

Appendix D

Revised Water Supply Impact Assessment

Civil Engineering and Development Department

Agreement No. CE 1/2020 (CE) Hung Shui Kiu/Ha Tsuen New Development Area Package A Works for Second Phase Development – Design and Construction

S16 Planning Application for Proposed Flat and Shop and Services and Eating Place at Non-Domestic Podium within “G/IC(1)” Zone of Planning Area 34E of Hung Shui Kiu/ Ha Tsuen New Development Water Supply Impact Assessment

Draft | November 2025

This report takes into account the particular
instructions and requirements of our client.

It is not intended for and should not be relied
upon by any third party and no responsibility
is undertaken to any third party.

Job number 278463

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1. Introduction

1.1 General

1.1.1 Ove Arup and Partners Hong Kong Limited (Arup) was commissioned by the West Development Office (WDO) of the Civil Engineering and Development Department (CEDD) of the Government of Hong Kong Special Administrative Region (HKSAR) on 30 September 2020 to provide Consultancy Services for the Design and Construction Supervision of Hung Shui Kiu / Ha Tsuen New Development Area (HSK/HT NDA) Package A Works for Second Phase Development (the Consultancy). Under the Review Phase of the Consultancy, technical assessments including reports on Traffic and Transport Impact Assessments Review (TTIA), report on Drainage and Sewerage Impact Assessments Review (DSIA), Report on Water Supply and Utilities Impact Assessments Review (WSUIA) had been completed, which was based on the planning parameters adopted in Approved S16 Planning Application (No. A/HSK/452) for proposed minor relaxation of plot ratio and/or building height restrictions for the proposed/permitted public and private housing developments, proposed social welfare facilities, proposed shop and services, eating place, school, office, educational institution, institutional use, off-course betting centre, place of entertainment, private club, public convenience, recycle collection centre and training centre at non-domestic podium within public housing developments in HSK/HT NDA in April 2023.

1.1.2 This Planning Application is submitted in accordance with Section 16 of the Town Planning Ordinance to seek approval of the Town Planning Board for the proposed flat and shop and services and eating place at non-domestic podium within "Government, Institution or Community (1)" ("G/IC(1)") of Planning Area 34E of Hung Shui Kiu/ Ha Tsuen New Development Area ("the Application Site"). The Proposed Development has a total Plot Ratio of 6.5, comprising residential developments on top of non-domestic podium.

1.1.3 This updated WIA report is based on the accepted WSUIA report No. REP-032-06 (F3E) for the HSK/HT NDA development under Review Phase of the Consultancy.

1.2 Scope of Updated Technical Assessments

1.2.1 The scope of updated technical assessment for water supplies comprises the following:

- Update the previous WSIA conducted using the new development parameters (site area, population, type, mix, etc.) given by CEDD;

- Undertake a review of the proposed water supply network and identify if there would be any deficiency / inadequate capacity based on the new development parameters;
- Propose the preliminary modification measures for the purpose of the WIA; and
- Submit the WIA to support S16 application.

1.2.2

This section outlines the assessment of the sewerage impact potentially induced by the proposed development parameters at Site No. 4-1 (i.e. the Application Site) in HSK/HT NDA and includes:

- Estimation of fresh and flushing water demand arising from the Application Site;
- Assessment of potential impact on the planned fresh and flushing water supply network imposed by the Application Site; and
- Proposed preliminary water supply system modification works, if considered necessary.

2. Planning Data and Water Demand Estimation

2.1 Baseline Population and Employment Data

2.1.1 The baseline sewerage catchments and population within the proposed HSK/HT NDA is based on the following planned and committed developments:

- S16 Planning Application No. A/HSK/452 (approved on 23 Jun 2023);
- Updated planned population and employment figures at nine housing sites advised by the Housing Department (i.e. Site No. 4-3, 4-4, 4-5, 4-6, 4-22, 4-24, 4-28, 5-16 and 5-17);
- Planning Application No. A/HSK/474 – Minor Relaxation of Plot Ratio Restriction for Permitted Residential and Commercial Development (in Kiu Tau Wai); and
- Planning Application No. A/HSK/573 – Proposed Minor Relaxation of Domestic Plot Ratio Restriction (From 4.5 to 5) for Mixed Use Development (in Planning Areas 28A and 28B of HSK/HA NDA) (i.e. Site No. 4-25a, 4-25b, 4-25c, and 4-29) (approved on 15 Aug 2025).

2.2 Proposed Development

2.2.1 The proposed development information for the Application Site (i.e. Site No. 4-1) is summarized in **Table 2.1**. The Indicative Scheme is shown in **Appendix A**.

Table 2.1 Proposed Development Parameters for the Application Site

Development Parameters	Proposed Development
Application Site	About 7,760m ²
Total Plot Ratio (PR)	6.5
- Domestic PR	6
- Non-domestic PR	0.5
Total Gross Floor Area (GFA)	50,440m ²
- Domestic GFA	46,560m ²
- Non-domestic GFA	3,880m ²
No. of Blocks	4 nos. of residential towers on top of 5-storey retail, carpark cum clubhouse podium
Population	About 2,420

Development Parameters	Proposed Development
Clubhouse GFA	About 2,095.2m ²

2.3 Water Demand Parameters and Assumptions

2.3.1 The assumptions for fresh and flushing water demand estimation adopted in this assessment are extracted from those stated in the accepted WSUIA (Report No. REP-032-06) (F3E) for the HSK/HT NDA.

2.3.2 The unit water demands are generally based on Water Supplies Department (WSD)'s Departmental Instruction (DI) No. 1309 and previous discussions with WSD during meetings. Where relevant rates are not available, e.g. for Commercial, Government Institution or Community and Hotel, assumptions based on previous studies for similar user types have been adopted. The residential and non-residential unit water demands are presented below.

Unit Water Demand

2.3.3 The unit fresh and flushing water demands for residential users adopted in this assessment are summarised in **Table 2.2**.

Table 2.2 Unit Water Demand

Site No.	Code	Fresh Water (m ³ /head/day)		Flushing Water (m ³ /head/day)	
		Resident	Employment	Resident	Employment
Site 4-1	R1	0.34 ⁽¹⁾	-	0.104	0.05
Note: (1) The fresh water demand has considered a residential unit demand of 0.30 m ³ /head/day and a non-residential unit demand of 0.04 m ³ /head/day with reference to WSD's DI No. 1309.					

2.3.4 The unit fresh and flushing water demands for non-residential users are summarised in the following paragraphs.

Service Trade – Fresh Water Supply

2.3.5 The relevant unit factor for use in estimating fresh water demand for service trade is assumed resemble that for an urban area, in particular, the Yuen Long district. Therefore, a factor of 0.04 m³/head/day has been adopted with reference to WSD's DI No. 1309.

Service Trade – Flushing Water Supply

2.3.6 No unit daily demand for flushing water demand is provided with reference to WSD's DI No. 1309 for this category of user.

Peaking Factors

2.3.7

The following peak demand factors are adopted:

- Peak flow rate in fresh water trunk main supplying from water treatment works to single service reservoir = 1.5 x mean daily fresh water demand of reservoir supply zone;
- Peak flow rate in fresh water distribution mains = 3 x mean daily fresh water demand;
- Peak flow rate in flushing water distribution mains = 2 x mean daily flushing water demand.

2.3.8

The maximum desirable flow velocity limit in **Table 2.3** below will be adopted for ultimate stage under normal water demand scenario (i.e. excluding fire-fighting demand scenario).

Table 2.3 Desirable Flow Velocity Limit

Fresh Water System		Flushing Water System	
Pipe Diameter	Flow Velocity Limit (m/s)	Pipe Diameter	Flow Velocity Limit (m/s)
> DN700	3	> DN1000	3
DN525 to DN700	2.5	DN800 to DN900	2.5
DN375 to DN450	2	DN525 to DN700	2
DN200 to DN300	1.5	DN300 to DN450	1.5

Residual Heads

2.3.9

The minimum residual heads of the proposed fresh and flushing water supply systems in HSK/HT NDA are based on **Table 2.4**.

Table 2.4 Minimum Residual Heads in Water Supply System

Water Supply System	Minimum Residual Heads (m)
Fresh water – Normal	20
Fresh water – Firefighting	17
Flushing water	15

Reservoir Volume

2.3.10

To determine the fresh water storage volume, a 10% contingency is firstly applied to the average daily demand. Further, the storage volume is estimated as 80% of mean daily demand in accordance with the WSD's guidelines.

2.3.11

The required capacity of flushing water storage volume is calculated as 64% of mean daily demand of flushing water service reservoir.

3. Assessment of Water Supply Impact

3.1 Planned Fresh Water Supply System

3.1.1 Existing fresh water supply infrastructure within HSK/HT NDA area cannot cater for the demand from HSK/HT NDA developments. New fresh water supply facilities comprising fresh water service reservoir, trunk, and distribution mains are planned.

3.1.2 The planned fresh water supply system for HSK/HT NDA and the proposed Tan Kwai Tsuen East Fresh Water Service Reservoir (TKTE FWSR) are shown in **Appendix C**.

3.2 Planned Flushing Water Supply System

3.2.1 Since there is no comprehensive salt water supply system in HSK/HT NDA for flushing purpose, new flushing supply sources and distribution network are required to serve the development area of HSK/HT NDA.

3.2.2 Reclaimed water from Yeun Long South Effluent Polishing Plant (YLSEPP) will be supplied to HSK/HT NDA for flushing purpose via Tan Kwai Tsuen East Reclaimed Water Service Reservoir (TKTE ReWSR). The proposed flushing water supply system for HSK/HT NDA is shown in **Appendix C**.

3.3 Water Supply Impact

3.3.1 The fresh water and flushing water demands from the Application Site based on the updated development parameters are summarised in **Table 3.1** and **Table 3.2** respectively.

Table 3.1 Fresh Water Demand from the Proposed Development

Development and Type	GFA (m ²)	Population /Employee	Unit Flow Factor (m ³ /day/head)	Fresh Water Demand (m ³ /day)
Domestic (Private R1)	46,560	2,420	0.34 ¹	822.8
Non-domestic (Commercial – General)	3,880	136	-	-
Clubhouse (Commercial – General)	2095.2	70	-	-
Total				822.8
Note: 1. The unit factor of 0.34 m ³ /day/head for domestic (private R1) includes a service trade demand of 0.04 m ³ /day/head.				

Table 3.2 Flushing Water Demand from the Proposed Development

Development and Type	GFA (m ²)	Population /Employee	Unit Flow Factor (m ³ /day/head)	Flushing Water Demand (m ³ /day)
Domestic (Private R1)	46,560	2,420	0.104	251.7
Non-domestic (Commercial – General)	3,880	136	0.05	6.8
Clubhouse (Commercial – General)	2095.2	70	0.05	3.8
Total				262.3

3.3.2

In the Indicative Scheme formulated for the purpose of technical assessment, a swimming pool is proposed (subject to change at the detailed design stage). Since the filling up and discharge of the swimming pool will be only undertaken occasionally, the swimming pool is planned to be filled up during non-peak hours to reduce the loading on public fresh water main network. Thus, the swimming pool's fresh water demand will be excluded from the peak fresh water flow of the proposed development.

3.3.3

The flow increment compared to the baseline scenario are summarised in **Table 3.3** and **Table 3.4** respectively.

Table 3.3 Fresh Water Demand Comparison for Site No. 4-1

Scenario	Fresh Water Demand (m ³ /day)
Baseline (Refer to Section 2.1)	32
Proposed	822.8
Difference	+790.8

Table 3.4 Flushing Water Demand Comparison for Site No. 4-1

Scenario	Flushing Water Demand (m ³ /day)
Baseline	7
Proposed	262.3
Difference	+255.3

3.3.4

The above calculations are presented in **Appendix B**.

3.3.5

It is noted that there is an additional fresh and flushing water demand of 790.8 m³/day and 255.3 m³/day respectively, which is attributed to the change in the zoning of the housing sites and the corresponding UFF.

3.3.6

Table 3.5 summarises the design/reserved storage capacities of the proposed TKTE FWSR and TKTE ReWSR for HSK/HT NDA and a comparison of design water demand under base case and proposed condition. It is noted that the proposed TKTE FWSR and TKTE ReWSR have sufficient spare capacity to accommodate the additional fresh water demands. The increase in fresh and flushing

water demand is insignificant comparing to the total water demand from the whole HSK/HT NDA.

Table 3.5 Service Reservoirs Storage Capacities and Water Demand

Service Reservoir	Storage Capacity ⁽¹⁾ (m ³)	Water Demand (m ³ /day) ⁽²⁾			Required Storage Capacity Change (m ³)	Required Storage Capacity under Proposed Condition (m ³)
		Base Case	Proposed Condition	Increment		
TKTE FWSR	188,050 (Designed by HSK)	123,027	123,897	+870 (+0.7%)	+696	99,118
TKTE ReWSR	Approx. 32,000 (Reserved by others)	29,043	29,324	+281 (+1.0%)	+180	18,767
Note: (1) The storage capacities for TKTE FWSR and TKTE ReWSR are reserved for HSK and other developments. (2) The base case and proposed condition include the demands from HSK Advanced Works, Stage 1, 2, 3 & 4, and DCS with an additional 10% contingency applied to estimated required storage volume.						

3.3.7 A hydraulic assessment was conducted using the InfoWater model to evaluate the impact of additional fresh and flushing water demand generated by the proposed development on the corresponding water supply networks within the HSK/HT NDA. The detailed results of this assessment are provided in **Appendix D**.

3.3.8 The assessment indicates that the extremities of the proposed fresh and flushing water systems in the HSK/HT NDA could still meet WSD's minimal residual head requirements. The reduction in residual head due to the increased water demand is minimal. As such, the impact of updated development parameters on the proposed development on the overall HSK fresh and flushing water networks is considered insignificant.

3.3.9 However, with the increasing fresh water demand, the velocity in sections of fresh water mains along Road L25 serving the development site would exceed the recommended maximum flow velocity requirement as stated in **Table 2.3**. The fresh water main shall be enlarged to suit the increased water demand. For details, please refer to **Section 4**.

3.3.10 The fresh water, fire services, and flushing water mains to the proposed development site are shown in **Appendix C**.

4. Proposed Water Supply Modification Works

4.1.1 The following water main sections within HSK/HT NDA Second Phase Development are proposed to be modified/upgraded to cater for the additional water demand.

- Upgrade proposed fresh water mains from DN300 to DN400 along Road L23, specifically for the pipe section from Road D6 to Site 4-1;
- Resize the lead-in pipe to NS125 (DN100) for fresh water supply and NS63 (DN50) for flushing water supply to suit the updated water demand.

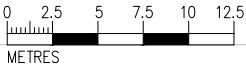
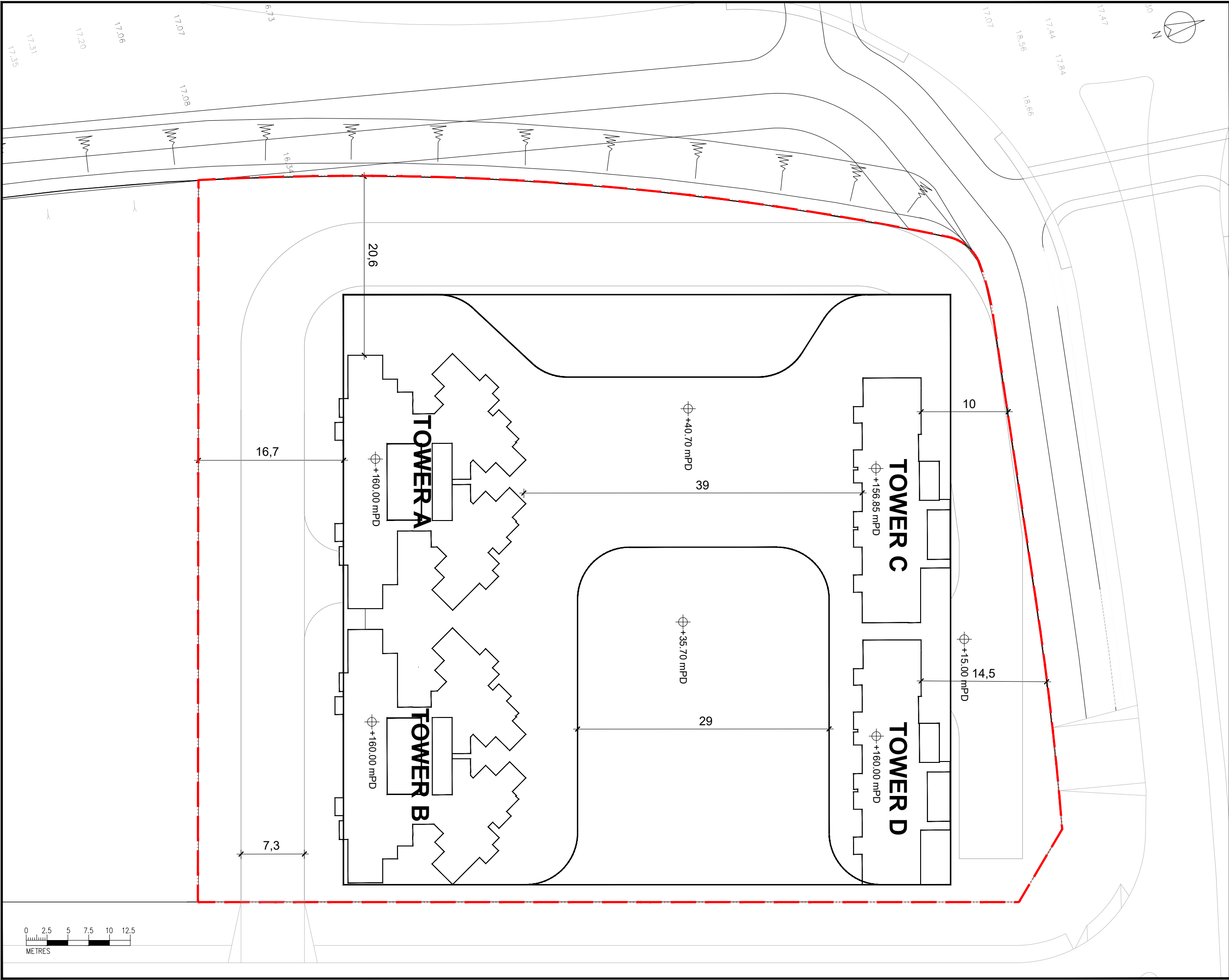
4.1.2 The fresh and flushing water main serving the proposed development including upgrading works are shown in **Appendix C**.

5. Summary

- 5.1.1** This report estimated the fresh and flushing water demands generated from the proposed development at Site No. 4-1 under the proposed condition in comparison with that from the base case scenario, assessed the potential impact and recommended water supply modification works.
- 5.1.2** According to the assessment, the updated development parameters from the proposed development would induce an additional fresh and flushing water demand of 790.8 m³/day and 255.3 m³/day respectively.
- 5.1.3** Based on the hydraulic assessment using InfoWater model, the increase in fresh and flushing water demand is considered negligible comparing to the total water demand from whole the HSK/HT NDA under ultimate development scenario. The marginal increase will not have any adverse impact on the water supply infrastructure within HSK/HT NDA.
- 5.1.4** It is proposed to upgrade sections of the new fresh water mains under HSK/HT NDA Second Phase Development to cater for the additional fresh water demand. In addition, the lead-in pipe sizes for fresh and flushing water supply have been revised to suit the updated water demand from the proposed development.

Appendix A

Indicative Scheme for Site No. 4-1



Rev.	Date	Description	Drawn
GENERAL NOTES:			
1.DO NOT SCALE DRAWING. FIGURED DIMENSIONS ARE TO BE FOLLOWED.			
2.ALL DIMENSIONS ARE TO BE CHECKED AT SITE BY THE MAIN CONTRACTOR/FABRICATOR.			
3.ALL RIGHT RESERVED. REPRODUCTION IN ANY FORM MUST BE APPROVED BY CLIENT/OWNER.			
4.READ THIS DRAWING IN CONNECTION WITH GENERAL ARCHITECTURAL PLANS, STRUCTURAL PLANS, AND OTHER RELATED DRAWINGS.			
Application Site			

Appendix B

Water Demand Calculations

Appendix B1 - Fresh Water Demands Estimate

Sub-Planning Area as Aug 2023	Use Designation	Site Area (m ²)	Hotel Room (No.)	Population	Employment	Hospital Bed (No.)	Student	Land Use Type for Water Supply	Fresh Water Unit Rate	Unit	Sub-total Fresh Water Demand (m ³ /day)	Total Fresh Water Demand (m ³ /day)	Total Fresh Water Demand (L/s)	Proposed Development Stage
Site 1-1	G	22,168	0	0	140			G	0.23	m3/head/day	32	32	0	S3
								Service Trade	0.04	m3/head/day	0			
Site 1-2	R1(SSF)	16,190	0	5,683	0			R1	0.23	m3/head/day	1307	1327	15	S4
					500			Service Trade	0.04	m3/head/day	20			
Site 1-3	E	13,230	0	0	167			E	0	m3/head/day	0	0	0	S3
					0			Service Trade	0.04	m3/head/day	0			
Site 1-4	R1	15,191	0	5,332	0			R1	0.23	m3/head/day	1226	1245	14	S4
					469			Service Trade	0.04	m3/head/day	19			
Site 1-5	R1	17,537	0	6,155	0			R1	0.23	m3/head/day	1416	1437	17	S4
					541			Service Trade	0.04	m3/head/day	22			
Site 1-6	R1	23,979	0	8,416	0			R1	0.23	m3/head/day	1936	1965	23	S4
					739			Service Trade	0.04	m3/head/day	30			
Site 1-7	LO	17,177	0	0	0			LO	0	m3/ha/day	0	0	0	S4
					0			Service Trade	0.04	m3/head/day	0			
Site 1-8	R2c	18,423	0	3,316	0			R2	0.3	m3/head/day	995	1011	12	S4
					403			Service Trade	0.04	m3/head/day	16			
Site 1-9	R2c	13,002	0	2,340	0			R2	0.3	m3/head/day	702	713	8	S4
					285			Service Trade	0.04	m3/head/day	11			
Site 1-10	LO	14,425	0	0	0			LO	0	m3/ha/day	0	0	0	S4
					0			Service Trade	0.04	m3/head/day	0			
Site 1-11	LO	4,479	0	0	0			LO	0	m3/ha/day	0	0	0	S4
					0			Service Trade	0.04	m3/head/day	0			
Site 1-12	R2	13,962	0	2,513	0			R2	0.3	m3/head/day	754	755	9	S3
					20			Service Trade	0.04	m3/head/day	1			
Site 1-13	R2c	15,157	0	2,728	0			R2	0.3	m3/head/day	818	832	10	S4
					332			Service Trade	0.04	m3/head/day	13			
Site 1-14	LO	16,130	0	0	0			LO	0	m3/ha/day	0	0	0	S4
					0			Service Trade	0.04	m3/head/day	0			
Site 1-15	E	20,106	0	0	167			E	0	m3/head/day	0	0	0	S3
					0			Service Trade	0.04	m3/head/day	0			
Site 1-16	R2c	17,177	0	6,029	0			R2	0.3	m3/head/day	1809	1830	21	S4
					530			Service Trade	0.04	m3/head/day	21			
Site 1-17	R2	15,953	0	5,600	0			R2	0.3	m3/head/day	1680	1700	20	S3
					492			Service Trade	0.04	m3/head/day	20			
Site 1-18	E	13,383	0	0	134			E	0	m3/head/day	0	0	0	S3
					0			Service Trade	0.04	m3/head/day	0			
Site 1-19	R2	14,841	0	2,671	0			R2	0.3	m3/head/day	801	803	9	S3
					28			Service Trade	0.04	m3/head/day	1			
Site 1-20	LO	16,853	0	0	0			LO	0	m3/ha/day	0	0	0	S3
					0			Service Trade	0.04	m3/head/day	0			
Site 1-21	R1	17,020	0	5,974	0			R1	0.23	m3/head/day	1374	1395	16	S3
					520			Service Trade	0.04	m3/head/day	21			
Site 1-22	E	18,132	0	0	167			E	0	m3/head/day	0	0	0	S3
					0			Service Trade	0.04	m3/head/day	0			
Site 1-23	OU	13,377	0	0	10			Other Uses	0.23	m3/head/day	2	2	0	N/A
					0			Service Trade	0.04	m3/head/day	0			
Site 1-24	OU	7,278	0	0	6			Other Uses	0.23	m3/head/day	1	1	0	AWP3
					0			Service Trade	0.04	m3/head/day	0			
Site 1-25	OU	1,521	0	0	10			Other Uses	0.23	m3/head/day	2	2	0	S3
					0			Service Trade	0.04	m3/head/day	0			
Site 1-26	IC	14,650	0	0	0			IC	200	m3/ha/day	293	293	3	N/A
					0			Service Trade	0.04	m3/head/day	0			
Site 1-27	RO	120,136	0	0	0			RO	0	m3/ha/day	0	0	0	S2B
					0			Service Trade	0.04	m3/head/day	0			
Site 1-28	RO	40,605	0	0	0			RO	0	m3/ha/day	0	0	0	S3
					0			Service Trade	0.04	m3/head/day	0			
Site 1-29	G	32,750	0	0	25			G	0.23	m3/head/day	6	6	0	S3
					0			Service Trade	0.04	m3/head/day	0			
Site 1-30	G	6,256	0	0	18			G	0.23	m3/head/day	4	4	0	S3
					0			Service Trade	0.04	m3/head/day	0			
Site 1-31	OU	3,620	0	0	0			Other Uses	0.23	m3/head/day	0	0	0	N/A
					0			Service Trade	0.04	m3/head/day	0			
Site 1-32	OU	2,381	0	0	0			Other Uses	0.23	m3/head/day	0	0	0	S3
					0			Service Trade	0.04	m3/head/day	0			
Site 2-1	C	19,589	0	0	1,095			Commercial	0.23	m3/head/day	252	252	3	S4
					0			Service Trade	0.04	m3/head/day	0			
Site 2-2	R3	10,359	0	874	0			R3	0.39	m3/head/day	341	341	4	S4
					9			Service Trade	0.04	m3/head/day	0			
Site 2-3	R3	14,747	0	1,244	0			R3	0.39	m3/head/day	485	486	6	S4
					13			Service Trade	0.04	m3/head/day	1			
Site 2-4	OU	1,749	0	0	10			Other Uses	0.23	m3/head/day	2	2	0	S4
					0			Service Trade	0.04	m3/head/day	0			
Site 2-5	LO	9,546	0	0	0			LO	0	m3/ha/day	0	0	0	S4
					0			Service Trade	0.04	m3/head/day	0			
Site 2-6	LO	5,042	0	0	0			LO	0	m3/ha/day	0	0	0	S4
					0			Service Trade	0.04	m3/head/day	0			
Site 2-7	R3	10,999	0	928	0			R3	0.39	m3/head/day	362	362	4	S4
					10			Service Trade	0.04	m3/head/day	0			
Site 2-8	LO	10,567	0	0	0			LO	0	m3/ha/day	0	0	0	S4
					0			Service Trade	0.04	m3/head/day	0			
Site 2-9	E	9,129	0	0	67			E	0	m3/head/day	0	0	0	S4
					0			Service Trade	0.04	m3/head/day	0			
Site 2-10	R3	12,988	0	1,096	0			R3	0.39	m3/head/day	427	428	5	S4
					11			Service Trade	0.04	m3/head/day	0			
Site 2-11	R3	15,237	0	1,543	0			R3	0.39	m3/head/day	602	614	7	S4
					315			Service Trade	0.04	m3/head/day	13			
Site 2-12	LO	8,733	0	0	0			LO	0	m3/ha/day	0	0	0	S4
					0			Service Trade	0.04	m3/head/day	0			
Site 2-13	LO	11,642	0	0	0			LO	0	m3/ha/day	0	0	0	S4
					0			Service Trade	0.04	m3/head/day	0			
Site 2-14	R3	8,820	0	744	0			R3	0.39	m3/head/day	290	291	3	S4
					8			Service Trade	0.04	m3/head/day	0			
Site 2-15	E	7,301	0	0	67			E	0	m3/head/day	0	0	0	S4
					0			Service Trade	0.04	m3/head/day	0			
Site 2-16	E	22,019	0	0	234			E	0	m3/head/day	0	0	0	S4
					0			Service Trade	0.04	m3/head/day	0			
Site 2-17	G	7,520	0	0	67			G	0.23	m3/head/day	15	15	0	S4
					0			Service Trade	0.04	m3/head/day	0			
Site 2-18	R4	9,736	0	147	0			R4	0.39	m3/head/day	57	57	1	S1
					0			Service Trade	0.04	m3/head/day	0			
Site 2-19	R4	2,395	0	21	0			R4	0.39	m3/head/day	8	8	0	S1
					0			Service Trade	0.04	m3/head/day	0			
Site 2-20	G	17,769	0	0	0			G	0.23	m3/head/day	0	0	0	S4
					0			Service Trade	0.04	m3/head/day	0			
Site 2-21	G	13,178	0	0	11			G	0.23	m3/head/day	3	3	0	S3
					0			Service Trade	0.04	m3/head/day	0			
Site 2-22	G	6,256	0	0	18			G	0.23	m3/head/day	4	4	0	S3
					0			Service Trade	0.04	m3/head/day	0			

