

Attachment 2

Revised Noise Impact Assessment

Prepared for
Leverson Ltd.

Prepared by
Ramboll Hong Kong Limited

SECTION 16 PLANNING APPLICATION FOR SUBMISSION OF
LAYOUT PLAN FOR PERMITTED 'FLAT' AND
'SOCIAL WELFARE FACILITY' USES AT TSUEN WAN INLAND LOT 5
AND LOT NO. 429 IN D.D. 399,
TING KAU, TSUEN WAN

NOISE IMPACT ASSESSMENT

Date September 2024

Prepared by Kyle Kam
Assistant Environmental Consultant

Signed



Approved by Tony Cheng
Senior Manager

Signed



Project Reference SHKTKBHSEI 00

Document No. R9278_v2.2

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CHAPTERS

	Page
1. INTRODUCTION.....	1-1
1.1 Background and Objectives	1-1
1.2 Subject Site and its Environs	1-1
1.3 Proposed Redevelopment	1-1
1.4 Appraisal on Environmental Impact	1-1
2. ROAD TRAFFIC NOISE IMPACT ASSESSMENT	2-1
2.1 Introduction	2-1
2.2 Assessment Criteria.....	2-1
2.3 Assessment Methodology	2-1
2.4 Road Characteristic	2-1
2.5 Noise Sensitive Receivers.....	2-1
2.6 Road Traffic Impact Assessment Result (Base Case)	2-1
2.7 Proposed Noise Mitigation Measures	2-1
2.8 Road Traffic Impact Assessment Result (Mitigated Case)	2-2
2.9 Conclusion.....	2-2

TABLES

Table 2.1	Assessment Result under Base Case Scenario.....	2-1
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FIGURES

Figure 1.1	Location of Subject Site and its Environs
Figure 2.1	Location of Representative Noise Sensitive Receivers for Road Traffic Noise Impact Assessment
Figure 2.2	Proposed Road Traffic Noise Mitigation Measures

APPENDICES

Appendix 1.1	Floor Plans, MLP and Section of Proposed Redevelopment
Appendix 2.1	Traffic Forecast of Year 2043
Appendix 2.2	Road Traffic Noise Impact Assessment Result
Appendix 2.3	Indicative Design of AW(BT) & AD(BT) Adopted in the Proposed Redevelopment
Appendix 2.4	Proposed Overall Noise Mitigation Measures Schedule
Appendix 2.5	Self-assessment Form of PN 4/23

1. INTRODUCTION

1.1 Background and Objectives

- 1.1.1 The Subject Site falls in "Residential (Group B) 2" ("R(B)2") Zone at TWIL 5 and Lot No. 429 in D.D. 399, Ting Kau, Tsuen Wan according to the approved Tsuen Wan West Outline Zoning Plan ("OZP") No. S/TWW/21 gazetted under section 9(1)(a) of Town Planning Ordinance.
- 1.1.2 Ramboll Hong Kong Limited is commissioned by the Project Proponent to conduct the Environmental Assessment ("EA") to support the planning application. This EA report is prepared based upon the proposed master layout plan. Corresponding noise mitigation measures will be proposed, if it is required. The potential air quality impact assessment will be addressed by a separate assessment report.

1.2 Subject Site and its Environs

- 1.2.1 The Subject Site is located to the east of Tsing Long Highway (Toll Road) and south of Castle Peak Road (Ting Kau) as well as between Lido Beach and Ting Kau Beach. Figure 1.1 shows the location of the Subject Site and its environs.

1.3 Proposed Redevelopment

- 1.3.1 The development site area of Proposed Redevelopment is approximately 6,066 m² and consists of two residential blocks (Tower 1 and 2), a social welfare facility underneath Tower 1 and a car park at the basement. The Proposed Redevelopment will provide not more than 674 residential units. Appendix 1.1 shows the MLP of the Proposed Redevelopment.

1.4 Appraisal on Environmental Impact

Noise Impact

- 1.4.1 The major noise sources in the study area are from road traffic, such as Tsing Long Highway and Castle Peak Road. The predicted noise levels at NSRs facing the roads exceed the noise standard. Mitigation measures including acoustic window and acoustic balcony are proposed in order to reduce the road traffic noise impact and achieve a 100% compliance rate.

2. ROAD TRAFFIC NOISE IMPACT ASSESSMENT

2.1 Introduction

2.1.1 This road traffic noise impact assessment is prepared to address road traffic noise impact on the noise sensitive uses of the Proposed Redevelopment and to recommend mitigation measures where practicable to attenuate the impact.

2.2 Assessment Criteria

2.2.1 Noise standards are recommended in Chapter 9 "Environment" of the HKPSG for planning against possible noise impact from road traffic, railway and aircrafts. According to the standards and guidelines, the maximum allowed road traffic noise level, measured in terms of $L_{10(1-hr.)}$, at typical facades of the Proposed Conversion with residential use is 70 dB(A) in terms of $L_{10(1-hr.)}$.

2.2.2 For the Proposed Redevelopment, only dwellings will rely on openable window for ventilation purpose (i.e., residential units). For the Day Care Centre for the Elderly and clubhouse will be provided with air-conditioning system and will not be provided with any openable windows / openings for ventilation.

2.2.3 According to the guidelines, the criterion for road traffic noise impact on domestic premises (habitable rooms) is $L_{10(1-hour)}$ 70dB(A). This criterion applies to uses which rely on openable windows for ventilation.

2.3 Assessment Methodology

2.3.1 The assessment concerns the prediction of the maximum $L_{10(1-hr.)}$ traffic noise level at noise sensitive receivers ("NSRs") of the Proposed Conversion due to the projected traffic flow on the adjacent major road networks for Year 2043, which is considered as the worst-case scenario within 15 years after the completion of the Proposed Conversion in Year 2028. The traffic flow was predicted by the traffic consultant, AECOM. The traffic forecast for Year 2043 includes information of the traffic volume and percentage of heavy vehicle of the adjacent major roads. **The traffic forecast and Transport Department's endorsement are shown in Appendix 2.1.**

2.3.2 The U.K. Department of Transport's procedure "Calculation of Road Traffic Noise" was applied to predict the $L_{10(1-hr.)}$ noise level generated from road traffic at selected representative facades (NSRs) of the Proposed Conversion. It is checked that the a.m. peak traffic flow is higher than the p.m. one. Therefore, the a.m. peak traffic data is adopted in this assessment. The predicted noise levels were then compared with the recommended noise standards in HKPSG for assessing the impact.

2.4 Road Characteristic

2.4.1 The adjacent roads of the Subject Site, namely Tsing Long Highway (Toll Road), Castle Peak Road (Ting Kau and New Ting Kau) and Slip Road connecting Ting Kau Bridge and Tuen Mun Road (West) are considered as the dominant sources of road traffic noise to the NSRs. Other local roads in the study area, like access road to the Subject Site and Ting Yat Road, are also considered as sources of road traffic noise (refer to Appendix 2.1).

2.5 Noise Sensitive Receivers

2.5.1 The representative facades with openable windows were identified as NSRs in the assessment. Locations of NSRs are shown in Figure 2.1. The assessment points are taken at 1.2 m above the floors of the selected storey and 1m away from the facades of openable windows.

2.6 Road Traffic Impact Assessment Result (Base Case)

2.6.1 The assessment result for dwelling under base case scenario is presented in Appendix 2.2 and summarised below.

Table 2.1 Assessment Result under Base Case Scenario

Scenario	Max Predicted Noise Level	Total Number of Exceedances	Compliance Rate
AM	76	198	71%

2.6.2 Based on the Traffic forecast data, the traffic peak flow at AM is larger than that PM. Hence, the AM traffic peak flow is considered to be the worst-case scenario. Noise mitigation measures are recommended for the Proposed Redevelopment based on the AM scenario to attenuate the road traffic noise impact.

2.7 Proposed Noise Mitigation Measures

2.7.1 Noise mitigation measures have been duly studied and applied where practicable.

a. Fixed Glazing with/without Maintenance Window

2.7.2 For those window façades that are not necessary for ventilation purpose yet exposed to road traffic noise, Fixed Glazing with/without Maintenance Window is proposed. The fixed glazing of not less than 8mm will be equipped with well gasketed maintenance window with a removable handle or key lock system to ensure the maintenance window remains locked except for cleaning and maintenance purpose.

b. Acoustic Window (Baffle Type) (AW(BT))-(NPE)

2.7.3 Innovative noise mitigation measures are being explored in recent years. Baffle type acoustic windows and acoustic doors have been adopted for numerous residential developments for attenuating road traffic noise. It is understood that Environmental Protection Department (EPD) has issued the Practice Note on Application of Innovative Noise Mitigation Designs in Planning Private Residential Developments against Road Traffic Noise Impact (hereafter referred as "EPD-PN") for mitigating road traffic noise impact.

2.7.4 The reference cases in EPD-PN have been made to adopt in first place for the Proposed Redevelopment. However, there are some major parameters cannot be followed (i.e. outer/inner opening is much larger than the EPD-PN, different number of outer openings, full height side wall near the outer opening cannot be provided at the window etc.), reference cases from other developments are therefore adopted.

2.7.5 Baffle type acoustic windows are proposed and the noise attenuation performance for AW(BT) –NPE is referenced to the redevelopment project of ex-North Point Estate (hereafter referred as "NPE"), which was previously proposed in the Approved EA report.

2.7.6 The AW(BT)) in NPE refers to the type of window that has an inner sliding panel behind the outer opening, both readily openable, for creating an air gap for the supply of fresh air with noise mitigation effect. It comprises two glazing: -

- i. The outer window system with side hung openable window and
- ii. The inner sliding panel.

2.7.7 The "designed setting" to reduce noise entering indoor area is achieved by placing the inner sliding panel behind the openable window, so that noise from outside cannot pass through the opening window and enter indoor area directly. As there is no gap at top and bottom of the sliding panel, direct transmission of sound energy into the habitable room is avoided. Instead, outdoor noise has to pass through the gap between the inner sliding panel and outer façade aside the opening window/door in order to enter indoor area. The design allows natural ventilation through the aforementioned gap (although extent of natural ventilation may be inferior to the case without the inner sliding panel behind) and prevent most noise from entering indoor environment. According to the latest PNAP APP-130: "Lighting and Ventilation Requirements – Performance-based Approach", the proposed AW(BT) are considered complying with prescribed ventilation requirement if the net opening when the inner sliding panel is moved to another side with least obstruction to the openable window/door at the outer façade.

2.7.8 The sound reduction of acoustic window with MPA applied in bedroom of NPE reaches 6.8dB(A) (for bedroom of 6.8m², air gap of 100mm and overlapping length of 275mm). Since the area of the residential

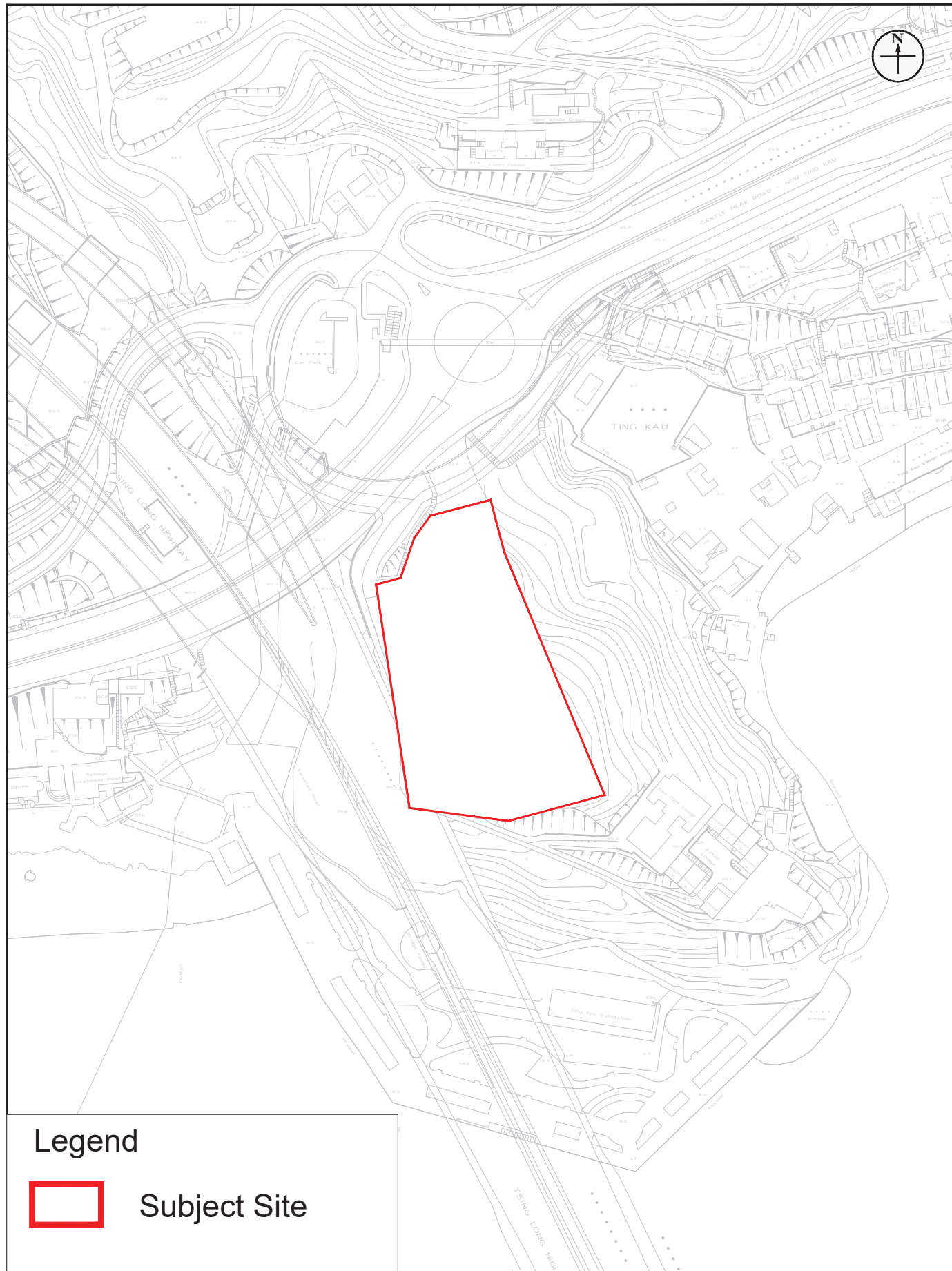
applied if the dormitory size is smaller than reference case. The AW(BT) for dormitories would be optimized at later detailed design stage.

- 2.7.9 The outer opening size & room size also play a significant role in affecting the sound attenuation performance. The sound attenuation performance provided by AW(BT) increases with room size because of the longer reverberation time and lower reverberation effect in larger room. Due to the room size difference between the Proposed Redevelopment, the reference case, further adjustment is needed and is made by accounting the difference between the room size between the Proposed Redevelopment the reference case. As a conservative approach, the corrected noise level would not be greater than the reference case even the room size of the Proposed Redevelopment is larger than the reference case. Moreover, the outer opening size of the Proposed Redevelopment is larger than the reference case, similar approach to adjustment of room size is also adopted to the outer opening size. Appendix 2.2 shows the sound attenuation adjustment of AW(BT) adopted in the Proposed Redevelopment. In case, the noise reduction of the proposed AW(BT) is higher than the residual exceedance, it is assumed that the reduction is equal to the residual exceedance for conservative assessment approach.
- 2.7.10 For NSR T1-TYP-O30 which the room area is 4.6m², it is noted that there would still have around 0.6 dB(A) exceedance after provision of the AW (BT) - NPE. In order to further mitigate these minor exceedances, additional sound absorption material (SAM) at the window frame (top and outer opening side of mullion) of acoustic window is proposed. According to the approved Acoustic Window (Baffle Type) Mock-up Test Report for proposed development at T.P.T.L. 225, Tai Po, the acoustic window having addition of SAM at top of frame behind the sliding panel and at one side of frame can offer an additional 0.9 - 1.1 dB(A) reduction. For conservatism, it is assumed that the SAM able to provide at least 0.7 dB(A) traffic noise reduction in this assessment. As such, the NSR T1-TYP-O30 would comply with the standard after the provision of the above mitigation measure.
- c. Acoustic Balcony (Baffle Type) (AB(BT))- (KT)
- 2.7.11 Again, the design parameter of AB(BT) in Proposed Redevelopment may not be able to follow the reference case of EPD-PN, in view of the room area is much larger than that for the EPD-PN which is for 8 m² room area only. The room area of the living room is around 13m², thus reference case from other developments is adopted. Below describes the reference AB(BT)-KT adopted at other approved project, such as Proposed Development at Kai Tak Area 1F1, proposed comprehensive development at Kai Tak Area 1F1, NKIL6568 etc. The project owner of the above-mentioned projects is the same. The noise attenuation performance provided by the AB(BT)-KT is obtained via laboratory testing which has been approved by EPD.
- 2.7.12 AB(BT)-KT comprises of an inner sliding glass panel. When the inner sliding glass panel is in closed condition and the outer sliding glass panel in open condition, an 100mm air gap is formed for the supply of fresh air and 375mm overlapping for noise mitigation effect. The design can enable natural ventilation through the gap between the outer façade and inner sliding panel on one hand and prevent most noise from entering indoor environment on the other hand.
- 2.7.13 AB(BT)-KT is a typical combined balcony, with the A/C platform located at the adjacent side of the sliding door. Solid balustrades are adopted, surrounding the U.P. and balcony area.
- 2.7.14 A road traffic noise sound attenuation of the AB(BT)-KT for the living room with 11.2m² can reach 6.7 dB(A) noise reduction. The above noise attenuation performance is obtained via laboratory testing which has been approved by EPD.
- 2.7.15 Furthermore, the actual sound attenuation adopted at individual NSR would not be more than the residual exceedance estimated and the maximum sound attenuation mentioned above as a conservative approach.
- 2.8 Road Traffic Impact Assessment Result (Mitigated Case)
- 2.8.1 The predicted road traffic noise effects on the selected NSRs based on the noise mitigation measures discussed above were assessed and presented in Appendix 2.2. With the implementation of the above

recommended mitigation measure, full compliance can be achieved for the residential towers. The compliance rate would be 100%.

- 2.9 Conclusion
- 2.9.1 Road traffic noise impact assessment has been carried out for the Proposed Redevelopment.
- 2.9.2 All practical and effective noise mitigation measures have been explored, which include podia building, building setback and orientation, acoustic window (baffle type), acoustic balcony (baffle type), and fixed glazing with/ without maintenance window.
- 2.9.3 After mitigation, no exceedance is found. No significant road traffic noise impact is anticipated for the Proposed Redevelopment. Figure 2.2 and Appendix 2.4 show the consolidated noise mitigation measures and schedule.
- 2.9.4 The completed self-assessment form of PN 4/23 is attached in Appendix 2.5.

