Appendix 5

SEWERAGE IMPACT ASSESSMENT

Issue No. : Issue 2
Issue Date : September 2025
Project No. : 2240

SEWERAGE IMPACT ASSESSMENT

FOR

PROPOSED MINOR RELAXATION OF BUILDING HEIGHT RESTRICTION FOR PERMITTED FLAT (POLICE MARRIED QUARTERS) IN "GOVERNMENT, INSTITUTION OR COMMUNITY (1)" ZONE AND PROPOSED FLAT (POLICE MARRIED QUARTERS) IN "GOVERNMENT, INSTITUTION OR COMMUNITY" ZONE IN GOVERNMENT LAND AT TUNG CHUNG AREAS 134 AND 135, TUNG CHUNG, LANTAU ISLAND

Prepared by

Allied Environmental Consultants Limited

COMMERCIAL-IN-CONFIDENCE

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Document Verification

Project Title	PROPOSED MINOR RELAXATION OF BUILDING HEIGHT RESTRICTION FOR PERMITTED FLAT (POLICE MARRIED QUARTERS) IN "GOVERNMENT, INSTITUTION OR COMMUNITY (1)" ZONE AND PROPOSED FLAT (POLICE MARRIED QUARTERS) IN "GOVERNMENT, INSTITUTION OR COMMUNITY" ZONE IN GOVERNMENT LAND AT TUNG CHUNG AREAS 134 AND 135, TUNG CHUNG, LANTAU ISLAND	**Project No.**	2240
Document Title	SEWERAGE IMPACT ASSESSMENT		

Issue No.	Issue Date	Description	Prepared by	Checked by	Approved by
1	May 2025	Issue 1	Christine Goh	Cathy Man	Grace Kwok
2	September 2025	Issue 2	Christine Goh	Cathy Man	Grace Kwok

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1. Introduction

1.1. Background

1.1.1. The Hong Kong Police Force (the Applicant) intends to develop a Junior Police Officers Married Quarters (JPOMQ) (hereafter as "the proposed development") at Tung Chung Area 134, Lantau Island (hereafter as "the Application Site"). The Application Site covers an area of about 4,876m^2.

1.1.2. The Application Site is located in Tung Chung East (TCE) of Tung Chung New Town Extension (TCNTE). It is predominantly zoned "Government, Institution or Community (1)" ("G/IC (1)") with minor encroachment into the "Government, Institution or Community" ("G/IC") zone. The "G/IC" and "G/IC (1)" zones are subject to BH restrictions of 50mPD and 70mPD respectively. A Section 16 (S16) Planning Application is being submitted in support of the Proposed Minor Relaxation of Building Height Restriction for Permitted Flat (Police Married Quarters) in "G/IC (1)" Zone and Proposed Flat (Police Married Quarters) in "G/IC" Zone at the Application Site.

1.1.3. Allied Environmental Consultants Limited (AEC) is commissioned to conduct a sewerage impact assessment (SIA) in support of the Section 16 Planning Application. A full SIA is required to demonstrate the sufficient capacities of the downstream public sewer to receive any additional discharge from the captioned project.

1.2. Objectives of the SIA

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

1.3. Report Structure

1.3.1. The remaining chapters of this report are shown below:

Chapter 2 – Site Context
Chapter 3 – Sewerage Impact Assessment
Chapter 4 – Estimation of Sewage Flow from Proposed Development
Chapter 5 – Sewage Capacity
Chapter 6 – Result and Discussion
Chapter 7 – Conclusion

2. Site Context

2.1. Site Location and Its Environs

2.1.1. The proposed development is located at Area 134 in TCNTE which is at the junction of Road D2 to the east and Road L7 to the south. Across Road D2 are Area 137 and Area 138, located to the east, designated for a post-secondary institution and other educational uses, and a sports ground respectively. Area 131 is a planned police station and Area 132 is the planned Eastern Sewage Pumping System (ESPS) across Road L7 located to the south. Area 133C is located to the west, planned for public housing while Area 135 is designated for other educational use and is located to the immediate north. The Application Site is currently located on reclaimed land within TCNTE in Islands District.

2.1.2. ***Figure 2.1*** shows the site location and its environs.

2.2. Proposed Development Scheme

2.2.1. The proposed development comprises two residential towers with 3 podium floors and 27 residential floors with about 432 domestic units. Carpark is proposed at G/F and 1/F while E&M facilities and Loading/Unloading Bays are proposed at the G/F. Podium garden is located at 2/F.

2.2.2. The development schedule of the proposed development is tabulated in ***Table 2-1***. The layout design scheme of the proposed development is shown in ***Appendix A***.

Table 2-1 Development Schedule

Floor	Use
G/F	Carpark, E&M Facilities, Loading/Unloading Bays, Management Office/Toilet & Changing Room/ Multipurpose Room
1/F	Carpark
2/F	Podium garden
3/F – 29/F	Flat

2.2.3. According to the latest programme, the commencement of construction works will start in October 2027 tentatively and the proposed development is expected to be completed in Q4 2031.

2.3. Existing Sewerage Condition

2.3.1. The latest Drainage information was obtained from the Civil Engineering and Development Department (CEDD) in February 2025 to gather the background information on sewerage infrastructure in the vicinity of the Application Site. The infrastructure works, including drainage works, sewerage works (including two sewage pumping stations) are under construction. Concerned sewerage network was identified for estimation of the potential sewerage impact to the downstream sewers associated with the proposed development.

2.3.2. As refer to CEDD report "Sewerage System and Sewage Implication Review for Population Increase and Development Intensity – Case 2 (Final)" (Ref. P149-03), a sewerage network comprising gravity sewer is proposed to convey the collected sewage to the ESPS, which will be locating to the south of the application development. Extract from CEDD report is shown in ***Appendix B***. The estimation of the design catchment of ESPS and the estimated average dry weather flow of the subject site are as followed.

Table 2-2 Reference from CEDD report

Development	**ADWF (m^3/day)**	**Peak Flow (m^3/day)**	**Remarks and Assumption**
Design Catchment to ESPS (Area 132)	35,727 (Design)	67,723[(1)] (Maximum)	Information from CEDD report "Sewerage System and Sewage Implication Review for Population Increase and Development Intensity – Case 2 (Final)" (Ref. P149-03)
Application Site (Area 134)	**314.8 [(2)]**	-	
Area 129	786.1	-	
Area 130	875.8	-	
Area 131	65.2	-	
Area 135	77.1	-	
Area 136	260.7	-	
Area 137	256.6	-	
Area 138	84.2	-	
Area 133A	4,572.2	-	
Area 133B	1,614.7	-	
Area 133C	1,708.7	-	
Area 132 [(3)]	3.3	-	
Area 52	141.9	-	

Notes:

(1) Peaking Factor 1.89 (excluding stormwater allowance) is adopted according to CEDD Report (Ref. P149-03)

(2) Estimated population of 1,166 people adopted based on CEDD Report (Ref. P149-03)

(3) Sewage generated from the employee of east sewage pumping station (ESPS)

3. Sewerage Impact Assessment

3.1. Legislation, Standards and Guidelines

3.1.1. With reference to ProPECC PN 1/23 Drainage Plans Subject to Comment by the Environmental Protection Department ("EPD"), foul water should be discharged to a foul sewer under the Building (Standards of Sanitary Fitments, Plumbing, Drainage Works and Latrines) Regulations (Cap.123I) Section 40(1), 40(2), 41(1) and 90.

3.1.2. The following standards and guidelines are adopted for the estimation, assessment and evaluation of sewerage implication of the proposed development:

- "Hong Kong Planning Standards and Guidelines" issued by the Planning Department;
- "Sewerage Manual Part 1" published by DSD; and
- "Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning Version 1.0 (Report No.: EPD/TP1/05)" ("GESF") published by Environmental Protection Department ("EPD");

3.2. Assessment Methodology and Assessment

3.2.1. As shown in the drainage plan in ***Appendix C***, the sewage generated from the proposed development will be discharged through the existing terminal manhole (S1: PLUG C0.2) at the south of the Application Site. This terminal hole will be connected to the existing public foul water manhole (S2: SE-C13) outside the Application Site through a 280mm diameter vitrified clay sewage pipe system. The existing sewers in the vicinity of the proposed development are shown in ***Figure 3.1***.

3.2.2. According to the "Sewerage Manual – Key Planning Issues and Gravity Collection System" published by DSD in 2013, the capacities of respective sewers have been calculated based on Colebrook-White equation for circular pipes:

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

Where

V = mean velocity (m/s)

g = gravitational acceleration (m/s^2)

D = pipe diameter (m)

k_s = hydraulic pipeline roughness (m)

(0.0015m is adopted for both vitrified clay sewers and polyethylene sewers, with reference to CEDD report)

v = kinematic viscosity of fluid (m^2/s)

s = frictional slope (energy gradient due to frictional loss)

3.2.3. The detailed calculations of sewage generation from Application Site and catchment areas have been provided in ***Appendix D*** and ***Appendix E*** respectively for reference.

4. Estimation of Sewage Flow from Proposed Development

4.1. Methodology for Estimation of Average Dry Weather Flow

4.1.1. The unit flow factors as recommended in the *Guideline for Estimating Sewage Flows for Sewage Infrastructure Planning* (hereafter as "GESF") published by EPD in 2005 has been adopted in the assessment to estimate sewage flow. Unit flow factors applied for the sewage generation estimation are tabulated in ***Table 4-1*** below.

Table 4-1 Unit Flow Factors Adopted for the Assessment

Type of People	**Unit Flow Factors [2]**	**Category [1]**
Residents of the Residential Development R1 / Welfare facilities OK	0.190 m^3/person/day	Domestic (housing type specific) – R1
Residents of the Residential Development R2 OK	0.270 m^3/person/day	Domestic (housing type specific) – R2
Employee of F&B Trade OK	1.580 m^3/person/day	Commercial Employee + Commercial activities (J10 Restaurants & Hotels)
Employee of Retail/Commercial	0.280 m^3/person/day	Commercial Employee + Commercial activities (J4 Wholesale and Retail)
Employee of Office	0.080 m^3/person/day	Commercial Employee + Commercial activities (J6 Business Services)
Employee of Fire Station/ Sports Ground/ Welfare Facilities/ Police Station/ Management Office/ Open Space	0.280 m^3/person/day	Commercial Employee + Commercial activities (J11 Community, Social & Personal Services)
Spectator of Sports Ground [3]	0.032 m^3/person/day	-
School Teacher	0.280 m^3/person/day	Commercial Employee + Commercial activities (J11 Community, Social & Personal Services)
Kindergarten/ School Student	0.04 m^3/person/day	School Student
Employee of Sewage Pumping Station [4]	0.33m^3/person/day	-
Toilets of Open Space (without shower room) [5]	10.8m^3/person/day	-
Visitors of Open Space [5]	0.01m^3/person/day	-

Notes:
[1] Environmental Protection Department, HKSARG [EPD] (2005). Guidelines for estimating sewage flows for sewage infrastructure planning (EPD/TP 1/05).
[2] UFF for various occupancy types are adopted according to Table T-1 and Table T-2 of the GESF.
[3] UFF for Sports Ground is estimated by HAB in 2015, based on the employment figures of Tseung Kwan O Sports Ground. According to 2015 employment figures of Tseung Kwan O Sports Ground with 5,000 spectators, the permanent employees are 30.
[4] UFF for employees working at sewage pumping station is adopted based on the CEDD Report (Ref. P149-03).
[5] UFF for visitors and toilet (without shower room) of open space in Area 52 is adopted based on open space data retrieved from agreed SIA for Open Space Development in Tung Chung New Town Extension (East) in Agreement No. 9AJ126.

4.2. Estimation of Sewage Flow from Existing and Proposed Developments

4.2.1. The sewage generated from the proposed development will be collected and discharged into an existing terminal sewage manhole PLUG C0.2, as shown in ***Figure 3.1***. This terminal manhole will be connected to the existing public manhole S1 (SE-C13) with 280mm vitrified clay sewage pipe.

4.2.2. The proposed development comprises of two 27-storey towers with about 432 residential units. The estimated sewage flow is given in ***Appendix D***.

4.2.3. With reference to **Table 4-2**, the total estimated Average Dry Weather Flow ("ADWF") from the proposed development is 315.3 m^3/day. The population and the estimated ADWF of proposed development are summarized in Table 1 of ***Appendix D***.

Table 4-2 Sewage Flow Estimation for the Proposed Development

Proposed Development			
Residential	**Value**	**Unit**	**Remark**
Total Number of Units	432	units	
Average Household Size	2.7	person/unit	Referred to the average domestic household size of Islands District Council in 2021 Population Census: Summary Results, published by the Census and Statistics Department
Total Number of residents	1,167	persons	
Unit flow	0.27	m^3/person/day	Referred to the planning unit flow for Domestic (housing type specific) – R2 in Table T-1 of GESF.
Average Sewage Discharge	315.1	m^3/day	
Management Office (G/F)			
GFA	58.64	m^2	Provided by project team
Worker Density per GFA (in 100m^2)	3.4	person/100m^2	Refer to worker density of All Economic Activities (All Type) in Table 8 of CIFSUS
Total number of employees	2	persons	
Unit flow	0.08	m^3/person/day	Referred to the planning unit flow for Commercial Employee + Business Services J6 in Table T-2 of GESF.
Average Sewage Discharge	0.2	m^3/day	
Total Average dry weather flow of the Proposed Development	**315.3**	**m^3/day**	

4.3. Estimation of Sewage Flow from Catchment Areas

4.3.1. Reference has been made to CEDD report "Sewerage System and Sewage Implication Review for Population Increase and Development Intensity – Case 2 (Final)" (Ref. P149-03) to estimate the sewage flow from nearby catchment areas.

4.3.2. Different catchment areas are defined as shown in ***Figure 3.1*** to consider nearby sewage generation. The catchment consists of residential buildings, welfare facilities, retail shops, restaurants, kindergartens, educational use, post-secondary institution, offices, police station, fire station, sports ground, open space and sewage pumping station. Catchment A to Catchment E cover the sewage flow from the upstream area, with manhole S2 (SE-C13) collecting discharge from Catchment A to Catchment E and proposed development. Manhole S3 (SE-E28) collects sewage generated from both upstream Catchment A to Catchment E, downstream Catchment F to Catchment M and the proposed development. The combined sewage is then discharged into the existing public sewerage pipes along Road L7 and to the ESPS located at Area 132.

4.3.3. Residential density is referred to the "2021 Population Census: Summary Results" issued by Census and Statistics Department. An average household size of 2.7 persons is deployed for Islands District Council to estimate the residential population in the vicinity.

4.3.4. The number of employees is estimated with reference to the "Commercial and Industrial Floor Space Utilization Survey" issued by the Planning Department. Different worker densities per $100m^2$ of Gross Floor Area (GFA) have been adopted in the assessment to estimate the number of employees within the study area. Relative worker density applied for the sewage generation estimation is tabulated in **Table 4-3** below.

Table 4-3 Worker Density Adopted for the Assessment

Economic Activities	**Worker Density (worker per GFA, in $100m^2$)**
All Economic Activities (All Type)	3.4 worker/$100m^2$

4.3.5. Based on information collected from the desktop study, sewage flow from different catchments in the study area is calculated as given in ***Appendix E***.

4.4. Estimation of Peak Discharge

4.4.1. Catchment inflow factor ("P_{CIF}") caters for the net overall ingress of wastewater to the sewerage system. They are catchment dependent and applicable to major sewerage facilities of a catchment.

4.4.2. In accordance with Table T-4 of the GESF, P_{CIF} of 1.0 is adopted for existing sewerage as concerned sewerage system is identified in "Central, North Point, Sandy Bay, Wan Chai, Wah Fu, Stanley, Central Kowloon, Yuen Long, San Wai, North District, Tai Po, North Lantau, Mui Wo".

4.4.3. Revised average dry weather flow ("revised ADWF") is determined by production of average dry weather flow and catchment inflow factor. Contributing population is then calculated by dividing the revised ADWF by 0.27. The calculated contributing population is finally used for selection of peaking factors.

4.4.4. Based on **Table 4-4** which is also presented in Table T-5 in GESF, the peaking factors for each sewer are chosen in the hydraulic calculation for peak flow estimation.

Table 4-4 Peaking Factors

Population Range for Sewers [1] [2]	Peaking Factor (including storm water allowance) for facility with existing upstream sewerage	Peaking Factor (excluding storm water allowance) for facility with new upstream sewerage
< 1000	8	6
1000 - 5000	6	5
5000 - 10000	5	4
10000 - 50000	4	3
> 50000	Max (7.3 / $N^{0.15}$, 2.4)	Max (6 / $N^{0.175}$, 1.6)

Notes:
[1] N is the contributing population in thousands.
[2] According to Section 12.1 of GESF,
Contributing Population = Calculated Total Average Flow (m^3/day) ÷ 0.27 (m^3/person/day)

4.5. Peak Discharge from Study Areas

4.5.1. Flow rates of peak discharge from the proposed development and other catchment areas are estimated in accordance with the DSD's "Sewerage Manual Part 1". Peak flows from different catchments at the study area are summarized in **Table 4-5** and detailed calculation for proposed development are given in ***Appendix F***.

Table 4-5 Population and Sewage Flow Estimation

Contributing Catchment Area	Connected Manhole	Revised ADWF (m^3/day)[1]	Contributing Population[2]	Peaking Factor[3]	Total Peak Discharge (m^3/s)[4]
Application Site	PLUG C0.2	315.3	1,168	6.0	0.022
Application Site + Catchment A to Catchment E	SE-C13	1059.1	3,923	6.0	0.074
Application Site + Catchment A to Catchment M	SE-E28	35,539.3	131,627	3.5	1.444

Notes:
[1] Revised ADWF (m^3/day) = ADWF (m^3/day) × Catchment Inflow Factor
[2] According to Section 12.1 of GESF, Contributing Population = Calculated Total Average Flow (m^3/day) ÷ 0.27 (m^3/person/day)
[3] According to Table T-5 of GESF
[4] Total Peak Discharge (m^3/s) = (Revised ADWF (m^3/day) × Peaking Factor ÷ 86400s/day)

5. Sewerage Capacity

5.1.1. According to the "Sewerage Manual – Key Planning Issues and Gravity Collection System" (Sewerage Manual) published by DSD in 2013, the capacities of respective sewers have been calculated based on the Colebrook White's equation. The roughness coefficients (k_s) of 1.5mm for clayware slimed sewer and 1.5mm for polyethylene sewer pipe, under poor condition are adopted in the assessment in accordance with Table 5 of DSD's "Sewerage Manual Part 1".