Appendix B1 - Fresh Water Demands Estimate

Sub-Planning Area as Aug 2023	Use Designation	Site Area (m ²)	Hotel Room (No.)	Population	Employment	Hospital Bed (No.)	Student	Land Use Type for Water Supply	Fresh Water Unit Rate	Unit	Sub-total Fresh Water Demand (m ³ /day)	Total Fresh Water Demand (m ³ /day)	Total Fresh Water Demand (L/s)	Proposed Development Stage
Site 2-22	OU	6,260	0	0	0			Service Trade	0.04	m3/head/day	0	0	0	S3
Site 2-23	OU	18,671	0	0	1,911			Other Uses	0.23	m3/head/day	440	440	5	S3
					0			Service Trade	0.04	m3/head/day	0			
Site 2-24	E	12,270	0	0	167			E	0	m3/head/day	0	0	0	S3
					0			Service Trade	0.04	m3/head/day	0			
Site 2-25	G	6,150	0	0	165			G	0.23	m3/head/day	38	38	0	S3
					0			Service Trade	0.04	m3/head/day	0			
Site 2-26	E	17,164	0	0	167			E	0	m3/head/day	0	0	0	S3
					0			Service Trade	0.04	m3/head/day	0			
Site 2-27	LO	8,669	0	0	0			LO	0	m3/ha/day	0	0	0	S3
					0			Service Trade	0.04	m3/head/day	0			
Site 2-28	E	6,357	0	0	67			E	0	m3/head/day	0	0	0	S3
					0			Service Trade	0.04	m3/head/day	0			
Site 2-29	OU	6,831	0	0	30			Other Uses	0.23	m3/head/day	7	7	0	S2A
					0			Service Trade	0.04	m3/head/day	0			
Site 2-30	RS	47,353	0	16,621	0			RS	0.14	m3/head/day	2327	2372	27	S3
					1,123			Service Trade	0.04	m3/head/day	45			
Site 2-31	R1(SSF)	29,163	0	10,236	0			R1	0.23	m3/head/day	2354	2390	28	S3
					899			Service Trade	0.04	m3/head/day	36			
Site 2-32	DO	88,219	0	0	0			DO	0	m3/ha/day	0	0	0	S2B
					0			Service Trade	0.04	m3/head/day	0			
Site 2-33a	G	6,988	0	0	67			G	0.23	m3/head/day	15	15	0	S3
					0			Service Trade	0.04	m3/head/day	0			
Site 2-33b	G	6,353	0	0	10			G	0.23	m3/head/day	2	2	0	0
					0			Service Trade	0.04	m3/head/day	0			
Site 2-34	OU	2,371	0	0	10			Other Uses	0.23	m3/head/day	2	2	0	S2A
					0			Service Trade	0.04	m3/head/day	0			
Site 2-35	OU	1,037	0	0	0			Other Uses	0.23	m3/head/day	0	0	0	S4
					0			Service Trade	0.04	m3/head/day	0			
Site 3-1	OU(PBU+SWU)	30,682	0	0	1,818			Other Uses	0.23	m3/head/day	418	418	5	S2A
					0			Service Trade	0.04	m3/head/day	0			
Site 3-2	GB	347,695	0	0	0			GB	0	m3/head/day	0	0	0	N/A
					0			Service Trade	0.04	m3/head/day	0			
Site 3-3	OU	5,893	0	0	10			Other Uses	0.23	m3/head/day	2	2	0	S3
					0			Service Trade	0.04	m3/head/day	0			
Site 3-4	OU(PBU+SWU)	23,669	0	0	1,403			Other Uses	0.23	m3/head/day	323	323	4	S2A
					0			Service Trade	0.04	m3/head/day	0			
Site 3-5	OU(PBU+SWU)	39,785	0	0	2,358			Other Uses	0.23	m3/head/day	542	542	6	S2A
					0			Service Trade	0.04	m3/head/day	0			
Site 3-6	OU(PBU+SWU)	23,689	0	0	1,404			Other Uses	0.23	m3/head/day	323	323	4	S1
					0			Service Trade	0.04	m3/head/day	0			
Site 3-7	OU(PBU+SWU)	23,842	0	0	1,413			Other Uses	0.23	m3/head/day	325	325	4	S1
					0			Service Trade	0.04	m3/head/day	0			
Site 3-8	OU(PBU+SWU)	25,812	0	0	1,530			Other Uses	0.23	m3/head/day	352	352	4	S1
					0			Service Trade	0.04	m3/head/day	0			
Site 3-9	OU	3,350	0	0	10			Other Uses	0.23	m3/head/day	2	2	0	S2A
					0			Service Trade	0.04	m3/head/day	0			
Site 3-10	GB	19,679	0	0	0			GB	0	m3/head/day	0	0	0	N/A
					0			Service Trade	0.04	m3/head/day	0			
Site 3-11	OU(PBU+SWU)	16,419	0	0	973			Other Uses	0.23	m3/head/day	224	224	3	AWP3
					0			Service Trade	0.04	m3/head/day	0			
Site 3-12	OU	10,039	0	0	30			Other Uses	0.23	m3/head/day	7	7	0	AWP3
					0			Service Trade	0.04	m3/head/day	0			
Site 3-13	OU(PBU+SWU)	28,217	0	0	1,672			Other Uses	0.23	m3/head/day	385	385	4	S2A
					0			Service Trade	0.04	m3/head/day	0			
Site 3-14	OU(PBU+SWU)	18,365	0	0	1,088			Other Uses	0.23	m3/head/day	250	250	3	S2A
					0			Service Trade	0.04	m3/head/day	0			
Site 3-15	OU(LF)	37,444	0	0	2,392			Other Uses	0.23	m3/head/day	550	550	6	S3
					0			Service Trade	0.04	m3/head/day	0			
Site 3-16	OU(LF)	37,185	0	0	2,375			Other Uses	0.23	m3/head/day	546	546	6	S3
					0			Service Trade	0.04	m3/head/day	0			
Site 3-17	OU	43,257	0	0	30			Other Uses	0.23	m3/head/day	7	7	0	N/A
					0			Service Trade	0.04	m3/head/day	0			
Site 3-18	OU(LF)	41,688	0	0	2,361			Other Uses	0.23	m3/head/day	543	543	6	S2B
					0			Service Trade	0.04	m3/head/day	0			
Site 3-19	OU	2,792	0	0	10			Other Uses	0.23	m3/head/day	2	2	0	S2B
					0			Service Trade	0.04	m3/head/day	0			
Site 3-21	OU	2,798	0	0	10			Other Uses	0.23	m3/head/day	2	2	0	S2B
					0			Service Trade	0.04	m3/head/day	0			
Site 3-22	LO	7,713	0	0	0			LO	0	m3/ha/day	0	0	0	S2B
					0			Service Trade	0.04	m3/head/day	0			
Site 3-23	GB	7,626	0	0	0			GB	0	m3/head/day	0	0	0	N/A
					0			Service Trade	0.04	m3/head/day	0			
Site 3-24	OU(LF)	30,817	0	0	1,968			Other Uses	0.23	m3/head/day	453	453	5	S2B
					0			Service Trade	0.04	m3/head/day	0			
Site 3-25	OU(LF)	34,587	0	0	2,209			Other Uses	0.23	m3/head/day	508	508	6	S2B
					0			Service Trade	0.04	m3/head/day	0			
Site 3-26	OU	40,447	0	0	30			Other Uses	0.23	m3/head/day	7	7	0	S2A
					0			Service Trade	0.04	m3/head/day	0			
Site 3-27	OU(LF)	44,217	0	0	2,824			Other Uses	0.23	m3/head/day	650	650	8	S2B
					0			Service Trade	0.04	m3/head/day	0			
Site 3-28	OU(LF)	49,900	0	0	3,187			Other Uses	0.23	m3/head/day	733	733	8	S2B
					0			Service Trade	0.04	m3/head/day	0			
Site 3-29	OU(LF)	43,727	0	0	2,793			Other Uses	0.23	m3/head/day	642	642	7	S2B
					0			Service Trade	0.04	m3/head/day	0			
Site 3-30	GB	60,301	0	0	0			GB	0	m3/head/day	0	0	0	N/A
					0			Service Trade	0.04	m3/head/day	0			
Site 3-31	LO	7,641	0	0	0			LO	0	m3/ha/day	0	0	0	S3
					0			Service Trade	0.04	m3/head/day	0			
Site 3-32	OU(E+TP)	23,441	0	0	4,659			Other Uses	0.23	m3/head/day	1072	1072	12	S2B
					0			Service Trade	0.04	m3/head/day	0			
Site 3-33	OU(E+TP)	21,645	0	0	4,302			Other Uses	0.23	m3/head/day	989	989	11	S2B
					0			Service Trade	0.04	m3/head/day	0			
Site 3-34	G	7,401	0	0	0			G	0.23	m3/head/day	0	0	0	S3
					0			Service Trade	0.04	m3/head/day	0			
Site 3-35	GB	12,360	0	0	0			GB	0	m3/head/day	0	0	0	N/A
					0			Service Trade	0.04	m3/head/day	0			
Site 3-36	LO	5,538	0	0	0			LO	0	m3/ha/day	0	0	0	S2B
					0			Service Trade	0.04	m3/head/day	0			
Site 3-37	LO	14,381	0	0	0			LO	0	m3/ha/day	0	0	0	S2B
					0			Service Trade	0.04	m3/head/day	0			
Site 3-38	GB	7,956	0	0	0			GB	0	m3/head/day	0	0	0	N/A
					0			Service Trade	0.04	m3/head/day	0			
Site 3-39	OU(E+TP)	10,193	0	0	2,026			Other Uses	0.23	m3/head/day	466	466	5	S2B
					0			Service Trade	0.04	m3/head/day	0			
Site 3-40	OU(E+TP)	20,582	0	0	4,091			Other Uses	0.23	m3/head/day	941	941	11	S2B
					0			Service Trade	0.04	m3/head/day	0			
Site 3-41	OU	2,523	0	0	10			Other Uses	0.23	m3/head/day	2	2	0	S2A
					0			Service Trade	0.04	m3/head/day	0			

Appendix B1 - Fresh Water Demands Estimate

Sub-Planning Area as Aug 2023	Use Designation	Site Area (m ²)	Hotel Room (No.)	Population	Employment	Hospital Bed (No.)	Student	Land Use Type for Water Supply	Fresh Water Unit Rate	Unit	Sub-total Fresh Water Demand (m ³ /day)	Total Fresh Water Demand (m ³ /day)	Total Fresh Water Demand (L/s)	Proposed Development Stage
Site 3-42	OU(E+TP)	14,549	0	0	2,892			Other Uses	0.23	m3/head/day	665	665	8	S3
					0			Service Trade	0.04	m3/head/day	0			
					0			I	450	m3/ha/day	609			
Site 3-43	I	13,528	0	0	552			Service Trade	0.04	m3/head/day	22	631	7	AWP3
					0			I	450	m3/ha/day	910			
Site 3-44	I	20,218	0	0	825			Service Trade	0.04	m3/head/day	33	943	11	AWP3
					0			I	450	m3/ha/day	365			
Site 3-45	I	8,122	0	0	331			Service Trade	0.04	m3/head/day	13	379	4	AWP3
					10			Other Uses	0.23	m3/head/day	2			
Site 3-46	OU	3,715	0	0	0			Service Trade	0.04	m3/head/day	0	2	0	AWP3
					0			I	450	m3/ha/day	528			
Site 3-47	I	11,732	0	0	479			Service Trade	0.04	m3/head/day	19	547	6	AWP3
					10			Other Uses	0.23	m3/head/day	2			
Site 3-48	OU	6,270	0	0	0			Service Trade	0.04	m3/head/day	0	2	0	AWP3
					0			GB	0	m3/head/day	0			
Site 3-49	GB	7,267	0	0	0			Service Trade	0.04	m3/head/day	0	0	0	N/A
					0			I	450	m3/ha/day	1144			
Site 3-50	I	25,416	0	0	1,037			Service Trade	0.04	m3/head/day	41	1185	14	AWP3
					0			Other Uses	0.23	m3/head/day	0			
Site 3-51	OU	17,607	0	0	0			Service Trade	0.04	m3/head/day	0	0	0	S2A
					0			I	450	m3/ha/day	1023			
Site 3-52	I	22,741	0	0	928			Service Trade	0.04	m3/head/day	37	1060	12	S2A
					10			Other Uses	0.23	m3/head/day	2			
Site 3-53	OU	8,609	0	0	0			Service Trade	0.04	m3/head/day	0	2	0	0
					0			R1	0.3	m3/head/day	823			
Site 4-1	R1	7,757	0	2,420	206			Service Trade	0.04	m3/head/day	0	823	10	S2A
					148			G	0.23	m3/head/day	34			
Site 4-2	G	6,366	0	0	0			Service Trade	0.04	m3/head/day	0	34	0	S2A
					0			SSF	0.23	m3/head/day	1193			
Site 4-3	SSF	13,834	0	4,420	123		0	Service Trade	0.04	m3/head/day	0	1193	14	S2A
					0			Student	0.025	m3/head/day	0			
Site 4-4	PRH	19,976	0	7,800	0		180	PRH	0.23	m3/head/day	2106	2111	24	S2A
					510			Service Trade	0.04	m3/head/day	0			
Site 4-5	SSF	25,378	0	8,450	0		270	Student	0.025	m3/head/day	5	2288	26	S2A
					373			SSF	0.23	m3/head/day	2282			
Site 4-6	SSF	14,497	0	4,680	0		0	Service Trade	0.04	m3/head/day	0	1264	15	S2A
					225			Student	0.025	m3/head/day	0			
Site 4-7	LO	16,759	0	0	0			LO	0	m3/ha/day	0	0	0	S2A
					0			Service Trade	0.04	m3/head/day	0			
Site 4-8	E	17,676	0	0	167			E	0	m3/head/day	0	0	0	S2A
					0			Service Trade	0.04	m3/head/day	0			
Site 4-9	R1	14,936	0	3,723	0			R1	0.23	m3/head/day	856	869	10	S2A
					332			Service Trade	0.04	m3/head/day	13			
Site 4-10	R1	6,723	0	1,676	0			R1	0.23	m3/head/day	385	391	5	S2A
					152			Service Trade	0.04	m3/head/day	6			
Site 4-11	DO	40,295	0	0	0			DO	0	m3/ha/day	0	0	0	S2A
					0			Service Trade	0.04	m3/head/day	0			
Site 4-12a	C	10,604	452	0	2,602			Commercial	0.23	m3/head/day	598	1051	12	S2A
					0			Service Trade	0.04	m3/head/day	0			
Site 4-12b	C	10,324	0	0	3,304			Commercial	0.23	m3/head/day	760	760	9	S2A
					0			Service Trade	0.04	m3/head/day	0			
Site 4-12c	C	13,834	394	0	3,738			Commercial	0.23	m3/head/day	860	1253	15	S2A
					0			Service Trade	0.04	m3/head/day	0			
Site 4-12d	C	11,388	324	0	3,077			Commercial	0.23	m3/head/day	708	1032	12	S2A
					0			Service Trade	0.04	m3/head/day	0			
Site 4-13a	C	35,447	1,155	0	10,979			Commercial	0.23	m3/head/day	2525	3680	43	S2A
					0			Service Trade	0.04	m3/head/day	0			
Site 4-13b	C	13,561	458	0	4,352			Commercial	0.23	m3/head/day	1001	1459	17	S2A
					0			Service Trade	0.04	m3/head/day	0			
Site 4-14	OU	27,121	0	0	54			Other Uses	0.23	m3/head/day	12	12	0	S2A
					30			Service Trade	0.04	m3/head/day	0			
Site 4-15	G	8,611	0	0	0			G	0.23	m3/head/day	7	7	0	S2A
					3,092			Commercial	0.23	m3/head/day	711			
Site 4-16	C	11,443	325	0	0			Service Trade	0.04	m3/head/day	0	1037	12	S2A
					0			Hotel	1	m3/room/day	325			
Site 4-17	OU	29,850	0	0	212			Other Uses	0.23	m3/head/day	49	49	1	S2A
					0			Service Trade	0.04	m3/head/day	0			
Site 4-18	OU	24,601	0	0	21			Other Uses	0.23	m3/head/day	5	5	0	S2A
					0			Service Trade	0.04	m3/head/day	0			
Site 4-19	LO	8,730	0	0	0			LO	0	m3/ha/day	0	0	0	S2A
					0			Service Trade	0.04	m3/head/day	0			
Site 4-20	R4	14,399	0	153	0			R4	0.39	m3/head/day	60	60	1	AWP2 / S2A
					0			Service Trade	0.04	m3/head/day	0			
Site 4-21	G	14,056	0	0	130			G	0.23	m3/head/day	30	30	0	S2A
					0			Service Trade	0.04	m3/head/day	0			
Site 4-22	PRH	27,957	0	11,310	555		180	PRH	0.23	m3/head/day	2604	3058	35	AWP3
					0			Student	0.025	m3/head/day	5			
Site 4-23	OU	3,521	0	0	10			Other Uses	0.23	m3/head/day	2	2	0	S2A
					0			Service Trade	0.04	m3/head/day	0			
Site 4-24	SSF	21,430	0	7,150	0		270	SSF	0.23	m3/head/day	1941	1937	22	S2A
					366			Service Trade	0.04	m3/head/day	0			
Site 4-25a	OU(C&R)	12,881	0	2,408	0			Other Uses	-	m3/head/day	By MTRC	359	4	S2A
					1,313			Service Trade	-	m3/head/day	By MTRC			
Site 4-25b	OU(C&R)	12,882	0	2,408	0			Other Uses	-	m3/head/day	By MTRC	1234	14	S2A
					1,313			Service Trade	-	m3/head/day	By MTRC			
Site 4-25c	OU(C&R)	13,262	0	2,479	0			Other Uses	0.23	m3/head/day	By MTRC	1183	14	S2A
					1,352			Service Trade	0.04	m3/head/day	By MTRC			
Site 4-26	R1	13,178	0	3,284	0			R1	0.23	m3/head/day	755	767	9	S2A
					298			Service Trade	0.04	m3/head/day	12			
Site 4-27	LO	5,394	0	0	0			LO	0	m3/ha/day	0	0	0	N/A
					0			Service Trade	0.04	m3/head/day	0			
Site 4-28	SSF	26,517	0	9,048	0		0	SSF	0.23	m3/head/day	2443	2443	28	AWP3
					468			Service Trade	0.04	m3/head/day	0			
Site 4-29	OU(C&R)	43,317	0	4,300	0			Student	0.025	m3/head/day	0	3156	37	S2A
					0			Other Uses	-	m3/head/day	By MTRC			
Site 4-30	IC	2,013	0	0	1,360			IC	0.20	m3/ha/day	40	40	0	N/A
					0			Service Trade	0.04	m3/head/day	0			
Site 4-31	G	45,885	0	0	4,438			G	0.23	m3/head/day	1021	1021	12	S2A
					0			Service Trade	0.04	m3/head/day	0			
Site 4-32	G	15,295	0	0	539			G	0.23	m3/head/day	124	124	1	S2A
					0			Service Trade	0.04	m3/head/day	0			

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Site 4-32	E	18,230	0	0	0			Service Trade	0.04	m3/head/day	0	0	0	S2A
Site 4-33	E	8,551	0	0	100			E	0	m3/head/day	0	0	0	S2A
					0			Service Trade	0.04	m3/head/day	0			
Site 4-34	OU	18,084	0	0	0			Other Uses	0.23	m3/head/day	0	0	0	S2A
					0			Service Trade	0.04	m3/head/day	0			
Site 4-35	OU	1,625	0	0	10			Other Uses	0.23	m3/head/day	2	2	0	AWP3
					0			Service Trade	0.04	m3/head/day	0			
Site 4-36	E	7,150	0	0	67			E	0	m3/head/day	0	0	0	S2A
					0			Service Trade	0.04	m3/head/day	0			
Site 4-37	OU	3,443	0	0	10			Other Uses	0.23	m3/head/day	2	2	0	S2A
					0			Service Trade	0.04	m3/head/day	0			
Site 4-38	DO	1,015	0	0	0			DO	0	m3/ha/day	0	0	0	S2A
					0			Service Trade	0.04	m3/head/day	0			
Site 5-1	C	15,553	0	0	4,977			Commercial	0.23	m3/head/day	1145	1145	13	AWP3
					0			Service Trade	0.04	m3/head/day	0			
Site 5-2	C*	10,089	0	0	0			Commercial	0.23	m3/head/day	0	0	0	S3
					0			Service Trade	0.04	m3/head/day	0			
Site 5-3a	C	10,434	0	0	3,339			Commercial	0.23	m3/head/day	768	768	9	S3
					0			Service Trade	0.04	m3/head/day	0			
Site 5-3b	C	8,302	0	0	2,657			Commercial	0.23	m3/head/day	611	611	7	S3
					0			Service Trade	0.04	m3/head/day	0			
Site 5-4	C	14,195	0	0	4,542			Commercial	0.23	m3/head/day	1045	1045	12	S3
					0			Service Trade	0.04	m3/head/day	0			
Site 5-5	OU	7,760	0	0	0			Other Uses	0.23	m3/head/day	0	0	0	N/A
					0			Service Trade	0.04	m3/head/day	0			
Site 5-6	R1(SSF)*	25,674	0	7,420	0			R1	0.23	m3/head/day	1707	1707	20	N/A
					0			Service Trade	0.04	m3/head/day	0			
Site 5-7a	OU(C&R)	6,497	0	1,214	0			Other Uses	0.23	m3/head/day	279	306	4	S3
					657			Service Trade	0.04	m3/head/day	26			
Site 5-7b	OU(C&R)	7,169	0	1,340	0			Other Uses	0.23	m3/head/day	308	337	4	S3
					731			Service Trade	0.04	m3/head/day	29			
Site 5-7c	OU(C&R)	7,309	0	1,366	0			Other Uses	0.23	m3/head/day	314	344	4	S3
					745			Service Trade	0.04	m3/head/day	30			
Site 5-8	OU(C&R)	15,177	0	2,837	0			Other Uses	0.23	m3/head/day	652	714	8	S3
					1,547			Service Trade	0.04	m3/head/day	62			
Site 5-9	OU(C&R)	15,394	0	4,810	0			Other Uses	0.23	m3/head/day	1106	1143	13	S3
					730			Employment	0.05	m3/head/day	37			
Site 5-10	GB	8,067	0	0	0			GB	0	m3/head/day	0	0	0	N/A
					0			Service Trade	0.04	m3/head/day	0			
Site 5-11	LO	16,004	0	0	0			LO	0	m3/ha/day	0	0	0	S3
					0			Service Trade	0.04	m3/head/day	0			
Site 5-12	GB	6,131	0	0	0			GB	0	m3/head/day	0	0	0	N/A
					0			Service Trade	0.04	m3/head/day	0			
Site 5-13	G	64,307	0	0	0	1,000		Hospital	0.455	m3/bed/day	455	579	7	S3
					3,100			Service Trade	0.04	m3/head/day	124			
Site 5-14	E	6,433	0	0	10			E	0	m3/head/day	0	0	0	AWP2
					0			Service Trade	0.04	m3/head/day	0			
Site 5-15	GB	63,314	0	0	0			GB	0	m3/head/day	0	0	0	N/A
					0			Service Trade	0.04	m3/head/day	0			
Site 5-16	SSF	16,832	0	5,460	193		210	SSF	0.23	m3/head/day	1474	1479	17	AWP3
					0			Service Trade	0.04	m3/head/day	0			
					0			Student	0.025	m3/head/day	5			
Site 5-17	SSF	20,255	0	6,838	452		0	SSF	0.23	m3/head/day	1846	1846	21	AWP3
					0			Service Trade	0.04	m3/head/day	0			
					0			Student	0.025	m3/head/day	0			
Site 5-18a	C	8,975	638	0	678			Commercial	0.23	m3/head/day	156	794	9	AWP3
					0			Service Trade	0.04	m3/head/day	0			
					0			Hotel	1	m3/room/day	638			
Site 5-18b	C	8,720	620	0	659			Commercial	0.23	m3/head/day	152	772	9	AWP3
					0			Service Trade	0.04	m3/head/day	0			
					0			Hotel	1	m3/room/day	620			
Site 5-19	OUG	5,368	0	0	0			Other Uses	0.23	m3/head/day	0	0	0	AWP3
					0			Service Trade	0.04	m3/head/day	0			
Site 5-20	OU	4,014	0	0	0			Other Uses	0.23	m3/head/day	0	0	0	N/A
					0			Service Trade	0.04	m3/head/day	0			
Site 5-21	E	10,071	0	0	100			E	0	m3/head/day	0	0	0	AWP3
					0			Service Trade	0.04	m3/head/day	0			
Site 5-22	R3*	10,720	0	486	0			R3	0.39	m3/head/day	190	190	2	N/A
					0			Service Trade	0.04	m3/head/day	0			
Site 5-23	R3*	3,207	0	0	0			R3	0.39	m3/head/day	0	0	0	N/A
					0			Service Trade	0.04	m3/head/day	0			
Site 5-24	R1(LR)	16,297	0	6,630	0			R1	0.23	m3/head/day	1525	1545	18	AWP2 / AWP3
					502			Service Trade	0.04	m3/head/day	20			
Site 5-25	RS*	64,226	0	13,000	0			RS	0.14	m3/head/day	1820	1820	21	N/A
					0			Service Trade	0.04	m3/head/day	0			
Site 5-26	R1(LR)	2,373	0	900	0			R1	0.23	m3/head/day	207	208	2	AWP2
					26			Service Trade	0.04	m3/head/day	1			
Site 5-27	G	2,433	0	0	100			G	0.23	m3/head/day	23	23	0	AWP3
					0			Service Trade	0.04	m3/head/day	0			
Site 5-28	G	3,000	0	0	185			G	0.23	m3/head/day	43	43	0	AWP3
					0			Service Trade	0.04	m3/head/day	0			
Site 5-29	OU	755	0	0	10			Other Uses	0.23	m3/head/day	2	2	0	N/A
					0			Service Trade	0.04	m3/head/day	0			
Site 5-30	LO	2,041	0	0	0			LO	0	m3/ha/day	0	0	0	AWP3
					0			Service Trade	0.04	m3/head/day	0			
Site 5-31	R2*	20,551	0	0	0			R2	0.3	m3/head/day	0	0	0	N/A
					0			Service Trade	0.04	m3/head/day	0			
Site 5-32	OU(C&R)	31,943	0	5,971	0			Other Uses	0.23	m3/head/day	1373	1395	16	AWP3
					547			Service Trade	0.04	m3/head/day	22			
Site 5-33	R2*	10,090	0	2,712	0			R2	0.3	m3/head/day	814	814	9	S3
					0			Service Trade	0.04	m3/head/day	0			
Site 5-34	E	16,717	0	0	167			E	0	m3/head/day	0	0	0	S3
					0			Service Trade	0.04	m3/head/day	0			
Site 5-35	R4*	3,976	0	0	0			R4	0.39	m3/head/day	0	0	0	N/A
					0			Service Trade	0.04	m3/head/day	0			
Site 5-36	LO	5,410	0	0	0			LO	0	m3/ha/day	0	0	0	AWP3
					0			Service Trade	0.04	m3/head/day	0			
Site 5-37	G	7,533	0	0	0			G	0.23	m3/head/day	0	0	0	AWP3
					0			Service Trade	0.04	m3/head/day	0			
Site 5-38	G	5,964	0	0	0			G	0.23	m3/head/day	0	0	0	S3
					0			Service Trade	0.04	m3/head/day	0			
Site 5-39a	R3*	45,818	0	0	0			R3	0.39	m3/head/day	0	0	0	N/A
					0			Service Trade	0.04	m3/head/day	0			
Site 5-39b	R3*	16,981	0	722	8			R3	0.39	m3/head/day	282	282	3	S3
					0			Service Trade	0.04	m3/head/day	0			
Site 5-39c	R3*	9,798	0	417	0			R3	0.39	m3/head/day	162	163	2	S3
					4			Service Trade	0.04	m3/head/day	0			
Site 5-39d	R3*	9,269	0	394	0			R3	0.39	m3/head/day	154	154	2	S3
					4			Service Trade	0.04	m3/head/day	0			
Site 5-40	OU	40,380	0	0	10			Other Uses	0.23	m3/head/day	2	2	0	S2B
					0			Service Trade	0.04	m3/head/day	0			

No. A/HSK/474

Updated Demand for 9 Nos. Public Housing Sites

Appendix B1 - Fresh Water Demands Estimate

Sub-Planning Area as Aug 2023	Use Designation	Site Area (m ²)	Hotel Room (No.)	Population	Employment	Hospital Bed (No.)	Student	Land Use Type for Water Supply	Fresh Water Unit Rate	Unit	Sub-total Fresh Water Demand (m ³ /day)	Total Fresh Water Demand (m ³ /day)	Total Fresh Water Demand (L/s)	Proposed Development Stage
Site 5-41	LO	4,843	0	0	0			LO	0	m3/ha/day	0	0	0	N/A
					0			Service Trade	0.04	m3/head/day	0			
Site 5-42	G	13,470	0	0	167			G	0.23	m3/head/day	38	38	0	S3
					0			Service Trade	0.04	m3/head/day	0			
Site 5-43	LO	3,043	0	0	0			LO	0	m3/ha/day	0	0	0	S3
					0			Service Trade	0.04	m3/head/day	0			
Site 5-44	IC	6,068	0	0	0			IC	200	m3/ha/day	121	121	1	N/A
					0			Service Trade	0.04	m3/head/day	0			

Description	Total Fresh Water Demand (m ³ /day)	Total Fresh Water Demand (L/s)
(a) TOTAL NORMAL USAGE	95,125	1,101
(b1) DCS - Eastern	5,589	
(b2) DCS - Southern	9,241	
(b3) DCS - Northern	2,509	
(a+b) Sub-total Water Demand	112,464	
(c) 10% Contingencies	11,246	
Total Water Demand with 10% Contingencies (a+b+c)	123,710	1,432

Remark:

1. Information on No. A/HSK/573 – Proposed Minor Relaxation of Domestic Plot Ratio Restriction (From 4.5 to 5) for Mixed Use Development (in Planning Areas 28A and 28B of HSK/HA NDA) (i.e. Site No. 4-25a, 4-25b, 4-25c, and 4-29) (approved on 15 Aug 2025) is prepared in Appendix B3.

2. Information on No. A/HSK/474 – Minor Relaxation of Plot Ratio Restriction for Permitted Residential and Commercial Development (in Kiu Tau Wai) is prepared in Appendix B4.

Appendix B2 - Flushing Water Demands Estimate

Sub-Planning Area as Aug 2023	Use Designation	Site Area (m ²)	Hotel Room (No.)	Population	Employment	Hospital Bed (No.)		Land Use Type for Water Supply	Flushing Water Unit Rate	Unit	Sub-total Flushing Water Demand (m ³ /day)	Total Flushing Water Demand (m ³ /day)	Total Flushing Water Demand (L/s)	Proposed Development Stage
Site 1-1	G	22,168	0	0	0			G	0.05	m3/head/day	0	0	0	S3
					140			Service Trade	0	m3/head/day	0			
					0			R1	0.07	m3/head/day	398			
Site 1-2	R1(SSF)	16,190	0	5,683	500			Service Trade	0	m3/head/day	0	398	5	S4
					167			E	0	m3/head/day	0			
Site 1-3	E	13,230	0	0	0			Service Trade	0	m3/head/day	0	0	0	S3
					0			R1	0.07	m3/head/day	373			
Site 1-4	R1	15,191	0	5,332	469			Service Trade	0	m3/head/day	0	373	4	S4
					0			R1	0.07	m3/head/day	431			
Site 1-5	R1	17,537	0	6,155	541			Service Trade	0	m3/head/day	0	431	5	S4
					0			R1	0.07	m3/head/day	589			
Site 1-6	R1	23,979	0	8,416	739			Service Trade	0	m3/head/day	0	589	7	S4
					0			LO	0	m3/ha/day	0			
Site 1-7	LO	17,177	0	0	0			Service Trade	0	m3/head/day	0	0	0	S4
					0			R2	0.07	m3/head/day	232			
Site 1-8	R2c	18,423	0	3,316	403			Service Trade	0	m3/head/day	0	232	3	S4
					0			R2	0.07	m3/head/day	164			
Site 1-9	R2c	13,002	0	2,340	285			Service Trade	0	m3/head/day	0	164	2	S4
					0			LO	0	m3/ha/day	0			
Site 1-10	LO	14,425	0	0	0			Service Trade	0	m3/head/day	0	0	0	S4
					0			LO	0	m3/ha/day	0			
Site 1-11	LO	4,479	0	0	0			Service Trade	0	m3/head/day	0	0	0	S4
					0			R2	0.07	m3/head/day	176			
Site 1-12	R2	13,962	0	2,513	20			Service Trade	0	m3/head/day	0	176	2	S3
					0			R2	0.07	m3/head/day	191			
Site 1-13	R2c	15,157	0	2,728	332			Service Trade	0	m3/head/day	0	191	2	S4
					0			LO	0	m3/ha/day	0			
Site 1-14	LO	16,130	0	0	0			Service Trade	0	m3/head/day	0	0	0	S4
					167			E	0	m3/head/day	0			
Site 1-15	E	20,106	0	0	0			Service Trade	0	m3/head/day	0	0	0	S3
					0			R2	0.07	m3/head/day	422			
Site 1-16	R2c	17,177	0	6,029	530			Service Trade	0	m3/head/day	0	422	5	S4
					0			R2	0.07	m3/head/day	392			
Site 1-17	R2	15,953	0	5,600	492			Service Trade	0	m3/head/day	0	392	5	S3
					134			E	0	m3/head/day	0			
Site 1-18	E	13,383	0	0	0			Service Trade	0	m3/head/day	0	0	0	S3
					0			R2	0.07	m3/head/day	187			
Site 1-19	R2	14,841	0	2,671	28			Service Trade	0	m3/head/day	0	187	2	S3
					0			LO	0	m3/ha/day	0			
Site 1-20	LO	16,853	0	0	0			Service Trade	0	m3/head/day	0	0	0	S3
					0			R1	0.07	m3/head/day	418			
Site 1-21	R1	17,020	0	5,974	520			Service Trade	0	m3/head/day	0	418	5	S3
					167			E	0	m3/head/day	0			
Site 1-22	E	18,132	0	0	0			Service Trade	0	m3/head/day	0	0	0	S3
					10			Other Uses	0.05	m3/head/day	1			
Site 1-23	OU	13,377	0	0	0			Service Trade	0	m3/head/day	0	1	0	N/A
					6			Other Uses	0.05	m3/head/day	0			
Site 1-24	OU	7,278	0	0	0			Service Trade	0	m3/head/day	0	0	0	AWP3
					10			Other Uses	0.05	m3/head/day	1			
Site 1-25	OU	1,521	0	0	0			Service Trade	0	m3/head/day	0	1	0	S3
					0			IC	70	m3/ha/day	103			
Site 1-26	IC	14,650	0	0	0			Service Trade	0	m3/head/day	0	103	1	N/A
					0			RO	0	m3/ha/day	0			
Site 1-27	RO	120,136	0	0	0			Service Trade	0	m3/head/day	0	0	0	S2B
					0			RO	0	m3/ha/day	0			
Site 1-28	RO	40,605	0	0	0			Service Trade	0	m3/head/day	0	0	0	S3
					25			G	0.05	m3/head/day	1			
Site 1-29	G	32,750	0	0	0			Service Trade	0	m3/head/day	0	1	0	S3
					18			G	0.05	m3/head/day	1			
Site 1-30	G	6,256	0	0	0			Service Trade	0	m3/head/day	0	1	0	S3
					0			Other Uses	0.05	m3/head/day	0			
Site 1-31	OU	3,620	0	0	0			Service Trade	0	m3/head/day	0	0	0	N/A
					0			Other Uses	0.05	m3/head/day	0			
Site 1-32	OU	2,381	0	0	0			Service Trade	0	m3/head/day	0	0	0	S3
					0			Commercial	0.05	m3/head/day	55			
Site 2-1	C	19,589	0	0	0			Service Trade	0	m3/head/day	0	55	1	S4
					0			R3	0.07	m3/head/day	61			
Site 2-2	R3	10,359	0	874	9			Service Trade	0	m3/head/day	0	61	1	S4
					0			R3	0.07	m3/head/day	87			
Site 2-3	R3	14,747	0	1,244	13			Service Trade	0	m3/head/day	0	87	1	S4
					10			Other Uses	0.05	m3/head/day	1			
Site 2-4	OU	1,749	0	0	0			Service Trade	0	m3/head/day	0	1	0	S4
					0			LO	0	m3/ha/day	0			
Site 2-5	LO	9,546	0	0	0			Service Trade	0	m3/head/day	0	0	0	S4
					0			LO	0	m3/ha/day	0			
Site 2-6	LO	5,042	0	0	0			Service Trade	0	m3/head/day	0	0	0	S4
					0			R3	0.07	m3/head/day	65			
Site 2-7	R3	10,999	0	928	10			Service Trade	0	m3/head/day	0	65	1	S4
					0			LO	0	m3/ha/day	0			
Site 2-8	LO	10,567	0	0	0			Service Trade	0	m3/head/day	0	0	0	S4
					67			E	0	m3/head/day	0			
Site 2-9	E	9,129	0	0	0			Service Trade	0	m3/head/day	0	0	0	S4
					0			R3	0.07	m3/head/day	77			
Site 2-10	R3	12,988	0	1,096	11			Service Trade	0	m3/head/day	0	77	1	S4
					0			R3	0.07	m3/head/day	108			
Site 2-11	R3	15,237	0	1,543	315			Service Trade	0	m3/head/day	0	108	1	S4
					0			LO	0	m3/ha/day	0			
Site 2-12	LO	8,733	0	0	0			Service Trade	0	m3/head/day	0	0	0	S4
					0			LO	0	m3/ha/day	0			
Site 2-13	LO	11,642	0	0	0			Service Trade	0	m3/head/day	0	0	0	S4
					0			R3	0.07	m3/head/day	52			
Site 2-14	R3	8,820	0	744	8			Service Trade	0	m3/head/day	0	52	1	S4
					67			E	0	m3/head/day	0			
Site 2-15	E	7,301	0	0	0			Service Trade	0	m3/head/day	0	0	0	S4
					234			E	0	m3/head/day	0			
Site 2-16	E	22,019	0	0	0			Service Trade	0	m3/head/day	0	0	0	S4
					67			G	0.05	m3/head/day	3			
Site 2-17	G	7,520	0	0	0			Service Trade	0	m3/head/day	0	3	0	S4
					0			R4	0.07	m3/head/day	10			
Site 2-18	R4	9,736	0	147	0			Service Trade	0	m3/head/day	0	10	0	S1
					0			R4	0.07	m3/head/day	1			
Site 2-19	R4	2,395	0	21	0			Service Trade	0	m3/head/day	0	1	0	S1
					0			G	0.05	m3/head/day	0			
Site 2-20	G	17,769	0	0	0			Service Trade	0	m3/head/day	0	0	0	S4
					11			G	0.05	m3/head/day	1			
Site 2-21	G	13,178	0	0	0			Service Trade	0	m3/head/day	0	1	0	S3
					18			G	0.05	m3/head/day	1			
Site 2-22	G	6,256	0	0	0			Service Trade	0	m3/head/day	0	1	0	S3
					0			Other Uses	0.05	m3/head/day	0			

