

Proposed Flat with Shop and Services and Eating Place Uses “Commercial” and area shown as ‘Road’
At 152-164 Wellington Street, Sheung Wan, Hong Kong
S16 Planning Application

(Planning Application No: A/H3/449)

WATER SUPPLY IMPACT ASSESSMENT

Prepared for

Couture Homes Properties Limited

Prepared by

Ramboll Hong Kong Limited

**PROPOSED FLAT WITH SHOP AND SERVICES/EATING
PLACES AT NOS. 152-164 WELLINGTON STREET IN SHEUNG
WAN**

WATER DEMAND ASSESSMENT

Date **February 2024**

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Signed

Approved by **Calvin CHIU**
Senior Manager



Signed

Project Reference **CHPWELTNEI00**

Document No. **R9361_v1.0**

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CHAPTERS

	Page
1. INTRODUCTION	1-1
1.1 Project Background.....	1-1
1.2 Application Site and its Environs.....	1-1
1.3 Proposed Development.....	1-1
2. WATER DEMAND ASSESSMENT	2-1
2.1 Scope of Work.....	2-1
2.2 Assessment Criteria and Methodology	2-1
2.3 Assessment of Water Demand.....	2-1
3. OVERALL CONCLUSION.....	3-1

FIGURES

Figure 1.1	Location of Application Site and its Environ
Figure 2.1	Existing Fresh Water Main Arrangement
Figure 2.2	Existing Flushing Water Main Arrangement

APPENDICES

Appendix 1.1	Master Layout Plan (MLP)
Appendix 2.1	Water Demand Calculations
Appendix 2.2	WSD Record Plan

1. INTRODUCTION

1.1 Project Background

- 1.1.1 The purpose of this Section 16 application is to propose a composite redevelopment at 152-164 Wellington Street, Central. The Application Site is currently zoned as "Commercial" under the Approved Sai Ying Pun and Sheung Wan Outline Zoning Plan (OZP) No. S/H3/34.
- 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 amounts to about 612m². It is bounded by Wellington Street to the northeast and Aberdeen Street to the northwest. The Wa On Lane Sitting-out Area is located to the south of the Application Site.
- 1.2.2 The location of the Application Site and its surrounding environs are shown in **Figure 1.1**.

1.3 Proposed Development

- 1.3.1 The proposed development is a composite building comprising residential and retail use. It includes a residential tower with 25 residential storeys with a total of 150 flat units, 2 clubhouse storeys, and 2 storeys allocated for retail space. A 78.6 m² indoor swimming pool is planned.
- 1.3.2 It is tentatively completed in 2030.
- 1.3.3 The Master Layout Plan (MLP) of the Proposed Development is included in **Appendix 1.1**.

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 existing buildings within the Application Site will be adopted as a baseline from which the change of water demand would be evaluated. The existing buildings include residential development and commercial use. Calculation for the water demand of the existing buildings is included in **Appendix 2.1**.
- 2.2.4 The demand of the Proposed Development will be mainly originated from the future residential population and clubhouse. Calculations for the water demands of the Proposed Development are included in **Appendix 2.1**.

2.3 Assessment of Water Demand

Fresh Water Demand

- 2.3.1 As shown in **Appendix 2.1**, the freshwater demand at the Application Site is estimated to be 159.0m³/day.
- 2.3.2 For the baseline scenario (existing demand), the freshwater demand at the Application Site is 42.0m³/day. Relatively, the Proposed Development has an increase of 117.0m³/day in freshwater demand.
- 2.3.3 Connection will be made to the existing watermains. According to the WSD mains record plans (**Appendix 2.2 & Figure 2.1**), an existing dia. 100mm tee-off connects to the Application Site and the total peak water demand from the site would utilise about 47% of the pipe capacity. It is considered that the impact of the Proposed Development is acceptable in water supply terms. Details of the capacity calculation of the water mains is included in **Appendix 2.1**.
- 2.3.4 The proposed water main will be aligned along the pavement outside the site. It is noted that there is existing water mains inside the site and would be diverted to outside the site boundary tentatively (**Figure 2.1**). Details of the internal water supply system for fresh and flushing water supply and the proposed alignment of the water main diversion would be finalized in the detailed design stage.

Flushing Water Demand

- 2.3.5 As shown in **Appendix 2.1**, the flushing water demand at the Application Site would be 26.4m³/day.
- 2.3.6 For the baseline scenario (existing demand), the saltwater demand at the Application Site is 7.1m³/day. Relatively, the Proposed Development has an increase of 19.3m³/day in flushing water demand.
- 2.3.7 There is flushing water (saltwater) supply for the Application Site and connection will be made to the existing flushing water mains in future. According to the WSD mains record plans (**Appendix 2.2 & Figure 2.2**), an existing dia. 40mm tee off connects to the Application Site and the total peak flushing water demand from the site would utilise about 32% of the pipe capacity. It is considered that the impact of the Proposed Development is acceptable in water supply terms. Details of the capacity calculation of the flushing water mains is included in **Appendix 2.1**.

3. OVERALL CONCLUSION

- 3.1.1 A composite development is proposed at 154-164 Wellington Street, Central. The potential water demand has been quantitatively assessed.
- 3.1.2 Based on the water demand assessment result, the future freshwater and flushing water demands of Proposed Development are 159.0m³/day and 26.4m³/day respectively. There will be an increase in both freshwater and saltwater demand after development.
- 3.1.3 Based on the assessment result, the existing dia. 100mm and 40mm tee off on freshwater and flushing water would have adequate capacity to cater the freshwater demand and flushing water demand of the Proposed Development respectively.
- 3.1.4 It is concluded that the water demand of the Proposed Development will not result in any adverse impact.