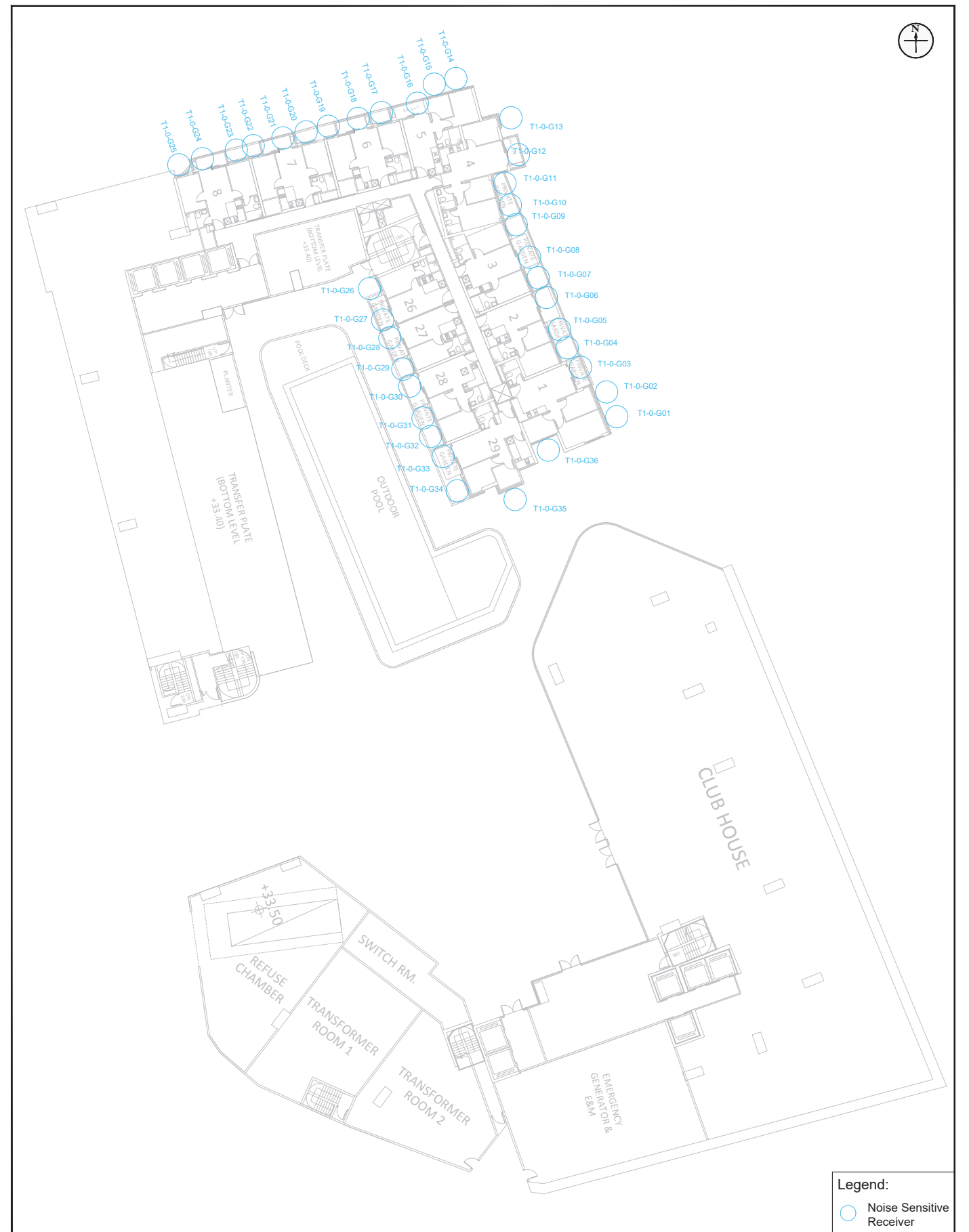
Figures



Legend

 Subject Site

Figure: 1.1	
Title: Location of Subject Site and Its Environs	Drawn by: KK
	Checked by: TC
Project: Section 16 Planning Application For Submission of Layout Plan For Permitted 'Flat' and 'Social Welfare Facility' use at Tsuen Wan Inland Lot 5 and Lot No. 429 In D.D. 399, Ting Kau, Tsuen Wan	Rev.: 2.1
	Date: Apr 2024




Legend:
 Noise Sensitive Receiver


Figure: 2.1a		
Title: Location of Representative Noise Sensitive Receivers (T1-GF)	Drawn by: KK	
	Checked by: TC	
Project: Section 16 Planning Application For Submission of Layout Plan For Permitted 'Flat' and 'Social Welfare Facility' use at Tsuen Wan Inland Lot 5 and Lot No. 429 In D.D. 399, Ting Kau, Tsuen Wan	Rev.: 2.2	
	Date: Sep 2024	



Figure: 2.1b

Title: Location of Representative Noise Sensitive Receivers (T1-1F)

Project: Section 16 Planning Application For Submission of Layout Plan For Permitted 'Flat' and 'Social Welfare Facility' use at Tsuen Wan Inland Lot 5 and Lot No. 429 In D.D. 399, Ting Kau, Tsuen Wan

Legend:
 Noise Sensitive Receiver



Drawn by: KK

Checked by: TC

Rev.: 2.2

Date: Sep 2024

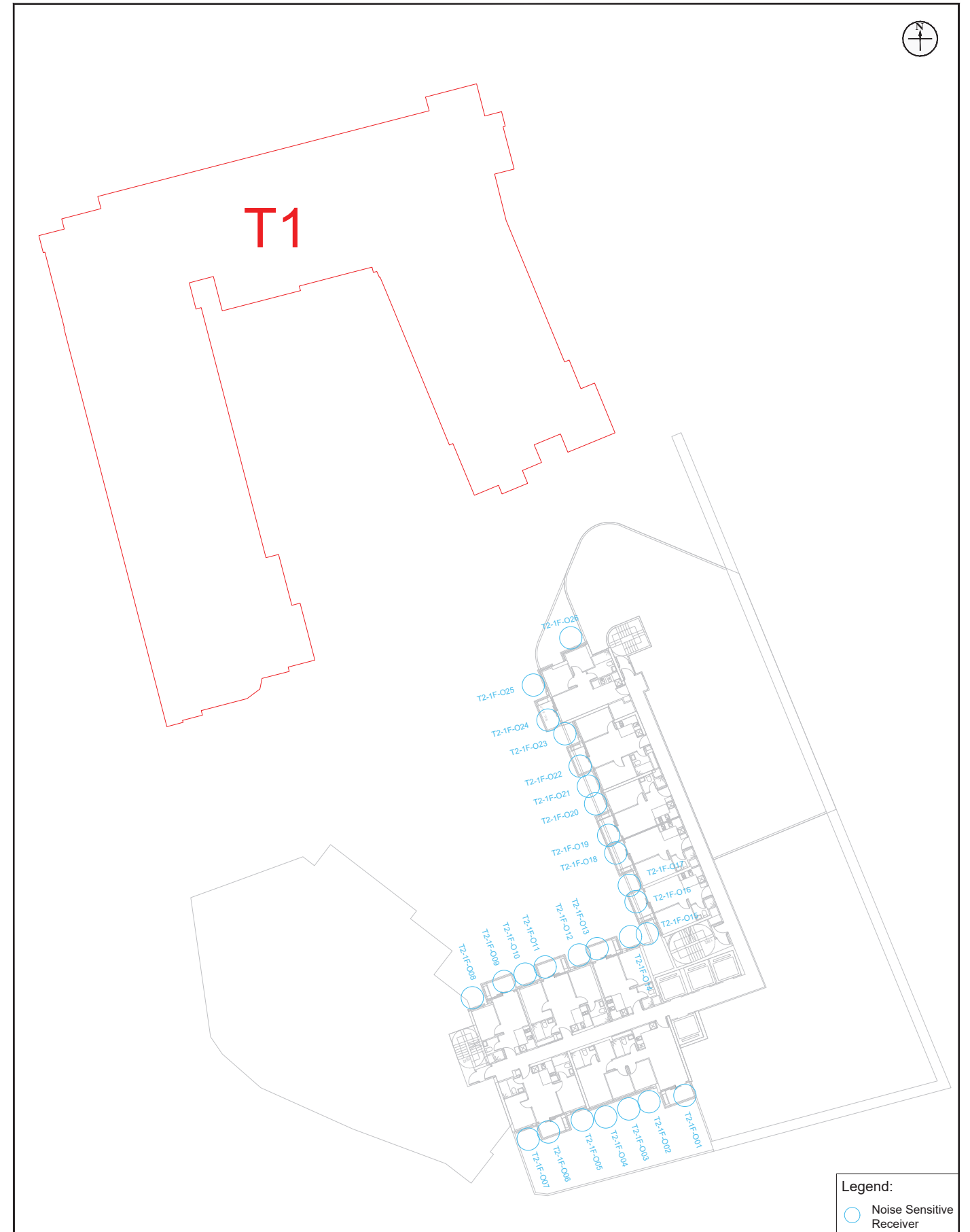


Figure: 2.1c

Title: Location of Representative Noise Sensitive Receivers (T2-1F)

Project: Section 16 Planning Application For Submission of Layout Plan For Permitted 'Flat' and 'Social Welfare Facility' use at Tsuen Wan Inland Lot 5 and Lot No. 429 In D.D. 399, Ting Kau, Tsuen Wan

Legend:
 Noise Sensitive Receiver



Drawn by: KK

Checked by: TC

Rev.: 2.2

Date: Sep 2024

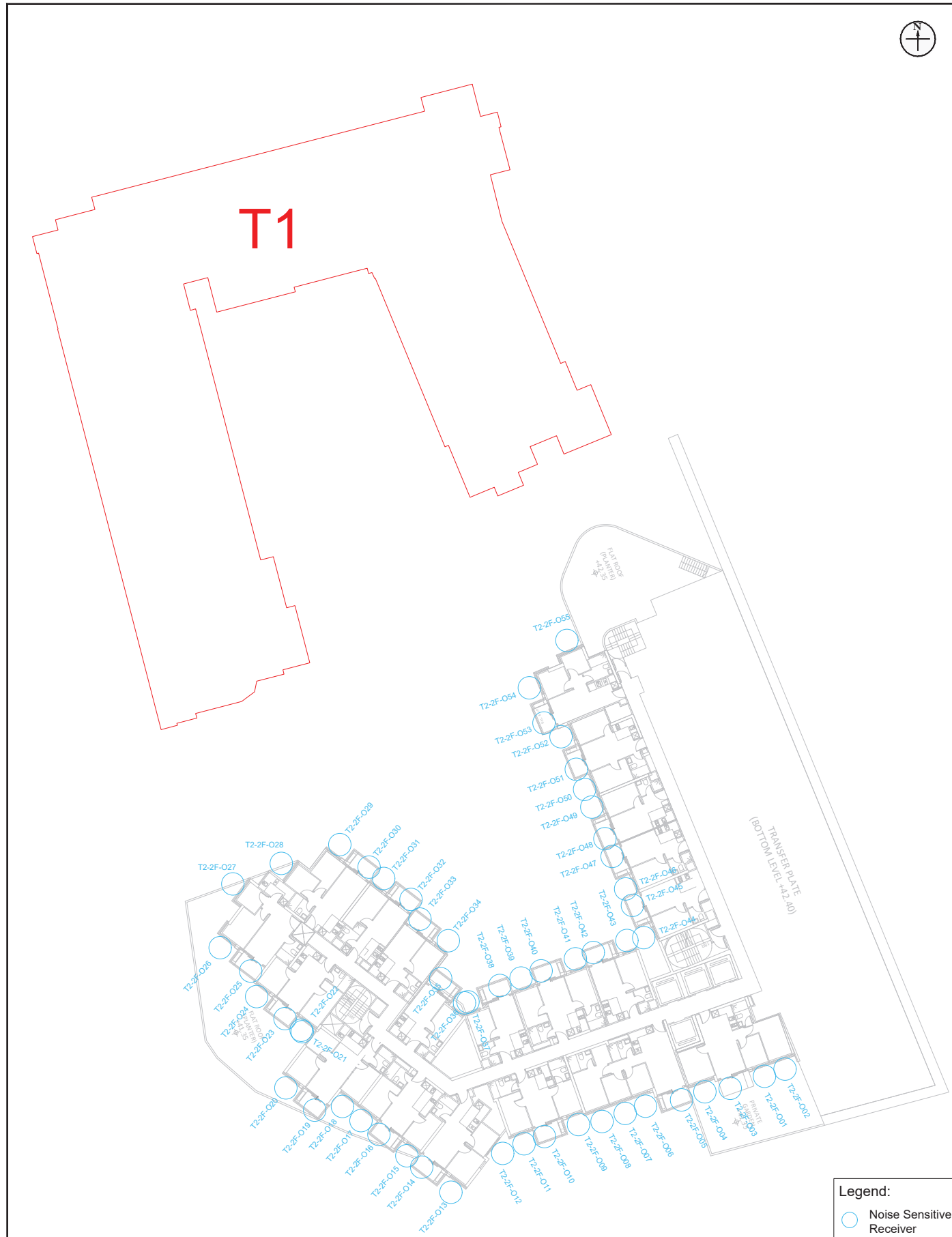


Figure: 2.1d
Title: Location of Representative Noise Sensitive Receivers (T2-2F)
Project: Section 16 Planning Application For Submission of Layout Plan For Permitted 'Flat' and 'Social Welfare Facility' use at Tsuen Wan Inland Lot 5 and Lot No. 429 In D.D. 399, Ting Kau, Tsuen Wan

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Checked by:	TC
Rev.:	2.2
Date:	Sep 2024

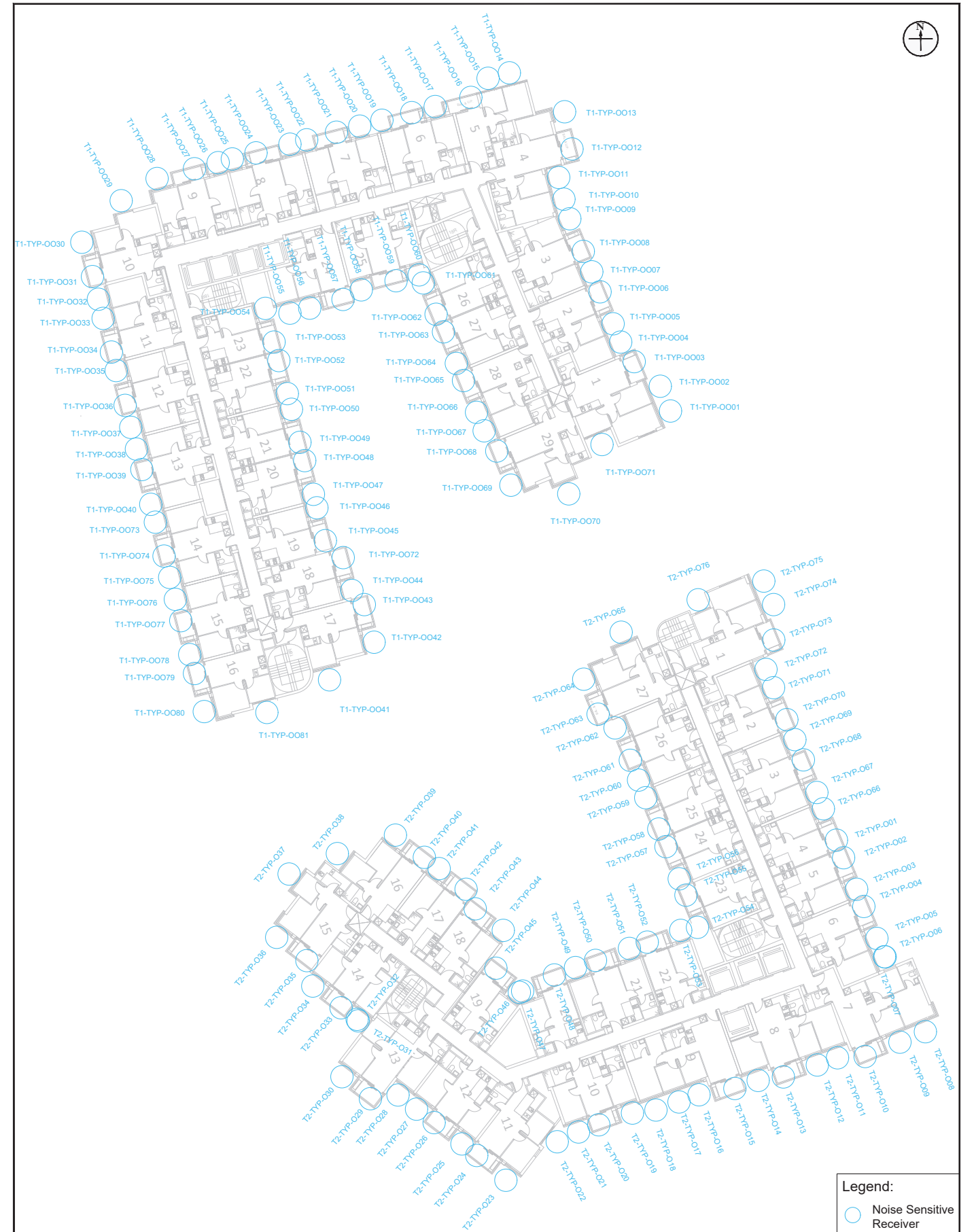


Figure: 2.1e
Title: Location of Representative Noise Sensitive Receivers (T1 & T2-TYP)
Project: Section 16 Planning Application For Submission of Layout Plan For Permitted 'Flat' and 'Social Welfare Facility' use at Tsuen Wan Inland Lot 5 and Lot No. 429 In D.D. 399, Ting Kau, Tsuen Wan

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Figure: 2.1f
Title: Location of Representative Noise Sensitive Receivers (T1-13F & T2-12F)
Project: Section 16 Planning Application For Submission of Layout Plan For Permitted 'Flat' and 'Social Welfare Facility' use at Tsuen Wan Inland Lot 5 and Lot No. 429 In D.D. 399, Ting Kau, Tsuen Wan

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Figure: 2.2
Title: Location of Proposed Noise Mitigation Measures (T1 & T2)
Project: Section 16 Planning Application For Submission of Layout Plan For Permitted 'Flat' and 'Social Welfare Facility' use at Tsuen Wan Inland Lot 5 and Lot No. 429 In D.D. 399, Ting Kau, Tsuen Wan

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Appendix 1.1 Floor Plans, MLP and Section of Proposed Redevelopment

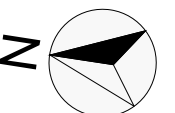
LEGEND

- APPLICATION SITE BOUNDARY
- DEVELOPMENT SITE BOUNDARY
- FOOTPATH / COVERED AREA
- CARPARK / DRIVEWAY
- RESIDENTIAL USE
- LANDSCAPE AREA
- PRIVATE FLAT ROOF / PRIVATE GARDEN



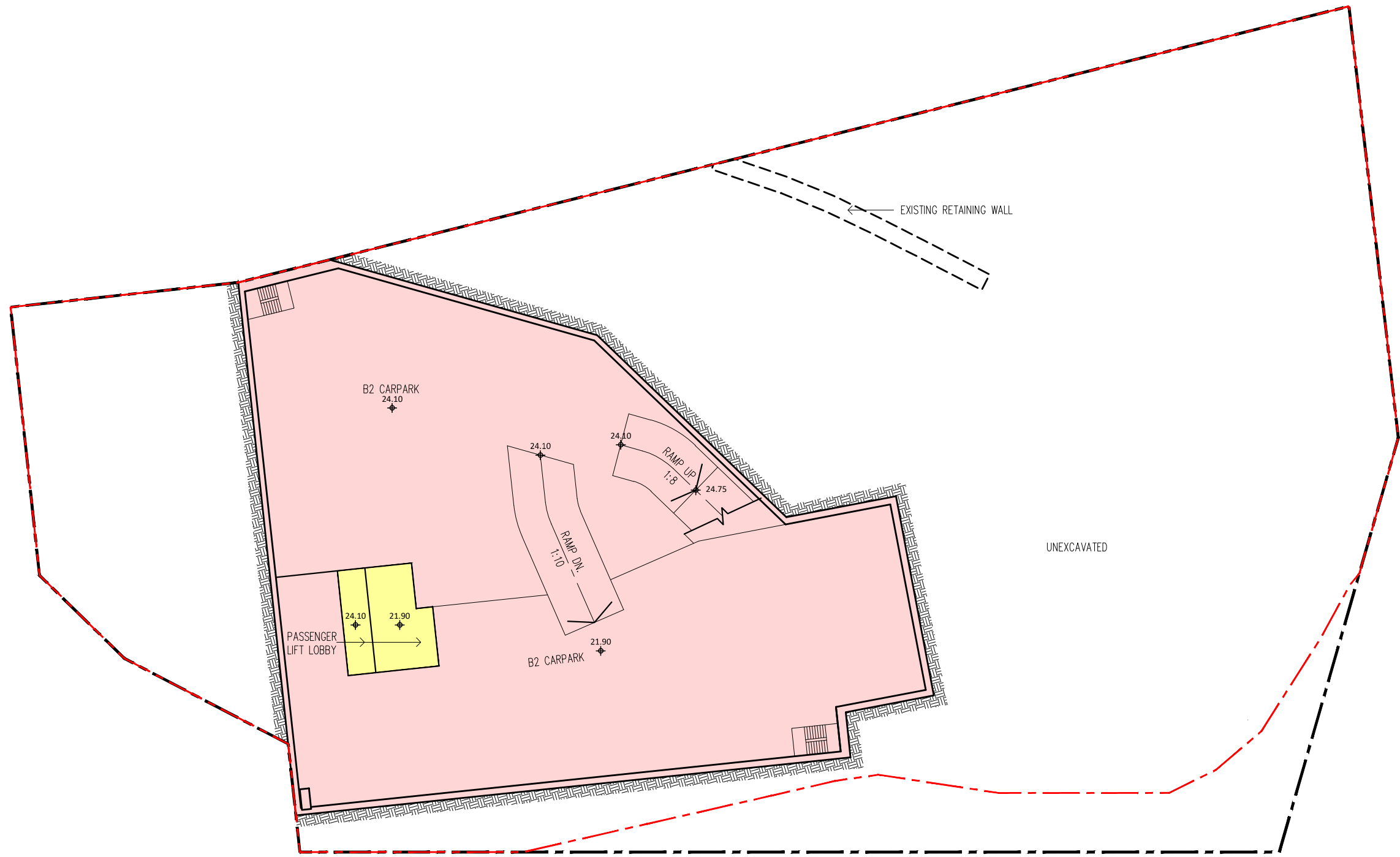
ABBREVIATION:
 DE = DAY CARE CENTRE FOR THE ELDERLY
 LMR = LIFT MACHINE ROOM

INDICATIVE MASTER LAYOUT PLAN



LEGEND

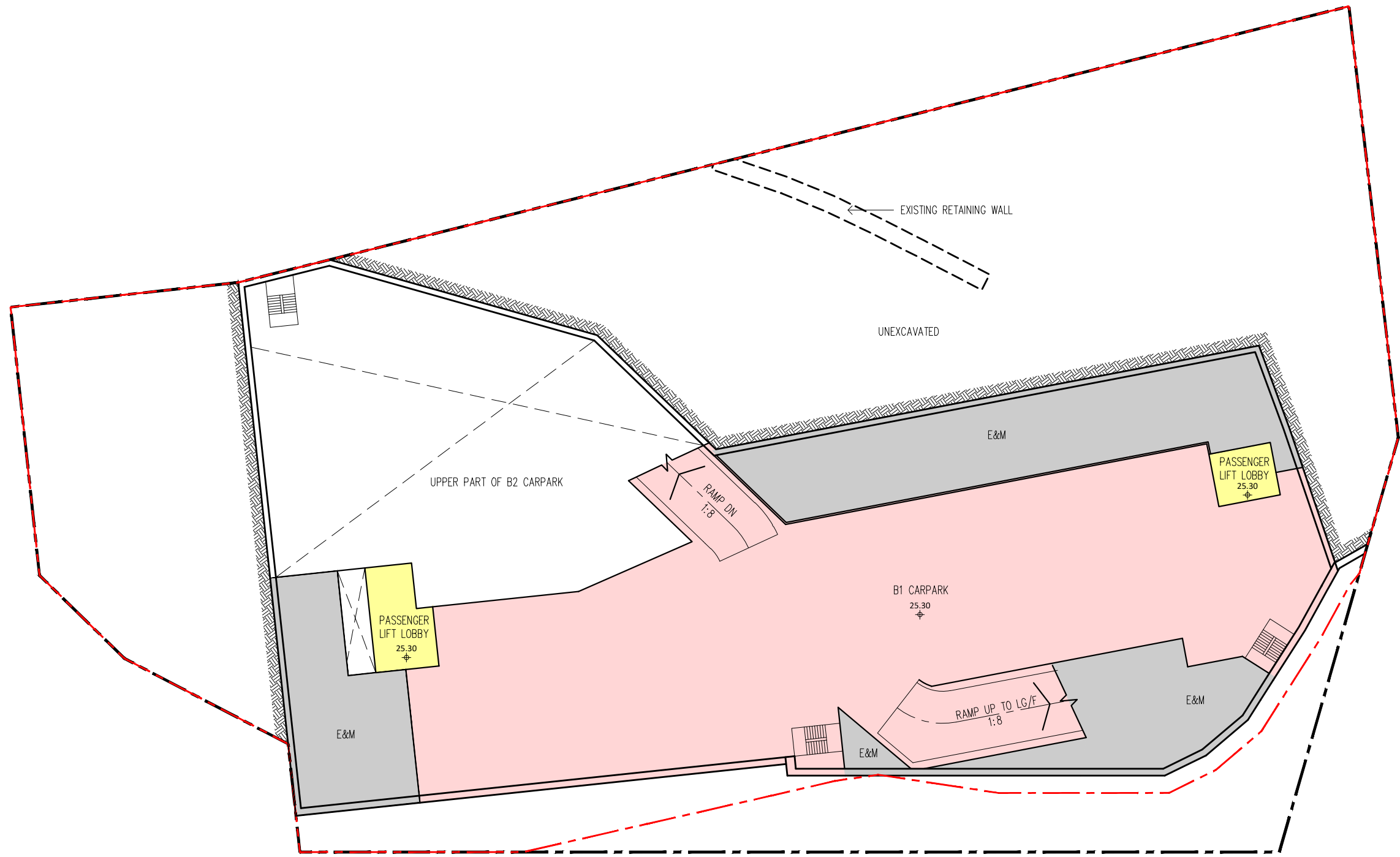
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- DEVELOPMENT SITE BOUNDARY
- CARPARK / DRIVEWAY
- RESIDENTIAL USE