Appendix B2 - Flushing Water Demands Estimate

Sub-Planning Area as Aug 2023	Use Designation	Site Area (m ²)	Hotel Room (No.)	Population	Employment	Hospital Bed (No.)		Land Use Type for Water Supply	Flushing Water Unit Rate	Unit	Sub-total Flushing Water Demand (m ³ /day)	Total Flushing Water Demand (m ³ /day)	Total Flushing Water Demand (L/s)	Proposed Development Stage
Site 2-22	OU	6,260	0	0	0			Service Trade	0	m3/head/day	0	0	0	S3
Site 2-23	OU	18,671	0	0	1,911			Other Uses	0.05	m3/head/day	96	96	1	S3
					0			Service Trade	0	m3/head/day	0			
Site 2-24	E	12,270	0	0	167			E	0	m3/head/day	0	0	0	S3
					0			Service Trade	0	m3/head/day	0			
Site 2-25	G	6,150	0	0	165			G	0.05	m3/head/day	8	8	0	S3
					0			Service Trade	0	m3/head/day	0			
Site 2-26	E	17,164	0	0	167			E	0	m3/head/day	0	0	0	S3
					0			Service Trade	0	m3/head/day	0			
Site 2-27	LO	8,669	0	0	0			LO	0	m3/ha/day	0	0	0	S3
					0			Service Trade	0	m3/head/day	0			
Site 2-28	E	6,357	0	0	67			E	0	m3/head/day	0	0	0	S3
					0			Service Trade	0	m3/head/day	0			
Site 2-29	OU	6,831	0	0	30			Other Uses	0.05	m3/head/day	2	2	0	S2A
					0			Service Trade	0	m3/head/day	0			
Site 2-30	RS	47,353	0	16,621	0			RS	0.07	m3/head/day	1163	1163	13	S3
					1,123			Service Trade	0	m3/head/day	0			
Site 2-31	R1(SSF)	29,163	0	10,236	0			R1	0.07	m3/head/day	717	717	8	S3
					899			Service Trade	0	m3/head/day	0			
Site 2-32	DO	88,219	0	0	0			DO	0	m3/ha/day	0	0	0	S2B
					0			Service Trade	0	m3/head/day	0			
Site 2-33a	G	6,988	0	0	67			G	0.05	m3/head/day	3	3	0	S3
					0			Service Trade	0	m3/head/day	0			
Site 2-33b	G	6,353	0	0	10			G	0.05	m3/head/day	1	1	0	0
					0			Service Trade	0	m3/head/day	0			
Site 2-34	OU	2,371	0	0	10			Other Uses	0.05	m3/head/day	1	1	0	S2A
					0			Service Trade	0	m3/head/day	0			
Site 2-35	OU	1,037	0	0	0			Other Uses	0.05	m3/head/day	0	0	0	S4
					0			Service Trade	0	m3/head/day	0			
Site 3-1	OU(PBU+SWU)	30,682	0	0	1,818			Other Uses	0.05	m3/head/day	91	91	1	S2A
					0			Service Trade	0	m3/head/day	0			
Site 3-2	GB	347,695	0	0	0			GB	0	m3/head/day	0	0	0	N/A
					0			Service Trade	0	m3/head/day	0			
Site 3-3	OU	5,893	0	0	10			Other Uses	0.05	m3/head/day	1	1	0	S3
					0			Service Trade	0	m3/head/day	0			
Site 3-4	OU(PBU+SWU)	23,669	0	0	1,403			Other Uses	0.05	m3/head/day	70	70	1	S2A
					0			Service Trade	0	m3/head/day	0			
Site 3-5	OU(PBU+SWU)	39,785	0	0	2,358			Other Uses	0.05	m3/head/day	118	118	1	S2A
					0			Service Trade	0	m3/head/day	0			
Site 3-6	OU(PBU+SWU)	23,689	0	0	1,404			Other Uses	0.05	m3/head/day	70	70	1	S1
					0			Service Trade	0	m3/head/day	0			
Site 3-7	OU(PBU+SWU)	23,842	0	0	1,413			Other Uses	0.05	m3/head/day	71	71	1	S1
					0			Service Trade	0	m3/head/day	0			
Site 3-8	OU(PBU+SWU)	25,812	0	0	1,530			Other Uses	0.05	m3/head/day	77	77	1	S1
					0			Service Trade	0	m3/head/day	0			
Site 3-9	OU	3,350	0	0	10			Other Uses	0.05	m3/head/day	1	1	0	S2A
					0			Service Trade	0	m3/head/day	0			
Site 3-10	GB	19,679	0	0	0			GB	0	m3/head/day	0	0	0	N/A
					0			Service Trade	0	m3/head/day	0			
Site 3-11	OU(PBU+SWU)	16,419	0	0	973			Other Uses	0.05	m3/head/day	49	49	1	AWP3
					0			Service Trade	0	m3/head/day	0			
Site 3-12	OU	10,039	0	0	30			Other Uses	0.05	m3/head/day	2	2	0	AWP3
					0			Service Trade	0	m3/head/day	0			
Site 3-13	OU(PBU+SWU)	28,217	0	0	1,672			Other Uses	0.05	m3/head/day	84	84	1	S2A
					0			Service Trade	0	m3/head/day	0			
Site 3-14	OU(PBU+SWU)	18,365	0	0	1,088			Other Uses	0.05	m3/head/day	54	54	1	S2A
					0			Service Trade	0	m3/head/day	0			
Site 3-15	OU(LF)	37,444	0	0	2,392			Other Uses	0.05	m3/head/day	120	120	1	S3
					0			Service Trade	0	m3/head/day	0			
Site 3-16	OU(LF)	37,185	0	0	2,375			Other Uses	0.05	m3/head/day	119	119	1	S3
					0			Service Trade	0	m3/head/day	0			
Site 3-17	OU	43,257	0	0	30			Other Uses	0.05	m3/head/day	2	2	0	N/A
					0			Service Trade	0	m3/head/day	0			
Site 3-18	OU(LF)	41,688	0	0	2,361			Other Uses	0.05	m3/head/day	118	118	1	S2B
					0			Service Trade	0	m3/head/day	0			
Site 3-19	OU	2,792	0	0	10			Other Uses	0.05	m3/head/day	1	1	0	S2B
					0			Service Trade	0	m3/head/day	0			
Site 3-21	OU	2,798	0	0	10			Other Uses	0.05	m3/head/day	1	1	0	S2B
					0			Service Trade	0	m3/head/day	0			
Site 3-22	LO	7,713	0	0	0			LO	0	m3/ha/day	0	0	0	S2B
					0			Service Trade	0	m3/head/day	0			
Site 3-23	GB	7,626	0	0	0			GB	0	m3/head/day	0	0	0	N/A
					0			Service Trade	0	m3/head/day	0			
Site 3-24	OU(LF)	30,817	0	0	1,968			Other Uses	0.05	m3/head/day	98	98	1	S2B
					0			Service Trade	0	m3/head/day	0			
Site 3-25	OU(LF)	34,587	0	0	2,209			Other Uses	0.05	m3/head/day	110	110	1	S2B
					0			Service Trade	0	m3/head/day	0			
Site 3-25	OU(LF)	34,587	0	0	2,209			Other Uses	0.05	m3/head/day	110	110	1	S2B
					0			Service Trade	0	m3/head/day	0			
Site 3-27	OU(LF)	44,217	0	0	2,824			Other Uses	0.05	m3/head/day	141	141	2	S2B
					0			Service Trade	0	m3/head/day	0			
Site 3-28	OU(LF)	49,900	0	0	3,187			Other Uses	0.05	m3/head/day	159	159	2	S2B
					0			Service Trade	0	m3/head/day	0			
Site 3-29	OU(LF)	43,727	0	0	2,793			Other Uses	0.05	m3/head/day	140	140	2	S2B
					0			Service Trade	0	m3/head/day	0			
Site 3-30	GB	60,301	0	0	0			GB	0	m3/head/day	0	0	0	N/A
					0			Service Trade	0	m3/head/day	0			
Site 3-31	LO	7,641	0	0	0			LO	0	m3/ha/day	0	0	0	S3
					0			Service Trade	0	m3/head/day	0			
Site 3-32	OU(E+TP)	23,441	0	0	4,659			Other Uses	0.05	m3/head/day	233	233	3	S2B
					0			Service Trade	0	m3/head/day	0			
Site 3-33	OU(E+TP)	21,645	0	0	4,302			Other Uses	0.05	m3/head/day	215	215	2	S2B
					0			Service Trade	0	m3/head/day	0			
Site 3-34	G	7,401	0	0	0			G	0.05	m3/head/day	0	0	0	S3
					0			Service Trade	0	m3/head/day	0			
Site 3-35	GB	12,360	0	0	0			GB	0	m3/head/day	0	0	0	N/A
					0			Service Trade	0	m3/head/day	0			
Site 3-36	LO	5,538	0	0	0			LO	0	m3/ha/day	0	0	0	S2B
					0			Service Trade	0	m3/head/day	0			
Site 3-37	LO	14,381	0	0	0			LO	0	m3/ha/day	0	0	0	S2B
					0			Service Trade	0	m3/head/day	0			
Site 3-38	GB	7,956	0	0	0			GB	0	m3/head/day	0	0	0	N/A
					0			Service Trade	0	m3/head/day	0			
Site 3-39	OU(E+TP)	10,193	0	0	2,026			Other Uses	0.05	m3/head/day	101	101	1	S2B
					0			Service Trade	0	m3/head/day	0			
Site 3-40	OU(E+TP)	20,582	0	0	4,091			Other Uses	0.05	m3/head/day	205	205	2	S2B
					0			Service Trade	0	m3/head/day	0			
Site 3-41	OU	2,523	0	0	10			Other Uses	0.05	m3/head/day	1	1	0	S2A
					0			Service Trade	0	m3/head/day	0			

Appendix B2 - Flushing Water Demands Estimate

S16 for Site 4-1

Updated Demand for 9 Nos. Public Housing Sites

Updated Demand for 9 Nos. Public Housing Sites
Updated Demand for 9 Nos. Public Housing Sites
No. A/HSK/573

Updated Demand for 9 Nos. Public Housing Sites
No. A/HSK/573

Sub-Planning Area as Aug 2023	Use Designation	Site Area (m ²)	Hotel Room (No.)	Population	Employment	Hospital Bed (No.)		Land Use Type for Water Supply	Flushing Water Unit Rate	Unit	Sub-total Flushing Water Demand (m ³ /day)	Total Flushing Water Demand (m ³ /day)	Total Flushing Water Demand (L/s)	Proposed Development Stage
Site 3-42	OU(E+TP)	14,549	0	0	2,892			Other Uses	0.05	m3/head/day	145	145	2	S3
					0			Service Trade	0	m3/head/day	0			
Site 3-43	I	13,528	0	0	0			I	210	m3/ha/day	284	284	3	AWP3
					552			Service Trade	0	m3/head/day	0			
Site 3-44	I	20,218	0	0	0			I	210	m3/ha/day	425	425	5	AWP3
					825			Service Trade	0	m3/head/day	0			
Site 3-45	I	8,122	0	0	0			I	210	m3/ha/day	171	171	2	AWP3
					331			Service Trade	0	m3/head/day	0			
Site 3-46	OU	3,715	0	0	10			Other Uses	0.05	m3/head/day	1	1	0	AWP3
					0			Service Trade	0	m3/head/day	0			
Site 3-47	I	11,732	0	0	0			I	210	m3/ha/day	246	246	3	AWP3
					479			Service Trade	0	m3/head/day	0			
Site 3-48	OU	6,270	0	0	10			Other Uses	0.05	m3/head/day	1	1	0	AWP3
					0			Service Trade	0	m3/head/day	0			
Site 3-49	GB	7,267	0	0	0			GB	0	m3/head/day	0	0	0	N/A
					0			Service Trade	0	m3/head/day	0			
Site 3-50	I	25,416	0	0	0			I	210	m3/ha/day	534	534	6	AWP3
					1,037			Service Trade	0	m3/head/day	0			
Site 3-51	OU	17,607	0	0	0			Other Uses	0.05	m3/head/day	0	0	0	S2A
					0			Service Trade	0	m3/head/day	0			
Site 3-52	I	22,741	0	0	0			I	210	m3/ha/day	478	478	6	S2A
					928			Service Trade	0	m3/head/day	0			
Site 3-53	OU	8,609	0	0	10			Other Uses	0.05	m3/head/day	1	1	0	0
					0			Service Trade	0	m3/head/day	0			
Site 4-1	R1	7,757	0	2,420	206			G	0.104	m3/head/day	252	262	3	S2A
					0			Employment	0.05	m3/head/day	10			
Site 4-2	G	6,366	0	0	148			G	0.05	m3/head/day	7	7	0	S2A
					0			Service Trade	0	m3/head/day	0			
Site 4-3	SSF	13,834	0	4,420	0	0		SSF	0.07	m3/head/day	309	316	4	S2A
					123			Employment	0.05	m3/head/day	6			
					0			Student	0.025	m3/head/day	0			
Site 4-4	PRH	19,976	0	7,800	0	180		SSF	0.07	m3/head/day	546	576	7	S2A
					510			Employment	0.05	m3/head/day	26			
					0			Student	0.025	m3/head/day	5			
Site 4-5	SSF	25,378	0	8,450	0	270		SSF	0.07	m3/head/day	592	617	7	S2A
					373			Employment	0.05	m3/head/day	19			
					0			Student	0.025	m3/head/day	7			
Site 4-6	SSF	14,497	0	4,680	0	0		SSF	0.07	m3/head/day	328	339	4	S2A
					225			Employment	0.05	m3/head/day	11			
					0			Student	0.025	m3/head/day	0			
Site 4-7	LO	16,759	0	0	0			LO	0	m3/ha/day	0	0	0	S2A
					0			Service Trade	0	m3/head/day	0			
Site 4-8	E	17,676	0	0	167			E	0	m3/head/day	0	0	0	S2A
					0			Service Trade	0	m3/head/day	0			
Site 4-9	R1	14,936	0	3,723	0			R1	0.07	m3/head/day	261	261	3	S2A
					332			Service Trade	0	m3/head/day	0			
Site 4-10	R1	6,723	0	1,676	0			R1	0.07	m3/head/day	117	117	1	S2A
					152			Service Trade	0	m3/head/day	0			
Site 4-11	DO	40,295	0	0	0			DO	0	m3/ha/day	0	0	0	S2A
					0			Service Trade	0	m3/head/day	0			
Site 4-12a	C	10,604	452	0	2,602			Commercial	0.05	m3/head/day	130	293	3	S2A
					0			Service Trade	0	m3/head/day	0			
					0			Hotel	0.36	m3/room/day	163			
Site 4-12b	C	10,324	0	0	3,304			Commercial	0.05	m3/head/day	165	165	2	S2A
					0			Service Trade	0	m3/head/day	0			
Site 4-12c	C	13,834	394	0	3,738			Commercial	0.05	m3/head/day	187	329	4	S2A
					0			Service Trade	0	m3/head/day	0			
					0			Hotel	0.36	m3/room/day	142			
Site 4-12d	C	11,388	324	0	3,077			Commercial	0.05	m3/head/day	154	270	3	S2A
					0			Service Trade	0	m3/head/day	0			
					0			Hotel	0.36	m3/room/day	117			
Site 4-13a	C	35,447	1,155	0	10,979			Commercial	0.05	m3/head/day	549	965	11	S2A
					0			Service Trade	0	m3/head/day	0			
					0			Hotel	0.36	m3/room/day	416			
Site 4-13b	C	13,561	458	0	4,352			Commercial	0.05	m3/head/day	218	383	4	S2A
					0			Service Trade	0	m3/head/day	0			
					0			Hotel	0.36	m3/room/day	165			
Site 4-14	OU	27,121	0	0	54			Other Uses	0.05	m3/head/day	3	3	0	S2A
					0			Service Trade	0	m3/head/day	0			
Site 4-15	G	8,611	0	0	30			G	0.05	m3/head/day	2	2	0	S2A
					0			Service Trade	0	m3/head/day	0			
Site 4-16	C	11,443	325	0	3,092			Commercial	0.05	m3/head/day	155	272	3	S2A
					0			Service Trade	0	m3/head/day	0			
					0			Hotel	0.36	m3/room/day	117			
Site 4-17	OU	29,850	0	0	212			Other Uses	0.05	m3/head/day	11	11	0	S2A
					0			Service Trade	0	m3/head/day	0			
Site 4-18	OU	24,601	0	0	21			Other Uses	0.05	m3/head/day	1	1	0	S2A
					0			Service Trade	0	m3/head/day	0			
Site 4-19	LO	8,730	0	0	0			LO	0	m3/ha/day	0	0	0	S2A
					0			Service Trade	0	m3/head/day	0			
Site 4-20	R4	14,399	0	153	0			R4	0.07	m3/head/day	11	11	0	AWP2 / S2A
					0			Service Trade	0	m3/head/day	0			
Site 4-21	G	14,056	0	0	130			G	0.05	m3/head/day	7	7	0	S2A
					0			Service Trade	0	m3/head/day	0			
Site 4-22	PRH	27,957	0	11,310	555	180		SSF	0.07	m3/head/day	75	824	10	AWP3
					0			Employment	0.05	m3/head/day	28			
					0			Student	0.025	m3/head/day	5			
Site 4-23	OU	3,521	0	0	10			Other Uses	0.05	m3/head/day	1	1	0	S2A
					0			Service Trade	0	m3/head/day	0			
Site 4-24	SSF	21,430	0	7,150	0	270		SSF	0.07	m3/head/day	601	526	6	S2A
					366			Employment	0.05	m3/head/day	18			
					0			Student	0.025	m3/head/day	0			
Site 4-25a	OU(C&R)	12,881	0	2,408	0			Other Uses	-	m3/head/day	By MTRC	146	2	S2A
					1,313			Service Trade	-	m3/head/day	By MTRC			
Site 4-25b	OU(C&R)	12,882	0	2,408	0			Other Uses	-	m3/head/day	By MTRC	376	4	S2A
					1,313			Service Trade	-	m3/head/day	By MTRC			
Site 4-25c	OU(C&R)	13,262	0	2,479	0			Other Uses	-	m3/head/day	By MTRC	340	4	S2A
					1,352			Service Trade	-	m3/head/day	By MTRC			
Site 4-26	R1	13,178	0	3,284	0			R1	0.07	m3/head/day	230	230	3	S2A
					298			Service Trade	0	m3/head/day	0			
Site 4-27	LO	5,394	0	0	0			LO	0	m3/ha/day	0	0	0	N/A
					0			Service Trade	0	m3/head/day	0			
Site 4-28	SSF	26,517	0	9,048	0	0		SSF	0.07	m3/head/day	633	657	8	AWP3
					468			Employment	0.05	m3/head/day	23			
					0			Student	0.025	m3/head/day	0			
Site 4-29	OU(C&R)	43,317	0	8,097	0			Other Uses	0.05	m3/head/day	By MTRC	940	11	S2A
					3,947			Service Trade	0	m3/head/day	By MTRC			
Site 4-30	IC	2,013	0	0	0			IC	0	m3/head/day	14	14	0	N/A
					0			Service Trade	0	m3/head/day	0			

Appendix B2 - Flushing Water Demands Estimate

Sub-Planning Area as Aug 2023	Use Designation	Site Area (m ²)	Hotel Room (No.)	Population	Employment	Hospital Bed (No.)		Land Use Type for Water Supply	Flushing Water Unit Rate	Unit	Sub-total Flushing Water Demand (m ³ /day)	Total Flushing Water Demand (m ³ /day)	Total Flushing Water Demand (L/s)	Proposed Development Stage
Site 4-31	G	45,885	0	0	4,438			G	0.05	m3/head/day	222	222	3	S2A
					0			Service Trade	0	m3/head/day	0			
					539			G	0.05	m3/head/day	27			
Site 4-32	G	15,295	0	0	0			Service Trade	0	m3/head/day	0	27	0	S2A
					100			E	0	m3/head/day	0			
Site 4-33	E	8,551	0	0	0			Service Trade	0	m3/head/day	0	0	0	S2A
					0			Other Uses	0.05	m3/head/day	0			
Site 4-34	OU	18,084	0	0	0			Service Trade	0	m3/head/day	0	0	0	S2A
					0			Other Uses	0.05	m3/head/day	1			
Site 4-35	OU	1,625	0	0	10			Service Trade	0	m3/head/day	0	1	0	AWP3
					0			E	0	m3/head/day	0			
Site 4-36	E	7,150	0	0	67			Service Trade	0	m3/head/day	0	0	0	S2A
					0			Other Uses	0.05	m3/head/day	1			
Site 4-37	OU	3,443	0	0	10			Service Trade	0	m3/head/day	0	1	0	S2A
					0			DO	0	m3/ha/day	0			
Site 4-38	DO	1,015	0	0	0			Service Trade	0	m3/head/day	0	0	0	S2A
					0			Commercial	0.05	m3/head/day	249			
Site 5-1	C	15,553	0	0	4,977			Service Trade	0	m3/head/day	0	249	3	AWP3
					0			Commercial	0.05	m3/head/day	0			
Site 5-2	C*	10,089	0	0	0			Service Trade	0	m3/head/day	0	0	0	S3
					0			Commercial	0.05	m3/head/day	167			
Site 5-3a	C	10,434	0	0	3,339			Service Trade	0	m3/head/day	0	167	2	S3
					0			Commercial	0.05	m3/head/day	133			
Site 5-3b	C	8,302	0	0	2,657			Service Trade	0	m3/head/day	0	133	2	S3
					0			Commercial	0.05	m3/head/day	227			
Site 5-4	C	14,195	0	0	4,542			Service Trade	0	m3/head/day	0	227	3	S3
					0			Other Uses	0.05	m3/head/day	0			
Site 5-5	OU	7,760	0	0	0			Service Trade	0	m3/head/day	0	0	0	N/A
					0			R1	0.07	m3/head/day	519			
Site 5-6	R1(SSF)*	25,674	0	7,420	0			Service Trade	0	m3/head/day	0	519	6	N/A
					0			Other Uses	0.05	m3/head/day	61			
Site 5-7a	OU(C&R)	6,497	0	1,214	0			Service Trade	0	m3/head/day	0	61	1	S3
					657			Other Uses	0.05	m3/head/day	67			
Site 5-7b	OU(C&R)	7,169	0	1,340	0			Service Trade	0	m3/head/day	0	67	1	S3
					731			Other Uses	0.05	m3/head/day	68			
Site 5-7c	OU(C&R)	7,309	0	1,366	0			Service Trade	0	m3/head/day	0	68	1	S3
					745			Other Uses	0.05	m3/head/day	142			
Site 5-8	OU(C&R)	15,177	0	2,837	0			Service Trade	0	m3/head/day	0	142	2	S3
					0			Other Uses	0.05	m3/head/day	241			
Site 5-9	OU(C&R)	15,394	0	4,810	0			Service Trade	0	m3/head/day	0	241	3	S3
					730			GB	0	m3/head/day	0			
Site 5-10	GB	8,067	0	0	0			Service Trade	0	m3/head/day	0	0	0	N/A
					0			LO	0	m3/ha/day	0			
Site 5-11	LO	16,004	0	0	0			Service Trade	0	m3/head/day	0	0	0	S3
					0			GB	0	m3/head/day	0			
Site 5-12	GB	6,131	0	0	0			Service Trade	0	m3/head/day	0	0	0	N/A
					0			Hospital	0.295	m3/bed/day	295			
Site 5-13	G	64,307	0	0	0	1,000		Service Trade	0	m3/head/day	0	295	3	S3
					3,100			E	0	m3/head/day	0			
Site 5-14	E	6,433	0	0	10			Service Trade	0	m3/head/day	0	0	0	AWP2
					0			GB	0	m3/head/day	0			
Site 5-15	GB	63,314	0	0	0			Service Trade	0	m3/head/day	0	0	0	N/A
					0			SSF	0.07	m3/head/day	382			
Site 5-16	SSF	16,832	0	5,460	0	210		Employment	0.05	m3/head/day	10	397	5	AWP3
					193			Student	0.025	m3/head/day	5			
					0			SSF	0.07	m3/head/day	479			
Site 5-17	SSF	20,255	0	6,838	0	0		Employment	0.05	m3/head/day	23	501	6	AWP3
					452			Student	0.025	m3/head/day	0			
					0			Commercial	0.05	m3/head/day	34			
Site 5-18a	C	8,975	638	0	678			Service Trade	0	m3/head/day	0	264	3	AWP3
					0			Hotel	0.36	m3/room/day	230			
Site 5-18b	C	8,720	620	0	659			Commercial	0.05	m3/head/day	33	256	3	AWP3
					0			Hotel	0.36	m3/room/day	223			
Site 5-19	OUG	5,368	0	0	0			Other Uses	0.05	m3/head/day	0	0	0	AWP3
					0			Service Trade	0	m3/head/day	0			
Site 5-20	OU	4,014	0	0	0			Other Uses	0.05	m3/head/day	0	0	0	N/A
					0			Service Trade	0	m3/head/day	0			
Site 5-21	E	10,071	0	0	100			E	0	m3/head/day	0	0	0	AWP3
					0			Service Trade	0	m3/head/day	0			
Site 5-22	R3*	10,720	0	486	0			R3	0.07	m3/head/day	34	34	0	N/A
					0			Service Trade	0	m3/head/day	0			
Site 5-23	R3*	3,207	0	0	0			R3	0.07	m3/head/day	0	0	0	N/A
					0			Service Trade	0	m3/head/day	0			
Site 5-24	R1(LR)	16,297	0	6,630	0			R1	0.07	m3/head/day	464	464	5	AWP2 / AWP3
					502			Service Trade	0	m3/head/day	0			
Site 5-25	RS*	64,226	0	13,000	0			RS	0.07	m3/head/day	910	910	11	N/A
					0			Service Trade	0	m3/head/day	0			
Site 5-26	R1(LR)	2,373	0	900	0			R1	0.07	m3/head/day	63	63	1	AWP2
					26			Service Trade	0	m3/head/day	0			
Site 5-27	G	2,433	0	0	100			G	0.05	m3/head/day	5	5	0	AWP3
					0			Service Trade	0	m3/head/day	0			
Site 5-28	G	3,000	0	0	185			G	0.05	m3/head/day	9	9	0	AWP3
					0			Service Trade	0	m3/head/day	0			
Site 5-29	OU	755	0	0	10			Other Uses	0.05	m3/head/day	1	1	0	N/A
					0			Service Trade	0	m3/head/day	0			
Site 5-30	LO	2,041	0	0	0			LO	0	m3/ha/day	0	0	0	AWP3
					0			Service Trade	0	m3/head/day	0			
Site 5-31	R2*	20,551	0	0	0			R2	0.07	m3/head/day	0	0	0	N/A
					0			Service Trade	0	m3/head/day	0			
Site 5-32	OU(C&R)	31,943	0	5,971	0			Other Uses	0.05	m3/head/day	299	299	3	AWP3
					547			Service Trade	0	m3/head/day	0			
Site 5-33	R2*	10,090	0	2,712	0			R2	0.07	m3/head/day	190	190	2	S3
					0			Service Trade	0	m3/head/day	0			
Site 5-34	E	16,717	0	0	167			E	0	m3/head/day	0	0	0	S3
					0			Service Trade	0	m3/head/day	0			
Site 5-35	R4*	3,976	0	0	0			R4	0.07	m3/head/day	0	0	0	N/A
					0			Service Trade	0	m3/head/day	0			
Site 5-36	LO	5,410	0	0	0			LO	0	m3/ha/day	0	0	0	AWP3
					0			Service Trade	0	m3/head/day	0			
Site 5-37	G	7,533	0	0	0			G	0.05	m3/head/day	0	0	0	AWP3
					0			Service Trade	0	m3/head/day	0			
Site 5-38	G	5,964	0	0	0			G	0.05	m3/head/day	0	0	0	S3
					0			Service Trade	0	m3/head/day	0			
Site 5-39a	R3*	45,818	0	0	0			R3	0.07	m3/head/day	0	0	0	N/A
					0			Service Trade	0	m3/head/day	0			
Site 5-39b	R3*	16,981	0	722	0			R3	0.07	m3/head/day	51	51	1	S3
					8			Service Trade	0	m3/head/day	0			
Site 5-39c	R3*	9,798	0	417	0			R3	0.07	m3/head/day	29	29	0	S3
					4			Service Trade	0	m3/head/day	0			
Site 5-39d	R3*	9,269	0	304	0			R3	0.07	m3/head/day	28	28	0	S3
					0									

Appendix B2 - Flushing Water Demands Estimate

Sub-Planning Area as Aug 2023	Use Designation	Site Area (m ²)	Hotel Room (No.)	Population	Employment	Hospital Bed (No.)		Land Use Type for Water Supply	Flushing Water Unit Rate	Unit	Sub-total Flushing Water Demand (m ³ /day)	Total Flushing Water Demand (m ³ /day)	Total Flushing Water Demand (L/s)	Proposed Development Stage
Site 5-40	OU	40,380	0	0	4			Service Trade	0	m3/head/day	0	1	0	S2B
					10			Other Uses	0.05	m3/head/day	1			
					0			Service Trade	0	m3/head/day	0			
Site 5-41	LO	4,843	0	0	0			LO	0	m3/ha/day	0	0	0	N/A
					0			Service Trade	0	m3/head/day	0			
Site 5-42	G	13,470	0	0	167			G	0.05	m3/head/day	8	8	0	S3
					0			Service Trade	0	m3/head/day	0			
Site 5-43	LO	3,043	0	0	0			LO	0	m3/ha/day	0	0	0	S3
					0			Service Trade	0	m3/head/day	0			
Site 5-44	IC	6,068	0	0	0			IC	70	m3/ha/day	42	42	0	N/A
					0			Service Trade	0	m3/head/day	0			

Description	Total Flushing Water Demand (m ³ /day)	Total Flushing Water Demand (L/s)
TOTAL NORMAL USAGE (a)	26,576	308
10% Contingencies (b)	2,658	31
Total Water Demand with 10% Contingencies (a+b)	29,233	338

Remark:

1. Information on No. A/HSK/573 – Proposed Minor Relaxation of Domestic Plot Ratio Restriction (From 4.5 to 5) for Mixed Use Development (in Planning Areas 28A and 28B of HSK/HA NDA) (i.e. Site No. 4-25a, 4-25b, 4-25c, and 4-29) (approved on 15 Aug 2025) is prepared in Appendix B3.

2. Information on No. A/HSK/474 – Minor Relaxation of Plot Ratio Restriction for Permitted Residential and Commercial Development (in Kiu Tau Wai) is prepared in Appendix B4.