Figures

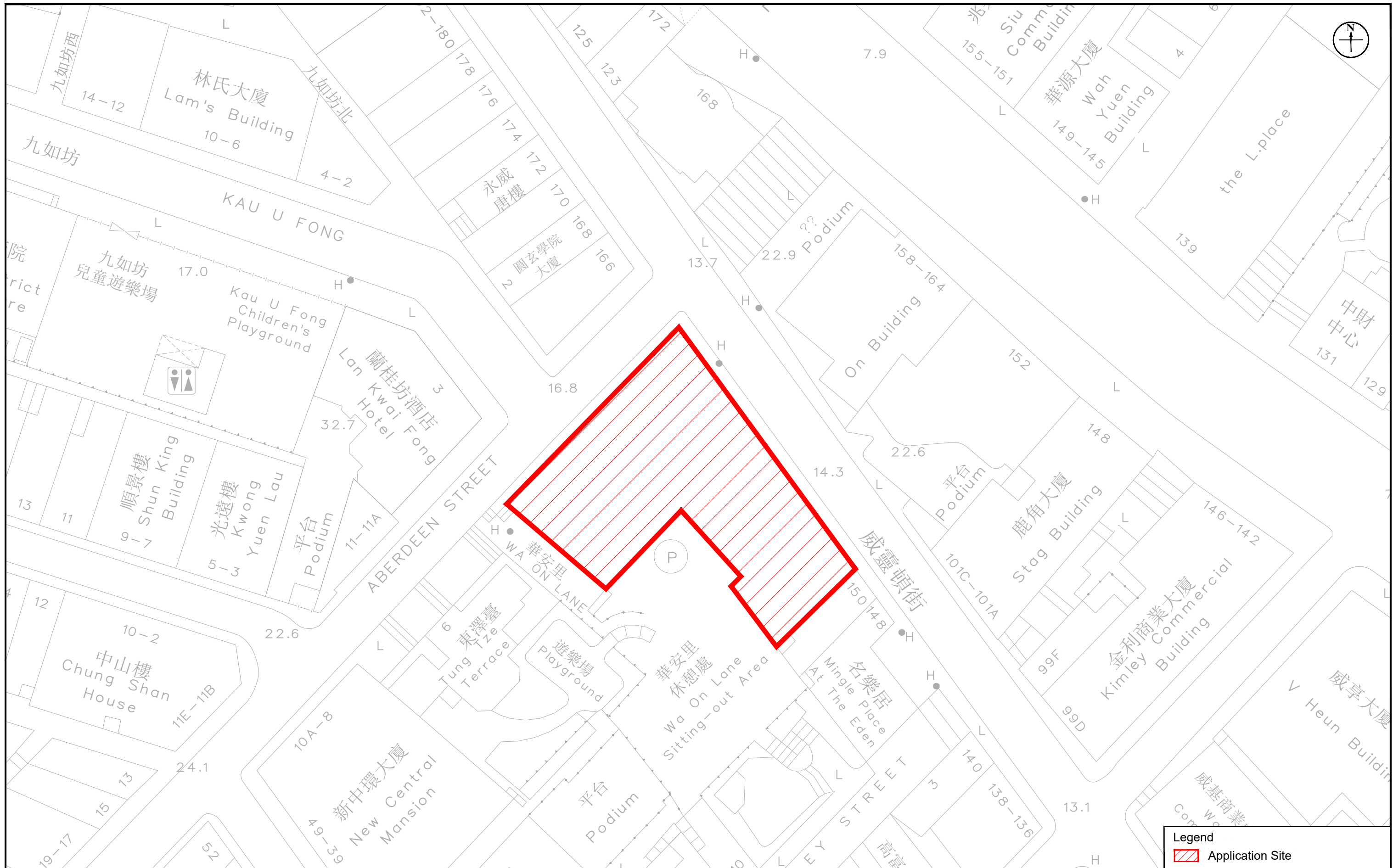



Figure: 1.1
Title: Location of the Application Site and its Environs

Project: S16 Planning Application for Proposed Composite Redevelopment at 152-164 Wellington Street, Central

Legend	
	Application Site
RAMBOLL	
Drawn by:	MW
Checked by:	CC
Rev.:	1.0
Date:	Dec 2023

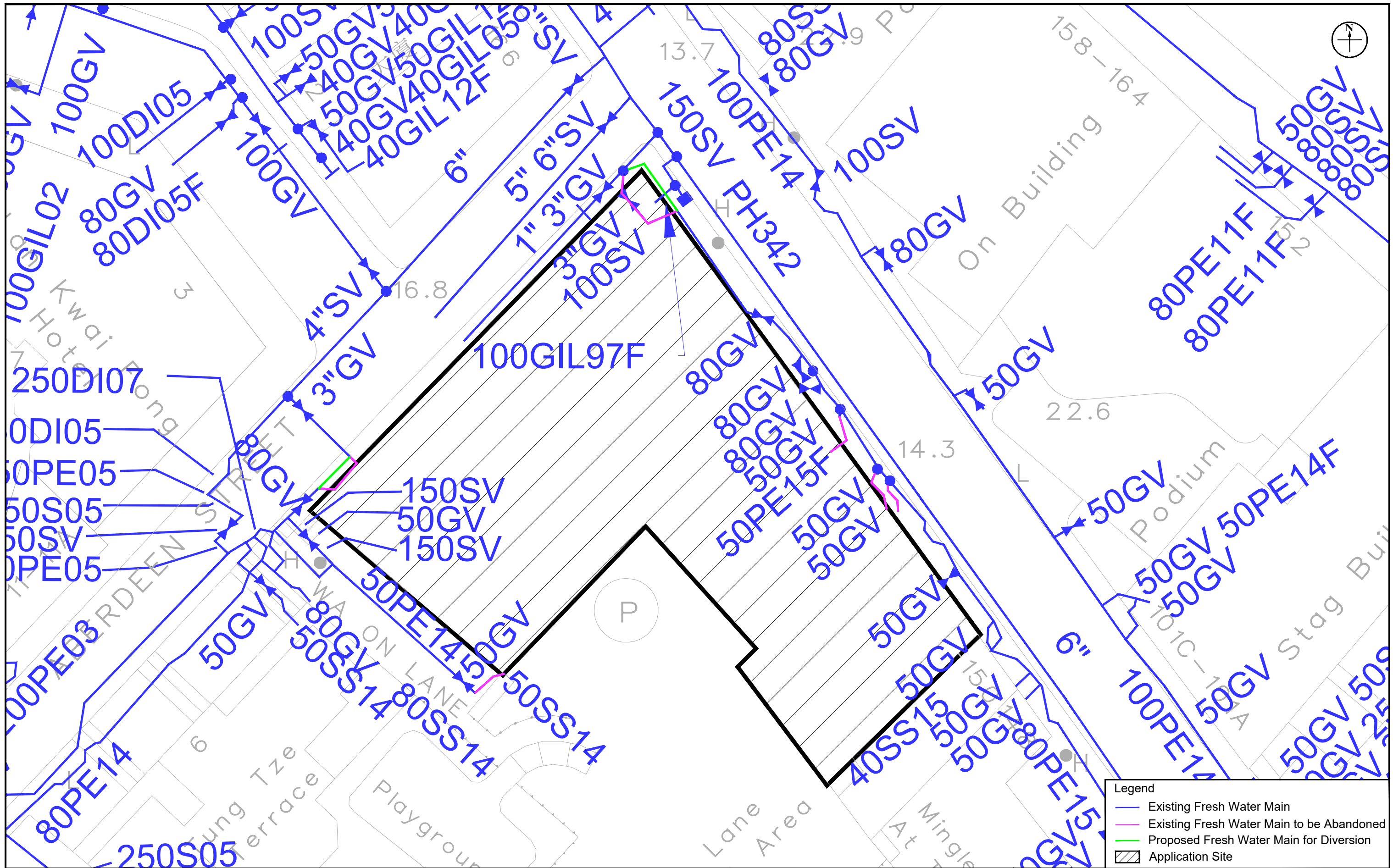


Figure: 2.1

Title: Existing Fresh Water Main Arrangement

Project: Proposed Flat with Shop and Services/Eating Places at Nos. 152-164 Wellington Street in Sheung Wan