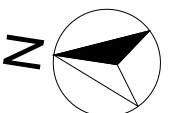
INDICATIVE BASEMENT 2 FLOOR PLAN

LEGEND












- APPLICATION SITE BOUNDARY
- DEVELOPMENT SITE BOUNDARY
- CARPARK / DRIVEWAY
- RESIDENTIAL USE
- VOID/LIGHT WELL
- E&M AREA

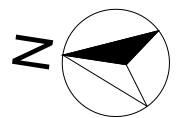
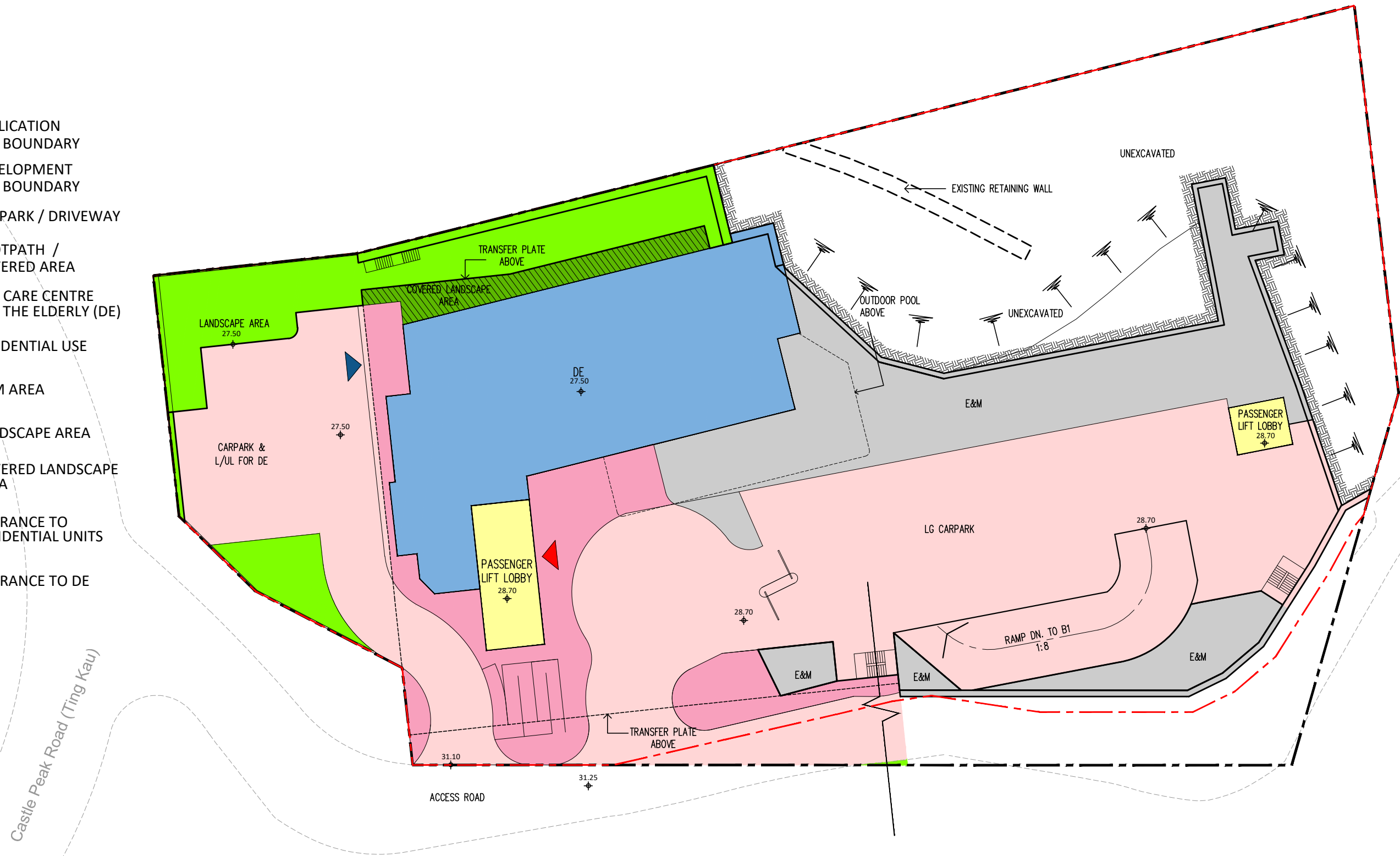


INDICATIVE BASEMENT 1 FLOOR PLAN















LEGEND

-  APPLICATION SITE BOUNDARY
-  DEVELOPMENT SITE BOUNDARY
-  CARPARK / DRIVEWAY
-  FOOTPATH / COVERED AREA
-  DAY CARE CENTRE FOR THE ELDERLY (DE)
-  RESIDENTIAL USE
-  E&M AREA
-  LANDSCAPE AREA
-  COVERED LANDSCAPE AREA
-  ENTRANCE TO RESIDENTIAL UNITS
-  ENTRANCE TO DE

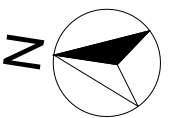


INDICATIVE LOWER GROUND FLOOR PLAN

LEGEND






-  APPLICATION SITE BOUNDARY
-  DEVELOPMENT SITE BOUNDARY
-  CARPARK / DRIVEWAY
-  FOOTPATH / COVERED AREA
-  CLUB HOUSE
-  RESIDENTIAL USE
-  E&M AREA
-  TRANSFER PLATE
-  LANDSCAPE AREA
-  PRIVATE GARDEN
-  ENTRANCE TO RESIDENTIAL UNITS
-  ENTRANCE TO CLUB HOUSE

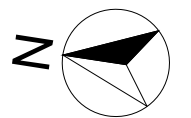
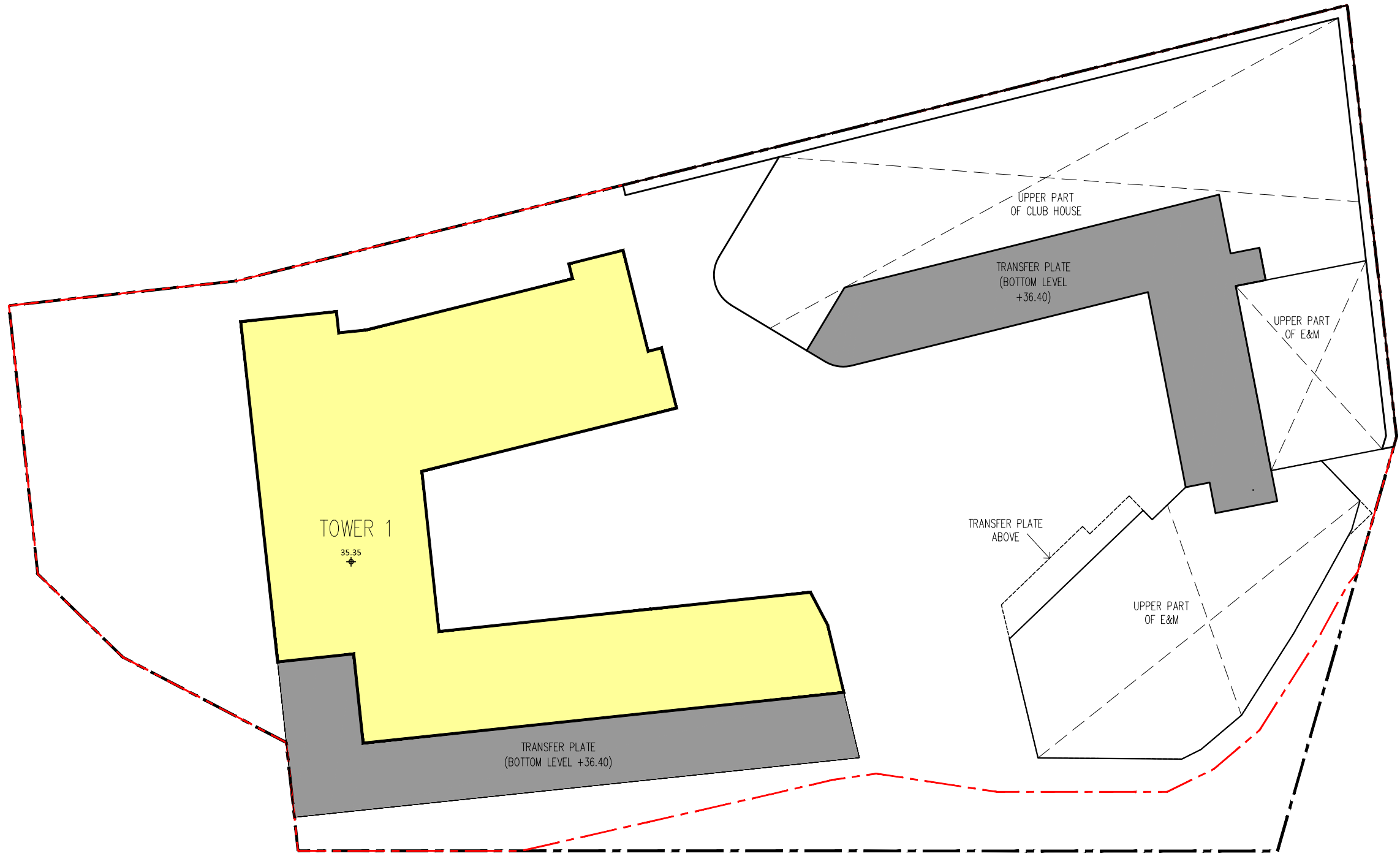
Castle Peak Road (Ting Kau)



INDICATIVE GROUND FLOOR PLAN

LEGEND

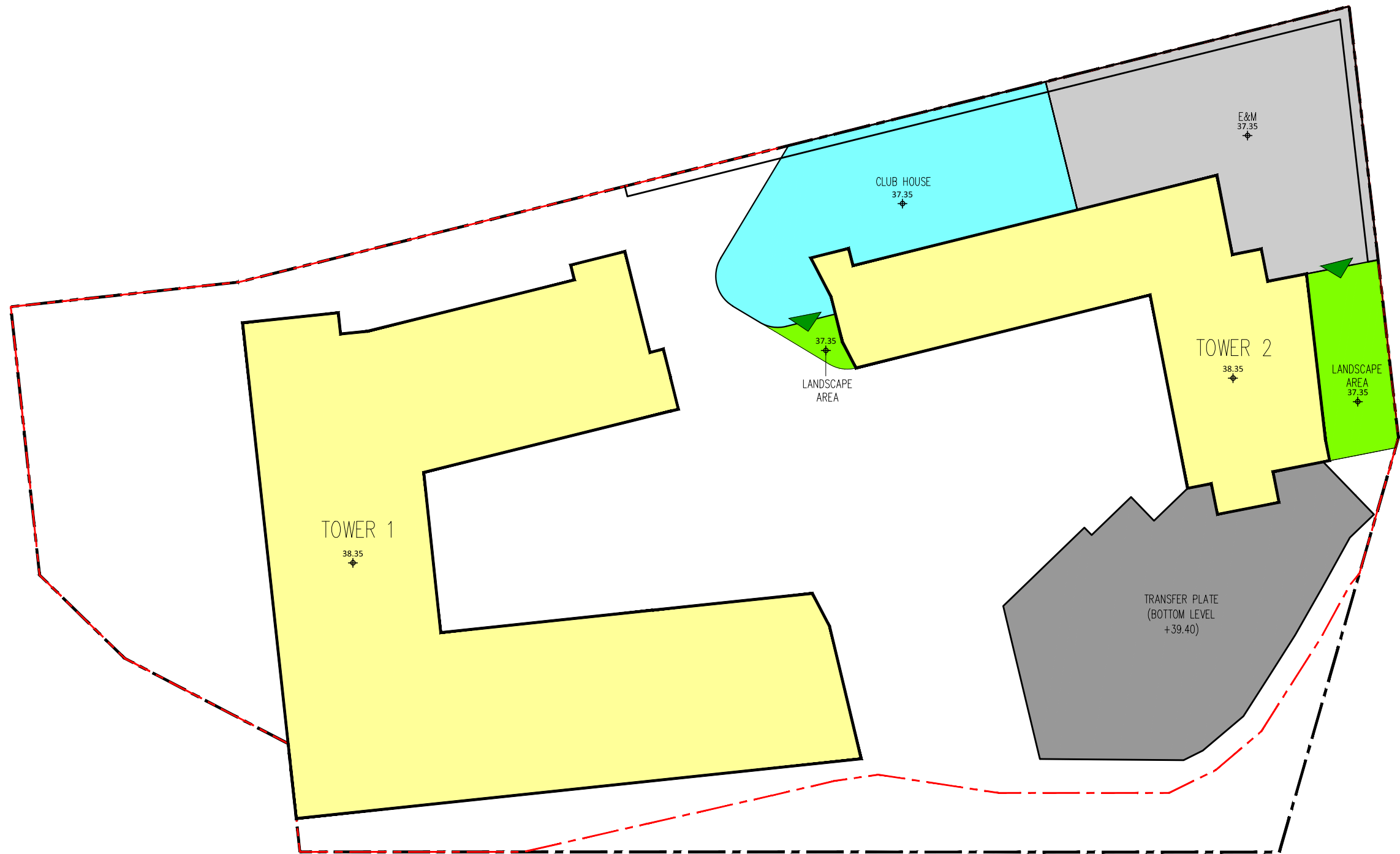
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-  DEVELOPMENT SITE BOUNDARY
-  RESIDENTIAL USE
-  TRANSFER PLATE
-  VOID/LIGHT WELL



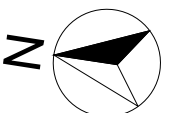
INDICATIVE T1 1st. & T2 UPPER PART OF CLUB HOUSE FLOOR PLAN

LEGEND

-  APPLICATION SITE BOUNDARY
-  DEVELOPMENT SITE BOUNDARY
-  RESIDENTIAL USE
-  CLUB HOUSE
-  E&M AREA
-  TRANSFER PLATE
-  LANDSCAPE AREA
-  ACCESS TO LANDSCAPE AREA

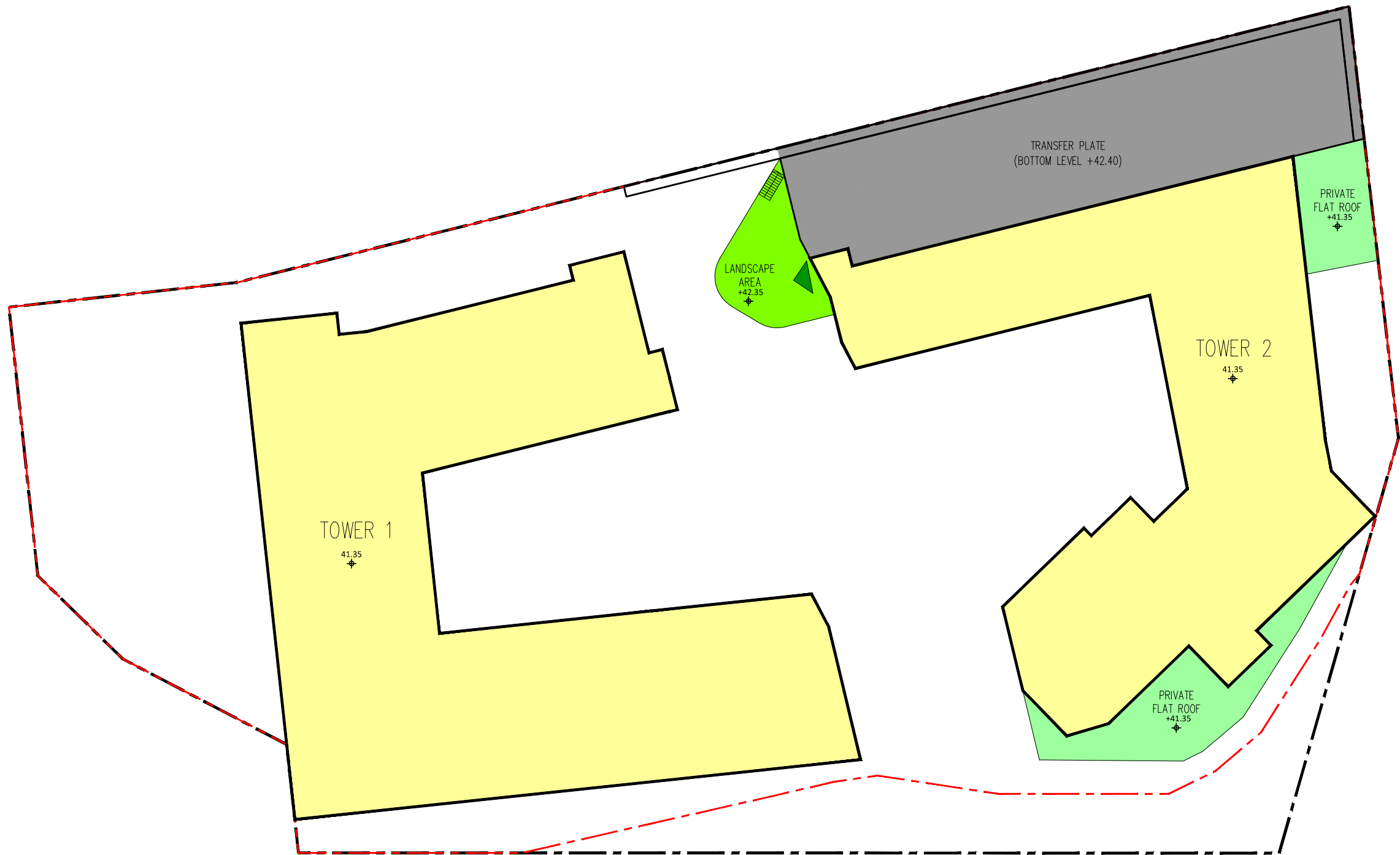


INDICATIVE T1 2nd. & T2 1st. FLOOR PLAN

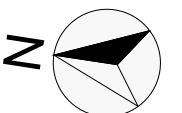


LEGEND

- APPLICATION SITE BOUNDARY
- DEVELOPMENT SITE BOUNDARY
- RESIDENTIAL USE
- TRANSFER PLATE
- PRIVATE FLAT ROOF
- LANDSCAPE AREA
- ACCESS TO LANDSCAPE AREA