Fresh Water and Flushing Water Consumption in Estimation

Print Date: 14 May 2025	Units	Area 28A	Area 28B
1) Residential			
No. of units	No.	4300	3902
Factor		2.8	2.8
Population of Area	Head	12040	10926
Refer to WSD D.I. no. 1309 - R1			
Mean daily fresh water demand per person	L / Head / Day	230	230
Mean daily fresh water demand for residential	L / Day	2769200	2512980
	m ³ / day	2769	2513
2) Commercial			
Retail Area	m ²	45702	34348
Refer to CIFSUS Table 8, 3.5 employee per 100m ² (Based on 85% efficiency)			
Total of employee for retails	employee	1360	1023
Proposed mean daily fresh water demand	L / Head / Day	230	230
Mean daily fresh water demand for retails	m ³ / day	312.8	235.3
Proposed mean daily flushing water demand	L / Head / Day	50	50
Mean daily flushing water demand for retails	m ³ / day	68	51.2
Office Area	m ²	0	16504
Refer to CIFSUS Table 8, 5.5 employee per 100m ²			
Total of employee for office	employee	0	908
Proposed mean daily fresh water demand	L / Head / Day	30	30
Mean daily fresh water demand for office	m ³ / day	0	27.2
Proposed mean daily flushing water demand	L / Head / Day	50	50
Mean daily flushing water demand for office	m ³ / day	0	45.4
Total mean daily fresh water demand for commercial	m ³ / day	312.8	262.5
Total mean daily flushing water demand for commercial	m ³ / day	68	97
3) Transport Facilities			
Transport Facilities Area	m ²	15000	N/A
Refer to CIFSUS Table 8, 3.8 employee per 100m ²			
Total of employee for Transport Facilities	employee	570	N/A
Proposed Mean daily fresh water demand	L / Head / Day	130	130
Mean daily fresh water demand for Transport Facilities	m ³ / day	74.1	N/A
Proposed mean daily Flushing water demand	L / Head / Day	50	50
Mean daily flushing water demand for Transport Facilities	m ³ / day	28.5	N/A
4) Proposed fresh water Consumption			
Mean daily fresh water demand for residential	m ³ / day	2769	2513
Mean daily fresh water demand for commercial	m ³ / day	313	263
Mean daily fresh water demand for transport facilities	m ³ / day	74	N/A
Total mean daily fresh water demand	m ³ / day	3156	2776
The peak mean daily fresh water demand = 3 x mean daily demand	m ³ / day l/s	9468 110	8328 96
5) Proposed flushing water Consumption			
Population of Area	Head	12040	10926
Refer to WSD D.I. no. 1309 - R1			
Mean daily flushing water demand per person for residential	L / Head / Day	70	70
Mean daily flushing water demand for residential	m ³ / day	843	765
Mean daily flushing water demand for commercial	m ³ / day	68	97
Mean daily flushing water demand for transport facilities	m ³ / day	29	N/A
Total mean daily flushing water demand	m ³ / day	940	862
The peak mean daily flushing water demand = 2 x mean daily demand	m ³ / day l/s	1880 22	1724 20

Hung Shui Kiu Planning Area 28A (Phase 4, 5 & 6)

Fresh Water and Flushing Water Consumption in Estimation

Print Date: 14 May 2025	Units	Phase 4	Phase 5	Phase 6
1) Residential				
No. of units	No.	1148	1535	1617
Factor		2.8	2.8	2.8
Population of Area 28A	Head	3214	4298	4528
Refer to WSD D.I. no. 1309 - R1				
Mean daily fresh water demand per person	L / Head / Day	230	230	230
Mean daily fresh water demand for residential	L / Day	739220	988540	1041440
	m ³ / day	739.2	989.0	1041.4
2) Commercial				
Retail Area on 28A	m ²	N/A	2000	43702
Refer to CIFSUS Table 8, 3.5 employee per 100m ² (Based on 85% efficiency)				
Total of employee for retails	employee	N/A	60	1300
Proposed mean daily fresh water demand	L / Head / Day	230	230	230
Mean daily fresh water demand for retails	m ³ / day	N/A	13.8	299.0
Proposed mean daily flushing water demand	L / Head / Day	50	50	50
Mean daily flushing water demand for retails	m ³ / day	N/A	3	65
Office Area on 28A	m ²	N/A	0	0
Refer to CIFSUS Table 8, 5.5 employee per 100m ²				
Total of employee for office	employee	N/A	0	0
Proposed mean daily fresh water demand	L / Head / Day	30	30	30
Mean daily fresh water demand for office	m ³ / day	N/A	0	0
Proposed mean daily flushing water demand	L / Head / Day	50	50	50
Mean daily flushing water demand for office	m ³ / day	N/A	0	0
Total mean daily fresh water demand for commercial	m ³ / day	N/A	13.8	299.0
Total mean daily flushing water demand for commercial	m ³ / day	N/A	3.0	65.0
3) Transport Facilities				
Transport Facilities Area on 28A	m ²	0	15000	0
Refer to CIFSUS Table 8, 3.8 employee per 100m ²				
Total of employee for Transport Facilities	employee	0	570	0
Proposed Mean daily fresh water demand	L / Head / Day	130	130	130
Mean daily fresh water demand for Transport Facilities	m ³ / day	0.0	74	0.0
Proposed mean daily Flushing water demand	L / Head / Day	50	50	50
Mean daily flushing water demand for Transport Facilities	m ³ / day	0	28.5	0
4) Proposed fresh water Consumption				
Mean daily fresh water demand for residential	m ³ / day	739.2	989.0	1041.4
Mean daily fresh water demand for commercial	m ³ / day	N/A	13.8	299.0
Mean daily fresh water demand for transport facilities	m ³ / day	0.0	74	0.0
Total mean daily fresh water demand	m ³ / day	739	1077	1340
The peak mean daily fresh water demand = 3 x mean daily demand	m ³ / day l/s	2217 25.7	3231 37.4	4020 46.5
Proposed fresh water lead-in diameter	mm	200	200	250
Water flow velocity	m/s	0.83	1.22	0.96
5) Proposed flushing water Consumption				
Population of Area on 28A	Head	3214	4298	4528
Refer to WSD D.I. no. 1309 - R1				
Mean daily flushing water demand per person for residential	L / Head / Day	70	70	70
Mean daily flushing water demand for residential	m ³ / day	225.0	301.0	317.0
Mean daily flushing water demand for commercial	m ³ / day	N/A	3.0	65.0
Mean daily flushing water demand for transport facilities	m ³ / day	0.0	29	0.0
Total mean daily flushing water demand	m ³ / day	225	333	382
The peak mean daily flushing water demand = 2 x mean daily demand	m ³ / day l/s	450 5.2	666 7.7	764 8.8
Proposed flushing water lead-in diameter	mm	100	100	150
Water flow velocity	m/s	0.74	1.1	0.52

Hung Shui Kiu Planning Area 28B (Phase 1, 2, 3 & 7)

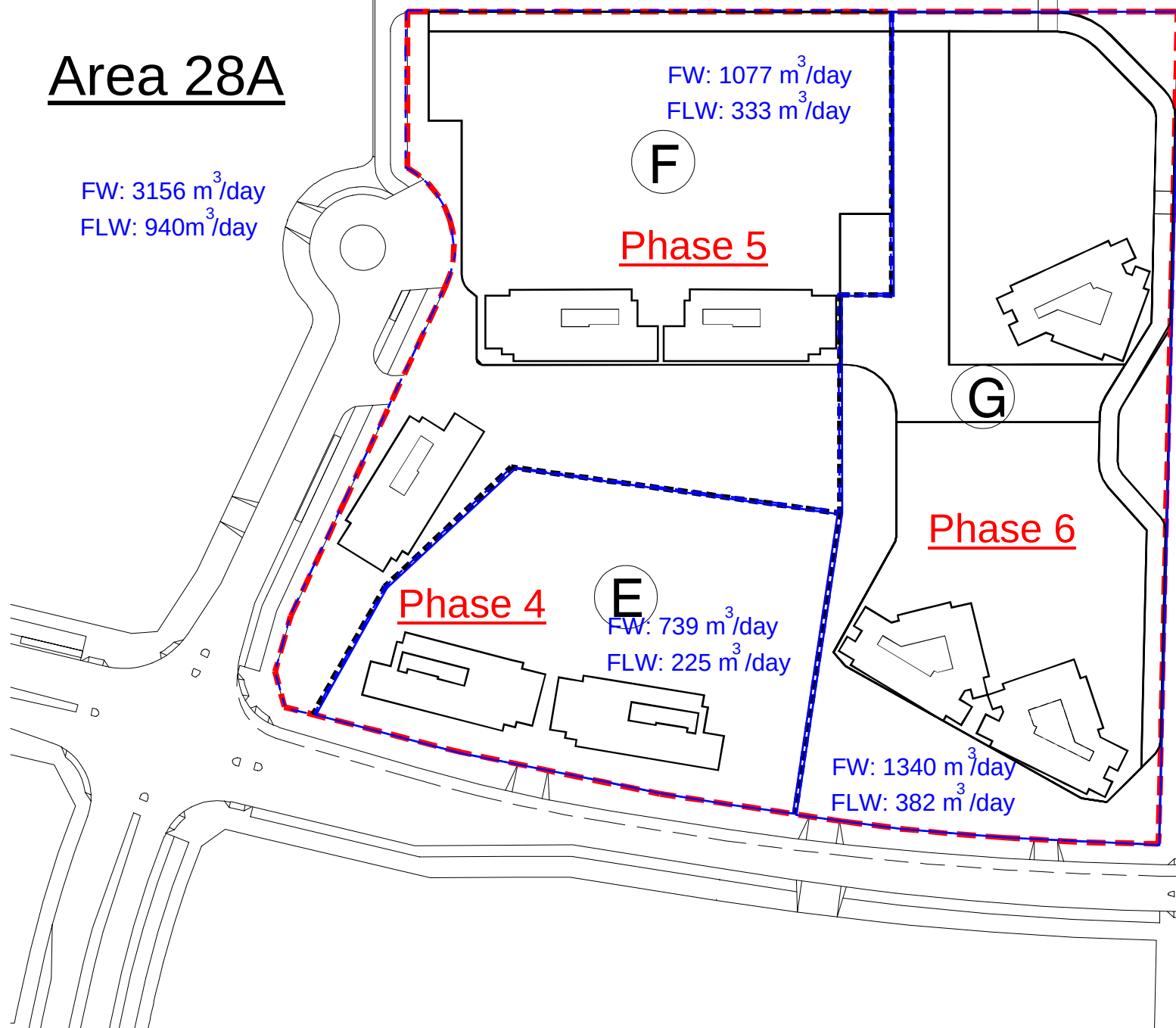
Fresh Water and Flushing Water Consumption in Estimation

Print Date: 14 May 2025	Units	Phase 1	Phase 2	Phase 3	Phase 7
1) Residential					
No. of units	No.	958	958	500	1486
Factor		2.8	2.8	2.8	2.8
Population of Area 28B	Head	2682	2682	1400	4161
Refer to WSD D.I. no. 1309 - R1					
Mean daily fresh water demand per person	L / Head / Day	230	230	230	230
Mean daily fresh water demand for residential	L / Day	616860	616860	322000	957030
	m ³ / day	617	617	322	957
2) Commercial					
Retail Area on 28B	m ²	N/A	N/A	1400	32948
Refer to CIFSUS Table 8, 3.5 employee per 100m ² (Based on 85% efficiency)					
Total of employee for retails	employee	N/A	N/A	42	981
Proposed mean daily fresh water demand	L / Head / Day	N/A	N/A	230	230
Mean daily fresh water demand for retails	m ³ / day	N/A	N/A	9.7	225.6
Proposed mean daily flushing water demand	L / Head / Day	N/A	N/A	50	50
Mean daily flushing water demand for retails	m ³ / day	N/A	N/A	2	49
Office Area on 28B	m ²	N/A	N/A	16504	0
Refer to CIFSUS Table 8, 5.5 employee per 100m ²					
Total of employee for office	employee	N/A	N/A	908	0
Proposed mean daily fresh water demand	L / Head / Day	N/A	N/A	30	30
Mean daily fresh water demand for office	m ³ / day	N/A	N/A	27.2	0.0
Proposed mean daily flushing water demand	L / Head / Day	N/A	N/A	50	50
Mean daily flushing water demand for office	m ³ / day	N/A	N/A	45.4	0
Total mean daily fresh water demand for commercial	m ³ / day	N/A	N/A	36.9	225.6
Total mean daily flushing water demand for commercial	m ³ / day	N/A	N/A	47.5	49.1
3) Proposed fresh water Consumption					
Mean daily fresh water demand for residential	m ³ / day	616.9	616.9	322.0	957.0
Mean daily fresh water demand for commercial	m ³ / day	N/A	N/A	36.9	225.6
Total mean daily fresh water demand	m ³ / day	617	617	359	1183
The peak mean daily fresh water demand					
= 3 x mean daily demand	m ³ / day	1851	1851	1077	3549
	l/s	21.4	21.4	12.5	41.1
Proposed fresh water lead-in diameter	mm	200	200	150	200
Water flow velocity	m/s	0.76	0.76	0.74	1.33
4) Proposed flushing water Consumption					
Population of Area 28B	Head	2682	2682	1400	4161
Refer to WSD D.I. no. 1309 - R1					
Mean daily flushing water demand per person for residential	L / Head / Day	70	70	70	70
Mean daily flushing water demand for residential	m ³ / day	187.7	187.7	98.0	291.3
Mean daily flushing water demand for commercial	m ³ / day	N/A	N/A	47.5	49.1
Total mean daily flushing water demand	m ³ / day	188	188	146	340
The peak mean daily flushing water demand					
= 2 x mean daily demand	m ³ / day	376	376	292	680
	l/s	4.4	4.4	3.4	7.9
Proposed flushing water lead-in diameter	mm	100	100	80	150
Water flow velocity	m/s	0.62	0.62	0.77	0.46

Hung Shui Kiu Station

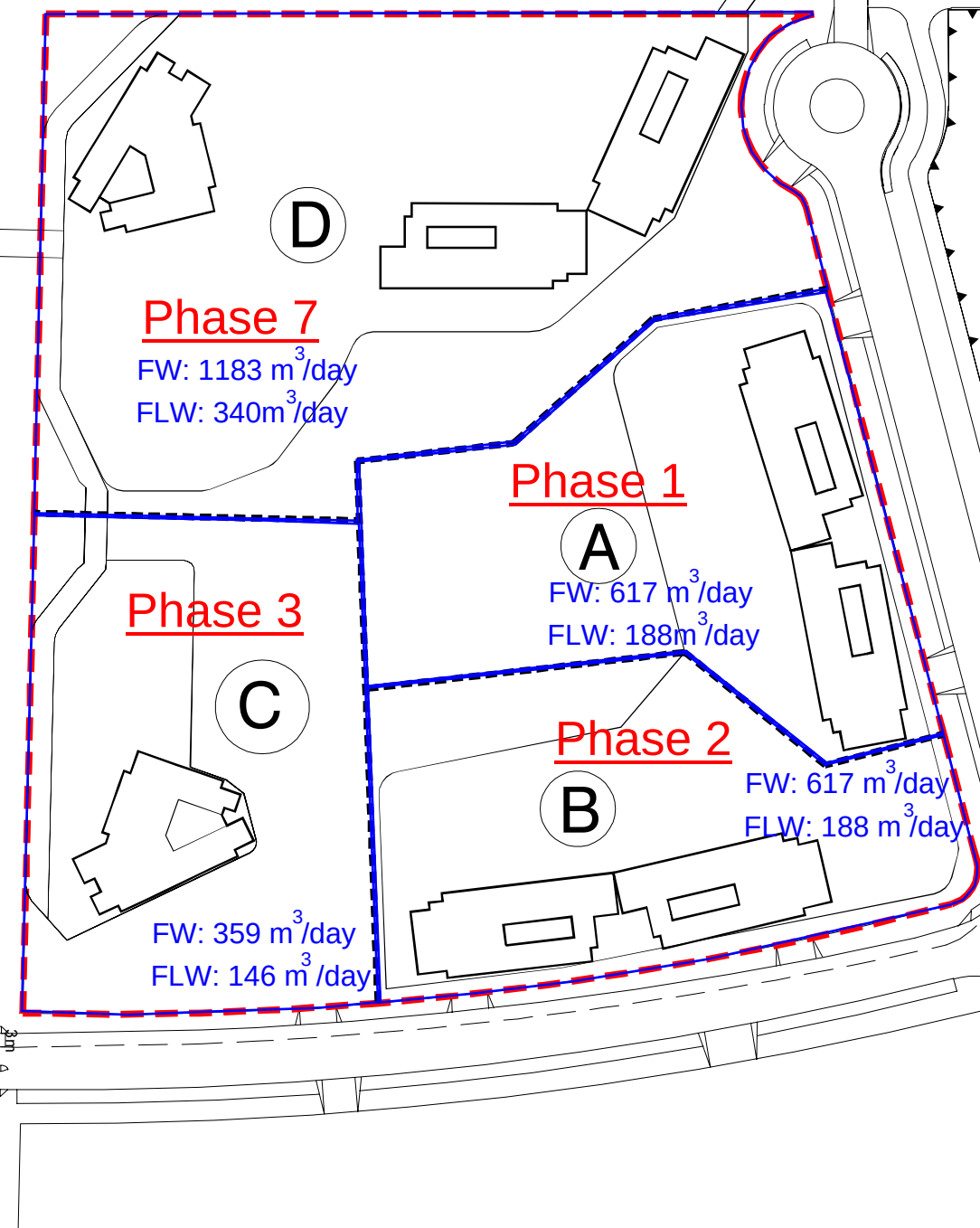
Area 28A

FW: 3156 m³/day
FLW: 940m³/day



Area 28B

FW: 2776 m³/day
FLW: 862m³/day



PHASING PLAN FOR MIXED USE DEVELOPMENT AT PLANNING AREAS 28A AND 28B
SCALE: 1:1500 @A3

Appendix B4 Information Extracted from No. A/HSK/474 – Minor Relaxation of Plot Ratio Restriction for Permitted Residential and Commercial Development

**Broad Development Parameters of the Applied Use/Development
in respect of Application No. A/HSK/474**

關於申請編號 A/HSK/474 的擬議用途/發展的概括發展規範

Revised broad development parameters in view of

the further information received on 30.10.2023

因應於 2023 年 10 月 30 日接獲的進一步資料而修訂的概括發展規範

Application No. 申請編號	A/HSK/474		
Location/address 位置／地址	Lots 361 S.A (Part), 362 (Part) and 422 (Part) in D.D. 127 and Adjoining Government Land, Kiu Tau Wai, Yuen Long, New Territories 新界元朗橋頭圍丈量約份第 127 約地段第 361 號 A 分段（部分）、第 362 號（部分）及第 422 號（部分）和毗連政府土地		
Site area 地盤面積	About 約 15,394 sq. m 平方米 (Includes Government Land of about 包括政府土地約 924 sq. m 平方米)		
Plan 圖則	Approved Hung Shui Kiu and Ha Tsuen Outline Zoning Plan No. S/HSK/2 洪水橋及厦村分區計劃大綱核准圖編號 S/HSK/2		
Zoning 地帶	"Other Specified Uses" annotated "Mixed Use" 「其他指定用途」註明「混合用途」		
Applied use/ development 申請用途/發展	Proposed Minor Relaxation of Plot Ratio Restriction for Permitted Residential and Commercial Development 擬議略為放寬地積比率限制，以作准許的住宅及商業發展		
Gross floor area and/or plot ratio 總樓面面積及／ 或地積比率		sq. m 平方米	Plot ratio 地積比率
	Domestic 住用	About 約 86,591.25	About 約 5.625
	Non-domestic 非住用	About 約 21,166.75	About 約 1.375
No. of block 幢數	Domestic 住用	-	
	Non-domestic 非住用	1	
	Composite 綜合用途	5	Residential Towers (sitting on retail podium) 住宅大廈（座落在零售平台上）
Building height/No.	Domestic	-	m 米

of storeys 建築物高度／ 層數	住用	-	mPD 米(主水平基準上)
		-	Storey(s) 層
	Non-domestic 非住用	-	m 米
		45	mPD 米(主水平基準上)
		7	Storey(s) 層
		2	Exclude Basement 不包括地庫
	Composite 綜合用途	-	m 米
		Not more than 不多於 160	mPD 米(主水平基準上)
		47	Storey(s) 層
Site coverage 上蓋面積	Not more than 不多於		40% above 15 m 米以上
			65% below 15 m 米以下
No. of units 單位數目	1,850 Flats 住宅單位		
Open space 休憩用地	Private 私人	Not less than 不少於 4,810	sq. m 平方米
	Public 公眾	-	sq. m 平方米
No. of parking spaces and loading / unloading spaces 停車位及上落客貨 車位數目	Total no. of vehicle spaces 停車位總數		949
	Private Car Parking Spaces 私家車車位		551
	Motorcycle Parking Spaces 電單車車位		43
	Bicycle Parking Spaces 單車車位		355
	Total no. of vehicle loading/unloading bays/lay-bys 上落客貨車位／停車處總數		33
	Light Goods Vehicle Spaces 輕型貨車車位		19
	Heavy Goods Vehicle Spaces 重型貨車車位		14

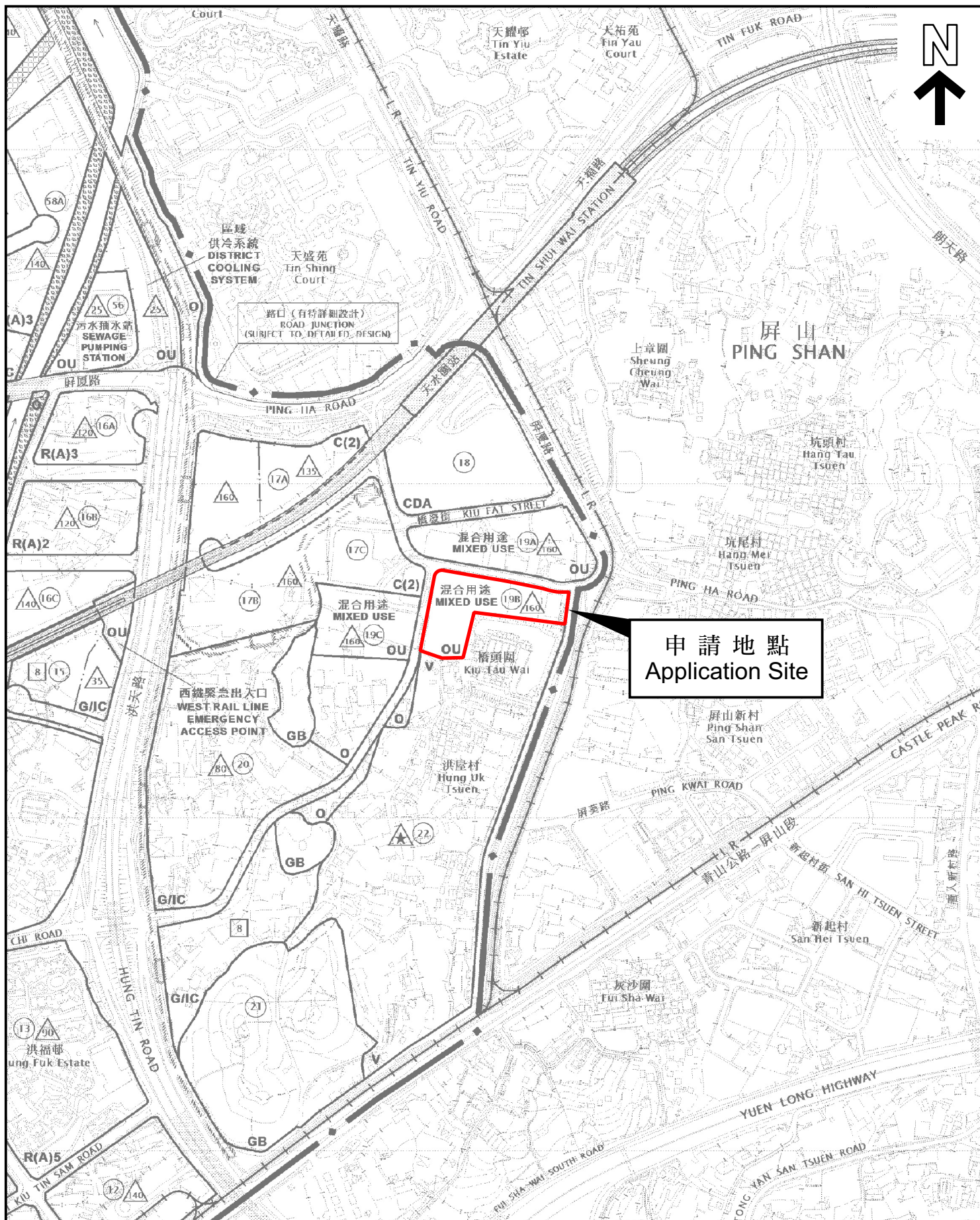
* 有關資料是為方便市民大眾參考而提供。對於所載資料在使用上的問題及文義上的歧異，城市規劃委員會概不負責。若有任何疑問，應查閱申請人提交的文件。

The information is provided for easy reference of the general public. Under no circumstances will the Town Planning Board accept any liabilities for the use of the information nor any inaccuracies or discrepancies of the information provided. In case of doubt, reference should always be made to the submission of the applicant.

Submitted Plans, Drawings and Documents 提交的圖則、繪圖及文件		
	<u>Chinese</u> 中文	<u>English</u> 英文
<u>Plans and Drawings 圖則及繪圖</u>		
Master layout plan(s)/Layout plan(s) 總綱發展藍圖／布局設計圖	☐	☐
Block plan(s) 樓宇位置圖	☐	☐
Floor plan(s) 樓宇平面圖	☐	☐
Sectional plan(s) 截視圖	☐	☐
Elevation(s) 立視圖	☐	☐
Photomontage(s) showing the proposed development 顯示擬議發展的合成照片	☐	☐
Master landscape plan(s)/Landscape plan(s) 園境設計總圖／園境設計圖	☐	☐
Others (please specify) 其他（請註明）	☐	☐
<u>Reports 報告書</u>		
Planning Statement / Justifications 規劃綱領 / 理據	☐	☐
Environmental assessment (noise, air and/or water pollutions) 環境評估（噪音、空氣及／或水的污染）	☐	☐
Traffic impact assessment (on vehicles) 就車輛的交通影響評估	☐	☒
Traffic impact assessment (on pedestrians) 就行人的交通影響評估	☐	☒
Visual impact assessment 視覺影響評估	☐	☐
Landscape impact assessment 景觀影響評估	☐	☐
Tree Survey 樹木調查	☐	☐
Geotechnical impact assessment 土力影響評估	☐	☐
Drainage impact assessment 排水影響評估	☐	☐
Sewerage impact assessment 排污影響評估	☐	☐
Risk Assessment 風險評估	☐	☐
Others (please specify) 其他（請註明）	☐	☒
<u>Table of responses to departmental comments 回應部門意見表</u>		
<u>Replacement pages of revised Visual Appraisal 經修訂的視覺評估的替代頁</u>		
<u>Replacement pages of revised Sewerage Impact Assessment 經修訂的排污影響評估的替代頁</u>		
Note: May insert more than one 「✓」. 註：可在多於一個方格內加上「✓」號		

Note: The information in the Gist of Application above is provided by the applicant for easy reference of the general public. Under no circumstances will the Town Planning Board accept any liabilities for the use of the information nor any inaccuracies or discrepancies of the information provided. In case of doubt, reference should always be made to the submission of the applicant.

註：上述申請摘要的資料是由申請人提供以方便市民大眾參考。對於所載資料在使用上的問題及文義上的歧異，城市規劃委員會概不負責。若有任何疑問，應查閱申請人提交的文件。



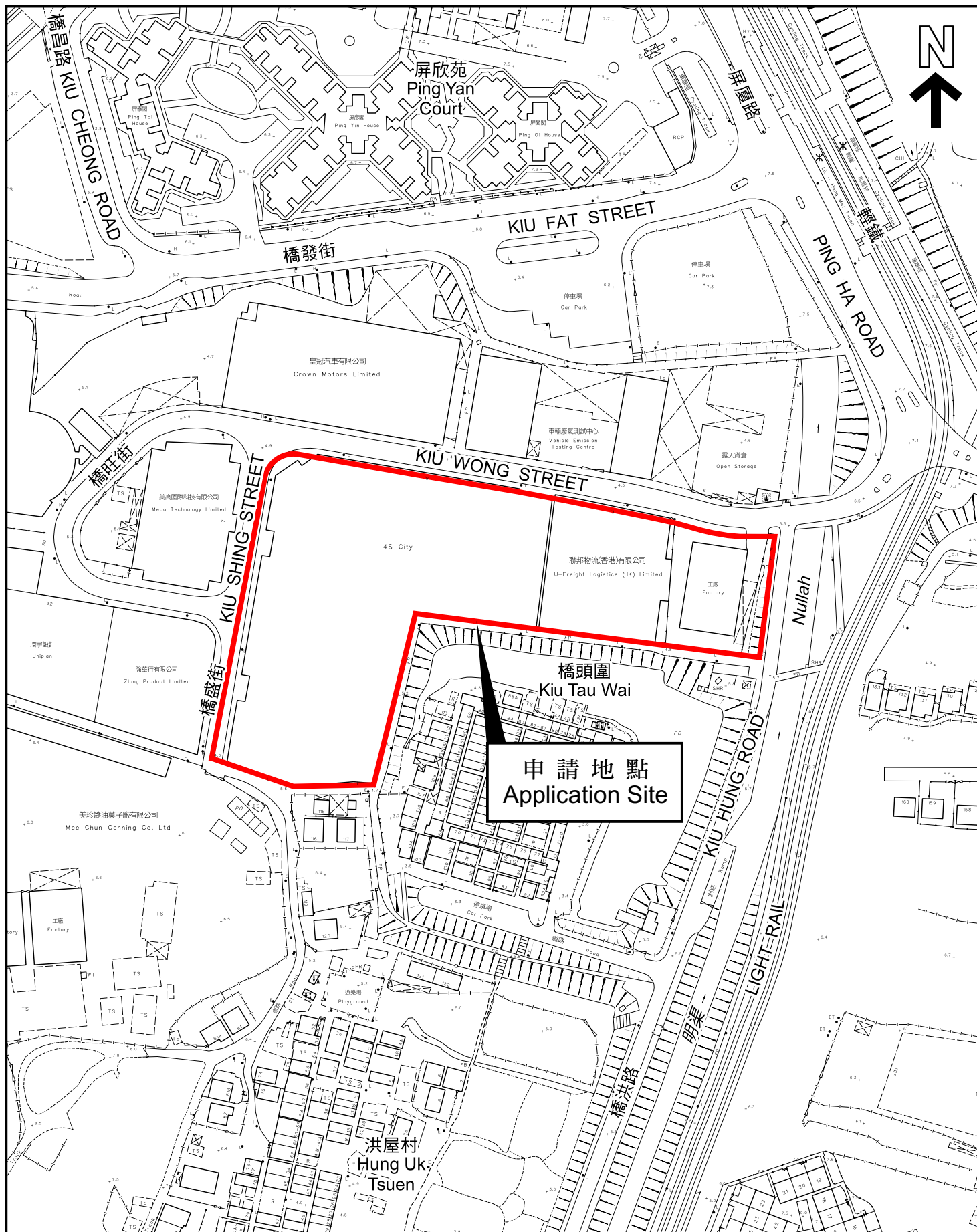
本摘要圖於2023年6月26日擬備，
所根據的資料為於2018年10月16日
核准的分區計劃大綱圖編號 S/HSK/2
EXTRACT PLAN PREPARED ON 26.6.2023
BASED ON OUTLINE ZONING PLAN No.
S/HSK/2 APPROVED ON 16.10.2018

位置圖 LOCATION PLAN

SCALE 1:7 500 比例尺
米 METRES 100 0 100 200 300 米 METRES

申請地點界線只作識別用
APPLICATION SITE BOUNDARY
FOR IDENTIFICATION PURPOSE ONLY

參考編號
REFERENCE No.
A/HSK/474



本摘要圖於2023年6月26日擬備，
所根據的資料為測量圖編號
6-NW-8C 及 6-NW-13A
EXTRACT PLAN PREPARED ON 26.6.2023
BASED ON SURVEY SHEETS No.
6-NW-8C & 6-NW-13A

平面圖 SITE PLAN

申請地點界線只作識別用
APPLICATION SITE BOUNDARY
FOR IDENTIFICATION PURPOSE ONLY

參考編號
REFERENCE No.

A/HSK/474

申請編號 Application No. : A/HSK/474

備註 Remarks

申請人就收到的部門意見作出回應，並提交經修訂的交通影響評估和經修訂的視覺評估及排污影響評估的替代頁。

The applicant provided responses to departmental comments, revised Traffic Impact Assessment and replacement pages of revised Visual Appraisal and Sewerage Impact Assessment.

