

Appendix 8

Water Demand Assessment

Prepared for

International Trademart Company Limited

Prepared by

Ramboll Hong Kong Limited

**PROPOSED COMPOSITE REDEVELOPMENT WITH TRADE
MART/EXHIBITION AND COMMERCIAL, RESIDENTIAL,
SOCIAL WELFARE FACILITIES AND SCHOOL USES AND
MINOR RELAXATION OF BUILDING HEIGHT RESTRICTION,
NEW KOWLOON INLAND LOT NO. 6032, 1 TRADEMART
DRIVE, KOWLOON BAY, KOWLOON**

WATER DEMAND ASSESSMENT

Date **January 2025**

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Signed 

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Signed 

Project Reference **HQIKITECEI00**

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1. INTRODUCTION

1.1 Project Background

- 1.1.1 The background in relation to the project and this Section 16 planning application is included in the planning statement.
- 1.1.2 Ramboll Hong Kong Limited is commissioned to provide Water Demand Assessment (WDA) consultancy services for the Proposed Development.

1.2 Application Site and its Environs

- 1.2.1 The Application Site is located in Kowloon Bay area with surrounding context described under Section 2.1.1 of the planning statement. It is at the western fringe of Kowloon Bay business area. Kai Fuk Road is connecting to the existing Kai Tak Tunnel with tunnel portal located on west side of the Application Site. The planned Central Kowloon Route would have the future alignment running along and to the further southwest.
- 1.2.2 The Application Site is currently occupied by Kowloon Bay International Trade & Exhibition Centre. It is zoned "Other Specified Uses" (Trade Mart and Commercial Development) ("OU") with tiny portion of it shown as "Road" Zone under Kai Tak Outline Zoning Plan (No. S/K22/8), and is subject to a maximum plot ratio of 12.0 and a maximum building height of 100mPD. The surrounding area is generally developed and the site is in the midst of commercial (at KBBA) and Commercial/ Residential (at Kai Tak Development) setting.
- 1.2.3 The location of the Application Site and its surrounding environs are shown in **Figure 1.1**.

1.3 Proposed Development

- 1.3.1 Residential, hotel, retail, office and G/IC developments are proposed at the Application Site.
- 1.3.2 There are a podium building, office and mixed blocks and 4 residential towers (Tower 1 to 5). Ancillary facilities include car park, clubhouse (with 1 outdoor swimming pool) , E&M rooms for residential portion. GIC consists of a kindergarten, a day care centre for the elderly (DCCE), a residential care home for the elderly (RCHE) housed in the podium building. The office tower and mixed block (with commercial uses and hotel use) consists of trademart exhibition uses and showroom/exhibition related uses housed in mixed block.
- 1.3.3 There are altogether 1,495 flat units and 720 hotel rooms provided. The GFA of Showroom/ Exhibition related uses/ spaces, retail (assuming 20% F&B), office, clubhouse, G/IC facilities and kindergarten are 23,273 m², 13,403 m², 35,600 m², 2,638 m² (4% of total Domestic GFA), 2,090m² and 557m² respectively.
- 1.3.4 The tentative completion year is 2029.
- 1.3.5 The Master Layout Plan (MLP) of the Proposed Development are shown in planning statement.

2. WATER DEMAND ASSESSMENT

2.1 Scope of Work

- 2.1.1 The aim of this study is to estimate the water demand arising from future operation of the proposed development.
- 2.1.2 Where fresh and saltwater supply system details are available, whether the capacity of the existing water supply facilities serving the Application Site are sufficient to cope with the water demands from the Proposed Development would be assessed, if required.

2.2 Assessment Criteria and Methodology

- 2.2.1 Reference has been made to the WSD's Departmental Instruction 1308 (where available), as well as Hong Kong Planning Standards and Guidelines (HKPSG), and Planning Department's (PlanD's) Commercial and Industrial Floor Space Utilization Survey (CIFSUS).
- 2.2.2 WSD DI 1309 sets out the design criteria for water supplies in Hong Kong and includes unit water demands for various classes of consumers.
- 2.2.3 The OZP Compliance Scheme based on Plot Ratio of 12.0 will be adopted as a baseline from which the change of water demand would be evaluated. The OZP compliance scheme includes office, commercial and trademart area. The GFA of 1. office area and 2. commercial plus trademart area are 185,220m² and 82,140m² respectively. Calculation for the water demands of the OZP Compliance Scheme are included in **Appendix 2.1**.
- 2.2.4 The demand of the Proposed Development will be mainly originated from the future residential population, G/IC, office, retail and trademart. Calculations for the water demands of the Proposed Development are included in **Appendix 2.1**.