5.1.2. The sewerage impact on various segments of the sewer was evaluated by comparing the estimated peak flow against the capacity of the respective sewer segments. The detailed calculations are provided in ***Appendix F***.

5.1.3. For the capacity of the ESPS, the design capacity is 35,727m^3/day. Given that the ADWF and peak flow from the Application Site are 315.3m^3/day and 0.022m^3/s respectively. Comparing with CEDD report "Sewerage System and Sewage Implication Review for Population Increase and Development Intensity – Case 2 (Final)" (Ref. P149-03), the original designed sewage flow generated from Area 134 is 314.8m^3/day which is lower than the latest designed sewage flow rate. However, the increase represents an overall percentage change of 0.002%, and the sewage discharge from the Application Site accounts for less than 1% of the ESPS design capacity, as shown in table below. As the sewage contribution from the Application Site is minimal, no adverse sewerage impact is expected from the increased population in the proposed development.

Table 5-1 Comparison between Original and Updated Sewage Flow Contribution to East Sewerage Pumping Station

	Original	**Newly estimated**
ADWF	314.8m^3/day	315.3m^3/day
Capacity of ESPS (Design)	35,727m^3/day	
Percentage contribution to ESPS	0.881%	0.883%
Overall percentage change [1]	**+ 0.002%**	

Notes:
[1] Positive sign denotes increase, whereas negative sign denotes reduction

6. Result and Discussion

6.1. Daily Flow and Peak Flow from Existing and Proposed Development

6.1.1. The estimated daily flow and peak flow of the proposed redevelopment will be 315.3 m^3/day and 0.022 m^3/s, taking catchment inflow factor of 1.0 into account. **Table 6-1** tabulates the sewage generated proposed development.

Table 6-1 Sewage Generated from Proposed Development

Development	Daily Flow (m^3/day)	Peak Flow (m^3/s)
Proposed Development	315.3	0.022

6.2. Sewage Generation after Proposed Development

6.2.1. After the development, the percentages of used capacity for the existing sewers (segment S1 – S4) range from 12.5% to 19.4%. Flow estimation and capacity checking are detailed in ***Appendix D*** and ***Appendix F***, respectively. Used capacity of proposed development is presented in **Table 6-2** below.

Table 6-2 Used Capacity from Proposed Development

Pipe Segments	Used Capacity, % Proposed Development
S1 – S2	12.5%
S2 – S3	14.4%
S3 – S4	19.4%

Notes:
Pipe segment that exceeded 100% used capacity are bolded and underlined.

6.2.2. Based on the results shown above, none of the sewer pipes exceeded their used capacity.

6.3. Liability

6.3.1. The Applicant will be responsible for the construction works for the pipe convey sewerage from the terminal manhole (S1: PLUG C0.2) to the existing public sewer (S2: SE-C13). All drainage facilities shall be designed and constructed to conform to the requirements outlined below while future maintenance of the sewers outside the Application Site boundary will be carried out by DSD:

a. The Stormwater Drainage Manual, DSD
b. The Sewerage Manual, DSD
c. The General Specification for Civil Engineering Works, Hong Kong Government
d. The DSD Standard Drawings
e. The DSD Technical Circulars and Practice Notes

6.3.2. During operation phase, regular inspection of the sewers within the Application Site should be conducted by the property management office to ensure proper performance. Regular maintenance should also be carried out in accordance with standard practices stated in the DSD's "Sewerage Manual Part 1".

7. Conclusion

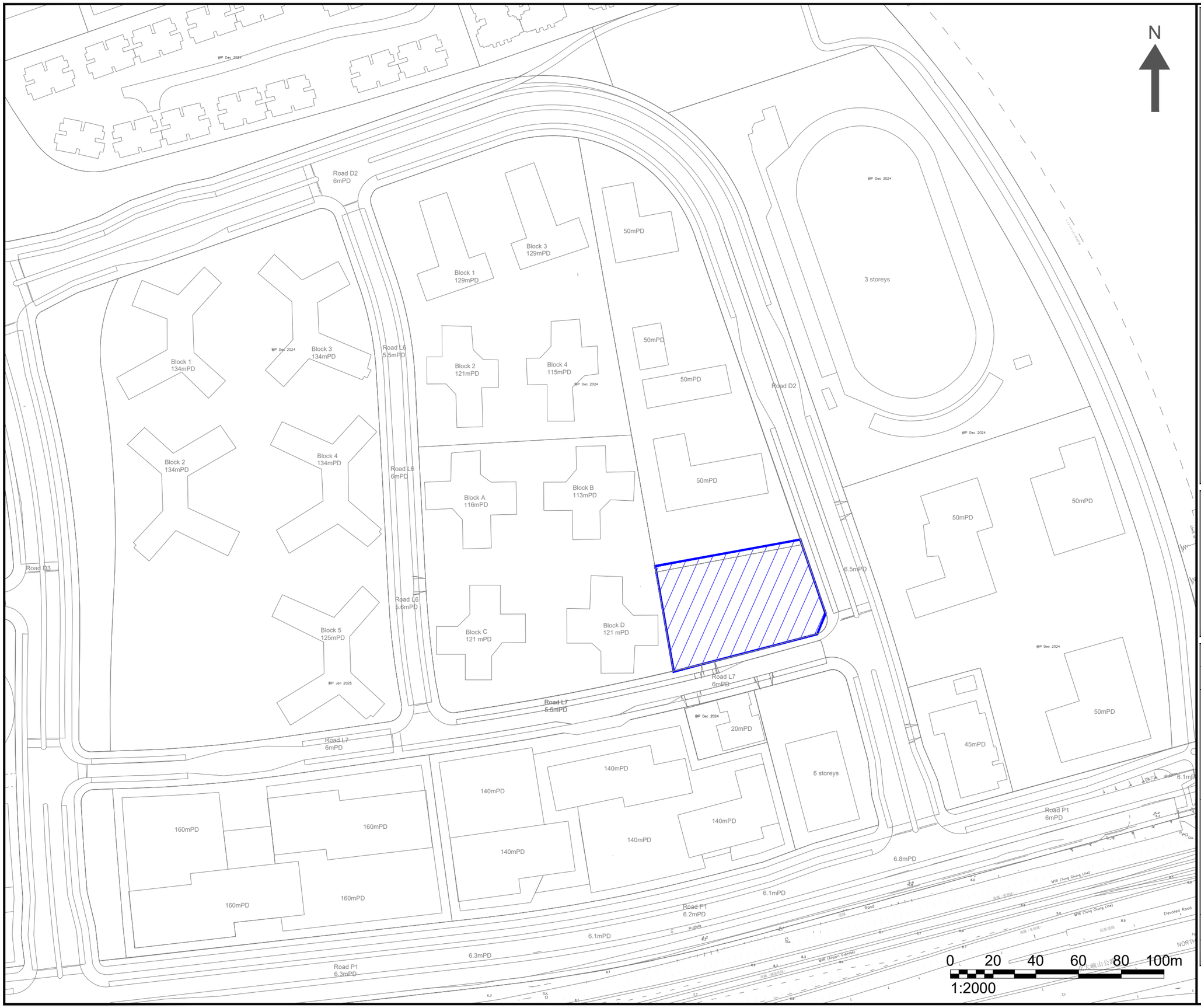
7.1.1. A Sewerage Impact Assessment (SIA) has been conducted to evaluate the possible impacts on the public sewerage network due to the proposed development. The sewage generated from the proposed development will be collected and discharged into the existing 280mm public sewers via Manhole (PLUG C0.2). The result showed that 315.3m^3/day of average sewage discharge and 0.022m^3/s of peak sewage discharge are expected to be generated from the proposed development.

7.1.2. The assessment results demonstrated that all sewers have sufficient sewer capacity to cope with the sewage flow from catchments and the proposed development. Therefore, significant sewerage impact arising from the proposed development on the existing sewers is not expected, no mitigation measures are considered necessary for the existing sewers.

7.1.3. The Applicant will be responsible for the design and construction of the proposed sewer segments between the existing public sewers and the proposed development, which will be further discussed with DSD, while future maintenance of sewers outside the Application Site boundary will be carried out by DSD.

7.1.4. Based on the above, it is concluded that the sewerage impact arising from the proposed development should be acceptable.

Figures



NOTES :

Subject Site

Consultant

Allied Environmental Consultants Limited

Project No. :	2240
Drawing By :	CC

Project :

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Drawing Title :

LOCATION OF PROJECT SITE AND ITS ENVIRON

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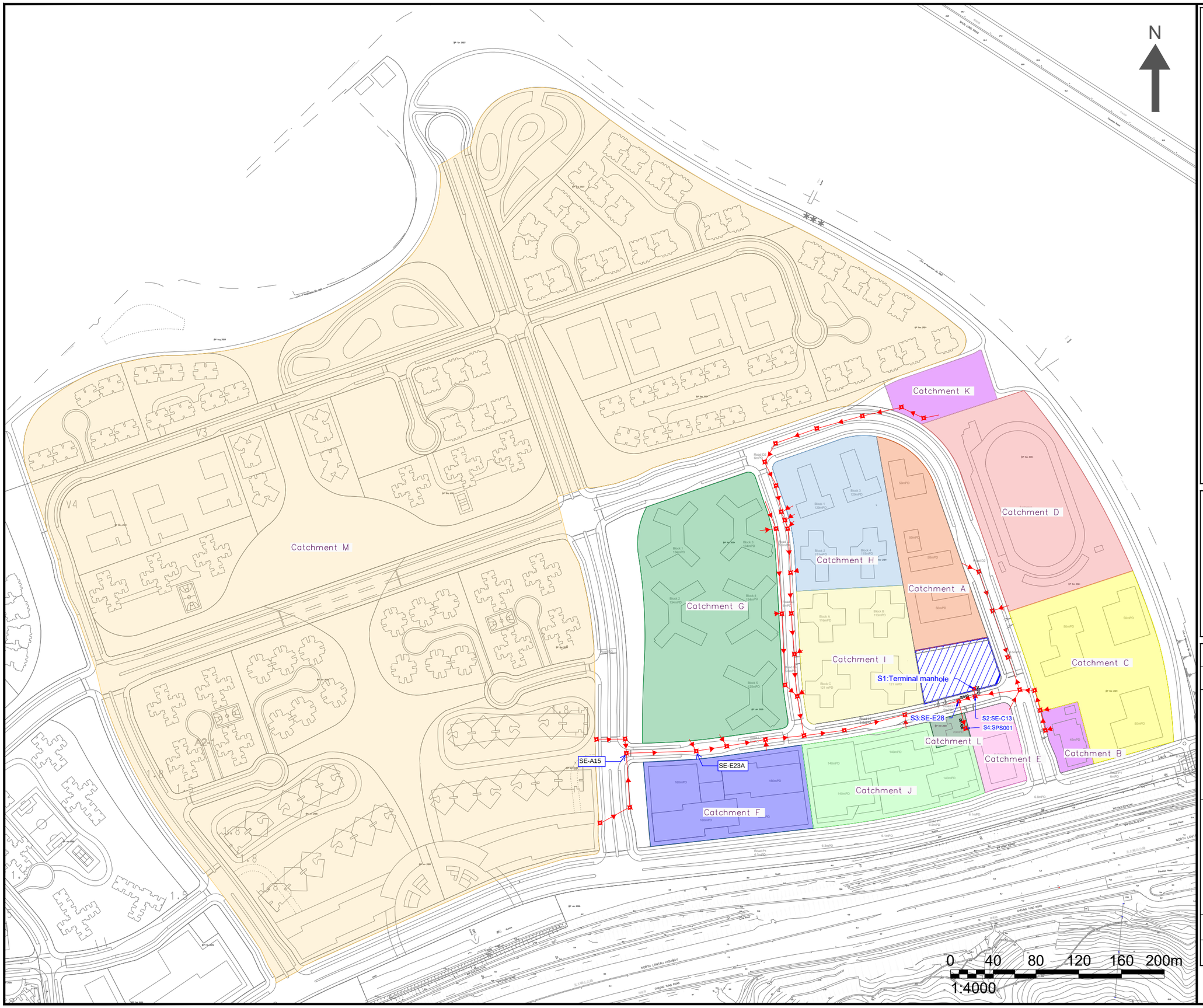

NOTES :

Subject Site

Catchment Area

Sewer Pipe

Sewer Manhole

Consultant

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Project No. :	2240
Drawing By :	CC

Project :

PROPOSED MINOR RELAXATION OF BUILDING HEIGHT RESTRICTION FOR PERMITTED FLAT (POLICE MARRIED QUARTERS) IN "GOVERNMENT, INSTITUTION OR COMMUNITY (1)" ZONE AND PROPOSED FLAT (POLICE MARRIED QUARTERS) IN "GOVERNMENT, INSTITUTION OR COMMUNITY" ZONE IN GOVERNMENT LAND AT TUNG CHUNG AREAS 134 AND 135, TUNG CHUNG, LANTAU ISLAND

Drawing Title :

OVERVIEW OF EXISTING SEWAGE NETWORK AND CATCHMENTS

Drawing No : FIGURE 3.1	Revision : 1
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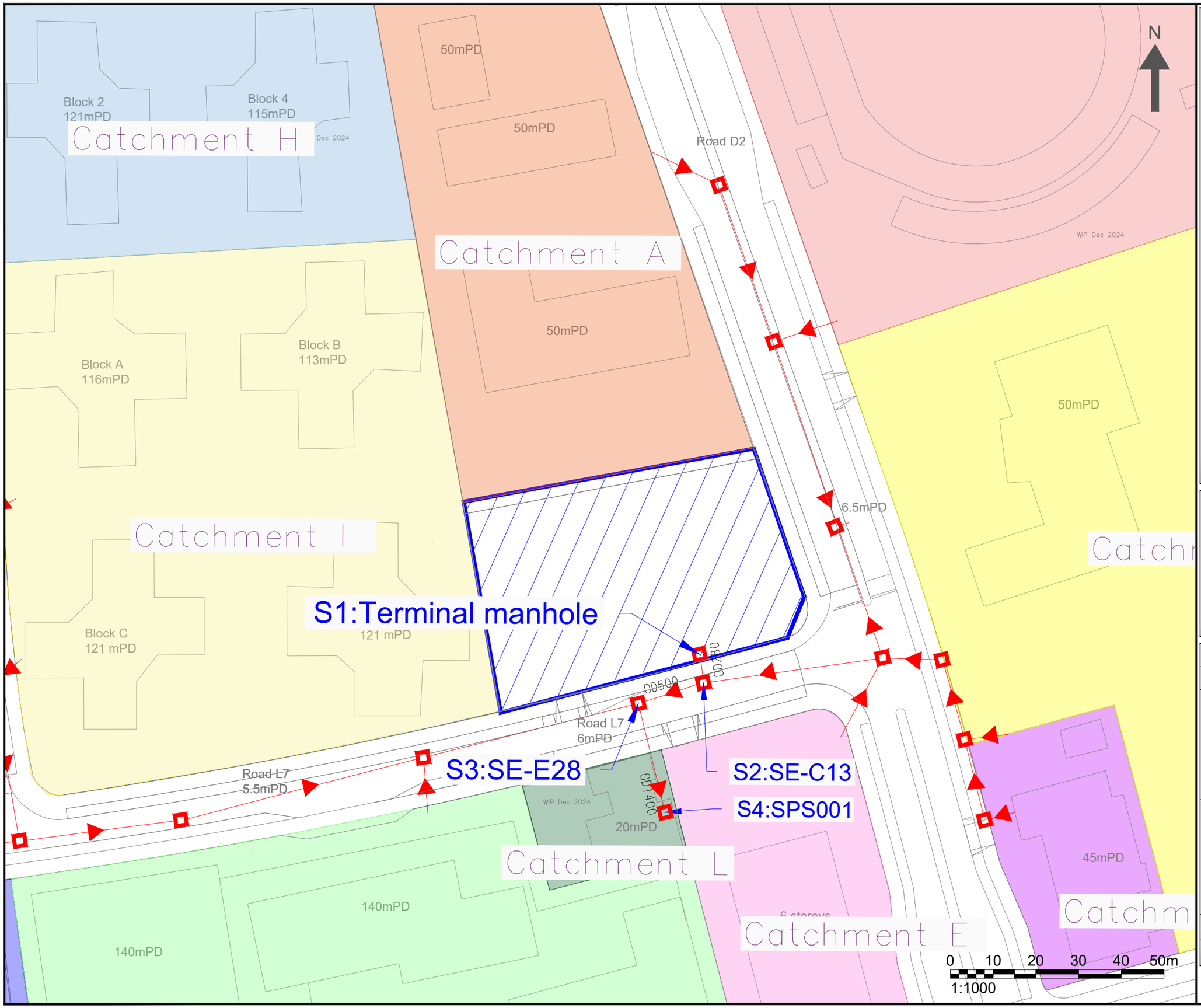

NOTES :

- Subject Site
- Catchment Area
- Sewer Pipe
- Sewer Manhole

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Project No. : 2240

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PROPOSED MINOR RELAXATION OF BUILDING HEIGHT RESTRICTION FOR PERMITTED FLAT (POLICE MARRIED QUARTERS) IN "GOVERNMENT, INSTITUTION OR COMMUNITY (1)" ZONE AND PROPOSED FLAT (POLICE MARRIED QUARTERS) IN "GOVERNMENT, INSTITUTION OR COMMUNITY" ZONE IN GOVERNMENT LAND AT TUNG CHUNG AREAS 134 AND 135, TUNG CHUNG, LANTAU ISLAND

Drawing Title :

OVERVIEW OF EXISTING SEWAGE NETWORK AND CATCHMENTS

Drawing No :	Revision :
FIGURE 3.1a	0
Scale : AS SHOWN	Date : MAY 2025

A3 420 x 297

C:\USERS\CHRISTINEGOHSIEWYINN\SYNOLOGYDRIVE\2240 TUNG CHUNG JPOMQ\05 REPORT\01 AEC REPORT\SIA\ISSUE 1\WORKING CG\[2240] TUNG CHUNG DSIA FIGURES.DWG

Appendix A

Layout Design Scheme of the Proposed Development

(Please refer to Appendix 1 of the Supplementary Planning Statement)

Appendix B

Extract from CEDD report "Sewerage System and Sewage lmplication Review for Population lncrease and Development lntensity – Case 2 (Final)" (Ref. P149-03)

89	Primary School (Student)	2400	0.04	96.0
89	Primary School (Teacher)	160	0.28	44.8
	Sewerage Flow for Assumed F&B Trade	-123	1.58	-194.0
Total				672.4 **(say 673)**

Notes:

(1) Calculation of ADWF in open space retrieved from agreed SIA for Open Space Development in Tung Chung New Town Extension (East) in Agreement No. 9AJ126.

