Annex D Replacement Pages of Revised Water Supply Impact Assessment

Table 2-1 Key Development Parameters

Key Development Parameters	**Indicative Scheme**		
Site Area (About)	17,822 sq.m		
GFA and PR		GFA (sq.m)	Plot Ratio
	Domestic	105,145	5.9
	Non-domestic	19,603	1.1
No. of Blocks	Domestic	5.9	
	Non-domestic	1.1	
Building Height (Main Roof) (About) No. of Storeys	Domestic	Not more than 175 mPD	
		47 to 48 storeys (excluding basement)	
	Non-domestic	Not more than 170 mPD	
		35 storeys (excluding basement)	
Site Coverage	Domestic	Below 15m	Not more than 75%
		Above 15m	Not more than 37.5%
	Non-domestic	Below 15m	Not more than 100%
		Over 24m but not exceeding 27m	Not more than 90%
		Above 27m	Not more than 62.5%
No. of Flats	2,205		
Anticipated Population (About) [1]	6,174		
No. of Hotel Rooms	About 70 rooms		
Local Open Space	Not less than 6,174m^2		
Greenery Provision	Not less than 3,565m^2 (20%)		
No. of Parking Spaces and Loading / Unloading Spaces	Private Car Parking Spaces:	725 (including 6 no. of parking space for disabled users)	
	Motorcycle parking spaces:	33	
	Goods vehicle loading / unloading bays:	18	
	Lay-bys for taxi and private car:	2	
	Lay-by for single deck tour bus:	1	
Anticipated Completion Year	**2032**		

2.2.4. Based on the tentative implementation programme, the planned population intake would be

3. ASSESSMENT METHODOLOGY

3.1. Design Guidelines

3.1.1. The following approach is adopted in carrying out this WSIA:

a) Review interface projects which may have bearing on the development;
b) Identify existing and planned water supply systems within the study area;
c) Assess the water demands for the development;
d) Propose the water supply scheme arising from the development including preparation of a hydraulic analysis;
e) Examine the short- and long-term impacts on existing water mains and any interface projects;
f) Recommend suitable mitigation measures and/or diversion schemes and arrangement to mitigate the permanent impacts on existing water supply system and minimize the disturbance to the normal operation of the system during construction stage.

3.1.2. The estimate of water demands for the proposed development is based on the development parameters shown in ***Section 2***. Estimates are generally based on unit water demands provided by WSD Departmental Instruction (DI) No. 1309.

3.2. Unit Demand

3.2.1. Assumptions have been made for the unit daily demand (UDD) for each type of land use, for both fresh water and flush water. The UDD is used for estimating the total demand of the proposed development and the required water supply capacity to support the development.

3.2.2. The water supply demand estimation is presented in ***Appendix B***.

3.2.3. The unit flow factors adopted for water demand estimation and calculation are summarized in ***Table 3-1***.

Table 3-1 Unit Daily demand Adopted in Water Supply Impact Assessment

Development Type	Flow Type	Fresh Water UFF [1] (m^3/person or room/day)	Flush Water UFF [1] (m^3/person or room/day)
Domestic	Residential + Service Trade	0.104 m^3/h/d	0.07 m^3/h/d

4. WATER SUPPLY IMPACT ASSESSMENT

4.1. Estimation of Water Demand for Proposed Development

4.1.1. The estimated daily fresh water demand for the proposed development is 1834.7 m^3/day and the estimated daily flush water demand is 423.5 m^3/day. The detailed calculation of water demand estimation is shown in ***Table 4-1*** and ***Appendix B***.

Table 4-1 Water Demand of Proposed Development

Type of Development	**Fresh Water Demand (m^3/day)**	**Flush Water Demand (m^3/day)**	**Total Water Demand (m^3/day)**
Residential + Service Trades	642.10	432.2	1074.3
Office	15.64	-	15.64
Hotel/Service Apartment	70.0	25.2	95.2
Total	**727.7**	**457.4**	**1185.1**

4.1.2. The peaking factor adopted for the sizing of distribution main is 3 for fresh water and 2 for flush water. According to the calculation, the total water demand is 1185.1 m^3/day and the required peak flow rate for the proposed development is 0.036 m^3/s fresh water and flush water.