2.3 Assessment of Water Demand

Fresh Water Supply System

- 2.3.1 As shown in **Appendix 2.1**, the freshwater demand arising from the proposed redevelopment at the Application Site is estimated to be 2638.2m³/day. The freshwater demand of the Application Site does not include the water supply for air-conditioning systems or any other water feature. The feasibility of adopting air-conditioning system not relying on water supply will be further explored in later stage (e.g. practicality of connection to District Cooling System, or other air-conditioning technology which can fulfil relevant regulatory requirement, guidelines, etc. (including but not limited to Building Energy Code, BEAM Plus certification system requirement)).
- 2.3.2 For the baseline scenario (OZP Compliance Scheme), the freshwater demand at the Application Site is 2013.2m³/day. Relatively, the Proposed Development has an increase of 625m³/day in freshwater demand.

Saltwater Supply System

- 2.3.3 As shown in **Appendix 2.1**, the saltwater demand arising from the proposed redevelopment at the Application Site would be 791.2m³/day.
- 2.3.4 For the baseline scenario (OZP Compliance Scheme), the saltwater demand at the Application Site is 187.2m³/day. Relatively, the Proposed Development has an increase of 604m³/day in saltwater demand.

Discussion

- 2.3.5 According to the comparison of freshwater and saltwater demand, the freshwater and saltwater demand have been increased after redevelopment, primarily due to the residential uses and hotel uses. The need of any water saving measure is subject to detailed design stage.

3. OVERALL CONCLUSION

- 3.1.1 A residential and permitted commercial and trade mart development is proposed at New Kowloon Inland Lot No. 6032, 1 Trademart Drive, Kowloon Bay. The potential water supply impact has been quantitatively addressed.
- 3.1.2 Based on the water demand assessment result, the future freshwater and saltwater demand of Proposed Development is 2618.1m³/day and 784.0m³/day respectively. There will be an increase in freshwater and saltwater demand when compared to the OZP compliance scheme. Water saving measures, if necessary, will be proposed in the detailed design stage to reduce freshwater and saltwater demand.