Table 4-2 Changes in Sewage Flow of the East SPS under CASE 2

Area No. (Catchment)	Category	Changes in Population/ Employee (Head)	Unit Flow Factor (m3/head/day)	Changes of Flow (m^3/day)
115 (A2-2)	Residential Population (R1)	53	0.19	10.1
116 (A2-3)	Residential Population (R1)	53	0.19	10.1
133A (C1-1)	Residential Population (RS)	-2454	0.19	-466.3
	Commercial (Retail)	-104	0.28	-29.1
	Management Office	50	0.28	14.0
	F&B Trade	393	1.58	620.0
	Kindergarten (Student)	272	0.04	10.9
	Kindergarten (Teacher)	31	0.28	8.7
	GIC Facilities (Employee)	-235	0.28	-65.8
	Welfare Facilities (Employee)	-490	0.28	-137.2
133C (C2-1)	Residential Population (RS)	514	0.19	97.0
	Commercial (Retail)	-372	0.28	-104.0
	Management Office	25	0.28	7.0
	Kindergarten (Student)	233	0.04	9.3

Area No. (Catchment)	Category	Changes in Population/ Employee (Head)	Unit Flow Factor (m3/head/day)	Changes of Flow (m^3/day)
	Kindergarten (Teacher)	26	0.28	7.3
	Welfare Facilities (Resident)	180	0.19	34.0
	Welfare Facilities (Employee)	-20	0.28	-5.6
133B (C2-2)	Residential Population (RS)	-1015	0.19	-192.0
	Commercial (Retail)	-362	0.28	-101.4
	Managing Office	25	0.28	7.0
	Kindergarten (Student)	239	0.04	9.6
	Kindergarten (Teacher)	26	0.28	7.3
	Welfare Facilities (Resident)	100	0.19	19.0
	Welfare Facilities (Employee)	-27	0.28	-7.6
121 (E1-2)	Residential Population (R2)	16	0.27	4.3
123 (E1-3)	Residential Population (R2)	15	0.27	4.1
125 (E1-4)	Residential Population (R3)	-691	0.37	-255.7
	Residential Population (R2)	1052	0.27	284.0
126 (E3-1)	Residential Population (R3)	-1045	0.37	-386.7
	Residential Population (R2)	1592	0.27	429.0
127 (E3-2)	Residential Population (R3)	-803	0.37	-297.1
	Residential Population (R2)	1222	0.27	329.0
139 (F1-1)	Residential Population (R3)	-1326	0.37	-490.6
	Residential Population (R2)	2018	0.27	544.0
141B (F1-2)	Residential Population (R3)	-1328	0.37	-491.4
	Residential Population (R2)	2022	0.27	545.0
142 (F2-1)	Residential Population (R3)	-877	0.37	-324.5
	Residential Population (R2)	1335	0.27	360.0
141A (F2-2)	Residential Population (R3)	-1319	0.37	-488.0
	Residential Population (R2)	2009	0.27	542.4
134 (C0-2)	Residential Population (R2)	14	0.27	3.8

Area No. (Catchment)	Category	Changes in Population/ Employee (Head)	Unit Flow Factor (m3/head/day)	Changes of Flow (m^3/day)
135 (C0-1)	Other School Use (Teacher)	104	0.28	29.1
	FSD quarters	810	0.27	218.7
	Sub-divisional fire Station cum ambulance depot	150	0.28	42.0
136 (G0-3)	Fire Station	-148	0.28	-41.4
120 (E0-2)	Community & Social Centres	100	0.28	28.0
124 (E0-4)	Community & Social Centres	-348	0.28	-97.4
120 (E0-1)	Secondary School (Student)	-1200	0.04	-48.0
120 (E0-1)	Secondary School (Teacher)	-98	0.28	-27.4
124 (E0-4)	Secondary School (Student)	1200	0.04	48.0
124 (E0-4)	Secondary School (Teacher)	98	0.28	27.4
118 (E2)	Open space (Visitor)	5000	0.01 (1)	50.0
118 (E3)	Open space (Employee)	45	0.28	12.6
118 (E4)	Open space (Visitor)	5000	0.01(1)	50.0
52 (E1)	Open space (Visitor)	2000	0.01(1)	20.0
52 (E5)	Open space (Employee)	32	0.28	9.0
52 (E5)	Open space (Visitor)	3000	0.01(1)	30.0
52 (E6)	Open space (Employee)	14	0.28	3.9
52 (E6)	Open space (No. Shower Room)	10	10.8(1)	108
52 (E6)	Open space (Visitor)	3000	0.01(1)	30.0
132	Sewage Pumping Station (Employee)	10	0.33	3.3
138	Sports Ground (spectator)	2,500	0.032(2)	80.0
138	Sports Ground (spectator)	-2,500	0.025	-62.5
147	Cycle Park	-50	0.28	-14.0
	Sewerage Flow for Assumed F&B Trade	-73.8	1.58	-116.6
Total				457.4 (say 458)

Notes:

(1) Calculation of ADWF in open space retrieved from agreed SIA for Open Space Development in Tung Chung New Town Extension (East) in Agreement No. 9AJ126.
(2) Estimated by HAB in 2015, based on the employment figures of Tseung Kwan O Sports Ground. According to 2015 employment figures of Tseung Kwan O Sports Ground with 5,000 spectators, the permanent employees are 30. The UFF of 0.032 is estimated by making reference to the deviation under Section 7.4 of the EIA report of Kai Tak Multi-purpose Sports Complex.

4.1.3 The total ADWF generated from the western sewage catchment is increased from 14,740m^3/day to 15,413m^3/day whereas the ADWF generated in eastern catchment is increased from 35,269m^3/day to 35,874m^3/day. The increased sewage build-up of the Western and Eastern sewerage catchment is summarized in **Table 4-3** and **Table4-5**.

Table 4-3 Revised Sewage Build-up of the WSPS for Population Increase of Tung Chung Phase 1 and 2 Areas under CASE 2

Area No. (Catchment)	Category	Population/Employee (Head)	Unit Flow Factor (m^3/head/day)	ADWF (m^3/day)
106A (D1-1)	Residential Population (R2)	2660	0.27	718.2
106B (D1-2)	Residential Population (R2)	2012	0.27	543.2
106C (D2-1)	Residential Population (R2)	2800	0.27	756.0
110 (D2-2)	Residential Population (R2)	3464	0.27	935.3
	Commercial (Retail)	330	0.28	92.0
109 (D2-3)	Residential Population (RS)	3763	0.19	715.0
	Commercial (Retail)	180	0.28	50.0
103 (D2-4)	Residential Population (RS)	5651	0.19	1073.7
	Commercial (Retail)	287	0.28	80.0
	Kindergarten (Student)	180	0.04	7.0
	Kindergarten (Employee)	20	0.28	6.0
	Community & Social Centres	33	0.28	9.0
99 (B1-1)	Residential Population (RS)	14,880	0.19	2827.0
	Commercial (Retail)	288	0.28	81.0
	Kindergarten (Student)	180	0.04	7.0
	Kindergarten (Employee)	20	0.28	6.0
100 (B1-2)	Residential Population (RS)	16,120	0.19	3063.0
	Commercial (Retail)	676	0.28	189.0
	Kindergarten (Student)	180	0.04	7.0
	Kindergarten (Employee)	20	0.28	6.0
	Community & Social Centres	128	0.28	36.0
57 (com-1)	Commercial (Office)	5350	0.08	428.0
	Commercial (Retail)	539	0.28	150.9
105 (D0-2)	Salt-water Pumping Station	10	0.33	3.0

Table 4-4 Revised Sewage F&B Trade Build-up of the WSPS for Population Increase of Tung Chung Phase 1 and 2 Areas under CASE 2

Area No. (Catchment)	Category	Population of possible F&B trade(1) (head)	Unit flow factor (m^3/head/day)	ADWF (m^3/day)
110 (D2-2)	Commercial	33	1.58	52.1
109 (D2-3)	Commercial	18	1.58	28.4
103 (D2-4)	Commercial	28.7	1.58	45.3
99 (B1-1)	Commercial	28.8	1.58	45.5
100 (B1-2)	Commercial	67.6	1.58	106.8
57 (com-1-Retail)	COM-1 (Retail)	53.9	1.58	85.2
Total		**230**		**363.4**

Notes:

(1) Population of possible F&B trade in TCE is assumed to be 10% of retail employee.

Table 4-5 Revised Sewage Build-up of the ESPS for Population Increase of Tung Chung Phase 3 and 4 Areas under CASE 2

Area No. (Catchment)	Category	Population/Employee (Head)	Unit Flow Factor (m^3/head/day)	ADWF (m^3/day)
113 (A1-1)	Comprehensive Development Area	9,339	0.28	2,614.9
	Metro Core Area (Office)	2,350	0.08	188.0
	Metro Core Area (Retail)	2,526	0.28	707.3
	Kindergarten (Student)	180	0.04	7.2
	Kindergarten (Teacher)	20	0.28	5.6
113 (A1-2)	Comprehensive Development Area	8,966	0.28	2,510.5
	Metro Core Area (Office)	3,150	0.08	252.0
	Metro Core Area (Retail)	1,531	0.28	428.7
	Kindergarten (Student)	180	0.04	7.2
	Kindergarten (Teacher)	20	0.28	5.6
114 (A2-1)(7)	Special Residential (RS)	7,886	0.19	1,498.3
	Commercial	285	0.28	79.8
	Kindergarten (Student)	180	0.04	7.2
	Kindergarten (Teacher)	20	0.28	5.6
	Welfare Facilities	183(1)	0.28	51.2
115 (A2-2)	Residential Population (R1)	3578	0.19	679.8
116 (A2-3)	Residential Population (R1)	3578	0.19	679.8

Area No. (Catchment)	Category	Population/Employee (Head)	Unit Flow Factor (m^3/head/day)	ADWF (m^3/day)
117 (A2-4) (7)	Special Residential (RS)	8,293	0.19	1,575.7
	Commercial	301	0.28	84.3
	Kindergarten (Student)	180	0.04	7.2
	Kindergarten (Teacher)	20	0.28	5.6
	Welfare Facilities	192(1)	0.28	53.8
133A (C1-1)	Special Residential (RS)	18,406	0.19	3497.1
	Commercial	913	0.28	255.6
	Management Office	50	0.28	14.0
	F&B Trade	393	1.58	620.9
	Kindergarten (Student)	452	0.04	18.1
	Kindergarten (Teacher)	51	0.28	14.3
133C (C2-1)	Special Residential (RS)	8,382	0.19	1592.6
	Management Office	25	0.28	7.0
	Kindergarten (Student)	233	0.04	9.3
	Kindergarten (Teacher)	26	0.28	7.3
	Welfare Facilities (Resident)	180	0.19	34.2
	Welfare Facilities (Employees)	194(1)	0.28	54.3
133B (C2-2)	Special Residential (RS)	7984	0.19	1517.0
	Management Office	25	0.28	7.0
	Kindergarten (Student)	239	0.04	9.6
	Kindergarten (Teacher)	26	0.28	7.3
	Welfare Facilities (Resident)	100	0.19	19.0
	Welfare Facilities (Employees)	182(1)	0.28	51.0
119 (E1-1)	Special Residential (RS)	5,145	0.19	977.6
	Commercial	287	0.28	80.4
	Community & Social Centres	120	0.28	33.6
	Welfare Facilities	142(1)	0.28	39.8
121 (E1-2)	Residential Population (R2)	1031	0.27	278.4
	Commercial	92	0.28	25.8
123 (E1-3)	Residential Population (R2)	1030	0.27	278.1
	Commercial	92	0.28	25.8
125 (E1-4)	Residential Population (R2)	1052	0.27	284.0
	Commercial	140	0.28	39.2

Area No. (Catchment)	Category	Population/Employee (Head)	Unit Flow Factor (m^3/head/day)	ADWF (m^3/day)
122 (E1-5)	Special Residential (RS)	5,097	0.19	968.4
	Commercial	253	0.28	70.8
	Kindergarten (Student)	180	0.04	7.2
	Kindergarten (Teacher)	20	0.28	5.6
	Community & Social Centres	70	0.28	19.6
	Welfare Facilities	140(1)	0.28	39.2
118 (E3)	Open space (Employee)	45	0.28	12.6
118 (E2)	Open space (Visitor)	5000	0.01(6)	50.0
118 (E4)	Open space (Visitor)	5000	0.01(6)	50.0
52 (E1)	Open space (Visitor)	2000	0.01(6)	20.0
52 (E5)	Open space (Employee)	32	0.28	9.0
	Open space (Visitor)	3000	0.01(6)	30.0
52 (E6)	Open space (Employee)	14	0.28	3.9
	Open space (No. Shower Room)	10	10.8(6)	108.0
	Open space (Visitor)	3000	0.01(6)	30.0
126 (E3-1)	Residential Population (R2)	1592	0.27	429.8
	Commercial	152	0.28	42.6
127 (E3-2)	Residential Population (R2)	1222	0.27	329.9
	Commercial	181	0.28	50.7
139 (F1-1)	Residential Population (R2)	2018	0.27	544.9
	Commercial	237	0.28	66.4
	Kindergarten (Student)	180	0.04	7.2
	Kindergarten (Teacher)	20	0.28	5.6
141B (F1-2)	Residential Population (R2)	2022	0.27	545.9
142 (F2-1)	Residential Population (R2)	1335	0.27	360.5
	Commercial	146	0.28	40.9
	Kindergarten (Student)	180	0.04	7.2
	Kindergarten (Teacher)	20	0.28	5.6
141A (F2-2)	Residential Population (R2)	2009	0.27	542.4
129 (Com-2)	Com-2 (Office)	7,250	0.08	580.0
	Com-2 (Retail)	736	0.28	206.1
130 (Com-3)	Com-3 (Office)	6,900	0.08	552.0
	Com-3 (Retail)	739	0.28	206.9
128 (Com-4)	Com-4 (Hotel)	2,429	1.58	3,837.8
143 (Com-5)	Com-5 (Yacht Club+Commercial)	2,096	0.28	586.9

Area No. (Catchment)	Category	Population/Employee (Head)	Unit Flow Factor (m^3/head/day)	ADWF (m^3/day)
140 (F0-1)	Sports Centre	317	0.28	88.8
131 (G0-2)	Police Station	233	0.28	65.2
135 (C0-1)	Other School Use (Student)	1,200	0.04	48.0
	Other School Use (Teacher)	104	0.28	29.1
	FSD quarters	810	0.27	218.7
	Sub-divisional fire Station cum ambulance depot	150	0.28	42.0
134 (C0-2)	Police Married Quarters	1166	0.27	314.8
137 (C0-3)	Post Secondary Institution (Student)	4,000	0.04	160.0
	Post Secondary Institution (Employee)	345	0.28	96.6
138 (G0-1)	Sports Ground	15	0.28	4.2
	Sports Ground	2,500	0.032(5)	80.0
120 (E0-2)	Undesignated GIC	100	0.28	28.0
124 (E0-4)	Secondary School (Student)	1,200	0.04	48.0
	Secondary School (Teacher)	98	0.28	27.4
120 (E0-2)	Primary School (Student)	765	0.04	30.6
	Primary School (Teacher)	54	0.28	15.1
120 (E0-3)	Primary School (Student)	765	0.04	30.6
	Primary School (Teacher)	54	0.28	15.1
140 (F0-4)	Secondary School (Student)	1,200	0.04	48.0
	Secondary School (Teacher)	98	0.28	27.4
140 (F0-2)	Primary School (Student)	765	0.04	30.6
	Primary School (Teacher)	54	0.28	15.1
140 (F0-3)	Primary School (Student)	765	0.04	30.6
	Primary School (Teacher)	54	0.28	15.1
MTR TCE Station				1,023.0(2)
Tai Ho Villages (i.e. Tai Ho San Tsuen, Ngau Kwu Long Tsuen, Pak Mong Tsuen) (8)	Residential Population	696	0.27	187.9(3)
132	Sewage Pumping Station (Employee)	10	0.33	3.3
Sewage F&B Trade		871.1	1.58	**1376.3** (4)

Area No. (Catchment)	Category	Population/Employee (Head)	Unit Flow Factor (m^3/head/day)	ADWF (m^3/day)
Total				35,726.1 **(Say 35,727)**

Notes:

(1) Assumptions: 30m^2 per bed and 3 employees per bed

(2) According to information provided by MTR, peak flow of TCE MTR station is 1,944m^3/day, which is estimated based on no. of fitment. Peaking factor (excluding stormwater) for East SPS is assumed for calculation of the ADWF of TCE MTR station, i.e. 1.9. So, the ADWF of MTR TCE station can be estimate by following formula:

ADWF of TCE station = Peak flow / Peaking Factor= 1944 / 1.9=1,023 m^3/day

(3) The estimated ADWF is based on number of village houses (approximately 116 houses) and subject to further review. Details refer to Appendix G.