RAMBOLL

Drawn by: MW

Checked by: CC

Rev.: 1.0

Date: Feb 2024

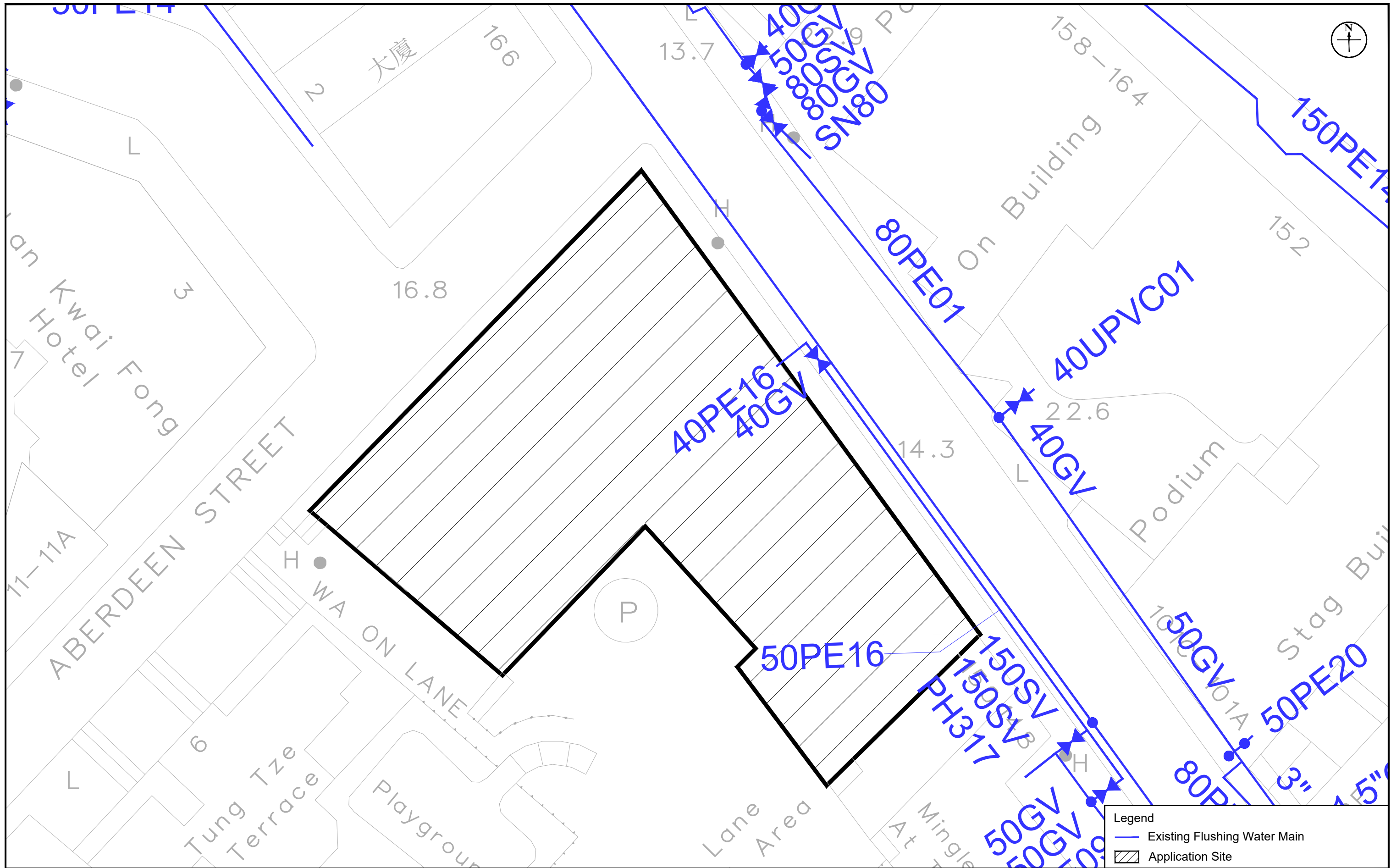


Figure: 2.2

Title: Existing Flushing Water Main Arrangement

Project: Proposed Flat with Shop and Services/Eating Places at Nos. 152-164 Wellington Street in Sheung Wan

- Legend
- Existing Flushing Water Main
 - Application Site

RAMBOLL

Drawn by: MW

Checked by: CC

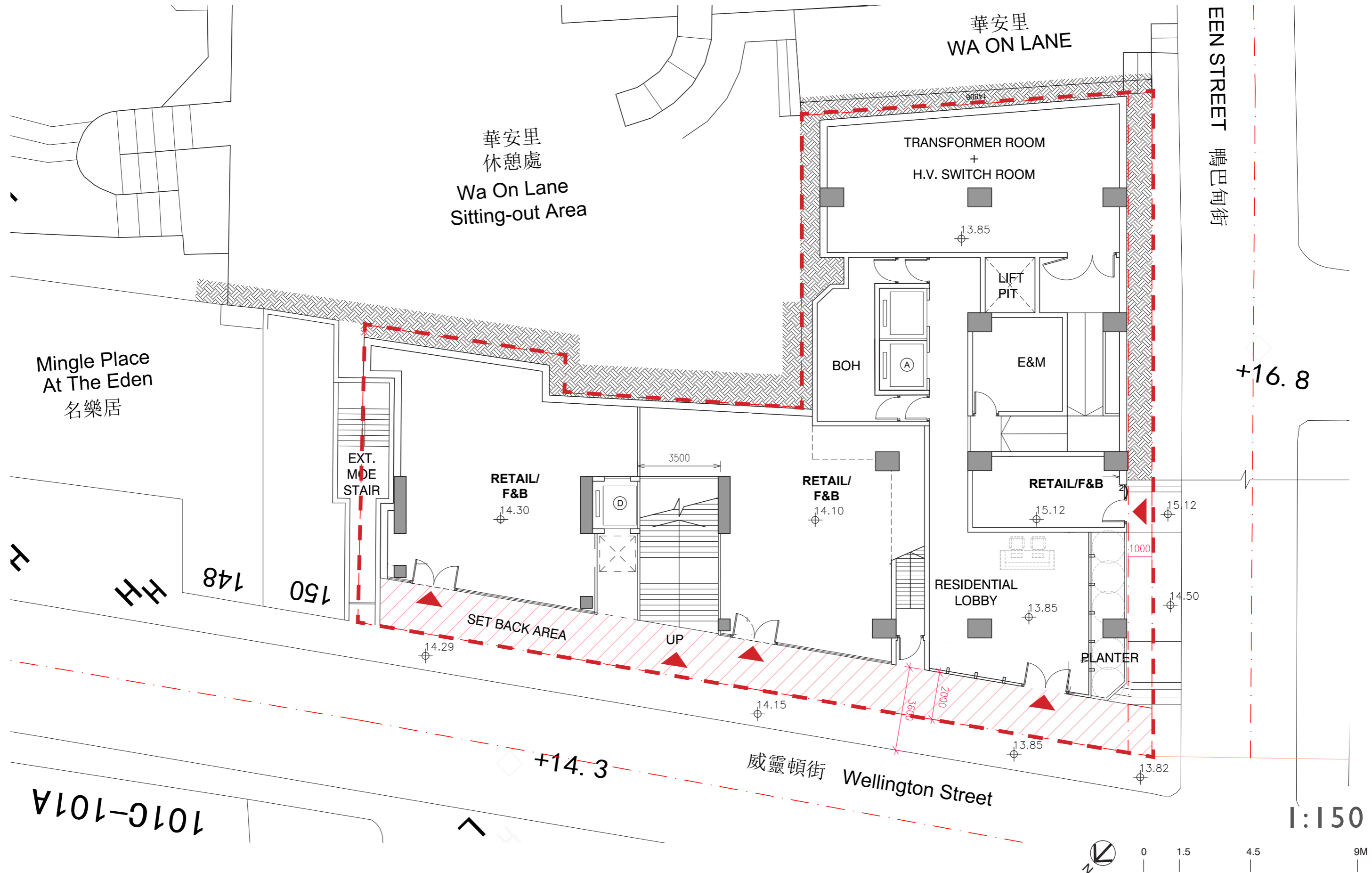
Rev.: 1.0

Date: Feb 2024

Appendix 1.1 Master Layout Plan (MLP)

