s	v	V	Area	Q	Estimated Capacity
				mm	m	mPD	mPD	m/s^2	m		m^2/s	m/s	m^2	m^3/s	L/s
S0-S1	-	FMH4020026	polyethylene	225	12.17	33.91	33.86	9.81	0.0015	0.004	0.000001	0.73	0.04	0.03	29
S1-S2	FMH4020026	FMH4020027	polyethylene	225	5.67	33.86	33.80	9.81	0.0003	0.011	0.000001	1.46	0.04	0.06	58
S2-S3	FMH4020027	FMH4020028	polyethylene	225	20.84	33.70	33.10	9.81	0.0003	0.029	0.000001	2.43	0.04	0.10	97
S3-S4	FMH4020028	FMH4020029	polyethylene	225	25.91	33.10	32.80	9.81	0.0003	0.012	0.000001	1.53	0.04	0.06	61
S4-S5	FMH4020029	FMH4020030	polyethylene	225	4.22	32.80	32.41	9.81	0.0003	0.092	0.000001	4.37	0.04	0.17	174
S5-S6	FMH4020030	FMH4020031	polyethylene	225	28.86	32.25	32.08	9.81	0.0030	0.006	0.000001	0.79	0.04	0.03	31
S6-S7	FMH4020031	FMH4071516	clayware	225	27.01	32.08	31.92	9.81	0.0030	0.006	0.000001	0.79	0.04	0.03	31
S7-S8	FMH4071516	FMH4020032	clayware	225	17.56	31.92	31.81	9.81	0.0030	0.006	0.000001	0.79	0.04	0.03	31
S8-S9	FMH4020032	FMH4020036	clayware	300	6.37	31.81	31.57	9.81	0.0006	0.038	0.000001	3.06	0.07	0.22	217
S9-S10	FMH4020036	FMH4020037	clayware	375	44.10	31.32	28.99	9.81	0.0006	0.053	0.000001	4.18	0.11	0.46	462

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

(2) The values of ks = 0.6mm and 3mm are used for the calculation of slimed clayware sewer, poor condition @mean velocity = approximately 1.2m/s and 0.75m/s respectively (based on Table 5: Recommended Roughness Values in Sewerage Manual)

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

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

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

(6) According to DSD Drainage Records, the invert levels of Manhole S6 (FMH4020031), S7 (FHM4071516) and S8 (FMH4020032) are missing. Steady pipe gradient is assumed across FMH4020030 (32.25 mPD) and FMH4020032 (31.81 mPD).

Table 3 Calculation for Sewage generation rate of the Existing Surrounding Building

Catchment A, discharges to FMH4020032 (S8)

Heng King House, Lai King Estate

Total number of residential units	=	540	units
Total number of residents	=	1458	residents (refer to Census and Statistics Department 2020 data - average household size of 2.7 in Hong Kong)
Design flow	=	190	litre/person/day -- (Private R1 in Table T-1 of GESF)
Sewage generation rate	=	277.0	m^3/day
Total Flow of Catchment A, discharges to FMH4020032 (S8)	=	277.0	m^3/day

Catchment B, discharges to FMH4020036 (S9)

Lok King House, Lai King Estate

Total number of residential units	=	861	units
Total number of residents	=	2325	residents (refer to Census and Statistics Department 2020 data - average household size of 2.7 in Hong Kong)
Design flow	=	190	litre/person/day -- (Private R1 in Table T-1 of GESF)
Sewage generation rate	=	441.7	m^3/day
Total Flow of Catchment B, discharges to FMH4020036 (S9)	=	441.7	m^3/day

Remarks:
(1) The uses of different premises was verified on site in Feb 2022.

Sub-total

Total Flow at S0 (including Proposed Development)	=	168.7	m^3/day
Total Flow at S1 (including Proposed Development)	=	168.7	m^3/day
Total Flow at S2 (including Proposed Development)	=	168.7	m^3/day
Total Flow at S3 (including Proposed Development)	=	168.7	m^3/day
Total Flow at S4 (including Proposed Development)	=	168.7	m^3/day
Total Flow at S5 (including Proposed Development)	=	168.7	m^3/day
Total Flow at S6 (including Proposed Development)	=	168.7	m^3/day
Total Flow at S7 (including Proposed Development)	=	168.7	m^3/day
Total Flow at S8 (including Proposed Development + Catchement A)	=	445.7	m^3/day
Total Flow at S9 (including Proposed Development + Catchement A & B)	=	887.4	m^3/day
Total Flow at S10 (including Proposed Development + Catchement A & B)	=	887.4	m^3/day

Sub-total with Catchment Inflow Factor = 1.1 (Kwai Chung)