(4) For Sewage F&B Trade, **Table 4.6** refers.

(5) Estimated by HAB in 2015, based on the employment figures of Tseung Kwan O Sports Ground. According to 2015 employment figures of Tseung Kwan O Sports Ground with 5,000 spectators, the permanent employees are 30. The UFF of 0.032 is estimated by making reference to the deviation under Section 7.4 of the EIA report of Kai Tak Multi-purpose Sports Complex.

(6) Calculation of ADWF in open space retrieved from agreed SIA for Open Space Development in Tung Chung New Town Extension (East) in Agreement No. 9AJ126.

(7) Latest planning parameters for Area 114 and 117 have been to be adopted in Case 2 have been agreed on May 2024 with CEDD.

(8) The concerned Tai Ho villages is out of TCNTE area.

Table 4-6 Revised Sewage F&B Trade Build-up of the ESPS for Population Increase of Tung Chung Phase 3 and 4 Areas under CASE 2

Area No. (Catchment)	Category	Population/Employee (Head)	Population of possible F&B trade(1)	Unit flow factor (2) (m^3/head/d)	ADWF (m^3/day)
114 (A2-1)	Commercial	285	28.5	1.58	45.0
117 (A2-4)	Commercial	301	30.1	1.58	47.6
133A (C1-1)	Commercial	963	96.3	1.58	152.2
133C (C2-1)	Commercial	25	2.5	1.58	4.0
133B (C2-2)	Commercial	25	2.5	1.58	4.0
119 (E1-1)	Commercial	287	28.7	1.58	45.3
121 (E1-2)	Commercial	92	9.2	1.58	14.5
123 (E1-3)	Commercial	92	9.2	1.58	14.5
125 (E1-4)	Commercial	140	14.0	1.58	22.1
122 (E1-5)	Commercial	253	25.3	1.58	40.0
126 (E3-1)	Commercial	152	15.2	1.58	24.0
127 (E3-2)	Commercial	181	18.1	1.58	28.6
139 (F1-1)	Commercial	237	23.7	1.58	37.4
142 (F2-1)	Commercial	146	14.6	1.58	23.1
113 (A1-1)	Metro Core Area	2,526	252.6	1.58	399.1

	(Retail)				
133 (A1-2)	Metro Core Area (Retail)	1,531	153.1	1.58	241.9
129 (com-2)	COM-2 (Retail)	736	73.6	1.58	116.3
130 (com-3)	COM-3 (Retail)	739	73.9	1.58	116.8
Total		**8,711**	**871.1**		**1376.4**

Notes:

(1) Population of possible F&B trade in TCE is assumed to be 10% of retail employee.

6 IMPACT ASSESSMENT AND PROPOSED MITIGATION MEASURES FOR EASTERN SEWERAGE CATCHMENT

6.1 General

6.1.1 The sewerage system for flow conveyance of the eastern sewerage catchment of TCE development consists of the following components: -

(i) Proposed gravity sewer network in eastern sewerage catchment;

(ii) Proposed East Sewage Pumping Station (East SPS) and the rising mains at downstream of the pumping station;

(iii) Siu Ho Wan Sewage Treatment Works (SHWSTW)

6.1.2 The impact assessment on each component of the sewerage system arising from the increase in sewage flow in the eastern sewerage catchment will be described in the following sections.

6.2 Proposed Gravity Sewer Network

Impact

6.2.1 Due to the revision, the increased ADWF will be 458 m^3/day (i.e. from 35,269m^3/day to 35,727 m^3/day) which is equivalent to an approx. 1.30% increase. Estimated sewage flows (ADWF & Peak Flows) of Eastern Sewerage Catchment under Case 2 of AS25 and previous Case 2 Scenario 2B are shown in **Table 6-1**. Hydraulic checking of the proposed work has been carried out and attached in **Appendix H**. The result shows that the increased flow has insignificant adverse impact on downstream sewer. The proposed east sewerage pumping station layout plan is shown in **Figure 8.1**.

Table 6-1 Comparison of Peak Flow of Eastern Sewerage Catchment between Case 2 Scenario 2B and Case 2

Case	Catchment	ADWF (m^3/day)	Contributing Population (Head)	Peaking Factor	Peak Flow (m^3/day)
Case 2 Scenario 2B	Catchments for TCE East SPS	35,269	130,626	1.89(1)	66,658
Case 2	Catchments for TCE East SPS	35,727	132,322	1.89(2)	67,723

Notes:

(1) Peaking factor (excluding stormwater allowance) is adopted in Case 2 Scenario 2B.

(2) Peaking factor (excluding stormwater allowance) is adopted in Case 2.

6.2.2 In view of low sewage flow to be discharged from the proposed Cycle Park Development, there will be Membrane bioreactor at the cycle park for wastewater treatment. Cycle Park Development is no longer handled by ESPS.

Mitigation Measures

6.2.3 Due to the slight adverse impact on downstream sewers arising from the increased flow, only lead-in sewer is proposed to be upgraded. The summary table is shown in **Table 6-2** below.

case 2

AECOM

Tung Chung East Development
Additonal Service CASE 2
Sewerage Design of East Catchment of TCNTE(East).

Reference to the SDR report Submitted to PM Team on 15/02/2022

PROJECT NO.60507694
DATE 24/1/2025

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19.00	20	22	23	24	25	26	27.000	28.000	29.000	**30.000**	**22.000**	23	24.000	25.000	26.000	27.000	28
Parameters																										29.602			**Roughness:**		Ks=	1.500	mm for PE		1.500	mm for VC	BY	hxy	CHKD
	Pipe	Manhole				Population (Persons)										Flow		Accumulation		EPD			Pipe Parameter														
Source	NO.	UP_MH NO.	DN_MH NO.	Back-drop	UP_MH TYPE	Pravite R1/Public Rental 0.190	J11 Community Social & 0.280	Pravite R3 0.370	School Student 0.040	Commercial employee 0.080	Pravite R2 0.270	J2 Electricity Gas & Water 0.330	Sports Ground 0.032	J10 1.580	Other 0.0100	Inflow (m^3/d)	DWF (m^3/d)	CON_POP (person)	ACC_POP (person)	ACC_DWF (m^3/d)	Contribute People (person)	PEAK FACTOR	PEAK FLOW (m^3/s)	DIA (mm)	Inner Diameter mm	thickness mm	LEN (m)	UP_GL (mPD)	DN_GL (mPD)	UP_INV (mPD)	DN_INV (mPD)	GRAD. (1 IN)	UP_COV to Invert(m)	DN_COV to Invert(m)	VEL. (m/s)	CAP[1] (m^3/s)	PF/CAP	PIPE MAT.	PIPE CLASS	BEDDING TYPE
Area 122 (E1-5) + Area 125 (E1-4) + Area 124 (E0-4)	SE-E11a.1	SE-E11a	SE-E11b	normal	L	5097	721		1380		1052			39			1571.64	8289	8289	1571.64	5821	4.000	0.073	450	380	35	44.560	6.0	5.8	1.75	1.53	203	4.235	4.263	1.266	0.144	51%	PE	PE100	B
	SE-E11b.1	SE-E11b	SE-E11	normal	L												0.00	0	8289	1571.64	5821	4.000	0.073	450	380	35	39.092	5.8	6.6	1.53	1.02	77	4.263	5.534	2.061	0.234	31%	PE	PE100	B
Area 123 (E1-3)	SE-E9.1	SE-E9	SE-E10	normal	F1		92				1030			9			318.40	1131	1131	318.40	1179	5.000	0.018	355	300	27.5	51.704	7.550	7.092	4.265	3.705	92	3.285	3.387	1.610	0.114	16%	PE	PE100	B
	SE-E10.1	SE-E10	SE-E11	BD3	F1												0.00	0	1131	318.40	1179	5.000	0.018	355	300	27.5	59.190	7.092	6.554	3.705	3.085	95	3.387	3.469	1.583	0.112	16%	PE	PE100	B
	SE-E11.1	SE-E11	SE-E12	normal	L												0.00	0	9421	1890.04	7000	4.000	0.088	560	475	42.5	37.249	6.554	6.405	1.020	0.913	348	5.534	5.492	1.110	0.197	44%	PE	PE100	B
	SE-E12.1	SE-E12	SE-E13	normal	L												0.00	0	9421	1890.04	7000	4.000	0.088	560	475	42.5	63.419	6.405	5.869	0.913	0.680	272	5.492	5.189	1.256	0.223	39%	PE	PE100	B
Area 128 (Com-4)	SE-E13.1	SE-E13	SE-E14	normal	L									2429			3837.82	2429	11850	5727.86	21214	3.000	0.199	710	600	55	24.952	5.869	5.682	0.650	0.350	83	5.219	5.332	2.649	0.749	27%	PE	PE100	B
	SE-E14.1	SE-E14	SE-E15	normal	L												0.00	0	28119	8707.61	32250	3.000	0.302	1200	1020	90	72.752	5.682	5.697	0.090	-0.099	385	5.592	5.796	1.711	1.398	22%	PE	PE100	B
Area 140 (F0-1)	SE-E15.1	SE-E15	SE-E16	normal	L		317										88.76	317	28436	8796.37	32579	3.000	0.305	1200	1020	90	73.381	5.697	5.592	-0.099	-0.294	376	5.796	5.886	1.731	1.414	22%	PE	PE100	B
	SE-E16.1	SE-E16	SE-E17	normal	L												0.00	0	28436	8796.37	32579	3.000	0.305	1200	1020	90	49.968	5.592	6.045	-0.294	-0.483	264	5.886	6.528	2.066	1.688	18%	PE	PE100	B
	SE-E17.1	SE-E17	SE-E17A	normal	S1												0.00	0	67082	17638.47	65328	2.887	0.589	1200	1020	90	54.569	6.045	5.662	-0.483	-0.550	814	6.528	6.212	1.174	0.960	61%	PE	PE100	B
Area 118 (E2)	SE-E17A.1	SE-E17A	SE-E18	normal	S1										5000		50.00	5000	72082	17688.47	65513	2.886	0.591	1200	1020	90	39.216	5.662	5.669	-0.550	-0.646	409	6.212	6.315	1.661	1.357	44%	PE	PE100	B
	SE-E18.1	SE-E18	SE-E19	normal	S1												0.00	0	72082	17688.47	65513	2.886	0.591	1200	1020	90	57.518	5.669	5.600	-0.646	-0.825	321	6.315	6.425	1.873	1.531	39%	PE	PE100	B
	SE-E19.1	SE-E19	SE-E19A	normal	S1												0.00	0	72082	17688.47	65513	2.886	0.591	1200	1020	90	31.513	5.600	5.569	-0.825	-0.885	525	6.425	6.454	1.464	1.196	49%	PE	PE100	B
	SE-E19A.1	SE-E19A	SE-E20	normal	S1												0.00	0	72082	17688.47	65513	2.886	0.591	1200	1020	90	27.993	5.569	5.729	-0.885	-0.945	467	6.454	6.674	1.554	1.269	47%	PE	PE100	B
	SE-E20.1	SE-E20	SE-E21	normal	S1												0.00	0	103676	23638.21	87549	2.743	0.751	1400	1190	105	37.211	5.729	5.676	-1.145	-1.270	298	6.874	6.946	2.143	2.384	31%	PE	PE100	B
	SE-E21.1	SE-E21	SE-E22	normal	S1												0.00	0	103676	23638.21	87549	2.743	0.751	1400	1190	105	31.611	5.500	5.700	-1.270	-1.393	257	6.770	7.093	2.307	2.566	29%	PE	PE100	B
	SE-E22.1	SE-E22	SE-E23	normal	S1												0.00	0	103676	23638.21	87549	2.743	0.751	1400	1190	105	31.320	5.700	5.700	-1.393	-1.480	360	7.093	7.180	1.949	2.167	35%	PE	PE100	B
	SE-E23.1	SE-E23	SE-A15	normal	S1												0.00	0	103676	23638.21	87549	2.743	0.751	1400	1190	105	21.840	5.700	5.700	-1.480	-1.550	312	7.180	7.250	2.094	2.329	32%	PE	PE100	B
Area 133A (C1-1)	SE-E23A.1	SE-E23A	SE-E23B	normal	S1	18406	1014		452					489			4572.23	20361	124038	29233.45	108272	2.643	0.917	1400	1190	105	33.200	5.900	5.650	-1.658	-1.738	415	7.558	7.388	1.815	2.018	45%	PE	PE100	B
	SE-E23B.1	SE-E23B	SE-E24	normal	S1												0.00	0	124038	29233.45	108272	2.643	0.917	1400	1190	105	44.622	5.650	5.750	-1.738	-1.849	402	7.388	7.599	1.844	2.051	45%	PE	PE100	B
Area 129 (Com-2)	SE-E24.1	SE-E24	SE-E25	normal	S1		736			7250				74			902.37	8060	132097	30135.82	111614	2.629	0.940	1400	1190	105	43.452	5.750	5.950	-1.849	-1.951	426	7.599	7.901	1.791	1.992	47%	PE	PE100	B
	SE-E25.1	SE-E25	SE-E26	normal	S1												0.00	0	152712	33601.10	124449	2.579	1.026	1400	1190	105	45.630	5.945	5.785	-1.951	-2.081	351	7.896	7.866	1.974	2.195	47%	PE	PE100	B