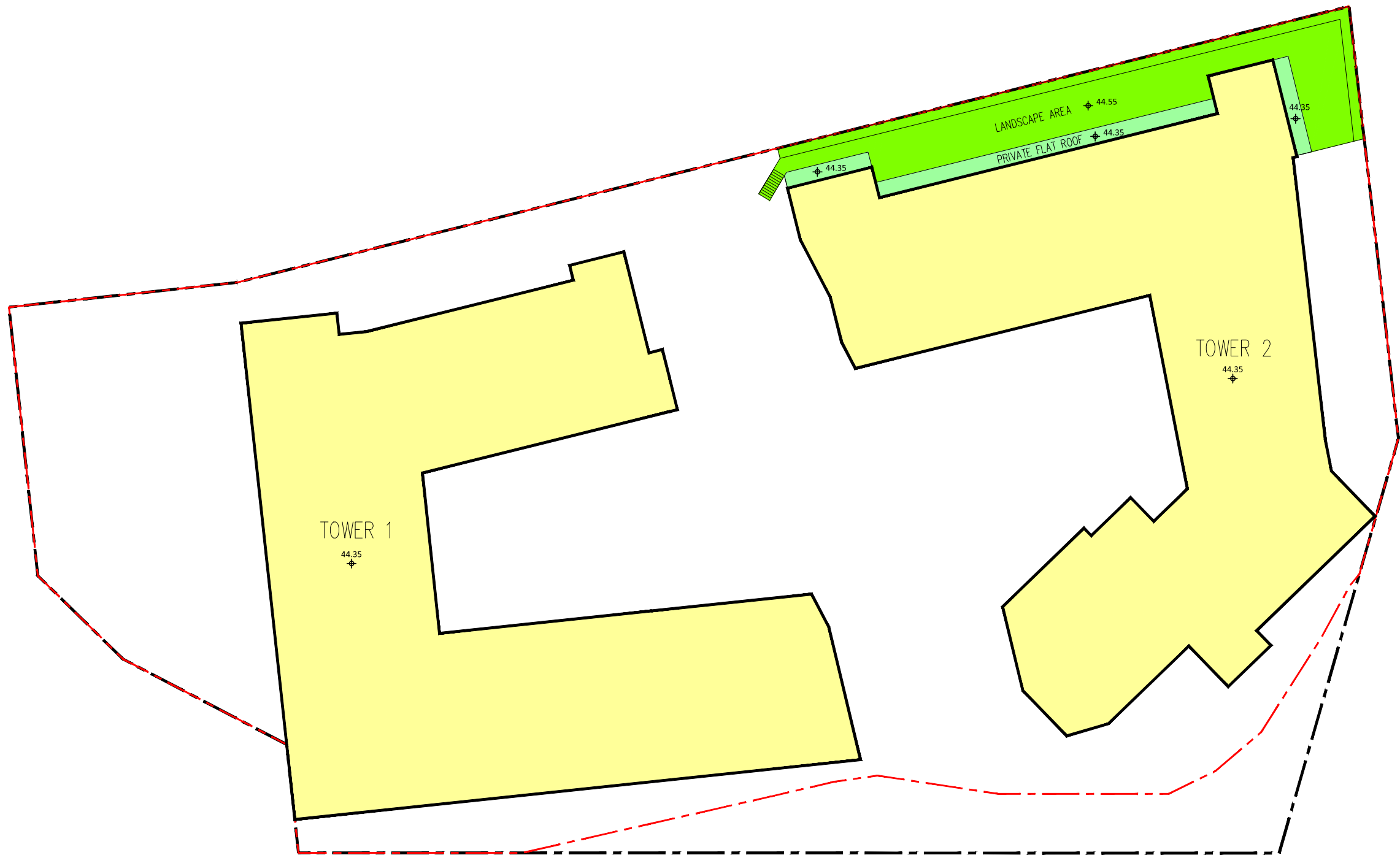


INDICATIVE T1 3rd. & T2 2nd. FLOOR PLAN

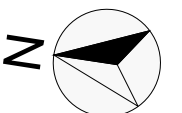


LEGEND

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- DEVELOPMENT SITE BOUNDARY
- RESIDENTIAL USE
- PRIVATE FLAT ROOF
- LANDSCAPE AREA

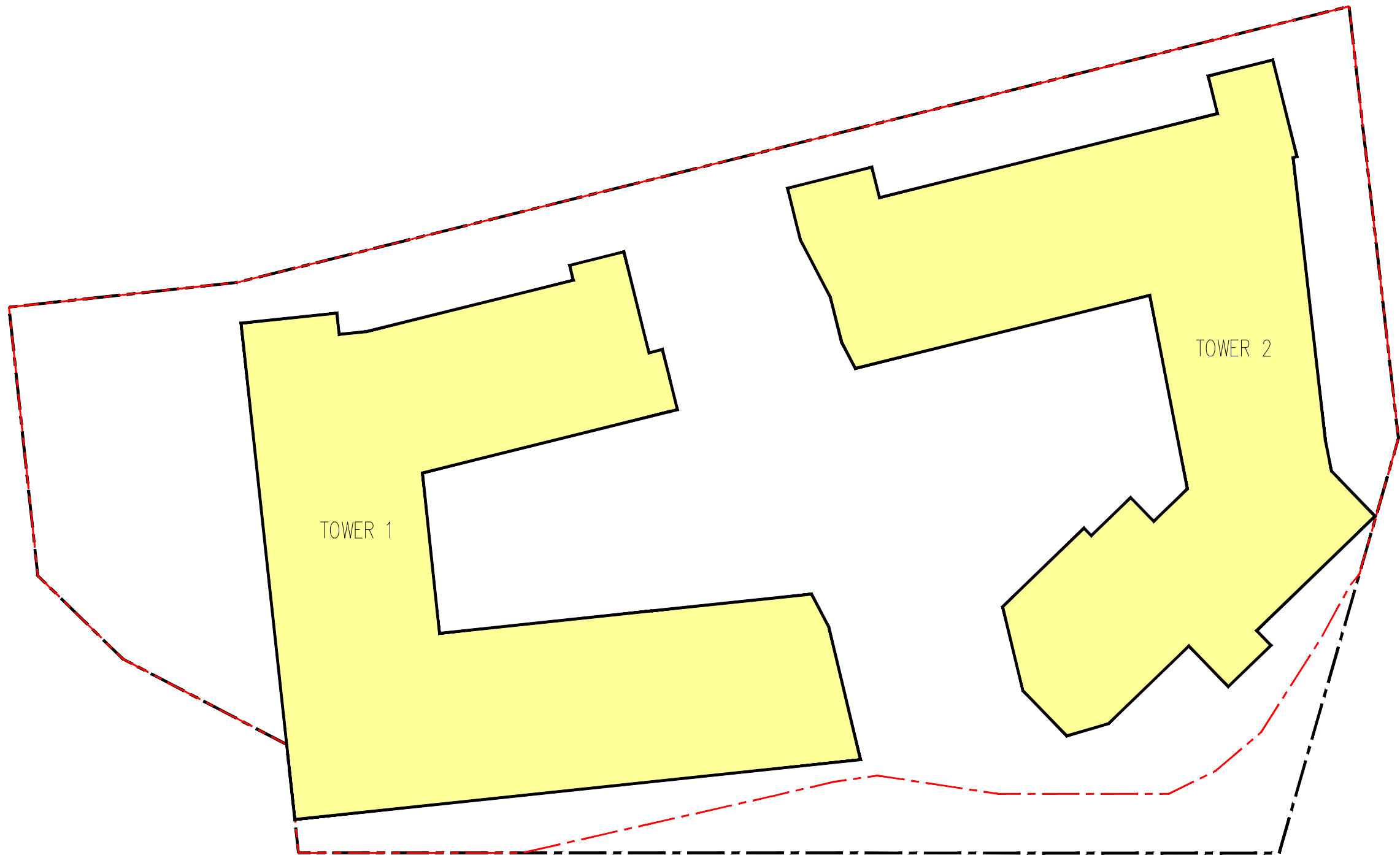


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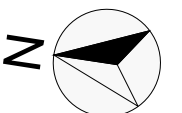


LEGEND

- APPLICATION SITE BOUNDARY
- DEVELOPMENT SITE BOUNDARY
- RESIDENTIAL USE

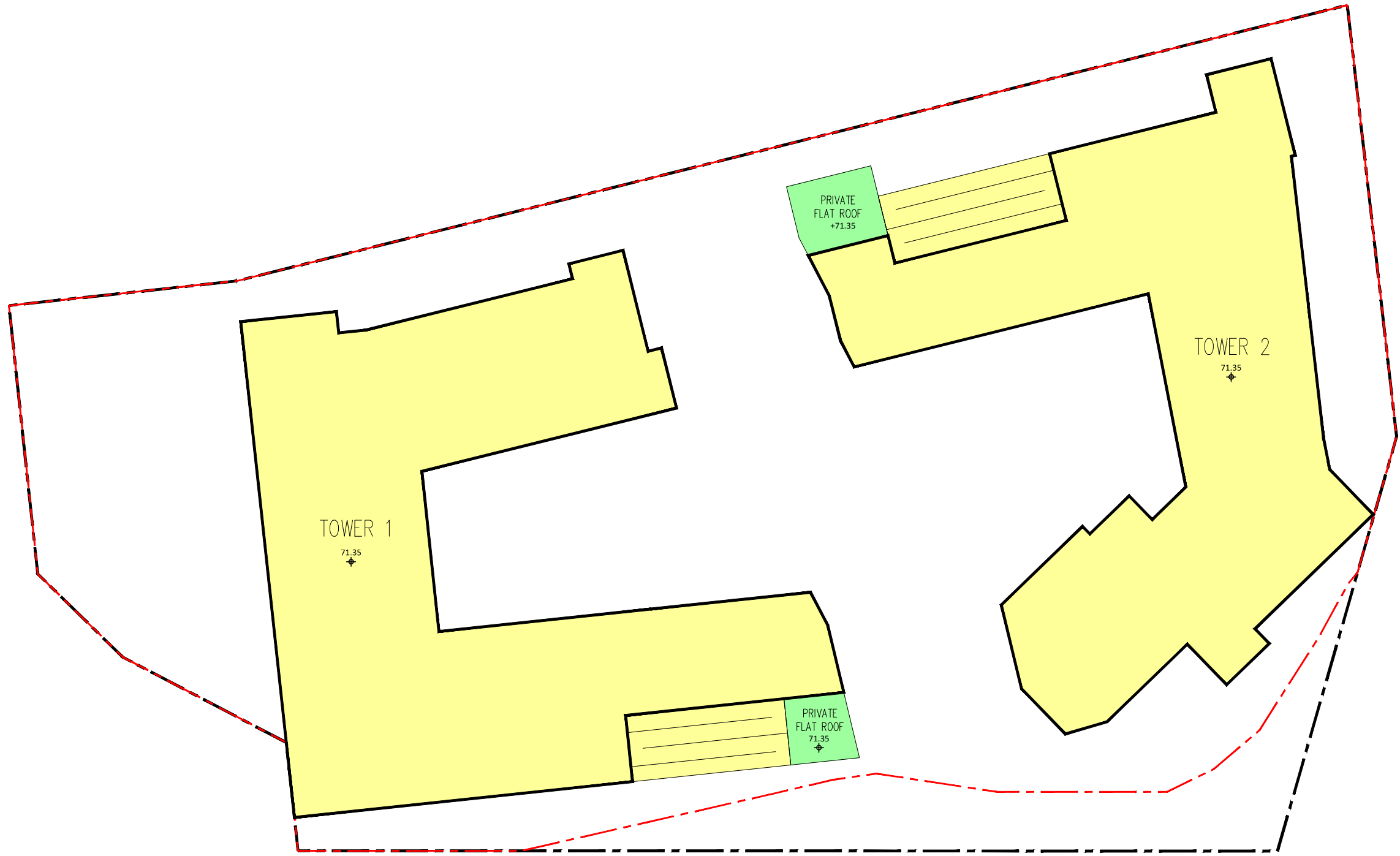


INDICATIVE TYPICAL FLOOR PLAN

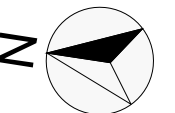


LEGEND





- APPLICATION SITE BOUNDARY
- DEVELOPMENT SITE BOUNDARY
- RESIDENTIAL USE
- PRIVATE FLAT ROOF

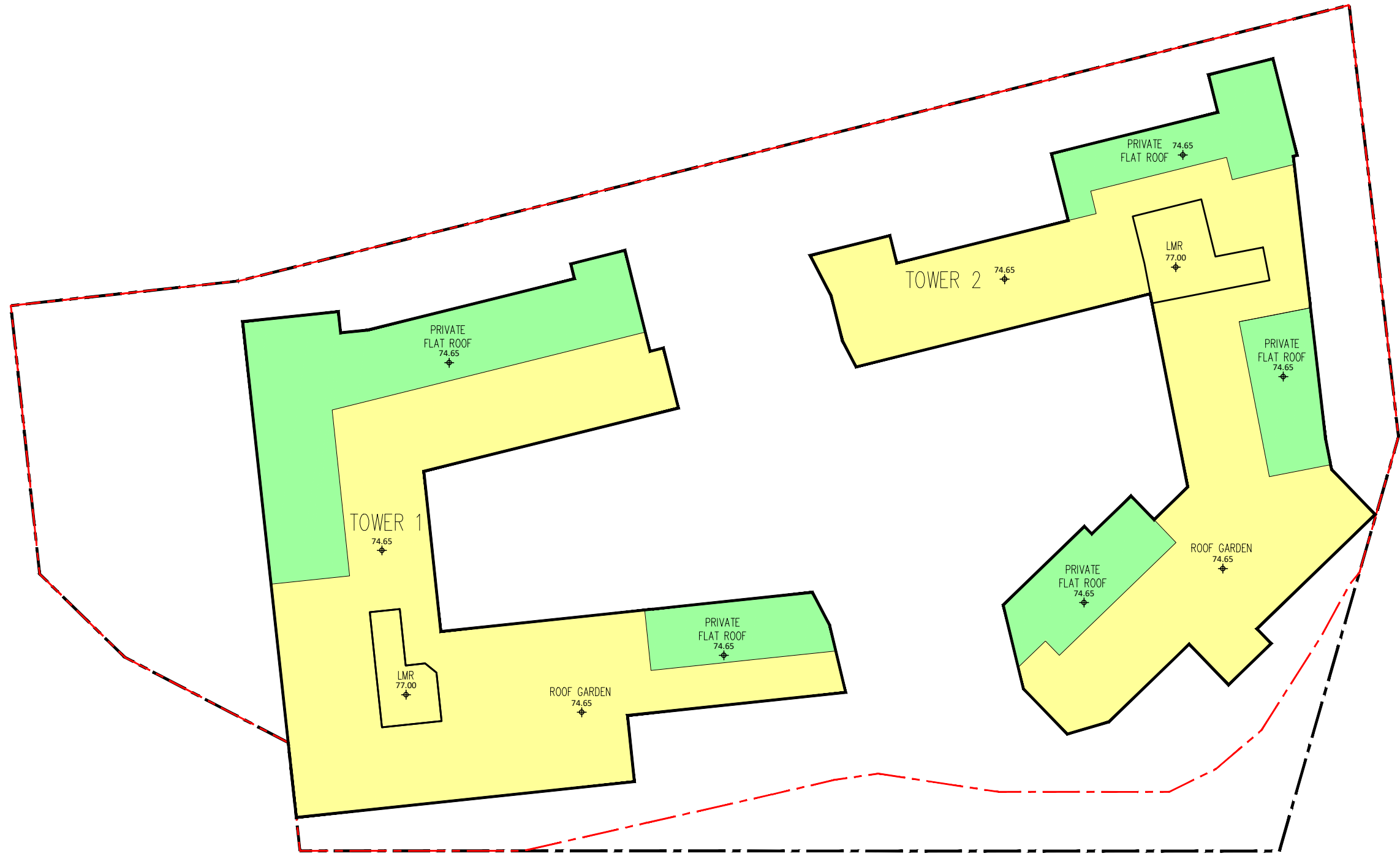


INDICATIVE T1 13th. & T2 12th. FLOOR PLAN



LEGEND

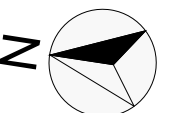
-  APPLICATION SITE BOUNDARY
-  DEVELOPMENT SITE BOUNDARY
-  RESIDENTIAL USE
-  PRIVATE FLAT ROOF



ABBREVIATION:

LMR = LIFT MACHINE ROOM

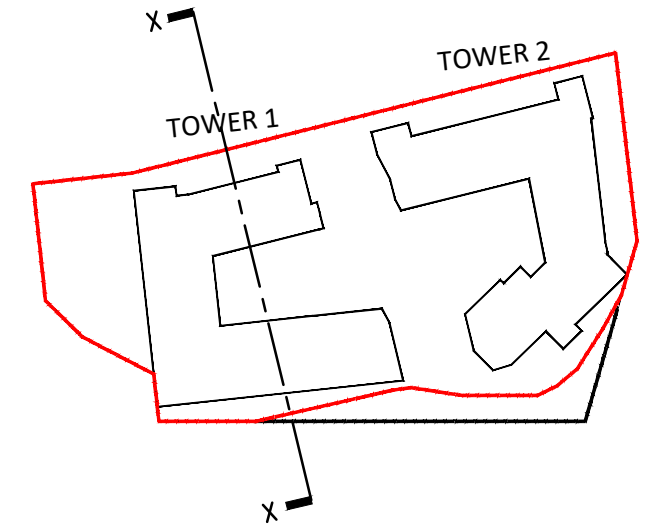
INDICATIVE ROOF FLOOR PLAN



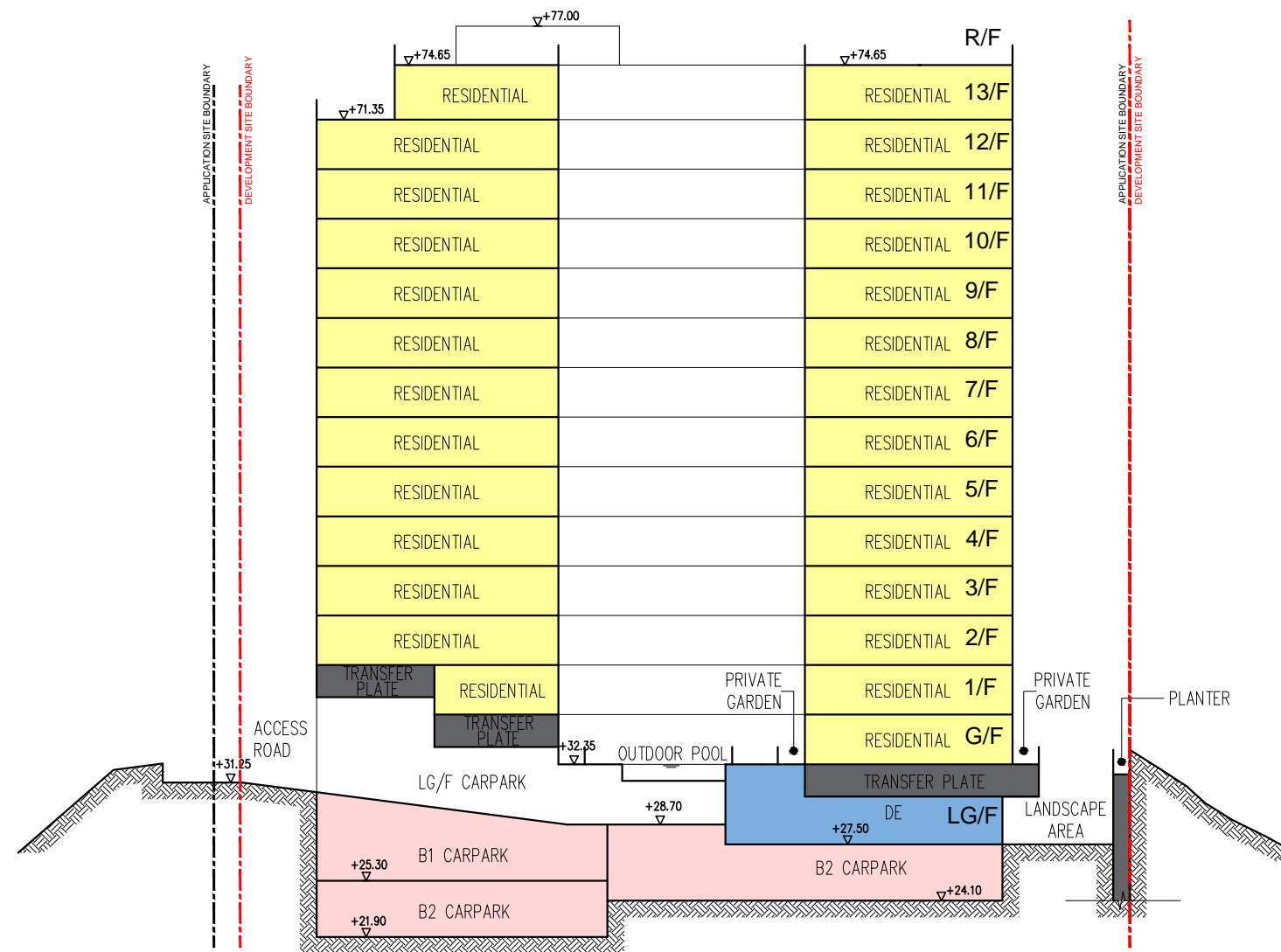
DATE : 07/10/2024
1 : 400 (A3)