有關資料是為方便市民大眾參考而提供。對於所載資料在使用上的問題及文義上的歧異，城市規劃委員會概不負責。若有任何疑問，應查閱申請人提交的文件。

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Existing View



Key Plan



Approved Scheme



Proposed Scheme

ARUP

Figure Title

Viewing Point 3: Ping Pak Lane Park

Source

Site photos

Date

Oct 23

Scale

-

Figure No.

5

申請編號 Application No. : A / HSK / 474

此頁摘自申請人提交的文件。

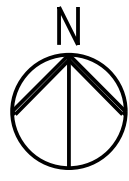
This page is extracted from applicant's submitted documents.

1 <u>Estimation of Daily Flow from the Proposed Development</u>	<u>Remark</u>
A. <u>Generation from Residential Block</u>	Total number of residents: 2751+2059 = 4810 head (adopted in water demand calculation)
A1. <u>Generation from T1, T2 and T3 Residents</u> Total Number of units 1058 units Number of person per each unit 2.6 person/unit Total number of residence 2751 person Unit flow 0.270 m ³ /person/day Estimated Daily Flow 742.7 m ³ /day	Provided by the Project Architect. Referred to Household Characteristics of Population in Tertiary Planning Unit 515 - Average Domestic Household Size in Population Census 2021. Referred to the planning unit flow factor for Domestic (Private - R2) in Table T-1 of GESF.
A2. <u>Generation from T5 and T6 Residents</u> Total Number of units 792 units Number of person per each unit 2.6 person/unit Total number of residence 2059 person Unit flow 0.270 m ³ /person/day Estimated Daily Flow 556.0 m ³ /day	Provided by the Project Architect. Referred to TPU 515 in Population Census 2021. Referred to the planning unit flow factor for Domestic (Private - R2) in Table T-1 of GESF.
A3. <u>Generation from Residential Recreational Facilities</u> Total gross floor area 2502 m ² Assumed occupied area per person 3.3 person/100 m ² Total number of staff 83 person Unit flow 0.280 m ³ /person/day Estimated Daily Flow 23.2 m ³ /day	Total number of staff: 83+474+173 = 730 head (adopted in water demand calculation) Provided by the Project Architect. Referred to worker density for Community, Social & Personal Services + All Types in Table 8 of CIFSUS(a). Referred to the planning unit flow for Commercial Employee + Commercial activities - Community, Social & Personal Services in Table T-2 of GESF(b).
B. <u>Generation from Retail Block</u>	
B1. <u>Generation from Retail Shop</u> Total gross floor area 13546.7 m ² Assumed occupied area per person 3.5 person/100 m ² Total number of staff 474 person Unit flow 0.280 m ³ /person/day Estimated Daily Flow 132.7 m ³ /day	Provided by the Project Architect (80% Retail, 20% Restaurant) Referred to worker density for Retail Trade + All Types in Table 8 of CIFSUS(a). Referred to the planning unit flow for Commercial Employee + Commercial Activities (Wholesale & Retail) in Table T-2 of GESF(b).
B2. <u>Generation from the Restaurant</u> Total gross floor area 3386.7 m ² Assumed occupied area per person 5.1 person/100 m ² Total number of staff 173 person Unit flow 1.580 m ³ /person/day Estimated Daily Flow 273.3 m ³ /day Total Estimated Daily Flow from Retail Block 406.1 m ³ /day	Provided by the Project Architect (80% Retail, 20% Restaurant) Referred to worker density for Restaurants + All Types in Table 8 of CIFSUS(a). Referred to the planning unit flow for Commercial Employee + Commercial Activities (Restaurants & Hotels) in Table T-2 of GESF(b)(c).

Appendix C

HSK/NDA Water Supply Networks

DO NOT SCALE DRAWING. CHECK ALL DIMENSIONS ON SITE.
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KONG SHAM WESTERN HIGHWAY

NGAU HOM SHEK

LAU FAU SHAN

TIN SHUI WAI

SAN WAI

PING SHAN

CASTLE PEAK ROAD - PING SHAN

YUEN TAU SHAN

HUNG SHUI KIU

YUEN LONG HIGHWAY

TAN KWAI TSUEN EAST FRESH
WATER SERVICE RESERVOIR

LEGEND

- SITE BOUNDARY
- SITE 4-1 FOR S16 APPLICATION
- PROPOSED TAN KWAI TSUEN EAST FRESH
WATER SERVICE RESERVOIR
- PROPOSED HSK/HT NDA SECOND
PHASE DEVELOPMENT FRESH WATER
SUPPLY NETWORK
- EXISTING FRESH WATER SUPPLY NETWORK

A	FIRST ISSUE	KF	06/25
Rev	Description	By	Date

Consultant

ARUP

Project Title

Agreement No. CE 1/2020 (CE)
Hung Shui Kiu / Ha Tsuen
New Development Area Package A
Works for Second Phase Development
– Design and Construction

Drawing title

FRESH WATER SUPPLY WORKS
OVERALL LAYOUT PLAN

Appendix C

Drawing no.		Rev.	
278463/WSIA/101		A	
Drawn	Date	Checked	Approved
RY	06/25	EH	KKC
Scale	Status		
1:10000 @ A1	PRELIMINARY		

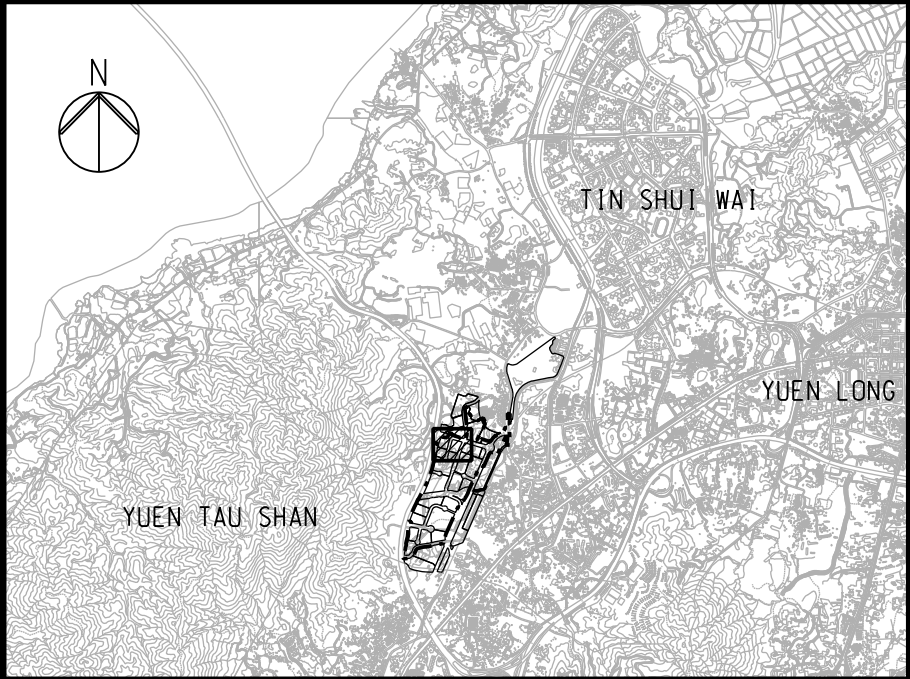
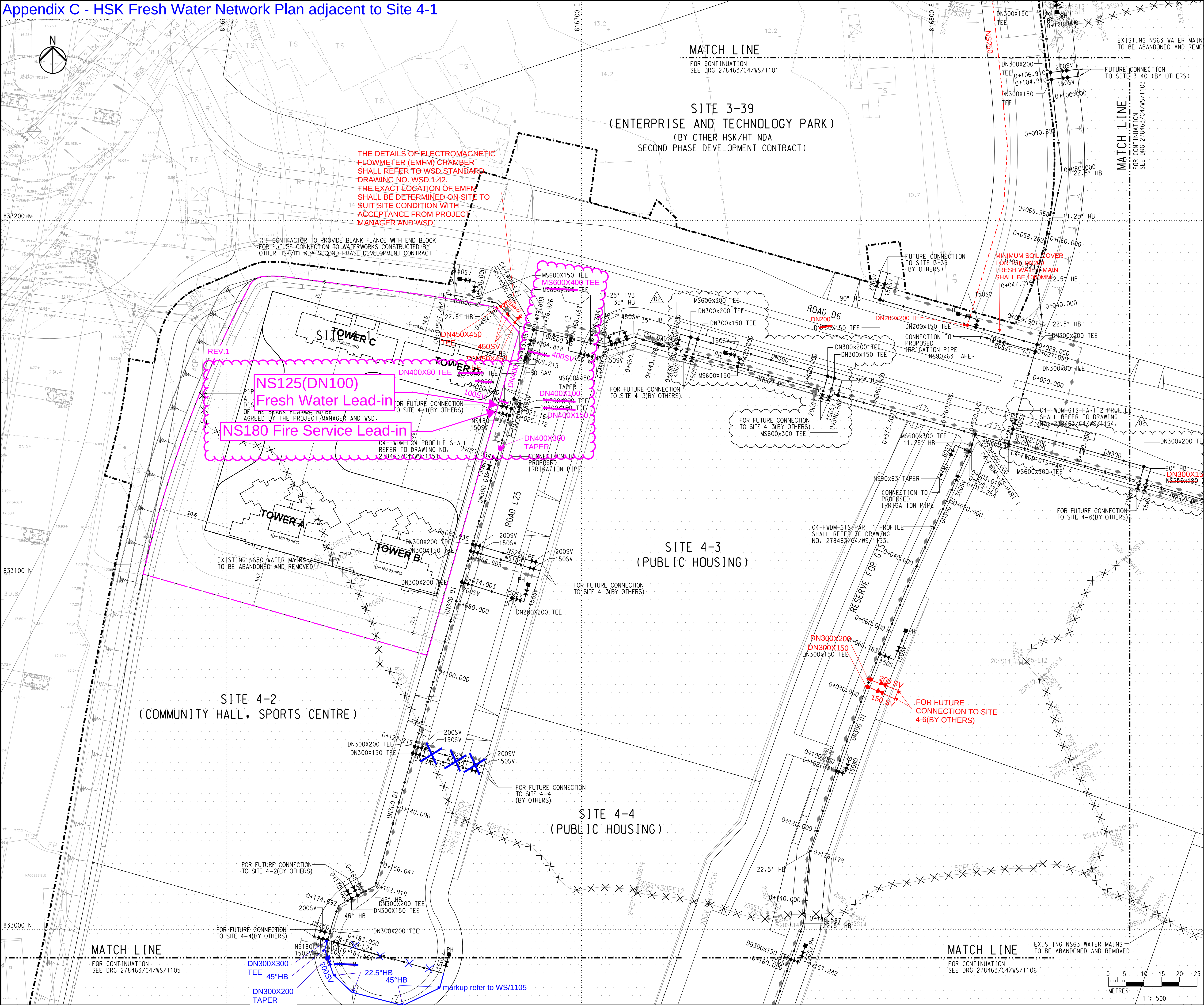
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Appendix C - HSK Fresh Water Network Plan adjacent to Site 4-1



KEY PLAN

NOTES

1. FOR GENERAL NOTES AND LEGEND, REFER TO DRAWING NO. 278463/C4/WS/1101.

Site 4-1 for S16 Planning Application for Proposed Flat and Shop and Services in G/IC (1) Zone in Planning Area 34E of Hung Shui Kiu/Ha Tsuen New Development Area

- Remark:
- 300WO Other Post-tender Markup
 - 250SV Markup for Proposed Modification Works under HD's Technical Assessments
 - 100SV Markup for Proposed Modification Works under No.A/HSK/585 S16 Planning Application

02	TENDER ADDENDUM NO. 2	EF	04/24
01	TENDER ADDENDUM NO. 1	EF	03/24
00	TENDER ISSUE	EF	02/24
Rev	Description	By	Date

Consultant

ARUP

Project Title

Contract No. YL/2023/04

Hung Shui Kiu/Ha Tsuen

New Development Area

Second Phase Development - Contract 4 -

Site Formation and Engineering

Infrastructure Works

Drawing title

FRESH WATER SUPPLY WORKS

LAYOUT PLAN

(SHEET 2)

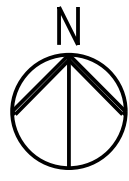
Drawing no.	278463/C4/WS/1102	Rev.	02
Drawn	DT	Date	02/24
Checked	EF	Approved	DL
Scale	1:500 @ A1	Status	TENDER

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KONG SHAM WESTERN HIGHWAY

NGAU HOM SHEK

LAU FAU SHAN

TIN SHUI WAI

SAN WAI

PING SHAN

CASTLE PEAK ROAD - PING SHAN

YUEN TAU SHAN

HUNG SHUI KIU

YUEN LONG HIGHWAY

TAN KWA I TSUEN EAST
FLUSHING WATER SERVICE
RESERVOIR

LEGEND

--- SITE BOUNDARY

SITE 4-1 FOR S16 APPLICATION

TAN KWA I TSUEN EAST FLUSHING WATER
SERVICE RESERVOIR (BY OTHERS)

--- PROPOSED HSK/HT NDA SECOND PHASE
DEVELOPMENT FLUSHING WATER SUPPLY NETWORK

--- EXISTING FLUSHING WATER SUPPLY NETWORK

Rev	Description	By	Date
A	FIRST ISSUE	KF	06/25

Consultant
ARUP

Project Title
Agreement No. CE 1/2020 (CE)
Hung Shui Kiu / Ha Tsuen
New Development Area Package A
Works for Second Phase Development
– Design and Construction

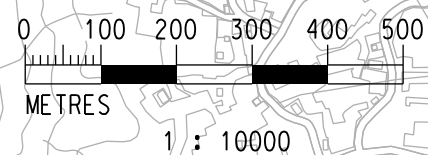
Drawing title
FLUSHING WATER SUPPLY WORKS
OVERALL LAYOUT PLAN
Appendix C

Drawing no. 278463/WSIA/201		Rev. A	
Drawn RY	Date 06/25	Checked EH	Approved KKC
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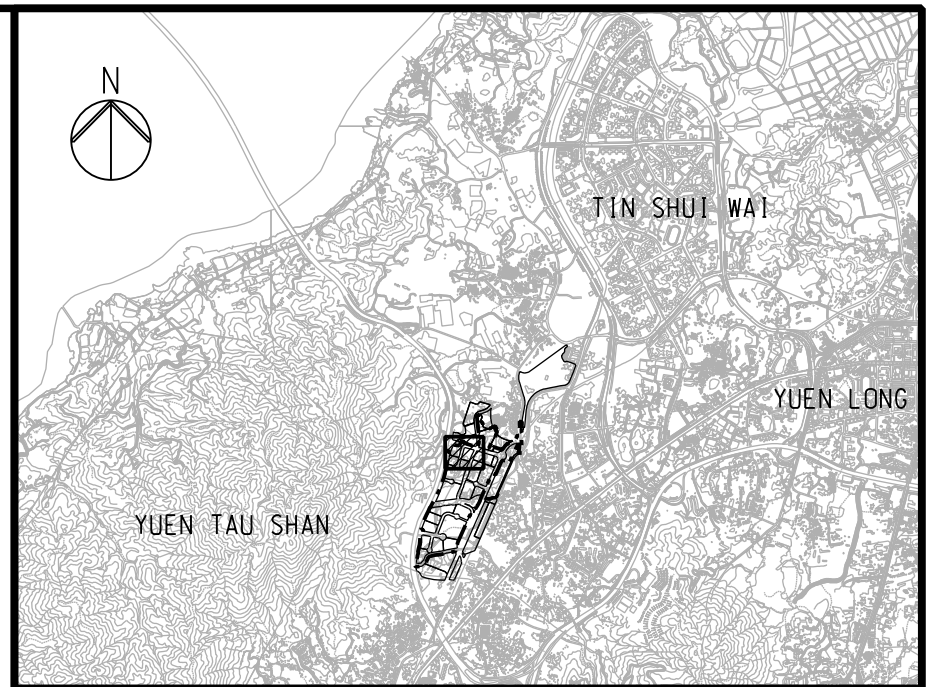
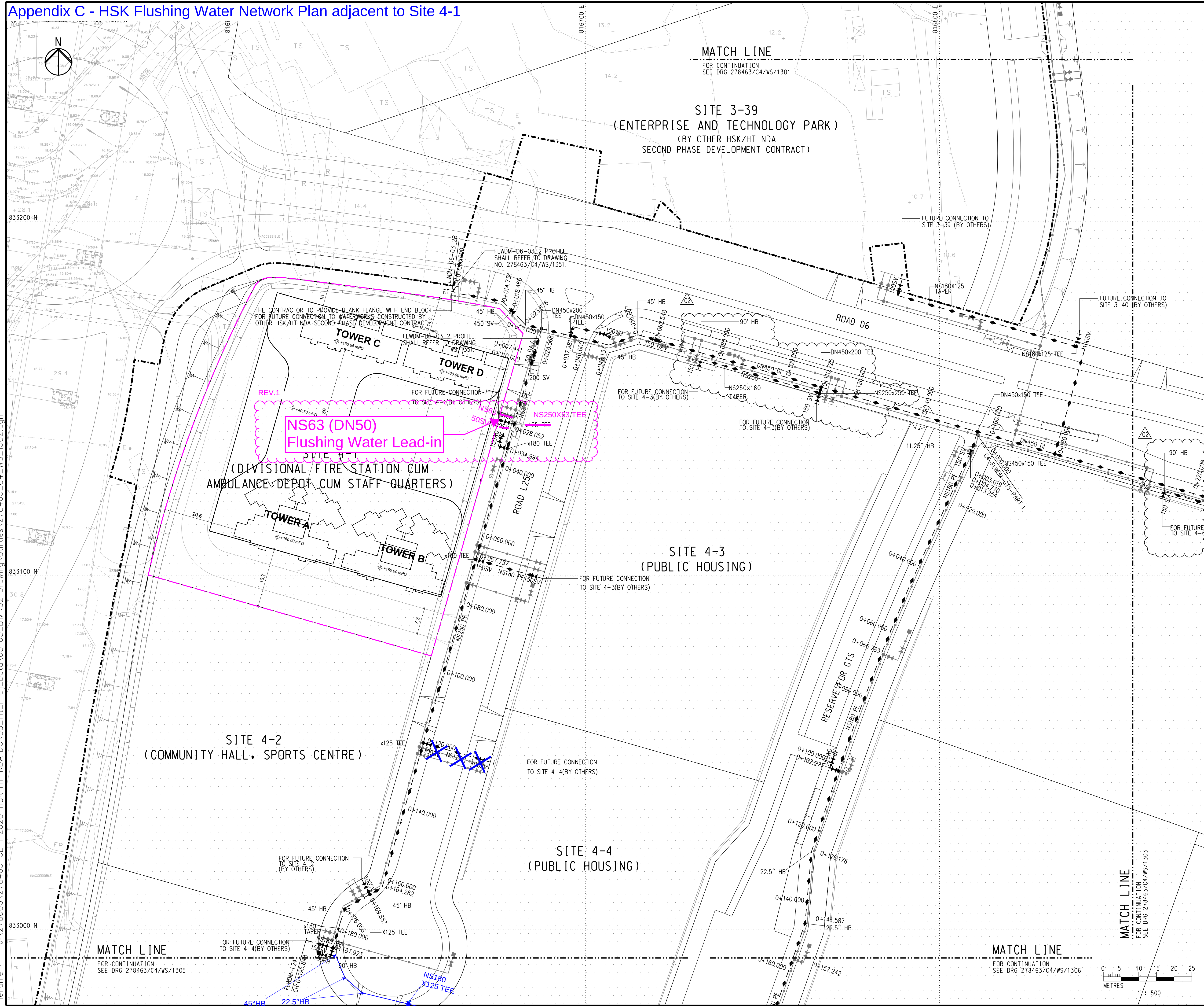
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Appendix C - HSK Flushing Water Network Plan adjacent to Site 4-1



KEY PLAN

NOTES

1. FOR GENERAL NOTES AND LEGEND, REFER TO
DRAWING NO. 278463/C4/WS/1301.

Site 4-1 for S16 Planning Application for Proposed Flat and Shop and Services in G/LC (1) Zone in Planning Area 34E of Hung Shui Kiu/Ha Tsuen New Development Area

Remark:

250SV Markup for Proposed Modification
Works under HD's Technical
Assessments

50SV Markup for Proposed Modification
Works under No.A/HSK/585 S16
Planning Application

02	TENDER ADDENDUM NO. 2	EF	04/24
01	TENDER ADDENDUM NO. 1	EF	03/24
00	TENDER ISSUE	EF	02/24
Rev	Description	By	Date

Consultant	
------------	--

ARUP

Project Title Contract No. YL/2023/04 Hung Shui Kiu/Ha Tsuen New Development Area Second Phase Development - Contract 4 - Site Formation and Engineering Infrastructure Works
--

Drawing title

FLUSHING WATER SUPPLY WORKS
LAYOUT PLAN
(SHEET 2)

Drawing no. 278463/C4/WS/1302		Rev. 02	
Drawn DT	Date 02/24	Checked EF	Approved DL
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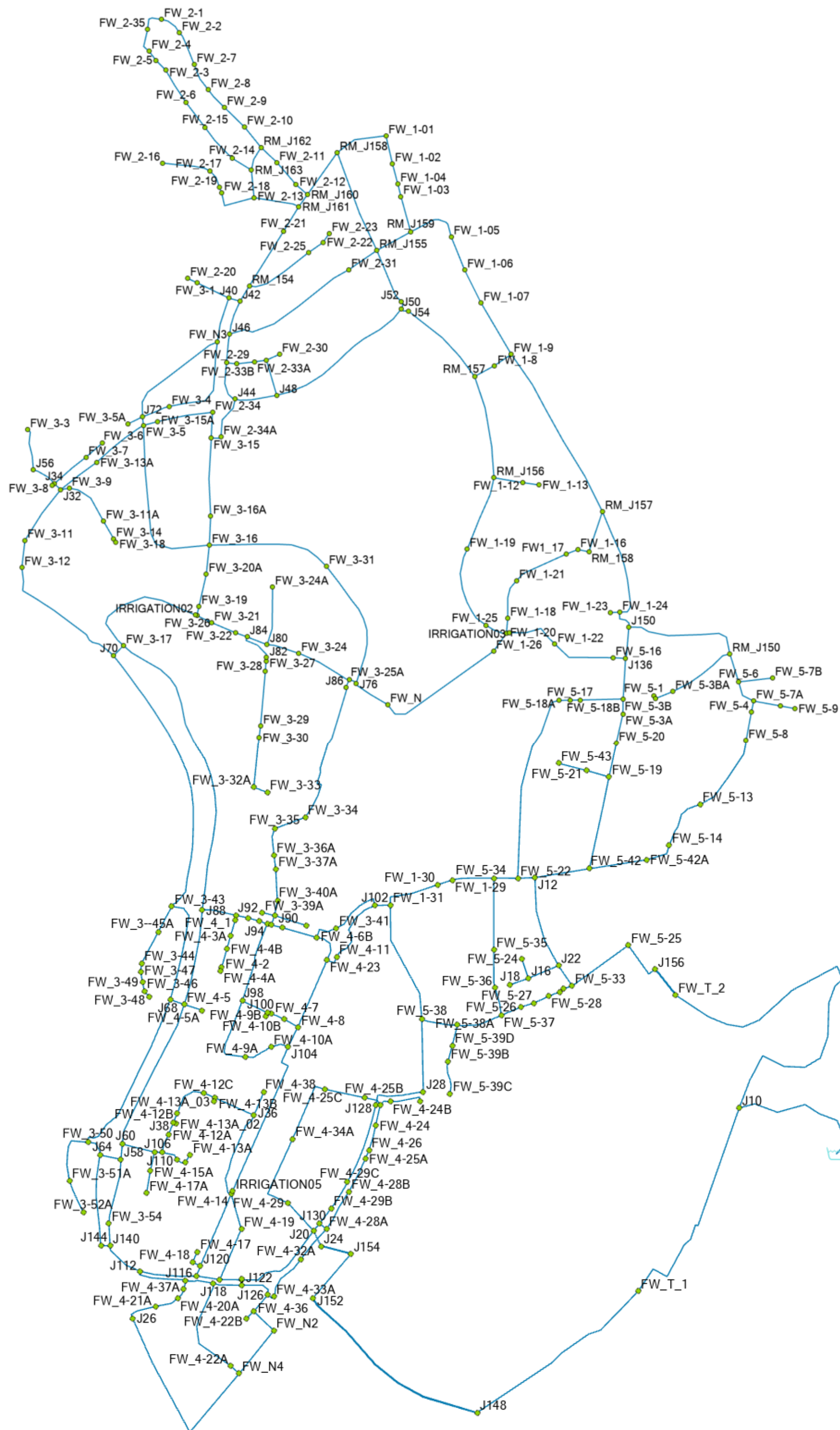


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Appendix D

HSK/HT NDA Water Supply Networks Modelling Results

Appendix D1-HSK FW Network



ID	Demand (L/s)	Elevation (m)	Head (m)	Pressure (m)
FW1_17	59.01	4.98	51.51	46.53
FW_1-01	1.12	6	48.57	42.57
FW_1-02	46.08	6	48.2	42.2
FW_1-03	0	6	48.3	42.3
FW_1-04	43.23	6	48.19	42.19
FW_1-05	49.91	7.5	48.25	40.75
FW_1-06	68.24	7.5	48.31	40.81
FW_1-07	0	7.5	49.55	42.05
FW_1-12	26.21	4.7	47.83	43.13
FW_1-13	28.88	4.7	47.29	42.59
FW_1-16	63.54	4.98	51.52	46.54
FW_1-18	0	5.36	51.78	46.42
FW_1-19	27.87	6.19	51.34	45.15
FW_1-20	0	6.62	51.85	45.23
FW_1-21	48.43	5.69	51.58	45.89
FW_1-22	0	5.13	52.32	47.19
FW_1-23	0.08	6.62	52.54	45.92
FW_1-24	194.11	6.62	52.54	45.92
FW_1-25	0.08	6	51.74	45.74
FW_1-26	10.17	6.41	51.8	45.39
FW_1-29	0.2	0	58.07	58.07
FW_1-30	0.14	6	57.87	51.87
FW_1-31	0	6.24	57.1	50.86
FW_1-8	35.1	4.84	50.67	45.83
FW_1-9	24.77	4.84	51.57	46.73
FW_2-1	8.74	6	48.71	42.71
FW_2-10	14.85	6	48.76	42.76
FW_2-11	21.33	6	48.81	42.81
FW_2-12	0	6	48.88	42.88
FW_2-13	0	6	48.82	42.82
FW_2-14	10.09	6	48.77	42.77
FW_2-15	0	6	48.75	42.75
FW_2-16	0	0	48.8	48.8
FW_2-17	0.54	12	48.8	36.8
FW_2-18	1.99	9	48.8	39.8
FW_2-19	0.28	9	48.8	39.8
FW_2-2	11.85	6	48.71	42.71
FW_2-20	2.28	10.8	49.11	38.31
FW_2-21	87.2	7	48.88	41.88
FW_2-22	0.14	5.39	48.78	43.39
FW_2-23	15.26	5.39	48.74	43.35
FW_2-25	1.32	5.39	48.84	43.45
FW_2-29	0.24	10.11	49.4	39.29
FW_2-3	16.87	6	48.72	42.72
FW_2-30	82.35	8.5	47.84	39.34
FW_2-31	83	5.25	48.96	43.71
FW_2-33A	0.54	8.5	48.3	39.8
FW_2-33B	0.07	8.5	48.3	39.8
FW_2-34	0	9.86	49.7	39.84
FW_2-34A	0.08	9.98	49.66	39.68
FW_2-35	0	6	48.72	42.72
FW_2-4	0.08	6	48.72	42.72
FW_2-5	0	6	48.72	42.72
FW_2-6	0	6	48.74	42.74
FW_2-7	12.58	6	48.72	42.72
FW_2-8	0	6	48.73	42.73
FW_2-9	0	6	48.75	42.75
FW_3--45A	13.15	18.63	49.72	31.09
FW_3-1	14.52	10.51	49.12	38.61
FW_3-11	7.77	26.45	50.58	24.13
FW_3-11A	0	20.07	50.12	30.05
FW_3-12	0.24	27.41	50.68	23.27
FW_3-13A	13.35	23.16	50.04	26.88
FW_3-14	8.69	18.09	50.03	31.94
FW_3-15	0	10.19	49.7	39.51
FW_3-15A	19.1	16.49	49.7	33.21
FW_3-16	0	13.42	50.08	36.66
FW_3-16A	18.97	13.4	49.94	36.54
FW_3-17	0.24	18.04	51.24	33.2
FW_3-18	18.85	17.73	49.97	32.24
FW_3-19	0.08	13.66	50.31	36.65
FW_3-20A	0	13.62	50.19	36.57
FW_3-21	0.08	12.82	50.33	37.51
FW_3-22	0	11.64	50.31	38.67
FW_3-24	0	9.15	50.8	41.65
FW_3-24A	15.72	9.4	49.85	40.45
FW_3-25A	17.64	7.24	51.38	44.14
FW_3-26	0.24	14.16	50.35	36.19
FW_3-27	22.55	10.22	47.07	36.85
FW_3-28	25.45	10.38	46.43	36.05
FW_3-29	22.3	11.76	44.13	32.37
FW_3-3	0.08	29	50.37	21.37
FW_3-30	0	11.96	43.83	31.87

ID	Demand (L/s)	Elevation (m)	Head (m)	Pressure (m)
FW_3-31	0	7.72	50.61	42.89
FW_3-32A	37.21	12.07	42.57	30.5
FW_3-33	34.36	12.02	41.91	29.89
FW_3-34	0	15.82	52.56	36.74
FW_3-35	0	17.5	52.81	35.31
FW_3-36A	0	16.32	53.02	36.7
FW_3-37A	0	14.46	53.13	38.67
FW_3-39A	16.18	12.94	53.61	40.67
FW_3-4	11.2	13.98	49.42	35.44
FW_3-40A	32.74	12.2	53.38	41.18
FW_3-41	0.08	7.47	55.97	48.5
FW_3-42	23.1	10.6	53.03	42.43
FW_3-43	21.9	19.19	50.34	31.15
FW_3-44	32.74	22.44	49.23	26.79
FW_3-46	0.08	24.3	49.21	24.91
FW_3-47	19	24.2	49.21	25.01
FW_3-48	0.08	24.1	49.21	25.11
FW_3-49	0	24.41	49.21	24.8
FW_3-5	0	17.68	49.7	32.02
FW_3-50	41.15	29.51	54.2	24.69
FW_3-51A	0	26.16	51.22	25.06
FW_3-52A	36.82	27.79	49.42	21.63
FW_3-54	0	23.9	57.21	33.31
FW_3-5A	18.82	18.94	49.42	30.48
FW_3-6	11.22	23	50.01	27.01
FW_3-7	11.28	23.19	50.06	26.87
FW_3-8	12.22	25.75	50.35	24.6
FW_3-9	0.07	24.54	50.33	25.79
FW_4-10A	6.8	11.7	55.43	43.73
FW_4-10B	6.8	10.1	55.39	45.29
FW_4-11	0	9.97	55.58	45.61
FW_4-12A	36.49	17.6	50.97	33.37
FW_4-12B	26.39	16.2	49.78	33.58
FW_4-12C	43.51	13.5	48.7	35.2
FW_4-12DA	35.82	17.76	52.07	34.31
FW_4-13A	42.59	17.92	51.71	33.79
FW_4-13A_02	42.59	16.73	50.04	33.31
FW_4-13A_03	42.59	12.9	48.42	35.52
FW_4-13B	50.66	12.71	48.68	35.97
FW_4-14	0.43	11.92	56.35	44.43
FW_4-15A	0.24	18.11	53.48	35.37
FW_4-16A	35.99	17.82	51.79	33.97
FW_4-17	1.69	11.08	56.63	45.55
FW_4-17A	0	17.73	53.48	35.75
FW_4-18	321.03	11.95	56.63	44.68
FW_4-19	0	10.95	57.21	46.26
FW_4-2	1.18	14.93	52.68	37.75
FW_4-20A	2.07	11.07	56.68	45.61
FW_4-21A	1.04	10.65	56.66	46.01
FW_4-22A	53.09	10.77	56.39	45.62
FW_4-22B	53.09	11.97	56.71	44.74
FW_4-23	0.08	10.7	55.34	44.64
FW_4-24	22.42	10.99	59.2	48.21
FW_4-24A	22.42	11.16	58.97	47.81
FW_4-24B	22.42	10.27	59.22	48.95
FW_4-25A	12.47	11.84	59.02	47.18
FW_4-25B	42.85	10.36	58.48	48.12
FW_4-25C	41.08	10.87	58.14	47.27
FW_4-26	26.64	11.95	59.03	47.08
FW_4-28A	43.8	12.73	59.5	46.77
FW_4-28B	42.41	12.84	59.02	46.18
FW_4-29	37.4	11.92	58.81	46.89
FW_4-29B	25.66	12.73	60.21	47.48
FW_4-29C	46.53	12.84	60.18	47.34
FW_4-31A	35.44	10.89	58.79	47.9
FW_4-32A	4.3	11.66	59.03	47.37
FW_4-33A	0	11.42	58.55	47.13
FW_4-34A	0	10.8	58.44	47.64
FW_4-35	0	11.31	58.51	47.2
FW_4-36	0	11.78	57.72	45.94
FW_4-37A	0.08	11.45	56.7	45.25
FW_4-38	0	10.98	51.19	40.21
FW_4-3A	13.81	13.53	53.19	39.66
FW_4-3B	13.81	13.61	54.09	40.48
FW_4-3C	13.81	13.01	54.2	41.19
FW_4-4A	36.64	14.73	52.65	37.92
FW_4-4B	36.64	14.1	52.83	38.73
FW_4-5	0	17.08	53.95	36.87
FW_4-5A	79.44	17.05	53.26	36.21
FW_4-6A	21.94	11.44	54.51	43.07
FW_4-6B	21.94	9.48	54.69	45.21
FW_4-7	0	10.91	55.37	44.46
FW_4-8	0	10.97	55.44	44.47