Total Flow at S0 (including Proposed Development)	=	185.6	m^3/day
Total Flow at S1 (including Proposed Development)	=	185.6	m^3/day
Total Flow at S2 (including Proposed Development)	=	185.6	m^3/day
Total Flow at S3 (including Proposed Development)	=	185.6	m^3/day
Total Flow at S4 (including Proposed Development)	=	185.6	m^3/day
Total Flow at S5 (including Proposed Development)	=	185.6	m^3/day
Total Flow at S6 (including Proposed Development)	=	185.6	m^3/day
Total Flow at S7 (including Proposed Development)	=	185.6	m^3/day
Total Flow at S8 (including Proposed Development + Catchement A)	=	490.3	m^3/day
Total Flow at S9 (including Proposed Development + Catchement A & B)	=	976.2	m^3/day
Total Flow at S10 (including Proposed Development + Catchement A & B)	=	976.2	m^3/day

Table 4a Comparision of the Hydraulic Capacity of Existing Sewers for Sewerage generated from the Proposed Development and Surrounding Catchment Areas

Segment	Manhole Reference	Manhole Reference	Pipe Dia. (mm)	Pipe Length (m)	Gradient	Estimated Capacity (L/s)	Daily Flow (m^3/day)	Contributing Population	Peaking Factor	Peak Flow from the Proposed Development and Catchment Areas (L/s)	Contribution from the Proposed Development and the Surrounding Catchment Areas (%)	Status
S0-S1	-	FMH4020026	150	12.2	0.003	8	185.6	687	8	17.2	219.3%	Spill
S1-S2	FMH4020026	FMH4020027	150	5.7	0.011	14	185.6	687	8	17.2	121.9%	Spill
S2-S3	FMH4020027	FMH4020028	150	20.8	0.029	30	185.6	687	8	17.2	56.7%	OK
S3-S4	FMH4020028	FMH4020029	150	25.9	0.012	15	185.6	687	8	17.2	116.5%	Spill
S4-S5	FMH4020029	FMH4020030	150	4.2	0.092	54	185.6	687	8	17.2	31.6%	OK
S5-S6	FMH4020030	FMH4020031	150	28.9	0.006	11	185.6	687	8	17.2	162.2%	Spill
S6-S7	FMH4020031	FMH4071516	225	27.0	0.006	31	185.6	687	8	17.2	54.6%	OK
S7-S8	FMH4071516	FMH4020032	225	17.6	0.006	31	185.6	687	8	17.2	54.6%	OK
S8-S9	FMH4020032	FMH4020036	300	6.4	0.038	217	490.3	1,816	6	34.0	15.7%	OK
S9-S10	FMH4020036	FMH4020037	375	44.1	0.053	462	976.2	3,615	6	67.8	14.7%	OK

Table 4b Comparision of the Hydraulic Capacity of Existing Sewers for Sewerage generated from the Proposed Development and Surrounding Catchment Areas (After Upgrading)

Segment	Manhole Reference	Manhole Reference	Pipe Dia. (mm)	Pipe Length (m)	Gradient	Estimated Capacity (L/s)	Daily Flow (m^3/day)	Contributing Population	Peaking Factor	Peak Flow from the Proposed Development and Catchment Areas (L/s)	Contribution from the Proposed Development and the Surrounding Catchment Areas (%)	Status
S0-S1	-	FMH4020026	225	12.2	0.003	26	185.6	687	8	17.2	65.9%	OK
S1-S2	FMH4020026	FMH4020027	225	5.7	0.011	58	185.6	687	8	17.2	29.5%	OK
S2-S3	FMH4020027	FMH4020028	225	20.8	0.029	97	185.6	687	8	17.2	17.8%	OK
S3-S4	FMH4020028	FMH4020029	225	25.9	0.012	61	185.6	687	8	17.2	28.2%	OK
S4-S5	FMH4020029	FMH4020030	225	4.2	0.092	174	185.6	687	8	17.2	9.9%	OK
S5-S6	FMH4020030	FMH4020031	225	28.9	0.006	31	185.6	687	8	17.2	54.6%	OK
S6-S7	FMH4020031	FMH4071516	225	27.0	0.006	31	185.6	687	8	17.2	54.6%	OK
S7-S8	FMH4071516	FMH4020032	225	17.6	0.006	31	185.6	687	8	17.2	54.6%	OK
S8-S9	FMH4020032	FMH4020036	300	6.4	0.038	217	490.3	1,816	6	34.0	15.7%	OK
S9-S10	FMH4020036	FMH4020037	375	44.1	0.053	462	976.2	3,615	6	67.8	14.7%	OK