LEGEND

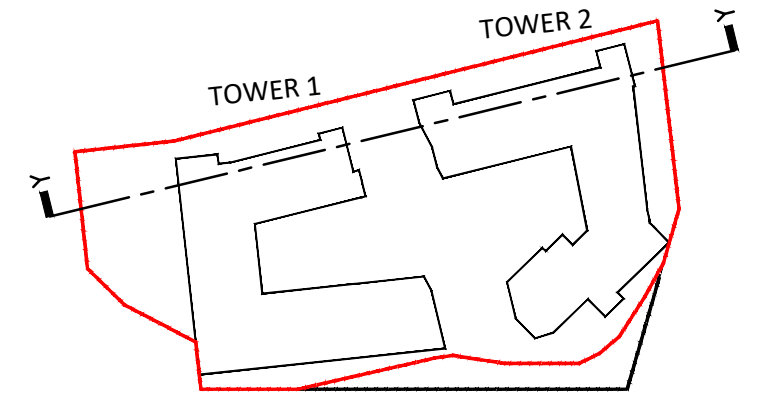
- APPLICATION SITE BOUNDARY
- - - - - DEVELOPMENT SITE BOUNDARY
- RESIDENTIAL USE
- DAY CARE CENTRE FOR THE ELDERLY (DE)
- CARPARK / DRIVEWAY



**TOWER 1
14 STOREYS RESIDENTIAL FLOOR**



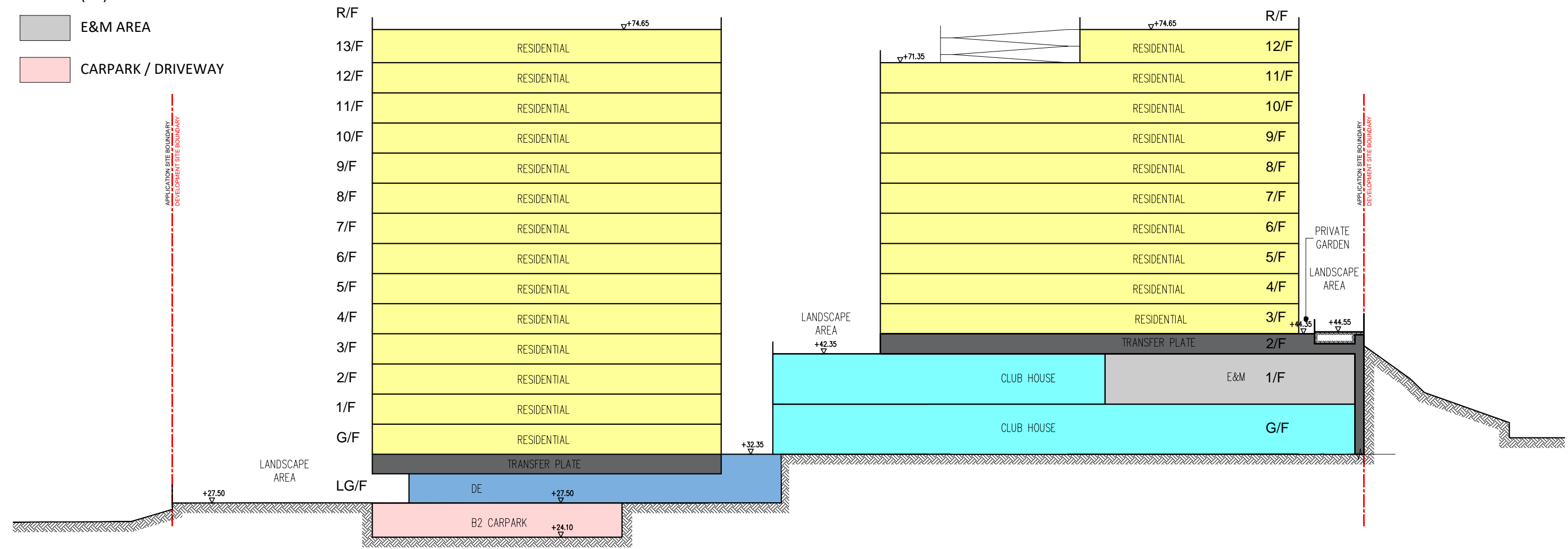
INDICATIVE SITE SECTION X-X



- LEGEND**
- APPLICATION SITE BOUNDARY
 - DEVELOPMENT SITE BOUNDARY
 - RESIDENTIAL USE
 - CLUB HOUSE
 - DAY CARE CENTRE FOR THE ELDERLY (DE)
 - E&M AREA
 - CARPARK / DRIVEWAY

**TOWER 1
14 STOREYS RESIDENTIAL FLOOR**

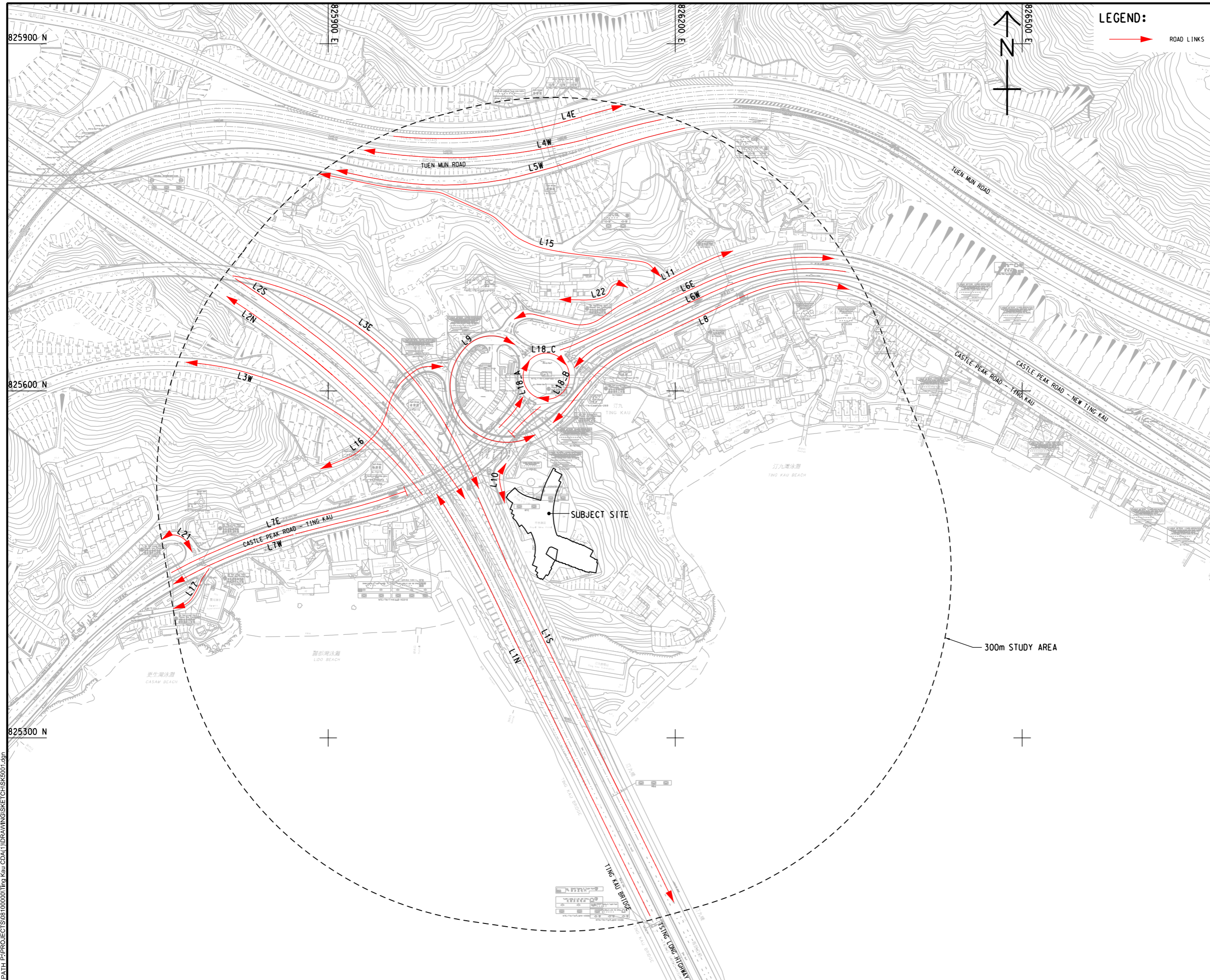
**TOWER 2
12 STOREYS RESIDENTIAL FLOOR**



INDICATIVE SITE SECTION Y-Y

Appendix 2.1 Traffic Forecast of Year 2043

ISO A1 594mm x 841mm
 Approved:
 Checked:
 Designer:
 Project Management Initials:
 Plot File by: ZHACHC2_2021/2024
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AECOM

PROJECT
 SECTION 16 PLANNING
 APPLICATION FOR SUBMISSION OF
 LAYOUT PLAN FOR PERMITTED
 'FLAT' AND 'SOCIAL WELFARE
 FACILITY' USES AT TSUEN WAN
 INLAND LOT 5 AND LOT NO. 429 IN
 D.D. 399, TING KAU, TSUEN WAN,
 NEW TERRITORIES

CLIENT

CONSULTANT

AECOM Asia Company Ltd.
 www.aecom.com

SUB-CONSULTANTS

ISSUE/REVISION

I/R	DATE	DESCRIPTION	CHK.

STATUS

SCALE **DIMENSION UNIT**
 A1 1 : 1500 METRES

KEY PLAN

PROJECT NO. **CONTRACT NO.**

SHEET TITLE

INDEX PLAN FOR
 NIA ROAD LINKS

SHEET NUMBER

TING KAU CDA(1)/SK5001

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TING KAU CDA(1) - TRAFFIC FORECAST FOR NOISE ASSESSMENT

Index	Road Link	ROAD TYPE	LENGTH	Direction	Year 2043 Design Scenario			
					Traffic Flows (veh/hr)		HV%	
					AM	PM	AM	PM
L1N	Tsing Long Highway			NB	3050	4915	39%	34%
L1S	Tsing Long Highway			SB	6085	3765	37%	26%
L2N	Tsing Long Highway			NB	890	2020	37%	34%
L2S	Tsing Long Highway			SB	2570	1235	36%	28%
L3E	Slip Road from Tuen Mun Road (West) to Ting Kau Bridge			EB	3515	2530	37%	25%
L3W	Slip Road from Ting Kau Bridge to Tuen Mun Road (West)			WB	2160	2895	39%	33%
L4E	Tuen Mun Road			EB	5445	3330	29%	35%
L4W	Tuen Mun Road			WB	2485	3315	37%	30%
L5W	Slip Road from Tuen Mun Road (East) to Tai Lam Tunnel			WB	1190	1795	39%	40%
L6E	Castle Peak Road - New Ting Kau			EB	647	375	35%	30%
L6W	Castle Peak Road - New Ting Kau			WB	498	530	35%	20%
L7E	Castle Peak Road - New Ting Kau			EB	569	353	39%	31%
L7W	Castle Peak Road - New Ting Kau			WB	559	528	36%	21%
L8	Castle Peak Road - Ting Kau			Two-way	119	125	26%	27%
L9	Castle Peak Road - Ting Kau (Flyover)			Two-way	251	226	20%	18%
L10	Access Road to Subject Site			Two-way	143	104	9%	10%
L11	Ting Yat Road			Two-way	15	26	23%	22%
L15	Private Road Near Ting Yat Road			Two-way	14	16	14%	25%
L16	Access Road to Grand Riviera			Two-way	1	1	0%	0%
L17	Slip Road from Castle Peak Road - Ting Kau to Castle Peak Road - Ting Kau			WB	8	8	0%	0%
L18_A	Castle Peak Road - Ting Kau (Roundabout)			Roundabout	584	463	38%	26%
L18_B	Castle Peak Road - Ting Kau (Roundabout)			Roundabout	721	481	36%	26%
L18_C	Castle Peak Road - Ting Kau (Roundabout)			Roundabout	574	572	36%	21%
L21	Access Road to Deauville			Two-way	8	8	0%	0%



AECOM
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Shatin, Hong Kong
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新城市中央廣場第 2 座 12 樓
www.aecom.com

+852 3922 9000 tel
+852 3922 9797 fax

Our Ref : DYPK:GLYF:wtsk:60648191-2024014774L

30 September 2024

By Email

Ramboll Hong Kong Limited
21st Floor, BEA Harbour View Centre
56 Gloucester Road
Wan Chi
Hong Kong

Attn: Mr. Tony CHENG

Dear Mr. CHENG,

Section 16 Planning Application for Submission of Layout Plan for Permitted 'Flat' and 'Social Welfare Facility' Uses at Tsuen Wan Inland Lot 5 and Lot No. 429 in D.D. 399, Ting Kau, Tsuen Wan, New Territories (Section 16 Planning Application No. A/TWW/130)

Technical Note on Traffic Forecast for Noise Impact Assessment

We refer to our submission to Transport Department (TD) dated 23 September 2024 via post and the subsequent email received from TD dated 24 September 2024 regarding the submission of the traffic forecasts for the design year 2043, with a technical note outlining the methodology of the traffic forecasts for Noise Impact Assessment Study.

We write to confirm that TD's endorsed methodology prepared by us has been strictly adopted in preparing the traffic forecast for the Environmental Assessment Study prepared by Ramboll Hong Kong Limited.

Should you have any queries, please do not hesitate to contact the undersigned at

Thank you very much for your kind assistance.

Yours faithfully,
For and on behalf of
AECOM Asia Co. Ltd.

David Yeung
Senior Engineer, Traffic and Transport Planning
Land Supply / Municipal

Encl.

Approval of TD for Technical Note on Traffic Forecast for Noise Impact Assessment

Yeung, David

From: Ho Pong SIN
Sent: Tuesday, September 24, 2024 9:44 AM
To: Yeung, David
Cc: Lei, Gary
Subject: Re: Section 16 Planning Application for Submission of Layout Plan for Permitted 'Flat' and 'Social Welfare Facility' Uses at Tsuen Wan Inland Lot 5 and Lot No. 429 in D.D. 399, Ting Kau, Tsuen Wan, N.T. - Traffic Forecast for Traffic Noise Impact Asses...
Attachments: 2024014137L-TD_Traffic Forecast for TNIA.pdf

This Message Is From an External Sender

This message came from outside your organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Report Suspicious

To: AECOM
(Attn: David Yeung)

I refer to your letter dated 23 September 2024 enclosed in the preceding email for the captioned Subject.

It is noted that the Traffic Forecast will be used for Traffic Noise Impact Assessment only and I have no in-principle objection for the Traffic Forecast Methodology to produce year 2043 traffic data for the submission

Regards,
Stanley SIN
E/TW2, TD
Tel:

From: "Yeung, David"
To: Ho Pong SIN
Cc: "Lei, Gary"
Date: 2024/09/23 下午 02:15
Subject: Section 16 Planning Application for Submission of Layout Plan for Permitted 'Flat' and 'Social Welfare Facility' Uses at Tsuen Wan Inland Lot 5 and Lot No. 429 in D.D. 399, Ting Kau, Tsuen Wan, N.T. - Traffic Forecast for Traffic Noise Impact Assessment

Dear Mr. Sin,

We, AECOM Asia Co. Ltd., are the Traffic Consultant commissioned by the developer, to provide traffic forecast for Traffic Noise Impact Assessment (TNIA) for the captioned Proposed Comprehensive Development Area for your further comment and approval.

The Proposed Development is tentatively scheduled for completion in 2028. A traffic forecast for 15 years after the tentative in-take year i.e. 2043 is adopted for TNIA study purpose.

Please find enclosed Technical Note regarding the methodology and results of the traffic forecast adopted in the TNIA for your consideration.

Should you have any queries or require further information, please feel free to call me at [redacted] or our Mr. Gary Lei at [redacted].

The hard copy of the same will be delivery to your office in parallel.

Regards,

David Yeung
Senior Engineer, Traffic & Transport Planning,
Land Supply / Municipal, Hong Kong

AECOM
11/F, Grand Central Plaza
Tower 2, 138 Shatin Rural Committee Road
Shatin, Hong Kong
T +852-3922-9000
aecom.com

**Technical Note on Traffic Forecast
for Noise Impact Assessment**

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www.aecom.com

Our Ref : DYPK:GLYF:wtsk:60648191-2024014137L

23 September 2024

By Hand

Transport Department
NT Regional Office
Traffic Survey & Support Division
Tsuen Wan Section
Rm 1015 ,10/F, Mongkok Government Offices
30 Luen Wan Street
Mongkok, Kowloon

Attn: Mr. SIN Ho Pong, Stanley (Engr/Tsuen Wan 2)

Dear Sir,

**Section 16 Planning Application for Submission of Layout Plan for Permitted 'Flat' and 'Social Welfare Facility' Uses at Tsuen Wan Inland Lot 5 and Lot No. 429 in D.D. 399, Ting Kau, Tsuen Wan, New Territories
(Section 16 Planning Application No. A/TWW/130)**

Year 2043 Traffic Forecast for Traffic Noise Impact Assessment

We, AECOM Asia Co. Ltd., are the Traffic Consultant commissioned by the developer, to provide traffic forecast for Traffic Noise Impact Assessment (TNIA) for the captioned Proposed Comprehensive Development Area for your further comment and approval.

The Proposed Development is tentatively scheduled for completion in 2028. A traffic forecast for 15 years after the tentative in-take year i.e. 2043 is adopted for TNIA study purpose.

Please find enclosed Technical Note regarding the methodology and results of the traffic forecast adopted in the TNIA for your consideration. Should you have any queries or require further information, please feel free to contact our Mr. Gary Lei at [redacted] or the undersigned at [redacted].

Thank you very much for your kind assistance.

Yours faithfully,
For and on behalf of
AECOM Asia Co. Ltd.



David Yeung
Senior Engineer, Traffic and Transport Planning
Land Supply / Municipal

Encl.

METHODOLOGY OF ESTIMATING TRAFFIC FORECASTS FOR TRAFFIC NOISE IMPACT ASSESSMENT

1 BACKGROUND

- 1.1 The subject site is zoned "Residential ((Group B) 2" (i.e. "R(B)2") under the current Tsuen Wan West Outline Zoning Plan (OZP) No. S/TWW/21. Is at TWIL 5 and Lot No. 429 in D.D. 399 as indicated in **Appendix A**.
- 1.2 The Applicant now proposed a higher flat number comprises 674 nos. of residential units with an average flat size of about 43.6m².
- 1.3 AECOM Asia Company Limited was commissioned by the Applicant to provide traffic forecasts for Traffic Noise Impact Assessment (TNIA) for the Subject Site.
- 1.4 Purposes of this Technical Note are to elaborate the methodology of estimating traffic forecast for TNIA and present the results of traffic forecast.

2 METHODOLOGY

- 2.1 The proposed Subject Site is tentatively scheduled for completion in year 2028. Thus, year 2043 (i.e. year 2028 + 15 years) is adopted as the assessment year for the TNIA.
- 2.2 As mentioned in the Traffic Impact Assessment of the subject Planning Application, the annual growth rate is made reference to Average Annual Daily Traffic (AADT) Data from ATC, the traffic flow extracted from 2019-Based District Traffic Model (BDTM) and the planning data in 2019-based Territorial Population and Employment Data Matrix (TPEDM) which is available in Planning Department's website. An annual growth rate of 3.5% per annum is adopted for conservative approach.
- 2.3 As mentioned in the submitted TIA, the 2031 design traffic flows has produced by adopting the growth rate of 3.5% per annual projected from 2023 observed traffic flows and additional trips generated by the proposed development itself and the planned / potential future developments as listed in **Table 4.7** and **Table 4.5** of the TIA report respectively.
- 2.4 As mentioned in **Section 2.1**, year 2043 traffic forecasts would be required for the TNIA. Since both reference growth rate data / models has no information between year 2028 to 2043, annual traffic growth rate was derived with reference to the Hong Kong Population Projections 2020-2069 (2020 Edition) published by Census and Statistics Department as listed in **Table 2.1**.

Table 2.1 Hong Kong Population Projections 2020 - 2069

Year	Year 2031	Year 2043	Growth Rate Per Annum
Hong Kong Resident Population	7,945,800	8,106,100	~0.17% / year

- 2.5 As shown in **Table 2.1**, the annual growth of population in the territory from years 2031 to 2043 is about 0.17% per annum. Thus, a conservative annual growth rate of

1% per annum is adopted for projecting the peak hour traffic flows from 2031 to 2043.

3 TRAFFIC FORECAST

- 3.1 By applying the annual growth rate 3.5% onto the 2031 peak hour traffic flows, the 2043 peak hour traffic flows for the road sections within 300m-radius Study Area are derived.
 - 3.1.1 The produced 2043 traffic forecasts were required to convert from Passenger Car Unit (PCU) to vehicle for the purpose of TNIA. Based on the PCU conversion factors shown in **Table 3.1**, the traffic flows were converted from PCU to vehicle.