	SE-E26.1	SE-E26	SE-E27	normal	S1												0.00	0	152712	33601.10	124449	2.579	1.026	1400	1190	105	70.090	5.785	5.785	-2.081	-2.244	430	7.866	8.029	1.782	1.982	52%	PE	PE100	B
Area 130 (Com-3)	SE-E27.1	SE-E27	SE-E28	normal	S1		739			6900				74			875.68	7713	160425	34476.78	127692	2.568	1.047	1400	1190	105	62.225	5.785	5.604	-2.244	-2.339	655	8.029	7.943	1.443	1.605	65%	PE	PE100	B
Area 132	SE-E28.1	SE-E28	SPS001	normal	S1							10					3.30	10	171654	35726.68	132321	2.552	1.078	1400	1190	105	29.760	5.604	5.500	-2.339	-2.401	480	7.943	7.901	1.687	1.876	57%	PE	PE100	B
Area 139 (F1-1)	SE-F1.1	SE-F1	SE-F2	normal	E1		257		180		2018			24			661.47	2479	2479	661.47	2450	5.000	0.038	500	420	40	40.000	5.650	5.950	3.518	3.318	200	2.133	2.633	1.363	0.189	20%	PE	120	B
Area 141B (F1-2)	SE-F2.1	SE-F2	SE-F3	normal	E1						2022						545.94	2022	4501	1207.41	4472	5.000	0.070	630	535	47.5	46.000	5.950	6.000	3.158	2.928	200	2.793	3.073	1.581	0.355	20%	PE	120	B
	SE-F3.1	SE-F3	SE-F4	normal	F1												0.00	0	4501	1207.41	4472	5.000	0.070	630	535	47.5	37.000	6.000	6.250	2.928	2.743	200	3.073	3.508	1.581	0.355	20%	PE	120	B
Area 140 (F0-4)	SE-F4.1	SE-F4	SE-F5	normal	I		98		1200								75.44	1298	5799	1282.85	4751	5.000	0.074	800	680	60	55.000	6.250	6.100	2.673	2.398	200	3.578	3.703	1.840	0.668	11%	PE	120	B
Area 141A (F2-2)	SE-F5.1	SE-F5	SE-F6	normal	I						2009						542.43	2009	7808	1825.28	6760	4.000	0.085	800	680	60	48.000	6.100	5.900	2.398	2.158	200	3.703	3.743	1.840	0.668	13%	PE	120	B
Area 140 (F0-3)	SE-F6.1	SE-F6	SE-F7	normal	I		54		765								45.72	819	8627	1871.00	6930	4.000	0.087	800	680	60	52.000	5.900	5.900	2.158	1.898	200	3.743	4.003	1.840	0.668	13%	PE	120	B
Area 140 (F0-2)	SE-F7.1	SE-F7	SE-F8	normal	I		54		765								45.72	819	9446	1916.72	7099	4.000	0.089	800	680	60	46.000	5.600	6.200	1.898	1.668	200	3.703	4.533	1.840	0.668	13%	PE	120	B
Area 142 (F2-1)	SE-F8.1	SE-F8	SE-F9	normal	L		166		180		1335			15			437.20	1696	11141	2353.91	8718	4.000	0.109	800	680	60	43.000	6.200	5.600	1.668	1.463	210	4.533	4.137	1.795	0.652	17%	PE	120	B
	SE-F9.1	SE-F9	SE-E14	BD2	I												0.00	0	11141	2353.91	8718	4.000	0.109	800	680	60	46.000	5.600	6.250	1.463	1.233	200	4.137	5.017	1.840	0.668	16%	PE	120	B
Area 143 (Com-5) & Area 52(E5)	SE-F10.1	SE-F10	SE-F11	normal	L		2128								3000		625.84	5128	5128	625.84	2318	5.000	0.036	630	535	47.5	58.600	5.730	6.150	2.000	1.566	135	3.730	4.584	1.925	0.433	8%	PE	120	B
	SE-F11.1	SE-F11	SE-F12	normal	L												0.00	0	5128	625.84	2318	5.000	0.036	630	535	47.5	54.600	6.150	6.000	1.566	1.161	135	4.584	4.839	1.925	0.433	8%	PE	120	B
	SE-F12.1	SE-F12	SE-F13	normal	L												0.00	0	5128	625.84	2318	5.000	0.036	630	535	47.5	69.800	6.000	5.850	1.161	0.644	135	4.839	5.206	1.925	0.433	8%	PE	120	B
	SE-F13.1	SE-F13	SE-E14	normal	L												0.00	0	5128	625.84	2318	5.000	0.036	800	680	60	45.400	5.850	6.250	0.644	0.308	135	5.206	5.942	2.241	0.814	4%	PE	120	B
Area 116 (A2-3) + Area 113 (A1-2) & Area 118 (E4)	SE-A20.1	SE-A20	SE-A21	BD2	L	3578	10517		180	3150				153	5000		4175.68	22578	22578	4175.68	15465	3.000	0.145	710	600	55	73.366	5.543	5.500	2.9	2.63	272	2.643	2.870	1.463	0.414	35%	PE	PE100	B
Area 117 (A2-4)	SE-A21.1	SE-A21	SE-E20	BD2	L	8293	513		180					30			1774.07	9016	31594	5949.75	22036	3.000	0.207	710	600	55	35.840	5.500	5.729	1.94	1.66	128	3.560	4.069	2.134	0.603	34%	PE	PE100	B
Area 52(E1)	FMH-E3C.1	FMH-E3C	FMH-E3B		L										2000		20.00	2000	2000	20.00	74	6.000	0.001	250	210	20	11.400	5.500	5.500	3.923	3.828	120	1.577	1.672	1.122	0.039	4%	PE	PE100	B
	FMH-E3B.1	FMH-E3B	FMH-E3A		E1												0.00	0	2000	20.00	74	6.000	0.001	250	210	20	32.400	5.500	5.500	3.828	3.558	120	1.672	1.942	1.122	0.039	4%	PE	PE100	B
	FMH-E3A.1	FMH-E3A	SE-E4		E1												0.00	0	2000	20.00	74	6.000	0.001	250	210	20	35.500	5.500	5.699	2.979	2.083	40	2.521	3.616	1.957	0.068	2%	PE	PE100	B
Area 121 (E1-2) + Area 127 (E3-2)	SE-E8.1	SE-E8	SE-E7	normal	F1		273				2253			27			727.88	2553	2553	727.88	2696	5.000	0.042	355	300	27.5	69.895	7.651	6.988	4.100	3.400	100	3.551	3.588	1.548	0.109	38%	PE	PE100	B
Area 120 (E0-3)	SE-E7.1	SE-E7	SE-E6	normal	F1		54		765								45.72	819	3372	773.60	2865	5.000	0.045	400	335	32.5	72.723	6.988	6.298	3.400	2.680	101	3.588	3.618	1.663	0.147	31%	PE	PE100	B
Area 120 (E0-2)	SE-E6.1	SE-E6	SE-E5	normal	F1		154		765								73.72	919	4291	847.32	3138	5.000	0.049	500	420	40	40.304	6.298	5.979	2.635	2.435	202	3.663	3.544	1.358	0.188	26%	PE	PE100	B
Area 126 (E3-1)	SE-E5.1	SE-E5	SE-E4	normal	L		152				1592			15			496.42	1759	6051	1343.74	4977	5.000	0.078	560	475	42.5	43.410	5.979	5.699	2.275	2.083	226	3.704	3.616	1.378	0.244	32%	PE	PE100	B
	SE-E4.1	SE-E4	SE-E3	normal	L												0.00	0	6051	1363.74	5051	4.000	0.063	710	600	55	42.742	5.699	5.827	2.083	1.923	267	3.616	3.904	1.475	0.417	15%	PE	PE100	B
Area 120 (E0-1)	SE-E3.1	SE-E3	SE-E2	normal	L		0										0.00	0	6051	1363.74	5051	4.000	0.063	710	600	55	47.313	5.827	5.794	1.853	1.653	237	3.974	4.141	1.568	0.443	14%	PE	PE100	B
	SE-E2.1	SE-E2	SE-E1	normal	L												0.00	0	6051	1363.74	5051	4.000	0.063	710	600	55	49.232	5.794	5.700	1.653	1.493	308	4.141	4.207	1.374	0.389	16%	PE	PE100	B
	SE-E1.1	SE-E1	SE-E1H	normal	L												0.00	0	6051	1363.74	5051	4.000	0.063	710	600	55	32.818	5.700	5.952	1.493	1.337	210	4.207	4.615	1.663	0.470	13%	PE	PE100	B
Area 119 (E1-1)	SE-E1H.1	SE-E1H	SE-E1A	BD2	L	5145	549							29			1176.62	5723	11773	2540.36	9409	4.000	0.118	710	600	55	28.400	5.500	5.800	1.330	1.250	355	4.170	4.550	1.279	0.362	33%	PE	PE100	B
	SE-E1A.1	SE-E1A	SE-E1G	BD2	L												0.00	0	38646	8842.09	32748	3.000	0.307	1200	1020	90	45.000	6.205	6.400	0.435	0.360	600	5.770	6.040	1.369	1.119	27%	PE	PE100	B
	SE-E1G.1	SE-E1G	SE-E1J	BD2	L												0.00	0	38646	8842.09	32748	3.000	0.307	1200	1020	90	39.600	6.400	6.100	0.360	0.294	600	6.040	5.806	1.369	1.119	27%	PE	PE100	B
	SE-E1J.1	SE-E1J	SE-E1I	BD2	L												0.00	0	38646	8842.09	32748	3.000	0.307	1200	1020	90	56.400	6.100	6.000	0.294	0.200	600	5.806	5.800	1.369	1.119	27%	PE	PE100	B
	SE-E1I.1	SE-E1I	SE-E1K	BD2	L												0.00	0	38646	8842.09	32748	3.000	0.307	1200	1020	90	79.800	6.000	6.000	0.200	0.067	600	5.800	5.933	1.369	1.119	27%	PE	PE100	B
	SE-E1K.1	SE-E1K	SE-E1L	BD2	L												0.00	0	38646	8842.09	32748	3.000	0.307	1200	1020	90	80.400	6.000	6.000	0.067	-0.067	600	5.933	6.067	1.369	1.119	27%	PE	PE100	B
	SE-E1L.1	SE-E1L	SE-E1M	BD2	L												0.00	0	38646	8842.09	32748	3.000	0.307	1200	1020	90	79.800	6.000	6.000	-0.067	-0.200	600	6.067	6.200	1.369	1.119	27%	PE	PE100	B
	SE-E1M.1	SE-E1M	SE-E1N	BD2	L												0.00	0	38646	8842.09	32748	3.000	0.307	1200	1020	90	79.800	6.000	6.000	-0.200	-0.333	600	6.200	6.333	1.369	1.119	27%	PE	PE100	B
	SE-E1N.1	SE-E1N	SE-E17	BD2	S												0.00	0	38646	8842.09	32748	3.000	0.307	1200	1020	90	80.250	6.000	6.045	-0.333	-0.483	535	6.333	6.528	1.450	1.185	26%	PE	PE100	B
Area 115 (A2-2) + Area 113 (A1-1) & Area 118 (E3)	SE-A1.1	SE-A1	SE-A1A	normal	L	3578	11930		180	2350				253			4614.53	18291	18291	4614.53	17091	3.000	0.160	710	600	55	13.440	5.800	5.827	1.700	1.580	112	4.100	4.247	2.282	0.645	25%	PE	PE100	B
Area 114 (A2-1)	SE-A1A.1	SE-A1A	SE-A2	normal	L	7886	488		180					29			1687.21	8583	26873	6301.74	23340	3.000	0.219	710	600	55	45.440	5.827	5.800	1.040	0.898	320	4.787	4.902	1.347	0.381	57%	PE	PE100	B
	SE-A2.1	SE-A2	SE-A2A	normal	L												0.00	0	26873	6301.74	23340	3.000	0.219	710	600	55	58.880	5.800	5.800	0.894	0.766	460	4.906	5.034	1.123	0.317	69%	PE	PE100	B
	SE-A2A.1	SE-A2A	SE-E1F	normal	L												0.00	0	26873	6301.74	23340	3.000	0.219	1000	850	75	8.000	5.800	5.744	0.760	0.735	320	5.040	5.009	1.674	0.950	23%	PE	PE100	B
	SE-E1F.1	SE-E1F	SE-E1E	normal	L												0.00	0	26873	6301.74	23340	3.000	0.219	1000	850	75	5.450	5.800	5.744	0.731	0.707	227	5.069	5.037	1.988	1.128	19%	PE	PE100	B
	SE-E1E.1	SE-E1E	SE-E1D	normal	L												0.00	0	26873	6301.74	23340	3.000	0.219	1000	850	75	15.000	5.800	5.744	0.703	0.644	254	5.097	5.100	1.879	1.066	21%	PE	PE100	B
	SE-E1D.1	SE-E1D	SE-E1C	normal	L												0.00	0	26873	6301.74	23340	3.000	0.219	1000	850	75	23.520	5.800	5.744	0.634	0.592	560	5.166	5.152	1.264	0.717	31%	PE	PE100	B
	SE-E1C.1	SE-E1C	SE-E1B	normal	L												0.00	0	26873	6301.74	23340	3.000	0.219	1000	850	75	20.720	5.800	5.744	0.582	0.545	560	5.218	5.199	1.264	0.717	31%	PE	PE100	B
	SE-E1B.1	SE-E1B	SE-E1A	normal	L												0.00	0	26873	6301.74	23340	3.000	0.219	1000	850	75	53.200	5.800	5.744	0.535	0.440	560	5.265	5.304	1.264	0.717	31%	PE	PE100	B
	SE-A9.1	SE-A9	SE-A10	normal	L												0.00	0	0	1023.00	3789	1.900	0.023	500	420	40	69.800	6.500	6.600	2.180	1.831	200	4.320	4.769	1.363	0.189	12%	PE	PE100	B
	SE-A10.1	SE-A10	SE-A11	normal	L												0.00	0	0	1023.00	3789	1.900	0.023	500	420	40	63.800	6.600	6.900	1.431	1.112	200	5.169	5.788	1.363	0.189	12%	PE	PE100	B
	SE-A11.1	SE-A11	SE-A12	normal	L												0.00	0	0	1023.00	3789	1.900	0.023	630	535	47.5	61.800	6.900	6.150	0.712	0.403	200	6.188	5.747	1.581	0.355	6%	PE	PE100	B
	SE-A12.1	SE-A12	SE-A13	normal	L												0.00	0	0	1023.00	3789	1.900	0.023	630	535	47.5	43.200	6.150	6.792	0.003	-0.213	200	6.147	7.005	1.581	0.355	6%	PE	PE100	B
	SE-A13.1	SE-A13	SE-A13A	normal	S1												0.00	0	0	1023.00	3789	1.900	0.023	630	535	47.5	33.000	6.792	6.792	-0.613	-0.778	200	7.405	7.570	1.581	0.355	6%	PE	PE100	B
	SE-A13A.1	SE-A13A	SE-A14	normal	S1												0.00	0	0	1023.00	3789	1.900	0.023	630	535	47.5	36.660	6.792	6.019	-1.198	-1.480	130	7.990	7.499	1.962	0.441	5%	PE	PE100	B