ID	Demand (L/s)	Elevation (m)	Head (m)	Pressure (m)
FW_4-9A	15.09	12.48	55.37	42.89
FW_4-9B	15.09	10.88	55.35	44.47
FW_4_1	28.58	13.6	53.8	40.2
FW_5-1	39.75	5.79	31.79	26
FW_5-13	20.1	8.54	45.34	36.8
FW_5-14	0	7.73	50.1	42.37
FW_5-16	51.35	6.57	52.97	46.4
FW_5-17	64.1	6.27	55.08	48.81
FW_5-18A	27.57	6.55	55.27	48.72
FW_5-18B	26.79	6.47	54.95	48.48
FW_5-19	0	6.75	56.01	49.26
FW_5-20	0	5.81	55.34	49.53
FW_5-21	0	6.15	56.01	49.86
FW_5-22	6.58	7.66	58.91	51.25
FW_5-24	53.64	8.71	57.97	49.26
FW_5-25	63.19	10.45	61.33	50.88
FW_5-26	7.22	11.41	59.98	48.57
FW_5-27	0.8	10.76	60.09	49.33
FW_5-28	1.48	10.2	60.23	50.03
FW_5-29	0.08	9.51	60.4	50.89
FW_5-30	0	9.77	60.35	50.58
FW_5-33	28.26	9.43	60.49	51.06
FW_5-34	0	6	58.63	52.63
FW_5-35	0	6	59.29	53.29
FW_5-36	0	6	59.65	53.65
FW_5-37	0	6	59.91	53.91
FW_5-38	0.08	9.45	59.99	50.54
FW_5-38A	0	9	59.99	50.99
FW_5-39B	9.79	7	59.91	52.91
FW_5-39C	5.65	7	59.89	52.89
FW_5-39D	5.34	7	59.93	52.93
FW_5-3A	0	6.47	54.76	48.29
FW_5-3AA	26.67	5.79	31.86	26.07
FW_5-3B	0	5.23	54.47	49.24
FW_5-3BA	21.22	4.6	32.91	28.31
FW_5-4	36.27	4.78	38.75	33.97
FW_5-42	0	6.61	57.83	51.22
FW_5-42A	1.33	7.44	52.72	45.28
FW_5-43	0	3.8	56.01	52.21
FW_5-6	59.26	5.25	38.56	33.31
FW_5-7A	10.61	4.76	38.55	33.79
FW_5-7B	11.72	5.25	38.34	33.09
FW_5-7C	11.95	4.52	35.91	31.39
FW_5-8	24.8	4.87	39.98	35.11
FW_5-9	39.69	4.65	35.04	30.39
FW_N	0	5.71	51.52	45.81
FW_N2	0	12.19	57.32	45.13
FW_N3	0	8.79	49.39	40.6
FW_N4	0	11.46	56.53	45.07
FW_T_1	0	31.76	65.25	33.49
FW_T_2	48.44	10.05	63.46	53.41
IRRIGATION02	0	14.47	50.36	35.89
IRRIGATION03	0	6.57	51.87	45.3
IRRIGATION05	0	12.09	56.33	44.24
J10	0	27.88	67.23	39.35
J100	0	10.59	55.36	44.77
J102	0	6.47	56.8	50.33
J104	0	11.66	55.5	43.84
J106	0	20.11	53.48	33.37
J110	0	19.01	53.16	34.15
J112	0	16.59	57.94	41.35
J114	0	11.8	58.21	46.41
J116	0	12.29	56.71	44.42
J118	0	10.49	56.67	46.18
J12	0	8.01	59.19	51.18
J120	0	12.04	57.11	45.07
J122	0	11.8	58.81	47.01
J124	0.08	11.02	58.78	47.76
J126	0	11.35	58.47	47.12
J128	0	10.94	60.11	49.17
J130	0	12.77	60.24	47.47
J132	0	10.94	59.56	48.62
J136	0	6.88	53.11	46.23
J140	0	23.8	57.76	33.96
J144	0	23.8	57.5	33.7
J148	0	17.15	64.03	46.88
J150	0	6.72	52.89	46.17
J152	0	11.62	61.83	50.21
J154	0	13.4	61.41	48.01
J156	0	10.1	61.79	51.69
J16	0	8.65	58.74	50.09
J18	0	7.89	58.74	50.85
J20	0	12.59	60.26	47.67

ID	Demand (L/s)	Elevation (m)	Head (m)	Pressure (m)
J22	0	9.35	60.21	50.86
J24	0	13.41	60.37	46.96
J26	0	24.88	56.65	31.77
J28	0	10.83	60.06	49.23
J32	12.22	25.07	50.37	25.3
J34	0	25.3	50.37	25.07
J36	0	11.13	51.19	40.06
J38	0	16.76	50.12	33.36
J40	0	8.36	49.27	40.91
J42	0	8.59	49.25	40.66
J44	0	9.14	49.52	40.38
J46	0	8.38	49.32	40.94
J48	0	8.53	49.52	40.99
J50	0	6.49	50.26	43.77
J52	0	6.38	50.19	43.81
J54	0	5.77	50.37	44.6
J56	0	26.23	50.37	24.14
J58	0	26.58	55.3	28.72
J60	0	24.98	54.87	29.89
J64	0	24.69	54.94	30.25
J68	0	18.3	53.58	35.28
J70	0	18.39	51.19	32.8
J72	0	17.74	49.65	31.91
J76	0	7.03	51.44	44.41
J80	0	11.6	50.47	38.87
J82	0	10.45	47.46	37.01
J84	0	11.3	50.3	39
J86	0	6.85	51.45	44.6
J88	0	19.02	53.84	34.82
J90	0	12.33	53.76	41.43
J92	0	13.55	53.99	40.44
J94	0	12.65	54.28	41.63
J96	0	12.43	54.32	41.89
J98	0	12.51	55.36	42.85
RM_154	0	8.59	49.15	40.56
RM_157	0	5.35	50.68	45.33
RM_158	0	4.98	51.58	46.6
RM_J150	0	3.83	39.36	35.53
RM_J152	0	8.5	48.3	39.8
RM_J155	0	6.5	49.63	43.13
RM_J156	0	4.72	51.01	46.29
RM_J157	0	4.95	51.96	47.01
RM_J158	0	6	49.29	43.29
RM_J159	0	6.5	48.6	42.1
RM_J160	0	6	48.91	42.91
RM_J161	0	6	48.88	42.88
RM_J162	0	6	48.79	42.79
RM_J163	0	6	48.79	42.79

ID	From Node	To Node	Length (m)	Diameter (mm)	Roughnes s	Flow (L/s)	Velocity (m/s)	Headloss (m)	HL/1000 (m/k-m)	Status	Flow Reversal Count
306	IRRIGATION02	FW_3-17	524.36	424	110	-102.25	0.72	0.89	1.69	Open	0
307	IRRIGATION03	FW_1-20	9.98	784	120	703.14	1.46	0.03	2.56	Open	0
309	IRRIGATION05	FW_4-14	17.57	424	110	-88.22	0.62	0.02	1.29	Open	0
NFW_1-20_P	FW_1-18	FW_1-20	50.59	424	110	-87.9	0.62	0.06	1.28	Open	0
NFW_1-26_P	FW_1-20	FW_1-26	72.76	586	120	150.64	0.56	0.04	0.61	Open	0
NFW_2-34_P3	FW_3-15	FW_2-34	101.96	424	110	-2.57	0.02	0	0	Open	0
NFW_3-12_P	FW_3-12	FW_3-11	108.97	586	120	189.26	0.7	0.1	0.93	Open	0
NFW_3-19_P2	FW_3-26	FW_3-19	44.99	424	110	71.49	0.51	0.04	0.87	Open	0
NFW_3-21_P	FW_3-22	FW_3-21	101.53	424	110	-30.44	0.22	0.02	0.18	Open	0
NFW_3-26_P	FW_3-26	IRRIGATION02	6.86	424	110	-102.25	0.72	0.01	1.69	Open	0
NFW_3-26_P2	FW_3-21	FW_3-26	78.97	424	110	-30.52	0.22	0.01	0.18	Open	0
NFW_3-28_P	FW_3-27	FW_3-28	38.96	282	110	119.32	1.91	0.64	16.42	Open	0
NFW_3-29_P	FW_3-28	FW_3-29	218.42	282	110	93.87	1.5	2.3	10.53	Open	0
NFW_3-30_P	FW_3-29	FW_3-30	46.66	282	110	71.56	1.15	0.3	6.37	Open	0
NFW_3-35_P	FW_3-34	FW_3-35	128.83	282	110	-38.15	0.61	0.25	1.97	Open	0
NFW_3-46_P	FW_3-49	FW_3-46	36.21	282	110	0.16	0	0	0	Open	0
NFW_3-47_P	FW_3-44	FW_3-47	33.01	282	110	19.16	0.31	0.02	0.55	Open	0
NFW_3-49_P2	FW_3-47	FW_3-49	42.26	282	110	0.16	0	0	0	Open	0
NFW_4-17_P	FW_4-18	FW_4-17	45.2	282	110	1.69	0.03	0	0.01	Open	0
NFW_4-19_P	FW_4-14	FW_4-19	173.95	250	110	-45.6	0.93	0.86	4.97	Open	0
NFW_4-19_P2	FW_4-35	FW_4-19	260.47	250	110	45.6	0.93	1.29	4.97	Open	0
NFW_4-23_P2	FW_4-8	FW_4-23	289.51	424	110	44.44	0.31	0.1	0.36	Open	0
NFW_4-36_P	FW_N2	FW_4-36	109.88	233	110	-31.92	0.75	0.4	3.62	Open	0
NFW_5-18B_P	FW_5-3B	FW_5-18B	170.75	586	120	-342.51	1.27	0.48	2.79	Open	0
NFW_5-19_P	FW_5-42	FW_5-19	372.14	784	120	994.12	2.06	1.81	4.87	Open	0
NFW_5-20_P	FW_5-19	FW_5-20	139.48	784	120	994.12	2.06	0.68	4.87	Open	0
NFW_5-21_P	FW_5-19	FW_5-21	93.56	189	110	0	0	0	0	Open	0
NFW_5-26_P	FW_5-27	FW_5-26	66.91	233	110	21.38	0.5	0.12	1.72	Open	0
NFW_5-27_P	FW_5-28	FW_5-27	75.5	233	110	22.18	0.52	0.14	1.84	Open	0
NFW_5-28_P	FW_5-30	FW_5-28	57.53	233	110	23.66	0.55	0.12	2.08	Open	0
NFW_5-29_P	FW_5-33	FW_5-29	42.12	233	110	23.74	0.56	0.09	2.09	Open	0
NFW_5-30_P	FW_5-29	FW_5-30	24.36	233	110	23.66	0.55	0.05	2.08	Open	0
NFW_5-3A_P	FW_5-20	FW_5-3A	117.5	784	120	994.12	2.06	0.57	4.87	Open	0
NFW_5-3B_P	FW_5-3A	FW_5-3B	60	784	120	994.12	2.06	0.29	4.87	Open	0
NFW_5-43_P	FW_5-21	FW_5-43	136.92	189	110	0	0	0	0	Open	0
NFW_N4_P	FW_N4	J26	810.94	233	110	-5.62	0.13	0.12	0.15	Open	0
NFW_N_P	FW_1-26	FW_N	518.38	586	120	140.47	0.52	0.28	0.54	Open	0
NFW_T_2_P	FW_T_2	J10	1,345.73	1,182.00	120	-2,173.77	1.98	3.78	2.81	Open	0
P101	J50	J54	32.8	586	120	-380.26	1.41	0.11	3.39	Open	0
P103	J44	FW_2-34A	168.05	424	110	-69.62	0.49	0.14	0.83	Open	0
P105	FW_2-34A	FW_3-15	42.66	424	110	-69.7	0.49	0.04	0.83	Open	0
P107	FW_N3	J40	180.66	424	110	60.96	0.43	0.12	0.65	Open	0
P109	J34	FW_3-7	163.93	233	110	22.5	0.53	0.31	1.89	Open	0
P11	J10	FW_T_1	1,090.92	1,182.00	120	1,718.72	1.57	1.98	1.82	Open	0
P111	FW_3-8	J34	11.26	189	110	-12.22	0.44	0.02	1.69	Open	0
P113	J34	J56	101.54	586	120	0.08	0	0	0	Open	0
P125	J58	J60	60.42	586	110	520.91	1.93	0.43	7.13	Open	0
P13	J10	NTKTFWSR	684.31	1,379.00	120	-3,892.49	2.61	2.67	3.9	Open	0
P131	FW_3-50	FW_3-51A	227.94	189	110	36.82	1.31	2.98	13.07	Open	0
P133	FW_3-51A	FW_3-52A	137.6	189	110	36.82	1.31	1.8	13.07	Open	0
P135	J58	J64	85.4	282	110	57.41	0.92	0.36	4.23	Open	0
P137	J64	FW_3-50	81.64	282	110	86.67	1.39	0.74	9.08	Open	0
P145	FW_3-54	J58	259.87	586	120	578.31	2.14	1.92	7.37	Open	0
P149	J68	FW_3-43	424.91	282	110	78.98	1.26	3.25	7.65	Open	0
P15	FW_5-33	FW_5-25	329.39	1,182.00	120	-2,062.13	1.88	0.84	2.55	Open	0
P151	FW_3-50	J68	678.12	189	110	8.7	0.31	0.61	0.9	Open	0
P153	FW_3-44	FW_3--45A	140.13	282	110	-51.89	0.83	0.49	3.51	Open	0
P155	FW_3--45A	FW_3-43	114.47	282	110	-65.04	1.04	0.61	5.34	Open	0
P159	FW_3-17	J70	56.04	586	120	197.47	0.73	0.06	1.01	Open	0
P161	J70	FW_3-12	539.93	586	120	189.5	0.7	0.5	0.93	Open	0
P163	J70	FW_3-43	1,110.50	189	110	7.97	0.28	0.85	0.77	Open	0
P165	FW_3-9	FW_3-11A	198.84	282	110	27.54	0.44	0.22	1.09	Open	0
P167	FW_3-11A	FW_3-14	80.93	282	110	27.54	0.44	0.09	1.09	Open	0
P169	J32	FW_3-13A	179.95	424	110	106.86	0.76	0.33	1.84	Open	0
P17	FW_5-33	J22	116.71	1,182.00	120	2,010.13	1.83	0.28	2.43	Open	0
P171	FW_3-13A	FW_3-5	235.76	424	110	93.51	0.66	0.34	1.43	Open	0
P175	FW_3-5	J72	34.18	424	110	90.98	0.64	0.05	1.36	Open	0
P177	J72	FW_N3	444.89	424	110	58.56	0.41	0.27	0.6	Open	0
P179	J72	FW_3-5A	63.08	189	110	18.82	0.67	0.24	3.77	Open	0
P181	FW_3-5	FW_3-16	691.27	282	110	-19.14	0.31	0.38	0.54	Open	0
P185	FW_3-30	FW_3-32A	198.52	282	110	71.56	1.15	1.26	6.37	Open	0
P187	FW_3-32A	FW_3-33	57.49	189	110	34.36	1.22	0.66	11.49	Open	0
P189	J72	FW_3-4	114.1	189	110	13.6	0.48	0.24	2.07	Open	0
P19	J22	J12	441.26	1,182.00	120	1,956.48	1.78	1.02	2.31	Open	0
P191	FW_3-4	FW_N3	389.18	189	110	2.4	0.09	0.03	0.08	Open	0
P193	FW_3-19	FW_3-20A	130.58	424	110	71.41	0.51	0.11	0.87	Open	0
P195	FW_3-20A	FW_3-16	132	424	110	71.41	0.51	0.11	0.87	Open	0
P197	FW_3-16	FW_3-31	338.4	282	110	-33.83	0.54	0.54	1.59	Open	0
P199	FW_N	J76	151.01	586	120	140.47	0.52	0.08	0.54	Open	0
P201	FW_3-31	J76	521.02	282	110	-33.83	0.54	0.83	1.59	Open	0
P203	J76	FW_3-25A	34.19	424	110	106.64	0.76	0.06	1.83	Open	0

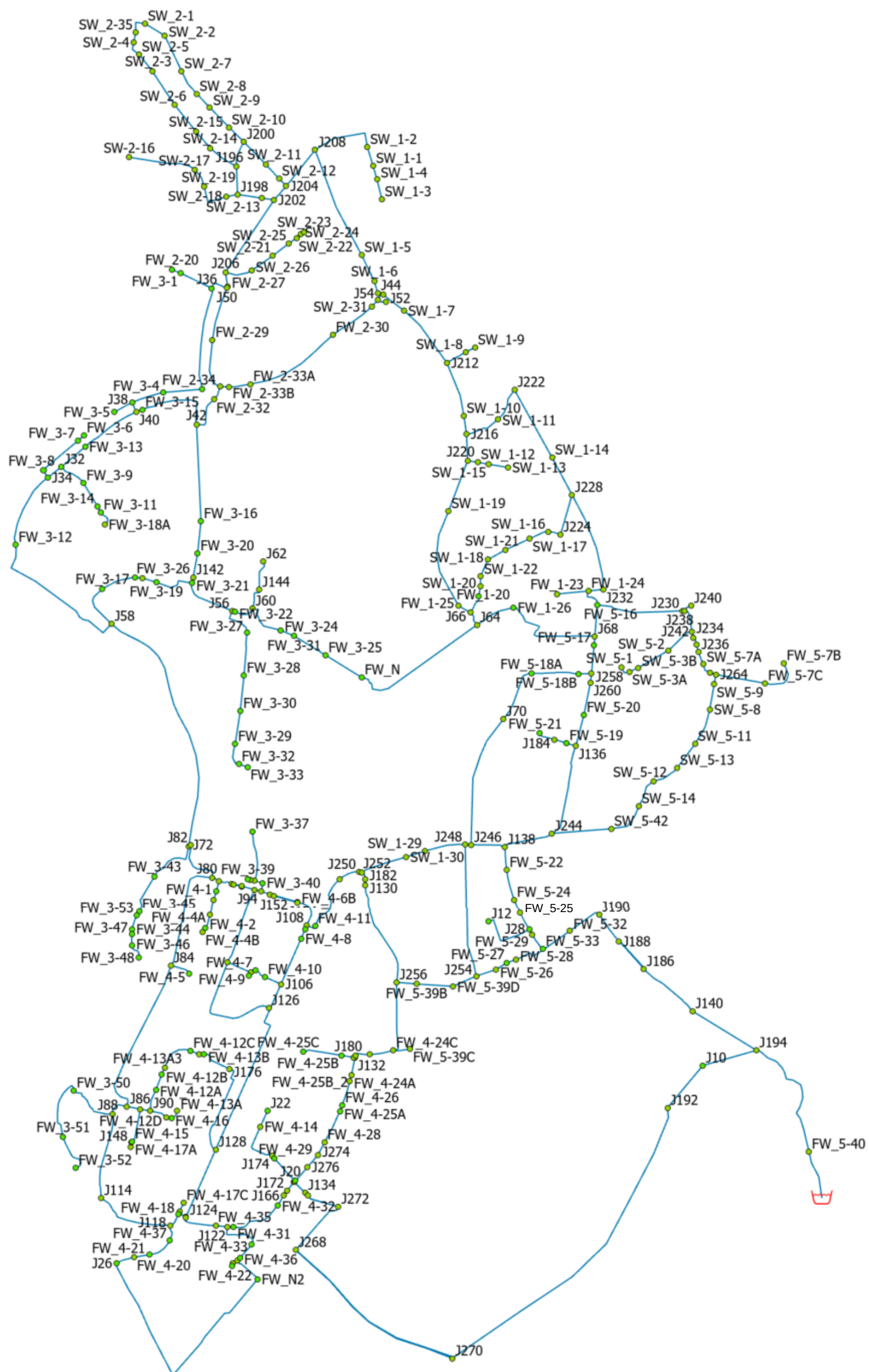
ID	From Node	To Node	Length (m)	Diameter (mm)	Roughness	Flow (L/s)	Velocity (m/s)	Headloss (m)	HL/1000 (m/k-m)	Status	Flow Reversal Count
P205	FW_3-25A	FW_3-24	227.15	424	110	127.15	0.9	0.58	2.53	Open	0
P21	J22	J16	155.42	233	110	53.64	1.26	1.47	9.46	Open	0
P213	FW_3-24	J80	130.81	424	110	127.15	0.9	0.33	2.53	Open	0
P215	J80	FW_3-24A	231.17	189	110	15.72	0.56	0.62	2.7	Open	0
P217	FW_3-22	J84	49.33	424	110	30.44	0.22	0.01	0.18	Open	0
P219	J84	J80	85.19	424	110	-111.43	0.79	0.17	1.98	Open	0
P221	J84	J82	125.89	282	110	141.87	2.27	2.85	22.62	Open	0
P223	J82	FW_3-27	17.18	282	110	141.87	2.27	0.39	22.62	Open	0
P225	FW_3-25A	J86	33.83	282	110	-38.15	0.61	0.07	1.97	Open	0
P227	J86	FW_3-34	565.36	282	110	-38.15	0.61	1.11	1.97	Open	0
P233	J88	FW_3-17	1,190.16	586	120	299.96	1.11	2.6	2.19	Open	0
P237	FW_3-35	FW_3-36A	107.35	282	110	-38.15	0.61	0.21	1.97	Open	0
P239	FW_3-36A	FW_3-37A	56	282	110	-38.15	0.61	0.11	1.97	Open	0
P241	FW_3-37A	FW_3-40A	124.48	282	110	-38.15	0.61	0.25	1.97	Open	0
P243	J60	FW_4-5	608.47	586	120	246.11	0.91	0.92	1.51	Open	0
P247	J68	FW_4-5	58.86	282	110	-70.28	1.13	0.36	6.16	Open	0
P249	FW_4-5	J88	382.49	586	120	96.39	0.36	0.1	0.27	Open	0
P251	FW_3-40A	J90	60.49	282	110	-70.89	1.13	0.38	6.24	Open	0
P253	FW_3-39A	J90	52.28	189	110	-16.18	0.58	0.15	2.85	Open	0
P255	FW_4-2	FW_4-4A	14.9	282	110	36.64	0.59	0.03	1.84	Open	0
P259	FW_4-4B	FW_4-3A	53.18	282	110	-74.47	1.19	0.36	6.86	Open	0
P263	J88	J92	137.95	586	120	-203.57	0.75	0.15	1.07	Open	0
P265	J92	FW_4-3B	45.7	586	120	-291.85	1.08	0.09	2.08	Open	0
P267	FW_4-3B	FW_4-3C	48.14	586	120	-305.66	1.13	0.11	2.26	Open	0
P269	FW_4-3C	J94	32.72	586	120	-319.47	1.18	0.08	2.46	Open	0
P27	J16	J18	91.07	233	110	0	0	0	0	Open	0
P271	J94	J96	17.05	586	120	-319.47	1.18	0.04	2.46	Open	0
P273	J96	FW_4-6A	44.98	586	120	-429.64	1.59	0.19	4.25	Open	0
P275	FW_4-6A	FW_4-6B	142.42	586	120	-225.79	0.84	0.18	1.29	Open	0
P277	J90	J96	39.6	282	110	-110.16	1.76	0.56	14.14	Open	0
P281	FW_4-9A	FW_4-10A	114.56	282	110	-19.08	0.31	0.06	0.55	Open	0
P283	FW_4-9B	J98	321.67	282	110	-3.74	0.06	0.01	0.03	Open	0
P285	J98	FW_4-9A	305.04	282	110	-3.99	0.06	0.01	0.03	Open	0
P287	J98	J100	109.18	282	110	0.24	0	0	0	Open	0
P289	J100	FW_4-9B	15.98	233	110	11.35	0.27	0.01	0.53	Open	0
P291	J100	FW_4-7	17.29	250	110	-11.11	0.23	0.01	0.36	Open	0
P293	FW_4-7	FW_4-10B	53.92	250	110	-11.11	0.23	0.02	0.36	Open	0
P295	FW_4-10B	FW_4-8	63.61	250	110	-17.9	0.36	0.06	0.88	Open	0
P297	FW_4-6A	FW_4-6B	142.42	586	120	-225.79	0.84	0.18	1.29	Open	0
P299	FW_4-23	FW_4-6B	126.9	586	120	473.51	1.76	0.65	5.09	Open	0
P301	FW_4-23	FW_4-11	56.03	586	120	-429.15	1.59	0.24	4.24	Open	0
P303	FW_4-11	FW_3-41	104.72	233	110	-32.57	0.76	0.39	3.75	Open	0
P305	FW_3-41	J102	219.18	233	110	-32.65	0.77	0.83	3.77	Open	0
P307	FW_4-11	J102	283.1	586	110	-396.58	1.47	1.22	4.31	Open	0
P309	J102	FW_1-31	61.45	586	110	-429.23	1.59	0.31	4.99	Open	0
P311	J60	J106	131.11	424	110	274.8	1.95	1.38	10.56	Open	0
P313	J106	FW_4-15A	75.58	233	110	0.24	0.01	0	0	Open	0
P317	FW_4-15A	FW_4-17A	90.73	233	110	0	0	0	0	Open	0
P321	FW_4-12DA	FW_4-16A	36.7	282	110	78.58	1.26	0.28	7.57	Open	0
P323	FW_4-16A	FW_4-13A	34.51	282	110	42.59	0.68	0.08	2.44	Open	0
P325	J106	J110	30.54	424	110	274.56	1.94	0.32	10.54	Open	0
P327	J110	FW_4-12DA	71.75	282	110	114.4	1.83	1.09	15.19	Open	0
P329	FW_4-13B	FW_4-13A_03	15.26	189	110	42.59	1.52	0.26	17.11	Open	0
P33	J12	FW_5-22	81.67	784	120	821.44	1.7	0.28	3.42	Open	0
P331	FW_4-13B	FW_4-12C	47.87	250	110	-11.17	0.23	0.02	0.37	Open	0
P333	FW_4-12C	FW_4-12B	155.2	250	110	-54.69	1.11	1.08	6.96	Open	0
P335	FW_4-12B	J38	42.34	282	110	-81.07	1.3	0.34	8.02	Open	0
P337	J38	FW_4-12A	48.26	282	110	-123.66	1.98	0.85	17.54	Open	0
P339	FW_4-12A	J110	77.53	282	110	-160.15	2.56	2.2	28.31	Open	0
P341	J36	FW_4-14	349.68	250	110	-82.08	1.67	5.16	14.76	Open	0
P349	J112	J114	224.75	882	120	-631.95	1.03	0.27	1.19	Open	0
P35	J12	FW_5-42	218.68	784	120	1,135.04	2.35	1.36	6.22	Open	0
P351	J112	J116	202.82	189	110	24.37	0.87	1.23	6.08	Open	0
P353	J116	FW_4-37A	33.77	233	110	8.81	0.21	0.01	0.33	Open	0
P355	FW_4-37A	FW_4-20A	42.89	233	110	8.73	0.2	0.01	0.33	Open	0
P357	FW_4-20A	FW_4-21A	97.1	233	110	6.66	0.16	0.02	0.2	Open	0
P359	FW_4-21A	J26	117.7	233	110	5.62	0.13	0.02	0.15	Open	0
P361	J116	J118	112.02	282	110	15.56	0.25	0.04	0.38	Open	0
P363	FW_4-14	J120	310.54	424	110	-125.13	0.89	0.76	2.46	Open	0
P365	J120	FW_4-18	34.19	424	110	322.73	2.29	0.49	14.22	Open	0
P367	J120	J114	42.07	424	110	-447.85	3.17	1.1	26.08	Open	0
P369	J114	FW_4-35	93.3	882	120	-1,079.80	1.77	0.3	3.2	Open	0
P371	J118	FW_4-22A	408.18	250	110	15.56	0.32	0.28	0.68	Open	0
P373	FW_4-22A	FW_N4	44.41	255	110	-37.54	0.74	0.14	3.15	Open	0
P375	FW_4-35	J122	87.12	882	120	-1,125.40	1.84	0.3	3.45	Open	0
P377	J122	J124	111.92	282	110	12.13	0.19	0.03	0.24	Open	0
P379	J124	J122	21.56	282	110	-29.51	0.47	0.03	1.24	Open	0
P381	J124	J126	132.78	282	110	41.56	0.67	0.31	2.33	Open	0
P383	J126	FW_4-36	86.02	282	110	85.01	1.36	0.75	8.76	Open	0
P385	FW_4-36	FW_4-22B	39.24	189	110	53.09	1.89	1.01	25.73	Open	0
P387	J126	FW_4-33A	30.88	282	110	-43.45	0.7	0.08	2.53	Open	0