Table 3.1 Vehicle Groupings and PCU Conversion Factors

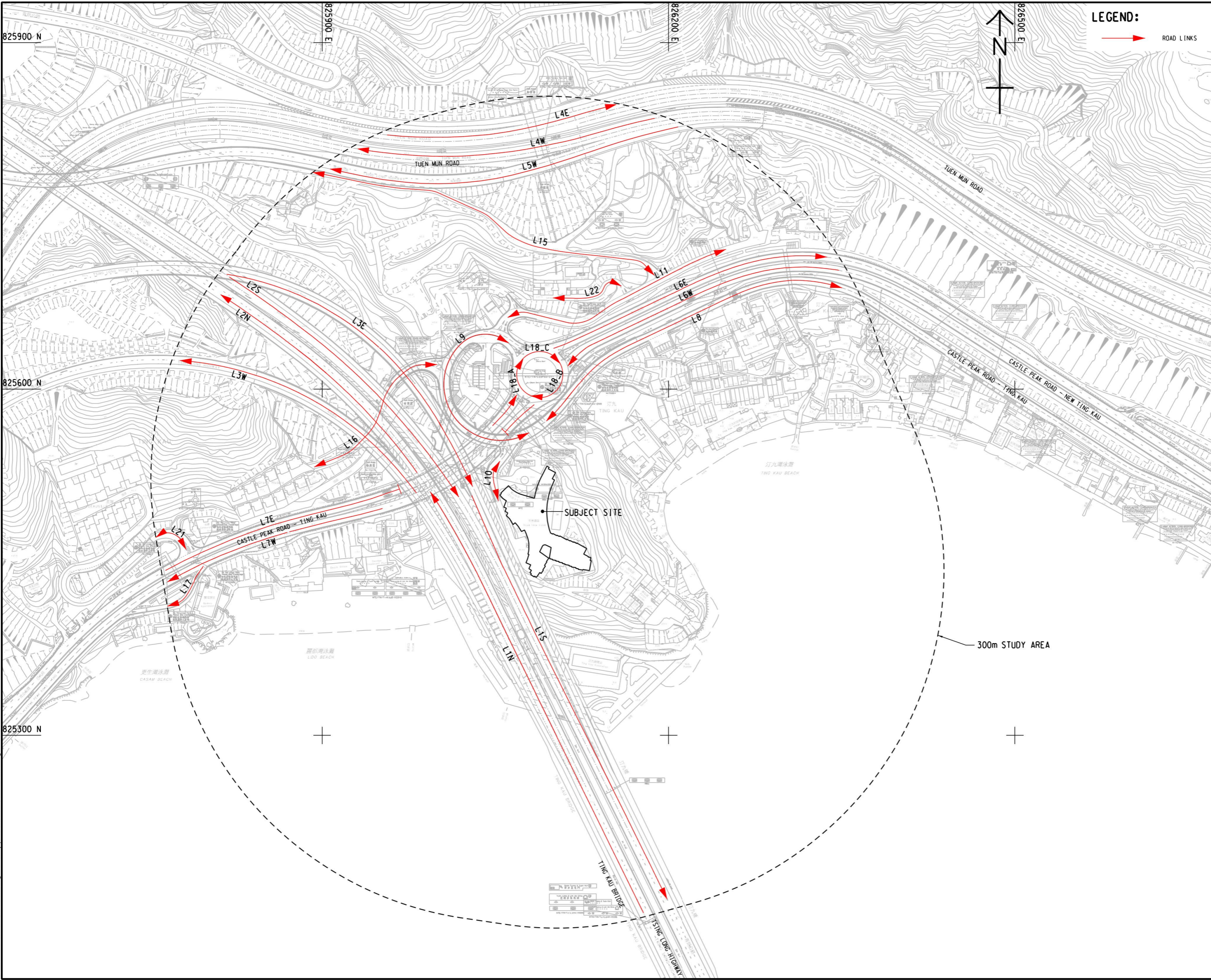
Vehicle Group	Individual Vehicle Class	PCU Factor
PV	Motorcycle	0.75
	Private Car	1.00
	Taxi	1.00
	Private Light Buses	1.50
	Non-Franchised Buses	2.00
GV	Light Goods Vehicles (LGV)	1.50
	Medium/Heavy Goods Vehicles (MGV/HGV)	2.25
PT	Public Light Buses (PLB)	1.50
	Franchised Buses	2.50

- 3.1.2 For the TNIA, vehicles with unladen weight of 1525 kg should be categories as heavy vehicles (including Light Goods Vehicles, Medium/Heavy Goods Vehicles, Public/Private Light Buses, Non-Franchised Buses and Franchised Buses). The traffic flow of the road links within the 300m Study Area together with heavy vehicle composition for year 2043 are presented in **Appendix B**.

Appendix A

Site Location Plan

Plot File by: ZHACHC02_3/21/2024
 PATH: P:\PROJECTS\061000001\Ting Kau_CDA(1)\DRAWING\SKETCH\SK5001.dgn
 ISO A1 594mm x 841mm
 Approved:
 Checked:
 Designer:
 Project Management Initials:



LEGEND:
 ROAD LINKS



PROJECT
 SECTION 16 PLANNING
 APPLICATION FOR SUBMISSION OF
 LAYOUT PLAN FOR PERMITTED
 'FLAT' AND 'SOCIAL WELFARE
 FACILITY' USES AT TSUEN WAN
 INLAND LOT 5 AND LOT NO. 429 IN
 D.D. 399, TING KAU, TSUEN WAN,
 NEW TERRITORIES

CLIENT

CONSULTANT
 AECOM Asia Company Ltd.
 www.aecom.com

SUB-CONSULTANTS

ISSUE/REVISION

IR	DATE	DESCRIPTION	CHK.

STATUS

SCALE **DIMENSION UNIT**
 A1 1 : 1500 METRES

KEY PLAN

PROJECT NO. **CONTRACT NO.**

SHEET TITLE
 INDEX PLAN FOR
 NIA ROAD LINKS

SHEET NUMBER
 TING KAU CDA(1)/SK5001

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Appendix B

Traffic Data for TNIA

TING KAU CDA(1) - TRAFFIC FORECAST FOR NOISE IMPACT ASSESSMENT

Index	Road Link	Direction	Year 2043 Design Scenario			
			Traffic Flows (veh/hr)			HV%
			AM	PM	AM	PM
L1N	Tsing Long Highway	NB	3050	4915	39%	34%
L1S	Tsing Long Highway	SB	6085	3765	37%	26%
L2N	Tsing Long Highway	NB	890	2020	37%	34%
L2S	Tsing Long Highway	SB	2570	1235	36%	28%
L3E	Slip Road from Tuen Mun Road (West) to Ting Kau Bridge	EB	3515	2530	37%	25%
L3W	Slip Road from Ting Kau Bridge to Tuen Mun Road (West)	WB	2160	2895	39%	33%
L4E	Tuen Mun Road	EB	5445	3330	29%	35%
L4W	Tuen Mun Road	WB	2485	3315	37%	30%
L5W	Slip Road from Tuen Mun Road (East) to Tai Lam Tunnel	WB	1190	1795	39%	40%
L6E	Castle Peak Road - New Ting Kau	EB	646	375	35%	30%
L6W	Castle Peak Road - New Ting Kau	WB	498	530	35%	20%
L7E	Castle Peak Road - New Ting Kau	EB	569	353	39%	31%
L7W	Castle Peak Road - New Ting Kau	WB	558	528	36%	21%
L8	Castle Peak Road - Ting Kau	Two-way	119	125	26%	27%
L9	Castle Peak Road - Ting Kau (Flyover)	Two-way	249	226	20%	18%
L10	Access Road to Subject Site	Two-way	140	104	10%	10%
L11	Ting Yat Road	Two-way	15	26	23%	22%

Appendix 2.2 Road Traffic Noise Impact Assessment Result

Web-NAT Result Summary

Creation Date/Time:	2024-09-13 16:51
Project Code:	SHKTKBHSEI00
Project Name:	PROPOSED REDEVELOPMENT AT ROYAL VIEW HOTEL AT TING KAU, N.T.
Report Version:	2
Raw Result:	1
Scenario:	T1-GF
Traffic Data:	2043
Remarks:	Section 16 Planning Application for Submission of Layout Plan for Permitted 'Flat' and 'Social Welfare Facility' Uses at Tsuen Wan Inland Lot 5 and Lot No. 429 in D.D. 399, Ting Kau, Tsuen Wan

Tower	T1	T1	T1	T1	T1	T1	T1	T1	T1	T1	T1	T1	T1	T1	T1	T1	T1	T1	T1	T1	T1	T1	T1	T1	T1	T1	T1	T1	T1	T1	T1	T1	T1	T1	T1	T1	T1	
Floor/ NAP	Flat / Flat Level (mPD)	T1-0-G01	T1-0-G02	T1-0-G03	T1-0-G04	T1-0-G05	T1-0-G06	T1-0-G07	T1-0-G08	T1-0-G09	T1-0-G10	T1-0-G11	T1-0-G12	T1-0-G13	T1-0-G14	T1-0-G15	T1-0-G16	T1-0-G17	T1-0-G18	T1-0-G19	T1-0-G20	T1-0-G21	T1-0-G22	T1-0-G23	T1-0-G24	T1-0-G25	T1-0-G26	T1-0-G27	T1-0-G28	T1-0-G29	T1-0-G30	T1-0-G31	T1-0-G32	T1-0-G33	T1-0-G34	T1-0-G35	T1-0-G36	
GF	33.6	68	69	68	68	68	68	69	69	68	68	63	71	72	75	75	75	75	75	75	75	75	76	75	76	76	52	53	53	53	54	54	55	55	55	56	57	52
	MAX	68	69	68	68	68	68	69	69	68	68	63	71	72	75	75	75	75	75	75	75	75	76	75	76	76	52	53	53	53	54	54	55	55	55	56	57	52
	Windows with Exceedance	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0

Legend

71 Predicted Noise Level Exceed Noise Criteria recommended in HKPSG, 70 dB(A)

noise level at the external façade after the application of acoustic windows, enhanced acoustic balconies, top-hung acoustic

Web-NAT Result Summary

Creation Date/Time: 2024-09-13 16:51
Project Code: SHTKBHEI00
Project Name: PROPOSED REDEVELOPMENT AT ROYAL VIEW HOTEL AT TING KAU, N.T.
Report Version: 2
Raw Result: 2
Scenario: T1-1F
Traffic Data: 2043
Remarks: Section 16 Planning Application for Submission of Layout Plan for Permitted 'Flat' and 'Social Welfare Facility' Uses at Tsuen Wan Inland Lot 5 and Lot No. 429 in D.D. 399, Ting Kau, Tsuen Wan

(A) Noise Level at each Noise Assessment Point (NAP) (L10, 1 hour) (dB(A))
Table with columns for Tower, Floor/NAP, Flat/Flat Level (mPD), and 55 noise assessment points (T1-1F-001 to T1-1F-055). Values range from 36.6 to 58 dB(A).

Legend

T1 Predicted Noise Level Exceed Noise Criteria recommended in HKPSG, 70 dB(A)

(B) Proposed Noise Mitigation Measures at receiver for each NAP
Table with columns for Tower, Floor/NAP, Flat/Flat Level (mPD), and 55 noise assessment points (T1-1F-001 to T1-1F-055). Measures include EAB1, BAW1, and EAB1.

(C) Maximum Noise Reduction Given by Proposed Noise Mitigation Measures for each NAP
Table with columns for Tower, Floor/NAP, Flat/Flat Level (mPD), and 55 noise assessment points (T1-1F-001 to T1-1F-055). Values are mostly 0 dB.

(D) Room Size of NAP in m^2 (input for NAP with noise exceedance only)
Table with columns for Tower, Floor/NAP, Flat/Flat Level (mPD), and 55 noise assessment points (T1-1F-001 to T1-1F-055). Values range from 6.7 to 16.7 m^2.

(E) Adjusted Noise Reduction due to Room Size in dB(A)
Table with columns for Tower, Floor/NAP, Flat/Flat Level (mPD), and 55 noise assessment points (T1-1F-001 to T1-1F-055). Values range from 0 to 1.7 dB(A).

(F) Horizontal incident angle of NAP to dominant noise source in degree (input for NAP with noise exceedance only)
Table with columns for Tower, Floor/NAP, Flat/Flat Level (mPD), and 55 noise assessment points (T1-1F-001 to T1-1F-055). Values range from 0 to 6.4 degrees.

(G) Adjusted Noise Reduction due to Horizontal Incident Angle in dB(A)
Table with columns for Tower, Floor/NAP, Flat/Flat Level (mPD), and 55 noise assessment points (T1-1F-001 to T1-1F-055). Values are mostly 0 dB(A).

(H) Final Noise Reduction in dB(A)
Table with columns for Tower, Floor/NAP, Flat/Flat Level (mPD), and 55 noise assessment points (T1-1F-001 to T1-1F-055). Values range from 0 to 6.7 dB(A).

(I) Noise Level at each Noise Assessment Point (NAP) (L10, 1 hour) (dB(A)) after mitigation
Table with columns for Tower, Floor/NAP, Flat/Flat Level (mPD), and 55 noise assessment points (T1-1F-001 to T1-1F-055). Values range from 58 to 69 dB(A).

Note

- T1 Predicted Noise Level Exceed Noise Criteria recommended in HKPSG, 70 dB(A)
c Fixed Glazing/ U.P. with Auto-Closing Door
Top-Hung Type Acoustic Window (THAW)
Baffle Type Acoustic Window (BAW)
Enhanced Acoustic Balcony (EAB)

noise level at the external façade after the application of acoustic windows, enhanced acoustic balconies, top-hung acoustic windows.

Web-NAT Result Summary

Creation Date/Time: 2024-09-13 16:51
Project Code: SHKTKBHSEI00
Project Name: PROPOSED REDEVELOPMENT AT ROYAL VIEW HOTEL AT TING KAU, N.T.
Report Version: 2
Raw Result: 1
Scenario: T2-1F
Traffic Data: 2043
Remarks: Section 16 Planning Application for Submission of Layout Plan for Permitted 'Flat' and 'Social Welfare Facility' Uses at Tsuen Wan Inland Lot 5 and Lot No. 429 in D.D. 399, Ting Kau, Tsuen Wan

Tower		T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2
		T2-1F	T2-1F	T2-1F	T2-1F	T2-1F	T2-1F	T2-1F	T2-1F	T2-1F	T2-1F	T2-1F	T2-1F	T2-1F	T2-1F	T2-1F	T2-1F	T2-1F	T2-1F	T2-1F	T2-1F	T2-1F	T2-1F	T2-1F	T2-1F	T2-1F	T2-1F
Floor/ NAP	Flat / Flat Level (mPD)	T2-1F-O01	T2-1F-O02	T2-1F-O03	T2-1F-O04	T2-1F-O05	T2-1F-O06	T2-1F-O07	T2-1F-O08	T2-1F-O09	T2-1F-O10	T2-1F-O11	T2-1F-O12	T2-1F-O13	T2-1F-O14	T2-1F-O15	T2-1F-O16	T2-1F-O17	T2-1F-O18	T2-1F-O19	T2-1F-O20	T2-1F-O21	T2-1F-O22	T2-1F-O23	T2-1F-O24	T2-1F-O25	T2-1F-O26
1F	39.6	62	62	61	61	61	60	60	52	53	54	56	58	58	59	59	61	61	62	63	63	62	62	61	61	59	58
	MAX	62	62	61	61	61	60	60	52	53	54	56	58	58	59	59	61	61	62	63	63	62	62	61	61	59	58
	Windows with Exceedance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Legend
71 Predicted Noise Level Exceed Noise Criteria recommended in HKPSG, 70 dB(A)

noise level at the external façade after the application of acoustic windows, enhanced acoustic balconies, top-hung acoustic

Web-NAT Result Summary

Creation Date/Time:	2024-09-13 16:51
Project Code:	SHKTKBHSEI00
Project Name:	PROPOSED REDEVELOPMENT AT ROYAL VIEW HOTEL AT TING KAU, N.T.
Report Version:	2
Raw Result:	2
Scenario:	T2-1F
Traffic Data:	2043
Remarks:	Section 16 Planning Application for Submission of Layout Plan for Permitted 'Flat' and 'Social Welfare Facility' Uses at Tsuen Wan Inland Lot 5 and Lot No. 429 in D.D. 399, Ting Kau, Tsuen Wan

(A) Noise Level at each Noise Assessment Point (NAP) (L10, 1 hour) (dB(A))

Tower		T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	
Floor/ NAP	Flat / Flat Level (mPD)	T2-1F-001	T2-1F-002	T2-1F-003	T2-1F-004	T2-1F-005	T2-1F-006	T2-1F-007	T2-1F-008	T2-1F-009	T2-1F-010	T2-1F-011	T2-1F-012	T2-1F-013	T2-1F-014	T2-1F-015	T2-1F-016	T2-1F-017	T2-1F-018	T2-1F-019	T2-1F-020	T2-1F-021	T2-1F-022	T2-1F-023	T2-1F-024	T2-1F-025	T2-1F-026
1F	39.6	62	62	61	61	61	60	60	52	53	54	56	58	58	59	59	61	61	62	63	63	62	62	61	61	59	58
	MAX	62	62	61	61	61	60	60	52	53	54	56	58	58	59	59	61	61	62	63	63	62	62	61	61	59	58
	Windows with Exceedance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Legend 71 Predicted Noise Level Exceed Noise Criteria recommended in HKPSG, 70 dB(A)

(B) Proposed Noise Mitigation Measures at receiver for each NAP

Tower		T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2
Floor/ NAP	Flat / Flat Level (mPD)	T2-1F-001	T2-1F-002	T2-1F-003	T2-1F-004	T2-1F-005	T2-1F-006	T2-1F-007	T2-1F-008	T2-1F-009	T2-1F-010	T2-1F-011	T2-1F-012	T2-1F-013	T2-1F-014	T2-1F-015	T2-1F-016	T2-1F-017	T2-1F-018	T2-1F-019	T2-1F-020	T2-1F-021	T2-1F-022	T2-1F-023	T2-1F-024	T2-1F-025	T2-1F-026
1F	39.6																										

(C) Maximum Noise Reduction Given by Proposed Noise Mitigation Measures for each NAP

Tower		T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2
Floor/ NAP	Flat / Flat Level (mPD)	T2-1F-001	T2-1F-002	T2-1F-003	T2-1F-004	T2-1F-005	T2-1F-006	T2-1F-007	T2-1F-008	T2-1F-009	T2-1F-010	T2-1F-011	T2-1F-012	T2-1F-013	T2-1F-014	T2-1F-015	T2-1F-016	T2-1F-017	T2-1F-018	T2-1F-019	T2-1F-020	T2-1F-021	T2-1F-022	T2-1F-023	T2-1F-024	T2-1F-025	T2-1F-026
1F	39.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

(D) Room Size of NAP in m² (input for NAP with noise exceedance only)

Tower		T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2
Floor/ NAP	Flat / Flat Level (mPD)	T2-1F-001	T2-1F-002	T2-1F-003	T2-1F-004	T2-1F-005	T2-1F-006	T2-1F-007	T2-1F-008	T2-1F-009	T2-1F-010	T2-1F-011	T2-1F-012	T2-1F-013	T2-1F-014	T2-1F-015	T2-1F-016	T2-1F-017	T2-1F-018	T2-1F-019	T2-1F-020	T2-1F-021	T2-1F-022	T2-1F-023	T2-1F-024	T2-1F-025	T2-1F-026
1F	39.6																										

(E) Adjusted Noise Reduction due to Room Size in dB(A)

Tower		T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2
Floor/ NAP	Flat / Flat Level (mPD)	T2-1F-001	T2-1F-002	T2-1F-003	T2-1F-004	T2-1F-005	T2-1F-006	T2-1F-007	T2-1F-008	T2-1F-009	T2-1F-010	T2-1F-011	T2-1F-012	T2-1F-013	T2-1F-014	T2-1F-015	T2-1F-016	T2-1F-017	T2-1F-018	T2-1F-019	T2-1F-020	T2-1F-021	T2-1F-022	T2-1F-023	T2-1F-024	T2-1F-025	T2-1F-026
1F	39.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

(F) Horizontal incident angle of NAP to dominant noise source in degree (input for NAP with noise exceedance only)

Tower		T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2
Floor/ NAP	Flat / Flat Level (mPD)	T2-1F-001	T2-1F-002	T2-1F-003	T2-1F-004	T2-1F-005	T2-1F-006	T2-1F-007	T2-1F-008	T2-1F-009	T2-1F-010	T2-1F-011	T2-1F-012	T2-1F-013	T2-1F-014	T2-1F-015	T2-1F-016	T2-1F-017	T2-1F-018	T2-1F-019	T2-1F-020	T2-1F-021	T2-1F-022	T2-1F-023	T2-1F-024	T2-1F-025	T2-1F-026
1F	39.6																										

(G) Adjusted Noise Reduction due to Horizontal Incident Angle in dBA

Tower		T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2
Floor/ NAP	Flat / Flat Level (mPD)	T2-1F-001	T2-1F-002	T2-1F-003	T2-1F-004	T2-1F-005	T2-1F-006	T2-1F-007	T2-1F-008	T2-1F-009	T2-1F-010	T2-1F-011	T2-1F-012	T2-1F-013	T2-1F-014	T2-1F-015	T2-1F-016	T2-1F-017	T2-1F-018	T2-1F-019	T2-1F-020	T2-1F-021	T2-1F-022	T2-1F-023	T2-1F-024	T2-1F-025	T2-1F-026
1F	39.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

(H) Final Noise Reduction in dBA

Tower		T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2
Floor/ NAP	Flat / Flat Level (mPD)	T2-1F-001	T2-1F-002	T2-1F-003	T2-1F-004	T2-1F-005	T2-1F-006	T2-1F-007	T2-1F-008	T2-1F-009	T2-1F-010	T2-1F-011	T2-1F-012	T2-1F-013	T2-1F-014	T2-1F-015	T2-1F-016	T2-1F-017	T2-1F-018	T2-1F-019	T2-1F-020	T2-1F-021	T2-1F-022	T2-1F-023	T2-1F-024	T2-1F-025	T2-1F-026
1F	39.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

(I) Noise Level at each Noise Assessment Point (NAP) (L10, 1 hour) (dB(A)) after mitigation

Tower		T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2	T2
Floor/ NAP	Flat / Flat Level (mPD)	T2-1F-001	T2-1F-002	T2-1F-003	T2-1F-004	T2-1F-005	T2-1F-006	T2-1F-007	T2-1F-008	T2-1F-009	T2-1F-010	T2-1F-011	T2-1F-012	T2-1F-013	T2-1F-014	T2-1F-015	T2-1F-016	T2-1F-017	T2-1F-018	T2-1F-019	T2-1F-020	T2-1F-021	T2-1F-022	T2-1F-023	T2-1F-024	T2-1F-025	T2-1F-026
1F	39.6	62	62	61	61	61	60	60	52	53	54	56	58	58	59	59	61	61	62	63	63	62	62	61	61	59	58
	MAX	62	62	61	61	61	60	60	52	53	54	56	58	58	59	59	61	61	62	63	63	62	62	61	61	59	58
	Windows with Exceedance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Note 71 Predicted Noise Level Exceed Noise Criteria recommended in HKPSG, 70 dB(A)
- Fixed Glazing/ U.P. with Auto-Closing Door
- Top-Hung Type Acoustic Window (THAW)
- Baffle Type Acoustic Window (BAW)
- Enhanced Acoustic Balcony (EAB)

level at the external façade after the application of acoustic windows, enhanced acoustic balconies, top-hung acoustic windows. These predicted noise levels

Web-NAT Result Summary

Creation Date/Time: 2024-09-13 15:51
Project Code: 2401060020
Project Name: PROPOSED REDEVELOPMENT AT ROYAL VILLA HOTEL AT TING KAU N.T.
Report Version: 2
Remarks: Section 16 Planning Application for Submission of Layout Plan for Permitted 'Flat' and 'Social Welfare Facility' Uses at Tsuen Wan Inland Lot 5 and Lot No. 429 in D.D. 299, Ting Kau, Tsuen Wan

(A) Noise Level at each Noise Assessment Point (NAP) (L10, 1 hour @6A)
Table with columns: Tower, Floor/NAP, Flat / Flat Level (mPD), and 72 noise assessment points (N01-N72).