case 2

AECOM

Tung Chung East Development
Additonal Service CASE 2
Sewerage Design of East Catchment of TCNTE(East).

Reference to the SDR report Submitted to PM Team on 15/02/2022

PROJECT NO.60507694
DATE 24/1/2025

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19.00	20	22	23	24	25	26	27.000	28.000	29.000	**30.000**	**22.000**	23	24.000	25.000	26.000	27.000	28			
Parameters																										29.602			**Roughness:**		Ks=	1.500	mm for PE		1.500	mm for VC	BY	hxy	CHKD
	Pipe	Manhole				Population (Persons)										Flow		Accumulation		EPD			Pipe Parameter																
Source	NO.	UP_MH NO.	DN_MH NO.	Back-drop	UP_MH TYPE	Pravite R1/Public Rental 0.190	J11 Community Social 0.280	Pravite R3 0.370	School Student 0.040	Commercial employee 0.080	Pravite R2 0.270	J2 Electricity Gas & Water 0.330	Sports Ground 0.032	J10 1.580	Other 0.0100	Inflow (m^3/d)	DWF (m^3/d)	CON_POP (person)	ACC_POP (person)	ACC_DWF (m^3/d)	Contribute People (person)	PEAK FACTOR	PEAK FLOW (m^3/s)	DIA (mm)	Inner Diameter mm	thickness mm	LEN (m)	UP_GL (mPD)	DN_GL (mPD)	UP_INV (mPD)	DN_INV (mPD)	GRAD. (1 IN)	UP_COV to Invert(m)	DN_COV to Invert(m)	VEL. (m/s)	CAP[1] (m^3/s)	PF/CAP	PIPE MAT.	PIPE CLASS	BEDDING TYPE
	SE-A14.1	SE-A14	SE-A15	normal	S1											0.00	0	0	1023.00	3789	1.900	0.023	630	535	47.5	54.600	6.100	5.700	-1.480	-1.550	780	7.580	7.250	0.798	0.179	13%	PE	PE100	B
	SE-A15.1	SE-A15	SE-E23A	normal	S1											0.00	0	103676	24661.21	91338	1.900	0.023	1400	1190	105	80.460	5.700	5.900	-1.550	-1.658	745	7.250	7.558	1.353	1.505	1%	PE	PE100	B
MTR Station	SE-A9A.1	SE-A9A	SE-A9B	normal	E1										1023	1023.00	0	0	1023.00	3789	1.900	0.023	400	335	32.5	19.800	6.000	6.000	3.470	3.272	100	2.530	2.728	1.672	0.147	15%	PE	120	B
MTR Station	SE-A9B.1	SE-A9B	SE-A9	normal	E1											0.00	0	0	1023.00	3789	1.900	0.023	400	335	32.5	36.600	6.000	6.600	3.272	2.906	100	2.728	3.694	1.672	0.147	15%	PE	120	B
Area 52 (E6)	SE-C0.1	SE-C0	SE-C1A	normal	D1		14							3000		141.92	3014	3014	141.92	526	6.000	0.010	450	380	35	28.198	6.250	6.000	4.850	4.700	188	1.400	1.300	1.314	0.149	7%	PE	PE100	B
	SE-C1A.1	SE-C1A	SE-C1B	normal	D1											0.00	0	3014	141.92	526	6.000	0.010	450	380	35	44.792	6.000	6.292	4.700	4.500	224	1.300	1.792	1.203	0.136	7%	PE	PE100	B
	SE-C1B.1	SE-C1B	SE-C1C	normal	E1											0.00	0	3014	141.92	526	6.000	0.010	450	380	35	51.600	6.292	5.958	4.500	4.242	200	1.792	1.716	1.274	0.144	7%	PE	PE100	B
	SE-C1C.1	SE-C1C	SE-C1D	normal	E1											0.00	0	3014	141.92	526	6.000	0.010	450	380	35	50.400	5.958	5.698	4.242	3.990	200	1.716	1.708	1.274	0.144	7%	PE	PE100	B
	SE-C1D.1	SE-C1D	SE-C1E	BD3	E1											0.00	0	3014	141.92	526	6.000	0.010	450	380	35	25.800	5.698	5.387	3.990	3.861	200	1.708	1.526	1.274	0.144	7%	PE	PE100	B
	SE-C1E.1	SE-C1E	SE-C1F	normal	E1											0.00	0	3014	141.92	526	6.000	0.010	630	535	47.5	31.688	5.387	5.350	2.550	2.317	136	2.837	3.033	1.918	0.431	2%	PE	PE100	B
	SE-C1F.1	SE-C1F	SE-C1H	normal	F1											0.00	0	3014	141.92	526	6.000	0.010	630	535	47.5	26.040	5.600	5.700	2.017	1.800	120	3.583	3.900	2.042	0.459	2%	PE	PE100	B
	SE-C1H.1	SE-C1H	SE-C1I	normal	L											0.00	0	3014	141.92	526	6.000	0.010	630	535	47.5	6.000	5.700	5.700	1.800	1.750	120	3.900	3.950	2.042	0.459	2%	PE	PE100	B
	SE-C1I.1	SE-C1I	SE-C1	normal	L											0.00	0	3014	141.92	526	6.000	0.010	630	535	47.5	18.000	5.700	6.000	1.750	1.600	120	3.950	4.400	2.042	0.459	2%	PE	PE100	B
Area 133B (C2-2)	SE-C1.1	SE-C1	SE-C2	normal	L	8084	233		239					3		1614.71	8559	11573	1756.63	6506	4.000	0.081	630	535	47.5	49.170	6.000	5.575	1.280	1.115	298	4.720	4.460	1.294	0.291	28%	PE	PE100	B
	SE-C2.1	SE-C2	SE-C3	normal	L											0.00	0	11573	1756.63	6506	4.000	0.081	630	535	47.5	45.675	5.575	5.614	1.115	0.970	315	4.460	4.644	1.258	0.283	29%	PE	PE100	B
	SE-C3.1	SE-C3	SE-C4	normal	L											0.00	0	11573	1756.63	6506	4.000	0.081	630	535	47.5	45.760	5.614	5.889	0.970	0.810	286	4.644	5.079	1.321	0.297	27%	PE	PE100	B
Area 133C (C2-1)	SE-C4.1	SE-C4	SE-C5	BD2	L	8562	245		233					3		1708.65	9043	20615	3465.28	12834	3.000	0.120	710	600	55	47.375	5.889	5.632	0.500	0.375	379	5.389	5.257	1.238	0.350	34%	PE	PE100	B
	SE-C5.1	SE-C5	SE-E25	BD2	L											0.00	0	20615	8037.51	29769	3.000	0.279	710	600	55	44.916	5.632	5.945	-0.200	-0.428	197	5.832	6.373	1.719	0.486	57%	PE	PE100	B
Area 133A (C1-1)	SE-C1G.1	SE-C1G	SE-C3A	normal	L	18406	1014	0	452	0	0	0	0	489		4572.23	20361	20361	4572.23	16934	3.000	0.159	560	475	42.5	95.472	5.993	5.807	1.580	1.268	306	4.413	4.539	1.184	0.210	76%	PE	PE100	B
	SE-C3A.1	SE-C3A	SE-C5A	normal	L											0.00	0	20361	4572.23	16934	3.000	0.159	630	535	47.5	98.126	5.807	6.148	1.268	0.942	301	4.539	5.206	1.287	0.289	55%	PE	PE100	B
	SE-C5A.1	SE-C5A	SE-C5	normal	L											0.00	0	20361	4572.23	16934	3.000	0.159	630	535	47.5	18.525	6.148	5.632	0.042	-0.015	325	6.106	5.647	1.239	0.278	57%	PE	PE100	B
Area 135 (C0-1)	SE-C10.1	SE-C10	SE-C11	normal	E1		254		1200		810					337.82	2264	2264	337.82	1251	5.000	0.020	315	265	25	46.518	5.506	5.785	3.620	3.380	194	1.886	2.405	1.026	0.057	35%	PE	PE100	B
Area 139 (C0-1)	SE-C11.1	SE-C11	SE-C12	normal	E1		15						2500			84.20	2515	4779	422.02	1563	5.000	0.024	400	335	32.5	93.701	5.785	5.500	3.380	2.530	110	2.405	2.970	1.592	0.140	17%	PE	PE100	B
Area 131 (G0-2)	SE-C12.1	SE-C12	SE-C13	normal	F1		233									65.24	233	10053	931.78	3451	5.000	0.054	500	420	40	50.683	5.500	5.233	2.030	1.590	115	3.470	3.643	1.798	0.249	22%	PE	PE100	B
Area 134 (C0-2)	SE-C13.1	SE-C13	SE-E28	BD2	F1						1166					314.82	1166	11219	1246.60	4617	5.000	0.072	500	420	40	19.201	5.233	5.604	1.590	1.240	55	3.643	4.364	2.608	0.361	20%	PE	PE100	B
Area 136 (G0-3)	SE-C20.1	SE-C20	SE-C21	normal	D1											0.00	0	696	187.92	696	6.000	0.013	280	235	22.5	23.541	5.486	5.486	4.270	4.200	336	1.216	1.286	0.720	0.031	42%	PE	120	B
Area 137 (C0-3)	SE-C21.1	SE-C21	SE-C21A	normal	D1		345		4000							256.60	4345	5041	444.52	1646	5.000	0.026	315	265	25	23.017	5.486	5.486	4.200	4.100	230	1.286	1.386	0.941	0.052	50%	PE	PE100	B
	SE-C21A.1	SE-C21A	SE-C12	BD3	D1											0.00	0	5041	444.52	1646	5.000	0.026	315	265	25	16.840	5.486	5.500	4.100	4.000	168	1.386	1.500	1.101	0.061	42%	PE	120	B
Area 147 + Tai Ho Villages	SE-I1.1	SE-I1	SE-I2	normal	D1						696					187.92	696	696	187.92	696	6.000	0.013	250	210	20	30.000	8.300	8.100	7.114	6.914	150	1.186	1.186	1.003	0.035	38%	PE	120	B
	SE-I2.1	SE-I2	SE-I3	normal	D1											0.00	0	696	187.92	696	6.000	0.013	250	210	20	12.550	8.100	8.100	6.914	6.800	110	1.186	1.300	1.172	0.041	32%	PE	120	B
	SE-I3.1	SE-I3	SE-I4	normal	D1											0.00	0	696	187.92	696	6.000	0.013	250	210	20	64.550	8.100	7.000	6.800	5.485	49	1.300	1.515	1.758	0.061	21%	PE	120	B
	SE-I4.1	SE-I4	SE-I5	normal	E1											0.00	0	696	187.92	696	6.000	0.013	250	210	20	38.631	7.000	6.760	5.485	4.939	71	1.515	1.821	1.463	0.051	26%	PE	120	B
	SE-I5.1	SE-I5	SE-I6	normal	E1											0.00	0	696	187.92	696	6.000	0.013	250	210	20	32.668	6.760	6.978	4.939	4.600	96	1.821	2.378	1.253	0.043	30%	PE	120	B
	SE-I6.1	SE-I6	SE-I7	normal	E1											0.00	0	696	187.92	696	6.000	0.013	280	235	22.5	22.410	6.978	6.732	4.600	4.500	224	2.378	2.232	0.883	0.038	34%	PE	120	B
	SE-I7.1	SE-I7	SE-I8	normal	E1											0.00	0	696	187.92	696	6.000	0.013	280	235	22.5	28.686	6.732	5.486	4.500	4.310	151	2.232	1.176	1.077	0.047	28%	PE	120	B
	SE-I8.1	SE-I8	SE-C20	normal	D1											0.00	0	696	187.92	696	6.000	0.013	280	235	22.5	14.175	5.486	5.486	4.310	4.270	354	1.176	1.216	0.701	0.030	43%	PE	120	B
	SE-H1.1	SE-H1	SE-H2	normal	S											0.00	0	0	0.00	0	6.000	0.000	800	680	60	46.500	6.000	5.500	-1.400	-1.611	220	7.400	7.111	1.754	0.637	0%	PE	120	B
	SE-H2.1	SE-H2	SE-H3	normal	S											0.00	0	0	0.00	0	6.000	0.000	800	680	60	15.880	5.500	5.500	-1.611	-1.684	220	7.111	7.184	1.754	0.637	0%	PE	120	B
	SE-H3.1	SE-H3	SE-H4	normal	S											0.00	0	0	0.00	0	6.000	0.000	800	680	60	22.870	5.500	5.000	-1.684	-1.788	220	7.184	6.788	1.754	0.637	0%	PE	120	B
	SE-H4.1	SE-H4	SE-H4A	normal	S											0.00	0	0	0.00	0	6.000	0.000	800	680	60	30.140	5.000	5.500	-3.312	-3.449	220	8.312	8.949	1.754	0.637	0%	PE	120	B
	SE-H4A.1	SE-H4A	SE-H5	normal	S											0.00	0	0	0.00	0	6.000	0.000	800	680	60	45.760	5.000	5.500	-3.449	-3.657	220	8.449	9.157	1.754	0.637	0%	PE	120	B
	SE-H5.1	SE-H5	SPS001	normal	S											0.00	0	0	0.00	0	6.000	0.000	800	680	60	9.460	5.500	5.500	-3.657	-3.700	220	9.157	9.200	1.754	0.637	0%	PE	120	B
					S																																		
	SPS001.1	SPS001	SE-J1	normal	G1											0.00	0	0	0.00	0	6.000	0.000	1000	850	75	7.810	5.500	5.500	3.700	3.658	187	1.800	1.842	2.191	1.244	0%	PE	120	B
	SE-J1.1	SE-J1	SE-J1A	normal	G1											0.00	0	0	0.00	0	6.000	0.000	1000	850	75	40.560	5.500	5.500	3.658	3.445	190	1.842	2.055	2.174	1.234	0%	PE	120	B
	SE-J1A.1	SE-J1A	SE-J2	normal	G1											0.00	0	0	0.00	0	6.000	0.000	1000	850	75	35.840	5.500	5.100	3.445	3.256	190	2.055	1.844	2.174	1.234	0%	PE	120	B
	SE-J2.1	SE-J2	BC4	normal	H											0.00	0	0	0.00	0	6.000	0.000	1000	850	75	25.000	5.100	5.000	2.131	2.000	191	2.969	3.000	2.169	1.231	0%	PE	120	B
MTR	PLUG-TMFH02.1	PLUG-TMFH02	SE-A9	normal	L											37.70	0	0	37.70	140	6.000	0.003	250	210	20	5.000	6.600	6.500	2.550	2.500	100	4.050	4.000	1.230	0.043	6%	PE	120	B
	PLUG SE-A9.1	PLUG SE-A9	SE-A9A	normal	L											1023.00	0	0	1023.00	3789	1.900	0.023	400	335	32.5	8.000	6.500	6.600	2.690	2.610	100	3.810	3.990	1.672	0.147	15%	PE	120	B
Area 122 (E1-5)	PLUG E1.5A.1	PLUG E1.5A	SE-E11a	normal	L	5097	483	0	180	0	0	0	0	25		1150.84	5785	5785	1150.84	4262	5.000	0.067	355	300	27.5	21.000	6.000	5.985	2.000	1.790	100	4.000	4.195	1.547	0.109	61%	PE	120	B
Area 125 (E1-4)	PLUG E1.4.1	PLUG E1.4	SE-E11a	BD3	E1	0	140	0	0	0	1052	0	0	14		345.36	1206	1206	345.36	1279	5.000	0.020	280	235	22.5	25.954	6.000	5.985	3.800	3.605	133	2.200	2.380	1.148	0.050	40%	PE	120	B
Area 124 (E0-4)	PLUG E0.4.1	PLUG E0.4	SE-E11a	BD3	E1	0	98	0	0	1200	0	0	0	0		123.44	1298	1298	123.44	457	6.000	0.009	280	235	22.5	17.339	6.000	5.985	4.300	4.102	88	1.700	1.883	1.416	0.061	14%	PE	120	B
Area 119 (E1-1)	PLUG E1.1.1	PLUG E1.1	SE-E1H	normal	L	5145	549	0	0	0	0	0	0	29		1176.62	5723	5723	1176.62	4358	5.000	0.068	355	300	27.5	17.000	6.000	5.500	1.500	1.330	100	4.500	4.170	1.547	0.109	62%	PE	120	B
Area 119 (E1-1)	PLUG E1.1A.1	PLUG E1.1A	SE-E1I	normal	L	5145	549	0	0	0	0	0	0	29		1176.62	5723	5723	1176.62	4358	5.000	0.068	355	300	27.5	19.500	6.000	6.000	2.000	1.700	65	4.000	4.300	1.920	0.136	50%	PE	120	B
Area 120 (E0-1)	PLUG E0.1.1	PLUG E0.1	SE-E3	BD3	E1	0	0	0	0	0	0	0	0	0		0.00	0	0	0.00	0	6.000	0.000	280	235	22.5	16.299	6.000	5.827	4.300	4.060	68	1.700	1.767	1.609	0.070	0%	PE	120	B
Area 126 (E3-1)	PLUG E3.1.1	PLUG E3.1	SE-E5	BD3	E1	0	152	0	0	0	1592	0	0	15		496.42	1759	1759	496.42	1839	5.000	0.029	355	300	27.5	12.618	6.000	5.979	4.300	4.116	69	1.700	1.863	1.869	0.132	22%	PE	120	B
Area 120 (E0-2)	PLUG E0.2.1	PLUG E0.2	SE-E6	BD3	E1	0	154	0	765	0	0	0	0	0		73.72	919	919	73.72	273	6.000	0.005	280	235	22.5	15.059	6.000	6.298	4.300	4.234	228	1.700	2.064	0.875	0.038	13%	PE	120	B
Area 120 (E0-3)	PLUG E0.3.1	PLUG E0.3	SE-E7	BD3	D1	0	54	0	765	0	0	0	0	0		45.72	819	819	45.72	169	6.000	0.003	280	235	22.5	15.657	6.000	6.988	4.600	4.537	249	1.400	2.451	0.838	0.036	9%	PE	120	B
Area 121 (E1-2)	PLUG E1.2.1	PLUG E1.2	SE-E8	normal	E1	0	92	0	0	0	1031	0	0	9		318.67	1132	1132	318.67	1180	5.000	0.018	315	265	25	13.888	6.000	7.651	4.300	4.239	228	1.700	3.412	0.946	0.052	35%	PE	120	B
Area 127 (E3-2)	PLUG E3.2.1	PLUG E3.2	SE-E8	normal	E1	0	181		0	0	1222	0	0	18		409.22	1421	1421	409.22	1516	5.000	0.024	315	265	25	9.392	6.000	7.651	4.300	4.116	51	1.700	3.535	2.005	0.111	21%	PE	120	B
Area 123(E1-3)	PLUG E1.3.1	PLUG E1.3	SE-E9	normal	E1	0	92	0	0	0	1030	0	0	9		318.40	1131	1131	318.40	1179	5.000	0.018	250	210	20	6.264	6.000	7.550	4.300	4.274	241	1.700	3.276	0.790	0.027	67%	PE	120	B
Area 128 (Com-4)	PLUG COM.4.1	PLUG COM.4	SE-E13	BD2	E1	0	0	0	0	0	0	0	0	2429		3837.82	2429	2429	3837.82	14214	3.000	0.133	560	475	42.5	12.642	6.000	5.900	4.305	4.274	402	1.695	1.626	1.032	0.183	73%	PE	120	B
Area 140 (F0-1)	PLUG F0.1.1	PLUG F0.1	SE-E15	BD3	F1	0	317	0	0	0	0	0	0	0		88.76	317	317	88.76	329	6.000	0.006	315	265	25	14.676	6.000	5.697	2.900	2.750	98	3.100	2.947	1.447	0.080	8%	PE	120	B
Area 129 (Com-2)	PLUG COM.2.1	PLUG COM.2	SE-E24	BD3	S1	0	736	0	0	7250	0	0	0	74		902.37	8060	8060	902.37	3342	5.000	0.052	355	300	27.5	12.542	6.000	5.750	3.500	3.407	135	2.500	2.343	1.331	0.094	55%	PE	120	B
Area 130 (Com-3)	PLUG COM.3.1	PLUG COM.3	SE-E27	BD3	E1	0	739	0	0	6900	0	0	0	74		875.68	7713	7713	875.68	3243	5.000	0.051	355	300	27.5	15.678	6.000	5.785	3.900	3.800	157	2.100	1.985	1.234	0.087	58%	PE	120	B
Area 139 (F1-1)	PLUG F1.1.1	PLUG F1.1	SE-F1	normal	E1	0	257	0	180	0	2018	0	0	24		661.47	2479	2479	661.47	2450	5.000	0.038	315	265	25	26.100	6.000	5.650	4.300	4.039	100	1.700	1.611	1.431	0.079	48%	PE	120	B
Area 141B (F1-2)	PLUG F4.1.1	PLUG F4.1	SE-F4	BD3	E1	0	98	0	1200	0	0	0	0	0		75.44	1298	1298	75.44	279	6.000	0.005	315	265	25	12.600	6.000	5.950	4.300	4.174	100	1.700	1.776	1.431	0.079	7%	PE	120	B
Area 140 (F0-4)	PLUG F0.4.1	PLUG F0.4	SE-F4	BD3	E1	0	98	0	1200	0	0	0	0	0		75.44	1298	1298	75.44	279	6.000	0.005	280	235	22.5	12.200	6.000	6.250	4.300	4.178	100	1.700	2.072	1.325	0.057	9%	PE	120	B
Area 141A (F2-2)	PLUG F2.2.1	PLUG F2.2	SE-F5	BD3	E1	0	0	0	0	0	2009	0	0	0		542.43	2009	2009	542.43	2009	5.000	0.031	315	265	25	14.800	6.000	6.100	4.300	4.152	100	1.700	1.948	1.431	0.079	40%	PE	120	B

case 2

AECOM

Tung Chung East Development
Additonal Service CASE 2
Sewerage Design of East Catchment of TCNTE(East).