PODIUM PLANS

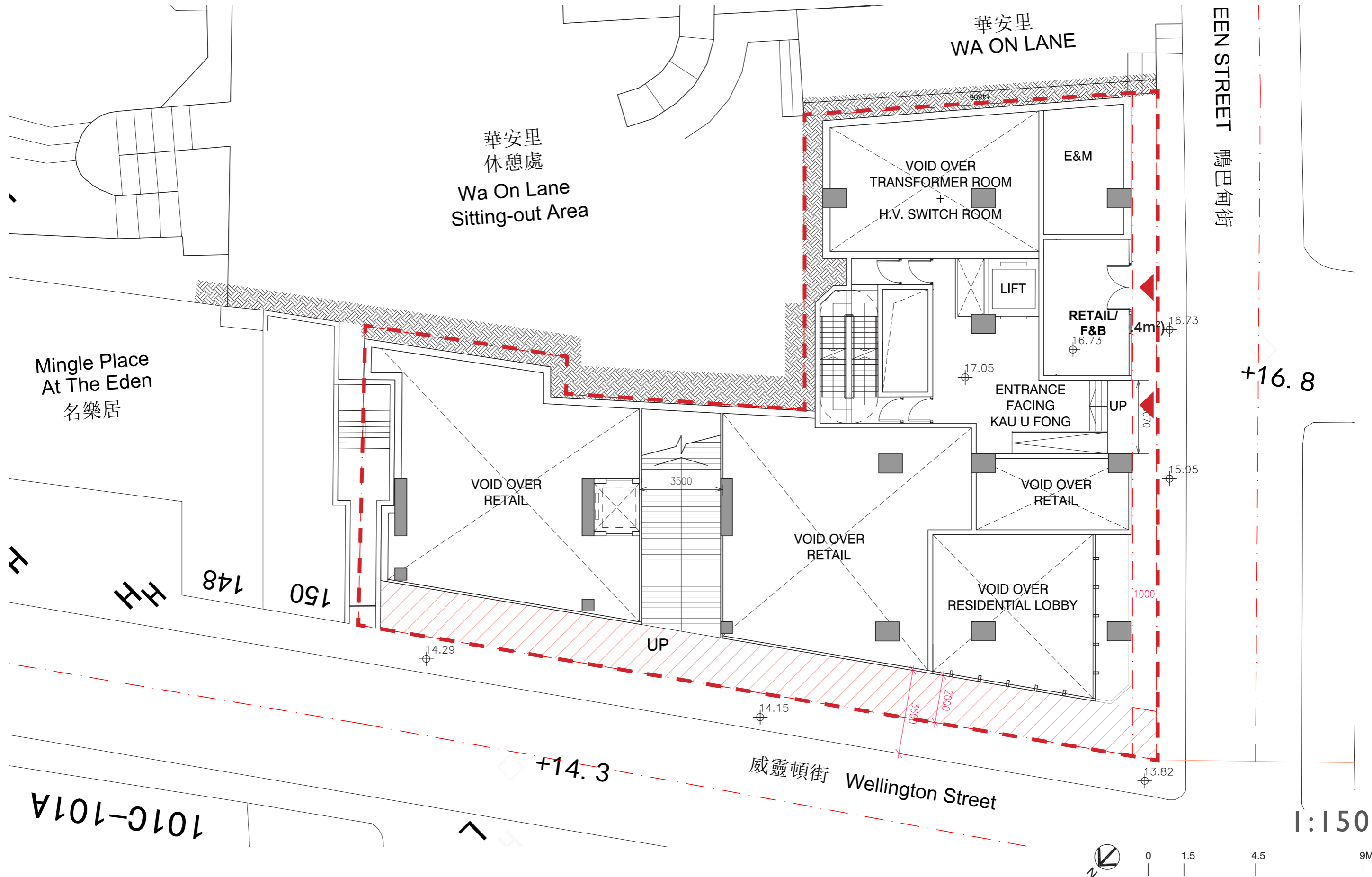
GF



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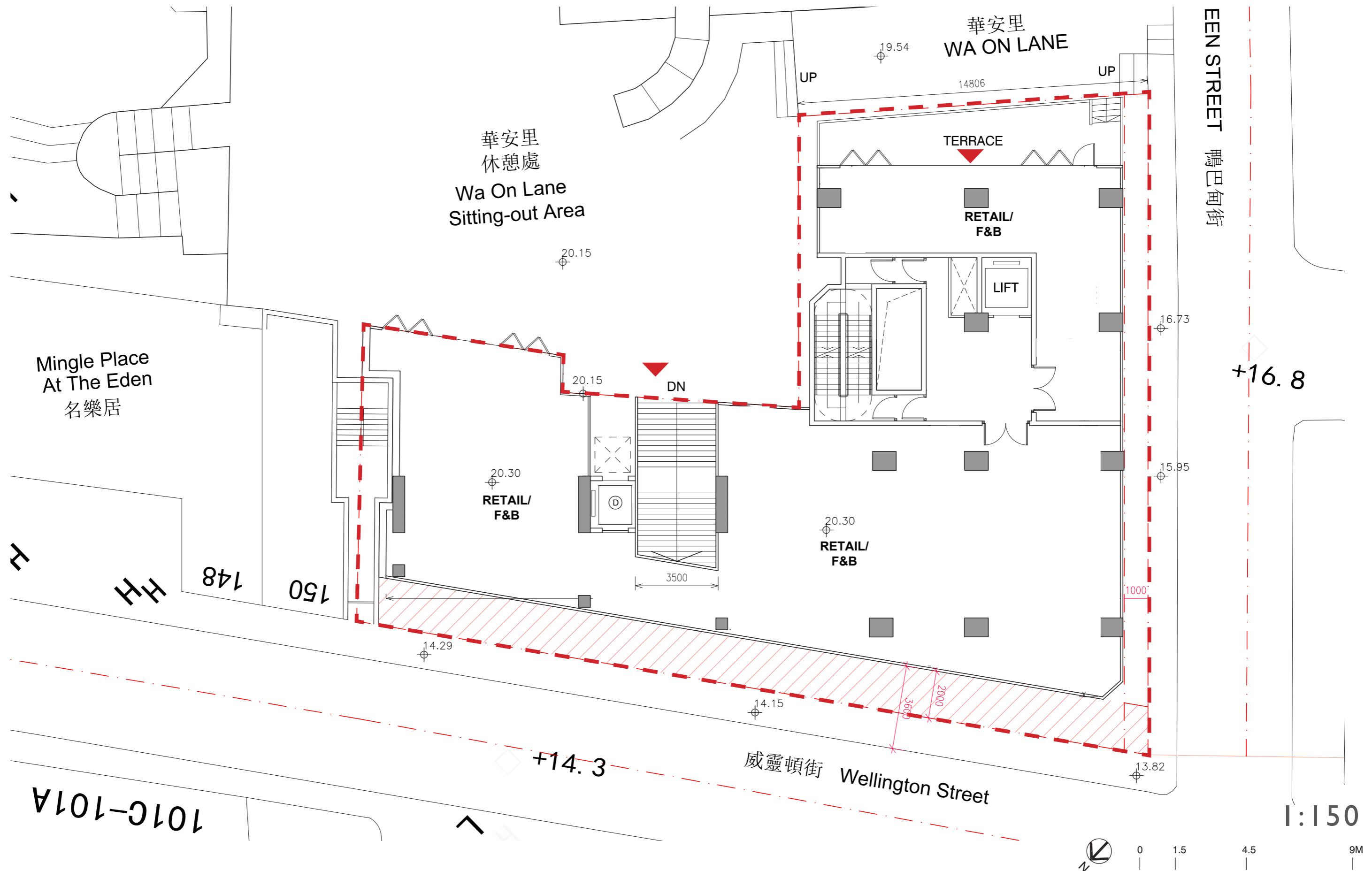
PODIUM PLANS