Legend: 71 - Predicted Noise Level Exceeds Noise Criteria recommended in HKPSG, 70 dBA

(B) Proposed Noise Mitigation Measures at receiver for each NAP
Table with columns: Tower, Floor/NAP, Flat / Flat Level (mPD), and 72 noise assessment points (N01-N72).

(C) Maximum Noise Reduction Given by Proposed Noise Mitigation Measures for each NAP
Table with columns: Tower, Floor/NAP, Flat / Flat Level (mPD), and 72 noise assessment points (N01-N72).

(D) Room Size of NAP in m² (Input for NAP with noise exceedance only)
Table with columns: Tower, Floor/NAP, Flat / Flat Level (mPD), and 72 noise assessment points (N01-N72).

(E) Adjusted Noise Reduction due to Room Size in dBA
Table with columns: Tower, Floor/NAP, Flat / Flat Level (mPD), and 72 noise assessment points (N01-N72).

(F) Horizontal incident angle of NAP to dominant noise source in degree (Input for NAP with noise exceedance only)
Table with columns: Tower, Floor/NAP, Flat / Flat Level (mPD), and 72 noise assessment points (N01-N72).

(G) Adjusted Noise Reduction due to Horizontal Incident Angle in dBA
Table with columns: Tower, Floor/NAP, Flat / Flat Level (mPD), and 72 noise assessment points (N01-N72).

(H) Final Noise Reduction in dBA
Table with columns: Tower, Floor/NAP, Flat / Flat Level (mPD), and 72 noise assessment points (N01-N72).

(I) Noise Level at each Noise Assessment Point (NAP) (L10, 1 hour @6A) after mitigation
Table with columns: Tower, Floor/NAP, Flat / Flat Level (mPD), and 72 noise assessment points (N01-N72).

Note: 71 - Predicted Noise Level Exceeds Noise Criteria recommended in HKPSG, 70 dBA

- Fixed Glazing / UP with Auto-Closing Door
Top-Hung Type Acoustic Window (THAW)
Baffle Type Acoustic Window (BAW)
Enhanced Acoustic Balcany (EAB)

noise level at the external facade after the application of acoustic windows, enhanced acoustic balconies, top-hung acoustic

Web-NAT Result Summary

Creation Date/Time: 2024-09-13 16:51
Project Code: SHKTKBHSR00
Project Name: PROPOSED REDEVELOPMENT AT ROYAL VIEW HOTEL AT TING KAU, N. T.
Report Version: 2
Raw Result: 1
Scenario: T2-12F
Traffic Data: 2043
Remarks: Section 16 Planning Application for Submission of Layout Plan for Permitted 'Flat' and Social Welfare Facility Uses at Tsuen Wan Inland Lot 5 and Lot No. 429 in D.D. 399, Ting Kau, Tsuen Wan

Table with 49 columns (Tower, Flat / Flat Level (mPD), and 48 numbered columns for noise levels) and 4 rows (12F, Max, Windows with Exceedance, and a summary row).

Legend
71 Predicted Noise Level Exceed Noise Criteria recommended in HKPSG, 70 dB(A)

noise level at the external façade after the application of acoustic windows, enhanced acoustic balconies, top-hung acoustic

Web-NAT Result Summary

Creation Date/Time: 2024-09-13 16:51
Project Code: SWH2405020
Project Name: PROPOSED REDEVELOPMENT AT ROYAL VIEW HOTEL AT TING KAU N.T.
Report Version: 2
Raw Result: 2
Scenario: T2-TF
Traffic Date: 2043
Remarks: Section 16 Planning Application for Submission of Layout Plan for Permitted Flat and Social Welfare Facility Uses at Tsuen Wan Inland Lot 5 and Lot No. 429 in D.D. 399, Ting Kau, Tsuen Wan

(A) Noise Level at each Noise Assessment Point (NAP) (L10, 1 hour) (dB(A))

Legend: 71 Predicted Noise Level Exceed Noise Criteria recommended in HKPSG, 70 dB(A)

(B) Proposed Noise Mitigation Measures at receiver for each NAP

(C) Maximum Noise Reduction Given by Proposed Noise Mitigation Measures for each NAP

(D) Room Size of NAP in m^2 (input for NAP with noise exceedance only)

(E) Adjusted Noise Reduction due to Room Size in dB(A)

(F) Horizontal incident angle of NAP to dominant noise source in degree (input for NAP with noise exceedance only)

(G) Adjusted Noise Reduction due to Horizontal Incident Angle in dB(A)

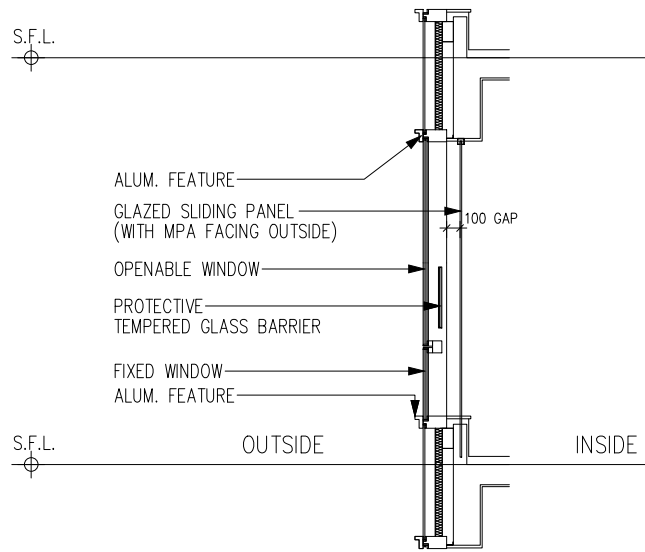
(H) Final Noise Reduction in dB(A)

(I) Noise Level at each Noise Assessment Point (NAP) (L10, 1 hour) (dB(A)) after mitigation

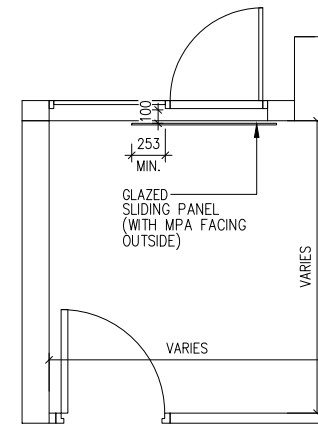
Note: 71 Predicted Noise Level Exceed Noise Criteria recommended in HKPSG, 70 dB(A); 0 Fixed Glazing U.P. with Auto-Closing Door; Top-Hung Type Acoustic Window (THAW); Baffle Type Acoustic Window (BAW); Enhanced Acoustic Balcony (EAB)

Level at the external facade after the application of acoustic windows, enhanced acoustic balconies, top-hung acoustic windows. These predicted noise

Appendix 2.3 Indicative Design of AW(BT) & AD(BT) Adopted in the Proposed
Redevelopment



TYPICAL SECTION



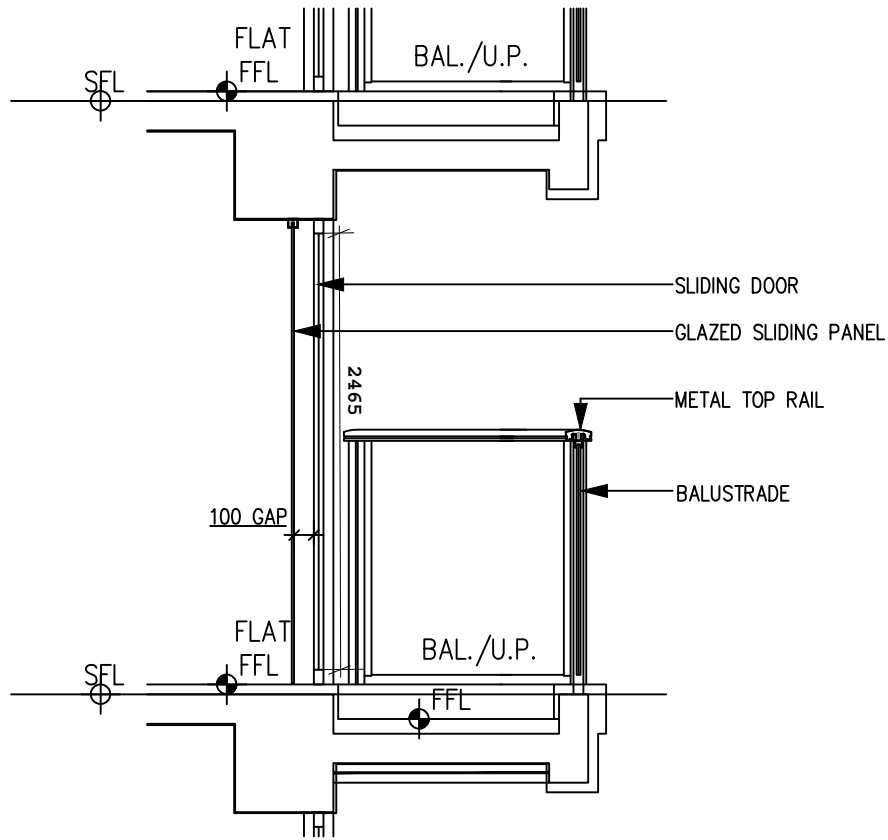
TYPICAL PLAN
AW1-NPE

Note:
The design is made reference to the reference case, it will be subject to further refinement at the detailed design stage.

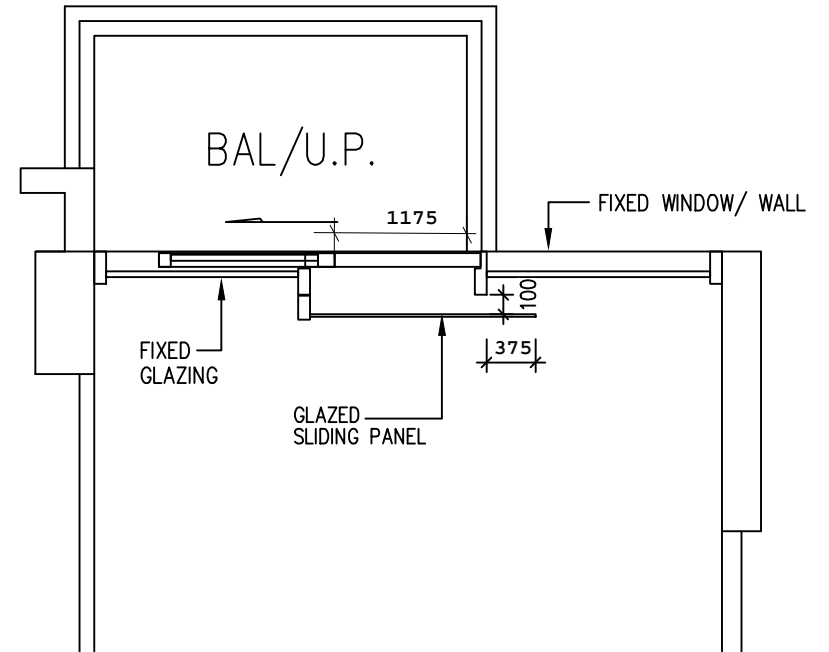
Title: Indicative Design of Acoustic Window (Baffle Type)- NPE



AB-KT no MPA & SAM



TYPICAL SECTION



TYPICAL PLAN

Note:
The design is made reference to the reference case, it will be subject to further refinement at the detailed stage.

Appendix 2.4 Proposed Overall Noise Mitigation Measures Schedule

Schedule of Noise Mitigation Measures

NSR	Room	Floor	Noise Mitigation Measures
T1-0-G12	LIV/DIN	GF	Acoustic Balcony (Baffle Type)-KT
T1-0-G13	BR1	GF	Acoustic Window (Baffle Type)-NPE
T1-0-G14	MBR	GF	Acoustic Window (Baffle Type)-NPE
T1-0-G15	BR1	GF	Acoustic Window (Baffle Type)-NPE
T1-0-G16	LIV/DIN	GF	Acoustic Balcony (Baffle Type)-KT
T1-0-G17	BR1	GF	Acoustic Window (Baffle Type)-NPE
T1-0-G18	LIV/DIN	GF	Acoustic Balcony (Baffle Type)-KT
T1-0-G19	MBR	GF	Acoustic Window (Baffle Type)-NPE
T1-0-G20	BR1	GF	Acoustic Window (Baffle Type)-NPE
T1-0-G21	LIV/DIN	GF	Acoustic Balcony (Baffle Type)-KT
T1-0-G22	MBR	GF	Acoustic Window (Baffle Type)-NPE
T1-0-G23	BR1	GF	Acoustic Window (Baffle Type)-NPE
T1-0-G24	LIV/DIN	GF	Acoustic Balcony (Baffle Type)-KT
T1-0-G25	MBR	GF	Acoustic Window (Baffle Type)-NPE
T1-1F-O12	LIV/DIN	1F	Acoustic Balcony (Baffle Type)-KT
T1-1F-O13	BR1	1F	Acoustic Window (Baffle Type)-NPE
T1-1F-O14	MBR	1F	Acoustic Window (Baffle Type)-NPE
T1-1F-O15	BR1	1F	Acoustic Window (Baffle Type)-NPE
T1-1F-O16	LIV/DIN	1F	Acoustic Balcony (Baffle Type)-KT
T1-1F-O17	BR1	1F	Acoustic Window (Baffle Type)-NPE
T1-1F-O18	LIV/DIN	1F	Acoustic Balcony (Baffle Type)-KT
T1-1F-O19	MBR	1F	Acoustic Window (Baffle Type)-NPE
T1-1F-O20	BR1	1F	Acoustic Window (Baffle Type)-NPE
T1-1F-O21	LIV/DIN	1F	Acoustic Balcony (Baffle Type)-KT
T1-1F-O22	MBR	1F	Acoustic Window (Baffle Type)-NPE
T1-1F-O23	BR1	1F	Acoustic Window (Baffle Type)-NPE
T1-1F-O24	LIV/DIN	1F	Acoustic Balcony (Baffle Type)-KT
T1-1F-O25	MBR	1F	Acoustic Window (Baffle Type)-NPE
T1-TYP-O12	LIV/DIN	2-12F	Acoustic Balcony (Baffle Type)-KT
T1-TYP-O13	BR1	2-12F	Acoustic Window (Baffle Type)-NPE
T1-TYP-O14	MBR	2-12F	Acoustic Window (Baffle Type)-NPE
T1-TYP-O15	BR1	2-12F	Acoustic Window (Baffle Type)-NPE
T1-TYP-O16	LIV/DIN	2-12F	Acoustic Balcony (Baffle Type)-KT
T1-TYP-O17	BR1	2-12F	Acoustic Window (Baffle Type)-NPE
T1-TYP-O18	LIV/DIN	2-12F	Acoustic Balcony (Baffle Type)-KT
T1-TYP-O19	MBR	2-12F	Acoustic Window (Baffle Type)-NPE
T1-TYP-O20	BR1	2-12F	Acoustic Window (Baffle Type)-NPE
T1-TYP-O21	LIV/DIN	2-12F	Acoustic Balcony (Baffle Type)-KT
T1-TYP-O22	MBR	2-12F	Acoustic Window (Baffle Type)-NPE
T1-TYP-O23	BR1	2-12F	Acoustic Window (Baffle Type)-NPE
T1-TYP-O24	LIV/DIN	2-12F	Acoustic Balcony (Baffle Type)-KT
T1-TYP-O25	MBR	2-12F	Acoustic Window (Baffle Type)-NPE
T1-TYP-O26	BR1	2-12F	Acoustic Window (Baffle Type)-NPE
T1-TYP-O27	LIV/DIN	2-12F	Acoustic Balcony (Baffle Type)-KT
T1-TYP-O28	MBR	2-12F	Acoustic Window (Baffle Type)-NPE
T1-TYP-O29	MBR	2-12F	Acoustic Window (Baffle Type)-NPE
T1-TYP-O30	BR1	2-12F	Acoustic Window (Baffle Type)-NPE with SAM
T1-TYP-O31	LIV/DIN	2-12F	Acoustic Balcony (Baffle Type)-KT
T1-TYP-O32	MBR	2-12F	Acoustic Window (Baffle Type)-NPE
T1-TYP-O33	BR1	2-12F	Acoustic Window (Baffle Type)-NPE
T1-TYP-O34	LIV/DIN	2-12F	Acoustic Balcony (Baffle Type)-KT
T1-TYP-O35	MBR	2-12F	Acoustic Window (Baffle Type)-NPE
T1-TYP-O36	LIV/DIN	2-12F	Acoustic Balcony (Baffle Type)-KT
T1-TYP-O37	BR1	2-12F	Acoustic Window (Baffle Type)-NPE
T1-TYP-O38	MBR	2-12F	Acoustic Window (Baffle Type)-NPE
T1-TYP-O39	LIV/DIN	2-12F	Acoustic Balcony (Baffle Type)-KT
T1-TYP-O40	BR1	2-12F	Acoustic Window (Baffle Type)-NPE
T1-TYP-O73	MBR	2-12F	Acoustic Window (Baffle Type)-NPE
T1-TYP-O74	LIV/DIN	2-12F	Acoustic Balcony (Baffle Type)-KT
T1-TYP-O75	BR1	2-12F	Acoustic Window (Baffle Type)-NPE
T1-TYP-O76	MBR	2-12F	Acoustic Window (Baffle Type)-NPE
T1-TYP-O77	LIV/DIN	2-12F	Acoustic Balcony (Baffle Type)-KT
T1-TYP-O78	BR1	2-12F	Acoustic Window (Baffle Type)-NPE
T1-TYP-O79	LIV/DIN	5-12F	Acoustic Balcony (Baffle Type)-KT
T1-TYP-O80	MBR	7-12F	Acoustic Window (Baffle Type)-NPE