5. RESULTS AND DISCUSSION

5.1.1. Based on WSD, the total capacity of PCFWSR is 20,000 m^3/day. The water demand from the proposed development will utilize approximately 5.9% of the design capacity of PCFWSR and occupied approximate 2.3% capacity of existing 900mm freshwater distribution main.

5.1.2. Currently there is no salt water supply system at the nearby area of the Application Site. Therefore, the fresh water supply will also cater for flushing demand of the proposed development.

5.1.3. Based on the water demand of proposed development discussed in ***Section 4*** and ***Appendix B***, a DN 150 fresh water supply lead-in valve is proposed to be tee-off from existing DN 900 fresh water main along Ping Che Road. The water demand will be occupied approximately 81.2% of the proposed DN 150 freshwater distribution main, the detailed calculation is shown in ***Appendix C***. It is recommended to construct the inlet at the northeast side of the ApplicationSite which is tee-off from Ping Che Road located at northeast of the application site.

5.1.4. The proposed fresh water supply system within the site will be further developed in detailed design stage.

5.1.5. The indicative location of the proposed DN900 to be tee-off from public water supply system refer to ***Figure 5.1***. Detailed water mains calculation can be referred to ***Appendix C***.

5.1.6. Based on the fresh water main record plan provided by WSD, there are existing water mains found within the Application Site. The option of diversion of water main is proposed to protect the water main. The existing water mains falls within Application Site will be diverted and running along the southern site boundary within Application Site and connected to the existing water main at the southeast and southwest of the site. The preliminary proposed routing for diversion of water main can be referred to ***Figure 5.2***.

5.1.7. The diverted water main will be fulfilled the requirement by WSD, such as:

- The proposed diverted water main will be lied in Government Land;
- A strip of land with minimum of 1.5m in width will be provided for the diverted water main;
- Free access for staff of the WSD to carry out construction, inspection, operation, maintenance and repair works;

6. CONCLUSION

6.1.1. The WSIA has been carried out to evaluate the possible impact on the existing water supply system due to the proposed development. The Application Site is within the supply zone of the PCFWSR, supply by the existing 900mm freshwater distribution main running along Ping Che Road.