MF



PODIUM PLANS

IF

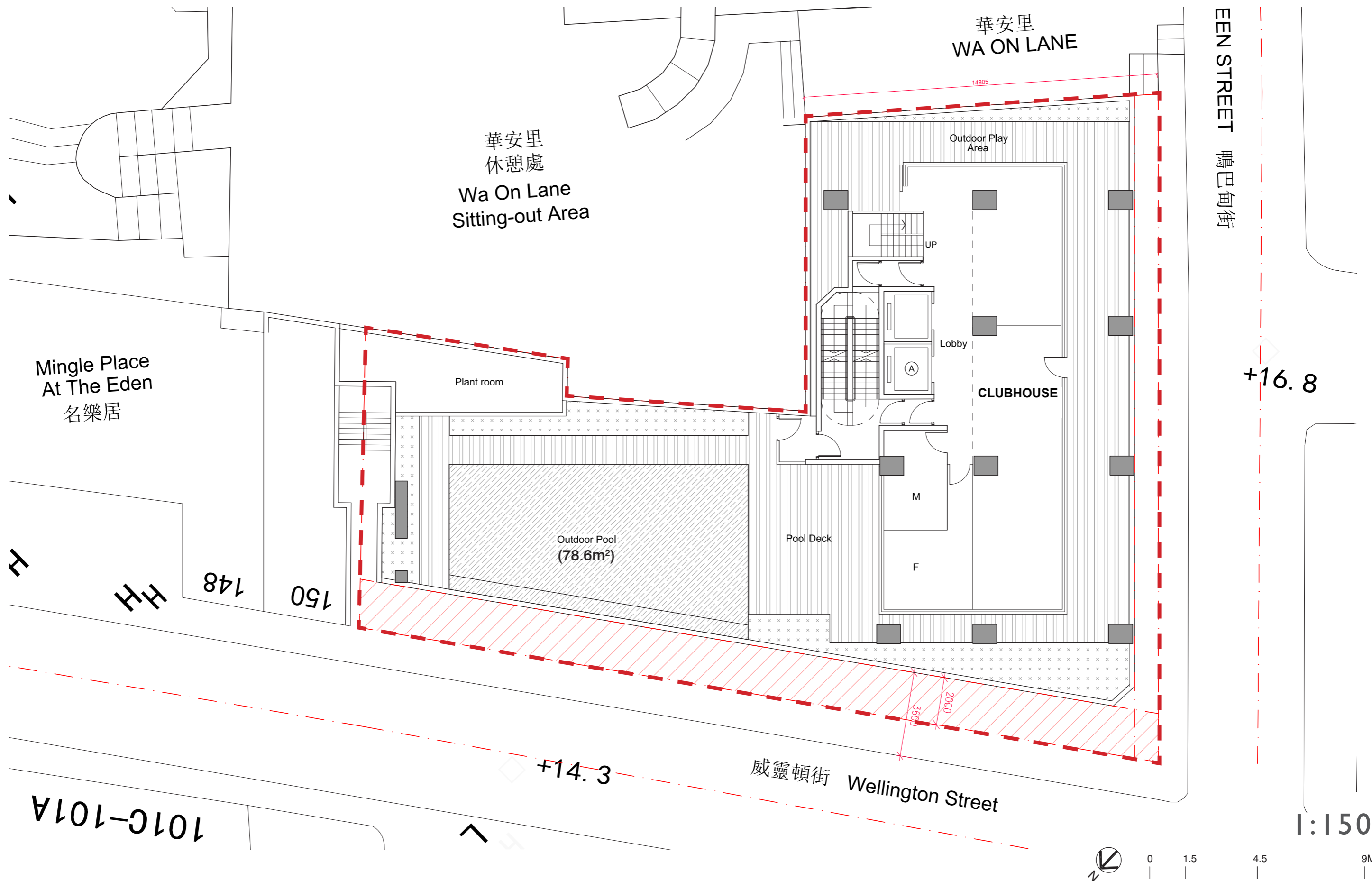


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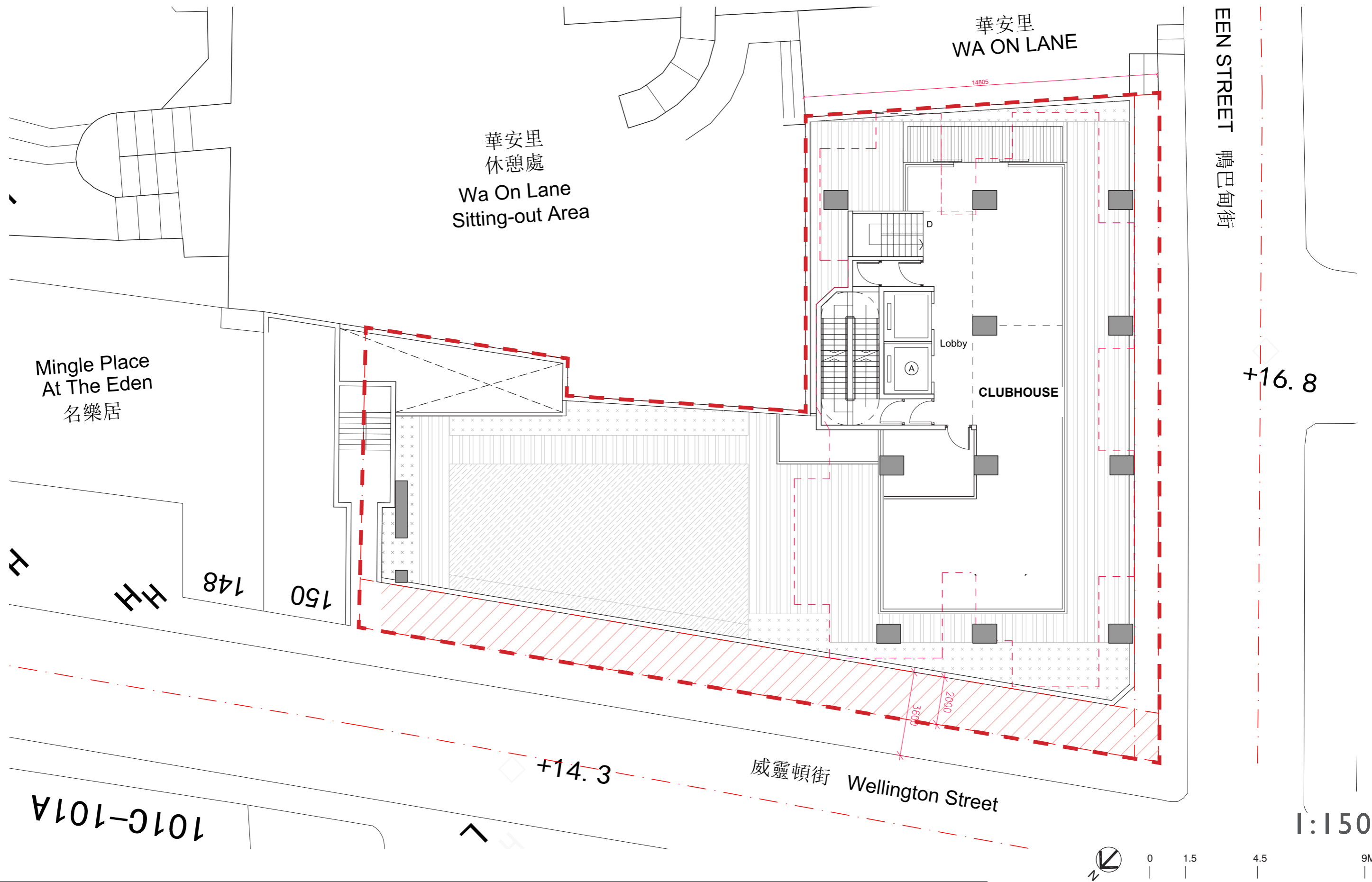
PODIUM PLANS