Reference to the SDR report Submitted to PM Team on 15/02/2022

PROJECT NO.60507694
DATE 24/1/2025

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19.00	20	22	23	24	25	26	27.000	28.000	29.000	**30.000**	**22.000**	23	24.000	25.000	26.000	27.000	28			
Parameters																										29.602			**Roughness:**		Ks=	1.500	mm for PE		1.500	mm for VC	BY	hxy	CHKD
	Pipe	Manhole				Population (Persons)										Flow		Accumulation		EPD						Pipe Parameter													
		UP_MH	DN_MH	Back-drop	UP_MH	Pravite R1/Public Rental	J11 Community Social &	Pravite R3	School Student	Commercial employee	Pravite R2	J2 Electricity Gas & Water	Sports Ground	J10	Other	Inflow	DWF	CON_POP	ACC_POP	ACC_DWF	Contribute People	PEAK FACTOR	PEAK FLOW	DIA	Inner Diameter	thickness	LEN	UP_GL	DN_GL	UP_INV	DN_INV	GRAD.	UP_COV to Invert(m)	DN_COV to Invert(m)	VEL.	CAP[1]	PF/CAP	PIPE MAT.	PIPE CLASS	BEDDING TYPE
Source	NO.	NO.	NO.		TYPE	0.190	0.280	0.370	0.040	0.080	0.270	0.330	0.032	1.580	0.0100	(m^3/d)	(m^3/d)	(person)	(person)	(m^3/d)	(person)			(m^3/s)	(mm)	mm	mm	(m)	(mPD)	(mPD)	(mPD)	(mPD)	(mPD)	(1 IN)			(m/s)	(m^3/s)				
Area 140 (F0-3)	PLUG F0.3.1	PLUG F0.3	SE-F6	BD3	E1	0	54	0	765	0	0	0	0	0			45.72	819	819	45.72	169	6.000	0.003	280	235	22.5	9.000	6.000	5.900	4.300	4.210	100	1.700	1.690	1.325	0.057	6%	PE	120	B
Area 140 (F0-2)	PLUG F0.2.1	PLUG F0.2	SE-F7	BD3	E1	0	54	0	765	0	0	0	0	0			45.72	819	819	45.72	169	6.000	0.003	280	235	22.5	4.300	6.000	5.600	4.300	4.257	100	1.700	1.343	1.325	0.057	6%	PE	120	B
Area 142 (F2-1)	PLUG F2.1.1	PLUG F2.1	SE-F8	BD3	E1	0	166	0	180	0	1335	0	0	15			437.20	1696	1696	437.20	1619	5.000	0.025	315	265	25	16.500	6.000	6.200	4.300	4.135	100	1.700	2.065	1.431	0.079	32%	PE	120	B
Area 143 (Com-5)	PLUG COM.5.1.1	PLUG COM.5.1	SE-F10	normal	D1	0	2096	0	0	0	0	0	0	0			586.88	2096	2096	586.88	2174	5.000	0.034	315	265	25	25.200	5.500	5.730	4.300	2.000	100	1.200	3.730	1.431	0.079	43%	PE	120	B
Area 113 (A1-2)	PLUG A1.2.1	PLUG A1.2	SE-A20	BD2	E1	0	10617	0	180	3150	0	0	0	153			3445.86	14000	14000	3445.86	12762	3.000	0.120	500	420	40	17.589	6.000	5.543	4.300	4.137	108	1.700	1.406	1.858	0.257	46%	PE	120	B
MTR	PLUG TMFH03.1	PLUG TMFH03	SE-A11	normal	L												37.70		0	37.70	140	6.000	0.003	250	210	20	1.000	6.600	6.900	1.862	1.812	20	4.738	5.088	2.757	0.096	3%	PE	120	B
Area 116 (A2-3)	PLUG A2.3.1	PLUG A2.3	SE-A20	BD3	E1	3578	0	0	0	0	0	0	0	0			679.82	3578	3578	679.82	2518	5.000	0.039	315	265	25	19.646	6.000	5.543	3.800	3.690	179	2.200	1.853	1.069	0.059	67%	PE	120	B
Area 117 (A2-4)	PLUG E2.4A.1	PLUG E2.4A	SE-E18	BD3	L	8293	513		180					30			1774.07	9016	9016	1774.07	6571	4.000	0.082	400	335	32.5	6.862	5.500	5.670	1.050	0.904	47	4.450	4.766	2.441	0.215	38%	PE	120	B
Area 117 (A2-4)	PLUG A2.4.1	PLUG A2.4	SE-A21	BD2	E1	8293	513	0	180	0	0	0	0	30			1774.07	9016	9016	1774.07	6571	4.000	0.082	560	475	42.5	16.891	5.500	5.500	3.450	3.323	133	2.050	2.177	1.799	0.319	26%	PE	120	B
Area 113 (A1-1)	PLUG A1.1.1	PLUG A1.1	SE-A1	BD3	E1	0	11885	0	180	2350	0	0	0	253			3922.11	14668	14668	3922.11	14526	3.000	0.136	500	420	40	16.422	6.000	5.800	4.300	4.139	102	1.700	1.661	1.911	0.265	51%	PE	120	B
Area 118 (E3)	PLUG A2.2.1	PLUG A2.2	SE-A1	BD3	E1		45	0	0	0	0	0	0	0			12.60	45	45	12.60	47	6.000	0.001	250	210	20	14.768	6.000	5.800	3.918	3.776	104	2.082	2.024	1.206	0.042	2%	PE	120	B
Area 114 (A2-1)	PLUG A2.1A.1	PLUG A2.1A	SE-A1B	normal	L	7886	488	0	180		0	0	0	29			1687.21	8583	8583	1687.21	6249	4.000	0.078	400	335	32.5	29.000	5.500	5.827	1.400	1.150	116	4.100	4.677	1.552	0.137	57%	PE	120	B
Area 115 (A2-2)	PLUG A2.2A.1	PLUG A2.2A	SE-A1B	normal	E1	3578											679.82	3578	3578	679.82	2518	5.000	0.039	315	265	25	17.200	6.000	5.827	4.300	4.128	100	1.700	1.699	1.431	0.079	50%	PE	120	B
Area 114 (A2-1)	PLUG A2.1.1	PLUG A2.1	SE-E1F	BD3	L	7886	488	0	180		0	0	0	29			1687.21	8583	8583	1687.21	6249	4.000	0.078	400	335	32.5	6.156	5.500	5.809	1.300	1.143	39	4.200	4.666	2.673	0.236	33%	PE	120	B
Area 133B (C2-2)	PLUG C2.2A.1	PLUG C2.2A	SE-C1I	normal	L		234	0	240	0	0	0	0	3			79.86	477	477	79.86	296	6.000	0.006	250	210	20	10.000	6.000	5.800	2.300	2.200	100	3.700	3.600	1.230	0.043	13%	PE	120	B
Area 133B (C2-2)	PLUG C2.2.1	PLUG C2.2	SE-C1	normal	L	8084	234	0	240	0	0	0	0	3			1615.82	8561	8561	1615.82	5985	4.000	0.075	400	335	32.5	20.000	6.000	6.000	1.800	1.600	100	4.200	4.400	1.672	0.147	51%	PE	120	B
Area 133B (C2-2)	PLUG C2.2C.1	PLUG C2.2C	SE-C1F	normal	F1		234	0	240	0	0	0	0	3			79.86	477	477	79.86	296	6.000	0.006	250	210	20	70.000	6.000	5.600	2.900	2.200	100	3.100	3.400	1.230	0.043	13%	PE	120	B
Area 133B (C2-2)	PLUG C2.2B.1	PLUG C2.2B	SE-C1H	normal	F1		234	0	240	0	0	0	0	3			79.86	477	477	79.86	296	6.000	0.006	250	210	20	10.000	6.000	5.600	2.300	2.200	100	3.700	3.400	1.230	0.043	13%	PE	120	B
Area 133A (C1-1)	PLUG C1.1A.1	PLUG C1.1A	SE-C1G	normal	L	18406	1014	0	452	0	0	0	0	489			4572.23	20361	20361	4572.23	16934	3.000	0.159	450	380	35	22.000	6.000	5.993	2.100	1.880	100	3.900	4.113	1.804	0.205	78%	PE	120	B
Area 133A (C1-1)	PLUG C1.1.1	PLUG C1.1	SE-C3A	BD3	L	18406	1014	0	452	0	0	0	0	489			4572.23	20361	20361	4572.23	16934	3.000	0.159	450	380	35	5.300	6.000	5.807	2.100	2.047	100	3.900	3.760	1.804	0.205	78%	PE	120	B
Area 133C (C2-1)	PLUG G2.1A.1	PLUG G2.1A	SE-C5	BD3	L	8562	245	0	233	0	0	0	0	3			1708.65	9043	9043	1708.65	6328	4.000	0.079	400	335	32.5	7.100	6.000	5.632	2.100	2.029	100	3.900	3.603	1.672	0.147	54%	PE	120	B
Area 133C (C2-1)	PLUG G2.1.1	PLUG G2.1	SE-C4	BD3	L	8562	245	0	233	0	0	0	0	3			1708.65	9043	9043	1708.65	6328	4.000	0.079	400	335	32.5	4.700	6.000	5.889	2.290	2.243	100	3.710	3.646	1.672	0.147	54%	PE	120	B
Area 135 (C0-1)	PLUG C0.1.1	PLUG C0.1	SE-C10	normal	E1	0	254	0	1200	0	810	0	0	0			337.82	2264	2264	337.82	1251	5.000	0.020	280	235	22.5	21.124	6.000	5.506	3.900	3.620	75	2.100	1.886	1.526	0.066	30%	PE	120	B
Area 138 (G0-1)	PLUG G0.1.1	PLUG G0.1	SE-C11	normal	E1	0	15	0	0	0	0	0	2500	0			84.20	2515	2515	84.20	312	6.000	0.006	315	265	25	18.861	6.000	5.785	4.000	3.590	46	2.000	2.195	2.113	0.117	5%	PE	120	B
Area 131 (G0-2)	PLUG G0.2.1	PLUG G0.2	SE-C12	normal	F1	0	233	0	0	0	0	0	0	0			65.24	233	233	65.24	242	6.000	0.005	280	235	22.5	25.140	6.000	5.500	2.500	2.299	125	3.500	3.201	1.184	0.051	9%	PE	120	B
Area 136 (G0-3)	PLUG G0.3.1	PLUG G0.3	SE-C20	normal	D1	0	0	0	0	0	0	0	0	0			0.00	0	0	0.00	0	6.000	0.000	280	235	22.5	1.456	5.486	5.486	4.320	4.300	73	1.166	1.186	1.554	0.067	0%	PE	120	B
Area 134 (C0-2)	PLUG C0.2.1	PLUG C0.2	SE-C13	BD3	D1	0	0	0	0	0	1166	0	0	0			314.82	1166	1166	314.82	1166	5.000	0.018	280	235	22.5	6.550	5.500	5.233	4.300	4.000	22	1.200	1.233	2.842	0.123	15%	PE	120	B
Area 137 (C0-3)	PLUG C0.3.1	PLUG C0.3	SE-C21	normal	D1	0	345	0	4000	0	0	0	0	0			256.60	4345	4345	256.60	950	6.000	0.018	280	235	22.5	1.936	5.500	5.486	4.300	4.212	22	1.200	1.274	2.832	0.123	15%	PE	120	B
Area 133A (C1-1)	PLUG E1.6.1	PLUG E1.6	SE-E23A	BD3	S1	18406	1014	0	452	0	0	0	0	489			4572.23	20361	20361	4572.23	16934	3.000	0.159	450	380	35	15.800	6.000	5.900	1.800	1.600	79	4.200	4.300	2.030	0.230	69%	PE	120	B
Area 133A (C1-1)	PLUG E1.7.1	PLUG E1.7	SE-E23B	BD3	S1	18406	1014	0	452	0	0	0	0	489			4572.23	20361	20361	4572.23	16934	3.000	0.159	400	335	32.5	15.000	6.000	5.719	1.320	1.020	50	4.680	4.699	2.366	0.209	76%	PE	120	B
Area 52 (E6)	PLUG 52 E6.1	PLUG 52 E6	SE-C0	normal	C1		14								3000		33.92	3014	3014	33.92	126	6.000	0.002	200	165	17.5	17.000	6.000	5.719	5.000	4.850	113	1.000	0.869	0.996	0.021	11%	PE	120	B
Area 52(E5)	PLUG COM.5.1	PLUG COM.5	SE-F10	normal	L		32								3000		38.96			38.96	144	6.000	0.003	315	265	25	24.000	6.000	5.719	2.250	2.000	100	3.750	3.719	1.431	0.079	3%	PE	120	B
Area 118 (E2)	PLUG O.118E2.1	PLUG O.118E2	SE-E1N	BD2	C1										5000		50.00	5000	5000	50.00	185	6.000	0.003	250	210	20	27.000	6.000	6.000	5.000	4.850	180	1.000	1.150	0.915	0.032	11%	PE	120	B
Area 118 (E4)	PLUG A1.3.1	PLUG A1.3	SE-A20	normal	E1										5000		50.00	5000	5000	50.00	185	6.000	0.003	315	265	25	27.000	6.000	5.543	3.643	3.430	127	2.357	2.113	1.270	0.070	5%	PE	120	B
Area 52 (E1)	PLUG O.52E1.1	PLUG O.52E1	FMH-E3C	normal	D1										2000		20.00	2000	2000	20.00	74	6.000	0.001	250	210	20	11.000	5.500	5.500	4.000	3.923	143	1.500	1.577	1.028	0.036	4%	PE	120	B

Note 1 The pipe capacity is the multiplication of sectional area of pipe and estimated velocity

Colebrook-White Equation

$$V = -\sqrt{(32\,gRs)}\,\log\left(\frac{ks}{14.8R} + \frac{1.255\,v}{R\sqrt{(32\,gRs)}}\right)$$

where
V = mean velocity (m/s)
g = gravitational acceleration (m/s2)
R = hydraulic radius (m)
D = internal pipe diameter (m)
ks = hydraulic pipeline roughness (m)
v = kinematic viscosity of fluid (m2/s)
s = hydraulic gradient (energy loss per unit length due to friction)

Capacity Capacity

$$Q = A\,x\,V$$

where where
Q = capaci Q = capacity of Pipe
A = sectior A = sectional Area of Pipe
V = mean ' V = mean velocity

Appendix C

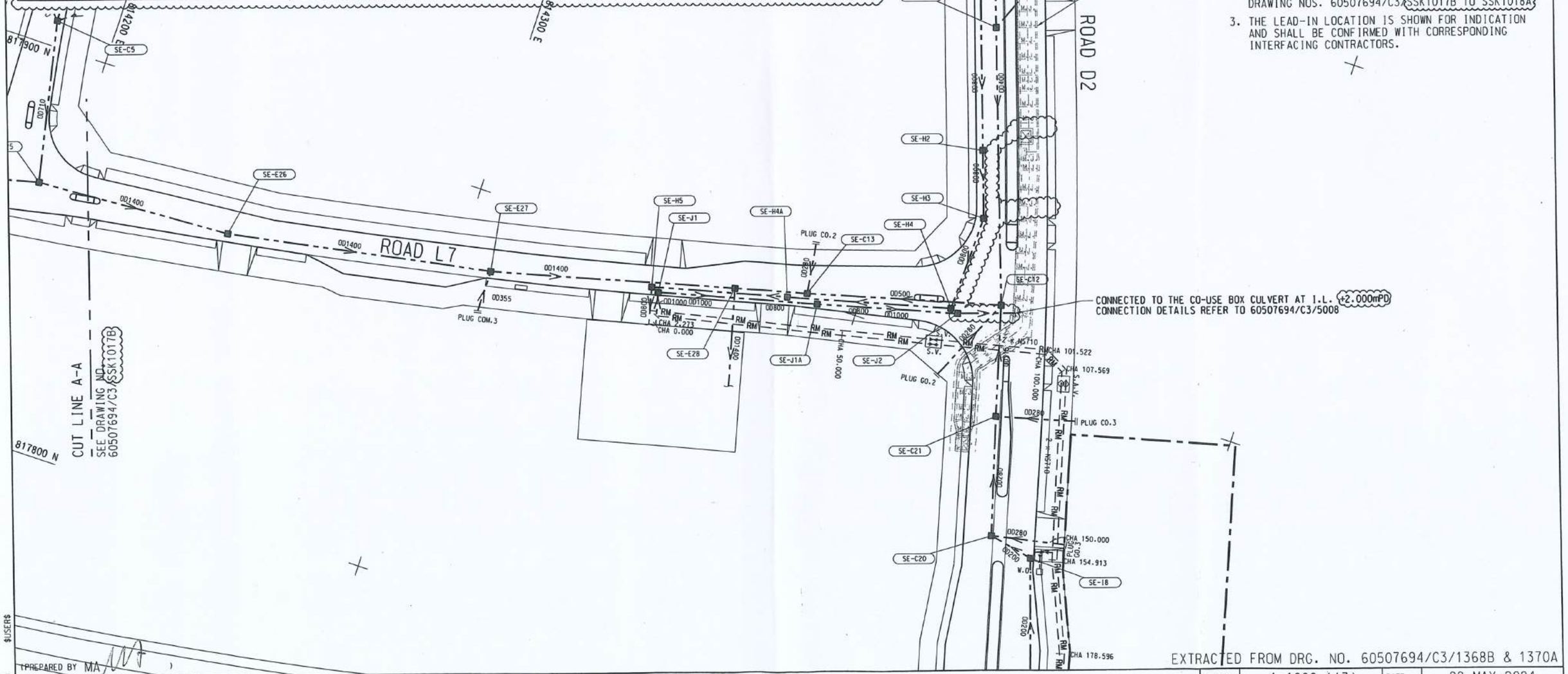
Sewerage Plan of the Application Site

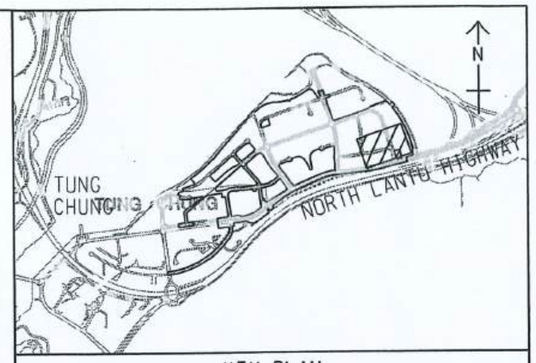
SEWERAGE MANHOLE SCHEDULE FOR SE-H1 TO SPS001

U/S M.H.	D/S M.H.	U/S G.L. (mPD)	D/S G.L. (mPD)	GRADIENT 1 IN	U/S I.L. (mPD)	D/S I.L. (mPD)	PIPE SIZE (mm) (DN/OD)	MH TYPE U/S	MH TYPE D/S	BACKDROP TO D/S MH	PIPE MATERIAL	BEDDING	SDR NO.
SE-H1	SE-H2	6.000	5.500	220	-1.400	-1.611	800	S1	S1	-	PE	B	17
SE-H2	SE-H3	5.500	5.500	220	-1.611	-1.684	800	S1	S1	-	PE	B	17
SE-H3	SE-H4	5.500	5.000	220	-1.684	-1.788	800	S1	S1	BD2	PE	B	17
SE-H4	SE-H4A	5.000	5.500	220	-3.312	-3.449	800	S1	S1	-	PE	B	17
SE-H4A	SE-H5	5.000	5.500	220	-3.449	-3.657	800	S1	S1	-	PE	B	17
SE-H5	SPS001	5.500	5.500	220	-3.657	-3.700	800	S1	TO SPS	-	PE	B	17

SEWERAGE MANHOLE SCHEDULE FOR SPS001 TO BOX CULVERT NO. 4

U/S M.H.	D/S M.H.	U/S G.L. (mPD)	D/S G.L. (mPD)	GRADIENT 1 IN	U/S I.L. (mPD)	D/S I.L. (mPD)	PIPE SIZE (mm) (OD)	MH TYPE U/S	MH TYPE D/S	BACKDROP TO D/S MH	PIPE MATERIAL	BEDDING	SDR NO.
SPS001	SE-J1	5.500	5.500	187	3.700	3.658	1000	G1	G1	-	PE	B	17
SE-J1	SE-J1A	5.500	5.500	190	3.658	3.445	1000	G1	G1	-	PE	B	17
SE-J1A	SE-J2	5.500	5.100	190	3.445	3.256	1000	G1	H/D	BD2	PE	B	17
SE-J2	BC4	5.100	5.000	190	2.131	2.000	1000	H/D	TO BC4	-	PE	B	17





KEY PLAN
SCALE 1:50000 (A3)

NOTES:

1. FOR NOTES AND LEGEND REFER TO DRAWING NO. 60507694/C3/1350.
2. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NOS. 60507694/C3/SSK1017B TO SSK1018A.
3. THE LEAD-IN LOCATION IS SHOWN FOR INDICATION AND SHALL BE CONFIRMED WITH CORRESPONDING INTERFACING CONTRACTORS.