ID	From Node	To Node	Length (m)	Diameter (mm)	Roughnes s	Flow (L/s)	Velocity (m/s)	Headloss (m)	HL/1000 (m/k-m)	Status	Flow Reversal Count
P389	FW_4-33A	FW_4-32A	189.16	282	110	-43.45	0.7	0.48	2.53	Open	0
P39	FW_5-16	FW_1-22	254.22	784	120	703.14	1.46	0.65	2.56	Open	0
P391	J122	J20	373.01	882	120	-1,202.49	1.97	1.46	3.9	Open	0
P393	FW_4-32A	FW_4-28A	157.85	282	110	-47.75	0.76	0.48	3.01	Open	0
P395	FW_4-28A	FW_4-28B	172.46	282	110	45.82	0.73	0.48	2.79	Open	0
P399	FW_4-10A	J104	70.8	282	110	-25.88	0.41	0.07	0.97	Open	0
P401	FW_4-8	J104	86.99	424	110	-62.34	0.44	0.06	0.68	Open	0
P403	J104	IRRIGATION05	640.03	424	110	-88.22	0.62	0.82	1.29	Open	0
P405	J20	FW_4-29	150.02	233	110	54.41	1.28	1.46	9.71	Open	0
P407	FW_4-29	FW_4-34A	327.13	233	110	17.01	0.4	0.37	1.13	Open	0
P409	FW_4-34A	FW_4-25C	267.86	233	110	17.01	0.4	0.3	1.13	Open	0
P41	FW_1-22	IRRIGATION03	173.86	784	120	703.14	1.46	0.45	2.56	Open	0
P411	FW_4-25C	FW_4-25B	158.47	233	110	-24.06	0.56	0.34	2.14	Open	0
P413	J20	J130	36.96	882	120	461.83	0.76	0.02	0.66	Open	0
P417	J130	FW_4-28A	34.51	282	110	137.37	2.2	0.74	21.31	Open	0
P421	FW_4-26	FW_4-24	101.52	282	110	-35.7	0.57	0.18	1.76	Open	0
P423	FW_4-24	J132	81.91	282	110	-58.13	0.93	0.35	4.33	Open	0
P425	J128	J132	17.34	282	110	169.88	2.72	0.55	31.58	Open	0
P427	J128	J28	220.43	586	120	82.39	0.31	0.04	0.2	Open	0
P429	FW_4-25B	J132	76.01	233	110	-66.91	1.57	1.08	14.25	Open	0
P43	FW_1-31	FW_5-38	482.71	250	110	-50.44	1.03	2.89	5.99	Open	0
P431	J132	FW_4-24B	50.5	233	110	44.85	1.05	0.34	6.79	Open	0
P433	FW_4-24B	FW_4-24A	130.28	233	110	22.42	0.53	0.25	1.88	Open	0
P435	FW_5-18B	FW_5-17	40.1	586	120	-369.3	1.37	0.13	3.21	Open	0
P437	FW_5-17	FW_5-18A	44.24	586	120	-433.4	1.61	0.19	4.32	Open	0
P441	FW_5-3B	J136	161.02	784	120	1,336.63	2.77	1.36	8.42	Open	0
P443	FW_5-16	J136	49.93	784	120	-754.5	1.56	0.15	2.92	Open	0
P449	J16	FW_5-24	81.06	233	110	53.64	1.26	0.77	9.46	Open	0
P45	FW_5-38	J28	343.49	586	120	-82.39	0.31	0.07	0.2	Open	0
P451	FW_3-5	FW_3-15A	57.4	424	110	21.67	0.15	0.01	0.1	Open	0
P453	FW_3-15A	FW_2-34	222.05	424	110	2.57	0.02	0	0	Open	0
P455	FW_4-26	FW_4-25A	37.46	282	110	9.06	0.15	0.01	0.14	Open	0
P457	FW_4-25A	FW_4-28B	144.8	282	110	-3.4	0.05	0	0.02	Open	0
P459	J122	FW_4-31A	5.27	233	110	35.44	0.83	0.02	4.39	Open	0
P461	FW_3-14	FW_3-18	15.68	189	110	18.85	0.67	0.06	3.78	Open	0
P463	FW_N4	FW_N2	218.79	233	110	-31.92	0.75	0.79	3.62	Open	0
P469	FW_3-54	J140	74.33	586	120	-578.31	2.14	0.55	7.37	Open	0
P473	J64	J144	300.13	189	110	-29.27	1.04	2.56	8.54	Open	0
P475	J144	J140	30.64	189	110	-29.27	1.04	0.26	8.54	Open	0
P477	J112	J140	163.78	882	120	607.58	0.99	0.18	1.1	Open	0
P479	FW_T_1	J148	671.88	1,182.00	120	1,718.72	1.57	1.22	1.82	Open	0
P483	J136	J150	125.83	784	120	582.13	1.21	0.23	1.81	Open	0
P485	J150	FW_1-24	84.48	586	120	419.69	1.56	0.34	4.07	Open	0
P49	J24	J20	56.18	1,182.00	120	1,718.72	1.57	0.1	1.82	Open	0
P491	J24	J154	500	882	120	-859.36	1.41	1.05	2.09	Open	0
P493	J24	J154	500	882	120	-859.36	1.41	1.05	2.09	Open	0
P495	J154	J152	230.17	1,182.00	120	-1,718.72	1.57	0.42	1.82	Open	0
P497	J148	J152	1,050.00	882	120	859.36	1.41	2.2	2.09	Open	0
P499	FW_5-25	J156	170.32	1,182.00	120	-2,125.32	1.94	0.46	2.69	Open	0
P501	J156	FW_T_2	538	882	120	-1,062.66	1.74	1.67	3.1	Open	0
P503	FW_T_2	J156	538	882	120	1,062.66	1.74	1.67	3.1	Open	0
P507	J148	J152	1,050.00	882	120	859.36	1.41	2.2	2.09	Open	0
P509	FW_3-7	FW_3-6	86.56	233	110	11.22	0.26	0.05	0.52	Open	0
P511	FW_3-46	FW_3-48	29.12	189	110	0.08	0	0	0	Open	0
P513	FW_4-5	FW_4-5A	74.96	282	100	79.44	1.27	0.69	9.22	Open	0
P515	J130	FW_4-29B	76.57	882	120	324.46	0.53	0.03	0.34	Open	0
P517	FW_4-29B	FW_4-29C	121.85	882	120	298.8	0.49	0.04	0.3	Open	0
P519	FW_4-29C	J128	328.09	882	120	252.27	0.41	0.07	0.22	Open	0
P521	J92	FW_4_1	20.24	382	110	116.85	1.02	0.07	3.46	Open	0
P523	FW_4_1	FW_4-3A	64.91	282	110	88.28	1.41	0.61	9.4	Open	0
P525	FW_4-4B	FW_4-2	74.89	282	110	37.82	0.61	0.15	1.96	Open	0
P55	FW_3-11	J32	246.35	586	120	181.49	0.67	0.21	0.86	Open	0
P57	FW_3-9	J32	35.18	282	110	-27.61	0.44	0.04	1.09	Open	0
P59	J32	J34	34.39	586	120	34.8	0.13	0	0.04	Open	0
P65	FW_4-13B	J36	169.55	250	110	-82.08	1.67	2.5	14.76	Open	0
P67	FW_4-38	J36	99.25	250	110	0	0	0	0	Open	0
P77	FW_4-13A_02	J38	13.31	233	110	-42.59	1	0.08	6.17	Open	0
P81	J40	FW_3-1	139.92	233	110	16.8	0.39	0.15	1.1	Open	0
P83	FW_3-1	FW_2-20	41	233	100	2.28	0.05	0	0.03	Open	0
P85	J40	J42	46.74	424	110	44.16	0.31	0.02	0.36	Open	0
P89	FW_2-29	J44	134.84	424	110	-72.08	0.51	0.12	0.89	Open	0
P91	J42	J46	137.11	424	110	-51.09	0.36	0.06	0.47	Open	0
P93	J46	FW_2-29	95.74	424	110	-71.84	0.51	0.08	0.88	Open	0
P95	J44	J48	166.86	424	110	-2.46	0.02	0	0	Open	0
P97	J48	J50	609.44	424	110	-85.42	0.6	0.74	1.21	Open	0
P99	J52	J50	33.08	586	120	-294.84	1.09	0.07	2.12	Open	0
RM_J58	FW_2-21	RM_J161	114.71	424	110	-8.68	0.06	0	0.02	Open	0
RM_P1	FW_5-42	FW_5-42A	228.54	282	110	140.92	2.26	5.11	22.34	Open	0
RM_P10	FW_5-6	RM_J150	116.17	282	110	-74.81	1.2	0.8	6.92	Open	0
RM_P100	FW_5-35	FW_5-34	284.23	233	110	25.25	0.59	0.67	2.34	Open	0
RM_P103	FW_5-22	FW_5-34	94.97	586	120	353.89	1.31	0.28	2.97	Open	0

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RM_P104	FW_5-26	FW_5-37	83.51	233	110	14.16	0.33	0.07	0.8	Open	0
RM_P105	FW_1-31	FW_1-30	227.68	586	120	-378.79	1.4	0.77	3.37	Open	0
RM_P106	FW_1-30	FW_1-29	60.65	586	120	-378.94	1.41	0.2	3.37	Open	0
RM_P107	FW_1-29	FW_5-34	164.22	586	120	-379.14	1.41	0.55	3.37	Open	0
RM_P108	FW_5-6	FW_5-7B	134.96	189	110	11.72	0.42	0.21	1.57	Open	0
RM_P109	FW_5-18A	FW_5-22	751.67	586	120	-460.97	1.71	3.64	4.84	Open	0
RM_P11	RM_J150	FW_5-3BA	274.63	233	110	87.63	2.06	6.45	23.48	Open	0
RM_P12	FW_5-3BA	FW_5-3AA	74.38	233	110	66.41	1.56	1.05	14.05	Open	0
RM_P13	FW_5-3AA	FW_5-1	13.73	233	110	39.75	0.93	0.07	5.43	Open	0
RM_P14	J150	RM_J150	465.36	282	110	162.44	2.6	13.53	29.07	Open	0
RM_P15	J48	RM_J152	145.3	282	110	82.96	1.33	1.22	8.37	Open	0
RM_P16	RM_J152	FW_2-33B	40.25	233	110	0.76	0.02	0	0	Open	0
RM_P17	FW_2-33B	FW_2-33A	72.82	233	110	0.69	0.02	0	0	Open	0
RM_P18	FW_2-33A	RM_J152	46.74	233	110	0.16	0	0	0	Open	0
RM_P19	RM_J152	FW_2-30	56.45	282	110	82.35	1.32	0.47	8.26	Open	0
RM_P2	FW_5-42A	FW_5-14	119.27	282	110	139.58	2.23	2.62	21.95	Open	0
RM_P20	FW_2-23	FW_2-22	43.02	233	110	-15.26	0.36	0.04	0.92	Open	0
RM_P21	FW_2-22	FW_2-25	71.28	233	110	-15.41	0.36	0.07	0.94	Open	0
RM_P22	FW_2-25	RM_154	277.34	233	110	-16.72	0.39	0.3	1.09	Open	0
RM_P23	J42	RM_154	71.05	424	110	95.25	0.67	0.11	1.48	Open	0
RM_P24	RM_154	FW_2-21	255.32	424	110	78.52	0.56	0.26	1.04	Open	0
RM_P25	J46	FW_2-31	552.16	282	110	20.75	0.33	0.36	0.64	Open	0
RM_P26	FW_2-31	RM_J155	135.16	282	110	-62.24	1	0.66	4.92	Open	0
RM_P27	J52	RM_J155	226.56	586	110	294.84	1.09	0.56	2.49	Open	0
RM_P3	FW_5-14	FW_5-13	216.96	282	110	139.58	2.23	4.76	21.95	Open	0
RM_P30	RM_J156	RM_157	410.81	784	120	381.57	0.79	0.34	0.83	Open	0
RM_P31	RM_157	J54	370.44	784	120	380.26	0.79	0.3	0.82	Open	0
RM_P32	FW_1-18	FW_1-21	159.43	424	110	87.9	0.62	0.2	1.28	Open	0
RM_P33	FW_1-21	FW1_17	225.74	424	110	39.47	0.28	0.07	0.29	Open	0
RM_P34	FW1_17	FW_1-16	49.13	424	110	-19.54	0.14	0	0.08	Open	0
RM_P35	FW_1-23	FW_1-24	37.76	189	110	-0.08	0	0	0	Open	0
RM_P36	FW_1-24	RM_J157	449.62	586	120	225.5	0.84	0.58	1.29	Open	0
RM_P37	FW_1-16	RM_158	44.76	424	100	-83.08	0.59	0.06	1.37	Open	0
RM_P38	RM_158	RM_J157	336.22	424	110	-83.08	0.59	0.39	1.15	Open	0
RM_P4	FW_5-13	FW_5-8	325.9	282	110	119.48	1.91	5.36	16.46	Open	0
RM_P40	FW_1-19	RM_J156	303.22	784	120	436.65	0.9	0.32	1.06	Open	0
RM_P41	RM_J156	FW_1-12	115.48	189	110	55.09	1.96	3.18	27.55	Open	0
RM_P42	FW_1-12	FW_1-13	64.63	189	110	28.88	1.03	0.54	8.33	Open	0
RM_P43	RM_157	FW_1-8	90.07	189	110	1.31	0.05	0	0.03	Open	0
RM_P44	FW_1-8	FW_1-9	80.22	189	110	-33.79	1.2	0.89	11.15	Open	0
RM_P45	RM_J157	FW_1-9	721.58	586	120	142.42	0.53	0.4	0.55	Open	0
RM_P46	FW_1-9	FW_1-07	236.24	282	110	83.86	1.34	2.02	8.54	Open	0
RM_P47	FW_1-07	FW_1-06	145.58	282	110	83.86	1.34	1.24	8.54	Open	0
RM_P48	FW_1-06	FW_1-05	142.66	282	110	15.62	0.25	0.05	0.38	Open	0
RM_P49	RM_J155	RM_J159	153.01	282	110	73.47	1.18	1.02	6.69	Open	0
RM_P5	FW_5-8	FW_5-4	114.79	282	110	94.68	1.52	1.23	10.7	Open	0
RM_P50	RM_J159	FW_1-05	216	282	110	34.29	0.55	0.35	1.63	Open	0
RM_P52	RM_J158	RM_J155	418.97	586	110	-159.13	0.59	0.33	0.79	Open	0
RM_P53	RM_J159	FW_1-03	145.87	282	110	39.17	0.63	0.3	2.09	Open	0
RM_P54	FW_1-03	FW_1-04	50.86	282	110	39.17	0.63	0.11	2.09	Open	0
RM_P55	FW_1-04	FW_1-02	82.94	282	110	-4.06	0.06	0	0.03	Open	0
RM_P56	FW_1-02	FW_1-01	114.04	282	110	-50.13	0.8	0.38	3.3	Open	0
RM_P57	RM_J158	FW_1-01	210.6	282	110	51.25	0.82	0.72	3.43	Open	0
RM_P59	RM_J161	RM_J160	59.33	424	110	-51.11	0.36	0.03	0.47	Open	0
RM_P6	FW_5-4	FW_5-7A	44.88	282	110	58.4	0.94	0.2	4.37	Open	0
RM_P60	RM_J160	RM_J158	204.34	424	110	-107.88	0.76	0.38	1.87	Open	0
RM_P61	RM_J160	FW_2-12	59.8	424	110	56.77	0.4	0.03	0.57	Open	0
RM_P62	FW_1-25	FW_1-19	340.22	784	120	464.52	0.96	0.4	1.19	Open	0
RM_P63	FW_1-25	FW_1-20	87.42	784	120	-464.6	0.96	0.1	1.19	Open	0
RM_P64	FW_2-12	FW_2-11	116.32	424	110	56.77	0.4	0.07	0.57	Open	0
RM_P65	FW_2-11	RM_J162	86.87	424	110	35.44	0.25	0.02	0.24	Open	0
RM_P66	RM_J162	FW_2-10	103.87	424	110	40.26	0.29	0.03	0.3	Open	0
RM_P67	FW_2-10	FW_2-9	111.29	424	110	25.4	0.18	0.01	0.13	Open	0
RM_P68	FW_2-9	FW_2-8	95.17	424	110	25.4	0.18	0.01	0.13	Open	0
RM_P69	FW_2-8	FW_2-7	115.97	424	110	25.4	0.18	0.01	0.13	Open	0
RM_P7	FW_5-7A	FW_5-7C	108.07	189	110	51.63	1.84	2.64	24.44	Open	0
RM_P70	FW_2-7	FW_2-2	139.56	424	110	12.82	0.09	0.01	0.04	Open	0
RM_P71	FW_2-2	FW_2-1	91.62	424	110	0.97	0.01	0	0	Open	0
RM_P72	FW_2-1	FW_2-35	93.14	424	110	-7.77	0.06	0	0.01	Open	0
RM_P73	FW_2-35	FW_2-4	97.33	424	110	-7.77	0.06	0	0.01	Open	0
RM_P74	FW_2-4	FW_2-5	45.97	424	110	-7.85	0.06	0	0.01	Open	0
RM_P75	FW_2-5	FW_2-3	55.21	424	110	-7.85	0.06	0	0.01	Open	0
RM_P76	FW_2-3	FW_2-6	150.83	424	110	-24.72	0.18	0.02	0.12	Open	0
RM_P77	FW_2-6	FW_2-15	124.84	424	110	-24.72	0.18	0.02	0.12	Open	0
RM_P78	FW_2-15	FW_2-14	162.79	424	110	-24.72	0.18	0.02	0.12	Open	0
RM_P79	RM_J162	RM_J163	98.93	424	110	-4.82	0.03	0	0.01	Open	0
RM_P8	FW_5-7C	FW_5-9	58.27	189	110	39.69	1.41	0.87	15.01	Open	0
RM_P80	RM_J163	FW_2-13	109.97	424	110	-39.63	0.28	0.03	0.29	Open	0
RM_P81	FW_2-13	RM_J161	181.8	424	110	-42.43	0.3	0.06	0.33	Open	0
RM_P82	FW_2-16	FW_2-17	191.72	189	110	0	0	0	0	Open	0
RM_P83	FW_2-17	FW_2-19	76.72	189	110	-0.54	0.02	0	0.01	Open	0

ID	From Node	To Node	Length (m)	Diameter (mm)	Roughnes s	Flow (L/s)	Velocity (m/s)	Headloss (m)	HL/1000 (m/k-m)	Status	Flow Reversal Count
RM_P84	FW_2-19	FW_2-18	22.49	189	110	-0.81	0.03	0	0.01	Open	0
RM_P85	FW_2-18	FW_2-13	174.44	189	110	-2.8	0.1	0.02	0.11	Open	0
RM_P88	FW_2-14	RM_J163	89.66	424	110	-34.81	0.25	0.02	0.23	Open	0
RM_P89	FW_3-3	J56	165.67	586	120	-0.08	0	0	0	Open	0
RM_P9	FW_5-7A	FW_5-6	105.44	282	110	-3.84	0.06	0	0.03	Open	0
RM_P90	FW_3-15	FW_3-16A	310.88	424	110	-67.13	0.48	0.24	0.78	Open	0
RM_P91	FW_3-16A	FW_3-16	114.24	424	110	-86.1	0.61	0.14	1.23	Open	0
RM_P92	J90	FW_3-42	131.72	189	110	23.1	0.82	0.73	5.51	Open	0
RM_P93	FW_5-39C	FW_5-39B	130.62	233	110	-5.65	0.13	0.02	0.15	Open	0
RM_P94	FW_5-39B	FW_5-39D	65.9	282	110	-15.44	0.25	0.02	0.37	Open	0
RM_P95	FW_5-39D	FW_5-38A	83.68	282	110	-20.78	0.33	0.05	0.64	Open	0
RM_P96	FW_5-38	FW_5-38A	143.62	586	120	31.87	0.12	0	0.03	Open	0
RM_P97	FW_5-38A	FW_5-37	181.61	233	120	11.09	0.26	0.08	0.43	Open	0
RM_P98	FW_5-37	FW_5-36	111.5	233	110	25.25	0.59	0.26	2.34	Open	0
RM_P99	FW_5-36	FW_5-35	152.03	233	110	25.25	0.59	0.36	2.34	Open	0

Appendix D2- HSK FLW Network



Appendix D2- HSK FLW Network Modelling Results

ID	Demand (m3/d)	Elevation (m)	Head (m)	Pressure (bar)
FW_1-20	0	5	49.88	4.4
FW_1-23	1	9	50.71	4.09
FW_1-24	0.6	7	50.71	4.28
FW_1-25	1	5	49.85	4.39
FW_1-26	205.1	7	50.26	4.24
FW_2-20	0	12	48.11	3.54
FW_2-27	0	8	48.48	3.97
FW_2-29	3	10	48.53	3.78
FW_2-30	2,326.90	7	48.51	4.07
FW_2-32	0	10	48.58	3.78
FW_2-33A	6.7	9	48.56	3.88
FW_2-33B	1	9	48.57	3.88
FW_2-34	1	10	48.55	3.78
FW_3-1	181.8	10	48.11	3.73
FW_3-11	97.3	19	48.61	2.9
FW_3-12	3	27	48.8	2.14
FW_3-13	167.2	23	48.66	2.51
FW_3-14	108.8	19	48.62	2.9
FW_3-15	239.2	17	48.62	3.1
FW_3-16	237.5	14	48.83	3.41
FW_3-17	3	19	49	2.94
FW_3-18A	118.05	18	48.61	3
FW_3-18B	118.05	15	49.01	3.33
FW_3-19	1	14	49.01	3.43
FW_3-20	0	13	48.93	3.52
FW_3-21	1	13	49.01	3.53
FW_3-22	0	11	49.07	3.73
FW_3-24	196.8	9	49.22	3.94
FW_3-25	220.9	7	49.36	4.15
FW_3-26	0	15	49	3.33
FW_3-27	282.4	11	49.04	3.73
FW_3-28	318.7	12	48.2	3.55
FW_3-29	279.3	12	47.35	3.46
FW_3-30	0	12	47.77	3.5
FW_3-31	0	9	49.26	3.95
FW_3-32	465.9	12	47.17	3.45
FW_3-33	430.2	12	47.15	3.44
FW_3-37	0	15	50.61	3.49
FW_3-39	202	13	50.56	3.68
FW_3-4	140.3	13	48.58	3.49
FW_3-40	409.1	12	50.63	3.79
FW_3-42	289.2	7	51.22	4.33
FW_3-43	568.17	19	48.43	2.88
FW_3-44	849.14	24	47.97	2.35
FW_3-45	341.1	20	48.08	2.75
FW_3-46	1	24	47.96	2.35
FW_3-47	492.74	24	47.96	2.35
FW_3-48	1	24	47.96	2.35
FW_3-5	235.8	19	48.23	2.86
FW_3-50	1,067.47	26	48.94	2.25
FW_3-51	0	26	48.4	2.19
FW_3-52	955.12	28	48.05	1.96
FW_3-53	1	21	48.05	2.65
FW_3-6	142	23	48.61	2.51
FW_3-7	141.3	23	48.61	2.51
FW_3-8	153	26	48.62	2.22
FW_3-9	1	24	48.65	2.42
FW_4-1	524	13	50.41	3.67
FW_4-10	234	10	50.79	4
FW_4-11	0	11	51.09	3.93
FW_4-12A	585.95	18	50.14	3.15
FW_4-12B	330.4	17	50.13	3.25
FW_4-12C	657.12	14	50.33	3.56
FW_4-12D	540.92	18	49.84	3.12
FW_4-13A	643.08	18	49.72	3.11
FW_4-13A2	643.08	13	50.49	3.67
FW_4-13A3	643.08	16	50.13	3.34
FW_4-13B	765	13	50.67	3.69
FW_4-14	5.4	11	53.55	4.17
FW_4-15	3	18	50.35	3.17
FW_4-16	543.55	18	49.77	3.11
FW_4-17A	10	18	50.35	3.17
FW_4-17C	10	11	53.12	4.13
FW_4-18	2.1	12	53.1	4.03
FW_4-2	14	15	50.01	3.43
FW_4-20	21.42	11	52.68	4.08
FW_4-21	13	11	52.73	4.09
FW_4-22	1,647.99	12	51.95	3.91
FW_4-23	1	11	51.07	3.93
FW_4-24A	350.4	11	53.74	4.19
FW_4-24B	350.4	10	53.51	4.26

ID	Demand (m3/d)	Elevation (m)	Head (m)	Pressure (bar)
FW_4-24C	350.4	10	53.33	4.25
FW_4-25A	292	12	53.78	4.09
FW_4-25B	376	10	53.59	4.27
FW_4-25B_2	376	0	53.73	5.27
FW_4-25C	680	11	53.42	4.16
FW_4-26	460	12	53.77	4.09
FW_4-28	1,313.99	13	53.86	4
FW_4-29	666	12	53.57	4.07
FW_4-30	28.18	12	54.33	4.15
FW_4-31	443.8	11	53.56	4.17
FW_4-32	53.9	12	53.93	4.11
FW_4-33	0	11	52.81	4.1
FW_4-35	1	11	53.45	4.16
FW_4-36	0	12	52.5	3.97
FW_4-37	1	11	52.84	4.1
FW_4-3A	210	14	50.26	3.55
FW_4-3B	210	14	50.72	3.6
FW_4-3C	210	13	50.73	3.7
FW_4-4A	576	14	50.07	3.53
FW_4-4B	576	15	49.98	3.43
FW_4-5	1,233.99	16	48.4	3.18
FW_4-6A	338.8	11	50.87	3.91
FW_4-6B	338.8	10	50.92	4.01
FW_4-7	0	11	50.7	3.89
FW_4-8	0	11	51.07	3.93
FW_4-9	521.15	11	50.61	3.88
FW_5-16	793.99	6	50.91	4.4
FW_5-17	1,001.99	8	51.54	4.27
FW_5-18A	527.32	7	53.05	4.51
FW_5-18B	512.36	5	52.81	4.68
FW_5-19	0	6	54.79	4.78
FW_5-20	0	5	54.47	4.85
FW_5-21	0	7	54.79	4.68
FW_5-22	68.08	8	56.66	4.77
FW_5-24	928.19	9	57.13	4.72
FW_5-25	1,819.99	9	57.36	4.74
FW_5-26	126	11	54.97	4.31
FW_5-27	10	11	55.68	4.38
FW_5-28	18.5	11	56.23	4.43
FW_5-29	1	10	57.84	4.69
FW_5-32	597.08	10	58.93	4.8
FW_5-33	379.68	9	58.18	4.82
FW_5-39B	101.1	9	53.31	4.34
FW_5-39C	58.34	11	53.33	4.15
FW_5-39D	55.18	10	53.65	4.28
FW_5-40	0	0	63.17	6.19
FW_5-6	1,038.79	4	25.97	2.15
FW_5-7B	134	8	25.7	1.73
FW_5-7C	136.62	4	25.74	2.13
FW_N	0	6	49.48	4.26
FW_N2	0	12	52.45	3.96
J10	0	28	60.72	3.21
J100	0	12	50.61	3.78
J102	0	13	50.69	3.69
J104	0	11	50.66	3.89
J106	0	11	51.1	3.93
J108	0	11	51.07	3.93
J114	0	21	51.82	3.02
J116	0	12	53.12	4.03
J118	0	13	52.9	3.91
J12	0	9	57.72	4.77
J120	0	12	52.43	3.96
J122	0	11	53.51	4.17
J124	0	12	53.24	4.04
J126	0	12	50.69	3.79
J128	0	12	51.27	3.85
J130	0	6	51.39	4.45
J132	0	11	53.71	4.19
J134	0	12	54.26	4.14
J136	0	5	54.79	4.88
J138	0	8	56.3	4.73
J140	0	11	60.46	4.85
J142	0	13	49.01	3.53
J144	0	10	49.12	3.83
J148	0	18	50.35	3.17
J150	0	13	50.6	3.68
J152	0	11	50.89	3.91
J154	0	10	50.92	4.01
J156	0	13	50.73	3.7
J158	0	13	50.72	3.7
J160	0	12	53.12	4.03

ID	Demand (m3/d)	Elevation (m)	Head (m)	Pressure (bar)
J162	0	12	52.31	3.95
J164	0	12	53.26	4.04
J166	0	12	54.02	4.12
J168	0	12	54.2	4.14
J170	0	12	54.2	4.14
J172	0	12	54.18	4.13
J174	0	12	53.57	4.07
J176	0	12	50.82	3.8
J178	0	11	53.71	4.19
J180	0	10	53.71	4.28
J182	0	6	51.28	4.44
J184	0	6	54.79	4.78
J186	0	10	60.06	4.91
J188	0	10	60	4.9
J190	0	10	59.8	4.88
J192	0	36	59.94	2.35
J194	0	35	60.92	2.54
J196	0	13	48.35	3.46
J198	0	5	48.37	4.25
J20	0	6	54.19	4.72
J200	0	5	48.35	4.25
J202	0	7	48.4	4.06
J204	0	11	48.4	3.66
J206	0	5	48.46	4.26
J208	0	5	48.41	4.25
J210	0	8	48.56	3.97
J212	0	7	49.03	4.12
J216	0	4	49.5	4.46
J22	0	4	53.55	4.86
J220	0	8	49.53	4.07
J222	0	8	49.67	4.08
J224	0	4	49.92	4.5
J228	0	7	49.97	4.21
J230	0	7	32.6	2.51
J232	0	7	50.61	4.27
J234	0	6	26.97	2.05
J236	0	6	25.95	1.95
J238	0	11	32.17	2.07
J240	0	10	32.17	2.17
J242	0	5	26.55	2.11
J244	0	12	55.7	4.28
J246	0	5	51.42	4.55
J248	0	5	51.42	4.55
J250	0	13	51.27	3.75
J252	0	17	51.28	3.36
J254	0	14	53.91	3.91
J256	0	9	53.16	4.33
J258	0	25	52.78	2.72
J26	0	26	52.62	2.61
J260	0	8	53.14	4.42
J264	0	6	25.93	1.95
J268	0	18	55.71	3.7
J270	0	10	58.75	4.78
J272	0	6	54.85	4.79
J274	763.99	0	53.94	5.29
J276	450	0	54.06	5.3
J28	0	9	57.72	4.77
J32	0	8	48.68	3.99
J34	0	6	48.7	4.18
J36	0	7	48.49	4.07
J38	0	11	48.6	3.68
J40	0	18	48.62	3
J42	0	10	48.61	3.78
J44	0	10	48.53	3.78
J46	0	6	48.57	4.17
J50	0	6	48.49	4.16
J52	0	7	48.53	4.07
J54	0	5	48.53	4.27
J56	0	19	49.06	2.95
J58	0	15	49	3.33
J60	0	19	49.12	2.95
J62	0	17	49.12	3.15
J64	0	23	49.91	2.64
J66	0	20	49.88	2.93
J68	0	19	51.2	3.16
J70	0	20	53.61	3.29
J72	0	12	49.22	3.65
J80	0	12	49.37	3.66
J82	0	14	49.22	3.45
J84	0	5	49.7	4.38
J86	0	5	50.45	4.45

ID	Demand (m3/d)	Elevation (m)	Head (m)	Pressure (bar)
J88	0	5	50.64	4.47
J90	0	5	50.28	4.44
J92	0	5	50.35	4.44
J94	0	6	50.78	4.39
J96	0	5	50.77	4.48
J98	0	6	50.68	4.38
SW_1-1	0	5	47.41	4.16
SW_1-10	0	6	49.39	4.25
SW_1-11	0	6	49.59	4.27
SW_1-12	352	6	49.28	4.24
SW_1-13	382	5	49.06	4.32
SW_1-14	0	5	49.86	4.4
SW_1-15	0	5	49.2	4.33
SW_1-16	843.99	5	49.9	4.4
SW_1-17	783.99	5	49.89	4.4
SW_1-18	0	6	49.88	4.3
SW_1-19	374	5	49.63	4.37
SW_1-2	795.99	5	47.9	4.2
SW_1-20	0	6	49.88	4.3
SW_1-21	835.99	7	49.88	4.2
SW_1-22	0	6	49.88	4.3
SW_1-29	2.5	7	51.36	4.35
SW_1-3	0	8	47.07	3.83
SW_1-30	1.8	9	51.34	4.15
SW_1-4	746	8	47.07	3.83
SW_1-5	861.99	5	48.47	4.26
SW_1-6	1,177.99	5	48.5	4.26
SW_1-7	0	4	48.69	4.38
SW_1-8	464	5	48.43	4.26
SW_1-9	328	8	48.38	3.96
SW_2-1	109.5	5	48.28	4.24
SW_2-10	153.42	5	48.33	4.25
SW_2-11	215.98	5	48.36	4.25
SW_2-12	0	6	48.39	4.15
SW_2-13	0	6	48.39	4.15
SW_2-14	104.19	6	48.34	4.15
SW_2-15	0	6	48.34	4.15
SW_2-18	20.56	6	48.37	4.15
SW_2-19	3	6	48.37	4.15
SW_2-2	122.36	6	48.28	4.14
SW_2-21	1.1	6	48.34	4.15
SW_2-22	1.8	6	48.27	4.14
SW_2-23	191.1	6	48.25	4.14
SW_2-24	0	6	48.26	4.14
SW_2-25	16.5	5	48.29	4.24
SW_2-26	0	5	48.4	4.25
SW_2-3	174.2	6	48.34	4.15
SW_2-31	1,433.05	7	48.52	4.07
SW_2-35	0	6	48.28	4.14
SW_2-4	1	6	48.28	4.14
SW_2-5	0	6	48.34	4.15
SW_2-6	0	6	48.34	4.15
SW_2-7	129.92	6	48.29	4.14
SW_2-8	0	6	48.31	4.15