2F (CLUBHOUSE)



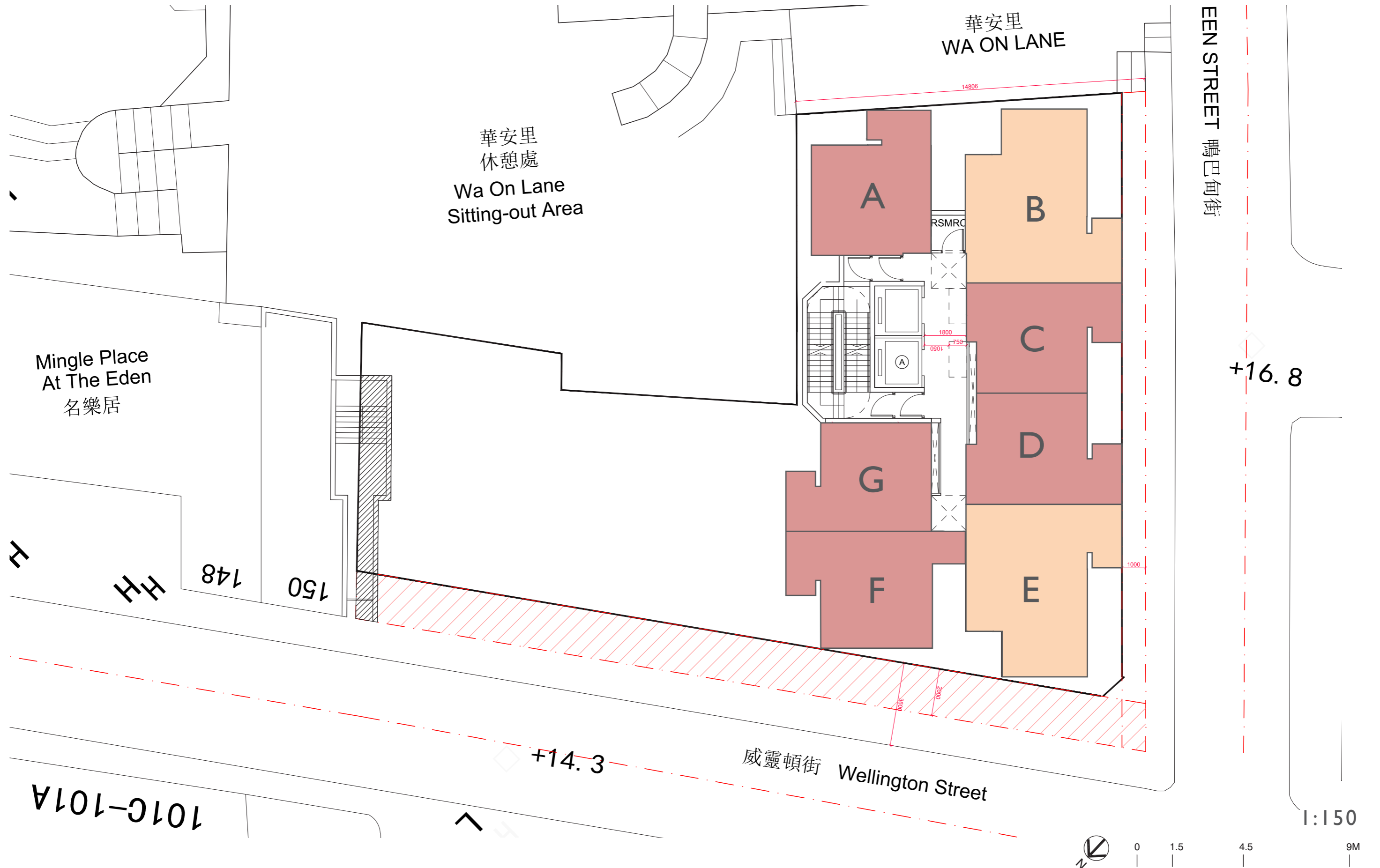
PODIUM PLANS

3F (CLUBHOUSE)



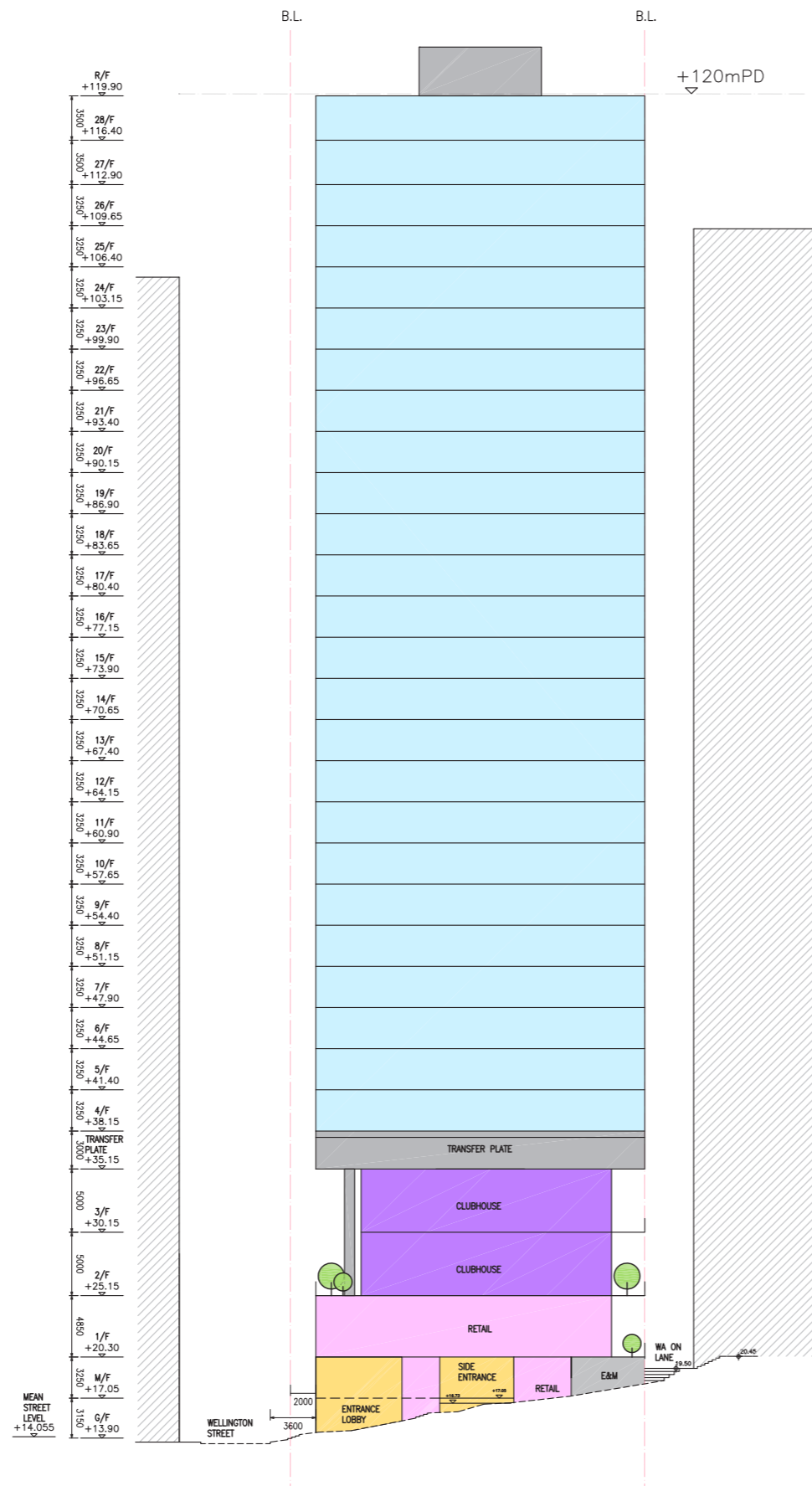
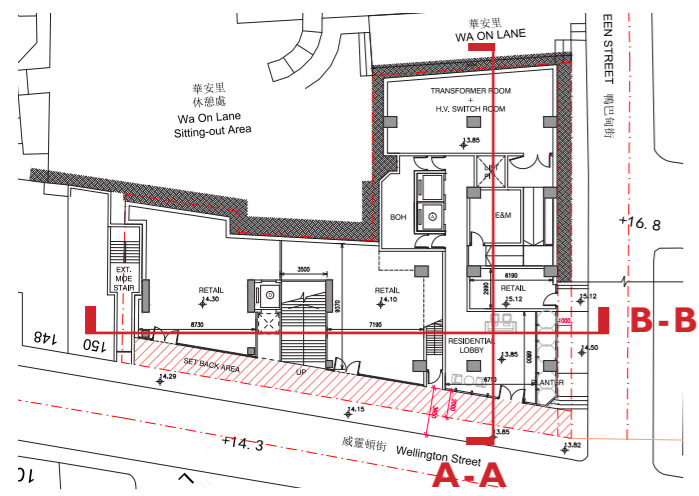
TOWER SIMPLIFIED PLAN