$USER$
$TIME$
$DATE$
$FILE$

PREPARED BY MA

AECOM

TUNG CHUNG NEW TOWN EXTENSION - MAJOR INFRASTRUCTURE WORKS IN TUNG CHUNG EAST

SEWERAGE LAYOUT PLAN AT ROAD L7

SHEET 2 OF 2

SCALE	1:1000 (A3)	DATE	22-MAY-2024
CHECK	TP	DRAWN	KYY
CONTRACT No.	NL/2020/03	DRAWING No.	60507694/C3/SSK1018
			REV A

Appendix D

Estimation of Sewage Discharge from the Site

Project No. 2240

Sewerage Impact Assessment for Proposed Minor Relaxation of Building Height Restriction for Permitted Flat (Police Married Quarters) in "Government, Institution or Community(1)" Zone and Proposed

1 Proposed Development

JPOMQ Residential Block			
Site Area	4876	m^2	
Flat unit	432	units	
Average housedhold size [1]	2.7	person/unit	Refer to Average Domestic Household Size of Islands District Council in 2021 Population Census: Summary Result, published by Census and Statistics Department
Total Number of Persons	1167	persons	
Unit Flow Factor [2]	0.27	m^3/person/day	Referred to the planning unit flow for Domestic (housing type specific) - R2 in Table T-1 of GESF
Average Sewage Discharge	315.1	m^3/day	
JPOMQ G/F			
Management Office			
GFA	58.64	m2	Provided by project team
Worker Density per GFA (in 100m2)	3.4	person/100 m2	Refer to worker density of All Economic Activities (All Type) in Table 8 of CIFSUS
Total number of employee	2	persons	
Unit Flow Factor [2]	0.08	m^3/person/day	Referred to the planning unit flow for Commercial Employee + Business Services J6 in Table T-2 of GESF.
Average Sewage Discharge	0.2	m^3/day	
Total			
Total Sewage Generation Rate (DWF)	**315.3**	**m^3/day**	
Catchment Inflow Factor (North Lantau)	1.0		Reference from Table T-4 of Guidelines for Estimating Sewage Flows for Sewerage Infrastructure Planning
Revised Dry Weather Flow	**315.3**	**m^3/day**	
Contributing Population	1168		
Peaking Factor	6		Refer to Table T-5 of GESF
Peak Flow	**0.022**	**m^3/s**	

Notes:
[1] The average household size is made reference to "*2021 Population Census Summary Results* ", published by C&SD.
[2] The unit flow factor is made reference to "*Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning (Version 1.0)* ", published by EPD.

Appendix E

Estimation of Sewage Discharge from Catchment Areas

Table 2 - Population Estimation for Catchment Area （data based on CEDD report)

Area No.	Catchment ID	Description	Magnitude	Unit	Remark
135	A	**Other School Use**			
		Total no. of student	1200	persons	based on CEDD SIA report
		Unit flow	0.04	m^3/person/day	Referred to the planning unit flow for School Student in Table T-2 of GESF.
		Total no. of teacher	104	persons	based on CEDD SIA report
		Unit flow	0.28	m^3/person/day	Referred to the planning unit flow for Commercial Employee + Community, Social & Personal Services in Table T-2 of GESF.
		Total ADWF for Area 135	**77.1**	m^3/day	
136	B	**Fire Station**			
		FSD quarters			
		Total no. of residents	810	persons	based on CEDD SIA report
		Unit flow	0.27	m^3/person/day	based on Table T-1: Private residential R2 type
		Average dry weather flow	**218.7**	m^3/day	
		Sub-divisional fire Station sum ambulance depot			
		Total no. of employee	150	persons	based on CEDD SIA report
		Unit flow	0.28	m^3/person/day	Referred to the planning unit flow for Commercial Employee + Community, Social & Personal Services in Table T-2 of GESF.
		Average dry weather flow	**42.0**	m^3/day	
		Total ADWF for Area 136	**260.7**	m^3/day	
137	C	**Post Secondary Institution**			
		Total no. of student	4000	persons	based on CEDD SIA report
		Unit flow	0.04	m^3/person/day	Referred to the planning unit flow for School Student in Table T-2 of GESF.
		Total no. of employee	345	persons	based on CEDD SIA report
		Unit flow	0.28	m^3/person/day	Referred to the planning unit flow for Commercial Employee + Community, Social & Personal Services in Table T-2 of GESF.
		Total ADWF for Area 137	**256.6**	m^3/day	CEDD SIA report = 256.6m3/d OK
138	D	**Sports Ground**			
		Total no. of spectator	2500	persons	based on CEDD SIA report
		Unit flow	0.032	m^3/person/day	Estimated by HAB in 2015, based on the employment figures of Tseung Kwan O Sports Ground. According to 2015 employment figures of Tseung Kwan O Sports Ground with 5,000 spectatators, the permanent employees are 30. The UFF of 0.032 is estimated by making reference to the deviation under Section 7.4 of the EIA report of Kai Tak Multi-Sports Complex.
		Total no. of employee	15	persons	based on CEDD SIA report
		Unit flow	0.28	m^3/person/day	Referred to the planning unit flow for Commercial Employee + Community, Social & Personal Services in Table T-2 of GESF.
		Total ADWF for Area 138	**84.2**	m^3/day	
131	E	**Police Station**			
		Total number of person	233	persons	based on CEDD SIA report
		Unit flow	0.28	m^3/person/day	Referred to the planning unit flow for Commercial Employee + Community, Social & Personal Services in Table T-2 of GESF.
		Total ADWF for Area 131	**65.2**	m^3/day	
		Total ADWF connected to SE-C13	**743.9**	m^3/day	Sum of Catchement A to Catchment E
129	F	**Retail**			
		Total number of employee	736	persons	based on CEDD SIA report
		Unit flow	0.28	m^3/person/day	Referred to the planning unit flow for Commercial Employee + Wholesale & Retail J4 in Table T-2 of GESF.
		Average dry weather flow	**206.1**	m^3/day	
		Office			
		Total number of employee	7250	persons	based on CEDD SIA report
		Unit flow	0.08	m^3/person/day	Referred to the planning unit flow for Commercial Employee + Business Services J6 in Table T-2 of GESF.
		Average dry weather flow	**580.0**	m^3/day	
		F&B trade			
		Population of possible F&B trade	73.6	persons	Population of possible F&B trade in TCE is assumed to be 10% of retail employee
		Unit flow	1.58	m^3/person/day	Commercial Employee + Restaurants & Hotels - J10 in Table T-2 of GESF.
		Average dry weather flow	**116.3**	m^3/day	
		Total ADWF for Area 129	**902.4**	m^3/day	

Table 2 - Population Estimation for Catchment Area （data based on CEDD report)

Area No.	Catchment ID	Description	Magnitude	Unit	Remark
133A	**G**	**Kindergarten**			
		Total no. of student	452	persons	based on CEDD SIA report
		Unit flow	0.04	m^3/person/day	Referred to the planning unit flow for School Student in Table T-2 of GESF.
		Total no. of teacher	51	persons	based on CEDD SIA report
		Unit flow	0.28	m^3/person/day	Referred to the planning unit flow for Commercial Employee + Community, Social & Personal Services in Table T-2 of GESF.
		Average dry weather flow	**32.4**	m^3/day	
		Management Office			
		Total number of employee	50	persons	based on CEDD SIA report
		Unit flow	0.28	m^3/person/day	Referred to the planning unit flow for Commercial Employee + Community, Social & Personal Services in Table T-2 of GESF.
		Average dry weather flow	**14.0**	m^3/day	
		Commercial			
		Total number of employee	913	persons	based on CEDD SIA report
		Unit flow	0.28	m^3/person/day	Referred to the planning unit flow for Commercial Employee + Wholesale & Retail J4 in Table T-2 of GESF.
		Average dry weather flow	**255.6**	m^3/day	
		F&B trade			
		Total number of employee	393	persons	based on CEDD SIA report
		Unit flow	1.58	m^3/person/day	Commercial Employee + Restaurants & Hotels - J10 in Table T-2 of GESF.
		Average dry weather flow	**620.9**	m^3/day	
		F&B trade			
		Population of possible F&B trade	96	persons	Population of possible F&B trade in TCE is assumed to be 10% of commercial+management office employee
		Unit flow	1.58	m^3/person/day	Commercial Employee + Restaurants & Hotels - J10 in Table T-2 of GESF.
		Average dry weather flow	**152.2**	m^3/day	
		Special Residential			
		Total number of residents	18406	persons	based on CEDD SIA report
		Unit flow	0.19	m^3/person/day	based on Table T-1: Private residential R1 type
		Average dry weather flow	**3497.1**	m^3/day	
		Total ADWF for Area 133A	**4572.2**	m^3/day	

Table 2 - Population Estimation for Catchment Area （data based on CEDD report)

Area No.	Catchment ID	Description	Magnitude	Unit	Remark
133B	**H**	**Welfare facilities**			
		Total number of employee	182	persons	based on CEDD SIA report
		Unit flow	0.28	m^3/person/day	Referred to the planning unit flow for Commercial Employee + Community, Social & Personal Services in Table T-2 of GESF.
		Total number of residents	100	persons	based on CEDD SIA report
		Unit flow	0.19	m^3/person/day	based on Table T-1: Private residential R1 type
		Average dry weather flow	**70.0**	m^3/day	
		Special Residential			
		Total number of residents	7984	persons	based on CEDD SIA report
		Unit flow	0.19	m^3/person/day	based on Table T-1: Private residential R1 type
		Average dry weather flow	**1517.0**	m^3/day	
		Kindergarten			
		Total no. of student	239	persons	
		Unit flow	0.04	m^3/person/day	Referred to the planning unit flow for School Student in Table T-2 of GESF.
		Total no. of teacher	26	persons	
		Unit flow	0.28	m^3/person/day	Referred to the planning unit flow for Commercial Employee + Community, Social & Personal Services in Table T-2 of GESF.
		Average dry weather flow	**16.8**	m^3/day	
		Management Office			
		Total number of employee	25	persons	based on CEDD SIA report
		Unit flow	0.28	m^3/person/day	Referred to the planning unit flow for Commercial Employee + Community, Social & Personal Services in Table T-2 of GESF.
		Average dry weather flow	**7.0**	m^3/day	
		F&B trade			
		Total number of employee	3	persons	Population of possible F&B trade in TCE is assumed to be 10% of retail employee
		Unit flow	1.58	m^3/person/day	Commercial Employee + Restaurants & Hotels - J10 in Table T-2 of GESF.
		Average dry weather flow	**4.0**	m^3/day	
		Total ADWF for Area 133B	**1614.7**	m^3/day	
133C	**I**	**Welfare facilities**			
		Total number of employee	194	persons	based on CEDD SIA report
		Unit flow	0.28	m^3/person/day	Referred to the planning unit flow for Commercial Employee + Community, Social & Personal Services in Table T-2 of GESF.
		Total number of residents	180	persons	based on CEDD SIA report
		Unit flow	0.19	m^3/person/day	based on Table T-1: Private residential R1 type
		Average dry weather flow	**88.5**	m^3/day	
		Special Residential			
		Total number of residents	8382	persons	based on CEDD SIA report
		Unit flow	0.19	m^3/person/day	based on Table T-1: Private residential R1 type
		Average dry weather flow	**1592.6**	m^3/day	
		Kindergarten			
		Total no. of student	233	persons	based on CEDD SIA report
		Unit flow	0.04	m^3/person/day	Referred to the planning unit flow for School Student in Table T-2 of GESF.
		Total no. of teacher	26	persons	based on CEDD SIA report
		Unit flow	0.28	m^3/person/day	Referred to the planning unit flow for Commercial Employee + Community, Social & Personal Services in Table T-2 of GESF.
		Average dry weather flow	**16.6**	m^3/day	
		Management Office			
		Total number of employee	25	persons	based on CEDD SIA report
		Unit flow	0.28	m^3/person/day	Referred to the planning unit flow for Commercial Employee + Community, Social & Personal Services in Table T-2 of GESF.
		Average dry weather flow	**7.0**	m^3/day	
		F&B trade			
		Total number of employee	3	persons	Population of possible F&B trade in TCE is assumed to be 10% of management office
		Unit flow	1.58	m^3/person/day	Commercial Employee + Restaurants & Hotels - J10 in Table T-2 of GESF.
		Average dry weather flow	**4.0**	m^3/day	
		Total ADWF for Area 133C	**1708.7**	m^3/day	

Table 2 - Population Estimation for Catchment Area （data based on CEDD report)

Area No.	Catchment ID	Description	Magnitude	Unit	Remark
130	**J**	**Office**			
		Total number of employee	6900	persons	based on CEDD SIA report
		Unit flow	0.08	m^3/person/day	Referred to the planning unit flow for Commercial Employee + Business Services J6 in Table T-2 of GESF.
		Average dry weather flow	**552.0**	m^3/day	
		Retail			
		Total number of person	739	person	based on CEDD SIA report
		Unit flow	0.28	m3/person/day	Referred to the planning unit flow for Commercial Employee + Wholesale & Retail J4 in Table T-2 of GESF.
		Average dry weather flow	**207.0**	m^3/day	
		F&B trade			
		Total number of employee	74	person	Population of possible F&B trade in TCE is assumed to be 10% of retail employee
		Unit flow	1.58	m3/person/day	Commercial Employee + Restaurants & Hotels - J10 in Table T-2 of GESF.
		Average dry weather flow	**116.8**	m^3/day	
		Total ADWF for Area 130	**875.8**	m^3/day	
52 (E6)	**K**	**Open Space**			
		Total number of employee	14	persons	based on CEDD SIA report
		Unit flow	0.28	m^3/person/day	Referred to the planning unit flow for Commercial Employee + Community, Social & Personal Services in Table T-2 of GESF.
		Average dry weather flow	**3.9**	m^3/day	
		Open Space (No shower room)			
		Total number of person	10	person	based on CEDD SIA report
		Unit flow	10.8	m3/person/day	Calculation of ADWF in open space retrieved from agreed SIA for Open Space Development in Tung Chung New Town Extension (East) in Agreement No. 9AJ126.
		Average dry weather flow	**108.0**	m^3/day	
		Open Space (Visitor)			
		Total number of person	3000	person	based on CEDD SIA report
		Unit flow	0.01	m3/person/day	Calculation of ADWF in open space retrieved from agreed SIA for Open Space Development in Tung Chung New Town Extension (East) in Agreement No. 9AJ126.
		Average dry weather flow	**30.0**	m^3/day	
		Total ADWF for Area 52	**141.9**	m^3/day	
132	**L**	**Sewage Pumping Station**			
		Total number of employee	10	persons	based on CEDD SIA report
		Unit flow	0.33	m^3/person/day	based on CEDD SIA report
		Total ADWF for Area 132	**3.3**	m^3/day	
	M	**Total ADWF for Catchement M**	**24661.2**	m^3/day	based on CEDD SIA report, the accumulated ADWF connecting manhole SE-A15 to SE-E23A is 24,661.2m3/day
		Total ADWF connected to SE-E28	**35224.0**	m^3/day	Catchment A to Catchment M

Appendix F

Calculation of Flow Capacity of Proposed Development

Calculation of Flow Capacity of Proposed Development

Sewer No.				Material	Internal Diameter (m) [a]	Cross-section Area (m^2)	Length (m)	Inlet mPD (m) [a]	Outlet mPD (m) [a]	Hydraulic pipeline roughness (m) [b]	Hydraulic Gradient	Mean Velocity (m/s) [c]	Max Capacity of Sewer (m^3/s)	Total Average Dry Weather Flow	Catchment Inflow Factor	Revised Total Average Dry Weather Flow [g]	Contributing Population	Peaking Factor	Peak Discharge from Project Site m^3/day	Peak Discharge through Manhole m^3/s	Percentage of capacity after Development	Proposed Development Contribution	Remark
ID	From	ID	To		D	A	l				s	V		m^3/day	[f]	m^3/day	[d]	[e]			[h]		
S1	PLUG C0.2	S2	SE-C13	V.C	0.28	0.062	6.6	4.30	4.00	0.0015	0.04580	2.84	0.175	315.3	1.0	315.3	1168	6.0	1891.5	0.022	12.5%	12.5%	The Site
S2	SE-C13	S3	SE-E28	PE	0.500	0.196	19.2	1.59	1.24	0.0015	0.01823	2.61	0.512	1059.1	1.0	1059.1	3923	6.0	6354.7	0.074	14.4%	4.3%	The Site + Catchment A-E
S3	SE-E28	S4	SPS001 Sewage pumping Station (TCE East)	PE	1.400	1.539	29.7	-2.34	-2.40	0.0015	0.00209	1.69	2.596	35539.3	1.0	35539.3	131627	3.5	124775.6	1.444	55.6%	0.8%	The Site + Catchment A-M

[a] Reference from CEDD Design Report

[b] Reference from CEDD Design Report,
Pipe is made up of polyethylene, roughness coefficient = 0.0015m
Pipe is made up of vitrified clay, roughness coefficient = 0.0015m

[c] The velocity is calculated using the Colebrook-White Formula:

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

where
k = Colebrook-White roughness coefficient, in meter
V = mean velocity (m/s)
D = circular cross-section pipe, inside diameter (m)
S = slope, in meters per meter
v = kinematic viscosity of water, in meter per second (0.000001306 m/s)
g = gravitational acceleration (m/s2) (9.807m/s2)

[d] The Contributing Population is defined as:

$$\text{Contributing Population} = \frac{\text{Calculated total average flow } (m^3/\text{day})}{0.27\ (m^3/\text{person/day})}$$

[e] Reference from Table T-5 of Guidelines for Estimating Sewage Flows for Sewerage Infrastructure Planning
[f] Reference from Table T-4 of Guidelines for Estimating Sewage Flows for Sewerage Infrastructure Planning
[h] Revised Total Average Dry Weather Flow = Total Average Dry Weather Flow x Catchment Inflow Factor
[i] Pipe segment that exceeded 100% used capacity are bolded and underlined