Figures

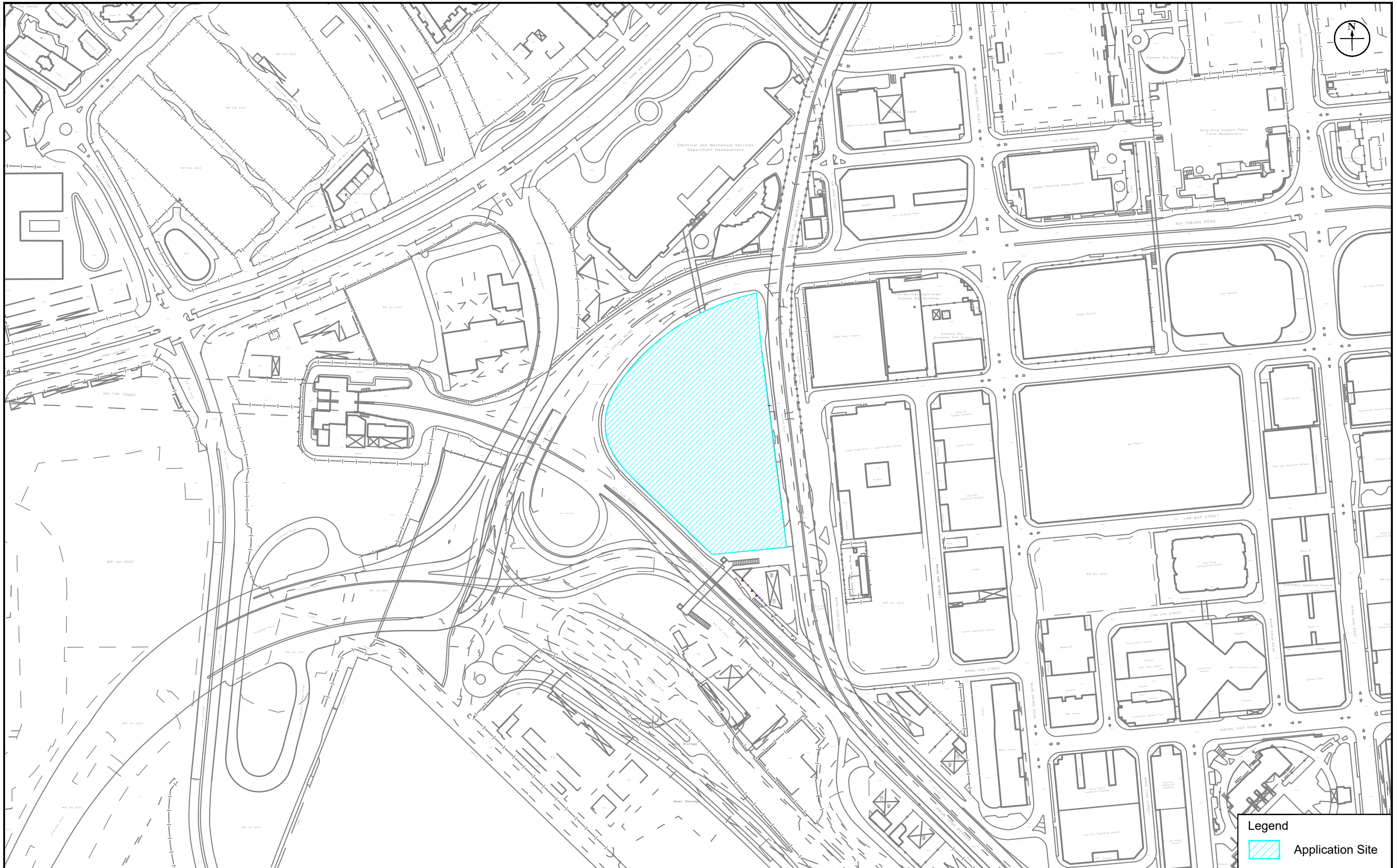


Figure: 1.1
Title: Location of the Application Site and its Enviorns

Project: Proposed Residential (Flat) and Permitted Commercial and Trade Mart Redevelopment with Minor Relaxation of Building Height Restriction, New Kowloon
 Inland Lot No. 6032, 1 Trademart Drive, Kowloon Bay, Kowloon

Legend
 Application Site

RAMBOLL
 Drawn by: MW
 Checked by: CC
 Rev.: 1.0
 Date: Sep 2023

Appendix 2.1 Water Demand Calculations

Proposed Residential (Flat) and Permitted Commercial and Trade Mart Redevelopment with Minor Relaxation of Building Height Restriction, New Kowloon Inland Lot No. 6032, 1 Trademart Drive, Kowloon Bay, Kowloon.

Table 1a Water Demands of the OZP Compliance Scheme

		Freshwater				Saltwater		
		Type of Use	GFA Area (m ³)	Daily Unit Demand (m ³ /GFA/day)	Daily Demand (m ³ /day)	Daily Unit Demand (m ³ /GFA/day)	Daily Demand (m ³ /day)	Reference
OZP Compliance Scheme	Retail and Trademart Area	Retail	82140.0	0.020	1642.80	0.0007	57.50	WSD
	Office	Office	185220.0	0.002	370.44	0.0007	129.65	WSD
					2013.2		187.2	

Freshwater Demand (m³/day) = 2013.2

Saltwater Demand (m³/day) = 187.2

Proposed Residential (Flat) and Permitted Commercial and Trade Mart Redevelopment with Minor Relaxation of Building Height Restriction, New Kowloon Inland Lot No. 6032, 1 Trademart Drive, Kowloon Bay, Kowloon.

Table 1b Future Water Demands of the Application Site

	Type of Use	Freshwater							Saltwater				Reference	
		Population (head)	Room	GFA Area (m ²)	Daily Unit Demand (m ³ /head/day)	Daily Unit Demand (m ³ /room/day)	Daily Unit Demand (m ³ /GFA/day)	Daily Demand (m ³ /day)	Daily Unit Demand (L/head/day)	Daily Unit Demand (m ³ /room/day)	Daily Unit Demand (m ³ /GFA/day)	Daily Demand (m ³ /day)		
Future (Application Site)	Residential Development	Residential Density Zone R2	4,034	-	-	0.335	-	-	1351.39	119.00	-	-	480.05	WSD DI 1309
	G/IC Resident	GIC	90	-	-	0.335	-	-	30.15	119.00	-	-	10.71	WSD DI 1309
	Hotel	Hotel	-	720	-	-	1.000	-	720.00	-	0.36	-	259.20	Other WSIA Report
	Showroom/ Exhibition related uses/ space	Retail	-	-	23273	-	-	0.020	465.46	-	-	0.0007	16.29	WSD
	Office	Office	-	-	35600	-	-	0.002	71.20	-	-	0.0007	24.92	WSD
									2638.2				791.2	

Freshwater Demand (m³/day) = 2638.2

Saltwater Demand (m³/day) = 791.2

Remarks:

- (1) Water Supplies Department Departmental Instruction 1309. Service Trade of 0.035 m³/head/day (Kwun Tong) adopted.
- (2) Total residents of Residential Development is refer to 2021 Population Census: Average Household Size of 2.7 in Kwun Tong