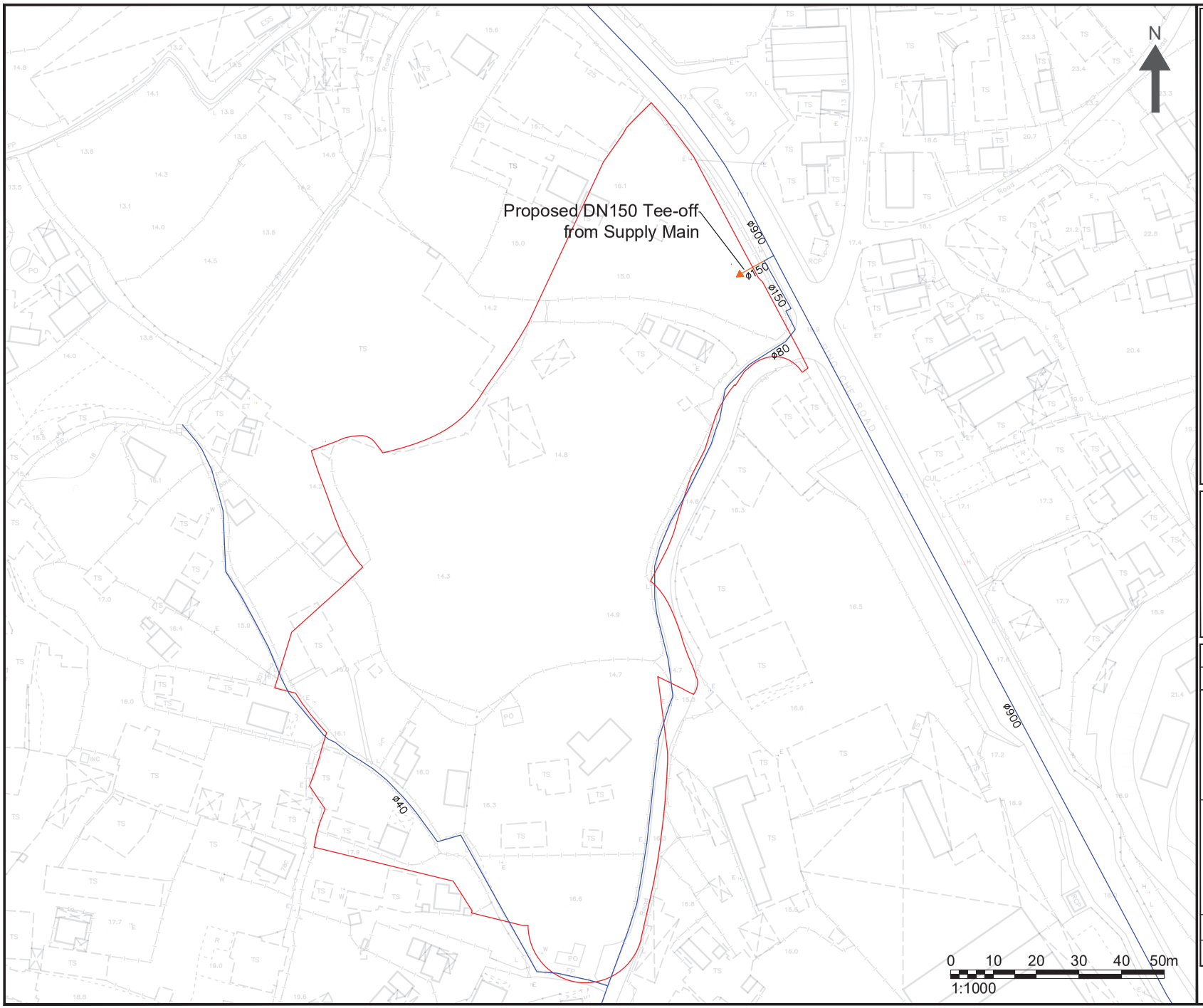
6.1.2. The estimated daily water demand estimated daily fresh water demand for Proposed Development is 727.7 m3/day and the estimated daily flush water demand is 457.4 m3/day. The existing water supply is enough to cater with the addition water demand due to proposed development, which will utilize approximately 5.9% of the design capacity of PCFWSR. Therefore, significant water supply impact arising from the proposed development on the existing water supply is not expected, no mitigation measures are considered necessary.

6.1.3. There are existing water mains found within the Application Site. To protect the water mian, the diversion of water main is proposed and will be fulfilled the requirement by WSD. The proposal will be provided during the detailed design stage later.

6.1.4. Based on the above, it is concluded that the water supply impact arising from the proposed development should be acceptable.

Figure 5.1

Overview of Existing & Proposed Water Supply Main



NOTES :

APPLICATION SITE

EXISTING WATER SUPPLY

PROPOSED TEE-OFF FROM EXISTING SUPPLY MAIN

Consultant

Allied Environmental Consultants Limited

Project No. :	2127
Drawing By :	CS

Project :

APPLICATION FOR AMENDMENT OF PLAN UNDER SECTION 12A FOR THE TOWN PLANNING ORDINANCE (CAP. 131) FOR MIXED USE DEVELOPMENT AT LOT 796 AND 1008RP IN D.D. 77 AND ADJOINING GOVERNMENT LAND IN PING CHE, TA KWU LING, NEW TERRITORIES

Drawing Title :