ID	From Node	To Node	Length (m)	Diameter (mm)	Roughne ss	Flow (m3/d)	Velocity (m/s)	Headloss (m)	HL/1000 (m/k-m)	Status	Flow Reversal Count
NFW_2-20_P	FW_3-1	FW_2-20	39.74	138	90	0.0	0	0	0	Open	0
NFW_3-16_P	FW_3-20	FW_3-16	134.56	282	90	1596.0	0.3	0.1	0.75	Open	0
NFW_3-24_P	FW_3-31	FW_3-24	62.57	424	90	4319.5	0.35	0.04	0.65	Open	0
NFW_3-25_P	FW_N	FW_3-25	176.24	424	90	4540.4	0.37	0.13	0.72	Open	0
NFW_3-31_P	FW_3-25	FW_3-31	151.46	424	90	4319.5	0.35	0.1	0.65	Open	0
NFW_3-6_P	FW_3-7	FW_3-6	33.86	424	90	142.0	0.01	0	0	Open	0
NFW_3-7_P	FW_3-8	FW_3-7	186.88	424	90	283.3	0.02	0	0	Open	0
P101	J38	FW_3-4	135.17	282	90	788.2	0.15	0.03	0.2	Open	0
P103	J38	FW_3-5	84.71	95	90	235.8	0.39	0.37	4.36	Open	0
P105	J38	J40	42.53	282	90	-1024.0	0.19	0.01	0.33	Open	0
P109	J40	FW_3-15	27.65	424	90	980.2	0.08	0	0.04	Open	0
P111	FW_3-15	J42	328.25	424	90	741.0	0.06	0.01	0.02	Open	0
P113	J42	FW_2-32	154.22	424	90	2099.5	0.17	0.03	0.17	Open	0
P115	FW_2-32	J46	57.76	424	90	2099.5	0.17	0.01	0.17	Open	0
P117	J46	FW_2-29	213.48	233	90	468.0	0.13	0.04	0.2	Open	0
P119	FW_2-29	J50	223.67	233	90	465.0	0.13	0.04	0.19	Open	0
P121	J50	FW_2-27	6.84	233	90	930.1	0.25	0	0.7	Open	0
P123	J50	J36	78.44	282	90	-465.1	0.09	0.01	0.08	Open	0
P127	J54	J44	33.85	424	90	-2136.2	0.18	0.01	0.18	Open	0
P129	J54	J52	35.3	424	90	0.0	0	0	0	Open	0
P131	J40	FW_3-13	257.46	424	90	-2004.2	0.16	0.04	0.16	Open	0
P133	FW_3-12	J34	321.68	424	90	2932.8	0.24	0.1	0.32	Open	0
P135	FW_3-14	FW_3-11	29.29	189	90	215.4	0.09	0	0.13	Open	0
P141	FW_3-21	FW_3-19	167.36	424	90	749.3	0.06	0	0.03	Open	0
P143	FW_3-11	FW_3-18A	70.76	189	90	118.1	0.05	0	0.04	Open	0
P151	FW_3-26	FW_3-17	145.15	424	90	630.2	0.05	0	0.02	Open	0
P153	FW_3-17	J58	191.24	424	90	627.2	0.05	0	0.02	Open	0
P155	FW_3-12	J58	621.16	424	90	-2935.8	0.24	0.2	0.32	Open	0
P157	FW_3-24	J60	169.5	424	90	4122.7	0.34	0.1	0.6	Open	0
P161	FW_3-22	J60	85.25	424	90	-4122.7	0.34	0.05	0.6	Open	0
P163	FW_3-22	J56	13.64	424	90	4122.7	0.34	0.01	0.6	Open	0
P165	FW_3-27	J56	135.72	424	90	-1776.5	0.15	0.02	0.13	Open	0
P167	FW_3-21	J56	219.22	424	90	-2346.2	0.19	0.05	0.21	Open	0
P169	FW_N	J64	593.08	424	90	-4540.4	0.37	0.42	0.72	Open	0
P171	J64	J66	61.91	424	90	3499.0	0.29	0.03	0.44	Open	0
P173	FW_1-25	J66	56.55	424	90	-3844.9	0.32	0.03	0.53	Open	0
P175	J66	FW_1-20	79.68	424	90	-345.9	0.03	0	0.01	Open	0
P177	FW_1-24	FW_5-16	125.62	424	90	-6906.9	0.57	0.2	1.56	Open	0
P181	J68	FW_5-17	35.99	424.00	90	-18330.7	1.5	0.34	9.48	Open	0
P185	FW_1-26	J64	170.16	424	90	8039.5	0.66	0.35	2.06	Open	0
P187	FW_1-26	J68	437.15	424	90	-8244.6	0.68	0.94	2.16	Open	0
P189	FW_5-18B	FW_5-18A	196.27	233	90	-1279.7	0.35	0.25	1.27	Open	0
P191	FW_5-18A	J70	233.33	233	90	-1807.0	0.49	0.56	2.4	Open	0
P193	FW_3-27	FW_3-28	178.8	189	90	1494.1	0.62	0.84	4.67	Open	0
P195	FW_3-28	FW_3-30	146.24	189.00	90	1175.4	0.48	0.44	3	Open	0
P197	FW_3-30	FW_3-29	139.49	189	90	1175.4	0.48	0.42	3	Open	0
P199	FW_3-29	FW_3-32	97.49	189	90	896.1	0.37	0.18	1.81	Open	0
P201	FW_3-32	FW_3-33	37.98	189	90	430.2	0.18	0.02	0.47	Open	0
P203	J72	J58	1,061.92	424.00	90	2308.6	0.19	0.22	0.2	Open	0
P205	J72	FW_3-43	217.84	233	90	2254.2	0.61	0.79	3.61	Open	0
P209	FW_3-44	FW_3-47	19.1	233	90	494.7	0.13	0	0.22	Open	0
P211	FW_3-43	FW_3-45	165.89	233	90	1686.0	0.46	0.35	2.11	Open	0
P213	FW_3-45	FW_3-53	20.54	233	90	1344.9	0.37	0.03	1.39	Open	0
P215	FW_3-53	FW_3-44	60.13	233	90	1343.9	0.36	0.08	1.39	Open	0
P217	FW_3-47	FW_3-46	47.63	233	90	2.0	0	0	0	Open	0
P219	FW_3-46	FW_3-48	67.13	233.00	90	1.0	0	0	0	Open	0
P227	J82	J80	205.03	424	90	-4562.8	0.37	0.15	0.72	Open	0
P235	FW_4-2	FW_4-4A	73.3	189	90	-590.0	0.24	0.06	0.84	Open	0
P239	J80	J84	462.31	424	90	-4562.8	0.37	0.33	0.72	Open	0
P241	J84	J86	667.18	424	90	-5796.8	0.48	0.75	1.12	Open	0
P243	J84	FW_4-5	85.84	138	90	1234.0	0.95	1.3	15.17	Open	0
P245	J88	FW_3-50	208.34	189	90	2022.6	0.83	1.71	8.19	Open	0
P247	J88	J86	85.54	424	90	8343.0	0.68	0.19	2.21	Open	0
P249	J86	J92	56.65	282	90	2546.3	0.47	0.1	1.79	Open	0
P251	J92	J90	42.34	282	90	2533.3	0.47	0.07	1.77	Open	0
P253	J90	FW_4-12D	72.25	189.00	90	1727.6	0.71	0.44	6.12	Open	0
P255	FW_4-12D	FW_4-16	23.24	189	90	1186.6	0.49	0.07	3.05	Open	0
P257	FW_4-16	FW_4-13A	41.71	189	90	643.1	0.27	0.04	0.98	Open	0

ID	From Node	To Node	Length (m)	Diameter (mm)	Roughne ss	Flow (m3/d)	Velocity (m/s)	Headloss (m)	HL/1000 (m/k-m)	Status	Flow Reversal Count
P259	J92	FW_4-15	139.62	138	90	13.0	0.01	0	0	Open	0
P263	J90	FW_4-12A	92.17	189	90	805.7	0.33	0.14	1.49	Open	0
P265	FW_4-12A	FW_4-12B	67.49	189	90	219.8	0.09	0.01	0.13	Open	0
P267	FW_4-12B	FW_4-13A3	30.26	189	90	-110.6	0.05	0	0.04	Open	0
P269	FW_4-13A3	FW_4-12C	147.1	189	90	-753.7	0.31	0.19	1.32	Open	0
P271	FW_4-12C	FW_4-13A2	38.44	189	90	-1410.8	0.58	0.16	4.2	Open	0
P273	FW_4-13A2	FW_4-13B	21.82	189.00	90	-2053.9	0.85	0.18	8.43	Open	0
P275	FW_4-13B	J98	33.68	424	90	-2123.8	0.17	0.01	0.18	Open	0
P277	J98	FW_4-1	43.26	189	90	1736.0	0.72	0.27	6.17	Open	0
P281	FW_4-1	FW_4-3A	38.24	189	90	1376.0	0.57	0.15	4.01	Open	0
P283	FW_4-3A	FW_4-4A	63.61	189	90	1166.0	0.48	0.19	2.95	Open	0
P291	J96	J94	27.31	424	90	-4413.0	0.36	0.02	0.68	Open	0
P293	J94	FW_3-40	38	138	90	611.1	0.47	0.16	4.13	Open	0
P295	FW_3-40	J100	34.73	138	90	202.0	0.16	0.02	0.53	Open	0
P299	J100	FW_3-37	206.89	95	90	0.0	0	0	0	Open	0
P301	J96	J102	323.39	138	90	133.2	0.1	0.08	0.25	Open	0
P303	J102	J104	104.66	138	90	133.2	0.1	0.03	0.25	Open	0
P305	J104	FW_4-9	15.62	138	90	521.2	0.4	0.05	3.07	Open	0
P307	J104	FW_4-7	23.03	138	90	-388.0	0.3	0.04	1.78	Open	0
P309	FW_4-7	FW_4-10	52.68	138	90	-388.0	0.3	0.09	1.78	Open	0
P311	FW_4-10	J106	71.33	138	90	-622.0	0.48	0.3	4.27	Open	0
P313	J106	FW_4-8	204.77	424	90	1774.1	0.15	0.03	0.13	Open	0
P315	FW_4-8	FW_4-23	42.58	424	90	1774.1	0.15	0.01	0.13	Open	0
P317	J108	FW_4-23	18.3	424	90	-1773.1	0.15	0	0.13	Open	0
P319	J108	FW_4-6B	133.93	424	90	5701.7	0.47	0.15	1.09	Open	0
P325	J88	J114	355.64	424	90	-10365.6	0.85	1.17	3.3	Open	0
P331	FW_4-18	J116	4.84	424	90	-10645.7	0.87	0.02	3.47	Open	0
P335	J118	FW_4-18	59.38	424	90	-10643.6	0.87	0.21	3.46	Open	0
P337	J118	J114	328.26	424	90	10365.6	0.85	1.08	3.3	Open	0
P339	J118	FW_4-37	66.13	138	90	278.0	0.22	0.06	0.96	Open	0
P341	FW_4-37	FW_4-21	108.04	138	90	277.0	0.21	0.1	0.95	Open	0
P345	J26	FW_N2	1,051.20	189	90	242.6	0.1	0.17	0.16	Open	0
P347	FW_N2	J120	117.47	189	90	242.6	0.1	0.02	0.16	Open	0
P351	J120	FW_4-36	17.26	189	90	-1405.4	0.58	0.07	4.17	Open	0
P353	J116	J124	33.02	424	90	-10655.7	0.87	0.11	3.47	Open	0
P357	FW_4-33	J122	169.18	189	90	-1405.4	0.58	0.71	4.17	Open	0
P359	J122	FW_4-31	25.67	567	90	-15153.2	0.69	0.04	1.62	Open	0
P361	FW_4-31	FW_4-32	220.08	567	90	-15597.0	0.71	0.38	1.71	Open	0
P365	J20	FW_4-29	126.85	138	90	671.4	0.52	0.62	4.92	Open	0
P369	J126	J102	481.24	138	90	0.0	0	0	0	Open	0
P373	J106	J128	760.04	424	90	-2396.0	0.2	0.17	0.22	Open	0
P375	J128	J124	304.1	233	90	-3091.1	0.84	1.97	6.48	Open	0
P379	FW_4-28	FW_4-25A	144.49	424	90	3773.7	0.31	0.07	0.51	Open	0
P381	FW_4-25A	FW_4-26	26.05	424	90	3481.7	0.29	0.01	0.44	Open	0
P389	FW_4-25B	FW_4-25C	161.94	189	90	680.0	0.28	0.18	1.09	Open	0
P391	FW_4-24A	FW_4-26	103.5	424	90	-3021.7	0.25	0.03	0.34	Open	0
P397	FW_4-24B	FW_4-24C	99.53	189	90	888.9	0.37	0.18	1.79	Open	0
P399	J108	FW_4-11	41.28	424	90	-3928.6	0.32	0.02	0.55	Open	0
P405	J136	FW_5-20	133.09	567	90	18565.4	0.85	0.31	2.36	Open	0
P407	J136	FW_5-19	39.14	189	90	0.0	0	0	0	Open	0
P411	J28	J12	241.97	138	90	0.0	0	0	0	Open	0
P429	FW_3-21	J142	25.27	424	90	1596.0	0.13	0	0.1	Open	0
P431	J142	FW_3-20	100.07	282	90	1596.0	0.3	0.08	0.75	Open	0
P433	J60	J144	96.79	138	90	0.0	0	0	0	Open	0
P435	J144	J62	126.88	95	90	0.0	0	0	0	Open	0
P437	FW_5-16	J68	93.94	424	90	-10086.1	0.83	0.29	3.14	Open	0
P439	FW_4-4B	FW_4-2	7.38	138	90	-576.0	0.45	0.03	3.7	Open	0
P441	FW_4-15	J148	5.98	138	90	10.0	0.01	0	0	Open	0
P443	J148	FW_4-17A	19.9	95	90	10.0	0.02	0	0.01	Open	0
P445	J100	J150	16.99	138	90	202.0	0.16	0.01	0.53	Open	0
P447	J150	FW_3-39	11.06	95	90	202.0	0.33	0.04	3.28	Open	0
P449	FW_4-6B	J94	157.63	424	90	5024.1	0.41	0.14	0.86	Open	0
P451	FW_4-6B	J154	2.08	189	90	338.8	0.14	0	0.3	Open	0
P453	J152	J154	101.38	189	90	-338.8	0.14	0.03	0.3	Open	0
P455	J152	FW_4-6A	16.57	138	90	338.8	0.26	0.02	1.38	Open	0
P457	J98	J156	98.21	424	90	-3859.8	0.32	0.05	0.53	Open	0
P459	J156	FW_4-3C	2.2	189	90	420.0	0.17	0	0.45	Open	0
P461	FW_4-3C	J158	33.2	189	90	210.0	0.09	0	0.12	Open	0

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P463	J158	FW_4-3B	8.4	138	90	210.0	0.16	0	0.57	Open	0
P465	J156	J96	54.7	424	90	-4279.8	0.35	0.04	0.64	Open	0
P467	J116	J160	9.02	424	90	10.0	0	0	0	Open	0
P469	J160	FW_4-17C	37.86	138	90	10.0	0.01	0	0	Open	0
P471	J120	J162	21.82	189	90	1648.0	0.68	0.12	5.6	Open	0
P473	J162	FW_4-22	13.79	138	90	1648.0	1.28	0.36	25.93	Open	0
P475	FW_4-36	FW_4-33	73.31	189	90	-1405.4	0.58	0.31	4.17	Open	0
P477	J124	J164	3.78	424	90	-13746.8	1.13	0.02	5.56	Open	0
P481	FW_4-32	J166	48.91	567	90	-15650.9	0.72	0.08	1.72	Open	0
P483	J166	J172	23.4	424	90	-15650.9	1.28	0.17	7.08	Open	0
P485	J172	J168	45.56	750	90	-15650.9	0.41	0.02	0.44	Open	0
P487	J168	J170	1.63	750	90	6973.1	0.18	0	0.1	Open	0
P489	J170	J20	7.15	424	90	6973.1	0.57	0.01	1.58	Open	0
P493	J174	FW_4-29	12.4	138	90	-5.4	0	0	0	Open	0
P495	J176	FW_4-13B	131.54	189	90	695.1	0.29	0.15	1.13	Open	0
P497	J176	J128	392.08	189	90	-695.1	0.29	0.44	1.13	Open	0
P499	J178	J132	7	424	90	-1056.0	0.09	0	0.05	Open	0
P501	J178	FW_4-25B	49.08	189	90	1056.0	0.44	0.12	2.46	Open	0
P503	FW_4-24B	J180	63.1	189	90	-1239.3	0.51	0.21	3.31	Open	0
P505	J132	J180	9.04	424	90	1239.3	0.1	0	0.06	Open	0
P507	J182	J130	24.82	189	90	-1385.0	0.57	0.1	4.06	Open	0
P511	J184	FW_5-19	52.43	189	90	0.0	0	0	0	Open	0
P513	J184	FW_5-21	70.55	138	90	0.0	0	0	0	Open	0
P517	J190	J188	136.12	750	90	-30188.7	0.79	0.2	1.48	Open	0
P519	J188	J186	193.5	424	90	-2744.6	0.22	0.05	0.28	Open	0
P521	J140	J186	267.59	750	90	30188.7	0.79	0.4	1.48	Open	0
P527	FW_3-26	FW_3-18B	31.48	424	90	-630.2	0.05	0	0.02	Open	0
P529	FW_3-18B	FW_3-19	59.92	424	90	-748.3	0.06	0	0.03	Open	0
P533	J134	J168	63.28	750	90	22624.0	0.59	0.06	0.87	Open	0
P535	J10	J192	228.12	567	90	22652.2	1.04	0.78	3.41	Open	0
P537	J82	J72	9.95	424	90	4562.8	0.37	0.01	0.72	Open	0
P543	J194	J140	310.26	750	90	30188.7	0.79	0.46	1.48	Open	0
P545	J194	J10	230.28	750	90	22652.2	0.59	0.2	0.87	Open	0
P547	SW-2-16	SW_2-5	64.79	233	90	27.8	0.01	0	0	Open	0
P549	SW_2-5	SW_2-3	88.17	233	90	27.8	0.01	0	0	Open	0
P551	SW_2-3	SW_2-6	168.35	233	90	-146.4	0.04	0	0.02	Open	0
P553	SW_2-6	SW_2-15	140.87	233	90	-146.4	0.04	0	0.02	Open	0
P555	SW_2-15	SW_2-14	89.76	233	90	-146.4	0.04	0	0.02	Open	0
P557	SW_2-14	J196	133.68	233	90	-250.6	0.07	0.01	0.06	Open	0
P559	J196	J200	108.9	233	90	170.1	0.05	0	0.03	Open	0
P561	J196	J198	115.37	233	90	-420.7	0.11	0.02	0.16	Open	0
P563	SW_2-4	SW_2-35	41.17	233	90	-1.0	0	0	0	Open	0
P565	SW_2-35	SW_2-1	81.09	233	90	-1.0	0	0	0	Open	0
P567	SW_2-1	SW_2-2	95.29	233	90	-110.5	0.03	0	0.01	Open	0
P569	SW_2-2	SW_2-7	163.53	233	90	-232.9	0.06	0.01	0.05	Open	0
P571	SW_2-7	SW_2-8	114.35	233	90	-362.8	0.1	0.01	0.12	Open	0
P573	SW_2-8	SW_2-9	78.22	233	90	-362.8	0.1	0.01	0.12	Open	0
P575	SW_2-9	SW_2-10	113.86	233	90	-362.8	0.1	0.01	0.12	Open	0
P577	SW_2-10	J200	86.22	233	90	-516.2	0.14	0.02	0.24	Open	0
P579	J198	SW_2-18	47.25	138	90	58.1	0.04	0	0.05	Open	0
P581	SW_2-18	SW_2-19	144.89	138	90	37.5	0.03	0	0.02	Open	0
P583	SW_2-19	SW-2-17	82.19	95	90	34.5	0.06	0.01	0.11	Open	0
P585	SW-2-17	SW-2-16	280.28	95	90	27.8	0.05	0.02	0.07	Open	0
P587	J200	SW_2-11	128.5	233	90	-346.1	0.09	0.01	0.11	Open	0
P589	SW_2-11	SW_2-12	82.01	233	90	-562.1	0.15	0.02	0.28	Open	0
P59	FW_3-50	FW_3-51	265.36	189	90	955.1	0.39	0.54	2.04	Open	0
P591	SW_2-12	J204	43.03	233	90	-562.1	0.15	0.01	0.28	Open	0
P593	J198	SW_2-13	100.67	233	90	-478.8	0.13	0.02	0.2	Open	0
P595	SW_2-13	J202	52.65	233	90	-478.8	0.13	0.01	0.2	Open	0
P597	J202	J204	76.29	233	90	240.8	0.07	0	0.06	Open	0
P599	J202	J206	361.11	282	90	-719.6	0.13	0.06	0.17	Open	0
P601	J206	FW_2-27	59.62	282	90	-930.1	0.17	0.02	0.28	Open	0
P603	J206	SW_2-26	113.38	138	90	210.5	0.16	0.07	0.57	Open	0
P605	SW_2-26	SW_2-21	105.8	138	90	210.5	0.16	0.06	0.57	Open	0
P607	SW_2-21	SW_2-25	85.39	138	90	209.4	0.16	0.05	0.57	Open	0
P609	SW_2-25	SW_2-22	38.67	138	90	192.9	0.15	0.02	0.49	Open	0
P61	FW_3-51	FW_3-52	170.4	189	90	955.1	0.39	0.35	2.04	Open	0
P611	SW_2-22	SW_2-24	23.6	138	90	191.1	0.15	0.01	0.48	Open	0

ID	From Node	To Node	Length (m)	Diameter (mm)	Roughne ss	Flow (m3/d)	Velocity (m/s)	Headloss (m)	HL/1000 (m/k-m)	Status	Flow Reversal Count
P613	SW_2-24	SW_2-23	17.21	138	90	191.1	0.15	0.01	0.48	Open	0
P615	J204	J208	191.39	282.00	90	-321.3	0.06	0.01	0.04	Open	0
P617	J208	SW_1-5	476	424	90	-1863.3	0.15	0.07	0.14	Open	0
P619	J208	SW_1-2	280.25	233	90	1542.0	0.42	0.5	1.79	Open	0
P621	SW_1-2	SW_1-1	82.66	138.00	90	746.0	0.58	0.49	5.97	Open	0
P623	SW_1-1	SW_1-4	56.75	138	90	746.0	0.58	0.34	5.97	Open	0
P625	SW_1-4	SW_1-3	85.4	138	90	0.0	0	0	0	Open	0
P627	SW_1-5	SW_1-6	121.58	424.00	90	-2725.3	0.22	0.03	0.28	Open	0
P629	SW_1-6	J44	50.35	424	90	-3903.2	0.32	0.03	0.54	Open	0
P631	J44	J210	23.35	424.00	90	-6039.4	0.5	0.03	1.21	Open	0
P633	J210	SW_1-7	109.4	424	90	-6039.4	0.5	0.13	1.21	Open	0
P635	SW_1-7	J212	279.89	424	90	-6039.4	0.5	0.34	1.21	Open	0
P637	J212	SW_1-8	89.55	138	90	792.0	0.61	0.6	6.67	Open	0
P639	SW_1-8	SW_1-9	43.33	138	90	328.0	0.25	0.06	1.3	Open	0
P641	J212	SW_1-10	231.92	424	90	-6831.4	0.56	0.35	1.52	Open	0
P643	SW_1-10	J216	75.73	424	90	-6831.4	0.56	0.12	1.52	Open	0
P645	J216	SW_1-11	150.28	424	90	-4095.5	0.34	0.09	0.59	Open	0
P647	SW_1-11	J222	142.26	424	90	-4095.5	0.34	0.08	0.59	Open	0
P649	J222	SW_1-14	321.27	424	90	-4095.5	0.34	0.19	0.59	Open	0
P651	J216	J220	111.07	424	90	-2735.9	0.22	0.03	0.28	Open	0
P653	J220	SW_1-12	44.01	138	90	734.0	0.57	0.26	5.8	Open	0
P655	SW_1-12	SW_1-15	45.49	138	90	382.0	0.3	0.08	1.73	Open	0
P657	SW_1-15	SW_1-13	80.37	138	90	382.0	0.3	0.14	1.73	Open	0
P659	SW_1-14	J228	174.46	424	90	-4095.5	0.34	0.1	0.59	Open	0
P661	J220	SW_1-19	223.5	424	90	-3469.9	0.28	0.1	0.43	Open	0
P663	SW_1-19	FW_1-25	420.22	424	90	-3843.9	0.32	0.22	0.53	Open	0
P665	FW_1-20	SW_1-20	42.31	424	90	-345.9	0.03	0	0.01	Open	0
P667	SW_1-20	SW_1-22	40.93	424	90	-345.9	0.03	0	0.01	Open	0
P669	SW_1-22	SW_1-18	74.68	424	90	-345.9	0.03	0	0.01	Open	0
P67	FW_2-34	FW_3-4	162.47	282	90	-647.9	0.12	0.02	0.14	Open	0
P671	SW_1-18	SW_1-21	83.68	424	90	-345.9	0.03	0	0.01	Open	0
P673	SW_1-21	SW_1-17	110.81	424	90	-1181.9	0.1	0.01	0.06	Open	0
P675	SW_1-17	SW_1-16	82.14	424	90	-1965.9	0.16	0.01	0.15	Open	0
P677	SW_1-16	J224	52.99	424	90	-2809.9	0.23	0.02	0.29	Open	0
P679	J224	J228	171.52	424	90	-2809.9	0.23	0.05	0.29	Open	0
P681	J232	J228	416.46	424	90	6905.3	0.57	0.65	1.55	Open	0
P683	J232	FW_1-24	62.55	424	90	-6905.3	0.57	0.1	1.55	Open	0
P687	FW_5-16	J230	356.09	138	90	2385.2	1.85	18.31	51.43	Open	0
P689	J230	J238	8.22	138	90	2385.2	1.85	0.42	51.43	Open	0
P691	J238	J240	37.1	138	90	0.0	0	0	0	Open	0
P693	J238	J234	101.21	138	90	2385.2	1.85	5.2	51.43	Open	0
P695	J234	SW_5-2	125.28	138	90	1097.3	0.85	1.53	12.21	Open	0
P697	SW_5-2	SW_5-3B	145.1	138	90	1097.3	0.85	1.77	12.21	Open	0
P699	SW_5-3B	SW_5-3A	41.07	138	90	831.6	0.64	0.3	7.31	Open	0
P703	SW_5-3A	SW_5-1	47.5	138	90	497.7	0.39	0.13	2.82	Open	0
P705	J234	J242	25.46	138	90	1287.9	1	0.42	16.43	Open	0
P709	J236	SW_5-7A	52.77	138	90	249.1	0.19	0.04	0.78	Open	0
P711	SW_5-7A	SW_5-4	50.59	138	90	127.7	0.1	0.01	0.23	Open	0
P715	SW_5-9	SW_5-8	106.75	138	90	-1079.1	0.84	1.26	11.84	Open	0
P717	SW_5-8	SW_5-11	156.5	138	90	-1362.8	1.05	2.85	18.24	Open	0
P719	SW_5-11	SW_5-13	122.27	138	90	-1362.8	1.05	2.23	18.24	Open	0
P721	SW_5-13	SW_5-12	116.09	138	90	-1952.8	1.51	4.12	35.51	Open	0
P723	SW_5-12	SW_5-14	124.73	138	90	-1952.8	1.51	4.43	35.51	Open	0
P725	SW_5-14	SW_5-42	162.9	138	90	-1952.8	1.51	5.78	35.51	Open	0
P727	J244	J138	210.74	567	90	-20534.9	0.94	0.6	2.84	Open	0
P729	J244	J136	387.88	567	90	18565.4	0.85	0.91	2.36	Open	0
P731	J244	SW_5-42	247.57	138	90	1969.5	1.52	8.93	36.07	Open	0
P733	J70	J138	142.38	189	90	-3173.6	1.31	2.69	18.86	Open	0
P735	J246	J248	24.18	424	90	1366.6	0.11	0	0.08	Open	0
P737	J246	J70	554.25	189	90	-1366.6	0.56	2.2	3.96	Open	0
P741	J250	J252	11.67	424	90	-4217.8	0.35	0.01	0.62	Open	0
P743	J252	J182	34.92	424	90	-1385.0	0.11	0	0.08	Open	0
P747	J248	J254	549.56	189	90	-1470.5	0.61	2.49	4.54	Open	0
P75	J32	FW_3-13	127.55	424	90	2171.4	0.18	0.02	0.18	Open	0
P751	J256	J130	436.34	189	90	1385.0	0.57	1.77	4.06	Open	0
P753	J256	FW_4-24C	297.28	189	90	-480.2	0.2	0.17	0.57	Open	0
P757	FW_5-18B	J258	54.71	233	90	767.3	0.21	0.03	0.49	Open	0
P759	J258	J260	37.7	424	90	-18565.4	1.52	0.37	9.71	Open	0

ID	From Node	To Node	Length (m)	Diameter (mm)	Roughness	Flow (m3/d)	Velocity (m/s)	Headloss (m)	HL/1000 (m/k-m)	Status	Flow Reversal Count
P761	J260	FW_5-20	136.82	424	90	-18565.4	1.52	1.33	9.71	Open	0
P763	J258	FW_5-17	118.1	424	90	19332.7	1.58	1.24	10.46	Open	0
P765	FW_1-24	FW_1-23	129.15	424	90	1.0	0	0	0	Open	0
P767	J252	SW_1-30	194.97	424	90	-2832.8	0.23	0.06	0.3	Open	0
P769	SW_1-30	SW_1-29	80.66	424	90	-2834.6	0.23	0.02	0.3	Open	0
P771	SW_1-29	J248	171.41	424	90	-2837.1	0.23	0.05	0.3	Open	0
P773	J54	SW_2-31	39.31	424	90	2136.2	0.18	0.01	0.18	Open	0
P775	SW_2-31	FW_2-30	198.3	424	90	703.1	0.06	0	0.02	Open	0
P777	FW_2-30	FW_2-33A	405.37	424	90	-1623.8	0.13	0.04	0.11	Open	0
P779	FW_2-33A	FW_2-33B	90.03	424	90	-1630.5	0.13	0.01	0.11	Open	0
P781	FW_2-33B	J46	36.45	424	90	-1631.5	0.13	0	0.11	Open	0
P783	J250	FW_3-42	87.43	424	90	4217.8	0.35	0.05	0.62	Open	0
P785	FW_3-42	FW_4-11	241.11	424	90	3928.6	0.32	0.13	0.55	Open	0
P787	J22	FW_4-14	71.68	50	90	0.0	0	0	0	Open	0
P789	FW_4-14	J174	189.68	50	90	-5.4	0.03	0.02	0.09	Open	0
P79	J32	FW_3-9	116.86	189	90	325.2	0.13	0.03	0.28	Open	0
P791	FW_4-21	FW_4-20	64.24	138	90	264.0	0.2	0.06	0.87	Open	0
P793	FW_4-20	J26	76.54	138	90	242.6	0.19	0.06	0.75	Open	0
P795	J134	FW_4-30	79.97	750	90	-22624.0	0.59	0.07	0.87	Open	0
P799	J122	FW_4-35	47.57	567	90	13747.8	0.63	0.06	1.35	Open	0
P801	FW_4-35	J164	143.11	567	90	13746.8	0.63	0.19	1.35	Open	0
P803	SW_5-4	J264	24.99	138	90	-326.5	0.25	0.03	1.29	Open	0
P805	J264	SW_5-9	40.42	138	90	-597.1	0.46	0.16	3.96	Open	0
P807	J264	FW_5-7C	207.29	138	90	270.6	0.21	0.19	0.91	Open	0
P809	FW_5-7C	FW_5-7B	169.23	138	90	134.0	0.1	0.04	0.25	Open	0
P81	FW_3-9	FW_3-14	110.54	189	90	324.2	0.13	0.03	0.28	Open	0
P811	J138	FW_5-22	96.16	567	90	-23708.5	1.09	0.36	3.71	Open	0
P813	FW_5-22	FW_5-24	127.4	567	90	-23776.6	1.09	0.47	3.73	Open	0
P815	FW_5-24	FW_5-25	57.32	567	90	-24704.8	1.13	0.23	4	Open	0
P817	FW_5-25	J28	80.07	567	90	-26524.8	1.22	0.37	4.56	Open	0
P819	J28	FW_5-29	25.12	567	90	-26524.8	1.22	0.11	4.56	Open	0
P821	FW_5-29	FW_5-33	74.36	567	90	-26525.8	1.22	0.34	4.56	Open	0
P823	FW_5-33	FW_5-32	134.9	567	90	-29591.6	1.36	0.75	5.59	Open	0
P825	FW_5-32	J190	150.03	567	90	-30188.7	1.38	0.87	5.8	Open	0
P827	J254	FW_5-26	85.25	189	90	-2531.6	1.04	1.06	12.41	Open	0
P829	FW_5-26	FW_5-27	52.24	189	90	-2657.6	1.1	0.71	13.58	Open	0
P831	FW_5-27	FW_5-28	40.69	189	90	-2667.6	1.1	0.56	13.67	Open	0
P833	FW_5-28	FW_5-33	140.5	189	90	-2686.1	1.11	1.95	13.85	Open	0
P835	J256	FW_5-39B	82.22	189	90	-904.9	0.37	0.15	1.85	Open	0
P837	FW_5-39B	FW_5-39D	150.97	189	90	-1006.0	0.42	0.34	2.25	Open	0
P839	FW_5-39D	J254	105.05	189	90	-1061.2	0.44	0.26	2.48	Open	0
P841	FW_4-24C	FW_5-39C	70.53	189	90	58.3	0.02	0	0.01	Open	0
P843	J194	FW_5-40	537.91	750	90	-52840.8	1.38	2.25	4.19	Open	0
P845	FW_5-40	NTKTFWSR	198.46	750	90	-52840.8	1.38	0.83	4.19	Open	0
P847	FW_5-6	J236	31.06	138	90	249.1	0.19	0.02	0.78	Open	0
P849	FW_5-6	J242	35.14	138	90	-1287.9	1	0.58	16.43	Open	0
P851	J186	J188	193.5	424	900	27444.1	2.25	0.05	0.28	Open	0
P853	J192	J270	1,360.00	750	90	22652.2	0.59	1.19	0.87	Open	0
P855	J270	J268	783.6	424	90	11326.1	0.93	3.05	3.89	Open	0
P857	J270	J268	783.6	424	90	11326.1	0.93	3.05	3.89	Open	0
P859	J268	J272	252.01	567	90	22652.2	1.04	0.86	3.41	Open	0
P861	J272	FW_4-30	134.4	424	90	11326.1	0.93	0.52	3.89	Open	0
P863	J272	FW_4-30	134.4	424	90	11326.1	0.93	0.52	3.89	Open	0
P865	J42	FW_3-16	402	282	90	-1358.5	0.25	0.22	0.56	Open	0
P867	FW_4-24A	FW_4-25B_2	27.62	424	90	2671.3	0.22	0.01	0.27	Open	0
P869	FW_4-25B_2	J132	73.4	424	90	2295.3	0.19	0.01	0.2	Open	0
P871	FW_4-28	J274	100	424	90	-5087.7	0.42	0.09	0.88	Open	0
P873	J274	J276	100	424	90	-5851.7	0.48	0.11	1.14	Open	0
P875	J276	J20	100	424	90	-6301.7	0.52	0.13	1.31	Open	0
P89	J32	J34	72.88	424	90	-2496.5	0.2	0.02	0.24	Open	0
P91	FW_3-8	J34	37.25	138	90	-436.3	0.34	0.08	2.21	Open	0
P97	FW_3-1	J36	141.72	95	90	-181.8	0.3	0.38	2.7	Open	0
P99	J36	FW_2-34	427.8	282	90	-646.9	0.12	0.06	0.14	Open	0