- 1 Bedroom (Open Kitchen)
- 2 Bedroom (Open Kitchen)

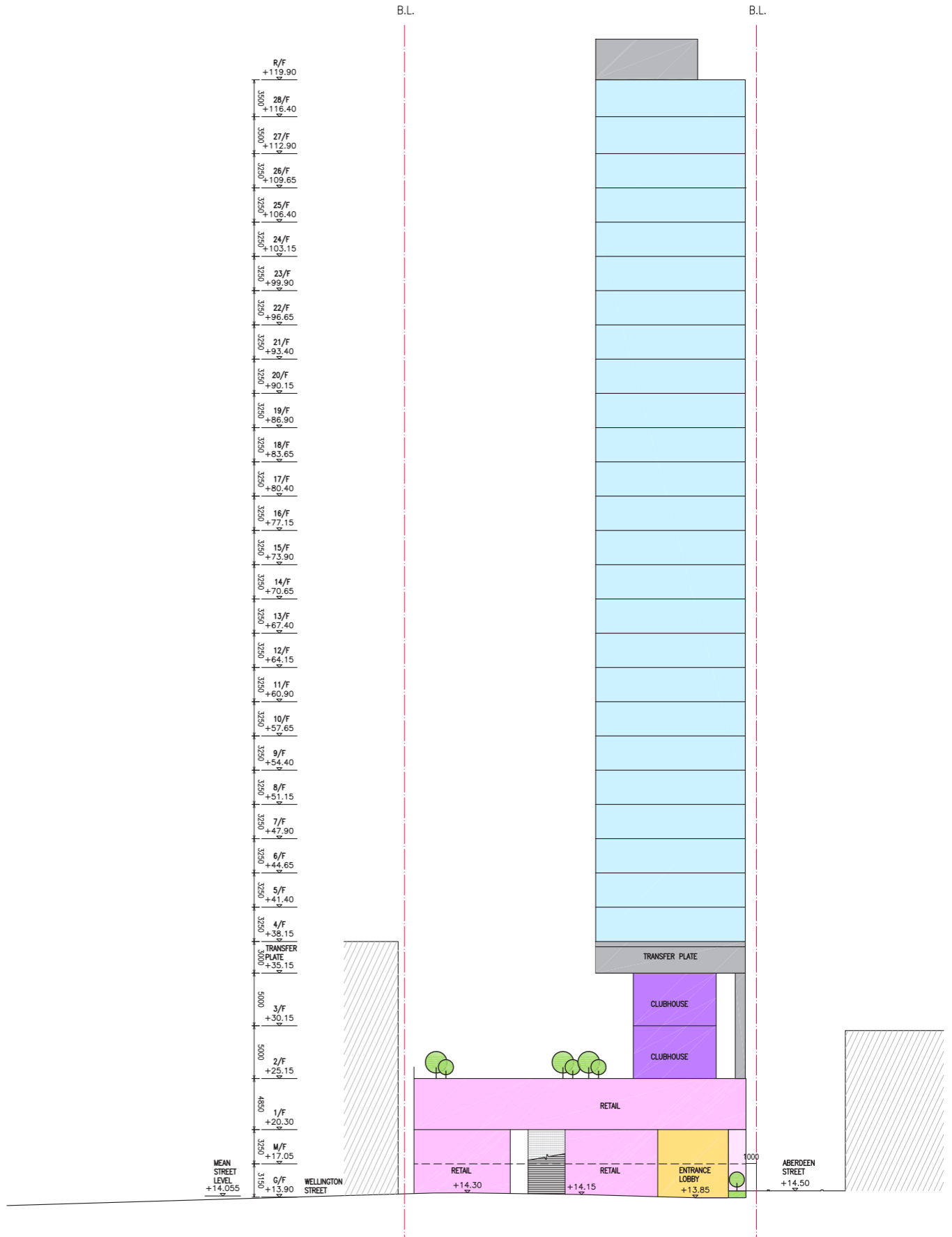


SECTION

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SECTION A-A



SECTION B-B

Appendix 2.1 Water Demand Calculations

Table 1a Existing Water Demands of the Application Site

		Type of Use	Population (head)	Area (ha)	Freshwater			Flushing Water			Reference
					Daily Unit Demand ⁽¹⁾ (m ³ /head/day)	Daily Unit Demand (m ³ /ha/day)	Daily Demand (m ³ /day)	Daily Unit Demand ⁽¹⁾ (m ³ /head/day)	Daily Unit Demand (m ³ /ha/day)	Daily Demand (m ³ /day)	
Existing (Application Site)	Residential Development (160-164 Wellington St)	Residential Density Zone R2	90	-	0.415	-	37.47	0.070	-	6.32	WSD DI 1309
	Residential Development (152 Wellington St)	Residential Density Zone R2	11	-	0.415	-	4.36	0.070	-	0.74	WSD DI 1309
	Commercial (156-158 Wellington St)	C/R	-	0.0713	-	2.0	0.14	-	0.700	0.05	WSD DI 1309
	Commercial (154-156 Wellington St)	C/R	-	0.0354	-	2.0	0.07	-	0.700	0.02	WSD DI 1309
							42.0			7.1	

Freshwater Demand (m³/day) = 42.0

Flushwater Demand (m³/day) = 7.1

Table 1b Future Water Demands of the Application Site

		Type of Use	Population (head)	Area (m ²)	Freshwater			Flushing Water			Reference
					Daily Unit Demand ⁽¹⁾ (m ³ /head/day)	Daily Demand (L/m ² /day)	Daily Demand (m ³ /day)	Daily Unit Demand (m ³ /head/day)	Daily Unit Demand (m ³ /ha/day)	Daily Demand (m ³ /day)	
Future (Application Site)	Residential Development	Residential Density Zone R2	368	-	0.415	-	152.72	0.070	-	25.76	WSD DI 1309
	Clubhouse	GIC	9	-	0.235	-	2.12	0.070	-	0.63	WSD DI 1309
							159.0			26.4	

Freshwater Demand (m³/day) = 159.0

Flushwater Demand (m³/day) = 26.4

Remarks:

(1) Water Supplies Department Departmental Instruction 1309. Service Trade of 0.115 m³/head/day (Central) adopted.