OVERVIEW OF EXISTING & PROPOSED WATER SUPPLY MAIN

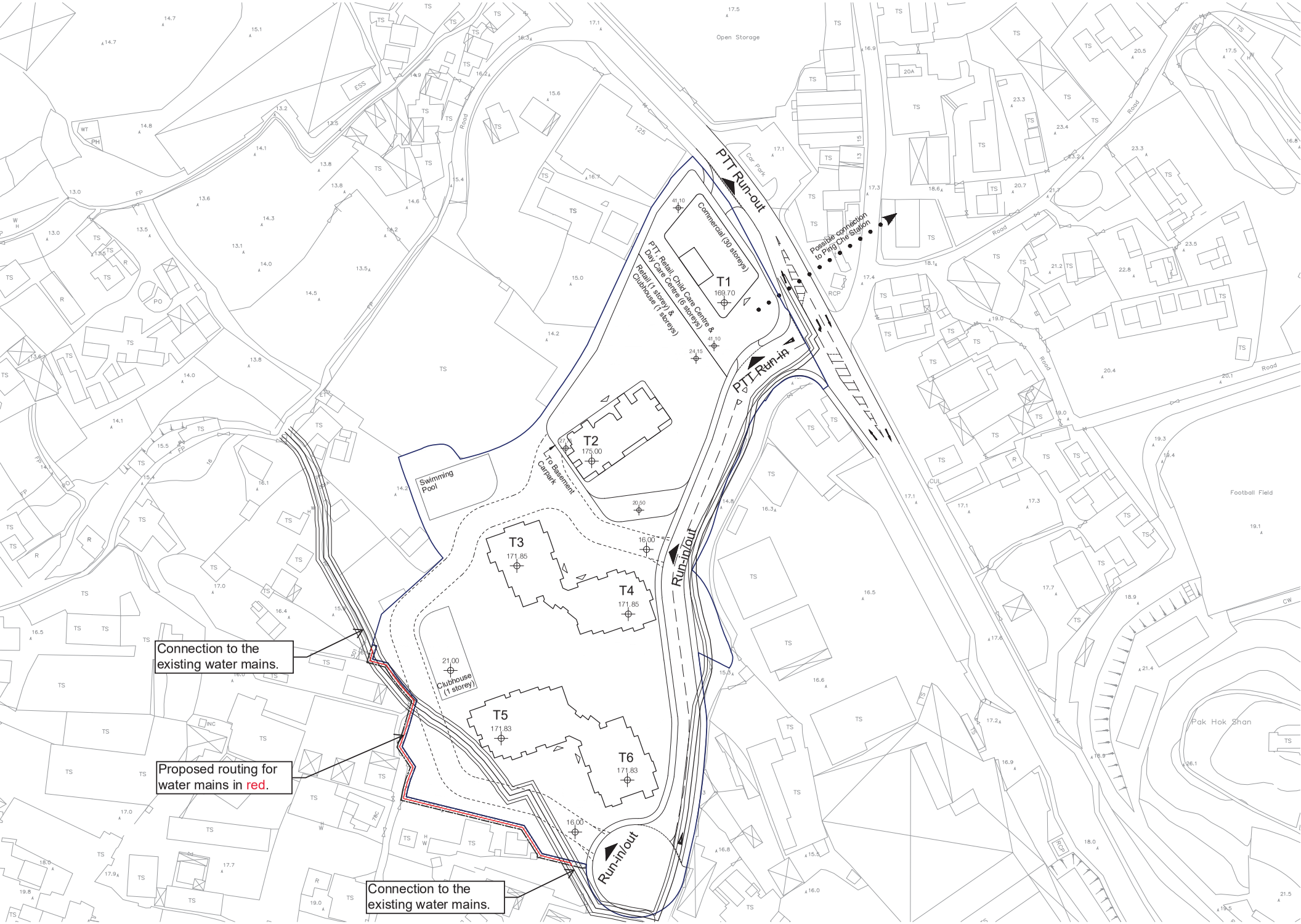
Drawing No : FIGURE 5.1	Revision : 2
Scale : AS SHOWN	Date : JAN 2024