T1-13F-012	LIV/DIN	13F	Acoustic Balcony (Baffle Type)-KT
T1-13F-013	BR1	13F	Acoustic Window (Baffle Type)-NPE
T1-13F-014	MBR	13F	Acoustic Window (Baffle Type)-NPE
T1-13F-015	BR1	13F	Acoustic Window (Baffle Type)-NPE
T1-13F-016	LIV/DIN	13F	Acoustic Balcony (Baffle Type)-KT
T1-13F-017	BR1	13F	Acoustic Window (Baffle Type)-NPE
T1-13F-018	LIV/DIN	13F	Acoustic Balcony (Baffle Type)-KT
T1-13F-019	MBR	13F	Acoustic Window (Baffle Type)-NPE
T1-13F-020	BR1	13F	Acoustic Window (Baffle Type)-NPE
T1-13F-021	LIV/DIN	13F	Acoustic Balcony (Baffle Type)-KT
T1-13F-022	MBR	13F	Acoustic Window (Baffle Type)-NPE
T1-13F-023	BR1	13F	Acoustic Window (Baffle Type)-NPE
T1-13F-024	LIV/DIN	13F	Acoustic Balcony (Baffle Type)-KT
T1-13F-025	MBR	13F	Acoustic Window (Baffle Type)-NPE
T1-13F-026	BR1	13F	Acoustic Window (Baffle Type)-NPE
T1-13F-027	LIV/DIN	13F	Acoustic Balcony (Baffle Type)-KT
T1-13F-028	MBR	13F	Acoustic Window (Baffle Type)-NPE
T1-13F-029	MBR	13F	Acoustic Window (Baffle Type)-NPE
T1-13F-030	BR1	13F	Acoustic Window (Baffle Type)-NPE
T1-13F-031	LIV/DIN	13F	Acoustic Balcony (Baffle Type)-KT
T1-13F-032	MBR	13F	Acoustic Window (Baffle Type)-NPE
T1-13F-033	BR1	13F	Acoustic Window (Baffle Type)-NPE
T1-13F-034	LIV/DIN	13F	Acoustic Balcony (Baffle Type)-KT
T1-13F-035	MBR	13F	Acoustic Window (Baffle Type)-NPE
T1-13F-036	LIV/DIN	13F	Acoustic Balcony (Baffle Type)-KT
T1-13F-037	BR1	13F	Acoustic Window (Baffle Type)-NPE
T1-13F-038	MBR	13F	Acoustic Window (Baffle Type)-NPE
T1-13F-039	LIV/DIN	13F	Acoustic Balcony (Baffle Type)-KT
T1-13F-040	BR1	13F	Acoustic Window (Baffle Type)-NPE
T1-13F-041	MBR	13F	Acoustic Window (Baffle Type)-NPE
T1-13F-042	MBR	13F	Acoustic Window (Baffle Type)-NPE
T1-13F-057	LIV/DIN	13F	Acoustic Balcony (Baffle Type)-KT
T1-13F-058	MBR	13F	Acoustic Window (Baffle Type)-NPE
T1-13F-059	LIV/DIN	13F	Acoustic Balcony (Baffle Type)-KT
T1-13F-060	MBR	13F	Acoustic Window (Baffle Type)-NPE
T1-13F-061	BR1	13F	Acoustic Window (Baffle Type)-NPE
T1-13F-062	LIV/DIN	13F	Acoustic Balcony (Baffle Type)-KT
T1-13F-063	LIV/DIN	13F	Acoustic Balcony (Baffle Type)-KT
T1-13F-064	MBR	13F	Acoustic Window (Baffle Type)-NPE
T1-13F-065	LIV/DIN	13F	Acoustic Balcony (Baffle Type)-KT
T1-13F-066	BR1	13F	Acoustic Window (Baffle Type)-NPE
T1-13F-067	MBR	13F	Acoustic Window (Baffle Type)-NPE
T1-13F-068	LIV/DIN	12-13F	Acoustic Balcony (Baffle Type)-KT
T1-13F-069	MBR	12-13F	Acoustic Window (Baffle Type)-NPE
T1-13F-070	BR1	13F	Acoustic Window (Baffle Type)-NPE

Schedule of Noise Mitigation Measures

NSR	Room	Floor	Noise Mitigation Measures
T2-TYP-008	MBR	10-11F	Acoustic Window (Baffle Type)-NPE
T2-TYP-009	BR1	10-11F	Acoustic Window (Baffle Type)-NPE
T2-TYP-010	LIV/DIN	10-11F	Acoustic Balcony (Baffle Type)-KT
T2-TYP-011	MBR	10-11F	Acoustic Window (Baffle Type)-NPE
T2-TYP-012	BR1	10-11F	Acoustic Window (Baffle Type)-NPE
T2-TYP-013	LIV/DIN	10-11F	Acoustic Balcony (Baffle Type)-KT
T2-TYP-014	BR1	11F	Acoustic Window (Baffle Type)-NPE
T2-TYP-015	LIV/DIN	11F	Acoustic Balcony (Baffle Type)-KT
T2-TYP-016	BR1	11F	Acoustic Window (Baffle Type)-NPE
T2-TYP-017	BR1	11F	Acoustic Window (Baffle Type)-NPE
T2-TYP-018	MBR	11F	Acoustic Window (Baffle Type)-NPE
T2-TYP-019	BR1	11F	Acoustic Window (Baffle Type)-NPE
T2-TYP-023	MBR	11F	Acoustic Window (Baffle Type)-NPE
T2-TYP-024	LIV/DIN	11F	Acoustic Balcony (Baffle Type)-KT
T2-TYP-025	BR1	11F	Acoustic Window (Baffle Type)-NPE
T2-TYP-026	LIV/DIN	11F	Acoustic Balcony (Baffle Type)-KT
T2-TYP-027	MBR	11F	Acoustic Window (Baffle Type)-NPE
T2-TYP-029	LIV/DIN	11F	Acoustic Balcony (Baffle Type)-KT
T2-TYP-030	MBR	11F	Acoustic Window (Baffle Type)-NPE
T2-TYP-033	LIV/DIN	11F	Acoustic Balcony (Baffle Type)-KT
T2-TYP-034	BR1	11F	Acoustic Window (Baffle Type)-NPE
T2-TYP-035	LIV/DIN	11F	Acoustic Balcony (Baffle Type)-KT
T2-TYP-036	MBR	10-11F	Acoustic Window (Baffle Type)-NPE
T2-TYP-037	BR1	11F	Acoustic Window (Baffle Type)-NPE
T2-TYP-026	LIV/DIN	11F	Acoustic Balcony (Baffle Type)-KT
T2-TYP-037	BR1	11F	Acoustic Window (Baffle Type)-NPE
T2-12F-008	MBR	12F	Acoustic Window (Baffle Type)-NPE
T2-12F-009	BR1	12F	Acoustic Window (Baffle Type)-NPE
T2-12F-010	LIV/DIN	12F	Acoustic Balcony (Baffle Type)-KT
T2-12F-011	MBR	12F	Acoustic Window (Baffle Type)-NPE
T2-12F-012	BR1	12F	Acoustic Window (Baffle Type)-NPE
T2-12F-013	LIV/DIN	12F	Acoustic Balcony (Baffle Type)-KT
T2-12F-014	BR1	12F	Acoustic Window (Baffle Type)-NPE
T2-12F-015	LIV/DIN	12F	Acoustic Balcony (Baffle Type)-KT
T2-12F-016	BR1	12F	Acoustic Window (Baffle Type)-NPE
T2-12F-017	BR1	12F	Acoustic Window (Baffle Type)-NPE
T2-12F-018	MBR	12F	Acoustic Window (Baffle Type)-NPE
T2-12F-019	BR1	12F	Acoustic Window (Baffle Type)-NPE
T2-12F-020	LIV/DIN	12F	Acoustic Balcony (Baffle Type)-KT
T2-12F-021	MBR	12F	Acoustic Window (Baffle Type)-NPE
T2-12F-022	BR1	12F	Acoustic Window (Baffle Type)-NPE
T2-12F-023	MBR	12F	Acoustic Window (Baffle Type)-NPE
T2-12F-024	LIV/DIN	12F	Acoustic Balcony (Baffle Type)-KT
T2-12F-025	BR1	12F	Acoustic Window (Baffle Type)-NPE
T2-12F-026	LIV/DIN	12F	Acoustic Balcony (Baffle Type)-KT
T2-12F-027	MBR	12F	Acoustic Window (Baffle Type)-NPE
T2-12F-028	MBR	12F	Acoustic Window (Baffle Type)-NPE
T2-12F-029	LIV/DIN	12F	Acoustic Balcony (Baffle Type)-KT
T2-12F-030	MBR	12F	Acoustic Window (Baffle Type)-NPE
T2-12F-033	LIV/DIN	12F	Acoustic Balcony (Baffle Type)-KT
T2-12F-034	BR1	12F	Acoustic Window (Baffle Type)-NPE
T2-12F-035	LIV/DIN	12F	Acoustic Balcony (Baffle Type)-KT
T2-12F-036	MBR	12F	Acoustic Window (Baffle Type)-NPE
T2-12F-037	BR1	12F	Acoustic Window (Baffle Type)-NPE
T2-12F-038	BR1	12F	Acoustic Window (Baffle Type)-NPE
T2-12F-039	MBR	12F	Acoustic Window (Baffle Type)-NPE
T2-12F-049	LIV/DIN	12F	Acoustic Balcony (Baffle Type)-KT
T2-12F-050	MBR	12F	Acoustic Window (Baffle Type)-NPE
T2-12F-051	LIV/DIN	12F	Acoustic Balcony (Baffle Type)-KT
T2-12F-052	BR1	12F	Acoustic Window (Baffle Type)-NPE
T2-12F-053	LIV/DIN	12F	Acoustic Balcony (Baffle Type)-KT
T2-12F-054	MBR	12F	Acoustic Window (Baffle Type)-NPE
T2-12F-055	LIV/DIN	12F	Acoustic Balcony (Baffle Type)-KT
T2-12F-056	MBR	12F	Acoustic Window (Baffle Type)-NPE
T2-12F-057	LIV/DIN	12F	Acoustic Balcony (Baffle Type)-KT
T2-12F-058	LIV/DIN	12F	Acoustic Balcony (Baffle Type)-KT
T2-12F-059	MBR	12F	Acoustic Window (Baffle Type)-NPE
T2-12F-060	MBR	12F	Acoustic Window (Baffle Type)-NPE
T2-12F-061	LIV/DIN	12F	Acoustic Balcony (Baffle Type)-KT
T2-12F-062	BR1	12F	Acoustic Window (Baffle Type)-NPE
T2-12F-063	LIV/DIN	12F	Acoustic Balcony (Baffle Type)-KT
T2-12F-064	MBR	12F	Acoustic Window (Baffle Type)-NPE
T2-12F-065	BR1	12F	Acoustic Window (Baffle Type)-NPE

Appendix 2.5 Self-assessment Form of PN 4/23

**Proposed Residential Development
Self-Assessment Form**

I. General Information

Details of the Applicant (project proponent)⁽¹⁾	
Name: Leverson Limited c/o Sun Hung Kai Real Estate Agency Ltd.	
Address: Room 1135-1137, Sun Hung Kai Centre, 30 Harbour Road, Wan Chai, Hong Kong.	
Name of Contact Person: Vicky Nip	
Telephone:	Fax:
Email:	
Location of the Application Site	
Full address of the application site, include the lot number where appropriate: Tsuen Wan Inland Lot No.5 and Lot No. 429 in D.D. 399, Ting Kau, Tsuen Wan	
Road Traffic Noise Model	
Prepared by: Wong Tak Kwong	
Professional Qualification: HKIQEP	Membership No.: PM0420
Road Traffic Noise Impact Assessment Report (RTNIAR)	
Prepared via Web-NAT Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Checked by: Wong Tak Kwong	
Professional Qualification: HKIQEP	Membership No.: PM0420

(1) All correspondence shall be sent to the Applicant.

II. Scale of Development and Road Traffic Noise Compliance

Scale of Development	
Site Area (ha): 0.6066	Zoning (Current/Proposed): R(B)2
Target Completion Year: 2028	Assessment Year: 2043
Site Plan ⁽¹⁾ (Figure no.): Appendix 1.1	

(1) A suitably scaled site plan (preferably 1:1000) showing the site area, the land uses, the layout of the Development, and the surrounding area shall be provided in the RTNIAR.

II. Scale of Development and Road Traffic Noise Compliance (Cont.)

Road Traffic Noise Compliance (for residential units)	
Total no. of residential units provided: 674	
Max. Predicted Road Traffic Noise Level	
Base Case (dB(A)): 76	Compliance Rate (%): 71
Mitigated Case (dB(A)) ⁽¹⁾ : 70	Compliance Rate (%): 100
Total no. of residential units provided with Acoustic Insulation (if any): 198	
Window Type adopted for the Acoustic Insulation ⁽²⁾⁽³⁾ : Baffle Type	
Road Traffic Noise Compliance (for other noise sensitive uses, e.g., residential care home for the elderly (RCHE), child care centre, kindergarten, other social welfare facilities, etc.)⁽⁴⁾	
Any other noise sensitive uses provided? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If yes, please specify:	
Total no. of units provided ⁽⁵⁾ :	
Max. Predicted Road Traffic Noise Level	
Base Case (dB(A)):	Compliance Rate (%):
Mitigated Case (dB(A)) ⁽¹⁾ :	Compliance Rate (%):
Total no. of units provided with Acoustic Insulation (if any):	
Window Type adopted for the Acoustic Insulation ⁽²⁾⁽³⁾ :	
Any other noise sensitive uses provided? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If yes, please specify:	
Total no. of units provided ⁽⁵⁾ :	
Max. Predicted Road Traffic Noise Level	
Base Case (dB(A)):	Compliance Rate (%):
Mitigated Case (dB(A)) ⁽¹⁾ :	Compliance Rate (%):
Total no. of units provided with Acoustic Insulation (if any):	
Window Type adopted for the Acoustic Insulation ⁽²⁾⁽³⁾ :	
Any other noise sensitive uses provided? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If yes, please specify:	
Total no. of units provided ⁽⁵⁾ :	
Max. Predicted Road Traffic Noise Level	
Base Case (dB(A)):	Compliance Rate (%):
Mitigated Case (dB(A)) ⁽¹⁾ :	Compliance Rate (%):
Total no. of units provided with Acoustic Insulation (if any):	
Window Type adopted for the Acoustic Insulation ⁽²⁾⁽³⁾ :	

(1) The predicted noise level in Mitigated Case refers to the equivalent noise level at 1m from the external façade after accounting all potential reduction in noise levels offered by the proposed mitigation measures, including the Relative Noise Reduction (RNR) of Acoustic Windows/Enhanced Acoustic Balconies, if any.

(2) Please refer to Table 1 of this PN for the Suitable Window Types for Noise Insulation.

(3) If more than one window type is adopted, please indicate (i) the window type used, and (ii) the max. predicted road traffic noise level at the corresponding noise sensitive receivers in this section (e.g., Type I / 73 dB(A); Type II / 81 dB(A)).

(4) Please refer to Appendix 4.1 of Chapter 9 of the Hong Kong Planning Standards and Guidelines (HKPSG) for the list of Noise Sensitive Uses.

(5) Please provide the number of units of noise-sensitive uses in this section - for example, five (5) classrooms for kindergarten, five (5) bedrooms for RCHE.

III. Noise Mitigation Design(s)/Measure(s) incorporated into the Design of the Development

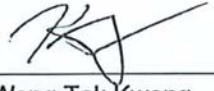
<i>Noise Mitigation Designs/Measures⁽¹⁾⁽²⁾⁽³⁾</i>		
Setback of Buildings	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Section: Figure:
Building Orientation	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Section: Figure:
Screening by Noise Tolerant Buildings	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Section: Figure:
Extended Podium	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Section: Figure:
Decking Over	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Section: Figure:
Acoustic Window (Baffle Type) ⁽⁴⁾	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Section: 2.7 Figure: 2.2 Total No.: 349 Window Configuration ⁽⁵⁾ : TL: NA STC: NA
Acoustic Window (Baffle Type) with Architectural Fin ⁽⁴⁾	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Section: Figure: Total No.: Window Configuration ⁽⁵⁾ : TL: STC:
Acoustic Window (Top Hung Type) ⁽⁴⁾	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Section: Figure: Total No.: Window Configuration ⁽⁵⁾ : TL: STC:
Enhanced Acoustic Balcony ⁽⁴⁾	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Section: 2.7 Figure: 2.2 Total No.: 194 Window Configuration ⁽⁵⁾ : TL: NA STC: NA
Barrier (e.g. Canopy, Vertical Barrier)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Section: Figure:
Architectural Feature (e.g. Architectural Fin ⁽⁶⁾ , Acoustic Balcony, End Wall)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Section: Figure:
Treatment of Sources (e.g. LNRS, Road-side Barrier)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Section: Figure:
Provision of Sound Absorptive Material at Re-Entrant or Semi-confined Location(s) ⁽⁷⁾	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A <input type="checkbox"/>	Section: Figure:

III. Noise Mitigation Design(s)/Measure(s) incorporated into the Design of the Development (Cont.)


<i>Noise Mitigation Designs/Measures⁽¹⁾⁽²⁾⁽³⁾</i>		
Window Features (e.g. Fixed Glazing, Maintenance Window/Door (not for ventilation purpose), etc.)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>	Section: 2.7 Figure: 2.2 Max. Predicted Road Traffic Noise Level: 76 Total No.: NA Window Configuration ⁽⁵⁾ : TL: NA STC: NA
Others Please specify: Acoustic Window (Baffle Type) with SAM	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>	Section: 2.7 Figure: 2.2

- (1) Suitably scaled layout plan(s) of the Development showing all of the proposed noise mitigation measure(s) shall be provided in the RTNIAR.
- (2) Details on the design and application of the proposed noise mitigation measures shall be clearly shown in suitably scaled drawing(s) and be documented in the main text of the RTNIAR, respectively.
- (3) For application that cannot achieve 100% compliance in the road traffic noise standard, specific reason(s) for not adopting certain mitigation measures shall be substantiated and documented in the RTNIAR.
- (4) The design and application of the Acoustic Window and/or Enhanced Acoustic Balcony including their combined use with architectural fin shall follow the guidelines given in the *Practice Note on Application of INNOVATIVE NOISE MITIGATION DESIGNS in Planning Private Residential Developments against Road Traffic Noise Impact*.
- (5) Please provide the Transmission Loss (TL) in 250 Hz and Sound Transmission Class (STC) of the Window Pane used.
- (6) Attention should be given to the potential degradation caused by the reflection of noise, and sound absorptive material(s) should be fitted on the architectural fin at the side facing the ventilation opening(s) of the noise sensitive receiver(s) to minimize the impact unless there are justifications (e.g., other suitable mitigation measures) to prove otherwise.
- (7) Attention should be given to the potential degradation caused by the multiple reflections/reverberation of noise at re-entrant/semi-confined location(s), and sound absorptive materials should be fitted on the external façades to minimize the impact unless there are justifications (e.g., other suitable mitigation measures) to prove otherwise.


IV. Noise Modelling Professional Certification

<i>Certification by Certified Noise Modelling Professional</i>	
I hereby attest that the Road Traffic Noise Model (RTNM) of the Road Traffic Noise Impact Assessment Report (RTNIAR) named as " Section 16 Planning Application for Submission of Layout Plan for Permitted 'Flat' and 'Social Welfare Facility' Uses at Tsuen Wan Inland Lot 5 and Lot No. 429 in D.D. 399, Ting Kau, Tsuen Wan (dated 16 Sep 2024)" submitted, in connection with this form, complies with the technical requisites to produce reliable results for road traffic noise assessment.	
<u>Signed by Certified Noise Modelling Professional</u>	
	Date: 09/16/2024
Name: Wong Tak Kwong	
Company: Ramboll	
Position: Principal Consultant	
Professional Qualification: HKIQEP	Membership No.:

V. Independent Environmental Professional Certification

<i>Certification by Independent Environmental Professional</i>	
I hereby attest that the information provided in this self-assessment form including the layout plan(s) and the assessment results of the RTNIAR are true and accurate.	
<u>Signed by Independent Environmental Professional</u>	
	Date: 09/16/2024
Name: Cheng Chi Ming	
Company: Ramboll	
Position: Senior Manager	
Professional Qualification: MHKIQEP	Membership No.:

VI. Self-Attestation and Undertaking for implementation of Noise Mitigation Design(s)/Measure(s)

<i>Undertaking by the Applicant (project proponent)</i>	
I hereby undertake the following for implementing the Noise Mitigation Measures as shown in the RTNIAR.	
<ol style="list-style-type: none"> All the noise mitigation measures as shown in the RTNIAR shall be incorporated into the general building plans of the Development for the approval by the Building Authority. To appoint an independent Authorized Person ("iAP")¹ to certify and inform the Director of Environmental Protection that all noise mitigation measures identified in the RTNIAR are duly implemented before the completion of the development ("Completion"). To be responsible for implementation and modification/rectification of all deviation from the noise mitigation measures identified in the RTNIAR before Completion, and be responsible for all associated costs. To agree that Environmental Protection Department ("EPD") could disclose the content of the RTNIAR and this undertaking to any person when required. All the noise mitigation measures proposed in the RTNIAR shall be designated as Noise Mitigation Measures ("NMM") in the Deed of Mutual Covenant ("DMC") with details and the locations clearly indicated. Such DMC should contain binding and enforceable conditions for the control, operation, financial support and maintenance for such measures. In case of changes to the building plans that would affect the noise performance of the development or the noise mitigation measures as shown in the RTNIAR, we will seek prior agreement from the EPD and propose alternative measures with equivalent noise mitigation performance. The iAP will then check and certify the implementation of these measures accordingly before Completion. To allow access for the EPD to conduct on-site inspection / noise measurement before the full occupation of the development. 	
Signed by Applicant	for and on behalf of LEVERSON LIMITED
	Date:
on behalf of	Authorized Signature(s)

¹ The project proponent is recommended to appoint the iAP from a different organization/company than the project's AP to minimize conflicts of interest.