Water Main Assessment of the Proposed Water Supply Systems

Table 2a Hydraulic Capacity of the Existing Water Main

	Portion	Diameter (mm)	Material	Peak factor (¹)	Demand, Q (cu. m/day)	Factored Q (cu. m/s)	Area (m ²)	Velocity of Water Main (m/s) (2)	Flow Rate of Water Main (m ³ /s)	% of water main occupied by the Proposed Site
Fresh Water	100GIL97F	100	GIL	3	159.0	0.006	0.008	1.50	0.012	47%
Salt Water	40PE16	40	PE	2	26.4	0.001	0.001	1.50	0.002	32%

⁽¹⁾ Peak factor for distribution mains refers to Departmental Instruction No. 1309 from WSD

⁽²⁾ Velocity of water mains refers to Departmental Instruction No. 1309 from WSD

Appendix 2.2 WSD Record Plan



- NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED.
 2. ALL LEVELS ARE IN METRES ABOVE PRINCIPAL DATUM.
 3. INFORMATION ON ALIGNMENT OF MAINS IS OF INDICATIVE VALUE ONLY. WHERE POSITIONAL ACCURACY MAY BE OF IMPORTANCE, DETAILS SHOULD BE SITE CHECKED.
 4. FOR MAINS RECORDS SIGN CONVENTIONS AND DESIGNATIONS SEE SKETCH NO. 3988.
 5. NO EXISTING WSD CABLE IN THE VICINITY OF THE SITE.
 6. NO PROPOSED WSD CABLE IN THE VICINITY OF THE SITE.
 7. THE SITE IS NOT WITHIN WSD GATHERING GROUNDS.
 8. NO WSD LAND ALLOCATION / WWR WITHIN THE SITE AREA.
 9. NO WSD SLOPES ARE AFFECTED IN THE VICINITY OF THE SITE.

SUBJECT SITE



PART COPY OF FRESH WATER MAINS RECORD PLAN(S)

W67880/11-SW-8B & 8D

FILE REF: (1) IN WSD/M/SP 3054/29/66S/24 PT.1

REF. CODE: 04W24M

SHEET 1 OF 1

SCALE 1:1000



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Water Supplies Department



- NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED.
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 8. NO WSD LAND ALLOCATION / WWR WITHIN THE SITE AREA.
 9. NO WSD SLOPES ARE AFFECTED IN THE VICINITY OF THE SITE.

SUBJECT SITE

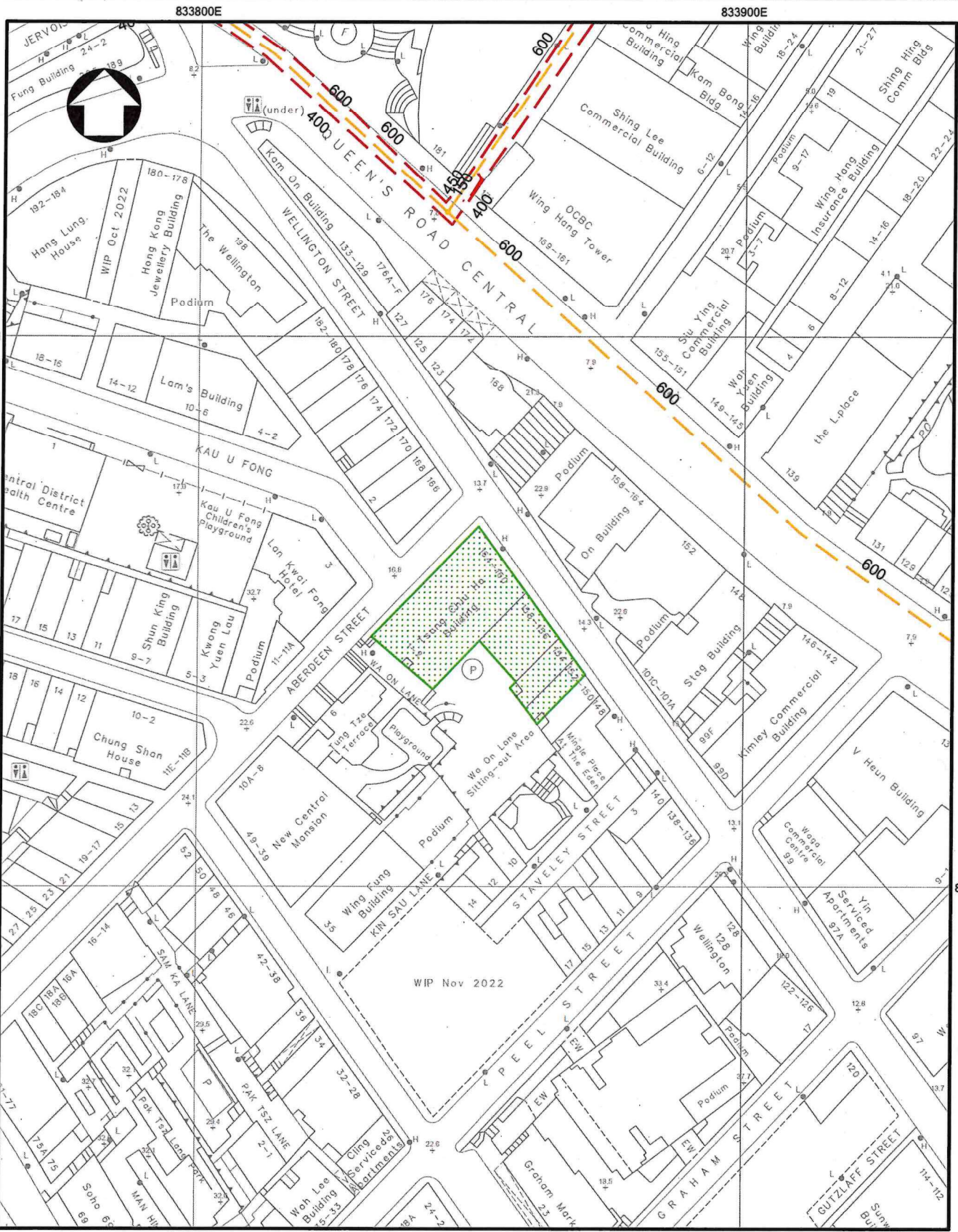
PART COPY OF SALT WATER MAINS RECORD PLAN(S)



W67881/11-SW-8B & 8D

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
REF. CODE: 04W24M SHEET 1 OF 1 SCALE 1:1000





- NOTES:
1. PROPOSED FRESH WATER MAINS SHOWN THUS 
 2. PROPOSED SALT WATER MAINS SHOWN THUS 
 3. FOR PROPOSED WATER MAINS, PLEASE REFER TO PLANNING REPORT NO(S). 7/2000, 7/2019.

SUBJECT SITE



SUPPLEMENTARY INFORMATION OF PROPOSED WATER MAINS
PART COPY OF SURVEY SHEET NO(S).

11-SW-8B & 8D

FILE REF: (1) IN WSD/M/SP 3054/29/66S/24 PT.1

REF. CODE: 2W24P	SHEET 1 OF 1	SCALE 1:1000
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