A3 420 x 297

C:\USERS\NGANCHUNSANG\SYNOLOGYDRIVE\2127 PING CHE DD77\05 REPORT\01 AEC REPORT\05 WSIA\ISSUE 3\FIG\[2127] PING CHE WSIA_FIG 5.1 OVERVIEW OF WATER SUPPLY_ISSUE 3.DWG

Figure 5.1

Preliminary Proposed Routing for Diversion of Water Mains


PTT Run-out
Commercial (30 storeys)
T1
169.70
PTT, Retail, Child Care Centre & Day Care Centre (6 storeys)
Retail (1 storey) & Clubhouse (1 storey)
PTT Run-in
Possible connection to Prince Edward Station
T2
175.00
To Basement Carpark
Swimming Pool
Run-in/out
T3
171.85
T4
171.85
T5
171.83
T6
171.83
21.00
Clubhouse (1 storey)
Run-in/out
Connection to the existing water mains.
Proposed routing for water mains in red.
Connection to the existing water mains.
Open Storage
Car Park
Football Field
Pak Hok Shan

Appendix B

Water Demand Estimation

Project No. 2127

Water Demand Estimation of Proposed Development

Proposed Development			
Domestic			
Residential + Service Trade			
Total Number of Residents	6174	persons	Referred to submitted GBP.
Fresh Water Unit Daily Demand	0.104	m^3/person/day	Referred to input from WSD
Average Fresh Water Demand	**642.096**	**m^3/day**	
Flush Water Unit Daily Demand	0.07	m^3/person/day	Referred to WSD Departmental Instruction (DI) No. 1309 Table 1 - Flushing Water for Residential R2 All Area
Average Flush Water Demand	**432.2**	**m^3/day**	
Commercial			
Office			
Total Floor Area	11500.0	m2	Referred to submitted GBP.
Worker Density per GFA (in 100m2)	3.4	person/100 m2	Referred to the worker density of All Economic Activities (All Types) in Table 8 of CIFSUS
Total number of person	391	persons	
Fresh Water Unit Daily Demand	0.04	m^3/person/day	Referred to WSD Departmental Instruction (DI) No. 1309 Table 2 - Yuen Long, Fanling/Sheung Shui
Average Fresh Water Demand	**15.64**	**m^3/day**	
Hotel/Service Apartment			
Total Floor Area	5703.0	m2	Referred to submitted GBP.
Total No. of Rooms	70	rooms	Referred to submitted GBP.
Fresh Water Unit Daily Demand	1.00	m^3/room/day	Referred to input from WSD
Average Fresh Water Demand	**70**	**m^3/day**	
Flush Water Unit Daily Demand	0.36	m^3/room/day	Referred to input from WSD
Average Flush Water Demand	**25.2**	**m^3/day**	
Total Fresh Water Demand	727.7	m^3/day	
Total Flush Water Demand	457.4	m^3/day	
Total Water Demand	**1185.1**	**m^3/day**	

Appendix C

Hydraulic review of Water Main

Calculation of Flow Capacity of Proposed Development

Sewer No.				Material	Internal Diameter (m) [a]	Cross-section Area (m^2)	Mean Velocity (m/s) [c]	Peak Flow rate of existing pipe (m^3/s)	Total Fresh Water Demand	Peaking Factor	Total Flush Water Demand	Peaking Factor	Total Water Demand	Peak Flow Rate	Percentage of Contribution by Development	Remark
ID	From	ID	To		D	A	V		m^3/day		m^3/day		m^3/day	m^3/s		
Existing DN900				Steel	0.900	0.636	2.50	1.590	727.7	3.0	457.4	2.0	3098.0	0.036	2.3%	Demand from Proposed Site
Proposed DN150 Tee-off from Supply Main				Lined Galvanised Iron	0.150	0.018	2.50	0.044	727.7	3.0	457.4	2.0	3098.0	0.036	81.2%	Demand from Proposed Site